ELIMINATION OF STORMWATER PONDS
CHATTANOOGA, TENNESSEE

PROJECT MANAGER
DALE CARPENTER, CHMM

PERFORMANCE PERIOD
December 2005 – March 2006

CONTRACT VALUE
$1,050,000

PURPOSE
Closure of five stormwater ponds containing F032 sediments from previous wood treating operations

HISTORY
The project site is a former wood treating facility in Chattanooga, Tennessee. The plant discontinued operation and all structures were demolished. Remaining on site were five ponds used to contain stormwater and allow sediments to settle prior to the ponds discharging to a stormwater outfall. The site owner, under a RCRA Corrective Action, contracted with Greenleaf to close the ponds and construct a new stormwater conveyance system.

PROJECT APPROACH
The scope of the work performed included:

- Dewatering of approximately 3 million gallons of standing water and pumping to a nearby POTW manhole. Water was tested to assure it met City of Chattanooga direct discharge criteria prior to pumping to the POTW.
- Installation of sediment and erosion controls along the perimeter of the property adjacent to a creek bank.
- Solidification of over 2,900 tons of impacted sediment and soil from the ponds using lime kiln dust (LKD). The LKD was delivered in end dumps and mixed insitu using a long-stick excavator.
- Solidified soils and sediments were loaded into dump trucks and sent off site for disposal at a hazardous waste incinerator in Kimball, Nebraska.
- Each of the ponds was backfilled first by using clean fill from the surrounding berms, then by using available onsite soils. GES performed a mass balance of the site prior to bidding and determined that sufficient site soil was available to meet final grade without importing additional clean fill.
- Installation of 800 feet of 24-inch RCP stormwater piping to bypass the former ponds. This work included re-routing several HDPE groundwater conveyance lines serving several extraction wells on the site. As piping was encountered, it was cut and routed around the

Elimination of Stormwater Ponds
Chattanooga, Tennessee

stormwater piping using electro-fusion couplings and welding machines.

- Installation of four 48-inch concrete manholes, including tie-ins to new and existing piping and installation of a new flow control structure at the stormwater outfall.
- Construction of 1,200 feet of stormwater conveyance concrete-lined ditches to channel stormwater from the site to a permitted outfall.
- Construction of a 75-ft long rip rap lined ditch connecting two existing ditches to the stormwater piping.
- Final grading and restoration of disturbed areas.

LAKE SEDIMENT REMOVAL
LILBURN, GEORGIA

PROJECT MANAGER
DALE CARPENTER, CHMM

PERFORMANCE PERIOD
December 2003 – March 2004

CONTRACT VALUE
$500,000

PURPOSE
Removal of sediment from a local Homeowner's Association owned lake.

HISTORY
The project site is a 65 acre lake owned by a homeowner's association in Lilburn, GA. During commercial development of an adjacent property it was suspected that petroleum contaminated soils were imported to the site and utilized as fill material. Numerous storm events and the failure of sediment and erosion control measures caused the homeowner's association to suspect that sediments from the development had washed into the lake causing contamination and various inlets to become "silted in". The homeowner's association filed lawsuits against the developer and an out of court settlement was reached whereby the developer would pay the costs of sediment removal from the stream inlet and cove adjacent to the developer's property. The client was employed by the developer to engineer, implement and oversee the remedial activities. Greenleaf was working under a subcontract agreement to t.

PROJECT APPROACH
The scope of the work performed included:

- Dredging of deep water sections of the lake. Material was removed utilizing a suction dredge which pumped the material to an open area on the developer's property. The material was pumped over 2500 lf and an elevation change of more than 50 feet. These factors made it necessary to install an intermediate pump in the piping route. Once the material was pumped to the site it was placed directly into GeoTubes and allowed to naturally dewater. The water from the Geotubes was directed to an on site sediment pond. Over 750 CYs of material was removed utilizing this process
- Shallow sections of the lake were excavated utilizing a long stick excavator working on "swamp mats". Material was removed from the lake bottom and piled on the lake bank edges and allowed to naturally dewater. After 2 days of dewatering the material was loaded onto dump trucks and transported to the developer's property where it was graded and compacted and used as

fill material. In excess of 1500 CYs of material was removed utilizing this process.

- Additional site activities included improvements to the on site drainage structures, excavation and rerouting of storm water control ditches, and sediment removal form the bottom of the on site sediment control pond.

CONCLUSION

The project was completed on time and within budget range and without any health and safety issues or incidents. The excellent work performed by the field crew has lead to several of remedial projects for the same client and at the same site.

Former Skeet Range Remediation
Akron, Ohio

PROJECT MANAGER
DAVID WHEELER, CHMM

CLIENT
Garrett Consulting, Inc.

CLIENT CONTACT
Mr. Robert Garrett
417 Overlook Trail
Dallas, Georgia 30132

PERFORMANCE PERIOD
May 2008 to August 2008

CONTRACT VALUE
$ 250,000

PURPOSE
Garrett Consulting contracted Greenleaf to assist in the remediation of lead shot from a former trap and skeet range. The project presented a unique challenge, as the shot landing area was over a wetlands and lake.

PROJECT APPROACH
The impacted soil and sediment removal involved clearing, then accessing the wetlands area using heavy equipment mats. In order to better access the impacted areas, the lake owner lowered the lake level approximately 4 feet prior to the work commencing. GES completed the following scope of work on this project:

- Cleared and grubbed approximately 5 acres of wooded area to access impacted soil.
- Installed silt fence and turbidity barriers along the outer edge of the wetlands remediation area.
- Constructed a modular mat road, using HDPE mats, to access impacted lake sediment within the wetlands remediation area.
- Using a long reach trackhoe, excavated approximately 7000 cubic yards of sediment and staged on an upland area of the site for further processing to remove the lead shot.

RESULTS

Excavation of soils proceeded on schedule. The use of mats, the long reach trackhoe, and tracked off-road dump trucks greatly enhanced the efficiency of the work.

FORMER SKEET RANGE REMEDIATION
Akron, Ohio