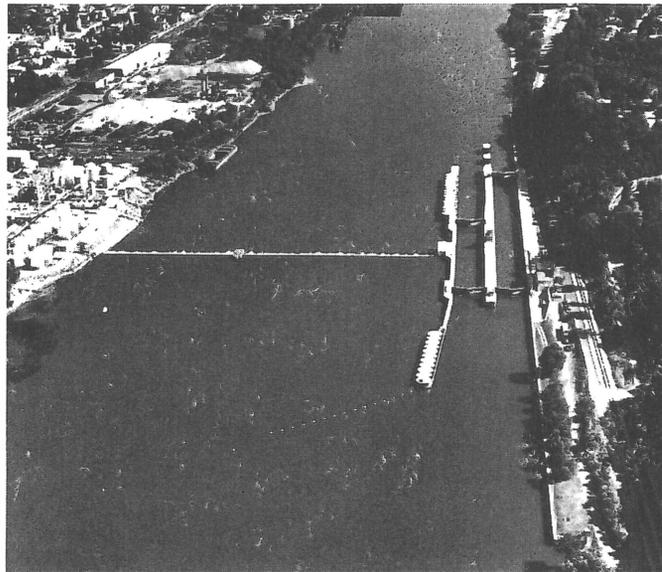


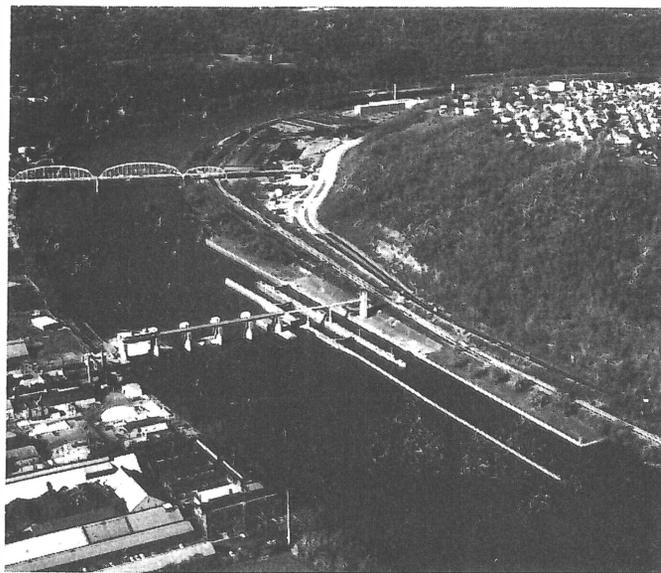
Locks and Dams 2, 3 and 4 Monongahela River Design Memorandum No. 3 Relocations



Locks and Dam 2



Locks and Dam 3



Locks and Dam 4



**US Army Corps
of Engineers**
Pittsburgh District

September 1994

**Volume 2 of 2
Proposed Adjustments**

020

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: Hamilton Avenue Combined Sewer Overflow

ID: M01L

Location

River: Monongahela River **Bank:** Left **RM:** 12.4

Owner: City of Duquesne
Address: 12 South Second Street
Duquesne, Pennsylvania 15110

Design Team Visit: Fritz, Various visits 1994

POOL DATA:

	EXISTING POOL 2	BRADDOCK POOL
Level Pool	718.7	723.7
Ordinary High Water	729.0	725.5

EXISTING CONDITIONS:

Invert Elevation: 715.2 ±

Inlet conditions:

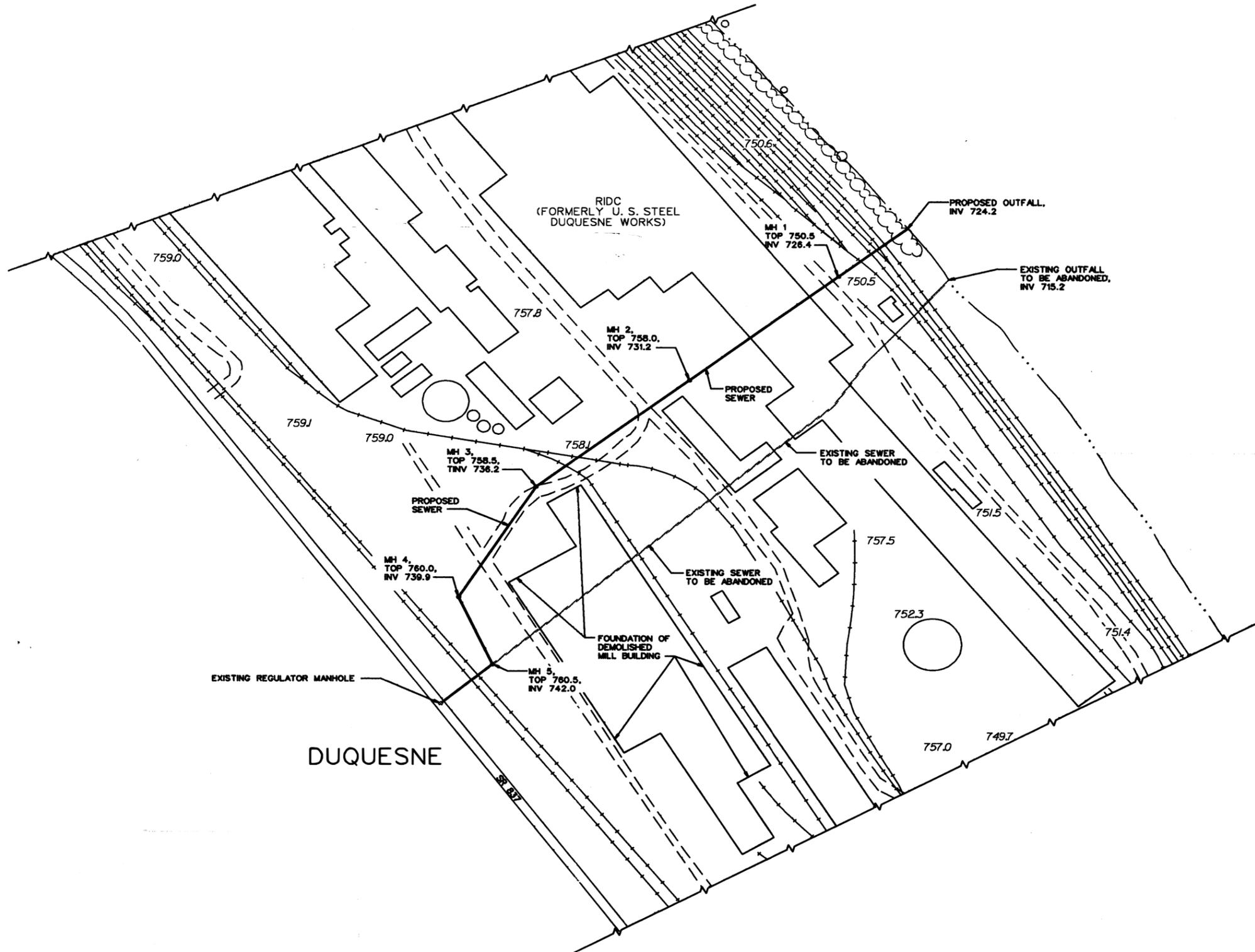
This facility was originally constructed to pass all storm and domestic wastewater to the Monongahela River from the Hamilton Avenue drainage area. Currently this 60 inch brick sewer serves as the combined sewer overflow for the Hamilton Avenue regulator station (see APPENDIX C).

Drainage Area: 101 Acres
Capacity: $Q_C = 289$ CFS
Runoff, 10-year event: $Q_{10} = 312$ CFS

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates there is a potential for contamination at this facility site. Therefore, the contractor recommends a Phase II investigation for this facility.

PROPOSED DESIGN:

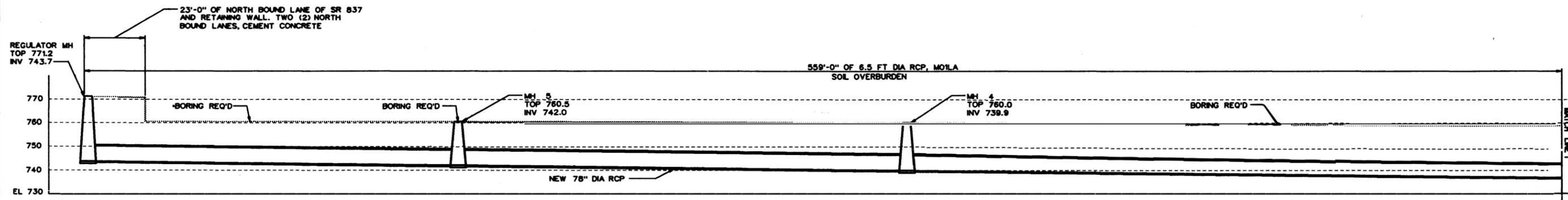
Limiting Capacity: $Q_L = 434$ CFS
Slopes: 0.0122 ft/ft (avg)
Material: RCP
Manning's N: 0.012
Diameter: 78" (all pipes)
Design Capacity: $Q_D = 434$ CFS



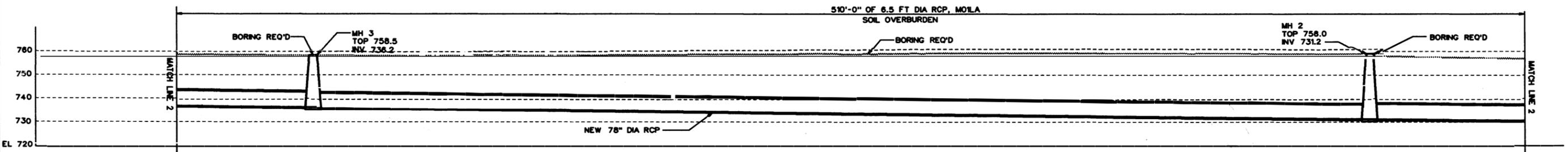
- NOTES:
1. OBJECT LINES APPEARING AS HALF TONES ARE EXISTING CONSTRUCTION. OBJECT LINES APPEARING AS FULL TONES ARE PROPOSED CONSTRUCTION.
 2. ACTUAL ALIGNMENT OF EXISTING SEWER IS NOT KNOWN.
 3. EXISTING SEWER IS TO BE ABANDONED. NEW SEWER IS TO BE CONSTRUCTED AS SHOWN.
 4. MAINTAIN SURVEY CONTROL ON RAILROAD TRACKS DURING EXCAVATION.

FACILITY : M01L

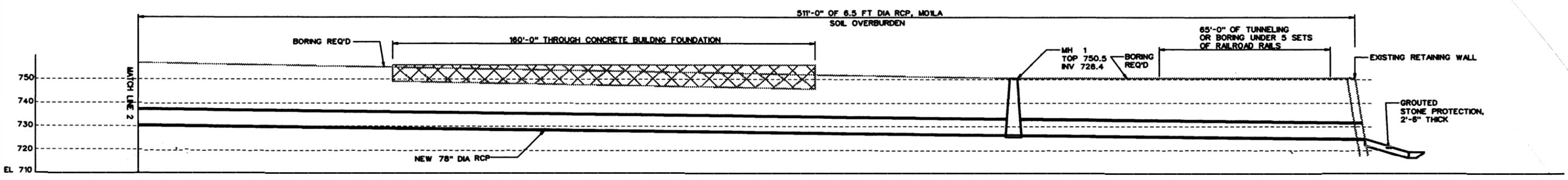
REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT PITTSBURGH CORPS OF ENGINEERS PITTSBURGH, PENNSYLVANIA			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS CITY OF DUQUESNE			
HAMILTON AVENUE COMBINED SEWER OUTFALL PLAN			
SRF P.J.G.	SRF MR	DATE 22 Aug 94	NO SCALE 037-R55-67/4
			DACWB9 1 2



PROFILE



PROFILE



PROFILE

FACILITY : M01L

REVISION	DATE	DESCRIPTION	BY
		GRAPHIC SCALE	
U.S. ARMY ENGINEER DISTRICT, PITTSBURGH CORPS OF ENGINEERS OFFICE OF THE DISTRICT ENGINEER PITTSBURGH, PENNSYLVANIA			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS CITY OF DUQUESNE			
HAMILTON AVENUE COMBINED SEWER OUTFALL PROFILE			
SRF P.J.G.	SRF 22 Aug 94	NO SCALE	037-R55-67/5
<i>Larry A. Shilly</i> DACW59			2 2

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: Water Wells

ID: M02L

Location

River: Monongahela Bank: Left RM: 12.5

Owner: City of Duquesne
Address: 12 South Second Street
Duquesne, PA 15222

Design Team Visit: Yes

POOL DATA:

	EXISTING	BRADDOCK
Level Pool	718.7	723.7
Ordinary High Water	729.0	725.6

EXISTING CONDITIONS:

The existing water wells are located along the Monongahela River starting at RM 12.5 and continuing for approximately 1350 ft upstream. The elevation of the existing well heads are at elevation 725±. The wells and access road are frequently inundated from rising waters of existing pool 2. The existing wells consist of 6" pipe casing, a concrete manhole and manhole lid. Two backwash culverts which originate from the water plant will also need to be raised to accommodate the new embankment.

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates there is a potential for contamination at this facility site. Therefore, the contractor recommends a Phase II investigation for this facility.

PROPOSED DESIGN:

The proposed design will raise the wells and access road to elevation 732±. This will give the water wells the same protection from flooding which they now experience. The raising of the wells will also include replacing 1500 lf of existing 4" waterline, the electrical service for the wells and stone protection on the new embankment. A new backwash culvert, 12"

diameter, corrugated polyethylene pipe will be installed from the existing culvert to the river. A gabion endwall will be constructed at the outfall. A second 8" diameter culvert will be installed from the backwash overflow outfall of the plant to the new 12" culvert. Two drop inlets will be installed to accommodate the new culverts. A temporary access road will also be installed for construction purposes.

REQUIRED REMEDIAL WORK:

Government Proposal:

Raise the existing wells and access road to elevation 732±, install new waterline, electrical service, and backwash culverts.

Estimated Construction Cost (Rounded): \$ 270,000

Responsibility: Government

Justification:

This well field supplies the City of Duquesne with a water source which, after treatment, serves as its only potable water source. Without protection from the new higher pool this well field will become unusable with the current treatment facility.

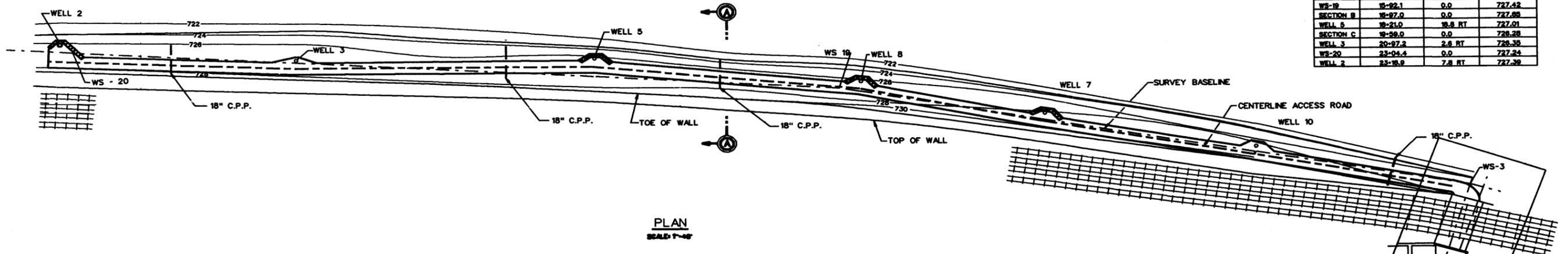
See Section 3.e.(2) of the main report which discusses the special circumstances surrounding this facility.

This facility was authorized for project funding by the LMFS, December 1991, provided that further investigation revealed that it complies with the requirements of P.L. 85-500, Section 111, as amended. See APPENDIX D for documentation on this compliance.

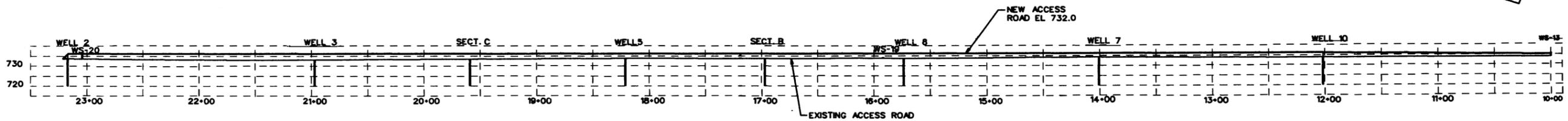
MONONGAHELA RIVER

FLOW

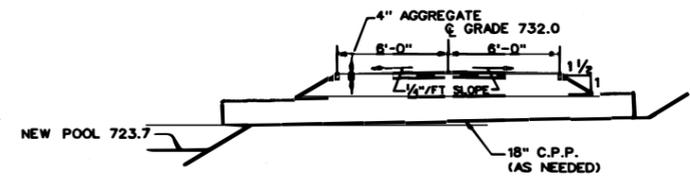
POINT	STATION	OFFSET	ELEVATION
WS-13	10+00	0.0	727.81
WELL 10	12+01.5	0.0	727.78
WELL 7	14+00.3	7.9 RT	728.42
WELL 8	15+73.5	10.3 RT	727.72
WS-19	15+82.1	0.0	727.52
SECTION B	18+87.0	0.0	727.68
WELL 5	18+21.0	18.8 RT	727.01
SECTION C	19+59.0	0.0	728.28
WELL 3	20+87.2	2.5 RT	728.35
WS-20	23+04.4	0.0	727.24
WELL 2	23+15.9	7.8 RT	727.39



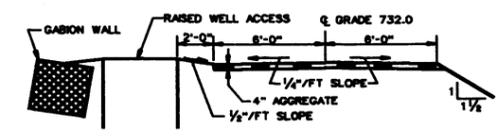
PLAN
SCALE: 1"=40'



PROFILE



WELL ACCESS ROAD
TYPICAL SECTION BETWEEN WELLS



WELL ACCESS ROAD
TYPICAL SECTION AT WELLS

FACILITY : MO2L

REVISION	DATE	DESCRIPTION	BY

GRAPHIC SCALE
40' 20' 0 40' 80'
1" = 40'

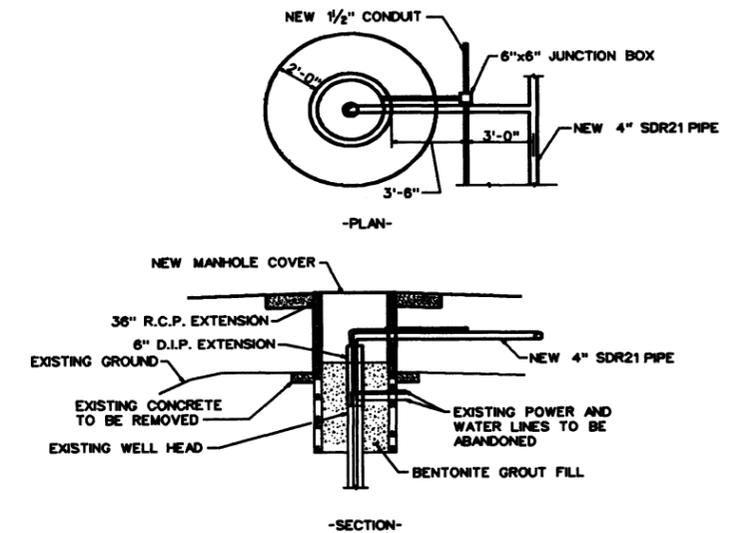
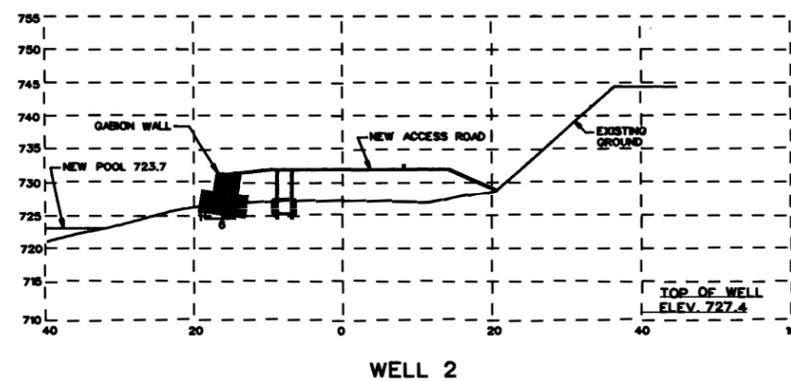
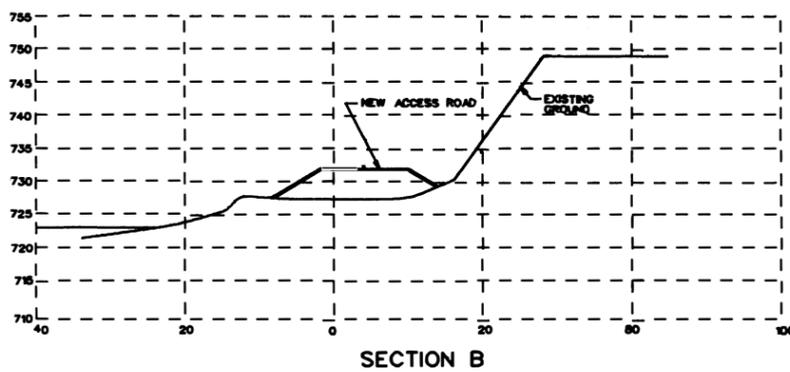
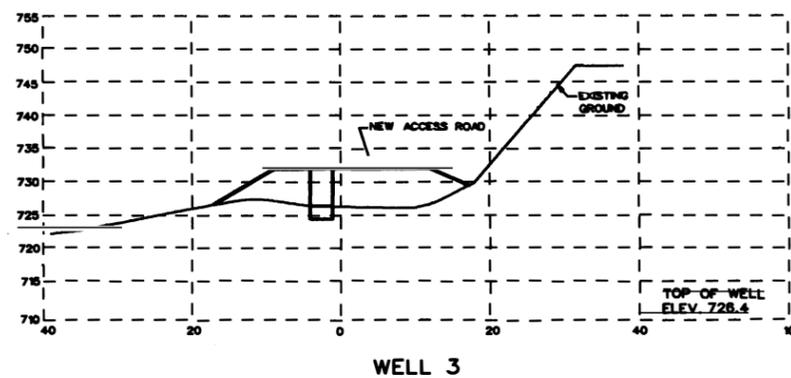
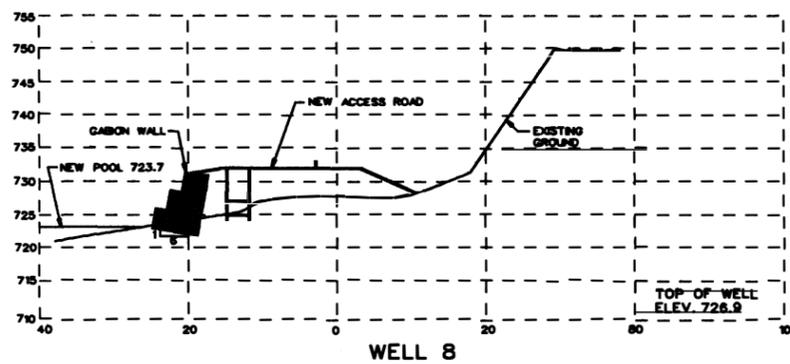
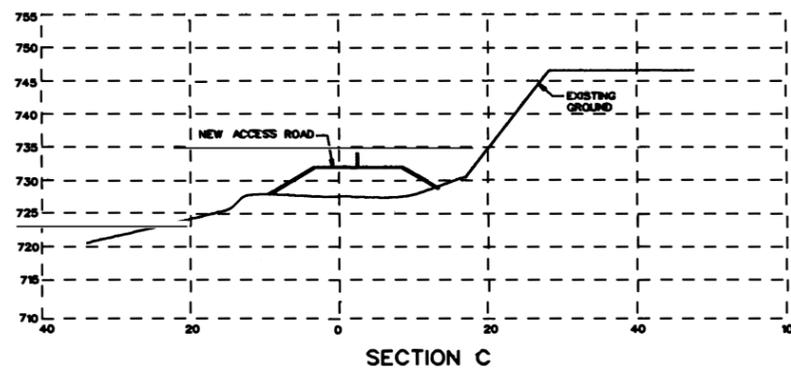
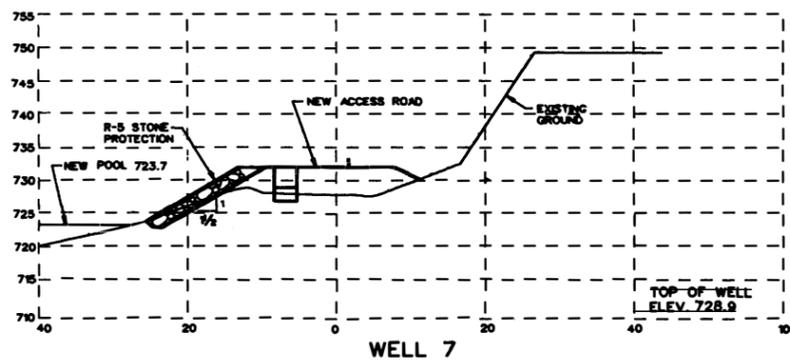
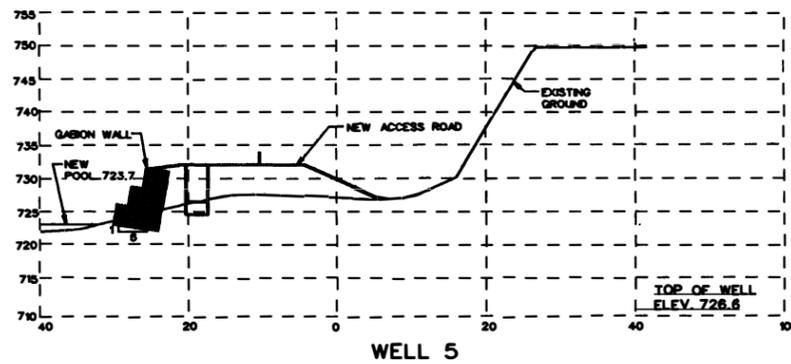
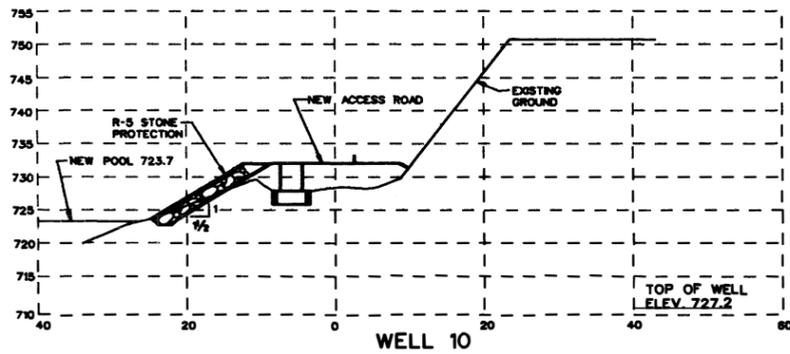
U.S. ARMY ENGINEER DISTRICT, PITTSBURGH
CORPS OF ENGINEERS
OFFICE OF THE DISTRICT ENGINEER
PITTSBURGH, PENNSYLVANIA

**MONONGAHELA RIVER
LOCKS AND DAMS 2, 3 AND 4
RELOCATIONS
CITY OF DUQUENSE**

**WATER WELLS
PLAN, PROFILE AND SECTIONS**

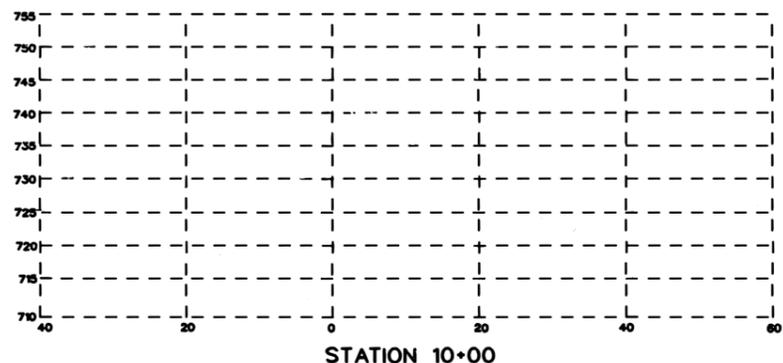
DESIGNED BY WLA	DRAWN BY WLA	CHECKED BY WLA	DATE 18 Aug 1994	SCALE AS SHOWN	PROJECT NO. 037-R55-67/6
--------------------	-----------------	-------------------	---------------------	-------------------	-----------------------------

DACW59
1 of 4

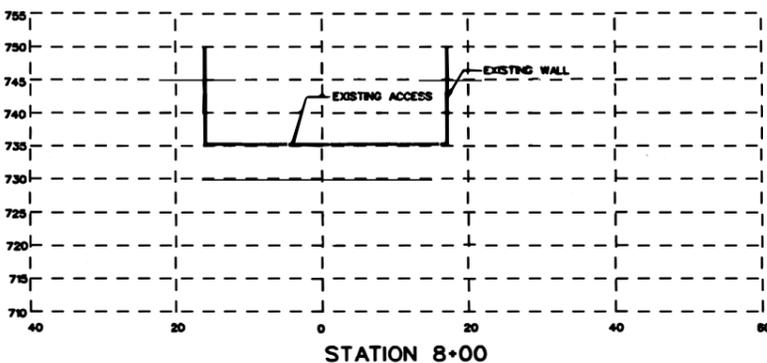


WELL HEAD ADJUSTMENT
NO SCALE

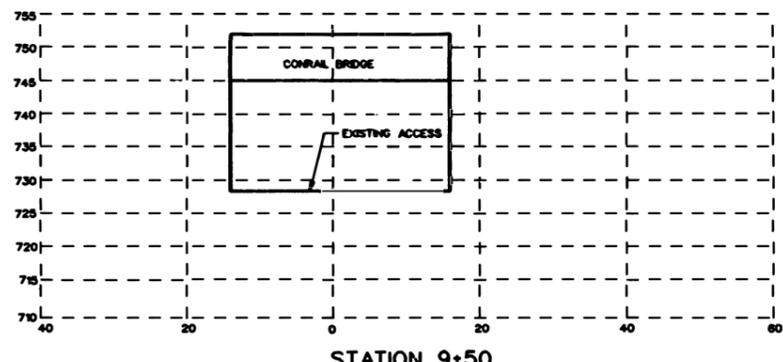
FACILITY : M02L			
REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT PITTSBURGH CORPS OF ENGINEERS OFFICE OF THE DISTRICT ENGINEER PITTSBURGH, PENNSYLVANIA			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS BOROUGH OF DUQUESNE WATER WELLS SECTIONS			
DESIGNED BY	DRAWN BY	CHECKED BY	DATE
WLA	WLA	WLA	8 Aug 1994
AS SHOWN			037-R55-67/B
[Signature: David W. Wayne] DACWB9			2 of 4



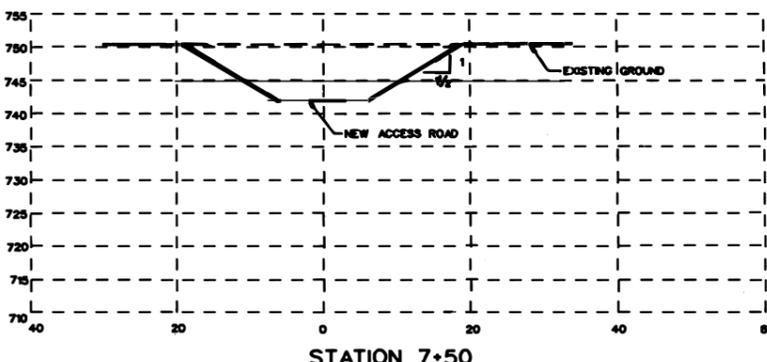
STATION 10+00



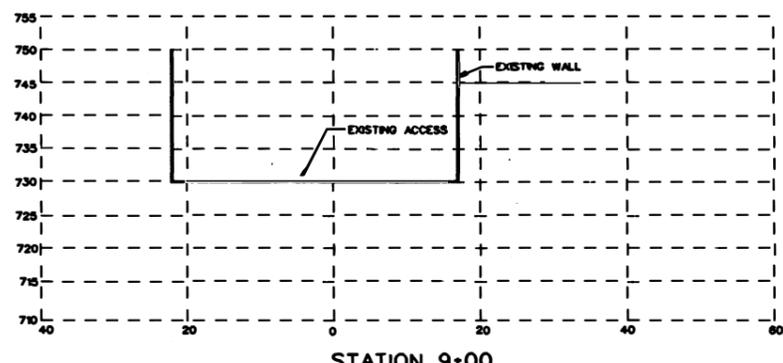
STATION 8+00



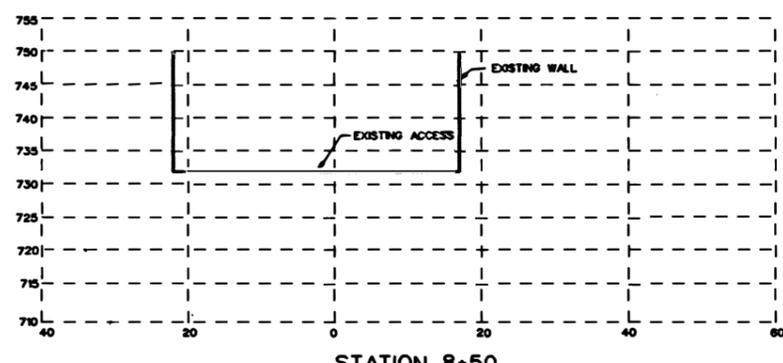
STATION 9+50



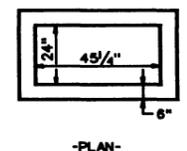
STATION 7+50



STATION 9+00

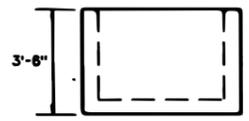


STATION 8+50



-PLAN-

=GRATE COVER NOT SHOWN



ELEVATION DI=2

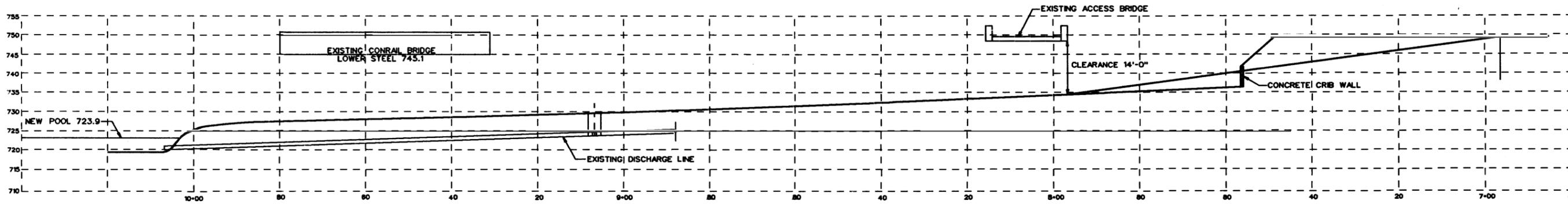


ELEVATION DI=1

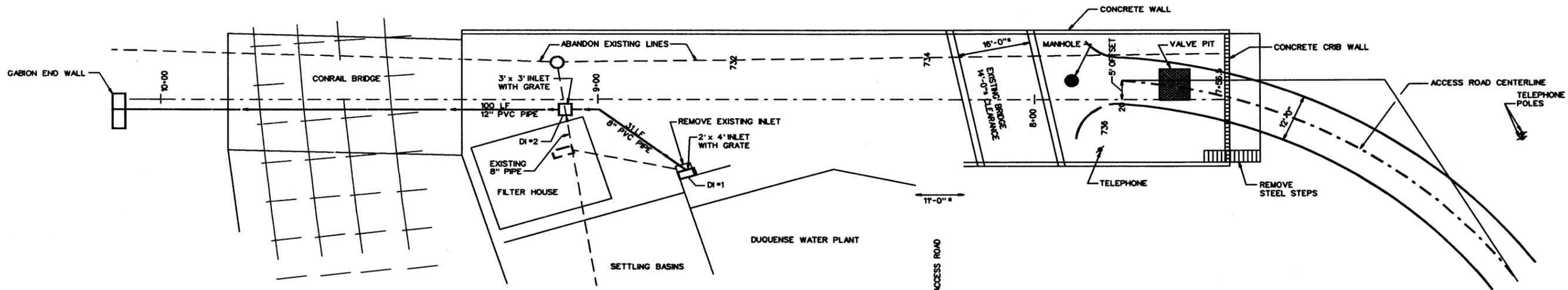
DROP INLET DETAILS

NO SCALE

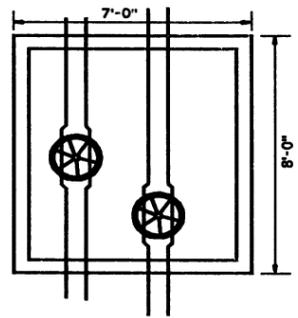
		FACILITY : M02L	
REVISION	DATE	DESCRIPTION	BY
		GRAPHIC SCALE	
U.S. ARMY ENGINEER DISTRICT, PITTSBURGH CORPS OF ENGINEERS OFFICE OF THE DISTRICT ENGINEER PITTSBURGH, PENNSYLVANIA			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS			
BOROUGH OF DUQUENSE WATER WELLS ACCESS ROAD SECTIONS			
DESIGNED BY	DATE	SCALE	JOB NO.
WLA	18 Aug 1994	AS SHOWN	037-R55-67/09



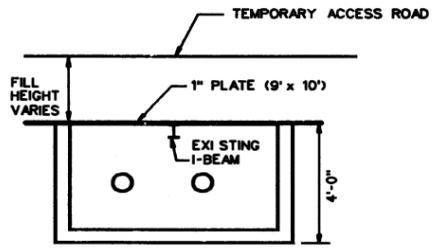
PROFILE
SCALE 1" = 10'-0"



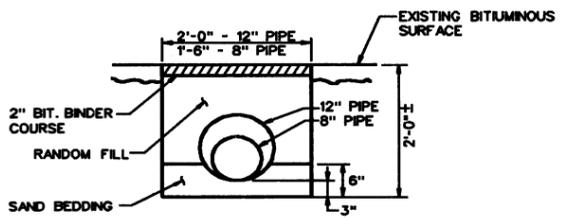
PLAN
SCALE 1" = 10'-0"



PLAN
VALVE PIT
NO SCALE



SECTION



TYPICAL PIPE TRENCH DETAIL
NO SCALE

DI #1
TOP OF GRATE - 728.5
INVERT 8" - 727.5

DI #2
TOP OF GRATE - 729.0
INVERT 8" - 727.0
INVERT 12" - 726.0
INVERT EXISTING 8" - 726.2 ±

FACILITY : M02L

REVISION	DATE	DESCRIPTION	BY

GRAPHIC SCALE
1" = 10'

U.S. ARMY ENGINEER DISTRICT PITTSBURGH
CORPS OF ENGINEERS
OFFICE OF THE DISTRICT ENGINEER
PITTSBURGH, PENNSYLVANIA

**MONONGAHELA RIVER
LOCKS AND DAMS 2, 3 AND 4
RELOCATIONS
CITY OF DUQUESNE**

**WATER WELLS
ACCESS ROAD, PROFILE AND DETAILS**

DESIGNED BY WLA	DRAWN BY WLA	CHECKED BY JCT	DATE 28 Aug 1994	SCALE AS SHOWN	PROJECT NO. 037-R55-67/7
--------------------	-----------------	-------------------	---------------------	-------------------	------------------------------------

DACW59

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: Sewage Treatment Plant Outfall and McClure Avenue
Combined Sewer Overflow

ID: M03L

Location

River: Monongahela River **Bank:** Left **RM:** 16.3

Owner: Borough of Dravosburg
Address: P.O. Box 37
Dravosburg, Pennsylvania 15034

Design Team Visit: Fritz, Various visits 1994

POOL DATA:

	EXISTING	BRADDOCK
Level Pool	718.7	723.7
Ordinary High Water	730.6	728.1

EXISTING CONDITIONS:

Invert Elevation: 717.4 ±

Inlet conditions:

This facility was originally constructed to pass all storm and domestic wastewater to the Monongahela River from the McClure Avenue drainage area. Currently this 3.5' x 4.8' vertical elliptical brick sewer serves as the waste water treatment plant outfall and as the combined sewer overflow for the McClure Avenue regulator station (see APPENDIX C).

Drainage Area: 136 Acres
Capacity: $Q_c = 289$ CFS
Runoff, 10-year event: $Q_{10} = 412$ CFS

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates there is a potential for contamination at this facility site. Therefore, the contractor recommends a Phase II investigation for this facility.

PROPOSED DESIGN:

Limiting Capacity: $Q_L = 437$ CFS

Slopes:

M03LA: 0.0064 ft/ft

M03LB: 0.0061 ft/ft

M03LC: 0.0469 ft/ft

Material: RCP

Manning's N: 0.012

Diameter: 78" (all pipes)

Design Capacity: $Q_D = 437$ CFS

REQUIRED REMEDIAL WORK:

Government Proposal:

Raise the outfall by constructing 821 feet of 78 inch dia RCP. Construct 165 feet of 18 inch RCP for an existing lateral that has to be raised. Construct 120 feet of 30 inch RCP to adjust the outflow piping from the treatment plant. Construct new regulator station. Reconnect five (5) service connections for a total of approximately 200 feet of 8" pvc pipe. Stone protection and an endwall will be provided at the outlet end of the new sewer at the river.

Estimated Construction Cost (Rounded): \$ 1,161,000

Responsibility: Government

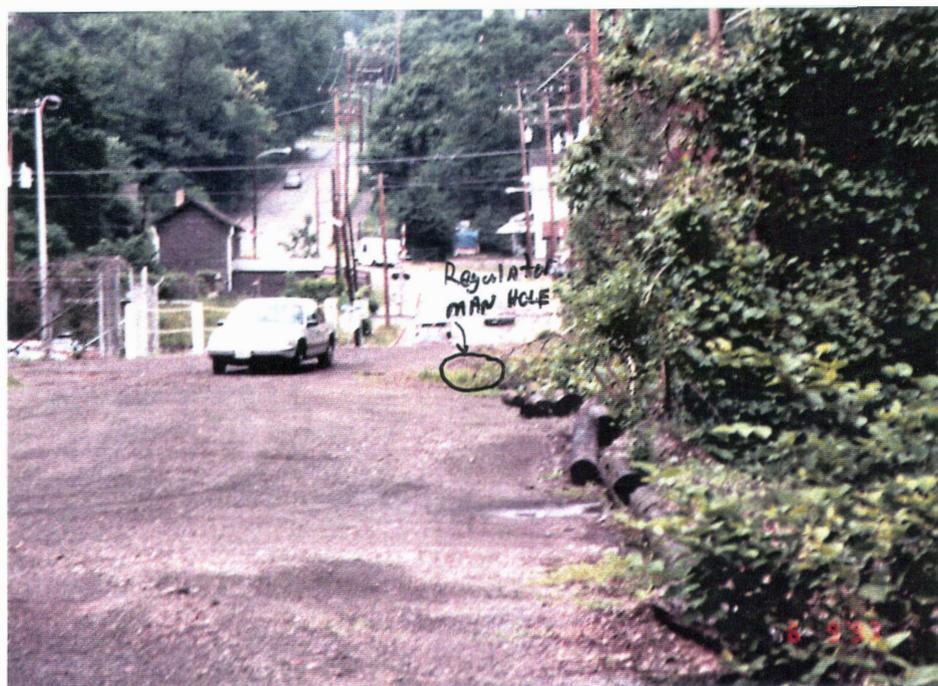
Justification:

The existing outfall is the sole discharge for the waste water treatment plant and the McClure Avenue combined sewer overflow. The five foot pool rise will completely inundate the outfall subjecting it to increased siltation and lack of entry for maintenance. The regulator station will be inundated by the new pool level. Service connections will be maintained by connecting existing service connections to an existing sewer.

This facility (identified as a 3.5' x 4.8' brick storm sewer by the LMFS) was authorized for project funding by the LMFS, December 1991, provided that further investigation revealed that it complies with the requirements of P.L. 85-500, Section 111, as amended. See APPENDIX D for documentation on this compliance.



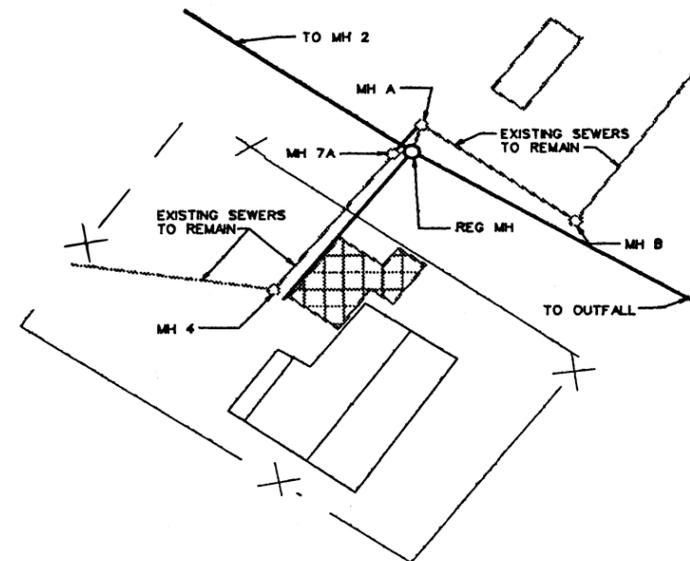
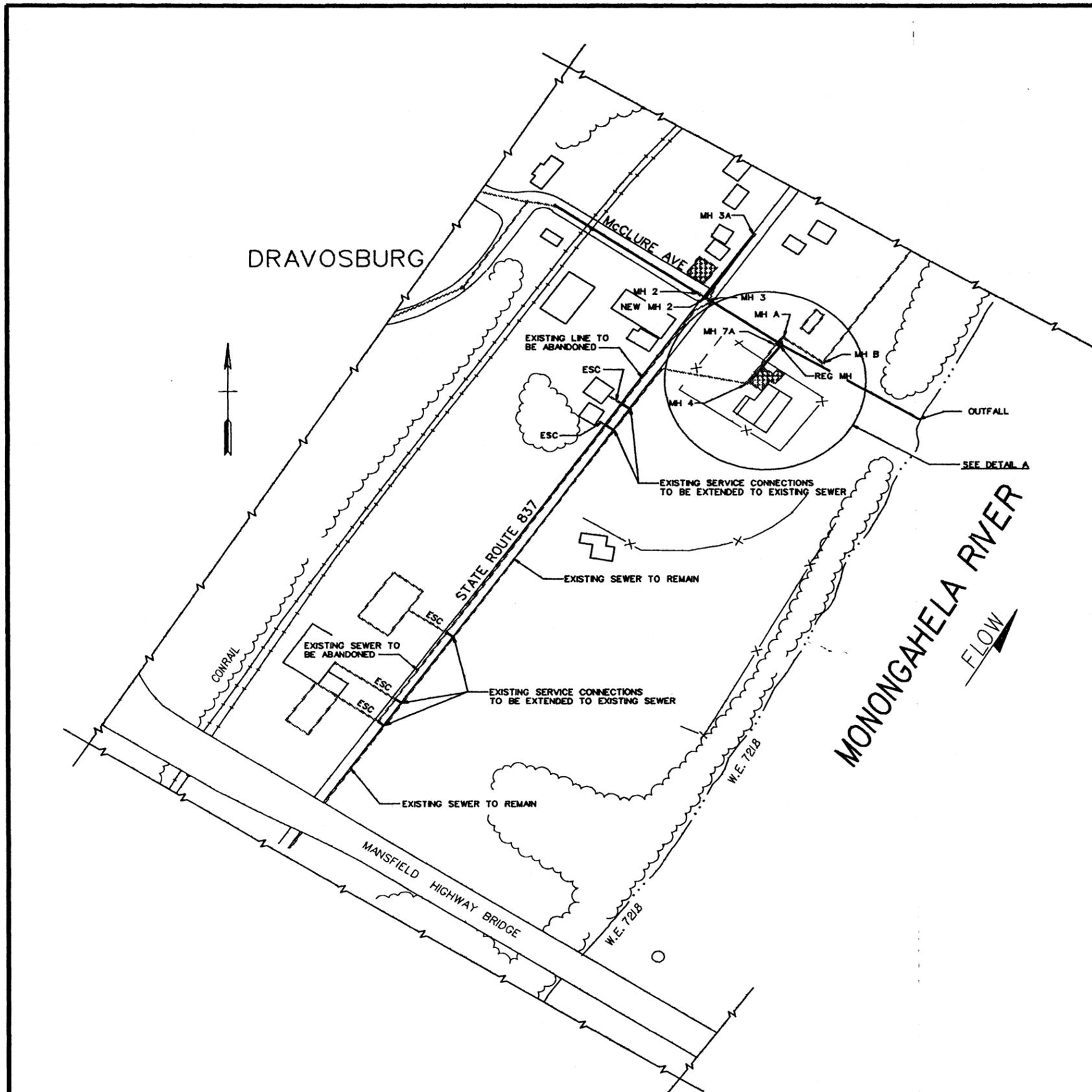
3.5' X 4.8' VERTICAL ELLIPTICAL BRICK OUTFALL



LOOKING LANDWARD

M03L, PHOTOS

M03L-3

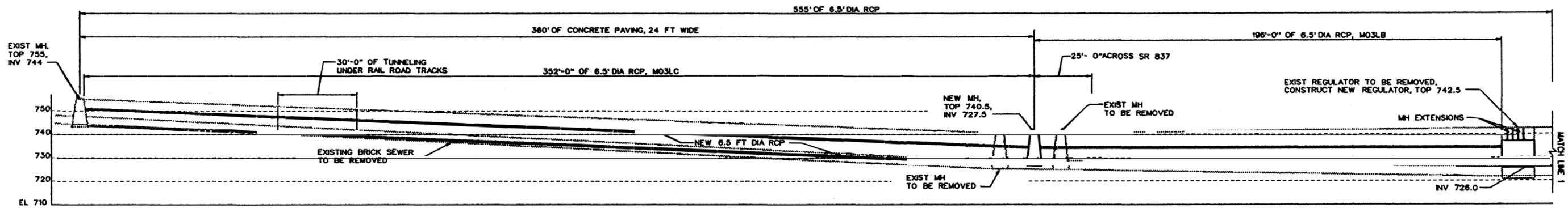


DETAIL A

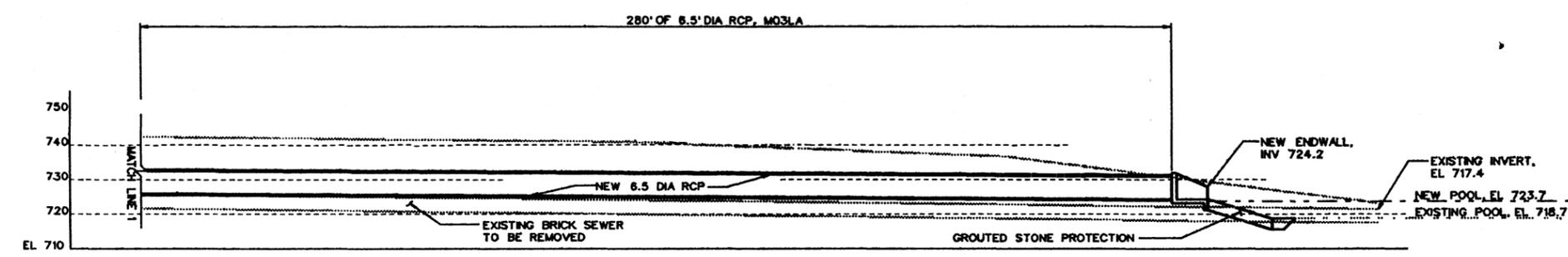
NOTES:

1. EXISTING CONSTRUCTION IS SHOWN AS HALF TONES. NEW CONSTRUCTION IS SHOWN AS FULL TONES.
2. EXISTING SEWER ALONG NORTH WEST EDGE OF SR 837 IS TO BE ABANDONED. SERVICE CONNECTIONS WILL BE REROUTED TO EXISTING SEWER ALONG SOUTH EAST EDGE OF SR 837.
3. EXISTING SEWER BETWEEN MH 3A AND MH 3 WILL BE REMOVED AND REPLACED WITH NEW SEWER.
4. RECONSTRUCT REG MH. PROVIDE NEW SEWER FROM REG MH TO MH 7A AND FROM CHLORINE CONTACT TANK TO REG MH.
5. EXISTING SEWER FROM MH A TO REG MH TO BE REMOVED. CONSTRUCT NEW SEWER FROM MH A TO MH 7A.
6. ESC DESIGNATES EXISTING SERVICE CONNECTION.
7. MAINTAIN SURVEY CONTROL DURING EXCAVATIONS ON SHADED BUILDINGS.

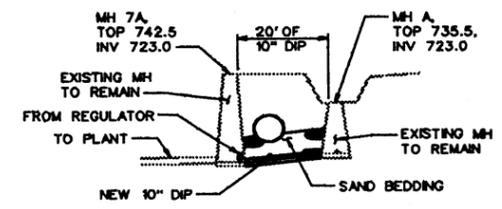
FACILITY# : M03L			
REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT, PITTSBURGH CORPS OF ENGINEERS OFFICE OF THE DISTRICT ENGINEER PITTSBURGH, PENNSYLVANIA			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS BOROUGH OF DRAVOSBURG PLAN			
SRF P.J.G.	SRF SRF	DATE 7/11/14	NO SCALE 037-R55-67/10
T.D. Kelly		DACW59	1 2



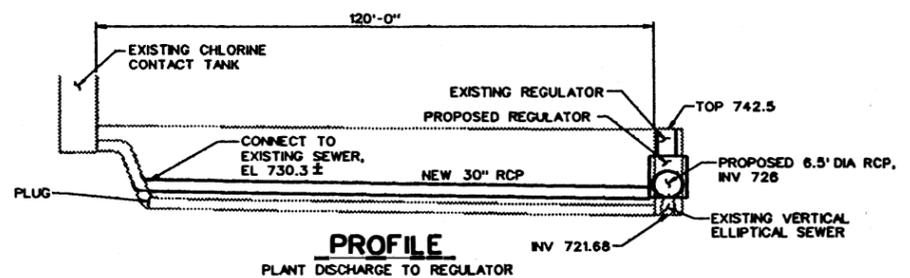
PROFILE



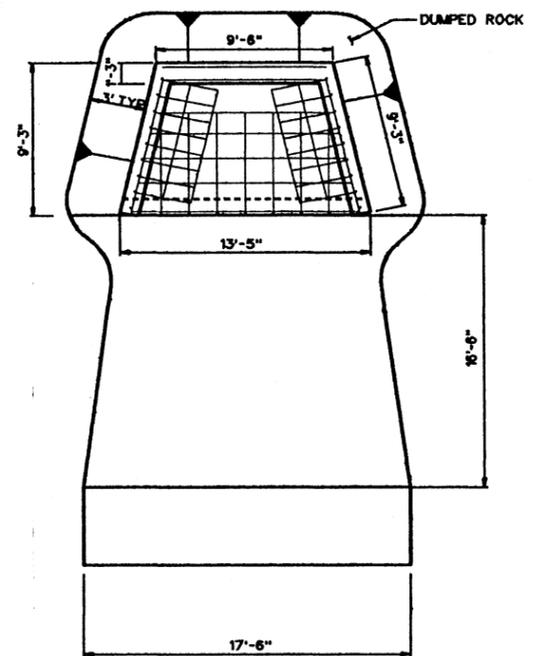
PROFILE
REGULATOR TO OUTFALL



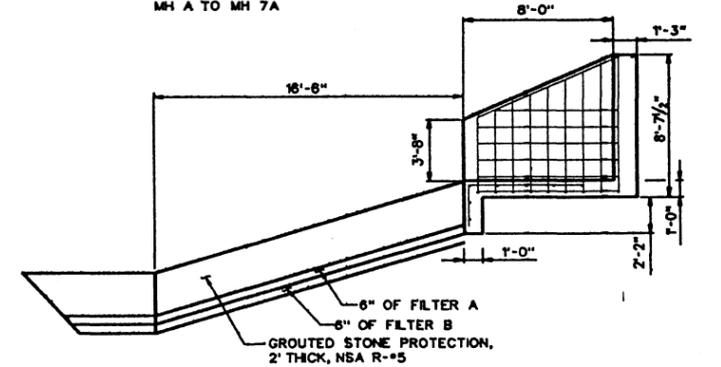
PROFILE
MH A TO MH 7A



PROFILE
PLANT DISCHARGE TO REGULATOR



STONE PROTECTION AND ENDWALL PLAN



STONE PROTECTION AND ENDWALL SECTION

FACILITY : M03L			
REVISION	DATE	DESCRIPTION	BY
		GRAPHIC SCALE	
U.S. ARMY ENGINEER DISTRICT PITTSBURGH CORPS OF ENGINEERS OFFICE OF THE DISTRICT ENGINEER PITTSBURGH, PENNSYLVANIA			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS BOROUGH OF DRAVOSBURG McCLURE AVE. & STP COMBINED OUTFALL PROFILE AND DETAILS			
SRF P-JG	SRF SRF	SRF 7/14/94	NO SCALE 037-R55-67/11
I. D. Stalling		DACW59	2 2

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: Curry Hollow Pump Station Emergency Bypass

ID: M04L

Location

River: Monongahela **Bank:** LEFT **RM:** 17.0

Owner: Municipal Authority of the Borough of
West Mifflin

Address: 4733 Greensprings Avenue, West Mifflin
Pennsylvania, 15122

Design Team Visit: 30 April 1993, Fritz

POOL DATA:

	EXISTING	BRADDOCK
Level Pool	718.7	723.7
Ordinary High Water	730.8	728.4

EXISTING CONDITIONS:

Invert Elevation: 721.4

Inlet conditions:

This facility, originally constructed as a combined sewer, carried domestic wastewater and storm water to the river. Currently, the 18 inch diameter terra cotta pipe, acts as an emergency bypass for the Curry Hollow pump station. In the event that the pump station fails to operate, waste water flows are bypassed to the Monongahela River via this sewer. At the outfall the pipe is concrete encased for its entire visible length.

On the date of the design team visit, evidence of a recent bypass was observed in the first upstream manhole. Flow observed in the first upstream manhole was described as infiltration from a nearby stream which parallels the pipe to the pump station.

Drainage Area: n/a
Capacity: $Q_c = 10$ CFS
Runoff, 10-year event: n/a

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates there is a potential for contamination at this facility site. Therefore, the

contractor recommends a Phase II investigation for this facility.

PROPOSED DESIGN:

Limiting Capacity: $Q_L = 15$ CFS
Slope: 0.0032 ft/ft
Material: RCP
Manning's n: 0.012
Diameter: 21"
Design Capacity: $Q_D = 12.0$ CFS

REQUIRED REMEDIAL WORK:

Government Proposal:

The proposed design involves constructing approximately 535 lineal feet of 21 inch diameter reinforced concrete pipe. The relocation will begin at the first landward manhole, which is adjacent to state route 837, and continue to the river. The last 130 lineal feet of the pipe will be encased in reinforced concrete which will anchor and protect the pipe during high river flows. The last 50 feet of the concrete encasement will be blanketed with stone protection. The embankment below the outfall will be protected by a layer of ungrouted stone protection with a fabric filter.

Estimated Construction Cost (Rounded): \$ 281,000

Responsibility: Government

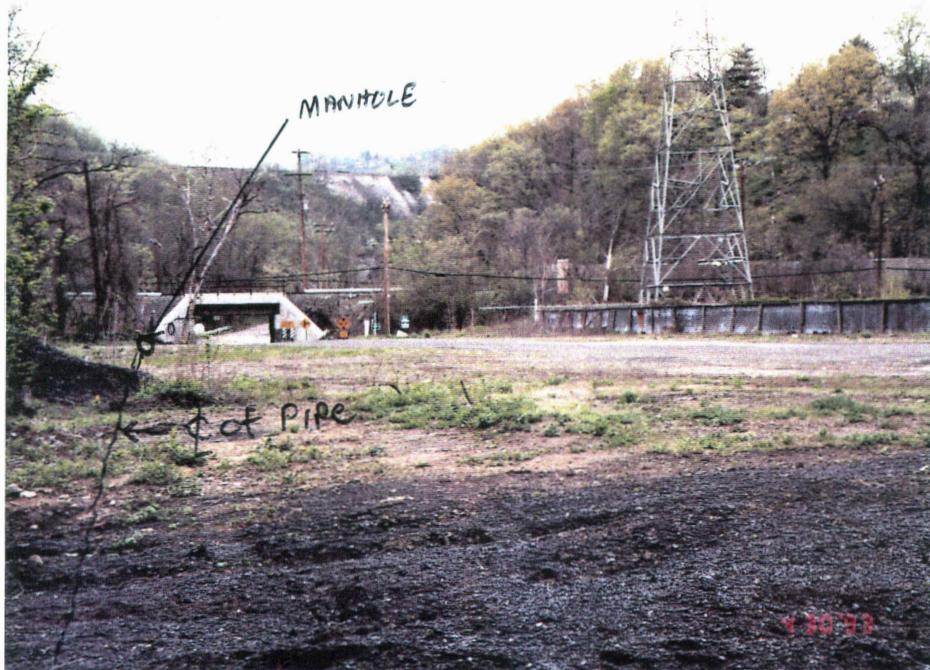
Justification:

The Curry Hollow pump station pumps domestic wastewater to a treatment facility so that it can be treated and discharged into the river. If the existing sewer would become plugged and the pump station would fail, wastewater would back up and eventually find relief through existing manholes. In order to provide an adequate relief, the existing sewer must be adjusted.

This facility (identified as a 15" CIP storm sewer by the LMFS) was authorized for project funding by the LMFS, December 1991, provided that further investigation revealed that it complies with the requirements of P.L. 85-500, Section 111, as amended. See APPENDIX D for documentation on this compliance.



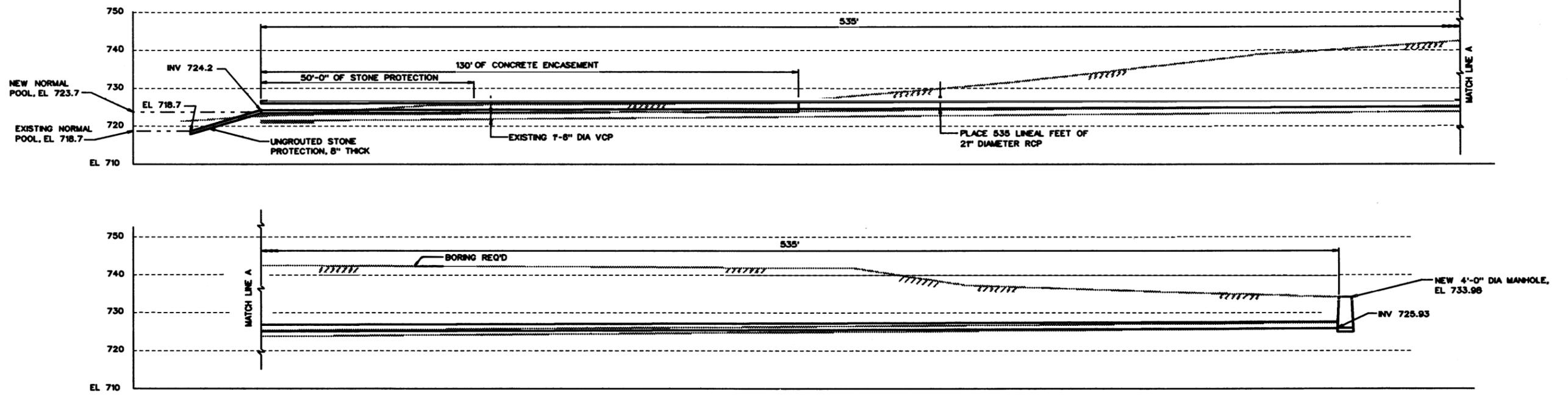
CONCRETE ENCASEMENT AT OUTFALL



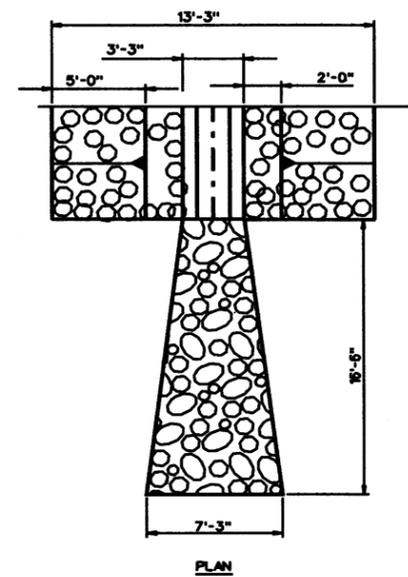
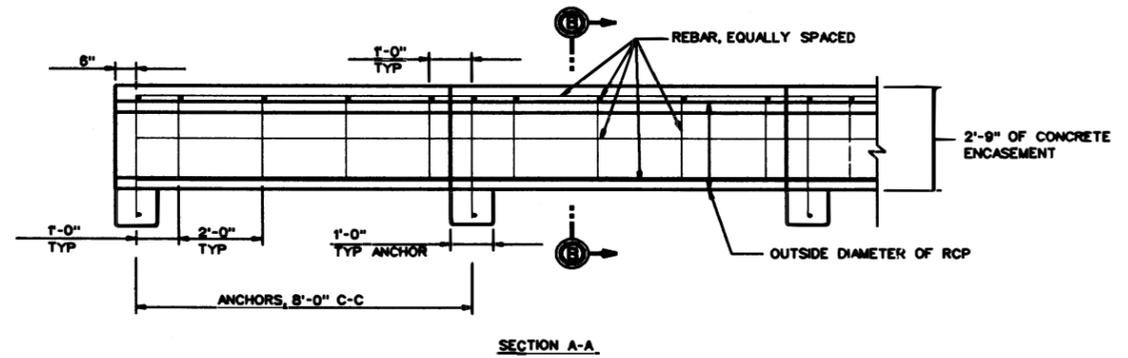
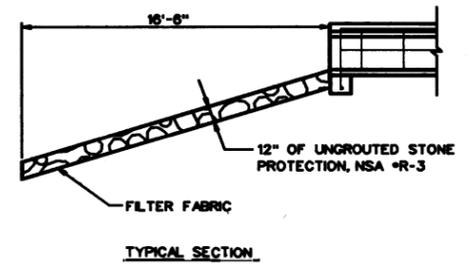
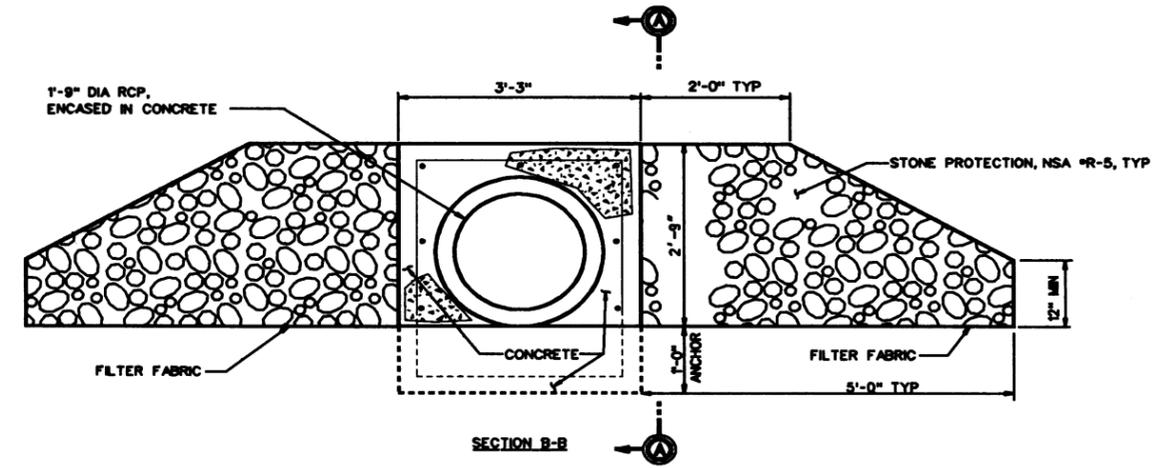
LOOKING LANDWARD

M04L, PHOTOS

M04L-3



PROFILE



- NOTES:
1. OBJECT LINES APPEARING AS HALF TONES ARE EXISTING CONSTRUCTION.
 2. SOLID LINES ARE NEW CONSTRUCTION.
 3. REGRADE EXCAVATION TO MATCH EXISTING CONTOURS.

CONCRETE ENCASEMENT DETAIL

ENCASEMENT NOTES:
1. ALL REINFORCING WILL BE #5 BARS SPACED AS SHOWN.

STONE PROTECTION DETAILS

FACILITY : M04L

REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT, PITTSBURGH CORPS OF ENGINEERS <small>OFFICE OF THE DISTRICT ENGINEER PITTSBURGH, PENNSYLVANIA</small>			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS			
BOROUGH OF WEST MIFFLIN CURRY HOLLOW PUMP STATION OUTFALL			
SRP MEZ	SRP	22 AUG 94	NO SCALE 037-R55-67/12
Terry D. Shelly		DACWB9	

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: Discharge from Wastewater Treatment Plant

ID: M05L

Location

River: Monongahela Bank: LT RM: 22.9

Owner: West Elizabeth Sanitary Authority

Address: 610 First Street

West Elizabeth, PA 15088-0217

Design Team Visit: 17 February 1993, Fritz

POOL DATA:

	EXISTING	BRADDOCK
Level Pool	718.7	723.7
Ordinary High Water	732.9	731.2

EXISTING CONDITIONS:

Invert Elevation: 718.7 (As built drawings)

Inlet conditions:

The facility is assumed to be a 10 inch diameter cast iron pipe. The owner, construction drawings and the site visits could provide no verification of type or size of pipe. The outfall serves the West Elizabeth wastewater treatment plant. Inflow consists of treated wastewater.

Drainage Area: N/A

Capacity: $Q_c = 2.0$ CFS

Runoff, 10-year event: N/A

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates that there is an insignificant potential for contamination at this facility site. Therefore, the contractor does not recommend a Phase II investigation for this facility at this time.

PROPOSED DESIGN:

Invert Elevation: 724.2
Limiting Capacity: $Q_L = 3.0$ CFS
Slope: 0.01 ft/ft
Material: Cast Iron Pipe
Manning's N: 0.014
Diameter: 10"
Design Capacity: $Q_D = 2.0$ CFS

REQUIRED REMEDIAL WORK:

Government Proposal:

Install approximately 8 feet of new 10 inch diameter ductile iron pipe to outlet above the proposed pool, construct a new endwall and provide stone protection down to the existing pool elevation.

Estimated Construction Cost (Rounded): \$ 13,000

Responsibility: Government

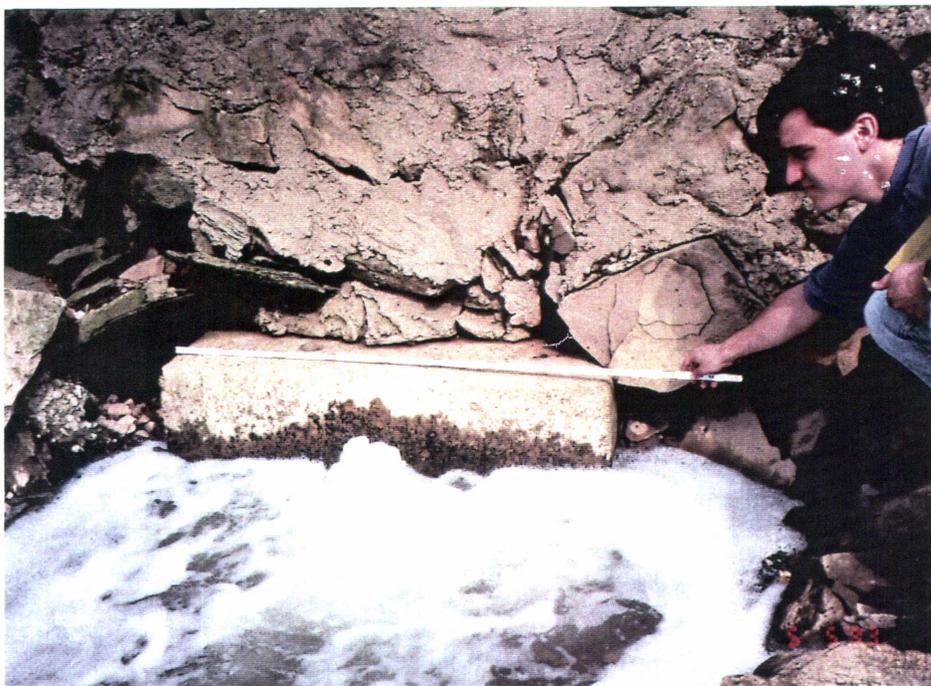
Justification:

This outfall serves the communities of West Elizabeth and Jefferson Borough as the sole discharge from the waste water treatment plant. The five foot pool raise will totally inundate the existing outfall making it inaccessible for maintenance. Inundation will increase maintenance costs to service the outfall. Therefore it is proposed to install a new outfall which would outlet above the new pool.

This facility (identified as a sanitary sewer by the LMFS) was authorized for project funding by the LMFS, December 1991, provided that further investigation revealed that it complies with the requirements of P.L. 85-500, Section 111, as amended. See APPENDIX D for documentation on this compliance.

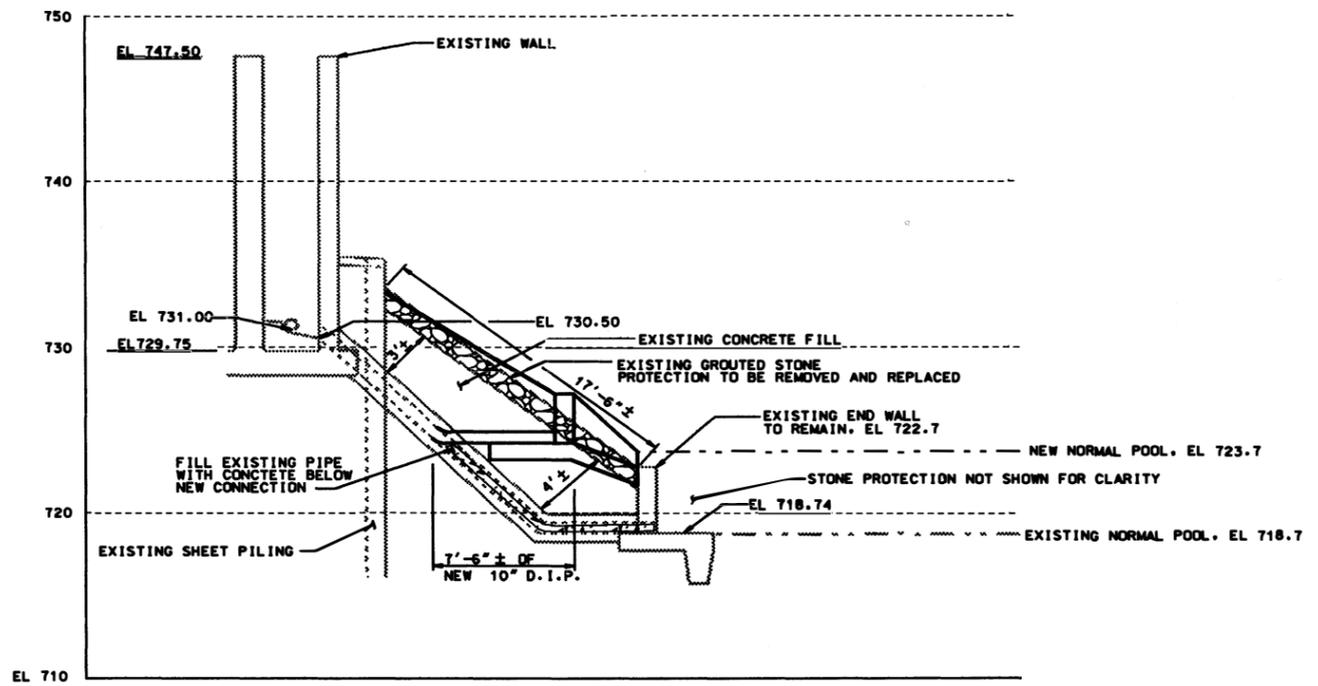


LOOKING RIVERWARD AT OUTFALL

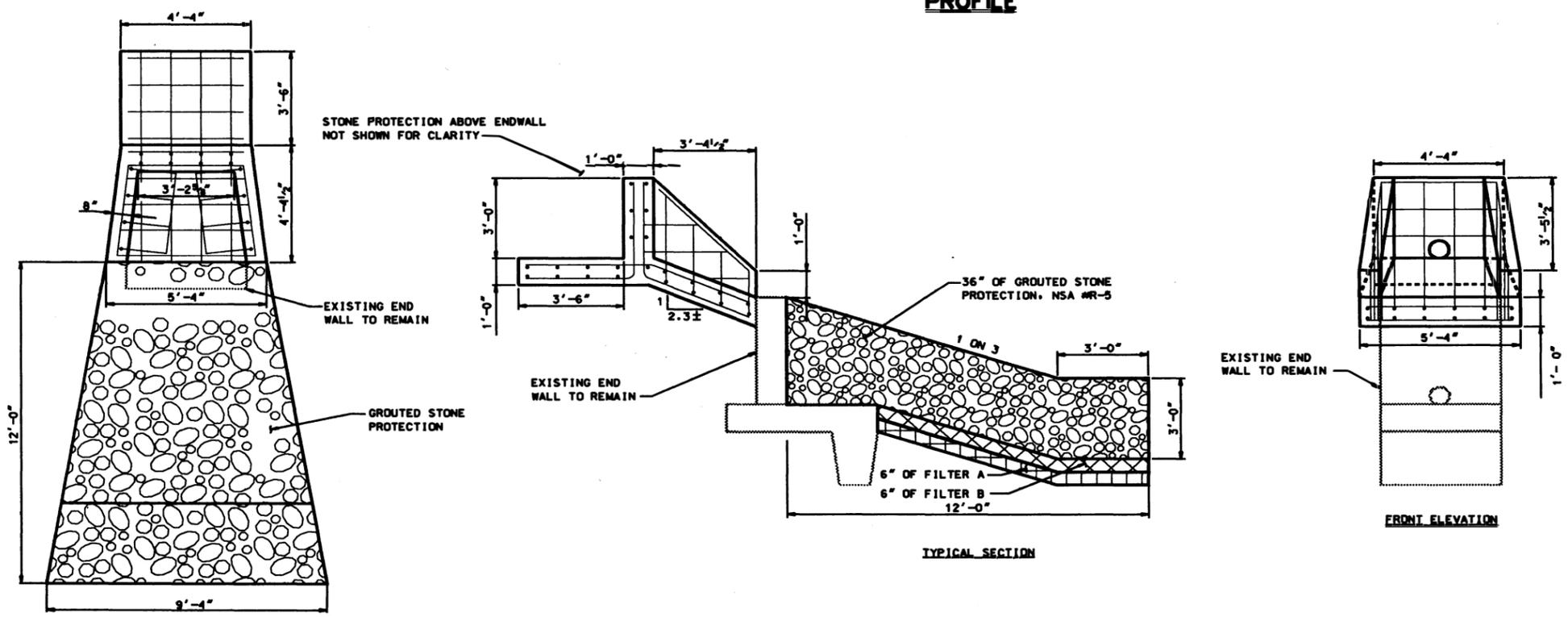


LOOKING LANDWARD AT OUTFALL

M05L, PHOTOS



PROFILE



ENDWALL AND STONE PROTECTION DETAILS

- NOTES:
1. OBJECT LINES APPEARING AS HALF TONES ARE EXISTING CONSTRUCTION.
 2. SOLID LINES ARE NEW CONSTRUCTION.
 3. REGRADE EXCAVATION TO MATCH EXISTING CONTOURS.
 4. EXCAVATE TO SIX INCHES (6") BELOW NEW ENDWALL.
 5. EXACT DEPTH OF EXISTING PIPE IS NOT KNOWN; ADJUST NEW PIPE LENGTH ACCORDINGLY.

FACILITY# : M05L			
REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT PITTSBURGH CORPS OF DISTRICTS			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS			
WEST ELIZABETH SANITARY AUTHORITY SEWAGE TREATMENT PLANT OUTFALL			
SRP	SRF	DATE	AS SHOWN
		18 Aug 1994	037-R55-67/13
DACWB9			

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: Main Intercepting Sewer

ID: M06L

Location

River: Monongahela Bank: LT RM: 22.9-23.2

Owner: West Elizabeth Sanitary Authority
Address: 610 First Street
West Elizabeth, PA 15088-0217

Design Team Visit: Various visits, 1993 & 1994, Fritz.

POOL DATA:

	EXISTING	BRADDOCK
Level Pool	718.7	723.7
Ordinary High Water	733.0	731.4

EXISTING CONDITIONS:

Invert Elevations:
Upstream end: 726.4
Downstream end: 720.8

Inlet conditions:

The facility is a 15" dia extra strong VCP that runs the length of Water Street. Its primary purpose is to transport all dry weather sanitary flows to the West Elizabeth Sanitary Authority wastewater treatment plant. In storm events this sewer transports up to 350% of the dry weather sanitary flow (combined flow) to the treatment plant. Dry weather flow is diverted to the main intercepting sewer by a series of regulator stations that are located at various sites.

Drainage Area: N/A
Capacity: $Q_c = 3.21$ CFS
Runoff, 10-year event: $Q_{10} = N/A$

PROPOSED DESIGN:

Invert Elevation:

Inverts will be slightly higher than exist now (1/3 inch) because of the sewer lining. Existing manholes will also have a slightly higher invert.

Slopes: same as existing
Material: Insituform Liner
Manning's N: 0.009
Diameter: 14.4"
Design Capacity: $Q_D = 3.76$ CFS

REQUIRED REMEDIAL WORK:

Government Proposal:

Install 1,900 lineal feet of Insituform liner inside the existing interceptor to prevent infiltration. Seal existing manholes along the main intercepting sewer up to elevation 726.5

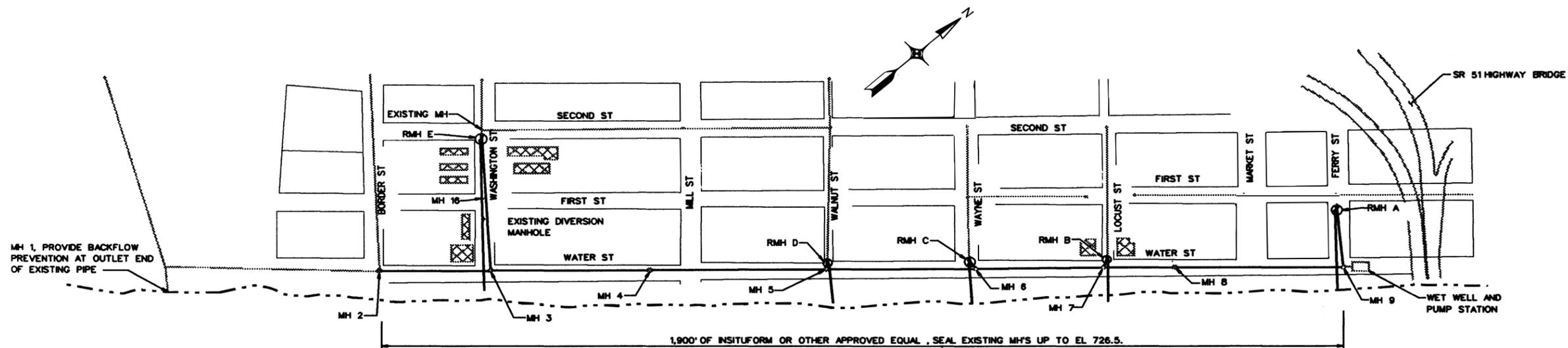
Estimated Construction Cost (Rounded): \$ 298,000

Responsibility: Government

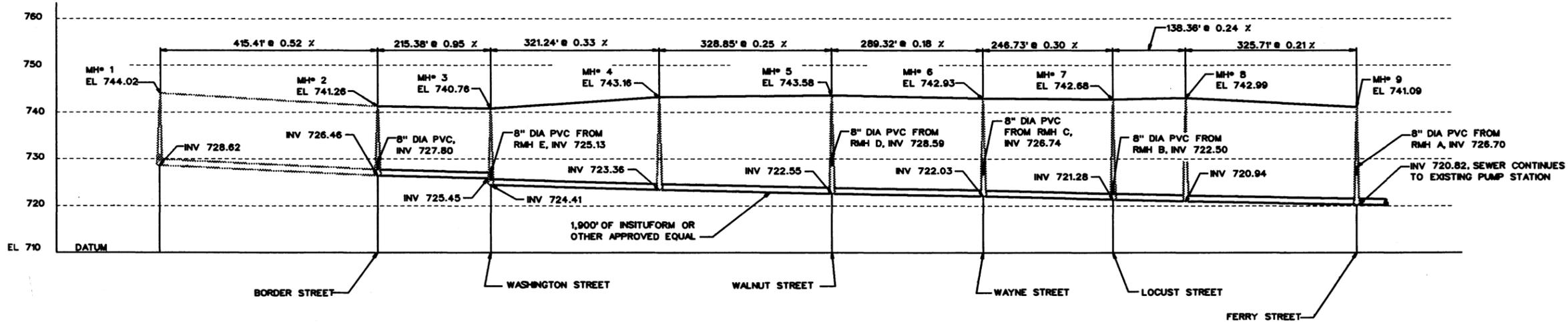
Justification:

This sewer, and manholes along this sewer, are the main sanitary collection system for the Borough of West Elizabeth. Infiltration into this system would cause increased flows at the treatment plant and the possibility of combined sewer overflows during dry weather. Both of these circumstances are considered unacceptable.

