BLASLAND, BOUCK & LEE, INC.
ENGINEERS & SCIENTISTS
6723 Towpath Road, P.O. Box 66, Syracuse, New York 13214-0066
(315) 446-9120 FAX: (315) 449-0017

March 30, 1994

Mr. Paul Wm. Hare, C.P.G.
Remedial Project Manager
General Electric Company
1 Computer Drive South
Albany, NY 12205

Re: Engineering Certification Report
Palmer Site Access Road Extension

File: 100.33 #2

Dear Mr. Hare:

This letter presents the Engineering Certification Report for construction of the Access Road Extension at the Palmer Site (the site) in the Town of Stillwater, Saratoga County, New York. The site is located off County Route 75, approximately one mile north of Mechanicsville, New York and is accessed by a gravel road located approximately ¼-mile south of the Graves Road intersection.

The Palmer Site was reportedly used for the disposal of industrial waste generated by the General Electric Company (GE) from 1958 to 1962. The site is listed on the New York State Department of Environmental Conservation (NYSDEC) Registry of Inactive Hazardous Waste Disposal Sites (Site No. 5-46-009). GE investigated and subsequently remediated the site pursuant to an Agreement with the NYSDEC. The Palmer Site is currently designated as a Class 4 site, indicating proper closure with continued management required, and the site is currently being maintained and monitored by GE during the post-closure period.

Construction of the remedial system at the Palmer Site was completed in 1983. The remedial system consisted primarily of an impermeable clay cap with vegetative cover, a gravel access road, a relocated surface drainage system, a perimeter security fence, and a leachate collection and treatment system. This gravel access road extends from the east side of County Route 75 to a security gate in the west side of the site's perimeter fence. An on-site leachate treatment system is located approximately 550 feet away from the security gate at the southeast side of the site. Prior to extending the access road as described in this report, vehicular access to the treatment system was often difficult in wet weather or winter conditions.

On April 7, 1993, GE submitted a design drawing prepared by Blasland, Bouck & Lee, Inc. (BB&L) to the NYSDEC proposing an extension of the existing site access road from the security gate to the leachate treatment system. The

NYSDEC approved the design of the access road extension in a letter dated April 30, 1993.

Construction of the access road extension consisted of the installation of approximately 515 linear feet of a 12-foot-wide by 12-inch-thick crushed stone roadway ending in a elbow-shaped turnaround area adjacent to the existing leachate treatment system. A 15-inch-diameter, corrugated metal pipe (CMP) was installed under the turnaround area to maintain the drainage from the existing drainage swale at the toe of the slope of the capped portion of the site to the drainage channel extending to the southwest of the treatment system building.

Bidding on the project was conducted by GE in mid August 1993. Yolam Construction, Inc. (Yolam) of Albany, New York was awarded the project. Prior to initiating construction, Yolam was required to provide submittals to BB&L including submittals for the crushed stone, woven geotextile, and CMP to be used during the project. Copies of these submittals are provided as Attachment 1.

Construction of the access road extension was conducted during the period of September 7, 1993 through September 15, 1993 and on December 16 and 17, 1993. The following is a summary of daily activities during construction.

Tuesday, September 7, 1993

Yolam staked-out the route of the access road extension from the security gate down to the turnaround area. Topsoil was stripped off a 14-foot-wide section from the security gate down to the west end of the turnaround area. Approximately 60 cubic yards (CY) of topsoil spoil material was placed in a spoil area located inside the perimeter fence to the north of the security gate. Using a hand shovel, Yolam dug several holes to locate the electrical line that serves the treatment system building. Rain interrupted construction activities in the early afternoon.

Wednesday, September 8, 1993

Yolam delivered one 12-foot-wide by 400-foot-long roll of AEF 200W woven geotextile to the site. No work on the access road extension was undertaken due to wet site conditions.

Thursday, September 9, 1993

Yolam delivered 60 linear feet of 14-gauge CMP and two 24-inch CMP end-sections to the site. No work on the access road extension was undertaken due to wet site conditions.

Friday, September 10, 1993

No work on the access road extension was undertaken due to wet site conditions.

Monday, September 13, 1993

Yolam completed stripping topsoil in the turnaround area. Approximately 18 CY of topsoil spoil material was placed in a spoil area inside the perimeter fence northeast of the treatment system building. Yolam proof-rolled the road subgrade with a smooth drum roller in the vibratory mode. The maximum compression and deflection observed during proof-rolling was 1½-inch.

Approximately 400 linear feet of AEF 200W woven geotextile fabric was placed on the stripped and proof-rolled subgrade of the access road starting at the security gate and heading southeast along the fenceline toward the turnaround area. Starting at the security gate, approximately 118 CY of crushed stone was placed over the geotextile fabric covering a distance of approximately 245 linear feet.

