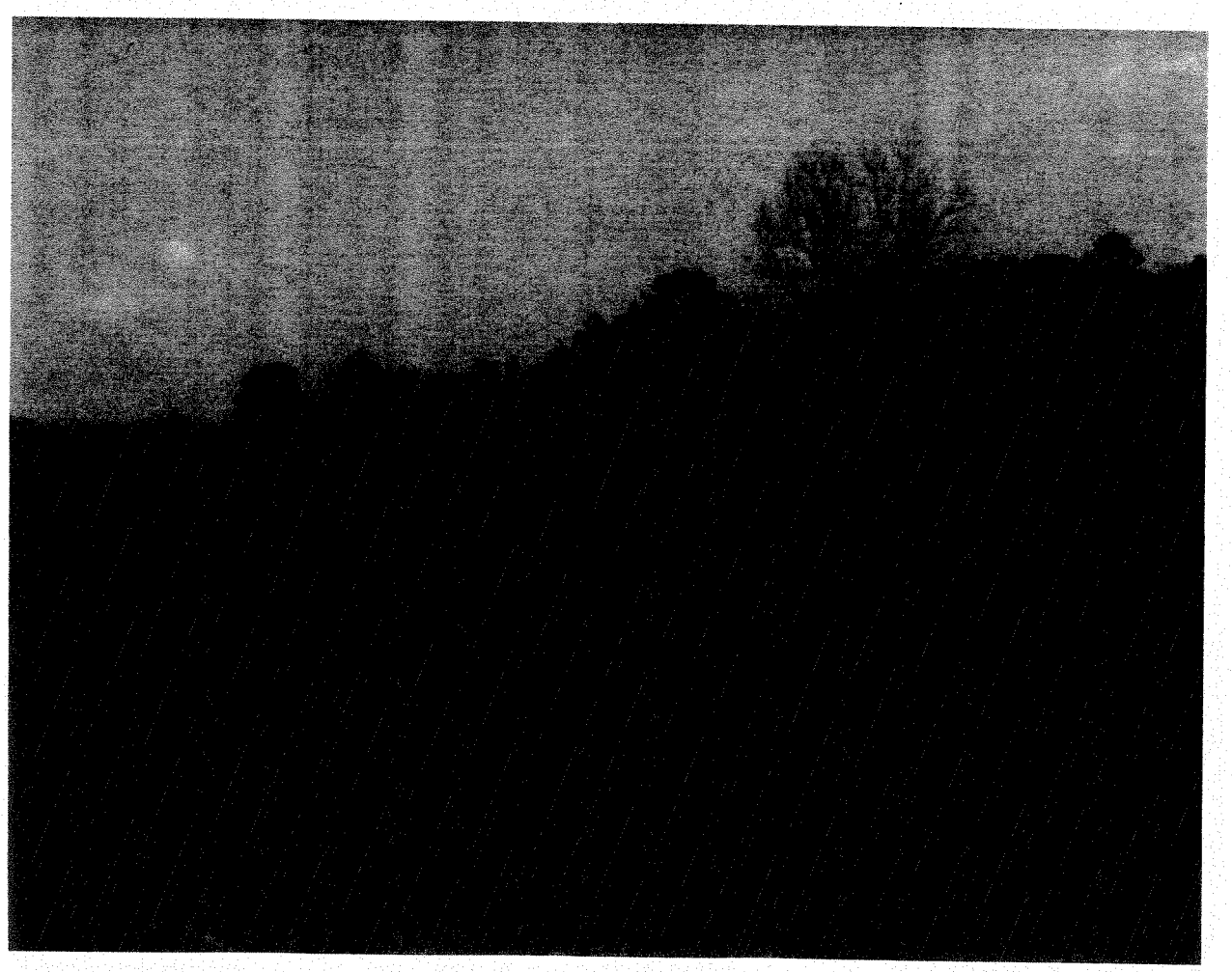
Appendix A

Inspection and Photographs

File No. 200602762, Graham Corporation, Halls Crossroad, Knox County, Tennessee; Fountain City, TN Quad, Willow Fork and Tributary; Inspected March 27, 2007, by Marty Tyree.

Joe McMahan has done initial JD work for this site. Photo is a view of identified wetlands and Willow Fork. Arrow indicates location of Willow Fork.



File No. 200602762, Graham Corporation, Halls Crossroad, Knox County, Tennessee; Fountain City, TN Quad, Willow Fork and Tributary; Inspected March 27, 2007, by Marty Tyree.

Left photo shows the unnamed tributary entering Willow Fork. Right photo show a view of property from the stream toward the highway.

Appendix B

Public Notice

US Army Corps of Engineers

Nashville District

Public Notice

Public Notice No. 07-37 Date: July 10, 2007

Application No. 2006-02762 Expires: August 8, 2007

Please address all comments to:
Nashville District Corps of Engineers, Regulatory Branch
3701 Bell Road, Nashville, TN 37214-2660

JOINT PUBLIC NOTICE
US ARMY CORPS OF ENGINEERS
AND
TENNESSEE VALLEY AUTHORITY

SUBJECT: Discharge of Fill Material into Streams and Wetlands to Facilitate the a Retail Development in Knox County, Tennessee

TO ALL CONCERNED: The application described below has been submitted for a Department of the Army (DA) Permit pursuant to **Section 404 of the Clean Water Act (33 U.S.C. 1344).** Certification that applicable water quality standards will not be violated must be provided by the State of Tennessee, Division of Water Pollution Control pursuant to Section 401(a)(1) of the CWA before a permit can be issued. The applicant has submitted a separate application to that agency for the required certification.

APPLICANT: Graham Corporation
1701 Merchants Drive
Knoxville, Tennessee 37912

LOCATIONS: The subject property is located on the southeast side of Maynardville Pike near Halls Crossroads in Knox County, Tennessee. Waters of the U.S. impacted include Willow Fork and an adjacent wetland and tributary to Willow Fork. The project is on the Fountain City quadrangle map at approximately Latitude 36°-05'-59.8", Longitude 83°-54'-35.8".

DESCRIPTION: The applicant proposes to relocate 2,319 feet of Willow Fork and 176 feet of an unnamed tributary. Willow Fork would be relocated approximately 250 feet to the southeast of its current location. The applicant also proposes to fill a 0.60 acre wetland area. Discharges of fill material into waters would facilitate the development of a new retail center in the area. Mitigation for the stream impacts would involve the establishment of 2,530 feet of channel using natural channel design across the

back side of the property. Mitigation for the wetland impacts would involve the creation of 1.81 acres of wetlands in the floodplain of the new Willow Fork channel.

A location map and plans of the proposed action are attached. Additional details are available upon request.

The decision whether to issue a permit will be based on an evaluation of the probable impacts including cumulative impacts of the activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit, which reasonably may be expected to accrue from the work, must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the work will be considered including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, cultural values, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shore erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership, and, in general, the needs and welfare of the people. In addition, the evaluation of the impact of the activity on the public interest will include application of the guidelines promulgated by the Administrator, Environmental Protection Agency, under authority of Section 404(b)(1) of the CWA (40 CFR Part 230). A DA permit will be granted unless the District Engineer determines that it would be contrary to the public interest.

The Corps of Engineers is soliciting comments from the public; federal, state, and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition, or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment (EA) and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity. An EA will be prepared by this office prior to a final decision concerning issuance or denial of the requested DA Permit.

Prior to the Department of the Army permit application, the applicant received a letter from the Tennessee SHPO from December 2006 stating that there is no National Register of Historic Places

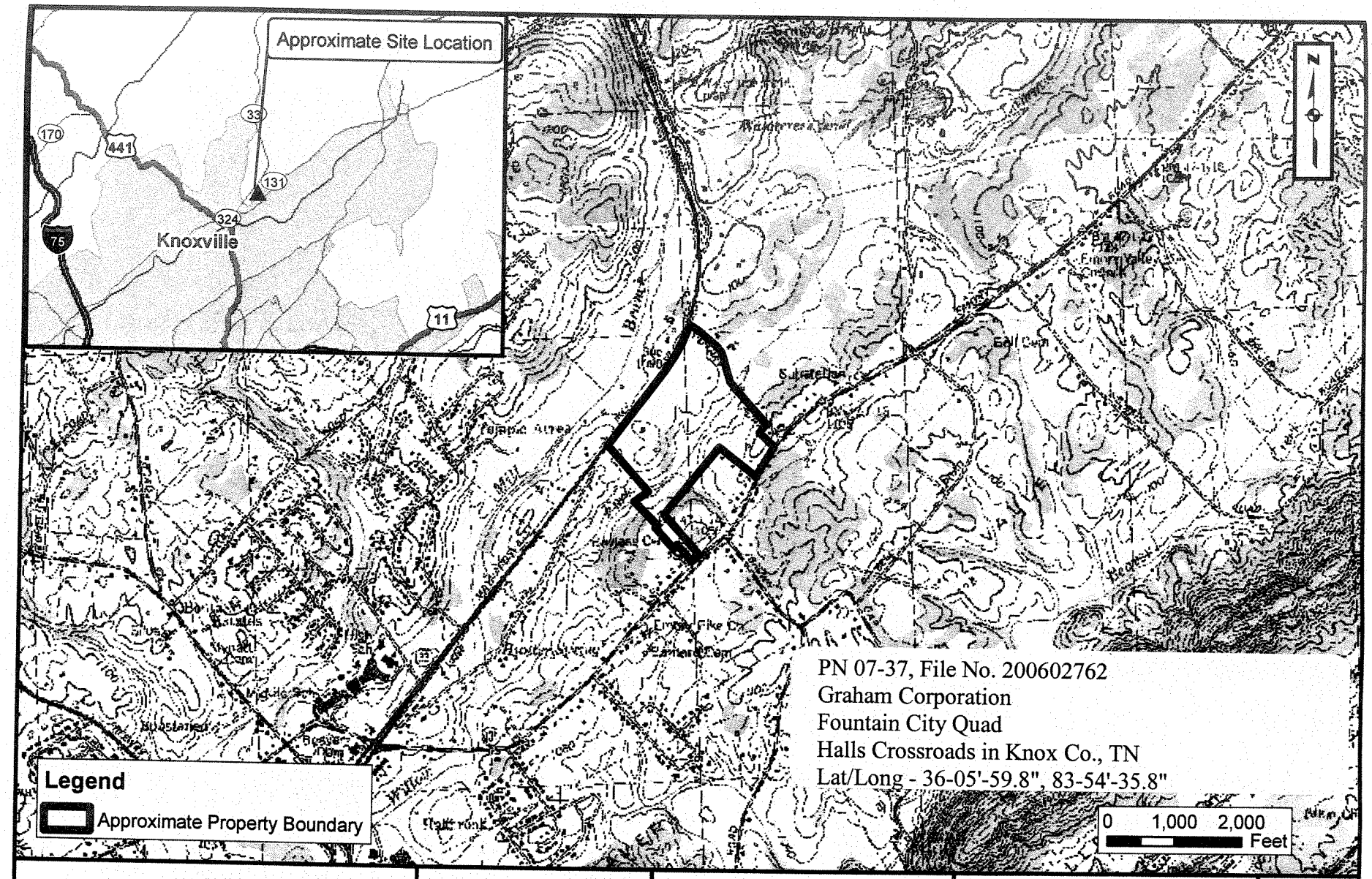
listed or eligible properties affect by the proposed development. Based on this information and the review of the permit application and project by Corps cultural resource staff, the Corps concurs with the finding that there are no historic properties within the undertaking's area of potential impact. This review constitutes the full extent of cultural resources investigations unless comment to this notice is received documenting that significant sites or properties exist which may be affected by this work, or that adequately documents that a potential exists for the location of significant sites or properties within the permit area. Copies of this notice are being sent to the office of the State Historic Preservation Officer.

The applicant also corresponded with the U.S. Fish and Wildlife Service (USFWS) concerning potential impacts from the project prior to submittal of the permit application. The USFWS sent the applicant a letter dated December 6, 2006, stating that available records do not indicate that federally listed or proposed endangered or threatened species occur within the impact area. Based on the information, the proposed work will not destroy or endanger any federally-listed species or their critical habitats, as identified under the Endangered Species Act. Therefore, we have reached a no effect determination, and initiation of formal consultation procedures with the U.S. Fish and Wildlife Service is not planned at this time.

Other federal, state, and local approvals required for the proposed work includes water quality certification from the State of Tennessee, Division of Water Pollution Control, in accordance with Section 401(a)(1) of the Clean Water Act and Tennessee Valley Authority (TVA) approval under Section 26a of the TVA Act.

Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for public hearings shall state, with particularity, the reasons for holding a public hearing.

Written statements received by August 8, 2007, will become a part of the record and be considered in the determination. Any response to this notice should be directed to the Regulatory Branch, Attention: Marty Tyree, at the above address or (615) 369-7514. It is not necessary to comment separately to TVA. Copies of all comments will be sent to TVA and will become part of its record. However, if comments are sent to TVA, they should be mailed to Ms. Tiffany Foster at TVA, Little Tennessee Watershed Team, 260 Interchange Park Drive, Lenoir City, Tennessee 37772. If you wish to view additional diagrams, please contact Mr. Tyree or visit our web site at http://www.lrn.usace.army.mil/cof/notices.htm.



