403139

Environmental Resources Management

498 Wando Park Blvd.
Suite 100
Mt. Pleasant, SC 29464
(843) 856-4270
(843) 856-4283 (fax)

SCANNED

March 17, 2006

South Carolina Department of
Health and Environmental Control
Bureau of Water
2600 Bull Street
Columbia, SC 29201

Well # 2632
Site # 03139

ERM

Attention: Mr. Chris Forrest, P.G.

Subject: Submittal of Work Plan and QAPP
Wix Filters, Dillon, SC Facility

Dear Mr. Forrest:

Evironmental Resources Management – Southeast, Inc. is pleased to submit the enclosed Additional Environmental Services Work Plan and associated Quality Assurance Project Plan on behalf of the Wix Filters plant in Dillon, SC. Wix is a subsidiary of Affinia Group.

As we discussed during our meeting in January, Wix has developed a Work Plan to address the presence of volatile organic compounds detected in subsurface soils and ground water at the southwestern corner of the plant. The associated QAPP specifies procedures and methods that may be employed in assessing the horizontal and vertical extent of impact to soils and ground water.

Please review the enclosed documents and provide comments at your earliest convenience. Should you have any questions regarding these documents, or the project in general, do not hesitate to contact us. Wix looks forward to working with you and the Department to resolve this issue.

Sincerely,

Mark C. Easterbrook / M. Dimitri — Todd W. Moody

Mark C. Easterbrook — Todd W. Moody, P.G.

enclosures

cc: Ken McCutcheon, Wix
Keith Clark, Affinia Group
Rich Fahey, Vorys Sater Seymour & Pease

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MAR 21 2006
Water Monitoring, Assessment & Protection Division

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Affinia Group, Inc. – Wix Filtration Corp.

Additional Environmental Services Work Plan
Wix Dillon Plant
Dillon, South Carolina

March 2006

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Affinia Group, Inc. – Wix Filtration Corp.

Additional Environmental Services Work Plan
Wix Dillon Plant
Dillon, South Carolina

March 2006

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1.0 INTRODUCTION

This Site Assessment Work Plan (Work Plan) has been prepared for the purpose of defining a scope of work for the investigation and evaluation of the occurrence and extent of constituents of concern found in soil and ground water at the Wix Filtration Corporation's (Wix) manufacturing facility located at 1422 Wix Road in Dillon, South Carolina (hereafter referred to as the "Site"). Wix is a subsidiary of the Affinia Group, Inc. (Affinia). The Site is located approximately one mile north of the town of Dillon in Dillon County, South Carolina as shown in Figure 1.

This Work Plan has been divided into six sections. Section 1.0 provides an overview of the Work Plan. Section 2.0 provides the rationale for additional assessment work to characterize potential sources and to further address the environmental conditions in an effort to define horizontal and lateral extent. Section 3.0 provides a review of Site background information including a detailed history of site activities, site operations, waste management practices, previous investigation efforts, and a description of the geologic setting. Section 4.0 presents the assessment strategy that has been developed for the initial investigation of the lateral and vertical extent of affected ground water and soils. Section 5.0 provides a detailed description of planned activities consistent with the assessment strategy including: a preliminary receptor survey, potential exposure pathway analysis, and soil, sediment, surface water, and ground water sampling and analysis. Section 6.0 includes anticipated schedules based on historical knowledge.

1.1 WORK PLAN OVERVIEW

This Work Plan provides for additional Site investigation and characterization anticipated schedules and activities, as summarized below:

- A preliminary receptor survey and a well survey to support present and possible future assessment activities;
- Identification of potential exposure pathways by which Site-specific constituents may impact human and environmental receptors (as needed, pending assessment results);
- A detailed history of site activities, site operations, and waste management practices to assist in identifying potential source areas for further evaluation;

- Specific assessment activities based on current historical knowledge of the Site, including soil, surface water, and ground water sampling and analysis;
- Optional ecological risk assessment (pending surface water results);
- Data on the local geology and hydrogeology to support proposed actions. This information will be developed through performance of the following:
    - Perform a detailed review of published materials to evaluate regional geological and hydrogeological conditions.
    - Evaluate high altitude aerial photographs to obtain information regarding the presence of obvious, regional geological features, which may influence fate and transport of detected constituents at the Site.

1.2 *DELIVERABLES*

The results of the identified activities of this Work Plan will be transmitted to the South Carolina Department of Health and Environmental Control (SCDHEC) in accordance with a report summarizing the results of investigative activities to date.

2.0 *RATIONALE FOR ADDITIONAL ENVIRONMENTAL ASSESSMENT*

While Wix has determined that the volatile organic compounds (VOCs) detected at the Dillon site do not appear to be associated with current operations or processes, it has thus far not been able to identify the source(s) or material(s) related to these historical releases. The environmental assessment work proposed in this Work Plan seeks (i) to identify the source(s) and material(s) released, and (ii) to define the horizontal and lateral extent of the contaminants of concern in the ground water.

