Background

Dr. Sushil Adhikari is experiencing runoff from neighboring properties that is leading to significant ponding and erosion in his backyard. This erosion has made parts of his backyard fence unstable and has contributed to a lack of grass growth in the backyard. The lack of grass growth in the backyard has made the space less suitable for family activities. The ponding has also made access to the backyard through the gate more difficult. This has contributed to difficulty in lawn maintenance and related issues.

Design Objectives

- Reduce Peak flow of a 10 year 1 hour storm by 10%
- Establish grass growth in 30% of the 0.18 acre backyard (0.054 acres of grass)

Design Constraints

- The property sits at the base of a 2.43 acre watershed
- All design must be confined to the 0.18 acre backyard
- Stormwater should not be directed to neighboring residences
- The designed should be developed under a budget of $3,000 with an additional $2,000 available if deemed necessary

Design Approach

- Focuses on subsurface storage and percolation
- 2 catch basins and square drains connected by 4” PVC to a set of 4 flow wells
- 4” corrugated pipe used for excess flow from flow wells to existing drainage ditch behind property
- One flow well at the north side of the yard with drain above it to capture runoff from inside the boundaries of the fence
- Sod will be laid after implementation to ensure immediate erosion control

Site Improvement Plan

To mitigate ponding and erosion due to runoff in the client’s backyard, StormTECH Engineering has developed a design to minimize the effects of this runoff. The design focuses on subsurface storage and percolation through the use of underground flow wells to slow release the water into the soil. This design successfully reduces the peak flow of a 10 year 1 hour storm by 10% and stays within the proposed budget of $3,000.

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