USGS Topographic Quadrangle Reference: Fountain City Quadrangle

SCALE:	AS SHOWN
CHECKED:	EMP
DRAWN:	MDS
DATE:	11/15/2006

S&ME

Site Vicinity Map

Retail Development Willow Creek

Knox County, Tennessee

Project No: 1434-06-396

FIGURE NO: **1**

Appendix C

Public Comments
and
Applicant's Response/Rebuttal

TENNESSEE WILDLIFE RESOURCES AGENCY

ELLINGTON AGRICULTURAL CENTER
P. O. BOX 40747
NASHVILLE, TENNESSEE 37204

August 2, 2007

Marty Tyree
Nashville District Corps of Engineers
Regulatory Branch
3701 Bell Road
Nashville, TN 37214

Re: Public Notice #07-37
Applicant: Graham Corporation
Proposed Relocation of 2,319 Feet of Willow Fork and 176 Feet of an Unnamed Tributary, and Fill 0.6 Acres of Wetlands
Property is Located on the Southeast Side of Maynardville Pike near Hall Crossroads
Knox County, Tennessee

Dear Mr. Tyree:

The applicant proposes to relocate approximately 2,319 linear feet of Willow Fork and 176 linear feet of an unnamed tributary into approximately 2,530 linear feet of a naturally designed channel, and fill approximately 0.6 acres of existing wetlands in Knox County. The applicant proposes to mitigate for the 2,495 linear feet stream impacts by replacement of resource values and functions on-site. The applicant proposes to mitigate for the 0.6 acres of wetland impacts by creating on-site, at a 3:1 ratio, 1.81 acres of wetlands within the floodplain of the new Willow Fork channel.

It is the opinion of the Tennessee Wildlife Resources Agency that the proposed wetland mitigation is insufficient. Rule 1200-4-7.04(7)(b)2 of the Tennessee Department of Environment and Conservation states: "The ratio of acres required for wetland mitigation should not be less than 2:1 for restoration activities; 4:1 for creation and enhancement; and 10:1 for preservation." Since the applicant has proposed a 3:1 ratio instead of the 4:1 ratio, it is our opinion that the proposed wetland mitigation is insufficient. There is no mention of monitoring the proposed wetland mitigation site in the public notice. In our opinion, the wetland mitigation site should be monitored for hydrological and vegetative success for a period of five years with annual reports submitted to regulatory agencies. We also request that the wetland mitigation site be permanently marked to identify the site as a wetland mitigation site. Marking of the proposed mitigation site would educate personnel of a landscape maintenance crew that this area is to be left undisturbed, ensuring compliance with the permit. Wetland mitigation credit should not be given for amount of area in the created wetland where the required 50 foot vegetated riparian buffer for where the relocated stream crosses the wetland mitigation site.

There is no information is the public notice indicating that the applicant intends to create a 50 foot vegetated riparian buffer on both sides of the relocated channel. The "Stream Mitigation Guidelines for the State of Tennessee" by the Tennessee Department of Environment and Conservation, Division of Water Pollution Control, Natural Resources Section, state that the

buffer should be 50 feet from the top of bank or 3 times the width of the stream, whichever is greater. It is also our opinion that the applicant should be required to monitor the relocated channel to insure that hydrology is maintained and that the creation of the 50 foot vegetated riparian buffer is successful.

The Tennessee Wildlife Resources Agency requests that this permit be held in abeyance until the applicant provides appropriate wetland and stream mitigation for review and comment by regulatory and resources agencies. If the applicant fails to provide appropriate wetland and stream mitigation, we request that the permit be denied.

We thank you for the opportunity to comment on this public notice.

Sincerely,

Robert M. Todd

Robert M. Todd
Fish and Wildlife Environmentalist

cc: Rob Lindbom, Region IV Habitat Biologist
Bob Nichols, Region IV Manager
Dan Eagar, Division of Water Pollution Control
Lee Barclay, U.S. Fish and Wildlife Service
Darryl Williams, Environmental Protection Agency

United States Department of the Interior

FISH AND WILDLIFE SERVICE
446 Neal Street
Cookeville, TN 38501

August 8, 2007

Lt. Colonel Bernard R. Lindstrom
District Engineer
U.S. Army Corps of Engineers
3701 Bell Road
Nashville, Tennessee 37214

Attention: Mr. Marty Tyree, Regulatory Branch

Subject: Public Notice No. 07-37. Graham Corporation, Proposed Channel Relocation and Wetland Fill, Knox County, Tennessee.

Dear Colonel Lindstrom:

Fish and Wildlife Service (Service) personnel have reviewed the subject public notice. The proposed project involves the relocation of approximately 2,319 linear feet of Willow Fork Creek and 176 linear feet of an unnamed tributary to Willow Fork Creek, and the fill of 0.60 acre of wetlands in Knox County, Tennessee. The two existing stream channels would be relocated 250 feet southeast into a newly created 2,530-linear-foot channel. The wetland impacts would be mitigated at a 3:1 mitigation ratio by creating 1.81 acre of wetlands along the riparian zone of the newly created channel. The purpose of the proposed project is construction of a retail development. The following constitute the comments of the U.S. Department of the Interior, provided in accordance with provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.) and the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.).

Endangered species collection records available to the Service do not indicate that federally listed or proposed endangered or threatened species occur within the impact area of the project. We note, however, that collection records available to the Service may not be all-inclusive. Our data base is a compilation of collection records made available by various individuals and resource agencies. This information is seldom based on comprehensive surveys of all potential habitat and thus does not necessarily provide conclusive evidence that protected species are present or absent at a specific locality. However, based on the best information available at this time, we believe that the requirements of section 7 of the Endangered Species Act of 1973, as amended, are fulfilled. Obligations under section 7 of the Act must be reconsidered if (1) new information reveals impacts of the action that may affect listed species or critical habitat in a manner not previously considered, (2) the action is subsequently modified to include activities which were not considered during this consultation, or (3) new species are listed or critical habitat designated that might be affected by the action.

Provided the relocated stream includes an acceptable fluvial geomorphologic design based on defined reference stream conditions with the appropriate riparian buffer widths (the greater of 50 feet on both sides of the stream or a distance equal to 3 times the width of the stream) as outlined in the Stream Mitigation Guidelines (Guidelines) for the State of Tennessee, we would not object to the proposed relocation. However, we are concerned with the proposed wetland mitigation. It appears that much of the proposed wetland mitigation would occur within the riparian buffer of the relocated channel. As mentioned above, the relocated channel has to have the appropriate riparian buffer to be considered successful stream mitigation. It appears that the applicant is seeking both stream mitigation and wetland mitigation credit for the riparian zone restoration. If this riparian area is a component of stream mitigation, it is not eligible for wetland mitigation credits. The riparian zone area (**minimum** of 50 foot zone on both sides of the channel) should only be allowed as stream mitigation and the applicant should not obtain wetland mitigation credit within this area.

The Aquatic Resources Alteration Permit (NRS 07.077) indicated that wetland creation was proposed at a 3:1 mitigation ratio because of a high likelihood of success (historic wetlands along the floodway). The proposed wetland mitigation would be located next to a newly created channel, not a historic channel. Since the stream is being relocated to a totally new location, we are unsure how it will interact with the floodway. Therefore, if creation is the preferred form of mitigation at the site, we recommend mitigating at the minimum 4:1 ratio, which is required in Tennessee. However, wetland mitigation credit should only be granted for the mitigation that takes place outside of the stream riparian buffer zone.

We recommend that the subject permit as proposed be denied. After reviewing our office's input, the applicant should recalculate the amount of wetland mitigation credits that would accrue outside the stream riparian buffer zone, and submit a revised mitigation plan that would account for the additional credits needed. If wetland creation is the only feasible on-site mitigation option, the applicant would need to create a minimum 2.4 acres of wetlands **outside** of the 100-foot stream buffer zone. If additional mitigation is not available on-site, the applicant can mitigate off-site or utilize a wetland mitigation bank for wetland impacts. The applicant should provide a revised wetland mitigation plan with the appropriate amount of mitigation credits to the resource and regulatory agencies to review. **The proposed project should not be permitted until the resource agencies are given the opportunity to review and concur with the revised mitigation plan.**

We appreciate the opportunity to review the subject permit application. Please contact Robbie Sykes (telephone 931/528-6481, ext. 209) of my staff if you have questions regarding the information provided in this letter.

Sincerely,

Lee A. Barclay, Ph.D.
Field Supervisor

xc: Robert Todd, TWRA, Nashville, TN
Dan Eagar, TDEC, Nashville, TN
Darryl Williams, EPA, Atlanta, GA

Knox County Commission

R. LARRY SMITH
COMMISSIONER, SEVENTH DISTRICT

July 5, 2007

Ms. Juliana Kyzar
Tennessee Dept. of Environment & Conservation
Division of Water Pollution Control & Natural Resources
7th Floor, L & C Annex
401 Church Street
Nashville, TN 37243

Re: Willow Fork Relocation
S & ME Project #1434-06-396
TDEC Tracking #NRS 07.077

Dear Julia,

As a former TDEC Commissioner and current Knox County Commissioner of the 7th District where this project is located, I am in full support of the above referenced stream relocation.

Sincerely,

R. Larry Smith

3109 Tee Lane • Knoxville, Tennessee 37918
(865) 922-5433 (Office) • (865) 688-0323 (Home)

Knox County Commission

SCOTT MOORE
COMMISSIONER, SEVENTH DISTRICT

CHAIRMAN
KNOX COUNTY COMMISSION

July 5, 2007

Ms. Juliana Kyzar
Tennessee Department of Environment and Conservation
Division of Water Pollution Control and Natural Resources
7th Floor, L and C Annex
401 Church Street
Nashville, Tennessee 37243

RE: Willow Fork Relocation
S and ME Project #1434-06-396
TDEC Tracking #NRS 07.077

Dear Julia,

As Chairman of the Knox County Commission and County Commissioner of the 7th District where this project is located, I am in full support of the above referenced stream relocation.

Sincerely,

Scott Moore

SCOTT MOORE
Chairman,
Knox County Commission

7501 Quarry Road - Knoxville, Tennessee 37938
(865) 215-2534 (Office) - (865) 922-7926 (Home)

2006-02762
→MGT
7/26

TENNESSEE HISTORICAL COMMISSION
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
2941 LEBANON ROAD
NASHVILLE, TN 37243-0442
(615) 532-1550

July 13, 2007

Mr. Marty Tyree
U.S. Army Corps of Engineers, Nashville District
Regulatory Branch
3701 Bell Road
Nashville, Tennessee 37214

RE: COE-N, PN# 07-37/GRAHAM CORPORATION DEV'T, UNINCORPORATED, KNOX COUNTY

Dear Mr. Tyree:

The Tennessee State Historic Preservation Office has reviewed the above-referenced undertaking received on Monday, July 9, 2007 for compliance by the participating federal agency or applicant for federal assistance with Section 106 of the National Historic Preservation Act. The Procedures for implementing Section 106 of the Act are codified at 36 CFR 800 (Federal Register, December 12, 2000, 77698-77739).

After considering the documentation submitted, we concur that there are no National Register of Historic Places listed or eligible properties affected by this undertaking. This determination is made either because of the location, scope and/or nature of the undertaking, and/or because of the size of the area of potential effect; or because no listed or eligible properties exist in the area of potential effect; or because the undertaking will not alter any characteristics of an identified eligible or listed property that qualify the property for listing in the National Register or alter such property's location, setting or use. Therefore, this office has no objections to your proceeding with the project.

You may direct questions or comments to Jennifer M. Barnett (615) 741-1588, ext. 17. This office appreciates your cooperation.