Tuesday, September 14, 1993

Yolam shaped and graded the spoil area near the security gate. Yolam delivered a second 12-foot-wide by 400-foot-long roll of AEF 200W woven geotextile fabric to the site. Yolam excavated a 24-inch-deep by 3-foot-wide by 50-foot-long trench along the bottom of the drainage channel located west of the treatment system building. This channel was lined with a 12-foot-wide by 50-foot-long section of AEF 200W woven geotextile fabric. Approximately 3 CY of crushed stone was placed in the bottom of the trench in a 6-inch layer over the entire trench length. Approximately 54½ linear feet of 14-gauge CMP was placed on top of the 6-inch-thick layer of crushed stone. Two 24-inch end sections were then attached to each end of the CMP. The trench was then backfilled with approximately 6 CY of crushed stone. Geotextile fabric was placed over the remaining subgrade areas of the access road extension and turnaround area, followed by placement of approximately 172 CY of crushed stone over the geotextile fabric. The entire access road extension and turnaround area was rolled with two passes of a smooth-drum roller in the vibratory mode.

Wednesday, September 15, 1993

Yolam placed approximately 12 CY of crushed stone in the turnaround area and completed final grading of the road surface. The entire access road extension and turnaround area was rolled with four passes of a smooth-drum roller in the vibratory mode.

Yolam trenched the drainage channel from the invert of the inlet end of the 15-inch diameter CMP up to the existing drainage swale in both the northeast and west directions. The trench leading to the inlet of the CMP was lined with 3-inch to 6-inch diameter stone.

Yolam shaped and graded the spoil area to the northeast of the treatment system building. Yolam hand-spread grass seed on both spoil areas and

on other disturbed areas. Yolam demobilized all equipment and excess materials from the site.

Thursday, December 16, 1993

Yolam remobilized at the site to widen the turnaround area to the northeast of the treatment system building. Yolam stripped topsoil from an approximately 16-foot-wide by 24-foot-long area and approximately 16 CY of spoil material was placed in the spoil area northeast of the treatment system building.

Friday, December 17, 1993

Yolam placed AEF 200W woven geotextile fabric and approximately 15 CY of crushed stone on the enlarged portion of the turnaround area. Yolam completed final grading and rolled the new road surface. The spoil area was graded and seeded and Yolam demobilized from the site.

The access road extension was constructed in general conformance to the design drawing with two exceptions. The first exception was that the 15-inch-diameter CMP was bedded on a 6-inch layer of crushed stone rather than a 12-inch layer as shown on the design drawing. This change was made due to the proximity of the clay cap to the road subgrade which limited the trench excavation to 24 inches. The second exception was that the turnaround area near the treatment system building was extended from an elbow-shaped turnaround to a "T"-shaped turnaround in order to provide a larger turnaround area.

The route of the access road extension, turnaround configuration, access road extension detail, CMP pipe detail and location of spoil areas are shown on Record Drawing RD-1 presented in Attachment 2. An Engineer's Certification Statement is presented in Attachment 3.

Please contact me if you have any questions.

Very truly yours,

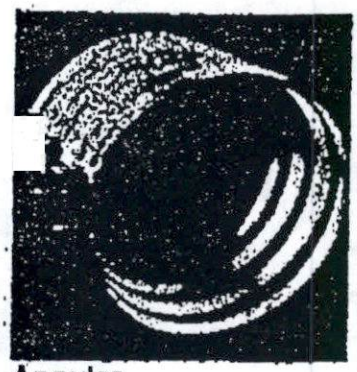
BLASLAND, BOUCK & LEE, INC.

Donald F. Sauda
Manager, Engineering

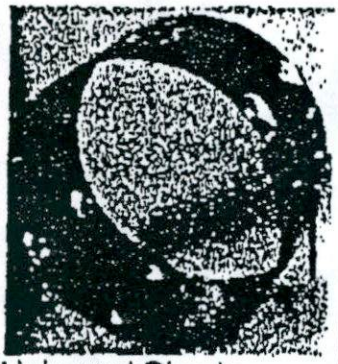
WKD/mbl
994842G
Attachments

Attachment 1

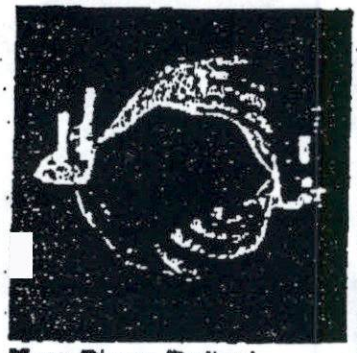
Lane connecting bands



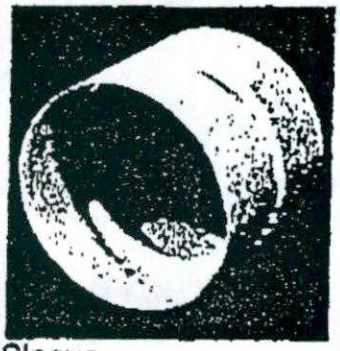
Annular



Universal Dimple



Two Piece Bolted



Sleeve

Helical or Annular Connections.

