Public Notice

US Army Corps of Engineers

Sacramento District
1325 J Street
Sacramento, CA 95814-2922

Public Notice Number: 200125074
Date: July 27, 2001
Comments Due: August 26, 2001

In reply, please refer to the Public Notice Number

TO WHOM IT MAY CONCERN:

SUBJECT: Application for a Department of the Army permit under authority of Section 404 of the Clean Water Act to place three grade-control structures at intervals downstream of Northshore Bridge and construct toe protection on the north and south canyon walls upstream of the bridge, within Las Vegas Wash, at Lake Mead National Recreation Area, to protect the Northshore Bridge from erosion. The placement of structures and associated toe protection (Project), as proposed, would impact approximately 13 acres of waters of the United States.

APPLICANT: National Park Service, Lake Mead National Recreation Area
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LOCATION: The Northshore Bridge over Las Vegas Wash is located near the intersection of Lakeshore Road and Northshore Road, in Clark County, approximately 10 miles from Henderson, Nevada (see Figures 1-1 and 1-2). The portion of the Project that is under consideration is located within portions of Sections 13 & 14, Township 21 South, Range 63 East, MDB&M.

PURPOSE: Lake Mead National Recreation Area (LMNRA) proposes to construct three grade control structures for the purpose of improving bridge stability and longevity, and reducing erosion in the Las Vegas Wash. After a 1999 bridge inspection, the Federal Highway Administration designated the Northshore Road Bridge as "scour critical". The bridge pier foundations are unstable for calculated scour conditions and with further channel downcutting and widening the bridge could be undermined and collapse. LMNRA has identified the following Project objectives: (1) enhancing the safety for users of the Northshore Road Bridge by improving its stability and longevity; (2) protecting the natural and cultural resources of the area; (3) reducing erosion in Las Vegas Wash in a way that enhances water quality in the project area and downstream; (4) removing non-native tamarisk and restoring the riparian area with native vegetation; and (5) meeting or exceeding Federal, state, and local regulations for the protection of human health and safety and the environment.

PROJECT DESCRIPTION: A detailed project description is included in the LNMRA Environmental Assessment and is available from the Park Service website at www.nps.gov/lame. The EA is currently undergoing public review through August 17, 2001. The following is a summary of the proposed project:

Grade Control Structures. LMNRA proposes to install three grade-control structures at intervals downstream of the Northshore Road Bridge to stabilize the wash channel at or near its present level and width. The grade-control structures would be constructed of roller-compacted concrete (RCC). RCC would be composed of material excavated on-site, so it would visually blend in with the wash and vicinity. No modifications to the bridge, its abutments, or its piers would be made. A preliminary design of the project is shown on Figures 2-1 through 2-13.

The upstream-most structure would be immediately downstream of the bridge and would be approximately 1.2 to 1.5 meters (4.0 to 5.0 feet) higher than the existing bed of the wash. The second structure would be approximately 200 meters (656 feet) downstream from the first, and the third structure would be roughly 260 meters (853 feet) downstream of the second. All measurements between structures are along the channel thalweg, which is the line connecting the lowest or deepest points along the streambed. Each of the three structures would provide a vertical 2.5-meter (8.2-foot) drop.

Because the upstream face of each RCC structure would be somewhat higher than the existing streambed, the upstream face would act as a temporary impoundment to water flowing downstream. This would slow the velocity of water flowing downstream, which in turn would reduce erosion and associated channel widening and deepening. The streambed immediately upstream of the upstream face would fill in with sediment over approximately one to two years. They would not be filled in mechanically following construction, but instead would be allowed to fill in naturally over time.

The second and third grade-control structures would have an RCC stilling basin on the downstream side to protect the structure from failure resulting from local scour at the downstream face. The first grade-control structure would be constructed either with or without a stilling basin on the downstream side, a determination that would be made during final design. The floor of each stilling basin would be 1.0 meter (3.3 feet) below the top of the downstream edge of the basin, which would be set at the future channel grade. Downstream of each stilling basin a short riprap apron would be installed to protect the structures from scouring and undercutting. Figure 2-8 depicts a profile of the upstream-most grade-control structure with stilling basin. The profiles of the second and third grade-control structures are similar, with the exception of elevations and exact dimensions of the structures (Figures 2-9 through 2-12).