This facility was authorized for project funding by the LMFS, December 1991, provided that further investigation revealed that it complies with the requirements of P.L. 85-500, Section 111, as amended. See APPENDIX D for documentation on this compliance.



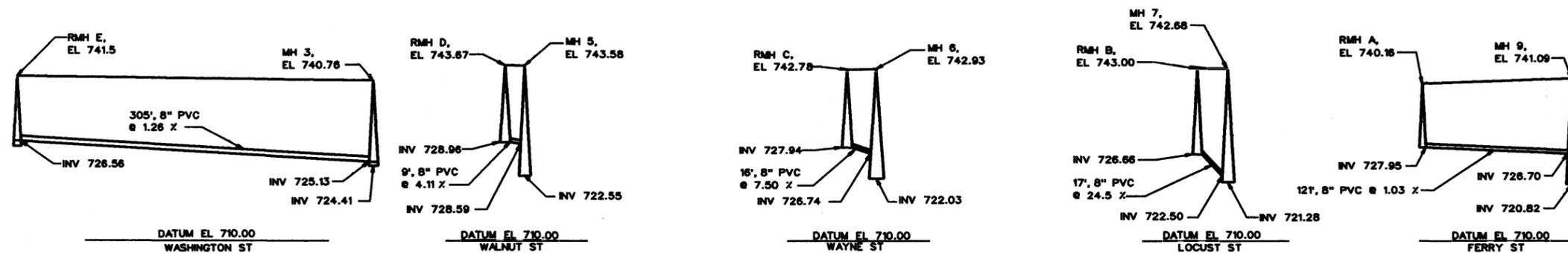
PLAN FLOW MONONGAHELA RIVER



PROFILE

NOTES:

1. OBJECT LINES APPEARING AS HALF TONES ARE EXISTING CONSTRUCTION.
2. LINE EXISTING 15" INTERCEPTOR SEWER ALONG WATER STREET WITH INSITUFORM OR EQUAL. LIMITS OF RE-LINING ARE FROM MH 2 TO EXISTING PUMP STATION JUST DOWNSTREAM OF MH 9.
3. MAINTAIN SURVEY CONTROL ON SHADED BUILDINGS DURING EXCAVATIONS.



INTERCEPTOR AND REGULATOR DETAILS

FACILITY# : M06L

REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT, PITTSBURGH CORPS OF ENGINEERS			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS			
WEST ELIZABETH SANITARY AUTHORITY SEWAGE INTERCEPTOR LINE PLAN, PROFILE AND DETAILS			
SRF	SRF	MR	22 Aug 94
BY: <i>Tracy D. Stull</i>			NO SCALE
DACW59			037-R55-67/4

PROPOSED DESIGN:

Invert Elevation: 724.2
Limiting Capacity: $Q_L = 21.0$ CFS
Slope: 0.0231 ft/ft
Material: RCP
Manning's N: 0.012
Diameter: 24"
Design Capacity: $Q_D = 21.0$ CFS

REQUIRED REMEDIAL WORK:

Government Proposal:

Construct a new regulator station similar to the existing one. Install approximately 158 feet of 24 inch diameter reinforced concrete pipe to outlet above the proposed pool. Install 121 feet of 8 inch diameter PVC from new regulator station to existing interceptor line. Install back flow prevention downstream of the regulator station on the overflow sewer. Construct a new endwall at outfall and provide stone protection to the existing pool elevation below outfall.

Estimated Construction Cost (Rounded): \$ 116,000

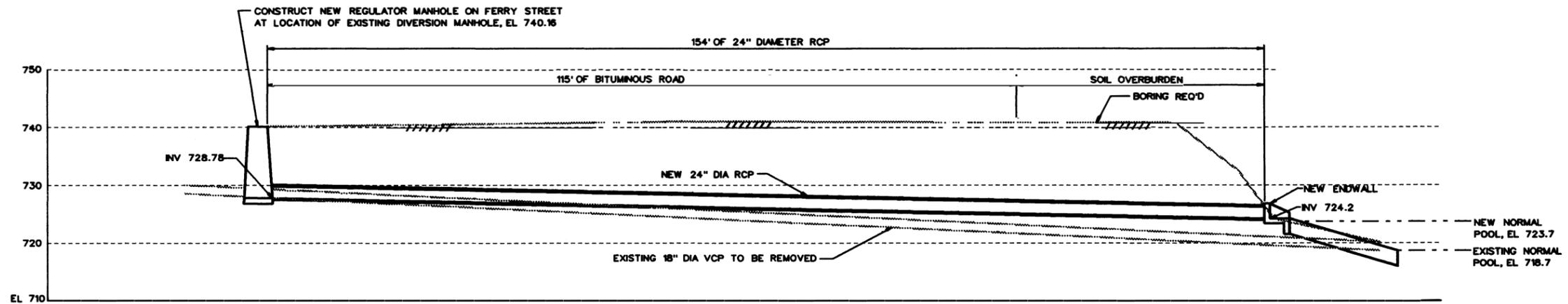
Responsibility: Government

Justification:

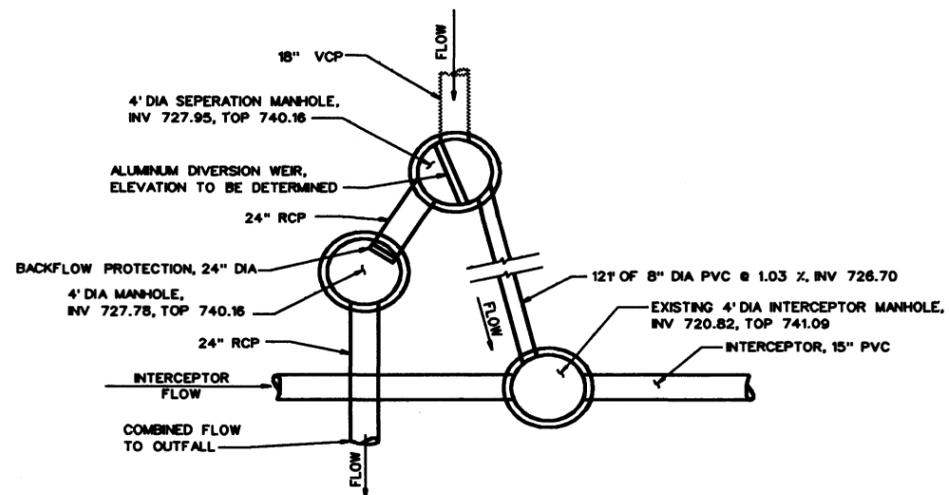
The Ferry Street combined sewer outfall will be totally inundated by the five foot pool raise. This will subject the overflow to increased siltation and inaccessibility for maintenance.

This outfall functions as a relief valve for the combined sewer system during storm events. Without a relocation of the existing line, excessive storm flows will be prevented from bypassing to the river and forced into the treatment plant.

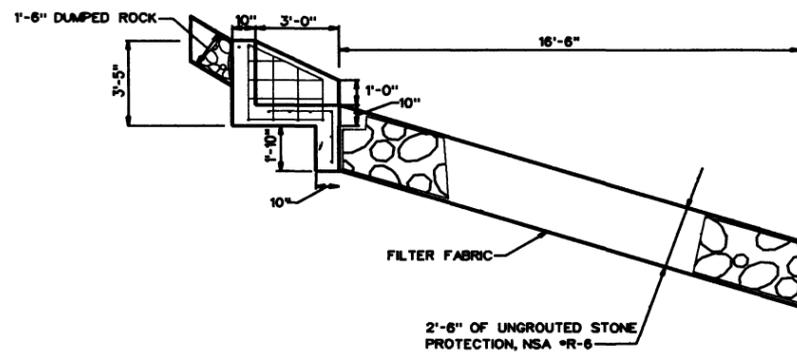
This facility, though not specifically authorized for project funding by the LMFS, is an essential and integral part of the combined sewer system which was authorized for project funding by the LMFS, December 1991, provided that further investigation revealed that it complies with the requirements of P.L. 85-500, Section 111, as amended. See APPENDIX D for documentation on this compliance.



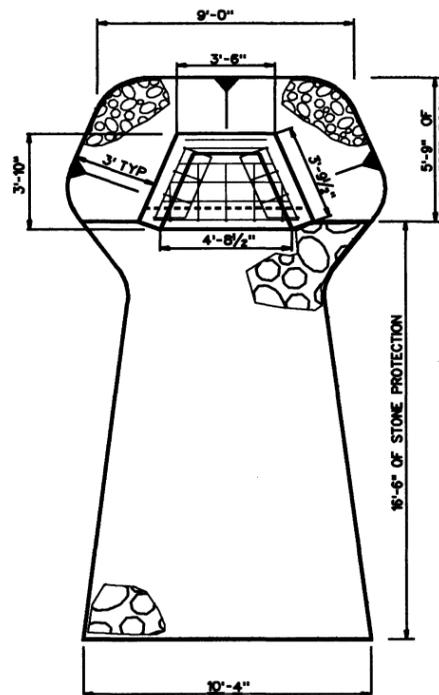
PROFILE



TYPICAL REGULATOR PLAN



STONE PROTECTION AND ENDWALL SECTION

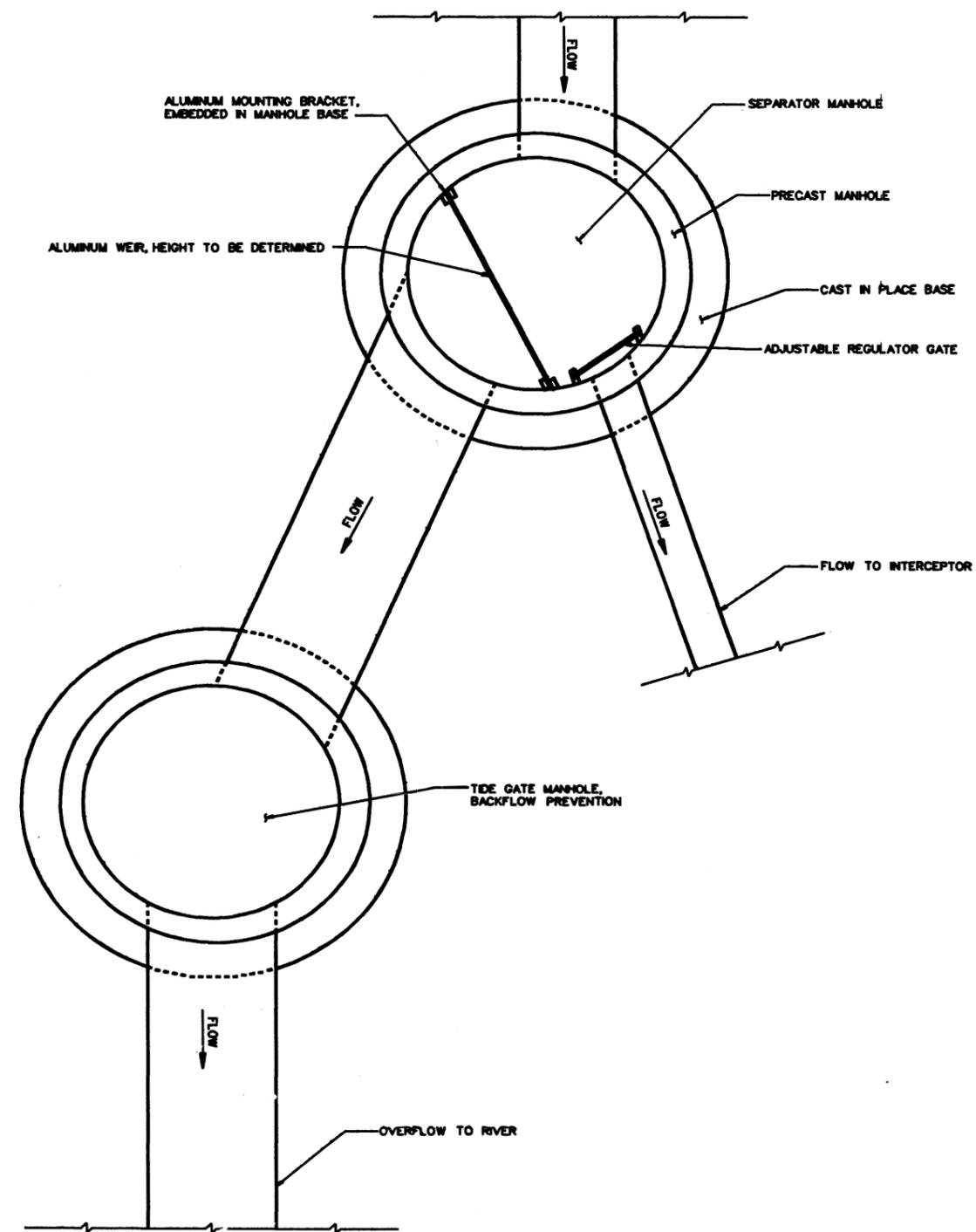


STONE PROTECTION AND ENDWALL PLAN

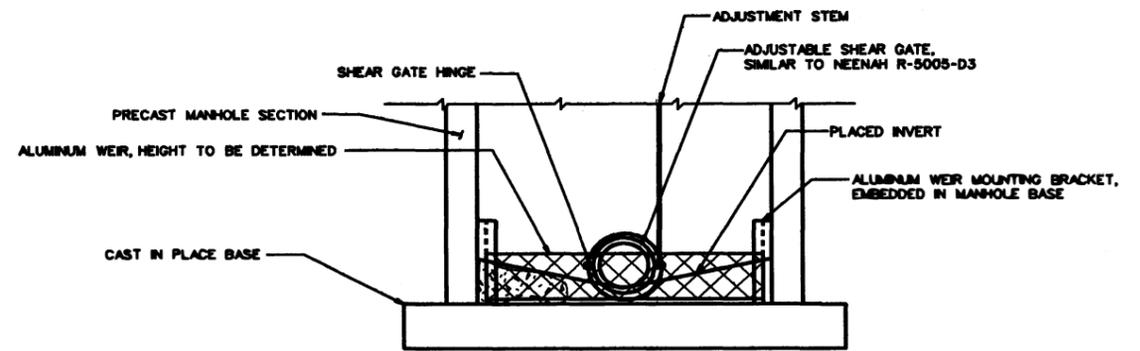
NOTES:

1. OBJECT LINES APPEARING AS HALF TONES ARE EXISTING CONSTRUCTION.
2. SOLID LINES ARE NEW CONSTRUCTION.
3. REGRADE EXCAVATION TO MATCH EXISTING CONTOURS.
4. REGRADE EXCAVATION TO MATCH EXISTING CONTOURS.
5. CONSTRUCT NEW REGULATOR MANHOLE ON FERRY STREET AT EXISTING LOCATION.
6. USE PRECAST MANHOLE SECTIONS WITH A CAST IN PLACE BASE (8" DEEP, ID = 2', REINFORCED WITH #5 BARS @ 6" EACH WAY).
7. FERRY STREET PAVING, 115' X 24'.

FACILITY - M07L			
REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT, PITTSBURGH CORPS OF ENGINEERS OFFICE OF THE DISTRICT ENGINEER PITTSBURGH, PENNSYLVANIA			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS			
WEST ELIZABETH SANITARY AUTHORITY FERRY STREET REGULATOR OUTFALL			
DESIGN SRF PJG	DATE 22 Aug 94	SCALE NO SCALE	PROJECT NO. 037-R55-67/15
DRAWN BY Terry D. Shilley		CHECKED BY DACW59	



TYPICAL REGULATOR PLAN



TYPICAL SECTION, SEPARATOR MANHOLE

- NOTES:
- WEIR ELEVATIONS VARY DEPENDING ON SITE CONDITIONS.
 - FLOW TO INTERCEPTOR IS REGULATED BY THE ADJUSTABLE SHEAR GATE.

FACILITY - M07L THRU M11L			
REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT, PITTSBURGH CORPS OF ENGINEERS OFFICE OF THE DISTRICT ENGINEER			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS			
WEST ELIZABETH SANITARY AUTHORITY COMBINED SEWER REGULATOR DETAILS			
DESIGN	DRAWN	CHECKED	DATE
SRF	SRF	961	10/14/94
NO SCALE			037-R55-67/20
			DACWB9

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: Locust Street Combined Sewer Overflow

ID: M08L

Location

River: Monongahela Bank: LT RM: 23.11

Owner: West Elizabeth Sanitary Authority

Address: 610 First Street
West Elizabeth, PA 15088-0217

Design Team Visit: Various visits 1993 & 1994, Fritz

POOL DATA:

	EXISTING	BRADDOCK
Level Pool	718.7	723.7
Ordinary High Water	733.0	731.4

EXISTING CONDITIONS:

Invert Elevation: 721.9

Inlet conditions:

This facility was originally constructed to pass all storm and domestic wastewater to the Monongahela River from the Locust Street drainage area. Currently this 18 inch vitrified clay sewer serves as the combined sewer overflow for the Locust Street regulator station (see APPENDIX C).

An eight inch diameter vitrified clay sewer serves as the sanitary collector at the regulator station. This line carries all dry weather flow, to the main intercepting sewer. Flow in the regulator is controlled by a diversion weir at the inlet to the overflow sewer and by a manually operated gate at the inlet to the sanitary sewer.

Drainage Area: 3.7 Acres
Capacity: $Q_c = 12.0$ CFS
Runoff, 10-year event: $Q_{10} = 12.0$ CFS

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates that there is an insignificant potential for contamination at this facility site. Therefore, the contractor does not recommend a Phase II investigation for this facility at this time.

PROPOSED DESIGN:

Invert Elevation: 724.2
Limiting Capacity: $Q_L = 12.0$ CFS
Slope: 0.0213 ft/ft
Material: RCP
Manning's N: 0.012
Diameter: 18"
Design Capacity: $Q_D = 12.0$ CFS

REQUIRED REMEDIAL WORK:

Government Proposal:

Construct a new regulator station on the existing sewer line, similar to the existing one, landward of the existing regulator station. Install approximately 92 feet of 18 inch diameter reinforced concrete pipe to outlet above the proposed pool. Install 17 feet of 8 inch diameter PVC from new regulator station to existing interceptor line. Install back flow prevention downstream of the regulator station on the overflow sewer. Construct a new endwall at outfall and provide stone protection to the existing pool elevation below outfall.

Estimated Construction Cost (Rounded): \$ 66,000

Responsibility: Government

Justification:

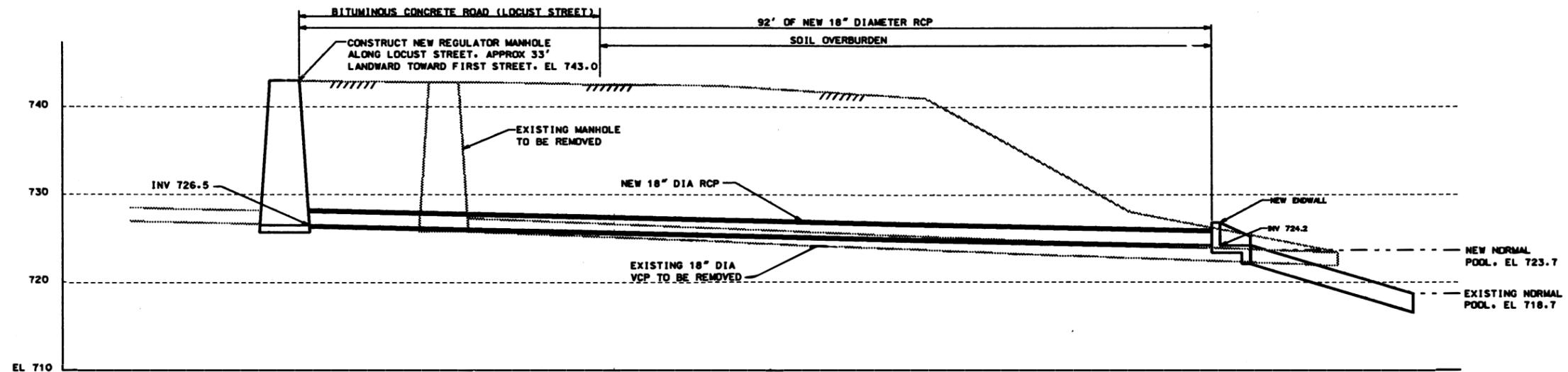
The Locust Street combined sewer outfall will be totally inundated by the five foot pool raise. This will subject the overflow to increased siltation and inaccessibility for maintenance.

This outfall functions as a relief valve for the combined sewer system during storm events. Without a relocation of the existing line, excessive storm flows will be prevented from bypassing to the river and forced into the treatment plant.

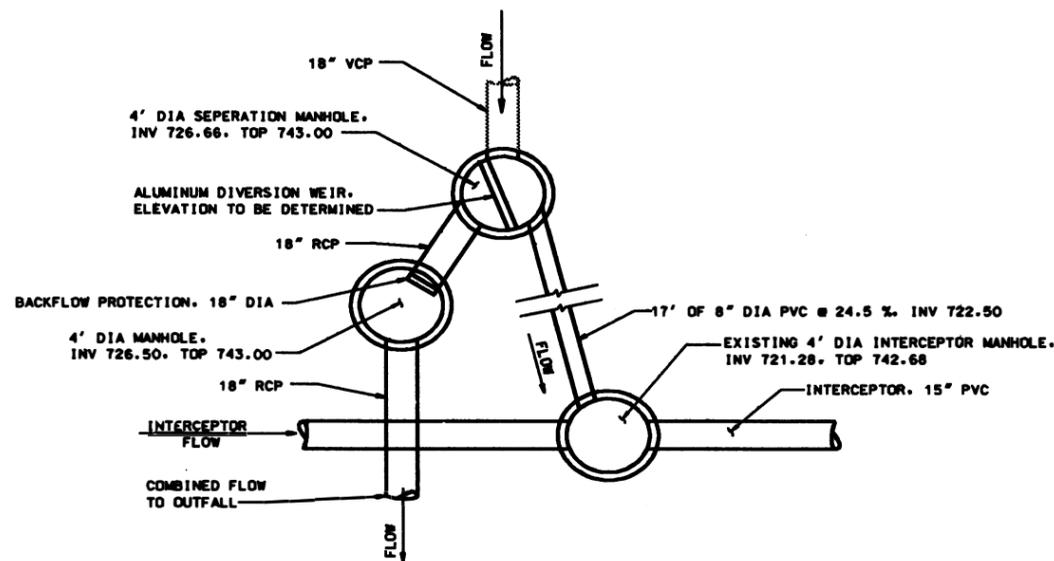
This facility, though not specifically authorized for project funding by the LMFS, is an essential and integral part of the combined sewer system which was authorized for project funding by the LMFS, December 1991, provided that further investigation revealed that it complies with the requirements of P.L. 85-500, Section 111, as amended. See APPENDIX D for documentation on this compliance.



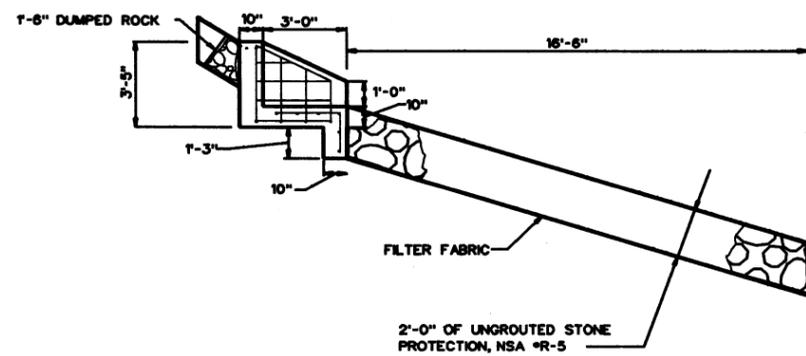
M08L, 18" CPP OUTFALL
(LANDWARD PORTION OF PIPE IS VCP)



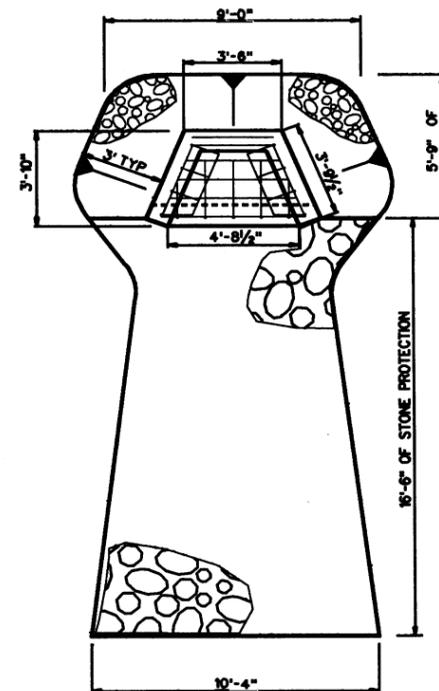
PROFILE



TYPICAL REGULATOR PLAN



STONE PROTECTION AND ENDWALL SECTION



STONE PROTECTION AND ENDWALL PLAN

NOTES:

1. OBJECT LINES APPEARING AS HALF TONES ARE EXISTING CONSTRUCTION.
2. SOLID LINES ARE NEW CONSTRUCTION.
3. REGRADE EXCAVATION TO MATCH EXISTING CONTOURS.
4. CONSTRUCT NEW REGULATOR MANHOLE ON LOCUST STREET, APPROXIMATELY 33' UPSLOPE ON PIPE TOWARD FIRST STREET.
5. USE PRECAST MANHOLE SECTIONS WITH A CAST IN PLACE BASE (8" DEEP, ID = 2", REINFORCED WITH #5 BARS @ 6" EACH WAY).
6. LOCUST STREET PAVING, 24' X 10'.

FACILITY - M08L			
REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT, PITTSBURGH CORPS OF ENGINEERS PITTSBURGH, PENNSYLVANIA			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS			
WEST ELIZABETH SANITARY AUTHORITY LOCUST STREET REGULATOR OUTFALL			
SRF PJG	SRF	NO SCALE	037-R55-67/16
DACW59			

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: Wayne Street Combined Sewer Overflow

ID: M09L

Location

River: Monongahela Bank: LT RM: 23.15

Owner: West Elizabeth Sanitary Authority

Address: 610 First Street

West Elizabeth, PA 15088-0217

Design Team Visit: Various visits 1993 & 1994, Fritz

POOL DATA:

	EXISTING	BRADDOCK
Level Pool	718.7	723.7
Ordinary High Water	733.0	731.4

EXISTING CONDITIONS:

Invert Elevation: 720.9

Inlet conditions:

This facility was originally constructed to pass all storm and domestic wastewater to the Monongahela River from the Wayne Street drainage area. Currently this 18 inch vitrified clay sewer serves as the combined sewer overflow for the Wayne Street regulator station (see APPENDIX C).

An eight inch diameter vitrified clay sewer serves as the sanitary collector at the regulator station. This line carries all dry weather flow, to the main intercepting sewer. Flow in the regulator is controlled by a diversion weir at the inlet to the overflow sewer and by a manually operated gate at the inlet to the sanitary sewer.

Drainage Area: 5.7 Acres

Capacity: $Q_c = 14.0$ CFS

Runoff, 10-year event: $Q_{10} = 18.0$ CFS

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates that there is an insignificant potential for contamination at this facility site. Therefore, the contractor does not recommend a Phase II investigation for this facility at this time.

PROPOSED DESIGN:

Invert Elevation: 724.2
Limiting Capacity: $Q_L = 18.0$ CFS
Slope: 0.1430 ft/ft
Material: RCP
Manning's N: 0.012
Diameter: 21"
Design Capacity: $Q_D = 18.0$ CFS

REQUIRED REMEDIAL WORK:

Government Proposal:

Construct a new regulator station similar to the existing one. Install approximately 80 feet of 21 inch diameter reinforced concrete pipe to outlet above the proposed pool. Install 16 feet of 8 inch diameter PVC from new regulator station to existing interceptor line. Install back flow prevention downstream of the regulator station on the overflow sewer. Construct a new endwall at outfall and provide stone protection to the existing pool elevation below outfall.

Estimated Construction Cost (Rounded): \$ 66,000

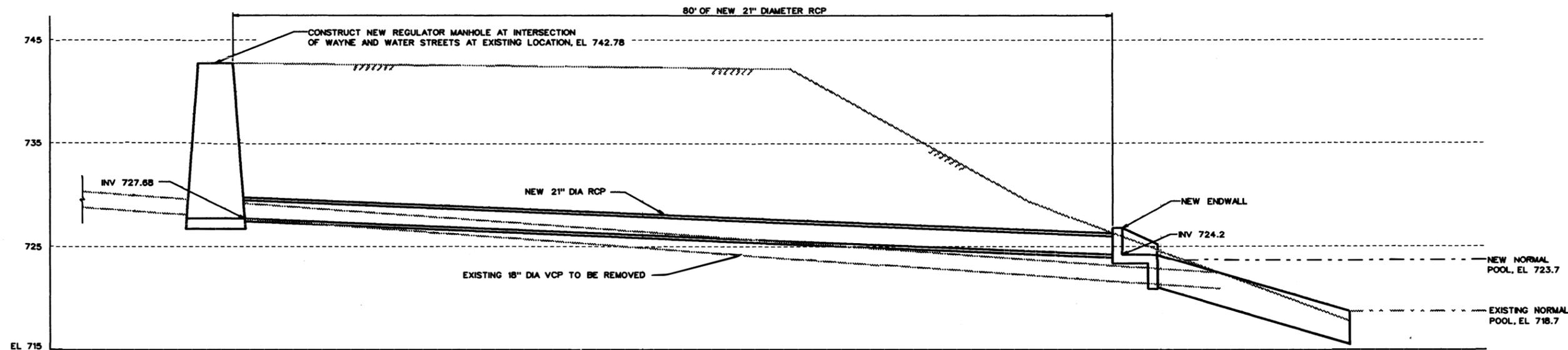
Responsibility: Government

Justification:

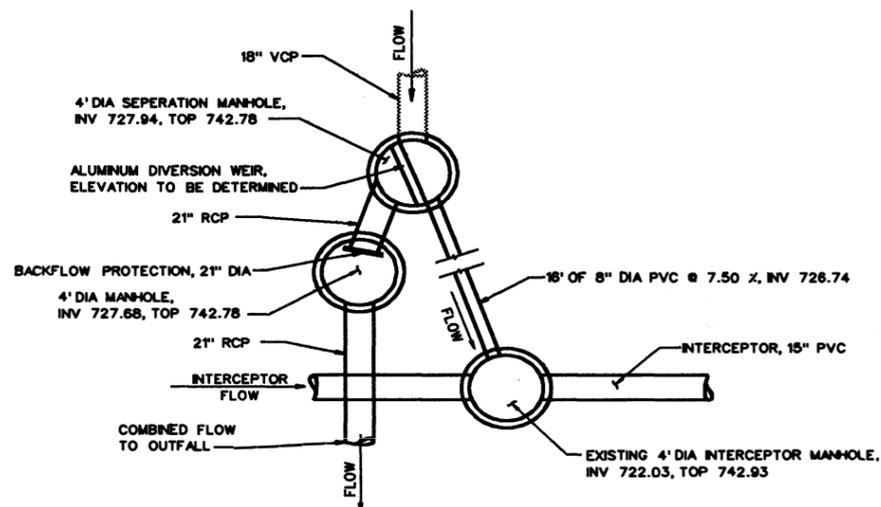
The Wayne Street combined sewer outfall will be totally inundated by the five foot pool raise. This will subject the overflow to increased siltation and inaccessibility for maintenance.

This outfall functions as a relief valve for the combined sewer system during storm events. Without a relocation of the existing line, excessive storm flows will be prevented from bypassing to the river and forced into the treatment plant.

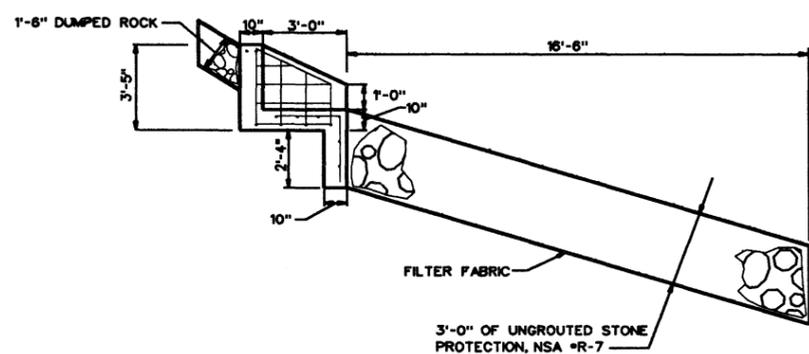
This facility, though not specifically authorized for project funding by the LMFS, is an essential and integral part of the combined sewer system which was authorized for project funding by the LMFS, December 1991, provided that further investigation revealed that it complies with the requirements of P.L. 85-500, Section 111, as amended. See APPENDIX D for documentation on this compliance.



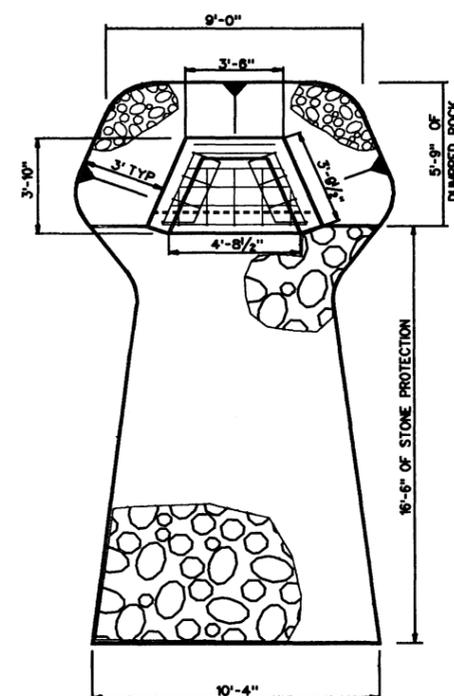
PROFILE



TYPICAL REGULATOR PLAN



STONE PROTECTION AND ENDWALL SECTION



STONE PROTECTION AND ENDWALL PLAN

NOTES:

1. OBJECT LINES APPEARING AS HALF TONES ARE EXISTING CONSTRUCTION.
2. SOLID LINES ARE NEW CONSTRUCTION.
3. REGRADE EXCAVATION TO MATCH EXISTING CONTOURS.
4. CONSTRUCT NEW REGULATOR MANHOLE AT INTERSECTION OF WATER AND WAYNE STREETS AT LOCATION OF EXISTING MANHOLE.
5. USE PRECAST MANHOLE SECTIONS WITH A CAST IN PLACE BASE (8" DEEP, ID - 2', REINFORCED WITH #5 BARS @ 6" EACH WAY).
6. WAYNE STREET PAVING: 27 FT X 10 FT = 30 SY.

FACILITY - M09L			
REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT, PITTSBURGH CORPS OF ENGINEERS			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS			
WEST ELIZABETH SANITARY AUTHORITY WAYNE STREET REGULATOR OUTFALL			
SRF	DATE	SCALE	NO. SCALE
ENG	7/21/94	NO SCALE	037-R55-67/17
DACW59			

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: Walnut Street Combined Sewer Overflow

ID: M10L

Location

River: Monongahela **Bank:** LT **RM:** 23.21

Owner: West Elizabeth Sanitary Authority

Address: 610 First Street
West Elizabeth, PA 15088-0217

Design Team Visit: Various visits 1993 & 1994, Fritz

POOL DATA:

	EXISTING	BRADDOCK
Level Pool	718.7	723.7
Ordinary High Water	733.0	731.4

EXISTING CONDITIONS:

Invert Elevation: 718.7 (Approx-Outfall buried in sediment)

Inlet conditions:

This facility was originally constructed to pass all storm and domestic wastewater to the Monongahela River from the Walnut Street drainage area. Currently this 18 inch vitrified clay sewer serves as the combined sewer overflow for the Walnut Street regulator station (see APPENDIX C).

An eight inch diameter vitrified clay sewer serves as the sanitary collector at the regulator station. This line carries all dry weather flow, to the main intercepting sewer. Flow in the regulator is controlled by a diversion weir at the inlet to the overflow sewer and by a manually operated gate at the inlet to the sanitary sewer.

Drainage Area: 7.0 Acres
Capacity: $Q_c = 14.0$ CFS
Runoff, 10-year event: $Q_{10} = 21.0$ CFS

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates that there is an insignificant potential for contamination at this facility site. Therefore, the contractor does not recommend a Phase II investigation for this facility at this time.

PROPOSED DESIGN:

Invert Elevation: 724.2
Limiting Capacity: $Q_L = 21.0$ CFS
Slope: 0.0497 ft/ft
Material: RCP
Manning's N: 0.012
Diameter: 24"
Design Capacity: $Q_D = 21.0$ CFS

REQUIRED REMEDIAL WORK:

Government Proposal:

Construct a new regulator station on the existing sewer line, similar to the existing one. Install approximately 80 feet of 24 inch diameter reinforced concrete pipe to outlet above the proposed pool. Install 9 feet of 8 inch diameter PVC from new regulator station to existing interceptor line. Install back flow prevention downstream of the regulator station on the overflow sewer. Construct a new endwall at outfall and provide stone protection to the existing pool elevation below outfall.

Estimated Construction Cost (Rounded): \$ 68,000

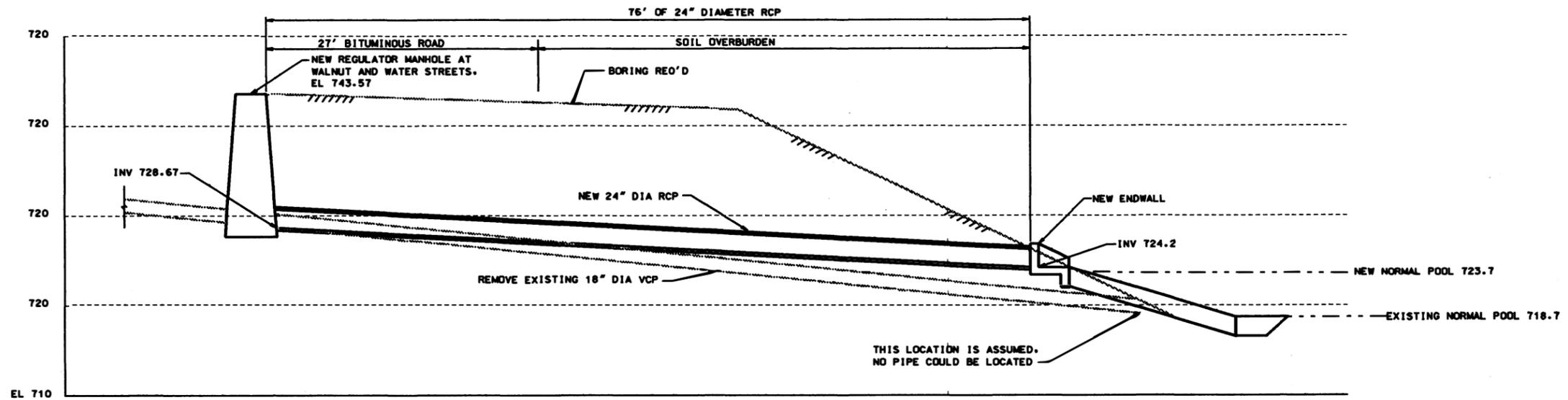
Responsibility: Government

Justification:

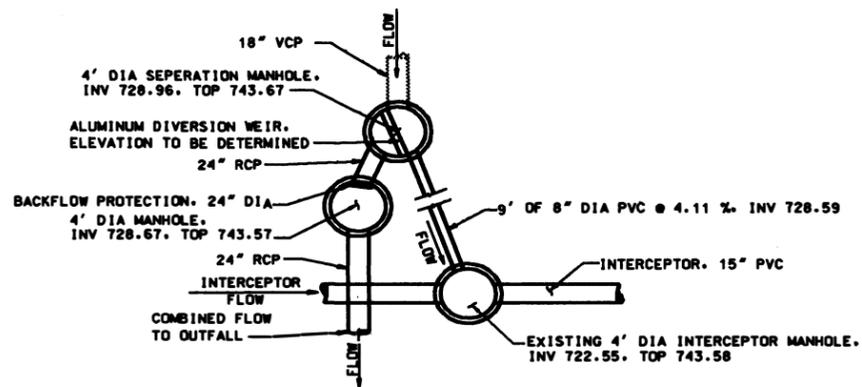
The Walnut Street combined sewer outfall will be totally inundated by the five foot pool raise. This will subject the overflow to increased siltation and inaccessibility for maintenance.

This outfall functions as a relief valve for the combined sewer system during storm events. Without a relocation of the existing line, excessive storm flows will be prevented from bypassing to the river and forced into the treatment plant.

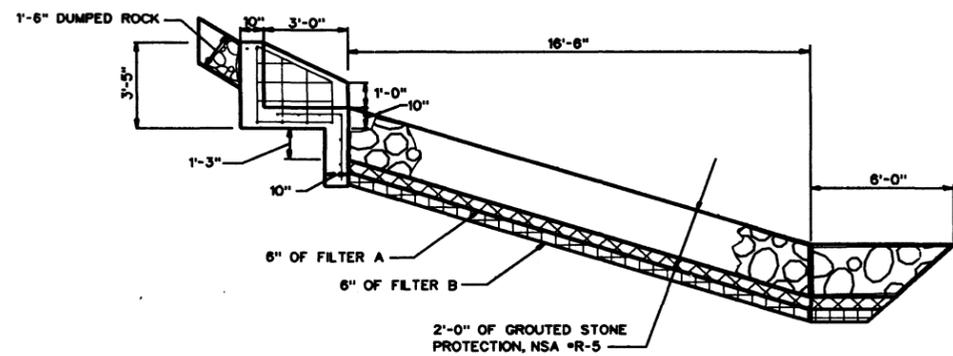
This facility, though not specifically authorized for project funding by the LMFS, is an essential and integral part of the combined sewer system which was authorized for project funding by the LMFS, December 1991, provided that further investigation revealed that it complies with the requirements of P.L. 85-500, Section 111, as amended. See APPENDIX D for documentation on this compliance.



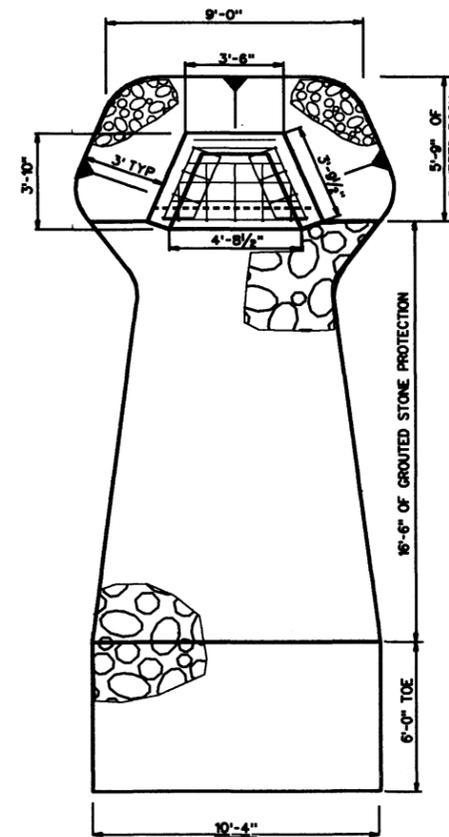
PROFILE



TYPICAL REGULATOR PLAN



STONE PROTECTION AND ENDWALL SECTION



STONE PROTECTION AND ENDWALL PLAN

NOTES:

1. OBJECT LINES APPEARING AS HALF TONES ARE EXISTING CONSTRUCTION.
2. SOLID LINES ARE NEW CONSTRUCTION.
3. REGRADE EXCAVATION TO MATCH EXISTING CONTOURS.
4. CONSTRUCT NEW REGULATOR MANHOLE AT INTERSECTION OF WATER AND WALNUT STREETS AT LOCATION OF EXISTING MANHOLE.
5. USE PRECAST MANHOLE SECTIONS WITH A CAST IN PLACE BASE (8" DEEP, ID • 2', REINFORCED WITH #5 BARS @ 6" EACH WAY).

FACILITY - M10L			
REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT, PITTSBURGH CORPS OF ENGINEERS			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS			
WEST ELIZABETH SANITARY AUTHORITY WALNUT STREET REGULATOR OUTFALL			
SRP P.J.G.	SRF SRF	DATE 22 Aug 94	NO SCALE 037-R55-67/18
			DACW59

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: Washington Street Combined Sewer Overflow

ID: M11L

Location

River: Monongahela **Bank:** LT **RM:** 23.22

Owner: West Elizabeth Sanitary Authority

Address: 610 First Street
West Elizabeth, PA 15088-0217

Design Team Visit: Various visits 1993 & 1994, Fritz

POOL DATA:

	EXISTING	BRADDOCK
Level Pool	718.7	723.7
Ordinary High Water	733.0	731.4

EXISTING CONDITIONS:

Invert Elevation: 720.0 (Approx-Outfall buried in sediment)

Inlet conditions:

This facility was originally constructed to pass all storm and domestic wastewater to the Monongahela River from the Washington Street drainage area. Currently this 24 inch vitrified clay sewer serves as the combined sewer overflow for the Washington Street regulator station (see APPENDIX C).

An eight inch diameter vitrified clay sewer serves as the sanitary collector at the regulator station. This line carries all dry weather flow, to the main intercepting sewer. Flow in the regulator is controlled by a diversion weir at the inlet to the overflow sewer and by a manually operated gate at the inlet to the sanitary sewer.

Drainage Area: 9.8 Acres
Capacity: $Q_c = 24.0$ CFS
Runoff, 10-year event: $Q_{10} = 31.0$ CFS

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates that there is an insignificant potential for contamination at this facility site. Therefore, the contractor does not recommend a Phase II investigation for this facility at this time.

PROPOSED DESIGN:

Invert Elevations: 727.5
Limiting Capacity: $Q_L = 31.0$ CFS
Slope: 0.0223
Material: RCP
Manning's N: 0.012
Diameter: 30"
Design Capacity: $Q_D = 31.0$ CFS

REQUIRED REMEDIAL WORK:

Government Proposal:

Construct a new regulator station on the existing sewer line, similar to the existing one, landward of the existing regulator station. Install approximately 325 feet of 30 inch diameter reinforced concrete pipe to outlet above the proposed pool. Install 305 feet of 8 inch diameter PVC from new regulator station to existing interceptor line. Install back flow prevention downstream of the regulator station on the overflow sewer. Construct a new endwall at outfall and provide stone protection to the existing pool elevation below outfall.

Estimated Construction Cost (Rounded): \$ 215,000

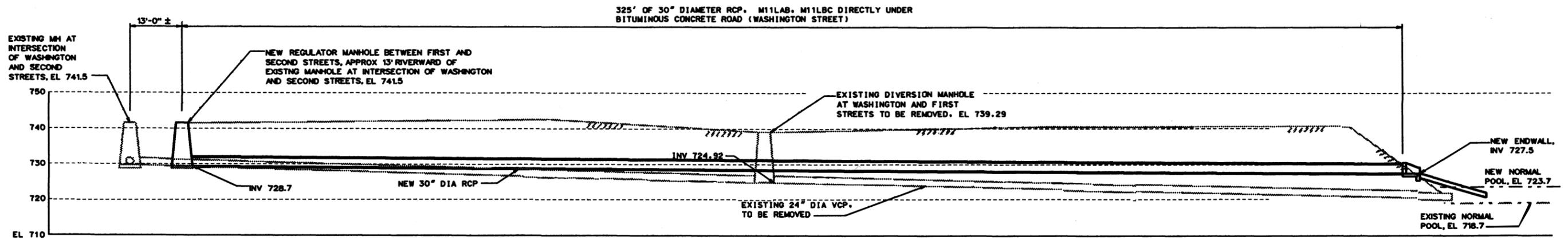
Responsibility: Government

Justification:

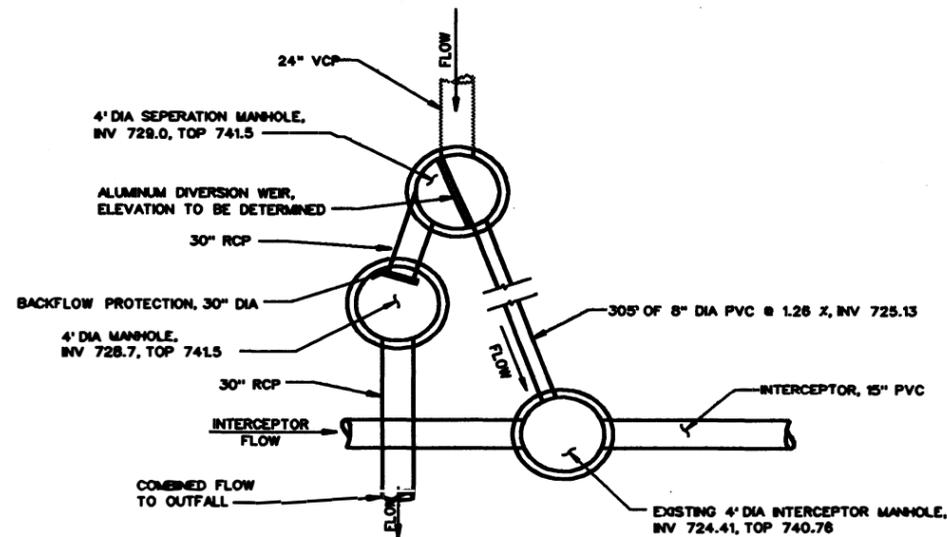
The Washington Street combined sewer outfall will be totally inundated by the five foot pool raise. This will subject the overflow to increased siltation and inaccessibility for maintenance.

This outfall functions as a relief valve for the combined sewer system during storm events. Without a relocation of the existing line, excessive storm flows will be prevented from bypassing to the river and forced into the treatment plant.

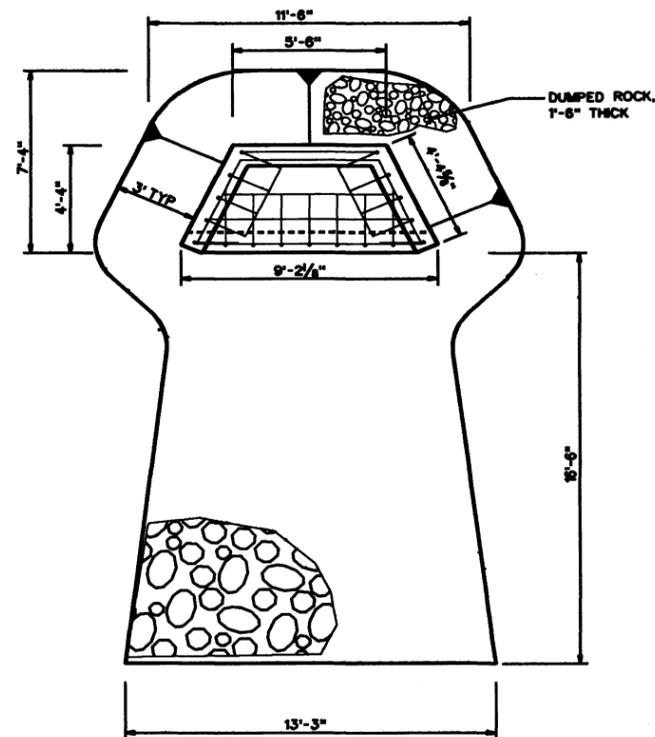
This facility, though not specifically authorized for project funding by the LMFS, is an essential and integral part of the combined sewer system which was authorized for project funding by the LMFS, December 1991, provided that further investigation revealed that it complies with the requirements of P.L. 85-500, Section 111, as amended. See APPENDIX D for documentation on this compliance.



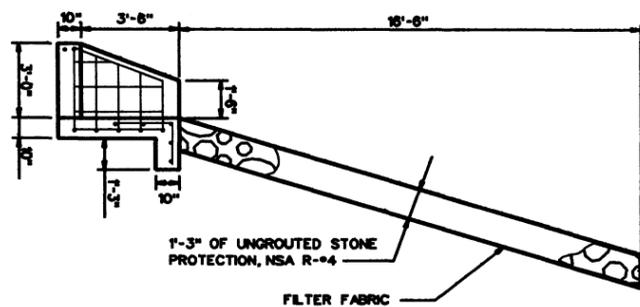
PROFILE



TYPICAL REGULATOR PLAN



STONE PROTECTION AND ENDWALL PLAN



STONE PROTECTION AND ENDWALL SECTION

NOTES:

1. OBJECT LINES APPEARING AS HALF TONES ARE EXISTING CONSTRUCTION.
2. SOLID LINES ARE NEW CONSTRUCTION.
3. REGRADE EXCAVATION TO MATCH EXISTING CONTOURS.
4. CONSTRUCT NEW REGULATOR MANHOLE BETWEEN FIRST AND SECOND STREETS ON WASHINGTON STREET.
5. USE PRECAST MANHOLE SECTIONS WITH A CAST IN PLACE BASE (8" DEEP, ID = 2', REINFORCED WITH #5 BARS @ 6" EACH WAY).
6. WASHINGTON STREET PAVING, 24' X 305'.

FACILITY - M11			
REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT PITTSBURGH CORPS OF ENGINEERS			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS			
WEST ELIZABETH SANITARY AUTHORITY WASHINGTON STREET REGULATOR OUTFALL			
DATE	SCALE	NO.	PROJECT NO.
17-AUG-1994	AS-128	037-R55-67/19	

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: Storm Sewer

ID: M12L

Location

River: Monongahela Bank: Left RM: 23.4

Owner: West Elizabeth Sanitary Authority

Address: 610 First Street

West Elizabeth, Pennsylvania 15088-0217

Design Team Visit: Bosetti/20 July 93

POOL DATA:

	EXISTING	BRADDOCK
Level Pool	718.7	723.7
Ordinary High Water	733.1	731.4

EXISTING CONDITIONS:

Invert Elevation: 722.1

Inlet conditions:

The facility located at the foot of Border Street is a storm sewer outfall for a system of inlets, manholes, and laterals. The existing sewer is a 17" cmp and a 24" cmp.

Drainage Area: 11 Acres

Capacity: $Q_c = 13.0$ CFS

Runoff, 10-year event: $Q_{10} = 41.0$ CFS

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates that there is an insignificant potential for contamination at this facility site. Therefore, the contractor does not recommend a Phase II investigation for this facility at this time.

PROPOSED DESIGN:

Limiting Capacity: $Q_L = 24.0$ CFS

Slope: 0.0430 ft/ft

Material: Reinforced Concrete

Manning's N: 0.012

Diameter: 24"

Design Capacity: $Q_D = 24.0$ CFS

REQUIRED REMEDIAL WORK:

Government Proposal:

Remove 61 feet of 17"/24" CMP and install 61 feet of 24" RCP a concrete end wall and grouted stone protection. See pipe profile.

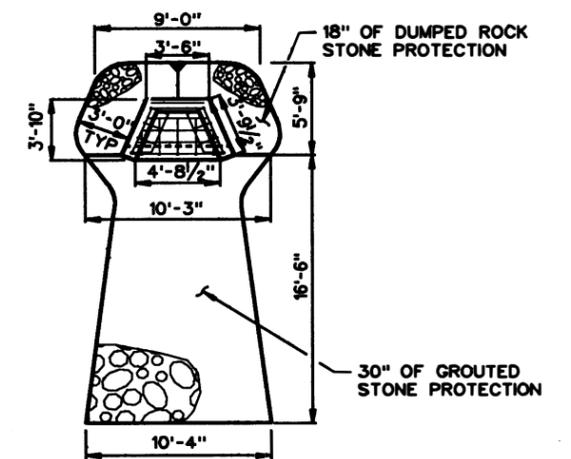
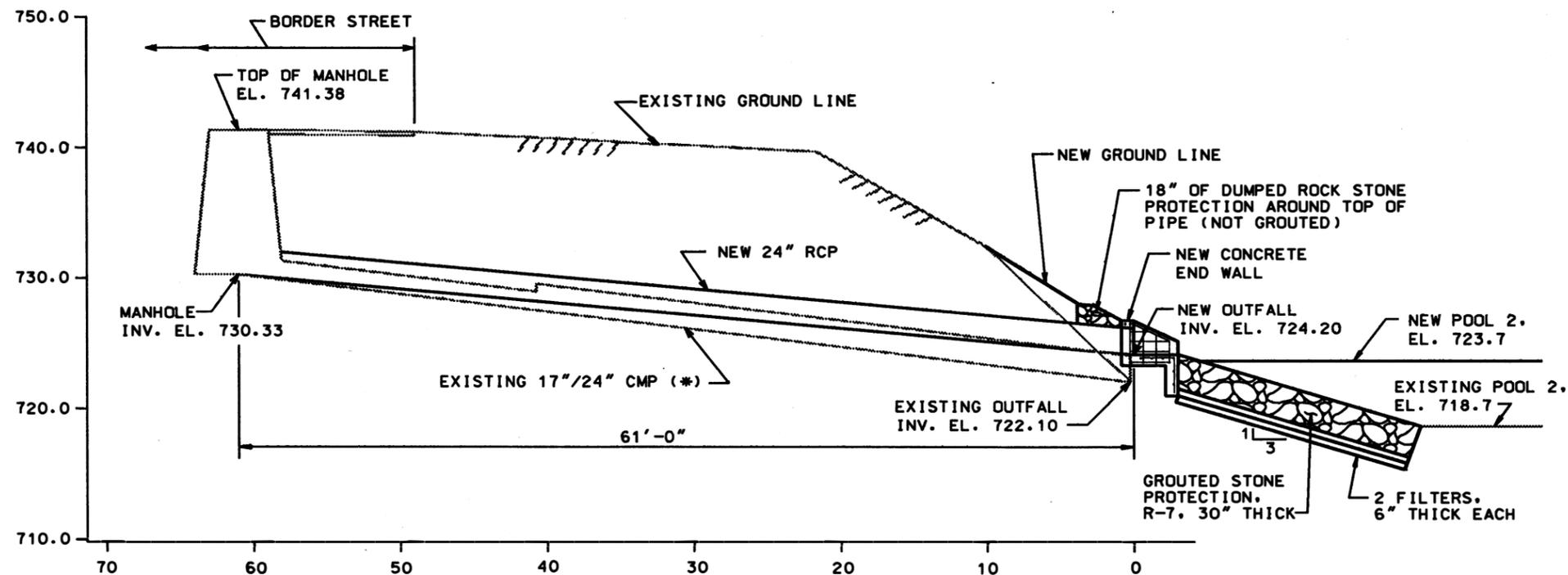
Estimated Construction Cost (Rounded): \$ 20,000

Responsibility: Government

Justification:

This facility will be inundated by the new pool level. Without relocation it will become inaccessible for maintenance and it will be subject to increased siltation which will reduce its capacity to pass storm flows.

This facility, though not specifically authorized for project funding by the LMFS, is an essential and integral part of the sewer system which was authorized for project funding by the LMFS, December 1991, provided that further investigation revealed that it complies with the requirements of P.L. 85-500, Section 111, as amended. See APPENDIX D for documentation on this compliance.



GENERAL NOTES:
 1. OBJECT LINES APPEARING AS HALF TONES ARE EXISTING CONSTRUCTION.
 OBJECT LINES APPEARING AS FULL TONES ARE PROPOSED CONSTRUCTION.

NOTES:
 FACILITY: 17"/24" CMP STORM SEWER (*)
 RIVER: MONONGAHELA
 RIVER MILE: 23.4 BANK: LEFT
 OWNER: BORO OF WEST ELIZABETH
 ALTERATIONS: REMOVE 17"/24" CMP (*). INSTALL 24" RCP, CONCRETE END WALL AND GROUDED STONE PROTECTION.
 * FIELD SURVEY INDICATES THAT A 17" CMP IS THE PIPE AT THE MANHOLE & A 24" CMP IS THE PIPE AT THE OUTFALL.

FACILITY - M12L			
REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT PITTSBURGH CORPS OF ENGINEERS			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS BORO OF WEST ELIZABETH STORM SEWER OUTFALL - RM 23.4 LB PROFILE AND PLAN			
DATE	BY	SCALE	PROJECT NO.
18 Aug 1994	ACW	NO SCALE	037-R55-67/21
DACW59			

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: New Eagle, Sewage Treatment Plant Outfall
Plant "A"

ID: M13L

Location

River: Monongahela Bank: Left RM: 30.0
Owner: Municipal Authority of the Borough of New
Eagle
Address: 157 Main Street
New Eagle, PA 15067

Design Team Visit: June 1993, Allison

POOL DATA:

	EXISTING	BRADDOCK
Level Pool	726.9	723.7
Ordinary High Water	738.5	735.0

EXISTING CONDITIONS:

Invert Elevation: 736.3

Outlet conditions:

Existing outfall is a 10 inch vitrified clay pipe running from the sewage treatment plant to this outfall. The outfall consists of a endwall, flap gate and a concrete flume running 56 feet. The effluent then runs by natural channel to the river, approximately 58 feet.

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates that there is an insignificant potential for contamination at this facility site. Therefore, the contractor does not recommend a Phase II investigation for this facility at this time.

PROPOSED DESIGN:

Provide a stone lined channel from the end of the existing concrete flume 75' to the new pool elevation. The stone channel will be underlaid with 4" of filter stone.

Slope of channel:	5.5%
Material:	Stone (NSA# R-4) Filter stone
D _o :	6"
Channel Width:	1.0 feet
Effluent Velocity	7.5 fps

REQUIRED REMEDIAL WORK:

Government Proposal:

Provide a stone lined channel, 1'-3" thick, from the existing concrete flume to the river. The channel will be 1.0 feet wide and 0.5 feet deep.

Relocation work for facilities M13L and M15L consist of replacing existing pipes and natural channels with stone lined channels placed at the required elevations. The Borough does not own a compensable interest in the land. The District's recommendation is to acquire 2.1 acres of permanent drainage ditch easement. The total cost of acquiring the permanent easements (for M13L and M15L) is \$12,875, which includes administrative costs and contingencies.

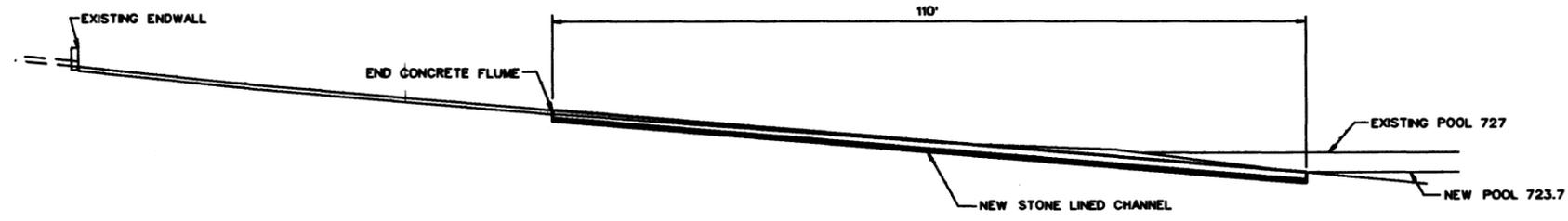
Estimated Construction Cost (Rounded): \$ 2,000

Responsibility: Owner (Section 111 Requested)

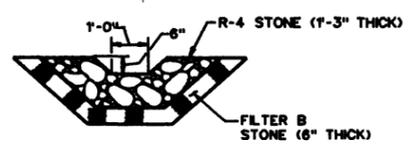
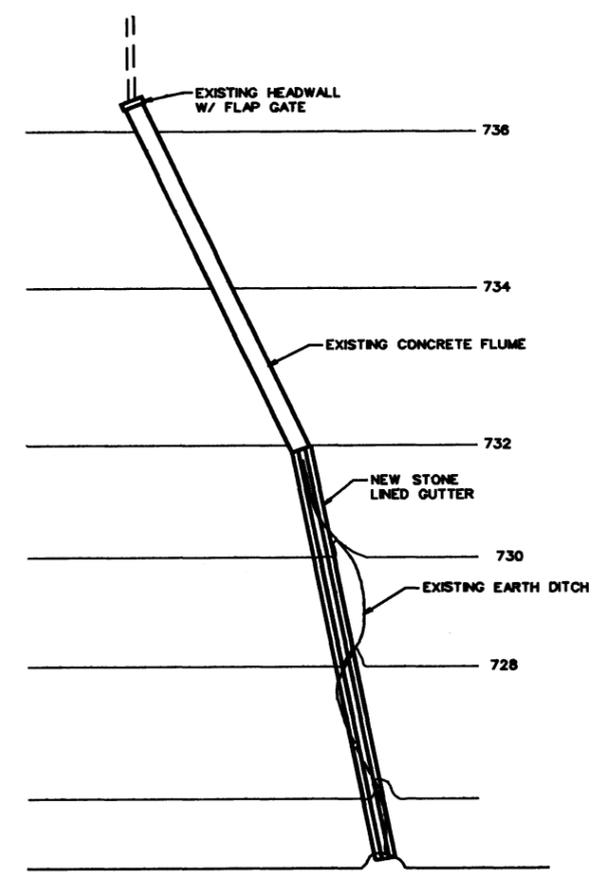
Justification:

This facility is the sole discharge from the New Eagle STP "A". If remedial measures are not taken the soil below the existing concrete flume will be eroded. This will lead to the failure of the flume and eventually the outfall structure itself.

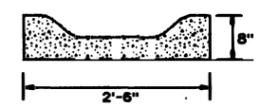
This facility terminates on the bank of the Monongahela River, a navigable waterway, with its outlet invert riverward of existing ordinary high water, therefore the Owner is responsible for the cost of remedial work. However, this sewer is a publicly owned and operated facility and is therefore suitable for Government funding under Section 111, P.L. 85-500, as amended. It is therefore recommended that the Chief of Engineers find that the remedial costs should be borne by the Government.



PROFILE



TYPICAL SECTION



EXISTING CONCRETE FLUME

FACILITY : M13L			
REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT PITTSBURGH CORPS OF ENGINEERS OFFICE OF THE DISTRICT ENGINEER PITTSBURGH, PENNSYLVANIA			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS NEW EAGLE SANITARY AUTHORITY OUTLET PROTECTION AT SEWAGE PLANT "A" PLANS, SECTIONS AND DETAILS			
WLA	WLA	SRE	22 AUG 94
		NO SCALE	036-R55-67/22
<i>Terry D. Stalley</i> DACW59			

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: Public Boat Launching Ramp

ID: M14L

Location

River: Monongahela Bank: Lt RM: 30.0

Owner: New Eagle Borough

Address: 157 Main Street

New Eagle, Pennsylvania 15067-1145

Design Team Visit: March 1994, Fritz

POOL DATA:

	EXISTING	BRADDOCK
Level Pool	POOL 3 726.9	POOL 723.7
Ordinary High Water	738.5	735.0

EXISTING CONDITIONS:

Description:

The existing launching ramp is 20'-6" wide with 3'-0" concrete berms. The ramp is constructed of reinforced cement concrete. The end elevation of the ramp is 725.7.

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates that there is an insignificant potential for contamination at this facility site. Therefore, the contractor does not recommend a Phase II investigation for this facility at this time.

PROPOSED DESIGN:

Extend ramp to a useable elevation.

REQUIRED REMEDIAL WORK:

Government Proposal:

Approximately 41'-6" of the existing ramp will be removed to facilitate the placement of the new ramp. The proposed ramp will be constructed of reinforced cement concrete. The lower portion of the ramp will be constructed on dry land and pushed onto a prepared base within the river. The upper portions of the ramp will also be constructed of reinforced cement concrete. They will be doweled into the lower portion and anchored with reinforced cement concrete toes at both the upper and lower ends. Stone rip rap will be placed along both

sides and the end of the ramp to protect it from wave action and higher river flows.

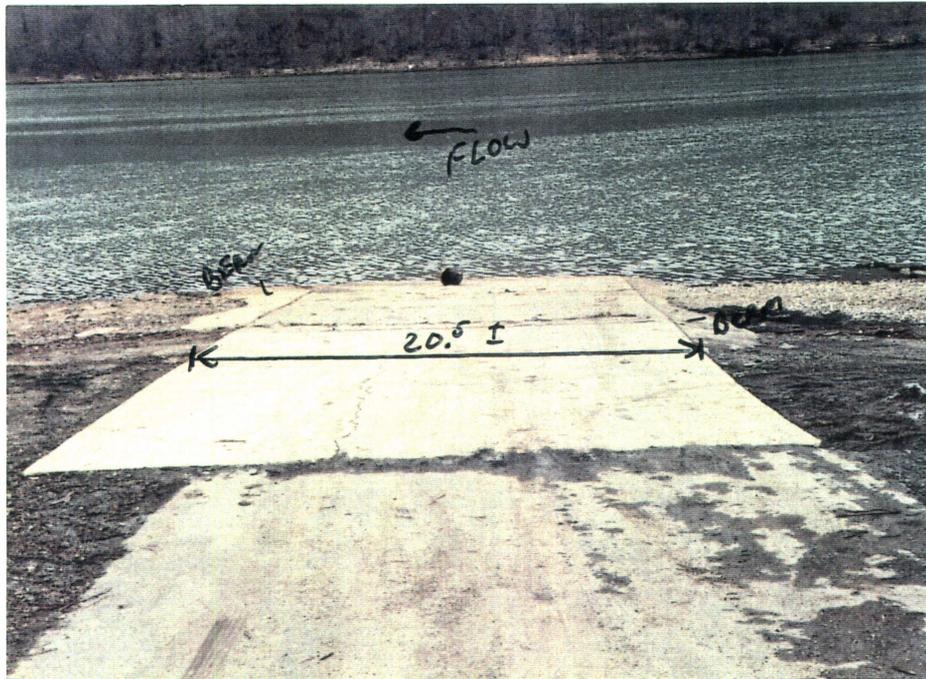
Estimated Construction Cost (Rounded): \$ 32,000

Responsibility: Government

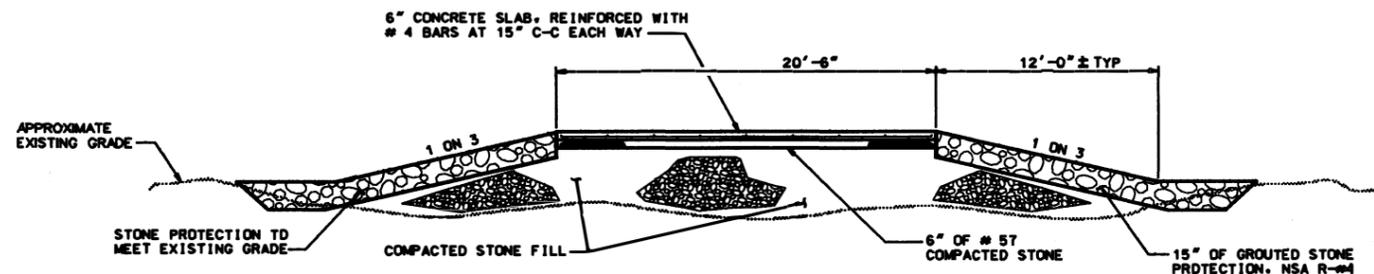
Justification:

The existing launching ramp provides access to the river for boating, fishing and other recreational activities. The 3.2 foot pool decrease will render the existing ramp unusable except during high river flows when recreational activities are discouraged on the river.

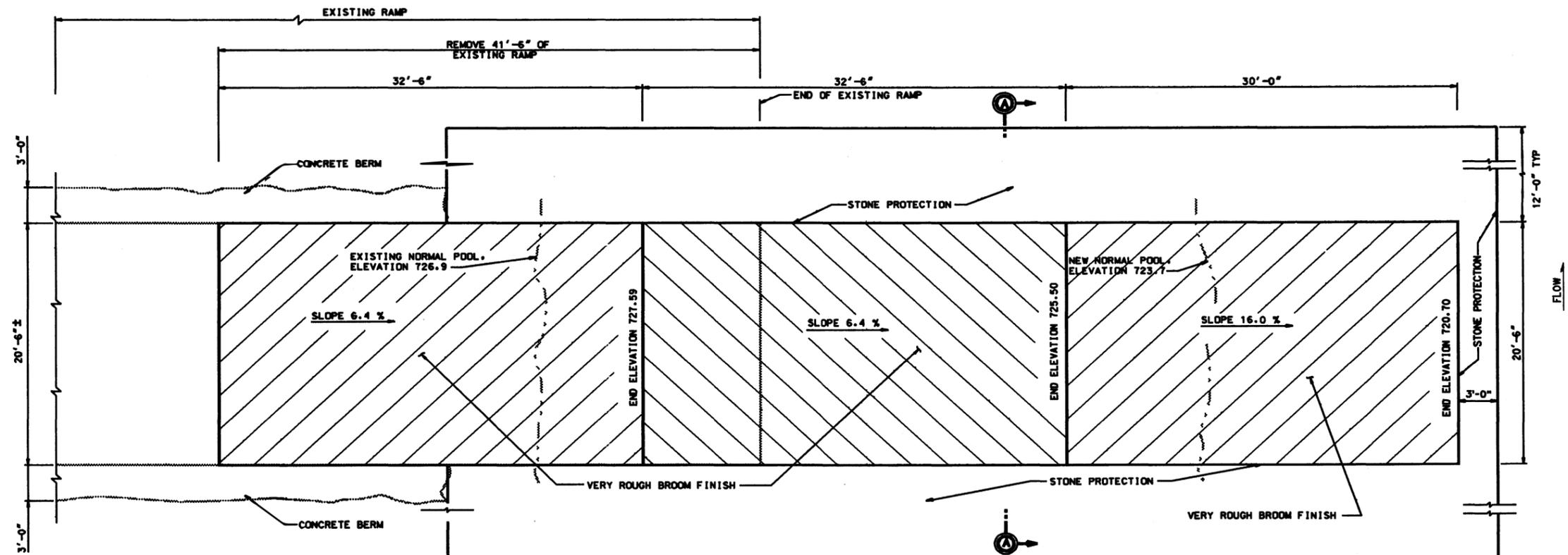
This facility was authorized for project funding by the LMFS, December 1991, provided that further investigation revealed that it complies with the requirements of P.L. 85-500, Section 111, as amended. See APPENDIX D for documentation on this compliance.



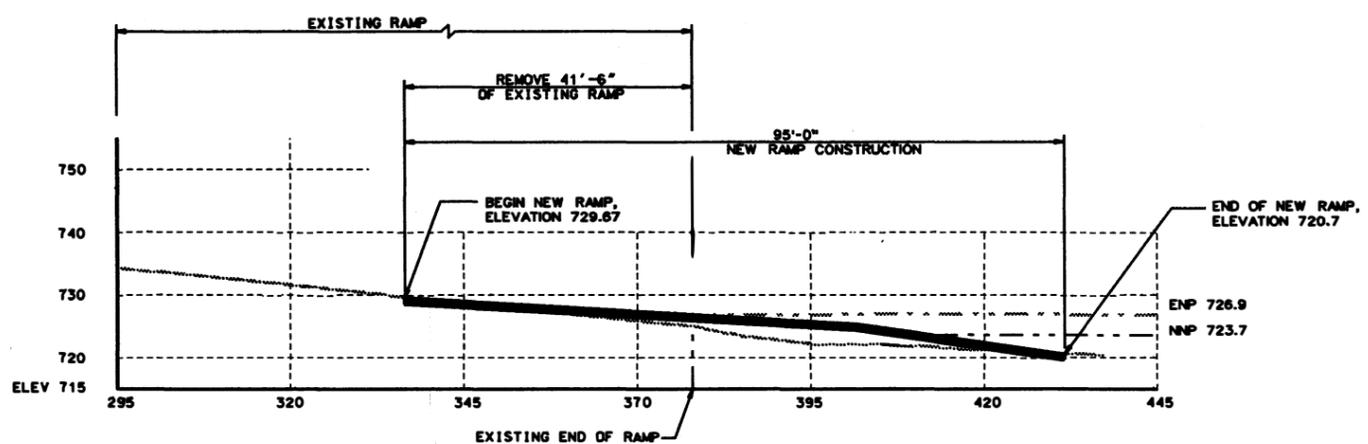
M14L, LAUNCHING RAMP



SECTION A-A



PLAN



PROFILE

- NOTES:
1. OBJECT LINES APPEARING AS HALF TONES ARE EXISTING CONSTRUCTION. SOLID LINES ARE PROPOSED CONSTRUCTION.
 2. END RAMP SECTION TO BE CONSTRUCTED ON DRY LAND AND SLID INTO LOCATION.
 3. ENP DESIGNATES EXISTING NORMAL POOL.
 4. NNP DESIGNATES NEW NORMAL POOL.

FACILITY - M14L			
REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT, PITTSBURGH CORPS OF ENGINEERS OFFICE OF THE DISTRICT ENGINEER PITTSBURGH, PENNSYLVANIA			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS			
NEW EAGLE BOROUGH LAUNCHING RAMP (RM 30.1 LB) PLAN, SECTION AND PROFILE			
DESIGNED SRF	DRAWN SRF	CHECKED SRF	DATE 16 Aug 1994
SCALE NO SCALE		DWG NO. 037-R55-131	
SUBMITTED DACW59		SHEET OF	

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: New Eagle, Sewage Treatment Plant Outfall
Plant "B"

ID: M15L

Location

River: Monongahela Bank: Left RM: 30.6

Owner: Municipal Authority of the Borough of New
Eagle

Address: 157 Main Street
New Eagle, PA 15067

Design Team Visit: June 1993, Allison

POOL DATA:

	EXISTING	BRADDOCK
Level Pool	POOL 3 726.9	POOL 723.7
Ordinary High Water	738.6	735.2

EXISTING CONDITIONS:

Invert Elevation: 739.9

Outlet conditions:

Existing outfall is a 10 inch vitrified clay pipe running from the sewage treatment plant to this outfall. The outfall consists of a endwall, flap gate and a concrete flume running 68 feet. The effluent then runs by natural channel to the river, approximately 80 feet.

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates there is a potential for contamination at this facility site. Therefore, the contractor recommends a Phase II investigation for this facility.

PROPOSED DESIGN:

Provide a stone lined channel from the end of the existing concrete flume 110' to the new pool elevation. The stone channel will be underlaid with 4" of filter stone.

Slope of channel: 6.5%
Material: Stone (NSA R-#4)
Filter Stone
R-4 D_o: 6"
Channel Width: 1.0 feet
Channel Velocity: 6.2 fps

REQUIRED REMEDIAL WORK:

Government Proposal:

To build a new stone channel from the concrete flume to the river. The channel will be 1.0 feet wide and 0.5 feet deep. The stone will be 1.25 feet deep.

Relocation work for facilities M13L and M15L consist of replacing existing pipes and natural channels with stone lined channels placed at the required elevations. The Borough does not own a compensable interest in the land. The District's recommendation is to acquire 2.1 acres of permanent drainage ditch easement. The total cost of acquiring the permanent easements (for M13L and M15L) is \$12,875, which includes administrative costs and contingencies.

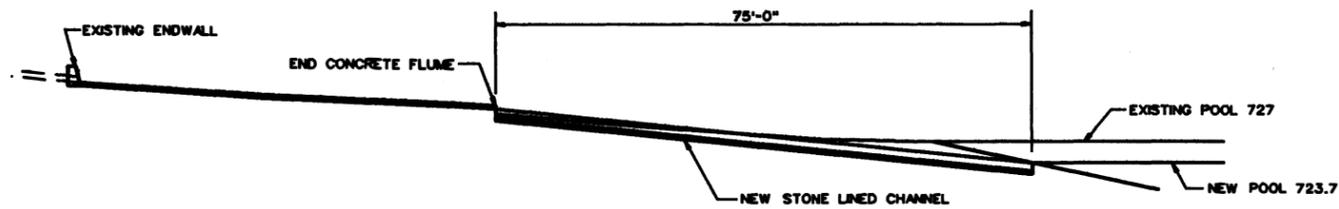
Estimated Construction Cost (Rounded): \$ 3,000

Responsibility: Owner (Section 111 Requested)

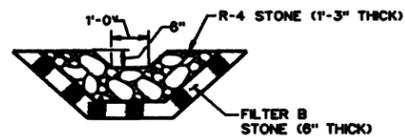
Justification:

This facility is the sole discharge from the New Eagle STP "B". If remedial measures are not taken the soil below the existing concrete flume will be eroded. This will lead to the failure of the flume and eventually the outfall structure itself.

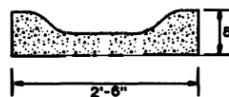
This facility terminates on the bank of the Monongahela River, a navigable waterway, with its outlet invert riverward of existing ordinary high water, therefore the Owner is responsible for the cost of remedial work. However, this sewer is a publicly owned and operated facility and is therefore suitable for Government funding under Section 111, P.L. 85-500, as amended. It is therefore recommended that the Chief of Engineers find that the remedial costs should be borne by the Government.



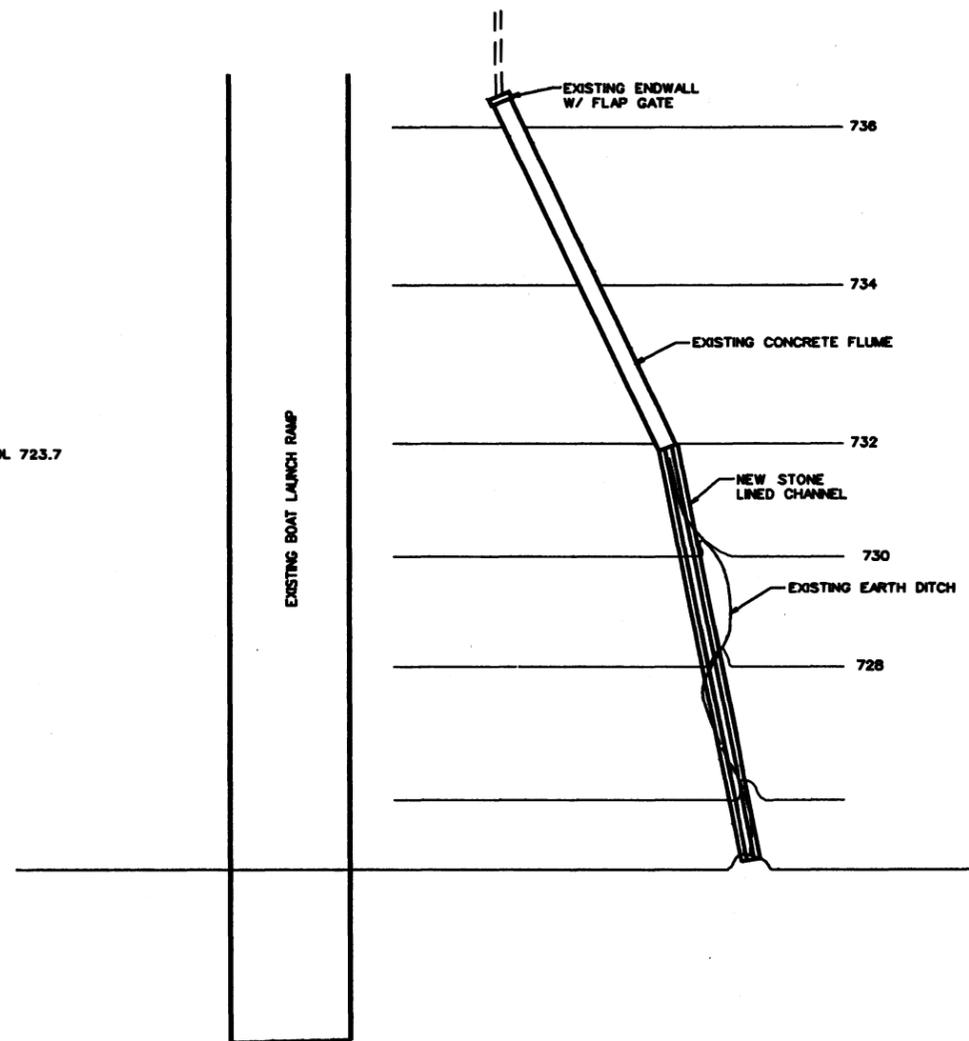
PROFILE



TYPICAL SECTION



EXISTING CONCRETE FLUME



PLAN

FACILITY : M15L			
REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT PITTSBURGH CORPS OF ENGINEERS OFFICE OF THE DISTRICT ENGINEER PITTSBURGH, PENNSYLVANIA			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS NEW EAGLE SANITARY AUTHORITY			
OUTLET PROTECTION AT SEWAGE PLANT "B" PLANS, SECTIONS AND DETAILS			
DESIGNED BY WLA	DRAWN BY WLA	CHECKED BY SRF	DATE 22 Aug 94
SCALE NO SCALE		PROJECT NO. 036-R55-67/70	
APPROVED BY <i>[Signature]</i>		DATE DACW59	

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: City of Monongahela, Sewage Treatment Plant Outfall

ID: M16L

Location

River: Monongahela **Bank:** Left **RM:** 31.0

Owner: Municipal Authority of Monongahela

Address: 521 West Main Street
Monongahela, PA 15063

Design Team Visit: October 1993, Allison

POOL DATA:

	EXISTING	BRADDOCK
Level Pool	726.9	723.7
Ordinary High Water	738.7	735.3

EXISTING CONDITIONS:

Invert Elevation: 727.9

Outlet conditions:

Existing outfall is a 18 inch diameter reinforced concrete pipe running from the sewage treatment plant to this outfall. The outfall structure consists of a endwall with wingwalls. The effluent flows into the river via a natural channel.

