Hart & Hickman
ENVIRONMENTAL CONSULTANTS
OUR CLIENTS DEMAND A SMARTER SOLUTION

2923 South Tryon Street
Suite 100 Charlotte, NC
28203-5449

704-586-0007 phone
704-586-0373 fax
www.harthickman.com

Via NC DOT FTS

June 7, 2011

NCDOT Geotechnical Engineering Unit
1020 Birch Ridge Drive
Raleigh, North Carolina 27610

Attention: Mr. Ethan Caldwell, LG and PE

Re: UST Closure Activities
Deborah Brown Property (Parcel 32)
State Project: U-4412
WBS: 35022.1.1
Haywood County, Waynesville, North Carolina
H&H Job No. ROW-313

Dear Ethan:

1.0 Introduction and Background Information

Hart & Hickman, PC (H&H) has prepared this letter report documenting underground storage tank (UST) closure activities recently conducted at the Deborah Brown property (Parcel 32) located at 838 Howell Mill Road in Waynesville, Haywood County, North Carolina. A site location map is provided as Figure 1. UST closure activities were conducted on behalf of the North Carolina Department of Transportation (NC DOT) in accordance with H&H's April 19, 2011 proposal.

NCDOT is planning road improvements along Howell Mill Road near the above-referenced parcel. The UST was identified on the northern side of the concrete driveway by H&H during Preliminary Site Assessment (PSA) activities in February 2011. A site map depicting the location of the removed UST is included as Figure 2. Because the property owner will not be immediately vacating the residence, an aboveground storage tank (AST) was purchased and installed to temporarily provide heating oil to the residence. UST closure and AST installation activities are discussed below.

2.0 UST Closure Activities

Closure Activities

H&H mobilized to the site on April 26 and 27, 2011 to conduct UST closure activities. H&H contracted EVO Corporation (EVO) of Winston-Salem, North Carolina to perform the UST removal activities. Because the UST was a non-regulated heating oil tank, the North Carolina Department of Environment and Natural Resources (DENR), the Town of Waynesville, and the Waynesville Fire Department did not require notifications or permits for the UST removal.

Prior to excavation, approximately 45 gallons of heating oil was removed from the UST by EVO using a vacuum truck. The certificate of disposal and non-hazardous materials manifest are included in Appendix A. Following removal of the heating oil, dry ice (carbon dioxide) was added to purge potential explosive vapors from the UST. A lower explosion level (LEL) meter was utilized to monitor for explosive atmospheres until readings within the tank were less than 10% of the LEL.

After the UST was monitored for explosive vapors, soil was removed from the top and sides of the UST with an excavator so that the tank could be removed from the ground. Following removal, the UST was inspected for evidence of holes, pitting, and corrosion. The UST was approximately 550-gallons in size, constructed of steel, and appeared to be in good condition. The UST was transported off-site by EVO to OmniSource Southeast, Inc. in Winston-Salem, NC for proper disposal and recycling. The tank disposal certificate is included in Appendix B. No pumps were encountered during the tank removal. The small diameter product line associated with the UST was cut off and removed near the rock wall located on the northern side of the concrete driveway and near the furnace in the basement of the house. The piping was drained, crimped at each end, and left in place beneath the driveway.

During excavation activities, soils from the sidewalls and base of the excavation and beneath the piping (north of the rock wall) were field screened for potential impacts using a photoionization

detector (PID). The PID was calibrated prior to its use against an isobutylene standard. Based on PID readings, there were no indications of petroleum impacts in the sidewalls and base of the UST excavation or beneath the piping. In addition, there were no staining and noticeable petroleum odors observed in the soil in the UST excavation and beneath the piping. Because there were no indications of petroleum impacts, no soil samples were collected in accordance with DENR UST Section *Guidelines for Site Checks, Tank Closure, and Initial Response and Abatement for UST Releases*, March 1, 2007 Version, Change 3, Effective December 1, 2008 for non-regulated USTs. The approximate aerial extent of the excavation area is shown on Figure 3.

Based on compaction testing performed by the geotechnical engineering firm S&ME, Inc., the moisture content in the overburden soil from the excavation was too high to meet the compaction requirements in accordance with the American Association of State Highway and Transportation Officials (AASHTO) T-99 specifications for use in backfilling the excavation near the proposed road. In addition, due to inclement weather, soil from a nearby borrow pit was too wet to meet AASHTO T-99 compaction specifications. With NC DOT approval, the excavation area was backfilled with No. 57 stone from the Vulcan Materials Company quarry in Enka, NC. The stone was backfilled in approximate 10 inch lifts with a Ramex-type compaction device. The clean overburden soil was spread approximately one to two inches thick and covered with seed and straw above the No. 57 stone and in a grassy area to the north of the excavation on Parcel 32. Compaction testing results are included in Appendix C.

AST Installation Activities

During UST removal activities, a 270-gallon AST was purchased and transported by EVO to the Parcel 32 residence to temporarily provide storage of heating oil. EVO installed and plumbed the new AST into the existing furnace. The AST was installed near the northern corner of the residence and new piping was plumbed above ground directly from the AST to the existing furnace. The new heating oil AST was filled with approximately 100 gallons of new heating oil by a local oil company. Prior to leaving the site, EVO tested the furnace to ensure that it was operating properly. The furnace appeared to be in good working condition.

3.0 Conclusions

H&H has completed UST closure activities for one approximate 550-gallon heating oil UST in the proposed NC DOT right of way on the Deborah Brown property (Parcel 32). Based on field screening and visual observations there were no indications of petroleum impacts in the UST excavation or beneath the uncovered piping. A portion of the UST piping was left in place beneath the existing concrete driveway. NC DOT plans indicate proposed fill near the piping and removal of the Parcel 32 residence. If impacted soil is encountered in this area during site work, it should be properly managed and disposed at a permitted facility. Because the property owner will not be immediately vacating the residence, a new heating oil AST was installed on Parcel 32 to temporarily provide heating oil to the residence.

Should you have any questions or need additional information, please do not hesitate to contact us at (704) 586-0007.

Sincerely,

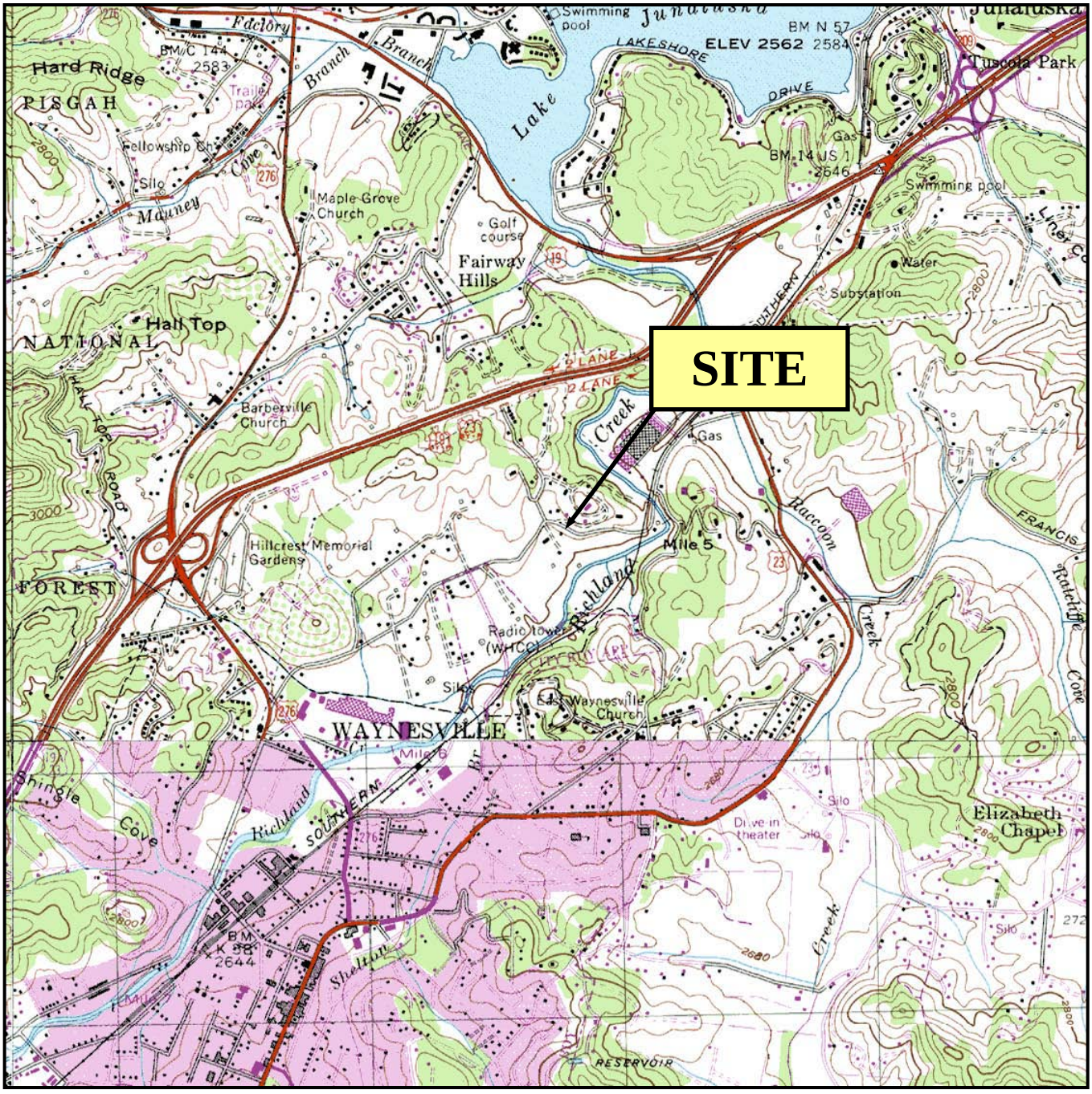
Hart & Hickman, PC

David Graham
Senior Project Geologist

Matt Bramblett, PE
Principal and Project Manager

NORTH CAROLINA PROFESSIONAL SEAL 25069 ENGINEER MATTHEW V. BRAMBLETT 6/7/11

Attachments



N

APPROXIMATE

0 2000 4000

SCALE IN FEET

U.S.G.S. QUADRANGLE MAP

CLYDE, NC 1967 (PHOTOREVISED 1978)

QUADRANGLE
7.5 MINUTE SERIES (TOPOGRAPHIC)

TITLE

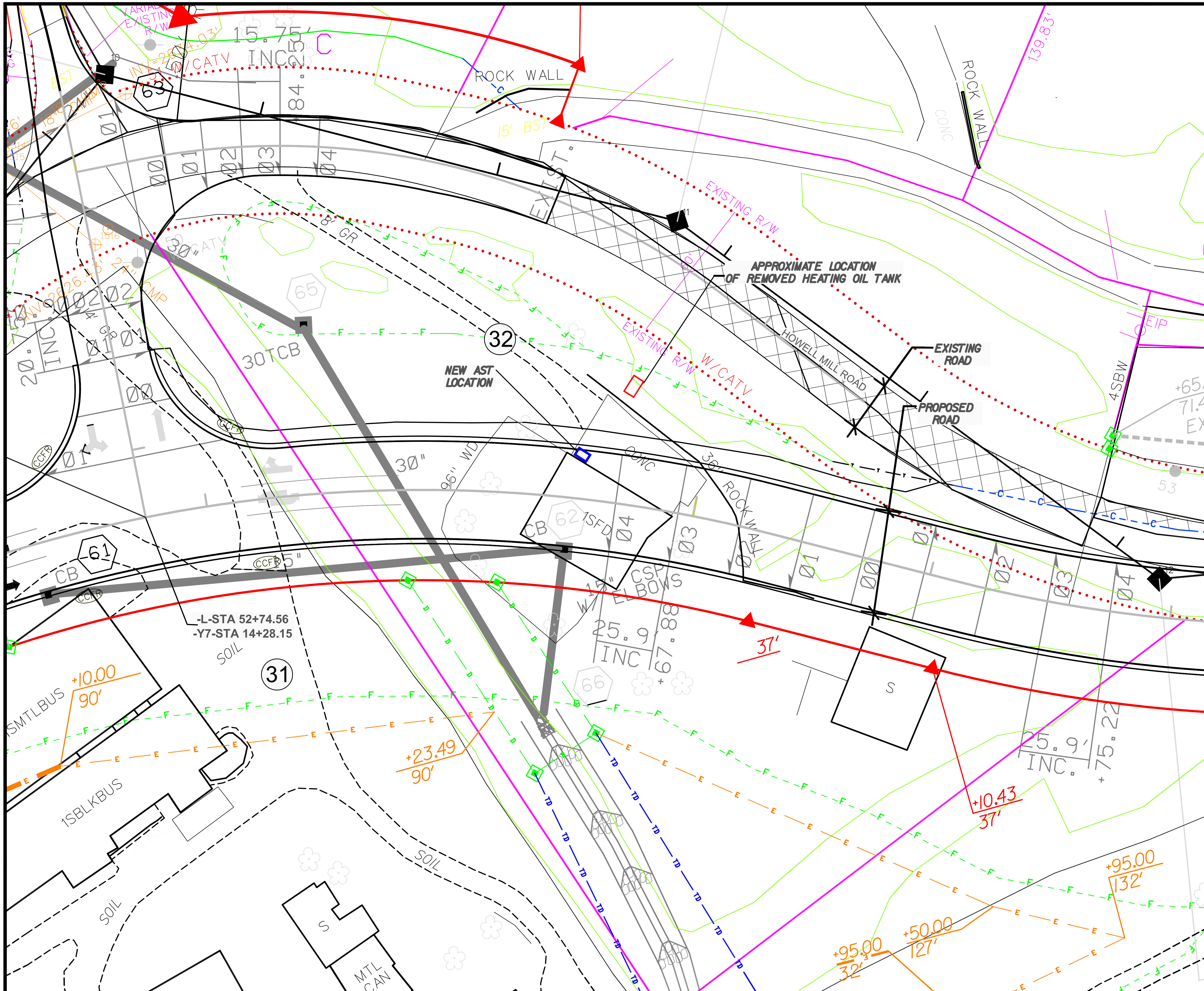
SITE LOCATION MAP

PROJECT

DEBORAH BROWN PROPERTY PARCEL 32
838 HOWELL MILL RD.
HAYWOOD COUNTY, NORTH CAROLINA

Hart & Hickman
A Professional Corporation
2923 South Tryon Street-Suite 100
Charlotte, North Carolina 28203
704-586-0007 (p) 704-586-0373 (f)

DATE:	05-24-11	REVISION NO:	0
JOB NO:	ROW-313	FIGURE NO:	1



LEGEND

- PROPERTY LINE
- PROPOSED RIGHT-OF-WAY
- EXISTING RIGHT-OF-WAY
- PROPOSED FILL LINE
- PROPOSED CUT LINE
- PROPOSED TRANSITION LINE
- PROPOSED CONSTRUCTION EASEMENT
- PROPOSED DRAINAGE EASEMENT
- PROPOSED DRAINAGE PIPING
- PERMANENT UTILITY EASEMENT
- PROPOSED TEMPORARY DRAINAGE
- (32) PARCEL NUMBER
- REMOVED HEATING OIL UST LOCATION
- NEW AST LOCATION

N

APPROXIMATE

0 40 80

SCALE IN FEET

TITLE

SITE MAP

PROJECT

DEBORAH BROWN PROPERTY
PARCEL 32
838 HOWELL MILL RD
HAYWOOD COUNTY, NORTH CAROLINA

Hart & Hickman
A PROFESSIONAL CORPORATION
2923 South Tryon Street-Suite 100
Charlotte, North Carolina 28203
704-586-0007(p) 704-586-0373(f)
License # C-1269

DATE: 5-18-11	REVISION NO. 0
JOB NO: ROW-313	FIGURE: 2

APPROXIMATE LOCATION OF REMOVED HEATING OIL TANK

EXISTING ROAD

HOWELL MILL ROAD

EXISTING R/W

W/ CATV

32

NEW AST LOCATION

REMOVED PIPING

30"

96" WD

CONC

36" ROCK WALL

PROPOSED ROAD

CB 62 1SFD 04

15" CSP W/ ELBOWS

25.9'

INC

88.17

66

37'

S

LEGEND

- PROPERTY LINE
- PROPOSED RIGHT-OF-WAY
- EXISTING RIGHT-OF-WAY
- PROPOSED FILL LINE
- PROPOSED CUT LINE
- PROPOSED TRANSITION LINE
- PROPOSED CONSTRUCTION EASEMENT
- PROPOSED DRAINAGE EASEMENT
- PROPOSED DRAINAGE PIPING
- PERMANENT UTILITY EASEMENT
- PROPOSED TEMPORARY DRAINAGE
- (32) PARCEL NUMBER
- REMOVED HEATING OIL UST LOCATION
- NEW AST LOCATION
- LIMITS OF UST AND PIPING EXCAVATION
- PIPING LEFT IN PLACE

N

APPROXIMATE

0 20 40

SCALE IN FEET

TITLE

REMOVED UST LOCATION MAP

PROJECT

DEBORAH BROWN PROPERTY
PARCEL 32
838 HOWELL MILL RD
HAYWOOD COUNTY, NORTH CAROLINA

Hart & Hickman
A PROFESSIONAL CORPORATION
2923 South Tryon Street-Suite 100
Charlotte, North Carolina 28203
704-586-0007(p) 704-586-0373(f)
License # C-1269

DATE: 5-18-11	REVISION NO. 0
JOB NO: ROW-313	FIGURE: 3

S:\AAA-Master Projects\NC DOT Right-of-Way -ROW\ROW-313 U-4412 Parcel 32 UST-AST\row-313 fig 4.dwg, FIG 3, 6/7/2011 10:21:06 AM, nfoster

Appendix A

Certificate of Disposal and Non-Hazardous Materials Manifest – Heating Oil

ENVIRONMENTAL AND INDUSTRIAL RESOURCES

1703 Vargrave Street
Winston-Salem, NC 27107
ph 336-725-5844
fax 336-725-6244

CERTIFICATE OF DISPOSAL

Evo Corporation does hereby certify that 45 gallons of product received on 04/26/2011 from:

Generator: NC Department of Transportation

Originating at: Parcel 32 - 838 Howell Mill Road
Waynesville, NC

EC Waste ID #: 041131

has been disposed of by Evo Corporation in a manner approved by the North Carolina Department of Environment and Natural Resources.

Signature

Thomas W. Hammett
CEO
Evo Corporation

EVO CORPORATION

1703 Vargrave Street, Winston-Salem, NC 27107
www.evocorp.net

NON-HAZARDOUS MATERIALS MANIFEST

Load # Manifest No. 71241

GENERATOR INFORMATION

Generator: NC Dept. of Transportation Phone: 704-586-0007
Site Address: Parcel 32 - 838 Howell Mill Rd
City/State: Waynesville, NC 28786 Contact: David Graham

MATERIAL DESCRIPTION / QUANTITY / WEIGHT

Gross Weight (lbs): Material: ~~Water~~ Product
Empty Weight (lbs): Contaminant: #2 Fuel Oil
Net Weight (lbs):

Quantity 45 Tons Drums Pails Sacs Yards (Other): Gal

TRANSPORTER INFORMATION

Transporter: Evo Corporation Phone: 336-725-5844
Truck #: 402 Contact: Tony Disher

As the transporter, I certify that the materials described above being shipped under this non-hazardous materials manifest are properly classified, packaged, labeled, secured and are in proper condition for transport in commerce under the applicable regulations governing transportation, and I hereby receive this material for delivery to the facility designate.

Driver Signature: Date: 4/26/11

FACILITY INFORMATION

Evo Project #: 041131

EVO CORPORATION
1703 Vargrave Street
Winston-Salem, NC 27107

Phone: (336) 725-5844
Contact: Tony Disher

I certify that the carrier has delivered the materials described above to this facility, and I hereby accept this material for treatment and/or disposal in a manner that has been authorized by the State of North Carolina.

