

APPENDIX A

Figures

Simplified Process Flow Scheme

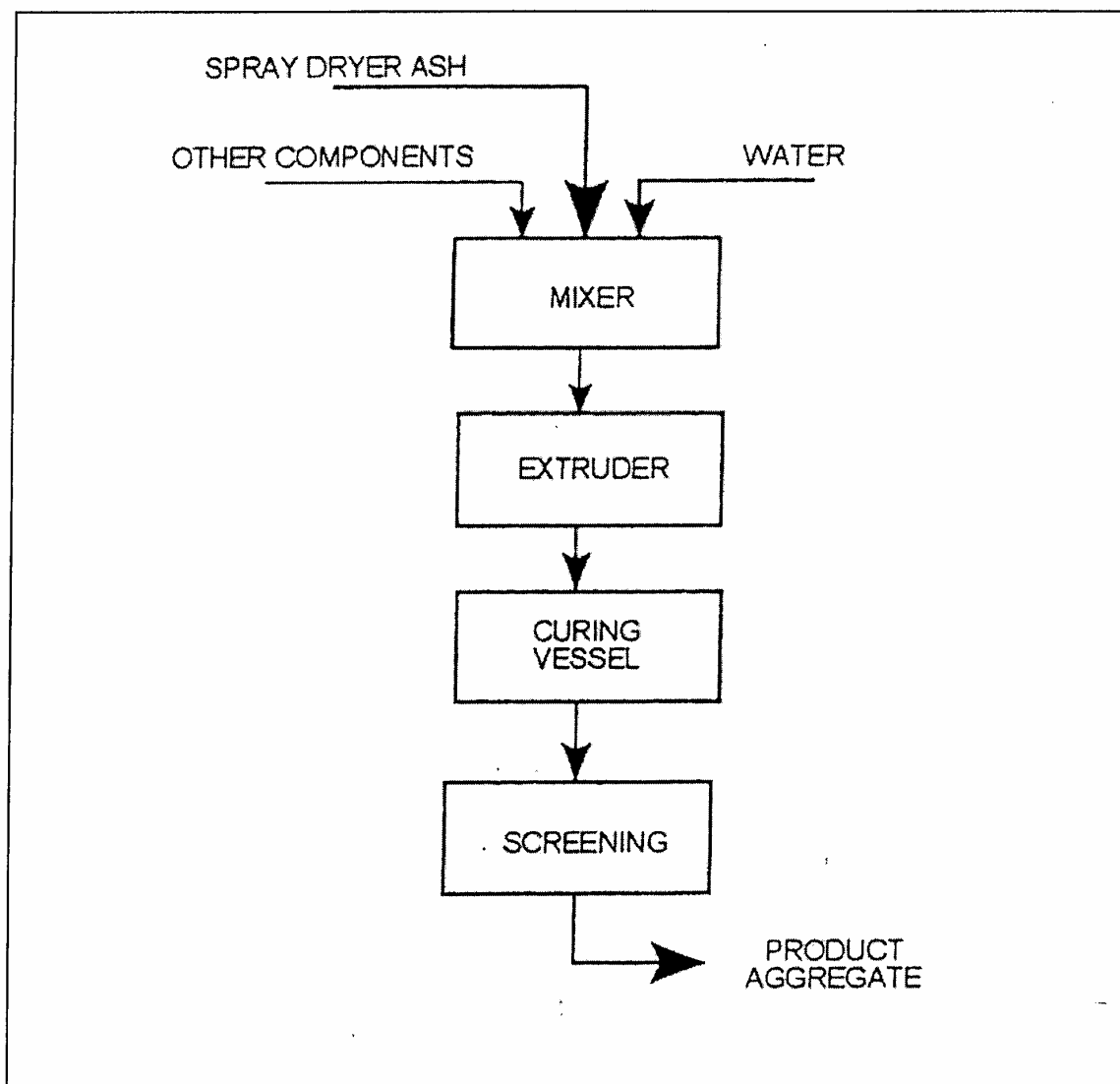


Figure 1. Simplified Process Flow Scheme

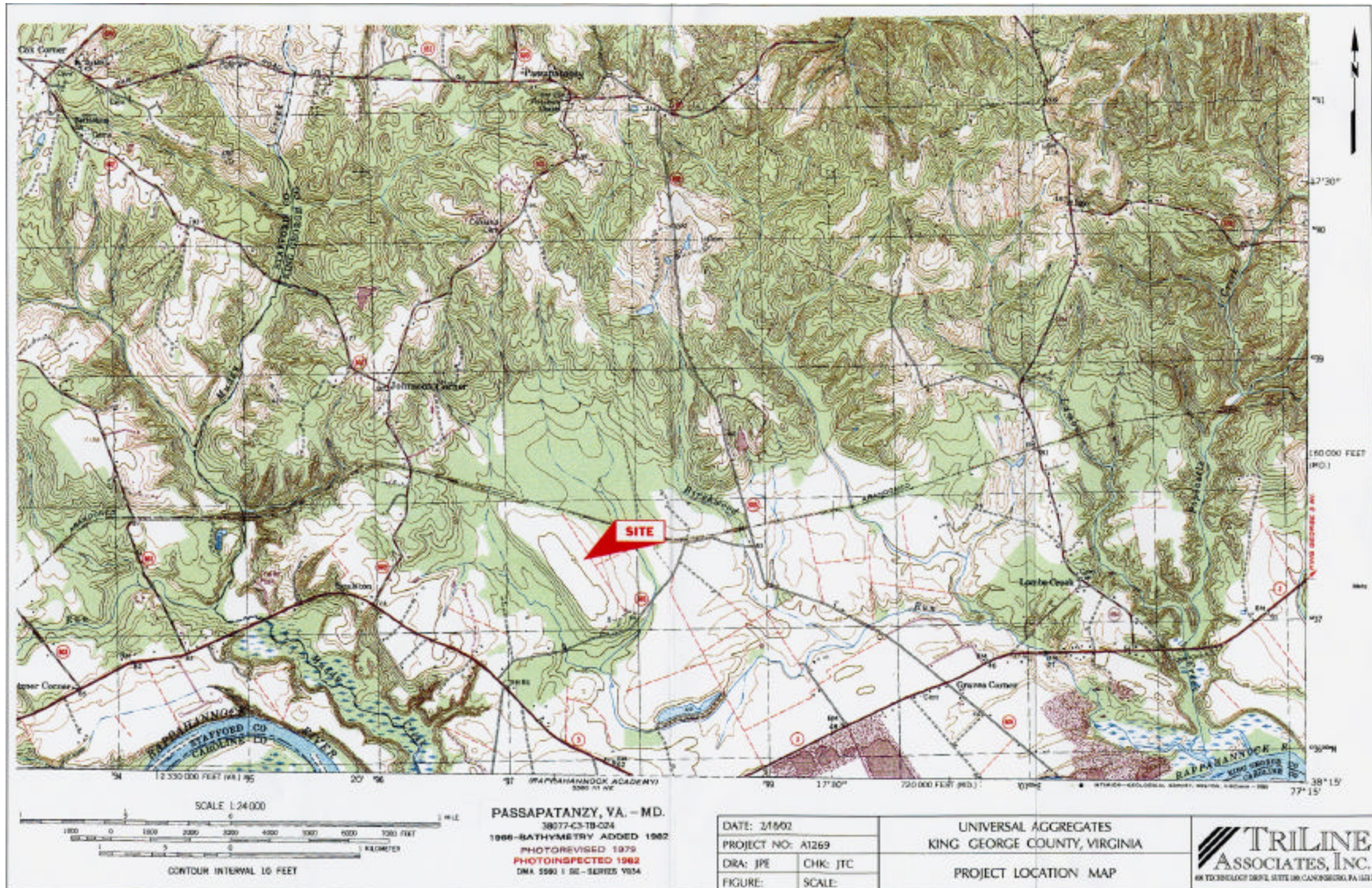


