ENVIRONMENTAL ASSESSMENT CITY OF RALEIGH SOLID WASTE TRANSFER FACILITY

Prepared for: City of Raleigh
Department of Solid Waste Services

State Contact: Mr. Paul Crissman
North Carolina Department of Environment and Natural Resources
Division of Waste Management
401 Oberlin Road
Suite 150
Raleigh, North Carolina 27605

Location: 800 Corporation Parkway
Raleigh, NC 27610

Cooperating Agencies: None

August 2001

HAZEN AND SAWYER
Environmental Engineers & Scientists

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North Carolina
Department of Administration

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DIVISION OF WASTE MANAGEMENT
FAYETTEVILLE REGIONAL OFFICE

Michael F. Easley, Governor

Gwynn T. Swinson, Secretary

December 17, 2001

DEC 2001
Received
Waste Management
Division

Mr. Paul Crissman
N.C. Dept. of Env. & Nat. Resources
Division of Waste Management
1646 MSC
Raleigh, NC 27699-1646

Dear Mr. Crissman:

Re: SCH File # 02-E-4300-0221; Environmental Assessment/Finding of No Significant Impact City of Raleigh - Proposed Construction of a Solid Waste Transfer Facility

The above referenced environmental impact information has been reviewed through the State Clearinghouse under the provisions of the North Carolina Environmental Policy Act.

No comments were made by any state/local agencies in the course of this review. Therefore, no further environmental review action on your part is required for the compliance with the Act.

Best regards.

Sincerely,

Chrys Baggett

Ms. Chrys Baggett
Environmental Policy Act Coordinator

cc: Region J

Jim Barber

North Carolina
Department of Environment and Natural Resources

Division of Waste Management

Michael F. Easley, Governor
William G. Ross Jr., Secretary
Dexter R. Matthews, Interim Director

NCDENR

October 30, 2001

MEMORANDUM

To: Chrys Baggett
State Clearinghouse

From: Paul Crissman
Solid Waste Section

Subject: EA/FONSI City of Raleigh Transfer Station

Enclosed are 16 copies of the EA/FONSI for the City of Raleigh Transfer Station. This has completed DENR review. We are submitting this for further state review according to the State Environmental Policy Act.

If you have questions or concerns regarding this matter, please let me know.

PSC/mlr

Cc: Melba McGee (w/o copies)
Jim Barber (w/o copies)

Enclosures

1646 Mail Service Center, Raleigh, North Carolina 27699-1646
Phone: 919-733-0692 \ FAX: 919-733-4810 \ Internet: www.enr.state.nc.us/

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HAZEN AND SAWYER
Environmental Engineers & Scientists

Hazen and Sawyer, P.C.
4011 WestChase Blvd.
Raleigh, NC 27607
919 833-7152
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August 2, 2001

Paul Crissman
State of North Carolina Department of Environment and Natural Resources
Division of Waste Management
401 Oberlin Rd., Suite 150
Raleigh, NC 27605

Re: Environmental Assessment
City of Raleigh Solid Waste
Transfer Facility
H&S No. 30588

Dear Mr. Crissman,

On behalf of the City of Raleigh, we are providing you with eleven review copies of the Environmental Assessment for the City of Raleigh Solid Waste Transfer Facility located in Wake County, NC. This document has been prepared in accordance with *"Environmental Assessment Guidelines"* published by the N.C. Department of Administration State Intergovernmental Review Clearinghouse, as well as the most complete information available at this time.

When the Department needs additional copies for distribution, please contact us. In the interim, if you have any questions or require additional information, feel free to contact us.

Very truly yours,

HAZEN AND SAWYER, P.C.

John A. Bove, PE
Associate

Attachment: Environmental Assessment (11 Copies)

cc: Gerald Latta, City of Raleigh (w/Attachment)

A. PROPOSED PROJECT DESCRIPTION

1.0 Project Description/Background

The subject project is entitled "The City of Raleigh Solid Waste Transfer Facility" located in Raleigh, Wake County as shown on the Vicinity Map, Exhibit A. It is located on an approximately 14-acre site south of the City's closed Wilders Grove Landfill, as shown on the attached Exhibit B, Location Plan. The site is owned by the City of Raleigh.

The Solid Waste Transfer Facility ('The Facility") consists of a large metal building and support structures that allow transfer of Municipal Solid Waste (MSW) from commercial or municipal haulers to large dedicated trailers that are used to haul the MSW to a landfill. Transfer facilities are used in instances where the hauling distance to the landfill is too great to be considered economical for the vehicles that collect refuse from curbside or dumpsters. By combining several loads into a larger trailer, the hauling costs are significantly reduced. Transfer facilities are common throughout the country since fewer landfills are being constructed and the existing disposal facilities are located in more remote locations.

The City of Raleigh closed the Wilders Grove Landfill on December 31, 1997 to comply with new state and federal regulations. Since the closure of the City's only landfill, the City has hauled residential refuse collected by its crews to Wake County's landfill located on Durant Road in North Raleigh. This landfill is expected to run out of disposal space and close sometime in 2004. At that time, the City will have to dispose of its refuse at another location. There are currently no existing or planned landfills within economical hauling distance of Raleigh. As a result, the City is planning to construct a transfer facility to minimize solid waste management costs to the citizens of Raleigh.

The proposed project is planned at a site that minimizes impact to adjacent properties, residents and the environment. The site was developed for use as a paper recycling plant and later by an electrical contractor. Minimal additional site disturbance is necessary to construct the proposed transfer facility. Few sensitive environmental receptors surround the site, which is bordered by the existing landfill, borrow areas, a railroad and future expressway. The site conditions, coupled with the nature of the proposed operations and environmental protection measures serve to minimize impacts and provide an excellent site for the facility.

Detailed descriptions of the site and existing and proposed facilities are provided in the following sections.

2.0 Site Description

The project site is on a 14-acre parcel known as the "Pike Property" located within the limits of the City of Raleigh in Wake County. The site is currently zoned I-1 (Industrial Use). The City acquired the property in 2000, although it is currently used the

operations base for Pike Electric Co., a large electrical contractor. In early 2001, the City added this property to its permitted Wilders Grove Landfill Facility Boundary, although no disposal operations have occurred nor are any planned for this site. The site is bounded to the north and east by the Wilders Grove Landfill property (owned by the City of Raleigh), to the west by a permitted soil borrow area (City of Raleigh) and to the south by a Norfolk Southern railroad line and Crabtree Creek. The proposed US 64 Bypass is planned just south of the site. The proposed alignment is along the south bank of Crabtree Creek. An Area Plan showing the surrounding properties, Exhibit C, is attached.

The property was used by Weyerhaeuser Company as a cardboard recycling plant until the facility was destroyed by fire in 1980. The site was vacant until 1987 when Pike Electric Co. began operations there. Pike Electric uses the site as their Raleigh operations center, including material storage and operates approximately 75 line maintenance and other support vehicles.

Access to the site is limited to a non-public extension of Corporation Parkway, a City maintained street. The site slopes generally to the south with maximum elevations approximately 210-ft. and lowest elevations approximately 170-ft along Crabtree Creek. Approximately 11.5 acres of the 14-acre site are presently cleared of vegetation. Most of this area is occupied by existing structures (see Section A3.0 of this Report for description of existing structures), concrete pavement or aggregate-surfaced parking and storage areas. A detailed site plan is provided in Existing Conditions Plan, Exhibit D.

