

File on eDOCs Yes No
Site Name Sinclair Refinery
Site No. 902003
County Allegheny
Town Wellsville
Foilable Yes No
File Name DOCUMENTS / REPORTS
Scanned & eDOC

*report. HW902003. 1991-08. Operation -
and - maintenance - Plan.*

ARCO

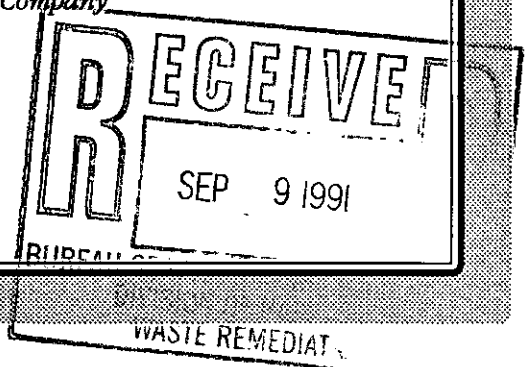
**Operation and Maintenance Plan
Sinclair Refinery Site
Partial River Channelization Project
Wellsville, New York**

August 1991

Prepared by

EBASCO

An ENSERCH Engineering and Construction Company*



I. Draft Operations and Maintenance Plan, Partial River Channelization, Sinclair Refinery Site, Wellsville, New York

General Comments:

1. Very few specifics were given for the plan to maintain the partial channelization. The only specifics mentioned pertained to grounds maintenance.

Response

ARCO will inspect and maintain all ARCO installed flood protection structures (such as dike riprap, toe protection trench, vegetation, etc.) including the road on top of the dike. ARCO will also visually inspect and photograph the river channel for monitoring shoaling in the river channel and will remove such shoaling only if the structural integrity of the dike structures is threatened. VO
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2. The text needs a paragraph entitled "Protection Provided". This paragraph will contain information such as 100 year flood protection provided, flow discharge for a 100 year event, and the probability of such an event (1% chance of occurring in any given year).

Response

Paragraph 2.5, entitled "Protection Provided" will be added to the O&M Plan to read as follows:

"Partial channelization of the Genesee River was accomplished by constructing a dike on the west bank to protect the landfill from erosion and inundation, and the east bank from erosion only by riprap placement as shown on the drawings (Appendix E).

The east dike and east bank riprap provide protection from erosion up to the bankfull flood condition on the east side. The west dike protects the landfill from erosion and overtopping up to the 100-year flood elevation. Riprap extends deep enough below the existing river bed to prevent undercutting and erosion."

3. The text needs a paragraph entitled "Construction History". This will give the dates of construction and the names of the contractors. Optional cost data can also be included for informational purposes.

Response

Paragraph 2.6, entitled "Construction History" has been added to the O&M Plan to read as follows:

"The construction contract for the west bank dike from stations 0+00 to 22+31.59 and the east bank dike and east bank protection were awarded to Canonie Environmental in May 1990. The Contractor mobilized in June 1990 and finished the construction in November 1990 with the exception of the seeding of the common fill area behind the east bank. Seeding of the east bank area was performed by Ebasco Services Incorporated in June 1991.

Construction of the west bank dike extension from stations 22+31.59 to 27+16.59, as part of the south landfill area (SLA) remediation, was performed by OHM Corporation acting as a subcontractor to Ebasco Services Incorporated. This work started in October 1990 and was completed in December 1990 with the exception of backfilling the SLA area and seeding the landfill side slope of the dike. Backfilling and seeding the SLA excavation area, and seeding of the dike slope are scheduled for completion in October 1991."

4. The document should contain "as built" drawings rather than construction drawings.

Response

"As built" drawings will be submitted upon completion of SLA backfilling and construction of the "north end dike extension". Until such time, the O&M Plan will contain construction drawings.

5. It needs to be stated that the New York State Department of Environmental Conservation (NYSDEC) be copied on all O&M related correspondence, inspections, summary reports, and corrective action plans.

Response

Correspondence and communications will remain between ARCO and the EPA pursuant to Article XXVII of the Consent Decree. This Article specifically provides for copies to the NYSDEC. ARCO intends to continue this practice. A new paragraph 3.1 has been added to reflect that fact as follows:

"All O&M related correspondence, inspections, summary reports, and corrective action plans will be copied to The New York State Department of Environmental Conservation (NYSDEC)."

6. A copy of the consent decree should be included as part of the manual.

Response

Article II of the Consent Decree requires ARCO to provide all contractors with a copy of the Consent Decree. However, the O&M plan should not be the mechanism for accomplishing this obligation. The O&M plan is the specific scope of work for implementing the tasks to be accomplished. ARCO will include the Consent Decree as an appendix to the O&M plan for convenience of reference only, and will continue to provide a copy of the Consent Decree to contractors as they are retained.

Appendix "F" has been added to the O&M plan with the title "Consent Decree for Reference."

7. The O&M manual should list the persons or organizations responsible for performing the required work and the procedure for contacting them. It is not known if ARCO will use its own work force, hire a contractor, or make arrangements with the local government or other party to perform the required operation and maintenance of the project.

Response

The O&M of the Partial River Channelization structures remains the responsibility of ARCO. ARCO is pursuing contract with third parties to perform the work on ARCO's behalf. As soon as such contractors are selected, all interested parties will be notified. ARCO's designated coordinator is David Christensen until such time as ARCO may assign coordination responsibility in accordance with Article X of the Consent Decree.

8. A description of the river channelization work must be included in the document.

Response

A new paragraph has been added to 1.3 to read as follows:

"The work that was performed consisted of a west bank dike protecting the landfill, an east bank protection to guide the river flow to the existing weir, and riprap along the east bank upstream to protect the natural bank from erosion."

9. The removal of the gravel in the channel, within the area of the improvement made by ARCO or which results from ARCO's remedial measures at the site, will remain the responsibility of ARCO and needs to be reflected in the document.

Response

The following has been added at the end of paragraph 4.1:

"However, if severe shoaling occurs along the river bed in the area of river channelization to jeopardize the integrity of the channelization structures, ARCO will take corrective actions. This will be based on photographs of this area, taken annually during the low flow period."

The statement above supplements the requirements specified in Section 7.6.7.2 of the Consent Decree.

10. A section on emergency operation should be included. The dike should be patrolled during high water periods.

Response

A new paragraph to 3.1 has been added to read as follows:

"During high water periods the dike will be patrolled, provided safe conditions exist, to visually inspect for any damage that may jeopardize the integrity of the dike and hence, the protection of the landfill."

11. All appropriate references and drawings to the west bank dike need to include the "north dike extension", work detailed on ARCO drawings AR-7 and AR-8 designated from station 0+00 to -2+40.

Response

ARCO drawing C-04 has been revised to reflect all appropriate references.

Specific Comments:

1. Page 1, Paragraph 1.2:

- a. There is no mention of who will be performing the actual maintenance work. If the same group does the work on an annual basis, there will likely be a more consistent product and a certain amount of continuity will be provided to the project. There should also be an in-place agreement regarding the group performing the actual maintenance work. This contract must identify the group/individual and be in-place prior to approval of the O&M Plan, or immediately after approval (see General Comment #7).

- b. Line 6 states that the O&M Plan will be implemented for 30 years. Operation & Maintenance of the completed works will be required for as long as the facilities are in existence. If ARCO has made arrangements for another party to take over the O&M responsibilities after 30 years, then they need to be identified (see General Comment #7). It should be noted that New York State will not agree to take on this responsibility.
- c. The second paragraph, line 1 should be changed to read "ARCO is responsible for maintaining the structures and facilities ...".
- d. Subparagraph 3 is unacceptable. NYSDECs Flood Protection Unit coordinates its in-stream channel maintenance activities with other Departmental units before proceeding with work. Communities acting as DEC's agents do the same. ARCO is required to obtain some kind of approval before undertaking in-stream work. This approval may be a formal permit for each activity, an emergency permit, a long-term permit, a general permit, a written agreement, or any other form acceptable to the Regional Permit Administrator and Regional Attorney.

Response

- a. The O&M of the Partial River Channelization structures is the responsibility of ARCO and the person responsible for O&M is ARCO's Project Manager, Mr. David A. Christensen. If another person is designated in the future, proper notifications will be made.

Reference is made to response #7 of the General Comments. In as much as the O&M plan forms the basis for defining the scope of work, it has not been practical for ARCO to finalize contracts for performing the work until all substantial work items (i.e. the North Dike Extension) were resolved. Based on the receipt of O&M plan comments and subsequent resolution of the major outstanding issues, ARCO is actively pursuing contracts for performance of the O&M work, and will keep EPA notified of the progress.

- b. The comment suggest a requirement that Operation and Maintenance must continue beyond 30 years, for as long as the facilities are in existence. Such a requirement is inconsistent with the Consent Decree. ARCO's legal responsibility for O&M established by the governing documents, the Consent Decree and Appendix 3 thereof (Statement of Work) is limited to 30 years. Section 7.6.7 of the Statement of Work provides unambiguously that

b. (cont'd)

certain listed requirements of 40 CFR Part 264 will control O&M for "maintenance of the landfill cover and flood protection works....". One of the regulations listed in that Section, 40 CFR Part 264.117, establishes the maximum temporal extent of post-closure care to be 30 years.

ARCO will implement the O&M plan for 30 years or such lesser period that EPA might approve, after which further O&M requirements of this plan will be reevaluated, as necessary.

c. The requested change has been made.

- d. ARCO recognizes the need for coordination with other departments in the maintenance of the river channelization work. EPA's approval process and oversight of all on-site activities assures that this process is followed. The suggestion that state and local permits will be required is inconsistent with the Consent Decree and CERCLA. The bank on both sides of the Genesee River, as well as its bed, lie within the "Site" and, according to Article V(B) of the Consent Decree, work within these areas is on-site work. As EPA is well aware, CERCLA provides that formal permits are not required for on-site work, and previous attempts by the State of New York to exercise similar permit jurisdiction over this project have been rejected by EPA.

As an on-going issue, ARCO would like to pursue with EPA long term agreements that would expedite EPA's approval of most anticipated maintenance activities with the channelization structures.

2. Page 1, Paragraph 1.3:

- a. Line 11 - Rather than saying that the project improves river flow conditions, it would be more proper to say that the project corrects river flow conditions. The poor flow conditions and severe erosion resulted from the scouring on the left bank that protected the landfill site. This project corrects the adverse reaction that took place on the right bank.

Response

- a. ARCO wishes to maintain the wording as provided in the previously-approved Statement of Work of the Consent Decree where by the objective of the channelization work was to improve river flow conditions.

Line 11 of the first paragraph to 1.3 has been revised to read as follows:

"The partial river channelization project provides protection from bank erosion and flooding, and controls and improves river flow conditions approaching the weir located downstream of the site."

3. Page 2, Section 2.0:

- a. This section on Project Features does not refer to the drainage culvert and swale which were constructed at the landward toe of the west bank dike.
- b. The section should also describe project right-of-way.
- c. The ratios provided in Paragraph 2.2 for embankment slopes should include the letters "V" or "H" to clarify which number is the vertical and horizontal component.
- d. The definition of the west bank dike needs to reflect the work designated as the "north dike extension" from station 0+00 to station -2+40 (see General Comment #11).

Response

- a. The drainage culvert and swale is an integral part of the landfill and therefore it will be addressed in the O&M plan for the landfill which will be prepared and submitted later.
 - b. ARCO has secured all right-of-way agreements from affected landowners on both the east and west bank.
 - c. The requested change has been made.
 - d. Second paragraph of 2.2 has been revised to include north dike extension in the description of west bank dike.
4. Page 3, Paragraph 2.4 - Indicate whether the seed mixture listed will provide adequate winter protection.

Response

The seed mixture is in accordance with the "Seeding and Erosion Protection" specification for the Genesee River Partial Channelization previously approved by the USEPA, dated January 31, 1990. (Appendix - D)

5. Page 3, Paragraph 3.1, Line 4 - The annual inspection should not be limited to the month of September. It is recommended that the inspection time vary each year from June to October because the condition of certain project features vary throughout the year.

Response

The second paragraph of 3.1 has been revised to read as follows:

- a. "Annually which may occur anytime between June and October."

6. Page 3, Paragraph 3.1, Line 8 - The agreement with USGS should be in place before approval of the plan is given.

Response

An agreement with USGS is not required since the data in question is available upon request. However, the time lag between collection/interpretation of river flow data and it's availability for public information is approximately four months; therefore data from the gauging station cannot be utilized for immediate determination of major flood condition.

Paragraph 4 of section 3.1 has been revised to read as follows:

Major flood is defined as when water elevation in the river (east bank dike station 1+65 to 6+67) approaches the top of the east dike (El. 1496.00). Also, discharge data from U.S. Geological Survey gauging station 04221000, which is located about 1.8 miles downstream from the project site, will be obtained to verify the flood conditions and as a source for establishing a data base for identifying future flood conditions.

7. Page 4, Paragraph 3.1:

- a. Second paragraph - Defining the survey time frames ahead of time is not advised unless a statement is added to say that less frequent surveys will be allowed if there is no significant change. Similarly, if there is significant change, surveys may need to be performed more often.

- b. Fourth paragraph - EPA will require a minimum of 14 days advance notice so as to allow time to plan on attending the inspection, or to arrange representation, and to notify DEC and the Town of Wellsville.

Response

- a. The second paragraph on pg. 4 has been revised to read as follows:

"A survey of the dike profile/cross section every 200 feet and at every slope transition will be made by a licensed surveyor during the low flow period to determine dike settlement and changes in cross section. The frequency of surveys will be based on significant changes to the survey data."

- b. First line of the paragraph has been revised to read as follows:

"For annual inspections, ARCO will notify EPA 14 days prior to the inspection date."

- 8. Page 4, Paragraph 4.1 - The manual should indicate who decides the conditions that necessitate required maintenance and upon what basis that decision is made.

Response

ARCO will determine the conditions that necessitate required maintenance based on the data contained in the inspection reports and EPA approval.

- 9. Page 4, Paragraph 4.1 - ARCO did in fact perform work within the river bed in the form of shoal removal during the course of the partial river channelization project and is responsible for maintaining that portion of the project. If severe shoaling occurs along this area of the project site, it is ARCO's responsibility to take corrective actions as part of the O&M Plan. This shoaling could have an effect on the 100 year flood elevation and could endanger the landfill (see General Comment #9).

Response

See response to General Comment No.9.

- 10. Page 5, Paragraph 4.2 - The recommended mowing heights are too short. The grass should not be cut below four inches before the winter. Thatch, drift, and debris should not be allowed to accumulate on the dikes. Maintenance of the culvert, swale, and right-of-way should also be included.

Response

The last paragraph of 4.2 has been revised to read as follows:

"Vegetation during the summer months will be mowed when turf reaches a height of more than 6 inches. Mowing will not be closer than 4 inches to the ground in order to encourage grass vigor and control woody plants and other noxious weeds. Before the winter, the grass should be allowed to grow to eight to twelve inches."

Maintenance of the culvert and swale will be addressed in the O&M Plan for the landfill.

11. Page 5, Paragraph 4.3, Lines 4 & 5 - Woody growth within the riprap should be removed annually. Add the word annually to the end of the sentence.

Response

The requested change has been made.

12. Page 5, Paragraph 4.3 - The road on top of the dike must be maintained by ARCO in perpetuity, unless ARCO has made arrangements for another party to take over the O&M after 30 years (see General Comment #7 and Specific Comment # 1(b)).

Response

See response to Specific Comment No. 1b.

13. Appendix A - The checklist should have a space to show the range of the inspection, ie. show the station to station and which bank is being inspected. Also, the title should identify the Sinclair Refinery Site and another signatory is needed to certify that the work was done.

Response

The requested additions to the Appendix A checklist have been made.

14. Appendix B - An additional signatory is needed to certify that the work was completed.

Response

The requested addition to the Appendix B "Corrective Work Report" has been made.

15. Figure 2:

- a. Show start and end of east bank work.
- b. Identify existing control structure (weir).
- c. Show north dike extension work from station 0+00 west bank to the weir (see General Comment #11).

Response

- a. Figure 2 has been revised to show the start and end of the east bank dike.
- b. The requested identification has been made.
- c. The requested identification has been made.

16. Appendix E, Design Drawings - ALL drawings should be as-built and should be stamped and signed (see General Comment #4).

Response

See response to General Comment No. 4.

17. Appendix E, Drawing CO-4 - Show north dike extension work from station 0+00 west bank to the weir (see General Comment #11).

Response

A note has been added on drawing C-04 which reads as follows:

"For continuation see drawing AR-7."

OPERATION AND MAINTENANCE PLAN
SINCLAIR REFINERY SITE
PARTIAL RIVER CHANNELIZATION PROJECT
WELLSVILLE, NEW YORK

AUGUST 1991

Prepared By
EBASCO
An ENSERCH Engineering and Construction Company

1401K

OPERATION AND MAINTENANCE PLAN
SINCLAIR REFINERY SITE
PARTIAL RIVER CHANNELIZATION PROJECT

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APPENDIX A - INSPECTION CHECKLIST

APPENDIX B - CORRECTIVE WORK REPORT

APPENDIX C - FIGURES

Figure 1 Location Map Vicinity Map

Figure 2 West Bank Dike and East Bank Dike Protection

APPENDIX D - SPECIFICATIONS

Partial River Channelization:

Section 02000	Introduction
Section 02040	Dust and Vapor Control
Section 02060	Site Preparation
Section 02110	Site Clearing and Grubbing
Section 02200	Earthwork

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Section 02260 Identification and Disposal of Contaminated
and Waste Material
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Section 02485 Seeding and Erosion Protection
Section 02546 Aggregate-Surfaced Roads

West Bank Dike Extension:

Section 02000 Introduction
Section 02040 Dust and Vapor Control
Section 02060 Site Preparation
Section 02110 Site Clearing and Grubbing
Section 02200 Earthwork
Section 02260 Identification and Disposal of Contaminated
and Waste Material
Section 02400 Riprap, Bedding and Geotextile
Section 02485 Seeding and Erosion Protection
Section 02546 Aggregate-Surfaced Roads

APPENDIX E - DESIGN DRAWINGS

Partial River Channelization:

Dwg. No.	Title
C-01	Location Map, Vicinity Map and Drawing Index
C-02	Clearing, Grubbing and Key Plan
C-03	Borehole Location and General Site Plan
C-04	New Dike & East Bank Protection Plan SH-1
C-05	New Dike & East Bank Protection Plan SH-2
C-06	New Dike & East Bank Protection Plan SH-3
C-07	Dike Sections and Details SH-1
C-08	Dike Sections and Details SH-2
C-09	Dike Profile and Drainage Details
C-10	Soil Stratigraphy Along West Dike
C-11	East Bank Dike-Plan Sections and Details

West Bank Dike Extension:

Dwg. No.	Title
AR-1	Location Map, Vicinity Map and Drawing Index
AR-2	Clearing, SLA Remediation & Dike Extension, Grubbing Dike Extension
AR-3	SLA Restoration Plan, Dike Extension Plan, and Soil Boring Profile
AR-4	Dike Extension Profile, Sections and Details

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North End Dike Extension:

Dwg. No.	Title
AR-7	Plan, Sections & Details
AR-8	Work Limits

APPENDIX F - CONSENT DECREE FOR REFERENCE

Sinclair Refinery Partial Channelization Project
Genesee River
Wellsville, New York
Operation and Maintenance Plan

1.0 INTRODUCTION

1.1 Location

The Sinclair Refinery Site, located in Allegany County, New York, in the Town of Wellsville, southeast of the Village of Wellsville, covers approximately 103 acres. The location map attached as Figure 1 in this plan shows the boundaries of the Sinclair Refinery site and the project site, which includes the area of partial channelization along the Genesee River. The Genesee River drainage area for this site is approximately 216 square miles.

1.2 Responsibility

Subsection VI.I of the Consent Decree between ARCO and the USEPA effective 5-19-89, requires that ARCO maintain the partial river channelization project after completion in accordance with the procedures outlined in this operations and maintenance plan. This plan identifies the type and frequency of activities to be carried out by ARCO. ARCO will implement the O&M Plan for 30 years or such lesser period that EPA might approve, after which further O&M requirements of this plan will be reevaluated, as necessary.

ARCO is responsible for maintaining only the structures and facilities constructed by ARCO as part of the partial river channelization and north end dike extension under the Consent Decree and carrying out the details of this plan including periodic submittal of written reports summarizing O&M activities and problems during the preceding reporting period.

Acceptance of this plan will constitute approval by EPA, the U.S. Army Corps of Engineers and NYSDEC in lieu of any permits normally required for work in the river.

1.3 Description

The Genesee River flows from southeast to northwest with the landfill site located along its left bank. Figure 1 shows the general orientation of the river, the site, and the community. The distance along the river from the upper end of the landfill site to the lower end is approximately 2700 feet. A drop structure, constructed by the U.S. Army Corps of Engineers, forms a control of the river near the downstream end of the site. The drop is approximately 6 feet high and is formed by a

sheet pile weir constructed across the river. The partial river channelization project provides protection from bank erosion and flooding, and controls and improves river flow conditions approaching the weir located downstream of the site. The channel improvements upstream of the weir consist of 2700 feet of flood protection dike on the west bank and 2000 feet of erosion control dike on the east bank, shown in the site plan (Figure 2).

The work that was performed consisted of a west bank dike protecting the landfill, an east bank protection to guide the river flow to the existing weir, and riprap along the east bank upstream to protect the natural bank from erosion.

2.0 PROJECT FEATURES

2.1 General

Details of the project are shown on Appendix D for specifications and Appendix E for design drawings.

2.2 Dikes

Partial channelization of the Genesee River included construction of a dike on the west bank to protect the landfill from erosion and inundation by flood waters, and stabilization of the east bank to protect against erosion.

West Bank Dike: The west bank dike from station 0+00 to 27+16.59 has a 2.5H:1V slope on the river face with approximately a 2H:1V slope on the landfill side. Riprap toe protection has been provided from station 0+00 to 27+16.59. A key trench has been provided from stations 1+30 to 16+50, 22+31.59 to 23+20 and 26+00 to 27+16.59. The entire length of the west dike is topped with a 6 inch aggregate-surface road approximately 10 feet wide and sloping 2% toward the river. The river facing slope consists of a geotextile fabric, 4 inches of bedding material and 18 inches of riprap. The landfill facing slope has been vegetated to provide erosion protection. The top elevation of the west bank dike ranges from 1506.15 feet at station 0+00 to approximately 1511.0 feet at station 27+16.59.

The north end dike extension to the west bank dike from station 0+00 to station -2+40 was constructed by raising the existing USCOE dike. The river face slope of the raised portion of the dike matches with the existing slope (approximately 2.2H:1V) and the drainage swale side face has a slope of 2H:1V. The river facing slope consists of a geotextile fabric, 4 inches of bedding material and 18 inches of riprap. The top of the dike is topped with a 6 inch aggregate-surface road approximately 9 feet wide.

East Bank Dike: The east bank dike has been constructed on the remnant of the old river bank where possible. Some eroded areas have been filled with borrow material. The top of the southern portion of east bank protection (south of Station 9+39.01) is at approximately the same elevation as the existing east bank. The river facing side slope of the east dike is typically 2.5H:1V along the entire length. Similar components found on the river face of the west bank dike are also utilized on the east bank dike, with the exception of the aggregate-surface road.

2.3 Bank Protection

The bank protection consists of an 18 inch thick riprap layer, with a 4 inch bedding layer and a geotextile layer on the west dike. The east dike is much the same except for the area extending from station 9+39.01 to 20+57.08 which will utilize 27 inch thick riprap. The riprap extends deep enough below the existing river bed to prevent undercutting and erosion during the 100-year flood. The following table details exact locations and types of riprap protection:

<u>Location by Station*</u>	<u>Type of Protection</u>
0+00 to 27+16.59; west dike 0+00 to 9+39.01; east dike	18 inch thick riprap
9+39.01 to 20+57.08; east dike	27 inch thick riprap
0+00 to -2+40; west dike	18 inch thick riprap

* See Figure 2; Site Plan

2.4 Vegetative Cover

The dike side slopes, except where stone protection is provided, were vegetated according to the following table:

General Coverage		
<u>Name</u>	<u>Variety</u>	<u>Wt. of Pure Live Seed/Acre (lbs.)</u>
Red Fescue (Festuca rubra)	Commercial	40
Perennial Ryegrass (Lolium perenne)	Commercial	15
White Clover (Trifolium repens)	Commercial Max 25 percent hard seed.	5
Total		60 lbs/acre

2.5 Protection Provided

Partial channelization of the Genesee River was accomplished by constructing a dike on the west bank to protect the landfill from erosion and inundation, and the east bank from erosion only by riprap placement as shown on the drawings (Appendix E).

The east dike and east bank riprap provide protection from erosion up to the bankfull flood condition on the east side. The west dike protects the landfill from erosion and overtopping up to the 100-year flood elevation. Riprap extends deep enough below the existing river bed to prevent undercutting and erosion.

2.6 Construction History

The construction contract for the west bank dike from stations 0+00 to 22+31.59 and the east bank dike and east bank protection was awarded to Canonic Environmental in May 1990. The Contractor mobilized in June 1990 and finished the construction in November 1990 with the exception of the seeding of the common fill area behind the east bank. Seeding of the east bank area was performed by Ebasco Services Incorporated in June 1991.

Construction of the west bank dike extension from stations 22+31.59 to 27+16.59, as part of the South Landfill Area (SLA) remediation, was performed by OH Materials acting as a subcontractor to Ebasco Services Incorporated. This work started in October 1990 and was completed in December 1990 with the exception of backfilling the SLA area and seeding the landfill side slope of the dike. Backfilling and seeding the SLA excavation area, and seeding of the dike slope are scheduled for completion in October 1991.

