

Lick Creek Watershed Restoration Plan

Stakeholder Meeting 6

October 24, 2007

East Durham Regional Branch Library



Agenda

3:00 Welcome and Introductions

3:05 Housekeeping and Announcements

3:15 Lick Creek Restoration Priorities (Chris Dreps)

4:00 Water Quality Monitoring (Dan Line)

4:30 Discussion

5:00 Adjourn

* Decision Item



*Next meeting:
December 5, 3:00 – 5:00
East Durham Regional Branch
Library*

*Decide upon initial list of management strategies
Critical Lands Protection Analysis*



Housekeeping



Announcements

*Lick Creek Restoration Project
Priorities*



Priority Restoration Projects

Major Restoration Projects

- Stream repair, stormwater retrofits, buffer restoration, wetland restoration

Volunteer Restoration Projects

- Buffer replanting



Restoration Goals

GOAL 1: Develop a hypothesis about the causes of biological impairment in Lick Creek and recommend approaches to addressing impairment status.

GOAL 3: Develop strategies for reducing, and maintaining at levels meeting water quality standards, the pollutants identified in Goal 2.



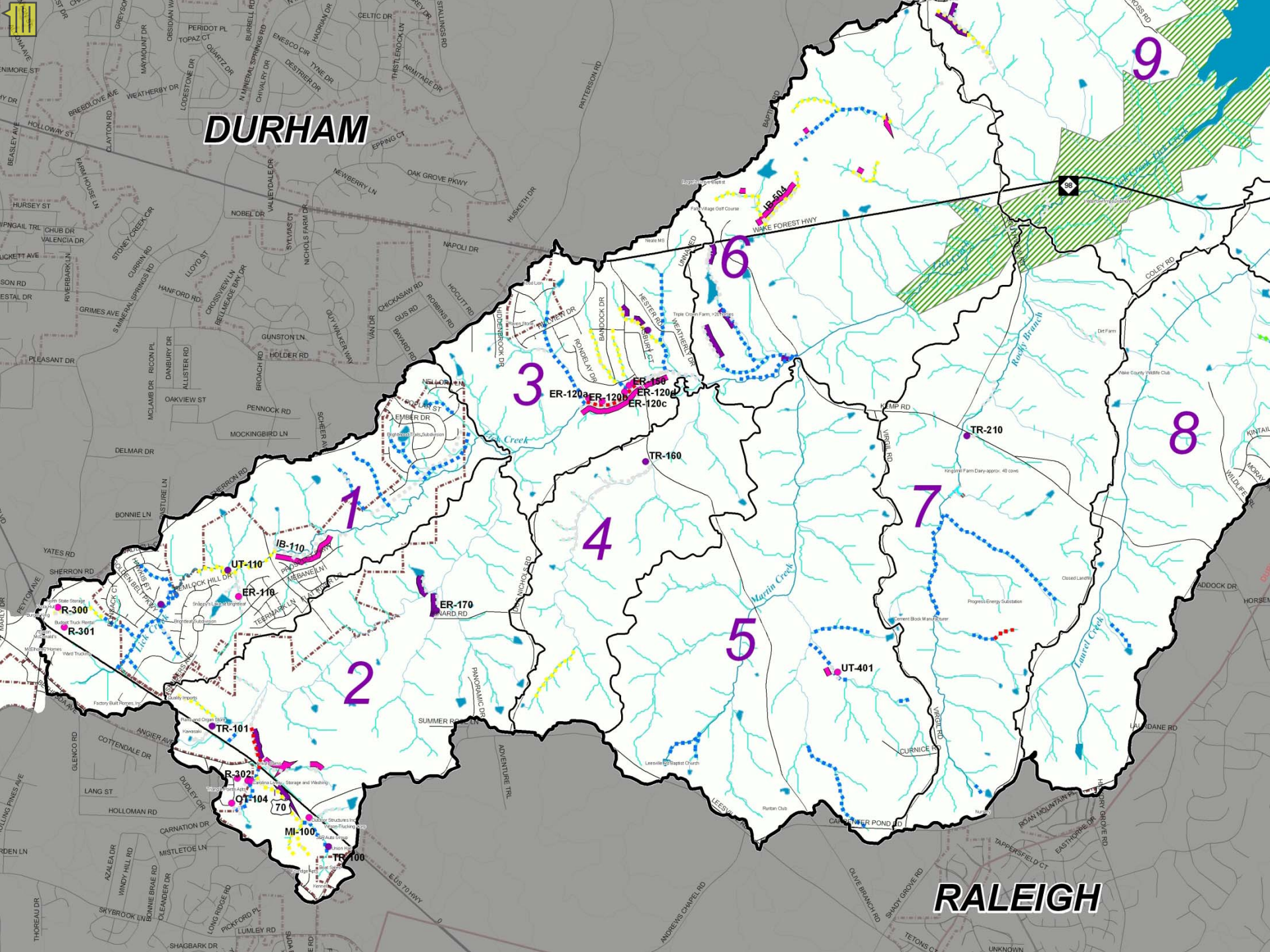
Restoration project criteria

1. Need for project (analysis indicates degradation at subwatershed level)
2. Project's environmental benefits
3. Project's community benefits / support
4. Project's implementation feasibility

