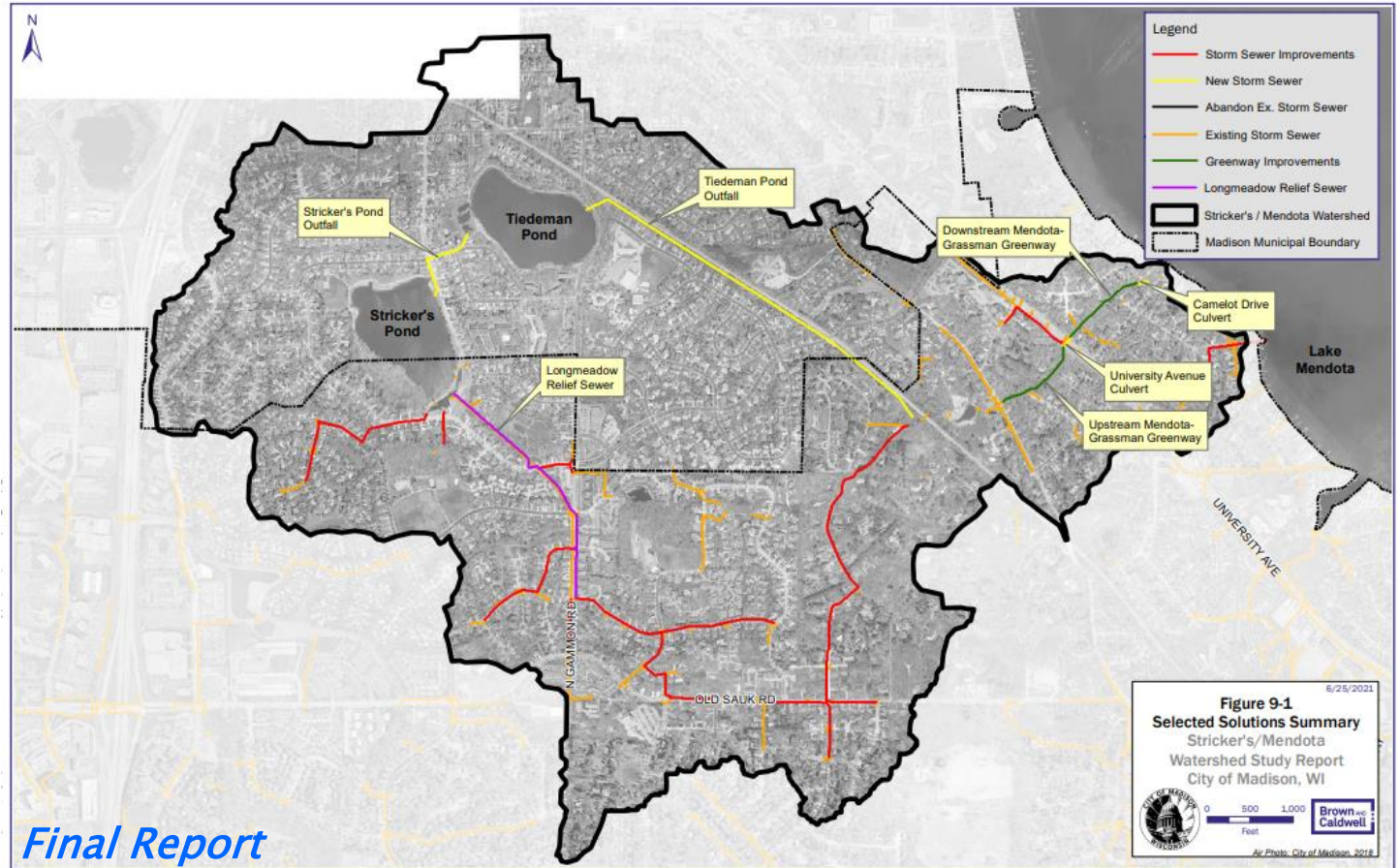
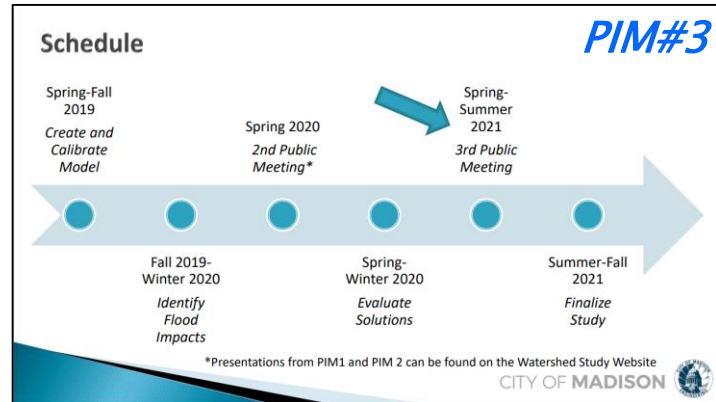
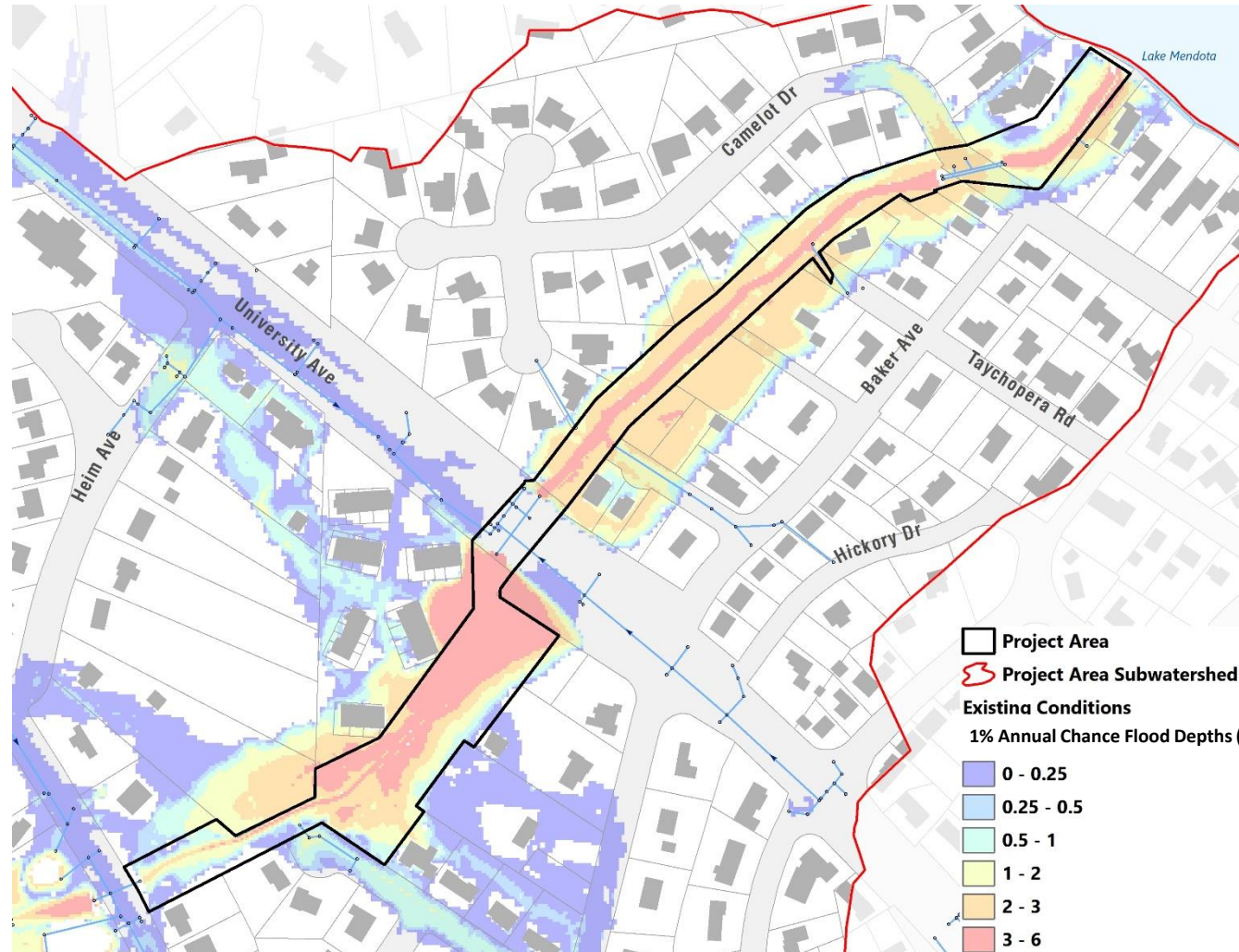


