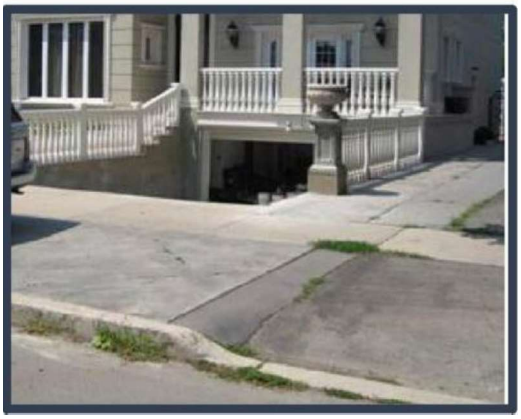
GRADING: DRIVEWAY BERMS



Reverse sloped driveways are often used in high-density neighborhoods, where there is not sufficient area for detached garages. This type of driveway creates a significant flood risk when it directs overland stormwater flows into homes. Water that enters homes through reverse sloped driveways can cause structural damage and contribute to sewer backups, if this water enters basement floor drains. One solution is to construct a driveway berm. This can be achieved by either raising the sidewalk and/or reconstructing the entire driveway. This can reduce the chances that overland flooding will enter the structure through the reverse sloped driveway. An alternative solution is to convert the lower level garage into a basement and completely fill in the reverse-slope driveway. The garage door is removed and the opening is sealed. Then, fill is placed around the former garage until a positive slope is achieved away from the structure, towards the street.

DESIGN CONSIDERATIONS

The effectiveness of a driveway berm is impacted by the surrounding grading and drainage area. Some specific design considerations to keep in mind when considering a driveway berm include the slope of the existing driveway, tributary area draining toward the structure, depth of ponding in the adjacent street and drainage within the garage and lower level of the structure.

CONSTRUCTION AND COSTS

The key construction elements to consider when constructing a driveway berm are the use of nonerodable materials, compaction of the berm and maintaining a smooth grade transition from the berm. Constructing a driveway berm and replacing the driveway is approximately the same cost as replacing the driveway.

ADVANTAGES	DISADVANTAGES
• Occupants usually do not have to leave the structure during construction, • Typically, less expensive than structure elevation or relocation, • Structural flood protection provided without significant changes to the structure.	• Will not reduce flood insurance premiums, • Overtopping or failure eliminates any protection provided, • Interior drainage must be provided.

MAINTENANCE

There is no additional maintenance for the driveway berm from the maintenance of driveway.

FLOOD REDUCTION

Driveway berms can improve the drainage around a structure and reduce the occurrence of structural flooding; however, they provide a limited amount of protection. The height of the berm is limited based on the length of the driveway and surrounding grading. When creating a high point in the driveway, the slope of the driveway must remain within the allowable limits set by the local ordinances. Additionally, if there is a sidewalk across the driveway, the slope of the sidewalk must remain in compliance with ADA requirements. Driveway berms may reduce the occurrence of structural flooding, but will not reduce the volume of stormwater runoff.