COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES

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ENVIRONMENTAL CLEANUP

In the Matter of:

Capitol Products Corporation	:	
(Seller)	:	**Greenfields "Buyer-Seller" Agreement**
	:	
and	:	**Remediation and Sale of the Capitol**
	:	**Products Property Located at**
Olympic Realty & Development	:	**U.S. Route 11, Mechanicsburg, PA.**
Corporation	:	
(Buyer)	:	

CUMBERLAND

CONSENT ORDER AND AGREEMENT

This Consent Order and Agreement is entered into this 27th day of January, 1995, by and among the Commonwealth of Pennsylvania, Department of Environmental Resources (hereinafter "Department"), Capitol Products Corporation (hereinafter "Capitol"), and Olympic Realty & Development Corporation (hereinafter "Buyer").

Findings

The Department has found and determined the following findings which Capitol and Buyer agree are true and correct.

The Parties

A. Capitol is a Pennsylvania corporation having its offices at 1100 Boulders Parkway, Richmond, Virginia 23225.

B. Buyer is a New York corporation having its offices at 424 East 52nd Street, Suite B, New York, New York 10022.

C. The Department is the agency with the duty and authority to administer and enforce the Solid Waste Management Act, Act of July 7, 1980, P.L. 380, as

amended, 35 P.S. § 6018.101 et seq.; The Clean Streams Law, Act of June 22, 1937, P.L. 1987, as amended, 35 P.S. § 691.1 et seq. ("Clean Streams Law"); Section 1917-A of the Administrative Code of 1929, Act of April 9, 1929, P.L. 177, as amended, 71 P.S. § 510-17 ("Administrative Code") and the rules and regulations promulgated thereunder.

The Site

D. The "Premises" consists of approximately 38 acres located in Hampden Township, Cumberland County, Pennsylvania, bounded by U.S. Route 11 on the north, property owned by Overnite Trucking Corp. on the west, property owned by the United States Navy on the south, and property owned by the Brandywine Group on the east as more fully described in Exhibit A.

E. The Premises was formerly used for aluminum door and window manufacture by Capitol Products.

Contamination at the Premises

F. The extent of environmental contamination at the Premises has been assessed by several different studies: (1) Summary of Regional and Site-Specific Environmental Conditions for the Capitol Products Corporation, March 1993, CH2M Hill; (2) Soil and Electromagnetic Investigation at the Capitol Products Facility, March 1994, R.E. Wright Associates, Inc. ("REWAI"); (3) Evaluation of Groundwater Quality at Well ME-DG-11D and the Inhouse Well at the Capitol Products Facility, May 1994, REWAI; (4) Evaluation of Site-Wide Groundwater Quality at the Capitol Products Facility, June 1994, REWAI; (5) Sub-Slab Soil Screening Capitol Products Site, June 16, 1994, REWAI; (6) Design for Soil Bioremediation Treatment System, July 1, 1994,

REWAI; (7) Sub-Slab Soil Removal Plan, October 17, 1994, REWAI; (8) Semiannual Groundwater Sampling, Capitol Products Facility, November 1994, REWAI; (9) Proposed Monitoring and Closure Plan for the Inhouse Well, November 1994, REWAI; (10) Evaluation of Volatile Organic Compounds in Shallow Groundwater, November 1994, REWAI; (11) Evaluation of Pentachlorophenol in Shallow Groundwater, December 1994, REWAI; and (12) Soil Bioventing Plan, Capitol Products Corporation Mechanicsburg Facility, December 7, 1994, REWAI (collectively referred to as the "Environmental Studies"). These studies have included soil sampling, geophysical analysis, and the installation and sampling of groundwater monitoring wells throughout the Premises.

G. The Environmental Studies include evaluations of several remedial technologies. The Environmental Studies analyzed several soil remediation technologies, including bioremediation and off-site disposal, and various groundwater treatment technologies, including: (1) a fixed-film plug biological reactor; (2) air stripping in combination with ozone; (3) air stripping in combination with granular activated carbon; (4) granular activated carbon; (5) liquid-phase granular activated carbon; and (6) air-stripping in combination with liquid-phase and vapor-phase polishing granular activated carbon.

H. The Environmental Studies are incorporated herein by reference.

I. Soils on the Premises have been impacted by chromium and several volatile organic compounds as well as by petroleum hydrocarbons. The contaminated

soils have been or are being addressed in accordance with the Remediation Work Plan (Exhibit B).

J. With limited exceptions, the contaminants present in the soil on the Premises exist in concentrations below those set forth in the Department's December 1993 "Cleanup Standards for Contaminated Soils" ("DER Cleanup Standards"). Contaminants present on the Premises in excess of the concentrations set forth in the DER Cleanup Standards include chromium, volatile organic compounds ("VOCs"), and total petroleum hydrocarbons ("TPH"). It is expected that the soil remediation activities described in the Remediation Work Plan will result in the DER Cleanup Standards being met and will eliminate any threat of further groundwater contamination.

K. Groundwater sample results from the Premises show significant variations in VOC and SVOC concentrations including elevated levels of benzene, pentachlorophenol, vinyl chloride, trichloroethene, 1,2 dichloroethene, 1,1,1 trichloroethane, cis/trans 1,2 dichloroethylene, and tetrachlorethane in some monitoring wells with overall concentrations generally decreasing over time. On the basis of information currently known to the Department, it is anticipated that the remediation of the contaminated soil at the Premises, as described above, will eliminate the potential on-site sources of groundwater contamination at the Premises, and that VOC contaminant levels in groundwater will decline to levels at which remediation of groundwater might be infeasible.

The Proposed Sale

L. Capitol has entered into agreements with Buyer for the sale of the Premises.

M. Buyer, aware of the existence of contaminated soils at the Premises and the presence of varying levels of VOCs and SVOCs in monitoring wells at the Premises, as well as of its potential liability for remediation of the contaminated soil and groundwater at the Premises, seeks, in connection with the proposed purchase of the Premises, protection from liability arising out of any contamination known to exist at the Premises.

The Remediation Proposal

N. Capitol has submitted to the Department its proposal for remediation of the Premises, embodied in the Remediation Work Plan appended as Exhibit B.

O. The Remediation Work Plan provides for excavation, bioremediation, and off-site disposal, if necessary, of contaminated soils, which activities are designed to prevent and to further reduce the risk of leaching of contaminants from the soil to groundwater.

P. The Remediation Work Plan also includes monitoring of groundwater and remediation thereof, if feasible, in the event monitoring results demonstrate that groundwater quality does not show a decreasing trend in VOC concentrations (after consideration of seasonal variations), said monitoring and remediation, if any, to be in accordance with the specific conditions set forth in the Remediation Work Plan.

Q. The Department has reviewed the Remediation Work Plan and has determined that the Remediation Work Plan, when implemented, will result in the

Premises being remediated to the DER Cleanup Standards, will prevent any further degradation of groundwater and will provide for remediation of contaminated groundwater in the event a remediation assessment, if required, demonstrates such is feasible.

Order

After full and complete negotiation of all matters set forth in this Consent Order and Agreement and upon mutual exchange of covenants contained herein, the parties intending to be legally bound, it is hereby ORDERED by the Department and AGREED to by the Department, Capitol, and the Buyer as follows:

1. *Seller's Agreement to Remediate.* Capitol shall implement the remediation activities according to the proposals set forth in the Remediation Work Plan as set forth in Exhibit B.

2. *Buyer's Covenants.* Buyer covenants not to use groundwater from the Premises for any consumptive use. Buyer covenants to allow the Department reasonable access to the Premises for the purpose of obtaining samples from the monitoring wells or the Inhouse well; provided that the Department provides reasonable notice and uses its best efforts to minimize interference with any use of the Premises.

3. *Covenant Not to Sue.* The Department hereby covenants not to sue Buyer, or any lessee of Buyer, or any financial entity engaged in financing the purchase or improvement of the Premises with respect to any obligation Buyer, its lessee, or lenders might otherwise have under federal, state or local law arising out of any contamination at the Premises identified in the Environmental Studies.

4. *Reservation of Rights.* The Department expressly reserves the right to require Buyer to remediate, to the extent required by Pennsylvania law, any contamination on the Premises not identified in the Environmental Studies.

5. *Noninterference.* No party shall interfere with the performance of the remedial obligations under this Consent Order and Agreement.

6. *Non-exacerbation.* Capitol and the Buyer shall not, by act or omission, exacerbate any contamination of the site.