3.0 SITE BACKGROUND

The Dillon Wix facility was purchased by its current owner, Affinia Group, Inc. in 2003 from its previous owner Dana Corporation. Based on interviews of long term employees at the plant, and a review of the available historical records the following section provides a history of known site activities, site operations, and waste management practices relative to the primary constituent of concern, toluene. The second part of this section provides a general description of the geologic setting.

3.1 SITE HISTORY AND OPERATIONAL PRACTICES

The Wix Dillon plant was constructed in the late 1970's and has been in operation since 1977 producing fuel filters, oil filters, and air filters for automotive, diesel, racing, agricultural, and industrial applications.

As a result of recent utility excavation outside the southwest corner of the plant, VOCs, principally toluene, were detected in soils and ground water. These initial findings were reported to the SCDHEC in a letter dated December 9, 2005.

In its early years of operation, paints used in the manufacturing process were mixed on site using toluene as one of their ingredients. It appears that the use and storage of toluene for mixing paints was concentrated in the southwest portion of the plant. While an "as built" set of drawings for the original plant has not been located, a proposed plant construction drawing depicting a tank labeled as "Naphtha Tank" outside the southwest corner of the building was found in a search of the plant records and is set forth in Figure 2. No records were found indicating use of a naptha tank during plant operations. It is probable that a toluene tank used to dispense toluene was located in or near the area where the naptha tank appears on the proposed plant construction drawing.

Apparently installed at the time of plant construction in 1977, the toluene tank appears to have been an underground storage tank (UST), with underground piping running from the tank to the southwest corner of the building. Once inside the building the piping network system was run overhead and distributed toluene to various satellite painting operations on the manufacturing floor. The remnants of the interior overhead metal piping remain in place, and appear in sound condition with no visible evidence of leaks or breaks. Further, none of the interviewees recalled any

leaks or sudden releases of product from the interior overhead piping system.

No plans or documentation of the toluene UST were located, but based upon interviews and a surface depression in the area where the tank was believed to have been located, it is estimated to have had a capacity of 1,500 gallons.

The UST appears to have been used for approximately seven or eight years. In anticipation of the Federal and State UST rules taking effect, it appears there was some effort to upgrade portions of the UST system. The underground pipe running from the UST to the building was replaced with a double-lined pipe consisting of CPVC inside of a larger PVC pipe, which was to serve as secondary containment. Upon introduction of the toluene product into the new piping, the product reportedly reacted with the CPVC, breaching the integrity of the pipe within 24 hours of installation. The outside UST and piping portion of the toluene piping system was abandoned shortly thereafter, and removed. However, because the unit was apparently removed before the Federal and State UST rules were in effect, no formal documentation of the removal exists. Nor could any other form of documentation, such as a purchase order or service agreement, be located to verify the exact date of removal.

Following removal of the UST, it appears toluene used to mix paint was only stored in an aboveground tank, totes, or drums located inside the paint room in the southwest corner of the plant building. Mixing of paint was discontinued when the plant switched to premixed paint, apparently a high solids water-based product. This premixed paint was delivered to the site in 55-gallon drums and totes for placement around the factory floor where there were painting operations. Floor drains existed in the paint room, which could provide a complete pathway for releases to migrate to the southern side of the plant. However, plant personnel could not recall any toluene releases in the paint room, nor were any stains or other evidence of releases observed at the floor drains. The floor drains are currently sealed.

Other possible toluene sources/release areas, which have been identified, include a former gasoline fueling station located outside the southern end of the plant, in the vicinity of the former toluene UST. This station consisted of a small gasoline aboveground storage tank (AST) on a concrete pad, which was used to fuel yard maintenance equipment. Additionally, it was reported that paint or toluene may also have been stored on a concrete pad outside the southern wall of the paint room.

3.2 *PREVIOUS INVESTIGATION*

In October 2005, a valve on the ten-inch water line bringing service from the City of Dillon to the fire suppression loop began to leak. The City was contacted and a work crew was dispatched to excavate and replace a valve seal on the south side of the plant south of the paint room. The City hauled away the excavated soil. Three days later the valve began to leak again, but the City could not respond in a timely manner. A local contractor was then contacted to effect repair. Several days later the fire suppression loop line leaked again and the contractor responded to effect repair by welding. The contractor detected an odor in the excavated soils that was described as paint or toluene.

In response to the contractor's comments, ERM was dispatched at Wix's direction to collect samples of the shallow subsurface soil for EPA Method 8260B laboratory analysis on October 18, 2005. Toluene and low levels of other VOCs were detected. Subsequently, a confirmation soil sampling event, including collection of three shallow ground water samples was conducted on November 18, 2005. Again, VOCs were detected, with the primary constituent detected being toluene. Wix could not identify either a suspected source of the suspected constituents or the character of the material detected.

Upon receipt of laboratory results confirming detection of elevated concentrations of toluene and several other VOCs at lower concentrations, Wix notified the SCDHEC in a letter dated December 9, 2005 of the results and of the previous investigation activities that prompted initial sampling.

An on-site meeting was held on January 17, 2006 with the SCDHEC, Affinia, Wix Dillon plant personnel, ERM, and Affinia's environmental counsel to familiarize the SCDHEC with the Site, its historical and current operations, and the excavation area where the water line leak occurred.

