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NAVY RESPONSES TO NJDEP A

TO: Technical Review Committee(TRC) Personnel

FROM: John Williams, R.F. WESTON, INC. DATE: 8 May 1990

PROJECT: Naval Weapons Station Earle, Colts Neck, NJ W.O. NO.: 1771-15-01

SUBJECT: Installation Restoration Program, Phase III Remedial Investigation/ Feasibility Study.

At the request of NAVFAC and as a result of the discussions of the Technical Review Committee (TRC) meeting at NWS Earle on 10 April 1990, I am enclosing the following project information:

- Final Responses to EPA and NJDEP Comments for the Phase III Remedial Investigation Work Plan for NWS Earle.
- Revised site sampling maps.
- Final Table presenting the proposed Phase III Remedial Investigation Sampling Plan, incorporating EPA and NJDEP comments.
- Draft Minutes of the TRC meeting

Should you have any questions please call Rich Johnson at (215) 430-7315 or me at (215) 430-7256.

JAW/acl

Response to Comments on the Remedial Investigation Work Plan for 11 Sites, NWS Earle

Prepared for:

Technical Review Committee Meeting

NWS Earle, Colts Neck, New Jersey

April 10, 1990

Prepared by:

Roy F. Weston, Inc.
Weston Way
West Chester, Pennsylvania 19380

WESTON

Response to Comments to RI Work Plan for NWS Earle, October 1989

The Navy, and their contractor Roy F. Weston, have reviewed comments submitted by NJDEP and USEPA on the RI work plan for Earl NWS. This document addresses those comments item by item. Based on our discussions at the TRC meetings and the content of the comments it is apparent that the change in key personnel on the project from the Navy, WESTON and the agencies has resulted in a general shift in technical approach. As the result of this the purpose of some original items on the work scope has been obscured or nullified. Conversely the general addition of some items is called for. As a result, we feel that the program will be better focused if these general changes are made:

As suggested by NJDEP, the groundwater sampling will be made more comprehensive and will include, at a minimum, full TCL and TAL analytes for the first round. Analysis for explosive compounds will also be done at ordnance disposal sites. This is addressed in response to Comment 1 and subsequent site specific comments. In addition two confirmation sampling rounds are proposed for target compounds. These compounds will be identified after the completion of the first round of analyses. We also recommend that general indicator analysis such as TOX and TOC be eliminated since their correlation with specific compound analysis is questionable. Field measured parameters such as pH and conductance will be maintained in the program.

All soil borings will be continuously sampled with split spoons. Soil boring samples will be taken at discrete intervals above the water table.

Since continuous split spoon sampling will be used to characterize borehole lithologies we plan to drop the occasional gamma logging previously proposed.

A single "synoptic" round of water levels for all site monitor wells will be done prior to the well sampling.

Two monitor wells per site will be slug tested to obtain estimates of hydraulic conductivity (k) for the upper aquifer.

WESTON

Response to NJDEP Comments to RI Work Plan for Earle NWS (October, 1989)

1. The Navy will expand all groundwater analysis for the initial round of sampling to include all TCL and TAL analytes. Additional analysis of samples for explosive compounds will be addressed as requested by NJDEP, on a site by site basis. In general, the work plan will be changed to include the same analysis for each well at a given site.

   We have also proposed to add a second round of target compounds to be determined after the review of the initial data. This will enable a better evaluation of the significance of results regarding very low concentrations of contaminants.

   The Navy does not feel that full scan analyses are necessary for soils because where soil sampling is proposed, site histories are fairly well known. Conversely, sampling of landfill areas is not proposed because of their inherent inhomogeneity.

   Revised proposed sampling tables for each site are included in this submission and discussed further in the following paragraphs.

2. It was already resolved in the TRC meeting that 100% of the first round of sampling data will be validated by a contractor other than the one doing the analysis. QA/QC will be done under CLP guidelines. Because of the data validation requirements, the data packages provided will adhere to CLP format. USEPA protocol is being used because the sites may be listed on the NPL.

3. A limited geophysics investigation was completed previously at most of the landfill sites. GPR does delineate boundaries of the disturbed area. However, aerial photographs also do this so that a broad sweep type survey was not recommended. The monitoring well placement for these sites will monitor the perimeter of the disturbed areas.

4. The Navy will provide TRC members with the contractor's interim technical reports that are submitted during the course of this work.

5. Vapor detection meter readings will be included in the field logs. Readings will be taken on the opened spoon and from the headspace in the sample jars or bags.

6. Sampling will be conducted according to the project QAPP, since as noted above this site could be included on the NPL. However, we see no problem with including in the QAPP specific protocol from the NJDEP field sampling manual as requested by NJDEP, as long as it is consistent with USEPA protocol. For instance, we plan to use dedicated laboratory cleaned bailers for groundwater sampling as required.

7. Well construction diagrams are found in the Interim Report (December 1986) and are included in this submission.

8. These comments are noted and will be included in any revisions. As a point of information the Navy does not agree that MCLs always apply as cleanup standards. ARARs can be developed from the risk assessment.

9. The revised sampling protocol included in this submission includes discrete interval soil sampling.

10. Comment Noted.

11. Comment Noted.

12. WESTON is using the magnetometer to screen drilling sites for buried metal. The area is very limited (10x'10') and the sweep will be on a fine grid. WESTON recognizes that cultural features and diurnal fluctuations need to be accounted for in interpreting these data.

13. Comment Noted.

14. As noted above laboratory decontaminated bailers will be used.

15. A drilling and well installation will follow NJDEP permit requirements.

16. (b) Well screens will be 15 feet long with a 5 foot extension above the water table. Where groundwater surface is shallow, the top of screen will be adjusted to permit an adequate surface seal.

(c) See Comment response 15.

(d) The purpose and construction of the deep well will be discussed at the TRC meeting (April 10).

(e) See Above.

(f) Prior to the groundwater sampling, the Navy will plan to obtain water levels at all sites within a short period of time (such as 30 hours) during stable weather conditions.

17. The revised work plan proposes to eliminate temporary piezometers. In some cases additional monitor wells are proposed. In all cases existing and proposed monitor wells will provide the necessary water level information. A one year period of time was proposed for the temporary piezometers because it is felt that some reasonable tim limit is important to the temporary nature. This could be reconsidered prior to closure; however, we think that some specific time limit is essential to ensure proper closure of the piezometers.

18. (a) Samples will be taken later than 14 days after well development.

(b) See Comment Response 6.

(c) See Comment Response 1.

Site Specific Comments

1. Comment Noted.

2. Revised site specific sampling tables are included in this submission which address NJDEP comments.

3. See Comment Response 9.

4. See Comment Response 1.

5. This submission includes groundwater elevations and contour maps included in the 1986 report.

6. Comment Noted.

Section 5.3, Site 2

1. Soil borings will be drilled to the water table and samples recovered for analysis will be collected at 1-2 feet and just above the groundwater table (5-10 feet BGS). A revised table of analyses is attached (Table 5-7).

2. See revised tables 5-7 and 5-8.

3. The four exiting monitor wells and the proposed wells are adequate to define the groundwater flow direction so no new piezometers are proposed. A revised Figure 5-1 is attached. The outlying well originally proposed north of the site has been dropped; if no contamination is found in the perimeter wells, we do not feel that this outlying well will be necessary. If contamination is found the proposed location of additional wells will depend on the results.

4. Additional note: Three additional surface sediment samples are proposed for Site 2. See Figure 5-1 and Table 5-7.

5. See Response Comment 1 and the revised Tables 5-7 and 5-8.

Section 5.4, Site 3

1. Depth to groundwater at Site 3 is approximately 10 feet. Well screens will be 15 feet, set 10 feet into the groundwater table.

2.1 The aerial photograph of the site shows clearly th surrounding hardwood forest, a ring of pine growth and a bare area at the center of the site. This is shown on the attached revised Figure 5-2. GPR was previously done and confirmed that soils were disturbed in the barren area but landfill was not distinguished from disturbed soils. The proposed monitor wells complete a ring around the site which sufficiently monitors the entire area.

2.2 Previously TOX was found in all Site 3 wells at levels of 12-35 mg/l, with duplicates also showing the range of variability. No VOCs were detected in any of the wells. No additional downgradient wells are proposed until a full confirmation sampling is completed.

2.3 See comment response 2.1.

Section 5.5 Site 4

1a. The base map (Figure 3-3) has been revised based on the recent site visit and an examination of aerial photographs to better show the site configuration.

1b. Presently available aerial photographs do not show trench burial areas. Historical photographs will be sought prior to the start of field work and if the trench features are visible, they will be considered in locating sampling points in the field. However, we do feel that the well placement provides sufficient coverage for the whole area as proposed.

Additional Notes: Based on the recent site visit the Navy and WESTON recommend the following scope change: In place of the piezometers in the eastern corner, a single monitor well is proposed in the area. This well will be sampled along with the springs which are downslope.

1c. Groundwater and sediment will be sampled from three spring locations and the swale running along the eastern corner of the site.