3.0 OPERATION

3.1 Inspections

All visual inspections (sloughing, erosion, etc.) will be made at the following times:

- a. Annually during a low flow period (i.e. 180 cfs) which may occur anytime between June and October; and,
- b. After each major flood (i.e. 4,500 cfs) which can occur during any season of the year.

Major flood is defined as when water elevation in the river (east bank dike station 1+65 to 6+67) approaches the top of the east dike (El. 1496.00). Also, discharge data from U.S. Geological Survey gauging station 04221000, which is located about 1.8 miles downstream from the project site, will be obtained to verify the flood conditions and as a source for establishing a data base for identifying future flood conditions.

The soil pH (maintained above 5.8) along the west bank dike will be checked annually during the low flow period.

The area of the river bed, where sediment removal was performed to control and improve river flow condition, will be photographed and visually checked for shoaling during the low flow period annually.

During high water periods the dike will be patrolled, provided safe conditions exist, to visually inspect for any damage that may jeopardize the integrity of the dike and hence, the protection of the landfill.

A survey of the dike profile/cross section every 200 feet and at every slope transition will be made by a licensed surveyor during the low flow period to determine dike settlement and changes in cross section. The frequency of surveys will be based on significant changes to the survey data.

A survey of the river bed at the end of the toe and the toe width will also be made every 200 feet during a low flow period annually to determine riprap slope protection-evidence of displacement or unusual settlement.

For annual inspections, ARCO will notify EPA 14 days prior to inspection date. Copies of inspection sheets and corrective work reports will be submitted to the EPA 60 days following completion of the inspection. EPA will also be notified of any corrective work taking longer than 30 days. An annual summary of all inspection and repair reports for the previous year will be submitted to the EPA on the 31st of December.

All O&M related correspondence, inspections, summary reports, and corrective action plans will be copied to the New York State Department of Environmental Conservation (NYSDEC).

3.2 Checklist

Appendix A of this plan shows the checklist which will be used by ARCO during annual or major high water inspections. Satisfactory items will be marked with a check, and observations and recommendations will be indicated in the checklist forms.

Appendix B of this plan shows the corrective work form which will be used to report the corrective actions taken for unsatisfactory items identified during inspection.

4.0 MAINTENANCE

4.1 General

ARCO will provide such maintenance and inspection as may be required to assure serviceability of the dikes. ARCO will determine the conditions that necessitate required maintenance

based on the data contained in the inspection reports and EPA approval. Maintenance activities (including sediment removal) at the U.S. Army Corps of Engineers weir and in the river bed are not ARCO's responsibility and are not part of this Operations and Maintenance Plan. However, if severe shoaling occurs along the river bed in the area of river channelization to jeopardize the integrity of the channelization structures, ARCO will take corrective actions. This will be based on photographs of this area, taken annually during the low flow period.

4.2 Routine Maintenance

The following will be performed by ARCO along the west bank dike:

Lime application will be applied as necessary to maintain soil pH above 5.8.

Fertilizer application will be applied as needed, based on agronomic soil tests every 3 years.

Vegetation during the summer months will be mowed when turf reaches a height of more than 6 inches. Mowing will not be closer than 4 inches to the ground in order to encourage grass vigor and control woody plants and other noxious weeds. Before the winter, the grass should be allowed to grow to eight to twelve inches.

4.3 Regular Maintenance

Riprap bank protection along the channel slopes will be carefully observed during the inspections. Sloughing, ravelling, damage by vandalism, and changes due to water or ice action will be noted. Woody growth other than grass and vegetation will be removed annually. Best efforts will be made to complete repairs within 30 days after the inspection, weather permitting, so as to prevent further loss of or damage to the remaining bank protection. If repairs can not be completed within 30 days the EPA will be notified and a schedule will be provided for completion of the necessary repairs. Adequate bedding stone will be placed on the damaged slope prior to the addition of new riprap. The size and gradation of replacement riprap and bedding will be equal to the original specification materials.

Maintenance of the road on the top of the dike will be performed by ARCO. Maintenance includes the repair of roadway due to water ponding, the removal of woody growth other than grass and vegetation, and aggregate replacement due to ruts, thus preserving the 6 inch surface requirement.

All materials used for maintenance and repair shall comply with the approved project specifications shown on Appendix D.

A sediment control barrier will be constructed for any corrective work performed along the river side of the dike as well as comply with any restriction by the NYSDEC for working in the river.

OPERATION AND MAINTENANCE PLAN
FOR THE
PARTIAL RIVER CHANNELIZATION ON THE
GENESEE RIVER, WELLSVILLE, NEW YORK

APPENDIX A
INSPECTION
CHECKLIST

SINCLAIR REFINERY SITE
PARTIAL RIVER CHANNELIZATION
GENESEE RIVER
WELLSVILLE, NEW YORK

APPENDIX A

INSPECTION CHECKLIST

Inspection By: _____ Sheet ____ of ____

Title: _____ Date: _____

Verified By: _____

Title: _____ Date: _____

Type of Inspection (check only one):

- ☐ Annual during low flow.
- ☐ Immediately after a high water period.
- ☐ Other (explain)

Dike Station _____ to _____ (East/West) _____

<u>Item Description</u>	<u>Condition*/Remarks</u>
1. Settlement, sloughing or, loss of grade.	
2. Caving (either side of dike)	
3. Seepage, saturated areas, or sand boils.	
4. Riprap slope protection-evidence of displacement or unusual settlement, woody growth in riprap.	
5. Access roads	
6. Unauthorized traffic	

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

Observations and recommendations:

SINCLAIR REFINERY SITE
PARTIAL RIVER CHANNELIZATION
GENESEE RIVER
WELLSVILLE, NEW YORK

APPENDIX A

INSPECTION CHECKLIST

Inspection By: _____ Sheet ____ of ____

Title: _____ Date: _____

Verified By: _____

Title: _____ Date: _____

Type of Inspection (check only one):

- ☐ Annual during low flow.
- ☐ Immediately after a high water period.
- ☐ Other (explain)

Dike Station _____ to _____ (East/West) _____

<u>Item Description</u>	<u>Condition*/Remarks</u>
7. Accumulation of drift, trash, and debris.	
8. Vegetative cover including soil pH check	
9. Weeds or undesirable vegetation.	
10. Unauthorized excavation, loose backfill or sod removal.	
11. Burrowing animals.	
12. Evidence of fires/vandalism	
13. Routine mowing	
14. Shoaling check (photograph)	

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

Observations and recommendations:

OPERATION AND MAINTENANCE PLAN
FOR THE
PARTIAL RIVER CHANNELIZATION ON THE
GENESEE RIVER, WELLSVILLE, NEW YORK

APPENDIX B
CORRECTIVE WORK REPORT

SINCLAIR REFINERY SITE
PARTIAL RIVER CHANNELIZATION
GENESEE RIVER
WELLSVILLE, NEW YORK

APPENDIX B

CORRECTIVE WORK REPORT

Work Performed By: _____ Sheet _____ of _____

Title: _____ Date: _____

Inspection By: _____

Title: _____ Date: _____

Type of Inspection (check only one)

- ☐ Annual during low flow.
☐ Immediately after a high water period.
☐ Other (explain)

Description Of Required Repairs: _____

Corrective Work Completed During Period:

Beginning Date: _____ By: _____

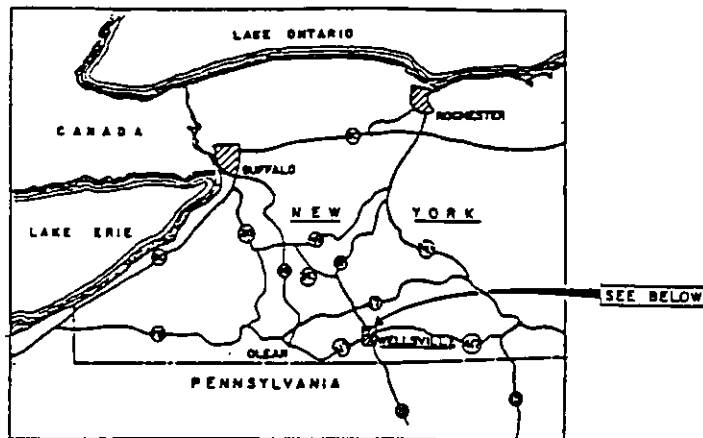
Ending Date: _____

Description of Work Performed: _____

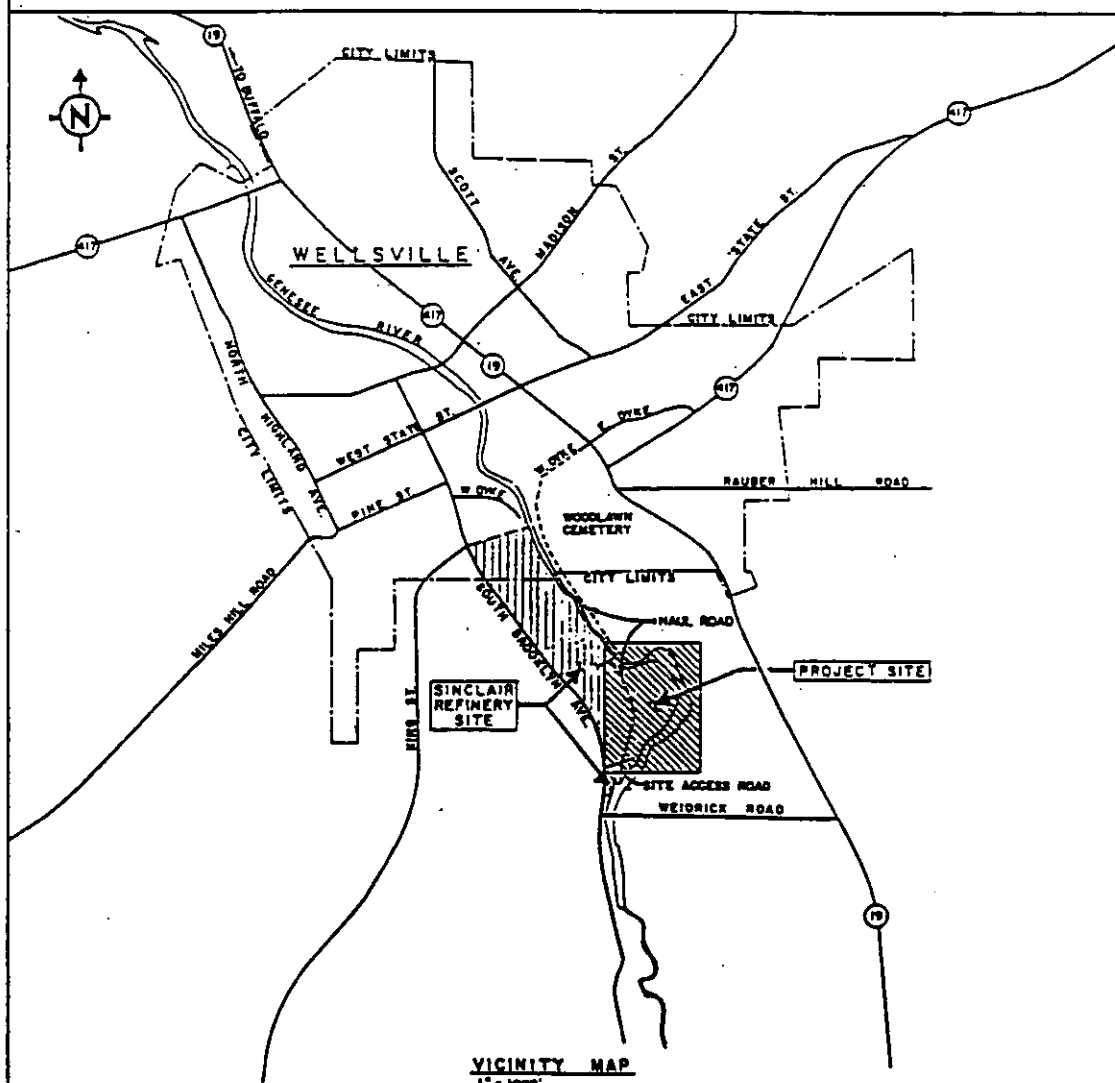
NOTE: Attach Inspection Checklist which initiated corrective work.

APPENDIX C

FIGURES



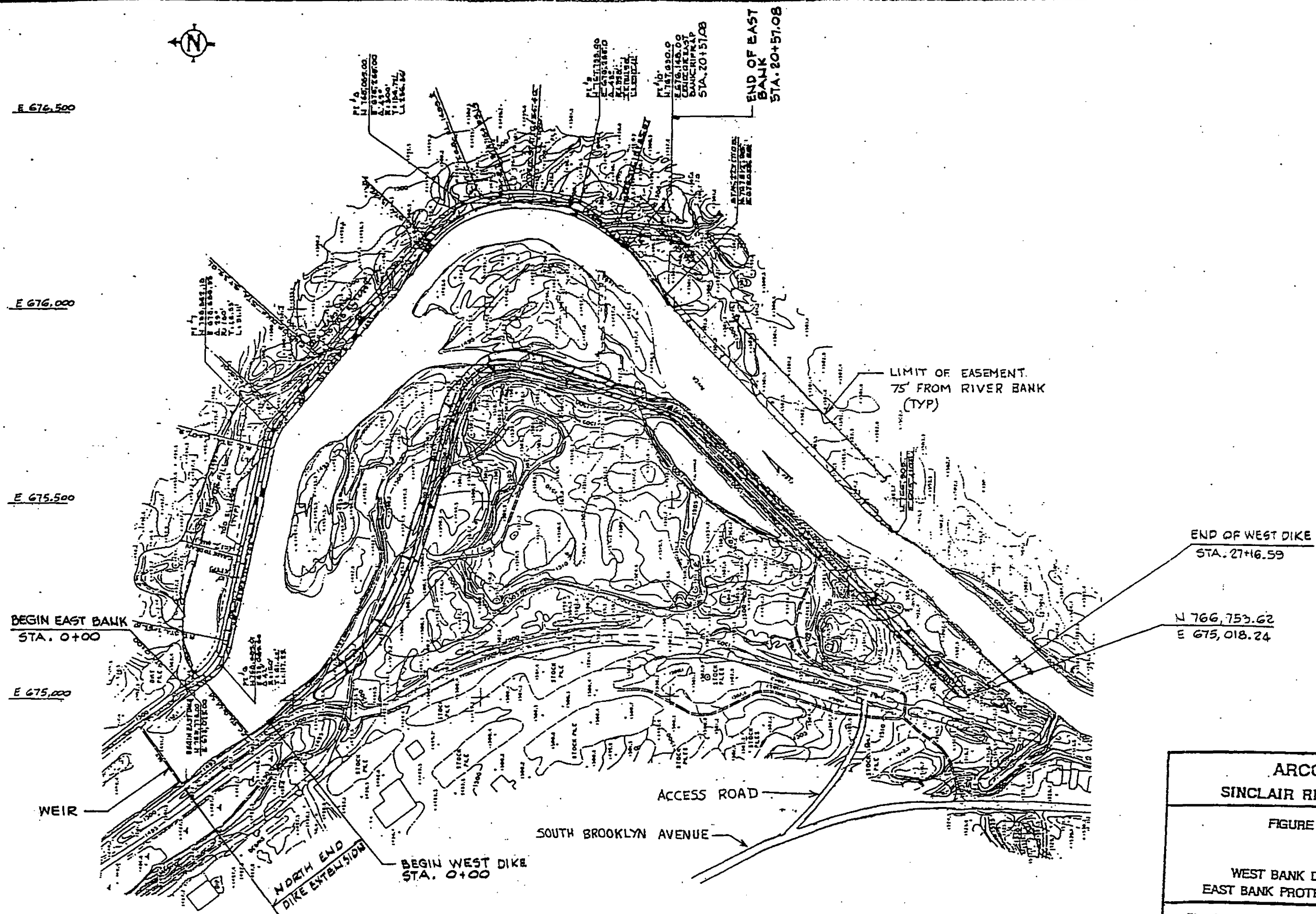
LOCATION MAP
NOT TO SCALE



NOTE : THIS FIGURE WAS REPRODUCED
FROM BECHTEL DWG C-01

GRAPHIC SCALE
1000' 0 1000' 2000'

ARCO SINCLAIR REFINERY
LOCATION MAP VICINITY MAP
FIGURE 1
EBASCO SERVICES INCORPORATED



ARCO
SINCLAIR REFINERY

FIGURE 2

WEST BANK DIKE AND
EAST BANK PROTECTION PLAN

EBASCO SERVICES INCORPORATED

APPENDIX D
SPECIFICATIONS

CLIENT: ATLANTIC RICHFIELD COMPANY
LOS ANGELES, CALIFORNIA

PROJECT: SINCLAIR LANDFILL
GENESEE RIVER PARTIAL CHANNELIZATION

LOCATION: WELLSVILLE, ALLEGANY COUNTY
NEW YORK

TECHNICAL SPECIFICATIONS

DIVISION 2 - SITEWORK



APPROVED BY:

Michael A. Turco

P.E. NO. 051063

BECHTEL ENVIRONMENTAL INC.
SAN FRANCISCO, CALIFORNIA

APPROVED BY:

Michael A. Turco

M. TURCO
(PROJECT MANAGER - ARCO)

See USEPA approval letter from Carole Petersen
APPROVED BY: to Michael A. Turco dated January 31, 1990
UNITED STATES ENVIRONMENTAL
PROTECTION AGENCY

TECHNICAL SPECIFICATIONS

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Division 2 - Sitework

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02060	Site Preparation
02110	Site Clearing and Grubbing
02200	Earthwork
02260	Identification and Disposal of Contaminated and Waste Material
02400	Riprap, Bedding, and Geotextile
02485	Seeding and Erosion Protection
02546	Aggregate-Surfaced Roads

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SECTION 02000

INTRODUCTION

The site is located in the southern portion of the Former Sinclair Oil Refinery property. The former 103-acre refinery is located in Allegany County New York, in the Town of Wellsville, southeast of the Village of Wellsville, and is bound on the west by South Brooklyn Avenue, on the north by a residential area, and on the south and east by the Genesee River.

The site is divided into two sub-sites: the refinery portion, consisting of approximately 90 acres where the original refinery operations took place (now utilized as a light industrial park and agricultural and technical college campus), including tank farm areas; and the 12.5 acre landfill portion, which contains waste from the original refinery operation.

The landfill portion which is located along the bank of the Genesee River, consists of the "Central Elevated Landfill Area" (CELA), an approximately 7.0 acre area and the "South Landfill Area" (SLA), an approximately 1.2 acre area. Between the two landfill areas is a 1 acre sand and gravel borrow area. It is estimated that 145,000 cubic yards of refinery waste was disposed of in the CELA and 14,500 cubic yards was disposed of in the SLA.

The CELA is wooded and covered with vegetation, and has approximately 300 rusted and corroding 55-gallon drums, a majority of which are empty. A small pool of oil, probably the remains of a lagoon, is located on top of the landfill. A chain link fence partially restricts access to the landfill from the roadway, and access from the river bank is unrestricted.

The topography of the site is generally sloping toward the Genesee River. There is little relief throughout the site with elevations ranging from 1495 to 1515 feet above mean sea level.

The reach of the Genesee River, which runs along the south and east boundary of the landfill site, displays a typical meandering pattern. The northerly flow of the Genesee River around the partially protected landfill is causing bank erosion and point bar accretion. As the meanders have migrated downstream toward the sheet pile weir, the channel orientation with respect to the landfill and flow conditions approaching the weir have become unfavorable. This has resulted in increased bank erosion, especially during floods, eroding several hundred feet of the landfill. This increased bank erosion and possible inundation of the landfill led to the construction of a dike and a channel relocation at the upstream portion of the landfill site in 1983. The existing riprap lined dike protects the west bank at the upstream end of the landfill.

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In July 1982, EPA and NYSDEC entered into a Cooperative Agreement to undertake a Remedial Investigation (RI) and Feasibility Study (FS) at the Sinclair Refinery Site. The RI was divided into two phases: Phase I was a detailed characterization of the landfill portion and reconnaissance of the refinery portion of the site. The Phase II RI will provide a more focused investigation of those areas on the refinery portion of the site where additional data requirements were identified.

The USEPA signed a Record of Decision (ROD) on September 30, 1985, officially selecting a remedy for the landfill portion of the site. The remediation contains the following measures:

- 1) Removal and off-site disposal of approximately 300 drums on the surface of the Central Elevated Landfill Area.
- 2) Excavation of the wastes from the South Landfill Area.
- 3) Filling of the excavated area with clean fill.
- 4) Consolidation of the excavated South Landfill Area wastes onto the Central Elevated Landfill Area.
- 5) RCRA capping of the consolidated wastes on the Central Elevated Landfill Area.
- 6) Partial Genesee River Channelization to protect the landfill from erosion and flood inundation from the Genesee River.
- 7) Erection of a fence to secure the entire Landfill Site.

The work covered by these specifications is only for Item 6 above, partial river channelization, and is divided into 6 major items of construction activities outlined below:

- 1) Site Preparation.
- 2) Erosion and Sediment Control.
- 3) Clearing and Grubbing along River Banks. Clearing and In Situ Diking of Contaminated Material Disposal Area within the CELA.
- 4) Construction of the West Bank Dike.
- 5) Construction of the East Bank Dike and River Bank Cut Excavation.
- 6) Disposal of Contaminated Material Excavated within the CELA.

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The contractor shall perform all work stated in the contract. The contract consists of all work described by the Specifications and shown on the drawings, plus all provisions, conditions, terms, and requirements found in the proposal package, along with any addendum, modifications, amendments or changes issued to the contract.

The Contractor is advised that the work will be performed on a hazardous waste site as identified on the National Priorities List. This listing was established pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA) and the National Contingency Plan. The Contractor is responsible for developing a Site Specific Health and Safety Plan (SSHSP) for his operations. The Contractor shall implement this plan taking precautions necessary to protect the public and work force personnel from potential hazards. The Contractor shall utilize personnel with approved hazardous waste training.

SECTION 02040

DUST AND VAPOR CONTROL

PART 1 - GENERAL

The work required under this Section includes furnishing all plant, labor, materials and equipment and performing all operations required for providing dust and vapor control as specified herein.

PART 2 - REQUIRED WORK

2.1 The Contractor shall be responsible for providing adequate dust and vapor control measures.

2.2 Dust control shall consist of furnishing water supply, required equipment, additives, accessories and incidentals, and carrying out proper and efficient measures wherever and as often as necessary to reduce dust nuisance, and to prevent dust originating from construction operations and causing damage to open fields and dwellings, or causing a nuisance to persons during the completion of the Contract, as required by the Construction Manager or his designee.

2.3 All equipment used for application of water shall be equipped with a positive means of shut-off.

2.4 At least two mobile units with a minimum capacity of 5,000 gallons shall be available for applying water for dust control.

2.5 To conserve water, the Contractor may use chemical additives in dust-control water. The use, location of application, amount and type of additives proposed for use by the Contractor shall be subject to approval by the Construction Manager or his designee and the EPA.

END OF SECTION

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SECTION 02060

SITE PREPARATION

PART 1 - GENERAL

The work required under this Section includes furnishing all plant, labor, equipment, and materials to perform all preparatory work as shown on the Contract Drawings and as specified herein. All work shall be conducted in a manner to prevent damage to the structures which are to remain and to maintain or improve the aesthetics and ecology of the site. The Contractor is cautioned that work required is located in the vicinity of existing utilities and at a hazardous waste site. All necessary precautions shall be taken to provide for safety of personnel in these areas.

PART 2 - EQUIPMENT

Prior to starting work, a list of all equipment, tools, machines, including their sizes, capacities and operating speeds, to be used in the performance of the work shall be submitted to the Construction Manager or his designee for information purposes. All items shall be maintained in safe and satisfactory working condition at all times.

PART 3 - PROTECTION OF EXISTING UTILITIES

The Contractor shall determine the locations of existing utilities in the project area. Information on known locations of utilities are shown on the Contract Drawings. However, the Contractor shall verify all such information in the field and shall assume all liability for damage to all utilities whether or not identified on the Contract Drawings. The Contractor shall contact the Wellsville Utility Coordinator (Telephone (716) 593-1780) and all potentially affected utilities prior to starting any construction activity. It shall be the Contractor's responsibility to take whatever measures are necessary to prevent damage to utilities.

END OF SECTION

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SECTION 02110

SITE CLEARING AND GRUBBING

PART 1 - GENERAL

The work required under this Section includes furnishing all plant, labor, equipment, and materials for performing all operations required for clearing and grubbing as shown on the Contract Drawings.

1.1 Definitions

1.1.1 Clearing: Clearing shall consist of the felling, trimming, and cutting of trees into sections and the satisfactory disposal of the trees and other vegetation designated for removal, including down timber, snags, brush, and rubbish occurring in the areas to be cleared.

1.1.2 Grubbing: Grubbing shall consist of the removal and disposal of stumps, roots larger than 1-1/2 inches in diameter, and matted roots from the designated grubbing areas.

1.2 Dust Control: The Contractor shall comply with dust control requirements specified in Section 02040 of the Specifications.

PART 2 - REQUIRED WORK

2.1 Clearing: Clearing shall consist of the removal of all trees, brush, logs, limb wood, rubbish, and all other obstructions on the surface of the original ground, except such trees and vegetation as may be directed by the Construction Manager or his designee to be left standing. Trees directed to be left standing within the cleared areas shall be trimmed of dead branches 1-1/2 inches or more in diameter and shall be trimmed of all branches to the heights directed. Limbs and branches to be trimmed shall be neatly cut close to the bole of the tree or main branches. Cuts more than 1-1/2 inches in diameter shall be painted with a tree-wound paint approved by the Construction Manager or his designee. Trees and vegetation to be left standing shall be protected from damage incident to clearing, grubbing, and construction operations by the erection of barriers or by such other means as the circumstances require.

