GAOA Chilao Campground Complex – Water System Rehabilitation
MINIMIZATION MEASURES for Resource Impacts

Wildlife and Fisheries

1. To the extent feasible, construction activities will be conducted outside the bird nesting season (February 15 through September 15). {U}
2. If work is performed during the breeding season, pre-treatment surveys should be performed to identify nests in the project area. If pre-treatment surveys are not possible, active nests located during treatment activities should receive the same exclusionary buffer. {D}
3. If active nests are found and are potentially affected by the project, then a buffer should be put in place, or the work should not proceed until after the young have fledged or the nest is otherwise deemed inactive. {D}
4. The buffer size will be based on a range of factors including species, type of activity, duration of activity, nesting chronology, and bird behavior. {U}
5. If a raptor nest is present in the project area, notify the FS District Biologist and they will determine the appropriate buffer size. {D}
6. Nesting bird surveys are valid for no more than seven (7) days, after which a new survey must be conducted. {D}
7. If excavations are to be left open and unattended for more than 12 hours, they must either be covered or an escape ramp will be constructed to the bottom of the pit with less than a 2 to1 slope to provide an escape route for small wildlife species such as lizards and rodents. To the extent feasible, excavations will not be left open at the end of the day and will be covered after confirming absence of trapped individuals. Prior to commencement of work activity each day, staff will check excavations to make sure no animals are trapped. {C}
8. Before backfilling or permanently closing any excavation, it must be checked to make sure no wildlife is present within the excavated area. If wildlife has become trapped, backfilling cannot begin until the individual has either been removed or exited the excavation. {C}
9. Work will be allowed during the hours of 6am to 6pm. If night work is to occur, a lighting plan must be approved by the FS District Biologist. {C}
10. The site will be kept clear of garbage. Trash and food shall be stored in closed containers and removed daily. {C}
11. All project materials will be properly stored and secured. Materials that are in any type of liquid, granule or powder form must be stored in sealed leak-proof containers. {C}
12. Work and parking/staging areas along with ground and vegetation disturbance will be limited to the minimum necessary. {C}
13. General and Forest Service Sensitive (FSS) wildlife species encountered during the course of project implementation should be given the opportunity to evacuate the site, prior to construction activities resuming, including venomous species such as rattlesnakes. If needed, reptile species, including rattlesnakes, can be moved from the project site using nonlethal means such as sticks, shovel handles, buckets, or similar containers. Should any FSS wildlife species be found within the project site, a FS District Biologist will be notified, and they should be relocated or otherwise avoided (according to FS District Biologist recommendations) and allowed to vacate the area of potential affect. Personnel will be reminded that harassment or removal of wildlife from the site is not permitted. {D}
14. Erosion and sediment control devices used for the proposed project, including fiber rolls and bonded fiber matrix, will be made from biodegradable materials such as jute, with no plastic mesh, to avoid creating a wildlife entanglement hazard. {C}
15. All parked vehicles/equipment will be kept free of leaks, particularly anti-freeze, since this could be fatal if consumed by wildlife. {C}
16. To the extent feasible, rock outcrops and talus areas/slopes should be excluded from hand treatments and mechanical equipment. {C}

17. Project personnel will be prohibited from bringing domestic pets to construction sites to ensure that domestic pets do not disturb or depredate wildlife in adjacent native habitats. {C}