3.0 Existing Facilities

Several existing structures are used in the Pike Electric operation. These structures will remain in place until the transfer facility is constructed. At that time, some buildings may be demolished to allow construction of the new transfer station and related roadways. A brief description of each building is provided below. Refer to Exhibit D for building locations.

Office – An 1800 square foot one story block structure is used as the office for Pike Electric. The building contains offices and restrooms and is serviced by a septic system. Water is supplied by a well, but bottled drinking water is provided for employees. An inactive truck scale is located outside the building. The City plans to utilize this structure in the proposed project. The building will be connected to City water supply and sanitary sewer. At this time, interior remodeling of the building is anticipated.

Shop – A 5500 square foot shop building is located in the central portion of the site. This single story metal building has one drive-through bay for vehicle maintenance as well as two additional vehicle bays. Sanitary facilities (septic) are provided. An above ground fuel tank used to refuel Pike Electric's vehicles is located between the shop and office. The proposed project will use the shop as a warehouse/recycling building

where recycled products are shipped for transport to the end use market. No structural modifications are planned at this time.

Storage Buildings – Two metal storage buildings are located on the south end of the site adjacent to the railroad tracks. The larger of the two structures is a 6000 square foot metal building with concrete slab. This building also includes a truck loading dock and former railroad spur. The smaller of the buildings is a 2400 square foot metal building that is used to store equipment and spare parts. It is anticipated that these buildings as well as the loading dock will be demolished to support the new construction.

4.0 Proposed Facilities

The proposed project includes a transfer station building, a scale house, utilities roads, parking areas, and a limited amount of site grading. The proposed location of the new structures is shown on Proposed Site Plan, Exhibit E. The proposed transfer station is a 28,000 square foot (140 feet by 200 feet in area) single story metal building approximately 40 feet in height. The north facing side of the building will be open to allow free truck access. The floor of the structure will be a reinforced concrete slab. A portion of the floor will be a structural slab to allow transfer vehicles (tractor-trailers) to be positioned below the floor. Refuse will be loaded into the trailers through open pits in the slab. The building will be equipped with a ventilation system and numerous skylights to supplement the electric area lighting.

The scale house will be approximately 1000 square foot in area and will be located at the site entrance. A doublewide trailer or metal building will be used. The scale house will host the scale operators, offices, records, computers and communication equipment. Sanitary facilities will be provided. Three truck scales will be installed adjacent to the scale house to weigh incoming and outgoing refuse loads.

The existing office will be used as the site office for City operations personnel. It is anticipated that the existing shop will be used by the City to store and load materials to be recycled.

The existing access road into the site will be widened to accommodate projected traffic. On-site roads will be constructed to allow access to the transfer station, office and recycling building. A trailer parking area will be provided on the west side of the site. Employee and visitor parking will be provided next to the office and shop buildings.

5.0 Proposed Utilities

The existing septic system and water supply well will be deactivated. An existing City water line will be extended down Corporation Parkway to serve the site. A sanitary sewer will be installed to serve sanitary facilities as well as wash water generated from the transfer station operations. A pump station will be constructed to convey all of the sewage and wash water to the existing City sewer on Corporation Parkway north of the project site.

Surface water runoff controls will be provided. Since slightly more than 1-acre of clearing will be needed to construct the project, little new erosion and sediment controls will be required. Stormwater collection and treatment structures will be constructed and existing structures will be updated or replaced as needed. Stormwater basins are planned in the southwest and southeast corners of the site near the existing railroad line. Little change in paved or impervious surface area is anticipated since most of the existing ground surface is paved or surfaced with gravel. No ground disturbance or construction is planned between the railroad and Crabtree Creek. Stormwater currently exits the site in a drainage ditch parallel to and north of the railroad line.

6.0 Proposed Site Grading

The proposed project will result in little change to the existing site grades. Access to the transfer station, office and recycling building dictate that on site access roads be constructed at or near existing ground surface elevations. The transfer station itself will be constructed on an elevated area. Little fill will be needed to achieve proposed finish floor elevation.

Since much of the site is currently graded to drain, only a minor amount of grading will be required to establish drainage. A minor amount of fill will be needed to widen the main access road from the scale house to the site entrance. The City of Raleigh owns and operates a borrow area to the east of the project site. This area will be used to obtain any additional fill soil required and to stockpile any excess soil or rock from construction.

B. PROJECT PURPOSE AND NEED

1.0 Project Purpose

The City of Raleigh closed its only landfill at the end of 1997. Since that time the City has contracted with Wake County for refuse disposal. The County's currently operating facility, the North Wake Landfill, is scheduled to close when it runs out of disposal capacity some time in 2004. Once this landfill closes, there will be no landfill in the region close enough to Raleigh for its collection vehicles to economically haul to. This includes the proposed South Wake Landfill, if constructed by the County. The hauling distance from Raleigh to the South Wake site is too long to be considered economical for most of the City's collection routes. For this reason, a transfer facility is required. The function of the transfer facility is to provide a place where refuse collection vehicles can dump their loads and return to collection activities. The refuse hauled by the collection vehicles is placed into tractor-trailers that are then hauled to a landfill for disposal. The transfer of the refuse into trailers increases efficiency and allows the longer hauling distance to be more economical. Providing a convenient central location to transfer solid waste allows the City to obtain the most competitive prices for disposal over a term favorable to the City and its taxpayers.

This project will allow the City of Raleigh Solid Waste Services Department to continue to serve its expanding population without adding additional collection vehicles and crews to compensate for increased hauling time. The City considers the proposed transfer facility as the most economical option for long term refuse management. A transfer facility is a commonly accepted option for solid waste management and, according to state records [1], over seventy such facilities have been permitted, constructed and operated in North Carolina, including four in Wake County.

The project also has the least impact on the environment. The project is located on City owned property adjacent to a closed landfill. The impact on the area will be significantly less than for a landfill on the site, or for alternate approaches to solid waste disposal. The are no sensitive environmental receptors impacted by the site. Neighboring land is dedicated to industrial transportation uses and has no residences, schools, parks or other significant resources. Relatively little site preparation is needed to construct the project. A transfer facility will serve to reduce environmental impact to the region when compared to alternative solid waste management systems. Benefits to air quality, surface water quality, and reductions in illegal dumping will be realized.

2.0 Service Area and Tonnage

The Wilders Grove Landfill, when in operation, proved to be a central location convenient to the City's collection crews as well as commercial haulers serving Raleigh and adjacent communities. The site has good access from US 64 and I440. The construction of the proposed US 64 Bypass will further increase access efficiency. The site is central to the greatly expanding communities south and east of Raleigh.

The lack of a regional landfill also impacts other municipalities in the region. The hauling distance from collection points to a landfill or transfer facility significantly impacts the solid waste management costs of municipalities, industry, business and citizens that contract directly with the private sector to collect their refuse. The proposed transfer facility is planned to serve residents, businesses, industry and commercial haulers in Wake County and portions of Johnston, Durham, Franklin and Chatham Counties. This includes, but is not limited to the Cities of Raleigh, Cary, Garner, Wake Forest, Morrisville, Rolesville, Wendell, Zebulon and the Research Triangle Park. Haulers operating in unincorporated areas within these Counties will also be served. The users of the proposed transfer facility will be dependent on the location of the landfill, the presence of other transfer facilities in the region, and the hauling distance to the proposed project site.

