

Thursday, September 21, 1995

Mr. Jim Bateson, NCDEHNR Solid Waste Section

This is about the Winston-Salem C&D Landfill

Jim:

Fac/Perm/Co ID #	Date	Doc ID#
34-12 my	7/20/20	DIN 1444

This note and accompanying segments of Drawing C-6 from the Winston-Salem C&D Landfill "Construction Plan Application" are sent as initial response to your comments and our telephone conversation of September 20, 1995.

In our discussion, you mentioned several changes in the proposed ground-water monitoring system at the landfill. We agree with the following changes:

- ◆ Install an additional well to the northwest of the initial waste area. This new well is shown as "new well" on the accompanying maps. We agree that this well could form an important component of the ground-water monitoring system, particularly in light of the drinking water wells at residences located just to the west.
- ◆ In the "Construction Plan Application," we had proposed to install two new wells, MW-1R and MW-4R to replace MW-1 and MW-4, which are located in the footprint of the waste cell. You felt that the proposed location of MW-4R would be better if placed near the surface drainage swales as shown on the accompanying map and that is fine with us. The proposed location for well MW-1R is fine as is.
- ◆ In the "Construction Plan Application," we had proposed to install a new well, MW-6, along the north edge of the current fill area. You commented that you would like to see this new well placed near the drainage swale as shown on the accompanying map.

In our conversation, you also requested that existing well MW-5 be abandoned and a new well be placed approximately 100 feet west, again near a drainage swale. I strongly feel that this is an unnecessary burden for our client and that the existing well is already positioned to provide the required ground-water monitoring in this area. Allow me to elaborate.

In our conversation, you mentioned that both you and Bobby Lutfy apparently feel it is important to place wells completed in saprolite near drainage features because you believe that these features are an expression of fracture patterns or other linear features inherited from the precursor bedrock. I understand this general rationale but disagree on the details. In my experience, fractures in Piedmont bedrock typically occur as joints in the rock which are developed on a regional scale. The most important point here is that these joints are closely spaced - usually at a scale of inches to a few feet. Thus, inherited "fractures" in saprolite would also be at this scale. When we do rose diagrams which may statistically show the overall fracture orientations in an area's bedrock, we always find many linear drainage features that are oriented at all directions and do not follow the regional "fracture" pattern. To relate an individual drainage feature to these "fractures" in saprolite is problematic at best. In addition, with closely spaced fractures the norm

Post-it® Fax Note	7671	Date	9/22/95	# of pages	5
To	Jim Bateson	From	Curt Kelly		
Co./Dept.	Solid Waste	Co.	HDR		
Phone #	919-733-0692	Phone #	704-338-6727		
Fax #	919-733-4810	Fax #	704-338-6760		

Auth # = 36-0415

in Piedmont rocks, a ground-water monitoring well will normally intercept these relict structures in saprolite, no matter its location.

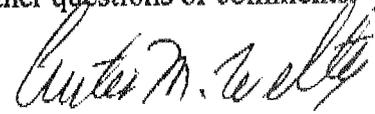
The second point I want to make is that the dominant flow in saprolite is through the intergranular pore system. Yes, I agree that there can be "short circuits" from quartz veins and possibly from inherited fractures, but I believe that the bulk of flow takes place in the intergranular pore system. Obviously, well MW-5 is monitoring that pore system.

