

WIRB FINAL PROJECT REPORT

Project Name: 8010-006 Camp Creek Watershed

Project Sponsor: Polk County Conservation

Length of Project: January 1, 2009 to December 31, 2011

Financial Accountability

Watershed Improvement Fund

| Grant Agreement Budget Line Item | Total Funds Approved (\$) | Total Funds Approved— Amended (\$) | Total Funds Expended (\$) | Available Funds (\$) |
|-------------------------------------|---------------------------------|---|---------------------------------|----------------------------|
| Water and Sediment Control Basins | 33,750 | 26,845 | 27,950.32 | (1,105.32) |
| Dredging* | 204,495 | 206,244 | 211,712.13 | (5,468.13) |
| Site Preparation | 289 | 289 | 0 | 289.00 |
| Seeding | 1,575 | 1,575 | 101.25 | 1,473.75 |
| Mulching/Composing | 226 | 226 | 500.25 | (274.25) |
| Erosion Control | 3,750 | 3,750 | 0 | 3,750.00 |
| Maintenance | 2,835 | 2,835 | 0 | 2,835.00 |
| Land Purchase* | 0 | 33,750 | 35,250.05 | (1,500.05) |
| Totals | 246,920 | 275,514 | 275,514.00 | 0 |

Total Project Funding

| Funding Source | Approved Cash Budget (\$) | Actual Cash (\$) | Approved In-Kind Budget (\$) | Actual In-Kind (\$) | Total Combined Budget (\$) | Total Combined Actual (\$) |
|-------------------|---------------------------------|------------------------|---------------------------------------|---------------------------|----------------------------------|----------------------------------|
| WIRB | 275,514 | 275,514 | 0 | 0 | 275,514 | 275,514 |
| PCCB | 93,556 | 130,751 | 48,822 | 0 | 142,378 | 130,751 |
| NRCS | 0 | 0 | 8,250 | 0 | 8,250 | 0 |
| IDALS | 0 | 0 | 5,000 | 0 | 5,000 | 0 |
| Totals | 369,070 | 406,265 | 62,072 | 0 | 431,142 | 406,265 |

Environmental Accountability

Polk County Conservation (PCC) in conjunction with the NRCS met with adjacent landowners and stakeholders throughout the project. PCC held public meetings, sent out numerous press releases and sent informational letters to avid campers, shelter users and residents within one mile of the park. The project was well received by everyone. One neighbor immediately west of the project decided to sell PCC 10 acres of land instead of providing PCC an easement to back water onto their land even though she had verbally agreed to an easement. This allowed the NRCS to move forward with their current design without requiring an easement and/or additional design work.

PCC completed a distilling basin below the outflow pipe of the pond in the spring of 2009. After completion of the basin PCC began draining the pond. During the summer of 2009, PCC staff in cooperation with the IA DNR shocked the pond and moved desirable fish to other locations within our park system.

Four sediment basins were constructed during the fall of 2010. The areas immediately surrounding the basins was dormant seeded to native grasses and forbs during the same period and mulched with a mixture of native hay and straw. According to Pre-Project and Post-Project estimates conducted by the NRCS estimated Sediment Delivery would drop by approximately 221.7 tons annually. (See Attachment A & B)

A contract was awarded in May of 2011 for both the dredging and the construction of holding area for the dredged material. PCC obtained a temporary easement to allow for hauling of material over adjacent landowner's property. The contract was completed in the fall of 2011. A total of 34,021 cubic yards of material was removed from the pond.

All of the disturbed ground was seeded during the dormant season back to a mixture of annual grasses (oats, rye) and perennial prairie seed. Site preparation included grading, seed bed preparation, seeding and mulching. Seed was applied either by broadcasting, drilling or a combination of the two. Additionally, areas that were sparse were re-seeded in the spring of 2012.. PCC fulfilled the requirements outlined in the NPDES permit in September of 2012.

