

Terraces as a Water Quality Improvement Practice

The following conditions will be utilized for Watershed Restoration and Protection Strategy (WRAPS) using EPA Section 319 and/or State Water Plan funding.

Terraces are utilized to reduce slope length and control runoff water to allow for the least amount of erosion. For the benefit of water quality, WRAPS projects should utilize terrace systems after infiltration of water has been optimized by the cropping/management system. In the event a terrace system needs to be utilized the following conditions apply.

Allowable Funding

WRAPS/319 funds will be limited to a maximum of \$1.00 per linear foot of terrace.

Practice Type

- Gradient Terrace
 - Terrace rebuilds: To be eligible for WRAPS/319 funding, the terrace must exceed 35 years of age and not meet conservation specifications.
 - Continuous no-till farming as defined by Natural Resources Conservation Service (NRCS) specification will be required for terrace projects utilizing WRAPS/319 funds. Other system components are encouraged and can include conservation crop rotation, contour farming, nutrient management, other residue and tillage management, and cover crops.
 - Grassed Waterways are considered a separate project and are eligible for WRAPS/319 funding.
- Underground Tile Outlet Terrace (TOT)
 - Terrace rebuilds: To be eligible for WRAPS/319 funding, the terrace must exceed 35 years of age and not meet conservation specifications.
 - Conversion of gradient terraces to underground TOT is **not eligible** for WRAPS/EPA 319 funding if a suitable or restorable grassed waterway outlet is available.
 - Continuous no-till farming as defined by NRCS specification will be required for terrace projects utilizing WRAPS/319 funds. Other system components are encouraged and can include conservation crop rotation, contour farming, nutrient management, other residue and tillage management, and cover crops.
 - Pipeline, trenching, etc. are considered part of the terrace project and are not eligible for WRAPS/319 funding.
 - Underground Outlets (NRCS Code 620): The following special conditions are applicable only to outlets in which the receiving stream has a TMDL or 303d cited impairment for excessive nutrients (i.e. nitrogen and phosphorus), stressed aquatic biology, deficient dissolved oxygen, or excessive pesticides:
 - The current design requirements for underground outlets replacing a grassed waterway be increased from 8 hours to 12 to 16 hours. It is recommended that the Engineering Guidance Document be modified to reflect this requirement when installing Conservation Practice 620 adjacent to waters with the TMDL and 303d listed impairments cited above.

- Require the use of riser outlets (bubble-up riser) when the discharge site has established vegetation for Conservation Practice 620 adjacent to waters with the TMDL and 303d listed impairments cited above.
- The practice will be designed and constructed so that a vegetative area with a minimum separation distance of 30 feet between the pipe outlet and the stream be installed and maintained. If 30 feet is not possible due to site conditions, a minimum of 15 feet be installed and maintained. It is recommended that the NRCS Exemption Worksheet for conversion from a Grassed Waterway to Underground Outlet be modified to include this addition.
- Cropping systems and chemical applications with the least pollution potential should be strongly considered.
 - Where manure is applied in the upslope areas, a permanent vegetation buffer of 35 feet (KDHE LWM recommended) between the treated area and inlet structure (riser) shall be considered.
 - Applications of agrochemicals may require greater setback requirements according to label directions.

Cropland management systems should be considered to accompany Conservation Practice 620. Examples may include Conservation Practices 328, Conservation Crop Rotation; 590, Nutrient Management; 595, Pest Management; 345, Residue and Tillage Management, Mulch Till; and 329, Residue and Tillage Management, No Till/Strip Till/Direct Seeding.

- Ephemeral Gully Stabilization
 - Terrace systems used to address ephemeral gullies will require both a terrace and a gully stabilization project be reported in the Kansas Clean Waters (KCW) system. Gully dimensions and load reductions can be provided to WRAPS Coordinators by NRCS.
 - The submission of a soil loss worksheet to KDHE is a requirement of ephemeral gully reporting. The worksheet can be provided to WRAPS Coordinators by NRCS.
 - This practice is subject to the above mentioned terrace implementation requirements.
- Classic Gully Stabilization
 - Terrace systems used to address classic gullies will require KDHE review and approval prior to application approval by WRAPS Projects. Approval and funding amount will be determined based on the efficiency of the gully stabilization project.
 - This practice is subject to the above mentioned terrace implementation requirements.