3.3 *PHYSICAL SETTING*

The Site lies in an area surrounded by sparsely populated land used for farming, partially wooded land with a few single-family residences, and a wetland area. The wetland area is located directly behind and outside the fence marking the western perimeter of the active plant area. Wix owns the property upon which the wetland is located. The nearest residences are to the south of the plant and directly across Wix Road.

3.4 *GEOLOGIC SETTING*

Brief regional and local geology and hydrogeology pertaining to the Site are discussed in the following sections. The information presented is primarily regional in nature since there is no Site-specific information available concerning rock classification or quality at the Site. The information presented in this section has been used to develop a conceptual model necessary to prepare this Work Plan.

3.4.1 *Regional Geology and Hydrogeology*

The Site is located in the Atlantic Coastal Plain physiographic province in Dillon County, South Carolina. Coastal Plain sediments are typically clastic, ranging from clay to gravel, with minor amounts of marine limestone (Winner, and Coble, 1989). The sediments dip generally eastward, forming a clastic wedge thickening to the east. Cretaceous-age rocks to recent unconsolidated sediments lie unconformably on top of crystalline basement rock, which in this area occurs at depths of less than 1,000 feet below land surface.

A surficial aquifer is followed by the Peedee aquifer system, which is the uppermost aquifer system, and the Black Creek aquifer system beneath the Site. Sediments of the Peedee aquifer are located between land surface and depths of approximately 50 feet below mean sea level. The 30-foot thick Peedee confining unit separates a surficial aquifer from the underlying Peedee aquifer (50 to 130 feet bgs) and Black Creek aquifer. The total thickness of these sediments varies between 175 and 200 feet. The Black Creek aquifer lies at approximately 180 to 348 feet below ground surface and is hydraulically isolated by the Peedee confining unit, the Peedee aquifer, and the Black Creek confining unit.

3.4.2 *Local Geology and Hydrogeology*

Because no Site information is available relative to hydrogeology and to characterization of underlying soil and bedrock, assumptions must be made based on available literature. Generally, the site is underlain by sedimentary deposits of Late Cretaceous-age Peedee and Black Creek Formations that thicken toward the coast consisting mostly of fine to medium grained marine sands, clayey sand, clay, and lignitic sand with confining units of clay and silt. The confining units generally range from 20 to 70 feet in thickness.

According to the Soil Survey of Dillon County, South Carolina (U.S. Department of Agriculture, 1978), the soils (Dothan-Coxville) are nearly level and gently sloping in the vicinity of the Site. The soils are well-drained to poorly-drained, have a sandy loamy surface layer, and a loamy subsoil to clayey subsoil.

Clayey soils encountered in the excavation and the immediate area appear to be localized fill material associated with plant construction. The depth and aerial extent of construction fill in the immediate vicinity of the plant is unknown but it appears that the clayey material encountered may have impeded migration of toluene within the subsurface.

4.0 SITE ASSESSMENT STRATEGY

The assessment strategy that has been developed for the Site is based on the preliminary conceptual model. Review of published material, including a previous investigation (excavated soil investigation addressed in December 9, 2005 correspondence to SCDHEC), has shown that detected VOCs have impacted soils and ground water at the Site. The planned assessment activities are intended to evaluate the lateral and vertical extent of contamination and determine a source.

4.1 SOIL ASSESSMENT STRATEGY

Soil samples will be collected from the immediate excavation area where sampling had occurred previously and surrounding areas in an effort to evaluate the clay fill and natural sandy loam. In general, soil samples will be collected in an effort to define the lateral extent of toluene and other VOC constituents detected during the November and December, 2005 sampling events. The soil assessment strategy includes drilling ten soil test borings and performing additional tests to provide data necessary to refine the preliminary conceptual geological model, as well as to aid in evaluating fate and transport mechanisms for detected VOCs in the subsurface. Soil assessment borings will be advanced using direct push technology or other drilling techniques described in the QAPP, as appropriate.

4.2 *GROUND WATER ASSESSMENT STRATEGY*

The impact to ground water will be evaluated through installing, developing, and sampling four ground water monitoring wells. The wells will be sampled in an effort to define the extent of impact and to assess the potential for migration of VOCs through residual soils. Based on information developed through the drilling and sampling program, additional monitoring wells may be proposed to permit definition of the horizontal and vertical extent of impact. Precise locations of the proposed ground water monitoring wells will be based on results of the soil test boring program and the December 2005 investigation. ERM has provided approximate locations of the proposed monitoring wells in Figure 3. Actual monitoring well locations may be subject to revision in the field based upon private utility locations. Slug tests and static water level measurements will be conducted in the newly installed wells to provide information regarding rate and direction of ground water flow.

4.3 *SEDIMENT AND SURFACE WATER ASSESSMENT STRATEGY*

Once the general ground water direction is determined, surface water and associated sediments will be sampled from two locations in the downgradient direction from the adjacent wetlands area near the Site where affected ground water has been encountered. Proposed sampling locations and rationale will be provided to SCDHEC. Additionally, a general well survey will be conducted through investigation of SCDHEC files and other regulatory agencies, if necessary.

