Harvest and Use Factsheet

1.0 General Description

Figure 1. Harvest and Use (Porter County IN)

Potential Treatment Mechanisms								
I	ET	FA	B	RH	S	F	P	T
				✓	✓			

Legend:
I = Infiltration
ET = Evapotranspiration
FA = Filtration and/or Adsorption
B = Biochemical Transformation
RH = Rainfall and Runoff Harvest
S = Sedimentation
F = Floatation
P = Plant Uptake
T = Trash Capture

Harvest and use can consist of rain barrels, cisterns, or other containers—usually made of either metal, plastic, or concrete—that receive runoff for temporary storage and later use. The containers may be above or below ground. Above ground systems ((Figure 2) typically receive runoff from roof downspouts. They can have either an open outlet or a valve from which the water can more slowly infiltrate the ground below or be used as a non-potable water source. Some may also have a bypass valve or other form of filtration to help filter out grit and other contaminants. In addition, most have either a screen and/or tight seals to keep out mosquitos or other vectors and pests.

Underground harvest and use systems (Figure 3) are engineered, subsurface void spaces consisting of one or more containers, such as large pipes or concrete vaults, with a permanent pool of water. Stormwater enters a vault through a surface inlet and is temporarily stored, allowing sediments and particles to settle. If the water level reaches a certain height, it is discharges as overflow.

