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Title: Floodplain Assessment for the Proposed Engineered Erosion Controls at TA-72 in Lower Sandia Canyon, Los Alamos National Laboratory

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Introduction

Los Alamos National Laboratory (LANL) is preparing to implement engineering controls in Sandia Canyon at Technical Area (TA) 72. Los Alamos National Security (LANS) biologists conducted a floodplain determination and this project is located within a 100-year floodplain. The proposed project is to rehabilitate the degraded channel in lower Sandia Canyon where it crosses through the outdoor firing range at TA-72 to limit the loss of sediment and dissipate floodwater leaving LANL property (Figure 1). The proposed construction of these engineered controls is part of the New Mexico Environment Department's (NMED) approved LANL Individual Storm Water Permit.

Project Description

The purpose of this project is to install storm water controls at Sandia Watershed Site Monitoring Area 6 (S-SMA-6). Storm water controls will be designed and installed to meet the requirements of NPDES Permit No. NM0030759, commonly referred to as the LANL Individual Storm Water Permit (IP). The storm water control measures address storm water mitigation for the area within the boundary of Area of Concern (AOC) 72-001. This action meets the requirements of the IP for S-SMA-6 for storm water controls by a combination of: preventing exposure of upstream storm water and storm water generated within the channel to the AOC and totally retaining storm water falling outside the channel but within the AOC.

The project consists of (A) enhancing water recharge upstream of the site via the installation of (1) two check dams within the secondary channel, which connects to the Sandia Canyon main channel and (2) site grading outside of but adjacent to the south and east portion of the main Sandia Canyon channel and (B) installing a reinforced (i.e. soil-cement or similar material) channel to replace the existing channel to route water through the site. Item (A) promotes sheet flow in the side canyon and allows for water absorption in a natural depressional area. Item (B) includes the following elements:

- Directing water into the channel via a grade control structure.
- Constructing retention berms within AOC 72-001 where reinforced walls will not exist to achieve "total retention" of storm water falling on the portion of the AOC located outside the channel.
- Construct new rock training weirs up-gradient of the water recharge area along the north side slope of the existing channel.
- Construct an approximate 8-foot bottom width reinforced (i.e. soil-cement lined) trapezoidal channel. The top elevation of the channel's sloped walls will extend above the existing grade with fill material built up to the edge to prevent any local runoff from entering the channel from the AOC.
- Construct vehicle access to maintain access to the firing range area to the north.
- Construct a flared apron and energy dissipation feature on the eastern end of the concrete channel.

Floodplain Impacts

Under the proposed engineering erosion control measures, the total anticipated area of disturbance is 3.50 acres (~2 acres related to retention area and upstream check dams, ~1.25 acres related to conveyance construction and berm enhancement, ~0.25 acres for a laydown area). The total area of existing waterway with disturbance occurring is <0.3 acres (800' length at approximate average width of 15 feet). The completed engineered erosion control measures will reduce the amount of potentially contaminated soil leaving LANL property and the migration of contaminants into groundwater.

Best management practices for soil erosion control and floodplain protection would be implemented during all project activities. For any construction or excavation, a National Pollution Discharge Elimination System (NPDES) General Notice of Intent would be filed, and a Storm Water Pollution Prevention Plan would be implemented as required.

The long-term effects for the 100-year floodplain in Sandia Canyon, TA-72 are positive. Initially, the floodplain will be disturbed, but the completed structures for the IP project at S-SMA-6 will reduce the amount of potentially contaminated soil leaving LANL property and reduce the strength of flood events moving down Sandia Canyon.

Other Alternative Considered

No Action

Under the No Action alternative, the engineered erosion controls and the outdoor firing range upgrades would not be implemented. Requirements under the IP would not be met and LANL would be in violation of this permit and subject to fines, or NNSA and Los Alamos National Security, LLC, would need to renegotiate the permit.

