

SECTION 1: CONSTRUCTION

SWPPP CUT SHEET

Filtrex[®] Check Dams (SiltSoxx[™])

PURPOSE & DESCRIPTION

Filtrex[®] SiltSoxx[™] is a three-dimensional tubular sediment control and stormwater runoff filtration device typically used for **Check Dams**, as stormwater drainage ditches and small channels on or near land disturbing activities to:

- slow concentrated directional flow velocity of storm runoff,
- reduce gully erosion in ditch bottoms,
- remove sediment and soluble pollutants (such as phosphorus and petroleum hydrocarbons) present in stormwater runoff

Check dams provide a porous physical barrier perpendicular to concentrated stormwater flow designed to reduce and disperse runoff energy. It reduces erosion by slowing runoff velocity and dissipating concentrated storm runoff flow. It also traps sediment and soluble pollutants primarily by *filtering* stormwater as it passes through the matrix of the check dam *and* secondarily by allowing water to temporarily pond behind the check dam, allowing *deposition* of suspended solids.

APPLICATION

Check dams are used in drainage ditches and small channels on and around land disturbing activities until final stabilization is complete. Check dams should be installed prior to excavating, filling, or grading of uphill areas. Check dams are only used in ditch grades equal to or less than 10% (grades greater than 10% should employ structural stabilization practices). Check dams should not be used in areas where the contributing drainage area is greater than 2 to 10 acres (0.8 ha to 4 ha), and should be placed in a manner to prevent sediment from entering receiving streams, rivers, lakes, or wetlands. Check dams should never be used in ephemeral, perennial, or intermittent streams.

INSTALLATION

1. Check dams used for slowing runoff velocity in storm ditches and channels and used to reduce sediment and soluble pollutant loads leaving

ditches and channels shall meet Filtrex[®] Soxx[™] Material Specifications and use Filtrex[®] CertifiedSM FilterMedia[™].

2. Contractor is required to be a Filtrex Certified Installer as determined by Filtrex International. Certification shall be considered current if appropriate identification is shown during time of bid or at time of application (Call Filtrex at 877-542-7699 for a current list of installers). Look for the Filtrex Certified Installer Seal.
3. Check dams shall be placed at locations indicated on plans and in a manner as directed/specified by the Engineer or Manufacturer. Check dams should be installed in a pattern that reduces runoff velocity and ditch erosion, and allows for deposition of sediment and filtration of pollutants.
4. Check dams may be manufactured on-site at time of application or pre-manufactured and delivered to site for installation.
5. Installation of check dams will ensure that the check dams exceed the width of the normal ditch/channel flow line by at least 4 ft(1.2m) on both banks to ensure water flows through and over the device and not around it.
6. Center of check dams shall be at least 6 in. (150mm) lower than the sides of the ditch/channel.
7. Standard diameter size of Check dams for normal protection is 12 in (300mm). In high flow ditches/channels, the designer may specify larger Check dams of 18 in (450mm) or 24 in (600mm) diameter, or increase staking requirement.
8. Check dams may be stacked on top of each other, if additional height is required.
9. 8 in (200mm) diameter check dams may be placed closer together to act as 'speed bumps' to slow flow velocity and reduce ditch/channel bed erosion.
10. If check dams are specified as a "Λ" construction design, the angle of the ditch



protection must be configured to a 90 degree angle with the apex of the device in the center of the ditch/channel bed with the open end facing down-channel. Ends of check dams shall extend to the bed and bank interface or to the maximum flow line of the ditch/channel. Stakes shall be used to stabilize the ends of the check dam.

11. Stakes shall be installed through the middle of the check dam on 5 ft (1.5m) centers, using 2 in (50mm) by 2 in (50mm) by 3 ft (1m) wooden stakes.
12. Staking depth for sand and silt loam soils shall be 12 in (300mm), and 8 in (200mm) for clay soils.
13. Vegetated Check dams may be seeded at the time of manufacture and installation to create a contained 'green or living bio-filter/vegetated filter'. These may be left intact once construction phase is complete. The appropriate seed mix shall be specified by the Engineer.
14. Check dams may be installed on top of rolled erosion control blankets and turf reinforcement mats.

