

SURVEYOR'S OFFICE  
**Hamilton County**

*Kenton C. Ward, Surveyor*

*Phone (317) 776-8495*

*Fax (317) 776-9628*

*Suite 188*

*One Hamilton County Square  
Noblesville, Indiana 46060-2230*

To: Hamilton County Drainage Board

June 13, 2005

Re: Elwood Wilson Drain Reconstruction  
Bridgestone/Firestone Corrective Measures Implementation

Attached is a petition, and plans for the reconstruction and relocation of the Elwood Wilson Drain. This reconstruction of the Elwood Wilson is required by an April 29, 2001 Administrative Order on Consent between the U.S. Environmental Protection Agency and Bridgestone/Firestone. The purpose of the reconstruction is to remediate soils and sediments containing polychlorinated biphenyls (PCBs) in portions of the Elwood Wilson Drain. The purpose of the relocation is to bypass, remove, and encapsulate severely contaminated portions of the ditch.

The U.S. Environmental Protection Agency has approved of the project. The Application Number is DE-9J.

The Indiana Department of Natural Resources has approved of the project. The Application Number is FW-22877.

The Indiana Department of Environmental Management has not yet approved of the project. IDEM Application Number is 2004-2003-29-RDC-B. This project's final approval is contingent upon IDEM approval. In the event IDEM orders changes to the plans, these changes will have to approved by the Hamilton County Surveyor' Office.

A total length of 3,394 feet of original open drain is being affected, between Stations 72+72 and 106+66, as shown on plans produced by Maverick Construction Services dated April, 2005.

The Elwood Wilson Drain enters Stony Creek in southern Noblesville, ultimately draining into the White River.

The remediation will commence off-site at the confluence of the Elwood Wilson Drain and Stony Creek, at Station 106+66 of the Elwood Wilson Repair 1926 Drain, shown as Bridgestone/Firestone Station 0+0 on Sheet G-10 of plans produced by Maverick Construction Services dated April, 2005.

Work will proceed off-site to Station 79+65.00 of the Elwood Wilson Repair 1926 Drain, shown as Bridgestone/Firestone Station 33+94.39 on Sheet G-5 of plans produced by Maverick Construction Services, where the project will enter the Bridgestone/Firestone site at the north side of the Pleasant Street bridge.

### **Scope of Work**

An estimated 10-week work schedule is anticipated on this project. The anticipated start of the work is August, 2005.

As specified by the United States Environmental Protection Agency, ditch sediments and contaminated bank soil will be excavated to a depth of 1 foot in the ditch. Steep bank soils that are currently stabilized by trees or other features that do not contain polychlorinated biphenyl concentrations above 1 part per million are not targeted for removal. The excavations will be backfilled with clean soil and/or stone materials. The banks of the ditch will generally be restored to shallow slopes (2:1 horizontal to vertical maximum) and vegetated to minimize future bank failure. Some banks will have steeper slopes to protect existing trees greater than 6 inches in diameter. These banks will be restored with additional permanent or long-term erosion control measures to prevent sloughing at the toe of the slope.

Before excavation in the ditch occurs, contaminated soils will be removed from the associated access road areas situated within the Regulated Drain Easement. Crushed stone will be used to cover the excavated road areas while ditch excavation and restoration activities proceed. Thereafter, the access road areas will be restored to their original elevation with clean soil.

The excavation in the oily sediment area will be undertaken using temporary berms to exclude water from Stony Creek and pumps to remove standing water from the excavation area. The area will be excavated to remove contaminated sediments.

Excavation of the existing ditch will be performed using standard excavation equipment and techniques.

All costs associated with this Relocation and Reconstruction project will be borne by the petitioner, Bridgestone/Firestone North American Tire LLC.

Because the project is outside the boundaries of the petitioner's property, the project falls under the requirements as set out in IC 36-9-27-52.0. This is a noticed public hearing.

The petitioner has provided a performance bond as follows:

Name of Bonding Co.: Fidelity and Deposit Company of Maryland

Bond Date: June 21, 2005

Bond Number: 08780316

For: Elwood Wilson Ditch Reconstruction

Amount: \$3,288,195

The petitioner has provided a maintenance bond as follows:

Name of Bonding Co.: Fidelity and Deposit Company of Maryland

Bond Date: June 21, 2005

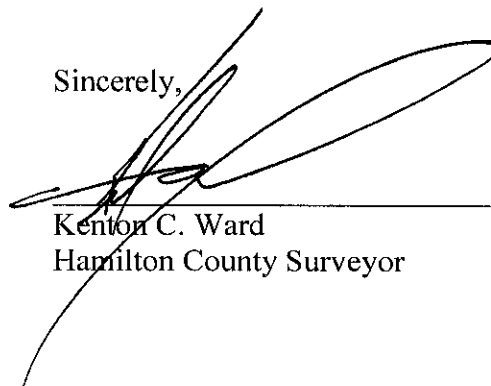
Bond Number: 08780317

For: Elwood Wilson Ditch Reconstruction

Amount: \$505,873

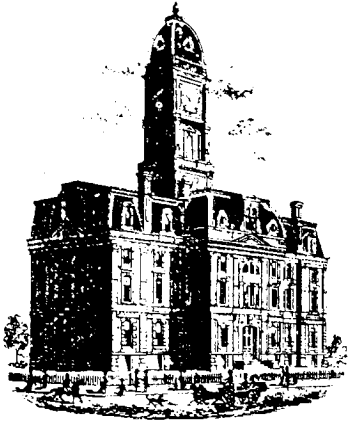
I recommend approval by the Board at this time.

Sincerely,

A handwritten signature in black ink, appearing to be 'Kenton C. Ward', written over a horizontal line. The signature is stylized and cursive.

Kenton C. Ward  
Hamilton County Surveyor

KCW/mrk



K.L.W.

SURVEYOR'S OFFICE

**Hamilton County**

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To: Hamilton County Drainage Board

June 13, 2004

Re: Elwood Wilson Drain Reconstruction  
Bridgestone/Firestone Corrective Measures Implementation

Attached is a petition, and plans for the proposed reconstruction and relocation of the Elwood Wilson Drain. This reconstruction of the Elwood Wilson is required by an April 29, 2001 Administrative Order on Consent between the U.S. Environmental Protection Agency and Bridgestone/Firestone. The purpose of the reconstruction is to remediate soils and sediments containing polychlorinated biphenyls (PCBs) in portions of the Elwood Wilson Drain. The purpose of the relocation is to bypass, remove, and encapsulate severely contaminated portions of the ditch.

The U.S. Environmental Protection Agency has approved of the project. USEPA Application Number is DE-9J

The Indiana Department of Natural Resources has approved of the project. IDNR Application Number is FW-22877.

The Indiana Department of Environmental Management has not yet approved of the project. IDEM Application Number is 2004-2003-29-RDC-B. This project's final approval is contingent upon IDEM approval. In the event IDEM orders changes to the plans, these changes will have to be approved by the Hamilton County Surveyor's Office.

A total length of 1,520 feet of original open drain is being affected, between stations 57+37 and 72+57, as shown on plans produced by Maverick Construction Services dated April, 2005.

Sections of the ditch with serious contamination shall be removed. The sections of original drain between Stations 57+37 and 60+21, and original drain between Stations

60+57 and Sta. 66+57 shall be removed. The proposal will result in a reduction of the drain by 56 feet due to the straightening of the ditch with the relocation.

### **Scope of Work**

An estimated 10-week work schedule is anticipated on this project. The anticipated start of the work is June, 2005.

As specified by the United States Environmental Protection Agency, ditch sediments upstream (northeasterly) of the 16<sup>th</sup> Street Bridge will be bypassed by the construction of a new channel. Soils and sediments in the abandoned channel having PCB concentrations at or greater than 500 parts per million will be removed and disposed in an off-site Toxic Substances Control Act commercial landfill in accordance with all applicable statutes. The abandoned ditch will be used for consolidation of excavated soils and sediments containing less than 500 parts per million polychlorinated biphenyls from other excavation areas.

Following excavation of the targeted sediment and soils, restoration will be performed. The abandoned channel will be filled with material excavated from downstream portions of the ditch. This material will generally be between 50 and 500 parts per million of PCB; also some soils excavated from the new ditch. A layer of clean soil cover (with concentrations less than 10 parts per million) or asphalt section of a minimum of 24 inches will be installed over the materials consolidated in the abandoned channel. This cover will be graded to facilitate surface drainage, and seeded as appropriate.

Excavation of the existing ditch will be performed using standard excavation equipment and techniques.

Base flows and discharges from the Bridgestone/Firestone site will be collected and conveyed via pipeline to a temporary discharge point at the confluence of the Elwood Wilson Drain and Stony Creek, downstream.

Between the 16<sup>th</sup> Street and Pleasant Street bridges (Sheet G-4), materials containing concentrations of 500 parts per million and greater of PCBs will be removed first, and disposed offsite. This will be followed by the removal of bottom sediments to a depth of two feet below final grade and bank soils to a depth of one foot below final grade. These materials and any deeper materials containing greater than 100 parts per million and greater of polychlorinated biphenyl will be consolidated in the onsite abandoned ditch. Material from the relocated ditch excavation will be used to fill deeper excavated areas up to the depth of geotextile placement. The geotextile liner, consolidated materials, clean cover material, and appropriate erosion protection will be installed, to return to abandoned ditch to approximately surrounding grade.

All costs associated with this Relocation and Reconstruction project will be borne by the petitioner, Bridgestone/Firestone North American Tire LLC. Because the project is to be paid by the petitioner and is within the boundaries of the petitioner's property, the project falls under the requirements as set out in IC 36-9-27-52.5. Therefore, a noticed hearing is not required for the petition.

The petitioner will provide a performance bond as follows:

Name of Bonding Co.: Fidelity and Deposit Company of Maryland

Bond Date:

Bond Number:

For: Elwood Wilson Ditch Reconstruction

Amount: \$3,200,000

The petitioner will provide a maintenance bond as follows:

Name of Bonding Co.: Fidelity and Deposit Company of Maryland

Bond Date:

Bond Number:

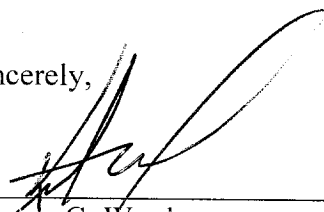
For: Elwood Wilson Ditch Reconstruction

Amount: \$505,872.50

The final approval of this plan is contingent upon receipt and acceptance of these bonds by the Drainage Board.

I recommend approval by the Board at this time.

Sincerely,



---

Kerton C. Ward  
Hamilton County Surveyor

KCW/mrk

BEFORE THE HAMILTON COUNTY DRAINAGE BOARD  
IN THE MATTER OF

***Elwood Wilson Drain, Firestone Reconstruction and Relocation***

NOTICE

To Whom It May Concern and: Damian Butcher  
Novi Properties, LLC

Notice is hereby given of the hearing of the Hamilton County Drainage Board concerning the reconstruction of the **Elwood Wilson Drain, Firestone Reconstruction and Relocation** on **July 11, 2005**, at **12:00 P.M.** in Commissioners Court, Hamilton County Judicial Center, One Hamilton County Square, Noblesville, Indiana. Construction and maintenance reports of the Surveyor and the Schedule of Assessments proposed by the Drainage Board have been filed and are available for public inspection in the office of the Hamilton County Surveyor.

Hamilton County Drainage Board

Attest: Lynette Mosbaugh

ONE TIME ONLY

OFFICE OF  
HAMILTON COUNTY DRAINAGE BOARD

Notice of Hearing on Reconstruction & Schedule of Assessments and Damages on the  
**Elwood Wilson Drain, Firestone Reconstruction & Relocation.**

Butcher, Damian W  
1533 South St  
Noblesville, IN 46060

The reconstruction report of the Surveyor and schedule of damages and benefits as determined by the Drainage Board for the proposed improvement known as **Elwood Wilson Drain** have been filed and are available for inspection in the office of the County Surveyor. The schedule of assessments shows the following lands in your name are affected as follows:

Description of Land	Acres Benefited	Damages	Reconst. Assmt.	% of Total	Maint. Assmt.
11-11-06-03-11-017.000					
Southeastern Add. Lot 56	n/a	Zero	*	*	n/a
S6 T18 R5					

\* To be paid by Firestone.

The hearing on the Surveyor's reconstruction report and on the schedules of damages and assessments are set for hearing at **12:00 P.M. on July 11, 2005**, in the Commissioner's Court. The law provides the objects must be written and filed not less than 5 days before the date of the hearing. Objections may be for causes as specified by law and which are available at the Surveyor's Office. Written evidence in support of objections may be filed. The failure to file objections constitutes a waiver of your right to thereafter object, either before the Board or in court on such causes, to any final action of the Board. On or before the day of the hearing before the Board, the Surveyor shall and any owner of affected lands may cause written evidence to be filed in support of or in rebuttal to any filed objections.

HAMILTON COUNTY DRAINAGE BOARD  
One Hamilton County Square, Ste. 188  
Noblesville, IN 46060-2230

This drain shall be designated as an Urban Drain.



OFFICE OF  
HAMILTON COUNTY DRAINAGE BOARD

Notice of Hearing on Reconstruction & Schedule of Assessments and Damages on the  
**Elwood Wilson Drain, Firestone Reconstruction & Relocation.**

Butcher, Damian W  
1533 South St  
Noblesville, IN 46060

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Description of Land	Acres Benefited	Damages	Reconst. Assmt.	% of Total	Maint. Assmt.
11-11-06-03-11-016.000 Southeastern Add. Lot 57 S6 T18 R5	n/a	Zero	*	*	n/a

\* To be paid by Firestone.

The hearing on the Surveyor's reconstruction report and on the schedules of damages and assessments are set for hearing at **12:00 P.M. on July 11, 2005**, in the Commissioner's Court. The law provides the objects must be written and filed not less than 5 days before the date of the hearing. Objections may be for causes as specified by law and which are available at the Surveyor's Office. Written evidence in support of objections may be filed. The failure to file objections constitutes a waiver of your right to thereafter object, either before the Board or in court on such causes, to any final action of the Board. On or before the day of the hearing before the Board, the Surveyor shall and any owner of affected lands may cause written evidence to be filed in support of or in rebuttal to any filed objections.

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OFFICE OF  
HAMILTON COUNTY DRAINAGE BOARD

Notice of Hearing on Reconstruction & Schedule of Assessments and Damages on the  
**Elwood Wilson Drain, Firestone Reconstruction & Relocation.**

Novi Properties LLC  
1255 S. 16th St.  
Noblesville, IN 46060

The reconstruction report of the Surveyor and schedule of damages and benefits as determined by the Drainage Board for the proposed improvement known as **Elwood Wilson Drain** have been filed and are available for inspection in the office of the County Surveyor. The schedule of assessments shows the following lands in your name are affected as follows:

Description of Land	Acres Benefited	Damages	Reconst. Assmt.	% of Total	Maint. Assmt.
11-11-06-00-00-022.000					
S6 T18 R5 5.00 Ac	n/a	Zero	*	*	n/a

\* To be paid by Firestone.

The hearing on the Surveyor's reconstruction report and on the schedules of damages and assessments are set for hearing at **12:00 P.M. on July 11, 2005**, in the Commissioner's Court. The law provides the objects must be written and filed not less than 5 days before the date of the hearing. Objections may be for causes as specified by law and which are available at the Surveyor's Office. Written evidence in support of objections may be filed. The failure to file objections constitutes a waiver of your right to thereafter object, either before the Board or in court on such causes, to any final action of the Board. On or before the day of the hearing before the Board, the Surveyor shall and any owner of affected lands may cause written evidence to be filed in support of or in rebuttal to any filed objections.

HAMILTON COUNTY DRAINAGE BOARD  
One Hamilton County Square, Ste. 188  
Noblesville, IN 46060-2230

This drain shall be designated as an Urban Drain.

BEFORE THE HAMILTON COUNTY DRAINAGE BOARD  
IN THE MATTER OF THE

***Elwood Wilson Drain, Firestone Reconstruction***

NOTICE

Notice is hereby given pursuant to Section 405 of the 1965 Indiana Drainage Code that this Board, prior to final adjournment on **July 11, 2005** has issued an order adopting the Schedule of Assessments, filed the same and made public announcement thereof at the hearing and ordered publication. If judicial review of the findings and order of the Board is not requested pursuant to Article Eight of this code within twenty (20) days from the date of this publication, the order shall be conclusive.

Hamilton County Drainage Board

Attest: Lynette Mosbaugh

ONE TIME ONLY

STATE OF INDIANA )  
 ) ss:  
COUNTY OF HAMILTON )

BEFORE THE HAMILTON COUNTY  
DRAINAGE BOARD  
NOBLESVILLE, INDIANA

IN THE MATTER OF THE  
RECONSTRUCTION OF THE  
**Elwood Wilson Drain**

FINDINGS AND ORDER FOR RECONSTRUCTION

The matter of the proposed Reconstruction of the **Elwood Wilson Drain** came before the Hamilton County Drainage Board for hearing on **July 11, 2005**, on the Reconstruction Report consisting of the report and the Schedule of Damages and Assessments. The Board also received and considered the written objection of an owner of certain lands affected by the proposed Reconstruction, said owner being:

Evidence was heard on the Reconstruction Report and on the aforementioned objections.

The Board, having considered the evidence and objections, and, upon motion duly made, seconded and unanimously carried, did find and determine that the costs, damages and expenses of the proposed Reconstruction will be less than the benefits accruing to the owners of all land benefited by the Reconstruction.

The Board having considered the evidence and objections, upon motion duly made, seconded and unanimously carried, did adopt the Schedule of Assessments as proposed, subject to amendment after inspection of the subject drain as it relates to the lands of any owners which may have been erroneously included or omitted from the Schedule of Assessments.

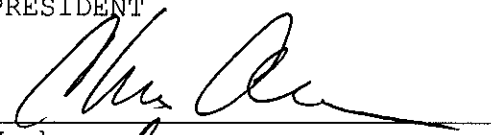
The Board further finds that it has jurisdiction of these proceedings and that all required notices have been duly given or published as required by law.

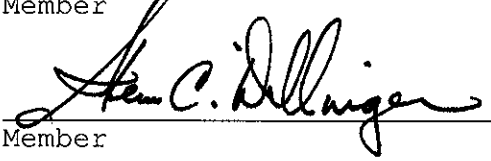
Wherefore, it is ORDERED, that the proposed Reconstruction of the **Elwood Wilson Drain** be and is hereby declared established.

Thereafter, the Board made inspection for the purpose of determining whether or not the lands of any owners had been erroneously included or excluded from the Schedule of Assessments. The Board finds on the basis of the reports and findings at this hearing as follows:

HAMILTON COUNTY DRAINAGE BOARD

  
\_\_\_\_\_  
PRESIDENT

  
\_\_\_\_\_  
Member

  
\_\_\_\_\_  
Member

ATTEST:

  
Executive Secretary

DE 9J

August 31, 2006

Derrick Peterson  
3709 Toro Canyon Road  
Austin, Texas 78746

Michelle Kaysen-Majack  
U.S. EPA (DE 9J)  
77 W. Jackson Boulevard  
Chicago, IL 60604

Re: Bridgestone Firestone  
*Wilson Ditch Construction Completion Report*  
Noblesville, Indiana

Dear Mr. Peterson:

The U.S. EPA has reviewed Bridgestone Firestone's (BF) *Wilson Ditch Construction Completion Report* and has concluded that BF has successfully implemented the corrective measures laid out in the March 2001 Consent Order.

BF completed both on-site and off-site ditch remediation of polychlorinated biphenyls (PCB's). Within the on-site portion, BF reconfigured and re-routed the ditch in order to remove the areas of greatest contamination. The abandoned portion of the ditch, after excavation, was lined with a non-woven geotextile. At least two feet of clean material was placed on top of the geotextile. BF will install a final asphalt cover over the consolidation area after it has completed its ongoing groundwater enhanced bioremediation program, per TSCA's recommendation.

The off-site portion of Wilson Ditch had a minimum of one foot of sediment excavated from the ditch bottom and in certain areas of the banks. At least one foot of clean compacted material was then replaced. As specified in the Statement of Basis, monitoring of this replacement layer will assure the fill layer is properly maintained. BF should submit a brief outline describing this proposed monitoring schedule.

BF also implemented corrective action at the confluence of Wilson Ditch and Stony Creek, although this was not outlined in the Order. PCB's were detected in this area after

the Order was written and before the Wilson Ditch corrective measure implantation. Therefore, BF submitted a workplan to excavate this area as well. The area was excavated to remove all visibly contaminated sediments. A geotextile liner was placed in the excavation area in addition to two feet of clean cover material. Sections of the confluence may be further investigated in the future due to BF's inability to remove sediments down to 1ppm. Currently, BF is delineating the extent of contamination that may be in Stony Creek. This, too, is work outside the Order.

U.S. EPA appreciates your work on this project and would like to thank you for continuing to work with us to better understand the status of Stony Creek.

Sincerely,

Michelle Kaysen-Majack  
U.S. EPA, Project Manager  
WPTD, Region 5  
(312) 886-4253

cc: John Grossman, Bridgestone Firestone  
Tim Bent, Bridgestone Firestone

*H. Derrick Peterson, Esq.*  
*Counsel in Environmental Law & Science*

3709 Toro Canyon Road  
Austin, Texas 78746

Tel: (512) 329-6714  
Fax: (512) 329-6736  
e-mail: [dpeterson63@austin.rr.com](mailto:dpeterson63@austin.rr.com)

April 5, 2007

Mr. Kenton C. Ward  
Hamilton County Surveyor's Office  
One Hamilton County Square, Suite 188  
Noblesville, IN 46060

**Re: Wilson Ditch Construction Completion Report**

Dear Kent:

The U.S. EPA has reviewed and approved the Bridgestone Firestone North American Tire, LLC (BFNT) *Wilson Ditch Construction Completion Report*. A copy of the report for your records is enclosed.

