



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

Michael F. Easley
GOVERNOR

Lyndo Tippet
SECRETARY

July 13, 2006

MEMORANDUM TO: Ms. Teresa Hart, P.E.
Project Development Unit Head
Project Development and Environmental Analysis Branch

ATTENTION: Joseph S. Qubain
Project Development Engineer

FROM: Njoroge W. Wainaina, PE
State Geotechnical Engineer

TIP NO. I-4400/ I-4700
WBS 34232.1.1/36030.1.1
FEDERAL PROJECT: NHF-26-1 (62) 23
COUNTY: Henderson-Buncombe
DESCRIPTION: I-26 From NC 225 (US 25 Connector) to NC 280 in Henderson &
Buncombe Counties

SUBJECT: Geotechnical Pre-Scoping Report (PDEA 1N)

The Geotechnical Engineering Unit performed a limited pre-scoping investigation of the above reference project to provide an early identification of any Geotechnical and GeoEnvironmental issues that might impact the project's planning, design or construction. The following information summarizes our findings.

GEOENVIRONMENTAL ISSUES

Purpose

This report presents the results of a geoenvironmental impact evaluation conducted along the above referenced projects. The main purpose of this investigation is to identify properties within the project study area that are, or may be, contaminated, and therefore result in increased project costs and future liability if acquired by the Department. Geoenvironmental impacts may include, but are not limited to,

active and abandoned underground storage tank (UST) sites, hazardous waste sites, regulated landfills and unregulated dumpsites.

Techniques/Methodologies Used

Geographical Information System (GIS) technology was utilized to identify known environmentally impacting sites in relation to the project corridor. A Search of appropriate environmental agencies' databases was performed to assist in evaluating sites identified during this survey. GeoEnvironmental Section personnel conducted a field reconnaissance survey along the project corridor on May 17-18, 2006.

Findings

Underground Storage Tank (UST) Facilities

Based on our study, sixteen sites presently or formerly containing petroleum underground storage tanks (UST's) were identified within the project limits (see Table 1).

Hazardous Waste Sites

One former Hazardous Waste Site was identified within the project limits (see Table 1).

Landfills

One Municipal Solid Waste Landfill was identified within the project limits (see Table 1).

Other GeoEnvironmental Concerns

No other GeoEnvironmental Concerns were identified within the project limits.

Anticipated Impacts

We identified twelve active underground storage tank facilities, including one unpermitted facility, within the proposed project corridor. We also identified four former underground storage tank facilities, from which all known and previously permitted USTs are removed from within the proposed project corridor. We anticipate low to no monetary and scheduling impacts resulting from these sites.

One closed hazardous waste site, the "Highway 29 Dump Site", which documents drums reportedly containing oil, water and "green Jello" abandoned alongside I-26, lies within the proposed project corridor. According to Division of Waste Management staff, no spill occurred, the drums were properly removed, and the regulatory file is officially closed. Our investigation found no know reason for "Highway 29" being part of the official site description. We anticipate no monetary or scheduling impacts resulting from this site.

One closed Municipal Solid Waste Landfill lies within the proposed project corridor. The City of Asheville operated the Pond Road landfill from the 1950's until the early 1980's. We anticipate low to no monetary or scheduling impacts resulting from this site.

The GeoEnvironmental Section observed no additional contaminated properties during the field reconnaissance and regulatory agencies' records search. The GeoEnvironmental Section will provide soil and groundwater assessments on each of the above properties that fall within the proposed right of way, before its acquisition. Please note that discovery of additional sites not recorded by regulatory agencies and not reasonably discernable during the project reconnaissance may occur. The GeoEnvironmental Section should be notified immediately after discovery of such sites so their potential impact(s) may be assessed.

If there are any questions regarding the geoenvironmental comments, please contact Terry W. Fox, LG, at 919-250-4088.

GEOTECHNICAL ISSUES

Methods

The Geotechnical Engineering Unit conducted a field reconnaissance of these projects on July 2, 2006. A visual inspection of the projects was made.

Findings

The projects are located in the valley of the French Broad River upstream of Asheville. Approximately 22 miles long, the 2 projects roughly parallel the French Broad and then traverse uplands where large tributaries and smaller feeder streams are crossed.

