

**VIA FACSIMILE (610-941-5316) & Email ([rpm@mcbriDEMURPHY.COM](mailto:rpm@mcbriDEMURPHY.COM))**

The Cutler Group  
c/o McBride & Murphy  
5 Apollo Road, Suite 2  
Plymouth Meeting, PA 19462  
(610) 834-1046

December 1, 2006

Attn: Mr. Richard McBride, Esq.

**RE: Soil Characterization (Lead & Arsenic)  
Former Zieger Rose Nursery Property  
1760 & 1756 Dreshertown Road, Dresher 19025  
Upper Moreland Township, Montgomery County, PA  
TPN: 54-00-054-100-08  
DelVal Job # 05-611A**

Dear Mr. McBride:

DelVal Soil & Environmental Consultants, Inc. (DelVal) is pleased to provide you with the following summary of the findings of a surface/subsurface investigation of the soil in and around the greenhouses and associated commercial structures located at the above referenced site (Figure 1 in Appendix I).

#### **BACKGROUND**

DelVal had previously prepared a Phase I Environmental Site Assessment report and a Phase II report for Eastern States Engineering. DelVal understands that The Cutler Group has been granted approval to utilize these reports, previously prepared for Eastern States Engineering.

#### **Phase I Environmental Site Assessment**

DelVal prepared a October 20, 2005 Phase I Environmental Site Assessment for the subject site, which revealed 1) potential impacts associated with the historic use of agrochemicals within the greenhouses and agricultural fields; 2) potential impacts from pesticides and fertilizers in stockpiled "old" soil and stone piles; 3) based on the age of the greenhouses and historical use of the site, it has been DelVal's experience that lead and arsenic may be found around the greenhouse facilities; 4) multiple USTs; specifically two (2) 20,000-gallon No. 6 heating oil USTs, a 2,000-gallon and 550-gallon heating oil UST; 5) potential exists for release of hazardous materials into the floor drains, and; 6) based on the location of on-lot septic systems to the storm drain system, the potential exists for hazardous material from septic systems to enter storm drain system. This study also identified suspect ACM front of rose planter boxes, walls of restrooms, and ceilings of greenhouses; however, DelVal did not test the nature of the material within the scope of this study. At the request of Eastern States Engineering, DelVal prepared a proposal for a limited degree of soil testing to evaluate the surface conditions in the vicinity of the existing "old" soil pile, agricultural fields, land around the greenhouses and associated buildings (Items 1, 2, and 3). DelVal, along with PSC, will also conducted a lead-based paint and ACM survey associated with all existing buildings on site.

### **Phase II: Soil Sampling Investigation**

The November 2005 Phase II soil sample investigation identified concentrations of arsenic and lead in excess of the applicable PADEP Residential Statewide Health Standards in thirteen (13) of the twenty-six (26) samples collected from the "old" soil pile, in and around the rose nursery greenhouses, and associated nursery buildings and recommended further characterization/delineation sampling. The limited soil sampling results indicated no exceedences were identified in the agricultural fields. DelVal recommended post-removal characterization/delineation of the soils around and under the "old" soil pile in the central portion of the site, as well as the characterization/delineation of subsurface soils in the vicinity of the former rose nursery and associated buildings in order to determine appropriate method(s) to address the elevated levels of lead and arsenic identified in soil samples. A copy of the November 2005 Phase II soil sample investigation is included in Appendix II of this report.

DelVal has included the soil sample results from the November 2005 sampling event as part of this characterization/delineation report.

### **SCOPE OF WORK**

At the request of The Cutler Group, DelVal collected two hundred and sixty-four (264), near surface and subsurface, characterization soil samples. The purpose of this sampling event was to quantify the horizontal and vertical extent (volume) of material which exhibited lead and arsenic concentrations in excess of the applicable PADEP Residential Statewide Health Standards in and around the greenhouses, the vicinity of the "old" soil pile, and from soil sample locations from previous studies. With the exception of the "old" soil pile, all other soil sampling was limited to the areas within and immediately surrounding the greenhouses.

### **SOIL SAMPLING**

#### **Soil Investigation within Greenhouses (Interior)**

##### *Background and Limitations*

Each of the three greenhouses measures 500 feet in length and 50 feet in width. The greenhouses are connected/bisected by a centrally located common alley. Each half of each greenhouse contains 11 concrete planting beds. The property owner reported that, with the exception of 3 or 4 of the beds, the planting beds have concrete bottoms. Earthen floor walkways measuring approximately 1.5 feet in width are located between the planting beds. Access beneath the concrete beds was not feasible at the time of this sampling event due to limited access.

Due to the above conditions sampling within the interiors of the greenhouse was limited to hand digging various points of the earthen floors between the concrete planting beds and within the planting beds.

##### *Sampling Event*

On Monday, July 10 through Thursday, July 13, 2006, thirty (30) soil borings (designated GH1 through GH30) were installed by DelVal throughout the interior of the greenhouse and within the rose beds in an effort to further characterize the soil and attempt to delineate the horizontal and vertical extent of lead and arsenic impacts identified during the November 2005 study.

Discrete soil samples were collected with a sterilized disposable hand trowel from near surface (0-6 inches below ground surface [BGS]). Subsurface soil samples were collected with a hand auger and sterilized disposable hand trowel from 6-12 inches BGS and 12-18 inches BGS. Thirty (30) surface soil samples are designated with the letter "A", while sixty (60) subsurface soil samples (thirty [30] per depth) are designated with the letters "B" (6-12 inches BGS) and "C" (12-18 inches BGS), respectively. No odors or visual indications of the presence of impacted soils were detected in the soil encountered during the collection of the samples. No groundwater was encountered during the soil sampling event.

The soil sample boring locations were marked in the field with a handheld global positioning unit (GPS) and are included on Figure 2 in Appendix I of this report.

The soil samples were forwarded to *STL – Pittsburgh*, PADEP certified and NELAC accredited laboratory and analyzed for the presence of arsenic and lead. Please note that the above analysis does not constitute a comprehensive suite of analytical parameters and is limited to the substances, previously identified in excess of the applicable PADEP Residential Statewide Health Standard, which warrant further characterization/delineation.

#### ***Analytical Results – Greenhouse (Interior)***

Analytical results were received from STL Laboratories and are summarized in Table 1 in Appendix III. A copy of the chain of custody and final laboratory report are included in Appendix IV.

#### ***Surface (0-6 inches BGS) Soil Samples (GH1A through GH30A)***

The analytical results indicate that detectable concentrations of arsenic and lead were identified in all but one of the surface soil samples collected. Concentrations above the PADEP Residential Statewide Health Standards for direct contact for residential use for arsenic were identified in seven (7) of the thirty (30) surface samples. Concentrations above the applicable PADEP standards for lead were also identified in ten (10) of the thirty (30) surface samples.

##### Arsenic

The arsenic concentrations identified in the surface soil samples ranged from non-detectable (<0.37 mg/kg) in soil sample GH27A to 51.6 mg/kg in soil sample GH9A. The arsenic concentrations in GH1A (30.8 mg/kg), GH9A (51.6 mg/kg), GH10A (13.9 mg/kg), GH11A (24.3 mg/kg), GH13A (12.8 mg/kg), GH14A (22.3 mg/kg), and GH18A (20.3 mg/kg) exceed the applicable PADEP Residential Statewide Health Standard of 12 mg/kg.

##### Lead

The lead concentrations identified in the surface soil samples ranged from 14.8 mg/kg in soil sample GH29A to 1,990 mg/kg in soil sample GH14A. The lead concentrations in GH1A (1,450 mg/kg), GH5A (1,960 mg/kg), GH9A (663 mg/kg), GH10A (1,290 mg/kg), GH11A (930 mg/kg), GH14A (1,990 mg/kg), GH16A (848 mg/kg), GH18A (782 mg/kg), GH23A (866 mg/kg), and GH30A (1,350 mg/kg) exceed the applicable/respective PADEP Soil to Groundwater and Direct Contact for Residential Statewide Health Standard of 450 mg/kg and 500 mg/kg.

In addition, soil samples GH1A (1,450 mg/kg), GH5A (1,960 mg/kg), GH10A (1,290 mg/kg), GH14A (1,990 mg/kg), and GH30A (1,350 mg/kg) exhibit concentrations in excess of the PADEP Non-Residential Statewide Health Standard of 1,000 mg/kg for lead.

Subsurface (6-12 inches BGS) Soil Samples (GH1B through GH30B)

The analytical results indicate that detectable concentrations of arsenic and lead were identified in all of the subsurface (6-12" BGS) soil samples collected; however, none of the lead or arsenic concentrations were found to exceed the applicable PADEP Residential Statewide Health Standards in any of the thirty (30) soil samples collected.

Arsenic

The arsenic concentrations identified in the soil samples ranged from 2.3 mg/kg in soil sample GH11B to 11.1 mg/kg in soil sample GH16B. None of the arsenic concentrations identified were found to exceed the applicable PADEP Residential Statewide Health Standard of 12 mg/kg.

Lead

The lead concentrations identified in the soil samples ranged from 7.2 mg/kg in soil sample GH14B to 297 mg/kg in soil sample GH18B. None of the lead concentrations identified were found to exceed the applicable/respective PADEP Soil to Groundwater and Direct Contact for Residential Statewide Health Standard of 450 mg/kg or 500 mg/kg.

Subsurface (12-18 inches BGS) Soil Samples (GH1C through GH30C)

The analytical results indicate that detectable concentrations of arsenic and lead were identified in all of the subsurface (12-18" BGS) soil samples collected; however, none of the lead or arsenic concentrations were found to exceed the applicable PADEP Residential Statewide Health Standards in any of the thirty (30) soil samples collected.

Arsenic

The arsenic concentrations identified in the soil samples ranged from 1.2 mg/kg in soil sample GH14C to 9.1 mg/kg in soil sample GH7C. None of the arsenic concentrations identified were found to exceed the applicable PADEP Residential Statewide Health Standard of 12 mg/kg.

Lead

The lead concentrations identified in the soil samples ranged from 2.2 mg/kg in soil sample GH14C to 71.8 mg/kg in soil sample GH1C. None of the lead concentrations identified were found to exceed the applicable/respective PADEP Soil to Groundwater and Direct Contact for Residential Statewide Health Standard of 450 mg/kg or 500 mg/kg.

Analytical results indicate decreasing lead and arsenic concentrations with depth and exceedences in only the near surface (0-6" BGS) soil horizon, which is indicative of a surface application/condition.

**Soil Investigation in Vicinity of Former Rose Nursery Structures (Exterior)**

*Background and Limitations*

The horizontal and vertical delineation sampling around the greenhouses was conducted as outlined in the work plan; however, access was limited in various areas due to the presence of subsurface utilities including drains, water lines, electric lines, natural gas lines and underground storage tanks.



During the July 2006 soil sampling event, soil samples were collected from a maximum depth of 18" BGS. During the November 2005 soil sampling, three (3) soil samples were collected from 24" BGS. These three (3) soil samples were found to contain elevated metal concentrations.

#### *Sampling Event*

On Monday, July 10 through Wednesday, July 12, 2006, fifty-five (55) soil borings (designated SS27 through SS82) were installed by DeVal along the exterior of the greenhouses and associated rose nursery buildings and within/along the access roadways in an effort to further characterize the soil and attempt to delineate the horizontal and vertical extent of lead and arsenic impacts identified during the November 2005 study.

Discrete soil samples were collected with a sterilized disposable hand trowel from near surface (0-6 inches BGS). Subsurface soil samples were collected, from borings installed by a gas-powered hand auger, with a sterilized disposable hand trowel from 6-12 inches BGS and 12-18 inches BGS. Fifty-five (55) surface soil samples are designated with the letter "A", while one hundred and ten (110) subsurface soil samples (fifty-five [55] per depth) are designated with the letters "B" (6-12 inches BGS) and "C" (12-18 inches BGS), respectively for a total of one hundred and sixty-five (165) soil samples. No odors or visual indications of the presence of impacted soils were detected in the soil encountered during the collection of the samples. No groundwater was encountered during the soil sampling event.

The soil sample boring locations were marked in the field with a handheld GPS and are included on Figure 3 in Appendix I of this report.

The soil samples were forwarded to *STL – Pittsburgh*, PADEP certified and NELAC accredited laboratory and analyzed for the presence of arsenic and lead. Please note that the above analysis does not constitute a comprehensive suite of analytical parameters and is limited to the substances, previously identified in excess of the applicable PADEP Residential Statewide Health Standards.

#### *Analytical Results – Vicinity of Former Rose Nursery Structures (Exterior) & Access Roadways*

Analytical results were received from STL Laboratories and are summarized in Table 2 in Appendix III. A copy of the chain of custody and final laboratory report are included in Appendix IV.