7. *Transferability.* Without the further consent of the Department, this Agreement shall be transferable to any subsequent owner of the Premises or any other person acquiring a legal or equitable interest in the Premises. For purposes of this Agreement, a "subsequent owner" shall include a lender or other party who acquires title through mortgage foreclosure, deed in lieu of foreclosure, or otherwise through the enforcement of a security interest in the Premises, or a party who acquires title solely for the purpose of facilitating an industrial development financing transaction. The transferor shall provide a copy of this Agreement to any such transferee. In the event of such transfer, the subsequent owner: (1) shall be subject to the obligations of this Agreement and (2) shall be entitled to the benefits of this Agreement, including, without limitation, the Covenant Not to Sue provided in paragraph 3 above. Upon assumption of transferor's obligations hereunder by the transferee, transferor shall be relieved of its obligations pursuant to paragraphs 2, 5, 6, 7, and 8 of this Consent Order and Agreement.

8. *Deed Notice.* Notice of this Agreement shall be recorded in the Cumberland County Recorder of Deeds office.

9. *Non-release of Other Parties.* Nothing in this Agreement is intended nor shall be construed to diminish or modify in any way the obligations of any person or entity other than the parties to this agreement (and the Buyer's lessees or lenders) with respect to the Premises.

10. *Existing Obligations Unaffected.* Nothing set forth in this Consent Order and Agreement is intended, nor shall be construed, to authorize any violation of any statute, regulation, order, or permit issued or administered by the Department.

11. *Reservation of Rights.* With regard to matters not addressed by this Consent Order and Agreement, the Department specifically reserves all rights to institute equitable, administrative, civil and criminal actions, for any past, present or future violation of any statute, regulation, permit or order, or for any pollution or potential pollution to the air, land or waters of the Commonwealth.

12. *Remedies for Breach.* Capitol's or Buyer's failure to comply with any provision of this Consent Order and Agreement shall be deemed a breach, and in the event of any such breach, the Department may, in addition to the remedies prescribed herein, institute any equitable, administrative, civil or criminal action, including an action to enforce this Consent Order and Agreement. These remedies are cumulative and the exercise of one does not preclude the exercise of any other. The failure of the Department to pursue any remedy shall not be deemed to be a waiver of that remedy.

13. *Liability of Parties.* Capitol and Buyer shall inform all persons necessary for the implementation of this Consent Order and Agreement of the terms and conditions of this Consent Order and Agreement. Capitol shall be liable for any violations of paragraphs 1, 5 and 6 of the Consent Order and Agreement including those caused by, contributed to, or allowed by its directors, officers, agents, managers, servants and privies and any persons, contractors and consultants acting under or for Capitol. Buyer shall be liable for any violations of paragraphs 2, 5, 6, 7, and 8 of the Consent Order and Agreement including those caused by, contributed to, or allowed by its directors, officers, agents, managers, servants and privies and any persons, contractors and consultants acting under or for the Buyer.

14. *Correspondence with Department.* All correspondence with the Department concerning this Consent Order and Agreement shall be addressed to:

Kenneth Okorn
Department of Environmental Resources
Environmental Cleanup Program
One Ararat Boulevard
Harrisburg, PA 17110

15. *Correspondence with Capitol.* All correspondence with Capitol concerning this Consent Order and Agreement shall be addressed to:

F. Case Whittemore
Capitol Products Corp.
1100 Boulders Parkway
Richmond, VA 23225

16. *Correspondence with Buyer.* All correspondence with Buyer concerning this Consent Order and Agreement shall be addressed to:

David J. Schwartz
Olympic Realty & Development Corporation
424 East 52nd Street, Suite B
New York, NY 10022

17. Capitol and Buyer agree that service of any notice or any legal process for any purpose under this Consent Order and Agreement, including its enforcement, may be made by mailing a copy by first class mail to the above address.

18. *Severability.* The paragraphs of this Consent Order and Agreement shall be severable and should any part hereof be declared invalid or unenforceable, the remainder shall continue in full force and effect between the parties.

19. *Entire Agreement.* This Consent Order and Agreement shall constitute the entire integrated agreement of the parties. No prior or contemporaneous communications or prior drafts shall be relevant or admissible for purposes of determining the meaning or extent of any provisions herein in any litigation or any other proceeding.

20. *Modifications.* No changes, additions, modifications, or amendments of this Consent Order and Agreement shall be effective unless they are set out in writing and signed by the parties hereto.

21. *Attorney Fees.* The parties agree to bear their respective attorney fees, expenses and other costs in the prosecution or defense of this matter or any related matters, arising prior to execution of this Consent Order and Agreement.

22. *Decisions under Consent Order.* Any decision which the Department makes under the provisions of this Consent Order and Agreement shall not be deemed to be a final action of the Department, and shall not be appealable to the Environmental

Hearing Board or to any court. Any objection which Capitol or Buyer may have to the decision will be preserved until the Department enforces this Consent Order and Agreement. At no time, however, may Capitol or Buyer challenge the content or validity of this Consent Order and Agreement, or challenge the Findings agreed to in this Consent Order and Agreement.

23. *Titles.* A title used at the beginning of any paragraph of this Consent Order and Agreement is provided solely for the purpose of identification and shall not be used to interpret that paragraph.

IN WITNESS WHEREOF, the parties hereto have caused this Consent Order and Agreement to be executed by their duly authorized representatives. The undersigned representatives of Capitol and Buyer certify under penalty of law, as provided by 18 Pa.C.S. § 4904, that they are authorized to execute this Consent Order and Agreement on behalf of Capitol and Buyer; that Capitol and Buyer consent to the entry of this Consent Order and Agreement and the foregoing Findings as an ORDER of the Department; and that Capitol and Buyer hereby knowingly waive any right to appeal this Consent Order and Agreement and the foregoing Findings, which rights may be available under Section 4 of the Environmental Hearing Board Act, the Act of

July 13, 1988, P.L. 530, No. 1988-94, 35 P.S. § 7514; the Administrative Agency Law, 2 Pa.C.S. § 103(a); and Chapters 5A and 7A, or any other provision of law.

FOR CAPITOL PRODUCTS CORPORATION:

Name Michael W. Giancaspro
Title Vice President

Name Nancy M. Taylor
Title Secretary

FOR OLYMPIC REALTY & DEVELOPMENT CORPORATION:

Name DAVID J. SCHWARTZ
Title PRESIDENT

Name
Title

FOR THE COMMONWEALTH OF PENNSYLVANIA, DEPARTMENT OF ENVIRONMENTAL RESOURCES:

Kenneth Okorn
Environmental Cleanup Program

Martin Sokolow
Carl Schultz
Assistant Counsel

EXHIBIT "A"
LEGAL DESCRIPTION

ALL THAT CERTAIN property situate in Hampden Township, Cumberland County, Pennsylvania, more particularly bounded and described as follows:

BEGINNING at point on the southern legal right-of-way line of Carlisle Pike, U.S. Route 11, at the easternmost corner of lands N/L MGB Enterprises, Inc.; thence along the southern legal right-of-way of Carlisle Pike, US Route 11, by a curve to the right having a radius of 11,509.19 feet, an arc length of 184.44 feet; thence continuing along the same South 63 degrees 58 minutes 19 seconds East a distance of 792.52 feet to a point at the northernmost corner of land N/L Cumberland Partners; thence along the western line of said Cumberland Partners land South 26 degrees 03 minutes 34 seconds West a distance of 984.66 feet to a point at the westernmost corner of said Cumberland Partners land; thence along the southern line of said Cumberland Partners land South 74 degrees 06 minutes 40 seconds East a distance of 1,007.34 feet to a point on the western line of land N/L Twigg Family Trust; thence along the western line of said Twigg Family Trust land South 00 degrees 06 minutes 34 seconds West a distance of 326.53 feet to a point on the northern line of land N/L United States of America; thence along the northern line of land N/L United States of America the following four courses and distances: (1) North 75 degrees 09 minutes 53 seconds West a distance 1,206.33 feet to a concrete monument, (2) North 75 degrees 00 minutes 47 seconds West a distance of 29.15 feet, (3) South 02 degrees 39 minutes 23 seconds West a distance of 146.98 feet to a concrete monument, (4) North 88 degrees 03 minutes 15 seconds West a distance of 528.79 feet to a concrete monument; thence along the northern line of land N/L Dauphin Distribution North 87 degrees 59 minutes 18 seconds West a distance of 266.06 feet to a concrete monument at the southeast corner of land N/L Overnight Transportation Company; thence along the western line of said Overnight Transportation Company land North 25 degrees 53 minutes 33 seconds East a distance of 857.25 feet to a point at the northeast corner of said Overnight Transportation Company land; thence along the northern line of said Overnight Transportation Company land North 65 degrees 13 minutes 00 seconds West a distance of 73.43 feet to a point at the southeast corner of other lands N/L Overnight Transportation Company; thence along the eastern line of said other lands of Overnight Transportation Company North 25 degrees 53 minutes 33 seconds East a distance of 499.77 feet, more or less, to a point on the southern line of a fifty foot unopened private right-of-way; thence along the southern line of said right-of-way South 65 degrees 43 minutes 00 seconds West a distance of 6.25 feet, more or less, to a point; thence through said fifty foot unopened private right-of-way and along the eastern line of land N/L MGB Enterprises, Inc. North 26 degrees 06 minutes 20 seconds East a distance of 100.93 feet, more or less, to a point; thence continuing along the eastern line of said MGB Enterprises, Inc. land North 02 degrees 32 minutes 00 seconds East a distance of 376.13 feet to a point on the southern legal right-of-way line of Carlisle Pike, US Route 11, the Point and Place of Beginning.