Project from Strickers /Mendota Watershed Study

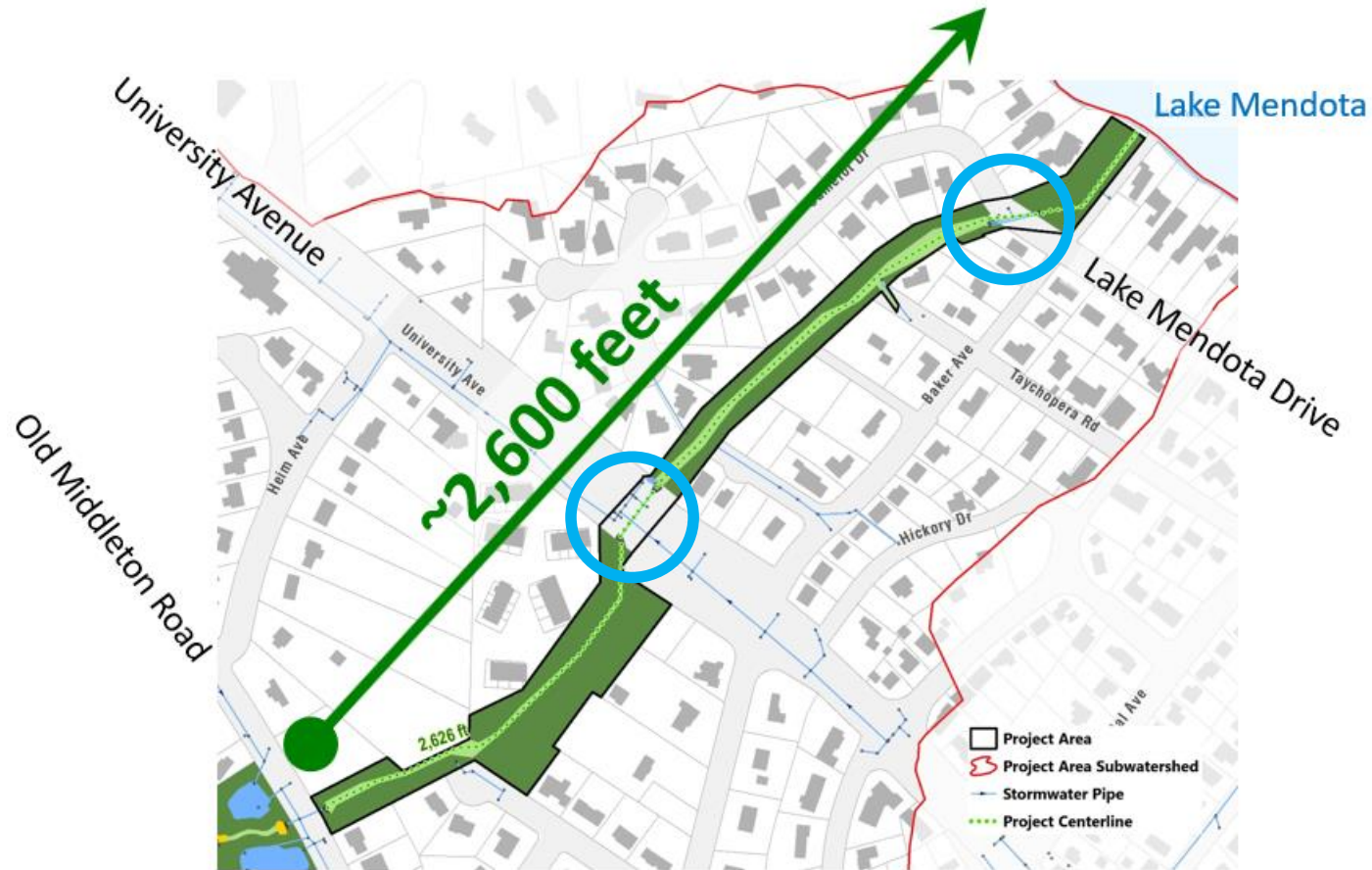


<https://www.cityofmadison.com/engineering/projects/strickers-mendota-watershed-study>

Existing Conditions 1% Annual Chance Flood



Mendota-Grassman Greenway Project



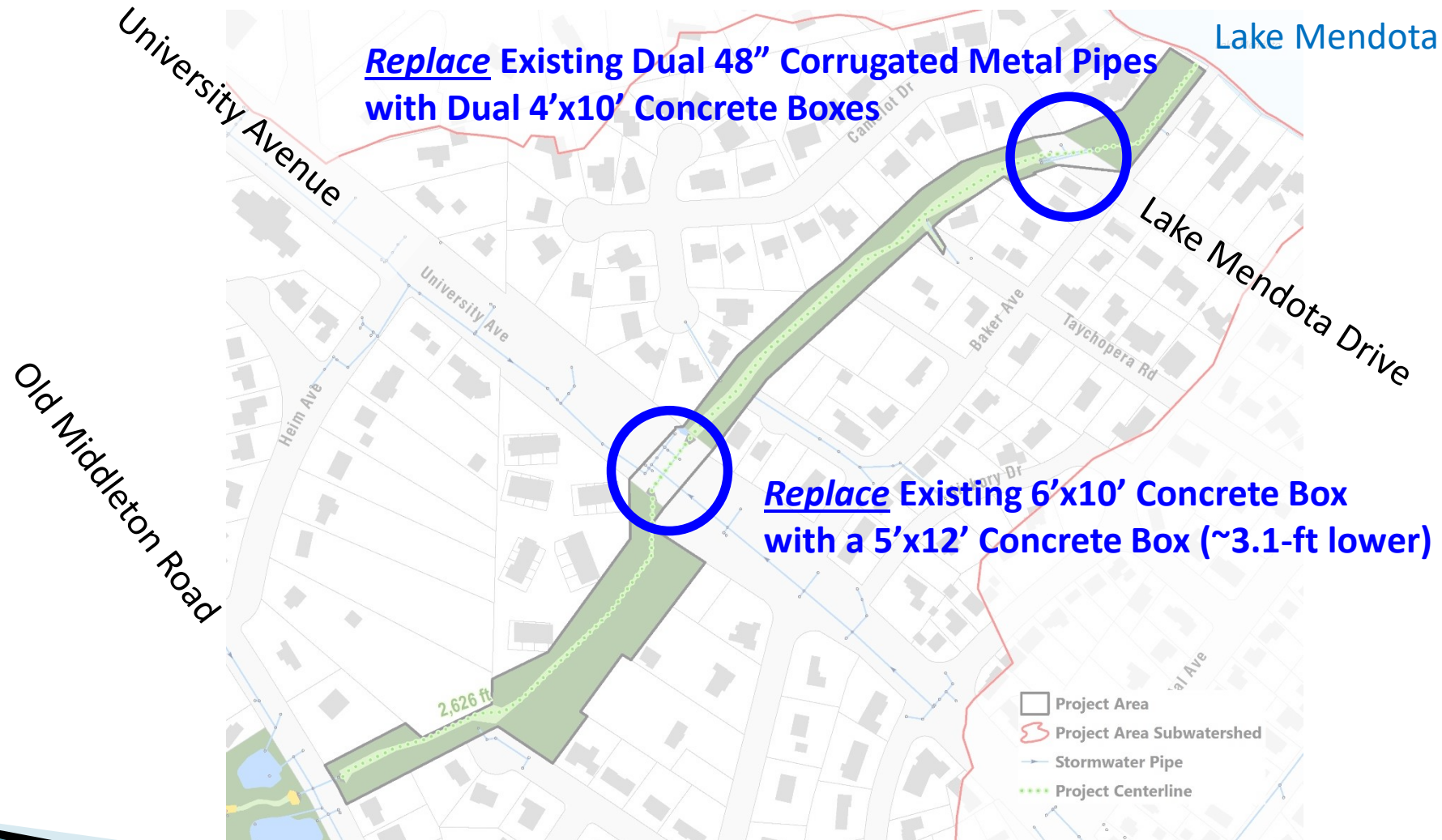
Flood Mitigation Targets

- 1% Chance Event (6.66" rain/24 hours)
- No structure (home/building) flooding
 - No greenway crossing overflow