#### *Surface (0-6 inches BGS) Soil Samples (SS27A through SS82A)*

The analytical results indicate that detectable concentrations of arsenic and lead were identified in all of the soil samples collected. Concentrations above the PADEP Residential Statewide Health Standards for direct contact for residential use for arsenic were identified in sixteen (16) of the fifty-five (55) surface samples. Concentrations above the applicable PADEP standards for lead were identified in twenty-six (26) of the fifty-five (55) surface samples.

#### *Arsenic*

The arsenic concentrations identified in the soil samples ranged from 3.5mg/kg in soil sample SS73A to 157 mg/kg in soil sample SS80A. The arsenic concentrations in SS30A (24.9 mg/kg), SS35A (14.5 mg/kg), SS37A (12.7 mg/kg), SS38A (12.7 mg/kg), SS45A (33.2 mg/kg), SS46A (15.1 mg/kg), SS49A (13.9 mg/kg), SS55A (12.4 mg/kg), SS58A (14.7 mg/kg), SS62A (18.0 mg/kg), SS65A (13.2 mg/kg), SS68A (12.7 mg/kg), SS71A (12.4 mg/kg), SS75A (26.0 mg/kg), SS78A (46.2 mg/kg), and SS80A (157 mg/kg) exceed the applicable PADEP Residential Statewide Health Standard of 12 mg/kg.

In addition, soil sample SS80A (157 mg/kg) exhibited an arsenic concentration in excess of the PADEP Non-Residential Statewide Health Standard and PADEP Soil to Groundwater Standard of 53 mg/kg and

150 mg/kg, respectively.

#### Lead

The lead concentrations identified in the soil samples ranged from 38.8 mg/kg in soil sample SS46A to 8,530 mg/kg in soil sample SS65A. The lead concentrations in SS27A (834 mg/kg), SS30A (2,410 mg/kg), SS31A (1,910 mg/kg), SS32A (776 mg/kg), SS33A (2,500 mg/kg), SS35A (3,300 mg/kg), SS37A (1,770 mg/kg), SS38A (1,530 mg/kg), SS39A (2,990 mg/kg), SS40A (2,690 mg/kg), SS42A (2,780 mg/kg), SS44A (763 mg/kg), SS47A (1,860 mg/kg), SS48A (3,330 mg/kg), SS52A (1,020 mg/kg), SS57A (1,840 mg/kg), SS59A (6,620 mg/kg), SS62A (2,050 mg/kg), SS64A (4,170 mg/kg), SS65A (8,530 mg/kg), SS68A (1,130 mg/kg), SS70A (4,410 mg/kg), SS71A (7,830 mg/kg), SS73A (697 mg/kg), SS76A (708 mg/kg), SS77A (2,260 mg/kg), and SS80A (955 mg/kg) exceed the applicable/respective PADEP Soil to Groundwater and Direct Contact for Residential Statewide Health Standard of 450 mg/kg and 500 mg/kg.

In addition, soil samples SS30A (2,410 mg/kg), SS31A (1,910 mg/kg), SS33A (2,500 mg/kg), SS35A (3,300 mg/kg), SS37A (1,770 mg/kg), SS38A (1,530 mg/kg), SS39A (2,990 mg/kg), SS40A (2,690 mg/kg), SS42A (2,780 mg/kg), SS47A (1,860 mg/kg), SS48A (3,330 mg/kg), SS52A (1,020 mg/kg), SS57A (1,840 mg/kg), SS59A (6,620 mg/kg), SS62A (2,050 mg/kg), SS64A (4,170 mg/kg), SS65A (8,530 mg/kg), SS68A (1,130 mg/kg), SS70A (4,410 mg/kg), SS71A (7,830 mg/kg), and SS77A (2,260 mg/kg) exhibit concentrations in excess of the applicable PADEP Non-Residential Statewide Health Standard of 1,000 mg/kg for lead.

#### Subsurface (6-12 inches BGS) Soil Samples (SS27B through SS82B)

The analytical results indicate that detectable concentrations of arsenic and lead were identified in all of the subsurface (6-12" BGS) soil samples collected. Concentrations above the PADEP Residential Statewide Health Standards for direct contact for residential use for arsenic were identified in five (5) of the fifty-five (55) subsurface samples. Concentrations above the applicable PADEP standards for lead were identified in thirteen (13) of the fifty-five (55) subsurface samples.

#### Arsenic

The arsenic concentrations identified in the soil samples ranged from 2.9 mg/kg in soil sample SS80B to 64.7 mg/kg in soil sample SS45B. The arsenic concentrations in SS30B (21.5 mg/kg), SS45B (35.5 mg/kg), SS46B (15.3 mg/kg), SS55B (13.2 mg/kg), and SS80B (64.7 mg/kg) exceed the applicable PADEP Residential Statewide Health Standard of 12 mg/kg.

In addition, soil sample SS80B (64.7 mg/kg) exhibited an arsenic concentration in excess of the applicable PADEP Non-Residential Statewide Health Standard of 53 mg/kg. No soil sample concentrations were found to exceed PADEP Soil to Groundwater Standard of 150 mg/kg for arsenic.

#### Lead

The lead concentrations identified in the soil samples ranged from 3.2 mg/kg in soil sample SS78B to 2,120 mg/kg in soil sample SS30B. The lead concentrations in SS27B (477 mg/kg), SS30B (2,120 mg/kg), SS32B (991 mg/kg), SS33B (1,490 mg/kg), SS38B (562 mg/kg), SS47B (545 mg/kg), SS48B (481 mg/kg), SS57B (1,210 mg/kg), SS59B (522 mg/kg), SS68B (971 mg/kg), SS70B (596 mg/kg), SS77B (1,510 mg/kg), and SS80B (535 mg/kg) exceed the applicable PADEP Soil to Groundwater and / or the

applicable Direct Contact for Residential Statewide Health Standard of 450 mg/kg and 500 mg/kg, respectively.

In addition, soil samples SS30B (2,120 mg/kg), SS33B (1,490 mg/kg), SS57B (1,210 mg/kg), and SS77B (1,510 mg/kg) exhibit concentrations in excess of the applicable PADEP Non-Residential Statewide Health Standard of 1,000 mg/kg for lead.

Subsurface (12-18 inches BGS) Soil Samples (SS27C through SS82C)

The analytical results indicate that detectable concentrations of arsenic and lead were identified in all of the subsurface (12-18" BGS) soil samples collected. Concentrations above the PADEP Residential Statewide Health Standards for direct contact for residential use for arsenic were identified in four (4) of the fifty-five (55) subsurface samples. Concentrations above the applicable PADEP standards for lead were identified in thirteen (13) of the fifty-five (55) subsurface samples.

Arsenic

The arsenic concentrations identified in the soil samples ranged from 0.79B mg/kg in soil sample SS73C to 66.3 mg/kg in soil sample SS80C. The arsenic concentrations in SS30C (20.7 mg/kg), SS45C (31.9 mg/kg), SS58C (15.9 mg/kg), and SS80C (66.3 mg/kg) exceed the applicable PADEP Residential Statewide Health Standard of 12 mg/kg.

In addition, soil sample SS80C (66.3 mg/kg) exhibited an arsenic concentration in excess of the applicable PADEP Non-Residential Statewide Health Standard of 53 mg/kg. No soil sample concentrations were found to exceed PADEP Soil to Groundwater Standard of 150 mg/kg for arsenic.

Lead

The lead concentrations identified in the soil samples ranged from 9.9 mg/kg in soil sample SS79C to 3,420 mg/kg in soil sample SS70C. The lead concentrations in SS27C (500 mg/kg), SS30C (1,780 mg/kg), SS32C (1,410 mg/kg), SS33C (681 mg/kg), SS37C (471 mg/kg), SS38C (639 mg/kg), SS39C (935 mg/kg), SS44C (574 mg/kg), SS47C (550 mg/kg), SS48C (594 mg/kg), SS52C (993 mg/kg), SS57C (901 mg/kg), SS59C (3,390 mg/kg), and SS70C (3,420 mg/kg) exceed the applicable PADEP Soil to Groundwater and / or the applicable Direct Contact for Residential Statewide Health Standard of 450 mg/kg and 500 mg/kg, respectively.

In addition, soil samples SS30C (1,780 mg/kg), SS32C (1,410 mg/kg), SS59C (3,390 mg/kg), and SS70C (3,420 mg/kg) exhibit concentrations in excess of the applicable PADEP Non-Residential Statewide Health Standard of 1,000 mg/kg for lead.

Subsurface (24 inches BGS) Soil Samples (SS2, SS4, SS26) – November 2005

Three (3) soil samples were collected from 24 inches BGS in the vicinity of the former rose nursery buildings during the November 2005 soil sampling event. The analytical results indicate that detectable concentrations of arsenic and lead were identified in all three (3) soil samples collected at 24" BGS. The concentration of arsenic in soil sample SS26 was not found in excess of the applicable PADEP Residential Statewide Health Standard of 12 mg/kg. Concentrations above the applicable PADEP standards for lead were identified in all three of the soil samples collected at 24" BGS.



#### Arsenic

The arsenic concentrations identified in the soil samples ranged from 10.8 mg/kg (SS26) to 74.8 mg/kg (SS4). The arsenic concentrations in soil samples SS2 and SS4 were found to exceed the applicable PADEP Residential Statewide Health Standard of 12 mg/kg.

The arsenic concentration identified in soil sample SS4 was found to exceed the PADEP Non-Residential Statewide Health Standard of 53 mg/kg; however, it does not exceed the PADEP Soil to Groundwater Standard of 150 mg/kg.

#### Lead

The lead concentrations identified in the soil samples ranged from 10,300 mg/kg (SS2) to 20,400 mg/kg (SS4 and SS26). All three of the identified lead concentrations exceed the PADEP Soil to Groundwater standard of 450 mg/kg, PADEP Direct Contact standard of 500 mg/kg and PADEP Non-Residential Statewide Health Standard of 1,000 mg/kg.

Analytical results indicate a decreasing trend in arsenic and lead concentrations and frequency of exceedences with depth; however, delineation of the horizontal and vertical extent of impact above the applicable Standard is not complete in all areas.

### **Soil Investigation – Vicinity of “Old” Soil Pile**

#### *Background and Limitations*

The November 2005 sampling event identified elevated metal concentrations in the “old” soil pile, located exterior to the greenhouses. As indicated in the work plan, in order to evaluate the potential impacts beneath the soil it was assumed that the impacted soil pile would be removed in advance of the evaluation. At the time of the July 2006 sampling event, the soil pile had not been removed; therefore, DelVal collected soil samples within and in the vicinity of the soil pile. As requested by the property owner and farmer, in an effort to limit disturbance of an existing corn and pumpkin crop, DelVal was limited east of the “old” soil pile.

#### *Sampling Event*

On Friday, July 14, 2006, three (3) soil borings (designated OSP1 through OSP3) were installed by DelVal around the perimeter of the “old” soil pile, located east of the back garage and greenhouse and west of Welsh Road (PA Route 63), in an effort to further characterize the soil and attempt to delineate the horizontal and vertical extent of lead and arsenic impacts identified during the November 2005 study.

Discrete soil samples were collected with a sterilized disposable hand trowel from near surface (0-6 inches BGS). Subsurface soil samples were collected, from borings installed with a gas-powered hand auger, with a sterilized disposable hand trowel from 6-12 inches BGS and 12-18 inches BGS. Three (3) surface soil samples are designated with the letter “A”, while six (6) subsurface soil samples (three [3] per depth) are designated with the letters “B” (6-12 inches BGS) and “C” (12-18 inches BGS), respectively. No odors or visual indications of the presence of impacted soils were detected in the soil encountered during the collection of the samples. No groundwater was encountered during the soil sampling event.

The soil sample boring locations were marked in the field with a handheld GPS and are included on Figure 4 in Appendix I of this report.



The soil samples were forwarded to *STL – Pittsburgh*, PADEP certified and NELAC accredited laboratory and analyzed for the presence of arsenic and lead. Please note that the above analysis does not constitute a comprehensive suite of analytical parameters and is limited to the substances, previously identified in excess of the applicable PADEP Residential Statewide Health Standards.

***Analytical Results – Vicinity of “Old” Soil Pile***

Analytical results were received from STL Laboratories and are summarized in Table 3 in Appendix III. A copy of the chain of custody and final laboratory report are included in Appendix IV.

***Surface (0-6 inches BGS) Soil Samples (OSP1A through OSP3A)***

The analytical results indicate that detectable concentrations of arsenic and lead were identified in all of the soil samples collected. No concentrations of arsenic were identified above the PADEP Residential Statewide Health Standard of 12 mg/kg in any of the three (3) surface samples collected. Concentrations above the applicable PADEP standards for lead were identified in two (2) of the three (3) surface samples.