BEING Lot No. 2, together with all of the residual land, which residual land is comprised of a 12.48 acre tract and a 12.0573 acre tract each designated "Other Lands of Capital Products Corporation",

Preliminary/Final Subdivision Plan of Two Lots for Capital Products Corporation (Plan 1), dated September 22, 1993, last revised October 21, 1993, recorded in the Office of the Recorder of Deeds of Cumberland County in Plan Book 67, Page 37.

BEING comprised of: The same premises which H. Kenneth Myhre and John W. Purcell, by their deed dated December 30, 1982, recorded in the Office of the Recorder of Deeds of Cumberland County in Deed Book A, Volume 30, Page 136, granted and conveyed unto Capitol Products Corporation; a part of the same premises which John I. Kimmel and Ruth B. Kimmel, his wife, by their deed dated June 26, 1967, recorded in the Office of the Recorder of Deeds of Cumberland County in Deed Book K, Volume 22, Page 17, granted and conveyed unto Capitol Products Corporation; the same premises which Steward E. Myers and Helen Myers, his wife, by their deed dated December 3, 1960, recorded in the Office of the Recorder of Deeds of Cumberland County in Deed Book C, Volume 20, Page 72, granted and conveyed unto Capitol Products Corporation; the same premises which Ray E. Snyder and Romaine K. Snyder, his wife, by their deed dated March 15, 1969, recorded in the Office of the Recorder of Deeds of Cumberland County in Deed Book D, Volume 23, page 267, granted and conveyed unto Capitol Products Corporation; the same premises which Lancaster Park Enterprises, Inc., a Pennsylvania Corporation, by its deed dated December 31, 1973, recorded in the Office of the Recorder of Deeds of Cumberland County in Deed Book M, Volume 25, Page 359, granted and conveyed unto Capitol Products Corporation; the same premises which Steward E. Myers and Helen Myers, his wife, by their deed dated June 28, 1955, recorded in the Office of the Recorder of Deeds of Cumberland County in Deed Book N, Volume 16, Page 565, granted and conveyed unto Jonel, Inc., predecessor in interest to Capitol Products Corporation, and part of the same premises which Edger Eberly, widower, by his deed dated July 13, 1953 recorded in the Office of the Recorder of Deeds of Cumberland County in Deed Book H, Volume 15, Page 543, granted and conveyed unto Jonel, Inc. predecessor in interest to Capitol Products Corporation; the said Jonel, Inc., by Articles of Merger filed October 19, 1955 in the Pennsylvania Department of State merged into Capitol Products Corporation, the surviving corporation.

EXHIBIT "B"

REMEDIATION WORK PLAN

I. Purpose

The purpose of this Remediation Work Plan is to describe the remediation activities that have taken place at the Premises and to set forth the remediation obligations which Capitol Products will undertake at the Premises pursuant to the Buyer-Seller Agreement to which this Plan is appended.

II. Soils

A. Chromium Contamination

Preliminary sampling indicated that the soils in two locations exceeded the cleanup standards established by DER for total chromium in soil of 1,000 milligrams per kilogram (mg/kg) (see Table 1), but were one-third of the United States Environmental Protection Agency's (EPA's) health-based risk standard. Table 1 also indicates that the soil does not exceed the five milligrams per liter (mg/l) Toxicity Characteristic Leaching Procedure (TCLP) test for chromium, indicating the soil is not characteristically hazardous for chromium.

R. E. Wright Associates, Inc. (REWAI), on behalf of Capitol Products, performed remedial activities, which included:

(1) Excavating soils containing distinctive green chromium staining.

(2) Field screening chromium levels in the soils during excavation using the X-ray fluorescence analyzer (XRF). A grab sample was taken from each approximately 500 square feet of excavation after the green-stained soil was removed. The sample was submitted for field analysis by the XRF to determine the concentration of total chromium.

(3) To confirm that remediation goals were achieved, verification samples were composited from the XRF analysis cups, and submitted to Wright Lab Services, Inc. (WLSI) for total chromium analysis by Method SW-846-6010.

All excavated materials were temporarily stockpiled on and under plastic sheeting at the site. After completion of excavation, the excavated soils were sampled for characterization

and appropriate handling. The results of this post-excavation sampling are appended in Table 2.

Based on these results, the following actions will be taken with respect to these stockpiled soils prior to June 30, 1995:

(1) Soils from Stockpile 2 will be sent off-site for disposal as residual waste.

(2) Soils from Soil Sample Location CC-8 will be treated with the bioventing process described below (for total petroleum hydrocarbons (TPH)) and will be retested for chromium after completion of this bioventing process.

(3) Soils from Soil Piles 36, 37, and 38 and from Stockpiles 1, 3, 4, and 5 and from Soil Sample Location CC-7 will be mixed, spread, and compacted on-site for fill material, it being determined that the average concentration from these locations is less than the 1000 mg/kg Cleanup Standard.

B. VOC and TPH Contaminated Soils

1. Investigation and Excavation

Areas of former activity that may have contributed to degradation of the soil were examined. Specifically, each area where there was an oil sump, extensive use of hydraulic equipment, bulk chemical storage tanks, or waste storage was individually investigated by means of visual inspection, organic vapor analyzer (OVA) screening, and appropriate laboratory analysis, if warranted.

Soils were scanned beneath the concrete slab as it was removed by the building demolition contractor. Soil scanning was completed on an approximately 100-foot grid across the entire floor slab. The near surface soils were manually loosened and screened with an OVA. Areas with vapor detections above background concentrations were further evaluated to delineate their lateral extent.

Soils with a vapor measurement in excess of 10 parts per million (ppm) above background were excavated and stockpiled on-site.

Criteria guiding soil excavation and stockpiling were the following:

(1) Obvious surface staining or the presence of contaminants.

(2) Odors which would be consistent with hydrocarbon and/or volatile organic compound (VOC) impacted soils.

(3) VOC measurements of at least 10 ppm above background measurements.

2. Soil Sampling and Analysis

Discrete soil samples were obtained from the limit of each excavated area and submitted to WLSI for analysis by EPA Method 418.1 for TPH. In the event VOC's were measured, the sample was also analyzed by EPA Method 8010. TPH samples were collected at the horizontal and vertical limit of excavation in order to confirm no further excavation was necessary. Soil with less than 500 mg/kg were left in-place based on *Cleanup Standards for Contaminated Soils*, (DER 1993).

In those areas where OVA readings were greater than 200 ppm, there was a concern that additional lighter hydrocarbons or VOCs may have been present. Therefore, an additional soil sample was collected from the excavations where OVA measurements exceeded 200 ppm. These soils samples were submitted to WLSI for analysis of TPH and VOCs.

3. Bioremediation Cell Design

Based on the anticipated maximum volume of soil to treat, the soils were treated in a series of biocells. The biocells were constructed incorporating soil amendments in the soil and designed to facilitate adequate soil aeration to maximize the rate of biodegradation of the hydrocarbons. The conceptual design of the cells is presented in Figure 1 and construction details of the cells are as follows:

(1) The treatment area was inspected to remove stones and other surface debris. .

(2) Each treatment cell consisted of a 10-mil high-density polyolefin liner placed on the asphalt or sand. The dimension of each cell is approximately 60 feet by 25 feet, averages 4.5 feet high, and is sloped to facilitate runoff of rainfall and snowmelt.

(3) An aeration and drainage system consisting of 2-inch-diameter Schedule 40 polyvinyl chloride (PVC) perforated pipe and a geotextile fabric overlying the pipe was

placed on top of the basal liner and covered with 3 inches of sand. Each cell contains four aeration laterals spaced five feet apart.

