

FINAL SUMMARY REPORT
FOR
CRUM'S BROOK RESTORATION
AREA C INTERIM REMEDIAL MEASURE
IN
TOWN OF ISLIP, NEW YORK

Prepared for:

KEYSPAN CORPORATION
1 METROTECH CENTER
BROOKLYN, NEW YORK



Prepared by:

FOSTER WHEELER ENVIRONMENTAL CORPORATION
1000 THE AMERICAN ROAD
MORRIS PLAINS, NEW JERSEY

NOVEMBER 2002

CERTIFICATION

Pursuant to Order on Consent Index No. D1-0001-98-11 (Section 5.E.1)

Regarding the Summary Report for Crum's Brook Restoration, Area C Interim Remedial Measure, dated November 2002 for the former Bayshore Manufactured Gas Plant site located in Islip, New York:

"I certify that the activities were completed in accordance with the final Remediation Work Plan, any Department-approved modification to the final Remediation Work Plan any Department-approved detail, document, or specification prepared by or on behalf KeySpan Corporation pursuant thereto, and this Order."

FOSTER WHEELER ENVIRONMENTAL CORPORATION

Geoffrey P. King, PE
Type/Printed Name

Engineering Supervisor
Title

Geoffrey P. King
Signature

Nov 4, 2002
Date

080339-1 Expires 9/30/05
NY State PE Stamp and Seal/Expiration Date

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1.0 INTRODUCTION

This report presents the interim remedial measure (IRM) undertaken to remove sediments potentially contaminated with Manufactured Gas Plant (MGP) residual materials and to enhance the existing brook channel by improving its flow characteristics and aesthetics.

1.1 SUMMARY OF REMEDIAL ACTIVITIES

Crum's Brook was improved over an approximate 1,400 foot long span between Union Boulevard and Mechanicville Road. An area location map is provided in **Figure 1-1**. The restoration provides a uniform, non-eroding stream cross section. Prior to improvement, a minimum of one (1) foot of sediment was excavated from the brook bed throughout the stream's width (as it existed at the time of remedial activities). To improve the flow characteristics of the brook, a nominal three (3) inch diameter stone lining underlain by filter fabric was installed in the brook invert to convey low flow conditions. The banks were cut to a consistent 2:1 slope and were overlain with erosion control matting and temporary winter rye grass to stabilize the banks during high flow events. Because the channel restoration work was completed in late fall (a non-optimum planting season) and construction activities were still scheduled to take place in support of the adjacent development, no final landscaping was installed at the end of the IRM. Shrubs were installed during the fourth quarter of 2001, and a wildflower seed mix will be applied during the upcoming planting season.

The construction has improved the brook's flow characteristics and enhanced its aesthetics. The restored brook banks and adjacent upland area will provide an improved natural amenity that will be an asset to the community. The project has improved the quality of the habitat surrounding the brook, thereby supporting a more diverse mixture of plants and wildlife.

This IRM was implemented as part of KeySpan's environmental program at the Bayshore/Brightwaters former Manufactured Gas Plant (MGP) site under an Order on Consent with the New York State Department of Environmental Conservation (NYSDEC), Index No. DI-0001-98-11.

1.2 SITE BACKGROUND

KeySpan retained Foster Wheeler Environmental Corporation (FWENC) to conduct an IRM at Crum's Brook, near the former Bayshore MGP site. From the 1920's, the Bayshore MGP discharged process wastewater from a skimming basin overflow through a pipe which runs east along Oak Street to a basin (cesspool). This pipe was previously terminated during plant demolition. The location of the former cesspool is near the northwestern corner of the Long Island Rail Road (LIRR) parking lot adjacent to the northeastern corner of an former oil terminal property. This area is noted as Area A on **Figure 1-2**.

It is believed that this cesspool overflowed to a storm water drainage culvert. The drainage culvert runs south, beneath a Town of Islip parking lot, adjacent to the LIRR

Bayshore Station, crosses under the LIRR right of way and discharges to the open brook south of the LIRR tracks. This area is considered to be the headwaters of Crum's Brook. Based on a review of historic Sanborn maps, a pond once existed in this area as depicted on maps dated 1915, 1925, 1949, and 1969. It appears that sometime after 1969, the pond was filled in and only a drainage ditch, or open creek channel, exists today. This area is noted as Area B on **Figure 1-2**.

From the former pond area the open brook channel extends southward under Union Boulevard and continues adjacent to a residential home paralleling Smith Avenue. This section of the brook was heavily debris laden, the surrounding areas were overgrown with weeds and other vegetation, and the brook lacked a definite channel. This portion of the site is noted as Area C on **Figure 1-2**, and is the section this IRM addressed. The brook channel runs south to Mechanicville Road and continues under it. Crum's Brook eventually flows into Watchogue Creek, a tributary to the Great South Bay.

For purposes of the Voluntary Cleanup Agreement, the Bayshore/Brightwaters former MGP site includes the historic cesspool located along Oak Street and the portion of Crum's Brook flowing beneath the parking lot at the LIRR train station south to its intersection with Mechanicville Road. Again, this IRM only addressed Area C.