5.0 *SCOPE OF WORK PLAN ACTIVITIES*

The following scope of work is based on the Site assessment strategy as discussed in Section 4.0 and is also based on guidance documents provided by the SCDHEC for further Site investigation and characterization work. Completion of the identified scope of work will contribute to the assessment of lateral and vertical extent of contamination in ground water and identification of potential sources. Activities conducted under this Work Plan will be conducted in accordance with the procedures addressed in the QAPP.

The proposed scope of work in this Work Plan includes performance of a preliminary pathway and receptor survey for identification of potential exposure pathways to human or environmental receptors. The results of this survey will be used to guide possible future assessment activities addressed in the Work Plan.

5.1 *HEALTH AND SAFETY PLAN DEVELOPMENT*

A site-specific health and safety plan (SHASP) will be developed to address anticipated site hazards, exposure scenarios, monitoring requirements, personnel protective equipment requirements, and action levels for planned assessment activities. The SHASP will be reviewed by a Certified Industrial Hygienist who will be consulted on health and safety issues during prosecution of field activities. A site safety supervisor will be designated to enforce and document compliance with SHASP requirements and to react to situations that may arise.

5.2 *PRELIMINARY WELL SURVEY AND RECEPTOR SURVEY*

A preliminary well survey will be conducted in an effort to identify water supply wells in the area that might be affected by a release at the plant. The survey will include a review of publicly available records and may include a survey of nearby residents. A preliminary human receptor survey will be conducted in concert with the well survey in an effort to identify exposure pathways and potential human receptors. An ecological receptor survey may be performed at a later date, if necessary, based on the results of the preliminary studies and surface water sampling results.

5.3 *IDENTIFICATION OF POTENTIAL EXPOSURE PATHWAYS*

An analysis of potential exposure pathways to human receptors and the environment will be conducted on a qualitative basis, if deemed necessary. The objective of the environmental pathways analysis is to identify the potential exposure pathways by which Site-specific constituents may impact human and environmental receptors. An exposure pathway is defined by four elements including: (1) source and release mechanism; (2) environmental transport media; (3) receptor exposure point; and (4) exposure route at the exposure point. The exposure scenario will focus on ground water and surface water migration. A pathway exposure analysis will also be completed for various exposure pathways (e.g. volatilization, inhalation, ingestion,

dermal contact, etc.). The purpose of the potential exposure pathway analysis will be to identify significant potential exposure pathways to help focus the implementation of corrective measures, if necessary.

5.4 *SOIL TEST BORING PROGRAM*

Ten shallow soil test borings (STB-1 through STB-10) will be advanced to an estimated depth of 15 feet below ground surface (BGS), based on our anticipation of encountering shallow ground water, to provide data to assist in development of a Site hydrogeologic model and aid in the selection of final locations and designs of proposed monitoring wells. The borings, as shown on Figure 3, will be advanced using direct push or hollow stem auger techniques. During boring advancement, soil samples will be collected from selected intervals using split-barrel samplers in accordance with ASTM D-1587 for physical classification or direct push samplers, depending on drilling method employed.

Analytical results of the December 2005 soil assessment activities indicate that VOCs were detected. Soil boring locations and depths will be selected for laboratory analysis based on photoionization (PID) readings. The sample above the water table from each boring displaying the highest PID reading, or in the absence of readings above background, the sample closest to the water table, will be submitted for laboratory analysis by EPA Method 8260B. Samples will be field preserved in accordance with Method 5035. Figure 4 shows the proposed soil test boring approximate locations.

5.5 *GROUND WATER PROGRAM*

The ground water monitoring program consists of the installation of monitoring wells, sampling, slug testing, and report preparation. The installation of monitoring wells will be necessary to define the lateral and vertical extent of affected ground water associated with potential source areas. Preliminary plans have been made for the installation of up to four ground water monitoring wells designed to screen the water table to a depth of approximately 15 feet BGS. The preliminary locations of the wells are illustrated in Figure 3. A typical ground water monitoring well schematic is illustrated as Figure 4. The number and locations for the monitoring wells will be reviewed with the SCDHEC for permit approval prior to proceeding with installation. The new wells will be developed and sampled for EPA Method 8260B VOCs in accordance with the Site-specific QAPP.

Each of the new monitoring wells at the Site will be evaluated for hydraulic characteristics using slug tests. The locations of the new proposed wells are illustrated in Figure 3. Data from the slug-testing program will provide information regarding the hydraulic conductivity of the screened intervals of each of the tested wells. This information will be used for an evaluation of potential ground water flow rates and will provide database information for development of potential engineering controls for ground water remediation, if necessary.

5.6 *SEDIMENT AND SURFACE WATER PROGRAM*

Two surface water and sediment locations are planned for EPA Method 8260B VOC sampling from the onsite wetlands. Locations of proposed sediment and surface water samples are shown on Figure 3. Sediment samples will be collected from the upper six inches of sediment on the wetlands bottom at the same location as the surface water sample locations. Additional surface water sampling may be required to determine lateral extent of affected surface and ground water.