2.2 Grubbing: Grubbing shall consist of the removal of stumps, roots larger than 1-1/2 inches in diameter and decayed matter to a depth of not less than 18 inches below original ground in the dike foundation areas only.

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2.3 Disposal of materials from clearing: Material from clearing shall be disposed of off-site, in accordance with all applicable laws and regulations, or, at the discretion of the Contractor, shall be chipped and stored on site in an area to be designated by the Construction Manager.

2.4 Disposal of materials from grubbing: Roots and other debris from grubbing of uncontaminated soil areas shall be disposed of as described under paragraph 2.3. Roots or other debris from grubbing contaminated areas shall be placed in the contaminated material storage area on the CELA.

END OF SECTION

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SECTION 02200

EARTHWORK

PART 1 - GENERAL

The work required under this Section includes furnishing of all plant, labor, equipment and materials to perform stripping, excavation, and construction of dikes as shown on the Contract Drawings and as specified herein. The work required under this section includes, but is not limited, to:

- (1) Stripping topsoil.
- (2) Temporary drainage.
- (3) Excavation.
- (4) Furnishing materials from off-site sources.
- (5) Stockpiling materials.
- (6) Hauling material from stockpiles or borrow areas to points of placement.
- (7) Placing and compacting fill.
- (8) Disposing of material.

PART 2 - APPLICABLE PUBLICATIONS

American Society for Testing and Materials (ASTM)

- | | |
|-----------------|--|
| D 422-63 (1972) | Particle-Size Analysis of Soils |
| D 1556-82 | Density of Soil in Place by the Sand-Cone Method |
| D 698-78 | Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 5-1/2-lb (2.49-kg) Rammer and 12-in. (304.8 mm) Drop |
| D 2216-80 | Laboratory Determination of Water (Moisture) Content of Soil, Rock, and Soil-Aggregate Mixtures |
| D 2488-84 | Description and Identification of Soils (Visual - Manual Procedure) |

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D 2850-87	Unconsolidated, Undrained Compressive Strength of Cohesive Soils in Triaxial Compression
D 2922-81	Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
D 3017-78	Moisture Content of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
D 4318-84	Liquid Limit, Plastic Limit and Plasticity Index of Soils

PART 3 - CONSTRUCTION PLAN FOR EXCAVATION AND DISPOSAL

3.1 General: The Contractor shall prepare a construction plan for excavation and disposal for approval by the Construction Manager or his designee. The construction plan shall be approved by the Construction Manager or his designee prior to starting any excavation.

3.2 Requirements: At a minimum the construction plan shall include:

- (1) Proposed method(s) of excavation.
- (2) Proposed method(s) of transport and disposal.
- (3) Procedures for crossing and protecting existing structures and utilities from damage.
- (4) Sequencing of operations.

3.3 Submittal: The Contractor shall submit the construction plan to the Construction Manager or his designee for approval twenty days prior to the anticipated start of work.

PART 4 - MATERIALS

4.1 Dike Fill Material: Material classification for dike construction in all areas 0.5 feet above standing water level in the Genesee River shall be in conformance with ASTM D 2488. Dike fill materials shall be obtained and furnished by the Contractor from approved sources outside of the project site. Fill material shall consist of silty clay with a minimum of 30 percent fines of inorganic silts and clays in accordance with the Unified Soil Classification System, typically SC, CL or combinations thereof. The dike fill material shall be free from large stones 3" and larger in equivalent diameter, ice, snow, frozen earth, topsoil, debris, rubble, organic matter, vegetation and other unacceptable materials.

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4.1.1 The liquid limit and plasticity index of the material shall be less than 50 and 30, respectively in accordance with ASTM D 4318. At 95 percent of maximum dry density in accordance with ASTM D698, material shall have undrained shear strength greater than 500 pounds per square foot in accordance with ASTM D2850, and permeability as determined in the laboratory of equal or less than 1×10^{-5} cm/sec in accordance with U.S. Army Corps of Engineers Testing Procedures.

4.1.2 Moisture content of earth materials shall be controlled to achieve specified compaction. Moisture content shall be within plus or minus two percent of optimum.

4.2 Dike Fill Material for Areas Below Water: Materials required for dike construction in all areas below standing water in the Genesee and for up to six inches above the water surface shall be pit run gravel from locally excavated sources, or similar material from off site sources.

4.3 East Bank Fill Material: Material excavated from widening of east river bank shall be used as common fill material behind the east bank dike as shown on the Contract Drawings. Additional fill material required to fill the area shall be common fill material and obtained from off-site sources.

4.4 Material replaced 6 inches above the water surface in the key trench shall be compacted to 95 percent of maximum dry density in accordance with ASTM D698. This material shall be free from stones 3" and larger in equivalent diameter, ice, snow, frozen earth, topsoil, debris, rubble, organic matter, vegetation or other unacceptable materials. Materials required for key trench below G.W.L. and for up to 6 inches above the water surface shall comply with paragraph 4.2.

PART 5 - CONSTRUCTION

5.1 Stripping

5.1.1 Stripping shall consist of the removal of all topsoil and organic material to a minimum depth of 6 inches within the limits of dikes shown on the Contract Drawings.

5.2 Excavation

5.2.1 Excavation shall be performed for key trench, toe protection, and east bank widening areas as shown on the Contract Drawings.

5.2.2 Excavation shall be carried out to the dimensions indicated on the Contract Drawings.

5.2.3 During excavation, the contractor shall monitor for the presence of contaminated material in accordance with the Section 02260 of this specification and the Sampling and Analysis Plan (SAP). For identification and disposal of contaminated and waste material see Section 02260.

5.2.4 Excavated material from east bank widening shall be transported directly from the excavation and placed in final position. If required by the Contractor's schedule, the material may be placed temporarily in stockpiles at approved locations, as directed by the Construction Manager or his designee.

5.3 Transporting of Borrow Material for Dike Compacted Fill

5.3.1 Borrow material shall be obtained by the Contractor from off-site borrow area(s) approved by the Construction Manager or his designee.

5.3.2 In transporting off-site borrow material, the Contractor shall avoid spillage from trucks onto roads. Spilled material shall be removed immediately.

5.4 Compacted Dike Fills

5.4.1 Earth surfaces upon which compacted fill materials are to be placed shall be scarified to allow for binding of new material with existing material.

5.4.2 Materials shall be placed so that grades and cross sections shown on the Contract Drawings are obtained. A tolerance of plus or minus 0.1 feet will be permitted. Earth core of dikes to receive stone protection shall not be constructed more than 100 feet in advance of completed stone protection. If the Construction Manager or his designee can reasonably anticipate that dike construction will be interrupted for more than two continuous days, including weekends and holidays, the Contractor shall provide approved protection for exposed ends of work prior to start of interruption. The Contractor shall inform the Construction Manager or his designee of situations that may result in possible interruption of work. The above required protection shall be equivalent to protection provided in completed structure and shall be at no additional cost to the Owner.

5.4.2.1 Placement in Water: Materials shall not be deposited from a height greater than two feet above water surface. Material placed in water shall be brought to a height of 0.5 feet above the water surface prior to beginning placement and compaction of materials above water.

5.4.2.2 Placement Above Water: Materials placed above water surface shall be compacted to 95 percent of maximum dry density in accordance with ASTM D 698. The maximum lift thickness prior to compaction shall be 12 inches.

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5.4.2.3 During compaction, moisture content of fill material shall be within $\pm 2\%$ of optimum moisture content as determined by laboratory analysis to achieve specified density. Uniform moisture distribution shall be obtained by disking, blading, or other methods approved by the Construction Manager or his designee prior to compaction of a layer.

5.4.2.4 If surface of any layer of fill in place is too wet for proper compaction of layer of fill material to be placed thereon, it shall be removed, allowed to dry or worked with harrow, scarifier, other suitable equipment to reduce water content to required amount, and then recompacted before next succeeding layer of fill is placed.

5.5 East Bank Fill: Area behind the east dike shall be filled with material specified in paragraph 4.3. Fill shall be placed in maximum loose lift thickness of 15 inches and compacted by 4 passes of a vibratory roller for sandy soil or 4 passes of a sheepfoot roller for clayey soil.

5.6 Drainage

5.6.1 The Contractor shall provide for temporary surface drainage during construction to prevent ponding and runoff erosion.

5.6.2 Filling of ponding areas and grading for temporary drainage ditches shall be performed in accordance with specified requirements for excavation and fills.

5.6.3 A culvert shall be furnished and installed as shown on the Contract Drawings.

5.7 Geotextile: Geotextile shall be placed as specified in Section 02400 of the Specifications.

PART 6 - QUALITY CONTROL

6.1 The Contractor shall comply with quality control requirements of the Specifications.

6.2 Field Inspection and Testing

6.2.1 The tests listed below shall be performed as specified. Field test reports shall be submitted daily for record as required.

- (1) Laboratory Maximum Density: Laboratory maximum density tests shall be performed on all fill material 0.5 feet above standing water level in accordance with ASTM D698. Prior to placing, at least four tests shall be performed on representative samples of the fill material to be placed. Additional tests shall be performed if the composition of the material being used is different than that previously tested.

- (2) **Gradation:** Gradation tests shall be performed on borrowed fill material in accordance with ASTM D 422. One gradation test shall be performed for each sample used for laboratory maximum density testing, and for each 1000 cubic yards of material to be used for compacted fill. In addition, gradation tests shall be performed whenever it appears material may not meet specified gradation.
- (3) **Moisture Content:** At least four moisture content tests shall be performed on fill material in accordance with ASTM D 2216.
- (4) **In-place Testing:** In-place density and moisture content testing on compacted fill material shall be performed by nuclear methods in accordance with ASTM Standards D2922 and D3017 or the Sand Cone Method for density in accordance with ASTM Standard D1556. However, prior to use, calibration of the nuclear equipment shall be performed using either laboratory or field methods in accordance with ASTM D2922 and D3017. A comparison to results from sand cone testing in accordance with ASTM D1556 shall be performed at least once for each 10 tests performed using nuclear density equipment. In-place density shall be determined at a depth of 12 inches below grade and the tests shall be performed for each 750 cubic yards placed but not less frequently than one test each day for each area being compacted. The nuclear density equipment shall be recalibrated whenever a different borrow soil is used for dike construction.

6.2.2 Field inspection notification to the Construction Manager or his designee is required for the following witness points:

- (1) Prior to covering with borrowed fill, inspection of dike foundation material at bottom of key trench.
- (2) Prior to performing in-place density test, inspection of point selected for testing.

PART 7 - SUBMITTALS

Documents shall be submitted in accordance with the attached form: "Document Submittal Requirements".

END OF SECTION

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DOCUMENT SUBMITTAL REQUIREMENTS

SUBMIT DOCUMENTS PRIOR TO THE POINTS INDICATED BY THE CODE BELOW:

F - FABRICATION

C - CONSTRUCTION/INSTALLATION

T - TESTING

A - FINAL ACCEPTANCE

S - SHIPMENT

DOCUMENT REQUIREMENTS	See Paragraph	For Approval	For Record
1. Laboratory maximum density test reports	6.2.1 (1)		*
2. Gradation test reports	6.2.1 (2)		*
3. Moisture content test reports	6.2.1 (3)		*
4. In-place density test reports	6.2.1 (4)		*
* Daily			

SECTION 02260

IDENTIFICATION AND DISPOSAL OF CONTAMINATED AND WASTE MATERIAL

PART 1 - GENERAL

The work required under this Section includes furnishing all plant, labor, materials, and equipment and performing all operations required for identification and disposal of contaminated and waste material as shown on the Contract Drawings and as specified herein.

1.1 A dike investigation program was completed to determine the presence of waste material in the area of construction. A dike investigation report was issued indicating that the dike is not located in waste material. However, during construction of the project, there may be soil and other material encountered which are considered contaminated. This material generally may consist of materials contaminated with petroleum hydrocarbons. The Contractor will be required to monitor for the presence of contamination during excavation in accordance with a sampling and analysis plan (SAP) provided by the Construction Manager. Materials which meet the following criteria will be considered contaminated:

- (1) By a reading of 1 ppm above background on a photoionization detector meter (HNU or equivalent), or
- (2) By petroleum odor.

1.2 Material excavated from the key trench which is determined to be non-contaminated using the screening criteria specified in Para. 1.1 and is free of topsoil and organic matter shall be used as compacted fill in the key trench. The material is classified as SM or GM in the dike investigation boring data. Topsoil and other structurally unsuitable material shall be stockpiled at a location approved by the Construction Manager for later use.

1.3 Excavated materials which meet the criteria for contamination as specified in Para. 1.1 shall also be examined visually for oil staining. Materials free of oil staining, organic matter and topsoil shall be used as compacted fill in the key trench. Materials free of oil staining but containing organic matter and topsoil shall be placed in the CELA. Materials showing oil stains shall be sampled in accordance with the SAP for determination of the amount of total petroleum hydrocarbons (TPH). Materials exceeding 5% TPH will be considered waste material. Construction Manager shall be notified when the Contractor encounters waste material during excavation. If waste material is encountered locally, it shall be excavated, placed in the CELA, and the area backfilled with suitable excavated material or material meeting the dike fill requirements specified in Section 02200. If

waste material is encountered over a large area, the Construction Manager and Engineer shall evaluate the condition to determine appropriate action. The dike foundation shall not be located on waste material.

Contaminated and oil stained materials having TPH less than or equal to 5% which are free from organic matter and topsoil shall be used as a compacted fill in the trench area. Other unsuitable materials (organic matter, topsoil, etc.) shall be placed in the CELA.

1.4 Contractor's personnel who may come in contact with contaminated material shall be required to wear tyvek suits, boots, and gloves. If contamination levels exceed allowable permissible exposure limits, the Contractor shall follow procedures specified in the health and safety plan.

1.5 Materials required to be excavated under Section 02200 and requiring placement into the "Central Elevated Landfill Area" (CELA) as described above shall be placed in the temporary contaminated storage area within the CELA as shown on the Contract Drawings. This temporary contaminated storage area shall be bermed and covered with a layer of clean material.

1.6 The Contractor shall minimize activities on the landfill to those approved and as directed by the Construction Manager or his designee.

1.7 Soils excavated during the west dike construction, including the material taken from the key trenches, shall not be removed from the site.

1.8 Handling of contaminated soils/materials during excavation and placement in the temporary storage area shall be conducted to minimize the requirements for decontamination of personnel and equipment.

- 1) Crew size shall be kept at a minimum.
- 2) Excavation equipment shall operate on clean surfaces as much as possible.
- 3) Excavated material shall be loaded into drop boxes (10 C.Y.) with liners. Each box and adjacent ground surface will be covered with HDPE blankets during loading.
- 4) Drop box haul units shall travel on clean surface haul roads to temporary storage area

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- 5) Placement equipment shall remain at the temporary storage area throughout dike key trench excavation.
- 6) Exposed portions of excavation equipment shall be decontaminated as required. Transportation boxes and placement equipment shall be decontaminated at completion of key trench excavation. (reference HASP Section 10.3)
- 7) Upon completion of excavation of waste material, contaminated portions of the excavation equipment shall be decontaminated (reference HASP Section 10.3) such that all material resulting from decontamination activity is contained for placement in the CELA.

END OF SECTION

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SECTION 02400

RIPRAP, BEDDING, AND GEOTEXTILE

PART 1 - GENERAL

The work required under this Section includes furnishing all plant, labor, material, and equipment and performing all operations required for placing riprap, bedding, and geotextile as shown on the Contract Drawings and as specified herein.

PART 2 - MATERIALS

2.1 Riprap: Riprap stone shall be durable and of a suitable quality to assure permanence in the application and the climate in which it is to be used. Stone shall be free of cracks, seams, and other defects that would tend to increase unduly its deterioration from natural causes or breakage in handling or dumping. Stone shall weigh, when dry, not less than 145 pounds per cubic foot (specific gravity of the stone equal to or greater than 2.3). The inclusion of objectionable quantities of dirt, sand, clay and rock fines will not be permitted. Selected granite, quartzite, rhyolite, traprock and certain dolomitic limestone generally meet the requirements of these specifications. Riprap shall be reasonably well graded from a minimum of 25 lbs to a maximum of 400 lbs (see gradation table below). At least 50 percent shall be greater than 200 lbs, and no more than 15 percent shall be less than 100 lbs. Stone for riprap shall be roughly cubical in shape. Flat pieces, such that the average thickness is less than 1/3 of the average width, will be rejected. Stone shall have a mean diameter D₅₀ of 12 inches.

Riprap

<u>Weight of Stones</u> (lbs)	<u>Percent Finer by Weight</u>
400	100
200	15-50
100	0-15
25	0

Subject to the approval of the Construction Manager, heavy riprap gradation in accordance with Figure 620-1 of Section 620-2.02 of the New York State Department of Transportation Standard Specifications may be used.

2.2 Bedding: Aggregate for bedding shall be composed of crushed stone or gravel, free of soft, non-durable particles, organic material, and thin or elongated particles.

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Bedding material shall comply with Section 620-2.05 of the New York State Department of Transportation Standard Specifications, excluding blast furnace slag (see table below for gradation).

Bedding Material

<u>US Standard Sieve Size</u>	<u>Percent Finer by Weight</u>
4 in.	100
1 in.	15-60
1/4 in.	0-25
No. 4	0-10

2.3 Geotextile

2.3.1 Material: Geotextile shall be GTF 400E as manufactured by Exxon Chemicals or equal as approved by the Construction Manager. Geotextile shall be a woven pervious sheet of plastic yarn as defined by ASTM D 123 and shall meet the physical requirements listed in Table No. 1. The geotextile fiber shall consist of a long-chain synthetic polymer composed of at least 85 percent by weight of propylene, ethylene, ester, amide, or vinylidene-chloride, and shall contain stabilizers and/or inhibitors added to the base plastic if necessary to make the fiber resistant to deterioration due to ultraviolet and heat exposure. Edges of geotextile shall be finished to prevent outer fiber from pulling away from geotextile. Apparent opening size shall be within a range of 0.0083 inch and 0.0059 inch.

2.3.2 Seams: Seams of geotextile shall be constructed in accordance with manufacturer's recommendations. Seams shall be tested in accordance with ASTM D 1683, using 1-inch square jaws and 12 inches per minute constant rate of traverse. Strength shall be not less than 90 percent of the required tensile strength (Table No. 1) of the unaged geotextile in any principal direction.

2.3.3 Acceptance Requirements: The Contractor shall furnish the Construction Manager or his designee, in duplicate, a mill certificate or affidavit signed by a legally authorized official from the company manufacturing the geotextile. Mill certificate or affidavit shall attest that geotextile meets specified chemical, physical, and manufacturing requirements. If requested by the Construction Manager or his designee, the Contractor shall provide geotextile samples for testing to determine compliance with specified requirements. Samples shall be submitted prior to beginning of installation. All samples shall be from same production lot as will be supplied for the Contract, and shall be full manufactured width of geotextile but at least 10 feet long, except that samples for seam strength may be a full-width sample folded over and edges stitched for a length of at least 5 feet. Samples submitted for testing shall be identified by manufacturer's lot designation.

TABLE NO. 1 - PHYSICAL REQUIREMENTS

<u>Physical Property</u>	<u>Test Procedure</u>	<u>Acceptable Values (+ +)</u>
Tensile strength (+) (unaged geotextile)	ASTM D 4632 Grab Test Method using 1-inch x 2 inches jaws and 12 inches per minute constant rate of traverse.	200 pound minimum in any principal direction
Breaking elongation (+) (unaged geotextile)	ASTM D 4632 Determine Apparent Breaking Elongation	15 percent minimum in any principal direction
Puncture strength (+) (unaged geotextile)	ASTM D 3787 except polished steel ball replaced with a 5/16-inch diameter cylinder with a hemispherical tip centered within the ring clamp.	80 pound minimum
Abrasion resistance	ASTM D 3884 Rubber-base abrasive wheels equal to CS-17 "Calibrase" by Taber Instrument Company; 1 kilo-gram load per wheel; 1000 revolutions, determine residual breaking load.	25 pound minimum residual breaking load in any principal direction
Tear strength	ASTM D 4533 Trapezoidal Tear Strength	30 pound minimum in any principal direction
Geotextile permeability (kg)	ASTM D 4491 Test Methods for Water Permeability of Geotextiles by Permittivity	Permeability of geotextile shall be greater than 0.01 centimeters per second

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

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

PART 3 - QUALITY INSPECTION

Quality inspection for stone shall be performed by the Contractor's inspection staff at the quarry prior to delivery of stone to project site.

PART 4 - SHIPMENT AND STORAGE

During all periods of shipment and storage, geotextile shall be protected from direct sunlight, ultraviolet rays, temperatures greater than 140 degrees Fahrenheit, mud, dirt, dust and debris. Fabric shall be maintained wrapped in a heavy-duty protective covering.

PART 5 - PLACEMENT

5.1 Geotextile

5.1.1 Geotextile shall be placed at the locations shown on the Contract Drawings. At the time of installation, geotextile will be rejected if it has defects, rips, holes, flaws, deterioration or damage incurred during manufacture, transportation, or storage. Surfaces to receive geotextile shall be free of debris. Geotextile shall be installed in accordance with manufacturer's recommendations.

5.1.2 Geotextile shall be protected at all times during construction. Any damage to geotextile during installation or placement of granular backfill shall be replaced by the Contractor at no cost to the Owner. Work shall be scheduled so that covering of geotextile with a layer of the specified material is accomplished within seven calendar days after placement of geotextile. Failure to comply shall require replacement of geotextile. Geotextile shall be protected from damage prior to and during placement of granular backfill. Before placement of granular backfill, the Contractor shall demonstrate that placement technique will prevent damage to geotextile. In no case shall any type of equipment be allowed on unprotected geotextile.

5.2 Bedding: Aggregate bedding shall be placed on installed geotextile filter fabric. Bedding shall be placed to full specified thickness in one operation, using methods which will not cause segregation of particle sizes or damage geotextile.

5.3 Riprap: Riprap shall be placed so as not to disturb bedding material and to produce a well graded and distributed protection. Riprap shall be placed over areas shown on the Contract Drawings to a uniform depth to a tolerance of minus 0 to plus 3 inches. Riprap shall not be dropped from heights in excess of two feet. Riprap shall be placed in position starting from bottom of the slope.

END OF SECTION

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SECTION 02485

SEEDING AND EROSION PROTECTION

PART 1 - GENERAL

The work required under this Section includes furnishing all plant, labor, equipment, and materials to:

- (1) Provide fertilizer, mulching, and seeding for landside dike slope east bank fill area, and east bank widening side slope area.
- (2) Construct a sediment control barrier along the Genesee River side of the west dike. This barrier shall be constructed as a silt fence.
- (3) Conduct construction activities along the east bank so as to minimize erosion.
- (4) Construct a silt fence or hay bale barrier around the contaminated storage area within the CELA.

PART 2 - APPLICABLE PUBLICATIONS

American Society for Testing and Materials (ASTM)

D 751-79 Coated Fabrics

D 1682-64 Breaking Load and Elongation of Textile Fabrics

Federal Specifications (FS)

FS O-F-241D Fertilizer, Mixed, Commercial

FS JJJ-S-181B Seeds, Agricultural

PART 3 - MATERIALS

3.1 Fertilizers

3.1.1 Quality and Formulation: Fertilizer may be either fluid or dry formulations of commercial carriers of available plant nutrients. Fertilizer shall contain total nitrogen, available phosphoric acid, and soluble potash in the ratio of 10-6-4.

3.1.2 Basis of Acceptance: Manufacturer's label or certificate indicating compliance with specifications. The Construction Manager or his designee reserves the right to reject any material that has become caked or otherwise damaged.

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3.2 Seeds

3.2.1 Quality: Each species, variety, and strain of grasses, legumes, and cereals shall be as specified unless otherwise approved.

3.2.1.1 Materials other than pure live seed shall comprise only nonviable seed, chaff, hulls, live seed of crop plants other than those specified, harmless inert matter and weed seeds except that weed seeds other than seed of noxious weeds will be permitted up to 1 percent of gross weight of each kind of seed. Legume seeds shall be accompanied by adequate amounts of proper inoculants unless accompanied by certification of preinoculation.

3.2.1.2 The percentage of purity as shown on the label shall be acceptable. The percentage of germination as shown on the label shall be not less than the minimum percentage specified.

3.2.2 Nomenclature: The common and scientific names of grasses, legumes, and cereals under this Contract are in conformity with Standard Plant Names.

3.2.3 Weight of Pure Live Seed: Weight of pure live seed in each lot of seed is computed by labeled purity percent, times labeled germination percent, times weight. (Example: 34 pounds of pure live seed of a particular grass is required. Stock available has 85 percent purity and 80 percent germination, which meets the minimum requirements in this example and equals 68.0 percent pure live seed, 34 divided by 68 percent equals 50 pounds gross as being required to furnish 34 pounds of pure live seed). Other material shall comprise the remaining 32 percent, between 68 percent of pure live seed and 100 percent in the example.

3.2.4 Legume Inoculants: Inoculants for treating seeds of legumes shall be standard culture of nitrogen fixing bacteria not more than one year old. Each inoculant shall be the specific culture required by each legume. It shall be supplied only from manufacturers licensed to sell legume inoculants in the State of New York.

3.2.5 Packaging: Each kind of seed shall be furnished and delivered, unless otherwise approved, in separate, sealed containers, or bags acceptably sewn tight or sealed.