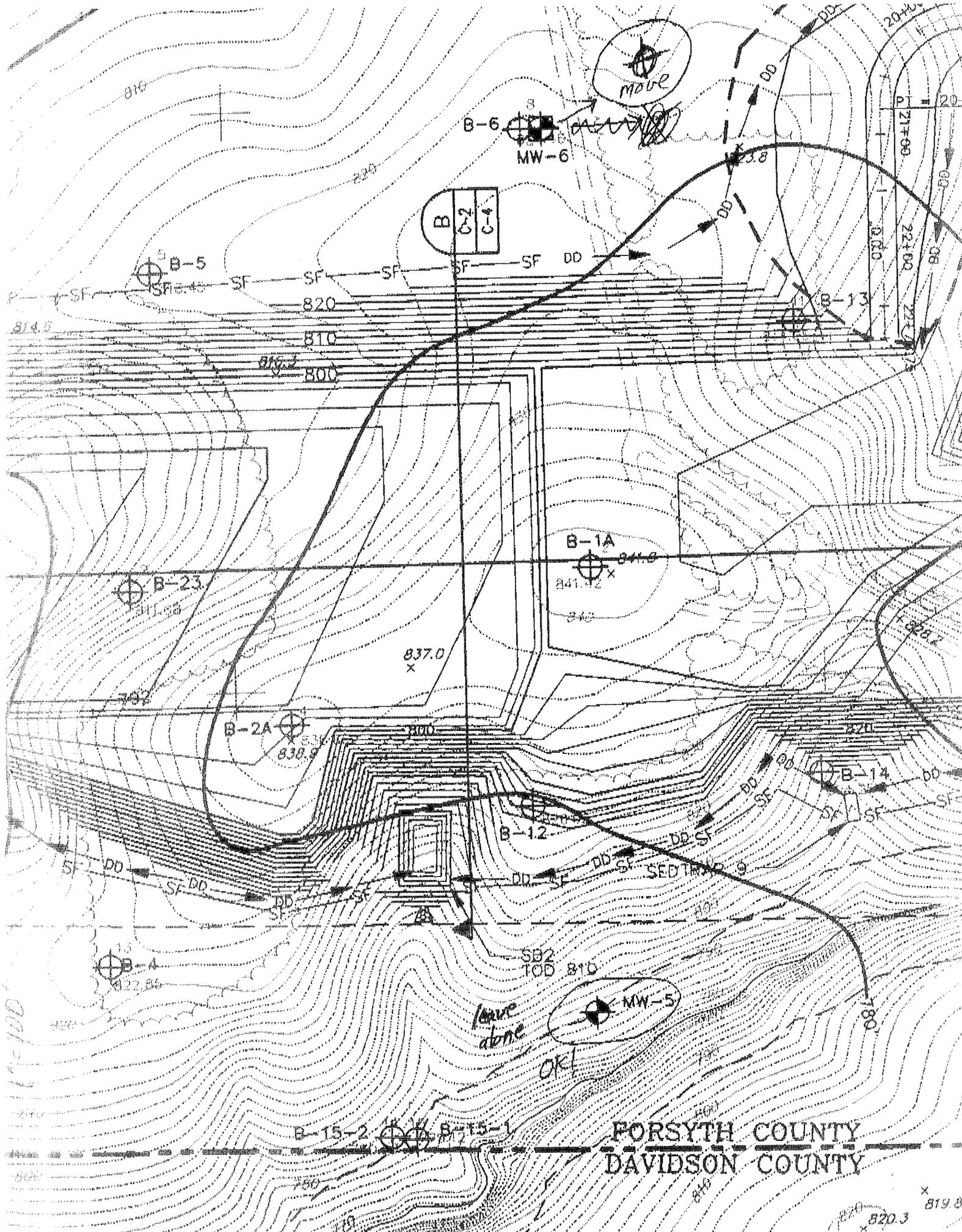
Third, let's consider the type of monitoring taking place at a landfill. In landfill monitoring, we are not looking at a point source but rather at a large area. Potential contamination from a landfill can enter the water table at many places. One does not expect narrow fingers of contamination to slide by the monitoring system.