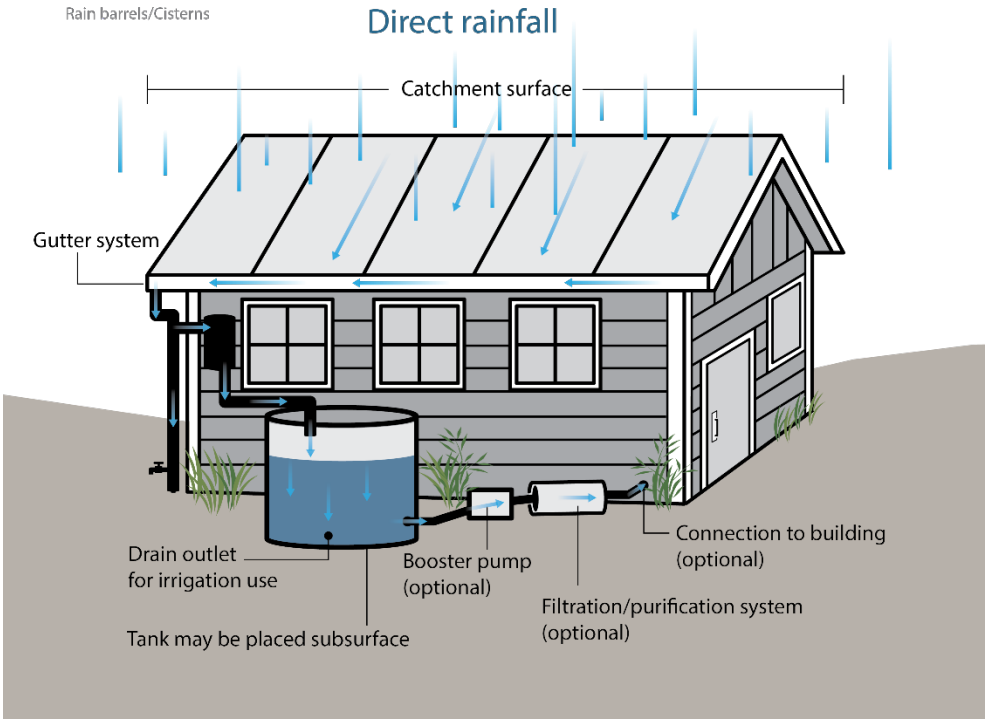

Figure 2. Basic schematic of aboveground harvest and use system

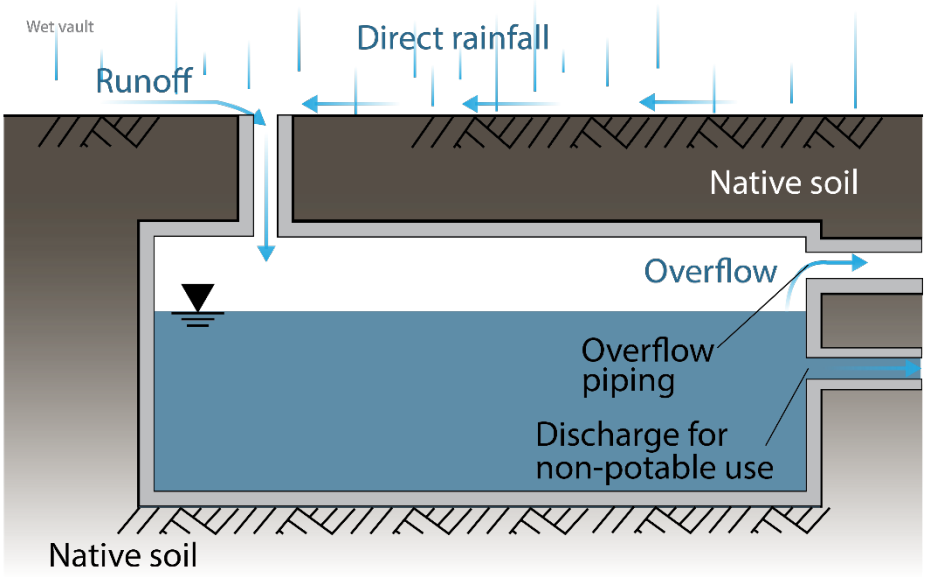

Figure 3. Basic schematic of an underground harvest and use system

1.1 Variations and Alternative Names

- Harvest and Reuse (Practice)
- Aboveground/underground cistern
- Rain barrel
- Wet vault
- Aboveground/underground storage (vault)

2.0 Advantages & Limitations

2.1 Advantages

✓ Can be used in areas where space is limited
✓ Provides an alternative non-potable water source
✓ Can easily be added to existing buildings
✓ Can be used where water table is high

2.2 Limitations

× Limited storage capacity
× If not properly installed or maintained, odors and mosquito habitat may develop
× May require permitting or be subject to plumbing code regulations
× May require pumps
× Due to the designed permanent pool of water or stagnant water, vector breeding can become an issue

3.0 Siting

Aboveground systems should be located in a shaded area to help limit algal growth and on stable flat ground or pavement for stability.

For underground systems, subsurface utilities must first be located to avoid conflicts.

4.0 Design Considerations

When adding aboveground systems, the following design parameters should be considered:

❑ Volume

- ❑ Space available
- ❑ Existing gutters
- ❑ Tank opacity
- ❑ Piping
- ❑ Screening
- ❑ Overflow
- ❑ Pump size (optional)

When designing an underground system, the following parameters should be considered:

- ❑ Contributing drainage area
- ❑ Vault volume
- ❑ Dead and live loading capacity
- ❑ Maintenance drain
- ❑ Mosquito access prevention

5.0 CONSTRUCTION CONSIDERATIONS

- ❑ Level area where an aboveground system is to be placed
- ❑ Manufacturer will have construction guidelines for each specific underground systems

6.0 MAINTENANCE

- ❑ Checks of seals and screens to prevent entry by mosquitos and other pests
- ❑ Inspections of all components for leaks
- ❑ Pump maintenance, if required
- ❑ Removal of sediment, if required
- ❑ Inspections for trash and debris removal

7.0 REFERENCES

California Stormwater Quality Association (CASQA 2003). *Stormwater Best Management Practice Handbook: New Development and Redevelopment*. January 2003.

California Stormwater Quality Association (CASQA 2017). *Draft Stormwater Best Management Practice Handbook: New Development and Redevelopment*. April 2017.

County of Placer, City of Roseville, City of Auburn, City of Lincoln, and Town of Loomis (County of Placer et al. 2016). *West Placer Storm Water Quality Design Manual*. April 2016.