Steel End Sections

Culvert is completed with end sections for corrugated steel pipe or pipe-arches. Nothing else to order or install. Available in all standard pipe and pipe-arch sizes.

NOTE:
Pipe submittal acceptance based on the use of 14 gauge steel pipe as specified on the contract drawing.

LANE

LANE ENTERPRISES, INC.
LANE METAL PRODUCTS DIVISION

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Specifications data relating to mechanical and physical properties and chemical analysis relate solely to tests performed at the time of manufacture on specimens obtained from specific locations of the

Lane's Corrugated Steel Pipe and Pipe Arches Meet the Following Specifications:

AASHTO:	ASTM:
M-36	444
M-190	742
M-218	760
M-245	762
M-274	796
M-289	798
	849
	862

REVIEWED AND NOTED
REVIEWED SOLELY FOR GENERAL COMPLIANCE WITH CONTRACT DOCUMENTS
BLASLAND, BOUCK ENGINEERS P.C.
Date 9-3-93 By WKD

CALLANAN INDUSTRIES, INC.
South Bethlehem, NY 12161 • (518) 767-2222 • Telefax (518) 767-2102

STONE SUBBASE GRADATION

PLANT: PLANT #77
MATERIAL: ITEM #4
DATE: 08-14-1993

SAMPLE NO.: SB93-801
PRODUCT CODE: 1090
TIME: 8:15 A.M.

WEIGHT OF DRY PLUS 1/4 IN. AFTER SEPARATION	29.6	MOISTURE CONTENT	2.5
WEIGHT OF PAN FROM PLUS 1/4 IN.	.31	WEIGHT OF SAMPLE & CONTAINER BEFORE DRYING	692
WEIGHT DRY PLUS 1/4 IN. MATERIAL	29.29	WEIGHT OF SAMPLE & CONTAINER AFTER DRYING	680.1
WEIGHT OF MOIST MINUS 1/4 IN. MATERIAL	18.81	WEIGHT OF CONTAINER	204.5
WEIGHT OF DRY MINUS 1/4 IN. MATERIAL	18.35	WEIGHT OF WATER	11.9
WEIGHT OF TOTAL DRY SAMPLE	47.64	WEIGHT OF DRY SAMPLE	475.6

E:

SIEVE SIZE	WEIGHT RETAINED	% RETAINED	%PASS TOTAL
2 in.	0	0	100
1 1/2 in.	0	0	100
1 in.	2.63	5.5	94.5
3/4 in.	7.13	15	79.5
1/2 in.	9.98	20.9	58.6
3/8 in.	4.31	9	49.6
1/4 in.	5.24	11	38.6
TOTAL WEIGHT =	47.64		