From the Junction with I-40 and east to near the Henderson County line, I-26 traverses relatively thick soils derived from rocks of the Ashe Formation. Residual soils classified as A-7, A-6, and some A-4 overlie deep saprolitic silts grading to sand and or weathered rock. Total soil thickness ranges from 10 to 50 feet deep depending on slope and associated erosion rates. Weathered rock can be 5 to 20 feet thick with hard rock found in deep cuts and near the surface on steep slopes.

Floodplain soils of the French Broad River are present at the toe of the EBL embankment - in places - from before the Long Shoals Road interchange to the overpass at Glenn Bridge Road. Sections of the floodplain are impounded by natural levees along the riverbank. The low areas have scour channels, beaver ponds and extensive swampy ground with standing water. Very soft organic silts and clays are present.

South of the airport I-26 crosses the Cane Creek valley where soils are dominantly alluvium derived from the Brevard Schist. Alluvium here is 10 to 14 feet deep with basal sand and gravel overlain by thick sequences of clay and silt mixes with intermittent organic areas. Existing embankment on approaches to the Cane Creek, bridges have settled slightly. The travel lanes have a small undulation for about a half a mile on both sides of Cane Creek.

Upland areas of the Brevard Schist tend to have thin silty saprolitic soils with thin residuum and shallow weathered rock. A bed of marble quarried in Fletcher apparently runs under I-26 but is below the alluvium of Kimsey Creek.

East bound of the US 25 interchange at Fletcher to within sight of the NC 225 interchange, bedrock is Henderson Gneiss, and it is a metamorphosed granite. Large areas of the gneiss has been intruded by other granites. The interstate runs fairly straight and level through these uplands. Soils on the Henderson Gneiss tend to be somewhat shallow and have a sandy clay residuum underlain by sandy saprolite and shallow weathered rock which may grade rapidly to hard rock.

Drainages within the granitic terrain typically have from 5 to 14 feet of alluvium with basal sand and gravel overlain by clayey and silty soils. In this section to the project, embankment placed over floodplain soils are in good shape with smooth travel lanes.

Groundwater may be shallow in gently rolling areas of Henderson Gneiss and associated granitic rock such as I-26 passes through.

The final rock type found along the projects starts near the NC 225 interchange, it is mica gneiss and silicious gneiss like that of the Ashe Formation.

Anticipated Impacts and Recommendations

At this stage of our evaluation, we have the following comments:

The majority of existing cuts are in soil, they are stable. Some but not a lot of hard rock is expected to be encountered if existing cuts are extended.

Soft, organic, fine grained alluvial soils are present between in the floodplain of the French Broad River between the interchange of High Shoals Road and the overpass at Glenn Bridge Road. These soils should be avoided if possible.

Some minor settlement is noticed in the embankment placed over alluvium of Cane Creek. Areas of soft clayey soils and or organic soils are present in the Cane Creek floodplain.

Cut slopes at 2:1 (H: V) or flatter would be recommended.

For questions or comments pertaining to the geotechnical content, please contact W. Dave Frye, L. G. at 828-298-3874.

