CORRECTIVE MEASURES STUDY FOR EXCAVATED SOIL STOCKPILE AT CHOCCOLOCCO CREEK WASTE WATER TREATMENT PLANT OXFORD, ALABAMA

Solutia, Inc. – Anniston Facility

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1 INTRODUCTION

The Anniston Waste Water Treatment Plant is located in Oxford, Alabama on the west side of Snow Creek, near its confluence with Choccolocco Creek. The location of the facility is shown on Sheet 1 of the attached drawings. The Anniston Water Works and Sewer Board (Board) is conducting a plant expansion which is required to bring the facility back into compliance with permitted discharge standards. The expansion includes construction of three detention ponds, a headworks building, an odor control scrubber unit, two grit basins, a new maintenance building, a peak flow pump station, a groundwater pumping station and associated gravity (peak flow) piping, new force mains, and wash down lines. To date, two of the three detention basins have been excavated and the excavated spoil has been stockpiled on the east bank of Snow Creek, directly across from the treatment facility. The stockpile contains approximately 60,000 cubic yards of soil from the floodplain of Snow Creek, and analytical results from soil samples collected from the stockpile indicate that the soil contains polychlorinated biphenyls (PCBs). Construction of the third pond has not yet begun and construction activities at the facility have temporarily been suspended while the various issues on the site are resolved.

Portions of the facility lie within the 100-year floodplain of Snow Creek. Since the floodplain is within an Area of Concern under investigation as part of a RCRA Facility Investigation (RFI) currently being performed by Solutia, Solutia is assisting the Board with evaluating alternatives for completing the construction. This assistance includes identifying and evaluating measures designed to best manage the stockpiled material.

In order to allow the Board to proceed with construction of some portions of the expansion, an Interim Measures Plan (IMP) for limited excavations in the western portion of the property was submitted to the Alabama Department of Environmental Management (ADEM) on October 4, 2001. The plan was approved by ADEM in a letter dated December 12, 2001 and is currently being implemented. Additional design

analyses are also being carried out to evaluate alternative process layouts which will either minimize or eliminate the use of detention ponds. The analysis of these alternatives will be presented in a future Corrective Measures Study (CMS) that will be submitted to ADEM.

In a letter dated September 26, 2001, ADEM requested Solutia to prepare an RFI/CMS report evaluating possible alternatives for managing the excavated soils stockpiled on the east bank of the creek. This report is submitted in response to that request.

2 SITE BACKGROUND AND HISTORY

2.1 Site Description

The site consists of approximately 49 acres, 33 of which are located on the west side of Snow Creek, which runs through the site. The existing wastewater treatment facilities and the current expansion project are all located on the west side of the creek. As previously noted, the excavated material is stockpiled on the east side of Snow Creek.

The stockpile is irregular in shape and covers between 11 and 12 acres. It consists of two distinct areas, the first of which extends along the bank of Snow Creek for a distance of approximately 1,500 feet. In this area, the stockpile height averages about 8 to 10 feet. The second area of the stockpile is located to east of this first area and consists of a number of conical piles representing individual or, at most a few, truck loads of material. The average height of these individual piles is in the order of 3 to 5 feet.

The entire stockpile area is covered with polyethylene sheet and erosion control measures have been installed around the area to prevent soil migration into Snow Creek during and after precipitation events. The cover and erosion control measures are inspected on a regular basis and are repaired as necessary by the Board.

2.2 Previous Investigations

Soils at the site have been sampled and analyzed for PCBs on two previous occasions. The first of these occurred in 2000 and consisted of the collection of 13 samples from the stockpiled material. These samples were located in the near surface soils along the portion of the stockpile immediately adjacent to the creek bank (NP-01 through NP-05, CC, SP-01 through SP-05) and on the top of the same area of the pile (NP-Top and SP-Top). The samples were screened for the presence of PCBs using immunoassay kits and all were forwarded to a laboratory for PCB analyses using SW-846 Method 8082. The

analytical results are presented in Appendix A of this plan. PCBs were detected in all of the samples, at concentrations ranging from 0.33 mg/kg to 56 mg/kg.

The second sampling event occurred in May 2001 and was carried out in response to an Administrative Order on Consent (AOC) issued by ADEM to the Board on September 29, 2000. The AOC required the Board to submit a Soil Investigation Work Plan that addressed PCB sampling of all areas that may be excavated during construction of the facility expansion. The Work Plan was submitted to ADEM on November 2, 2000, by Solutia and a revised version of that plan was approved in a letter dated April 11, 2001.

The investigation was carried out between May 7 and May 19, 2001, and a total of 324 samples were collected from the portion of the facility on the western side of Snow Creek. These samples were analyzed for PCBs using either immunoassay screening, laboratory analyses conforming to the requirements of SW-846 Method 8082, or both. The results of the investigation were presented to ADEM in a report dated August 15, 2001, and are summarized on Sheets 2, 3, 4, and 5 of the attached drawings. These results show that PCB-containing sediments were generally encountered to depths in the range of 0 to 4 feet, and as deep as 12 feet in isolated areas. On the drawings, the PCB concentrations have been color coded to reflect values falling in one of three ranges: orange for concentrations exceeding 50 mg/kg, yellow for concentrations between 50 and 1 mg/kg, and green for concentrations less than 1 mg/kg. The number of samples having PCB concentrations falling in one of the three ranges is as follows:

- 26 samples contained PCB concentrations greater than 50 mg/kg,
- 109 samples contained PCB concentrations between 1 and 50 mg/kg, and
- 199 samples contained PCB concentrations less than 1 mg/kg.

Thus, while PCBs are present in the surface and near-surface soils across the site, the vast majority of the reported concentrations were below 50 mg/kg. In fact, 88 percent of the samples contained PCBs at concentrations less than 25 mg/kg, the level defined to be

acceptable for unrestricted low occupancy use in 40 CFR 761 61, and approximately 84 percent of the reported results are below 10 mg/kg.

3 CORRECTIVE ACTION OBJECTIVES

As noted in the introduction of this report, the CMS presented herein is limited to consideration of appropriate corrective action objectives and alternatives for the management of the stockpiled soils. A separate CMS for the management of PCB containing soils disturbed during construction of the remainder of the expansion will be submitted to ADEM once alternative designs and process flow development have been completed. Apart from the work described in the approved Interim Measures Plan, no additional construction will be undertaken at the site until either CMS has been approved by ADEM.

The objectives of the corrective actions to be implemented for management of the stockpiled soils are the following:

- to minimize the potential human and ecological exposure to PCB containing soils in the stockpile;
- to prevent erosion and downstream transport of PCB containing soils, both during construction and in the long term;
- to allow on-going use of the property as a waste water treatment facility for the foreseeable future.

The alternatives correctives measure evaluated in this report all satisfy these objectives.

4 SCREENING OF CORRECTIVE MEASURE TECHNOLOGIES

The available technologies to address the previously excavated soils within the proposed work area fall into three broad groups: a) treatment (either ex situ or in situ); b) removal (complete or partial); and c) containment and isolation. Each of these groups is separately discussed below.

4.1 Treatment

While a significant amount of research work regarding the treatment of PCBs in environmental media is on-going, none of the technologies can be considered to be effective at this time. The effectiveness, useful life, and reliability of any of these technologies are all considered to be uncertain. Therefore, no treatment technologies are considered to be suitable for use on this project and will not be considered for inclusion in any corrective measure alternatives.

4.2 Removal

Removal would consist of the excavation of all or some portion of the affected sediments and disposal at an appropriately permitted landfill facility.

4.3 Containment and Isolation

Containment and isolation technologies at the site consist of regrading and consolidation of the stockpiled soils into a more compact pile and the construction of a cover over the regraded pile.

5 EVALUATION OF CORRECTIVE MEASURE ALTERNATIVES

Prior to implementation of any of the final measures evaluated in this study, the Interim Measures defined in the approved Interim measures Plan and noted in Section 1 will have been completed. Although it is not anticipated that soils and sediments with PCB concentrations greater than 50 mg/kg will be encountered during construction of the Interim Measures, if any such materials are identified, they will be transported off-site to a permitted TSCA facility for disposal. Materials with PCB concentrations between 1 mg/kg and 50 mg/kg will have been stockpiled on-site in an area immediately west of Detention Basin 1 and this stockpiled material will be managed as discussed in each corrective action alternative discussed below.

Based on the corrective action objectives defined in Section 3.0 and an evaluation of the available technologies, the corrective action alternatives which are considered to be feasible for use with the stockpiled soils are the following:

- Alternative 1: Removal of all stockpiled material and off-site disposal at a permitted TSCA facility. With this alternative, the material stockpiled during construction of the Interim Measures (estimated to be 1000 cu. yd.) will also be taken off-site for disposal.

- Alternative 2: Characterization of the stockpiled material, followed by removal and offsite disposal of soils with PCB concentrations greater than, or equal to, 50 mg/kg. The material remaining on site will be covered with a low permeability cover. With this alternative, the material stockpiled during construction of the Interim Measures will be transported across the creek and incorporated into the large stockpile before the cover is constructed.

- Alternative 3: Containment and isolation of all soils and sediments in the stockpile, including material stockpiled during construction of the Interim Measures, which will be transported across the creek.

Prior to constructing the containment and isolation measures described in Alternatives 2 and 3, the stockpiled soils will be regraded and consolidated to provide a more compact pile with a reduced footprint.

Each of these alternatives is evaluated in this section.

