

US EPA ARCHIVE DOCUMENT

SESSION 3

Corrective Measures Selection Process

INTERIM MEASURES AS THE FINAL REMEDY

Koppers, Inc., Guthrie, KY

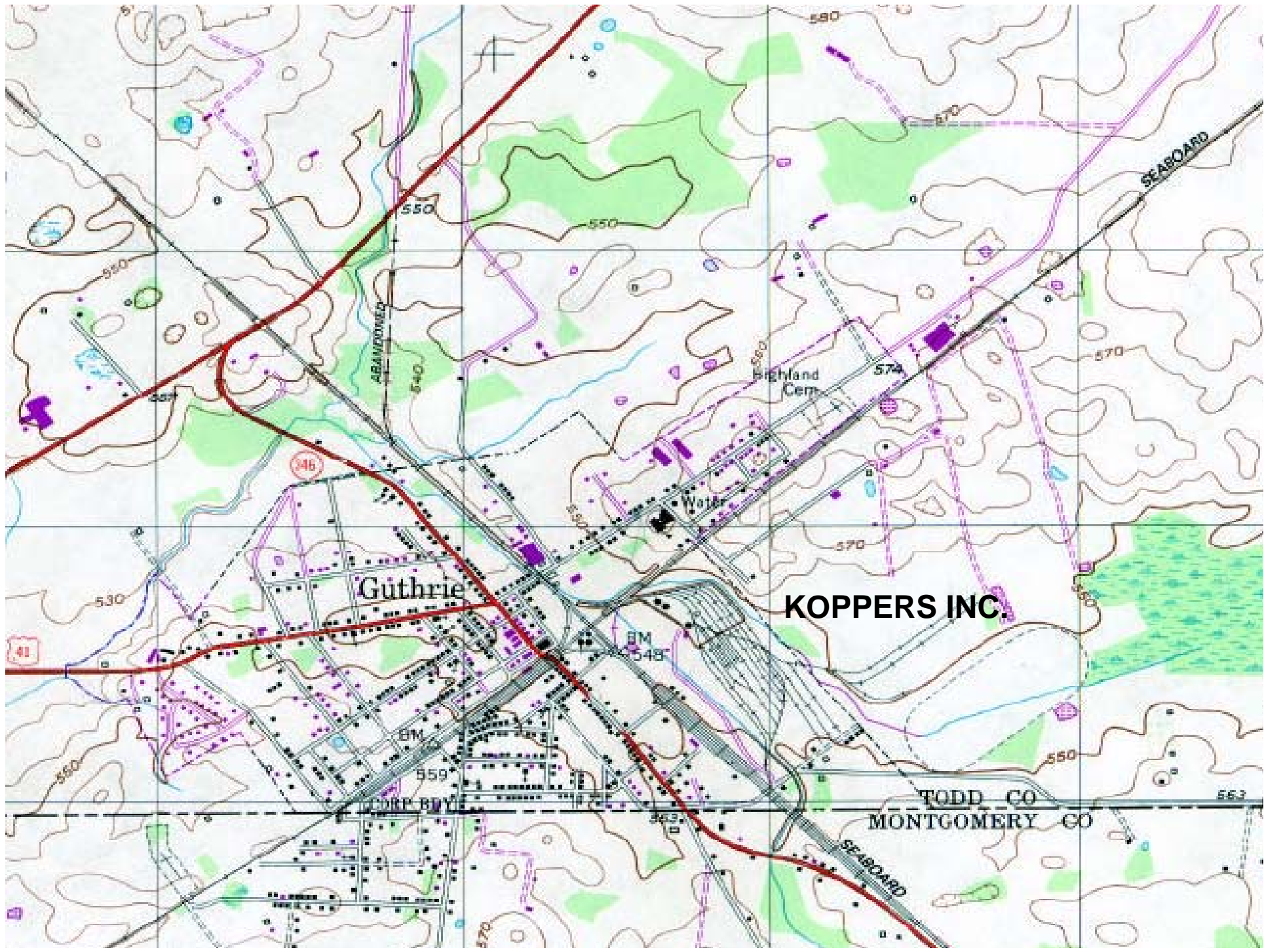
James Smith – EPA Region 4



Site History

- ▶ Wood Treating Plant Built by L&N Railroad (now CSX) in 1913 on 130 Acres
- ▶ 20 acres of process area for treatment of cross-ties
- ▶ 70 acres for storage of treated and untreated cross-ties
- ▶ 1958 - owned by Koppers Company
- ▶ 1990 - owned by Beazer East, Inc.
- ▶ Currently treat 600,000 cross-ties annually with coal tar creosote





Regulatory History

- ▶ RCRA Interim Status in 1980 for drum storage facility and spray evaporation
- ▶ Part B Permit Application in 1985
- ▶ 1987 RFA identified ten RFI SWMUs and six AOCs requiring confirmatory sampling
- ▶ 1987 Agreed Order with Kentucky to investigation and for interim measures
- ▶ Final Closure of two RCRA units in 1988 and 1989
- ▶ Post Closure and HSWA Permits issued in 1991
- ▶ Hazardous Waste Permit renewal in 2001
- ▶ HSWA corrective action management unit (CAMU) permit issued in 2003



Waste Management History

- ▶ 1913 to mid-1970s Koppers operated in Series 7 unlined waste water lagoons (SWMU 12) with an outfall to Guthrie tributary
- ▶ Treatment building basement sump (SWMU 8) collected releases from the pressure cylinder and storage tanks
- ▶ Old surface impoundment (SWMU 14) collected runoff from drip track and tram draw out areas
- ▶ Swampy area (SWMU 6) received runoff from tank farm and former lagoon areas



Historical Remedial Actions

- ▶ 1991 – Soil removal according to Subpart W RCRA regulations