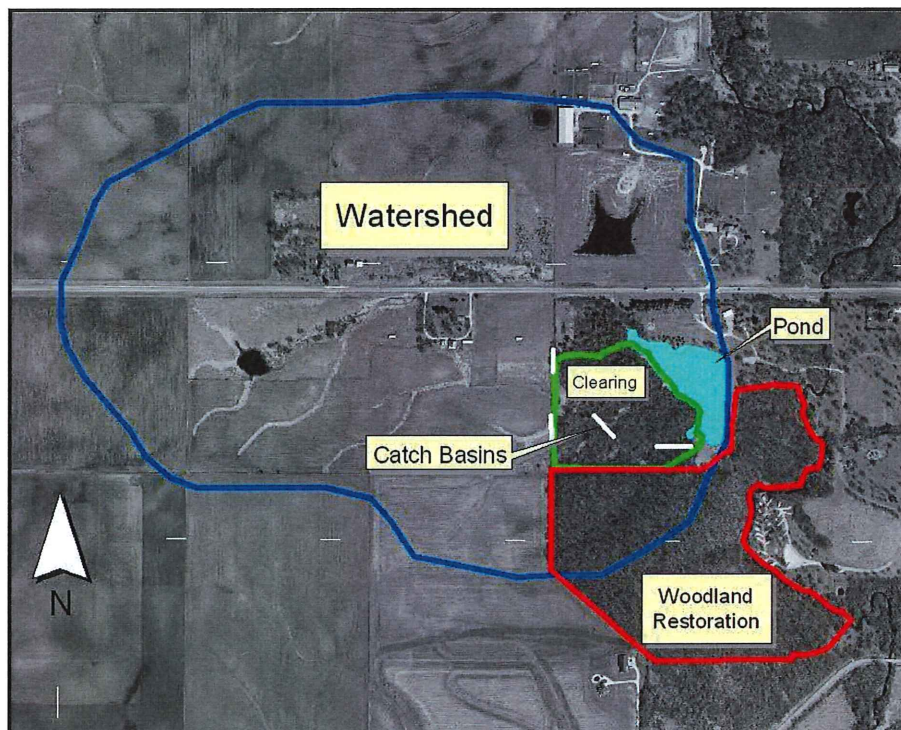
Program Accountability

PCC completed a number of actions that expanded the impact of the project and improved the water quality entering Camp Creek. These projects include a rock sill, habitat restoration, native plantings and a variety of fish habitat improvements. A detailed explanation follows.

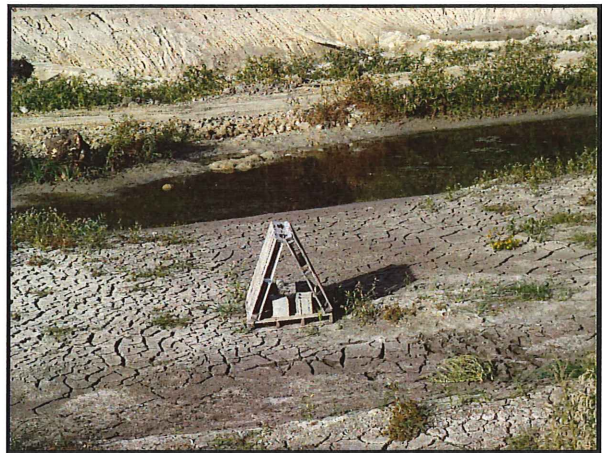


A distilling basin was constructed below the outlet structure of Thomas Mitchell Pond. This basin was designed to catch sediment from the dredging process and provide an additional sediment storage before water enters Camp Creek.