5.1 Elements Common To All Alternatives

All of the alternatives identified in this CMS will involve earthwork construction in proximity to Snow Creek. Because the stockpiled soils contain PCBs, minimization of any potential migration of PCB containing soils is an essential part of the work to be performed. In addition, all of the alternatives will require culverts to be placed in Snow Creek to permit access for construction equipment. Each of these requirements is discussed below.

5.1.1 Erosion And Sediment Control

Prior to the start of construction, a Best Management Practices (BMP) Plan will be prepared. This plan will identify the erosion and sediment controls to be constructed at the site and will include, at a minimum, the need for silt fence and hay bale barriers around the entire construction site. In addition, rock check dams will be constructed across any drainage swales identified at the site.

Despite these robust control measures, it is still possible that some soil migration into the creek will occur. In order to define the effects of any such migration, water samples will be obtained each day construction is in progress at one upstream and one downstream location in the creek. The samples will be analyzed for turbidity and if the downstream turbidity exceeds the upstream value by more than one order of magnitude, additional water samples will be obtained for PCB analyses. Sufficient sample volume will be collected at each location to allow for split samples to be collected. One split will be analyzed for Total Suspended Solids (TSS) and for PCBs as a whole water sample, while

the other split will be filtered to remove the suspended solids. These will be analyzed for PCBs. Additional erosion and sediment control measures will be constructed in those areas that are judged to be the likely cause of the increased turbidity.

5.1.2 Culvert Crossings

Culverts in Snow Creek will be required by all alternatives to allow access for construction equipment and for hauling PCB containing soils off-site (Alternatives 1 and 2) or for hauling borrow fill on-site for construction of a multi-layer cover (Alternatives 2 and 3). The culvert required for Alternative 1 and, to a lesser extent, for Alternative 2 will be more robust that that needed for Alternative 3 since a greater number of loaded vehicles will cross the culverts during construction of these alternatives. However, it is likely that the culvert construction details will be the same for all three alternatives. The difference will be in the amount of maintenance each alternative will require.

The culverts will require careful design to ensure their stability during the construction operations. However, it is likely that the basic construction detail will consist of precast concrete or steel arch culverts placed in the creek bed, supported by a cradle of crushed stone. The crushed stone will be brought up to provide a low point in the center of the crossing approximately one foot lower than the creek bank elevation. This will permit the creek to safely overflow the crossing during high flow events.

5.2 Alternative 1 – Removal and Off-Site Disposal of all Stockpiled Soils

5.2.1 Description

This alternative involves the removal of all stockpiled soils on the eastern bank of Snow Creek and disposal of these materials at a permitted TSCA facility. The soils in the temporary stockpile constructed during the Interim Measures will be disposed of at a Subtitle D facility since the extensive characterization performed in May 2001 indicates

that the PCB concentrations in these soils, where present, is less than 50 mg/kg. Consequently, the volume to be disposed of at a TSCA facility will be approximately 60,000 cu. yd., with an additional 1000 cu. yd. being sent to a Subtitle D landfill. These quantities assume that soil removal will cease once the original ground surface is encountered. No verification sampling will be performed once the stockpiled soils have been removed, since it is probable that the original floodplain soils on this bank of the creek also contained PCBs prior to the excavated soil being stockpiled there. Appropriate corrective measures for the floodplain soils in this bank will be defined during the CMS for the Choccolocco Creek floodplain.

5.2.2 Effectiveness

This alternative will result in the removal of all PCB-impacted soils excavated during the construction of the facility expansion. However, because of the extensive area of soil removal and the proximity of the removal work to Snow Creek, construction operations will likely result in the re-suspension and downstream transport of impacted soils.

5.2.3 Useful Life

This alternative provides an unlimited service life.

5.2.4 Operation and Maintenance

This alternative will not require periodic operation and maintenance.

5.2.5 Reliability

Excavation and off-site disposal is a proven technology that has been widely used.

5.2.6 Implementability

Construction of this alternative will require the transport of over 60,000 cu. yd of soil (approximately 4,000 truckloads) across Snow Creek in order to remove it from the site. Despite the utmost care, and with the use of the most robust of erosion and sedimentation control measures, it is likely that this will result in re-suspension and downstream transport of impacted soils. In addition, the culvert crossing required to carry this large number of trucks across the creek will entail careful engineering and extensive maintenance.

5.2.7 Safety of Installation

Excavation and transport of impacted soils will present potential risks to users of Friendship Road and Highway 21 from increased vehicular traffic and trucks entering and leaving the highway. It is estimated that upwards of 4,000 truckloads of material will have to be transported off-site. This will represent a very significant increase over the current road usage.

5.2.8 Environmental

Removal of the stockpiled soils will preclude future contact with them. However, removal does entail potential short-term impacts if downstream transport of fugitive sediments occurs during construction. These impacts can be minimized by the use of effective erosion and sediment controls during excavation. Nevertheless, because of the extensive area of excavation within a low lying floodplain, it is unlikely that these impacts can be totally prevented.

5.2.9 Human Health

Implementation of this alternative will result in long-term reduction in potential exposure to the materials removed. However, this alternative presents the greatest short term potential risks to highway users from construction traffic. In addition, it increases the

potential long-term risks associated with exposure to impacted soils since it will probably result in migration of these soils into the creek.

It must also be recognized that removal of the stockpiled soil will not necessarily remove all potential risks posed by PCB containing soils and sediments in this area of the floodplain. If PCBs were present in the soils and sediments prior to the creation of the stockpile, those PCBs will remain there until appropriate corrective measures are implemented in the floodplain.

5.2.10 Institutional

Since the stockpiled materials contain PCBs at concentrations greater than 50 mg/kg, they will be sent to a landfill permitted to receive and dispose of TSCA waste; however, the soils stockpiled during the Interim Measures will not contain PCBs at concentrations greater than 50 mg/kg and will be sent to a Subtitle D facility. No other institutional controls will be required.

5.2.11 Cost

The total cost to implement this alternative is estimated to be about $21,000,000. Details of this cost estimate are shown below:

Direct Capital Costs

Erosion and Sediment Controls	Allow	$50,000
Culvert Crossing	Allow	$100,000
Excavating and Loading	61,000 cu. yd. @ $5/cu. yd.	$305,000
Transportation	60,000 cu. yd. @ $40/cu. yd.	$2,400,000
TSCA Disposal	60,000 cu. yd. @ $200/cu. yd.	$12,000,000
Subtitle D Transport and Disposal	1,000 cu. yd. @ $30/cu. yd.	$30,000
Seeding and Restoration	Allow	$50,000
Subtotal Direct Capital Costs		**$14,935,000**

Indirect Capital Costs		
Engineering and Oversight	20%	$2,987,000
Contingency	20%	$2,987,000
Subtotal Indirect Capital Costs		**$5,974,000**
Total Capital Cost		**$20,909,000**

Operation and Maintenance (O&M) Costs

Annual O&M costs None

Total Present Value Cost **$20,909,000**

5.3 Alternative 2 – Selective Off-Site Disposal and On-Site Containment

5.3.1 Description

This alternative requires the characterization of the soils in the stockpile in order to differentiate those areas of the pile that contain soils with PCB concentration equal to or greater than 50 mg/kg. Once the characterization is complete, an excavation plan will be developed and these soils will be transported off-site for disposal at a landfill permitted to accept TSCA waste. The presently available sample data do not allow the accurate estimation of the quantity of material that will be taken off-site. However, some estimate of this quantity can be made by using the data obtained on the west side of the creek.

Examination of Figures 3, 4, and 5 suggests that soils with PCB concentrations equal to, or greater than, 50 mg/kg appear to be limited to the eastern third of the plant site i.e., at the locations of Detention Basins 2 and 3. Thus, for estimating purposes, it seems reasonable to assume that the soils in the upper two feet of Detention Basin 2 all contained PCBs in excess of 50 mg/kg, while the PCB concentrations in the rest of the

excavated soil were all less than 50 mg/kg. Using this assumption, it is estimated that about 5,000 cu. yd. of soil containing PCBs at concentrations in excess of 50 mg/kg were transported across the creek and placed in the stockpile. Because of construction limitations, it is likely that additional material will be unavoidably included when these soils are removed and transported off-site. Based on experience with similar situations, it is considered that a 50 percent allowance will be adequate for this eventuality and, consequently, it is assumed that 8,000 cu. yd. of the stockpiled soils will be disposed of at an off-site landfill.

The remaining 53,000 cu. yd. of stockpiled soil (including the estimated 1000 cu. yd. produced during construction of the Interim Measures) will be regraded and consolidated. As previously noted, the stockpile consists of two separate areas: one continuous pile running along the eastern bank of the creek and in immediate proximity to the creek, and the other consisting of a large number of discrete but contiguous piles containing one or a few truckloads of fill. The purpose of the regrading and consolidation is twofold: 1) to move the first pile further away from the creek in order to prevent potential future bank erosion from jeopardizing the stockpile integrity, and 2) to provide an integral stockpile in order to minimize the area to be covered and to provide continuous subgrade support for the cover material. Thus, the stockpiled material will be regraded and consolidated to cover an area of approximately 5 acres. This will result in an average stockpile height of about 6.6 feet, low enough not to visually intrude on the surrounding area.

Once the stockpile has been consolidated, the top will be graded to provide sufficient slope to enhance precipitation runoff (at least 2 percent grade after settlement). A low permeability, multi-layer cap will be then constructed over the stockpile, consisting of the following layers (from the bottom up):

- A 40 mil thick High Density Polyethylene (HDPE) Flexible Membrane Liner (FML);

- A geosynthetic drainage layer sandwiched between two layers of non-woven geotextile fabric;
- A frost protection layer consisting of 18 inches of soil;
- A vegetated topsoil layer 6 inches thick; and,
- Rip-rap armor on the slopes of the stockpile to an elevation two feet higher that the 100-year flood elevation. The size of the rip-rap will be selected to resist erosion damage during the 100-year flood event.