INSPECTION AND MAINTENANCE

Routine inspection should be conducted within 24 hrs of a runoff event or as designated by the regulating authority. Check dams should be regularly inspected to make sure they maintain their shape and are producing adequate hydraulic flow-through, ditch/channel erosion control, and sediment removal. If ponding becomes excessive, additional check dams may be required or sediment removal may be necessary. Sediment accumulation should be removed once it reaches ½ the height of the check dam. Alternatively, another check dam may be installed slightly upslope, on top of the existing one. This process is not considered a soil disturbing activity. Storm debris accumulation behind check dams should never be higher than the sides of the check dam. Storm runoff overflow is acceptable during large events. Check dams shall be inspected until drainage area above and/or around receiving ditch/channel has been permanently stabilized and construction activity has ceased.

1. The Contractor shall maintain the ditch protection in a functional condition at all times and it shall be routinely inspected.
2. If the check dam has been damaged, it shall be repaired, or replaced if beyond repair.
3. The Contractor shall remove sediment at the base of the upslope side of the check dam when accumulation has reached 1/2 of the

effective height of the check dam, or as directed by the Engineer. As an alternative, another ditch protection may be installed adjacent and parallel to the upslope side of the original to increase sediment storage capacity with soil disturbance. Check dam and sediment backup in the center of the ditch/channel should always remain lower than the sides.

4. If check dams become clogged with debris and sediment, immediate removal of debris and sediment should be conducted to assure proper drainage and water flow through the ditch or channel. Storm runoff overflow of the check dam is acceptable.
5. Check dams shall be maintained until disturbed area around the device has been permanently stabilized and construction activity has ceased.
6. The FilterMedia may be dispersed on site once disturbed area has been permanently stabilized, construction activity has ceased, or as determined by the Engineer.

ADDITIONAL INFORMATION

For other references on this topic, including additional research reports and trade magazine and press coverage, visit the Filtrexx website at www.filtrexx.com

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Figure 3.1. Engineering Design Drawing for Check Dam