5.7 *ECOLOGICAL RISK ASSESSMENT*

In the event that results of surface water sampling performed at concentrations greater than surface water standards, an ecological risk assessment will be initiated. Such assessment, if warranted, will be performed based on published guidance (for example, ERAGS, Guide for Developing Conceptual Models for Ecological Risk Assessments, and others).

5.8 *PREPARATION OF A SITE ASSESSMENT REPORT*

A Site Assessment Report (SAR) will be prepared for the evaluation of the Site characterization data. The SAR will include the results of the various media programs (soil, sediment, surface water, and ground water). The data will be used to confirm the conceptual geologic model for the Site. The SAR will also summarize the results of the exposure pathways analysis, preliminary receptor study, risk assessment, and, if necessary, the evaluation and selection of potential interim remedial measures. The SAR will also identify the likely source areas and will include recommendations for additional activities, if necessary.

6.0 *ESTIMATED SCHEDULE*

ERM estimates that the scope of work for the planned tasks as described in this Work Plan can be completed in 12 weeks. The identified tasks have been organized in a manner that will allow for timely and orderly assessment of Site conditions to support real-time identification and selection of corrective measures, if appropriate. The Work Plan schedule includes provisions for meeting with Affinia, Wix, ERM, and SCDHEC to review the results of the investigation.

7.0 *REFERENCES*

Dudley, Travis A.: 1978. *Soil Survey of Dillon County, South Carolina*, U.S. Department of Agriculture Soil Conservation Service, Columbia, South Carolina.

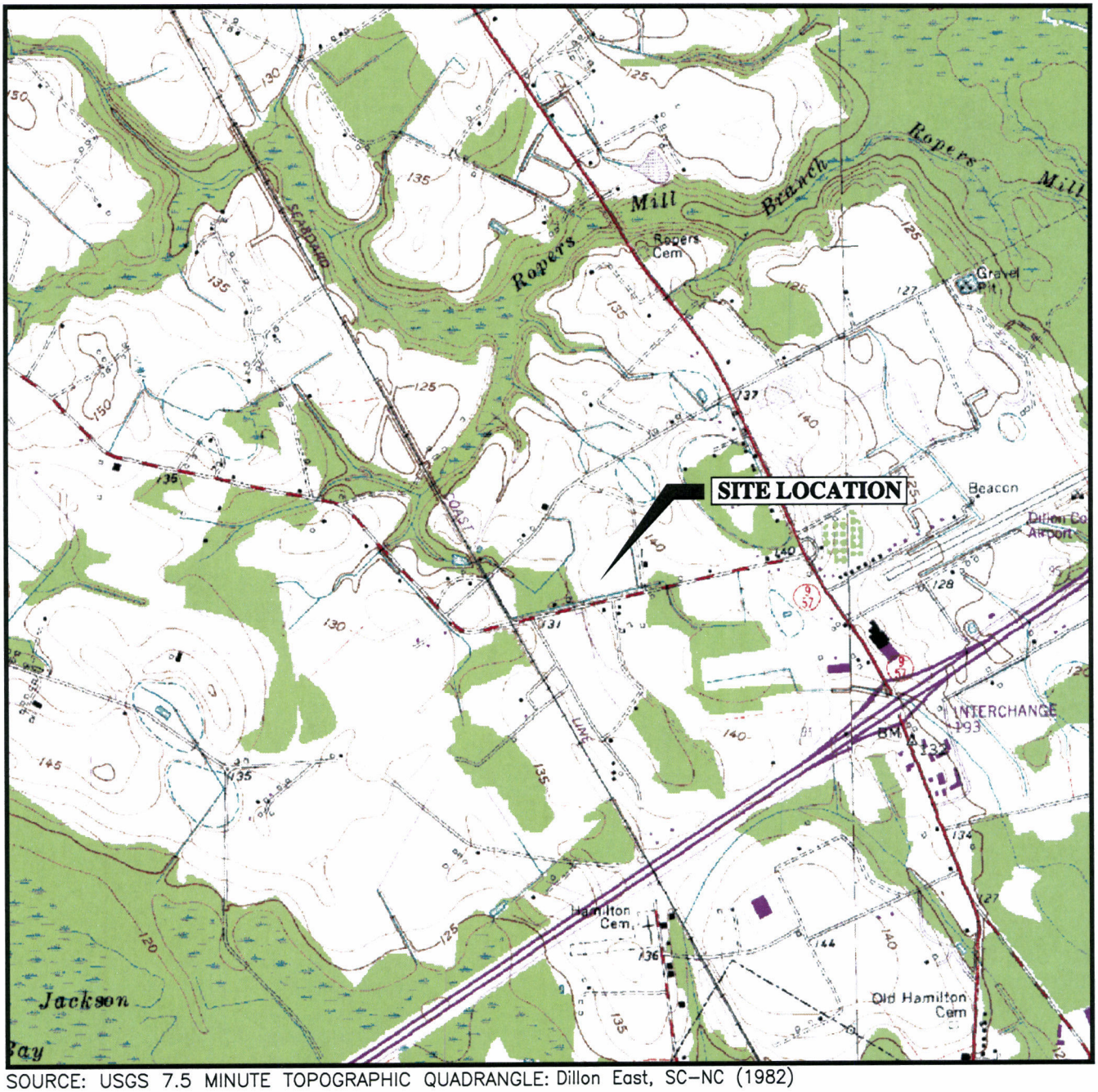
Freeze, R.A. and J.A. Cherry: 1979. *Groundwater*, Prentice-Hall, Inc., Englewood Cliffs, New Jersey, pp. 26-30.