The City of Raleigh will establish the cost for municipalities, industries and commercial haulers using the proposed transfer facility. The cost, which may be established by contract, will include operation of the transfer station, hauling of the refuse to the landfill and disposal in the landfill. The City of Raleigh Solid Waste Services Department currently collects, on average, 500 tons of refuse from residents each day. In addition to the curbside and multi-family collection, it is estimated that another 600 to 1000 tons per day is collected from industry and commercial sites within the City limits. As much as 1000 tons per day may be generated by other municipalities and commercial haulers outside Raleigh. To meet the needs of its growing population and to serve other citizens and municipalities in the area, the proposed facility will be designed and operated to manage as much as 3000 tons of Municipal Solid Waste (MSW) per day.

The facility will have to receive a Permit To Operate from the North Carolina Department of Natural Resources. The facility will take only MSW as defined in State regulations and statutes. No hazardous wastes will be accepted. Other materials banned from landfill disposal under North Carolina regulations will not be managed at the site.

3.0 Operations Description

The proposed facility will allow collection vehicles to transfer refuse loads to larger trailers for transit to the landfill. All collection vehicles are weighed as they enter the facility. Billing will be conducted on a weight basis, as recorded at the scales. Trucks enter the site and then back into the transfer station using a large concrete apron on the north side of the building. Each truck is unloaded on the concrete "tipping floor" inside the building. At this time the load will be visually inspected by operations staff to assure that unacceptable materials are not included in the load. Any such material is separated from the MSW and disposed of properly.

The trailers are parked below pits, or openings in the concrete tipping floor. Front end loaders operating on the tipping floor push the MSW through the pits and into the trailers. Once each trailer is full, it is moved outside the building and replaced by an

empty trailer. A tarp or cover is placed over the trailer and it is weighed and hauled to the landfill.

The proposed transfer station will have two pits and have the capacity to load two trailers at one time. All refuse is removed from the tipping floor at the end of the day and the floor is washed. All liquid collected from the tipping floor, including this wash water, is collected by a series of drains, sent to a pump station and conveyed to the City's sanitary sewer.

The City plans to use existing shop at a recycling building. Targeted recycled products that have been collected by City crews will be stored in the building and later loaded onto larger trucks for transport to market. It is anticipated that these products will be loaded and unloaded using fork lifts. Minor maintenance work on operations equipment may also be conducted in the former shop building, depending on the room available and the nature of the work required.

Parking areas will be provided for both empty trailers and full trailers awaiting transport to the landfill. Operations staff parking will be provided at the office and at the scale house.

C. ALTERNATIVES ANALYSES

1.0 Advantages of Selected Site

City staff has conducted planning and analyses over the last five years in anticipation of having to provide solid waste services without access to a local landfill. Analyses indicate that a transfer station located adjacent to the Wilders Grove Landfill is the most economical, efficient and environmentally sound option for managing the City's solid waste. The site has several operational and environmental advantages, which have been listed below.

1.1 Operational Advantages of Selected Site

a. The project site is currently owned by the City of Raleigh and properly zoned for the proposed use.

b. The site is located adjacent to the Wilders Grove Landfill, a centrally located site well known to municipal and commercial haulers.

c. The site is located at the end of a collector street so operations and traffic will result in minimal disturbance to existing traffic patterns.

d. The site is of sufficient size to adequately manage all of the project refuse quantities.

1.2 Environmental Advantages of Selected Site

a. The site provides effective environmental management without construction of a landfill within City limits.

b. The site size and location allows combination of several potential transfer facilities to be needed by other local municipalities.

c. The proposed site use is compatible with previous site uses and has large buffers that are monitored and maintained.

d. Minimal clearing and resultant loss of vegetation is required. Erosion potential is minimized.

e. No sensitive environmental receptors are located in the project area, so air, noise and traffic impacts are greatly reduced.

2.0 Alternatives Analyses

On the basis of the analyses conducted by the City several alternatives are available for disposal of the City's solid waste. Other potential sites for the proposed project have been considered. Reasonable alternatives to the proposed projects are listed below and described in more detail in the subsequent sections.

- No Action
- Direct Transport to Landfill
- Private Sector Contract
- Other Potential Sites

2.1 No Action

The "No Action" alternative would suggest that the City of Raleigh either continue the current disposal operations or discontinue collection service. The City currently hauls the refuse collected by its crews directly to the North Wake Landfill. This option will not exist once the landfill reaches its capacity in 2004. No expansion of the North Wake Landfill is feasible due to the proximity of developed areas and siting restrictions included in State regulations. Once this landfill reaches capacity, there will be no other landfill where the City can directly haul it's refuse economically.

If no disposal sites are available, the City could be forced or suspend to eliminate solid waste collection services. The economic and environmental impact of such a decision would be enormous and it is not conceivable that City government would take such a step except as a last resort.

The potential environmental, economic and legal implications make the "No Action" option the least attractive alternative.

2.2 Direct Transport to Landfill

Direct transport of refuse to the landfill by the collection vehicles is a reasonable alternative to the proposed transfer facility. This is the preferred mode of transportation for instances where the landfill is within a reasonable distance of the collection route. Once the North Wake Landfill closes, no landfill, incinerator or alternative disposal method is available within what is considered to be an efficient distance from the City's collection routes. No such facilities are likely to be constructed in the future due to population growth, environmental regulations and public opposition.

Analyses conducted by the City indicate that even the closest proposed landfill, the South Wake Landfill, is far enough from the "center of gravity" of the City's collection routes to require a transfer station. The status of the South Wake Landfill, which is in litigation, remains uncertain. The City may have to select an alternative landfill site once the North Wake Landfill closes, or it may select another landfill once its contract with Wake County expires. Under all of these scenarios, a transfer station is considered to be more economical than direct transport.

A collection crew consists of two to four people, including the driver. When the crew completes its designated route, or when the truck is full, the truck is driven to the landfill or transfer station. During transit to or from the landfill or transfer station the crew cannot collect refuse. If the transit time were to be extended through direct haul to the landfill, additional crews and equipment would be needed to complete collection routes on the designated days. Less equipment and personnel would be available for recycling and customer service tasks. Collection costs, with the corresponding taxes would increase in order to maintain the current level of service. It has been estimated that, with the current refuse quantities, the City would have to purchase eight to ten additional collection vehicles and hire and train the corresponding amount of crews to direct haul to a landfill only 30 miles from City Hall. This represents an increase of 15 percent over existing City forces to handle the current customer base. It should be noted that only the proposed South Wake Landfill falls within this distance. Other feasible disposal sites are considerable further from Raleigh and the impact on the Raleigh fleet and personnel would increase considerably for these sites.