Figure 2. Project Location



Figure 3. Aerial photograph of Mirant-Birchwood Power Plant taken April 10, 1996.

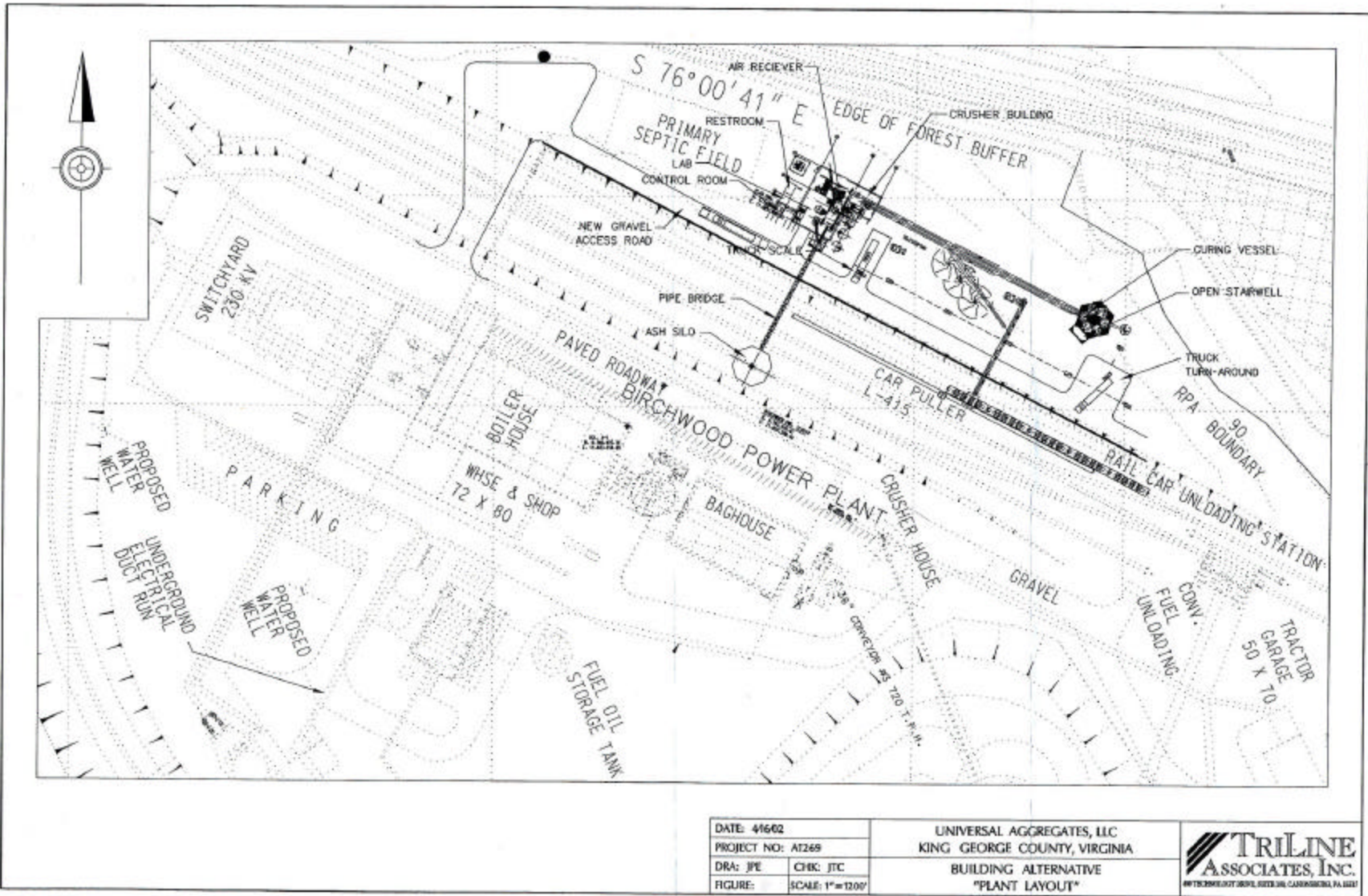


Figure 4. Plant layout.