Gohn, Gregory S., editor: 1992. Proceedings of the 1988 U.S. Geological Survey Workshop on the Geology and Geohydrology of the Atlantic Coastal Plain, U.S. Geological Survey Circular 1059, Denver, Colorado.

Winner Jr., M.D. and R.W. Coble: 1989. *Hydrogeologic Framework of the North Carolina Coastal Plain Aquifer System*, U.S. Geological Survey Open File Report 87-690, Raleigh, North Carolina.

Winner, Jr., M.D. and William Lyke: 1989. *Aquifers in the Cretaceous Rocks of the Central Coastal Plain of North Carolina*, U.S. Geological Survey Water-Resources Investigations Report 87-4178, Raleigh, North Carolina.

Figures



SOURCE: USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE: Dillon East, SC–NC (1982)

SCALE 1:24000

1 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

N W E S

CONTOUR INTERVAL 5 FEET

SOUTH CAROLINA

QUADRANGLE LOCATION

NATIONAL GEODETIC VERTICAL DATUM OF 1929

FIG1.DWG 02-17-06 1=1 DDP REV

Environmental Resources Management

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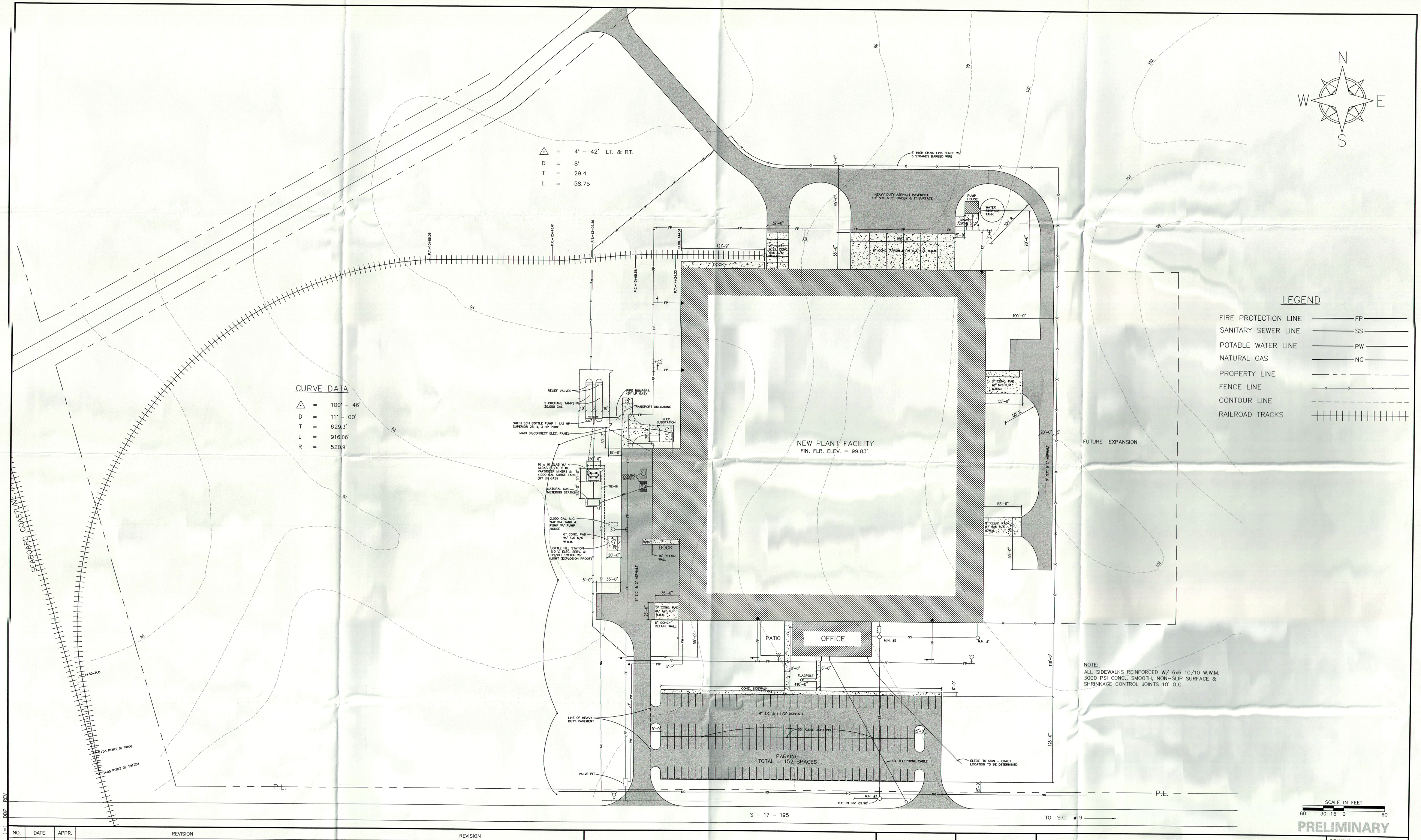
SITE LOCATION MAP
WIX FILTRATION CORPORATION
AFFINIA GROUP, INC.
DILLON, SOUTH CAROLINA