1.3 ORGANIZATION OF THE SUMMARY REPORT

This report is organized into four main sections augmented by seven appendices:

INTRODUCTION – This section contains a summary of the remedial activities, a brief background of the site, and the overall purpose of the project.

REMEDIAL ACTIVITIES – This section is broken down by each phase of construction, and explains what activities took place during each respective phase.

CHRONOLOGY OF EVENTS – This section lists the major events that took place from contamination to remediation at the site.

PROJECT PHOTO-DOCUMENTATION – This section provides an overview of remedial activities at the site chronologically through the use of photographs.

APPENDIX A: DAILY FIELD REPORTS - includes all of the daily reports completed for the project from September 28, 2000 to November 20, 2000.

APPENDIX B: NON-HAZARDOUS WASTE DISPOSAL DOCUMENTATION - Includes the non-hazardous waste manifests and disposal facility incoming load tickets for the transport and disposal of the excavated sediment.

APPENDIX C: DISPOSAL CHARACTERIZATION ANALYTICAL SAMPLE RESULTS - Contains analytical results of sediment and ground water samples taken at Crum's Brook during the IRM.

APPENDIX D: AS-BUILT DRAWINGS - Contains drawings of the completed project signed by a professional engineer.

APPENDIX E: PERMITS / APPROVALS - Includes an August 25, 2000 letter from the NYSDEC to KeySpan stating that no Department issued permits would be necessary for any work completed in connection with the Order on Consent Index #D1-0001-98-11. This section also includes the September 21, 2000 Town of Islip Department of Planning and Development Wetlands and Watercourses Permit.

APPENDIX F: MATERIAL CERTIFICATIONS - This appendix contains certification that the materials used for this project met all applicable project requirements. These materials included stone, topsoil, grass seed, and fertilizer.

APPENDIX G: FINAL SITE RESTORATION PLANTING SCHEME - This appendix contains a drawing depicting the Stream Enhancement Planting Plan and Planting Details.

2.0 REMEDIAL ACTIVITIES

Remedial activities were performed by the Lewis Environmental Group under Foster Wheeler Environmental management and direction. The project was divided into the following phases:

2.1 MOBILIZATION

Mobilization to the site required the setting up of temporary facilities such as decontamination facilities and a HDPE lined mixing pad (for sediment drying / dewatering activities) adjacent to the brook on the South Wind Village Development Site. Installation of the surface water diversion system, and sediment and erosion control measures also took place during this phase.

2.2 SITE PREPARATION

Preparations for the performance of the specified work included clearing and grubbing of the brook, banks, and uplands to support restoration activities; chipping / shredding of vegetation (trees larger than six (6) inches were left in place); removal of debris from within the brook and uplands working area; and the decontamination of debris.

2.3 DEWATERING

Dewatering was completed successfully in sections by placing check dams at one hundred to two hundred foot intervals and rerouting the water downstream through the use of hoses, pumps, and an above ground piping system.

2.4 BROOK SEDIMENT EXCAVATION / DRYING

This phase was also conducted in sections and included the removal of a minimum of one (1) foot vertically of sediment using an excavator from the entire length of the brook between Union Boulevard and Mechanicville Road (approximately 1400 feet long) and 2.5 feet to both sides of the existing stream centerline (or bank, if closer). The sediment was transported on-site from the excavation area to the sediment mixing pad. Pre-excavation dewatering was so successful that a mixing agent was not necessary for the sediment to be disposed of off-site.

2.5 OFF-SITE TRANSPORT AND DISPOSAL OF SEDIMENT

Off-site transport was provided by Horwith Trucking Inc., and disposal was by Clean Earth of New Castle Inc., New Castle Delaware. A total of 251.05 tons of non-hazardous material were disposed of.

2.6 FINAL CHANNEL GRADING / CONSTRUCTION OF THE STREAMBED

The streambed was composed of a non-woven filter fabric overlain by a woven filter fabric, and six inches of 3" D50 stone. Stream side slopes maintained a uniform 2:1 ratio and were overlain with a biodegradable stabilization mat keyed into the stone stream bed and the top of the slope and underlain by a minimum of six (6) inches of top soil. Grading along the eastern extent provided a smooth transition with as minimal as practical disturbance to the existing property.

2.7 LANDSCAPING

Landscaping activities included the placement of a minimum of six (6) inches of top soil over the brook uplands five (5) feet from the high water mark on the west bank and five (5) feet from the high water mark on the eastern bank, and seeding of these areas with a temporary winter rye grass mixture.

2.8 FINAL SITE RESTORATION AND DEMOBILIZATION

This final phase consisted of the removal of all temporary construction facilities, removal of sediment and erosion control measures (on the east side only), and the restoration of the work area to its original condition. Silt fencing and hay bales were left in place on the western bank because the transition to final grade adjacent to the South Wind Village property would not be achieved until construction of the development was completed. Once the construction phase of the South Wind Village development was completed, the stream enhancement planting plan was implemented. During the fourth quarter of 2001, shrubs were planted along the brook in accordance with **Appendix G**. The northeast wildflower seed mix will be applied during the upcoming planting season.