Without the installation of grade-control structures, the ultimate depth of long-term degradation in the wash is estimated to reach between 15 and 20 vertical meters (49 and 66 vertical feet). The three grade-control structures proposed would accommodate 7.5 meters (24.6 feet) of degradation. As such, the three grade-control structures under would not be a permanent solution to erosion problems in the wash. Additional stabilization measures would likely be necessary in 20 to 30 years to protect the three original grade-control structures from undermining and failure.

Canyon Wall Stabilization (Toe Protection). The north and south canyon walls of Las Vegas Wash just upstream of the bridge are eroding and would be stabilized under the Project. Such stabilization, termed "toe protection," would include placing RCC riprap in a stepped pattern, horizontally into the wash and slightly vertically up the side of the canyon wall (Figure 2-13). The RCC riprap would be constructed of durable local aggregate materials to protect the bank of the wash from further erosion. Horizontally the RCC riprap would be placed on the inside of the anticipated 100-year flood inundation limits, which were derived from hydrologic modeling of the wash. (A 100-year flood does not refer to a flood that occurs once every 100 years but to a flood level with a one percent chance of being equaled or exceeded in any given year.) Vertically the top of the RCC riprap would be set slightly above the 100-year flood elevation. The vertical bottom of the riprap would be low enough to accommodate a shift in the low-flow channel and to allow for local scour, which is currently estimated at a minimum of 2.0 meters (6.6 feet) below the current low-flow thalweg. However, deeper embedment in the streambed could be required to protect the riprap from local scour, a determination that would be made during final design. Toe protection would keep the north pier out of the 100-year floodplain and therefore would protect that pier from local scour during the 100-year flood and smaller floods. Based on local conditions, toe protection design could require modification during final design.

In summary, the RCC riprap used for toe protection generally would not be visible because it would be mostly underwater. The overall purpose of toe protection would be to protect the stream banks and canyon walls from further erosion and undercutting just upstream of the Northshore Road Bridge.

Tributary Stabilization. The tributary that enters Las Vegas Wash on the south bank just downstream of the bridge also would require stabilization to keep it from threatening the south abutment fill. Figure 2-13 shows a stepped RCC chute intended to stabilize the tributary. The downstream end of the chute would tie into the toe protection described above for the south canyon wall immediately upstream of the bridge. The design of the tributary stabilization also would require RCC riprap on the bed of the wash to prevent local scour from the tributary. This riprap would be extended upstream under the bridge to protect the south pier and the toe protection from undermining due to local scour.

Access Route. The construction access route for haul trucks during the stabilization effort in 1997 would be used once again as the access route for construction equipment associated with the Project. The route is approximately 0.8-kilometer (0.5-mile) long and is in the dry wash located directly north of and parallel to Las Vegas Wash (Figure 1-3). The access route is approximately 2.4 meters (8.0 feet) wide, although a portion of the route within Las Vegas Wash has been washed out and no longer exists.

Project Impacts. The project area supports approximately 15 acres of jurisdictional waters. These jurisdictional waters function as a perennial stream which is the primary drainage channel for all stormwater, urban runoff, shallow groundwater, and treated wastewater discharges in the entire Las Vegas Valley. The average base flow due to treated wastewater discharge is about 240 cubic feet per second.

Of the total 15 acres impacted by the project area, 4.9 acres supports vegetation such as tamarisk, cattail, and salt grass, that would be removed during construction. The placement of the structures and toe protection would permanently impact approximately 1.62 acres of fringe

wetlands, with 0.54 acres of in-stream vegetation permanently removed from the site of the structures. The distance between the toe protection upstream of the bridge and the downstream-most grade-control structure is approximately 1,000 meters (3,281 feet). Following construction of the structures and toe protection, reclamation would occur around the structures and adjacent to the newly created pools, and native riparian vegetation would be planted in approximately 10 acres to restore the riparian habitat. The proposed project would result in a net increase of over 8 acres of wetlands habitat. The area would be monitored and maintained to prevent the re-establishment of non-native tamarisk.