3.2.6 Labeling: All seed and seed labels shall be in accordance with state and federal laws, rules, and regulations.

3.2.7 Basis of Acceptance: Seeds shall meet minimum specified requirements regardless of guarantee of qualities or dates of testing and after the application of tolerances approved by the

Department of Seed Investigations, New York State Agricultural Experiment Station, Geneva, New York. Seed which has become wet, moldy, or otherwise damaged in transit or storage will not be acceptable. Seed, after delivery to the Contractor, shall be stored to protect it from damage and deterioration. Provisional acceptance of seeds shall be obtained before the seed is sown. Final acceptance may be subject to results of official sampling and testing.

3.2.8 Seed Mixture: Seed mixture shall be:

<u>Name</u>	<u>Variety</u>	<u>Wt. of Pure Live Seed/Acre (lbs)</u>
Red Fescue (Festuca rubra)	Commercial	40
Perennial Ryegrass (Lolium perenne)	Commercial	15
White Clover (Trifolium repens)	Commercial Max 25 percent hard seed	5
Total		60 lbs/acre

3.3 Mulch: Either hay or straw may be used for mulch. Hay for mulching shall be mowings of acceptable herbaceous growth free from noxious weeds. Straw for mulching shall be stalks of oats, wheat, rye or other approved crops free from noxious weeds. Materials which are low grade and unfit for farm use such as "U.S. Sample Grade" will be acceptable. Weight shall be calculated on the basis of material having not more than 15 percent of moisture content.

3.4 Silt Fence: Silt fence material shall meet the following requirements:

<u>Property</u>	<u>Test Method</u>	<u>Minimum Avg.</u>
Tensile strength (lbs)	ASTM D 1682	90
Elongation (percent)	ASTM D 1682	15-35
Burst strength (psi)	ASTM D 751 (Diaphram Method)	200
Accelerated weathering (strength retained - percent)	Federal Test Method CCC-T-191-Method 5804 (500 Hrs. Exposure)	70

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<u>Property</u>	<u>Test Method</u>	<u>Minimum Avg.</u>
Slurry flow rate (gpm/ft ²)	VTM-51-79	0.3
Retention efficiency (percent)	VTM-51-79	75
Equivalent opening size	CW-02215, US Sieve No. Equivalent	30/50

PART 4 - APPLICATION AND CONSTRUCTION

4.1 Fertilizer Application: Fertilizer shall be evenly spread over surface of soil in areas as directed. Rates of application shall be as required to promote plant growth. Tests required to determine rate of fertilizer application shall be made by the Contractor and the rate approved by the Construction Manager or his designee. Any method of application which will ensure an even distribution will be acceptable.

4.2 Seeding Application

4.2.1 Rates: Rates for seeding shall be as specified.

4.2.2 Season: Unless otherwise directed by the Construction Manager or his designee, work shall be performed during normal planting seasons of the year. The Contractor shall notify the Construction Manager or his designee at least 48 hours in advance of the time he intends to begin sowing seed and shall not proceed with such work until permission has been obtained. When delays in operations carry the work beyond dates which are specified, or when conditions of high winds, excessive moisture or ice are such that satisfactory results are not likely to be obtained for any stage of the work, the Construction Manager or his designee will stop work. Work shall be resumed with the Construction Manager or his designee's approval when desired results are likely to be obtained or when approved corrective measures and procedures are adopted.

4.2.3 Sampling, Mixing, and Inoculating Seeds: Provisional acceptance of seeds shall be obtained before seeds are mixed. Each lot of seed shall be subject to sampling and testing before mixing. Sowing seed shall not be delayed pending reports of these tests. Sampling shall be performed by the Contractor and will be verified by the Construction Manager or his designee. Testing for compliance with these specified requirements shall be performed by the Department of Seed Investigations, New York State Agricultural Experiment Station, Geneva N.Y., and results obtained will be considered official. Seeds of kinds specified shall be mixed on the job in formula specified unless otherwise approved. Seed mixed prior to delivery may be approved on the basis of a certification by the vendor stating minimum percentage of germination and purity

of each kind of seed and quantity of each kind of seed in mixture. All seed of leguminous plants shall be inoculated prior to mixing or sowing unless otherwise specified or approved or unless accompanied by a certification preinoculation. When seed is to be sown dry and is to be inoculated, culture shall be applied as directed by the manufacturer and seed allowed to dry sufficiently to be in the proper condition for mixing or sowing. Seed shall be sown within thirty hours after this treatment. Where seed is to be distributed by water pressure, proper proportion of inoculant may be added to water and seed mixture, together with fertilizer specified, providing the alkalinity of solution does not exceed 8 pH.

4.2.4 Ground Preparation and Seeding

4.2.4.1 Areas to be seeded shall be maintained at approved grades. Irregularities and low places which will hold water shall be eliminated. Fertilizers and seeds shall be evenly distributed on the surfaces to be seeded. All mechanical equipment for soil preparation or seeding shall be as approved and shall pass parallel to the contours unless otherwise approved.

4.2.4.2 When directed by the Construction Manager or his designee, measured plots shall be established to determine if specified quantities of seed, fertilizer, and mulch are being applied. The finished surface of any area that is seeded shall not be rougher, more uneven or have more or larger stones, clods, roots, or other foreign materials than the area it adjoins.

4.2.4.3 Areas to be seeded shall be scarified sufficiently to break up surface crust immediately before seeding except where ground is loose and friable as immediately following grading or as otherwise approved. All stones over six inches in greatest dimension which are loose and subject to rolling or sliding or other sizes as specified and all other objects detrimental to mowing shall be removed and disposed of as approved. Fertilizers and seed may be mixed together immediately before placing. Methods of distribution such as by air or water pressure will be acceptable except that the seed shall not be injured in the process of spreading.

4.3 Mulching

4.3.1 Surface of areas where mulch is to be applied shall be cleared of stones, stumps, wire, and other obstacles which might hinder subsequent seeding operations. Ground shall be harrowed or disked to produce a state of suitable tillage.

4.3.2 Mulch shall be spread uniformly in a continuous blanket of sufficient thickness to completely hide soil from view. Mulch may be spread before or not later than three days after seeding unless otherwise approved. Anchorage to hold mulch in place may be applied by an approved method during mulching operation or subsequently.

4.4 Erosion and Sediment Control

4.4.1 Contractor shall prepare an erosion and sediment control plan for submittal and acceptance by the Construction Manager and the New York State Conservation Engineer, USDA Soil Conservation Service. The plan shall comply with the New York State Guidelines for Urban Erosion and Sediment Control.

4.4.2 Contractor shall conduct his operations in accordance with his certified erosion and sediment control plan. Surface drainage from cuts and fills within the limits of work shall be held in suitable sedimentation ponds or the surface shall be graded to control erosion within acceptable limits. Temporary erosion and sediment control measures shall be provided and maintained until the permanent work is completed. The area of bare soil exposed at any given time by construction shall be restricted to a minimum.

4.4.3 Borrow area erosion and sediment control is the responsibility of the Contractor.

4.4.4 Contractor shall construct a silt fence sediment control barrier along the river side of the west dike prior to clearing, grubbing, stripping and excavation of the Toe protection area, and utilize good construction practices when working on the east dike in order to minimize discharge of sediments into the river.

4.4.5 Contractor shall construct a silt fence or hay bale barrier around the contaminated storage area within the CELA.

PART 5 - CARE DURING CONSTRUCTION

The Contractor shall care for seeded and mulched areas until final acceptance. Such care shall consist of providing protection against traffic by approved warning signs or barricades, and repairing areas damaged following seeding or mulching operations due to wind, water, fire or other causes. Damaged areas shall be repaired to re-establish condition and grade of area prior to seeding and shall be refertilized, reseeded, and remulched as specified herein. The Contractor shall keep seeded areas mowed until acceptance by cutting to a height of three inches when growth reaches six inches, or as directed.

PART 6 - QUALITY CONTROL

6.1 Liability: Final acceptance of seed may be subject to results of official sampling and testing. Weight of seed sown is based on labeled purity and germination. Tolerances approved by the Department of Seed Investigations, New York State Agricultural Experiment Station, Geneva, New York, for seed species, shall be used in the determination of whether seed conforms to labeled purity and germination statements and meets the minimum specified. When, after application of the appropriate tolerances, purity and germination of seed except cereal grain and legumes are shown by official tests to be less than that shown on label but germination meets minimum specified with the appropriate tolerance applied, and specified weight of pure live seed has not been sown, deficiency shall be sown.

6.1.1 When the germination of seed except cereal grains and legumes is shown by official tests to be less than minimum specified, after appropriate tolerances have been applied, it will be considered a total deficiency. Such deficiency shall require complete reseeding of kind of seed which was deficient.

6.1.2 Reseeding together with necessary grading and trimming shall be done at the expense of the Contractor by spreading seed by an approved method during an approved season.

6.1.3 When, in the judgment of the Construction Manager or his designee, at any time prior to acceptance, any area which has been seeded fails to produce a satisfactory growth of grass after a suitable period of time has elapsed, the Contractor shall reseed and refertilize such areas as specified. If deemed necessary by the Construction Manager or his designee, the Contractor shall also remulch such areas at the rate specified.

END OF SECTION

SECTION 02546

AGGREGATE-SURFACED ROADS

PART 1 - GENERAL

The work required under this Section includes furnishing all plant, labor, material, and equipment and performing all operations required to construct an aggregate-surfaced road on top of the completed west bank dike as shown on the Contract Drawings and as specified herein.

PART 2 - PREPARATION

All areas on which aggregate-surfaced roads are to be placed shall be constructed in accordance with Section 02200 of the Specifications.

PART 3 - MATERIALS

3.1 Source: All materials shall be obtained and furnished by the Contractor from sources outside of the project site.

3.2 Aggregates

3.2.1 General: Aggregate shall comply with Section 304-2 of the New York Department of Transportation Standard Specifications. Aggregate shall consist of stone which is the product of crushing ledge rock, sand and gravel or blends of these materials. All materials furnished shall be well graded from coarse to fine and free from organic and other deleterious materials.

3.2.2. Quality Requirements: Material shall consist of hard, durable particles or fragments of granular aggregates. Aggregates shall be free from dirt and other objectionable matter and shall contain not more than 8 percent of flat, elongated, soft, or disintegrated pieces.

3.2.2.1 Material will be accepted on the basis of a magnesium sulfate soundness loss after 4 cycles of 20 percent or less. Plasticity index of the material passing the No. 40 mesh sieve shall not exceed 5.0.

3.2.2.2 Material shall meet specified gradation prior to placement on grade. Processing shall be completed at source.

3.2.3 Gradation: Material shall meet the following gradation requirements:

**Sieve Size
Designation**

**Percent Passing
By Weight**

2 inch	100
1/4 inch	30 - 65
No. 40	5 - 40
No. 200	0 - 10

PART 4 - PLACING AGGREGATE COURSE

4.1 Subgrade Preparation: Subgrade shall be shaped to lines and grades shown on the Contract Drawings and compacted as specified in Section 02200 of the Specifications.

4.2 General: Access road shall be constructed in accordance with lines and grades as shown on the Contract Drawings and as specified in Section 02200 of the Specifications. Aggregates shall be placed to minimize segregation. Caution shall be exercised to prevent incorporation of subgrade material onto aggregate course.

4.3 Finishing and Compacting

4.3.1 After spreading, aggregate shall be thoroughly compacted by rolling. Rolling shall progress gradually from sides to center of lane under construction, or from one side toward previously placed material by lapping uniformly each preceding rear-wheel track by one-half the width of such track. Rolling shall continue until entire area of the brouse has been rolled by rear wheels. Rolling shall continue until stone is thoroughly set, interstices of material reduced to a minimum, and creeping of stone ahead of roller is no longer visible. Blading and rolling shall be done alternately, as required or directed, to obtain smooth, even, and uniformly compacted surface course.

4.3.2 Aggregate course shall not be rolled when subgrade is soft or yielding or when rolling causes undulation. When rolling develops undulations, irregular surface shall be loosened, refilled with the kind of material as used in constructing the course, and rolled again as required.

4.3.3 In areas inaccessible to rollers, material shall be compacted by tamping thoroughly with mechanical tampers.

4.3.4 Watering during rolling, if necessary, shall be in the amount and by equipment approved by the Construction Manager or his designee.

4.4 Elevations of top of dike course shall not vary more than 0.05 foot from established grade, profile, and cross section.

END OF SECTION

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CLIENT: ATLANTIC RICHFIELD COMPANY
LOS ANGELES, CALIFORNIA

PROJECT: SINCLAIR LANDFILL
SOUTH LANDFILL AREA REMEDIATION
AND WEST BANK DIKE EXTENSION *

LOCATION: WELLSVILLE, ALLEGANY COUNTY
NEW YORK

TECHNICAL SPECIFICATIONS

DIVISION 2 - SITEWORK

* THESE TECHNICAL SPECIFICATIONS ARE FOR THE WEST BANK DIKE
EXTENSION ONLY. THE REVISION R1 BELOW PERTAINS TO THE
SOUTH LANDFILL AREA REMEDIATION AND IS NOT APPLICABLE.



APPROVED BY: [Signature]

10-16-90

P.E. NO. 065721
EBASCO SERVICES INC.
NEW YORK, NEW YORK

Revision	Prepared By	Reviewed By	Approved By	Date	Pages Affected
R1	R J Lacsini	V.K. Patel -	<u>[Signature]</u>	11-2-90	02220-3, 02225-1,2

APPROVED BY: Michael A. Turco

M. TURCO
(PROJECT MANAGER - ARCO)

APPROVED BY: See USEPA approval letter from Carole Petersen
to Michael A. Turco dated September 26, 1990
UNITED STATES ENVIRONMENTAL
PROTECTION AGENCY

CLIENT: ATLANTIC RICHFIELD COMPANY
LOS ANGELES, CALIFORNIA

PROJECT: WEST BANK DIKE EXTENSION

LOCATION: WELLSVILLE, ALLEGANY COUNTY
NEW YORK

TECHNICAL SPECIFICATIONS

DIVISION 2 - SITEWORK

TECHNICAL SPECIFICATIONS

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SECTION 02000

INTRODUCTION

The site is located in the southern portion of the Former Sinclair Oil Refinery property. The former 103-acre refinery is located in Allegany County New York, in the Town of Wellsville, southeast of the Village of Wellsville, and is bound on the west by South Brooklyn Avenue, on the north by a residential area, and on the south and east by the Genesee River.

The site is divided into two sub-sites: the refinery portion, consisting of approximately 90 acres where the original refinery operations took place (now utilized as a light industrial park and agricultural and technical college campus), including tank farm areas; and the 12.5 acre landfill portion, which contains waste from the original refinery operation.

The landfill portion which is located along the bank of the Genesee River, consists of the "Central Elevated Landfill Area" (CELA), an approximately 7.0 acre area and the "South Landfill Area" (SLA), an approximately 1.2 acre area. Between the two landfill areas is a 1 acre sand and gravel borrow area. It is estimated that 145,000 cubic yards of refinery waste was disposed of in the CELA and 14,500 cubic yards was disposed of in the SLA.

The CELA is wooded and covered with vegetation, and has approximately 300 rusted and corroding 55-gallon drums, a majority of which are empty. A small pool of oil, probably the remains of a lagoon, is located on top of the landfill. A chain link fence partially restricts access to the landfill from the roadway, and access from the river bank is unrestricted.

The topography of the site is generally sloping toward the Genesee River. There is little relief throughout the site with elevations ranging from 1495 to 1515 feet above mean sea level.

The reach of the Genesee River, which runs along the south and east boundary of the landfill site, displays a typical meandering pattern. The northerly flow of the Genesee River around the partially protected landfill is causing bank erosion and point bar accretion. As the meanders have migrated downstream toward the sheet pile weir, the channel orientation with respect to the landfill and flow conditions approaching the weir have become unfavorable. This has resulted in increased bank erosion, especially during floods, eroding several hundred feet of the landfill. This increased bank erosion and possible inundation of the landfill led to the construction of a dike and a channel relocation at the upstream portion of the landfill site in 1983. The existing riprap lined dike protects the west bank at the upstream end of the landfill.

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In July 1982, EPA and NYSDEC entered into a Cooperative Agreement to undertake a Remedial Investigation (RI) and Feasibility Study (FS) at the Sinclair Refinery Site. The RI was divided into two phases: Phase I was a detailed characterization of the landfill portion and reconnaissance of the refinery portion of the site. The Phase II RI will provide a more focused investigation of those areas on the refinery portion of the site where additional data requirements were identified.

The USEPA signed a Record of Decision (ROD) on September 30, 1985, officially selecting a remedy for the landfill portion of the site. The remediation contains the following measures:

- 1) Removal and off-site disposal of approximately 300 drums on the surface of the Central Elevated Landfill Area.
- 2) Excavation of the wastes from the South Landfill Area.
- 3) Filling of the excavated area with clean fill.
- 4) Consolidation of the excavated South Landfill Area wastes onto the Central Elevated Landfill Area.
- 5) RCRA capping of the consolidated wastes on the Central Elevated Landfill Area.
- 6) Partial Genesee River Channelization to protect the landfill from erosion and flood inundation from the Genesee River.
- 7) Erection of a fence to secure the entire Landfill Site.

The work covered by these specifications is only for Items 3 and 6 above, partial river channelization (including the West Bank Dike Extension), and is divided into 7 major items of construction activities outlined below:

- 1) Site Preparation.
- 2) Erosion and Sediment Control.
- 3) Clearing and Grubbing along River Banks. Clearing and In Situ Diking of Contaminated Material Disposal Area within the CELA.
- 4) Construction of the West Bank Dike and its Extension.
- 5) Construction of the East Bank Dike and River Bank Cut Excavation.
- 6) Disposal of Contaminated Material Excavated within the CELA.
- 7) Filling of the Excavated SLA with Clean Fill.

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The Contractor shall perform all work stated in the contract. The contract consists of all work described by the Specifications and shown on the drawings, plus all provisions, conditions, terms, and requirements found in the proposal package, along with any addendum, modifications, amendments or changes issued to the contract.

The Contractor is advised that the work will be performed on a hazardous waste site as identified on the National Priorities List. This listing was established pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA) and the National Contingency Plan. The Contractor is responsible for developing a Site Specific Health and Safety Plan (SSHSP) for his operations. The Contractor shall implement this plan taking precautions necessary to protect the public and work force personnel from potential hazards. The Contractor shall utilize personnel with approved hazardous waste training.

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SECTION 02040

DUST AND VAPOR CONTROL

PART 1 - GENERAL

The work required under this Section includes furnishing all plant, labor, materials and equipment and performing all operations required for providing dust and vapor control as specified herein.

PART 2 - REQUIRED WORK

2.1 The Contractor shall be responsible for providing adequate dust and vapor control measures.

2.2 Dust control shall consist of furnishing water supply, required equipment, additives, accessories and incidentals, and carrying out proper and efficient measures wherever and as often as necessary to reduce dust nuisance, and to prevent dust originating from construction operations and causing damage to open fields and dwellings, or causing a nuisance to persons during the completion of the Contract, as required by the Construction Manager or his designee.

2.3 All equipment used for application of water shall be equipped with a positive means of shut-off.

2.4 At least two mobile units with a minimum capacity of 5,000 gallons shall be available for applying water for dust control.

2.5 To conserve water, the Contractor may use chemical additives in dust-control water. The use, location of application, amount and type of additives proposed for use by the Contractor shall be subject to approval by the Construction Manager or his designee and the EPA.

END OF SECTION

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SECTION 02060

SITE PREPARATION

PART 1 - GENERAL

The work required under this Section includes furnishing all plant, labor, equipment, and materials to perform all preparatory work as shown on the Contract Drawings and as specified herein. All work shall be conducted in a manner to prevent damage to the structures which are to remain and to maintain or improve the aesthetics and ecology of the site. The Contractor is cautioned that work required is located in the vicinity of existing utilities and at a hazardous waste site. All necessary precautions shall be taken to provide for safety of personnel in these areas.

PART 2 - EQUIPMENT

Prior to starting work, a list of all equipment, tools, machines, including their sizes, capacities and operating speeds, to be used in the performance of the work shall be submitted to the Construction Manager or his designee for information purposes. All items shall be maintained in safe and satisfactory working condition at all times.

PART 3 - PROTECTION OF EXISTING UTILITIES

The Contractor shall determine the locations of existing utilities in the project area. Information on known locations of utilities are shown on the Contract Drawings. However, the Contractor shall verify all such information in the field and shall assume all liability for damage to all utilities whether or not identified on the Contract Drawings. The Contractor shall contact the Wellsville Utility Coordinator (Telephone (716) 593-1780) and all potentially affected utilities prior to starting any construction activity. It shall be the Contractor's responsibility to take whatever measures are necessary to prevent damage to utilities.

END OF SECTION

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SECTION 02110

SITE CLEARING AND GRUBBING

PART 1 - GENERAL

The work required under this Section includes furnishing all plant, labor, equipment, and materials for performing all operations required for clearing and grubbing as shown on the Contract Drawings (Only Site Grubbing is applicable in this Contract).

1.1 Definitions

1.1.1 Clearing: Clearing shall consist of the felling, trimming, and cutting of trees into sections and the satisfactory disposal of the trees and other vegetation designated for removal, including down timber, snags, brush, and rubbish occurring in the areas to be cleared.

1.1.2 Grubbing: Grubbing shall consist of the removal and disposal of stumps, roots larger than 1-1/2 inches in diameter, and matted roots from the designated grubbing areas.

1.2 Dust Control: The Contractor shall comply with dust control requirements specified in Section 02040 of the Specifications.

PART 2 - REQUIRED WORK

2.1 Clearing: Clearing shall consist of the removal of all trees, brush, logs, limb wood, rubbish, and all other obstructions on the surface of the original ground, except such trees and vegetation as may be directed by the Construction Manager or his designee to be left standing. Trees directed to be left standing within the cleared areas shall be trimmed of dead branches 1-1/2 inches or more in diameter and shall be trimmed of all branches to the heights directed. Limbs and branches to be trimmed shall be neatly cut close to the bole of the tree or main branches. Cuts more than 1-1/2 inches in diameter shall be painted with a tree-wound paint approved by the Construction Manager or his designee. Trees and vegetation to be left standing shall be protected from damage incident to clearing, grubbing, and construction operations by the erection of barriers or by such other means as the circumstances require.

2.2 Grubbing: Grubbing shall consist of the removal of stumps, roots larger than 1-1/2 inches in diameter and decayed matter to a depth of not less than 18 inches below original ground in the dike foundation areas only.

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2.3 Disposal of materials from clearing: Material from clearing shall be disposed of off-site, in accordance with all applicable laws and regulations, or, at the discretion of the Contractor, shall be chipped and stored on site in an area to be designated by the Construction Manager.

2.4 Disposal of materials from grubbing: Roots and other debris from grubbing of uncontaminated soil areas shall be disposed of as described under paragraph 2.3. Roots or other debris from grubbing contaminated areas shall be placed in the contaminated material storage area on the CELA.

END OF SECTION

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SECTION 02200

EARTHWORK

PART 1 - GENERAL

The work required under this Section includes furnishing of all plant, labor, equipment and materials to perform stripping, excavation, and construction of dikes as shown on the Contract Drawings and as specified herein. The work required under this section includes, but is not limited, to:

- (1) Stripping topsoil.
- (2) Temporary drainage.
- (3) Excavation.
- (4) Furnishing materials from off-site sources.
- (5) Stockpiling materials.
- (6) Hauling material from stockpiles or borrow areas to points of placement.
- (7) Placing and compacting fill.
- (8) Disposing of material.

PART 2 - APPLICABLE PUBLICATIONS

American Society for Testing and Materials (ASTM)

- | | |
|-----------------|--|
| D 422-63 (1972) | Particle-Size Analysis of Soils |
| D 1556-82 | Density of Soil in Place by the Sand-Cone Method |
| D 698-78 | Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 5-1/2-lb (2.49-kg) Rammer and 12-in. (304.8 mm) Drop |
| D 2216-80 | Laboratory Determination of Water (Moisture) Content of Soil, Rock, and Soil-Aggregate Mixtures |
| D 2488-84 | Description and Identification of Soils (Visual - Manual Procedure) |

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D 2850-87	Unconsolidated, Undrained Compressive Strength of Cohesive Soils in Triaxial Compression
D 2922-81	Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
D 3017-78	Moisture Content of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
D 4318-84	Liquid Limit, Plastic Limit and Plasticity Index of Soils

PART 3 - CONSTRUCTION PLAN FOR EXCAVATION AND DISPOSAL

3.1 General: The Contractor shall prepare a construction plan for excavation and disposal for approval by the Construction Manager or his designee. The construction plan shall be approved by the Construction Manager or his designee prior to starting any excavation.

3.2 Requirements: At a minimum the construction plan shall include:

- (1) Proposed method(s) of excavation.
- (2) Proposed method(s) of transport and disposal.
- (3) Procedures for crossing and protecting existing structures and utilities from damage.
- (4) Sequencing of operations.

3.3 Submittal: The Contractor shall submit the construction plan to the Construction Manager or his designee for approval twenty days prior to the anticipated start of work.

PART 4 - MATERIALS

4.1 Dike Fill Material: Material classification for dike construction in all areas 0.5 feet above standing water level in the Genesee River shall be in conformance with ASTM D 2488. Dike fill materials shall be obtained and furnished by the Contractor from approved sources outside of the project site. Fill material shall consist of silty clay with a minimum of 30 percent fines of inorganic silts and clays in accordance with the Unified Soil Classification System, typically SC, CL or combinations thereof. The dike fill material shall be free from large stones 3" and larger in equivalent diameter, ice, snow, frozen earth, topsoil, debris, rubble, organic matter, vegetation and other unacceptable materials.

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5.2.3 During excavation, the contractor shall monitor for the presence of contaminated material in accordance with the Section 02260 of this specification and the Sampling and Analysis Plan (SAP). For identification and disposal of contaminated and waste material see Section 02260.