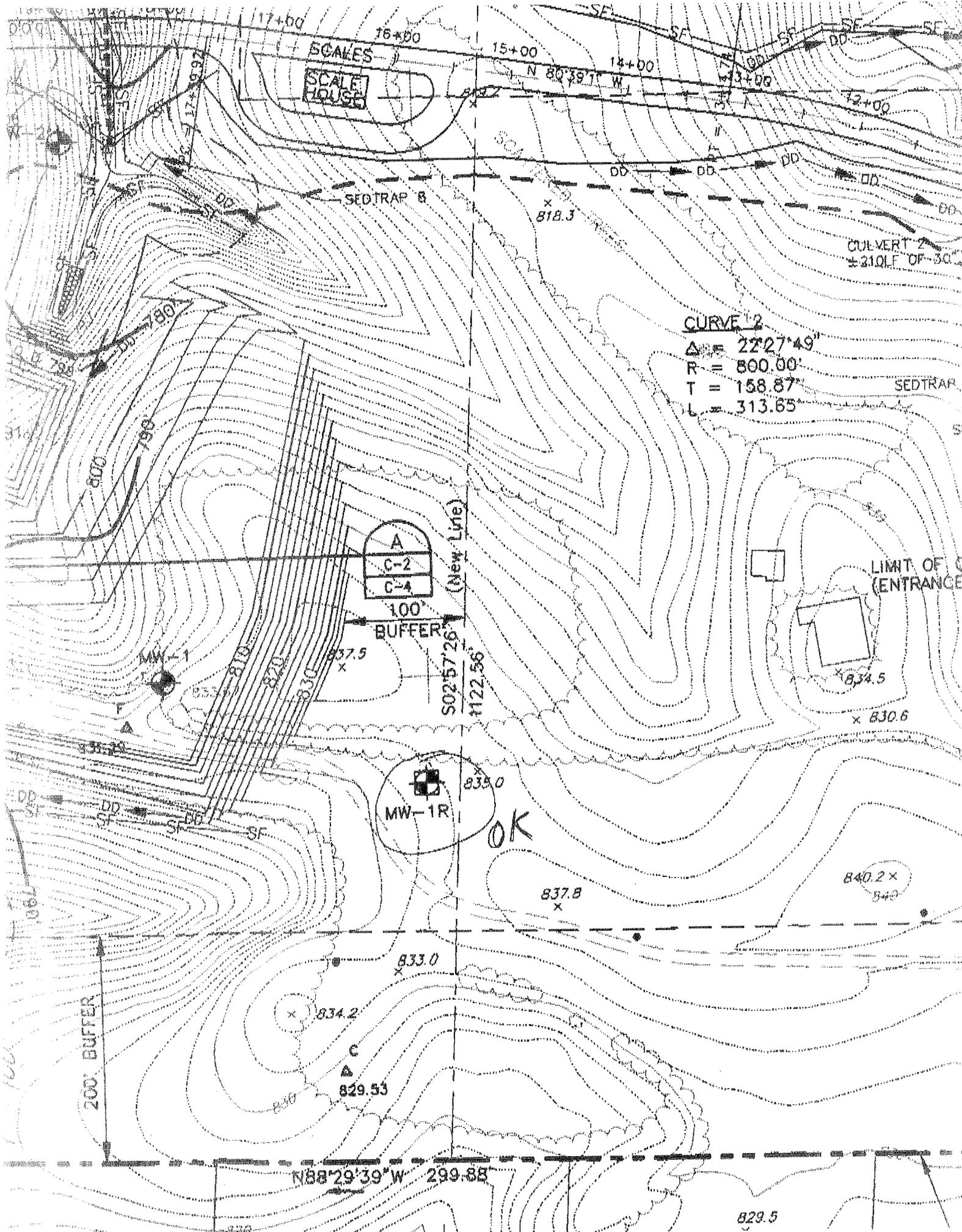
Which leads me to my final point. By its fine-grained, poorly sorted nature, the Piedmont saprolite ground-water system has large dispersivity. We take advantage of this characteristic in having fairly large spacings between monitoring wells.

Taking all of these facts together, I see no reason to spend some more thousands of dollars of our client's money to shift a monitoring well to a location that, frankly, is in no objective way any better suited than its current location. Let's leave it where it is.

Thank you for looking this over. Please call if you have further questions or comments.

