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Project Summary:

West Windsor Gardens

West Windsor, New Jersey

Protecting against the dangerous and costly possibility of flooding in high traffic and populated areas can be difficult when wetlands are located in relatively flat areas restricting design options. On this project the problem was solved by utilizing Allan Block to create a large basin adjacent to a new housing development on the high side and wetlands on the low side. This basin prevents overloading of storm drainage systems during high intensity rain fall since the wetlands were adjacent as well.



DEVELOPER

West Windsor Gardens, LLC

PRODUCT

AB Classic: EARTH BLEND

PROJECT SIZE

4300 SQ FT (400 sq m)
8 ft (2.4 m) tall

STRUCTURAL ENGINEER

Efsen Engineering

MUNICIPAL CONSULTANTS

Van Cleef Engineering Assoc.
French & Parrello Assoc.
ACT Engineers, Inc.

WALL BUILDER

BCU Inc.

ALLAN BLOCK MANUFACTURER

Clayton Block, Edison, NJ

PLAN

The new residential housing community required a large volume of storm water storage but with its naturally flat terrain and adjacent wetlands finding the right area was an issue. The township required that no storm water migrated directly to the wetlands so a large volume basin (60,000 cu. ft. (1700 cu. m)) was require and it had to be gravity fed and drained by gravity since pump stations were prohibitive due to both cost and maintenance.

To achieve the required volume, Van Cleef Engineering determined that the basin required a 6 ft (1.8 m) high berm on three sides to be effective. After further site study, space concerns did not allow for



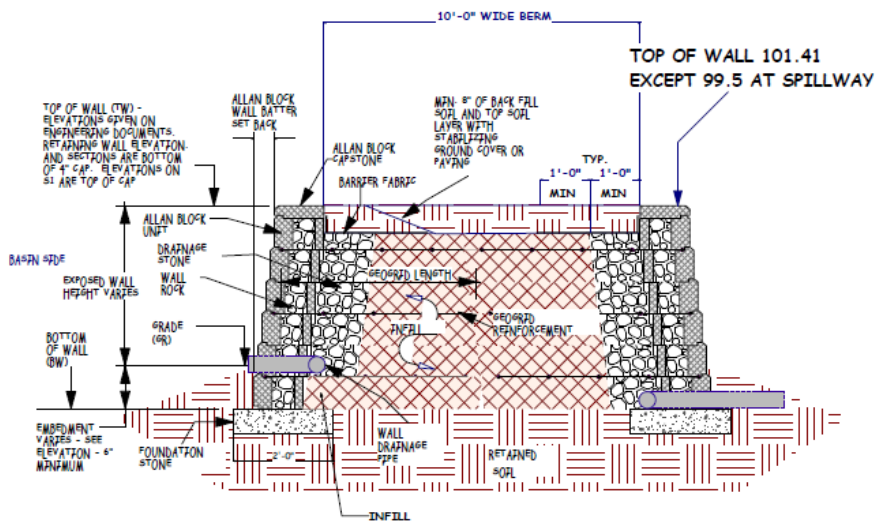
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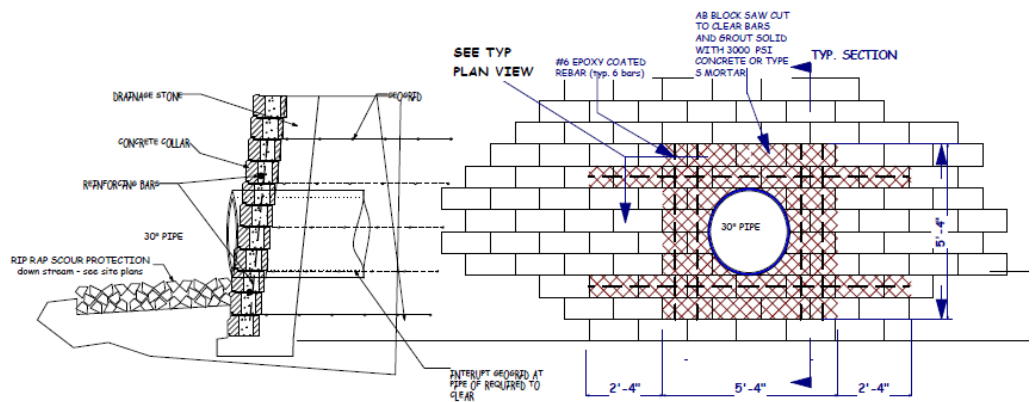
a sloped earth embankment so a 10 ft (3.0 m) wide by 8 ft (2.4 m) tall reinforced earth structure formed by back to back Allan Block segmental retaining walls provided the perfect solution both with respect to utility and to provide an attractive addition to the property landscaping. Allan Block was chosen due to its proven track record for performance, durability, cost effectiveness and its ease of installation.

DESIGN

Efsen Engineering was retained to do the wall designs because they have vast experience in designing segmental retaining walls, particularly Allan Block walls. French & Parrello Assoc. was retained to provide a detailed site evaluation and provide the required soils information for Efsen Engineering’s design. Analysis of the permeability of on-site soils verified that they could be used as infill. Using this information, back to back geogrid reinforced Allan Block walls were designed to hold back the full volume of the basin.



Water enters the basin naturally with localized runoff as well as by a 30" (76 cm) diameter storm water collection pipe. Efsen Engineering designed the wall facing to be the culvert headwall for a very clean aesthetic appearance. Using rebar and grout the contractor carefully cut the Allan Block units to fit around the pipe. Due to the potential for heavy water flow entering the basin, scour was a concern. Efsen Engineering designed a concrete spill way at the outlet of the pipe to disrupt the water flow.





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BUILD

BCU Inc. worked closely with West Windsor Garden's on site construction crews on the build phase so wall construction dovetailed perfectly with the equipment and manpower already on the job for the site work. This allowed for smooth sailing in completing what could have been a project impediment to this modern housing development.

BCU has installed many walls so Wall construction was straightforward for them. After initial grading was complete and the storm water pipe was placed, BCU worked with Clayton

Block Company to get final hands on training to properly install the Allan Block units. With a little initial guidance they were off to the races installing 500 sq ft (46 sq m) per day. To add to the high end aesthetics, West Windsor planted trees and shrubs on the wall to further blend the basin into the surrounding wooded area.