Although these corrective measures are being performed under RCRA, the design of the cover satisfies the TSCA requirements for a cover given in 40 CFR 761.61 (a)(7) and (a)(8).

This alternative will require the construction of culverts in Snow Creek to permit access for construction equipment and to transport the soils that will be temporarily stockpiled during the implementation of the Interim Measures. It will also require the design and construction of surface water control systems to convey precipitation runoff from the covered stockpile to Snow Creek. These systems may have to include a temporary sedimentation basin to control turbidity in the runoff until the vegetated cover is established. The need for such a basin will be established during the design. If constructed, the basin will be closed once the vegetated cover decreases the turbidity in the runoff to an acceptable level

5.3.2 Effectiveness

Soils containing PCBs at concentrations equal to, or greater than, 50 mg/kg will be removed from the site for disposal at a TSCA permitted landfill. The remaining PCB containing soils will be covered with a multi-layer cap, thus preventing future erosion or direct contact. The cover and stockpiled material also prevent future erosion or direct contact with the original floodplain soils, which may contain PCBs. Consequently, this alternative effectively closes not only the exposure pathways of concern arising from the presence of the stockpile, but also those associated with PCB containing floodplain soils and sediments. Because of proximity of the removal work to Snow Creek, construction

operations will likely result in the re-suspension and downstream transport of impacted soils.

5.3.3 Useful Life

This alternative will provide an unlimited service life, provided that the cover is adequately maintained.

5.3.4 Operation and Maintenance

Periodic maintenance will be required to maintain the cover integrity, involving semi-annual visual inspections for signs of erosion, or depressions in the cover resulting from settlement of the covered soils. Any damage or undue settlement observed during these inspections will be repaired. As well, a healthy vegetative cover will have to be maintained on the covered area. This vegetative layer can be low maintenance species which will not require mowing. No other operation and maintenance procedures will be required.

5.3.5 Reliability

The multi-layer cover system will prevent the erosion of PCB-containing soils. This cover system includes rip-rap armor to prevent cover erosion during the 100-year flood event. The effectiveness and reliability of this cover system in isolating the affected soils and in preventing erosion are supported by long-term performance experience with similar systems at a large number of similar sites elsewhere.

5.3.6 Implementability

This alternative will require more time to implement than either Alternative 1 or 3 because of the need to characterize the stockpiled materials and the need for selective excavation.. Assuming that an approved Work Plan will be required prior to sampling, it

is estimated that the characterization and preparation of an approved excavation plan will add at least six months to the project schedule. The need for selective excavation and verification testing to ensure that all soils with PCB concentrations equal to, or greater than, 50 mg/kg are removed will further extend the construction schedule.

Construction of this alternative will require the transport of over 8,000 cu. yd of soil (approximately 500 truckloads) across Snow Creek in order to remove the materials intended for off-site disposal. Despite the utmost care, and with the use of the most robust of erosion and sedimentation control measures, it is likely that this will result in re-suspension and downstream transport of impacted soils. In addition, the culvert crossing required to carry this number of trucks across the creek will entail careful engineering and extensive maintenance.

5.3.7 Safety of Installation

Excavation and transport of impacted soils will present potential risks to users of Friendship Road and Highway 21 from increased vehicular traffic and trucks entering and leaving the highway. It is estimated that approximately 500 truckloads of material will have to be transported off-site. This will represent an increase over the current road usage.

5.3.8 Environmental

This alternative entails potential impacts if downstream transport of fugitive sediments occurs during construction. These impacts can be minimized by the use of effective erosion and sediment controls during excavation. Nevertheless, because of the extensive area of excavation within a low lying floodplain and the possibility of spillage of impacted soils during creek crossings, it is unlikely that these impacts can be totally prevented. Robust erosion and sediment control measures will also be required during and after construction to prevent the cover material from being washed into the creek

during storm events. This concern will be mitigated once vegetation is established on the cover.

5.3.9 Human Health

This alternative requires removal of soils containing PCBs a concentrations in excess of 50 mg/kg and provides a containment system which isolates the remaining PCB-containing soils in both the short and long term. Consequently, it mitigates risks associated with the two exposure pathways of concern at this site: - migration of affected soils in surface water runoff and direct contact with the affected soils. Therefore, this alternative is protective of human health.

5.3.10 Institutional

Institutional controls for this alternative are provided by the fact that all of the proposed corrective measures will be constructed on land owned by the Board. In addition, a security fence will be constructed around the covered stockpile and notification of the existence of PCB-containing soils within the stockpile will be placed in the property deed by the Board. Consequently, access and future construction activities will be limited and controlled by the Board.

5.3.11 Cost

The total present value cost to implement this alternative is estimated to be approximately $4,000,000, including engineering, construction oversight, a 20 percent contingency, and operation and maintenance (O&M) costs. This estimate does not include the cost of the Interim Measures. For purposes of estimating the O&M costs, it is assumed that there will be a semi-annual inspection which will result in two days of repair work filling erosion gullies in the soil cover. The cost estimate is detailed below:

Direct Capital Costs		
Work Plans	Allow	$25,000
Soil Characterization	Allow	$50,000
Excavation Planning	Allow	$25,000
Erosion and Sediment Controls	Allow	$50,000
Culvert Crossing	Allow	$50,000
Excavating and Loading Soils with 50 mg/kg PCBs or greater	8,000 cu. yd. @ $10/cu. yd.	$80,000
Transport	8,000 cu. yd. @ $40/cu. yd.	$320,000
TSCA Disposal	8,000 cu. yd. @ $200/cu. yd.	$1,600,000
Regrading	Allow	$25,000
HDPE Liner	220,000 sq. ft. @ $0.60/sq. ft.	$132,000
Geocomposite Drainage Layer	220,000 sq. ft. @ $0.60/sq. ft.	$132,000
Frost Protection Layer	2,500 cu. yd.@ $10/cu. yd.	$25,000
Topsoil	1,000 cu. yd. @ $12/cu. yd.	$12,000
Seeding	5 acres @ $2,000/acre	$10,000
Rip-rap	1,000 tons @ $30/ton	$30,000
Surface Water Management	Allow	$100,000
Security Fence	Allow	$30,000
Verification Sampling and Testing	Allow	$50,000
Subtotal Direct Capital Costs		**$2,746,000**
Indirect Capital Costs		
Engineering and Oversight	20%	$549,000
Contingency	20%	$549,000
Subtotal Indirect Capital Costs		**$1,098,000**
Total Capital Costs		**$3,844,000**

Operation and Maintenance (O&M) Costs		
Inspections (2 per year)		$2,000
Repairs (labor, materials & equipment)	4 days @ $1000/day	$4,000
Present Value of O&M Costs (discounted at 5 percent over 30 years)		**$92,000**

Total Present Value Costs	**$3,936,000**

5.4 Alternative 3 – Containment and Isolation of Stockpiled Soils

5.4.1 Description

This alternative involves regrading and consolidating the soil in the stockpile and covering it with a low permeability cover. The reasons for regrading and consolidation are the same as described for Alternative 2 i.e.: 1) to move the first pile further away from the creek in order to prevent potential future bank erosion from jeopardizing the stockpile integrity, and, 2) to provide an integral stockpile in order to minimize the area to be covered and to provide continuous subgrade support for the cover material. The stockpiled material will be regraded and consolidated to cover an area of approximately 5 acres. This will result in an average stockpile height of about 7.6 feet, still low enough not to visually intrude on the surrounding area.

Once the stockpile has been consolidated, including the soils in the temporary stockpile constructed during the Interim Measures, the top will be graded to provide sufficient slope to enhance precipitation runoff (at least 2 percent grade after settlement). A low permeability, multi-layer cap will be then constructed over the stockpile, consisting of the following layers (from the bottom up):

- A 40 mil thick High Density Polyethylene (HDPE) Flexible Membrane Liner (FML);
- A geosynthetic drainage layer sandwiched between two layers of non-woven geotextile fabric;
- A frost protection layer consisting of 18 inches of soil;

- A vegetated topsoil layer 6 inches thick; and,
- Rip-rap armor on the slopes of the stockpile to an elevation two feet higher that the 100-year flood elevation. The size of the rip-rap will be selected to resist erosion damage during the 100-year flood event.

Although these corrective measures are being performed under RCRA, the design of the cover satisfies the TSCA requirements for a cover given in 40 CFR 761.61 (a)(7) and (a)(8).

Like Alternative 2, this alternative will also require the construction of culverts in Snow Creek to permit access for construction equipment and to transport the soils that will be temporarily stockpiled during the implementation of the Interim Measures. It will also require the design and construction of surface water control systems to convey precipitation runoff from the covered stockpile to Snow Creek. These systems may have to include a temporary sedimentation basin to control turbidity in the runoff until the vegetated cover is established. As noted in Section 5.3.1, the need for such a basin will be established during the design. If constructed, the basin will be closed once the vegetated cover decreases the turbidity in the runoff to an acceptable level.

5.4.2 Effectiveness

PCB containing sediments will be covered with a multi-layer cover, thus preventing future erosion or direct contact. The cover and stockpiled material also prevents future erosion or direct contact with the original floodplain soils, which may contain PCBs. Consequently, this alternative effectively closes not only the exposure pathways of concern arising from the presence of the stockpile, but also those associated with PCB containing floodplain soils and sediments.