IGHT OF DRY MINUS 1/4 IN. BEFORE WASH 475.6
IGHT OF DRY MINUS 1/4 IN. AFTER WASH 419.6
LASTICITY INDICATOR = .508

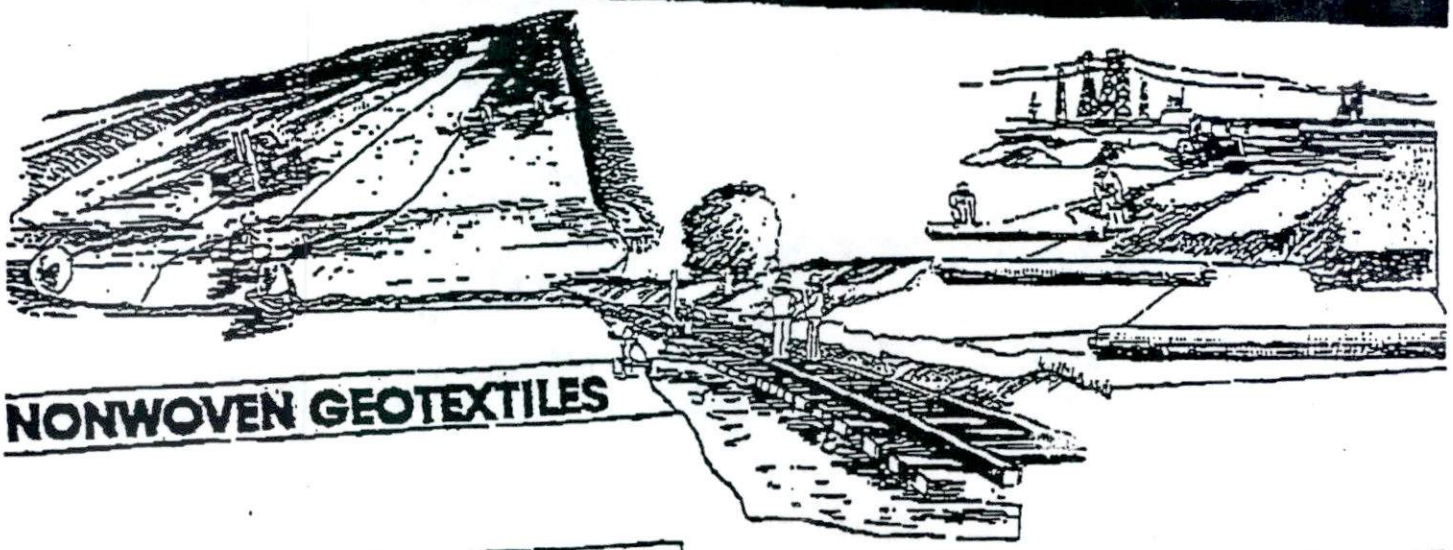
REVIEWED
REVIEWED SOLELY FOR GENERAL COMPLIANCE WITH CONTRACT DOCUMENTS
BLASLAND, BOUCK ENGINEERS P.C.
Date 9-3-93 By RDD

SIEVE SIZE	WEIGHT RETAINED	% RETAINED	%PASS(-1/4IN.)	% PASSING TOTAL
#4	58.3	12.3	87.7	33.9
#10	143.8	30.2	57.5	22.2
#20	100.3	21.1	36.4	14.1
#40	57.1	12	24.4	9.4
#60	27.8	5.8	18.6	7.2
#100	15.4	3.2	15.4	5.9
#200	14.2	3	12.4	4.8
PAN	3.3			

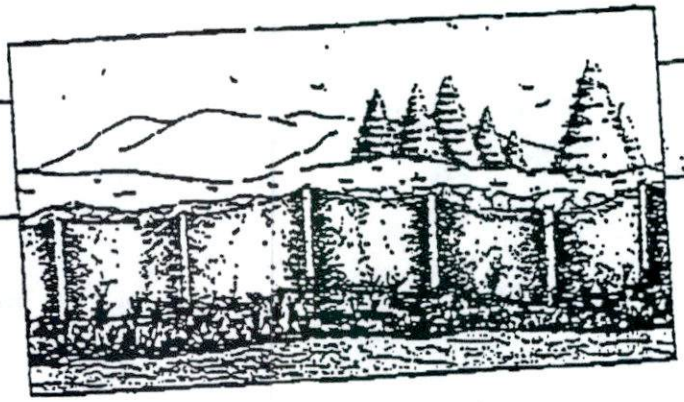
OTE: BELT SAMPLED BY JOE WALTON

AMERICAN ENGINEERING FABRICS, Inc.