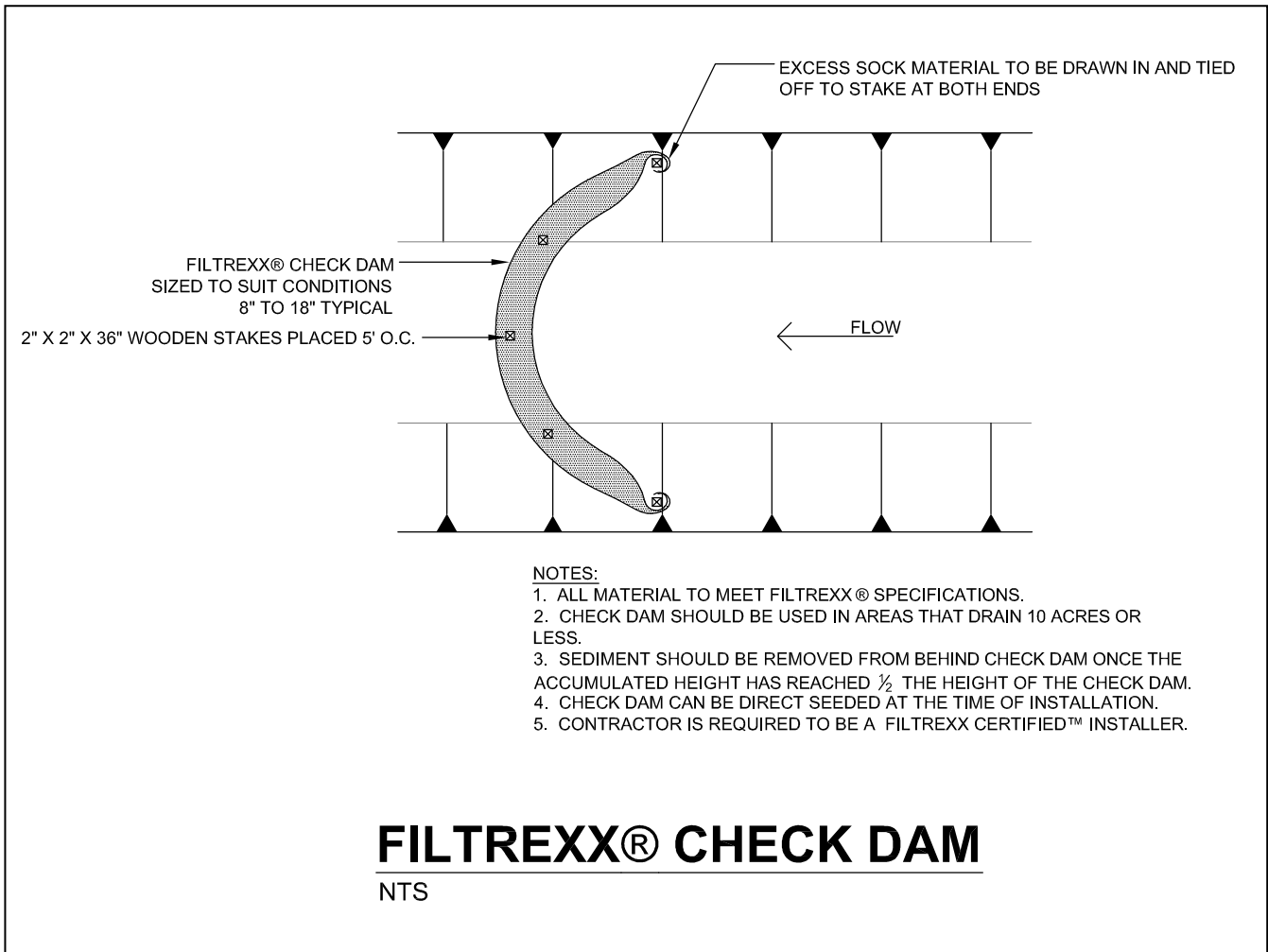


Figure 3.2. Engineering Design Drawing for Stacking Check Dam to Increase Design Height.