Since the completion of construction, John Grossman and I have periodically inspected the ditch, the ditch banks, and restored areas alongside the ditch. Everything appears to be in good condition. Revegetation efforts have generally succeeded and we have not observed any significant sloughing or erosion problems on the ditch banks. We will continue to monitor the ditch and surrounding areas and keep you posted should we observe any problems.

At this time we respectfully request that BFNT be released from the construction bond issued to the Hamilton County Drainage Board for the Wilson Ditch project. The maintenance bond will remain in effect.

Please feel free to contact me should you have any questions. I expect to be in Noblesville next week and would be happy to get together with you to discuss our future activities and toast the completion of this project.

Sincerely,



Derrick Peterson  
BFNT Project Coordinator

Enclosure

**REPORT**

***Corrective Measures Implementation  
Construction Completion  
Report***

***Wilson Ditch  
Noblesville, Indiana***

**Bridgestone Firestone North  
American Tire, LLC  
Nashville, Tennessee**

**July 2006**

**Maverick Construction  
Management Services, Inc.**



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## Appendix

A Confirmatory and Materials Sampling Report

# **1. Introduction**

## **1.1 General**

In accordance with the April 29, 2001 Administrative Order on Consent (AOC) between the U.S. Environmental Protection Agency (EPA) and Bridgestone Firestone North American Tire, LLC (BFNT), remediation of the soils and sediments containing polychlorinated biphenyls in portions of Wilson Ditch was completed between July and November 2005. The work was performed in accordance with the April 2005 Corrective Measures Implementation (CMI) Design Report (Report) and associated work plans. The CMI Report included Appendix D Material and Performance Specifications, Appendix F Quality Assurance Project Plan, and Design Drawings G-1 to G-16. In addition to the CMI Report, the remedial activities were performed in accordance with the May 2005 Construction/Stormwater Pollution Prevention Plan and the May 2005 Health and Safety Plan.

This Construction Completion Report describes the remedial activities performed to successfully meet the design strategy specified in Sections 2.0 of the CMI Report. Specifically this report describes the project organization, resources and the key components of the EPA-approved corrective measures.

The remedial activities involved approximately 5,000 feet of Wilson Ditch upstream of its confluence with Stony Creek and a small part of Stony Creek at the mouth of Wilson Ditch. The “on-site” portion of the ditch includes approximately 1,600 feet of ditch upstream of the Pleasant Street Bridge. The “off-site” portion of the ditch begins at the BFNT property line near the Pleasant Street Bridge and continues downstream for approximately 3,400 feet to Stony Creek.

## 1.2 Report Organization

This report has been organized into the following sections:

<b>Section</b>	<b>Description</b>
1. Introduction	General description of CMI
2. Project Organization	Describes the organization, responsibilities and resources used for CMI
3. Remedial Activities	Describes the construction, sampling, and quality assurance activities performed for CMI
4. Construction Completion Summary	Discussion regarding achievement of final design objectives

The report is also accompanied by tables, figures, drawings and appendices presented herein.

## **2. Project Organization**

### **2.1 Project Team**

The project team responsible for performing the remedial activities consisted of the BFNT Project Coordinator - Mr. Derrick Peterson and the Contractor – Maverick Construction Management Services Inc. (Maverick). Mr. Peterson was assisted in his project management duties by Mr. John Grossman. Maverick utilized several subcontractors, vendors and suppliers to perform the construction operations.

Derrick Peterson and John Grossman performed the management duties specified in Section 2.1 of the Quality Assurance Project Plan (QAPP). In addition, Mr. Peterson and Mr. Grossman assumed the responsibilities of the QA Officer as specified in Section 2.2 of the QAPP.

Heritage Environmental Services LLC performed the laboratory duties specified in Section 2.3 of the QAPP and the Laboratory Project Manager reported directly to the BFNT Project Coordinator.

Mr. Tim Jones of Maverick acted as the Contractor Project Manager and performed the field responsibilities specified in Section 2.4 of the QAPP. However, coordinating, managing and performing the collection, preparation and handling of samples was performed by the BFNT Project Coordinator. The following key subcontractors, vendors and suppliers were utilized to perform field activities and supply materials incorporated into the work:

- Environmental Restoration LLC provided qualified and skilled laborers and equipment operators to assist Maverick with performing the excavation, backfilling and restoration activities.
- Beaver Gravel Corporation, Cavanaugh Incorporated, Irving Materials Incorporated, and Martin Marietta Materials supplied clean backfill and aggregate for placement in Wilson Ditch.
- United Rentals (North America) Incorporated supplied geotextile, erosion control matting, and coir-fiber logs (biologs) for placement in Wilson Ditch.

Finally, the offsite transportation and disposal of all sediment and soil with polychlorinated biphenyls was performed by Heritage Environmental Services LLC.

### 3. Remedial Activities

#### 3.1 General

This report describes the remedial activities performed on both the on- and off-site portions of Wilson Ditch. For the purposes of this document, the following definitions will be used:

Description	Definition
1. On-site Ditch	Upstream of the Pleasant Street Bridge (STA 0+00 to STA 15+20)
(a) New Channel	Newly excavated ditch upstream of the 16 <sup>th</sup> Street Bridge created to bypass part of Wilson Ditch (spanning from STA 4+50 to STA 15+20)
(b) Abandoned Ditch	Portion of ditch upstream of the 16 <sup>th</sup> Street Bridge that is bypassed by creation of the new ditch
(c) Retained Channel	Portion of on-site ditch downstream of the 16 <sup>th</sup> Street Bridge that is not rerouted (STA 0+00 to STA 4+50)
(d) Channel Improvement	Upstream segment of ditch where the channel will be straightened (STA 12+50 to STA 15+25)
2. Off-site Ditch	Downstream of the Pleasant Street Bridge to Stony Creek
(a) Access Road Areas	Two flat, cleared areas west of the top of the ditch bank that allow access for ditch maintenance (North Area: STA 19+50 to STA 33+50; South Area: STA 6+75 to STA 11+75)
(b) Oily Sediment Area	Small area extending across the mouth of Wilson Ditch where visibly contaminated sediment is buried.

This section describes the key remedial activities performed to successfully complete EPA-approved corrective measures and address the presence of polychlorinated biphenyl in portions of Wilson Ditch. The remedial activities are described in general below and were performed from upstream to downstream.

Work on the remedy began outside of the ditch before the planned July 1 starting date for construction in the ditch itself. Mobilization activities, preparation activities, and new channel construction were performed from May 31 to July 14, 2005. The new channel was substantially

excavated just short of the existing ditch at both ends so that the new channel was ready to accept flow once regulatory approval to perform work in the ditch was obtained. In certain areas of the site where space is constrained by the property boundaries, portions of the northern bank of the new channel overlapped the southern bank of the old ditch. Therefore full excavation of the new channel was deferred in these overlap areas until the time for construction in the ditch itself. The new channel was completed in the overlap areas by placing a minimum of 2 feet of clean material (<1 ppm) above any former bank soils or materials consolidated in the abandoned ditch from the new ditch banks and/or bottom. The material removed from the new ditch was segregated based on in-place sampling performed by the BFNT Project Coordinator and stockpiled nearby for future reuse and/or disposal. The stockpiled clean material was resampled and analyzed for polychlorinated biphenyls and additional constituents prior to reuse (Appendix A).

The BFNT Project Coordinator collected samples for laboratory analysis approximately every 50 feet in the new channel to confirm that detectable concentrations were not present. The new channel banks that were completed in June and early July were seeded and stabilized with erosion control blankets.

Regulatory approval to perform work in the ditch was obtained on July 13, 2005. Upstream ditch flow was then pumped and discharged below the 16<sup>th</sup> Street Bridge or was redirected through the new channel to facilitate completion of the new channel. The new channel was completed by connecting it to the existing ditch and by completing construction of its northern bank.

Stormwater outfalls to the abandoned ditch were extended to the new channel to allow excavation of on-site soils and sediment from the abandoned ditch. The northern banks of the new channel were substantially completed to allow abandonment of the existing ditch by July 24. The area in the abandoned ditch with greater than 500 ppm polychlorinated biphenyl concentrations between sections 9+00 and 10+20 was removed for offsite disposal on July 29 and August 1 prior to consolidation of other excavated material in that area. The BFNT Project Coordinator collected samples for laboratory analysis approximately every 25 feet in this excavation area to confirm that the 500 ppm removal objective was met (Appendix A).

The work then proceeded downstream in the on-site area between the 16<sup>th</sup> Street and Pleasant Street bridges, including approximately 50 feet downstream of the Pleasant Street Bridge. This work was performed from August 1 to 23. Base flow was intercepted upstream of the 16<sup>th</sup> Street Bridge, combined with the BFNT discharges and directed beyond the on-site excavation area.

Excavation and backfilling activities were conducted in small increments. Sediments with polychlorinated biphenyl concentrations expected at or above 500 ppm were first excavated from the second on-site area (STA 3+50) and staged for offsite disposal at a TSCA-approved landfill. The BFNT Project Coordinator collected samples for laboratory analysis to confirm that all materials originally believed to contain polychlorinated biphenyl concentrations greater than 500 ppm were removed (Appendix A). Remaining sediment and bank soil between the 16<sup>th</sup> Street Bridge and 50 feet south of Pleasant Street Bridge was removed to a depth of approximately two feet in the sediments and one foot on the banks and consolidated in the abandoned ditch. The BFNT Project Coordinator collected samples for field analysis approximately every 50 feet to confirm that the 100 ppm removal objective was met (Appendix A). A permeable geotextile was installed in the ditch bottom and then clean materials were used to bring the banks and bottom back to their original grade.

The work then proceeded downstream to the off-site portion of Wilson Ditch and, finally, the oily sediment area. The excavation, backfilling and restoration of the off-site ditch was performed from August 23 to Oct 20. Remediation of oily sediment area in at the mouth of Wilson Ditch was performed from October 26 – 28. The access road areas (north area and south area) were excavated, backfilled and restored from August 17 to October 25 and October 12 to 19 respectively. The BFNT Project Coordinator collected samples for laboratory analysis to confirm that the removal objectives of 25 ppm (north area) and 1 ppm (south area) were achieved both horizontally and vertically (Appendix A). The north area was initially excavated and temporarily covered with crushed stone to support truck traffic required for off-site ditch activities between Pleasant and South Street bridges. Ditch base flow and water from plant discharges was transported around the off-site excavation areas via temporary pipeline. The pipeline was substantially completed and ready for service by August 1. Work in the off-site portion of Wilson Ditch was performed in short sections to limit the extent of open excavation areas. When significant rain events exceeded the capacity of diversion pumps, open excavation areas were covered with clean final cover materials until storm flow in the ditch subsided. Sediment and select bank soil were removed and disposed of properly, followed by backfilling and restoration. After excavation work was completed, the access road areas were restored to original grade with clean materials and revegetated. Finally, equipment was demobilized from the Site, staging areas and equipment transport routes were cleaned of any spilled material and appropriate post-construction documentation was prepared.



In summary, the CMI was conducted to remove certain materials containing polychlorinated biphenyls from Wilson Ditch, from the BFNT property to Stony Creek. The following remedial activities were performed as part of the overall CMI as discussed below.

- Preparation activities;
- Monitoring activities;
- Water management;
- Ditch relocation;
- Sediment/soil excavation;
- On-site sediment/soil consolidation;
- Material handling;
- Backfilling and restoration; and
- Management of waste.

### **3.2 Preparation Activities**

Before implementing the corrective measures, several preparation activities were conducted as described below.

#### **3.2.1 General Preparation Activities**

The following general mobilization and site preparation activities were conducted in June 2005 by Maverick and BFNT:

- Mobilization of manpower, equipment, services, and materials, as necessary, to implement the CMI activities. As the CMI activities proceeded to different areas of the ditch, associated equipment/material were relocated, as necessary, to facilitate implementation of the corrective measures, as described herein.
- Establishment of mobile support trailers, sanitary services, and temporary staging and stockpile areas. BFNT and Maverick set up temporary offices and placed necessary trailers on the Firestone Plant property and in close proximity to the Wilson Ditch. Equipment, materials and soil stockpiles were staged in various locations on Firestone Plant property or in the 16<sup>th</sup> Street parking lot during remedial activities. The 16<sup>th</sup> Street parking lot was secured with an 8-foot high temporary chain link fence during the project.

- Verification of preconstruction conditions and identification, marking, and verification of the location(s) of aboveground and underground utilities (including stormwater piping to be extended to the new channel), equipment, and structures, as necessary to implement the CMI activities. Clearances from utilities (i.e., active overhead electric lines, underground conduit/piping, etc.) were maintained throughout the CMI activities.
- Coordination with local utility companies and electrical contractors to obtain access to electrical service.
- Coordination with Noblesville Street Department to ensure traffic control.
- Consultation with affected property owners and documentation of the condition of any affected property prior to initiating corrective measures.
- Coordination of all required federal, state, and/or local permitting, as necessary, to complete the corrective measures.
- Identification of all potential hindrances at the Site including utility poles, piping, fencing, and other similar features.
- Construction of staging areas for the temporary stockpiling of excavated sediments and soil and clean backfill. The 16<sup>th</sup> Street parking lot was used to stockpile all clean imported backfill and excavated soil with no detectable concentrations of polychlorinated biphenyls. All stockpiles in the parking lot were covered during rain events and after work hours using 10-mil HDPE scrim reinforced tarps. In addition, the banks of the Wilson Ditch downslope from the stockpiles were protected with silt fence and haybales to prevent sediment migration. Temporary stockpile areas were constructed on Firestone Plant property for excavated soils containing polychlorinated biphenyls. A temporary cell consisting of a 30-mil PVC liner was constructed on a concrete pad adjacent to the abandoned ditch. This cell was used to stockpile wet sediment and soil with polychlorinated biphenyl concentrations greater than 50 ppm. These soils were stabilized as necessary and placed in the abandoned ditch. A second stockpile area for dry soils containing polychlorinated biphenyls concentrations less than 50 ppm was constructed on a dense graded aggregate pad adjacent to the West Landfill. Both stockpile areas were contained using haybales and were covered except during stockpile operations by 10-mil HDPE scrim reinforced tarps.

- Construction of temporary access roads (as needed) for ingress and egress of construction equipment, and transportation of excavated sediment for consolidation in the abandoned channel or for transport to an off-site disposal facility.
- Installation and maintenance of temporary fencing or other temporary barriers around the active construction area; and
- Clearing and grubbing of areas along the new channel alignment and where vegetation will obstruct the performance of the sediment excavation activities. Cleared saplings and brush were either ground to mulch in place or were cut and transported to the South Landfill to create brush pile habitats. Vegetation with adhered sediment from removal areas was either placed in the abandoned ditch or disposed offsite.

### **3.2.2 Ditch Access and Controls**

#### **Ditch Access**

Permission to conduct operations along Wilson Ditch was critical to the planning and success of the CMI activities. BFNT obtained an Encroachment Permit (activation date June 10, 2005) from the Hamilton County Drainage Board, authorizing BFNT, or their contractors, to utilize the Board's drainage easement to perform the work and to provide access to the Wilson Ditch. The drainage easement extended 75 feet from the top of bank on either side of the ditch. This easement was depicted on the CMI Final Design Report drawings. Maverick selected the following ditch access points within the easement based on equipment limitations and requirements:

- At the southwest corner of the Pleasant Street Bridge a temporary construction entrance was constructed to access the west bank of the ditch and Access Road north area down to South Street at approximate Station 15+00 ;
- At the southwest corner of the South Street Bridge a temporary construction entrance was constructed to access the west bank of the ditch down to the Pedestrian Bridge at approximate Station 11+75.
- At approximate Station 3+00, two 36-inch diameter temporary culvert pipes were placed in the Wilson Ditch for construction vehicles to cross the ditch and access the west bank up to the Pedestrian Bridge at approximate Station 11+75.
- A temporary construction entrance was constructed off the southeast corner of the Greenfield Ave. Bridge to access the east bank of the ditch down to Stony Creek.

Following completion of excavation activities, areas disturbed by the activities were restored to pre-existing conditions, to the extent feasible. Equipment transport routes located outside of the

excavation area were cleaned of any spilled materials.

To restrict public access during remedial activities, temporary construction fencing was installed at locations along the ditch while excavation, backfilling and restoration operations were underway. BFNT coordinated with the City of Noblesville regarding the removal of the guardrail at the Pleasant Street Bridge and installing of temporary replacement barriers during operations. Traffic barricades were also placed at the temporary culvert crossing of the ditch to prevent public vehicle access.

The implementation of safe work practices provided for additional project security during the CMI. Safe work practices that contributed to overall project security included the following:

- Restricting access to the work area;
- Parking heavy equipment in a designated, secured area each night and removing keys;
- Maintaining an organized work area, including proper storage of all tools and equipment;
- Conducting periodic safety and security reviews; and
- Employing special security provisions for work in the vicinity of Stony Creek Elementary School (e.g., “no work” periods, a secondary fence and additional worksite monitoring).

### **3.2.3 Environmental Controls**

Prior to commencing the sediment excavation activities, environmental controls were implemented, which included temporary soil erosion, sedimentation and dust controls. These environmental controls are discussed below. Permanent soil erosion and sedimentation controls installed as part of the ditch restoration activities are discussed in Subsection 3.9.

#### **Soil Erosion and Sedimentation Controls**

Prior to mobilization, BFNT met with the Hamilton County Soil & Water Conservation District to discuss implementation of the corrective measures. Following that meeting, BFNT prepared and submitted for approval the May 2005 Construction / Stormwater Pollution Prevention Plan (C/SPPP). The C/SPPP specified erosion control and stormwater quality measures to minimize and prevent the migration of sediment and the discharge of pollutants during construction activities. The C/SPPP was approved by the Hamilton County Soil & Water Conservation District on May 31. Maverick performed the remedial activities in accordance with the C/SPPP

with one exception. A decontamination pad was not required during the project because of the way construction operations were performed. Excavator tracks avoided contact with impacted sediments and soil by operating along the clean banks or on crane mats. Dump trucks also operated over clean bank soil, on crane mats and used elevated ramps to prevent contact when dumping impacted sediments and soil. During backfill operations, dozers stayed on top of the clean fill they were spreading. However, there were some occasions when equipment decontamination was required. On these occasions, the equipment was pressure washed in the exclusion zone over other impacted sediments and soil. For example, excavator buckets were washed over the ditch, dump truck beds were washed into the temporary cell, and dozers spreading impacted sediments and soil were washed into the abandoned ditch. Any significant water generated from decontamination operations was collected, temporarily stored and treated through a portable treatment system prior to discharge.

### **Dust Control**

During the sediment and soil excavation activities, Maverick performed airborne particulate monitoring as described in Subsection 3.3.2 below. During the remedial activities dust was typically generated along dump truck haul routes during long periods of dry weather. This dust was from clean bank areas or from along clean dense graded aggregate haul roads. Despite this, a water truck was used to suppress dust once it became visible or exceeded monitoring action levels. Dust was not generated during new channel or ditch excavations because the soil and sediments were moist to wet.

## **3.3 Monitoring Activities**

Surface water and air monitoring activities were conducted throughout the CMI, as discussed below.

### **3.3.1 Surface Water Monitoring**

Surface water monitoring was conducted during the sediment and soil excavation activities. However, due to the approach of excavating and then immediately backfilling and restoring small sections of the ditch and due to extended periods of dry weather from August to November, remedial activities did not increase turbidity in the Wilson Ditch. All excavation and backfilling

operations in the ditch were performed during extended periods of dry weather and at no time did any storm flows in Wilson Ditch contact disturbed or loose sediments during excavation operations. Sections of the ditch were excavated, backfilled, compacted and in most cases restored (i.e. seeded and protected with biologs and erosion matting) before any storm flows exceeded diversion pumping capacities. Our diversion pumping as described in Subsection 3.4 was extremely effective at drying Wilson Ditch immediately upstream and downstream of active excavation areas. Therefore, no surface water contacted or could flow downstream from excavation areas. Maverick performed visual observations of the Wilson Ditch during storm events and noted that the surface water was extremely turbid upstream of the Firestone Plant. We believe this turbidity was caused by extensive development and earth disturbance activities along State Highway 37. At no time did Maverick observe visible increases in turbidity in the on-site or off-site sections of the ditch. In fact after the few storm flows subsided and diversion pumping dried the ditch for remedial activities, no backfilled and restored sections were significantly eroded.

### **3.3.2 Air Monitoring**

Air monitoring and sampling were performed in accordance with Maverick's May 2005 Health and Safety Plan during sediment and soil excavation/consolidation activities. Air monitoring was performed to determine the concentration of airborne particulates. Personal air sampling was performed to determine worker exposure to polychlorinated biphenyls.

The air monitoring instruments used were MIE Data Rams. These instruments recorded particulate concentrations every 10 seconds and when downloaded provided minimum, maximum and time weighted average readings for the day. Maverick selected one upwind and two downwind air monitoring locations based on the wind direction and the work zone. These locations were selected to provide the most relevant data for worker and public exposure to any dust generated from the handling of sediments and soil containing polychlorinated biphenyls. Maverick recorded the daily air monitoring locations on a site plan. Maverick also downloaded the daily air monitoring data from each Data Ram to a laptop computer and reviewed the files to evaluate airborne particulate concentrations.

Each day, the air monitoring data indicated that time weighted average concentrations were far below the action levels specified in the May 2005 Health and Safety Plan. In some instances over

periods of less than a minute, maximum concentrations exceeded action levels. However, each of these instances is explained in an air monitoring summary spreadsheet prepared by Maverick. All of the exceedances were related to latent particulates in the Data Ram equipment at the time of startup or from vehicular traffic along access roads in close proximity to the monitors. These exceedances are not representative of dust generated from sediment or soil containing polychlorinated biphenyls.

Maverick also collected personal air samples using air pumps on workers with the most likely exposure to polychlorinated biphenyls. These samples were collected on laborers and excavator operators working in the ditch during excavation operations or working to stockpile, place or loadout the impacted sediment or soil. The air sample results were reviewed by the Health and Safety Coordinator and the concentrations were determined to be acceptable based on Permissible Exposure Limits established by OSHA.

