WITHERS & RAVENEL

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INTERIM RISK MANAGEMENT PLAN

BB&T Site
1103 West Club Boulevard
Durham, Durham County, North Carolina

DSCA SITE NO 32-0013

Petitioner:
Branch Banking & Trust Company
P.O. Box 1255
Durham, North Carolina 27102

Prepared for:
State of North Carolina
Department of Environment and Natural Resources
Division of Waste Management
Superfund Section
Dry-Cleaning Solvent Cleanup Act Program
401 Oberlin Road, Suite 150
Raleigh, NC 27605-1350

Prepared by:
Withers & Ravenel, Inc.
111 MacKenan Drive
Cary, North Carolina 27511
(919) 469-3340

Discovery Date:	September, 1993
Release Quantity:	Unknown
Latitude:	N 36° 00' 59.7"
Longitude:	W 78° 54' 38.8"

Chan Bryant, P.E.
Senior Project Engineer

NORTH CAROLINA PROFESSIONAL SEAL 021643 ENGINEER C. CHAN BRYANT 12/3/15

April 29, 2011

Mr. Billy Meyer
State of North Carolina
Department of Environmental and Natural Resources
Division of Waste Management, Superfund Section
401 Oberlin Road, Suite 150
Raleigh, North Carolina 27605

RE: Interim Risk Management Plan
BB&T Site
1103 West Club Blvd.
Durham, Durham County, North Carolina
Withers & Ravenel Project No. 02060496.32
DSCA Site Identification No. 32-0013

Dear Mr. Meyer:

Withers & Ravenel Inc. (W&R) is pleased to submit the enclosed Interim Risk Management Plan (IRMP) for the above referenced site. The results of continued risk assessments, at the site, indicate that the contaminant concentrations pose unacceptable public risk and remedial actions are required to mitigate the contaminants of concern. The purpose of this interim risk management plan is to describe the proposed strategy for the initial remediation of the source property .

If you have any questions or require additional information, please do not hesitate to contact Chan Bryant at (919) 469-3340.

Sincerely,
WITHERS & RAVENEL, Inc.
C. Chan Bryant

C. Chan Bryant, P.E.
Senior Engineer

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1.0 Introduction

Withers & Ravenel (W&R) has prepared this Interim Risk Management Plan (IRMP) for the "BB&T Site" on behalf of the North Carolina Dry-Cleaning Solvent Cleanup Act (DSCA) Program. The site is located at 1103 West Club Boulevard, at the southeast corner of West Club Boulevard and Watts Street in Durham, Durham County, North Carolina (**Figures 1 & 2**). The site is referenced by the DSCA Program as DSCA# 32-0013. This interim risk management plan is intended to comply with the requirements of the DSCA (N.C.G.S. 143-215.104A *et seqs*) and promulgated rules and follows the outline provided in the DSCA Program's risk-based corrective action (NCRBCA) guidance.

1.1 Current DSCA Petitioner

The site was admitted to the DSCA Program and the Assessment and Remediation Agreement was executed on October 10, 2006. A former property owner, Branch Banking & Trust Company (BB&T), completed the application for entry into the DSCA program and remains the current petitioner for participation in the DSCA program.

1.2 Current Property Owner

BB&T sold the property to the current owner, Liduvina Garcia of 201 Cedar Avenue, Gathersburg, Maryland, on December 14, 2006. A deed is on file at the Durham County Courthouse (Book 5455 Page 948-951) that acknowledges this transfer of the property.

1.3 Objectives of the Interim RMP

W&R has completed this interim risk management plan to outline the steps for remediation of the indoor air impacts by dry cleaning solvents in the building at the facility site. The building has been condemned by the City of Durham due to the elevated concentrations of tetrachloroethylene (PCE) in indoor air samples collected from the facility. The interim risk management plan will demonstrate that the demolition of the building is the most appropriate alternative to alleviate the indoor air hazard at this property. A second objective of the interim risk management plan is to ensure that site-specific land-use conditions developed for the site remain valid in the future.

2.0 Summary of Facility-Site Assessment Data

Environmental assessment activities have been completed for the facility site both by consulting firms working for previous property owners as well as the DSCA program contractors. Figures showing the well, boring and samples locations along with tables summarizing the analytical data for each media are attached to this report. The following paragraphs summarize the assessment data collected for the facility site from discovery to date.

2.1 Release Discovery Information

The release of dry cleaning solvents at this facility was first discovered during the removal of a 1,200-gallon heating oil underground storage tank (UST) in 1993. The UST was located near the southeast corner of the existing building. A petroleum-release incident has been documented for this site by the North Carolina Division of Waste Management (NCDWM) UST Section as UST Incident No. 11348. Previous assessment reports for this incident that are on file with NCDWM UST Section are:

- Tank Removal Report (October 13, 1993) ERC, Inc.
- Report for Soil Boring Investigation (October 19, 1993) ERC, Inc.
- Soil and Monitoring Well Installation Report (October 29, 1993) ERC, Inc.
- Report for Monitoring, Deep Profile, and Recovery Well Installations (December 9, 1993) ERC, Inc.
- Phase I Limited Site Assessment Report (August 18, 2004) TerraQuest

According to the first two ERC reports, laboratory analysis of two soil samples collected from below the former UST identified concentrations of PCE ranging from 1.2 to 2.0 mg/kg, trichloroethene (TCE) ranging from 0.0024 to 0.0032 mg/kg, and cis-1,2-dichloroethene ranging from 0.0046 to 0.0086 mg/kg, as well as various petroleum-related compounds. The reported PCE concentrations exceed the Soil Remediation Goal (SRG) of 0.48 mg/kg established for PCE by the Inactive Hazardous Sites Branch (IHSB).

Four shallow Type II monitoring wells (MW-1 through MW-4), one Type III vertical delineation well (DW-1), and one recovery well (RW-1) were subsequently installed at the site by ERC in October and November 1993. The Type II wells were reportedly installed to an average depth of 30 feet below land surface (bls) with a 15-foot screen interval, while the Type III well was installed to a depth of 40 feet bls with a 5-foot screen interval. The recovery well was reportedly installed to a depth of 44.5 feet and was screened to a height of 3 feet above static water level. Laboratory analysis

of groundwater samples collected from these wells indicated the presence of PCE in all of the samples, with concentrations ranging from 95 µg/L (MW-4) to 5,500 µg/L (MW-1). A PCE concentration of 680 µg/L was detected in the sample collected from DW-1. Additionally, trichloroethene (TCE) and 1,1,2-trichloroethane were identified at concentrations exceeding the established North Carolina Groundwater Standards in the samples collected from wells MW-1 and DW-1. These two compounds were also identified at lower concentrations in the groundwater samples collected from the other wells.

2.2 DSCA Assessment Activities For Facility Site

The DSCA program has completed several phases of investigation to determine the extent of soil, groundwater and soil vapor impact created by the release of dry cleaning solvents from the facility. The following paragraphs describe the assessment data for soil, groundwater, soil vapor and indoor air impacts.

2.2.1 Soil Assessment

W&R completed the Prioritization Assessment Report & Prioritization Ranking Form (PAR) and submitted these documents to the North Carolina Department of Environment and Natural Resources during February 2007. During the PAR investigation, twelve soil borings were advanced on the BB&T Property. Nine soil borings were advanced around the periphery of the existing building and three soil borings were advanced through the floor slab of the building. Laboratory analysis of the soil samples identified detectable concentrations of perchloroethene (PCE) in eleven of the twelve submitted samples. Trichloroethene (TCE) was detected in one boring.

During May 2007, W&R advanced twenty soil borings at the BB&T site in the two areas identified during the PAR as exhibiting elevated PCE in soil. Laboratory analysis of the soil detected PCE concentrations exceeding the DSCA soil concentration protective of groundwater (SCPG) of 0.0342 mg/kg in nineteen of the forty soil samples submitted for analysis. PCE in six of these samples exceeded the Inactive Hazardous Sites Branch Soil Remediation Goal (SRG) of 0.48 mg/kg.

During August 2008, W&R advanced twenty additional soil borings and collected soil samples for analyses at the facility site to provide additional delineation of the soil plume to assist with completion of risk assessment activities and determine whether remediation or interim source removal was warranted. The soil

assessment data and locations of samples are shown on the attached **Figure 3**.

2.2.2 Groundwater Assessment

During May 2007, W&R advanced twenty soil borings at the BB&T Site in the two areas identified during the PAR as exhibiting elevated PCE in soil. W&R also installed five type II monitoring wells at the site to determine groundwater flow, groundwater quality, and to provide permanent groundwater monitoring locations (**Figure 4**).

Groundwater samples were collected from MW-1R through MW-5R including a deep sample from MW-5R at 39 to 44 ft below ground surface (bgs). Detectable concentrations of PCE were identified in five of the six groundwater samples. All of the detected concentrations exceeded the North Carolina 2L groundwater standard for PCE of 0.7 µg/L. The groundwater sample from MW-1R exhibited the highest PCE concentration of 42,000 µg/L. The deep groundwater sample exhibited a PCE concentration of 24,000 µg/L, as well as a TCE concentration of 76 µg/L. The groundwater sample from MW-3R did not exhibit PCE or TCE concentrations above method detection limits (1.0 µg/L).

During January 2008 W&R also installed two onsite deep wells (MW-1D and MW-5D) (**Figure 4**). Laboratory analysis of the groundwater collected from the newly installed deep wells (MW1D and MW-5D) detected PCE above the North Carolina 2L groundwater standard of 0.7 µg/L in both monitoring wells. TCE was not detected above Laboratory detection limits (1.0 µg/L) in MW-1D or MW-5D.

During August 2009 W&R installed twenty additional Geoprobe soil borings for collection of groundwater samples from temporary monitoring wells installed within the shallow aquifer system. In November 2009 additional wells were installed to better define the vertical extent of the contaminant migration in groundwater. The location of the additional wells are shown on **Figure 4**.

2.2.3 Soil Vapor Assessment

W&R completed soil vapor sampling at the former BB&T property on April 3, 2009. W&R installed one sub-slab soil vapor point (SSV-1) in the southeast corner of the former Dry Cleaner structure. W&R also installed three soil vapor monitoring points around the southern perimeter of the structure (SV-1, SV-2, and SV-3). W&R collected sub-slab and soil vapor air samples using one-liter summa canisters for analysis of PCE, TCE, cis 1,2 DCE, trans 1,2 DCE, and VC by method TO15.

Laboratory data indicated a significant sub-slab and soil vapor PCE plume under the southeast corner of the structure and along the southern perimeter of the structure (**Figure 5 and 6**).

W&R installed five additional soil vapor points along the southern property line of the site and 1414 Watts Ave and collected soil vapor samples for laboratory analysis (**Figure 5**). Laboratory analysis detected significant levels of PCE in soil vapor along the southern property boundary.

Additional soil vapor points were installed at the site in August 2009 to further delineate the extent of the soil vapor impact by PCE. The points, GP-1 to GP-20, are shown on the attached **Figure 5**. The concentrations of PCE in the soil vapor was confirmed to exceed the current DSCA screening level of 210 ug/m3.

2.2.4 Indoor Air Assessment

W&R completed indoor air sampling at the former BB&T property on April 3, 2009. Two indoor air samples, IA-1 and IA-2 were collected using six-liter summa canisters for analyses of PCE, TCE, cis 1,2 DCE, trans 1,2 DCE, and VC by method TO15. IA samples collected from inside the structure also indicated the presence of PCE at concentrations ranging from 2,712 ug/m3 to 3, 051 ug/m3.

3.0 Risk Assessment Data

W&R submitted a Tier 1 Risk Assessment in accordance with DSCA policy documenting the risk assessment evaluation of the on-site exposure unit. W&R evaluated the current use of the property as a church and the future use of the property with the current building removed from the site and future use limited as a paved parking lot. W&R calculated representative concentrations from soil and groundwater samples collected at the site. The results of the Tier 1 risk assessment warranted a Tier 2 risk assessment for the site. The following paragraphs describe the risk assessment information collected from the facility:

3.1 Tier I Risk Assessment

The exposure model for the risk assessment evaluation consisted of the following complete exposure pathways:

• On-Site Resident – Current Conditions – Surficial Soil, Subsurface Soil and Groundwater (First Encountered Zone) – Indoor and Outdoor Inhalation of Vapor Emissions

• On-Site Non-Residential Worker – Current and Future Conditions – Surficial Soil (current conditions only), Subsurface Soil and Groundwater (First Encountered Zone) - Indoor and Outdoor Inhalation of Vapor Emissions

• On-Site Construction Worker – Soils Up to Depth of Construction – Combined Pathway

• On-Site Construction Worker – Groundwater (First Encountered Zone) – Outdoor Inhalation of Vapor Emissions.

For each complete pathway, representative concentrations (RCs) of detected contaminants in groundwater were calculated and compared with Tier 1 Risk-Based Screening Levels (RBSLs) established by the DSCA Program. The following exceedances of Tier 1 RBSLs were identified:

• PCE and TCE exceeded the RBSLs for the Subsurface Soil for Indoor Inhalation of Vapor Emissions for both Onsite Non-residential Worker and Onsite Resident (Current Conditions).

• PCE exceeded the RBSL for the Subsurface Soil for Outdoor Inhalation of Vapor Emissions for Onsite Non-residential Worker (Current and Future Conditions) and Onsite Resident (Current Conditions). PCE also

exceeded the RBSL for Combined Pathway of Soil Up to Depth of Construction for Onsite Construction Worker.

• PCE, TCE, and chloroform exceeded their respective RBSL for the Groundwater for Indoor Inhalation of Vapor Emissions for both Onsite Non-residential Worker and Onsite Resident (Current Conditions).

The Tier 1 risk assessment did not include evaluations of the protection of groundwater use or surface water pathways because PCE impacts to groundwater have already been identified on the surrounding properties. A future site-wide comprehensive Tier 1 risk assessment will include evaluation of these pathways.

3.2 Tier II Risk Assessment

As part of the Tier 2 evaluation, site-specific fate and transport parameters, exposure factors and representative concentrations for each complete exposure pathway were entered into the North Carolina Risk-Based Corrective Action (NCRBCA) Computational Software distributed by the DSCA Program. To evaluate for the soil vapor pathway, representative concentrations were calculated based on the results of the on-site soil vapor assessment. Indoor air samples were collected from the building on April 3, 2009. Analyses of those samples for volatile organics typical of dry cleaning solvents identified concentrations of PCE ranging from 2,712 to 3,051 $\mu g/m^3$. To evaluate the indoor air inhalation pathway, indoor air risk was calculated separately from the North Carolina Risk-Based Corrective Action Computational Software to account for site-specific parameters based on the shortened exposure time (4 hours per day) and frequency (208 days per year) due to the property's use as a church. Because indoor air and soil vapor concentrations were collected at the site, Indoor and Outdoor Inhalation of Vapor Emissions from Surficial Soil, Subsurface Soil, and Groundwater (Current and Future) exposure pathways for resident, non-residential worker, and construction worker were not included in the Tier 2 Risk Calculations. Based on the maximum concentration detected at the site, the indoor air cumulative risk values were 2.30×10^{-4} for Non-Residential Worker indoor air and 2.75×10^{-4} for Residential indoor air. The cumulative risk values would be higher if default exposure time and frequency were used for residential and commercial-industrial indoor air settings.

To incorporate the indoor air risk calculations into the on-site risk evaluation, the cumulative risk from the NCRBCA Computational Software and the cumulative risk from the indoor air risk calculations were then added together to arrive at the on-site cumulative risk. The on-site cumulative risk levels were determined to exceed than DSCA's allowable risk levels of 10^{-5} for cumulative Individual Excess Lifetime

Cancer Risk (IELCR) under the current land-use scenario. The cumulative HI for current use of the property does not exceed the allowable risk of 1 for Cumulative Hazard Index (HI). The cumulative Individual Excess Lifetime Cancer Risk and Cumulative Hazard Index for future use of the property as parking lot did not exceed the allowable risk established by DSCA.

The results of the Tier 1 and 2 evaluations indicate the release at the subject site does pose an unacceptable risk, but demolition of the building on the site and the proposed Land-use Restrictions (LURs) will lower the on-site cumulative Individual Excess Lifetime Cancer Risk to within DSCA's allowable risk levels.

3.3 Building Condemnation

The collected indoor air data for PCE, and contaminant exposure scenario to occupants of the Word of Faith Church, was evaluated by a Superfund Section toxicologist. The recommendation was made to the DSCA program that the building not be used until adequate mitigation/evaluation was conducted. DSCA staff met with the Church's pastor and discussed the recommendation that the building not be occupied. Because the pastor indicated that the church intended to continue to occupy the building, the toxicologist's recommendation was forwarded (via email) to the appropriate city and county agencies in Durham. The DSCA program also notified the property owner of the recommendation through verbal communication.

On May 12, 2009 the City of Durham Department of Neighborhood Improvement Services, condemned the building as unsafe and notified the property owner in a letter with the same date. A Notice was placed on the front door, by the city, indicating that the building was condemned.

4.0 Summary of Preliminary Source Removal Activities

The following paragraphs describe the preliminary source removal activities completed at the BB&T Site.

4.1 Aggressive Fluid Vapor Recovery Event

On February 11 and 12, 2009 an aggressive fluid vapor recovery (AFVR) event was completed at the site. This process uses a vacuum pump to remove soil vapor, contaminated groundwater and any non-aqueous phase product (NAPL) from the subsurface at contaminated sites. This typically is implemented by using tanker trucks with integrated vacuum pumps.

In order to evaluate the effectiveness of source area reductions in groundwater concentrations at the site, AFVR events were completed on two consecutive days at the site. The first day focused on well MW-1R and the second day focused on well MW-5R. The vacuum applied to each well was approximately 28-in Hg. The vacuum was maintained for 8 hours for each well. A total of 25 gallons of contaminated groundwater was recovered on each day of the AFVR event.

Groundwater samples were collected on February 28th, 2009 from wells MW-1R and MW-5R to evaluate the effectiveness of AFVR event in reducing source area groundwater concentrations of PCE. While the AFVR process did not remove a large quantity of contaminated groundwater, a substantial quantity of vapors were removed, and consequently some volatile organic compound (VOC) mass was removed during the AFVR event. Analysis of groundwater samples collected after the AFVR event did not reveal significant concentration reductions for PCE and its daughter products in groundwater at most of the locations sampled. For example, prior to the AFVR event approximately 130 mg/L of PCE was reported for well MW-1R. After the AFVR event, the PCE concentration in the groundwater sample from this location was approximately 110 mg/L.

Upon review of this data, W&R determined that AFVR was not considered an applicable short term remediation strategy to abate indoor air conditions within the building.

4.2 Soil Vapor Extraction Pilot Testing

W&R conducted a soil vapor extraction (SVE) pilot test at VE-1 on January 25, 2010. VE-1 is a 2-inch diameter well installed at the site with a screen interval of 5 to 20 feet below land surface. VE-1 was installed in a centralized location in order to allow for vadose zone radius of influence monitoring at SV-12, SV-13, SV-14, SV-15, SV-16, and SV-17. A full round of site groundwater levels, vacuum/pressure readings, and VOCs in headspace were collected at all site monitoring wells and soil vapor points.

W&R utilized a portable Roots 42U blower capable of 16 inches of mercury (in.-HG) and 291 cubic feet per minute (CFM) to perform the test. The SVE pilot test was conducted at VE-1 by applying 5 in.-HG, 10 in.-HG, and 15 in.-HG of vacuum to the well head. During the test vacuum/pressure, VOCs in headspace, and effluent VOCs were periodically monitored. The test yielded a maximum well flow of 19 standard cubic feet per minute (SCFM) and maximum effluent volatile organic compounds of 34,800 parts per billion (ppb). No vacuum/pressure or reductions in headspace VOCs were observed in the monitored area.

The failure to identify a significant induced vacuum radius of influence around the perimeter of the pilot test well, VE-1, suggested that SVE would not be expected to reduce soil vapor and in turn indoor air concentrations of the onsite building. As such, implementation of soil vapor extraction was not considered an appropriate remedial approach for remediation of soil gas, however, application of vacuum recovery of sub slab vapor and soil vapor in the soils around the foundation of the building may have merit due to the increased permeability typical of those settings.

4.3 Evaluation of Vapor Intrusion Mitigation Alternatives

W&R completed the following steps to evaluate mitigation alternatives of the indoor air condition within the building on the property:

1) Completed Building Condition Assessment;
2) Prepared Opinion of Probable Cost for Installation and Operation of Active Subslab Depressurization Vapor Mitigation System;
3) Prepared Opinion of Probable Cost for Partial Demolition & Reconstruction of Building;
4) Obtained Appraisal of Building Value;
5) Obtained Opinion of Probable Cost for Demolition of the Building;
6) Compared Cost for Active Mitigation Alternatives with Cost to Demolish Building

The following paragraphs expand on each of the tasks completed to evaluate vapor mitigation alternatives.

4.3.1 Building Condition Assessment

W&R reviewed the construction details of the single story brick building constructed on the property following receipt of the April 2009 indoor air data. The review of the building construction indicated the building is constructed with masonry walls that are currently covered on three exterior sides with synthetic sheathing. The masonry walls are constructed by two layers of brick masonry separated by an air gap and metal ties between the brick. At the base of each exterior masonry wall, a corresponding gap in the brick is present allowing the interior wall air space to be open to the interior of the building. The attached photographs (**Appendix B**) illustrate the air gap in the masonry wall construction as observed when removing the baseboard molding from the interior of the building. The gap at the base of the interior side of the exterior masonry wall of the building appeared consistent throughout the portions where the building wall was observed. The walls appeared constructed such that the gap repeated on a frequency of 1 gap per every 16-inches. The base of the opening of each gap in the wall corresponded with the finished concrete floor elevation of the building. Photographs of this portion of the building are included in **Appendix B**.

At the time of the building condition assessment, a flame ionization detector (FID), was used to record concentrations of volatile organic compounds (VOCs) in the indoor air as a survey of

potential preferential migration pathways of the PCE vapors into the building. The FID responded with a reading of 2 to 3 parts per million when entering the building. The inlet probe of the FID was inserted behind the baseboard in several locations along the exterior masonry walls whereby readings on the FID exceeded 10 parts per million. This observation provided confirmation that the gaps in the masonry at the base of the exterior wall were providing a route of vapor migration into the building.

The building interior contained a suspended ceiling. Observation of the plenum space above this suspended ceiling revealed that the masonry walls extended to the roof joists and that the interior air gap between the brick of the masonry walls was possibly open to the interior of the building. This condition was also expected to contribute to the vapor intrusion causing the indoor air quality degradation at the site.

The southeast corner of the building is reportedly the portion of the building where the dry cleaning machines were located. This room within the building contained an exterior door that has been closed with brick on the exterior and a stud and dry wall cover on the interior that is finished to match the existing plaster over the brick masonry wall. All plumbing, electrical, water and sewer service enters through this south end of the building. The previously described assessment data collected from the site suggests that elevated concentrations of PCE impacted soil, soil vapor, sub-slab vapor and groundwater is located coincident with this portion of the building (**Figure 2, 3, 4, 5 and 6**).

4.3.2 Opinion of Probable Cost For Installation & Operation of Active Vapor Mitigation System

W&R completed a preliminary design and obtained cost estimates for installation of a proposed vapor mitigation system for the building. This proposed system included the following general features:

a) A proposed vapor collection trench along the east and south building wall was specified due to the elevated concentrations of PCE in both soil and soil vapor in this portion of the building. A vapor extraction manifold was designed to reside within the trench backfill and for connection to the conceptual vapor extraction system manifold.
b) Horizontal penetrations through the foundation wall of the building were specified to allow the placement of conceptual vapor extraction points beneath the concrete slab of the east and south exterior walls of the building.

c) A packaged soil vapor extraction system was specified for the recovery of vapor from the proposed trench along the exterior of the building as well as the sub-concrete slab area in the vicinity of the southeast corner of the building.
d) A dedicated electrical service consisting of a service pole, meter base and overhead electrical service from an existing service pole and transformer set along Watts Street was included in the conceptual design to allow the system to be energized.
e) Soils from the trenching and excavation associated with the trench construction were specified to be placed in roll off containers for characterization and subsequent disposal in accordance with DSCA Program requirements.
f) Given the likelihood that PCE and other dry cleaning solvents had migrated into the concrete slab in the vicinity of the dry cleaning machines and exterior masonry walls of the facility, an epoxy coating was specified as a vapor retardant for the floor of the portion of the building where the dry cleaning machines were operated. If completed in this fashion, installation of the proposed epoxy coating would require the removal of the floor tiles, and carpet in areas of the building as well as the plaster positioned over the lower three feet of the exterior walls along the southeast portion of the building. Prior to placement of the plaster W&R specified that the gaps in the masonry wall be filled to reduce the potential for ongoing vapor intrusion in these locations. This would require removal of the dry wall, stud walls, toilets, sinks, and other fixtures from each of the three bathrooms on the south end of the building.

   A copy of the plans and specifications for this system are included in **Appendix C** of this report.

   The cost estimate also included the cost for operation of the proposed system and post installation operating, maintenance and monitoring costs. Given the elevated concentrations of PCE in the soil, soil vapor and groundwater beneath the building, the vapor mitigation system was considered to be a permanent feature of the building due to the difficulties/limitations of practically remediating the impacts present beneath the building.

   The resulting opinion of probable cost to install, operate and complete ongoing monitoring for the vapor mitigation system was $239,000. A spreadsheet containing a summary of this cost opinion is attached in **Appendix C**.

4.3.3 Opinion of Probable Cost for Partial Demolition & Reconstruction of Building

A second vapor mitigation technique considered for the building was to demolish the south end of the building to allow excavation of roughly 1,700 tons of highly impacted soils beneath the building pad and removal of the concrete floor and portions of the building masonry to eliminate the source of the indoor air quality problem. This mitigation alternative included the installation of a fixed vapor collection system beneath the concrete slab constructed to replace the demolished portion of the building. Demolition cost estimates were obtained from a subcontractor and a consulting plumbing, mechanical and electrical engineer was contacted concerning the cost of reconstruction of the demolished portion of the building.

The resulting opinion of probable cost to demolish and reconstruct the south portion of the building was $393,000. The cost breakdown for this estimate is as follows:

Demolition Cost:	$10,000.00
Cost for Asbestos Abatement:	$10,000.00
Cost for Demolition Permit:	$1,000.00
Structural Supports for Roof/Walls	$5,000.00
Construction Replacement Cost (1,500 Sq Feet x $100/Sq. Ft.)	$150,000.00
Architectural Design / Engineering Fees:	$30,000.00
Soil Remediation Cost: 1700 Tons	$187,000.00
Total Opinion of Probable Cost to Demolish & Replace 50% of Building – With Source Excavation	$393,000.00

4.3.4 Appraisal of Building Value

A commercial real estate appraisal was obtained from a local firm to determine the market value of the building on the property. The appraisal was completed on June 9, 2009 with a report issued on June 19, 2009 by Williams Appraisers, Inc. of Raleigh, NC. The appraisal determined that the fair market value of the building on the property was $150,000. This appraisal did not include the cost of the land and at the request of DSCA did not consider the fact that the building was condemned in providing the appraised value of the building. A copy of the certified appraisal is available on file with the DSCA program.

4.3.5 Opinion of Probable Cost for Demolition of Building

Upon evaluation of the opinions of probable costs for the vapor mitigation alternatives for this site with the appraised value of the building, a cost estimate was obtained for the demolition of the building on site. The opinion of probable cost for completion of this alternative is as follows:

Cost to Complete Asbestos Inspection:	$1,000.00
Cost for Asbestos Abatement:	$10,000.00
Cost for Demolition Permit:	$1,000.00
Cost for Demolition of Building:	$12,000.00
Cost for Barricades, Traffic Control:	$2,000.00
Total Opinion of Probable Cost to Demolish Building:	$24,000.00
Appraised Value of Building:	$150,000.00
Opinion of Probable Cost to Demolish Building	$174,000.00

4.3.6 Proposed Vapor Mitigation Strategy

The proposed vapor mitigation strategy for the indoor air quality condition at the facility is the demolition of the building. This strategy offers the benefit of the immediate alleviation of an exposure hazard with unacceptable individual excess lifetime cancer risk levels and allows access to the area beneath the building for any additional assessment deemed necessary and future remediation of the soil and groundwater impacts at the site.

Aside from the obvious technical advantages offered by this alternative, the overall cost of this strategy is favorable when compared to the other alternatives considered for the site.

5.0 Proposed Remedial Measures

The previous evaluation of remedial alternatives for abatement of indoor air quality associated with dry-cleaning related solvents identified at the facility site suggests that demolition of the building is the most appropriate remedial alternative. The following paragraphs provide a summary of the proposed remedial measures selected for the abatement of indoor air at this facility.

5.1 Summary of Practical Considerations For Implementation of Remediation

The practical considerations for completion of the building demolition at the facility site includes the protection of the public from construction and environmental hazards during completion of the work coupled with the avoidance of nuisance conditions created by noise and congested traffic patterns. Section 6.0 of this report documents the procedures to be followed to address these considerations during demolition of the building.

5.2 Summary of Risk & Effectiveness of Remediation

The demolition of the building will be effective in eliminating the inhalation hazard from the indoor air quality of the current building on site. This remedial alternative coupled with the proposed land-use restrictions for the property will ensure that future use of the property will prevent receptors from contacting environmental media determined as unsafe by the Tier II risk assessment.

5.3 Post Remediation Activities

Post remediation activities will include the development of a strategy to address the offsite receptors associated with this release. That strategy is currently under development and will be documented in a subsequent risk management plan in the future. A certification of compliance with land-use restrictions will be submitted annually by the land owner.

5.4 Protection of Ecological Receptors

W&R completed a Level 1 Ecological Risk Assessment for the site in accordance with the DSCA Program's NCRBCA guidance. The results of the evaluation indicate that the release does not pose an unacceptable ecological risk. The completed Level 1 Ecological Risk Assessment Checklists A and B and associated attachments are included in **Appendix D**.

6.0 Demolition Plan

The following paragraphs represent the procedures to be followed in demolition of the building on the property.

6.1 Pre-Demolition Activities

6.1.1 Disconnection of Electrical, Water, Gas and Sewer Service

Prior to demolition of the building, DSCA will request that the owner contact each utility service provider and request complete disconnection of all utility services to include electrical service, water, sewer, natural gas, phone and cable television.

Upon confirmation that the property owner has completed this task, DSCA's contractor will verify with each utility that the service has been disconnected and when appropriate schedule an onsite meeting with a utility provider representative to coordinate any specific work required for the demolition.

6.1.2 Fluorescent Light Fixture & PCB Ballast Removal

Prior to the demolition of the building, DSCA will require that the demolition contractor access the building and remove all fluorescent bulbs known to contain mercury and light fixture ballasts that are suspected to contain PCBs.

The bulbs and ballasts will be handled as Universal Waste in keeping with EPA Requirements.

6.1.3 Removal of Other Hazardous Materials Sources From the Building

DSCA will require a pre-demolition meeting to observe the condition of the building, review the demolition contractor's health and safety plan, and ensure that all hazardous materials have been removed prior to initiation of the building demolition.

6.2 Asbestos Inspection & Abatement

Buildings must be thoroughly inspected by a NC accredited asbestos inspector prior to beginning any demolition or renovation activity. The inspection is used to determine the presence, type, location and amount of asbestos present and what state or federal asbestos rules and regulations apply to the project.

An asbestos removal permit must be obtained from the Health Hazards Control Unit if more than 35 cubic feet, 160 square feet, or 260 linear feet of regulated asbestos-containing material is to be removed from a building. Regulated asbestos-containing materials are materials containing asbestos that can be easily crumbled in your hand; that will be or have been subject to sanding, abrading, grinding or cutting; or that has a high probability of becoming crumbled, pulverized, or reduced to a powder by forces expected to act on the material in the course of the demolition or renovation.

Notifications and Removal Permit applications must be submitted to the HHCU with an original signature and must be submitted 10 working days prior to beginning demolition or renovation activities.

A revision to an existing renovation or demolition project must be submitted for notification of changes (changes to start or completion dates, removal methods, scope of work, etc.) that occur after the initial permit/notification is issued. Revisions must be submitted on the HHCU form "Revision for Asbestos Permit/Demolition Notification (HHCU 3768-R)."

If asbestos is present in a building, it should be handled so that asbestos fibers are not released into the air. Asbestos-containing materials must be maintained adequately wet at all times during the demolition and renovation, and there should be no visible emissions.

6.3 Demolition Permit

City of Durham Code of Ordinances

The City of Durham Code of Ordinances have specific provisions pertaining to building demolition projects. The following sections of Durham Code are included for reference below:

Sec. 10-48. Permits for construction, plumbing, electrical, and mechanical work.