Lick Creek Project Prioritization Criteria

	Factor	Description	Scoring Criteria		Total Weight
Implementation Feasibility	Relative Construction Cost	Based on the Type of Practice	Low cost	2	2
			Med cost	1	
			High cost	0	
	Owner/Manager Support	Includes: Property Owner support Responsible party for long term maintenance	Highly feasible	3	3
			Moderately feasible	1-2	
			Low feasibility	0	
	Physical Constraints	Includes: Conflicts with Existing Utilities Space limitations Soils Physical Access for Construction and Maintenance	No Constraints	3	3
Minor Constraints or Unknown			1-2		
Major			0		
Potential Flags*	Includes: Meets agency criteria (e.g. NC EEP) On publicly-owned land	Implementation Feasibility flagging criteria met *		None	
Environmental Benefits	Water Quality Benefits	How much currently untreated impervious area is treated for WQ by this retrofit? Or, how much buffer would be added?	> 5 ac (or >2000 ft)	5	5
			2-5 ac (1000-2000 ft)	3	
			0.5-2 ac (500-1000ft)	2	
			0.1-0.5 ac (1-500ft)	1	
			None	0	
	Channel Protection	Does the practice reduce erosive velocities by providing channel protection volume (CPV)? Or protect slopes from erosion?	CPV Provided	2	2
			Channel Armored	1	
			Not Provided	0	
	Natural Areas Impacts	What is the impact to existing wetlands and forests?	Net gain	3	3
			No net loss or gain	1	
Net loss			0		
Potential Flags*	Includes: In high-priority subwatershed?*** In or upstream of headwaters (low potential for upstream impacts)?	Environmental Benefits flagging criteria met*		None	
Community Benefits/Support	Aesthetic Value	Does the practice have the potential to improve aesthetics?	Yes, in public area	1	1
			Yes, on private land	.5	
			No	0	
	Stewardship	Does the project foster long-term public involvement (e.g. monitoring/maintenance) or educates citizens?	Long-term involvement	1	1
			Educational component only	.5	
			No	0	
Potential Flags*	Includes: Potential to remove harmful pathogens from surface water? Involves citizens in construction?	Community Benefits/Support flagging criteria met*		None	
				TOTAL	20

DURHAM



RALEIGH



Major Restoration Projects

13 potential Major Restoration projects



Lick Creek Major Restoration Project Priorities: IB 350



LEGEND

County Line	Lick Creek Study Area
City Limit	Watershed
Street	Subwatershed
Parks/Open Space	Surface Water
	Water Body
	Major Stream
	Minor Stream

