ARIZONA DEPARTMENT
OF
ENVIRONMENTAL QUALITY

Douglas A. Ducey
Governor

Misael Cabrera
Director

Clean Water Act § 401 Water Quality Certification

Grand Canyon National Park, Arizona

1. Authorization

This State Water Quality Certification (WQC) is issued by the Arizona Department of Environmental Quality (ADEQ) under the authority of § 401(a) of the Federal Clean Water Act (CWA) (33 U.S.C. § 1251 et seq.) and Arizona Revised Statutes (ARS) § 49-202.

Based on the information provided and identified in Section 3, ADEQ certifies that the activities proposed for the Trans-Canyon Water Distribution Pipeline Project will not violate applicable Surface Water Quality Standards (SWQS) in the Colorado River.

a. Location

Latitude: 36.097779 Longitude: -112.095726
ADEQ PLC: 5271
ADEQ LTF: 96416

b. Project Proponent Information

National Park Service
Edward Keable
P.O. Box 129
Grand Canyon, AZ 86023

Authorizing Signature

_____ _____

Trevor Baggiore Date
Water Quality Division
Arizona Department of Environmental Quality

2. Description of Certified Activities

The National Park Service (NPS) proposes to relocate the existing water supply for the Trans-Canyon Water Distribution Pipeline (TCWL), which provides potable water to the South Rim and the Cross Canyon Corridor, within Grand Canyon National Park (Park). This project would provide a reliable potable water delivery system with a lifespan of approximately 50 years.

The water supply's current source is located at Roaring Springs (5,270 feet above mean sea level), approximately 3,000 feet below the North Rim at the convergence of Roaring Springs and Bright Angel Canyons. The new location near Bright Angel Creek in the Phantom Ranch developed area, would replace portions of the pipeline between Phantom Ranch and the South Rim. The TCWL is the Park's primary source of drinking water. In addition to replacing the portion of TCWL between Phantom Ranch and Indian Garden, new water treatment facilities would be constructed at Phantom Ranch and the South Rim.

The proposed project would permanently discharge 0.012 acres of fill into wetlands, and 0.037 acres of fill into non-wetland waters; however, permanent discharge of fill does not necessarily result in a loss of waters. While the project would permanently diminish the aquatic function of, or convert 0.008 acre of palustrine wetland and 0.004 acre of perennial stream to upland, with the restoration of temporarily impacted waters, the project would also result in the establishment/relocation of 0.008 acre of palustrine wetland contiguous with Bright Angel Creek and the restoration of 0.18 acre of perennial stream within Bright Angel Creek upstream of the relocated intake. As such, the proposed project would result in no net loss of waters. The proposed project would temporarily impact 0.426 acres of wetlands, and 0.204 acres of non-wetland waters, for a combined total of 0.630 acres of temporary impacts.

The project consists of five major components including:

1. South Rim Water Quality Treatment Plant (WQTP) Improvements;
2. Bright Angel Creek waterline rehabilitation and Havasupai Garden Campground distribution line improvements;
3. TCWL replacement between Havasupai Garden and Phantom Ranch;
4. Phantom Ranch WQTP distribution line improvements; and
5. Rocks Springs to Cottonwood Campground waterline rehabilitation.

Impacts are further defined in Table 1 below:

Table 1: Discharge of Fill to Waters of the U.S.

	Permanent Discharge of Fill						Temporary Discharge of Fill					
	Wetland		Nonwetland		Total		Wetland		Nonwetland		Total	
Project Area	**Area (ac)**	**Volume/ Type (CY)**	**Area (ac)**	**Volume / Type (CY)**	**Area (ac)**	**Volume / Type (CY)**	**Area (ac)**	**Volume / Type (CY)**	**Area (ac)**	**Volume / Type (CY)**	**Area (ac)**	**Volume / Type (CY)**
Area 2 Havasupai Gardens Distribution Line	0.003	1 4" PVC pipe / bedding	<0.001	<0.1 4" PVC pipe / bedding	0.003	1 4" PVC pipe /bedding	0.166	1,017 native soil	0.006	30 native soil	0.172	1,047 native soil
Area 3 Havasupai Gardens to Phantom Ranch Pipeline Replacement	<0.001	1 8" steel pipe /electric conduit and cable/ bedding	0.004	8 8" steel pipe /electric conduit and cable/ bedding/ concrete	0.004	9 8" steel pipe /electric conduit and cable/ bedding/ concrete	0.024	81 native soil	0.065	262 native soil	0.089	343 native soil
Area 4 BAC Intake Relocation and Phantom Ranch Distribution Line	0.009*	66 rounded to subangular rock, concrete, stainless steel structure	0.033*	277 rounded to subangular rock, concrete, stainless steel structure	0.042*	343 rounded to subangular rock, concrete, stainless steel structure	0.141	499 native soil	0.065	387 native soil	0.206	886 native soil
Area 5 Rock Springs to Cottonwood Campground Pipeline Rehabilitation	--	--	--	--	--	--	0.095	163 native soil	0.068	159 native soil	0.163	322 native soil
TOTAL	**0.012**	**68**	**0.037**	**285**	**0.049***	**353**	**0.426**	**1,760**	**0.204**	**838**	**0.630**	**2,598**

Upon completion, base flows within the upper reach of Bright Angel Creek (above the new intake structure) will increase by approximately 5%. Reduction in water overflow from the TCWL at the Indian Garden Pump Station into Garden Creek would reduce the extent of the Garden Creek riparian area at, and downstream of, the pump station.