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates there is a potential for contamination at this facility site. Therefore, the contractor recommends a Phase II investigation for this facility.

PROPOSED DESIGN:

Provide a stone lined channel from the endwall to the new pool elevation. The stone channel will be underlaid with 4" of filter stone.

Slope of channel: 2.5%

Material: Stone (NSA# R-4)
Filter Stone

R-4 D₅₀: 6"

Channel Width: 9.0 feet

Effluent Velocity: 8.1 fps

REQUIRED REMEDIAL WORK:

Government Proposal:

To build a new stone lined channel from the endwall to the river. The channel will be 9.0 feet wide and 1.0 foot deep. The stone will be 1.25 feet deep.

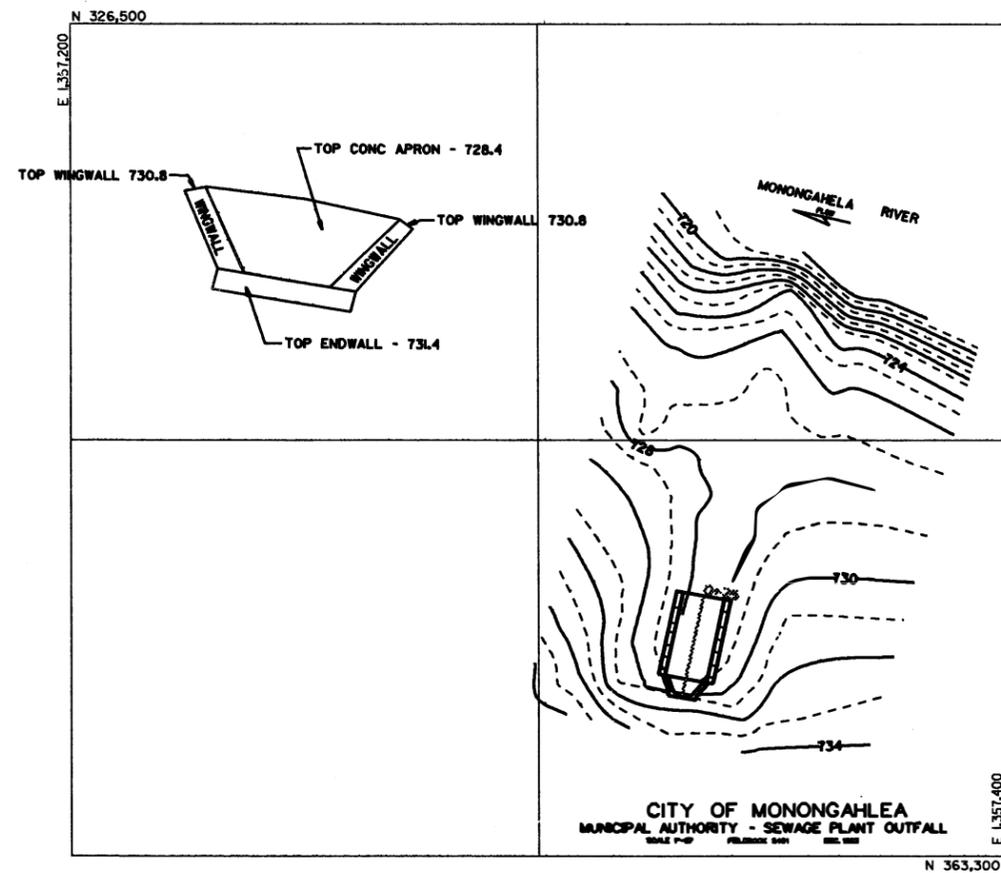
Estimated Construction Cost (Rounded): \$ 8,000

Responsibility: Owner (Section 111 Requested)

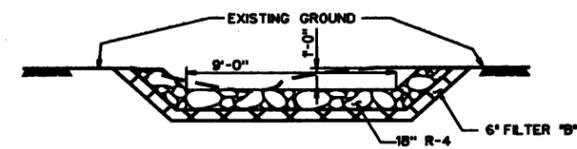
Justification:

This facility is the sole discharge from the Monongahela STP . If remedial measures are not taken the soil below the existing outfall will be eroded. This will eventually lead to the failure of the outfall structure.

This facility terminates on the bank of the Monongahela River, a navigable waterway, with its outlet invert riverward of existing ordinary high water, therefore the Owner is responsible for the cost of remedial work. However, this sewer is a publicly owned and operated facility and is therefore suitable for Government funding under Section 111, P.L. 85-500, as amended. It is therefore recommended that the Chief of Engineers find that the remedial costs should be borne by the Government.

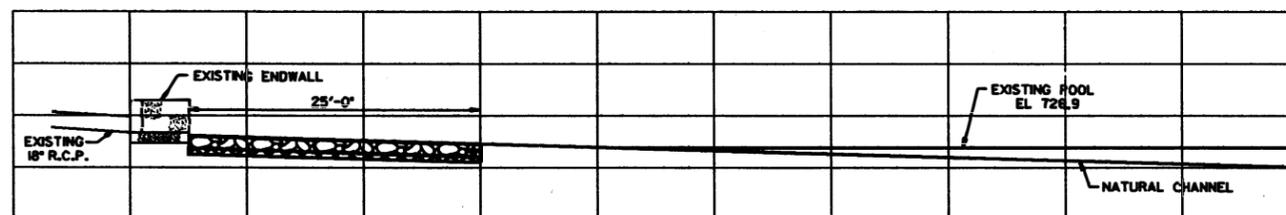


PLAN



SECTION

SCALE: F = 2'-0"



PROFILE

SCALE: F = 4'-0"

NOTES:
 1. OBJECT LINES APPEARING AS HALF TONES ARE EXISTING CONSTRUCTION.
 OBJECT LINES APPEARING AS FULL TONES ARE PROPOSED CONSTRUCTION.

FACILITY - MIGL			
REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT, PITTSBURGH CORPS OF ENGINEERS OFFICE OF THE DISTRICT ENGINEER PITTSBURGH, PENNSYLVANIA			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS CITY OF MONONGAHELA			
SEWAGE TREATMENT PLANT OUTFALL PLAN, PROFILE AND SECTION			
WLA	WLA	DATE	AS SHOWN
		11 Aug 1994	037-R55-67/23
Paul W. Maynard DACV59			

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: Aquatorium (River Front Recreation Facility)

ID: M17L

Location

River: Monongahela Bank: Left RM: 31.9

Owner: City of Monongahela

Address: 449 West Main Street

Monongahela, Pennsylvania 15063

Design Team Visit: Fritz: March, May and July 1993

POOL DATA:

	EXISTING	BRADDOCK
Level Pool	726.9	723.7
Ordinary High Water	739.1	735.8

EXISTING CONDITIONS:

Elevation of Deck: 732.1

Description:

The Monongahela City Aquatorium is constructed of sheet piling tied back to pile anchors. The piling terminates into a three foot wide cement concrete cap. The remaining top surface of the aquatorium is bituminous concrete. The top of the aquatorium is at elevation 732.1 (5.2 feet above existing normal pool, elevation 726.9). Hand railing surrounds the existing structure at the interface with the river. Existing mooring posts are available for boaters and local river recreation. Landward of the aquatorium a series of bleachers are available for public gatherings.

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates that there is an insignificant potential for contamination at this facility site. Therefore, the contractor does not recommend a Phase II investigation for this facility at this time.

PROPOSED DESIGN:

Top Surface of Park: 727.7

Description:

A sheet piling "step" will be constructed riverward of the existing aquatorium at a lower elevation. The piling will terminate inside a reinforced concrete cap. The step will extend 18 feet further into the river than

the existing structure. Hand railing will be provided along river interface with the "step" and along landward interface with the existing structure. Ramps will be constructed at both ends of the "step" for handicapped access. Mooring posts will be provided for public recreation.

REQUIRED REMEDIAL WORK:

Government Proposal:

Provide similar access to public by constructing a "step" riverward of the existing structure.

Estimated Construction Cost (Rounded): \$ 581,000

Responsibility: Government

Justification:

The City of Monongahela Aquatorium is a community recreation area. The aquatorium is used by local residents as a gathering place for community events. Lowering the Monongahela River to elevation 723.7 will not only make the Aquatorium unusable but it will also make access to the river from the aquatorium unsafe.

This facility was authorized for project funding by the LMFS, December 1991, provided that further investigation revealed that it complies with the requirements of P.L. 85-500, Section 111, as amended. See APPENDIX D for documentation on this compliance.



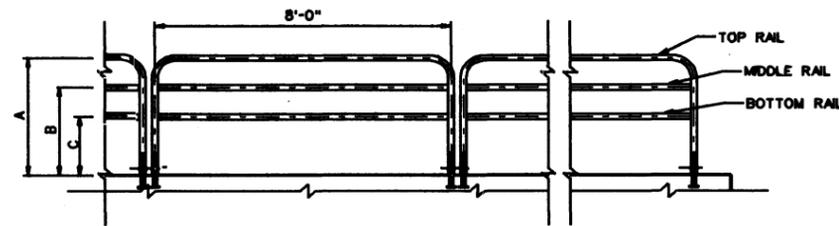
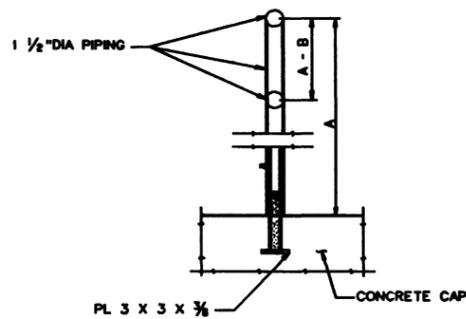
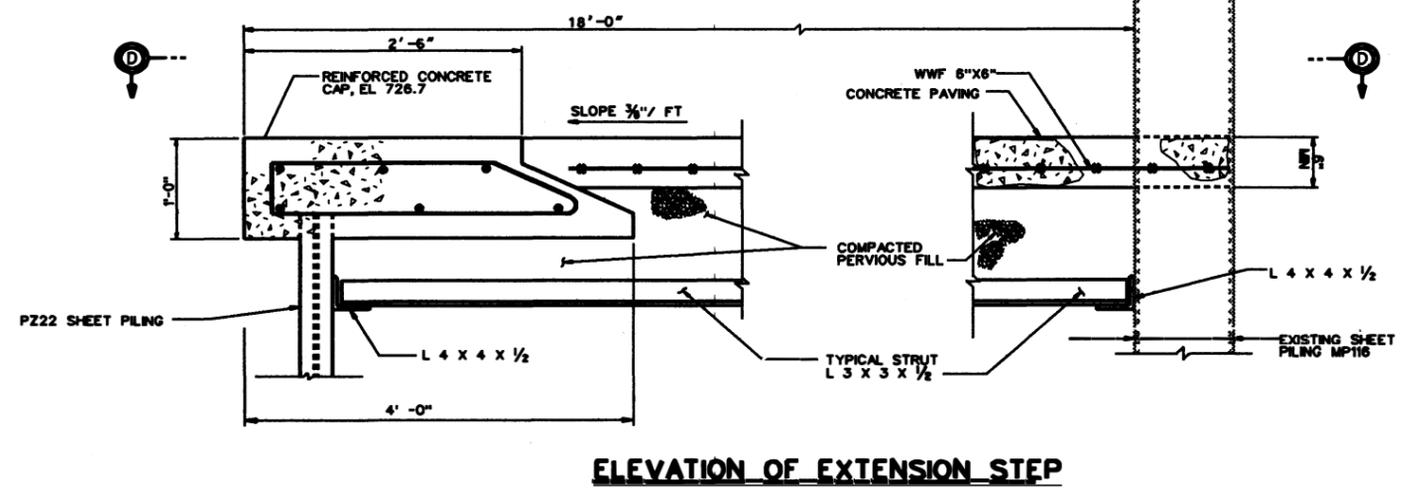
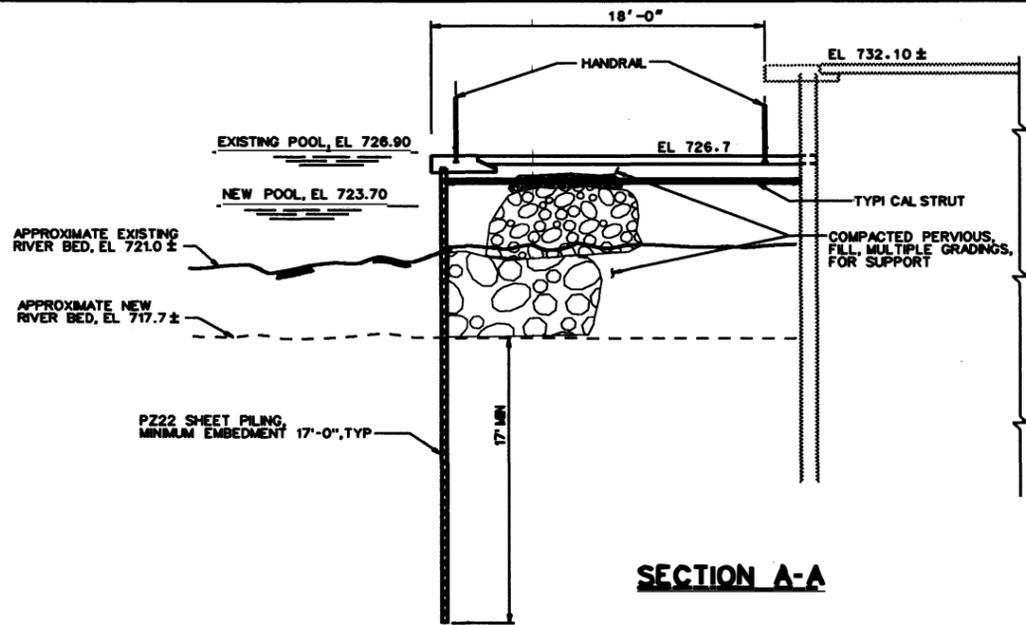
AQUATORIUM, LOOKING DOWNSTREAM



AQUATORIUM, LOOKING RIVERWARD

M17L, PHOTOS

M17L-3

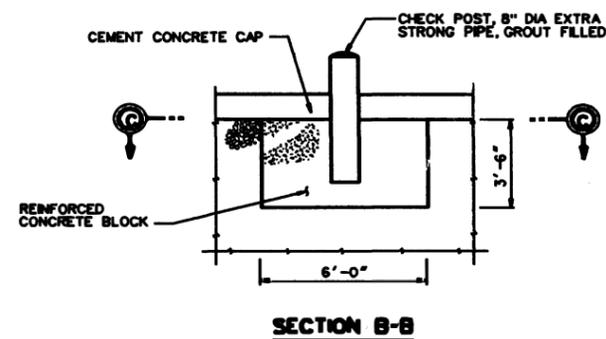
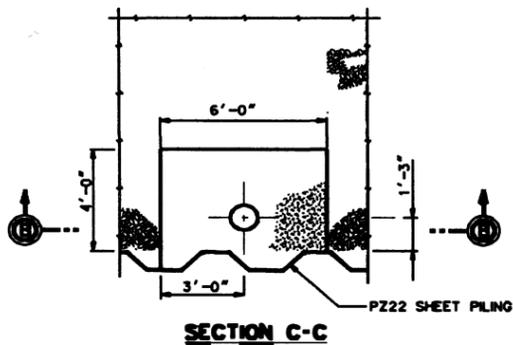
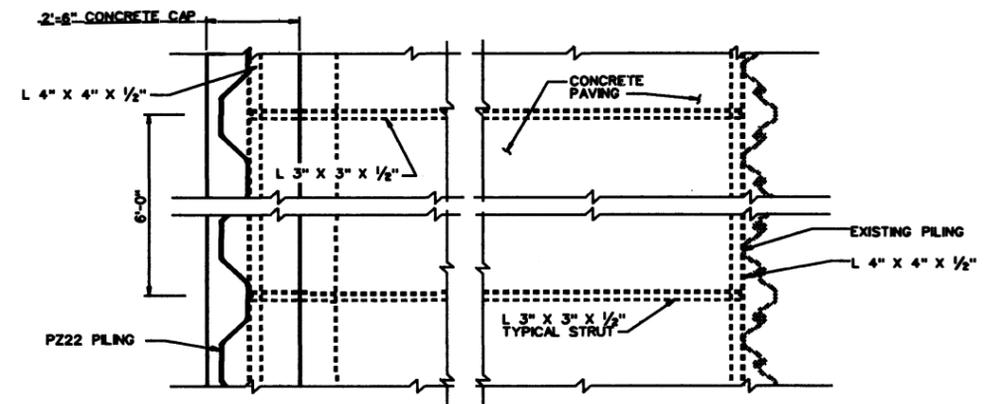


HANDRAIL DIMENSIONS	
RIVERSIDE	LANDSIDE
A	3'-6"
B	2'-7 1/2"
C	1'-9"

HANDRAIL DETAILS

TYPICAL ELEVATION

NOTE:
 PROVIDE 3'-0" OPENINGS IN HANDRAIL AT 10 FEET UPSTREAM AND DOWNSTREAM OF EACH CHECK POST FOR ACCESS TO AND FROM THE RIVER. PROVIDE 2 CHAINS AND ALL EYELETS FOR EACH OPENING.



CHECK POST DETAILS

FACILITY - M17L

REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT, PITTSBURGH CORPS OF ENGINEERS OFFICE OF THE DISTRICT ENGINEER PITTSBURGH, PENNSYLVANIA			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS CITY OF MONONGAHELA AQUATORIUM (PARK) SECTIONS AND DETAILS			
DESIGNED BY SWP	DRAWN BY SWP	CHECKED BY SWP	DATE 18 Aug 1994
SCALE NO SCALE		DWD NO. 037-R55-173	
SUBMITTED BY DACW59		SHEET 2 OF 2	

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: Public Boat Launching Ramp

ID: M18L

Location

River: Monongahela Bank: Lt RM: 32.0

Owner: City of Monongahela

Address: 449 West Main Street
Monongahela, Pennsylvania 15063

Design Team Visit: March 1994, Fritz

POOL DATA:

	EXISTING	BRADDOCK
Level Pool	726.9	723.7
Ordinary High Water	739.1	735.9

EXISTING CONDITIONS:

Facility Description:

The existing launching ramp is 23'-4" wide and is constructed of bricks with a bituminous concrete overlay. The end elevation of the ramp was not determined.

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates there is a potential for contamination at this facility site. Therefore, the contractor recommends a Phase II investigation for this facility.

PROPOSED DESIGN:

Extend ramp to a useable elevation.

REQUIRED REMEDIAL WORK:

Government Proposal:

The proposed ramp will be constructed of reinforced cement concrete. The lower portion of the ramp will be constructed on dry land and pushed onto a prepared base within the river. The upper portion of the ramp will also be constructed of reinforced cement concrete. It will be doweled into the lower portion and anchored with reinforced cement concrete toes at both the upper and lower ends. Stone rip rap will be placed along both sides and the end of the ramp to protect it from wave action and higher river flows.

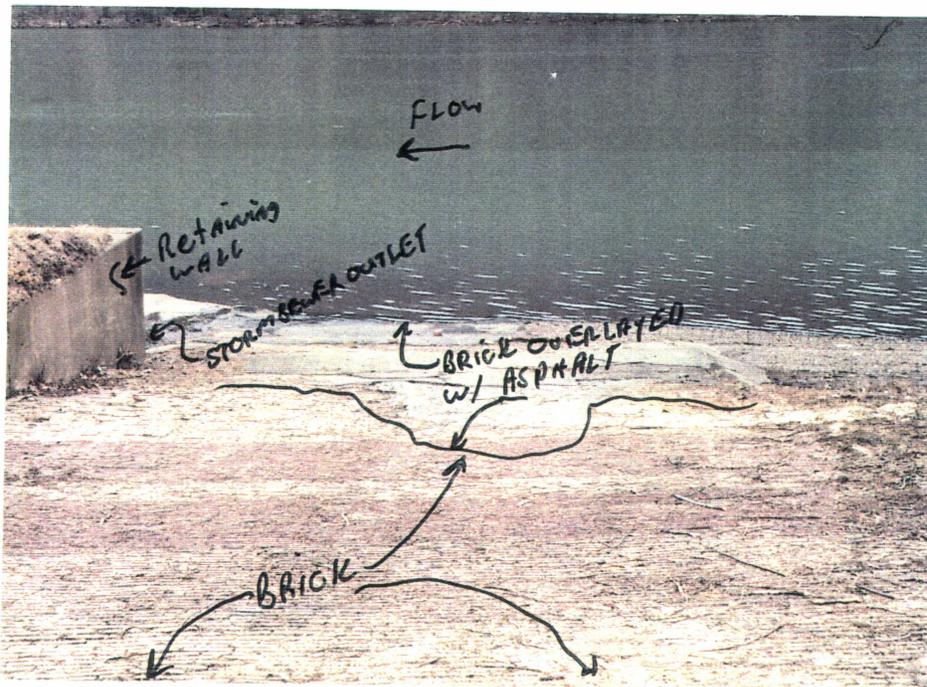
Estimated Construction Cost (Rounded): \$ 34,000

Responsibility: Government

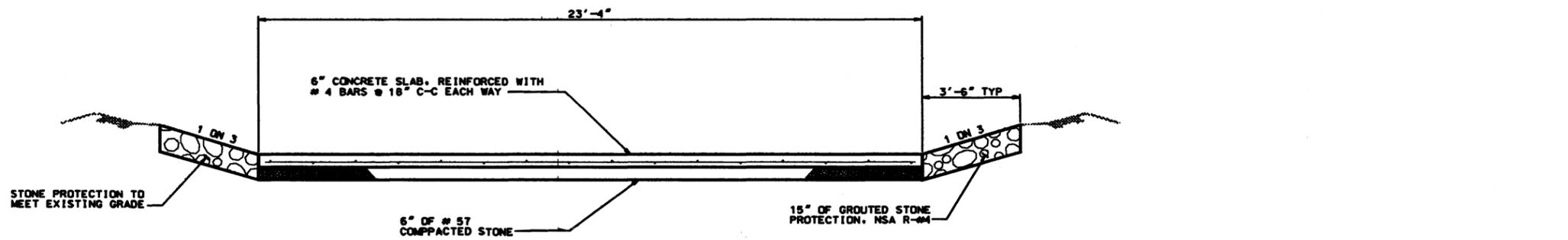
Justification:

The existing launching ramp provides public access to the river for boating, fishing and other recreational activities except during periods of low river flows. The 3.2 foot pool decrease will render the existing ramp unusable except during extremely high river flows when recreational activities are discouraged on the river.

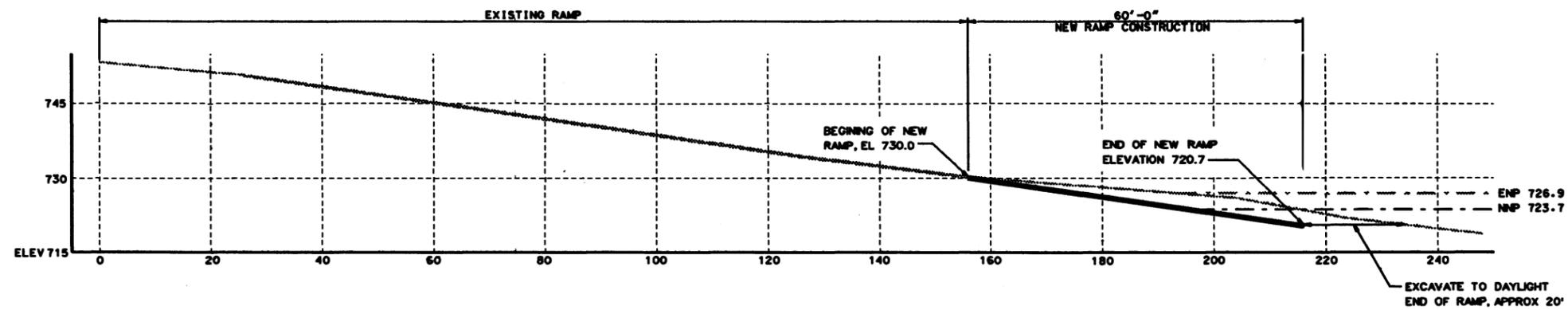
This facility was authorized for project funding by the LMFS, December 1991, provided that further investigation revealed that it complies with the requirements of P.L. 85-500, Section 111, as amended. See APPENDIX D for documentation on this compliance.



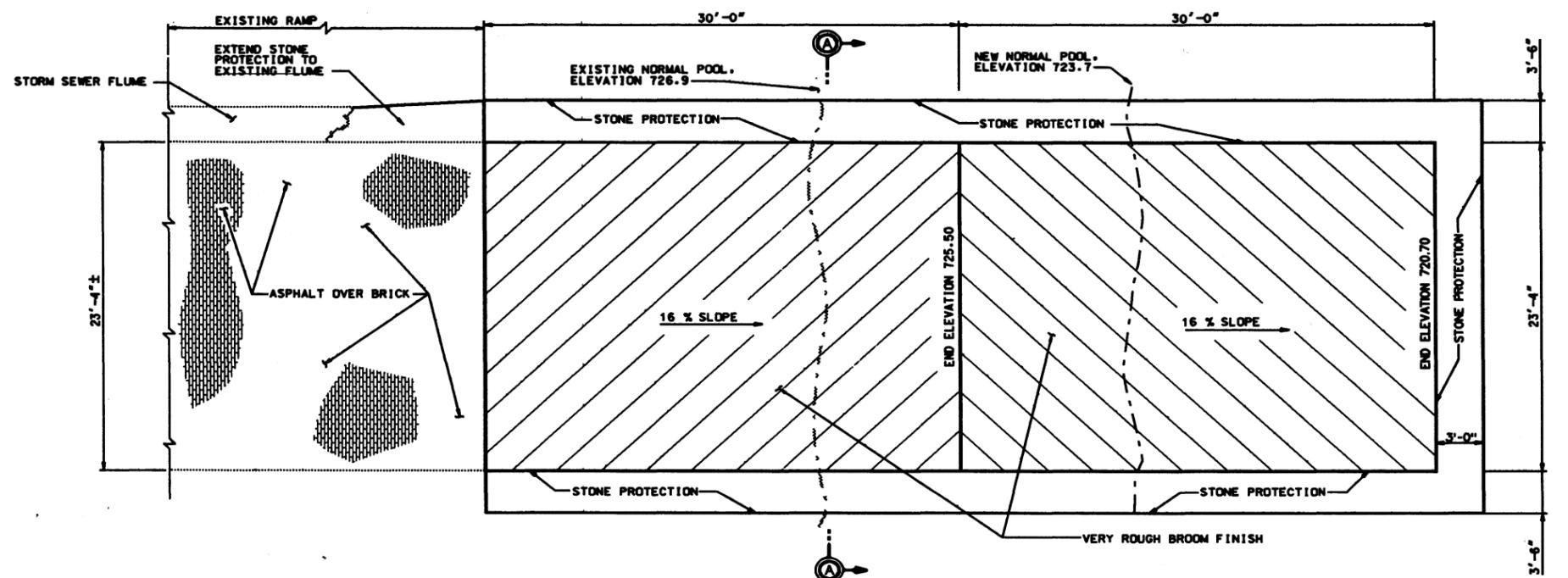
M18L, LAUNCHING RAMP



SECTION A-A



PROFILE



PLAN

- NOTES:
1. OBJECT LINES APPEARING AS HALF TONES ARE EXISTING CONSTRUCTION. SOLID LINES ARE PROPOSED CONSTRUCTION.
 2. END RAMP SECTION TO BE CONSTRUCTED ON DRY LAND AND SLID INTO LOCATION.
 3. ENP DESIGNATES EXISTING NORMAL POOL.
 4. NRP DESIGNATES NEW NORMAL POOL.

FACILITY* - M18L			
REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT, PITTSBURGH CORPS OF ENGINEERS OFFICE OF THE DISTRICT ENGINEER PITTSBURGH, PENNSYLVANIA			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS			
CITY OF MONONGAHELA LAUNCHING RAMP (RM 32.0 LB) PLAN, SECTION AND PROFILE			
DESIGNED BY	DRAWN BY	CHECKED BY	DATE
SRF	SRF	SRF	18 Aug 1994
SUBMITTED BY		DATE	SCALE
David M. Williams		DACW59	NO SCALE
DSD NO.			SHEET
037-R55-			1/4

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: Public Boat Launching Ramp

ID: M19L

Location

River: Monongahela Bank: Lt RM: 33.2

Owner: Pennsylvania Fish and Boat Commission

Address: 450 Robinson Lane
Bellefonte, Pennsylvania 16823

Design Team Visit: July 1994, Fritz

POOL DATA:

	EXISTING	BRADDOCK
Level Pool	726.9	723.7
Ordinary High Water	739.4	736.4

EXISTING CONDITIONS:

Facility Description:

The existing launching ramp is 29'-6" wide and is constructed of cement concrete beams, each of which is approximately 10'-0" wide. The end elevation of the ramp is 725.4.

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates that there is an insignificant potential for contamination at this facility site. Therefore, the contractor does not recommend a Phase II investigation for this facility at this time.

PROPOSED DESIGN:

Extend ramp to a useable elevation.

REQUIRED REMEDIAL WORK:

Government Proposal:

The proposed ramp will be constructed of reinforced cement concrete. The lower portion of the ramp will be constructed on dry land and pushed onto a prepared base within the river. The upper portion of the ramp will also be constructed of reinforced cement concrete. It will be doweled into the lower portion and anchored with reinforced cement concrete toes at both the upper and lower ends. Stone rip rap will be placed along both sides and the end of the ramp to protect it from wave action and higher river flows.

Estimated Construction Cost (Rounded): \$ 19,000

Responsibility: Government

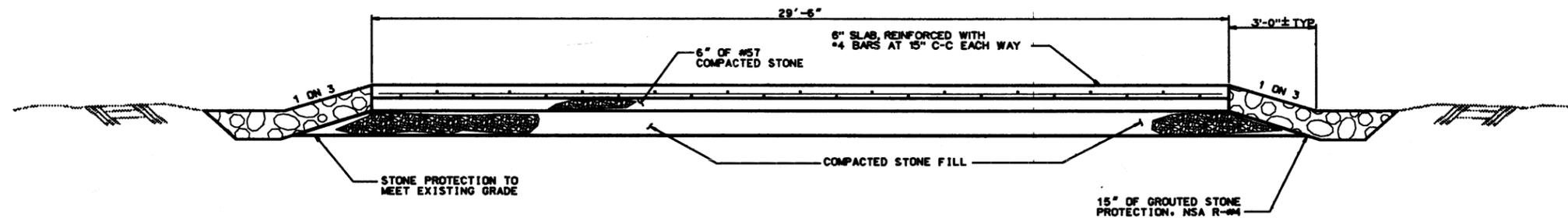
Justification:

The existing launching ramp provides public access to the river for boating, fishing and other recreational activities. The 3.2 foot pool decrease will render the existing ramp unusable.

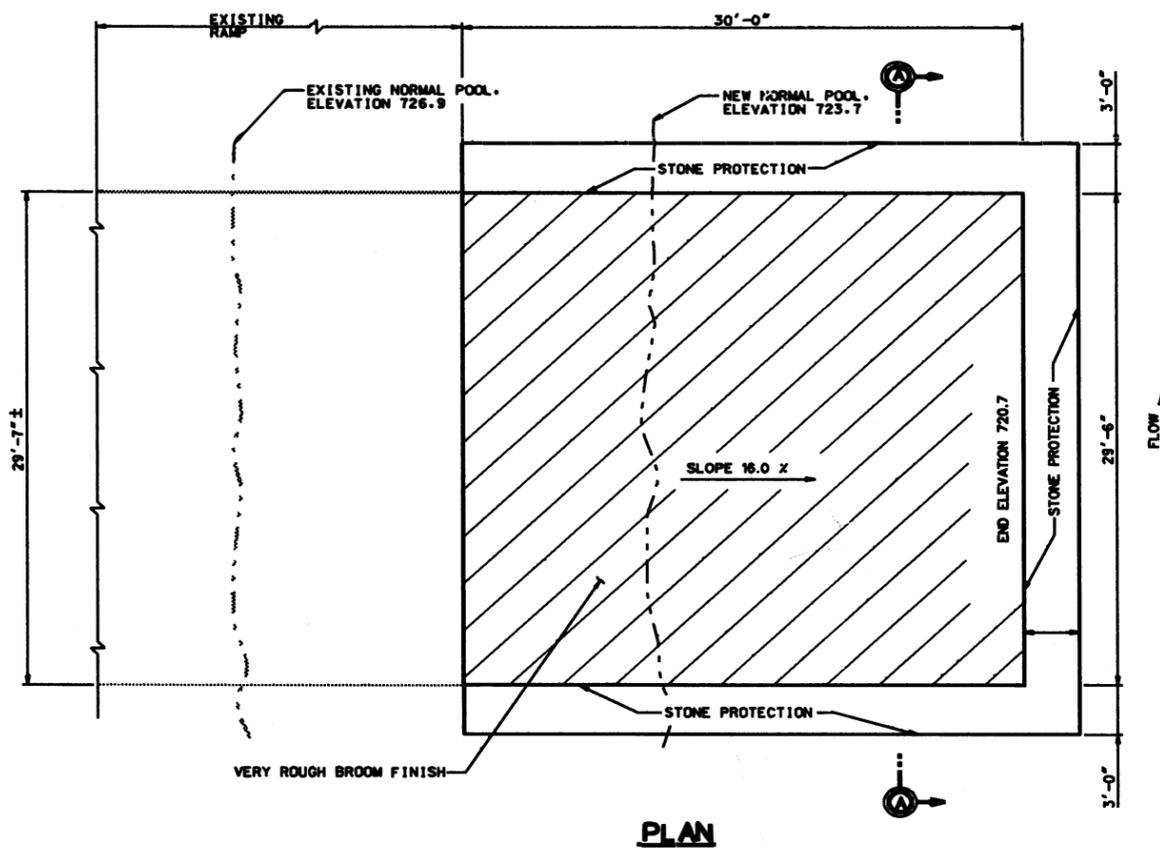
This facility was authorized for project funding by the LMFS, December 1991, provided that further investigation revealed that it complies with the requirements of P.L. 85-500, Section 111, as amended. See APPENDIX D for documentation on this compliance.



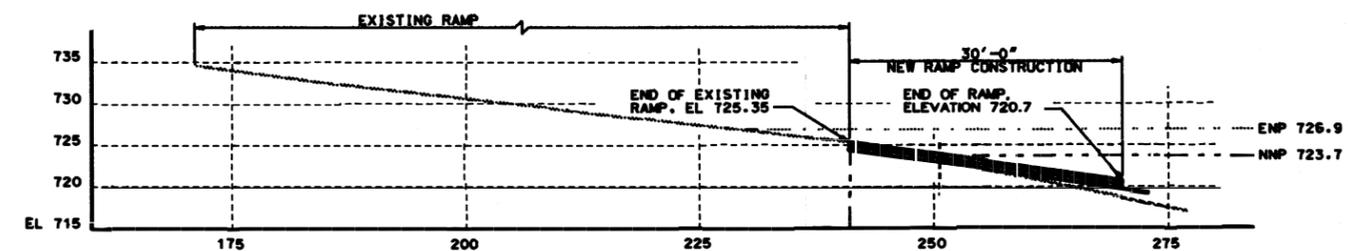
M19L, LAUNCHING RAMP



SECTION A-A



PLAN



PROFILE

- NOTES:
1. OBJECT LINES APPEARING AS HALF TONES ARE EXISTING CONSTRUCTION. SOLID LINES ARE PROPOSED CONSTRUCTION.
 2. END RAMP SECTION TO BE CONSTRUCTED ON DRY LAND AND SLID INTO LOCATION.
 3. ENP DESIGNATES EXISTING NORMAL POOL.
 4. NNP DESIGNATES NEW NORMAL POOL.

FACILITY - M19L			
REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT, PITTSBURGH CORPS OF ENGINEERS OFFICE OF THE DISTRICT ENGINEER PITTSBURGH, PENNSYLVANIA			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS			
PENNSYLVANIA FISH COMMISSION LAUNCHING RAMP RM 33.2 LB			
PLAN, SECTION AND PROFILE			
DESIGNED BY	DRAWN BY	CHECKED BY	DATE
			18 Aug 1994
NO SCALE			PROJECT NO. 037-R55-12/5
 David M. Williams, DACW59			

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: Monongahela Valley Sewage Authority,
Sewage Treatment Plant Outfall

ID: M20L

Location

River: Monongahela Bank: Left RM: 38.4
Owner: Monongahela Valley Sewage Authority
Address: P.O. Box 792
Donora, PA 15033

Design Team Visit: October 1993, Allison

POOL DATA:

	EXISTING	BRADDOCK
Level Pool	726.9	723.7
Ordinary High Water	741.4	738.9

EXISTING CONDITIONS:

Invert Elevation: 729.4

Outlet conditions:

Existing outfall is a 36 inch reinforced concrete pipe running from the sewage treatment plant to this outfall. The outfall structure consists of a endwall. The effluent is discharged directly into the river at pool level.

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates there is a potential for contamination at this facility site. Therefore, the contractor recommends a Phase II investigation for this facility.

PROPOSED DESIGN:

Provide a stone lined channel from the existing endwall into the new pool. The first 10 feet of the stone channel will be grouted to handle the high velocities of the effluent, 20 fps. The proposed channel stone size will be NSA #R-7 and have a filter placed under the stone, 10" thickness.

Slope of channel: 16%
Material: Stone (NSA #R-7)
Stone Filter
R-7 D_o: 15"
Channel Width: 4.0 feet
Effluent Velocity 20.0 fps

REQUIRED REMEDIAL WORK:

Government Proposal:

To build a stone channel from the concrete endwall to the new river pool. The channel will be 4.0 feet wide and 1.0 feet deep. The stone will be 3.0 feet deep.

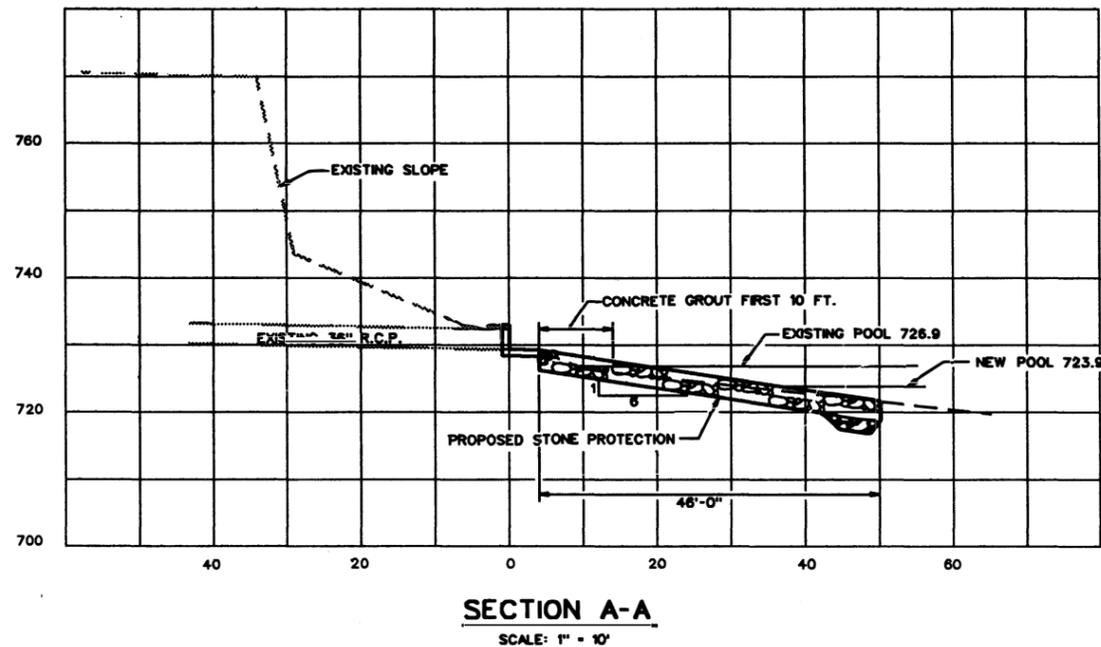
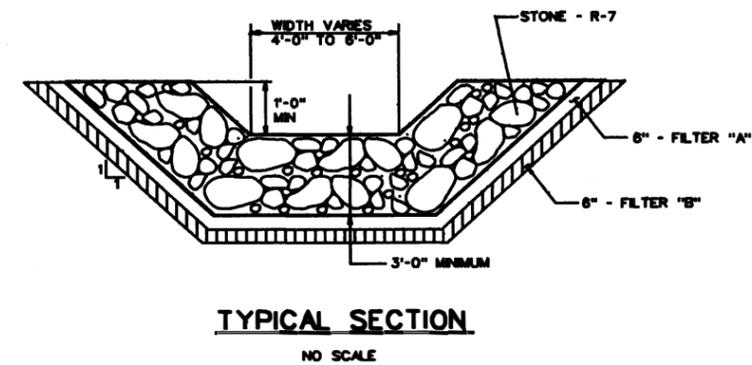
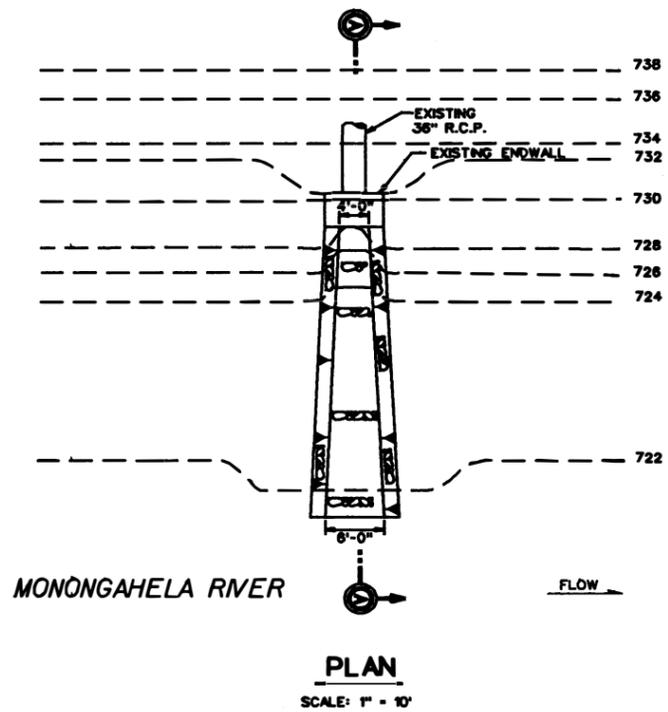
Estimated Construction Cost (Rounded): \$ 22,000

Responsibility: Owner (Section 111 Requested)

Justification:

This facility is the sole discharge from the Mon Valley STP. If remedial measures are not taken the soil below the existing outfall will be eroded. This will eventually lead to the failure of the outfall structure.

This facility terminates on the bank of the Monongahela River, a navigable waterway, with its outlet invert riverward of existing ordinary high water, therefore the Owner is responsible for the cost of remedial work. However, this sewer is a publicly owned and operated facility and is therefore suitable for Government funding under Section 111, P.L. 85-500, as amended. It is therefore recommended that the Chief of Engineers find that the remedial costs should be borne by the Government.



NOTES:
1. OBJECT LINES APPEARING AS HALF TONES ARE EXISTING CONSTRUCTION.
OBJECT LINES APPEARING AS FULL TONES ARE PROPOSED CONSTRUCTION.

FACILITY - M20L

REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT, PITTSBURGH CORPS OF ENGINEERS <small>PITTSBURGH, PENNSYLVANIA</small>			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS MONONGAHELA VALLEY SEWAGE AUTHORITY OUTLET PROTECTION AT SEWAGE PLANT PLAN, PROFILE AND SECTION			
WLA	WLA	18 Aug 1994	AS SHOWN
			037-R55-67/24
DACW59			

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: Evans Street Combined Sewer Overflow

ID: M01R

Location

River: Monongahela River **Bank:** Right **RM:** 14.5

Owner: Municipal Authority of the City of McKeesport
Address: 100 Atlantic Avenue
McKeesport, PA 15132

Design Team Visit: Fritz, July 93

POOL DATA:

	EXISTING POOL 2	BRADDOCK POOL
Level Pool	718.7	723.7
Ordinary High Water	729.8	727.0

EXISTING CONDITIONS:

Invert Elevation: 714.9 ±

Inlet conditions:

This facility was originally constructed to pass all storm and domestic wastewater to the Monongahela River from the Evans and White Street drainage areas. Currently this 84 inch brick culvert serves as the combined sewer overflow for the Evans Street and White Street regulator stations (see APPENDIX C).

Drainage Area: 277 Acres
Capacity: $Q_C = 671$ CFS
Runoff, 10-year event: $Q_{10} = 710$ CFS

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates there is a potential for contamination at this facility site. Therefore, the contractor recommends a Phase II investigation for this facility.

PROPOSED DESIGN:

Limiting Capacity: $Q_L = 1007$ CFS
Slope: 0.0028 ft/ft
Material: RCP
Manning's N: 0.012
Diameter: 120"
Design Capacity: $Q_D = 1007$ CFS

REQUIRED REMEDIAL WORK:

Government Proposal:

Raise the outfall by constructing approximately 980 ft of 120" dia RCP. Reconstruct existing retaining wall at outlet end and provide stone protection at the outfall.

The Authority presently owns a compensable interest in the land for this facility. The new design requires a horizontal relocation of the facility outside of those limits. The District's recommendation is to acquire a new permanent interest for the relocated facility. The new permanent utility easement contains 1.25 acres of land. The land is similar to the existing site in terms of size, location and acres. The fair market value of acquiring the new site, including administrative costs and contingencies is \$36,750. Both sites are comparable in price because both are located on the site of a former steel mill.

Estimated Construction Cost (Rounded): \$ 2,907,000

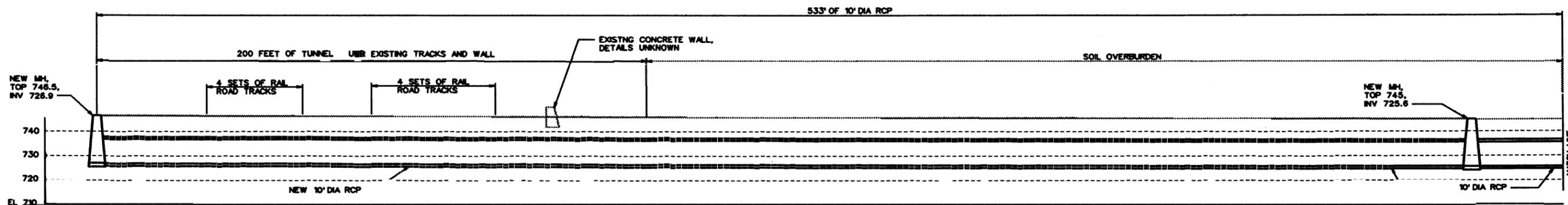
Responsibility: Owner (Section 111 Requested)

Justification:

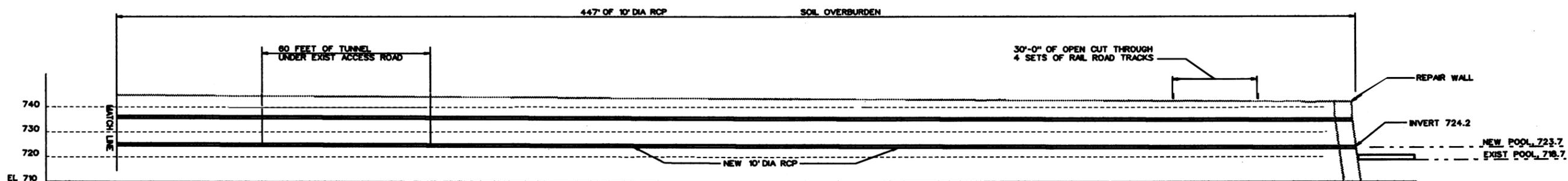
The Evans Street combined sewer outfall will be totally inundated by the five foot pool raise. This will subject the overflow to increased siltation and inaccessibility for maintenance.

This outfall functions as a relief valve for the combined sewer system during storm events. Without a relocation of the existing sewer, excessive storm flows will be prevented from bypassing to the river and forced into the treatment plant.

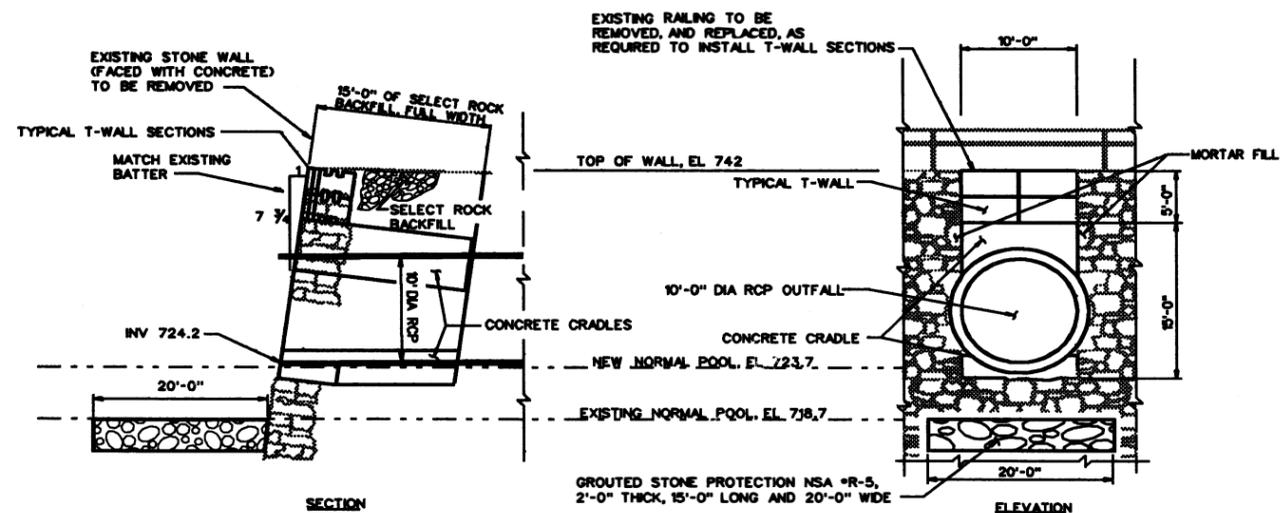
This facility terminates on the bank of the Monongahela River, a navigable waterway, with its outlet invert riverward of existing ordinary high water, therefore the Owner is responsible for the cost of remedial work. However, this sewer is a publicly owned and operated facility and is therefore suitable for Government funding under Section 111, P.L. 85-500, as amended. It is therefore recommended that the Chief of Engineers find that the remedial costs should be borne by the Government.



PROFILE



PROFILE



OUTFALL DETAILS

FACILITY - MO1R			
REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT, PITTSBURGH CORPS OF ENGINEERS OFFICE OF THE DISTRICT ENGINEER PITTSBURGH, PENNSYLVANIA			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS MUNICIPAL AUTHORITY OF THE CITY OF McKEESPORT EVANS STREET COMBINED OUTFALL PROFILE			
DATE	BY	NO SCALE	NO
18 Aug 1994	DAW	037-R55-67/26	
DRAFTSMAN		DATE	
The Dillman Co.		DACW59	

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: Center Street Combined Sewer Overflow

ID: M02R

Location

River: Monongahela River Bank: Right RM: 14.6

Owner: Municipal Authority of the City of McKeesport
Address: 100 Atlantic Avenue
McKeesport, PA 15132

Design Team Visit: Fritz, July 93

POOL DATA:

	EXISTING	BRADDOCK
Level Pool	718.7	723.7
Ordinary High Water	729.9	727.0

EXISTING CONDITIONS:

Invert Elevation: 714.8 ±

Inlet conditions:

This facility was originally constructed to pass all storm and domestic wastewater to the Monongahela River from the Center Street drainage area. Currently this 24 inch concrete sewer serves as the combined sewer overflow for the Center Street regulator station (see APPENDIX C).

Drainage Area: 122 Acres
Capacity: $Q_c = 29$ CFS
Runoff, 10-year event: $Q_{10} = 255$ CFS

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates there is a potential for contamination at this facility site. Therefore, the contractor recommends a Phase II investigation for this facility.

PROPOSED DESIGN:

Limiting Capacity: $Q_L = 44$ CFS
Slope: 0.0189 ft/ft
Material: RCP
Manning's N: 0.012
Diameter: 33"
Design Capacity: $Q_D = 44$ CFS

REQUIRED REMEDIAL WORK:

Government Proposal:

Raise the outfall by constructing approximately 975 ft of 33" dia RCP. Reconstruct existing retaining wall at outlet end and provide stone protection at outfall to protect existing and new wall pipe.

The Authority presently owns a compensable interest in the land for the existing facility. The proposed design for the new facility requires a horizontal relocation outside of the existing limits. The District's recommendation is to acquire a new permanent utility easement containing 1.45 acres. The fair market value of acquiring the new easement, including administrative costs and contingencies \$37,500. Land value of the existing site is comparable to the new site because of their close proximity.

Estimated Construction Cost (Rounded): \$ 667,000

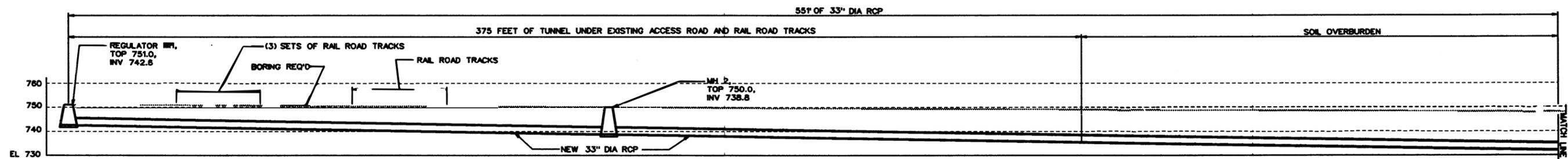
Responsibility: Owner (Section 111 Requested)

Justification:

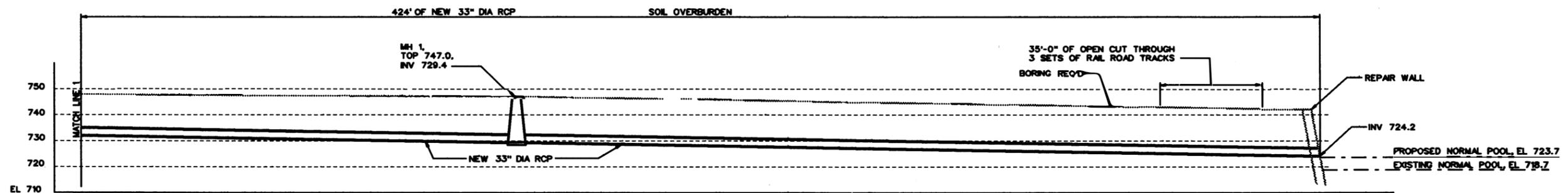
The Center Street combined sewer outfall will be totally inundated by the five foot pool raise. This will subject the overflow to increased siltation and inaccessibility for maintenance.

This outfall functions as a relief valve for the combined sewer system during storm events. Without a relocation of the existing sewer, excessive storm flows will be prevented from bypassing to the river and forced into the treatment plant.

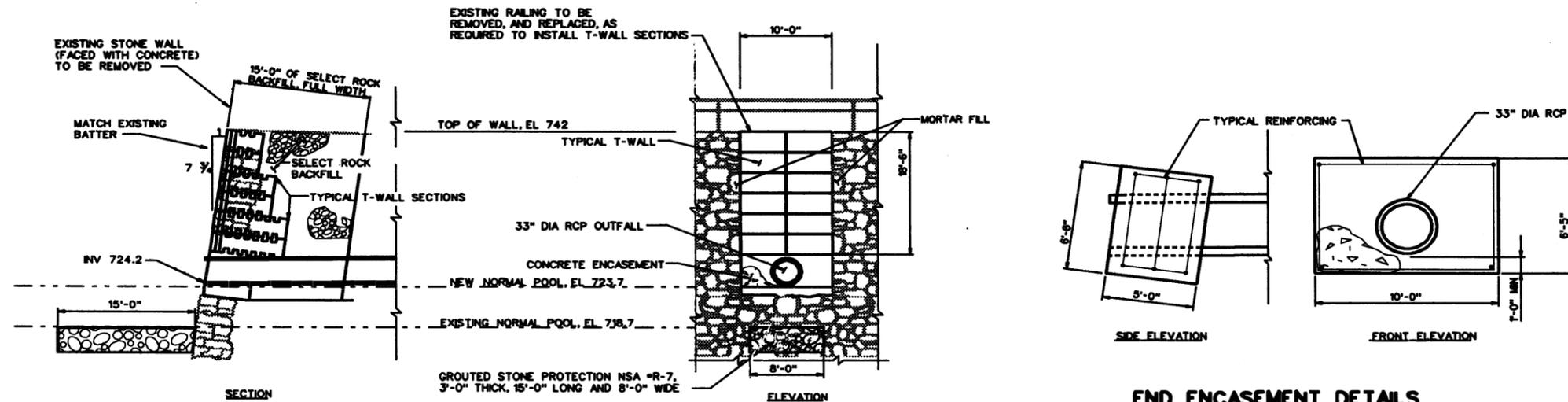
This facility terminates on the bank of the Monongahela River, a navigable waterway, with its outlet invert riverward of existing ordinary high water, therefore the Owner is responsible for the cost of remedial work. However, this sewer is a publicly owned and operated facility and is therefore suitable for Government funding under Section 111, P.L. 85-500, as amended. It is therefore recommended that the Chief of Engineers find that the remedial costs should be borne by the Government.



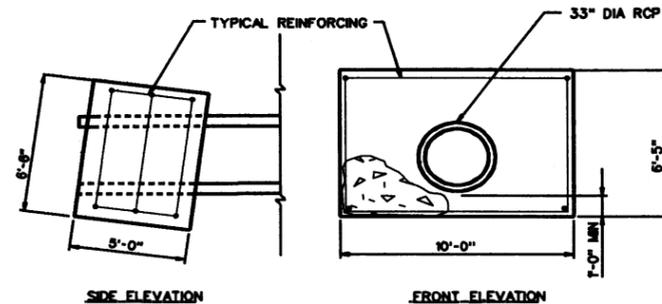
PROFILE



PROFILE



OUTFALL DETAILS



END ENCASEMENT DETAILS

FACILITY - M02R			
REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT, PITTSBURGH CORPS OF ENGINEERS PITTSBURGH, PENNSYLVANIA			
MONONGAHELIA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS			
MUNICIPAL AUTHORITY OF THE CITY OF MCKEESPORT CENTER AVENUE COMBINED OUTFALL PROFILE			
SRF P.L.G.	SRF T.D.S.F.	DATE 22 Aug 94	NO SCALE 037-R55-67/27
		DACW59	

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: Huey Street and Martin Street Combined Sewer
Outfalls

ID: M03R (Martin St) & M04R (Huey St)

Location

River: Monongahela Bank: Right RM: 14.7/14.9

Owner: Municipal Authority of the City of McKeesport
Address: 100 Atlantic Avenue
McKeesport, PA 15132

Design Team Visit: Fritz, July 93

POOL DATA:

	EXISTING	BRADDOCK
Level Pool	718.7	723.7
Martin Street		
Ordinary High Water	729.9	727.1
Huey Street		
Ordinary High Water	729.9	727.1

EXISTING CONDITIONS:

Invert Elevations:

Huey St. Outfall at river not found.
Martin St. 718.0 ±.

Inlet conditions:

These facilities were originally constructed to pass all storm and domestic wastewater to the Monongahela River from the Martin and Huey Street drainage areas. Currently these 42 inch (Martin Street) and 20 inch (Huey Street) sewers serve as the combined sewer overflows for the Martin and Huey Street regulator stations (see APPENDIX C).

Drainage Area: 205 Acres (total)
Capacity: $Q_c = 123$ CFS (total)
Runoff, 10-year event: $Q_{10} = 604$ CFS (total)

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates there is a potential for contamination at this facility site. Therefore, the contractor recommends a Phase II investigation for this facility.

PROPOSED DESIGN:

Limiting Capacity: $Q_L = 190$ CFS (total)

Slopes:

M3/4RA-3/4RC: 0.0074 ft/ft

M3/4RF: 0.0099 ft/ft

M3/4RE: 0.0092 ft/ft

M3/4RD: 0.0075 ft/ft

Material: RCP

Manning's N: 0.012

Diameters:

M3/4A-3/4C: 60"

M3/4RF: 30"

M3/4RE: 54"

M3/4RD: 54"

Design Capacity: $Q_D = 190$ CFS

REQUIRED REMEDIAL WORK:

Government Proposal:

Raise the outfalls for both Huey and Martin Streets by constructing 588 feet of 30 inch dia RCP, 485 feet of 54 inch RCP and 780 feet of 60 inch RCP. Due to the location of the sewers it is practical to join them and provide only one outfall at the river. Reconstruct existing retaining wall and provide stone protection below outfall to protect outfall and reconstructed wall.

The facilities are to be combined to provide one sewer outfall to the river. The new outfall is situated between the two existing lines. The Authority presently owns a compensable interest in the land for the existing facilities. The District's recommendation is to acquire a new permanent utility easement containing 1.45 acres of land. The total cost of acquiring the new easement, including administrative costs and contingencies, is \$37,500. The new site is similar to the existing sites in terms of utility, location, access, land use and price.

Estimated Construction Cost (Rounded): \$ 2,450,000

Responsibility: Owner (Section 111 Requested)

Justification:

The Martin and Huey Street combined sewer outfalls will be totally inundated by the five foot pool raise. This will subject the overflow to increased siltation and inaccessibility for maintenance.

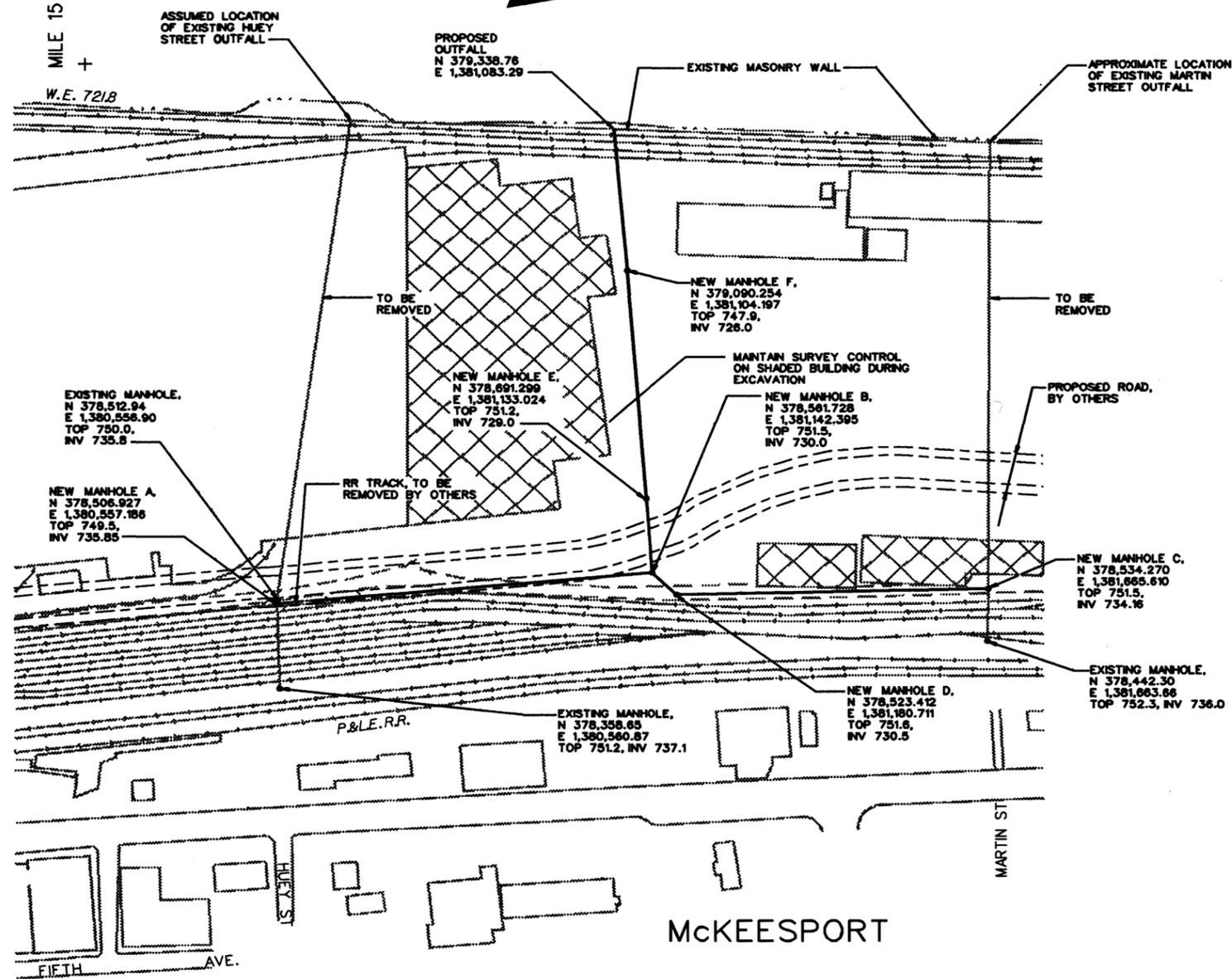
These outfalls function as relief valves for the combined sewer system during storm events. Without a relocation of the existing sewers, excessive storm flows will be prevented from bypassing to the river and forced

into the treatment plant.

This facility terminates on the bank of the Monongahela River, a navigable waterway, with its outlet invert riverward of existing ordinary high water, therefore the Owner is responsible for the cost of remedial work. However, this sewer is a publicly owned and operated facility and is therefore suitable for Government funding under Section 111, P.L. 85-500, as amended. It is therefore recommended that the Chief of Engineers find that the remedial costs should be borne by the Government.

MONONGAHELA RIVER

FLOW



FACILITY - M03R
FACILITY - M04R

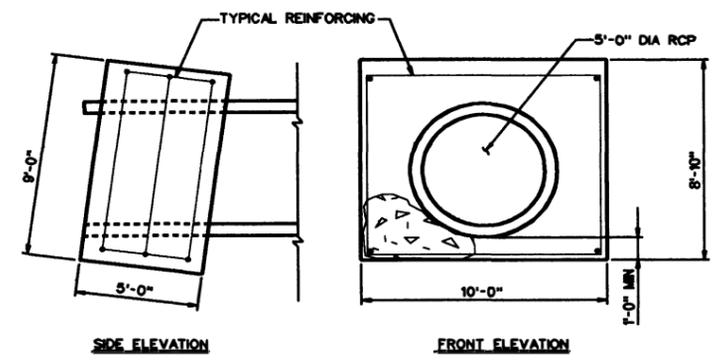
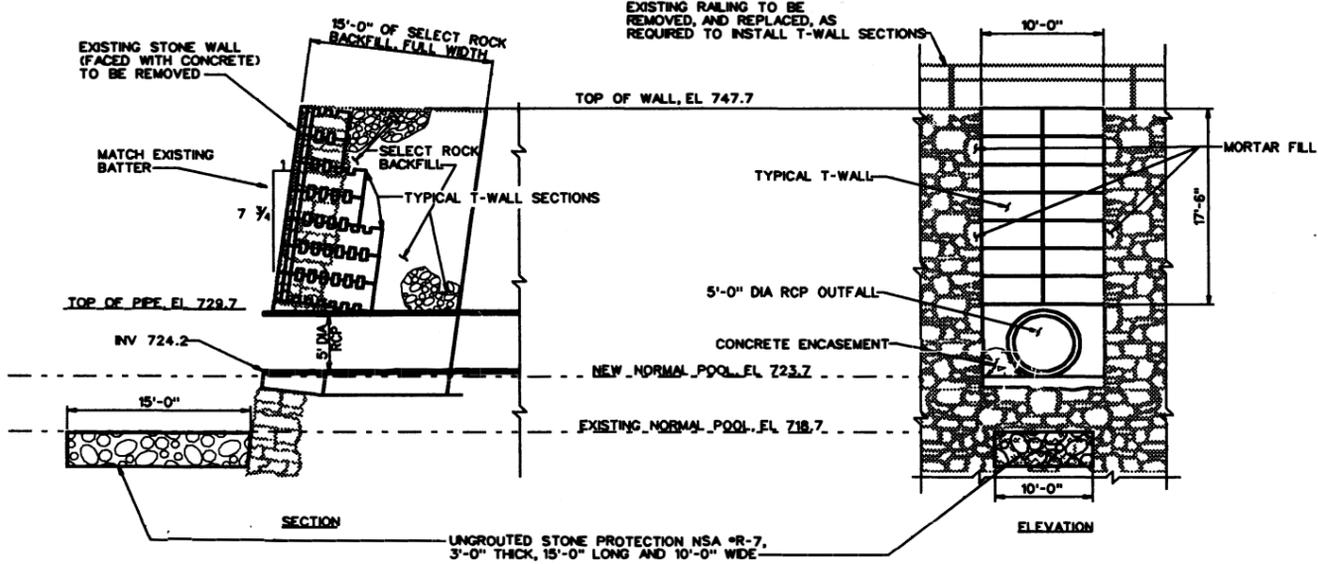
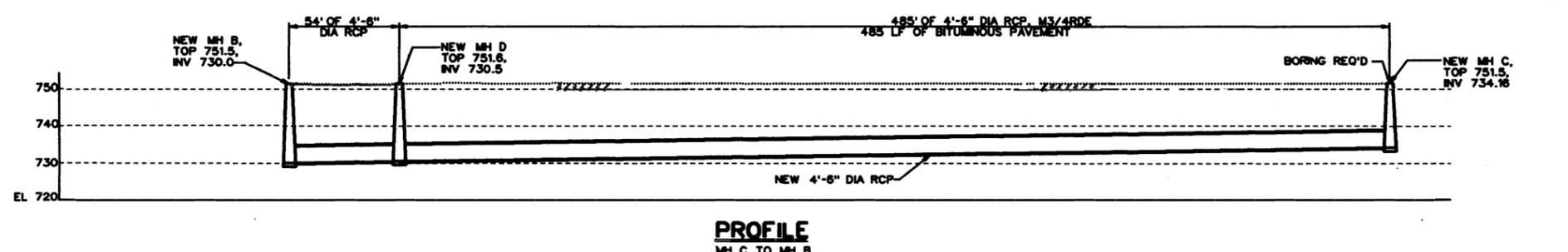
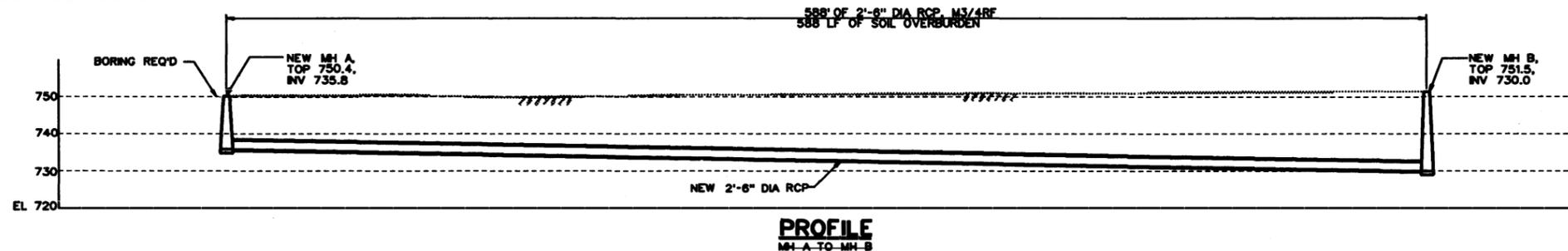
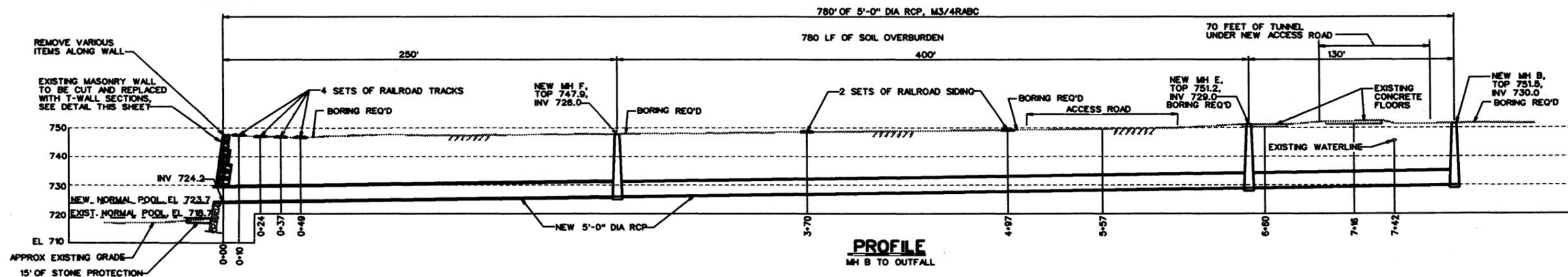
REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			

U.S. ARMY ENGINEER DISTRICT, PITTSBURGH
CORPS OF ENGINEERS

MONONGAHELA RIVER
LOCKS AND DAMS 2, 3 AND 4
RELOCATIONS
MUNICIPAL AUTHORITY OF THE CITY OF MCKEESPORT
HUEY AND MARTIN STREETS COMBINED OUTFALL
PLAN

DATE	NO	SCALE	PROJECT NO.
22 Aug 94	22A	NO SCALE	037-R55-67/28

1 2



- NOTES:
1. OBJECT LINES APPEARING AS HALF TONES ARE EXISTING CONSTRUCTION.
 2. SOLID LINES ARE NEW CONSTRUCTION.
 3. REGRADE EXCAVATION TO MATCH EXISTING CONTOURS.
 4. ASSUME AN OPEN CUT EXCAVATION AS AN ALTERNATIVE FOR PASSING NEW SEWER UNDER ALL RAILROAD TRACKS ON THIS DRAWING.
 5. T-WALL SECTIONS REQUIRED:
 - 4 FOOT SECTIONS: 4 EACH
 - 6 FOOT SECTIONS: 4 EACH
 - 8 FOOT SECTIONS: 6 EACH
 6. MORTAR FILL WILL BE REQUIRED WHERE NEW T-WALL SECTIONS AND EXISTING WALL MEET.

FACILITY - M03R
FACILITY - M04R

REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT, PITTSBURGH CORPS OF ENGINEERS			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS			
MUNICIPAL AUTHORITY OF THE CITY OF McKEESPORT HUEY AND MARTIN STREETS COMBINED OUTFALL PROFILES			
SRP	SRP	22 Aug 94	NO SCALE
Kerry D. Sully		DACWB9	037-R55-67/29
		2	2

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: Walnut Street Combined Sewer Overflows

ID: M05R (Regulator 21) & M06R (Regulator 21 A)

Location

River: Monongahela Bank: Right RM: 15.28

Owner: Municipal Authority of the City of McKeesport
Address: 100 Atlantic Avenue
McKeesport, PA 15132

Design Team Visit: Fritz, June 93-July 93

POOL DATA:

	EXISTING	BRADDOCK
Level Pool	POOL 2 718.7	POOL 723.7
Ordinary High Water	730.1	727.4

EXISTING CONDITIONS:

Invert Elevation:

21: 718.1
21 A: 717.6

Inlet conditions:

These facilities were originally constructed to pass all storm and domestic wastewater to the Monongahela River from the Walnut Street drainage area. Currently a 60 inch vertical elliptical brick sewer (Regulator 21 A) and a 36 inch brick sewer (Regulator 21) sewer act as the combined sewer overflows for the Walnut Street regulator stations (see APPENDIX C).

Regulator # 21

Drainage Area: 33 Acres
Capacity: $Q_c = 68$ CFS
Runoff, 10-year event: $Q_{10} = 103$ CFS

Regulator # 21 A

Drainage Area: 197.5 Acres
Capacity: $Q_c = 166$ CFS
Runoff, 10-year event: $Q_{10} = 566$ CFS

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates there is a potential for contamination at this facility site. Therefore, the contractor recommends a Phase II investigation for this facility.

PROPOSED DESIGN:

Regulator 21

Limiting Capacity: $Q_L = 102$ CFS
Slope: 0.0019 ft/ft
Material: RCP
Manning's N: 0.012
Diameter: 48"
Design Capacity: $Q_D = 90$ CFS

Regulator 21 A

Limiting Capacity: $Q_L = 249$ CFS
Slope: 0.0084 ft/ft
Material: RCP
Manning's N: 0.012
Diameter: 60"
Design Capacity: $Q_D = 240$ CFS

REQUIRED REMEDIAL WORK:

Government Proposal:

Regulator # 21:

Raise the outfall by constructing 698 ft of 48 inch RCP. Construct endwall and stone protection below outfall. Regulator # 21 and # 21 A will share a common endwall and common stone protection.

Regulator # 21 A:

Raise the outfall by constructing 347 ft of 60" dia RCP. Construct endwall and stone protection below outfall. Regulator # 21 and # 21 A will share a common endwall and common stone protection.

The two outfalls will be relocated to provide new outfalls at the river. The new design requires a slight horizontal relocation of facilities. The Districts' recommendation is to provide a new permanent utility easement for the portion of each facility to be relocated. The total cost of acquiring the 1.60 acres of land needed is \$30,375, which includes administrative costs and contingencies.

Estimated Construction Cost (Rounded): \$ 932,000

Responsibility: Owner (Section 111 Requested)

Justification:

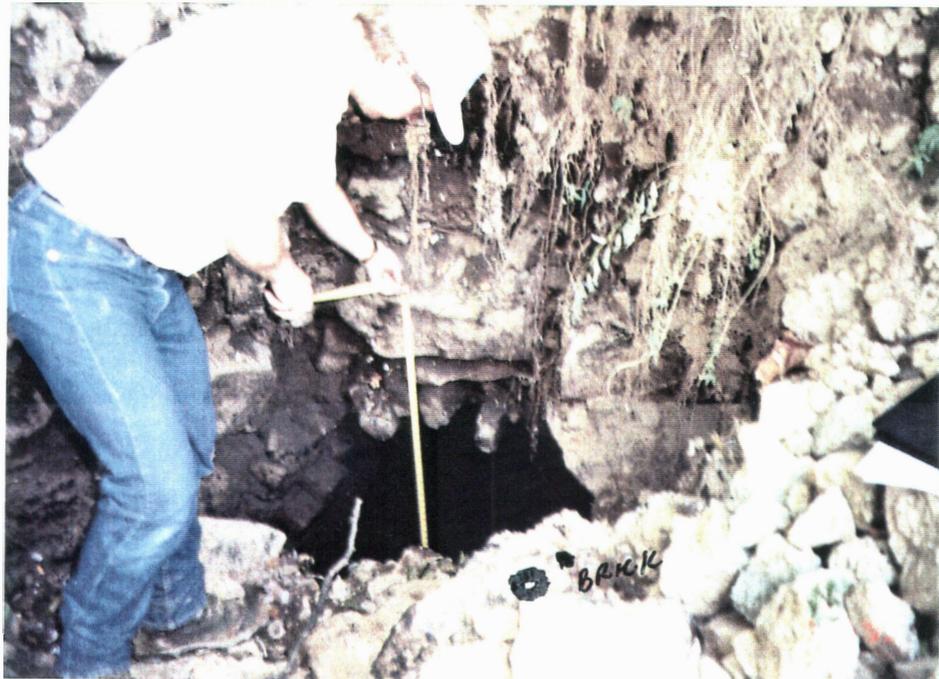
The Walnut Street combined sewer outfalls will be totally inundated by the five foot pool raise. This will subject the overflows to increased siltation and inaccessibility for maintenance.

These outfalls function as relief valves for the combined sewer system during storm events. Without a relocation of the existing sewers, excessive storm flows will be prevented from bypassing to the river and forced into the treatment plant.

This facility terminates on the bank of the Monongahela River, a navigable waterway, with its outlet invert riverward of existing ordinary high water, therefore the Owner is responsible for the cost of remedial work. However, this sewer is a publicly owned and operated facility and is therefore suitable for Government funding under Section 111, P.L. 85-500, as amended. It is therefore recommended that the Chief of Engineers find that the remedial costs should be borne by the Government.