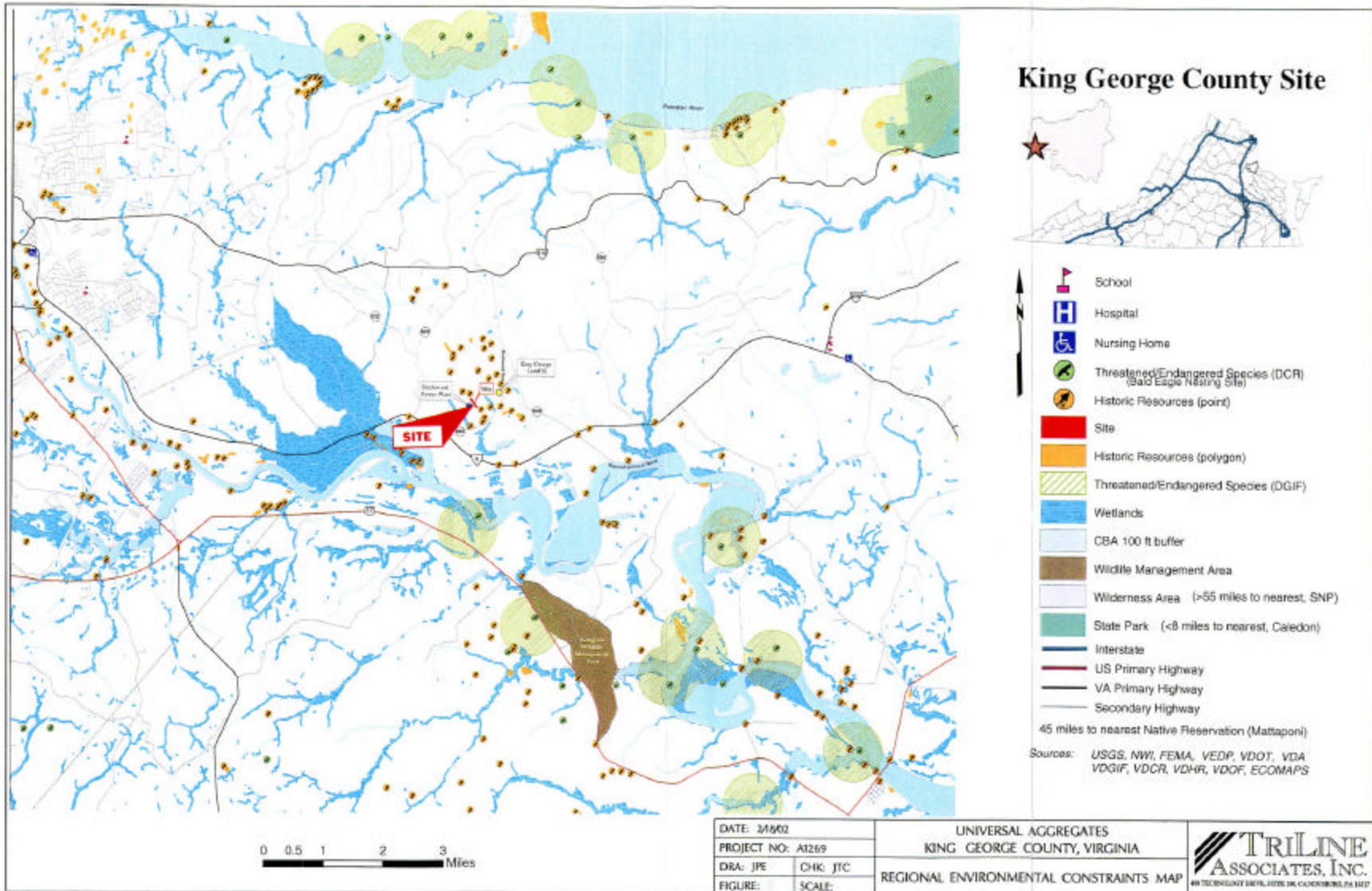


Figure 5. Regional Environmental Constraint Map

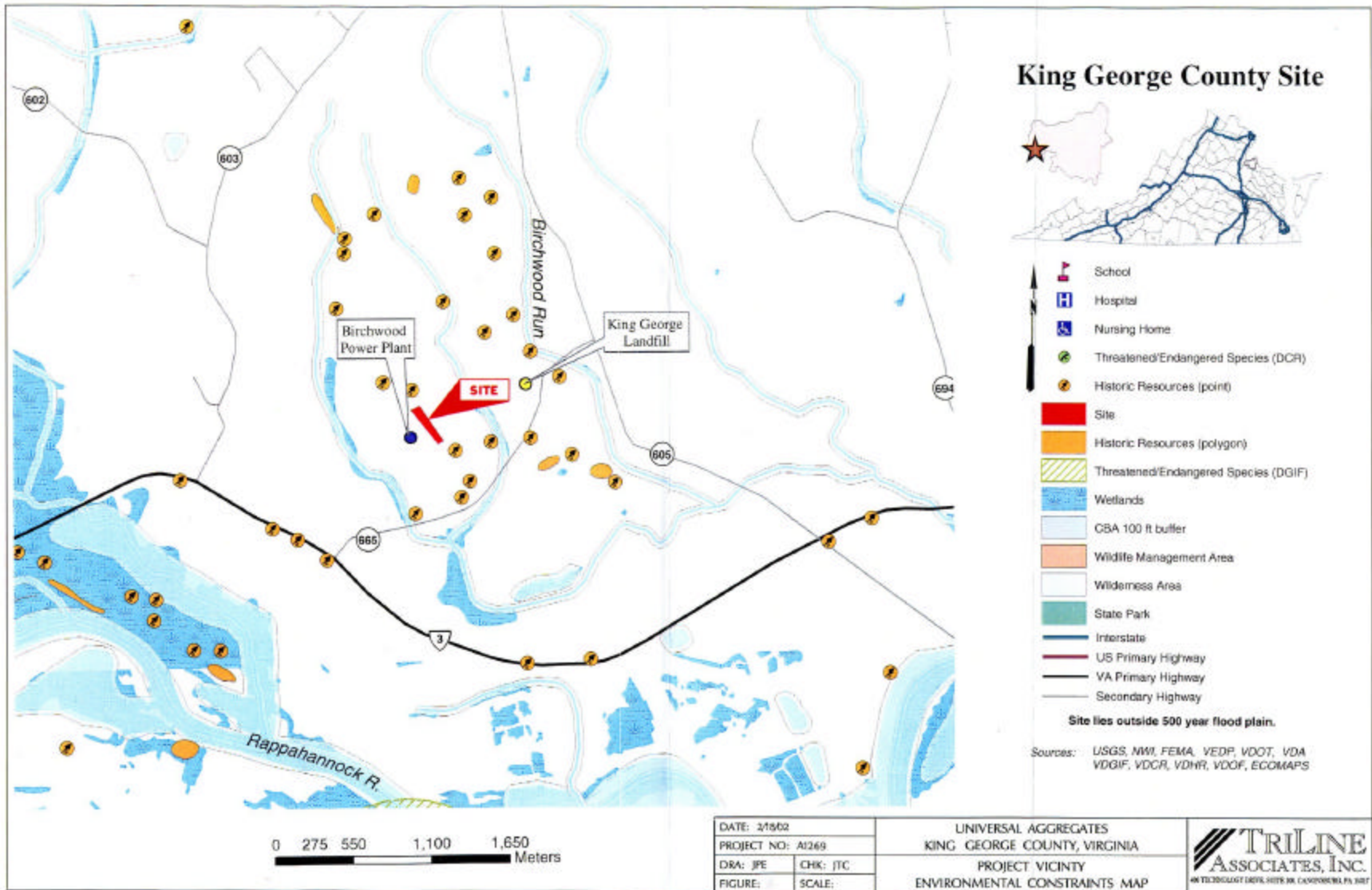


