

**Wellsville-2000-01**

# **OPERATIONS AND MAINTENANCE MANUAL**

**FOR LOCAL FLOOD PROTECTION  
ON THE GENESEE RIVER  
AT WELLSVILLE NEW YORK**



**DEPARTMENT OF THE ARMY  
BUFFALO DISTRICT, CORPS OF ENGINEERS  
1776 NIAGARA STREET  
BUFFALO, NEW YORK 14207-3199  
JANUARY 2000**



**US Army Corps  
of Engineers®  
Buffalo District**

DEPARTMENT OF THE ARMY  
Buffalo District, Corps of Engineers  
1776 Niagara Street  
Buffalo, New York 14207

Operation and Maintenance Manual  
for  
Local Flood Protection Project on  
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## PREFACE

Construction of the Wellsville, New York, flood protection project under the direction of the Corps of Engineers has been completed and the State of New York has accepted transfer of the project. This manual has been compiled to assist State officials in complying with the regulations for operation and maintenance of the flood control works as prescribed by the Secretary of the Army in conformance with Section 3 of the 22 June 1936 Flood Control Act, as amended.

The manual and appendices contain copies of approved regulations, maps, drawings, and references pertinent to the operation and maintenance of the project.

The project, as designed and constructed, will alleviate flooding. However, continued successful functioning of the project will depend upon the manner in which the project is maintained by responsible local officials. Serious flood damages, which could result from failure of any part of the project, can be prevented through careful inspection, proper maintenance, and the establishment of effective operational procedures.

This Operation and Maintenance Manual supersedes the Operation and Maintenance Manual for Local Flood Protection Project on the Genesee River at Wellsville, New York, dated April 1977, except for the drawings which were provided as Plates 1 to 37 in its Appendix E and which are applicable to this edition of the manual.

# GENESEE RIVER WELLSVILLE, NEW YORK OPERATION AND MAINTENANCE MANUAL

## INTRODUCTION

### 1. PROJECT AUTHORIZATION

Construction of improvements for flood control on Genesee River at Wellsville, NY, was authorized by the Flood Control Act of 1950 (Public Law 516, 81st Congress, Second Session) substantially in accordance with the recommendations of the Chief of Engineers in House Document No. 232, 81st Congress, First Session. Rectification of deficiencies to the original project was authorized in two phases. The first phase was authorized in November 1966 and the second phase in June 1975.

### 2. LOCATION

The project is located on Genesee River and Dyke Creek in the village and town of Wellsville, Allegany County, NY. The village is located 136 river miles upstream from the mouth of Genesee River and 70 miles southeast of Buffalo. The town of Wellsville surrounds the village. The Genesee River rises in Potter County, PA, and flows in a northerly direction to enter Lake Ontario at Rochester, NY. It drains 216 square miles above Dyke Creek in the village of Wellsville. Dyke Creek rises in Steuben County, NY, and flows westward to enter the Genesee River at Wellsville, draining 72 square miles. The project extends on the Genesee River 1.6 miles downstream from the mouth of Dyke Creek, upstream 1.0 miles to the south limit of the village, and on Dyke Creek from its mouth 0.75 mile upstream.

### 3. DESCRIPTION

The project from the original construction to the 1996-97 rehabilitation is summarized on the updated Project Map in Appendix A of this edition of the manual. The project works consist of channel improvements, with control and drainage structures. The channel of the Genesee River was deepened where necessary to provide uniform bottom grades with bottom widths of 100-135 feet from a point 2,700 feet downstream from Bolivar Road Bridge to the confluence with Dyke Creek, and from there with bottom widths of 100-300 feet to about 5,400 feet upstream of Dyke Creek. There was a major realignment upstream from Bolivar Road to eliminate two sharp curves with other realignments to ease curves. A concrete drop structure was constructed between Bolivar Road and Pearl Street, and steel sheet pile weirs were constructed near the village line and near the upper limit of the project. These

structures are intended to reduce high velocities, and consequent erosion. Bank protection was provided in the vicinities of these structures and at other points where scouring could be expected. Low levees were constructed in the vicinities of Pearl and State Street, between State Street to upstream of West Dyke Street, and upstream of the upstream sheet pile weir. Existing drainage facilities were altered to provide better entrances into the improved channel and to prevent backflow at high river stages.

4. The channel in Dyke Creek was also deepened to uniform bottom grades and widths of 50 to 70 feet, with a drop structure at Miller Street. As in the Genesee River, bank protection was provided and drainage structures were altered. A levee was constructed upstream of Miller Street.

## 5. PROTECTION PROVIDED

The Genesee River channel was designed for a flow of 21,500 cfs below the mouth of Dyke Creek and 17,300 cfs above the creek. The Dyke Creek channel was designed for a flow of 7,300 cfs. The project was originally designed to protect the village of Wellsville against damage from floods equal to a two-percent chance exceedence flood in the Genesee River and Dyke Creek and to reduce damages in the event a larger flood should occur on either. The improvement was extended downstream into the town of Wellsville far enough to accomplish the desired lowering of stages in the village. Latest frequency curves indicate full protection against a 2.5-percent flood. The two-percent flood has one chance in 50 years of being exceeded in any given year, while the 2.5-percent flood has one chance in 40 years of being exceeded. Peak flows on the two streams do not occur simultaneously. The modifications undertaken by the New York State Department of Transportation (NYSDOT) on the river and creek are capable of passing the design flows stated above.

## 6. CONSTRUCTION HISTORY

Construction was initiated by contract in July 1956 and was completed in February 1958. This original construction improved the channel from a point 2,700 feet north of Bolivar Road to a point 1,815 feet upstream of the former Wellsville, Addison, and Galetton (W.A.&G.) Railroad bridge. Additional bank protection was placed under contract modifications in June-July 1958 and September 1959. The latter resulted from the January 1959 flood which damaged and eroded the riprap slopes near the upstream limit on Dyke Creek and upstream of the railroad bridge on the Genesee River. The prime contractor was Gasparini Excavating Company of Peckville, PA. The project was given its final inspection before acceptance by local interests on 15 August 1958. This work was shown in the superseded April 1977 Operation and Maintenance Manual, Appendix E, Plates 1-19, which are now applicable to this edition of the manual, Appendix F. Included in Appendix F is a complete listing of these and other plates with drawing numbers and titles.

7. Two project signs, with Government-supplied Engineer Castles, were provided by contract in 1960 (contractor unknown); one was erected near the Bolivar Road bridge and the other was erected near the State Street bridge.

8. Tropical storm "Agnes" caused extensive damage to the original flood control project at Wellsville. Emergency restoration work was accomplished by plant rental and supply contract, under Public Law 99, 84th Congress, to restore the Genesee River and Dyke Creek channels to their pre-"Agnes" condition. This work involved almost the entire length of the improved river and creek channels. The work accomplished was shoal removal, replacement of compacted embankments and levees and restoration of bank stone protection where required. This work was initiated in June 1972 and was completed in November 1972.

9. Rectification work was required to improve the original project. Construction was initiated in July 1973 and completed in July 1974 by Hull-Hazzard Inc., Syracuse, NY under Contract No. DACW49-73-C-0158. The work under this contract involved channel widening and levee construction in the area between West Genesee Street and the downstream concrete drop structure. Also, in the reach of the Genesee River between State Street bridge and extending approximately 5,050 feet upstream, work involved channel widening, levee construction, placement of additional riprap, and the extension and lowering of a steel sheet pile weir. Dyke Creek work involved channel widening, levee construction and placement of additional stone protection all upstream of Miller Street. This work was shown in the superseded April 1977 Operation and Maintenance Manual, Appendix E, Plates 20-32, which are now applicable to this edition of the manual, Appendix F. Included in Appendix F is a complete listing of these and other plates with drawing numbers and titles.

10. Additional rectification work was further required and construction was started in June 1976 and completed in November 1976 by Frank DiMino Inc. of Rochester, NY under Contract No. DACW49-76-C-0059. This work involved the extension of the upstream project limits including the construction of a steel sheet pile weir, levee construction, and channel realignment and widening, and the placement of additional stone protection. Dyke Creek work involved channel excavation and placement of additional stone protection between Broad Street and Miller Street. This work was indicated in the superseded April 1977 Operation and Maintenance Manual, Appendix E, Plates 33-37, which are now applicable to this edition of the manual, Appendix F. Included in Appendix F is a complete listing of these and other plates with drawing numbers and titles.

11. The NYSDOT completed two construction contracts, in conjunction with the realignment of Routes 17 (redesignated 417) and 19, along the Genesee River and Dyke Creek. The first phase was completed in 1974 and involved the relocation of approximately

1,900 feet of the river, downstream from State Street, toward the left bank to provide room for the new highway, and the construction of a new bridge over the river connecting West Madison and Stevens Streets. The second contract, completed in 1977, involved highway construction along the river and some channel work between Bolivar Road and the confluence with Dyke Creek. Work along Dyke Creek involved channel relocation and placement of bank protection, with the construction of a new bridge over the creek near Hanover Creek. This work had been reviewed by the Buffalo District, Corps of Engineers; it did not have a detrimental effect on the existing project.

12. Emergency rehabilitation work under Public Law 99, 84th Congress, was required to repair extensive damage to project from the January 17-20, 1996 Thaw flood event. Material from eroded banks of the project, as well as farther upstream, was deposited as shoals in the channel, reducing its capacity. Initial emergency repair work (January 24-26) involved placement of riprap in two areas on 700 feet of eroded banks - left bank of Dyke Creek upstream of Miller Street (450 feet) and left bank of Genesee River near Seneca Street (250 feet). The rehabilitation work was started in November 1996 and completed in May 1997 by Haseley Consultants/Construction Inc. of Niagara Falls, NY under Contract No. DACW49-97-C-0003. Sites were designated as A and B on Dyke Creek and as C, D, F, G, H, and I on the Genesee River. This work is detailed in this edition of the manual, Appendix F, Plates 38-48. Included in Appendix F is a complete listing of these and other plates with drawing numbers and titles. This work has been included with the original project works, the two rectification projects, and NYSDOT's modifications on the updated Project Map in Appendix A of this edition of the manual.

13. Several local projects, which occurred in the vicinity of the flood control project since the April 1977 edition of the manual, include:

- a. Route 417 (Bolivar Road) bridge replacement over the Genesee River in 1987,
- b. Levee construction with riprap protection on Dyke Creek beyond the upstream limit of the project by U.S. Soil Conservation Service in 1992,
- c. South Main Street bridge replacement over Dyke Creek in 1992, and
- d. "Riverwalk" shopping center construction at the southwestern corner of the intersection of Genesee River and Route 417 (Bolivar Road) by L.C. Whitford Co., Inc. in 1994.



## LOCAL COOPERATION

### 14. GENERAL

Requirements of local cooperation provide in part that local interests give assurances satisfactory to the Secretary of the Army that they will prescribe and enforce regulations to prevent encroachments on the improved channels and that they will take over and maintain the project after construction in accordance with regulations prescribed by the Secretary of the Army. Copies of both assurances of local cooperation (original project and first rectification) and the agreement for local cooperation (second rectification) are enclosed as Appendix B in this edition of the manual.

### 15. ORIGINAL PROJECT

An assurance of local cooperation for the original project was executed for the State of New York by the Superintendent of Public Works on 7 October 1955, and was accepted by the District Engineer on 17 October 1955. As of May 1967, the state's responsibilities shifted from the Public Works to the Conservation Department, which later became the Department of Environmental Conservation (NYSDEC).

### 16. FIRST RECTIFICATION

An assurance of local cooperation for the first rectification project was executed for the State of New York by the Deputy Conservation Commissioner on 13 February 1969, and was accepted by the District Engineer on 28 February 1969.

### 17. SECOND RECTIFICATION

An agreement for local cooperation for the second rectification project was executed between the State of New York, by the First Deputy Commissioner of Environmental Conservation, and the District Engineer, on 14 November 1975.

### 18. REHABILITATION

The original project's assurance of cooperation applies to the rehabilitation project. NYSDEC, with responsibility to provide lands, easements, and rights-of-way, granted a right-of-entry with an attorney's certificate and certificate of authorization in October 1996 (all Sites, except I) and in December 1996 (Site I).

## PROCEDURES

### 19. GENERAL

General regulations governing maintenance and operation of local flood protection projects are enclosed as Appendix C in this edition of the manual. The regulations are prescribed and published in the Code of Federal Regulations (CFR), Title 33 (Navigation and Navigable Waters), Chapter II (Corps of Engineers, Department of the Army), Part 208 (Flood Control Regulations), in accordance with provisions of Section 3 of the Flood Control Act approved 22 June 1936, as amended and supplemented. The following paragraphs give more detailed suggestions for complying with these requirements.

### 20. DUTIES OF THE SUPERINTENDENT

Paragraph (a)(2) of the regulations in Appendix C provides that the cooperating agency shall designate a superintendent from its personnel. In addition to the duties outlined in other portions of this manual, the superintendent has a general responsibility for maintaining and operating the structures and facilities, particularly in flood periods. The name, address, and telephone number of the superintendent shall be furnished to the District Commander; U.S. Army Engineer District, Buffalo; 1776 Niagara Street; Buffalo, NY 14207-3199. The District Commander shall be notified of any change in this information.

### 21. IMPROVEMENTS OR ALTERATIONS TO THE PROJECT

Drawings or prints of proposed improvements or alterations to the channel, floodway, or appurtenant structures, as required by paragraph (a)(5) of the regulations in Appendix C, shall be submitted to the District Commander for his review. Construction should not be initiated until the District Commander has had time to comment. Drawings in duplicate or reproducible prints, showing the improvements or alterations as finally constructed, shall be furnished to the District Commander, after completion of the work.

### 22. SEMIANNUAL REPORT TO CORPS OF ENGINEERS

A semiannual report, required by paragraph (a)(6) of the regulations in Appendix C, shall be submitted to the District Commander. This report shall cover inspection and maintenance of the project works and shall include dated copies of inspection check lists or report sheets prepared during the period covered by the report. In the event repairs have been made, either temporary or permanent, the nature and dates of such repairs should be included. Prints of photographs showing the protective works in use during flood periods are desired whenever available.

## 23. PERIODIC INSPECTIONS

Periodic inspections as required by the regulations in Appendix C shall be made at the following times:

- a. Immediately prior to the beginning of a major flood season (spring floods may be expected annually in March or April and floods due to hurricanes may occur less frequently in August, September, or October);
- b. Immediately after each major high water period;
- c. At least once each 90 days; and
- d. At such other times as may be considered necessary by the superintendent.

## 24. JOINT INSPECTIONS

A joint inspection of the project works will be made annually by the District Commander, Buffalo District, Corps of Engineers, or his authorized representative, and the superintendent. Arrangements for such inspections will be made and coordinated by the District Commander, who will give advance notice to the superintendent.

## 25. CHECK SHEETS

In Appendix D of this edition of the manual, there is a suggested multipage form for a check sheet, which can be used to facilitate routine and emergency inspections. This, or a similar form, should be used at each inspection to insure that no feature of the protective system has been overlooked. Any needed repairs should be indicated thereon, with a check indicating satisfactory items.

# PROJECT FEATURES

## 26. STATIONING

The stationing for the original work completed in 1958 on the Genesee River, as indicated on Plates 1-19 in Appendix E of the superseded April 1977 Operation and Maintenance Manual, was superseded by the stationing for the 1973/1976 rectifications. Refer to Plates 20-37 in Appendix E of the superseded April 1977 Operation and

Maintenance Manual for correlation, where 100 was added to the 1958 stationing. However, the 1996 rehabilitation drawings (Plates 38-48 in Appendix F of this edition of the Operation and Maintenance Manual) uses the 1958 stationing for Sites G, H, and I and the 1973/1976 stationing for Sites C, D, and F. The stationing for Dyke Creek was not changed, since the completion of the original work.

## 27. GENESEE RIVER CHANNEL

The channel of the Genesee River was improved from a point about 2,700 feet north of Bolivar Road to a point about 5,400 feet upstream of the confluence with Dyke Creek, a distance of approximately 14,000 feet. Channel width varies from 100 feet to 135 feet between the downstream limit of the project to the downstream end of the concrete drop structure, and the channel for 1,800 feet upstream of Bolivar Road was realigned to ease an S-curve. The channel from the upstream end of the drop structure to the confluence with Dyke Creek changes in width from 115 feet to 100 feet and maintains a 100-foot width for approximately 1,800 feet farther upstream from the confluence of the two streams. The channel width then gradually increases to 130 feet and maintains the width to the first sheet pile weir located approximately 1,300 feet upstream of the former W.A.&G. bridge. Between this sheet pile weir and a second weir located about 3,000 feet upstream of the former W.A.&G. bridge, the channel varies from 150 feet to 160 feet in width. Above the second weir to the upstream limit of the project, the channel bottom gradually increases from 170 feet to 300 feet in width. The channel grade of the river bottom varies from 0.0 to 0.3 percent. Side slopes are generally 1 vertical on 2-1/2 horizontal, with minor variation for short distances. Slopes were protected with riprap in the vicinities of bridges, drop structures, weirs, drain lines and on slopes steeper than 1 vertical on 2-1/2 horizontal. The NYSDOT realigned the Genesee River toward the left bank in the reach from about 1,400 feet below the new West Madison-Stevens Street bridge to approximately 540 feet above this bridge, which did not change conditions from that described above. The State constructed a highway realignment along the right river bank downstream from Dyke Creek, which changed some conditions from that described above. The State's work was reviewed by the Buffalo District, Corps of Engineers, and did not have an adverse effect on the original project.

## 28. DYKE CREEK CHANNEL

The channel of Dyke Creek was improved from the mouth of the creek upstream for approximately 4,000 feet. The stream was realigned near its mouth to eliminate a sharp curve and to provide a better entrance of flows into the Genesee River. The channel bottom widths in the reach downstream of the Miller Street drop structure, a distance of about 3,300 feet, vary from 40 to 50 feet. Upstream of the structure, the bottom width is 70 feet. The channel bottom grade varies from 0.026 to 0.516 percent. Side slopes vary between 1 vertical on 2 horizontal and 1 vertical on 3 horizontal. Banks were protected with riprap in

the vicinity of the drop structure and where slopes are steeper than 1 vertical on 2-1/2 horizontal. The NYSDOT has constructed a new highway realignment from the mouth of Dyke Creek to about 1,100 feet upstream, which involves the realignment of the mouth, widening of the channel, and the placement of additional bank protection. The Buffalo District reviewed the plans for this improvement and insured that the highway construction did not compromise the channel capacity.

## 29. BRIDGES

The bridges at Bolivar Road and State Street were not changed structurally. The Pearl Street bridge was removed and was relocated farther upstream, and a new bridge was constructed over Dyke Creek near Hanover Creek in connection with the highway realignment undertaken by the NYSDOT. The right bank slopes at Bolivar Road were protected with riprap. At the State Street bridge, the right bank and the upstream left bank approach were protected with riprap. A ring of PSA-23 steel sheet piles was placed around the center pier of the South Main Street bridge and the area between piles and pier was filled with concrete to protect against undermining after the channel was deepened. Both banks were protected with riprap through this bridge. A row of PZ-27 steel sheet piles was placed in front of the left abutment of the Erie Railroad bridge, and both banks there were protected with riprap. The four pile bents of the former W.A.&G. bridge within the channel limits were ringed by PMA-22 steel sheet piles, 15 feet long, extending 10.5 feet below the channel bottom. The area inside each ring was backfilled and capped with 10 inches of concrete. All cross bracing was replaced and some sheathing was added. The sheathed part of the three larger bents was filled with rock. Five, 25-foot wood piles were arranged in a triangle on the upstream side of each of these piers and sheathed with timber to form ice fenders, which were filled with rock. The remainder of the channel cross section through this bridge was riprapped.

## 30. GENESEE RIVER CONCRETE DROP STRUCTURE

This drop structure was originally constructed in 1956 and was modified in 1974. The principal feature of this structure is a reinforced concrete weir, two feet thick and one foot high, extending across the channel and tapering into the slope on each side. At its ends, 33 feet from the channel bottom limits, the weir crest is 12.19 feet higher than in the channel. Upstream from the weir, a strip 35.5 feet along the river bottom and left bank is protected with 15 inches of riprap over six inches of bedding, and 57 feet along the right bank and an additional 21.5 feet of the left bank are protected with 18 inches of riprap over 12 inches of bedding. The riprap extends up the banks for a horizontal distance of 40.5 feet on the left bank and for 41 feet on the right bank. For the first 50 feet downstream from the weir, concrete paving with a minimum thickness of 18 inches covers the channel bottom, and each side slope for a horizontal distance of 33 feet at the upstream end and 28 feet at the downstream end. A line of PZ-27 steel sheet piles forms a cutoff under the weir; there is a

similar line near the downstream end of the concrete paving. The concrete paving is thickened over each line of piles, and there is a projecting section 3.5 feet deep and 1.5 feet wide at each side of the channel bottom. Downstream from the concrete paving, a strip 25 feet long along the bottom is covered with 18 inches of riprap. The side slopes are protected with 24 inches of riprap. Both banks are protected with 18 inches of riprap above the concrete to the top of slope. The left bank is protected with 18 inches of riprap for an additional 300 feet downstream. Through the structure, the channel width varies uniformly from 115 feet at the upper end to 135 feet at the lower end of the concrete paving, and then remains at 135 feet across the lower riprap areas. The bottom grade is 0.085 percent across the upper riprap strip, drops 0.4 foot across the concrete, and then assumes a slope of 0.122 percent to the downstream end of the riprap.

### 31. SHEET PILE WEIRS

Two steel sheet pile weirs are located on the river approximately 1,600 feet and 3,000 feet upstream of the former W.A.&G. bridge. The weir located 1,600 feet upstream of the former W.A.&G. bridge was originally constructed during the 1956 contract and was modified in the 1974 contract. This structure consists of a line of PZ-32 steel sheet piles, 36 feet long, extending across the river between the tops of both banks. Wherever it was necessary in the vicinity of this structure, compacted embankment was placed on the banks to bring the surface of the protected bank to the prescribed grade, but no fill was placed on the existing channel bottom. The right bank, upstream from the piles for a distance of about 487 feet, is protected with 12 inches of riprap with a riprap toe in the channel bottom. The left bank, upstream from the piles, is also protected with 12 inches of riprap extending for about 78 feet to an existing concrete intake structure. There is a riprap toe along the bottom and upstream side of the left bank protection. The channel bottom above the piles is not riprapped except for the rock toes on each bank. Immediately below the weir, the bottom width is 130 feet. The bottom is protected with three-foot thick derrick stone from the left bank toe extending across the channel bottom 93 feet, and the remaining 37 feet of channel bottom is protected with two-foot thick derrick stone. The surface of the derrick stone is four feet below the top of the weir. For a distance of 24 feet downstream of the weir, the three-foot thick derrick stone gradually narrows to cover 74 feet of the channel bottom, and the remaining 56 feet is protected with two-foot thick derrick stone to a distance of 49 feet downstream of the weir. The 74-foot width of three-foot thick derrick stone extends an additional six feet downstream; the two-foot thick derrick stone extends to a line 49 feet downstream of the weir, across the entire channel bottom, with a five-foot wide riprap toe at the lower end. The left bank side slope is protected with three-foot thick derrick stone for a distance of 24 feet downstream of the weir, and for an additional 25 feet with two-foot thick derrick stone; the slope is protected with 12 inches of riprap to a point 350 feet from the weir. The right bank side slope is protected with 18 inches of riprap for 55 feet downstream of the weir and with 12 inches of riprap for an additional 290 feet.