BFNT maintains copies of the all air monitoring and sampling data in its project files.

### **3.4 Water Management**

As discussed in the CMI Final Design Report, excavation and restoration are best-controlled and most efficient when the work areas are free of excess water. Maverick implemented several measures to divert stream flow around the work areas. This effort was also facilitated by the fact that there were few significant storm events from August to October 2005 during excavation of ditch sediments.

Once the last regulatory approval necessary to perform work in the ditch was received on July 13, 2005, Maverick placed an Aqua-Dam and several 4 and 6-inch submersible pumps at the upstream boundary of the Firestone Plant (approximate Station 15+10). The stream flow was pumped and diverted by hose downstream of the 16<sup>th</sup> Street Bridge to facilitate final construction of the new channel. The diverted water was discharged back into the Wilson Ditch through a perforated pipe to dissipate energy and prevent erosion. Once the new channel and the 90-degree turns upstream of the area of contamination (between approximate Stations 12+50 to 15+00) were removed, stream flow could be diverted through the new channel. The new channel's ability to handle stream flow was used as a contingency in case of storm events. Maverick continued to divert flow upstream of the area of contamination using pumps and hose while the next stage of remedial operations was performed. The Aqua-Dam and the pumps were moved to approximate

Station 12+00 and the discharge location was moved downstream to the Pleasant Street Bridge. This facilitated excavation of sediments from the retained channel (Stations 0+00 to 4+50).

To complete excavation of the retained channel and the off-site ditch, additional flows from the groundwater treatment plant (up to 2.3 MGD) and the wastewater treatment facility (0.35 MGD) had to be diverted. The groundwater treatment plant discharged at the Pleasant Street Bridge and the wastewater treatment facility discharged at the 16<sup>th</sup> Street Bridge. A temporary 10-inch diameter HDPE pipeline was constructed from the groundwater treatment building to Stony Creek for diversion of the plant flow. The pipeline began diverting this flow on or about August 1. In addition, a 4-inch submersible pump was placed at the wastewater discharge to divert that flow into the groundwater treatment plant wet well and ultimately into the HDPE pipeline.

In addition to diversion of the groundwater plant and wastewater flows through the HDPE pipeline, excavation of the off-site ditch was facilitated by continually relocating submersible pumps and hose as remedial activities progressed downstream. Submersible pumps were placed immediately upstream of the active excavation area and any stream flow was diverted by hose typically 500 to 1,000 feet below the work zone. Excavation, backfill, and restoration of the ditch was performed in short increments and the pumps were able to completely capture any stream flow from reaching work areas.

During the remedial activities, Maverick monitored weather information to avoid beginning excavation operations when storm events might create unmanageable increases in flows. Maverick would typically wait several days after storm events until flows could be completely captured by submersible pumps upstream of the next excavation area. During the project, no excavation area was left open or exposed during an unmanageable storm event. All excavation and backfilling operations were performed in dry conditions. This was possible because of good planning, long periods of dry weather, and the effectiveness of the water diversion measures.

Despite the fact that the water diversion measures prevented upstream flow from reaching the work areas, some significant pools of water left in the ditch had to be addressed prior to excavation. This water was collected by pump and if there was a potential for entrained sediments (i.e. water from within 6-inches of the base of the ditch), the water was temporarily stored and treated prior to discharge. A portable treatment system was used, consisting of an equalization settling tank, sand filters, bag filters and granular activated carbon.



### 3.5 New Channel Construction

Construction of the new channel and removal of the 90-degree turns in the upstream ditch was substantially completed from June 6 to July 24, 2005. First, the new channel design from the CMI Final Design Report drawings G-12 and G-13 was loaded into a TOPCON 1-Hyper Lite Global Positioning System (GPS) and was staked in the field. This GPS system had an accuracy of better than one-tenth of a foot in both horizontal and vertical locations. The aboveground vegetation was then cleared along the alignment of the new channel. The vegetation was typically chipped and left in-place using a grinder attachment on a CAT 330 Excavator. However, some vegetation was cut and transported to the South Landfill to create brush pile habitats.

The GPS was then used to excavate the new channels to the designed horizontal limits and vertical elevations. However, two minor field adjustments were made to the original design when constructing the new channels. First, the side slopes of the new channel from Station 12+50 to 15+25 were changed from 2H:1V to 3H:1V at the request of the Indiana Department of Environmental Management. Second, the connection of the new channel to the retained channel in the vicinity of Station 4+50 was extended slightly downstream to improve the smoothness of the transition.

The BFNT Project Coordinator collected samples for laboratory analysis of the soil to be excavated during new channel construction to determine the presence of polychlorinated biphenyl concentrations. The BFNT Project Coordinator directed Maverick on the segregation of this soil, based on laboratory analysis, as either backfill or soil to be consolidated in the abandoned ditch. The soil determined suitable for backfill was either:

- Stockpiled for use as an on-site backfill per CMI Final Design Report Appendix D Material and Performance Specifications (design specification) 02221, if the soil had no detectable concentrations of polychlorinated biphenyls. This backfill was stockpiled in the 16<sup>th</sup> Street Parking Lot. After it was sampled again and analyzed for a broader range of potential contaminants, it was primarily used to complete construction of the new channel northern bank.
- Or, placed and compacted as grading fill adjacent to the West Landfill, if polychlorinated biphenyl concentrations were less than 10 ppm. This grading fill was eventually covered by 4 to 6-inches of dense-graded aggregate to create a useable parking area for the Firestone Plant.

The BFNT Project Coordinator also collected soil samples for laboratory analysis from the final excavated surface of the new channel. Samples were collected from the channel bottom and banks to show that the surfaces are free of detectable polychlorinated biphenyls. (Appendix A)

Portions of the new channel northern bank that overlapped the south bank of the old ditch were constructed using the on-site backfill. This backfill was placed in 8 to 12-inch lifts and compacted with a CAT CS-563 vibratory smooth drum roller. The northern bank was constructed so that there was a minimum two-foot thickness between the consolidated sediments and soils in the abandoned ditch and the surface of the new channel. In addition, galvanized wire mesh (similar to design specification 02240-2.01) was placed approximately 12-inches below the surface of the northern bank. This mesh was placed to prevent rodents from burrowing holes into the consolidated sediments and soil in the abandoned ditch.

Once the new channels had been excavated to design elevations, the bottom was compacted with the smooth drum vibratory roller and the banks (sideslopes) were scarified with a dozer to improve the adhesion of topsoil. The topsoil used on the new channel banks was purchased from an off-site source (Cavanaugh Inc.). The BFNT Project Coordinator sampled the source and determined that the topsoil was clean in accordance with design specification 02221-2.02. (Appendix A) Earth Exploration Inc. tested and determined that the topsoil had an organic content of 10 percent. Maverick deemed this organic content acceptable to promote vegetative growth. Using excavator bucket and dozer, the topsoil was placed and compacted to a 4-inch thickness on the new channel banks. The banks were then seeded by the BFNT Project Coordinator using native plant seeds per design specification 04207-3.03A. Immediately after seeding the new channel banks were protected with erosion control blankets (matting) per design specification 02380-2.01E.

During construction of the new channel, four storm sewer pipes had to be extended to discharge into the new channel, at locations shown on As-built Drawings G-2 and G-3. Advanced Drainage Systems (ADS) N-12 polyethylene pipe was used for these extensions. 30-inch diameter pipe was used to extend the existing reinforced concrete pipe at approximate Station 8+60. 8-inch diameter pipe was used to extend the existing PVC pipe at approximate Station 10+25. Finally, 24-inch diameter pipe was used to extend the existing PVC and clay pipes at approximate Station 12+50. Construction deviated from the design at this final location as follows. Instead of connecting both the PVC and clay pipes to new manholes, the existing pipes were connected

using the 24-inch diameter ADS pipe and a wye. The common 24-inch diameter pipe was then extended out to the new channel. In all cases, the larger diameter ADS pipe was fitted over the ends of the existing pipe and anchored in-place with concrete. In addition, an anti-seep collar was constructed using grout for each pipe extension. Finally, 8 to 12-inch riprap was placed at the discharge of each pipe to prevent erosion of the new channel banks and bottom.

At the request of IDEM and with the concurrence of the Hamilton County Surveyor, a portion of the south bank along the new channel was restored with trees. The purpose of the trees is to provide shade to the stream to benefit the aquatic habitat. Shade along ditch segments serves to moderate water temperature (oxygen levels are higher in cooler water), control nuisance algae growth, and provide favorable biota habitat.

The BFNT Project Coordinator planted the trees in late October 2005. Establishment and survival of the trees will be monitored and reported to IDEM as part of the CMI Final Design Report Appendix H Operation and Maintenance Plan, Section 6.2.

64 trees were planted at approximately 12.5 foot intervals along the south bank of the new channel upstream from the 16<sup>th</sup> Street Bridge. The trees (rootballed or container grown plants, as appropriate, with diameters of at least 1 inch at breast height) included the following species. Ash (*Fraxinus* sp.) (two varieties), Locust (*Robinia* sp.); Maple (*Acer* sp.), Oak (*Quercus* sp.) (two varieties), and Willow (*Salicaceae* sp.). Tree planting followed Practice 1204 (Tree Replacement) of the *Indiana Drainage Handbook* (1999).

### **3.6 Sediment/Soil Excavation**

Excavation activities were conducted as part of the approved remedy to address sediments, bank soils and access road soils containing polychlorinated biphenyls. The following subsections describe the excavation activities for the on-site and off-site portions of Wilson Ditch. These subsections will also describe backfilling and restoration activities in each portion of the ditch.

#### **3.6.1 On-Site Excavation**

Excavation of the on-site portion of the Wilson Ditch consisted of the following activities:

- The targeted removal of sediments and soils with polychlorinated biphenyl concentrations

greater than 500 ppm from the abandoned ditch and the retained channel.

- Excavation of sediments and soils from the retained channel including the 16<sup>th</sup> Street Bridge and Pleasant Street Bridge culverts and an approximate 50-foot portion of the off-site ditch below Pleasant Street (approximate Stations 32+94 to 33+44).

Once the new channel was substantially completed and the abandoned portion of the ditch was isolated from any potential stream flows, the targeted removal of sediments and soils with polychlorinated biphenyl concentrations greater than 500 ppm was performed. The two areas where polychlorinated biphenyl concentrations were thought to exceed 500 ppm are shown on CMI Report drawings G-3 and G-4. Excavation began at the locations shown on the drawings and was directed by the BFNT Project Coordinator based on visual observations and post-excavation verification sampling. Excavation of these sediments and soils from the abandoned ditch was performed on July 29 and August 1, 2005. Due to the location and depth of that portion of the abandoned ditch, a CAT 322 excavator with a 60-foot boom removed and fed the sediment and soil to a CAT 330 excavator which directly loaded the material into tractor trailers for off-site disposal. Sawdust was mixed with the wet sediments as necessary to pass the Paint Filter Test for proper disposal. Targeted removal of the sediments and soil from the retained channel (Stations 3+34 to 3+64 as shown on CMI Report drawing G-3) was performed on August 2, 2005. These sediments and soils were also removed with the CAT 322 excavator with a 60-foot boom. The sediments were loaded into a dump truck and stockpiled separately in the temporary cell. Although no recent in-place sampling of these materials showed polychlorinated biphenyl concentrations above 500 ppm, the material was subsequently sent off-site for proper disposal at a TSCA-approved landfill.

Once targeted removal of sediments and soil containing polychlorinated biphenyl concentrations greater than 500 ppm was completed, then excavation of the retained channel was performed. On August 1, excavation began at approximate Station 4+50 and proceeded downstream under the 16<sup>th</sup> Street Bridge. A mini-excavator and tractor truck were used to excavate the sediments under the bridge. Excavation of the retained channel continued downstream to the Pleasant Street bridge until August 11. The retained channel was excavated, backfilled and restored in small sections during this time period. Maverick used the GPS to record existing bottom and bank elevations along the retained channel prior to excavation. The bottom of the retained channel was excavated to a minimum depth of two-feet, and the banks were excavated to a 1-foot depth and the limits shown on CMI Report drawing G-4. Maverick confirmed the excavation depths using the GPS. All materials excavated from the retained channel were consolidated in the abandoned

ditch. Some of the sediments were stockpiled in the temporary cell for gravity dewatering and moisture conditioning using sawdust and agricultural lime prior to consolidation. Additional excavation in some locations was directed by the BFNT Project Coordinator based on visual observations and confirmatory sampling. (Appendix A).

Backfill used in the retained channel was purchased from two off-site sources (Cavanaugh Inc. and Beaver Gravel Corporation). The BFNT Project Coordinator sampled these sources and determined that each was clean in accordance with design specification 02221-1.02 (Appendix B). Geotechnical testing was also performed on these backfill sources by Earth Exploration Inc. and the soils were determined to be acceptable per design specification 02221-2.01B. Before placing backfill in the retained channel, 8-ounce non-woven geotextile meeting design specification 02232-2.02 was placed as a permeable liner along the bottom of the excavation. Approximately ten pounds of soluble inorganic fertilizer per linear 100 feet was also placed in the channel prior to backfilling, to facilitate biodegradation of residual chlorinated solvents in the groundwater beneath the ditch bottom. The backfill was placed and compacted in the retained channel using a CAT D4 Dozer. The final bottom surface of the retained channel was smoothed with the bucket of an excavator. Backfill placed on the banks (sideslopes) of the retained channel was scarified using an excavator bucket to improve the adhesion of topsoil. Using an excavator bucket, topsoil from Cavanaugh Inc. was placed and compacted to a 4-inch thickness on the retained channel banks. The banks were then seeded by the BFNT Project Coordinator using native plant seeds per design specification 04207-3.03A. Immediately after seeding the new channel banks were protected with erosion control blankets (matting) per design specification 02380-2.01E.

Maverick confirmed the retained channel was backfilled to its original elevations by visual observation and using the GPS. Table 1 presents existing, post-excavation and final elevations in the retained channel.

Due to wet weather conditions, the culvert under the Pleasant Street Bridge and the first 50-feet below the bridge could not be excavated until August 22 & 23. A 6 to 8-inch thickness of sediment was removed down to the corrugated steel base of the culvert using a mini-excavator, motorized buggies and a vector truck. The vector truck was emptied into the temporary cell and the sediments were moisture conditioned prior to consolidation in the abandoned ditch.

Sediments and soil from the first 50-feet below the Pleasant St. Bridge were excavated as described above for the retained channel. Backfilling and restoration was also performed as

described for the retained channel.

The only deviation from the design of the restored retained channel involves riprap along the toe of the banks (sideslopes). Detail #4 on CMI Report drawing G-16 appears to show several feet of riprap armoring the toe of the banks. The BFNT Project Coordinator informed Maverick that IDEM requested that the use of riprap be minimized in Wilson Ditch. Therefore, a very limited amount of riprap was used along the toe primarily to anchor the erosion blankets.

### **3.6.2 Off-Site Excavation**

The off-site remedial activities began with clearing vegetation along and excavating the north access road area. This work began on August 15. Only small brush and trees less than 6-inches in trunk diameter were ground to mulch in place or cut above ground surface to facilitate excavation operations. Chipped vegetation was left in-place and cut branches were sent to the South Landfill to create brush pile habitats. Soils having polychlorinated biphenyl concentrations greater than 25 ppm were excavated from the north access road area. The north access road area stretched from approximate Station 19+75 to the Pleasant Street Bridge. Excavation operations were directed by the BFNT Project Coordinator based on visual observations and confirmatory sampling of excavation faces and peripheral areas (Appendix A). Soil from the excavation was either consolidated directly into the abandoned ditch or stored temporarily in the on-site (<50 ppm) stockpile prior to proper off-site disposal, as directed by the BFNT Project Coordinator based on laboratory analytical results.

Excavation operations required an extended period of time (until mid-October) because post-excavation sample results dictated several extensions of the access road excavation to the west. Excavation operations also included the installation of two 36-inch diameter culverts under the north access road. Corrugated HDPE pipe was used for these culverts. By August 18, excavation of the north access road area immediately adjacent to the Wilson Ditch was determined to be complete and a dense graded aggregate road was constructed. This temporary road was used to facilitate excavation operations in the off-site ditch and to keep construction equipment on clean material. The dense graded aggregate was produced from virgin sources at Martin Marietta Materials and Irving Materials Inc. and therefore was considered clean.

The off-site ditch excavation continued on August 23. A minimum 1-foot of sediment was excavated from the ditch bottom from approximate Station 32+94 to the confluence with Stony Creek. In addition, a 1-foot layer of bank soil was also removed from certain portions of the ditch

banks as shown on CMI Report drawings G-5 through G-10. Because the existing bottom of the off-site ditch was typically irregular, Maverick used the GPS to determine the lowest elevation across a transect and then excavated the bottom to a minimum 12-inch depth using a laser level. Backfill was placed to the average elevation of the existing bottom at that transect. Maverick used the GPS to record existing, post-excavation, and final elevations in the off-site ditch. This information is presented in Table 1.

Based on prior in-place sampling of off-site sediments, the BFNT Project Coordinator directed the excavated sediments and soils to be placed as follows:

- From Station 32+94 to the South Street Bridge, all sediment and soil removed from the off-site ditch was disposed of off-site after temporary storage in the on-site stockpile for polychlorinated biphenyl concentrations less than 50 ppm.
- From the South Street Bridge to Stony Creek, all sediment and soil removed from the off-site ditch was used in the South Landfill for grade improvement.

The excavation was generally performed using a CAT 315 Excavator suspended over the ditch on crane mats. However, in one area from approximate Station 17+50 to the pedestrian bridge at Station 11+75, the excavator operated within the ditch on crane mats. These mats kept the tracks of the excavator clean and above the sediments. The mats were removed as the excavation progressed. The excavator directly loaded the sediments and soils into CAT 725 Dump Trucks for transportation to the on-site stockpile or the South Landfill. Excavation activities under the South Street, pedestrian and Greenfield Avenue bridges were also able to be performed by the CAT 315 excavator with some assistance by a mini-excavator.

The dump trucks used the access points at the Pleasant, South and Greenfield Avenue Bridges and at the temporary culvert across the Wilson Ditch at Station 3+00. The dump trucks traveled on Pleasant, 16<sup>th</sup> and South Streets and across Greenfield Avenue during remedial operations along the off-site ditch. As agreed to with the City of Noblesville Streets Department, flagmen and traffic signs were used to control traffic whenever construction equipment used city streets. In addition, any mud tracked onto the streets was immediately cleaned up using a CAT 248 Skid Steer with wet broom attachment.

Off-site ditch remedial activities also included the excavation of soil with polychlorinated biphenyl concentrations greater than 1 ppm from the south access road area. This area stretched from the southern end of the Noblesville Middle School fence (approximate Station 6+75) to the

pedestrian bridge. Off-site ditch activities in the vicinity of the school were coordinated with school representatives. The south access road excavation and backfilling operations were performed from October 12 – 19. Excavation operations were directed by the BFNT Project Coordinator based on confirmatory sampling of the area and the adjoining schoolyard (Appendix A). Topsoil from the excavation was temporarily stockpiled adjacent to the abandoned ditch for use as final cover as directed by the BFNT Project Coordinator.

Backfill from Beaver Gravel Corporation and Cavanaugh Inc. was used to fill the off-site ditch and access road excavations. The backfill was placed and compacted with a CAT D3. The final bottom surface of the ditch was smoothed with the bucket of an excavator. In areas where the banks of the off-site ditch were excavated and not constrained by structures or trees greater than 6-inches in diameter, the sideslopes were restored to shallower slopes (2H:1V maximum). This was done to minimize future bank failure, while maintaining the existing ditch bottom width. Using an excavator bucket, backfill and topsoil from Cavanaugh Inc. was placed and compacted on excavated banks. The off-site ditch was generally restored late in the growing season (mid-September to mid-October). Therefore, the East bank was seeded by the BFNT Project Coordinator using the planned mixture of native grass and wildflower seed supplemented with annual rye seed. The West bank, where periodic mowing maintenance is expected, was seeded with a lawn grass mixture. Immediately after seeding the disturbed banks of the off-site ditch were protected with erosion control blankets (matting) per design specification 02380-2.01E. Where possible based on the constraints of the ditch, coir fiber logs (biologs) were installed along the toe of the bank. Approximately 3,500 linear feet of biolog was installed per Detail #6 on CMI Report drawing G-15. The biolog reinforced toe is expected to minimize future bank failure.

Riprap was also placed on the ditch banks and bottom at several locations to prevent erosion. 8 to 12-inch riprap was placed at the discharge outlet of all drainage pipes and culverts. This same large riprap was placed to armor the entire western bank of the ditch between approximate Stations 17+00 and 17+50. Smaller 4 to 6-inch riprap was placed on the banks and bottom of the ditch under and immediately upstream of the Greenfield Avenue Bridge. This riprap was placed to restore the ditch to its original condition prior to excavation activities. Maverick believes the riprap in this area was meant to protect the bridge foundation from scour. The riprap placed off-site as part of this project was immobilized with cement grout in the spring of 2006, to limit the potential for relocation by visitors to the ditch.



Excavation, backfilling, and restoration of the off-site ditch was substantially completed on October 20, 2005 with removal of the temporary culvert crossing at Station 3+00. Immediately prior to that day, all disturbed areas along the top of the western bank (i.e. the haul route for construction vehicles) were seeded and mulched from the pedestrian bridge to the temporary culvert crossing. The seed used was a mixture of commercial lawn grasses.

The excavation in the oily sediment area was undertaken on October 28, 2005 using temporary berms to exclude water from Stony Creek and pumps to remove standing water from the excavation area. The area was excavated to remove all visibly contaminated sediments and, to the extent feasible, all underlying sediments containing polychlorinated biphenyls at concentrations above 1 part per million. Groundwater upwelling from the excavated area required excavation through standing water and required the placement of a geotextile liner and approximately two feet of clean cover material immediately following collection of the first round of confirmatory sampling (Appendix A). The standing water was collected in three 20,000 gallon mobile storage tanks and was treated in the portable treatment system prior to discharge back to the ditch.