Botany

1. New occurrences of threatened, endangered, proposed, candidate, or sensitive (TEPCS) plant species discovered before or during ground-disturbing activities will be protected through flag-and-avoid methods. If TEPCS plants cannot be avoided, plants should be transplanted to appropriate habitat outside of the project footprint. {U}
2. Efforts will be made to avoid trampling native herbaceous or shrubby vegetation. {C}
3. For trees identified for protection in place, when not within the designated paths of travel, fencing around the dripline will be required, and tree padding and the placement of matting under the tree dripline may also be required during construction activities as necessary. {C}
4. The construction contractor shall keep grading activities to a minimum and avoid damaging existing root systems. Outside of roadways and designated project areas, grading will not occur within the dripline of trees identified for protection in place. {C}
5. To limit the spread and establishment of invasive plant species, all hand tools, work vehicles and heavy equipment used during project implementation will be free of noxious and/or invasive exotic weeds and seeds before entering the project site. Vehicle washing guidelines will be implemented for equipment associated with vegetation modification or ground disturbing activities (see Appendix A for ANF Equipment Cleaning Protocol). Documentation forms regarding this activity will be maintained by the project manager and forwarded to a Forest botanist. Personnel transport vehicles are exempt from this requirement as long as they have not engaged in off-road travel. {D}
6. If target invasive plants are found within the project area, they will be removed prior to commencement of work. Project activities will generate a small amount of soil debris. If soil and debris collected contains target invasive plant species with a rating of “moderate” or “high” from the California Invasive Plant Council (CAL-IPC), it must be deposited at a proper disposal facility. {C}
7. All plant material (e.g., straw, mulch, seeds, etc.) used for erosion control and/or road maintenance must be certified weed-free; or locally sourced from the Forest (e.g., wood chips from the Forest). If rice straw or rice mulch is used it must be certified weed-free. All erosion control material must be biodegradable. Wattles wrapped in “photodegradable” plastic are not acceptable. {C}
8. All fill material (soil, sand, gravel, rock) must be from an ANF approved material site. {C}
9. Construction personnel will strictly limit their activities, vehicles, equipment, and construction materials to the TCE including construction areas, staging areas or routes of travel. The construction area(s) will be the minimal area necessary to complete the Proposed Project and will be specified in the construction plans and marked on the ground with visible boundaries, including but not limited to flagging. These barriers will be maintained until the completion of all construction activities. {C}
10. Post-project monitoring and removal of invasive plants within the project impacted area is required. The intent is to focus on occurrences of new species or an expansion of existing species that can be attributed to project activities. Post-project monitoring for invasive plants will be conducted by a qualified botanist on an annual basis for two years. {U}
11. To protect tree root systems, activities (including pedestrian use) that would lead to soil compaction or soil disturbance will be avoided within the tree’s drip line. {C}

12. Prior to implementation, a pre-construction plant survey must be completed and will include all areas potentially impacted by project activities, including the actual work site, access roads, and staging areas. {U}
13. All appropriate BMPs shall be implemented to minimize damage to surface soil structure and to reduce potential for erosion and sediment transport to drainages due to project activities. All ground disturbing activities with the potential for erosion must be consistent with FSH 2509.22 – Soil and Water Conservation Practices Handbook and Best Management Practices and in compliance with the Erosion Control Plan developed for the project. All construction will remain within the existing site footprint. {D}
14. Work and parking/staging areas along with ground and vegetation disturbance will be limited to the minimum necessary. {C}
15. If vegetation will be lost as a result of this project, restoration will be required. All seed used for this project must be approved by a Forest Service botanist and must be locally collected. This will provide the best chance of successful restoration. {U}
16. Existing restoration sites shall be avoided (Figure 1). {D}

