

*Water Quality Protections for
Laconia's Surface
Drinking Water Source*



City of Laconia, NH
"City on the Lakes"

Shanna B. Saunders, Planning Director

City on the Lakes



Urban infrastructure



Recreation



Events



Events



Drinking Water

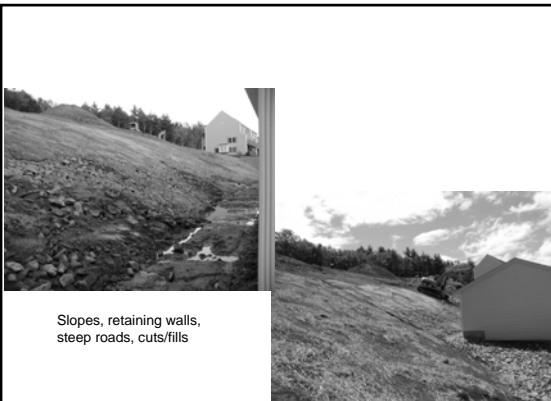


Type of development in Laconia



160 Townhomes





Slopes, retaining walls,
steep roads, cuts/fills

Paugus Bay



Another example



200 very high end SFH





Same issues!
Slopes, retaining walls,
steep roads, cuts/fills



Lake Winnepesaukee



Drinking Water



Changes the City has made since 2006

- Upgrade Erosion Control
- City Policy
- Water quality infrastructure projects

Upgrade Erosion Control



From silt fence
and haybales
to...





...Stump grinding
berms and silt socks
& matting.



City Policy

- Wetland buffer – from 30 to 50 feet
- Cluster development – 50% of buildable area of lot must be contiguous open space
- Recommend LID for SFH under the building permit
- Require site plan and Subdivision stormwater infrastructure to be up to date with latest report from UNH Stormwater Center
- And...

Steep Slope Ordinance

- Defines precautionary steep slopes as having grades from 15-24% and prohibitive steep slopes as having grades of 25% and greater.
- Requires a CUP for any “alteration of terrain” activities.

CUP Criteria

- 18 for precautionary + 9 more for prohibitive
- Including
 - LID must be used
 - Stormwater design: 24hr, 2 year for treatment, 50 year for sizing
 - 100 year storm analysis to show no impact
 - HISS data and narrative of receiving stream corridor
 - Max 25% fill slope for roads and driveways

CUP Criteria continued

- Slope setback of 6 ft plus $\frac{1}{2}$ of the height of the cut
- Phasing such that slopes are not unstable over the winter
- Fill soils shall be no less granular than the soil on which it is placed.
- Required third party oversight weekly or after every 0.5 inch rain storm
- As built for function not just construction

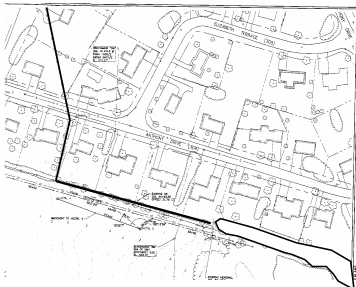
Additional 9

- Tree survey for slope area
- Geotech report for area (shrink swell potential, erosion potential, soil suitability for construction and stormwater, etc.)
- No stormwater infiltration on slope areas
- Geotechnical engineering evaluation on any benched or terraced slopes.
- No driveways or roads on 30% + slopes
- Pre-blasting survey for structures, wells, septic within 1000 feet
- Required third party oversight daily

Infrastructure Projects

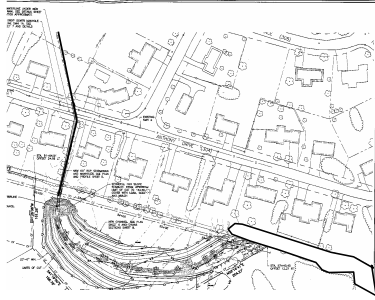
- Anthony Drive – Stream day lighting
 - Road built in 1955 and the stream running through the development was completely piped.
 - 2006 Mothers Day storm overwhelmed system and damaged road and homes.
- Mass Ave WQ Unit
 - Road built in 1905
 - Road slopes for 1900 ft straight to Paugus Bay

Anthony Drive Before



Built circa 1955

Anthony Drive
After



Built circa 2010

Anthony Drive Storm 2008



Anthony Drive Storm 2008



During Construction



During construction



Spring 2010



Summer 2010



Summer of 2010



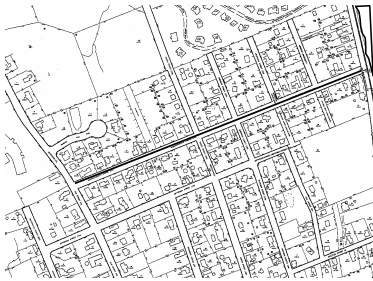
Summer 2010



Spring 2011



Mass Ave WQ Unit



Built circa 1905



**StormTech &
Bioskirts**

Removed 80% TSS
Removed hydrocarbons

Drinking Water





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