(4) A drip irrigation hose was placed at the surface of each cell and connected to a solid garden hose extending out from under the liner covering the cell. The hoses were used to recirculate any leachate collected during the treatment process back into the cells.

(5) The entire cell was covered and protected by a second 10-mil thick liner, which was secured with sandbags and/or other appropriate weights that would not puncture or tear the liner.

(6) The aeration and drainage system was connected to a two-inch Schedule 40 PVC header on each cell, and then manifolded with four-inch diameter Schedule 40 PVC pipe and connected to a VES. Each lateral extending out from the treatment cell was equipped with a flow adjustment valve to equilibrate the flow of air through the cells and gas sampling ports.

(7) The VES was equipped with a 3-horsepower blower capable of extracting 150 cubic feet per minute (cfm) of soil gas against a vacuum of 0 to 5 inches of water. The VES was equipped with a moisture separator tank containing a non-fouling moisture coalescing media. A fluid level controlled automatic condensate drain pump can be used to recirculate leachate back into the cells. The system is automated and controlled by a blower unit timer.

4. Monitoring and Closure Program

The overall success of the bioremediation program depends not only on the design of a treatment system but also on the method of construction and the management of the cells during the treatment process. A detailed soil sampling and off-gas monitoring program designed to track the progress of the treatment was implemented. Monitoring included quarterly soil sampling and analyses for TPH using a gas chromatograph (GC) method and a hydraulic oil calibration standard, bacterial numbers, nutrient and moisture content, soil pH, and temperature.

During the soil sampling, each cell has been uncovered and a representative composite soil sample collected from each cell. This was accomplished by using a bucket auger to collect the entire soil thickness from approximately four locations from within a cell and compositing it into one sample. Composite samples from two cells were combined to achieve one composite sample for laboratory analysis. The one composite sample for every two cells was subsampled for submission to the appropriate laboratories for the different monitoring analyses.

The off-gas monitoring program consisted of determining the concentrations of carbon dioxide and any VOCs in the off-gases, and determining the airflow rate in each cell lateral. Carbon dioxide is an indirect measure of microbial activity, and by monitoring the VOC content in system off-gas, untreated emissions to the atmosphere are prevented. The monthly VOC monitoring also determined if and when off-gas treatment would be required. In addition, the airflow rates in each lateral were measured monthly, at a minimum, and adjusted to ensure equilibration of the airflow rates and the uniform aeration of all the treatment cells.

After the soil treatment goals were achieved, a closure program was implemented to document the successful decontamination of the soil. The program consisted of utilizing a stratified random sampling plan. Each treatment cell was divided into five-foot grid intervals. From each cell, a random number generator was used to select two to three grid locations, from which a soil sample was collected. Each sample was a composite of the entire soil thickness. The bioremediation closure results are included in Table 3.

The closure samples were analyzed for TPH by a GC method utilizing a #2 fuel oil or API-DRO calibration standard. These analyses are consistent with the analyses required by the Department to document the successful decontamination of petroleum-impacted soil as outlined in the DER *Cleanup Standards for Contaminated Soils*. Based on these closure sample results as set forth in Table 3, the bioremediation has been successful and the soils will be mixed, spread, and compacted on-site as fill material.

5. Bioventing

Building on the success of the bioremediation program outlined above, Capitol Products is undertaking a bioventing plan to remediate additional soils where TPH and, to a lesser degree, VOCs are of concern. This plan is similar to the one prepared for the bioremediation of the petroleum hydrocarbon-impacted soils. Two distinctions of this plan are:

(1) The vacuum extraction system (VES) will be operated continuously instead of intermittently to enhance removal of the volatile organic chemicals from the soil.

(2) Vapor extraction system (VES) off-gas will be treated by granular-activated carbon (GAC).

Excavated soils containing chromium have been segregated (see above). One of the chromium soil stockpiles also contains TPH.

The presence and nature of the VOCs in addition to TPH suggest bioventing along with bioremediation will be more effective than bioremediation alone. REWAI has undertaken the following work tasks to implement the bioventing plan.

(1) Identified an area suitable for the construction of aboveground bioventing cells.

(2) Conducted screening analyses on representative soil samples to characterize the contaminants and determine the baseline soil chemistry and microbiological conditions.

(3) Design and build a treatment system that will optimize the rate of biodegradation of TPH and maximize the extraction of VOCs.

a. Stockpile Sampling and Classification

Sampling of stockpiles for gross parameters necessary for bioventing design has identified soils which may not require remediation. Therefore, a systematic evaluation of the stockpiled soils is necessary and appropriate. Eight distinct soil stockpiles of varying areal extent are at the Premises. Soil stockpile footprints will be measured in the field. The area of the soil stockpile footprint will be multiplied by its estimated average height to obtain a soil volume. After measurement and mapping, REWAI will establish numbered grids across each stockpile. The grid cell surface areas will be adjusted so that a maximum of 100 cubic yards of stockpiled soil are within each grid cell. Cells will be chosen at random within each stockpile in accordance with EPA protocols established for evaluating solid waste (SW-846).

Soil samples will be collected from the approximate center of each chosen grid cell. Soil samples will be obtained using a clean 2-inch bucket auger penetrating the stockpile from top to bottom. The collected soil will be thoroughly mixed and

composited in a clean container or plastic bag. A soil sample will be withdrawn from the composite and submitted to WLSI for analysis by EPA Method 418.1 for TPH and Method 8010 for VOCs.

Upon receipt of analytical results, REWAI will plot the results on a map of the stockpiles. Analytical results will be evaluated statistically following SW-846. In the event a single sample is greater than 1.5 times the soil standards, additional sampling will occur to delineate the stockpile portion requiring remediation. Provided the average contamination for a stockpile, or portion thereof, is at or below the cleanup standard levels (described in a subsequent section), soils from the stockpile, or appropriate portion thereof, will not be placed in bioventing cells, instead they will be used as backfill material on-site. If analytical results from a stockpile show that, on average, contamination levels exceed the cleanup standards, the soil from that stockpile will be placed in bioventing cells for treatment.

b. Location of the Treatment System

The location of the bioventing system requires an area that minimizes soil handling, avoids surface water impoundment, and is accessible to required utilities--such as electric and water. REWAI has already constructed 25 biocells for the remediation of TPH impacted soil at the Premises. These cells were placed on asphalt in areas adjacent to electrical power. Recognizing the plan is to construct a large building on the site, REWAI proposes construction of the bioventing cells near the extreme northwest corner of the Premises (Figure 2). Although this ground is not completely paved, it is level, appears firm enough to support vehicle traffic, and would adequately support a polyolefin liner to form the bottom of bioventing cells. Extension of the electrical supply will be required.

It is anticipated that each bioventing cell would have footprint dimensions of approximately 65 feet long by 35 feet wide by 5 feet high, slightly larger than the existing cells. Each cell would contain approximately 400 cubic yards (yd^3) per cell. The VES, which would aerate the soil, would be located adjacent to the cells. It is anticipated that the electricity required to power the VES would be supplied from the Carlisle Pike, utilizing existing cable.

Preparation of the area for cell construction should be minimal. Proposed construction areas appear to be level compacted ground covered with asphalt or grass. Minimal work would be required prior to laying down the bottom polyolefin liner.

c. Bioassessment Screening Analysis

The bioassessment screening analysis includes specific soil contaminant and hydrocarbon characterization analyses. A description of the soil physical properties and analyses to determine baseline concentrations of essential nutrients and metals in the soil, and microbiological analyses to determine the type and number of bacteria present in the soil are required. These soil analytical tests were performed for the start-up of the biocell treatment system for the TPH-contaminated soils. Since these soils are similar and were segregated on the basis of contaminants, REWAI will utilize the existing data for soil description. The nutrient loading rates will be determined from the micro-organisms present and the TPH data collected from the existing stockpiles. Analytical results for this soil characterization are presented in Table 4. Soil fertility, metals, and plate counts will be verified prior to construction.

Composite samples from the stockpiled soil have been collected and submitted for laboratory analysis. Samples were analyzed for TPH using EPA Method 418.1, and for VOCs using EPA Method 8010. A summary of the laboratory characterization analyses for the stockpiled soils is presented in Table 4.

d. Soil Amendments

In order to sustain a large and active microbial population throughout the treatment process, nitrogen, phosphorous, water, and surfactant need to be added to the soil. The amendments are needed to meet the nutritional requirements of the bacteria during the degradation of the hydrocarbons, and to increase the bioavailability of the hydrocarbons. The addition of potassium nitrate, ammonium nitrate, and ammonium phosphate will provide forms of nitrogen and phosphorous that are readily available to the bacteria. The optimum ratio of carbon to nitrogen to phosphorous (C:N:P) for maximizing degradation of petroleum hydrocarbons is 100:10:1. The nutrient additions will be determined using this ratio and existing TPH data. Water containing surfactant and nutrients will be uniformly applied to the soil to bring the moisture content within the optimum range for microbial activity. As was done for the biocell construction, Simple Green® surfactant will be added at 50 mg/l to the soil.

e. Treatment Cell Design

The biotreatment cells are designed to facilitate microbial degradation of hydrocarbons and also provide for extraction of volatile organic chemicals by the VES.