### **3.7 On-Site Sediment and Soil Consolidation**

Excavated materials containing polychlorinated biphenyls at concentrations up to 500 ppm were placed in the abandoned ditch.

Prior to placement of the excavated sediments into the abandoned ditch, the excavated sediments were dewatered (i.e., using gravity dewatering and/or stabilization), when necessary. The consolidated materials were compacted, using a CAT CS563 Vibratory Smooth Drum Roller to stabilize the final surface.

The consolidated sediment and soils were covered with a geotextile layer and at least two feet of clean cover materials (20 inches of soil having polychlorinated biphenyl concentrations of less than 10 ppm and 4 inches of clean crushed limestone gravel) to achieve the final grades shown on As Built Drawings G-2 and G-3. In areas where the new channel intersects the abandoned ditch, a minimum of 24 inches of clean soil (less than 1 ppm) was placed on the overlapping areas. The final slopes are between 4 to 10%. The maximum grade was limited to 10% to minimize potential erosion. BFNT will install a final asphalt cover over the consolidation area after it has

completed its ongoing groundwater enhanced bioremediation program.

### **3.8 Waste Transportation and Disposal**

Sediments and soils containing polychlorinated biphenyls were disposed offsite at facilities operated by Heritage Environmental Services LLC (Heritage). The BFNT Project Coordinator collected samples of representative sediments and soils for Heritage laboratory analysis. Using the analytical results, Heritage developed a waste profile(s) and obtained approval for disposal at its appropriate facilities. The following disposal facilities used were:

- Heritage's industrial waste landfill, in Roachdale, Indiana, for waste sediments and soil containing less than 50 ppm polychlorinated biphenyls; and
- The TSCA-approved hazardous waste cell at the Heritage Roachdale landfill for waste sediments containing greater than 50 ppm polychlorinated biphenyls.

To satisfy off-site transport and disposal requirements, the sediments and soils were dewatered as necessary to pass the Paint Filter Test (SW-846 Method 9095). Heritage provided waste transporters licensed and permitted in accordance with USDOT, INDOT, and other applicable state and local agencies to handle the type of waste material. The waste was loaded into tractor trailers lined with polyethylene sheeting.

The BFNT Project Coordinator directed the off-site disposal of all wastes. All hazardous or TSCA-regulated wastes were transported for off-site disposal under manifests as required by their status. Nonhazardous wastes were transported for off-site disposal under nonhazardous waste manifests and/or bills of lading. Each waste manifest included a waste material description according to USDOT requirements (i.e., proper shipping name, hazard class, and ID number). Hazardous wastes were assigned the appropriate hazardous waste codes according to characterization information.

The BFNT Project Coordinator maintains a copy of the waste manifests and bills of lading at the Firestone Noblesville Facility.

## **4. Construction Completion Summary**

In summary, the CMI was conducted between July and November 2005 to remove certain materials containing polychlorinated biphenyls from the Wilson Ditch from the BFNT property to Stony Creek. Maverick performed the excavation, backfilling and restoration work to:

- Construct the new channel to the design dimensions and grades;
- Remove sediment and soils containing polychlorinated biphenyls from the on-site and off-site portions of the Wilson Ditch;
- Remove soils containing polychlorinated biphenyls from the North and South Access Road Areas; and
- Remove visibly contaminated sediments and sediments containing polychlorinated biphenyls from a small section of stony Creek.

The BFNT Project Coordinator was responsible for collecting samples for laboratory analysis; collecting samples and performing field analysis; and interpreting all analytical data to:

- Determine the acceptability of on-site and off-site backfill soils and to direct Maverick's backfill operations;
- Direct Maverick's excavation operations and to ensure that the removal of sediments and soil containing polychlorinated biphenyls achieved the design criteria.
- Direct Maverick's handling of excavated sediments and soils containing polychlorinated biphenyls for either off-site disposal, on-site consolidation, or placement as grading fill in the South Landfill or within the Firestone facility.

The BFNT Project Coordinator was also responsible for directing the removal of oily sediments in Stony Creek based on visual observation.

With Maverick and the BFNT Project Coordinator performing their respective duties, the work was performed to meet the design objectives and to successfully complete the EPA-approved corrective measures.

## **TABLES**

**Table 1 - Sediment / Soil Excavation Elevations  
 Corrective Measures Implementation  
 Construction Completion Report  
 Wilson Ditch, Noblesville, IN**

Sta.	Lowest Existing Bed El.	Post Excavation El.	Final Backfill El.
<b>On-Site</b>			
4+73	753.0	750.7	753.2
4+50	753.0	750.7	753.1
4+25	753.0	750.7	753.1
4+00	753.0	750.7	753.0
3+75	752.9	750.7	753.0
3+50	752.9	749.3	753.0
3+25	752.9	750.9	752.9
3+00	752.9	750.9	752.9
2+75	752.9	750.9	752.8
2+50	752.8	750.8	752.8
2+25	752.8	750.8	752.8
2+00	752.8	750.8	752.8
1+75	752.7	750.3	752.7
1+50	752.7	750.3	752.7
1+20	752.6	750.3	752.7
1+00	752.5	750.2	752.7
0+75	752.3	750.2	752.7
0+50	752.3	750.3	752.7
0+25	752.7	750.3	752.7
0+00	752.7	748.0	751.8

**Notes:**

1. Pleasant St. Culvert Invert El. 751.7. No backfill placed in culvert.

Sta.	Lowest Existing Bed El.	Post Excavation El.	Final Backfill El.
<b>Off-Site</b>			
33+44	752.65	752.65	752.65
33+25	752.7	750.6	752.6
33+00	752.0	750.0	752.1
32+75	752.0	751.0	752.1
32+50	751.8	750.5	752.1
32+25	752.0	751.0	752.1
31+90	752.3	751.2	752.1
31+50	752.2	750.8	752.2
31+25	752.5	751.2	752.4
31+00	752.4	751.1	752.4
30+75	752.4	751.2	752.4
30+50	752.4	751.1	752.4
30+25	752.4	750.8	752.4
30+00	752.4	750.9	752.4
29+75	752.4	751.4	752.4
29+50	752.5	751.3	752.4
29+25	752.6	751.6	752.4
29+00	752.5	751.2	752.4
28+75	752.5	751.2	752.4
28+50	752.5	751.0	752.4
28+25	752.5	751.0	752.4
28+00	752.4	751.0	752.4
27+75	752.4	751.0	752.4
27+50	752.3	751.0	752.4
27+25	752.2	751.0	752.4
27+00	752.3	750.9	752.4
26+75	752.2	751.1	752.1
26+50	752.3	750.9	752.0
26+25	752.3	750.9	752.2
26+00	752.2	750.9	752.2

**Table 1 - Sediment / Soil Excavation Elevations  
 Corrective Measures Implementation  
 Construction Completion Report  
 Wilson Ditch, Noblesville, IN**

Sta.	Lowest Existing Bed El.	Post Excavation El.	Final Backfill El.
<b>Off-Site (continued)</b>			
25+75	751.9	750.6	751.9
25+50	752.1	750.6	751.9
25+25	752.0	750.4	751.8
25+00	752.1	750.7	751.9
24+75	752.1	750.7	751.9
24+50	752.1	750.5	751.9
24+25	751.8	750.6	751.8
24+00	751.8	750.4	751.9
23+75	751.8	750.4	751.7
23+50	752.1	750.6	751.6
23+25	751.4	750.4	751.6
23+00	751.8	750.8	751.7
22+75	752.1	751.0	751.6
22+50	751.8	750.1	751.6
22+25	751.8	750.1	751.6
22+00	751.8	750.1	751.6
21+75	751.6	750.0	751.6
21+50	751.6	750.0	751.6
21+25	751.6	750.0	751.6
21+00	751.6	750.5	751.5
20+75	751.5	750.5	751.5
20+50	751.3	750.3	751.5
20+25	751.5	749.9	751.5
20+00	751.6	750.0	751.5
19+75	751.3	750.3	751.4
19+50	751.1	750.1	751.3
19+25	751.1	749.8	751.2
19+00	751.0	750.0	751.2
18+75	751.3	750.1	751.1
18+50	751.2	750.1	751.1
18+25	751.0	750.0	751.0
18+00	750.8	749.8	751.0

Sta.	Lowest Existing Bed El.	Post Excavation El.	Final Backfill El.
<b>Off-Site (continued)</b>			
17+75	750.7	749.7	751.0
17+50	750.9	749.9	750.8
17+25	750.8	749.8	751.0
17+00	750.6	749.6	750.8
16+75	750.4	748.0	750.6
16+50	750.4	748.1	750.6
16+25	750.5	748.0	750.5
16+00	750.7	748.2	750.5
15+75	750.7	748.1	750.3
15+50	750.6	748.1	750.3
15+25	750.6	748.0	750.4
15+00	750.6	748.0	750.4
14+75	750.7	748.7	750.4
14+50	750.5	748.5	750.3
14+25	750.0	748.0	749.9
14+00	749.9	747.8	749.9
13+75	749.9	748.1	749.9
13+50	749.9	747.6	749.8
13+25	750.0	747.5	749.7
13+00	749.8	747.6	749.7
12+75	749.7	747.5	749.7
12+50	749.6	747.5	749.7
12+25	749.6	747.6	749.7
12+00	749.6	748.0	749.6
11+75	749.3	747.5	749.3
11+50	749.0	747.2	749.1
11+25	749.0	747.2	749.2
11+00	749.1	747.4	749.1
10+75	748.5	746.9	749.1
10+50	749.0	746.7	749.1
10+25	749.0	747.0	749.1
10+00	749.0	747.0	749.0

**Table 1 - Sediment / Soil Excavation Elevations  
 Corrective Measures Implementation  
 Construction Completion Report  
 Wilson Ditch, Noblesville, IN**

Sta.	Lowest Existing Bed El.	Post Excavation El.	Final Backfill El.
<b>Off-Site (continued)</b>			
9+75	748.7	746.9	748.8
9+50	748.9	746.8	748.8
9+25	748.8	747.1	748.7
9+00	748.6	746.0	748.6
8+75	748.7	746.9	748.7
8+50	748.6	746.9	748.6
8+25	748.8	746.8	748.7
8+00	748.9	747.0	748.7
7+75	748.7	747.0	748.6
7+50	748.7	747.0	748.6
7+25	748.9	747.2	748.6
7+00	748.7	747.2	748.5
6+75	748.6	747.0	748.3
6+50	748.5	747.0	748.4
6+25	748.5	747.0	748.4
6+00	748.4	746.9	748.4
5+75	748.2	747.0	748.2
5+50	748.0	746.9	748.1
5+25	748.0	747.0	748.0
5+00	747.9	746.4	747.9
4+75	747.9	746.7	747.6
4+50	747.9	746.9	747.6
4+25	747.4	746.4	747.5
4+00	747.7	746.2	747.5
3+75	747.7	746.4	747.6
3+50	747.6	745.8	747.6
3+25	747.7	745.6	747.6
3+15	747.7	745.5	747.6

Sta.	Lowest Existing Bed El.	Post Excavation El.	Final Backfill El.
<b>Off-Site (continued)</b>			
2+75	747.8	744.7	747.6
2+50	747.9	745.6	747.6
2+25	747.9	745.7	747.5
2+00	747.9	745.3	746.7
1+75	747.9	745.2	746.7
1+50	746.6	745.2	746.5
1+25	746.4	745.2	746.5
1+00	746.3	745.2	746.6
0+75	746.3	745.2	746.6
0+50	746.3	745.2	746.4
0+25	746.3	745.2	746.4
0+00	746.3	745.2	746.3

CERTIFICATE OF COMPLETION AND COMPLIANCE

To: Hamilton County Surveyor

Re: CORRECTIVE MEASURES IMPLEMENTATION  
WILSON DITCH, NOBLESVILLE, INDIANA  
JUNE - NOVEMBER, 2005

I hereby certify that:

1. I am a Registered Land Surveyor or Engineer in the State of Indiana.
2. I am familiar with the plans and specifications for the above referenced subdivision.
3. I have personally observed and supervised the completion of the drainage facilities for the above referenced subdivision.
4. The drainage facilities within the above referenced subdivision to the best of my knowledge, information and belief have been installed and completed in conformity with all plans and specifications.
5. The drainage facilities within the above referenced subdivision to the best of my knowledge, information and belief have been correctly represented on the Record Drawings, Digital Record Drawings and the Structure Data Spreadsheet.

Signature: Tim Jones Date: 08-13-07

Type or Print Name: TIM JONES

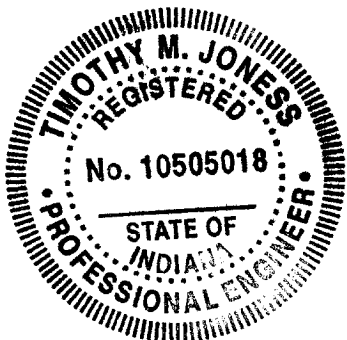
Business Address: MAVERICK CONSTRUCTION MANAGEMENT SERVICES INC.  
PO BOX 60700 KING OF PRUSSIA, PA 19406

Telephone Number: 610-783-6202

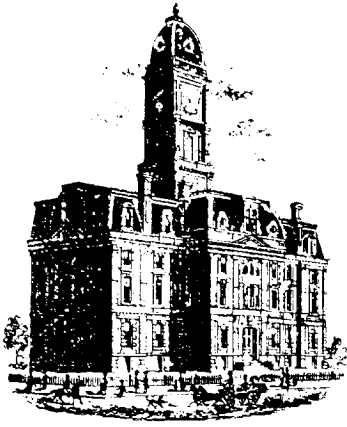
SEAL

INDIANA REGISTRATION NUMBER

#10505018







SURVEYOR'S OFFICE  
**Hamilton County**

*Kenton C. Ward, CFM*  
Surveyor of Hamilton County  
Phone (317) 776-8495  
Fax (317) 776-9628

Suite 188  
One Hamilton County Square  
Noblesville, Indiana 46060-2230

**To: Hamilton County Drainage Board**

**February 26, 2008**

**Re: Elwood Wilson Drain: Firestone Reconstruction**

Attached are as-builts, certificate of completion & compliance, and other information for Firestone Reconstruction. An inspection of the drainage facilities for this section has been made and the facilities were found to be complete and acceptable.

During construction, changes were made to the drain, which will alter the plans submitted with my report for this drain-dated June 13, 2004. The report was approved by the Board at the hearing held July 11, 2005. (See Drainage Board Minutes Book 8, Pages 352-355)

The changes are as follows:

This project installed 1020 feet of new open ditch. This project removed 800 feet of the Elias Gascho open drain (Sta 35+35 to 43+35) and 271 feet of the Elwood Wilson open drain (Sta 0 to Sta 2+71). Therefore, this project removed **51 feet** from the drain's length.

A non-enforcement was not required for this project. The drainage easment across this property will remain at the statutory 75' from top of bank.

The following sureties were guaranteed by Fidelity and Depository Comp. of Maryland and released by the Board on its August 13, 2007 meeting.

**Bond-LC No:** 08780316  
**Insured For:** Storm Sewers  
**Amount:** \$3,288,195.00  
**Issue Date:** June 21, 2005

I recommend the Board approve the drain's construction as complete and acceptable.

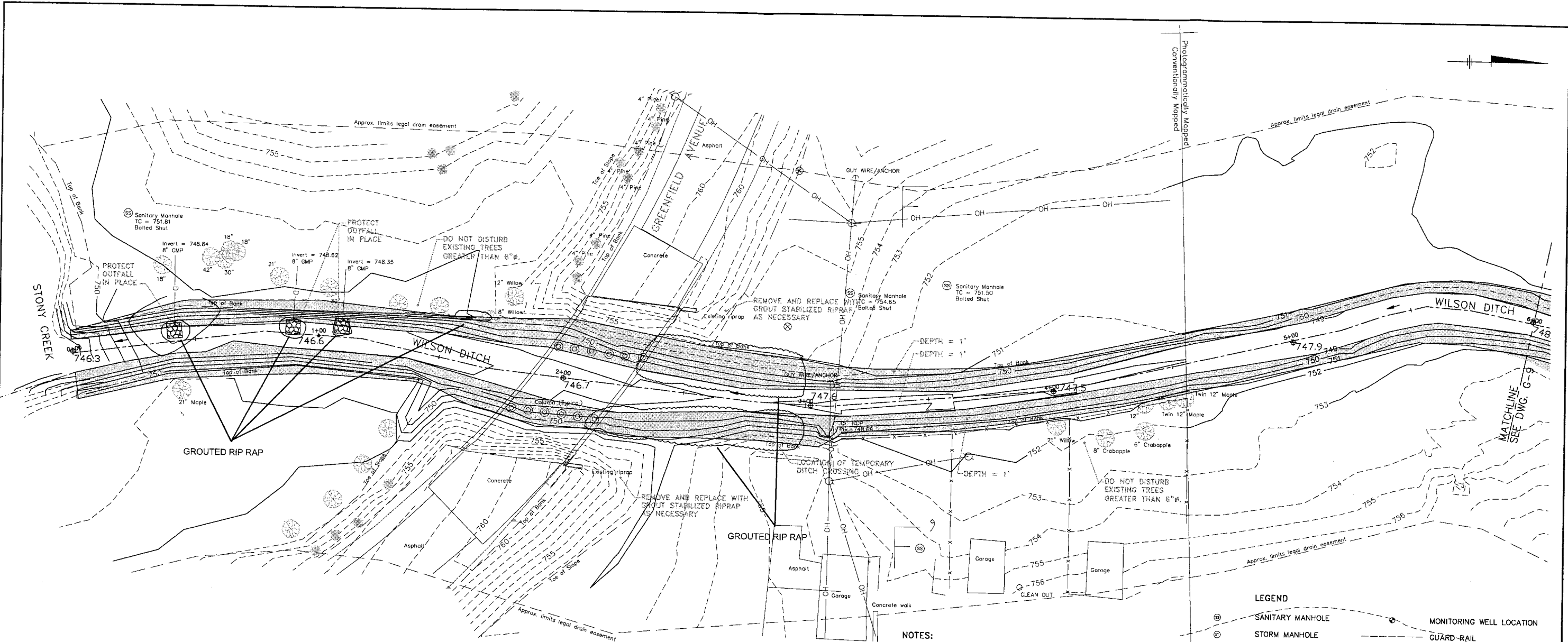
Sincerely,

---

Kenton C. Ward, CFM  
Hamilton County Surveyor

KCW/slm

## **DRAWINGS**



- NOTES:**
1. DRAWING TAKEN FROM A FIGURE PREPARED BY MID-STATES ENGINEERING (INDIANAPOLIS, INDIANA) DATED SEPTEMBER 14, 2001 AND PROVIDED BY BFNT.
  2. STREAM BED EXCAVATIONS TO TOE OF SLOPE.
  3. EXCAVATE BOTH BANKS TO GRADE BREAK AS SHOWN.
  4. TEMPORARY DITCH CROSSING WILL BE INSTALLED AS NECESSARY.

**LEGEND**

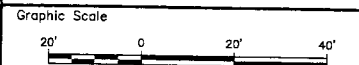
⊙	SANITARY MANHOLE	⊙	MONITORING WELL LOCATION
⊕	STORM MANHOLE	—x—x—	GUARD-RAIL
□	CURB INLET	—G—	FENCE LINE
⊚	STORM INLET	—OH—	GAS LINE
⊖	POWER POLE	—S—	OVERHEAD ELECTRIC LINE
⊠	LIGHT	—D—	SANITARY LINE
F	GAS LINE MARKER	—	STORM LINE
⊙	GAS METER	~~~~~	TREE LINE
⊙	WATER VALVE	755	ORIGINAL CONTOUR LINE
WM	WATER METER	765	NEW DITCH CONTOUR LINE
⊖	FIRE HYDRANT	---	CENTERLINE OF DITCH
⊖	SIGN	0+00	DITCH STATION ID
⊖	MAILBOX	---	PROPERTY LINE
→	GUY ANCHOR	---	<b>REMOVAL AREA</b>
⊖	GUARD POST	---	BANK MATERIALS USE ON SOUTH LANDFILL
⊙	TREES		

This information was gathered for input into the Hamilton County Geographic Information System (GIS). This document is considered an official record of the GIS.

Entry Date: 2-26-08

Entered By: SLM

X: 03020X00, X01, X02.DWG  
 L: 01=\*, OFF=REF\*  
 P: PAGESET/PL1-CDL  
 2/23/04 SYR-85-L.P. NES KMD  
 0302001/95SUBMIT/03020G10.DWG



THIS DRAWING WAS PREPARED AT THE SCALE INDICATED IN THE TITLE BLOCK. INACCURACIES IN THE STATED SCALE MAY BE INTRODUCED WHEN DRAWINGS ARE REPRODUCED BY ANY MEANS. USE THE GRAPHIC SCALE BAR IN THE TITLE BLOCK TO DETERMINE THE ACTUAL SCALE OF THIS DRAWING.

No.	Date	Revisions	Init
1	JULY 06	AS-BUILT DRAWINGS	KML

Project Mgr. TJ  
 Designed by BBL, TJ  
 Drawn by BBL, TJ  
 Checked by KL  
 Prof. Eng. TJ  
 PE License \_\_\_\_\_

**AS BUILT**



BRIDGESTONE/FIRESTONE NORTH AMERICAN TIRE, LLC • WILSON DITCH - NOBLESVILLE TOWNSHIP, HAMILTON COUNTY, INDIANA  
 CORRECTIVE MEASURES IMPLEMENTATION  
 FINAL DESIGN REPORT

**OFF-SITE PROPOSED ACTIVITIES  
 STATION 0+00 TO 6+00**

File Number  
 LE 271-23  
 Date  
 APRIL 2005  
 Maverick Constuction  
 Management Services, Inc.  
 PO BOX 393  
 AUBURN, MA 01501  
 508-721-2227

G-10

**DRAWING NOTES:**

- REFER TO DRAWINGS G-2 THROUGH G-10 FOR BASEMAP INFORMATION.
- ON-SITE IS DEFINED AS STARTING AT THE BRIDGESTONE/FIRESTONE PROPERTY BOUNDARY NORTH OF THE PLEASANT STREET BRIDGE AS STA. 0+00 AND CONTINUING UPSTREAM TO STA. 16+00.
- OFF-SITE IS DEFINED AS STARTING AT THE CONFLUENCE OF STONY CREEK AND WILSON DITCH AS STA. 0+00 AND CONTINUING UPSTREAM TO THE BRIDGESTONE/FIRESTONE PROPERTY BOUNDARY AT STA. 33+54.39.

