

# Making it Happen

## Putting Protections in Place



City of Laconia, NH

“City on the Lakes”

Shanna B. Saunders, Planning Director

# City on the Lakes



# Urban infrastructure





# Recreation



# 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



# Changes the City has made since 2006

- Erosion Control
- City Policy
- Water quality infrastructure projects



# Erosion control



From siltfence  
and haybales  
to...





...Stump grinding  
berms and silt soxx  
& 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

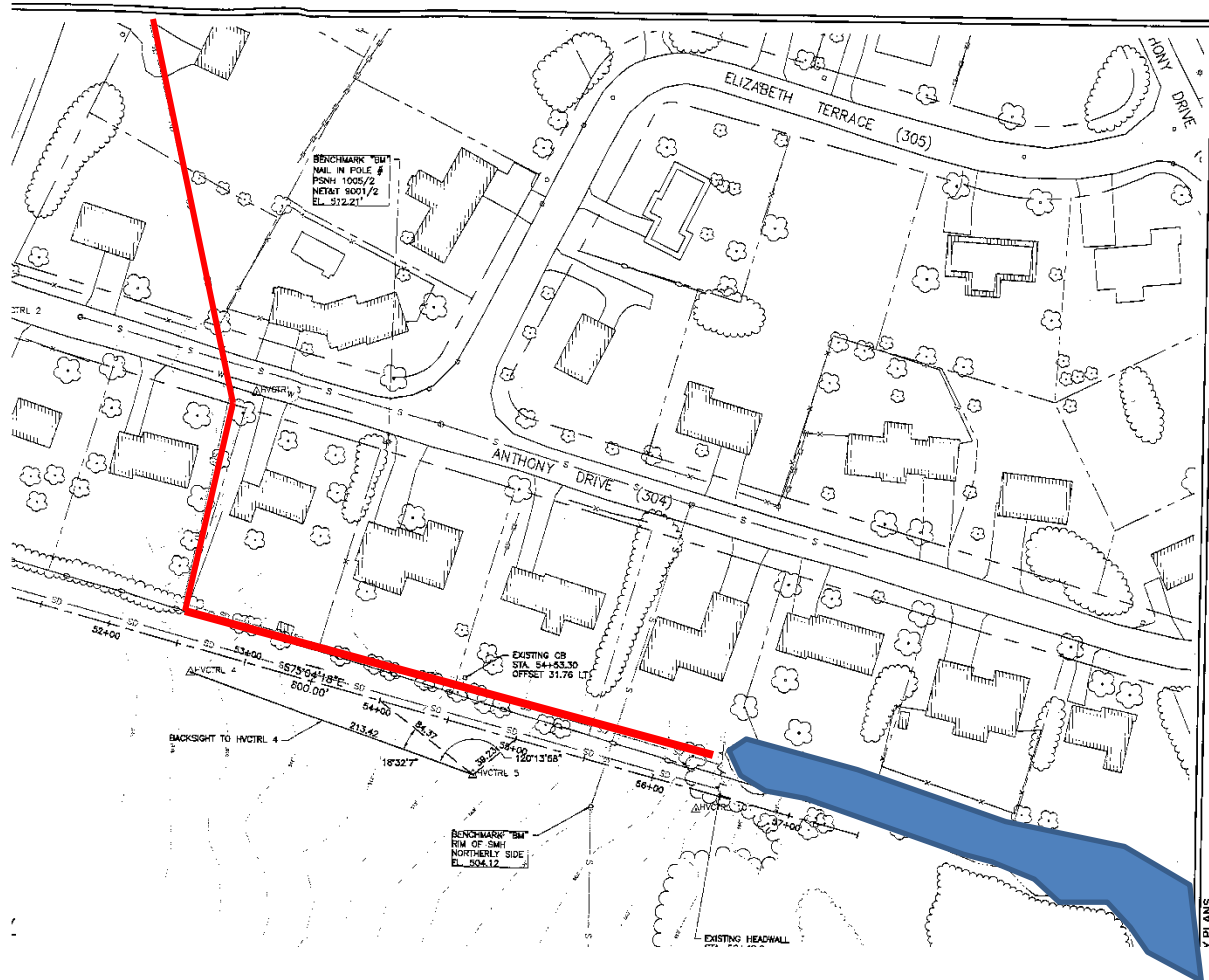
- Tree survey for slope area
- Geotech report for area (shrink swell potential, erosion potential, soil suitability for construction and stormwater, etc.)
- No stormwater infiltration on slope areas
- Geotechnical engineering evaluation on any benched or terraced slopes.
- No driveways or roads on 30%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