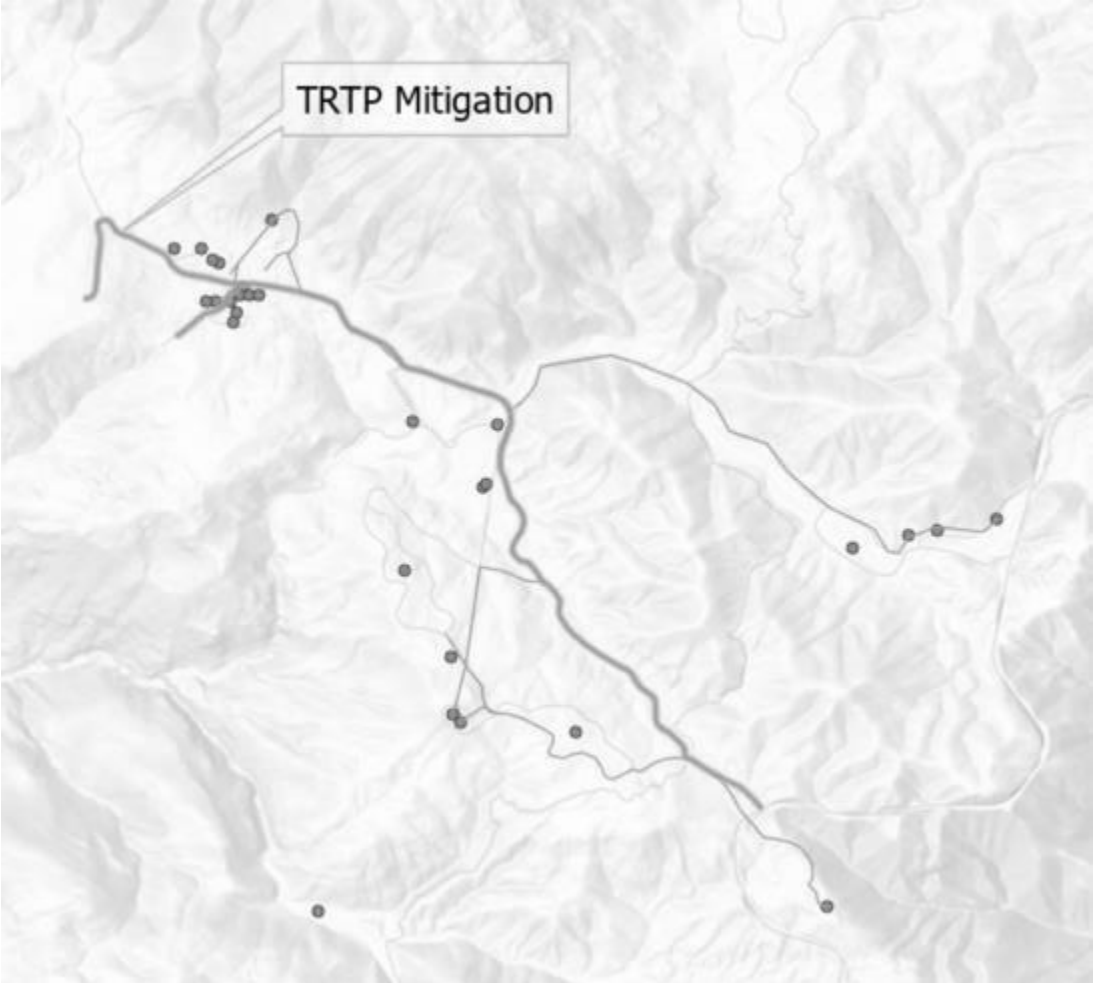

Figure 1. Area of restoration sites to be avoided are highlighted in blue.