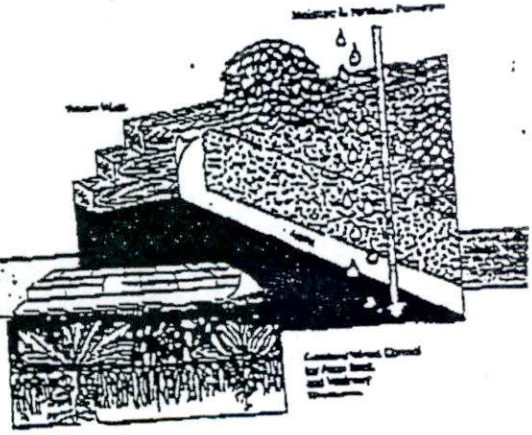
MANUFACTURERS of GEOTEXTILES



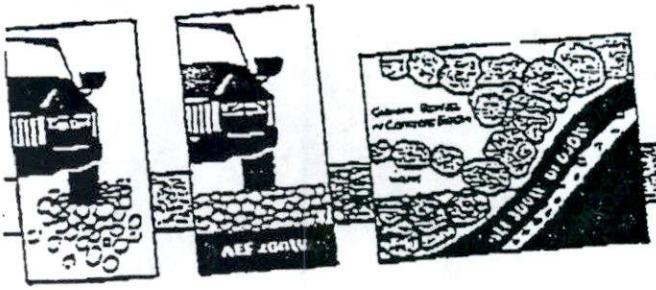
NONWOVEN GEOTEXTILES



PRE-ASSEMBLED SILT FENCE



LANDSCAPE FABRIC



WOVEN GEOTEXTILES

TURBIDITY CURTAIN, SORBENTS, OIL CONTAINMENT BOOM

AEF Geotextiles . . . *Engineered For Performance*

Geotextiles

SPECIFICATIONS

Property	Test Method	Results
AEF 100W		
Fabric Structure	—	Woven
Polymer Composition	—	Polypropylene
Fabric Width	—	12.5', 15', 17.5'
Fabric Length	—	400'
Weight	ASTM D-3776C *	3 oz/yd²
Grab Strength	ASTM D-4632	180 lbs.
Trap Tear Strength	ASTM D-4533	65 lbs.
Burst Strength	ASTM D-3786	350 psi
Puncture	ASTM D-3787(mod)	75 lbs.
Elongation	ASTM D-4632	20%
UV Resistance	ASTM D-4355	70% + (500 hrs.)
Permittivity	ASTM D-4491 (Sec.⁻¹)	.14
AOS	ASTM D-4751	40

Property	Test Method	Results	
AEF 200W			required 3'
Fabric Structure	—	Woven	
Polymer Composition	—	Polypropylene	✓
Fabric Width	—	12.5, 15', 17.5'	✓
Fabric Length	—	400'	✓
Weight	ASTM D-3776C	4.2 oz/yd²	
Grab Strength	ASTM D-4632	200 lbs.	200
Trap Tear Strength	ASTM D-4533	90 lbs.	75
Burst Strength	ASTM D-3786	400 psi	400
Puncture	ASTM D-3787(mod)	90 lbs.	90
Elongation	ASTM D-4632	20%	15%
UV Resistance	ASTM D-4355	70% + (500 hrs.)	70
Permittivity	ASTM D-4491 (Sec.⁻¹)	.125	.04
AOS	ASTM D-4751	40	70

Property	Test Method	Results
AEF 300W		
Fabric Structure	—	Woven
Polymer Composition	—	Polypropylene
Fabric Width	—	12.5', 15', 17.5'
Fabric Length	—	400'
Weight	ASTM D-3776C	5.8 oz/yd²
Grab Strength	ASTM D-4632	300 lbs.
Trap Tear Strength	ASTM D-4533	120 lbs.
Burst Strength	ASTM D-3786	600 psi
Puncture	ASTM D 3787(mod)	150 lbs.
Elongation	ASTM D-4632	20%
UV Resistance	ASTM D-4355	70% + (500 hrs.)
Permittivity	ASTM D-4491 (Sec.⁻¹)	.186
AOS	ASTM D-4751	40

Property	Test Method	Results
AEF 600W		
Fabric Structure	—	Woven
Polymer Composition	—	Polypropylene
Fabric Width	—	12.5'
Fabric Length	—	400'
Weight	ASTM D-3776C	6.3 oz/yd²
Grab Strength	ASTM D-4632	400 x 250 lbs.
Trap Tear Strength	ASTM D-4533	100 lbs.
Burst Strength	ASTM D-3786	450 lbs.
Puncture	ASTM D-3787(mod)	125 lbs.
Elongation	ASTM D-4632	25 x 15
UV Resistance	ASTM D-4335	70% + (500 hrs.)
Permittivity	ASTM D-4491 (Sec.⁻¹)	1.5
AOS	ASTM D-4751	40

Property	Test Method	Results
AEF 650W		
Fabric Structure	—	Woven
Polymer Composition	—	Polypropylene
Fabric Width	—	6', 12'
Fabric Length	—	300'
Weight	ASTM D-3776C	6.3 oz/yd²
Grab Strength	ASTM D 4632	410/285 lbs.
Trap Tear Strength	ASTM D-4533	115 x 65 lbs.
Burst Strength	ASTM D-3786	495 psi
Puncture	ASTM D-3787(mod)	135 lbs.
Elongation	ASTM D-4632	30%
UV Resistance	ASTM D-4335	70% + (500 hrs.)
Permittivity	ASTM D-4491 (Sec.⁻¹)	.247
AOS	ASTM D-4751	70-100

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Drainage and Separation - separates soil-mulch, soil-gravel layers. Prevents erosion of embankments, retaining walls.

Weight - 4 oz./sq. yd.