5.4.3 Useful Life

This alternative will provide an unlimited service life, provided that the cover is adequately maintained.

5.4.4 Operation and Maintenance

Periodic maintenance will be required to maintain the cover integrity, involving semi-annual visual inspections for signs of erosion, or depressions in the cover resulting from settlement of the covered soils. Any damage or undue settlement observed during these inspections will be repaired. As well, a healthy vegetative cover will have to be maintained on the covered area. This vegetative layer can be low maintenance species which will not require mowing. No other operation and maintenance procedures will be required.

5.4.5 Reliability

The multi-layer cover system will prevent the erosion of PCB-containing soils. This cover system includes rip-rap armor to prevent cover erosion during the 100-year flood event. The effectiveness and reliability of this cover system in isolating the affected soils and in preventing erosion are supported by long-term performance experience with similar systems at a large number of similar sites elsewhere.

5.4.6 Implementability

This alternative minimizes the volume of earthworks required to satisfy the corrective action objectives. The soils in the stockpile will not be transported off-site. The volume of additional fill required for the cover is modest (estimated to be about 16,000 cu. yd., including topsoil). However, since the grading and consolidation operation will be in proximity to Snow Creek, some migration and downstream transport of impacted soils may occur despite the use of robust erosion and sedimentation controls.

The culvert crossing required for this alternative will undergo the lightest traffic since no affected soils will be transported from the site for off-site disposal. Consequently, this

alternative negates the risk posed by the other alternatives of PCB-impacted soils spilling into Snow Creek during transport across the creek.

5.4.7 Safety of Installation

Since the volume of fill required by this alternative is relatively modest, increased risks associated with construction traffic are minimized. Additionally, since no PCB-containing material will be transported off-site, increased risks associated with the increased traffic volume from transporting this material are avoided.

5.4.8 Environmental

Because this alternative does not include extensive excavation and removal, the possibility of impacted materials migrating into the creek is minimized. However, robust erosion and sediment control measures will still be required during and after construction to prevent the cover material from being washed into the creek during storm events. This concern will be mitigated once vegetation is established on the cover.

Minimization of the potential for migration of PCB containing materials into the creek, together with the erosion resistance offered by this alternative, makes it protective of the environment.

5.4.9 Human Health

This alternative provides a containment system which isolates the PCB-containing soils in both the short and long term. Consequently, it mitigates risks associated with the two exposure pathways of concern at this site: - migration of affected soils in surface water runoff and direct contact with the affected soils. Therefore, this alternative is protective of human health.

5.4.10 Institutional

Institutional controls for this alternative are provided by the fact that all of the proposed corrective measures will be constructed on land owned by the Board. In addition, a security fence will be constructed around the covered stockpile and notification of the existence of PCB-containing soils within the stockpile will be placed in the property deed by the Board. Consequently, access and future construction activities will be limited and controlled by the Board.

5.4.11 Cost

The total present value cost to implement this alternative is estimated to be approximately $930,000, including engineering, construction oversight, a 20 percent contingency, and operation and maintenance (O&M) costs. This estimate does not include the cost of the Interim Measures. For purposes of estimating the O&M costs, it is assumed that there will be a semi-annual inspection which will result in two days of repair work filling erosion gullies in the soil cover. The cost estimate is detailed below:

Direct Capital Costs

Erosion and Sediment Controls	Allow	$50,000
Culvert Crossing	Allow	$50,000
Regrading	Allow	$25,000
HDPE Liner	220,000 sq. ft. @ $0.60/sq. ft.	$132,000
Geocomposite Drainage Layer	220,000 sq. ft. @ $0.60/sq. ft.	$132,000
Frost Protection Layer	2,500 cu. yd.@ $10/cu. yd.	$25,000
Topsoil	1,000 cu. yd. @ $12/cu. yd.	$12,000
Seeding	5 acres @ $2,000/acre	$10,000
Rip-rap	1,000 tons @ $30/ton	$30,000
Surface Water Management	Allow	$100,000
Security Fence	Allow	$30,000

Subtotal Direct Capital Costs		**$596,000**
Indirect Capital Costs		
Engineering and Oversight	20%	$119,000
Contingency	20%	$119,000
Subtotal Indirect Capital Costs		**$238,000**
Total Capital Costs		**$834,000**
Operation and Maintenance (O&M) Costs		
Inspections (2 per year)		$2,000
Repairs (labor, materials & equipment)	4 days @ $1000/day	$4,000
Present Value of O&M Costs (discounted at 5 percent over 30 years)		**$92,000**
Total Present Value Costs		**$926,000**

6 RECOMMENDED FINAL CORRECTIVE MEASURES

All of the alternatives evaluated in the preceding section satisfy the corrective action objectives listed in Section 3. Alternative 1, removal and off-site disposal of all stockpiled soils, reduces the potential long term risk of human and ecological exposure to these materials in the floodplain, but probably increases the likelihood of these materials migrating into the creek during construction. This could result in increased potential long term risks from creek sediments. It also presents significant short term risks because of the increased volume of construction traffic. Further, it does not mitigate potential risks associated with original floodplain soils and sediments which may contain PCBs.

Alternative 2, partial stockpile removal and containment and isolation (by capping) of the remaining soils with PCB concentrations less than 50 mg/kg, is fully protective of human health and the environment. With proper maintenance, this corrective action will provide a reliable means of minimizing long term risks associated with potential human and ecological exposure. It will also eliminate potential erosion and downstream transport of PCB-containing soils. However, this alternative will require the most time to implement. It also requires the off-site transport of a significant quantity of material. Consequently, it has the potential for spillage to result in downstream transport of impacted materials. It also presents some short term risks because of the increased volume of construction traffic.

Like Alternative 2, Alternative 3 (containment and isolation of all of the stockpiled soils) is fully protective of human health and the environment. With proper maintenance, this corrective action will also provide a reliable means of minimizing long term risks associated with potential human and ecological exposure and will eliminate potential erosion and downstream transport of PCB containing soils from both the stockpile and the original floodplain deposits. Because this alternative minimizes the amount of fill

required, the short term risks arising from increased construction traffic and extended construction schedule are also minimized. In addition, the absence of any significant excavation will minimize the possibility of erosion and downstream migration of affected soils and sediments during construction.

Because Alternative 3 satisfies the corrective action objectives, is protective of human health and the environment, and results in lower short term risks than Alternatives 1 and 2, it is recommended that it be implemented as the Final Corrective Measure at this site.

APPENDIX A

Results of February 2000 Stockpile Sampling

TABLE A-1
PCB Sampling Results in Stockpile Area Adjacent to Snow Creek

Sample Number	Immunoassay Screening Results (PCB mg/kg)	Laboratory Results (PCB mg/kg)
NP-01	>50	26
NP-02	>50	56
NP-03	>50	25
NP-04	>1, <50	15.6
NP-05	>1, <50	0.56
SP-01	>1, <50	0.43
SP-02	>1, <50	1.4
SP-03	>1, <50	0.33
SP_04	>1, <50	2.14
SP-05	>1, <50	1.63
CC	>50	6
NP-Top	>1, <50	2.07
SP-Top	>1, <50	0.36

Savannah Laboratories
5102 LaRoche Avenue · Savannah, GA 31404 · (912) 354-7858 · Fax (912) 352-0165 · www.stlsavlab.com

LOG NO: S0-01164
Received: 22 FEB 00
Reported: 28 FEB 00

Mr. Mike Price
Genesis Project, Inc.
1258 Concord Road
Smyrna, GA 30080

Client PO. No.: 8020-1-0007-06

Contract No.: S7219
Project: RFI/SOLUTIA/PCB-8082/SOIL
Sampled By: Client
Code: 121800228

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION . SOLID OR SEMISOLID SAMPLES	DATE/ TIME SAMPLED
01164-1	NP-01	02-18-00/13:00
01164-2	NP-02	02-18-00/13:05
01164-3	NP-03	02-18-00/13:10
01164-4	NP-04	02-18-00/13:15
01164-5	NP-05	02-18-00/13:20

PARAMETER	01164-1	01164-2	01164-3	01164-4	01164-5
PCB's (8082)					
Aroclor-1016, ug/kg dw	<8500	<8500	<2100	<820	<78
Aroclor-1221, ug/kg dw	<17000	<17000	<4200	<1700	<160
Aroclor-1232, ug/kg dw	<8500	<8500	<2100	<820	<78
Aroclor-1242, ug/kg dw	<8500	<8500	<2100	1600	<78
Aroclor-1248, ug/kg dw	<8500	<8500	<2100	<820	<78
Aroclor-1254, ug/kg dw	15000	34000	15000	8000	320
Aroclor-1260, ug/kg dw	11000	22000	10000	6000	240
Surrogate - TCX	*F33	*F33	*F33	*F33	86 %
Aroclor 1268, ug/kg dw	<8500	<8500	<2100	<820	<78
Dilution Factor	200.0	200.0	50.0	20.0	2.0
Prep Date	02.22.00	02.22.00	02.22.00	02.22.00	02.22.00
Analysis Date	02.26.00	02.26.00	02.26.00	02.26.00	02.26.00
Batch ID	0222R	0222R	0222R	0222R	0222R
Percent Solids	78	76	79	80	84

Savannah Laboratories
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Project: RFI/SOLUTIA/PCB-8082/SOIL
Sampled By: Client
Code: 121800228

