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DEPARTMENT OF PUBLIC WORKS

Statement of Clarification on the Placement of Fill **May 1, 2013**

The Department of Public Works Engineering Division would like to remind all residents, property owners, builders, developers, engineers, architects, landscape architects, and real estate professionals that all site development in the Town of Greenwich is required to follow the Town of Greenwich Drainage Manual February 2012 as amended.

The placement of fill on a parcel is a concern of the Engineering Division due to the potential for an increase in erosion or flood damage to the filled parcel, the surrounding parcels and the Town infrastructure. We recommend parcels within FEMA DESIGNATED FLOOD ZONES contact the Engineering Division to arrange for a meeting with James W. Michel, P.E. or Scott Marucci to discuss your proposed project prior to any submittals to help expedite your review time. Please call 203-622-7767.

In order to address several questions that have arisen regarding parcels located within the Special Flood Hazard Areas, we have created the following Design Guidelines.

1. FEMA ZONE V or VE – No structural fill allowed.
2. FEMA ZONE A or AE within LiMWA – Highly recommend no structural fill be allowed. If structural fill placement is planned, a meeting shall be held with the Engineering Division prior to project submittal.
3. FEMA Zone A or AE along the coastline – The placement of fill should be minimized. A determination should be made to confirm no existing low spots exist on the parcel. If the proposed fill is to be placed within an existing low spot, a drainage analysis will need to be completed to show that the fill within the low spot has not caused an increase in peak flow and runoff volume to a neighboring parcel or road. Also note, FEMA recommends the lowest finished floor of the building be placed two to three feet above the designated Base Flood Elevation.
4. FEMA Zone A or AE in Riverine Areas – No fill should be placed in the FLOODWAY unless a complete model can be provided to show a zero increase in Base Flood Elevation. Fill may be placed in the flood plain areas (flood fringe) as long as the area displaced by the fill has compensatory storage provided at a ratio of 1:1. In lieu of providing compensatory storage, a complete model can be provided to show no greater than a .1 foot rise in Base Flood Elevation.

Attached I have provided two of many sections of the Town of Greenwich Drainage Manual which discuss how a site shall be developed. These sections show that limiting the use of fill throughout the Town is within the design standards of the Drainage Manual. When fill is proposed to be placed on any parcel within an existing low spot, a drainage analysis will need to be completed to show that the fill within the low spot has not caused an increase in peak flow and runoff volume to a neighboring parcel or road.

A handwritten signature in blue ink, appearing to read "J. W. Michel".

James W. Michel, P.E.
Chief Engineer

Excerpts from the Town of Greenwich Drainage Manual regarding fill placement.

2.2 *The Three Components of Stormwater Management*

Consistent with the Connecticut Stormwater Quality Manual, the Greenwich manual also promotes the following hierarchy of stormwater management methods to initially reduce stormwater impacts through site design and source control methods, followed by structural stormwater management controls to collect, detain, and treat stormwater:

- **First, reduce runoff and site disturbance through design:** Use LID site planning and design techniques to reduce effective impervious cover, disturbed soils, and stormwater runoff volume.
- **Second, reduce pollutants carried by runoff:** Use source control and pollution prevention practices to reduce exposure of pollutants to rainfall and runoff.
- **Third, capture, detain and treat runoff:** Design stormwater BMPs to collect, detain and treat the stormwater that is generated after applying the LID site planning and design and source control methods described above.

Site Planning and Design

Effective site planning and design consists of preventive measures that address the root cause of stormwater problems by **attempting to maintain pre-development site hydrology**. Stormwater programs that rely heavily on conventional end-of-pipe stormwater controls can miss opportunities to reduce stormwater impacts because they collect and treat runoff *after* it has already been generated. This manual emphasizes the use of site planning and design techniques early in the site development process to achieve greater stormwater quantity and quality benefits. *Section 4* of the manual describes LID site planning and design techniques (i.e., non-structural LID BMPs). The following site planning and design techniques are recommended for use in Greenwich:

- Preservation of undisturbed natural areas
- Preservation or restoration of riparian buffers, floodplains, and shorelines
- Minimize grading and clearing
- Avoid compaction of porous soils
- Avoid disturbance of erodible soils
- Preservation of natural topography
- Avoidance of sensitive areas
- Reduced clearing and grading limits
- Protect and preserve open space
- Conservation development
- Reduced roadway lengths and widths
- Shorter or shared driveways
- Shared parking
- Reduced building footprints
- Reduced parking lot footprints
- Reduced setbacks and frontages
- Use of fewer or alternative cul-de-sacs
- Use of open drainage systems
- Lengthen flow paths and maximize sheet flow
- Disconnection of roof runoff
- Saving and replacing topsoil or the use of compost-amended soils

3.2 *The Stormwater Management Standards*

Standard 1: Low Impact Development

Low Impact Development (LID) site planning and design techniques (see *Section 4* of this manual) shall be used to the maximum extent practicable¹ to reduce the generation of stormwater runoff and pollutant loads. LID practices, both non-structural and structural, are to be given preference over conventional structural stormwater controls.

Standard 2: Protection of Natural Hydrology

Site disturbance shall be minimized. The area outside the project disturbance area shall be maintained at natural grade and retain existing, mature vegetated cover. The project disturbance area shall be depicted on the design, construction, and mitigation plans and shall be delineated in the field prior to commencing land disturbance activities. The project disturbance area shall include only the area necessary to reasonably accommodate construction activities. **Low areas on a lot shall not be dewatered and filled in unnecessarily.**