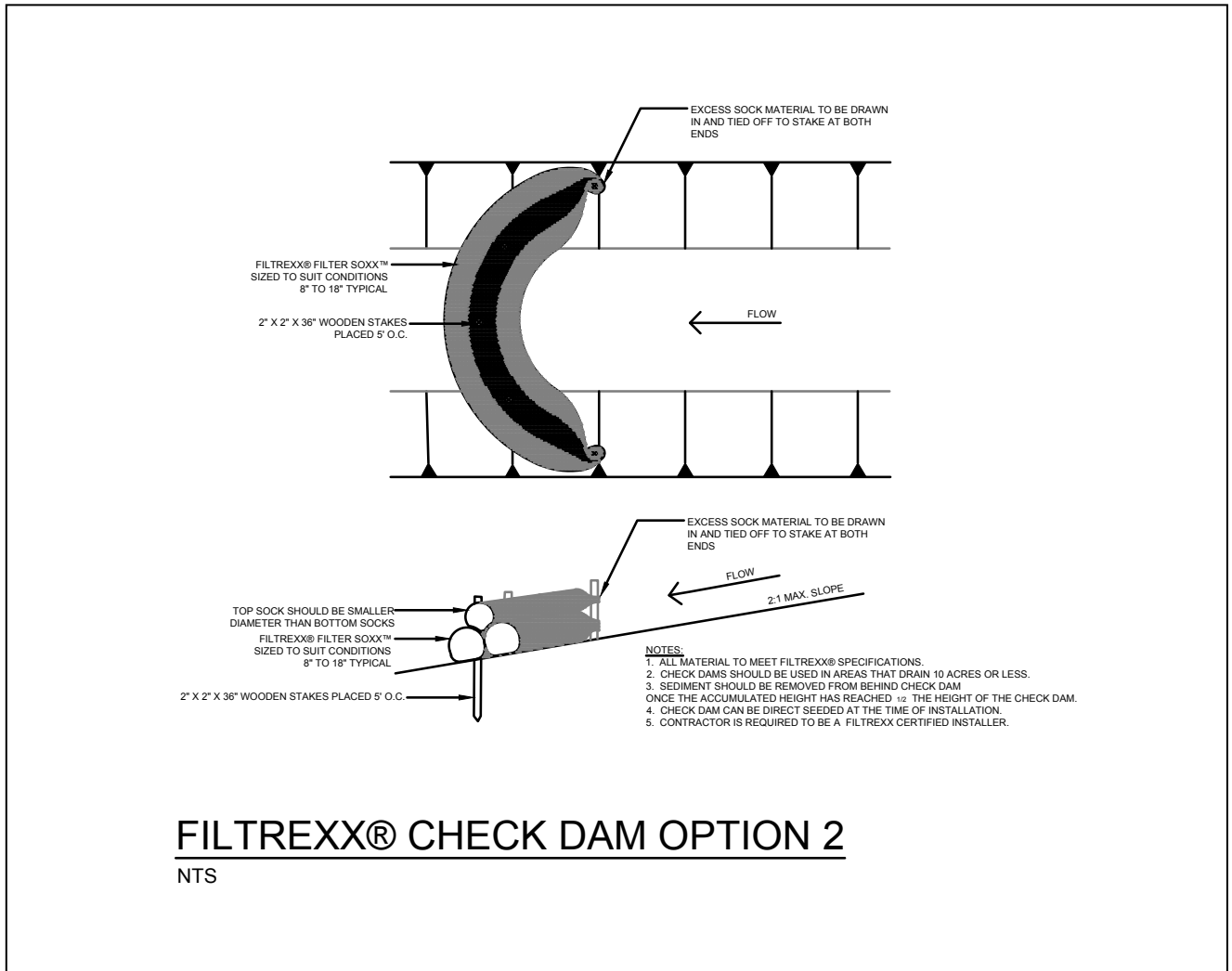


Figure 3.3. Engineering Design Drawing for Inverted Check Dam used for Storm Flow.