Sincerely,

Richard G. Tune
Deputy State Historic
Preservation Officer

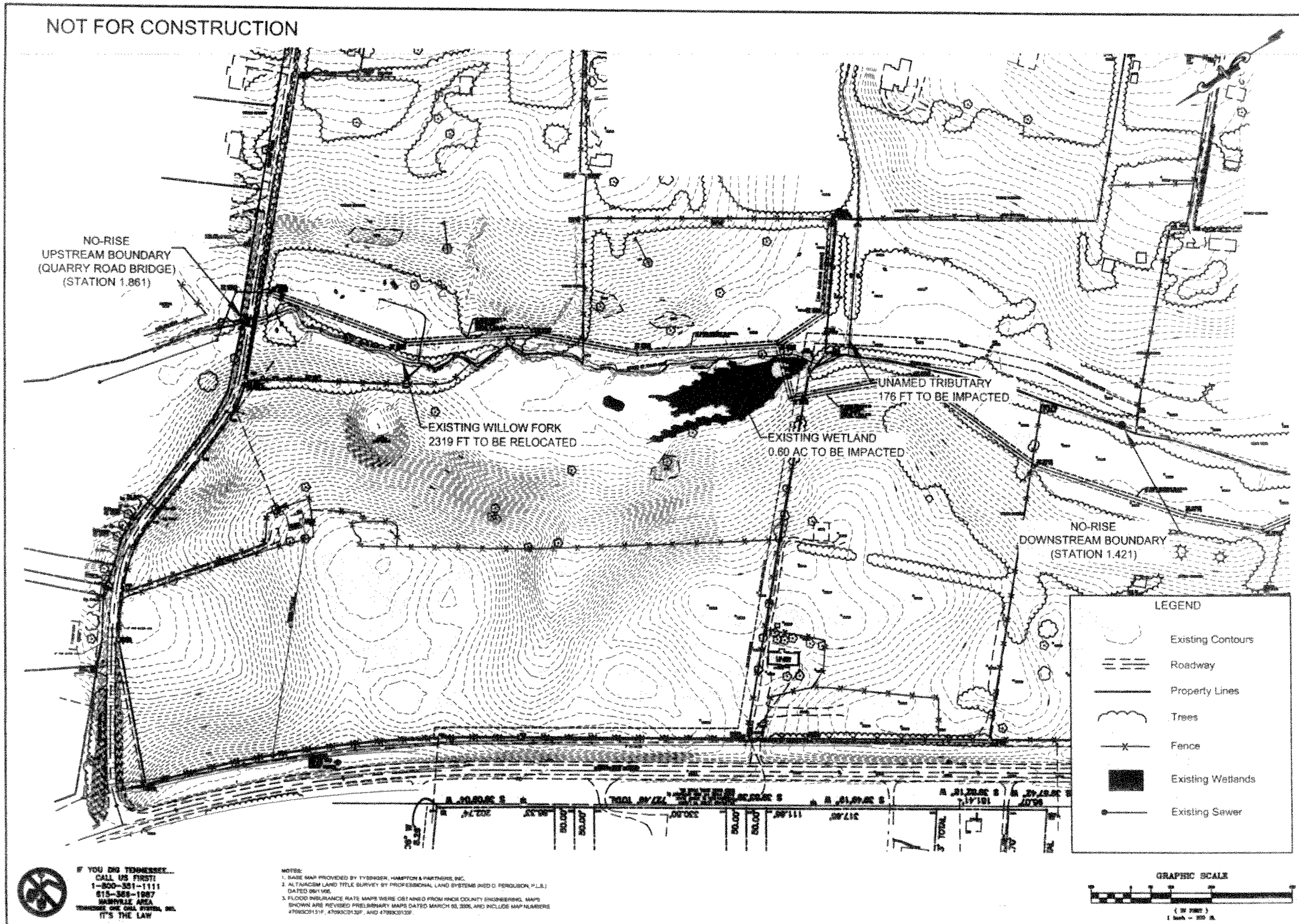
RGT/jmb

20 JUL 2007

20 JUL 2007

Appendix D

Mitigation Plan



S&ME
ENGINEERING TESTING
ENVIRONMENTAL SERVICES

1413 Topside Road
Louisville, Tennessee 37777
Phone: (865) 970-0003
Fax: (865) 970-2312

Existing Conditions Site Plan

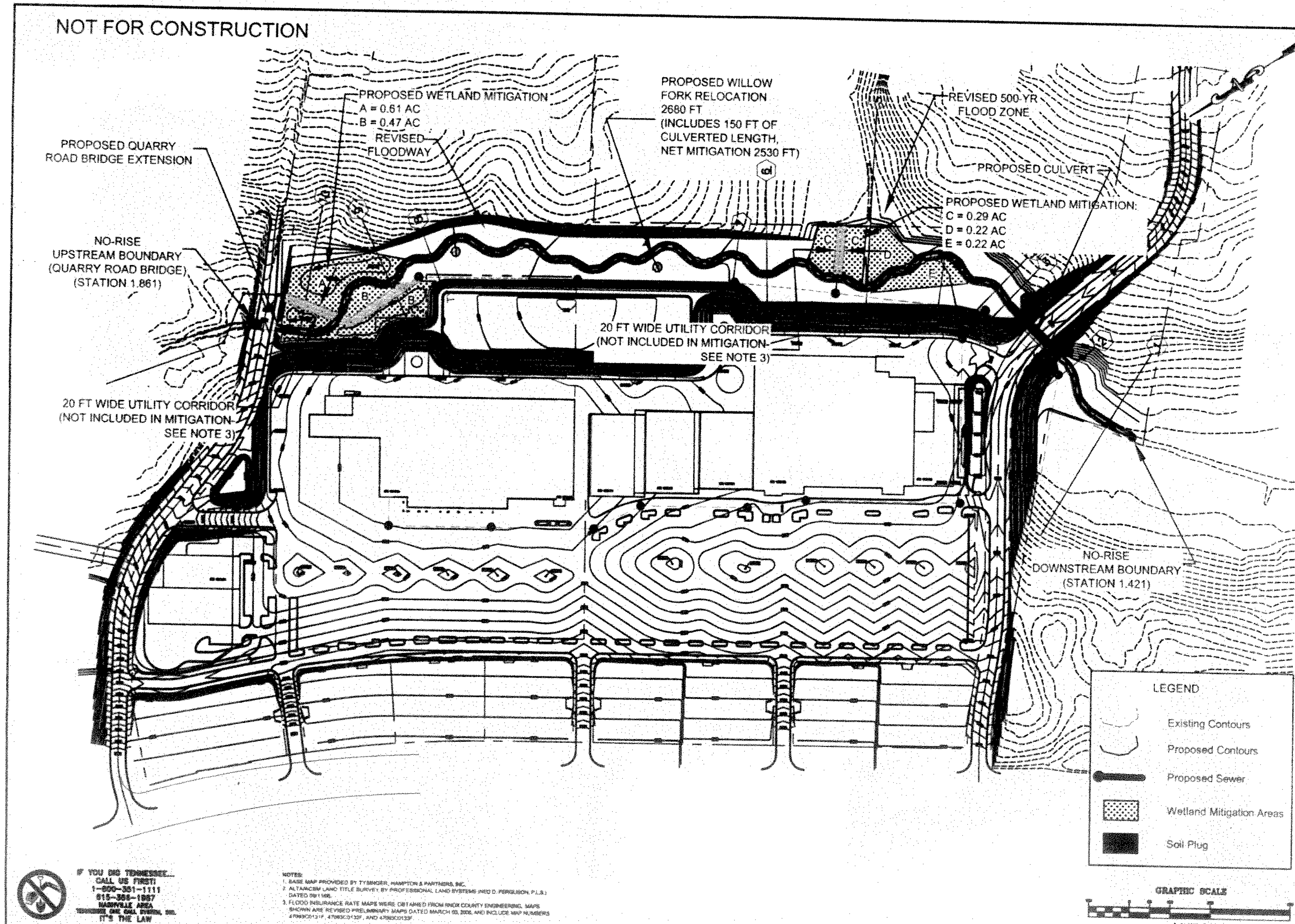
Halls Crossroads Retail Facility

Mitigation Plan

Knox County, Tennessee

Revisions

BCW
WKB
EMP
1434-06-306
AS SHOWN
01-08-07



S&ME
ENGINEERING TESTING ENVIRONMENTAL SERVICES

1413 Topside Road, Louisville, Tennessee 37777

Phone (865) 970-0003, Fax (865) 970-2312

Proposed Conditions Site Plan

Halls Crossroads Retail Facility

Mitigation Plan

Knox County, Tennessee

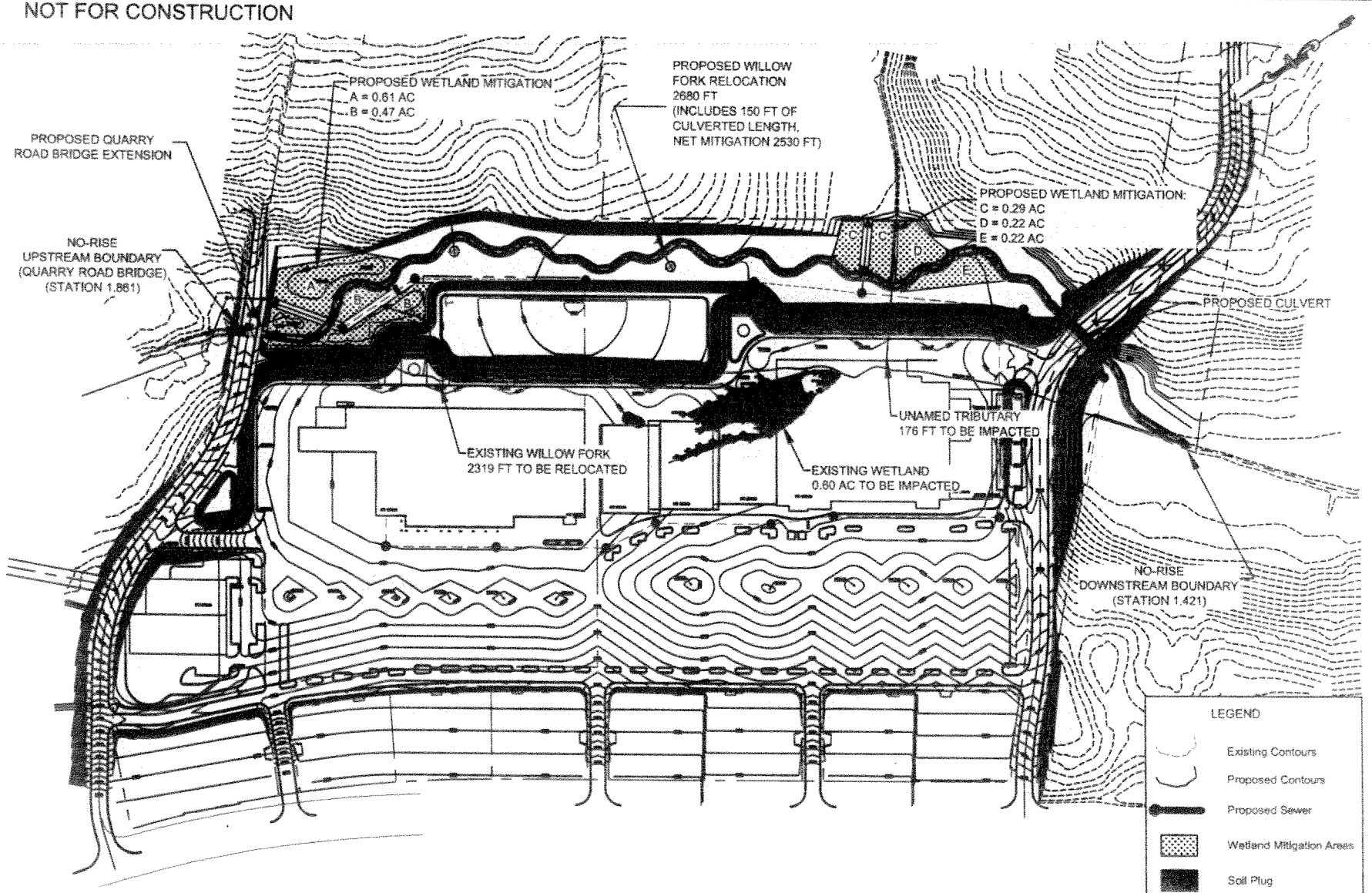
Revisions

Project Number: 1434-06-398

Scale: AS SHOWN

2 of 6

NOT FOR CONSTRUCTION



IF YOU DIG TENNESSEE...
CALL US FIRST!
1-800-351-1111
615-564-1067
NASHVILLE AREA
TENNESSEE ONE CALL SYSTEM, INC.
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NOTES:
1. BASE MAP PROVIDED BY TYBRINSER, HAMPTON & PARTNERS, INC.
2. ALTA/ACSM LAND TITLE SURVEY BY PROFESSIONAL LAND SYSTEMS (NED D. FERGUSON, P.L.S.) DATED 09/1/05.
3. FLOOD INSURANCE RATE MAPS WERE OBTAINED FROM KNOX COUNTY ENGINEERING. MAPS SHOWN ARE REVISED PRELIMINARY MAPS DATED MARCH 09, 2006, AND INCLUDE MAP NUMBERS 47093C0131F, 47093C0132F, AND 47093C0136F.

S&ME
ENGINEERING, TESTING, ENVIRONMENTAL SERVICES
1413 Topsider Road
Louisville, Tennessee 37777
Phone: (865) 970-0003
Fax: (865) 970-3717
WWW.SMEINC.COM

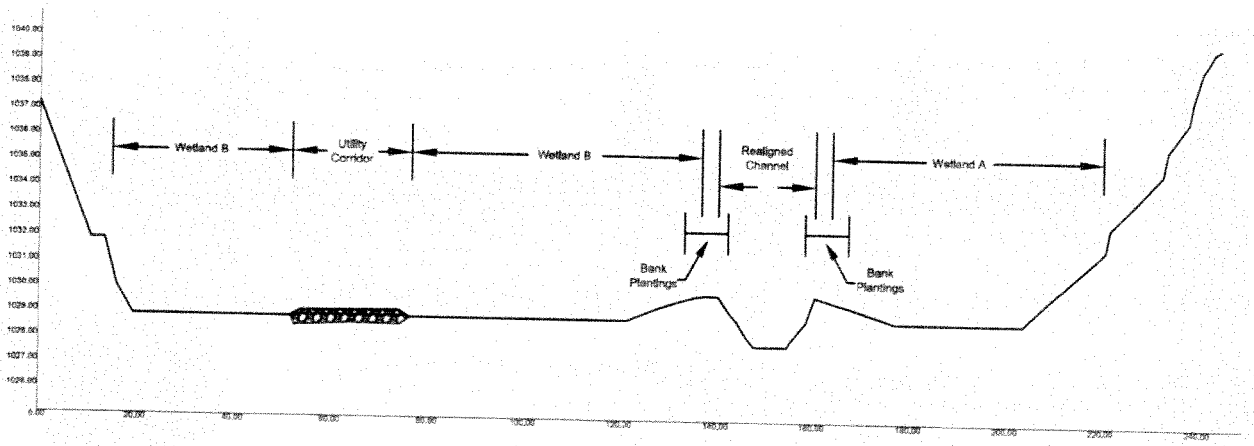
Proposed Conditions Site Plan
Halls Crossroads Retail Facility
Mitigation Plan
Knox County, Tennessee