NWW/TWF/WDF/dbm/jb

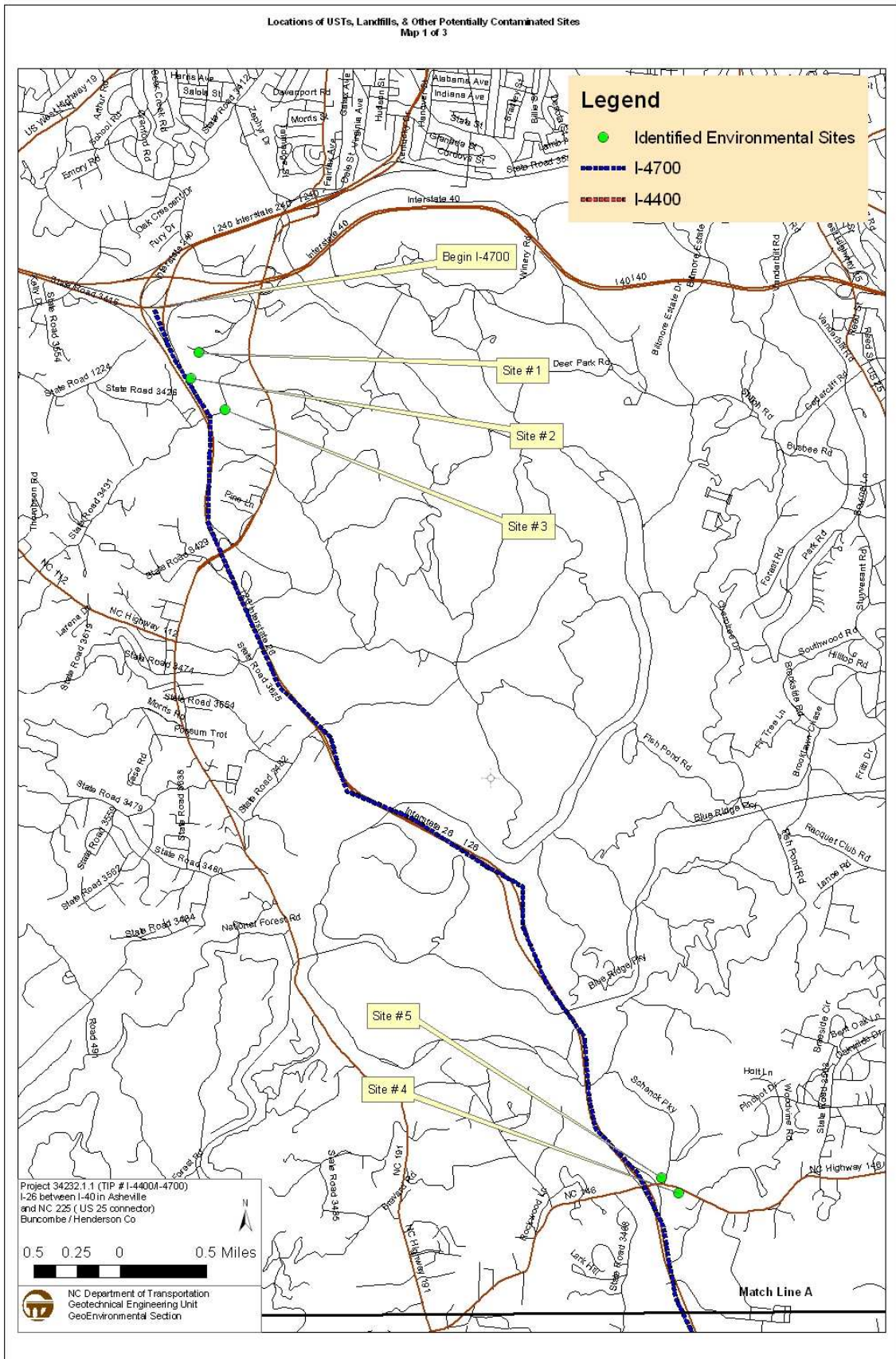
TABLE 1 - USTs, Landfills & Other Potentially Contaminated Sites