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE/ TIME SAMPLED
01164-6	SP-01	02-18-00/14:20
01164-7	SP-02	02-18-00/14:15
01164-8	SP-03	02-18-00/14:10
01164-9	SP-04	02-18-00/14:05
01164-10	SP-05	02-18-00/14:00

PARAMETER	01164-6	01164-7	01164-8	01164-9	01164-10
PCB's (8082)					
Aroclor-1016, ug/kg dw	<78	<390	<79	<780	<200
Aroclor-1221, ug/kg dw	<160	<790	<160	<1600	<400
Aroclor-1232, ug/kg dw	<78	<390	<79	<780	<200
Aroclor-1242, ug/kg dw	<78	<390	<79	<780	<200
Aroclor-1248, ug/kg dw	<78	<390	<79	<780	<200
Aroclor-1254, ug/kg dw	250	800	190	1300	910
Aroclor-1260, ug/kg dw	180	600	140	840	720
Surrogate - TCX	105 %	*F33	98 %	*F33	64 %
Aroclor 1268, ug/kg dw	<78	<390	<79	<780	<200
Dilution Factor	2.0	10.0	2.0	20.0	5.0
Prep Date	02.22.00	02.22.00	02.22.00	02.22.00	02.22.00
Analysis Date	02.26.00	02.26.00	02.26.00	02.26.00	02.27.00
Batch ID	0222R	0222R	0222R	0222R	0222R
Percent Solids	84	84	82	84	83

Savannah Laboratories
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LOG NO: S0-01164
Received: 22 FEB 00
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Mr. Mike Price
Genesis Project, Inc.
1258 Concord Road
Smyrna, GA 30080

Client PO. No.: 8020-1-0007-06

Contract No.: S7219
Project: RFI/SOLUTIA/PCB-8082/SOIL
Sampled By: Client
Code: 121800228

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE/ TIME SAMPLED
01164-11	CC	02-18-00/14:40
01164-12	NP-TOP	02-18-00/14:50
01164-13	SP-TOP	02-18-00/15:00

PARAMETER	01164-11	01164-12	01164-13
PCB's (8082)			
Aroclor-1016, ug/kg dw	<770	<410	<78
Aroclor-1221, ug/kg dw	<1600	<830	<160
Aroclor-1232, ug/kg dw	<770	<410	<78
Aroclor-1242, ug/kg dw	<770	<410	<78
Aroclor-1248, ug/kg dw	<770	<410	<78
Aroclor-1254, ug/kg dw	3300	1200	210
Aroclor-1260, ug/kg dw	2700	870	150
Surrogate - TCX	*F33	*F33	62 %
Aroclor 1268, ug/kg dw	<770	<410	<78
Dilution Factor	20.0	10.0	2.0
Prep Date	02.22.00	02.22.00	02.22.00
Analysis Date	02.25.00	02.25.00	02.25.00
Batch ID	0222R	0222R	0222R
Percent Solids	85	81	84

Savannah Laboratories
5102 LaRoche Avenue · Savannah, GA 31404 · (912) 354-7858 · Fax (912) 352-0165 · www.stlsavlab.com

LOG NO: S0-01164
Received: 22 FEB 00
Reported: 28 FEB 00

Mr. Mike Price
Genesis Project, Inc.
1258 Concord Road
Smyrna, GA 30080

Client PO. No.: 8020-1-0007-06

Contract No.: S7219
Project: RFI/SOLUTIA/PCB-8082/SOIL
Sampled By: Client
Code: 121800228

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION . QC REPORT FOR SOLID/SEMISOLID	DATE/ TIME SAMPLED
01164-14	Method Blank	
01164-15	Lab Control Standard % Recovery	
01164-16	LCS Accuracy Control Limit (%R)	

PARAMETER	01164-14	01164-15	01164-16
PCB's (8082)			
Aroclor-1016, ug/kg dw	<33	45 %	34-138 %
Aroclor-1221, ug/kg dw	<67	---	---
Aroclor-1232, ug/kg dw	<33	---	---
Aroclor-1242, ug/kg dw	<33	---	---
Aroclor-1248, ug/kg dw	<33	---	---
Aroclor-1254, ug/kg dw	<33	---	---
Aroclor-1260, ug/kg dw	<33	48 %	39-138 %
Surrogate - TCX	94 %	98 %	---
Aroclor 1268, ug/kg dw	<33	---	---
Dilution Factor	1.0	1.0	---
Prep Date	02.22.00	02.22.00	---
Analysis Date	02.25.00	02.25.00	---
Batch ID	0222R	0222R	---

Methods: EPA SW-846, Update III.

*F33 = Because the sample was diluted prior to analysis, surrogate recoveries are not reported.

Elizabeth F. Beauchamp, Project Manager

Final Page Of Report

Serial Number 13 41

SL SAVANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

☐ 5102 LaRoche Avenue, Savannah, GA 31404 — Phone (912) 354-7858 — Fax (912) 352-0165
☐ 2846 Industrial Plaza Drive, Tallahassee, FL 32301 — Phone (904) 878-3994 — Fax (904) 878-9504
☐ 414 SW 12th Avenue, Deerfield Beach, FL 33442 — Phone: (954) 421-7400 — Fax. (954) 421-2584
☐ 900 Lakeside Drive, Mobile, AL 36693 — Phone: (334) 666-6633 — Fax. (334) 666-6696
☐ 6712 Benjamin Road, Suite 100, Tampa, FL 33634 — Phone: (813) 885-7427 — Fax: (813) 885-7049
☐ 100 Alpha Drive, Suite 110, Destrehan, LA 70047 — Phone: (504) 764-1100 — Fax: (504) 725-1163

PROJECT REFERENCE	PROJECT NO.	P.O. NUMBER
PC - 2Tw	02 - 2000	

PROJECT LOC. (State)	SAMPLER(s) NAME	PHONE	FAX
AL	Jay Hoppe	256 231-8483	256 231-8451

CLIENT NAME: Weyerhaeuser
CLIENT PROJECT MANAGER: Jay Hoppe
CLIENT ADDRESS (CITY, STATE, ZIP): 702 Hwy 61 No. - Hamilton, AL 35570

MATRIX TYPE: AQUEOUS (WATER) / SOLID OR SEMI-SOLID / AIR / NONAQUEOUS LIQUID (oil, solvent, etc)

REQUIRED ANALYSES: 4,4'-DDE, 4,4'-DDD, 4,4'-DDT, Total PCBs

PAGE 1 OF 1

☐ STANDARD REPORT DELIVERY
☐ EXPEDITED REPORT DELIVERY (surcharge)
Date Due

SAMPLE DATE	SAMPLE TIME	SL NO.	SAMPLE IDENTIFICATION	AQUEOUS (WATER)	SOLID OR SEMI-SOLID	AIR	NONAQUEOUS LIQUID (oil, solvent, etc)	NUMBER OF CONTAINERS SUBMITTED	REMARKS
2/18/00	1300		NP-01 - >50	X				1	
	1305		NP-02 - >50	X				1	for Ln mercury
	1310		NP-03 - >50	X				1	ACAC [illegible]
	1315		NP-04 - >1<50	X				1	1/2 [illegible]
	1320		NP-05 - >1<50	X				1	[illegible] to
	1420		SP-01 - >1<50	X				1	STL/Savannah
	1415		SP-02 - >1<50	X				1	Labs.
	1410		SP-03 - >1<50	X				1	
	1405		SP-04 - >1<50	X				1	
	1400		SP-05 - >1<50	X				1	
	1440		FB - >50 (Analysis not Req'd)	X				1	
	1450		NP-Top - >1<50	X				1	
	1500		SP-Top - >1<50	X				1	

Instructed Mike Price to forward to STL/Savannah Labs. all 13 samples requesting expedited turnaround (72 hrs.)

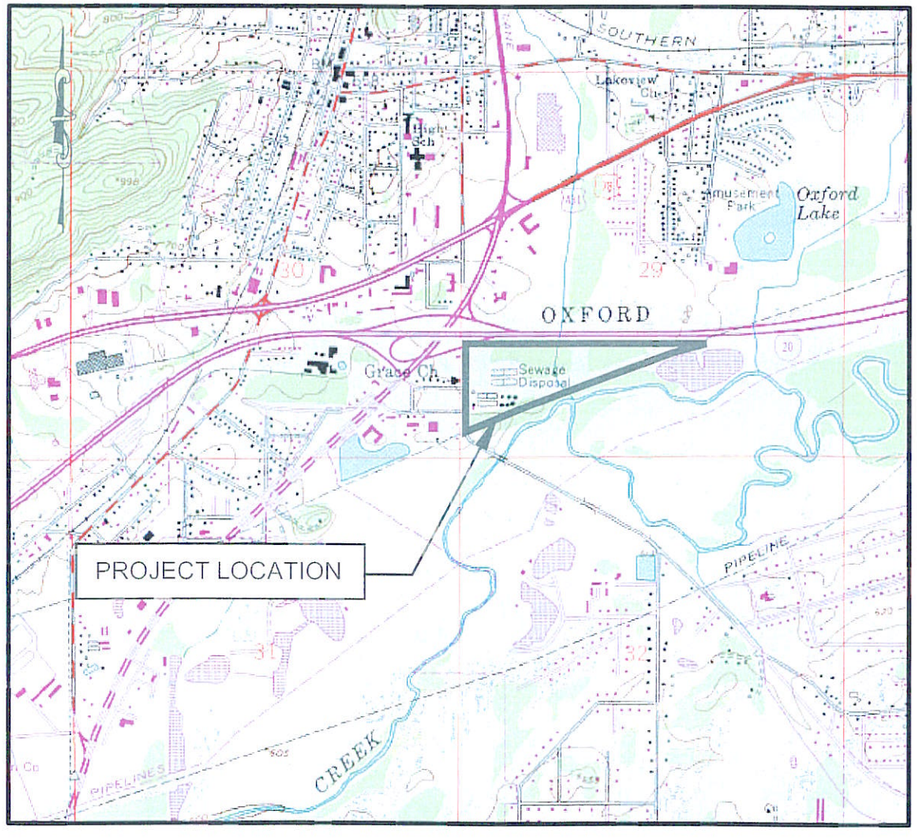
CLIENTS FIELD COPY

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY (SIGNATURE)	DATE	TIME	RELINQUISHED BY (SIGNATURE)	DATE	TIME
			Craig D. Zeiher	2/18/2000	1705			
RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY (SIGNATURE)	DATE	TIME
				2/18/2000	1705			