**Arsenic**

The arsenic concentrations identified in the soil samples ranged from 6.3 mg/kg in soil sample OSP3A to 9.3 mg/kg in soil sample OSP1A. None of the arsenic concentrations were found to exceed the applicable PADEP Residential Statewide Health Standard of 12 mg/kg, PADEP Non-Residential Statewide Health Standard of 53 mg/kg or PADEP Soil to Groundwater Standard of 150 mg/kg for arsenic.

**Lead**

The lead concentrations identified in the soil samples ranged from 292 mg/kg in soil sample OSP1A to 4,610 mg/kg in soil sample OSP3A. The lead concentrations in OPS2A (466 mg/kg) and OSP3A (4,610 mg/kg) exceed the applicable PADEP Soil to Groundwater and Direct Contact for Residential Statewide Health Standard of 450 mg/kg and 500 mg/kg.

In addition, soil sample OSP3A (4,610 mg/kg) exhibit a concentration in excess of the applicable PADEP Non-Residential Statewide Health Standard of 1,000 mg/kg for lead.

***Subsurface (6-12 inches BGS) Soil Samples (OSP1B through OSP3B)***

The analytical results indicate that detectable concentrations of arsenic and lead were identified in all of the subsurface (6-12” BGS) soil samples collected. A concentration equal to the applicable PADEP standard for arsenic was identified in one (1) of the three (3) subsurface soil samples collected; however, no concentrations were found to exceed the applicable PADEP Residential Statewide Health Standard. Concentrations above the applicable PADEP standards for lead were identified in two (2) of the three (3) subsurface samples collected.

**Arsenic**

The arsenic concentrations identified in the soil samples ranged from 5.6 mg/kg in soil sample OSP2B to 12.0 mg/kg in soil sample OSP1B. The arsenic concentration in OSP1B (12.0 mg/kg) is equal to the applicable PADEP Residential Statewide Health Standard of 12 mg/kg.

No soil sample concentrations were found to exceed the applicable PADEP Non-Residential Statewide Health Standard of 53 mg/kg or PADEP Soil to Groundwater Standard of 153 mg/kg for arsenic.

#### Lead

The lead concentrations identified in the soil samples ranged from 120 mg/kg in soil sample OSP1B to 829 mg/kg in soil sample OSP3B. The lead concentrations in OSP2B (717 mg/kg) and OSP3B (829 mg/kg) exceed the applicable PADEP Soil to Groundwater and Direct Contact for Residential Statewide Health Standard of 450 mg/kg and 500 mg/kg.

No soil sample concentrations were found to exceed the applicable PADEP Non-Residential Statewide Health Standard of 1,000 mg/kg for lead.

#### Subsurface (12-18 inches BGS) Soil Samples (OSP1C through OSP3C)

The analytical results indicate that detectable concentrations of arsenic and lead were identified in all of the subsurface (12-18" BGS) soil samples collected. No concentrations of arsenic were identified above the PADEP Residential Statewide Health Standard of 12 mg/kg in any of the three (3) subsurface samples collected. Concentrations above the applicable PADEP standards for lead were identified in one (1) of the three (3) subsurface soil samples.

#### Arsenic

The arsenic concentrations identified in the soil samples ranged from 0.87 mg/kg in soil sample OSP3C to 9.4 mg/kg in soil sample OSP1C. None of the arsenic concentrations were found to exceed the applicable PADEP Residential Statewide Health Standard of 12 mg/kg.

No soil sample concentrations were found to exceed the applicable PADEP Non-Residential Statewide Health Standard of 53 mg/kg or PADEP Soil to Groundwater Standard of 150 mg/kg for arsenic.

#### Lead

The lead concentrations identified in the soil samples ranged from 54.2 mg/kg in soil sample OSP3C to 1,610 mg/kg in soil sample OSP2C. The lead concentration in OSP2C (1,610 mg/kg) exceeds the applicable PADEP Soil to Groundwater and Direct Contact for Residential Statewide Health Standard of 450 mg/kg and 500 mg/kg.

In addition, soil sample OSP2C (1,610 mg/kg) exhibit a concentration in excess of the applicable PADEP Non-Residential Statewide Health Standard of 1,000 mg/kg for lead.

### **SITE CONCEPTUAL MODEL**

DelVal generated the following maps/models for lead and arsenic concentrations based upon the analytical results, which were compared to the applicable PADEP Residential Statewide Health Standards, obtained during the November 2005 and July 2006 soil sampling events. The modules are designed as a visual tool to aid in determining appropriate remedial options to address the impacted soils based on interpolations of arsenic and lead concentrations identified at discrete locations. Actual concentrations at other locations may differ from those, which are represented in the modules. The modules presented in the attached figures (Figures 5 through 13) are DelVal's best approximation of the occurrence of arsenic and lead concentrations in excess of the PADEP Residential Statewide Health Standard in the soil under current site conditions.

When compiling the maps/modules for lead and arsenic impact, DelVal assumed the following:

- ❖ The soil sample points were not survey located and are therefore approximated;
- ❖ Models depict lead and arsenic exceedences together;
- ❖ Models were assigned limits based on PADEP Residential Statewide Health Standards for lead (450 mg/kg) and arsenic (12 mg/kg).
- ❖ “Iso-lines” in model were generated using software and depicting anything having a ratio value over 1.00 deemed exceedences areas
- ❖ Models were interpolated using ratio of result over exceedences, using higher of two ratios as “limiting” result, which dictates remediation recommendation.
- ❖ Modeling of the interior and exterior of the greenhouses were conducted separately due to obvious dissimilarities between the site conditions (interior vs. exterior) and these two sets of data.
- ❖ The limit of study area was defined for greenhouses using the obvious edge of greenhouse; the vicinity of the rose nursery structures was defined drawing a line that extended just beyond the access roadway or encompassing the closest soil sample point to the access roadway; and in the old soil pile the area was defined drawing an iso-line similar to the nature of the vicinity limit.
- ❖ Interpolation assumed the “old” soil pile measured 12’x 10’x 5’.
- ❖ The presence of concrete beds, utilities and alleys were features not taken into consideration in the model.

#### **Impacted Material - Inside Greenhouses**

##### **Figure 5: Sampling Points and Interpolated Surface Arsenic and Lead Concentrations Inside Greenhouse (0-6”)**

This plan consists of interpolated arsenic and lead concentrations from thirty-six (36) surface sample points (0-6” BGS) inside the greenhouses during the November 2005 and July 2006 sampling events. The projected volume of soil with arsenic and lead concentrations, which are in excess of the applicable PADEP Residential Statewide Health Standard of 12 mg/kg for arsenic and 450 mg/kg for lead, is approximately 1,072 cubic yards.

##### **Figure 6: Sampling Points and Interpolated Subsurface Arsenic and Lead Concentrations Inside Greenhouse (6-12”)**

This plan consists of interpolated arsenic and lead concentrations from thirty (30) subsurface sample points (6-12” BGS) inside the greenhouses during the November 2005 and July 2006 sampling events. There were no concentrations of arsenic or lead identified in excess of the applicable PADEP Residential Statewide Health Standard of 12 mg/kg for arsenic or 450 mg/kg for lead in the 6 to 12 inch horizon.

**Figure 7: Sampling Points and Interpolated Subsurface Arsenic and Lead Concentrations Inside Greenhouse (12-18")**

This plan consists of interpolated arsenic and lead concentrations from thirty (30) subsurface sample points (12-18" BGS) inside the greenhouses during the November 2005 and July 2006 sampling events. There were no concentrations of arsenic or lead identified in excess of the applicable PADEP Residential Statewide Health Standard of 12 mg/kg for arsenic or 450 mg/kg for lead in the 12 to 18 inch horizon.

The projected volume of impacted material inside the greenhouses is estimated to be 1,072 cubic yards. It is DelVal's opinion that soil within the rose beds should be removed, the soil inside the greenhouses should be excavated to a minimum of 6 inches BGS and post removal confirmatory soil samples should be collected upon removal of the impacted soil.

**Impacted Material – Vicinity of Former Rose Nursery Structures**

**Figure 8: Sampling Points and Interpolated Surface Arsenic and Lead Concentrations in Vicinity of Nursery Structures (0-6")**

This plan consists of interpolated arsenic and lead concentrations from fifty-nine (59) surface sample points (0-6" BGS) in the vicinity of the nursery structures during the November 2005 and July 2006 sampling events. The projected volume of soil with arsenic and lead concentrations, which are in excess of the applicable PADEP Residential Statewide Health Standard of 12 mg/kg for arsenic and 450 mg/kg for lead, is approximately 987 cubic yards.

**Figure 9: Sampling Points and Interpolated Subsurface Arsenic and Lead Concentrations in Vicinity of Nursery Structures (6-12")**

This plan consists of interpolated arsenic and lead concentrations from fifty-five (55) subsurface sample points (6-12" BGS) in the vicinity of the nursery structures during the November 2005 and July 2006 sampling events. The projected volume of soil with arsenic and lead concentrations, which are in excess of the applicable PADEP Residential Statewide Health Standard of 12 mg/kg for arsenic and 450 mg/kg for lead, is approximately 425 cubic yards.

**Figure 10: Sampling Points and Interpolated Subsurface Arsenic and Lead Concentrations in Vicinity of Nursery Structures (12-18")**

This plan consists of interpolated arsenic and lead concentrations from fifty-five (55) subsurface sample points (12-18" BGS) in the vicinity of the nursery structures during the November 2005 and July 2006 sampling events. The projected volume of soil with arsenic and lead concentrations, which are in excess of the applicable PADEP Residential Statewide Health Standard of 12 mg/kg for arsenic and 450 mg/kg for lead, is approximately 494 cubic yards.

The projected volume of impacted material in the vicinity of the nursery structures is estimated to be 1,906 cubic yards. Based on three (3) the concentrations of lead and arsenic identified during the November 2005 sampling event collected from 24 inches BGS, it is DelVal's opinion that soil should be excavated to at least 36 inches BGS and post removal confirmatory soil samples should be collected upon removal of the impacted soil.



### **Impacted Material – Old Soil Pile**

**Figure 11: Sampling Points and Interpolated Surface Arsenic and Lead Concentrations Within and In Vicinity “Old” Soil Pile (0-6”)**

This plan consists of interpolated arsenic and lead concentrations from seven (7) surface sample points (0-6” BGS) within and in the vicinity of the “old” soil pile during the November 2005 and July 2006 sampling events. The projected volume of soil with arsenic and lead concentrations, which are in excess of the applicable PADEP Residential Statewide Health Standard of 12 mg/kg for arsenic and 450 mg/kg for lead, is approximately 59 cubic yards.

**Figure 12: Sampling Points and Interpolated Subsurface Arsenic and Lead Concentrations Within and In Vicinity “Old” Soil Pile (6-12”)**

This plan consists of interpolated arsenic and lead concentrations from three (3) subsurface sample points (6-12” BGS) within and in the vicinity of the “old” soil pile during the November 2005 and July 2006 sampling events. The projected volume of soil with arsenic and lead concentrations, which are in excess of the applicable PADEP Residential Statewide Health Standard of 12 mg/kg for arsenic and 450 mg/kg for lead, is approximately 86 cubic yards.

**Figure 13: Sampling Points and Interpolated Subsurface Arsenic and Lead Concentrations Within and In Vicinity “Old” Soil Pile (12-18”)**

This plan consists of interpolated arsenic and lead concentrations from three (3) subsurface sample points (12-18” BGS) within and in the vicinity of the “old” soil pile during the November 2005 and July 2006 sampling events. The projected volume of soil with arsenic and lead concentrations, which are in excess of the applicable PADEP Residential Statewide Health Standard of 12 mg/kg for arsenic and 450 mg/kg for lead, is approximately 45 cubic yards.

The projected volume of impacted material within and in the vicinity of the “old” soil pile is estimated to be 190 cubic yards. It is DelVal’s opinion that soil pile should be removed and soil excavated to at least 24 inches BGS and post removal confirmatory soil samples should be collected upon removal of the impacted soil.

### **FINDINGS**

- ❖ No odors, staining or otherwise suspicious materials were observed in the surface and subsurface during the soil boring installations.
- ❖ Inside Greenhouses
  - A total of ninety-six (96) surface and subsurface soil samples were collected within the three (3) greenhouses during the November 2005 and July 2006 soil sampling events.
  - Twenty-one (21) of the thirty-six (36) surface soil sample points exhibited lead or arsenic concentrations in excess of the PADEP Residential Statewide Health Standard. Eight (8) of the surface soil samples exhibiting lead or arsenic concentrations were identified in excess of the PADEP Non-Residential Statewide Health Standard.