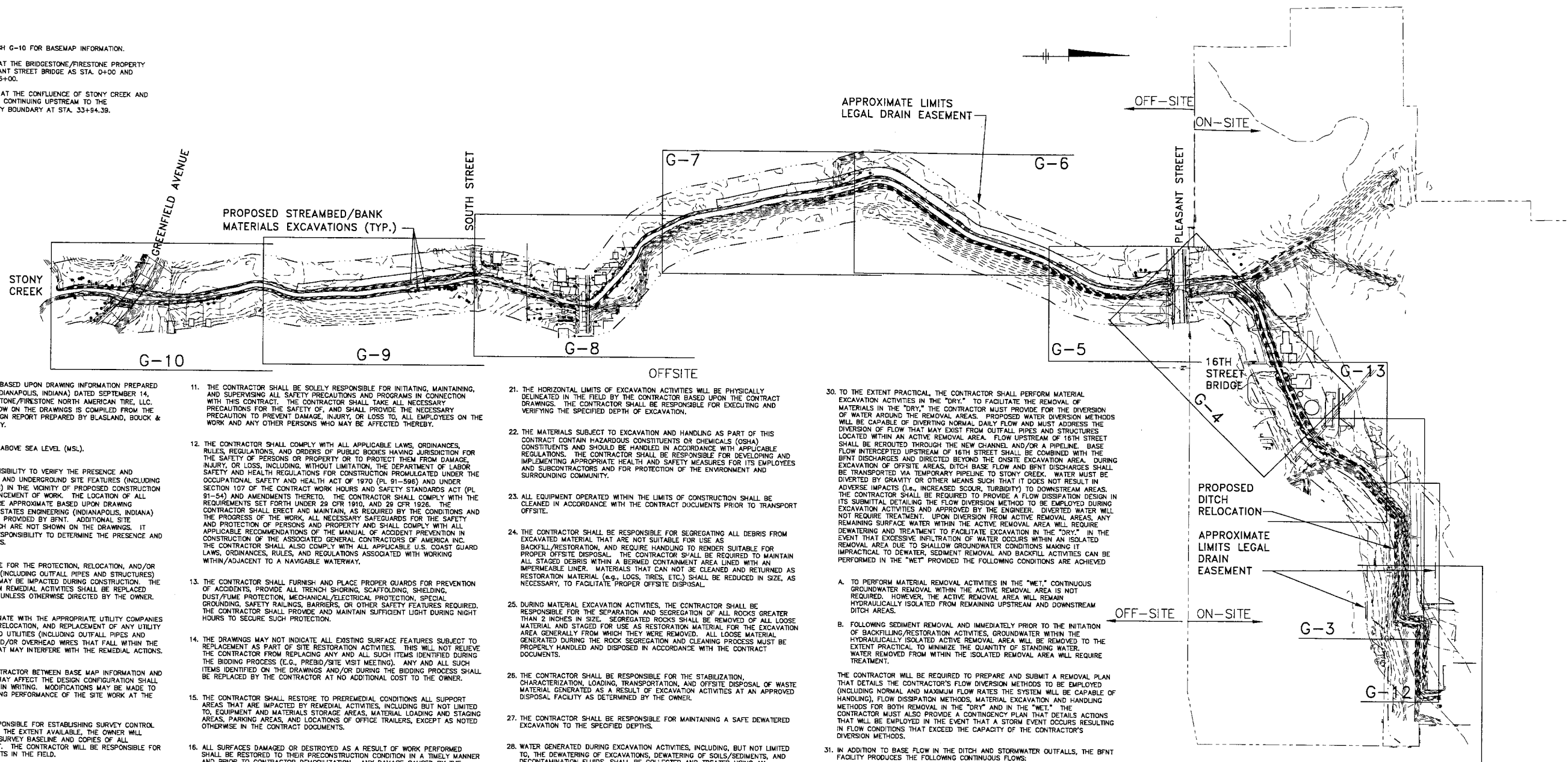
**GENERAL NOTES:**

- BASE MAPPING WAS DEVELOPED BASED UPON DRAWING INFORMATION PREPARED BY MID-STATES ENGINEERING (INDIANAPOLIS, INDIANA) DATED SEPTEMBER 14, 2001 AND PROVIDED BY BRIDGESTONE/FIRESTONE NORTH AMERICAN TIRE, LLC. (BFNT). DESIGN INFORMATION SHOWN ON THE DRAWINGS IS COMPILED FROM THE FEBRUARY 2004 PRE-FINAL DESIGN REPORT PREPARED BY BLASLAND, BOUCK & LEE, INC. (BBL) OF SYRACUSE, NY.
- ELEVATIONS PRESENTED IN FEET ABOVE SEA LEVEL (MSL).
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE PRESENCE AND LOCATION OF ALL ABOVEGROUND AND UNDERGROUND SITE FEATURES (INCLUDING OUTFALL PIPES AND STRUCTURES) IN THE VICINITY OF PROPOSED CONSTRUCTION ACTIVITIES PRIOR TO THE COMMENCEMENT OF WORK. THE LOCATION OF ALL STRUCTURES/UTILITIES SHOWN ARE APPROXIMATE BASED UPON DRAWING INFORMATION PREPARED BY MID-STATES ENGINEERING (INDIANAPOLIS, INDIANA) DATED SEPTEMBER 14, 2001 AND PROVIDED BY BFNT. ADDITIONAL SITE FEATURES MAY BE PRESENT WHICH ARE NOT SHOWN ON THE DRAWINGS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE PRESENCE AND LOCATION OF ALL SUCH FEATURES.
- THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION, RELOCATION, AND/OR MAINTENANCE OF UNDERGROUND (INCLUDING OUTFALL PIPES AND STRUCTURES) AND OVERHEAD UTILITIES WHICH MAY BE IMPACTED DURING CONSTRUCTION. THE UTILITIES RELOCATED TO PERFORM REMEDIAL ACTIVITIES SHALL BE REPLACED ALONG THE ORIGINAL ALIGNMENT UNLESS OTHERWISE DIRECTED BY THE OWNER.
- THE CONTRACTOR SHALL COORDINATE WITH THE APPROPRIATE UTILITY COMPANIES FOR THE TEMPORARY REMOVAL, RELOCATION, AND REPLACEMENT OF ANY UTILITY POLES, GUY WIRES, UNDERGROUND UTILITIES (INCLUDING OUTFALL PIPES AND STRUCTURES AS NECESSARY), AND/OR OVERHEAD WIRES THAT FALL WITHIN THE LIMITS OF CONSTRUCTION, OR THAT MAY INTERFERE WITH THE REMEDIAL ACTIONS.
- DIFFERENCES NOTED BY THE CONTRACTOR BETWEEN BASE MAP INFORMATION AND ACTUAL SITE CONDITIONS WHICH MAY AFFECT THE DESIGN CONFIGURATION SHALL BE SUBMITTED TO THE ENGINEER IN WRITING. MODIFICATIONS MAY BE MADE TO THE DESIGN CONFIGURATION DURING PERFORMANCE OF THE SITE WORK AT THE DISCRETION OF THE OWNER.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING SURVEY CONTROL TO VERIFY EXISTING GRADES. TO THE EXTENT AVAILABLE, THE OWNER WILL PROVIDE THE CONTRACTOR WITH SURVEY BASELINE AND COPIES OF ALL DRAWINGS IN ELECTRONIC FORMAT. THE CONTRACTOR WILL BE RESPONSIBLE FOR ESTABLISHING AND VERIFYING LIMITS IN THE FIELD.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ESTABLISH AND MAINTAIN CONSTRUCTION SURVEY CONTROL DURING THE PERFORMANCE OF WORK.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO ESTABLISH, MAINTAIN, AND PROTECT THE PROJECT LIMITS INCLUDING SUPPORT ZONES, BUFFER ZONES, AND CONTAMINATION REDUCTION ZONES FOR EACH AND EVERY PHASE OF WORK AS PART OF THIS CONTRACT.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO ASSIST WITH ANY NECESSARY TRAFFIC CONTROLS AND ASSIST BFNT IN IDENTIFYING/OBTAINING ANY NECESSARY PERMIT APPROVALS THAT MAY BE REQUIRED TO PERFORM THE WORK.

- THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THIS CONTRACT. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS FOR THE SAFETY OF, AND SHALL PROVIDE THE NECESSARY PRECAUTION TO PREVENT DAMAGE, INJURY, OR LOSS TO, ALL EMPLOYEES ON THE WORK AND ANY OTHER PERSONS WHO MAY BE AFFECTED THEREBY.
- THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE LAWS, ORDINANCES, RULES, REGULATIONS, AND ORDERS OF PUBLIC BODIES HAVING JURISDICTION FOR THE SAFETY OF PERSONS OR PROPERTY OR TO PROTECT THEM FROM DAMAGE, INJURY, OR LOSS, INCLUDING, WITHOUT LIMITATION, THE DEPARTMENT OF LABOR SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION PROMULGATED UNDER THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970 (PL 91-596) AND UNDER SECTION 107 OF THE CONTRACT WORK HOURS AND SAFETY STANDARDS ACT (PL 91-54) AND AMENDMENTS THERETO. THE CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS SET FORTH UNDER 29 CFR 1910, AND 29 CFR 1926. THE CONTRACTOR SHALL ERECT AND MAINTAIN, AS REQUIRED BY THE CONDITIONS AND THE PROGRESS OF THE WORK, ALL NECESSARY SAFEGUARDS FOR THE SAFETY AND PROTECTION OF PERSONS AND PROPERTY AND SHALL COMPLY WITH ALL APPLICABLE RECOMMENDATIONS OF THE MANUAL OF ACCIDENT PREVENTION IN CONSTRUCTION OF THE ASSOCIATED GENERAL CONTRACTORS OF AMERICA INC. THE CONTRACTOR SHALL ALSO COMPLY WITH ALL APPLICABLE U.S. COAST GUARD LAWS, ORDINANCES, RULES, AND REGULATIONS ASSOCIATED WITH WORKING WITHIN/ADJACENT TO A NAVIGABLE WATERWAY.
- THE CONTRACTOR SHALL FURNISH AND PLACE PROPER GUARDS FOR PREVENTION OF ACCIDENTS, PROVIDE ALL TRENCH SHORING, SCAFFOLDING, SHIELDING, DUST/FUME PROTECTION, MECHANICAL/ELECTRICAL PROTECTION, SPECIAL GRADING, SAFETY RAILINGS, BARRIERS, OR OTHER SAFETY FEATURES REQUIRED. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN SUFFICIENT LIGHT DURING NIGHT HOURS TO SECURE SUCH PROTECTION.
- THE DRAWINGS MAY NOT INDICATE ALL EXISTING SURFACE FEATURES SUBJECT TO REPLACEMENT AS PART OF SITE RESTORATION ACTIVITIES. THIS WILL NOT RELIEVE THE CONTRACTOR FROM REPLACING ANY AND ALL SUCH ITEMS IDENTIFIED DURING THE BIDDING PROCESS (E.G., PREBID/SITE VISIT MEETING). ANY AND ALL SUCH ITEMS IDENTIFIED ON THE DRAWINGS AND/OR DURING THE BIDDING PROCESS SHALL BE REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
- THE CONTRACTOR SHALL RESTORE TO PREREMEDIAL CONDITIONS ALL SUPPORT AREAS THAT ARE IMPACTED BY REMEDIAL ACTIVITIES, INCLUDING BUT NOT LIMITED TO, EQUIPMENT AND MATERIALS STORAGE AREAS, MATERIAL LOADING AND STAGING AREAS, PARKING AREAS, AND LOCATIONS OF OFFICE TRAILERS, EXCEPT AS NOTED OTHERWISE IN THE CONTRACT DOCUMENTS.
- ALL SURFACES DAMAGED OR DESTROYED AS A RESULT OF WORK PERFORMED SHALL BE RESTORED TO THEIR PREREMEDIAL CONDITION IN A TIMELY MANNER AND PRIOR TO CONTRACTOR DEMOBILIZATION. ANY DAMAGE CAUSED BY THE CONTRACTOR NOT INDICATED IN THE WORK SHALL BE REPAIRED TO PREHISTORIC CONDITIONS AT NO ADDITIONAL COST TO THE OWNER.
- THE CONTRACTOR SHALL CONTROL DUST AND VAPORS THAT RESULT FROM THE REMEDIAL ACTIVITIES IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS.
- SILT FENCING, SILT CURTAIN, AND OTHER SEDIMENT AND EROSION-CONTROL MEASURES SHALL BE ESTABLISHED AND MAINTAINED BY THE CONTRACTOR AS APPROPRIATE TO CONTROL SEDIMENT/PARTICULATE OFFSITE MIGRATION. REFER TO DETAILS ON SHEET G-15.
- REFER TO SHEET G-11 FOR WORK AREAS AVAILABLE FOR USE BY THE CONTRACTOR DURING REMEDIAL ACTIVITIES.
- THE CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL ABOVEGROUND DEBRIS, BRUSH, LOGS, TREES, STUMPS, REFUSE, AND RUBBISH FROM WITHIN CONTRACTOR PROJECT LIMITS, AS REQUIRED TO PERFORM THE WORK.

- THE HORIZONTAL LIMITS OF EXCAVATION ACTIVITIES WILL BE PHYSICALLY DELINEATED IN THE FIELD BY THE CONTRACTOR BASED UPON THE CONTRACT DRAWINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR EXECUTING AND VERIFYING THE SPECIFIED DEPTH OF EXCAVATION.
- THE MATERIALS SUBJECT TO EXCAVATION AND HANDLING AS PART OF THIS CONTRACT CONTAIN HAZARDOUS CONSTITUENTS OR CHEMICALS (OSHA) CONSTITUENTS AND SHOULD BE HANDLED IN ACCORDANCE WITH APPLICABLE REGULATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DEVELOPING AND IMPLEMENTING APPROPRIATE HEALTH AND SAFETY MEASURES FOR ITS EMPLOYEES AND SUBCONTRACTORS AND FOR PROTECTION OF THE ENVIRONMENT AND SURROUNDING COMMUNITY.
- ALL EQUIPMENT OPERATED WITHIN THE LIMITS OF CONSTRUCTION SHALL BE CLEANED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS PRIOR TO TRANSPORT OFFSITE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR SEGREGATING ALL DEBRIS FROM EXCAVATED MATERIAL THAT ARE NOT SUITABLE FOR USE AS BACKFILL/RESTORATION, AND REQUIRE HANDLING TO RENDER SUITABLE FOR PROPER OFFSITE DISPOSAL. THE CONTRACTOR SHALL BE REQUIRED TO MAINTAIN ALL STAGED DEBRIS WITHIN A BERMED CONTAINMENT AREA LINED WITH AN IMPERMEABLE LINER. MATERIALS THAT CAN NOT BE CLEANED AND RETURNED AS RESTORATION MATERIAL (E.G., LOGS, TIRES, ETC.) SHALL BE REDUCED IN SIZE, AS NECESSARY, TO FACILITATE PROPER OFFSITE DISPOSAL.
- DURING MATERIAL EXCAVATION ACTIVITIES, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SEPARATION AND SEGREGATION OF ALL ROCKS GREATER THAN 2 INCHES IN SIZE. SEGREGATED ROCKS SHALL BE REMOVED OF ALL LOOSE MATERIAL AND STAGED FOR USE AS RESTORATION MATERIAL FOR THE EXCAVATION AREA GENERALLY FROM WHICH THEY WERE REMOVED. ALL LOOSE MATERIAL GENERATED DURING THE ROCK SEGREGATION AND CLEANING PROCESS MUST BE PROPERLY HANDLED AND DISPOSED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STABILIZATION, CHARACTERIZATION, LOADING, TRANSPORTATION, AND OFFSITE DISPOSAL OF WASTE MATERIAL GENERATED AS A RESULT OF EXCAVATION ACTIVITIES AT AN APPROVED DISPOSAL FACILITY AS DETERMINED BY THE OWNER.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING A SAFE Dewatered EXCAVATION TO THE SPECIFIED DEPTHS.
- WATER GENERATED DURING EXCAVATION ACTIVITIES, INCLUDING, BUT NOT LIMITED TO, THE Dewatering OF EXCAVATIONS, Dewatering OF SOILS/SEDIMENTS, AND DECONTAMINATION FLUIDS, SHALL BE COLLECTED AND TREATED USING AN APPROVED TEMPORARY WATER TREATMENT SYSTEM.
- ALL TREES ABOVE TOP OF BANK GREATER THAN 6" DIAMETER AT BREST HEIGHT (DBH) TO BE LEFT IN PLACE AND PROTECTED FROM POTENTIAL DAMAGE RESULTING FROM MATERIAL EXCAVATION ACTIVITIES. ALL OFFSITE EXISTING RIPRAP SHALL BE REMOVED TO FACILITATE REMEDIATION; CLEANED, AND RETURNED IN PLACE.

- TO THE EXTENT PRACTICAL, THE CONTRACTOR SHALL PERFORM MATERIAL EXCAVATION ACTIVITIES IN THE "DRY." TO FACILITATE THE REMOVAL OF MATERIALS IN THE "DRY," THE CONTRACTOR MUST PROVIDE FOR THE DIVERSION OF WATER AROUND THE REMOVAL AREAS. PROPOSED WATER DIVERSION METHODS WILL BE CAPABLE OF DIVERTING NORMAL DAILY FLOW AND MUST ADDRESS THE DIVERSION OF FLOW THAT MAY EXIST FROM OUTFALL PIPES AND STRUCTURES LOCATED WITHIN AN ACTIVE REMOVAL AREA. FLOW UPSTREAM OF 16TH STREET SHALL BE REDIRECTED THROUGH THE NEW CHANNEL AND/OR A PIPELINE. BASE FLOW INTERCEPTED UPSTREAM OF 16TH STREET SHALL BE COMBINED WITH THE BFNT DISCHARGES AND DIRECTED BEYOND THE ON-SITE EXCAVATION AREA. DURING EXCAVATION OF OFFSITE AREAS, DITCH BASE FLOW AND BFNT DISCHARGES SHALL BE TRANSPORTED VIA TEMPORARY PIPELINE TO STONY CREEK. WATER MUST BE DIVERTED BY GRAVITY OR OTHER MEANS SUCH THAT IT DOES NOT RESULT IN ADVERSE IMPACTS (I.E., INCREASED SCOUR, TURBIDITY) TO DOWNSTREAM AREAS. THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE A FLOW DISSIPATION DESIGN IN ITS SUBMITTAL DETAILING THE FLOW DIVERSION METHOD TO BE EMPLOYED DURING EXCAVATION ACTIVITIES AND APPROVED BY THE ENGINEER. DIVERTED WATER WILL NOT REQUIRE TREATMENT. UPON DIVERSION FROM ACTIVE REMOVAL AREAS, ANY REMAINING SURFACE WATER WITHIN THE ACTIVE REMOVAL AREA WILL REQUIRE Dewatering AND TREATMENT TO FACILITATE EXCAVATION IN THE "DRY." IN THE EVENT THAT EXCESSIVE INFILTRATION OF WATER OCCURS WITHIN AN ISOLATED REMOVAL AREA DUE TO SHALLOW GROUNDWATER CONDITIONS MAKING IT IMPRACTICAL TO Dewater, SEDIMENT REMOVAL AND BACKFILL ACTIVITIES CAN BE PERFORMED IN THE "WET" PROVIDED THE FOLLOWING CONDITIONS ARE ACHIEVED:
  - TO PERFORM MATERIAL REMOVAL ACTIVITIES IN THE "WET," CONTINUOUS GROUNDWATER REMOVAL WITHIN THE ACTIVE REMOVAL AREA IS NOT REQUIRED. HOWEVER, THE ACTIVE REMOVAL AREA WILL REMAIN HYDRAULICALLY ISOLATED FROM REMAINING UPSTREAM AND DOWNSTREAM DITCH AREAS.
  - FOLLOWING SEDIMENT REMOVAL AND IMMEDIATELY PRIOR TO THE INITIATION OF BACKFILLING/RESTORATION ACTIVITIES, GROUNDWATER WITHIN THE HYDRAULICALLY ISOLATED ACTIVE REMOVAL AREA WILL BE REMOVED TO THE EXTENT PRACTICAL TO MINIMIZE THE QUANTITY OF STANDING WATER. WATER REMOVED FROM WITHIN THE ISOLATED REMOVAL AREA WILL REQUIRE TREATMENT.
- THE CONTRACTOR WILL BE REQUIRED TO PREPARE AND SUBMIT A REMOVAL PLAN THAT DETAILS THE CONTRACTOR'S FLOW DIVERSION METHODS TO BE EMPLOYED (INCLUDING NORMAL AND MAXIMUM FLOW RATES THE SYSTEM WILL BE CAPABLE OF HANDLING), FLOW DISSIPATION METHODS, MATERIAL EXCAVATION AND HANDLING METHODS FOR BOTH REMOVAL IN THE "DRY" AND IN THE "WET." THE CONTRACTOR MUST ALSO PROVIDE A CONTINGENCY PLAN THAT DETAILS ACTIONS THAT WILL BE EMPLOYED IN THE EVENT THAT A STORM EVENT OCCURS RESULTING IN FLOW CONDITIONS THAT EXCEED THE CAPACITY OF THE CONTRACTOR'S DIVERSION METHODS.
- IN ADDITION TO BASE FLOW IN THE DITCH AND STORMWATER OUTFALLS, THE BFNT FACILITY PRODUCES THE FOLLOWING CONTINUOUS FLOWS:
  - PLANT PROCESS WATER FROM THE WASTEWATER TREATMENT PLANT; OUTFALL NORTH OF 16TH STREET = 200 TO 250 GALLONS PER MINUTE (GPM)
  - GROUNDWATER TREATMENT FACILITY; OUTFALL NORTH OF PLEASANT STREET BRIDGE = 1,200 GPM (MIN.) TO 1,600 GPM (MAX.)
- EXTENT OF EXCAVATION BASED ON SAMPLING/TESTING PERFORMED BY BFNT.
- UNITS OF EXCAVATION AND REMOVAL PROTOCOL DETERMINED BY REPRESENTATIVE OF BFNT AND ENVIRONMENTAL COUNSEL.
- ALL BANK SLOPES SHALL BE RESTORED TO A MAXIMUM SLOPE OF 2:1 (HORIZONTAL AND VERTICAL) OR AS SPECIFIED.
- TEMPORARY DITCH CROSSINGS WILL BE INSTALLED AS NECESSARY.