 - Tram draw-out track (SWMU 1) and drip track area (SWMU 2) – 5,000 cubic yards of creosote-impacted soil removed
 - Surge Tank (SWMU 3) – 2,700 tons of impacted soil removed
 - Surge Tank and Collection Sump (SWMUs 4 and 5) – impacted soil removed

- ▶ Old lagoon area (SWMU 12) – Sludges and creosote were removed in the mid-1970s and placed into two landfarms (SWMUs 16 and 18) that were bioremediated

- ▶ Spray evaporation pond (SWMU 13) – RCRA closed in 1989



Corrective Action Investigations

- ▶ 1992 – RFI Work Plan
- ▶ 1995 – Addendum RFI Work Plan
- ▶ 1994-95 – Confirmatory Sampling Work Plan I & II and geophysical investigation confirmed releases from SWMUs and AOCs
- ▶ 1997-98 – RFI Report addressed RFI-recommended SWMUs and two AOCs, completed source area DNAPL delineation
- ▶ 1997 – RFI Report documented site-wide groundwater investigation, on-site DNAPL and dissolved phase COIs also delineated
- ▶ 1997 – Off-site groundwater partially investigated
- ▶ 1998 – Off-site sediment and ecological investigation of Guthrie tributary



Corrective Action Investigations (cont.)

- ▶ 2000 – RFI Work Plan Phase II Report – on- and off-site sediment investigation, off-site groundwater investigation including 13 monitoring wells, treatment building investigation, DNAPL recovery testing in monitoring wells, off-site DNAPL investigation
- ▶ 2003 – Stream Characterization Work Plan
 - 164 sediment samples over 7,600 feet of ditches and stream
- ▶ 2004 – Sediment pre-design investigation report to develop remedial approach for sediment interim measures work plan and forensic study to determine site contribution