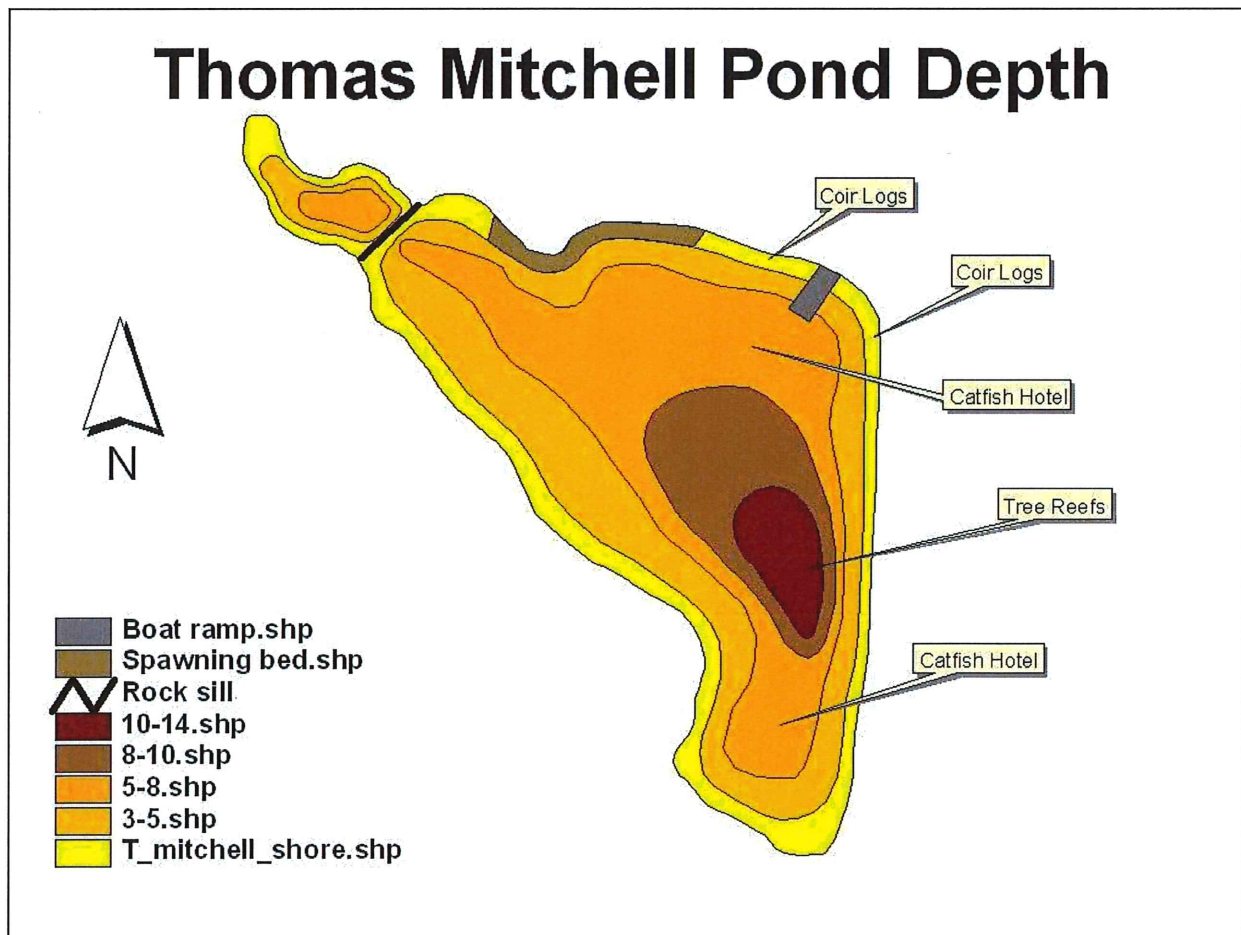
Based upon pre-project estimations a majority of sediment was coming from the woodland south of Thomas Mitchell Pond. To improve the woodland and reduce erosion an aggressive Timber Stand Improvement project was initiated on 57.3 acres of woodland that drains directly into Camp Creek. PCC staff removed undesirable species such as ironwood, bitternut hickory, hackberry, basswood and honeysuckle. This action will open the woodland canopy and allow for native vegetation to occupy the site. This practice coupled with burning should enhance the herbaceous layer, provide openings for oak regeneration and improve overall woodland health. See map below.