The conceptual design for the cells and construction details are as follows:

(1) Treatment area will be inspected to remove surface debris and graded, if necessary.

(2) A 10-mil high-density polyolefin liner will be placed on the ground where each cell is to be constructed. The dimension of each cell will be approximately 65 by 35 feet and each cell will average approximately 5 feet high, and will be sloped to facilitate runoff of rainfall and snow melt. A schematic drawing is presented in Figure 1.

(3) An aeration and drainage system consisting of 2-inch-diameter, Schedule 40 polyvinyl chloride (PVC) pipe, drilled at 1 foot intervals, and a geotextile fabric overlying the pipe will be placed on top of the basal liner. Each cell will contain 5 aeration laterals spaced 6 feet apart. To prevent short-circuiting of air around the soil, the perforated section of the laterals will not come within 5 feet of the edge of the cell.

(4) Prior to placement of the soil in the cell, soil will be removed from the stockpiles, spread, and leveled adjacent to the stockpiles to an approximate thickness of one foot. The surfactant solution and fertilizers will be added and applied to the soil. The amendments will be mixed into the soil using a tractor-mounted tilling machine. Debris, which was excavated with the soil and may damage the tilling machine, liner, or aeration system, will be removed. Soil will then be transported to the treatment cell and placed into the cell.

(5) The entire cell will be covered and protected by a second 10-mil thick liner, which will be secured by sandbags or other appropriate weights that will not puncture or tear the liner.

(6) The aeration system will be connected to a 2-inch diameter Schedule 40 PVC header and then manifolded with a 4-inch-diameter Schedule 40 PVC pipe, and connected to the

VES. Each lateral extending out from the treatment cell will be equipped with a gas sampling port and a flow-adjustment valve to equilibrate the flow of air through the cells.

(7) The VES will be equipped with a 3 h.p. (horsepower) blower capable of extracting 125 cubic feet per minute (ft^3/min) of soil-gas against a vacuum of zero to 5 inches of water. The VES will be equipped with a moisture separator tank containing a non-fouling moisture coalescing media. A fluid level-controlled automatic condensate drain pump may be used to recirculate the leachate back to the cells.

(8) Electrical service will be brought from the existing utility pole to the new station. Sufficient electric service required to run the vacuum blower continuously during active treatment will be provided.

(9) The presence of chlorinated VOCs in the soil, as detected during excavation, will require treatment of VES off-gas. The off-gas from the blower will be passed through two 200-pound granular-activated carbon (GAC) filters to scrub chlorinated compounds from the off-gas. The GAC units will be installed in series. Monitoring of the off-gas on a monthly basis from the first unit, using an OVA, will determine when carbon breakthrough occurs and when carbon replacement is required.

f. Monitoring and Cleanup Program

The overall success of a bioventing program depends not only on the design of a treatment system but also on the method of construction and the management of the cells during the treatment process. A routine soil sampling and off-gas monitoring program designed to track the progress of the treatment will be implemented. Monitoring will include quarterly soil sampling and analyses for TPH using the API-DRO Method, soil temperature, soil fertility parameters, microbial parameters, and analysis for VOCs by EPA Method 8010. Monitoring of air flow in the manifolds and checking for VOC breakthrough from the GAC will be performed monthly.

Quarterly sampling will begin in spring 1995. Each cell should be uncovered and a representative composite soil

sample collected from each cell. This will be accomplished by using a bucket auger to collect the entire soil thickness from four locations from within a cell and compositing it into one sample. The sample will be submitted for analysis of TPH using the API-DRO Method and VOCs using Method 8010. Each two-foot increment from each boring location will be analyzed in the field with an OVA to determine the relative concentration of total VOCs in the soil.

The off-gas monitoring program will consist of determining the concentrations of carbon dioxide and total VOCs in the off-gases, and determining the airflow rate in each cell lateral. Carbon dioxide is an indirect measure of microbial activity. Higher carbon dioxide levels imply high levels of microbial activity. The monthly VOC monitoring of the off-gas system will also determine when GAC change-out is required. The airflow rates in each lateral will be measured monthly, at a minimum, and adjusted to ensure equilibration of the airflow rates and the uniform aeration of all the treatment cells.

Once soil treatment goals have been achieved, a cleanup program will be implemented to document the successful decontamination of the soil. The program will consist of utilizing a stratified random sampling plan. Each treatment cell will be divided into 10-foot grid intervals. For each cell, a random number generator will be used to select two grid locations, from which a vertical composite soil sample will be collected from surface to base. Each sample will be a composite of the entire soil thickness. Two completion samples will be collected from each cell.

The completion samples will be analyzed for TPH by API-DRO Method and VOCs by EPA Method 8010. These analyses are consistent with the analyses required by the DER to document the successful decontamination of impacted soil as outlined in the DER *Cleanup Standards for Contaminated Soils*. Analytical results for TPH below 500 parts per million (ppm) for each cell will indicate satisfactory soil remediation. Analytical results for VOCs below the standards for specific chemical species contained in the *Cleanup Standards for Contaminated Soils* will indicate satisfactory remediation.

III. Groundwater

A. Inhouse Well

1. Background

The Inhouse well, originally a water supply well for the facility, extends to a depth of 700 feet below grade level (bgl). The well was borehole-video-recorded and geophysically logged during 1991. Interpretation of borehole video and

geophysical logging indicated 18 possible water-bearing fracture zones, or voids. Brine-trace-testing was conducted in order to evaluate groundwater influx and egress zones, as well as provide information on vertical groundwater movement. Discrete water-bearing zones (WBZs) were sampled for groundwater quality analysis.

REWAI interpreted three distinct intervals within the Inhouse well. These intervals were chosen based upon total VOC concentrations and intrawell flow rates and direction. The upper portion of the well, from the water table to 270 feet below grade level, has typically contained 564 to 1,092 µg/l of VOCs with groundwater movement into the borehole and downward. The middle zone, from 270 feet to 370 feet below grade level, has historically shown VOC concentrations of nearly 2,000 µg/l with groundwater flowing in and down. The lower zone, below 370 feet, has shown comparable VOC levels with the middle zone, but with no vertical groundwater movement and general groundwater outflow from the well.

Aquifer testing of the Inhouse well, using packers to isolate well zones, indicated a yield of less than one gallon per minute (gpm) from the middle zone. The upper and lower zones were identified to have yields of 30 and 80 gpm, respectively. Hydraulic testing of the upper and lower zones, at the yields previously mentioned, indicated no measurable influence on any of the monitoring wells on-site. The test also demonstrated the lack of communication and the natural separation present between the shallow and deep aquifers as penetrated by the Inhouse well.

Evaluation of the regional groundwater setting and groundwater contaminants encountered allowed REWAI to conclude that groundwater chemistry encountered in the Inhouse well is representative of the regional deep groundwater flow system, and not the local shallow groundwater flow system penetrated by the on-site monitoring wells. Recognizing that the VOCs present in the Inhouse well (particularly the lower zone) are similar to VOCs known to be present in the groundwater on the adjacent Navy Ship Parts Control Center (NSPCC) property, REWAI concluded that this well was likely contaminated by off-site source areas. REWAI recommended that the Inhouse well be properly abandoned to eliminate the vertical pathway for cross-contamination of the regional groundwater flow and localized shallow groundwater flow systems. DER has recognized that cross-contamination from vertical groundwater flow within the Inhouse well is of concern.

2. Action Plan

The following sections describe the proposed course of action for the Inhouse well.

a. Sampling Frequency

The Inhouse well will be sampled in January and March 1995. The samples will be taken from both the shallow and deep zones during the period between the 10th and the 20th day of the month.

b. Sampling Protocol

A packer is currently present at a depth of 265 feet, isolating the shallow and deep portions of the aquifer. REWAI will purge three well volumes from each zone prior to collecting the samples. Samples will be collected, using the protocols described and approved by DER in earlier communication regarding groundwater sampling.

c. Groundwater Sample Analysis

Samples will be labeled and transported under normal custody procedures to WLSI. Samples will be analyzed for VOCs and semi-VOCs (SVOCs) following EPA Standard Methods 601, 602, and 625.