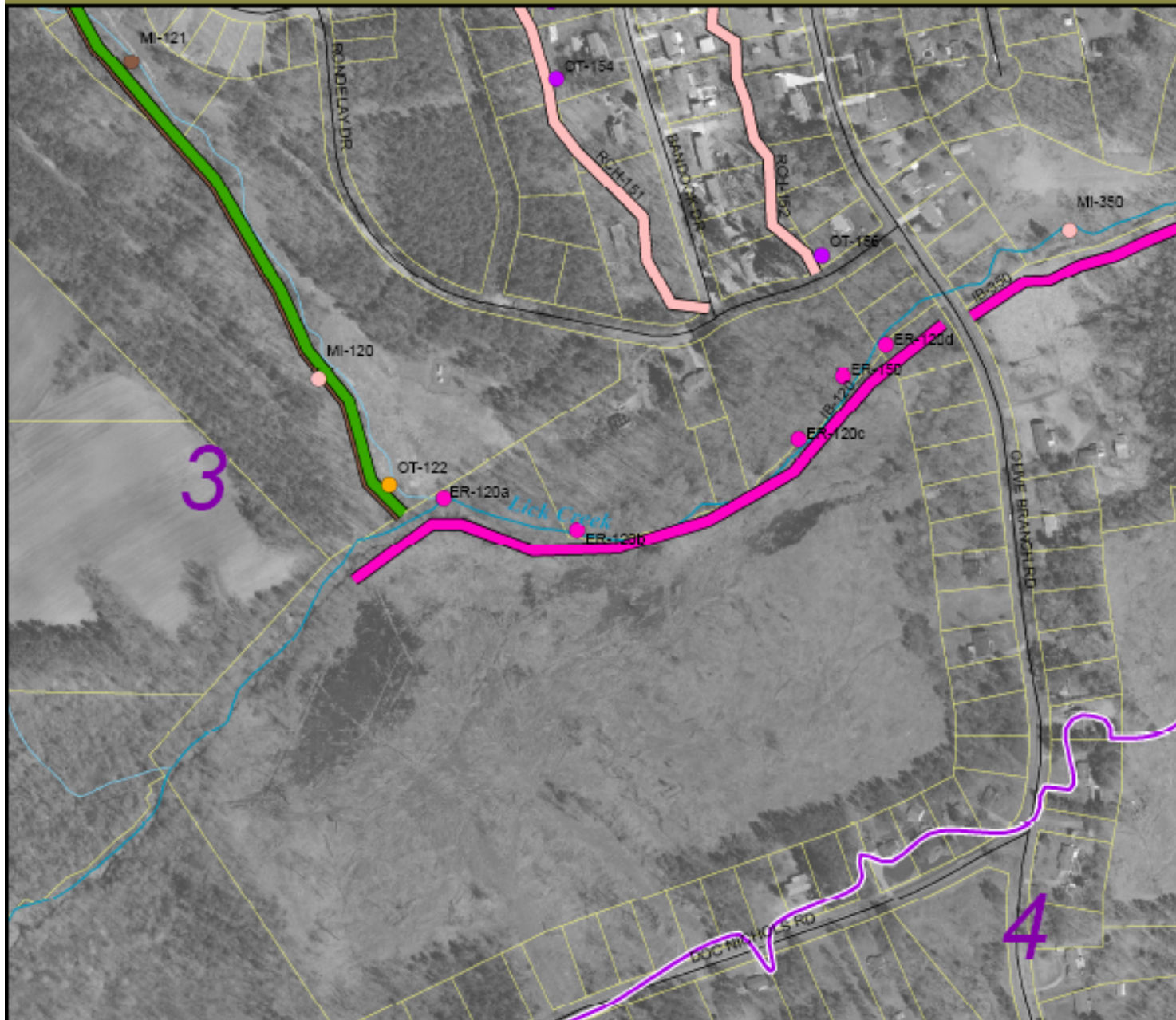
Project Type

- Major Restoration
- Volunteer Restoration
- Enforcement
- Repair
- Protection
- Database
- Outreach and Education



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Lick Creek Major Restoration Project Priorities: IB 120, ER 120, and ER 150



LEGEND

County Line	Lick Creek Study Area
City Limit	Watershed
Street	Subwatershed
Parks/Open Space	Surface Water
	Water Body
	Major Stream
	Minor Stream

Project Type

	Major Restoration
	Volunteer Restoration
	Enforcement
	Repair
	Protection
	Database
	Outreach and Education



North arrow and scale bar (0 to 600 Feet).

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Lick Creek Major Restoration Project Priorities: IB 502, 503, 504, 506, 507, and 508

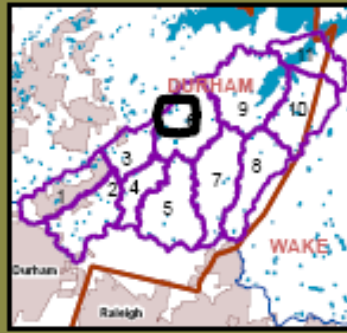


LEGEND

County Line	Lick Creek Study Area
City Limit	Watershed
Street	Subwatershed
Parks/Open Space	Surface Water
	Water Body
	Major Stream
	Minor Stream

Project Type

	Major Restoration
	Volunteer Restoration
	Enforcement
	Repair
	Protection
	Database
	Outreach and Education



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Lick Creek Major Restoration Project Priorities: R 300 and R 301



LEGEND

- Parks/Open Space: Lick Creek Study Area
- Watershed
- Subwatershed

Project Type

- Major Restoration
- Volunteer Restoration
- Enforcement
- Repair
- Protection
- Database
- Outreach and Education



Lick Creek Major Restoration Project Priorities: R 302 and OT 104



LEGEND

- Parks/Open Space
- Lick Creek Study Area
- Watershed
- Subwatershed

Project Type

- Major Restoration
- Volunteer Restoration
- Enforcement
- Repair
- Protection
- Database
- Outreach and Education



LEGEND

- N
- W
- E
- S

0 200 400 Feet

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Volunteer Restoration Projects

14 potential Volunteer Restoration projects



Lick Creek Volunteer Restoration Project Priorities: IB 213



LEGEND

County Line	Lick Creek Study Area
City Limit	Watershed
Street	Subwatershed
Parks/Open Space	Surface Water
	Water Body
	Major Stream
	Minor Stream
	Headwater Stream

Project Type

	Major Restoration
	Volunteer Restoration
	Enforcement
	Repair
	Protection
	Database
	Outreach and Education



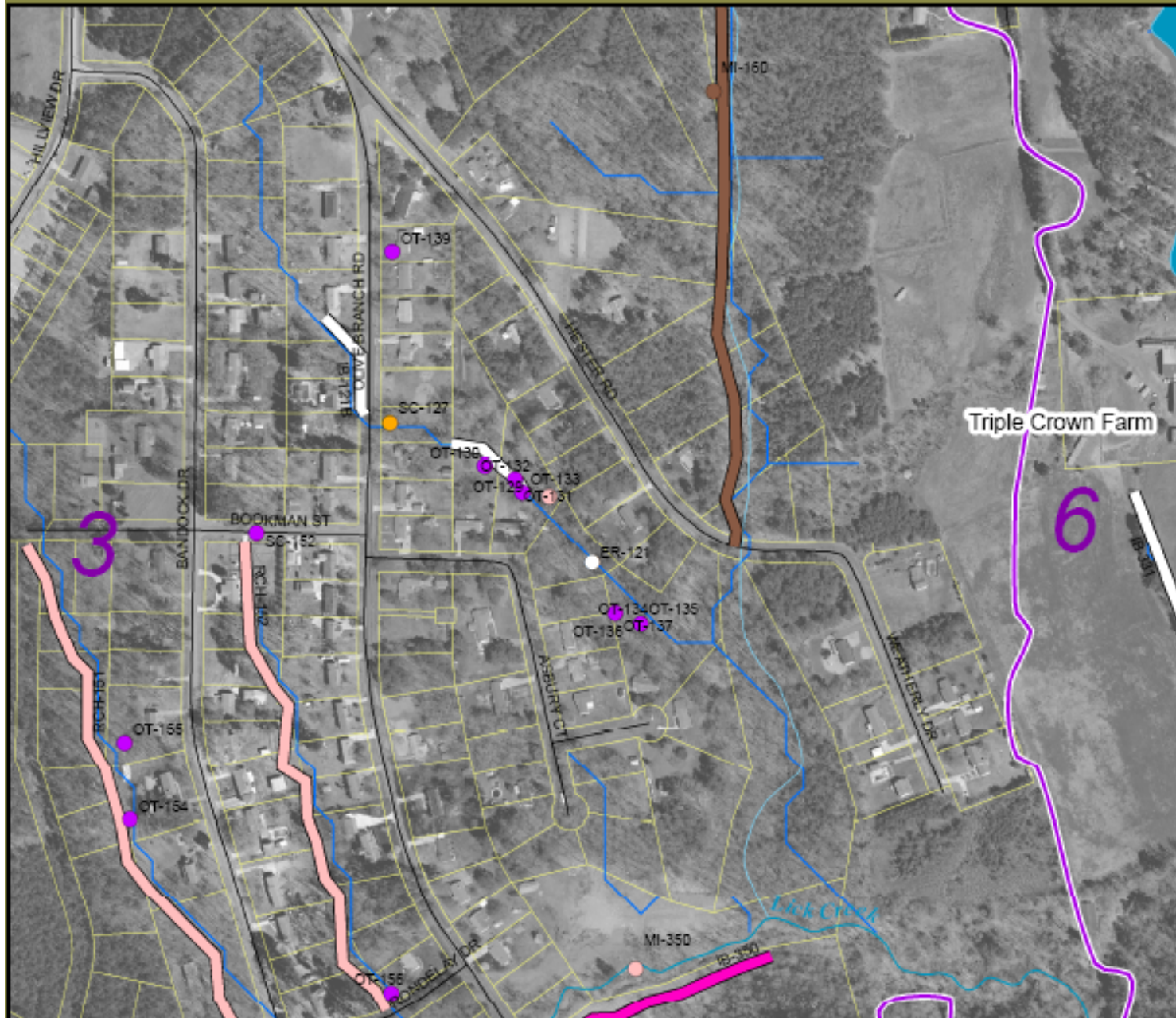
Map Orientation and Scale

N
W E
S

0 200 400 Feet

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Lick Creek Volunteer Restoration Project Priorities: ER 121 and IB 121



LEGEND

County Line	Lick Creek Study Area
City Limit	Watershed
Street	Subwatershed
Parks/Open Space	Surface Water
	Water Body
	Major Stream
	Minor Stream

Project Type

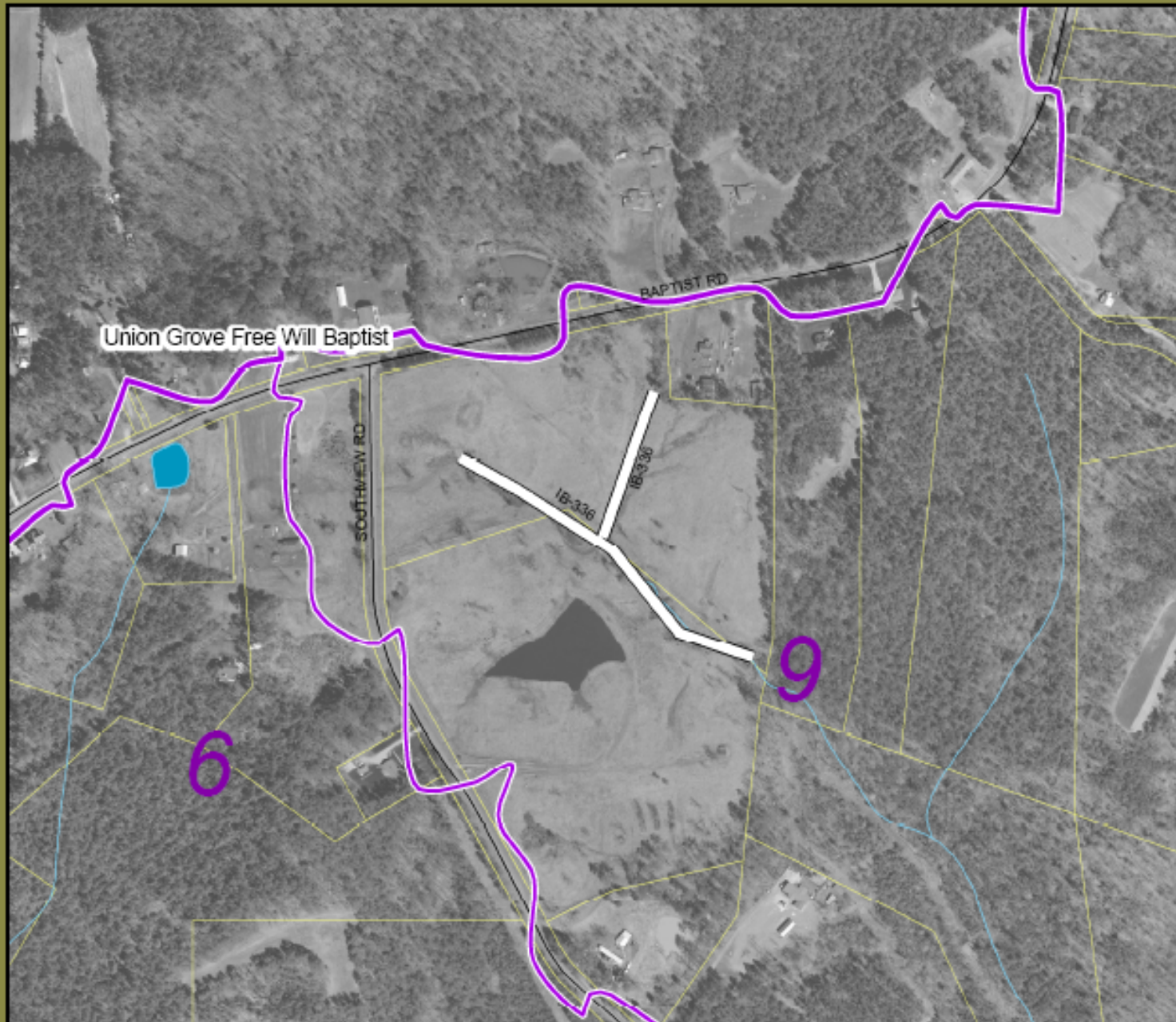
	Major Restoration
	Volunteer Restoration
	Enforcement
	Repair
	Protection
	Database
	Outreach and Education



0 250 500 Feet

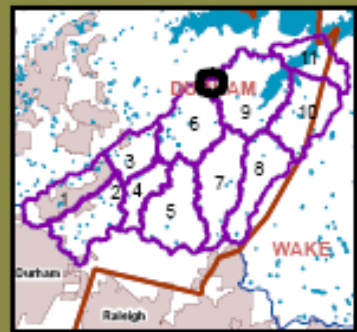
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Lick Creek Volunteer Restoration Project Priorities: IB 336



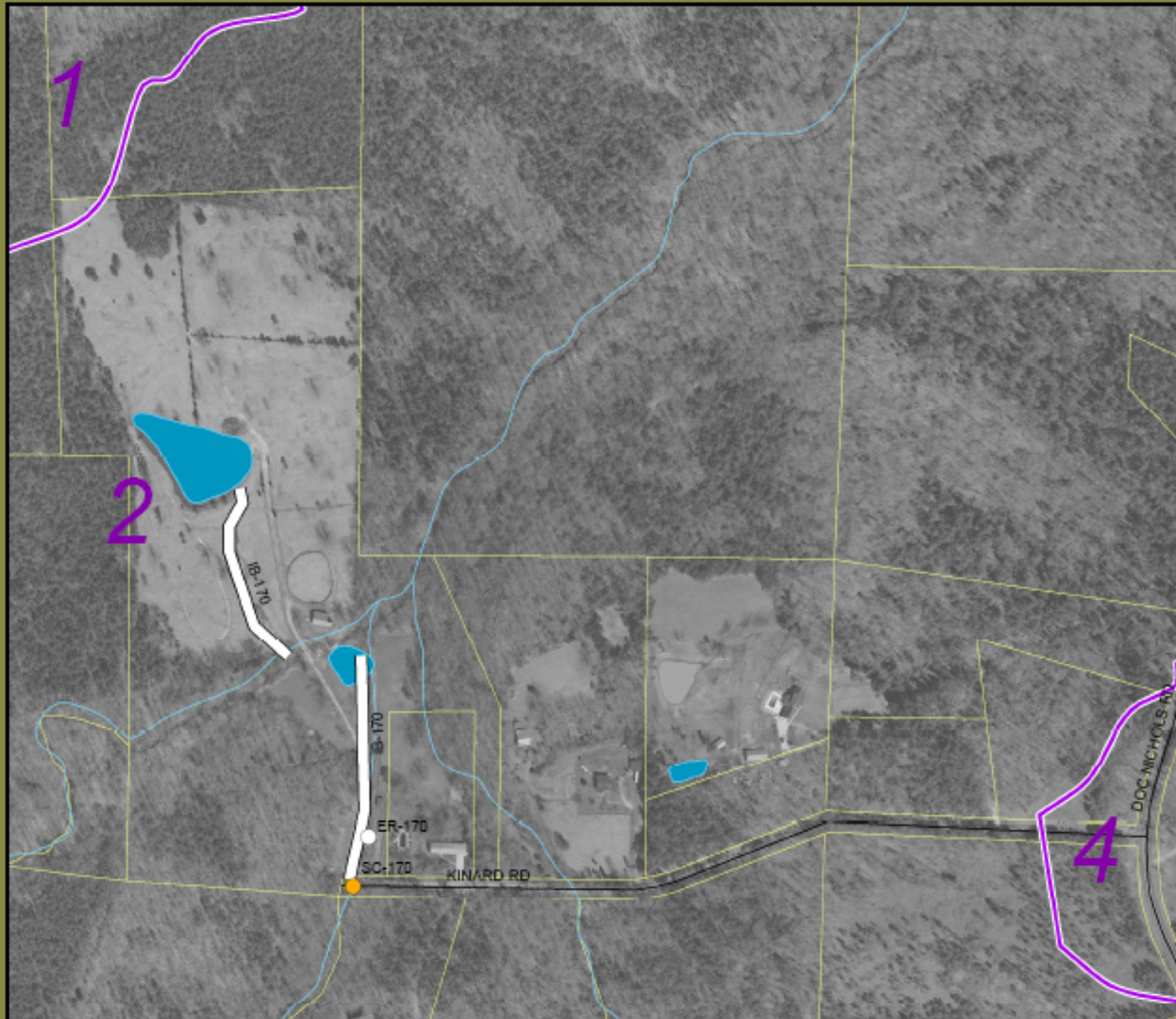
- LEGEND**
- County Line
 - City Limit
 - Street
 - Parks/Open Space
 - Lick Creek Study Area
 - Watershed
 - Subwatershed
 - Surface Water
 - Water Body
 - Major Stream
 - Minor Stream

- Project Type**
- Major Restoration
 - Volunteer Restoration
 - Enforcement
 - Repair
 - Protection
 - Database
 - Outreach and Education



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Lick Creek Volunteer Restoration Project Priorities: ER 170 and IB 170

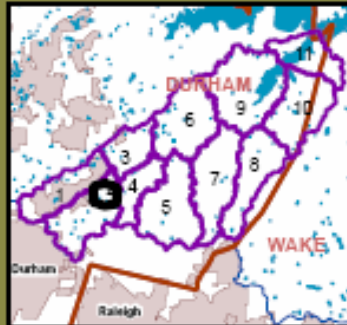


LEGEND

County Line	Lick Creek Study Area
City Limit	Watershed
Street	Subwatershed
Parks/Open Space	Surface Water
	Water Body
	Major Stream
	Minor Stream

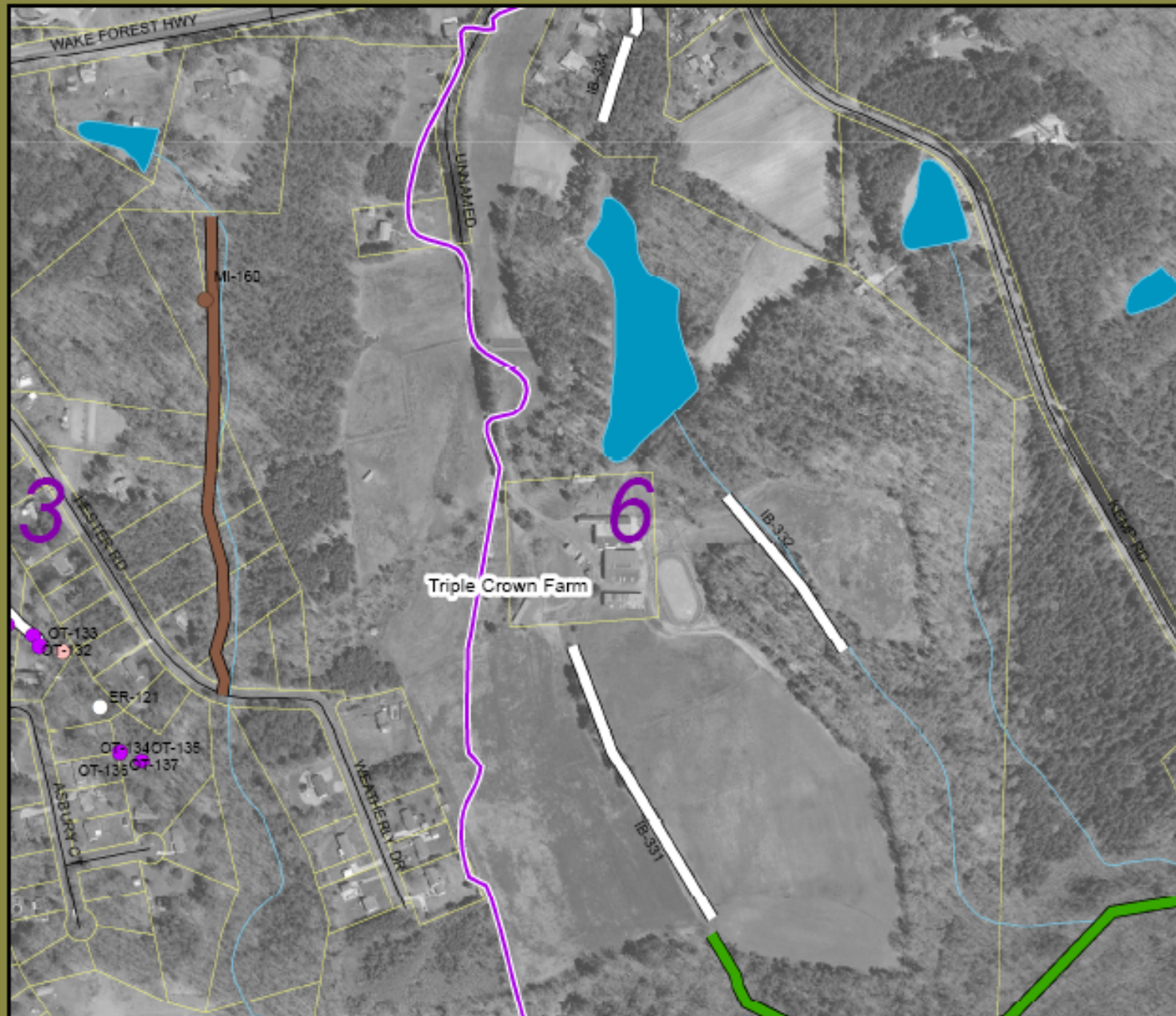
Project Type

	Major Restoration
	Volunteer Restoration
	Enforcement
	Repair
	Protection
	Diabase
	Outreach and Education



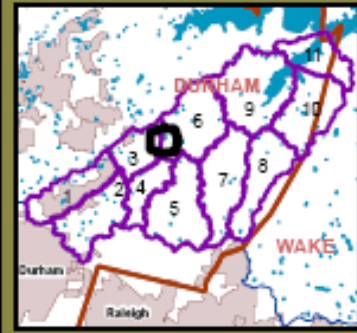
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Lick Creek Volunteer Restoration Project Priorities: IB 331 and 332



- LEGEND**
- County Line
 - City Limit
 - Street
 - Parks/Open Space
 - Lick Creek Study Area
 - Watershed
 - Subwatershed
 - Surface Water
 - Water Body
 - Major Stream
 - Minor Stream

- Project Type**
- Major Restoration
 - Volunteer Restoration
 - Enforcement
 - Repair
 - Protection
 - Database
 - Outreach and Education



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Conclusions

Overall benefits of the projects:

- Lick Creek WTM predicts less than 4% overall reductions in either total nitrogen, total phosphorous, total suspended solids
- Most reductions from buffer projects



Conclusions

Projects would be beneficial for at least two reasons:

1. Positive local effects on water quality
2. Opportunity for community education and awareness-raising through volunteer projects



Next Steps

Determine level of interest by potential funders...