Figure 6. Project Vicinity Environmental Constraint Map

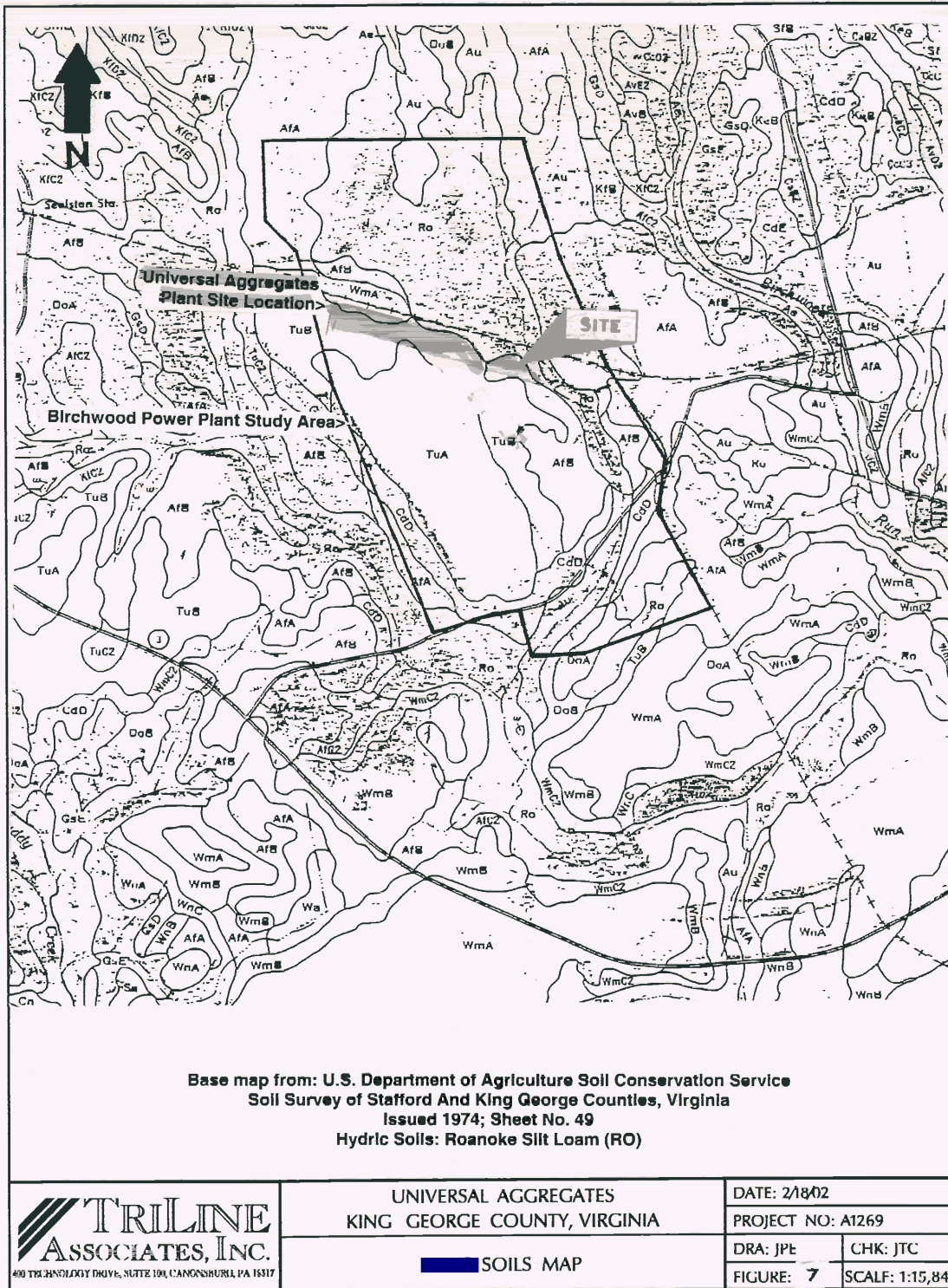
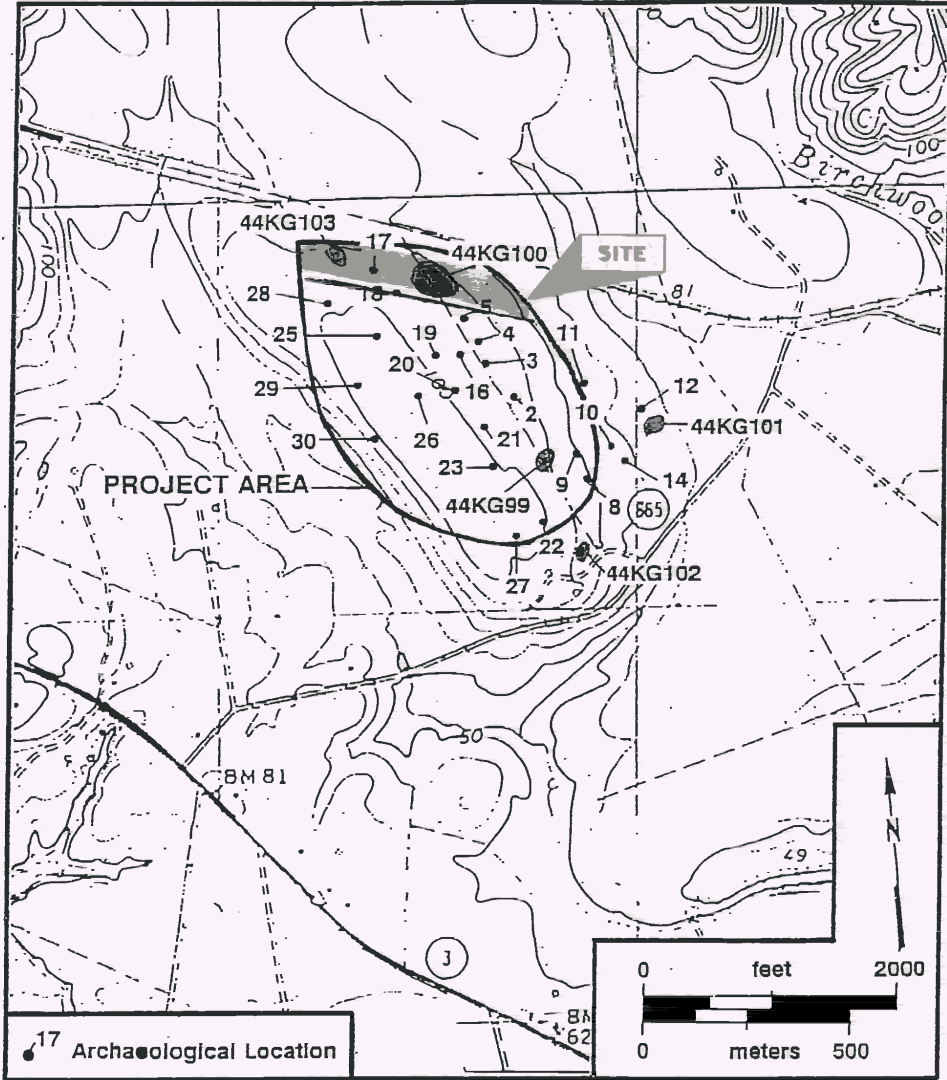


