

**APPENDIX A**  
**USFWS CONSULTATION**





FEMA

July 13, 2010

Michael Cotter  
U.S. Fish and Wildlife Service  
Nevada Fish and Wildlife Office  
1340 Financial Blvd., Suite 234  
Reno, NV 89502

Re: Protect Lawton Interceptor at Truckee River Oxbow  
FEMA-1629-DR-NV, HMGP 1629-4-4  
Subgrantee: City of Reno

Dear Mr. Cotter:

The Department of Homeland Security's Federal Emergency Management Agency (FEMA) proposes to provide Federal financial assistance (Federal action), under the Public Assistance program, to the City of Reno (Subgrantee), through the Nevada Division of Emergency Management (NDEM), to fund a bank stabilization and refusal trench project in Reno, Washoe County, Nevada. Past flooding has caused the Truckee River to inundate as much as 80 feet north from its typical wetted channel location during two flood events (the 1997 and 2005–2006 flood events). As a result, there is a high risk for continued migration of the river and subsequent bank erosion, which could compromise the sanitary sewer infrastructure approximately 200 feet from the current river edge. The Subgrantee plans to stabilize 150 feet of river bank to protect the Lawton interceptor. This would involve installation of rootwads and ballast rocks as well as revegetation of the bank. A refusal trench (a buried rock trench) would also be installed to armor approximately 100 feet of the Lawton interceptor.

FEMA has prepared this submittal to evaluate potential effects of the proposed project on species that are listed or proposed for listing as threatened or endangered under the Endangered Species Act (ESA) that are regulated by the United States Fish and Wildlife Service (USFWS). Potential effects on federally listed species are evaluated in accordance with the legal requirements set forth under Section 7 of the ESA (16 U.S.C. 1536). No species under National Marine Fisheries Service's (NMFS) jurisdiction have the potential to occur in the project area. Therefore, FEMA will not be consulting separately with NMFS.

As part of this review, FEMA obtained a list of species that are listed as endangered, threatened, and proposed for listing as endangered or threatened under the ESA that may occur in the project area from the following sources:

- A USFWS species list for Washoe County, Nevada.
- An official species list obtained from the Nevada Fish and Wildlife Reno Office.

Mr. Michael Cotter  
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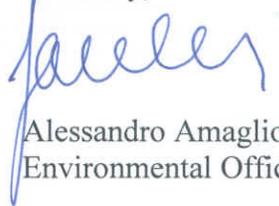
Three federally listed fish, one invertebrate and one plant species were identified by these sources as having potential to occur in the vicinity of the project area that are regulated by USFWS under the ESA. FEMA's consultant, URS Corporation Inc., conducted two site reconnaissance surveys of the project area on December 1, 2008 and April 8, 2010. General habitat characteristics of the project area were evaluated during the reconnaissance survey. Qualitative assessments of habitat were used to determine which of the identified species, are likely to occur in the project area. FEMA's consultant also reviewed available literature to identify the habitat requirements and distribution of these species.

This letter represents FEMA's request for formal consultation with the USFWS under Section 7 of the ESA for the proposed project. Accordingly, FEMA is submitting the enclosed Biological Assessment for your review of the proposed project. As a result of the field survey and background review, FEMA has determined that the project area provides habitat suitable to support one federally listed species regulated by the USFWS under the ESA: the Lahontan cutthroat trout (*Oncorhynchus clarkii henshawi*).

The proposed project is likely to adversely affect the Lahontan cutthroat trout during project implementation due to the high likelihood for them to occur within the project area. However, the proposed project would incorporate avoidance and minimization measures to reduce and/or eliminate potential adverse effects to this species. In addition, these effects would be temporary and the proposed project would result in long-term benefits for the species through habitat improvements. The proposed project would have no effect on designated critical habitat for LCT because critical habitat has not been designated for this species.

If you should require any additional information about the proposed project or FEMA's request, please do not hesitate to contact me at (510) 627-7027 or [fema-rix-ehp-documents@dhs.gov](mailto:fema-rix-ehp-documents@dhs.gov). FEMA anticipates an answer from the USFWS within 30 days of this submittal. Thank you in advance for your assistance.

Sincerely,



Alessandro Amaglio  
Environmental Officer

Enclosure

cc: Elizabeth Ashby, NDEM  
Karen Johnson, NDEM  
Glen Daily, City of Reno



# United States Department of the Interior



## FISH AND WILDLIFE SERVICE

Nevada Fish and Wildlife Office

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September 22, 2010  
File No. 2010-F-0403

Alessandro Amaglio  
Environmental Officer  
Department of Homeland Security  
Federal Emergency Management Agency  
1111 Broadway, Suite 1200  
Oakland, California 94607-4052

Dear Mr. Amaglio:

Subject: Biological Opinion for Issuance of a Department of the Army Permit for the City of Reno's Protect Lawton Interceptor at Truckee River Oxbow Project, Washoe County, Nevada

This document transmits the U.S. Fish and Wildlife Service's (Service) Biological Opinion (BO) for the City of Reno's (Applicant) proposed Lawton Interceptor at Truckee River Oxbow Project (Project) in Washoe County, Nevada, and its effects to threatened Lahontan cutthroat trout (LCT; *Oncorhynchus clarkii henshawi*) in accordance with section 7 of the Endangered Species Act of 1973 (ESA), as amended (16 U.S.C. 1531 *et seq.*). The Department of Homeland Security-Federal Emergency Management Agency's (FEMA) written request for consultation was dated July 13, 2010, and received by the Service on July 15, 2010. Although FEMA is designated as the lead Federal action agency for this project and providing funding, the Army Corp of Engineers (ACOE) is issuing a permit under the Clean Water Act (CWA); therefore, this BO also covers the ACOE. No other federally-listed or proposed species and/or designated or proposed critical habitat occur in the action area or would be affected by the project.

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Our BO is based on the Applicant's July 13, Biological Assessment (BA; URS Group, Inc. 2010) provided pursuant to the ACOE permit. Additional information was obtained via meetings, e-mails, and telephone conversations with the Applicant and their representatives, ACOE, Nevada Department of Wildlife (NDOW), published literature, unpublished reports, the LCT Recovery Plan (Service 1995), LCT 5-Year Review (Service 2009) and LCT Short-Term Action Plan for the Truckee River (Truckee River Basin Recovery Implementation Team 2003). For relevant sections of this BO, the Service summarized information from the BA. Additional details can be obtained from the referenced sections of the BA identified herein. A complete record of this consultation is on file at the Service's Nevada Fish and Wildlife Office (NFWO).

### **Consultation History**

In response to a request for a species list from FEMA on December 12, 2008, the Service provided a species list (File No. 2009-SL-088) on December 31 indicating that LCT may occur in the project area. Final engineering designs had not been developed at this point, but it was expected that the project would be completed during the 2009 construction period. However, due to concerns from NDOW, the project was delayed while the design was modified to incorporate bioengineering methods were developed (M. Maples, NDOW, pers. comm. 2010).

The proposed project requires a CWA Section 404 Permit from the ACOE for the placement of dredge or fill material into the Truckee River, a water of the United States. The FEMA has formally designated the City of Reno as their non-Federal representative for this project and through the CWA Section 404 permitting process. As such, the Applicant is responsible for obtaining the CWA permit. In a letter dated July 13, 2010, the FEMA requested section 7 consultation based on their determination of "may affect, likely to adversely affect" for LCT.

## **BIOLOGICAL OPINION**

### **DESCRIPTION OF THE PROPOSED ACTION**

#### **Project Purpose and Need**

The project area is located along the north bank of the Truckee River in the Oxbow Nature Study Area, located in Reno, Washoe County, Nevada. The land within the project area is owned by the City of Reno and managed by the NDOW (See Figure 1 in the BA). Previous high water events such as the 1997 and 2005-2006 floods have caused the Truckee River to shift its channel as much as 80 feet north from its typical wetted channel location and inundate uplands on the north bank. As a result of this channel movement, there is an elevated risk for continued bank erosion and migration of the river. The Lawton Interceptor sanitary sewer infrastructure lies approximately 200 feet from the current wetted bank of the Truckee River. The sewer interceptor has no shutoff valve and any rupture to the line would result in uncontrolled sewage discharge into the river. Therefore, the Applicant proposes to stabilize approximately 150 feet of

river bank to protect the sewer interceptor. The project would include bank stabilization, riparian revegetation, and the installation of a refusal trench to armor the sewer interceptor line. Construction will begin in September 2010 and will be completed on or before October 31, 2010. The work period is anticipated to be no more than 45 days.

### **Staging**

Staging areas for construction will be outside of the Ordinary High Water Mark on existing disturbed lands to the north and east of the river encroachment zone. Material storage, stockpiling, equipment staging, vehicle fueling, concrete washout and other related construction activities will be limited to the staging areas located in the Oxbow Nature Study Area asphalt parking lot, as illustrated in Figure 2 of the BA

### **River Diversion**

A 165-foot long by 40-foot wide section of the channel will be dewatered to create a dry construction area in the river encroachment zone. The river channel is approximately 80 feet wide at this site, and will be directed into the southern channel area. This section of the channel will absorb the river's total flow volume during dewatering. To capture or divert flows, K-rail coffer dams will be erected on top of a sand bag leveling base. An impervious liner will be placed on the upstream side of the K-rails and rolled out on the river bottom. The project area will then be fully dewatered using submersible pumps and any leaks in the diversion structure will be addressed. A secondary containment basin made of barrier rail will be located behind the upstream diversion to contain any water seepage.

To reduce turbidity releases to the river due to construction, seepage flows (*i.e.*, from groundwater infiltration and coffer dam leakage) will be pumped to sedimentation basins which will flow out and filter through the adjacent wetland. The sedimentation basins will be constructed using K-rails, sand bag baffle walls, and straw bale sediment filters. A silt fence, composed of high-strength woven geotextile fabric, shall be installed immediately downstream of the work area and will encompass all the flow below the Project area. Additional details on the preliminary de-watering plan are provided in Figure 1 in the BA's Appendix C.

### **In-Channel Construction Methods**

The bank excavation within the river encroachment zone will be accomplished with a tracked hydraulic excavator and medium loader dump trucks. Heavy equipment access to the river will be limited to the north side of the construction zone. The contractor will be required to clean all imported rock and gravel, if needed, to be used in the river prior to placement such that it is free of particulate matter. To the maximum extent possible, natural materials will be re-used as part of restoring the site. Once the stabilization has been completed, the project area will be washed prior to river flows being returned.

**Design Features**

Stabilization of the north bank would start with bank excavation, followed by burying approximately forty 24-30 inch diameter boulders to secure and anchor the tree and attached rootwads. Rootwads would be anchored to the buried boulders with stainless steel aviation cable. Tree trunks would be embedded in the river bank and oriented downstream with a shallow angle to minimize erosion effects. Each tree would be approximately 20-25 feet long, a minimum of 18 inches in diameter, and have a rootwad approximately 6 feet wide. If at all possible, rootwads would be obtained from local sources. If no local supply is available, the Applicant would comply with a local ordinance that requires all trees transported into the City of Reno be inspected for disease.

Dewatering and excavation for the bank stabilization would occur along 165 feet of the north bank of the Truckee River. A 6,600 square foot (0.15 acre) area of the north river channel will be dewatered. The water pumped from the dewatering zone will be filtered through sedimentation basins located on the north bank, and subsequently pumped into an 83,330 square foot (1.91 acre) existing wetland for further filtration prior to its return to the river. Willow plantings will occur on the north bank after completion of stabilization activities, at a depth at which the roots would be in contact with the water table.