Upon receipt of the laboratory analysis reports, REWAI will place the data on a computer spreadsheet so the information can be reviewed in summary form.

d. Well Grouting

In order to prevent vertical migration of contaminants within the well bore, Capitol Products will install, prior to June 30, 1995, a 2-inch PVC casing set at a depth of 370 feet bgs and shall pressure or tremmie grout the annulus from 370 feet to the surface. The well will then be equipped with a flush-mount locking well cap. Given the current data, which indicate that contamination in the Inhouse well below a depth of 370 feet is from regional, rather than on-site sources, Capitol will not be required to monitor the Inhouse well or to initiate remediation thereof. The Inhouse well will be equipped (by Capitol) for monitoring (by the Department) as outlined herein.

B. VOC Contamination

1. Investigation

A variety of VOCs have been detected in on-site monitoring of wells, predominately wells located in the southwestern part of the Premises where the direction of shallow groundwater flow is southerly with a gradient of approximately two percent. Monitoring well ME-UG-2 is located near the property line downgradient of well MG-DG-2. Water quality at well ME-UG-2 has some of the VOCs detected at well ME-DG-2 but at

significantly lower concentrations, with total VOCs ranging from 5 to 10 µg/l. No VOCs detected at well MG-UG-2 exceed the currently established maximum contaminant levels (MCLs) for public water supply systems.

Subsequent to the removal of the former Capitol Products structure, aggressive excavation of contaminated soils has taken place at various locations. An estimated 12,000 cubic yards of contaminated soils have been removed from the subsurface as previously reported to the Department. Building demolition and excavation activities have occurred during the previous six months. Therefore, the site has been subject to altered surface water infiltration for an extended period of time. It is anticipated that these activities have resulted in abnormal hydrologic and contaminant loading conditions.

2. Post-Excavation Monitoring

A likely source area has been identified for the VOCs in shallow monitoring wells. Because soils containing VOCs have been removed from the areas around these monitoring wells, the impact of this effort should be evaluated by monitoring groundwater VOC concentrations. Monitoring will provide information on contaminant loading and is preferable to remediation at this time.

Groundwater flow from the southwestern portion of the site is towards the southern property line. As a means to characterize the quality of groundwater leaving the Premises, three additional monitoring wells will be installed along the southern and southwestern property lines prior to April 30, 1995 (Figure 3). With these additional monitoring wells, in combination with existing wells ME-DG-9, ME-UG-1, and ME-UG-2, groundwater quality in this downgradient area of the site can be adequately monitored.

Monitoring wells ME-DG-9, ME-UG-1, ME-UG-2, and the three proposed wells will be sampled and analyzed quarterly for selected VOCs of concern. The monitoring will continue for one year. During this period, if VOC concentrations decline (on a seasonally-adjusted basis) and continue to show no significant off-site migration, the monitoring frequency will decrease to semiannually for the next two years. Subject to the provisions of the following paragraph, if VOC concentrations remain above MCLs during this period of monitoring, the semiannual monitoring will continue. If VOC concentrations fall below MCL's in all monitoring wells for two consecutive semiannual sampling events, the monitoring frequency may be decreased to annual. If the wells remain below MCL's for two consecutive annual sampling events, the monitoring wells will be plugged and abandoned.

If, during the monitoring period following completion of soils remediation activities, VOC concentrations in any of the compliance wells do not show a decreasing trend (after consideration of seasonal variation), a groundwater remediation assessment, consistent with the Evaluation of Volatile Organic Compounds Report prepared by REWAI and submitted to the Department on November 18, 1994, will be prepared and submitted to the Department for approval. Groundwater remediation will be initiated by Capitol Products if the approved assessment demonstrates that remediation will be feasible, taking into consideration the presence of groundwater contamination already existing on adjacent properties from offsite sources.

3. Well Abandonment

After completion of semi-annual sampling in March 1995, the following monitoring wells will be plugged and abandoned: ME-DG-3, ME-DG-4, ME-DG-5 (provided that the March 1995 sampling shows a decrease in VOC contamination), ME-DG-6, ME-DG-8, and ME-DG-11S.

C. Pentachlorophenol Contamination

1. Investigation

An evaluation of pentachlorophenol contamination in ME-DG-11D performed by REWAI and submitted to the Department on November 18, 1994, demonstrated the technological infeasibility of groundwater treatment at well ME-DG-11D at this time.

2. Monitoring

Wells ME-DG-11D and ME-DG-2 will be monitored semiannually for PCP only, commencing with Spring 1995. Capitol Products will not be required to remediate the local conditions detected at ME-DG-11D at this time due to the technologic infeasibility. In the event, however, that water quality results from ME-DG-2 demonstrate significant increase in PCP concentration, Capitol Products shall perform another assessment of the feasibility of remediating PCP contamination and shall implement remediation if the approved assessment demonstrates that remediation will be feasible.

TABLE 1
CAPITOL PRODUCTS SITE
LABORATORY ANALYSIS RESULTS
SUB-SLAB INVESTIGATION/EXCAVATION

SAMPLE LOCATION	CHAIN OF CUSTODY NUMBER	DATE SAMPLED	SAMPLE DEPTH	TOTAL ARSENIC (mg/kg)	TOTAL ANTIMONY (mg/kg)	TOTAL BERYLLIUM (mg/kg)	TOTAL CADMIUM (mg/kg)	HEXAVALENT CHROMIUM (mg/kg)	TOTAL CHROMIUM (mg/kg)	TOTAL COPPER (mg/kg)	TOTAL LEAD (mg/kg)	TOTAL MERCURY (mg/kg)	TOTAL NICKEL (mg/kg)	TOTAL SILVER (mg/kg)	TOTAL THALLIUM (mg/kg)	TOTAL ZINC (mg/kg)
TRENCH 50' NORTH	61051-1	05/23/94	SURFACE	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND
EAST TRENCH	61051-2	05/23/94	SURFACE	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND
COMPOSITE SOIL PILES	61051-3	05/23/94	COMPOSITE	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND
OIL AND SOIL TRENCH SEEP	61051-4	05/23/94	SURFACE	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND
COMPOSITE NORTH TRENCH	61091-1	05/24/94	COMPOSITE	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND
WEST PIT	61091-2	05/24/94	2.0'	3	ND	1.1	ND	NA	54	8	25	ND	11	ND	39	70
PAINT AREA TEST PIT #1	61807-1	06/06/94	2.0'	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEATED FLOOR	63686-1	08/03/94	SURFACE	NA	NA	NA	NA	19	23000	NA	NA	NA	NA	NA	NA	NA
REMELT BRICK	64557-1	08/30/94	SURFACE	NA	NA	NA	NA	NA	140	NA	NA	NA	NA	NA	NA	NA
FENCE	64735-3	09/02/94	SURFACE	NA	NA	NA	NA	NA	20000	NA	NA	NA	NA	NA	NA	NA

ND-NOT DETECTED
NA-NOT ANALYZED
TCLP - TOXICITY CHARACTERISTIC LEACHATE PROCEDURE

TABLE 1 (CONTINUED)
CAPITOL PRODUCTS SITE
LABORATORY ANALYSIS RESULTS
SUB-SLAB INVESTIGATION/EXCAVATION

SAMPLE LOCATION	CHAIN OF CUSTODY NUMBER	DATE SAMPLED	SAMPLE DEPTH	TCLP ARSENIC (mg/l)	TCLP BARIUM (mg/l)	TCLP CADMIUM (mg/l)	TCLP CHROMIUM (mg/l)	TCLP LEAD (mg/l)	TCLP MERCURY (mg/l)	TCLP SILVER (mg/l)	TCLP SELENIUM (mg/l)
TRENCH 50' NORTH	61051-1	05/23/94	SURFACE	NA	NA	NA	NA	NA	NA	NA	NA
EAST TRENCH	61051-2	05/23/94	SURFACE	NA	NA	NA	NA	NA	NA	NA	NA
COMPOSITE SOIL PILES	61051-3	05/23/94	COMPOSITE	NA	NA	NA	NA	NA	NA	NA	NA
OIL AND SOIL TRENCH SEEP	61051-4	05/23/94	SURFACE	NA	NA	NA	NA	NA	NA	NA	NA
COMPOSITE NORTH TRENCH	61091-1	05/24/94	COMPOSITE	NA	NA	NA	NA	NA	NA	NA	NA
WEST PIT	61091-2	05/24/94	2.0'	NA	NA	NA	NA	NA	NA	NA	NA
PAINT AREA TEST PIT #1	61607-1	06/08/94	2.0'	NA	NA	NA	0.17	NA	NA	NA	NA
HEATED FLOOR	63658-1	08/03/94	SURFACE	ND	ND	ND	0.22	ND	ND	ND	ND
REMELT BRICK	64557-1	08/30/94	SURFACE	NA	NA	NA	NA	NA	NA	NA	NA
FENCE	64735-3	09/02/94	SURFACE	NA	NA	NA	NA	NA	NA	NA	NA