Figure 7. Soils Map

**Cultural Resources Investigation Areas In the Immediate Vicinity of the Universal
Aggregates Project Site**



TRILINE ASSOCIATES, INC.
400 TECHNOLOGY DRIVE, SUITE 100, CANONSBURG, PA 15117

UNIVERSAL AGGREGATES
KING GEORGE COUNTY, VIRGINIA

ARCHEOLOGICAL SITES

DATE: 2/18/02	
PROJECT NO: A1269	
DRA: JPE	CHK: JTC
FIGURE: 8	SCALE:

Figure 8. Archaeological Sites

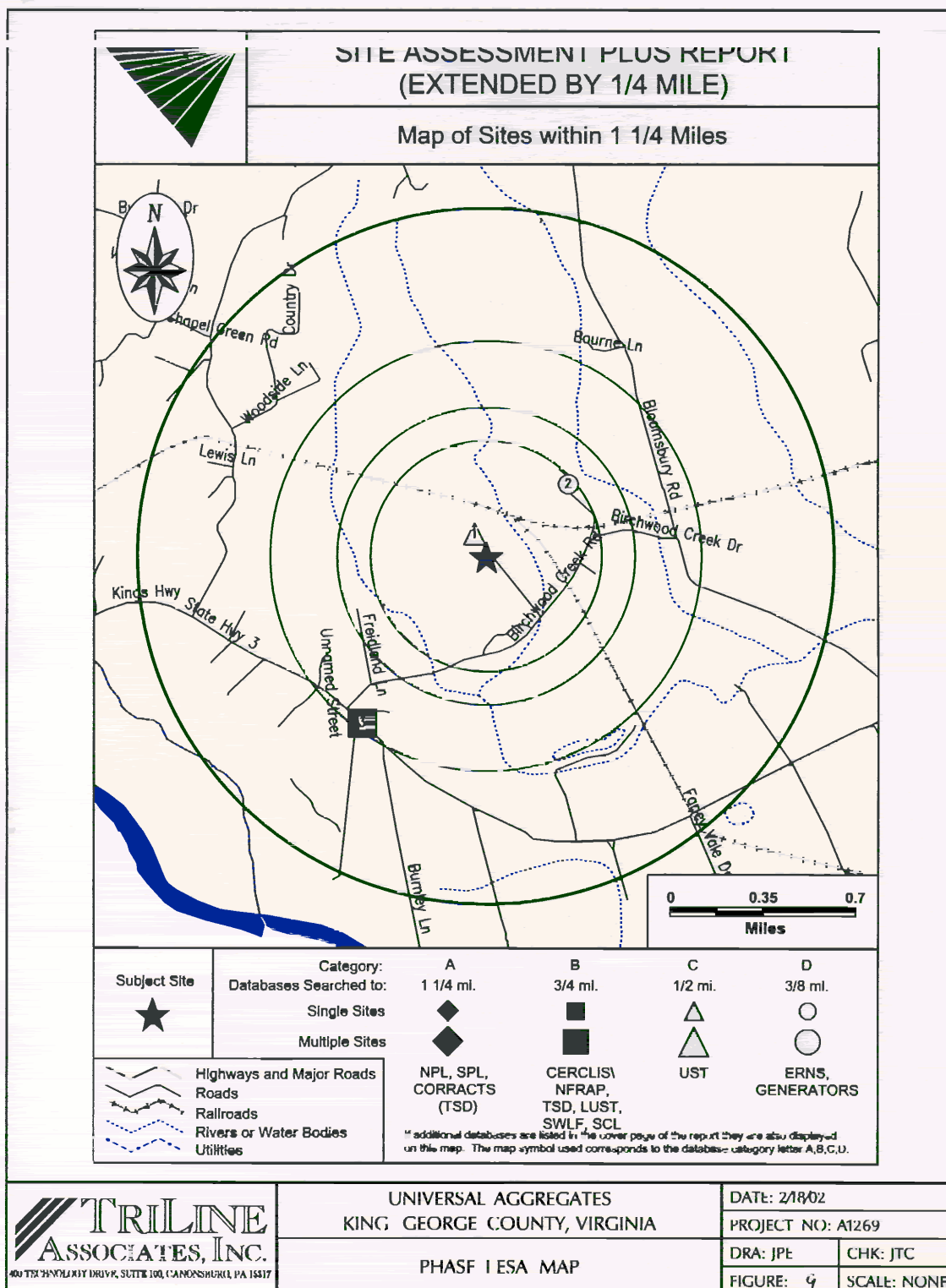
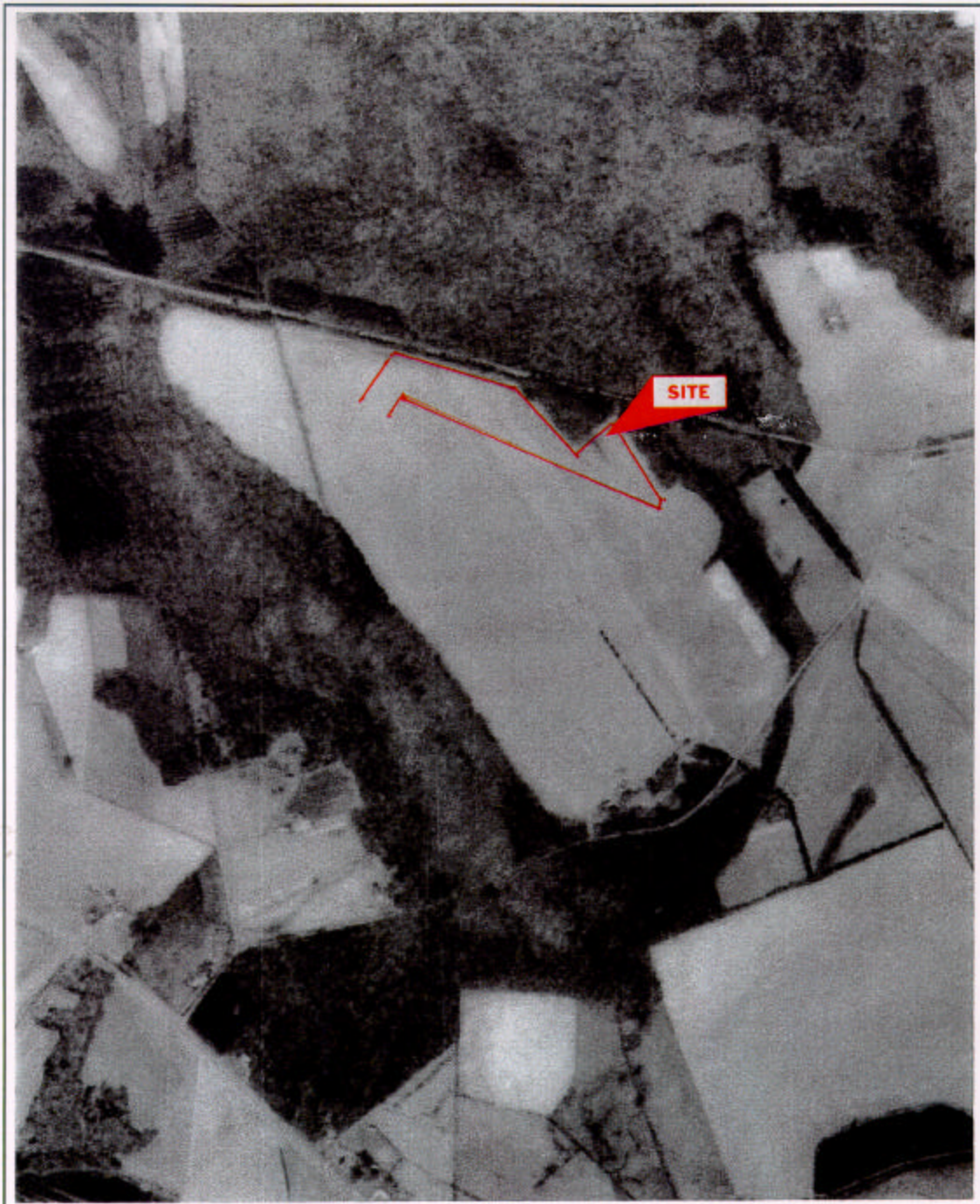