Direct hauling to the landfill has environmental impacts as well as economic ones. An increase in vehicle miles associated with more collection vehicles and longer hauling distances will negatively impact traffic and air quality. In addition, higher collection and disposal fees will result in an increase in illegal dumping throughout the region. The value of recycled items may be reduced by increased contamination by refuse placed in collection bins by residents. These impacts have been documented nationwide in instances where solid waste services have been curtailed or costs have risen significantly. The City has worked hard to achieve the current level of service with direct impact to the environment. Direct haul to a distant landfill, except on a short term emergency basis, is not a preferred alternative from an economic or environmental standpoint.

2.3 Private Sector Contract

The private sector could provide the necessary transfer station to serve the City of Raleigh. The City could contract with one or several private firms to construct and operate transfer stations. The function of the transfer facilities would be essentially the same as described herein. The benefits of such a facility would be similar to those outlined for a City-owned facility. If for some reason the City is unable or unwilling to pursue the project, this alternative may be the most desirable. City staff have carefully evaluated this option.

The private sector capacity to manage transfer and hauling of the City's solid waste does not currently exist in the area. Existing facilities are too small to handle the City's refuse. Additional transfer station(s) would have to be constructed. This would result in permitting of one or more facilities, once satisfaction of the necessary zoning and environmental issues is demonstrated.

This alternative has been considered by City staff and is considered less desirable than a City-owned facility for several reasons. First, the proposed City site is considered ideal by City staff since it is centrally located. Since the City currently owns the site, no

land acquisition is needed. The proposed site is not likely to be developed for another use, whereas potential private sector sites may be developed for other desirable uses if a transfer facility is not constructed. The land development for alternative transfer facility sites will likely result in greater environmental impact when compared to the proposed project site.

Economic considerations have been included in the selection of the best alternative. Analyses conducted by the City indicate that solid waste management costs will likely be greater for a private sector facility. Since the contract term will be limited, land acquisition, permitting and construction costs will likely be passed on to the City in the form of contract fees. Costs for a City-owned facility can be distributed over a much longer time period; reducing unit costs. A long term contract with private firm(s) is not considered desirable by the City since the flexibility needed to respond to changes in the solid waste disposal market would be lost. The City's analyses indicate that a City-owned facility represents the least cost option with the least environmental impact.

2.4 Other Potential Sites

The City has considered potential sites in the vicinity of the City's Wilders Grove Landfill, although no detailed evaluation of alternate sites has been conducted. Alternate sites considered include parcels owned by the City of Raleigh. The City has determined that the project site selected is of sufficient size, has suitable site conditions and represents the minimum impact of any of the available parcels considered. An alternative site selected in another part of the City would represent an equal or greater environmental impact and would lack the central location that makes the project site operationally efficient.

D. EXISTING ENVIRONMENTAL CHARACTERISTICS OF PROJECT AREA

1.0 Topography

The site slopes generally to the south with maximum elevations approximately 210-ft. and lowest elevations approximately 170-ft along Crabtree Creek. Approximately 12-acres of the 14-acre site are presently cleared of vegetation. Most of this area is occupied by existing structures (see Section A3.0 of this Report for description of existing structures), concrete pavement or aggregate-surfaced parking and storage areas. A detailed site plan is provided in Exhibit E. The site has been graded in the past during initial development of the site. No pre-development topography is available for review. The slopes in the project area are gentle, consistent with previous uses of the site.

According to the National Flood Insurance Program, the 100-year flood elevation for Crabtree Creek in the vicinity of the project site is elevation 192-feet. The 100 year flood elevation is shown on the detailed site plan is provided in Exhibit E. Only an at-grade access road and parking areas are proposed within the floodplain. No construction that would restrict the flow of the 100-year flood or reduce the temporary water storage in the floodplain is proposed. It should be noted that the area inside the 100-year flood plain has been continuously used for vehicle and equipment storage in the past. Recent severe floods, including Hurricane Fran (500 year storm, 1996) and Hurricane Floyd (1999) did not result in flooding or property damage in this area. The adjacent railroad line was also not impacted during these flood events. A flood to the posted 100-year flood elevation will not result in the need to suspend transfer operations nor would proposed structures be subject to flooding.

2.0 Soils

The regional geology has been identified through numerous subsurface investigations of the adjacent Wilders Grove Landfill. According to CEC[2], the regional geology consists of a granitic intrusion known as the Rolesville Batholith. Residual soils overlying the rock consist of silty sands and sandy silts of the Appling Series. Groundwater generally flows from the northeast to the southwest (toward Crabtree Creek). The soils and rock native to the site are considered suitable for support of roads and a wide variety of structures. Any additional soil needed for fill will be obtained from the adjacent City of Raleigh borrow site. This soil has also been used successfully for a variety of construction projects.

A rock outcrop consisting of fractured granite, quartz and biotite is observed in the northeast corner of the site. At one time in the past, this area was excavated, but excavation was terminated once this competent rock was encountered. Any excavation into this rock can be achieved by standard methods. No other proposed construction areas are expected to be impacted by the presence of rock.

equipment will occur during the facility operating hours, which may be as long as twenty hours per day. The vehicle dumping and trailer loading operations will occur within the building, which will have some mitigating effect. Operations personnel working within the transfer station will be provided with hearing protection.

The site location, in a local low area surrounded by trees, is favorable for noise mitigation. Adjacent properties include the elevated I440 Beltline and proposed elevated US 64 Bypass. These roads will serve to both limit the propagation of noise from the project site and mask any noise that may be heard beyond the road embankment.

The proposed site will not cause noise impact to adjacent properties. The closest residential area is approximately 3000 feet west of the site. This area is west of I440 and will not be impacted by noise at the site. The closest commercial or industrial building to the site is over 2000 feet distant (to the northwest). It should be noted that since the City owns all the property between the site and I440 to the west and Corporation Parkway to the north, no sensitive noise receptors are expected to be added during the life of the project.

10.0 Water Resources – Moderate, but Positive Impact

10.1 Groundwater Resources

The proposed site will have no negative impact on the upper or lower aquifer beneath the site. The water supply well used in the current operations will be abandoned by the City.

10.2 Surface Water Resources

The proposed project will positively impact water resources compared with past and current operations. An erosion and sediment control system will be installed prior to construction. No such system exists currently. A stormwater management system will be constructed to collect and treat surface water runoff for storm events including the 25-year 24-hour design storm prior to discharge. This system will meet Neuse River buffer requirements as well as any NPDES requirements required for this site. The current site has no stormwater management system. The current site has approximately 10.5-acres of impervious surface, including buildings, pavement and parking areas. The proposed facility will have approximately 10-acres of impervious surface with the inclusion of stormwater management structures and additional vegetation buffer. In addition, any water that drains from the refuse and all water used to wash the tipping floor will be collected and pumped to the City's sanitary sewer rather than discharged to the surface water system. The proposed site improvements in conjunction with best operations practice at the transfer station will enhance water quality and reduce potential for erosion and downstream sedimentation.

11.0 Forest Resources

Not Applicable.

12.0 Shellfish or Fish and Their Habitats

Not Applicable.