Revisions

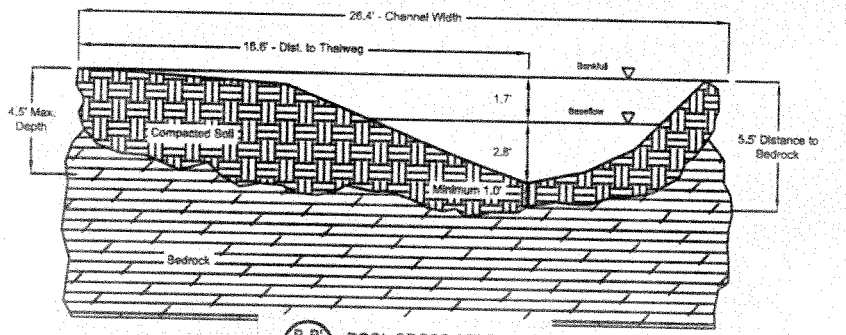
No.	Date	Description	By
1	4/18/07	Revised Grades	BCW
2	4/25/07	Revised Grades	WKB

DESIGNED BY: BCW
CHECKED BY: WKB
DRAWN BY: WKB
APPROVED BY: FMP
PROJECT NUMBER: 1436-06-386
SCALE: AS SHOWN
DATE: 03-20-07

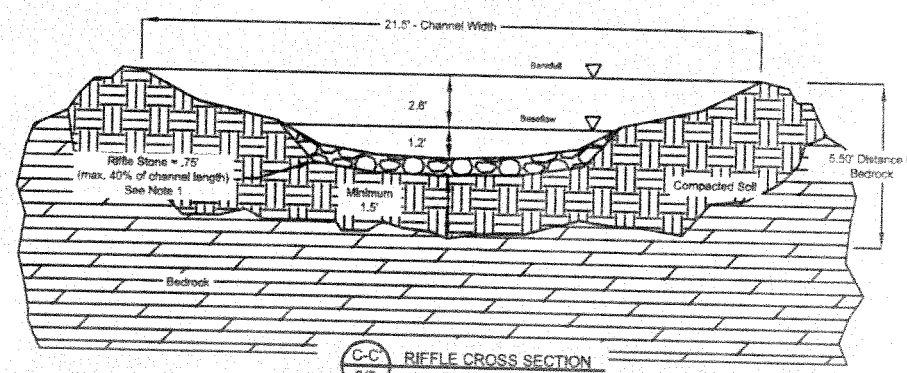
NOT FOR CONSTRUCTION



A-A' 3/5 CROSS-SECTION OF MITIGATION AREA
TYPICAL OF OTHER AREAS



B-B' 3/5 POOL CROSS SECTION
TYPICAL - NTS



C-C 3/5 RIFFLE CROSS SECTION
TYPICAL - NTS

Note 1: Riffle substrate composition:
10% No. 16
20% No. 4
40% ½ inch
20% 1 inch
10% 2 inch

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615-366-1967
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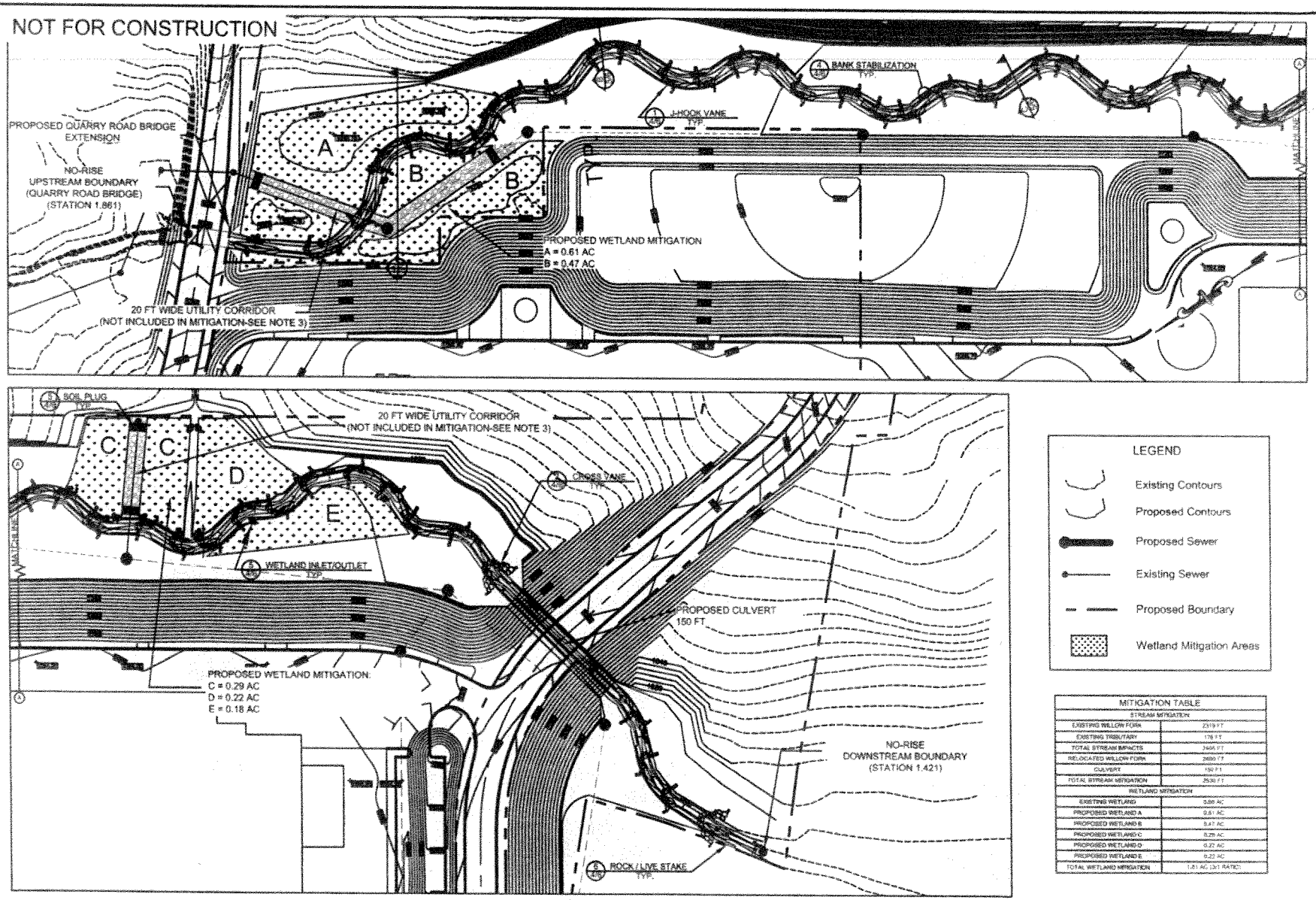
ENVIRONMENTAL SERVICES

Details - Channel Cross Sections
Halls Crossroads Retail Facility
Mitigation Plan
Knox County, Tennessee

Revisions

5 of 6

NOT FOR CONSTRUCTION



LEGEND

- Existing Contours
- Proposed Contours
- Proposed Sewer
- Existing Sewer
- Proposed Boundary
- Wetland Mitigation Areas

MITIGATION TABLE	
STREAM MITIGATION	
EXISTING WILLOW FORK	2319 FT
EXISTING TRIBUTARY	178 FT
TOTAL STREAM IMPACTS	2458 FT
RELOCATED WILLOW FORK	2680 FT
CULVERT	150 FT
TOTAL STREAM MITIGATION	2830 FT
WETLAND MITIGATION	
EXISTING WETLAND	5.86 AC
PROPOSED WETLAND A	0.61 AC
PROPOSED WETLAND B	0.47 AC
PROPOSED WETLAND C	0.29 AC
PROPOSED WETLAND D	0.22 AC
PROPOSED WETLAND E	0.22 AC
TOTAL WETLAND MITIGATION	1.81 AC (3:1 RATIO)

GRAPHIC SCALE

(IN FEET)
1 inch = 50 ft.

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615-366-1987
NASHVILLE AREA
TENNESSEE ONE CALL SYSTEM, INC.
IT'S THE LAW

NOTES:
1. BASE MAP PROVIDED BY TYSINGER, HAMPTON & PARTNERS, INC.
2. ALTA/ACSM LAND TITLE SURVEY BY PROFESSIONAL LAND SYSTEMS (NED D. FERGUSON, P.L.S.) DATED 09/11/06.
3. UTILITY EASEMENTS ARE SHOWN FOR ILLUSTRATIVE PURPOSES. ACTUAL UTILITY EASEMENT LOCATIONS MAY VARY FROM THESE DEPICTED. EASEMENTS DEPICTED ARE FORESEEN MAXIMUM ENCROACHMENTS ON WETLAND MITIGATION AREAS.

S&ME
ENGINEERING TESTING
ENVIRONMENTAL SERVICES

Mitigation Site Plan

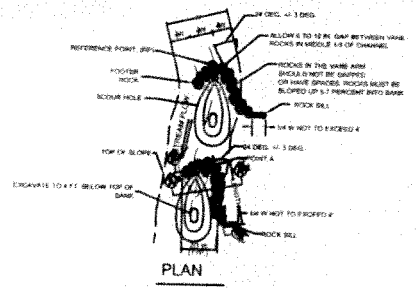
Halls Crossroads Retail Facility
Mitigation Plan
Knox County, Tennessee

Revisions

No.	Date	Description	By
1	12-07-07	General Revisions	BCW
2	02-05-07	General Revisions	BCW

BCW | CHECKED BY: WNB
WNB | APPROVED BY: EMP
PROJECT NUMBER: 1434-06-396
SCALE: AS SHOWN | DATE: 01-08-07

NOT FOR CONSTRUCTION



ROCK J-VANE

PART 1 DESCRIPTION

The Contractor shall furnish all labor and equipment required to install rock j-vanes, as shown on the Drawings. This work shall consist of excavating, installing and maintaining rock vanes constructed within the stream channel, as shown on the Drawings.

PART 2 MATERIALS

2.1 FOOTER ROCKS

A. Footer rocks consist of rocks placed below the invert of the channel channel to provide support for the vane rocks and prevent downstream scour.

B. The dimensions of the footer rocks shall have dimensions as shown in the Structure Site Schedule on the Drawings. In general, these rocks shall be adjacent to the largest rocks available.

2.2 VANE ROCKS

A. Vane rocks consist of rocks placed upon the footer rocks.

B. The dimensions of the vane rock rocks shall be as shown in the Structure Site Schedule on the Drawings.

2.3 GRAVEL MIXTURE

A. Gravel mixture shall meet the specifications for crushed stone material specified on Drawing C2.1

PART 3 CONSTRUCTION METHODS

1. ROCK J-VANE CONSTRUCTION

A. The rock J-vane shall be constructed in a configuration so that adjoining rocks form an interlocking structure that retains flow in a downstream direction. The vane is to be aligned 24±3 degrees from the stream bank (upward into the channel).

B. The construction reference point (RP) shall be used for locating the initial point of construction. The RP is identified for each J-vane on the details. The elevation and location from the construction baseline for the RP are specified in the Structure Location Schedule on Drawing C5.1

C. A trench shall be excavated for the footer rocks, vane rocks and gravel keyings. The width of excavation in the direction of flow shall be a minimum of 2 feet wider than the rock. Install or allow the gravel mixture to extend a minimum of 2 feet upstream of the constructed rocks.

D. In the event where installation of rock J-vane may damage tree roots, excavation shall be minimized. This may include reducing the length of the vane or eliminating trenching for footer rocks and gravel mixture. The decision shall be field researched and authorized by the Engineer.

E. Footer rocks shall be placed at the bottom and downstream side of the trench for the rock J-vane. Gravel mixture shall be placed behind and on the top of the footer rocks.

F. Vane rocks shall rest on top of the upstream half of the footer rocks. The top elevation of the vane rock at the RP shall be set to the invert specified on the rock J-vane structure table.

G. Starting at the RP upstream vane rock shall form a distance approximately 40% of the wetted bottom width perpendicular to the path of flow as shown in the Drawings.

H. From there A, the vane shall taper downstream so that the downstream vane rock extends a distance of 1 into the stream channel banks. The height of the downstream vane rocks shall match the bankfull level elevation. At intermediate vanes as defined in the Structure Site Schedule on Drawing C5.1

I. The downstream rock at the "J" arm/tip shall taper downstream at an angle of 45±3 degrees in the direction of the flow. The height of the J-vane is relative to the direction of the RP. All stone sizes are detailed in the Structure Site Schedule on Drawing C5.1

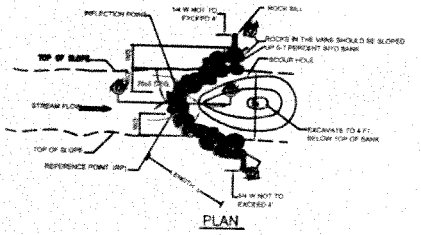
J. The lowest elevation of the rock J-vane is at the RP. The vane rocks shall be placed so that they continuously rise in the downhill direction.

K. Vane rocks shall be placed so that their tops on top of the footer rocks and fit snugly against each other. Care shall be taken when placing vane rocks that the stream bottom rock forms do not find up with the bottom between the footer rocks.

L. The downstream vane rocks and the transition rocks are built into the downside of the end vane rock bucket into the stream bank. Place mud, fill or cultivate in the Drawings.

M. The J-vane shall be keyed into the streambed bench with gravel mixture, extending a minimum of 2 feet outward to the vane J-vane. Existing channel material may produce the need for importing and hauling. This decision shall be field researched and authorized by the Engineer.

N. Remove unsuitable and surplus rocks and excavation materials.



ROCK CROSS VANE

PART 1 DESCRIPTION

The Contractor shall furnish all labor and equipment required to install rock cross vanes as shown on the Drawings. This work shall consist of excavating, installing and maintaining rock cross vanes constructed within the stream channel, as shown on the Drawings.