3.0 CHRONOLOGY OF EVENTS

Circa 1920's-early1970's	The Bayshore MGP discharged storm water drainage and treated process wastewater as described in Section 1.2 (SITE BACKGROUND)
Nov 1998	KeySpan entered into an Order on Consent, Index DI-0001-98-11 with NYSDEC.
1998-2000	Dvirka and Bartilucci performed Remedial Investigation) on behalf of KeySpan.
Sept 2000	Foster Wheeler Environmental Corporation prepares Work Plan for IRM Area C on behalf of KeySpan
Sept 2000	KeySpan receives NYSDEC approval of Work Plan
Sept 21, 2000	Town of Islip Department of Planning and Development approves Wetlands and Watercourses Permit
Sept 28- Nov 20, 2000	Remedial Activities take place at Crum's Brook
Nov 20, 2000	IRM Area C Remedial Activities Completed
4th QTR 2001	Implemented Stream Enhancement Planting Plan (Shrub Areas)

4.0 PROJECT PHOTO-DOCUMENTATION

The following photographs depict the activities, which took place to restore Crum's Brook.

BEFORE:



Before remedial activities took place, much of the channel was overgrown and poorly developed.



Debris was found in and near the brook.

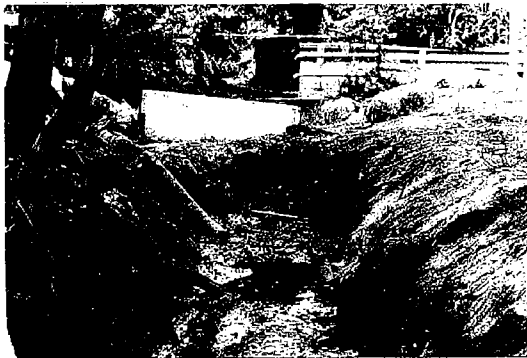


Makeshift retaining walls were found in neighborhood yards.

DURING:



Erosion control measures were put in place after clearing and grubbing in the channel corridor.



Check dams were placed in sections of the brook, and water was routed downstream of restoration activities through the use of hoses, pumps, and piping.



After a section was dewatered, a minimum of twelve (12) inches of sediment from the brook channel was removed, placed in a temporary drying pad, and properly disposed of as non-hazardous material.



After the new channel was formed, an erosion control mat was placed over filter fabric. A minimum of six (6) inches of 3" diameter stone was placed on top of the mat where the brook now flows.



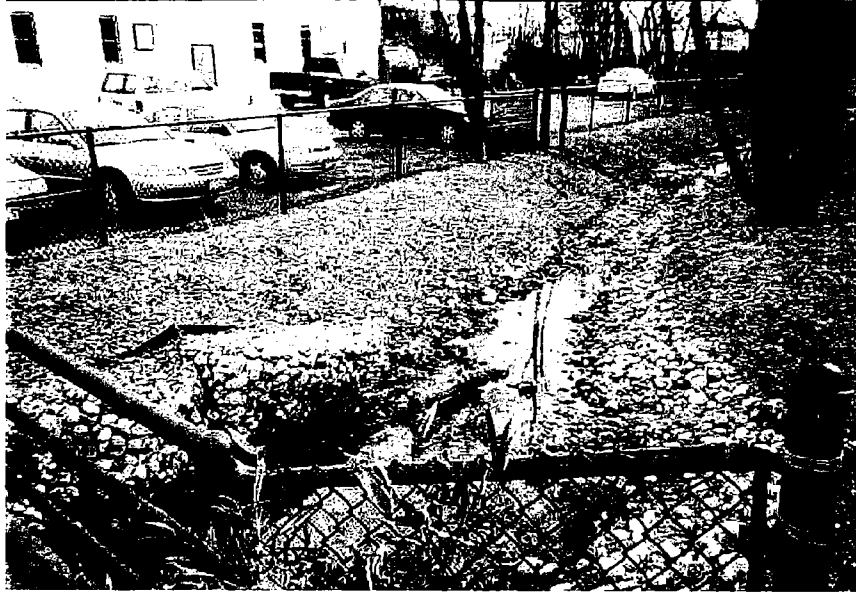
Minimal trees were removed when restoring the channel, as shown here with the stream being slightly rerouted to preserve the tree's roots.

UPON COMPLETION OF IRM ACTIVITIES:



Once the Crum's Brook restoration was completed, erosion control measures were left in place on the development side of the brook. The fence and hay bales will be removed by others when construction activities for the South Wind Village Development cease.

**CURRENT SITE PHOTOGRAPHS (TAKEN
FEBRUARY 2002)**







ADDITIONAL CONSTRUCTION PHOTOGRAPHS:



