FIGURE

1



NO.	DATE	APPR.	REVISION	REVISION

1=1 DDP REV
MM–DD–05
ERM.DWG

WIX FILTRATION CORPORATION

AFFINIA GROUP INC. — DILLON, SOUTH CAROLINA

DRAWN BY: DDP	PROJECT ENGINEER: MCE
DESIGN ENGINEER: –	PROJECT MANAGER: TWM

ERM

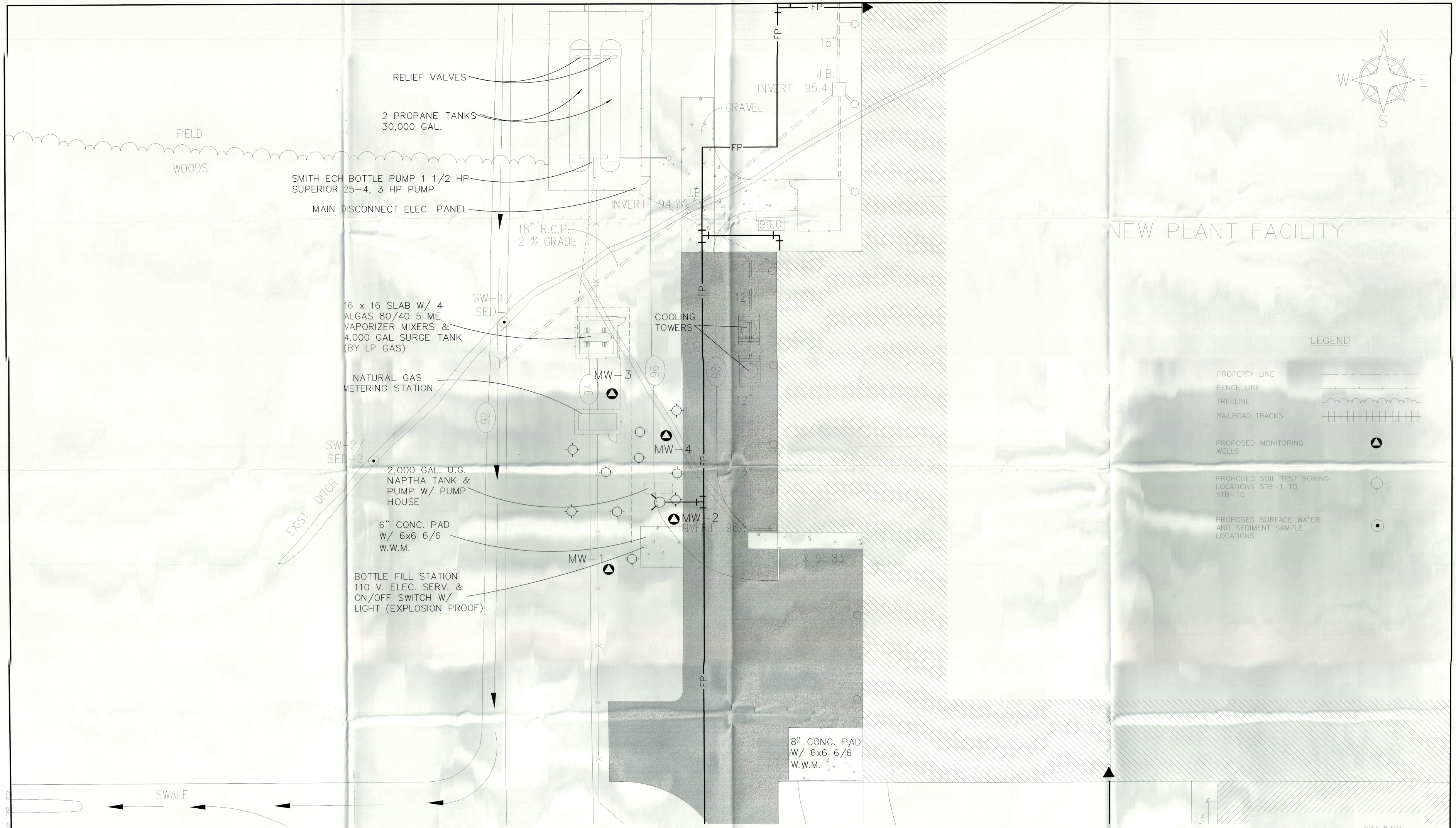
NOT FOR CONST-RUCTION

FACILITY LAYOUT MAP

SCALE: 1"=60'	DATE: February 27, 2006
PROJECT NO.: 41284	AutoCAD 2002 06–02–SP–01