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SL LOG NO.	LABORATORY REMARKS:
			☐ YES ☐ NO			

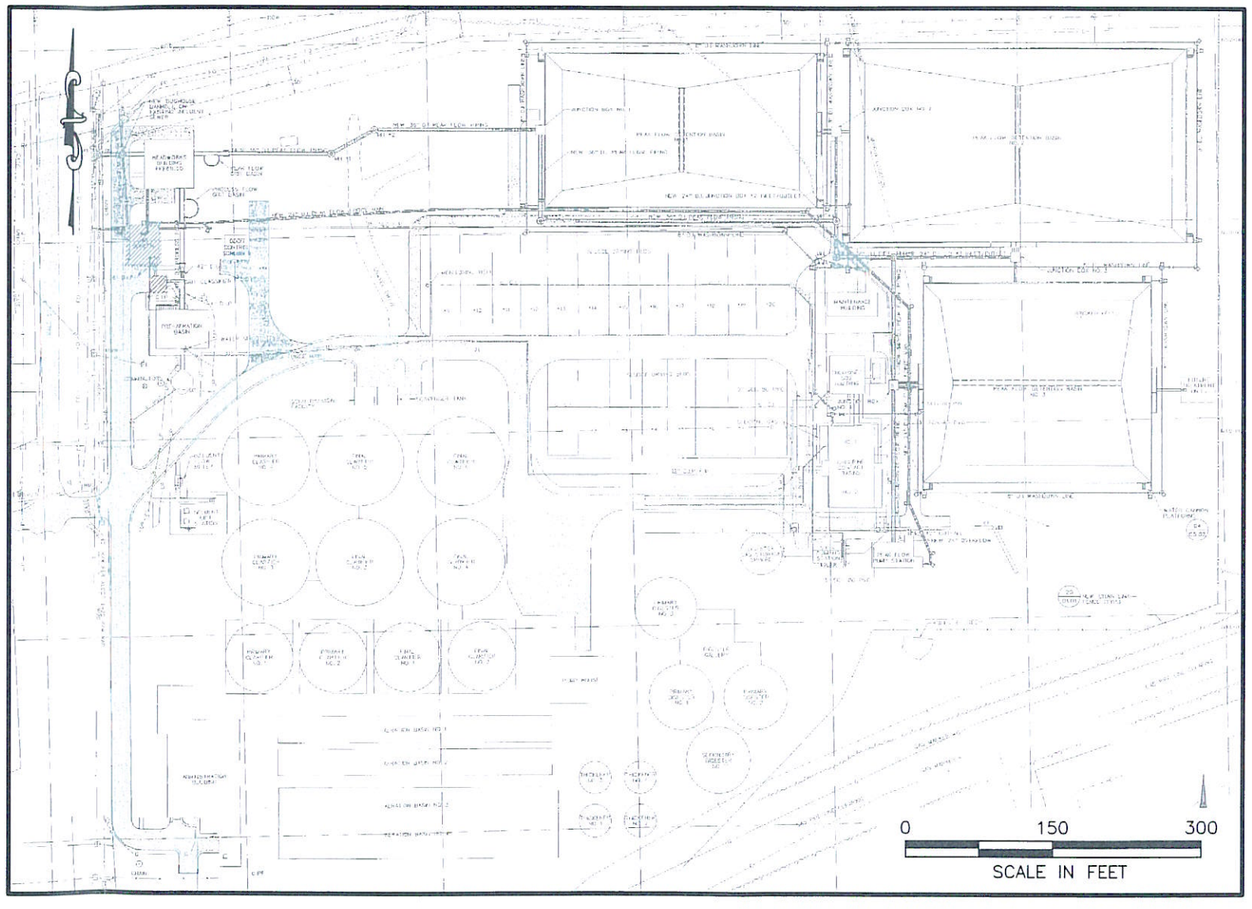
CORRECTIVE MEASURES STUDY
EXCAVATED SOIL STOCKPILE
ANNISTON WATER WORKS AND SEWER BOARD
CHOCCOLOCCO CREEK WWTP ADDITIONS AND IMPROVEMENTS
OXFORD, ALABAMA



VICINITY MAP

0 2000 4000

SCALE IN FEET



NOTE:

PROPOSED WWTP ADDITIONS AND IMPROVEMENTS SHOWN HEREIN WERE TAKEN FROM DRAWINGS RECEIVED FROM ANNISTON WATER WORKS AND SEWER BOARD, DATED 7/99.

SOLUTIA
703 CLYDESDALE
ANNISTON, AL 36201

URS
9801 Westheimer
Suite 500
Houston, Texas 77042
United States of America

SCALE:	DRAWN BY: TAB	DATE: 02/04/02
AS SHOWN	CHKD. BY:	DATE:

ANNISTON WWTP

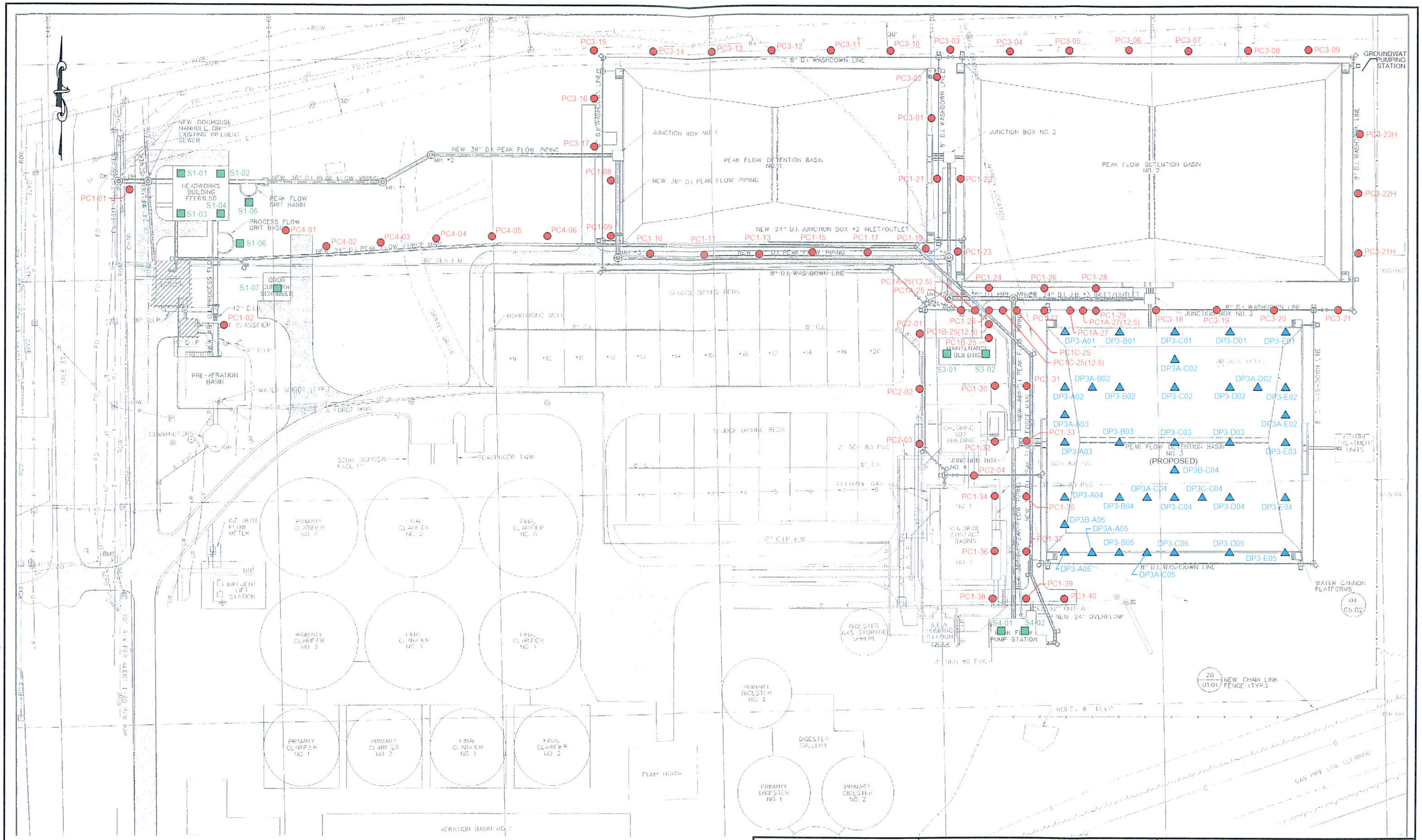
CMS
EXCAVATED SOIL
STOCKPILE
SITE LOCATION MAP

REVISION A

PROJECT 38965-019

DRAWING SHT. 1 OF 5

DATE: 09/05/01 FILENAME: FIGURE 1.dwg
TIME: 09:58:54 PATH: K:\38965-019.012 (Solutia) 01\Drawings\Interim Measures Plans



LEGEND

- PC1 — PIPELINE CORRIDOR BORING
- DP3 — DETENTION POND BORING
- S — STRUCTURE BORING

0 80 160

SCALE IN FEET

SOLUTIA
703 CLYDESDALE
ANNISTON, AL 36201

URS
9801 Westheimer
Suite 500
Houston, Texas 77042
United States of America

SCALE:	DRAWN BY: TAB	DATE: 02/04/02
1" = 80'	CHKD. BY:	DATE:

ANNISTON WWTP

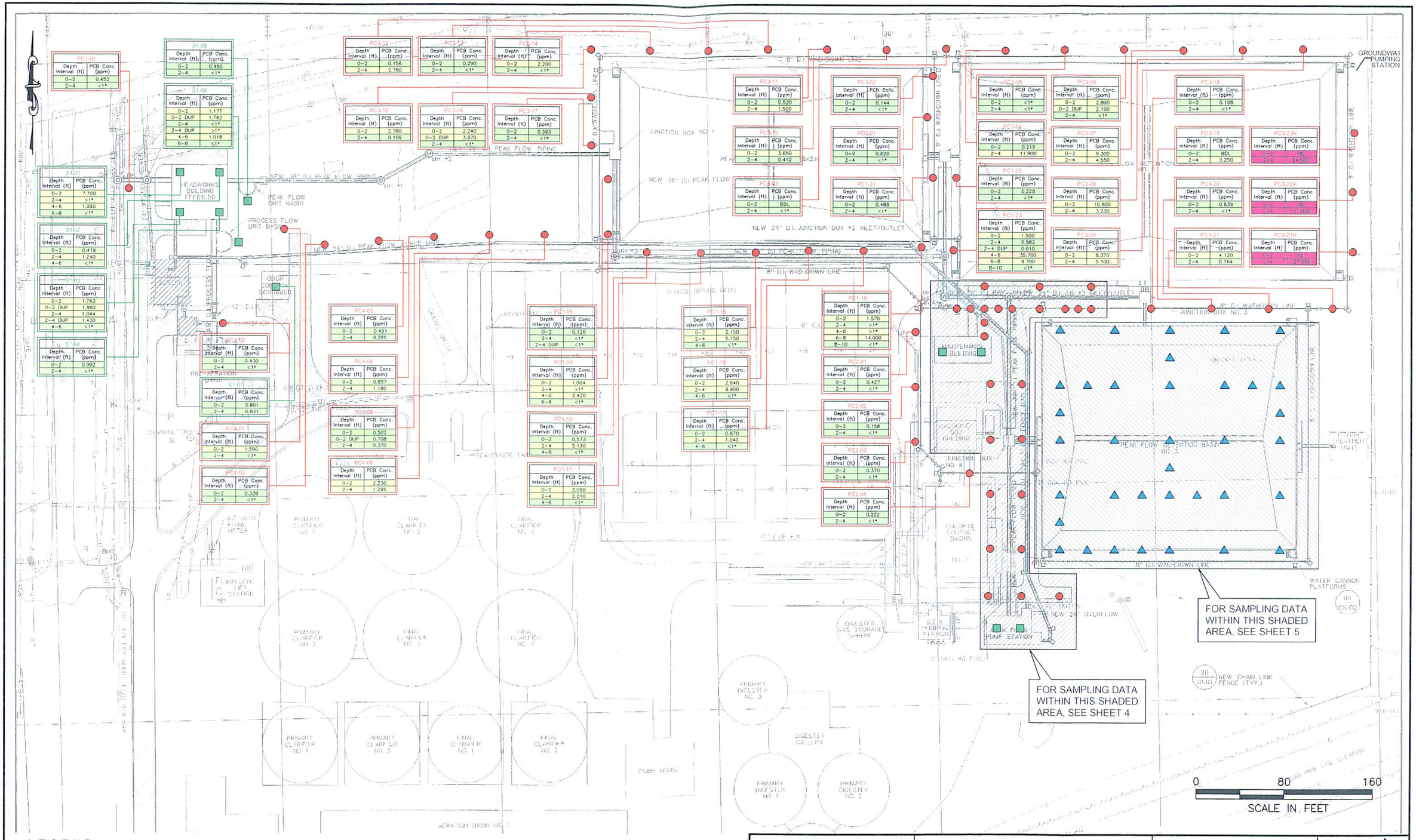
CMS
EXCAVATED SOIL
STOCKPILE
SAMPLE LOCATION MAP

REVISION A

PROJECT 38965-019

DRAWING SHT. 2 OF 5

FILENAME: FIGURE 2.dwg
PATH: K:\38965-019.012 (Solutia) 01\Drawings\Interim Measures Plan\
DATE: 09/05/01
TIME: 09:56:54



LEGEND

- PIPELINE CORRIDOR BORING
- DETENTION POND BORING
- STRUCTURE BORING

- PCB CONCENTRATION <1 ppm
- PCB CONCENTRATION 1 - 25 ppm
- PCB CONCENTRATION 25 - 50 ppm
- PCB CONCENTRATION >50 ppm

BDL PCB BELOW DETECTION LIMITS
DUP DUPLICATE SAMPLE
NS NOT SCREENED, NOT SAMPLED
* INDICATES FIELD SCREENING RESULTS

SOLUTIA
702 CLYDESDALE
ANNISTON, AL 36201

URS
9801 Westheimer
Suite 500
Houston, Texas 77042
United States of America

SCALE: 1" = 80'
DRAWN BY: TAB
CHKD. BY:
DATE: 02/04/02
DATE:

ANNISTON WWTP
CMS
EXCAVATED SOIL
STOCKPILE
SAMPLING RESULTS

REVISION A
PROJECT 38965-019
DRAWING SHT. 3 OF 5

DATE: 11/09/01
TIME: 07:17:42
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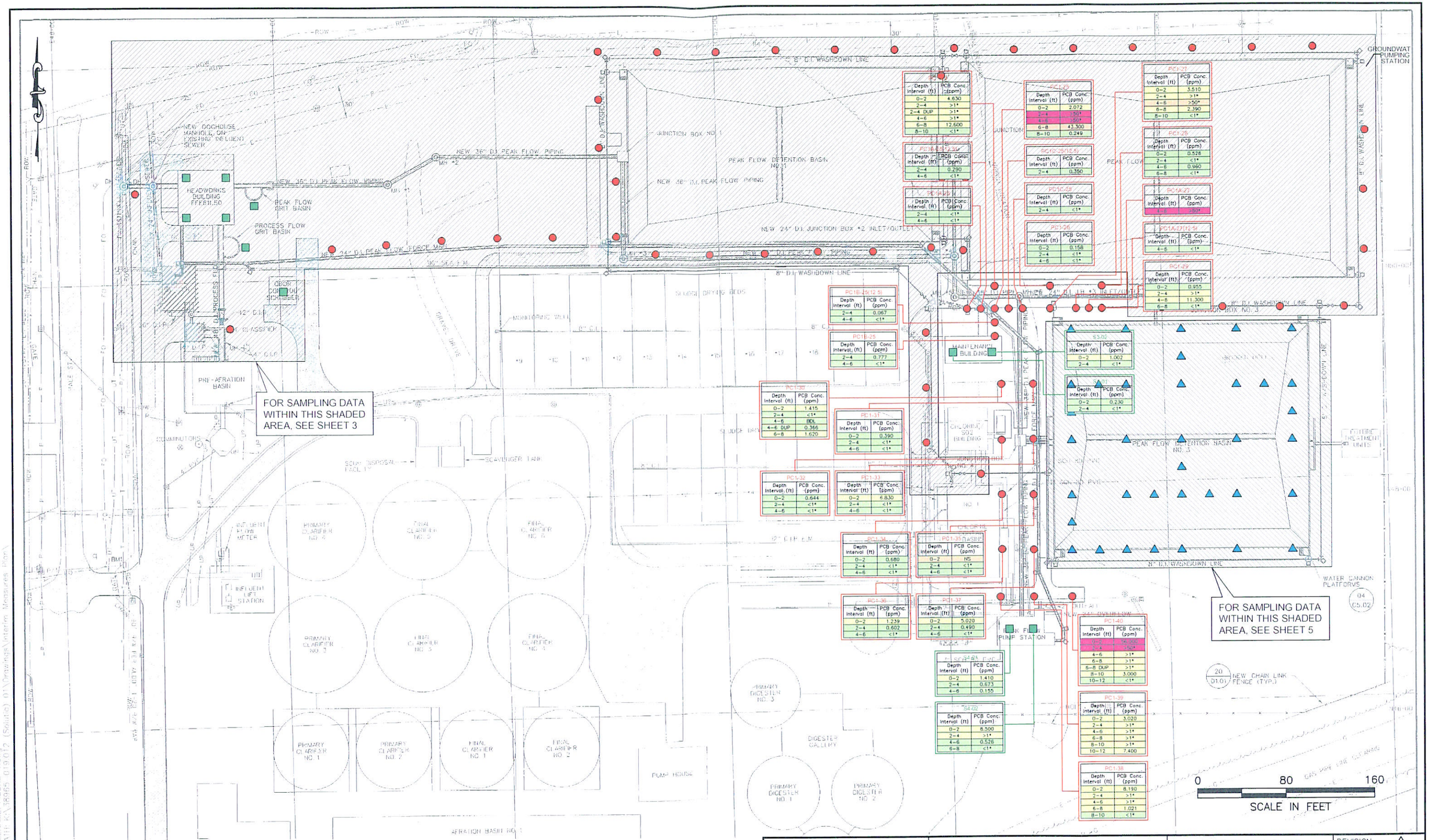