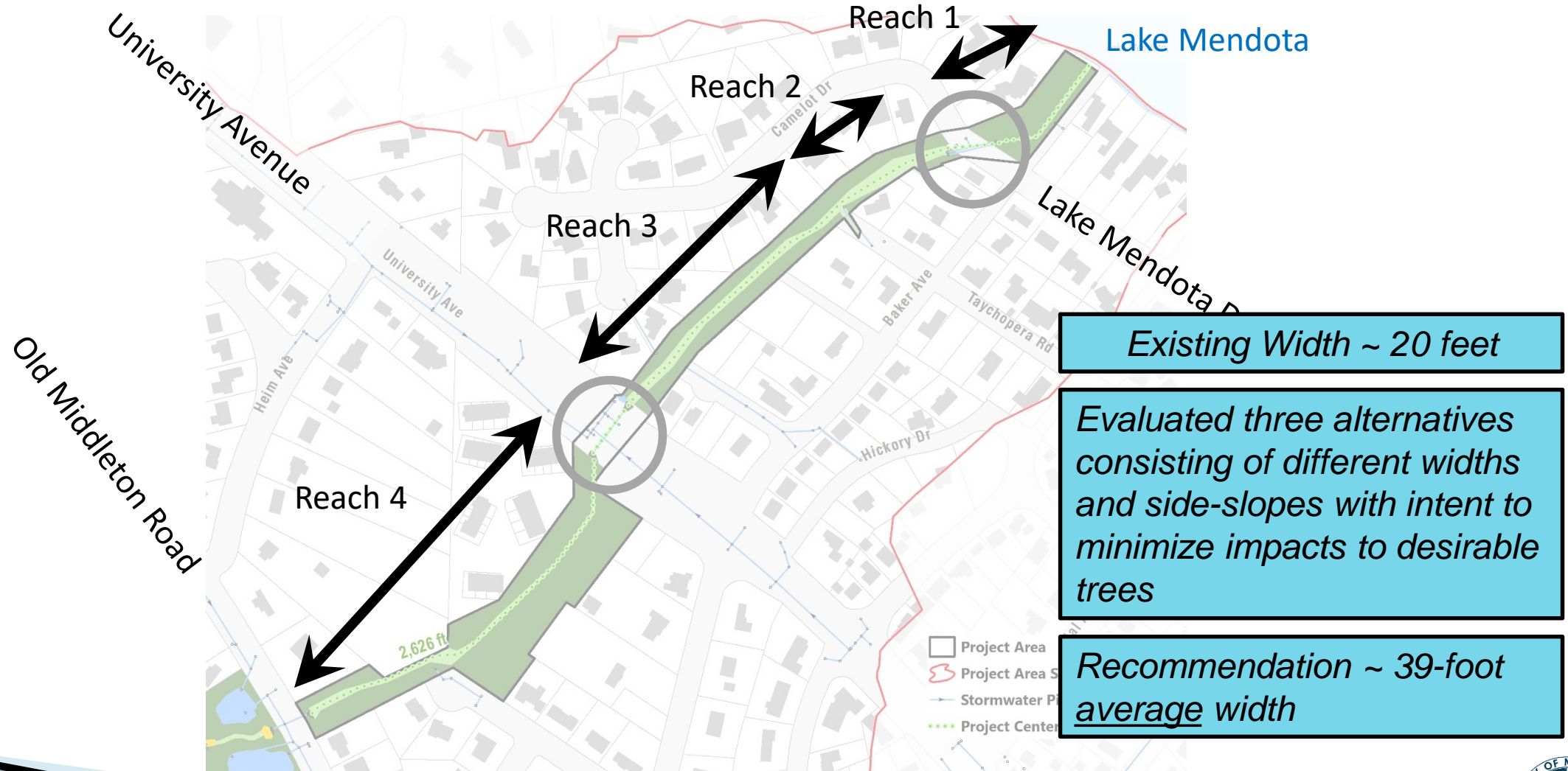
Project Scope

Increase capacity at University Avenue
Increase capacity at Camelot Drive
2,600 feet of channel improvement