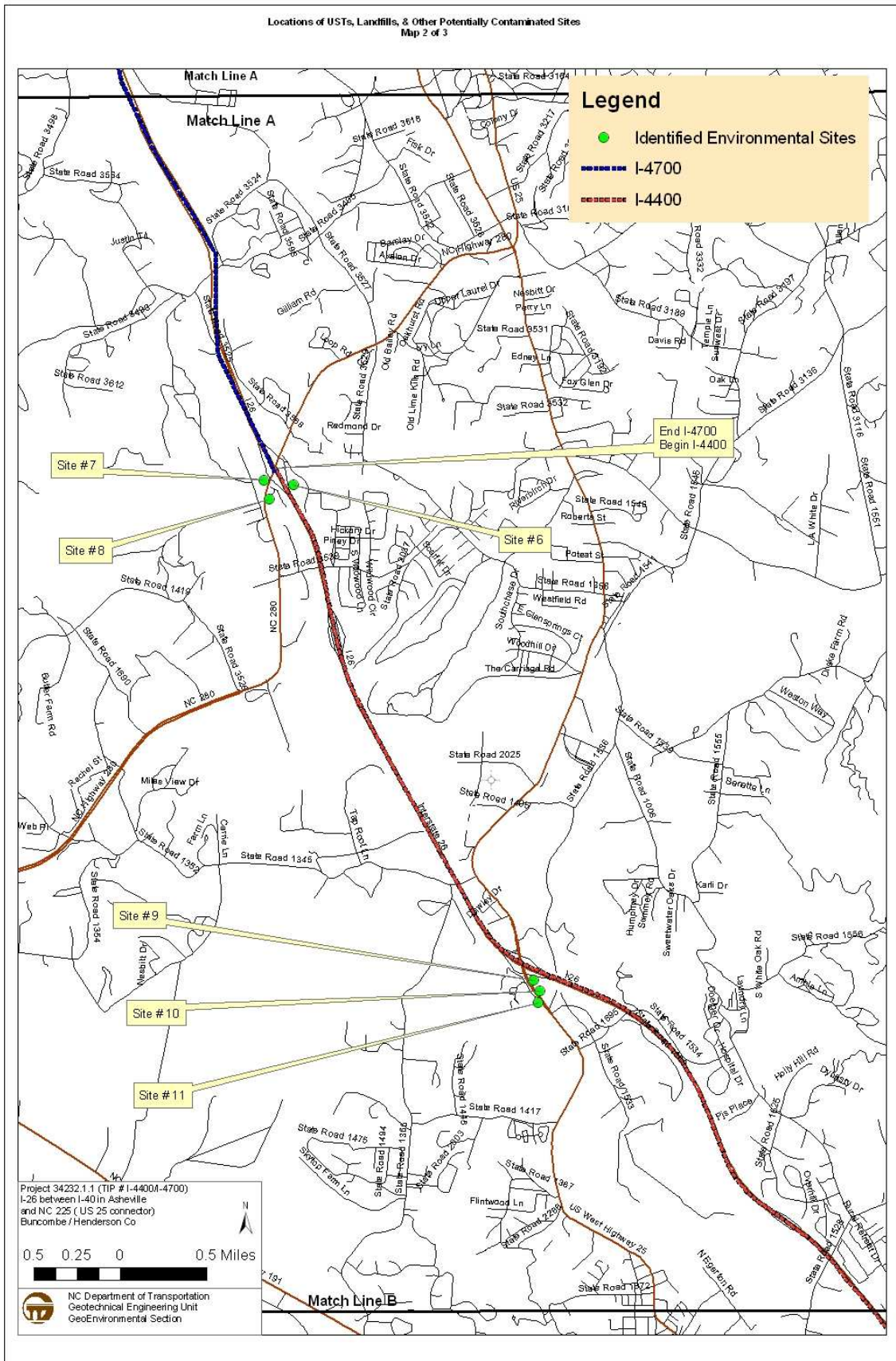
Site #	Type	Location	UST Facility ID #	Property Owner	UST Owner	Anticipated Impacts	Anticipated Severity	Comments
1	UST	40 Interstate Boulevard	Unknown	Beacon Partners #8, LLC	Brown Transportation /Carolina Tractor Co.	Petroleum contaminated soils	Low	Carolina Engine/Div. Of Carolina Tractor; GW Incident #9070, soil contamination, site closed by DENR; No known USTs presently at site
2	Illegally Dumped Waste	I-26 Right of Way	N/A	NCDOT	N/A	None	None	“Highway 29 Dump Site”, DENR Hazardous Waste ID # NCD986188-308; Drums of “oil, water & green jello” placed on side of highway; sampled and removed; Site closed by DENR
3	Landfill	80 Pond Road (Landfill #1 – south side) 79 Pond Road (Landfill #2 – north side)	N/A	Landfill#1: Brownlow L. Hyder Landfill #2: Sonia G. Gribble	N/A	Metal and wood debris, soils contaminated by metals, solvents	Low	Landfill #1 is now Hyder Concrete Co., Landfill #2 is now Tri-State Scrap Metal, Inc.; Former Municipal Solid Waste Landfill, closed in 1982; Reportedly contains solvents
4	UST	380 Long Shoals Road	0-036325	Biltmore Commercial Properties, LLC	Energy Mart Stores, Inc.	Petroleum contaminated soils	Low	Energy Mart #10; 3 USTs > 3500 gallons, installed 9/00
5	UST	371 Long Shoals Road	0-031879	Carl H. Ricker, Jr.	Citizen’s Fuel Co.	Petroleum contaminated soils	Low	Citizen’s Food Store #114; 4 USTs > 3500 gallons, installed 10/90