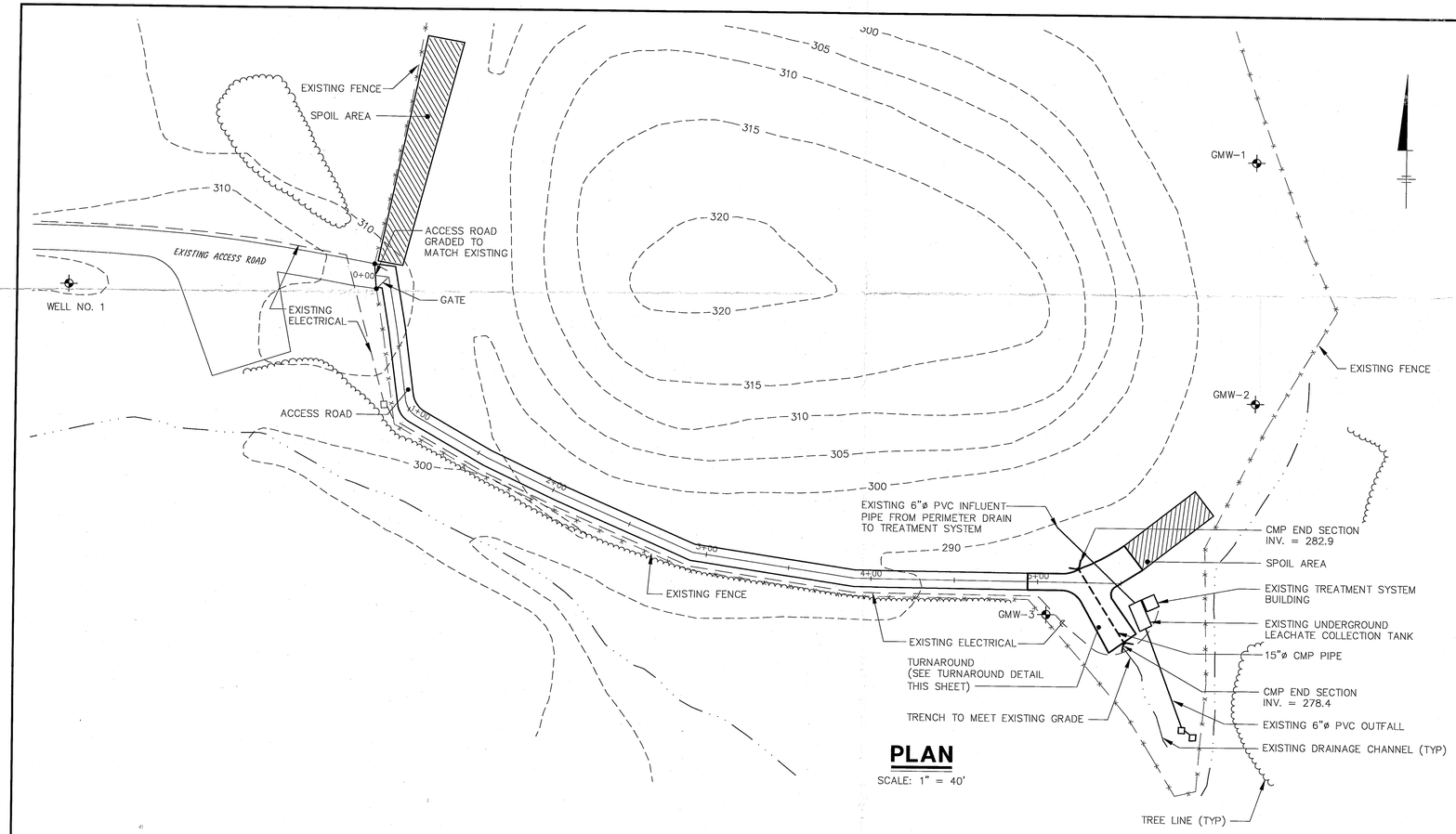
Roll Sizes: 3' x 250' 12½' x 400'
5' x 250' 15' x 400'

AMERICAN ENGINEERING FABRICS, Inc.

FAX

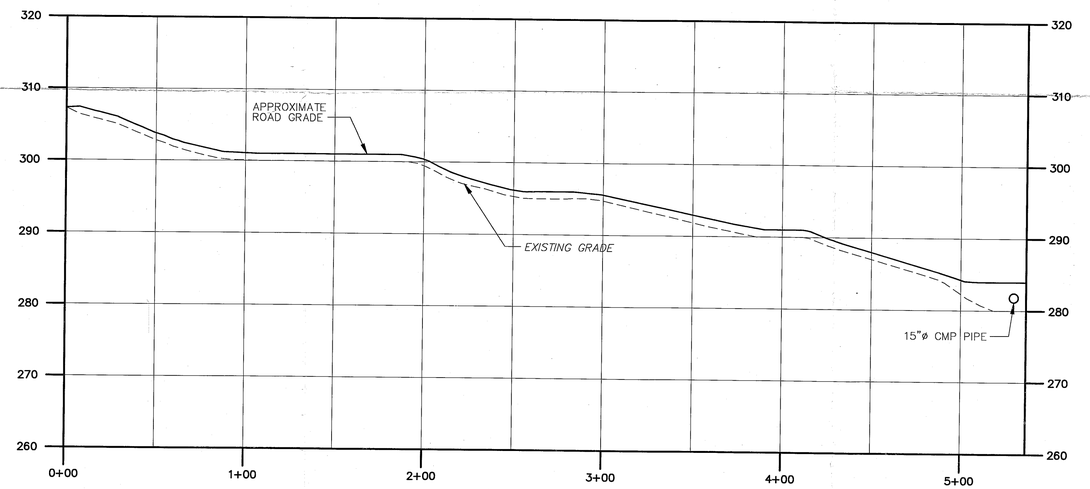
REVIEWED
REVIEWED SOLELY FOR GENERAL COMPLIANCE WITH CONTRACT DOCUMENTS
BLASLAND, BOUCK ENGINEERS
Date 9-3-93 By RDD