32. The sheet pile weir located about 3,000 feet upstream of the former W.A.&G. bridge consists of a line of PZ-27 steel sheet piles, 25 feet long, extending across the river between the tops of both banks. Wherever it was necessary in the vicinity of the structure, compacted fill was placed on the banks to bring the surface of the protected bank to the prescribed grade, but no fill was placed on the channel bottom. The right bank, upstream of the weir for a distance of 150 feet, is protected with 18 inches of riprap. The left bank, upstream from the weir, is also protected with 18 inches of riprap for a distance of 680 feet. This bank has a 10-foot wide riprap toe at the top of bank for a distance of about 330 feet upstream starting at a point approximately 350 feet upstream of the weir. The channel bottom is riprapped with 18 inches of stone for a distance of 50 feet upstream of the piles. Both banks have the riprap protection toed into the channel bottom. Immediately below the weir is the stilling basin, 150 feet wide and 115 feet long. The bottom and side slopes are paved with two-foot thick concrete blocks with plan dimensions not less than 5.5 feet nor greater than 6.5 feet. The surface of the concrete blocks in the stilling basin is 8 feet below the top of weir. At the downstream end of the stilling basin is located a steel sheet pile toe wall consisting of PZ-27 sheet piles, 14 feet long, extending 171 feet across the channel bottom. The top of the toe wall is two feet higher than the bottom of the stilling basin. For a distance of 25 feet downstream of the toe wall, the bottom and side slopes are paved with 2-foot thick concrete blocks with plan dimensions not less than 5.5 feet nor greater than 6.5 feet. The channel bottom downstream of the toe wall is two feet higher than the stilling basin bottom. The channel bottom for a distance of 100 feet downstream from the end of the concrete blocks is protected with 24 inches of riprap. The side slopes are protected with 30 inches of riprap for 50 feet downstream of the weir and for an additional 100 feet with 18 inches of riprap. Also on the left bank, the downstream nose of the earth levee is riprapped with 18 inches of stone. The bottom grade is 0.3 percent across the upper riprap, level across the stilling basin, and 0.065 percent downstream of the toe wall.

### 33. DYKE CREEK DROP STRUCTURE

This structure consists of a section of concrete-paved channel with derrick stone and riprap protection upstream and downstream. The concrete paving covers the channel bottom and the side slopes to a height of 10.18 feet above the bottom, on a slope of 1 vertical on 2 horizontal, for a length of 49.26 feet. There is a fall of 8.52 feet in the upstream 19.26 feet, beyond which the bottom is level except for a sill at the downstream end 18 inches wide and one foot higher than the level area. Three lines of PZ-27 steel sheet piles extend the entire width of the concrete, one at each end and one at the break in the slope. Piles in each line are 10 feet long in the center of the channel and decrease at the edges in two steps to six feet, except at the right end of the upper line where the outer five piles were extended seven feet each by welding an additional length. The concrete paving has a minimum thickness of 18 inches across the channel bottom with thicker sections at the edges and at the break in grade. Paving on the side slopes decreases in thickness uniformly from 16 inches at the bottom to nine inches at the top. All the concrete paving is underlain by 12 inches of gravel. A strip 10 feet wide, extending across the channel above the concrete, and a similar strip 15

feet wide downstream are protected with two-foot thick derrick stone underlain by 15 inches of gravel. A strip 32 feet wide across the bottom and side slopes at the upstream end of the structure is protected with 15 inches of riprap over six inches of gravel. There is a riprap toe at the downstream end. In the reaches paved with concrete or derrick stone, there is a strip six feet wide on each bank, at levels higher than those thus paved, which is protected with 12 inches of riprap. Upstream from the structure, a 40-foot length of the right bank and, to the upstream limit of work, 653 feet on the left bank are protected with 12 inches of riprap. There is a riprap toe at the foot of each slope. Banks downstream of the drop structure are also riprapped. The left bank has 30 inches of riprap overlying 15 inches of bedding, extending from downstream of the drop structure approximately 124 feet; 12 inches of riprap over six inches of bedding continues for an additional 174 feet. The right bank is riprapped with 12 inches of stone for approximately 1,470 feet downstream. From the upstream end of the structure to the downstream end of the concrete paving, the channel bottom is 70 feet wide. It narrows to 50 feet between the downstream end of the concrete and the downstream end of the structure.

#### 34. LEVEES

Levees have been constructed along numerous reaches of the Genesee River and Dyke Creek, consisting of a 10-foot crest width and 1 vertical on 2-1/2 horizontal side slopes, unless otherwise stated. A levee was constructed along the left bank of the Genesee River upstream for 2,850 feet from the concrete drop structure to State Street. Along the upstream 1,150 feet of the levee, there were only small areas on the land side of the levee which were lower than the top of the levee; these were filled to that elevation so that drainage facilities would not be needed. A short levee was constructed south of State Street to prevent overflow through an abandoned mill race west of the former W.A.&G. railroad. This levee has a crest width of 50 feet and side slopes of 1 vertical on 3 horizontal. Another levee is located on the right bank of the Genesee River starting at the concrete drop structure and extending upstream approximately 1,350 feet to about West Genesee Street. The levee is generally six feet in height, constructed to prevent high stream flows from bypassing the drop structure. A levee was constructed along the left river bank, starting immediately upstream of the State Street bridge, and progressing about 1,680 feet upstream to the former W.A.&G. bridge and then an additional 680 feet to existing ground. A small levee, generally two feet or less in height, was constructed along the right bank of the river immediately upstream of the former W.A.&G. bridge, extending 620 feet upstream to prevent flooding of a low area in Island Park. A barrier levee was constructed on the right bank, approximately perpendicular to the channel and parallel to the steel sheet pile weir located approximately 1,300 feet upstream of the former W.A.&G. bridge. The levee extends approximately 670 feet to existing ground, constructed to prevent flood flows from bypassing the weir drop structure. Along the left bank, starting 290 feet downstream of the sheet pile weir located approximately 3,000 feet upstream of the former W.A.&G. bridge and extending upstream from the weir for approximately 1,170 feet and tying into the former W.A.&G. railroad bed, is a levee protecting the upstream flank of the project.



35. On Dyke Creek, a levee was constructed on the left bank, upstream of the Miller Street drop structure, for approximately 530 feet upstream, where it curves away from the channel to become perpendicular to the channel line and forms a barrier levee which is an additional 310 feet long.

### 36. DRAINAGE STRUCTURES

Where active storm drains entered the old stream channel outside the limits of the levees, ditches were excavated to connect the ends of the pipes to the new channel or existing pipes were shortened, if they extended into the new channel, to correspond to the new channel alignment. Many pipes, no longer in use, were removed within the limits of the work area. The left bank levee in the reach from the concrete drop structure to State Street required the improvement of two drainage lines and the removal of all others within the limits of this levee. Drainage routes were revised to use the two remaining lines. Each of these was relaid within the levee limits with new pipe and seepage rings added. A concrete manhole was built at the riverward side of the levee crest and a concrete outlet, including head and wing walls and an apron, was built at the riverward end of the line. An area surrounding the outlet and extending into the channel bottom was paved with grouted riprap. An automatic (gravity-operated) flap gate was placed at the riverward end of each pipe and a manually-operated sluice gate was placed on each pipe at the downstream side of the manhole. One drainage line through the levee is an extension of a 24-inch storm drain in Brooklyn Avenue, and is laid with concrete culvert pipe. The other drains a ponding area, to which all other local drainage behind the levee was led, and is laid with two parallel, 36-inch, corrugated metal pipes. The gates used for the above drainage structures are Armco-Pekrul sluice gates and Armco flap gates. The left bank levee constructed from State Street and extending upstream 2,350 feet required some alterations in the drainage system between State Street and the former W.A.&G. bridge. Existing 36-inch and 48-inch corrugated metal pipe drainage lines were relaid through the levee with new pipe, along with the addition of seepage rings. The 48-inch drain pipe required headwalls and aprons at three locations, one each at the landward and riverward side of the levee and one where the pipe emerges from under the former W.A.&G. railroad embankment. The 36-inch drain pipe required the construction of one concrete outlet with headwalls and apron at the riverward side of the levee. The 48-inch drain pipe was provided with two automatic (gravity-operated) flap gates, one at the pipe's exit from the railroad embankment and one at the riverward side of the levee. The 36-inch pipe was also fitted with a flap gate at the riverward concrete outlet. These three gates are Armco flap gates. The northeast end of the right bank barrier levee, located about 1,300 feet upstream of the former W.A.&G. bridge, is provided with a 24-inch corrugated metal pipe to allow the drainage of runoff from an existing ditch to flow through the levee. The new pipe was installed with seepage diaphragms and prefabricated end sections. The left bank levee, located near the upstream project limit, was provided with a 12-inch corrugated metal pipe to allow drainage of the area south of the levee into the auxiliary channel adjacent to the river. The pipe was fitted with prefabricated end sections.

37. On Dyke Creek, the left bank levee between Miller Street and the upstream project limit caused the alteration of the drainage pattern behind the levee. In order to handle this runoff, a ditch was excavated nearly parallel to the levee; the ditch flows are carried under Miller Street and exit through the side slope downstream of the drop structure from a 24-inch corrugated metal pipe. A metal end section was provided at the upstream end of the pipe.

#### 38. SPOIL AREAS

Spoiled material was placed on both banks of the river near the downstream end of the project and upstream from Bolivar Road, on the right bank between the concrete drop structure and Pearl Street, on the right bank upstream of West Dyke Street to the barrier levee, from this barrier levee upstream to near the project limit, and on the right bank of Dyke Creek above State Street.

#### 39. PROJECT SIGNS

Two project signs, made of oak with white lettering and a linseed oil and turpentine finish, were erected. One was originally located southwest of Bolivar Road bridge, adjacent to the left bank spoiled material area. The other was originally located southeast of State Street bridge, adjacent to the right bank spoiled material area. Subsequently, the signs were relocated because of local highway and bridge construction, one to a location southeast of Bolivar Road bridge and the other to a location northeast of State Street bridge.

#### 40. MATERIAL SPECIFICATIONS

Specifications for materials used in the 1956 (original) project, the 1973 and 1976 rectifications, and the 1996-97 rehabilitation came from available records and are listed in Appendix E of this edition of the manual. Not all materials were explicitly specified with a Federal Specification, ASTM standard, etc.; these required items had been approved for use by the Contracting Officer or his representative. Where possible, the listing has current industry specifications that replaced obsolete specifications.

### MAINTENANCE

#### 41. CHANNEL AND FLOODWAY

Paragraph (g)(1) of the regulations in Appendix C directs the superintendent to make periodic inspections, to take immediate steps to remedy adverse conditions disclosed by such

inspections, and to arrange for whatever periodic repairs and cleaning may be necessary to restore the channel to the cross sections and bottom profiles provided in the project. Shoals, snags and debris should be removed from the channel and floodway at least annually, preferably in the late fall, so that obstruction will be minimized in the spring runoff period. When removed, debris should be deposited where it cannot be washed back into the stream. Gravel and sediment deposits should be removed to prevent loss of capacity or efficiency in channels. Channel slopes should be cleared at least twice each year to remove and dispose of natural growth and lodged debris. Natural growth should be removed to within (six) 6 inches of the finished surface. No fills, structures, or construction of any type should be permitted which would interfere with the passage of flood waters.

42. Slope protection shall be observed in the periodic inspections. Any material found to have become displaced shall be restored to prevent undermining of the remainder and to eliminate protuberances on which floating debris might catch.

#### 43. CONCRETE DROP STRUCTURES AND SHEET PILE WEIRS

The waterway areas of all structures should be cleared of debris at least twice a year preferably in late spring and early fall. Slope and bottom paving should be restored to the original grade as soon as possible, if any displacement should occur. Where scour occurs downstream from a structure, bank slopes should be restored to their original grades. It is important that the Miller Street drop structure be kept clear of all debris and stream depositions.

#### 44. DRAINAGE STRUCTURES

Paragraph (d)(1) of the regulations in Appendix C outlines the procedure to be followed in maintenance. Inlet and outlet channels should be kept clear at all times and debris should not be allowed to accumulate in the vicinity. Moving parts of automatic (gravity-operated) and manually-operated gates should be examined and oiled, and a trial operation should be made once every three months and when weather conditions indicate that high water is likely to occur.

#### 45. LEVEES

Procedures for levee maintenance are described in paragraph (b)(1) of the regulations in Appendix C. Settlement, sloughing, erosion, animal burrows, or other changes in cross section should be restored in the original section as soon as possible and measures should be taken to prevent recurrence of the condition.

#### 46. PONDING AREAS

During inspections, any evidence of filling or encroachment in the ponding areas should be noted, and immediate steps should be taken to stop such encroachment and to remove any fill or dumped material. It is essential to the proper functioning of the project that the ponding areas be maintained at their full initial capacity at all times.

#### 47. SPOIL AREAS

Materials removed from the channel should be deposited in spoil areas, located so that the materials will not be washed back into the channel. Spoiled material areas should be kept graded to permit satisfactory drainage.

#### 48. PROJECT SIGNS

The relocated project signs near the Bolivar Road and State Street bridges should be periodically touched up as necessary.

### OPERATION

#### 49. CHANNEL

Paragraph (g)(2) of the regulations in Appendix C provides for patrolling the channel during periods of high water. Particular attention should be given to the collection of drift material at bridges and drop structures. Such material should be removed promptly. The regulations further require that: "The improved channel or floodway shall be thoroughly inspected immediately following each major high water period. As soon as practicable thereafter, all snags and other debris shall be removed and all damage to banks, riprap, ....., or other flood control structures repaired."

#### 50. DRAINAGE STRUCTURES

It may become necessary to operate sluice gates in the 24-inch storm drain, which crosses under the levee at the end of Brooklyn Street, and in the double 36-inch culvert, which extends through the levee from the ponding area downstream of Pearl Street. During periods of low flow in the river, storm runoff entering these structures will be discharged into the river. When high river stages occur, the automatic flap gates at the riverward end of each structure should close to prevent the river from backing through into the protected area. Both structures are equipped with manually-operated sluice gates, in addition to the automatic

flap gates. If the automatic flap gates function properly, the sluice gates need not be operated. Experience has shown, however, that ice or debris will occasionally prevent closure of automatic flap gates. In such a case, it will be necessary to close the sluice gates to prevent flooding of protected areas. Whenever the sluice gates are closed, operating personnel must inspect the double 36-inch culvert and the 24-inch storm drain with manhole in Brooklyn Street, and observe the actual difference in water surface elevations between the riverward and landward ends of both structures. The key for manhole locks (same for all locks) is kept by the Wellsville Department of Public Works. Until the manual gates are closed, the automatic flap gates will operate to prevent the water surface on the land side of the levee from becoming appreciably higher than on the river side. If the sluice gates are used, the gates must be opened whenever the land side water surface becomes higher.

51. Cranks, which may be used interchangeably on all sluice gates, may be kept at any or all of three different locations:

- a. Wellsville Department of Public Works, 111 West State Street (593-1850);
- b. Wellsville Village Garage, Bolivar Road (593-2670); and
- c. Duke Hose Company (Fire Department), 80 Stevens Street (593-4761).

Two men, working turns, can open or close each gate in about five (5) minutes.

52. Details of the procedure to be followed in operating the drainage structures are given below for two conditions, the first without, and the second with, local runoff. Refer to Plate 16 in Appendix F for "as built" elevations at both structures that are suitable datums in determining the water surface elevations.

a. Condition I - Rising river with no appreciable local runoff in the ponding area or through the 24-inch drain:

(1) When the river level reaches elevation 1,478 feet, flap gates and sluice gates at both structures should be inspected and material which might interfere with operation should be removed;

(2) When the river level reaches elevation 1,480 feet, the gates should be inspected again. If there is any indication of backflow, the sluice gates should be closed, but this should not be done unless there is such an indication;

(3) If either set of sluice gates has been closed, they should remain closed as long as the river level remains higher than the water level on the land side of those gates;

(4) The sluice gates should be opened, whenever the river level drops below the water surface on the land side of the gates; and

(5) The sluice gates should remain open, unless the river again rises and the automatic gates again do not close.

b. Condition II - Rising river with runoff from protected areas being discharged through the culvert or drain:

(1) When the river level reaches elevation 1,478 feet, flap gates and sluice gates at both structures shall be inspected and material which might interfere with operation should be removed;

(2) Water levels should be observed at the drainage structures at intervals of not over 30 minutes;

(3) When the river reaches the same level as the water on the land side at either structure, the direction of flow through that structure should be observed. If there is any evidence of flow from the river, the sluice gates in that structure should be closed immediately. Until there is evidence of backflow, the sluice gates need not be closed. The same actions should be taken at the second structure, when the river level rises to the land side water level there;

(4) If either set of sluice gates has been closed, they should remain closed as long as the river level remains higher than the water level on the land side of those gates;

(5) The sluice gates should be opened, whenever the river level drops below the water level on the land side of the gates; and

(6) The sluice gates should remain open, unless the river again rises and the automatic gates do not close.

53. The automatic flap gates on the 36-inch and 48-inch storm drains located on the left bank between State Street and the former W.A.&G. bridge do not require any operation. During high river stages, the gates should be inspected such that ice or debris will not prevent the closure of any of the three gates.

#### 54. PONDING AREA

No operation will be necessary at the ponding area, but frequent inspections should be made to assure that local developments are not encroaching upon the ponding area, which

could reduce its designed ponding capacity, and during flooding periods to assure debris that could enter and obstruct the outlet culverts are removed.

#### 55. CONCRETE DROP STRUCTURES AND SHEET PILE WEIRS

No features of these structures require operation. They should be inspected frequently during floods to assure that they do not become obstructed by debris, and to locate and correct any condition which might endanger stability of the structure or the adjacent banks.

#### 56. BRIDGES

No features of the bridge structures require operation. Frequent inspection will be necessary during floods to remove debris and locate and correct any condition which might endanger stability.

#### 57. LEVEES

Paragraph (b)(2) of the regulations in Appendix C requires that the levees be patrolled to locate any evidence of sand boils, slides, scour, overtopping, or any condition which might endanger the structures, and that immediate action be taken to control and repair damages.

#### 58. REPORTS

Conditions found during flood emergencies shall be reported essentially as outlined on the check sheets in Appendix D of this edition of the manual.

### HIGH WATER PERIODS

#### 59. GENERAL

At Wellsville, the drainage area of Genesee River is 216 square miles and that of Dyke Creek is 72 square miles. Both drainage areas are conducive to sudden floods of short duration, but peak flows from the two streams do not arrive at Wellsville simultaneously. It is considered that establishment of a flood warning system would not be warranted, since the time between rainfall and consequent flooding is short; nor would it be necessary to establish an elaborate flood fighting organization.

## 60. OPERATION

While it is imperative that the channel and structures be maintained in accordance with the principles set forth in the regulations, this manual is not intended to restrict the superintendent, or others concerned, to a rigid set of rules. With independent initiative, difficult conditions can usually be corrected in the manner recommended in the manual by methods acceptable in standard engineering practice.

## 61. NATURAL DISASTER PROCEDURE

Buffalo District Plan 500-1-1, Natural Disaster Activities, last revised 1 January 1996, provides the administrative policies, command guidance and operating procedures for conducting preparedness, response and recovery activities with respect to natural disasters. This plan outlines specific actions that Buffalo District may conduct under the authorities of Public Laws 84-99 and 93-288, including provisions for Federal assistance in repairing flood control works which are damaged or destroyed by single disaster events. Copies of this plan have been distributed to all State and County level disaster response agencies whose jurisdictions are located within Buffalo District boundaries.

## 62. PATROLS

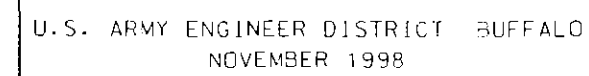
The regulations in Appendix C provide for patrolling the channel during periods of high water. The superintendent shall insure that sufficient personnel are familiar with the basic requirements of maintenance and that they are available to maintain the patrol. Particular attention should be directed to prevention of ice or debris becoming lodged in the channel so as to restrict the flow. Equipment should be available to remove or dislodge snags or ice. Serious bank erosion during floods should be checked if possible, and banks should be restored to their designed slopes as soon as practicable after floods. If erosion threatens to affect a levee, immediate action should be taken to provide heavy stone, sand, bags, and rough lumber to prevent damage to the levee.



DEPARTMENT OF THE ARMY  
Buffalo District, Corps of Engineers  
1776 Niagara Street  
Buffalo, New York 14207

LOCAL FLOOD PROTECTION PROJECT  
ON  
GENESEE RIVER  
AT  
WELLSVILLE, NEW YORK

APPENDIX A  
PROJECT MAP



DEPARTMENT OF THE ARMY  
Buffalo District, Corps of Engineers  
1776 Niagara Street  
Buffalo, New York 14207

LOCAL FLOOD PROTECTION PROJECT

ON

GENESEE RIVER

AT

WELLSVILLE, NEW YORK

APPENDIX B

LOCAL COOPERATION ASSURANCES AND AGREEMENT

ASSURANCE of local cooperation for the Local  
Flood Protection Works at Wellsville, New York,  
on Dyke Creek and Genesee River, furnished in  
pursuance of the Flood Control Act of 17 May 1950  
(Public Law No. 516) 81st Congress, 2nd Session.