ND-NOT DETECTED
NA-NOT ANALYZED
TCLP - TOXICITY CHARACTERISTIC LEACHATE PROCEDURE

TABLE 2

Summary of Stockpile Chemistry
Capitol Products Corporation
Mechanicsburg, Pennsylvania
Rewai Project 92658

SOIL SAMPLE LOCATION	TPH MEASUREMENT mg/kg	VOC MEASUREMENT mg/kg	CONSTITUENT	TOTAL CHROME mg/kg (TCLP DATA)	SAMPLE DATE
SOIL PILE 36	530	N.D.	N.D.	370.0	10/18/94
SOIL PILE 37/38	N.D.	N.D.	N.D.	250.0	10/18/94
STOCKPILE 1	NA	NA	NA	1400(5.0)	11/07/94
STOCKPILE 2	NA	NA	NA	6600(.14)	11/07/94
STOCKPILE 3	NA	NA	NA	170(.06)	11/07/94
STOCKPILE 4	NA	NA	NA	450(.67)	11/07/94
STOCKPILE 5	NA	NA	NA	120(N.D.)	11/07/94
CC-7	300	N.D.	NA	1800	11/9/94
CC-8	1000	N.D.	NA	1100	11/9/94

NOTE: N.A.--NOT ANALYZED
N.D.--NOT DETECTED

92658LAB.TBL

TABLE 3

Laboratory Results for TPH Analyses Performed on Site Closure Soil Samples

Biocell	Sample Identification	TPH Concentration (mg/kg)	
		Moist Weight	Dry Weight
1	1N	< 5	< 67
	1S	<110	<130
2	2N	<110	<140
	2S	<110	<140
3	3N	< 53	< 66
	3S	<270	<330
4	4N	<270	<330
	4S	<270	<330
5	5N	150	180
	5S	<270	<310
6	6N	< 27	< 33
	6S	62	76
7	7N	< 27	< 34
	7S	10	12
8	8N	< 27	< 33
	8S	<110	<120
9	9N	<110	<130
	9S	<110	<130
10	10N	< 27	< 33
	10S	< 27	< 33
11	11N	80	97
	11S	23	28
12	12N	140	170
	12S	58	71

TABLE 3 (CONT'D)

Laboratory Results for TPH Analyses Performed on Site Closure Soil Samples

Biocell	Sample Identification	TPH Concentration (mg/kg)	
		Moist Weight	Dry Weight
13	13N	86	100
	13S	95	110
14	14N	170	210
	14S	< 53	< 65
15	15N	280	350
	15S	170	210
16	16N	13	17
	16S	< 53	< 67
17	17N	< 53	< 67
	17S	< 53	< 67
18	18N	170	210
	18S	<110	<140
19	19N	99	110
	19S	40	49
20	20N	58	71
	20S	59	71
21	21N	< 53	< 66
	21S	< 5	< 6
22	22N	8	11
	22S	38	46
23	23N	<110	<130
	23S	< 53	< 64
24	24N	< 53	< 64
	24S	57	68
25	25N	<270	<320
	25S	<270	<330

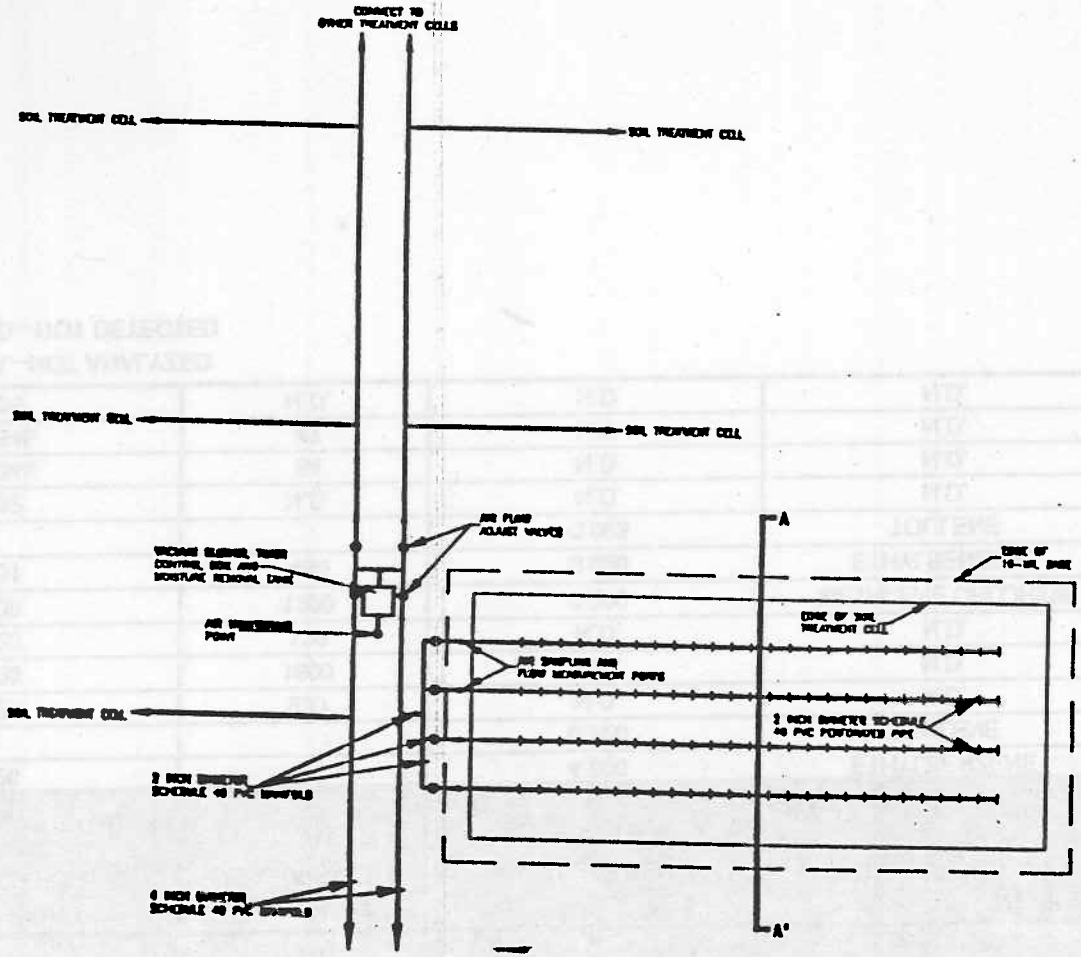
TPH - total petroleum hydrocarbons
mg/kg - milligrams per kilogram

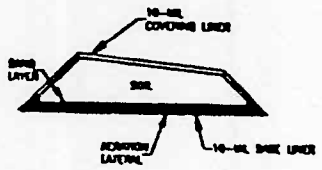
TABLE 4

Summary of Stockpile Chemistry
Capitol Products Corporation
Mechanicsburg, Pennsylvania
Rewal Project 92658

SOIL SAMPLE LOCATION	TPH MEASUREMENT mg/kg	VOC MEASUREMENT mg/kg	CONSTITUENT	TOTAL CHROME mg/kg (TCLP DATA)	SAMPLE DATE
SOIL PILE 26	180	4.800	ETHYLBENZENE	NA	9/21/94
		0.720	TOULENE		
SOIL PILE 27	830	N.D.	N.D.	NA	9/21/94
SOIL PILE 28	1600	N.D.	N.D.	NA	9/21/94
SOIL PILE 29	120	N.D.	N.D.	NA	9/21/94
SOIL PILE 30	1200	0.290	METHLENE CHLORIDE	NA	9/21/94
SOIL PILE 31	480	0.020	ETHYLBENZENE	NA	9/21/94
		0.063	TOULENE		
SOIL PILE 32	N.D.	N.D.	N.D.		10/18/94
SOIL PILE 34a	84	N.D.	N.D.	NA	10/18/94
SOIL PILE 34b	47	N.D.	N.D.	NA	10/18/94
SOIL PILE 35	N.D.	N.D.	N.D.	NA	10/18/94

NOTE: N.A.--NOT ANALYZED
N.D.--NOT DETECTED





CROSS SECTION VIEW OF CELL A – A'

20' 0 20'