5.2.4 Excavated material from east bank widening shall be transported directly from the excavation and placed in final position. If required by the Contractor's schedule, the material may be placed temporarily in stockpiles at approved locations, as directed by the Construction Manager or his designee.

5.3 Transporting of Borrow Material for Dike Compacted Fill

5.3.1 Borrow material shall be obtained by the Contractor from off-site borrow area(s) approved by the Construction Manager or his designee.

5.3.2 In transporting off-site borrow material, the Contractor shall avoid spillage from trucks onto roads. Spilled material shall be removed immediately.

5.4 Compacted Dike Fills

5.4.1 Earth surfaces upon which compacted fill materials are to be placed shall be scarified to allow for binding of new material with existing material.

5.4.2 Materials shall be placed so that grades and cross sections shown on the Contract Drawings are obtained. A tolerance of plus or minus 0.1 feet will be permitted. Earth core of dikes to receive stone protection shall not be constructed more than 100 feet in advance of completed stone protection. If the Construction Manager or his designee can reasonably anticipate that dike construction will be interrupted for more than two continuous days, including weekends and holidays, the Contractor shall provide approved protection for exposed ends of work prior to start of interruption. The Contractor shall inform the Construction Manager or his designee of situations that may result in possible interruption of work. The above required protection shall be equivalent to protection provided in completed structure and shall be at no additional cost to the Owner.

5.4.2.1 Placement in Water: Materials shall not be deposited from a height greater than two feet above water surface. Material placed in water shall be brought to a height of 0.5 feet above the water surface prior to beginning placement and compaction of materials above water.

5.4.2.2 Placement Above Water: Materials placed above water surface shall be compacted to 95 percent of maximum dry density in accordance with ASTM D 698. The maximum lift thickness prior to compaction shall be 12 inches.

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5.4.2.3 During compaction, moisture content of fill material shall be within $\pm 2\%$ of optimum moisture content as determined by laboratory analysis to achieve specified density. Uniform moisture distribution shall be obtained by disking, blading, or other methods approved by the Construction Manager or his designee prior to compaction of a layer.

5.4.2.4 If surface of any layer of fill in place is too wet for proper compaction of layer of fill material to be placed thereon, it shall be removed, allowed to dry or worked with harrow, scarifier, other suitable equipment to reduce water content to required amount, and then recompact before next succeeding layer of fill is placed.

5.5 East Bank Fill: Area behind the east dike shall be filled with material specified in paragraph 4.3. Fill shall be placed in maximum loose lift thickness of 15 inches and compacted by 4 passes of a vibratory roller for sandy soil or 4 passes of a sheepsfoot roller for clayey soil.

5.6 Drainage

5.6.1 The Contractor shall provide for temporary surface drainage during construction to prevent ponding and runoff erosion.

5.6.2 Filling of ponding areas and grading for temporary drainage ditches shall be performed in accordance with specified requirements for excavation and fills.

5.6.3 A culvert shall be furnished and installed as shown on the Contract Drawings.

5.7 Geotextile: Geotextile shall be placed as specified in Section 02400 of the Specifications.

PART 6 - QUALITY CONTROL

6.1 The Contractor shall comply with quality control requirements of the Specifications.

6.2 Field Inspection and Testing

6.2.1 The tests listed below shall be performed as specified. Field test reports shall be submitted daily for record as required.

- (1) Laboratory Maximum Density: Laboratory maximum density tests shall be performed on all fill material 0.5 feet above standing water level in accordance with ASTM D698. Prior to placing, at least four tests shall be performed on representative samples of the fill material to be placed. Additional tests shall be performed if the composition of the material being used is different than that previously tested.

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- (2) Gradation: Gradation tests shall be performed on borrowed fill material in accordance with ASTM D 422. One gradation test shall be performed for each sample used for laboratory maximum density testing, and for each 1000 cubic yards of material to be used for compacted fill. In addition, gradation tests shall be performed whenever it appears material may not meet specified gradation.
- (3) Moisture Content: At least four moisture content tests shall be performed on fill material in accordance with ASTM D 2216.
- (4) In-place Testing: In-place density and moisture content testing on compacted fill material shall be performed by nuclear methods in accordance with ASTM Standards D2922 and D3017 or the Sand Cone Method for density in accordance with ASTM Standard D1556. However, prior to use, calibration of the nuclear equipment shall be performed using either laboratory or field methods in accordance with ASTM D2922 and D3017. A comparison to results from sand cone testing in accordance with ASTM D1556 shall be performed at least once for each 10 tests performed using nuclear density equipment. In-place density shall be determined at a depth of 12 inches below grade and the tests shall be performed for each 750 cubic yards placed but not less frequently than one test each day for each area being compacted. The nuclear density equipment shall be recalibrated whenever a different borrow soil is used for dike construction.

6.2.2 Field inspection notification to the Construction Manager or his designee is required for the following witness points:

- (1) Prior to covering with borrowed fill, inspection of dike foundation material at bottom of key trench.
- (2) Prior to performing in-place density test, inspection of point selected for testing.

PART 7 - SUBMITTALS

Documents shall be submitted in accordance with the attached form: "Document Submittal Requirements".

END OF SECTION

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DOCUMENT SUBMITTAL REQUIREMENTS

SUBMIT DOCUMENTS PRIOR TO THE POINTS INDICATED BY THE CODE BELOW:

F - FABRICATION

C - CONSTRUCTION/INSTALLATION

T - TESTING

A - FINAL ACCEPTANCE

S - SHIPMENT

DOCUMENT REQUIREMENTS	See Paragraph	For Approval	For Record
1. Laboratory maximum density test reports	6.2.1 (1)		*
2. Gradation test reports	6.2.1 (2)		*
3. Moisture content test reports	6.2.1 (3)		*
4. In-place density test reports	6.2.1 (4)		*
* Daily			

SECTION 02260

IDENTIFICATION AND DISPOSAL OF CONTAMINATED AND WASTE MATERIAL

PART 1 - GENERAL

The work required under this Section includes furnishing all plant, labor, materials, and equipment and performing all operations required for identification and disposal of contaminated and waste material as shown on the Contract Drawings and as specified herein.

1.1 A dike investigation program was completed to determine the presence of waste material in the area of construction. A dike investigation report was issued indicating that the dike is not located in waste material. However, during construction of the project, there may be soil and other material encountered which are considered contaminated. This material generally may consist of materials contaminated with petroleum hydrocarbons. The Contractor will be required to monitor for the presence of contamination during excavation in accordance with a sampling and analysis plan (SAP) provided by the Construction Manager. Materials which meet the following criteria will be considered contaminated:

- (1) By a reading of 1 ppm above background on a photoionization detector meter (HNU or equivalent), or
- (2) By petroleum odor.

1.2 Material excavated from the key trench which is determined to be non-contaminated using the screening criteria specified in Para. 1.1 and is free of topsoil and organic matter shall be used as compacted fill in the key trench. The material is classified as SM or GM in the dike investigation boring data. Topsoil and other structurally unsuitable material shall be stockpiled at a location approved by the Construction Manager for later use.

1.3 Excavated materials which meet the criteria for contamination as specified in Para. 1.1 shall also be examined visually for oil staining. Materials free of oil staining, organic matter and topsoil shall be used as compacted fill in the key trench. Materials free of oil staining but containing organic matter and topsoil shall be placed in the CELA. Materials showing oil stains shall be sampled in accordance with the SAP for determination of the amount of total petroleum hydrocarbons (TPH). Materials exceeding 5% TPH will be considered waste material. Construction Manager shall be notified when the Contractor encounters waste material during excavation. If waste material is encountered locally, it shall be excavated, placed in the CELA, and the area backfilled with suitable excavated material or material meeting the dike fill requirements specified in Section 02200. If

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waste material is encountered over a large area, the Construction Manager and Engineer shall evaluate the condition to determine appropriate action. The dike foundation shall not be located on waste material.

Contaminated and oil stained materials having TPH less than or equal to 5% which are free from organic matter and topsoil shall be used as a compacted fill in the trench area. Other unsuitable materials (organic matter, topsoil, etc.) shall be placed in the CELA.

1.4 Contractor's personnel who may come in contact with contaminated material shall be required to wear tyvek suits, boots, and gloves. If contamination levels exceed allowable permissible exposure limits, the Contractor shall follow procedures specified in the health and safety plan.

1.5 Materials required to be excavated under Section 02200 and requiring placement into the "Central Elevated Landfill Area" (CELA) as described above shall be placed in the temporary contaminated storage area within the CELA as shown on the Contract Drawings. This temporary contaminated storage area shall be bermed and covered with a layer of clean material.

1.6 The Contractor shall minimize activities on the landfill to those approved and as directed by the Construction Manager or his designee.

1.7 Soils excavated during the west dike construction, including the material taken from the key trenches, shall not be removed from the site.

1.8 Handling of contaminated soils/materials during excavation and placement in the temporary storage area shall be conducted to minimize the requirements for decontamination of personnel and equipment.

- 1) Crew size shall be kept at a minimum.
- 2) Excavation equipment shall operate on clean surfaces as much as possible.
- 3) Excavated material shall be loaded into drop boxes (10 C.Y.) with liners. Each box and adjacent ground surface will be covered with HDPE blankets during loading.
- 4) Drop box haul units shall travel on clean surface haul roads to temporary storage area

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- 5) Placement equipment shall remain at the temporary storage area throughout dike key trench excavation.
- 6) Exposed portions of excavation equipment shall be decontaminated as required. Transportation boxes and placement equipment shall be decontaminated at completion of key trench excavation. (reference HASP Section 10.3)
- 7) Upon completion of excavation of waste material, contaminated portions of the excavation equipment shall be decontaminated (reference HASP Section 10.3) such that all material resulting from decontamination activity is contained for placement in the CELA.

END OF SECTION

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SECTION 02400

RIPRAP, BEDDING, AND GEOTEXTILE

PART 1 - GENERAL

The work required under this Section includes furnishing all plant, labor, material, and equipment and performing all operations required for placing riprap, bedding, and geotextile as shown on the Contract Drawings and as specified herein.

PART 2 - MATERIALS

2.1 Riprap: Riprap stone shall be durable and of a suitable quality to assure permanence in the application and the climate in which it is to be used. Stone shall be free of cracks, seams, and other defects that would tend to increase unduly its deterioration from natural causes or breakage in handling or dumping. Stone shall weigh, when dry, not less than 145 pounds per cubic foot (specific gravity of the stone equal to or greater than 2.3). The inclusion of objectionable quantities of dirt, sand, clay and rock fines will not be permitted. Selected granite, quartzite, rhyolite, traprock and certain dolomitic limestone generally meet the requirements of these specifications. Riprap shall be reasonably well graded from a minimum of 25 lbs to a maximum of 400 lbs (see gradation table below). At least 50 percent shall be greater than 200 lbs, and no more than 15 percent shall be less than 100 lbs. Stone for riprap shall be roughly cubical in shape. Flat pieces, such that the average thickness is less than 1/3 of the average width, will be rejected. Stone shall have a mean diameter D_{50} of 12 inches.

Riprap

<u>Weight of Stones</u> (lbs)	<u>Percent Finer by Weight</u>
400	100
200	15-50
100	0-15
25	0

Subject to the approval of the Construction Manager, heavy riprap gradation in accordance with Figure 620-1 of Section 620-2.02 of the New York State Department of Transportation Standard Specifications may be used.

2.2 Bedding: Aggregate for bedding shall be composed of crushed stone or gravel, free of soft, non-durable particles, organic material, and thin or elongated particles.

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Bedding material shall comply with Section 620-2.05 of the New York State Department of Transportation Standard Specifications, excluding blast furnace slag (see table below for gradation).

Bedding Material

<u>US Standard Sieve Size</u>	<u>Percent Finer by Weight</u>
4 in.	100
1 in.	15-60
1/4 in.	0-25
No. 4	0-10

2.3 Geotextile

2.3.1 Material: Geotextile shall be GTF 400E as manufactured by Exxon Chemicals or equal as approved by the Construction Manager. Geotextile shall be a woven pervious sheet of plastic yarn as defined by ASTM D 123 and shall meet the physical requirements listed in Table No. 1. The geotextile fiber shall consist of a long-chain synthetic polymer composed of at least 85 percent by weight of propylene, ethylene, ester, amide, or vinylidene-chloride, and shall contain stabilizers and/or inhibitors added to the base plastic if necessary to make the fiber resistant to deterioration due to ultraviolet and heat exposure. Edges of geotextile shall be finished to prevent outer fiber from pulling away from geotextile. Apparent opening size shall be within a range of 0.0083 inch and 0.0059 inch.

2.3.2 Seams: Seams of geotextile shall be constructed in accordance with manufacturer's recommendations. Seams shall be tested in accordance with ASTM D 1683, using 1-inch square jaws and 12 inches per minute constant rate of traverse. Strength shall be not less than 90 percent of the required tensile strength (Table No. 1) of the unaged geotextile in any principal direction.

2.3.3 Acceptance Requirements: The Contractor shall furnish the Construction Manager or his designee, in duplicate, a mill certificate or affidavit signed by a legally authorized official from the company manufacturing the geotextile. Mill certificate or affidavit shall attest that geotextile meets specified chemical, physical, and manufacturing requirements. If requested by the Construction Manager or his designee, the Contractor shall provide geotextile samples for testing to determine compliance with specified requirements. Samples shall be submitted prior to beginning of installation. All samples shall be from same production lot as will be supplied for the Contract, and shall be full manufactured width of geotextile but at least 10 feet long, except that samples for seam strength may be a full-width sample folded over and edges stitched for a length of at least 5 feet. Samples submitted for testing shall be identified by manufacturer's lot designation.

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TABLE NO. 1 - PHYSICAL REQUIREMENTS

<u>Physical Property</u>	<u>Test Procedure</u>	<u>Acceptable Values (+ +)</u>
Tensile strength (+) (unaged geotextile)	ASTM D 4632 Grab Test Method using 1-inchx 2 inches jaws and 12 inches per minute constant rate of traverse.	200 pound minimum in any principal direction
Breaking elongation (+) (unaged geotextile)	ASTM D 4632 Determine Apparent Breaking Elongation	15 percent minimum in any principal direction
Puncture strength (+) (unaged geotextile)	ASTM D 3787 except polished steel ball replaced with a 5/16-inch diameter cylinder with a hemispherical tip centered within the ring clamp.	80 pound minimum
Abrasion resistance	ASTM D 3884 Rubber-base abrasive wheels equal to CS-17 "Calibrase" by Taber Instrument Company; 1 kilo-gram load per wheel; 1000 revolutions, determine residual breaking load.	25 pound minimum residual breaking load in any principal direction
Tear strength	ASTM D 4533 Trapezoidal Tear Strength	30 pound minimum in any principal direction
Geotextile permeability (k _G)	ASTM D 4491 Test Methods for Water Permeability of Geotextiles by Permittivity	Permeability of geotextile shall be greater than 0.01 centimeters per second

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

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

PART 3 - QUALITY INSPECTION

Quality inspection for stone shall be performed by the Contractor's inspection staff at the quarry prior to delivery of stone to project site.

PART 4 - SHIPMENT AND STORAGE

During all periods of shipment and storage, geotextile shall be protected from direct sunlight, ultraviolet rays, temperatures greater than 140 degrees Fahrenheit, mud, dirt, dust and debris. Fabric shall be maintained wrapped in a heavy-duty protective covering.

PART 5 - PLACEMENT

5.1 Geotextile

5.1.1 Geotextile shall be placed at the locations shown on the Contract Drawings. At the time of installation, geotextile will be rejected if it has defects, rips, holes, flaws, deterioration or damage incurred during manufacture, transportation, or storage. Surfaces to receive geotextile shall be free of debris. Geotextile shall be installed in accordance with manufacturer's recommendations.

5.1.2 Geotextile shall be protected at all times during construction. Any damage to geotextile during installation or placement of granular backfill shall be replaced by the Contractor at no cost to the Owner. Work shall be scheduled so that covering of geotextile with a layer of the specified material is accomplished within seven calendar days after placement of geotextile. Failure to comply shall require replacement of geotextile. Geotextile shall be protected from damage prior to and during placement of granular backfill. Before placement of granular backfill, the Contractor shall demonstrate that placement technique will prevent damage to geotextile. In no case shall any type of equipment be allowed on unprotected geotextile.

5.2 Bedding: Aggregate bedding shall be placed on installed geotextile filter fabric. Bedding shall be placed to full specified thickness in one operation, using methods which will not cause segregation of particle sizes or damage geotextile.

5.3 Riprap: Riprap shall be placed so as not to disturb bedding material and to produce a well graded and distributed protection. Riprap shall be placed over areas shown on the Contract Drawings to a uniform depth to a tolerance of minus 0 to plus 3 inches. Riprap shall not be dropped from heights in excess of two feet. Riprap shall be placed in position starting from bottom of the slope.

END OF SECTION

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SECTION 02485

SEEDING AND EROSION PROTECTION

PART 1 - GENERAL

The work required under this Section includes furnishing all plant, labor, equipment, and materials to:

- (1) Provide fertilizer, mulching, and seeding for the West Bank Dike Extension and the backfilled SLA.
- (2) Construct a sediment control barrier along the Genesee River side of the west bank dike extension. This barrier shall be constructed as a silt fence.
- (3) Conduct construction activities along the east bank so as to minimize erosion.

PART 2 - APPLICABLE PUBLICATIONS

American Society for Testing and Materials (ASTM)

D 751-79 Coated Fabrics

D 1682-64 Breaking Load and Elongation of Textile Fabrics

Federal Specifications (FS)

FS O-F-241D Fertilizer, Mixed, Commercial

FS JJJ-S-181B Seeds, Agricultural

PART 3 - MATERIALS

3.1 Fertilizers

3.1.1 Quality and Formulation: Fertilizer may be either fluid or dry formulations of commercial carriers of available plant nutrients. Fertilizer shall contain total nitrogen, available phosphoric acid, and soluble potash in the ratio of 10-6-4.

3.1.2 Basis of Acceptance: Manufacturer's label or certificate indicating compliance with specifications. The Construction Manager or his designee reserves the right to reject any material that has become caked or otherwise damaged.

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3.2 Seeds

3.2.1 Quality: Each species, variety, and strain of grasses, legumes, and cereals shall be as specified unless otherwise approved.

3.2.1.1 Materials other than pure live seed shall comprise only nonviable seed, chaff, hulls, live seed of crop plants other than those specified, harmless inert matter and weed seeds except that weed seeds other than seed of noxious weeds will be permitted up to 1 percent of gross weight of each kind of seed. Legume seeds shall be accompanied by adequate amounts of proper inoculants unless accompanied by certification of preinoculation.

3.2.1.2 The percentage of purity as shown on the label shall be acceptable. The percentage of germination as shown on the label shall be not less than the minimum percentage specified.

3.2.2 Nomenclature: The common and scientific names of grasses, legumes, and cereals under this Contract are in conformity with Standard Plant Names.

3.2.3 Weight of Pure Live Seed: Weight of pure live seed in each lot of seed is computed by labeled purity percent, times labeled germination percent, times weight. (Example: 34 pounds of pure live seed of a particular grass is required. Stock available has 85 percent purity and 80 percent germination, which meets the minimum requirements in this example and equals 68.0 percent pure live seed, 34 divided by 68 percent equals 50 pounds gross as being required to furnish 34 pounds of pure live seed). Other material shall comprise the remaining 32 percent, between 68 percent of pure live seed and 100 percent in the example.

3.2.4 Legume Inoculants: Inoculants for treating seeds of legumes shall be standard culture of nitrogen fixing bacteria not more than one year old. Each inoculant shall be the specific culture required by each legume. It shall be supplied only from manufacturers licensed to sell legume inoculants in the State of New York.

3.2.5 Packaging: Each kind of seed shall be furnished and delivered, unless otherwise approved, in separate, sealed containers, or bags acceptably sewn tight or sealed.

3.2.6 Labeling: All seed and seed labels shall be in accordance with state and federal laws, rules, and regulations.

3.2.7 Basis of Acceptance: Seeds shall meet minimum specified requirements regardless of guarantee of qualities or dates of testing and after the application of tolerances approved by the

Department of Seed Investigations, New York State Agricultural Experiment Station, Geneva, New York. Seed which has become wet, moldy, or otherwise damaged in transit or storage will not be acceptable. Seed, after delivery to the Contractor, shall be stored to protect it from damage and deterioration. Provisional acceptance of seeds shall be obtained before the seed is sown. Final acceptance may be subject to results of official sampling and testing.

3.2.8 Seed Mixture: Seed mixture shall be:

<u>Name</u>	<u>Variety</u>	<u>Wt. of Pure Live Seed/Acre (lbs)</u>
Red Fescue (Festuca rubra)	Commercial	40
Perennial Ryegrass (Lolium perenne)	Commercial	15
White Clover (Trifolium repens)	Commercial Max 25 percent hard seed	5
Total		60 lbs/acre

3.3 Mulch: Either hay or straw may be used for mulch. Hay for mulching shall be mowings of acceptable herbaceous growth free from noxious weeds. Straw for mulching shall be stalks of oats, wheat, rye or other approved crops free from noxious weeds. Materials which are low grade and unfit for farm use such as "U.S. Sample Grade" will be acceptable. Weight shall be calculated on the basis of material having not more than 15 percent of moisture content.

3.4 Silt Fence: Silt fence material shall meet the following requirements:

<u>Property</u>	<u>Test Method</u>	<u>Minimum Avg.</u>
Tensile strength (lbs)	ASTM D 1682	90
Elongation (percent)	ASTM D 1682	15-35
Burst strength (psi)	ASTM D 751 (Diaphragm Method)	200
Accelerated weathering (strength retained - percent)	Federal Test Method CCC-T-191-Method 5804 (500 Hrs. Exposure)	70

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<u>Property</u>	<u>Test Method</u>	<u>Minimum Avg.</u>
Slurry flow rate (gpm/ft ²)	VTM-51-79	0.3
Retention efficiency (percent)	VTM-51-79	75
Equivalent opening size	CW-02215, US Sieve No. Equivalent	30/50

PART 4 - APPLICATION AND CONSTRUCTION

4.1 Fertilizer Application: Fertilizer shall be evenly spread over surface of soil in areas as directed. Rates of application shall be as required to promote plant growth. Tests required to determine rate of fertilizer application shall be made by the Contractor and the rate approved by the Construction Manager or his designee. Any method of application which will ensure an even distribution will be acceptable.

4.2 Seeding Application

4.2.1 Rates: Rates for seeding shall be as specified.

4.2.2 Season: Unless otherwise directed by the Construction Manager or his designee, work shall be performed during normal planting seasons of the year. The Contractor shall notify the Construction Manager or his designee at least 48 hours in advance of the time he intends to begin sowing seed and shall not proceed with such work until permission has been obtained. When delays in operations carry the work beyond dates which are specified, or when conditions of high winds, excessive moisture or ice are such that satisfactory results are not likely to be obtained for any stage of the work, the Construction Manager or his designee will stop work. Work shall be resumed with the Construction Manager or his designee's approval when desired results are likely to be obtained or when approved corrective measures and procedures are adopted.

4.2.3 Sampling, Mixing, and Inoculating Seeds: Provisional acceptance of seeds shall be obtained before seeds are mixed. Each lot of seed shall be subject to sampling and testing before mixing. Sowing seed shall not be delayed pending reports of these tests. Sampling shall be performed by the Contractor and will be verified by the Construction Manager or his designee. Testing for compliance with these specified requirements shall be performed by the Department of Seed Investigations, New York State Agricultural Experiment Station, Geneva N.Y., and results obtained will be considered official. Seeds of kinds specified shall be mixed on the job in formula specified unless otherwise approved. Seed mixed prior to delivery may be approved on the basis of a certification by the vendor stating minimum percentage of germination and purity

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of each kind of seed and quantity of each kind of seed in mixture. All seed of leguminous plants shall be inoculated prior to mixing or sowing unless otherwise specified or approved or unless accompanied by a certification preinoculation. When seed is to be sown dry and is to be inoculated, culture shall be applied as directed by the manufacturer and seed allowed to dry sufficiently to be in the proper condition for mixing or sowing. Seed shall be sown within thirty hours after this treatment. Where seed is to be distributed by water pressure, proper proportion of inoculant may be added to water and seed mixture, together with fertilizer specified, providing the alkalinity of solution does not exceed 8 pH.

4.2.4 Ground Preparation and Seeding

4.2.4.1 Areas to be seeded shall be maintained at approved grades. Irregularities and low places which will hold water shall be eliminated. Fertilizers and seeds shall be evenly distributed on the surfaces to be seeded. All mechanical equipment for soil preparation or seeding shall be as approved and shall pass parallel to the contours unless otherwise approved.

4.2.4.2 When directed by the Construction Manager or his designee, measured plots shall be established to determine if specified quantities of seed, fertilizer, and mulch are being applied. The finished surface of any area that is seeded shall not be rougher, more uneven or have more or larger stones, clods, roots, or other foreign materials than the area it adjoins.

4.2.4.3 Areas to be seeded shall be scarified sufficiently to break up surface crust immediately before seeding except where ground is loose and friable as immediately following grading or as otherwise approved. All stones over six inches in greatest dimension which are loose and subject to rolling or sliding or other sizes as specified and all other objects detrimental to mowing shall be removed and disposed of as approved. Fertilizers and seed may be mixed together immediately before placing. Methods of distribution such as by air or water pressure will be acceptable except that the seed shall not be injured in the process of spreading.

4.3 Mulching

4.3.1 Surface of areas where mulch is to be applied shall be cleared of stones, stumps, wire, and other obstacles which might hinder subsequent seeding operations. Ground shall be harrowed or disked to produce a state of suitable tillage.