- - - - -

WHEREAS, by Act of Congress approved 17 May 1950, (Public Law No. 516, 81st Congress, Second Session) hereinafter called the Flood Control Act of 1950, a project for local flood protection works on Dyke Creek and Genesee River at Wellsville, New York, was authorized in accordance with recommendations of the Chief of Engineers, in House Document Numbered 232, 81st Congress, 1st Session, and

WHEREAS, the aforesaid House Document, Numbered 232, 81st Congress, First Session, provides that for the Wellsville Project "local interests contribute \$50,000 toward the construction costs and provided further that no money be expended until responsible local interests at the respective localities give assurances satisfactory to the Secretary of the Army that they will:

- (a) Furnish without cost to the United States all lands, easements and rights of way necessary for construction of the project, and make any necessary alterations to utility crossings and bridges, except underpinning of bridges;
- (b) Hold and save the United States free from damages due to the construction works;
- (c) Prescribe and enforce regulations to prevent encroachments on the improved channel;
- (d) Maintain and operate all the works after completion in accordance with regulations prescribed by the Secretary of the Army", and

WHEREAS, by resolution of the Board of Trustees of the Village of Wellsville adopted June 20, 1951 and executed by Thomas C. Martin, Mayor, on June 21, 1951, the Village of Wellsville has furnished assurance satisfactory to the government that they will contribute to the United States the sum of \$50,000 toward construction costs; and

WHEREAS, by Chapter 862 of the Laws of the State of New York, approved 1 June 1936, as amended, the State of New York is authorized to participate in a Federal program of flood control; and

WHEREAS, the Superintendent of Public Works of said State is authorized and directed by said Chapter 862, as amended, for and in behalf of the State, to carry out the State's participation in a Federal program of flood control, to sign all necessary agreements and to do and perform all necessary acts in connection therewith

to consummate the purpose running with the approval by the Federal Government of flood control projects in said State and the allotment of moneys for such projects if and when made by the Federal Government; and

WHEREAS, it is further provided in said Chapter 862, as amended, that the funds appropriated by said act shall be available for payment by the State of the cost of relocating and reconstructing State Highways, including structures; for channel improvements, for check dams; for quarries, gravel pits, spoil banks and borrow pits; for access roads; for camp sites; for relocation of buildings, structures and facilities; for relocation of the properties, structures, service lines and connections incident thereto of public service utilities both publicly and privately owned; for rights of way and for other related purposes contemplated by and incidental to said flood control projects; and for the relocation and reconstruction of streets, sidewalks, public grounds, park, cemeteries, water supply systems, sewer systems and lighting systems of municipal corporations, county roads and town highways, including structures and including rights of way; and

WHEREAS, it is further provided in said Chapter 862, as amended, that after the completion of flood control projects or a portion thereof and after such project or portion thereof has been formally turned over to the State by the Federal Government, such completed work shall be maintained by the Superintendent of Public Works;

NOW, THEREFORE, in compliance with the conditions of local cooperation above recited and provided that the Legislature of the State of New York shall appropriate the necessary funds therefor, the Superintendent of Public Works in pursuance of said Chapter 862 of the Laws of 1936 as amended, hereby assures the Secretary of the Army as follows:

- (a) That the State will furnish without cost to the United States all lands, easements and rights of way necessary for construction of the project, and make any necessary alterations to utility crossings and bridges, except underpinning of bridges;
- (b) That the State will save harmless and protect the United States of America, its officers and agents, from any and all claims for damages and from all liabilities, but excluding any claim or claims of any employee, contractor or subcontractor, servant, agent or officer of the United States for personal injuries received in connection with said improvement project and excluding any claim or claims of a person or persons for injuries or damages suffered by reason of the negligence of any employee, contractor, or subcontractor, servant, agent or officer of the United States engaged in said project;
- (c) That the State and responsible local agencies having adequate powers to prescribe and enforce regulations designed to

prevent encroachments on the improved channels will take such measures as may be necessary to protect the improved channel from any future encroachment or obstruction;

- (d) That the State will maintain and operate all the works after completion in accordance with regulations prescribed by the Secretary of the Army.

IN WITNESS WHEREOF, I have set my hand and the Great Seal of the State of New York this 7th day of October, 1955.

STATE OF NEW YORK

ATTEST:

BY:

/s/ Mary A. Meany

/s/ John W. Johnson

Superintendent of Public Works

(SEAL)

STATE OF NEW YORK     )  
COUNTY OF ALBANY     )   ss:  
CITY OF ALBANY         )

On this 7th day of October, in the year One Thousand Nine Hundred Fifty-five, before me, the subscriber, personally came JOHN W. JOHNSON, to me known and known to me to be the Superintendent of Public Works of the State of New York and the same person described in and who executed the within instrument and he duly acknowledged that he executed the same as such Superintendent pursuant to the Statutes herein as therein provided.

/s/ Henry G. Kercull

NOTARY PUBLIC

This Assurance of Local Cooperation for the local flood protection works at Wellsville, New York on Dyke Creek and Genesee River is hereby accepted on behalf of the United States.

/s/ Loren W. Olmstead

LOREN W. OLMSTEAD

Colonel, Corps of Engineers

District Engineer

Buffalo District

17 October 1955

Assurance of local cooperation for Local Flood Protection at Wellsville, New York, furnished in accordance with authorization of rectification of project by the Chief of Engineers.

WHEREAS, The Flood Control Act of 1950 (Public Law 516, 81st Congress) authorized construction of a project for flood control at Wellsville, New York; and

WHEREAS, subsequent to completion of the project at Wellsville, the Chief of Engineers authorized rectification of deficiencies in the project, in accordance with a design memorandum dated 22 April 1966, subject to certain requirements of local cooperation; to wit, that, prior to undertaking additional Federal improvements, responsible local interests furnish supplementary assurances satisfactory to the Secretary of the Army that they will:

a. Submit for the prior approval of the United States, all plans for highway improvements in the vicinity of the Wellsville flood control project which involve or require modifications of the existing facilities of that project, and thereafter accomplish such improvements in accordance with the plans so approved;

b. Provide without cost to the United States all lands, easements and rights-of-way, including pending areas, and make all alterations to utilities, necessary for construction of the additional flood control improvements;

c. Hold and save the United States free from damages due to construction of the additional flood control improvements;

d. Prescribe and enforce regulations to prevent encroachments on the project channels as modified by the additional improvements; and

e. Maintain and operate all of the project works after completion of the additional improvements in accordance with regulations prescribed by the Secretary of the Army;

WHEREAS, by Chapter 862 of the Laws of the State of New York approved June 1, 1936, as amended, the State of New York is authorized to participate in a Federal program of flood control; and

WHEREAS, the Superintendent of Public Works of said State is authorized and directed by said Chapter 862, as amended, for and in behalf of the State to carry out the State's participation in a Federal program of flood control, to sign all necessary agreements and to do and perform all necessary acts in connection therewith to consummate the purpose running with the approval by the Federal Government of flood control projects in said State and the allotment of moneys for such projects if and when made by the Federal Government; and

WHEREAS, it is further provided in said Chapter 862, as amended, that the funds appropriated by said act shall be available for payment by the State of the cost of relocating and reconstructing State highways, including structures; for channel improvements; for check dams, for quarries, gravel pits, spoil banks and borrow pits; for access roads; for camp sites; for relocation of buildings, structures and facilities; for relocation of the properties, structures, service lines and connections incident thereto of public service utilities both publicly and privately owned; for rights-of-way and for other related purposes contemplated by and incident to said flood control projects; and for the relocation and reconstruction of streets, sidewalks, public grounds, parks, cemeteries, water supply systems, sewer systems and lighting systems of municipal corporations, county roads and town highways, including structures and including rights-of-way; and

WHEREAS, it is further provided in said Chapter 862, as amended, that after the completion of flood control projects or a portion thereof and after such project or portion thereof has been formally turned over to the State by the Federal Government, such completed work shall be maintained by the Superintendent of Public Works; and

WHEREAS, Title 4 of Chapter 717 of the Laws of the State of New York approved May 2, 1967 provides that all the functions and powers possessed by and all the obligations and duties of the Superintendent of Public Works and the Department of Public Works pertaining generally to flood control and more particularly described in Chapter 862 of the Laws of 1936, as amended, and supplemented are transferred and assigned to, assumed by and devolved upon the Conservation Department;

NOW, THEREFORE, in compliance with the conditions of local cooperation above recited and provided that the Legislature of the State of New York shall appropriate the necessary funds therefore, the Conservation Commissioner in pursuance of said Chapter 862 of the Laws of 1936, as amended, hereby assures the Secretary of the Army as follows:

a. That the State will coordinate with the United States, all plans for highway improvements in the vicinity of the Wellsville flood control project which may involve or require modifications of the existing facilities of the project;

b. That the State will provide without cost to the United States all lands, easements and rights-of-way, including ponding areas, and make all alterations to utilities, necessary for construction of the additional flood control improvements;

c. That the State, within the scope of the authority of the Conservation Commissioner, will hold and save the United States free from claims for damages incident to construction and operation of the project;



d. That the State, within its authority, will prescribe and enforce regulations to prevent encroachments on the project channels as modified by the additional improvements; and

e. That the State will maintain and operate all of the project works after completion of the additional improvements in accordance with regulations prescribed by the Secretary of the Army.

IN WITNESS WHEREOF, I have set my hand and the Great Seal of the State of New York this 13th day of February 1969.

ATTEST:

STATE OF NEW YORK

BY: W. M. Lawrence  
Deputy Commissioner

Colonel Wright

STATE OF NEW YORK)  
COUNTY OF ALBANY ) SS.  
CITY OF ALBANY )

On this 13<sup>th</sup> day of Feb, in the year One Thousand Nine Hundred Sixty NINE, before me, the subscriber, personally came W. M. Lawrence, to me known, and known to me to be the Deputy Conservation Commissioner of the State of New York and the same person described in and who executed the within instrument and he duly acknowledged that he executed the same as Deputy Conservation Commissioner pursuant to the Statutes herein as therein provided.

This assurance of local cooperation for local flood protection at Wellsville, New York is accepted on behalf of the United States.

A. L. Wright

A. L. WRIGHT 28 February 1969  
COLONEL, Corps of Engineers  
District Engineer

John M. Leonard  
Notary Public

JOHN M. LEONARD  
Residing in Rochester, New York  
Notary Public in State of New York  
My Commission expires March 30, 1969

AGREEMENT BETWEEN  
THE UNITED STATES OF AMERICA  
AND  
THE STATE OF NEW YORK  
FOR LOCAL COOPERATION AT  
WELLSVILLE, NEW YORK  
FLOOD CONTROL PROJECT

This Agreement entered into this 14<sup>th</sup> day of NOVEMBER, 1975, by and between the UNITED STATES OF AMERICA (hereinafter called the "Government") represented by the Contracting Officer executing this Agreement and the STATE OF NEW YORK acting through the State Department of Environmental Conservation (hereinafter called the "State").

WITNESSETH THAT:

WHEREAS, the Flood Control Act of 1950 (Public Law 516, 81st Congress) authorized construction of a flood control project at Wellsville, New York; and,

WHEREAS, Letter Report submitted 23 October 1974, requested additional work on the Genesee River and Dyke Creek at Wellsville, New York; and

WHEREAS, Public Law 91-611 provides that non-Federal interests must agree in writing to furnish certain items of local cooperation, prior to commencement of construction; and

WHEREAS, Section 221 of said Public Law 91-611 also provides that any agreement covering the items which non-Federal interests will provide must have the approval of the Secretary of the Army; and that every such agreement shall be enforceable in the appropriate district court of the Government; and

WHEREAS, Congress enacted Public Law 91-646, approved 2 January 1971, entitled the "Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970"; and

WHEREAS, the proposed additional work is within the scope of the authorization contained in the aforementioned Public Laws; and

WHEREAS, the State hereby represents that it has the authority and capability to furnish the non-Federal cooperation and assurances set out below;

NOW, THEREFORE, the parties agree as follows:

1. The State agrees that, in consideration of the Government, at the earliest permissible date, commencing construction of the additional work at Wellsville, New York, substantially in accordance with the Letter Report submitted 23 October 1974, which was subsequently approved, and in accordance with Public Law 91-611, approved 31 December 1970, it will fulfill the requirements of non-Federal cooperation specified in the aforesaid legislation, to wit:
  - a. Provide without cost to the United States all lands, easements, and rights-of-way, utility relocations and necessary bridge reconstructions;
  - b. Hold and save the United States free from all claims for damages due to construction and operation of the project; except for damages due to the fault or negligence of the Government or its contractors;
  - c. Prescribe and enforce regulations to prevent encroachments on the improved channels;
  - d. Take over and maintain the project after construction in accordance with regulations prescribed by the Secretary of the Army;

- e. In acquiring lands, easements, and rights-of-way for construction of the project, the State will comply with the applicable provisions of the "Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970" Public Law 91-646, approved 2 January 1971.
2. The State shall retain title to all lands, easements, and rights-of-way furnished by it pursuant to paragraph 1 above.
3. The State will, prior to construction of such facility, grant and convey to the Government, its officers, employees, agents, contractors and assigns the unqualified right to enter upon the lands, easements, and rights-of-way which the State owns or controls, for the purpose of constructing, operating and maintaining the project; the State's right-of entry will grant and convey to the Government the right to enter upon, at reasonable times and in a reasonable manner, the lands, easements and rights-of-way for the purpose of inspection. In event such inspection shows that the State for any reason is failing to maintain the project in accordance with the Assurances hereunder and has persisted in such failure after a reasonable notice in writing by the Government delivered to the State or its designated representative, then, and in that event, repair and maintenance by the Government shall not operate to relieve the State of responsibility to meet its obligation as set forth in this Agreement, or to preclude the Government from pursuing any other remedy at law or equity.

4. This Agreement is subject to approval of the Secretary of the Army.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the day and year first above written.

THE UNITED STATES OF AMERICA

By Bernard C. Hughes LTC, CG, DDE  
BERNARD C. HUGHES  
Colonel, Corps of Engineers  
District Engineer  
Contracting Officer

STATE OF NEW YORK  
DEPARTMENT OF ENVIRONMENTAL  
CONSERVATION

By Paul J. Elster  
Commissioner

APPROVED:

E. GOWEN *Sent Feb 26, 1976*  
Acting Director of Real Estate

For the Secretary of the Army

STATE OF NEW YORK )  
COUNTY OF ALBANY ) ss.

On the 14<sup>th</sup> day of NOVEMBER, 1975, before me personally came PAUL J. ELSTON, to me known and known to me to be the same person who executed the foregoing instrument for and on behalf of the NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION and who, being by me duly sworn, did depose and say that he resides in the County of ALBANY, State of New York, and that he is the FIRST DEPUTY Commissioner of the NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, and that he executed the foregoing instrument for and on behalf of the NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION by virtue of the authority in him vested as such FIRST DEPUTY Commissioner of the NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION.

*Gail Kelesian*  
Notary Public

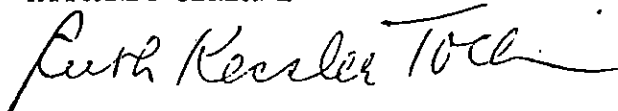
GAIL KELESIAN  
Notary Public, State of New York  
No. 071770  
Qualified in Albany County  
My Commission Expires March 20, 1977

CERTIFICATE

I, Louis J. Lefkowitz, Attorney General of the State of New York, hereby certify that as the chief legal officer of the State, I have reviewed the agreement between the United States of America and the State of New York for local cooperation at Wellsville, New York, and have considered the effect of Section 221 of P. L. 91-611, Rivers and Harbors and Flood Control Act of 1970, and that the State of New York has all the legal authority required by Section 221 of P. L. 91-611. I further certify that the State of New York is acting in furtherance of such legal authority in entering into the agreement for local cooperation at Wellsville, New York.

LOUIS J. LEFKOWITZ  
ATTORNEY GENERAL

BY:



RUTH KESSLER TOCH  
Solicitor General

DEPARTMENT OF THE ARMY  
Buffalo District, Corps of Engineers  
1776 Niagara Street  
Buffalo, New York 14207

LOCAL FLOOD PROTECTION PROJECT  
ON  
GENESEE RIVER  
AT  
WELLSVILLE, NEW YORK

APPENDIX C  
FLOOD CONTROL REGULATIONS



the amount of the penalty to be assessed, describe by reasonable specificity the nature of the violation, and indicate the applicable provisions of 33 CFR part 326.

(iii) **Hearing Requests.** Recipients of a proposed civil penalty order may file a written request for a hearing or other proceeding. This request shall be as specified in 33 CFR part 326 and shall be addressed to the Director of the Water Resources Support Center, Casey Building, Fort Belvoir, Virginia 22060-5586, who will provide the requesting person or entity with a reasonable opportunity to present evidence regarding the issuance, modification, or revocation of the proposed order. Thereafter, the Director of the Water Resources Center shall issue a final order.

(4) **Additional Remedies.** Appropriate cases may also be referred to the local U.S. Attorney for prosecution, penalty collection, injunctive, and other relief by the Chief of the Waterborne Commerce Statistics Center.

[56 FR 13765, Apr. 4, 1991]

## PART 208—FLOOD CONTROL REGULATIONS

- Sec.
- 208.10 Local flood protection works; maintenance and operation of structures and facilities.
- 208.11 Regulations for use of storage allocated for flood control or navigation and/or project operation at reservoirs subject to prescription of rules and regulations by the Secretary of the Army in the interest of flood control and navigation.
- 208.19 Marshall Ford Dam and Reservoir (Mansfield Dam and Lake Travis), Colorado River, Tex.
- 208.22 Twin Buttes Dam and Reservoir, Middle and South Concho Rivers, Tex.
- 208.25 Pensacola Dam and Reservoir, Grand (Neosho) River, Okla.
- 208.26 Altus Dam and Reservoir, North Fork Red River, Okla.
- 208.27 Fort Cobb Dam and Reservoir, Pond (Cobb) Creek, Oklahoma.
- 208.28 Foss Dam and Reservoir, Washita River, Oklahoma.
- 208.29 Arbuckle Dam and Lake of the Arbuckles, Rock Creek, Okla.
- 208.32 Sanford Dam and Lake Meredith, Canadian River, Tex.
- 208.33 Cheney Dam and Reservoir, North Fork of Minnecah River, Kans.
- 208.34 Norman Dam and Lake Thunderbird, Little River, Okla.

208.82 Hetch Hetchy, Cherry Valley, and Don Pedro Dams and Reservoirs.

AUTHORITY: Sec. 7, 58 Stat. 890; 33 U.S.C. 709.

### § 208.10 Local flood protection works; maintenance and operation of structures and facilities.

(a) **General.** (1) The structures and facilities constructed by the United States for local flood protection shall be continuously maintained in such a manner and operated at such times and for such periods as may be necessary to obtain the maximum benefits.

(2) The State, political subdivision thereof, or other responsible local agency, which furnished assurance that it will maintain and operate flood control works in accordance with regulations prescribed by the Secretary of the Army, as required by law, shall appoint a permanent committee consisting of or headed by an official herein-after called the "Superintendent," who shall be responsible for the development and maintenance of, and directly in charge of, an organization responsible for the efficient operation and maintenance of all of the structures and facilities during flood periods and for continuous inspection and maintenance of the project works during periods of low water, all without cost to the United States.

(3) A reserve supply of materials needed during a flood emergency shall be kept on hand at all times.

(4) No encroachment or trespass which will adversely affect the efficient operation or maintenance of the project works shall be permitted upon the rights-of-way for the protective facilities.

(5) No improvement shall be passed over, under, or through the walls, levees, improved channels or floodways, nor shall any excavation or construction be permitted within the limits of the project right-of-way, nor shall any change be made in any feature of the works without prior determination by the District Engineer of the Department of the Army or his authorized representative that such improvement, excavation, construction, or alteration will not adversely affect the functioning of the protective facilities. Such improvements or alterations as may be

found to be desirable and permissible under the above determination shall be constructed in accordance with standard engineering practice. Advice regarding the effect of proposed improvements or alterations on the functioning of the project and information concerning methods of construction acceptable under standard engineering practice shall be obtained from the District Engineer or, if otherwise obtained, shall be submitted for his approval. Drawings or prints showing such improvements or alterations as finally constructed shall be furnished the District Engineer after completion of the work.

(6) It shall be the duty of the superintendent to submit a semiannual report to the District Engineer covering inspection, maintenance, and operation of the protective works.

(7) The District Engineer or his authorized representatives shall have access at all times to all portions of the protective works.

(8) Maintenance measures or repairs which the District Engineer deems necessary shall be promptly taken or made.

(9) Appropriate measures shall be taken by local authorities to insure that the activities of all local organizations operating public or private facilities connected with the protective works are coordinated with those of the Superintendent's organization during flood periods.

(10) The Department of the Army will furnish local interests with an Operation and Maintenance Manual for each completed project, or separate useful part thereof, to assist them in carrying out their obligations under this part.

(b) **Levees—(1) Maintenance.** The Superintendent shall provide at all times such maintenance as may be required to insure serviceability of the structures in time of flood. Measures shall be taken to promote the growth of sod, exterminate burrowing animals, and to provide for routine mowing of the grass and weeds, removal of wild growth and drift deposits, and repair of damage caused by erosion or other forces. Where practicable, measures shall be taken to retard bank erosion by planting of willows or other suitable growth

on areas riverward of the levees. Periodic inspections shall be made by the Superintendent to insure that the above maintenance measures are being effectively carried out and, further, to be certain that:

(i) No unusual settlement, sloughing, or material loss of grade or levee cross section has taken place;

(ii) No caving has occurred on either the land side or the river side of the levee which might affect the stability of the levee section;

(iii) No seepage, saturated areas, or sand boils are occurring;

(iv) Toe drainage systems and pressure relief wells are in good working condition, and that such facilities are not becoming clogged;

(v) Drains through the levees and gates on said drains are in good working condition;

(vi) No revetment work or riprap has been displaced, washed out, or removed;

(vii) No action is being taken, such as burning grass and weeds during inappropriate seasons, which will retard or destroy the growth of sod;

(viii) Access roads to and on the levee are being properly maintained;

(ix) Cattle guards and gates are in good condition;

(x) Crown of levee is shaped so as to drain readily, and roadway thereon, if any, is well shaped and maintained;

(xi) There is no unauthorized grazing or vehicular traffic on the levees;

(xii) Encroachments are not being made on the levee right-of-way which might endanger the structure or hinder its proper and efficient functioning during times of emergency.

Such inspections shall be made immediately prior to the beginning of the flood season; immediately following each major high water period, and otherwise at intervals not exceeding 90 days, and such intermediate times as may be necessary to insure the best possible care of the levee. Immediate steps will be taken to correct dangerous conditions disclosed by such inspections. Regular maintenance repair measures shall be accomplished during the appropriate season as scheduled by the Superintendent.

(2) *Operation.* During flood periods the levee shall be patrolled continuously to locate possible sand boils or unusual wetness of the landward slope and to be certain that:

- (i) There are no indications of slides or sloughs developing;
- (ii) Wave wash or scouring action is not occurring;
- (iii) No low reaches of levee exist which may be overtopped;
- (iv) No other conditions exist which might endanger the structure.

Appropriate advance measures will be taken to insure the availability of adequate labor and materials to meet all contingencies. Immediate steps will be taken to control any condition which endangers the levee and to repair the damaged section.

(c) *Flood walls—(1) Maintenance.* Periodic inspections shall be made by the Superintendent to be certain that:

- (i) No seepage, saturated areas, or sand boils are occurring;
- (ii) No undue settlement has occurred which affects the stability of the wall or its water tightness;
- (iii) No trees exist, the roots of which might extend under the wall and offer accelerated seepage paths;
- (iv) The concrete has not undergone cracking, chipping, or breaking to an extent which might affect the stability of the wall or its water tightness;
- (v) There are no encroachments upon the right-of-way which might endanger the structure or hinder its functioning in time of flood;
- (vi) Care is being exercised to prevent accumulation of trash and debris adjacent to walls, and to insure that no fires are being built near them;
- (vii) No bank caving conditions exist riverward of the wall which might endanger its stability;
- (viii) Toe drainage systems and pressure relief wells are in good working condition, and that such facilities are not becoming clogged.

Such inspections shall be made immediately prior to the beginning of the flood season, immediately following each major high water period, and otherwise at intervals not exceeding 90 days. Measures to eliminate encroachments and effect repairs found necessary by such inspections shall be un-

dertaken immediately. All repairs shall be accomplished by methods acceptable in standard engineering practice.

(2) *Operation.* Continuous patrol of the wall shall be maintained during flood periods to locate possible leakage at monolith joints or seepage underneath the wall. Floating plant or boats will not be allowed to lie against or tie up to the wall. Should it become necessary during a flood emergency to pass anchor cables over the wall, adequate measures shall be taken to protect the concrete and construction joints. Immediate steps shall be taken to correct any condition which endangers the stability of the wall.

(d) *Drainage structures—(1) Maintenance.* Adequate measures shall be taken to insure that inlet and outlet channels are kept open and that trash, drift, or debris is not allowed to accumulate near drainage structures. Flap gates and manually operated gates and valves on drainage structures shall be examined, oiled, and trial operated at least once every 90 days. Where drainage structures are provided with stop log or other emergency closures, the condition of the equipment and its housing shall be inspected regularly and a trial installation of the emergency closure shall be made at least once each year. Periodic inspections shall be made by the Superintendent to be certain that:

- (i) Pipes, gates, operating mechanism, riprap, and headwalls are in good condition;
- (ii) Inlet and outlet channels are open;
- (iii) Care is being exercised to prevent the accumulation of trash and debris near the structures and that no fires are being built near bituminous coated pipes;
- (iv) Erosion is not occurring adjacent to the structure which might endanger its water tightness or stability.

Immediate steps will be taken to repair damage, replace missing or broken parts, or remedy adverse conditions disclosed by such inspections.

(2) *Operation.* Whenever high water conditions impend, all gates will be inspected a short time before water reaches the invert of the pipe and any object which might prevent closure of

the gate shall be removed. Automatic gates shall be closely observed until it has been ascertained that they are securely closed. Manually operated gates and valves shall be closed as necessary to prevent inflow of flood water. All drainage structures in levees shall be inspected frequently during floods to ascertain whether seepage is taking place along the lines of their contact with the embankment. Immediate steps shall be taken to correct any adverse condition.

(e) *Closure structures—(1) Maintenance.* Closure structures for traffic openings shall be inspected by the Superintendent every 90 days to be certain that:

- (i) No parts are missing;
- (ii) Metal parts are adequately covered with paint;
- (iii) All movable parts are in satisfactory working order;
- (iv) Proper closure can be made promptly when necessary;
- (v) Sufficient materials are on hand for the erection of sand bag closures and that the location of such materials will be readily accessible in times of emergency.

Tools and parts shall not be removed for other use. Trial erections of one or more closure structures shall be made once each year, alternating the structures chosen so that each gate will be erected at least once in each 3-year period. Trial erection of all closure structures shall be made whenever a change is made in key operating personnel. Where railroad operation makes trial erection of a closure structure infeasible, rigorous inspection and drill of operating personnel may be substituted therefor. Trial erection of sand bag closures is not required. Closure materials will be carefully checked prior to and following flood periods, and damaged or missing parts shall be repaired or replaced immediately.

(2) *Operation.* Erection of each movable closure shall be started in sufficient time to permit completion before flood waters reach the top of the structure sill. Information regarding the proper method of erecting each individual closure structure, together with an estimate of the time required by an experienced crew to complete its erection will be given in the Operation and

Maintenance Manual which will be furnished local interests upon completion of the project. Closure structures will be inspected frequently during flood periods to ascertain that no undue leakage is occurring and that drains provided to care for ordinary leakage are functioning properly. Boats or floating plant shall not be allowed to tie up to closure structures or to discharge passengers or cargo over them.

(f) *Pumping plants—(1) Maintenance.* Pumping plants shall be inspected by the Superintendent at intervals not to exceed 30 days during flood seasons and 90 days during off-flood seasons to insure that all equipment is in order for instant use. At regular intervals, proper measures shall be taken to provide for cleaning plant, buildings, and equipment, repainting as necessary, and lubricating all machinery. Adequate supplies of lubricants for all types of machines, fuel for gasoline or diesel powered equipment, and flash lights or lanterns for emergency lighting shall be kept on hand at all times. Telephone service shall be maintained at pumping plants. All equipment, including switch gear, transformers, motors, pumps, valves, and gates shall be trial operated and checked at least once every 90 days. Megger tests of all insulation shall be made whenever wiring has been subjected to undue dampness and otherwise at intervals not to exceed one year. A record shall be kept showing the results of such tests. Wiring disclosed to be in an unsatisfactory condition by such tests shall be brought to a satisfactory condition or shall be promptly replaced. Diesel and gasoline engines shall be started at such intervals and allowed to run for such length of time as may be necessary to insure their serviceability in times of emergency. Only skilled electricians and mechanics shall be employed on tests and repairs. Operating personnel for the plant shall be present during tests. Any equipment removed from the station for repair or replacement shall be returned or replaced as soon as practicable and shall be trial operated after reinstallation. Repairs requiring removal of equipment from the plant shall be made during off-flood seasons insofar as practicable.

(2) *Operation.* Competent operators shall be on duty at pumping plants whenever it appears that necessity for pump operation is imminent. The operator shall thoroughly inspect, trial operate, and place in readiness all plant equipment. The operator shall be familiar with the equipment manufacturers' instructions and drawings and with the "Operating Instructions" for each station. The equipment shall be operated in accordance with the above-mentioned "Operating Instructions" and care shall be exercised that proper lubrication is being supplied all equipment, and that no overheating, undue vibration or noise is occurring. Immediately upon final recession of flood waters, the pumping station shall be thoroughly cleaned, pump house sumps flushed, and equipment thoroughly inspected, oiled and greased. A record or log of pumping plant operation shall be kept for each station, a copy of which shall be furnished the District Engineer following each flood.

(g) *Channels and floodways—(1) Maintenance.* Periodic inspections of improved channels and floodways shall be made by the Superintendent to be certain that:

(i) The channel or floodway is clear of debris, weeds, and wild growth;

(ii) The channel or floodway is not being restricted by the depositing of waste materials, building of unauthorized structures or other encroachments;

(iii) The capacity of the channel or floodway is not being reduced by the formation of shoals;

(iv) Banks are not being damaged by rain or wave wash, and that no sloughing of banks has occurred;

(v) Riprap sections and deflection dikes and walls are in good condition;

(vi) Approach and egress channels adjacent to the improved channel or floodway are sufficiently clear of obstructions and debris to permit proper functioning of the project works.

Such inspections shall be made prior to the beginning of the flood season and otherwise at intervals not to exceed 90 days. Immediate steps will be taken to remedy any adverse conditions disclosed by such inspections. Measures will be taken by the Superintendent to promote the growth of grass on bank

slopes and earth deflection dikes. The Superintendent shall provide for periodic repair and cleaning of debris basins, check dams, and related structures as may be necessary.

(2) *Operation.* Both banks of the channel shall be patrolled during periods of high water, and measures shall be taken to protect those reaches being attacked by the current or by wave wash. Appropriate measures shall be taken to prevent the formation of jams of ice or debris. Large objects which become lodged against the bank shall be removed. The improved channel or floodway shall be thoroughly inspected immediately following each major high water period. As soon as practicable thereafter, all snags and other debris shall be removed and all damage to banks, riprap, deflection dikes and walls, drainage outlets, or other flood control structures repaired.

(h) *Miscellaneous facilities—(1) Maintenance.* Miscellaneous structures and facilities constructed as a part of the protective works and other structures and facilities which function as a part of, or affect the efficient functioning of the protective works, shall be periodically inspected by the Superintendent and appropriate maintenance measures taken. Damaged or unserviceable parts shall be repaired or replaced without delay. Areas used for ponding in connection with pumping plants or for temporary storage of interior run-off during flood periods shall not be allowed to become filled with silt, debris, or dumped material. The Superintendent shall take proper steps to prevent restriction of bridge openings and, where practicable, shall provide for temporary raising during floods of bridges which restrict channel capacities during high flows.

(2) *Operation.* Miscellaneous facilities shall be operated to prevent or reduce flooding during periods of high water. Those facilities constructed as a part of the protective works shall not be used for purposes other than flood protection without approval of the District Engineer unless designed therefor.

(Sec. 3, 49 Stat. 1871, as amended; 33 U.S.C. 701c)

[9 FR 9999, Aug. 17, 1944; 9 FR 10203, Aug. 22, 1944]

§208.11 Regulations for use of storage allocated for flood control or navigation and/or project operation at reservoirs subject to prescription of rules and regulations by the Secretary of the Army in the interest of flood control and navigation.

(a) *Purpose.* This regulation prescribes the responsibilities and general procedures for regulating reservoir projects capable of regulation for flood control or navigation and the use of storage allocated for such purposes and provided on the basis of flood control and navigation, except projects owned and operated by the Corps of Engineers; the International Boundary and Water Commission, United States and Mexico; and those under the jurisdiction of the International Joint Commission, United States, and Canada, and the Columbia River Treaty. The intent of this regulation is to establish an understanding between project owners, operating agencies, and the Corps of Engineers.

(b) *Responsibilities.* The basic responsibilities of the Corps of Engineers regarding project operation are set out in the cited authority and described in the following paragraphs:

(1) Section 7 of the Flood Control Act of 1944 (58 Stat. 890, 33 U.S.C. 709) directs the Secretary of the Army to prescribe regulations for flood control and navigation in the following manner:

Hereafter, it shall be the duty of the Secretary of War to prescribe regulations for the use of storage allocated for flood control or navigation at all reservoirs constructed wholly or in part with Federal funds provided on the basis of such purposes, and the operation of any such project shall be in accordance with such regulations: *Provided,* That this section shall not apply to the Tennessee Valley Authority, except that in case of danger from floods on the lower Ohio and Mississippi Rivers the Tennessee Valley Authority is directed to regulate the release of water from the Tennessee River into the Ohio River in accordance with such instructions as may be issued by the War Department.

(2) Section 9 of Public Law 436-83d Congress (68 Stat. 303) provides for the development of the Coosa River, Alabama and Georgia, and directs the Secretary of the Army to prescribe rules and regulations for project operation in

the interest of flood control and navigation as follows:

The operation and maintenance of the dams shall be subject to reasonable rules and regulations of the Secretary of the Army in the interest of flood control and navigation.

NOTE: This Regulation will also be applicable to dam and reservoir projects operated under provisions of future legislative acts wherein the Secretary of the Army is directed to prescribe rules and regulations in the interest of flood control and navigation. The Chief of Engineers, U.S. Army Corps of Engineers, is designated the duly authorized representative of the Secretary of the Army to exercise the authority set out in the Congressional Acts. This Regulation will normally be implemented by letters of understanding between the Corps of Engineers and project owner and will incorporate the provisions of such letters of understanding prior to the time construction renders the project capable of significant impoundment of water. A water control agreement signed by both parties will follow when deliberate impoundment first begins or at such time as the responsibilities of any Corps-owned projects may be transferred to another entity. Promulgation of this Regulation for a given project will occur at such time as the name of the project appears in the FEDERAL REGISTER in accordance with the requirements of paragraph 6k. When agreement on a water control plan cannot be reached between the Corps and the project owner after coordination with all interested parties, the project name will be entered in the FEDERAL REGISTER and the Corps of Engineers plan will be the official water control plan until such time as differences can be resolved.

(3) Federal Energy Regulatory Commission (FERC), formerly Federal Power Commission (FPC), Licenses.

(1) Responsibilities of the Secretary of the Army and/or the Chief of Engineers in FERC licensing actions are set forth in reference 3c above and pertinent sections are cited herein. The Commission may further stipulate as a licensing condition, that a licensee enter into an agreement with the Department of the Army providing for operation of the project during flood times, in accordance with rules and regulations prescribed by the Secretary of the Army.

(A) Section 4(e) of the Federal Power Act requires approval by the Chief of Engineers and the Secretary of the Army of plans of dams or other structures affecting the navigable capacity of any navigable waters of the United

DEPARTMENT OF THE ARMY  
Buffalo District, Corps of Engineers  
1776 Niagara Street  
Buffalo, New York 14207

LOCAL FLOOD PROTECTION PROJECT  
ON  
GENESEE RIVER  
AT  
WELLSVILLE, NEW YORK

APPENDIX D  
CHECK SHEETS

CHECK SHEET FOR INSPECTION

Flood Protection Project at \_\_\_\_\_, New York

Channel/Reach \_\_\_\_\_

Inspected by \_\_\_\_\_ Date \_\_\_\_\_

Type of Inspection (check only one):

( ) Joint/Annual

( ) Emergency/Disaster

( ) Semiannual

( ) Other (Describe)

Inspection Item    Station/Location    Condition\*    Recommendations

A. CHANNEL (Includes the channel banks within the limits of permanent easement):

1. Weeds & wild growth \_\_\_\_\_

2. Trash, debris, dumped  
ashes, etc. \_\_\_\_\_

3. Encroachment \_\_\_\_\_

4. Shoaling \_\_\_\_\_

5. Erosion of banks \_\_\_\_\_

6. Erosion or under-  
cutting of buildings  
and structures \_\_\_\_\_

7. Approach, upstream  
of project \_\_\_\_\_

8. Egress, downstream  
of project \_\_\_\_\_

9. Riprap \_\_\_\_\_

\*Indicate satisfactory conditions with a check; briefly describe conditions when other than satisfactory; use additional sheets if more space is needed.

CORRECTIVE WORK COMPLETED DURING PERIOD:

BEGINNING \_\_\_\_\_

ENDING \_\_\_\_\_

ADDITIONAL REMARKS:

CHECK SHEET FOR INSPECTION

Flood Protection Project at \_\_\_\_\_, New York

Channel/Reach \_\_\_\_\_

Inspected by \_\_\_\_\_ Date \_\_\_\_\_

Type of Inspection (check only one):

( ) Joint/Annual

( ) Emergency/Disaster

( ) Semiannual

( ) Other (Describe)

Inspection Item    Station/Location    Condition\*    Recommendations

B. FLOODWAY (Includes the overbank within the limits of permanent easement (flowage)):

1. Weeds & wild growth \_\_\_\_\_

2. Trash, debris, dumped  
ashes, etc. \_\_\_\_\_

3. Encroachment \_\_\_\_\_

C. STRUCTURES:

1. Genesee River drop structure -

Concrete weir \_\_\_\_\_

Concrete paving \_\_\_\_\_

Derrick stone \_\_\_\_\_

Riprap \_\_\_\_\_

Banks downstream  
from structure \_\_\_\_\_

Channel downstream  
from structure \_\_\_\_\_

\*Indicate satisfactory conditions with a check; briefly describe conditions when other than satisfactory; use additional sheets if more space is needed.

CORRECTIVE WORK COMPLETED DURING PERIOD:

BEGINNING \_\_\_\_\_ ENDING \_\_\_\_\_

ADDITIONAL REMARKS:

CHECK SHEET FOR INSPECTION

Flood Protection Project at \_\_\_\_\_, New York

Channel/Reach \_\_\_\_\_

Inspected by \_\_\_\_\_ Date \_\_\_\_\_

Type of Inspection (check only one):

( ) Joint/Annual

( ) Emergency/Disaster

( ) Semiannual

( ) Other (Describe)

Inspection Item    Station/Location    Condition\*    Recommendations

C. STRUCTURES (continued):

2. Sheet pile weir (Station 102+87.25) -

Alignment \_\_\_\_\_

Derrick stone \_\_\_\_\_

Riprap \_\_\_\_\_

Banks downstream  
from structure \_\_\_\_\_

Channel downstream  
from structure \_\_\_\_\_

3. Sheet pile weir (Station 89+00) -

Alignment \_\_\_\_\_

Concrete blocks \_\_\_\_\_

Riprap \_\_\_\_\_

Bank downstream  
from structure \_\_\_\_\_

Channel downstream  
from structure \_\_\_\_\_

\*Indicate satisfactory conditions with a check; briefly describe conditions when other than satisfactory; use additional sheets if more space is needed.

CORRECTIVE WORK COMPLETED DURING PERIOD:

BEGINNING \_\_\_\_\_ ENDING \_\_\_\_\_

ADDITIONAL REMARKS:

CHECK SHEET FOR INSPECTION

Flood Protection Project at \_\_\_\_\_, New York

Channel/Reach \_\_\_\_\_

Inspected by \_\_\_\_\_ Date \_\_\_\_\_

Type of Inspection (check only one):

( ) Joint/Annual

( ) Emergency/Disaster

( ) Semiannual

( ) Other (Describe)

Inspection Item    Station/Location    Condition\*    Recommendations

C. STRUCTURES (continued):

4. Dyke Creek drop structure -

Concrete paving \_\_\_\_\_

Derrick stone \_\_\_\_\_

Riprap \_\_\_\_\_

Banks downstream  
from structure \_\_\_\_\_

Channel downstream  
from structure \_\_\_\_\_

5. Drainage structures -

Inlet ditches \_\_\_\_\_

Culverts \_\_\_\_\_

Headwalls \_\_\_\_\_

Automatic gates \_\_\_\_\_

Manual gates \_\_\_\_\_

Manhole \_\_\_\_\_

Paved ditches \_\_\_\_\_

\*Indicate satisfactory conditions with a check; briefly describe conditions when other than satisfactory; use additional sheets if more space is needed.

CORRECTIVE WORK COMPLETED DURING PERIOD:

BEGINNING \_\_\_\_\_ ENDING \_\_\_\_\_

ADDITIONAL REMARKS:



CHECK SHEET FOR INSPECTION

Flood Protection Project at \_\_\_\_\_, New York

Channel/Reach \_\_\_\_\_

Inspected by \_\_\_\_\_ Date \_\_\_\_\_

Type of Inspection (check only one):

( ) Joint/Annual

( ) Emergency/Disaster

( ) Semiannual

( ) Other (Describe)

Inspection Item    Station/Location    Condition\*    Recommendations

C. STRUCTURES (continued):

6. Levees -

Settlement \_\_\_\_\_

Sloughing or  
erosion \_\_\_\_\_

Seepage \_\_\_\_\_

Animal burrows \_\_\_\_\_

Sod \_\_\_\_\_

Weeds \_\_\_\_\_

Encroachment \_\_\_\_\_

Unauthorized  
excavation \_\_\_\_\_

Unauthorized  
traffic \_\_\_\_\_

\*Indicate satisfactory conditions with a check; briefly describe conditions when other than satisfactory; use additional sheets if more space is needed.

CORRECTIVE WORK COMPLETED DURING PERIOD:

BEGINNING \_\_\_\_\_ ENDING \_\_\_\_\_

ADDITIONAL REMARKS:

DEPARTMENT OF THE ARMY  
Buffalo District, Corps of Engineers  
1776 Niagara Street  
Buffalo, New York 14207

LOCAL FLOOD PROTECTION PROJECT  
ON  
GENESEE RIVER  
AT  
WELLSVILLE, NEW YORK

APPENDIX E  
MATERIAL SPECIFICATIONS

## MATERIAL SPECIFICATIONS - 1956 PROJECT

1. Compacted embankment/fill - Materials "obtained from the required excavations", and "selected by the Contracting Officer"

2. Steel for piling - Federal Specification (Fed. Spec.) QQ-S-741a, Type I, Class 1 Steel  
(Obsolete, use ASTM A36; for piling, use ASTM A328)

<u>Section Type</u>	<u>Thickness</u>	<u>Sec. Mod.</u>	<u>Wt/SF of Wall</u>
PSA-23	3/8"	2.4 CI	23 Lbs.
PMA-22	3/8"	5.4 CI	22 Lbs.
PDA-27	3/8"	10.7 CI	27 Lbs.
PZ-27	3/8"	30.2 CI	27 Lbs.
PZ-32	3/8"	38.3 CI	32 Lbs.

3. Structural steel - 1-1/4" tie rods with standard hex nuts  
plate washers

4. Wood - long leaf yellow pine, heart white oak, or oregon fir  
3"x10" bracing and 3" sheathing

5. Concrete - mixture "designed by the Contracting Officer" and produced either by batch-type mixing plant or ready-mix plant

a. Portland cement - Fed. Spec. SS-C-192a, Type I or II (Obsolete, use ASTM C150); 4-6 bags/CY

b. Fine aggregate (Natural sand, manufactured sand, or combination)

<u>Sieve</u>	<u>% Passing by Wt.</u>
3/8"	100
No.4	95-100
No.16	45-80
No.50	10-30
No.100	2-10

c. Coarse aggregate (Gravel, crushed stone, or blast-furnace slag)

<u>Sieve</u>	<u>% Passing by Wt.</u>
3"	95-100
1/2"	35-70
No.4	0-5

d. Air content - 3-6 percent of volume

e. Waterproof sheathing paper - "over surfaces of filter material on which concrete is to be placed"

6. Reinforcement - Fed. Spec. QQ-B-71a, Type B, Grade 2, and ASTM A305-53T  
(Obsolete, use ASTM A615, A616, A617)

7. Expansion joint material - ?

8. Fiber sleeves for weep holes - 3" fiber pipe - ?

9. Stone -

a. Filter blanket - double layer - for 24" of riprap and derrick stone

6" lower - same as Concrete Fine Aggregate

9" upper -

<u>Sieve</u>	<u>% Passing by Wt.</u>
6"	100
4"	75-95
1-1/2"	55-75
3/4"	35-60
3/8"	Not less than 20
No.4	5-25

b. Filter blanket - single layer, 6" - for riprap

<u>Sieve</u>	<u>% Passing by Wt.</u>
3"	100
3/4"	55-80
No.4	35-60
No.10	25-50
No.40	15-30
No.200	0-10

c. Riprap -

<u>Thickness</u>	<u>Stone Size</u> <u>Min. - Max.</u>
12"	5 - 150#
15"	20 - 250#
18"	50 - 500#
24"	75 - 1,500#
24" +/-	75 - 2,500#

d. Grout for riprap - 1 part cement : 3.5 parts sand

Sand - same as Concrete Fine Aggregate

Cement - same as Concrete Portland Cement

e. Derrick stone -

3-foot - 50% weighs not less than 4,500#

2-foot - 50% weighs not less than 1,300#

Least dimension not less than 1/3 of greatest dimension

f. Gravel frost blanket - Under concrete slabs

Same as Concrete Fine Aggregate

Less than 3% is smaller than 0.02 mm

g. Gravel filter trenches -

3" drain holes - 1.5 to 3", well-graded

Concrete joints - 3/4 to 1.5", well-graded

h. Rock fill - "riprap or other stones suitable to the Contracting Officer"

i. Inspection trench backfill - Same as Filter Blanket-Single layer

10. Seed - Dept. Of Agriculture Rules and Regulations; 30#/Acre

<u>Kind of Seed</u>	<u>Percent by Wt.</u>
Timothy	18
Orchard Grass	9
Tall Fescue	18
Red Top	14
Canada Bluegrass	12
Black Medic	<u>11</u>
Total pure live seed	82 Min.
Other materials	<u>18</u> Max.
	100

11. Fertilizer - Fed. Spec. O-F-241 (Obsolete?); 500 #/Acre  
5-10-5 commercial mixture

12. Drainage structures -

- a. Pipe culvert - AASHTO M36-47 (Obsolete, use current edition); or Fed. Spec. QQ-C-806a, Type 1 (Obsolete, use ASTM A760)
  - 12-gage corrugated metal pipe, 36"
  - Bituminous-coated inside and outside
  - Seep rings, bituminous-coated
- b. Concrete pipe/storm drain - ASTM C76-55 (Obsolete, use current edition)
  - Seep rings, reinforced concrete
- c. Manholes & headwalls -
  - Concrete & Reinforcement as listed above
  - Perforated structural steel cover plates on manholes
  - Galvanized structural steel ladder rungs & eyebolts on manholes
- d. Automatic (flap) gates - 24" and 36" Armco Model 102
- e. Manual (sluice) gates with floor stands - 24", 20' unseating head; 36", 10' unseating head - Armco-Pekrul Model 56A gates and Model 8A floor stands

## MATERIAL SPECIFICATIONS - 1973 RECTIFICATION

### 1. Earthwork - MIL-STD-619B (Obsolete, use ASTM D2487)

- a. Suitable - Silty gravels, gravelly sandy silt mixtures (GM); clayey gravels (GC); silty sands or sand silt mixtures (SM); clayey sands or sandy silt mixtures (SC); inorganic clays, gravelly clays, silty clays (CL); and inorganic clays (CH), or mixtures, "obtained from the required excavation areas"
- b. Unsuitable - Organic clays (OH); peat (Pt); and organic silts (OL), or combinations with suitable

### 2. Piling - ASTM A328-70 (Obsolete, use current edition)

<u>Section Type</u>	<u>Thickness</u>	<u>Sec. Mod.</u>	<u>Wt./SF of Wall</u>
PZ-32	3/8"	38.3 CI	32 Lbs.

### 3. Stone -

#### a. Bedding, type 1 -

<u>Sieve</u>	<u>% Passing by Wt.</u>
4"	100
2-1/2"	75-100
1"	50-80
1/2"	35-65
No.4	15-50
No.10	0-40
No.200	0-10

#### b. Bedding, type 1A -

<u>Sieve</u>	<u>% Passing by Wt.</u>
8"	100
6"	80-100
3"	40-70
1"	0-25
1/2"	0-5

#### c. Bedding, type 2 and Twelve-inch riprap -

<u>% Finer by Wt.</u>	<u>Stone Wt. in Lbs.</u>	
	<u>Max.</u>	<u>Min.</u>
100	90	35
50	31	20
15	15	5

#### d. Eighteen-inch riprap -

<u>% Finer by Wt.</u>	<u>Stone Wt. In Lbs.</u>	
	<u>Max.</u>	<u>Min.</u>
100	300	120
50	90	60
15	40	20

- e. Derrick stone -  
1'-9" to 2'-6" thick with greatest dimension not more than 3 times the smallest dimension

4. Concrete - 3,000 psi min.; contractor-designed; produced either by batch-type mixing plant or ready-mix plant

- a. Portland cement - Fed. Spec. SS-C-192g, Type I or II (Obsolete, use ASTM C150); 5.5 bags/CY  
b. Fine aggregate - NYS Public Works Specifications, Type a or b sand (Obsolete, use NYS Department of Transportation Specifications)

<u>Sieve</u>	<u>% Passing by Wt.</u>
3/8"	100
No.4	90-100
No.8	75-100
No.16	50-85
No.30	25-60
No.50	10-30
No.100	1-10

- c. Coarse aggregate - NYS Public Works Specifications, Type A or B gravel, crushed stone or blast furnace slag (Obsolete, use NYS Department of Transportation Specifications)

<u>Sieve</u>	<u>% Passing by Wt.</u>
2-1/2"	100
2"	95-100
1-1/2"	68-88
1"	47-66
1/2"	14-35
1/4"	0-5

- d. Air content - 4-7 percent of volume  
e. Slump - 3 inches max.

5. Reinforcement - ASTM A615-68 or A616-68 (Obsolete, use current editions)

6. Dowels - ASTM A306-64 (Obsolete, use ASTM A663 & A675); or  
ASTM A499-64 (Obsolete, use current edition)

7. Non-shrink grout for dowels - Embeco Grout by Master Builders, or equal

8. Joint filler - ASTM D1751-71 or D1752-67 (Obsolete, use current editions)

9. Joint sealer - Fed. Spec. SS-S-195B (Obsolete, use ASTM D1850); or  
ASTM D1850-67 (Obsolete, use current edition)

10. Seed - Dept. Of Agriculture Rules and Regulations; 100 #/Acre

<u>Kind</u>	<u>Percent by Wt.</u>
Italian Rye Grass	53.9
Kentucky Bluegrass	11.9
Red Fescue	29.4
Red Top	<u>0.9</u>
	96.1
Weed Seed, less than 1%	0.5
Other	<u>3.4</u> Max.
	100.0

11. Fertilizer - 725 #/Acre

12-12-12 commercial mixture

12. Mulch - Hay, or straw, or wood cellulose fiber

13. Drainage facilities -

- a. Cast iron soil pipe - ASTM A74-69, class SV (Obsolete, use current edition)
- b. Corrugated metal pipe - AASHTO M36-70 (Obsolete, use current edition)
- c. Seepage diaphragms - same material as corrugated metal pipe
- d. Headwalls - Concrete and Reinforcement as listed above
- e. Mortar - 1 part cement : 2 parts sand
  - Sand - same as Concrete Fine Aggregate
  - Cement - same as Concrete Portland Cement
- f. Flap gates - Armco Model 10C or equal



## MATERIAL SPECIFICATIONS - 1976 RECTIFICATION

1. Embankment and backfill - MIL-STD-619B (Obsolete, use ASTM D2487)
  - a. Suitable - GW, GP, GM, GC, SW, SP, SM, SC, ML, CL, MH and CH, or mixtures
  - b. Unsuitable - OH, PT, and OL, or combinations

2. Piling - ASTM A328-70 (Obsolete, use current edition)

<u>Section Type</u>	<u>Thickness</u>	<u>Sec. Mod.</u>	<u>Wt./SF of Wall</u>
PZ-27	3/8"	30.2 CI	27 Lbs.

3. Stone -

- a. Bedding, type 1 - same 4" to No.200 gradation as previous rectification
- b. Bedding, type 1A - same 8" to 1/2" gradation as previous rectification
- c. Riprap, type A -

<u>Weight</u>	<u>% Finer by Wt.</u>
90	100
35	55-100
15	15-48
10	0-35
5	0-13
2	0-10

- d. Riprap, type B, 18 inches and 24 inches thick -

<u>Weight</u>	<u>% Finer by Wt.</u>
300	100
120	61-100
90	50-80
50	25-50
25	0-22
10	0-6

- e. Riprap, type C -

<u>Weight</u>	<u>% Finer by Wt.</u>
700	100
275	52-100
140	23-50
50	0-20
10	0-6

4. Concrete - produced either by batch-type mixing plant or ready-mix plant
  - a. Portland cement - Fed. Spec. SS-C-192g, Type I or II (Obsolete, use ASTM C150)
  - b. Aggregates - Fed. Spec. SS-A-281(b) (Obsolete, use ASTM C33)  
 Fine (natural sand, manufactured sand, or combination):

<u>Sieve</u>	<u>% Passing by Wt.</u>
3/8"	100
No.4	90-100
No.8	75-100
No.16	50-100
No.30	25-60
No.50	10-30
No.100	1-10
No.200	0-3

Coarse (gravel, crushed gravel, crushed stone, or combination) for concrete class A, NYS Department of Transportation Specifications, Section 501:

<u>Sieve</u>	<u>% Passing by Wt.</u>
1-1/2"	100
1"	93-100
1/2"	27-58
1/4"	0-8

c. Air content - 4.5-7.5 percent of volume

d. Slump - 2 inches max.

5. Seed - Dept. of Agriculture Rules and Regulations; 100 #/Acre  
Same mixture as previous rectification

6. Fertilizer - 725 #/Acre  
Same mixture as previous rectification

7. Mulch - Hay, or straw, or wood cellulose fiber

8. Corrugated metal pipe - AASHTO M36-74, 14 gage (Obsolete, use current edition)

9. Precast concrete blocks - 2-foot thick, 5.5-6.5' in dimension

Concrete as listed above

1-1/4" Richmond eyebolts and screw anchors, or equal

10. 6-mil polyethylene - ASTM D2103-67 (Obsolete, use current edition)

## MATERIAL SPECIFICATIONS - 1996 REHABILITATION

1. Embankment and fill - Coarse-grained soil (gravel, sand or cobble) classified by Unified Soil Classification System (less than 50% fines)
2. Impervious fill - ASTM D2487; Plasticity index less than 30; CL or CH, silty clay or clayey silt mixtures, with 30% min. passing No.200 sieve

### 3. Stone -

- a. Bedding (crushed gravel or crushed stone) - 25% max. of stones, length more than 2.5 times breadth or thickness

<u>Sieve</u>	<u>% Finer by Wt.</u>
4"	100
2"	60-100
3/4"	38-62
No.4	14-40
No.10	2-30
No.20	0-22
No.200	0-5

- b. Eighteen-inch riprap - 25% max. of stones, length more than 2.5 times breadth or thickness; length not more than 3.0 times breadth or thickness

<u>Weight</u>	<u>% Lighter by Wt.</u>
295	100
120	65-100
60	33-50
35	0-28
20	0-16
7	0-5

- c. Toe stone - Nominal 36-inch dimension  
Length not more than 3.0 times breadth or thickness  
At least one flat face

### 4. Seed - AMS-01

#### a. All mixtures-

Total live seed	96.1%
Weed seed, less than 1%	0.5%
Other, maximum	<u>3.4%</u>
	100.0%

#### b. Established lawn mixture - 120 #/Acre

<u>Name</u>	<u>% by Wt.</u>
Creeping Red Fescue	25
Kentucky Bluegrass	<u>75</u>
Total	100

#### c. General coverage mixture - 90 #/Acre

<u>Name</u>	<u>Wt. Pure live Seed</u>
Creeping Red Fescue	40#
Red Top	10#
Tall Fescue	20#
Perennial Ryegrass	20#
Total	90#

5. Fertilizer - CID A-A-1909; 725 #/Acre  
8-20-10 commercial grade

6. Mulch - Straw, or hay, or wood cellulose fiber, or wood chips, or paper fiber

7. Geotextile - ASTM D4439; long-chain synthetic polymer, 85 percent minimum by weight of propylene, ethylene, ester, amide, or vinylidene-chloride, containing stabilizers and/or inhibitors added to base plastic making filaments resistant to deterioration from ultraviolet and heat exposure

Physical Property :	Test Procedure	: Acceptable Values++
Tensile Strength : +(unaged geotextile) :	ASTM D4632 Grab Test Method using 1- inch square jaws and 12 inches per minute : constant rate of traverse.	: 200-pound minimum in : any principal direction. :
Breaking Elongation : +(unaged geotextile) :	ASTM D4632 Determine apparent breaking: elongation.	: 20 percent minimum in : any principal direction. :
Puncture Strength : +(unaged geotextile) :	ASTM D4833.	: 120-pound minimum. :
Abrasion Resistance :	ASTM D3884 Rubber-base abrasive wheels : equal to CS-17 "Calibrase" by Taber : Instrument Co.; 1 kilogram per wheel; 1000: : revolutions, determine residual load.	: 55-pound minimum : residual breaking load in : any principal direction. :
Equivalent (Apparent): Opening Size (EOS) :	ASTM D4751 Determine apparent opening size.	: No finer than U.S. sieve : 100 and no coarser than : U.S. sieve 30.
Tear Strength :	ASTM D4533 Trapezoidal Tear Strength.	: 65-pound minimum in : any principal direction. :
Percent Open Area (POA)	: Determine average percent from 5 square, : 25-opening blocks. Percent for each block : equals sum of areas of 25 openings divided : by total area of 25 openings and their fibers.:	: Percent of open area : shall not be less than 4 : percent.

+ Unaged geotextile is defined as geotextile in the condition received from the manufacturer or distributor.

++ All numerical values represent minimum average roll values (i.e., any roll in a lot should meet or exceed the minimum in the table).

DEPARTMENT OF THE ARMY  
Buffalo District, Corps of Engineers  
1776 Niagara Street  
Buffalo, New York 14207

LOCAL FLOOD PROTECTION PROJECT  
ON  
GENESEE RIVER  
AT  
WELLSVILLE, NEW YORK

APPENDIX F  
PLATES (BOUND SEPARATELY)

# PLATES

<u>Number</u>	<u>Drawing No.</u>	<u>Title</u>
1956 PROJECT:		
1	F-189-A-10/1	General Plan
2	F-189-A-10/2	Hydrographs and Rating Curves
3	F-189-A-10/3	Plan & Profile; Genesee River; Sta. 95+00 to Sta. 120+90
4	F-189-A-10/4	Plan & Profile; Genesee River; Sta. 65+00 to Sta. 95+00
5	F-189-A-10/5	Plan & Profile; Genesee River; Sta. 32+50 to Sta. 65+00
6	F-189-A-10/6	Plan & Profile; Genesee River; Sta. 0+00 to Sta. 32+50
7	F-189-A-10/7	Plan & Profile; Dyke Creek; Sta. 0+00 to Sta. 12+00
8	F-189-A-10/8	Plan & Profile; Dyke Creek; Sta. 12+00 to Sta. 28+48.8
9	F-189-A-10/9	Plan & Profile; Dyke Creek; Sta. 28+48.8 to Sta. 34+64
10	F-189-A-10/10	Genesee River; Typical Channel Cross Sections
11	F-189-A-10/11	Dyke Creek; Typical Channel Cross Sections; Dumped Riprap Detail
12	F-189-A-10/12	Bridge Cross Sections; Genesee River & Dyke Creek
13	F-189-A-10/13	Bridge Cross Sections and Details of Bridge Pier Treatment
14	F-189-A-10/14	Drop Structure; Genesee River; Sta. 68+04.5 to Sta. 69+17.0
15	F-189-A-10/15	Drop Structure; Genesee River; Sta. 68+04.5 to Sta. 69+17.0
16	F-189-A-10/16	2-36" Culverts Through Levee; 1-24" Storm Sewer Through Levee
17	F-189-A-10/17	Steel Sheet Pile Wall and Channel Details; Genesee River; Sta. 0+00 to Sta. 2+53
18	F-189-A-10/18	Drop Structure; Dyke Creek; Sta. 32+77.74 to Sta. 34+54
19	F-189-A-10/19	Drop Structure; Dyke Creek; Sta. 32+77.74 to Sta. 34+54
1973 RECTIFICATION:		
20	189-WEL-1/1	General; General Plan and Index
21	189-WEL-1/2	General; Hydrographs and Rating Curves
22	189-WEL-1/3	General; Subsurface Explorations; Genesee River
23	189-WEL-2/1	Genesee River; Plan, Profile and Sections; Sta. 84+50 to Sta. 100+40
24	189-WEL-2/2	Genesee River; Plan, Profiles and Sections; Sta. 100+40 to Sta. 112+57
25	189-WEL-2/3	Genesee River; Plan, Profiles and Sections; Sta. 112+57 to Sta. 124+00

# PLATES

<u>Number</u>	<u>Drawing No.</u>	<u>Title</u>
26	189-WEL-2/4	Genesee River; Plan, Profile and Section; Sta. 124+00 to Sta. 135+90
27	189-WEL-2/5	Genesee River; Plan, Profiles and Sections; Sta. 158+40 to Sta. 170+00
28	189-WEL-3/1	Dyke Creek; Plan, Profiles and Sections; Sta. 32+00 to Sta. 40+14
29	189-WEL-4/1	Details-Genesee River; Alterations to Weir- Sta. 102+87.25; Plan and Sections
30	189-WEL-4/2	Details-Genesee River; Details of Headwall "A" and "B"
31	189-WEL-4/3	Details-Genesee River; Details of Headwall "C" and "D"
32	189-WEL-4/4	Details-Genesee River; Alterations to Weir- Sta. 168+40; Plan and Sections
1976 RECTIFICATION:		
33	76-WEL-1/1	General; General Plan and Index
34	76-WEL-1/2	Dyke Creek; Plan, Profile and Sections; Sta. 22+60 to Sta. 32+97.74
35	76-WEL-1/3	Genesee River; Plan and Profile; Sta. 82+20 to Sta. 103+00
36	76-WEL-1/4	Genesee River; Sections and Details
37	76-WEL-1/5	Genesee River; Hydrographs and Rating Curves
1996 REHABILITATION:		
38	96-WEL-1/1	Plan, Vicinity Map, Drawing Index and General Notes
39	96-WEL-1/2	Survey Control and Baseline
40	96-WEL-1/3	Sites A & B - Plan, Sections & Details
41	96-WEL-1/4	Sites A & B - Survey Cross Sections
42	96-WEL-1/5	Sites C, D, & F - Plans and Details
43	96-WEL-1/6	Site C - Survey Cross Sections
44	96-WEL-1/7	Sites G & H - Plans and Details
45	96-WEL-1/8	Sites G & H - Survey Cross Sections
46	96-WEL-1/9	Site I - Plan & Section
47	96-WEL-1/10	Site I - Survey Cross Sections
48	96-WEL-2/1	Real Estate

# FLOOD CONTROL PROJECT EMERGENCY REHABILITATION DYKE CREEK AND GENESEE RIVER, WELLSVILLE, NEW YORK

DRAWING INDEX

SHEET NUMBER	DESCRIPTION	DRAWING NUMBER
1	PLAN, VICINITY MAP, DRAWING INDEX AND GENERAL NOTES	96-WEL-1/1
2	SURVEY CONTROL AND BASELINE	96-WEL-1/2
3	SITES A & B - PLAN, SECTIONS & DETAILS	96-WEL-1/3
4	SITES A & B - SURVEY CROSS SECTIONS	96-WEL-1/4
5	SITES C, D & F - PLANS AND DETAILS	96-WEL-1/5
6	SITE G - SURVEY CROSS SECTIONS	96-WEL-1/6
7	SITES G & H - PLANS AND DETAILS	96-WEL-1/7
8	SITES G & H - SURVEY CROSS SECTIONS	96-WEL-1/8
9	SITE I - PLAN AND SECTION	96-WEL-1/9
10	SITE I - SURVEY CROSS SECTIONS	96-WEL-1/10

REFERENCE DRAWINGS

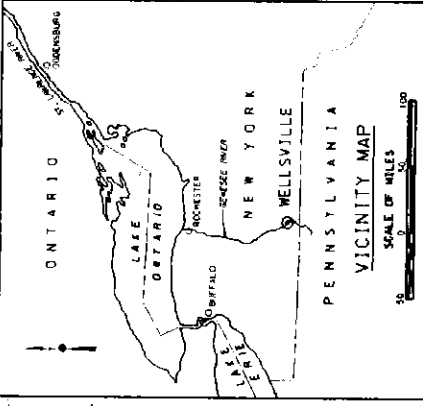
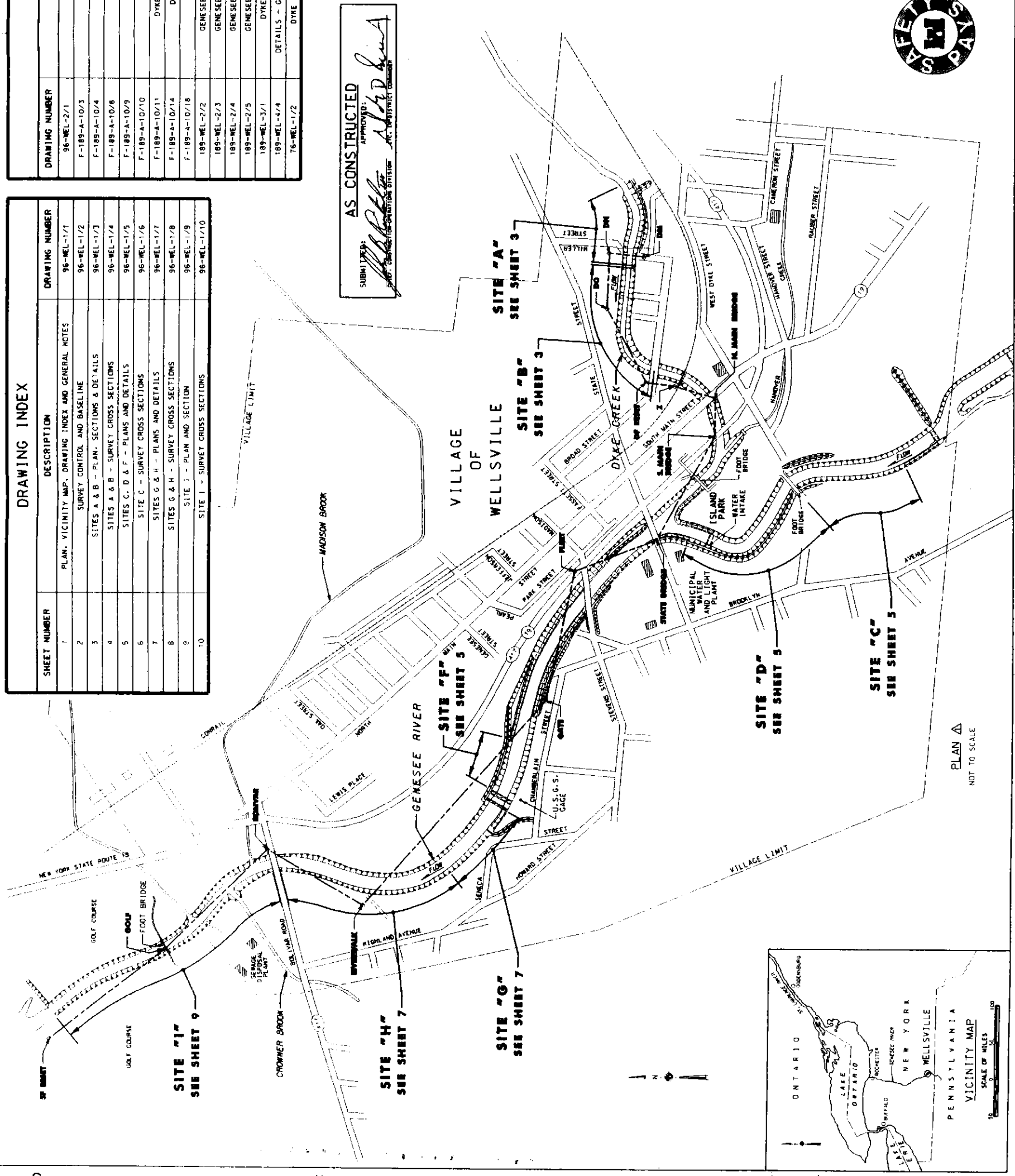
DRAWING NUMBER	DESCRIPTION
96-WEL-2/1	REAL ESTATE
F-189-A-10/3	PLAN & PROFILE, GENESEE RIVER, STA. 95+00 TO STA. 120+90
F-189-A-10/4	PLAN & PROFILE, GENESEE RIVER, STA. 65+00 TO STA. 95+00
F-189-A-10/8	PLAN & PROFILE, DYKE CREEK, STA. 12+00 TO STA. 28+48.8
F-189-A-10/9	PLAN & PROFILE, DYKE CREEK, STA. 28+48.8 TO STA. 34+64
F-189-A-10/10	GENESEE RIVER, TYPICAL CHANNEL CROSS SECTIONS
F-189-A-10/11	DYKE CREEK, TYPICAL CHANNEL CROSS SECTIONS, DUMPED RIPRAP DETAIL
F-189-A-10/14	DROP STRUCTURE, GENESEE RIVER, STA. 68+04.5 TO STA. 69+17.0
F-189-A-10/18	DROP STRUCTURE, DYKE CREEK, STA. 32+77.74 TO STA. 34+54
189-WEL-2/2	GENESEE RIVER, PLAN, PROFILES AND SECTIONS, STA. 100+40 TO STA. 112+47
189-WEL-2/3	GENESEE RIVER, PLAN, PROFILES AND SECTIONS, STA. 112+47 TO STA. 124+00
189-WEL-2/4	GENESEE RIVER, PLAN, PROFILES AND SECTIONS, STA. 124+00 TO STA. 136+90
189-WEL-2/5	GENESEE RIVER, PLAN, PROFILES AND SECTIONS, STA. 159+50 TO STA. 170+00
189-WEL-3/1	DYKE CREEK, PLAN, PROFILES AND SECTIONS, STA. 32+00 TO STA. 40+14
189-WEL-4/4	DETAILS - GENESEE RIVER, ALTERNATIONS TO WEIR - STA. 168+40, PLANS AND SECTIONS
76-WEL-1/2	DYKE CREEK, PLAN, PROFILE AND SECTIONS, STA. 22+60 TO STA. 32+97.74