Armoring of the 30-inch diameter Lawton Interceptor sanitary sewer line would begin with the construction of a refusal trench. The trench would run adjacent to the sewer line for approximately 100 feet. The trench would be offset from the existing sewer line by 10 to 25 feet. This variation in refusal trench location is due to the lack of current information on the exact location of the sewer trench as it sits today. The trench will be armored with rip-rap and installed in the asphalt parking lot of the Oxbow Nature Study Area.

For the purpose of this BO, the combined area of the north bank stabilization, the refusal trench, wetland filtration area and the dewatering zone is the "project footprint." In total, the project footprint is 117,612 square feet, or 2.70 acres.

**Avoidance Measures**

The Applicant will implement Best Management Practices (BMPs) in accordance with the *Truckee Meadows Construction Site Best Management Practice Handbook* (Kennedy Jenks 2003) and the Nevada Division of Environmental Protection's (NDEP) Temporary Working in Waterways Permit (TNEV-2011303) and CWA section 401 Water Quality Certification. Among other things, BMPs will address: (1) erosion and sediment control; (2) de-watering and water quality treatment; (3) solid and demolition waste management; (4) spill prevention and control; (5) cleaning of imported rock and gravels; (6) noxious weed management; (7) vehicle and equipment cleaning/maintenance; and (8) construction site entrances and exits

The use of heavy equipment could lead to accidental release of chemical contaminants to the river primarily from petroleum products. The Applicant will minimize this risk by; (1) steam cleaning all vehicles prior to entering construction zone; (2) all equipment working within the river channel and riparian area will be visually inspected daily (3) fueling and maintenance sites will be placed at a minimum of 100 feet from the river channel; and (4) all equipment working in the river will use vegetable-based hydraulic oil. In the event of a spill, it will be immediately isolated and contained in accordance with standard spill prevention procedures. Additional details on typical BMPs are provided in Appendix C of the BA.

### **Restoration**

All disturbed areas caused by the installation of rootwads and bank stability measures will be revegetated. Revegetation with mature trees has been requested of the Applicant by NDOW (M. Setty, JBR, pers. comm. 2010). The majority of these plantings will consist of Fremont cottonwood (*Populus fremontii*) at least 12 feet tall with a minimum of 2 to 3 inches in diameter. Other species included in the revegetation plan include: Western choke cherry (*Prunus virginiana*), Pacific willow (*Salix lasiandra*), Scouler's willow (*Salix sconleriana*), buffalo berry (*Sheperdia rotundifolia*), golden currant (*Ribes aurem*), and a broadcast riparian seed mix. Additional specifications on revegetation will be coordinated between the Nevada Department of Wildlife (NDOW) and the Applicant.

Most of the disturbed portion of the river channel will be restored to its original form and composition. Any disturbed segments of river bed will be re-created using salvaged materials with the exception of an area targeted by NDOW for enhancing salmonid habitat. Additional details on the restoration plan are shown in Addendum 1 of the Applicants's Streambank and Infrastructure Restoration Monitoring Plan (JBR 2010).

### **Fish Salvage**

The capture and relocation of fish from within dewatered areas will be conducted by the Applicant (in accordance with a NDOW fish collection permit). Capture methods may include the use of electrofishing equipment and dip nets as described in the Oxbow Fish Salvage and Relocation Plan (JBR 2010). Fish salvage operations shall be timed to occur during the coolest part of the day (*i.e.*, early morning), and fish shall be returned to the river downstream of the project area with minimal handling. Fish salvage will target all species and life stages that can be safely captured and handled; in most cases, this will include fingerling- and adult-sized fish. The Applicant will coordinate river dewatering with NDOW and the Service prior to implementing fish salvage.

### **STATUS OF THE SPECIES**

Lahontan cutthroat trout were listed by the Service on October 13, 1970, as endangered and subsequently reclassified as threatened on July 16, 1975, under the ESA, to facilitate management and allow regulated angling (40 *FR* 29864). There is no designated critical habitat

for LCT (Service 1995). The LCT is an inland subspecies of cutthroat trout endemic to the Lahontan Basin of northern Nevada, eastern California and southern Oregon (Behnke 1992).

Cutthroat trout have the most extensive range of any inland trout species of western North America and occur in anadromous, non-anadromous, fluvial, and lacustrine populations (Behnke 1979). Differentiation of the species into 14 recognized subspecies occurred during subsequent general desiccation and isolation of the Great Basin and Inter-mountain Regions since the end of the Pleistocene, and indicates presence of cutthroat trout in most of their historical range prior to the last major Pleistocene glacial advance (Loudenslager and Gall 1980).

Relevant information on the status of the species, habitat requirements, life history traits, population dynamics, distribution, and management can be found in the LCT recovery plan (Service 1995), LCT 5-Year Review (Service 2009) and the LCT Short-Term Action Plan for the Truckee River Basin (Truckee River Basin Recovery Implementation Team 2003).

## **ENVIRONMENTAL BASELINE**

Regulations implementing the ESA (50 CFR §402.02) define the environmental baseline as the past and present impacts of all Federal, State, or private actions and other human activities in the action area. Also included in the environmental baseline are the anticipated impacts of all proposed Federal projects in the action area which have already undergone section 7 consultation, and the impacts of State and private actions which are contemporaneous with the consultation in progress. Such actions include, but are not limited to, diversions and other land management activities. The environmental baseline is a snapshot of a species' health (status and habitat) at a specified point in time. It does not include the effects of the action under review in this consultation.

### **Action Area**

The action area is defined as all areas to be affected directly or indirectly by the proposed Federal action and not merely in the immediate area involved in the action (50 CFR §402.02). The action area for this BO includes the project footprint and the lands immediately adjacent to the north, extending to and under the Truckee River. However, we expect most direct and indirect effects to occur within an approximately 1-mile reach of the river adjacent to and downstream of the bank stabilization and revegetation area. The area includes approximately 0.15 acre of waters of the U.S. within the river encroachment zone that will be directly affected during construction (*i.e.*, direct disturbance within the Ordinary High Water Mark). The action area is where the project will directly and indirectly affect LCT in response to in-stream disturbance during and after construction.

The action area also includes upland and riparian areas affected by construction, staging, worksite access, and noise components of the proposed project. The bottom of the river channel is owned by Nevada Division of State Lands, which will issue an easement to the Applicant for

the proposed action. Affected upland areas are under ownership or managed by private individuals, Washoe County, NDOW, and the City of Reno. The Applicant intends to obtain permission from all affected landowners prior to pipeline construction.

Currently, native vegetation along the river bank includes Fremont cottonwood (*Populus fremontii*), coyote willow (*Salix exigua*), black willow (*S. nigra*), choke cherry (*Prunus virginiana*), wild rose (*Rosa woodsii*), and Great Basin wild rye (*Leymus cinereus*). Non-native vegetation in the project area include Chinese elm (*Ulmus parvifolia*) and Russian olive (*Elaeagnus angustifolia*). Additional details on existing conditions are provided in the BA's Section 2.0 Vegetation Communities and Habitat Types.

The following section analyzes the current condition of LCT in the action area, the factors responsible for that condition, and the intended role of the action area in the conservation of LCT in the Truckee River Basin. Characterizing the environmental baseline for a mobile species like LCT requires a multi-scale analysis that evaluates the condition of all areas used by the affected population. The population of LCT found in the action area has the potential for inhabiting a much broader area within the Truckee River throughout the course of its life cycle.

#### **Status of the Species in the Action Area**

There is little information on the status of the LCT population or habitat within the action area (see the BA, Section 4.1 *Lahontan Cutthroat Trout*). However, LCT stocking occurs upstream and downstream of this area; therefore, LCT are assumed to be present. Moreover, the Service believes the action area is used by LCT, at least seasonally, for foraging and migration, and possibly, spawning and rearing. Additional information on LCT stocking activities and fish population survey results, as conducted by NDOW, in nearby areas are provided in annual job progress reports (NDOW 2001 to 2009).

#### **Factors Affecting the Species in the Action Area**

Lahontan cutthroat trout occupy a wide range of habitat types and conditions. Factors that have and continue to influence the status of the species in the action area (positively or negatively) include: 1) hybridization, predation, and competition with introduced species; 2) diversion entrapment and blockage of migrations and genetic isolation due to diversion dams and other impassable structures; 3) degradation of habitat due to urban demands; 4) low flows and associated degradation of water quality; and 5) LCT stocking. Additional details on these factors can be found in the LCT Recovery Plan (Service 1995), LCT 5-Year Review (Service 2009) and the LCT Short-Term Action Plan for the Truckee River Basin (Truckee River Basin Recovery Implementation Team 2003).

## **EFFECTS OF THE PROPOSED ACTION**

Service regulations for implementing the ESA (50 CFR §402.02) define “effects of the action” as the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated or interdependent with that action, that will be added to the environmental baseline. The environmental baseline includes the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of State or private actions which are contemporaneous with the consultation in process. Direct effects are the immediate effects of the action and are not dependent on the occurrence of any additional intervening actions for the impacts to species or critical habitat to occur. Indirect effects are those for which the proposed action is an essential cause, and that are later in time, but still are reasonably certain to occur.

The Service considers proximity, distribution, timing (duration, frequency), type, intensity, and severity of effects in order to evaluate the degree of effect resulting from project implementation. The Service typically expresses degree of effect in terms of impacts to individual fish and fish populations and changes of habitat from their baseline condition. In determining effects to LCT, the Service also considered the current LCT use of the action area and the likelihood of individuals to be present during periods of disturbance. This is an area where LCT spawning activity has not been demonstrated; however, based on our knowledge of the site, there is suitable habitat for spawning. However, the area may be used as a migration corridor or as rearing habitat for mobile or resident life stages, respectively.

Direct and indirect effects to LCT as a result of project construction are summarized below, and are described in greater detail in the BA’s Section 4.1 *Potential Effects on the Lahontan Cutthroat Trout*.

### **Direct Effects**

The proposed project may have direct effects to LCT during construction within the action area. The Service anticipates that most of these effects will be within the river encroachment zone and the channel immediately downstream. Effects may include sedimentation and turbidity, displacement, and entrapment. Other potential direct effects may also involve contaminants if not properly contained. These factors are anticipated to be of short duration (45 days or less) and may not be detectable based on the implementation of effective preventive or counter measures; otherwise, effects may result in direct mortality, stress, injury, behavioral avoidance, and temporary loss of habitat.

If present in the action area, the potential for adverse direct effects to LCT will be greatest amongst individuals of early life stages (*i.e.*, fry) as they are particularly vulnerable due to limited mobility. Juvenile and adult resident or migratory LCT may be less affected as they would actively seek habitat without disturbance outside the action area, most likely upstream.

Due to the timing of construction, there will be no effects to the LCT spawning run which occurs in the spring (*i.e.*, February to June). The bank stabilization portion of the proposal will involve riparian vegetation removal from the north bank. This will cause a temporary loss of overhead cover, and bank stability until re-vegetation is complete.

**Sedimentation/Turbidity:** Primarily within the river encroachment zone, silt and sand in the existing channel will be mobilized during dewatering, grading, excavation, backfilling, and re-watering associated with the temporary river diversion, construction, and revegetation. In addition, there will be temporary effects to the river banks involving project access, temporary hydraulic barriers, re-contouring of the banks, importation/exportation of material, and re-vegetation.