AREA DESCRIPTION: Las Vegas Wash begins northwest of Las Vegas, flows through the Las Vegas metropolitan area, and ends in Las Vegas Bay of Lake Mead (approximately 1.0 mile downstream of the Northshore Road Bridge). Las Vegas Wash flows year-round because it is the outflow for an average of 579 million liters (153 million gallons) per day of treated wastewater, urban runoff (the result of landscape overwatering and surface street runoff), shallow groundwater (water less than 30 feet below land surface that flows to the lowest part of the valley then seeps into the wash), and stormwater from the entire Las Vegas Valley. Its total drainage area is approximately 5,700 square kilometers (2,200 square miles), and its average base flow due to wastewater discharge is about 6.8 cubic meters per second (240 cubic feet per second).

The primary water quality issues of concern in Las Vegas Wash include sediment, selenium, perchlorate, and urban chemicals. Sediment transport in the wash ranges from 50 to 1,600 tons per day, as measured by total suspended solids, and varies depending upon the time when samples are collected. Some sediment settles out of the water as it pass through a settling basin before entering the underground pipes under Lake Las Vegas. As such, sediment loads in the project area portion of the wash is typically lower than upstream of Lake Las Vegas.

Other water quality concerns that have been documented in the Las Vegas Wash in the past five years include pesticides, heavy metals, human pathogens, and hydrocarbons. Studies conducted as a part of the US Geological Survey's Nationwide Assessment of Water Quality Program found fish at the confluence of the wash and Lake Mead to show high incidence of endocrine disruption. Due to water quality concerns, the Nevada Department of Environmental Protection initiated the interagency Lake Mead Water Quality Forum to coordinate monitoring, to identify issues, and to seek solutions to water quality problems. The forum will be developing long-term water discharge plans over the next five years, with the goal of improving the quality of water entering Lake Mead.

Las Vegas Wash is composed of a stream riparian community. The primary vegetation is nonnative tamarisk (saltcedar) (*Tamarix ramosissima*), although nonnative tamarisk is not a state or federally listed noxious weed. It is an aggressive species that creates thick monocultures, exhibits very little diversity in height or composition, and provides less-suitable habitat for wildlife than does native vegetation. Estimates of tamarisk in the entire Las Vegas Wash show that, since 1975, tamarisk has increased from approximately 20 percent of vegetation in the wash to approximately 80 percent of total vegetation. Other plant species found in the Las Vegas Wash portion of the project area include salt-tolerant herbs such as sedges (*Carex spp.*), rushes (*Juncus spp*.), cattails (*Typha domingensis*), and salt grass (*Distichlis spicata*).

Multiple wetlands alongside the 19-kilometer- (12-mile-) long Las Vegas Wash are a mechanism for improving water quality as urban flows enter the wash en route to Lake Mead and the Colorado River system. Since the mid-1970s, wetlands associated with the wash have decreased from 809 hectares (2,000 acres) to less than 121 hectares (300 acres) because of deepening of the wash channel, which drained some adjacent wetlands, including most of those in LMNRA. One of the only active wetlands in the Las Vegas Wash within LMNRA exists downstream of the project area on the north bank of the wash.

A floodplain is typically a strip of relatively flat and normally dry land alongside a stream, river, or lake that is covered by water during a flood. In the case of Las Vegas Wash, the floodplain has the form of a canyon. The Northshore Road Bridge piers are within the floodplain and the abutments are outside the floodplain. The tops of the canyon walls just upstream of the bridge are indicative of the floodplain elevation before substantial degradation occurred. Downstream of the bridge, the floodplain is characterized by a high terrace on one bank and an inset floodplain on the other bank. There is also an inset floodplain upstream of the bridge. Sediments that make up the inset floodplain are unconsolidated sand and gravel, which are highly susceptible to erosion.

ALTERNATIVES: LMNRA has submitted a detailed Section 404(b)1 alternatives analysis to the Corps; the following is a summary of alternatives evlauated:

"No-Action" Alternative. Under the No Action Alternative, existing conditions and management actions at Las Vegas Wash in the vicinity of Northshore Road Bridge would continue into the future. No long-term stabilization measures would be implemented, and the Las Vegas Wash at the Northshore Road Bridge would continue to degrade. Specifically, the trend of the canyon floor degrading and widening would continue unchecked.