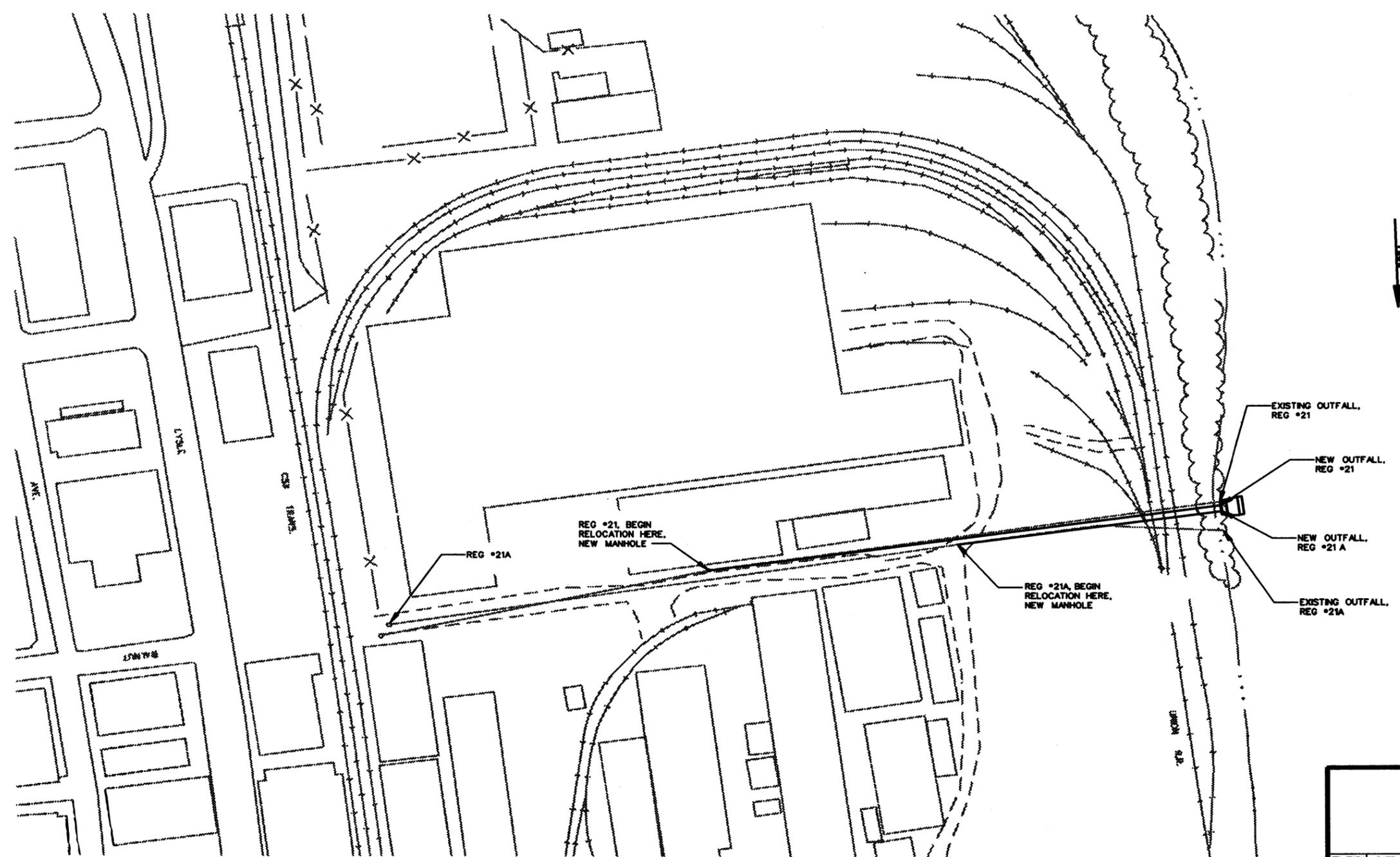


M05R, 36" BRICK



M06R, 34" X 64" BRICK

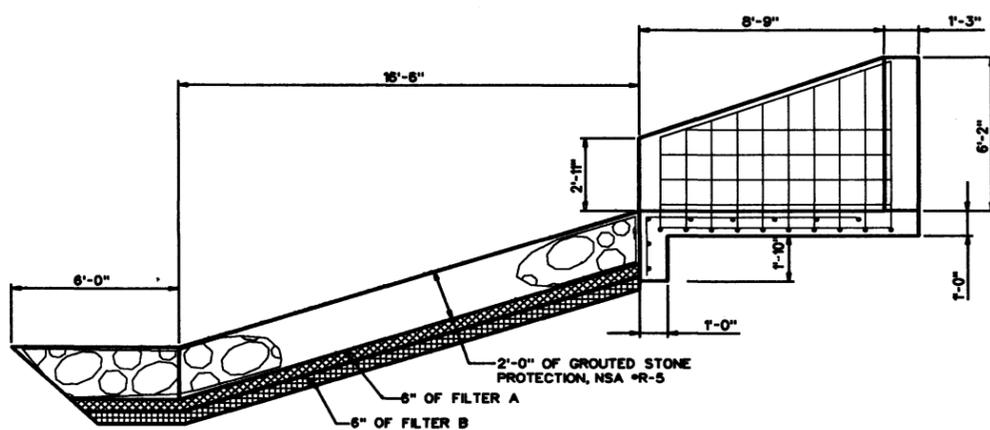
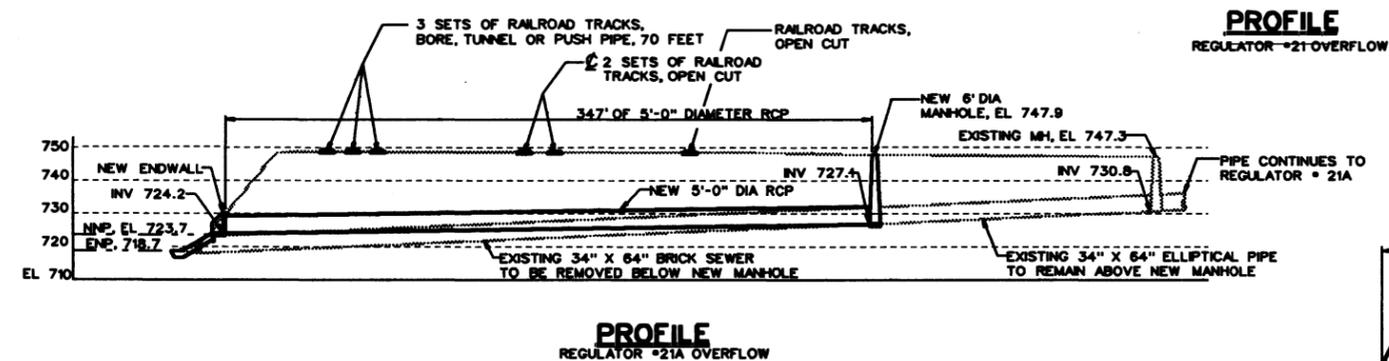
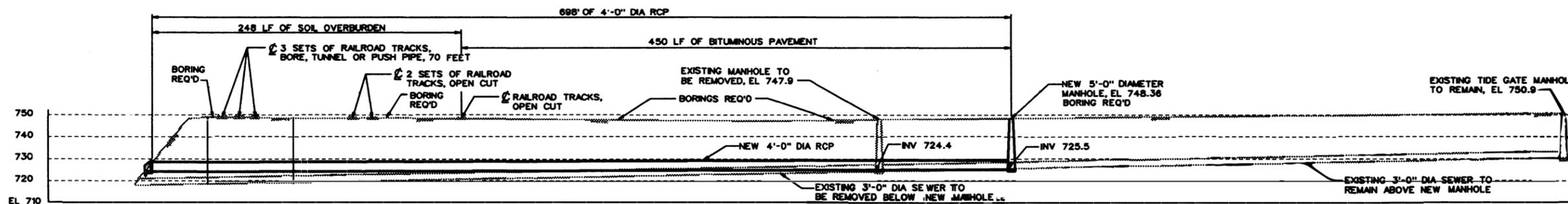
M05/6R-5



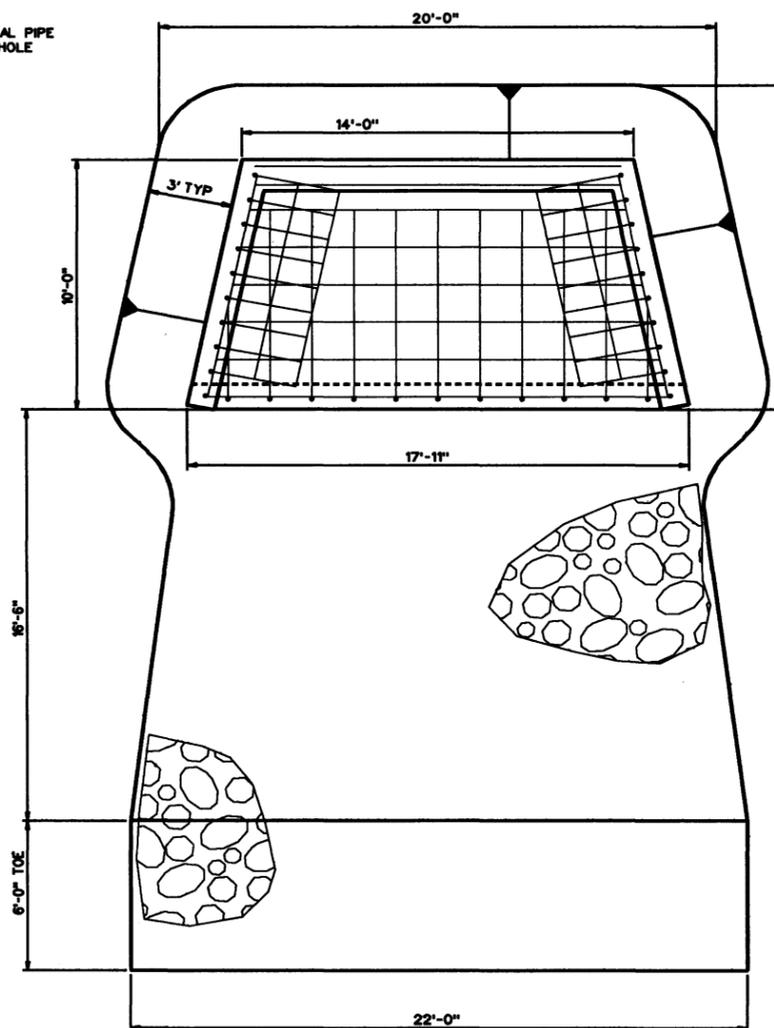
MON. RIVER

FACILITY - M05R
FACILITY - M06R

REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT PITTSBURGH CORPS OF ENGINEERS OFFICE OF THE DISTRICT ENGINEER PITTSBURGH, PENNSYLVANIA			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS			
MUNICIPAL AUTHORITY OF THE CITY OF McKEESPORT WALNUT STREET COMBINED SEWER OUTFALLS PLAN			
DESIGNER PJC	DATE 18 Aug 1994	SCALE NO SCALE	PROJECT NO. 037-R55-67/30
DRAWN BY <i>[Signature]</i>			DATE DACW59
			1 of 2



STONE PROTECTION AND ENDWALL SECTION



STONE PROTECTION AND ENDWALL PLAN

- NOTES:
1. OBJECT LINES APPEARING AS HALF TONES ARE EXISTING CONSTRUCTION.
 2. SOLID LINES ARE NEW CONSTRUCTION.
 3. REGRADE EXCAVATION TO MATCH EXISTING CONTOURS.
 4. FOR CLARITY THE VERTICAL SCALE IS TWICE THE HORIZONTAL SCALE ON THE PROFILE VIEWS.
 5. OUTFALLS FROM BOTH REGULATORS ON WALNUT STREET, REG #21 AND REG #21A, WILL OUTLET THROUGH THE SAME ENDWALL.

FACILITY - M05R			
FACILITY - M06R			
REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT PITTSBURGH CORPS OF ENGINEERS OFFICE OF DISTRICT ENGINEER PITTSBURGH, PENNSYLVANIA			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS			
MUNICIPAL AUTHORITY OF THE CITY OF MCKEESPORT WALNUT STREET COMBINED OUTFALL (#21)			
SRP P.L.G.	SRF JST	DATE 22 Aug 94	NO SCALE 037-R55-67/31
Terry D. Stelly DACW59			2 2

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: Sewage Treatment Plant Outfall

ID: M07R

Location

River: Monongahela Bank: Right RM: 15.77

Owner: Municipal Authority of the City of McKeesport
Address: 100 Atlantic Avenue
McKeesport, PA 15132

Design Team Visit: Fritz, July 93

POOL DATA:

	EXISTING	BRADDOCK
Level Pool	718.7	723.7
Ordinary High Water	730.4	727.9

EXISTING CONDITIONS:

Invert Elevation: 718.2 ±

Inlet conditions:

This facility is the discharge from the McKeesport Sewage Treatment Plant. Because the treatment plant is part of a combined sewer system the flows are highly dependent on weather conditions. The outfall is a 36 inch RCP with a concrete endwall and stone protection below the discharge.

Drainage Area: N/A

Capacity: $Q_c = 127$ CFS

Runoff, 10-year event: $Q_{10} =$ N/A

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates that there is an insignificant potential for contamination at this facility site. Therefore, the contractor does not recommend a Phase II investigation for this facility at this time.

PROPOSED DESIGN:

Limiting Capacity: $Q_L = 190.5$ CFS

Slope: 0.0243 ft/ft

Material: RCP

Manning's N: 0.012

Diameter: 42"

Design Capacity: $Q_D = 127$ CFS

REQUIRED REMEDIAL WORK:

Government Proposal:

Raise outfall by constructing 86 ft of 42 inch RCP. Construct new endwall and stone protection below outfall.

The existing outfall is not covered by any permanent easement. The District's recommendation is to acquire a permanent utility easement for the section of pipe to be relocated. The total cost of acquiring the 0.16 acres of land is \$17,500, which includes administrative costs and contingencies.

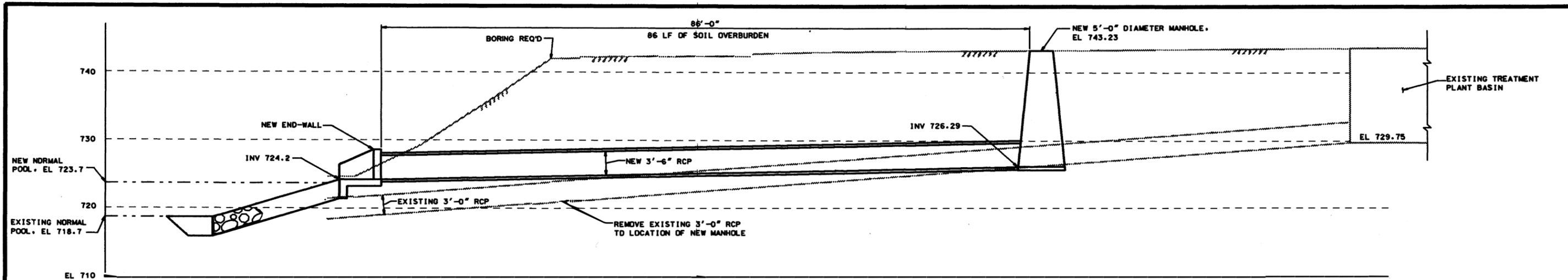
Estimated Construction Cost (Rounded): \$ 54,000

Responsibility: Government

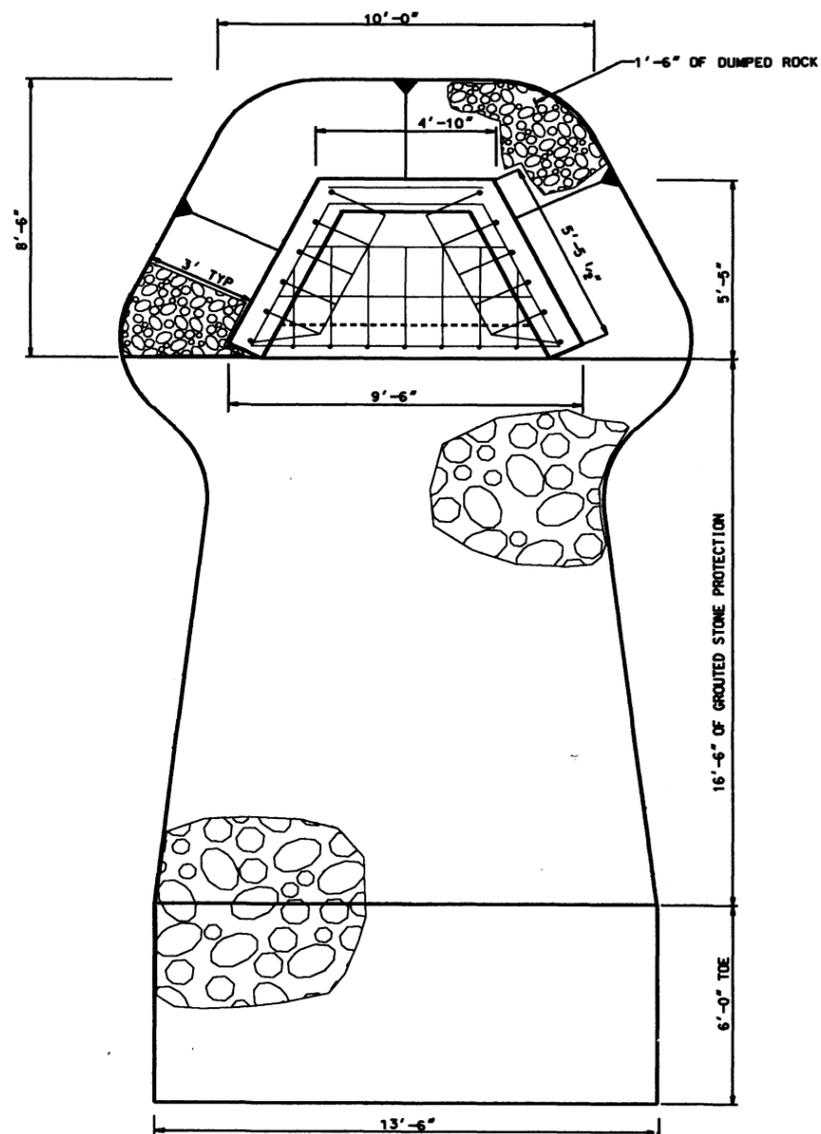
Justification:

The treatment plant outfall is the sole discharge for the City of McKeesport's treated wastewater. If this outfall is not raised it will be totally inundated and become inaccessible for maintenance.

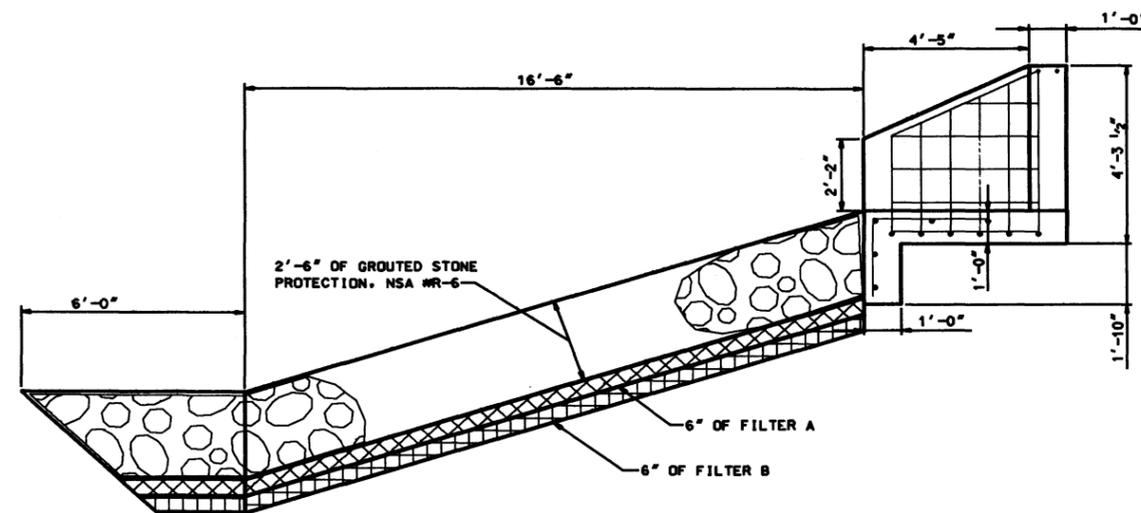
This facility (identified as a 36" storm sewer by the LMFS) was authorized for project funding by the LMFS, December 1991, provided that further investigation revealed that it complies with the requirements of P.L. 85-500, Section 111, as amended. See APPENDIX D for documentation on this compliance.



PROFILE



STONE PROTECTION AND ENDWALL PLAN



STONE PROTECTION AND ENDWALL SECTION

- NOTES:
1. OBJECT LINES APPEARING AS HALF TONES ARE EXISTING CONSTRUCTION.
 2. SOLID LINES ARE NEW CONSTRUCTION.
 3. REGRADE EXCAVATION TO MATCH EXISTING CONTOURS.

FACILITY - M07R			
REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT, PITTSBURGH CORPS OF ENGINEERS			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS			
MUNICIPAL AUTHORITY OF THE CITY OF McKEESPORT WASTE WATER DISCHARGE FROM PLANT			
SRF	SRF	22 Aug 94	NO SCALE
Terry D. Shiley		DACW99	037-R55-67/32

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: Rebecca Street Combined Sewer Overflow

ID: M08R

Location

River: Monongahela Bank: Right RM: 15.8

Owner: Municipal Authority of the City of McKeesport
Address: 100 Atlantic Avenue
McKeesport, PA 15132

Design Team Visit: Fritz, July 93

POOL DATA:

	EXISTING	BRADDOCK
Level Pool	718.7	723.7
Ordinary High Water	730.5	727.9

EXISTING CONDITIONS:

Invert Elevation: 722.1 ±

Inlet conditions:

This facility was originally constructed to pass all storm and domestic wastewater to the Monongahela River from the Rebecca Street drainage area. Currently this 36 inch concrete sewer serves as the combined sewer overflow for the Rebecca Street regulator station (see APPENDIX C).

Drainage Area: 116 Acres
Capacity: $Q_c = 81$ CFS
Runoff, 10-year event: $Q_{10} = 116$ CFS

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates there is a potential for contamination at this facility site. Therefore, the contractor recommends a Phase II investigation for this facility.

PROPOSED DESIGN:

Limiting Capacity: $Q_L = 116$ CFS
Slope: 0.0180 ft/ft
Material: RCP
Manning's N: 0.012
Diameter: 48"
Design Capacity: $Q_D = 116$ CFS

REQUIRED REMEDIAL WORK:

Government Proposal:

Raise the outfall by constructing approximately 127 ft of 48" dia RCP. Construct an endwall and stone protection below outfall.

The Authority does not have a compensable interest in the land for the existing facility. The District's recommendation is to acquire a permanent utility easement for the portion of pipe to be worked on as part of the relocation. The total cost of acquiring the 0.15 acres of easement is \$57,375, which includes administrative costs and contingencies.

Estimated Construction Cost (Rounded): \$ 123,000

Responsibility: Owner (Section 111 Requested)

Justification:

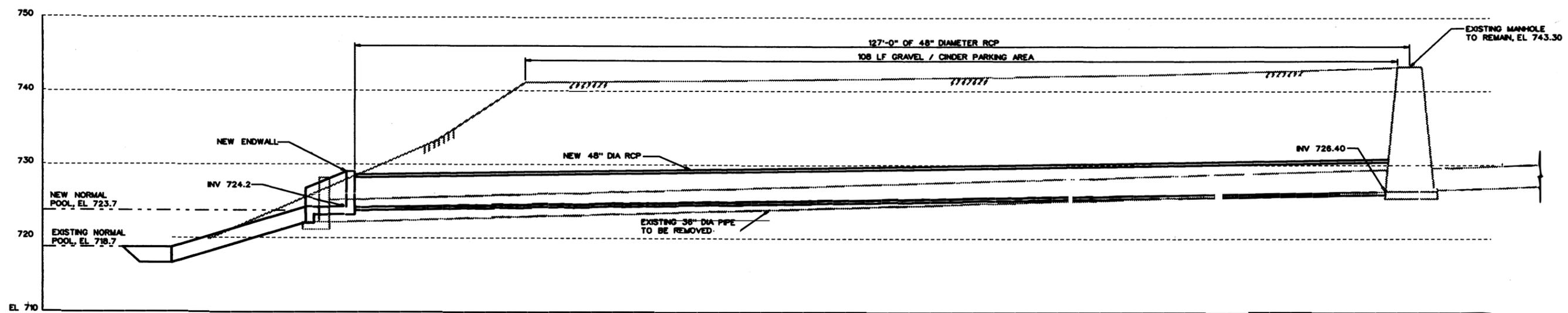
The Rebecca Street combined sewer outfall will be partially inundated by the five foot pool raise. This will subject the overflow to increased siltation which would reduce its overflow capacity.

This outfall functions as a relief valve for the combined sewer system during storm events. Without a relocation of the existing sewer, excessive storm flows will be prevented from bypassing to the river and forced into the treatment plant.

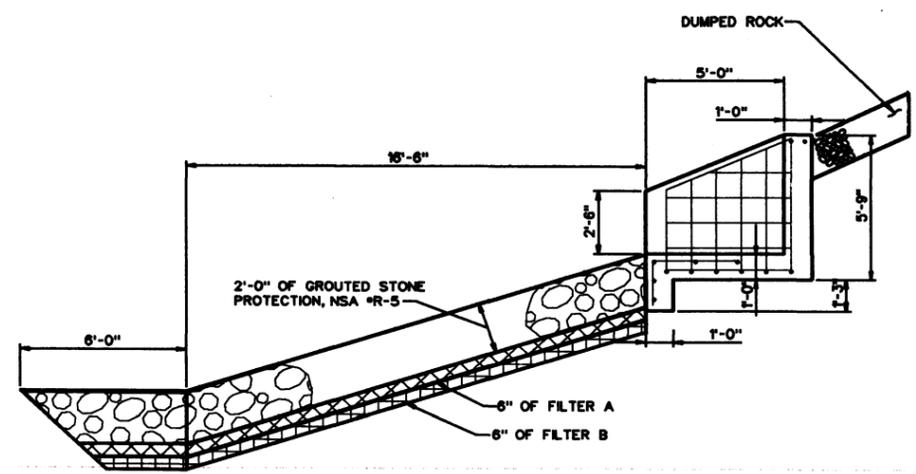
This facility terminates on the bank of the Monongahela River, a navigable waterway, with its outlet invert riverward of existing ordinary high water, therefore the Owner is responsible for the cost of remedial work. However, this sewer is a publicly owned and operated facility and is therefore suitable for Government funding under Section 111, P.L. 85-500, as amended. It is therefore recommended that the Chief of Engineers find that the remedial costs should be borne by the Government.



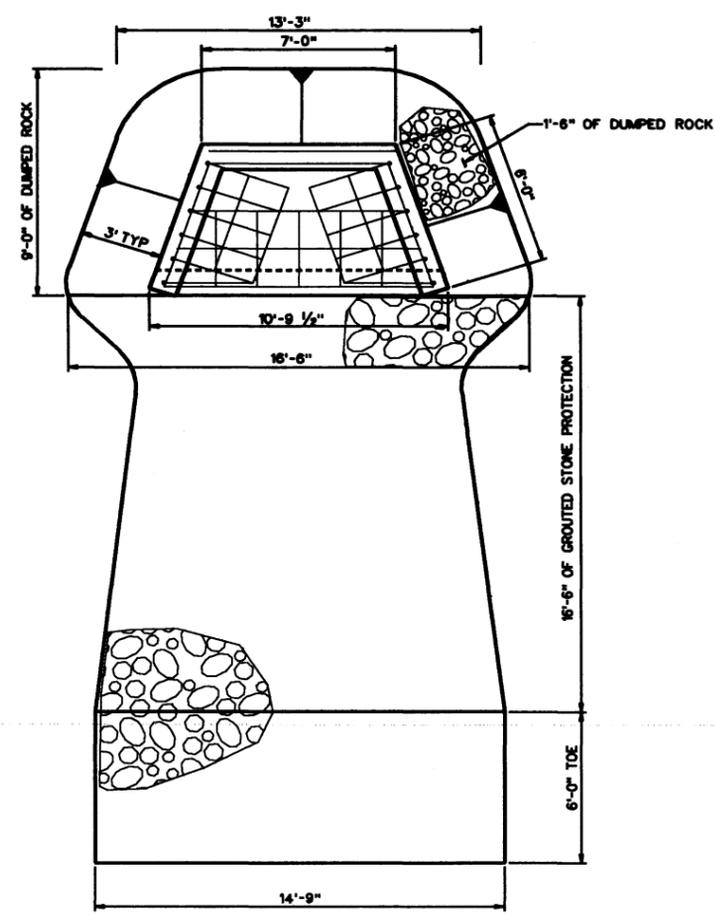
M08R, 36" RCP



PROFILE



STONE PROTECTION AND ENDWALL SECTION



STONE PROTECTION AND ENDWALL PLAN

- NOTES:
1. OBJECT LINES APPEARING AS HALF TONES ARE EXISTING CONSTRUCTION.
 2. SOLID LINES ARE NEW CONSTRUCTION.
 3. REGRADE EXCAVATION TO MATCH EXISTING CONTOURS.
 4. REPLACE DISTURBED PARKING AREA WITH LIKE MATERIALS.

FACILITY - MOBR			
REVISION	DATE	DESCRIPTION	BY
		GRAPHIC SCALE	
U.S. ARMY ENGINEER DISTRICT, PITTSBURGH CORPS OF ENGINEERS OFFICE OF THE DISTRICT ENGINEER PITTSBURGH, PENNSYLVANIA			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS			
MUNICIPAL AUTHORITY OF THE CITY OF McKEESPORT REBECCA STREET REGULATOR OUTFALL			
DESIGNED BY	DATE	SCALE	NO. OF SHEETS
SRF	18 Aug 1994	NO SCALE	037-R55-67/33
DRAWN BY <i>[Signature]</i>		CHECKED BY DACWB9	

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: Erie Street Combined Sewer Overflow

ID: M09R

Location

River: Monongahela Bank: Right RM: 15.8

Owner: Municipal Authority of the City of McKeesport
Address: 100 Atlantic Avenue
McKeesport, PA 15132

Design Team Visit: Fritz, July 93

POOL DATA:

	EXISTING	BRADDOCK
Level Pool	718.7	723.7
Ordinary High Water	730.5	727.9

EXISTING CONDITIONS:

Invert Elevation: 721.1 ±

Inlet conditions:

This facility was originally constructed to pass all storm and domestic wastewater to the Monongahela River from the Erie Street drainage area. Currently this 15 inch concrete sewer serves as the combined sewer overflow for the Erie Street regulator station (see APPENDIX C).

Drainage Area: 9.7 Acres

Capacity: $Q_C = 9$ CFS

Runoff, 10-year event: $Q_{10} = 30$ CFS

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates there is a potential for contamination at this facility site. Therefore, the contractor recommends a Phase II investigation for this facility.

PROPOSED DESIGN:

Limiting Capacity: $Q_L = 14$ CFS

Slope: 0.0361 ft/ft

Material: RCP

Manning's N: 0.012

Diameter: 21"

Design Capacity: $Q_D = 14$ CFS

REQUIRED REMEDIAL WORK:

Government Proposal:

Raise the outfall by constructing 270 ft of 21" RCP. Construct an endwall and stone protection below outfall.

Estimated Construction Cost (Rounded): \$ 126,000

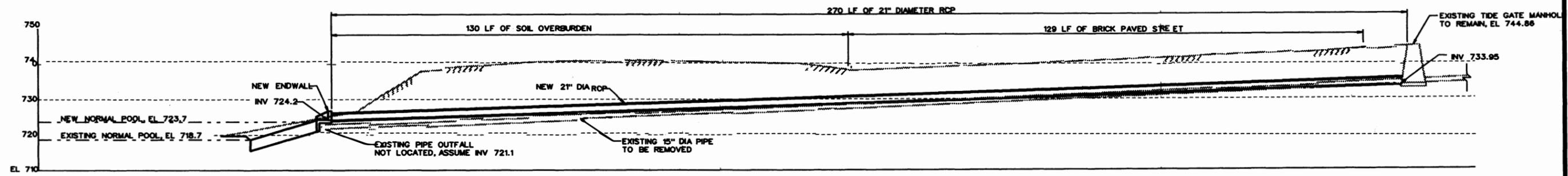
Responsibility: Owner (Section 111 Requested)

Justification:

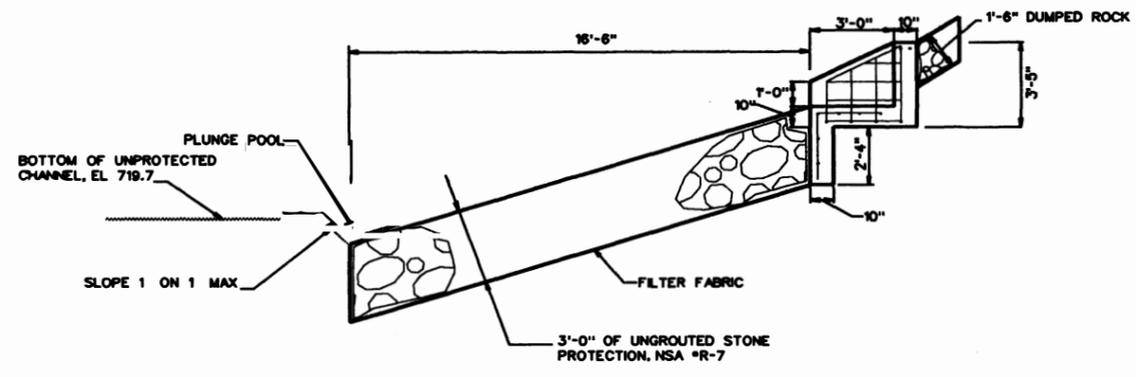
The Erie Street combined sewer outfall will be totally inundated by the five foot pool raise. This will subject the overflow to increased siltation and inaccessibility for maintenance.

This outfall functions as a relief valve for the combined sewer system during storm events. Without a relocation of the existing sewer, excessive storm flows will be prevented from bypassing to the river and forced into the treatment plant.

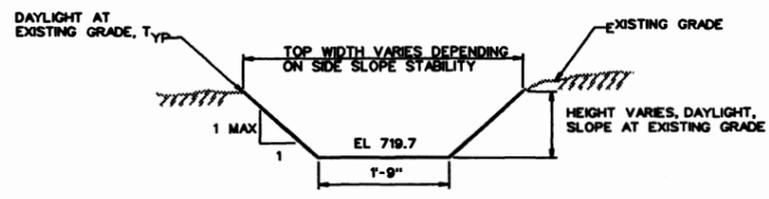
This facility terminates on the bank of the Monongahela River, a navigable waterway, with its outlet invert riverward of existing ordinary high water, therefore the Owner is responsible for the cost of remedial work. However, this sewer is a publicly owned and operated facility and is therefore suitable for Government funding under Section 111, P.L. 85-500, as amended. It is therefore recommended that the Chief of Engineers find that the remedial costs should be borne by the Government.



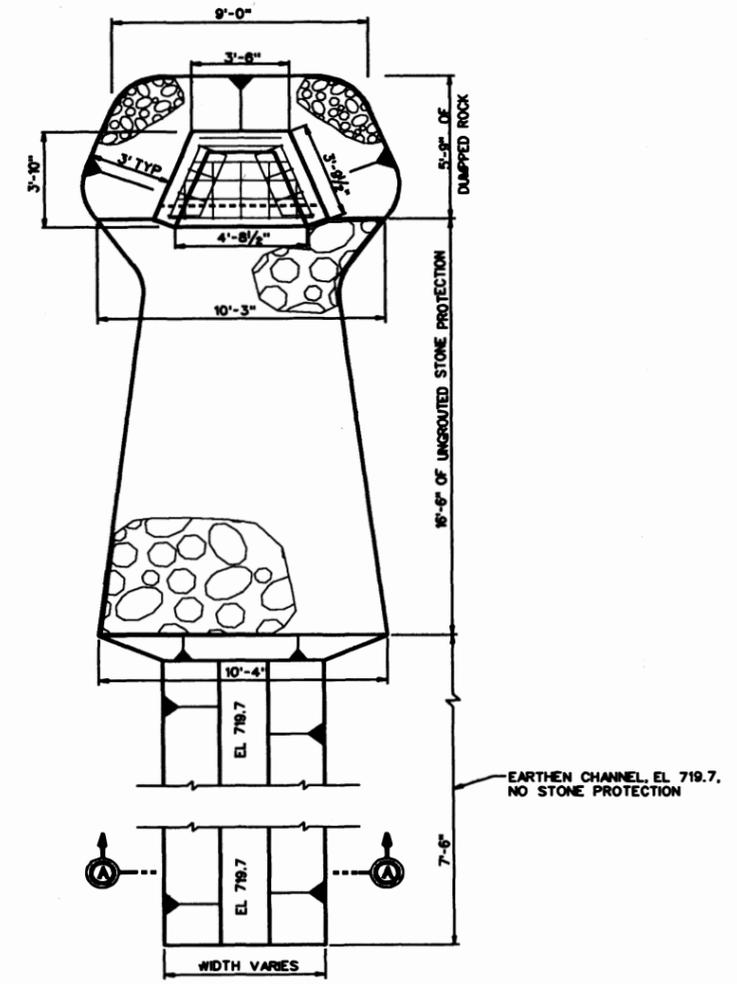
PROFILE



STONE PROTECTION AND ENDWALL SECTION



SECTION A - A



STONE PROTECTION AND ENDWALL PLAN

- NOTES:
1. OBJECT LINES APPEARING AS HALF TONES ARE EXISTING CONSTRUCTION.
 2. SOLID LINES ARE NEW CONSTRUCTION.
 3. REGRADE EXCAVATION TO MATCH EXISTING CONTOURS.
 4. EXCAVATE EARTHEN CHANNEL AT END OF STONE PROTECTION. CUT SIDE SLOPES TO A STABLE SLOPE NOT TO EXCEED 1H : 1V MAXIMUM.
 5. RELAY 129 FT OF BRICK PAVED STREET, 10 FT WIDE (150 SY).

FACILITY - M09R			
REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT PITTSBURGH CORPS OF ENGINEERS			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS			
MUNICIPAL AUTHORITY OF THE CITY OF MCKEESPORT ERIE STREET COMBINED OUTFALL			
SRF	SRF	DATE	NO SCALE
		18 Aug 1994	037-R55-67/34
DACWB9			

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: Ann Street Combined Sewer Overflow

ID: M10R

Location

River: Monongahela Bank: Right RM: 15.9

Owner: Municipal Authority of the City of McKeesport
Address: 100 Atlantic Avenue
McKeesport, PA 15132

Design Team Visit: Fritz, July 93

POOL DATA:

	EXISTING	BRADDOCK
Level Pool	718.7	723.7
Ordinary High Water	730.5	728.0

EXISTING CONDITIONS:

Invert Elevation: 719.9 ±

Inlet conditions:

This facility was originally constructed to pass all storm and domestic wastewater to the Monongahela River from the Ann Street drainage area. Currently this 24 inch vitrified clay sewer serves as the combined sewer overflow for the Ann Street regulator station (see APPENDIX C).

Drainage Area: 11.3 Acres

Capacity: $Q_c = 29$ CFS

Runoff, 10-year event: $Q_{10} = 35$ CFS

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates there is a potential for contamination at this facility site. Therefore, the contractor recommends a Phase II investigation for this facility.

PROPOSED DESIGN:

Limiting Capacity: $Q_L = 35$ CFS

Slope: 0.0337 ft/ft

Material: RCP

Manning's N: 0.012

Diameter: 27"

Design Capacity: $Q_D = 35$ CFS

REQUIRED REMEDIAL WORK:

Government Proposal:

Raise the outfall by constructing 246 ft of 27" RCP. Construct an endwall and stone protection below outfall.

Estimated Construction Cost (Rounded): \$ 189,000

Responsibility: Owner (Section 111 Requested)

Justification:

The Ann Street combined sewer outfall will be totally inundated by the five foot pool raise. This will subject the overflow to increased siltation and inaccessibility for maintenance.

This outfall functions as a relief valve for the combined sewer system during storm events. Without a relocation of the existing sewer, excessive storm flows will be prevented from bypassing to the river and forced into the treatment plant.

This facility terminates on the bank of the Monongahela River, a navigable waterway, with its outlet invert riverward of existing ordinary high water, therefore the Owner is responsible for the cost of remedial work. However, this sewer is a publicly owned and operated facility and is therefore suitable for Government funding under Section 111, P.L. 85-500, as amended. It is therefore recommended that the Chief of Engineers find that the remedial costs should be borne by the Government.

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: Dale Street Combined Sewer Overflow

ID: M11R

Location

River: Monongahela **Bank:** Right **RM:** 15.9

Owner: Municipal Authority of the City of McKeesport
Address: 100 Atlantic Avenue
McKeesport, PA 15132

Design Team Visit: Fritz, July 93

POOL DATA:

	EXISTING	BRADDOCK
Level Pool	718.7	723.7
Ordinary High Water	730.5	728.0

EXISTING CONDITIONS:

Invert Elevation: 719.7 ±

Inlet conditions:

This facility was originally constructed to pass all storm and domestic wastewater to the Monongahela River from the Dale Street drainage area. Currently this 24 inch concrete sewer serves as the combined sewer overflow for the Dale Street regulator station (see APPENDIX C).

Drainage Area: 8.76 Acres

Capacity: $Q_c = 29$ CFS

Runoff, 10-year event: $Q_{10} = 27$ CFS

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates that there is an insignificant potential for contamination at this facility site. Therefore, the contractor does not recommend a Phase II investigation for this facility at this time.

PROPOSED DESIGN:

Limiting Capacity: $Q_L = 29$ CFS

Slope: 0.0476 ft/ft

Material: RCP

Manning's N: 0.012

Diameter: 24"

Design Capacity: $Q_D = 29$ CFS

REQUIRED REMEDIAL WORK:

Government Proposal:

Raise the outfall by constructing 185 ft of 24" RCP. Construct an endwall and stone protection below outfall.

Estimated Construction Cost (Rounded): \$ 107,000

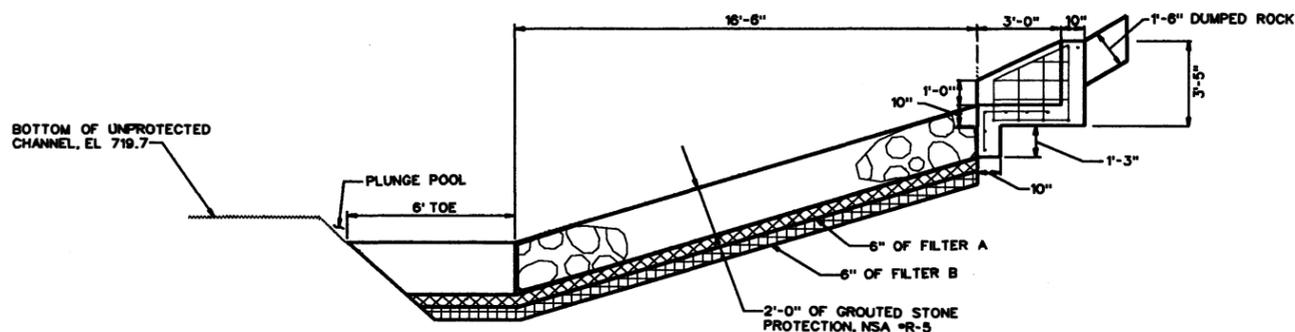
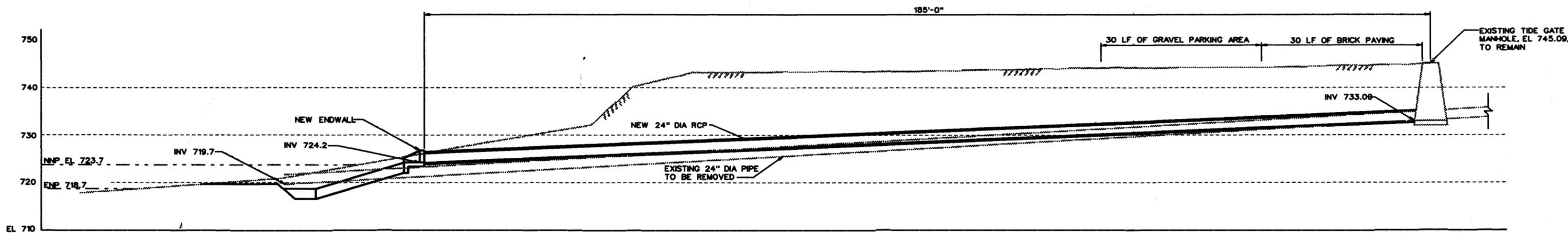
Responsibility: Owner (Section 111 Requested)

Justification:

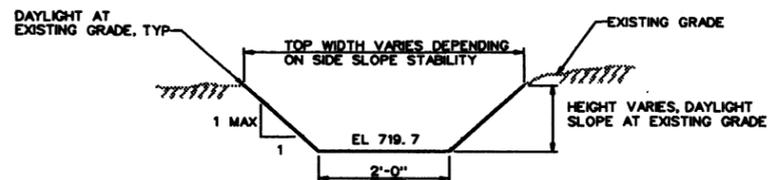
The Dale Street combined sewer outfall will be totally inundated by the five foot pool raise. This will subject the overflow to increased siltation and inaccessibility for maintenance.

This outfall functions as a relief valve for the combined sewer system during storm events. Without a relocation of the existing sewer, excessive storm flows will be prevented from bypassing to the river and forced into the treatment plant.

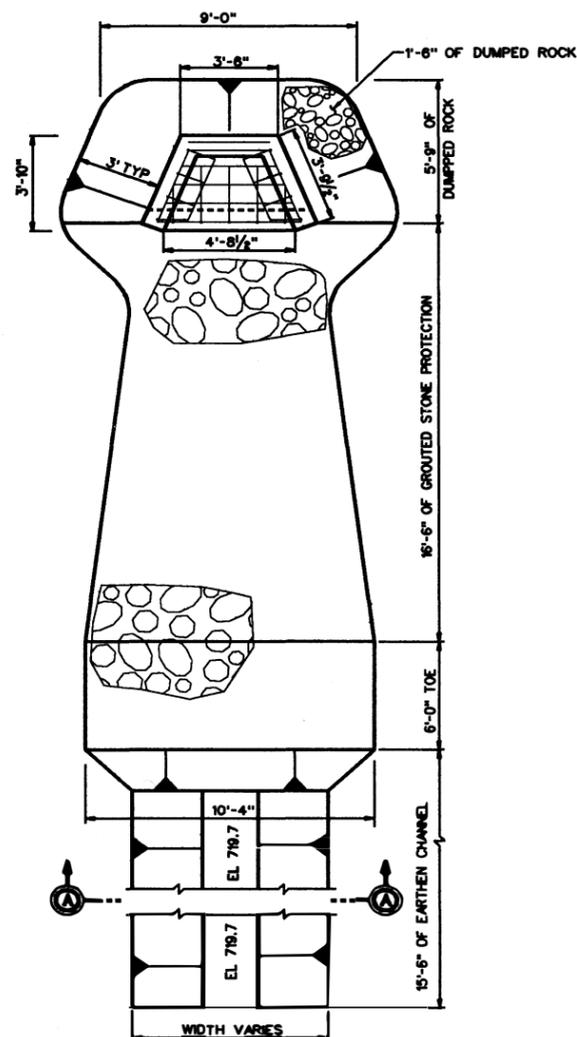
This facility terminates on the bank of the Monongahela River, a navigable waterway, with its outlet invert riverward of existing ordinary high water, therefore the Owner is responsible for the cost of remedial work. However, this sewer is a publicly owned and operated facility and is therefore suitable for Government funding under Section 111, P.L. 85-500, as amended. It is therefore recommended that the Chief of Engineers find that the remedial costs should be borne by the Government.



STONE CHANNEL AND ENDWALL SECTION



SECTION A - A



STONE PROTECTION AND ENDWALL PLAN

NOTES:

1. OBJECT LINES APPEARING AS HALF TONES ARE EXISTING CONSTRUCTION.
2. SOLID LINES ARE NEW CONSTRUCTION.
3. REGRADE EXCAVATION TO MATCH EXISTING CONTOURS.
4. NNP DESIGNATES NEW NORMAL POOL; ENP DESIGNATES EXISTING NORMAL POOL.
5. EXCAVATE EARTHEN CHANNEL AT END OF STONE PROTECTION. CUT SIDE SLOPES AT A STABLE SLOPE NOT TO EXCEED 1H : 1V MAXIMUM.
6. RELAY BRICK STREET: 30' X 10' - 35 SY

FACILITY - M11R			
REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U. S. ARMY ENGINEER DISTRICT PITTSBURGH CORPS OF ENGINEERS OFFICE OF THE DISTRICT ENGINEER PITTSBURGH, PENNSYLVANIA			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS			
MUNICIPAL AUTHORITY OF THE CITY OF McKEESPORT DALE STREET REGULATOR OFFFALL			
SRP P.J.G.	SRF <i>[Signature]</i>	DATE 18 Aug 1994	SCALE NO SCALE
			NO. 037-R55-67/36
DACW59			

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: Perry Street Combined Sewer Overflow

ID: M12R

Location

River: Monongahela **Bank:** Right **RM:** 16.0

Owner: Municipal Authority of the City of McKeesport
Address: 100 Atlantic Avenue
McKeesport, PA 15132

Design Team Visit: Fritz, July 93

POOL DATA:

	EXISTING	BRADDOCK
Level Pool	718.7	723.7
Ordinary High Water	730.6	728.0

EXISTING CONDITIONS:

Invert Elevation: 720.8 ±

Inlet conditions:

This facility was originally constructed to pass all storm and domestic wastewater to the Monongahela River from the Perry Street drainage area. Currently this 18 inch cast iron sewer serves as the combined sewer overflow for the Perry Street regulator station (see APPENDIX C).

Drainage Area: 15.6 Acres

Capacity: $Q_c = 14$ CFS

Runoff, 10-year event: $Q_{10} = 49$ CFS

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates that there is an insignificant potential for contamination at this facility site. Therefore, the contractor does not recommend a Phase II investigation for this facility at this time.

PROPOSED DESIGN:

Limiting Capacity: $Q_L = 21$ CFS

Slope: 0.0129 ft/ft

Material: RCP

Manning's N: 0.012

Diameter: 21"

Design Capacity: $Q_D = 18$ CFS

REQUIRED REMEDIAL WORK:

Government Proposal:

Raise the outfall by constructing approximately 152 ft of 21" dia RCP. Construct an endwall and stone protection at outlet end.

Estimated Construction Cost (Rounded): \$ 59,000

Responsibility: Owner (Section 111 Requested)

Justification:

The Perry Street combined sewer outfall will be totally inundated by the five foot pool raise. This will subject the overflow to increased siltation and inaccessibility for maintenance.

This outfall functions as a relief valve for the combined sewer system during storm events. Without a relocation of the existing sewer, excessive storm flows will be prevented from bypassing to the river and forced into the treatment plant.

This facility terminates on the bank of the Monongahela River, a navigable waterway, with its outlet invert riverward of existing ordinary high water, therefore the Owner is responsible for the cost of remedial work. However, this sewer is a publicly owned and operated facility and is therefore suitable for Government funding under Section 111, P.L. 85-500, as amended. It is therefore recommended that the Chief of Engineers find that the remedial costs should be borne by the Government.



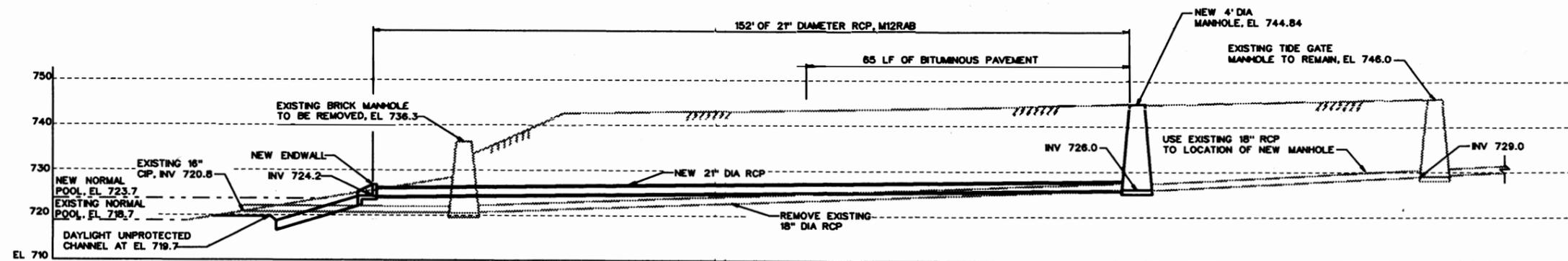
16" CIP AT RIVER



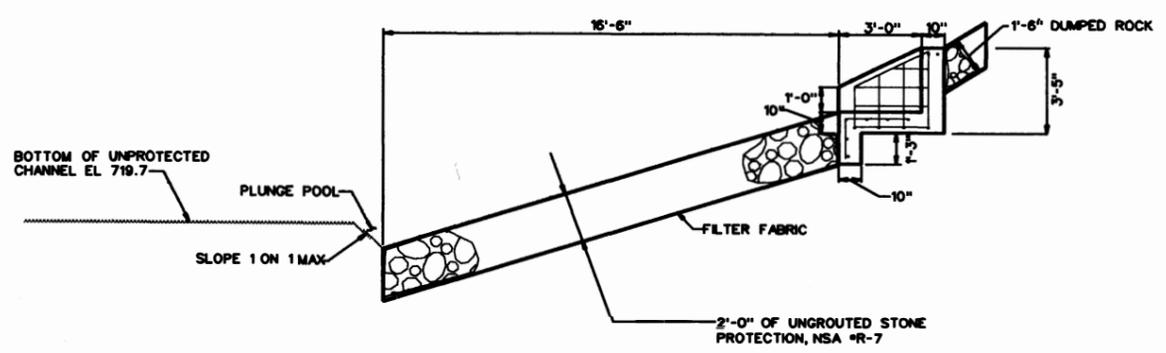
LOOKING TOWARD 1st LANDWARD MANHOLE

M12R, PHOTOS

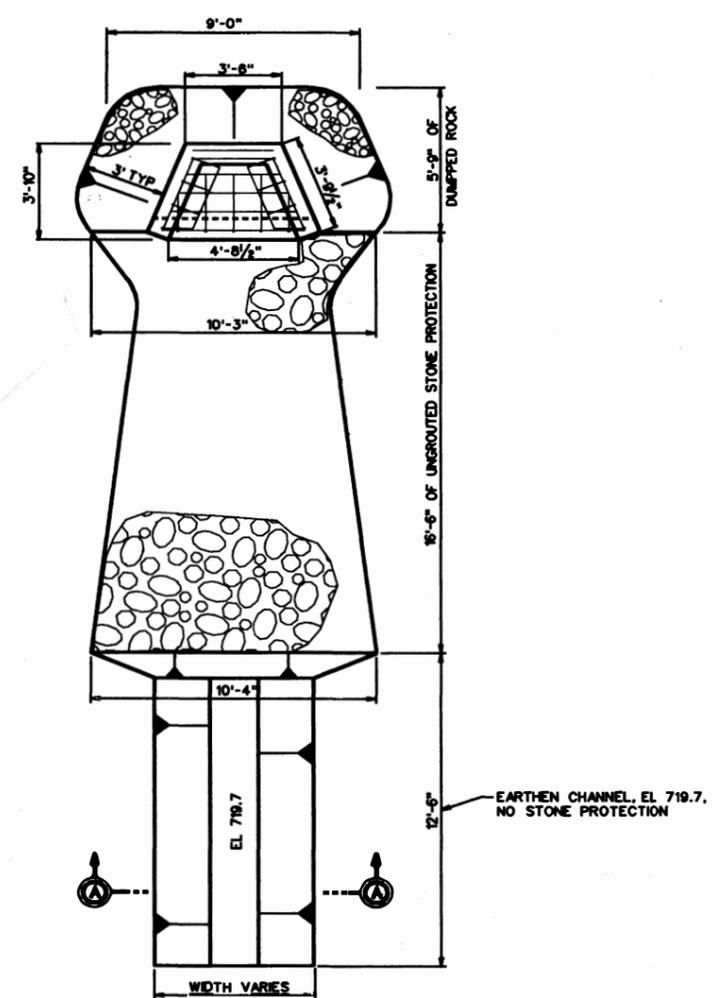
M12R-3



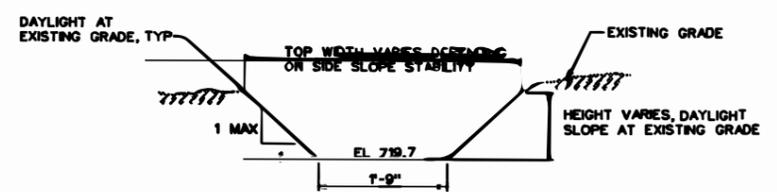
PROFILE



STONE PROTECTION AND ENDWALL SECTION



STONE PROTECTION AND ENDWALL PLAN



SECTION A - A

- NOTES:
1. OBJECT LINES APPEARING AS HALF TONES ARE EXISTING CONSTRUCTION.
 2. SOLID LINES ARE NEW CONSTRUCTION.
 3. REGRADE EXCAVATION TO MATCH EXISTING CONTOURS.
 4. EXCAVATE EARTHEN CHANNEL AT END OF STONE PROTECTION. CUT SIDE SLOPES TO A STABLE SLOPE NOT TO EXCEED 1H : 1V MAXIMUM.
 5. REPAVE PERRY STREET BELOW NEW MANHOLE: 65' X 30' = 220 SY OF BITUMINOUS CONCRETE.

FACILITY - M12R			
REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT PITTSBURGH CORPS OF ENGINEERS PITTSBURGH, PENNSYLVANIA			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS			
MUNICIPAL AUTHORITY OF THE CITY OF McKEESPORT PERRY STREET COMBINED OUTFALL			
SRP R-JG	DATE 20 Aug 1994	SCALE NO SCALE	NO. 037-R55-67/37
			DACW59

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: Windsor Street Combined Sewer Overflow

ID: M13R

Location

River: Monongahela Bank: Right RM: 16.1

Owner: Municipal Authority of the City of McKeesport
Address: 100 Atlantic Avenue
McKeesport, PA 15132

Design Team Visit: Fritz, July 93

POOL DATA:

	EXISTING	BRADDOCK
Level Pool	718.7	723.7
Ordinary High Water	730.6	728.1

EXISTING CONDITIONS:

Invert Elevation: 721.1 ±

Inlet conditions:

This facility was originally constructed to pass all storm and domestic wastewater to the Monongahela River from the Windsor Street drainage area. Currently this 20 inch cast iron sewer serves as the combined sewer overflow for the Windsor Street regulator station (see APPENDIX C).

Drainage Area: 47.7 Acres

Capacity: $Q_c = 18$ CFS

Runoff, 10-year event: $Q_{10} = 150$ CFS

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates there is a potential for contamination at this facility site. Therefore, the contractor recommends a Phase II investigation for this facility.

PROPOSED DESIGN:

Limiting Capacity: $Q_L = 27$ CFS

Slope: 0.045 ft/ft

Material: RCP

Manning's N: 0.012

Diameter: 24"

Design Capacity: $Q_D = 25$ CFS

REQUIRED REMEDIAL WORK:

Government Proposal:

Raise the outfall by constructing approximately 35 ft of 24" dia RCP. Construct an endwall and stone protection at outlet end.

This facility will be raised in place. No existing easements have been identified covering the existing facility. The District's recommendation is to acquire a new permanent pipeline easement for the portion of the facility affected by the relocation. The total cost of acquiring the 0.04 acre of permanent pipeline easement is \$8,065 which includes administrative costs and contingencies.

Estimated Construction Cost (Rounded): \$ 32,000

Responsibility: Owner (Section 111 Requested)

Justification:

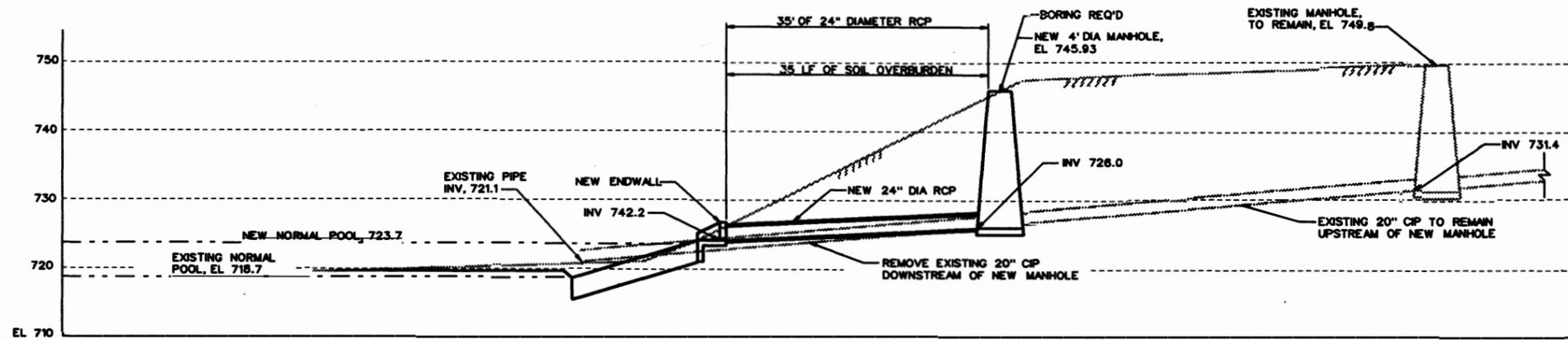
The Windsor Street combined sewer outfall will be totally inundated by the five foot pool raise. This will subject the overflow to increased siltation and inaccessibility for maintenance.

This outfall functions as a relief valve for the combined sewer system during storm events. Without a relocation of the existing sewer, excessive storm flows will be prevented from bypassing to the river and forced into the treatment plant.

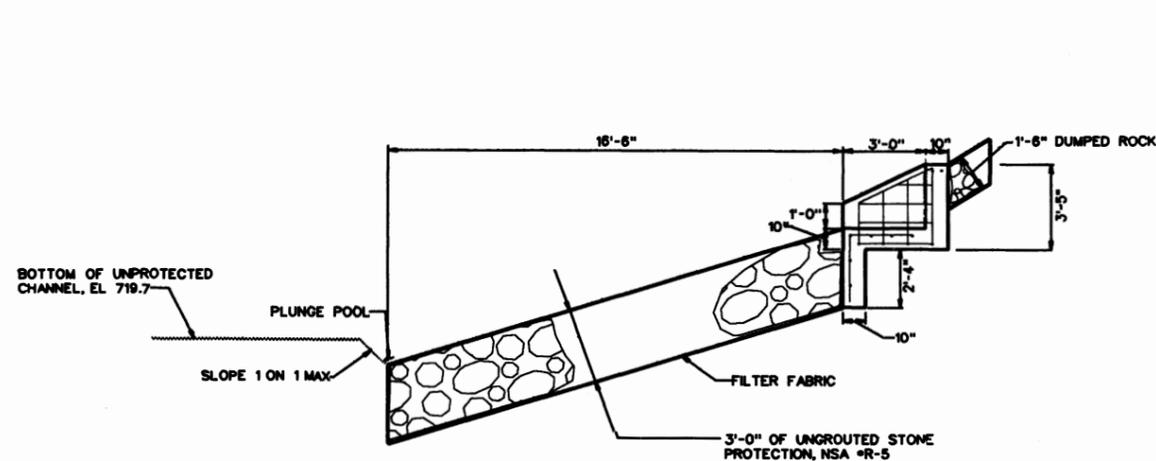
This facility terminates on the bank of the Monongahela River, a navigable waterway, with its outlet invert riverward of existing ordinary high water, therefore the Owner is responsible for the cost of remedial work. However, this sewer is a publicly owned and operated facility and is therefore suitable for Government funding under Section 111, P.L. 85-500, as amended. It is therefore recommended that the Chief of Engineers find that the remedial costs should be borne by the Government.



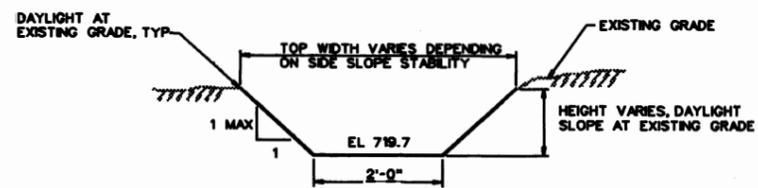
M13R, 20" CIP



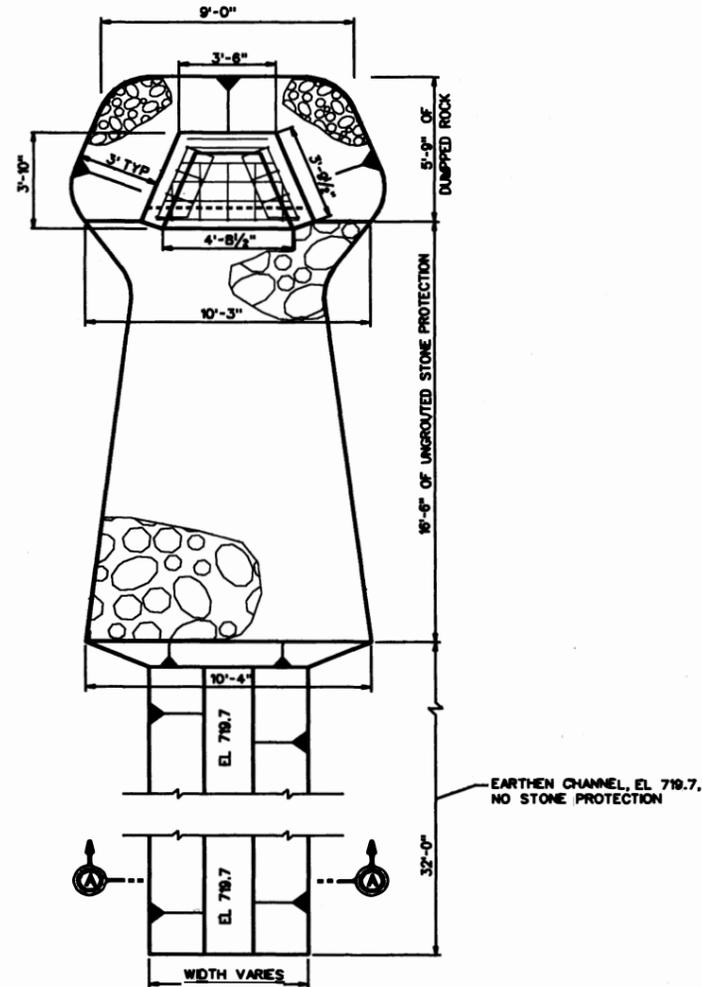
PROFILE



STONE PROTECTION AND ENDWALL SECTION



SECTION A - A



STONE PROTECTION AND ENDWALL PLAN

- NOTES:
1. OBJECT LINES APPEARING AS HALF TONES ARE EXISTING CONSTRUCTION.
 2. SOLID LINES ARE NEW CONSTRUCTION.
 3. REGRADE EXCAVATION TO MATCH EXISTING CONTOURS.
 4. EXCAVATE EARTHEN CHANNEL AT END OF STONE PROTECTION. CUT SIDE SLOPES TO A STABLE SLOPE NOT TO EXCEED 3H : 1V MAXIMUM.

FACILITY - M13R			
REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT, PITTSBURGH CORPS OF ENGINEERS			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS			
MUNICIPAL AUTHORITY OF THE CITY OF McKEESPORT WINDSOR STREET COMBINED OUTFALL			
DATE	SCALE	PROJECT NO.	DATE
22-AUG-94	NO SCALE	037-R55-67/38	

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: Morgan Alley Combined Sewer Overflow

ID: M14R

Location

River: Monongahela Bank: Right RM: 16.2

Owner: Municipal Authority of the City of McKeesport

Address: Atlantic Avenue
McKeesport, PA 15132

Design Team Visit: Fritz, July 93

POOL DATA:

	EXISTING	BRADDOCK
Level Pool	POOL 2 718.7	POOL 723.7
Ordinary High Water	730.6	728.1

EXISTING CONDITIONS:

Invert Elevation: 718.4 ±

Inlet conditions:

This facility was originally constructed to pass all storm and domestic wastewater to the Monongahela River from the Morgan Alley drainage area. Currently this 18 inch cast iron sewer serves as the combined sewer overflow for the Windsor Street regulator station (see APPENDIX C).

Drainage Area: 12.2 Acres

Capacity: $Q_c = 14$ CFS

Runoff, 10-year event: $Q_{10} = 38$ CFS

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates that there is an insignificant potential for contamination at this facility site. Therefore, the contractor does not recommend a Phase II investigation for this facility at this time.

PROPOSED DESIGN:

Limiting Capacity: $Q_L = 21$ CFS

Slope: 0.0719 ft/ft

Material: RCP

Manning's N: 0.012

Diameter: 21"

Design Capacity: $Q_D = 18$ CFS

REQUIRED REMEDIAL WORK:

Government Proposal:

Raise the outfall by constructing approximately 31 ft of 21" dia RCP. Construct an endwall and stone protection at outlet end.

This facility will be relocated vertically within the same horizontal limits. No permanent easements have been found covering the existing facility. The District's recommendation is to acquire a permanent pipeline easement for the sections of pipeline affected by the relocation. The total cost of acquiring the 0.04 acres of permanent pipeline easement is \$16,065, which includes administrative costs and contingencies.

Estimated Construction Cost (Rounded): \$ 29,000

Responsibility: Owner (Section 111 Requested)

Justification:

The Morgan Alley combined sewer outfall will be totally inundated by the five foot pool raise. This will subject the overflow to increased siltation and inaccessibility for maintenance.

This outfall functions as a relief valve for the combined sewer system during storm events. Without a relocation of the existing sewer, excessive storm flows will be prevented from bypassing to the river and forced into the treatment plant.

This facility terminates on the bank of the Monongahela River, a navigable waterway, with its outlet invert riverward of existing ordinary high water, therefore the Owner is responsible for the cost of remedial work. However, this sewer is a publicly owned and operated facility and is therefore suitable for Government funding under Section 111, P.L. 85-500, as amended. It is therefore recommended that the Chief of Engineers find that the remedial costs should be borne by the Government.



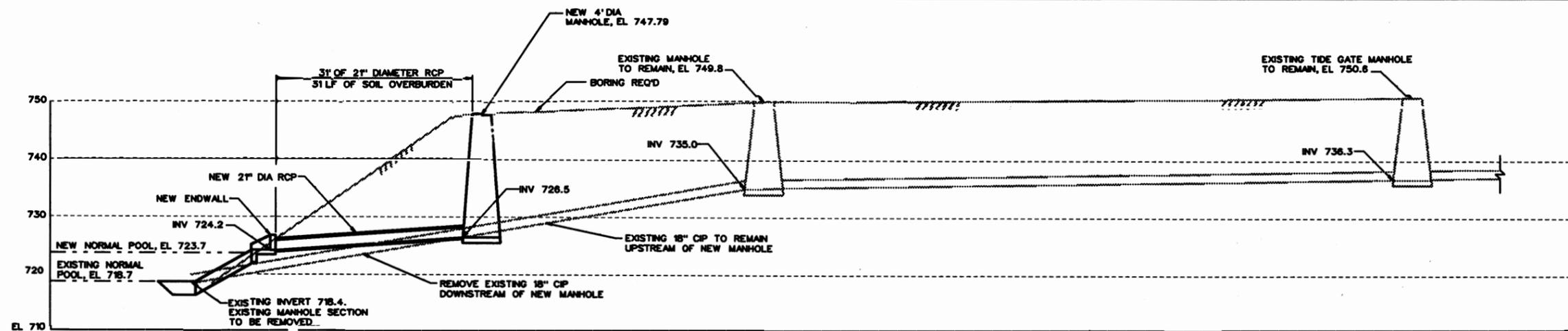
STANDING ON COLLAPSED MANHOLE
SECTION ABOVE OUTFALL



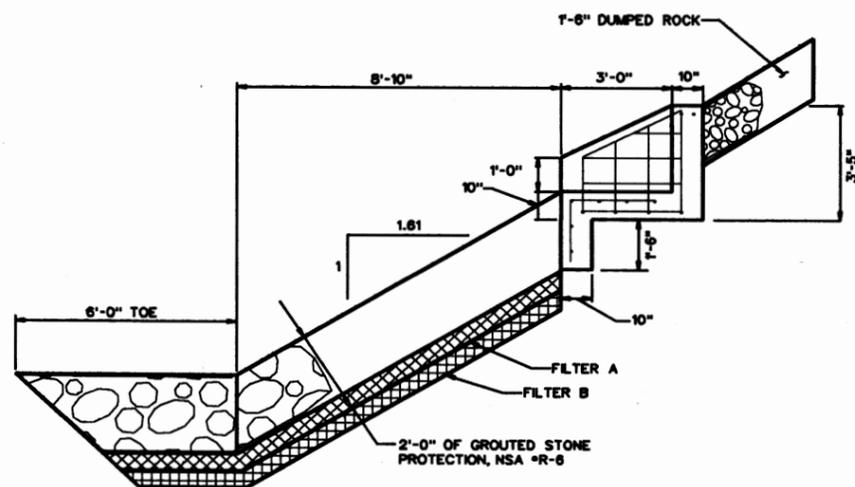
18" OUTFALL INSIDE COLLAPSED MANHOLE

M14R, PHOTOS

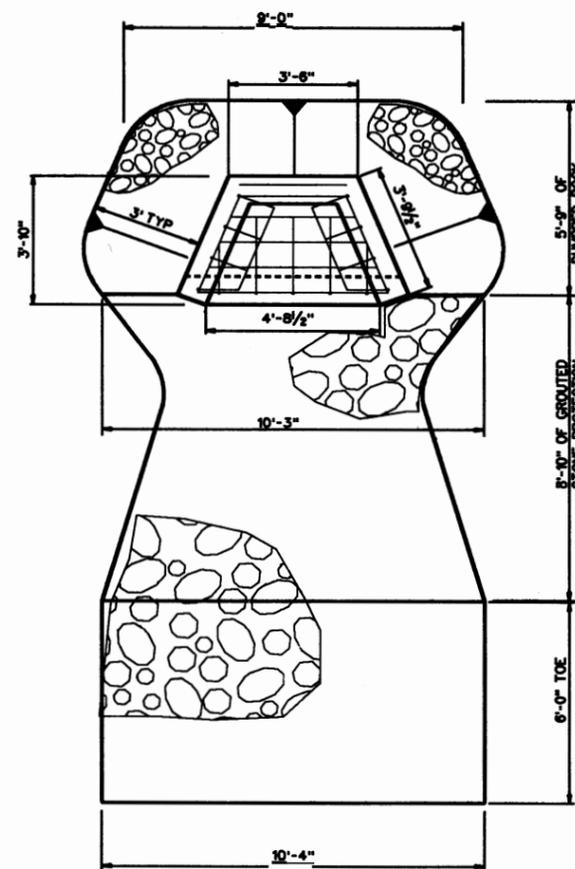
M14R-3



PROFILE



STONE PROTECTION AND ENDWALL SECTION



STONE PROTECTION AND ENDWALL PLAN

- NOTES:
1. OBJECT LINES APPEARING AS HALF TONES ARE EXISTING CONSTRUCTION.
 2. SOLID LINES ARE NEW CONSTRUCTION.
 3. REGRADE EXCAVATION TO MATCH EXISTING CONTOURS.

FACILITY - M14R			
REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT, PITTSBURGH CORPS OF ENGINEERS			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS			
MUNICIPAL AUTHORITY OF THE CITY OF MCKEESPORT MORGAN ALLEY COMBINED OUTFALL			
SRP P.J.G.	SRF JCT	DATE 22 Aug 94	NO SCALE 037-R55-67/39

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: 48" RCP Storm Sewer

ID: M15R

Location

River: Monongahela Bank: Right RM: 17.3
Owner: Borough of Glassport
Address: 5th Street and Monongahela Avenue
Glassport, Pennsylvania 15045

Design Team Visit: Bosetti/23 April 93

POOL DATA:

	EXISTING	BRADDOCK
Level Pool	718.7	723.7
Ordinary High Water	730.9	728.5

EXISTING CONDITIONS:

Invert Elevation: 719.9

Inlet conditions:

The facility located at the foot of Harrison Street is an outfall for a system of manholes, inlets and laterals. The existing sewer is a 48" RCP.

Drainage Area: 179 Acres

Capacity: $Q_c = 166.0$ CFS

Runoff, 10-year event: $Q_{10} = 436.0$ CFS

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates there is a potential for contamination at this facility site. Therefore, the contractor recommends a Phase II investigation for this facility.

PROPOSED DESIGN:

Limiting Capacity: $Q_L = 249.0$ CFS

Slope: 0.0430 ft/ft

Material: Reinforced Concrete

Manning's N: 0.012

Diameter: 60"

Design Capacity: $Q_D = 242.0$ CFS

REQUIRED REMEDIAL WORK:

Government Proposal:

Remove two manholes, 48" RCP and concrete end wall. Install 56 feet of 60" RCP, one manhole, concrete end wall and grouted stone protection. See pipe profile.

The proposed redesign is to remove two manholes, associated pipe and end wall and replace with a larger pipe and manhole at a new elevation. No horizontal relocation is involved. No existing permanent easements have been found covering this facility. The District's recommendation is to acquire 0.81 acres of permanent pipeline easement. The total cost of acquiring the easement is \$43,000 which includes administrative costs and contingencies.

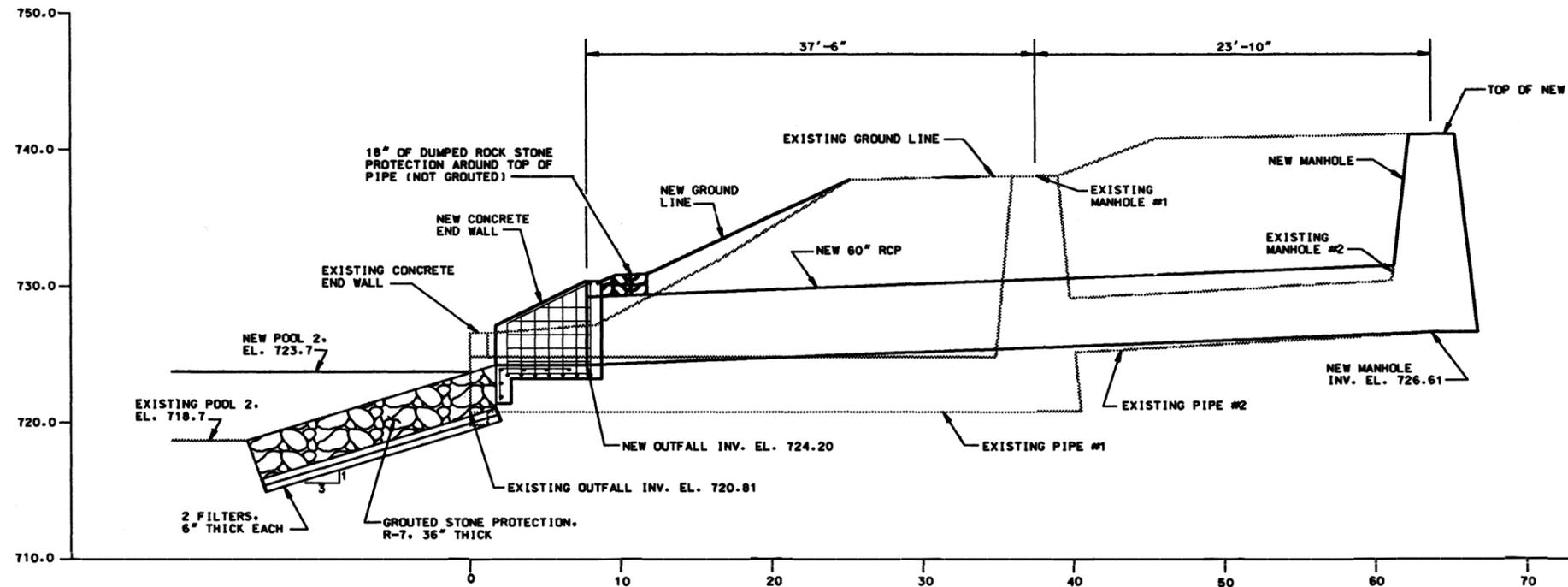
Estimated Construction Cost (Rounded): \$ 78,000

Responsibility: Government

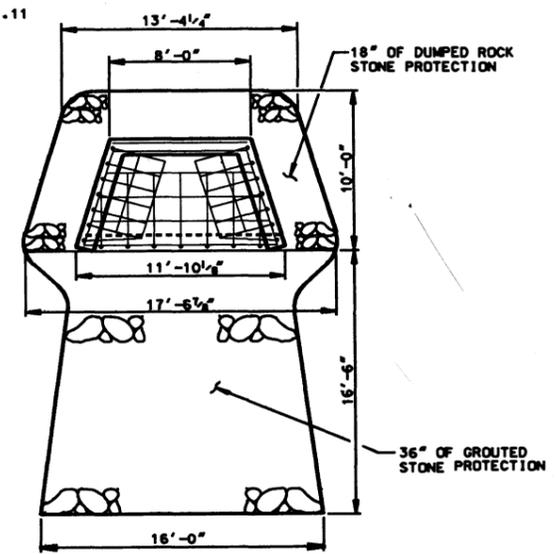
Justification:

This facility will be inundated by the new pool level. Without relocation it will become inaccessible for maintenance and it will be subject to increased siltation which will reduce its capacity to pass storm flows.

This facility was authorized for project funding by the LMFS, December 1991, provided that further investigation revealed that it complies with the requirements of P.L. 85-500, Section 111, as amended. See APPENDIX D for documentation on this compliance.



PIPE PROFILE



END WALL PLAN

FACILITY: 48" RCP STORM SEWER
 RIVER: MONONGAHELA
 RIVER MILE: 17.3 BANK: RIGHT
 OWNER: BORO OF GLASSPORT
 ALTERATIONS: REMOVE MANHOLES NOS. 1 AND 2, 48" PIPES NOS. 1 AND 2 (RCP) AND
 CONCRETE END WALL.
 INSTALL 60" RCP, MANHOLE, CONCRETE END WALL AND GROUDED STONE
 PROTECTION.

NOTES:
 1. OBJECT LINES APPEARING AS HALF TONES ARE EXISTING CONSTRUCTION.
 OBJECT LINES APPEARING AS FULL TONES ARE PROPOSED CONSTRUCTION.

FACILITY - M15R			
REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT PITTSBURGH CORPS OF ENGINEERS			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS BORO OF GLASSPORT STORM SEWER OUTFALL - RM 17.3 RB PROFILE AND PLAN			
L.P.B. P.J.C.	L.P.B.	18 Aug 1994	NO SCALE
			037-R55-67/40
			DACWB9

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: Discharge from Waste Water Treatment Plant
and Regulator #2 Combined Sewer Overflow

ID: M16R

Location:

River: Monongahela Bank: Rt RM: 17.3
Owner: Borough of Glassport
Address: Fifth and Monongahela Avenues
Glassport, Pennsylvania 15045

Design Team Visit: June 1993, Fritz

POOL DATA:

	EXISTING	BRADDOCK
Level Pool	718.7	723.7
Ordinary High Water	730.9	728.5

EXISTING CONDITIONS:

Invert Elevation: 718.9

Inlet conditions:

This facility is the outfall for the treated wastewater from the sewage treatment plant and it also serves as the combined sewer overflow (CSO) for regulator station #2. The CSO portion of this facility was originally constructed to pass all storm and domestic wastewater to the Monongahela River from the Second Street drainage area (see APPENDIX C).

At the rivers edge the outfall is a 24 inch diameter corrugated metal pipe. The first upstream manhole (MH 1) is approximately 145 feet landward of the outfall. This manhole is the junction of the sewage treatment plant and regulator station #2 CSO.

Treatment Plant Sewer: From MH 1 the treatment plant sewer parallels the river (moving upstream) and connects with MH 2. From MH 2 the sewer goes to the treatment plant.

Regulator #2 CSO sewer: From MH 1 the CSO sewer proceeds landward approximately 198 feet to MH 3. From MH 3 the sewer goes further landward to regulator station #2.

Drainage Area: n/a
Capacity: $Q_c = 29$ CFS
Runoff, 10-year event: n/a

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates there is a potential for contamination at this facility site. Therefore, the contractor recommends a Phase II investigation for this facility.

PROPOSED DESIGN:

Limiting Capacity: $Q_L = 43.5$ CFS

Slope:

M16RA: 0.0186
M16RB: 0.01107
M16RBB: 0.0106
M16RC: 0.0773

Material: RCP

Manning's N: 0.012

Diameter:

M16RA: 30"
M16RB/BB: 30"
M16RC: 24"

Design Capacity: $Q_D = 29$ CFS

REQUIRED REMEDIAL WORK:

Government Proposal:

Raise outfall and associated piping by constructing 282 feet of 30 inch RCP and 99 feet of 24 inch RCP. Construct a new endwall and stone protection below outfall.

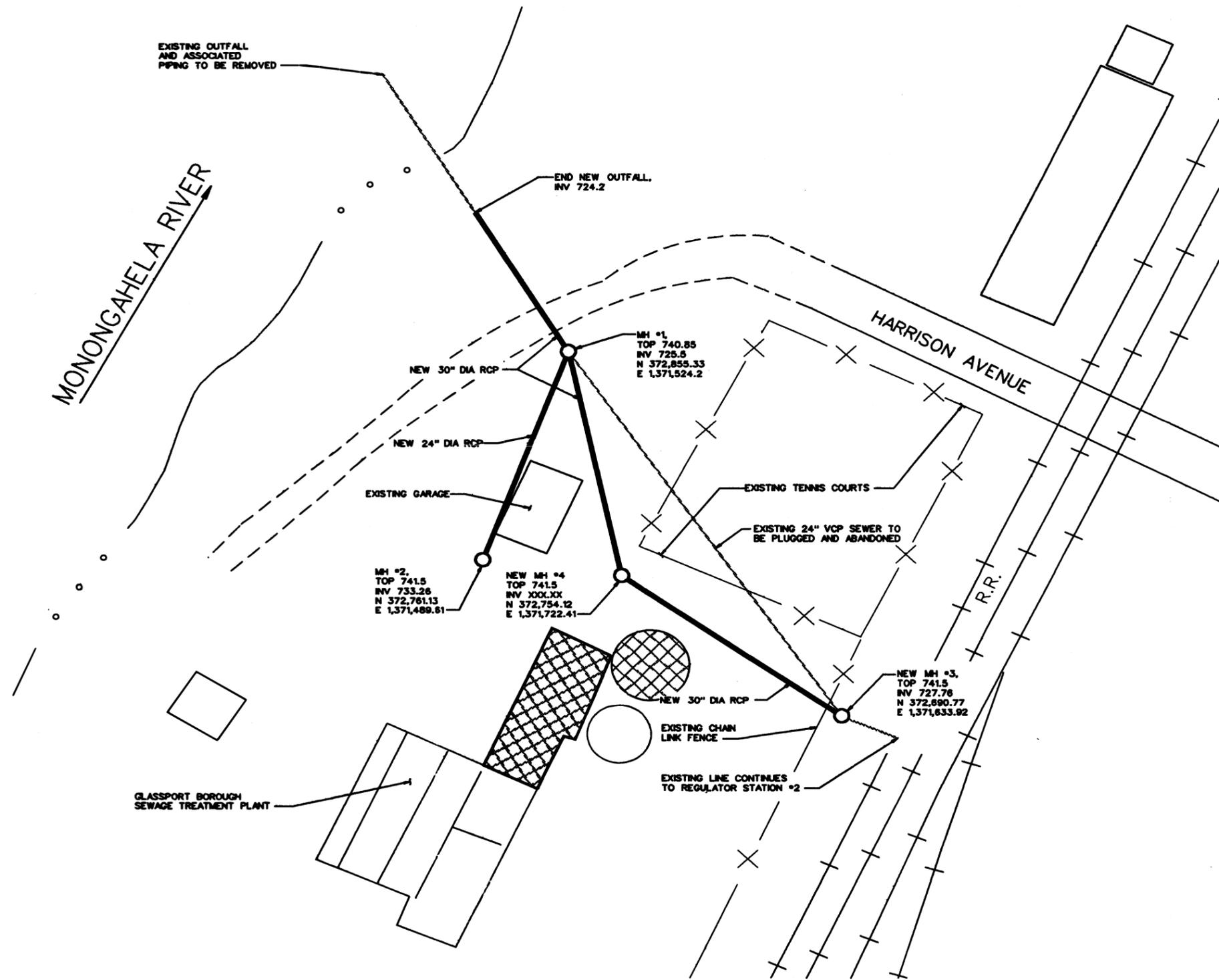
Estimated Construction Cost (Rounded): \$ 326,000

Responsibility: Owner (Section 111 Requested)

Justification:

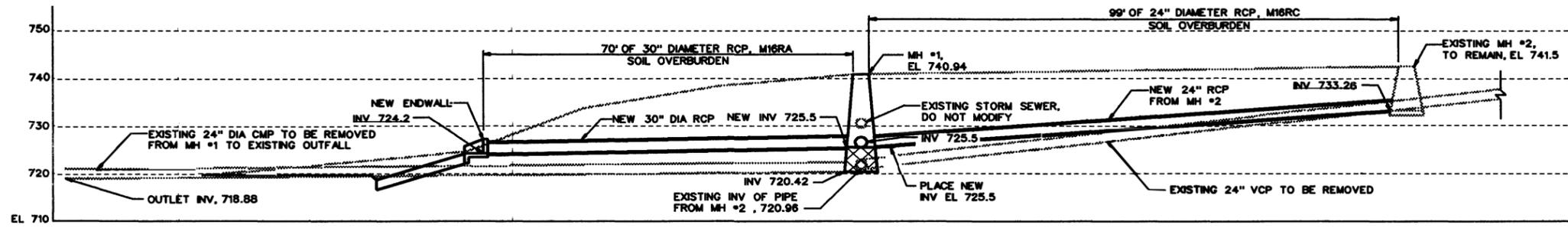
The treatment plant outfall is the sole discharge for the Borough of Glassport's treated wastewater. If this outfall is not raised it will be totally inundated and become inaccessible for maintenance. The outfall also serves as the combined sewer overflow for regulator station #2.