<u>Heritage</u>

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1. Proposed undertakings shall avoid historic properties. Avoidance means that no activities associated with undertakings that may affect historic properties shall occur within historic property boundaries, including any defined buffer zones. {D}
2. Activities within historic property boundaries will be prohibited with the exception of using developed Forest transportation systems when the Heritage Program Manager or qualified heritage professional recommends that such use is consistent with the terms and purposes of this agreement, where limited activities approved by the Heritage Program Manager or qualified heritage professional will not have an adverse effect on historic properties. {D}
3. 1.3 All historic properties within APEs shall be clearly delineated prior to implementing any associated activities that have the potential to affect historic properties.
   (1) Historic property boundaries shall be delineated with coded flagging and/or other effective marking.
   (2) Historic property location and boundary marking information shall be conveyed to appropriate Forest Service administrators or employees responsible for project implementation so that pertinent information can be incorporated into planning and implementation documents, contracts, and permits (e.g., clauses or stipulations in permits or contracts as needed). {D}
4. When any changes in proposed activities are necessary to avoid historic properties (e.g., project modifications, redesign, or elimination; removing old or confusing project markings or engineering stakes within site boundaries; or revising maps or changing specifications), these changes shall be completed prior to initiating any project activities. {D}
5. Monitoring by a heritage program specialist will be used to enhance the effectiveness of protection measures. Ground disturbing activities (i.e., trenching, water line replacement) must be monitored by a professional archaeologist to document and ensure that project activities do not impact the integrity or significant values of any unknown resources. If new resources are identified during project implementation, the immediate area surrounding the resource will be flagged for avoidance and work can proceed {D}
6. The Heritage Program Manager should be contacted approximately 30 days prior to project implementation to confirm that site boundary markers have been emplaced by heritage staff. This will be done through informing the Contracting Officer's Representative {D}
7. If archaeological resources and/or historic properties are inadvertently discovered or affected during project activities, all work shall cease within 100 feet (30.5 meters) of the find, and the ANF Heritage Program Manager shall be notified. They will evaluate the significance of the resource, whether or not the resource has been affected, and recommend the appropriate action. If determined eligible to the NRHP, potential effects shall be assessed with appropriate mitigation measures developed and implemented to reduce or avoid adverse effects. Guidance shall be provided to construction workers for required actions if archaeological resources (sites, features, or artifacts) are discovered during ground disturbing activities. {D}
8. The discovery of human remains is always a potential during ground disturbing activities. If human remains are discovered, a protocol defined by California state law (California Health & Safety Code 7050.5 and California Public Resources Code [PRC] 5097.98) is required to determine if the uncovered remains are modern or archaeological. All work within a minimum of 200 feet of the discovery must immediately stop and the county coroner must be contacted. Additionally, the Angeles National Forest must be notified including the federal land manager, federal law enforcement, and a federal archaeologist. If it is determined by the coroner that the human remains are of Native American origin, proper procedures must be followed by the federal archaeologist under the Native American Graves and Repatriation Act (NAGPRA), including procedures described in NAGPRA 43 CFR 10.4 "Inadvertent Discoveries." {D}

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Hydrology

1. The construction contractor shall implement sediment control practices to divert flows from excavation, pits, and exposed soils, temporarily store flows, or otherwise limit runoff and the discharge of pollutants from exposed areas of the site. Sediment control practices should be implemented prior to ground and soil disturbance. Implement sediment control practices prior to activities and creating areas with concentrated flow during the construction process to minimize erosion and sediment laden runoff. Include the use of implementations such as silt fencing, temporary diversion dikes, and storm runoff protections to reduce movement of sediment. Sediment barriers (sandbags, silt fence, temporary containment dam) must be placed downstream of each major construction operation to prevent downstream sedimentation. Prevent construction dust, erosion and runoff from entering waterways, drainages and areas of seepage where water has the potential to pool. {C}
2. Unless an authorized source is permitted by the Forest Service prior to the start of construction, all water required for construction and project activities must be obtained from a source outside the Forest. Drafting water from Forest streams and springs is not permitted. {C}
3. Rumble strips would be placed at ingress and egress locations or at locations where haul routes transition from unpaved to paved roads. {C}
4. Trucks hauling sediment will be required to utilize haul covers. Dust dispersal shall be kept to a minimum. Airborne and ground contacting dust particles, residue and materials from digging during pipe and line removal and replacement require use of best management practices to prevent dust contaminants from dispersing in the area. Retain vegetation during construction where removal can be avoided, use dust vacuums if appropriate, apply moisture as needed to reduce non contaminant dust, use wind breaks to capture dust during operations. Revegetate any removed vegetation after backfilling. {C}
   a.) A project specific Hazardous Materials Management Plan and Emergency Response Plan for hazardous materials handling and waste management shall be developed prior to initiation of construction and submitted to the Forest Service for approval. The plan will identify types of hazardous materials to be used during construction (if any) and the types of wastes generated and their proper storage and disposal.
   b.) Any spills that do occur are expected to be minor and quickly remediated on site. Spills remediation can include removal of contaminant and proper disposal. Revegetation or soils replacement can also occur for larger spills, however large spills are not anticipated in the scope of the project activity. Depending on the severity and type of spills if these do occur, the response will meet correcting the disturbance and setting the disturbance back to the ecological state prior to the disturbance taking place. Avoid placing generators, fluid containers, or leaking pieces of equipment directly on the ground. Place any small and moveable pieces of equipment on mats or tarps that will prevent chemicals from leaching into the soil.
   c.) Equipment shall also avoid contact with soils during and after rain events to prevent mudding and subsequent hardening due to disturbance. Use parking lot and paved surfaces to station heavy equipment instead.