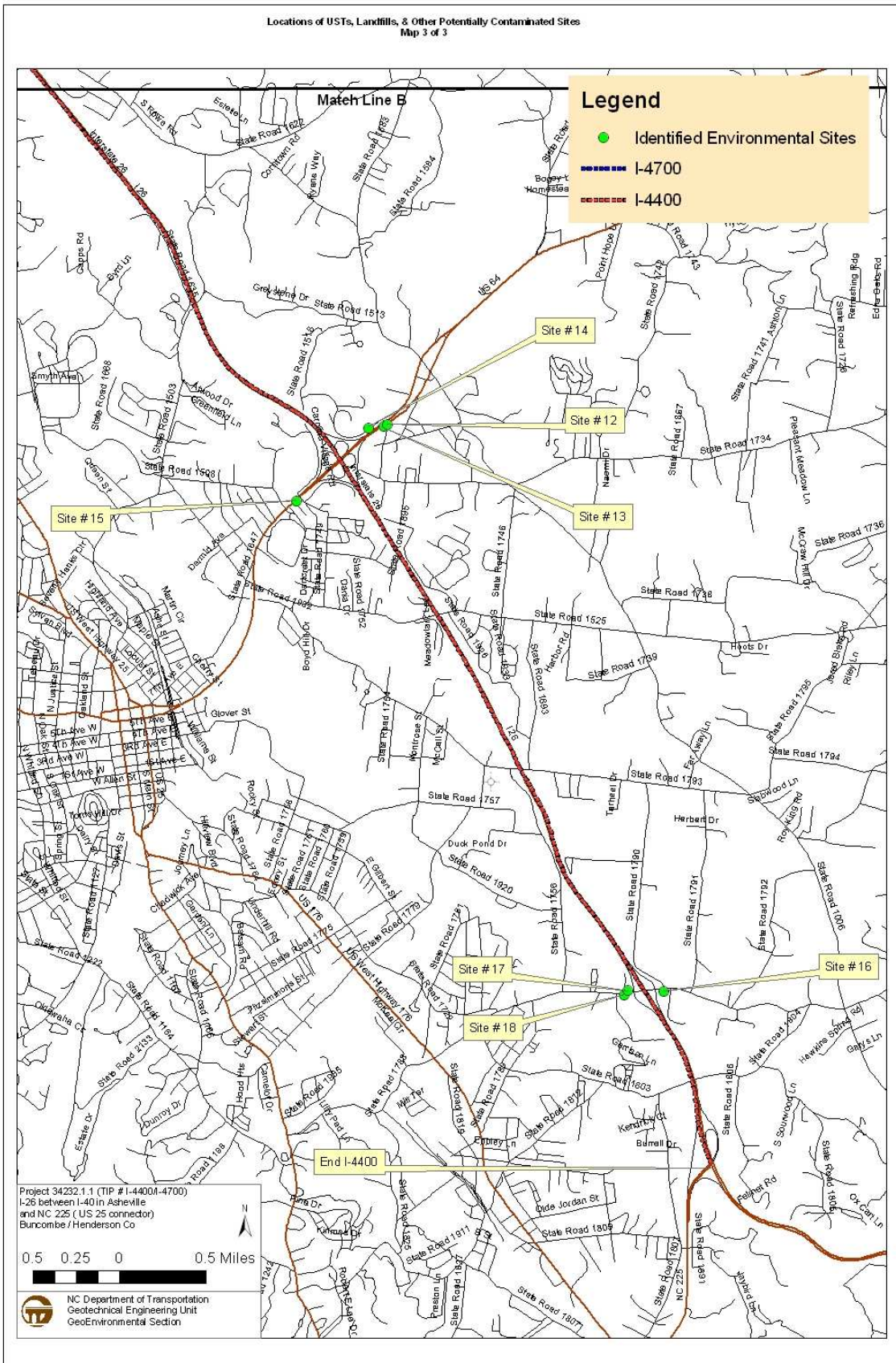
Site #	Type	Location	UST Facility ID #	Property Owner	UST Owner	Anticipated Impacts	Anticipated Severity	Comments
6	UST	622 New Airport Road	Formerly 0-004253	Asheville Regional Airport Authority (formerly Exxon Co., USA)	Exxon Co., USA	Petroleum contaminated soils and groundwater	Low	Abandoned gas station, formerly Airport Exxon #4-5173; 4 USTs removed 3/92; GW Incident #7203, groundwater contamination, site not closed by DENR
7	UST	653 New Airport Road	0-013168	Youngblood Oil Co., Inc.	Youngblood Oil Co., Inc.	Petroleum contaminated soils and groundwater	Low	Mr. Pete's Market #2; 4 USTs > 3500 gallons, installed 3/90; 6 USTs removed 3/90, 1 UST removed 12/97; GW Incident #23284, groundwater contamination, site not closed by DENR; monitoring wells present
8	UST	195 Underwood Road	Formerly 0-003618	R. Krafton Locke	Apple Tree Enterprises	Petroleum contaminated soils	Low	Apple Tree Honda; 2 USTs removed 8/98; GW Incident # 19727, soil contamination, site closed by DENR
9	UST	5990 Asheville Highway (US 25)	0-032376	I-S-I Enterprises, LLC	I-S-I Enterprises, LLC	Petroleum contaminated soils	Low	United Energy Travel Plaza; 3 USTs > 3500 gallons, installed 9/90
10	UST	6255 Hendersonville Road (US 25)	Formerly 0-009741	Ronnie P. Gray	Petroleum World, Inc. (removed USTs only)	Petroleum contaminated soils and groundwater	Low	R&P Cycle Works; formerly Hudson's Chevron; 1 heating oil UST on property, installed 3/76; 5 USTs removed in 12/04; GW Incident #'s 7339 and 24239, groundwater contamination, site not closed by DENR; monitoring wells present