Construct Grade-Control Structures Using Sheet Pile**.** The option of constructing grade-control structures with sheet pile instead of RCC was explored for the Project. This option was dismissed because there are few local contractors with the extensive experience in sheet pile construction necessary to complete the project successfully.

Close Segment of Northshore Road and Demolish Bridge. This alternative would include closing a segment of the Northshore Road and demolishing the bridge. Traffic could be diverted through North Las Vegas via Lake Mead Boulevard. This alternative was dismissed because of its inconvenience to LMNRA users because it would require users in the Las Vegas Bay and Boulder Beach areas needing a north-south connection to exit the LMNRA, drive to another north-south connection in eastern Las Vegas, then reenter the LMNRA, a detour of over 30 miles. LMNRA estimate 1 million users cross the Northshore Bridge per year. This alternative also was dismissed because the Northshore Road Bridge is structurally in good condition and should be salvaged if possible.

Replace Bridge. This alternative would replace the bridge with a new structure capable of accommodating a dramatic lowering of the canyon floor and retreating of both canyon walls without threatening the bridge and its users. Such a new bridge would be constructed alongside the existing bridge, and short segments of new connecting road would be constructed to connect to the existing Northshore Road. The existing bridge would be demolished before it was undermined and collapsed because an accidental collapse could harm the new bridge or any

people in the area. Accomplishing the work on the existing bridge would require temporary traffic delays and closures during the one- to two-year construction period. This alternative was dismissed because the funding required to construct a new bridge would not be fully available for approximately eight to ten years, and the existing bridge would very likely be undermined and would collapse in the meantime.

Modify Bridge. This concept would involve constructing new footings for the existing abutments and adding a new span at each end to create a considerably longer bridge. The wash would continue to cut a deeper and wider channel without threatening the bridge and its users. Modifying the existing bridge could conceivably be accomplished by constructing deep-drilled shafts adjacent to the existing abutments and tying the deck and abutments to the new drilled shafts. The shafts would have to be deep and strong enough to tolerate a long unsupported length when the canyon wall retreated beyond its present location. The existing abutment location then would become an intermediate bent, and a new abutment would be constructed well back from the canyon wall. Because continued degradation of the wash also would threaten the piers, it would likely be necessary to retrofit them with drilled shafts as well. Work on the existing bridge would require temporary traffic delays and closures during the one- to two-year construction period. This alternative was dismissed because the funding required to modify the existing bridge would not be fully available for approximately eight to ten years, and the existing bridge would likely be undermined and collapse in the meantime.

MITIGATION: Best management practices (BMPs) are means of preventing or reducing nonpoint source pollution in the Las Vegas Wash watershed and of minimizing soil loss and sedimentation. BMPs will minimize impacts to Las Vegas Wash and will include the following features, depending on site-specific requirements:

- Locate waste and excess excavation outside the riparian area to avoid sedimentation;
- Prior to construction, install silt fences, straw bale barriers, temporary earthen berms, temporary water bars, sediment traps, stone check dams, brush barriers, or other equivalent measures, including installing erosion-control measures around the perimeter of stockpiled fill material;
- During construction in Las Vegas Wash, divert wash base flows around each excavation area to create drier construction work areas that are contained from the watercourse. This will minimize construction-related sediment delivery to the watercourse. Each excavation area will be dewatered as necessary, and erosion-control measures will be installed at the outflow of the dewatering device to minimize sediment delivery to the water course;
- Conduct routine water-quality monitoring of Las Vegas Wash during construction to assess effectiveness of erosion-control measures;
- Conduct regular site inspections throughout the construction period to ensure that erosion-control measures were properly installed and function effectively;
- Properly store, use, and dispose of chemicals, fuels, and other toxic materials; and
- Refuel construction equipment in upland areas only, to prevent fuel spillage near water resources.