# Water Quality Infrastructure Projects

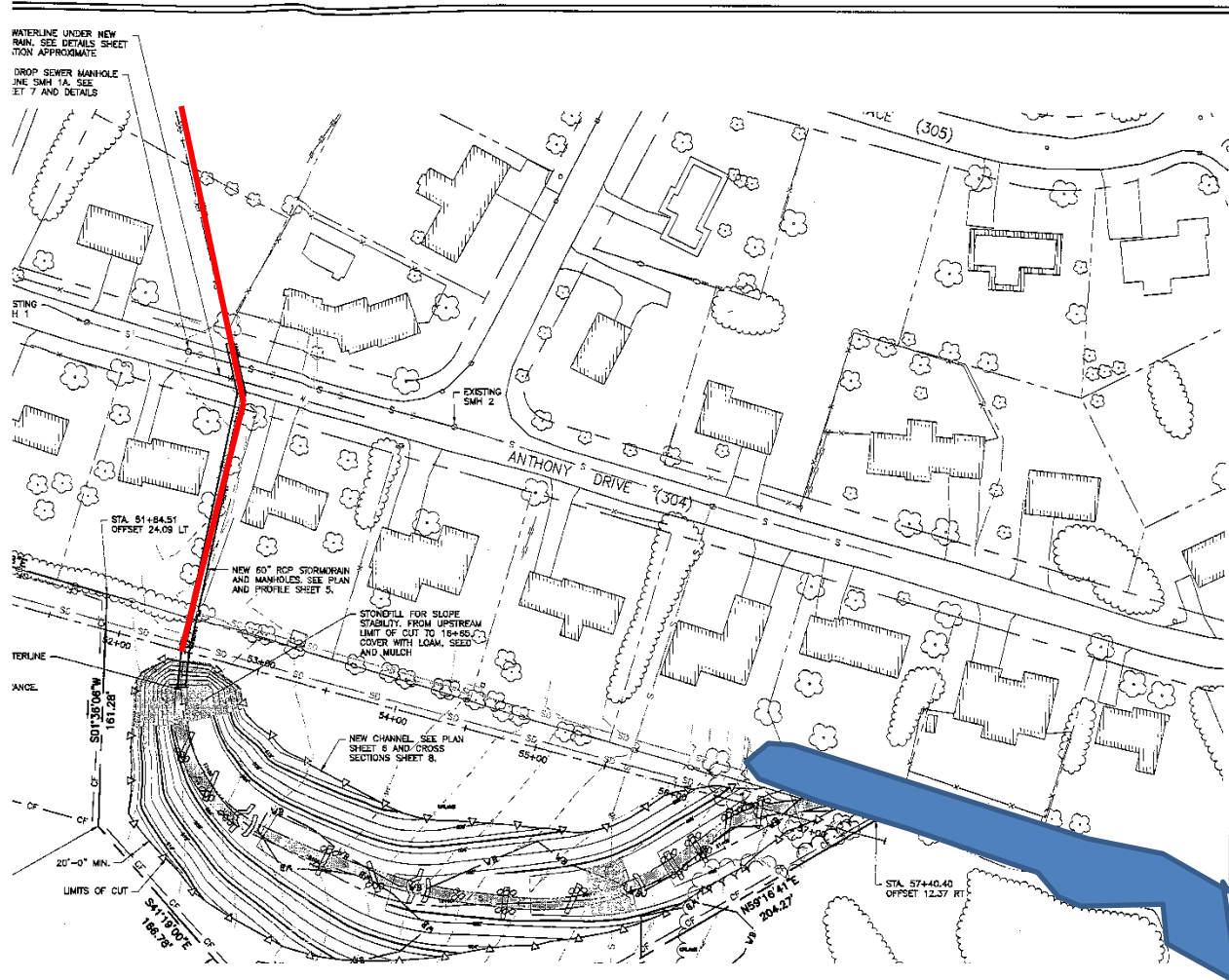
- Anthony Drive – Stream day lighting
  - Road built in 1955 and the stream running through the development was completely piped.
  - 2006 Mothers Day storm overwhelmed system and damaged road and homes.
- Mass Ave WQ Unit
  - Road built in 1905
  - Road slopes for 1900 ft straight to Paugus Bay

# Anthony Drive Before



Built circa 1955

# Anthony Drive After



Built circa 2010



# During construction



# Summer of 2010



# Mass Ave WQ Unit



Built circa 1905





# StormTech & Bioskirts

Removed 80% TSS  
Removed hydrocarbons

# Drinking Water



# Changes the City has made since 2006

- Erosion Control – new updated methods  
silt soxx and matting
- City Policy – steep slope ordinance
- Water quality infrastructure projects
  - Anthony Drive stream daylighting &  
municipal stormwater treatment upgrades.





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