

## Project Experience

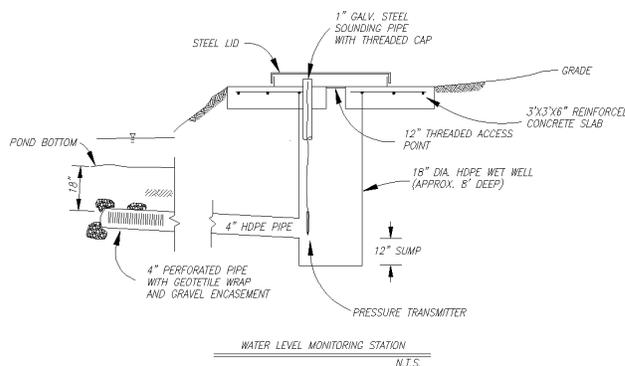
### Stillwater National Wildlife Refuge Telemetry Ducks Unlimited, Inc., Rancho Cordova, CA

Timberline and Ducks Unlimited have teamed to provide the US Fish and Wildlife Service, a system to improve the efficiency of their habitat management at Stillwater National Wildlife Refuge in Northern Nevada. The wildlife refuge includes a series of ponds, called "habitat units." The Fish and Wildlife Service manage the habitat units by conveying surface water through a series of canals to maintain the proper amount of water on selected habitat units.



The Fish and Wildlife Service will be better able to manage the Refuge if they can better understand how much water is entering the Refuge boundaries, how much water is leaving the Refuge boundaries, and how much water is being lost due to evaporation, transpiration, and percolation. In addition, the Fish and Wildlife Service can benefit from knowing how much water

is in each of the units at any time, what portion of the units are wet, the amount of water required to maintain that level, and the effect of raising or lowering the level by a specified amount.



**WATER LEVEL MONITORING STATION**

To meet the needs of the Refuge, Timberline and Ducks Unlimited have recommended a geographical information system (GIS) that incorporates data collected from field instruments. The system will use a combination of aerial photography and GIS transects to acquire accurate topographical backgrounds. Each

of the habitat units will be equipped with level monitoring stations equipped with dataloggers and pressure-type level transmitters. The canals at the boundaries of the Refuge will be equipped with flow measurement stations including, open channel flow meters, dataloggers, and solar power systems. In addition, the Refuge will be provided with a number of portable flow measurement systems that can be put in flow control structures at the entrance and exit of various habitat units for measurement as needed. Data collected from these instruments will be downloaded into the GIS system for analysis and planning.

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