PART 2 MATERIALS

2.1 FOOTER ROCKS

A. Footer rocks consist of rocks placed below the invert of the channel channel to provide support for the vane rocks and prevent downstream scour.

B. The dimensions of the footer rocks shall be as shown in the Structure Site Schedule on Drawing C5.1. In general, footer rocks shall be adjacent to the largest vane rocks available.

2.2 VANE ROCKS

A. Vane rocks consist of rocks placed directly on top of the footer rocks.

B. The dimensions of the vane rock rocks shall be as shown in the Structure Site Schedule on Drawing C5.1

2.3 GRAVEL MIXTURE

A. Gravel mixture shall meet the specifications for crushed stone material specified on Drawing C2.1

PART 3 CONSTRUCTION

3.1 CROSS VANE CONSTRUCTION

A. The rock cross vane shall be constructed in a "X" formation so that adjoining rocks form an interlocking structure that retains flow in a downstream direction. Each side of the vane is to be angled 24±3 degrees from the stream bank (towards the stream).

B. The construction reference point (RP) shall be used for locating the initial point of construction. The RP is identified for each cross vanes on the details. The elevation and location from the RP are specified in the rock cross structure table on the structure notes plan sheet.

C. A trench shall be excavated for the footer rocks, vane rocks and gravel mixture. The width of excavation in the direction of flow shall be a minimum of 2 feet wider than the rock. Install or allow the gravel mixture to extend a minimum of 2 feet upstream of the rock cross vane.

D. In the event where installation of rock cross vane may damage tree roots, excavation shall be minimized. This may include reducing the length of the vane or eliminating trenching for footer rocks and gravel mixture. The decision shall be field researched and authorized by the Engineer.

E. Footer rocks shall be placed at the upstream and downstream side of the trench for the rock cross vane. Gravel mixture shall be placed behind and on the top of the footer rocks.

F. Vane rocks shall rest on top of the upstream half of the footer rocks. The top elevation of the vane rock at the RP shall be set to the invert specified on the rock cross structure table.

G. Starting at the RP upstream vane rock shall form two a distance approximately 40% of the wetted bottom width perpendicular to the path of flow as shown in the Drawings.

H. From the Inflection Point, the vanes shall taper downstream so that the end vane rocks extend a distance of 1 into the stream channel banks. The height of the downstream vane rocks shall match the bankfull level elevation. At intermediate vanes as defined in the Structure Site Schedule on Drawing C5.1

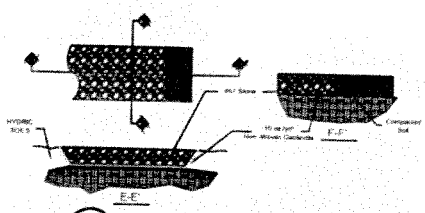
I. The transom elevation of the rock cross vane is at the RP. The vane rocks shall be placed so that they continuously rise in the downhill stream where they fit into the stream bottom.

J. Vane rocks shall be placed so that they each on top of the footer rocks and fit snugly against each other. Care should be taken when placing vane rocks that the stream bottom rock forms do not find up with the bottom between the footer rocks.

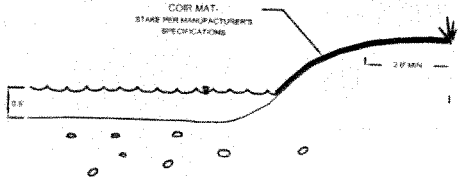
K. The downstream vane rocks on both and of the cross vanes shall be installed with vane rock notch the direction of the rock vane and buried into the stream bank.

L. The stream shall be back filled to the proposed invert with gravel mixture, extending a minimum of 2 feet outward of the rock cross vane. Existing channel material may preclude the need for importing and hauling. This decision shall be field researched and authorized by the Engineer.

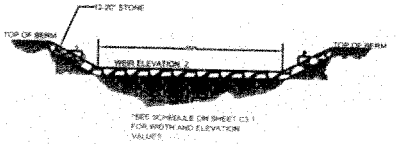
M. Remove unsuitable and surplus rocks and excavation materials.



3 UTILITY CORRIDOR/SOIL PLUG
NTS

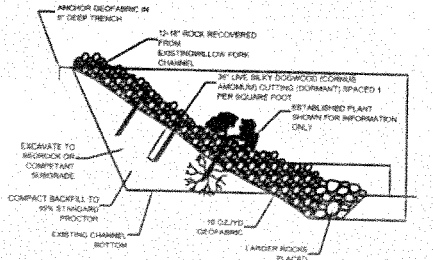


4 BANK STABILIZATION
NTS



SEE SCHEDULE ON SHEET C5.1 FOR WIDTH AND ELEVATION VALUES

5 WETLAND INLET/OUTLET STRUCTURE
NTS



6 ROCK / LIVE STAKE
NTS

GRAPHIC SCALE

IF YOU DIG TENNESSEE...
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NASHVILLE AREA
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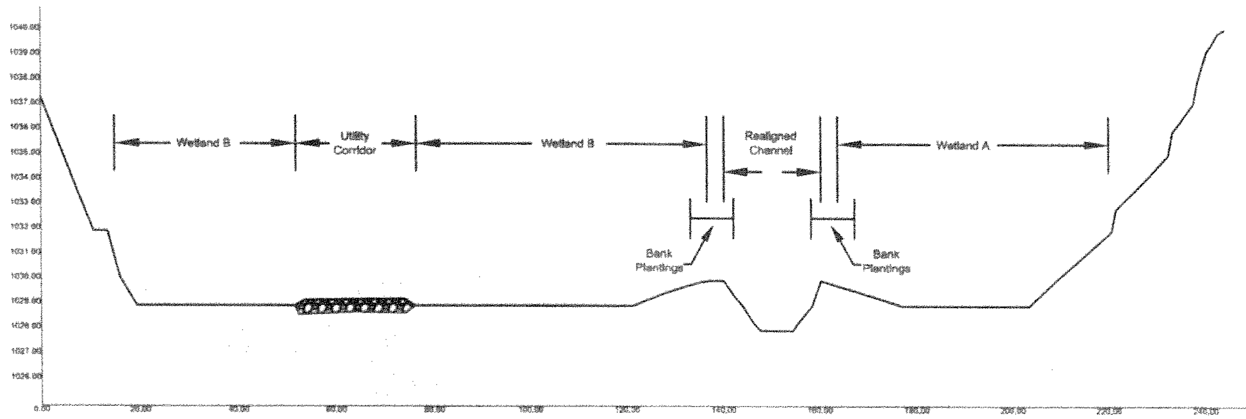
Revisions

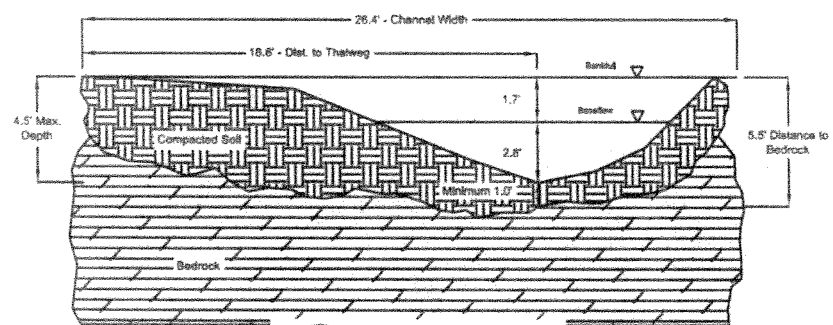
Details
Halls Crossroads Retail Facility
Mitigation Plan
Knox County, Tennessee

4 of 6

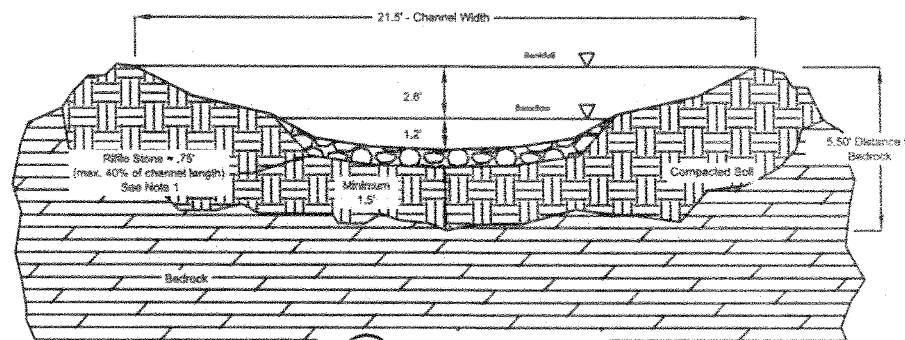
NOT FOR CONSTRUCTION



A-A' 3/5 CROSS-SECTION OF MITIGATION AREA
TYPICAL OF OTHER AREAS



B-B' 3/5 POOL CROSS SECTION
TYPICAL - NTS



C-C' 3/5 RIFFLE CROSS SECTION
TYPICAL - NTS

Note 1: Riffle substrate composition:
10% No. 16
20% No. 4
40% ¾ inch
20% 1 inch
10% 2 inch

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Details - Channel Cross Sections

Halls Crossroads Retail Facility

Mitigation Plan

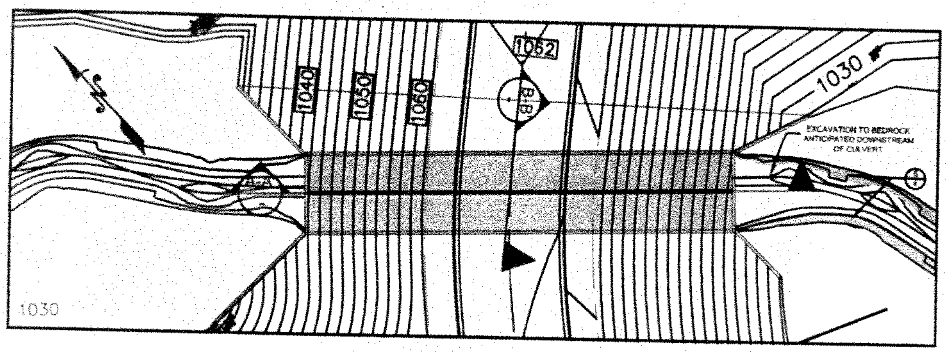
Knox County, Tennessee

Revisions

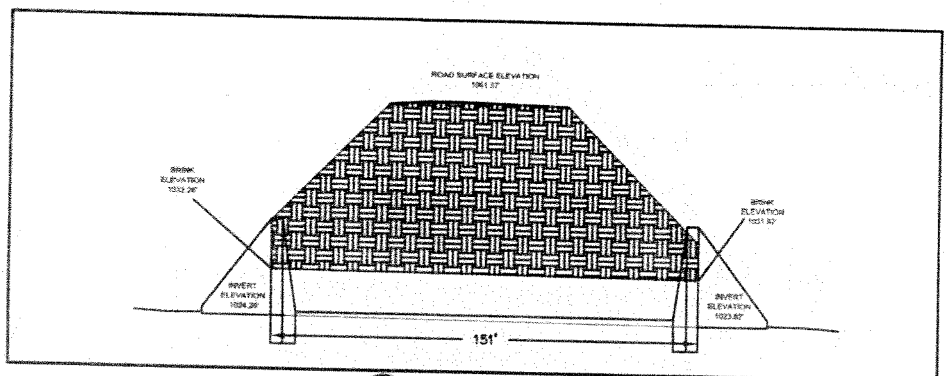
WRC | WKB | FMP | 1434-06-396 | AS SHOWN | 03-29-07

5 of 6

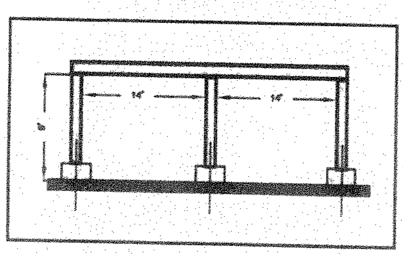
NOT FOR CONSTRUCTION



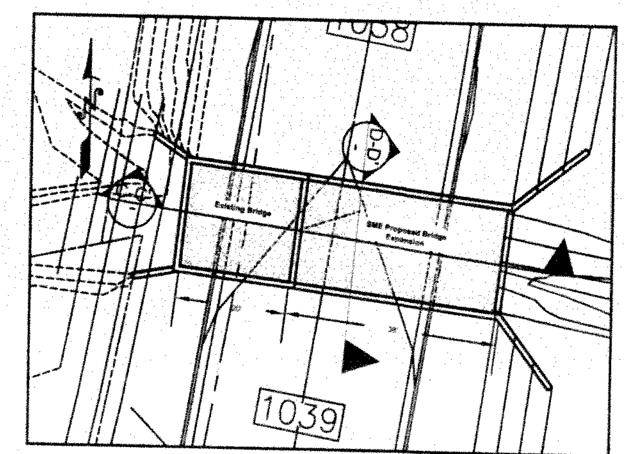
PROPOSED CULVERT PLAN VIEW STATION 2+68.0 to 4+19.0
1 inch = 20 feet



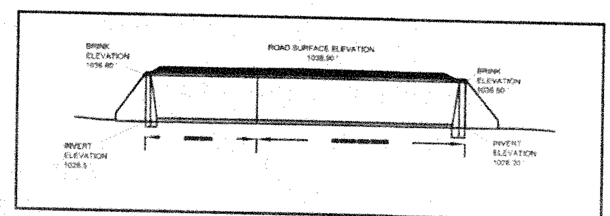
A-A' ROAD SURFACE PROFILE STATION 2+68.0 to 4+19.0
HORIZONTAL SCALE: 1 inch = 20 feet
VERTICAL SCALE: 1 inch = 40 feet