The introduction or mobilization of sediment and resulting increases in turbidity, usually measured as nephelometric turbidity units (NTUs), can have multiple effects on stream channel condition and processes as well as aquatic biota, especially fish (Table 1). Sediment can degrade fish spawning and rearing habitats by simplifying and damaging habitat structure and complexity, reducing the area of suitable habitat, decreasing connectivity between habitats, and diminishing water quality (Bash *et al.* 2001). The biological implications of this habitat damage include avoidance and underutilization of stream habitat, abandonment of traditional spawning habitat, displacement of fish from their habitat (Newcombe and Jensen 1996), decreased survival of fish, and changes in food web dynamics. The deposition of fine sediments in food-producing riffles may also reduce the abundance and availability of aquatic insects on which juvenile and adult LCT feed and result in the loss of cover for juvenile salmonids (Bjornn and Reiser 1991). Fine sediments fill interstitial spaces between gravel and cobble substrates which may force juvenile salmonids to abandon these areas and use cover that is more susceptible to ice scour, predation, and decreased food availability. The severity of detrimental effects on fish is linked to frequency and duration of exposures.

**Table 1. Summary of adverse effects to fish resulting from elevated sediment levels.**

<b>Impact Type</b>	<b>Description</b>
Gill trauma	Clogs gills which impedes circulation of water over the gills and interferes with respiration.
Prey base	Disrupts both habitat for and reproductive success of macroinvertebrates and other salmonids (LCT prey) that spawn and rear downstream of the construction activities.
Feeding efficiency	Reduces visibility and impacts feeding rates and prey selection.
Habitat	Fills pools, simplifies and reduces suitable habitat.
Physiological	Increases stress, resulting in decreased immunological competence, growth and reproductive success.
Behavioral	Results in avoidance and abandonment of preferred habitat.

The Service anticipates several pulses of sediment appreciably above background levels over the course of the construction period associated with the temporary river diversion during construction and re-watering of the affected reach. The duration and severity of these pulses will vary depending on how long it takes to complete various components of the construction, the extent of disruption to the channel and banks, and effectiveness of the BMPs. It is expected that some project-generated suspended sediments may be transported downstream of the project footprint, but will largely be contained within the action area. Sediments that contribute to embeddedness (*i.e.*, the degree to which fine sediments surround coarse substrates) are likely to be short-lived until freshets redistribute these fines further downstream.

**Displacement:** During in-channel construction activities, fish, benthic macroinvertebrates (*i.e.*, organisms that live in the river substrate upon which LCT prey), and other aquatic biota will be displaced from approximately 0.15 acre of existing habitat that will be de-watered. If any LCT are found within the construction area, disturbance will likely force these fish to areas that may be less favorable. However, this effect will be temporary. Fish will be able to return to these areas immediately upon re-watering.

**Entrapment:** Prior to de-watering, in-channel work will involve the placement of temporary diversion structures (*e.g.*, K-rails). Construction activities could result in entrapped fish that are injured or killed from heavy equipment or structure placement. Like other salmonids, LCT orient to the substrate, making them susceptible to being trapped or crushed when they hide in interstitial spaces. This may result in direct injury or death of any juvenile or adult LCT present at the time of the work.

De-watering areas of the river channel may lead to fish and benthic macroinvertebrates becoming isolated or stranded where they may be more vulnerable to predation, poor water quality, and desiccation. To minimize effects to fish, the Applicant will be responsible for conducting fish salvage using qualified personnel; however, most trapped macroinvertebrates are expected to die. Although some injuries and mortalities to fish are expected as a part of this, it is less harmful to salvage fish (primarily adults) that would otherwise die. The use of electrofishing to aid in salvage is anticipated to expedite fish salvage and minimize losses due to increased exposure to reduced water quality and quantity in de-watered reaches. Detrimental effects of electrofishing to fish will be reduced with implementation by qualified personnel and appropriate methods.

To minimize this effect, the Applicant will ramp down water levels such that escapement is promoted. Any remaining fish will be stranded in residual pools. If any LCT are found, these will be salvaged using active fish capture methods (*e.g.*, electrofishing, dipnets). Fish that are captured and handled during salvage activities will experience stress, injuries, and potential mortalities. In addition, fish will experience disruption from their normal behavior and habitat use during and after relocation. Benthic macroinvertebrates in affected areas would be lost, but will quickly recolonize suitable substrates from upstream source populations once flows are restored.

**Riparian Habitat:** The bank stabilization would require the excavation of 9,900 square feet (0.23 acre) of bank and riparian habitat. This would require the removal of bank materials and vegetation that provides stability, cover and shade for LCT. With effective implementation of BMPs, the Service expects there to be little effect on LCT associated with additional disturbance of the upland areas. Additional temporary impacts would also be incurred from the grading of slopes, and the temporary loss of existing riverine shade.

**Riverine Habitat:** In-channel construction could temporarily alter instream fish habitat and impair productivity of benthic habitat, but will be limited to the affected area (*i.e.*, the de-watered zone). This effect will be minimized with efforts to stockpile and reuse native riverbed substrates and reconfigure preconstruction channel contours. In addition, the Applicant will be utilizing a combination of rip-rap and bioengineering (rootwads) methods to stabilize the north bank. The bioengineering would aid in slowing flow movement, and enhance as well as increase the diversity of current aquatic habitat conditions.

**Contaminants:** Chemical contamination from the proposed action could result from an accidental release, primarily associated with petroleum products used by heavy equipment (*e.g.*, diesel fuel). If any LCT are within or downstream of the action area, they may be exposed to degraded water quality as a result of such an incident. However, this effect will be unlikely with the implementation of effective BMPs and through applicable water quality permits and certifications. If a spill does occur, it will be quickly isolated and contained as a contingency measure. In addition, the Applicant will be required to perform daily inspections of major equipment for accumulated greases and oils.

If, during the course of construction, evidence of soil/groundwater contamination with any hazardous materials is observed by an inspector of the contractor, the Applicant will immediately stop work in the area and pursue appropriate containment measures. There will also be concrete wash stations located at staging areas located in the Oxbow Nature Area parking lots. Consequently, the Service expects that the risk of adverse effects to LCT or their habitat from chemical contamination is minimal. For a more detailed description of BMPs, see Appendix C; Section 7.0 *Best Management Practices* of the BA.

### **Indirect Effects**

Indirect effects to LCT within the action area are also anticipated over the next 5 to 10 years and may include bank erosion (leading to increased sedimentation and turbidity), temporary increase in water temperature due to bank vegetation material, and diminished riparian functions prior to maturation of planted riparian vegetation.

**Bank Erosion:** Indirect effects to LCT associated with bank erosion are possible within the project footprint, which may contribute to sedimentation of the river (see Sedimentation/Turbidity section above for a discussion of effects to LCT). The primary mechanisms would be through surface runoff and river discharges above the ordinary high water mark along the machinery access route (See Figure 2 of the BA). It is estimated this will occur

along approximately 300 feet of the river. However, site rehabilitation and re-vegetation will be implemented immediately after construction has been completed. Re-planting within the action area will accelerate stabilization of the banks, minimizing the duration of the effects of the project on stream bank condition. It is anticipated that final reclamation will be reached 5 to 10 years after construction is completed, once new vegetation is established.

Although the south side of the river will temporarily convey all the river flow during in-channel construction, it is during a period when flows are low and the channel is sufficiently large to convey this flow. The effects to water surface elevations and velocities for the affected portion of the river was modeled using the ACOE's Hydrologic Engineering Center River Analysis System. At flows of 317 cfs (*i.e.*, low flow), the water surface elevation and water velocities in the southern end of the channel would not increase to a detrimental level (M. Setty, JBR, pers. comm., 2010, Nichols Consulting 2010). Therefore, bank erosion is not anticipated to contribute excessive sediments to the river after this time period. As a result, bank erosion along the south bank due to scour are expected to be minimal.

**Riparian Functions:** The temporary loss of riparian habitat would affect aquatic habitat functions associated with bank stabilization, filtration, large woody debris, and allochthonous materials (*i.e.*, a source of carbon from outside the river such as leaves). Shading to the river would also be temporarily lost. It is anticipated that these functions would be minimally affected within the action area until final reclamation is reached (5 to 10 years).

## CUMULATIVE EFFECTS

Cumulative effects means those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the particular Federal action subject to consultation. Cumulative effects do not include future Federal activities that are physically located within the action area of the particular Federal action under consultation. Future Federal actions include the ACOE's proposed Truckee Meadows Flood Control Project. A number of other ongoing or reasonably foreseeable future activities on private land within the action area will continue to affect LCT habitat, but the extent of that impact is unknown at this time. Activities on private lands, as described below, could also exacerbate the potential adverse effects of activities occurring on public lands and cause further degradation and fragmentation of LCT habitat.

**Development:** As the human population in the Reno/Sparks urban area continues to expand, residential growth and demand for dispersed and developed recreation is likely to increase. This trend is likely to contribute to habitat degradation from housing, business, and road construction. These activities tend to impact riparian vegetation which may reduce stream shading, increase stream temperatures, reduce large woody debris, disconnect rivers from their floodplains, interrupt groundwater-surface water interactions, and reduce off-channel fish rearing habitat. Individual actions may have only small incremental effects, but together, may have a substantial effect that will further degrade the watershed's environmental baseline and undermine the improvements in habitat conditions necessary for listed species to survive and recover.

Watershed assessments and other educational programs may reduce these adverse effects by raising public awareness about the potential adverse effects of these activities on salmonid habitat.

**Recreational Fishing:** Recreational fishing in which LCT are caught (intentionally or by accident) may affect LCT abundance and age class distribution of the population. Depleting age class structure of larger individuals during periods of low abundance may delay recovery of population levels. Introductions of non-native species are frequently attributed to use of live bait for fishing, and unauthorized introductions of non-native gamefish species sometimes associated with recreational fishing (Rahel 2004). Introduced species have and will continue to adversely affect LCT in the action area through competition, displacement, predation, and hybridization and may contribute to disease problems.

**Fish Surveys:** Nevada Department of Wildlife and the Service periodically conduct population sampling on the Truckee River using electrofishing equipment that could harm or kill a small percentage (estimated at 3 percent or less) of the LCT encountered. However, electrofishing is a necessary component of population monitoring and adverse effects are expected to be short-term in nature and limited to a small portion of the river that is surveyed. Depending on flows, electrofishing surveys along this part of the Truckee River occur annually.

## CONCLUSION

After reviewing the current status of LCT, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the Service's BO that implementation of the proposed action is not likely to jeopardize the continued existence of LCT. No critical habitat has been designated for this species; therefore, none will be affected.

The Service bases this conclusion on the following: 1) many adverse impacts of the proposed project will be minimized or eliminated through implementation of avoidance measures; 2) potential disturbance areas of relevance (*i.e.*, the area of the river, its banks, and associated riparian habitat) will be restored as described in the Applicant's restoration plan; 3) effects from fish capture (*e.g.*, electrofishing) and handling associated with fish salvage operations will be minimized; 4) immediate loss of shading to the river will be limited to willows and other shrubs over the first few years after construction; and 5) short-term increases in suspended sediment have the potential to harass LCT that may be within the action area, but with effective implementation of avoidance measures (including BMPs), are not expected to reach levels lethal to fish or that would substantially degrade habitat from current conditions.