Attachment 2



PLAN

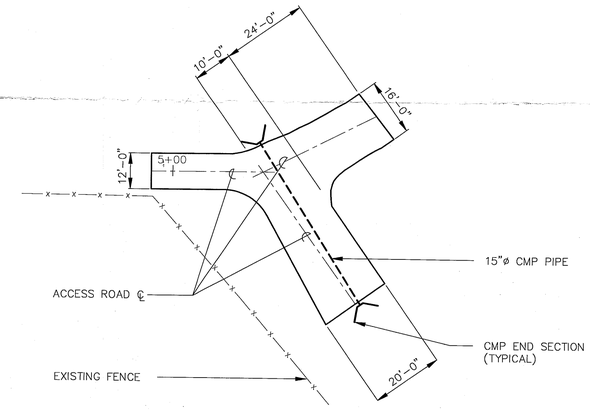
SCALE: 1" = 40'



PROFILE

SCALE: HORIZ. 1" = 40'
VERT. 1" = 10'

RECORD DRAWING COMPILED FROM FIELD DATA COLLECTED BY BLASLAND & BOUCK & LEE, INC.



TURNAROUND DETAIL

NOT TO SCALE

RECORD DRAWINGS
To the best of our knowledge, information and belief, these record drawings substantially represent the project as constructed.
BLASLAND, BOUCK & LEE, INC.
By Edward R. Lynch

GENERAL NOTES

1. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK. HE SHALL TAKE ALL NECESSARY PRECAUTIONS FOR THE SAFETY OF, AND SHALL PROVIDE THE NECESSARY PROTECTION TO PREVENT DAMAGE, INJURY, OR LOSS TO ALL EMPLOYEES ON THE WORK AND ANY OTHER PERSONS WHO MAY BE AFFECTED THEREBY.

2. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE LAWS, ORDINANCES, RULES, REGULATIONS, AND ORDERS OF PUBLIC BODIES HAVING JURISDICTION FOR THE SAFETY OF PERSONS OR PROPERTY OR TO PROTECT THEM FROM DAMAGE, INJURY, OR LOSS, INCLUDING, WITHOUT LIMITATION, THE DEPARTMENT OF LABOR SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION PROMULGATED UNDER THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970 (PL 91-596) AND UNDER SECTION 107 OF THE CONTRACT WORK HOURS AND SAFETY STANDARDS ACT (PL 91-54) AND AMENDMENTS THERE TO. HE SHALL ERECT AND MAINTAIN AS REQUIRED BY THE CONDITIONS AND THE PROGRESS OF THE WORK, ALL NECESSARY SAFEGUARDS FOR THE SAFTEY AND PROTECTION AND SHALL COMPLY WITH ALL APPLICABLE RECOMMENDATIONS OF THE MANUAL OF ACCIDENT PREVENTION IN CONSTRUCTION OF THE ASSOCIATED GENERAL CONTRACTORS OF AMERICA, INC.

3. THE CONTRACTOR SHALL PLACE ALL SPOIL MATERIAL ON-SITE AT A LOCATION TO BE DETERMINED BY THE OWNER'S REPRESENTATIVE.

4. ALL DISTURBED SURFACES SHALL BE RESTORED TO MEET EXISTING CONDITIONS.

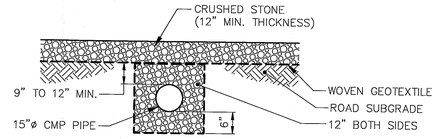
5. THE CONTRACTOR SHALL CLEAR ALL EXISTING UTILITIES PRIOR TO COMMENCING ON-SITE ACTIVITIES. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS IN THE FIELD.