Figure 9. Phase I ESA (Environmental Site Assessment) Map




 TRILINE ASSOCIATES, INC. <small>400 TECHNOLOGY DRIVE, SUITE 100, CANONSBURG, PA 15317</small>	UNIVERSAL AGGREGATES KING GEORGE COUNTY, VIRGINIA		DATE: 2/18/02	
	AERIAL PHOTOGRAPH 1977 (ORIGINAL PHOTOGRAPH - HAZY)		PROJECT NO: A1269	
		DRA: JPE	CHK: JTC	
		FIGURE: 10	SCALE: 1" = 925'	

Figure 10. Aerial photograph of proposed project site taken 1977.




 TRILINE ASSOCIATES, INC. <small>400 TECHNOLOGY DRIVE, SUITE 100, CANONSBURG, PA 15717</small>	UNIVERSAL AGGREGATES KING GEORGE COUNTY, VIRGINIA		DATE: 2/18/02		
	AERIAL PHOTOGRAPH 1980 (ORIGINAL PHOTOGRAPH - HAZY)		PROJECT NO: A1269		
			DRA: JPE	CHK: JTC	
			FIGURE: 11	SCALE: 1" = 925'	

Figure 11. Aerial photograph of proposed project site taken 1980.



TRILINE ASSOCIATES, INC.
 49 TECHNOLOGY DRIVE, SUITE 100, CANONSBURG, PA 15117

UNIVERSAL AGGREGATES
 KING GEORGE COUNTY, VIRGINIA

AERIAL PHOTOGRAPH 1998

DATE: 2/18/02

PROJECT NO: A1269

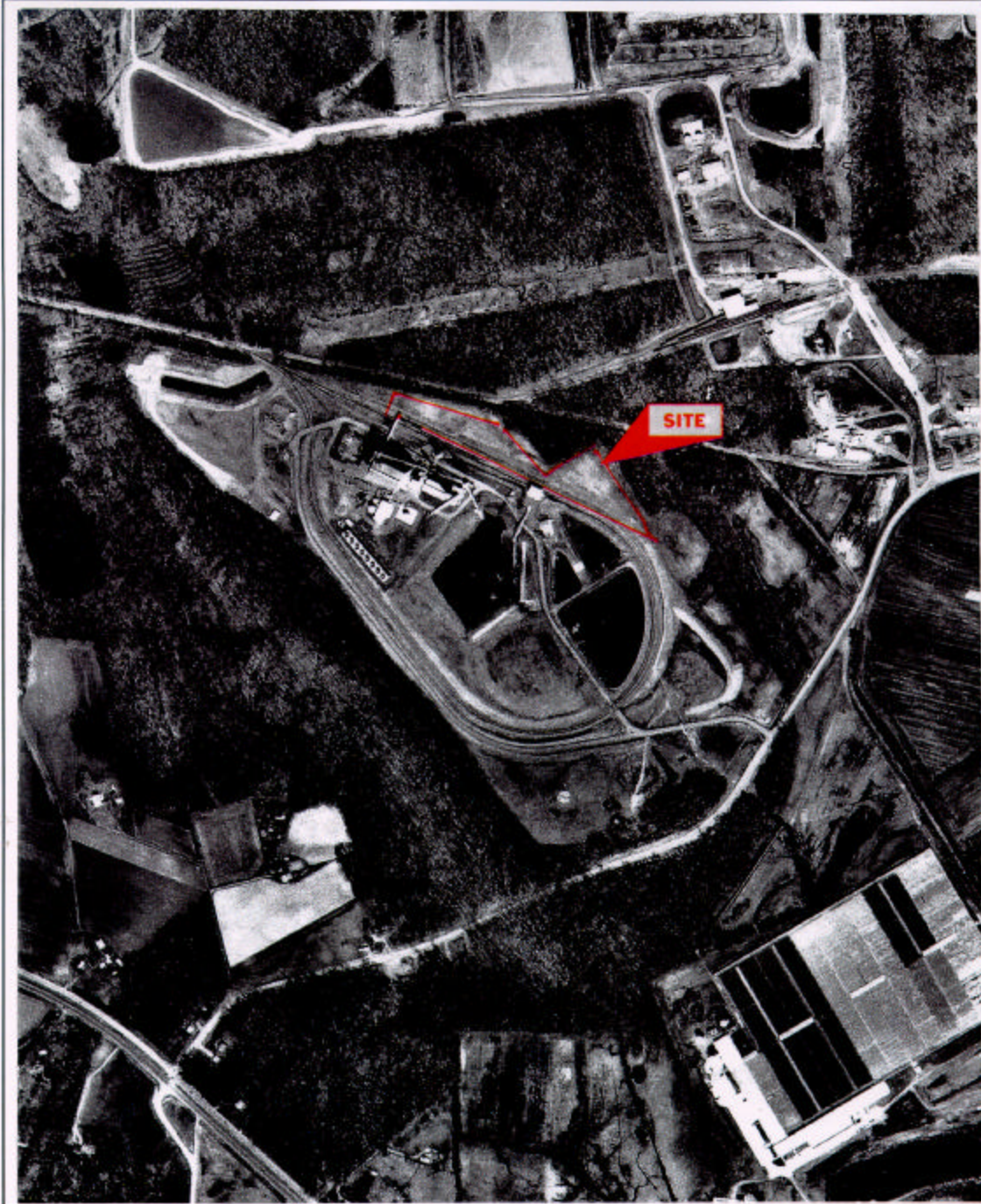
DRA: JPE

CHK: JTC

FIGURE: 1-2

SCALE: 1" = 800'

Figure 12. Aerial photograph of proposed project site taken 1998.




 TRILINE ASSOCIATES, INC. <small>400 TECHNOLOGY DRIVE, SUITE 100, CANONSBURG, PA 15317</small>	UNIVERSAL AGGREGATES KING GEORGE COUNTY, VIRGINIA		DATE: 2/18/02	
	AERIAL PHOTOGRAPH 2000		PROJECT NO: A1269	
		DRA: JPE	CHK: JTC	
		FIGURE: 13	SCALE: 1" = 800'	

Figure 13. Aerial photograph of proposed project site taken 2000.

APPENDIX B

List of Agencies and Persons Contacted

LIST OF AGENCIES AND PERSONS CONTACTED

Commonwealth of Virginia, Department of Historic Resources, 2801 Kensington Avenue,
Richmond, Virginia 23221

King George Landfill, Mr. Howard Burns

U.S. Department of Interior, U.S. Fish and Wildlife Service, Ecological Services, 6669 Short
Lane, Gloucester, VA 23061.

Virginia Economic Development Partnership (VDEP) Research Division, P.O. Box 798, 901
East Byrd Street, Richmond, Virginia, 23218-0798

APPENDIX C

Agency Correspondence



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
6669 Short Lane
Gloucester, VA 23061



July 17, 2002

Ms. Janice Bell
U.S. Department of Energy
3610 Collins Ferry Road, P.O. Box 880
Morgantown, West Virginia 26507-0880

Re: Universal Aggregates Demonstration
Project, # 2589,
King George County, Virginia

Dear Ms. Bell:

The U.S. Fish and Wildlife Service (Service) has received your request for comments regarding environmental impacts for the referenced project. The proposed action is for cost-shared financial support by the U.S. Department of Energy (DOE), through a cooperative agreement with Universal Aggregates, LLC, for the construction and operation of a lightweight aggregate manufacturing plant at the Mirant-Birchwood Power Facility. The aggregate will be manufactured using the ash generated by spray dryers that control SO₂ emissions from the power facility. This letter is submitted in accordance with provisions of the Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) and the Fish and Wildlife Coordination Act (FWCA) of 1958 (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.).