13.0 Wildlife and Natural Vegetation

Not Applicable

14.0 Introduction of Toxic Substances – Minimal Impact

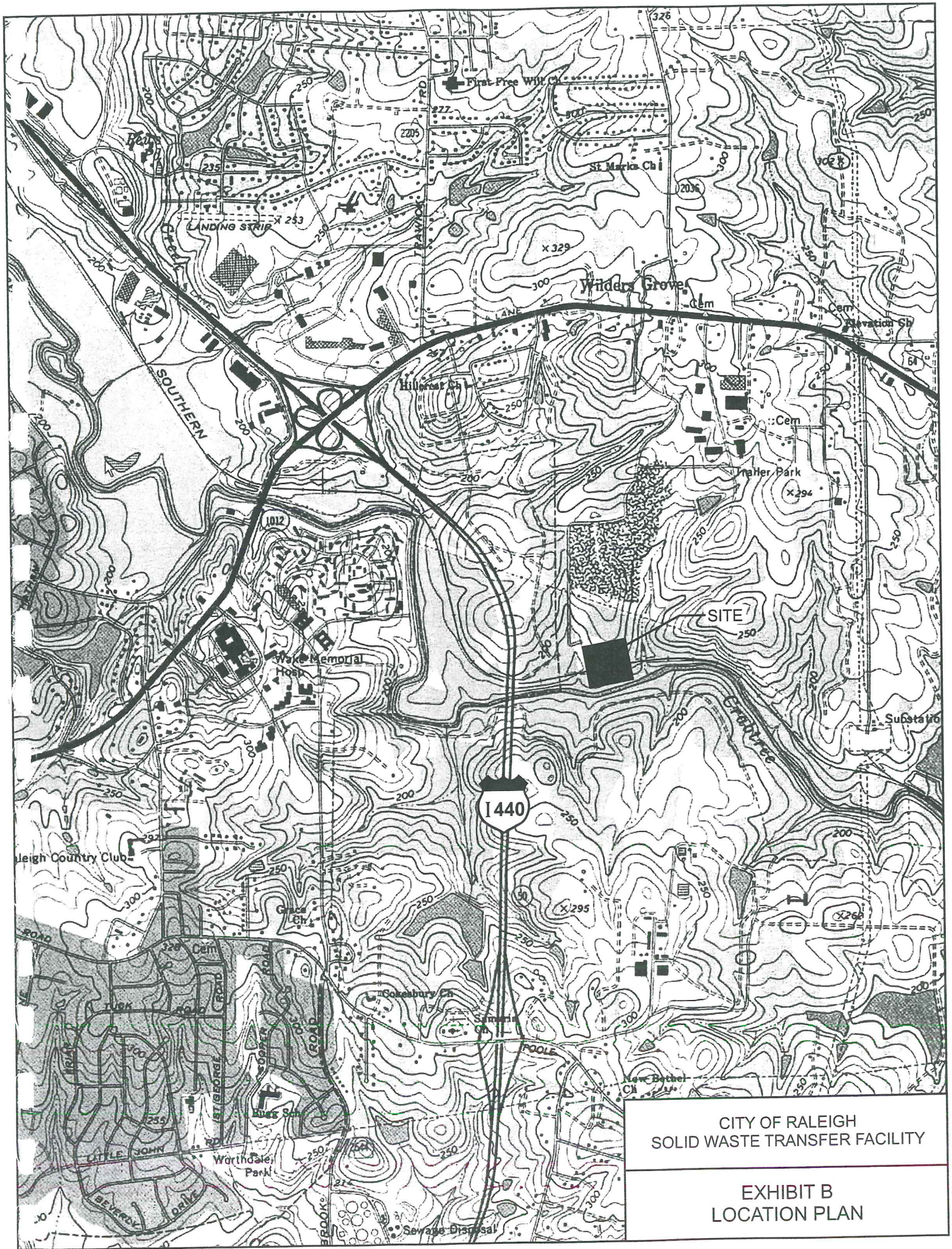
No toxic substances will be introduced during construction of the project. During operation, several systems and practices will be in place to assure that toxic substances will not be introduced to the environment. These include:

- Waste Prohibition – By permit and regulation, the facility cannot accept any hazardous, toxic or radioactive waste. Procedures are in place to screen and properly manage any such materials that may be brought to the site.

- Load Inspection – Operations staff will conduct a series of inspections on the refuse to assure that the material received is permitted by the NCDENR for this facility. A program of random visual inspections will be in place to check loads for unsuitable materials. Questionable loads will be investigated and tested by City operations staff as necessary. Any material that cannot be demonstrated to comply with the facility permit will be rejected. Radioactive waste monitoring equipment will be in place at the scales to identify such material should it be brought to the site. In addition, all loads that are dumped on the tipping floor are visually inspected by operations staff to assure that unsuitable material is not placed in the trailers.

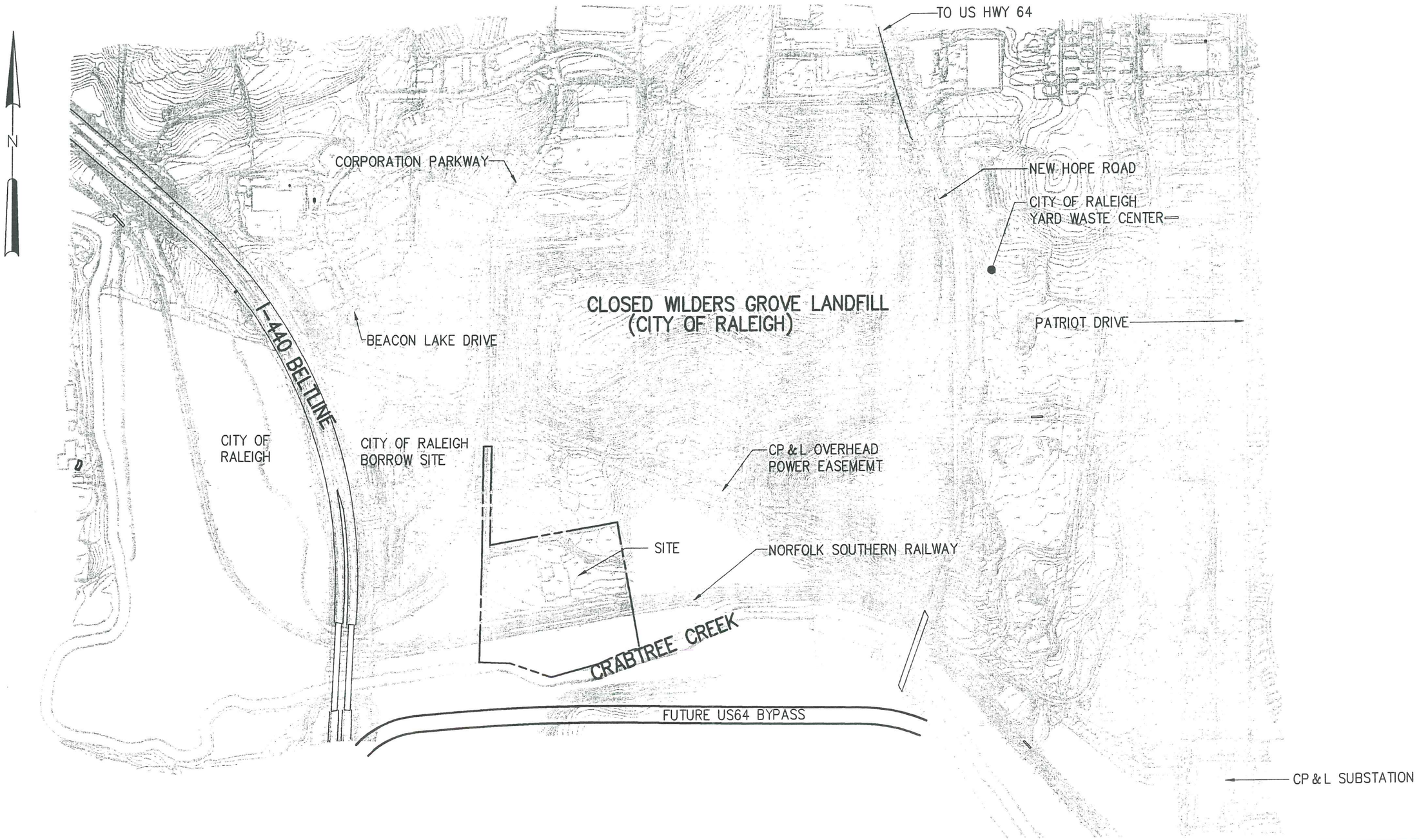
- Collection of Contact Water – Some liquid is expected to drain from the refuse while on the tipping floor. While this liquid is generally precipitation that entered the refuse before the refuse was collected, this liquid will be collected and managed separately from surface water runoff at the rest of the site. This liquid, referred to as "contact water", as well as water used to wash the tipping floor will be collected and sent via a pump station to the City's sanitary sewer. This liquid will be treated at the City's wastewater treatment plant.