2. Groundwater was originally suspected to flow towards Lake Earle (NNW). It is apparently more to the northeast. This is not particularly surprising when considering the steep slope bordering the east side of the site discharge area indicated by the springs.

3. Proposed spring water and sediment sampling analytes are presented in the revised Table 5-13.

4. Proposed groundwater analytes are presented in revised Table 5-14.

5. An existing aerial photograph of the site shows an area of sparse vegetation. This is shown on the revised Figure 5-3.

Section 5.6.1 Site 5

1. All the RI soil borings will be sampled continuously. Sample descriptions and vapor detector readings will be logged in the field.

2a. Because of site regrading, the exact landfill boundaries are not known. Review of historical aerial photographs prior to the start of the field program may provid more information. However, the photos available on base wer not informative. The proposed monitor well placement is along the edge of the disturbed area and we feel they will supply sufficient coverage.

2b. It is proposed that one of the proposed wells be placed adjacent to the drainage swale shown on the site map. This is the preferred surface drain path but is not so significant as to be called an intermittent stream.

3. See general response comment 5.

Section 5.7, Site 7

1a. It is proposed that the deep well not be installed at this time since contamination has not been confirmed in the shallow water bearing zone.

1b. The tank is not visible and suspected to be an UST for fuel oil used at a residence formally on the site. A magnetometer survey will be done to identify the tanks location. The tank will subsequently be removed. Confirmation sampling will follow.

1c. Based on the recent site visit, WESTON did not see any soils around the scrap that appeared contaminated, and the scrap material appeared benign. Therefore no sampling is recommended.

1d. Comment noted.

2a. See response to Comment 7a. As discussed the deep aquifer will not be addressed at this time.

2b. Comment noted.

2c. Groundwater flow at Site 7 appears relatively simple, and we are not sure what piezometers would accomplish. Note that two additional perimeter wells will provide more piezometric data. Also, the small pines probably overlay the old landfill.

3. See response to Comment 1.6.

4. See Comment 1a.

5. See the Revised Proposed Sampling Table.

6a. Compton Creek is approximately 2,000 feet north of the site. A drainage way leaving the site is depicted on the revised map in the northern portion of Site 7. This is based on aerial photographs and needs to be field checked.

6b. "Seepage points" need to be field checked.

6c. Sediment sampling will be added to the stream sampling.

Section 5.8, Site 10

1a. The groundwater flow should be adequately defined by the three existing and four new monitor wells. No piezometers are planned.

1b. Revised Tables 5-22. Also see response to general comment number 1.

Section 5.9.1.3, Site 11

1. Monitor well 11-1 is evidently located within the former activity area as broadly defined by the tree line. Since the activity was ordnance burning, we do not expect to arrive at a more precise site definition. However, historical aerial photographs, if available, will be reviewed prior to the start of field work.

   The proposed monitoring wells provide immediate downgradient site coverage. No further wells are planned prior to the completion of a full round of sampling.

2. See previous comment response paragraph 1.

Section 5.10, Site 19

Section 5.10.12

1a. Investigation of metals contamination at Site 19 includes an extensive sampling for laboratory analysis. We feel that the results of this sampling will be conclusive in determining whether metals contamination is extensive. At this stage of activity

it appears that field screening would not contribute very much to the program. The drainage pathway is well defined, and given the small size of the site, field screening is not cost effective.

1b. Discharge history at Building S-34 indicates that wash was discharged to an unpaved depression adjacent to the barricade, as this area drains via a culvert under the road to the wetland. This flow path will be shown on the site map.

1c. Stream identified on map as requested.

1d. All soil boring samples will be taken above the G.W.T.

1e. Specific soil sampling intervals are specified on the revised table. Samples for metals analysis will be taken at 0-2 feet and just above the groundwater table at a depth of approximately 8-10 feet. Samples for VOC analysis will be taken at 2-4 feet and 8-10 feet. The three boring locations in the drainage depression will be sampled at 0-2 and 2-4 feet since the groundwater table is shallow. This will be done with a hand auger if other access is not possible.

1f. See previous response (d.)

1g. Three additional sediment samples are proposed in the drainageway near 19B.

Other responses: Based on observations made during the site visit in January 1990, the proposed monitor well locations have been changed to avoid encroaching the wetlands and more closely monitoring the site perimeter. Also, the proposed monitor well upgradient of 19-1 has been moved to the northern perimeter of the site. The previous sampling results should be confirmed before any outlying wells are proposed.

2. The revised monitor well locations include a proposed well adjacent to the depression. This addresses NJDEP's comment.

Section 5.11, Site 20

1. In response to NJDEP the proposed sampling will include two composite samples of the waste piles (The material appears very homogeneous). Eight additional samples will be taken along the drainageway where waste is not visually obvious to establish the extent of distribution of the waste. All samples will be analyzed for full TAL metals and CN.

10. Section 5.12, Site 22

    a. Specific sampling intervals are proposed for this site: eight surface and four subsurface samples at 1-2 feet. Analysis will be for TAL metals, CN and TPH.

11. Site 26

The site plan has been revised based on observations made at the site visit. The terminus of the tile drain and th settling basin appear to be the same. Surface and subsurface samples are planned in the basin. The basin is bowl-shaped depression which allowed drainage to seep into the ground. There is no evident sludge and the depression is covered in the vegetation.

WESTON

RESPONSE TO COMMENTS
FOR THE REMEDIAL INVESTIGATION WORK PLAN
FOR NAVAL WEAPONS STATION EARLE
COLTS NECK, NEW JERSEY

Comments from USEPA Region 2

Reference Attachment 1, Paragraph 2

As noted the RI will focus on the evaluation of possible releases of contamination and migration of contamination in the water table aquifer. It is our opinion that the presence of significant contamination in the upper aquifer has not been demonstrated to date. In most cases, an investigation of the deeper aquifer near the source areas would only be justified if contamination is found in shallow groundwater zones.

Attachment 1, Paragraph 3

Lithologic logs, groundwater elevations and slug tests of the existing and new monitor wells will enable an analysis of lateral groundwater flow velocities and directions in the shallow aquifer. In response to EPA's comment, prior to groundwater sampling WESTON will perform slug tests on at least two wells at each site. Groundwater recovery will be measured with an electronic transducer system and analysis will be completed to obtain hydraulic conductivity. We are not familiar with any simple method of measuring in-situ porosities in sands, and of course, any disturbance of the sand changes porosity. Porosity is used to calculate seepage velocity based on Darcy flow when hydraulic conductivity and flow gradient are known. Porosity in the natural sediments generally falls within a narrow range between .2 and .4 and can be estimated without undue loss and precision since a much wider range of uncertainty exists in calculating hydraulic conductivity.

Attachment 1, Paragraph 4

Suspected contaminant sources at the sites of this RI are not the result of catastrophic releases or slugs of contaminants entering the groundwater. Therefore, the working model for contaminant distribution assumes higher concentrations of

contaminants near the source area with diffusion away from the source area. Although this model may not be totally accurate, we do feel that if contamination is to be found it will be found adjacent to the source areas. Tracking some transient plume that may have occurred at some undetermined time in th past appears to be a highly speculative activity.

Attachment 1, Paragraph 4

Seasonal variability in groundwater or surface water levels has not been directly addressed in the RI. The primary objective of this remedial investigation is to determine whether or not any contaminated releases have occurred to groundwater and surface water. It would take several years of periodic sampling to reasonably determine statistical or seasonal variations in water quality. We feel this is only necessary if contaminant releases of concern are observed, and this issue should be addressed on a site by site basis after the results of the initial remedial investigation are known. As to the time interval for measuring water levels, we agree that measurements should be taken within a reasonable time period. Normally at any one site water levels will be taken at most over a period of several hours. A synoptic round of water level measurements are planned prior to the groundwater sampling for all sites. They will be completed within a period of approximately 30 hours during dry weather. We feel that weather conditions, particularly rainfall, will have more of an effect on varying water levels than the actual time elapsed.

Paragraph 6

As noted above, detailed hydrologic analysis is not planned for the initial RI work because it has yet to be determined whether significant releases to groundwater or surface water have occurred. Need for such data will be determined on a site by site basis as the results of the groundwater sampling are analyzed.

This comment also applies to paragraph 7. As required in the safety plan a field screening device, such as an OVA, will be onsite during the soil samplings. This will be used for direct measurements of vapor releases from the soil samples. Samples will be scanned in the spoon and jar head spaces will be scanned, also.

EPA has indicated that they feel that test pits may be advisable in lieu of soil borings; however, they do not indicate in what cases they feel this will be appropriate. WESTON has not chosen to do test pits because of the particular sampling needs at the sites and the need for careful control of the depth interval of the sample.

Paragraph 9

All samples will be logged in the field according to the USCS classification system field identification procedures. We intend to retain representative samples for a short period of time for the purpose of quality control checks in cross correlation with field logs. However, we do not understand the need for retaining all samples for a period of 5 years. Since the laboratory holding times are relatively brief, analytical samples are of no use for confirmation analyses.