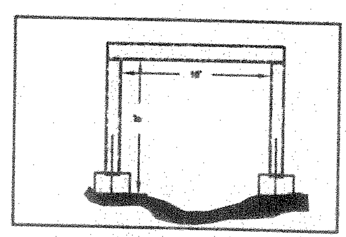
B-B' CULVERT CROSS SECTION STATION 2+68.0 to 4+19.0
TYPICAL - NTS



PROPOSED BRIDGE EXPANSION STATION 25+31.4 TO 25+69.4
1 inch = 10 feet



C-C' ROAD SURFACE PROFILE STATION 25+31.4 TO 25+69.4
HORIZONTAL SCALE: 1 inch = 10 feet
VERTICAL SCALE: 1 inch = 20 feet



D-D' BRIDGE EXPANSION CROSS SECTION STATION 25+31.4 TO 25+69.4
TYPICAL - NTS

NOTES:

1. CULVERT DETAILS ADAPTED FROM TDOT STANDARD BOX CULVERT STRUCTURES DETAILS SHEETS AT HTTP://WWW.TDOT.STATE.TN.US. CULVERT AND BRIDGE EXPANSION ARE PRE-CAST CONCRETE.
2. WINGWALL AND SKEW ANGLES ARE AS SHOWN. UPSTREAM AND DOWNSTREAM WINGWALL ANGLES FOR THE PROPOSED NEW CULVERT ARE 45°. DOWNSTREAM WINGWALL ANGLE FOR THE BRIDGE EXPANSION IS 45°. EXISTING BRIDGE WINGWALL ANGLE IS 30°.
3. FOR CROSS SECTION LOCATIONS, REFER TO THE PROPOSED CONDITIONS SITE PLAN IN APPENDIX 6, FIGURE 5, OF THE CLOMR SUBMITTAL PACKAGE.
4. THESE PLANS ARE FOR ILLUSTRATIVE PURPOSES ONLY. CONSTRUCT PER CIVIL PLANS PROVIDED BY TYSINGER, HAMPTON, AND PARTNERS.

S&ME
ENGINEERING TESTING ENVIRONMENTAL SERVICES
1413 Topside Road
Louisville, Tennessee 37777
Phone (865) 970-0003
Fax (865) 970-2312

DETAILS-PROPOSED CULVERT AND BRIDGE EXTENSION
HALLS CROSSROADS PROPOSED RETAIL FACILITY
Knox County, Tennessee

Revisions

No.	Date	Description	By
A	03-14-07	Agency Submittal	CRH

Drawn by: CRH | Checked by: WKB
Designed by: WKB | Approved by: WKB
Project number: 1434-06-396
Scale: AS SHOWN | Date: 03-08-07

Appendix E

Section 404(b)(1) Guidelines Compliance

Section 404 (b)(1) Guidelines.

Evaluation of Compliance with Section 404 (b)(1) guidelines (restrictions on discharge, 40 CFR 230.10). (An X in a block denoted by an asterisk indicates that the project would not comply with the guidelines.)

1) Alternatives test:

Yes*__ No X — i) Based on the alternatives discussion, are there available, practicable alternatives having less adverse impact on the aquatic ecosystem and without other significant adverse environmental consequences that do not involve discharges into "waters of the U.S." or at other locations within these waters?

Yes X No*__ NA ____ — ii) Based on the alternatives discussion, if the project is in a special aquatic site and is not water dependent, has the applicant clearly demonstrated that there are no practicable alternative sites available?

2) Special restrictions. Will the discharge:

Yes*__ No X — i) Violate state water quality standards?

Yes*__ No X — ii) Violate toxic effluent standards (under Section 307 of the Act)?

Yes*__ No X — iii) Jeopardize endangered or threatened species or their critical habitat?

Yes*__ No X — iv) Violate standards set by the Department of Commerce to protect marine sanctuaries?

Yes X No*__ — v) Evaluation of the above information indicates that the proposed discharge material meets testing exclusion criteria for the following reason(s).

( ) based on the above information, the material is not a carrier of contaminants.

(X) the levels of contaminants are substantially similar at the extraction and disposal sites and the discharge is not likely to result in degradation of the disposal site and pollutants will not be transported to less contaminated areas.

( ) acceptable constraints are available and will be implemented to reduce contamination to acceptable levels within the disposal site and prevent contaminants from being transported beyond the boundaries of the disposal site.

3) Other restrictions. Will the discharge contribute to significant degradation of "waters of the U.S." through adverse impacts to:

Yes* __ No X

i) Human health or welfare, through pollution of municipal water supplies, fish, shellfish, wildlife, and special aquatic sites?

Yes* __ No X

ii) Life states of aquatic life and other wildlife?

Yes* __ No X

iii) Diversity, productivity and stability of the aquatic ecosystem, such as loss of fish or wildlife habitat, or loss of the capacity of wetlands to assimilate nutrients, purify water or reduce wave energy?

Yes* __ No X

iv) Recreational, aesthetic and economic values?

Yes X **No*** __

4) Actions to minimize potential adverse impacts (mitigation). Will all appropriate and practicable steps (40 CFR 230.70-77) be taken to minimize the potential adverse impacts of the discharge on the aquatic ecosystem?

Appendix F

Section 401 Water Quality Certification

#2006-02762
→MGT
10/14

TENNESSEE DEPARTMENT OF ENVIRONMENT & CONSERVATION
DIVISION OF WATER POLLUTION CONTROL
401 CHURCH STREET
7th FLOOR L & C ANNEX
NASHVILLE, TENNESSEE 37243-1534

September 25, 2007

Graham Corporation
Tim Graham
1707 Merchants Drive
Knoxville, Tenn. 37912

Subject: **§401 Water Quality Certification**
State of Tennessee Application **NRS 07.077** Knox County

Dear Mr. Graham:
We have reviewed your application for the proposed stream and wetland relocation for the Halls Crossroads retail facility. Pursuant to §401 of the Federal Clean Water Act (33 U.S.C. 1341), the state of Tennessee is required to certify whether the activity described herein will violate applicable water quality standards.

Subject to conformance with accepted plans, specifications and other information submitted in support of the referenced application, the state of Tennessee hereby issues certification for the proposed activity (enclosed). Failure to comply with the terms of this permit or other violations of the *Tennessee Water Control Act of 1977* is subject to penalty in accordance with T.C.A. § 69-3-115.

It is the responsibility of the permittee to ensure that all contractors involved with this project have read and understood the permit conditions before the project begins. If you need any additional information or clarification, please contact Juliana Kyzar at 615-532-0709 or by e-mail at Juliana.Kyzar@state.tn.us.

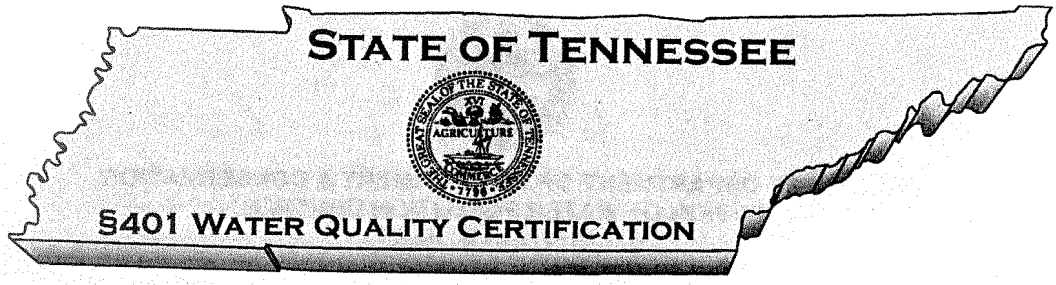
Sincerely,

Juliana Kyzar

Juliana W. Kyzar,
Natural Resources Section

Cc: Jonathon Burr, Knoxville Environmental Field Office
Marty Tyree, U.S. Army Corps of Engineers, Nashville District
Tom Welborn, U.S. Environmental Protection Agency, Atlanta, GA
Lee Barclay, U.S. Fish and Wildlife Service, Cookeville, TN
Rob Todd, Tenn. Wildlife Resources Agency, Nashville, TN
Tiffany Foster, Tennessee Valley Authority
File copy

09 OCT 2007



NRS 07.077

Pursuant to §401 of the Federal Clean Water Act (33 U.S.C. 1341), the state of Tennessee is required to certify whether the activity described below will violate applicable water quality standards. Accordingly, the Division of Water Pollution Control requires reasonable assurance that the activity will not violate provisions of *The Tennessee Water Quality Control Act of 1977* (T.C.A. § 69-3-101 et seq.) or of § § 301, 302, 303, 306 or 307 of *The Clean Water Act.*

Subject to conformance with accepted plans, specifications and other information submitted in support of application NRS 07.077, the state of Tennessee hereby certifies the activity described under authorized work below pursuant to 33 U.S.C. 1341. This shall serve as authorization pursuant to §T.C.A. 69-3-101 et seq.

PERMITTEE: Graham Corporation

AUTHORIZED WORK: The authorized work includes the relocation of approximately 2,319 feet of Willow Fork, 176 feet of the unnamed tributary and fill 0.60 acres of wetlands for the purpose of retail development. The relocated channel will be moved approximately 250 feet south east and be 2530 linear feet of channel and 150 feet of box culverts.

The constructed stream channel will have riffle-pool sequences along with a planned riparian zone, some of which is the wetland mitigation areas.

The 0.60-acre of wetland fill shall be mitigated by the creation of 1.81 acres of flood-plain wetlands along the relocation channel.

Within the relocated stream, there are two road crossings. Within the wetland creation areas, there are two utility corridors that will have trench plugs. These alterations are excluded from the mitigation calculations. There are two utility line crossings of the relocated stream channel.

LOCATION: Willow Fork and unnamed tributary to Willow Fork, Halls Crossroads proposed retail facility, southwest of Quarry Road, Knox County 36.1000 °N, -83.9099 °W

EFFECTIVE DATE: September 25, 2007

EXPIRATION DATE: September 24, 2012

SPECIAL CONDITIONS:

1. Existing conditions shall be measured and documented prior to any blasting or construction of the relocated channel. The following conditions must be documented:
    a. The base flow characteristics of the stream reach. The pre-project hydrologic monitoring will take place after a minimum of three days with no measurable rainfall. The monitoring shall have three sampling points, with one point each on the upstream and downstream ends of the proposed relocated stream alignment. This information should be turned in with the first annual monitoring report.

   b. The stream habitat conditions of Willow Branch. This shall include the appropriate Habitat Assessment Data Sheet (as published by EPA and used by TDEC-WPC).

2. The existing channel shall not be altered nor the stream flow diverted from it until the stabilized new channel construction is completed and has been accepted or approved in writing by the division. Juliana Kyzar at the division's central office may be contacted at least seven working days in advance for this purpose at 615-532-0709. After the acceptance of the new channel, flow shall be conveyed through the new channel for approximately 48 hours prior to the backfill of the old channel. If no flow is present, the division shall be contacted to waive the 48-hour requirement. According to the application, this channel transition will be performed in stages.
3. The relocated channel shall have smooth transitions with appropriate grades to carry flow out of and back into the existing stream channel.
4. The road crossing culverts shall be installed at or slightly below stream grade to allow natural flow to reestablish.
5. The road crossings shall be designed and installed to prevent the impoundment of normal or base flows.
6. Along the relocated stream channel, the permittee shall plant native species of trees and shrubs according to the Mitigation plan submitted by S&ME, dated February 27, 2007. Any future updates of the plans should include all the pertinent information. No one species shall comprise more than 25% of the total plantings. Tree planting shall occur from late November to approximately March 15 to increase planting establishment and survival.
7. The stream relocation shall be monitored for five years and annual reports submitted to this office and the Knoxville Environmental Field Office. The reports shall document bank stability, stream habitat conditions (both pre- and post-project habitat assessments), flow conditions, and riparian vegetation (tree survival and volunteer species establishment) in both a narrative and photographic form and be submitted by October 31 beginning the first year after completion of the relocation and plantings. Any necessary remedial actions to correct deficiencies shall be addressed with a time table for corrective activities. The stream relocation shall meet the following performance criteria:
   a. 75% survival rate of planted trees and shrubs for five consecutive years.
   b. A stable, morphologically functioning channel with contained base flow (similar to pre project flow) in a discernable bed and bank with typical in-stream habitat.
   c. Stable, non-eroding banks with adequate vegetative cover to prevent erosion and sediment for entering waters of the state.
8. The mitigation will be the on-site creation of 1.81 acres of wetlands along the floodplain of Willow Fork.
9. Any wetland areas not permitted for impacts shall be clearly marked and protected from equipment access and fill material.
10. The permittee shall plant native trees in the wetland mitigation area at a rate of 300 stems per acres and shrubs at 200 per acre. No one species shall comprise more than 25% of the total plantings and the species shall be selected from the list submitted by S&ME in the February 2007 "Mitigation Plan" and be planted with the wetland indicator status of each species in mind.