- No lead or arsenic concentrations above the PADEP Residential Statewide Health Standard were identified in the sixty (60) subsurface soil horizons (6-12" BGS or 12-18" BGS) inside the greenhouses.
- Analytical results indicate decreasing lead and arsenic concentrations with depth and exceedences in only the near surface (0-6" BGS soil horizon), which is indicative of a surface application/condition.
- Based on the modeling of the surface and subsurface soil investigation, the projected volume of arsenic and lead impacted soil inside the greenhouses is estimated to be 1,072 cubic yards.
- ❖ Vicinity of former rose nursery structures
  - A total of one hundred and seventy-two (172) surface and subsurface soil samples were collected during the November 2005 and July 2006 soil sampling events.
  - Thirty-six (36) of the fifty-nine (59) surface soil sample points exhibited lead or arsenic concentrations in excess of the PADEP Residential Statewide Health Standard. Twenty-two (22) of the surface soil samples exhibiting lead or arsenic concentrations were identified in excess of the PADEP Non-Residential Statewide Health Standard.
  - Thirty-six (36) of the one hundred and thirteen (113) subsurface soil sample points exhibited lead or arsenic concentrations in excess of the PADEP Residential Statewide Health Standard. Ten (10) of the subsurface soil samples exhibiting lead or arsenic concentrations were identified in excess of the PADEP Non-Residential Statewide Health Standard
  - Analytical results indicate concentrations identified in the soil in the vicinity of the nursery buildings have not been delineated completely. Based on the modeling of the surface and subsurface soil investigation, the projected volume of arsenic and lead impacted soil in the vicinity of the rose nursery structures is estimated to be 1,906 cubic yards.
- ❖ Within and In the Vicinity of the "Old" Soil Pile
  - A total of thirteen (13) surface and subsurface soil samples were collected during the November 2005 and July 2006 soil sampling events.
  - Five (5) of the seven (7) surface soil sample points exhibited lead concentrations in excess of the PADEP Residential Statewide Health Standard. One (1) of the subsurface soil samples was identified exhibiting a concentration of lead in excess of the PADEP Non-Residential Statewide Health Standard. None of the arsenic concentrations in the surface soil samples were found to exceed the applicable PADEP Residential Statewide Health Standard of 12 mg/kg, PADEP Non-Residential Statewide Health Standard of 53 mg/kg or PADEP Soil to Groundwater Standard of 150 mg/kg for arsenic.
  - Two (2) of the six (6) subsurface soil sample points exhibited lead concentrations in excess of the PADEP Residential Statewide Health Standard. One (1) of the subsurface soil samples was identified exhibiting a concentration of lead in excess of the PADEP Non-Residential Statewide Health Standard. A concentration of arsenic was found to be equal to the applicable PADEP Residential

---

Statewide Health Standard of 12 mg/kg. None of the soil sample concentrations were found to exceed the applicable PADEP Non-Residential Statewide Health Standards for lead or arsenic.

- Analytical results indicate concentrations identified in the vicinity of the “old” soil pile have not been delineated completely. Based on the modeling of the surface and subsurface soil investigation, the projected volume of arsenic and lead impacted soil within and in the vicinity of the “old” soil pile is estimated to be 190 cubic yards.

## **RECOMMENDATIONS**

- ❖ Further refinement of the projected volume of impacted soil may be performed through the collection, analysis, and evaluation of additional characterization soil samples.
- ❖ Based on the findings, DelVal recommends removal and proper off-site disposal of the lead and arsenic impacted soil and collection of confirmatory post removal soil samples.
- ❖ Although DelVal is aware that PADEP does not consider agricultural properties with agricultural impacts eligible under PADEP’s Land Recycling Program (Act 2), it is DelVal’s understanding that circumstances and conditions such as greenhouses, may be considered for Act 2 release of liability. DelVal recommends pursuit of PADEP Land Recycling Program (Act 2) for release of liability for the area encompassing the former rose nursery activities.

Should you have any questions regarding these test results or need further assistance, please feel free to contact our office during normal business hours (215) 345-5545 ext. 144 or via email, [ckulp@delvalsoil.com](mailto:ckulp@delvalsoil.com). Thank you for contacting DelVal Soil and Environmental Consultants, Inc. for your environmental needs.

Respectfully Submitted,  
**DelVal Soil & Environmental Consultants**

Clorece K. Kulp  
Environmental Scientist

Mark Fortna  
Sr. Environmental Scientist / Project Manager

**APPENDIX I**

**Figure 1: Site Location**

**Figure 2: Greenhouse Interior Soil Sample Locations**

**Figure 3: Vicinity of Former Rose Nursery Structures Soil Sample Locations**

**Figure 4: "Old" Soil Pile Soil Sample Locations**

**Figure 5: Interpolated Arsenic and Lead Concentrations Inside Greenhouses (0-6")**

**Figure 6: Interpolated Arsenic and Lead Concentrations Inside Greenhouses (6-12")**

**Figure 7: Interpolated Arsenic and Lead Concentrations Inside Greenhouses (12-18")**

**Figure 8: Interpolated Arsenic and Lead Concentrations In Vicinity of Former Rose Nursery Structures (0-6")**

**Figure 9: Interpolated Arsenic and Lead Concentrations In Vicinity of Former Rose Nursery Structures (6-12")**

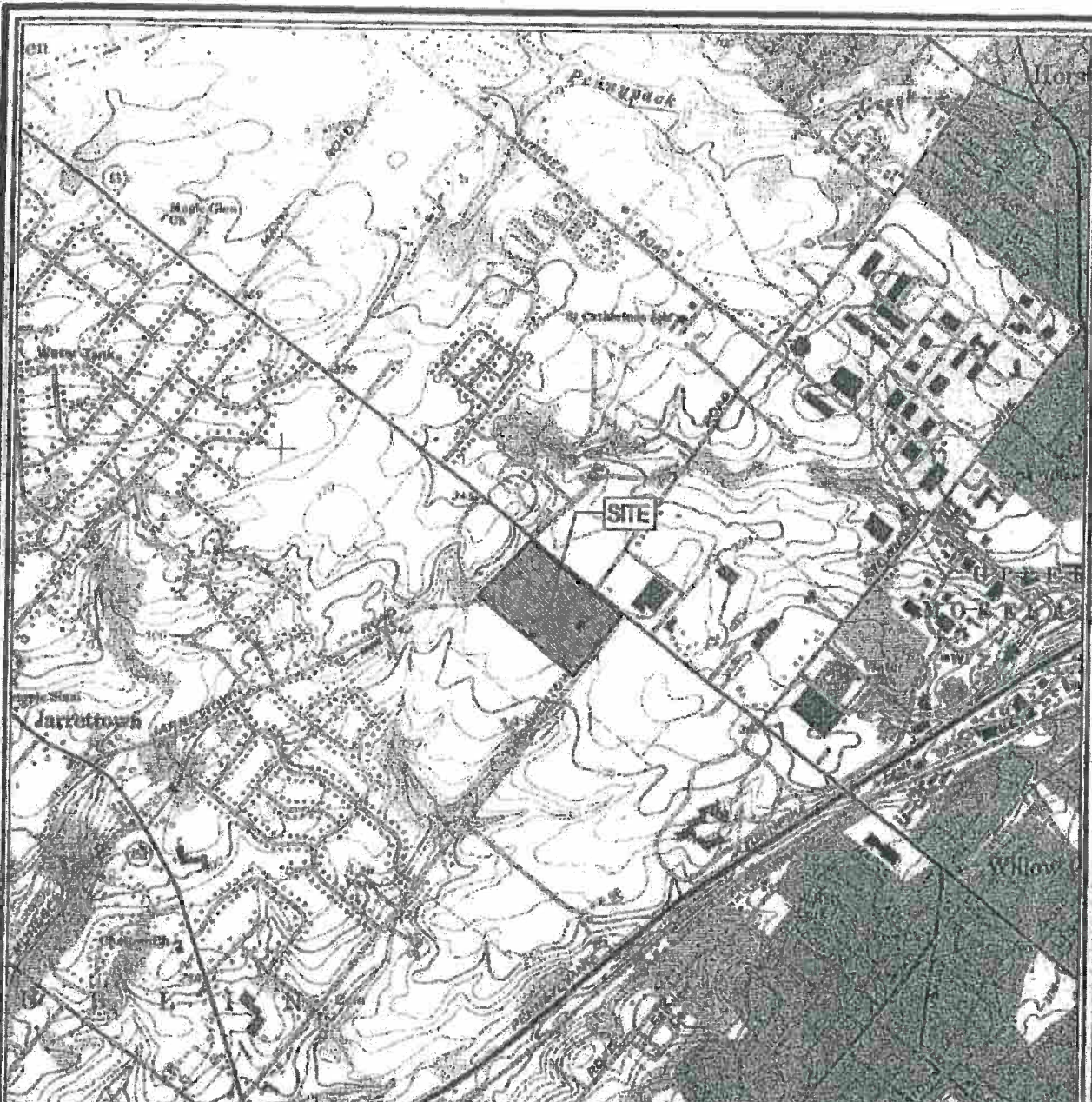
**Figure 10: Interpolated Arsenic & Lead Concentrations In Vicinity of Former Rose Nursery Structures (12-18")**

**Figure 11: Interpolated Arsenic and Lead Concentrations Within and In Vicinity of "Old" Soil Pile (0-6")**

**Figure 12: Interpolated Arsenic and Lead Concentrations Within and In Vicinity of "Old" Soil Pile (6-12")**

**Figure 13: Interpolated Arsenic and Lead Concentrations Within and In Vicinity of "Old" Soil Pile (12-18")**





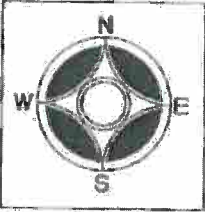
**BASE MAP USGS 7.5 MIN. AMBLER, PA QUADRANGLE**

**SITE (LOCATION APPROXIMATE)**

**FIGURE 1  
TOPOGRAPHIC MAP**

MADE FOR  
**THE CUTLER GROUP;  
ZEIGER PROPERTY**

SITUATE IN  
**UPPER DUBLIN TOWNSHIP  
MONTGOMERY COUNTY, PA**



**SCALE  
1"=2000'**

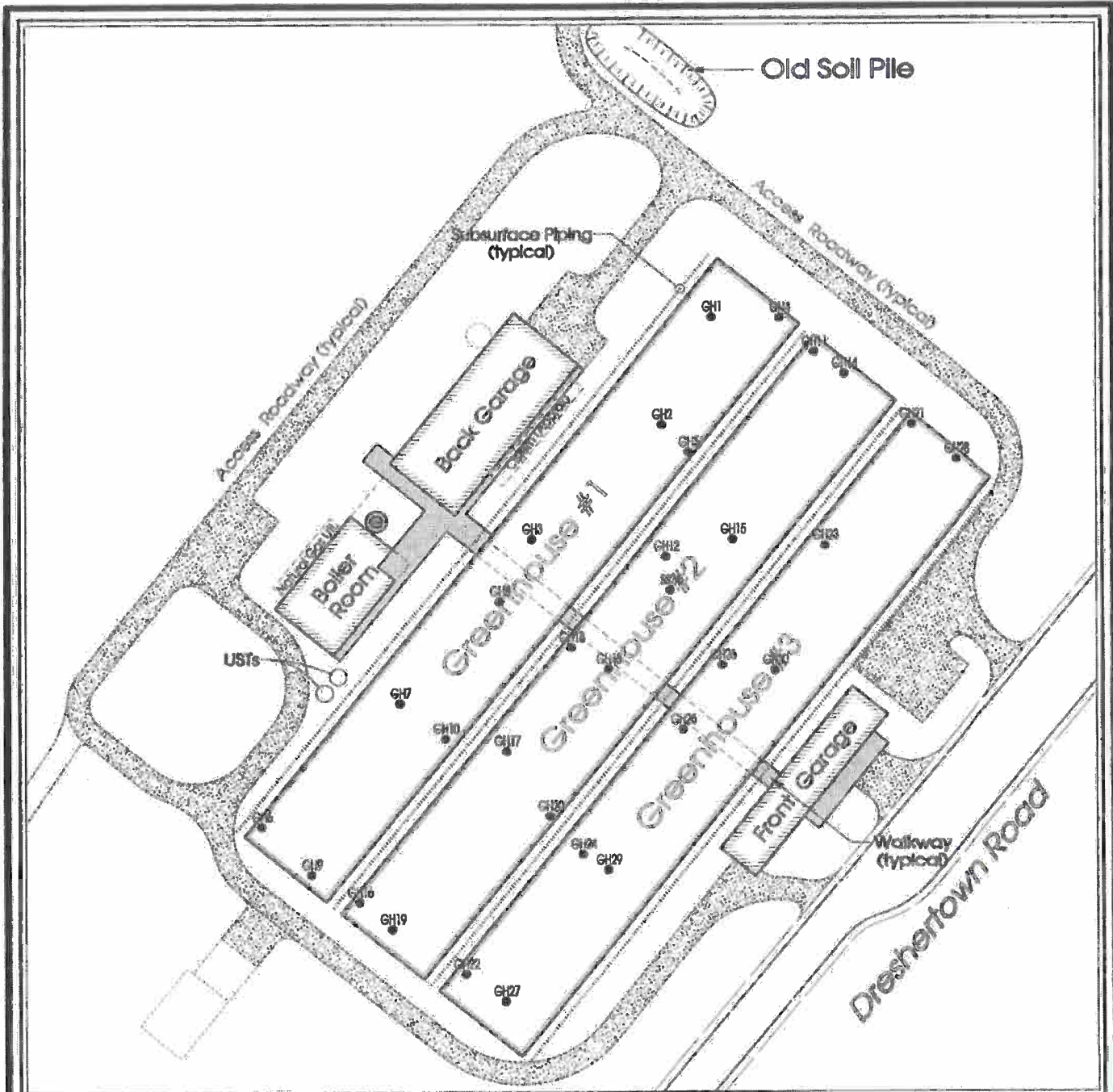
**GRAPHIC SCALE**

**Delval**  
Soil & Environmental  
Consultants Inc.

Sky Run E • Suite A1 • 4050 Skymon Drive • Doylestown, PA 18901  
Phone (215) 345-5545 Fax (215) 345-8138

**DELVAL# 05-611A**





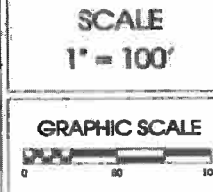
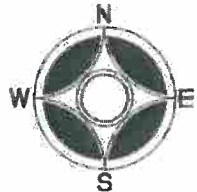
**LEGEND**

GH00 - SOIL SAMPLE LOCATION & IDENTIFICATION

**FIGURE 2  
GREENHOUSE INTERIOR  
SOIL SAMPLE LOCATIONS**

MADE FOR  
**THE CUTLER GROUP  
ZEIGER PROPERTIES**

SITUATE IN  
**UPPER DUBLIN TOWNSHIP  
MONTGOMERY COUNTY, PA**  
DELVAL# 05-611A

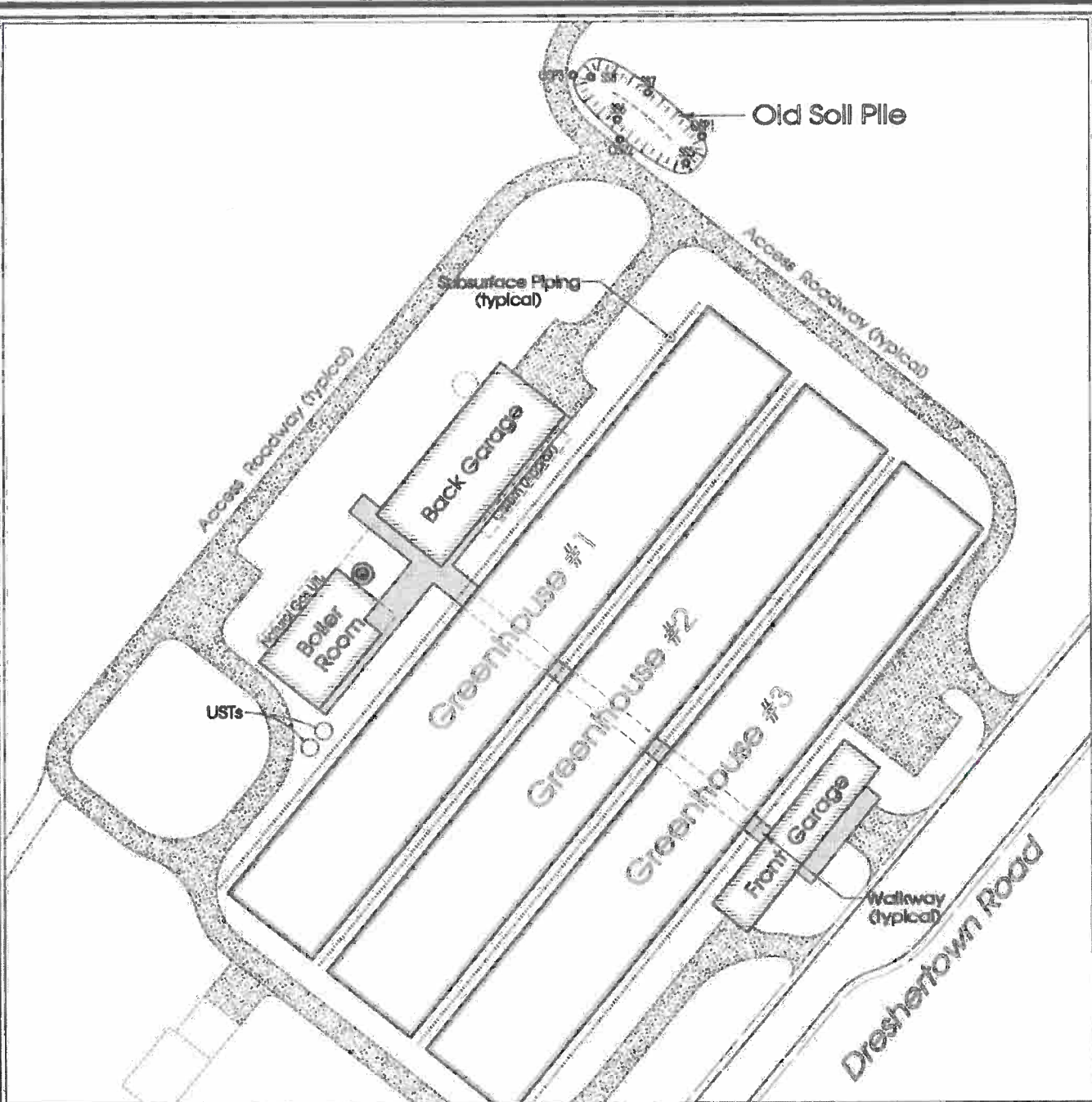


**DelVal**  
Soil & Environmental  
Consultants Inc.

Sky Run II • Suite A1 • 4250 Skyrun Drive • Doylestown, PA 18901  
Phone (215) 345-5545 Fax (215) 345-8138







Old Soil Pile

Access Roadway (typical)

Subsurface Piping (typical)

Access Roadway (typical)

Back Garage

Boiler Room

Greenhouse #1

Greenhouse #2

Greenhouse #3

USTs

Front Garage

Walkway (typical)

Dreshertown Road



SITE AREA  
DETAIL

**LEGEND**

OSPD  
● - SOIL SAMPLE LOCATION & IDENTIFICATION

**FIGURE 4:  
"OLD" SOIL PILE  
SOIL SAMPLE LOCATIONS**

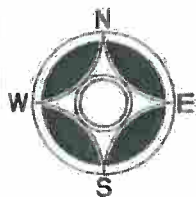
MADE FOR

***THE CUTLER GROUP  
ZEIGER PROPERTIES***

SITUATE IN

**UPPER DUBLIN TOWNSHIP  
MONTGOMERY COUNTY, PA**

DELVAL# 05-611A



**SCALE  
1" = 100'**

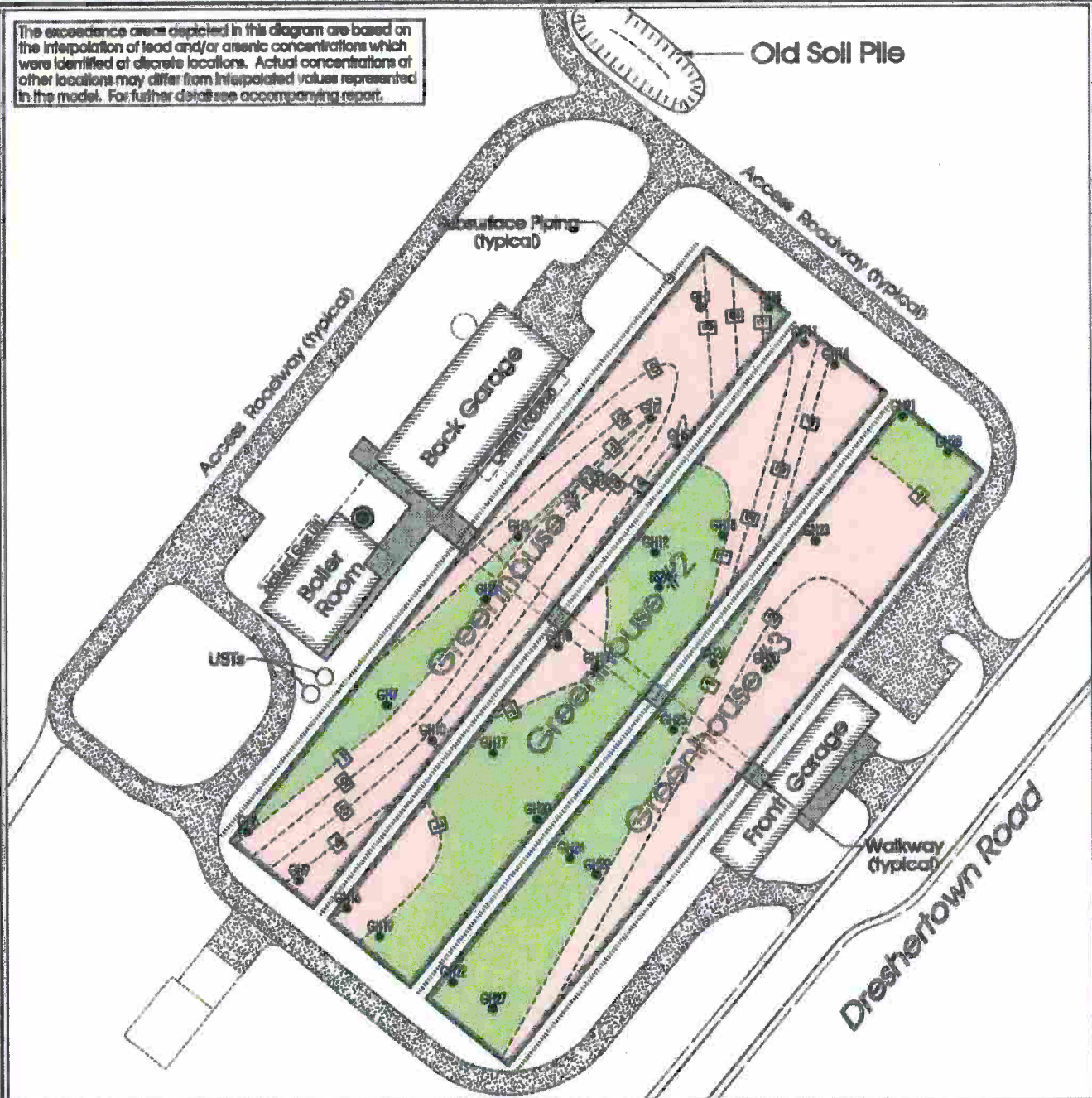
**GRAPHIC SCALE**



Sky Run II • Suite A1 • 4050 Skyrun Drive • Doylestown, PA 18901  
Phone (215) 345-5545 Fax (215) 345-8138



The exceedance areas depicted in this diagram are based on the interpolation of lead and/or arsenic concentrations which were identified at discrete locations. Actual concentrations at other locations may differ from interpolated values represented in the model. For further details see accompanying report.

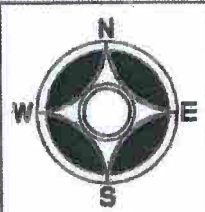


**LEGEND**

- SS00 - SOIL SAMPLE LOCATION & IDENTIFICATION
- EXCEEDANCE FACTOR 'CONTOUR' (EX: "2" INDICATES TWICE THE STANDARD)
- [Pink Box] - AREAS EXCEEDING PADEP STANDARDS FOR LEAD AND/OR ARSENIC (SEE NOTE, TOP LEFT)
- [Green Box] - AREAS MEETING PADEP STANDARDS FOR LEAD AND/OR ARSENIC (SEE NOTE, TOP LEFT)

**FIGURE 5:  
INTERPOLATED ARSENIC AND  
LEAD CONCENTRATIONS  
INSIDE GREENHOUSES (0-6')**

MADE FOR  
**THE CUTLER GROUP  
ZEIGER PROPERTIES**  
SITUATE IN  
**UPPER DUBLIN TOWNSHIP  
MONTGOMERY COUNTY, PA**  
DELVAL# 05-611A



**SCALE**  
1" = 100'

**GRAPHIC SCALE**

A horizontal scale bar with markings at 0, 50, and 100 feet.

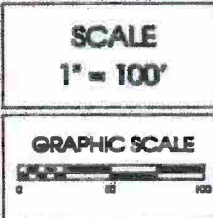
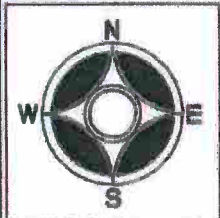
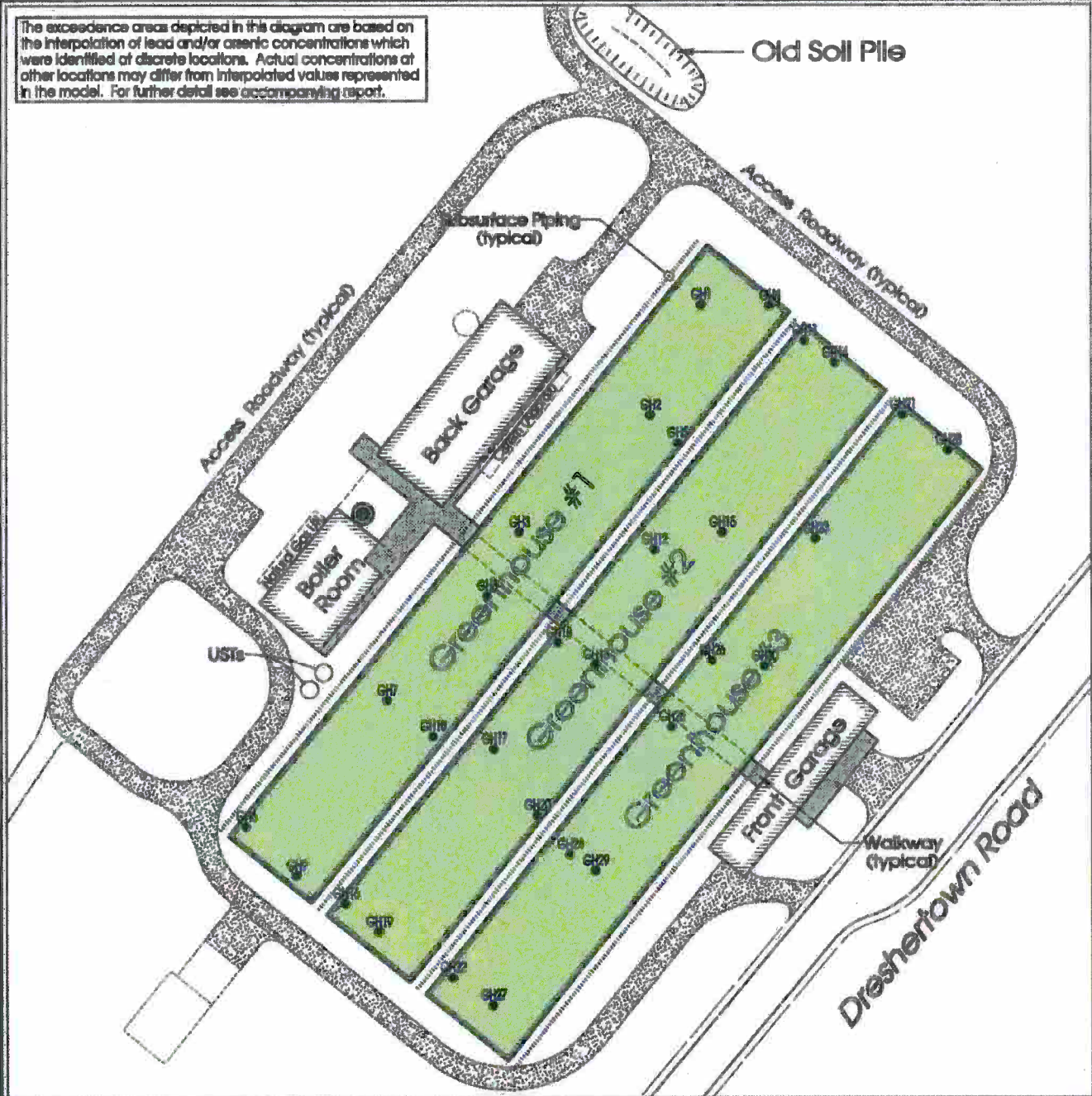
**Delval**  
Soil & Val  
Environmental  
Consultants Inc.

815 Elm St • Suite A1 • 4830 Sigma Drive • Dayton, OH 45424  
Phone (215) 345-8245 Fax (215) 345-8138

Delval is a registered service mark of Delval Environmental Consultants, Inc. © 2005 Delval Environmental Consultants, Inc.



The exceedence areas depicted in this diagram are based on the interpolation of lead and/or arsenic concentrations which were identified at discrete locations. Actual concentrations at other locations may differ from interpolated values represented in the model. For further detail see accompanying report.



**LEGEND**

- SS00 - SOIL SAMPLE LOCATION & IDENTIFICATION
- EXCEEDENCE FACTOR 'CONTOUR' (EX: "2" INDICATES TWICE THE STANDARD)
- AREAS EXCEEDING PADEP STANDARDS FOR LEAD AND/OR ARSENIC (SEE NOTE, TOP LEFT)
- AREAS MEETING PADEP STANDARDS FOR LEAD AND/OR ARSENIC (SEE NOTE, TOP LEFT)



My Run II • Suite A1 • 4879 Myrun Drive • Doylestown, PA 18901  
Phone (215) 345-5545 Fax (215) 345-6158

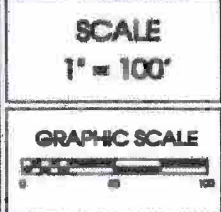
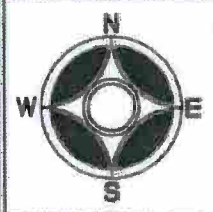
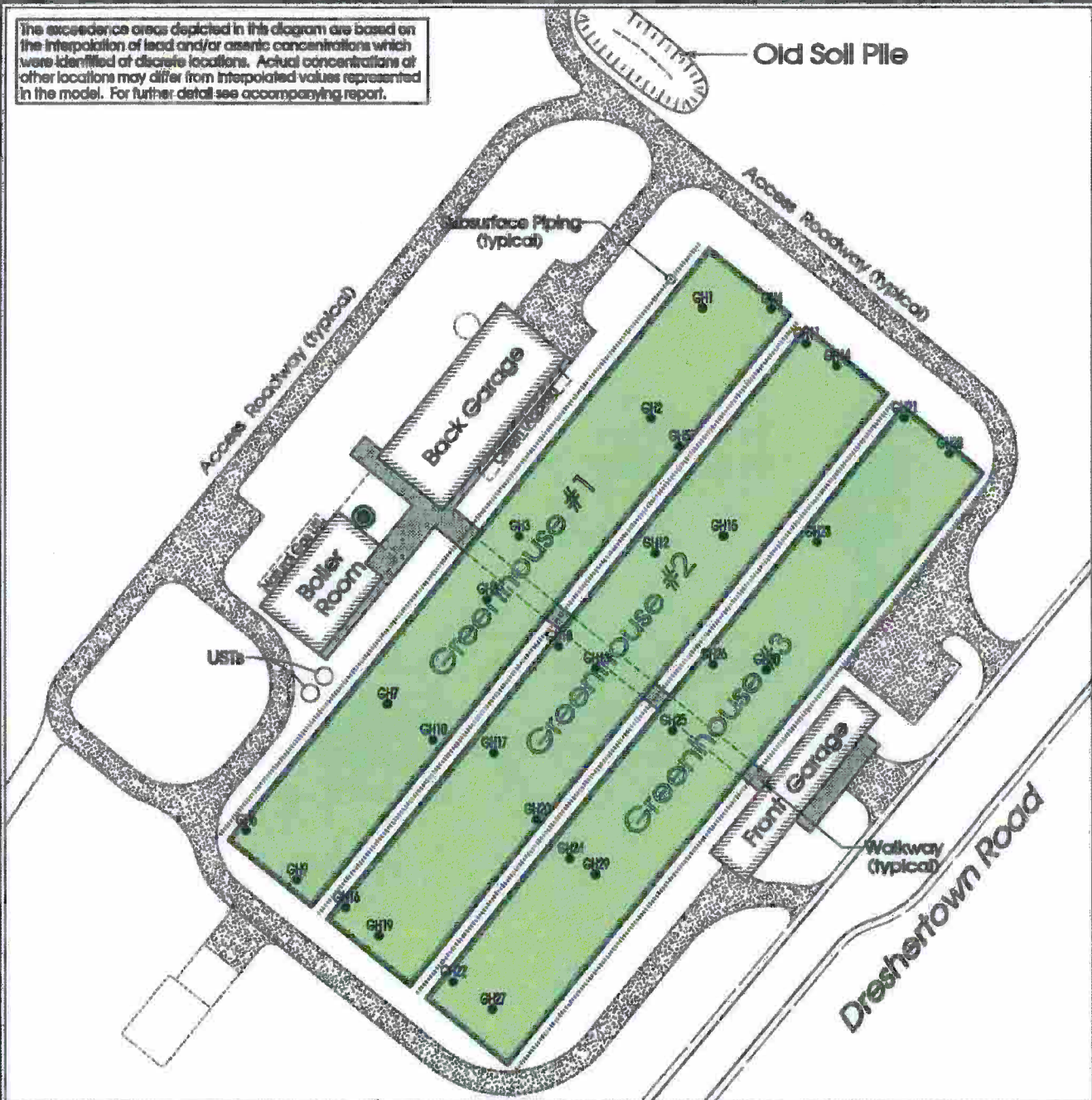
**FIGURE 6:  
INTERPOLATED ARSENIC AND  
LEAD CONCENTRATIONS  
INSIDE GREENHOUSES (6-12')**

MADE FOR  
**THE CUTLER GROUP  
ZEIGER PROPERTIES**  
SITUATE IN  
**UPPER DUBLIN TOWNSHIP  
MONTGOMERY COUNTY, PA**  
DELVAL# 05-611A

11/10/05 10:58 AM 2005/05/10 10:58 AM 2005/05/10 10:58 AM 2005/05/10 10:58 AM 2005/05/10 10:58 AM



The exceedance areas depicted in this diagram are based on the interpolation of lead and/or arsenic concentrations which were identified at discrete locations. Actual concentrations at other locations may differ from interpolated values represented in the model. For further detail see accompanying report.



**LEGEND**

- SOIL SAMPLE LOCATION & IDENTIFICATION
- EXCEEDANCE FACTOR "CONTOUR" (EX: "2" INDICATES TWICE THE STANDARD)
- AREAS EXCEEDING PADEP STANDARDS FOR LEAD AND/OR ARSENIC (SEE NOTE, TOP LEFT)
- AREAS MEETING PADEP STANDARDS FOR LEAD AND/OR ARSENIC (SEE NOTE, TOP LEFT)



315 Sun X • Suite A1 • 4050 Spruce Drive • Dreshertown, PA 19041  
 Phone (215) 345-3545 Fax (215) 345-8138

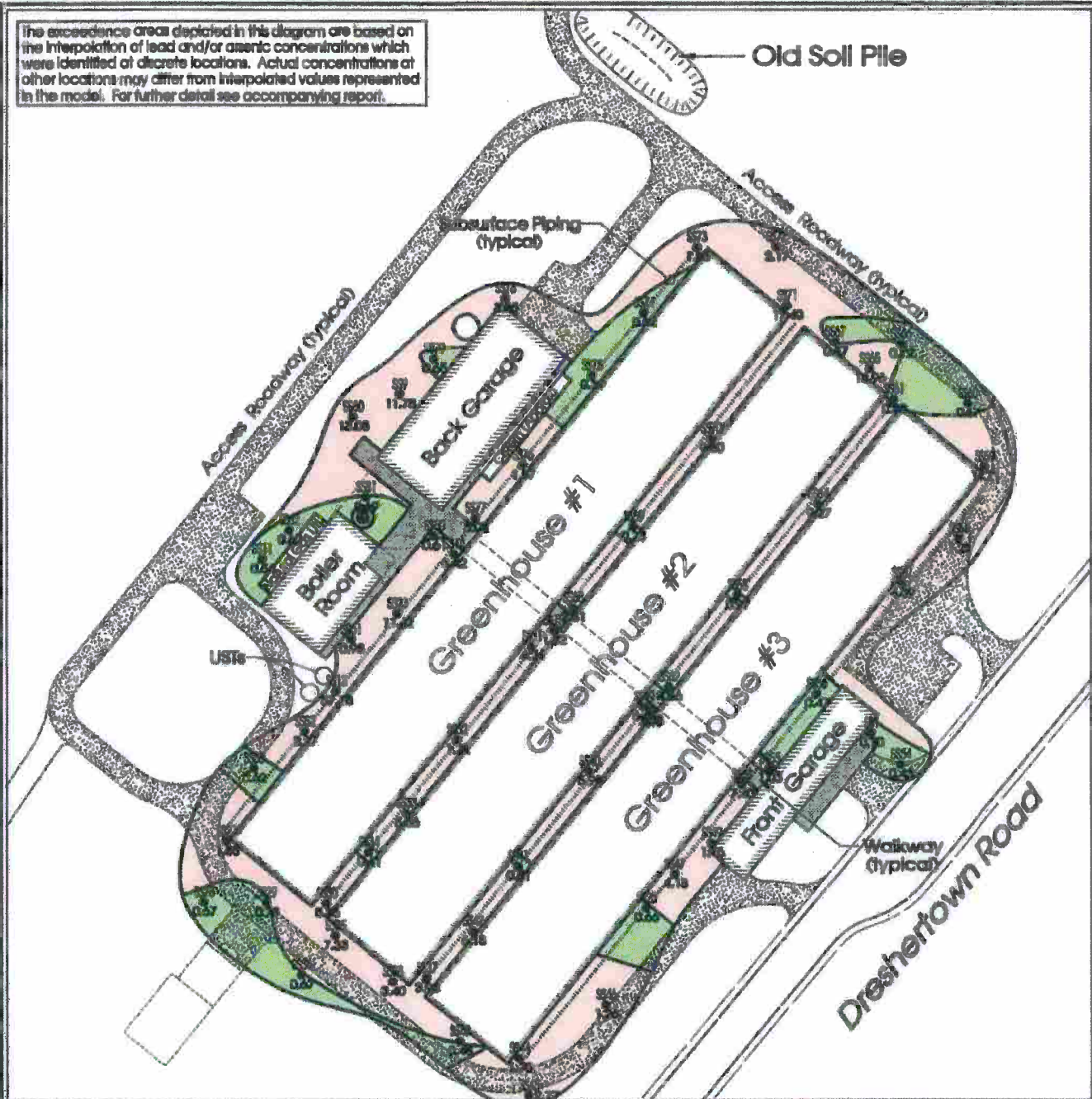
**FIGURE 7:  
 INTERPOLATED ARSENIC AND  
 LEAD CONCENTRATIONS  
 INSIDE GREENHOUSES (12-18')**

MADE FOR  
**THE CUTLER GROUP  
 ZEIGER PROPERTIES**  
 SITUATE IN  
 UPPER DUBLIN TOWNSHIP  
 MONTGOMERY COUNTY, PA  
 DELVAL# 05-611A

11 YEARS FOR ALL PROJECTS. NO FURTHER LIABILITY FOR CONSTRUCTION DEFECTS OR FOR OTHER DEFECTS. © 11-000705A



The exceedence area depicted in this diagram are based on the interpolation of lead and/or arsenic concentrations which were identified at discrete locations. Actual concentrations at other locations may differ from interpolated values represented in the model. For further detail see accompanying report.



**LEGEND**

- SOIL SAMPLE LOCATION & IDENTIFICATION
- EXCEEDENCE FACTOR "CONTOUR" (EX: "2" INDICATES TWICE THE STANDARD)
- AREAS EXCEEDING PADEP STANDARDS FOR LEAD AND/OR ARSENIC (SEE NOTE, TOP LEFT)
- AREAS MEETING PADEP STANDARDS FOR LEAD AND/OR ARSENIC (SEE NOTE, TOP LEFT)

**FIGURE 8: INTERPOLATED ARSENIC AND LEAD CONCENTRATIONS IN VICINITY OF FORMER ROSE NURSERY STRUCTURES (0-6')**

MADE FOR  
**THE CUTLER GROUP**  
**ZEIGER PROPERTIES**  
 SITUATE IN  
 UPPER DUBLIN TOWNSHIP  
 MONTGOMERY COUNTY, PA  
 DELVAL® 05-611A



**SCALE**  
 1" = 100'

**GRAPHIC SCALE**

**Delval**  
 Soil & Environmental Consultants Inc.

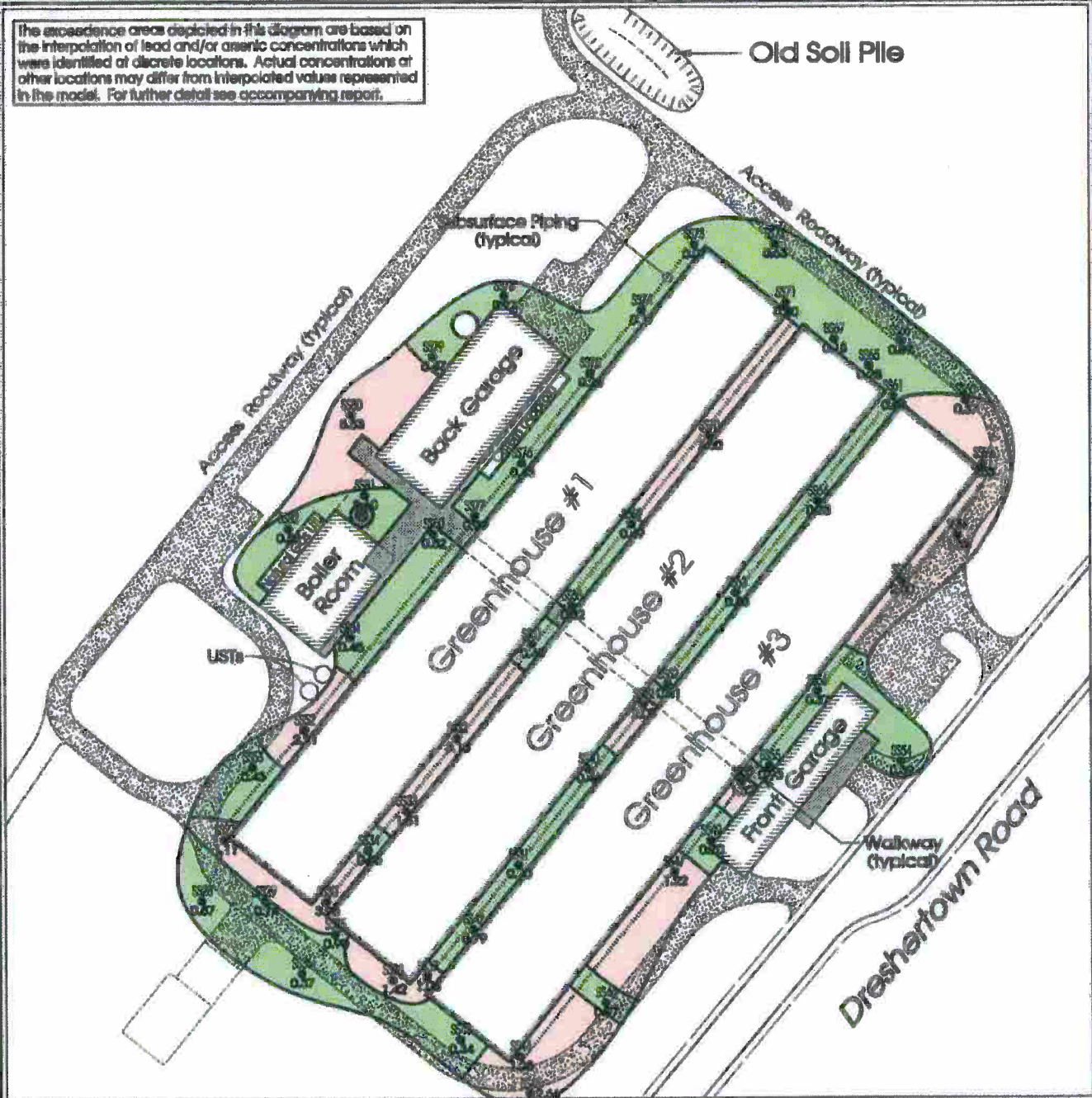
3150 Route 202 • Suite A1 • 4090 Highway Drive • Doylestown, PA 19501  
 Phone (215) 245-2545 Fax (215) 245-6138







The exceedence areas depicted in this diagram are based on the interpolation of lead and/or arsenic concentrations which were identified at discrete locations. Actual concentrations at other locations may differ from interpolated values represented in the model. For further detail see accompanying report.



SCALE  
1" = 100'



- LEGEND**
- SSPO - SOIL SAMPLE LOCATION & IDENTIFICATION
  - EXCEEDENCE FACTOR 'CONTOUR' (EX: "2" INDICATES TWICE THE STANDARD)
  - AREAS EXCEEDING PADEP STANDARDS FOR LEAD AND/OR ARSENIC (SEE NOTE, TOP LEFT)
  - AREAS MEETING PADEP STANDARDS FOR LEAD AND/OR ARSENIC (SEE NOTE, TOP LEFT)

**Delval**  
Soil & Environmental Consultants Inc.

855 East II • Suite A1 • 4070 Glynn Drive • Dayton, OH 45424  
Phone (215) 345-3545 Fax (215) 345-6136

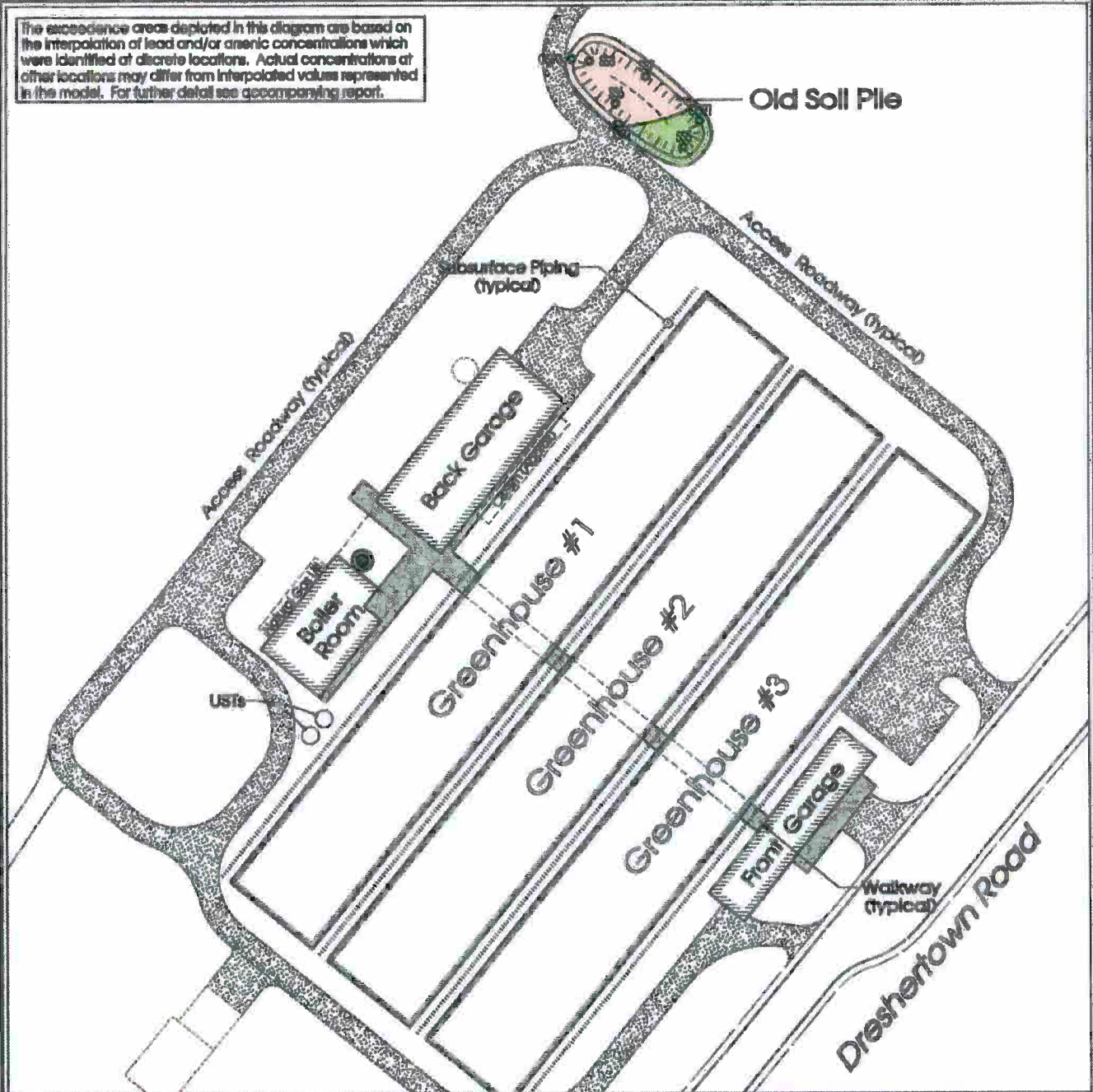
**FIGURE 10: INTERPOLATED ARSENIC AND LEAD CONCENTRATIONS IN VICINITY OF FORMER ROSE NURSERY STRUCTURES (12-18')**

MADE FOR  
**THE CUTLER GROUP  
ZEIGER PROPERTIES**  
SITUE IN  
UPPER DUBLIN TOWNSHIP  
MONTGOMERY COUNTY, PA  
DELVAL# 05-611A

11/18/2005 10:30 AM D:\Projects\05-611A\Delval\Drawings\05-611A\Fig10.dwg (PLOT) 11/18/2005 10:30 AM



The exceedence areas depicted in this diagram are based on the interpolation of lead and/or arsenic concentrations which were identified at discrete locations. Actual concentrations at other locations may differ from interpolated values represented in the model. For further detail see accompanying report.

