



City of Sierra Vista Police Station 1011 N. Coronado Dr., Sierra Vista Water Harvesting Project 2014



FEATURE: Passively harvesting 450,000 gallons of stormwater with "earthworks" from sidewalks and parking lot, and actively storing rooftop rain in 10,000 gallon tank.



Passive harvest:

The area between the Sierra Vista Police Station and City Hall receives thousands of gallons of stormwater each year. Before the Watershed Management Group's (a Tucson non-profit) earthworks retrofit project, the unused stormwater by-passed irrigated plants and drained to a detention basin - another example of paying for water while getting rid of water! The disposed stormwater also caused erosion cuts. A series of berms (bumps) and swales (dips) installed by community volunteers harvests the stormwater from the Police Station parking lot, an area approximately 55,000 square feet in size. It is estimated that annually, the earthworks will harvest 450,000 gallons of pollutant-laden stormwater running off the parking lot. In addition to the parking lot run-off, the swales and berms collect stormwater run-off from the hard surface areas surrounding the Police Station.

The water will replace an estimated 37,000 gallons of groundwater used for landscape irrigation, will provide erosion control by stabilizing head cuts, will reduce sediments clogging downstream areas and will also clean the stormwater by filtering out non-point source pollutants before cleaner water continues on downstream. After establishment, a temporary drip system may be disconnected, and plantings will be sustained on seasonal rainfall alone.



This passive part of the Police Station Water Harvesting project was funded by the Walton Family Foundation and designed by Watershed Management Group. It was constructed in partnership with the City of Sierra Vista and volunteers from the community in April of 2014.



Active harvest:

In addition to the passive earthworks harvesting stormwater, rainwater from the Police Station is collected in a 10,000 gallon welded galvanized steel tank. You can see the 6" downspouts from the Police Station are connected to underground pipes that enter the tank downslope. There is an external pump to pressurize the water for the surrounding irrigation system. It is estimated that this rainwater harvesting system will annually collect over 55,000 gallons. If the irrigation system needs more water than what rain can supply, the tank has a fill valve that will automatically put some water into the tank until the next rain.

System Statistics:

Harvested water use: Landscape irrigation around City Hall

Irrigation Delivery System: Pressurized with 1 hp external Grunfos pump to drip system

Annual rainfall: 14"

Collection area: Approx. 7,000 sqft

Roof material: Rolled and coated elastomeric type covering

Annual potential collection: 55,733 gallons

Present total collection capacity: 10,000 gallons

First wash: No, but has metal cages over the downspouts to catch large debris

Roof Conveyance System: Wet. There is a manual drain valve on the 6" fill pipes so in very cold weather those pipes can be drained to prevent freezing.

Container: 10,000 gallon welded galvanized steel with two 6" wet delivery inflows and two 6" overflows.

Auto fill: The auto fill uses a 24 volt motorized ball valve linked to a float switch inside the tank. When the water level gets low in the tank the ball valve is opened to supply city water until it rains again. There is an air-gap between the municipal water fill valve and the highest water level in the tank assures against cross-contamination of rainwater and municipal water.

Overflow: To the stormwater ditch just down the hill from the tank

This active part of the project was funded by the Walton Family Foundation through a grant from The Cochise Water Project. It was installed by Oasis Water Harvesting.