SCALE IN FEET

FIGURE 1

CAPITOL PRODUCTS, CORP

MECHANICSBURG, PA

BIOREMEDIATION TREATMENT CELL SCHEMATIC

drawn SS	approved	drawing no. 92656-061-A
checked PJC	date 6/29/94	

r.e. wright associates, inc
total environmental solutions

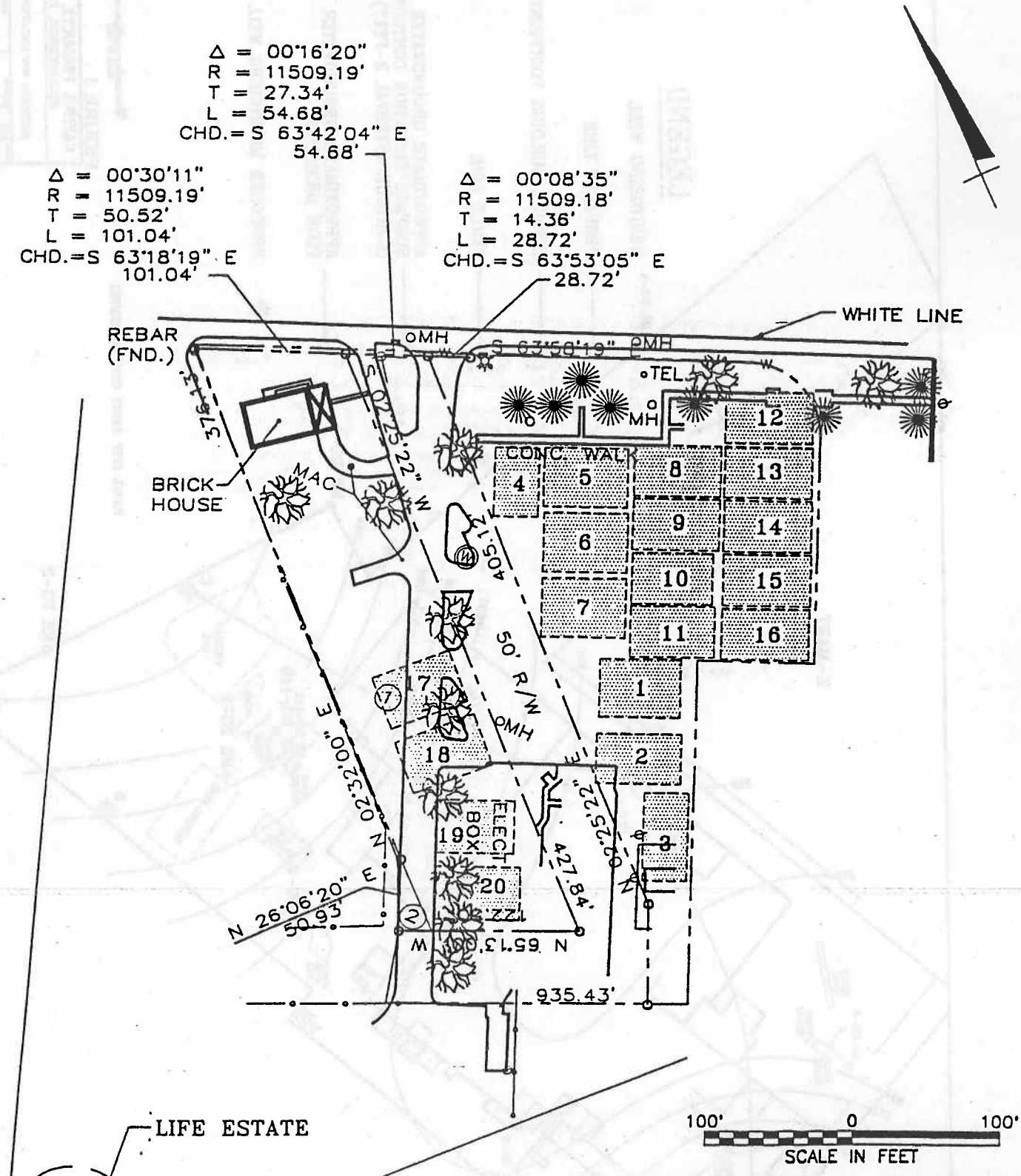


FIGURE 2

CAPITOL PRODUCTS INC.
MECHANICSBURG, PA

PROPOSED BIOVENTING
CELL LOCATIONS

drawn SS	approved	drawing no.
checked	date 11/15/94	92658-106-AA

r.e. wright associates, inc.
total environmental solutions
middletown, pa. wayne, pa. westminster, md.

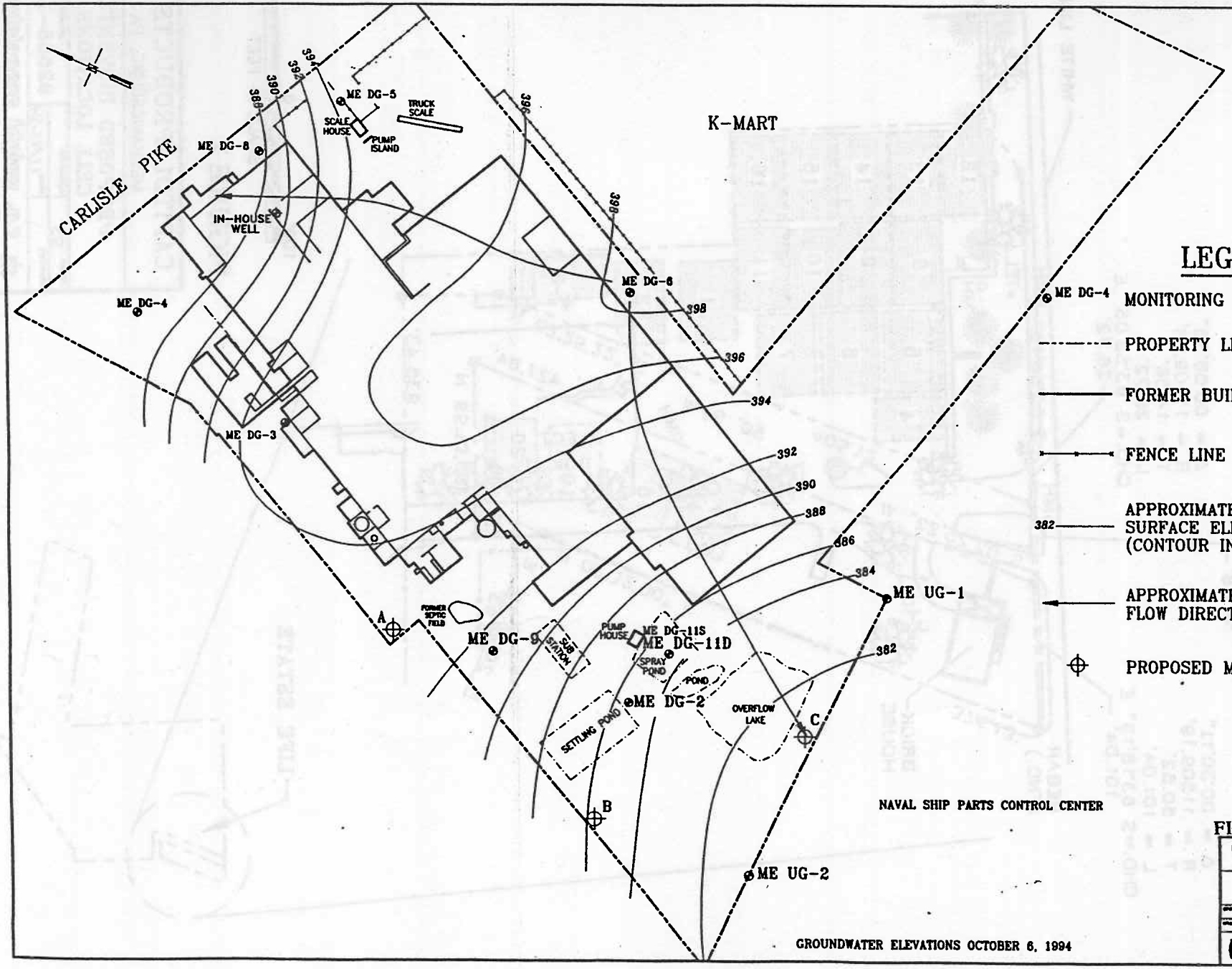


FIGURE 3

CAPITOL PRODUCTS, CORP.
MECHANICSBURG, PA

PROPOSED MW LOCATIONS

RAH | 12/20/94 | 92658-107-C

R.E. wright associates, inc.
total environmental solutions