Interim Measures

- ▶ 1995 – On-site DNAPL recovery system and hydraulic containment of groundwater at the old lagoon area (SWMU 12), surface impoundment area (SMWU 14), swampy area (SWMU 6), and plant process area
- ▶ 2003 – Off-site pump and treatment system to recover DNAPL and dissolved phase COIs
- ▶ 2004 – AOC I interim measures groundwater intercept trench
- ▶ 2004 – Reach 2B interim measures intercept trench with phytoremediation barrier to collect groundwater from SWMU 12
- ▶ 2004 – Sediment removal from plant ditches and Guthrie tributary and disposal to CAMU



Corrective Action Goals

- ▶ CA725 YE: Control plausible human exposures to on- and off-site soil and sediment
 - Removal of soil and sediment from plant ditches and Guthrie tributary
- ▶ On-site cleanup goals for plant ditches to non-detect
- ▶ Off-site cleanup goals for Guthrie tributary
 - Reach 2D – Source removal to two feet
 - Reach 3 – Source removal to two feet and capping
 - Reach 4 – Achieve EPA Region 9 Residential PRGs
- ▶ CA750 YE: Control migration of contaminated groundwater



Final Remedy Selection

- ▶ Interim measures for sediment completed in November 2004
- ▶ Interim measures for on-site DNAPL recovery and groundwater gradient control
- ▶ Interim measures for off-site groundwater and DNAPL recovery
- ▶ Interim measures for AOC I
 - mud track intercept trench completed in 2004
- ▶ Interim measures for SWMU 12
 - Intercept trench and phytoremediation barrier completed 2004



Construction Complete

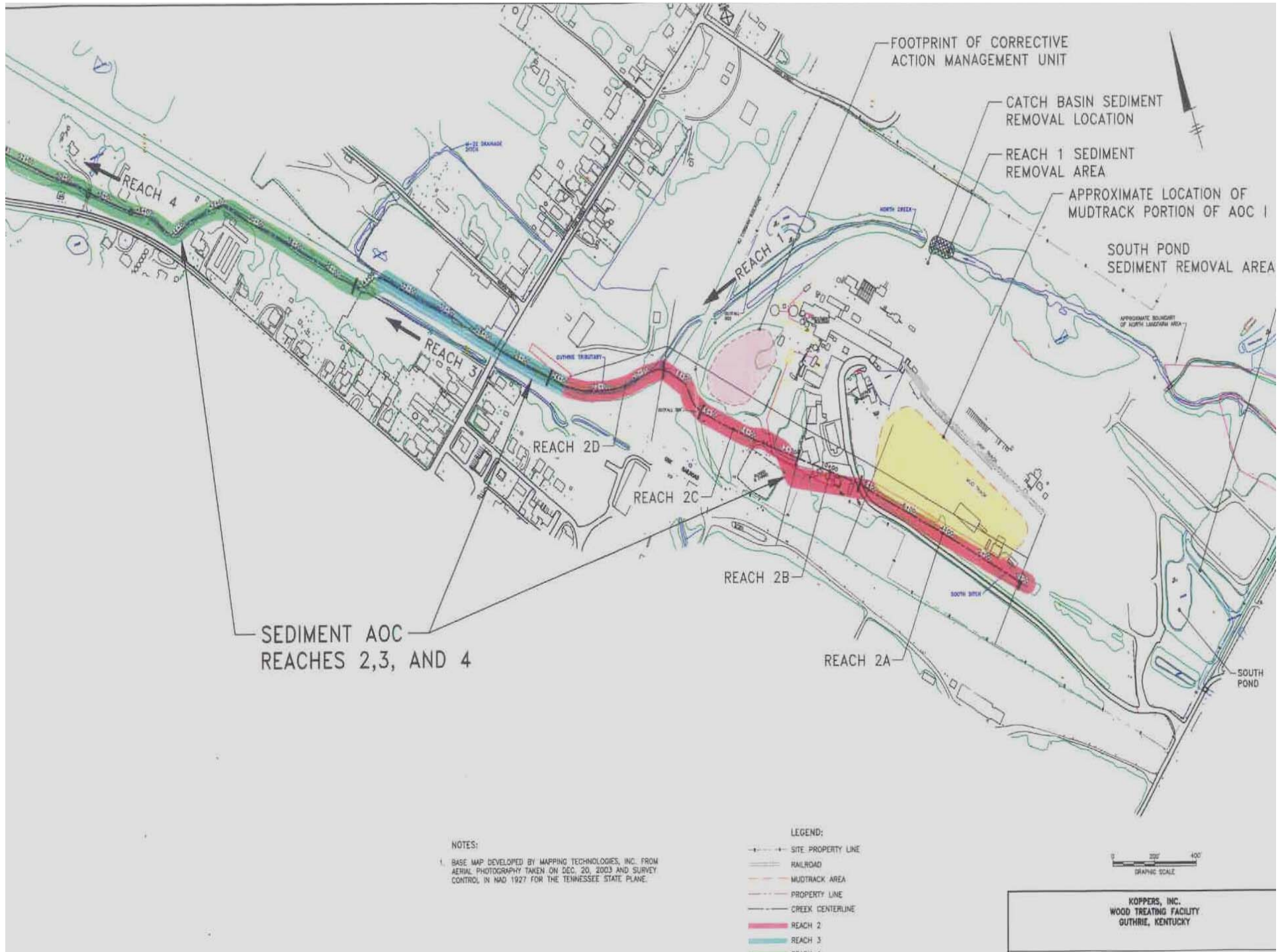
- ▶ Statement of Basis incorporating all interim measures for soil/sediment and groundwater
- ▶ Site post-closure operation and maintenance for the CAMU and groundwater remediation systems
- ▶ Public notice
- ▶ Class III Modification of Kentucky's Hazardous Waste Permit
- ▶ Construction Complete CA550