5. Water quality permits. Prior to engaging in any soil-disturbing activities, the construction contractor shall document compliance with the Clean Water Act (CWA) Section 401 and 402 NPDES General Permit for Storm Water Discharges Associated with Construction Activities and

any necessary permits for dewatering activities, as applicable. Prior to engaging in any soil-disturbing activities, the construction contractor shall implement use of best management practices to avoid impacts to stream and water clarity, all softbottom stream crossings will be protected during project implementation (such as temporary bridges, steel plates) to prevent vehicles and heavy equipment from driving directly on them. Avoid running machinery over drainage channels and wetlands to avoid damage to natural flow. Temporary protection measures shall not block flows, increase ground disturbance, or contribute to materials (water, soils, debris, contaminants, dust) mixing into waterways. {D}

6. Designate a staging area such as an existing flat and paved parking lot that avoids interaction with sensitive areas such as waterways. All equipment maintenance, staging, and dispensing of fuel, oil, coolant, or any other toxic substances will occur in developed or designated non-sensitive upland areas at least 100 feet from any drainage. Utilize best management practices in staging areas to prevent runoff and toxic substances from entering waterways and associated drainages. If a spill occurs inside or outside of a designated staging area address cleanup immediately, notify the Forest Service, and document the incident in a spill report provided to the Forest Service. {D}
7. All equipment must contain appropriate spill containment kits to respond to leaks and spills. Personnel must have training on proper response to any type of hazmat situation. All hazmat situations must be reported to the Forest Service Hazmat Coordinator according to the Angeles National Forest San Gabriel Mountains National Monument Hazard Communication Plan (2016). {C}
8. Ground disturbance will be limited to the minimum necessary for activities. All project activities including vehicle traffic and staging will be confined to the smallest area possible. All vehicles, tools and equipment will be restricted to existing access roads, trails (with the exception of the Historic Pacific Crest Trail-no vehicular travel is permitted), or disturbed areas to the maximum extent feasible. Dust and byproduct materials control from excavation and digging in or near trails, campgrounds, paved roads, and open natural areas should be implemented to prevent materials from entering adjacent drainage channels. Dust, erosion and materials/contaminants transport is expected to be minimal to non-existent in areas where no motorized machinery is used to carry out the project and/or where no digging or excavation activity occurs. {C}
9. All ground disturbing activities with the potential for erosion must be consistent with FSH 2509.22 - Soil and Water Conservation Practices Handbook and Best Management Practices (BMPs). During the project life monitor that best management practices are implemented, functioning, and achieve the desired protective measures. Best management practices serve to minimize damage to surface soil structure, reduce potential for erosion, and contain sediment and contaminant materials transport to drainages from project activities. The correct use of best management practices can prevent long term undesirable alterations to the soils and integrity of the watersheds. An erosion control or other relevant action plan is not anticipated for this project so long as activities remain within the outlined resource protection measures. {C}
10. Region 5 BMPs under 12.21-Road Management BMPs: 2.13: Erosion Control Plans (roads and other activities) {C}
    a. equipment will not go off road and care will be taken to avoid using equipment on soil surfaces where overland flow occurs and after rain events
    b. Equipment will be staged on the (paved) road areas and avoid unpaved surface contact after rain events
    c. Notify watershed staff prior to engaging in operations during wet weather conditions (or avoid work during wet conditions)
11. National BMPs: Veg-2. Erosion Prevention and Control {D}