Riparian vegetation will be avoided, as feasible. To prevent the introduction of and to minimize the spread of exotic vegetation and noxious weeds, the following measures will be implemented:

- Minimize soil disturbance;
- Pressure-wash all construction equipment before it is brought into the NRA;
- Limit vehicle parking to existing roads, parking lots, or the access route;
- Obtain all fill, rock, or additional topsoil from the project area;
- Revegetate all disturbed areas immediately following construction activities with adapted native seed or plants that are found in adjacent areas and that are certified as weed free; and
- Monitor all disturbed areas for two to three years following construction to identify noxious weeds or exotic vegetation. Remedial and control measures will be implemented as needed and could include mechanical, biological, chemical, or additional revegetation treatments, in compliance with NPS policies.

To maximize restoration efforts after completion of construction activities, the following measures will be implemented:

- Salvage topsoil from access route construction for reuse during restoration on disturbed areas to ensure proper revegetation;
- Salvage native vegetation for subsequent replanting in the disturbed area; and
- Monitor revegetation success for three years following construction; implement remedial and control measures as needed.
- Herbicide application to control vegetation will be restricted to chemicals that do not pollute or persist in wetland, riparian, and aquatic areas. Potential drift and runoff from chemical application will be considered, as will appropriate methods and timing of application.

CULTURAL RESOURCES: A cultural resources inventory has been completed and the no historic properties are affected by the proposal. If undiscovered cultural resources are encountered during construction, work in the immediate are will be stoped. LMNRA will consult the appropiate parties according to 36 CFR 800.13 and as appropriate, portion of the Native American Graves Protection and Repatriation Act of 1990.

THREATENED AND ENDANGERED SPECIES: Pursuant to Section 7 of the Endangered Species Act, LMNRA reviewed available information on the occurrence of endangered, threatened, candidate, species of concern, and critical habitat. No Nevada-listed or federally listed threatened or endangered species have been documented in Las Vegas Wash or the proposed access route wash within the project area, nor is any critical habitat designated in the project area. However, there are protected species that could occur in or near the project area.

No documented populations of sensitive plant species, including the Las Vegas bearpoppy, occur in the project area. All cacti and yucca are protected by Nevada state law. However, none of these species were recorded in the project area. Therefore, no impacts to sensitive plant species have been identified to result from the implementation of the Project.

The impact analysis for threatened, endangered, species of concern, and sensitive wildlife species determined that no direct impacts would be anticipated from the Project to the following species: Western burrowing owl, peregrine falcon, bald eagle, Yuma clapper rail, California leaf-nosed bat, spotted bat, banded Gila monster, chuckwalla, razorback sucker, and bonytail chub.

No impacts to desert tortoise have been identified. Las Vegas Wash is considered unsuitable habitat for desert tortoise, however, desert tortoises have been documented in nearby areas. The proposed access route to the wash could be considered tortoise habitat, but surveys conducted in accordance with USFWS protocol in 1997 and 2001 recorded no tortoise or tortoise sign in this area. In addition, mitigation measures will serve to protect the desert tortoise should one be located on the Project site. Therefore, no impacts to desert tortoise would occur.

The Project area is considered marginally suitable habitat for the Southwestern willow flycatcher. None have been documented in the wash, though there is the potential that they could occur there. Southwestern willow flycatchers are neotropical migrants that arrive in the region in late April and can remain through breeding season until August. The project would occur during the fall months when this species is not present, therefore no adverse impacts would occur.

PUBLIC COMMENT: Interested parties are invited to submit written comments on or before **August 26, 2001**. Any person may request, in writing, within the comment period specified in this notice that a public hearing be held to consider this application. Requests for public hearings shall state, with particularity, the reasons for holding a public hearing.

The decision whether to issue a permit will be based on an evaluation of the probable impact including cumulative impacts of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered including the cumulative effects thereof; mong those are conservation, economics, aesthetics, general environmental concerns, wetlands, cultural values, fish and wildlife values, flood hazards, flood plain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, consideration of property ownership, and in general, the needs and welfare of the people.

The Corps of Engineers is soliciting comments from the public; Federal, state, and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

If additional information is required, please write to Ms. Nancy Kang at our Nevada Field Office, C. Clifton Young Federal Building, 300 Booth Street, Room 2103, Reno, Nevada 89509, telephone (775) 784-5304, FAX (775) 784-5306.

Michael J. Conrad, Jr.
Colonel, Corps of Engineers
District Engineer

Enclosures