ENDANGERED SPECIES ACT

Based on the project description and location, it appears that this project is not likely to adversely affect any federally listed or proposed species or their designated critical habitat.

FISH AND WILDLIFE COORDINATION ACT

The Service is concerned about potential adverse impacts to water quality and fish and wildlife resources that may occur as a result of coal combustion byproducts being used in construction and stabilization projects and subsequently leaching toxic chemicals into the surrounding landscape. The Service recommends your environmental assessment include the complete record of tests of this technology mentioned in the project narrative as well as a description of the lightweight aggregate specifications (ASTM-C331) and how they were developed.

*Commercial Demonstration of the Manufactured Aggregate Processing Technology
Utilizing Spray Dryer Ash, King George County, Virginia
DRAFT ENVIRONMENTAL ASSESSMENT*

Ms. Bell

Page 2

If you have any questions or need further assistance concerning this project, contact Ms. Jolie Harrison at (804) 693-6694, extension 208.

Sincerely,



for Karen L. Mayne
Supervisor
Virginia Field Office



COMMONWEALTH of VIRGINIA

Department of Historic Resources
2801 Kensington Avenue, Richmond, Virginia 23221

W. Taylor Murphy, Jr.
Secretary of Natural Resources

Kathleen S. Kilpatrick
Director

Tel: (804) 367-2323
Fax: (804) 367-2391
TDD: (804) 367-2386
www.dhr.state.va.us

August 1, 2002

Janice L. Bell
NEPA Development Manager
U.S. Department of Energy
Nuclear Energy Technology Laboratory
626 Cochran Mill Road
P.O. Box 10940
Pittsburgh, PA 15236-0940

Re: Proposed Lightweight Aggregate Manufacturing Plant
King George County, Virginia
DHR No. 2002-1201

Dear Ms. Bell:

Thank you for requesting our comments on the referenced project.

We understand that an archeological survey was conducted in 1991 prior to construction of the Mirant-Birchwood Power Facility and that the area surveyed included the present project area. While we do not have a copy of the report in our archives, we have reviewed the inventory forms for the two sites located in the vicinity of the proposed plant, 44KG100 and 44KG103 and agree with your assessment that no further archeological investigations are warranted at these two sites due to their compromised integrity. We also agree that no further identification efforts are warranted in connection with the proposed plant. Based upon the information provided, we find that no historic properties will be affected by the proposed undertaking.

Inclusion of your finding of *no historic properties affected* in the final Environmental Assessment, along with our letter of concurrence, will provide the interested public with the opportunity to inspect the documentation prior to approval of the undertaking in accordance with §800.4(d)(1) of the regulations implementing Section 106 of the National Historic Preservation Act of 1966, as amended through 1992.