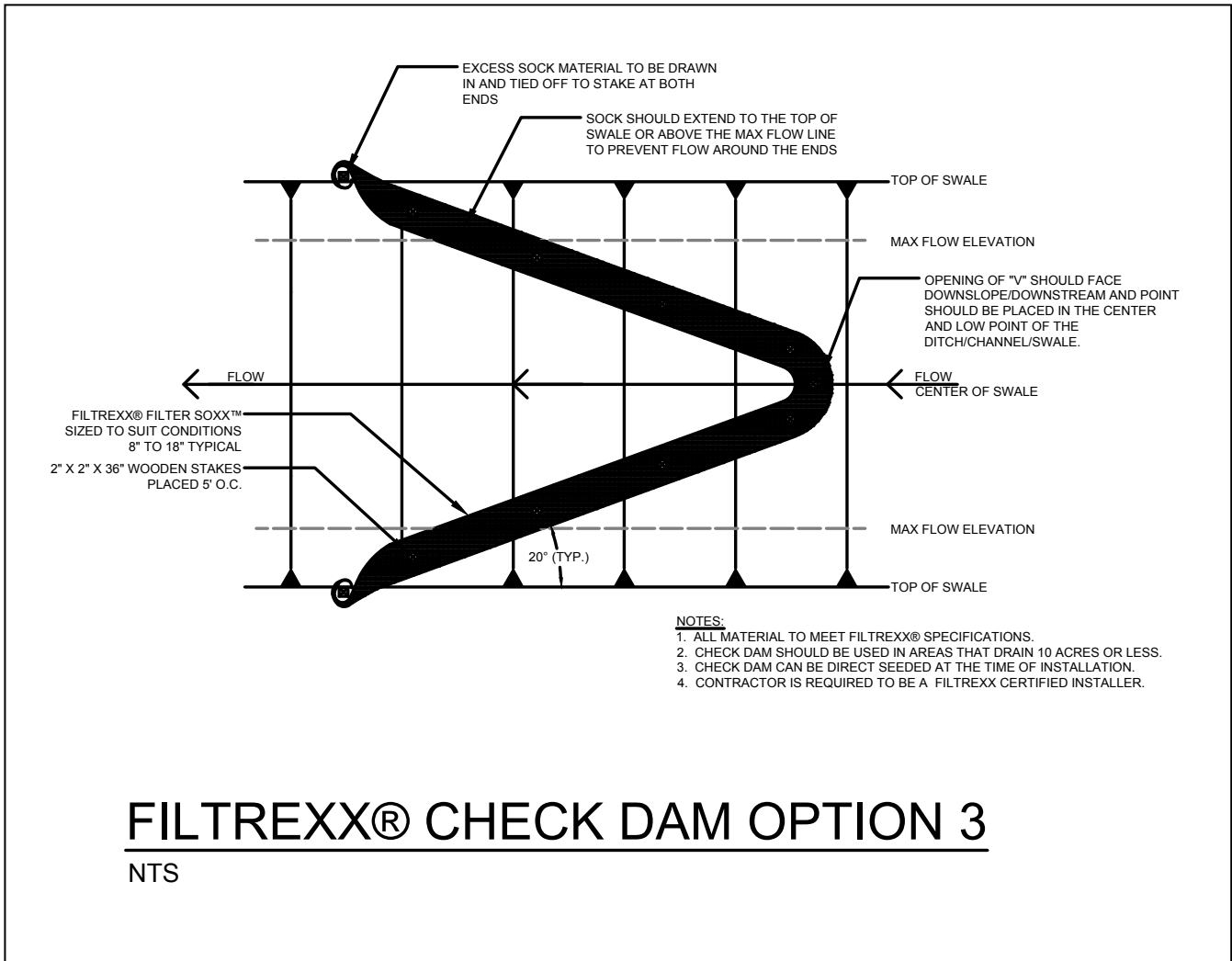
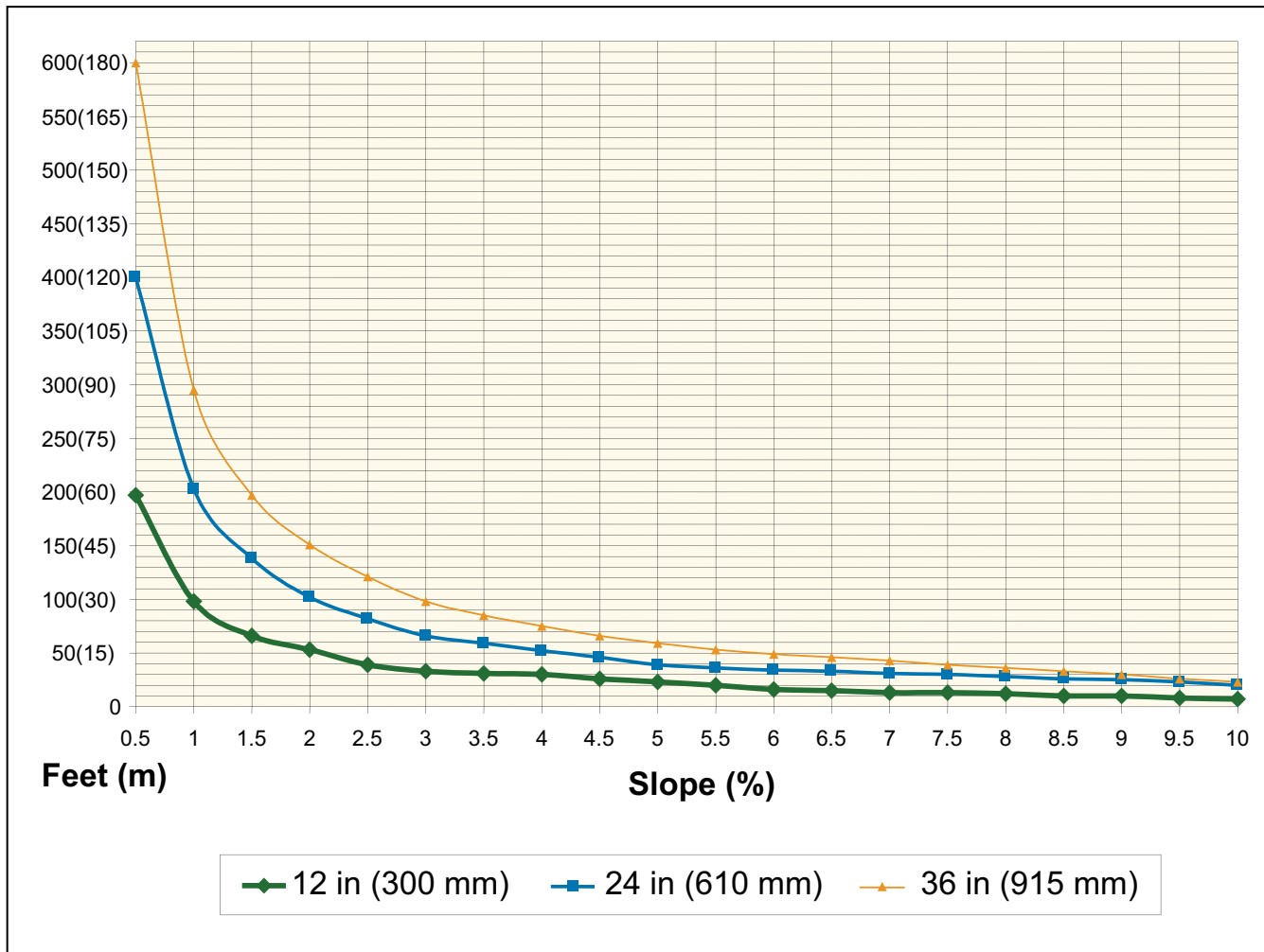


Figure 3.4. Spacing and Height for Check Dam Structures in Drainage Ditches and Channels.



Source: Fifiel, 2001; and KY TC, 2006