- Containment of Spills – Any liquid that is discharged on the tipping floor and be isolated to further testing or analyses prior to discharge into the sewer system. If a spill of toxic material is suspected, the pump station can be deactivated until the nature of the material is determined. In this way, the liquid will not be discharged in an uncontrolled manner.



CITY OF RALEIGH
SOLID WASTE TRANSFER FACILITY

EXHIBIT B
LOCATION PLAN



PLAN

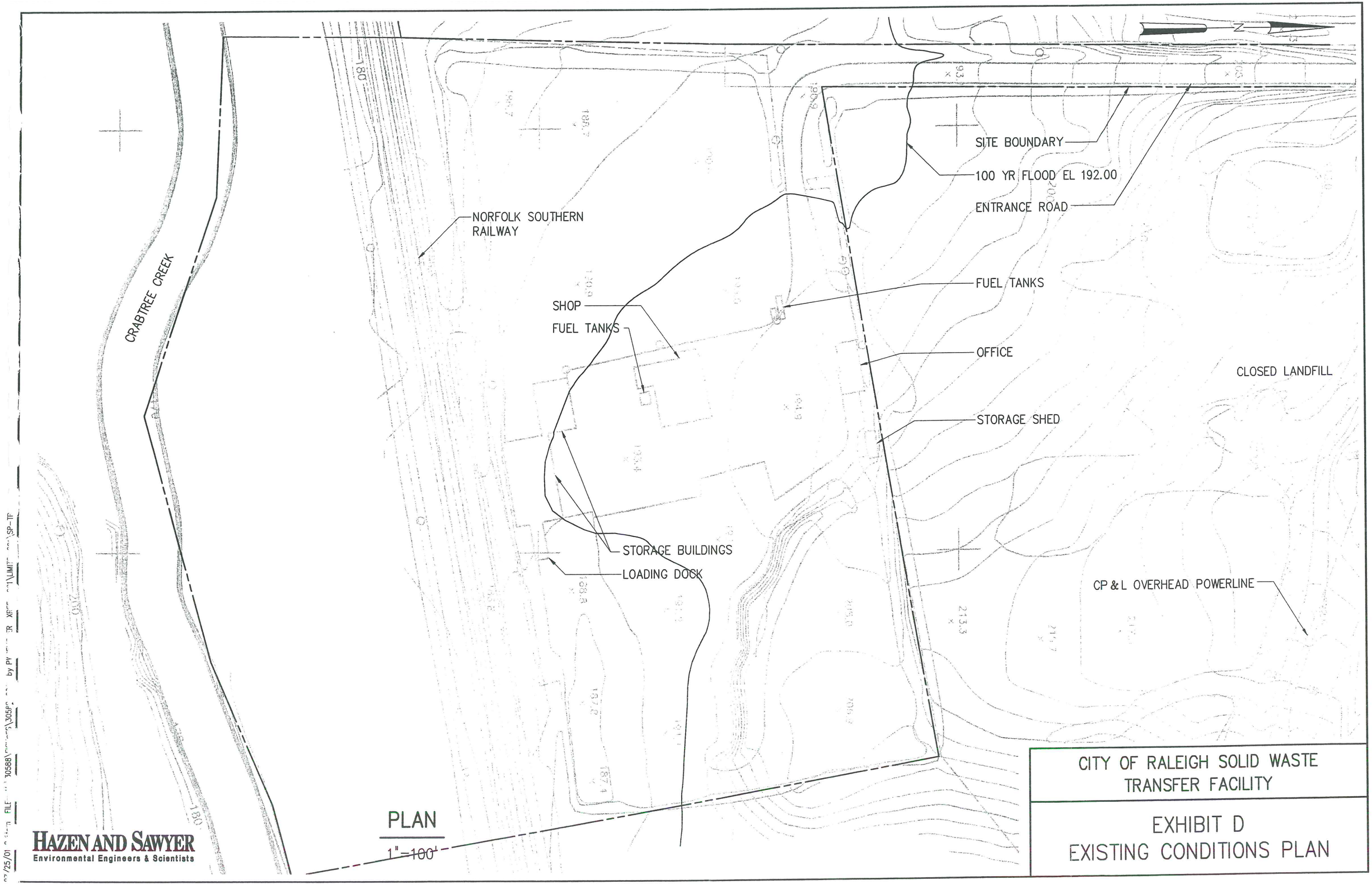
1"=600'