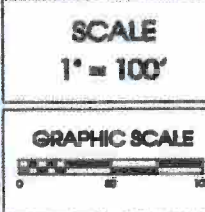
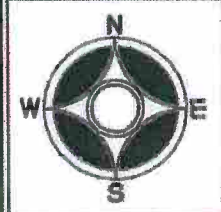


**LEGEND**

- SP0 - SOIL SAMPLE LOCATION & IDENTIFICATION
- EXCEEDENCE FACTOR "CONTOUR" (EX: "2" INDICATES TWICE THE STANDARD)
- AREAS EXCEEDING PADEP STANDARDS FOR LEAD AND/OR ARSENIC (SEE NOTE, TOP LEFT)
- AREAS MEETING PADEP STANDARDS FOR LEAD AND/OR ARSENIC (SEE NOTE, TOP LEFT)

**FIGURE 11: INTERPOLATED ARSENIC AND LEAD CONCENTRATIONS WITHIN AND IN VICINITY OF 'OLD' SOIL PILE (0-6')**

MADE FOR  
**THE CUTLER GROUP**  
**ZEIGER PROPERTIES**  
 SITUATE IN  
 UPPER DUBLIN TOWNSHIP  
 MONTGOMERY COUNTY, PA  
 DELVAL# 05-611A



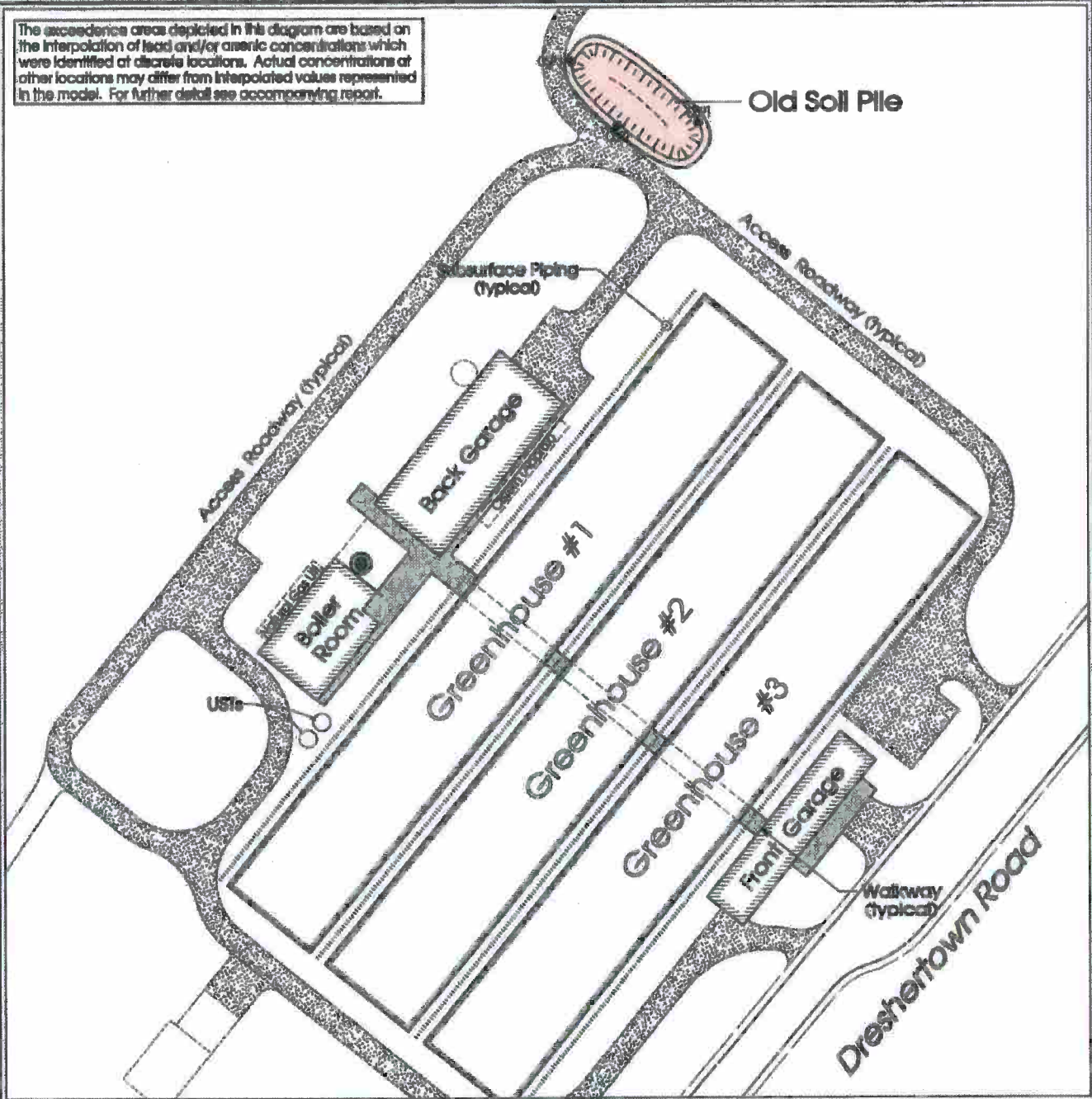
**Delval**  
 Soil & Val  
 Environmental  
 Consultants Inc.

3150 Rock Hill • Suite A1 • 4650 Spang Drive • Dresher, PA 19021  
 Phone (215) 345-2545 Fax (215) 345-6158

11/10/05 Delval Ref:1039.rpt (Rev: 0505) Job#05-611A C:\delval\PROJECTS\05-611A\FIGURE 11\FIGURE 11.dwg 11/10/05



The exceedence areas depicted in this diagram are based on the interpolation of lead and/or arsenic concentrations which were identified at discrete locations. Actual concentrations at other locations may differ from interpolated values represented in the model. For further detail see accompanying report.

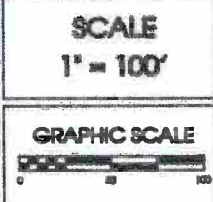
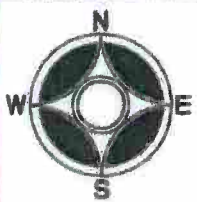


**LEGEND**

- SP0 - SOIL SAMPLE LOCATION & IDENTIFICATION
- EX - EXCEEDENCE FACTOR "CONTOUR" (EX: "2" INDICATES TWICE THE STANDARD)
- - AREAS EXCEEDING PADEP STANDARDS FOR LEAD AND/OR ARSENIC (SEE NOTE, TOP LEFT)
- - AREAS MEETING PADEP STANDARDS FOR LEAD AND/OR ARSENIC (SEE NOTE, TOP LEFT)

**FIGURE 12: INTERPOLATED ARSENIC AND LEAD CONCENTRATIONS WITHIN AND IN VICINITY OF 'OLD' SOIL PILE (6-12')**

MADE FOR  
**THE CUTLER GROUP**  
**ZEIGER PROPERTIES**  
 SITUATE IN  
 UPPER DUBLIN TOWNSHIP  
 MONTGOMERY COUNTY, PA  
 DELVAL# 05-611A

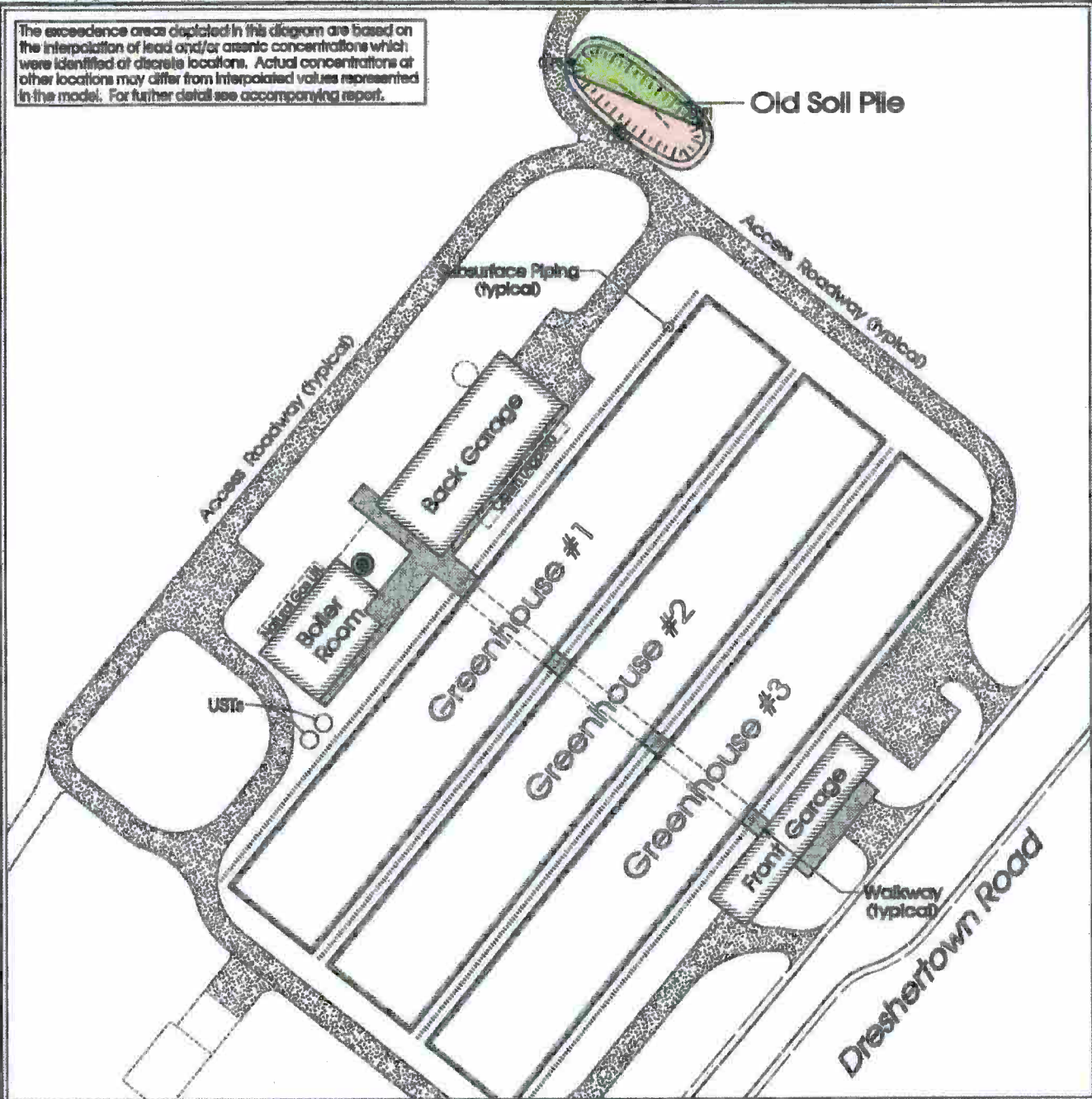


845 Run II • Suite A1 • 4850 Upper Dublin • Doylestown, PA 18901  
 Phone (215) 346-3248 Fax (215) 346-6138

THIS REPORT AND THE DATA AND INFORMATION CONTAINED HEREIN ARE THE PROPERTY OF DELVAL AND ARE NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM.



The exceedence areas depicted in this diagram are based on the interpolation of lead and/or arsenic concentrations which were identified at discrete locations. Actual concentrations at other locations may differ from interpolated values represented in the model. For further detail see accompanying report.



Old Soil Pile

Subsurface Piping (typical)  
Access Roadway (typical)

Access Roadway (typical)  
Back Garage

Boiler Room

USTs

Greenhouse #1

Greenhouse #2

Greenhouse #3

Front Garage

Walkway (typical)

Dreshertown Road

SITE AREA  
DETAIL



**LEGEND**

- SOIL SAMPLE LOCATION & IDENTIFICATION
- EXCEEDENCE FACTOR "CONTOUR" (EX: "2" INDICATES TWICE THE STANDARD)
- AREAS EXCEEDING PADEP STANDARDS FOR LEAD AND/OR ARSENIC (SEE NOTE, TOP LEFT)
- AREAS MEETING PADEP STANDARDS FOR LEAD AND/OR ARSENIC (SEE NOTE, TOP LEFT)

**FIGURE 13: INTERPOLATED ARSENIC AND LEAD CONCENTRATIONS WITHIN AND IN VICINITY OF 'OLD' SOIL PILE (12-18)**

MADE FOR  
**THE CUTLER GROUP  
ZEIGER PROPERTIES**

SITUATE IN  
**UPPER DUBLIN TOWNSHIP  
MONTGOMERY COUNTY, PA**

DELVAL# 05-611A



SCALE  
1" = 100'



345  
**DelVal**  
Soil &  
Environmental  
Consultants Inc.  
Sky Run II - Suite A1 - 4650 Skyway Drive - Dayton, OH 45424  
Phone (219) 345-3545 Fax (219) 345-8128