X: 03020X00, X01, X02.DWG  
 L: ON=\*, OFF=REF  
 P: PAGESET/PLT-CDL  
 2/23/04 SYR-B5-LJP GMS KMD  
 03020001/95SUBMT/03020001.DWG

Graphic Scale	
NOT TO SCALE	
THIS DRAWING WAS PREPARED AT THE SCALE INDICATED IN THE TITLE BLOCK. INACCURACIES IN THE STATED SCALE MAY BE INTRODUCED WHEN DRAWINGS ARE REPRODUCED BY ANY MEANS. USE THE GRAPHIC SCALE BAR IN THE TITLE BLOCK TO DETERMINE THE ACTUAL SCALE OF THIS DRAWING.	

No.	Date	AS-BUILT DRAWINGS	Revisions
1	JULY 06		

Project Mgr. --- TJ ---
Designed by --- BBL TJ ---
Drawn by --- BBL TJ ---
Checked by --- KL ---
Prof. Eng. --- TJ ---
PE License ---

AS BUILT



MAVERICK  
CONSTRUCTION Management Services, Inc.

BRIDGESTONE/FIRESTONE NORTH AMERICAN TIRE, LLC • WILSON DITCH - NOBLESVILLE TOWNSHIP, HAMILTON COUNTY, INDIANA  
 CORRECTIVE MEASURES IMPLEMENTATION  
 FINAL DESIGN REPORT

## WILSON DITCH PROPOSED REMEDIAL AREAS

File Number LE 271-23	G-1
Date APRIL 2005	
Maverick Construction Management Services, Inc. PO BOX 393 AUBURN, MA 01501 508-721-2227	

This information was gathered for input into the Hamilton County Geographic Information System (GIS). This document is considered an official record of the GIS.

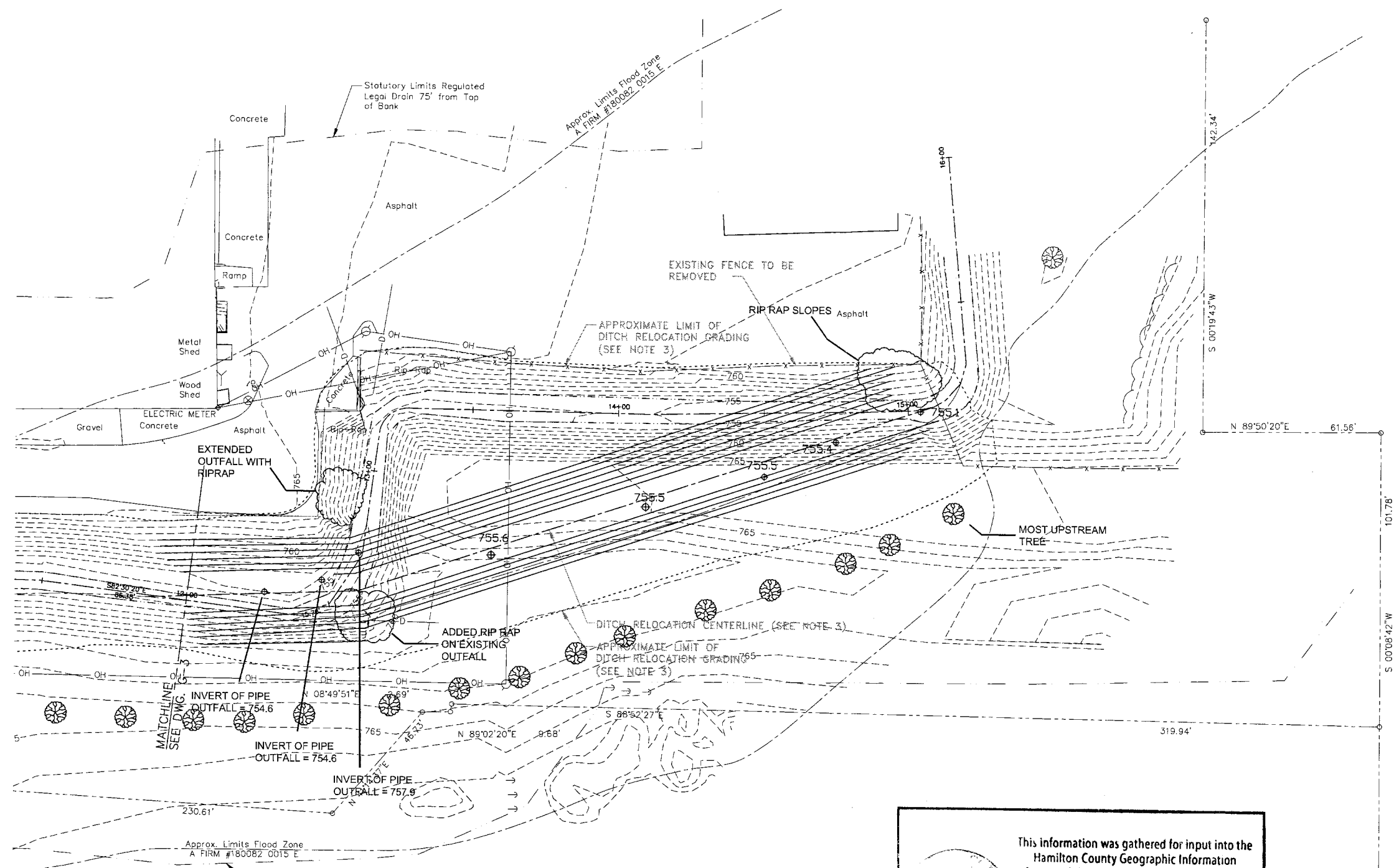
Entry Date: 2-26-08


Entered By: SLM



**LEGEND**

- ⊙ SANITARY MANHOLE
- ⊕ STORM MANHOLE
- CURB INLET
- ⊞ STORM INLET
- ⊙ POWER POLE
- ⊠ LIGHT
- ⊢ GAS LINE MARKER
- ⊙ GAS METER
- ⊙ WATER VALVE
- ⊙ WATER METER
- ⊙ FIRE HYDRANT
- ⊙ SIGN
- ⊙ MAILBOX
- ⊙ GUY ANCHOR
- ⊙ GUARD POST
- ⊙ TREE
- ⊙ MONITORING WELL LOCATION
- — — — — GUARD RAIL
- x — x — FENCE LINE
- G — GAS LINE
- OH — OVERHEAD ELECTRIC LINE
- S — SANITARY LINE
- D — STORM LINE
- — — — — TREE LINE
- 765 — — — — — ORIGINAL CONTOUR LINE
- 765 — — — — — NEW DITCH CONTOUR LINE
- — — — — CENTERLINE OF DITCH
- 12+00 — — — — — DITCH STATION ID
- — — — — PROPERTY LINE



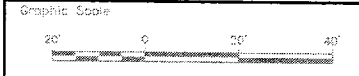

  
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Entry Date: 2-26-08

Entered By: SLM

- NOTES:**
1. DRAWING TAKEN FROM A FIGURE PREPARED BY MID-STATES ENGINEERING (INDIANAPOLIS, INDIANA) DATED SEPTEMBER 14, 2001 AND PROVIDED BY BFNT.
  2. ELEVATIONS PRESENTED IN FEET ABOVE MEAN SEA LEVEL (MSL).
  3. REFER TO DRAWING G-12 FOR ADDITIONAL DITCH RELOCATION DESIGN INFORMATION.

X: 03920402\_V01\_X02.DWG  
 U: 03920402\_V01\_P1.DWG  
 P: PAGESET/P1-02  
 2/20/04 BYR-B5-LP NES: KMD  
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THIS DRAWING WAS PREPARED AT THE SCALE INDICATED IN THE TITLE BLOCK. DIMENSIONS IN THE STATED SCALE MAY BE INTRODUCED WHEN DRAWINGS ARE REPRODUCED BY ANY MEANS. USE THE GRAPHIC SCALE BAR IN THE TITLE BLOCK TO DETERMINE THE ACTUAL SCALE OF THIS DRAWING.

No.	Date	Revisions
1	JULY 06	AS-BUILT DRAWINGS

Project Mgr. TJ  
 Designed by BBL TJ  
 Drawn by BBL TJ  
 Checked by K  
 Prof. Eng. TJ  
 PE License

AS BUILT

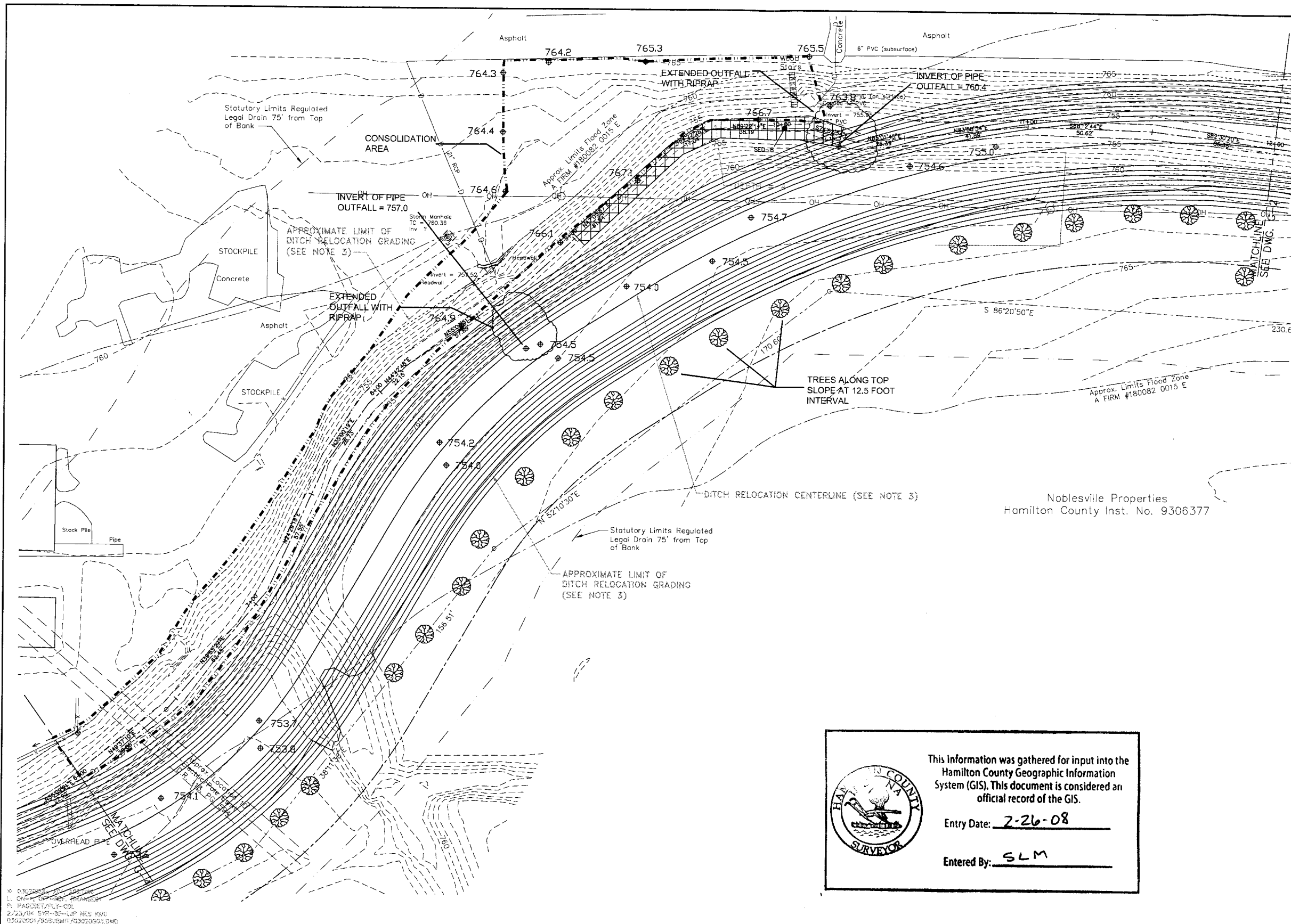


MAVERICK  
 Construction Management Services, Inc.

BRIDGESTONE/FIRESTONE NORTH AMERICAN TIRE, L.P. • WILSON DITCH - NOBLEVILLE TOWNSHIP, HAMILTON COUNTY, INDIANA  
**CORRECTIVE MEASURES IMPLEMENTATION**  
**FINAL DESIGN REPORT**  
**ON-SITE PROPOSED ACTIVITIES**  
**STATION 12+00 TO 16+00**

File Number  
 LE 271-23  
 Date  
 APRIL 2005  
 Maverick Construction  
 Management Services, Inc.  
 P.O. BOX 393  
 AUBURN, MA 01501  
 508-721-2227

G-2




- LEGEND**
- ⊕ SANITARY MANHOLE
  - ⊙ STORM MANHOLE
  - ⊖ CURB INLET
  - ⊕ INLET
  - ⊕ POWER POLE
  - ⊕ LIGHT
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  - D- STORM LINE
  - ~ TREE LINE
  - 765 NEW DITCH CONTOUR LINE
  - 765 ORIGINAL CONTOUR
  - - - CENTERLINE OF DITCH
  - 12+00 DITCH STATION ID
  - - - PROPERTY LINE
  - REMOVAL AREA
  - [Grid] BED MATERIALS TO BE REMOVED FOR OFFSITE DISPOSAL

Noblesville Properties  
Hamilton County Inst. No. 9306377

This information was gathered for input into the Hamilton County Geographic Information System (GIS). This document is considered an official record of the GIS.

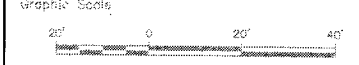
Entry Date: 2-26-08

Entered By: SLM



- NOTES:**
- DRAWING TAKEN FROM A FIGURE PREPARED BY MID-STATES ENGINEERING (INDIANAPOLIS, INDIANA) DATED SEPTEMBER 14, 2001 AND PROVIDED BY BFNT.
  - STREAM BED EXCAVATIONS TO TOE OF SLOPE. THE ACTUAL EXTENT OF EXCAVATION AND FINAL DEPTH MAY BE FURTHER REFINED BY FIELD SAMPLING DURING IMPLEMENTATION OF REMEDIAL MEASURES.
  - REFER TO DRAWINGS G-12 AND G-13 FOR ADDITIONAL DITCH RELOCATION DESIGN INFORMATION.
  - ON-SITE INDICATED MATERIALS WILL BE SUBJECT TO EXCAVATION WHERE GREATER THAN 500 PPM POLYCHLORINATED BIPHENYLS ARE PRESENT.

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L: OVERHEAD ELECTRIC LINES  
P: PAGESET/PLT-CDL  
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No.	Date	Description	By	Appr.
1	JULY 08	AS-BUILT DRAWING	KML	INT

Project Mgr: JL  
Designed by: BBL/TJ  
Drawn by: BBL/TJ  
Checked by: KL  
Prof. Eng.: JL  
PE License: \_\_\_\_\_

**AS BUILT**



BRIDGESTONE/FIRESTONE NORTH AMERICAN TIRE, LLC • WILSON DITCH • NOBLESVILLE TOWNSHIP, HAMILTON COUNTY, INDIANA

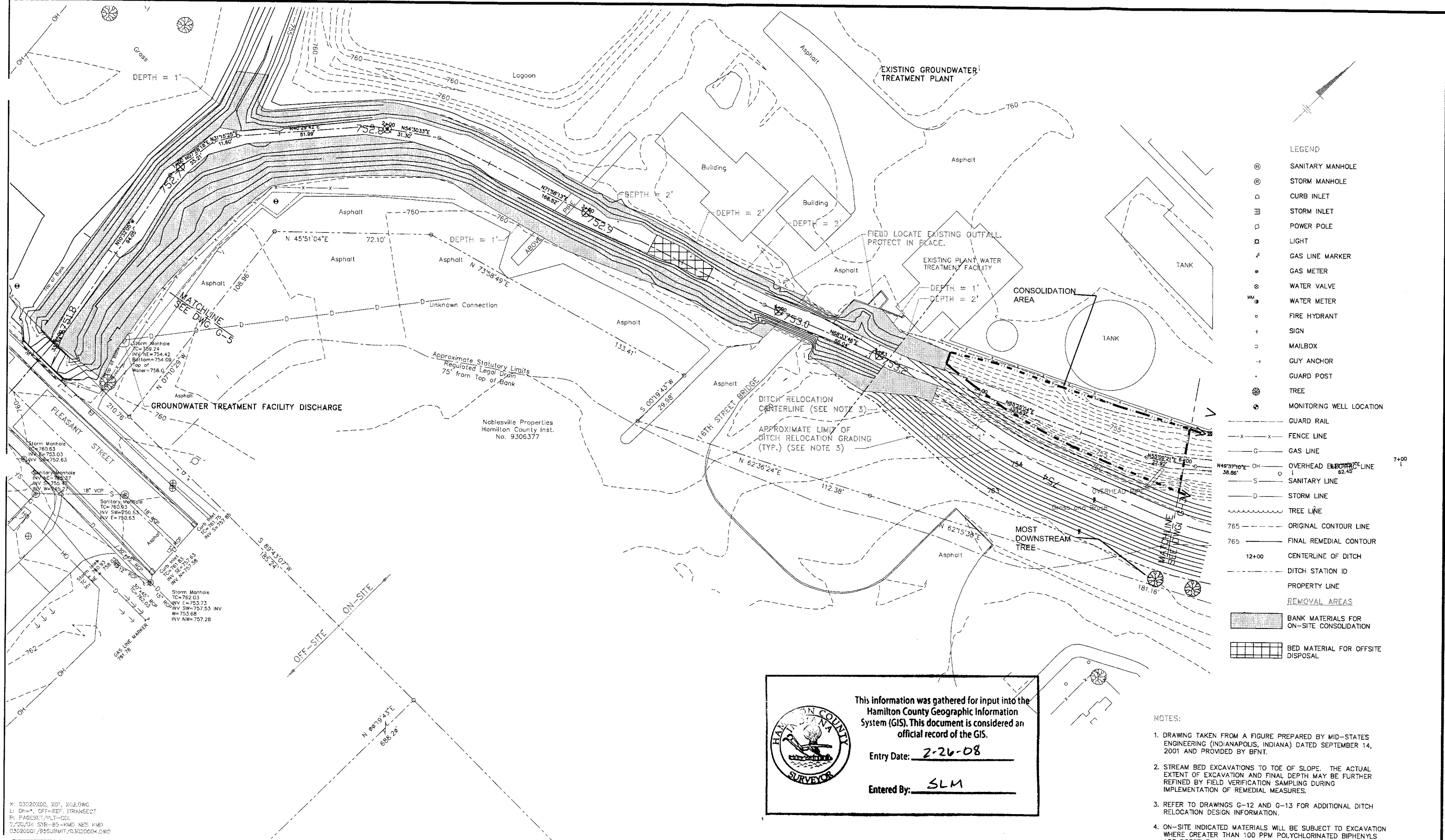
**CORRECTIVE MEASURES IMPLEMENTATION  
FINAL DESIGN REPORT**

**ON-SITE PROPOSED ACTIVITIES  
STATION 6+00 TO 12+00**

File Number  
LE 271-23

Date  
APRIL 2005

Maverick Construction Management Services, Inc.  
PO BOX 393  
AUBURN, MA 01501  
508-721-2227



- LEGEND**
- ⊕ SANITARY MANHOLE
  - ⊙ STORM MANHOLE
  - CURB INLET
  - ⊞ STORM INLET
  - ⊙ POWER POLE
  - ⊞ LIGHT
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  - ⊙ WATER METER
  - ⊙ FIRE HYDRANT
  - ⊙ SIGN
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  - ⊙ GUARD POST
  - ⊙ TREE
  - ⊙ MONITORING WELL LOCATION
  - GUARD RAIL
  - x-x- FENCE LINE
  - G- GAS LINE
  - OH- OVERHEAD ELECTRICAL LINE
  - S- SANITARY LINE
  - D- STORM LINE
  - ~ TREE LINE
  - 765 --- ORIGINAL CONTOUR LINE
  - 765 --- FINAL REMEDIAL CONTOUR
  - 12+00 --- CENTERLINE OF DITCH
  - DITCH STATION ID
  - PROPERTY LINE
  - REMOVAL AREAS**
  - █ BANK MATERIALS FOR ON-SITE CONSOLIDATION
  - █ BED MATERIAL FOR OFFSITE DISPOSAL

- NOTES:**
- DRAWING TAKEN FROM A FIGURE PREPARED BY MID-STATES ENGINEERING (INDIANAPOLIS, INDIANA) DATED SEPTEMBER 14, 2001 AND PROVIDED BY BFN.
  - STREAM BED EXCAVATIONS TO TOE OF SLOPE. THE ACTUAL EXTENT OF EXCAVATION AND FINAL DEPTH MAY BE FURTHER REFINED BY FIELD VERIFICATION SAMPLING DURING IMPLEMENTATION OF REMEDIAL MEASURES.
  - REFER TO DRAWINGS G-12 AND G-13 FOR ADDITIONAL DITCH RELOCATION DESIGN INFORMATION.
  - ON-SITE INDICATED MATERIALS WILL BE SUBJECT TO EXCAVATION WHERE GREATER THAN 100 PPM POLYCHLORINATED BIPHENYLS ARE PRESENT.