## INCIDENTAL TAKE STATEMENT

Section 9 of ESA, as amended, prohibits take (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct) of listed species of fish or

wildlife without a special exemption. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering (50 CFR §17.3). Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering (50 CFR §17.3). Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the ESA provided that such taking is in compliance with the Terms and Conditions of this Incidental Take Statement.

The measures described below are nondiscretionary and must be undertaken by FEMA and their designated non-federal representative so that they become binding conditions of any grant or permit issued to responsible parties as appropriate, for the exemption in section 7(o)(2) to apply. FEMA has a continuing duty to regulate the activity covered by this Incidental Take Statement. If FEMA (1) fails to assume and implement the terms and conditions of the Incidental Take Statement or (2) fails to require responsible parties to adhere to the Terms and Conditions of the Incidental Take Statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the FEMA must report the progress of the action and its impact on the species to the Service as specified in the Incidental Take Statement [50 CFR §402.14(i)(3)].

#### **ANTICIPATED AMOUNT OR EXTENT OF TAKE**

The Service anticipates the proposed project will result in incidental take of LCT throughout the action area in the form of harm and harassment and through either injury or death to juvenile and adult LCT, and/or fry. The primary mechanisms of incidental take will be: (1) exposure to increased sediment/turbidity levels and potential contaminants as a part of river diversion, in-channel construction and re-watering; (2) construction-related disturbance associated with the temporary displacement of LCT from occupied habitat; and (3) entrapment during in-channel work requiring river diversion and associated handling of fish during salvage activities. Activities within and adjacent to the stream corridor in the action area may result in additional non-lethal taking of juvenile and adult LCT in the form of harm and harassment related to disruptions to habitat (cover, substrate quality, bank stability, hydrology), food supplies and foraging, and water quality (temperature, turbidity, and sediment). The majority of these non-lethal impacts are expected to be of relatively short duration. With the implementation of additional protective measures (including the Terms and Conditions herein), the Service believes the adverse effects of the project are not expected to be measurable to LCT habitat or population levels.

The Service anticipates incidental take of LCT will be difficult to detect for the following reasons: 1) the inherent biological characteristics of aquatic species (small body size, behavioral modification before death); 2) the low likelihood of discovering an individual death or injury in the action area; and 3) the rapid rate of fish carcass decomposition and probability of scavenging by predators. Losses may also be masked by seasonal fluctuations in population numbers and distribution, or other causes. Although, the Service anticipates incidental take to occur due to the proposed action, the best scientific and commercial data available are not sufficient to enable the Service to estimate a specific amount of incidental take of the species themselves (*i.e.*, is unquantifiable). However, the project's potential for harm and harassment does exist. Therefore, incidental take for the proposed project is quantified in terms of water quality conditions during construction. This measure will be used to identify if take has been exceeded during the project's construction and is limited to the action area.

The anticipated level of take of LCT from the proposed action will be exceeded if any one or more of the following conditions or events occur:

1. Discharge or release of substances (including surface runoff) that cause an increase in turbidity greater than the NTUs specified in the NDEP Working in Waterways Permit, and the elevated turbidity issue cannot be corrected in a reasonable period of time which will be determined in coordination with the Service. The Truckee River standard in this river reach is  $\leq 10$  NTUs (single value) (Nevada Administrative Code 445A.185). This does not apply as long as turbidity conditions downstream of the project remain at or below 10 NTUs (*i.e.*, the standard is not exceeded).
2. Project construction is halted by the NDEP or FEMA because of a violation of applicable water quality permits or certifications dealing with all other water quality parameters.

These above measures are considered surrogates for determining incidental take because of the following points:

- Turbidity: (a) relates to water quality associated with beneficial uses that include fish; (b) is directly related to potential disturbance associated with the proposed project; (c) is easily measured in the field; and, (d) is assessed through methodologies clearly defined in associated water quality permits and certifications.
- NDEP has expertise in water quality for project-related parameters in addition to that for turbidity (*e.g.*, dissolved oxygen, pH) that can adversely affect fish.

The Reasonable and Prudent Measures (RPMs) listed below, with their implementing Terms and Conditions (T&Cs), are designed to minimize the impact of incidental take that might otherwise result from the proposed action. If, during the course of project implementation, this level of incidental take is exceeded, such incidental take represents new information requiring reinitiation

of consultation and review of the reasonable and prudent measures provided. FEMA must immediately provide an explanation with the Service of the causes of the taking and review the need for reinitiation of consultation.

### **EFFECT OF THE TAKE**

Currently, LCT seasonally use the Truckee River, within the action area, for foraging and migration, and possibly, spawning and rearing. Consequently, potential effects to LCT and their habitat attributed to the proposed project are anticipated to be moderate. The likelihood of encountering LCT of any life stage or life form (resident, migratory) during implementation is probable. However, proposed in-stream work is of limited duration, and measures to reduce or eliminate harm and harassment of LCT will be employed. It is unlikely that effects from the proposed project will appreciably reduce the likelihood of the survival and recovery of LCT by diminishing reproduction, numbers, or distribution of LCT. In the accompanying DRAFT BO, the Service determined that the level of anticipated take is not likely to result in jeopardy to the species.

### **REASONABLE AND PRUDENT MEASURES**

Minimizing the amount and extent of take is essential to avoid jeopardy to the listed species. The Service believes that the following RPMs are necessary and appropriate to minimize take of LCT:

- RPM 1     Minimize direct and indirect take of all life history forms of LCT.
- RPM 2     Minimize and offset losses of in-stream and riparian habitats.
- RPM 3     Monitor and report implementation and compliance with T&Cs and Conservation Recommendations in this BO.

### **TERMS AND CONDITIONS**

In order to be exempt from the prohibitions of section 9 of the ESA, FEMA and the Applicant must comply with the following T&Cs, which implement the RPMs described above and outline monitoring/reporting requirements. These T&Cs shall be incorporated into construction contracts and subcontracts, permits, grants, and/or agreements to ensure that the work is carried out in the manner prescribed. The FEMA must ensure that those T&Cs to be implemented by the Applicant are followed even in the event of a change/transfer in ownership (or lease) of the proposed project. These T&Cs are non-discretionary.

To implement RPM 1, FEMA shall ensure that:

- T&C 1-1 The Applicant fully implements and demonstrates compliance with all minimization and avoidance measures (including BMPs) and design specifications identified as part of the project description.
- T&C 1-2 The Applicant meets monitoring requirements of all applicable permits and certifications for water quality.
- T&C 1-3 Work shall cease when turbidity at the downstream measurement location exceeds 10 NTUs above turbidity at the upstream water quality measurement location. The work shall not resume until; (1) a subsequent test (at the downstream measurement location) is less than 10 NTUs above turbidity at the upstream location; (2) corrective measures are implemented to address turbidity sources; and (3) follow notification procedures in accordance with NDEP requirements before construction or maintenance activities may resume.
- T&C 1-4 At least 2 weeks prior to project construction, the Applicant shall provide a detailed final draft of the de-watering and fish salvage plans to the Service and NDOW for their review and approval. The Applicant shall fully address any concerns or issues identified by these agencies prior to finalizing the plans and implement them accordingly. The fish salvage plan, if led by the Applicant using electrofishing techniques, should follow the guidelines provided in Enclosure A.
- T&C 1-5 Prior to re-watering, the Applicant shall flush out fine sediment from the dewatering zone remove and safely dispose of all construction debris.

To implement RPM 2, the FEMA shall ensure that:

- T&C 2-1 At least 2 weeks prior to initiation of revegetation activities, the Applicant shall provide a detailed draft of the revegetation plan to the Service and NDOW for their review and approval. The plan should identify roles and responsibilities, timing, methods, data collection procedures, and monitoring to demonstrate level of performance. The Applicant shall fully address any concerns or issues identified by these agencies prior to finalizing the plans and implement them accordingly.

To implement RPM 3, the FEMA shall ensure that:

- T&C 3-1 The Applicant collects, analyzes, and reports data results for identified water quality parameters of background and with-project levels during construction

as specified (in terms of methods, timing, and sampling location) in the applicable water quality permits and certifications. This includes:

- a) Immediate notification to the NDEP and the Service on occasions when T&C 1-3 is invoked (Incident Report). Provide a written report describing the source of the problem (with photographs if possible), remediation measures implemented, and the associated monitoring results (Construction Shutdown Report).
- b) Water quality summary reports to the Service displaying sampling results for all water quality parameters identified in applicable water quality permits and certifications and submitted concurrently to NDEP (Monthly Water Quality Compliance Report).

T&C 3-2 For the river encroachment zone and the entire project, the Applicant shall provide separate reports detailing construction activities in the respective areas (Post-Construction Reports). The report for the river encroachment area shall include, at a minimum:

- a) a summary demonstrating compliance with all applicable State and Federal requirements specified in water quality permits and certifications and BMP activities during the entire construction season;
- b) a map of areas that were de-watered and associated diversion activities;
- c) results of fish salvage operations (*e.g.*, timing and methods used, fish species, numbers, condition, and presence of any tags) during river de-watering activities;
- d) a detailed assessment (including photographs) comparing the configuration and placement of design to as-built conditions for all features;
- e) a detailed aquatic habitat assessment (including photographs) comparing pre- and post-construction conditions of affected areas of the river channel, bank stability and riparian vegetation, as described by NDOW; and,
- f) any known adverse effects to LCT resulting from proposed project construction activities including number and life stages of individuals affected (if known).

T&C 3-3 In the fifth and tenth years after construction, the Applicant shall provide separate reports detailing results of revegetation along disturbed areas that demonstrate progress in stabilizing bank conditions and revegetation success.

T&C 3-4 The Applicant shall provide copies of all reports (unless otherwise specified) to the Nevada Fish and Wildlife Office by March 31, of the year following the identified activity:

State Supervisor  
U.S. Fish and Wildlife Service  
1340 Financial Boulevard, Suite 234  
Reno, Nevada 89502  
Telephone: (775) 861-6300

The RPMs, with their implementing T&Cs, are designed to minimize the impact of incidental take that might otherwise result from the proposed action. If, during the course of the action, this level of incidental take is exceeded, such incidental take represents new information requiring reinitiation of consultation and review of the RPMs and T&Cs provided. The Federal Emergency Management Agency is responsible to immediately provide an explanation of the causes of the taking and review with the Service the need for possible modification of the RPMs and T&Cs.

## **REPORTING REQUIREMENTS**

In order to monitor the impact of incidental take, FEMA must report the progress of the action and its impact on the species to the Service as specified in the T&Cs section under the Incidental Take Statement. The FEMA shall prepare or require the Applicant to prepare reports describing progress of the proposed project, including implementation of the associated T&Cs, and impacts to LCT [50 CFR §402.14(i)(3)]. The reports shall be submitted to the NFWO by March 31 of the year following the identified activity unless otherwise specified.

Upon locating dead, injured, or sick LCT in the action area, initial notification must be made to the Service's Division of Law Enforcement in Reno, Nevada at 775-861-6360 within 3 working days. Instructions for proper handling and disposition of such specimens will be issued by the Division of Law Enforcement. Caution must be taken in handling sick or injured LCT to ensure effective treatment and care and in handling dead specimens to preserve biological material in the best possible state. In conjunction with the care of sick and injured fish and the preservation of biological materials from a dead specimen, FEMA has the responsibility to ensure that information relative to the date, time, and location of the fish, when found, and possible cause of injury or death of each must be recorded and provided to the Service.