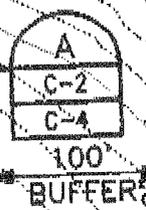






SCALES  
SCALE HOUSE

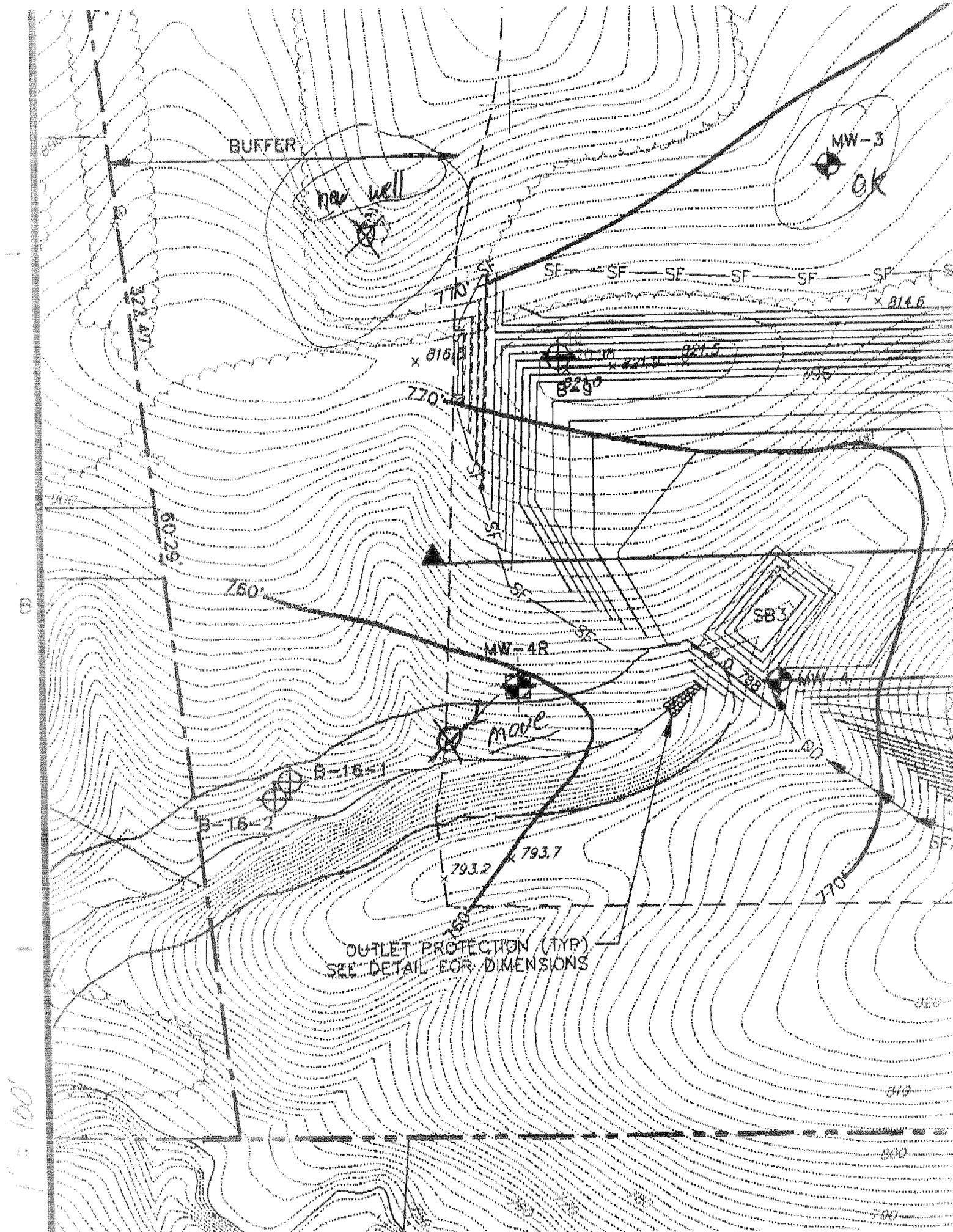
CURVE 2  
 $\Delta = 22^{\circ}27'49''$   
 $R = 800.00'$   
 $T = 158.87'$   
 $L = 313.65'$



(New Line)  
 $S02^{\circ}57'26''$   
 $T122.56'$

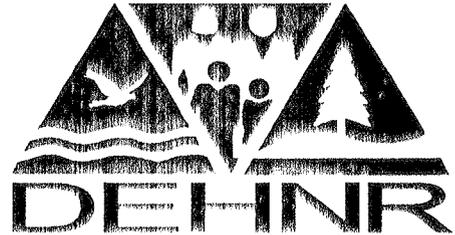
$N88^{\circ}29'39''W$  299.88'

829.5



State of North Carolina  
Department of Environment,  
Health and Natural Resources  
Winston-Salem Regional Office

James B. Hunt, Jr., Governor  
Jonathan B. Howes, Secretary  
Leesha Fuller, Regional Manager



July 11, 1995

Mr. Daniel D. Miles, PE  
City of Winston-Salem Utilities Division  
P.O. Box 2511  
Winston-Salem, NC 27102