11. The created wetlands shall be monitored until the mitigation work is demonstrated to be successful, as defined in this condition, for five consecutive years. Annual reports (with photo-documentation) shall be submitted to this office, the Knoxville Environmental Field Office and the Corps of Engineers. The reports shall at minimum document vegetation (tree survival and volunteer species establishment), hydrology and soils in both a narrative and photographic form. Monitoring protocol will follow the "Mitigation Plan" by S&ME, dated February 2007. Necessary remedial actions to correct deficiencies shall be addressed with a timetable for corrective activities. Performance criteria shall be defined as follows:
    a. 75% survival rate of planting trees and shrubs for five consecutive years.
    b. Wetland creation sites must obtain and maintain hydrologic, soil and vegetation characteristics that define them as jurisdictional wetlands.
    c. The establishment of adequate understory and ground cover species, dominated by wetland indicator species.
12. If the project is not completed by October 31, 2008, then a letter of project status shall be submitted by that date. Letters of project status are not counted as part of the required five monitoring reports.
13. Failure to submit the yearly monitoring reports or letters of project status to this office by October 31, 2008, shall result in a Notice of Violation (NOV) to the permittee and possible civil penalties.
14. The wetland mitigation must be constructed within the same calendar year as the fill of the permitted wetlands.
15. The permittee shall retain the services of an environmental specialist to oversee the relocation of the channel. The name of the individual(s) or firm must be submitted to this office within 45 days after receipt of this certification or other final environmental permits needed to perform the authorized work.
16. The permitte shall retain the services of a geotechnical engineer to oversee any blasting for the relocated stream channel or any utility line corridors within 25 feet of Willow Branch top of bank.
17. Any fractures created in the bedrock that may result in loss of stream flow must be repaired using appropriate geotechinical measures. If any instances of fracturing occurs that required repair, these areas should be noted in the first monitoring report and any letter of project status that may pre-date the first monitoring report. Within the report, the repair measures should be documented.
18. Any outfall structure shall be located and oriented such as to avoid permanent alteration or damage to the integrity of the stream channel including the opposite stream bank. The alignment of the outfall structure (except for diffusers) should be as parallel to the stream flow as is practicable, with the discharge pointed downstream.
19. The utility line corridors shall be excavated and installed prior to the riparian or wetland mitigation planting.
20. At the entrance and exit of the utility lines to the wetland areas, there shall be impervious trench collars (trench plugs) to prevent hydrologic alterations to the wetlands.
21. The two utility line crossings of the relocated stream channel shall be installed under the terms and conditions of the *General Permit for Utility Line Crossings*, issued June 2005.

GENERAL CONDITIONS:

22. The work shall be accomplished in conformance with the accepted plans, specifications, data and other information submitted in support of the above application and the limitations, requirements and conditions set forth herein.

23. No impacts to any waters of the state by this project, other than those specifically addressed in the plans and this permit, are allowed. All streams, springs and wetlands shall be fully protected prior, during and after construction until the area is stabilized. Any questions, problems or concerns that arise regarding any stream, spring or wetland either before or during construction, shall be addressed to the Division of Water Pollution Control, Knoxville Field Office, 865-594-6035. Wetlands outside of the proposed area of impact shall not be used as storage or staging areas for equipment.

24. All work shall be carried out in such a manner as will prevent violations of water quality criteria as stated in Rule 1200-4-3.-03 of the Rules of The Tennessee Department of Environment and Conservation. This includes but is not limited to the prevention of any discharge that causes a condition in which visible solids, bottom deposits, or turbidity impairs the usefulness of waters of the state for any of the uses designated by Rule 1200-4-4. These uses include fish and aquatic life, livestock watering and wildlife, recreation, irrigation, industrial water supply, domestic water supply, and navigation.

25. Work shall be separated from the flowing waters. All surface water flowing toward the excavation and fill work shall be diverted, piped, flumed or pumped to the downstream side of the work. This can be accomplished through the utilization of cofferdams or constructed berms in conjunction with a pipe or flume. Cofferdams must be constructed of sandbags, clean rock, steel sheeting or other non-erodible material. Clean rock is rock of various type and size, depending on application, which contains no fines, soils or other waste contaminants.

26. Streams shall not be used as transportation routes for heavy equipment. Crossings must be limited to one point and erosion control measures must be utilized where the stream banks are disturbed. Where the streambed is not composed of rock, a pad of clean rock or other erosion-resistant material must be used at the crossing point. Clean rock is rock of various type and size, depending upon application, which contains no fines, soils or other wastes or contaminants. All temporary fill must be removed and the stream restored to existing contours after the work is completed.

27. Clearing, grubbing and other disturbance to riparian vegetation shall be limited to the minimum necessary for slope construction and equipment operations. Unnecessary vegetation removal is prohibited. Vegetation should not be allowed to fall in the stream, nor should it be disposed of in the streams or wetlands.

28. Sediment must be prevented from entering waters of the state. Erosion and sedimentation control measures to protect water quality must be installed prior to construction and be maintained throughout the construction period. Erosion and sedimentation controls shall include, but are not limited to, silt fence and/or straw or hay bales, brush barriers, rock checks, berms, sediment basins, slope drains and other proven devices that are designed according to the size and slope of the disturbed drainage areas to detain run off and trap sediment. Effective erosion or sedimentation controls must be installed along the base of all fills, on the downhill side of stock piled soil, and along stream banks in cleared areas to prevent sedimentation to streams. Erosion and sedimentation controls must be selected, installed and maintained in accordance with the manufacturer's specifications and good engineering practices.

29. Stabilization measures shall be initiated within seven days after the construction activity has temporarily or permanently ceased.
30. All disturbed soil areas must be temporarily stabilized as soon as possible if earth-disturbing activities will cease for 15 days or more. Upon achievement of final grade, all disturbed soil areas must be temporarily stabilized within 15 days of inactivity and re-vegetated or otherwise permanently stabilized within 30 days. Vegetation can be accomplished by sodding or seeding and mulching (use native herbaceous and woody plants where practicable). Seed to be utilized shall include a combination of annual grains and grasses, legumes and perennial grasses. Lime and fertilizer shall be applied as needed to achieve a vegetative cover.
31. Appropriate steps shall be taken to ensure that petroleum products or other chemical pollutants are prevented from entering waters of the state. All spills must be reported to the appropriate emergency management agency, and measures shall be taken immediately to prevent the pollution of waters of the state, including groundwater.
32. Adverse impact to formally listed state or federal threatened or endangered species or their critical habitat is prohibited.
33. This permit does not authorize adverse impacts to cultural, historical or archeological features or sites.
34. It is the responsibility of the applicant to convey all terms and conditions of this permit to all contractors. A copy of this permit, approved plans and any other document pertinent to the activities authorized by this permit shall be maintained on site at all times during periods of construction activity.

This does not preclude requirements of other federal, state or local laws. In particular, work shall not commence until the applicant has received the federal §404 permit from the U. S. Army Corps of Engineers, a §26a permit from the Tennessee Valley Authority or authorization under a Tennessee NPDES Storm Water Construction Permit where necessary. This permit also serves as a Tennessee Aquatic Resource Alteration Permit pursuant to the *Tennessee Water Quality Control Act of 1977* (T.C.A. § 69-3-101 et seq.).

The state of Tennessee may modify, suspend or revoke this permit or seek modification or revocation should the state determine that the activity results in more than an insignificant violation of applicable water quality standards or violation of the act. Failure to comply with permit terms may result in penalty in accordance with T.C.A. §69-3-115.

An appeal of this action may be made to the Water Quality Control Board. In order to appeal, a petition requesting a hearing before the Board must be filed within 30 days after receipt of the permit. In such petition, each contention should be stated in numbered paragraphs that describe how the proposed activity would be lawful and the action of the state is inappropriate. The petition must be prepared on 8½" x 11" paper, addressed to the Water Quality Control Board and filed in duplicate at the following address: Paul E. Davis, Director, Division of Water Pollution Control, 6th Floor L & C Annex, 401 Church Street, Nashville, Tennessee 37243-1534. Any hearing would be in accordance with Tennessee Code Annotated Section 69-3-110 and 4-5-301 et seq. Questions concerning this certification should be addressed to Juliana Kyzar at 615-532-0709.

Paul E. Davis, P.E.
Director, Division of Water Pollution Control

General Permit for Utility Line Crossings

Effective Date: July 1, 2005
Expiration Date: June 30, 2010

This general permit authorizes the construction, maintenance, repair, rehabilitation or replacement of utility line crossings of navigable and non-navigable streams. For the purpose of this general permit, bodies of water defined as navigable pursuant to §10 of the *Rivers and Harbors Act of 1899*, are subject to different restrictions than all other waters regarding the specific construction methodologies to be employed.

Failure to comply with the terms and conditions of this permit is a violation of the *Tennessee Water Quality Control Act of 1977* and is subject to penalty in accordance with T.C.A. §69-3-115.

Exclusions

This general permit shall not be used to authorize activities in the following circumstances:

1) where the proposed project involves more than one crossing of the same stream by gravity sewer lines;
2) where a portion of the proposed activity is located in a component of the National Wild and Scenic River System, a State Scenic River, waters designated as Outstanding National Resource Waters;
3) where the proposed activity may adversely affect wetlands, except as provided for in item 21) of the Terms and Conditions section below;
4) where a portion of the proposed activity is located in any waterway which is identified by the department as having contaminated sediments, and where the activity will likely mobilize the contaminated sediments;
5) when the proposed activity will adversely affect a species formally listed on either state or federal lists of threatened or endangered species or their critical habitat;
6) when the department determines that the proposed activities, either individually or cumulatively, may result in degradation to waters of the state; or
7) when an individual permit is otherwise required.

Projects not qualifying for authorization under this general permit, may be authorized by an individual permit, provided that all requirements of the *Tennessee Water Quality Control Act of 1977* are met.

Notification

Applicants proposing the construction, maintenance, repair, rehabilitation or replacement of utility line crossings of navigable and non-navigable streams under this general permit shall notify the division by submission of an original, signed application (form CN-1091) along with the following minimum information:

(a) a cover letter explaining the scope of the project;
(b) a USGS topographical map showing the exact location of the proposed project;
(c) a single copy of construction plans and drawings which include all dimensions and specifications for the proposed work, as well as pollution control methods and/or structures, and method of excavation/trenching.

Work shall not commence until the applicant has received written authorization from the division that the activities may proceed under this general permit or that an individual permit has been issued.

All activities covered under this general permit shall comply with all terms and conditions contained hereinafter.

Terms and Conditions

1) The work shall be accomplished in conformance with the accepted plans, specifications, data and other information submitted in support of the above mentioned application and the limitations, requirements, and conditions set forth herein.
2) Applicant is responsible for obtaining the necessary authorization pursuant to applicable provisions of §10 of *The Rivers and Harbors Act of 1899*; §404 of *The Clean Water Act* and §26a of *The Tennessee Valley Authority Act*, as well as any other federal, state or local laws.

3) Applicant is responsible for obtaining coverage under the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges from Construction Activities for construction sites involving clearing, grading or excavation that result in an area of disturbance of one or more acres, and activities that result in the disturbance of less than one acre if it is part of a larger common plan of development or sale.
4) New utility line crossings shall be located such as to avoid permanent alteration or damage to the integrity of the stream channel. Large trees, steep banks, rock outcroppings etc., should be avoided.
5) In the case of proposed utility lines, excluding gravity sewer, that follow the stream gradient or otherwise parallel the stream channel, the number of crossings shall be minimized. Where cumulative impacts are likely because of numerous crossings proposed, an individual permit may be required.
6) The crossing shall be designed to prevent the impoundment of normal or base flows. Base flow is the usual or normal flow of the stream that is supplied primarily by groundwater from springs and seeps, but not affected by rapid runoff during and after rainfall.
7) The alignment of new utility line crossings shall intersect the stream channel as close to 90 degrees or as perpendicular as possible. Alignment shall be no less than 45 degrees angle from the centerline of the stream.
8) In the case of streams with bedrock streambeds, provisions shall be made to prevent the loss of stream flow due to fracturing of the bedrock.
9) Backfill activities shall be accomplished in a manner that stabilizes the streambed and banks to prevent erosion. All contours shall be returned to pre-project conditions and the completed activities may not disrupt or impound stream flow.
10) The excavation and fill activities associated with the utility line crossing of non-navigable streams shall be kept to a minimum and shall be separated from flowing waters. The crossing shall be constructed in the dry to the maximum extent practicable, by diverting flow utilizing cofferdams, berms, temporary channels or pipes. Temporary diversion channels shall be protected by non-erodible material and lined to the expected high water level.
11) Excavated materials, removed vegetation, construction debris, and other wastes shall be removed to an upland location and properly stabilized or disposed of in such a manner as to prevent reentry into the waterway.
12) The excavation and fill activities associated with utility line crossing of navigable streams as defined by §10 of the *Rivers and Harbors Act of 1899*, may be accomplished within the water column.
13) Sediment shall be prevented from entering waters of the state. Erosion and sediment controls shall be designed according to the size and slope of disturbed or drainage areas to detain runoff and trap sediment and shall be properly selected, installed, and maintained in accordance with the manufacturer's specifications and good engineering practices.
14) Erosion and sediment control measures shall be in place and functional before earth moving operations begin, and shall be constructed and maintained throughout the construction period. Temporary measures may be removed at the beginning of the work day, but shall be replaced at the end of the work day.
15) Sediment should be removed from sediment traps, silt fences, sedimentation ponds, and other sediment controls as necessary, and shall be removed when design capacity has been reduced by 50%. Discharges from sediment basins and traps shall be through a pipe or lined or well-grassed channel so that the discharge does not cause erosion.
16) Litter, construction debris, and construction chemicals exposed to storm water shall be picked up prior to anticipated storm events (e.g. forecasted by local weather reports), or otherwise prevented from becoming a pollutant source for storm water discharges (e.g., screening outfalls, daily pick-up, etc.). After use, silt fences should be removed or otherwise prevented from becoming a pollutant source for storm water discharges.
17) Clearing, grubbing and other disturbance to the riparian vegetation shall be kept at the minimum necessary for slope construction and equipment operations. Unnecessary riparian vegetation removal, including trees, is prohibited.
18) Pre-construction vegetative ground cover shall not be destroyed, removed or disturbed more than 10 calendar days prior to grading or earth moving unless the area is seeded and/or mulched or other temporary cover is installed.
19) Stabilization measures shall be initiated within seven days after the construction activity has temporarily or permanently ceased.