This facility terminates on the bank of the Monongahela River, a navigable waterway, with its outlet invert riverward of existing ordinary high water, therefore the Owner is responsible for the cost of remedial work. However, this sewer is a publicly owned and operated facility and is therefore suitable for Government funding under Section 111, P.L. 85-500, as amended. It is therefore recommended that the Chief of Engineers find that the remedial costs should be borne by the Government.

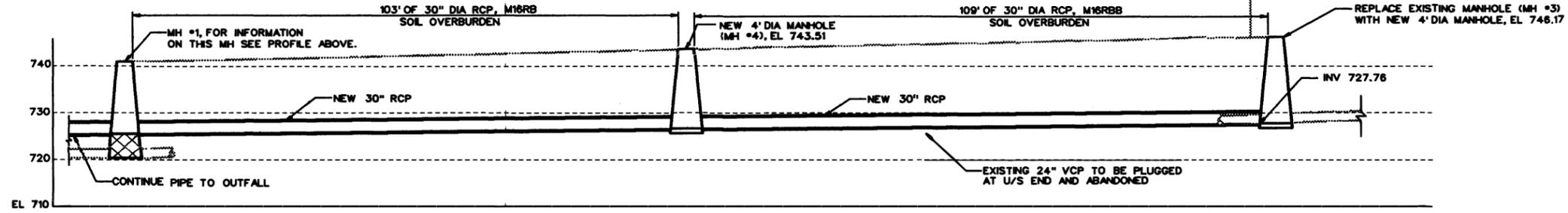


NOTES:
 1. MAINTAIN SURVEY CONTROL DURING EXCAVATIONS ON SHADED BUILDING AND TANK.

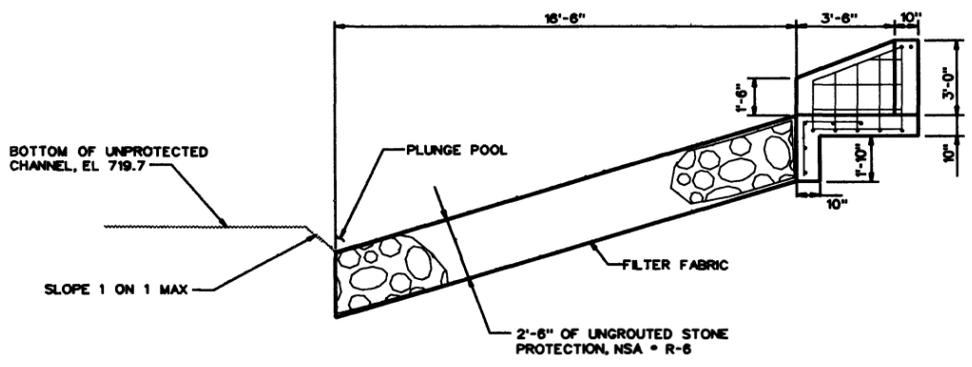
FACILITY - M16R			
REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT PITTSBURGH CORPS OF ENGINEERS			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS			
BOROUGH OF GLASSPORT SEWAGE TREATMENT PLANT OUTFALL AND REGULATOR # 2 OUTFALL PLAN			
SRF P/LG	SRF MR	DATE 22 Aug 94	NO SCALE 037-R55-67/41
<i>Leary P. Shultz</i> DACWB9		1 2	



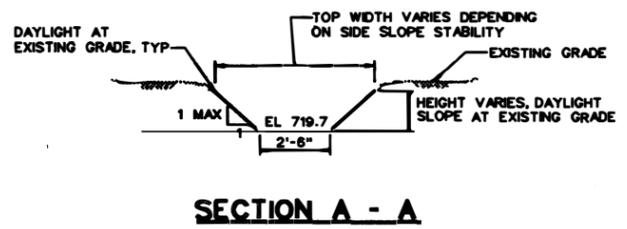
PROFILE
FROM MH #2 TO MH #1 TO OUTFALL



PROFILE
FROM MH #3 TO MH #4 TO MH #1

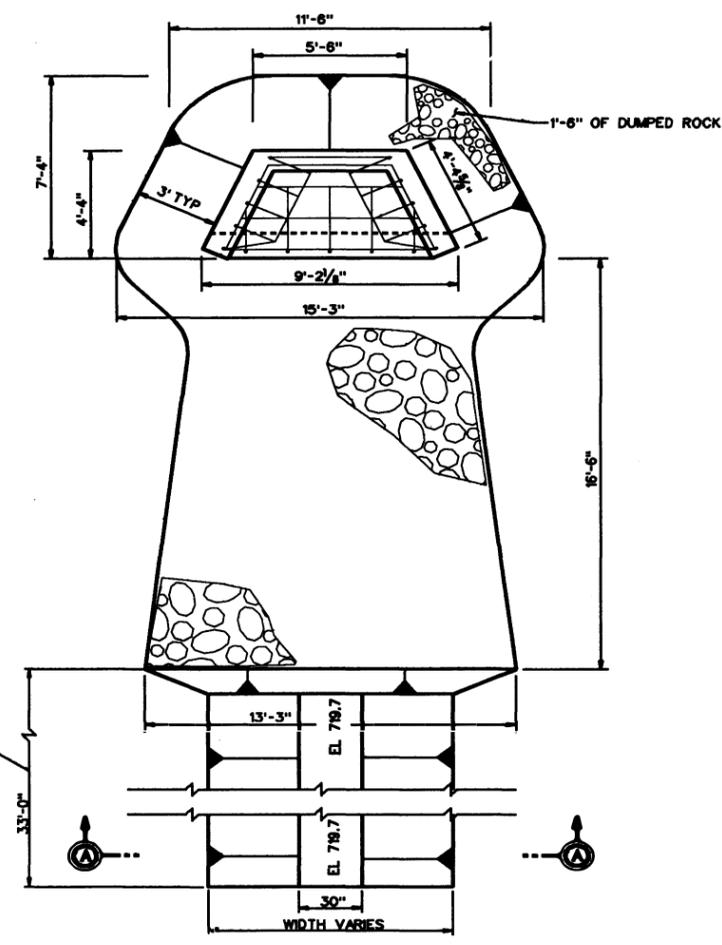


STONE PROTECTION AND ENDWALL SECTION



SECTION A - A

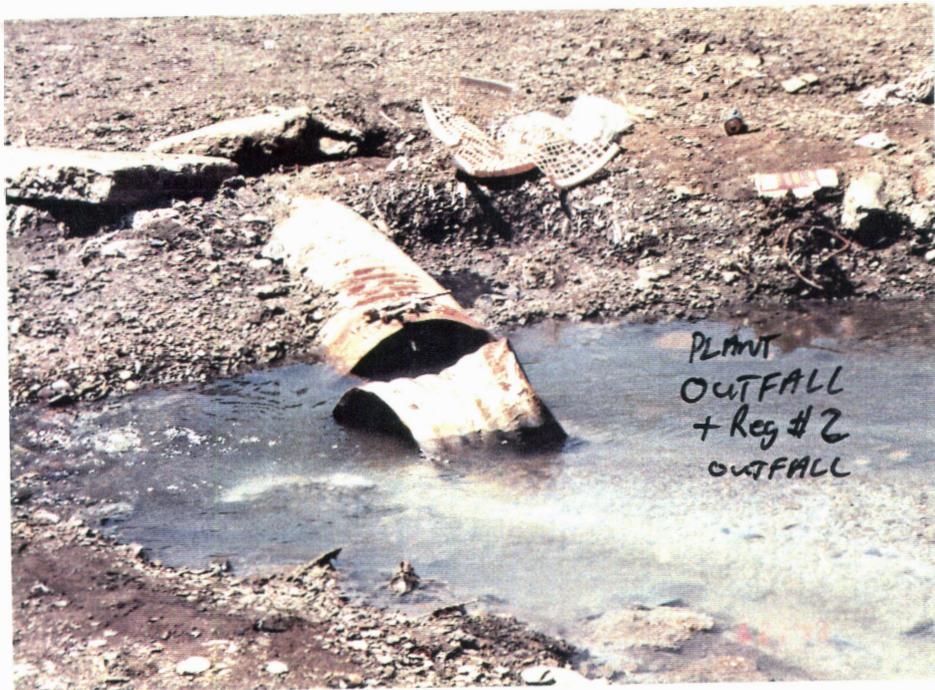
EARTHEN CHANNEL, EL 719.7,
NO STONE PROTECTION



STONE PROTECTION AND ENDWALL PLAN

- NOTES:
1. OBJECT LINES APPEARING AS HALF TONES ARE EXISTING CONSTRUCTION.
 2. SOLID LINES ARE NEW CONSTRUCTION.
 3. REGRADE EXCAVATIONS TO MATCH EXISTING CONTOURS.
 4. PIPE BETWEEN MH #3 AND MH #1 FOLLOWS A NEW ALIGNMENT, SEE SHEET 1 OF 2 FOR NEW ALIGNMENT.
 5. EXCAVATE EARTHEN CHANNEL AT END OF STONE PROTECTION. CUT SIDE SLOPES TO A STABLE SLOPE NOT TO EXCEED 1H : 1V MAXIMUM.

FACILITY - M16R			
REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT, PITTSBURGH CORPS OF ENGINEERS			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS			
BOROUGH OF GLASSPORT SEWAGE TREATMENT PLANT OUTFALL AND REGULATOR # 2 OUTFALL PROFILE AND DETAILS			
SRF PJC	SRF JES	DATE 18 Aug 1994	NO SCALE 037-R55-67/42
DACW59			2 2



M16R, 24" CMP STP AND REG #2 OUTFALL

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: Third Avenue Combined Sewer Overflow

ID: M17R

Location:

River: Monongahela Bank: Rt RM: 17.8

Owner: Borough of Glassport
Address: Fifth and Monongahela Avenues
Glassport, Pennsylvania 15045

Design Team Visit: June 1993, Fritz

POOL DATA:

	EXISTING POOL 2	BRADDOCK POOL
Level Pool	718.7	723.7
Ordinary High Water	731.1	728.7

EXISTING CONDITIONS:

Invert Elevation: 720.4

Inlet conditions:

This facility was originally constructed to pass all storm and domestic wastewater to the Monongahela River from the Third Avenue drainage area. Currently this 54 inch concrete sewer serves as the combined sewer overflow for the Third Avenue regulator station (see APPENDIX C).

Drainage Area: 214 Acres
Capacity: $Q_c = 230$ CFS
Runoff, 10-year event: $Q_{10} = 705$ CFS

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates there is a potential for contamination at this facility site. Therefore, the contractor recommends a Phase II investigation for this facility.

PROPOSED DESIGN:

Limiting Capacity: $Q_L = 345$ CFS
Slope: 0.0023
Material: RCP
Manning's N: 0.012
Diameter: 84"
Design Capacity: $Q_D = 230$ CFS

REQUIRED REMEDIAL WORK:

Government Proposal:

Raise outfall by constructing 258 feet of 84 inch RCP. Construct a new endwall and stone protection below outfall.

This facility will be relocated by constructing a new sewer at a higher elevation, a new endwall and adding stone protection along the discharge channel. No horizontal relocation is involved. No existing permanent easements have been found for the affected area. The District's recommendation is to acquire 0.10 acres of permanent pipeline easement. The total cost of acquiring the permanent easement is \$8,375 which includes administrative costs and contingencies.

Estimated Construction Cost (Rounded): \$ 359,000

Responsibility: Government

Justification:

The Third Avenue combined sewer outfall will be partially inundated by the five foot pool raise. This will subject the overflow to increased siltation which would reduce its overflow capacity.

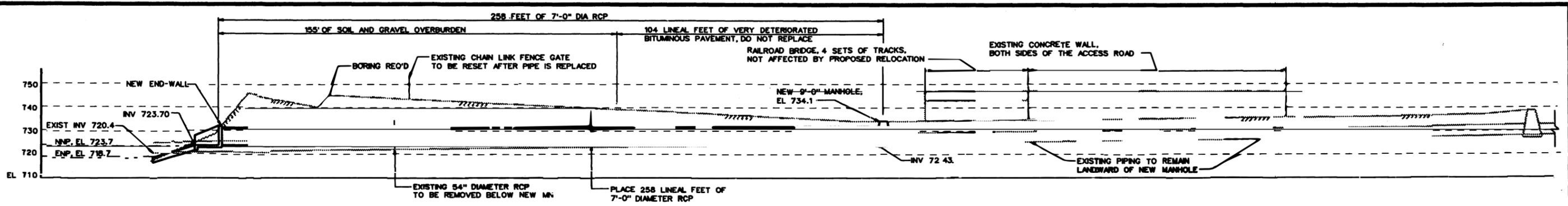
This outfall functions as a relief valve for the combined sewer system during storm events. Without a relocation of the existing sewer, excessive storm flows will be prevented from bypassing to the river and forced into the treatment plant.

This facility (identified as a 48" RCP storm sewer by the LMFS) was authorized for project funding by the LMFS, December 1991, provided that further investigation revealed that it complies with the requirements of P.L. 85-500, Section 111, as amended. See APPENDIX D for documentation on this compliance.

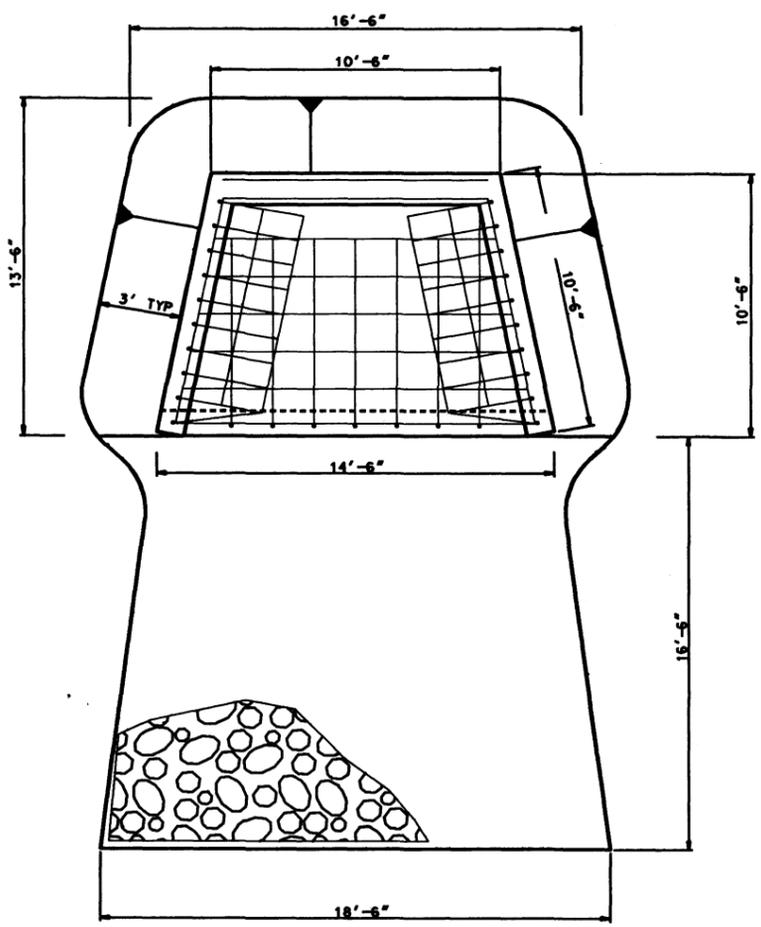


M17R, 54" RCP

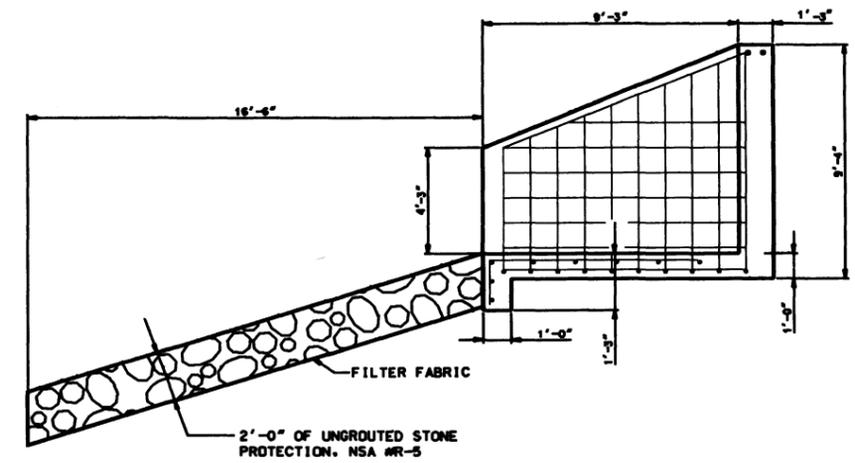
M17R-3



PROFILE



STONE PROTECTION AND ENDWALL PLAN



STONE PROTECTION AND ENDWALL SECTION

- NOTES:
1. OBJECT LINES APPEARING AS HALF TONES ARE EXISTING CONSTRUCTION.
 2. SOLID LINES ARE NEW CONSTRUCTION.
 3. REGRADE EXCAVATION TO MATCH EXISTING CONTOURS.
 4. ENP DESIGNATES EXISTING NORMAL POOL. NNP DESIGNATES NEW NORMAL POOL.
 5. USE PRECAST MANHOLE SECTION WITH A CAST IN PLACE BASE (8\"/>

FACILITY - M17R			
REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT, PITTSBURGH CORPS OF ENGINEERS OFFICE OF THE DISTRICT ENGINEER			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS GLASSPORT BOROUGH THIRD AVENUE REGULATOR OUTFALL			
SRF	DATE	NO SCALE	NO. 037-R55-67/43
PLG	22 Aug 94		
Terry D. Shultz			DACWB9

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: Regulator Station #6 Combined Sewer Overflow

ID: M18R

Location:

River: Monongahela Bank: Rt RM: 18.9
Owner: Borough of Glassport
Address: Fifth and Monongahela Avenues
Glassport, Pennsylvania 15045

Design Team Visit: June 1993, Fritz

POOL DATA:

	EXISTING	BRADDOCK
Level Pool	718.7	723.7
Ordinary High Water	731.5	729.3

EXISTING CONDITIONS:

Invert Elevation: 718.1

Inlet conditions:

This facility was originally constructed to pass all storm and domestic wastewater to the Monongahela River from the Broadway Avenue drainage area. Currently this 66 inch brick sewer serves as the combined sewer overflow for regulator station #6 (see APPENDIX C).

Drainage Area: 494 Acres
Capacity: $Q_c = 367$ CFS
Runoff, 10-year event: $Q_{10} = 645$ CFS

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates there is a potential for contamination at this facility site. Therefore, the contractor recommends a Phase II investigation for this facility.

PROPOSED DESIGN:

Limiting Capacity: $Q_L = 550$ CFS
Slope:
M18RA: 0.0058 ft/ft
M18RB: 0.0051 ft/ft
Material: RCP
Manning's N: 0.012
Diameter: 90" (both pipes)
Design Capacity: $Q_D = 494$ CFS

REQUIRED REMEDIAL WORK:

Government Proposal:

Raise outfall by constructing 636 feet of 90 inch RCP. A horizontal relocation of this sewer is required because of the location of buildings which have been constructed over the existing sewer.

This facility will be relocated horizontally. New sewer pipe will be installed and relocated horizontally from the present site to accommodate construction and effect a cost savings. New permanent easements are required. The District's recommendation is to acquire 0.81 acres of permanent pipeline easement. The total cost of acquiring the permanent pipeline easement is \$93,000 which includes administrative costs and contingencies.

Estimated Construction Cost (Rounded): \$ 1,465,000

Responsibility: Government

Justification:

The regulator station #6 combined sewer outfall will be partially inundated by the five foot pool raise. This will subject the overflow to increased siltation which would reduce its overflow capacity.

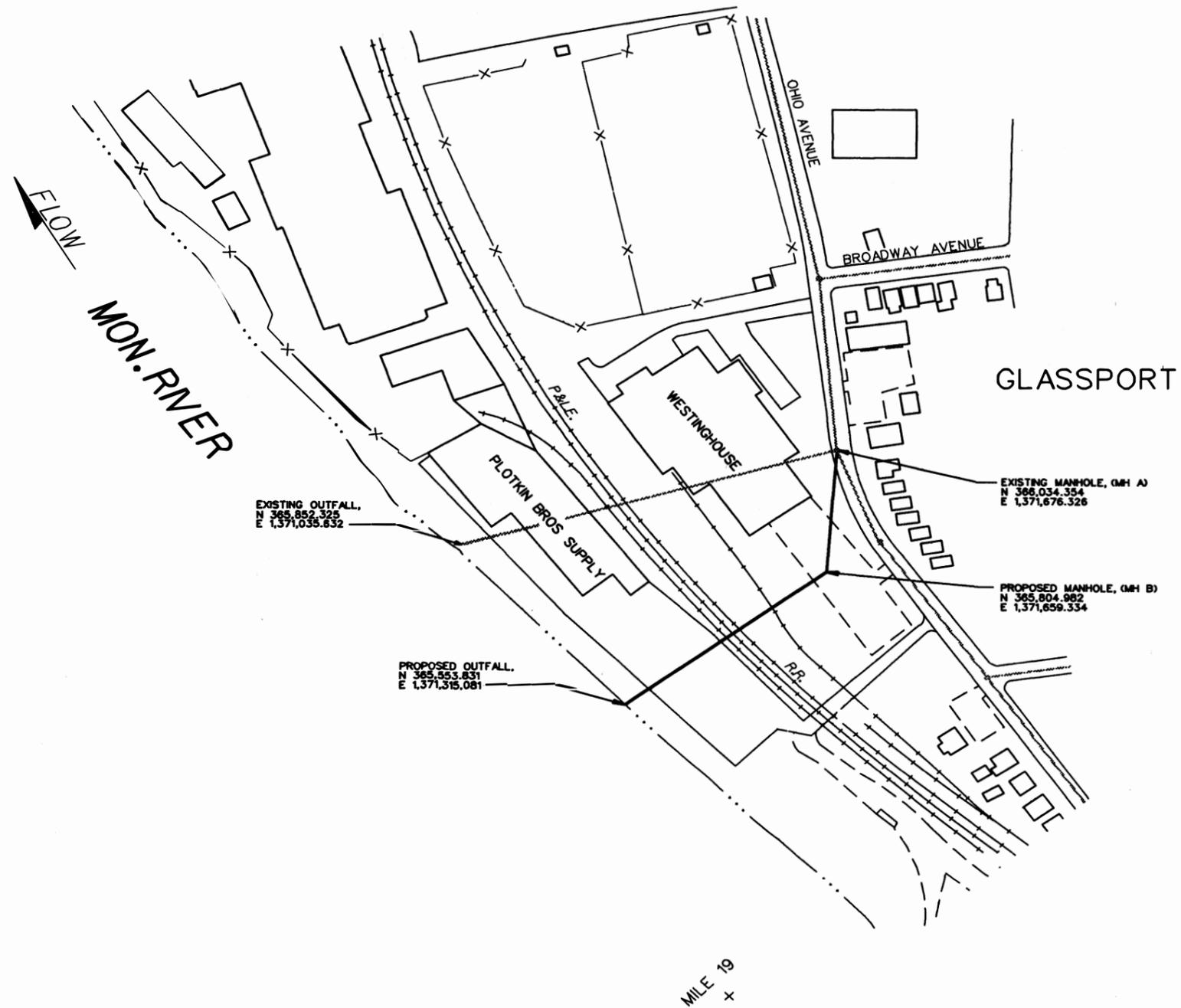
This outfall functions as a relief valve for the combined sewer system during storm events. Without a relocation of the existing sewer, excessive storm flows will be prevented from bypassing to the river and forced into the treatment plant.

This facility (identified as a 66" brick storm sewer by the LMFS) was authorized for project funding by the LMFS, December 1991, provided that further investigation revealed that it complies with the requirements of P.L. 85-500, Section 111, as amended. See APPENDIX D for documentation on this compliance.



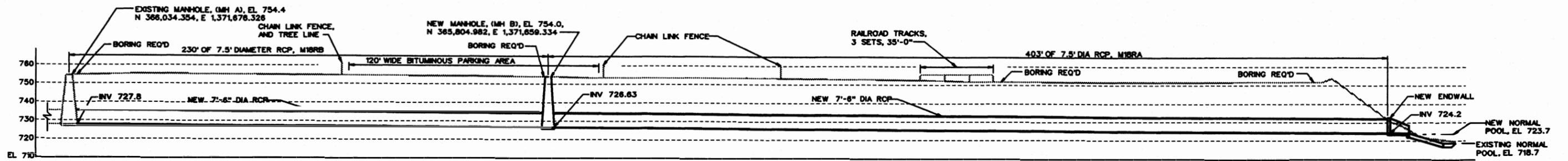
M18R, 66" BRICK

M18R-3

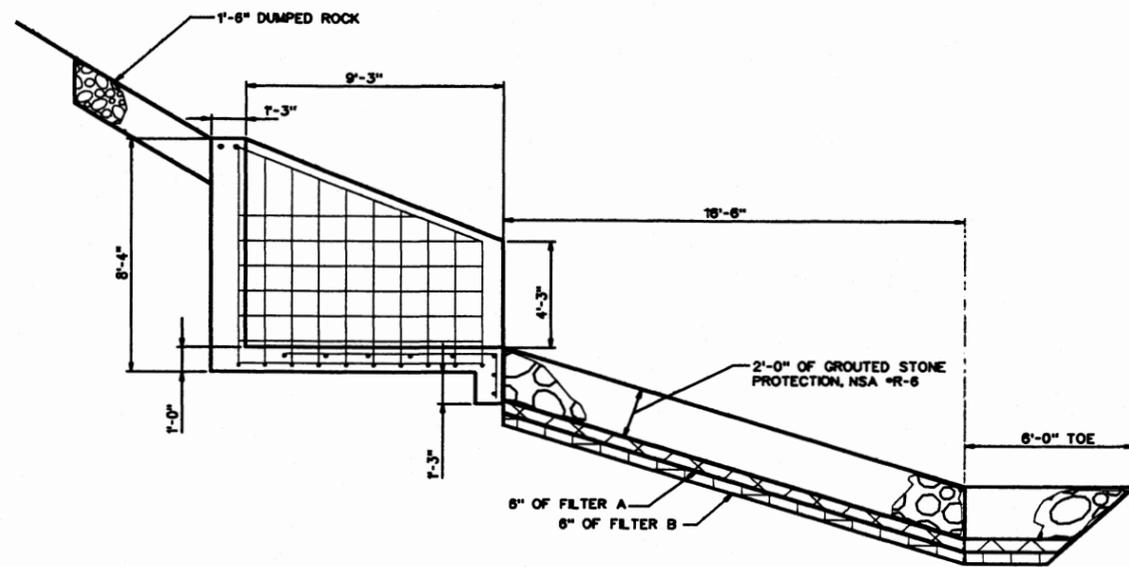


NOTES:
 1. RELOCATE EXISTING COMBINED SEWER OUTFALL AS SHOWN.
 2. BORE, TUNNEL OR PUSH NEW LINE UNDER RAILROAD TRACKS.
 3. SEE SHEET 2 OF 2 FOR PROFILE, AND STONE PROTECTION DETAILS.

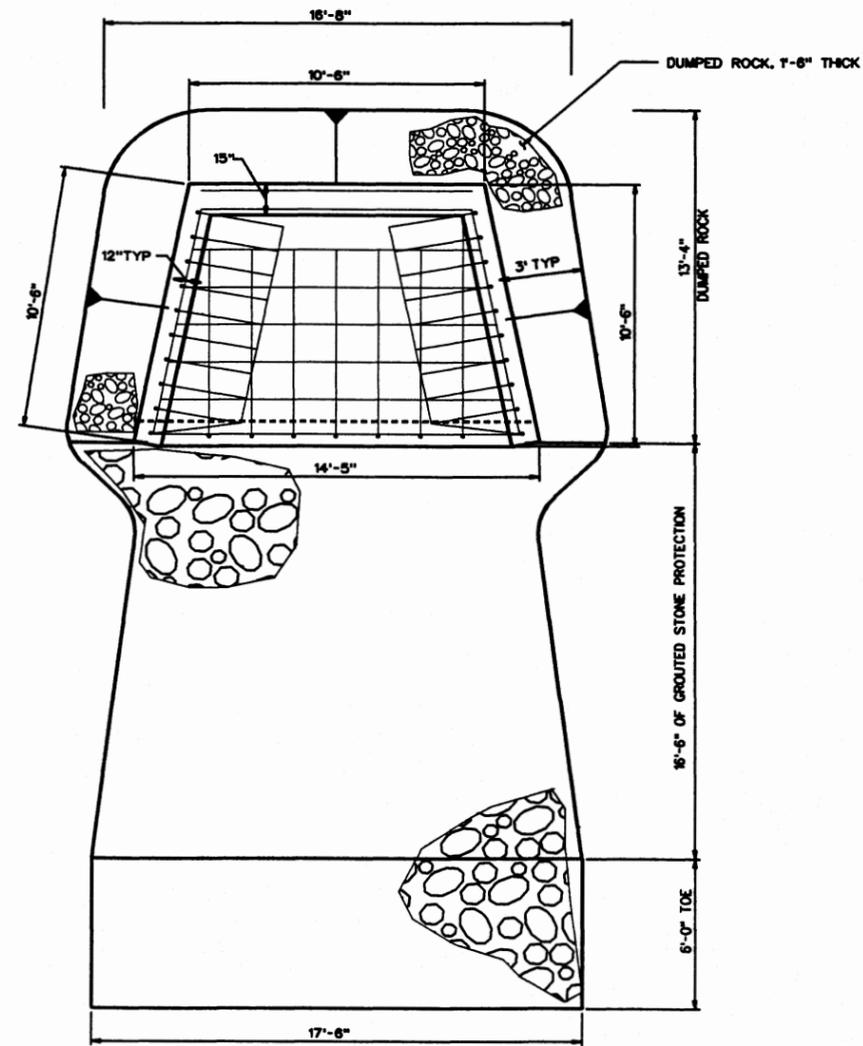
FACILITY - M18R			
REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT PITTSBURGH CORPS OF ENGINEERS OFFICE OF THE DISTRICT ENGINEER PITTSBURGH, PENNSYLVANIA			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS BOROUGH OF GLASSPORT OHIO AVE / BROADWAY AVE REGULATOR PLAN			
SRF P.J.G.	SRF	DATE 18 Aug 1994	NO SCALE
			037-R55-67/44 1 2



PROFILE



STONE PROTECTION AND ENDWALL SECTION



STONE PROTECTION AND ENDWALL PLAN

- NOTES:
1. OBJECT LINES APPEARING AS HALF TONES ARE EXISTING CONSTRUCTION.
 2. SOLID LINES ARE NEW CONSTRUCTION.
 3. REGRADE EXCAVATION TO MATCH EXISTING CONTOURS.
 4. USE PRECAST MANHOLE SECTIONS WITH A CAST IN PLACE BASE (8" DEEP, ID = 2', REINFORCED WITH #5 BARS @ 6" EACH WAY).
 5. SEE SHEET 1 OF 2 FOR NEW ALIGNMENT.

FACILITY - M18R			
REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT PITTSBURGH CORPS OF ENGINEERS OFFICE OF THE DISTRICT ENGINEER PITTSBURGH, PENNSYLVANIA			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS BOROUGH OF GLASSPORT OHIO AVE / BROADWAY AVE REGULATOR OUTFALL PROFILE AND STONE PROTECTION DETAILS			
SRP	SRF	DATE	SCALE
PJG	SRF	22 Aug 94	NO SCALE
<i>Tracy D. Sullivan</i> DACW59			037-R55-67/45 2 2

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: Elizabeth Borough Sewage Treatment Plant Outfall

ID: M19R

Location

River: Monongahela Bank: RT RM: 22.5

Owner: Elizabeth Borough
Address: 206 Third Avenue
Elizabeth, Pennsylvania 15037

Design Team Visit: Various dates, not visible, Fritz

POOL DATA:

	EXISTING	BRADDOCK
Level Pool	718.7	723.7
Ordinary High Water	732.7	731.0

EXISTING CONDITIONS:

Invert Elevation: 720.4

Inlet conditions:

The facility is a 15 inch diameter terra cotta pipe. Various site visits were made to this facility, however, the outfall was never observed. This outfall serves as the discharge for the Elizabeth Borough Sewage Treatment Plant. From the river the outfall extends landward to a manhole. The invert elevation of the manhole is 731.6.

Drainage Area: N/A
Capacity: $Q_c = 9$ CFS
Runoff, 10-year event: N/A

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates that there is an insignificant potential for contamination at this facility site. Therefore, the contractor does not recommend a Phase II investigation for this facility at this time.

PROPOSED DESIGN:

Existing sewer will be used as outfall.
Invert Elevation: 724.2
Limiting Capacity: $Q_L = 13.5$ CFS
Slope: 0.105 ft/ft
Material: Terra Cotta Pipe
Manning's N: 0.012
Diameter: 15"
Design Capacity: $Q_D = 9$ CFS

REQUIRED REMEDIAL WORK:

Government Proposal:

Remove approximately 30 feet of the existing pipe to elevation 724.2. No new piping will be required. Construct a new endwall and provide stone protection down to the existing pool elevation.

No permanent easements have been found for this facility. The District's recommendation is to acquire 0.06 acres of permanent drainage ditch easement. The total cost of acquiring the permanent easement is \$8,565, which includes administrative costs and contingencies.

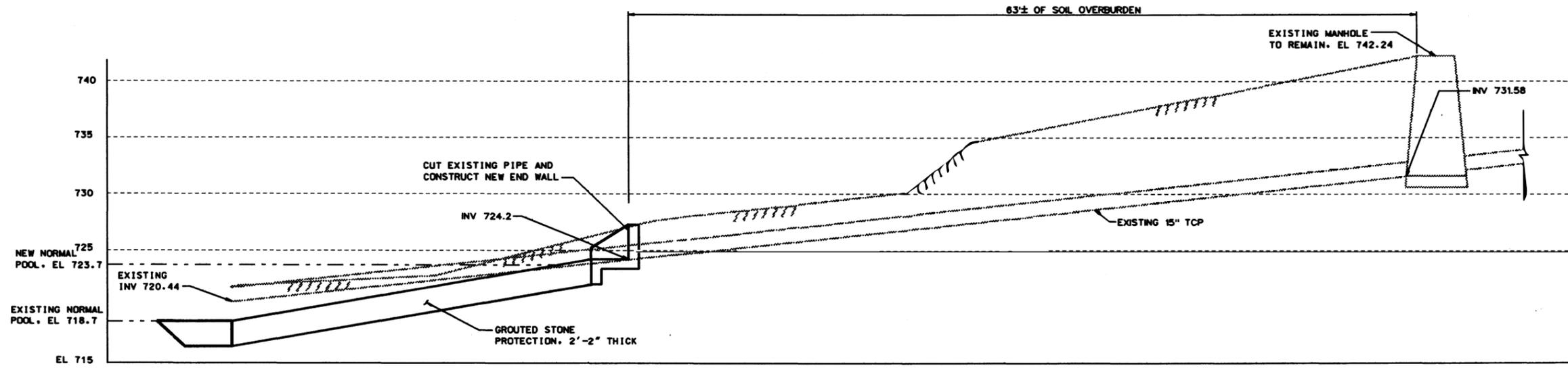
Estimated Construction Cost (Rounded): \$ 13,000

Responsibility: Owner (Section 111 Requested)

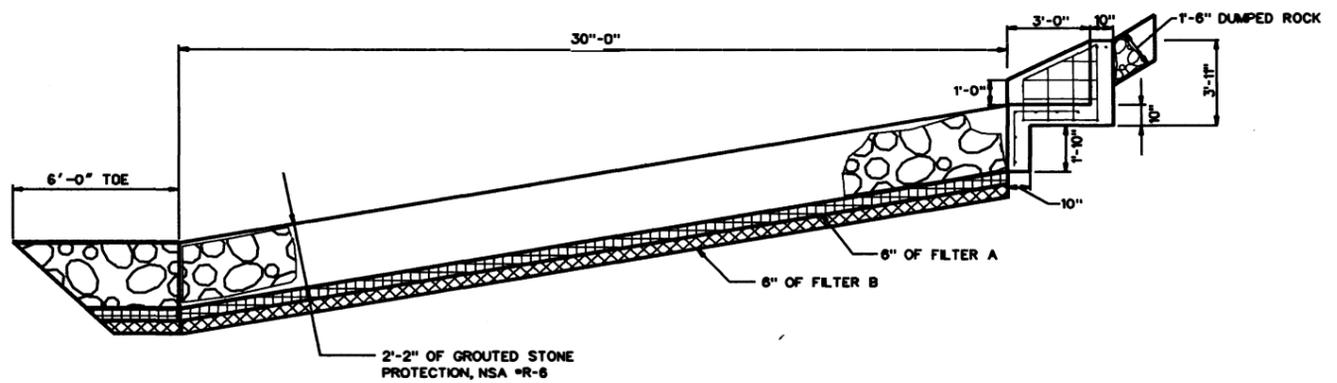
Justification:

This outfall serves as the sole discharge for the Elizabeth Borough Sanitary Authority sewage treatment plant, which serves the communities of Elizabeth and Boston. The five foot pool raise will totally inundate the existing outfall, making it inaccessible for maintenance. Inundation will increase maintenance costs to service the outfall. Therefore it is proposed to modify the existing outfall to outlet above the new pool.

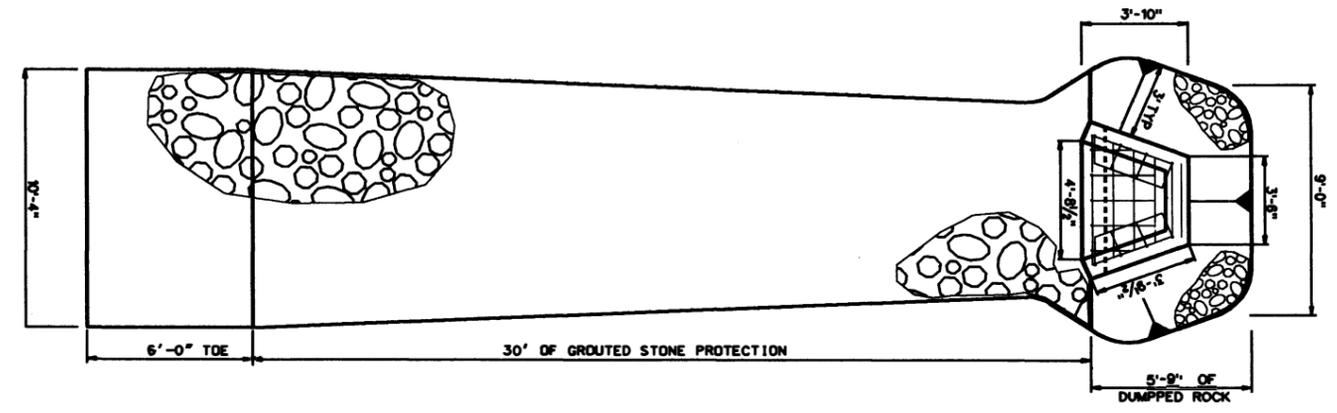
This facility terminates on the bank of the Monongahela River, a navigable waterway, with its outlet invert riverward of existing ordinary high water, therefore the Owner is responsible for the cost of remedial work. However, this sewer is a publicly owned and operated facility and is therefore suitable for Government funding under Section 111 of P.L. 85-500, as amended. It is therefore recommended that the Chief of Engineers find that the remedial costs should be borne by the Government.



PROFILE



STONE PROTECTION AND ENDWALL SECTION



STONE PROTECTION AND ENDWALL PLAN

- NOTES:
1. OBJECT LINES APPEARING AS HALF TONES ARE EXISTING CONSTRUCTION.
 2. SOLID LINES ARE NEW CONSTRUCTION.
 3. REGRADE EXCAVATION TO MATCH EXISTING CONTOURS.

FACILITY - M19R			
REVISION	DATE	DESCRIPTION	BY
		GRAPHIC SCALE	
U.S. ARMY ENGINEER DISTRICT PITTSBURGH CORPS OF ENGINEERS <small>OFFICE OF THE DISTRICT ENGINEER PITTSBURGH, PENNSYLVANIA</small>			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS ELIZABETH BOROUGH SEWAGE TREATMENT PLANT OUTFALL			
DATE	SCALE	NO	BY
18 Aug 1994	NO SCALE	037-R55-67/46	David M. May
DACW59			

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: Mill Alley Regulator Station

ID: M20R

Location

River: Monongahela Bank: RT RM: 22.6

Owner: Elizabeth Borough
Address: 206 Third Avenue
Elizabeth, Pennsylvania 15037

Design Team Visit: Various dates, Reidy

POOL DATA:

	EXISTING	BRADDOCK
Level Pool	718.7	723.7
Ordinary High Water	732.8	731.1

EXISTING CONDITIONS:

Invert Elevations:

Regulator: 720.2
Outfall: 720.0

Inlet conditions:

The original Elizabeth Borough sewer system was constructed to carry all sanitary and storm flows directly to the Monongahela River. In 1959, the Elizabeth Borough Sanitary Authority constructed a main interceptor sewer and regulator stations (see Combined Sewer System Description) to collect all dry weather sanitary flows and carry them to the Authority's sewage treatment plant.

Inflow to this regulator is through a 42" RCP. The regulator diverts all dry weather flows through a 10" DIP to the interceptor sewer. A 42" RCP discharges overflows to Fallen Timber Run, a tributary of the Monongahela River.

Drainage Area: 40 Acres
Capacity: $Q_c = 95$ CFS
Runoff, 10-year event: 127 CFS

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates that there is an insignificant potential for contamination at this facility site. Therefore, the contractor does not

recommend a Phase II investigation for this facility at this time.

PROPOSED DESIGN:

Limiting Capacity: $Q_L = 127$ CFS
Slope: 0.0004 ft/ft
Material: RCP
Manning's N: 0.012
Diameter: 48"
Design Capacity: $Q_D = 98$ CFS

REQUIRED REMEDIAL WORK:

Government Proposal:

Remove 229 feet of 42" RCP and one manhole leading to the existing regulator station. Construct a new regulator station at higher elevation and new location. Construct 127' feet of 48" RCP from an existing manhole to the new regulator, 10.5' of 48" RCP for the new overflow, and 113 feet of 10" DIP to connect the new regulator station to the interceptor line. Construct new endwall and stone protection. Refurbish and reuse the regulator mechanism. Fill the existing regulator structure with rubble and plug the outfall. See facility M21R for proposed real estate actions.

Estimated Construction Cost (Rounded): \$ 228,000

Responsibility: Government

Justification:

This regulator station functions as a relief valve for the combined sewer system during storm events. Both the regulator station and outfall will be inundated by the new pool elevation. Without this relocation river water would continuously flow into the main interceptor and overload the sewage treatment plant.

This facility is an integral part of the main interceptor sewer (M21R), which was authorized for project funding by the LMFS. Further investigation has confirmed (see Appendix D) that it does comply with the requirements of Section 111 of P.L. 85-500, as amended. Therefore, adjustment is a Government responsibility.



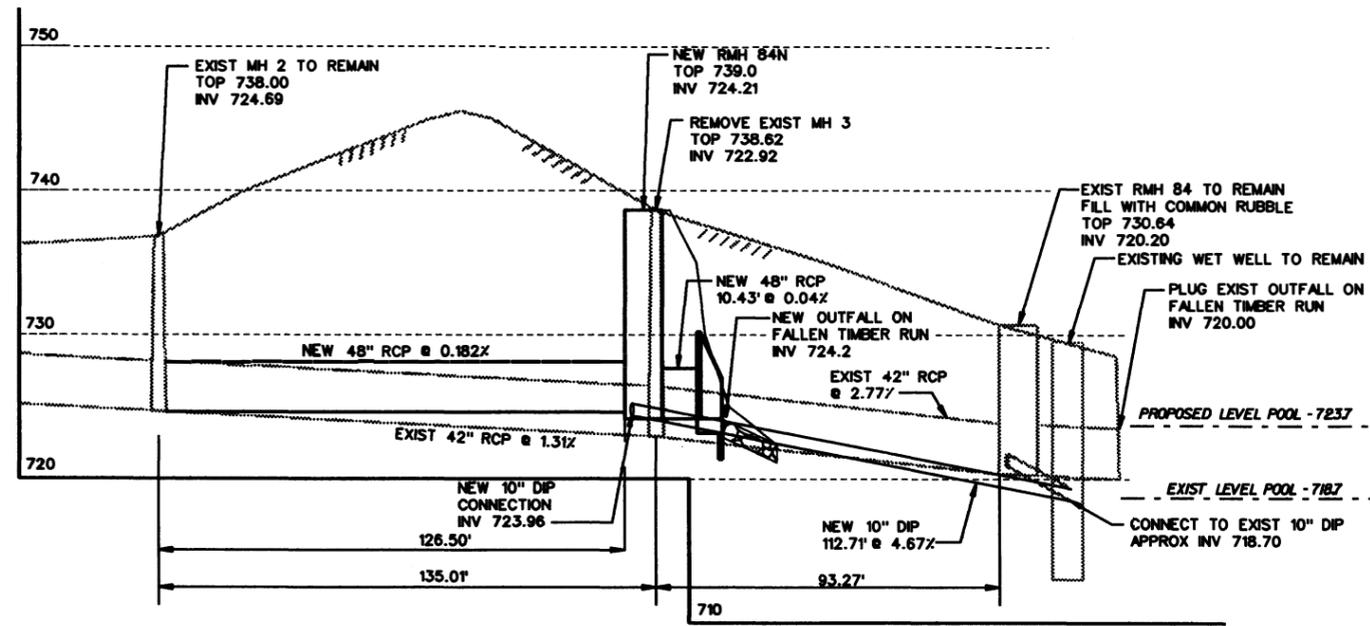
MANHOLE 89, LOOKING U/S FALLEN TIMBER RUN



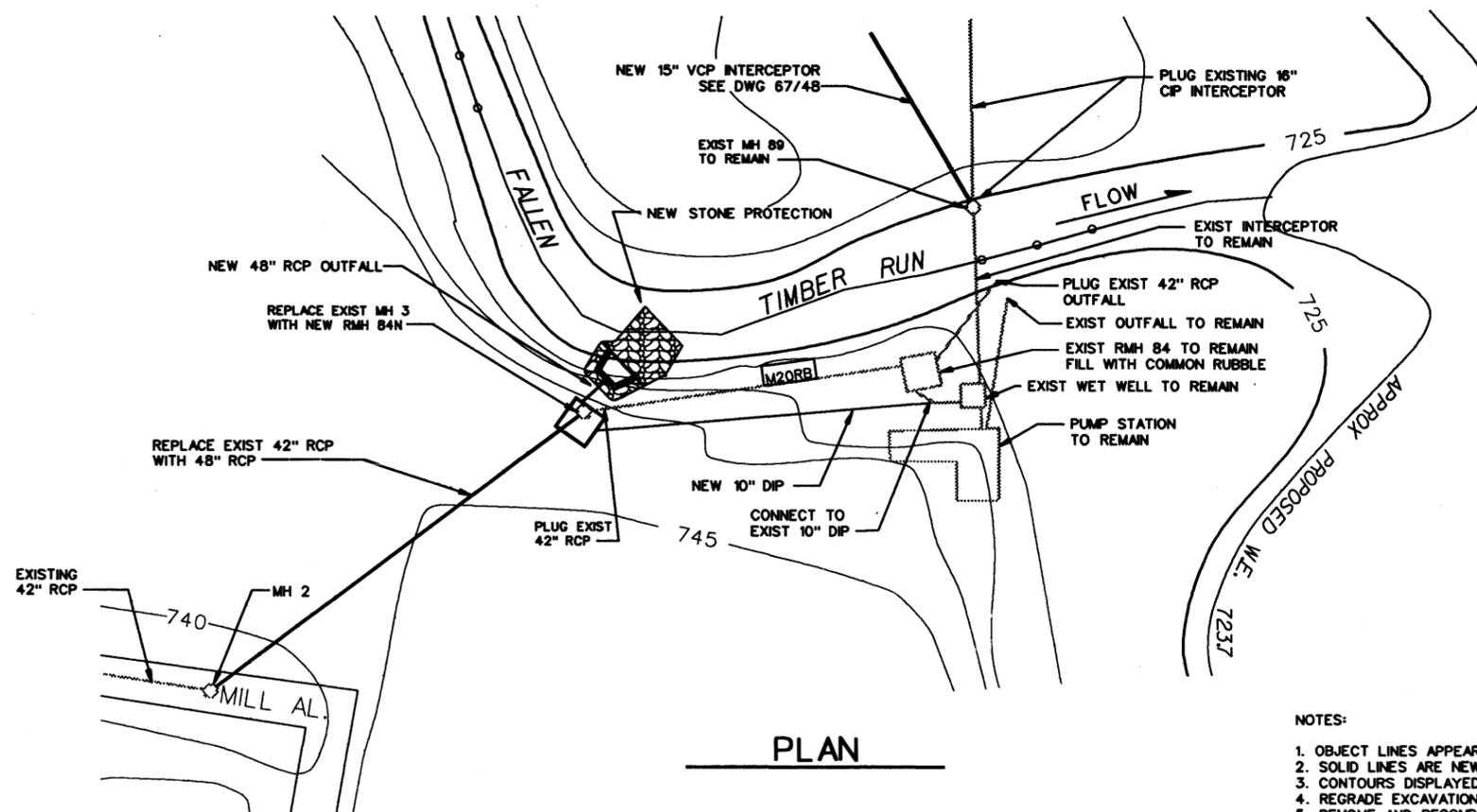
PUMP STATION AND 42" RCP CSO

M2OR PHOTOS

M2OR-3



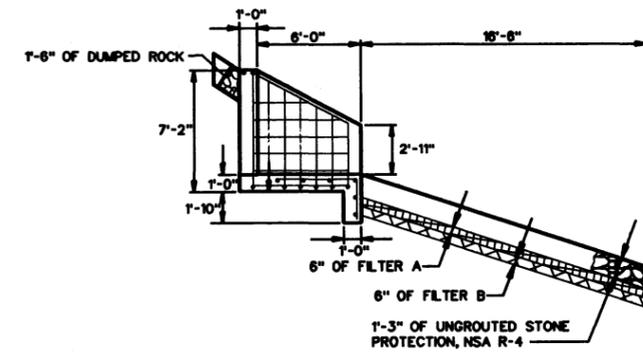
PROFILE



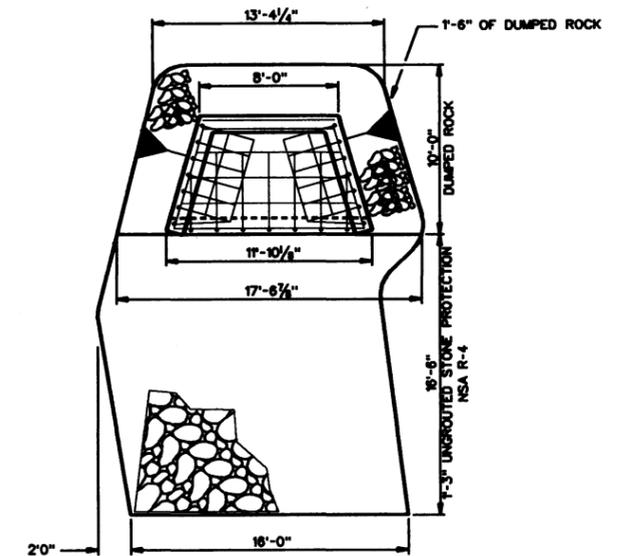
PLAN

NOTES:

1. OBJECT LINES APPEARING AS HALF TONES ARE EXISTING CONSTRUCTION.
2. SOLID LINES ARE NEW CONSTRUCTION.
3. CONTOURS DISPLAYED AT 5 FOOT INTERVALS.
4. REGRADE EXCAVATIONS TO EXISTING CONTOURS.
5. REMOVE AND RECONDITION REGULATOR HARDWARE AND INSTALL IN NEW REGULATOR DURING PLACEMENT.
6. SEE DRAWING 67/48 FOR INTERCEPTOR PLAN.
7. "RMH" DENOTES REGULATOR MANHOLE.



STONE PROTECTION AND ENDWALL SECTION



STONE PROTECTION AND ENDWALL PLAN

REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
FACILITY - M2OR			
U.S. ARMY ENGINEER DISTRICT, PITTSBURGH CORPS OF ENGINEERS OFFICE OF THE DISTRICT ENGINEER PITTSBURGH, PENNSYLVANIA			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS ELIZABETH BOROUGH			
MILL ALLEY REGULATOR STATION & OUTFALL PLAN AND PROFILE			
DESIGNED: MFR/ MPZ	DRAWN: MFR	CHECKED: CKP	DATE: 24 Aug 1994
SCALE: NO SCALE		DWG NO. 037-R55-67/47	
SUBMITTED: [Signature]		REV. NO. DACW59	

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: Main Intercepting Sewer

ID: M21R

Location

River: Monongahela Bank: RT RM: 22.6 - 23.2

Owner: Elizabeth Borough
Address: 206 Third Avenue
Elizabeth, Pennsylvania 15037

Design Team Visit: Various dates, Reidy

POOL DATA:

	EXISTING	BRADDOCK
Level Pool	718.7	723.7
Ordinary High Water	733.0	731.4

EXISTING CONDITIONS:

Invert Elevations:
River Mile 22.6: 716.2
River Mile 23.2: 720.1

Inlet conditions:

The original Elizabeth Borough sewer system was constructed to carry all sanitary and storm flows directly to the Monongahela River. This main interceptor sewer, along with associated regulator stations (see Combined Sewer Description), was constructed in 1959 by the Elizabeth Borough Sanitary Authority to collect all dry weather sanitary flows and carry them to the Authority's sewage treatment plant. Inflow to the main intercepting sewer is generally only sanitary flow. During storm events the interceptor carries combined sanitary and storm sewage, with a design flow of 350% of normal dry weather flow.

The existing intercepting sewer is cast iron pipe and is located along the beach portion of the river bank. It is 14" in diameter at the upstream end and 16" at downstream end. A concrete cap protects it from debris and barges which may run aground during higher river flows.

Drainage Area: N/A
Capacity: $Q_c = 1.9$ CFS
Runoff, 10-year event: N/A

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates there is a potential for contamination at this facility site. Therefore, the contractor recommends a Phase II investigation for this facility.

PROPOSED DESIGN:

Invert Elevation: Varies (see profile)
Limiting Capacity: $Q_L = 2.9$ CFS
Slope: Varies (see profile)
Material: VCP
Manning's N: 0.012
Diameter: 15"
Design Capacity: $Q_D = 2.5$ CFS

REQUIRED REMEDIAL WORK:

Government Proposal:

Construct 2934 feet of 15" RCP and 11 manholes. The new interceptor will start at the new regulator (M28R) and tie into the existing interceptor at MH 89, on the west bank of Fallen Timber Run. Raise the top of MH 89 to elevation 731.3. Most of the new interceptor will lie beneath Water Street. Remove 1150' of the existing pipe, where exposed between the boat launch ramp and the park. Plug the ends of the remaining pipe at the park and at MH 89. Seven new regulator stations (M20R, M22-23R, M25-28R) will be connected to the new interceptor to capture dry weather flows.

The interceptor (M21R) and regulators (M20R, M22-23R, and M25-28R) are owned by the Elizabeth Borough Sanitary Authority. The Authority does not own any compensable interest in the land for these facilities, A portion of existing facility M21R is on fee land of the Borough of Elizabeth. The Borough may donate the necessary interest in the land to the Authority. For planning purposes donation is not assumed.

The District's recommendation is to acquire 3.35 acres of permanent utility easement for facilities M20-23R, and 2.5 acres of permanent utility line and drainage ditch easement for facilities M25-28R. The total cost of acquiring these permanent easements is \$182,875, which includes administrative costs and contingencies.

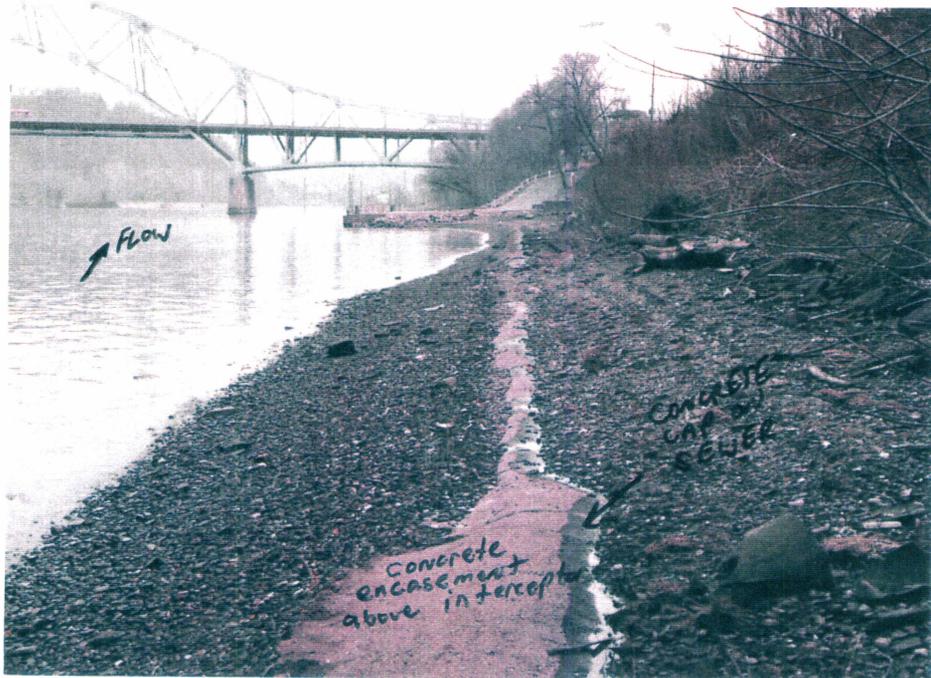
Estimated Construction Cost (Rounded): \$ 1,217,000

Responsibility: Government

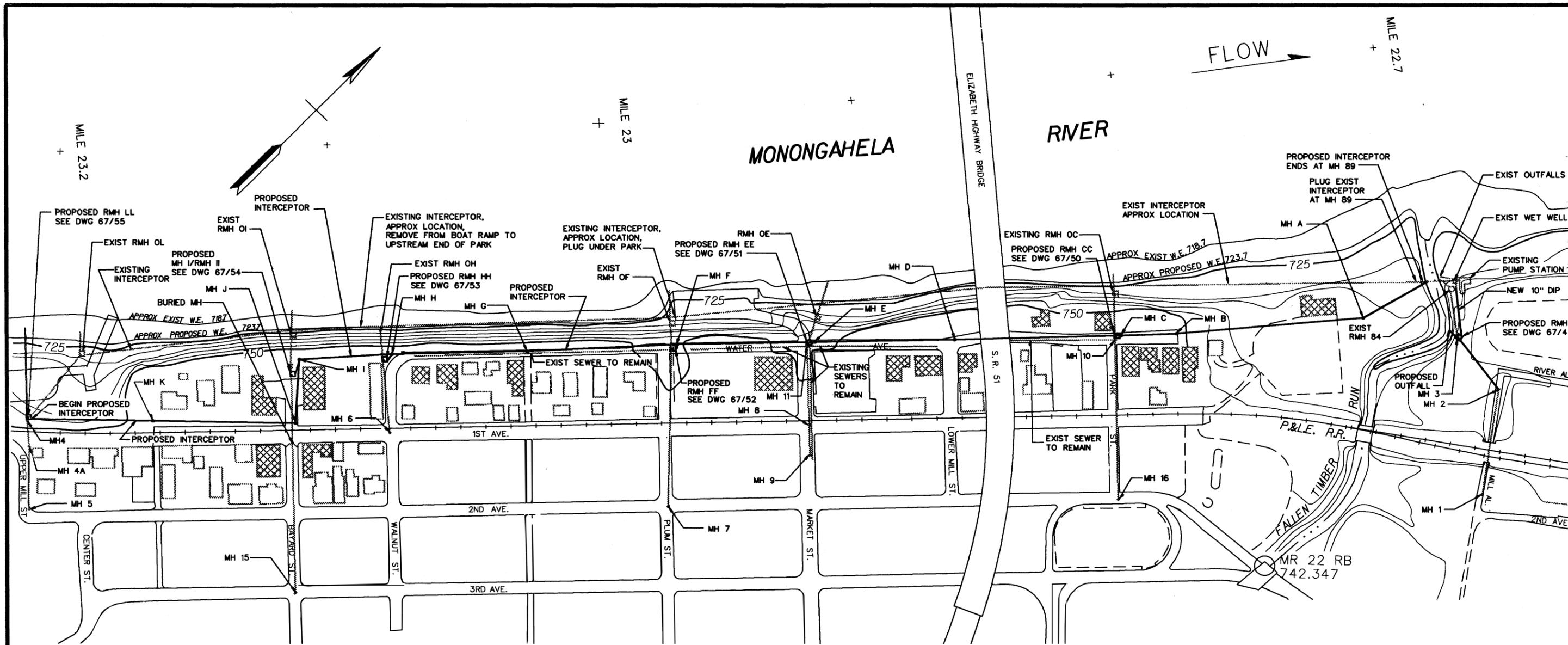
Justification:

The new pool will completely inundate the existing interceptor. This will prohibit access for maintenance, increase infiltration, and increase susceptibility to damage from debris and barges which may run aground.

This facility was authorized for project funding by the LMFS. Further investigation has confirmed (see Appendix D) that it complies with the requirements of Section 111 of P.L. 85-500, as amended. Therefore, adjustment is a Government responsibility.



M21R, CONCRETE ENCASEMENT OVER INTERCEPTOR
LOOKING D/S



ELIZABETH
BOROUGH

FACILITY - M21R

NOTES:

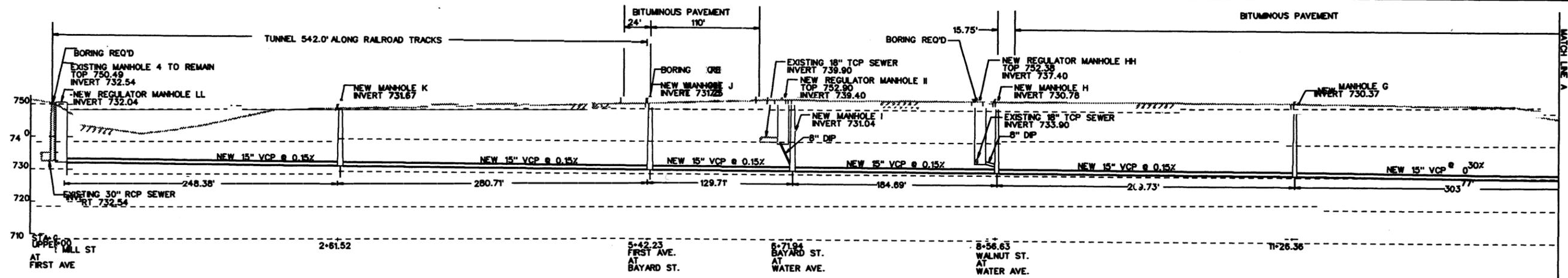
1. OBJECT LINES APPEARING AS HALF TONES ARE EXISTING CONSTRUCTION.
2. SOLID LINES ARE NEW CONSTRUCTION.
3. BUILDINGS AND CONTOURS ARE SHOWN ONLY NEAR NEW CONSTRUCTION.
4. CONTOURS DISPLAYED AT 5 FOOT INTERVALS.
5. "RMH" DENOTES REGULATOR MANHOLE.
6. REGRADE EXCAVATIONS TO MATCH EXISTING CONTOURS.
7. MAINTAIN SURVEY CONTROL DURING EXCAVATIONS ON RAILROAD BETWEEN MH 4 AND MH J, SHADED BUILDINGS, AND S.R. 51 BRIDGE PIERS.
8. SEE DRAWING 67/49 FOR PROFILE VIEW.

REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT, PITTSBURGH CORPS OF ENGINEERS OFFICE OF THE DISTRICT ENGINEER PITTSBURGH, PENNSYLVANIA			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS ELIZABETH BOROUGH COMBINED SEWER INTERCEPTOR PLAN			
DESIGNED: MFR	DRAWN: MFR	CHECKED: CPE	DATE: 24 Aug 1994
SCALE: NO SCALE		DWG NO. 037-R55-67/48	
SUBMITTED: <i>David M. Whymark</i>		FB NO. DACW59	

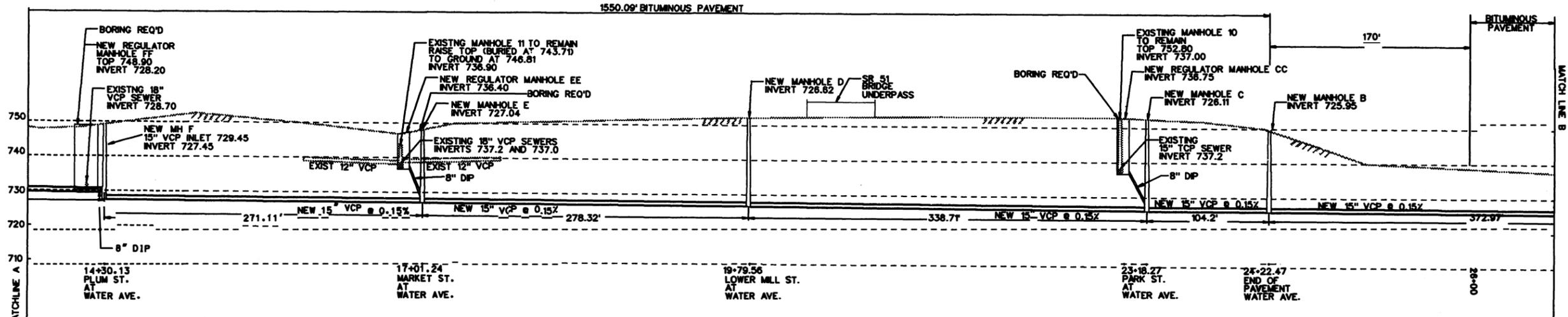
23-AUG-1994

ccarney

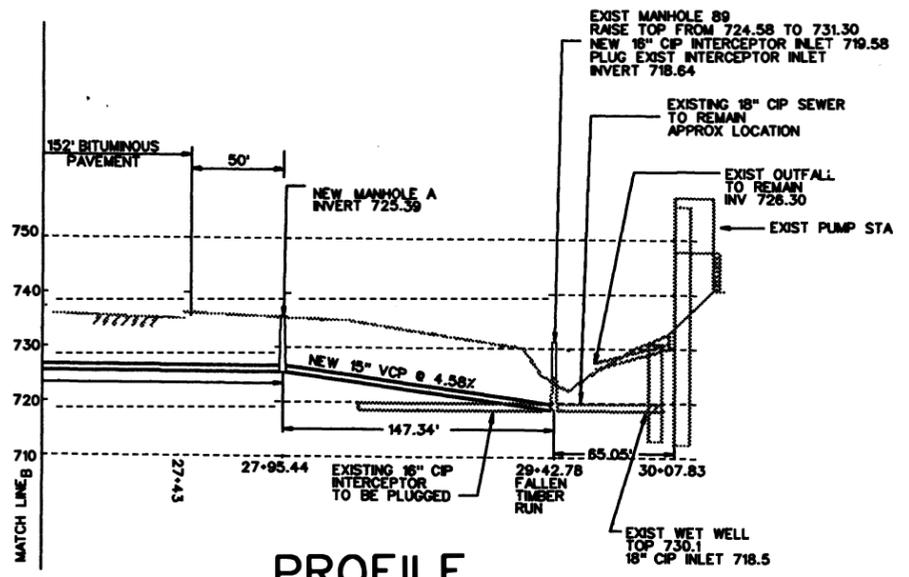
/usr/projects/sanitary/gen/eliz/m106748.dgn



PROFILE



PROFILE



PROFILE

NOTES:
 1. OBJECT LINES APPEARING AS HALF TONES ARE EXISTING CONSTRUCTION.
 2. SOLID LINES ARE NEW CONSTRUCTION.
 3. REGRADE EXCAVATION TO MATCH EXISTING CONTOURS.
 4. SEE DRAWING 67/48 FOR PLAN VIEW.

FACILITY - M21R

REVISION	DATE	DESCRIPTION
GRAPHIC SCALE		
U.S. ARMY ENGINEER DISTRICT PITTSBURGH CORPS OF ENGINEERS OFFICE OF THE DISTRICT ENGINEER PITTSBURGH, PENNSYLVANIA		
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS ELIZABETH BOROUGH COMBINED SEWER INTERCEPTOR PROFILE		
DESIGNED: MFR/MPZ	DRAWN: MFR	CHECKED: <i>[Signature]</i>
DATE: 22 Aug 14	NO SCALE	DWG NO. 037-R55-67/49
SUBMITTED: <i>[Signature]</i>		FR NO. DACW59

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: Park Street Regulator Station

ID: M22R

Location

River: Monongahela Bank: RT RM: 22.8
Owner: Elizabeth Borough
Address: 206 Third Avenue
Elizabeth, Pennsylvania 15037

Design Team Visit: Various dates, Reidy

POOL DATA:

	EXISTING POOL 2	BRADDOCK POOL
Level Pool	718.7	723.7
Ordinary High Water	732.9	731.2

EXISTING CONDITIONS:

Invert Elevations:

Regulator: 728.1
Outfall: 717.2

Inlet conditions:

The original Elizabeth Borough sewer system was constructed to carry all sanitary and storm flows directly to the Monongahela River. In 1959, the Elizabeth Borough Sanitary Authority constructed a main interceptor sewer and regulator stations (see Combined Sewer System Description) to collect all dry weather sanitary flows and carry them to the Authority's sewage treatment plant.

Inflow to this regulator is through a 15" TCP. The regulator diverts all dry weather flows through a 8" DIP to the interceptor sewer. A 15" TCP discharges overflows to the Monongahela River.

Drainage Area: 3.9 Acres
Capacity: $Q_c = 10$ CFS
Runoff, 10-year event: 12 CFS

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates there is a potential for contamination at this facility site. Therefore, the contractor recommends a Phase II investigation for this facility.

PROPOSED DESIGN:

Existing sewer will be used as outfall.
Limiting Capacity: $Q_L = 12$ CFS
Slope: 0.1066 ft/ft
Material: TCP
Manning's N: 0.012
Diameter: 15"
Design Capacity: $Q_D = 10$ CFS

REQUIRED REMEDIAL WORK:

Government Proposal:

Construct a new regulator at higher elevation and new location. Construct 14 feet of 8" DIP to connect this new regulator to the new interceptor. Use the existing pipe below the new regulator as the new overflow. Use the existing regulator station as an endwall. Provide stone protection below this outfall. Refurbish and reuse the regulator mechanism. Remove the existing overflow riverward of the existing regulator. See facility M21R for proposed real estate actions.

Estimated Construction Cost (Rounded): \$ 110,000

Responsibility: Government

Justification:

This regulator station functions as a relief valve for the combined sewer system during storm events. This regulator must be raised and relocated horizontally to accommodate the relocation of the main intercepting sewer (M21R).

This facility is an integral part of the main interceptor sewer (M21R), which was authorized for project funding by the LMFS. Further investigation has confirmed (see Appendix D) that it does comply with the requirements of Section 111 of P.L. 85-500, as amended. Therefore, adjustment is a Government responsibility.



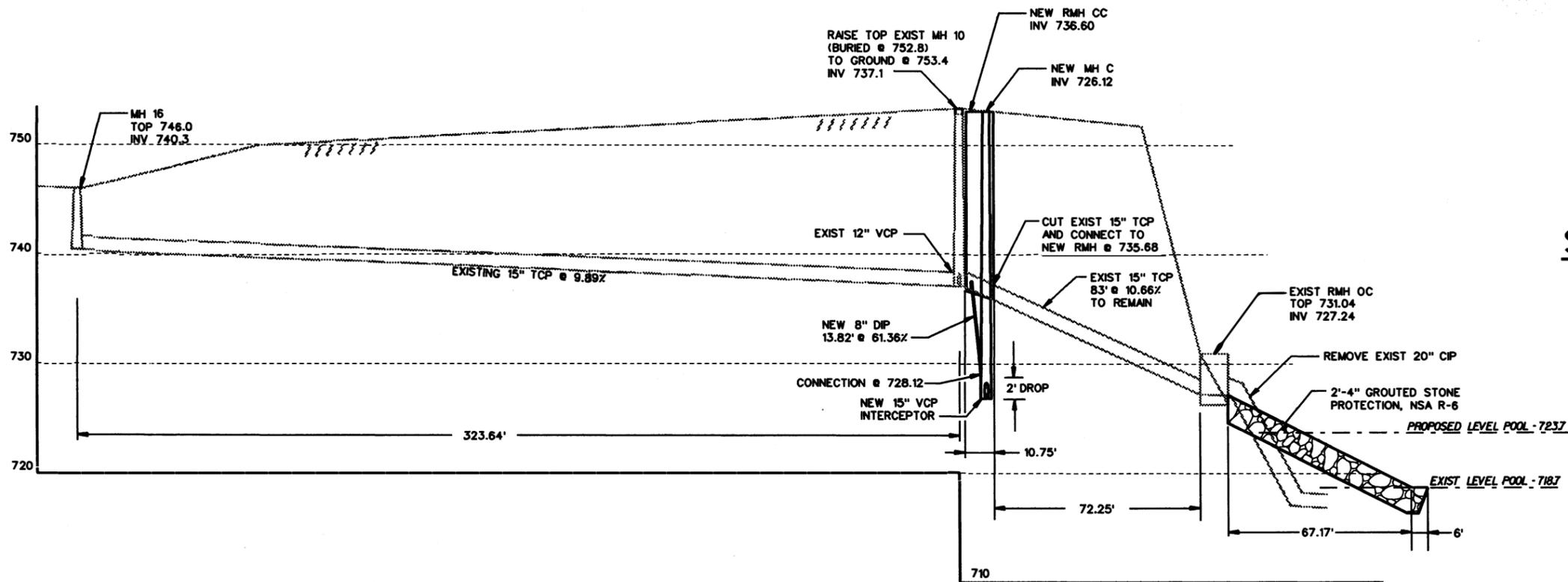
RMH OC, LOOKING LANDWARD



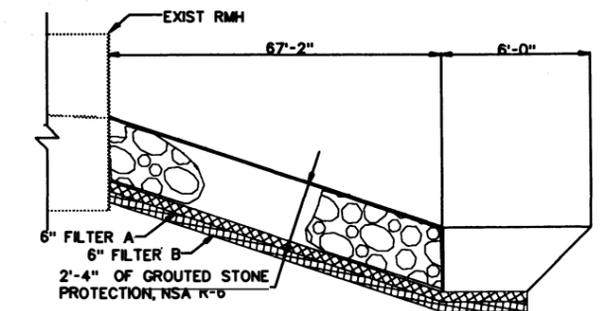
MH 10, WATER AVE., LOOKING RIVERWARD

M22R PHOTOS

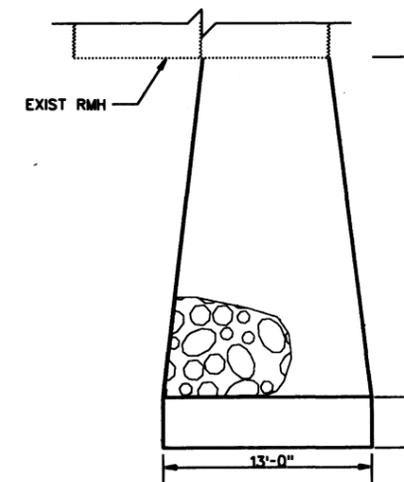
M22R-3



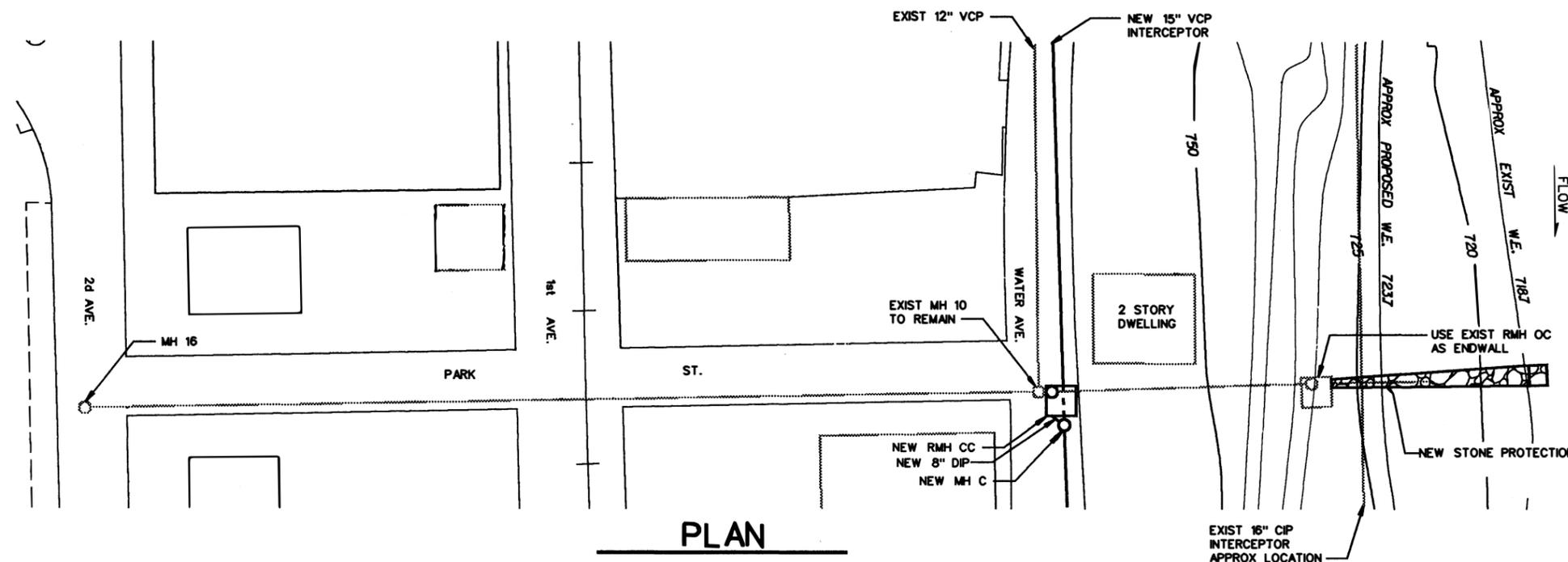
PROFILE



STONE PROTECTION SECTION



STONE PROTECTION PLAN



PLAN

NOTES:

1. OBJECT LINES APPEARING AS HALF TONES ARE EXISTING CONSTRUCTION.
2. SOLID LINES ARE NEW CONSTRUCTION.
3. CONTOURS DISPLAYED AT 5 FOOT INTERVALS.
4. REGRADE EXCAVATIONS TO MATCH EXISTING CONTOURS.
5. "RMH" DENOTES REGULATOR MANHOLE.
6. REMOVE AND RECONDITION REGULATOR HARDWARE AND INSTALL IN NEW REGULATOR DURING PLACEMENT.
7. SEE DRAWING 67/48 FOR INTERCEPTOR PLAN.

FACILITY - M22R

REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT, PITTSBURGH CORPS OF ENGINEERS OFFICE OF THE DISTRICT ENGINEER PITTSBURGH, PENNSYLVANIA			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS ELIZABETH BOROUGH			
PARK STREET REGULATOR STATION & OUTFALL PLAN AND PROFILE			
DESIGNED: MFR/ MPZ	DRAWN: MFR	CHECKED: CRE	DATE: 24 Aug 1994
SCALE: NO SCALE		DWO NO. 037-R55-67/50	
DRAWN BY: David W. Wagner			FB NO. DACW59

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: Market Street Regulator Station

ID: M23R

Location

River: Monongahela Bank: RT RM: 22.9

Owner: Elizabeth Borough

Address: 206 Third Avenue
Elizabeth, Pennsylvania 15037

Design Team Visit: Various dates, Reidy

POOL DATA:

	EXISTING POOL 2	BRADDOCK POOL
Level Pool	718.7	723.7
Ordinary High Water	732.9	731.2

EXISTING CONDITIONS:

Invert Elevations:

Regulator: 727.0

Outfall: 719.8

Inlet conditions:

The original Elizabeth Borough sewer system was constructed to carry all sanitary and storm flows directly to the Monongahela River. In 1959, the Elizabeth Borough Sanitary Authority constructed a main interceptor sewer and regulator stations (see Combined Sewer System Description) to collect all dry weather sanitary flows and carry them to the Authority's sewage treatment plant.

Inflow to this regulator is through a 18" TCP. The regulator diverts all dry weather flows through a 8" DIP to the interceptor sewer. A 15" TCP discharges overflows to the Monongahela River.

Drainage Area: 10.8 Acres
Capacity: $Q_c = 15$ CFS
Runoff, 10-year event: 3 CFS

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates that there is an insignificant potential for contamination at this facility site. Therefore, the contractor does not recommend a Phase II investigation for this facility at this time.

PROPOSED DESIGN:

Invert Elevation: 729.0
Limiting Capacity: $Q_L = 15$ CFS
Slope: 0.1499 ft/ft
Material: RCP
Manning's N: 0.012
Diameter: 18"
Design Capacity: $Q_D = 15.0$ CFS

REQUIRED REMEDIAL WORK:

Government Proposal:

Construct a new regulator at higher elevation and new location. Construct 8 feet of 8" DIP to connect this new regulator to the new interceptor. Construct 51 feet of 18" RCP for the new overflow. Use the existing regulator station as an endwall. Provide stone protection below this outfall. Refurbish and reuse the regulator mechanism. Remove the existing pipe riverward of the existing manhole 10. See facility M21R for proposed real estate actions.

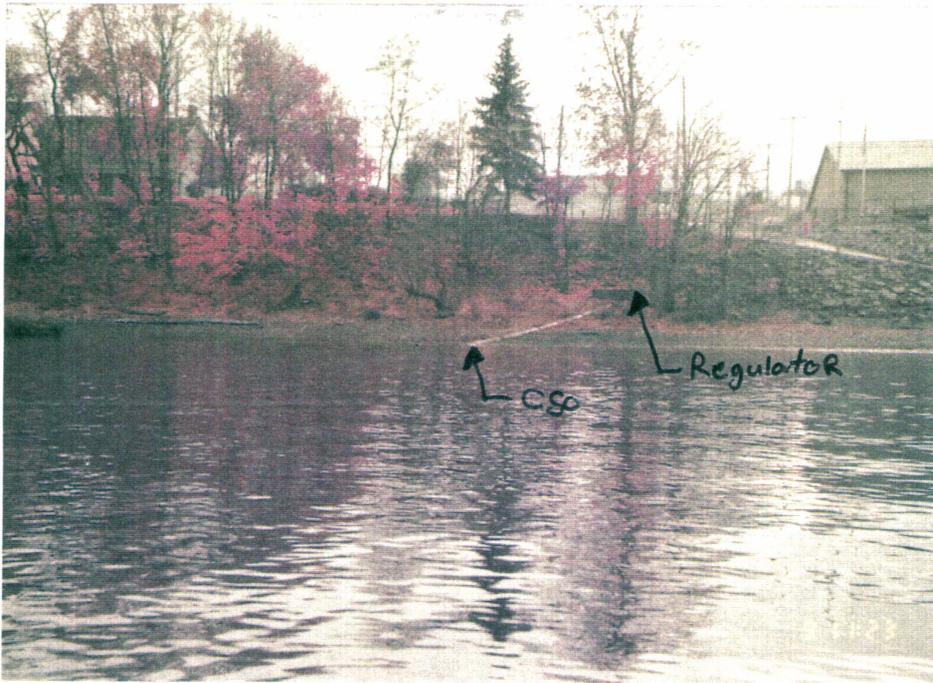
Estimated Construction Cost (Rounded): \$ 112,000

Responsibility: Government

Justification:

This regulator station functions as a relief valve for the combined sewer system during storm events. This regulator must be raised and relocated horizontally to accommodate the relocation of the main intercepting sewer (M21R).

This facility is an integral part of the main interceptor sewer (M21R), which was authorized for project funding by the LMFS. Further investigation has confirmed (see Appendix D) that it does comply with the requirements of Section 111 of P.L. 85-500, as amended. Therefore, adjustment is a Government responsibility.