Subject: Site Plan Application  
Proposed Winston-Salem Construction and Demolition Landfill  
Forsyth County

Dear Mr. Miles:

The Solid Waste Section has received and reviewed the referenced application, submitted on your behalf by HDR Engineering. The application is substantially complete with the exception of the following items:

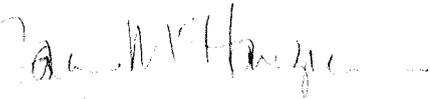
1. The locations of wells within the 1/4 mile radius must be shown on the aerial photo, as per 15A NCAC 13B .0504(1)(a)(iv).
2. The groundwater monitoring plan must indicate that wells will be screened at a maximum of 15 feet.
3. The written documentation indicating compliance with Siting Criteria .0503(1)(b)(i)(ii) and (iv) must be submitted.

Please refer to the attached memorandum from Jim Bateson, Section Hydrogeologist, for more information on items 1 and 2. Upon resolution of these issues, this site can be considered to be in compliance with the site suitability requirements found in 15A NCAC 13B .0503(1) and .0504(1).

Page Two  
Dan Miles  
July 11, 1995

For further discussion of these issues, please call me at (910) 771-4600, or Jim Bateson at (919) 733-0692.

Sincerely,



1 Janis D. McHargue, PE  
Western Area Engineer  
Solid Waste Section

cc: Julian Foscue  
Jim Coffey  
Joe Reading; HDR

Jim Bateson  
Brent Rockett

State of North Carolina  
Department of Environment  
Health and Natural Resources  
Winston-Salem Regional Office

James B. Hunt, Jr., Governor  
Jonathan B. Howes, Secretary  
Leesha Fuller, Regional Manager

Mr. Daniel D. Miles, PE  
City of Winston-Salem Utilities Division  
P.O. Box 2511  
Winston-Salem, NC 27102

Subject: Site Plan Application for the Proposed Winston-Salem  
Construction and Demolition Landfill

Dear Mr. Miles:

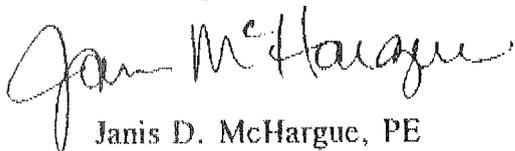
The Solid Waste Section has received and reviewed the referenced application, submitted on your behalf by HDR Engineering. The application is substantially complete with the exception of the following items:

1. The locations of wells within the 1/4 mile radius must be shown on the aerial photo, as per 15A NCAC 13B .0504(1)(a)(iv).
2. The groundwater monitoring plan must indicate that wells will be screened at a maximum of 15 feet.

Please refer to the attached memorandum from Jim Bateson, Section Hydrogeologist, for more information on these points. Upon resolution of these issues, this site can be considered to have met the site suitability requirements found in 15A NCAC 13B .0503(1) and .0504(1).

For further discussion of these issues, please call me at (910) 771-4600.

Sincerely,



Janis D. McHargue, PE  
Western Area Engineer  
Solid Waste Section

cc: Julian Foscoe  
Jim Coffey  
Joe Readling; HDR

Jim Bateson  
Brent Rockett

State of North Carolina  
Department of Environment,  
Health and Natural Resources  
Division of Solid Waste Management

James B. Hunt, Jr., Governor  
Jonathan B. Howes, Secretary  
William L. Meyer, Director



MEMORANDUM

To: Jan McHargue

Date: July 10, 1995

From: Jim Bateson *JTB*

cc: Bobby Lutfy

RE: Proposed Winston-Salem Construction and Demolition Landfill

I have reviewed the Construction Plan Application submitted on June 26, 1995 by HDR Engineering, as well as their June 26 response to my April 27 memorandum. With regard to the hydrogeological aspects of the application, the materials submitted to date satisfy the requirements of the Solid Waste Management Rules for Site Suitability, and for the Construction Plan, with one exception. Before final buffer requirements can be determined, locations of all drinking water wells within the quarter mile radius will need to be verified and indicated on the map.

Also, monitoring wells designed to intercept the surficial aquifer normally need to be constructed with 15 foot screens, to insure an adequate water column for sampling during the dry parts of the year.