Corrective Action for Soil/Sediments

- ▶ Remove soil/sediment from 2,400 feet of plant ditches
- ▶ Remove 1,650 feet of sediment from Reach 3 and 4 of Guthrie tributary
- ▶ Line ditches with rock to prevent erosion of substrate
- ▶ Cap 1,000 feet of sediment in Reach 3 with GCL to prevent migration of creosote to Guthrie tributary
- ▶ Landfill 9,600 cubic yards of remediation waste into CAMU





PLANT DITCH 2A/2B SEDIMENT REMOVAL





PLANT DITCH 2A RESTORATION





**DITCH 2A INTERCEPTOR TRENCH,
COKE INFILTRATION GALLERY AND PHYTOREMEDIATION**

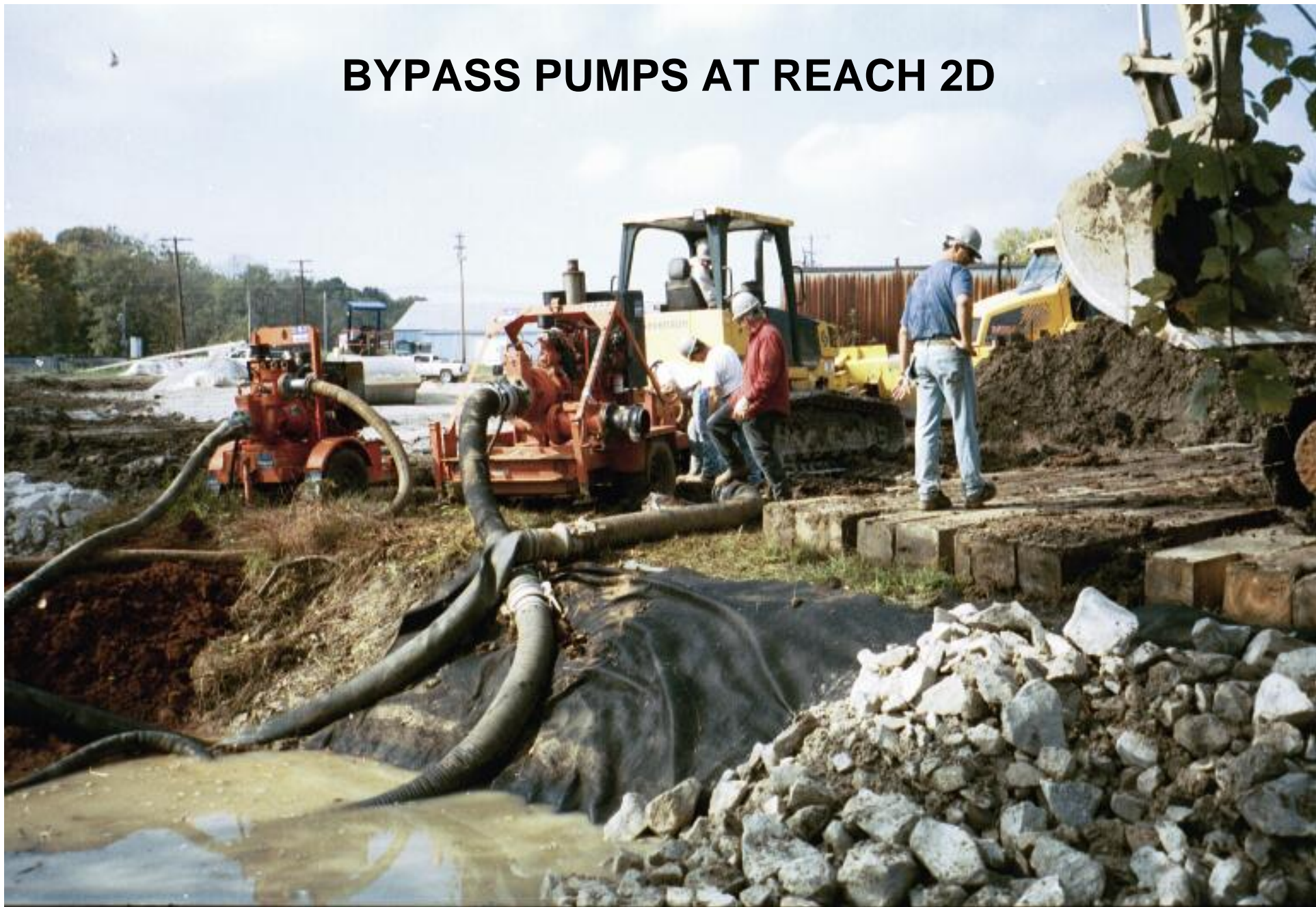
PLANT DITCH 2C



GUTHRIE TRIBUTARY 2D



BYPASS PUMPS AT REACH 2D





REMEDIAL WASTE SOLIDIFICATION AREA

GUTHRIE TRIBUTARY REACH 3 BEFORE SEDIMENT REMOVAL





REACH 3 SEDIMENT REMOVAL





CREOSOTE DNAPL REACH 3



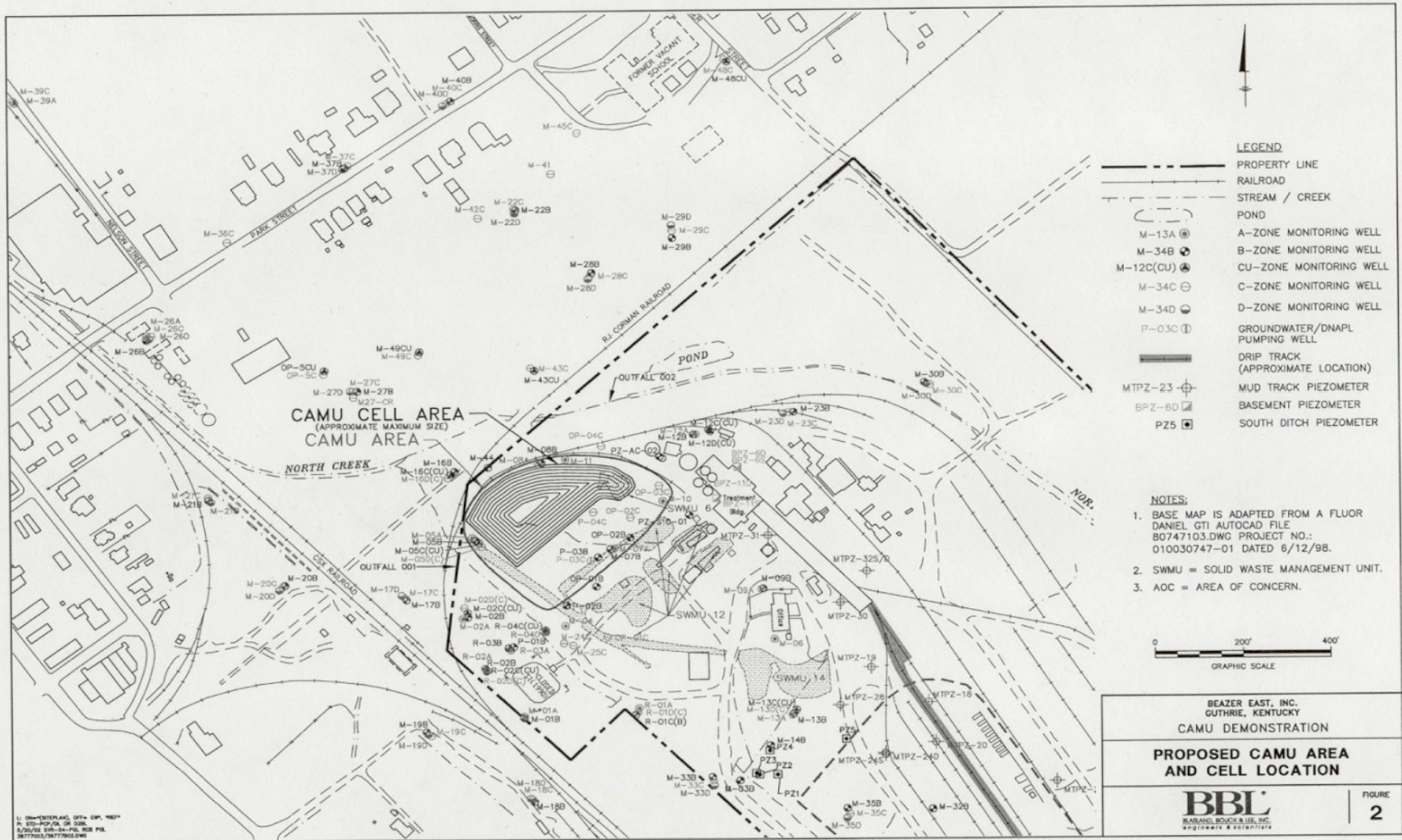
**GCL CAP DNAPL BARRIER
STREAM REACH 3**