The outflow makes up approximately 50% of Garden Creek flow. The reduction of overflow would restore this corridor to its natural condition. The riparian area just downstream of the Indian Garden pumphouse is approximately seven acres and with the reduced flow, it is expected that this riparian area would be reduced.

Monitoring would occur to track the change in the riparian area and NPS may decide to augment the flows by releasing water from the Indian Garden pumphouse or develop another strategy to minimize the reduction in the riparian area.

The following mitigation has been considered on this project:

- Avoidance: an estimated four and a half (4.5) miles of existing pipe is being replaced by slipping a smaller diameter pipe through the existing pipeline, from the South Rim Lodge to Havasupai Gardens, and Roaring Springs to Cottonwood Campground. This rehabilitation of over 30% of existing pipeline avoids trenching

impacts to waters of the U.S. Using this method, an estimated nine (9) miles of the existing pipeline will be abandoned in place or removed, where feasible.

- Minimization: All work areas have been minimized to the maximum extent practicable. Below grade impacts and temporary discharges will be revegetated to ensure there is no net loss of aquatic resources in acreage or function. The design of the relocated intake will mimic the natural stream function.
- Compensation: The U.S. Army Corps of Engineers (USACE) and the project proponent will develop a compensation plan, as necessary.

3. Information Reviewed

During the development of this WQC, ADEQ had access to and reviewed the following documents, which are on file with ADEQ:

A. CWA § 401 WQC application package including the USACE Application (Eng. Form 4345) with project descriptions and maps, dated June 8, 2022; received by ADEQ on October 4, 2022. Permittee: National Park Service, Grand Canyon National Park

B. USACE Public Notice: Trans-Canyon Water Distribution Pipeline Project, comment period August 8, 2022 – September 7, 2022. Attn: Therese Carpenter.

C. State of Arizona Surface Water Quality Standards (SWQS), Arizona Administrative Code (A.A.C.) Title 18, Chapter 11, Article 1, Appendix B. Designated uses for the Colorado River are: Agriculture-Irrigation (AgI); Agriculture-Livestock (AgL); Aquatic and Wildlife Cold (A&Wc); Domestic Water Source (DWS); Fish Consumption (FC); Full Body Contact (FBC).

4. Notification Provisions

For any correspondence regarding this project, the ADEQ mailing address is:

Arizona Department of Environmental Quality
Rosi Sherrill
Surface Water Permits / 401 WQCs / mailstop 5415A-1
1110 West Washington Street, Phoenix, Arizona 85007

For questions or general comments:
Email: sherrill.laurie@azdeq.gov Voice: (602) 771-4409

In any correspondence, please reference:
Trans-Canyon Water Distribution Pipeline Project
USACE File No.:SPL-2021-00429
ADEQ LTF No.: 96416

5. Certification Notes:

This Certification applies only to the activities described in Section 2 and is based upon the information listed in Section 3. This Certification is valid for the same period as the CWA 404 permit issued by the USACE. The project proponent must apply for renewal, modification or extension of this Certification if the CWA 404 permit is renewed, modified, extended or otherwise changed.

6. Project Proponent Actions

In the ADEQ certification request, the project proponent provided a description of methods and means for the implementation of the project to monitor the discharge and the equipment or measures planned to treat, control, or manage the discharge:

- The pipeline crossing of Bright Angel Creek at Phantom Ranch would have the highest potential sedimentation and turbidity impacts on fish. Most crossings would be completed in 1 to 2 days and would disturb a relatively small (15 – 20 foot-wide) corridor. Consequently, creek bed disturbance and sedimentation would be limited and increased turbidity levels would be temporary.
- Increased turbidity levels and extent would be not be measurable compared to Bright Angel Creek turbidity levels throughout the creek during high-flow flood events. Native fish in Bright Angel Creek are adapted to turbid conditions and negative impacts on native fish would not occur. Best Management Practices (BMPs) would be used to limit the extent of disturbance to soils and to control erosion during construction and revegetation.
- Disturbed areas would be rehabilitated, as appropriate, to limit invasion and spread of invasive nonnative plants and mulch would be spread to a depth of 3 to 6 inches, depending on the level of disturbance.
- Equipment and supplies would be staged and stored in already disturbed areas on-site or designated staging areas.
- If erosion-control fencing is used, soil would be piled in front of the fence to avoid creating bare soil and potential for invasive plant species encroachment outside the project area.
- Vegetation material removed during the project that is unusable for revegetation efforts would be cut and shredded on-site for use as mulch in the project area.
- Site disturbance would be limited to approved clearing limits. Clearing limits would be demarcated prior to construction using removable flagging or similar methods. Care would be taken to avoid operating equipment, staging equipment, and supplies; and walking or disturbing soils, biotic crusts, natural surfaces, grasses, forbs, shrubs, or other natural materials in areas outside approved clearing limits.
- Lay down of rubber mats or plywood boards under the wheels/tracks of the mechanized equipment would be required in sensitive areas.

- Compacted soils would be scarified and original contours reestablished.
- Use of mechanized equipment would be confined to the smallest possible area and would stay within the defined work corridor.
- Aspen fiber, not straw, would be used for all erosion-control products such as wattles. Coconut fiber materials would be used, rather than jute or other fabrics, for erosion-control blankets on slopes greater than 3:1.
- Any fill materials required for the project would be obtained from a park-approved source in adherence to Standard Operating Procedure 8213-007 Invasive Plant Free Forage and Construction Materials. Intact native topsoil from the project area would be retained whenever feasible.
- Water would be applied for dust abatement all project sites.
- Visual Inspections of all disturbed areas that have not been completely stabilized, areas used for storage of material, locations where vehicles enter and exit the site and all other erosion and sediment controls will be conducted weekly and after storm events.