If you have any questions or if we may provide any further assistance, please do not hesitate to contact me at (804) 367-2323, ext. 112; fax (804) 367-2391; e-mail eeaton@dhr.state.va.us.

Administrative Support
10 Courthouse Avenue
Petersburg, VA 23203
Tel: (804) 883-1888
Fax: (804) 883-6198

Petersburg Office
19-B Bollingbrook Street
Petersburg, VA 23203
Tel: (804) 883-1830
Fax: (804) 883-1827

Portsmouth Office
613 Court Street, 3rd Floor
Portsmouth, VA 23704
Tel: (757) 386-6769
Fax: (757) 386-8712

Roanoke Office
1030 Pennar Avenue, SE
Roanoke, VA 24018
Tel: (540) 857-7585
Fax: (540) 857-7583

Winchester Office
107 N. Kent Street, Suite 200
Winchester, VA 23391
Tel: (540) 723-3437
Fax: (540) 723-7535

*Commercial Demonstration of the Manufactured Aggregate Processing Technology
Utilizing Spray Dryer Ash, King George County, Virginia
DRAFT ENVIRONMENTAL ASSESSMENT*

We apologize for the delay in our response and look forward to working with you on future projects.

Sincerely,



Ethel R. Eaton, Ph.D., Manager
Office of Review and Compliance

APPENDIX D

*Results of
Toxicity Characteristic Leaching Procedure
on Manufactured Aggregate*

Sturm Environmental Services

JOHN W. STURM, PRESIDENT

COMPANY: UNIVERSAL AGGREGATES, LLC
SAMPLE ID: BIRCHWOOD SPRAY DRYER
ASH AGGREGATE
SAMPLED BY: UNIVERSAL AGGREGATES, LLC

DATE SAMPLED:
DATE RECEIVED: 3-8-01 1400
DATE ANALYZED:

TOXICITY CHARACTERISTIC LEACHING PROCEDURE

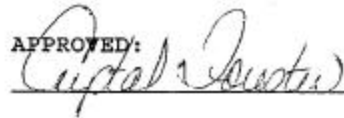
EPA HAZARDOUS WASTE NUMBER	CONTAMINANT	CONCENTRATION FOUND (mg/l)	MAXIMUM CONCENTRATION (mg/l)
D004	ARSENIC	<.02	5.00
D005	BARIUM	.29	100.0
D006	CADMIUM	<.01	1.0
D007	CHROMIUM	<.01	5.0
D008	LEAD	<.02	5.0
D009	MERCURY	<.002	.2
D010	SELENIUM	<.02	1.0
D011	SILVER	<.01	5.0

% SOLIDS: 100
SLURRY pH: 10.9
Final pH of Extract: 7.2
Extraction fluid used: #2

EXTRACTION PERFORMED BY:
CW

*client provided

APPROVED:



APPENDIX E

References

REFERENCES

1. Guidelines for Preparation of the Environmental Information Volume (EIV), U. S. Department of Energy Publications and Presentations.
2. Wu, M.M.; McCoy, D.C.; Fener, M. L.; Scandrol, R.O.; Winschel, R.A.; Withum, J.A.; Statnick, R.M., "Production of Manufactured Aggregates from Flue Gas Desulfurization By-Products," presented at the 1999 International Ash Symposium, Lexington, Kentucky, October 1999.
3. Wu, M.M.; Winschel, R.A.; Hasenfus, G.J., "Production of Manufacturing Aggregates from Coal Combustion By-Products," presented at the Thirteen International Symposium on Management and Use of Coal Combustion By-Products of the American Coal Ash Association, Orlando, Florida, January 1999.
4. Wu, M.M.; Winschel, R.A.; Wasson, G.E., "Composition Effects on the Durability of Aggregates Made from Coal Combustion Wastes," presented at the 1995 International Ash Utilization Symposium, Lexington, Kentucky, October 1995.
5. Winschel, R.A.; Wu, M.M., "Use of Aggregate Produced from Coal Fired Fluidized Bed Combustion Residue as a Component in Bituminous Concrete," presented at the Ninth International Coal Conference on Coal Science, Essen, Germany, September 1997.
6. Wu, M.M.; Winschel, R.A.; Wasson, G.E.; Yuran, P.J., "Properties of Synthetic Aggregates Made from Fluidized Bed Combustion (FBC) and Dry FGD By-Products," presented at the Eleventh International Symposium on Coal Ash Use and Management, Orlando, Florida, January 1995.
7. National Environmental Policy Act of 1969 (NEPA), 40 CFR Parts 1500-1508, and DOE Regulations for Implementation of NEPA (10 CFR Part 1021).
8. U.S. Geological Survey Topographic Map, 7.5 Minute Quadrangle, Passapatanzy, Virginia, published 1966, photo revised 1979, photo inspected 1982.
9. U.S. Geological Survey Topographic Map, 7.5 Minute Quadrangle, Rappahannock Academy, Virginia, published 1969, photo revised 1984.
10. National Wetland Inventory (NWI) Map, 7.5 Minute Quadrangle, Passapatanzy, Virginia, published April 1972.
11. NWI Map, 7.5 Minute Quadrangle, Rappahannock Academy, published March 1977.

12. U.S. Department of Agriculture Soil Conservation Service (SCS), Soil Survey of Stafford and King George Counties, Virginia, issued February 1974.
13. Resource Protection Area (RPA) Map, King George County, Virginia, unpublished.
14. Virginia Department of Transportation (VDOT) Aerial Photographs dated October 20, 1967 and October 21, 1981.
15. Phase I Cultural Resource Survey for the Proposed SEI -Mirant-Birchwood Power Facility, King George County, Virginia, Westinghouse Environmental and Geotechnical Services, Inc., 1991.
16. Offsite Routine Wetlands Determination SEI Authorization No. 6709-E-004-005, Westinghouse Environmental and Geotechnical Services, Inc., 1991.
17. Prior Use Survey, SEI-Birchwood, Inc., SEI Authorization No. 6709-E-004, Westinghouse Environmental and Geotechnical Services, Inc., 1991.
18. Subtask 5.1 Threatened and Endangered Species Review, SEI - Birchwood, Inc., SEI Authorization No. 6709-E-004-006 (REV.1), Westinghouse Environmental and Geotechnical Services, Inc., 1991.
19. Phase I Environmental Assessment, SEI-Birchwood Power Facility Parcel A, King George County, Virginia, Rust Environmental, 1993.
20. Fly Ash and Coal Conversion By-Products; Characterization, Utilization, and Disposal III, Materials Research Society Symposia Processing, ISSN 0272-9172; Vol. 86, 1987, Page 274.