Paragraph 10

We are not clear on the meaning of this paragraph.

Paragraph 11

Nitrate-nitrogen can be added to the list of analytes where explosive contaminants are an issue. The only air sampling plan during the remedial investigation is monitoring for organic vapors during sampling activities using portable non-specific instruments such as an HNu or OVA.

Paragraph 15, Page 3

This comment appears to relate to the Feasibility Study and will not be specifically addressed at this time. The same is true for paragraph 16.

Paragraph 17

Comment noted. Several of the sites border wetlands. Special permits may be required and will be obtained in areas where wetland sampling is planned. If the results of the initial investigation indicate potential risk of contaminant releases to wetlands, the delineation of wetland boundaries may be required as part of the risk assessment.

Paragraph 18

No response is required.

Paragraph 19

Comment noted. This comment refers to the risk assessment.

Paragraph 20

Comment noted. No response is required.

Paragraph 21

This comment relates to the risk assessment. Page 5 and attachment 1 and most of page 6 contains the general discussion of water-based biological life in the area and does not seem to be requesting any response. The second to last paragraph in page 6, is in agreement with the general approach to the remedial investigation to identify possible contamination in source areas and potential migration pathways from these sites.

Last paragraph page 6: the major pathways from landfill sites, groundwater and surface water and sediments, are being sampled and analyzed for the full list of EPA Target Compound List Organic and Inorganic chemicals. Soils are being sampled and analyzed for target compounds in areas where limited known activities occurred such as paint chip disposal or explosives disposal.

We feel that soil sampling is useful where the nature of the contamination is more or less uniform throughout the site and only concentrations and quantity of contamination is in question. In general at landfills the distribution of contaminants is unknown and expected to be random in nature. Therefore, practically speaking, direct sampling of the inhomogeneous landfill mass is of very little use in characterizing any source. For the purpose of developing alternatives and closure of these landfills it is important to know what contaminants are migrating in surface water sediments or groundwater. Therefore, the remedial investigation focusses on these pathways.

We also request that EPA be more specific in regard to their statement that "many persistent substances are difficult to detect in water samples even when present at toxic concentrations."

Page 7, Paragraph 1

This is similar comment to page 1, paragraph 4. Please refer to that response.

Page 7, Paragraph 2

This comment is not clear to us. EPA needs to be more specific about additional stream sampling. Contamination presently exists in the media.

Page 7, Paragraph 3

Surface water sampling done at Site 2 was performed in a ponded water area. Pine Brook is not adjacent to either site. More samples of the wet area at Site 2 are proposed.

Page 7, Paragraph 4

Relating to stream samples adjacent to site 10. Mercury was found in only 1 of 2 water samples at a location that is clearly upstream of the site. Silver was also found at 4 microgram per liter at 1 of the 2 downstream samples. No sediment samples had been taken. Three stream samples are proposed for this site.

Page 7, Paragraph 5

No response is required.

Page 7, Paragraph 6

No response is required.

Page 8, Paragraph 1

Sites 20 and 22 both contain material from sandblasting and paint chip disposal operation which is visible on the surface. Field reconnaissance and air photos will be used to confirm the amount and distribution of the material and further

characterization for full metals concentrations will be added to the work plan in response to a comments by New Jersey DEP.

Page 8, Paragraph 2

The RI scope of work clarifies the sampling protocol for each site.

Page 8, Paragraph 3

Comments noted. These comments refer to a risk assessment and no response is appropriate at this time.

Page 9, Paragraph 2

No on-site production wells are presently in use. Inventory and deposition of out-of-service production wells is not part of the scope of this work. None of the sites is located near the out of service production wells. The same comment applies to paragraph 3.

PVC has been selected as an adequate and cost effective material for groundwater monitoring where low concentrations of organics are present. As far as we are aware there is no scientific evidence that sampling results can be improved by using more costly material such as stainless steel. During the last several years New Jersey DEP has routinely approved the use of PVC well construction materials at sites similar to NWS Earl.

Page 9, Last Paragraph

All wells will be developed in a similar manner by purging 3 to 5 volumes and until pH and conductance have stabilized and the water is reasonably free from turbidity. Because monitoring wells are not necessarily placed in optimal production zones, obtaining flow that is totally free of turbidity is sometimes not possible.

Page 10, Specific Comments to the RI Work Plan

Site 2

We do not see the need here to justify or explain confirmation study sampling except to the extent it is being used to

justify the phase 3 scope. The scope of this phase 3 sampling stands on its own.

Site 2, Paragraph 3

The sampling plan will be modified to indicate discrete sampling intervals. Soil sampling is targeted to those compounds known to have been generally distributed in the area. Groundwater will be sampled for the full range of target compound list constituents. We feel that collecting, soil samples for VOC or semi-volatile analyses would be very inconclusive. If these compounds were a problem at the site they would have reached groundwater. Q/C field rinse blanks will be taken during the soil sampling; however we routinely do not take duplicates of soil samples because it is our experience that the results only indicate how variable concentrations of contaminants can be in supposedly duplicate soil samples.

Site 3, Comment 1

The boundary of the 5-acre landfill site 3 is based on aerial photographs available at the base. Any new information will be included on the remedial investigation report. This applies to all the sites.

Site 4, Comment 1

The label "at divide" on Figure 5-3 does not belong in the drawing and will be removed.

Comment 2

Soil samples will be taken with a hand trowel to a depth of less than 6 inches. The sample will be taken at the spring discharge area.

Comment 3

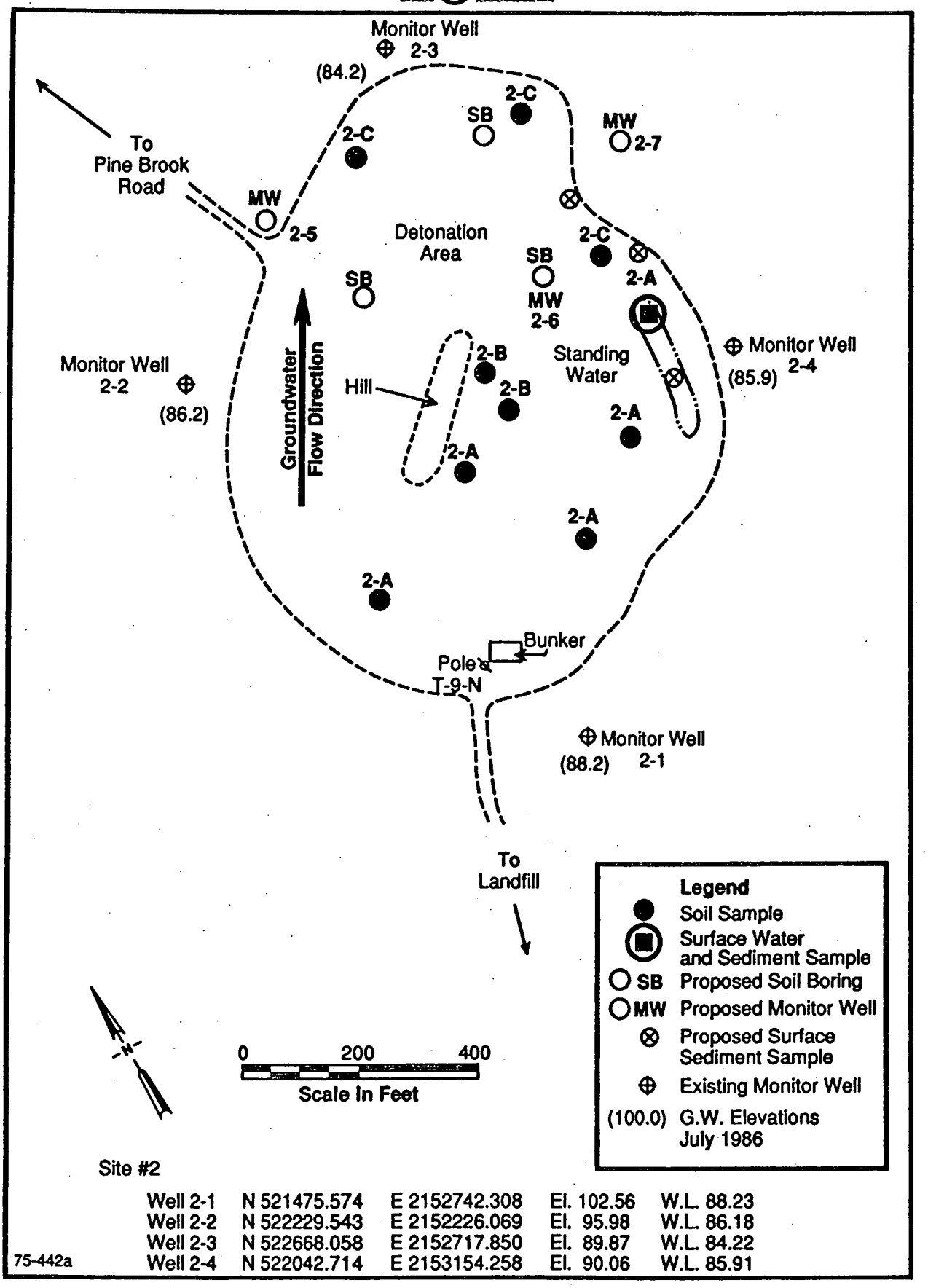
Surface water and groundwater samples will be distinguished in Tables in the revised report. This will apply to all of the sites.