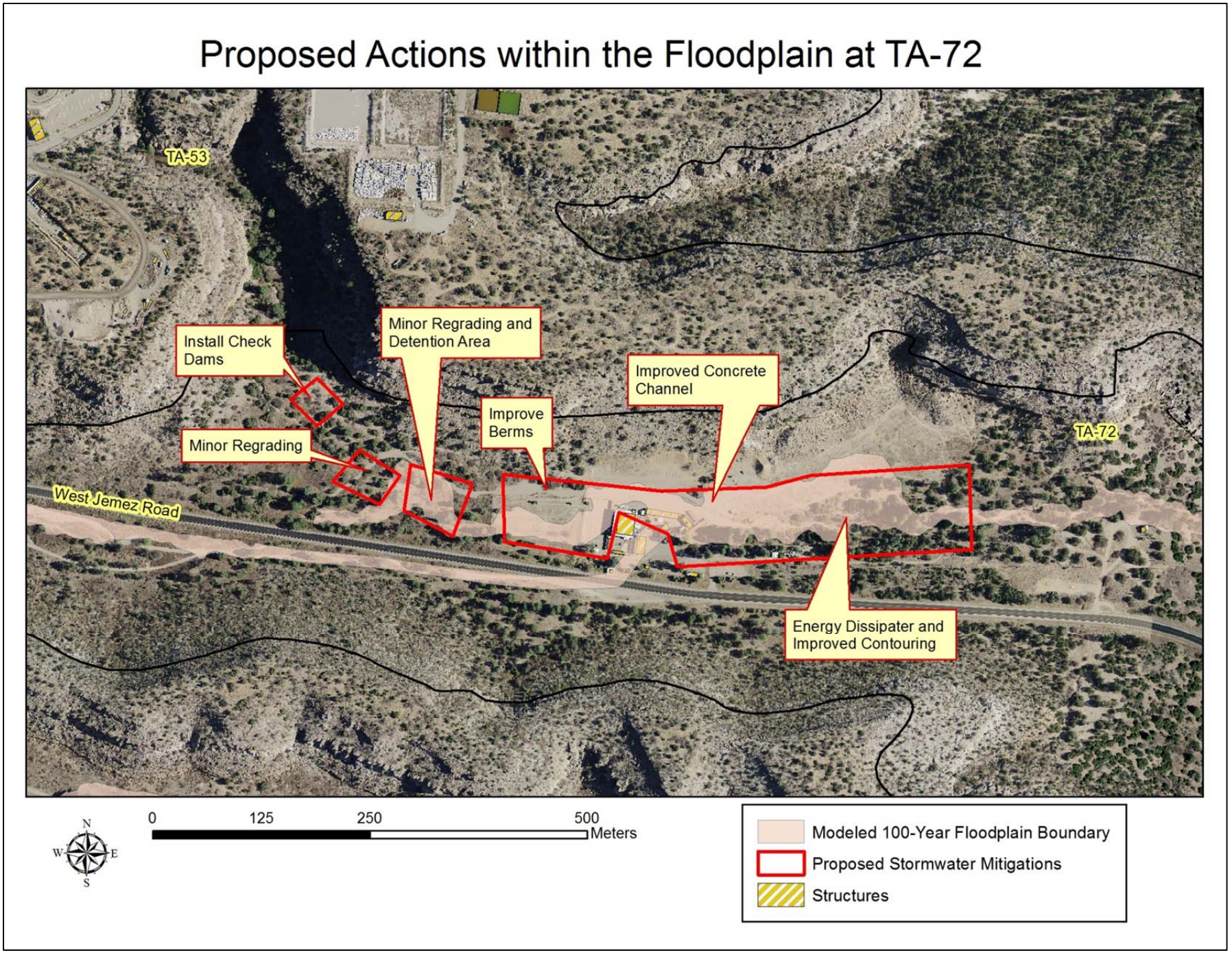

Figure 1. Orthophoto map showing the general location of the proposed projects in relation to the 100-year floodplain boundary in TA-72.