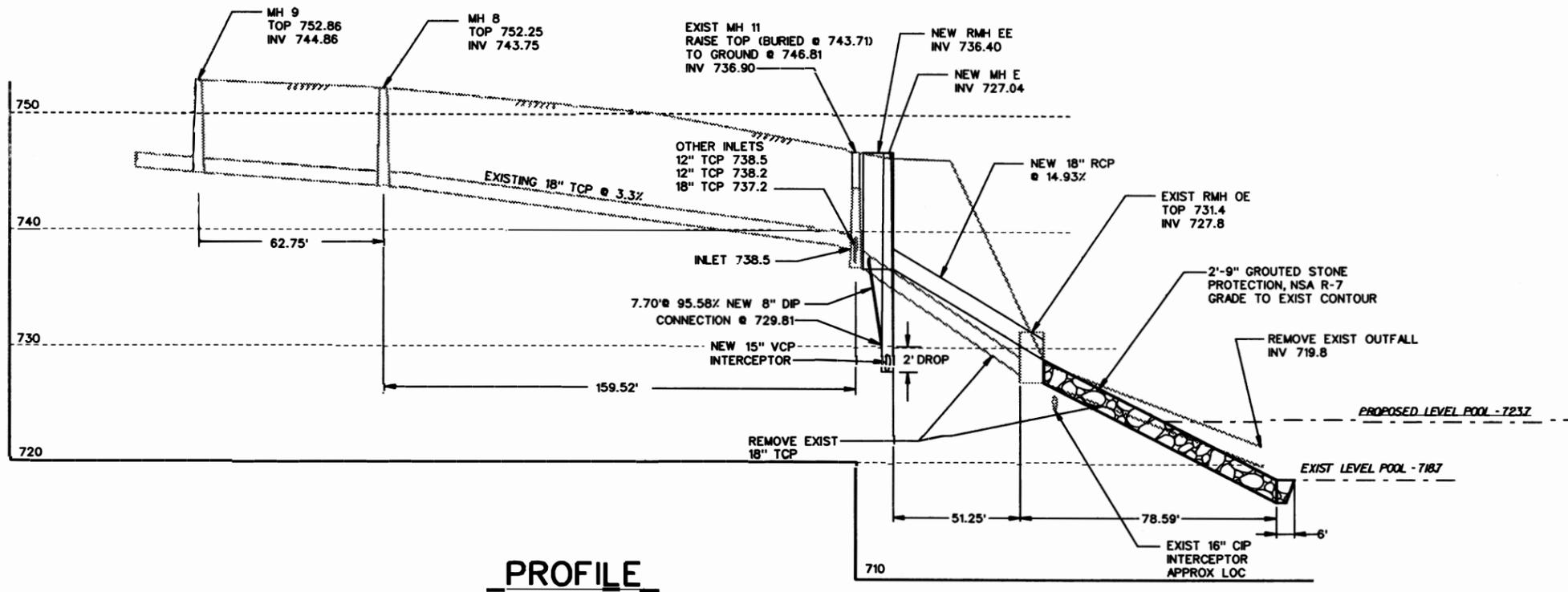
RMH OE, LOOKING LANDWARD



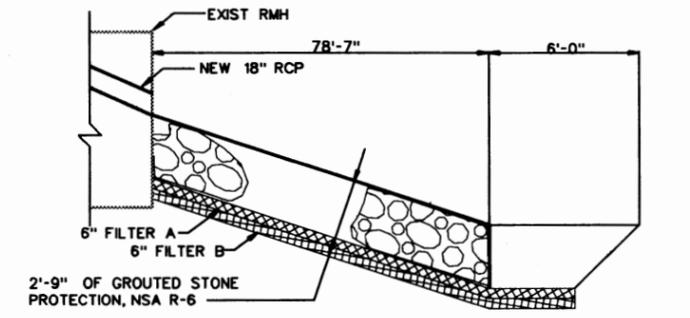
RMH OE 10, LOOKING RIVERWARD

M23R PHOTOS

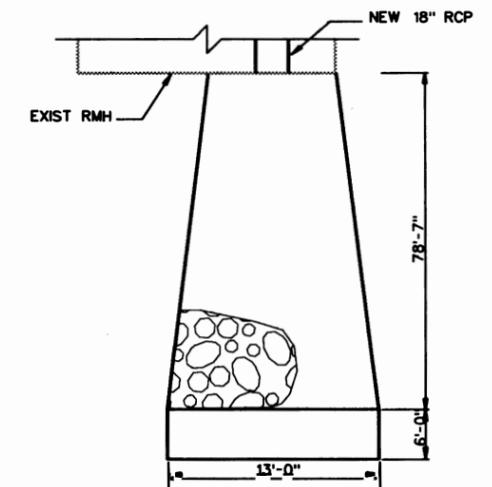
M23R-3



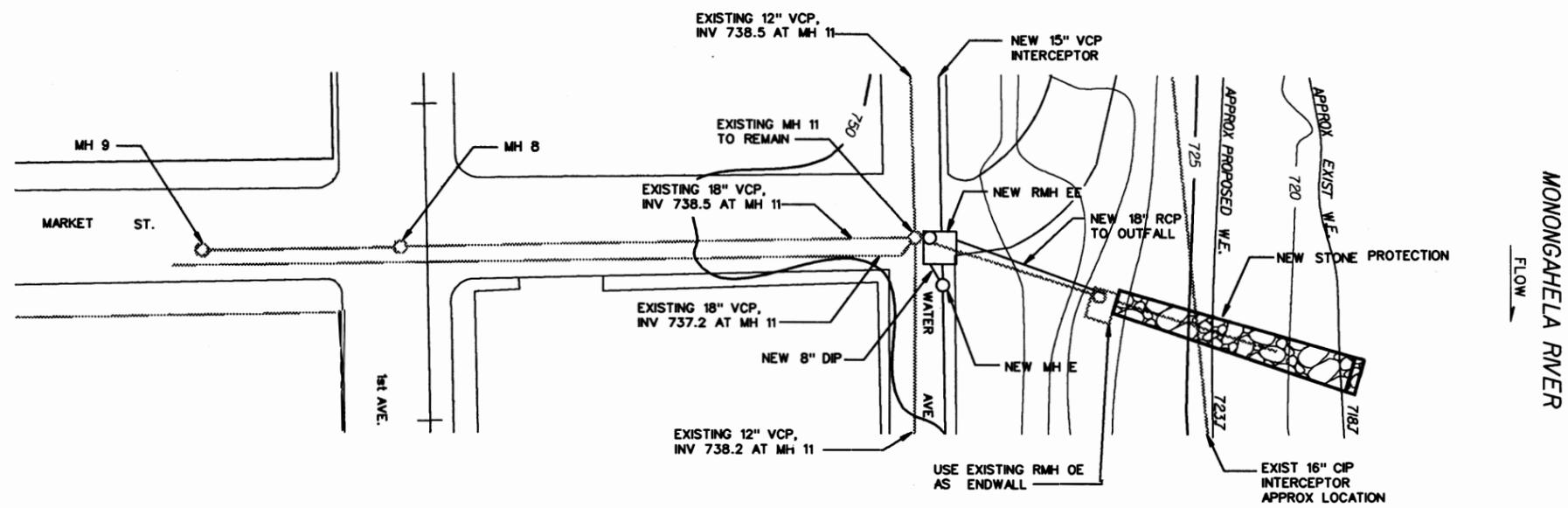
PROFILE



STONE PROTECTION SECTION



STONE PROTECTION PLAN



PLAN

NOTES:

1. OBJECT LINES APPEARING AS HALF TONES ARE EXISTING CONSTRUCTION.
2. SOLID LINES ARE NEW CONSTRUCTION.
3. CONTOURS DISPLAYED AT 5 FOOT INTERVALS.
4. REGRADE EXCAVATIONS TO MATCH EXISTING CONTOURS.
5. "RMH" DENOTES REGULATOR MANHOLE.
6. REMOVE AND RECONDITION REGULATOR HARDWARE AND INSTALL IN NEW REGULATOR DURING PLACEMENT.
7. SEE DRAWING 67/48 FOR INTERCEPTOR PLAN.

FACILITY - M23R

REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT, PITTSBURGH CORPS OF ENGINEERS OFFICE OF THE DISTRICT ENGINEER PITTSBURGH, PENNSYLVANIA			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS ELIZABETH BOROUGH			
MARKET STREET REGULATOR STATION & OUTFALL PLAN AND PROFILE			
DESIGNED: MFR/ MPZ	DRAWN: MFR	CHECKED: CRP	DATE: 24 Aug 1994
NO SCALE		DWG NO. 037-R55-67/51	
SUBMITTED: David M. Woyanuk		FBI NO. DACW59	

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: Elizabeth Borough Riverfront Park

ID: M24R

Location

River: Monongahela Bank: RT RM: 22.8

Owner: Elizabeth Borough
Address: 206 Third Avenue
Elizabeth, Pennsylvania 15037

Design Team Visit: 03 March 1993, Fritz

POOL DATA:

	EXISTING	BRADDOCK
Level Pool	718.7	723.7
Ordinary High Water	732.9	731.2

EXISTING CONDITIONS:

Top Elevation: 725.0

Facility Description:

Elizabeth Borough Riverfront Park consists of a grounded barge with a deck of bituminous and cement concrete pavements. The sunken barge slightly protrudes into the river. Along the landward embankment there are reinforced concrete grandstands and a stone protected bank. Access to the park is via a roadway on the downstream side of the park. The access roadway embankment is stone rip rap. Wooden posts with nylon rope serve as the guide rail along the access road. Along the river edge of the park are eight check posts which are an integral part of the barge.

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates that there is an insignificant potential for contamination at this facility site. Therefore, the contractor does not recommend a Phase II investigation for this facility at this time.

PROPOSED DESIGN:

Provide a new deck at elevation 730.0; raise other items as necessary to accommodate the new deck.

REQUIRED REMEDIAL WORK:

Government Proposal:

Drive sheet piling riverward, upstream and downstream of the sunken barge with a cap elevation of 730.0. Secure the piling to the barge with a series of plates, angles and reinforced concrete anchor blocks. Backfill the area landward of the sheet piling with pervious fill and cap with bituminous or cement concrete pavements (new deck elevation, 730.0). Construct one new row of reinforced cement concrete grandstand, to compensate for the loss of one row caused by raising the deck. Adjust the access road to enter the park at its new deck elevation. Provide four check posts along the river edge of the park.

Estimated Construction Cost (Rounded): \$ 428,000

Responsibility: Government

Justification:

Elizabeth Borough Riverfront Park was constructed in the late 1980's. The five foot pool increase will reduce the freeboard from 6.3 feet to 1.3 feet. This reduction will subject the park to more frequent inundation, due to river fluctuations, making the park unusable.

This facility was authorized for project funding by the LMFS. Further investigation has confirmed that it complies with the requirements of P.L. 85-500, Section 111, as amended (see APPENDIX D).



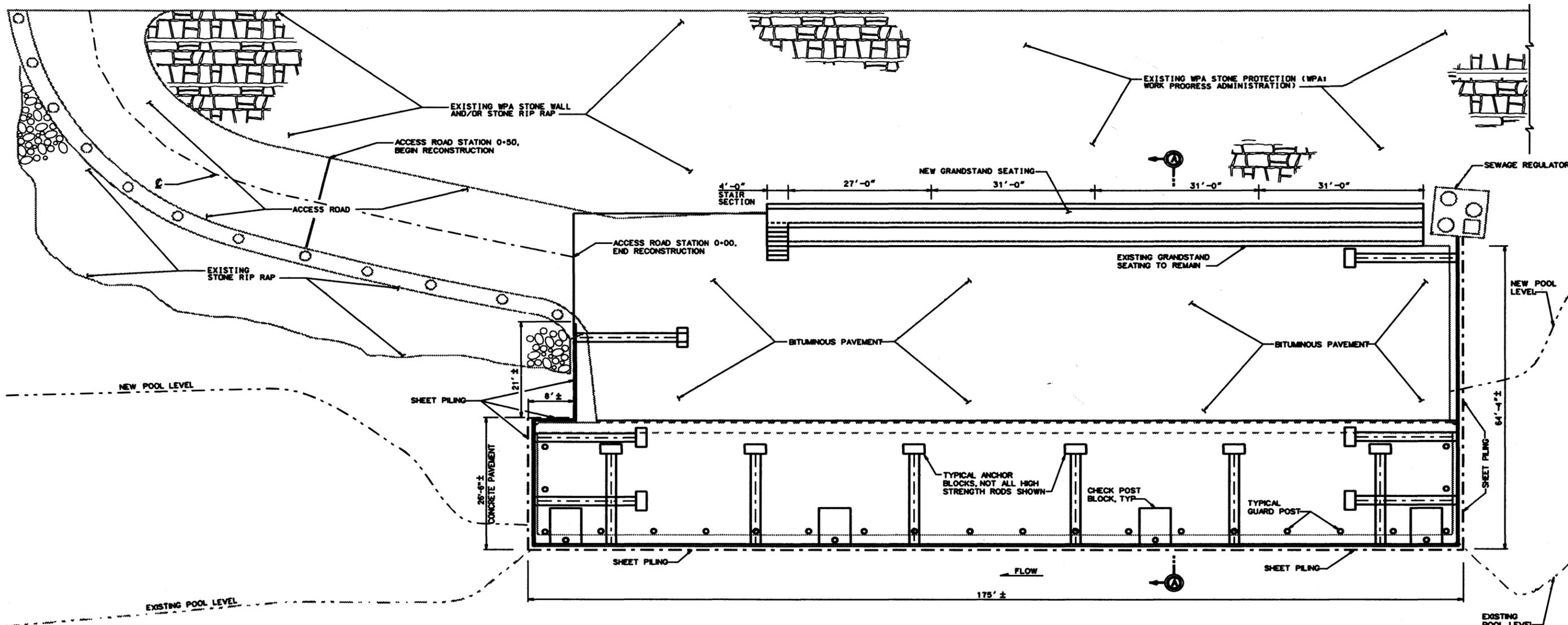
LOOKING LANDWARD AT GRANDSTAND SEATING



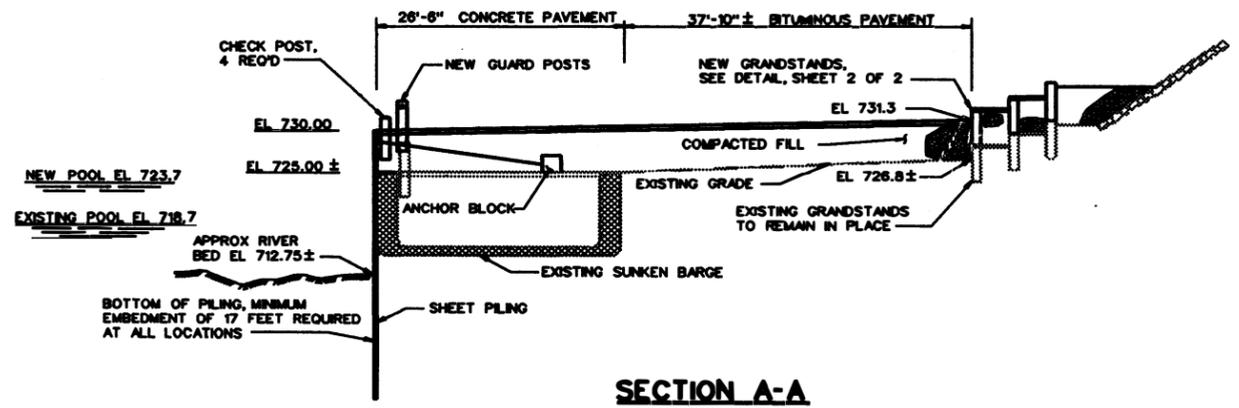
LOOKING RIVERWARD/UPSTREAM

M24R, PHOTOS

M24R-3



PLAN

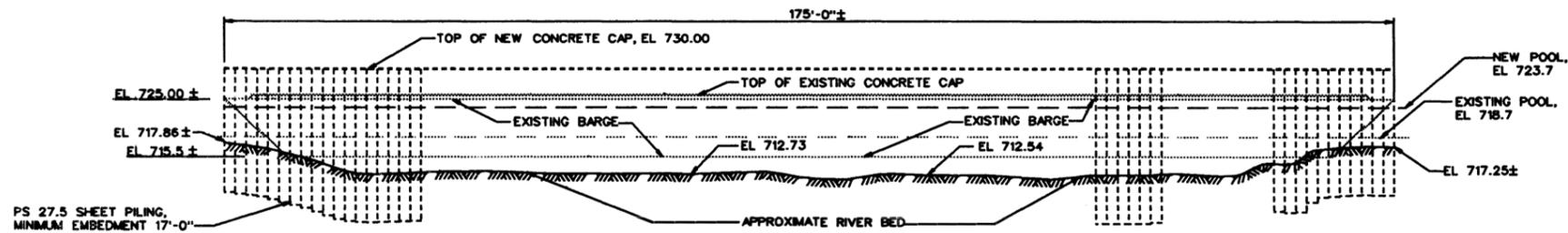


SECTION A-A

GENERAL NOTE:
 1. OBJECT LINES APPEARING AS HALF TONES ARE EXISTING CONSTRUCTION.
 2. SOLID LINES ARE NEW CONSTRUCTION.

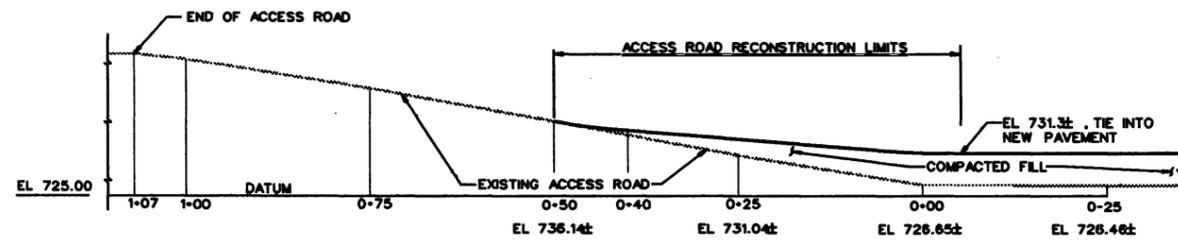
NOTES:
 1. PLACE PS 27.5 SHEET PILING ALONG THE RIVERSIDE EDGE, UPSTREAM EDGE AND DOWNSTREAM EDGE OF THE EXISTING BARGE TO THE DIMENSIONS SHOWN.
 2. FOR PROFILES OF ACCESS ROAD AND BARGE, SEE SHEET 2 OF 2.

FACILITY - M24R			
REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT, PITTSBURGH CORPS OF ENGINEERS OFFICE OF THE DISTRICT ENGINEER PITTSBURGH, PENNSYLVANIA			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS ELIZABETH BOROUGH RIVERFRONT PARK PLAN AND SECTION			
DESIGNED BY SW	DRAWN BY SRF	CHECKED BY SRF	DATE 22 Aug 94
SCALE NO SCALE		DWD NO. 037-R55-1/6	
SUBMITTED BY Levy D. Shultz		D/CW59	
19-AUG-1994		SHEET 1 OF 2	



BARGE PROFILE

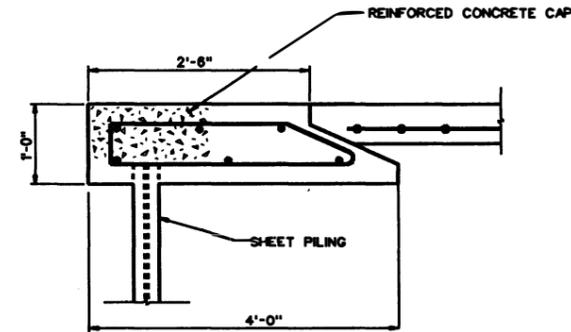
NOTE: ALL SHEET PILING NOT SHOWN FOR CLARITY



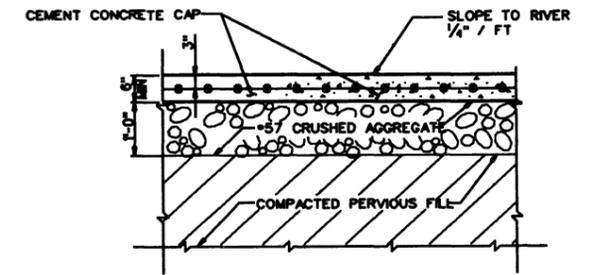
NOTE: ELEVATIONS SHOWN BELOW DATUM ARE EXISTING ROADWAY ELEVATIONS

ACCESS ROAD PROFILE

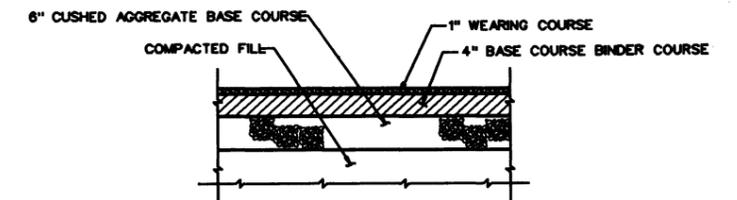
ALONG CENTERLINE



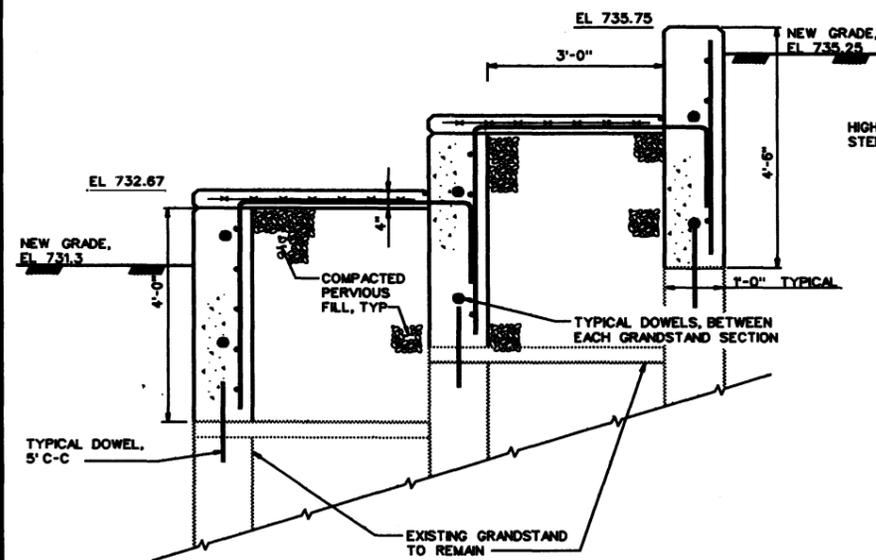
PILE CAP



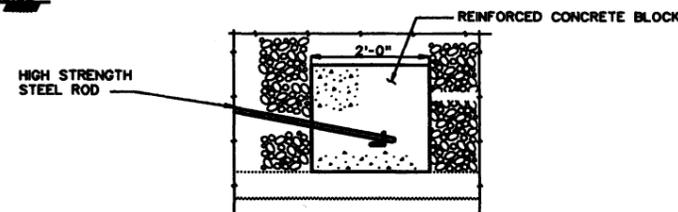
TYPICAL CEMENT CONCRETE PAVEMENT



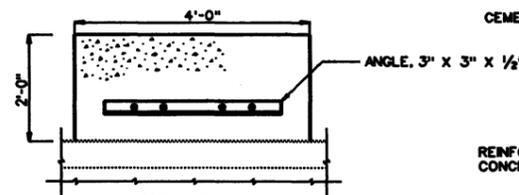
TYPICAL BITUMINOUS CONCRETE PAVEMENT



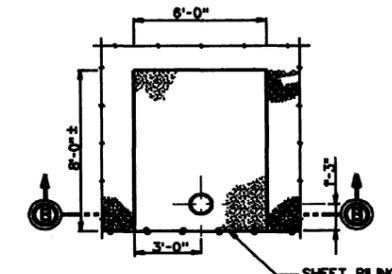
TYPICAL SECTION (GRANDSTAND)



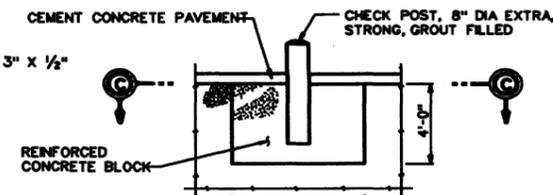
ELEVATION



ANCHOR BLOCK DETAILS

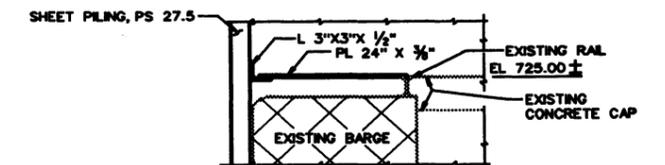


SECTION C-C



SECTION B-B

CHECK POST DETAILS



PILING SUPPORT CONNECTION AT EXISTING DECK

FACILITY - M24R			
REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT, PITTSBURGH CORPS OF ENGINEERS OFFICE OF THE DISTRICT ENGINEER PITTSBURGH, PENNSYLVANIA			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS ELIZABETH BOROUGH RIVERFRONT PARK PROFILES AND DETAILS			
DESIGNED BY	DRAWN BY	CHECKED BY	DATE
10/11/94	SRF	22 Aug 94	NO SCALE
PROJECT NO. 037-R55-12/7		SHEET NO. 2	
DRAWN BY: <i>Ray D. Stalley</i>		DATE: DAC159	

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: Plum Street Regulator Station

ID: M25R

Location

River: Monongahela Bank: RT RM: 22.9

Owner: Elizabeth Borough

Address: 206 Third Avenue
Elizabeth, Pennsylvania 15037

Design Team Visit: Various dates, Reidy

POOL DATA:

	EXISTING	BRADDOCK
Level Pool	718.7	723.7
Ordinary High Water	732.9	731.2

EXISTING CONDITIONS:

Invert Elevations:

Regulator: 722.6

Outfall: 720.0

Inlet conditions:

The original Elizabeth Borough sewer system was constructed to carry all sanitary and storm flows directly to the Monongahela River. In 1959, the Elizabeth Borough Sanitary Authority constructed a main interceptor sewer and regulator stations (see Combined Sewer System Description) to collect all dry weather sanitary flows and carry them to the Authority's sewage treatment plant.

Inflow to this regulator is through a 18" VCP. The regulator diverts all dry weather flows through a 8" DIP to the interceptor sewer. A 18" VCP discharges overflows to the Monongahela River.

Drainage Area: 8.8 Acres

Capacity: $Q_c = 7.3$ CFS

Runoff, 10-year event: 3 CFS

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates that there is an insignificant potential for contamination at this facility site. Therefore, the contractor does not recommend a Phase II investigation for this facility at this time.

PROPOSED DESIGN:

Limiting Capacity: $Q_L = 7.3$ CFS
Slope: 0.051 ft/ft
Material: RCP
Manning's N: 0.012
Diameter: 18"
Design Capacity: $Q_D = 7.3$ CFS

REQUIRED REMEDIAL WORK:

Government Proposal:

Construct a new regulator at higher elevation and new location. Construct 10 feet of 8" DIP to connect this new regulator to the new interceptor. Construct 48 feet of 18" RCP for the new overflow. Use the existing regulator station as an endwall. Provide stone protection below this outfall. Refurbish and reuse the regulator mechanism. Remove the existing pipe riverward of the new regulator. See facility M21R for proposed real estate actions.

Estimated Construction Cost (Rounded): \$ 111,000

Responsibility: Government

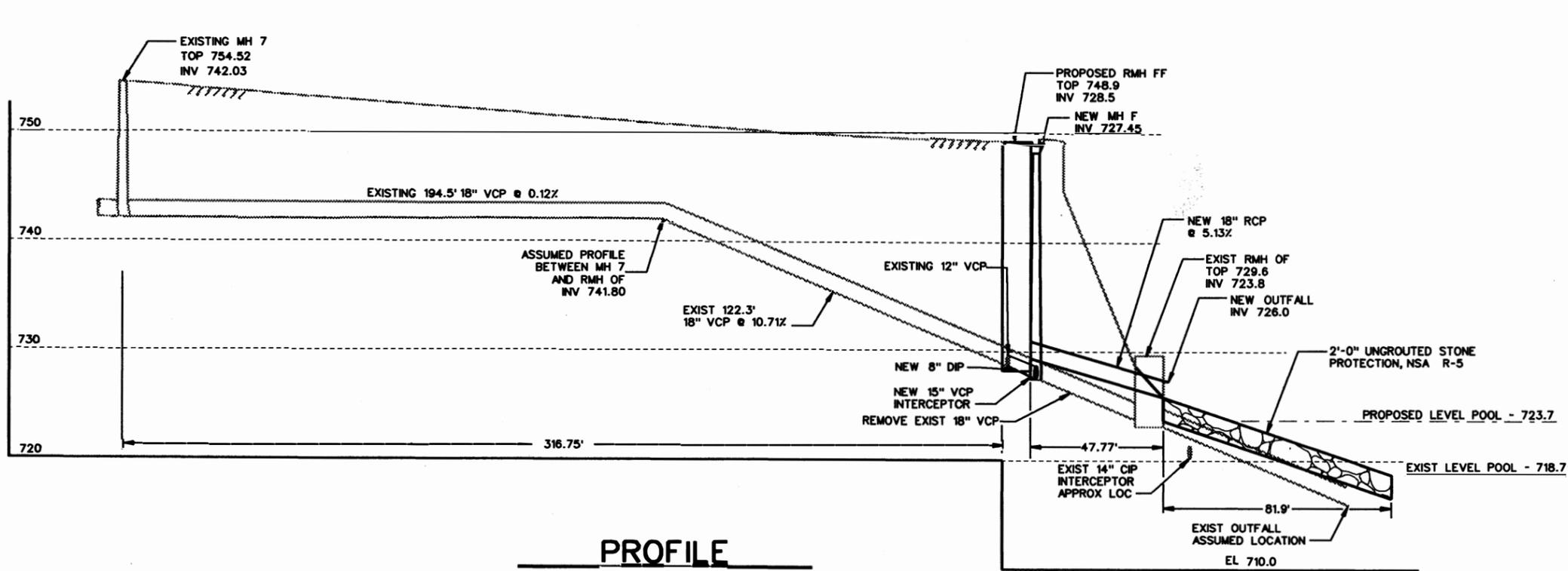
Justification:

This regulator station functions as a relief valve for the combined sewer system during storm events. This regulator must be raised and relocated horizontally to accommodate the relocation of the main intercepting sewer (M21R).

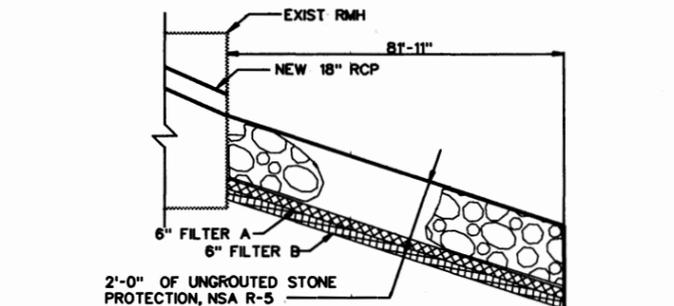
This facility is an integral part of the main interceptor sewer (M21R), which was authorized for project funding by the LMFS. Further investigation has confirmed (see Appendix D) that it does comply with the requirements of Section 111 of P.L. 85-500, as amended. Therefore, adjustment is a Government responsibility.



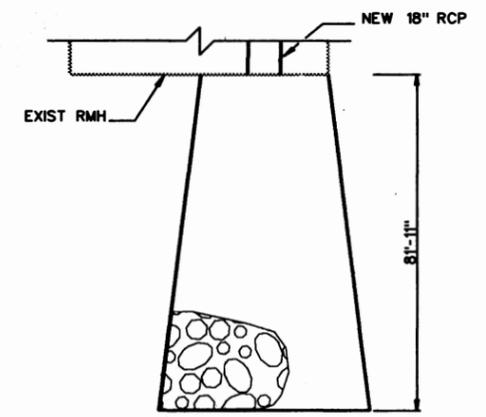
M25R, RMH OF, LOOKING U/S



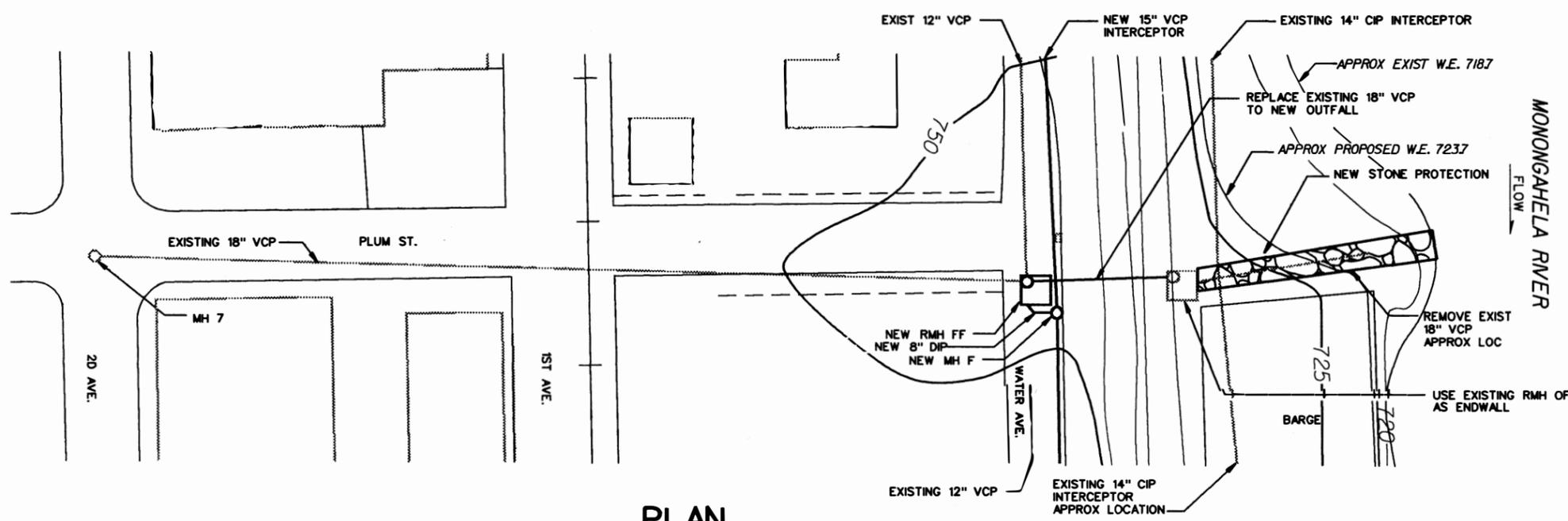
PROFILE



STONE PROTECTION SECTION



STONE PROTECTION PLAN



PLAN

- NOTES:
1. OBJECT LINES APPEARING AS HALF TONES ARE EXISTING CONSTRUCTION.
 2. SOLID LINES ARE NEW CONSTRUCTION.
 3. CONTOURS DISPLAYED AT 5 FOOT INTERVALS.
 4. REGRADE EXCAVATIONS TO MATCH EXISTING CONTOURS.
 5. "RMH" DENOTES REGULATOR MANHOLE.
 6. REMOVE AND RECONDITION REGULATOR HARDWARE AND INSTALL IN NEW REGULATOR DURING PLACEMENT.
 7. SEE DRAWING 67/48 FOR INTERCEPTOR PLAN.
- FACILITY - M25R**

REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT, PITTSBURGH CORPS OF ENGINEERS OFFICE OF THE DISTRICT ENGINEER PITTSBURGH, PENNSYLVANIA			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS ELIZABETH BOROUGH			
PLUM STREET REGULATOR STATION & OUTFALL PLAN AND PROFILE			
DESIGNED: MFR/ MPZ	DRAWN: MFR	CHECKED: CRP	DATE: 24 Aug 1994
		SCALE: NO SCALE	DWG NO. 037-R55-67/52
		SUBMITTED: David M. Hays	DATE: DACW59

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: Walnut Street Regulator Station

ID: M26R

Location

River: Monongahela Bank: RT RM: 23.0

Owner: Elizabeth Borough

Address: 206 Third Avenue
Elizabeth, Pennsylvania 15037

Design Team Visit: Various dates, Reidy

POOL DATA:

	EXISTING	BRADDOCK
Level Pool	718.7	723.7
Ordinary High Water	733.0	731.3

EXISTING CONDITIONS:

Invert Elevations:

Regulator: 725.1

Outfall: 726.8

Inlet conditions:

The original Elizabeth Borough sewer system was constructed to carry all sanitary and storm flows directly to the Monongahela River. In 1959, the Elizabeth Borough Sanitary Authority constructed a main interceptor sewer and regulator stations (see Combined Sewer System Description) to collect all dry weather sanitary flows and carry them to the Authority's sewage treatment plant.

Inflow to this regulator is through a 18" TCP. The regulator diverts all dry weather flows through a 8" CIP to the interceptor sewer. An 18" TCP discharges overflows to the Monongahela River.

Drainage Area: 3.3 Acres

Capacity: $Q_c = 12$ CFS

Runoff, 10-year event: 11 CFS

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates that there is an insignificant potential for contamination at this facility site. Therefore, the contractor does not recommend a Phase II investigation for this facility at this time.

PROPOSED DESIGN:

Invert Elevation: 724.2
Limiting Capacity: $Q_L = 12$ CFS
Slope: 0.02357 ft/ft
Material: RCP
Manning's N: 0.012
Diameter: 18"
Design Capacity: $Q_D = 12$ CFS

REQUIRED REMEDIAL WORK:

Government Proposal:

Construct a new regulator at higher elevation and new location. Construct 11 feet of 8" DIP to connect this new regulator to the new interceptor. Construct 57 feet of 18" RCP for the new overflow. Construct a new endwall and provide stone protection below this outfall. Remove the existing pipe riverward of the new regulator. See facility M21R for proposed real estate actions.

Estimated Construction Cost (Rounded): \$ 115,000

Responsibility: Government

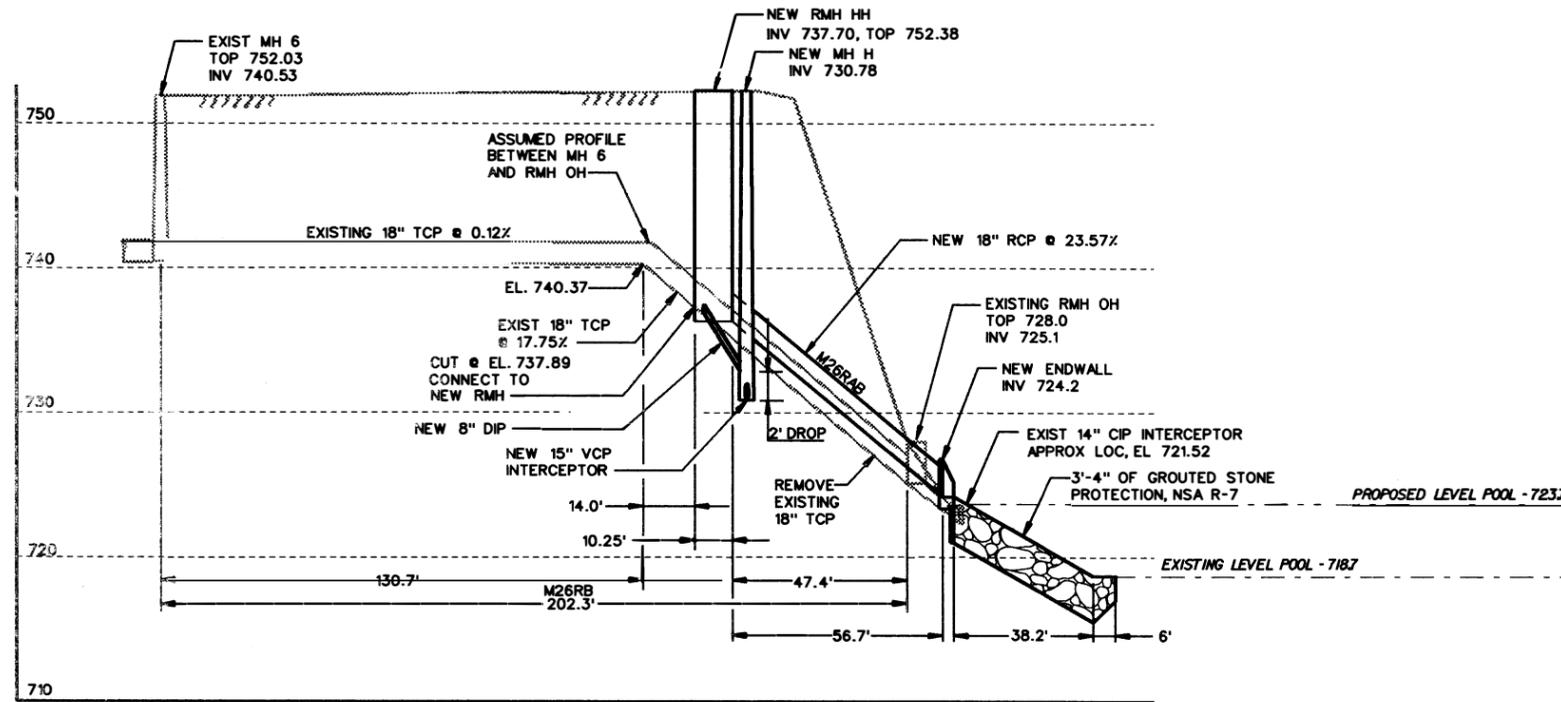
Justification:

This regulator station functions as a relief valve for the combined sewer system during storm events. This regulator must be raised and relocated horizontally to accommodate the relocation of the main intercepting sewer (M21R). However, this combined sewer overflow is not currently permitted under the National Pollutant Discharge Elimination System (NPDES) by the Pennsylvania Department of Environmental Resources (PENDER). The District has advised the owner of its responsibility to acquire the necessary NPDES permits prior to the execution of a relocations contract, and the owner has responded in writing that is applying for the necessary permits. In accordance with the recommendation of the District Engineer in the LMFS, the District will verify compliance with environmental regulations prior to execution of a contract for the adjustment of the facility at project expense.

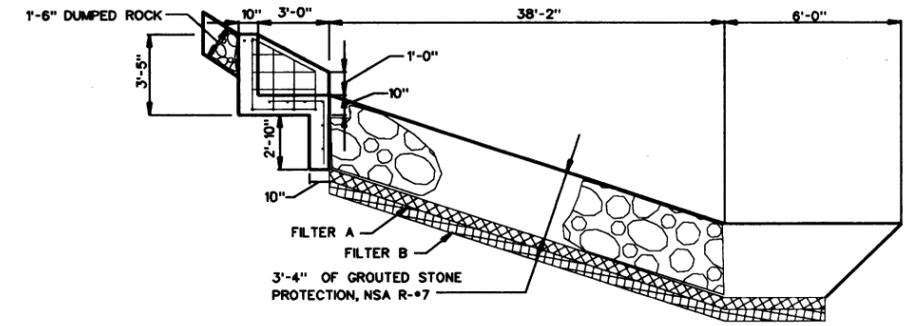
This facility is an integral part of the main interceptor sewer (M21R), which was authorized for project funding by the LMFS. Further investigation has confirmed (see Appendix D) that it does comply with the requirements of Section 111 of P.L. 85-500, as amended. Therefore, adjustment is a Government responsibility.



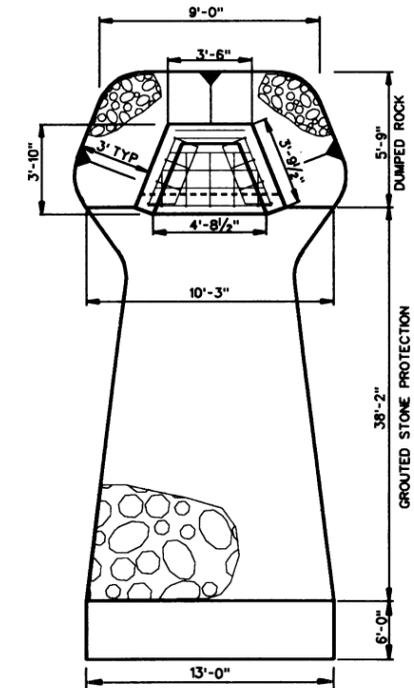
M26R, RMH OH, LOOKING LANDWARD



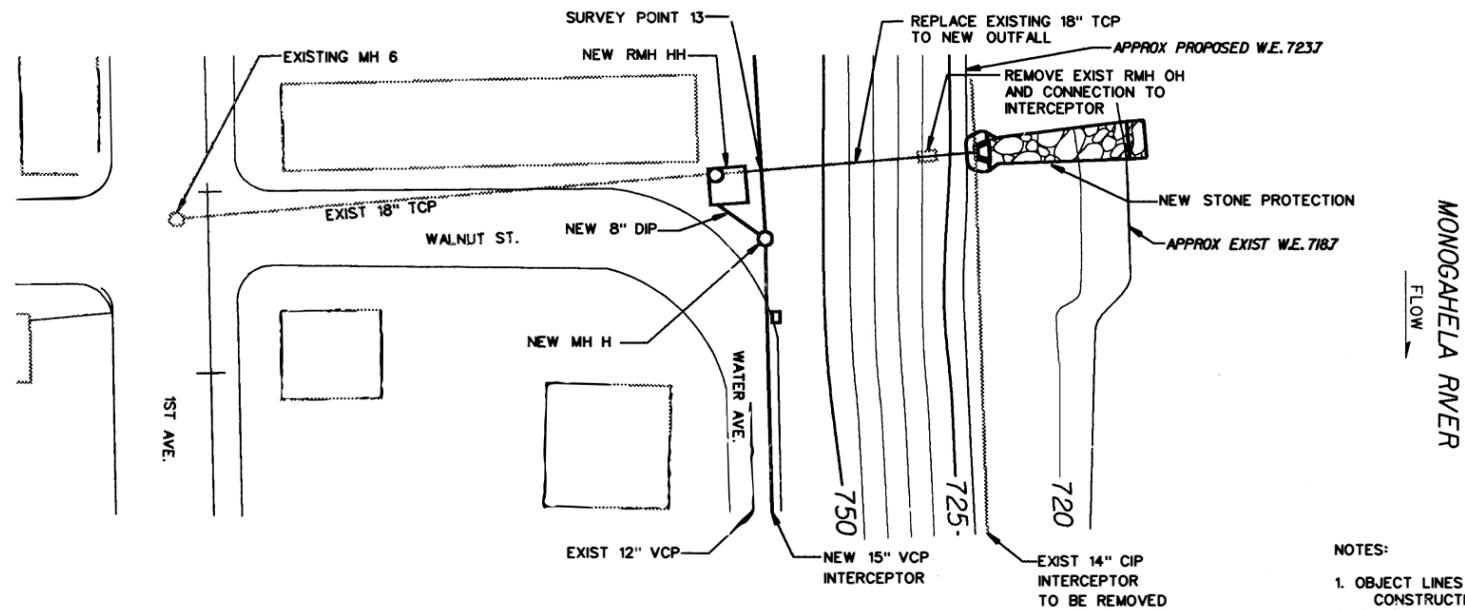
PROFILE



STONE PROTECTION AND ENDWALL SECTION



STONE PROTECTION AND ENDWALL PLAN



PLAN

- NOTES:
1. OBJECT LINES APPEARING AS HALF TONES ARE EXISTING CONSTRUCTION.
 2. SOLID LINES ARE NEW CONSTRUCTION.
 3. CONTOURS DISPLAYED AT 5 FOOT INTERVALS.
 4. REGRADE EXCAVATIONS TO MATCH EXISTING CONTOURS.
 5. "RMH" DENOTES REGULATOR MANHOLE.
 6. REMOVE AND RECONDITION REGULATOR HARDWARE AND INSTALL IN NEW REGULATOR DURING PLACEMENT.
 7. SEE DRAWING 67/48 FOR INTERCEPTOR PLAN.

REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
FACILITY*- M26R			
U.S. ARMY ENGINEER DISTRICT, PITTSBURGH CORPS OF ENGINEERS OFFICE OF THE DISTRICT ENGINEER PITTSBURGH, PENNSYLVANIA			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS ELIZABETH BOROUGH			
WALNUT STREET REGULATOR STATION PLAN AND PROFILE			
DESIGNED: MFR/ MPZ	DRAWN: MFR	CHECKED: CRE	DATE: 24 Aug 1994
SCALE: NO SCALE		DWO NO. 037-R55-67/53	
SUBMITTED: David M. Waymuth		FBI NO. DACW59	
SHEET		OF	

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: Bayard Street Regulator Station

ID: M27R

Location

River: Monongahela Bank: RT RM: 23.1

Owner: Elizabeth Borough

Address: 206 Third Avenue
Elizabeth, Pennsylvania 15037

Design Team Visit: Various dates, Reidy

POOL DATA:

	EXISTING POOL 2	BRADDOCK POOL
Level Pool	718.7	723.7
Ordinary High Water	733.0	731.4

EXISTING CONDITIONS:

Invert Elevations:

Regulator: 725.9

Outfall: 720.1

Inlet conditions:

The original Elizabeth Borough sewer system was constructed to carry all sanitary and storm flows directly to the Monongahela River. In 1959, the Elizabeth Borough Sanitary Authority constructed a main interceptor sewer and regulator stations (see Combined Sewer System Description) to collect all dry weather sanitary flows and carry them to the Authority's sewage treatment plant.

Inflow to this regulator is through a 18" VCP. The regulator diverts all dry weather flows through a 8" DIP to the interceptor sewer. An 18" VCP discharges overflows to the Monongahela River.

Drainage Area: 21.5 Acres

Capacity: $Q_c = 7.7$ CFS

Runoff, 10-year event: 68 CFS

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates that there is an insignificant potential for contamination at this facility site. Therefore, the contractor does not recommend a Phase II investigation for this facility at this time.

PROPOSED DESIGN:

Use existing sewer as outfall.
Invert Elevation: 726.5
Limiting Capacity: $Q_L = 11.5$ CFS
Slope: 0.1682 ft/ft
Material: VCP
Manning's N: 0.012
Diameter: 18"
Design Capacity: $Q_D = 7.7$ CFS

REQUIRED REMEDIAL WORK:

Government Proposal:

Construct a new regulator at higher elevation and new location. Construct 30 feet of 8" DIP to connect this new regulator to the new interceptor. Use the existing pipe below the new regulator as the new overflow. Use the existing regulator station as an endwall. Provide stone protection below this outfall. Refurbish and reuse the regulator mechanism. Remove the existing overflow riverward of the existing regulator. See facility M21R for proposed real estate actions.

Estimated Construction Cost (Rounded): \$ 106,000

Responsibility: Government

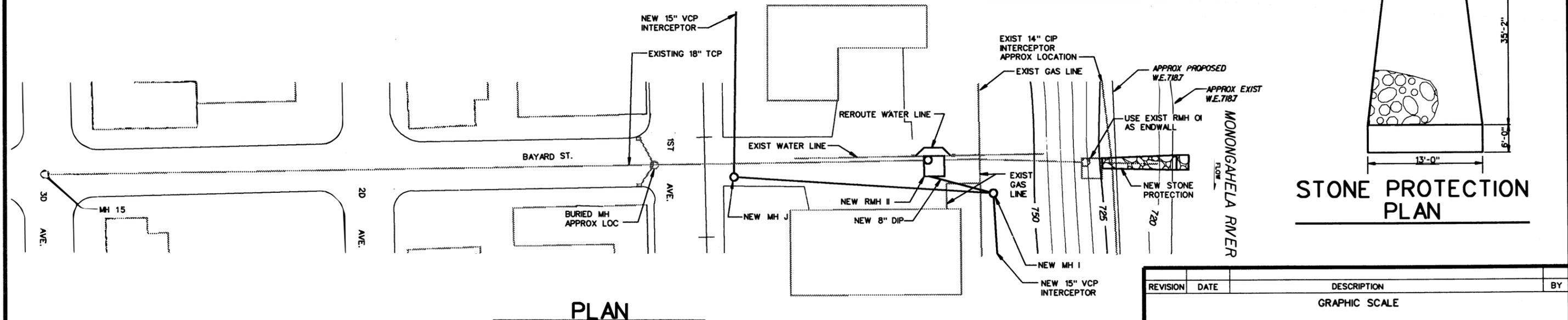
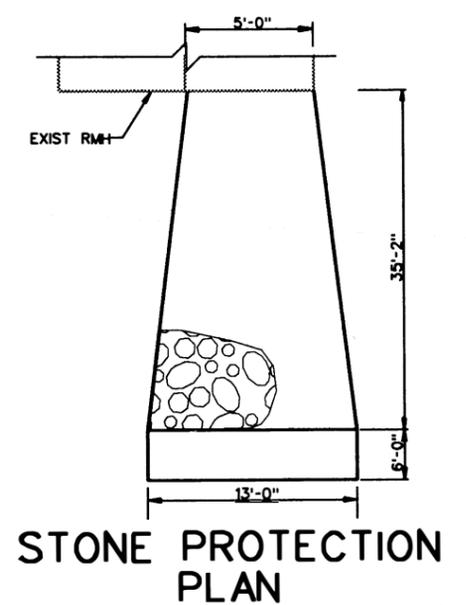
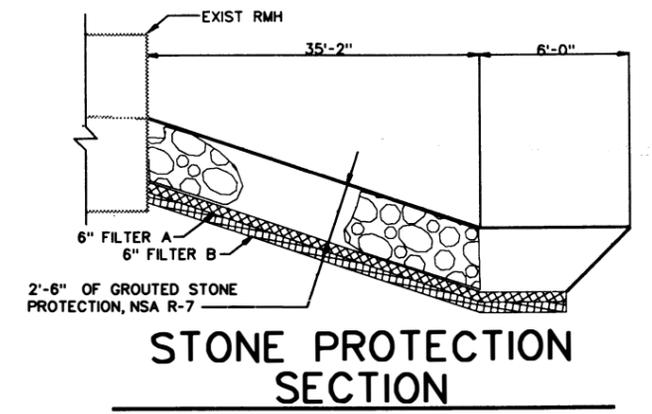
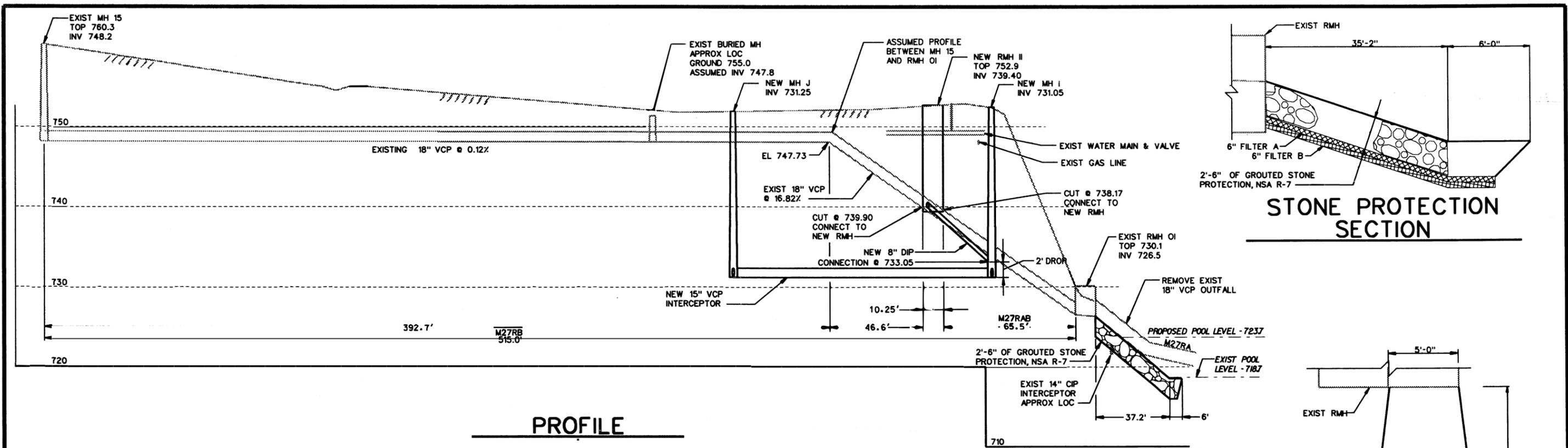
Justification:

This regulator station functions as a relief valve for the combined sewer system during storm events. This regulator must be raised and relocated horizontally to accommodate the relocation of the main intercepting sewer (M21R).

This facility is an integral part of the main interceptor sewer (M21R), which was authorized for project funding by the LMFS. Further investigation has confirmed (see Appendix D) that it does comply with the requirements of Section 111 of P.L. 85-500, as amended. Therefore, adjustment is a Government responsibility.



M27R, RMH 01, LOOKING U/S



- NOTES:
1. OBJECT LINES APPEARING AS HALF TONES ARE EXISTING CONSTRUCTION.
 2. SOLID LINES ARE NEW CONSTRUCTION.
 3. CONTOURS DISPLAYED AT 5 FOOT INTERVALS.
 4. REGRADE EXCAVATIONS TO MATCH EXISTING CONTOURS.
 5. "RMH" DENOTES REGULATOR MANHOLE
 6. REMOVE AND RECONDITION REGULATOR HARDWARE AND INSTALL IN NEW REGULATOR DURING PLACEMENT
 7. REROUTE EXISTING WATER LINE AT NEW REGULATOR AND PROVIDE THRUST BLOCKS AT OUTSIDE CONNECTIONS (2 REQ'D).
 7. SEE DRAWING 67/48 FOR INTERCEPTOR PLAN.

REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
FACILITY - M27R			
U.S. ARMY ENGINEER DISTRICT, PITTSBURGH CORPS OF ENGINEERS OFFICE OF THE DISTRICT ENGINEER PITTSBURGH, PENNSYLVANIA			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS ELIZABETH BOROUGH			
BAYARD STREET REGULATOR STATION & OUTFALL PLAN AND PROFILE			
DESIGNED: MFR/ MPZ	DRAWN: MFR	CHECKED: <i>CR</i>	DATE: 24 Aug 1994
SCALE: NO SCALE		DWG NO. 037-R55-67/54	
SUBMITTED: <i>David W. Wapnick</i>		DATE: 24 Aug 1994	
SCALE: NO SCALE		DWG NO. 037-R55-67/54	
SUBMITTED: <i>David W. Wapnick</i>		DATE: 24 Aug 1994	
SCALE: NO SCALE		DWG NO. 037-R55-67/54	

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: Upper Mill Street Regulator Station and Outfall

ID: M28R

Location

River: Monongahela Bank: RT RM: 23.2

Owner: Elizabeth Borough

Address: 206 Third Avenue
Elizabeth, Pennsylvania 15037

Design Team Visit: Various dates, Reidy

POOL DATA:

	EXISTING POOL 2	BRADDOCK POOL
Level Pool	718.7	723.7
Ordinary High Water	733.0	731.4

EXISTING CONDITIONS:

Invert Elevations:

Regulator: 723.7

Outfall: 720.5

Inlet conditions:

The original Elizabeth Borough sewer system was constructed to carry all sanitary and storm flows directly to the Monongahela River. In 1959, the Elizabeth Borough Sanitary Authority constructed a main interceptor sewer and regulator stations (see Combined Sewer System Description) to collect all dry weather sanitary flows and carry them to the Authority's sewage treatment plant.

Inflow to this regulator is through a 30" RCP. The regulator diverts all dry weather flows through a 8" DIP to the interceptor sewer. A 30" CIP discharges overflows to the Monongahela River.

Drainage Area: 69.3 Acres

Capacity: $Q_c = 54$ CFS

Runoff, 10-year event: 21.2

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates that there is an insignificant potential for contamination at this facility site. Therefore, the contractor does not recommend a Phase II investigation for this facility at this time.

PROPOSED DESIGN:

Invert Elevation: 724.2
Limiting Capacity: $Q_L = 54$ CFS
Slope: 0.0521 ft/ft
Material: RCP
Manning's N: 0.012
Diameter: 30"
Design Capacity: $Q_D = 54$ CFS

REQUIRED REMEDIAL WORK:

Government Proposal:

Construct a new regulator station at higher elevation and new location. Construct 155 feet of 30" RCP for the new overflow. Construct new endwall and stone protection. Refurbish and reuse the regulator mechanism. Fill the existing regulator structure with rubble. Remove exposed portion of the existing overflow and plug the remainder. See facility M21R for proposed real estate actions.

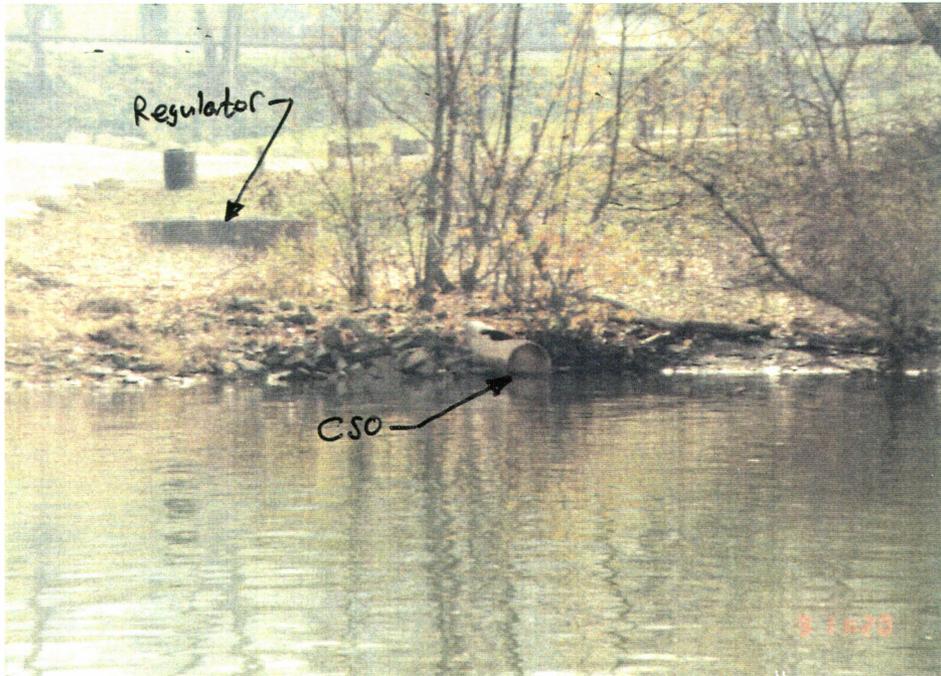
Estimated Construction Cost (Rounded): \$ 138,000

Responsibility: Government

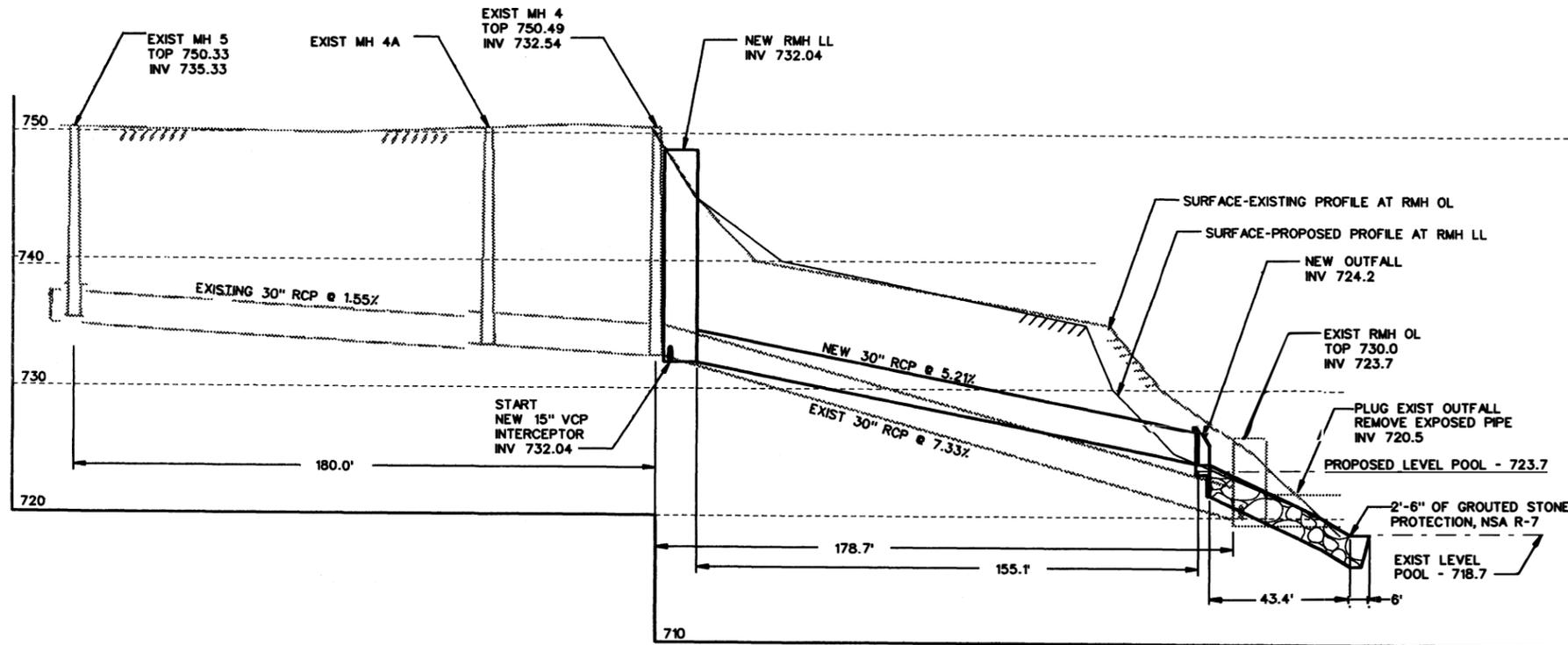
Justification:

This regulator station functions as a relief valve for the combined sewer system during storm events. This regulator must be raised and relocated horizontally to accommodate the relocation of the main intercepting sewer (M21R).

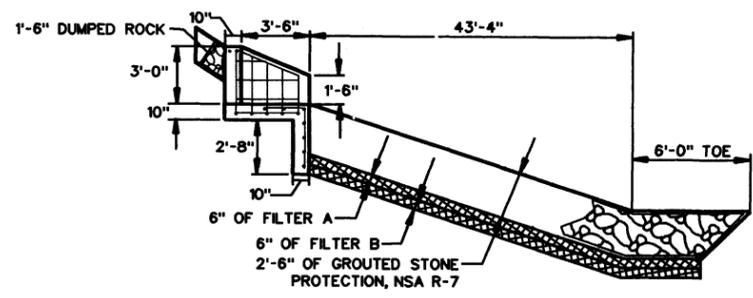
This facility, an integral part of the main intercepting sewer (M21R), was identified in the LMFS as a 30" CIP storm sewer and was authorized for project funding. Further investigation has confirmed (see Appendix D) that it does comply with the requirements of Section 111 of P.L. 85-500, as amended). Therefore, adjustment is a Government responsibility.



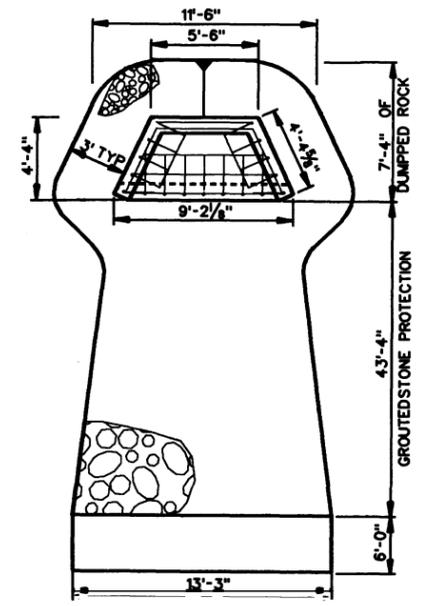
M28R, RMH OL, LOOKING LANDWARD
M28R CSO IN FOREGROUND



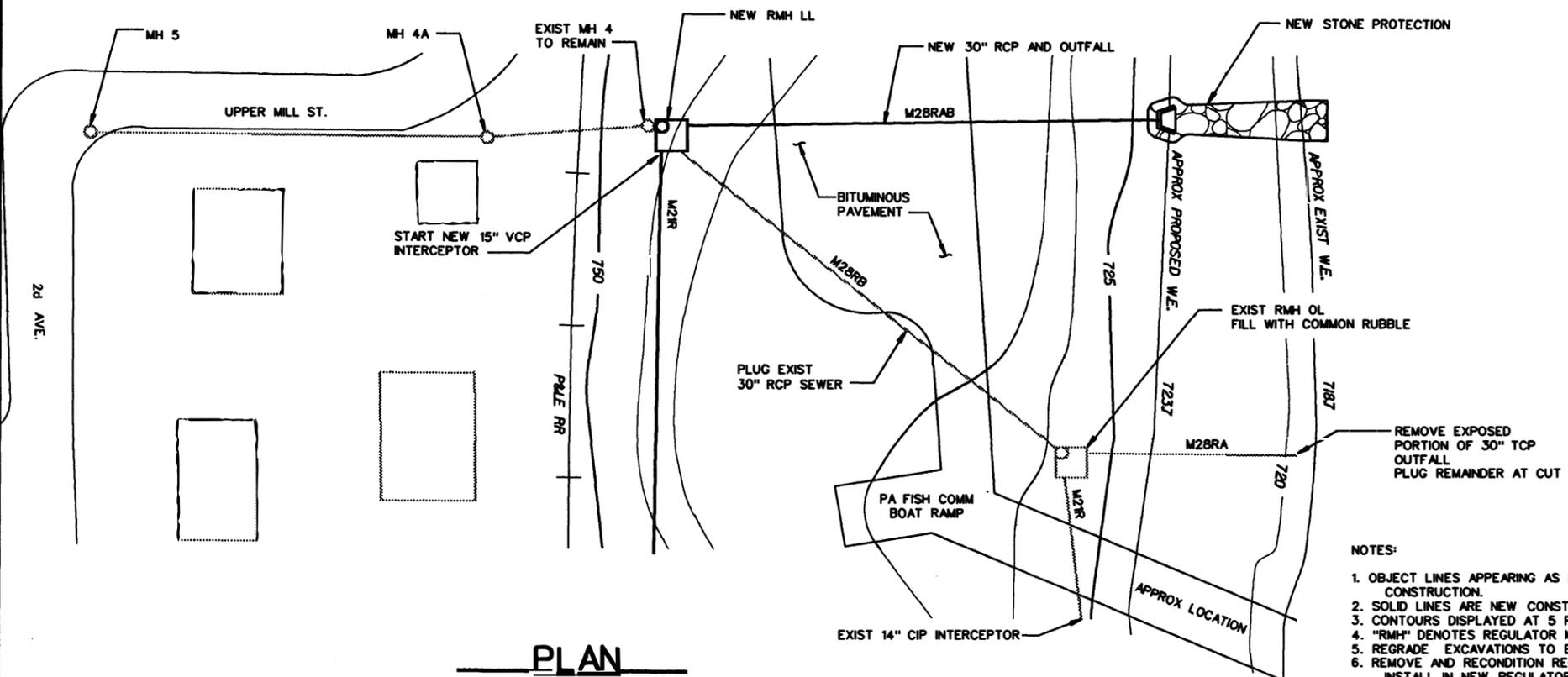
PROFILE



STONE PROTECTION AND ENDWALL SECTION



STONE PROTECTION AND ENDWALL PLAN



PLAN

- NOTES:
1. OBJECT LINES APPEARING AS HALF TONES ARE EXISTING CONSTRUCTION.
 2. SOLID LINES ARE NEW CONSTRUCTION.
 3. CONTOURS DISPLAYED AT 5 FOOT INTERVALS.
 4. "RMH" DENOTES REGULATOR MANHOLE.
 5. REGRADE EXCAVATIONS TO EXISTING CONTOURS.
 6. REMOVE AND RECONDITION REGULATOR HARDWARE AND INSTALL IN NEW REGULATOR DURING PLACEMENT.
 7. SEE DRAWING 67/48 FOR INTERCEPTOR PLAN.

REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
FACILITY - M28R			
U.S. ARMY ENGINEER DISTRICT, PITTSBURGH CORPS OF ENGINEERS OFFICE OF THE DISTRICT ENGINEER PITTSBURGH, PENNSYLVANIA			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS ELIZABETH BOROUGH			
UPPER MILL STREET REGULATOR STATION & OUTFALL PLAN AND PROFILE			
DESIGNED: MFR/ MPZ	DRAWN: MFR	CHECKED: CRE	DATE: 24 Aug 1994
SCALE: NO SCALE		DWG. NO. 037-R55-67/55	
SUBMITTED: David W. Weyerwilk		SHEET NO. DACW59	

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: Public Boat Launching Ramp

ID: M29R

Location

River: Monongahela Bank: Rt RM: 34.1

Owner: Forward Township

Address: Box 40 A RD 3
Monongahela, Pennsylvania 15063

Design Team Visit: March 1994, Fritz

POOL DATA:

	EXISTING	BRADDOCK
Level Pool	726.9	723.7
Ordinary High Water	739.7	736.8

EXISTING CONDITIONS:

Facility Description:

The existing launching ramp is 10'-6" wide with 7'-6" asphalt berms. The ramp is constructed of concrete beams imbedded in asphalt. The end elevation of the ramp is 723.5.

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates that there is an insignificant potential for contamination at this facility site. Therefore, the contractor does not recommend a Phase II investigation for this facility at this time.

REQUIRED REMEDIAL WORK:

Government Proposal:

Approximately 26 feet of the existing ramp will be removed to facilitate the placement of the new ramp. The proposed ramp will be constructed of reinforced cement concrete. The lower portion of the ramp will be constructed on dry land and pushed onto a prepared base within the river. The upper portion of the ramp will also be constructed of reinforced cement concrete. It will be doweled into the lower portion and anchored with reinforced cement concrete toes at both the upper and lower ends. Stone rip rap will be placed along both sides and the end of the ramp to protect it from wave action and higher river flows.

Estimated Construction Cost (Rounded): \$ 15,000

Responsibility: Government

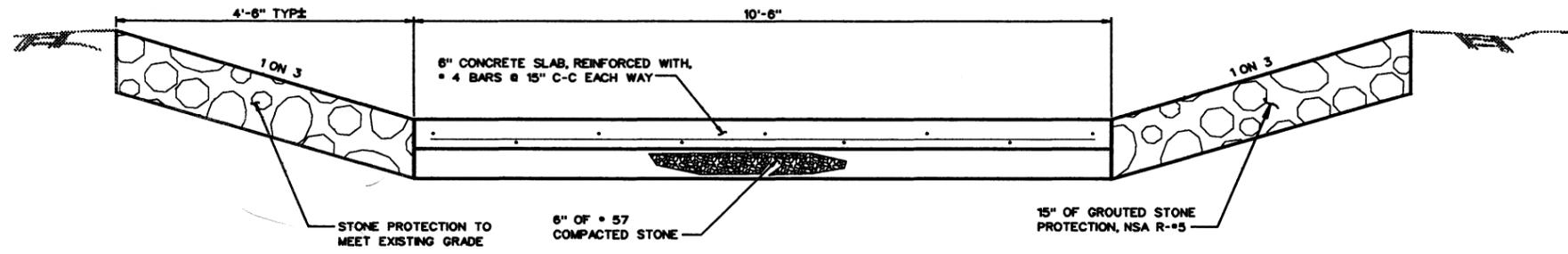
Justification:

The existing launching ramp provides public access to the river for boating, fishing and other recreational activities year round. The 3.2 foot pool decrease will render the existing ramp unusable.

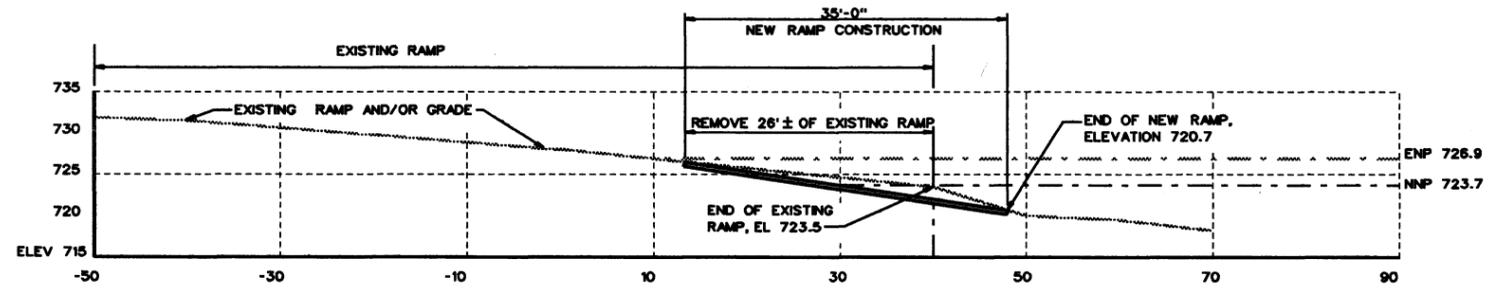
This facility was authorized for project funding by the LMFS, December 1991, provided that further investigation revealed that it complies with the requirements of P.L. 85-500, Section 111, as amended. See APPENDIX D for documentation on this compliance.



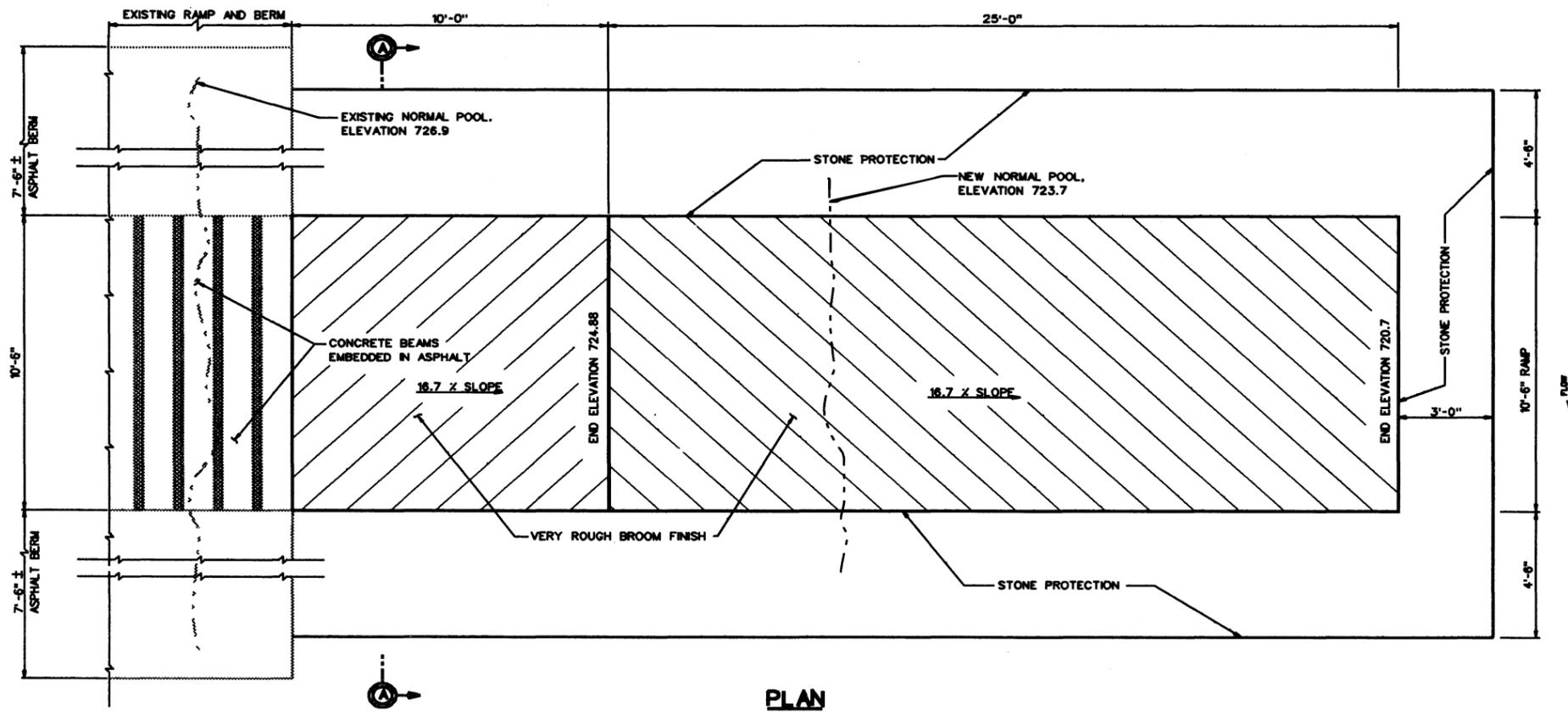
M29R, LAUNCHING RAMP



SECTION A-A



PROFILE



PLAN

- NOTES:
1. OBJECT LINES APPEARING AS HALF TONES ARE EXISTING CONSTRUCTION. SOLID LINES ARE PROPOSED CONSTRUCTION.
 2. END RAMP SECTION TO BE CONSTRUCTED ON DRY LAND AND SLID INTO LOCATION.
 3. ENP DESIGNATES EXISTING NORMAL POOL.
 4. NNP DESIGNATES NEW NORMAL POOL.

FACILITY - M29R			
REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT PITTSBURGH CORPS OF ENGINEERS PITTSBURGH, PENNSYLVANIA			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS			
FORWARD TOWNSHIP LAUNCHING RAMP (RM 34.1 RB) PLAN, SECTION AND PROFILE			
DESIGNED BY	DATE	SCALE	JOB NO.
DRW	18 Aug 1994	NO SCALE	037-R55-12/08
CHECKED BY		DATE	BY
M. P. M. [Signature]		18 Aug 1994	DACW59

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: Public Boat Launching Ramp

ID: M30R

Location

River: Monongahela Bank: Rt RM: 36.2

Owner: Rostraver Township
Address: RD 1, Municipal Building
Rostraver, Pennsylvania 15012

Design Team Visit: March 1994, Fritz

POOL DATA:

	EXISTING	BRADDOCK
Level Pool	726.9	723.7
Ordinary High Water	740.4	737.8

EXISTING CONDITIONS:

Facility Description:

The existing launching ramp is 16'-0" wide and is constructed of reinforced cement concrete. The end elevation of the ramp was not determined.

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates that there is an insignificant potential for contamination at this facility site. Therefore, the contractor does not recommend a Phase II investigation for this facility at this time.

REQUIRED REMEDIAL WORK:

Government Proposal:

The proposed ramp will be constructed of reinforced cement concrete. The lower portion of the ramp will be constructed on dry land and pushed onto a prepared base within the river. The upper portion of the ramp will also be constructed of reinforced cement concrete. It will be doweled into the lower portion and anchored with reinforced cement concrete toes at both the upper and lower ends. Stone rip rap will be placed along both sides and the end of the ramp to protect it from wave action and higher river flows.

Estimated Construction Cost (Rounded): \$ 18,000

Responsibility: Government

Justification:

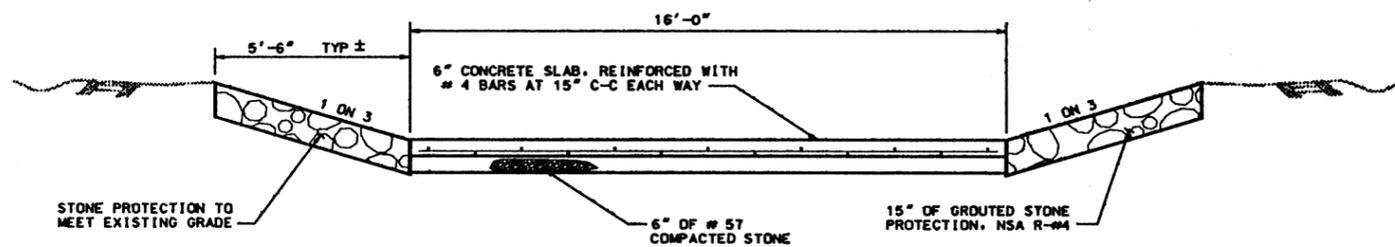
The existing launching ramp provides public access to the river for boating, fishing and other recreational activities except during periods of low river flows. The 3.2 foot pool decrease will render the existing ramp unusable except during high river flows when recreational activities are discouraged on the river.

This facility terminates on the bank of the Monongahela River, a navigable waterway, with its affected portion riverward of existing ordinary high water, therefore the Owner is responsible for the cost of remedial work. However, this launching ramp is a publicly owned and operated facility and is therefore suitable for Government funding under Section 111, P.L. 85-500, as amended. It is therefore recommended that the Chief of Engineers find that the remedial costs should be borne by the Government.

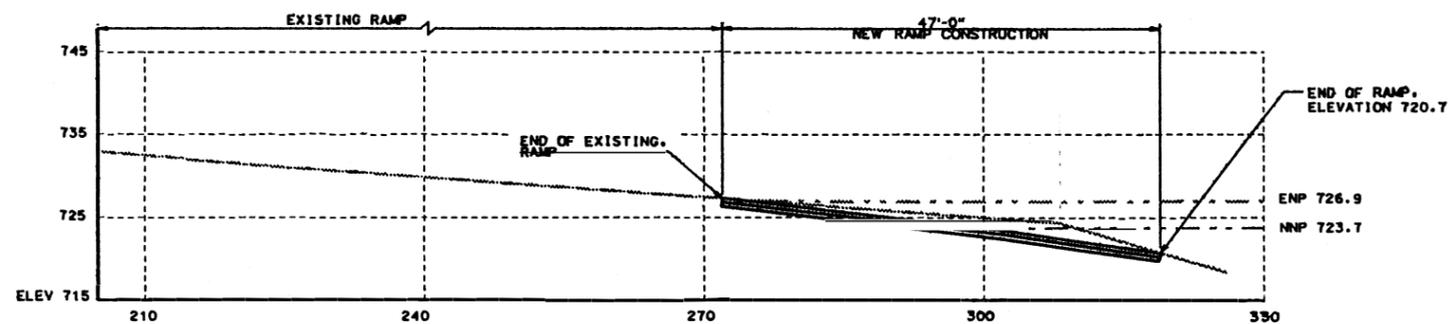
This facility was authorized for project funding by the LMFS, December 1991, provided that further investigation revealed that it complies with the requirements of P.L. 85-500, Section 111, as amended. See APPENDIX D for documentation on this compliance.