GENERAL NOTES:

- ELEVATIONS ARE IN FEET AND TENTHS ABOVE MEAN SEA LEVEL, UNITED STATES COAST AND GEODETIC SURVEY (USCGS) DATUM.
- WORK UNDER THIS CONTRACT WAS PERFORMED AT THE 8 SITES DESIGNATED AS "A" THROUGH "H" AND "I" ON THE DRAWINGS.
- THE EXISTING FLOOD CONTROL PROJECT WAS CONSTRUCTED USING THREE SEPARATE CONTRACTS. APPLICABLE DRAWINGS FROM THESE CONTRACTS ARE PROVIDED AS REFERENCE DRAWINGS. THE DRAWINGS AT THESE SITES OF DRAWINGS FOR THESE CONTRACTS ARE AVAILABLE FOR REVIEW AT THE NEW YORK STATE ENGINEERING BOARD, 1775 NICHOLS STREET, BUFFALO, N.Y.
- CONTRACTOR LOCATED THE NEW CONSTRUCTION SHOWN ON THE CONTRACT DRAWINGS USING THE ORIGINAL PROJECT GEOMETRY AND THE EXISTING CHANNEL CENTERLINE. A SHOWN OTHERWISE ON DIRECTED OTHERWISE BY THE CONTRACTING OFFICER.
- THE PLANS ON THE CONTRACT DRAWINGS ARE TO APPROXIMATE SCALE. PROFILE AND NON-PROJECT FEATURES ARE GREATLY DISTORTED. SEE ORIGINAL PROJECT FEATURES.
- THERE IS THE POSSIBILITY THAT PROJECT AND NON-PROJECT FEATURES SHOWN ON THE REFERENCE DRAWINGS MAY NOT FULLY REFLECT ACTUAL CONDITIONS IN THE FIELD AFFECTING HIS WORK. HE NOTIFIED THE CONTRACTING OFFICER FOR GUIDANCE.
- CONTRACTOR CENTERLINE STATIONS FOR THE BEGINNING AND ENDING OF ALL WORK SHOWN ON THE CONTRACT DRAWINGS ARE SHOWN ON THE CONTRACT DRAWINGS. THE CONTRACTOR PERFORMED ALL WORK SPECIFIED BETWEEN THESE LIMITS. THE CONTRACTOR SHALL NOTE THAT THE STATIONING ON THE LATER SETS OF REFERENCE DRAWINGS HAS BEEN STATIONING FROM THE BEGINNING OF THE PROJECT TO THE END OF THE STATIONING FROM THE REFERENCE DRAWINGS REFERENCED FOR THAT SITE. STATIONS ARE IN FEET.
- EXCAVATION OF SHOULDER MATERIAL WAS PERFORMED DOWN TO THE ORIGINAL EXISTING CHANNEL GEOMETRY AND ALIGNMENT AS SHOWN ON THE CONTRACT DRAWINGS. EXISTING CHANNEL GEOMETRY AND ALIGNMENT REMAINED IN PLACE UNDISTURBED. SEE REFERENCE DRAWINGS FOR LOCATIONS OF EXISTING RIPRAP.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING UTILITIES AND ACCESS ROUTES COINCIDENT WITH THE LOCATIONS OF THE PERMANENT EASEMENTS AS SHOWN ON THE REFERENCE DRAWINGS AND THE TEMPORARY EASEMENTS AS SHOWN ON THE REAL ESTATE REFERENCE DRAWING. LOCATIONS OF PERMANENT AND TEMPORARY EASEMENTS SHOWN ON THE DRAWINGS ARE APPROXIMATE AND WERE SOUGHT TO BE SHOWN AS CLOSELY AS POSSIBLE TO THE ACTUAL LOCATIONS. ALL EXCAVATED, FILLED OR DISTURBED CHANNEL SLOPES AND TOPS OF BANK WERE TOP SOILED AND SEEDED WHERE THERE WAS NO EXISTING RIPRAP. UNLESS NOTED OTHERWISE, ALL OTHER EXISTING SOILS, DISTURBED OR EXCAVATED, WERE TOP SOILED AND SEEDED.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING UTILITIES AND ACCESS ROUTES COINCIDENT WITH THE LOCATIONS OF THE PERMANENT EASEMENTS AS SHOWN ON THE REFERENCE DRAWINGS AND THE TEMPORARY EASEMENTS AS SHOWN ON THE REAL ESTATE REFERENCE DRAWING. LOCATIONS OF PERMANENT AND TEMPORARY EASEMENTS SHOWN ON THE DRAWINGS ARE APPROXIMATE AND WERE SOUGHT TO BE SHOWN AS CLOSELY AS POSSIBLE TO THE ACTUAL LOCATIONS. ALL EXCAVATED, FILLED OR DISTURBED CHANNEL SLOPES AND TOPS OF BANK WERE TOP SOILED AND SEEDED WHERE THERE WAS NO EXISTING RIPRAP. UNLESS NOTED OTHERWISE, ALL OTHER EXISTING SOILS, DISTURBED OR EXCAVATED, WERE TOP SOILED AND SEEDED.
- LOCATIONS AND TYPES OF UTILITY LINES AND STRUCTURES SHOWN ON THE CONTRACT AND REFERENCE DRAWINGS WERE NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. THE CONTRACTOR VERIFIED LOCATIONS THEREOF. AFFECTED UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THEREOF. CHANNEL BOTTOM SLOPES ARE IN FEET PER PER FEET.

AS CONSTRUCTED

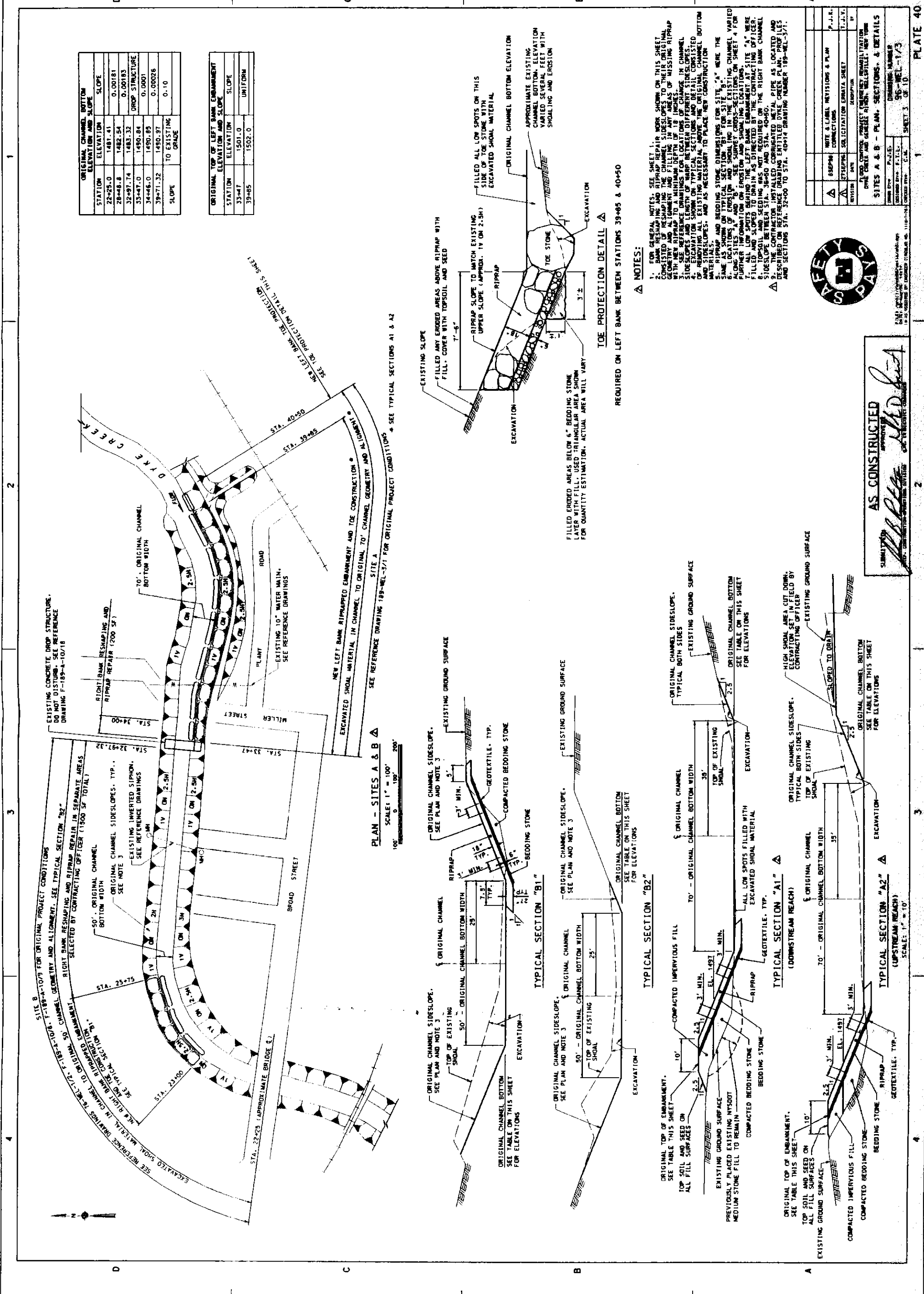
SUBMITTED BY: *[Signature]*  
APPROVED: *[Signature]*  
NEW YORK STATE ENGINEERING BOARD



REVISION		DATE	DESCRIPTION	BY
A		3SEP98	NOTE REVISIONS & PLAN CORRECTIONS	P.J.K.
U.S. ARMY ENGINEER DISTRICT, BUFFALO CORPS OF ENGINEERS BUFFALO, NEW YORK 14207-3099				
DRAWN BY: J.R.A./JNT DESIGNED BY: P.T.L./L CHECKED BY: C.B.L. SUBMITTED BY: <i>[Signature]</i> APPROVED: <i>[Signature]</i> FOR OFFICE: J.S.D./BMD APPROVAL: <i>[Signature]</i> APPROVAL: <i>[Signature]</i>				
FLOOD CONTROL PROJECT EMERGENCY REHABILITATION DYKE CREEK AND GENESEE RIVER, WELLSVILLE, NEW YORK PLAN, VICINITY MAP DRAWING INDEX AND GENERAL NOTES				
SCALE: AS SHOWN DRAWING NUMBER: 96-WEL-1/1 SHEET 1 OF 10				







ORIGINAL CHANNEL BOTTOM ELEVATION AND SLOPE		
STATION	ELEVATION	SLOPE
22+25.0	1481.41	0.00181
28+48.8	1482.54	0.00183
32+97.74	1483.32	0.00183
33+47.0	1490.84	0.00001
34+46.0	1490.85	0.00026
39+71.32	1490.97	0.10
SLOPE TO EXISTING GRADE		

ORIGINAL TOP OF LEFT BANK EMBANKMENT ELEVATION AND SLOPE		
STATION	ELEVATION	SLOPE
33+47	1501.0	UNIFORM
39+65	1502.0	UNIFORM

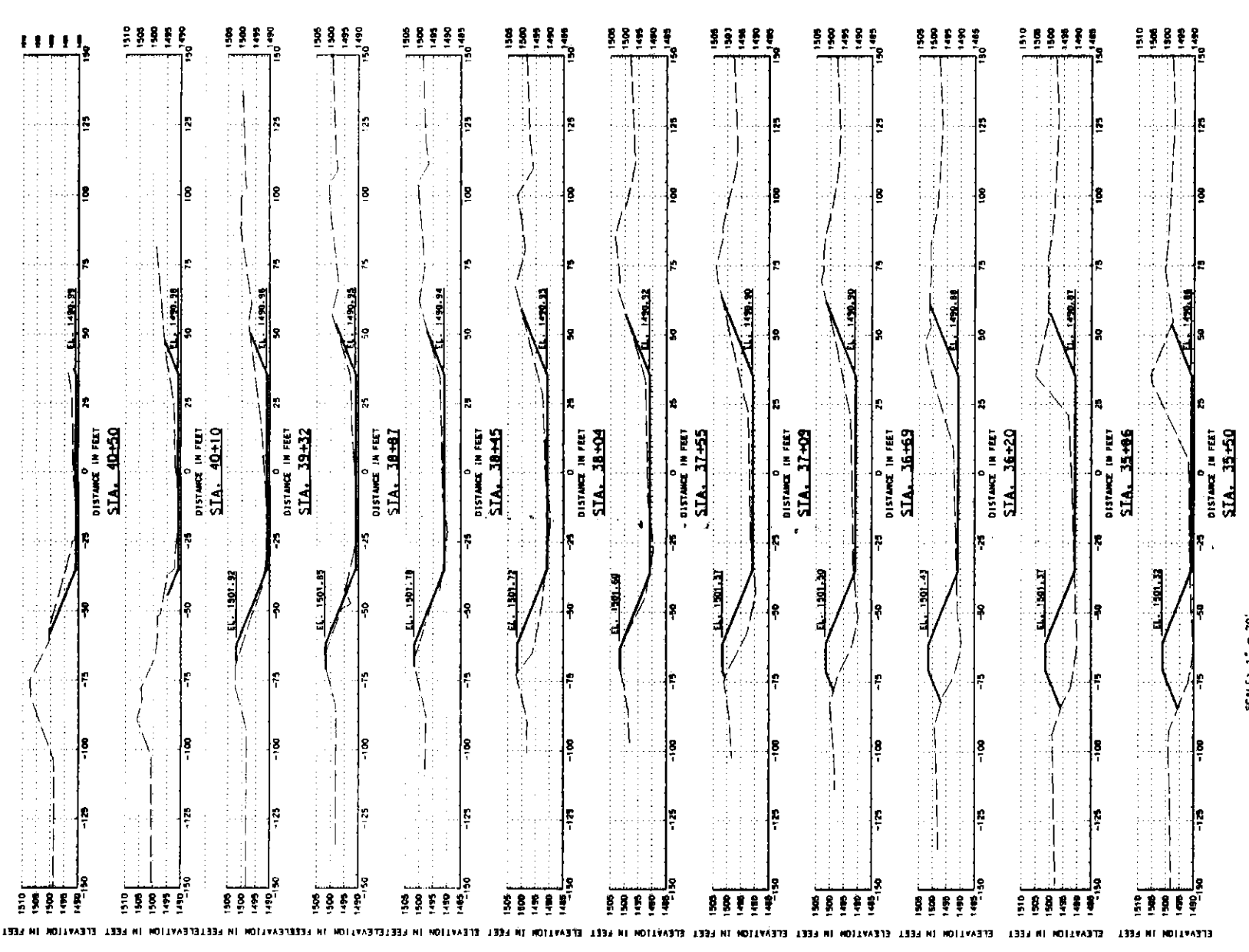
- FOR GENERAL NOTES, SEE SHEET 1.
1. BANK RESHAPING AND RIPRAP REPAIR WORK SHOWN ON THIS SHEET CONSISTED OF RESHAPING THE CHANNEL SIDESLOPES TO THEIR ORIGINAL SLOPES AND REPAIRING THE MISSING RIPRAP WITH NEW RIPRAP AND FILLING IN ANY AREAS OF MISSING RIPRAP WITH FILL.
  2. SEE REFERENCE DRAWINGS FOR LOCATIONS OF CHANGE IN CHANNEL SIDESLOPES AND LENGTH OF RIPRAP BETWEEN DIFFERENT SLOPES.
  3. EXCAVATION SHOWN ON TYPICAL SECTIONS AND DETAILS CONSISTED OF REMOVING ALL EXISTING MATERIAL AND FILL TO PLACE NEW CONSTRUCTION MATERIALS.
  4. RIPRAP AND BEDDING STONE DIMENSIONS FOR SITE "A" WERE THE SAME AS SHOWN ON TYPICAL SECTION "B1" FOR SITE "B". THE CHANNEL VARIED ALONG SITES "A" AND "B" SEE SURVEY CROSS-SECTIONS ON SHEET 4 FOR FURTHER INFORMATION ON EROSION AND SHOALING LOCATIONS.
  5. ALL LOW SPOTS BEHIND THE LEFT BANK EMBANKMENT AT SITE "A" WERE FILLED AND SLOPED TO DRAIN AS DIRECTED BY THE CONTRACTING OFFICER.
  6. THE CONTRACTOR INSTALLED CORRUGATED METAL PIPE AS LOCATED AND DESCRIBED ON REFERENCE DRAWING ENTITLED DYKE CREEK PLAN. PROFILES AND SECTIONS STA. 32+00 TO STA. 40+14 DRAWING NUMBER 189-WEL-3/1.

REVISIONS		
NO.	DATE	DESCRIPTION
1	10/18	ISSUED FOR CONSTRUCTION
2	11/14	REVISED TO SHOW CORRECTIONS
3	11/14	REVISED TO SHOW CORRECTIONS
4	11/14	REVISED TO SHOW CORRECTIONS
5	11/14	REVISED TO SHOW CORRECTIONS
6	11/14	REVISED TO SHOW CORRECTIONS
7	11/14	REVISED TO SHOW CORRECTIONS
8	11/14	REVISED TO SHOW CORRECTIONS
9	11/14	REVISED TO SHOW CORRECTIONS
10	11/14	REVISED TO SHOW CORRECTIONS

AS CONSTRUCTED

*[Signature]*

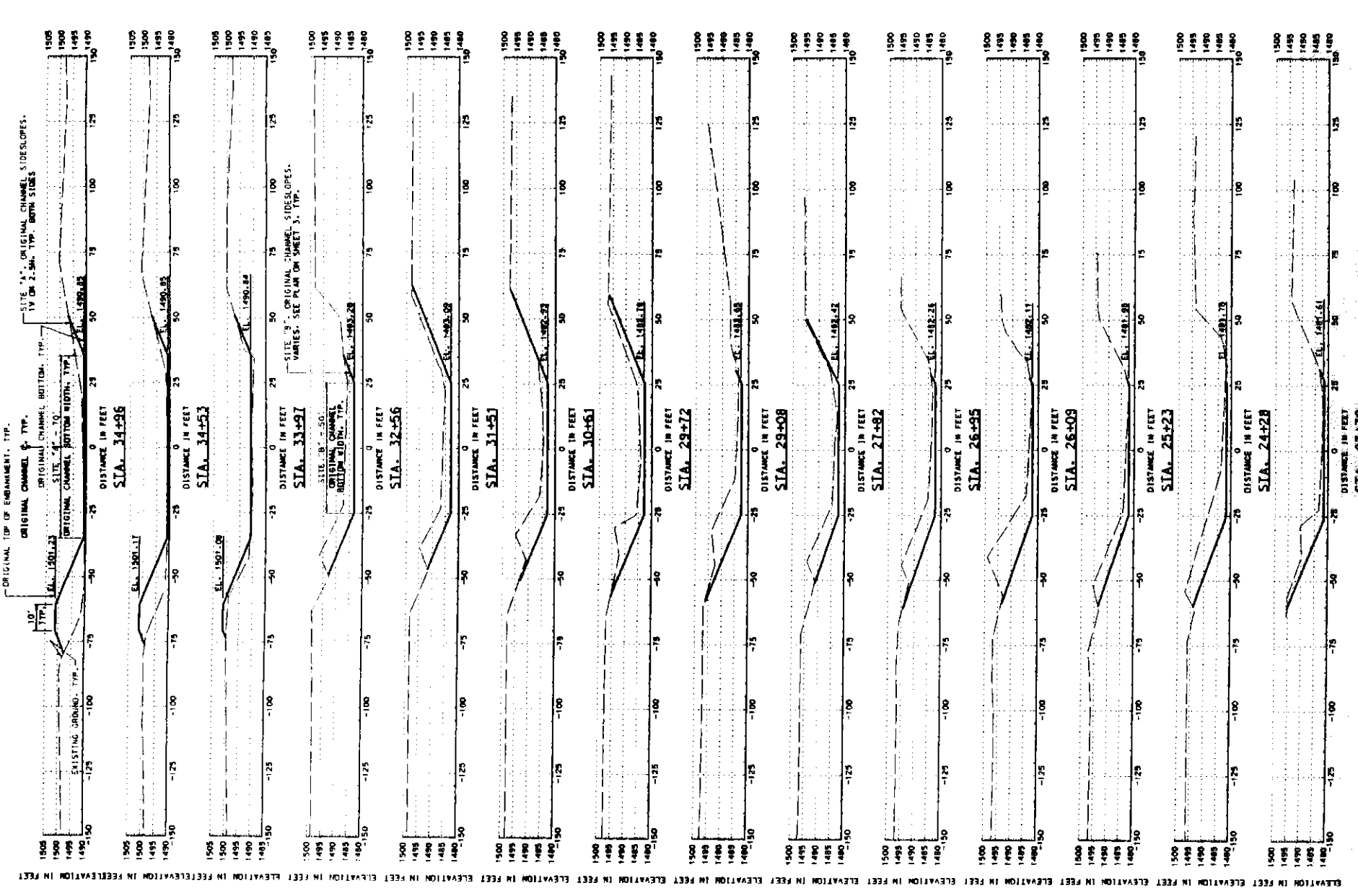
189-WEL-3/1



NOTES:  
1. FOR GENERAL NOTES, SEE SHEET 1.  
2. CROSS-SECTIONS ON THIS SHEET WERE SURVEYED DURING MARCH AND JULY 1996 AND ARE SUBJECT TO CHANGE.  
3. THE ORIGINAL CHANNEL LOCATION SHOWN ON THE SURVEY CROSS SECTIONS WAS USED TO LOCATE THE CHANNELS ONLY. THE CHANNELS FOR THE DESIGN OF NEW WORK ARE A PART OF THIS CONTRACT FOR SITES A & B.