   a. Operate equipment when soil compaction, displacement, erosion, and sediment runoff would be minimized (dry)
   b. Avoid ground equipment operations on unstable, wet, or easily compacted soils
12. Road-10. Equipment Refueling and Servicing {C}
   a. Report spills and initiate cleanup action in accordance with applicable State and Federal laws, rules, and regulations (notify the Forest Service of any spills)
   b. Refuel and service equipment only in designated areas of containment
   c. Clean up and remove spilled materials, residues, and any other hazardous materials from Forest Service land
13. Fuel vehicles and equipment in a protected area with barriers to prevent leaks from entering drainage systems or with a pan with a lip below the fueling area to catch spills. Use tarps or mats under equipment. Store hazardous materials and wastes in correct containers and adhere to state and federal applicable laws for use, management and disposal of hazardous materials {C}
14. Crews must have appropriate spill containment kits to respond to leaks and spills. Personnel must have training on proper response to any type of hazmat situation. All hazmat situations must be reported to the Forest Hazmat Coordinator according to the Forest guidelines. {C}
15. Soil Management Design Features: {D}
   a. Temporary Erosion Control
   b. Erosion control or soil stabilization measures will be implemented while soil disturbing work is active. Preserve existing vegetation where feasible. Limit disturbance, especially on large or steep grades and where soil exposure to rainfall and wind can cause loss if unprotected.
   c. Vehicles will only be parked in designated parking areas and on flat dry stable ground.
   d. Sediment Control
   e. A sediment control plan must also include provisions to temporarily stabilize access points such that soil, sediment and other materials are not tracked out.
   f. Consolidate and maintain position of heavy equipment.
   g. Do not move machinery on wet soils.
   h. Stage machinery on flat ground with high soil strength. For example, established access road.
   i. Control dust and contaminant mixing
   j. Keep channels and other natural areas clean of construction debris

16. Contractors, visitors and users of the site should also comply with resource protection measures such as proper and responsible disposal of trash, prevent fluids and leaks from vehicles, seal, store and protect foods from access by wildlife and avoid damage to vegetation, grounds, and facilities. When practicing responsible measures soils and surrounding areas are kept cleaner, macro and micro contaminants are reduced and runoff and erosion transport pollution is reduced. {C}

<u>Engineering</u>

1. Work occurring at the well locations will be alongside the Pacific Crest National Scenic Trail (PCT). Bicycles and motorized vehicles are not allowed on the PCT. They are a conflicting use, that can spook horses, which are allowed on the PCT. All equipment and supplies should be packed or hiked in. {C}
2. Avoid damage to the trail tread or any expansion of the trail width. Any project-related impacts to the Trail, must be repaired to meet PCT standards. {C}

3. Permanent project components that remain and are visible within 300' on either side of the PCT should be screened from view, color treated and/or composed of materials that help them blend into the natural setting. Forest Service approval of colors and materials will be required. Components that must be specific colors for safety or legal reasons are exempt. {D}
4. Work should be sequenced so vehicular access to the Chilao fire station can be maintained as much as possible. When work will be done that does not allow access to the Chilao fire station, Forest staff must be notified 3 weeks in advance so Fire staff can relocate to another station or stage equipment appropriately around the Chilao campground area. {D}
5. Existing road drainage features like overside drains and grates in the road should be kept in place but cleared and unclogged. Some drainage features are from Civilian Conservation Corps work and need to be preserved. If necessary, drainage features can be removed during the work and returned to their original location upon completion. This work will be coordinated with Forest Engineering and Heritage staff. {D}
6. Constructed rock features like retaining wall at water crossing will be avoid and not damaged from the work. {C}

Responsible Party for Compliance
{C} Contractor Responsibility
{D} Dual Responsibility for Contractor and USFS Personnel
{U} USFS Responsibility