Colorado Solar Regional Mitigation Strategy & San Luis Valley-Taos Plateau Landscape Assessment

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Surface Hydrology

POTENTIAL IMPACTS OF SOLAR ENERGY DEVELOPMENT

Direct (on the solar energy zones):

- Altered surface flow and runoff, reduced infiltration/recharge, loss of ephemeral stream networks, reduced evapotranspiration, increased sediment transport
- Decreased availability of groundwater and declines in groundwater elevations (if groundwater is used)
- Degraded surface and groundwater quality (due to increased sediment loading, or accidental spills of chemicals)

Indirect (outside the solar energy zones):

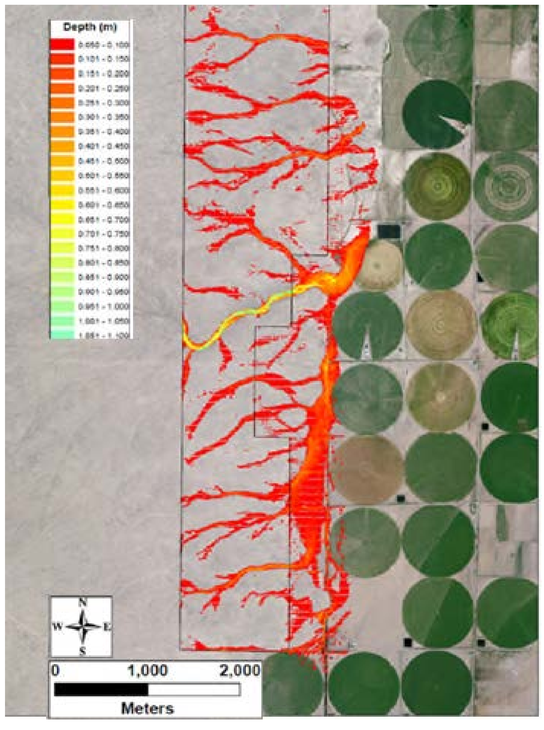
- Changes to ephemeral and perennial surface water features
- Decreased groundwater availability in other locations of the Rio Grande Basin

Cumulative (resulting from solar development in the SEZs and changes occurring outside the SEZs):

- From solar development of more than one SEZ
- From other development near the SEZs (for example, new solar on private lands, new roads or towns)
- From other changes, such as climate change, invasive species spread, or wildfires

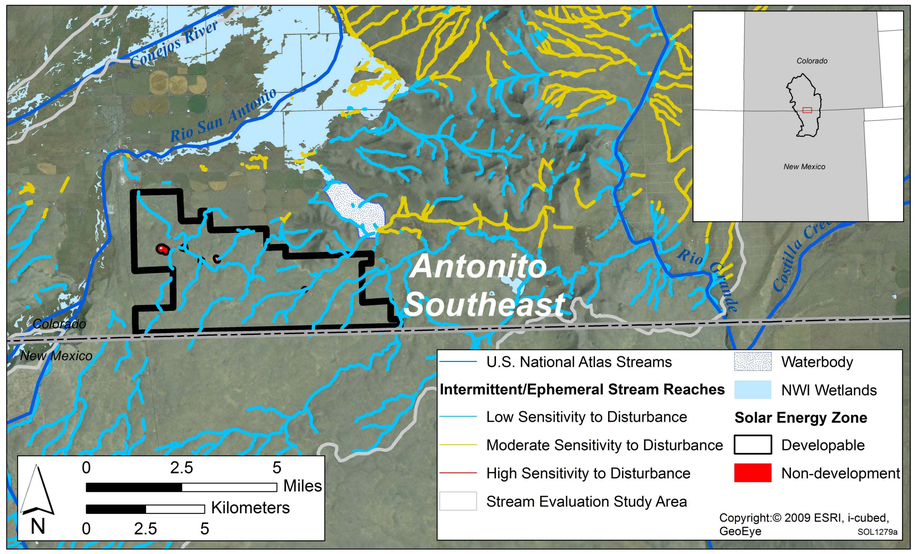
- Antonito Southeast SEZ)contains a small lake and surrounding wetlands (17 acres); there are no other perennial surface water features in the SEZs

Surface Hydrology on Los Mogotes East SEZ



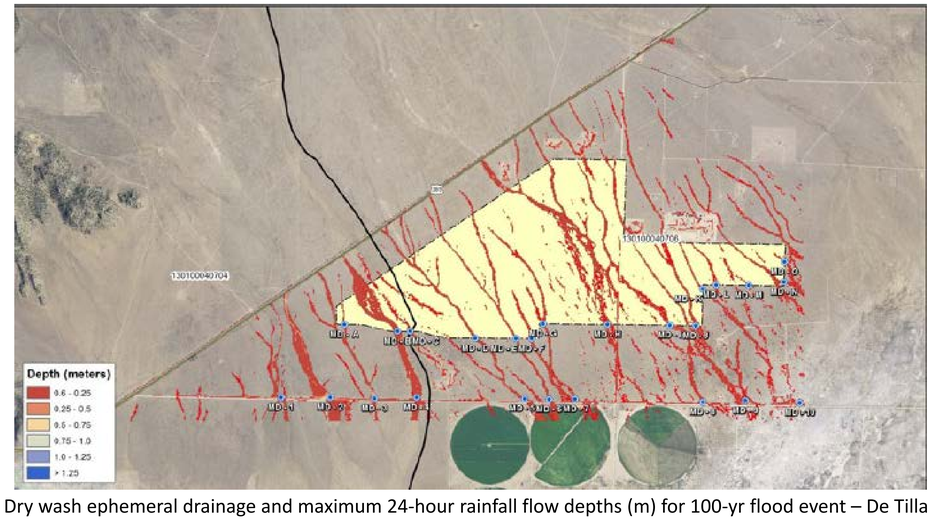
Dry wash ephemeral drainage and maximum 24-hour rainfall flow depths (m) for 100-yr flood event – Los Mogotes East EZ. Source: Tetratech 2013.

Surface Hydrology on Antonito Southeast SEZ



Surface water features in the hydrologic basin that includes the Antonito Southeast SEZ. Source: BLM 2012 – Solar PEIS.

Surface Hydrology on De Tilla Gulch SEZ



Dry wash ephemeral drainage and maximum 24-hour rainfall flow depths (m) for 100-yr flood event – De Tilla Gulch SEZ. Source: Tetratech 2014.

Examples of Required Onsite Avoidance Measures:

- Develop Vegetation Management Plan to maintain maximum acreage of native vegetation
- Evaluate maintenance of existing flow patterns at the SEZ boundaries, by avoiding drainages and/or providing detention or retention facilities

Examples of Required Onsite Minimization Measures:

- Manage runoff from parking lots, roofs, and other impervious surfaces
- Identify and comply with wastewater treatment measures under NPDES permit

Surface Hydrology in the Study Area