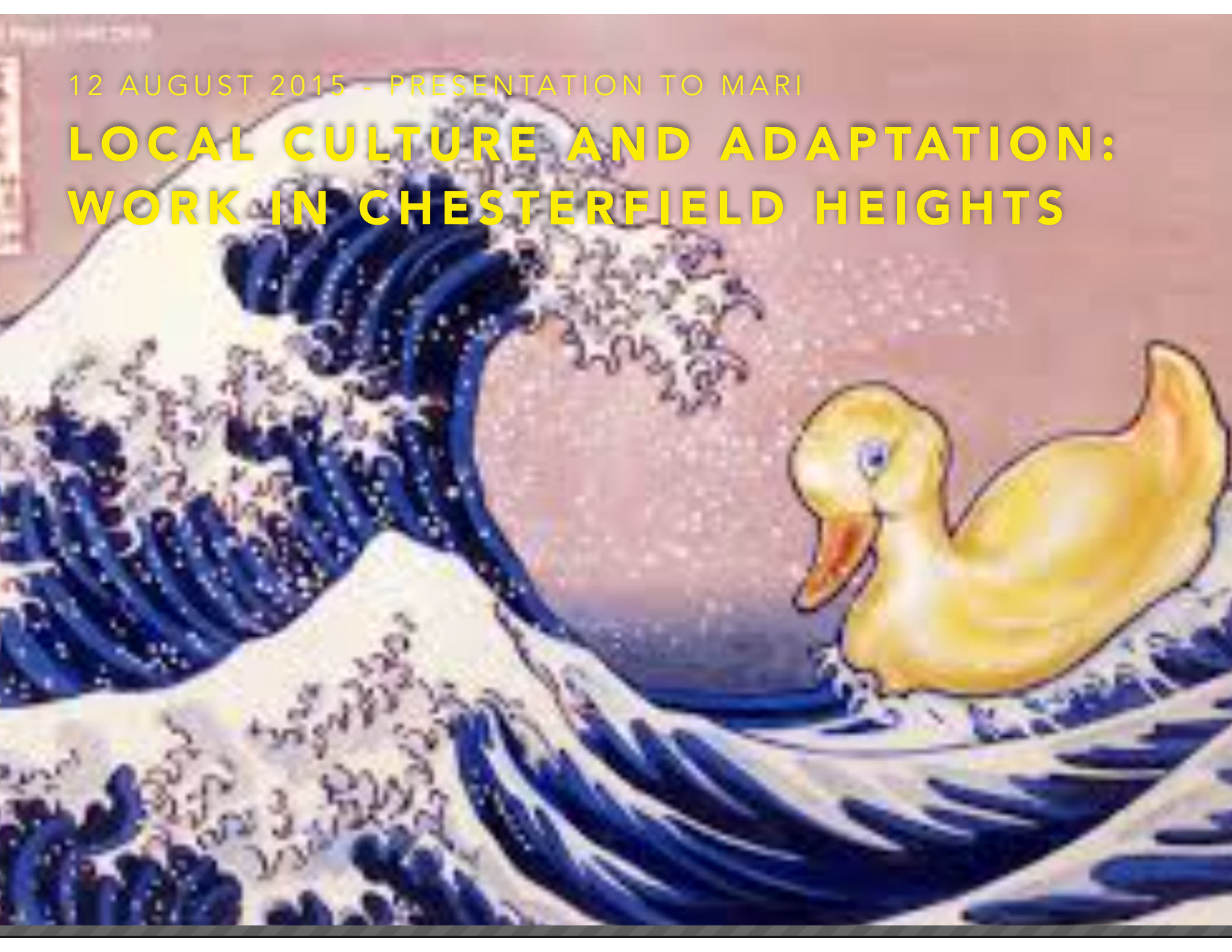


12 AUGUST 2015 - PRESENTATION TO MARI

LOCAL CULTURE AND ADAPTATION: WORK IN CHESTERFIELD HEIGHTS



COASTAL COMMUNITY DESIGN COLLABORATIVE

- Wetlands Watch
- Hampton University Department of Architecture
- Old Dominion University Department of Civil & Environmental Engineering
- The “Cloud”





Historic Industrial

Chesterfield Heights/Grandy Village

MPOSTELLA BRIDGE





Norchester ST
600

DEAD
END

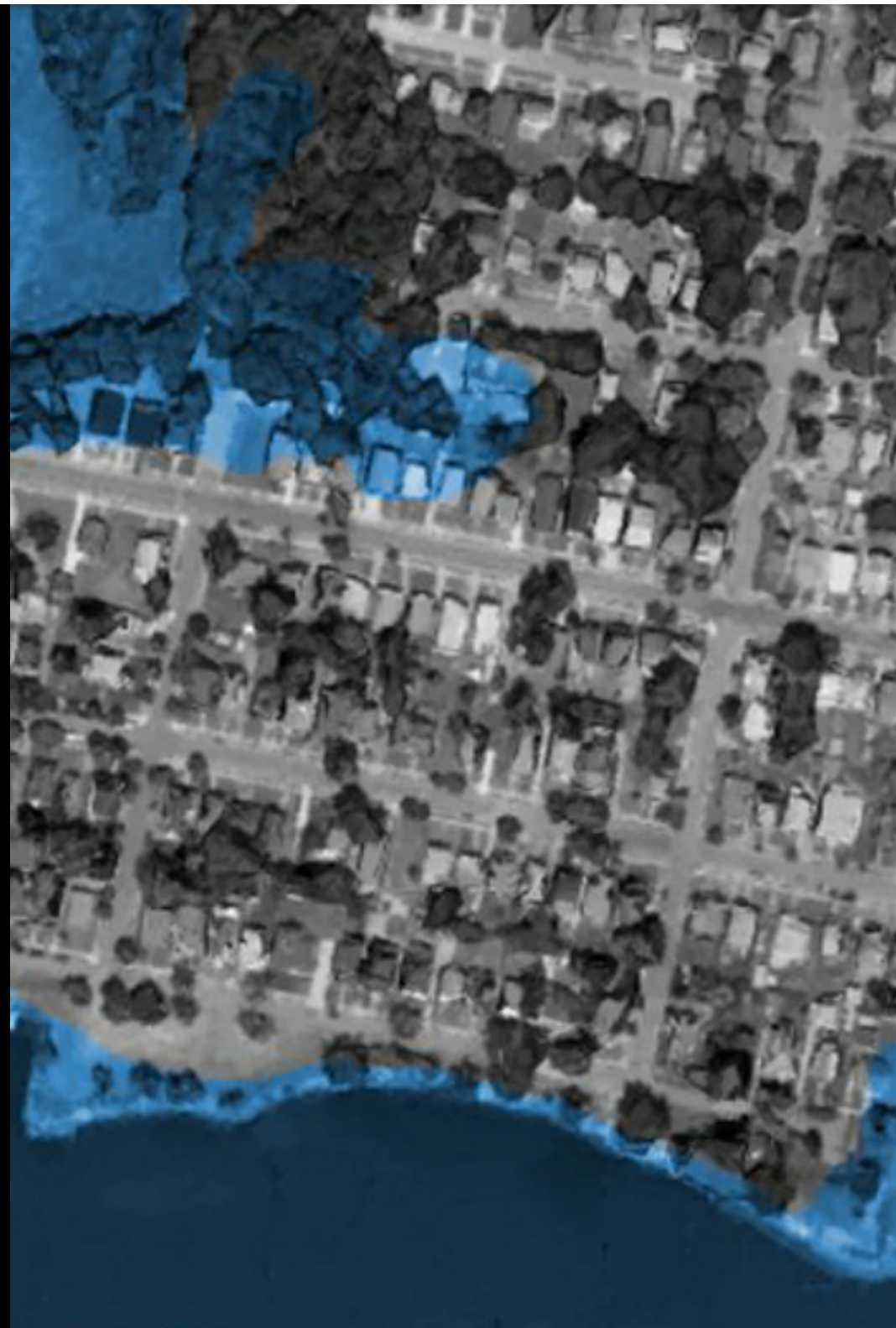






WHAT WE FOUND

- Flooding and settlement issues worse inland (rainfall drainage and legacy creek beds)
- Current issues had more to do with rainfall than sea level rise
- Shoreline erosion could become a threat
- Stormwater system was not working during storms
- Basements universal challenge
- Subsoil unusually good

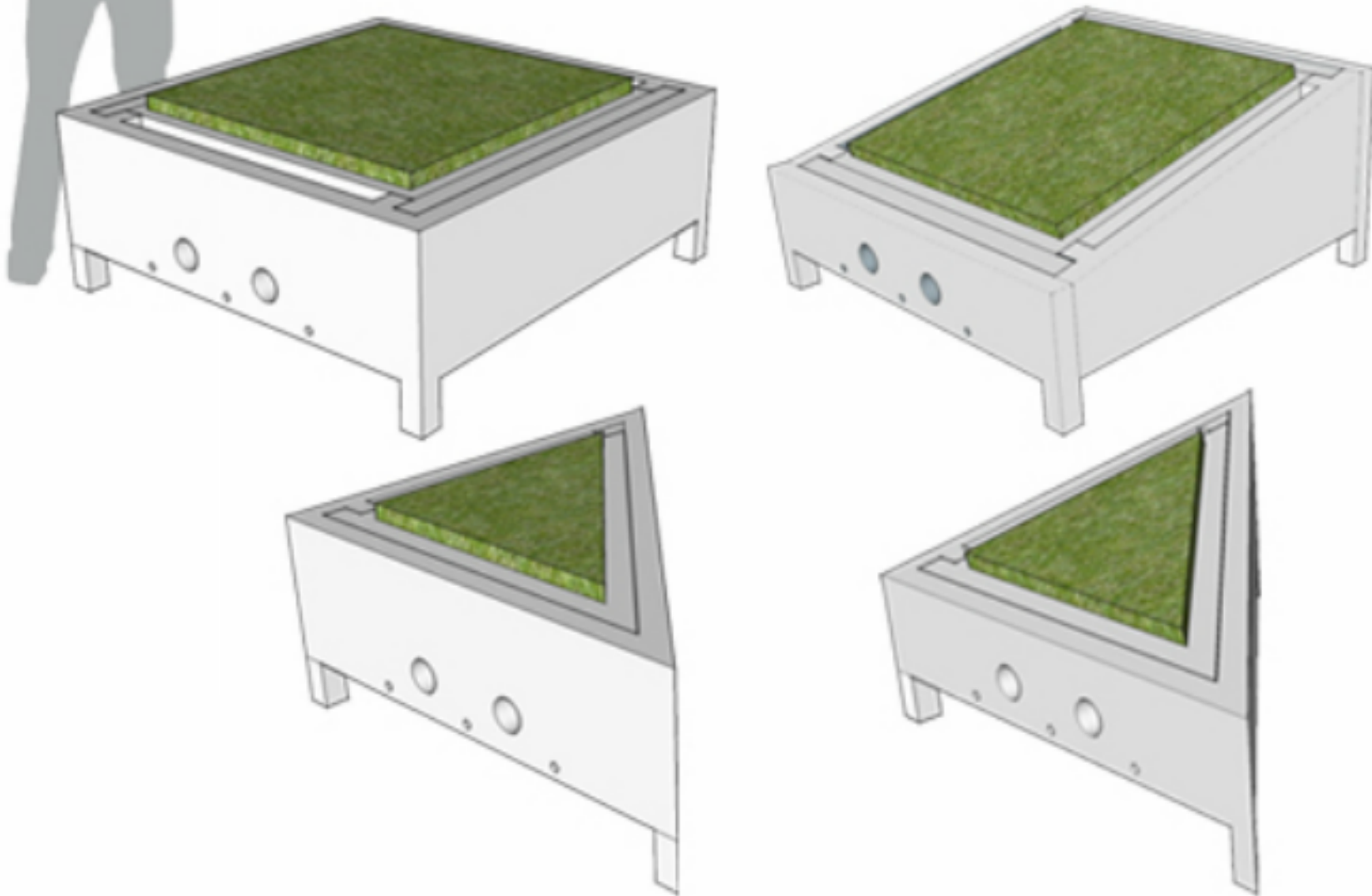


We looked at the obvious, but raising buildings is
expensive and not good

FOR EITHER PORCH CULTURE OR HISTORIC DISTRICT STATUS



We looked at ways to mediate between
sidewalk and porch levels, but soon
realized



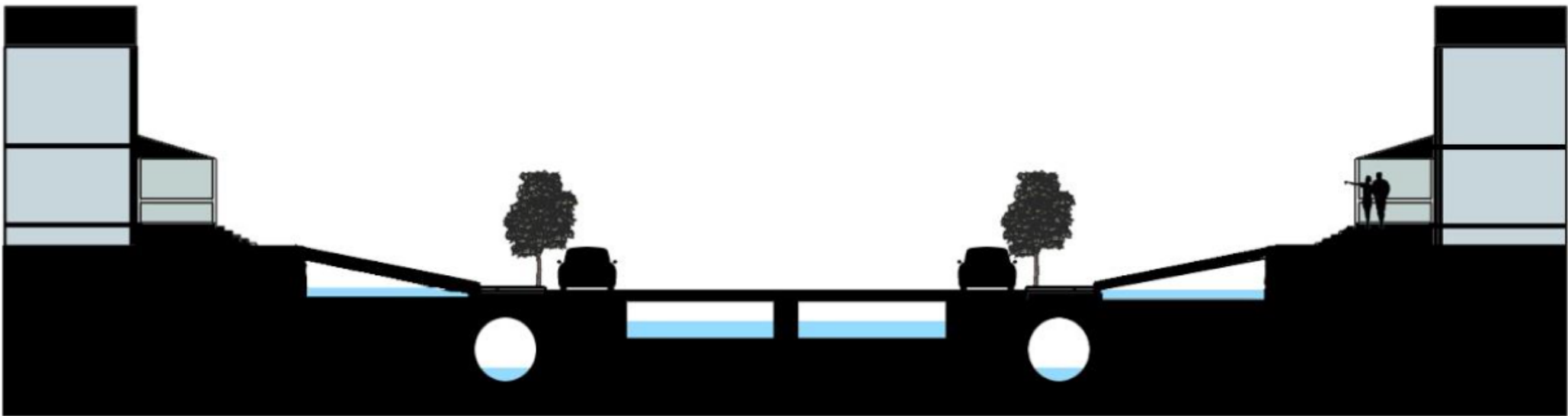
HAMPTON UNIVERSITY
ARCHITECTURE



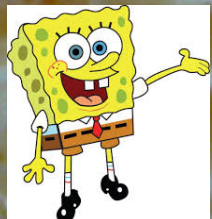
Images and rendering done by
William Parks & Quinee McCurley



that the reasonable solutions did not involve house jacking, but instead finding ways to store water until the storm system could recover after rain events.

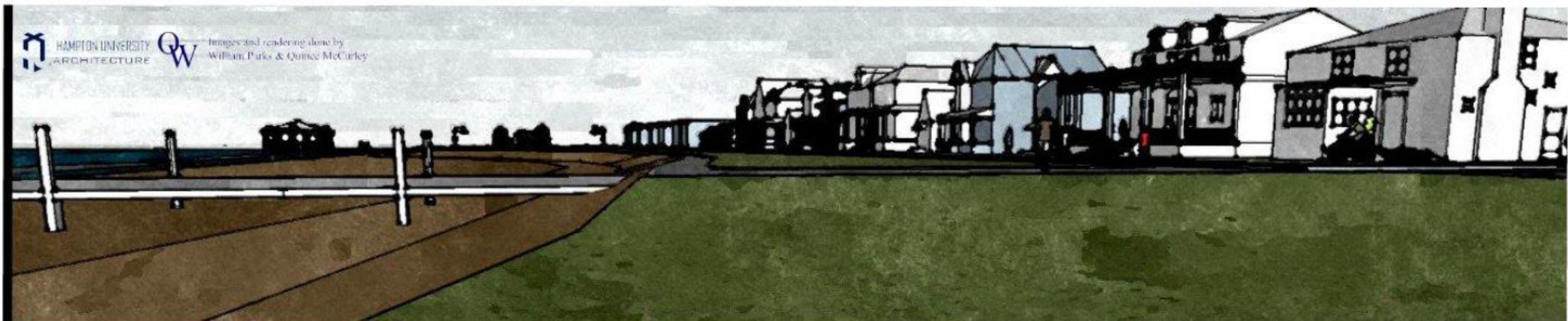
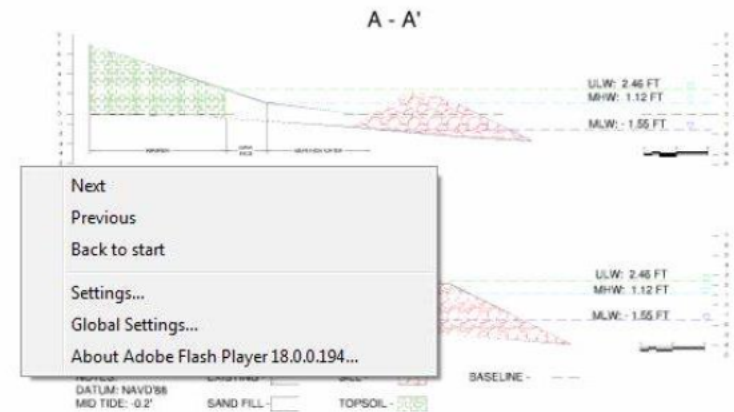
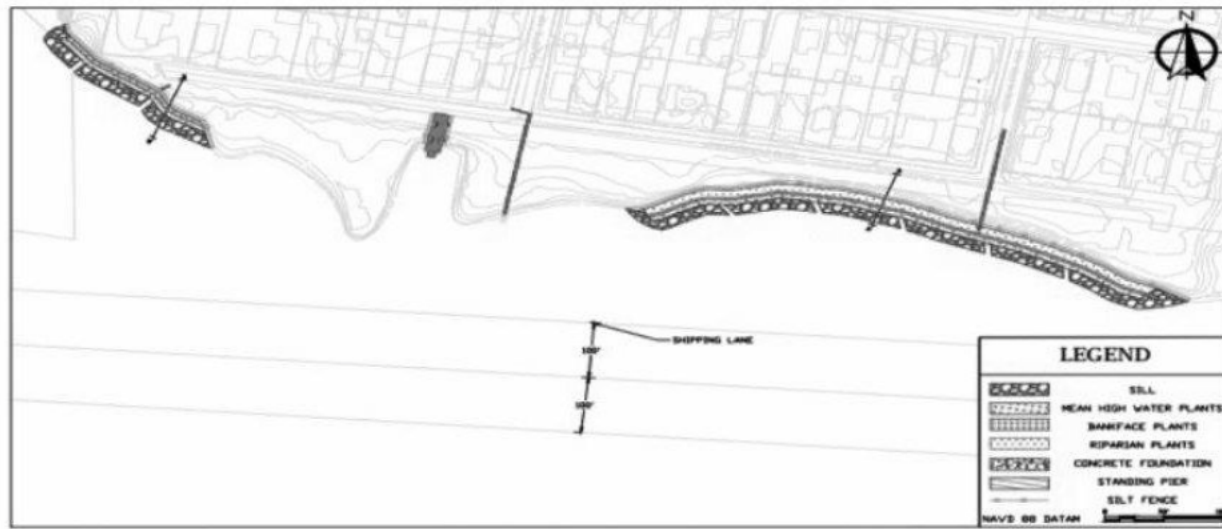


Different Scales of Remedy:
Barriers..... plus Sponges



SOLUTION #1

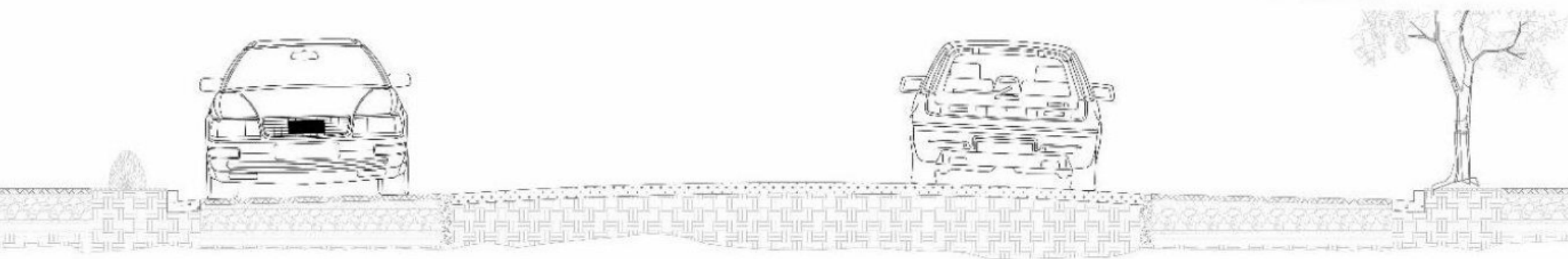
Living Shoreline



(All illustrations by HU/ODU students)

SOLUTION #2

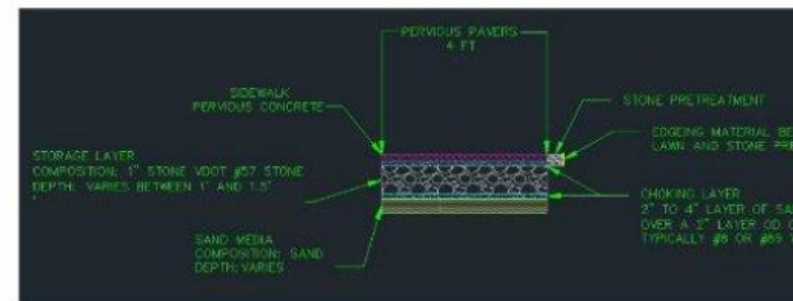
Pervious Pavers/Under Street Cistern



HAMPTON UNIVERSITY
ARCHITECTURE

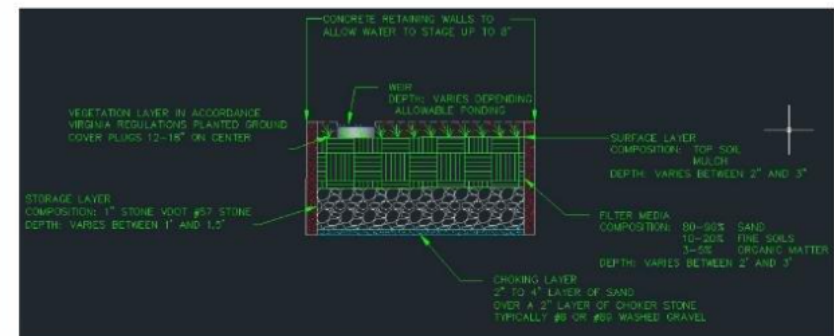
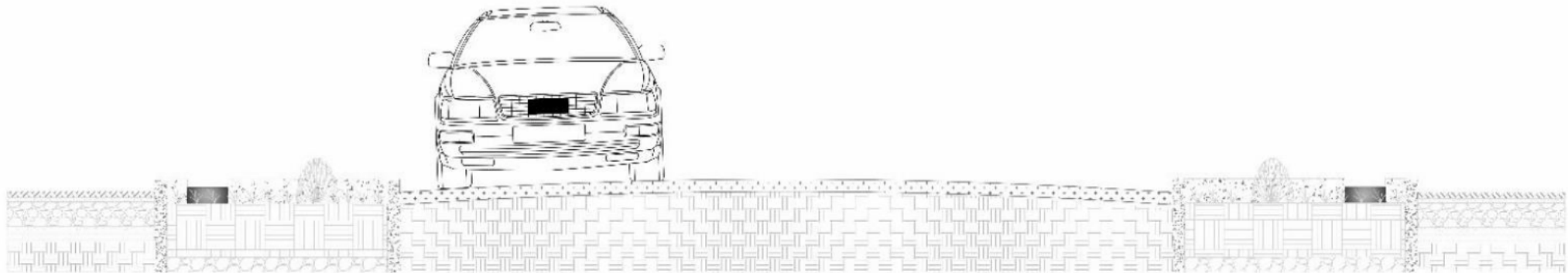
QW

Images and rendering done by
William Parks & Quincey McCurley



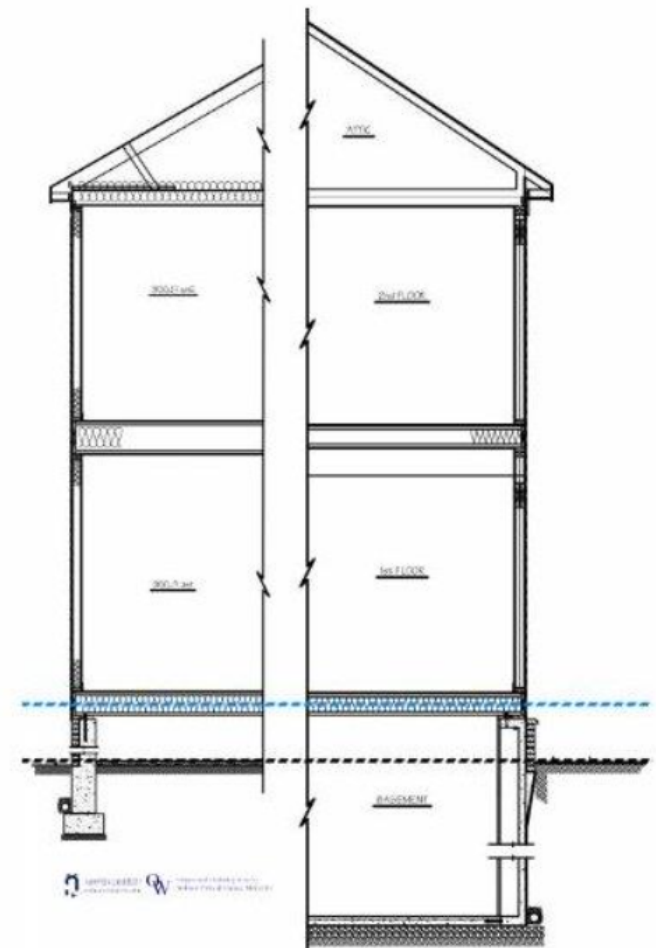
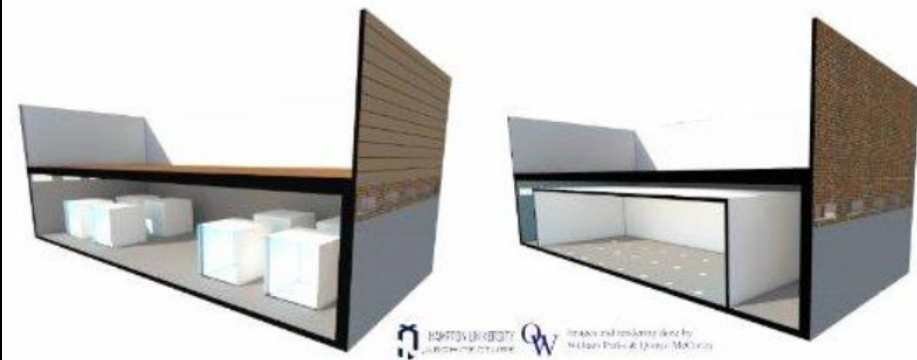
SOLUTION #3

Urban Bio-Retention



SOLUTION #4

Base-tern System



BASEMENTS AND FOUNDATION

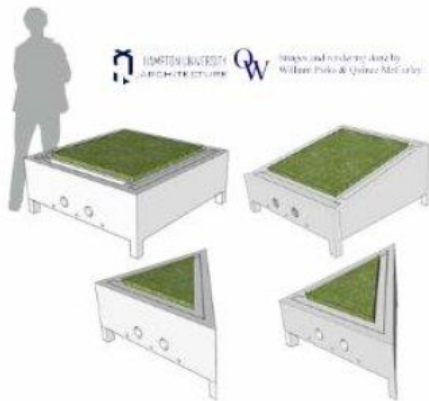
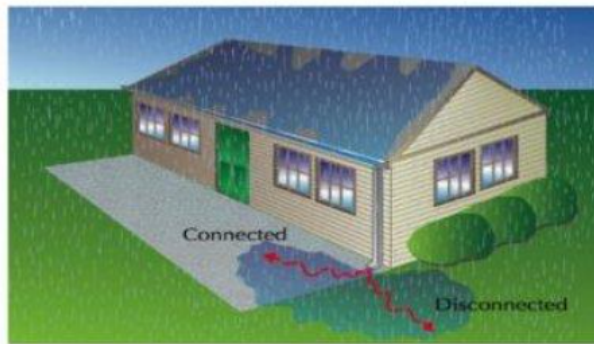
- Do not fill (National Flood Insurance Policy needs alteration)
- Consider allowing water in - ungrouted pavers for floor, flood vents - repurpose as cistern
- French drains do not appear to be working, nor do sealants; swales do.

RECOMMENDED MATERIALS BELOW SECOND FLOOR LEVEL - NEW CONSTRUCTION AND RENOVATION

- Thermoplastic girders and joists instead of lumber
- Foam insulation and lath and plaster instead of drywall and batt insulation
- Mahogany, teak, or linoleum instead of oak finish flooring
- Wiring framed high, conducted to duplexes @ 42" aff.

SOLUTION #5

Rooftop Disconnect



CHESTERFIELD HEIGHTS DESIGN CONCLUSIONS

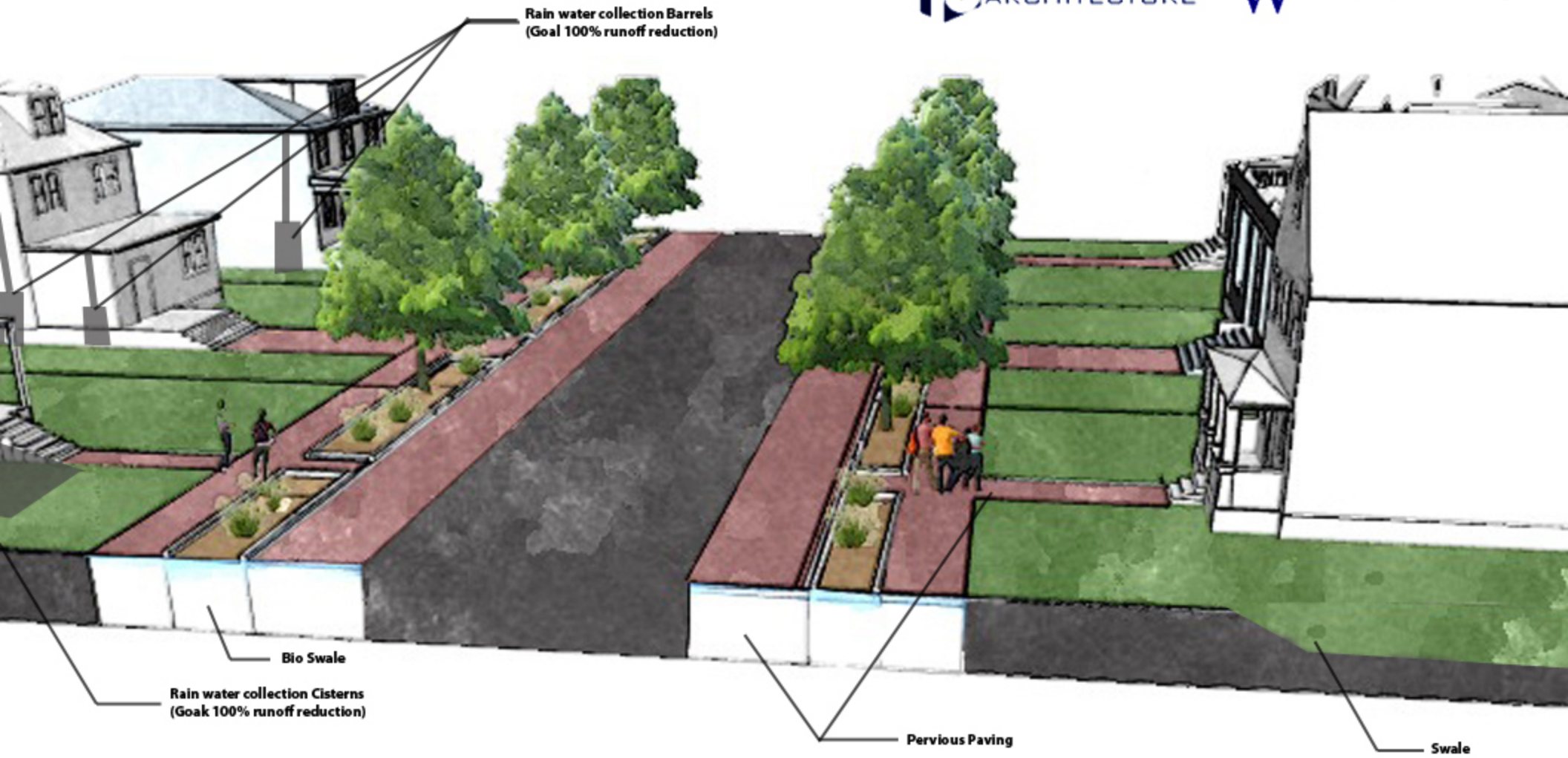
- With rooftop disconnection first inch of rain stays off streets
- With permeable parking & sidewalk paving and street scape bio-retention areas and
- With tidal check valves installed on storm line outfalls...

CHESTERFIELD HEIGHTS DESIGN CONCLUSIONS

- Rainwater street flooding can be eliminated, retaining existing storm water lines into the foreseeable future.
- ALL of it.

UNEXPECTED OUTFALL

- Elizabeth River Project building first part of Wetlands Restoration Project
- Chesterfield Heights included as study site in Dutch Dialogues
- Chesterfield Heights implementation included in Norfolk's application for NDRC grant funds
- A good time was had by all



CHESTERFIELD HEIGHTS DESIGN CONCLUSIONS

- Just finding out what's going on in one neighborhood helps, makes solutions manageable
- Drawing solutions seems to attract funding opportunities
- Everyone has a role to play and can help
- Block structure a good structure for resilience planning - and success
- Solutions involve a network of interventions at a variety of scales but the crucial one is:
- Neighborhood by neighborhood, street by street, block by block, parcel by parcel

HOPE FOR FURTHER RESEARCH

- Materials Science: what is the long term impact and are best practices to preserve masonry experiencing near-constant increased dampness?
- Soils of legacy creek beds: Is the bearing capacity being altered? Can behavior be predicted?
- Funding armatures - TMDL credit for filtration? Bundled historic district tax credits? revolving fund? Need to be considered at scale of individual parcel and neighborhood.
- Strategies for creating and maintaining a data base of extant hydrologic and geotechnical studies

NEXT UP FOR US

- Fall 2015 The Hague
- Spring 2016 Chesterfield Heights/Newmarket Creek
- Fall 2016: Newmarket Creek
- Spring 2017: Salter's Creek
- Fall 2017: Salter's Creek