STREAMS  
BUFFER

FROM : JOHN RUNKLE

PHONE NO. : 9199420600

May. 15 1995 04:22PM P1

**JOHN D. RUNKLE**  
ATTORNEY AT LAW  
POST OFFICE BOX 3793  
CHAPEL HILL, NORTH CAROLINA 27515  
TELEPHONE: 919/942-0600

May 15, 1995

VIA U.S. MAIL & FAX

Jan McHargue  
N.C. Division of Environmental Management  
585 Waughtown Street  
Winston-Salem, N.C. 27107

Daniel D. Miles  
Solid Waste Administrator  
City/County Utilities Commission  
P.O. Box 2511  
Winston-Salem, N.C. 27102

Post-It® Fax Note	7671	Date	5/15	# of pages	4
To:	<del>Jan McHargue</del>	From	John Runkle		
Co./Dept.	DEM	Co.			
Phone #		Phone #	919 942 0600		
Fax #	910 771 4631	Fax #			

Re: Proposed Construction Demolition Landfill

Dear Ms. McHargue and Mr. Miles:

My clients, the Southwest Landfill Opposition, have asked me to submit to you a series of questions and concerns they have about the proposed Construction & Demolition Landfill. We appreciated your attention and responsiveness at the May 5 public hearing and are grateful for the opportunity of bringing out what we consider to be important issues about the landfill. These comments supplement those made at the hearing:

1. Alternative sites are readily available. The primary question about the proposed landfill is why the Utility Commission did not designate and apply for a site as part of or adjacent to its currently operating sanitary landfill. A new landfill operation, especially one so far from the existing landfill, does not make sense from an economic point of view.

It is more likely for trucks turned away from the existing landfill to illegally dump rather than drive the 15-plus miles to the proposed landfill.

The Griffith Road site is a viable alternative to the Tesh site and is in an already industrialized area. It was subjected to rigorous testing prior to its purchase, while the Tesh site was not. (See Zapata affidavit, p. 3 below).

Was the contamination at the Griffith Road site great enough to justify abandoning that property for the Tesh site?

2. Operating procedures need clarifying. The trucks hauling the debris will have a negative impact on the residences along their routes because of noise, litter, dust, road wear and accidents.

Does the Utility Commission propose to regulate the routes the trucks may take? If so, what roads will be used? How will the Utility Commission direct trucks along Highway 150 instead of on Old Salisbury Road to the proposed entrance?

What controls will exist to insure that only waste from Forsyth County will be accepted at the landfill? (See Mr. Miles's presentation).

In addition to tipping fees, will there be fines for trucks entering with uncovered loads or unacceptable wastes?

Will there be any recycling done on the site?

What is the current policy of the Division of Solid Waste Management as to requiring leachate collection and/or liner systems at this type of landfill? What will be the State's role in regulating the landfill once it is in operation?

What materials will be accepted at the proposed landfill? The Utility Commission does not seem to have a clear definition of what is acceptable and what is not.

As I stated at the public hearing, this is of concern because of the lengthy list of organic and inorganic chemicals to be sampled. (See Table 2 of the Groundwater Monitoring Plan). For example, from what wastes does the Utility Commission expect to obtain toluene and the other listed solvents?

Does the Utility Commission expect to take toxic materials at the landfill in the future? At what point will the landfill no longer be classed as a C&D landfill and require a liner and leachate collection system?

Other toxic substances, such as creosote and lead, which might be present in building materials are not included in the groundwater monitoring procedures.

3. The Tesh property has historic significance. Two of the archaeological and historic sites on the property are potentially eligible for listing in the National Historic Register. (See the Garrow & Associates study, and letter of May 3, 1994, to S&ME). Dr. D.L. Rights also documented an abundance of well-preserved artifacts throughout the area in his book The South Fork Indians, Piedmont Archaeological Society, 1983. Given these two cited references and testimony at the hearing, we do not see how Ned Woodall can justify his conclusion that there are not sites on the property worthy of preservation.

sites on the property are potentially eligible for listing in the National Historic Register. (See the Garrow & Associates study, and letter of May 3, 1994, to S&ME). Dr. D.L. Rights also documented an abundance of well-preserved artifacts throughout the area in his book The South Fork Indians, Piedmont Archaeological Society, 1983. Given these two cited references and testimony at the hearing, we do not see how Ned Woodall can justify his conclusion that there are not sites on the property worthy of preservation.