This information was gathered for input into the Hamilton County Geographic Information System (GIS). This document is considered an official record of the GIS.

Entry Date: 2-26-08

Entered By: SLM

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 L: 0400 OFF-REF. TRANSACT  
 P: PAGESET/PLT-COL  
 1/20/04 SVR-R5-KMD NKS HMD  
 03020001/05SUBMIT/03020004.DWG



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1	JULY 06	AS-BUILT DRAWINGS		

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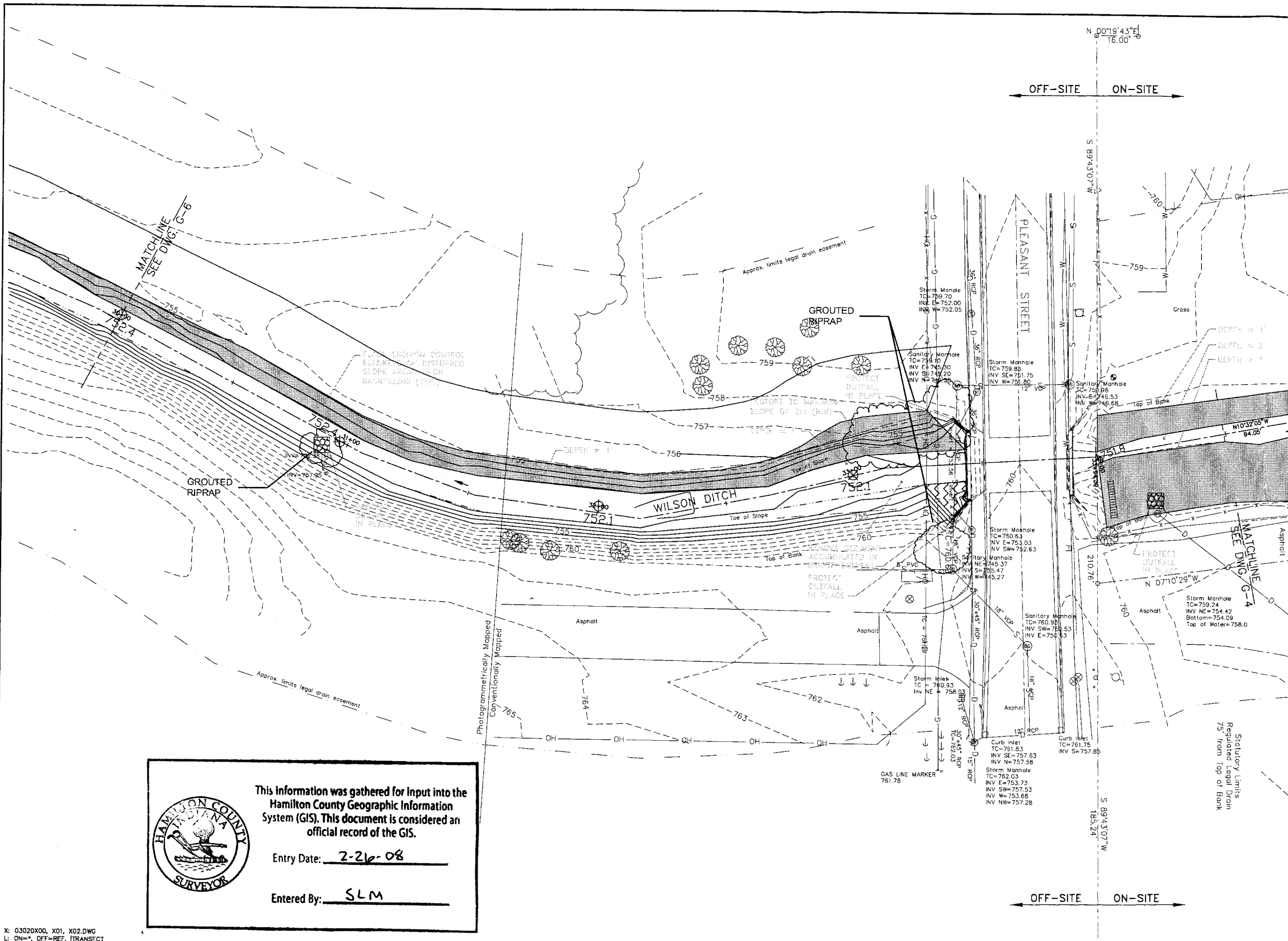


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 CORRECTIVE MEASURES IMPLEMENTATION  
 FINAL DESIGN REPORT

ON-SITE PROPOSED ACTIVITIES  
 STATION 0+00 TO 6+00

File Number  
 LE 27-23  
 Date  
 APRIL 2005  
 Maverick Construction  
 Management Services, Inc.  
 PO BOX 383  
 AUBURN, MA 01501  
 508-721-2227

G-4



- LEGEND**
- ⊕ SANITARY MANHOLE
  - ⊙ STORM MANHOLE
  - CURB INLET
  - ⊕ STORM INLET
  - POWER POLE
  - LIGHT
  - ⊕ GAS LINE MARKER
  - ⊕ GAS METER
  - ⊕ WATER VALVE
  - ⊕ WATER METER
  - ⊕ FIRE HYDRANT
  - ⊕ SIGN
  - ⊕ MAILBOX
  - ⊕ GUY ANCHOR
  - ⊕ GUARD POST
  - ⊕ TREE
  - ⊕ MONITORING WELL LOCATION
  - GUARD RAIL
  - x-x- FENCE LINE
  - G- GAS LINE
  - OH- OVERHEAD ELECTRIC LINE
  - S- SANITARY LINE
  - D- STORM LINE
  - ~ TREE LINE
  - - - ORIGINAL CONTOUR LINE
  - NEW DITCH CONTOUR LINE
  - - - CENTERLINE OF DITCH
  - 12+00 DITCH STATION ID
  - - - PROPERTY LINE
  - REMOVAL AREAS**
  - █ BANK MATERIALS FOR OFF-SITE DISPOSAL

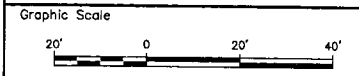
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  - STREAM BED EXCAVATIONS TO TOE OF SLOPE.
  - EXCAVATE WEST BANK TO GRADE BREAK AS SHOWN.
  - EXCAVATE ACCESS ROAD TO TREE-LINE EXCAVATE TO 25 PPM POLYCHLORINATED BIPHENYLS, COVER WITH 3 INCHES CRUSHED STONE TEMPORARILY AND RESTORE TO ORIGINAL GRADE WITH CLEAN MATERIAL AFTER BED AND BANK RESTORATION IS COMPLETED.

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 L: ON=\*, OFF=REF, |TRANSECT  
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 2/23/04 SYR-B5-KMD NES KMD  
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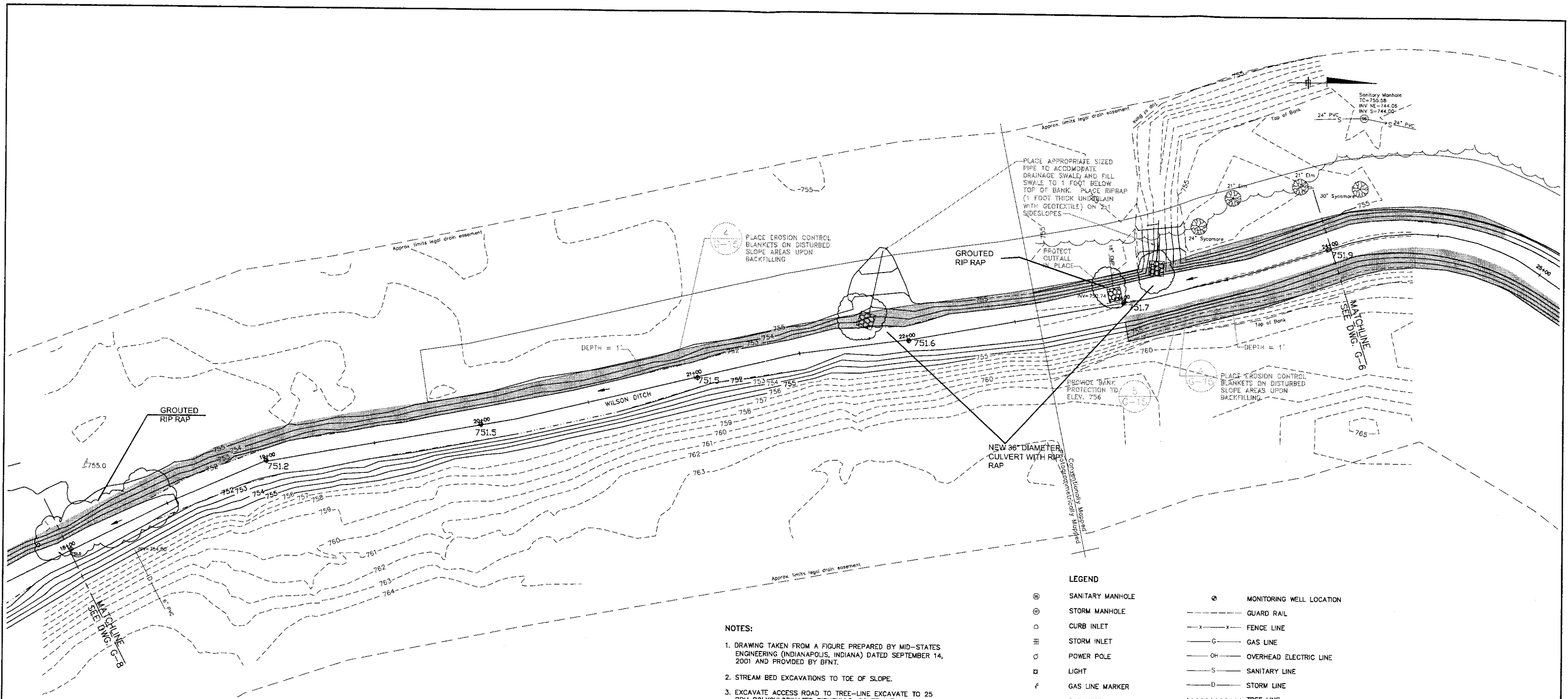
**OFF-SITE PROPOSED ACTIVITIES  
 STATION 30+00 TO 33+94**

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G-5







- NOTES:**
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  - EXCAVATE ACCESS ROAD TO TREE-LINE EXCAVATE TO 25 PPM POLYCHLORINATED BIPHENYLS, COVER WITH 3 INCHES CRUSHED STONE TEMPORARILY AND RESTORE TO ORIGINAL GRADE WITH CLEAN MATERIAL AFTER BED AND BANK RESTORATION IS COMPLETED.

**LEGEND**

⊙	SANITARY MANHOLE	⊙	MONITORING WELL LOCATION
⊙	STORM MANHOLE	—x—x—	GUARD RAIL
○	CURB INLET	—x—x—	FENCE LINE
⊞	STORM INLET	—G—	GAS LINE
⊙	POWER POLE	—OH—	OVERHEAD ELECTRIC LINE
□	LIGHT	—S—	SANITARY LINE
⊥	GAS LINE MARKER	—D—	STORM LINE
•	GAS METER	~~~~~	TREE LINE
⊙	WATER VALVE	765 - - - -	ORIGINAL CONTOUR LINE
⊙	WATER METER	765 - - - -	NEW DITCH CONTOUR LINE
⊥	FIRE HYDRANT	— — — —	CENTERLINE OF DITCH
+	SIGN	18+00	DITCH STATION ID
□	MAILBOX	— — — —	PROPERTY LINE
→	GUY ANCHOR	<b>REMOVAL AREAS</b>	
•	GUARD POST		BANK MATERIALS FOR OFF-SITE DISPOSAL
⊙	TREE		

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 2/23/04 SYR-85-LIP NES KMD  
 03020001/955SUBMIT/03020007.DWG



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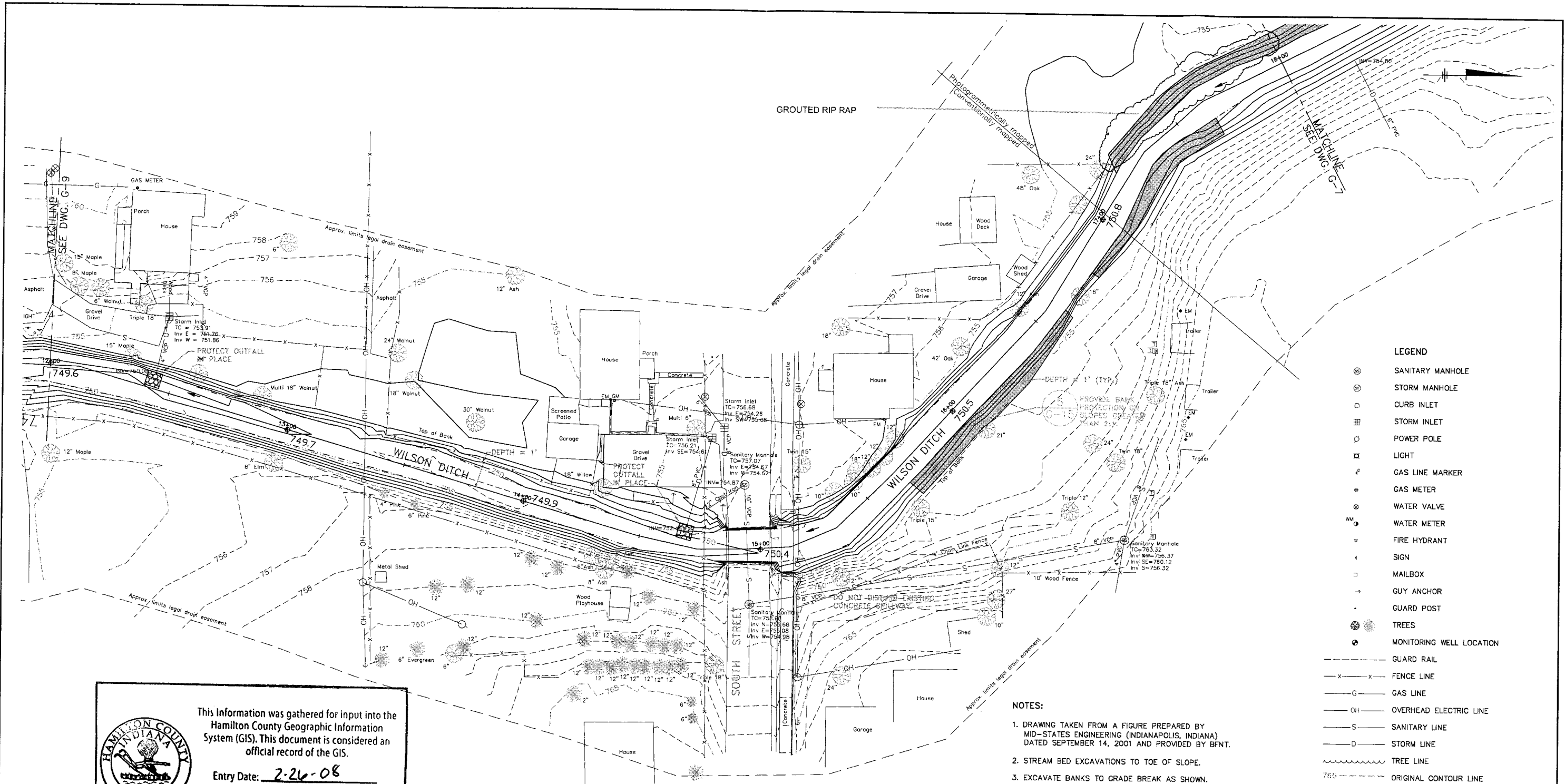


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**OFF-SITE PROPOSED ACTIVITIES  
 STATION 18+00 TO 24+00**

File Number  
 LE 271-23  
 Date  
 APRIL 2005  
 Maverick Construction  
 Management Services, Inc.  
 PO BOX 393  
 AUBURN, MA 01501  
 508-721-2227

G-7



- LEGEND**
- ⊙ SANITARY MANHOLE
  - ⊕ STORM MANHOLE
  - CURB INLET
  - ⊞ STORM INLET
  - ⊙ POWER POLE
  - LIGHT
  - f GAS LINE MARKER
  - ⊙ GAS METER
  - ⊙ WATER VALVE
  - ⊙ WATER METER
  - ⊙ FIRE HYDRANT
  - ⊙ SIGN
  - MAILBOX
  - GUY ANCHOR
  - GUARD POST
  - TREES
  - ⊙ MONITORING WELL LOCATION
  - GUARD RAIL
  - x-x- FENCE LINE
  - G- GAS LINE
  - OH- OVERHEAD ELECTRIC LINE
  - S- SANITARY LINE
  - D- STORM LINE
  - ~ TREE LINE
  - 755 --- ORIGINAL CONTOUR LINE
  - 765 --- NEW DITCH CONTOUR LINE
  - - - CENTERLINE OF DITCH
  - 12+00 DITCH STATION ID
  - - - PROPERTY LINE
  - REMOVAL AREAS**
  - █ BANK MATERIALS FOR OFF-SITE DISPOSAL

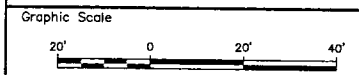
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  - EXCAVATE BANKS TO GRADE BREAK AS SHOWN.

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 2/23/04 STR-85-LIP NES KMD  
 0302001/95SUBMIT/03020G08.DWG



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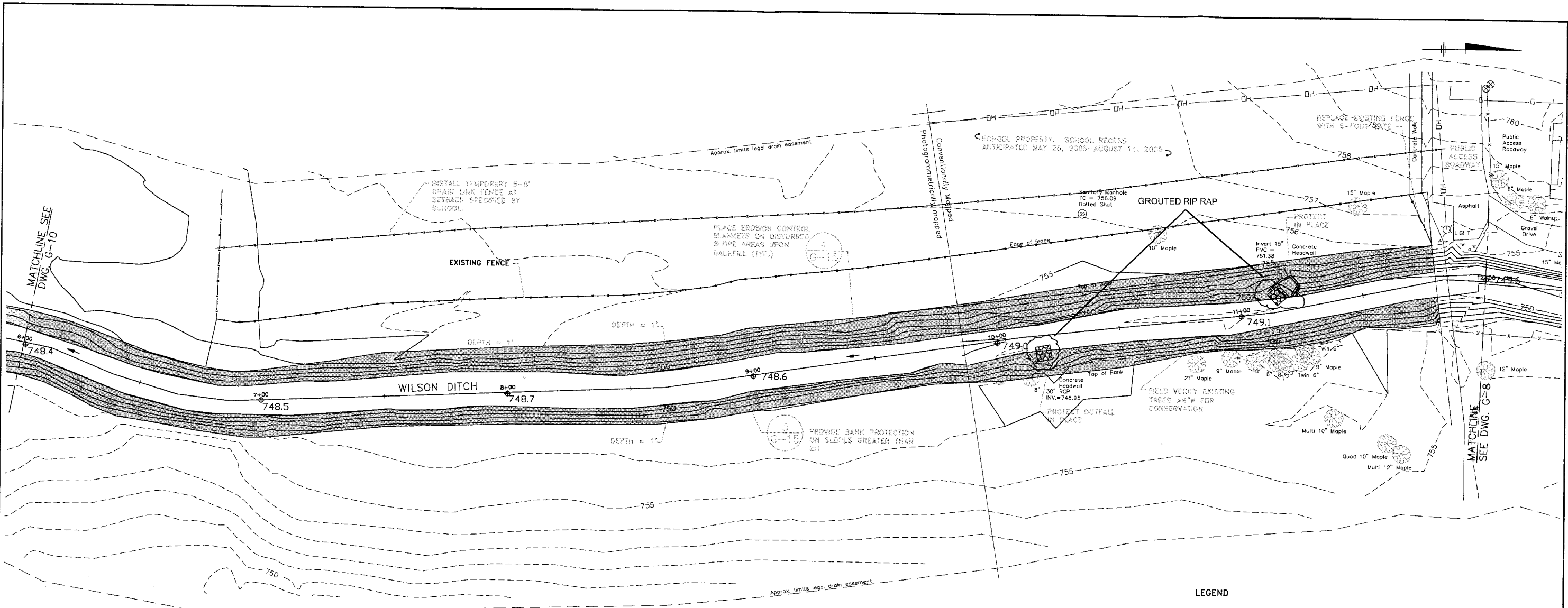


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 FINAL DESIGN REPORT

**OFF-SITE PROPOSED ACTIVITIES  
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 AUBURN, MA 01501  
 508-721-2227

G-8




**LEGEND**

- SANITARY MANHOLE
- STORM MANHOLE
- CURB INLET
- STORM INLET
- POWER POLE
- LIGHT
- GAS LINE MARKER
- GAS METER
- WATER VALVE
- WATER METER
- FIRE HYDRANT
- SIGN
- MAILBOX
- GUY ANCHOR
- GUARD POST
- TREES
- MONITORING WELL LOCATION
- GUARD RAIL
- FENCE LINE
- GAS LINE
- OVERHEAD ELECTRIC LINE
- SANITARY LINE
- STORM LINE
- TREE LINE
- ORIGINAL CONTOUR LINE
- NEW DITCH CONTOUR LINE
- CENTERLINE OF DITCH
- DITCH STATION ID
- PROPERTY LINE
- REMOVAL AREA**
- BANK MATERIALS FOR USE ON SOUTH LANDFILL

**NOTES:**

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2. STREAM BED EXCAVATIONS TO TOE OF SLOPE.
3. EXCAVATE BOTH BANKS TO GRADE BREAK AS SHOWN.
4. EXCAVATE ACCESS ROAD TO TREE-LINE EXCAVATE TO 1 PPM POLYCHLORINATED BIPHENYLS, COVER WITH 3 INCHES CRUSHED STONE TEMPORARILY AND RESTORE TO ORIGINAL GRADE WITH CLEAN MATERIAL AFTER BED AND BANK RESTORATION IS COMPLETED.