Site #	Type	Location	UST Facility ID #	Property Owner	UST Owner	Anticipated Impacts	Anticipated Severity	Comments
11	UST	5837 Asheville Highway (US 25)	0-035974	Robert J. Gasperson, Sr.	Mansfield Oil Co. of Gainesville	Petroleum contaminated soils and groundwater	Low	Naples Mini Mart; 3 USTs > 3500 gallons, 1 UST < 3500 gallons, all installed in 5/99; GW Incident #'s 5561, 13661, 28106, groundwater contamination, site not closed by DENR; monitoring wells present
12	UST	104 Sugarloaf Road	0-009485	OCHO, Inc.	Cason Co., Inc.	Petroleum contaminated soils and groundwater	Low	Interstate Hardware & Express Lube; 3 USTs > 3500 gallons, 2 USTs < 3500 gallons, all installed in 4/78; 2 USTs removed in 12/91 (1) and 7/98 (1); GW Incident #19292, groundwater contamination, site not closed by DENR; monitoring wells present
13	UST	103 Sugarloaf Road	0-009807	James N. Albritton, Jr.	Mountain Energy Corp.	Petroleum contaminated soils	Low	Convenience King #23; 5 USTs >3500 gallons, all installed in 7/93; 8 USTs removed from site in 7/93
14	UST	20 Francis Road	N/A	JCPSMP Properties, LLC	Unknown	Petroleum contaminated soils	Low	Hendersonville Tire & Oil Co.; Unregistered waste oil UST at right rear of building; UST present before 1985 per Jim Parham, business owner
15	UST	1920 Chimney Rock Road (US 64)	0-017523	Duane & Margaret McKibbin Family Limited	Henderson Oil Co.	Petroleum contaminated soils and groundwater	Low	Energy Mart #1; 3 USTs . 3500 gallons, 1 UST < 3500 gallons, all installed in 4/85; GW Incident #9644, groundwater contamination, site not closed by

				Partnership				DENR
Site #	Type	Location	UST Facility ID #	Property Owner	UST Owner	Anticipated Impacts	Anticipated Severity	Comments
16	UST	754 Upward Road	0-035376	J. Hall Waddell	JH Reaben Oil & Supply Co.	Petroleum contaminated soils	Low	Four Seasons Triangle #215; 4 USTs > 3500 gallons, all installed in 6/96
17	UST	712 Upward Road	0-009804	Anne E. Dyer	Mountain Energy Corp.	Petroleum contaminated soils and groundwater	Low	Convenience King #25; 3 USTs > 3500 gallons, installed in 10/93; 7 USTs removed in 1/94, 2 USTs removed in 10/98; GW Incident #12892, groundwater contamination, site not closed by DENR, monitoring wells present
18	UST	715 Upward Road	0-035277	Margaret D. McKibbin Trust	Henderson Oil Co.	Petroleum contaminated soils	Low	Energy Mart #8; 3 USTs > 3500 gallons, 1 UST < 3500 gallons, all installed in 3/96