Facility Signature: Date: 04/26/11

White/Facility Canary/Invoice Goldenrod/Generator Pink/Carrier

Appendix B

Tank Disposal Certificate

ENVIRONMENTAL AND INDUSTRIAL RESOURCES

1703 Vargrave Street
Winston-Salem, NC 27107
ph 336-725-5844
fax 336-725-6244

TANK DISPOSAL CERTIFICATE

Tank Owner: DEBORAH BROWN ~~NC Department of Transportation~~

Site Address: Parcel 32 – 838 Howell Mill Road
Waynesville, NC

Tank Description:

Tank Number	Size of Tank	Contents
1	550 Gallons	#2 Fuel Oil

Transporter: Evo Corporation

EC Project #: 041131

Disposal Certification:

Evo Corporation does hereby certify that the above named storage tank was transported to OmniSource Southeast in Winston-Salem, NC for proper disposal and recycling.

Thomas W. Hammett

Signature

Thomas W. Hammett
CEO
Evo Corporation

Appendix C

Compaction Testing Results

May 11, 2011

EVO Corporation
1703 Vargrave Street
Winston Salem, North Carolina 27107

Attention: Mr. Tony Disher

Reference: Field Density Testing
April 21 to April 27, 2011
Howell Mill Road Tank Pull
Waynesville, North Carolina
S&ME Project No. 1413-11-024

Dear Mr. Disher:

This letter summarizes our field services and observations at the site for the above referenced date. Our work is being performed in general accordance with our Proposal CS-047-11 dated April 13, 2011.

April 21 – An S&ME, Inc. Materials Technician visited the Vulcan quarry in Enka, North Carolina as requested to pick up a soil sample for Proctor testing.

April 26 – An S&ME, Inc. Materials Technician visited the site as requested to perform density testing on the fuel tank backfill using the drive tube method. The test results are summarized on the attached Summary of Density Test Results.

April 27 – An S&ME, Inc. Materials Technician visited the site as requested to perform density testing. The contractor advised our technician that suitable soil could not be located onsite so No 57 stone would be placed as backfill and our services would not be needed.

We appreciate the opportunity to provide our professional services to you on this project. If there are any questions concerning this information please do not hesitate to contact us.

Sincerely,
S&ME, INC.

John C. Weavil, P.E.
Construction Service Manager

Andrew M. Burton, P.E.
Asheville Branch Manager

JCW: AMB: jma
S:\2011\1413\CS Projects\1413-11-024 Howell Mill Road Tank Pull\2011 Summary Reports\04 Apr\2011 Apr 21 - 27 Summary Report.doc

S&ME

Summary of Density Test Results

Report Date: May 11, 2011
Project No.: 1413-11-024

Project Name: HOWELL MILL ROAD TANK PULL
Client: Evo Corporation, 1730 Vargrave Street, Winston-Salem, North Carolina 27107

Test		In-Place Density Test			Check Plug Data		Reference Standard				Compaction		Location	Elevation or Stone Depth
No.	Date	Type	Dry Density	Moisture Content	Dry Density	Moisture Content	Type	Ref. Curve	MDD	Optimum Moisture Content	Percent Specified	Percent In-Place		
1	04/26/11	D 2937	**92.2**	**25.0**	98.5	21.4	D 698	ONS	99.5	23.0	95.0	**92.7** *	Fuel tank backfill	-3'
2	04/26/11	D 2937	**94.2**	**25.8**	88.7	19.6	D 698	ONS	99.5	23.0	95.0	**94.7** *	Fuel tank backfill	-3'

* = Failed Specified Compaction, ** = Failed Specified Moisture Content

All Test Locations and Elevations are Approximate

Notes:

References: ASTM D 2937: Density of Soil In Place by the Drive Cylinder Method, ASTM D 698: Laboratory Compaction Characteristics of Soil Using Standard Effort

Distribution: Tony Disher

JOHN C. WEAVIL, PE
Name (Technical Responsibility)

Signature

ASHEVILLE CS MANAGER
Position