W.U.S.  
buffer from streams, and other bodies of water to the edge of the C&C waste boundary. There is no indication of buffers around stream and wetland on the site maps. Since this is a regulatory requirement, the maps should be redrawn.

In addition, there are additional streams, springs and wetland areas which are not indicated on the site maps. These also need to have adequate buffer zones around them.

5. The testing for contamination is inadequate. In an affidavit filed in L&S Leasing v. City of Winston-Salem, dated February 10, 1995, Manuel C. Zapata of Zapata Engineering P.A., states "it appears that there was no testing of either soil or groundwater samples of the Tesh site prior to its approval by the Utilities commission in October, 1993. If further appears that as of this date, there have been no results from any groundwater samples of the Tesh site. This is rather odd, given that SM&E installed several groundwater monitoring wells in March, 1994. Testing of groundwater would not take this long."

Were groundwater samples taken by S&ME? Have the results from the sampling submitted as part of the application? (Dan Miles indicated that the testing results were not going to be submitted until the application for the construction phase. Is this correct?)

Mr. Zapata also describes three USTs on the Tesh property, one active and two inactive for approximately 20 years. No soil samples were taken directly below the bottom of the USTs although S&ME notes that this area is "where contamination is most likely to occur." (See March 1994 report, p. 4). Has the Utility Commission subsequently performed sufficient soil sampling and testing, such as with an Organic Vapor Analyzer, to determine any releases from these USTs? If so, what is the volume of the release and plans for its removal?

What is the cause of the heavy chromium, lead and cadmium levels on the Tesh site? Concentration ranges for components of municipal landfill leachate (based on 83 landfills) show that there may be additional contamination on the site:

Chromium	typical concentration range	0.05-1.0	Tesh site	0.8
Cadmium	typical concentration range	0.0001-0.1	Tesh site	0.05
Lead	typical concentration range	0.1-1.0	Tesh site	0.5

There also appears to be a high concentration of arsenic on the site. What is its source?

The S&ME report also noted the existence of debris piles, metal containers with unknown contents, the remnants of service stations that were once located there, and "murky water and a sour odor" around a pond on the property?

Are there any potable wells which will remain active at the Tesh site?

6. There are other concerns about the proposed landfill. Has the Utility Commission begun any construction, clearing or earth-moving activities on the site of the proposed landfill? Reba Smith, one of the adjacent property owners who is downgradient from site, testified to her well water being increasingly muddier within the last few months.

Ralph Cardwell, also a resident of Greenhouse Road, expressed a deep concern at the hearing that any runoff from the landfill would devastate his fish hatchery and the stream that runs into the South Fork. Will the Utility Commission compensate surrounding property owners if their well water is unusable or contaminated or if the fish hatchery goes out of business?

Lastly, The Southwest Landfill Opposition recommends that the Utility Commission empower a "watchdog" citizens commission to act as a liaison with state and local officials and the community. This commission should have the ability to inspect the landfill, its construction and operation, and all of its records.

We would be glad to meet with you both, and others, to discuss these concerns in further detail. We are not convinced that the need for this type of landfill is so great that it outweighs the health and safety of the surrounding residents, especially when there are two viable alternatives, the existing landfill property and the available industrial site at Griffith Road.

Sincerely,



John Runkle  
for the Southwest Landfill Opposition



North Carolina General Assembly  
 Senate Chamber  
 State Legislative Building  
 Raleigh 27601-2808



SENATOR BETSY L. COCHRANE  
 38TH DISTRICT  
 MINORITY LEADER  
 HOME ADDRESS: 122 AZALEA CIRCLE  
 ADVANCE, N.C. 27006  
 OFFICE ADDRESS: LEGISLATIVE BLDG., ROOM 1127  
 (919) 715-2525  
 (919) 715-2509

May 1, 1995

APPROPRIATIONS  
 AGRICULTURE/ENVIRONMENT/NATURAL RESOURCES  
 RANKING MINORITY MEMBER  
 COMMERCE, VICE-CHAIRMAN  
 CHILDREN AND HUMAN RESOURCES  
 EDUCATION/HIGHER EDUCATION

Ms. Jan McHargue, P.E.  
 Division Contact  
 585 Waughtown Street  
 Winston-Salem, North Carolina 27107-2241

Dear Ms. McHargue:

Earlier in the process, I voiced my opposition to the proposed C & D landfill on property near the intersection of Old Salisbury Road and Friedberg Church Road in Forsyth County to several members of the County Utility Commission. I wish to re-affirm that opposition to you and the Division of Solid Waste Management.