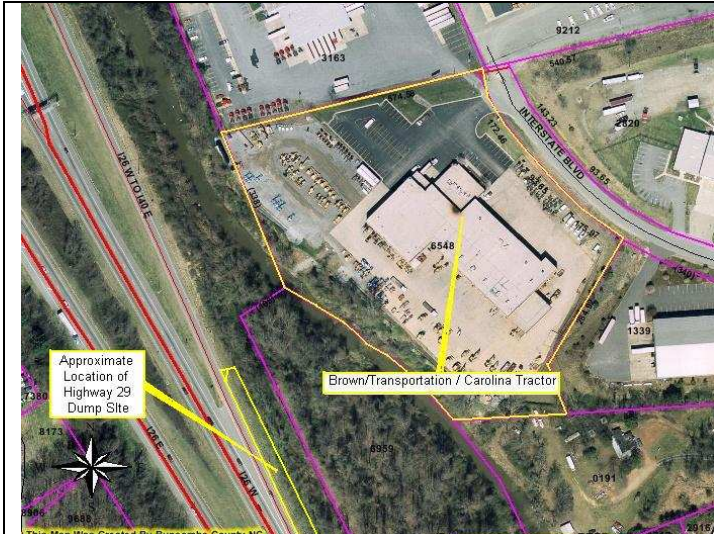






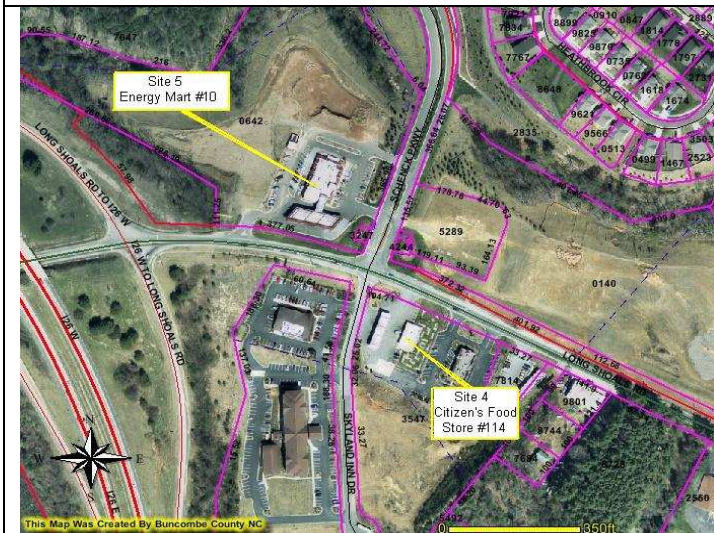
- F. APPENDIX A (continued)
- G.
- H. Site Photographs

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Sites 1 and 3: Carolina Engine / Div. of Carolina Tractor (Site 1) on Interstate Boulevard, east of I-26, and approximate location

Site 2: Pond Road Landfill Sections 1 and 2 bisected by Pond Road, east of I-26.



Sites 4 & 5: Energy Mart #10 (Site 4) and Citizen's Food Store #114 (Site 5) on Long Shoals Road, east of I-26.

Site 6: Abandoned Exxon station on NC 280 (New Airport Road) west of I-26, looking northeast from Aviation Way. NC 280 is to the east.

- I. APPENDIX A (continued)
- J.
- K. Site Photographs

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Site 7: Mr. Pete's Market #2 looking southeast from NC 280.

Site 8: Apple Tree Honda, located on Underwood Road east of I-26.



Site 9: United Energy Travel Plaza looking southeast from US 25.

Site 10: R&P Cycle Works looking northeast across US 25 from Site 11.

- L. APPENDIX A (continued)
- M.
- N. Site Photographs

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Site 11: Naples Mini Mart looking south from US 25.



Site 12: Interstate Hardware & Express Lube looking east across Sugarloaf Road from Site 13.



Site 13: Convenience King #23 looking west across Sugarloaf Road from Site 12.



Site 14: Hendersonville Tire & Oil Co., located on Francis Road, immediately north of westbound US 64 and east of I-26.

- O. APPENDIX A (continued)
- P.
- Q. Site Photographs

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Site 15: Energy Mart #1 looking southwest across US 64 (Chimney Rock Road).

Site 16: Four Seasons Triangle #215 looking south across Upward Road.



Site 17: Convenience King #25 looking northeast across Upward Road from Site 18.

Site 18: Energy Mart #8 looking southwest across Upward Road from Site 17.

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