To improve fish habitat a large spawning bed was created along the north shore of the pond. Rock piles and catfish hotels were spread throughout the pond and a rock sill was constructed in the northwest corner of the pond. These actions coupled with improved water quality will greatly improve the fisheries. Two different fish structures are shown below.



In the northwest corner of the pond a rock sill was created to slow down and filter water coming in from the stream. (picture on following page) Schematic below shows finished pond depth and approximate location of other amenities.



To trap sediment during normal flow a rock sill was created in the northwest corner of the pond. The sill allows water from the seasonal stream to pass through and traps sediment while providing access to the west side of the pond. (See photos right and below).



PCC learned a couple lessons from this project. First, we had two verbal easements to allow PCC to access adjacent land. One easement was to provide access from the pond to the sediment holding area. The other was to temporarily back water up on adjacent land. While both these issues were solved, these easements should have been formalized much earlier in the process.

The other lesson learned was to specify exactly how to measure the sediment removed. The County's Engineering firm and the successful bidder's engineer differed on how to calculate the sediment removed. This issue was resolved rather painlessly, but once again this should have been spelled out in the contract documents.

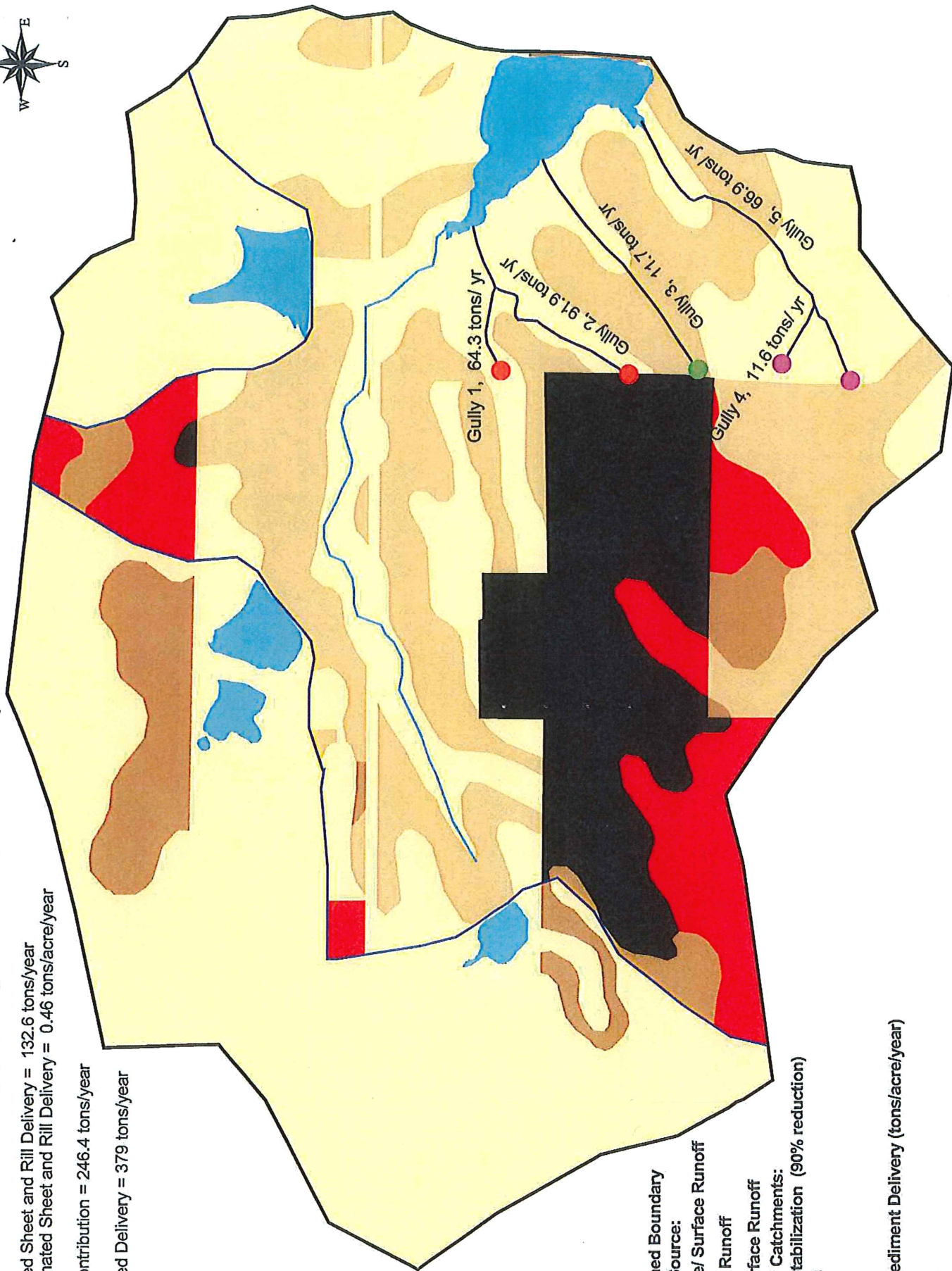
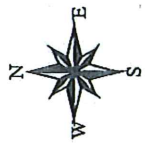
Other than these two issues the work commenced as planned. PCC and the public are pleased with the results and look forward to continue with projects to improve water quality in Polk County.