DRAWING NO. 2
REV. NO.
SHEET 1 OF 1

413139 (AS)



NO.	DATE	APPR.	REVISION

WIX FILTRATION CORPORATION

AFFINIA GROUP INC. — DILLON, SOUTH CAROLINA

DRAWN BY: DDP	PROJECT ENGINEER: MCE
DESIGN ENGINEER: –	PROJECT MANAGER: TWM

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PROPOSED MEDIA ASSESSMENT LOCATIONS

SCALE: 1"=20'	DATE: FEBRUARY 27, 2006
PROJECT NO.: 41284	AutoCAD 2002: 06-02-SL-02

DRAWING NO. 3

REV. NO.

SHEET 1 OF 1

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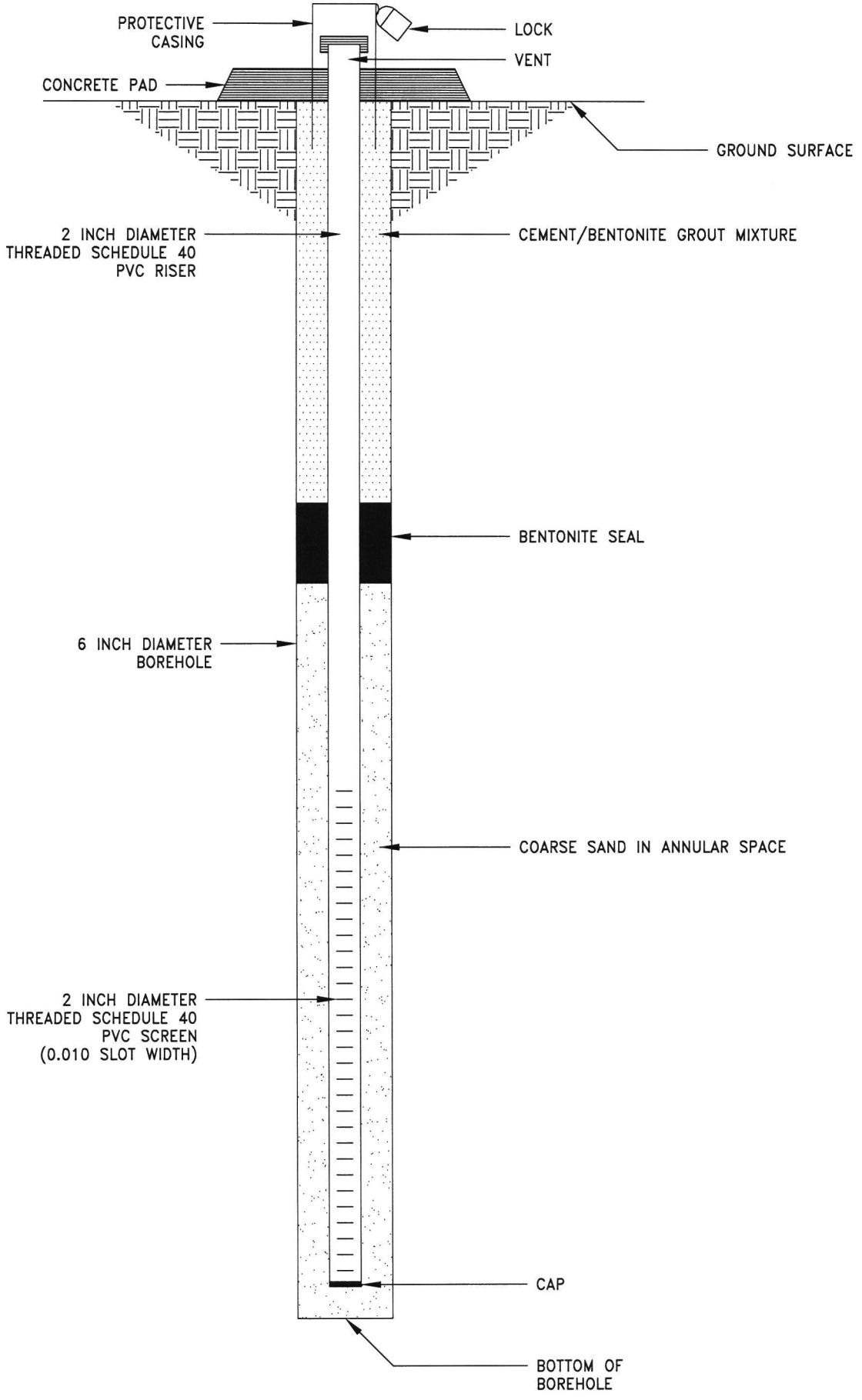

TYPE2S.DWG 02-17-06 NTS DDP REV

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TYPE II MONITORING WELL SCHEMATIC
WIX FILTRATION CORPORATION
AFFINIA GROUP, INC.
DILLON, SOUTH CAROLINA

FIGURE
4