The Service understands that the Applicant may be best positioned to fulfill the monitoring and reporting requirements associated with this DRAFT BO's Incidental Take Statement. The Service is open to direct communications with and reporting from the Applicant with respect to the proposed project, contingent upon FEMA's approval and involvement. However, this in no way relieves FEMA of its responsibilities under ESA as the lead Federal agency.

## CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of endangered and threatened species. Conservation Recommendations (CR) are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery programs, or to develop information. The Service recommends that the ACOE require the Applicant to:

- CR 1 Implement measures to avoid spread of noxious weeds and ensure compliance with Executive Order 13112 (64 FR 6183).
- CR 2 As appropriate, provide sufficient irrigation for newly-planted riparian vegetation to ensure high success rates.
- CR 3 Monitor and replace re-planted riparian vegetation that failed transplantation every spring and fall throughout monitoring period.
- CR 4 As appropriate, replace top 12 inches of in-channel substrate with gravels suitable for salmonid spawning habitat.
- CR 5 As appropriate, include planting of 175 Baltic rush (*Juncus balticus*) and 75 creeping wildrye (*Leymus triticoides*), as described in Bid Item #13 Additive Alternative #1 of agreed contract.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, the Service requests notification of the implementation of any CRs.

## REINITIATION—CLOSING STATEMENT

This concludes formal consultation for the potential effects of the proposed project on LCT. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been maintained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this DRAFT BO; (3) the agency action is subsequently modified in a manner that may cause an effect to the listed species or critical habitat that was not considered in this DRAFT BO; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must be stopped in the interim period between the initiation and completion of the new consultation if any additional taking is likely to occur.

Alessandro Amaglio

File No. 2010-F-0403

We appreciate the cooperation and coordination of FEMA and the Applicant during the planning process for this project. Please reference File No. 2010-F-0403 in future correspondence concerning this consultation. Any questions or comments should be directed to me or Michael Cotter at (775) 861-6300.

Sincerely,



*for* Robert D. Williams  
Field Supervisor

Enclosure

cc:

Director, Nevada Department of Wildlife, Reno, Nevada (Attn: Matt Maples)  
Project Manager, JBR Environmental, Reno, Nevada (Attn: Matt Setty)  
Special Agent, Division of Law Enforcement, U.S. Fish and Wildlife Service, Reno, Nevada  
Branch Chief, Army Corps of Engineers, Reno, Nevada (Attn: Kristine Hansen)  
Associate Engineer, City of Reno (Attn.: Glen Daily)  
Hazard Mitigation Assistance, FEMA Region IX (Attn: Clayton Pang)  
Project Manager, URS Corp. (Attn: Lorena Solorzano-Vincent)

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## Enclosure A. Electrofishing guidelines.



# Guidelines for Electrofishing Waters Containing Salmonids Listed Under the Endangered Species Act

June 2000

### Purpose and Scope

The purpose of this document is to provide guidelines for the safe use of backpack electrofishing in waters containing salmonids listed by the National Marine Fisheries Service (NMFS) under the Endangered Species Act (ESA). It is expected that these guidelines will help improve electrofishing technique in ways which will reduce fish injury and increase electrofishing efficiency. These guidelines and sampling protocol were developed from NMFS research experience and input from specialists in the electrofishing industry and fishery researchers. This document outlines electrofishing procedures and guidelines that NMFS has determined to be necessary and advisable when working in freshwater systems where threatened or endangered salmon and steelhead may be found. As such, the guidelines provide a basis for reviewing proposed electrofishing activities submitted to NMFS in the context of ESA Section 10 permit applications as well as scientific research activities proposed for coverage under an ESA Section 4(d) rule.

These guidelines specifically address the use of backpack electrofishers for sampling juvenile or adult salmon and steelhead that are *not* in spawning condition. Electrofishing in the vicinity of adult salmonids in spawning condition and electrofishing near redds are not discussed as there is no justifiable basis for permitting these activities except in very limited situations (e.g., collecting brood stock, fish rescue, etc.). The guidelines also address sampling and fish handling protocols typically employed in electrofishing studies. While the guidelines contain many specifics, they are not intended to serve as an electrofishing manual and do not eliminate the need for good judgement in the field.

Finally, it is important to note that researchers wishing to use electrofishing in waters containing listed salmon and steelhead are not necessarily precluded from using techniques or equipment not addressed in these guidelines (e.g., boat electrofishers). However, prior to authorizing the take of listed salmonids under the ESA, NMFS will require substantial proof that such techniques/equipment are clearly necessary for a particular study and that adequate safeguards will be in place to protect threatened or endangered salmonids. Additional information regarding these guidelines or other research issues dealing with salmon and steelhead listed under the ESA can be obtained from NMFS' Protected Resources Divisions in:

#### Washington, Oregon, and Idaho

Leslie Schaeffer  
NMFS  
525 NE Oregon Street, Suite 500  
Portland, Oregon 97232-2737  
Phone: (503) 230-5433  
FAX: (503) 230-5435  
Internet Address: [Leslie.Schaeffer@noaa.gov](mailto:Leslie.Schaeffer@noaa.gov)

#### California

Dan Logan  
NMFS  
777 Sonoma Ave., Room 325  
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## **Appropriateness of Electrofishing**

Backpack electrofishing for salmonids has been a principal sampling technique for decades, however, recent ESA listings underscore the need to regulate the technique and assess its risks and benefits to listed species (Nielsen 1998). With over 25 Evolutionarily Significant Units (ESUs) of threatened or endangered salmonids now identified along the U.S. West Coast, researchers can expect to encounter one or more listed species in nearly every river basin in California, Oregon, Washington, and Idaho. There are few if any non-invasive ways to collect distribution, abundance, or morpho-physiological data on salmonids in freshwater. This is reflected in the requirement that all activities that involve intentional take of juvenile salmonids for research or enhancement of an ESA listed species require an ESA Section 10 permit from NMFS. While NMFS has not precluded the use of electrofishing in all cases, researchers must present rigorous study designs and methods for handling fish prior to NMFS authorizing electrofishing to take listed salmonids under the ESA.

NMFS believes there is ample evidence that electrofishing can cause serious harm to fish and the general agency position is to encourage researchers to seek out other less invasive ways to sample listed species. Direct observation by snorkeling is one of the least invasive ways to collect information concerning abundance and distribution, although there can be both practical (e.g., poor viability) and statistical (e.g., large numbers of fish, low observation probability) constraints to direct observation. Preliminary efforts should be directed at study designs that use less invasive methods. If such methods cannot provide the quality of data required or when the benefit exceeds potential mortality risk, then electrofishing can be considered. Electrofishing used on a limited basis to calibrate direct observations (e.g., Hankin and Reeves 1988) is commonly used and methods are currently under development that increase the use of direct observation counts (e.g., bounded counts, "multiple snorkel passes") which, in many cases, will further reduce the need for electrofishing.

## **Electrofishing Guidelines**

### Training

Field supervisors and crew members must have appropriate training and experience with electrofishing techniques. Training for field supervisors can be acquired from programs such as those offered from the U. S. Fish and Wildlife Service - National Conservation Training Center (*Principles and Techniques of Electrofishing* course) where participants are presented information concerning such topics as electric circuit and field theory, safety training, and fish injury awareness and minimization. A crew leader having at least 100 hours of electrofishing experience in the field using similar equipment must train the crew. The crew leader's experience must be documented and available for confirmation; such documentation may be in the form of a logbook. The training must occur before an inexperienced crew begins any electrofishing and should be conducted in waters that do not contain ESA-listed fish. Field crew training must include the following elements:

1. A review of these guidelines and the equipment manufacturer's recommendations, including basic gear maintenance.
2. Definitions of basic terminology (e.g. galvanotaxis, narcosis, and tetany) and an explanation of how electrofishing attracts fish.
3. A demonstration of the proper use of electrofishing equipment (including an explanation of how gear can injure fish and how to recognize signs of injury) and of the role each crew member

performs.

4. A demonstration of proper fish handling, anesthetization, and resuscitation techniques.
5. A field session where new individuals actually perform each role on the electrofishing crew.

Research Coordination

Research activities should be coordinated with fishery personnel from other agencies/parties to avoid duplication of effort, oversampling small populations, and unnecessary stress on fish. Researchers should actively seek out ways to share data on threatened and endangered species so that fish samples yield as much information as possible to the research community. NMFS believes that the state fishery agencies should play a major role in coordinating salmonid research and encourages researchers to discuss their study plans with these agencies prior to approaching NMFS for an ESA permit.

Initial Site Surveys and Equipment Settings

1. In order to avoid contact with spawning adults or active redds, researchers must conduct a careful visual survey of the area to be sampled before beginning electrofishing.
2. Prior to the start of sampling at a new location, water temperature and conductivity measurements should be taken to evaluate electroshocker settings and adjustments. **No electrofishing should occur when water temperatures are above 18°C or are expected to rise above this temperature prior to concluding the electrofishing survey. In addition, studies by NMFS scientists indicate that no electrofishing should occur in California coastal basins when conductivity is above 350 µS/cm.**
3. Whenever possible, a block net should be placed below the area being sampled to capture stunned fish that may drift downstream.
4. Equipment must be in good working condition and operators should go through the manufacturer's pre-season checks, adhere to all provisions, and record major maintenance work in a logbook.
5. Each electrofishing session must start with all settings (voltage, pulse width, and pulse rate) set to the **minimums** needed to capture fish. These settings should be gradually increased only to the point where fish are immobilized and captured, and generally not allowed to exceed conductivity-based maxima (Table 1). Only direct current (DC) or pulsed direct current (PDC) should be used.

Table 1. Guidelines for initial and maximum settings for backpack electrofishing.

	Initial settings	Maximum settings		Notes
Voltage	100 V	<u>Conductivity (µS/cm)</u> < 100 100 - 300 > 300	<u>Max. Voltage</u> 1100 V 800 V 400 V	In California coastal basins, settings should never exceed 400 volts. Also, no electrofishing should occur in these basins if conductivity is greater than 350 µS/cm.
Pulse width	500 µs	5 ms		
Pulse rate	30 Hz	70 Hz		<i>In general</i> , exceeding 40 Hz will injure more fish

### Electrofishing Technique

1. Sampling should begin using straight DC. Remember that the power needs to remain on until the fish is netted when using straight DC. If fish capture is unsuccessful with initial low voltage, gradually increase voltage settings with straight DC.
2. If fish capture is not successful with the use of straight DC, then set the electrofisher to lower voltages with PDC. If fish capture is unsuccessful with low voltages, increase pulse width, voltage, and pulse frequency (duration, amplitude, and frequency).
4. Electrofishing should be performed in a manner that minimizes harm to the fish. Stream segments should be sampled systematically, moving the anode continuously in a herringbone pattern (where feasible) through the water. Care should be taken when fishing in areas with high fish concentrations, structure (e.g., wood, undercut banks) and in shallow waters where most backpack electrofishing for juvenile salmonids occurs. Voltage gradients may be high when electrodes are in shallow water where boundary layers (water surface and substrate) tend to intensify the electrical field.
5. Do not electrofish in one location for an extended period (e.g., undercut banks) and regularly check block nets for immobilized fish.
6. Fish should not make contact with the anode. Remember that the zone of potential injury for fish is 0.5 m from the anode.
7. Electrofishing crews should be generally observant of the condition of the fish and change or terminate sampling when experiencing problems with fish recovery time, banding, injury, mortality, or other indications of fish stress.
8. Netters should not allow the fish to remain in the electrical field any longer than necessary by removing stunned fish from the water immediately after netting.