20) Temporary or permanent soil stabilization shall be accomplished within 15 days after final grading or other earth work. Permanent stabilization with perennial vegetation (using native herbaceous and woody plants where practicable) or other permanently stable, non-eroding surface shall replace any temporary measures as soon as practicable.
21) Muddy water to be pumped from excavation and work areas shall be held in settling basins or filtered prior to its discharge into surface waters. Settling basins shall not be located closer than 20 feet from the top bank of the stream and water shall be discharged through a pipe, well grassed or lined channel or other equivalent means so that the discharge does not cause erosion and sedimentation.
22) Maintenance, repair and rehabilitation of existing utility lines in wetlands is authorized provided that all of the following special provisions are met:
    (a) the total amount of excavation or fill does not exceed 50 cubic yards;
    (b) the wetlands alteration is located within the right of way of the existing utility line; and
    (c) fill activities for the construction of equipment access roads is not authorized in wetlands.
23) The activity may not be conducted in a manner that would permanently disrupt the movement of fish and aquatic life.
24) Checkdams shall be utilized where runoff is concentrated. Clean rock, log, sandbag or straw bale checkdams shall be properly constructed to detain runoff and trap sediment. Checkdams or other erosion control devices are not to be constructed in stream. Clean rock can be of various type and size, depending on the application. Clean rock shall not contain fines, soils or other wastes or contaminants.
25) Stream beds shall not be used as transportation routes for construction equipment. Temporary stream crossings shall be limited to one point in the construction area and erosion control measures shall be utilized where stream banks are disturbed. Stream crossings should be constructed of clean rock and stream flow should be conveyed in appropriately sized pipe. The crossing shall be constructed so that stream flow is not obstructed. Following construction, all materials used for the temporary crossing shall be removed and disturbed stream banks shall be restored and stabilized if needed.
26) Materials used in utility crossing projects shall be free of contaminants, including toxic pollutants, hazardous substances, waste metal, construction debris and other wastes as defined by T.C.A. 69-3-103(18).
27) Material may not be placed in a location or manner so as to impair surface water flow into or out of any wetland area.
28) Appropriate steps shall be taken to ensure that petroleum products or other chemical pollutants are prevented from entering waters of the state. All spills shall be reported to the appropriate emergency management agency and to the division. In the event of a spill, measures shall be taken immediately to prevent pollution of waters of the state, including groundwater.
29) This general permit does not authorize impacts to cultural, historical or archaeological features or sites.
30) Upon completion of the project, the stream and banks shall be returned to as close to pre-project conditions as is practicable, using clean rock, grass mats and other suitable materials.
31) The division will establish an expiration date for coverage under this general permit that is specific to the authorization and separate from the general permit expiration date.

APPROVED: Paul E. Davis

Paul E. Davis, Director, Water Pollution Control

DATE: 10-30-05

DEPARTMENT OF ENVIRONMENT & CONSERVATION
Division of Water Pollution Control
6th Floor, L and C Annex
401 Church Street
Nashville, TN 37243-1534

September 25, 2007

SUBJECT: NOTICE OF DETERMINATION
Graham Corporation propose Halls Crossroad Retail Facility
PROPOSED STREAM RELOCATION AND WETLAND FILL
NRS07.077 KNOX COUNTY

DEAR INTERESTED CITIZENS:

Enclosed is a copy of the division's notice of determination regarding the above referenced application for an Aquatic Resource Alteration Permit. The notice of determination discusses the division's determinations regarding the issues that were raised during the public review process. Your participation in the review of the application for the subject permit is appreciated.

If you would like additional information regarding this matter, you may write the division at the above address or contact Dan Eagar at (615) 532-0708 or Dan.Eagar@state.tn.us

Sincerely,

Paul E. Davis P.E.,
Director
Division of Water Pollution Control

DEPARTMENT OF ENVIRONMENT & CONSERVATION

DIVISION OF WATER POLLUTION CONTROL

NOTICE OF AQUATIC RESOURCE ALTERATION PERMIT DETERMINATION
APPLICATION NO. NRS 07.077

This notice contains the final determination of the Tennessee Department of Environment and Conservation, Division of Water Pollution Control on the application made by Graham Corporation for the relocation of 2,495 linear feet of stream and fill of 0.60 acres of wetlands for the purpose of retail development.

BACKGROUND

On March 15, 2007, the division received Graham Corporation's application for an individual Aquatic Resource Alteration Permit for stream and wetland alterations. The proposed alteration was the relocation of 2,495 linear feet of stream and fill of 0.60 acres of wetlands with on-site mitigation and wetlands protection.

On May 12, 2007, the division issued a 30-day public notice. The applicant publicized the notice in the local publication, The Knoxville News-Sentinel, on May 19, 2007. The applicant posted a public notice sign adjacent to the development site on May 17, 2007.

In anticipation of public interest on water quality issues, the applicant volunteered to schedule a public hearing. On June 26, 2007, the division conducted public hearing 2007-017 at the Halls Senior Center in Knoxville, and accepted comments for ten additional days.

The major comments received from the public review process concerned the type and amount of mitigation, assessments and determinations on the existing resources, blasting around the streams and wetlands, and the alternatives to the alteration.

COMMENT #1

Relocation of the stream will result in lost resource values and create a condition of erosion.

RESPONSE:

The applicant designed the relocated channel based on an upstream reference reach of Willow Fork, and then applied engineering techniques to address bank stability and sediment transport issues. The relocated stream is proposed to have a similar substrate, habitat structures and a proposed woody riparian zone that will be equal to or larger in width than the existing riparian zone. The relocated stream channel will not result in a loss of open channel stream length.

The division has determined that the relocated channel, if implemented as designed, should not result in a loss of resource values or a condition of erosion.

COMMENT #2

Willow Fork is Tier I waters and is subject to a higher level of protection from impacts.

RESPONSE:

Willow Fork was assessed as Tier I waters by the division in April 2007. Tier I is an identifier under the Antidegrdation Policy (1200-4-3-.06) and bodies of water in this category are currently not considered "High Quality Waters." If a Tier I waterbody is found not to meet water quality standards for a substance, then new or increased discharges of that substance are not allowed. If it is not currently in violation of water quality standards for a substance or condition, then it is afforded the same level of protection of all surface waters in Tennessee.

COMMENT #3

The wetland delineation was conducted in a drought and after the April freeze; it may not be accurate.

RESPONSE:

The wetland delineation followed the Routine Determination guidelines in the 1987 Corps of Engineers (COE) Wetland Delineation Manual and was conducted in August 2006, prior to the April 2007 freeze and current "Exceptional" drought. It was submitted and field verified by the COE and TDEC in December 2006. In addition, the 1987 COE manual uses characteristics for wetland identification that should be independent of short-term weather conditions.

COMMENT #4

The applicant has not considered alternatives to the alterations or gone through the required process of avoidance and minimization.

RESPONSE:

Applicants for Aquatic Resource Alteration Permits (or §401 Certifications) are required to consider avoidance and minimization of the impacts and assess the practicable alternatives to the planned activity.

Practicable Alternative is defined in rule 1200-4-7 as "an alternative that is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of the overall project purpose."

The applicant's project purpose is to design an economically viable retail development, and an additional purpose is to leave room for a potential proposed greenway. According to the documentation provided, the applicant evaluated three alternative site locations that meet the project purpose and they would result in a larger or equivalent amount of aquatic resource impact. The applicant evaluated alternative site configurations, and most would not meet the project purpose. One considered alternative to relocating the stream is a retaining wall scenario, however this would not leave additional space or gradual slopes for any stream improvements or possible greenway construction.

COMMENT #5

The application failed to meet the requirements of the 404(b)1 Guidelines, specifically, that the project must be "Water Dependent" to receive §401 certification.

RESPONSE:

While the department considers the requirements of applicable Federal laws, the §401 certification is the state's action. The §401 certification is an approval that the discharge will comply with the applicable provisions of sections 301, 302, 303, 306, and 307 of the Clean Water Act.

"Water Dependent" is a concept defined in state rule 1200-4-7-.03, but there is no state rule or law mandating the use of that concept when determining if certification is granted. However, certification/permit applications are required to have an analysis of practicable alternatives, which consider the overall project purpose.

COMMENT #6

The use of blasting in the project may disrupt local wells or result in the loss of stream flow.

RESPONSE:

The division recognizes the potential impact of blasting to water features.

The permit will require blasting only to be used when necessary. The applicant has committed to having a geotechnical engineer to oversee and approve all uses of blasting. The permit will require the applicant to repair any fractures that may divert water flow and provide documentation to the division of those actions.

The applicant searched the TDEC water well survey for information on local wells within one mile of the project area. One well was identified on Emory Road

adjacent to another tributary to Willow Fork and the property owner was identified, but did not respond to contact attempts.

COMMENT #7:

The mitigation proposed does not conform to the state's rules or guidelines for mitigation. Specifically, there were concerns raised with the wetland mitigation ratio, the stream mitigation ratio, the proposed stream buffer and the use of the wetland area as double credits for the stream buffer and wetland mitigation.

RESPONSE:

The state's rules on wetland mitigation (1200-4-7-.04 (7b) state:
"The ratio of acres required for wetland mitigation should not be less than 2:1 for restoration activities; 4:1 for creation and enhancement activities; or 10:1 for preservation. Alternatively, the applicant may propose and utilize best professional judgment ratios."

These proposed ratios shall be based on the value and function of the current wetland, the value of the mitigation wetland and the likelihood of success for the mitigation. The applicant contends, and the division agrees, that the function and values of the existing wetland and the proposed wetland should be at minimum equivalent. In addition, the applicant contends, and the division agrees, that the proposed wetland mitigation site has a high likelihood of success due to the following factors: its location in the floodplain of the proposed stream, its location on known listed hydric soils series, and evidence of hydric soils found within the mitigation site. These hydric soils within the mitigation site are beneath fill and disturbed soils at a depth of 2 to 4 feet. Based on these factors, the division agrees to the best professional judgement ratios as being an adequate mitigation proposal under the rule.

The division considers the relocation of the 2495 linear feet of stream channel an on-site relocation and not a compensatory mitigation channel. The state's mitigation guidelines indicate that compensatory mitigation is required when a relocation does not meet natural channel design or results in a loss of stream length. Base on the applicant's proposal, compensatory mitigation for stream impacts is not required.

The proposed stream riparian zone planting represents an increase in overall riparian buffer compared to the existing stream buffer. In addition, the wetland mitigation areas are adjacent to the stream and extend the buffer further out.

Since the division does not view the stream relocation as compensatory mitigation, the overlap between wetland mitigation areas and the proposed relocated stream buffer does not represent a double mitigation credit. It serves as a wetland mitigation credit within the riparian area of the stream system. Since the existing wetlands are part of the floodplain and riparian area of the existing stream, this proposal represents an equivalent functional scenario.

COMMENT #8

The elimination of floodway or changing of the flood zone violates Knox County Stormwater ordinance.

RESPONSE:

Compliance with post-construction stormwater regulations is under local government jurisdiction. However, according to comments on record from the public hearing, the Knox County Stormwater Department had recently approved the relocation and development plan.

The state's water quality permit does not preclude the requirements of local laws or regulations.

COMMENT #9

There will be water quality impacts from relocation of the stream, including loss of fauna, chemical changes, and loss of habitat.

RESPONSE:

The division has determined that the relocated stream channel, if implemented as designed, should not result in a loss of resource value. With the habitat and substrate considerations of the relocated channel, there is not an anticipated loss of fauna or habitat. Since the relocated channel is being constructed within the same soils series and underlying geology as the existing stream, and the channel is designed to carry the appropriate flow with habitat diversity, there should be no measurable chemical changes in the relocated stream.

The permit will require pre and post construction assessments of biology, habitat and hydrology.

COMMENT #10

The existing wetlands are herbaceous wetlands, they should be replaced with herbaceous wetlands and not forested wetlands.

RESPONSE:

The division recognizes the unique role that herbaceous wetlands provide, but has determined that a forested wetland mitigation proposal is acceptable in this circumstance for three reasons.

First, the resource agencies in Tennessee recognize forested wetland systems as typically having a higher resource value. The existing wetland is an actively grazed, floodplain wetland. The proposed wetland will be a forested, floodplain wetland serving also as stream-side canopy. Second, the mitigation site will be functionally an herbaceous wetland for many years until the trees mature. Third, it is likely that historically the impacted wetland was a forested, floodplain

wetland. It is maintained as an herbaceous wetland currently through active cattle grazing.

Wetland mitigation should be maintenance free. To maintain herbaceous wetlands requires long-term grazing, burning or mowing plans.

COMMENT #11:

The state did not assess the existing stream.

RESPONSE:

The department had previously conducted both habitat assessments and biological (macroinvertebrate) assessments on Willow Fork near the proposed project site. Willow Fork had a Tennessee Macroinvertebrate Index score of 28 and a Habitat score of 104. These assessments were reviewed and used in the Tier assessment process for this project.

DETERMINATION:

The division's determination on this application is that a permit can be issued with appropriate conditions to protect Tennessee's waters.

Juliana W Kyzar — September 25, 2007

Prepared by:
Juliana Wise Kyzar
Environmental Specialist

Date:

Paul E. Davis — 9/25/2007

Issued by:
Paul E. Davis, Director

Date: