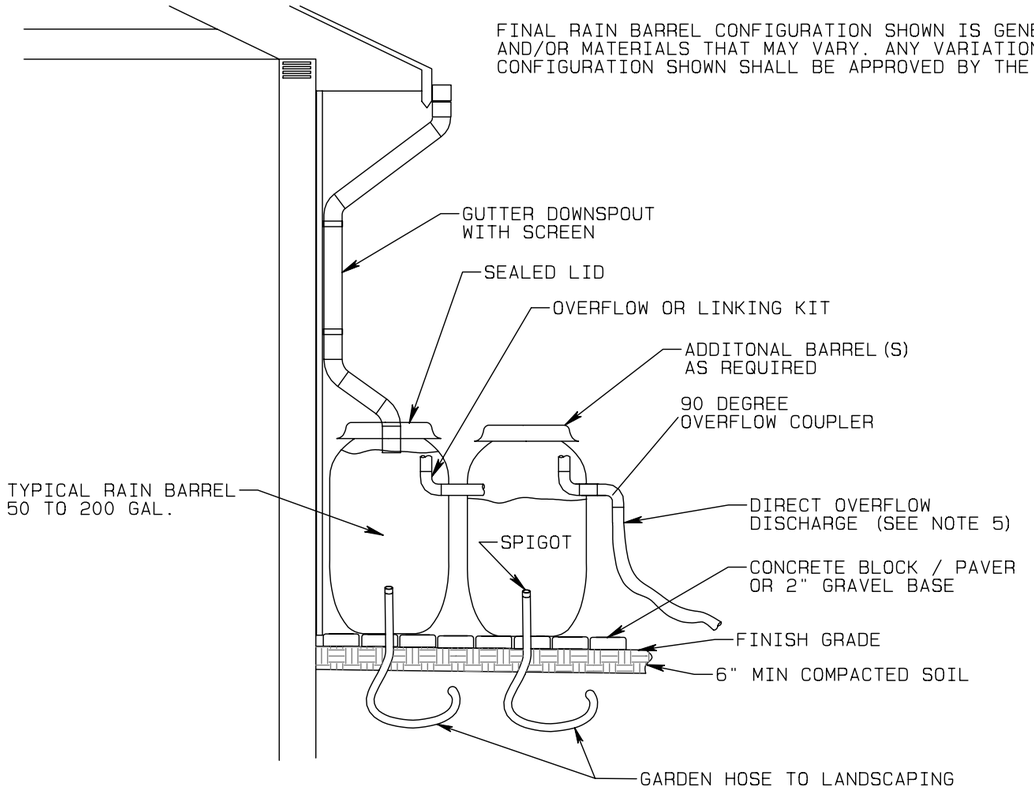

CROSS SECTION

Notes

1. Screens to be present on all rain barrel inlets to remove debris and larger particles as the water enters the barrel. Removable child-resistant covers and mosquito screening to be in place.
2. Barrel to be child safe: access is child-proof and the barrel is properly sited and anchored on a stable surface to prevent barrel from tipping over.
3. Above-ground barrels shall not be located on uneven or sloped surface; if installed on a sloped surface, the base where the barrel is installed is to be leveled using appropriate construction material prior to installation.
4. Installed rain barrels shall not be placed on elevated platforms, decks or porches without consulting local building code official.
5. Direct overflow discharge shall comply with Thornbury Township, Chester County Conservation District, and/or PADEP BMP regulations.
6. Rain barrels shall be opaque and dark in color to prevent UV light penetration and discourage algae growth.
7. Barrel placement shall allow easy access for regular maintenance.
8. There must be a means to release the water stored in the container between storm events in order for the necessary storage volume to be available for the next storm.
9. Stormwater must be kept from entering other potable systems, and pipes and storage units must be clearly marked "Do Not Drink".
10. Make sure rain barrels are watertight and do not leak.
11. Rain barrels are typically assumed to be 25% full to calculate volume since they are not always emptied before each storm. Table 1, provided per Note13, was developed to account for the 25% increase in the required storage of a rain barrel.
12. See Chester County Water Resources Authority, Appendix A.2: "Simplified Approach to Stormwater Handbook forSmall Projects", @ www.chesco.org for more information.