### Sample Processing and Recordkeeping

1. Fish should be processed as soon as possible after capture to minimize stress. This may require a larger crew size.
2. All sampling procedures must have a protocol for protecting held fish. Samplers must be aware of the conditions in the containers holding fish; air pumps, water transfers, etc., should be used as necessary to maintain safe conditions. Also, large fish should be kept separate from smaller prey-sized fish to avoid predation during containment.
3. Use of an approved anesthetic can reduce fish stress and is recommended, particularly if additional handling of fish is required (e.g., length and weight measurements, scale samples, fin clips, tagging).
4. Fish should be handled properly (e.g., wetting measuring boards, not overcrowding fish in buckets, etc.).
5. Fish should be observed for general condition and injuries (e.g., increased recovery time, dark bands, apparent spinal injuries). Each fish should be completely revived before releasing at the location of capture. A plan for achieving efficient return to appropriate habitat should be developed before each sampling session. Also, every attempt should be made to process and release ESA-listed specimens first.
8. Pertinent water quality (e.g., conductivity and temperature) and sampling notes (e.g., shocker settings, fish condition/injuries/mortalities) should be recorded in a logbook to improve technique and help train new operators. *It is important to note that records of injuries or mortalities pertain to the entire electrofishing survey, including the fish sample work-up.*

### Citations and Other References

- Dalbey, S. R., T. E. McMahon, and W. Fredenberg. 1996. Effect of electrofishing pulse shape and electrofishing-induced spinal injury on long-term growth and survival of wild rainbow trout. *North American Journal of Fisheries Management* 16:560-569.
- Hankin, D. G., and G. H. Reeves. 1988. Estimating total fish abundance and total habitat area in small streams based on visual estimation methods. *Canadian Journal of Fisheries and Aquatic Sciences* 45:834-844.
- Hollender, B. A., and R. F. Carline. 1994. Injury to wild brook trout by backpack electrofishing. *North American Journal of Fisheries Management* 14:643-649.
- Nielsen, J. L. 1998. Electrofishing California's endangered fish populations. *Fisheries* 23:6-12.
- Nielsen, L.A., and D.L. Johnson, editors. 1983. *Fisheries techniques*. American Fisheries Society, Bethesda, Maryland.
- Reynolds, J. B., and A. L. Kolz. 1988. Electrofishing injury to large rainbow trout. *North American Journal of Fisheries Management* 8:516-518.
- Sharber, N. G., and S. W. Carothers. 1988. Influence of electrofishing pulse shape on spinal injuries in adult rainbow trout. *North American Journal of Fisheries Management* 8:117-122.
- Sharber, N. G., S. W. Carothers, J.P. Sharber, J. D. deBos, Jr., and D. A. House. 1994. Reducing electrofishing-induced injury of rainbow trout. *North American Journal of Fisheries Management* 14:340-346.
- Schreck, C.B., and P.B. Moyle, editors. 1990. *Methods for fish biology*. American Fisheries Society, Bethesda, Maryland.

Source: National Marine Fisheries Service. 2000. *Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act*.



**APPENDIX B**  
**SHPO AND TRIBAL CONSULTATION**





JIM GIBBONS  
Governor

STATE OF NEVADA  
DEPARTMENT OF CULTURAL AFFAIRS  
State Historic Preservation Office  
100 N. Stewart Street  
Carson City, Nevada 89701  
(775) 684-3448 • Fax (775) 684-3442  
www.nvshpo.org

RECEIVED  
JUL 21 2010

MICHAEL E. FISCHER  
Department Director

RONALD M. JAMES  
State Historic Preservation Officer

July 16, 2010

Alessandro Amaglio  
Regional Environmental Officer  
Federal Emergency Management Agency  
U.S. Department of Homeland Security  
1111 Broadway Suite 1200  
Oakland CA 94607-4052

RE: Lawton Interceptor at Oxbow Park, City of Reno, Hazard Mitigation Grant Program, Washoe County (Federal Emergency Management Agency-DR-1629-NV, HMGP#1629-4-4) (Undertaking #2010-1121).

Dear Mr. Amaglio:

The Nevada State Historic Preservation Office (SHPO) reviewed the subject undertaking. The SHPO concurs with the Federal Emergency Management Agency's determination that the area of potential effect for the subject undertaking should be sufficient to identify historic properties that could be affected by the subject undertaking.

The SHPO concurs with the Federal Emergency Management Agency's determination that no historic properties are likely to be found within the area of potential effects (APE) for the subject undertaking. The SHPO concurs with the Federal Emergency Management Agency's determination that no historic properties are likely to be affected by the undertaking.

If buried and previously unidentified resources are located during project activities, the SHPO recommends that all work in the vicinity cease and this office be contacted for additional consultation per 36 CFR 800.13.b.3. and NRS 383.150-383.190.

If you have any questions concerning this correspondence, please feel free to contact me at (775) 684-3443 or by e-mail at [Rebecca.Palmer@nevadaculture.org](mailto:Rebecca.Palmer@nevadaculture.org).

Sincerely,

Rebecca Lynn Palmer, Deputy  
State Historic Preservation Officer





FEMA

June 30, 2010

Ronald M. James  
State Historic Preservation Officer  
100 North Stewart Street  
Carson City, Nevada 89701-4285  
Attention: Rebecca L. Palmer

Re: Lawton Interceptor at Oxbow Park  
FEMA-DR-1629-NV, HMGP #1629-4-4  
Subgrantee: City of Reno

Dear Mr. James:

The Department of Homeland Security's Federal Emergency Management Agency (FEMA) proposes to provide Federal financial assistance (Federal action) under the Hazard Mitigation Grant Program (HMGP), to the City of Reno (Subgrantee), through the Nevada Division of Emergency Management (NDEM), to implement a bank stabilization and refusal trench project within the City limits in Washoe County, Nevada.

Past flooding has caused the Truckee River to inundate as much as 80 feet north from its typical wetted channel location during two flood events (the 1997 and 2005–2006 flood events). As a result, there is a high risk for continued migration of the river and subsequent bank erosion, which could compromise the sanitary sewer infrastructure approximately 200 feet from the current river edge. The sewer interceptor, known as the Lawton interceptor, has no shutoff valve, so any rupture in the line could result in uncontrolled sewage discharge into the river.

As a result, the Subgrantee plans stabilize 150 feet of river bank to protect the Lawton interceptor. This would involve installation of rootwads and ballast rocks as well as revegetation of the bank. A refusal trench would also be installed to armor approximately 100 feet of the Lawton interceptor.

FEMA's action of providing a grant supporting the Subgrantee's need meets the definition of a Federal Undertaking in accordance with 36 C.F.R. Part 800.16(y) and therefore requires the completion of a Section 106 review in accordance with the National Historic Preservation Act of 1966 (16 U.S.C. § 470f).

Mr. Ronald M. James

June 29, 2010

Page 2

FEMA has identified an area of potential effect for the proposed project and has reviewed the Subgrantee's proposal in compliance with Section 106 and the Programmatic Agreement (Agreement) among FEMA, your office and NDEM. FEMA has determined that the Subgrantee's proposal and FEMA's undertaking will result in no historic properties affected pursuant to 36 C.F.R. Part 800.4(d)(1).

FEMA requests your concurrence on our finding compliant with Stipulation VII.C of the Agreement and has enclosed documentation in accordance with 36 CFR Part 800.11(d). FEMA may authorize funding for the Subgrantee's proposal unless you notify FEMA of your non-concurrence within 21 days of your receipt of this documentation.

If you should require any additional information about FEMA's request, please do not hesitate to contact me at (510) 627-7027 or [fema-rix-ehp-documents@dhs.gov](mailto:fema-rix-ehp-documents@dhs.gov).

Sincerely,

A handwritten signature in blue ink, appearing to read "Amaglio".

Alessandro Amaglio  
Environmental Officer

#### Attachments

cc: Glen Daily, City of Reno  
Elizabeth Asby, NDEM  
Karen Johnson, NDEM

**Lawton Interceptor at Oxbow Park**  
**FEMA-NV-1629-EHP, HMGP #1629-4-4**  
**FINDING OF NO HISTORIC PROPERTIES**

**(1) “A description of the undertaking, specifying the Federal involvement, and its area of potential effect, including photographs, maps, drawings, as necessary”  
(36 C.F.R. Part 800.11[d][1])**

The Department of Homeland Security’s Federal Emergency Management Agency (FEMA) proposes to provide Federal financial assistance (Federal action) under the Hazard Mitigation Grant Program (HMGP), to the City of Reno (Subgrantee), through the Nevada Division of Emergency Management (NDEM), to implement a bank stabilization and refusal trench project within the City limits in Washoe County, Nevada.

Past flooding has caused the Truckee River to inundate as much as 80 feet north from its typical wetted channel location during two flood events (the 1997 and 2005–2006 flood events). As a result, there is a high risk for continued migration of the river and subsequent bank erosion, which could compromise the sanitary sewer infrastructure approximately 200 feet from the current river edge. The sewer interceptor, known as the Lawton interceptor, has no shutoff valve, so any rupture in the line could result in uncontrolled sewage discharge into the river.

As a result, the Subgrantee plans stabilize 150 feet of river bank to protect the Lawton interceptor. This would involve installation of rootwads and ballast rocks as well as revegetation of the bank. A refusal trench would also be installed to armor approximately 100 feet of the Lawton interceptor.

HMGP funding would be authorized as a result of the Severe Storms and Flooding Disaster Declaration (FEMA-DR-NV-1629) of February 2006. FEMA has determined that providing Federal financial assistance for the Subgrantee’s proposal would be a Federal Undertaking pursuant to 36 C.F.R. Part 800.3(a). The project area is located along the north bank of the Truckee River in Oxbow Nature Study Area, located within the City limits in Washoe County, Nevada (Figure 1). The land within the project area is owned by the City and managed by the Nevada Department of Wildlife (NDOW). The land surrounding the project area is either residential or undeveloped riparian floodplain.

The project area includes the Subgrantee’s proposed project footprint, access routes, staging areas, and water filtration area, as delineated by the preliminary engineering design (Appendix A). The project footprint, shown in Figure 2, includes:

- A 150 foot area of bank stabilization on the north bank of the river;
- A 100 foot long trench within the Oxbow Nature Study Area parking lot;
- A 4,442 square foot access route; and
- A 13,366 square foot portion of the existing parking lot used for construction staging.

All construction staging areas would be limited to existing parking lots in the vicinity of the Oxbow Nature Study Area. In total, the project area is 117,612 square feet, or 2.7 acres.

The proposed project consists of two main components: bank stabilization and installation of a refusal trench. The purpose of the project is to protect the Lawton interceptor and the north bank of the river from erosion and flood events. The entire project construction would take place between June 15 and September 30 over 45 days, 25 of which involve the dewatering of the river.

### **Bank Stabilization**

The bank stabilization portion of the project would utilize bioengineering methods to stabilize approximately 150 feet of the north bank of the river. The methods would include the following:

- Installation of rootwads
- Installation of ballast rock
- Installation of willow plantings

These methods were developed by the Subgrantee with input from both USFWS and NDOW and utilized the most current bioengineering stabilization methods.

The installation of the rootwads would involve burying approximately forty 24- to 30-inch-diameter boulders to anchor the rootwads, which would be anchored with a stainless steel aircraft cable. Each rootwad would be approximately 20 feet long, 2 feet in diameter, and have a 6-foot rootball. Trees for the rootwads would be pulled from local sources if possible.