- NC Ecosystem Enhancement Program and Durham Soil and Water Conservation District (major projects)
- Home Depot Foundation (volunteer projects)
- Durham Stormwater Services? (stormwater retrofit projects)



Lick Creek Water Quality Monitoring Findings

Dan Line, NCSU Water Quality Group



Restoration Goals

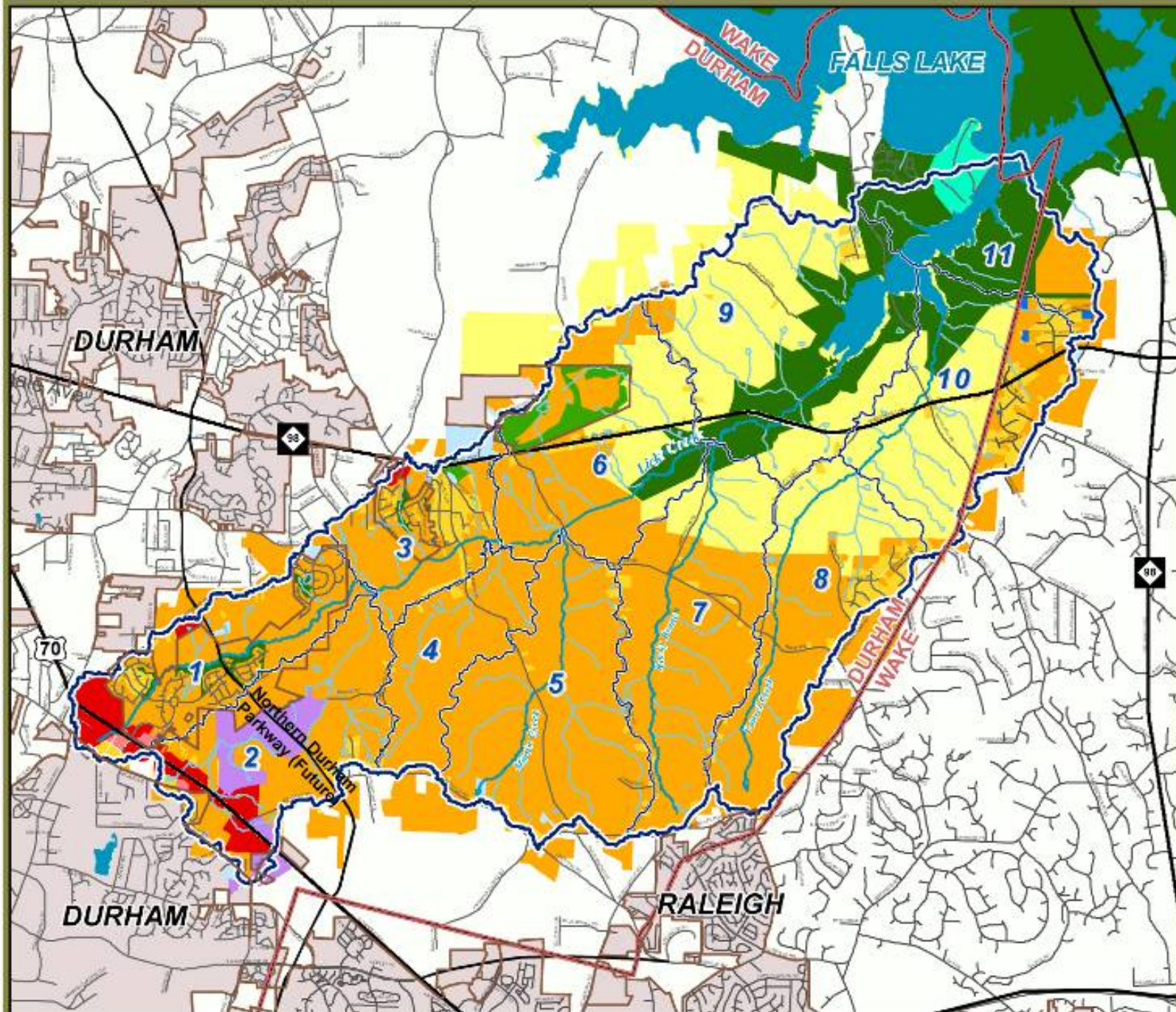
GOAL 1: Develop a hypothesis about the causes of biological impairment in Lick Creek and recommend approaches to addressing impairment status.

GOAL 2: Identify pollutants and their sources that may be impairing aquatic habitat and water quality in Lick Creek.



Discussion

Lick Creek Watershed Build-Out Land Use



- LEGEND**
- County Line
 - Municipal Boundaries
 - Watershed Boundary
 - Major Subwatersheds
 - Major Roads
 - Streets
 - Water Bodies
 - Major Streams
 - Minor Streams
- Lick Creek Build-Out Land Use**
- Protected Natural Area
 - Urban Green Space
 - Forestry
 - Agriculture - Row Crop
 - Agriculture - Pasture
 - Unmanaged Rural Lands
 - Undeveloped Lands
 - Rural/Semi-Rural Residential
 - Lower Density Residential
 - Medium Density Residential
 - Commercial - Office
 - Commercial - Retail
 - Institutional
 - Industrial
 - Special Use - Marina
 - Special Use - Well Site



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Next Steps

- Begin working with partners to implement potential restoration projects.
- Draft the list of potential management strategies.
- Begin critical lands analysis with technical committee.



Adjourn