SUBMITTED AS CONSTRUCTED  
APPROVED  
DATE: 10/1/96  
BY: [Signature]  
PROJECT: PROJECT EMERGENCY REHABILITATION  
DRAINAGE AND GREASE INTER- WELLSVILLE, NEW YORK  
SITES A & B - SURVEY CROSS SECTIONS  
DRAWING NUMBER: 96-WEL-1/4  
SHEET 4 OF 10



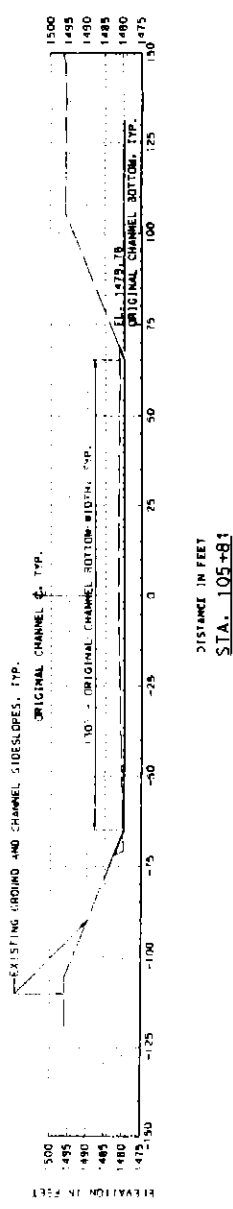


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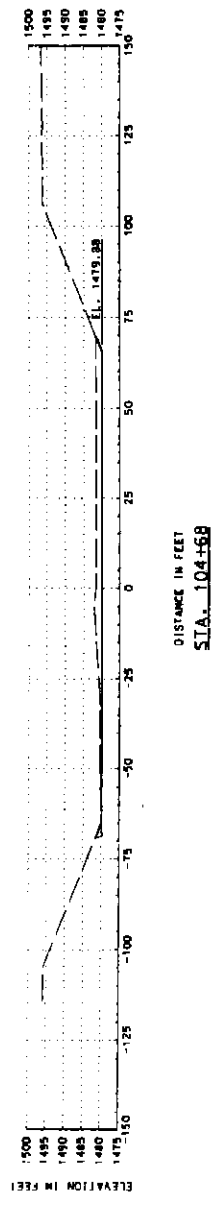
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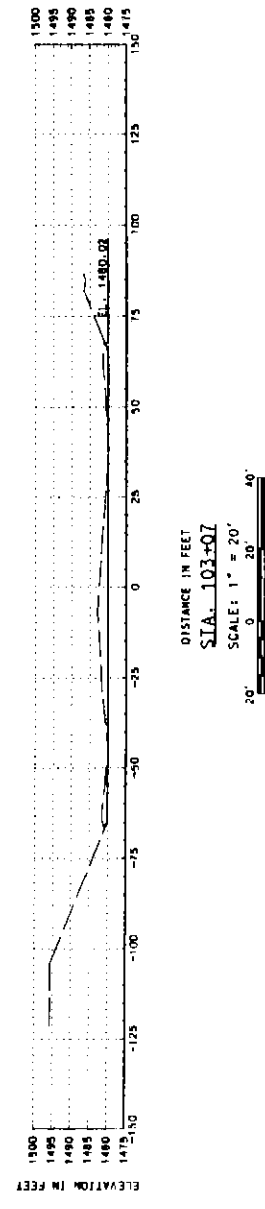
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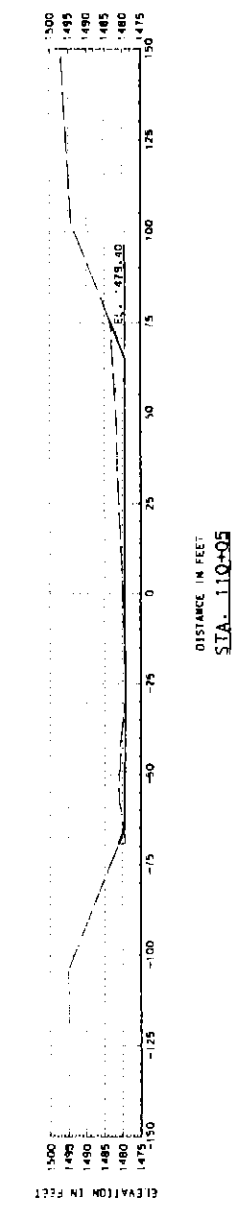
DISTANCE IN FEET  
STA. 105+81



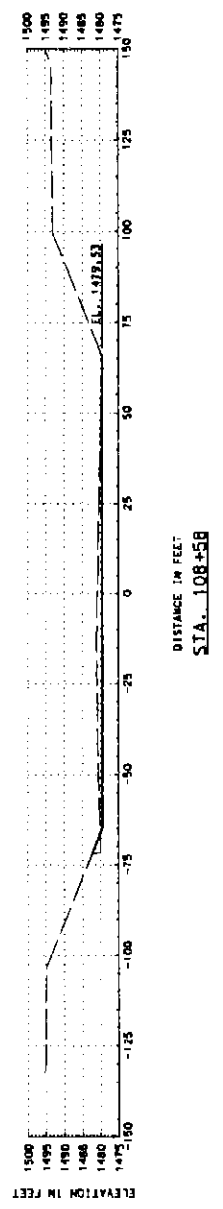
DISTANCE IN FEET  
STA. 104+68



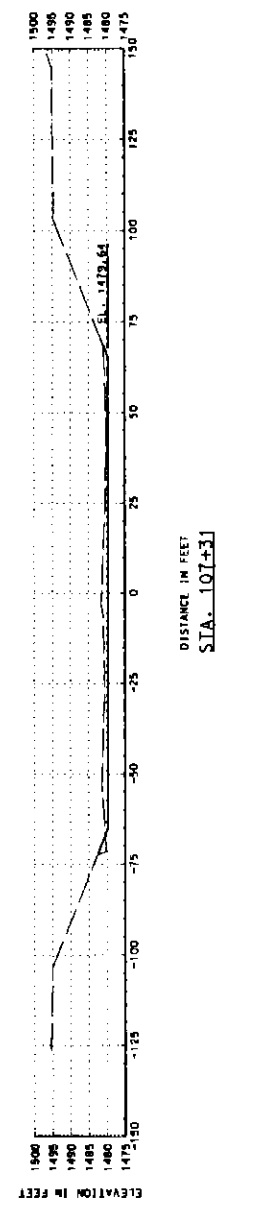
DISTANCE IN FEET  
STA. 103+07  
SCALE: 1" = 20'



DISTANCE IN FEET  
STA. 110+05



DISTANCE IN FEET  
STA. 108+58



DISTANCE IN FEET  
STA. 107+31

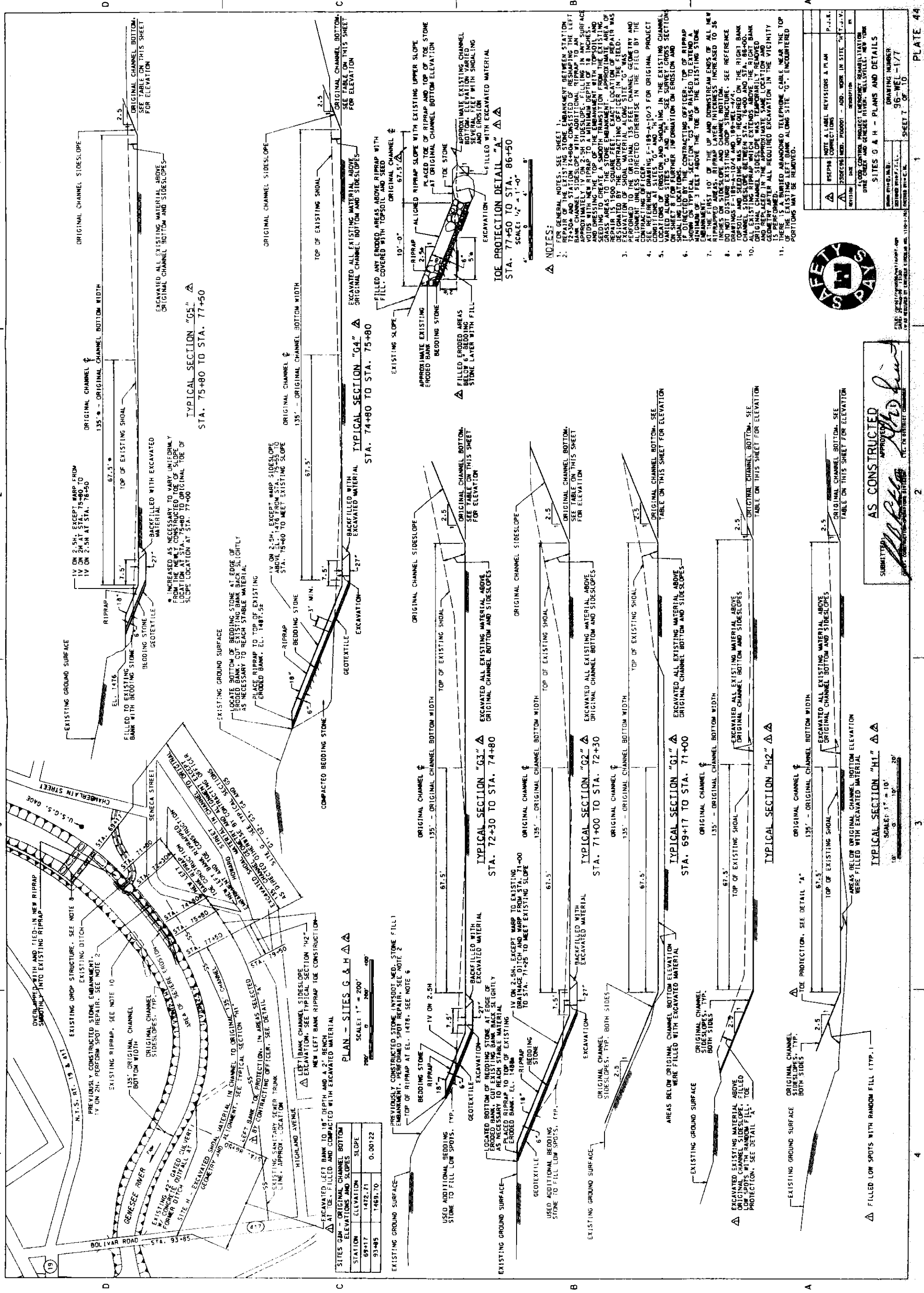
NOTES:

1. FOR GENERAL NOTES, SEE SHEET 1.
2. CROSS-SECTIONS ON THIS SHEET WERE SURVEYED DURING MARCH 2004.
3. THE ORIGINAL CHANNEL LOCATION SHOWN ON THE SURVEY CROSS SECTIONS IS FOR REFERENCE PURPOSES ONLY. SEE SHEET 5 FOR DEFINITION OF NEW WORK AS A PART OF THIS CONTRACT FOR SITE C.



SUBMITTER: *AS CONSTRUCTED*  
APPROVED: *AS CONSTRUCTED*  
DATE: 10/1/04  
BY: *AS CONSTRUCTED*

NO.	DATE	DESCRIPTION	BY
1	10/1/04	PROJECT EMERGENCY REMEDIATION	BY
2	10/1/04	DYE CROSS AND GENESEE RIVER, WELLSVILLE, NEW YORK	BY
3	10/1/04	SITE C - SURVEY CROSS SECTIONS	BY
4	10/1/04	96-WEL-1/6	BY
5	10/1/04	SHEET 6 OF 10	BY



AS CONSTRUCTED

SUBMITTED: *M. B. C. C.* APPROVED: *R. D. C. C.*

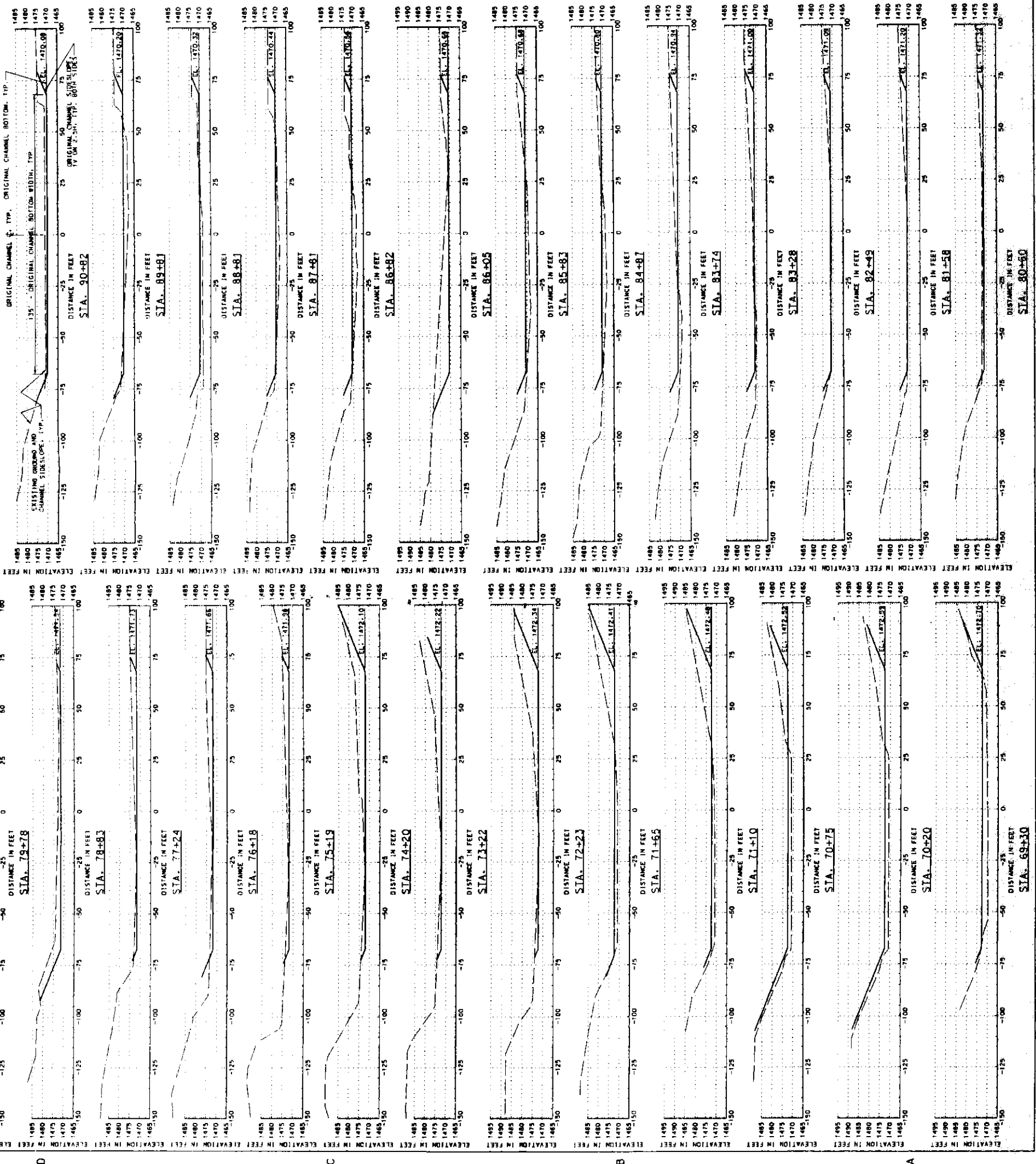
DATE: *10/10/10* FILE: *10/10/10*

PLATE 44

2

3

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SCALE: 1" = 20'

NOTES:

1. FOR GENERAL NOTES, SEE SHEET 1.
2. CROSS-SECTIONS ON THIS SHEET WERE SURVEYED DURING MARCH AND JULY 1986 AND ARE SUBJECT TO CHANGE. THE SURVEY CROSS SECTIONS ARE FOR REFERENCE PURPOSES ONLY. SEE SHEET 7 FOR DEFINITION OF NEW WORK AS A PART OF THIS CONTRACT FOR SITES G & H.

AS CONSTRUCTED  
SUBMITTED BY: *[Signature]*  
APPROVED BY: *[Signature]*  
DATE: *[Date]*

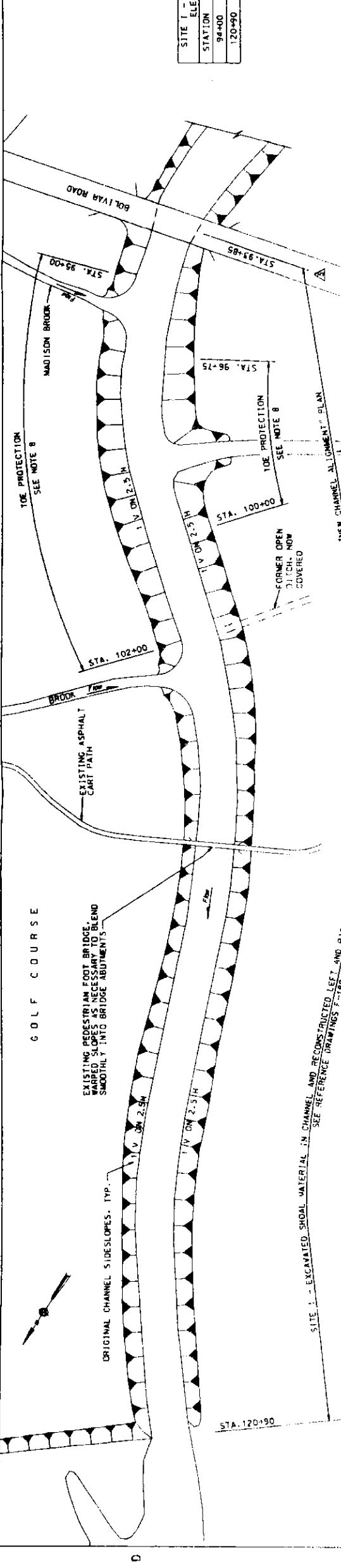


REVISION	DATE	DESCRIPTION	BY
1		ADDED CROSS-SECTION SURVEY INFORMATION DUNE CREEK AND GENESEE RIVER, WILLSVILLE, NEW YORK	
2		SITES G & H - SURVEY CROSS SECTIONS	
3			
4			
5			
6			
7			
8			
9			
10			

DRAWING NUMBER: 96-WEL-1/8  
SHEET 8 OF 10

FILE: 96WEL1/8.dwg  
10 AS REQUIRED IN PART 1 (SECTION 10.110-10.115)





PLAN - SITE 1  
SCALE: 1" = 100'

NOTE: EXCAVATED SHOAL MATERIAL IN CHANNEL AND RECONSTRUCTED LEFT AND RIGHT EMBANKMENTS. SEE TYPICAL SECTION "11" FOR RELOCATED CHANNEL AS SHOWN ON "NEW CHANNEL ALIGNMENT" PLAN.

NOTE: EXISTING SHOAL MATERIAL IN CHANNEL AND RECONSTRUCTED LEFT AND RIGHT EMBANKMENTS. SEE TYPICAL SECTION "11" FOR RELOCATED CHANNEL AS SHOWN ON "NEW CHANNEL ALIGNMENT" PLAN.

NOTE: EXISTING SHOAL MATERIAL IN CHANNEL AND RECONSTRUCTED LEFT AND RIGHT EMBANKMENTS. SEE TYPICAL SECTION "11" FOR RELOCATED CHANNEL AS SHOWN ON "NEW CHANNEL ALIGNMENT" PLAN.

NOTE: EXISTING SHOAL MATERIAL IN CHANNEL AND RECONSTRUCTED LEFT AND RIGHT EMBANKMENTS. SEE TYPICAL SECTION "11" FOR RELOCATED CHANNEL AS SHOWN ON "NEW CHANNEL ALIGNMENT" PLAN.

NOTE: EXISTING SHOAL MATERIAL IN CHANNEL AND RECONSTRUCTED LEFT AND RIGHT EMBANKMENTS. SEE TYPICAL SECTION "11" FOR RELOCATED CHANNEL AS SHOWN ON "NEW CHANNEL ALIGNMENT" PLAN.

NOTE: EXISTING SHOAL MATERIAL IN CHANNEL AND RECONSTRUCTED LEFT AND RIGHT EMBANKMENTS. SEE TYPICAL SECTION "11" FOR RELOCATED CHANNEL AS SHOWN ON "NEW CHANNEL ALIGNMENT" PLAN.

NOTE: EXISTING SHOAL MATERIAL IN CHANNEL AND RECONSTRUCTED LEFT AND RIGHT EMBANKMENTS. SEE TYPICAL SECTION "11" FOR RELOCATED CHANNEL AS SHOWN ON "NEW CHANNEL ALIGNMENT" PLAN.

NOTE: EXISTING SHOAL MATERIAL IN CHANNEL AND RECONSTRUCTED LEFT AND RIGHT EMBANKMENTS. SEE TYPICAL SECTION "11" FOR RELOCATED CHANNEL AS SHOWN ON "NEW CHANNEL ALIGNMENT" PLAN.

NOTE: EXISTING SHOAL MATERIAL IN CHANNEL AND RECONSTRUCTED LEFT AND RIGHT EMBANKMENTS. SEE TYPICAL SECTION "11" FOR RELOCATED CHANNEL AS SHOWN ON "NEW CHANNEL ALIGNMENT" PLAN.

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NOTE: EXISTING SHOAL MATERIAL IN CHANNEL AND RECONSTRUCTED LEFT AND RIGHT EMBANKMENTS. SEE TYPICAL SECTION "11" FOR RELOCATED CHANNEL AS SHOWN ON "NEW CHANNEL ALIGNMENT" PLAN.

NOTE: EXISTING SHOAL MATERIAL IN CHANNEL AND RECONSTRUCTED LEFT AND RIGHT EMBANKMENTS. SEE TYPICAL SECTION "11" FOR RELOCATED CHANNEL AS SHOWN ON "NEW CHANNEL ALIGNMENT" PLAN.

NOTE: EXISTING SHOAL MATERIAL IN CHANNEL AND RECONSTRUCTED LEFT AND RIGHT EMBANKMENTS. SEE TYPICAL SECTION "11" FOR RELOCATED CHANNEL AS SHOWN ON "NEW CHANNEL ALIGNMENT" PLAN.

NOTE: EXISTING SHOAL MATERIAL IN CHANNEL AND RECONSTRUCTED LEFT AND RIGHT EMBANKMENTS. SEE TYPICAL SECTION "11" FOR RELOCATED CHANNEL AS SHOWN ON "NEW CHANNEL ALIGNMENT" PLAN.

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NOTE: EXISTING SHOAL MATERIAL IN CHANNEL AND RECONSTRUCTED LEFT AND RIGHT EMBANKMENTS. SEE TYPICAL SECTION "11" FOR RELOCATED CHANNEL AS SHOWN ON "NEW CHANNEL ALIGNMENT" PLAN.

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NOTE: EXISTING SHOAL MATERIAL IN CHANNEL AND RECONSTRUCTED LEFT AND RIGHT EMBANKMENTS. SEE TYPICAL SECTION "11" FOR RELOCATED CHANNEL AS SHOWN ON "NEW CHANNEL ALIGNMENT" PLAN.