In order to install the rootwad structures dewatering and excavation would need to occur along approximately 165 feet of the north river bank. Dewatering would be accomplished using plastic K-rails installed on a sandbag base in the river. The water would then be pumped into a nearby obligate wetland. Silt would be collected in a filter bag, which would be cut and allowed to disperse after dewatering is complete. In addition to this formal consultation, the Subgrantee would obtain a 404 permit from the United States Army Corps of Engineers (USACE) for all in river and dewatering work.

Willow plantings would also be installed in the bank by digging to a depth that at which the roots would be sitting in the water. This would ensure that the willow plantings would establish and thus provide proper bank stabilization.

### **Installation of Refusal Trench**

The armoring of the 30 inch diameter Lawton interceptor sanitary sewer line would involve the construction of a refusal trench parallel to approximately 100 feet of the sewer line. The trench would be offset from the existing sewer line anywhere from 10 feet to 25 feet. This variation is because the exact alignment of the sewer line is unknown

and has been approximated from 1982 “as-built” drawings. The trench would be installed in the asphalt parking lot of the Oxbow Nature Study Area and construction would take place over a five-day time period.

The main staging, ingress, and egress for the project would be in the eastern portion of the parking lot for the Oxbow Nature Study Area. Access for the bank stabilization would be obtained through an adjacent property, east of the project area. A portion of the bank stabilization access route would involve the temporary placement of metal trench plates over streambank vegetation and a side drainage from a culvert. These trench plates would provide a stable surface to allow equipment to access the dewatered riverbed.

Pursuant to Stipulation VII.A of the Programmatic Agreement (Agreement) between FEMA, the State Historic Preservation Officer (SHPO), and the Nevada Division of Emergency Management, FEMA has determined that the area of potential effect (APE) for this Undertaking would be limited to the areas of proposed ground disturbance as depicted in Figure 2. Maximum depth of disturbance is estimated to be up to 6 feet bellow ground surface for excavation of the refusal trench, emplacement of rootwads, and planting and staking of trees.

**(2) “A description of the steps taken to identify historic properties, including, as appropriate, efforts to seek information pursuant to 36 C.F.R. 800.4(b)” (36 C.F.R. Part 800.11[d][2])**

Pursuant to Stipulation VII.B of the Agreement, FEMA contractors conducted a records search of the Nevada Cultural Resources Inventory System on June 16, 2010 (see Attachment B). The records search did not identify any previously recorded historical or archaeological resources within the APE.

No previous archaeological studies have been performed within the APE. Seven previous studies have been conducted within 0.5 mile of the APE. Three previously recorded resources are within 0.5 mile of the project area. The resources are:

- **Site WA5352. The Orr Ditch.** An earthen ditch known through historical records to have been constructed in 1870 was determined eligible for listing on the National Register of Historic Places. The ditch is approximately 17 miles long, running from west of Reno to the Spanish Springs Valley, just north of the proposed project area. WA5352 is outside the APE and would not be affected by the proposed project.
- **Site WA146.** This archaeological site is recorded as “an old Washo settlement in early days of Reno” and burial ground north of Highway 40 near the Mountain View Cemetery. Burials were excavated in 1924 and 1925. WA146 is outside the APE and would not be affected by the proposed project.
- **Site WA6959.** This site record documents the results of a backhoe testing program conducted along the Southern Pacific Railroad right-of-way within the City of Reno and north of the proposed project area. No archaeological sites were recorded as a part of the testing program, but some historic-era artifacts were recovered. The site

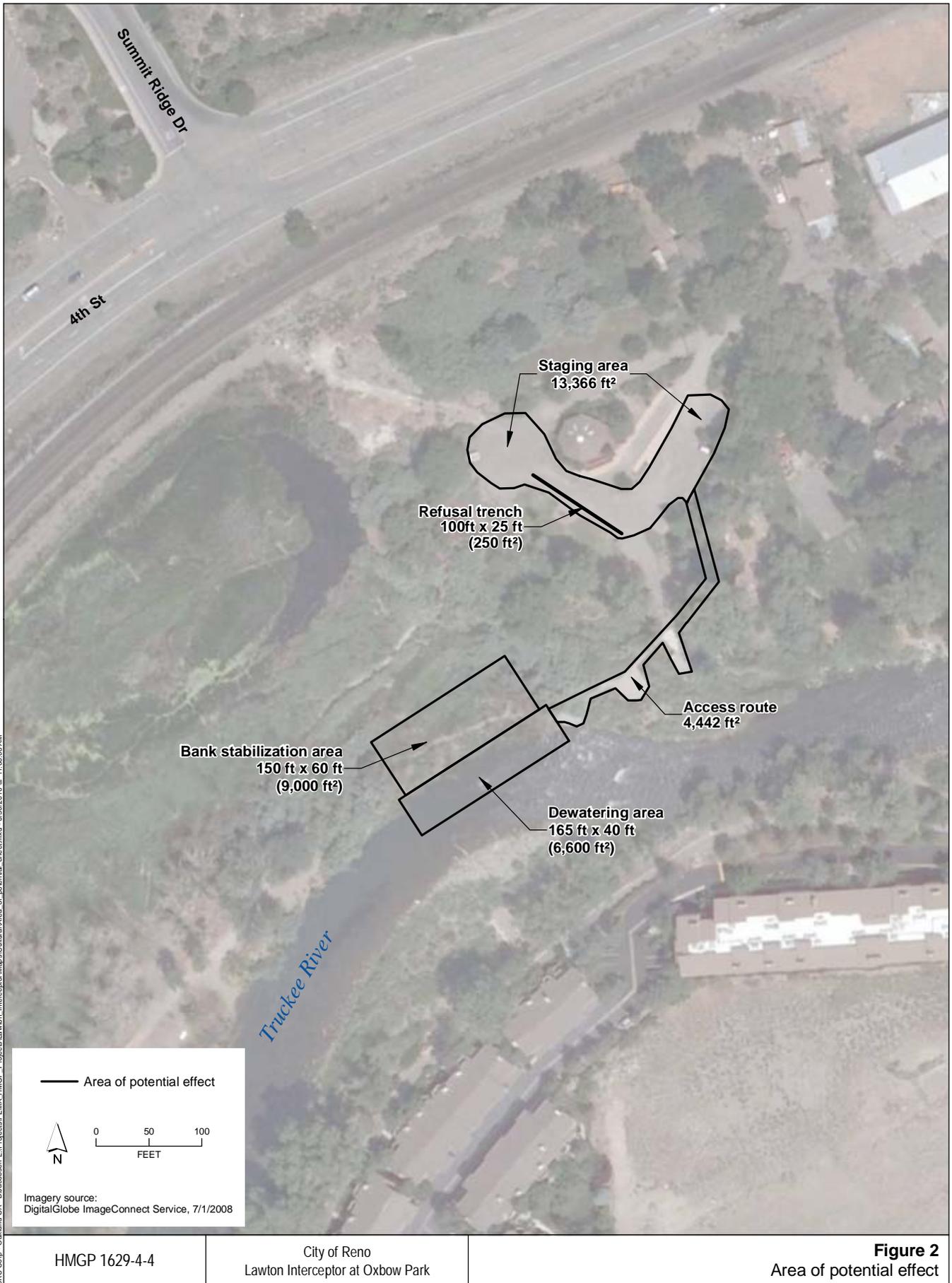
of the trenches is outside the APE. No cultural resources would be affected by the proposed project.

In accordance with 36 C.F.R. Part 800.4(a)(4), FEMA initially notified the Washoe Tribe on November 12, 2008, of the proposed project and requested that the tribe respond with any comments or concerns. No response was received. Following subsequent project revisions, FEMA recontacted the tribe on June 28, 2010. To date, no additional responses have been received. Copies of letters are attached (Attachment C).

**(3) “The basis for determining that no historic properties are present or affected”  
(36 C.F.R. Part 800.11[d][3])**

The APE for the proposed project is primarily below the high water mark of the Truckee River in areas that were heavily scoured during flooding and storms in 1997 and again in 2006. On August 8, 2009, prior to FEMA’s involvement in the project, the Nevada SHPO staff agreed with the Subgrantee’s assessment that because of the high energy environment and the location of known archaeological sites along the Truckee River, the proposed project would be unlikely to affect archaeological sites (Attachment D). FEMA conducted a cultural resources investigation consisting of a pedestrian survey and literature review and has determined that no properties eligible for listing in the National Register of Historic Places exist within the APE. Therefore, in accordance with Stipulation VII.C of the Agreement, FEMA has determined that the Subgrantee’s proposal and FEMA’s Undertaking would result in “no historic properties affected.”





HMGP 1629-4-4

City of Reno  
Lawton Interceptor at Oxbow Park

**Figure 2**  
Area of potential effect

URS Corp. - Oakland CA - B.Jacobson, L./Projects/FEMA\_HMGP/Projects/Lawton\_Interceptor/Maps/CulturalArea\_of\_potential\_effect.mxd - 6/30/2010 @ 11:08:09 AM



**FEMA**

June 28, 2010

Ms. Marie Barry, Director  
Environmental Department, Washoe Tribe  
919 US Highway 395 South  
Gardnerville, Nevada 89410

Re: Oxbow Park River Bank Stabilization Project  
FEMA-DR-1629-NV, HMGP #1629-4-4  
Subgrantee: City of Reno

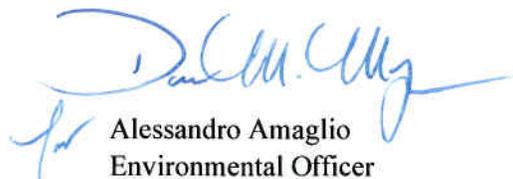
Dear Ms. Barry:

The Department of Homeland Security's Federal Emergency Management Agency (FEMA) proposes to provide Hazard Mitigation Grant Program (HMGP) funding to the City of Reno, through the Nevada Department of Emergency Management, to stabilize the bank of the Truckee River near Oxbow Park, in Reno, Nevada. The proposed project has been revised to reflect an alternative repair method; however the overall footprint of the project remains the same. HMGP funding for the revised Undertaking would be authorized as a result of the Severe Storms and Flooding Disaster Declaration (FEMA-1629-DR-NV) of February 2006. The City of Reno proposes to install bank protection to protect the Lawton Sewer Interceptor, which is in danger of rupturing during future flood events. Ground disturbance would be limited to the bank and channel of the Truckee River within the proposed project area. A map of the proposed project area has been included for your reference.

The proposed project area has been surveyed and no cultural resources have been identified. As a general rule, FEMA will have a policy of avoidance of cultural resources for this project.