It seems inappropriate to me to use this proposed site in a rapidly developing area of the county and devalue the whole area as a result. This is a rural area that offers wonderful property for housing and community development.

The many heavy trucks hauling construction site debris to a landfill adds to the potential for dangerous traffic situations in the neighborhood as well as the wear and destruction on the roads themselves. This community deserves better consideration from the State for its citizens.

There is an alternative site in the county near an existing sewer plant. The surrounding property has been impacted already so the C & D landfill is not the extraordinary use of land at this site as it is on the Forsyth/Davidson County line.

I want to strongly recommend that you do not approve the southwest landfill site in Forsyth for C & D use. Thank you for your consideration in this matter.

Sincerely,

Betsy L. Cochran

State of North Carolina  
Department of Environment,  
Health and Natural Resources  
Division of Solid Waste Management

James B. Hunt, Jr., Governor  
Jonathan B. Howes, Secretary  
William L. Meyer, Director



MEMORANDUM

To: Jan McHargue

Date: April 27, 1995

From: Jim Bateson *JTB*

cc: Bobby Lutfy

RE: Proposed Winston-Salem Construction and Demolition Landfill; Hydrogeology

Some minor amendments need to be made in the application for the above referenced facility:

1. Section .0504 (1)(a) of 15A NCAC 13B requires two versions of the quarter-mile map: one, a photographic version similar to the one already submitted, and another blueline version with topographic contours. The current photographic version was printed with the mylar reversed left to right. On both versions, the following need to be specifically marked:
  - ii) land use and zoning.
  - iii) utilities; power lines and the public water supply lines need to be shown and labelled.
  - iv) location of all wells within the quarter-mile radius. For those areas substantially further than 500 feet away from the proposed waste boundaries, a note in the margin of the map, stating that residences may have private wells, will suffice. For those lots adjacent to the site, the exact location of all wells needs to be shown on the map. If private wells are located on the back parts of any of those lots, the 500-foot buffer needs to be measured from the wells, and not the residences. The waste boundaries may then require adjustment. If the operators or their consultants do not wish to locate all of the nearby wells, they have the option of locating the waste boundaries 500 feet from the edges of the adjacent residential properties.
  - v) margins of flood plains.
2. On the two-mile map, if none of the items (i) through (iv) occur within the radius, then this needs to be noted specifically for each in the margin of the map.

Jan McHargue  
Winston-Salem C&D  
April 27, 1995  
Page 2.

3. In section 8.8 of the Site Plan Report, the reference to a 100-foot buffer between disposal areas and property lines needs to be changed to 200 feet.
4. Grading limits will need to be raised in the easternmost part of the proposed footprint, near soil boring B-3. Base grades need to be at least four feet above long term seasonal high ground water levels, estimated by S&ME to be six feet above the February 1995 levels contoured in the recently submitted potentiometric surface map. Although the February 1995 readings were lower, in some cases, than previous readings, and therefore do not represent the seasonal high, the Section feels that the six feet of additional vertical separation meant to account for long-term variation of the seasonal high is generous enough to account, as well, for some uncertainty in the seasonal high for this year.
5. In the monitoring plan, the list of constituents to be analyzed needs to be changed. *Sampling and Analysis Requirements for Construction and Demolition Landfills*, recently revised by the Solid Waste Section, is attached.
6. The Solid Waste Section issues permits for landfill units designed to contain a maximum of five years' of projected fill. The monitoring system needs to be designed to monitor the first five year cell. If Phase I of the proposed landfill is intended to accommodate five years' of fill, then volume estimates for that period need to be included in the application.
7. The proposed monitoring plan needs to be revised to reflect the currently proposed footprint, rather than the rectangular conceptual footprint shown on S&ME's plan sheets. Proposed waste boundaries need to be clearly marked on the monitoring plan. The revised version of the monitoring plan may be submitted with the construction plan application.