4.3.2 Mulch shall be spread uniformly in a continuous blanket of sufficient thickness to completely hide soil from view. Mulch may be spread before or not later than three days after seeding unless otherwise approved. Anchorage to hold mulch in place may be applied by an approved method during mulching operation or subsequently.

4.4 Erosion and Sediment Control

4.4.1 Contractor shall prepare an erosion and sediment control plan for submittal and acceptance by the Construction Manager and the New York State Conservation Engineer, USDA Soil Conservation Service. The plan shall comply with the New York State Guidelines for Urban Erosion and Sediment Control.

4.4.2 Contractor shall conduct his operations in accordance with his certified erosion and sediment control plan. Surface drainage from cuts and fills within the limits of work shall be held in suitable sedimentation ponds or the surface shall be graded to control erosion within acceptable limits. Temporary erosion and sediment control measures shall be provided and maintained until the permanent work is completed. The area of bare soil exposed at any given time by construction shall be restricted to a minimum.

4.4.3 Borrow area erosion and sediment control is the responsibility of the Contractor.

4.4.4 Contractor shall construct a silt fence sediment control barrier along the river side of the west bank dike extension prior to grubbing, stripping and excavation of the Toe protection area, and utilize good construction practices in order to minimize discharge of sediments into the river.

PART 5 - CARE DURING CONSTRUCTION

The Contractor shall care for seeded and mulched areas until final acceptance. Such care shall consist of providing protection against traffic by approved warning signs or barricades, and repairing areas damaged following seeding or mulching operations due to wind, water, fire or other causes. Damaged areas shall be repaired to re-establish condition and grade of area prior to seeding and shall be refertilized, reseeded, and remulched as specified herein. The Contractor shall keep seeded areas mowed until acceptance by cutting to a height of three inches when growth reaches six inches, or as directed.

PART 6 - QUALITY CONTROL

6.1 Liability: Final acceptance of seed may be subject to results of official sampling and testing. Weight of seed sown is based on labeled purity and germination. Tolerances approved by the Department of Seed Investigations, New York State Agricultural Experiment Station, Geneva, New York, for seed species, shall be used in the determination of whether seed conforms to labeled purity and germination statements and meets the minimum specified. When, after application of the appropriate tolerances, purity and germination of seed except cereal grain and legumes are shown by official tests to be less than that shown on label but germination meets minimum specified with the appropriate tolerance applied, and specified weight of pure live seed has not been sown, deficiency shall be sown.

6.1.1 When the germination of seed except cereal grains and legumes is shown by official tests to be less than minimum specified, after appropriate tolerances have been applied, it will be considered a total deficiency. Such deficiency shall require complete reseeding of kind of seed which was deficient.

6.1.2 Reseeding together with necessary grading and trimming shall be done at the expense of the Contractor by spreading seed by an approved method during an approved season.

6.1.3 When, in the judgment of the Construction Manager or his designee, at any time prior to acceptance, any area which has been seeded fails to produce a satisfactory growth of grass after a suitable period of time has elapsed, the Contractor shall reseed and refertilize such areas as specified. If deemed necessary by the Construction Manager or his designee, the Contractor shall also remulch such areas at the rate specified.

END OF SECTION

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SECTION 02546

AGGREGATE-SURFACED ROADS

PART 1 - GENERAL

The work required under this Section includes furnishing all plant, labor, material, and equipment and performing all operations required to construct an aggregate-surfaced road on top of the completed west bank dike and its extension as shown on the Contract Drawings and as specified herein.

PART 2 - PREPARATION

All areas on which aggregate-surfaced roads are to be placed shall be constructed in accordance with Section 02200 of the Specifications.

PART 3 - MATERIALS

3.1 Source: All materials shall be obtained and furnished by the Contractor from sources outside of the project site.

3.2 Aggregates

3.2.1 General: Aggregate shall comply with Section 304-2 of the New York Department of Transportation Standard Specifications. Aggregate shall consist of stone which is the product of crushing ledge rock, sand and gravel or blends of these materials. All materials furnished shall be well graded from coarse to fine and free from organic and other deleterious materials.

3.2.2. Quality Requirements: Material shall consist of hard, durable particles or fragments of granular aggregates. Aggregates shall be free from dirt and other objectionable matter and shall contain not more than 8 percent of flat, elongated, soft, or disintegrated pieces.

3.2.2.1 Material will be accepted on the basis of a magnesium sulfate soundness loss after 4 cycles of 20 percent or less. Plasticity index of the material passing the No. 40 mesh sieve shall not exceed 5.0.

3.2.2.2 Material shall meet specified gradation prior to placement on grade. Processing shall be completed at source.

3.2.3 Gradation: Material shall meet the following gradation requirements:

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Sieve Size
Designation

Percent Passing
By Weight

2 inch
1/4 inch
No. 40
No. 200

100
30 - 65
5 - 40
0 - 10

PART 4 - PLACING AGGREGATE COURSE

4.1 Subgrade Preparation: Subgrade shall be shaped to lines and grades shown on the Contract Drawings and compacted as specified in Section 02200 of the Specifications.

4.2 General: Access road shall be constructed in accordance with lines and grades as shown on the Contract Drawings and as specified in Section 02200 of the Specifications. Aggregates shall be placed to minimize segregation. Caution shall be exercised to prevent incorporation of subgrade material onto aggregate course.

4.3 Finishing and Compacting

4.3.1 After spreading, aggregate shall be thoroughly compacted by rolling. Rolling shall progress gradually from sides to center of lane under construction, or from one side toward previously placed material by lapping uniformly each preceding rear-wheel track by one-half the width of such track. Rolling shall continue until entire area of the brouse has been rolled by rear wheels. Rolling shall continue until stone is thoroughly set, interstices of material reduced to a minimum, and creeping of stone ahead of roller is no longer visible. Blading and rolling shall be done alternately, as required or directed, to obtain smooth, even, and uniformly compacted surface course.

4.3.2 Aggregate course shall not be rolled when subgrade is soft or yielding or when rolling causes undulation. When rolling develops undulations, irregular surface shall be loosened, refilled with the kind of material as used in constructing the course, and rolled again as required.

4.3.3 In areas inaccessible to rollers, material shall be compacted by tamping thoroughly with mechanical tampers.

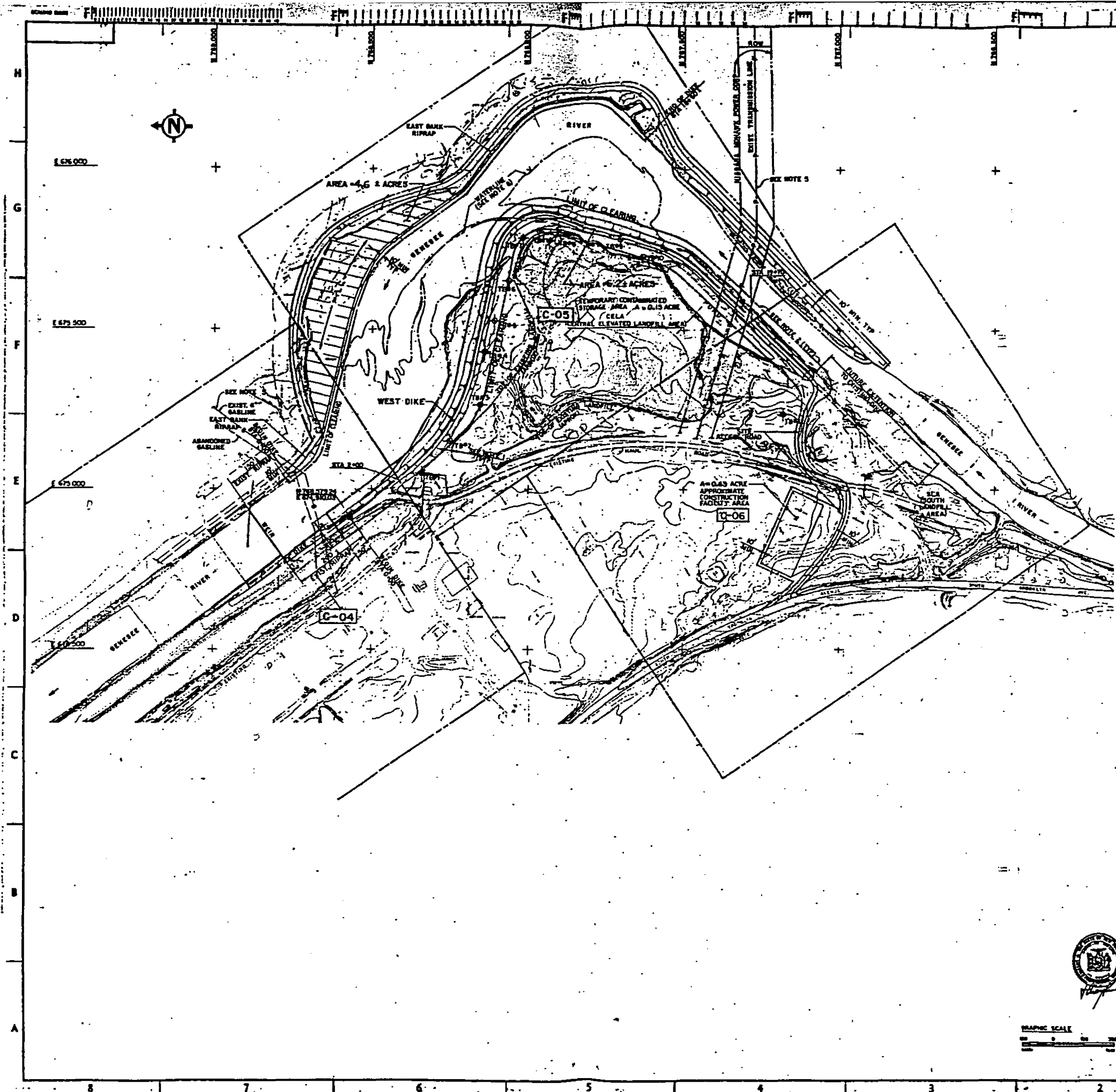
4.3.4 Watering during rolling, if necessary, shall be in the amount and by equipment approved by the Construction Manager or his designee.

4.4 Elevations of top of dike course shall not vary more than 0.05 foot from established grade, profile, and cross section.

END OF SECTION

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APPENDIX E
DESIGN DRAWINGS



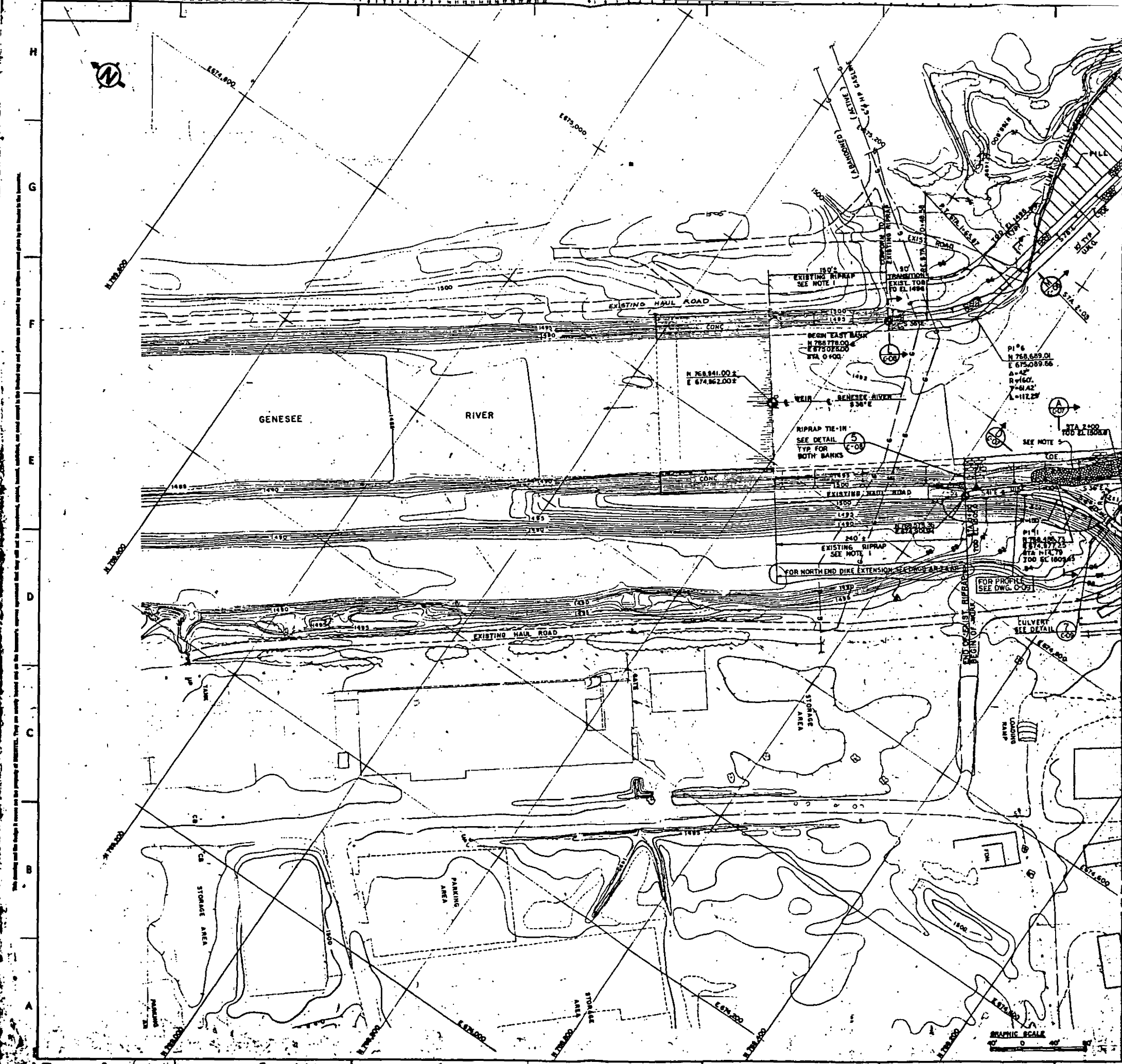
NOTES:

1. A MINIMUM OF 30 FT. CLEARANCE SHALL BE PROVIDED BETWEEN TOE OF LANDFILL AND LIMIT OF CLEARING AND GRUBBING, TYPICAL.
2. SEDIMENT CONTROL SHALL BE PROVIDED ALONG THE RIVER SIDE BY CONTRACTOR DURING CLEARING AND GRUBBING AS PER SPECIFICATIONS.
3. FOR DETAILS OF DIKE ALIGNMENT AND EAST BANK PROTECTION SEE DRAWINGS C-04, C-05 AND C-06.
4. STRIP 6 INCHES OF TOPSOIL UNDER THE WEST DIKE FOUNDATION ONLY.
5. INFORMATION AS TO LOCATION AND TYPE OF UNDERGROUND UTILITIES AND STRUCTURES SHOWN ARE APPROXIMATE. CONTRACTOR SHALL VERIFY ALL SUCH INFORMATION IN THE FIELD AND ALSO BY CONTACTING THE FOLLOWING COMPANIES:
 - NIAGARA MOHAWK POWER CORPORATION
535 WASHINGTON STREET
BUFFALO, NEW YORK (716) 837-4234
 - MARY STOUT
WELLSVILLE UTILITY COORDINATOR
5161 899-1780
 - BOB ALLIARD
NATIONAL FUEL COMPANY
ENGINEERING DEPARTMENT
10 LAFAYETTE SQUARE
BUFFALO, NEW YORK (716) 837-7060
6. THE CONTRACTOR SHALL CONTACT THE UNDERGROUND UTILITY LOCATION SERVICE PRIOR TO START OF CONSTRUCTION - THE CONTRACTOR SHALL ASSUME ALL LIABILITY FOR DAMAGE TO UNDERGROUND UTILITIES.
7. EMPTY DRUMS OR WASTE MATERIAL ENCOUNTERED WITHIN THE LIMITS OF CLEARING AND GRUBBING SHALL BE DISPOSED AT TEMPORARY CONTAMINATED STORAGE AREA.
8. SPUR AREA UNDER DIKE FOUNDATION ONLY.
9. WATERLINE SHOWN ON THE DWG IS BASED ON TOPOGRAPHIC BASE MAP FIGURE 3-4 OF PHASE I REMEDIAL INVESTIGATION, SINCLAIR REFINERY SITE, WELLSVILLE, NEW YORK BY SNC MARTIN INC., MARCH 1985.



GRAPHIC SCALE
0 100 200
FEET

REVISIONS	DATE	BY	CHKD
ISSUED FOR SET			
1"=400'			
3. INCHES			
BECHTEL			
SAN FRANCISCO			
ARCO			
SINCLAIR REFINERY			
CLEARING, GRUBBING AND KEY PLAN			
JOB NO.	DRAWING NO.	SHEET	
19386	C-02	1	



- NOTES:
1. LOCATION OF EXISTING RIPRAP SHOWN IS APPROXIMATE AND SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR.
 2. ALL HORIZONTAL CURVES ARE DEFINED BY THE ARC DEFINITION METHOD.
 3. FOR SYMBOLS AND ABBREVIATIONS SEE DRAWING C-01.
 4. FOR ADDITIONAL NOTES, SEE DRAWINGS C-02 AND C-03.
 5. LOCATION OF EXISTING RIPRAP SHOWN IS BASED ON SURVEY PERFORMED BY DOUGLAS C. MYERS ON JANUARY 30, 1989. THE SUITABILITY OF USING THIS EXISTING RIPRAP (DETAILED ON USACE DWS 76-WEL-04 SHEETS 3 & 4) FOR DIKE TOE PROTECTION WILL BE EVALUATED BY THE ENGINEER DURING THE CONSTRUCTION PHASE OF THE PROJECT. THIS WILL REQUIRE RELOCATION OF SOME OF RIPRAP MATERIAL FROM THE EXISTING LOCATION TO THE NEW DIKE TOE PROTECTION TRENCH LOCATION.

ADD	ADD NOTE (D4)	REV	REVISED, REISSUED FOR BID	ISS	ISSUED FOR BID
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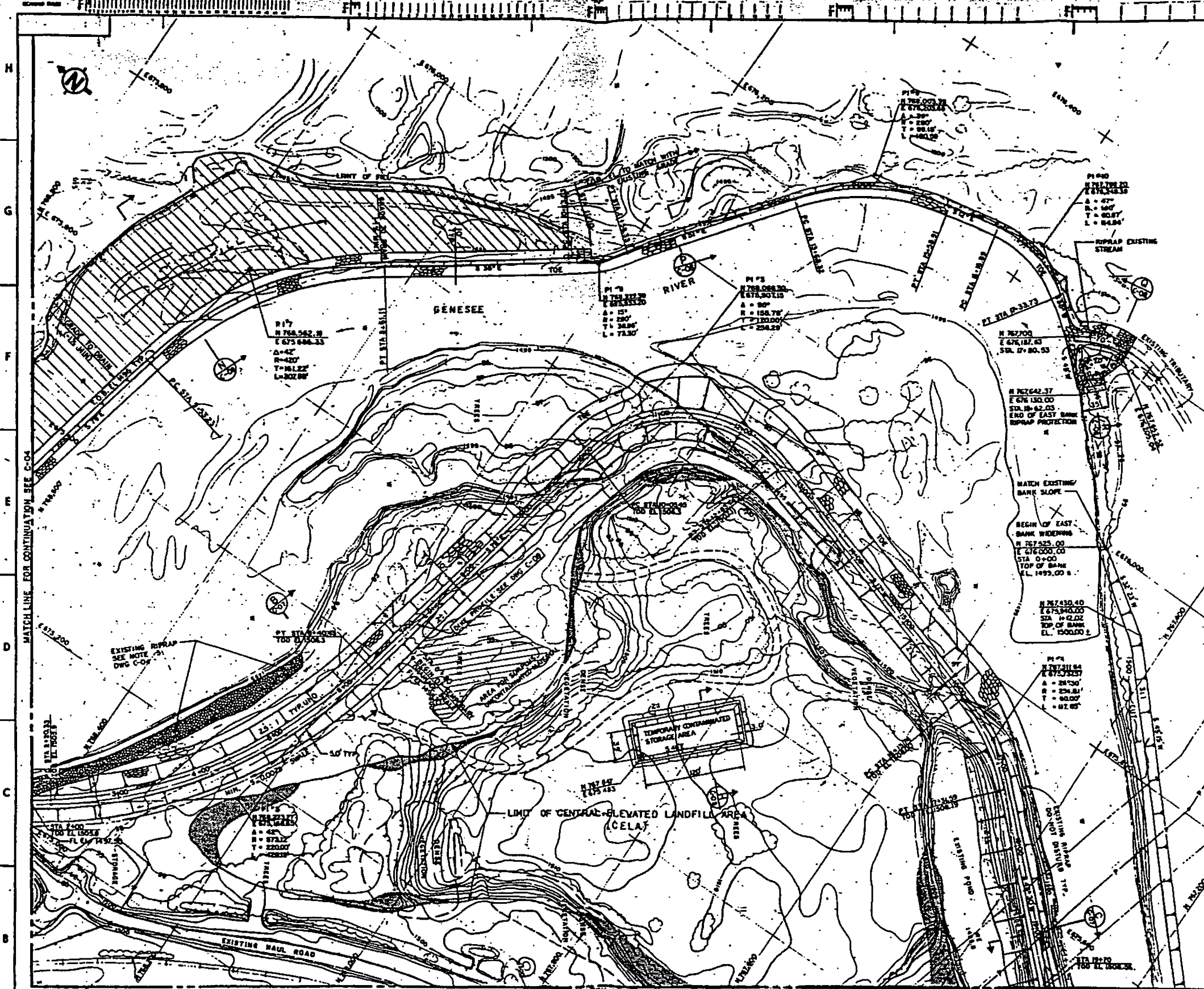
1" = 40'

BECHTEL
SAN FRANCISCO

ARCO
SINCLAIR REFINERY

NEW DIKE & EAST BANK PROTECTION PLAN
SHEET 1 OF 3

1986 C-04 1



NOTES:
FOR NOTES SEE DRAWING C-04

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GRAPHIC SCALE
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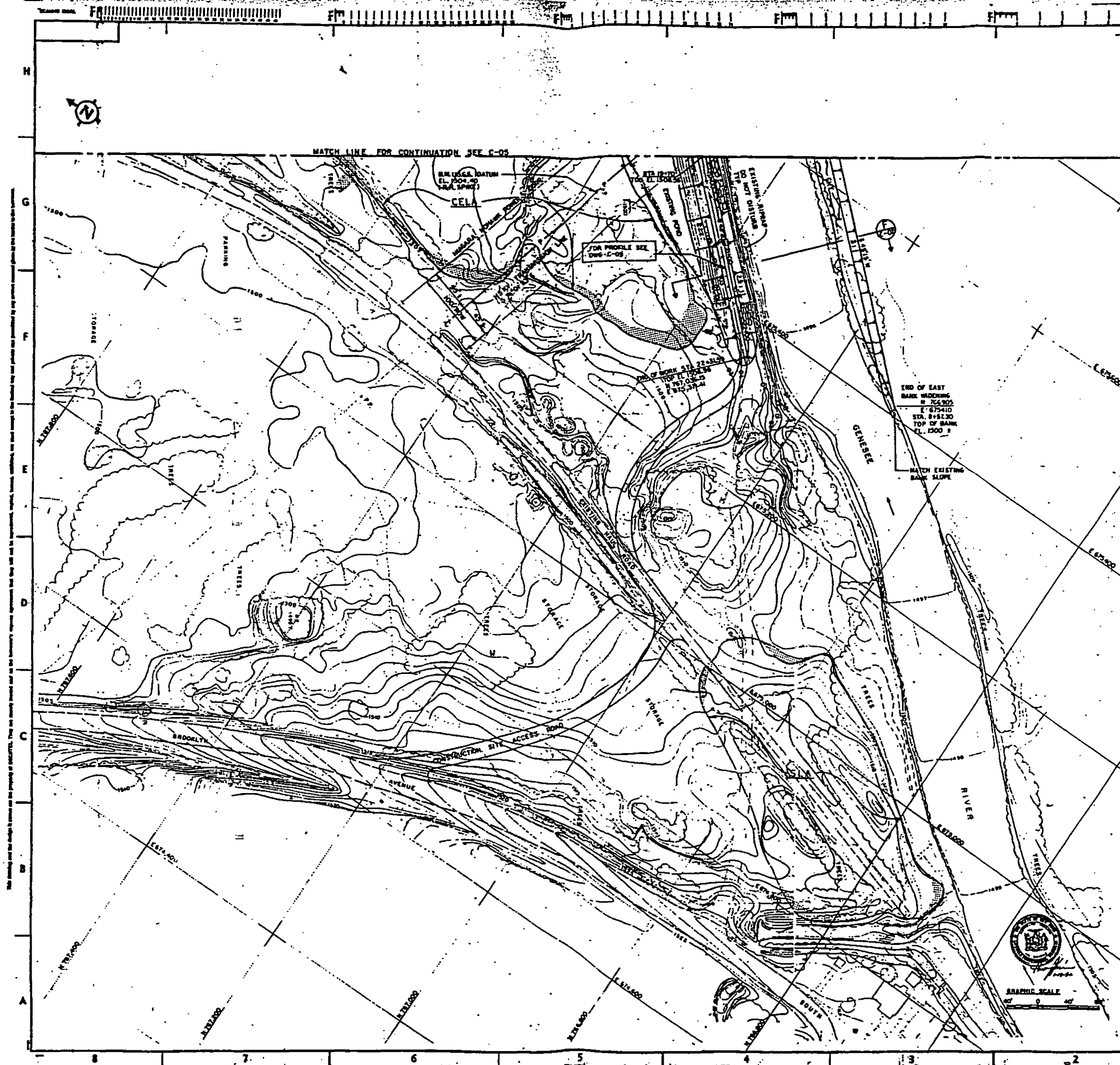