SITE 1 - ORIGINAL CHANNEL BOTTOM ELEVATIONS AND SLOPES			
STATION	ELEVATION	SLOPE	
94+00	1469.68	0.00122	
120+90	1466.40	0.00122	

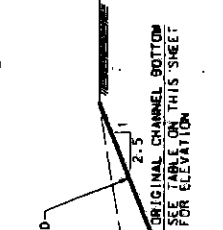
NOTES:

- FOR GENERAL NOTES, SEE SHEET 1.
- THESE NOTES ARE FOR THE ELECTRICAL CABLES THAT RAN ALONG THE CHANNEL. THE CABLES WERE EXPOSED IN THE EXISTING ERODED BANK AT APPROXIMATELY STATION 114+00. THE CONTRACTOR TOOK CARE WHEN WORKING IN THIS AREA TO PREVENT ANY DAMAGE TO THE CABLES. THE CONTRACTOR PROPERLY BURIED ALL EXPOSED CABLES IN THE RECONSTRUCTED CHANNEL SIDESLOPES.
- CONSTRUCTED CHANNEL SIDESLOPES WERE WARPPED AND TURNED TO SMOOTHLY MEET ALL SIDESLOPES OF EXISTING DITCHES AND BROOKS THAT ENTER THE CHANNEL WITHIN SITE "1" AND AT THE END OF THE PROJECT AT STA. 120+90.
- LOCATIONS OF EROSION AND SHOALING IN THE EXISTING CHANNEL VARIED ALONG SITE "1". SEE SURVEY CROSS-SECTIONS ON SHEET 1 FOR FURTHER INFORMATION ON LOCATIONS AND SEVERITY OF EROSION AND SHOALING. EXCAVATION OF THE EXISTING CHANNEL BELOW ORIGINAL CHANNEL BOTTOM ELEVATIONS WERE FILLED WITH EXCAVATED SHOAL MATERIAL.
- EXCAVATION CONSISTED OF REMOVING ALL EXISTING MATERIAL ABOVE THE ORIGINAL CHANNEL BOTTOM AND ABOVE THE NEW CHANNEL SIDESLOPES, AND AS NECESSARY TO PLACE NEW CONSTRUCTION MATERIALS. THE TYPICAL SECTION SHOWN ON THIS SHEET GAVE GENERAL INFORMATION ON THE EXISTING CHANNEL BOTTOM WIDTH, AND CHANNEL SIDESLOPE LOCATIONS VARIED ALONG SITE "1". SEE CROSS-SECTIONS ON SHEET 10 FOR FURTHER DEFINITION OF REQUIRED WORK.
- THE FOLLOWING LOCATIONS RECEIVED TOE PROTECTION AS SHOWN ON DETAIL "A":
  - LEFT BANK: STA. 94+00 TO STA. 102+00
  - RIGHT BANK: STA. 94+00 TO STA. 102+00
- TOE PROTECTION WAS PLACED ON BOTH SIDES OF CHANNEL, INCLUDING PLACING TOE PROTECTION ON CHANNEL CENTERLINE AND CONTINUING DOWNSTREAM TO BLEND IN SMOOTHLY WITH MAIN CHANNEL TOE PROTECTION.

AS CONSTRUCTED

SUBMITTED BY: [Signature]  
APPROVED BY: [Signature]  
DATE: [Date]

REVISIONS			
NO.	DATE	DESCRIPTION	BY
1	11/20/97	MOD. PLOTTING - SHOULDER REMOVAL ADDED	T.J.V.
2	11/20/97	MOD. PLOTTING - SHOULDER REMOVAL ADDED	T.J.V.
3	11/20/97	MOD. PLOTTING - SHOULDER REMOVAL ADDED	T.J.V.
4	11/20/97	MOD. PLOTTING - SHOULDER REMOVAL ADDED	T.J.V.
5	11/20/97	MOD. PLOTTING - SHOULDER REMOVAL ADDED	T.J.V.
6	11/20/97	MOD. PLOTTING - SHOULDER REMOVAL ADDED	T.J.V.
7	11/20/97	MOD. PLOTTING - SHOULDER REMOVAL ADDED	T.J.V.
8	11/20/97	MOD. PLOTTING - SHOULDER REMOVAL ADDED	T.J.V.
9	11/20/97	MOD. PLOTTING - SHOULDER REMOVAL ADDED	T.J.V.
10	11/20/97	MOD. PLOTTING - SHOULDER REMOVAL ADDED	T.J.V.

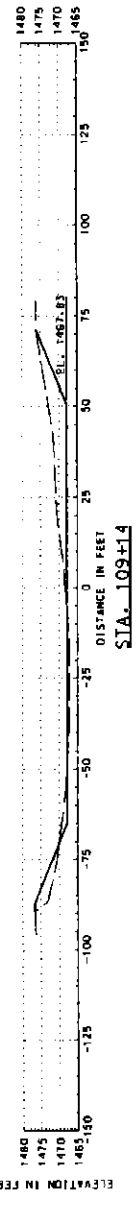
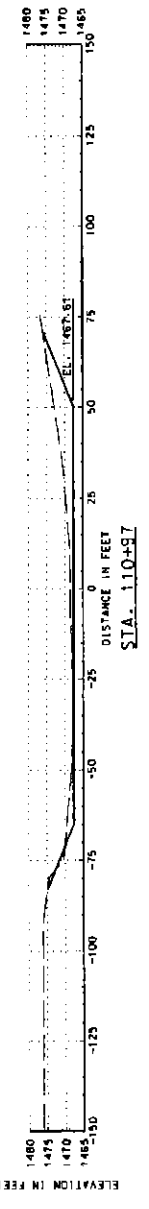
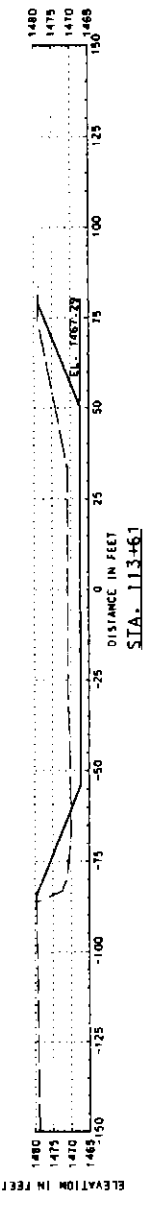
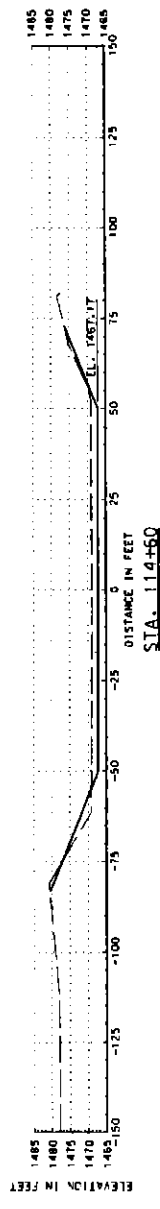
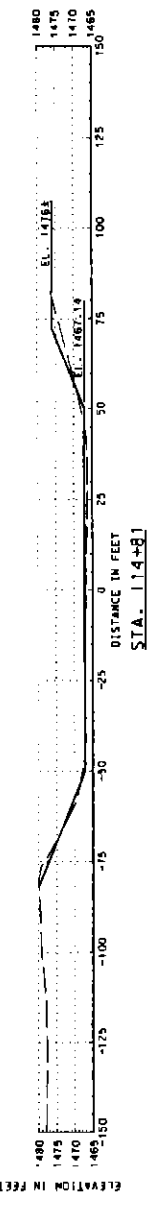
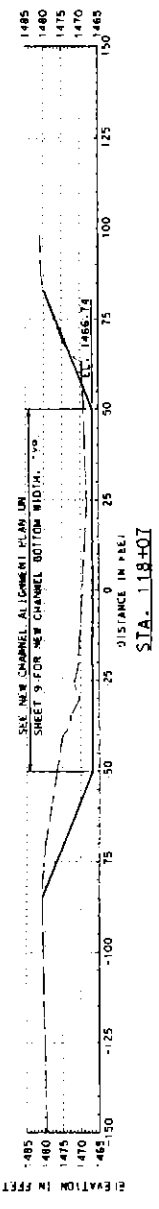
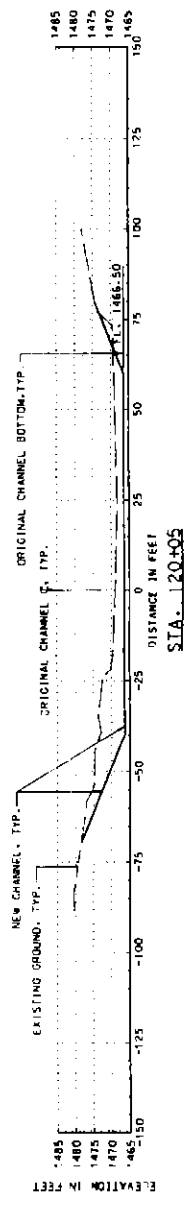


TYPICAL SECTION "11"  
SHOAL EXCAVATION AND EMBANKMENT RECONSTRUCTION



TOE PROTECTION DETAIL "A"





NOTES:

- 1. FOR GENERAL NOTES, SEE SHEET 1.
- 2. CROSS-SECTIONS ON THIS SHEET WERE SURVEYED DURING MARCH AND JULY 1996 AND ARE SUBJECT TO CHANGE.
- 3. THE CONTRACTOR CONSTRUCTED THE NEW CHANNEL AS SHOWN ON THE CROSS SECTIONS ON THIS SHEET AND AS FURTHER DEFINED ON SHEET 9.

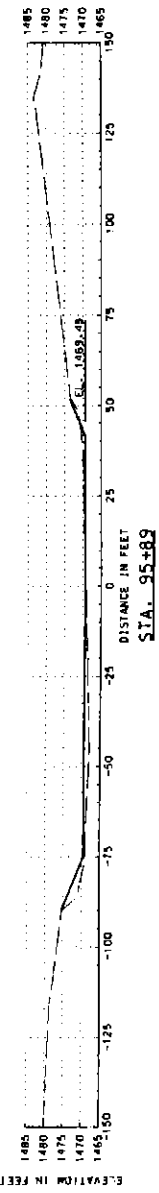
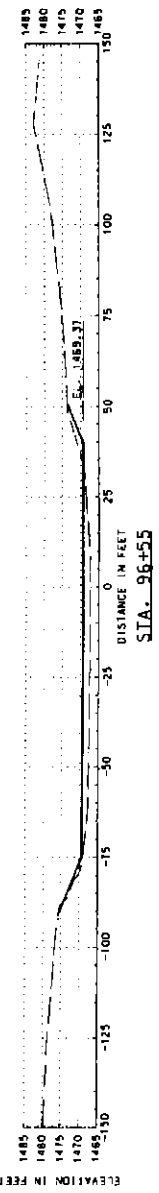
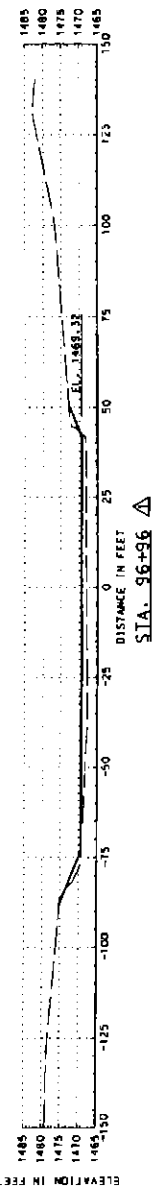
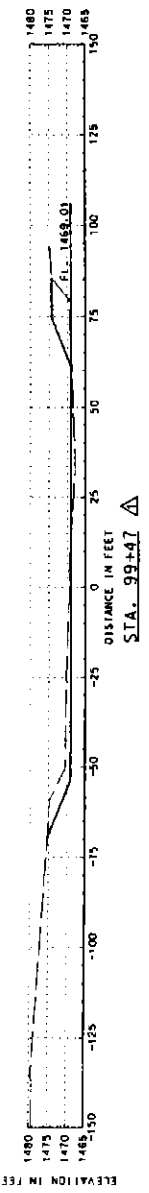
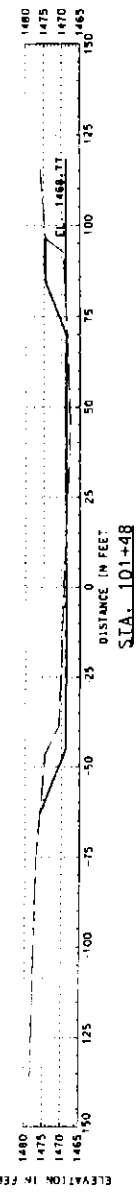
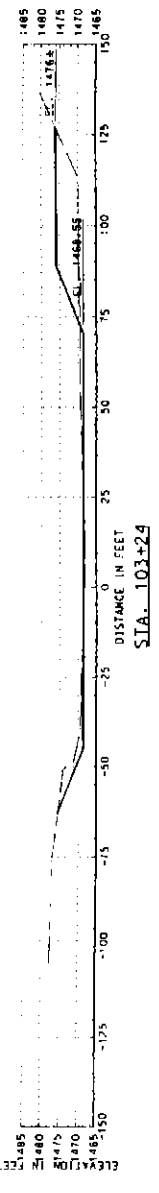
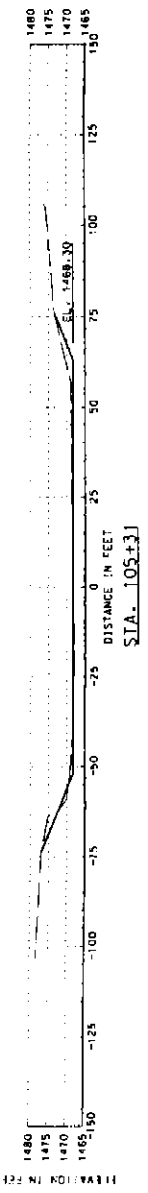
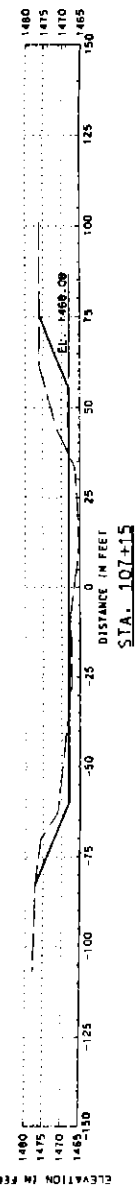


AS CONSTRUCTED  
APPROVED: *[Signature]*  
SUBMITTED: *[Signature]*  
DATE: 10/10/96  
BY: J. J. J. J.

REVISION	DATE	DESCRIPTION
1	10/10/96	FOR GENERAL NOTES, SEE SHEET 1.
2	10/10/96	CROSS-SECTIONS ON THIS SHEET WERE SURVEYED DURING MARCH AND JULY 1996 AND ARE SUBJECT TO CHANGE.
3	10/10/96	THE CONTRACTOR CONSTRUCTED THE NEW CHANNEL AS SHOWN ON THE CROSS SECTIONS ON THIS SHEET AND AS FURTHER DEFINED ON SHEET 9.

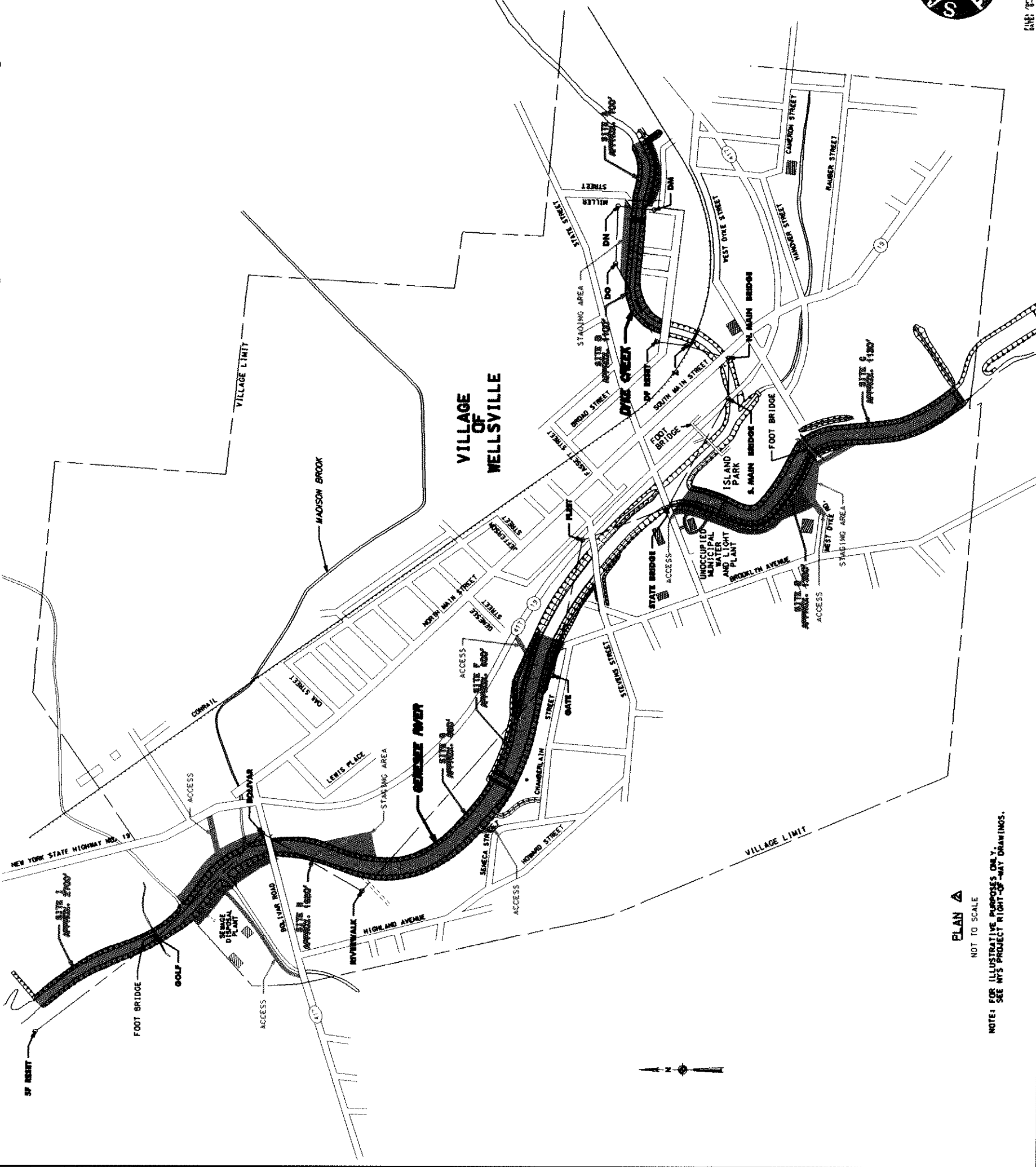
SITE 1 - SURVEY CROSS SECTIONS

DRAWING NUMBER: 96-WEL-1/10  
SHEET 10 OF 10



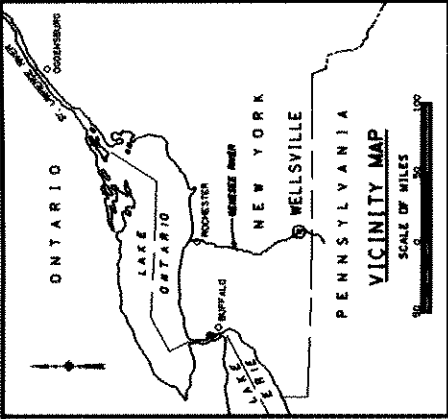
SCALE: 1" = 20'

# FLOOD CONTROL PROJECT EMERGENCY REHABILITATION DYKE CREEK AND GENESEE RIVER, WELLSVILLE, NEW YORK



PLAN A  
NOT TO SCALE

NOTE: FOR ILLUSTRATIVE PURPOSES ONLY.  
SEE SEE PROJECT RIGHT-OF-WAY DRAWINGS.



## CHANNEL IMPROVEMENT EASEMENT

A PERPETUAL AND ASSIGNABLE RIGHT AND EASEMENT TO CONSTRUCT, OPERATE, AND MAINTAIN CHANNEL IMPROVEMENT WORKS ON, OVER AND ACROSS THE LAND DESCRIBED HEREIN, INCLUDING THE RIGHT OF EASEMENT, FOR THE PURPOSES OF THE PROJECT, INCLUDING THE RIGHT TO CLEAR, CUT, FILL, REMOVE, AND DISPOSE OF ANY AND ALL TIMBER, TREES, UNDERGROUNDS, BUILDINGS, IMPROVEMENTS AND/OR OTHER OBSTRUCTIONS THEREFROM TO EXCAVATE, DREDGE, CUT AWAY, AND REMOVE ANY OR ALL OF SAID LAND AND TO CONSTRUCT, OPERATE, AND MAINTAIN SUCH IMPROVEMENTS AND/OR OTHER WORKS AS MAY BE REQUIRED IN CONNECTION WITH SAID WORK OF IMPROVEMENT; RESERVING, HOWEVER, TO THE OWNERS, THEIR HEIRS AND ASSIGNS, ALL SUCH RIGHTS AND PRIVILEGES AS MAY BE USED WITHOUT INTERFERING WITH OR ABRIDGING THE RIGHTS AND EASEMENT HEREBY GRANTED, SUBJECT TO THE RIGHT OF EASEMENT TO PUBLIC ROADS AND HIGHWAYS, PUBLIC UTILITIES, RAILROADS AND PIPELINES.

## TEMPORARY WORK AREA AGREEMENT

A TEMPORARY AGREEMENT AND RIGHT-OF-WAY IN, ON, OVER AND ACROSS THE LAND DESCRIBED HEREIN, INCLUDING THE RIGHT OF EASEMENT, FOR THE PURPOSES OF THE PROJECT, BEGINNING WITH DATE OF POSSESSION OF THE LAND IS GRANTED TO THE UNITED STATES, FOR USE BY THE UNITED STATES, ITS REPRESENTATIVES, AGENTS, AND CONTRACTORS AS A TEMPORARY WORK AREA, INCLUDING THE RIGHT TO BORROW, STORE AND REMOVE EQUIPMENT AND SUPPLIES, AND ERECT AND REMOVE TEMPORARY STRUCTURES ON THE LAND AND TO PERFORM ANY OTHER WORK NECESSARY AND INCIDENT TO THE CONSTRUCTION OF THE PROJECT, TOGETHER WITH THE RIGHT TO TRAIL, CUT, FILL AND REMOVE VEGETATION, ALL STRUCTURES OR OBSTACLES WITHIN THE LIMITS OF THE RIGHT-OF-WAY RESERVING, HOWEVER, TO THE LANDOWNERS, THEIR HEIRS AND ASSIGNS, ALL SUCH RIGHTS AND PRIVILEGES AS MAY BE USED WITHOUT INTERFERING WITH OR ABRIDGING THE RIGHTS AND EASEMENT HEREBY GRANTED, SUBJECT TO THE RIGHT OF EASEMENT TO PUBLIC ROADS AND HIGHWAYS, PUBLIC UTILITIES, RAILROADS AND PIPELINES.

NOTE: THE OUTER LIMIT OF THE TEMPORARY WORK AREA AGREEMENT RUNS PARALLEL WITH, AND IS APPROXIMATELY 8 TO 20 FEET FROM, THE TOP OF THE EXISTING BANK AND WILL BE FURTHER IDENTIFIED IN THE FIELD.

NOTE: A SPOIL AREA IS AVAILABLE AT WALTER RABBITT'S GRAVEL PRODUCTS LOCATED APPROX. 2 MILES NORTH OF DYKE ROAD ON STATE ROUTE 19.

NOTE: CARE MUST BE TAKEN TO AVOID IMPACT TO POWER LINES AND POLES IN THE AREA OF THE MUNICIPAL WATER AND LIGHT PLANT.

REVISION	DATE	DESCRIPTION
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