6. BASEMAP DEVELOPED FROM SITE PLAN RECORD DRAWING NUMBER 1, DATED SEPTEMBER 18, 1984 BY O'BRIEN & GERE ENGINEERS, INC.

7. ALL ELEVATIONS BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929.

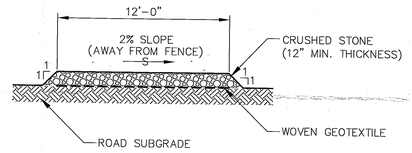
MATERIALS

1. WOVEN GEOTEXTILE AEF 200W 12 FEET WIDE MINIMUM.
2. CRUSHED STONE TO BE NYSDOT 304.03
3. CMP TO BE 15"ø 14 GAUGE STEEL. CORRIGATIONS TO BE 2 2/3" X 1/2". INSTALL AT A MINIMUM SLOPE OF 0.01. PIPE LENGTH IS 54'-6" WITH 2 FOOT LONG END SECTIONS AT EACH END.



CMP PIPE DETAIL

NOT TO SCALE



ACCESS ROAD DETAIL

NOT TO SCALE

NOTES

1. ROAD SUBGRADE SHALL BE STRIPPED OF GRASS TO BOTTOM OF ROOT ZONE. THE SUBGRADE WILL THEN BE PROOFROLLED WITH A SMOOTH DRUM VIBRATORY ROLLER WITH A MINIMUM STATIC WEIGHT OF 10 TONS.

2. AREAS THAT DO NOT PASS PROOFROLLING WILL BE OVEREXCAVATED AND REPLACED WITH CRUSHED STONE AS DIRECTED BY THE OWNER'S REPRESENTATIVE.

3. THE WOVEN GEOTEXTILE WILL BE PLACED OVER THE PROPOSED ROAD SUBGRADE SO THAT IT IS FREE OF FOLDS AND WRINKLES. MINIMUM OVERLAPS BETWEEN ROLLS OF GEOTEXTILE SHALL BE 24 INCHES.

4. CRUSHED STONE WILL BE PLACED FROM TRUCKS ONTO EXISTING CRUSHED STONE AND THEN SPREAD ONTO THE GEOTEXTILE WITH A DOZER. UNDER NO CIRCUMSTANCE IS CONSTRUCTION EQUIPMENT TO DRIVE DIRECTLY ON THE GEOTEXTILE OR WITH LESS THAN 6 INCHES OF CRUSHED STONE OVER THE GEOTEXTILE.

5. AFTER COMPLETION OF FINISH GRADING ALL POINTS ON THE ROAD SURFACE SHALL BE ROLLED AT LEAST 4 TIMES WITH A SMOOTH-DRUM VIBRATORY ROLLER WITH A MINIMUM STATIC WEIGHT OF AT LEAST 10 TONS.

6. A MINIMUM DISTANCE OF 2 FEET SHALL BE MAINTAINED BETWEEN PROPOSED ACCESS ROAD AND EXISTING FENCE EXCEPT AS DIRECTED BY THE OWNER'S REPRESENTATIVE.

(RECORD DRAWING: MADE FROM DRAWING NO. 1, FILE NO. 100.33.02F, DATED AUGUST 1993)

3/94 54-AK,JLG,YOC
10033002C\10033001.DWG

1"=10'-0" (10' 0 10' 20')
1"=40'-0" (40' 0 40' 80')

No.	Date	Revisions	Init

In charge of DFS
Designed by RDD
Drawn by AK
Checked by DFS, RDD

BLASLAND, BOUCK & LEE, INC.
ENGINEERS & SCIENTISTS

GENERAL ELECTRIC COMPANY • ALBANY, NEW YORK
PALMER SITE ACCESS ROAD EXTENSION

PLAN, PROFILE & DETAILS

STATE OF NEW YORK · EDWARD R. LYNCH · 037525 · LICENSED PROFESSIONAL ENGINEER

File Number 100.33.10F
Date MARCH 1994

RD-1

Attachment 3

ENGINEERS CERTIFICATION

Owner:	General Electric Company	**Engineer:**	Blasland, Bouck & Lee,Inc
Project:	Palmer Site Access Road Extension	**Engineer Project #:**	100.33
Contractor:	Yolam Construction, Inc.	**Contract Date:**	August 1993

I hereby certify, as a Professional Engineer registered in the State of New York, that, based on our continuous observations of the subject contract, the work of this contract has been completed in general conformance with the Contract Documents contained in the Bidding Documents, dated August 12, 1993 and Addendum No. 1 to the Contract Documents, dated August 18, 1993. These documents include the Design Drawing, dated March 1993, approved by the New York State Department of Environmental Conservation on April 30, 1993.

By: Edward R. Lynch

Edward R. Lynch, P.E.
Executive Vice President
Blasland, Bouck & Lee, Inc.

Date: April 5 1994