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SINCLAIR REFINERY

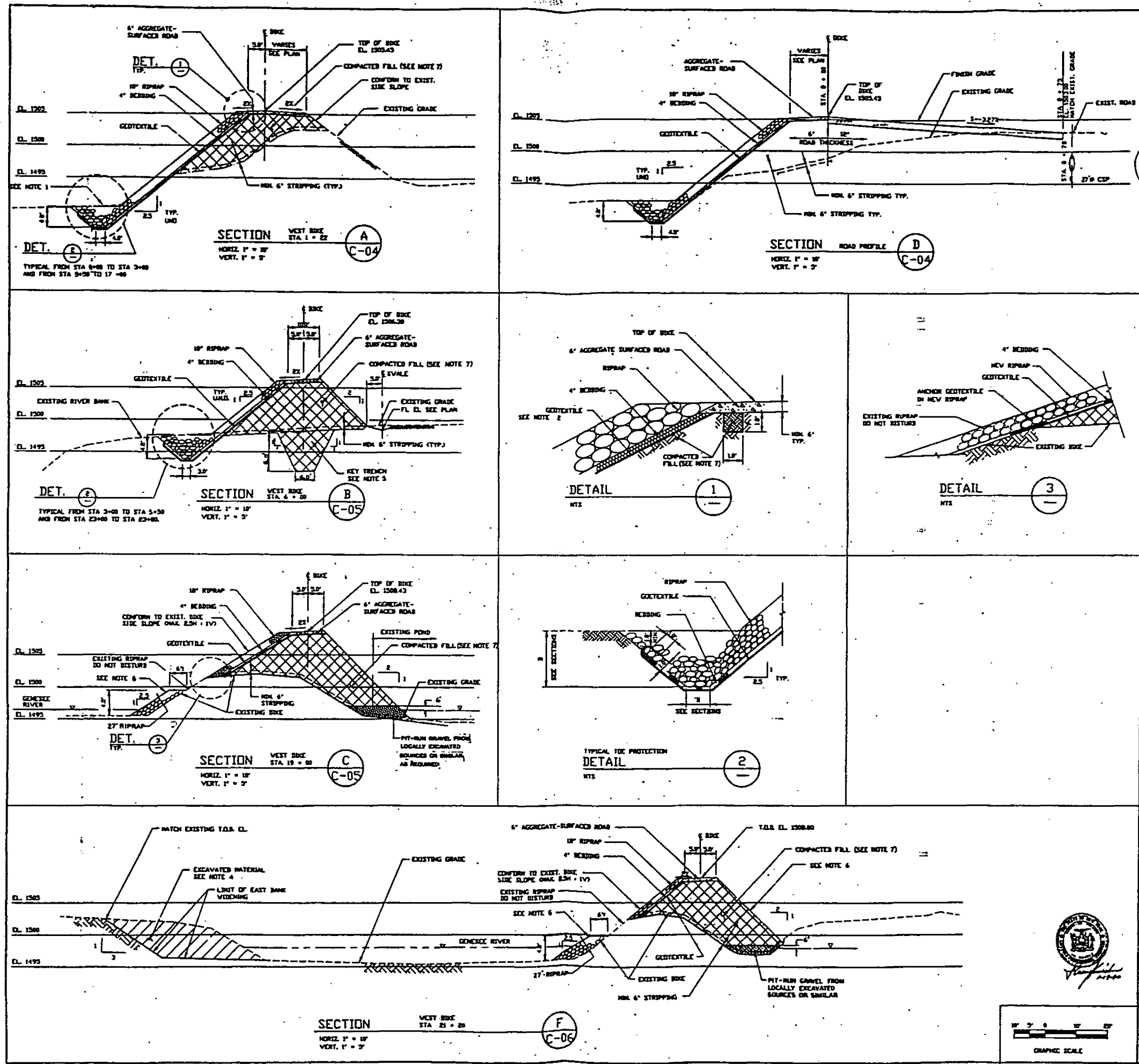
NEW DIKE & EAST BANK PROTECTION PLAN
SHEET 2 OF 3

19386	C-05	1
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NOTES:
FOR NOTES SEE DRAWING C-04.

REVIEWED, REDESIGNED FOR BID	DATE	BY
ISSUED FOR BID	DATE	BY
1" = 40'		
BECHTEL SAN FRANCISCO		
ARCO SINCLAIR REFINERY		
NEW DIKE & EAST BANK PROTECTION PLAN SHEET 3 OF 3		
JOB NO. 19386	DRAWING NO. C-06	DATE 11/2/58

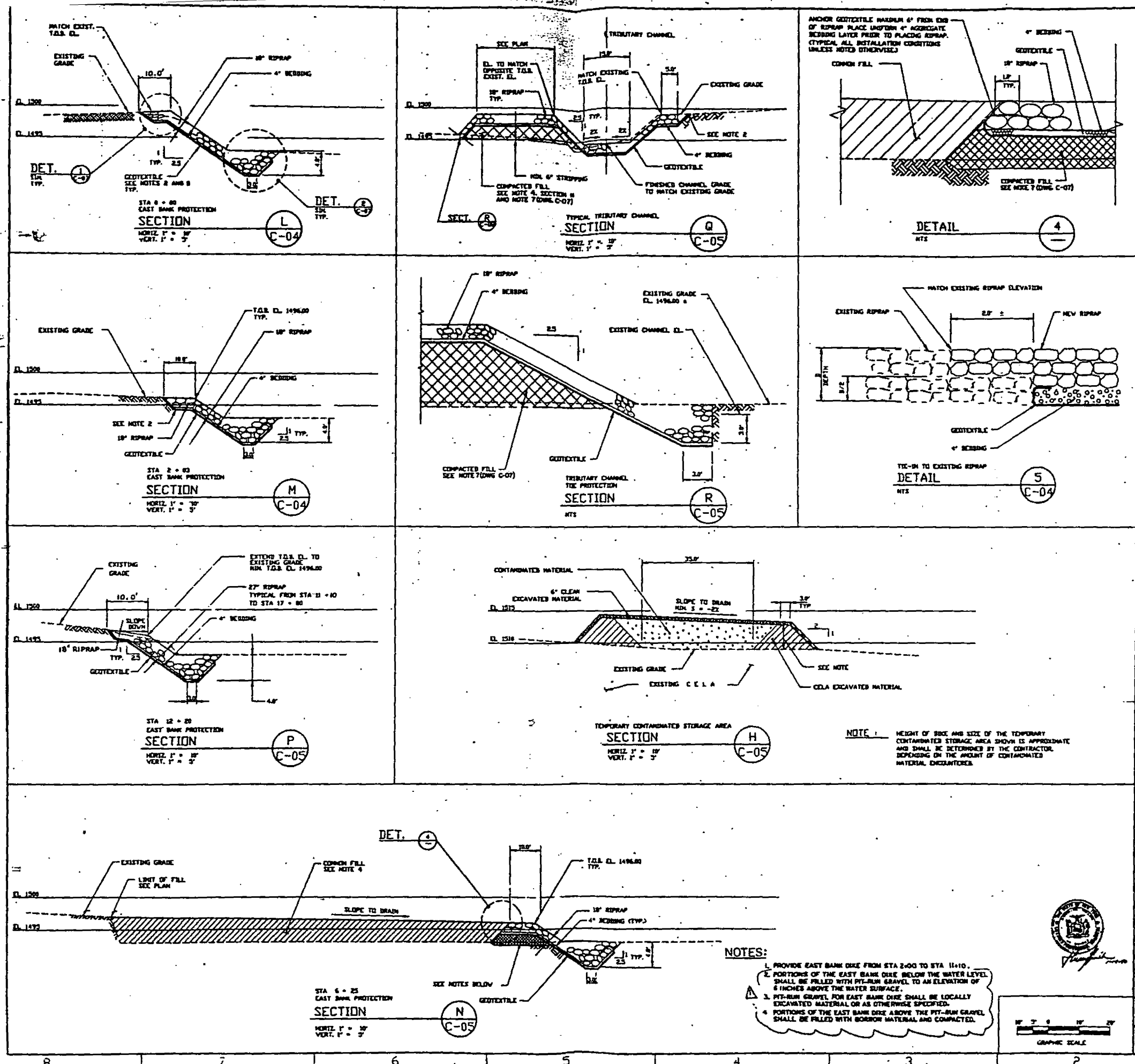


- NOTES:**
1. BOTTOM ELEVATION OF THE RIVER SHOWN IS APPROXIMATE AND SHALL BE VERIFIED IN FIELD BY THE CONTRACTOR.
 2. WHERE ANCHOR DETAILS ARE NOT SHOWN ON THE DRAWINGS, GEOTEXTILE SHALL BE ANCHORED AS RECOMMENDED BY MANUFACTURER.
 3. KEY TRENCH SHALL BE REQUIRED FROM STA 1+30 TO STA 16+50.
 4. MATERIAL EXCAVATED DURING EAST BANK WIDENING SHALL BE USED FOR COMMON FILL MATERIAL BEHIND THE EAST BANK DIKE.
 5. FOR IDENTIFICATION AND DISPOSAL OF CONTAMINATED OR WASTE MATERIALS WHICH HAVE BEEN EXCAVATED SEE SECTION 02280 OF THE TECHNICAL SPECIFICATIONS.
 6. ADDITIONAL RIPRAP TOE PROTECTION SHALL BE PROVIDED AS SHOWN ALONG TOE OF EXISTING DIKE FROM STA 17+00 TO 22+50.99.
 7. COMPACTED FILL MATERIAL SHALL HAVE A PERMEABILITY, AS DETERMINED IN THE LABORATORY, OF EQUAL TO OR LESS THAN 1×10^{-3} CM/SEC.
 8. FOR ADDITIONAL NOTES SEE DRAWING C-04.



REVISIONS	DATE	BY	CHKD
1	10/20/00	W. J. [Signature]	[Signature]
BECHTEL SAN FRANCISCO			
ARCO SINCLAIR REFINERY			
DIKE SECTIONS AND DETAILS SH. 1 OF 2			
DESIGN NO. 19386	REVISION NO. C-07	DATE 10/20/00	SCALE 1" = 10'

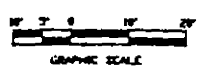




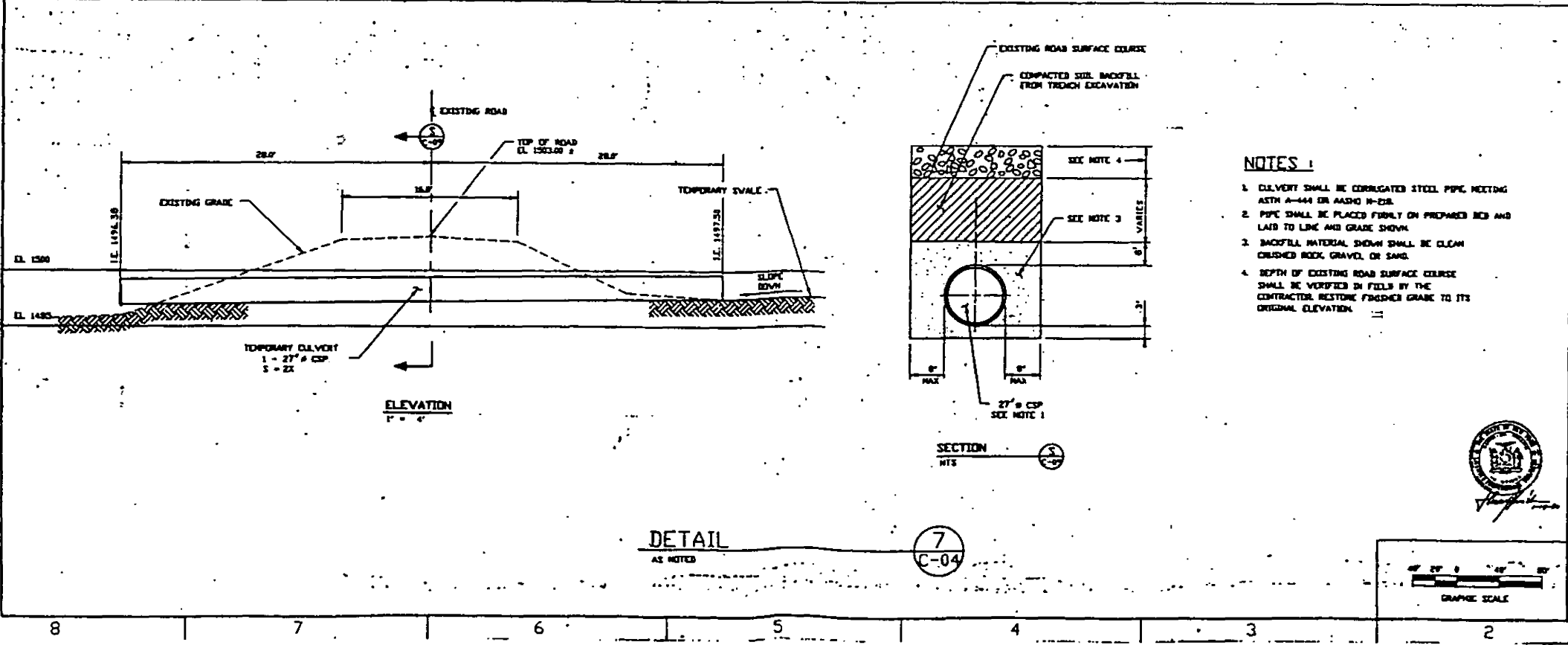
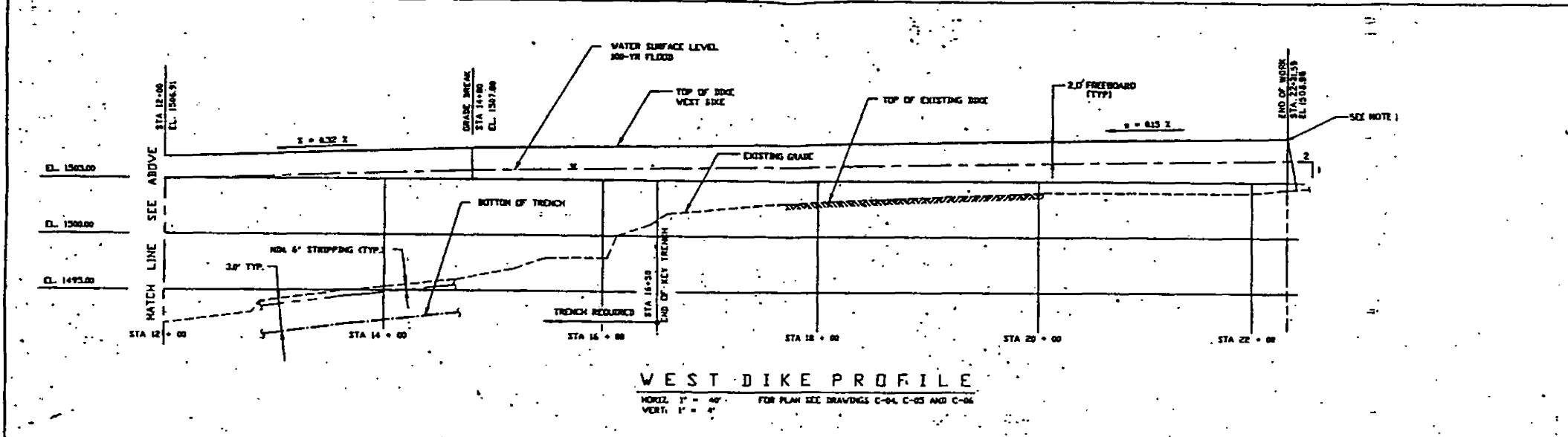
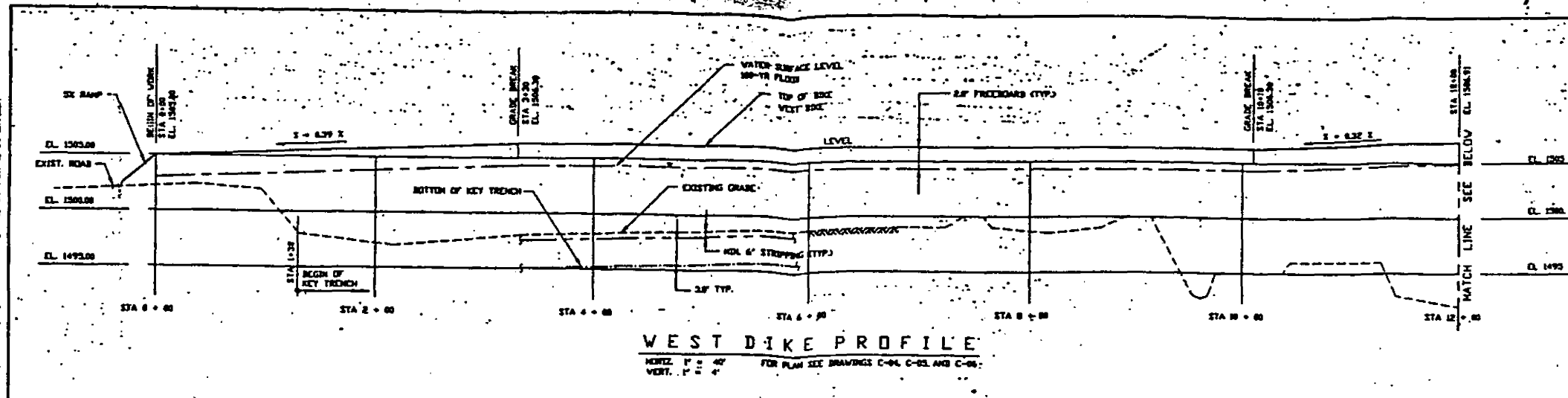
NOTES:
FOR NOTES SEE DRAWING C-07.

NOTE: HEIGHT OF DIKE AND SIZE OF THE TEMPORARY CONTAMINATED STORAGE AREA SHOWN IS APPROXIMATE AND SHALL BE DETERMINED BY THE CONTRACTOR DEPENDING ON THE AMOUNT OF CONTAMINATED MATERIAL ENCOUNTERED.

- NOTES:**
1. PROVIDE EAST BANK DIKE FROM STA 2+00 TO STA 11+10.
 2. PORTIONS OF THE EAST BANK DIKE BELOW THE WATER LEVEL SHALL BE FILLED WITH PIT-RUN GRAVEL TO AN ELEVATION OF 8 INCHES ABOVE THE WATER SURFACE.
 3. PIT-RUN GRAVEL FOR EAST BANK DIKE SHALL BE LOCALLY EXCAVATED MATERIAL OR AS OTHERWISE SPECIFIED.
 4. PORTIONS OF THE EAST BANK DIKE ABOVE THE PIT-RUN GRAVEL SHALL BE FILLED WITH BORROW MATERIAL AND COMPACTED.



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3	10/1/38	J. H. [Signature]	[Signature]
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8	10/1/38	J. H. [Signature]	[Signature]
9	10/1/38	J. H. [Signature]	[Signature]
10	10/1/38	J. H. [Signature]	[Signature]
BECHTEL SAN FRANCISCO ARCO SINCLAIR REFINERY DIKE SECTIONS AND DETAILS SH. 2 OF 2 JOB NO. 19386 DRAWING NO. C-08 REV. 1			



NOTES

- CONSTRUCTION OF C/S OF DIKE FOR 100-YR FLOOD PROTECTION IS NOT A PART OF THIS PROJECT'S SCOPE OF WORK AND SHALL BE COMPLETED IN THE FINAL ENCLOSURE CONSTRUCTION PHASE.
- FOR ADDITIONAL NOTES, SEE DRAWING C-04.

NOTES

- DIAPHRAGM SHALL BE CORRUGATED STEEL PIPE MEETING ASTM A-444 OR AASHTO M-258.
- PIPE SHALL BE PLACED FIRMLY ON PREPARED BED AND LAID TO LINE AND GRADE SHOWN.
- BACKFILL MATERIAL SHOWN SHALL BE CLEAN CRUSHED ROCK, GRAVEL, OR SAND.
- DEPTH OF EXISTING ROAD SURFACE COURSE SHALL BE VERIFIED IN FIELD BY THE CONTRACTOR, RESTORE FINISHED GRADE TO ITS ORIGINAL ELEVATION.

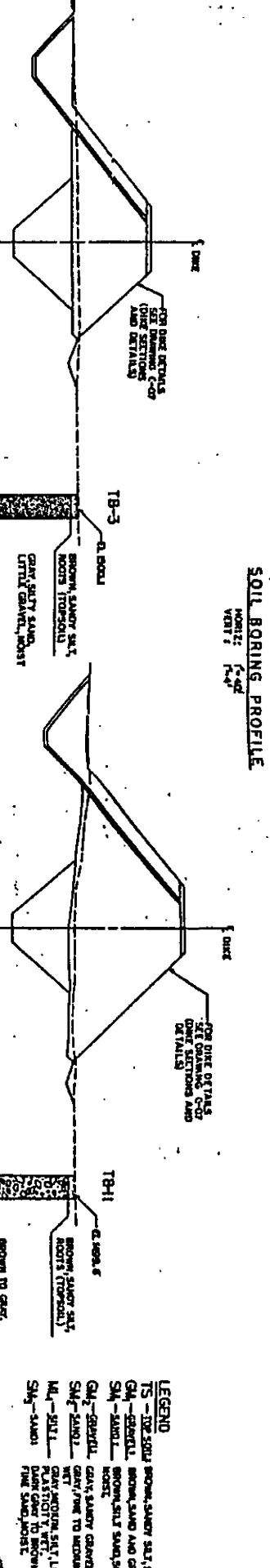
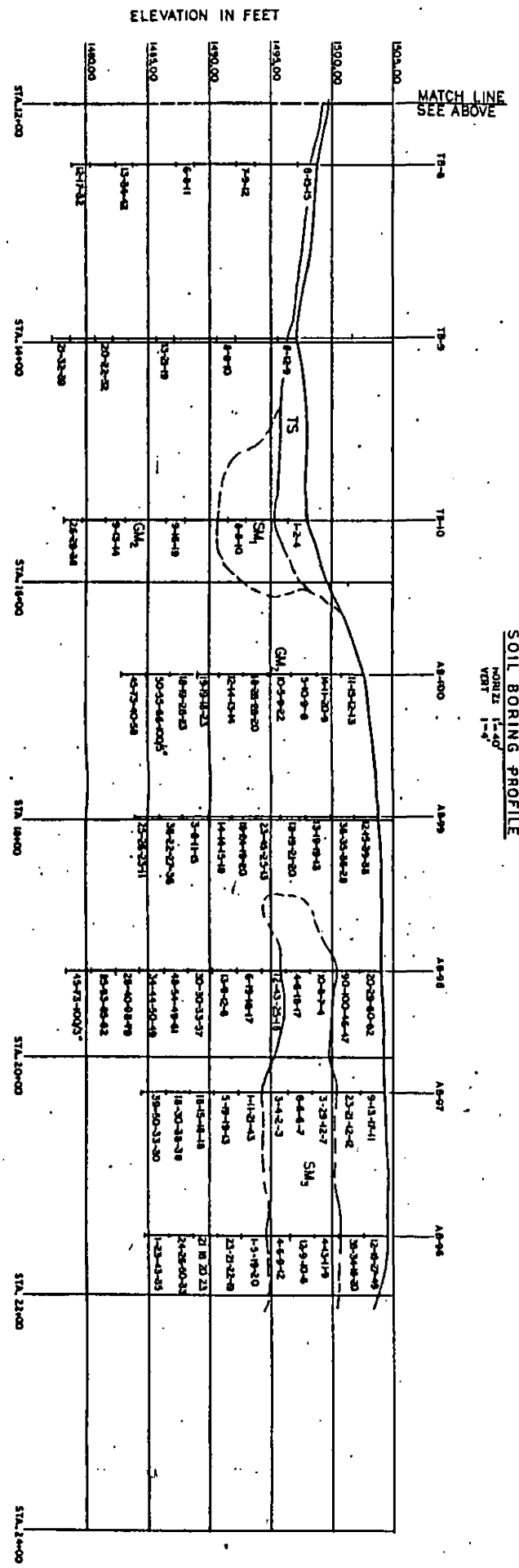
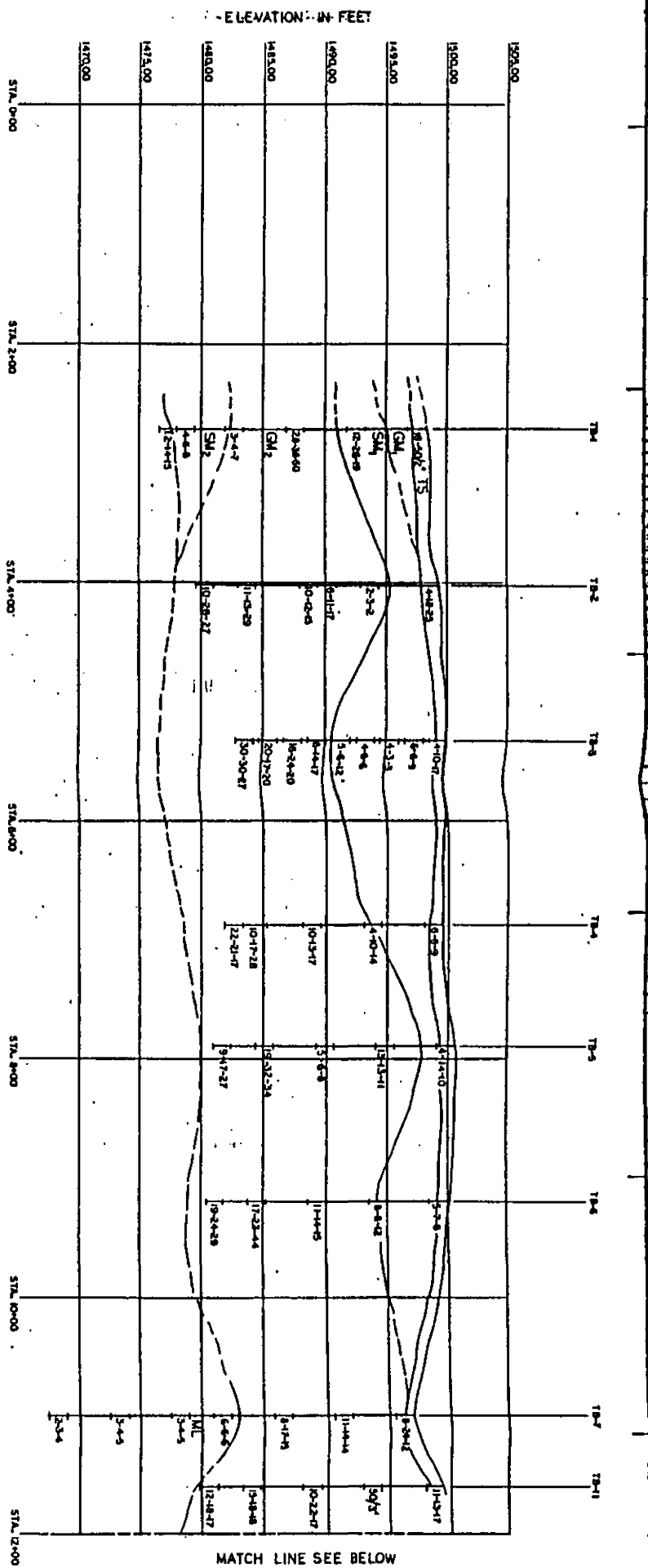
REV.	DATE	BY	CHKD.
1	19386	C-09	

BECHTEL
 SAN FRANCISCO

ARCO
 SINCLAIR REFINERY

DIKE PROFILE AND DRAINAGE DETAILS

GRAPHIC SCALE



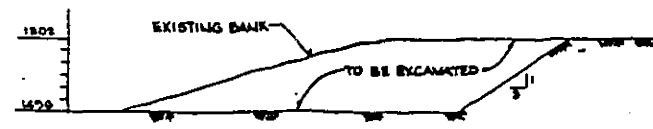
- NOTES:
1. ELEVATIONS SHOWN ARE BASED ON GDS MEAN SEA LEVEL DATUM.
 2. DATA FOR TEST BORE HOLES TB-1 THROUGH TB-5 WAS OBTAINED FROM THE SOIL BORING LOGS AND TEST REPORTS FOR THE SINGULAR LABORATORY, WILMINGTON, DELAWARE COUNTY, NEW YORK, DATED 10/24/84.
 3. DATA FOR TEST BORE HOLE TB-6 WAS OBTAINED FROM THE SOIL BORING LOGS AND TEST REPORTS FOR THE SINGULAR LABORATORY, WILMINGTON, DELAWARE COUNTY, NEW YORK, DATED 10/24/84.
 4. SOIL STATIONS SHOWN ON THE SOIL BORING PROFILE ARE APPROXIMATELY LOCATED TO SHOW THE SOIL BORING PROFILE IS TO PROVIDE INFORMATION WITH ADDITIONAL INFORMATION THAT MAY BE USEFUL DURING CONSTRUCTION FOR ONE SECTION ELEVATIONS AND DETAILS SET DRAWING C-01.
 5. FOR BORING LOCATIONS SEE DRAWING C-01.