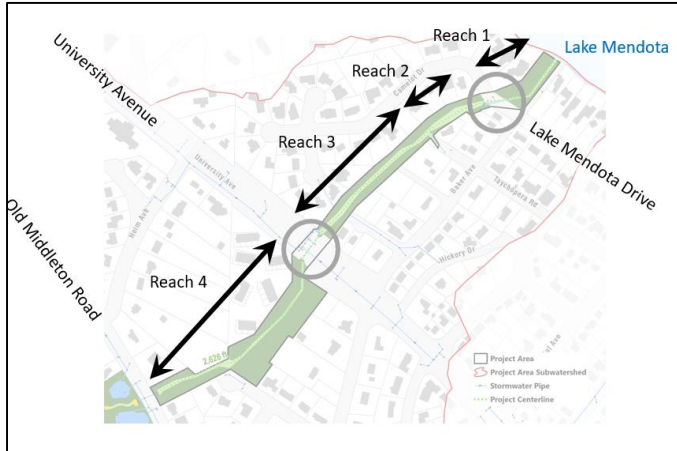
Project Segments – Pipe Work



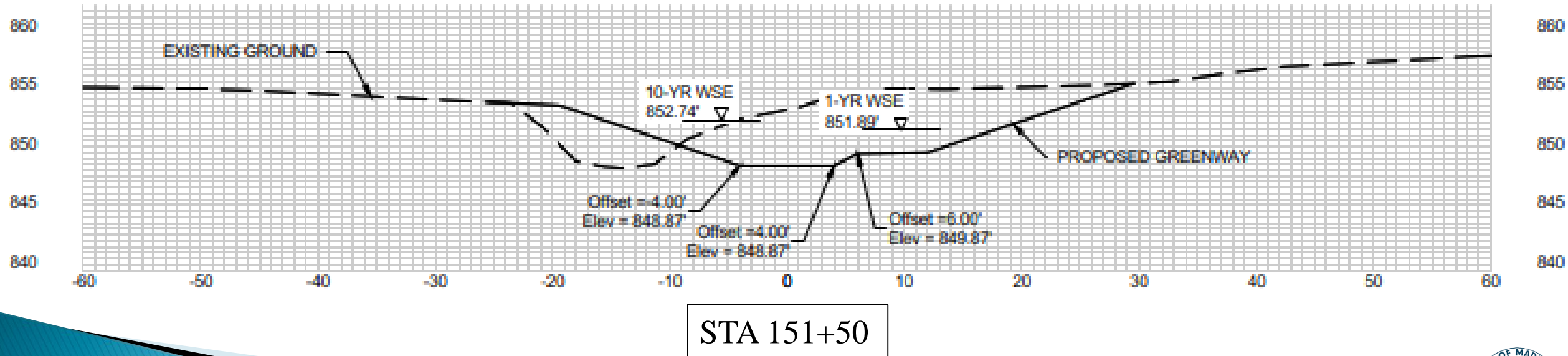
Project Segments – Channel Work



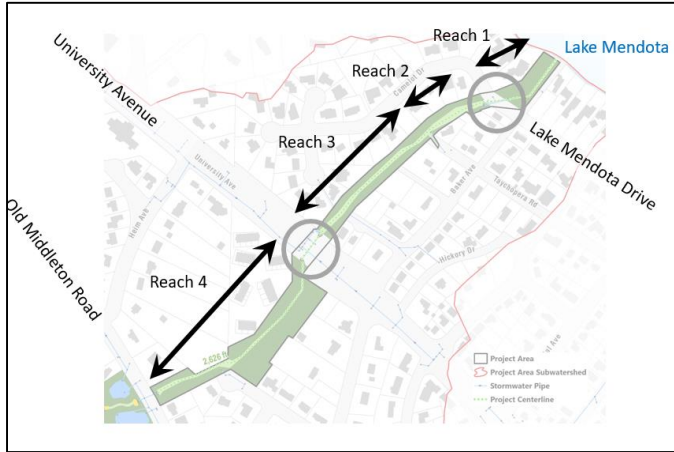
Reach #1 – Typical Section



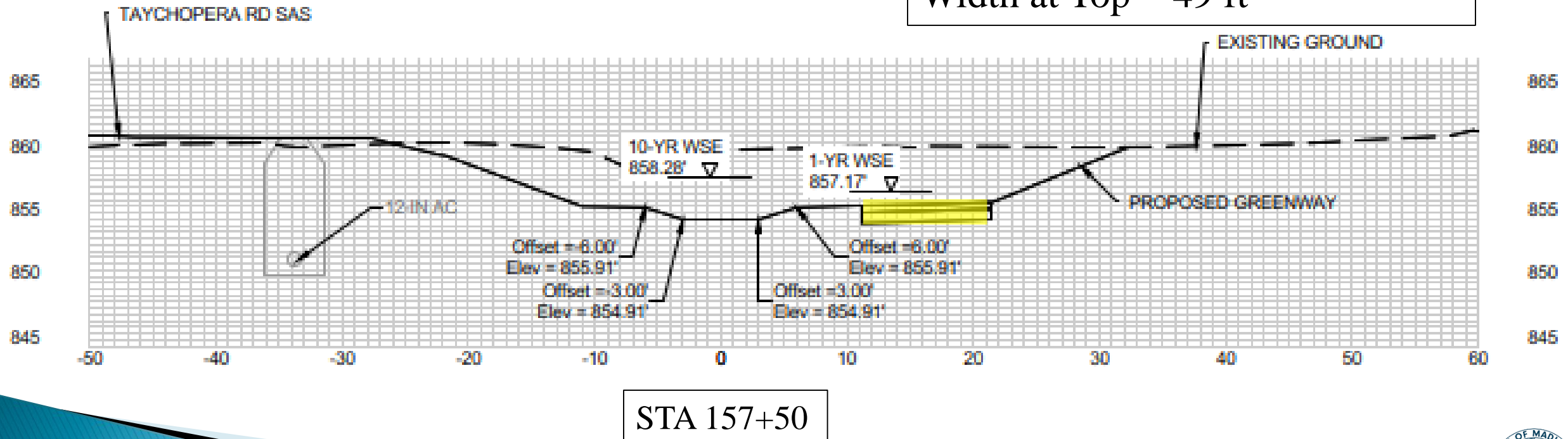
Width at Bottom = 8 ft
Width at Shelf = 19.4 ft
Low Flow Side Slope = 2:1
Main Channel Side Slope = 3:1
Width at Top ~ 53 ft



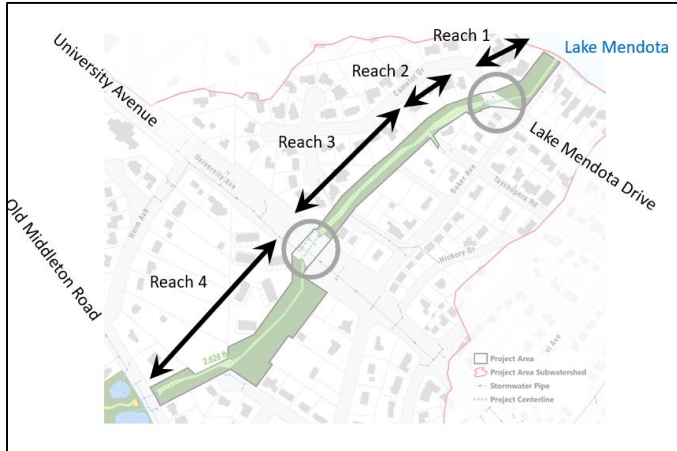
Reach #2 – Typical Section



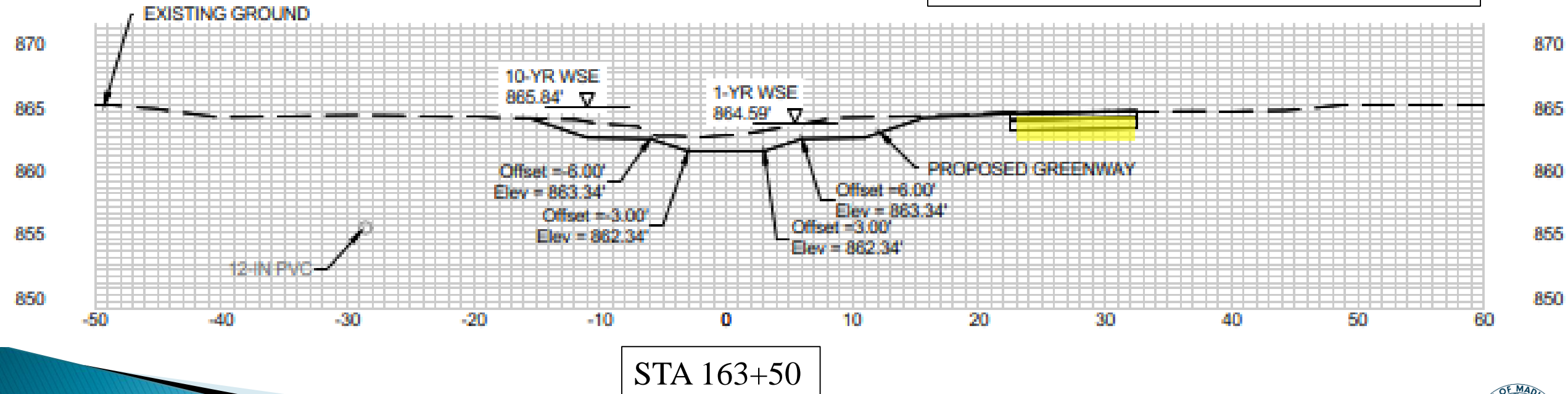
Width at Bottom = 6 ft
Width at Shelf = 20.6 ft
Low Flow Side Slope = 2:1
Main Channel Side Slope = 2.8:1
Width at Top ~ 49 ft



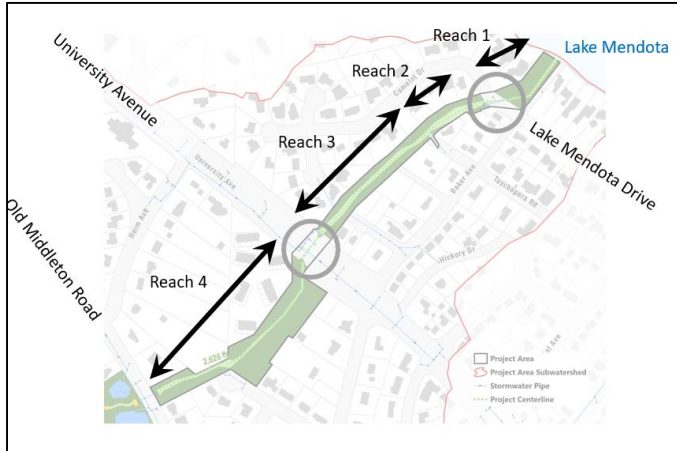
Reach #3 – Typical Section



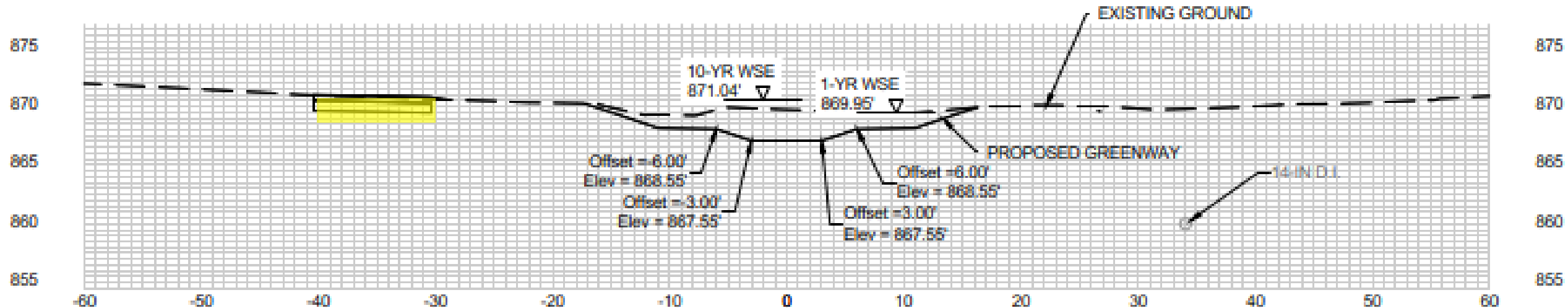
Width at Bottom = 6 ft
Width at Shelf = 22 ft
Low Flow Side Slope = 3.5:1
Main Channel Side Slope = 3:1
Width at Top ~ 39