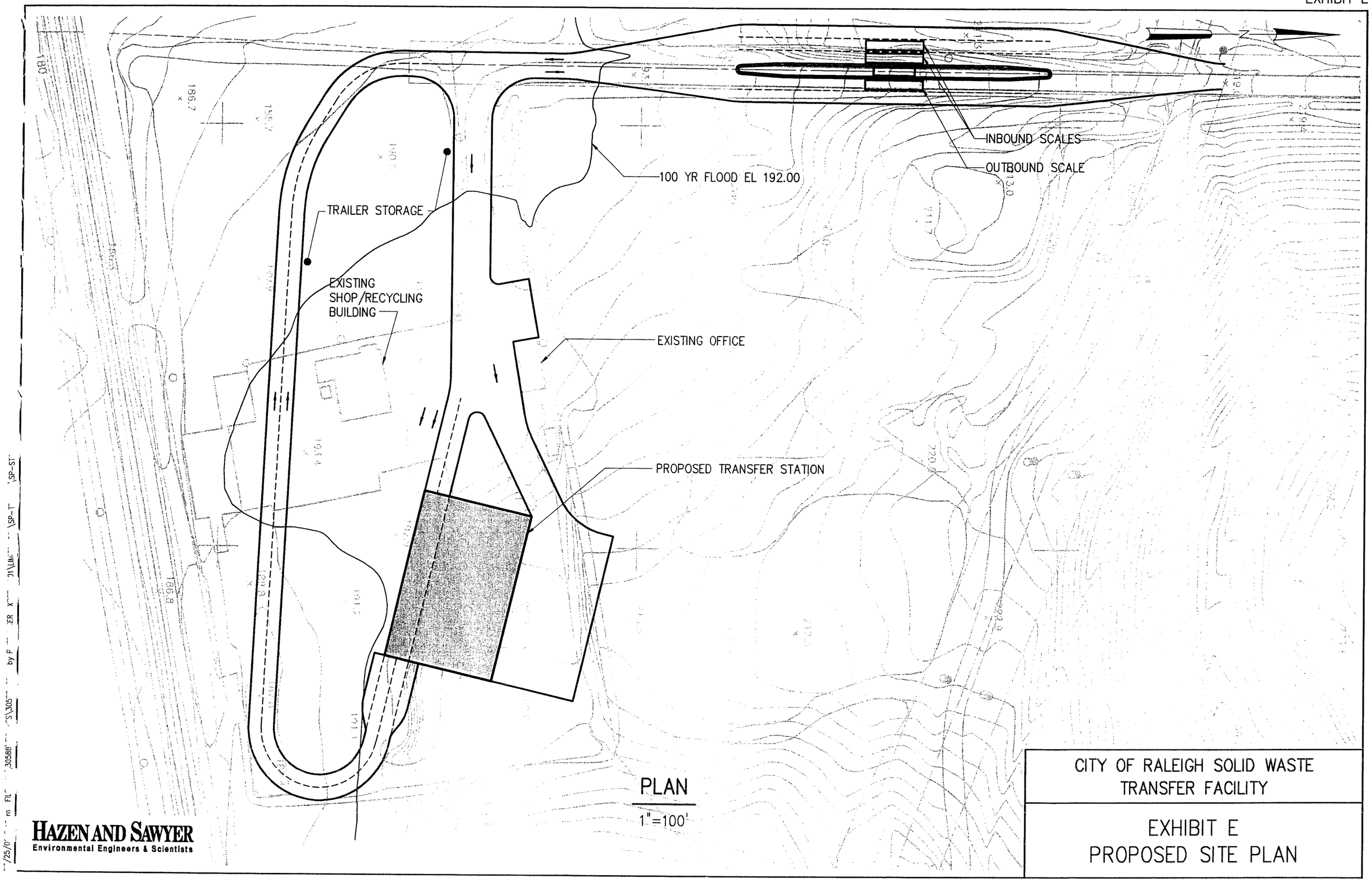
CITY OF RALEIGH SOLID WASTE
TRANSFER FACILITY

EXHIBIT C
AREA PLAN

HAZEN AND SAWYER
Environmental Engineers & Scientists

07/16/01 2:34pm FILE= H:\30588\FIGURES\30588-003 by PWSFISKER XREF=001\SP_TP


SITE BOUNDARY
100 YR FLOOD EL 192.00
ENTRANCE ROAD
NORFOLK SOUTHERN RAILWAY
CRABTREE CREEK
FUEL TANKS
SHOP
FUEL TANKS
OFFICE
CLOSED LANDFILL
STORAGE SHED
STORAGE BUILDINGS
LOADING DOCK
CP & L OVERHEAD POWERLINE
PLAN
1"=100'
HAZEN AND SAWYER
Environmental Engineers & Scientists
CITY OF RALEIGH SOLID WASTE TRANSFER FACILITY
EXHIBIT D
EXISTING CONDITIONS PLAN


INBOUND SCALES
OUTBOUND SCALE
100 YR FLOOD EL 192.00
TRAILER STORAGE
EXISTING
SHOP/RECYCLING
BUILDING
EXISTING OFFICE
PROPOSED TRANSFER STATION
N
PLAN
1"=100'
HAZEN AND SAWYER
Environmental Engineers & Scientists
CITY OF RALEIGH SOLID WASTE
TRANSFER FACILITY
EXHIBIT E
PROPOSED SITE PLAN

APPENDIX A

EcoScience

1101 Haynes Street Suite 101 Raleigh, NC 27604 Telephone: 919.828.3433 Fax: 919.828.3518

RECEIVED
JUL 1 0 2001
HAZEN & SAWYER, PC
RALEIGH, NC

July 9, 2001

Mr. John Bove, P.E.
Hazen and Sawyer, P.C.
4011 WestChase Boulevard
Raleigh, North Carolina 27607

Re: Results of an On-site, Section 404 Jurisdictional Area Determination **01-084**
City of Raleigh Solid Waste Transfer Facility, Wake County, NC

Dear John:

EcoScience Corporation (ESC) personnel conducted a site jurisdictional area determination at the above-mentioned site on Wednesday, June, 27, 2001. This letter summarizes the findings of the site investigation.

Physical Features

The site is located in a developing commercial/industrial area just south of the Wilders Grove landfill and east of the I-440 beltline. The site is primarily developed as a gravel parking lot with service buildings associated with an existing solid waste transfer facility. The transfer facility is bounded on all sides by mixed pine/hardwood forest. A tract of cleared land occurs near the northwest corner of the transfer facility and adjacent to the west side of the facility access road. The southern extent of the site is an east-west oriented railroad track.

The terrain is characterized by a general slope downward to the south to the floodplain of Crabtree Creek. Linear depressions, oriented on a north-south axis, occur both east and west of the transfer facility, guiding runoff southward to the Crabtree Creek floodplain. The eastern depression contains an intermittent stream, while the western depression contains multiple ephemeral channels. Crabtree Creek is a tributary within the Neuse River basin. Site elevations range from a high of approximately 250 feet (along the gravel entrance road north of the transfer facility) to a low of approximately 186 feet (along the toe of the railroad bed fill).

According to the county soil survey, the site contains three soil mapping units: Appling sandy loam, Louisburg loamy sand, and Faceville loamy sand. The National Resources Conservation Service (NRCS) considers all of these map units to be non-hydric. Appling soils are mapped across the majority of the site. Appling sandy loam is a well-drained, moderately permeable soil typically

found on side slopes and rounded divides in Piedmont uplands. The Louisburg sandy loam is mapped in the central portion of the site under the existing transfer facility. This series is a deep, somewhat excessively drained soil with moderately rapid permeability. Louisburg soils are typically found on side slopes and rounded divides in Piedmont uplands. Faceville loamy sand is mapped in the southwest corner of the site. The Faceville series is a very deep, well-drained soil with moderate permeability. This series is typically found on terraces along large streams.

Biological Features

The vegetation surrounding the site primarily consists of mixed pine/hardwood forest. On upper slopes and ridges, the canopy contains northern red oak (*Quercus rubra*), white oak (*Q. alba*), mockernut hickory (*Carya tomentosa*), pignut hickory (*C. glabra*), sweetgum (*Liquidambar styraciflua*), loblolly pine (*Pinus taeda*), and tulip tree (*Liriodendron tulipifera*). Understory species include flowering dogwood (*Cornus florida*), eastern red cedar (*Juniperus virginiana*), sourwood (*Oxydendron arboreum*), black cherry (*Prunus serotina*), red maple (*Acer rubrum*), and red mulberry (*Morus rubra*). Scattered vines and herbs include muscadine (*Vitis rotundifolia*), Christmas fern (*Polystichum acrostichoides*), trumpet creeper (*Campsis radicans*), Virginia creeper (*Parthenocissus quinquefolia*), green-brier (*Smilax rotundifolia*), ebony spleenwort (*Asplenium platyneuron*), strawberry bush (*Euonymous americana*), and false strawberry (*Duchesnea indica*).