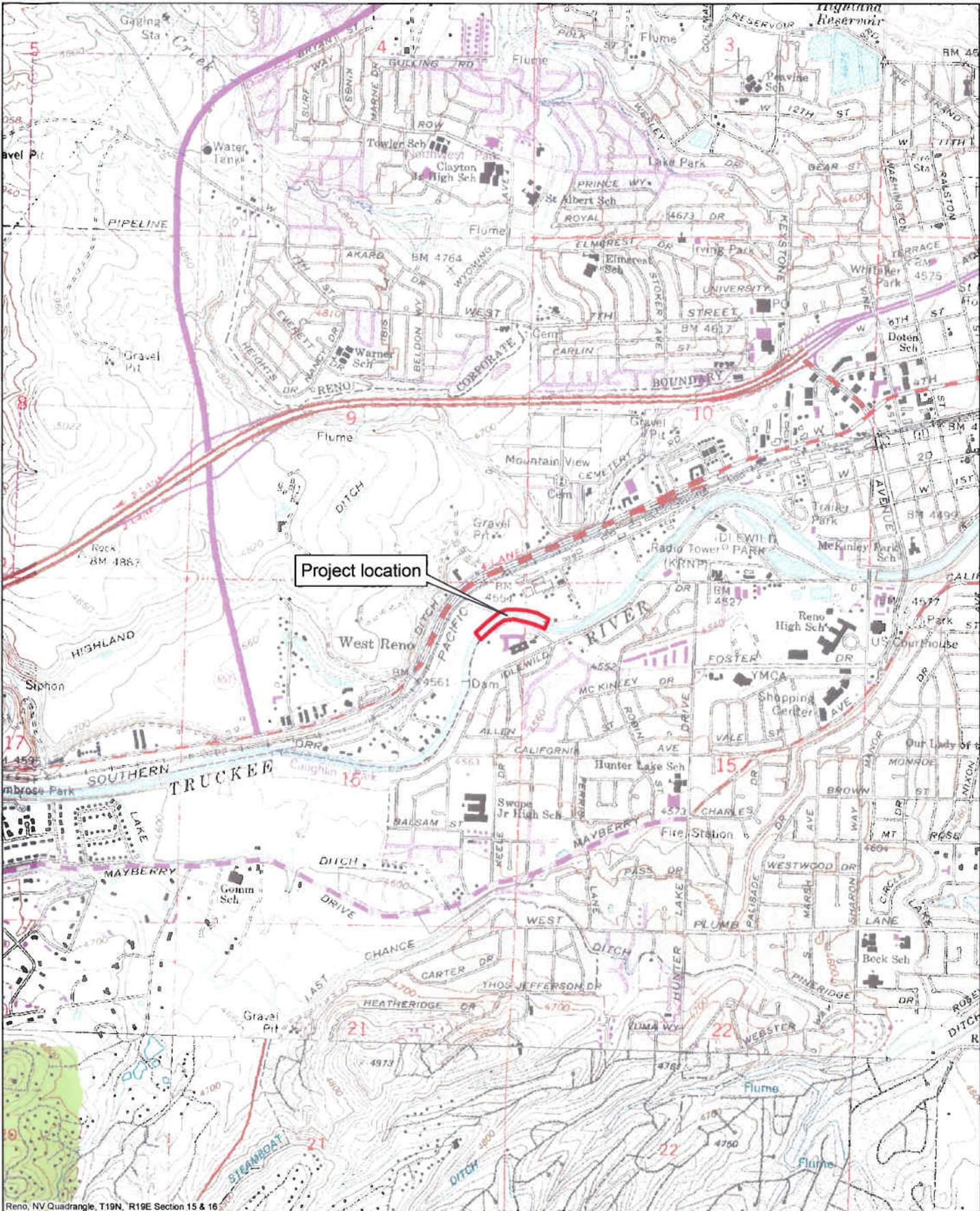
FEMA wrote a letter to you about this project in November 2008 and you did not have any concerns at that time. Should you have any new knowledge of cultural resources in the specific project area or know of other contacts who may have such specific knowledge, or if you have other concerns in the specific project area, please telephone me at (510) 627-7027 or write to me at the letterhead address. If I do not hear from you within 30 days of receipt of this letter, I will assume you have no comments regarding this project.

Sincerely,

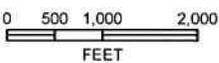
  
Alessandro Amaglio  
Environmental Officer

Attachment

cc: Mr. Waldo W. Walker, Chairman, Washoe Tribe



Project location



FEMA-NV-1629-EHP, HMGP#1629-4-4  
 Oxbow Park River Bank 15300364  
 Reno, Nevada October 2008  
**PROJECT LOCATION** **FIGURE 1**

L:\Projects\FEMA\_HMGP\_Projects\MapAction\_Area\Oxbow\_Park\_Project\_Location.mxd



FEMA

August 12, 2010

Mr. Arlan Melendez  
Reno-Sparks Indian Colony  
98 Colony Road  
Reno, NV 89502

Re: Oxbow Park River Bank Stabilization Project  
FEMA-DR-1629-NV, HMGP #1629-4-4  
Subgrantee: City of Reno

Dear Mr. Melendez:

The Department of Homeland Security's Federal Emergency Management Agency (FEMA) proposes to provide Hazard Mitigation Grant Program (HMGP) funding to the City of Reno, through the Nevada Department of Emergency Management, to stabilize the bank of the Truckee River near Oxbow Park, in Reno, Nevada. HMGP funding for the revised Undertaking would be authorized as a result of the Severe Storms and Flooding Disaster Declaration (FEMA-1629-DR-NV) of February 2006. The City of Reno proposes to install bank protection to protect the Lawton Sewer Interceptor, which is in danger of rupturing during future flood events. The armoring of the 30 inch diameter Lawton interceptor sanitary sewer line would involve the construction of a refusal trench parallel to approximately 100 feet of the sewer line. Ground disturbance would be limited to the bank and channel of the Truckee River within the proposed project area and to a portion of the area adjacent to the existing sewer line. A map of the proposed project area has been included for your reference.

The proposed project area has been surveyed and no cultural resources have been identified. As a general rule, FEMA will have a policy of avoidance of cultural resources for this project.

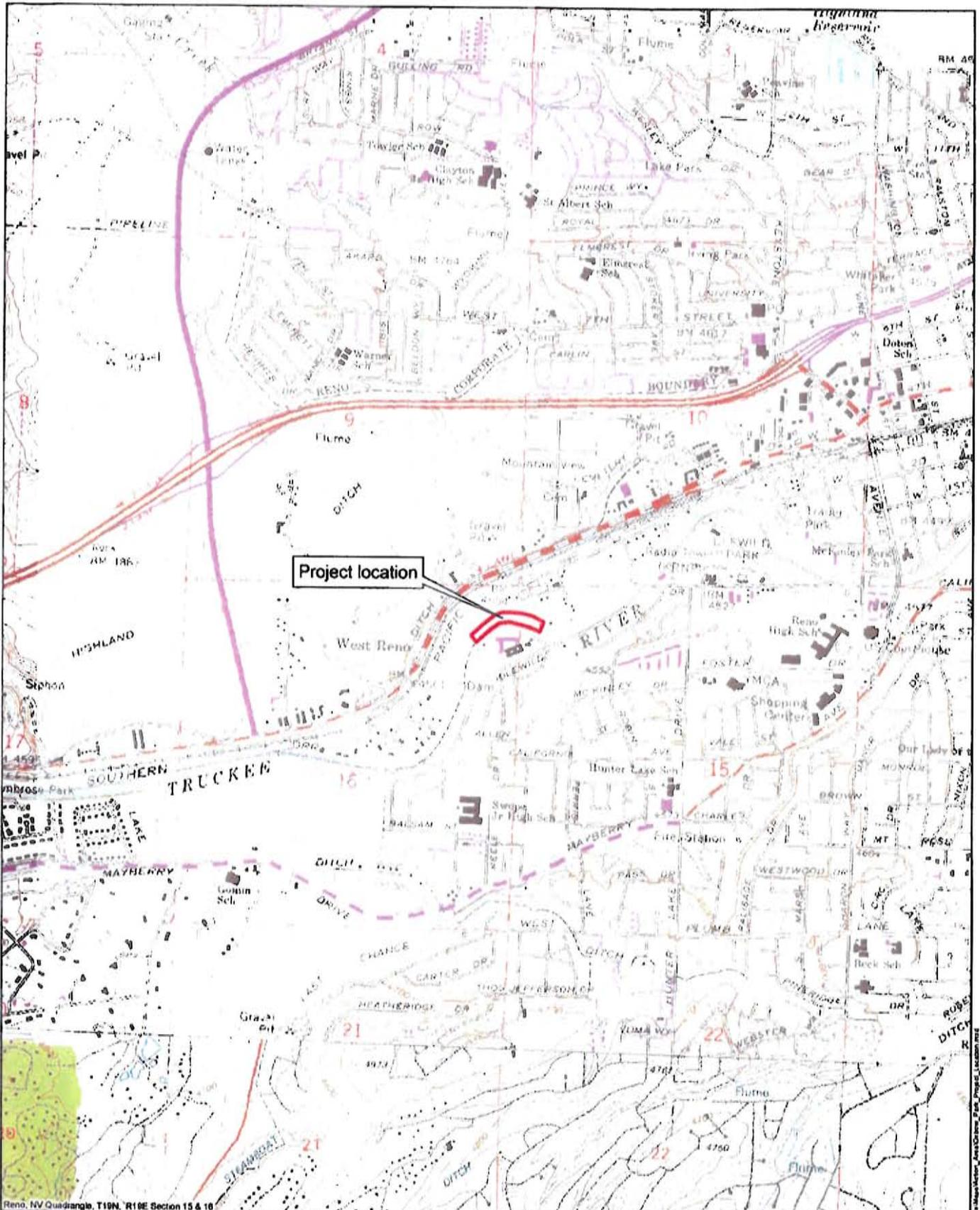
Should you have any new knowledge of cultural resources in the specific project area or know of other contacts who may have such specific knowledge, or if you have other concerns in the specific project area, please telephone me at (510) 627-7027 or write to me at the letterhead address. If I do not hear from you within 30 days of receipt of this letter, I will assume you have no comments regarding this project.

Sincerely,

A handwritten signature in blue ink, appearing to read "Donna M. Meyer".

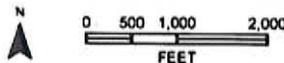
Donna M. Meyer  
Deputy Environmental and Historic Preservation Officer

Attachment



Project location

Reno, NV Quadrangle, T19N, R19E Section 15 & 16



**FEMA-NV-1629-EHP, HMGP#1629-4-4**  
**Oxbow Park River Bank 15300364**  
**Reno, Nevada October 2008**  
**PROJECT LOCATION FIGURE 1**

**APPENDIX C**  
**LIST OF INTERESTED PARTIES**



**Distribution List**  
**City of Reno, Lawton Interceptor Protection**  
**FEMA-DR-1629-NV, HMGP 1629-4-4**

**City of Reno**

Glen Daily, P.E.  
Associate Civil Engineer  
Department of Public Works  
City of Reno  
1 East First Street  
Reno, NV 89505

**Washoe County**

Katy Simon  
County Manager  
Washoe County  
1001 East 9<sup>th</sup> Street  
Reno, NV 89512

**State of Nevada**

Elizabeth Ashby  
Nevada Division of Emergency  
Management  
2478 Fairview Drive  
Carson City, NV 89701

Matt Maples  
Nevada Department of Wildlife  
1100 Valley Road  
Reno, NV 89512

**Non-Governmental Organizations**

Nevada Land Conservancy  
2000 Del Monte Lane  
Reno, NV 89511-7532

Carson Truckee Water Conservancy  
District  
295 Holcomb Avenue  
Reno, NV 89502-0836

Truckee River Flood Project  
9390 Gateway Drive, Suite. 230  
Reno, NV 89521

Truckee Meadows Water Authority  
1355 Capital Boulevard  
Reno, NV 89502

**Individuals**

Charles N. and Stacy L Mathewson  
9295 Prototype Drive  
Reno, NV 89521

Terry G. and Judith M. Garcia  
4040 Goodsell Lane  
Reno, NV 89523

Luis A. and Molly C. Jayo  
P.O. Box 33968  
Reno, NV 89533