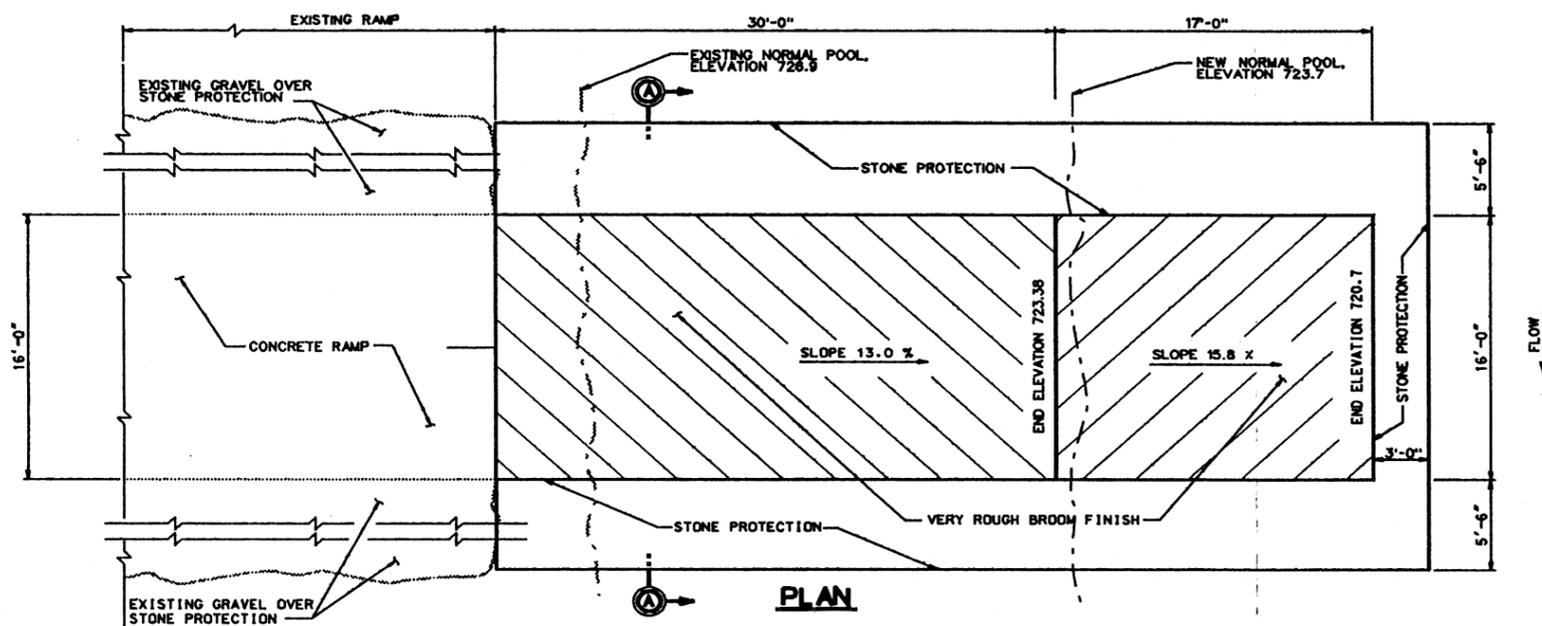
M30R, LAUNCHING RAMP



SECTION A-A



PROFILE



PLAN

- NOTES:
1. OBJECT LINES APPEARING AS HALF TONES ARE EXISTING CONSTRUCTION. SOLID LINES ARE PROPOSED CONSTRUCTION.
 2. END RAMP SECTION TO BE CONSTRUCTED ON DRY LAND AND SLID INTO LOCATION.
 3. ENP DESIGNATES EXISTING NORMAL POOL.
 4. NNP DESIGNATES NEW NORMAL POOL.

FACILITY - M30R			
REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT, PITTSBURGH CORPS OF ENGINEERS OFFICE OF THE DISTRICT ENGINEER PITTSBURGH, PENNSYLVANIA			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS ROSTRAVER TWP. LAUNCHING RAMP (RM 36.2 RB) PLAN AND SECTION			
DESIGNED	DRAWN	CHECKED	DATE
SRF	SRF	SRF	7/14/94
SUBMITTED		SCALE	DWG. NO.
I. V. Staley		NO SCALE	037-R55-126
DACW59		IPB NO.	SHEET
			OF

LOCKS AND DAMS 2, 3, & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: 16" DIA Force Main Sewage Pipeline Crossing

ID: M02B

Location

River: Monongahela Bank: Both RM: 34.8

Owner: Mon Valley Sewage Authority

Address: M.I.D.A Industrial Park, P.O. Box 792,
Donora Pennsylvania, 15033

Telephone Number: (412) 483-3585

POOL DATA:

	EXISTING	BRADDOCK
Level Pool	726.9	723.7
Ordinary High Water	739.9	737.0

EXISTING CONDITIONS:

Invert Elevation: 707.9

Inlet conditions:

This facility, transports raw sewage from the Monessen side of the river to the sewage treatment plant on the Donora side of the river. The existing pipe consists of a 874' river crossing 16" dia ball joint-CIP class 2. Currently this crossing maintains a 19 foot clearance below the existing normal pool elevation.

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates there is a potential for contamination at this facility site. Therefore, the contractor recommends a Phase II investigation for this facility.

REQUIRED REMEDIAL WORK:

Government Proposal:

Excavate to El 704.4 within the proposed navigation channel and place new 16" dia ball and socket type force main at invert El 704.5. At the end of navigation channel the new crossing will be placed up the bank maintaining (4') four foot minimum cover, tying into existing lines. Existing line will be removed for the

limit of the new navigation channel only.

The proposed design solution is to relocate this facility horizontally across the river bed and tie into the existing pipes on each bank. The new pipe is outside the limits of the City's current easement limits. The District's recommendation is to acquire 1.35 acres of permanent pipeline easement. The total cost for acquiring the easements is \$31,125, which includes administrative costs and contingencies.

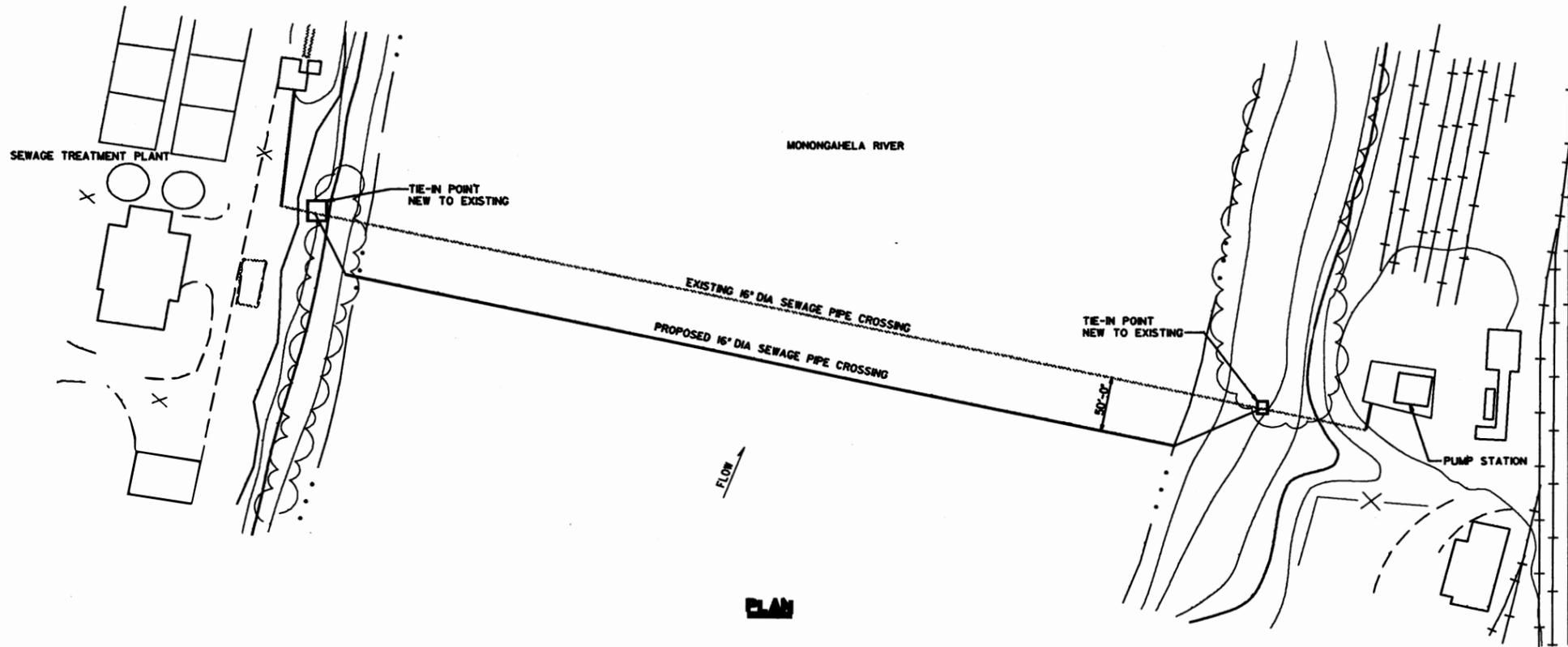
Estimated Construction Cost (Rounded): \$ 1,068,000

Responsibility: Government

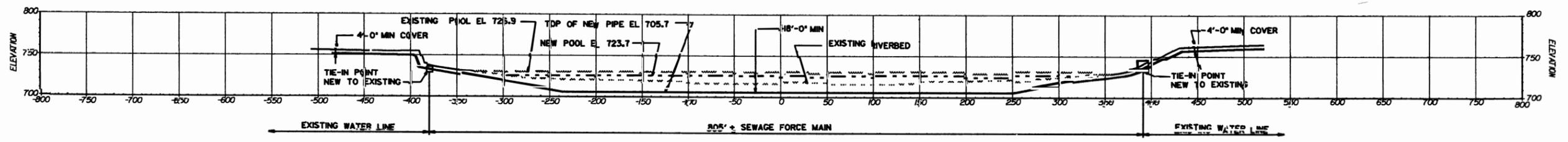
Justification:

The river sewage pipeline crossing pumps domestic waste water to a treatment facility so that it can be treated. This facility serves the community of Monessen, with treatment of its domestic waste water. Without a relocation of this facility, Monessen would have no means of treating their domestic wastewater.

This facility was authorized for project funding by the LMFS, December 1991, provided that further investigation revealed that it complies with the requirements of P.L. 85-500, Section 111, as amended. See APPENDIX D for documentation on this compliance.



PLAN



PROFILE

NOTES:
 1. OBJECT LINES APPEARING AS HALF TONES ARE EXISTING CONSTRUCTION.
 2. REGRADE EXCAVATION AS SHOWN.

FACILITY# : M02B			
REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT, PITTSBURGH CORPS OF ENGINEERS OFFICE OF THE DISTRICT ENGINEER PITTSBURGH, PENNSYLVANIA			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS MON VALLEY SEWAGE AUTHORITY 16" SEWAGE LINE CROSSING PLAN AND PROFILE			
DESIGNED BY	DATE	SCALE	NO. OF SHEETS
RJM	16 Aug 1994	NO SCALE	037-R55-67/01
CHECKED BY	DATE	SCALE	NO. OF SHEETS
RWH	16 Aug 1994	NO SCALE	037-R55-67/01
APPROVED BY	DATE	SCALE	NO. OF SHEETS
<i>[Signature]</i>	16 Aug 1994	NO SCALE	037-R55-67/01

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: 12" DIA Water Line Crossing (2 Lines)

ID: M03B

Location

River: Monongahela Bank: Both RM: 38.7

Owner: Authority of the Borough of Charleroi

Address: 325 McKean Ave, Charleroi
Pennsylvania, 15022

Telephone Number: (412) 483-3585

POOL DATA:

	EXISTING	BRADDOCK
Level Pool	726.9	723.7
Ordinary High Water	741.5	739.0

EXISTING CONDITIONS:

Invert Elevation: 710.0

Inlet conditions:

These facilities were constructed to provide potable water to Donora, and other communities on the left bank of the river, from the Monessen side (right bank) of the river. The existing pipes consist of a 1200' river crossing, 12" dia mechanical joint, steel pipe. Currently this crossing maintains a 16.9 foot clearance below the existing normal pool.

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates there is a potential for contamination at this facility site. Therefore, the contractor recommends a Phase II investigation for this facility.

REQUIRED REMEDIAL WORK:

Government Proposal:

Excavate to El 704.5 at the new proposed navigation channel and place two (2) new 12" dia ball and socket type river crossing mains at invert El 704.6. At the end of navigation channel the new crossings will be placed up the bank maintaining (4') four foot minimum

cover, tying into existing lines. Existing lines will be removed for the limit of the new navigation channel only.

The proposed remedial measure for this facility is to construct a new river crossing and tie into the existing line on each bank. The work requires a horizontal relocation of approximately 50 feet. The new facility will be outside the limits of the existing pipeline easement on both banks. The District's recommendation is to acquire one acre of permanent pipeline easements for the relocated facility. The new site has the same utility, land use and fair market value of the existing site. The total cost of acquiring the permanent pipeline easement is \$43,750, including administrative costs and contingencies.

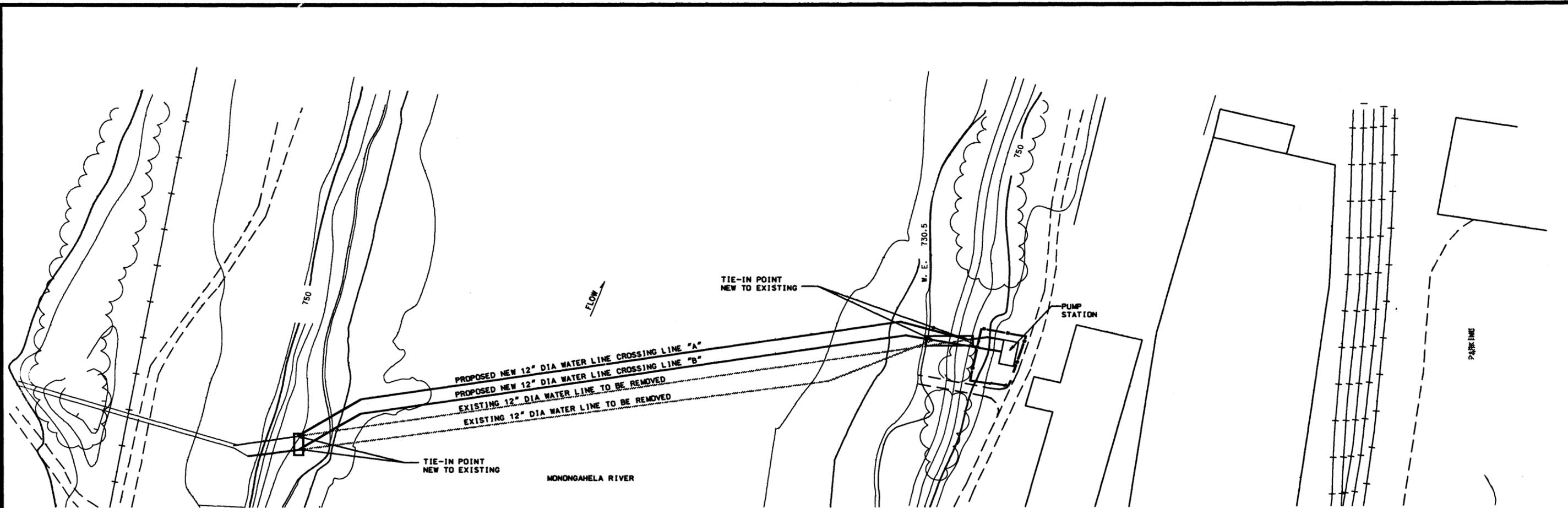
Estimated Construction Cost (Rounded): \$ 736,000

Responsibility: Government

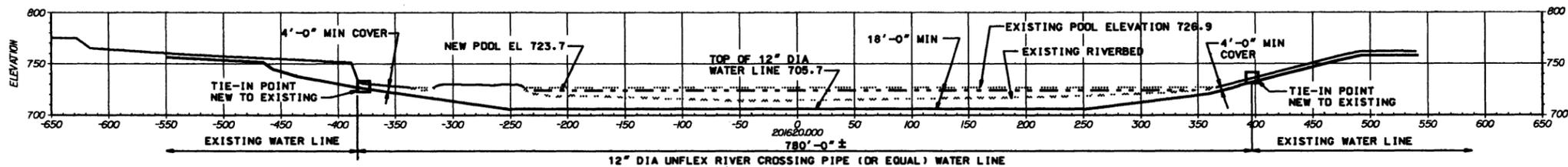
Justification:

The water pipeline crossings provides potable water from a treatment facilities to the neighboring communities on the opposite bank of the river. Without A relocation of existing lines they would have to be removed and no potable water would be available to dependent communities.

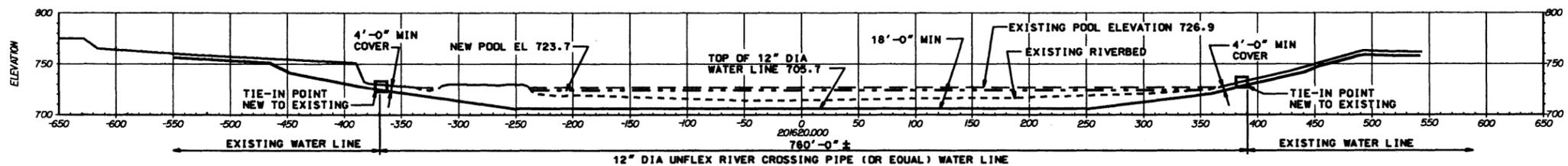
This facility was authorized for project funding by the LMFS, December 1991, provided that further investigation revealed that it complies with the requirements of P.L. 85-500, Section 111, as amended. See APPENDIX D for documentation on this compliance.



PLAN



LINE 'A' PROFILE



LINE 'B' PROFILE

- NOTES:
 1. OBJECT LINES APPEARING AS HALF TONES ARE EXISTING CONSTRUCTION. OBJECT LINES APPEARING AS FULL TONES ARE PROPOSED CONSTRUCTION.
 2. REGRADE EXCAVATION AS SHOWN.

FACILITY# : M03B			
REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT PITTSBURGH CORPS OF ENGINEERS OFFICE OF DISTRICT ENGINEER			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS AUTHORITY OF CHARLEROI 2 - 12" WATER LINE CROSSINGS PLAN AND PROFILES			
RJM	RWH	16 Aug 1994	NO SCALE
			037-R55-67/02
DACW59			

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: 20" DIA Water Line Crossing

ID: M04B

Location

River: Monongahela Bank: Left & Right RM: 41.0

Owner: Authority of the Borough of Charleroi

Address: 325 McKean Ave,
Charleroi Pennsylvania, 15022

Telephone Number: (412) 483-3585

POOL DATA:

	EXISTING	BRADDOCK
Level Pool	726.9	723.7
Ordinary High Water	742.5	740.1

EXISTING CONDITIONS:

Invert Elevation: 707.5

Inlet conditions:

This facility was constructed to provide potable water to Donora, and other communities on the left bank of the river, from the Monessen side (right bank) of the river. The existing pipe consists of a 1150' river crossing 20" dia mechanical joint, steel pipe. Currently this crossing maintains a 19.4 foot clearance below the existing normal pool.

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates there is a potential for contamination at this facility site. Therefore, the contractor recommends a Phase II investigation for this facility.

REQUIRED REMEDIAL WORK:

Government Proposal:

Excavate to El 704.0 at the new proposed navigation channel and place new 20" dia ball and socket type river crossing main at invert El 704.6. At the end of navigation channel the new crossing will be placed up the bank maintaining (4') four foot minimum cover,

tying into existing lines. Existing line will be removed for the limit of the new navigation channel only.

The proposed remedial measure for this facility is to construct a new river crossing and tie into the existing line on each bank. The work requires a horizontal relocation of approximately 50 feet. The new facility will be outside the limits of the existing pipeline easement on both banks. The District's recommendation is to acquire 3.83 acres of permanent pipeline easements for the relocated facility. The new site has the same utility, land use and fair market value of the existing site. The total cost of acquiring the permanent pipeline easements is \$147,875, including administrative costs and contingencies.

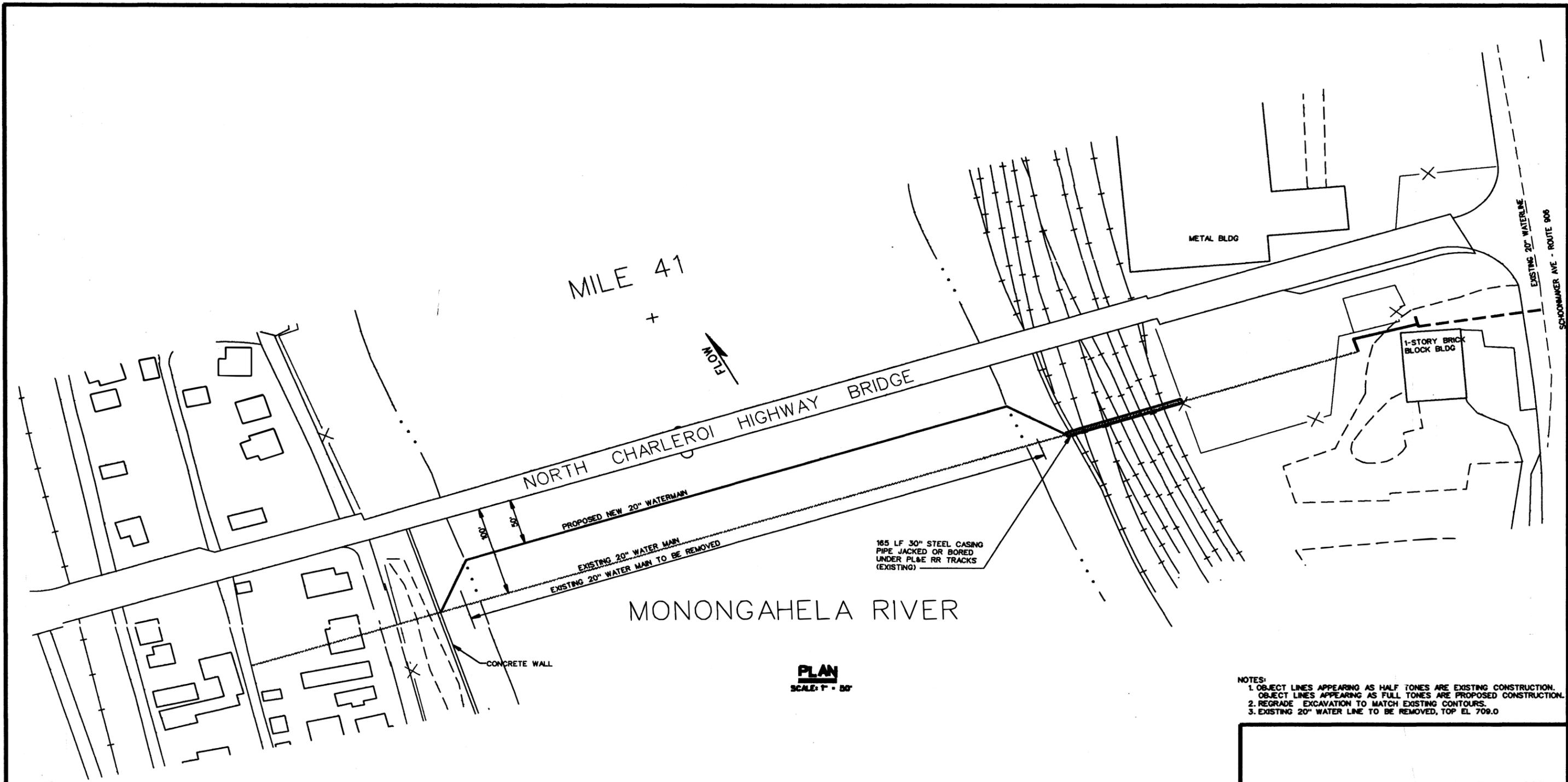
Estimated Construction Cost (Rounded): \$ 681,000

Responsibility: Government

Justification:

The river water pipeline crossing provides potable water from a treatment facility to Donora and other communities on the opposite bank of the river. Without a relocation of this line these communities would be without a potable water source.

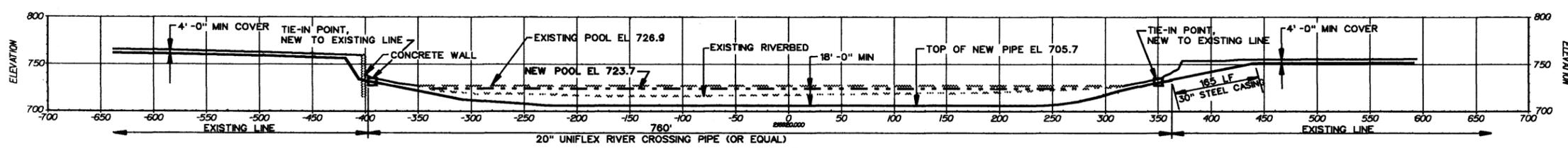
This facility was authorized for project funding by the LMFS, December 1991, provided that further investigation revealed that it complies with the requirements of P.L. 85-500, Section 111, as amended. See APPENDIX D for documentation on this compliance.



MONONGAHELA RIVER

PLAN
SCALE: 1" = 50'

- NOTES:
1. OBJECT LINES APPEARING AS HALF TONES ARE EXISTING CONSTRUCTION. OBJECT LINES APPEARING AS FULL TONES ARE PROPOSED CONSTRUCTION.
 2. REGRADE EXCAVATION TO MATCH EXISTING CONTOURS.
 3. EXISTING 20" WATER LINE TO BE REMOVED, TOP EL 709.0



PROFILE

FACILITY: M04B

REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT PITTSBURGH CORPS OF ENGINEERS OFFICE OF THE DISTRICT ENGINEER PITTSBURGH, PENNSYLVANIA			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS AUTHORITY OF CHARLEROI 20" WATER LINE CROSSING PLAN AND PROFILE			
DESIGNED BY	DATE	SCALE	NO. OF SHEETS
DRWING BY	18 Aug 1994	NO SCALE	037-R55-67/03
CHECKED BY			
APPROVED BY			

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: Storm Sewer

ID: T01R

Location

River: Turtle Creek Bank: Right RM: 1.0

Owner: Consolidated Rail Corporation

Address: P.O. Box 41412

Two Commerce Square

2001 Market Street 12-B

Philadelphia, Pennsylvania 19101-1412

Design Team Visit: Bosetti/25 August 1993

POOL DATA:

	EXISTING POOL 2	BRADDOCK POOL
Level Pool	718.7	723.7
Ordinary High Water	n/a	n/a

EXISTING CONDITIONS:

Invert Elevation: 721.4

Inlet conditions: The facility is an outfall for the collection of storm runoff along a section of railroad bed. The existing sewer is an 18" CIP.

Drainage Area: 0.34 Acres

Capacity: $Q_c = 7.0$ CFS

Runoff, 10-year event: $Q_{10} = 1.0$ CFS

PROPOSED DESIGN:

Limiting Capacity: $Q_L = 11.0$ CFS

Slope: 0.0235 ft/ft

Material: Reinforced Concrete

Manning's N: 0.012

Diameter: 18"

Design Capacity: $Q_D = 7.0$ CFS

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates that there is an insignificant potential for contamination at this facility site. Therefore, the contractor does not recommend a Phase II investigation for this facility at this time.

REQUIRED REMEDIAL WORK:

Government Proposal:

Remove manhole, two drop inlets and 18" CIP.
Install 34 feet of 18" RCP and two drop inlets. See
pipe profile.

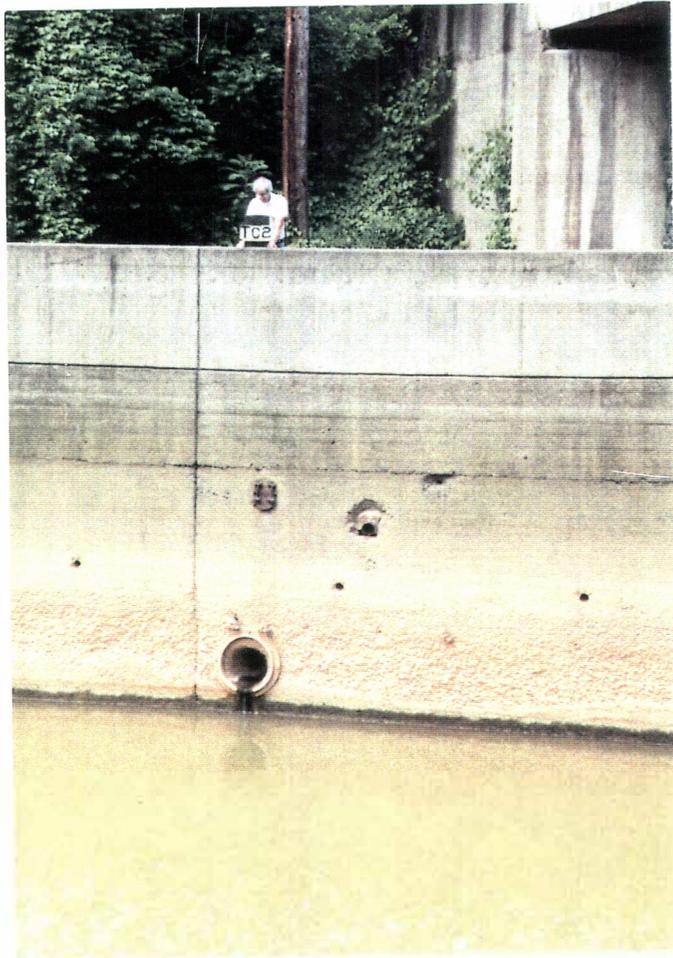
Estimated Construction Cost (Rounded): \$ 22,000

Responsibility: Government

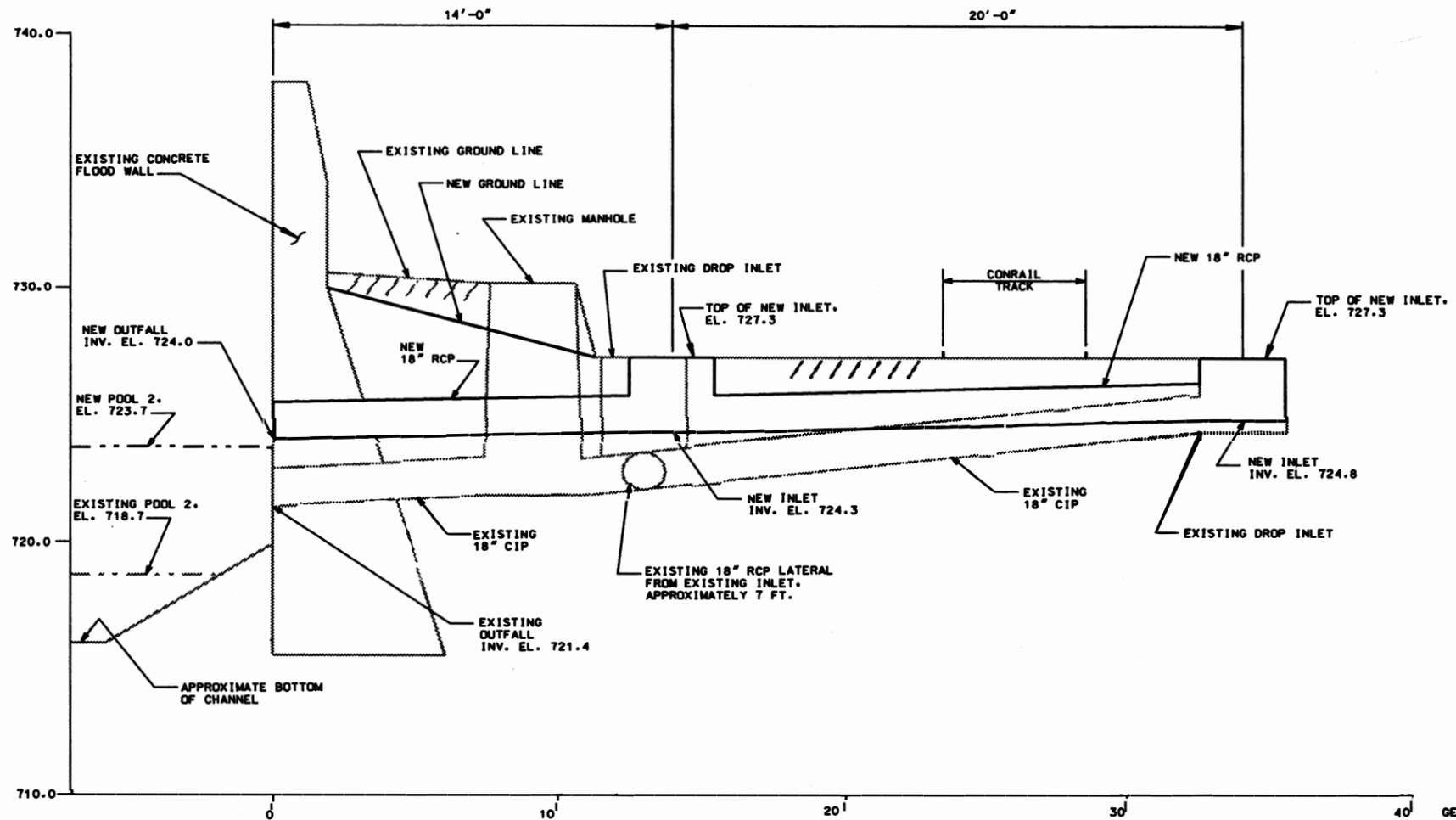
Justification:

This facility will be inundated by the new pool level. Without relocation it will become inaccessible for maintenance and it will be subject to increased siltation which will reduce its capacity to pass storm flows.

This facility, located on a non-navigable tributary to the Monongahela River and owned by a private railroad, was authorized for project funding by the LMFS, December 1991. Compensation for providing a substitute facility is in accordance with EFARS, 1 October 1984, APPENDIX Q, Section Q-73-105.



T01R, 18" CIP
(PERSON STANDING ABOVE OUTFALL ON RAIL ROAD TRACK)



PROFILE

- GENERAL NOTES:
1. OBJECT LINES APPEARING AS HALF TONES ARE EXISTING CONSTRUCTION. OBJECT LINES APPEARING AS FULL TONES ARE PROPOSED CONSTRUCTION.
 2. REGRADE EXCAVATION AS SHOWN.
 3. MAINTAIN SURVEY CONTROL ON BUILDING ADJACENT TO CONSTRUCTION DURING EXCAVATION.

NOTES:
 FACILITY: 18" RCP STORM SEWER
 RIVER: TURTLE CREEK
 STATION: 55+35(RM 1.0) BANK: RIGHT
 OWNER: CONRAIL
 ALTERATIONS: REMOVE MANHOLE, 2 DROP INLETS AND 18" CIP.
 INSTALL 18" RCP AND 2 DROP INLETS.

FACILITY - T01R			
REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT PITTSBURGH CORPS OF ENGINEERS			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS TURTLE CREEK STORM SEWER OUTFALL-STA. 55+35(RM 1.0) RB PROFILE			
LPS PJC	LPS MR	DATE 22 Aug 94	SCALE NO SCALE
Tery P. Stull DACW59			037-R55-67/56

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: Boston Pump Station and Gravity Intercepting Sewer

ID: Y01L

Location

River: Youghiogheny Bank: Left RM: 4.1-5.7

Owner: Elizabeth Township Municipal Authority

Address: 522 Rock Run Road
Buena Vista, PA 15018

Design Team Visit: Fritz, July 94

POOL DATA:

	EXISTING POOL 2	BRADDOCK POOL
Level Pool	718.7	723.7
Ordinary High Water	730.4	728.0

EXISTING CONDITIONS:

Invert Elevation: See plan view

Inlet conditions:

This gravity intercepting sewer carries domestic waste water to the Boston Pump Station where it is transported by a force main to the Municipal Authority of the City of McKeesport's Sewage Treatment Plant. The gravity intercepting sewer parallels the Youghiogheny River from Boston, PA to Greenock, PA.

Drainage Area: n/a

Capacity: $Q_c =$

8" Line: 4.02 CFS

18" Line: 4.71 CFS

21" Line: 7.66 CFS

24" Line: 8.38 CFS

27" Line: 11.8 CFS

Runoff, 10-year event: $Q_{10} =$ n/a

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates there is a potential for contamination at this facility site. Therefore, the contractor recommends a Phase II investigation for this facility.

PROPOSED DESIGN:

Limiting Capacity: $Q_L = n/a$
Slope: Same as Existing
Material: Insituform Liner
Manning's N: 0.009
Diameter: 27" - 8"
Design Capacitys: $Q_D =$

8" Line: 4.19 CFS
18" Line: 5.64 CFS
21" Line: 9.33 CFS
24" Line: 10.8 CFS
27" Line: 14.6 CFS

REQUIRED REMEDIAL WORK:

Government Proposal:

Line the existing intercepting sewer with Insituform liner and seal all manholes up to elevation 726.5.

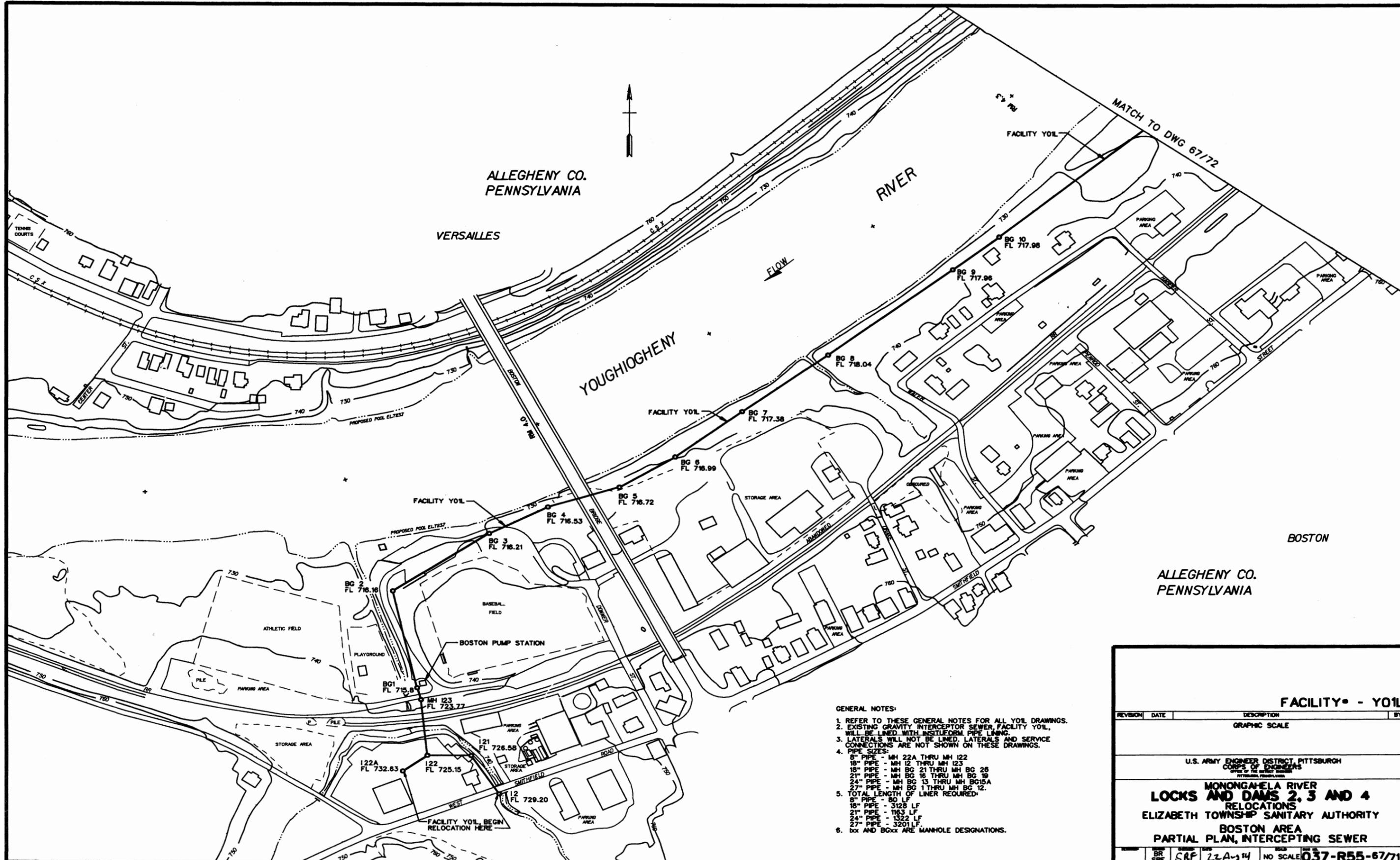
Estimated Construction Cost (Rounded): \$ 1,702,000

Responsibility: Government

Justification:

This pumping station and the gravity intercepting sewer collect all domestic wastewater from the communities of Boston, Pa, and Greenock, PA. The main intercepting sewer's close proximity to the Youghiogheny River may subject it to increased infiltration due to the five foot pool rise affect on the water table in that area. If increased infiltration occurs, due to the pool rise affect, the pump station may become overloaded with ground water, thus, increasing the cost of providing treatment and possibly causing the pump station to bypass sanitary overloads to the Youghiogheny River. Both of these circumstances are unacceptable.

This facility (identified as sanitary sewers by the LMFS) was authorized for project funding by the LMFS, December 1991, provided that further investigation revealed that it complies with the requirements of P.L. 85-500, Section 111, as amended. See APPENDIX D for documentation on this compliance.



ALLEGHENY CO.
PENNSYLVANIA

VERSAILLES

YOUGHIOGHENY

RIVER

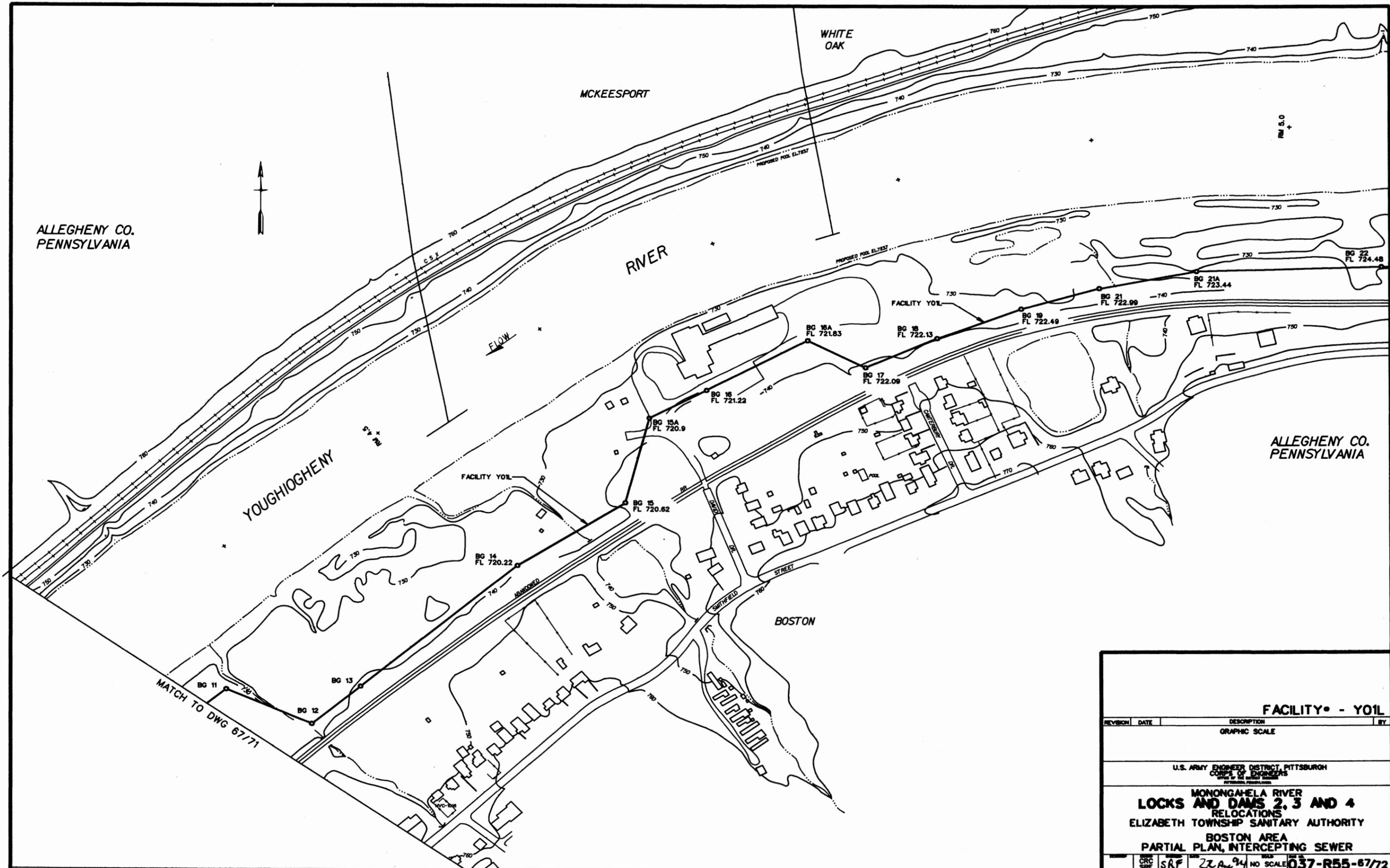
BOSTON

ALLEGHENY CO.
PENNSYLVANIA

- GENERAL NOTES:
- REFER TO THESE GENERAL NOTES FOR ALL Y01L DRAWINGS.
 - EXISTING GRAVITY INTERCEPTOR SEWER, FACILITY Y01L, WILL BE LINED WITH INSITUFORM PIPE LINING.
 - LATERALS WILL NOT BE LINED. LATERALS AND SERVICE CONNECTIONS ARE NOT SHOWN ON THESE DRAWINGS.
 - PIPE SIZES:
 8" PIPE - MH 22A THRU MH 122
 18" PIPE - MH 12 THRU MH 123
 18" PIPE - MH BG 21 THRU MH BG 26
 21" PIPE - MH BG 18 THRU MH BG 19
 24" PIPE - MH BG 13 THRU MH BG15A
 27" PIPE - MH BG 1 THRU MH BG 12
 - TOTAL LENGTH OF LINER REQUIRED:
 8" PIPE - 80 LF
 18" PIPE - 3128 LF
 21" PIPE - 1163 LF
 24" PIPE - 1322 LF
 27" PIPE - 3201 LF
 - BOX AND BOXx ARE MANHOLE DESIGNATIONS.

FACILITY - Y01L

REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT, PITTSBURGH CORPS OF ENGINEERS OFFICE OF THE DISTRICT ENGINEER PITTSBURGH, PENNSYLVANIA			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS			
ELIZABETH TOWNSHIP SANITARY AUTHORITY			
BOSTON AREA PARTIAL PLAN, INTERCEPTING SEWER			
DATE	BR	NO	SCALE
22-AUG-94	SRF	22-AUG-94	NO SCALE
DRAWN BY Terry D. Stille			PROJECT NO. 037-R55-67/71
CHECKED BY DACW59			SHEET NO. 1 of 3



ALLEGHENY CO.
PENNSYLVANIA

MCKEESPORT

WHITE
OAK

RIVER

YOUGHIOGHENY

FLOW

FACILITY YOIL

FACILITY YOIL

ALLEGHENY CO.
PENNSYLVANIA

BOSTON

MATCH TO DWG 67/71

MATCH TO DWG 67/73

FACILITY - YOIL		
REVISION	DATE	DESCRIPTION
GRAPHIC SCALE		
U.S. ARMY ENGINEER DISTRICT PITTSBURGH CORPS OF ENGINEERS		
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS		
ELIZABETH TOWNSHIP SANITARY AUTHORITY		
BOSTON AREA PARTIAL PLAN, INTERCEPTING SEWER		
CRC	SRF	22 Aug 94 NO SCALE
Terry D. Stalley		037-R55-67/72
DACWB		2 3

MATCH TO DWG 67/72

ALLEGHENY CO.
PENNSYLVANIA

YOUGHIOGHENY

RIVER

FLOW

FACILITY Y01L

FACILITY Y01L
END OF IMPACT

ALLEGHENY CO.
PENNSYLVANIA

GREENOCK



FACILITY - Y01L			
REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT, PITTSBURGH CORPS OF ENGINEERS			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS ELIZABETH TOWNSHIP SANITARY AUTHORITY			
BOSTON AREA PARTIAL PLAN, INTERCEPTING SEWER			
CRC	SAE	22 Aug 74	NO SCALE 037-R55-67/73
Troy D. Shilly			DACW59
			3 3

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: Fourth Avenue Combined Sewer Overflow

ID: Y01R

Location

River: Youghiogheny Bank: Right RM: 0.2

Owner: Municipal Authority of the City of McKeesport
Address: 100 Atlantic Avenue
McKeesport, PA 15132

Design Team Visit: Fritz, July 93

POOL DATA:

	EXISTING POOL 2	BRADDOCK POOL
Level Pool	718.7	723.7
Ordinary High Water	730.4	727.7

EXISTING CONDITIONS:

Invert Elevations:

Outfall	717.1 ±
Regulator	723.8 ±

Inlet conditions:

This outfall was originally constructed to pass all storm and domestic wastewater to the Youghiogheny River from the Fourth Avenue drainage area. Currently this 18 inch vitrified clay sewer serves as the combined sewer overflow for the Fourth Avenue regulator station (see APPENDIX C). At the regulator station a 10 inch vitrified clay sewer serves as the branch interceptor to the main intercepting sewer.

Drainage Area: 9.7 Acres

Capacity: $Q_c = 14$ CFS

Runoff, 10-year event: $Q_{10} = 30$ CFS

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates there is a potential for contamination at this facility site. Therefore, the contractor recommends a Phase II investigation for this facility.

PROPOSED DESIGN:

Limiting Capacity: $Q_L = 21$ CFS

Slope:

Y01RA: 0.0196 ft/ft

Y01RBC: 0.005 ft/ft

Y01RD: 0.0194 ft/ft

Material: RCP

Manning's N: 0.012

Diameter: 21" (all pipes)

Design Capacity: $Q_D = 14$ CFS

REQUIRED REMEDIAL WORK:

Government Proposal:

Raise the outfall to an elevation above the new pool level. All associated piping and the sewage regulator station must be raised. Construct 177 feet of 21 inch RCP, and a new sewage regulator station. To avoid the foundation of an existing rail road bridge the sewer will be adjusted horizontally. Construct a new endwall and provide stone protection below outfall.

This relocation requires raising the outfall and some piping along with the sewage regulator station. Some horizontal relocation of the facilities is expected. No permanent easements covering the entire facilities have been identified. The District's recommendation is to acquire a permanent pipeline easement for those portions not covered by existing easements. A total area of 0.35 acre of permanent pipeline easements are needed. The total cost of acquiring the land is \$19,250, including administrative costs and contingencies.

Estimated Construction Cost (Rounded): \$ 193,000

Responsibility: Owner (Section 111 Requested)

Justification:

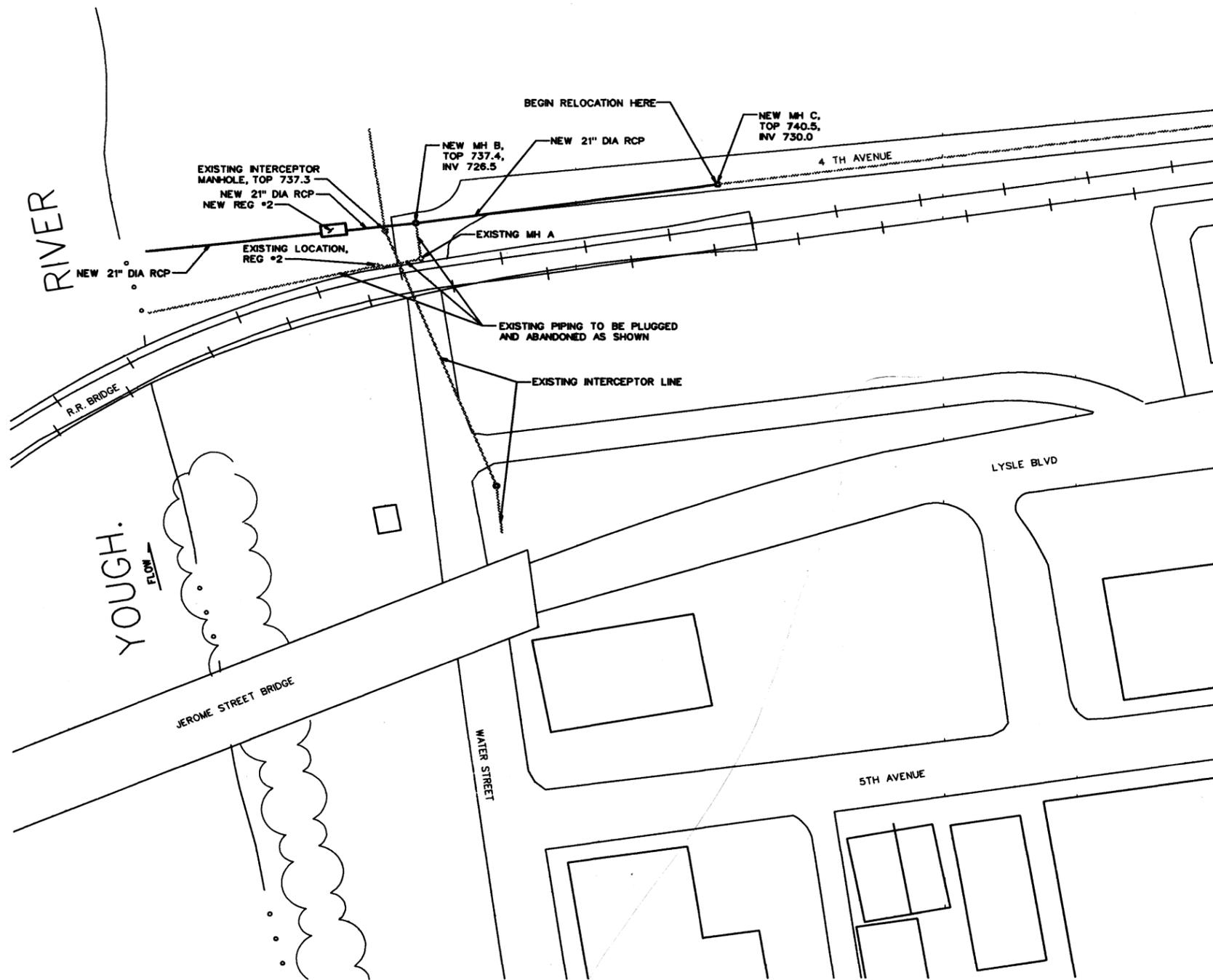
The Fourth Avenue combined sewer outfall will remain totally inundated by the five foot pool rise. This will subject the overflow to increased siltation above that which has already occurred.

The sewage regulator station will be flooded more frequently with the normal fluctuations of the new pool. Due to inundation, the regulator station could allow river water to surcharge the sewage collection system and overload the treatment plant.

This outfall functions as a relief valve for the combined sewer system during storm events. Without a

relocation of the existing sewer, excessive storm flows will be prevented from bypassing to the river and forced into the treatment plant. Also, normal pool fluctuations could introduce river water into the sewage collection system through the sewage regulator.

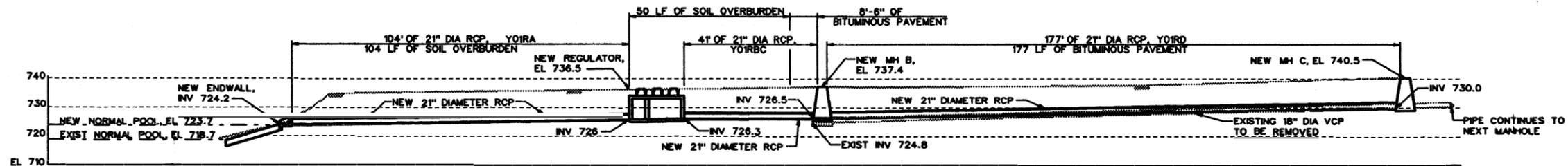
This facility terminates on the bank of the Youghioghney River, a navigable waterway, with its outlet invert riverward of existing ordinary high water, therefore the Owner is responsible for the cost of remedial work. However, this sewer is a publicly owned and operated facility and is therefore suitable for Government funding under Section 111, P.L. 85-500, as amended. It is therefore recommended that the Chief of Engineers find that the remedial costs should be borne by the Government.



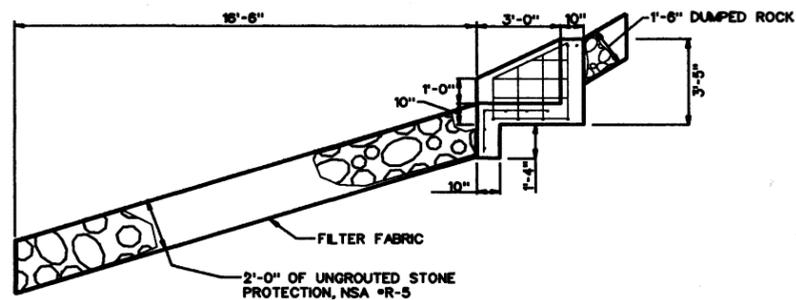
MCKEESPORT

- NOTES:
1. OBJECT LINES APPEARING AS HALF TONES ARE EXISTING CONSTRUCTION.
 2. SOLID LINES ARE NEW CONSTRUCTION.
 3. FOR PROFILE AND ENDWALL DETAILS, SEE SHEET 2 OF 2.

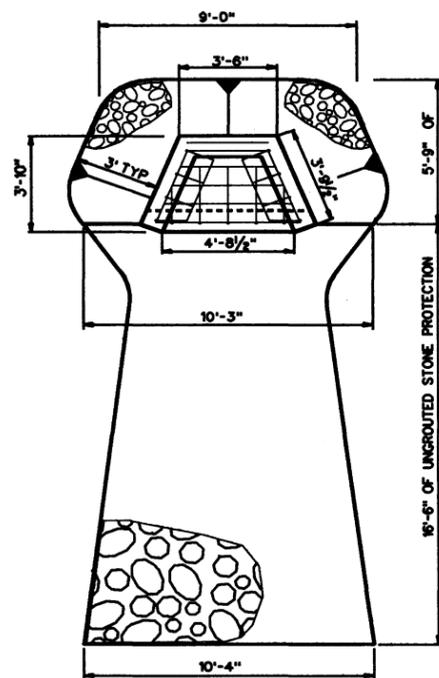
FACILITY - Y01R			
REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT PITTSBURGH CORPS OF ENGINEERS PITTSBURGH, PENNSYLVANIA			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS			
MUNICIPAL AUTHORITY OF THE CITY OF MCKEESPORT FOURTH AVENUE COMBINED OUTFALL PLAN			
DATE	SCALE	NO.	PROJECT NO.
18 Aug 1994	NO SCALE	037-R55-67/59	
SIGNED: <i>Thad M. Maguire</i> TITLE: DACW59		SHEET 1 OF 3	



PROFILE



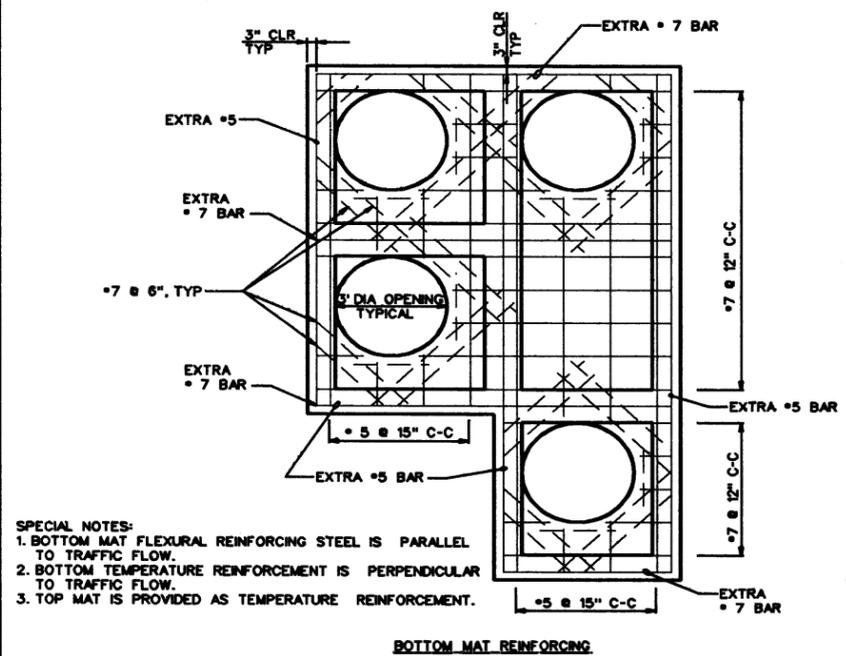
STONE PROTECTION AND ENDWALL SECTION



STONE PROTECTION AND ENDWALL PLAN

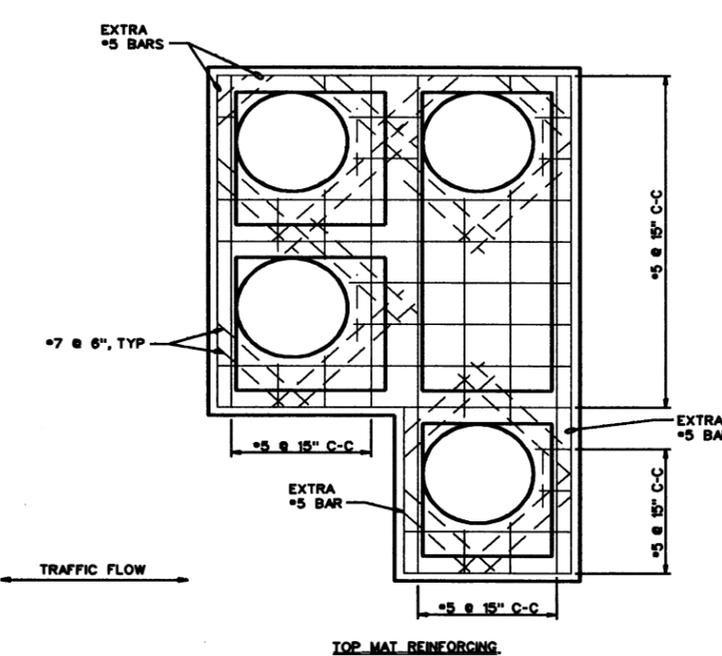
- NOTES:
1. OBJECT LINES APPEARING AS HALF TONES ARE EXISTING CONSTRUCTION.
 2. SOLID LINES ARE NEW CONSTRUCTION.
 3. REGRADE EXCAVATION TO MATCH EXISTING CONTOURS.
 4. REPAVE EXCAVATED AREA OF FOURTH AVENUE, 185.5' X 10' - 206.1 SY.
 5. REMOVE MECHANICAL REGULATOR EQUIPMENT FROM EXISTING REGULATOR AND REINSTALL IN NEW TYPE 1 REGULATOR.
 6. FOR ALIGNMENT OF NEW PIPING, SEE SHEET 1 OF 2.

FACILITY - YO1R			
REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT PITTSBURGH CORPS OF ENGINEERS			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS			
MUNICIPAL AUTHORITY OF THE CITY OF MCKEESPORT FOURTH AVENUE COMBINED OUTFALL AND ASSOCIATED PIPING			
DATE	SCALE	NO	BY
18 Aug 1994	NO SCALE	037-R55-67/60	DACW59
17-AUG-1994 br:gh		/usr/projects/epi/ltcrv/can/mkes/ml06760.dgn AS-192 PLOT @ XXX:1	



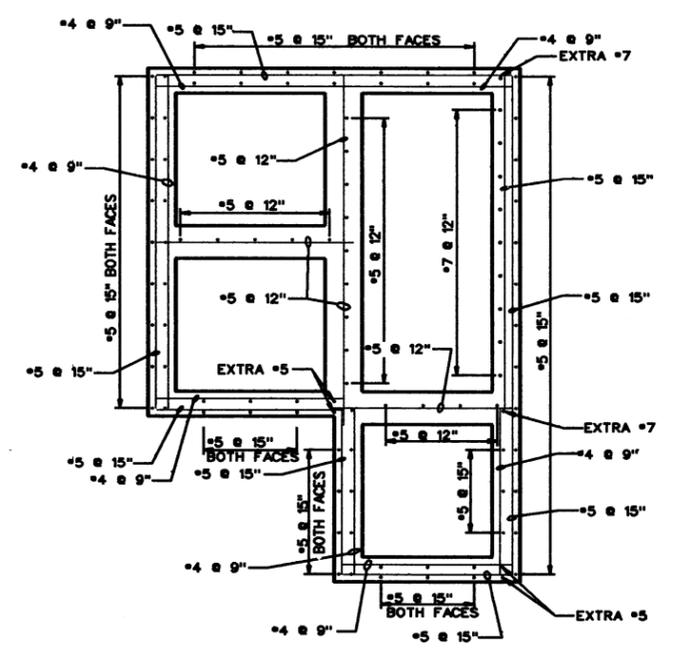
SPECIAL NOTES:
 1. BOTTOM MAT FLEXURAL REINFORCING STEEL IS PARALLEL TO TRAFFIC FLOW.
 2. BOTTOM TEMPERATURE REINFORCEMENT IS PERPENDICULAR TO TRAFFIC FLOW.
 3. TOP MAT IS PROVIDED AS TEMPERATURE REINFORCEMENT.

BOTTOM MAT REINFORCING



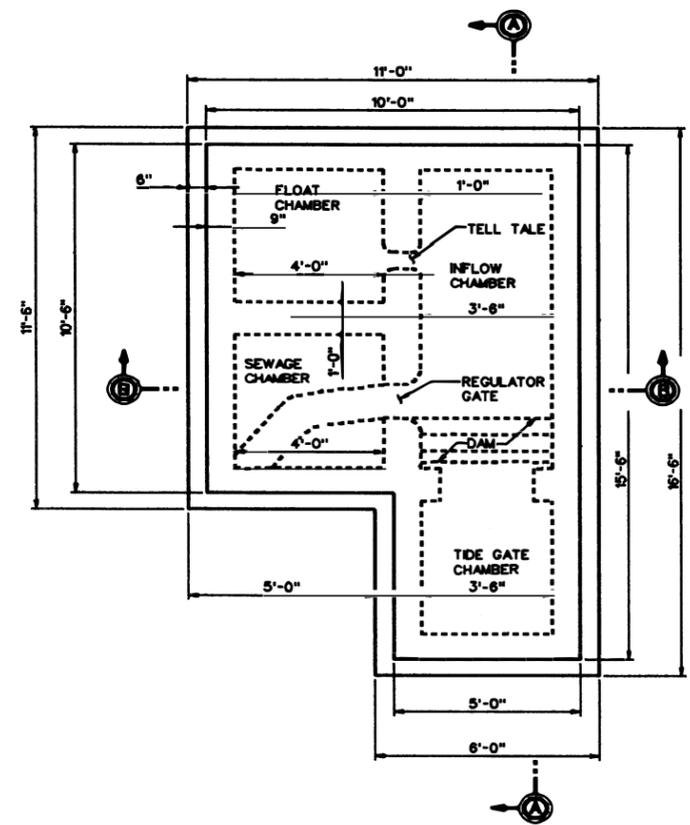
TOP MAT REINFORCING

CEILING REINFORCEMENT DETAILS

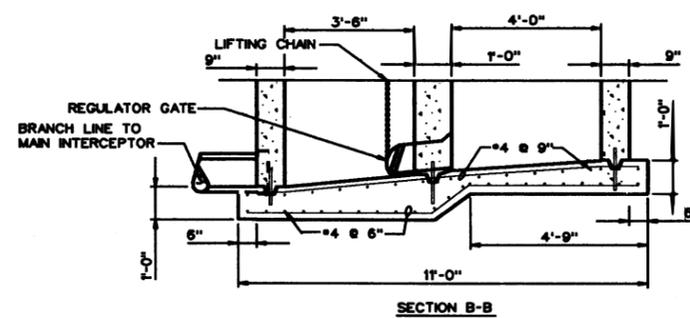


WALL REINFORCEMENT DETAILS

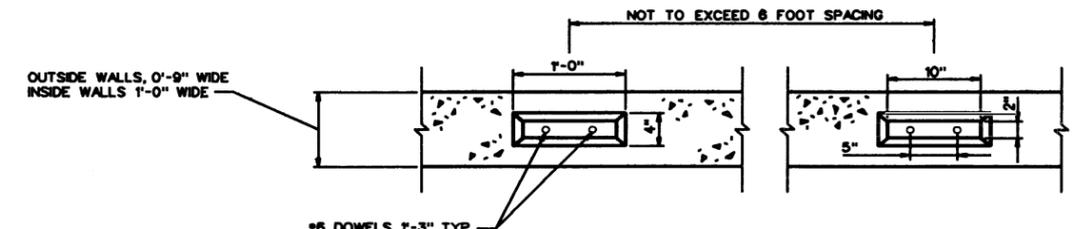
NOTES:
 1. PROVIDE #5 "L" SHAPED BARS @15" OC AT ALL OUTSIDE WALLS TO ANCHOR WALLS TO FLOOR AND CEILING.
 2. "L" SHAPED #5 BAR SHALL HAVE 15" LEGS, TYPICAL.
 3. ALTERNATE DIRECTION OF "L" BAR LEGS AT INSIDE WALLS.



REGULATOR PLAN

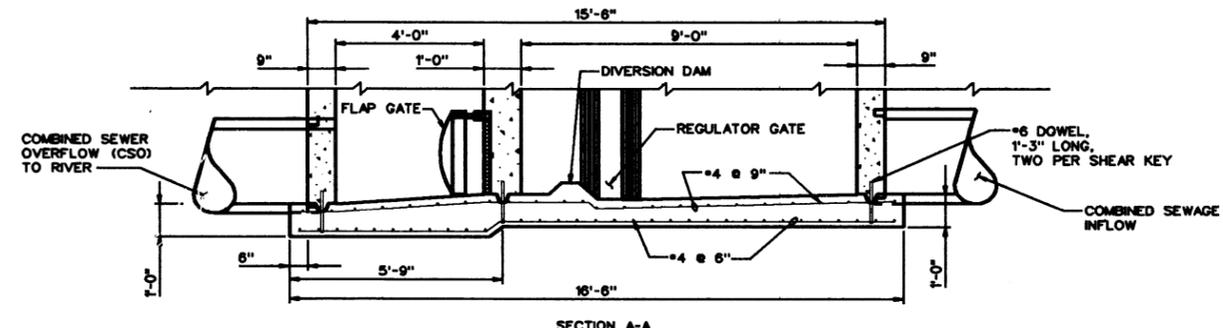


SECTION B-B



NOTES:
 1. LOWER PORTION OF SHEAR KEY IS RECESSED (FEMALE).
 2. UPPER PORTION OF SHEAR KEY IS EXTRUDED (MALE).
 3. SPACE DOWELS EVENLY IN SHEAR KEY.
 4. MINIMUM OF ONE SHEAR KEY PER WALL.

SHEAR KEY DETAILS



SECTION A-A

NOTES:
 1. WALL REINFORCING NOT SHOWN FOR CLARITY.
 2. "L" BARS NOT SHOWN FOR CLARITY.

FLOOR REINFORCING DETAILS

GENERAL NOTES:
 1. SALVAGABLE MECHANICAL REGULATOR EQUIPMENT WILL BE REUSED WHERE PRACTICAL. ALL UNUSABLE EQUIPMENT MUST BE REPLACED.
 2. CLEARANCE FOR ALL REINFORCING STEEL SHALL BE THREE INCHES UNLESS OTHERWISE NOTED.

REVISION		DATE	DESCRIPTION	BY
GRAPHIC SCALE				
U.S. ARMY ENGINEER DISTRICT PITTSBURGH CORPS OF ENGINEERS OFFICE OF THE DISTRICT ENGINEER PITTSBURGH, PENNSYLVANIA				
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS				
MUNICIPAL AUTHORITY OF THE CITY OF McKEESPORT TYPE 1 REGULATOR DETAILS				
NO.	DATE	BY	SCALE	PROJECT NO.
SRF	SRF	18 Aug. 1994	NO SCALE	037-R55-67/70
DACW59				1 2

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: Fifth Avenue Combined Sewer Overflow

ID: Y02R

Location

River: Youghiogheny Bank: Right RM: 0.3

Owner: Municipal Authority of the City of McKeesport

Address: 100 Atlantic Avenue
McKeesport, PA 15132

Design Team Visit: Fritz, July 93

POOL DATA:

	EXISTING POOL 2	BRADDOCK POOL
Level Pool	718.7	723.7
Ordinary High Water	730.4	727.7

EXISTING CONDITIONS:

Invert Elevations:

Outfall 719.4 ±
Regulator 721.0 ±

Inlet conditions:

This outfall was originally constructed to pass all storm and domestic wastewater to the Youghiogheny River from the Fifth Avenue drainage area. Currently this 20 inch vitrified clay sewer serves as the combined sewer overflow for the Fifth Avenue regulator station (see APPENDIX C). At the regulator station a 10 inch vitrified clay sewer serves as the branch interceptor to the main intercepting sewer.

Drainage Area: 7.4 Acres

Capacity: $Q_c = 18$ CFS

Runoff, 10-year event: $Q_{10} = 23$ CFS

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates that there is an insignificant potential for contamination at this facility site. Therefore, the contractor does not recommend a Phase II investigation for this facility at this time.

PROPOSED DESIGN:

Limiting Capacity: $Q_L = 23$ CFS

Slope:

Y02RA: 0.0209 ft/ft

Y02RB: 0.0125 ft/ft

Y02RC: 0.0159 FT/FT

Material: RCP

Manning's N: 0.012

Diameter: 24" (all pipes)

Design Capacity: $Q_D = 23$ CFS

REQUIRED REMEDIAL WORK:

Government Proposal:

Raise the outfall to an elevation above the new pool level. All associated piping and the sewage regulator station must be raised. Construct 174.5 feet of 24 inch RCP, and a new sewage regulator station. Construct a new endwall and provide stone protection below outfall.

This relocation requires raising the outfall and some piping along with the sewage regulator station. No horizontal relocation of the facilities is required. Permanent easements covering the entire facility have not been found. The District's recommendation is to acquire permanent pipeline easements for the portions of the facility to be relocated. The total cost of acquiring 0.25 acre of permanent pipeline easement is \$10,375 including administrative costs and contingencies.

Estimated Construction Cost (Rounded): \$ 130,000

Responsibility: Owner (Section 111 Requested)

Justification:

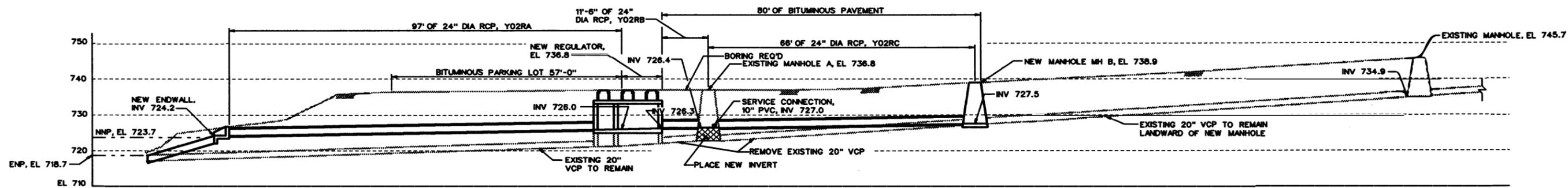
The Fifth Avenue combined sewer outfall will remain totally inundated by the five foot pool rise. This will subject the overflow to increased siltation above that which has already occurred.

The sewage regulator station will be permanently inundated with the new pool elevation. Due to inundation, the regulator station could allow river water to surcharge the sewage collection system and overload the treatment plant.

This outfall functions as a relief valve for the combined sewer system during storm events. Without a relocation of the existing sewer, excessive storm flows will be prevented from bypassing to the river and forced

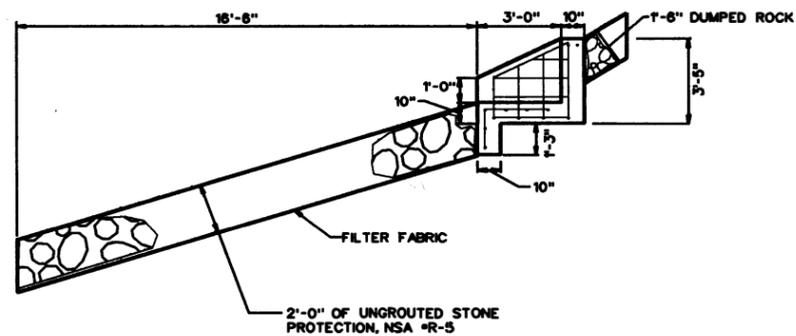
into the treatment plant. Also, the new normal pool elevation could introduce river water into the sewage collection system through the sewage regulator.

This facility terminates on the bank of the Youghioghney River, a navigable waterway, with its outlet invert riverward of existing ordinary high water, therefore the Owner is responsible for the cost of remedial work. However, this sewer is a publicly owned and operated facility and is therefore suitable for Government funding under Section 111, P.L. 85-500, as amended. It is therefore recommended that the Chief of Engineers find that the remedial costs should be borne by the Government.

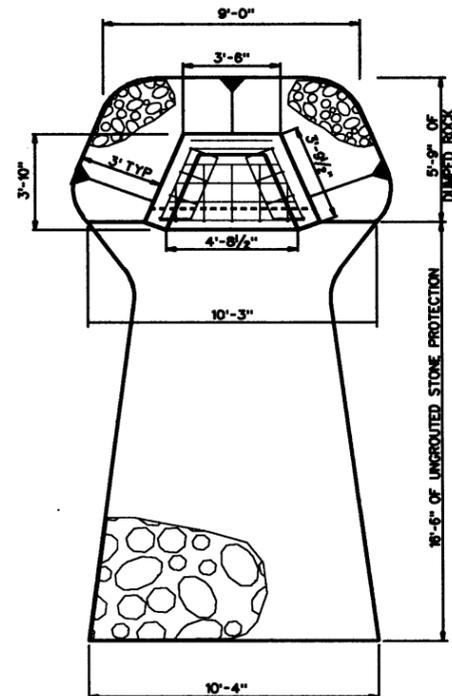


NOTE:
 NNP DESIGNATES NEW NORMAL POOL
 ENP DESIGNATES EXISTING NORMAL POOL

PROFILE



STONE PROTECTION AND ENDWALL SECTION



STONE PROTECTION AND ENDWALL PLAN

- NOTES:
1. OBJECT LINES APPEARING AS HALF TONES ARE EXISTING CONSTRUCTION.
 2. SOLID LINES ARE NEW CONSTRUCTION.
 3. REGRADE EXCAVATION TO MATCH EXISTING CONTOURS.
 4. REPAVE EXCAVATED AREA OF PARKING LOT, 57' X 10' = 63.3 SY.
 5. REPAVE EXCAVATED AREA OF STREET, 80.0 X 10' = 88.9 SY.
 6. REMOVE MECHANICAL REGULATOR EQUIPMENT FROM EXISTING REGULATOR AND REINSTALL AFTER AND/OR DURING PLACEMENT OF NEW TYPE 1 REGULATOR.
 7. REATTACH EXISTING BUILDING SERVICE CONNECTION INTO MH A; INVERT ELEVATION @ MH A IS 727.0; APPROX 100 FEET OF 10" PVC, SDR 35.

FACILITY - Y02R			
REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT, PITTSBURGH CORPS OF ENGINEERS OFFICE OF THE DISTRICT ENGINEER PITTSBURGH, PENNSYLVANIA MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS MUNICIPAL AUTHORITY OF THE CITY OF MCKEESPORT FIFTH AVENUE COMBINED OUTFALL			
DATE	22 Aug 94	NO SCALE	037-R55-67/61
DESIGNED BY	Terry D. Kelly	DATE	DACW59

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: Sixth Avenue Combined Sewer Overflow

ID: Y03R

Location

River: Youghiogheny **Bank:** Right **RM:** 0.3

Owner: Municipal Authority of the City of McKeesport
Address: 100 Atlantic Avenue
McKeesport, PA 15132

Design Team Visit: Fritz, July 93

POOL DATA:

	EXISTING POOL 2	BRADDOCK POOL
Level Pool	718.7	723.7
Ordinary High Water	730.4	727.7

EXISTING CONDITIONS:

Invert Elevations:

Outfall	717.3 ±
Regulator	720.5 ±

Inlet conditions:

This outfall was originally constructed to pass all storm and domestic wastewater to the Youghiogheny River from the Sixth Avenue drainage area. Currently this 18 inch vitrified clay sewer serves as the combined sewer overflow for the Sixth Avenue regulator station (see APPENDIX C). At the regulator station a 10 inch vitrified clay sewer serves as the branch interceptor to the main intercepting sewer.

Drainage Area: 5.4 Acres
Capacity: $Q_c = 14$ CFS
Runoff, 10-year event: $Q_{10} = 17$ CFS

PROPOSED DESIGN:

Limiting Capacity: $Q_L = 17$ CFS

Slope:

Y03RA:	0.0191 ft/ft
Y03RB:	0.0353

Material: RCP

Manning's N: 0.012

Diameter: 21" (all pipes)

Design Capacity: $Q_D = 17$ CFS

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates that there is an insignificant potential for contamination at this facility site. Therefore, the contractor does not recommend a Phase II investigation for this facility at this time.

REQUIRED REMEDIAL WORK:

Government Proposal:

Raise the outfall to an elevation above the new pool level. All associated piping and the sewage regulator station must be raised. Construct 109 feet of 21 inch RCP, and a new sewage regulator station. Construct a new endwall and provide stone protection.

Work for this facility involves raising the outfall, piping and regulator station. No horizontal relocation is required. Permanent easements do not exist for the entire facility. The District's recommendation is to acquire permanent pipeline easement for those portions of the facility affected by this relocation. The total cost of acquiring the 0.25 acre of permanent pipeline easement is \$18,375, including administrative costs and contingencies.

Estimated Construction Cost (Rounded): \$ 103,000

Responsibility: Owner (Section 111 Requested)

Justification:

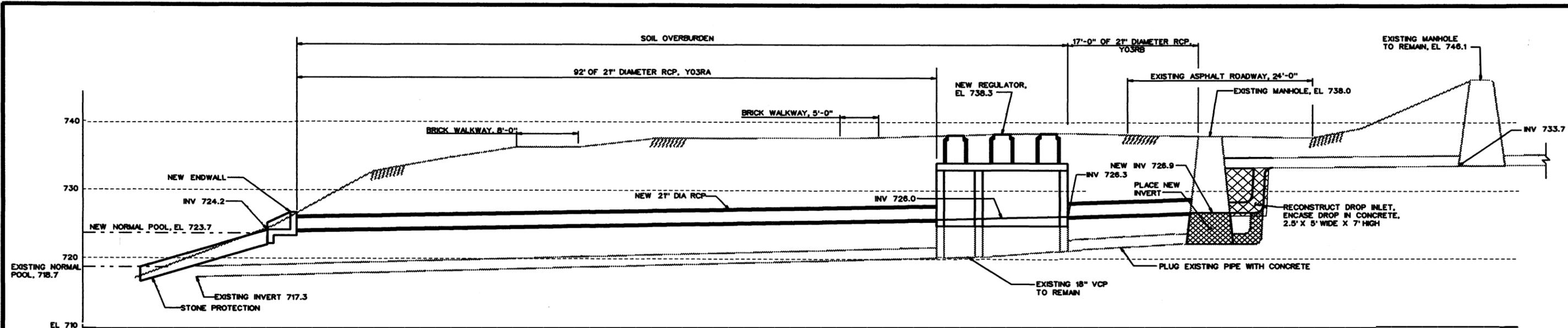
The Sixth Avenue combined sewer outfall will be totally inundated by the five foot pool rise. This will subject the overflow to increased siltation above that which has already occurred.

The sewage regulator station will be permanently inundated with the new pool elevation. Due to inundation, the regulator station could allow river water to surcharge the sewage collection system and overload the treatment plant.

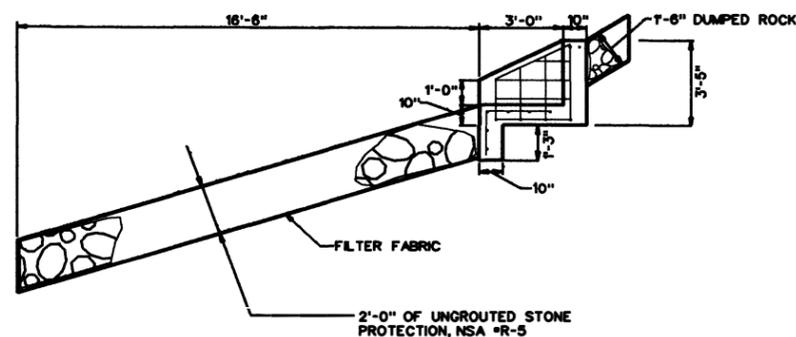
This outfall functions as a relief valve for the combined sewer system during storm events. Without a relocation of the existing sewer, excessive storm flows will be prevented from bypassing to the river and forced into the treatment plant. Also, the new normal pool elevation could introduce river water into the sewage collection system through the sewage regulator.

