

TECHNICAL NOTES

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Pond and Plug Technique for Wet Meadow Restoration Initial Inventory and Evaluation Physical Requirements

Upland meadows contribute to the health and function of riparian systems by dissipating energy, storing and slowly releasing streamflows, trapping sediment, improving water quality, and providing valuable riparian habitat. However, natural disturbances (such as wildfire, floods, or drought) and historic land uses (e.g. logging, agriculture, grazing and water diversions) have in many instances upset the water-sediment balance of many of these systems, triggering channel incision, widening, and lost floodplain function, which in turn results in disrupted streamflow hydrology, poorer water quality, and habitat degradation along a significant portion of a watershed's riparian corridor.

Pond and Plug is a restoration technique where segments of a deeply incised channel are filled with material obtained by excavating ponds along the channel. Streamflow is then rerouted into either a stable relict channel or a newly constructed channel, to restore floodplain function, elevate the water table to within the root zone, and support reestablishment of wet meadow vegetation.

The appropriate primary practice standard to be used for planning and design of Pond and Plug projects is Conservation Practice Standard 657-Wetland Restoration.

Meadow landscapes are highly variable in terrain slopes, meadow floor widths, depth of incision, and hydrology. The pond and plug alternative may not be appropriate in all settings, particularly those larger and/or deeply incised reaches where relatively costly or complex engineering analysis and design would be required to ensure stability. Pond and Plug technique for wet meadow restoration is limited to the following physical conditions:

Maximum average valley slope:	1 % (0.01 slope)
Maximum channel incision:	8 feet
Maximum incision width to total meadow width ratio:	20 % (0.20)

In addition, the following design conditions are critical to the success of Pond and Plug projects, and shall be considered by the interdisciplinary planning and design team:

A stable outlet (either natural or designed) is required.

Soils, hydrology, and vegetative conditions must be present to promote the reestablishment and maintenance of a suitably dense and diverse stand of riparian-wetland vegetation appropriate to the site. Vegetation sufficient for recruitment and maintenance may already be present on-site or plantings with or without temporary irrigation may be required.