TABLE 1: SIMPLIFIED APPROACH - CALCULATING RAIN BARREL STORAGE VOLUME FOR 1" RAINFALL[1]

Column 1	Column 2[2]	Column 3
Proposed Impervious Area (square feet)	Volume of Rain Barrel (cubic feet)	Volume of Rain Barrel (gallons)
I	VRB cf	VRB gal
Sum of all Proposed Impervious Areas	(1x(1/12)xI)/0.75=VRB cf	VRBcf x 7.48=VRB gal
50	6	42
100	11	83
150	17	125
200	22	166

[1] The typical volume of a rain barrel is between 50-200 gallons, so more than one rain barrel may be needed. Larger volumes greater than 166 gallons may require a cistern.

[2] It is assumed that the rain barrel/cistern is 25% full prior to receiving runoff.

GENERAL OVERALL EQUATION AND SAMPLE CALCULATION

Rain barrel volume can be determined by calculating the roof top water yield for any given rainfall, using the following general equation:
Equation: VRB = ((P x(1/12) x I)/0.75)x7.48, where:

VRB = volume of rain barrel (gallons)

P = rainfall (feet) [Using 1 in. rainfall = 0.083 ft.]

I = impervious area surface = equivalent roof area (square feet)

0.75 for Rainbarrel 25% full

7.48 = conversion factor (gallons per cubic foot)

Example: Given a rooftop area of approximately 50 square feet for 1 inch (0.083 ft.) of rainfall, a one 50-gallon barrel would provide suitable runoff storage.

VRB= ((1 in x (1in/12 ft) x I sf)/0.75) x 7.48 gal/cf=42 gal
42 gal < 50 gal barrel (OK)

NOTE; THE INFORMATION PROVIDED ON THIS DETAIL IS A STORMWATER QUALITY BEST MANAGEMENT PRACTICE (BMP) DEVICE, AND IS NOT INTENDED AS A STORMWATER MANAGEMENT STORMWATER QUANTITY DEVICE. THIS STORMWATER QUALITY BMP IS ONLY SUITABLE FOR SMALL INCREASES OF IMPERVIOUS SURFACES UP TO A MAXIMUM TOTAL OF 200 SQUARE FEET. GREATER INCREASES IN PROPOSED IMPERVIOUS SURFACES ARE ADDRESSED BY THE THORNBURY TOWNSHIP STORMWATER MANAGEMENT ORINANCE PER LATEST ADOPTION.

References:
1. Thornbury Township Stormwater Management Ordinance http://www.thornburytwp.com/
2. Chester County Water Resources Authority, Appendix A.2 Simplified Approach to Stormwater Handbook for Small Projects @ www.chesco.org
3. Pennsylvania Stormwater Best Management Practices Manual. http://www.chesco.org/index.aspx?nid=1550
5. Urban Design Tools @ www.lid-stormwater.net
6. LA Stormwater @ www.lastormwater.org

REVISIONS

FIGURE A.6: RAIN BARREL DETAIL

PREPARED FOR

Thornbury Township

Thornbury Township Township * Chester County * Pennsylvania

Yerkes

YERKES ASSOCIATES, INC.

CONSULTING ENGINEERS SITE PLANNERS SURVEYORS

PROJECT –	W-13-0314-12
DATE –	03-26-2014
SCALE –	NOT TO SCALE
DRAWN –	CEJ3
CHECKED –	MRC
CAD FILE –	ThornburyTwp details.pro
TAX PARCEL –	N/A
NOTEBOOK –	N/A
PLAN NO. –	N/A
SHEET NO. –	1