This facility terminates on the bank of the Youghiogheny River, a navigable waterway, with its outlet invert riverward of existing ordinary high water,

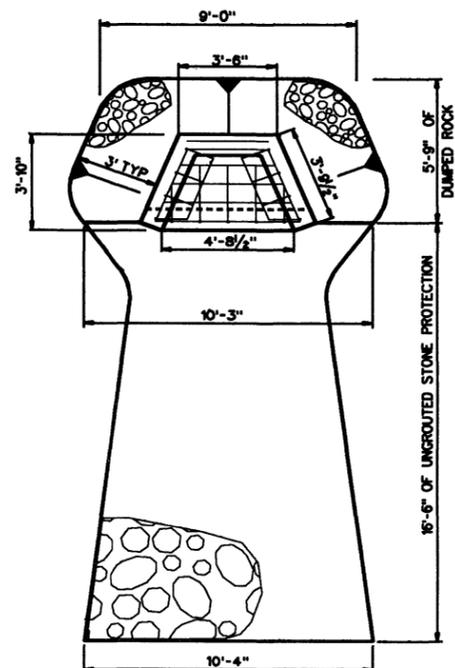
therefore the Owner is responsible for the cost of remedial work. However, this sewer is a publicly owned and operated facility and is therefore suitable for Government funding under Section 111, P.L. 85-500, as amended. It is therefore recommended that the Chief of Engineers find that the remedial costs should be borne by the Government.



PROFILE



STONE PROTECTION AND ENDWALL SECTION



STONE PROTECTION AND ENDWALL PLAN

NOTES:

1. OBJECT LINES APPEARING AS HALF TONES ARE EXISTING CONSTRUCTION.
2. SOLID LINES ARE NEW CONSTRUCTION.
3. REGRADE EXCAVATION TO MATCH EXISTING CONTOURS.
4. RELAY TWO (2) BRICK WALKWAYS, 4' X 10' = 8' X 10' = 13.3 SY.
5. REPAVE EXCAVATED AREA OF STREET, 24' X 10' = 26.7 SY.
6. REMOVE MECHANICAL REGULATOR FROM EXISTING REGULATOR AND REINSTALL AFTER AND/OR DURING PLACEMENT OF NEW TYPE 1 REGULATOR.

FACILITY - Y03R			
REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT, PITTSBURGH CORPS OF ENGINEERS OFFICE OF THE DISTRICT ENGINEER PITTSBURGH, PENNSYLVANIA			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS			
MUNICIPAL AUTHORITY OF THE CITY OF MCKEESPORT SIXTH AVENUE COMBINED OUTFALL			
SFR PLG	SRF	DATE 18 Aug 1994	SCALE NO SCALE
DRAWN BY <i>David M. Maguire</i>		CHECKED BY <i>DAW59</i>	PROJECT NO. 037-R55-67/62

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: Seventh Avenue Combined Sewer Overflow

ID: Y04R

Location

River: Youghiogheny Bank: Right RM: 0.4

Owner: Municipal Authority of the City of McKeesport
Address: 100 Atlantic Avenue
McKeesport, PA 15132

Design Team Visit: Fritz, July 93

POOL DATA:

	EXISTING POOL 2	BRADDOCK POOL
Level Pool	718.7	723.7
Ordinary High Water	730.4	727.7

EXISTING CONDITIONS:

Invert Elevations:

Outfall	716.9 ±
Regulator	722.7 ±

Inlet conditions:

This outfall was originally constructed to pass all storm and domestic wastewater to the Youghiogheny River from the Seventh Avenue drainage area. Currently this 20 inch vitrified clay sewer serves as the combined sewer overflow for the Seventh Avenue regulator station (see APPENDIX C). At the regulator station a 10 inch vitrified clay sewer serves as the branch interceptor to the main intercepting sewer.

Drainage Area: 16.6 Acres
Capacity: $Q_c = 18$ CFS
Runoff, 10-year event: $Q_{10} = 52$ CFS

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates that there is an insignificant potential for contamination at this facility site. Therefore, the contractor does not recommend a Phase II investigation for this facility at this time.

PROPOSED DESIGN:

Limiting Capacity: $Q_L = 27$ CFS

Slope:

Y04RA: 0.0112 ft/ft

Y04RB/C: 0.0302 ft/ft

Material: RCP

Manning's N: 0.012

Diameter: 24"

Design Capacity: $Q_D = 25$ CFS

REQUIRED REMEDIAL WORK:

Government Proposal:

Raise the outfall to an elevation above the new pool level. All associated piping and the sewage regulator station must be raised. Construct 299 feet of 24 inch RCP, and a new sewage regulator station. The new outfall must be realigned horizontally to avoid a developed park area. Construct a new endwall and provide stone protection below outfall.

Work for this facility involves raising the outfall, piping and regulator station. No horizontal relocation is required. Permanent easements do not exist for the facility. The District's recommendation is to acquire permanent pipeline easement for those portions of the facility affected by this relocation. The total cost of acquiring the 0.17 acre of permanent pipeline easement is \$17,600, including administrative costs and contingencies.

Estimated Construction Cost (Rounded): \$ 154,000

Responsibility: Owner (Section 111 Requested)

Justification:

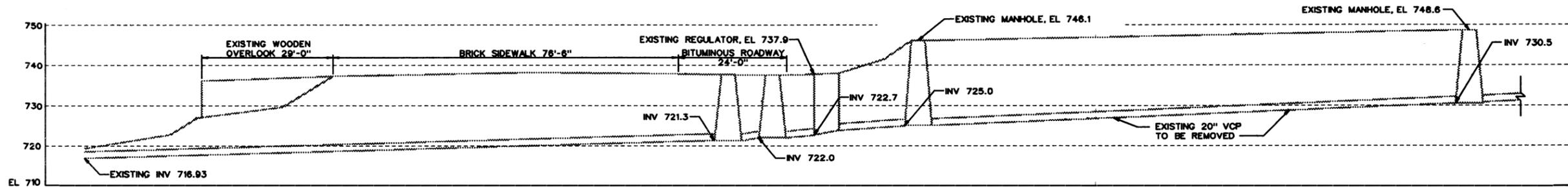
The Seventh Avenue combined sewer outfall would remain totally inundated by the five foot pool rise. This will subject the overflow to increased siltation above that which has already occurred.

The sewage regulator station will be permanently inundated with the new pool elevation. Due to inundation, the regulator station could allow river water to surcharge the sewage collection system and overload the treatment plant.

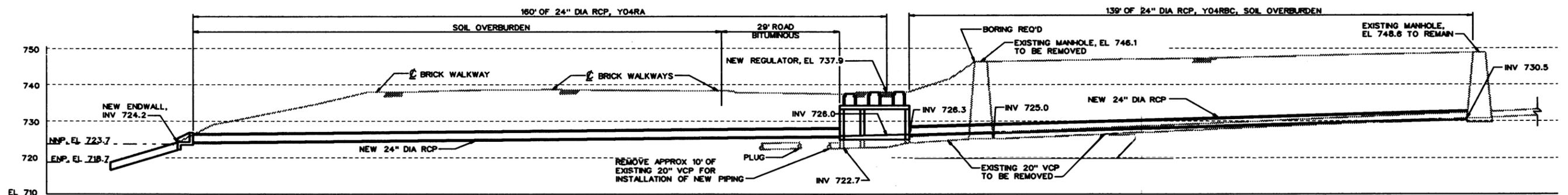
This outfall functions as a relief valve for the combined sewer system during storm events. Without a relocation of the existing sewer, excessive storm flows will be prevented from bypassing to the river and forced into the treatment plant. Also, the new normal pool

elevation could introduce river water into the sewage collection system through the sewage regulator.

This facility terminates on the bank of the Youghioghney River, a navigable waterway, with its outlet invert riverward of existing ordinary high water, therefore the Owner is responsible for the cost of remedial work. However, this sewer is a publicly owned and operated facility and is therefore suitable for Government funding under Section 111, P.L. 85-500, as amended. It is therefore recommended that the Chief of Engineers find that the remedial costs should be borne by the Government.

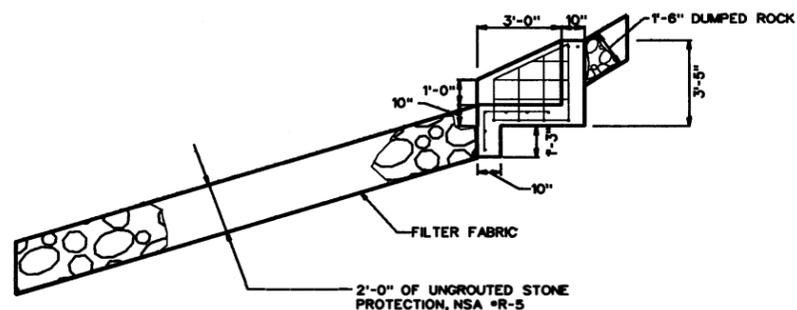


PROFILE
EXISTING

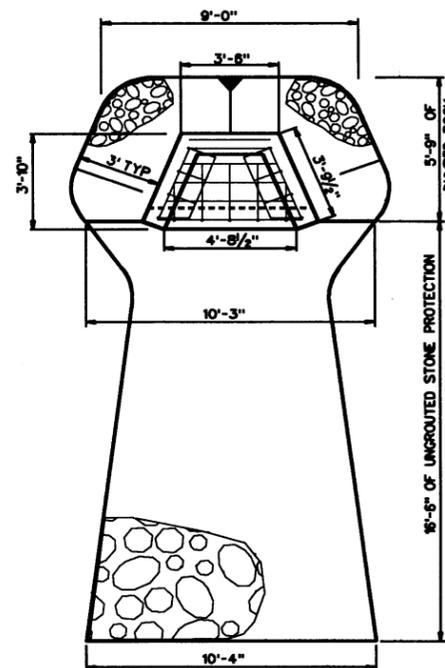


PROFILE
PROPOSED

NOTE:
NNP DESIGNATES NEW NORMAL POOL
ENP DESIGNATES EXISTING NORMAL POOL



STONE PROTECTION AND ENDWALL SECTION



STONE PROTECTION AND ENDWALL PLAN

- NOTES:
1. OBJECT LINES APPEARING AS HALF TONES ARE EXISTING CONSTRUCTION.
 2. SOLID LINES ARE NEW CONSTRUCTION.
 3. REGRADE EXCAVATION TO MATCH EXISTING CONTOURS.
 4. INCREASED PROFILE LENGTH IS DUE TO SMALL HORIZONTAL RELOCATION TO AVOID DEVELOPED AREA.
 5. RELAY DISTURBED BRICK WALKWAYS, 10' X 15' X 3 EA, 50 SY.
 6. REPAVE DISTURBED ROADWAY, 29' X 15', 48 SY.
 7. REMOVE MECHANICAL REGULATOR EQUIPMENT FROM EXISTING REGULATOR AND REINSTALL AFTER AND/OR DURING PLACEMENT OF NEW TYPE 1 REGULATOR.

FACILITY - Y04R			
REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT, PITTSBURGH CORPS OF ENGINEERS PITTSBURGH, PENNSYLVANIA			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS			
MUNICIPAL AUTHORITY OF THE CITY OF McKEESPORT SEVENTH AVENUE COMBINED OUTFALL			
DATE	22 Aug 94	SCALE	NO SCALE
PROJECT NO.	037-R55-67/63	DATE	2 2

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: Ninth Avenue Combined Sewer Overflows

ID: Y05R (Regulator 7) & Y06R (Regulator 7 A)

Location

River: Youghiogheny Bank: Right RM: 0.5

Owner: Municipal Authority of the City of McKeesport

Address: 100 Atlantic Avenue
McKeesport, PA 15132

Design Team Visit: Fritz, July 93

POOL DATA:

	EXISTING POOL 2	BRADDOCK POOL
Level Pool	718.7	723.7
Ordinary High Water	730.4	727.7

EXISTING CONDITIONS:

Invert Elevations:

Regulator Station 7
Outfall 716.7 ±
Regulator 723.0 ±
Pipe Size: 42 inch RCP

Regulator Station 7 A
Outfall 718.2 ±
Regulator 720.9 ±
Pipe size 20 inch VCP

Inlet conditions:

These outfalls were originally constructed to pass all storm and domestic wastewater to the Youghiogheny River from the Ninth Avenue drainage area. Currently these sewers serve as combined sewer overflows for the Ninth Avenue regulator stations, Regulator 7 and 7 A (see APPENDIX C). At the regulator stations a 10 inch vitrified clay sewer serves as the branch interceptor to the main intercepting sewer.

Regulator 7:

Drainage Area: 23.9 Acres
Capacity: $Q_c = 124$ CFS
Runoff, 10-year event: $Q_{10} = 74$ CFS

Regulator 7 A:

Drainage Area: 23.9 Acres
Capacity: $Q_C = 17$ CFS
Runoff, 10-year event: $Q_{10} = 74$ CFS

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates there is a potential for contamination at this facility site. Therefore, the contractor recommends a Phase II investigation for this facility.

PROPOSED DESIGN:

Y05R (Regulator 7):

Limiting Capacity: $Q_L = 124$ CFS
Slope:
 Y05RA: 0.0252 ft/ft
 Y05RB: 0.0120 ft/ft
Material: RCP
Manning's N: 0.012
Diameter: 48"
Design Capacity: $Q_D = 123$ CFS

Y06R (Regulator 7 A):

Limiting Capacity: $Q_L = 26$ CFS
Slope:
 Y06RA: 0.0070 ft/ft
 Y06RB: 0.0070 ft/ft
Material: RCP
Manning's N: 0.012
Diameter: 27"
Design Capacity: $Q_D = 26$ CFS

REQUIRED REMEDIAL WORK:

Government Proposal:

Raise the outfalls to an elevation above the new pool level. All associated piping and the sewage regulator stations must be raised. In conjunction with constructing a new regulator at station 7, 499 feet of 48 inch RCP must be constructed. In conjunction with constructing a new regulator at station 7 A, 499 feet of 27 inch RCP must be constructed. Construct a new endwall for both and provide stone protection below each outfall.

This relocation involves two facilities, regulator stations 7 and 7A, which are in close proximity of each other. Work involves raising the outfalls, associated piping and the regulator stations. Permanent easements do not exist for the entire reach of the facilities. The District's recommendation is to acquire permanent pipeline easements for those portions of the facilities

affected by this relocation. The total cost of acquiring the 0.40 acre of permanent pipeline easements is \$19,750, which includes administrative costs and contingencies.

Estimated Construction Cost (Rounded): \$ 760,000

Responsibility: Owner (Section 111 Requested)

Justification:

The Ninth Avenue combined sewer outfalls will be totally inundated by the five foot pool rise. This will subject the overflows to increased siltation above that which has already occurred.

The sewage regulator stations will be permanently inundated with the new pool elevation. Due to inundation, the regulator stations could allow river water to surcharge the sewage collection system and overload the treatment plant.

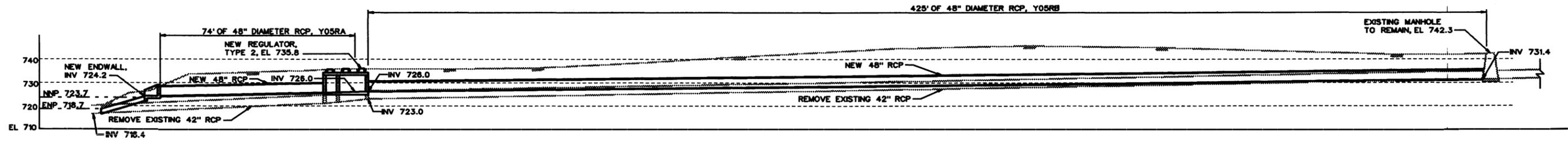
These outfalls function as a relief valves for the combined sewer system during storm events. Without a relocation of the existing sewers, excessive storm flows will be prevented from bypassing to the river and forced into the treatment plant. Also, the new normal pool elevation could introduce river water into the sewage collection system through the sewage regulators.

These facilities terminate on the bank of the Youghiogheny River, a navigable waterway, with their outlet inverts riverward of existing ordinary high water, therefore the Owner is responsible for the cost of remedial work. However, these sewers are publicly owned and operated and are therefore suitable for Government funding under Section 111, P.L. 85-500, as amended. It is therefore recommended that the Chief of Engineers find that the remedial costs should be borne by the Government.

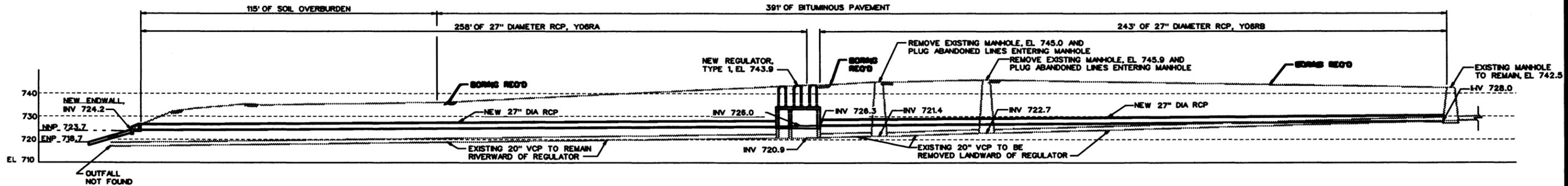


Y05R, 42" RCP (REGULATOR 7 OUTFALL)

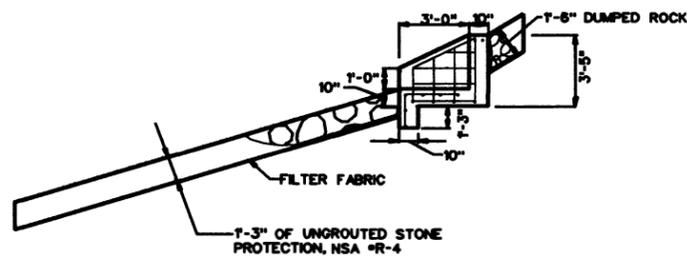
Y05/6R-5



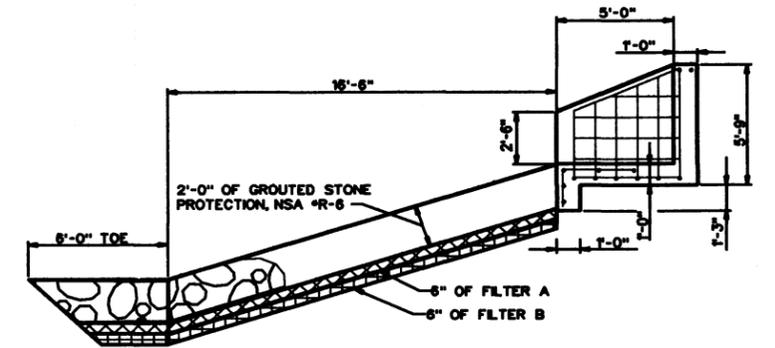
PROFILE, REGULATOR 7



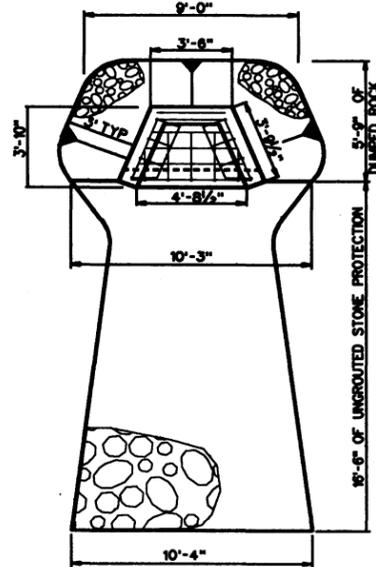
PROFILE, REGULATOR 7A



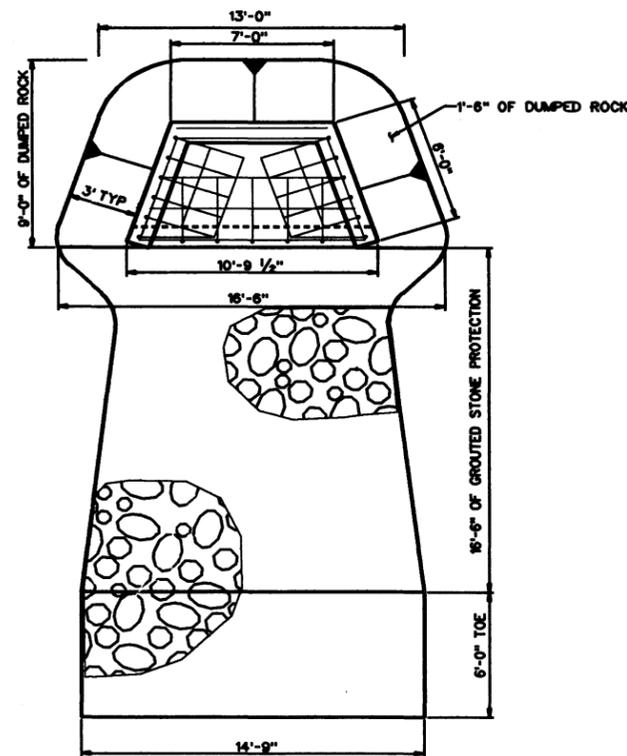
STONE PROTECTION AND ENDWALL SECTION
REGULATOR 7A



STONE PROTECTION AND ENDWALL SECTION
REGULATOR 7



STONE PROTECTION AND ENDWALL PLAN
REGULATOR 7A

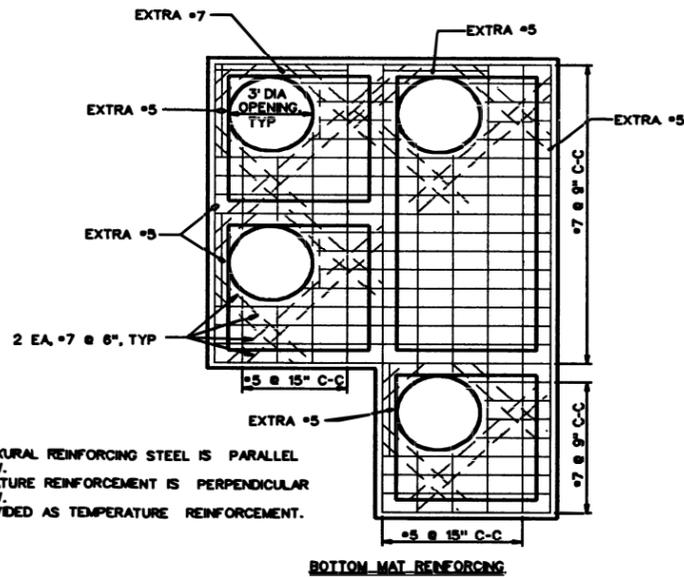


STONE PROTECTION AND ENDWALL PLAN
REGULATOR 7

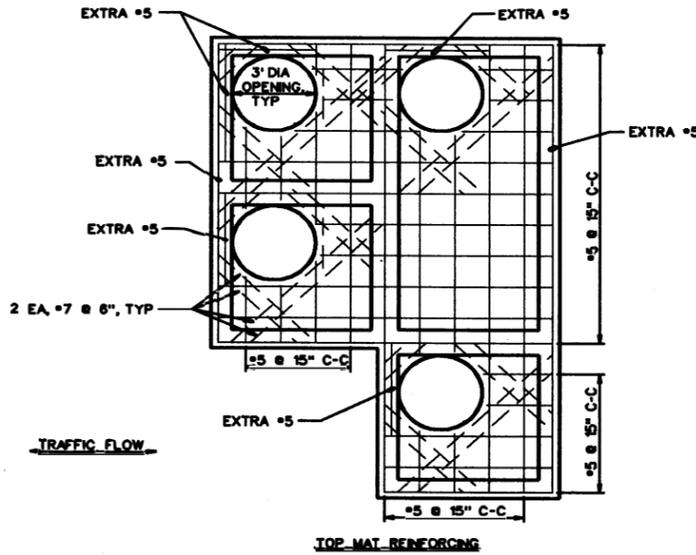
NOTES:

1. OBJECT LINES APPEARING AS HALF TONES ARE EXISTING CONSTRUCTION.
2. SOLID LINES ARE NEW CONSTRUCTION.
3. REGRADE EXCAVATION TO MATCH EXISTING CONTOURS.
4. REPAVE EXCAVATED AREA OF STREET, 39' X 24' = 1,042.7 SY.
5. REMOVE MECHANICAL REGULATOR EQUIPMENT FROM EXISTING REGULATORS AND REINSTALL AFTER AND/OR DURING PLACEMENT OF NEW REGULATORS (REGULATOR 7 IS TYPE 2, REGULATOR 7A IS TYPE 1).

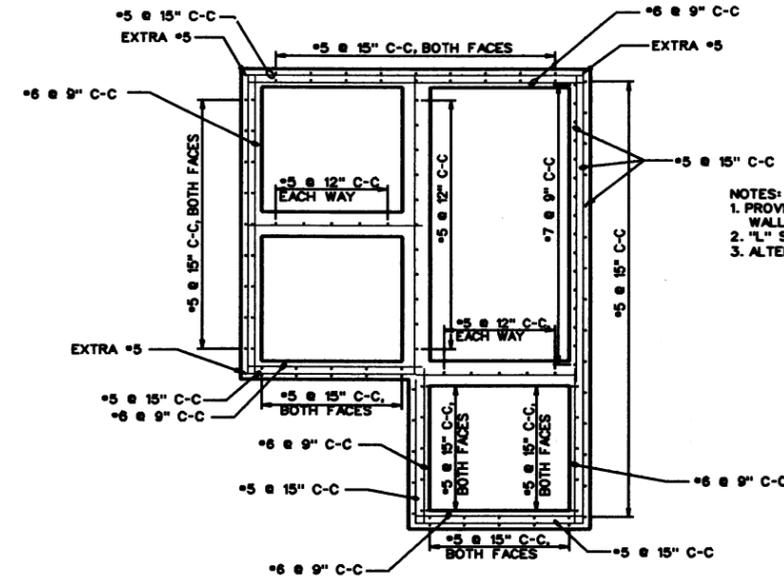
FACILITY - Y05R		FACILITY - Y06R	
REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT, PITTSBURGH CORPS OF ENGINEERS OFFICE OF DISTRICT ENGINEER PITTSBURGH, PENNSYLVANIA			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS			
MUNICIPAL AUTHORITY OF THE CITY OF McKEESPORT NINTH AVENUE COMBINED OUTFALLS			
SRF MPZ	DATE 22 Aug 94	SCALE NO SCALE	PROJECT NO. 037-R55-67/64
Terry D. Shultz DACWB9			



SPECIAL NOTES:
 1. BOTTOM MAT FLEXURAL REINFORCING STEEL IS PARALLEL TO TRAFFIC FLOW.
 2. BOTTOM TEMPERATURE REINFORCEMENT IS PERPENDICULAR TO TRAFFIC FLOW.
 3. TOP MAT IS PROVIDED AS TEMPERATURE REINFORCEMENT.

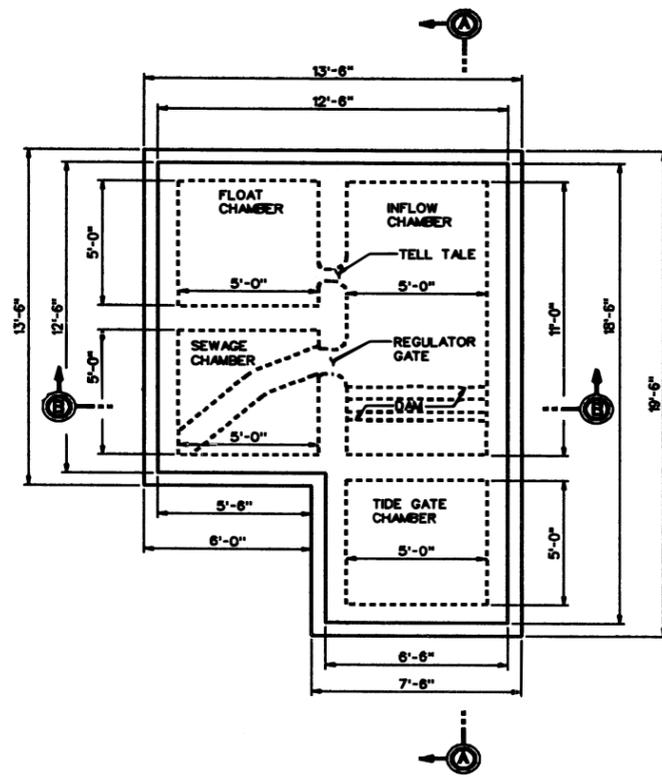


CEILING REINFORCEMENT DETAILS

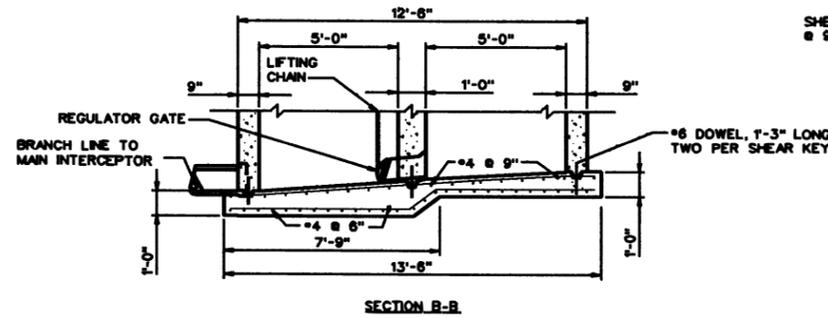


NOTES:
 1. PROVIDE #5 "L" SHAPED BARS @ 15" OC AT ALL OUTSIDE WALLS TO ANCHOR WALLS TO FLOOR AND CEILING.
 2. "L" SHAPED #5 BAR SHALL HAVE 15" LEGS, TYPICAL.
 3. ALTERNATE DIRECTION OF "L" BAR LEGS AT INSIDE WALLS.

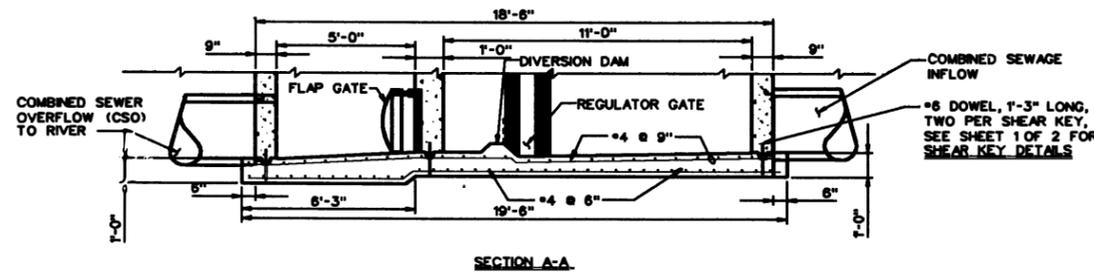
WALL REINFORCEMENT DETAILS



REGULATOR PLAN

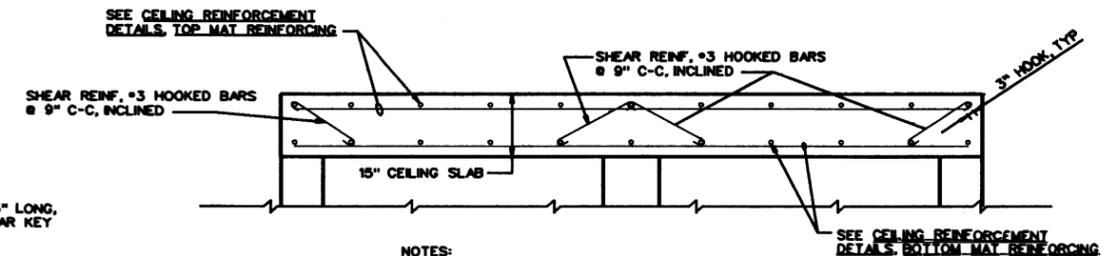


SECTION B-B



SECTION A-A

FLOOR REINFORCING DETAILS



NOTES:
 1. SHEAR REINFORCING IS ONLY REQUIRED FOR TYPE 2 REGULATORS.
 2. #5 "L" BARS AND SHEAR KEYS ARE NOT SHOWN FOR CLARITY.

SHEAR REINFORCING, CEILING

GENERAL NOTES:

1. SALVAGABLE MECHANICAL REGULATOR EQUIPMENT WILL BE REUSED WHERE PRACTICAL. ALL UNUSABLE EQUIPMENT MUST BE REPLACED.
2. CLEARANCE FOR ALL REINFORCING STEEL SHALL BE THREE INCHES UNLESS OTHERWISE NOTED.

FACILITY - Y05R
 FACILITY - Y08R

REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT PITTSBURGH CORPS OF ENGINEERS OFFICE OF THE DISTRICT ENGINEER PITTSBURGH, PENNSYLVANIA			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS MUNICIPAL AUTHORITY OF THE CITY OF McKEESPORT TYPE 2 REGULATOR DETAILS			
SRF	SRF	18 Aug 1994	NO SCALE
DACW59			037-R55-67/71
2			2

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: Eleventh Avenue Combined Sewer Overflow

ID: Y07R

Location

River: Youghiogheny Bank: Right RM: 0.7

Owner: Municipal Authority of the City of McKeesport
Address: 100 Atlantic Avenue
McKeesport, PA 15132

Design Team Visit: Fritz, July 93

POOL DATA:

	EXISTING POOL 2	BRADDOCK POOL
Level Pool	718.7	723.7
Ordinary High Water	730.4	727.7

EXISTING CONDITIONS:

Invert Elevations:

Outfall	717.6 ±
Regulator	719.8 ±

Inlet conditions:

This outfall was originally constructed to pass all storm and domestic wastewater to the Youghiogheny River from the Eleventh Avenue drainage area. Currently this 18 inch vitrified clay sewer serves as the combined sewer overflow for the Eleventh Avenue regulator station (see APPENDIX C). At the regulator station a 10 inch vitrified clay sewer serves as the branch interceptor to the main intercepting sewer.

Drainage Area: 8.5 Acres

Capacity: $Q_c = 12$ CFS

Runoff, 10-year event: $Q_{10} = 27$ CFS

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates that there is an insignificant potential for contamination at this facility site. Therefore, the contractor does not recommend a Phase II investigation for this facility at this time.

PROPOSED DESIGN:

Limiting Capacity: $Q_L = 18$ CFS

Slope:

Y07RA: 0.0055 ft/ft
Y07RB: 0.0045 ft/ft
Y07RCD: 0.0183 ft/ft
Y07RF: 0.0721 ft/ft
Y07RG: 0.0472 ft/ft

Material: RCP

Manning's N: 0.012

Diameter: Y07RA-Y07RCD: 24"
Y07RF/G: 15"

Design Capacity: $Q_D = 18$ CFS

REQUIRED REMEDIAL WORK:

Government Proposal:

Raise the outfall to an elevation above the new pool level. All associated piping and the sewage regulator station must be raised. Construct 564.5 feet of 24 inch RCP, and a new sewage regulator station. Construct a new endwall and provide stone protection below outfall. Construct 56.25 feet of 15 inch RCP for new service connection from existing housing project. Construct 42.5 feet of 15 inch RCP for new service connection from existing housing project.

Relocation of these facilities (Y07R - Y09R) involves raising the sewer outfalls, associated piping and the regulator stations. No horizontal relocation of the facilities is required. The Authority does not own a compensable interest in the land for these facilities. The District's recommendation is to acquire permanent pipeline easements for those portions of the facilities affected by this relocation. The total cost of acquiring 2.00 acres of permanent pipeline easement is \$28,250, including administrative costs and contingencies.

Estimated Construction Cost (Rounded): \$ 280,000

Responsibility: Owner (Section 111 Requested)

Justification:

The Eleventh Avenue combined sewer outfall will be totally inundated by the five foot pool rise. This will subject the overflow to increased siltation above that which has already occurred.

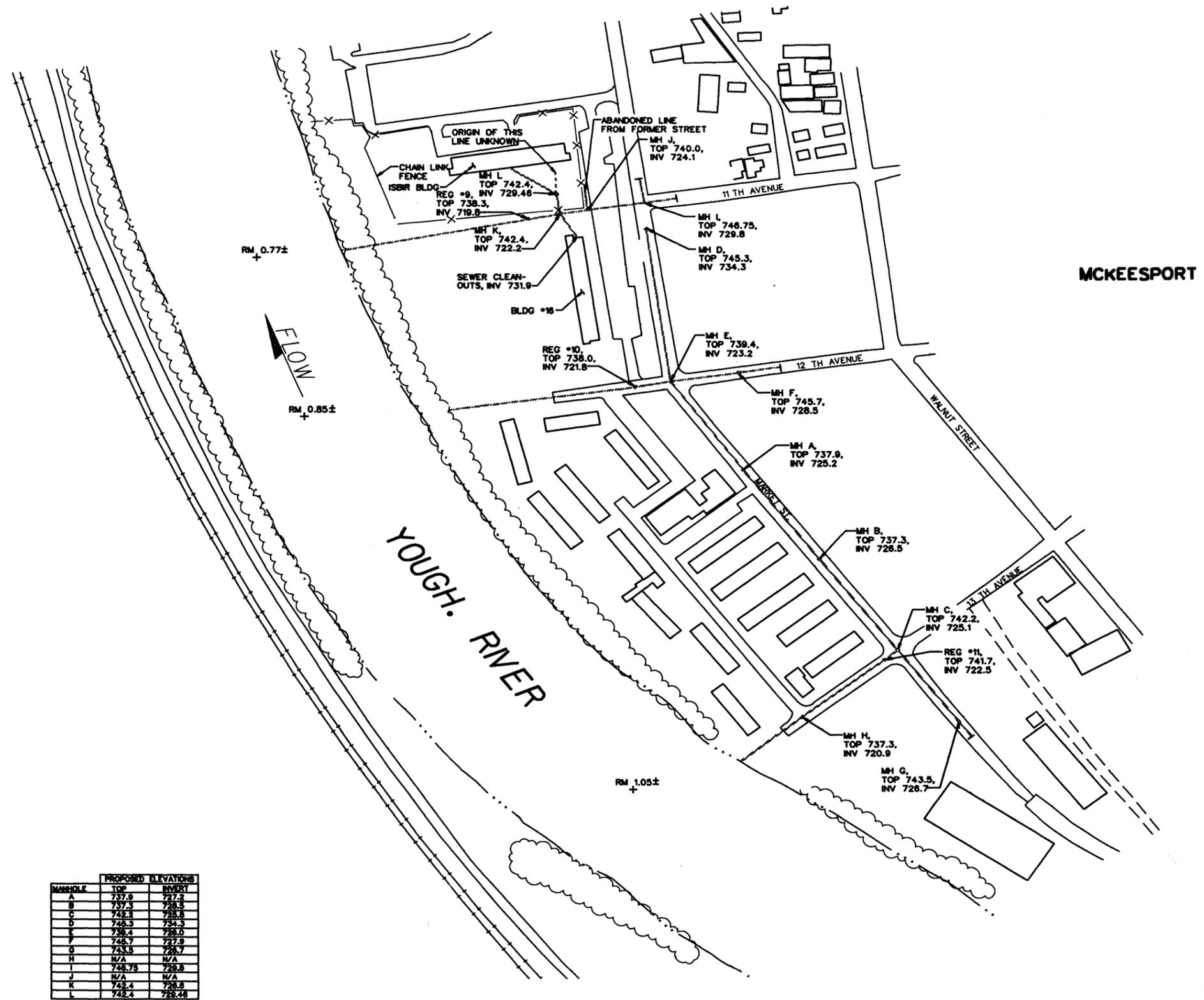
The sewage regulator station will be permanently inundated with the new pool elevation. Due to inundation, the regulator station could allow river

water to surcharge the sewage collection system and overload the treatment plant.

Service connections must be reestablished to existing public housing project buildings.

This outfall functions as a relief valve for the combined sewer system during storm events. Without a relocation of the existing sewer, excessive storm flows will be prevented from bypassing to the river and forced into the treatment plant. Also, the new normal pool elevation could introduce river water into the sewage collection system through the sewage regulator.

This facility terminates on the bank of the Youghiogheny River, a navigable waterway, with its outlet invert riverward of existing ordinary high water, therefore the Owner is responsible for the cost of remedial work. However, this sewer is a publicly owned and operated facility and is therefore suitable for Government funding under Section 111, P.L. 85-500, as amended. It is therefore recommended that the Chief of Engineers find that the remedial costs should be borne by the Government.

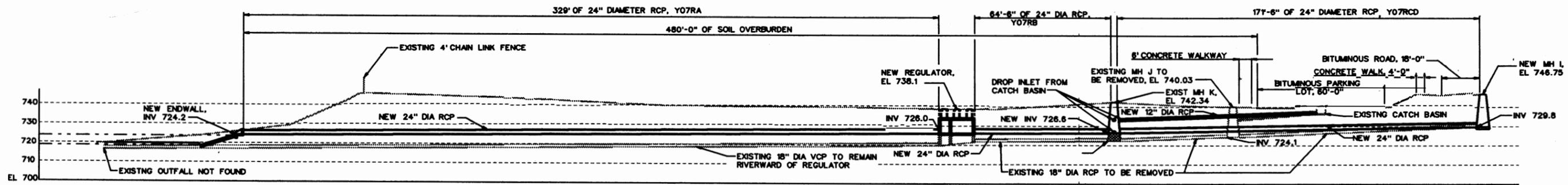


MANHOLE	PROPOSED ELEVATIONS	
	TOP	INVERT
A	737.9	727.2
B	737.3	728.5
C	742.2	725.1
D	745.3	734.3
E	739.4	728.0
F	745.7	727.9
G	743.5	726.7
H	N/A	N/A
I	746.75	725.8
J	N/A	N/A
K	742.4	728.8
L	742.4	729.46

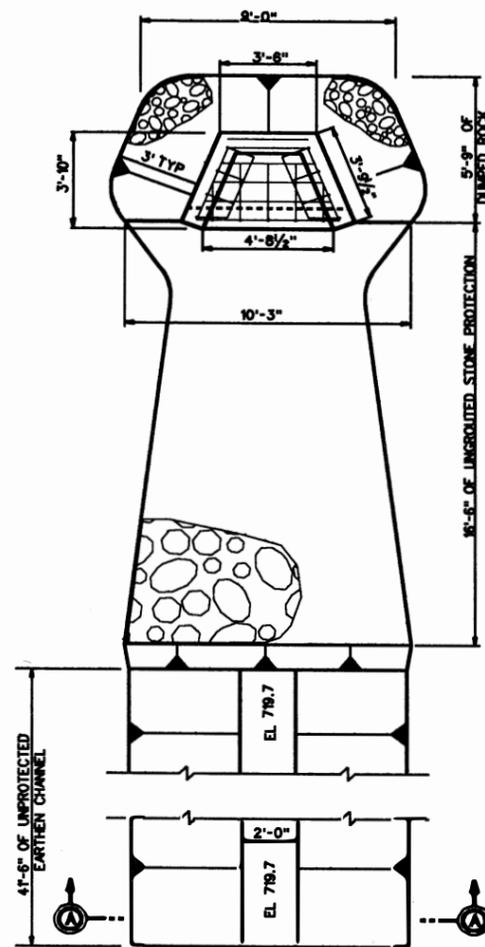
FIGURE 1

NOTES:
 1. WORK THIS DRAWING WITH SHEET 2 OF 2 FOR ELEVENTH AVENUE, TWELFTH AVENUE AND THIRTEENTH AVENUE COMBINED SEWER OUTFALLS.
 2. EXISTING CONDITIONS ARE AS SHOWN. PROPOSED INFORMATION IS SHOWN IN FIGURE 1.

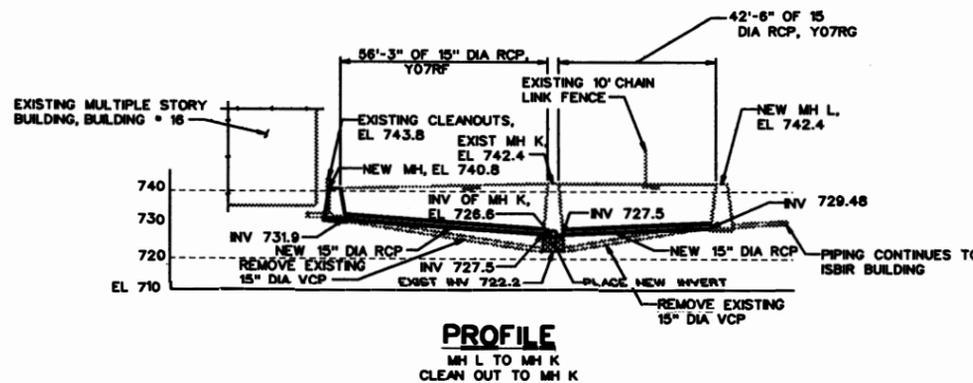
FACILITY - Y07R		BY	
FACILITY - Y08R		GRAPHIC SCALE	
FACILITY - Y09R		DESCRIPTION	
REVISION	DATE	DESCRIPTION	BY
U.S. ARMY ENGINEER DISTRICT, PITTSBURGH CORPS OF ENGINEERS			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS			
MUNICIPAL AUTHORITY OF THE CITY OF MCKEESPORT COMBINED SEWER OVERFLOWS, MARKET STREET AT 11 AVE., 12 AVE., AND 13TH AVE., PLAN			
N/A	SRF	18 Aug 1994	AS SHOWN 037-R55-67/65



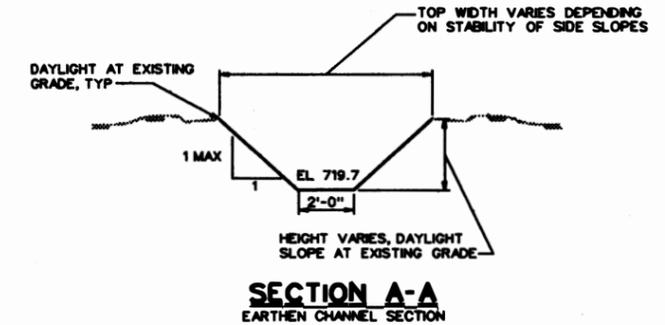
PROFILE
ALONG OVERFLOW



STONE PROTECTION AND ENDWALL PLAN

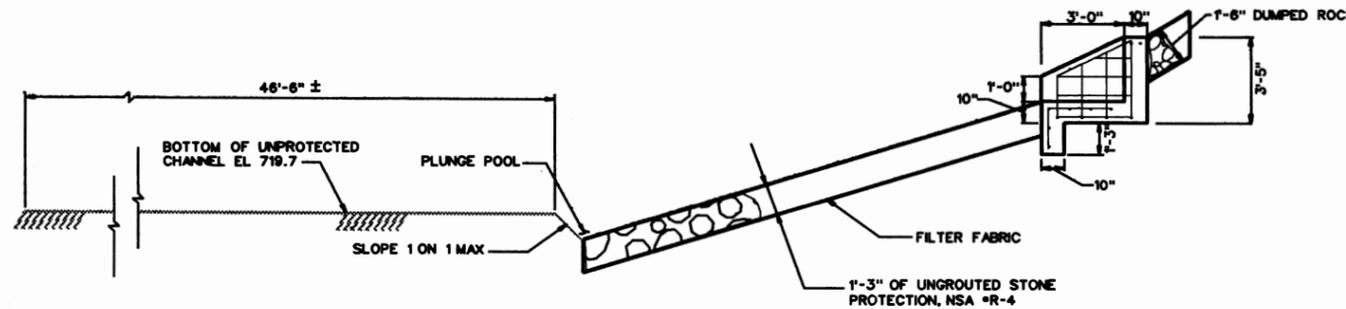


PROFILE
MH L TO MH K
CLEAN OUT TO MH K



SECTION A-A
EARTHEN CHANNEL SECTION

- NOTES:
1. OBJECT LINES APPEARING AS HALF TONES ARE EXISTING CONSTRUCTION.
 2. SOLID LINES ARE NEW CONSTRUCTION.
 3. REGRADE EXCAVATION TO MATCH EXISTING CONTOURS.
 4. REPAVE EXCAVATED AREA OF MARKET STREET 18' X 10' - 20.0 SY.
 5. REPAVE PARKING AREA, 60' X 10' - 66.7 SY.
 6. REPAVE CONCRETE WALKWAYS, 6' X 10' - 6.7 SY, 7' X 10' - 7.8 SY.
 8. REMOVE MECHANICAL REGULATOR EQUIPMENT FROM EXISTING REGULATOR AND REINSTALL AFTER AND/OR DURING PLACEMENT OF NEW TYPE 1 REGULATOR.



STONE PROTECTION AND ENDWALL SECTION

FACILITY - YO7R			
REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT PITTSBURGH CORPS OF ENGINEERS PITTSBURGH, PENNSYLVANIA			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS			
MUNICIPAL AUTHORITY OF THE CITY OF MCKEESPORT ELEVENTH AVENUE COMBINED OUTFALL AND ASSOCIATED SEWER ADJUSTMENTS			
DATE	SCALE	NO	NO SCALE
17-AUG-1994	AS-240	18 Aug 1994	037-R55-67/66
DACW59			2

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: Twelfth Avenue Combined Sewer Overflow

ID: Y08R

Location

River: Youghiogheny **Bank:** Right **RM:** 0.7

Owner: Municipal Authority of the City of McKeesport

Address: 100 Atlantic Avenue
McKeesport, PA 15132

Design Team Visit: Fritz, July 93

POOL DATA:

	EXISTING POOL 2	BRADDOCK POOL
Level Pool	718.7	723.7
Ordinary High Water	730.4	727.7

EXISTING CONDITIONS:

Invert Elevations:

Outfall	Unknown
Regulator	722.0 ±

Inlet conditions:

This outfall was originally constructed to pass all storm and domestic wastewater to the Youghiogheny River from the Twelfth Avenue drainage area. Currently this 36 inch vitrified clay sewer serves as the combined sewer overflow for the Twelfth Avenue regulator station (see APPENDIX C). At the regulator station a 10 inch vitrified clay sewer serves as the branch interceptor to the main intercepting sewer.

Drainage Area: 26.2 Acres

Capacity: $Q_c = 80$ CFS

Runoff, 10-year event: $Q_{10} = 82$ CFS

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates that there is an insignificant potential for contamination at this facility site. Therefore, the contractor does not recommend a Phase II investigation for this facility at this time.

PROPOSED DESIGN:

Limiting Capacity: $Q_L = 82$ CFS

Slope:

Y08RA: 0.0034 ft/ft

Y08RB 0.0027 ft/ft

Y08RC: 0.0136 ft/ft

Y08RD: 0.0196 ft/ft

Y08RE: 0.0049 ft/ft

Y08RF: 0.0051 ft/ft

Material: RCP (all pipes)

Manning's N: 0.012

Diameter:

Y08RA: 48"

Y08RB 48"

Y08RC: 48"

Y08RD: 24"

Y08RE: 27"

Y08RF: 21"

Design Capacity: $Q_D = 82$ CFS

REQUIRED REMEDIAL WORK:

Government Proposal:

Raise the outfall to an elevation above the new pool level. All associated piping and the sewage regulator station must be raised. Construct 587 feet of 48 inch RCP, and a new sewage regulator station. Construct a new endwall and provide stone protection below outfall.

Existing sewer lines along an adjoining street also require relocation because of the new regulator elevation. Construct 345 feet of 24 inch RCP, construct 245 feet of 27 inch RCP and construct 251 feet of 21 inch RCP to maintain existing storm and sanitary flows.

Relocation of these facilities (Y07R - Y09R) involves raising the sewer outfalls, associated piping and the regulator stations. No horizontal relocation of the facilities is required. The Authority does not own a compensable interest in the land for these facilities. The District's recommendation is to acquire permanent pipeline easements for those portions of the facilities affected by this relocation. The total cost of acquiring 2.00 acres of permanent pipeline easement is \$28,250, including administrative costs and contingencies.

Estimated Construction Cost (Rounded): \$ 674,000

Responsibility: Owner (Section 111 Requested)

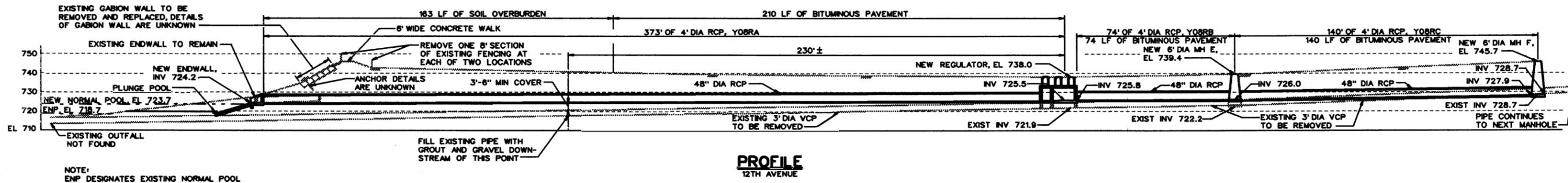
Justification:

The Twelfth Avenue combined sewer outfall will be totally inundated by the five foot pool rise. This will subject the overflow to increased siltation above that which has already occurred.

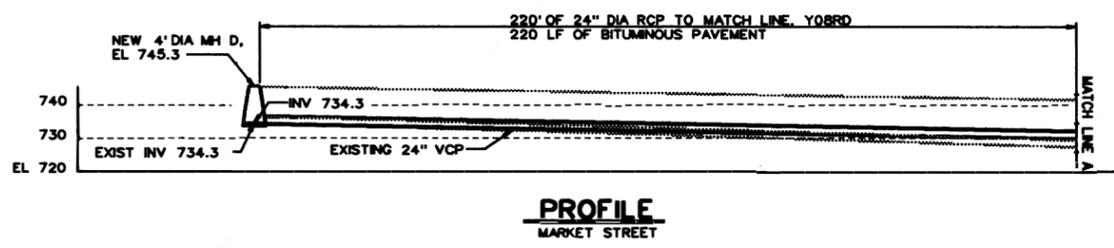
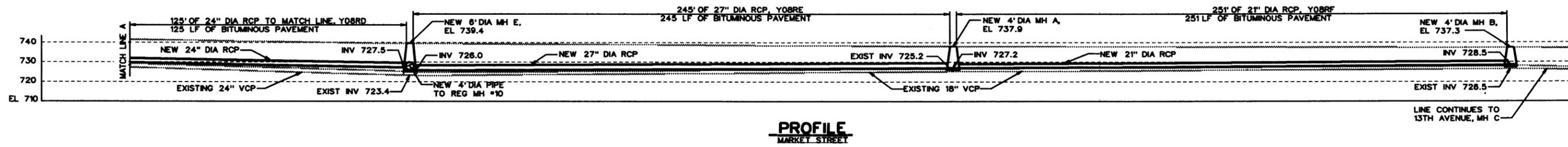
The sewage regulator station will be permanently inundated with the new pool elevation. Due to inundation, the regulator station could allow river water to surcharge the sewage collection system and overload the treatment plant.

This outfall functions as a relief valve for the combined sewer system during storm events. Without a relocation of the existing sewer, excessive storm flows will be prevented from bypassing to the river and forced into the treatment plant. Also, the new normal pool elevation could introduce river water into the sewage collection system through the sewage regulator.

This facility terminates on the bank of the Youghiogheny River, a navigable waterway, with its outlet invert riverward of existing ordinary high water, therefore the Owner is responsible for the cost of remedial work. However, this sewer is a publicly owned and operated facility and is therefore suitable for Government funding under Section 111, P.L. 85-500, as amended. It is therefore recommended that the Chief of Engineers find that the remedial costs should be borne by the Government.

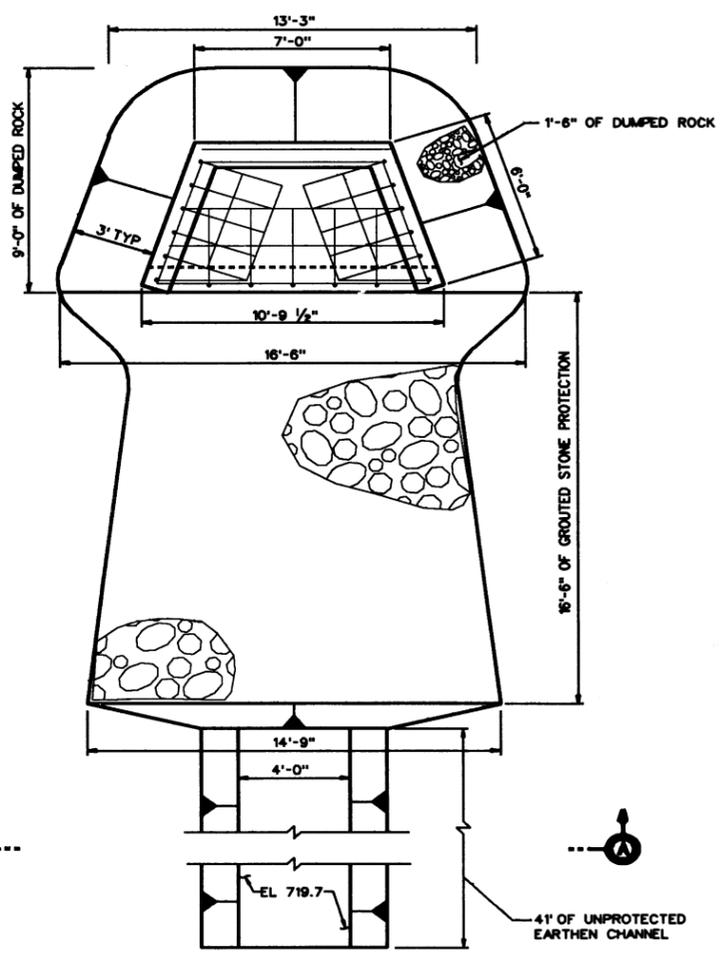


NOTE:
ENP DESIGNATES EXISTING NORMAL POOL

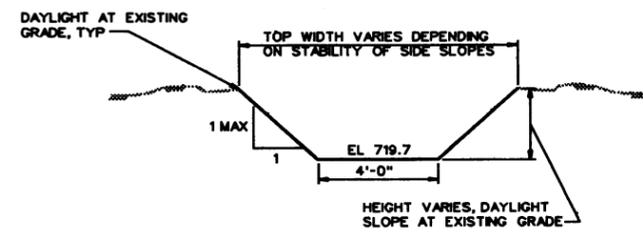


PROFILE
MARKET STREET

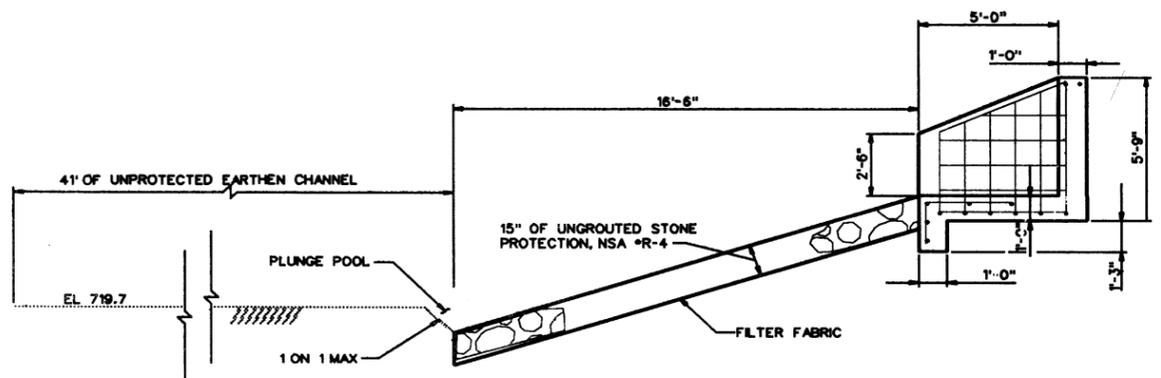
PROFILE
MARKET STREET



STONE PROTECTION AND ENDWALL PLAN



SECTION A-A
EARTHEN CHANNEL SECTION



STONE PROTECTION AND ENDWALL SECTION

- NOTES:
1. OBJECT LINES APPEARING AS HALF TONES ARE EXISTING CONSTRUCTION.
 2. SOLID LINES ARE NEW CONSTRUCTION.
 3. REGRADE EXCAVATION TO MATCH EXISTING CONTOURS.
 4. REPAVE EXCAVATED AREA OF MARKET STREET 84'1" X 10' - 934 SY.
 5. REPAVE EXCAVATED AREA OF 12TH STREET, 424' X 10' - 471 SY.
 6. REPAVE CONCRETE WALKWAY, 6' X 10' - 6.7 SY.
 7. REMOVE AND RESET EXISTING GABION WALL.
 8. REMOVE MECHANICAL REGULATOR EQUIPMENT FROM EXISTING REGULATOR AND REINSTALL AFTER AND/OR DURING PLACEMENT OF NEW TYPE 2 REGULATOR.

FACILITY - Y08R			
REVISION	DATE	DESCRIPTION	BY
		GRAPHIC SCALE	
U.S. ARMY ENGINEER DISTRICT PITTSBURGH CORPS OF ENGINEERS OFFICE OF THE DISTRICT ENGINEER PITTSBURGH, PENNSYLVANIA MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS MUNICIPAL AUTHORITY OF THE CITY OF MCKEESPORT TWELTH AVENUE COMBINED OUTFALL AND ASSOCIATED SEWER ADJUSTMENTS			
SCALE	DATE	NO. SCALE	NO. SHEET
SRF RJC	26 Aug. 1994	NO SCALE	037-R55-67/67
[Signature] DACW59			2

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: Thirteenth Avenue Combined Sewer Overflow

ID: Y09R

Location

River: Youghiogheny Bank: Right RM: 0.8

Owner: Municipal Authority of the City of McKeesport
Address: 100 Atlantic Avenue
 McKeesport, PA 15132

Design Team Visit: Fritz, July 93

POOL DATA:

	EXISTING POOL 2	BRADDOCK POOL
Level Pool	718.7	723.7
Ordinary High Water	730.4	727.7

EXISTING CONDITIONS:

Invert Elevations:

Outfall	718.0 ±
Regulator	722.5 ±

Inlet conditions:

This outfall was originally constructed to pass all storm and domestic wastewater to the Youghiogheny River from the Thirteenth Avenue drainage area. Currently this 24 inch vitrified clay sewer serves as the combined sewer overflow for the Thirteenth Avenue regulator station (see APPENDIX C). At the regulator station a 10 inch vitrified clay sewer serves as the branch interceptor to the main intercepting sewer.

Drainage Area: 81 Acres

Capacity: $Q_c = 24$ CFS

Runoff, 10-year event: $Q_{10} = 244$ CFS

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates that there is an insignificant potential for contamination at this facility site. Therefore, the contractor does not recommend a Phase II investigation for this facility at this time.

PROPOSED DESIGN:

Limiting Capacity: $Q_L = 36$ CFS

Slope:

Y09RAB: 0.0033 ft/ft

Y09RC: 0.0033 ft/ft

Y09RD: 0.0104 ft/ft

Y09RE: 0.0044 ft/ft

Material: RCP (all pipes)

Manning's N: 0.012

Diameter:

Y09RAB: 33"

Y09RC: 33"

Y09RD: 18"

Y09RE: 21"

Design Capacity: $Q_D = 36$ CFS

REQUIRED REMEDIAL WORK:

Government Proposal:

Raise the outfall to an elevation above the new pool level. All associated piping and the sewage regulator station must be raised. Construct 382.5 feet of 33 inch RCP, and a new sewage regulator station. Construct a new endwall and provide stone protection below outfall.

Existing sewer lines along an adjoining street also require relocation because of the new regulator elevation. Construct 257 feet of 18 inch RCP and construct 199.5 feet of 21 inch RCP to maintain existing storm and sanitary flows.

Relocation of these facilities (Y07R - Y09R) involves raising the sewer outfalls, associated piping and the regulator stations. No horizontal relocation of the facilities is required. The Authority does not own a compensable interest in the land for these facilities. The District's recommendation is to acquire permanent pipeline easements for those portions of the facilities affected by this relocation. The total cost of acquiring 2.00 acres of permanent pipeline easement is \$28,250, including administrative costs and contingencies.

Estimated Construction Cost (Rounded): \$ 358,000

Responsibility: Owner (Section 111 Requested)

Justification:

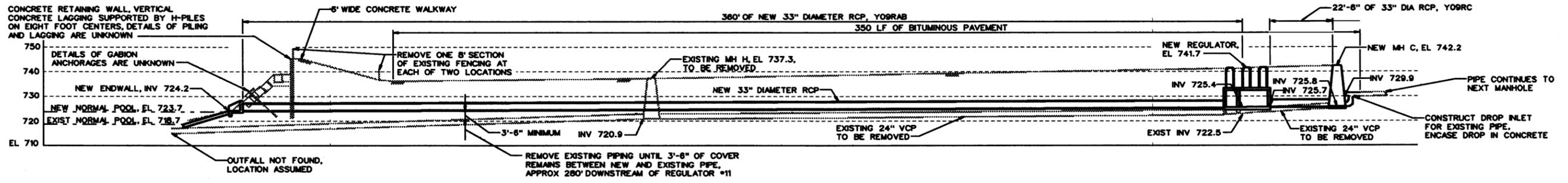
The Thirteenth Avenue combined sewer outfall will be totally inundated by the five foot pool rise. This

will subject the overflow to increased siltation above that which has already occurred.

The sewage regulator station will be permanently inundated with the new pool elevation. Due to inundation, the regulator station could allow river water to surcharge the sewage collection system and overload the treatment plant.

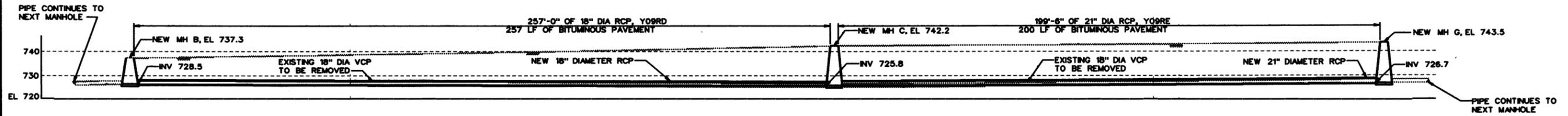
This outfall functions as a relief valve for the combined sewer system during storm events. Without a relocation of the existing sewer, excessive storm flows will be prevented from bypassing to the river and forced into the treatment plant. Also, the new normal pool elevation could introduce river water into the sewage collection system through the sewage regulator.

This facility terminates on the bank of the Youghiogheny River, a navigable waterway, with its outlet invert riverward of existing ordinary high water, therefore the Owner is responsible for the cost of remedial work. However, this sewer is a publicly owned and operated facility and is therefore suitable for Government funding under Section 111, P.L. 85-500, as amended. It is therefore recommended that the Chief of Engineers find that the remedial costs should be borne by the Government.

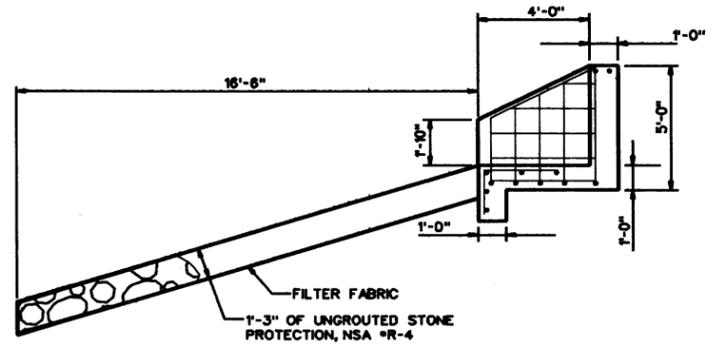


EXISTING CONDITION NOTES:
 1. ONE SECTION OF CONCRETE LAGGING TO BE REMOVED FOR PLACEMENT OF NEW PIPE (IF NECESSARY). REPLACE LAGGING IF NECESSARY.
 2. GABIONS AND GABION ANCHORS ARE JUST UPSTREAM OF THIS RELOCATION. THEY ARE SHOWN FOR PROXIMITY ONLY.

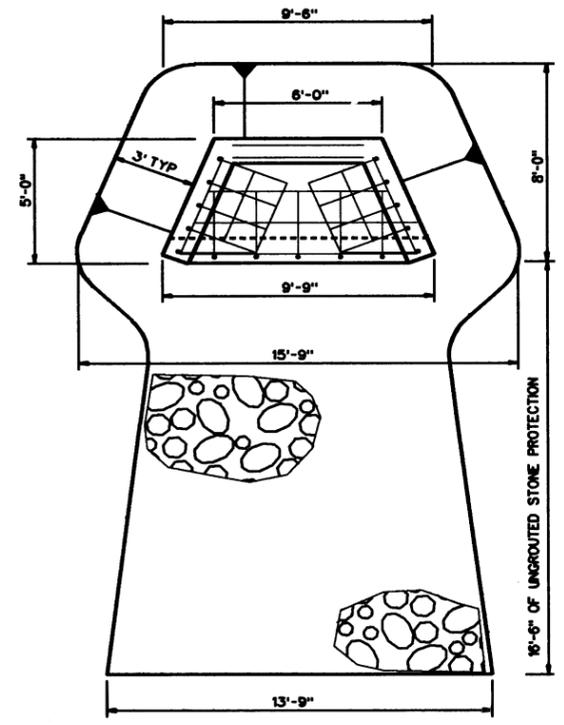
PROFILE
13-TH AVENUE



PROFILE
MARKET STREET, MH B,
MH C AND MH G



STONE PROTECTION AND ENDWALL SECTION



STONE PROTECTION AND ENDWALL PLAN

- NOTES:
1. OBJECT LINES APPEARING AS HALF TONES ARE EXISTING CONSTRUCTION.
 2. SOLID LINES ARE NEW CONSTRUCTION.
 3. REGRADE EXCAVATION TO MATCH EXISTING CONTOURS.
 4. REPAVE EXCAVATED AREA OF MARKET STREET 457' X 10' - 507.8 SY.
 5. REPAVE EXCAVATED AREA OF 13TH AVENUE, 350' X 10' - 388.9 SY.
 6. REPAVE CONCRETE WALKWAY, 6' X 10' - 6.8 SY.
 7. REMOVE MECHANICAL REGULATOR EQUIPMENT FROM EXISTING REGULATOR AND REINSTALL AFTER AND/OR DURING PLACEMENT OF NEW TYPE 1 REGULATOR.

FACILITY - Y09R			
REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT, PITTSBURGH CORPS OF ENGINEERS PITTSBURGH, PENNSYLVANIA			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS			
MUNICIPAL AUTHORITY OF THE CITY OF MCKESPORT THIRTEENTH AVENUE COMBINED OUTFALL AND ASSOCIATED SEWER ADJUSTMENTS			
DATE	SCALE	NO	BY
18 Aug 1994	NO SCALE	037-R55-67/68	
DACW59			
		2 2	

LOCKS AND DAMS 2, 3 & 4 MONONGAHELA RIVER PROJECT RELOCATIONS

FACILITY: 28th Avenue Combined Sewer Overflow

ID: Y10R

Location

River: Youghiogheny Bank: Right RM: 2.1

Owner: Municipal Authority of the City of McKeesport
Address: 100 Atlantic Avenue
McKeesport, PA 15132

Design Team Visit: Fritz, April 93

POOL DATA:

	EXISTING POOL 2	BRADDOCK POOL
Level Pool	718.7	723.7
Ordinary High Water	730.4	727.7

EXISTING CONDITIONS:

Invert Elevation: 718.82 ±

Inlet conditions:

This outfall was originally constructed to pass all storm and domestic wastewater to the Youghiogheny River from the 28th Avenue drainage area. Currently this 60 inch brick sewer serves as the combined sewer overflow for the 28th Avenue regulator station (see APPENDIX C).

Drainage Area: 397 Acres
Capacity: $Q_c = 300$ CFS
Runoff, 10-year event: $Q_{10} = 1091$ CFS

The DRAFT Phase I HTRW Report submitted by our Phase I contractor indicates that there is an insignificant potential for contamination at this facility site. Therefore, the contractor does not recommend a Phase II investigation for this facility at this time.

PROPOSED DESIGN:

Limiting Capacity: $Q_L = 450$ CFS
Slope: 0.0036 ft/ft
Material: RCP
Manning's N: 0.012
Diameter: 78"
Design Capacity: $Q_D = 426$ CFS

REQUIRED REMEDIAL WORK:

Government Proposal:

Raise the outfall by constructing 185 ft of 78" RCP. Construct new endwall and stone protection below outfall.

Work on this facility involves raising the sewer outfall and associated piping. The authority does not own a compensable interest in the land. The District's recommendation is to acquire 0.23 acre of permanent pipeline easement for the portion of the facility to be relocated. An additional 0.22 acre of temporary work area easement is required for construction. The total cost of acquiring both easements is \$17,745, which includes administrative costs and contingencies.

Estimated Construction Cost (Rounded): \$ 202,000

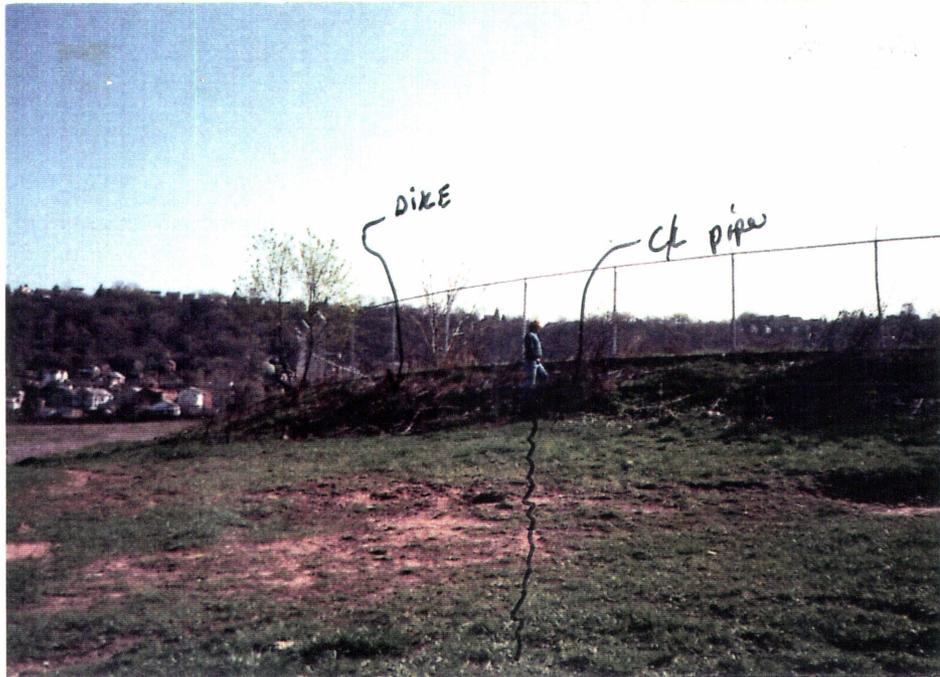
Responsibility: Government

Justification:

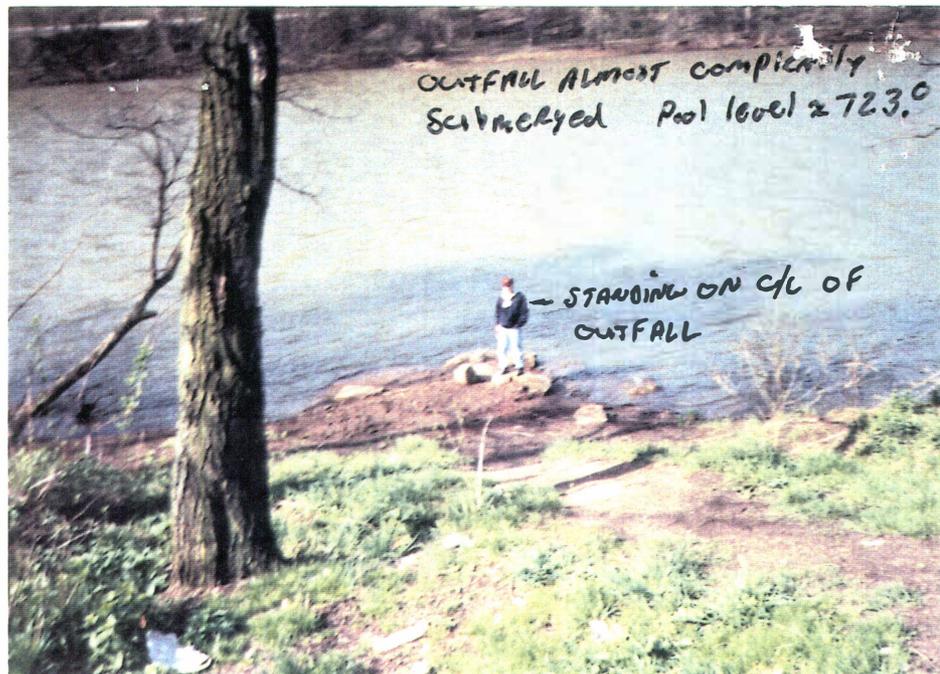
The 28 th Avenue outfall sewer provides relief for the existing combined sewer system during significant storm events. The pool rise will subject the outfall to increased siltation above that which has already occurred. The five foot pool increase will make the outfall inaccessible.

This outfall functions as a relief valve for the combined sewer system during storm events. Without a relocation of the existing sewer, excessive storm flows will be prevented from bypassing to the river and forced into the treatment plant. Also, the new normal pool elevation could introduce river water into the sewage collection system through the sewage regulator.

This facility (identified as a 60" brick and stone storm sewer by the LMFS) was authorized for project funding by the LMFS, December 1991, provided that further investigation revealed that it complies with the requirements of P.L. 85-500, Section 111, as amended. see APPENDIX D for documentation on this compliance.



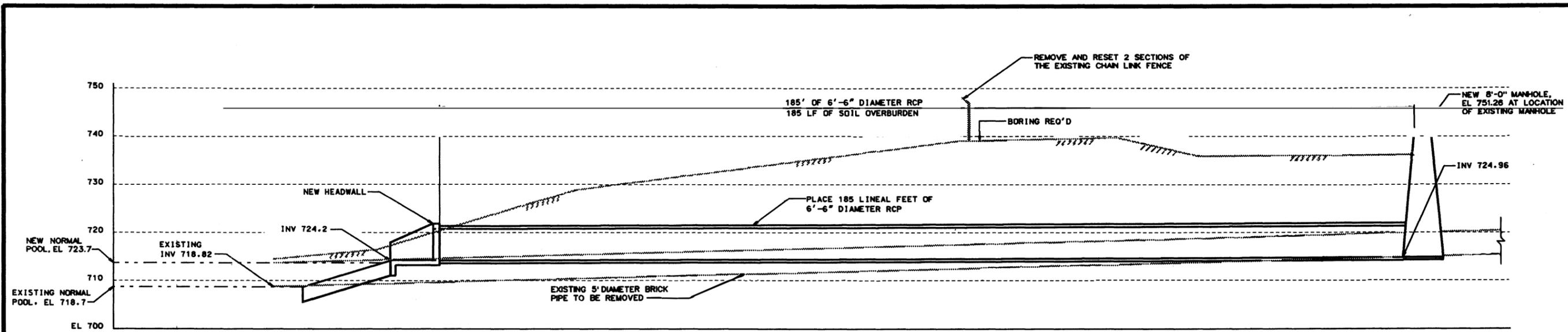
LOOKING LANDWARD FROM OUTFALL



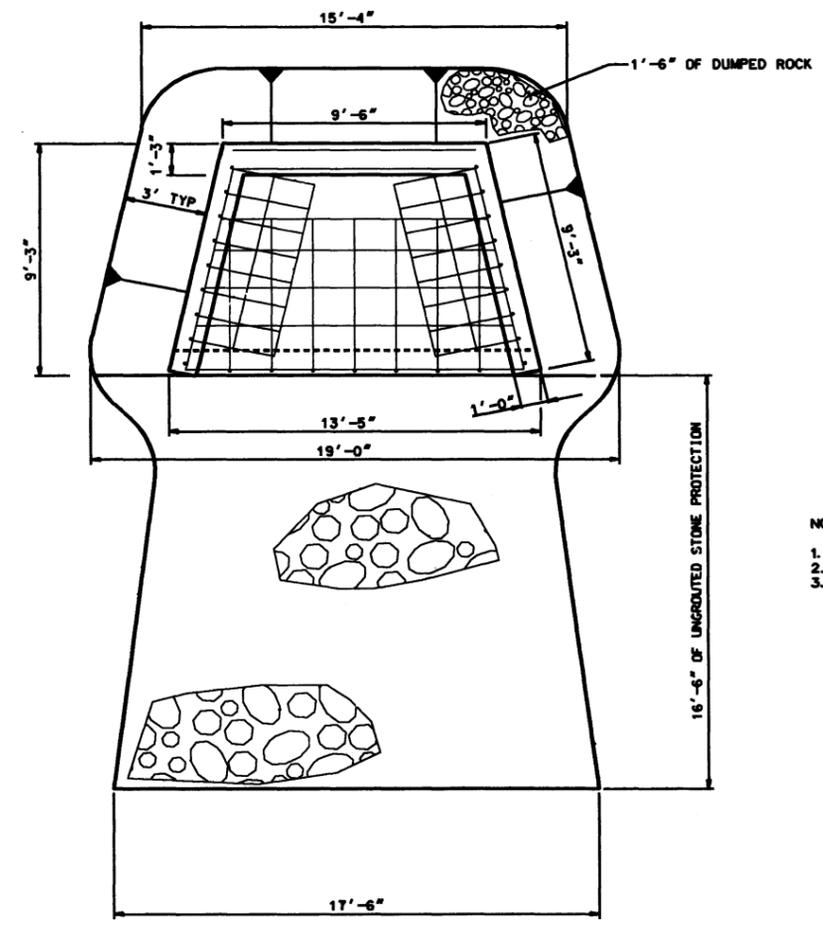
LOOKING RIVERWARD AT OUTFALL

Y10R, PHOTOS

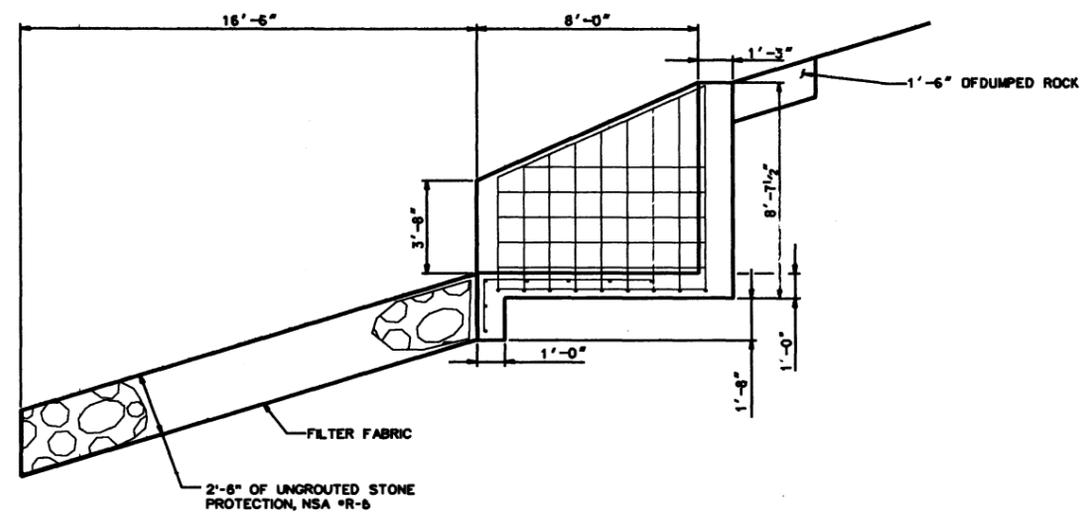
Y10R-3



PROFILE



- NOTES:
1. OBJECT LINES APPEARING AS HALF TONES ARE EXISTING CONSTRUCTION.
 2. SOLID LINES ARE NEW CONSTRUCTION.
 3. REGRADE EXCAVATION TO MATCH EXISTING CONTOURS.



STONE PROTECTION AND END WALL SECTION

STONE PROTECTION AND ENDWALL PLAN

FACILITY - Y10R			
REVISION	DATE	DESCRIPTION	BY
GRAPHIC SCALE			
U.S. ARMY ENGINEER DISTRICT, PITTSBURGH CORPS OF ENGINEERS OFFICE OF THE DISTRICT ENGINEER PITTSBURGH, PENNSYLVANIA			
MONONGAHELA RIVER LOCKS AND DAMS 2, 3 AND 4 RELOCATIONS			
MUNICIPAL AUTHORITY OF THE CITY OF MCKEESPORT 28TH AVENUE REGULATOR OUTFALL RIVER MILE 2.1 YOUGHIOGHENY RIVER			
DRP P-JG	SRF JES	DATE 22 Aug 94	NO SCALE 037-R55-67/69
			DACW59