In order to construct, enlarge, alter, repair, move, demolish, or change the occupancy of, a building or structure, ..., when such work is regulated by the North Carolina Building Code, as such code may be amended from time to time, an owner or authorized agent shall first make application to the Durham Inspections Department and obtain the required permit.

Sec. 10-49. Notification of utilities; safety provisions; notice of completion of work.

Every person who obtains a permit under section 10-48 to demolish a building or structure shall notify all utility companies which furnish utility service to the property to discontinue such service. Every such person shall place or cause to be placed on such property a barricade for safety and protection of the public when so ordered by the building inspector. Every such person shall clear the property of all debris and shall leave the property in such a manner that water will not stand thereon. Every such person shall notify the building inspector when the demolition work is complete, and such work shall be subject to the final inspection and approval of the building inspector.
(Code 1982, § 6-30.1; Ord. No. 5738, § 4, 8-3-1981)

City of Durham Demolition Permit

The City of Durham Inspections Department has a demolition permit application that must be completed and submitted prior to demolition of the building on site. In addition, the Public Works Department Engineering Division has a demolition information form that must be completed before beginning work at the site. A copy of each form is included in **Appendix E** of this report.

The North Carolina Health Hazards Control Unit Demolition Permit

The North Carolina Health Hazards Control Unit (HHCU) must be notified of plans to demolish a building a minimum of 10-days in advance of the building demolition work. Notify and/or Permit (Use Form DHHS-3768, Asbestos Permit Application and Notification for Demolition/Renovation - this form is used for both asbestos removal and notifying for building demolition). A notification of building demolition must be submitted to the HHCU, even if no asbestos is present in the building.

A copy of the HHCU notification form is attached in **Appendix E** of this report.

6.4 Protection of Health & Safety of Adjacent Residential and Business Communities

The building demolition process is expected to be completed within a two week period following preparation of the initial site work. DSCA will provide notification to the Trinity Park Neighborhood Association,

Durham Area Transit Authority and contiguous property owners of the scheduled dates of the building demolition. DSCA has required the development of the following work practices to ensure the protection of the health and safety of the surrounding community members during this work.

6.4.1 Limitation of Pedestrian Access to Property

Barricades will be erected along the perimeter of the property to restrict pedestrian and vehicular access during the demolition and building debris removal activities. Sidewalks along W. Club Boulevard will remain open and will not limit use of the Durham Transit Authority (DATA) bus stop near the property.

A security guard will be posted at the property during non working hours to prevent unauthorized access to the remaining area of building debris.

6.4.2 Public Notification

At least two weeks prior to the scheduled demolition, all residents within and contiguous to the contamination plume, as well as TPNA, DATA, and interested parties that have provided contact information, will be notified of the dates of the demolition. In addition, notices will be posted to the subject building and adjacent bus stop. Prior to the demolition, questions regarding the Interim Risk Management Plan can be directed to Billy Meyer at 919-508-8415. Questions specific to the demolition procedures should be directed to Chan Bryant, project manager with Withers & Ravenel, at 919-469-3340.

6.4.3 Traffic Control

The actual heavy equipment (track hoe, loader and dump trucks) to be used in the demolition of the building and removal of the related debris will only need access to the property for two to three days.

During the demolition phase of the building, DSCA's contractor will request a temporary closure of a portion of Watts Street at its intersection with W. Club Blvd. to pedestrian and vehicle traffic. This closure is anticipated to be necessary only for a period of 10 to 12 hours during the demolition of the building walls abutting Watts Street.

A traffic control plan will be submitted to the City of Durham to request the street closure. Truck traffic will enter and exit the site using Watts Street and West Club Boulevard.

6.4.4 Vapor Monitoring Plan

During the demolition of the building DSCA's contractor will monitor wind speed and direction and in turn screen air at the site boundaries for concentrations of volatile organic compounds (VOCs) during the first day of demolition activities every 15 minutes. W&R will use an organic vapor analyzer to monitor the level of volatile organic compounds in the ambient air at the property boundaries. The monitoring will be conducted in accordance with the following monitoring protocol:

1) Background ambient air readings will be collected using the organic vapor analyzer on the day prior to the initiation of demolition near each property boundary;
2) During the site work ambient air readings will be collected at the property boundaries to determine the contribution of the volatile organic compound readings from the operation of the diesel operated machinery to be used on the project;
3) In the instance where sustained ambient readings show an increase in ambient air greater than 10 parts per million over background, then the DSCA contractor will notify residents to limit their time outdoors to minimize exposure to vapors associated with the work. The 10 parts per million total volatile organic compound atmospheric screening level was determined appropriate because it represents a relatively conservative standard based on 10% of the permissible exposure limit of 100 parts per million for PCE established by the Occupational Safety and Health Administration (OSHA).

Following the demolition, holes and/or penetrations in the asphalt and concrete will be patched to minimize the emission of vapors from soil. Seven days after any repairs to the asphalt or concrete, the ambient air on the property and at the property boundaries will be monitored and results compared to the 10 parts per million over background conditions (i.e., the standard used during demolition). While not anticipated, if this monitoring exceeds 10 parts per million over background conditions at the property boundaries, the affected property owners/occupants will be notified immediately, and measures will be undertaken to ensure that vapors from the site do not exceed acceptable levels.

If this monitoring does not exceed 10 parts per million over background, then an ambient air sampler will be deployed on site for 14 days. After 14 days, the sampler will be analyzed and the results will be compared to the N. C. Division of Air Quality's Acceptable Ambient Levels, or AALs, which are established to protect surrounding properties from chemical vapors from a source. For perc, the AAL is 190 ug/m^3. Fencing around the site will remain in place until the AALs are confirmed to be below 190 ug/m^3.

After the demolition and related monitoring activities have been completed, a summary report will be prepared. This report will include a summary of the demolition, a description and justification of deviations from the IRMP, results of demolition-related monitoring, a summary of the disposition of building materials, and any other pertinent information.

6.4.5 Noise Control

The DSCA contractor will require that work be conducted at the site between the hours of 7 am and 7 pm during business days. During those hours noise typical of demolition equipment, saws, grinders, trackhoes, dozers, and dump trucks (including back up alarms) is to be expected.

Work will not be allowed on the weekend unless the City of Durham requires it as a permit condition or that a weather delay results in a mid demolition break in work schedules.

6.4.6 Disposal of Building Debris & Materials

All building materials generated during the demolition activities will be transported to a permitted solid waste facility for recycling and/or disposal. This does not include asbestos and other hazardous materials removed prior to the demolition of the building as they will be handled in accordance with current requirements of the NC Division of Waste Management.

7.0 Land-use Restrictions

7.1 Notice of Dry-Cleaning Solvent Remediation

The risk assessment for the site was based on assumptions that usage of the site property will remain commercial and that groundwater will not be utilized on the property. Land-use restrictions will be implemented for the site property to ensure that land-use conditions are maintained and monitored until the land-use restrictions are no longer required for the site. A Notice of Dry-Cleaning Solvent Remediation was prepared for the site to comply with the land-use restriction requirement. The Notice of Dry-Cleaning Solvent Remediation is included in **Appendix A**. A plat showing the locations and types of dry-cleaning solvent contamination on the property is included as an exhibit to the Notice of Dry-Cleaning Solvent Remediation. The locations of dry-cleaning solvent contamination are where contaminants have been detected above unrestrictive use standards.

7.2 Annual DSCA Land-use Restrictions Certification

The Notice of Dry-Cleaning Solvent Remediation contains a clause which requires the owner of the site to submit a notarized "Annual DSCA Land-use Restrictions Certification" to the North Carolina Department of Environment and Natural Resources on an annual basis certifying that the Notice of Dry-Cleaning Solvent Remediation remains recorded with the Register of Deeds and that land-use conditions have not changed. An example of such a notice is included in **Appendix F**. Documents relating to this site will be maintained by the North Carolina Department of Environment and Natural Resources and available for public access.

7.3 Analyses of Long Term Reliability & Feasibility of Engineering & Institutional Controls

The land-use restrictions specified in the Notice of Dry-Cleaning Solvent Remediation prohibit site activities that could create unacceptable exposure to contaminated soil, groundwater, or vapor, and are intended to be temporary, but shall remain in force in perpetuity unless superseded or canceled by the Secretary of the North Carolina Department of Environment and Natural Resources. These restrictions include limiting the site usage to parking, landscape areas or walkways; prohibiting alteration, disturbance or removal of existing soil, landscape and contours; and prohibiting the use of any surface or underground water at the site without the approval of the North Carolina Department of Environment and Natural Resources. Land-use restrictions are deemed to provide long

term reliability as they are to be recorded in the Register of Deeds and are to be observed by all owners of the property unless superseded or canceled by the Secretary of the North Carolina Department of Environment and Natural Resources.

7.4 Criteria For Demonstration of Interim RMP Success

Demolition of the building will immediately eliminate the indoor air exposure pathway for the property. Therefore, a brief letter report will be prepared for DSCA to document the demolition of the building and replacement or repair of asphalt or concrete pavement removed or damaged during the project.

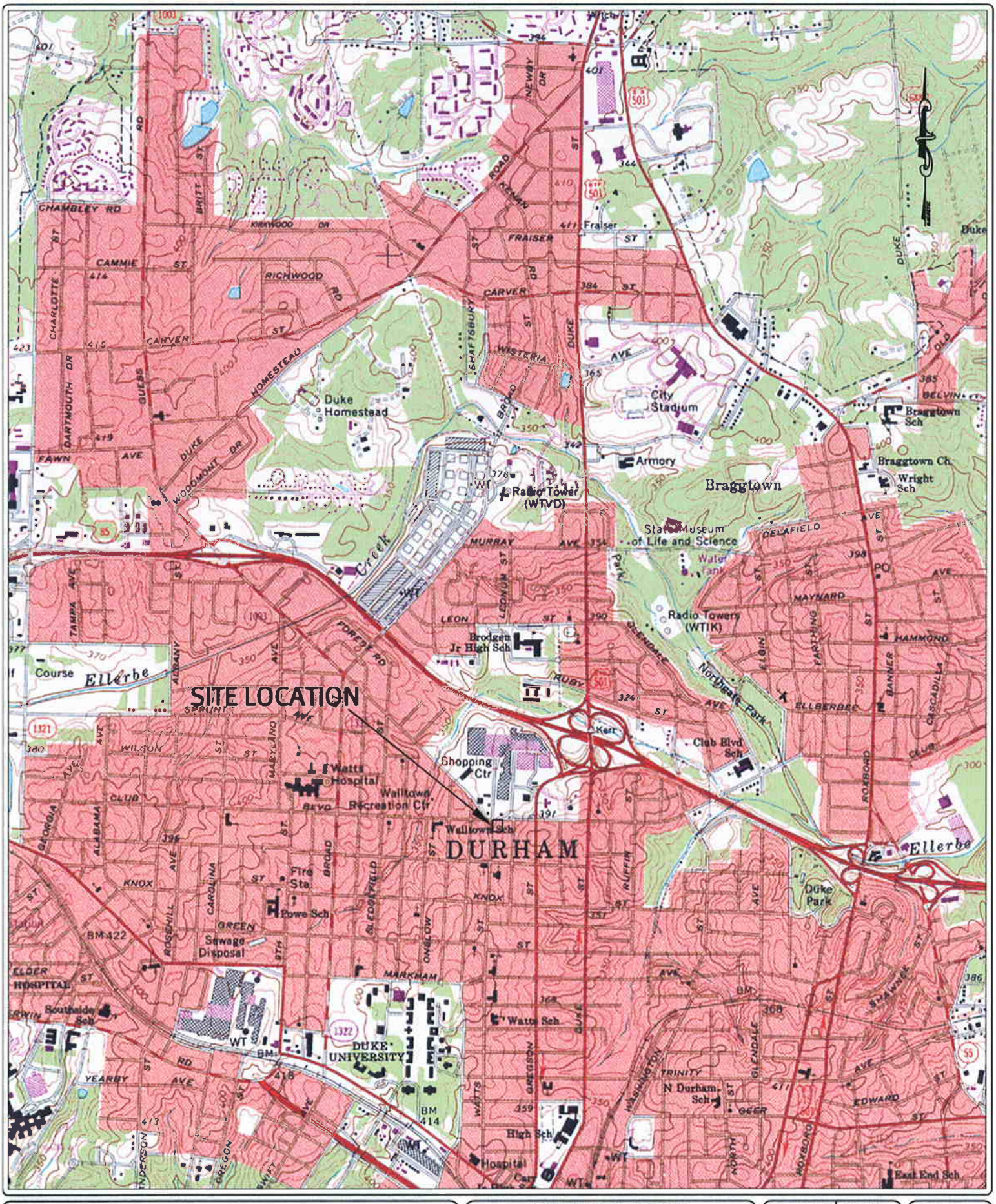
The interim risk management plan will be successfully implemented once the Notice of Dry-Cleaning Solvent Remediation has been recorded with the Durham County Register of Deeds and the building has been demolished. The Notice of Dry-Cleaning Solvent Remediation may, at the request of the property owner, be canceled by the North Carolina Department of Environment and Natural Resources after risk to public health and the environment associated with the dry-cleaning solvent contamination and any other contaminants included in the dry-cleaning solvent assessment and remediation agreement has been eliminated. If the North Carolina Department of Environment and Natural Resources is notified of a change in site conditions, per the notification requirements detailed in the Notice of Dry-Cleaning Solvent Remediation, the interim risk management plan will be reviewed to determine if the new site conditions have impacted the requirements set forth in the Notice of Dry-Cleaning Solvent Remediation and land-use restrictions, and if changes are required.

Enforcement of the interim risk management plan will be maintained through compliance with the Notice of Dry-Cleaning Solvent Remediation by the property owner. An example of this certification is included in **Appendix G**.

7.5 Contingency Plan if RMP Fails

As discussed above, unless the DSCA Program is notified of a change in land-use conditions at the site, per the notification requirements detailed in this plan, the interim risk management plan will remain in effect. Pursuant to N.C.G.S. 143.215.104K, if any of the land-use restrictions set out in the Notice of Dry-Cleaning Solvent Remediation are violated, the owner of the site property at the time the land-use restrictions are violated, the owner's successors and assigns, and the owner's agents who direct or contract for alteration of the site in violation of the land-use restrictions, shall be held liable for the remediation of all contaminants to unrestricted standards.

FIGURES



WITHERS & RAVENEL

ENGINEERS I PLANNERS I SURVEYORS

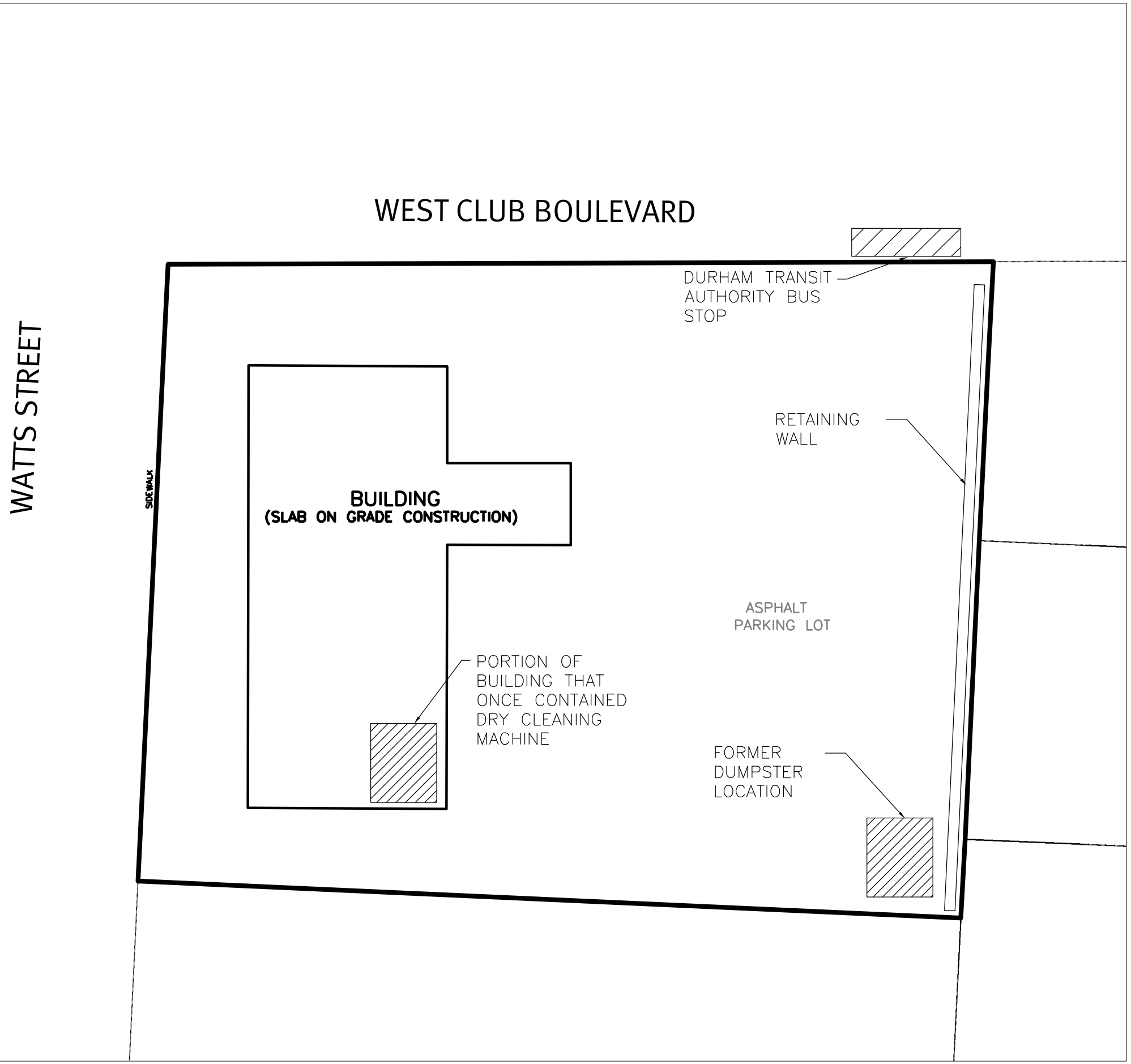
111 MacKenan Drive Cary, North Carolina 27511 www.withersravenel.com

tel: 919-460-6006 fax: 919-535-4545

FORMER BB&T PROPERTY
DSCA SITE ID NO. 32-0013
1103 WEST CLUB BOULEVARD
DURHAM, DURHAM CO., NC

SITE LOCATION MAP

DRAWN BY:	SCALE:	ATT. NO.
SKP	1"=2,000'	1
APPROVED BY:	DATE:	JOB NO:
BJB	2/18/08	02060496.32



GRAPHIC SCALE

20 0 10 20 40

(IN FEET)

1 inch = 20 ft.

WITHERS & RAVENEL
ENGINEERS | PLANNERS | SURVEYORS
111 MacKenan Drive Cary, North Carolina 27511 tel: 919-469-3340 www.withersravenel.com License No. C-0832

Revisions			
No.	Description	Date	By

BB&T SITE, DSCA ID 32-0013
1103 WEST CLUB BLVD
DURHAM, NORTH CAROLINA

SITE MAP

Drawn By: LP	Scale: 1"=20'
Checked By: CB	Date: 9/14/2010

Job No. 2060496.32
Sheet No. 2

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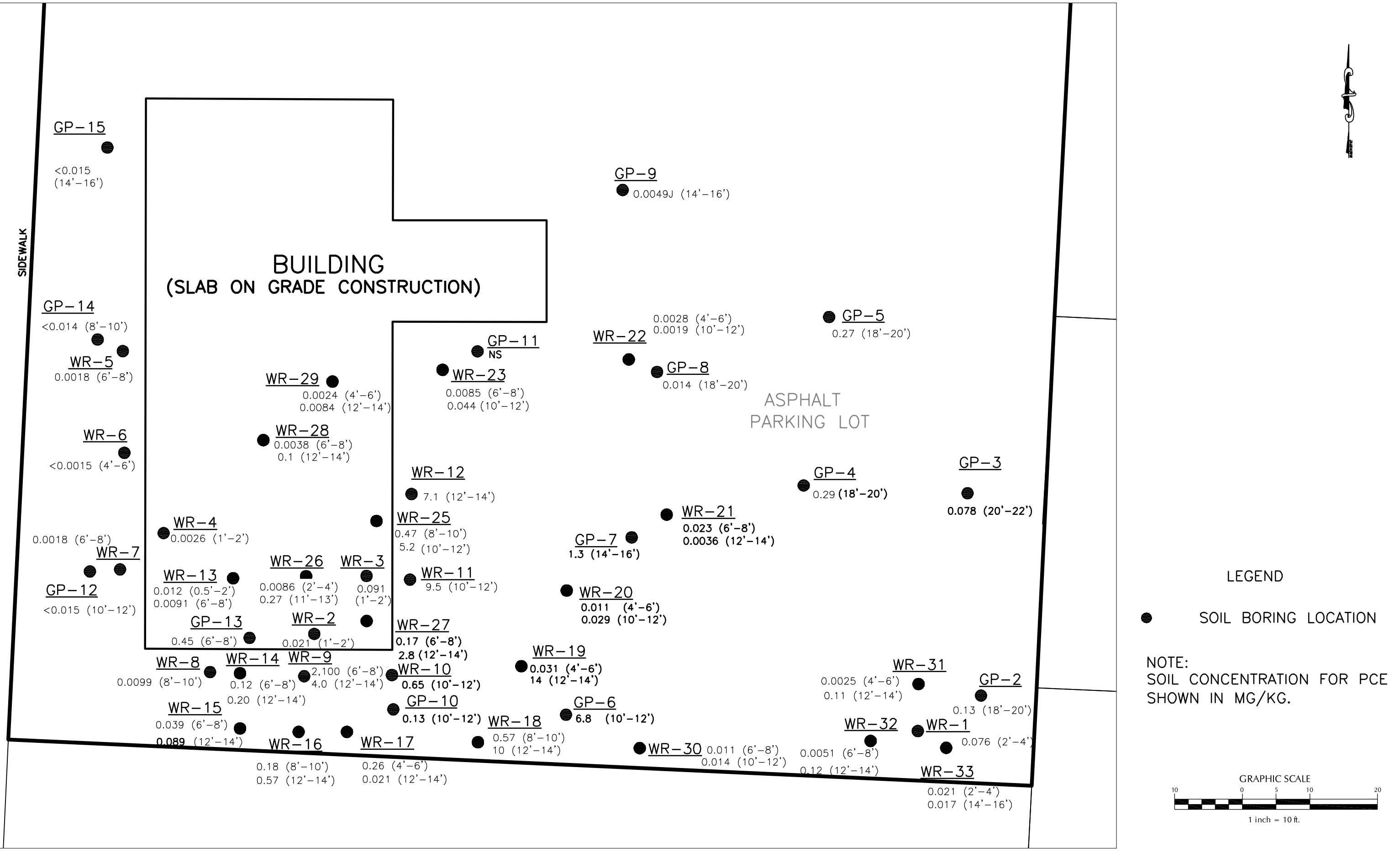

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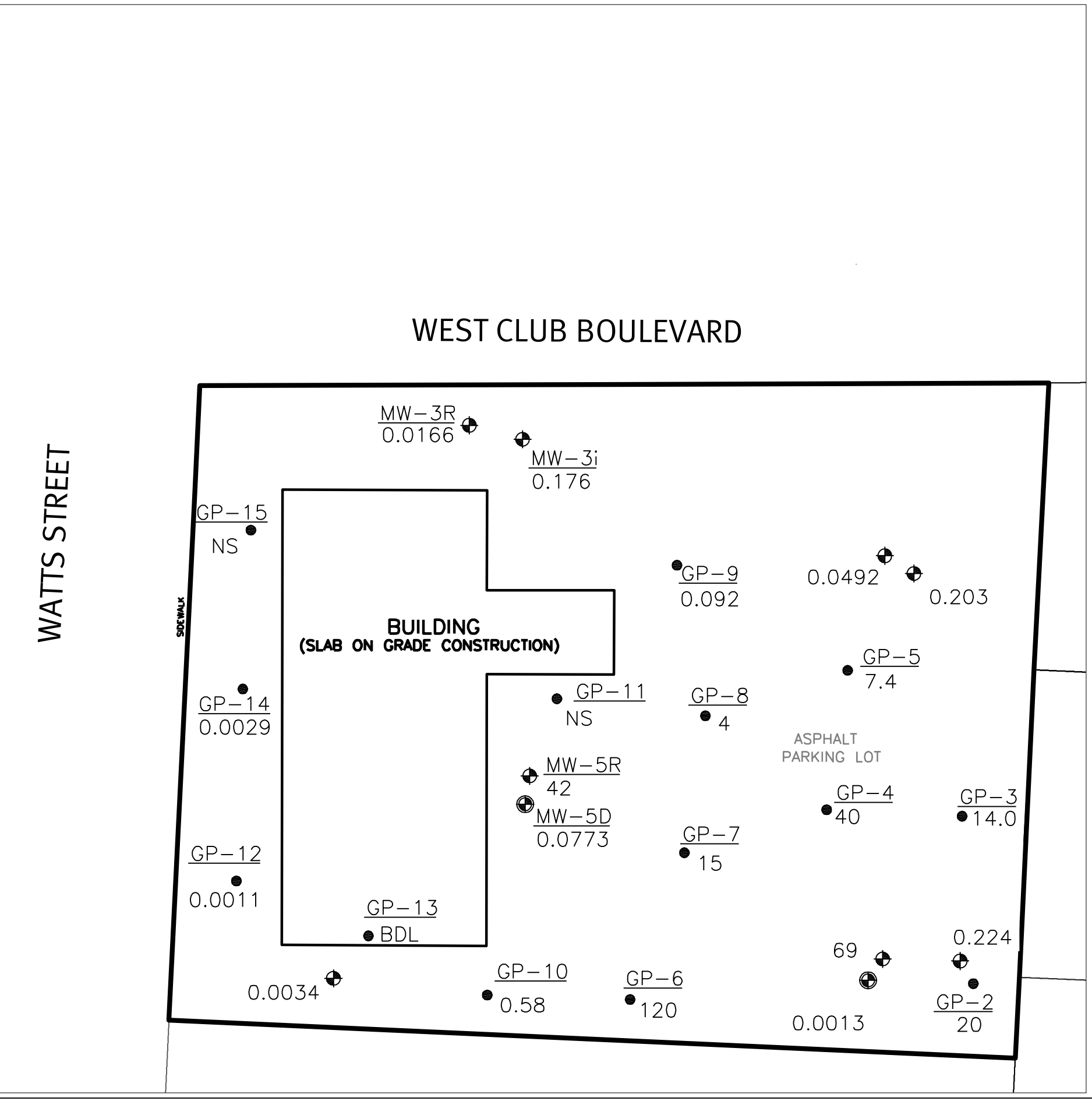
Revisions			
No.	Description	Date	By

BB&T SITE, DSCA ID 32-0013
1103 WEST CLUB BLVD
DURHAM, NORTH CAROLINA

SOIL BORING LOCATION AND SOIL IMPACT MAP

Drawn By: LP	Scale: 1"=10'
Checked By: CB	Date: 9/14/2010
Job No.: 2060496.32	Sheet No.: 3

W:\ENVIRONMENTAL\DSCA\060496.32-FORMER BB&T ID32-0013\PROJ\REMEDIATION\RMP\RMP 3 AND 4.DWG 11/4/2010 5:45 PM BRYANT, CHAN 1:1.2972



LEGEND

- TYPE II GROUNDWATER MONITORING WELL
- TYPE III GROUNDWATER MONITORING WELL
- GEOPROBE GROUNDWATER SAMPLE LOCATION

NOTE:
GROUNDWATER CONCENTRATION FOR PCE SHOWN IN MG/L FOR THE MOST RECENT ANALYTICAL RESULT FOR EACH SAMPLE LOCATION.

GRAPHIC SCALE

20 0 10 20 40

(IN FEET)

1 inch = 20 ft.

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Revisions

No.	Description	Date	By

BB&T SITE, DSCA ID 32-0013
1103 WEST CLUB BLVD
DURHAM, NORTH CAROLINA

MONITORING WELL LOCATION AND GROUNDWATER IMPACT MAP

Drawn By	Scale
LP	1"=20'
Checked By	Date
CB	9/14/2010

Job No. 2060496.32
Sheet No. 4

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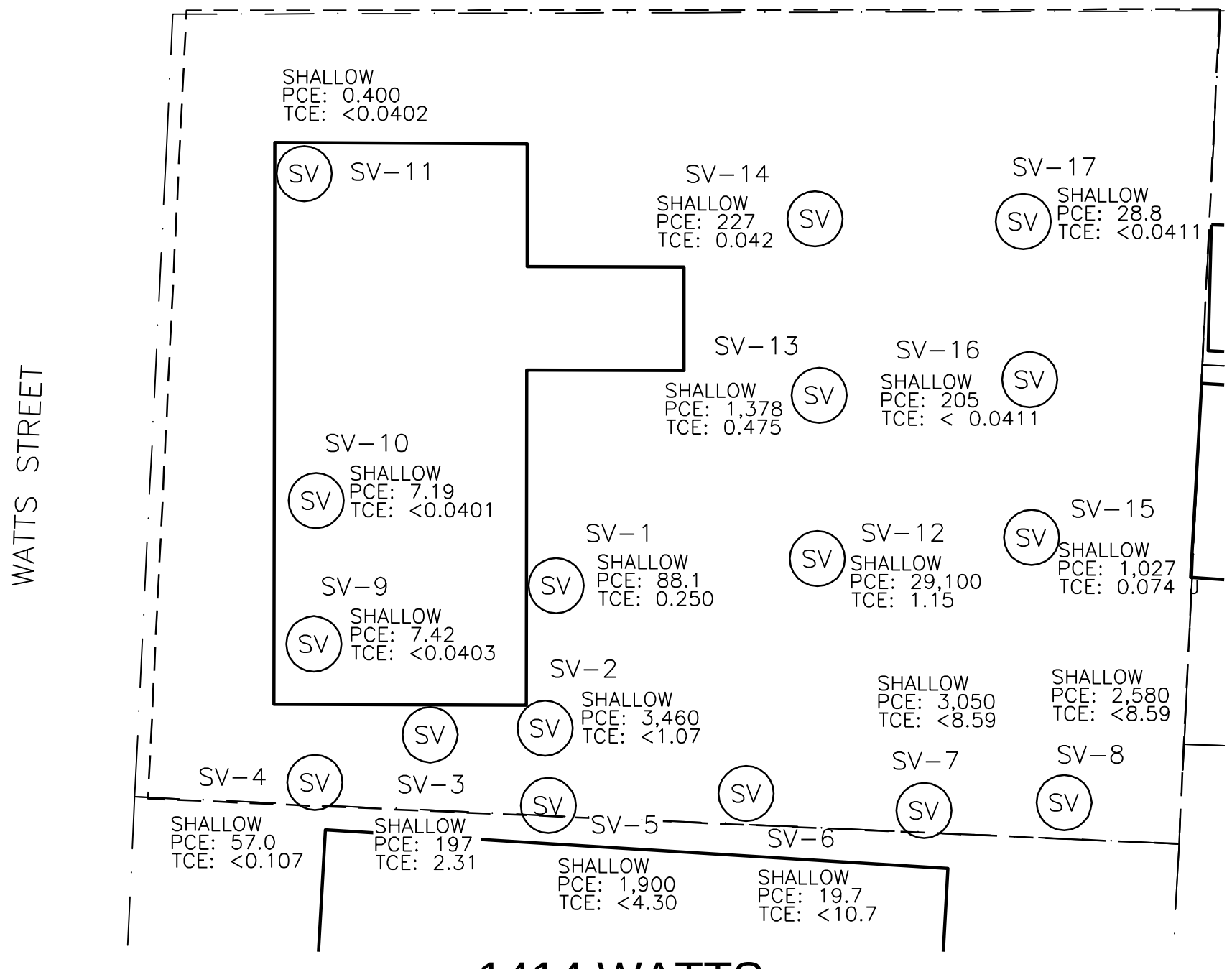

LEGEND:

SV SOIL VAPOR PROBE LOCATION

NOTE: CONCENTRATIONS SHOWN IN mg/m^3.

GRAPHIC SCALE

40 0 10 20 40

1 inch = 20 ft.

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1410 Commonwealth Drive, Unit 101, Wilmington, North Carolina 28403 www.withersravenel.com
tel: 910-256-9277 fax: 910-256-2584

Revisions

No.	Description	Date	By
1	Updated w/New Data	2/1/10	TJM
2	Updated w/Iso-Contours	2/4/10	JMP
3	Update Iso-Contours & Probes	2/9/10	JMP

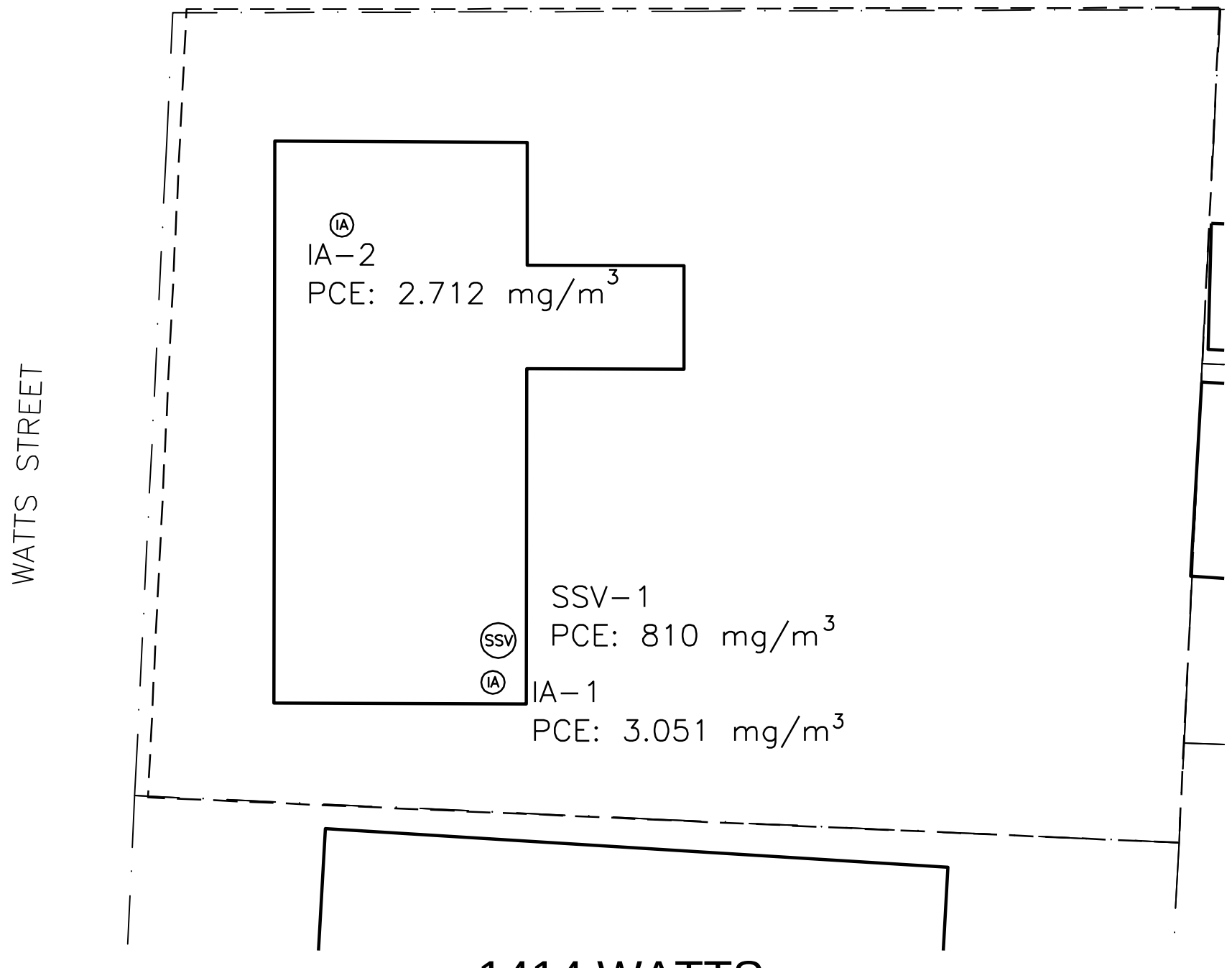
BB&T SITE (DSCA #32-0013)
1103 WEST CLUB BOULEVARD
DURHAM, DURHAM CO., NORTH CAROLINA

SOIL VAPOR PROBE & SOIL VAPOR IMPACT MAP

Drawn By	Scale
TJM	1"=20'
Checked By	Date
CCB	12/30/09

Job No. 02060496.32
ATT. NO. 5

W:\Environmental\DSCA\060496.32-Former BB&T ID32-0013\Proj\Remediation\RMP\RMP Figure 5 - PCE & TCE in SV (Updated 2-9-10).dwg



LEGEND:

(IA) INDOOR AIR SAMPLE LOCATION

(SSV) SUB–SLAB VAPOR SAMPLE LOCATION

NOTE:
CONCENTRATIONS OF PCE SHOWN IN mg/m^3.

GRAPHIC SCALE

40 0 10 20 40

1 inch = 20 ft.

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ENGINEERS | PLANNERS | SURVEYORS
1410 Commonwealth Drive, Unit 101, Wilmington, North Carolina 28403 www.withersravenel.com
tel: 910-256-9277 fax: 910-256-2584

Revisions

No.	Description	Date	By
1	Updated w/New Data	2/1/10	TJM
2	Updated w/Iso-Contours	2/4/10	JMP
3	Update Iso-Contours & Probes	2/9/10	JMP

BB&T SITE (DSCA #32–0013)
1103 WEST CLUB BOULEVARD
DURHAM, DURHAM CO., NORTH CAROLINA

INDOOR AIR & SUB–SLAB VAPOR SAMPLE LOCATION MAP

Drawn By	Scale
TJM	1"=20'
Checked By	Date
CCB	12/30/09

Job No. 02060496.32
ATT. NO. 6

W:\Environmental\DSCA\060496.32-Former BB&T ID32-0013\Proj\Remediation\RMP\RMP Figure 5 - PCE & TCE in SV (Updated 2-9-10).dwg

APPENDICES

APPENDIX A

NOTICE OF DRY CLEANING SOLVENT REMEDIATION

Property Owner: Liduvina Garcia
Recorded in Book ____, Page ____
Associated plat recorded in Plat Book ____, Page ____

NOTICE OF DRY-CLEANING SOLVENT REMEDIATION

This documentary component of a Notice of Dry-Cleaning Solvent Remediation (NDCSR or Notice), as well as the plat component, have been filed this _____ day of _____, 20__ by Liduvina Garcia (hereinafter "Property Owner").

The Notice concerns contaminated property.

A copy of this Notice certified by the North Carolina Department of Environment and Natural Resources, or its successor in function (hereinafter "DENR") is required to be filed in the Register of Deeds' Office in the county or counties in which the land is located, pursuant to the terms of the "Agreement" between the Property Owner and DENR and consistent with the requirements of North Carolina General Statutes (hereinafter "NCGS"), Section (hereinafter "§") 143-215.104M.

This Notice is required by NCGS § 143-215.104M in order to reduce or eliminate the danger to public health or the environment posed by environmental contamination at the property (hereinafter the "DSCA Source Property") being addressed under the Dry-Cleaning Solvent Cleanup Act of 1997, Article 21A, Part 6 NCGS § 143-215.104A *et seq*, (hereinafter "DSCA"). The DSCA Source Property is located at 1103 West Club Boulevard, Durham, Durham County, North Carolina, and identified by Parcel Identification Number (PIN) 0822-15-64-4976.

Pursuant to NCGS § 143-215.104M, the Property Owner must file a certified copy of this Notice within 15 days of receipt of DENR's approval of the Notice or the effective date of the dry-cleaning solvent remediation agreement, whichever is later. Pursuant to NCGS § 143-215.104M, the copy of the Notice certified by DENR must be recorded in the grantor index under the names of the owners of the land.

The subject property encompasses one parcel of land owned by Liduvina Garcia. The parcel is located at 1103 W. Club Boulevard, Durham, Durham County, North Carolina and is approximately 0.41

acres in size. The subject property was used as a retail dry-cleaning facility from approximately 1963 to 1975. Soil and groundwater are contaminated with dry-cleaning solvents.

Attached hereto as **Exhibit A** is a reduction, to 8 1/2" x 11", of the survey plat required by NCGS § 143-215.104M. It is a plat that has been prepared and certified by a professional land surveyor and that meets the requirements of NCGS § 47-30. That plat contains the following information:

(1) The location and dimensions of the areas of potential environmental concern with respect to permanently surveyed benchmarks; and

(2) The type, location and quantity of regulated substances and contaminants known to exist on the DSCA Source Property.

Attached hereto as **Exhibit B** is a legal description of the DSCA Source Property that would be sufficient as a description of the property in an instrument of conveyance.

DSCA LAND-USE RESTRICTIONS

The restrictions are intended to be temporary, but shall remain in force in perpetuity unless superseded or canceled by the Secretary of DENR (or its successor in function), or his/her designee . Those restrictions are hereby imposed on the DSCA Source Property, and are as follows:

1. The DSCA Source Property shall be used exclusively for parking, landscape areas or walkways, and all other uses of the DSCA Source Property are prohibited except as approved in writing by DENR or its successor in function.

2. No alteration, disturbance or removal of the existing soil, landscape and contours shall occur other than erosion control measures approved by DENR or its successor in function.

3. Surface water and underground water at the DSCA Source Property may not be used for any purpose without the approval of DENR or its successor in function.

4. In January of each year, on or before January 31st, the owner of any portion of the DSCA Source Property shall submit a notarized Annual DSCA Land-use Restrictions Certification to DENR certifying that this Notice remains recorded at the Wake County Register of Deeds' office, that the Land-use Restrictions are being complied with.

5. No person conducting environmental assessment or remediation at the Site, or involved in determining compliance with applicable land-use restrictions, at the direction of, or pursuant to a permit or order issued by DENR may be denied access to the DSCA Source Property for the purpose of conducting such activities.

6. The owner of any portion of the DSCA Source Property shall cause the instrument of any sale, lease, grant, or other transfer of any interest in the property to include a provision expressly requiring the lessee, grantee, or transferee to comply with this Notice. The failure to include such a provision shall not affect the validity or applicability of any land-use restriction in this Notice.

EASEMENT (RIGHT OF ENTRY)

The Property Owner grants and conveys to DENR, its agents, contractors, and employees, and any person performing pollution remediation activities under the direction of DENR, access at reasonable times and under reasonable security requirements to the DSCA Source Property to determine and monitor compliance with the Risk Management Plan and the land-use restrictions set forth in this NDCSR. Such investigations and actions are necessary by the Department to ensure that use, occupancy, and activities of and at the DSCA Source Property are consistent with the land-use restrictions and to ensure that the structural integrity and continued effectiveness of any engineering controls (if appropriate) described in the NDCSR are maintained. Whenever possible, at least 48 hours of advanced notice will be given to the Property Owner prior to entry. Advanced notice may not always be possible due to conditions such as response time to complaints and emergency situations.

REPRESENTATIONS AND WARRANTIES

The Property Owner hereby represents and warrants to the other signatories hereto:

i) that the Property Owner is the sole owner of the DSCA Source Property; **or** that the Property Owner has provided to DENR the names of all other persons that own an interest in or hold an encumbrance on the DSCA Source Property and have notified such persons of the Property Owner's intention to enter into this Notice;

ii) that the Property Owner has the power and authority to enter into this Notice, to grant the rights and interests herein provided and to carry out all obligations hereunder; and

iii) that this Notice will not materially violate or contravene or constitute a material default under any other agreement, document or instrument to which the Property Owner is a party or by which the Property Owner may be bound or affected.

ENFORCEMENT

The above land-use restrictions shall be enforceable without regard to lack of privity of estate or contract, lack of benefit to particular land, or lack of any property interest in particular land. The land-use restrictions shall be enforced by any owner of the DSCA Source Property. The land-use restrictions may also be enforced by DENR through the remedies provided in NCGS § 143-215.104P or by means of a civil action; by any unit of local government having jurisdiction over any part of the DSCA Source Property; and by any person eligible for liability protection under the DSCA who will lose liability protection if the restrictions are violated. Any attempt to cancel any or all of this NDCSR without the approval of the Secretary of DENR (or its successor in function), or his/her delegate, shall be subject to enforcement by DENR to the full extent of the law. Failure by any party required or authorized to enforce any of the above restrictions shall in no event be deemed a waiver of the right to do so thereafter as to the same violation or as to one occurring prior or subsequent thereto.

If a land-use restriction set out in a NDCSR required under NCGS § 143-215.104.M is violated, the owner of the contamination site at the time the land-use restriction is violated, the owner's successors and assigns, and the owner's agents who direct or contract for alteration of the contamination site in violation of a land-use restriction shall be liable for remediation of all contaminants to unrestricted use standards.

FUTURE SALES, LEASES, CONVEYANCES AND TRANSFERS

When any portion of the DSCA Source Property is sold, leased, conveyed or transferred, pursuant to NCGS § 143-215.104M the deed or other instrument of transfer shall contain in the description section, in no smaller type than that used in the body of the deed or instrument, a statement that the DSCA Source Property has been contaminated with dry-cleaning solvent and, if appropriate, cleaned up under the DSCA.

The Property Owner shall notify DENR at least fourteen (14) calendar days before the effective date of any conveyance, grant, gift, or other transfer, whole or in part, of the Property Owner's interest in the DSCA Source property. This notice shall include the name, business address and phone number of the transferee and the expected date of transfer.

GENERAL PROVISIONS

The Property Owner shall notify DENR within thirty (30) days following the Property Owner's petitioning for or filing of any document initiating a rezoning of the DSCA Source Property that would change the base zone of the DSCA Source Property.

CANCELLATION OF NDSCR

A NDSCR may, at the request of the Property Owner, be canceled by DENR after the risk to public health and the environment associated with the dry-cleaning solvent contamination and any other contaminants included in the DSCA Remediation Agreement have been eliminated as a result of remediation of the DSCA Source Property to unrestricted use standards.

OWNER SIGNATURE

IN WITNESS WHEREOF, Property Owner has caused this instrument to be duly executed this

_____ day of _____, 201__.

Liduvina Garcia

By: _____
name of owner

STATE OF _____
_____ COUNTY

I, _____, a Notary Public of the county and state aforesaid, certify that _____ personally came before me this day and signed this Notice of Dry-Cleaning Solvent Remediation.

WITNESS my hand and official stamp or seal, this _____ day of _____, 201_.

_____
Name typed or printed:
Notary Public

My Commission expires: _____
[Stamp/Seal]

APPROVAL AND CERTIFICATION OF NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

The foregoing Notice of Dry-Cleaning Solvent Remediation is hereby approved and certified.

North Carolina Department of Environment and Natural Resources

By: _____ _____
Jack Butler, Chief — Date
Superfund Section
Division of Waste Management

LIMITED POWER OF ATTORNEY

I _____"Property Owner", do hereby grant a limited power of attorney to the Division and to the Division's independent contractors, as follows:

The Division and the Division's independent contractors shall have the limited power of attorney to record this Notice, including its documentary and survey plat components, in accordance with N.C.G.S. § 143-215.104M on my "Property Owner" behalf. This limited power of attorney shall terminate upon completion of the recordation of the Notice.

Signature of Property Owner _____

Dated this _____day of _____, 20___.

STATE OF _____
COUNTY OF _____

I, _____, a Notary Public, do hereby certify that _____ personally appeared before me this day and signed this "Limited Power of Attorney".

WITNESS my hand and official seal this ____ day of _____, 20___.

_____
Notary Public

My Commission expires: _____

[SEAL]

CERTIFICATION OF REGISTER OF DEEDS

The foregoing documentary component of the Notice of Dry-Cleaning Solvent Remediation, and the associated plat, are certified to be duly recorded at the date and time, and in the Books and Pages, shown on the first page hereof.

Register of Deeds for Durham County

By: _____ _____
Date

Name typed or printed: _____

Deputy/Assistant Register of Deeds

EXHIBIT A

SURVEY PLAT REDUCTION

VICINITY MAP
N.T.S.

LEGEND

- SURVEYED PROPERTY LINE
- PROPERTY LINE NOT SURVEYED
- EXISTING BUILDING
- EIP/R — EXISTING IRON PIPE/REBAR
- MW — MONITORING WELL
- GP — ONE TIME GROUNDWATER & SOIL SAMPLE LOCATION (GEOPROBE)
- WR — SOIL BORING SAMPLE LOCATION

REGISTER OF DEEDS APPROVAL:

CERTIFICATION OF REGISTER OF DEEDS:

THE FOREGOING DOCUMENTARY COMPONENT OF THE NOTICE OF DRY-CLEANING SOLVENT REMEDIATION, AND THE ASSOCIATED PLAT, ARE CERTIFIED TO BE DULY RECORDED AT THE DATE AND TIME, AND ON THE BOOK AND PAGES, SHOWN ON THE FIRST PAGE HEREOF.

REGISTER OF DEEDS FOR DURHAM COUNTY

BY:_____ DATE:_____

NAME TYPED OR PRINTED: _____
DEPUTY/ASSISTANT REGISTER OF DEEDS

PARCEL / OWNERSHIP INFORMATION

DURHAM COUNTY PARCEL #: 0822-15-64-4976
OWNER: (N/F) LIDUVINA GARCIA
201 CEDAR AVENUE
GATHERSBURG, MARYLAND, 28077

DB/PG: 5455/948
MB/PG: 19/67; LOTS 1 & 3
ZONING: CN
ADDRESS: 1103 W. CLUB BLVD.; DURHAM, NC 27701
TOTAL SITE AREA: 0.40± ACRES

NAD 83
N
GRAPHIC SCALE
40 0 20 40 80
1 inch = 40 ft.

ATLANTIC COAST SURVEY, PLLC
LICENSE P-0822
PO Box 12588, Wilmington, NC 28405
(910) 443-0080 www.atlanticcoastsurvey.com

GENERAL NOTES:

1. THE AREAS AND TYPE OF CONTAMINATION DEPICTED UPON THE MAP ARE APPROXIMATIONS DERIVED FROM THE BEST AVAILABLE INFORMATION AT THE TIME OF FILING.
2. ADDITIONAL INFORMATION REGARDING DSCA SITE #32-0013 IS ON FILE WITH THE NC DENR, DIVISION OF WASTE MANAGEMENT'S DRY-CLEANING SOLVENT CLEANUP ACT (DSCA) PROGRAM, OR ITS SUCCESSOR IN FUNCTION.
3. GROUNDWATER IN WELLS MW-1R, MW-1I, MW-1D, MW-2, MW-2R, MW-3, MW-3R, MW-3I, MW-4, MW-4R, MW-4I, MW-5, MW-5R, MW-5D EXCEEDED THE APPLICABLE 2L WATER QUALITY STANDARDS (15A NCAC 2L.0200) FOR ONE OR MORE OF THE FOLLOWING CONTAMINANTS: CHLOROFORM, CIS-1,2 DICHLOROETHENE, ETHYLBENZENE, 1,1,2,2-TRICHLOROETHENE, 1,1,1,2-TETRACHLOROETHANE, NAPHTHALENE, TETRACHLOROETHENE, TOLUENE, TRICHLOROETHENE, AND XYLENES.
4. SOIL BORINGS IN THE PLAT WERE LOCATED BY TAPE AND CHAIN METHOD USING BUILDING CORNERS AS REFERENCE LOCATIONS.
5. SOIL IN BORINGS WR-1, 2, 3, 9, 10, 11, 12, 14, 15, 16, 17, 18, 19, 23, 25, 27, 28, 31, 32, 42 AND 43, AND GP-2, 3, 4, 5, 6, 7 AND 13, EXCEEDED THE ASSOCIATED RESIDENTIAL RISK BASED SCREENING LEVEL (15A NCAC 2S) FOR THE FOLLOWING CONTAMINANT: TETRACHLOROETHENE.
6. THE DOCUMENTARY COMPONENT OF THIS NOTICE OF DRY-CLEANING SOLVENT REMEDIATION, LIMITING THE USES OF THIS PROPERTY IS RECORDED AT: DEED BOOK: _____ PAGE: _____
7. N.C.G.S. 143-215.104M(D) REQUIRES THAT WHEN PROPERTY FOR WHICH A NOTICE OF DRY-CLEANING SOLVENT REMEDIATION HAS BEEN FILED IS SOLD, LEASED, CONVEYED OR TRANSFERRED, THE DEED OR OTHER INSTRUMENT OF TRANSFER SHALL CONTAIN IN THE DESCRIPTION SECTION, IN NO SMALLER TYPE THAN THAT USED IN THE BODY OF THE DEED OR INSTRUMENT, A STATEMENT THAT THE PROPERTY HAS BEEN CONTAMINATED WITH DRY-CLEANING SOLVENT AND, IF APPROPRIATE, CLEANED UP UNDER THIS PART. USE THE FOLLOWING STATEMENT TO SATISFY N.C.G.S. 143-215.104M(D):

THIS PROPERTY HAS BEEN CONTAMINATED WITH DRY-CLEANING SOLVENT. A NOTICE OF DRY-CLEANING SOLVENT REMEDIATION IS RECORDED IN THE DURHAM COUNTY REGISTER OF DEED'S OFFICE AT BOOK (_____), PAGE (_____). QUESTIONS CONCERNING THIS MATTER MAY BE DIRECTED TO THE NORTH CAROLINA DIVISION OF WASTE MANAGEMENT, SUPERFUND SECTION, DRY-CLEANING SOLVENT CLEANUP ACT (DSCA) PROGRAM, OR ITS SUCCESSOR IN FUNCTION. 1646 MAIL SERVICE CENTER, RALEIGH, NC 27699-1646.

SURVEY NOTES

1.) THIS IS A SURVEY OF AN EXISTING PARCEL OF LAND.
THE PURPOSE OF THIS PLAT IS TO DISPLAY MONITORING WELL LOCATIONS, CONTAMINANT SAMPLE LOCATIONS. PARCEL BOUNDARY SHOWN PER DB/PG: 5455/948 AND PHYSICAL LOCATIONS.

2.) BEARINGS FOR THIS MAP ARE BASED ON NAD 83
ELEVATIONS ARE BASED ON NAVD 88 BASED ON NCGS MONUMENT "SWIFT".
ALL UNITS FOR THIS PLAT ARE U.S. SURVEY FEET UNLESS OTHERWISE NOTED.

3.) ALL DISTANCES ARE HORIZONTAL GROUND DISTANCES UNLESS OTHERWISE NOTED.

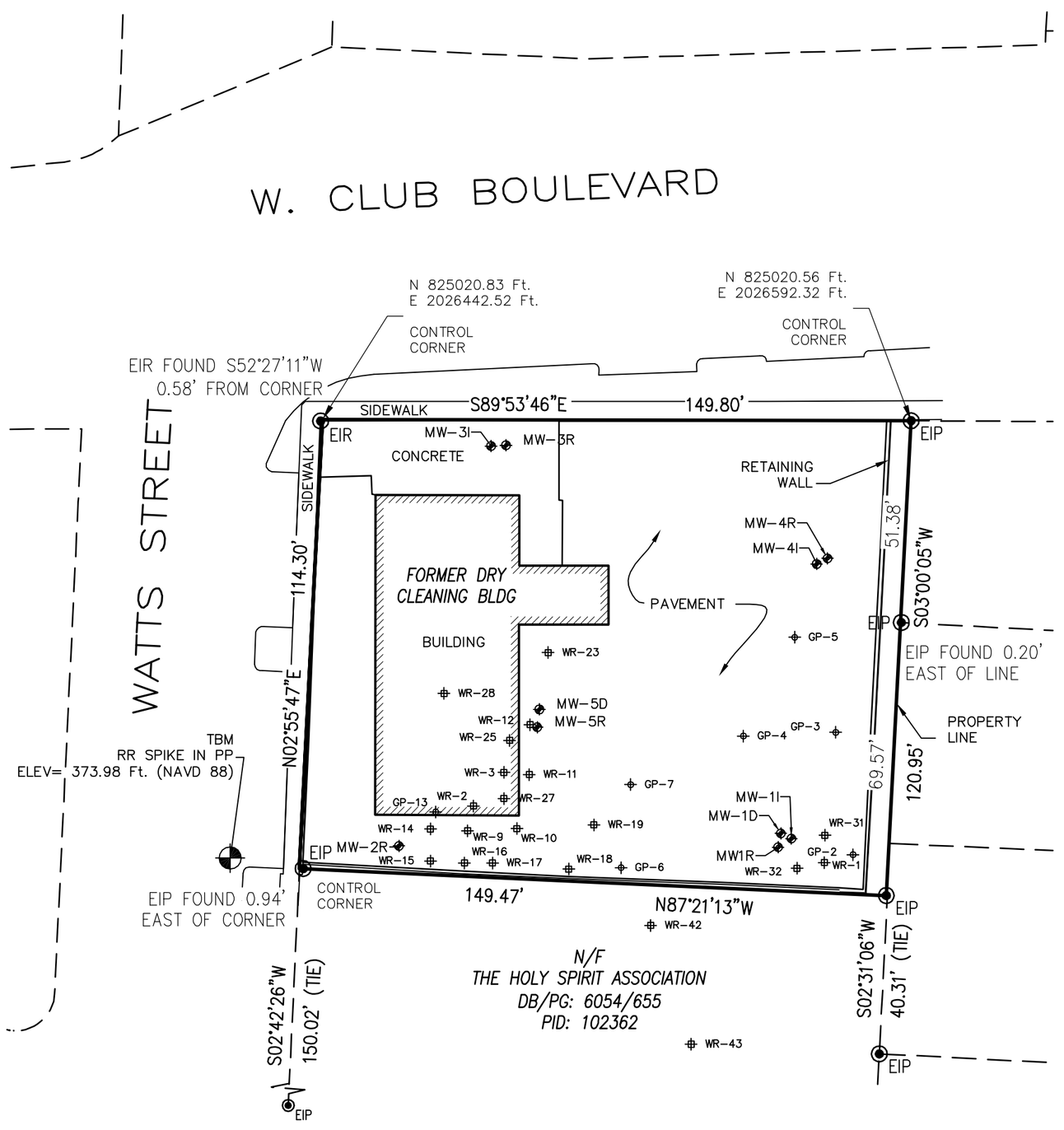
4.) AREA BY COORDINATE GEOMETRY.

5.) NO NCGS STATIONS FOUND WITHIN 2000' OF SITE.

6.) THIS SURVEY PERFORMED AND MAP PREPARED WITHOUT BENEFIT OF A TITLE REPORT. THIS SURVEY SUBJECT TO ANY FACTS AND EASEMENTS WHICH MAY BE DISCLOSED BY A FULL AND ACCURATE TITLE SEARCH.

7.) MAP & DEED REFERENCES (PER DURHAM COUNTY REGISTRY):
MB/PG: 19/67
(AND OTHERS THAT MAY BE SHOWN ON THIS MAP)

8.) FLOOD NOTE: AS DETERMINED BY GRAPHIC PLOTTING, THIS PARCEL IS NOT LOCATED IN A SPECIAL FLOOD HAZARD ZONE PER FEMA FLOOD INSURANCE RATE MAP #: 3720 0822 00J, EFFECTIVE DATE: MAY 2, 2006.



OWNER ACKNOWLEDGEMENT:

OWNER SIGNATURE:

I ACKNOWLEDGE THAT I HAVE FULL AUTHORITY TO LEGALLY EXECUTE A DEED FOR THIS PROPERTY.

_____ _____
(SIGNATURE) (DATE)

NOTARY CERTIFICATE:

_____ (STATE)
_____ (COUNTY)

I,_____, A NOTARY PUBLIC OF SAID COUNTY AND STATE, DO HEREBY CERTIFY THAT _____ DID PERSONALLY APPEAR AND SIGN BEFORE ME THIS THE ____ DAY OF _____, ____.

_____
NOTARY PUBLIC (SIGNATURE)

MY COMMISSION EXPIRES: _____

DENR APPROVAL:

APPROVED FOR THE PURPOSES OF N.C.G.S. 130A-310.8.

_____
JACK BUTLER, P.E.

CHIEF, SUPERFUND SECTION
DIVISION OF WASTE MANAGEMENT

NOTARY CERTIFICATE:

NORTH CAROLINA (STATE)
DURHAM COUNTY (COUNTY)

I,_____, A NOTARY PUBLIC OF SAID COUNTY AND STATE, DO HEREBY CERTIFY THAT _____ DID PERSONALLY APPEAR AND SIGN BEFORE ME THIS THE _____ DAY OF _____, _____.

_____
NOTARY PUBLIC (SIGNATURE)

MY COMMISSION EXPIRES: _____

WELL COORDINATE TABLE			
ID	NORTHING	EASTING	ELEV
MW-1D	824915.59	2026559.17	374.69
MW-1I	824914.25	2026561.83	374.70
MW1R	824912.06	2026558.47	374.67
MW-2R	824912.38	2026461.98	373.23
MW-3I	825014.10	2026485.43	373.08
MW-3R	825014.30	2026489.23	373.48
MW-4I	824984.11	2026568.27	375.13
MW-4R	824985.56	2026571.03	375.24
MW-5D	824947.13	2026497.71	373.90
MW-5R	824942.59	2026497.19	373.93

CERTIFICATE OF ACCURACY & MAPPING

I, THE UNDERSIGNED, CERTIFY THAT THIS SURVEY WAS DRAWN UNDER MY SUPERVISION FROM AN ACTUAL SURVEY MADE UNDER MY SUPERVISION (DEED DESCRIPTION RECORDED IN BOOK _____, PAGE _____, ETC.); THAT THE BOUNDARIES NOT SURVEYED ARE CLEARLY INDICATED AS DRAWN FROM INFORMATION AS FOUND IN BOOK _____, PAGE _____; THAT THE RATIO OF PRECISION, AS CALCULATED, IS 1:10,000+; THAT THIS PLAT WAS PREPARED IN ACCORDANCE WITH G.S. 47-30 AS AMENDED. WITNESS MY ORIGINAL SIGNATURE, LICENSE NUMBER AND SEAL THIS _____ DAY OF_____, A.D. 20____.

G.S. 47-30 (F) (11) (C)

I CERTIFY THAT THIS SURVEY IS OF AN EXISTING PARCEL OF LAND AND DOES NOT CREATE A NEW STREET OR CHANGE AN EXISTING STREET.

_____
MILES O. McCALL, III – PROFESSIONAL LAND SURVEYOR (L-3518)

NCAC 21-56.1607

I, _____, CERTIFY THAT THIS MAP WAS DRAWN UNDER MY SUPERVISION FROM AN ACTUAL GPS SURVEY MADE UNDER MY SUPERVISION AND THE FOLLOWING INFORMATION WAS USED TO PERFORM THE SURVEY:

1.	CLASS OF SURVEY:	2ND
2.	POSITIONAL ACCURACY:	HORIZ = 0.03' / VERT = 0.03'
3.	TYPE OF GPS FIELD PROCEDURE:	N.C. VRS SYSTEM
4.	DATE OF SURVEY:	10/30/10
5.	DATUM / EPOCH:	NAVD 88 / 2002.0000
6.	PUBLISHED / FIXED-CONTROL USE:	NGS MON. "SWIFT" (PID FY4427)
7.	GEOID MODEL:	GEIOD 09
8.	COMBINED GRID FACTOR(S):	0.99994304
9.	UNITS:	U.S. SURVEY FOOT

SURVEY PLAT EXHIBIT "A" TO THE NOTICE OF DRY-CLEANING SOLVENT REMEDIATION
OWNER: LIDUVINA GARCIA / BB&T SITE
DSCA # 32-0013, 1103 W. CLUB BLVD, DURHAM, NC (DURHAM COUNTY)
CITY OF DURHAM — DURHAM COUNTY — NORTH CAROLINA
DSCA SURVEY PLAT

NO.	DATE	DESCRIPTION	BY

DATE: | SCALE: 1"=40'
DRAWN: JAR | CHECKED: MOMc
SHEET: 1 OF 1
FIELD BOOK#
ACS PROJECT NO: 10-1066
W&R PRJ. # 02060496.32

DSCA PLAT 18X24, 11/16/2010 1:14:30 PM, ARCHC, 1:1

EXHIBIT B

LEGAL DESCRIPTION FOR PROPERTY

Exhibit "A"

BEING all that certain tract or parcel of land located in Durham County, North Carolina which is more particularly described as follows:

BEGINNING at a stake at the southeast intersection of Watts Street and Club Boulevard and running thence along and with the south side of Club Boulevard South 86° 53' 00" East 149.70 feet to a stake; thence South 06° 00' 00" West 121.10 feet to a stake; thence North 84° 17' 00" West 149.60 feet to a stake in the east side of Watts Street; thence along and with the east side of Watts Street North 06° 00' 00" East 114.30 feet to the point and place of beginning, being Lots 1 and 3 as per plat and survey of part of the Estate of Miss Demerius Dollar, by Hunter Jones, C.E., dated July 1946 and recorded in Plat Book 19, page 67 in the office of the Register of Deeds of Durham County, to which plat reference is hereby made for a more particular description.

APPENDIX B

SITE PHOTOGRAPHS

PHOTOS OF VOIDS IN BASE OF MASONRY WALL

PHOTOS OF VOIDS IN BASE OF MASONRY WALL

PHOTOS OF VOIDS IN BASE OF MASONRY WALL

PHOTOS OF VOIDS IN BASE OF MASONRY WALL

PHOTOS OF VOIDS IN BASE OF MASONRY WALL

PHOTOS OF VOIDS IN BASE OF MASONRY WALL

PHOTOS OF VOIDS IN BASE OF MASONRY WALL

APPENDIX C

PLANS & SPECIFICATIONS VAPOR ABATEMENT SYSTEM

BID PACKAGE FOR
EXCAVATION & DISPOSAL OF DRY-CLEANING SOLVENT IMPACTED SOIL & INSTALLATION OF SUB-SLAB VENTING PIPING

FORMER BB&T PROPERTY
1103 W. CLUB BLVD.
DURHAM, DURHAM COUNTY, NORTH CAROLINA

Withers & Ravenel Project No. 02060496.32

Prepared By:

Withers & Ravenel, Inc.
111 MacKenan Drive
Cary, North Carolina 27511

May 13, 2009

SECTION 00001
DISCLOSURE STATEMENT

END OF SECTION 00001

SECTION 00002

PROJECT DIRECTORY

DESIGNATION	LOCATION	CONTACT
OWNER	DSCA Petitioner c/o NC Division of Waste Management 1646 Mail Service Center Raleigh, North Carolina 27699-1646 Phone (919) 508-8400	Mr. Billy Meyers
ENGINEER	Withers & Ravenel, Inc. 111 MacKenan Drive Cary, North Carolina 27511 Phone (919) 535-5202 Fax (919) 535-4545	Mr. Chan Bryant, P.E.

END OF SECTION 00002

SECTION 00003

TABLE OF CONTENTS

BIDDING AND CONTRACT REQUIREMENTS

GENERAL REQUIREMENTS

Division	Section	Title
		(Not Used)
8		DOORS AND WINDOWS
		(Not Used)
9		FINISHES
		(Not Used)
10		SPECIALTIES
		(Not Used)
11		EQUIPMENT GENERAL PROVISION
		(Not Used)
12		FURNISHINGS
		(Not Used)
13		SPECIAL CONSTRUCTION
		(Not Used)
14		CONVEYING SYSTEMS
		(Not Used)
15		MECHANICAL
	15000	Basic Mechanical Requirements
	15008	Plastic Pipe
	15095	Valves, General
	15130	Cleaning and Testing
16		ELECTRICAL
		(Not Used)

END OF SECTION 00003

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SECTION 00100
INVITATION TO BID

Withers and Ravenel, Inc. will receive sealed bids from invited Contractors at the office in Cary, North Carolina until 11:00 a.m., May 15, 2009, to furnish labor, materials, equipment, and incidentals outlined in these specifications required for the excavation and offsite disposal of drycleaning solvent impacted soil at the former BB&T property in Durham, North Carolina. The site is located at 1103 W. Club Blvd., in Durham, NC. The former drycleaning operation building is now occupied by a church congregation and this work will be conducted to abate vapor intrusion that is occurring within the building. The work is to be performed in accordance with the drawings and specifications prepared by Withers & Ravenel.

Work requested in this bid includes but is not limited to the following tasks:

1) Mobilization to site to cut, remove and dispose of asphalt pavement outside in the former drycleaning building;
2) Complete trenches around the perimeter of a portion of the building;
3) Excavate drycleaning solvent impacted soils beneath the process equipment area of the former drycleaning equipment for placement into lined roll-off containers and secure material as suspected hazardous waste until characterization data is available for each container;
4) Drill through the masonary wall in multiple locations and install PVC well screen into the gravel bedding beneath the wall;
5) Install PVC and galvanized iron piping in the excavation to tie wall penetration piping and lateral venting pipes in floor of the excavation;
6) Import and place clean structural backfill in the excavation per plans and specifications provided;
7) Transport and disposal of rolloff containers of drycleaning solvent impacted soil as either hazardous or non-hazardous contaminated soil based upon characterization data provided by the Engineer;
8) Clean parking lot of any residual soil, mud, etc. created by the excavation and backfilling process and containerize cleaning residuals for testing and offsite disposal;
9) Restore surface pavement to match existing conditions.

Ma

General schedule: (Subject to change with weather conditions, etc.)

Initiate work on Monday May 18, 2009 and complete excavation, backfilling, and repaving by May 24, 2009. Rolloff containers of soil must be removed from the property for transportation to the final disposal facility and the exterior parking lot cleaned by May 31, 2009.

Owner reserves the right to accept or reject any and all Bids and to waive any or all irregularities, technicalities, and informalities in the Bidding.

All Bids submitted will be irrevocable for a period of 90 days after the opening of Bids. Owner intends to negotiate a contract with one of the invited Contractors submitting a Bid.

Bids submitted shall be addressed to:

Withers & Ravenel, Inc.
111 MacKenan Drive
Cary, North Carolina 27511

Attn: Mr. Chan Bryant, P.E.
Fax (919) 535 4545
Email cbryant@withersravenel.com
(call me at (919) 369 8597 if you are emailing this bid)

END OF SECTION 00100

SECTION 00110

INSTRUCTIONS TO BIDDERS

1.0 DEFINED TERMS

1.1 Terms used in these Instructions to Bidders are defined in the Section 00700.

1.2 The term "BIDDER" means one who submits a Bid directly to Withers & Ravenel, as distinct from a sub-Bidder, who submits a Bid to a Bidder. The term "Successful BIDDER" means Bidder to whom Withers & Ravenel (on the basis of Withers & Ravenel 's evaluation as hereinafter provided) makes an award. The term "Bidding Documents" includes the Invitation to Bid, Instructions to Bidders, the Bid Form, and the proposed Contract Documents, including all Addenda.

2.0 COPIES OF BIDDING DOCUMENTS

2.1 Complete sets of Bidding Documents may be obtained from Withers & Ravenel.

2.2 Complete sets of Bidding Documents shall be used in preparing Bids; Withers & Ravenel assumes no responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

2.3 Withers & Ravenel, in making copies of Bidding Documents available on the above terms, do so only for the purpose of obtaining Bids on the Work and do not confer a license or grant for any other use.

3.0 EXAMINATION OF BIDDING DOCUMENTS AND SITE

3.1 It is the responsibility of each Bidder before submitting Bid, to (a) examine the Bidding Documents thoroughly, (b) visit the site to become familiar with local conditions that may affect cost, progress, performance, or furnishing of the Work, including but not limited to electrical and building codes, (c) consider federal, state, and local laws and regulations that may affect cost, progress, and performance of the Work, (d) study and carefully correlate Bidder 's observations with the Bidding Documents, and (e) notify Withers & Ravenel, in writing, of all conflicts, errors, or discrepancies in the Bidding Documents.

3.2 The submission of a Bid shall constitute an incontrovertible representation by Bidder that Bidder has complied with and accepts every requirement of this Article 3, which without exception the Bid is premised upon performing and furnishing the Work required by the Bidding Documents, utilizing Bidder’s means, methods, techniques, sequences of procedures of construction, and that the Bidding Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

4.0 INTERPRETATIONS AND ADDENDA

4.1 All questions about the meaning or intent of the Contract Document are to be directed to Withers & Ravenel. Interpretations or clarifications considered necessary by Withers & Ravenel in response to such questions will be issued by Addenda and mailed or delivered to all parties recorded by Withers & Ravenel as having received the Bidding Documents. Questions received less than three days prior to the date for bid opening may not be answered. Only questions answered by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

5.0 CONTRACT TIME

5.1 The number of days within which, or the dates by which, the Work is to be substantially completed are set forth in the Bid Form and the Agreement.

6.0 SUBSTITUTE OR "OR-EQUAL" ITEMS

6.1 The Contract, if awarded, will be on the basis of materials and equipment described in the Bidding Documents without consideration of a possible substitute or "or-equal" items. Any request for substitute or "or-equal" items must be submitted with the Bid and include a complete description of the proposed substitute, the name of the material or equipment for which it is to be substituted, drawings, cuts, samples, performance and test data, and any other data or information for a complete evaluation of substitute items.

7.0 BID FORM

7.1 The Bid Form is included with the Bidding Documents.

7.2 All blanks on the Bid Form shall be clearly completed in ink or by typewriter.

7.3 Bids by corporations shall be executed in the corporate name by the president or a vice-president (or other corporate officer accompanied by evidence of authority to sign) and the corporate seal shall be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation shall be shown below the signature.

7.4 Bids by partnerships shall be executed in the partnership name and signed by a partner, whose title shall appear under the signature and the official address of the partnership shall be shown below the signature.

7.5 All names shall be typed or printed below the signature. **All bids shall be notarized by Bidder prior to submittal to Withers & Ravenel.**

7.6 The Bids shall contain an acknowledgment of receipt of all Addenda (filling in the Addenda number and date on the Bid Form).

7.7 The address and telephone number for communications regarding the Bid shall be shown.

8.0 SUBMISSION OF BIDS

8.1 Bids shall be submitted at the time and place indicated in the Invitation to Bid. Bidder 's name, and address must be placed on the envelope containing Bidder's Bid.

9.0 MODIFICATION AND WITHDRAWAL OF BIDS

9.1 Bids may be modified or withdrawn by an appropriate document duly executed (in the manner that a Bid shall be executed) and delivered to the place where Bids are to be submitted at any time prior to the opening of Bids.

10.0 OPENING OF BIDS

10.1 Bids will be opened in private and evaluated by Withers & Ravenel.

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11.0 BIDS TO REMAIN IRREVOCABLE

11.1 All Bids will remain irrevocable for ninety (90) days after the day of the Bid opening.

12.0 AWARD OF CONTRACT

12.1 Withers & Ravenel reserve the right to accept or reject any and all Bids, to waive any and all informalities not involving price, time, or changes in the Work and to negotiate contract terms with the Successful Bidder, and the right to disregard all nonconforming, non-responsive, unbalanced, or conditional Bids. Also, Withers & Ravenel reserve the right to reject the Bid of any Bidder if Withers & Ravenel believes that it would not be in the best interest of the Project to make an award to that Bidder, whether because the Bid is not responsive or the Bidder is unqualified or of doubtful financial ability or fails to meet any other pertinent standard or criterion established by Withers & Ravenel.

12.2 In evaluating Bids, Withers & Ravenel will consider whether or not the Bids comply with the prescribed requirements and such alternates, unit prices, and other data, as may be requested in the Bid Form or prior to the Notice of Award.

12.3 Withers & Ravenel may conduct such investigations as Withers & Ravenel deems necessary to assist in the evaluation of any Bid and to establish the responsibility, qualifications, and financial ability of Bidder, Sub- Bidder, proposed Contractors, suppliers, and other persons and organizations to perform and furnish the Work in accordance with the Bidding Documents to Withers & Ravenel's satisfaction within the prescribed time.

12.4 If the Contract is to be awarded, Withers & Ravenel will give the Successful Bidder a Notice of Award within ninety (90) days after the date of the Bid opening.

END OF SECTION 00110

SECTION 00300

BID FORM

TO: Withers & Ravenel, Inc.
111 MacKenan Drive
Cary, North Carolina 27511

BID FOR: EXCAVATION & DISPOSAL OF DRYCLEANING SOLVENT IMPACTED SOIL & INSTALLATION OF PIPING FOR SUBSLAB DEPRESSURIZATION SYSTEM
FORMER BB&T PROPERTY
1103 W CLUB BOULEVARD
DURHAM, NORTH CAROLINA

BID FROM: _____

_____

_____

_____

1. The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents, including the plans and specifications attached and incorporated herein, for the Contract Price and within the Contract Time indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

2. Bidder accepts all of the terms and conditions of the Invitation to Bid and Instructions to Bidders. This Bid will remain subject to acceptance for ninety (90) days after the day of Bid opening. Bidder will sign and submit the agreement with other documents required by the Bidding Requirements within five days after the date of Withers & Ravenel's Notice of Award.

3. In submitting this Bid, Bidder represents, as set forth in the Agreement, that:

   (a) Bidder has examined copies of all the Bidding Documents and of the following Addenda (receipt of all which is hereby acknowledged):

Date	Number
_____	_____
_____	_____
_____	_____

   (b) Bidder has become familiar with the nature and extent of the Bidding Documents, Work, site, locality, and all local conditions and Laws and Regulations that in any manner may affect cost, progress, performance, or furnishing of the Work.

   (c) Bidder has obtained and carefully studied (or assumes responsibility for obtaining and carefully studying) all such examinations, investigations, explorations, tests, and studies that pertain to the subsurface or physical conditions at the site or otherwise may affect the cost, progress,

performance, or furnishing of the Work as Bidder considers necessary for the performance or furnishing of the Work at the Contract Price, within the Contract Time, and in accordance with the other terms and conditions of the Bidding Documents, and no additional examinations, investigations, explorations, tests, reports, or similar information or data are or will be required by Bidder for such purposes.

(d) Bidder has reviewed and checked all information and data shown or indicated on the Bidding Documents with respect to existing Underground Facilities at the site and assumes responsibility for the accurate location of said Underground Facilities. No additional examinations, investigations, explorations, tests, reports, or similar information or data in respect of said Underground Facilities are or will be required by Bidder in order to perform and furnish the Work at the Contract Price, within the Contract Time, and in accordance with the other terms and conditions of the Bidding Documents.

(e) Bidder has correlated the results of all such observations, examinations, investigations, explorations, tests, reports, and studies with the terms and conditions of the Bidding Documents.

(f) Bidder has given Withers & Ravenel written notice of all conflicts, error, or discrepancies that it has discovered in the Bidding Documents and the written resolution thereof by Withers & Ravenel is acceptable to Bidder.

(g) This Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm, or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization, or corporation; Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; Bidder has not solicited or induced any person, firm, or corporation to refrain from bidding; and Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over Withers & Ravenel.

(h) Upon Withers & Ravenel's request, Bidder shall supply specifications for all proposed equipment. Withers & Ravenel reserves the right to reject any "equal" equipment or materials that do not meet the specifications of the documents herein.

(i) Bidder shall be responsible for obtaining all permits and complying with all related federal, state, and local codes.

4. Bidder will complete the Work for the total specified price developed using the following unit prices: (the final invoice will reflect this format and payment will be based on the actual quantities).

Item	Description	Unit	Estimated Quantity	Unit Price	Total Price
1	Complete Work as Depicted on Attached Plans & Specifications to include: Mobilization; Excavation & Trenching; Containerization of Soil; Drilling Through Walls & Installing Piping; Backfilling; Cleaning parking lot; Replacing Pavement.	LS			$_____
2	Transportation & disposal of non-hazardous contaminated soil	Ton	27 Tons	$_____/ Ton	$_____
				TOTAL BID	$_____
_____ (written out)					

Alternate Pricing: (To be used when conditions warrant as determined by ENGINEER)

3	Loading, transportation & disposal of hazardous contaminated soil	Ton	27 Tons	$_____/ Ton	$_____
4	Repair of damages to asphalt parking lot from equipment traffic; roll off containers, etc.	Sq. Ft.	500 Sq. Ft.	$_____/ Sq Ft	$_____

The quantities estimated above are provided as a basis for comparing bids. OWNER reserves the right to delete

items and change quantities.

Bidder must show certificate of disposal and certified weight tickets that reflect gross, net and tare weight of each load.

5. Bidder agrees to mobilize within three (3) calendar days after execution of contract with Owner. Bidder agrees that the installation of the system will be substantially complete on or before fourteen (14) calendar days after Notice to Proceed.

6. The following documents are attached to and made a part of this Bid (Submit only upon award of contract):

   (a) Current insurance certificate

   (b) A tabulation of Subcontractors, Suppliers, and other persons and organizations required to be identified in this Bid.

   (c) **A preliminary progress schedule for the work.**

7. Communications concerning this Bid shall be addressed to:

Mr. Chan Bryant, P.E.
Withers & Ravenel, Inc.
111 MacKenan Drive
Cary, NC 27511
(919) 469-3340
Fax (919) 535-4545

8. The terms used in this Bid have the meanings assigned to them in the Bid Package. The signer certifies that they have the authorization to sign and commit resources of the firm.

SUBMITTED on _____, 20___.

BIDDER is: (Complete as Appropriate)

An Individual

_____
(Name)

Doing business as: _____
(Firm Name)

A Partnership

_____
(Firm Name)

_____
(General Partner)

Corporation

_____
(Corporation Name)

_____
(State of Incorporation)

SUBMITTED on _____, 20___.

By: _____
(Signature)

_____
(Printed Name and Title)

(Seal, if Corporation)

Business address: _____

_____

Phone No.: _____

Subscribed and sworn to before me this _____ day of _____, 20___.

_____
(Notary Public)

My Commission Expires: _____

END OF SECTION 00300

SECTION 00501

AGREEMENT

THIS AGREEMENT made this ____ day of _____, 20__, by and between __DSCA c/o Withers & Ravenel, Inc.__ (hereinafter called OWNER) and _____ _____ (hereinafter called CONTRACTOR).

WITNESSETH:

That for and in consideration of the payments and agreements hereinafter mentioned:

1. The CONTRACTOR shall complete all Work as specified or indicated in the Contract Documents. The Work is generally describes as follows:

TO BE INSERTED AS APPROPRIATE.

2. The CONTRACTOR will furnish all of the material, supplies, tools, equipment, insurance, labor, and other services necessary for the construction and completion of the PROJECT, in accordance with the CONTRACT DOCUMENTS described herein.

3. The CONTRACTOR will commence the work required by the CONTRACT DOCUMENTS on the date of the NOTICE TO PROCEED and will complete the same within 14 calendar days unless the period for completion is extended otherwise by the CONTRACT DOCUMENTS.

4. The CONTRACTOR agrees to perform all of the WORK described in the CONTRACT DOCUMENTS and comply with the terms therein for the price of _____.

5. The term "CONTRACT DOCUMENTS" means and includes the following:

A. Bid Package
B. Contractor's Bid
C. Addenda
D. Notice of Award
E. Agreement

F. Notice to Proceed
G. General Conditions
H. Supplementary Conditions
I. Technical Specifications
J. Drawings

6. The OWNER will pay the CONTRACTOR in the manner and at such times as set forth in the GENERAL CONDITIONS such amounts as required by the CONTRACT DOCUMENTS.

7. This Agreement shall be binding upon all parties hereto and their respective heirs, executors, administrators, successors, and assigns.

IN WITNESS WHEREOF, the parties hereto have executed, or caused to be executed by their fully authorized officials, this Agreement in (2) copies each of which shall be deemed an original on the date first above written.

OWNER:

DSCA c/o
Withers & Ravenel, Inc.

By: _____

Name: _____

Title: _____

Attest:
_____(SEAL)

Name: _____

Title: _____

CONTRACTOR:

_____

By: _____

Name: _____
Address: _____

_____

Attest:
_____(SEAL)

Name: _____

Title: _____

SECTION 00700

GENERAL CONDITIONS

ARTICLE 1 - DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

A. Wherever used in the Contract Documents and printed with initial or all capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof.

1. *Addenda*--Written or graphic instruments issued prior to the opening of Bids that clarify, correct, or change the Bidding Requirements or the Contract Documents.

2. *Agreement*--The written instrument which is evidence of the agreement between Owner and Contractor covering the Work.

3. *Application for Payment*--The form acceptable to Owner which is to be used by Contractor during the course of the Work in requesting final payment and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. *Bid*--The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

5. *Bidding Documents*—The Bidding Requirements and the proposed Contract Documents (including all Addenda issued prior to receipt of Bids).

6. *Bidding Requirements*—The Invitation to Bid, Instructions to Bidders, and the Bid form with any supplements.

7. *Contract*--The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

8. *Contract Documents*--The Contract Documents establish the rights and obligations of the parties and include the Agreement, Addenda (which pertain to the Contract Documents), Contractor's Bid (including documentation accompanying the Bid and any post Bid documentation submitted prior to the Notice of Award) when attached as an exhibit to the Agreement, the Notice to Proceed, these General Conditions, the Supplementary Conditions, the Specifications and the Drawings as the same are more specifically identified in the Agreement. Approved Shop Drawings and the reports and drawings of subsurface and physical conditions are not Contract Documents. Only printed or hard copies of the items listed in this paragraph are Contract Documents. Files in electronic media format of text, data, graphics, and the like that may be furnished by Engineer to Contractor are not Contract Documents.

9. *Contract Price*--The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement.

10. *Contract Times*--The number of days or the dates stated in the Agreement to: (i) achieve Substantial Completion; and (ii) complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment.

11. *CONTRACTOR*--The individual or entity with whom Owner has entered into the Agreement.

12. *Drawings*--That part of the Contract Documents prepared or approved by Engineer that graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.

13. *Effective Date of the Agreement*--The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

14. *ENGINEER*--The individual or entity named as such in the Contract Documents.

15. *General Requirements*--Sections of Division 1 of the Specifications. The General Requirements pertain to all sections of the Specifications.

16. *Hazardous Environmental Condition*--The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto in connection with the Work.

17. *Hazardous Waste*--The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.

18. *Laws and Regulations; Laws or Regulations*--Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

19. *Liens*--Charges, security interests, or encumbrances upon Project funds, real property, or personal property.

20. *Milestone*--A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

21. NCDENR – North Carolina Department of Environment and Natural Resources – The regulatory authority having jurisdiction over this project.

22. *Notice of Award*--The written notice by Engineer to the apparent successful Bidder stating that upon timely compliance by the apparent successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.

23. *Notice to Proceed*--A written notice given by Engineer to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work under the Contract Documents.

24. *OWNER*--The individual, entity, public body, or authority for whom the Work is to be performed.

25. *Partial Utilization*--Use by Owner of a substantially completed part of the Work for the purpose for which it is intended (or a related purpose) prior to Substantial Completion of all the Work.

26. *PCBs*--Polychlorinated biphenyls.

27. *Petroleum*--Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.

28. *Project*--The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part as may be indicated elsewhere in the Contract Documents.

29. *Radioactive Material*--Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.

30. *Resident Project Representative*--The authorized representative of Owner who may be assigned to the Site or any part thereof.

31. *Samples*--Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.

32. *Shop Drawings*--All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.

33. *Site*--Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by Owner that are designated for the use of Contractor.

34. *Specifications*--That part of the Contract Documents consisting of written technical descriptions of materials, equipment, systems, standards, and workmanship as applied to the Work and certain administrative details applicable thereto.

35. *Subcontractor*--An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.

36. *Substantial Completion*--The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

37. *Supplementary Conditions*--That part of the Contract Documents, which amends or supplements these General Conditions.

38. *Supplier*--A manufacturer, fabricator, supplier, distributor, material man, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or any Subcontractor.

39. *Underground Facilities*--All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other

communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

40. *Work*--The entire completed construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.

1.02 *Terminology*

A. *Intent of Certain Terms or Adjectives*

1. Whenever in the Contract Documents the terms "as allowed," "as approved," or terms of like effect or import are used, or the adjectives "reasonable," "suitable," "acceptable," "proper," "satisfactory," or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work, it is intended that such action or determination will be solely to evaluate, in general, the completed Work for compliance with the requirements of and information in the Contract Documents and conformance with the design concept of the completed Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of paragraph 9.10 or any other provision of the Contract Documents.

B. *Day*

1. The word "day" shall constitute a calendar day of 24 hours measured from midnight to the next midnight.

C. *Defective*

1. The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it does not conform to the Contract Documents or does not meet the requirements of any inspection, reference standard, test, or approval referred to in the Contract Documents, or has been damaged prior to Engineer's recommendation of final payment.

D. *Furnish, Install, Perform, Provide*

1. The word "furnish," when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.

2. The word "install," when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

3. The words "perform" or "provide," when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.

4. When "furnish," "install," "perform," or "provide" is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, "provide" is implied.

E. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 - CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

2.01 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies*

1. If, during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents or between the Contract Documents and any provision of any Law or Regulation applicable to the performance of the Work or of any standard, specification, manual or code, or of any instruction of any Supplier, Contractor shall report it to Engineer in writing at once. Contractor shall not proceed with the Work affected thereby (except in an emergency) until an amendment or supplement to the Contract Documents has been issued; provided, however, that Contractor shall not be liable to Owner or Engineer for failure to report any such conflict, error, ambiguity, or discrepancy unless Contractor knew or reasonably should have known thereof.

B. *Resolving Discrepancies*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:

a. the provisions of any standard, specification, manual, code, or instruction (whether or not specifically incorporated by reference in the Contract Documents); or

b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

2.02 *Amending and Supplementing Contract Documents*

A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by a Written Amendment.

B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by Engineer's written interpretation or clarification.

2.03 *Reuse of Documents*

A. Contractor and any Subcontractor or Supplier or other individual or entity performing or furnishing any of the Work under a direct or indirect contract with Owner: (i) shall not have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer, including electronic media editions; and (ii) shall not reuse any of such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adoption by Engineer. This prohibition will survive final payment, completion, and acceptance of the Work, or termination or completion of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

ARTICLE 3 - AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; REFERENCE POINTS

3.01 *Hazardous Environmental Condition at Site*

A. *Reports and Drawings:* Reference is made to the Supplementary Conditions for the identification of those reports and drawings relating to a Hazardous Environmental Condition identified at the Site, if any, that have been utilized by the Engineer in the preparation of the Contract Documents.

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the general accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any Claim against Owner or Engineer with respect to:

1. The completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or

2. Other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or

3. Any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.

C. Contractor shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site that was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.

D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency); and (iii) notify Engineer (and promptly thereafter confirm such notice in writing).

E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered to Contractor written notice: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely.

F. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. Owner may have such deleted portion of the Work performed by Owner's own forces or others.

G. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner, Engineer, and the officers, directors, partners, employees, agents, other consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this paragraph shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

ARTICLE 4 - INSURANCE

4.01 *CONTRACTOR's Liability Insurance*

A. Contractor shall purchase and maintain such liability and other insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable.

1. Claims under workers' compensation, disability benefits, and other similar employee benefit acts;

2. Claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;

3. Claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;

4. Claims for damages insured by reasonably available personal injury liability coverage which are sustained: (i) by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or (ii) by any other person for any other reason;

5. Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting there from; and

6. Claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

B. The policies of insurance so required by this paragraph to be purchased and maintained shall:

1. With respect to insurance required herein, include as additional insured (subject to any customary exclusion in respect of professional liability) Owner, Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insured, and include coverage for the respective officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of all such additional insured, and the insurance afforded to these additional insured shall provide primary coverage for all claims covered thereby;

2. Include at least the specific coverage and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;

3. Include completed operations insurance;

4. Include contractual liability insurance covering Contractor's indemnity obligations;

5. Changed or renewal refused until at least thirty days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued;

6. Remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work; and

7. With respect to completed operations insurance, and any insurance coverage written on a claims-made basis, remain in effect for at least two years after final payment (and Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter).

4.02 *Evidence of Insurance*

A. Before any Work at the Site is started, Contractor shall deliver a certificate of insurance (and other evidence of insurance which may be reasonably requested) that Contractor is required to purchase and maintain in accordance with the Contract Documents.

B. All insurance required by the Contract Documents to be purchased and maintained by Contractor shall be obtained from insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue insurance policies for the limits and coverage so required.

4.03 *Waiver of Rights*

A. Contractor intends that all policies purchased in accordance with the Contract Documents will protect Owner, Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insured or additional insured (and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insured or additional insured there under. Contractor waives all rights against the Owner and their respective officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors, Engineer, and all other

individuals or entities identified in the Supplementary Conditions to be listed as insured or additional insured (and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them) under such policies for losses and damages so caused.

ARTICLE 5 - CONTRACTOR'S RESPONSIBILITIES

5.01 *Representation and Warranty*

A. Contractor represents and warrants to Owner that: Contractor is duly organized, validly existing and now in good standing under the laws of the State of North Carolina, is authorized to do business under the laws of the State of North Carolina, and possesses all requisite authorities, powers, licenses, and permits necessary or appropriate to perform its obligations under this Agreement and under the other Contract Documents; all approvals or consents required for the execution and delivery and performance of its obligations under this Agreement and the other Contract Documents have been obtained by Contractor; and this Agreement and the other Contract Documents evidence the valid and binding obligations of Contractor, enforceable against Contractor in accordance with the terms hereof and thereof.

B. Contractor also represents and warrants to Owner that Contractor is experienced and skilled in the construction of projects of the type described in the Contract Documents and has by careful examination satisfied itself as to:

1. The nature, location, and character of the job site, including, without limitation, the surface and subsurface condition of the job site, the soil content and all structures and obstructions thereon, both natural and man-made, and all surface water conditions of the job site and the surrounding area;

2. The nature, location, and character of the general area in which the job site is located, including, without limitation, its climatic conditions, available labor supply and labor costs, and available equipment supply and equipment costs;

3. The quality and quantity of all materials, supplies, tools, equipment, labor and professional services necessary to complete the Work in the manner required by the Contract Documents;

4. The nature, location, and character of the existing improvements located on the job site including, without limitation, the structural integrity and character of such improvements; and

5. The requirements of the Work required by the existing Contract Documents including, without limitation, construction means and methods specified therein.

5.02 *Indemnification*

A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner, Engineer, and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage:

1. Is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting there from; and

2. Is caused in whole or in part by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable, regardless of whether or not caused in part by any negligence or omission of an individual or entity indemnified hereunder or whether liability is imposed upon such indemnified party by Laws and Regulation regardless of the negligence of any such individual or entity.

B. In any and all claims against Owner or Engineer or any of their respective consultants, agents, officers, directors, partners, or employees by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under worker's compensation acts, disability benefit acts, or other employee benefit acts.

C. The indemnification obligations of Contractor shall not extend to the liability of Engineer or to the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them arising out of:

1. The preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or

2. Giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

5.03 *Supervision and Superintendence*

A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction, but Contractor shall not be responsible for the negligence of Owner or Engineer in the design or specification of a specific means, method, technique, sequence, or procedure of construction that is shown or indicated in and expressly required by the Contract Documents. Contractor shall be responsible to see that the completed Work complies accurately with the Contract Documents.

B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent thereto who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances. The superintendent will be Contractor's representative at the Site and shall have authority to act on behalf of Contractor. All communications given to or received from the superintendent shall be binding on Contractor.

5.04 *Labor; Working Hours*

A. Contractor shall provide competent, suitably qualified personnel to survey, lay out, and construct the Work as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.

B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be

performed during regular working hours, and Contractor will not permit overtime work or the performance of Work on Saturday, Sunday, or any legal holiday without Owner's written consent (which will not be unreasonably withheld) given after prior written notice to Engineer.

5.05 *Services, Materials, and Equipment*

A. Unless otherwise specified in the General Requirements, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.

B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All warranties and guarantees specifically called for by the Specifications shall expressly run to the benefit of Owner. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

5.06 *Concerning Subcontractors, Suppliers, and Others*

A. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other individual or entity, nor shall it create any obligation on the part of Owner or Engineer to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

B. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.

C. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.

D. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

E. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer.

5.07 *Laws and Regulations*

A. Contractor shall give all notices and comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither

Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.

B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work; however, it shall not be Contractor's primary responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under the Contract Documents.

5.08 *Construction Permits, Easements and Encroachments*

A. The Contractor shall obtain all necessary construction permits and licenses from those authorities or agencies having jurisdiction. Copies shall be maintained on-site for review by the appropriate agency and the Engineer. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work that are applicable at the time of opening of Bids.

B. When construction permits are accompanied by regulations or requirements issued by a particular authority or agency, it shall be the Contractor's responsibility to familiarize himself and comply with such regulations or requirements as they apply to his operations on this project.

5.09 *Taxes*

A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project that are applicable during the performance of the Work.

5.10 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas*

1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.

2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.

3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner, Engineer, Engineer's Consultant, and the officers, directors, partners, employees, agents, and other consultants of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner,

Engineer, or any other party indemnified hereunder to the extent caused by or based upon Contractor 's performance of the Work.

5.11 *Safety and Protection*

A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

1. All persons on the Site or who may be affected by the Work;

2. All the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and

3. Other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property. All damage, injury, or loss to any property caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer, or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them). Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and acceptable (except as otherwise expressly provided in connection with Substantial Completion).

5.12 *Emergencies*

A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss.

ARTICLE 6 - ENGINEER'S STATUS DURING CONSTRUCTION

6.01 Owner*'s Representative*

A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract Documents and will not be changed without written consent of Owner and Engineer.

6.02 *Visits to Site*

A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility, and particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor 's Work Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

6.03 Project Representative

A. ENGINER will furnish a Resident Project Representative to assist Engineer in providing more extensive observation of the Work. The responsibilities and authority and limitation thereon of any such Resident Project Representative and assistants will be as provided in Paragraph 6.07.

6.04 *Clarifications and Interpretations*

A. Engineer will issue with reasonable promptness such written clarifications or interpretations of the requirements of the Contract Documents as Engineer may determine necessary, which shall be consistent with the intent of and reasonably inferable from the Contract Documents. Such written clarifications and interpretations will be binding.

6.05 *Rejecting Defective Work*

A. Engineer will have authority to disapprove or reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer will also have authority to require special inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.

6.06 *Decisions on Requirements of Contract Documents and Acceptability of Work*

A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work there under. Claims, disputes and other matters relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing, with a request for a formal decision.

B. When functioning as interpreter and judge under this paragraph, Engineer will not show partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity. The rendering of a decision by Engineer pursuant to this paragraph with respect to any such Claim, dispute, or other matter (except any which have been waived by the making or acceptance of final payment) will be a condition precedent to any exercise by Owner or Contractor of such rights or

remedies as either may otherwise have under the Contract Documents or by Laws or Regulations in respect of any such Claim, dispute, or other matter.

6.07 *Limitations on ENGINEER's Authority and Responsibilities*

A. Neither Engineer's authority or responsibility under the Contract Documents nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, Bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with, the Contract Documents.

ARTICLE 7 - TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

7.01 *Notice of Defects*

A. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor. All defective Work may be rejected, corrected, or accepted as provided in the Contract Documents.

7.02 *Access to Work*

A. Owner, Engineer, other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests will have access to the Site and the Work at reasonable times for their observation, inspecting, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's Site safety procedures and programs so that they may comply therewith as applicable.

7.03 *Tests and Inspections*

A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

B. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.

C. Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.

D. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, it must, if requested by Engineer, be uncovered for observation.

E. Uncovering Work shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice.

7.04 *Correction or Removal of Defective Work*

A. Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. Contractor shall pay all Claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).

ARTICLE 8 - PAYMENTS TO CONTRACTOR AND COMPLETION

8.01 *Contractor's Warranty of Title*

A. Contractor warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to Owner no later than the time of payment free and clear of all Liens.

8.02 Payment

A. Application for Payment

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, certificates or other evidence of insurance, certificates of inspection, marked-up record documents, and other documents, Contractor may make application for payment.

2. The Application for Payment shall be accompanied (except as previously delivered) by: (i) all documentation called for in the Contract Documents, including but not limited to the evidence of insurance and (ii) complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.

B. Review of Application and Acceptance

1. If, on the basis of Engineer's observation of the Work during construction and final inspection and Engineer's review of the Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract Document have been fulfilled, Engineer will, within thirty days of receipt of the Application for Payment, submit a reimbursement claim to the Owner for signature and submittal to NCDENR. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to complete the reimbursement package, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. Payment Becomes Due

1. Thirty days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Engineer will become due and, when due, will be paid by Owner to Contractor.

8.03 *Waiver of Claims*

A. The making and acceptance of final payment will constitute:

1. A waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from the Contractor's continuing obligations under the Contract Document

2. A waiver of all Claims by CONTRATOR against Owner and Engineer other than those previously made in writing which are unsettled.

ARTICLE 9 - SUSPENSION OF WORK AND TERMINATION

9.01 OWNER May Suspend Work

A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to Contractor and Engineer that will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed.

9.02 *OWNER May Terminate for Cause*

A. The occurrence of any one or more of the following events will justify termination for cause:

1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the progress schedule as adjusted from time to time);
2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;

3. Contractor's disregard of the authority of Engineer; or

4. Contractor's violation in any substantial way of any provisions of the Contract Documents.

B. If one or more of the events identified in paragraph 9.02.A occur, Owner may, after giving Contractor (and the surety, if any) seven days written notice, terminate the services of Contractor, exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion), incorporate in the Work all materials and equipment stored at the Site or stored elsewhere, and finish the Work as Owner may deem expedient. In such case, Contractor shall not be entitled to receive any payment until the Work is finished. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. When exercising any rights or remedies under this paragraph Owner shall not be required to obtain the lowest price for the Work performed.

C. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.

9.03 *OWNER May Terminate For Convenience*

A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, elect to terminate the Contract. In such case, Contractor shall be paid (without duplication of any items):

1. For completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
2. For expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;

3. For all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and

4. For reasonable expenses directly attributable to termination.

B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

ARTICLE 10 - MISCELLANEOUS

10.01 *Cumulative Remedies*

A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract Documents, and the

provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

10.02 *Survival of Obligation*

A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion, and acceptance of the Work or termination or completion of the Agreement.

10.03 *Controlling Law*

A. This Contract is to be governed by the law of the state in which the Project is located.

10.04 *Intent of Contract Documents*

A. It is the intent of the Contract Documents to describe a functionally complete Project to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that may reasonable be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended result will be provided whether or not specifically called for at no additional cost.

10.05 *Safety and Health Regulations*

A. The Contractor shall comply promptly with all safety regulations per Federal, State, and the local authorities having jurisdiction, and shall properly correct any unsafe conditions created by, or unsafe practices on the part of his employees, including the Department of Labor Safety and Health Regulations for construction promulgated under the Occupational and Health Act of 1970 (P.L. 91-596) and under Section 107 of the Contractor Work Hours and Safety Standards Act (P.L. 91-54).

B. The Contractor shall indemnify and hold harmless the Owner, Engineer, and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them from any losses or claims brought by the employees of the Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, relating to the safety and health of such employees.

10.06 *Contractor Warranty*

A. Contractor warrants and guarantees to Owner and Engineer that all Work will be in accordance with the Contract Documents and will not be defective. Under this warranty, Contractor shall be solely responsible for the repair or replacement of any defective part or installation. Such repair or replacement shall be performed to the satisfaction of the Engineer. Contractor will not be eligible for additional compensation for work performed in relation to this warranty.

B. Within a reasonable time after receipt of written notice thereof, Contractor shall correct any defects in material or workmanship which are covered by the guarantees, representations, and warranties provided herein by Contractor and any damage to other work or property caused by such defects or the repairing of such defects, with a minimum of inconvenience to the property owner and at times lease disruptive to the operation of the Project. The guarantees contained herein shall not be construed to modify or limit, in any way, any rights or actions which Engineer may otherwise have against Contractor or others by

law or statute or in equity.

C. Any costs incurred in the Work due to the fault or negligence of Contractor, or any other Contractor Person, either for the making good of defective Work, disposal of material wrongly supplied, making good of damage to property, or excess costs of material or labor or otherwise, shall be borne by Contractor, and the Engineer may withhold money otherwise due Contractor to cover any such cost already paid as part of the cost of the Work.

D. This warranty shall remain in effect for a period of one (1) year from the date of acceptance by the Engineer. If a repair is made, the repair shall be subject to the same warranty clause for a period of one year from the completion of the repair.

END OF SECTION 00700

SECTION 01090

REFERENCE STANDARDS

PART 1 -- GENERAL

1.01 THE REQUIREMENT

A. Wherever reference is made to any published standards, codes, or standard specifications, it shall mean the standard code or specification of the technical society, organization, or body referred to in effect at the date of Invitation to Bid.

1. During construction, wherever reference is made to any published standards, codes, or standard specifications, it shall mean the standard code or specification of the technical society, organization, or body referred to in effect at the date of construction.

B. All materials, products, and procedures used or incorporated in the work shall be in strict conformance with applicable codes, regulations, specifications, and standards.

C. A partial listing of codes, regulations, specifications, and standards includes the following:

American Concrete Institute (ACI)
American Institute of Steel Construction, Inc. (AISC)
American Iron and Steel Institute (AISI)
American National Standards Institute (ANSI)
American Society of Civil Engineers (ASCE)
American Society of Mechanical Engineers (ASME)
American Society for Testing and Materials (ASTM)
American Sod Producers Association (ASPA)
American Standards Association (ASA)
American Water Works Association (AWWA)
American Welding Society (AWS)
Building Officials and Code Administrators (BOCA)
Consumer Product Safety Commission (CPSC)
Factory Mutual (FM)
Federal Specifications
Instrument Society of America (ISA)
Institute of Electrical and Electronics Engineers (IEEE)
National and Local Fire Codes
Lightning Protection Institute (LPI)
National Arborist Association (NAA)
National Electrical Code (NEC)
National Electrical Manufacturer's Association (NEMA)
National Electrical Safety Code (NESC)
National Electrical Testing Association (NETA)
National Fire Protection Association (NFPA)
Regulations and Standards of the Occupational Safety and Health Act (OSHA)
Southern Building Code Congress International, Inc. (SBCCI)
Standard Building Code
Standard Mechanical Code
Standard Plumbing Code

Uniform Building Code (UBC)
Underwriters Laboratories Inc. (UL)

D. Contractor shall, when required, furnish evidence that materials and methods are in accordance with such standards where so specified.

E. In the event any questions arise as to the application of these standards or codes, copies shall be supplied on-site by the Contractor.

PART 2 -- PRODUCTS

(NOT USED)

PART 3 -- EXECUTION

(NOT USED)

END OF SECTION 01090

SECTION 01510

TEMPORARY UTILITIES

PART 1 -- GENERAL

1.01 THE REQUIREMENT

A. The Contractor shall provide temporary light, power, and water service for his operations.

B. The Contractor shall coordinate and install all temporary services in accordance with the requirements of the utility companies having jurisdiction and as required by applicable codes and regulations.

C. At the completion of the work, or when the temporary services are no longer required, the facilities shall be restored to original conditions.

D. All costs in connection with the temporary services including, but not limited to, installation, utility company service charges, maintenance, relocation, and removal shall be borne by the Contractor.

E. Temporary Water

1. The Contractor shall provide and pay for temporary water for construction purposes, including but not limited to testing of pipelines, disinfecting of pipelines, cleaning, and landscaping.

    a. The Contractor shall make all arrangements for connections to the potable water system at the project site.

    b. The Contractor shall pay all charges associated with the connection and all charges for potable water used under this Contract for any and all purposes.

2. The Contractor shall supply potable water for his employees by portable containers.

3. Water service shall be protected from freezing.

4. All water shall be metered.

PART 2 -- PRODUCTS

(NOT USED)

PART 3 -- EXECUTION

(NOT USED)

END OF SECTION 01510

SECTION 01530

PROTECTION OF EXISTING FACILITIES

PART 1 -- GENERAL

1.01 THE REQUIREMENT

A. Contractor is responsible for preserving and protecting property adjacent to the project site against damage or injury.

1. Any damage or injury occurring on account of any act, omission, or neglect on the part of the Contractor shall be restored in a proper and satisfactory manner or replaced by and at the expense of the Contractor to an equal or superior condition than previously existed.

B. Contractor shall comply promptly with such safety regulations as may be prescribed by the Owner of the local authorities having jurisdiction and shall, when so directed, properly correct any unsafe conditions created by, or unsafe practices on the part of, his employees.

1. In the event of the Contractor's failure to comply, the Owner may take the necessary measures to correct the conditions or practices complained of, and all costs thereof will be deducted from any monies due the Contractor.

2. Failure of the Engineer to direct the correction of unsafe conditions or practices shall not relieve the Contractor of his responsibility hereunder.

C. In the event of any claims for damage or alleged damage to property as a result of work under this Contract, the Contractor shall be responsible for all costs in connection with the settlement of or defense against such claims.

1. Prior to commencement of work in the vicinity of property adjacent to the work site, the Contractor shall take such surveys as he deems necessary to establish the existing condition of the property.

2. Before final payment will be made, the Contractor shall furnish satisfactory evidence that all claims for damage have been legally settled, sufficient funds to cover such claims have been placed in escrow, or that an adequate bond to cover such claims has been obtained.

1.02 PROTECTION OF WORK AND MATERIAL

A. During the progress of the work and up to the date of final payment, the Contractor shall be solely responsible for the care and protection of all work and materials covered by the Contract.

B. All work and materials shall be protected against damage, injury, or loss from any cause whatsoever, and the Contractor shall make good any such damage or loss at his own expense.

1.03 BARRICADES, WARNING SIGNS, AND LIGHTS

A. The Contractor shall provide, erect, and maintain as necessary strong and suitable barricades, danger signs, and warning lights along all roads accessible to the public as required by the authority having jurisdiction.
1. All barricades and obstructions along roads accessible to the public shall be illuminated at night.

2. All lights shall be kept burning from sunset to sunrise.

B. The Contractor shall provide and maintain such other warning signs and barricades in areas of and around its work as may be required from time to time for the safety of all those employed in the work, the Owner's operating personnel, or those visiting the site.

1.04 EXISTING UTILITIES AND STRUCTURES

A. The term existing utilities refers to both publicly-owned and privately-owned utilities such as water, sanitary sewers, storm drains, electric power and lighting, telephone, gas, fiber optics, process lines, and all appurtenant structures.

A. It shall be the responsibility of the Contractor to ascertain the actual extent and exact location of existing utilities and structures.

B. In every instance, the Contractor shall notify the proper authority having jurisdiction and obtain all necessary directions and approvals before performing any work in the vicinity of existing utilities.

C. Prior to beginning any clearing work, the Contractor shall determine through field investigations any conflicts or interferences between existing utilities and new utilities constructed under this project.

1. This determination shall be based upon the actual locations, elevations, slopes, etc., of existing utilities determined in these field investigations and locations, elevation, slope, etc. of new utilities as shown on the Drawings.

2. If an interference exists, the Contractor shall bring it to the attention of the Engineer as soon as possible.

a. If the Engineer agrees that an interference exists, he shall modify the design as required.

b. Such modification will not constitute a change order.

c. In the event the Contractor fails to bring a potential conflict or interference to the attention of the Engineer prior to beginning excavation work, any actual conflict or interference that does arise during the Project shall be corrected by the Contractor at no additional expense.

E. The work shall be carried out in a manner to prevent disruption of existing services and to avoid damage to the existing utilities.

1. Temporary connections shall be provided as necessary to insure un-interruption of existing services.

2. Any damage resulting to utilities and structures from the work of this Contract shall be promptly repaired by the Contractor at his own expense in a manner subject to the requirements of any authority having ownership or jurisdiction.

3. Where it is required by the authority having ownership or jurisdiction that the authority perform its own repairs or have them done by others, the Contractor shall be responsible for all costs thereof.

F. Where excavations by the Contractor require any utility lines or appurtenant structures to be temporarily

supported and otherwise protected during the construction work, such support and protection shall be provided by the Contractor at no additional cost.

1. All such work shall be performed in a manner satisfactory to the respective authority having ownership or jurisdiction over such work.

2. In the event the Contractor fails to provide proper support or protection to any existing utility, the Engineer may at his sole discretion have the respective authority provide such support or protection as may be necessary to insure the safety of such utility.

    a. The costs of such measures shall be paid by the Contractor.

PART 2 -- PRODUCTS

(NOT USED)

PART 3 -- EXECUTION

(NOT USED)

END OF SECTION 01530

SECTION 01560
TEMPORARY ENVIRONMENTAL CONTROLS

PART 1 -- GENERAL

1.01 THE REQUIREMENT

A. Dust Control

1. Contractor shall take all necessary measures to control dust from his operations.

B. Contractor shall prevent spillage and prohibit placing of excavated materials on public roads.

1. Contractor shall remove all spillage of excavated materials, debris, or dust from public roads.

2. Contractor shall sprinkle water at locations in such quantities and at such frequencies as may be required to control dust and prevent it from becoming a nuisance to the surrounding area.

3. Dust control and cleaning measures shall be provided at no additional cost.

PART 2 -- PRODUCTS

(NOT USED)

PART 3 -- EXECUTION

(NOT USED)

END OF SECTION 01560

SECTION 01600

MATERIALS

PART 1 -- GENERAL

1.01 THE REQUIREMENT

A. Furnish and Install

1. Where the words "furnish", "provide", "supply", "replace", or "install" are used, whether singularly or in combination, they shall mean to furnish and install, unless specifically stated otherwise.

2. In the interest of brevity, the explicit direction "to furnish and install" has sometimes been omitted in specifying materials and/or equipment herein.

B. Unless specifically noted otherwise, it shall be understood that all materials specified or shown on the Drawings shall be furnished and installed under the Contract as designated on the Drawings.

1.02 MATERIALS

A. All materials incorporated in this project shall be new and unused, unless indicated otherwise in the Contract Documents.

1. Materials incorporated into the work shall be delivered sufficiently in advance of their installation and use to prevent delay in the execution of the work

2. Delivery shall be as nearly as feasible in the order required for executing the work.

B. The Contractor shall protect all materials from deterioration and damage, including provisions for temporary storage buildings as needed.

1. Storage of materials shall be in locations completely protected from flooding, standing water, excessive dust, falling rock, brush fire, etc.

2. Storage areas shall be located sufficiently distant from all construction activities and movement of construction vehicles to minimize the potential for accidental damage.

3. Any materials of whatever kind damaged or deteriorated from any cause shall be removed and replaced by good and satisfactory items at the Contractor's expense for both labor and materials.

1.03 SUBSTITUTIONS

A. Requests for substitutions of materials shall conform to the requirements of the General Conditions and as hereinafter specified.

1. Contractor shall submit for each proposed substitution sufficient details, complete descriptive literature, and performance data where applicable together with samples of materials that will enable the Engineer to determine if the proposed substitution is equal.

2. Contractor shall submit certified tests, where applicable, by an independent laboratory attesting that

the proposed substitution is equal.

3. Contractor shall provide a list of installations where the proposed substitution is employed.

4. Requests for substitutions shall include full information concerning differences in cost.

5. Any savings in cost resulting from substitutions shall be passed on to the Owner.

B. Where the approval of a substitution requires revision or redesign of any part of the work, all such revision or redesign, and all new drawings and details therefore, shall be provided by the Contractor at his own cost and expense, subject to the approval of the Engineer.

C. In the event that the Engineer is required to provide engineering services related to evaluating substitutions, then the Engineer's charges for such services shall be charged to the Contractor.

D. In all cases, the Engineer shall judge whether a proposed substitution is equal.

1. The Contractor shall abide by the decision when proposed substitute items are judged unacceptable and furnish the item specified or indicated.

2. No substitute items shall be used in the work without written approval of the Engineer.

E. Contractor shall have and make no claim for an extension of time or for damages by reason of the time taken by the Engineer in considering a substitution proposed by the Contractor or by reason of the failure of the Engineer to approve a substitution proposed by the Contractor.

PART 2 -- PRODUCTS

(NOT USED)

PART 3 -- EXECUTION

(NOT USED)

END OF SECTION 01600

SECTION 01700

PROJECT CLOSEOUT

PART 1 -- GENERAL

1.01 THE REQUIREMENT

A. Final Cleaning

1. At the completion of the work, the Contractor shall remove all rubbish from and about the site of the work, and all temporary structures, construction signs, tools, scaffolding, materials, supplies, and equipment that he or any of his subcontractors may have used in the performance of the work.

2. Contractor shall broom clean paved surfaces and rake clean other surfaces or grounds.

3. Contractor shall thoroughly clean all materials, equipment, and structures.

B. Final Cleanup and Site Rehabilitation

1. Before finally leaving the site, the Contractor shall wash and clean all exposed surfaces that have become soiled or marked and shall remove from the site of work all accumulated debris and surplus materials of any kind which results from his operation, including construction equipment, tools, sheds, sanitary enclosures, etc.

   a. The Contractor shall leave all work that he has installed in a clean condition.

   b. The completed project shall be turned over in a neat and orderly condition.

C. Final Inspection

1. Final cleaning and repairing shall be so arranged as to be finished upon completion of the construction work.

2. When the Contractor has finally cleaned and repaired the whole or any portion of the work, he shall notify the Engineer that he is ready for final inspection of the whole or a portion of the work.

3. The Engineer will inspect the work.

4. If the work is not found satisfactory, the Engineer will order further cleaning, repairs, or replacement.

5. When such further cleaning or repairing is completed, the Engineer, upon further notice, will again inspect the work.

   a. The final payment application will not be processed until the Contractor has complied with the requirements set forth, and the Engineer has made his final inspection of the entire work and is satisfied that the entire work is properly and satisfactorily constructed in accordance with the requirements of the Contract Documents.

D. Project Close Out

1. The Contractor shall have completed the following items as they apply to his contract:

   a. Required testing of project components.

   b. Correcting or replacing defective work, including completing items previously overlooked or work which remains incomplete, all as evidenced by the Engineer's "Punch" Lists.

   c. Attend to any other items listed herein or brought to the Contractor's attention by the Engineer.

2. The Contractor shall submit to the Engineer certain records, certifications, etc., which are specified elsewhere in the Contract Documents, including but not limited to the following:

   a. Test results of project components.

   b. Certification of materials in compliance with Contract Documents.

   c. One set of neatly marked-up record drawings showing construction record discoveries and changes and additions to the work under the Contract.

   d. Any special guarantees.

PART 2 -- PRODUCTS

(NOT USED)

PART 3 -- EXECUTION

(NOT USED)

END OF SECTION 01700

SECTION 02510

PAVING AND SURFACING

PART 1 -- GENERAL

1.01 THE REQUIREMENT

A. Furnish all labor, equipment, and materials and perform all operations in connection with the construction of asphalt concrete pavement, asphalt concrete overlay, reinforced concrete pavement, gravel roads, concrete curb and gutter, repair and reconstruction of existing asphalt concrete pavement, repair of existing gravel roads, and pavement markings complete as specified herein and as detailed on the Drawings.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Requirements of related work are included in Division 1, Division 2 and Division 3 of these Specifications.

1.03 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

A. Without limiting the generality of the other requirements of the Specifications, all work herein shall conform to the applicable requirements of the following documents.

1. ASTM D 698 Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Type).

PART 2 -- MATERIALS

2.01 BACKFILL

A. The Contractor shall place backfill in accordance with Section 02200 - Trenching.

2.02 AGGREGATE BASE COURSE (ABC)

A. All work including materials associated with Aggregate Base Course shall be in accordance with NCDOT Section 520, Aggregate Base Course, except that Articles 520-7, 520-12, and 520-13 shall be deleted.

1. Provide Type "A" or "B."

2.03 ASPHALT CONCRETE BINDER COURSE

A. All work including materials associated with asphalt concrete binder course shall be in accordance with NCDOT Section 630, Asphalt Concrete Base Course, Types HB, 1995 edition, except that Articles 630-5 and 630-6 shall be deleted.

1. Paragraph (B) of Article 630-3 shall be revised by deleting the first paragraph and adding the following:

"A job mix formula will be developed by the Contractor for the particular materials the Contractor proposes to use, in accordance with Article 610-3."

2.04 ASPHALT CONCRETE SURFACE COURSE

A. All work including materials associated with asphalt concrete surface course shall be in accordance with NCDOT Section 645, Asphalt Concrete Surface Course, Types I-1, I-2 and HDS, except that Articles 645-5 and 645-6 shall be deleted.

1. Paragraph (B) of Article 645-3 shall be revised by deleting the first paragraph and adding the following:

"A job mix formula will be developed by the Contractor for the particular materials the Contractor proposes to use, in accordance with Article 610-3".

2.05 RIGID PORTLAND CEMENT CONCRETE PAVEMENT

A. Concrete shall be air-entrained by admixture only and proportioned and mixed for a 28-day minimum compressive strength of 3,500 psi in accordance with the requirements of Section 03300, Cast-In-Place Concrete.

1. Class AA concrete shall be used.

2. Placement shall be in accordance with Section 03300 and NCDOT Section 700, General Requirements for Portland Cement Concrete Pavement and Section 710, Concrete Pavement, except that Articles 700-2, 700-15, 710-3, 710-4, 710-8, 710-9, 710-10, and 710-11 shall be deleted.

2.06 RIGID CONCRETE PAVEMENT REINFORCING

A. Reinforcing, when applicable, shall be as specified under Section 03300 - Cast-In-Place Concrete.

2.07 CONCRETE CURB AND GUTTER

A. Concrete shall be air-entrained by admixture only and proportioned and mixed for a 28-day minimum compressive strength of 3,000 psi in accordance with the requirements of Section 03300, Cast-In-Place Concrete.

B. Pre-molded expansion joint filler for expansion joints shall conform to ASTM D 1751 and shall be ½-inch thick, minimum.

2.08 CONCRETE SIDEWALK

A. Concrete shall be air-entrained by admixture only and proportioned and mixed for a 28-day minimum compressive strength of 3,000 psi in accordance with the requirements of Section 03300 - Cast-In-Place Concrete.

B. Pre-molded expansion joint filler for expansion joints shall conform to ASTM D 1751 and shall be ½-inch thick, minimum.

2.09 ASPHALT TACK COAT

A. All work including materials associated with asphalt tack coat shall be in accordance with NCDOT Section 605, Asphalt Tack Coat, except that Article 605-10 shall be deleted.

PART 3 -- EXECUTION

3.01 SUBGRADE

A. The subgrade shall be as shown on the Drawings.

1. The subgrade shall be formed true to crown and grade.

2. The subgrade shall be compacted to the required densities as determined by AASHTO T99.

3.02 BASE COURSE

A. The base course of all paving shall be ABC.

1. ABC shall be of the thickness shown on the Drawings and formed true to crown and grade.

2. Gravel roads, including repair to existing gravel roads, shall be ABC.

3. No fill material except new ABC shall be placed on top of existing gravel.

3.03 ASPHALT CONCRETE BINDER COURSE (TYPE H)

A. Asphalt Concrete Binder Course Type H shall be placed and compacted on the aggregate base course in layers not to exceed 2-inches and at the rate of not less than110 pounds per square yard per inch of thickness.

1. Thicknesses shall be as shown on the Drawings.

3.04 ASPHALT CONCRETE SURFACE COURSE (TYPE I-1 or I-2)

A. Prior to placement of the asphalt concrete surface course, the base/binder course shall be inspected for damage or defects and repaired.

B. An asphalt tack coat shall be applied to the surface of the approved base/binder course as described in NCDOT Section 605.

1. Equipment for applying the tack coat shall be power-oriented pressure spraying or distributing equipment suitable for the materials to be applied.

C. The Asphalt Concrete Surface Course shall be placed and compacted on the base/binder course in layers not to exceed 2-inches and at the rate of not less than110 pounds per square yard per inch of thickness.

1. Thicknesses shall be as shown on the Drawings.

3.05 RIGID PORTLAND CEMENT CONCRETE

A. The subgrade and base course beneath Portland cement concrete pavement shall be prepared in accordance with the applicable Sections of these Specifications and referenced NCDOT Standard Specifications for Roads and Structures.

1. The Contractor shall use an approved automatically controlled fine grading machine to produce final subgrade and base surfaces meeting the lines, grades, and cross sections (thicknesses) shown on the Drawings.

B. The surface of the base shall be damp at the time the concrete is placed.

1. The Contractor shall sprinkle the base when necessary to provide a damp surface.

2. The Contractor shall satisfactorily correct all soft areas in the subgrade or base prior to placing concrete.

C. Hauling over the base course shall not be allowed.

1. Concrete-dumping equipment will be allowed to operate on the base to the extent necessary to facilitate placing and spreading the concrete.

D. Installation of the rigid concrete pavement shall be in accordance with the details shown on the Drawings and Division 3 - Concrete.

1. The rigid concrete pavement shall cure a minimum of 10 calendar days and until the concrete has attained a minimum flexural strength of 550 psi as indicated by flexural strength testing.

2. The Contractor shall coordinate and pay for all flexural strength testing with a minimum of four 6-inch by 6-inch by 20-inch beams for every 50 cubic yards of pavement concrete installed.

E. Contraction joints shall be spaced at intervals as shown on the Drawings.

1. Transverse contraction joints shall be formed by an approved joint insert.

2. Expansion joints shall be placed when the pavement abuts a structure using 1-inch expansion joint material (filler) and sealant as specified herein.

3.06 CONCRETE CURB AND GUTTER

A. The expansion joint filler for concrete curb and gutters shall be cut to conform with the cross section of the curb.

1. Expansion joints shall be spaced at intervals of not more than 25-feet.

B. Formed control joints shall be installed at intervals not exceeding 10-feet.

1. Depth of joint shall be the thickness of the curb.

C. Curved forms shall be used where radii are indicated; straight segments shall not be permitted.

D. Upon removal of the forms, exposed curb faces shall be immediately rubbed down to a smooth and uniform surface.

E. No plastering shall be permitted.

3.07 CONCRETE SIDEWALK

A. Expansion joints shall be placed at intervals not greater than 50-feet and between all rigid objects.

B. Grooved construction joints shall be cut to a depth equal to the total slab thickness.

1. Construction joints shall be placed at intervals equal to the width of the sidewalk.

C. Sidewalk surface shall be finished to line and grade and cross section with a float, troweled smooth, and given a broom finish.

3.08 JUNCTION WITH OTHER PAVING

A. Where new asphalt concrete pavement abuts existing asphalt concrete pavement, the existing pavement shall be cut back to insure obtaining the specified compaction of the new pavement courses and interlocking adjoining courses.

1. Existing subbase courses shall be cut back from the subgrade level of the new pavement on a one-on-one slope into the existing pavement.

2. The asphalt courses of the existing pavement shall be removed for an additional 6-inches back from the slope.

3. The edge of the existing asphalt courses shall be saw cut straight and true.

4. The faces between new and existing asphalt courses shall receive an application of tack coat.

B. Where new rigid concrete pavement abuts existing rigid concrete or asphalt concrete paving, the existing paving shall be saw cut straight and true.

1. An expansion joint of a ½-inch minimum thickness with filler material and sealant shall be placed between the new concrete pavement and the existing rigid concrete or asphalt concrete paving.

3.09 ASPHALT CONCRETE OVERLAY

A. Where asphalt concrete is proposed to be placed over an existing asphalt or rigid concrete surface, the surfaces shall be thoroughly cleaned by brooming.

B. A tack coat shall be applied in accordance with NCDOT Section 605, Asphalt Tack Coat, of the NCDOT Standard Specifications prior to installing the overlay.

END OF SECTION 02510

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SECTION 03300

CAST-IN-PLACE CONCRETE

PART 1 -- GENERAL

1.01 THE REQUIREMENT

A. Furnish all labor, equipment, materials, and services necessary for the manufacturing, transporting, and placing of all concrete work as shown on the Drawings.

B. The requirements in this section shall apply to the following types of concrete:

1. Structural concrete: Normal weight concrete to be used in all slabs and pavements except where noted otherwise in the Contract Documents.

    a. Structural concrete is referenced as Type AA concrete on the Drawings.

2. Sitework Concrete: Concrete to be used for curbs, gutters, sidewalks, fence and guard post embedment unless otherwise shown or noted on the Drawings.

    a. Sitework concrete is referenced as Type A concrete on the Drawings.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Section 02050 - Demolition

B. Section 02200 - Trenching

1.03 REFERENCE SPECIFICATIONS, CODES AND STANDARDS

A. Without limiting the generality of the Specifications, all work herein shall conform to or exceed the applicable requirements of the following documents.

1. ASTM A 185 Standard Specification for Steel Welded Wire Fabric, Plain, for Concrete Reinforcement

2. ASTM A 497 Standard Specification for Steel Welded Wire Fabric, Deformed, for Concrete Reinforcement

3. ASTM A 615 Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement

4. ASTM C 33 Standard Specification for Concrete Aggregates

5. ASTM C 94 Standard Specification for Ready-Mixed Concrete

6. ASTM C 150 Standard Specification for Portland Cement

7. ASTM C 309 Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete

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8. ASTM D 1751 Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Type)

1.04 READY-MIXED CONCRETE

A. Concrete shall be ready-mixed conforming to ASTM C 94.

PART 2 - PRODUCTS

2.01 CEMENT

A. Cement shall meet the requirements of ASTM C 150, Type I or Type II.

2.02 FINE AGGREGATE

A. Fine aggregate shall be clean, natural sand.

B. Fine aggregate shall meet the requirements of ASTM C 33.

2.03 COARSE AGGREGATE

A. Coarse aggregate shall consist of crushed rock, washed gravel, or other inert granular material.

B. Coarse aggregate shall conform to the requirements of ASTM C 33.

C. Clay and shale products shall be less than 1%.

2.04 WATER

A. Water used for mixing concrete shall be clear, potable, and free from deleterious substances such as objectionable quantities of silty organic matter, alkali, salts, and other impurities.

B. Water shall have a pH in the range of 4.5 to 8.5.

2.05 REINFORCING STEEL

A. Reinforcing steel bars shall be deformed, Grade 60, meeting the requirements of ASTM A 615.

B. Welded wire fabric shall meet the requirements of ASTM A 185 or A 497.

C. Bar supports shall be CRSI Class 1, plastic protected or Class 2, stainless steel protected.

2.06 CONCRETE MIX DESIGN

A. The proportions of cement, aggregates, and water used in the concrete mixes shall be based on the results of field experience or laboratory trial mixes.

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B. Concrete shall be of three types based upon 28-day compressive strength.

Type	Strength (psi)
AA	3,500
A	3,000

C. Slump shall be neither less than 2-inches nor more than 4-inches.

2.07 FORMS

A. Forms shall be designed such that they produce hardened concrete conforming to the shape, lines, and dimensions shown on the Drawings.

2.08 MEMBRANE CURING COMPOUND

A. Curing compound shall comply with ASTM C 309 Type I, Class B.

B. Minimum solids content of curing compound shall be 30%.

C. Moisture loss from concrete surface receiving compound shall not exceed 0.03 grams per square centimeter when applied at 300 square feet per gallon.

D. The curing compound shall be an emulsion that is freeze-thaw stable and displays a white color that disappears when dry.

E. Curing compound shall be SureCure 30 by Kaufman Products, Inc., CA D.O.T. Acrylic Cure by Symons Corporation, or Sealtight CS-309-30 by W. R. Meadows, or equal.

2.09 EXPANSION JOINT MATERIAL

A. Preformed expansion joint material shall be non-extruding.

1. Expansion joint material shall be Type IV, bituminous fiber, conforming to ASTM D 1751.

PART 3 -- EXECUTION

3.01 READY-MIXED CONCRETE

A. Ready-mixed concrete shall meet the requirements for materials, batching, mixing, transporting, and placing as specified herein and in accordance with ASTM C 94.

B. The use of non-agitating equipment for transporting ready-mixed concrete will not be permitted.

C. Combination truck and trailer equipment for transporting ready-mixed concrete will not be permitted.

3.02 FORMS

A. Forms shall be sufficiently tight such that they prevent leakage of mortar.

1. Maintain forms in proper position and alignment.

2. Prior to placing concrete, thoroughly clean and oil forms.

3. Remove all loose debris from the bottom of the forms.

4. Forms shall not be removed until concrete has reached sufficient strength to support all loads, including self-imposed loads, without damage of any kind.

3.03 REINFORCEMENT

A. Reinforcement shall be accurately formed and positioned.

B. Reinforcement shall be free of dirt, loose rust, scale, and contaminants of any kind.

C. Reinforcement shall maintain its position while concrete is being placed and compacted.

3.04 CONCRETE PLACEMENT

A. All debris, water, snow, ice, and foreign matter shall be removed from the space to be occupied by the concrete.

B. The Contractor shall notify the Engineer in advance of placement.

C. All concrete shall be placed during the daylight hours.

D. When concrete arrives at the project with slump below that specified, water may be added to bring the concrete within the specified slump range provided that the design water-cement ratio is not exceeded.

E. Concrete shall be conveyed as rapidly as practicable to the point of deposit by methods that prevent the separation or loss of the ingredients.

1. Concrete shall be deposited such that re-handling will not be necessary.

2. Discharge of the concrete to its point of deposit shall be completed within 90 minutes after the addition of the cement to the aggregates.

F. Where concrete is conveyed to position by chutes, a practically continuous flow in the chute shall be maintained.

1. The angle and discharge arrangement of the chute shall be such as to prevent segregation of the concrete ingredients.

2. The delivery end of the chute shall be as close as possible to the point of deposit.

3. The free pour from the delivery end of the chute shall not exceed five feet.

G. Special care shall be exercised to prevent splashing of forms or reinforcement with concrete.

1. Any such splashes or accumulations of hardened or partially hardened concrete on forms or reinforcement above the general level of the concrete already in place shall be removed before work proceeds.

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2. Concrete shall be placed in all forms in such way as to prevent any segregation.

H. Placing of concrete shall be so regulated that the pressure caused by the wet concrete shall not exceed that used in the design of the forms.

I. Concrete shall be placed so as to thoroughly embed all reinforcement.

J. When forms are removed, surfaces shall be even and dense, free from aggregate pockets or honeycomb.

1. Concrete shall be consolidated by forking and spading by hand in the corners and angle of forms and along form surfaces while the concrete is plastic, or by other means approved by the Engineer.

K. Concrete shall not be placed during rains sufficiently heavy or prolonged to wash mortar from coarse aggregate on the forward slopes of the placement.

1. Once placement of concrete has commenced, placement shall not be interrupted by diverting the placing equipment to other uses.

3.05 FINISHING

A. Fins and other surface projections shall be removed from all formed surfaces, unless it is a surface that will be in contact with earth backfill.

B. Surface voids and recesses resulting from the removal of forms shall be filled with mortar.

C. Unless otherwise specified, all unformed surfaces shall be given a float finish.

D. Sidewalks shall be finished as outlined herein.

1. Surfaces shall be screeded to the proper elevation and contour.

2. All aggregates shall be completely embedded in mortar.

3. Screeded surfaces shall be given an initial float finish as soon as concrete has stiffened sufficiently to allow proper working.

4. Any coarse aggregate disturbed by floating or which creates a surface irregularity shall be removed and replaced with mortar.

5. The initial floating shall yield a surface uniform in texture and appearance without unnecessary working of the surface.

6. A second floating at the time of initial set shall follow the initial floating.

7. Floated surfaces shall be given a light broom finish with a horsehair broom and provide a non-slip surface.

a. Brooming shall be done at right angles to the longitudinal axis of the sidewalk.

8. Sidewalk shall be edged using a 3- or 4-inch wide edging tool having a c-inch corner radius.

a. Edger lap marks at the corners of each slab shall be carefully removed.

9. False joints shall be provided at right angles to the longitudinal axis of the sidewalk with a grooving tool having a c-inch radius.

    a. The finished edge of each side of the joint shall be the same width as the edging tool.

    b. False joints shall divide each sidewalk into sections having a length equal to the width of the sidewalk.

10. The finished surface of all sidewalks shall be neat in appearance and sloped to drain.

    a. The finished surface of the sidewalk shall not pond water.

E. Curb and gutter shall be finished as outlined herein.

1. Curb and gutter shall conform to the shape indicated on the Drawings.

1. When forms are used, curb and gutter shall be constructed in uniform sections 10-feet long.

    a Joints between sections shall be formed by steel templates $^{1}/_{6}$-inch thick and of the width and depth of the curb and gutter.

    a. Templates shall remain place until the concrete has set sufficiently to maintain its shape but shall be removed while the curb and gutter forms are in place.

2. When curb and gutter is constructed with a machine, construction joints shall be scored at 15-feet intervals.

    a. Minimum depth of joint shall be 1½- inch.

4. Expansion joints shall be as follows:

    a. Install expansion joints at intervals not exceeding 50-feet.

    b. Install at all rigid objects.

    c. Expansion joint shall be ½- inch wide.

    d. Expansion joint filler shall extend the full depth of the curb and gutter, but the top of the expansion joint material shall be ½- inch below the top of the surface of the curb and gutter.

4. Following removal of forms, round all edges using a grooving tool having a c-inch radius.

5. Exposed surfaces shall be float finished, then given a light broom finish at the time of the initial set of the concrete using a horsehair broom applied at right angles to the longitudinal axis of the curb and gutter.

3.06 CURING

A. Concrete shall be protected from loss of moisture for not less than 7-days by use of membrane curing compound or water curing.

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B. Membrane curing compound shall be applied in full accordance with the recommendations of the manufacturer.

C. Concrete shall be protected from freezing for at least 7-days following placing.

3.07 CARE AND REPAIR OF CONCRETE

A. The Contractor shall protect all concrete against injury or damage from excessive heat, lack of moisture, overstress, or any other cause until final acceptance.

1. Particular care shall be taken to prevent the drying of concrete and to avoid roughening or otherwise damaging the surface.

2. Care shall be exercised to avoid jarring forms or placing any strain on the ends of projecting reinforcing bars.

3. Any concrete found to be damaged, or which may have been originally defective, or which becomes defective at any time prior to the final acceptance of the completed work, or which departs from the established line or grade, or which, for any other reason, does not conform to the requirements of the Contract Documents shall be satisfactorily repaired or removed and replaced with acceptable concrete at no additional cost.

B. Areas of honeycomb shall be chipped back to sound concrete and repaired.

C. Concrete formwork blowouts or unacceptable deviations in tolerances for formed surfaces due to improperly installed or misaligned formwork shall be repaired.

1. Bulging or protruding areas, which result from slipping or deflecting forms shall be ground flush or chipped out and redressed.

D. Areas of concrete in which cracking, spalling, or other signs of deterioration develop prior to final acceptance shall be removed and replaced or repaired.

END OF SECTION 03300

M

SECTION 15000

BASIC MECHANICAL REQUIREMENTS

PART 1 -- GENERAL

1.01 THE REQUIREMENT

A. Furnish and install to the required line and grade all piping together with all fittings and appurtenances required for a complete and operable installation.

B. Furnish and install fittings, couplings, connections, sleeves, adapters, harness rods, and closure pieces as required connecting pipelines of dissimilar materials and/or sizes.

C. Furnish all labor, materials, equipment, tools, and services required for the furnishing and installing of all piping shown on the Drawings and required for the Work.

1. Piping shall be furnished and installed of the material, sizes, and classes and at the locations shown on the Drawings.

2. Piping shall include all fittings, adapter pieces, couplings, closure pieces, harnessing rods, hardware, bolts, gaskets, and other associated appurtenances for required connections to existing pipes, valves, or structures for a complete and operable installation.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Requirements of related work are included in Division 1 of these Specifications.

1.03 STORAGE AND HANDLING

A. Take care in shipping, handling, and installing pipe.

1. Avoid damage to pipe and fittings.

2. Provide additional care during winter months.

3. Replace any damaged pipe or fitting regardless of degree of damage.

a. Mark damaged pipe or fitting so as to prevent inadvertent use.

b. Remove from site.

B. Support pipe from below during storage.

1. Provide support at not less than 3-feet intervals.

2. Prevent deformation.

C. Stack not higher than 6-feet.

D. Store so as to maintain ambient, outdoor temperature.

May

1. Provide temporary shading as required.

2. Prohibit covering of pipe and fittings that permits temperature buildup when covering is exposed to sunlight.

PART 2 -- PRODUCTS

2.01 GENERAL

A. All specials and every length of pipe shall be marked with the manufacturer's name or trademark, size, class, and date of manufacture.

B. Special care in handling shall be exercised during delivery, distribution, and storage of pipe to avoid damage and unnecessary stresses.

1. Damaged pipe will be rejected and shall be replaced at the Contractor's expense.

2. Pipe stored prior to use shall be stored in such a manner as to keep the interior free from dirt and foreign matter.

C. Testing of pipe before installation shall be as described in the corresponding ASTM or AWWA Specifications and in the applicable standard specifications listed in the following sections.

PART 3 -- EXECUTION

3.01 GENERAL INSTALLATION

A. All piping shall be installed by skilled workmen in accordance with the best standard practice for piping installation and as recommended by the pipe manufacturer.

1. Proper tools and appliances for the safe and convenient handling and installing of the pipe and fittings shall be used.
2. Great care shall be taken to prevent damage to any pipe coating on the inside or outside of pipe and fittings.

3. All pipe and fittings shall be carefully examined for defects, and no pipe and fittings shall be installed that are known to be cracked, damaged, or otherwise defective.

a. If any defective pipe or fitting is discovered after installation, it shall be immediately removed and replaced with a sound one in a satisfactory manner by and at the expense of Contractor.

B. Pipe and fittings shall be thoroughly cleaned before they are installed and shall then be kept clean until they are accepted in the complete work.

C. All piping shall be installed in such a manner that it will be free to expand and contract without injury to itself or to structures to which it is connected.

D. All piping shall be erected to accurate lines and grades with no abrupt changes in direction and shall be supported and braced against temporary or permanent movement.

E. All excavation shall be made in such a manner and to such widths as will provide ample room to properly install the pipe and permit thorough compaction of backfill around the pipe.

F. All excavation and trenching shall be done in strict accordance with these specifications and all applicable parts of the OSHA Regulations, 29CFR 1926, Subpart P.

G. Except where otherwise specified, excavation slopes shall be flat enough to avoid slides that will cause disturbance of the subgrade, damage to adjacent areas, or endanger the lives or safety of persons in the vicinity.

H. All excavation required by this contract shall be unclassified.

1. No additional compensation will be made for rock excavation required for the installation of pipe or structures shown on the drawings.

I. Enlargements of the trench shall be made, within the limits of these Specifications, as needed to give ample space for operations at pipe joints.

1. The width of the trench shall be limited to the maximum dimensions specified, except where a wider trench is needed for the installation of and work within sheeting and bracing.

J. Hand excavation shall be employed wherever it is necessary for the protection of existing utilities, poles, trees, pavements, or obstructions.

K. No greater length of trench in any location shall be left open in advance of pipe laying than directed by the Engineer, but, in general, such length shall be limited to approximately 300 feet.

L. The Contractor shall excavate the trenches to the full depth, width and grade indicated on the Drawings including the relevant requirements for bedding.

1. The trench bottoms shall be examined as to the condition and bearing value before any bedding is placed or pipe is laid.

M. Following proper preparation of the trench subgrade, pipe, fittings, and valves shall be carefully lowered into the trench so as to prevent dirt and other foreign substances from gaining entrance into the pipe and fittings.

1. Proper facilities shall be provided for lowering sections of pipe into trenches.

2. Under no circumstances shall any pipe, fittings, valves, or other appurtenances be dropped or dumped into the trench.

N. Water shall be kept out of the trench until jointing and backfilling are completed.

1. When work is not in progress, open ends of pipe, fittings, and valves shall be securely closed so that no water, earth, or other substance will enter the pipes, fitting, or valves.

May

O. Pipe ends left for future connections shall be valved, plugged or capped, and anchored as required.

P. The full length of each section of pipe shall rest solidly upon the bed of the trench, with recesses excavated to accommodate bells, couplings, joints, and fittings.

1. Before joints are made, each pipe shall be well bedded on a solid foundation.

2. No pipe shall be brought into position until the preceding length has been thoroughly bedded and secured in place.

3. Pipe that has the grade or joint disturbed after laying shall be taken up and relaid by the Contractor at his own expense.

4. Pipe shall not be laid in water or when trench conditions are unsuitable for work.

5. Bedding shall be as shown on the Drawings.

Q. At the close of each work day, the Contractor shall undertake the following:

1. The end of the pipeline shall be tightly sealed with a cap or plug so that no water, dirt, or other foreign substance may enter the pipeline.

2. The plug shall be kept in place until pipe laying is resumed the next work day.

3. The pipeline trench shall be completely backfilled.

a. In paved areas, the surface shall be restored as specified in Section 02510 - Paving and Surfacing to allow for traffic over the trench during non-working hours.

b. Under no conditions shall any pipeline trench be left open during non-working hours.

c. In areas of existing pavement, the Contractor shall schedule and coordinate his construction activities such that all open cut pavements are satisfactorily repaired on the same day as the open cut.

3.02 PLASTIC PIPE INSTALLATION

A. Polyvinyl chloride (PVC) pipe shall be laid and joints assembled according to the respective manufacturer's recommendation.
1. PVC pipe installation shall comply with applicable sections of the Uni-Bell PVC Pipe Association Recommended Standard Specifications.

B. Plastic piping shall not be installed when the temperature is less then 60°F except as otherwise recommended by the manufacturer and approved by the Engineer..

3.03 JOINTS IN PIPING

A. Solvent welded joints in plastic piping shall be accomplished in strict accordance with the pipe

manufacturer's recommendations, including necessary field cutting, sanding of pipe ends, joint support during setting period, etc.

B. Care shall be taken that no droppings or deposits of adhesive or material remain inside the assembled piping.

C. Solvent or adhesive material shall be compatible with the pipe itself.

1. Solvent or adhesive material shall be a product approved by the pipe manufacturer.

D. Flexible sleeve couplings shall be used to join dissimilar materials.

1. Coupling shall be corrosion resistant rubber or PVC with Type 316 stainless steel clamps.

2. Coupling shall conform to ASTM 425.

3. Coupling shall be manufactured by Fernco, Mission Rubber Company, Inc., Calder, or equal.

END OF SECTION 15000

SECTION 15008

PLASTIC PIPE

PART 1 -- GENERAL

1.01 THE REQUIREMENT

A. This section covers plastic pipe to be used on the project.

B. All plastic pipe shall be bear the manufacturer's name or trademark, size, thickness, class, and the date of manufacture.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Section 15000 - Basic Mechanical Requirements

PART 2 -- PRODUCTS

2.01 POLYVINYL CHLORIDE (PVC) PIPE AND FITTINGS

A. PVC pipe and fittings shall be manufactured in accordance with ASTM D 1784, D 1785 and F 441, "normal impact" pipe, Schedule 40.

1. PVC pipe shall be Type 1 Grade 1 conforming to ASTM D 1784 and D 1785.

2. Fittings used with this pipe shall be socket type as specified herein.

3. Fittings shall conform to the following standard specifications:

   a. Socket Type (Schedule 40), ASTM D 2466

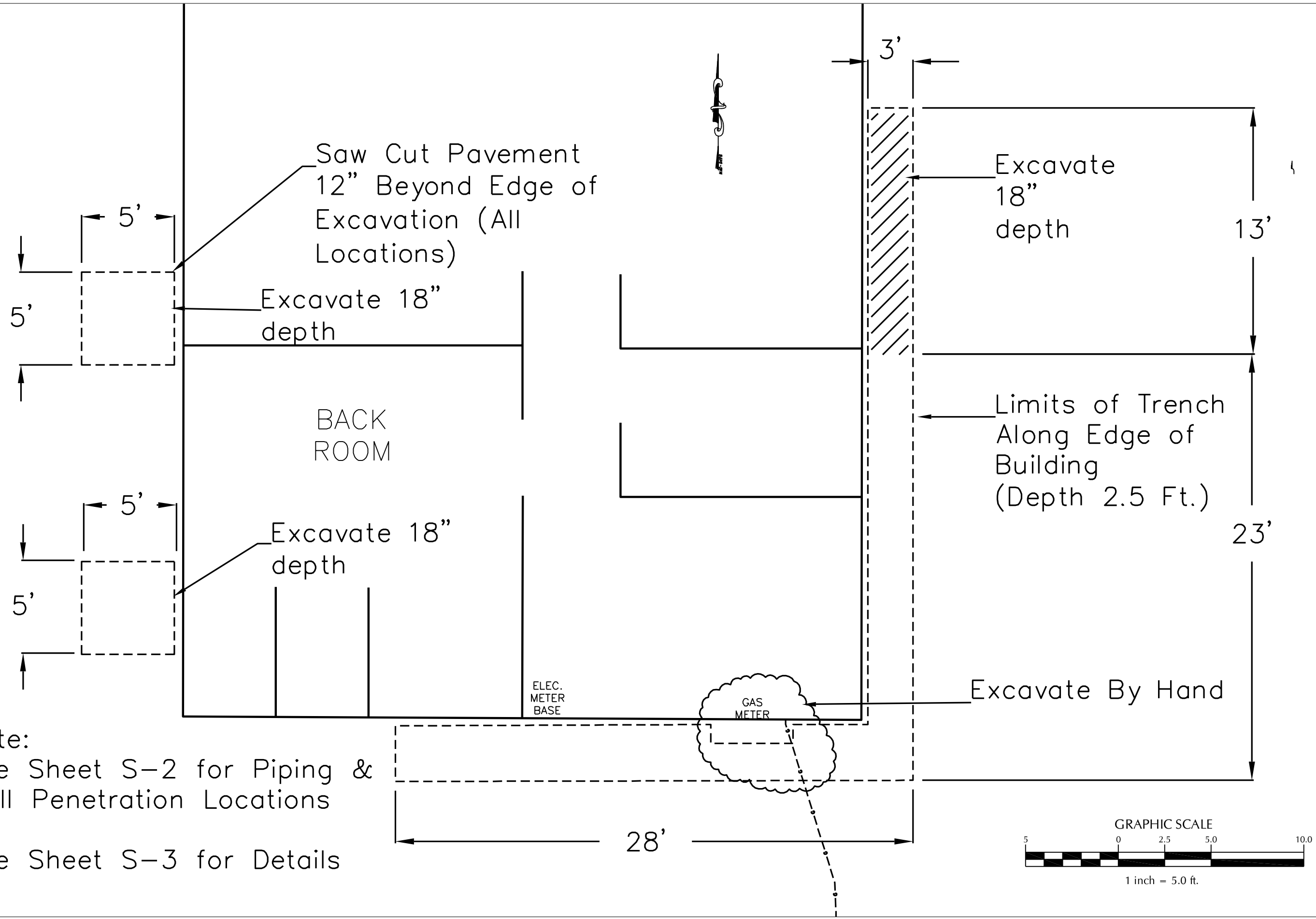
4. Solvent cement for socket type joints shall conform to ASTM D 2564 for PVC pipe and fittings.

PART 3 – EXECUTION

A. The Contractor shall cover all pipe and fittings to provide protection from ultra violet rays.

B. Covering is not required if pipe and fittings will not be exposed to ultra violet rays for less than 20-days.

END OF SECTION 15008



Note:
See Sheet S-2 for Piping & Wall Penetration Locations

See Sheet S-3 for Details

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Revisions			
No.	Description	Date	By

FORMER BB&T PROPERTY (DSCA #32-0013)
1103 WEST CLUB BOULEVARD
DURHAM, DURHAM CO., NORTH CAROLINA

Excavation Plan

Drawn By	Scale
CCB	1"=10'
Checked By	Date
CB	5/11/09

Job No. 02060496.32
Figure No. S-1

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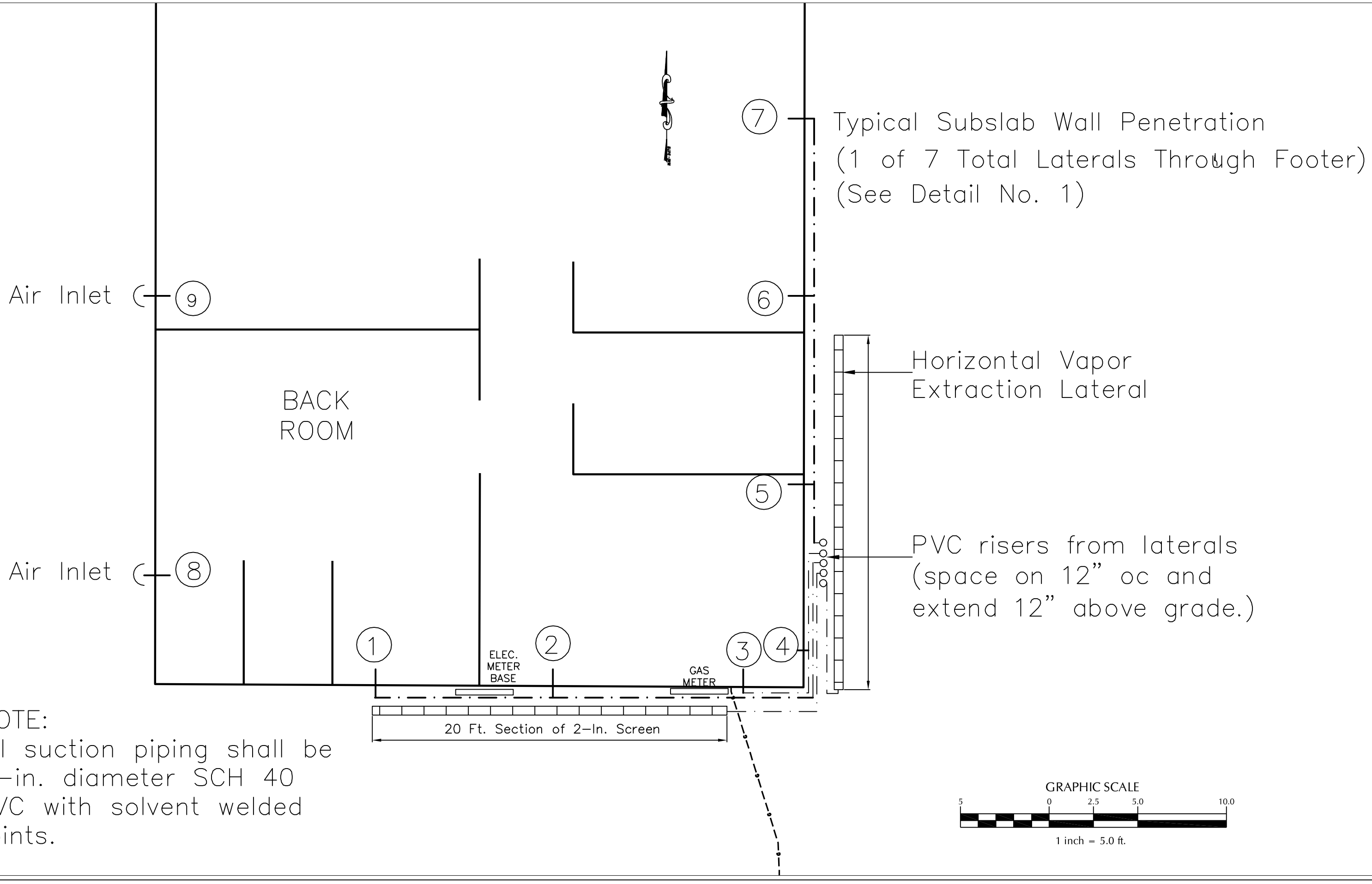

NOTE:
All suction piping shall be 2-in. diameter SCH 40 PVC with solvent welded joints.

GRAPHIC SCALE
5 0 2.5 5.0 10.0
1 inch = 5.0 ft.

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FORMER BB&T PROPERTY (DSCA #32-0013)
1103 WEST CLUB BOULEVARD
DURHAM, DURHAM CO., NORTH CAROLINA

System Piping Plan

Drawn By	Scale
CCB	1"=10'
Checked By	Date
CB	5/11/09

Job No. 02060496.32
Figure No. S-2

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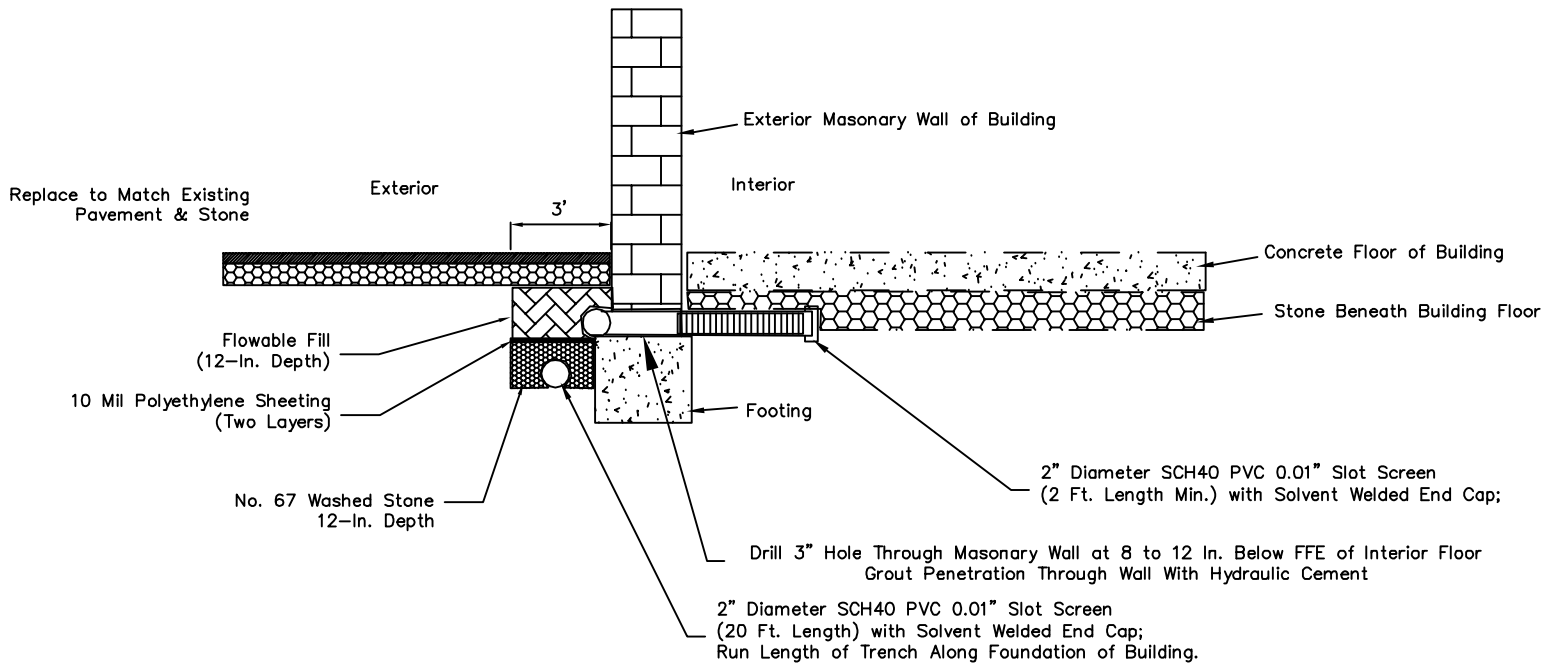
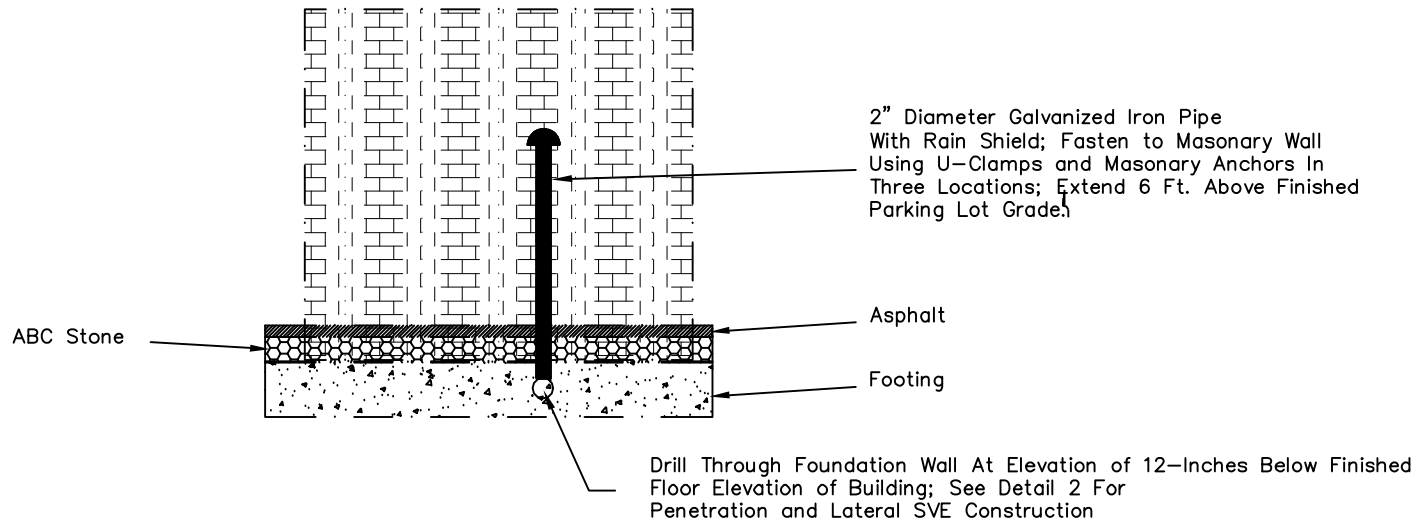
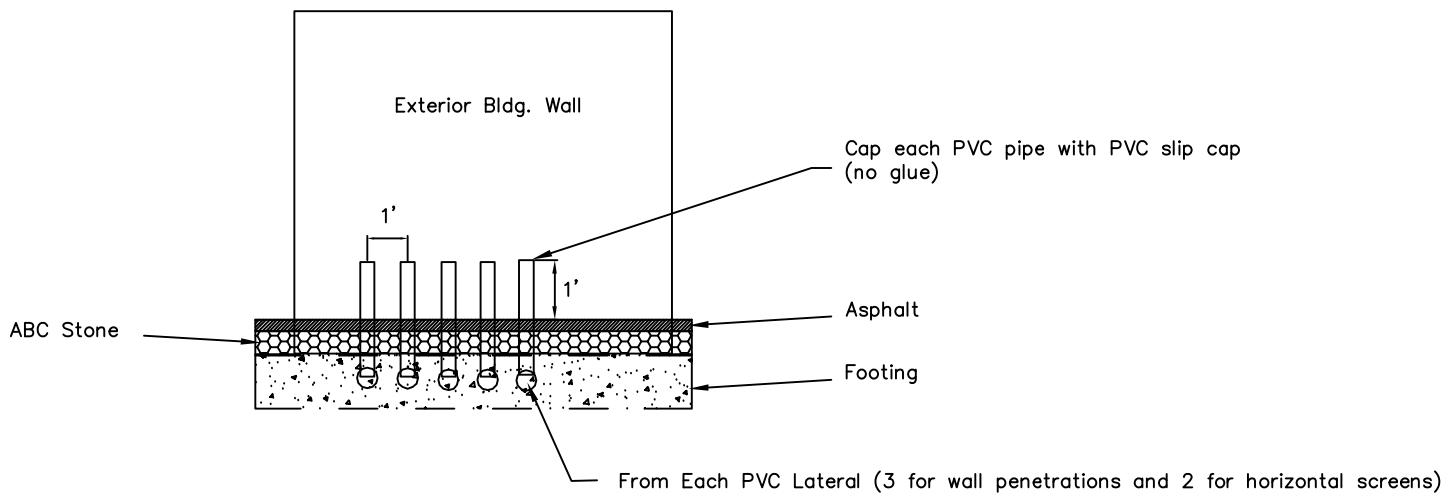


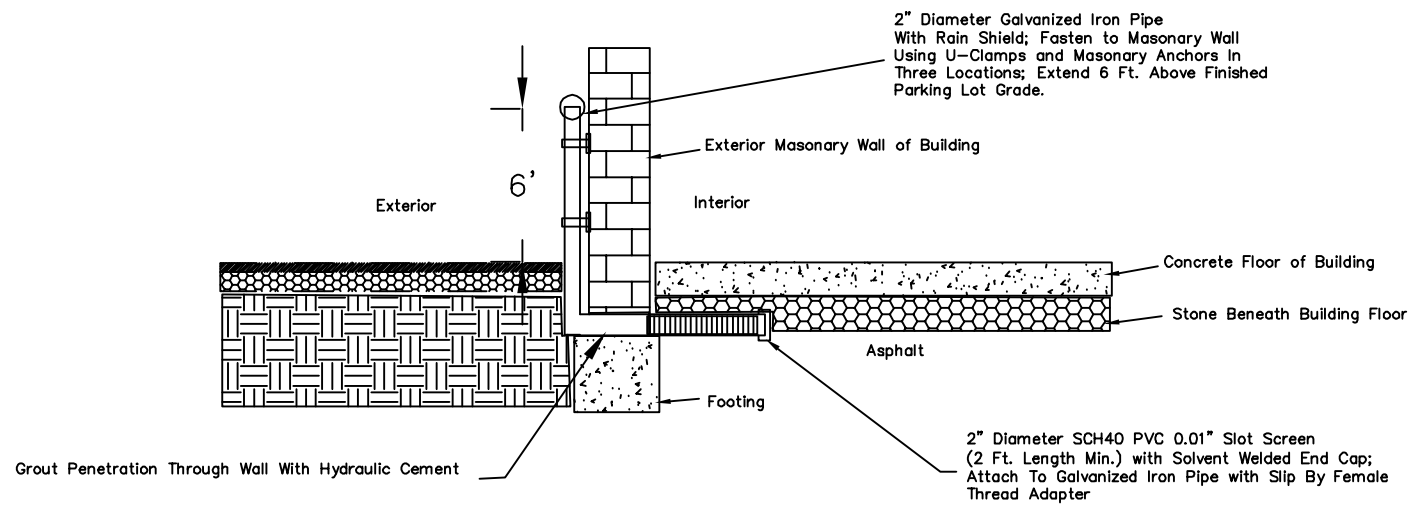
DETAIL 1 – VAPOR EXTRACTION LATERAL SCHEMATIC
(CROSS SECTION VIEW)
(Not to Scale)



DETAIL 3 – AIR INLET SCHEMATIC
(Not to Scale)



DETAIL 2 – LATERAL COMPLETION SCHEMATIC
(Not to Scale)



DETAIL 4 – AIR INLET SCHEMATIC
(CROSS SECTION VIEW)
(Not to Scale)

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No.	Description	Date	By

FORMER BB&T PROPERTY (DSCA #32-0013)
1103 WEST CLUB BOULEVARD
DURHAM, DURHAM CO., NORTH CAROLINA

VI Mitigation System Plan

Drawn By	Scale
CCB	NTS
Checked By	Date
CB	5/11/09

Job No. 02060496.32
Figure No. S-3

K:\06\06-0490\060496.32-FORMER BB&T ID32-0013\CAD\DSCA#32-0013 VI ABATEMENT SITE PLAN.DWG 5/13/2009 9:55 PM CHAN BRYANT

General Construction Sequence:

1. Locate subsurface utilities.
2. Deliver three roll of containers to site with liners.
3. Saw cut asphalt paving full depth.
4. Break and remove asphalt to be placed in roll off box until analyses of samples obtained by W&R are available to determine disposal requirements.
5. Excavate soils in proposed excavation zone for placement in lined roll off boxes to be staged on the east side of the building.
6. Hand excavate within 3 feet of marked natural gas line location.
7. ENGINEER will collect composite samples of soils within each lined roll off box for analyses and supply results to CONTRACTOR to determine disposal destination.
8. ENGINEER will rush all rolloff samples to allow minimal downtime. Samples will be analyzed on a 24 hour rush basis. Weekend schedules of the laboratory may interfere with the receipt of sample results within 24 hours for samples collected on Fridays or the weekend.
9. Drill between 9 and 11 3–inch diameter holes through the masonary wall of the building in areas shown on drawing or field located by ENGINEER. The elevation of the centerline of each hole shall be 8 to 12 inches below the finished floor elevation of the interior floor of the building.
10. Excavate the trenches as shown on the plan to a depth of 2.5 feet total depth. Trench length shall be 65 feet and width shall be 3 feet. See plans for location of two excavations on the east side of the building for installation of air inlets.
11. Install PVC and galvanized iron piping per schematics on diagrams.
12. Seal masonary wall penetrations with hydraulic cement or other sealant approved by ENGINEER.
13. Backfill bottom foot of trench with No. 57 washed stone and apply two layers of 10 mil polyethylene sheeting to cover trench full width.
14. Backfill the completed excavation to within 6–inches of surface with regular flowable fill (50 lbs/cy – cement; 300 lbs/cy flyash; 2600 lbs/cy fine aggregate) to be obtained from local ready mixed concrete provider. The flowable fill must be the type to allow it to be re–excavated for installation of utilities, etc. during improvements to the building.
15. Finish excavation with 3 inches of compacted ABC stone and 3–inches of asphalt pavement to match existing grade.
16. Remove all roll off boxes of soil for proper disposal per the classification results provided by ENGINEER.
17. Clean parking lot and driveway of all dirt, mud and debris created by the project for containerization in roll off containers, testing by the ENGINEER and offsite disposal per the findings of ENGINEER's testing.
18. Repair any damaged asphalt in parking lot and driveway and/or building components damaged during completion of this work.

General Construction Notes:

1. Provide health and safety plan and supply documentation that all site workers have met training and medical monitoring requirements of 29CFR 1910.120.
2. Provide all onsite monitoring per requirements of health and safety plan.
3. Provide barriers and traffic control to restrict vehicular and pedestrian traffic from work zone.
4. Provide lighting, ventilation, and other neccessary equipment to complete the project.
5. Provide and maintain portable restroom unit (Port a John or equiv.) for duration of project.
6. Provide barracades for perimeter of open excavation to be erected at the end of each work day.

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Revisions

No.	Description	Date	By

FORMER BB&T PROPERTY (DSCA #32–0013)
1103 WEST CLUB BOULEVARD
DURHAM, DURHAM CO., NORTH CAROLINA

Construction Notes

Drawn By	Scale
CCB	NTS
Checked By	Date
CB	5/11/09

Job No. 02060496.32
Figure No. S–4

K:\06\06-0490\060496.32-FORMER BB&T ID32-0013\CAD\DSCA#32-0013 VI ABATEMENT SITE PLAN.DWG 5/13/2009 9:55 PM CHAN BRYANT

SUBSLAB DEPRESSURIZATION SYSTEM COST ESTIMATE

FORMER BB&T PROPERTY - DSCA #32-0013
1103 W. CLUB BLVD
DURHAM, NC

CAPITAL COST

ITEM			COST
Subcontractor Cost For Installation of Piping, Trenching & Asphalt Replacement			$ 35,075.00
Subcontractor Cost For Electrical Service Installation			$ 7,113.00
Subcontractor Cost For SSD			
R7100, 10HP SVE Package System			$ 7,800.00
Carbon Vessel Purchase VP85			$ 3,134.00
Vent Stack Installation			$ 785.00
Security Fence Installation			$ 1,525.00
Plumbing & Startup			$ 1,050.00
Disposal of Contaminated Soil (27 Tons From Trenching)			$ 13,068.00
Building Rehabilitation to Eliminate VI Pathways			
Scope: Cut Garage Door Into Building For Access, Remove & Replace Concrete slab over former drycleaning area, demo bathrooms for removing plaster and epoxy coating walls and new concrete floor, patching holes in base of wall. Replacing walls and bathroom fixtures.			
Cut Wall & Install Garage Roll Up Door			$ 8,000.00
Remove slab	1000 sq ft	37.037037	$ 5,000.00
Wall Demo / Remove Ceiling Tiles/ Lights			
Plaster Removal & Clean Brick			
Demo bathrooms			$ 12,000.00
Grout Wall Penetrations			
Coat wall			$ 12,000.00
Slab replacement			$ 9,000.00
Replace bathrooms			$ 6,000.00
Replace partition walls			$ 9,000.00
Floor Coverings			$ 3,500.00
Suspended Ceiling Replacement			$ 4,000.00
HVAC Work			$ 4,000.00
Electrical Service Renovation			$ 8,000.00
		Capital Equipment Purchase & Installation:	$ 150,050.00
		Contractor Mark Up:	$ 22,507.50
		Capital Equipment Purchase & Installation Total:	**$ 172,557.50**

PROFESSIONAL SERVICES FEES

ITEM		COST
Plumbing, Mechanical & Electrical Design		$ 15,000.00
SSD System Design		$ 8,100.00
Field Supervision of Installation		$ 11,500.00
Soil Analytical		$ 1,000.00
Summary Report		$ 1,500.00
	Professional Services Subtotal:	**$ 37,100.00**

SYSTEM OPERATING COSTS

ITEM			
Electrical Service	(First Year)		$ 3,000.00
System O&M			
Month	Months		
$ 750.00	12		$ 9,000.00
Other Expenses			$ 500.00
	System Operating Cost Subtotal:		**$ 12,500.00**

AIR MONITORING COSTS

ITEM			
Analytical	(2 samples per month)		
	No. Samples	Cost	
TO-15	24	$ 400.00	$ 9,600.00
Data Reduction - Report			
Cost	Month		
$ 600.00	12		$ 7,200.00
	Air Monitoring Cost Subtotal:		**$ 16,800.00**

Total Vapor Abatement Cost Estimate:	**$ 238,957.50**
(12 Months)	

APPENDIX D

ECOLOGICAL RISK SPREADSHEETS

Appendix D.
Level 1 Ecological Risk Assessment
Checklist A for Potential Receptors and Habitat

1. Are there any navigable water bodies or tributaries to a navigable water body on or within the one-half mile of the site?
   No, according to the USGS Quad map for Northwest Durham, no navigable bodies of water are located within a half mile of the site.

2. Are there any water bodies anywhere on or within the one-half mile of the site?
   Yes, according to the USGS Quad map for Northwest Durham, an unnamed tributary to Ellerbe Creek runs in circular arc to the west, northwest, north, and northeast of the site approximately 1,300 to 5,900 feet from the source area.

3. Are there any wetland areas such as marshes or swamps on or within one-half mile of the site?
   According to the Federal Wetland Inventory System, freshwater forested/shrub wetlands are located 1,500 feet northwest and 1,900 north of the site along the unnamed tributary to Ellerbe Creek.

4. Are there any sensitive environmental areas on or within one-half mile of the site?
   According to the NC Natural Heritage Program Virtual Workroom, no natural communities were identified within 2 miles of the site.

5. Are there any areas on or within one-half mile of the site owned or used by local tribes?
   No areas have been identified within a half mile of the site to be owned or used by local tribes.

6. Are there any habitat, foraging area or refuge by rare, threatened, endangered, candidate and/or proposed species (plants or animals), or any otherwise protected species on or within one-half mile of the site?
   According to the NC Natural Heritage Program Virtual Workroom online species list, the Brachythecium rotaeanum (Rota's Feather Moss), Dicranella varia (Variable Fork Moss), Hexalectris spicata (Crested Coralroot), Panicum flexile(Wiry Panic Grass), Plagiochila ludoviciana(A Liverwort), and Thermopsis mollis (Appalachian Golden-banner) were identified as a species of special concern by the state, and located within 2 miles of the site. No, wilderness areas or wildlife refuges within one-half mile of the site based on the USFWS online databases.

7. Are there any breeding, roosting or feeding areas by migratory bird species on or within one-half mile of the site?
   The Migratory Bird Treat Act (MBTA) was developed to help reduce potential migratory bird strikes with aircraft, wind turbines, and towers. Many species of birds are protected that are common to the United States, Canada, and Mexico. Therefore, many species of birds in Durham County (e.g Canadian Goose, Mourning Dove) are likely to be within one-half mile of the site.

8. Are there any ecologically, recreationally or commercially important species on or within one-half mile of the site?
   Based on site observations and desktop review, no ecological and recreational species are likely to be present within one-half mile of the site. No commercially important species were observed within one-half mile of the site.

9. Are there any threatened and/or endangered species (plant or animal) on or within one-half mile of the site?
   According to the NC Natural Heritage Program Virtual Workroom online species list, no endangered or threatened species were identified within 2 miles of the site.

Appendix D.
Level 1 Ecological Risk Assessment
Checklist B for Potential Exposure Pathways

1A. Can chemicals associated with the site leach, dissolve, or otherwise migrate to groundwater?
Yes. The primary constituents of concern for the site are tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2-dichloroethene (DCE), chloroform, xylenes, chlorobenzene, and 1,1,1,2-tetrachloroethane. Based on published references [Environmental Protection Agency (EPA) and United States Agency for Toxic Substance and Disease Registry (ATSDR)], these constituents are leachable to groundwater and soluble in groundwater. Groundwater assessment activities have determined impacts to the groundwater have migrated off site.

1B. Are chemicals associated with the site mobile in groundwater?
Yes. Chemical mobility is primarily influenced by the chemical solubility and soil-water partition coefficient (Fetter, 1988). Based on these values, the constituents of concern are mobile in groundwater.

1C. Does groundwater from the site discharge to ecological receptor habitat?
Potential ecological receptor habitats identified in the site vicinity include surface water features and wetlands located between 1300 and 5900 feet from the subject site. According to analytical results for samples collected from the unnamed tributary to Ellerbe Creek, no constituents of concern were detected in the surface water body.

Question 1. Could chemicals associated with the site reach ecological receptors through groundwater?
Groundwater assessment activities have determined impacts to the groundwater have migrated off site. Analyses of surface water samples collected from the unnamed tributary to Ellerbe Creek indicate no constituents of concern were detected in the surface water body.

2A. Are chemicals present in surface soils on the site?
No. Impacted soils identified on the site are capped by either concrete slab or asphalt paving.

2B. Can chemicals be leached from or be transported by erosion of surface soils on the site?
No. No exposed surficial soils are impacted by the chlorinated solvents.

Question 2. Could chemicals associated with the site reach ecological receptors through runoff or erosion?
No. Surficial soils do not appear to be impacted. Impacted soils at the site are capped by either concrete slab or asphalt paving.

3A. Are chemicals present in surface soil or on the surface of the ground?

No. Surficial soils do not appear to be impacted.

3B. Are potential ecological receptors on the site?
No potential ecological receptors have been identified on the site.

Question 3. Could chemicals associated with the site reach ecological receptors through direct contact?
No. No ecological receptors are likely to be present in the area of the soil plume. All impacted soils are located beneath the building slab or paved parking lot and not exposed.

4A. Are chemicals on the site volatile?
Yes. Chlorinated solvents are considered volatile organic compounds.

4B. Could chemicals on the site be transported in air as dust or particulate matter?
No. Surficial soils do not appear to be impacted and furthermore the area is paved.

Question 4. Could chemicals associated with the site reach ecological receptors through inhalation of volatilized chemicals or adhered chemicals to dust in ambient air or in subsurface burrows?
No. The area is paved, and volatilization from subsurface impacts to outdoor air is not expected to pose a significant threat. No ecological receptors have been identified within the area of impacted soils on the site.

5A. Is Non-Aqueous Phase Liquid (NAPL) present at the site?
Yes. DNAPL appears to be present based on PCE concentrations of 42 to 78 mg/L in the groundwater on site.

5B. Is NAPL migrating?
No. Based on analytical results from the surrounding monitoring wells, DNAPL does not appear to be migrating off the site.

5C. Could NAPL discharge occur where ecological receptors are found?
No. DNAPL does not appear to be migrating off the site to ecological receptors.

Question 5. Could chemicals associated with the site reach ecological receptors through migration of NAPL?
No. DNAPL does not appear to be migrating off the site to ecological receptors.

6A. Are chemicals present in surface and shallow subsurface soils or on the surface of the ground?
Yes. Concentrations of PCE are present in subsurface soils but are located beneath the building or asphalt parking lot.

6B. Are chemicals found in soil on the site taken up by plants growing on the site?

No. All impacted soils are located beneath the building slab and not exposed. Surficial soils do not appear to be impacted and the area is paved with no vegetation overlying the impacted area.

6C. Do potential ecological receptors on or near the site feed on plants (e.g., grasses, shrubs, forbs, trees, etc.) found on the site?
No. It is possible that migratory birds could be present on the site vicinity, but no vegetation is present in the area of impacted soils.

6D. Do chemicals found on the site bioaccumulate?
No. Based on published references (ATSDR), PCE and its breakdown products do not significantly bioaccumulate.

Question 6. Could chemicals associated with the site reach ecological receptors through direct ingestion of soil, plants, animals or contaminants?
No. Surficial soils do not appear to be impacted and area is paved with no vegetation overlying the impacted area.

Appendix D.
Level 1 Ecological Risk Assessment
Checklist A for Potential Receptors and Habitat

1. Are there any navigable water bodies or tributaries to a navigable water body on or within the one-half mile of the site?
   No, according to the USGS Quad map for Northwest Durham, no navigable bodies of water are located within a half mile of the site.

2. Are there any water bodies anywhere on or within the one-half mile of the site?
   Yes, according to the USGS Quad map for Northwest Durham, an unnamed tributary to Ellerbe Creek runs in circular arc to the west, northwest, north, and northeast of the site approximately 1,300 to 5,900 feet from the source area.

3. Are there any wetland areas such as marshes or swamps on or within one-half mile of the site?
   According to the Federal Wetland Inventory System, freshwater forested/shrub wetlands are located 1,500 feet northwest and 1,900 north of the site along the unnamed tributary to Ellerbe Creek.

4. Are there any sensitive environmental areas on or within one-half mile of the site?
   According to the NC Natural Heritage Program Virtual Workroom, no natural communities were identified within 2 miles of the site.

5. Are there any areas on or within one-half mile of the site owned or used by local tribes?
   No areas have been identified within a half mile of the site to be owned or used by local tribes.

6. Are there any habitat, foraging area or refuge by rare, threatened, endangered, candidate and/or proposed species (plants or animals), or any otherwise protected species on or within one-half mile of the site?
   According to the NC Natural Heritage Program Virtual Workroom online species list, the Brachythecium rotaeanum (Rota's Feather Moss), Dicranella varia (Variable Fork Moss), Hexalectris spicata (Crested Coralroot), Panicum flexile(Wiry Panic Grass), Plagiochila ludoviciana(A Liverwort), and Thermopsis mollis (Appalachian Golden-banner) were identified as a species of special concern by the state, and located within 2 miles of the site. No, wilderness areas or wildlife refuges within one-half mile of the site based on the USFWS online databases.

7. Are there any breeding, roosting or feeding areas by migratory bird species on or within one-half mile of the site?
   The Migratory Bird Treat Act (MBTA) was developed to help reduce potential migratory bird strikes with aircraft, wind turbines, and towers. Many species of birds are protected that are common to the United States, Canada, and Mexico. Therefore, many species of birds in Durham County (e.g Canadian Goose, Mourning Dove) are likely to be within one-half mile of the site.

8. Are there any ecologically, recreationally or commercially important species on or within one-half mile of the site?
   Based on site observations and desktop review, no ecological and recreational species are likely to be present within one-half mile of the site. No commercially important species were observed within one-half mile of the site.

9. Are there any threatened and/or endangered species (plant or animal) on or within one-half mile of the site?
   According to the NC Natural Heritage Program Virtual Workroom online species list, no endangered or threatened species were identified within 2 miles of the site.

Appendix D.
Level 1 Ecological Risk Assessment
Checklist B for Potential Exposure Pathways

1A. Can chemicals associated with the site leach, dissolve, or otherwise migrate to groundwater?
Yes. The primary constituents of concern for the site are tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2-dichloroethene (DCE), chloroform, xylenes, chlorobenzene, and 1,1,1,2-tetrachloroethane. Based on published references [Environmental Protection Agency (EPA) and United States Agency for Toxic Substance and Disease Registry (ATSDR)], these constituents are leachable to groundwater and soluble in groundwater. Groundwater assessment activities have determined impacts to the groundwater have migrated off site.

1B. Are chemicals associated with the site mobile in groundwater?
Yes. Chemical mobility is primarily influenced by the chemical solubility and soil-water partition coefficient (Fetter, 1988). Based on these values, the constituents of concern are mobile in groundwater.

1C. Does groundwater from the site discharge to ecological receptor habitat?
Potential ecological receptor habitats identified in the site vicinity include surface water features and wetlands located between 1300 and 5900 feet from the subject site. According to analytical results for samples collected from the unnamed tributary to Ellerbe Creek, no constituents of concern were detected in the surface water body.

Question 1. Could chemicals associated with the site reach ecological receptors through groundwater?
Groundwater assessment activities have determined impacts to the groundwater have migrated off site. Analyses of surface water samples collected from the unnamed tributary to Ellerbe Creek indicate no constituents of concern were detected in the surface water body.

2A. Are chemicals present in surface soils on the site?
No. Impacted soils identified on the site are capped by either concrete slab or asphalt paving.

2B. Can chemicals be leached from or be transported by erosion of surface soils on the site?
No. No exposed surficial soils are impacted by the chlorinated solvents.

Question 2. Could chemicals associated with the site reach ecological receptors through runoff or erosion?
No. Surficial soils do not appear to be impacted. Impacted soils at the site are capped by either concrete slab or asphalt paving.

3A. Are chemicals present in surface soil or on the surface of the ground?

No. Surficial soils do not appear to be impacted.

3B. Are potential ecological receptors on the site?
No potential ecological receptors have been identified on the site.

Question 3. Could chemicals associated with the site reach ecological receptors through direct contact?
No. No ecological receptors are likely to be present in the area of the soil plume. All impacted soils are located beneath the building slab or paved parking lot and not exposed.

4A. Are chemicals on the site volatile?
Yes. Chlorinated solvents are considered volatile organic compounds.

4B. Could chemicals on the site be transported in air as dust or particulate matter?
No. Surficial soils do not appear to be impacted and furthermore the area is paved.

Question 4. Could chemicals associated with the site reach ecological receptors through inhalation of volatilized chemicals or adhered chemicals to dust in ambient air or in subsurface burrows?
No. The area is paved, and volatilization from subsurface impacts to outdoor air is not expected to pose a significant threat. No ecological receptors have been identified within the area of impacted soils on the site.

5A. Is Non-Aqueous Phase Liquid (NAPL) present at the site?
Yes. DNAPL appears to be present based on PCE concentrations of 42 to 78 mg/L in the groundwater on site.

5B. Is NAPL migrating?
No. Based on analytical results from the surrounding monitoring wells, DNAPL does not appear to be migrating off the site.

5C. Could NAPL discharge occur where ecological receptors are found?
No. DNAPL does not appear to be migrating off the site to ecological receptors.

Question 5. Could chemicals associated with the site reach ecological receptors through migration of NAPL?
No. DNAPL does not appear to be migrating off the site to ecological receptors.

6A. Are chemicals present in surface and shallow subsurface soils or on the surface of the ground?
Yes. Concentrations of PCE are present in subsurface soils but are located beneath the building or asphalt parking lot.

6B. Are chemicals found in soil on the site taken up by plants growing on the site?

No. All impacted soils are located beneath the building slab and not exposed. Surficial soils do not appear to be impacted and the area is paved with no vegetation overlying the impacted area.

6C. Do potential ecological receptors on or near the site feed on plants (e.g., grasses, shrubs, forbs, trees, etc.) found on the site?
No. It is possible that migratory birds could be present on the site vicinity, but no vegetation is present in the area of impacted soils.

6D. Do chemicals found on the site bioaccumulate?
No. Based on published references (ATSDR), PCE and its breakdown products do not significantly bioaccumulate.

Question 6. Could chemicals associated with the site reach ecological receptors through direct ingestion of soil, plants, animals or contaminants?
No. Surficial soils do not appear to be impacted and area is paved with no vegetation overlying the impacted area.

Appendix D.
Level 1 Ecological Risk Assessment
Checklist A for Potential Receptors and Habitat

1. Are there any navigable water bodies or tributaries to a navigable water body on or within the one-half mile of the site?
   No, according to the USGS Quad map for Northwest Durham, no navigable bodies of water are located within a half mile of the site.

2. Are there any water bodies anywhere on or within the one-half mile of the site?
   Yes, according to the USGS Quad map for Northwest Durham, an unnamed tributary to Ellerbe Creek runs in circular arc to the west, northwest, north, and northeast of the site approximately 1,300 to 5,900 feet from the source area.

3. Are there any wetland areas such as marshes or swamps on or within one-half mile of the site?
   According to the Federal Wetland Inventory System, freshwater forested/shrub wetlands are located 1,500 feet northwest and 1,900 north of the site along the unnamed tributary to Ellerbe Creek.

4. Are there any sensitive environmental areas on or within one-half mile of the site?
   According to the NC Natural Heritage Program Virtual Workroom, no natural communities were identified within 2 miles of the site.

5. Are there any areas on or within one-half mile of the site owned or used by local tribes?
   No areas have been identified within a half mile of the site to be owned or used by local tribes.

6. Are there any habitat, foraging area or refuge by rare, threatened, endangered, candidate and/or proposed species (plants or animals), or any otherwise protected species on or within one-half mile of the site?
   According to the NC Natural Heritage Program Virtual Workroom online species list, the Brachythecium rotaeanum (Rota's Feather Moss), Dicranella varia (Variable Fork Moss), Hexalectris spicata (Crested Coralroot), Panicum flexile(Wiry Panic Grass), Plagiochila ludoviciana(A Liverwort), and Thermopsis mollis (Appalachian Golden-banner) were identified as a species of special concern by the state, and located within 2 miles of the site. No, wilderness areas or wildlife refuges within one-half mile of the site based on the USFWS online databases.

7. Are there any breeding, roosting or feeding areas by migratory bird species on or within one-half mile of the site?
   The Migratory Bird Treat Act (MBTA) was developed to help reduce potential migratory bird strikes with aircraft, wind turbines, and towers. Many species of birds are protected that are common to the United States, Canada, and Mexico. Therefore, many species of birds in Durham County (e.g Canadian Goose, Mourning Dove) are likely to be within one-half mile of the site.

8. Are there any ecologically, recreationally or commercially important species on or within one-half mile of the site?
   Based on site observations and desktop review, no ecological and recreational species are likely to be present within one-half mile of the site. No commercially important species were observed within one-half mile of the site.

9. Are there any threatened and/or endangered species (plant or animal) on or within one-half mile of the site?
   According to the NC Natural Heritage Program Virtual Workroom online species list, no endangered or threatened species were identified within 2 miles of the site.

Appendix D.
Level 1 Ecological Risk Assessment
Checklist B for Potential Exposure Pathways

1A. Can chemicals associated with the site leach, dissolve, or otherwise migrate to groundwater?
Yes. The primary constituents of concern for the site are tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2-dichloroethene (DCE), chloroform, xylenes, chlorobenzene, and 1,1,1,2-tetrachloroethane. Based on published references [Environmental Protection Agency (EPA) and United States Agency for Toxic Substance and Disease Registry (ATSDR)], these constituents are leachable to groundwater and soluble in groundwater. Groundwater assessment activities have determined impacts to the groundwater have migrated off site.

1B. Are chemicals associated with the site mobile in groundwater?
Yes. Chemical mobility is primarily influenced by the chemical solubility and soil-water partition coefficient (Fetter, 1988). Based on these values, the constituents of concern are mobile in groundwater.

1C. Does groundwater from the site discharge to ecological receptor habitat?
Potential ecological receptor habitats identified in the site vicinity include surface water features and wetlands located between 1300 and 5900 feet from the subject site. According to analytical results for samples collected from the unnamed tributary to Ellerbe Creek, no constituents of concern were detected in the surface water body.

Question 1. Could chemicals associated with the site reach ecological receptors through groundwater?
Groundwater assessment activities have determined impacts to the groundwater have migrated off site. Analyses of surface water samples collected from the unnamed tributary to Ellerbe Creek indicate no constituents of concern were detected in the surface water body.

2A. Are chemicals present in surface soils on the site?
No. Impacted soils identified on the site are capped by either concrete slab or asphalt paving.

2B. Can chemicals be leached from or be transported by erosion of surface soils on the site?
No. No exposed surficial soils are impacted by the chlorinated solvents.

Question 2. Could chemicals associated with the site reach ecological receptors through runoff or erosion?
No. Surficial soils do not appear to be impacted. Impacted soils at the site are capped by either concrete slab or asphalt paving.

3A. Are chemicals present in surface soil or on the surface of the ground?

No. Surficial soils do not appear to be impacted.

3B. Are potential ecological receptors on the site?
No potential ecological receptors have been identified on the site.

Question 3. Could chemicals associated with the site reach ecological receptors through direct contact?
No. No ecological receptors are likely to be present in the area of the soil plume. All impacted soils are located beneath the building slab or paved parking lot and not exposed.

4A. Are chemicals on the site volatile?
Yes. Chlorinated solvents are considered volatile organic compounds.

4B. Could chemicals on the site be transported in air as dust or particulate matter?
No. Surficial soils do not appear to be impacted and furthermore the area is paved.

Question 4. Could chemicals associated with the site reach ecological receptors through inhalation of volatilized chemicals or adhered chemicals to dust in ambient air or in subsurface burrows?
No. The area is paved, and volatilization from subsurface impacts to outdoor air is not expected to pose a significant threat. No ecological receptors have been identified within the area of impacted soils on the site.

5A. Is Non-Aqueous Phase Liquid (NAPL) present at the site?
Yes. DNAPL appears to be present based on PCE concentrations of 42 to 78 mg/L in the groundwater on site.

5B. Is NAPL migrating?
No. Based on analytical results from the surrounding monitoring wells, DNAPL does not appear to be migrating off the site.

5C. Could NAPL discharge occur where ecological receptors are found?
No. DNAPL does not appear to be migrating off the site to ecological receptors.

Question 5. Could chemicals associated with the site reach ecological receptors through migration of NAPL?
No. DNAPL does not appear to be migrating off the site to ecological receptors.

6A. Are chemicals present in surface and shallow subsurface soils or on the surface of the ground?
Yes. Concentrations of PCE are present in subsurface soils but are located beneath the building or asphalt parking lot.

6B. Are chemicals found in soil on the site taken up by plants growing on the site?

No. All impacted soils are located beneath the building slab and not exposed. Surficial soils do not appear to be impacted and the area is paved with no vegetation overlying the impacted area.

6C. Do potential ecological receptors on or near the site feed on plants (e.g., grasses, shrubs, forbs, trees, etc.) found on the site?
No. It is possible that migratory birds could be present on the site vicinity, but no vegetation is present in the area of impacted soils.

6D. Do chemicals found on the site bioaccumulate?
No. Based on published references (ATSDR), PCE and its breakdown products do not significantly bioaccumulate.

Question 6. Could chemicals associated with the site reach ecological receptors through direct ingestion of soil, plants, animals or contaminants?
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Level 1 Ecological Risk Assessment
Checklist A for Potential Receptors and Habitat

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   According to the Federal Wetland Inventory System, freshwater forested/shrub wetlands are located 1,500 feet northwest and 1,900 north of the site along the unnamed tributary to Ellerbe Creek.

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   According to the NC Natural Heritage Program Virtual Workroom, no natural communities were identified within 2 miles of the site.

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   No areas have been identified within a half mile of the site to be owned or used by local tribes.

6. Are there any habitat, foraging area or refuge by rare, threatened, endangered, candidate and/or proposed species (plants or animals), or any otherwise protected species on or within one-half mile of the site?
   According to the NC Natural Heritage Program Virtual Workroom online species list, the Brachythecium rotaeanum (Rota's Feather Moss), Dicranella varia (Variable Fork Moss), Hexalectris spicata (Crested Coralroot), Panicum flexile(Wiry Panic Grass), Plagiochila ludoviciana(A Liverwort), and Thermopsis mollis (Appalachian Golden-banner) were identified as a species of special concern by the state, and located within 2 miles of the site. No, wilderness areas or wildlife refuges within one-half mile of the site based on the USFWS online databases.