Site 5

The size and location of Site 5 is very poorly known and will be addressed in the remedial investigation from existing GPR data and review of historical aerial photographs.

Comment 2

As discussed earlier it is our strong opinion that direct sampling of landfill areas in order to characterize site contamination is not effective because of the inhomogeneity of the site material. Therefore at this site and other landfill sites the emphasis will be on characterization of transport pathways including surface water sediments and groundwater.



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	Well 2-2	N 522229.543	E 2152226.069	El. 95.98	W.L. 86.18
	Well 2-3	N 522668.058	E 2152717.850	El. 89.87	W.L. 84.22
75-442a	Well 2-4	N 522042.714	E 2153154.258	El. 90.06	W.L. 85.91

FIGURE 5-1 SITE 2 - ORDNANCE DEMILITARIZATION SITE MONITOR WELL AND SAMPLING LOCATIONS

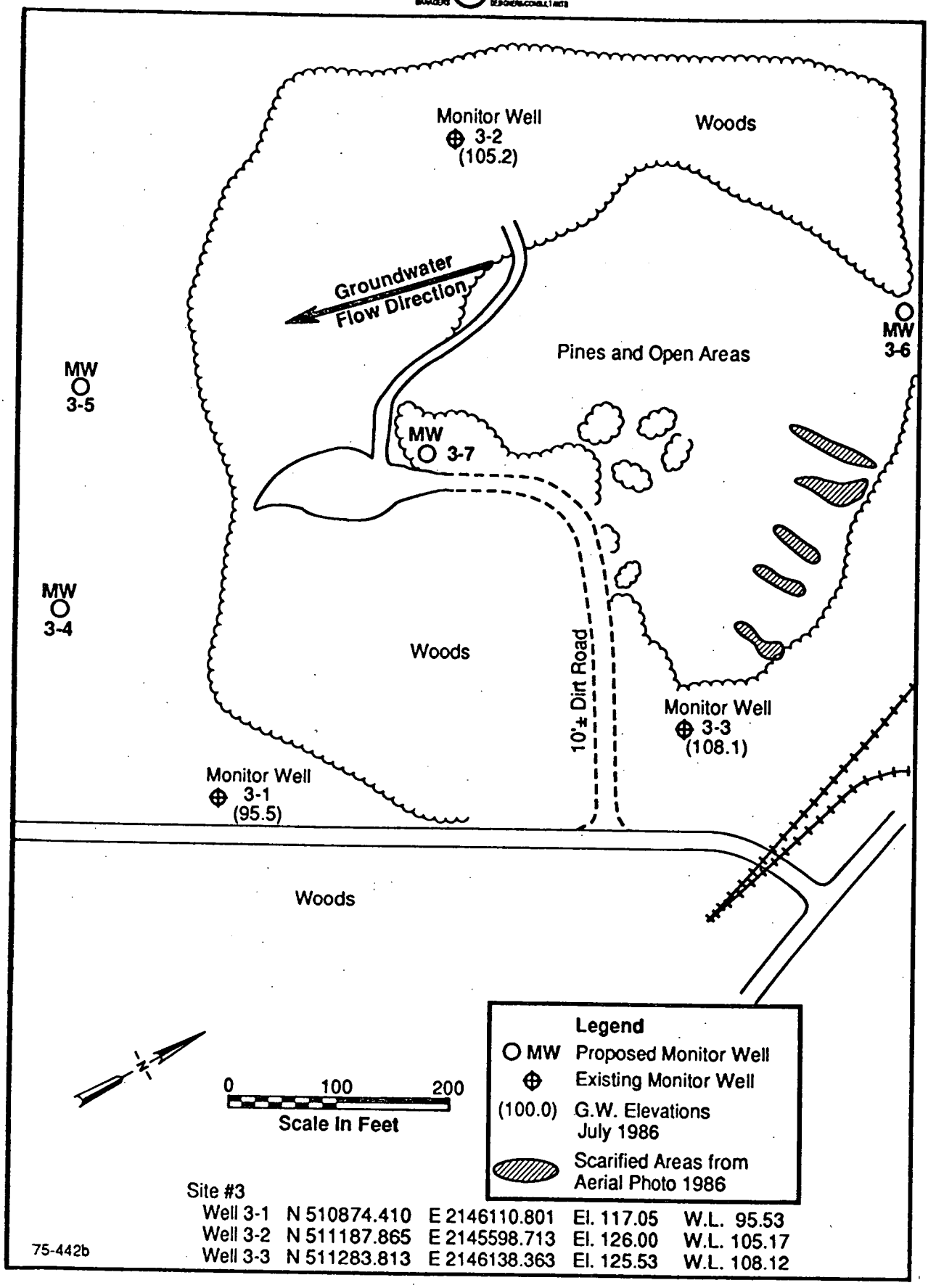

FIGURE 5-2 SITE 3 - LANDFILL SOUTHWEST OF "F" GROUP MONITOR WELL LOCATIONS

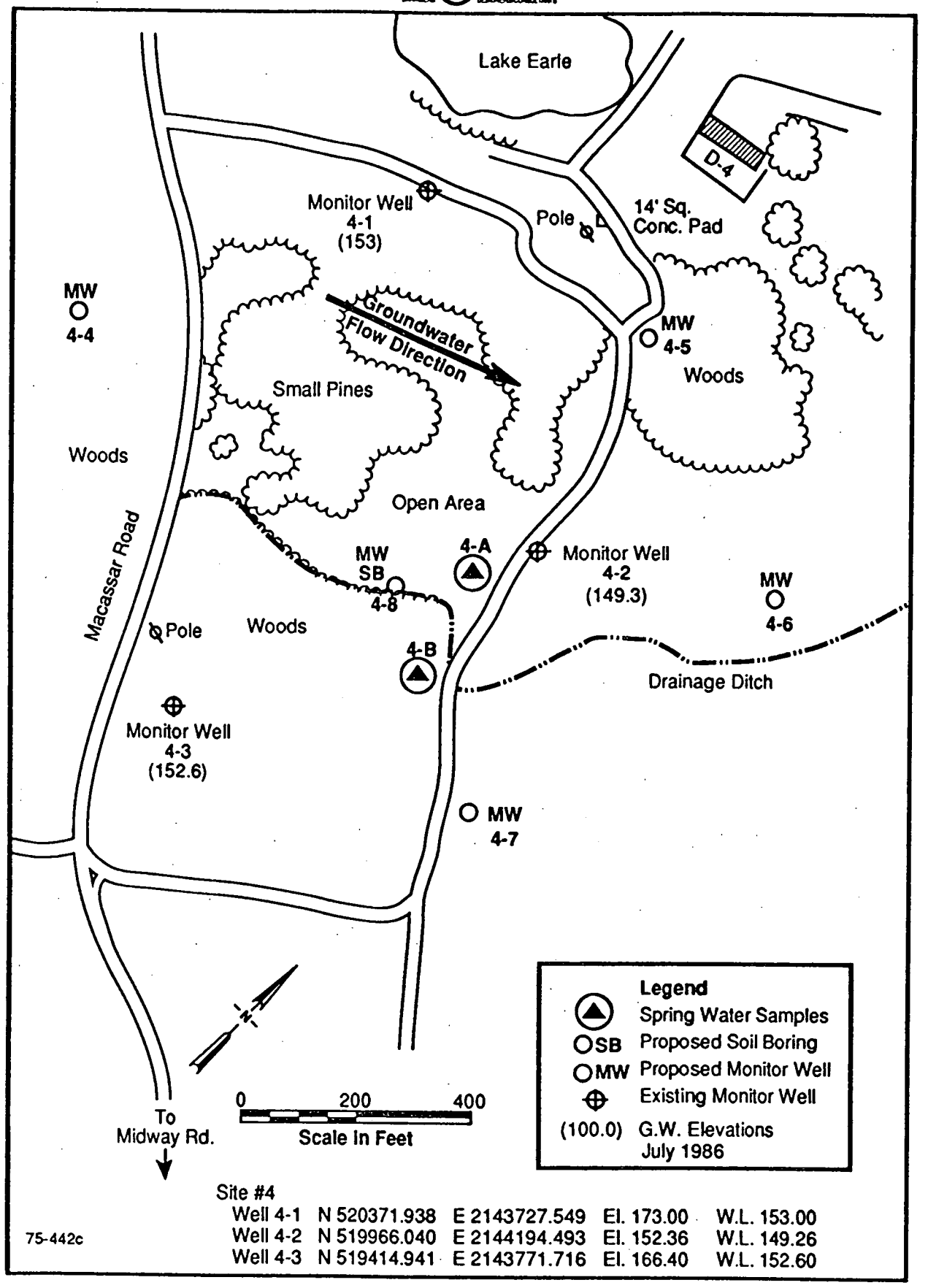

FIGURE 5-3 SITE 4 - LANDFILL WEST OF "D" GROUP MONITOR WELL AND SAMPLING LOCATIONS

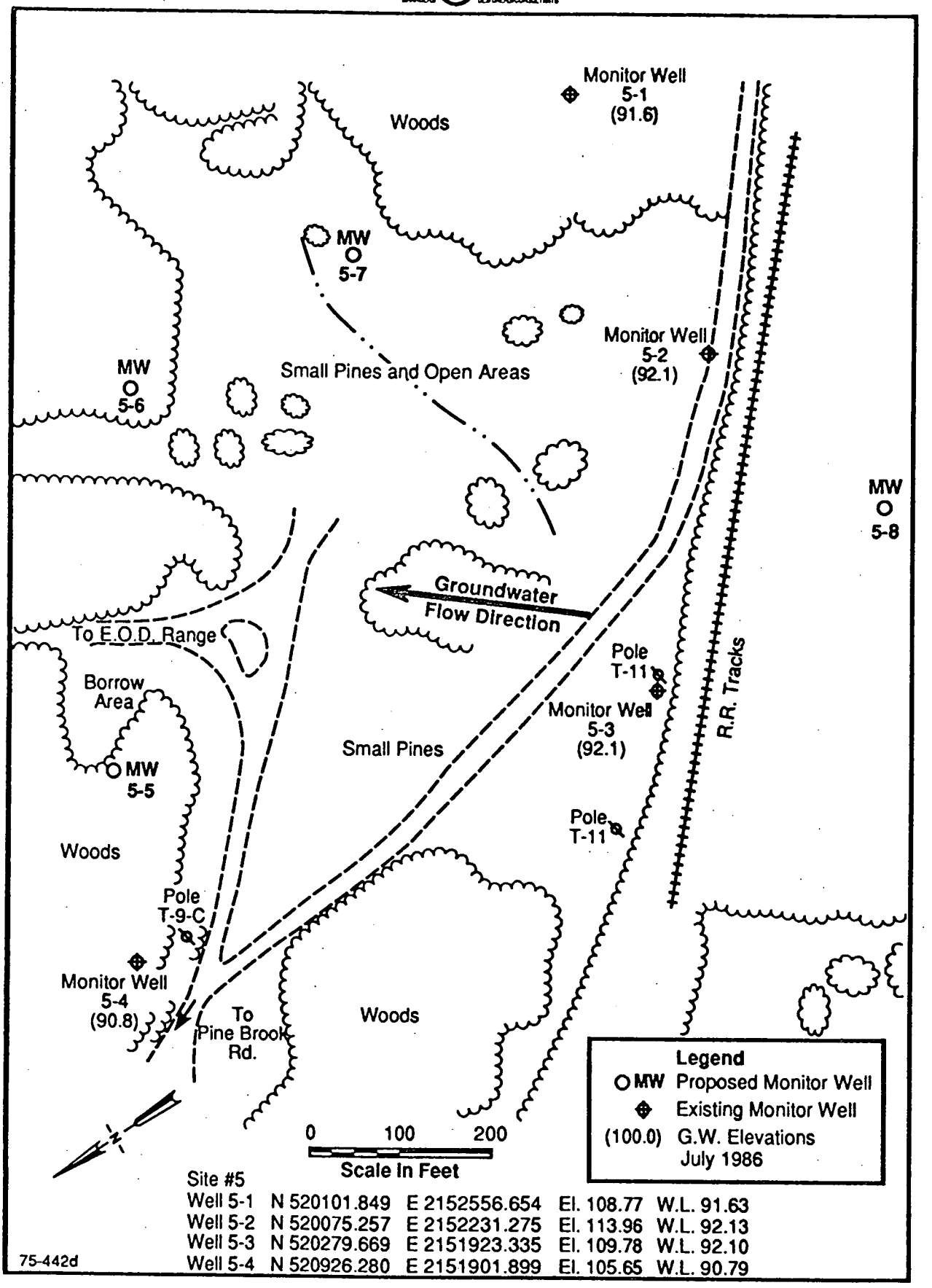

FIGURE 5-4 SITE 5 - LANDFILL WEST OF ARMY BARRICADES MONITOR WELL LOCATIONS

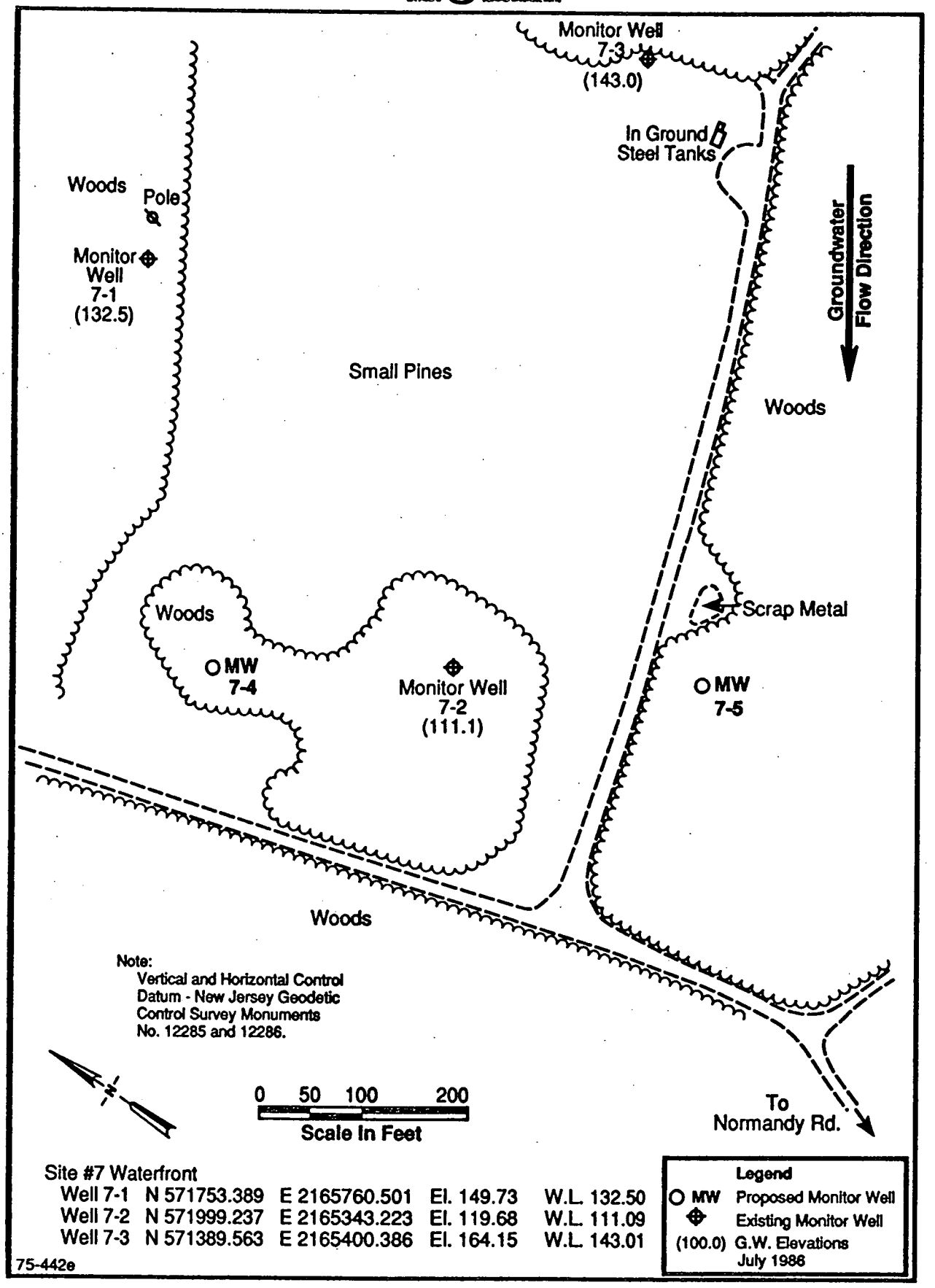

**FIGURE 5-5 SITE 7 - LANDFILL SOUTH OF "P"
BARRICADES MONITOR WELL LOCATIONS**

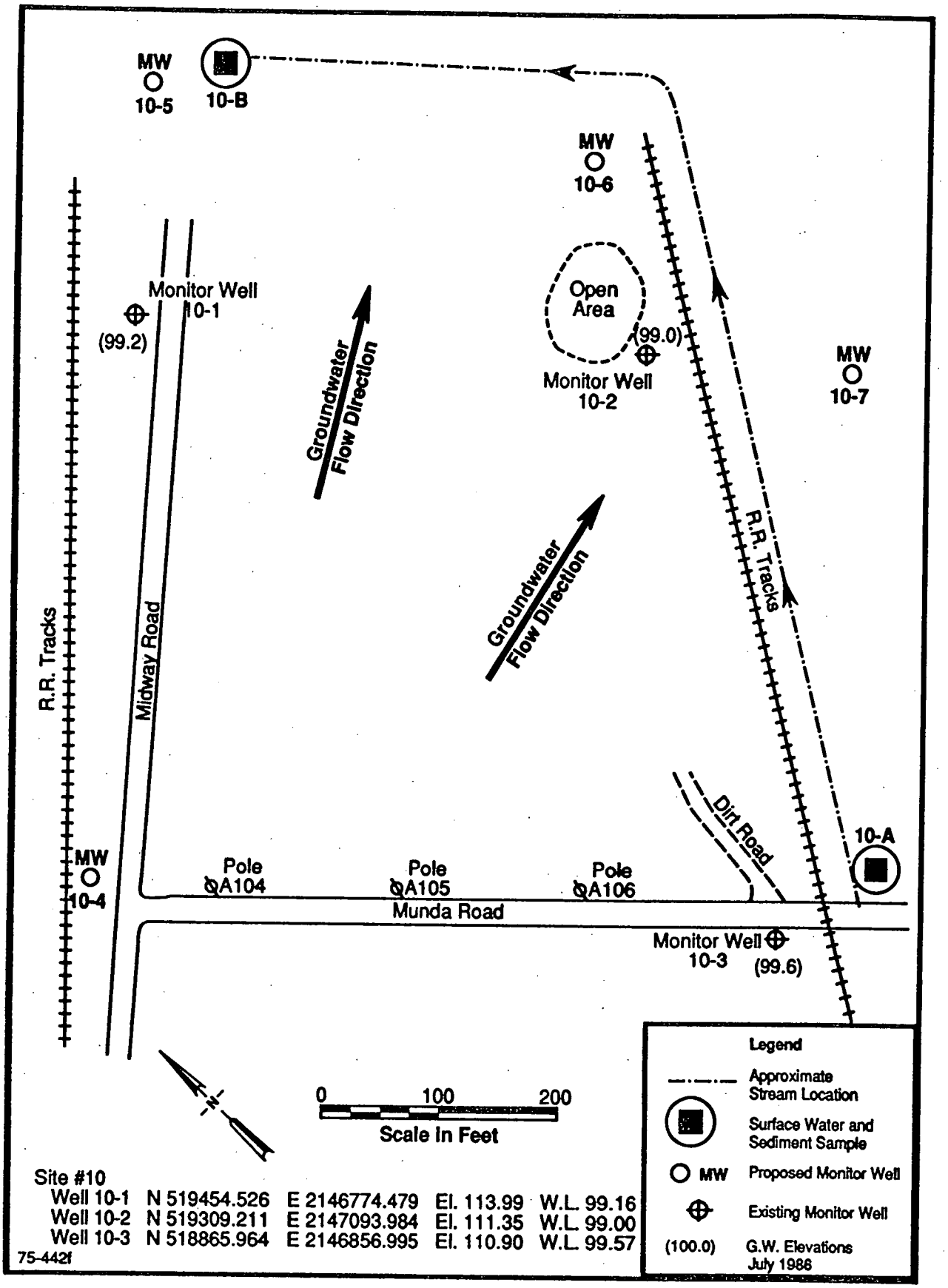

FIGURE 5-6 SITE 10 - SCRAP METAL LANDFILL MONITOR WELL AND SAMPLING LOCATIONS

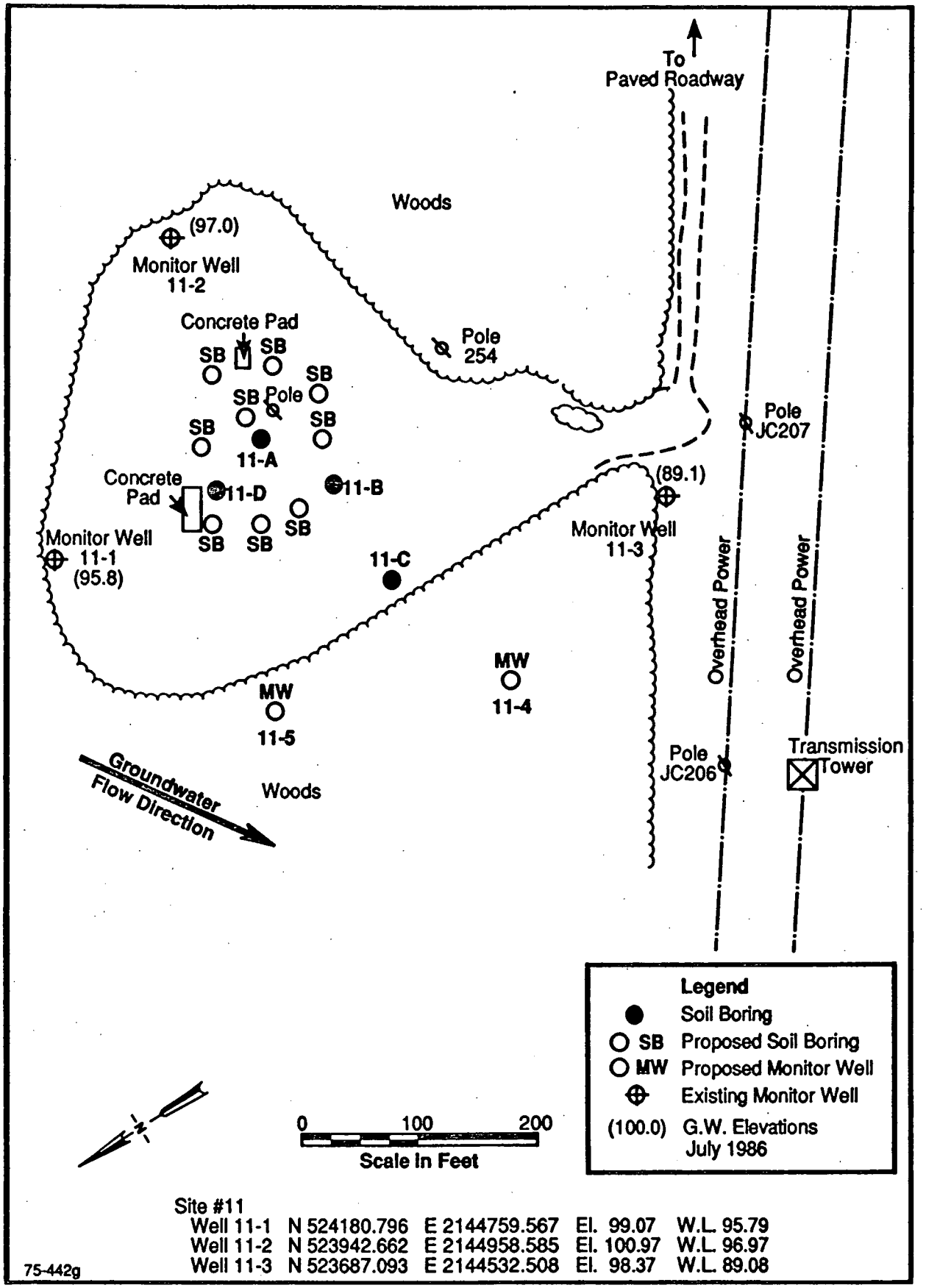

FIGURE 5-7 SITE 11 - CONTRACT ORDNANCE DISPOSAL AREA MONITOR WELL AND SAMPLING LOCATIONS

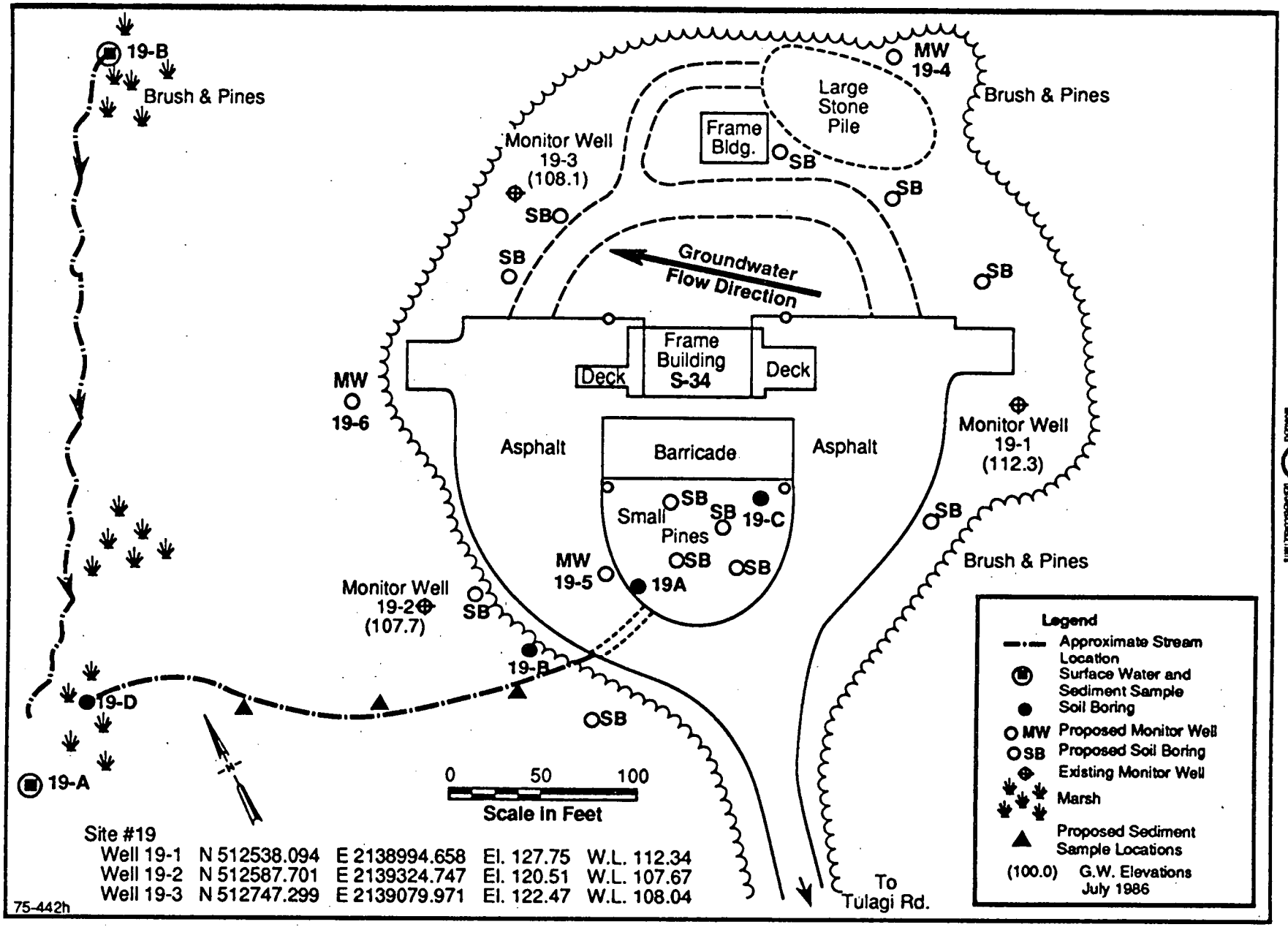

FIGURE 5-8 SITE 19 - PAINT CHIP AND SLUDGE DISPOSAL AREA MONITOR WELL AND SAMPLE LOCATIONS

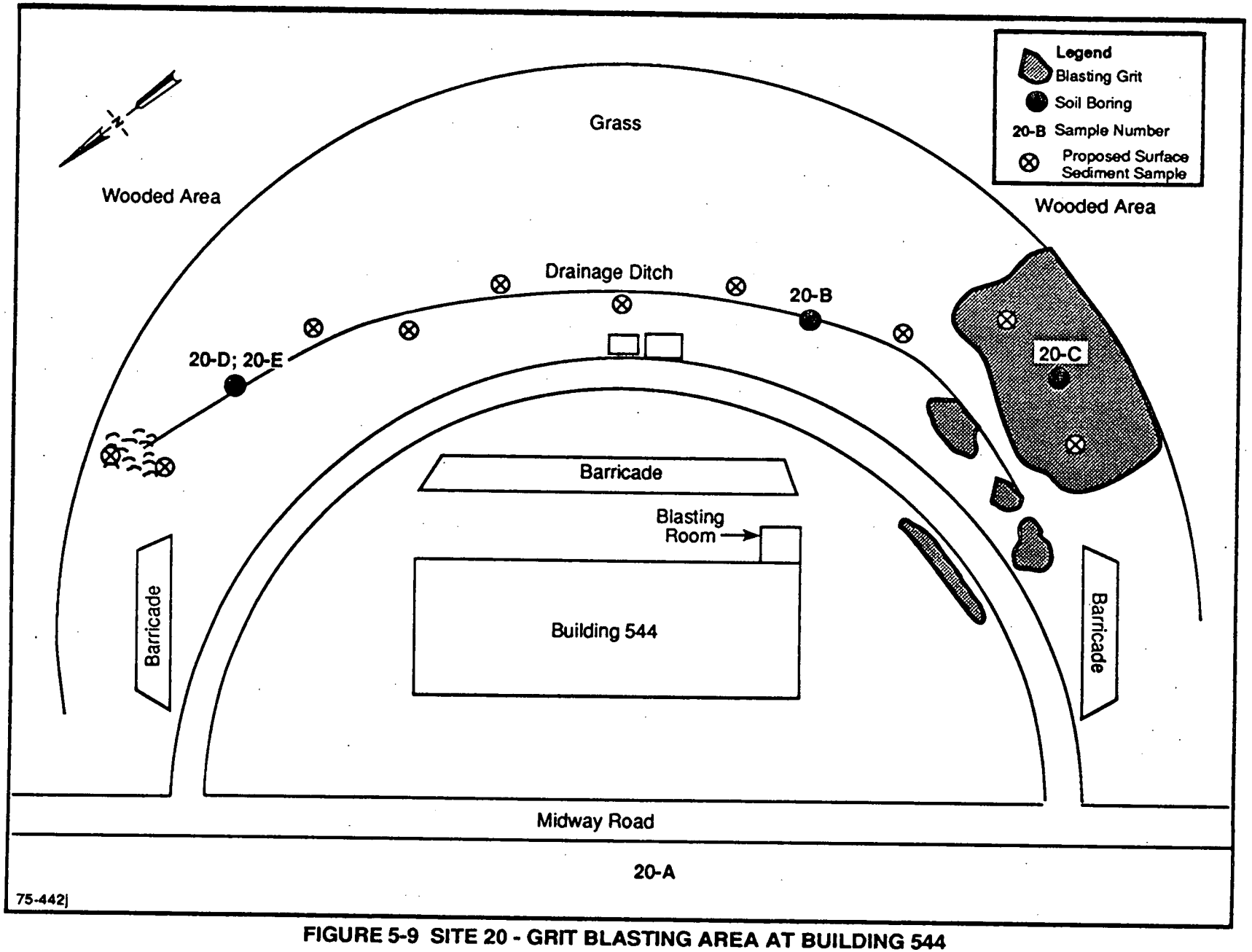

FIGURE 5-9 SITE 20 - GRIT BLASTING AREA AT BUILDING 544

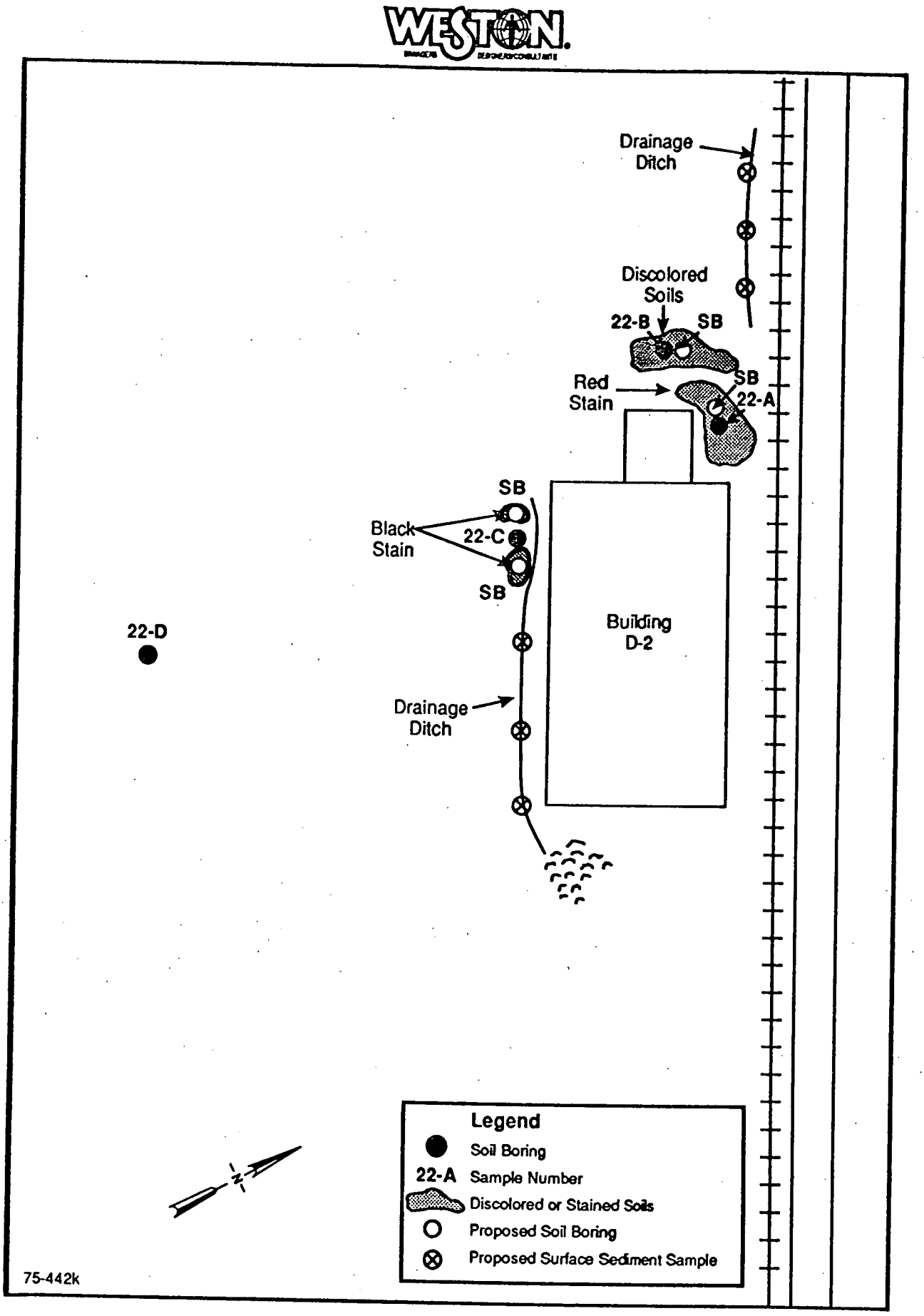

FIGURE 5-10 SITE 22 - PAINT CHIP DISPOSAL AREA

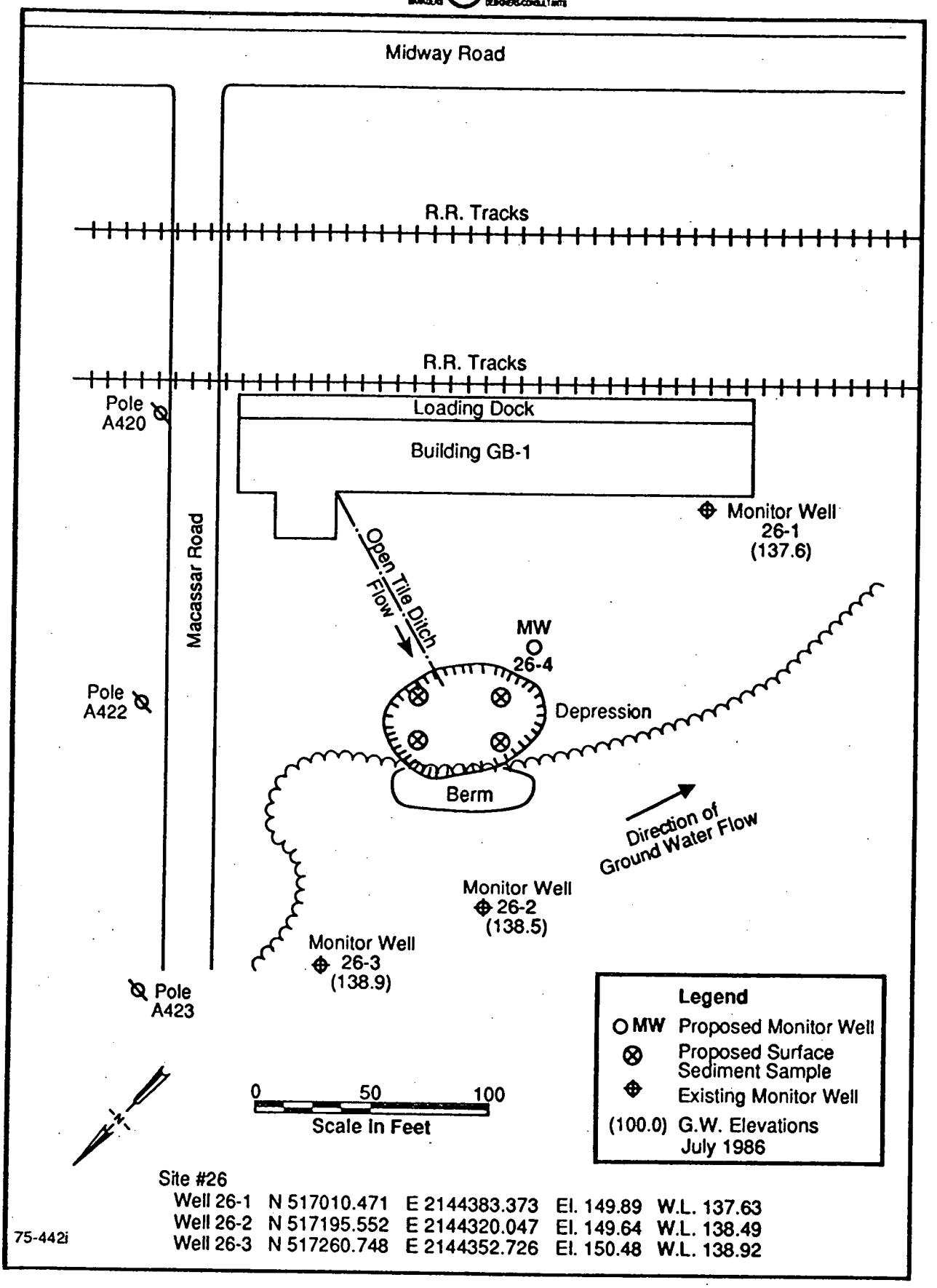

FIGURE 5-11 SITE 26 - EXPLOSIVE "D" WASHOUT AREA MONITOR WELL LOCATIONS

Phase III Remedial Investigation Sampling Plan
Naval Weapons Station Earle

Site Number	Site Name	Number of Existing Wells	Number of Proposed Wells	Groundwater Analytes	Surface Water Samples	Surface Water Analytes
2	Ordnance Demiliterization	4	3	TCL Organics TAL Metals+CN Explosives*	0	None
3	Landfill SW of F Group	3	4	TLC Organics TAL Metals+CN	0	None
4	Landfill West of D Group	3	4	TLC Organics TAL Metals+CN	4	TPH VOCs
5	Landfill West of Army Barricades	3	4	TCL Organics TAL Metals+CN	0	None
7	Landfill South of P Barricades	3	2	TCL Organics TAL Metals+CN	0	None
10	Scrap Metal Landfill Near Building 589	3	4	TCL Organics TAL Metals+CN	3	TPH VOCs
11	Contract Ordnance Disposal Area (Adj. Bldg. S-34)	3	2	TCL Organics TAL Metals+CN Explosives*	0	None
19	Paint Chip and Sludge Disposal Area	3	3	TCL Organics TAL Metals+CN	0	None
20	Blasting Grit Disposal Area (Near Bldg. 589)	0	0	None	0	None
22	Paint Chip Disposal Area (Adj. Bldg. D-2)	0	0	None	0	None
26	Explosive D Washout Area (Adj. Bldg. GB-1)	3	1	TCL Organics TAL Metals+CN Explosives*	0	None

* Explosives compounds include: picric acid, nitrocellulose, nitroglycerin, 2,4,6-trinitrotoluene, 2,4-dinitrotoluene, 2,6-dinitrotoluene, tetryl, 1,3,5-trinitrobenzene, 1,3-dinitrobenzene, HMX, and RDX.

GWT = Groundwater table

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Phase III Remedial Investigation Sampling Plan
Naval Weapons Station Earle
(continued)

Site Number	Site Name	Sediment Samples	Sediment Analytes	Subsurface Soil Sampling Locations	Depth Interval (feet)	Soil Analytes
2	Ordnance Demiliterization	3	TAL Metals Explosives*	6	1-2 GWT (4-5)	TAL Metals+CN Explosives*
3	Landfill SW of F Group	0	None	0	0	None
4	Landfill West of D Group	4	TCL Organics TAL Metals+CN	0	0	None
5	Landfill West of Army Barricades	0	None	0	0	None
7	Landfill South of P Barricades	0	None	0	0	None
10	Scrap Metal Landfill Near Building 589	3	TCL Organics TAL Metals+CN	0	0	None
11	Contract Ordnance Disposal Area (Adj. Bldg. S-34)	9	Explosives* TPH	0	0	None
19	Paint Chip and Sludge Disposal Area	5	TAL Metals+CN	10 Borings 3 Hand Augers	2-4 GWT (8-10) 0-2 2-4	TAL Metals+CN VOCs will be taken at 2-4 feet
20	Blasting Grit Disposal Area (Near Bldg. 589)	10	TAL Metals+CN TPH	0	0	None
22	Paint Chip Disposal Area (Adj. Bldg. D-2)	6	TAL Metals+CN TPH	4	0-0.5 1-2	TAL Metals+CN
26	Explosive D Washout Area (Adj. Bldg. GB-1)	4	Explosives* TPH	4	3-4	Explosives* TPH

* Explosives compounds include: picric acid, nitrocellulose, nitroglycerin, 2,4,6-trinitrotoluene, 2,4-dinitrotoluene, 2,6-dinitrotoluene, tetryl, 1,3,5-trinitrobenzene, 1,3-dinitrobenzene, HMX, and RDX.

GWT = Groundwater table