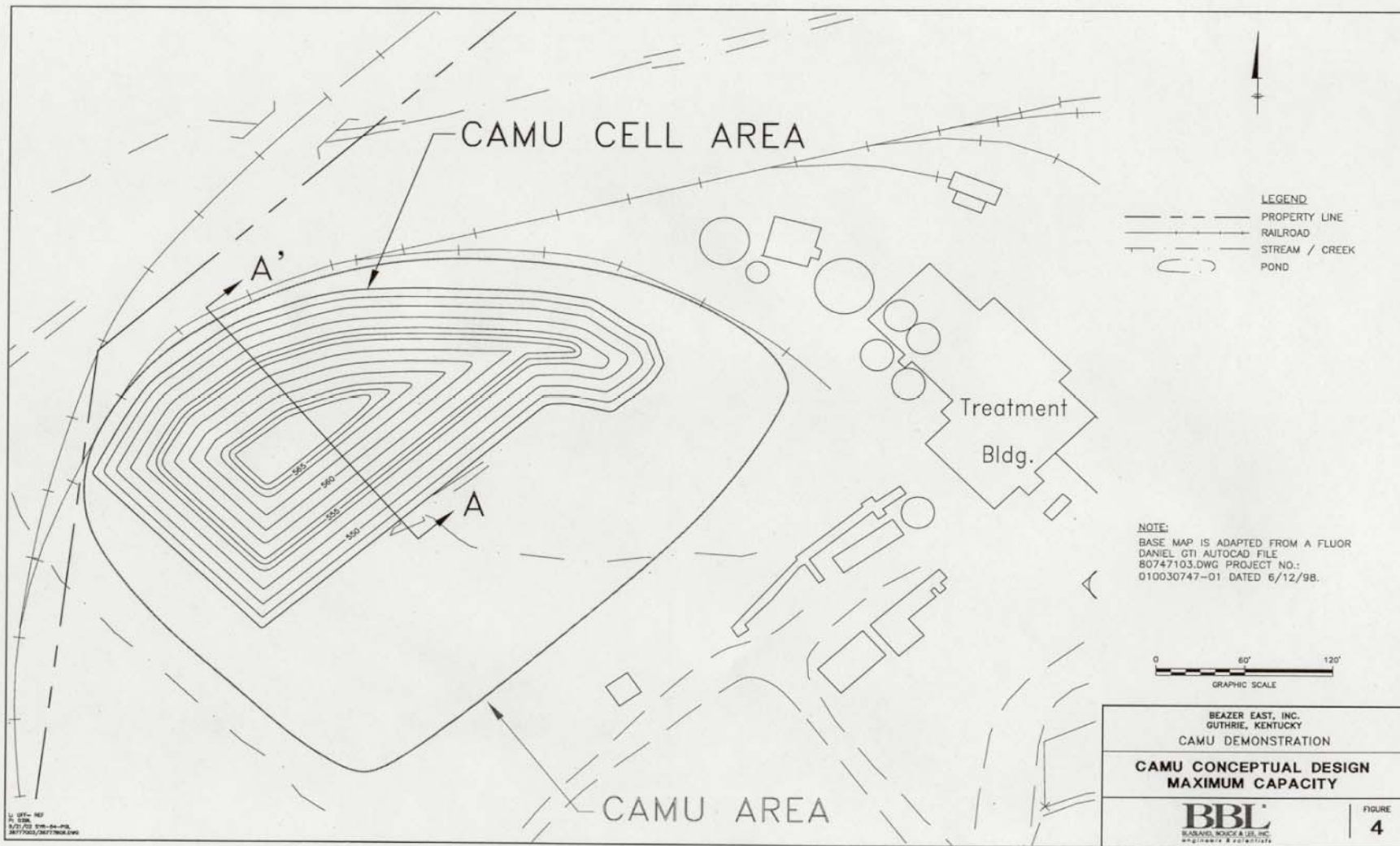
STREAM REACH 3 RESTORATION



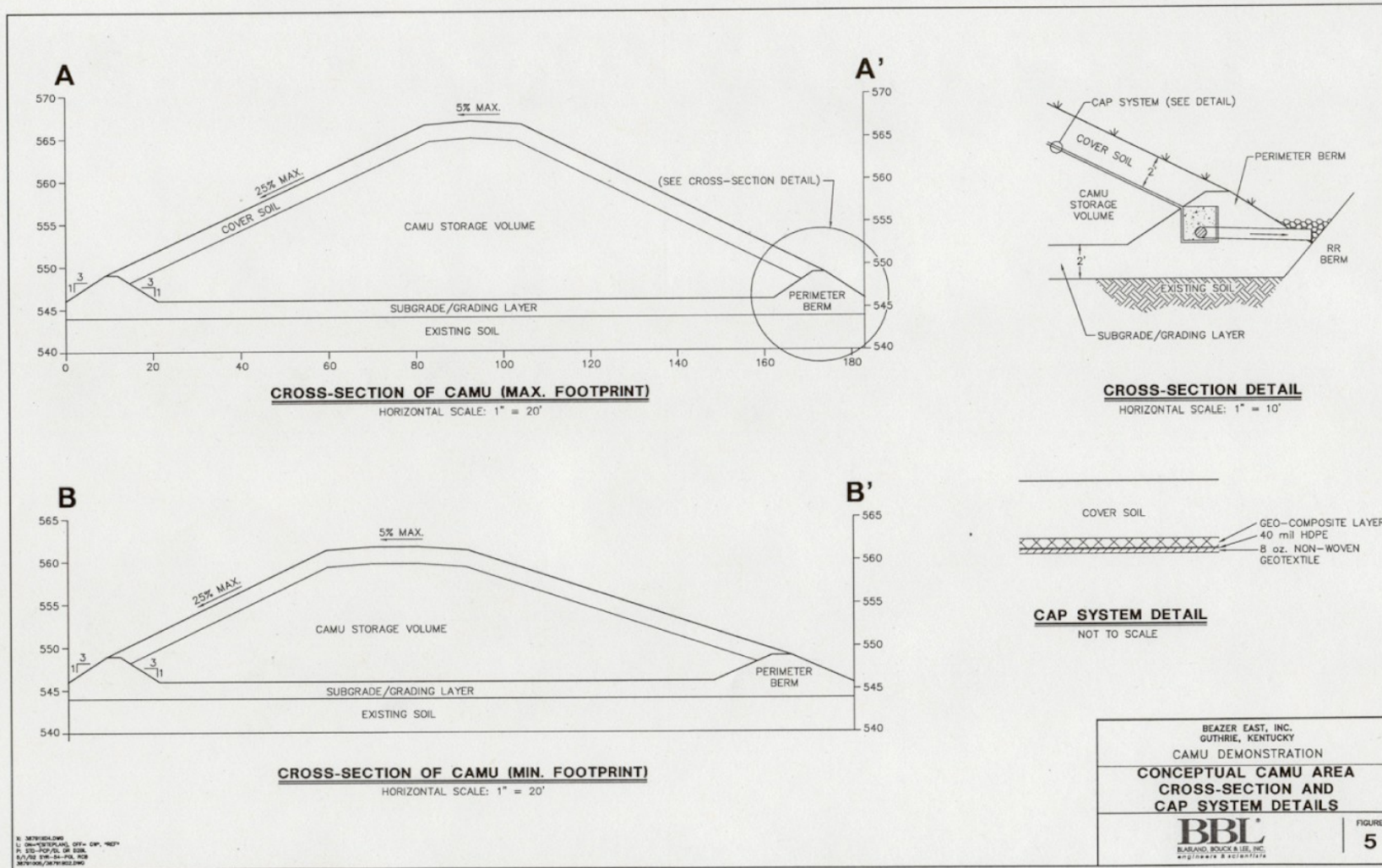
CAMU LANDFILL KOPPERS INC.



CAMU CAPACITY 12,500 CU/YDS



CAMU DESIGN SCHEMATIC



CAMU BERM CONSTRUCTION





CAMU GEOSYNTHETIC CLAY BOTTOM LINER



**GCL BOTTOM LINER PLACED
OVER TWO FEET OF CLAY**



ONE FOOT OF CLAY IS PLACED OVER GCL LINER



CAMU WASTE MOUNDED AND CONTOURED BEFORE COMPOSITE CAP INSTALLATION



CAMU CAP 40 MIL HDPE DOUBLE WELDED SEAMS



GEOCOMPOSITE DRAINAGE LAYER AND LEACHATE DRAINAGE SYSTEM



CAMU CAP COVER SOILS GRADED AND SEEDED