Pre-Project Thomas Mitchell Pond Watershed (286 acres) Estimated Sediment Delivery (Existing BMP Catchments Shown)

Total Estimated Sheet and Rill Delivery = 132.6 tons/year
Average Estimated Sheet and Rill Delivery = 0.46 tons/acre/year

Total Gully Contribution = 246.4 tons/year

Total Estimated Delivery = 379 tons/year



- Watershed Boundary
- Gully Water Source:
- Seepage/ Surface Runoff
- Surface Runoff
- Tile/ Surface Runoff
- Existing BMP Catchments:
- Grade Stabilization (90% reduction)
- Gully/ Stream
- Gully
- Stream
- Ponds

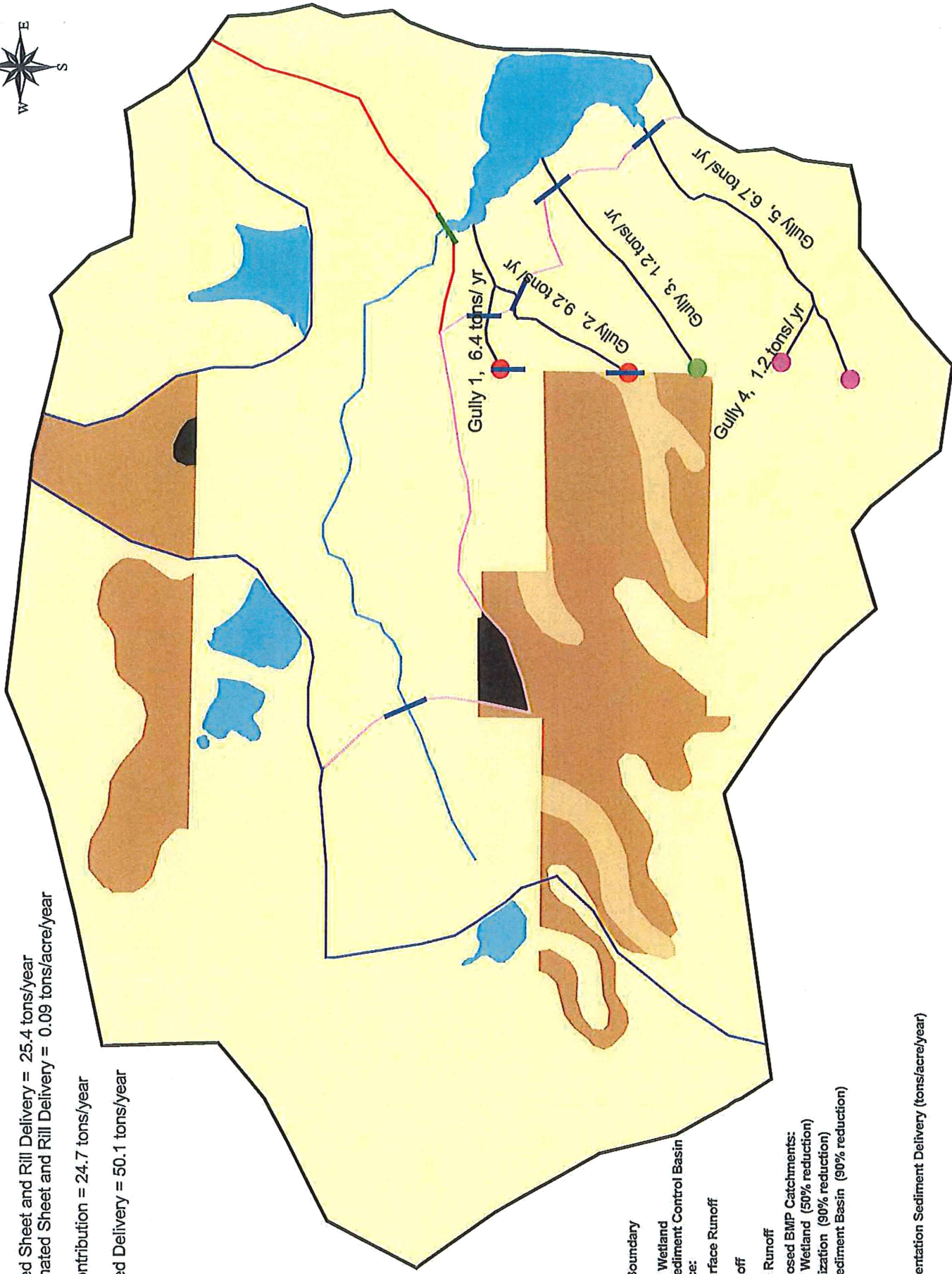
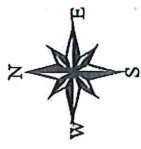
Pre-Project Sediment Delivery (tons/acre/year)

- 0 - 0.1
- 0.1 - 0.2
- 0.2 - 0.6
- 0.6 - 1
- > 1



Post-Project Thomas Mitchell Pond Watershed (286 acres) **Estimated Sediment Delivery (Existing and Proposed BMP Catchments Shown)**

Total Estimated Sheet and Rill Delivery = 25.4 tons/year
 Average Estimated Sheet and Rill Delivery = 0.09 tons/acre/year
 Total Gully Contribution = 24.7 tons/year
 Total Estimated Delivery = 50.1 tons/year



- Watershed Boundary
- Proposed BMPs:
 - Constructed Wetland
 - Water and Sediment Control Basin
- Gully Water Source:
 - Seepage/ Surface Runoff
 - Surface Runoff
- Tile/ Surface Runoff
- Existing and Proposed BMP Catchments:
 - Constructed Wetland (50% reduction)
 - Grade Stabilization (90% reduction)
 - Water and Sediment Basin (90% reduction)
- Gully/ Stream
- Stream
- Ponds
- Post BMP Implementation Sediment Delivery (tons/acre/year)
 - 0 - 0.1
 - 0.1 - 0.2
 - 0.2 - 0.6
 - 0.6 - 1
 - > 1

0 0.2 0.4 0.6 0.8 Miles