Depth Interval (ft)	PCB Conc. (ppm)
0–2	4,630
2–4	>1*
2–4 DUP	>1*
4–6	>1*
6–8	12,600
8–10	<1*

Depth Interval (ft)	PCB Conc. (ppm)
0–2	2,072
2–4	>50*
4–6	>50*
6–8	43,300
8–10	0.249

Depth Interval (ft)	PCB Conc. (ppm)
0–2	3,510
2–4	>1*
4–6	>50*
6–8	2,390
8–10	<1*

Depth Interval (ft)	PCB Conc. (ppm)
0–2	0.528
2–4	<1*
4–6	0.960
6–8	<1*

Depth Interval (ft)	PCB Conc. (ppm)
0–2	0.158
2–4	<1*
4–6	<1*

Depth Interval (ft)	PCB Conc. (ppm)
2–4	0.290
4–6	<1*

Depth Interval (ft)	PCB Conc. (ppm)
2–4	<1*
4–6	<1*

Depth Interval (ft)	PCB Conc. (ppm)
2–4	0.350

Depth Interval (ft)	PCB Conc. (ppm)
2–4	<1*

Depth Interval (ft)	PCB Conc. (ppm)
4–6	>50*

Depth Interval (ft)	PCB Conc. (ppm)
4–6	<1*

Depth Interval (ft)	PCB Conc. (ppm)
0–2	0.955
2–4	>1*
4–6	11,300
6–8	<1*

Depth Interval (ft)	PCB Conc. (ppm)
2–4	0.067
4–6	<1*

Depth Interval (ft)	PCB Conc. (ppm)
2–4	0.777
4–6	<1*

Depth Interval (ft)	PCB Conc. (ppm)
0–2	1.002
2–4	<1*

Depth Interval (ft)	PCB Conc. (ppm)
0–2	0.230
2–4	<1*

Depth Interval (ft)	PCB Conc. (ppm)
0–2	1.415
4–6	BDL
4–6 DUP	0.366
6–8	1.620

Depth Interval (ft)	PCB Conc. (ppm)
0–2	0.390
2–4	<1*
4–6	<1*

Depth Interval (ft)	PCB Conc. (ppm)
0–2	0.644
2–4	<1*
4–6	<1*

Depth Interval (ft)	PCB Conc. (ppm)
0–2	6.830
2–4	<1*
4–6	<1*

Depth Interval (ft)	PCB Conc. (ppm)
0–2	0.680
2–4	<1*
4–6	<1*

Depth Interval (ft)	PCB Conc. (ppm)
0–2	NS
2–4	<1*
4–6	<1*

Depth Interval (ft)	PCB Conc. (ppm)
0–2	1.239
2–4	0.602
4–6	<1*

Depth Interval (ft)	PCB Conc. (ppm)
0–2	5.020
2–4	0.490
4–6	<1*

Depth Interval (ft)	PCB Conc. (ppm)
0–2	1.410
2–4	0.673
4–6	0.155

Depth Interval (ft)	PCB Conc. (ppm)
0–2	8.500
2–4	>1*
4–6	0.526
6–8	<1*

Depth Interval (ft)	PCB Conc. (ppm)
0–2	24,000
2–4	>50*
4–6	>1*
6–8	>1*
5–8 DUP	>1*
8–10	3.000
10–12	<1*

Depth Interval (ft)	PCB Conc. (ppm)
0–2	3.020
2–4	>1*
4–6	>1*
6–8	>1*
8–10	>1*
10–12	7.400

Depth Interval (ft)	PCB Conc. (ppm)
0–2	8.190
2–4	>1*
4–6	>1*
6–8	1.021
8–10	<1*

LEGEND

- PIPELINE CORRIDOR BORING
- DETENTION POND BORING
- STRUCTURE BORING

- PCB CONCENTRATION <1 ppm
- PCB CONCENTRATION 1 - 25 ppm
- PCB CONCENTRATION 25 - 50 ppm
- PCB CONCENTRATION >50 ppm

BDL PCB BELOW DETECTION LIMITS
DUP DUPLICATE SAMPLE
NS NOT SCREENED, NOT SAMPLED
* INDICATES FIELD SCREENING RESULTS

SOLUTIA
702 CLYDESDALE
ANNISTON, AL 36201

URS
9801 Westheimer
Suite 500
Houston, Texas 77042
United States of America

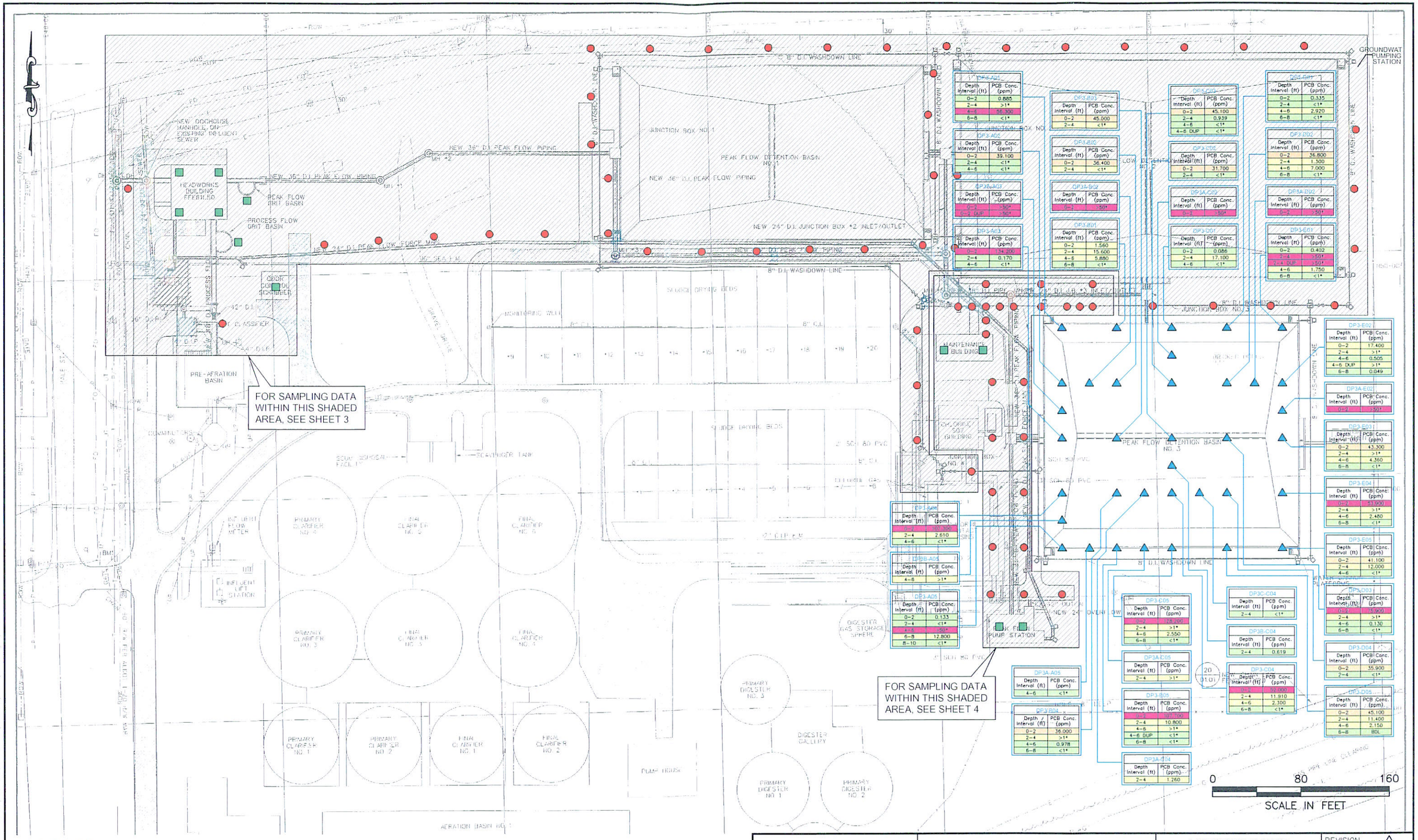
SCALE: 1" = 80'
DRAWN BY: TAB
CHKD. BY:
DATE: 02/04/02
DATE:

ANNISTON WWTP

CMS
EXCAVATED SOIL
STOCKPILE
SAMPLING RESULTS

REVISION A
PROJECT 38965-019
DRAWING SHT. 4 OF 5

DATE: 09/05/01
TIME: 10:01:10
FILENAME: FIGURE 4.dwg
PATH: K:\38965.019\CAD (Solutia) 01\Drawings\Interim Measures Plan\



LEGEND

- PIPELINE CORRIDOR BORING
- DETENTION POND BORING
- STRUCTURE BORING

- PCB CONCENTRATION <1 ppm
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SAMPLING RESULTS

REVISION A
PROJECT 38965-019
DRAWING SHT. 5 OF 5

DATE: 09/05/01
TIME: 10:03:44
FILENAME: FIGURE 5.dwg
PATH: K:\38965_019.012 (Solution)\Drawings\Interim Measures Plan\