  
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 2/23/04 SYR-B5-LWP NES KMD  
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No.	Date	Revisions	KML
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 CORRECTIVE MEASURES IMPLEMENTATION  
 FINAL DESIGN REPORT

**OFF-SITE PROPOSED ACTIVITIES**  
**STATION 6+00 TO 12+00**

File Number LE 271-23  
 Date APRIL 2005  
 Maverick Construction Management Services, Inc.  
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 AUBURN, MA 01501  
 508-721-2227

G-9

**APPENDIX A**

***Corrective Measures Implementation  
Confirmatory and  
Materials Sampling Report***

***Wilson Ditch  
Noblesville, Indiana***

**Bridgestone Firestone North  
American Tire, LLC  
Nashville, Tennessee**

**July 2006**

**Counsel in  
Environmental  
Law & Science**

Confirmatory sampling and analysis for the project was performed to assure that the remediation objectives were achieved throughout the project area. Additionally, sampling and analysis of replacement materials were conducted to assure that the final constructed surfaces did not reintroduce unnatural contaminants into the system.

The sampling and analysis was performed according to the provisions of the approved project-specific Quality Assurance and Project Plan (QAPP). Confirmatory sampling was performed by Derrick Peterson, the BFNT Project Coordinator, and John Grossman, the plant environmental consultant. Laboratory analyses were performed by Heritage Environmental Services, Inc. Additionally, Derrick Peterson performed supplemental field analyses for polychlorinated biphenyls using RCRA SW-846 Method 9078 to direct additional excavation and to determine compliance with remediation objectives when field activities could not accommodate laboratory turnaround times (primarily in the retained channel). In the latter case, a representative subset of the field samples was submitted for laboratory analysis to confirm the reliability of the decisions made using the field method. Representative samples of fill dirt and topsoil were collected by Derrick Peterson and Tim Jones at the source location. Derrick Peterson collected representative samples of the soil excavated from the new channel from the stockpiles.

The following summaries describe the confirmatory sampling activities in each area:

### **New Channel**

Composite samples were collected from transects every 50 feet along the new channel. Each composite consisted of one discrete sample from the middle of each bank and one discrete sample from the middle of each half of the channel bottom. A total of ten samples were collected. The laboratory results, presented in Table A-1, show that no polychlorinated biphenyls were detected in these native materials.

### **Material over 500 PPM**

One composite sediment sample was collected at each end of the two excavation areas at the ditch surface. One composite sediment sample was also collected every 25 feet within the excavation area. The composites consisted of one discrete sample from the middle of each half of the channel. A total of seven final confirmatory samples were collected in the excavation area in the abandoned channel and a total of three

confirmatory samples were collected in the excavation area in the retained channel. The laboratory results, presented in Table A-1, show that polychlorinated biphenyls were reduced to below the excavation objective of 500 ppm total Aroclors at all locations.

### **Retained Channel**

Two discrete and one composited sample were collected from transects every 50 feet between the beginning of the retained channel and the Pleasant Street bridge. The discrete samples were collected from the excavation face midway up each ditch bank. The composite sample consisted of one discrete sample from the middle of each half of the channel. A total of 29 final confirmatory samples were collected. In order to avoid leaving the excavation faces uncovered while waiting for laboratory results, initial confirmation decisions were based on field analytical results. The field results and the results from a representative subset that was submitted for laboratory analysis are presented in Table A-2. The paired laboratory analyses demonstrate that the field method was able to reliably determine that the excavation objective of 100 ppm of total Aroclors was not exceeded. Although some field results were affected by interference from other chlorinated compounds present in the sediments, this problem would produce only false positive indications (i.e., superfluous excavation rather than inadequate excavation).

### **North and South Access Road Areas**

The north access road area was divided into 26 fifty-foot intervals. Three zones were sampled moving westward from the top of the ditch bank. The first zone consisted of the historic access road strip (i.e., the cleared and mowed area). The second zone consisted of the peripheral strip of land west of the access road zone where initial sampling revealed the presence of polychlorinated biphenyls requiring excavation. This zone was not present in the southern 150 feet of the area, where excavation beyond the access road was not needed. The third zone consisted of forest soils within five feet eastward from the excavated peripheral zone. Composite samples were collected from each access road zone in each interval. Composite samples were collected at 200-foot intervals from the other zones, although final samples were collected at 50-foot intervals in the peripheral zone once the width of the zone exceeded ten feet. In each case, the composites were

composed of five samples from randomly chosen locations within the sampled area. The results of the final composite sampling are presented in Table A-3. At all locations, the cleanup objective of 25 ppm of total Aroclors was achieved.

The south access road area was divided into 9 fifty-foot intervals. Two zones were sampled in each interval based on the location of the schoolyard fence. The access road zone consisted of the land between the fence and the top of the ditch bank. The other zone consisted of the first five feet of land west of the schoolyard fence. Composite samples were collected from each access road zone in each interval. In each case, the composites were composed of five samples from randomly chosen locations within the sampled area. The results of the final composite sampling are presented in Table A-4. At all locations, the cleanup objective of 1.0 ppm of total Aroclors was achieved.

### **Oily Sediment Area**

The oily sediment excavation area at the mouth of Wilson Ditch was divided into nine square or nearly square quadrats of approximately 100 square feet. Four samples were also collected from the periphery of the excavation area. Two of these samples were collected from the Creek bottom within three feet of the excavation edge and two were collected from the bank next to the excavation. See Figure A-1. One composite sample was collected from each quadrat and peripheral area. The composite was composed of three grab samples taken at randomly chosen locations. The results of the sampling are presented in Table A-5.

### **Materials Sampling**

The results of the materials sampling showed only natural background concentrations of metals. No volatile or semivolatile contaminants were detected in the materials, except for a trace concentration of tetrachloroethene found in the soils excavated from the new channel. A summary of the results of this testing is presented in Table A-6.

### **Analytical Issues**

Copies of all laboratory reports containing final confirmatory sampling results and materials



sampling results have been scanned and recorded on the included compact disc. In many cases, laboratory wet weight concentrations were converted to dry weight concentrations based on the mean solids content of a representative subset of soil and sediment samples, per agreement with EPA.

Heritage's performance was tested using a double-blind test sample obtained from Environmental Resource Associates (ERA). The sample (fictitious name: "UPD") was reported by Heritage at a concentration of 270 ppm of Aroclor 1248. The laboratory report for this analysis is included in the August 5 Heritage report. The certified concentration reported by ERA was 202 ppm of Aroclor 1248, with acceptance limits of 65.2 to 261 ppm. The Heritage result exceeded the actual concentration by more than 33 percent and slightly exceeded the upper acceptance limit, indicating that the Heritage laboratory results may tend to overestimate actual polychlorinated biphenyl concentrations.

**Table A-1**

**Abandoned Channel Bottom**  
(concentration objective: 500 ppm)

Sample Name	Report Date	Total Aroclors (wet-weight) (ppm)	Calculated dry- weight result (ppm)	Station	Notes
UPS	8/5/2005	13	14.9	1025	10' upstream of outfall
UPS 25	8/5/2005	25	28.7	1000	after 5' excavation (approx.)
UPS 50	8/5/2005	42	48.3	975	after 5' excavation (approx.)
UPS 75	8/5/2005	77	88.5	950	after 5' excavation (approx.)
UPS 100	8/5/2005	12	13.8	925	after 5' excavation (approx.)
UPS 125	8/5/2005	1.1	1.3	900	after 5' excavation (approx.)
UPS 150	8/5/2005	130	149.4	875	Unexcavated bottom

**Retained Channel Excavation Limits**  
(concentration objective: 500 ppm)

DNA UP	8/5/2005	16	18.4	370	upstream bottom
	Field	21.2	24.4		
DNA MID	Field	22.9	26.3	350	after 2' excavation (approx.)
DNA DN	8/5/2005	170	195.4	330	downstream bottom
	Field	229	263.2		

**New Channel Bottom and Banks**  
(concentration objective: 1 ppm)

NC 17	7/12/2005		< 1.0	975	
NC 16	7/12/2005		< 1.0	925	
NC 15	7/12/2005		< 1.0	875	
NC 14	7/12/2005		< 1.0	825	
NC 13	7/12/2005		< 1.0	775	
NC 18	8/5/2005	< 0.5	< 0.58	725	
NC 10	7/12/2005		< 1.0	675	
NC 11	7/12/2005		< 1.0	625	
NC 12	7/12/2005		< 1.0	575	
NC 19	8/5/2005	< 0.5	< 0.58	525	

**Table A-2**

**Retained Channel Bottom and Banks**  
(concentration objective: 100 ppm)

N/W Bank Samples	Bottom Samples	S/E Bank Samples	Report Date	Total Aroclors (wet-weight) (ppm)	Calculated dry-weight result (ppm)	Station
RT 2	RT 1		8/5/2005	< 0.5	< 0.58	425
			8/5/2005	< 0.5	< 0.57	425
RT 2N M1	RT 2B RT 2B		9/23/2005	22	25.3	390
			Field	14.1	16.2	390
			Field	< 5	< 5.7	390
		RT 2S	Field	< 5	< 5.7	390
RT 3N RT 3N	RT 3B M1		Field	16.1	18.5	340
			9/23/2005	1.4	1.6	340
			Field	< 5	< 5.7	340
		RT 3S MP5	Field	7.44	8.4	340
RT 4N	RT 4B		Field	< 5	< 5.8	290
			Field	< 5	< 5.7	290
			RT 4S	Field	< 5	< 5.7
RT 5N	RT 5B		Field	18.5	21.3	240
			Field	< 5	< 5.7	240
	9/23/2005		< 0.5	< 0.57	240	
			RT 5S RT 5S	Field	5.2	5.8
RT 6N	RT 6B		Field	36.4	41.8	190
			Field	6.08	6.8	190
			RT 6S	Field	6.69	7.5
RT 7N	RT 7B RT 7B		9/23/2005	< 0.5	< 0.58	140
			Field	< 5	< 5.8	140
	Field		< 5	< 5.7	140	
			RT 7S	Field	< 5	< 5.7
RT 8W RT 8W	RT 8B		Field	34.9	40.1	90
			9/23/2005	1	1.1	90
			Field	8.86	10.0	90
			RT 8E	Field	< 5	< 5.7
RT 9W	RT 9 B RT 9 B		9/23/2005	< 0.5	< 0.58	60
			Field	7.38	8.5	60
	Field		6.4	7.2	60	
			RT 9E	Field	6.09	6.8
RT 10W	RT 10B M1		Field	< 5	< 5.8	10
			Field	14.5	16.3	10
			RT 10E M1	Field	< 5	< 5.7

Table A-3

North Access Road Area

(concentration objective 25 ppm)

Forest Zone Samples (0 - 5 feet west of Periphery Zone)			Periphery Zone Samples (5 to 30 feet west of Access Road)			Access Road Zone Samples (first 15 to 20 feet west of ditch)			Station
Sample Name Report Date	Total Aroclors (wet-weight) (ppm)	Calculated dry- weight result (ppm)	Sample Name Report Date	Total Aroclors (wet-weight) (ppm)	Calculated dry- weight result (ppm)	Sample Name Report Date	Total Aroclors (wet-weight) (ppm)	Calculated dry- weight result (ppm)	(North Border) (South Border)
AR 18 20F3 10/13/2005	21	23.6	AR 18 20 P2 9/28/2005	<0.5	< 0.57	AR 20A 8/25/2005	1.4	1.6	3340 3270
AR 13 17F3 10/13/2005	18	20.2	AR 17P3 10/13/2005	10	11.2	AR 19 8/25/2005	1.3	1.5	3270 3220
AR 9 12F3 10/13/2005	22	24.7	AR 16P3 10/13/2005	2.3	2.6	AR 18 8/25/2005	<0.5	<0.57	3220 3170
AR 5 8F4 10/17/2005	5.3	6.0	AR 15P3 10/13/2005	6.7	7.5	AR 17 8/25/2005	10	11.2	3170 3120
AR 1 4F2 9/28/2005	8.6	9.7	AR 13P3 10/13/2005	0.62	0.7	AR 16 8/25/2005	<0.5	<0.57	3120 3070
AR 21 22F2 9/28/2005	18		AR 12P3 10/13/2005	8.6	9.7	AR 15A 8/25/2005	1.5	1.7	3070 3020
AR 24P 9/23/2005	6.9	7.8	AR 11P3 10/13/2005	19 8.4 (dup)	21.3 9.4 (dup)	AR 13A 8/25/2005	<0.5	<0.57	3020 2970
AR 25P 9/23/2005	3.7	4.2	AR 10P3 10/13/2005	5.8	6.5	AR 12A 8/25/2005	1.5	1.7	2970 2920
AR 26P 9/23/2005	5	5.6	AR 9P3 10/13/2005	16	18.0	AR 11 8/25/2005	13	14.6	2920 2870
			AR 8P5 10/18/2005	5.2	5.8	AR 10 8/25/2005	2.4	2.7	2870 2820
			AR 7P3 10/13/2005	9.9	11.1	AR 9 8/25/2005	5.4	6.1	2820 2770
			AR 6P3 10/13/2005	14	15.7	AR 8 8/25/2005	18	20.2	2770 2720
			AR 5P3 10/13/2005	1.8	2.0	AR 7A 8/25/2005	<0.5	<0.57	2720 2670
			AR 1 4P3 10/13/2005	9.8	11.0	AR 6 8/25/2005	3.9	4.4	2670 2620
						AR 5A 8/25/2005	<0.5	<0.57	2620 2570
						AR 4A 8/25/2005	1.6	1.8	2570 2520
						AR 3A 8/25/2005	<0.5	<0.57	2520 2470
						AR 2A 8/25/2005	0.75	0.8	2470 2420
						AR 1A 8/25/2005	0.73	0.8	2420 2370
									<b>New North Culvert</b>
			AR 21 22P 9/28/2005	12	13.5	AR 21 Field Result	< 5.0	< 5.7	3340 3290
						AR 22A Field Result	< 5.0	< 5.7	3290 3240
									<b>New South Culvert</b>
			AR 23P2 9/28/2005	11 8.1 (dup)	12.4 9.1 (dup)	AR 23CON 9/12/2005	12	13.5	3340 3290
						AR 24 9/6/2005	19	21.3	3290 3240
						AR 25 9/6/2005	3.8	4.3	3240 3190
						AR 26 9/6/2005	20	22.5	3190 3140

Table A-4

**South Access Road Area**

(concentration objective 1 ppm)

Schoolyard Samples (0 to 5 feet west of fence)			Access Road Samples (between fence and ditch)			Station
Sample Name Report Date	Total Aroclors (wet-weight) (ppm)	Calculated dry- weight result (ppm)	Sample Name Report Date	Total Aroclors (wet-weight) (ppm)	Calculated dry- weight result (ppm)	(North Border) (South Border)
AR 30P 10/17/2005	< 0.5	< 0.57	AR 30 10/18/2005	< 0.5	< 0.57	1170 1220
AR 31P 10/17/2005	< 0.5	< 0.57	AR 31A 11/1/2005	< 0.5	< 0.57	1220 1170
AR 32P 10/17/2005	< 0.5	< 0.57	AR 32 10/18/2005	< 0.5	< 0.57	1170 1120
AR 33P 10/17/2005	< 0.5	< 0.57	AR 33A 11/1/2005	< 0.5	< 0.57	1120 1070
AR 34P 10/17/2005	< 0.5	< 0.57	AR 34 10/18/2005	0.55	0.6	1070 1020
AR 35P 10/17/2005	< 0.5	< 0.57	AR 35 10/18/2005	0.83	0.9	1020 970
AR 36P 10/17/2005	< 0.5	< 0.57	AR 36A 11/1/2005	< 0.5	< 0.57	970 920
AR 37P 10/17/2005	< 0.5	< 0.57	AR 37 10/18/2005	0.5	0.6	920 870
AR 38 P 10/17/2005	< 0.5	< 0.57	AR 38 10/18/2005	< 0.5	< 0.57	870 820

**Table A-5****Wilson Ditch Mouth Area**

Sample Name	Report Date	Total Aroclors (dry-weight) (ppm)	Notes
SC 1	11/10/2005	0.78	after 2' excavation (approx.)
SC 2	11/10/2005	7.6	after 2' excavation (approx.)
SC 3	11/10/2005	< 0.63	after 2' excavation (approx.)
SC 4	11/10/2005	< 0.62	after 2' excavation (approx.)
SC 5	11/10/2005	< 0.66	after 2' excavation (approx.)
SC 6	11/10/2005	6	after 2' excavation (approx.)
SC 7	11/10/2005	< 0.66	after 2' excavation (approx.)
SC 8	11/10/2005	< 0.71	after 2' excavation (approx.)
SC 9	11/10/2005	1.5	after 2' excavation (approx.)
SCB 1	11/10/2005	3	bottom at periphery of excavation
SCB 2	11/10/2005	0.67	bottom at periphery of excavation
SCB 3	11/10/2005	< 0.6	bank at periphery of excavation
SCB 4	11/10/2005	< 0.71	bank at periphery of excavation

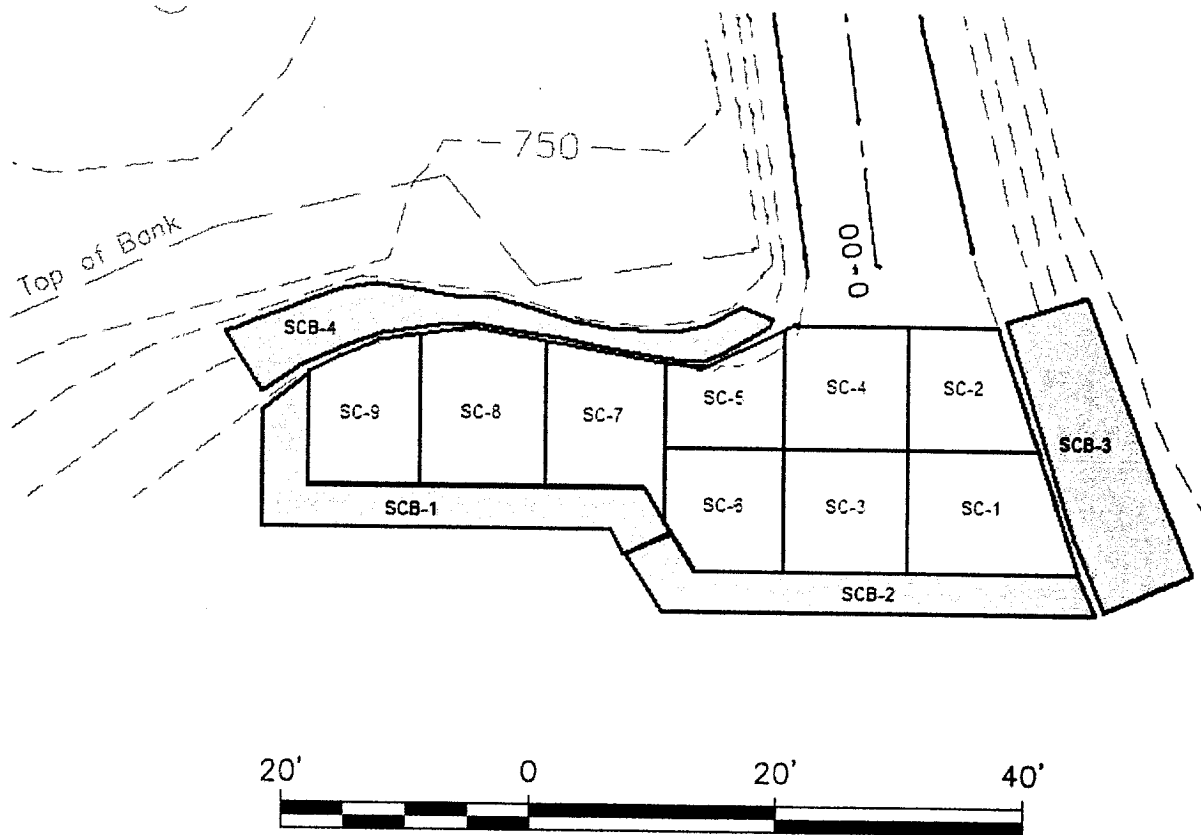
Table A-6

Materials Sampling Summary

Material Sampled	Sample ID	Report Date	PCBs	VOCs	SVOCs	TCLP Metals	Hydrocarbons	Notes
Cavanaugh Topsoil	Topsoil-1	6/3/2005	All BDL	All BDL	All BDL	Barium (0.52 mg/l), rest BDL	All BDL	
Cavanaugh Fill Soil	Fill-C2	6/3/2005	All BDL	All BDL	All BDL	Barium (0.70 mg/l), rest BDL	All BDL	
Beaver Gravel Fill Soil	Beaver	7/7/2005	All BDL	All BDL	All BDL	Barium (0.84 mg/l), rest BDL	All BDL	
Clay from New Channel	OnSite Clay Backfill	7/7/2005	All BDL	PCE only	All BDL	Barium (0.41 mg/l), rest BDL	All BDL	Tetrachloroethene (PCE) concentration 18 ppb
Dirt from New Channel	OnSite Dirt Backfill	7/7/2005	All BDL	All BDL	All BDL	Barium (0.36 mg/l), rest BDL	All BDL	
Beaver Gravel Fill Soil	Beaver2	10/27/2005	All BDL	MeCL only	All BDL	Barium (0.64 mg/l), rest BDL	All BDL	Methylene Chloride (MeC) Concentration 6.2 ppb (result flagged for blank contamination with MeC)

Figure A-1

Ditch Mouth Sampling Locations





**Laboratory Reports are Located in the Original Binder  
Binder is stored in the Locked Regulated Drain Files.**

**Suzanne L. Mills  
April 25, 2008**