Reach #4 – Typical Section

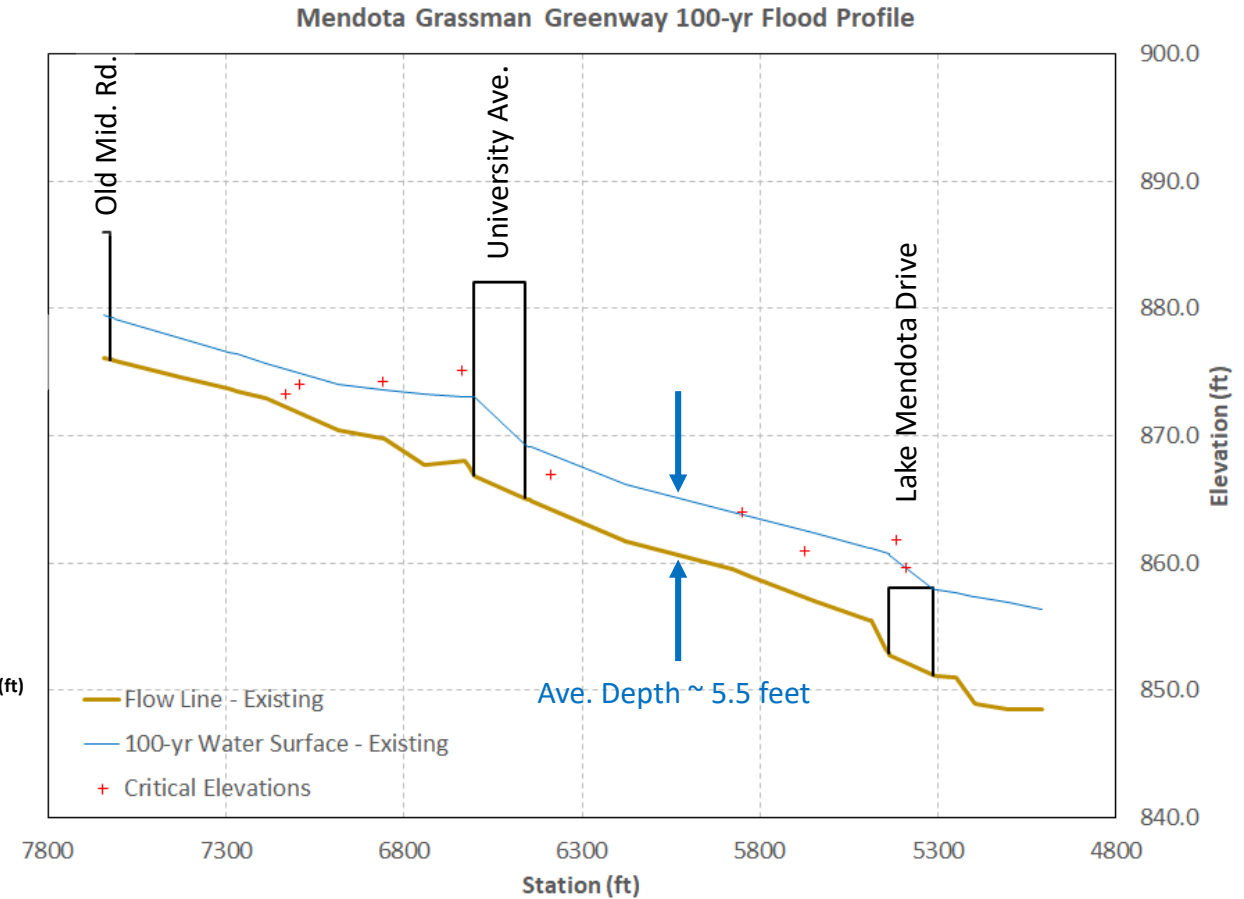
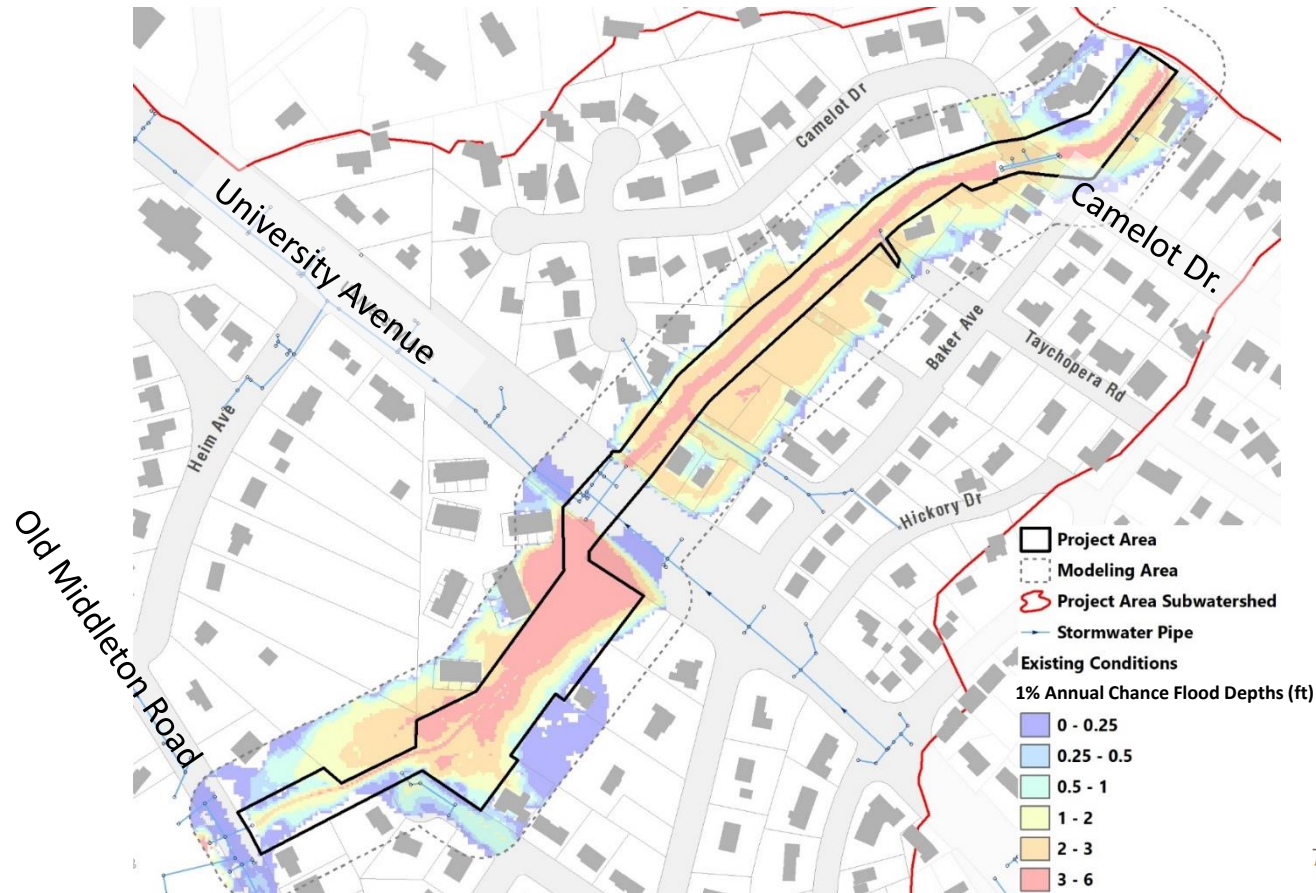


Width at Bottom = 6 ft
Width at Shelf = 22 ft
Low Flow Side Slope = 3:1
Main Channel Side Slope = 3:1
Width at Top ~ 30

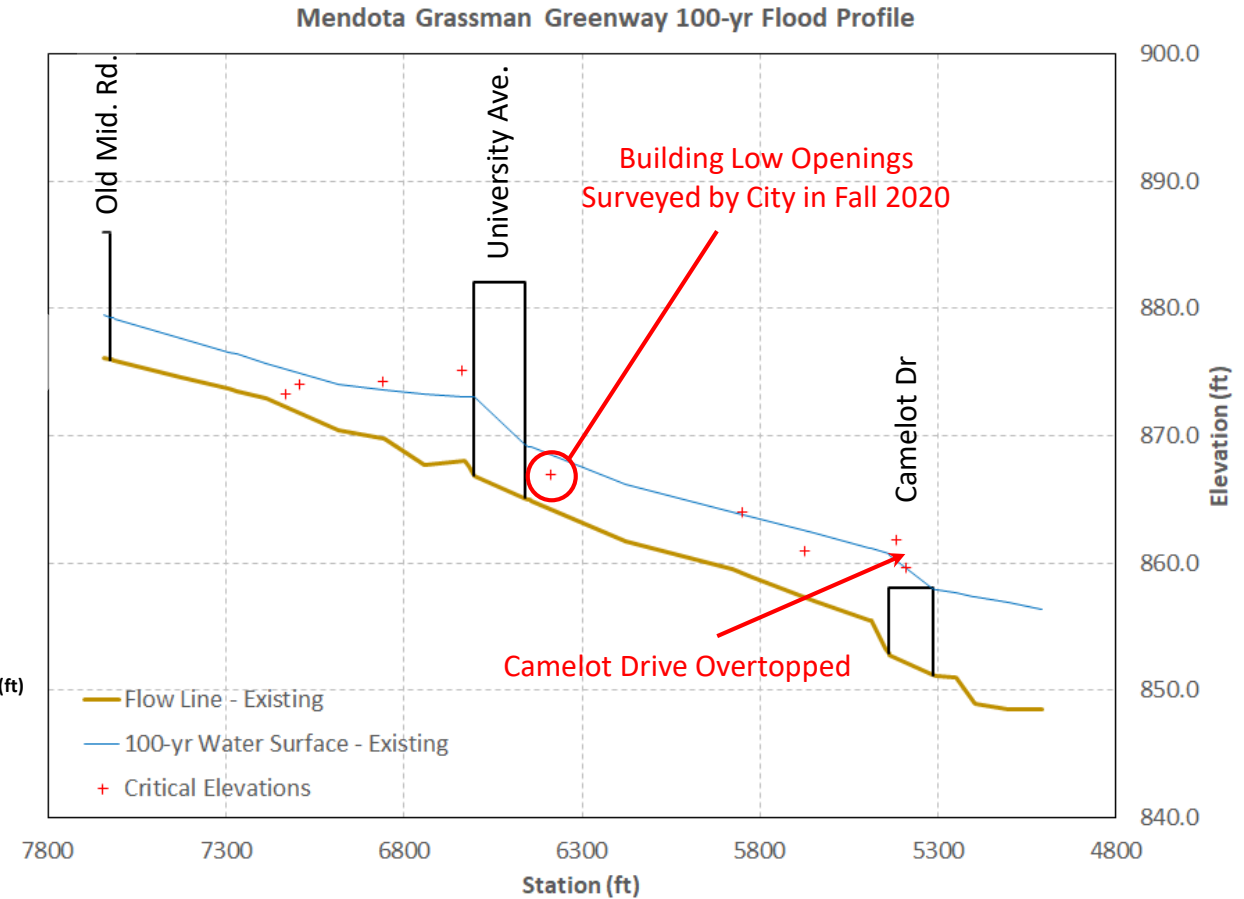
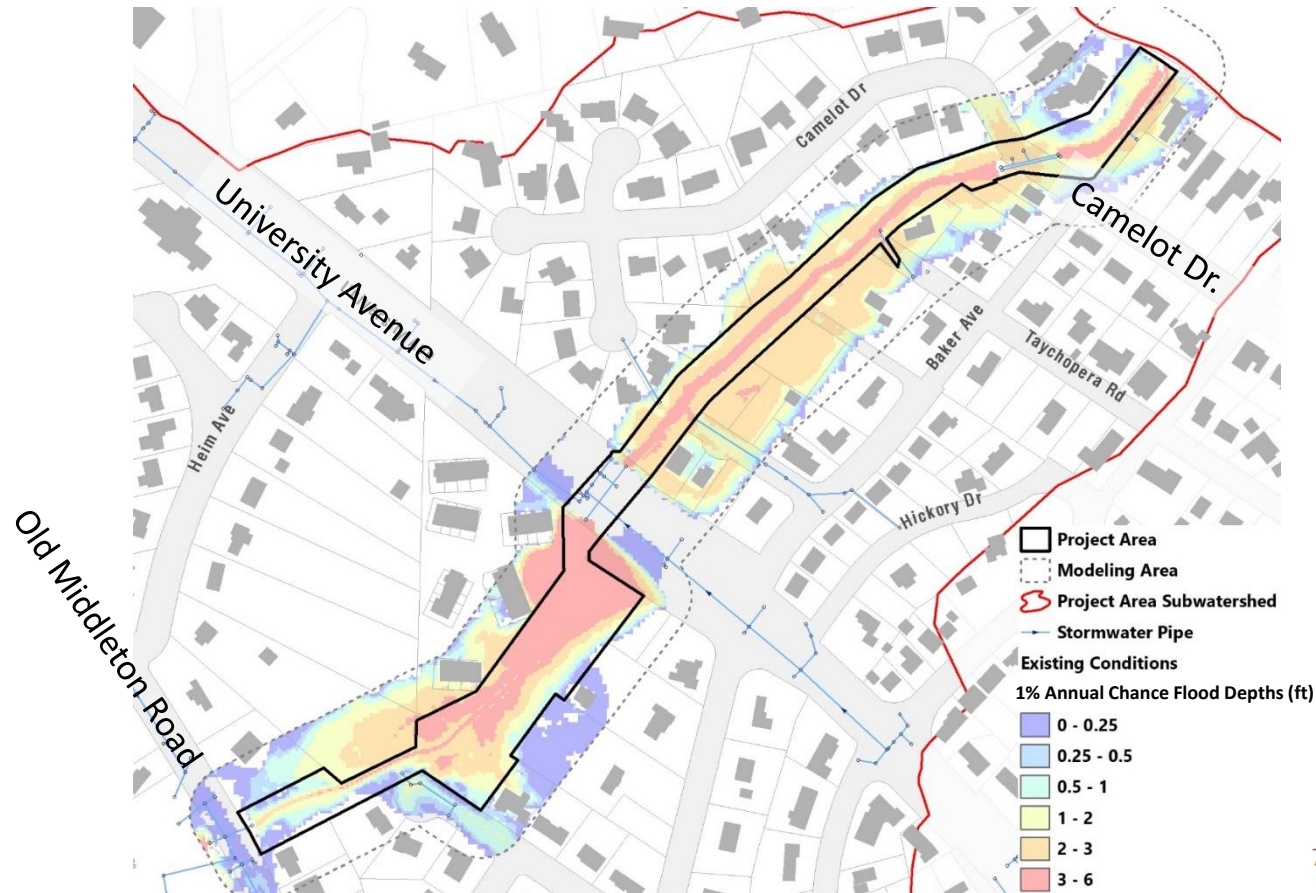


STA 169+50

Targeted Flood Reduction

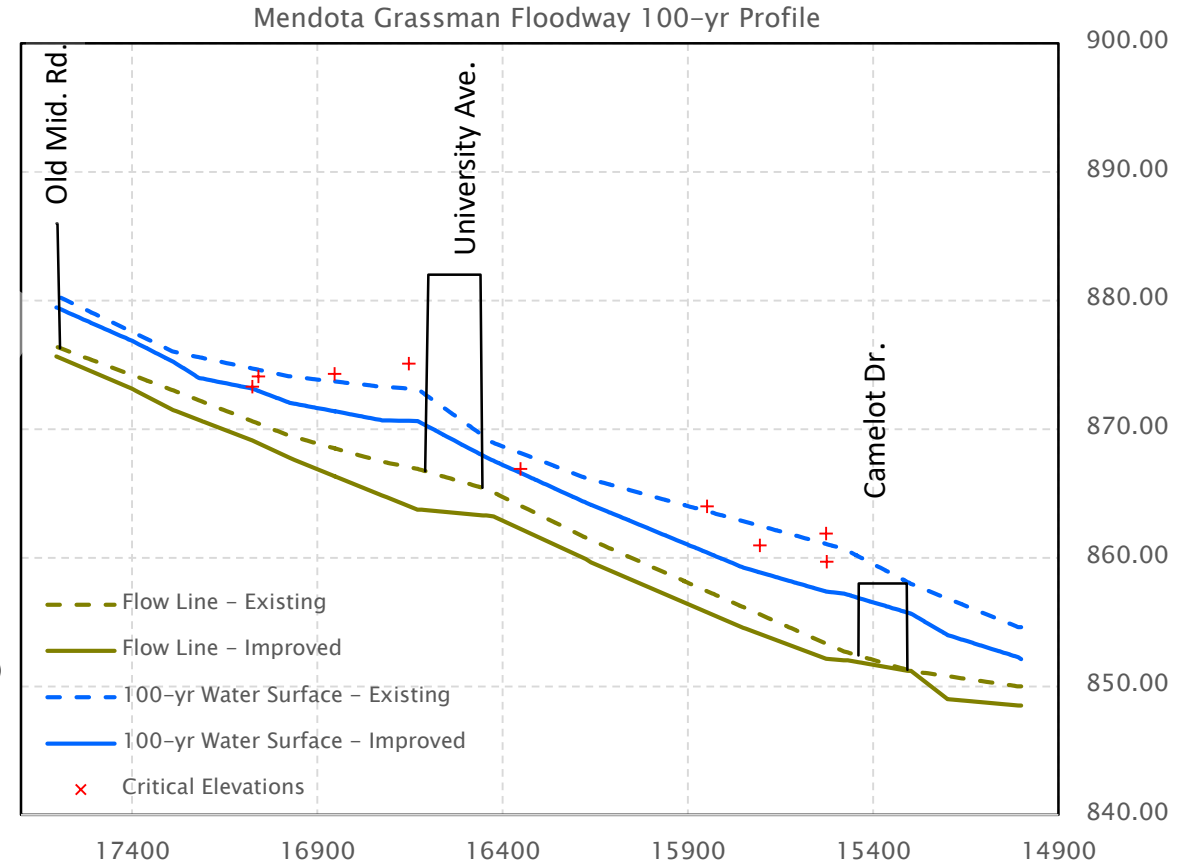
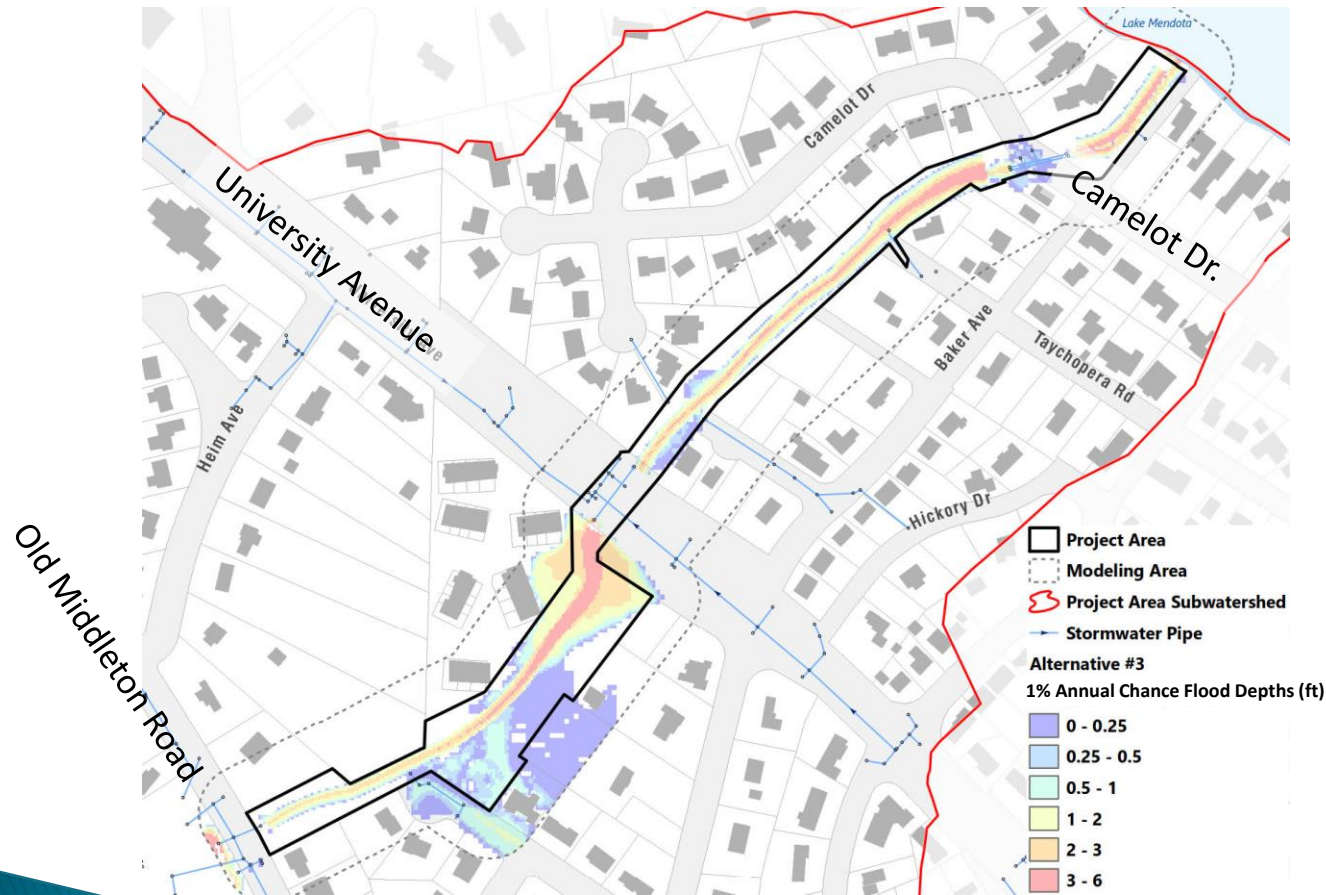


Targeted Flood Reduction



Current Design - 1% Annual Chance Inundation

Average Inundation Elevation Reduction = 2.2 feet



Maintenance Access

- ▶ Channel maintenance access
 - Primarily gravel topped with soil/vegetation
 - Some small portions in floodplain are concrete flexamat
 - To maintain channel, prevent blockages that could cause flooding
- ▶ Sanitary Access
 - Gravel
 - Clean sanitary sewer
 - Access sewer in emergencies



Current Vegetation



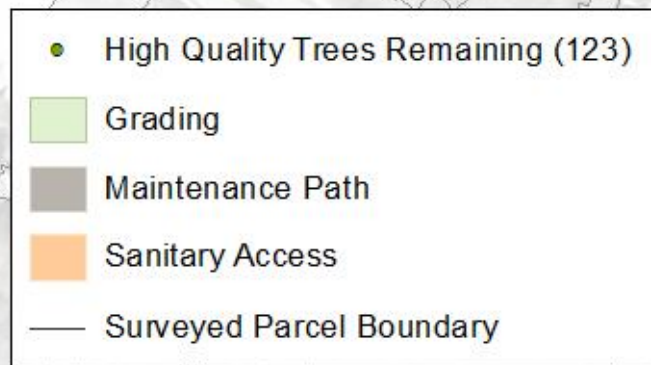
Woody volunteers: ash, buckthorn, box elder, honeysuckle. Little to no oak regeneration. Low herbaceous veg. diversity: Virginia stickseed, Virginia creeper, burdock, curly dock, jewelweed, garlic mustard.

All Trees

- All Trees in Project (735)
- Grading
- Maintenance Path
- Sanitary Access
- Surveyed Parcel Boundary

Trees with a diameter of 3 inches or greater were surveyed

High Quality Trees Remaining



- Restoration plans shown were based off of these high quality trees remaining and site context

0 180 360 Feet



EPWORTH CT

Ecological Restoration

Remove Invasive Plants

- density to replicate wetland and sedge meadow ecological conditions that support fluctuating water.

Install native shrubs, forbs and grasses

- within areas of higher velocity to quickly establish root structure to stabilize soil.
- Native forbs and grasses have the root structure necessary to stabilize soil and increase infiltration in wet conditions.

Seed with aggressive native seed

- mixes based on flood tolerances, sun, and soil moisture to create quick forming native understory that is less susceptible to invasive species takeover.

Ongoing removals of invasives

- Include in multi-year ecological restoration contract to get native understory started
- Manage with minimal mowing, prescribed burn, targeted invasive treatment

Ecological Restoration

► Benefits

- Biodiversity
 - Insects– Specialist species that need specific habitat plants are particularly helped by ecological restoration (e.g. monarch butterfly)
 - “Ninety percent of the insects that eat plants can develop and reproduce only on the plants with which they share an evolutionary history,” Doug Tallamy
 - Habitat
- Soil Health
 - Reducing erosion and nutrients runoff that enter our lake and impair our waters
- Carbon Impact
 - Studies are finding that native grasslands act as carbon sinks

Plummeting insect numbers 'threaten collapse of nature'



The Guardian, Feb 10, 2019



INZO PERES-LABOURETTE / YALE E360

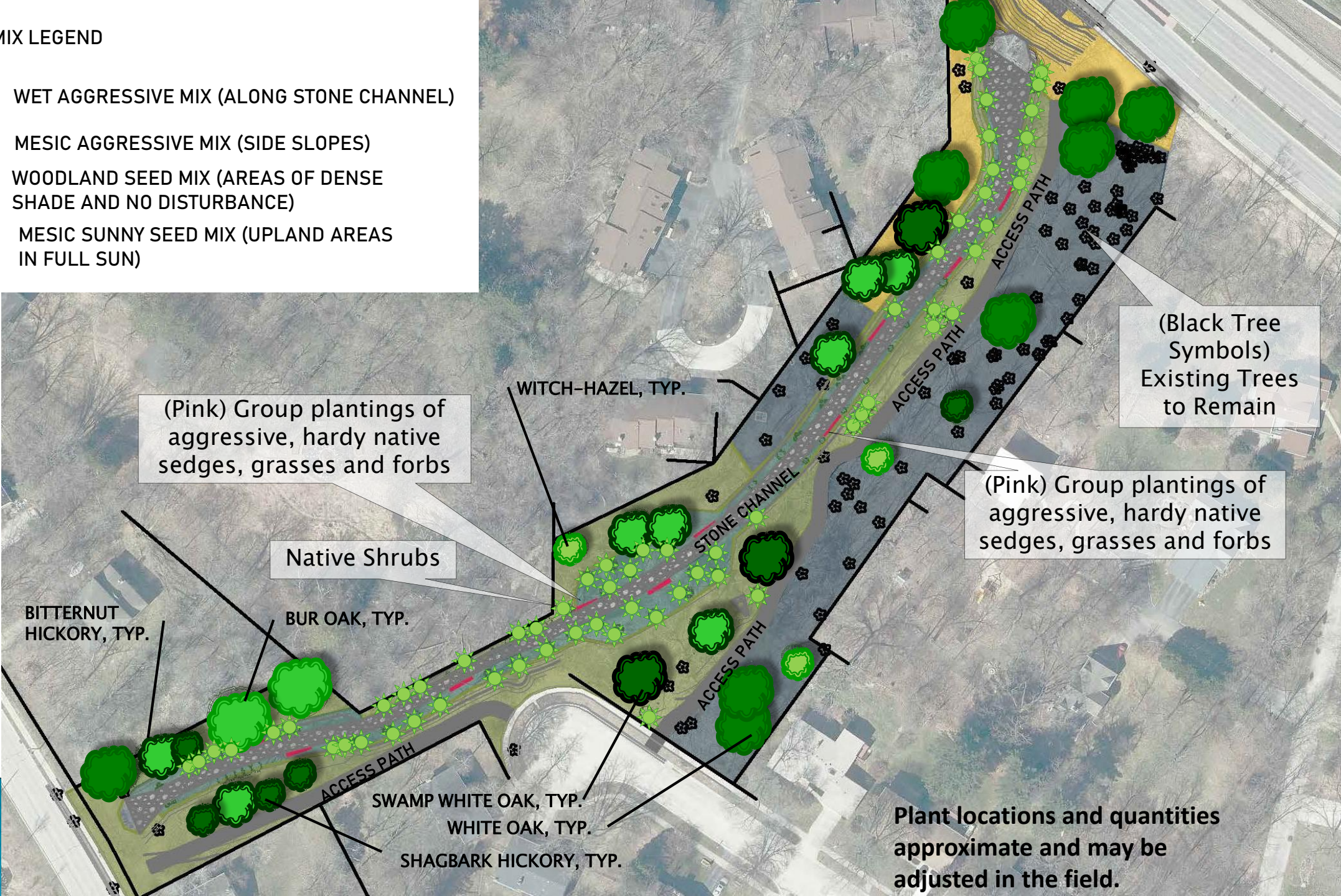
How Non-Native Plants Are
Contributing to a Global Insect
Decline

Yale School of the Environment
E360, December 8, 2020



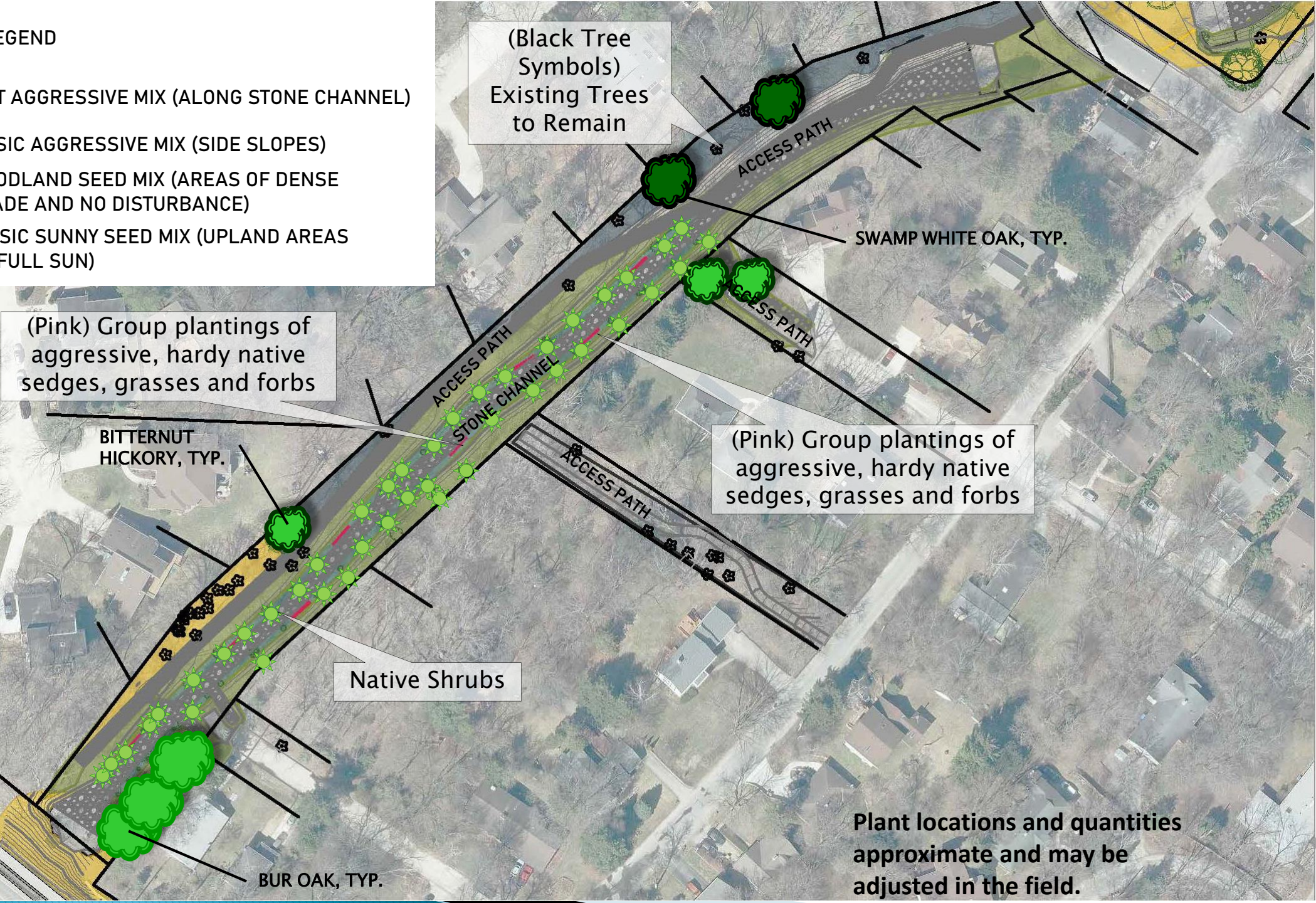
SEED MIX LEGEND

- WET AGGRESSIVE MIX (ALONG STONE CHANNEL)
- MESIC AGGRESSIVE MIX (SIDE SLOPES)
- WOODLAND SEED MIX (AREAS OF DENSE SHADE AND NO DISTURBANCE)
- MESIC SUNNY SEED MIX (UPLAND AREAS IN FULL SUN)



SEED MIX LEGEND

- WET AGGRESSIVE MIX (ALONG STONE CHANNEL)
- MESIC AGGRESSIVE MIX (SIDE SLOPES)
- WOODLAND SEED MIX (AREAS OF DENSE SHADE AND NO DISTURBANCE)
- MESIC SUNNY SEED MIX (UPLAND AREAS IN FULL SUN)



Plant locations and quantities approximate and may be adjusted in the field.



SEED MIX LEGEND

- WET AGGRESSIVE MIX (ALONG STONE CHANNEL)
- MESIC AGGRESSIVE MIX (SIDE SLOPES)
- WOODLAND SEED MIX (AREAS OF DENSE SHADE AND NO DISTURBANCE)
- MESIC SUNNY SEED MIX (UPLAND AREAS IN FULL SUN)