Last night in Ghent

NEXT UP FOR US: FALL 2015

THE HAGUE





COLLEY

FAIRFAX

DUNDRAFF

STOCKLEY

BOISSEVAIN

FAIRFAX

COLONIAL

WARREN

MILL

BEECHWOOD

PEMBROKE

DRUMMOND

COLONIAL

RALEIGH

BOTETOURT

OLNEY

BOTETOURT

MOWBRAY

SOUTH MOWBRAY

MEMORIAL

GRACE

YARMOUTH

FERGUSON

RALEIGH

SOUTH MOWBRAY

NORTH MOWBRAY

EAST MOWBRAY

MOWBRAY

WEST BOTETOURT

SOUTH BOTETOURT

NORTH BOTETOURT

WESTOVER

LLEWELLYN

WESTOVER

VIRGINIA BEACH BOULEVARD

WILSON

OLNEY

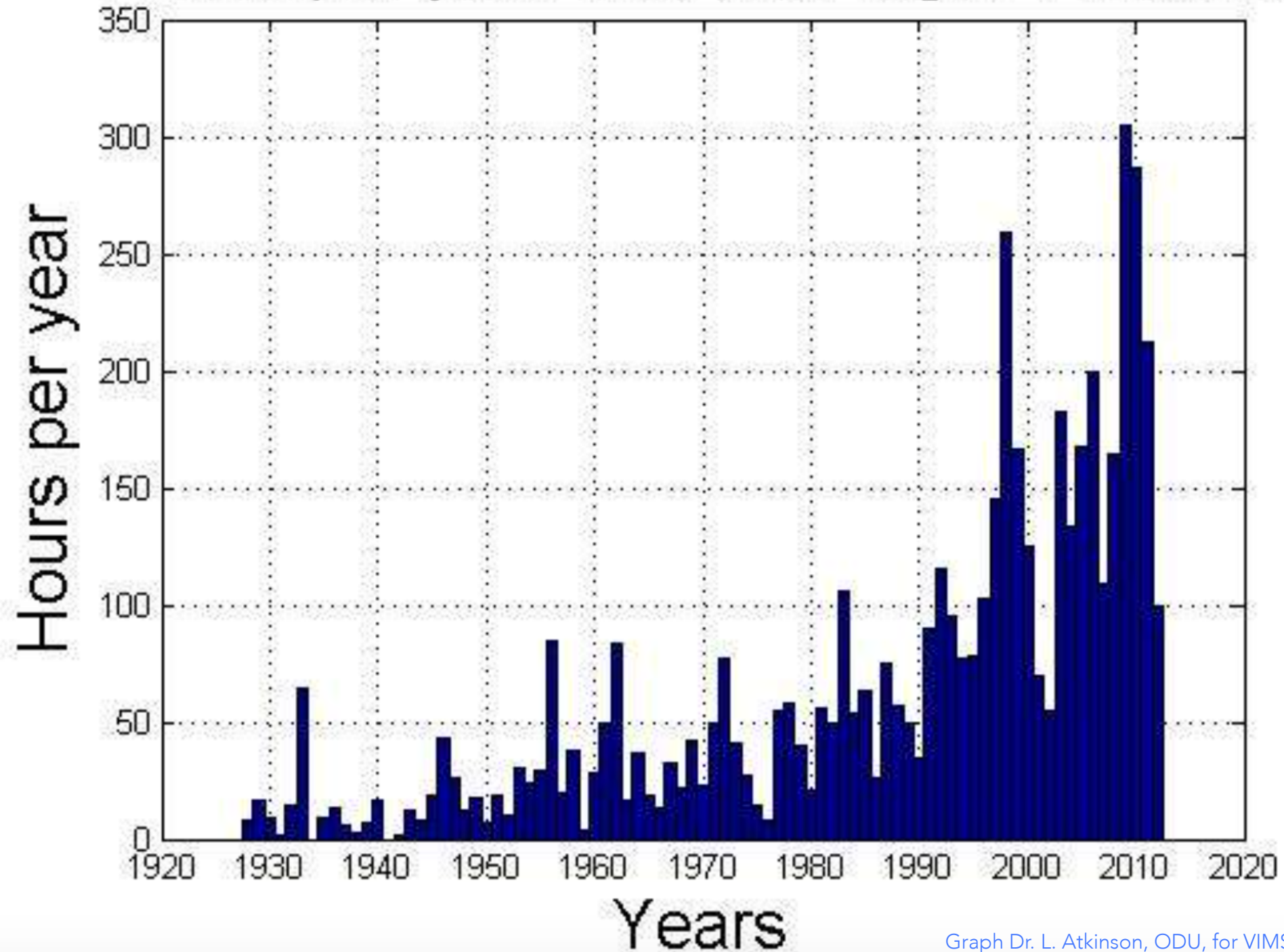
VOSS

MAGAZINE

BOUSH

DUKE

Hours per year that the Hague Flooded



4 HORSEMEN OF THE APOCALYPSE

- Sea Level Rise
- Subsidence
- Storms: both big blows and spike in intensity of rains
- Soils of legacy creek beds





Different Scales of Problems



Big Scary Blows



Downpours



North Wind



Full moon

Different Scales of Remedy:
Barriers..... plus Sponges