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   The Migratory Bird Treat Act (MBTA) was developed to help reduce potential migratory bird strikes with aircraft, wind turbines, and towers. Many species of birds are protected that are common to the United States, Canada, and Mexico. Therefore, many species of birds in Durham County (e.g Canadian Goose, Mourning Dove) are likely to be within one-half mile of the site.

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   Based on site observations and desktop review, no ecological and recreational species are likely to be present within one-half mile of the site. No commercially important species were observed within one-half mile of the site.

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Appendix D.
Level 1 Ecological Risk Assessment
Checklist B for Potential Exposure Pathways

1A. Can chemicals associated with the site leach, dissolve, or otherwise migrate to groundwater?
Yes. The primary constituents of concern for the site are tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2-dichloroethene (DCE), chloroform, xylenes, chlorobenzene, and 1,1,1,2-tetrachloroethane. Based on published references [Environmental Protection Agency (EPA) and United States Agency for Toxic Substance and Disease Registry (ATSDR)], these constituents are leachable to groundwater and soluble in groundwater. Groundwater assessment activities have determined impacts to the groundwater have migrated off site.

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3A. Are chemicals present in surface soil or on the surface of the ground?

No. Surficial soils do not appear to be impacted.

3B. Are potential ecological receptors on the site?
No potential ecological receptors have been identified on the site.

Question 3. Could chemicals associated with the site reach ecological receptors through direct contact?
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6C. Do potential ecological receptors on or near the site feed on plants (e.g., grasses, shrubs, forbs, trees, etc.) found on the site?
No. It is possible that migratory birds could be present on the site vicinity, but no vegetation is present in the area of impacted soils.

6D. Do chemicals found on the site bioaccumulate?
No. Based on published references (ATSDR), PCE and its breakdown products do not significantly bioaccumulate.

Question 6. Could chemicals associated with the site reach ecological receptors through direct ingestion of soil, plants, animals or contaminants?
No. Surficial soils do not appear to be impacted and area is paved with no vegetation overlying the impacted area.

APPENDIX E

DEMOLITION PERMIT FORMS

DURHAM CITY-COUNTY INSPECTIONS DEPARTMENT
101 CITY HALL PLAZA, DURHAM, NC 27701
PHONE : 919-560-4144 FAX: 919-560-4484

BUILDING DEMOLITION PERMIT APPLICATION

JOB ADDRESS:_____

JOB DESCRIPTION: DEMOLITION OF BUILDING HOUSE:( ) OTHER:( )

CONTRACTOR:_____ PHONE NO.:_____

ADDRESS:_____ CITY/STATE:_____ ZIP:_____

TYPE PAYMENT:_____ CONTRACTOR ACCOUNT NO._____

JURISDICTION: CITY: ( ) COUNTY: ( ) STATE CONTRACTOR NO. _____

OWNER:_____ PHONE NO. _____

BUILDING AREA IN SQUARE FEET: _____

BY MY SIGNATURE I ACKNOWLEDGE THAT THE SITE MUST BE CLEARED OF ALL DEBRIS, INCLUDING THE FOUNDATION AND FOOTING. THE SITE MUST ALSO BE PROPERLY GRADED TO ALLOW FOR DRAINAGE.
(Signature below is owner or authorized agent of the owner.)

PRINT NAME:_____ SIGNATURE:_____

DATE:_____

FOR OFFICE USE ONLY

TYPE CONST:_____ TYPE OCCUP:_____ TYPE APP:_____

PIN:_____-___-___-_____ ZONING:_____ CENSUS TR:_____ CEN.CODE____

PLAN STATUS:_____ HISTORIC DISTRICT?Y/N:_____ IF Y: HPC #_____

FEE:_____ REVIEWER:_____ DATE REV:_____

SUPERVISOR APPROVAL FOR ISSUANCE:_____ DATE:_____

DEPARTMENTAL APPROVAL:_____ DATE:_____

DURHAM CITY-COUNTY INSPECTIONS DEPARTMENT

ACKNOWLEDGEMENT OF POTENTIAL REQUIREMENTS FOR ASBESTOS INSPECTION BY THE HEALTH HAZARDS CONTROL UNIT OF THE NORTH CAROLINA DEPARTMENT OF HEALTH AND HUMAN SERVICES DIVISION OF PUBLIC HEALTH.

As the applicant for the building permit at _____, to demolish/renovate
(address)
_____, I hereby acknowledge that the issuance of a building permit by
(job description)

the Durham City-County Inspections Department does not relieve me of my responsibility of obtaining any required asbestos inspections by the Health Hazards Control Unit of the Health and Human Services Division of Public Health (HHCU).

In addition, I have read and understand the following:

- Amendments to EPA's National Emission Standards for Hazardous Air Pollutants (NESHAP) require an asbestos inspection and a ten (10) working day notification prior to the demolition and renovation of all commercial, institutional, or industrial facilities except residential buildings having four (4) or fewer dwelling units.
- NESHAP also applies to the demolition of all residences which are being demolished for commercial, institutional, or industrial purposes.
- Notification for all demolitions is required whether or not the structures are found to contain asbestos.
- If the inspection, which must be conducted by a North Carolina accredited asbestos inspector, confirms that a facility contains at least 160 square feet, 260 linear feet, or 35 cubic feet of Regulated Asbestos Containing Materials (RACM), then these materials are to be removed prior to starting the renovation or demolition activity.
- When removal of RACM is required, a removal fee shall also be submitted as part of the notification process.
- The notification and the removal fee, when applicable, shall be submitted to HHCU.
- Additional information or copies of the regulations, summarized above, can be obtained by contacting HHCV at (919) 707-5950.

Applicant's Name: _____

Signature: _____

For: _____

Date: _____

DURHAM
1 8 6 9
CITY OF MEDICINE

City of Durham
Public Works Department
Engineering Division
101 City Hall Plaza, 3rd Floor, Durham, NC 27701
Telephone: (919) 560-4326 Facsimile: (919) 560-4316

ENGINEERING DIVISION DEMOLITION INFORMATION FORM

This form is to be used in conjunction with the Building Inspections permits when a structure is demolished. Submit to Engineering Division **BEFORE** starting work on the site.

BY MY SIGNATURE BELOW, I

_____
(Print Contact Name)

_____
(Contact Address, City, State, ZIP)

_____
(Contact Phone number) *(Contact FAX number)*

certify that I have applied for a structure demolition permit with Building Inspections.

_____
(Previous Structure Address, City, State, ZIP)

The structure to be demolished is **located at:**

_____
(Structure Relocation Address, City, State, ZIP)

Before demolishing the structure from the existing location, I will do the following:

1. Locate the existing water meter and box. Mark the location and **contact Durham Water and Sewer Maintenance (560-4344)** to remove the existing meter.
2. Locate the existing sewer cleanout at the right of way. Mark the location. If the cleanout conflicts with the demolition of the structure, dig down around the cleanout a minimum of 24", cap it, and measure its location to two features (ex. property corners) for future reference.
3. **Contact Durham Engineering Inspection (560-4326)** with a 48-hour notice for inspection **before and after** the structure is demolished.

I understand that the damage in the right-of-way (including but not limited to water meters, sewer cleanouts, concrete curb and pavement) will be my responsibility to repair or replace as necessary as a result of damage from the moving of the structure. I acknowledge that failure to do these repairs will prevent me from obtaining a Certificate of Occupancy, if applicable. I further acknowledge that I will make any subsequent or prospective buyers aware of this situation.

Signature: _____ Date: _____

(updated October, 2003)

North Carolina Department of Health and Human Services
Division of Public Health • Epidemiology Section
1912 Mail Service Center • Raleigh, North Carolina 27699-1912
Tel 919-733-0820 • Fax 919-733-8493

Michael F. Easley, Governor

Carmen Hooker Odom, Secretary

April 6, 2005

MEMORANDUM

TO: All Demolition Contractors in North Carolina

FROM: Mary T. Giguere, CIH, Manager
Health Hazards Control Unit

SUBJECT: **State Requirements for Demolition Notification**

The North Carolina Health Hazards Control Unit (HHCU) is taking this opportunity to inform Demolition Contractors of the requirements for conducting demolition activities in North Carolina.

The HHCU administers the National Emission Standards for Hazardous Air Pollutants (NESHAP) -- Asbestos regulation (40 CFR, Part 61, Subpart M). This federal regulation requires that the structure being demolished be thoroughly inspected for asbestos-containing materials, prior to conducting the demolition activity. The asbestos survey must be conducted by a North Carolina accredited asbestos inspector. All regulated and/or friable asbestos-containing material identified during the survey must be properly removed prior to beginning the demolition activity. The HHCU can be contacted for a list of asbestos inspectors and asbestos supervisors who are accredited in North Carolina.

The NESHAP regulation also requires the Asbestos Permit Application and Notification for Demolition/Renovation form (DHHS-3768) to be completed and mailed to the HHCU. The notification form must be postmarked at least, 10 working days, prior to beginning the demolition activity. It is important to note that the HHCU requires this notification form even if no asbestos-containing materials were identified during the asbestos inspection. Federal requirements do not allow individuals to fax this form to our office. Obtaining a demolition permit from a city or county Building Inspection Department does **NOT** meet the notification requirements of the NESHAP regulations.

Please note that Forsyth, Buncombe and Mecklenburg counties have local programs with NESHAP authority and should be contacted directly for local requirements. Their phone numbers are printed on the back of the asbestos primer pamphlet provided with this memorandum.

The following items are enclosed for review and can be copied for your use:

(1) Asbestos Primer for Demolition Contractors, reprinted 10/2003.

(2) Asbestos Permit Application and Notification for Demolition/Renovation form (DHHS-3768), revised 01/2005.

Note: Please dispose of all older versions of the asbestos primers and notification forms.

Should you have any questions about the NESHAP requirements or need additional information concerning these regulations, please feel free to contact our Program at (919) 733-0820.

MG/jwd

Enclosures

cc: Roy Gremmell, Forsyth County Environmental Affairs Department
David Brigman, Buncombe County WNC Regional Air Pollution Control Agency
Randy Poole, Mecklenburg County Land Use and Environmental Services Agency

HEALTH HAZARDS CONTROL UNIT
NCDHHS - DIVISION OF PUBLIC HEALTH

** READ INSTRUCTIONS THOROUGHLY PRIOR TO COMPLETION**

ASBESTOS PERMIT APPLICATION AND NOTIFICATION FOR DEMOLITION/RENOVATION

Permit Number	NESHAP ID Number

1. TYPE: [ ] Asbestos Removal ; [ ] Emergency Asbestos Removal ; [ ] Nonscheduled Asbestos Removal ; [ ] Demo ; [ ] Ordered Demo

2. IS ASBESTOS PRESENT? [ ] Yes; [ ] No

3. FACILITY INFORMATION (Identify Owner, asbestos removal contractor, demo contractor, air monitor, designer)

OWNER NAME:		
Address:		
City:	State:	Zip:
Contact:	Contact Phone:	
OPERATOR NAME (IF OTHER THAN OWNER):		
Address:		
City:	State:	Zip:
Contact:	Contact Phone:	
ASBESTOS REMOVAL CONTRACTOR:		
Address:		
City:	State:	Zip:
Contact:	Contact Phone:	
DEMOLITION CONTRACTOR:		
Address:		
City:	State:	Zip:
Contact:	Contact Phone:	
SUPERVISING AIR MONITOR (If Required):	NC Accreditation Number:	
ABATEMENT DESIGNER (If Required):	NC Accreditation Number:	

4. FACILITY DESCRIPTION (Including building name, number and floor or room number)

Bldg. Name:	Facility Contact:	
Street Address:		
City:	State:	Zip:
Asbestos Removal Site Location:		County:
Building Size:	# of Floors:	Age in Years:
Present Use:	Prior Use:	Future Use:

5. SCHEDULED DATES: NONSCHEDULED ASBESTOS REMOVAL (MM/DD/YY) Start: Complete:

6. SCHEDULED DATES: ASBESTOS REMOVAL (MM/DD/YY) Start: Complete:

7. SCHEDULED DATES: DEMOLITION (MM/DD/YY) Start: Complete:

8. WORK SCHEDULE (Circle days applicable): Mon Tue Wed Thu Fri Sat Sun WORK HOURS:

FOR GOVERNMENTAL AGENCY USE ONLY

POSTMARK DATE:_____ REGION/COUNTY/CONTRACTOR/LANDFILL:

APPROVING SIGNATURE: _____ DATE:

DHHS 3768 (Revised 8/05)
Health Hazards Control Unit

ASBESTOS PERMIT APPLICATION AND NOTIFICATION FOR DEMOLITION/RENOVATION

9. INSPECTION INFORMATION (Include five digit NC HHCU assigned accreditation number)

Inspector Name:	NC Accreditation Number:	
Date of Inspection:	Samples Collected: [ ] Yes; [ ] No	Samples Analyzed: [ ] PLM [ ] TEM
Materials May Be Assumed ACM for Renovation/Removal Purposes: Assumed ACM: [ ] Yes; [ ] No		

10. SCOPE OF WORK FOR ASBESTOS REMOVAL AND/OR DEMOLITION:

11. ASBESTOS REMOVAL/DEMOLITION WORK PRACTICES: (Check all that apply)

ASBESTOS REMOVAL			DEMOLITION
[ ] Containment	[ ] Remove Intact	[ ] Negative Pressure	[ ] Bulldozer/Loader
[ ] Wet Methods	[ ] Rotating Blade Roof Cutter	[ ] Dry Removal	[ ] Wrecking Ball
[ ] Strip & Removal	[ ] Mechanical Chipping	**Requires Prior Written**	[ ] Implode
[ ] Glove Bag	[ ] Component Removal	**Approval from HHCU;**	[ ] Live Burn Training **(see #11 of the attached Instructions)**
		Attach copy of approval letter.	

[ ] Other - Explain Below

12. ASBESTOS WASTE TRANSPORTER # 1

Name:		
Address:		
City:	State:	Zip:
Contact Person:		Contact Phone:

ASBESTOS WASTE TRANSPORTER # 2

Name:		
Address:		
City:	State:	Zip:
Contact Person:		Contact Phone:

13. ASBESTOS WASTE DISPOSAL SITE

Name:		
Location:		
City:	State:	Zip:
Contact Person:		Contact Phone:

14. IF DEMOLITION ORDERED BY GOVERNMENT AGENCY, PLEASE IDENTIFY THE AGENCY BELOW: (ATTACH COPY OF ORDER)

Name:	Title:
Authority:	
Date Ordered (MM/DD/YY):	Date Demolition Ordered to Begin (MM/DD/YY):

15. I AM APPLYING FOR AN EMERGENCY RENOVATION PERMIT AND A WAIVER OF THE TEN WORKING DAY NOTIFICATION PERIOD: [ ] Yes; [ ] No
(If Yes, attach letter)

ASBESTOS PERMIT APPLICATION AND NOTIFICATION FOR DEMOLITION/RENOVATION

16. AMOUNT OF ACM NOT TO BE REMOVED (Indicate whether LF, SF, or CF)

Category I:	Category II:

17. RACM MATERIALS TO BE REMOVED AND ASSESSMENT OF FEES

TYPE OF RACM	AMOUNT X $.10 = FEE	TYPE OF RACM	AMOUNT X $.20 = FEE
Floor Tile	_____ sf x .10 = $	Pipe Insulation (TSI): _____ lf	x .20 = $
Ceiling Tile:	_____ sf x .10 = $	Boiler Insulation (TSI): _____ sf	x .20 = $
Cementitious Roofing/ Wallboard/Panels:	_____ sf x .10 = $	Surfacing Material: _____ sf	x .20 = $
Roofing:	_____ sf x .10 = $	Other (SqFt or CuFt): _____ sf/cf	x .20 = $
TOTAL (A)	_____ sf x .10 = $	TOTAL (B) _____ lf/sf/cf	x .20 = $

18. TOTAL LF TO BE REMOVED:	TOTAL SF TO BE REMOVED:	TOTAL CF TO BE REMOVED:

19. FEES DUE

(a) TOTAL # 17(A) + # 17 (B) = $

(b) ASBESTOS REMOVAL CONTRACT PRICE = $ _____ X .01 (1%) = $

TOTAL FEES FOR ASBESTOS REMOVALS PRIOR TO DEMOLITION SHALL NOT EXCEED $300.00. CHECK HERE, IF APPLICABLE [ ]

RESIDING HOMEOWNERS ARE EXEMPT FROM PERMIT FEES. CHECK HERE, IF APPLICABLE [ ]

(c) TOTAL FEE DUE = $ _____ *(Whichever is greater, (a) or (b) above)*

20. I, AN OWNER OR OPERATOR OF THE DEMOLITION/RENOVATION ACTIVITY, HEREBY CERTIFY THAT THE INFORMATION SUBMITTED IS ACCURATE TO THE BEST OF MY KNOWLEDGE, AND THAT IN THE EVENT THAT UNEXPECTED RACM IS FOUND OR ACM BECOMES RACM, THE NORTH CAROLINA ASBESTOS HAZARD MANAGEMENT PROGRAM WILL BE NOTIFIED. I FURTHER CERTIFY THAT THIS PROJECT WILL BE CONDUCTED IN ACCORDANCE WITH 40 CFR PART 61, SUBPART M (NESHAP) AND 10A NCAC 41C SECTION .0600 (NC ASBESTOS HAZARD MANAGEMENT PROGRAM RULES).

NAME:_____ TITLE:_____

COMPANY NAME:_____

STREET ADDRESS:_____ CITY:_____ STATE:_____ ZIP:_____

PO BOX:_____ CITY:_____ STATE:_____ ZIP:_____

ORIGINAL SIGNATURE:_____ DATE:_____

NOTE: Please complete with mailing address. The completed/approved permit/notification will be mailed to the signatory of this block at the mailing address indicated.

THE US ENVIRONMENTAL PROTECTION AGENCY HAS DELEGATED NESHAP ADMINISTRATIVE AND ENFORCEMENT RESPONSIBILITY TO LOCAL ENVIRONMENTAL AGENCIES IN THE FOLLOWING NORTH CAROLINA COUNTIES: BUNCOMBE, FORSYTH, AND MECKLENBURG. FOR FURTHER INFORMATION REGARDING LOCAL REQUIREMENTS, PLEASE CONTACT:

Buncombe County
WNC Regional Air Pollution
Control Agency
49 Mt. Carmel Road
Asheville, NC 28806
828/255-5655

Forsyth County Environmental
Affairs Department
537 North Spruce Street
Winston-Salem, NC 27101
336/727-8064

Mecklenburg County Land Use and
Environmental Services Agency—Air Quality
700 North Tryon Street
Charlotte, NC 28202-2236
704/336-5500

PLEASE SUBMIT PROPERLY COMPLETED APPLICATION FORM WITH APPLICABLE PERMIT FEES TO THE FOLLOWING ADDRESS:

FOR US MAIL DELIVERY:
HEALTH HAZARDS CONTROL UNIT
NCDHHS-DIVISION OF PUBLIC HEALTH
1912 MAIL SERVICE CENTER
RALEIGH, NC 27699-1912
TELEPHONE: 919-707-5950; FAX NUMBER: 919-870-4808

FOR EXPRESS DELIVERY SERVICES OTHER THAN US MAIL:
5505 SIX FORKS ROAD, 2nd FLOOR, Room D-1
RALEIGH NC 27609

INSTRUCTIONS

ASBESTOS PERMIT APPLICATION AND NOTIFICATION FOR DEMOLITION/RENOVATION (FORM DHHS 3768 – Revised 5/05)

PURPOSE: This form serves as an application for an asbestos removal permit (10A NCAC 41C .0600) and as a National Emission Standard for Hazardous Air Pollutants (NESHAP) notification of demolition and/or renovation in the state of North Carolina. An approved permit is required to be displayed on site for all asbestos removals of more than 35 cubic feet, 160 square feet or 260 linear feet of regulated asbestos containing material or asbestos containing material that may become regulated during handling.

PREPARATION: All information pertinent to the removal, renovation and/or demolition must be completed by the building owner/operator or designee and submitted with applicable permit fees to:

FOR US MAIL DELIVERY:
Health Hazards Control Unit
NCDHHS-Division of Public Health
1912 Mail Service Center
Raleigh, NC 27699-1912

FOR EXPRESS DELIVERY SERVICES OTHER THAN US MAIL:
5505 Six Forks Road, 2nd Floor, Room D-1
Raleigh, NC 27609

1. **TYPE:** Indicate the type of notification, i.e., Asbestos Removal, Emergency Asbestos Removal, Nonscheduled Asbestos Removal, Demolition, Ordered Demolition

2. **IS ASBESTOS PRESENT:** Indicate whether asbestos is present by checking Yes or No.

3. **FACILITY INFORMATION:** Enter the name of the owner of the facility, the owner's mailing address including box number, street, city, state, zip code, contact person, and telephone number of contact person.

   Operator will include those acting as agent for or representatives of the owner of the facility, such as property manager, architect, general contractor, or engineering or consulting firm. Complete the name of the operator and the operator's mailing address including box number, street, city, state, zip code, contact person and the contact person's telephone number.

   If regulated asbestos containing materials (RACM) are to be removed, complete the name of the asbestos removal contractor, the contractor's mailing address including box number, street, city, state, zip code, contact person and telephone number for contact person.

   Where demolition of the facility immediately follows the removal of RACM, complete the demolition contractor's name, the demolition contractor's mailing address including box number, street, city, state, zip code, contact person and telephone number for contact person.

   When no asbestos removal is required prior to demolition, complete the owner, operator, and demolition contractor information as appropriate.

   Supervising Air Monitor: Enter the name of the NC accredited supervising air monitor and the supervising air monitor's NC accreditation number if applicable.

   Abatement Designer: Required for all individually permitted asbestos removals conducted in public areas consisting of more than 3000 square feet (281 square meters), 1500 linear feet (462 meters), or 656 cubic feet (18 cubic meters) of RACM.

4. **FACILITY DESCRIPTION:** Complete the building name of the facility to be renovated or demolished, the physical address including street number, street name, city, state, and county. Asbestos removal site location should include the building number, floor number and room number(s). Complete building size in square feet, number of floors in building, the age of the building, and its present use, prior use, and future use.

5. **SCHEDULED DATES - NONSCHEDULED ASBESTOS REMOVAL:** A nonscheduled Asbestos Removal is an asbestos removal required at any installation by the routine failure of equipment, which is expected to occur within a calendar year (Jan. 1 - Dec. 31). The amounts of RACM to be removed during this period are expected to exceed 35 cubic feet, 160 square feet, or 260 linear feet. **This notification is required to be submitted at least 10 working days prior to the new calendar year.**

6. **SCHEDULED DATES - ASBESTOS REMOVAL:** Complete the asbestos removal start date and the asbestos removal complete date. Start date means the date on which activities on a permitted asbestos removal requiring the use of accredited workers and supervisors begin, including removal area isolation and preparation or any other activity which may disturb asbestos containing materials. **This notification is required to be submitted at least 10 working days prior to the start date.**

7. **SCHEDULED DATES - DEMOLITION:** Complete the demolition start date and the demolition complete date. See definition of "Start Date" in #6 above. **This notification is required to be submitted at least 10 working days prior to the start date.**

8. **WORK SCHEDULE:** Circle all days when asbestos removal activities are to occur. Enter the working hours that asbestos removal activities will be conducted (i.e., 7:30 AM - 5:00 PM).

9. **INSPECTION INFORMATION:** Enter the North Carolina accredited inspector's name and North Carolina accreditation number. This information is required for demolitions. Enter date(s) the inspection was conducted; indicate yes or no for Samples Collected; if Samples Collected is yes, then indicate the analytical method used to analyze the samples. Materials may be assumed to be RACM in lieu of an inspection for purposes of asbestos removals.

10. **SCOPE OF WORK FOR ASBESTOS REMOVAL AND/OR DEMOLITION:** Enter a brief description of the asbestos removal and/or demolition (i.e., remove 300 lf of pipe insulation from crawl space. Demolish cafeteria building using heavy equipment).

11. **ASBESTOS REMOVAL/DEMOLITION WORK PRACTICES:** Check all appropriate boxes. Provide a complete explanation of work practices to be followed if "other" is checked. NOTE: Dry removal requires prior written approval from the HHCU. Attach copy of approval letter to completed application.
FOR LIVE FIRE BURNS ONLY: If the building is to be demolished by burning, you must also contact the NC Department of Environment and Natural Resources, Division of Air Quality (DAQ) for information on additional DAQ notification requirements. Please contact your DAQ regional office for more information (phone numbers are listed at http://daq.state.nc.us/about/regional) or call 919-733-1477.

12. **ASBESTOS WASTE TRANSPORTER #1:** Complete the name, mailing address, including city, state, zip code, contact person and contact person's telephone number for the waste transporter contracted to transport the waste to an approved landfill.

ASBESTOS WASTE TRANSPORTER #2: Complete the name, mailing address, including city, state, zip code, contact person and the contact person's telephone number for the waste transporter contracted in conjunction with or separately from Waste Transporter #1.

13. **ASBESTOS WASTE DISPOSAL SITE:** Complete the name and location of the waste disposal site where the asbestos containing waste will be disposed including the street, route, or highway of the waste facility, city, state, zip code, contact person at the waste disposal site, and contact person's telephone number.

14. **IF DEMOLITION ORDERED BY GOVERNMENT AGENCY:** Complete the name, title, authority, the date of the order and the date the demolition is ordered to begin. Attach a copy of the order to the completed permit application/notification.

15. **APPLYING FOR AN EMERGENCY RENOVATION PERMIT:** Attach a letter from the owner or operator stating the date and hour the emergency occurred. Describe the sudden, unexpected event resulting in the emergency. Explain how the event caused unsafe conditions or would cause equipment damage or an unreasonable financial burden.

16. **AMOUNT OF ACM NOT TO BE REMOVED:** Enter the amounts of ACM in the affected part of the facility that will not be removed.

17. **RACM MATERIALS TO BE REMOVED AND ASSESSMENT OF FEES:** Complete the corresponding blanks with the amounts of Regulated Asbestos Containing Material(s) (RACM) being removed at the site. When RACM to be removed is greater than 35 cubic feet, 160 square feet and/or 260 linear feet, compute the fees as outlined on the form. Complete totals (A) and (B).

18. **TOTAL LF/SF/CF TO BE REMOVED:** Enter the total linear feet, total square feet, and total cubic feet from #17.

19. **FEES DUE:** (a) Total #17.(A) + Total #17.(B) and enter amount. (b) Enter asbestos removal contract price and multiply by 0.01 (1%) and enter total. Enter total fee due, whichever is greater, (a) or (b). NOTE: The maximum fee due for asbestos removal prior to demolition is $300.00. Residing Homeowners are exempt from permit fees.

20. **CERTIFICATION:** Enter all information requested. **Only notifications completed in permanent media with original signature will be considered.**

NOTE: All owners and operators are responsible for the information on the permit/notification.

Checks should be made payable to: NCDHHS - Health Hazards Control Unit

Upon approval of the Application/Notification, an HHCU Permit Number will be assigned to the removal project and a one page project Permit will be returned to the applicant. The project Permit/Notification and all revisions must be on-site and available for review throughout the duration of the project.

REORDER: Additional forms may be ordered from:

Health Hazards Control Unit
NCDHHS-Division of Public Health
1912 Mail Service Center
Raleigh, NC 27699-1912
Phone: (919) 707-5950 Fax: (919) 870-4808

APPENDIX F

EXAMPLE OF ANNUAL DSCA LAND-USE RESTRICTION CERTIFICATION

Site Name: BB&T Site

Site Address: 1103 W. Club Blvd., Durham, Durham County, NC

DSCA ID No: 32-0013

ANNUAL DSCA LAND USE RESTRICTIONS CERTIFICIATION

Pursuant to Land-Use Restriction Number _____ in a Notice of Dry-Cleaning Solvent Remediation (NDCSR) executed by _____ and recorded on _____ at the Durham County Register of Deeds Office, Liduvina Garcia hereby certifies, as an owner of at least part of the property that is the subject of the NDCSR, that the NDCSR remains recorded at the Durham County Register of Deeds office and the land use restrictions therein are being complied with.

Duly executed this _____ day of _____, 201_.

Liduvina Garcia

By: _____

Name typed or printed:

MARYLAND
_____ COUNTY

I, _____, a Notary Public of the county and state aforesaid, certify that _____ personally came before me this day signed the foregoing certification.

WITNESS my hand and official stamp or seal, this _____ day of _____, 201_.

_____

Name typed or printed:
Notary Public

My Commission expires: _____

[Stamp/Seal]

APPENDIX G

EXAMPLE NOTICE OF INTENT

North Carolina Department of Environment and Natural Resources
Division of Waste Management

Beverly Eaves Perdue
Governor

Dexter R. Matthews
Director

Dee Freeman
Secretary

<Date>

<name>, <City Manager/County Health Director>
<address>
<city>, NC <zip>

Subj: Remediation of Dry-Cleaning Solvent Contamination
DSCA Site # 32-0013
BB&T Site
1103 W. Club Blvd.
Durham, NC

Dear <name>:

The Dry-Cleaning Solvent Cleanup Act of 1997 (DSCA), North Carolina General Statutes (N.C.G.S.) Sections 143-215.104A through 143-215.104U, provides for the assessment and remediation of properties that may have been or were contaminated by chlorinated solvents. To satisfy the requirements of N.C.G.S. 143-215.104P, this letter serves as the **Notice of Intent to Remediate a Dry-Cleaning Solvent Facility or Abandoned Site** (NOI) approved by the North Carolina Department of Environment and Natural Resources (DENR).

The NOI must provide, to the extent known, a legal description of the location of the DSCA Site, a map showing the location of the DSCA Site, a description of the contaminants involved and their concentrations in the media of the DSCA Site, a description of the intended future use of the DSCA Site, any proposed investigation and remediation, and a proposed Notice of Dry-Cleaning Solvent Remediation (NDCSR) prepared in accordance with N.C.G.S. Section 143-215.104M. The required components of the NOI are included in the attached Risk Management Plan, and are available on our website at www.ncdsca.org, under "Public Notices".

The DSCA Program is providing a copy of the NOI to all local governments having jurisdiction over the DSCA Site. A 30-day public comment period is being held from <date>, until <date>. Written comments may be submitted to DENR no later than <date>. Written requests for a public meeting may be submitted to DENR no later than <date>. All such comments and requests should be sent to:

Billy Meyer, DSCA Remediation Unit
Division of Waste Management, NC DENR
1646 Mail Service Center
Raleigh, North Carolina 27699-1646

A Summary of the NOI is being published in the Durham Herald, copies are being sent to owners of property within and contiguous with the area of contamination, and a copy of the Summary will be conspicuously posted at the Site during the public comment period.

If you have any questions, please feel free to contact me at (919)508-8415

Sincerely,

Billy Meyer, Project Manager
DSCA Remediation Unit
Billy.Meyer@ncdenr.gov

Attachments: Risk Management Plan

Cc: DSCA Site # <site#> File

Public Notice

SUMMARY OF NOTICE OF INTENT TO REMEDIATE A DRY-CLEANING SOLVENT FACILITY OR ABANDONED SITE

BB&T Site
DSCA Site # 32-0013

Pursuant to N.C.G.S. §143-215.104L, on behalf of Branch Banking & Trust (BB&T), the North Carolina Department of Environment and Natural Resources' (DENR's) private contractor has prepared a Notice of Intent to Remediate a Dry-Cleaning Solvent Facility or Abandoned Site (NOI). The purpose of this Summary of the NOI is to notify the community of the proposed remedy for the contamination site and invite comment on the proposed remedy.

BB&T Site formerly conducted or conducts dry-cleaning operations at 1103 W. Club Blvd., in Durham, North Carolina. Dry-cleaning solvent contamination has been identified in soil and/or ground water at the following parcel(s):

1103 W. Club Blvd., in Durham; Parcel No. 102361

An investigation of the extent of contamination has been completed. Based on the risks posed by the contamination, the proposed remedy involves demolition of the building on the property and instituting land use restrictions to control current and future site risks.

The elements of the complete NOI are included in the Risk Management Plan (RMP) which is available online at www.ncdsca.org , under "Public Notices".

The public comment period begins _____ __, 201_, and ends _____ __, 201_.

Comments must be in writing and submitted to DENR no later than _____ __, 201_. Written requests for a public meeting may be submitted to DENR no later than _____ __, 201_. Requests for additional information should be directed to Billy Meyer at (919)508-8415. All comments and requests should be sent to:

Billy Meyer, DSCA Remediation Unit
Division of Waste Management, NC DENR
1646 Mail Service Center
Raleigh, North Carolina 27699-1646