The lower portions of slopes support species characteristic of a moist environment such as willow oak (*Q. phellos*), American beech (*Fagus grandifolia*), ironwood (*Carpinus caroliniana*), hop hornbeam (*Ostrya virginiana*), and American sycamore (*Platanus occidentalis*). Vegetated wetland pockets adjacent to the toe of the railroad bed contained green ash (*Fraxinus pennsylvanicum*), tag alder (*Alnus serrulata*), netted chain-fern (*Woodwardia areolata*), soft rush (*Juncus effusus*), Chinese privet (*Ligustrum sinense*), spotted touch-me-not (*Impatiens capensis*), and Nepal microstegium (*Eulalia vimineum*).

The site is expected to have moderate wildlife value as a result of the variation of on-site habitats and adjacent development. The day of the site visit was warm and sunny. No mammals were observed; however, evidence of on-site mammals include tracks of Virginia opossum (*Didelphis virginiana*), white-tailed deer (*Odocoileus virginianus*), and raccoon (*Procyon lotor*). On-site bird observations include species characteristic of forest edges and interiors such as northern mockingbird (*Mimus polyglottos*), eastern towhee (*Pipilo erythrophthalmus*), mourning dove (*Zenaida macroura*), blue jay (*Cyanocitta cristata*), Carolina chickadee (*Parus carolinensis*), tufted titmouse (*Baeolophus bicolor*), Carolina wren (*Thryothorus ludovicianus*), brown thrasher (*Toxostoma rufum*), American

robin (*Turdus migratorius*), summer tanager (*Piranga rubra*), and red-bellied woodpecker (*Melanerpes carolinus*). No terrestrial reptiles or amphibians were identified.

Jurisdictional Area Determination

The U.S. Geological Survey (USGS) topographic quadrangle (Raleigh East, NC) indicates only one stream in the vicinity of the site: an intermittent stream flowing south to Crabtree Creek along the eastern boundary of the site. The county soil survey indicates two intermittent streams in the vicinity of the site: one east and one west of the site and both flowing south to Crabtree Creek. National Wetlands Inventory (NWI) mapping indicates that only the eastern drainage contains an intermittent stream. NWI mapping describes this stream as a palustrine, forested, broad-leaved deciduous, temporarily flooded jurisdictional system (PFO1A). Field surveys concluded that the western drain contains only multiple, ephemeral channels resulting from concentrated release of storm water from higher in the drainage basin and no areas subject to jurisdiction by the U.S. Army Corps of Engineers (COE) and N.C. Division of Water Quality (DWQ). The eastern drainage appears to be an intermittent stream likely subject to COE and DWQ jurisdiction; however, this drainage is outside of the project boundary and will not be affected by proposed site improvements.

A single band of vegetated wetland occurs at the toe of the railroad bed along the southern border of the site. This band of vegetated wetland extends approximately 600 feet down the railroad bed, varies in width from 1 foot to 20 feet, and is approximately 0.1 acre in size. This wetland is apparently a result of the ponding of runoff by the railroad bed. A cursory investigation found no drainage pipe allowing surface water to pass south through the railroad bed to Crabtree Creek. Soils within this wetland were gleyed and contained mottles and oxidized rhizospheres. Vegetation within this wetland has already been characterized above.

Permit Issues

Only two areas in the vicinity of the site are considered to be subject to jurisdictional consideration by the COE and DWQ: 1) the vegetated wetland at the toe of the railroad bed along the southern border of the site and 2) the intermittent stream located east of the transfer facility. The vegetated wetlands are limited in size and are a result of anthropogenic disturbances and provide little value to the adjacent ecosystem. For these reasons, resource agencies are not expected oppose impacts to the wetland area.

The Neuse River riparian buffer rules are also an issue for this site. According to the rules, a 50-foot vegetated buffer must be protected to each side of streams indicated on either USGS topographic mapping or county soils mapping. These map sources indicate an intermittent stream both east and west of the transfer facility; therefore, the Neuse River riparian buffer rule is in effect for a 100-foot

buffer centered on both of these streams as drawn on the soils map. Any interest in impacting these buffers will require contact with the DWQ.

Summary

- The site is located in a developing industrial area east of Raleigh. Resources on the site are not considered unique or significant.
- The site contains jurisdictional wetlands and no streams subject to permit review by the COE and DWQ.
- County soils mapping indicates that intermittent streams occur both east and west of the transfer facility, causing the Neuse River riparian buffer rule to be in effect along the reaches of these mapped streams.

I hope the information provided in this letter is useful for your planning purposes. If you have any questions about this information, please feel free to give me a call. ESC is available for further coordination and consultations, if requested. Thank you for selecting ESC for this important project.

Yours truly,

ECOSCIENCE CORPORATION

Alexander P. (Sandy) Smith
Senior Scientist

APPENDIX B

APPENDIX C

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Raleigh Field Office
Post Office Box 33726
Raleigh, North Carolina 27636-3726

RECEIVED
JUL 26 2001
HAZEN & SAWYER, PC
RALEIGH, NC

TO: John Bove
Hazen & Sawyer

RE: City of Raleigh Transfer Facility # 30588
Project Name/Location/County

6/22/01
Date of Incoming Letter

01-5298
Log Number

Thank you for your letter requesting information from the U.S. Fish and Wildlife Service (Service). This form provides the Service's response pursuant to section 7 of the Endangered Species Act, as amended (16 U.S.C. 1531 *et seq.*) (ESA) and the Fish and Wildlife Coordination Act, as amended (16 U.S.C. 661 *et seq.*). If you have any questions or comments, please contact this office at (919) 856-4520.

____ A current list of Federally-protected species and their habitat requirements which may occur within the general project area (county) can be found on our website at http://nc-es.fws.gov. If your project area contains habitat suitable for the Federally-listed species known to be present within the county (from the website listing), we recommend that surveys be conducted to determine the species' presence or absence from the site. Upon completion of the surveys, please report your findings to this office (including the survey date, survey methods, qualifications of staff conducting the survey, and a determination of the affects of the proposed project on Federally-listed species).

____ If the proposed project will be removing pines greater than or equal to 10" (diameter at breast height) or 30 years of age in pine or pine/hardwood habitat, surveys should be conducted for active red-cockaded woodpecker cavity trees in appropriate habitat within a ½ mile radius of project boundaries. If red-cockaded woodpeckers are observed within the project area or active cavity trees found, the project has the potential to affect the red-cockaded woodpecker, and you should contact this office at (919) 856-4520 for further information.

✓ Based on the information provided, it appears that your project site does not contain suitable habitat for any Federally-listed species known to occur in the area. We believe that the requirements of section 7(a)(2) of the ESA have been satisfied. We remind you that obligations under section 7 consultation must be reconsidered if: (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered; (2) this action is subsequently modified in a manner that was not considered in this review; or, (3) a new species is listed or critical habitat determined that may be affected by the identified action.

Deb W Jentz 7/25/01
Endangered Species Biologist Date