- LEGEND
- TS - TOP SOIL BROWN SANDY SILT, ROOTS
 - GM - GRAVEL, BROWN SAND AND GRAVEL, JUST
 - SM - SAND, BROWN, SILT SAND, SOME GRAVEL, ROOTS
 - GM₂ - GRAVEL, GRAY SANDY GRASS, WT
 - SM₂ - SAND, GRAY, FINE TO MEDIUM, SILTY SAND
 - ML - SILT, GRAY, MEDIUM SILT, LOW PLASTICITY, WT, FINE SAND, MIST
 - SM₂ - SAND, FINE SAND, MIST

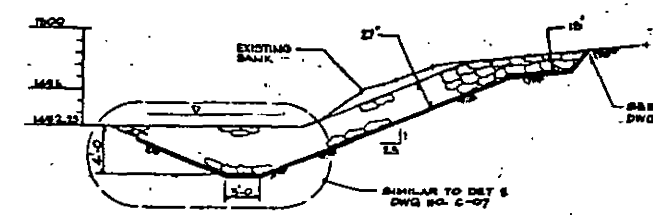
ARCO	
SINGULAR REFINERY	
SOIL STRATIGRAPHY	
ALONG WEST DIKE	
18388	C-10
1	

NOTES

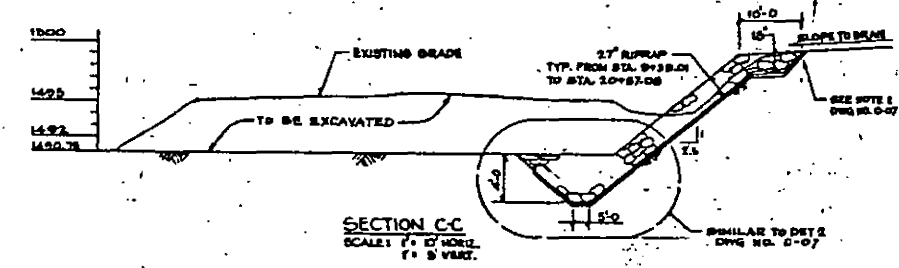
1. INFORMATION OF THESE DRAWINGS
2. PORTION OF THE DRAFT HAVE BEEN REVISIONS
3. PORTION OF THE DRAFT HAVE BEEN REVISIONS
4. PORTION OF THE DRAFT HAVE BEEN REVISIONS
5. PORTION OF THE DRAFT HAVE BEEN REVISIONS
6. PORTION OF THE DRAFT HAVE BEEN REVISIONS
7. PORTION OF THE DRAFT HAVE BEEN REVISIONS



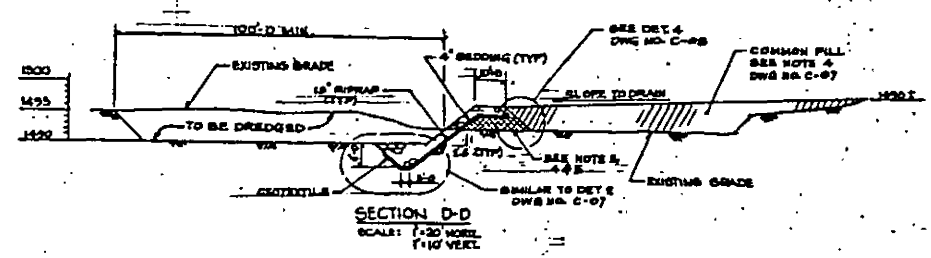
SECTION A-A
SCALE: 1" = 10' HORIZ.
1" = 5' VERT.



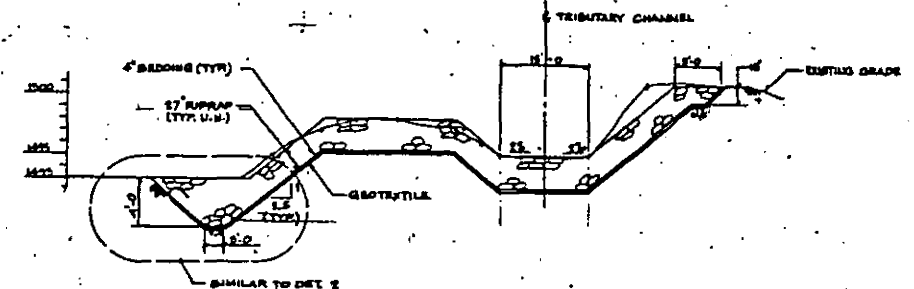
SECTION B-B
SCALE: 1" = 5' HORIZ.
1" = 5' VERT.



SECTION C-C
SCALE: 1" = 10' HORIZ.
1" = 5' VERT.

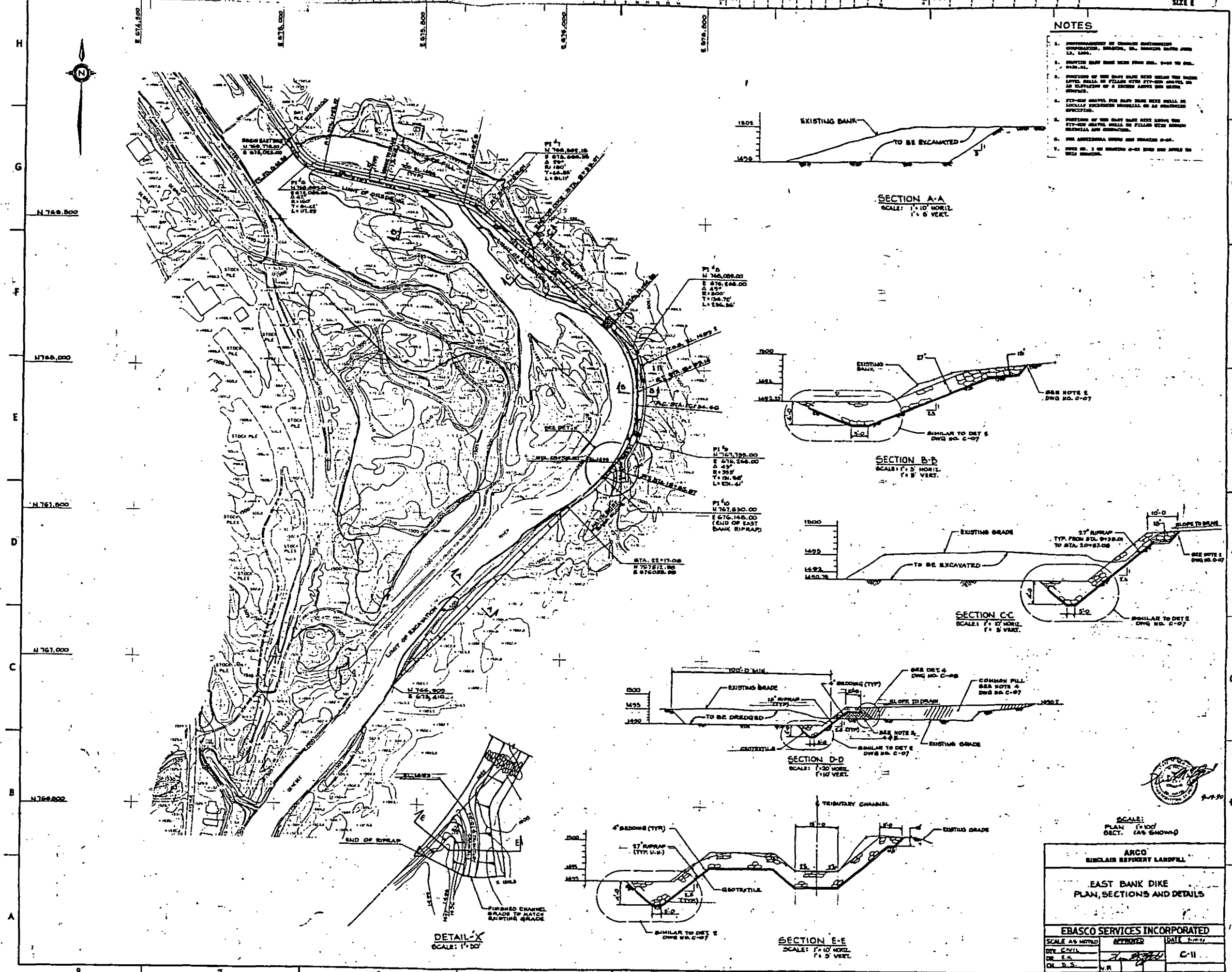


SECTION D-D
SCALE: 1" = 10' HORIZ.
1" = 5' VERT.

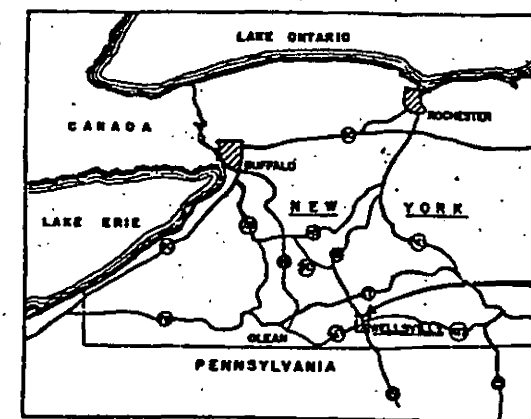


SECTION E-E
SCALE: 1" = 10' HORIZ.
1" = 5' VERT.

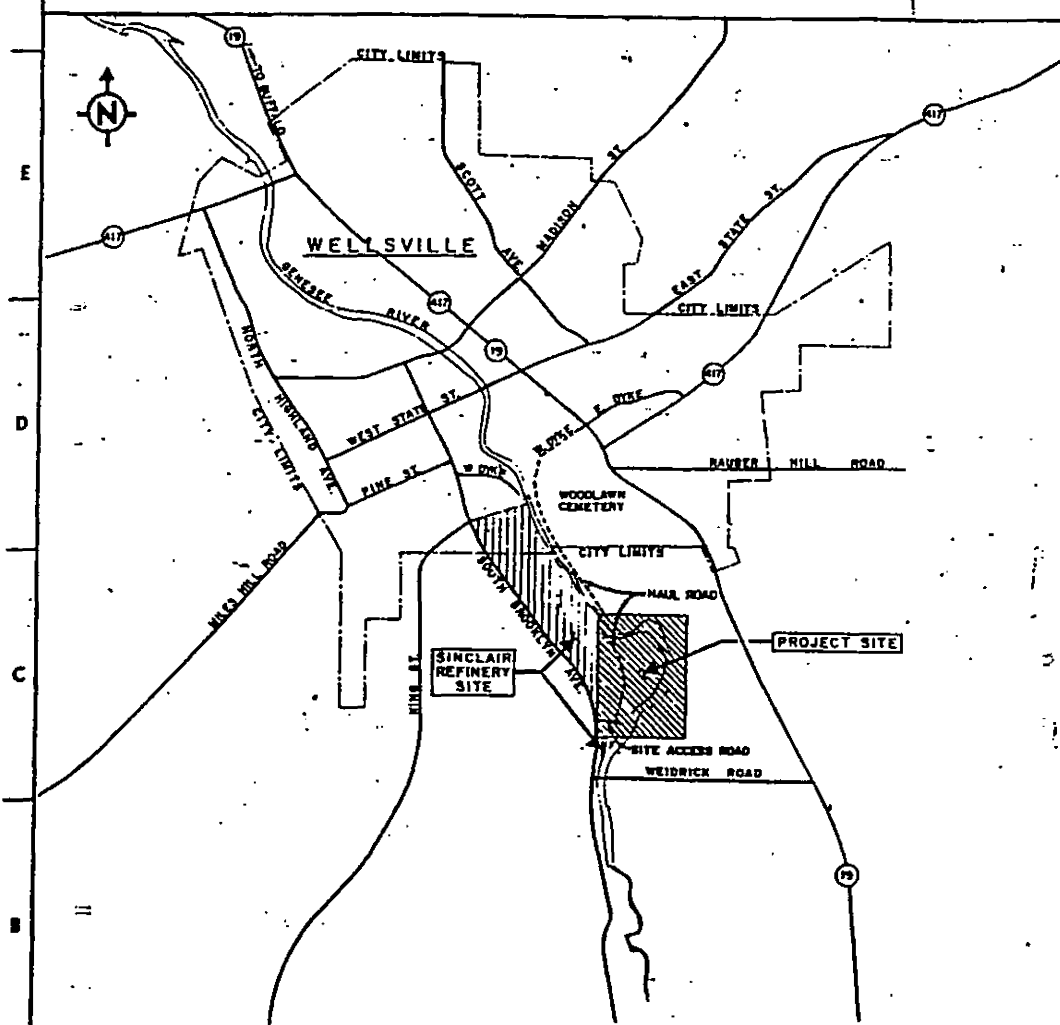
DETAIL-X
SCALE: 1" = 10'



ARCO SINCLAIR REFINERY LANDFILL		
EAST BANK DIKE PLAN, SECTIONS AND DETAILS		
EBASCO SERVICES INCORPORATED		
SCALE AS NOTED	APPROVED	DATE 1-11
DR. C. J. W.		
OR. J. S.		



LOCATION MAP
NOT TO SCALE



VICINITY MAP
1" = 1000'

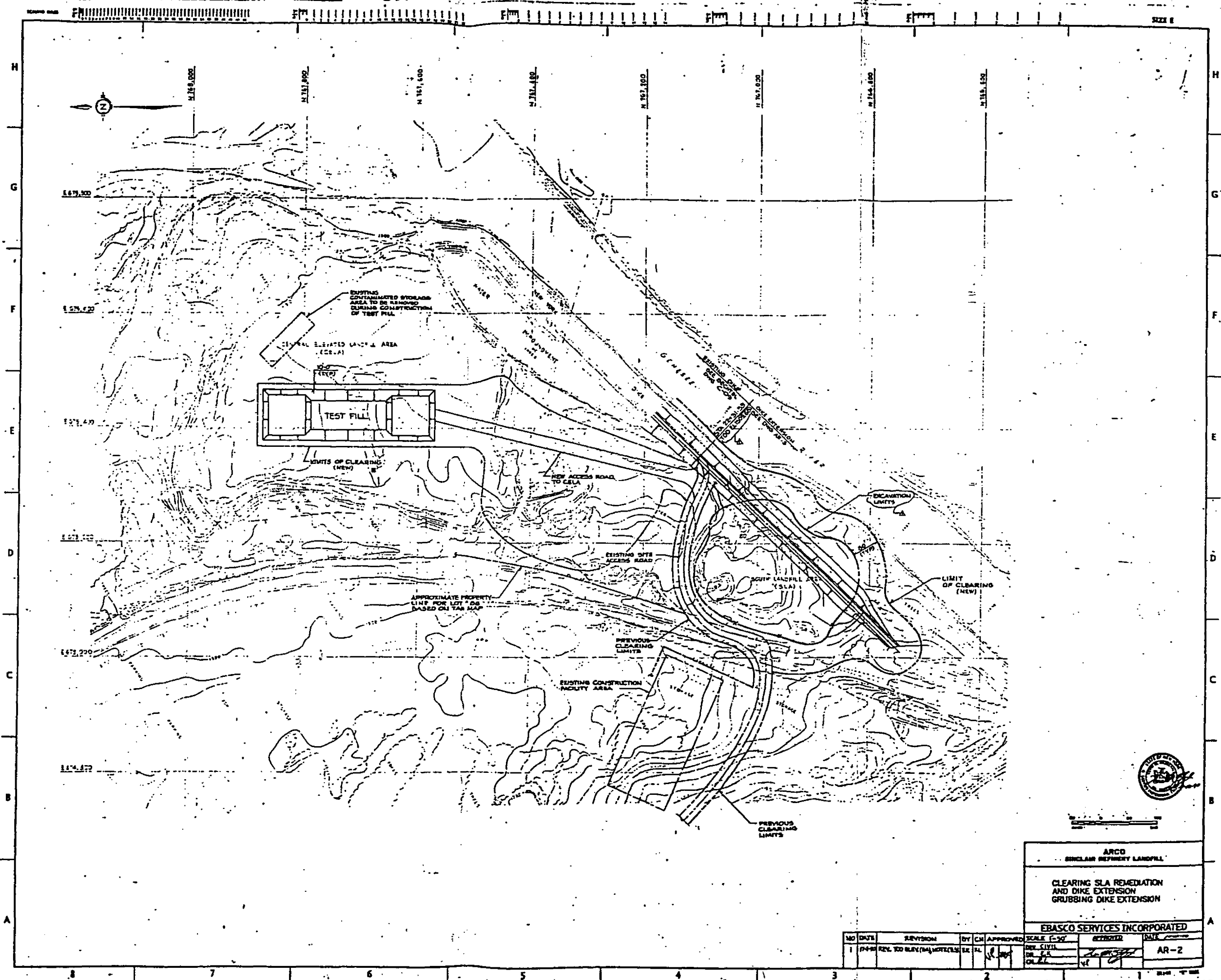


DRAWING INDEX	
DWG. NO.	DRAWING TITLE
AR-1	LOCATION MAP, VICINITY MAP AND DRAWING INDEX
AR-2	CLEARING SLA REMEDIATION & DIKE EXTENSION, GRUBBING DIKE EXTENSION
AR-3	SLA RESTORATION PLAN, DIKE EXTENSION PLAN AND SOIL BORING PROFILE
AR-4	DIKE EXTENSION PROFILE, SECTIONS AND DETAILS
AR-5	SLA EXCAVATION PLAN AND SECTIONS
AR-6	TEST FILL AND ACCESS ROAD PLAN SECTION AND DETAILS

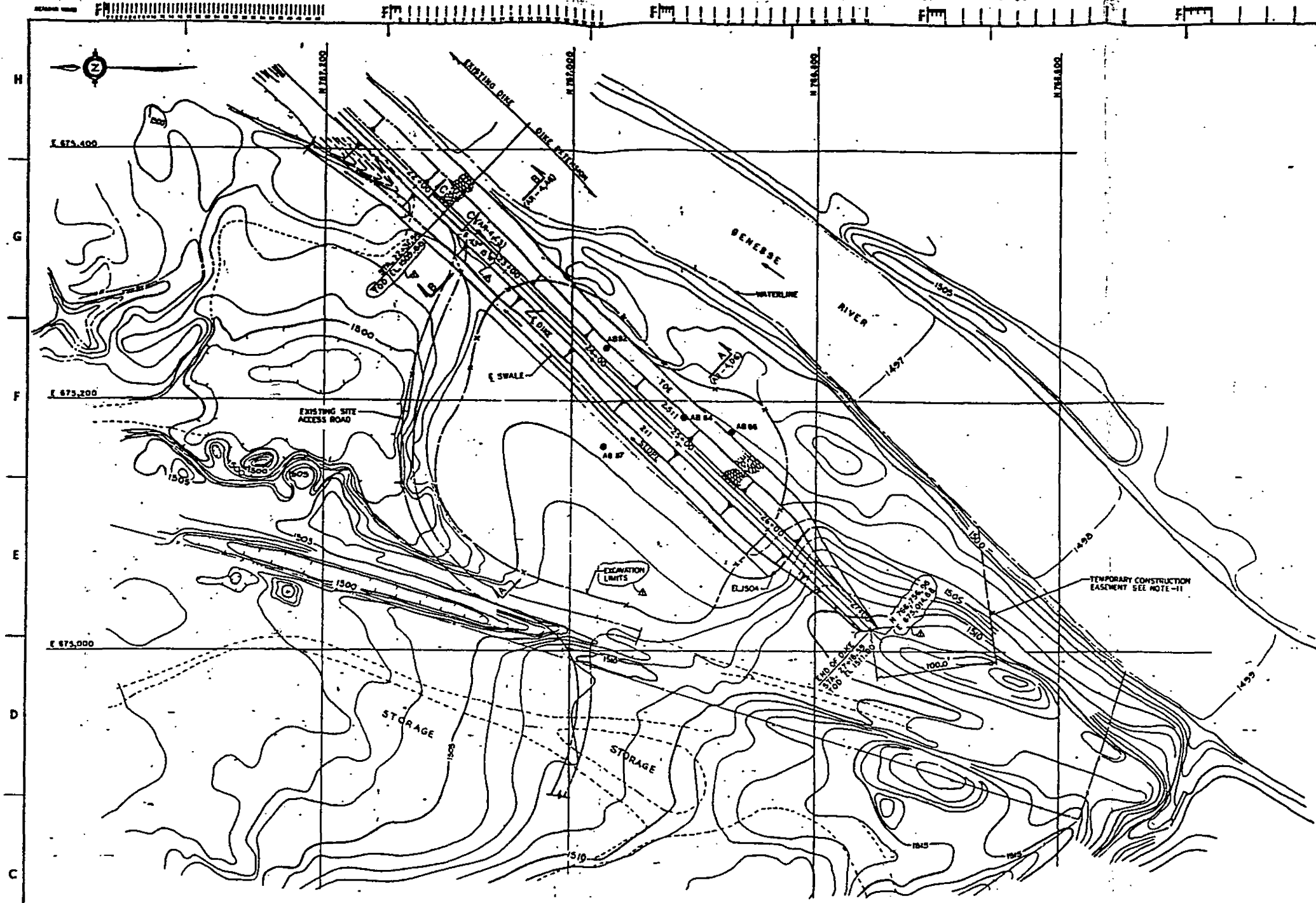
ABBREVIATIONS		SYMBOLS	
AB	— AUGER BORINGS	—	EXISTING GAS LINE
CELA	— CENTRAL ELEVATED LANDFILL AREA	—	EXISTING POWER LINE
DET	— DETAIL	—	EXISTING FENCE
EL	— ELEVATION	—	EXISTING SIDE SLOPE
CSPE	— CHLOROSULFONATED POLYETHYLENE	—	EXISTING SECTION
S	— SLOPE	—	EXISTING BOREHOLE LOCATION
SLA	— SOUTH LANDFILL AREA	—	REFERENCE POINT
STA	— STATION	—	EXISTING CONTOUR
TOS	— TOP OF BANK	—	DIKE
TOD	— TOP OF DIKE	—	CENTERLINE OF DIKE
TP	— TEST TRENCH	—	RIPRAP
TR	— TYPICAL	—	BEDDING
WLE	— WATER ELEVATION	—	LANDFILL AREA
		—	GRAVEL
		—	SEDIMENT
		—	EXISTING ROAD
		—	CULVERT
		—	FLOW LINE
		—	POINT OF INTERSECTION



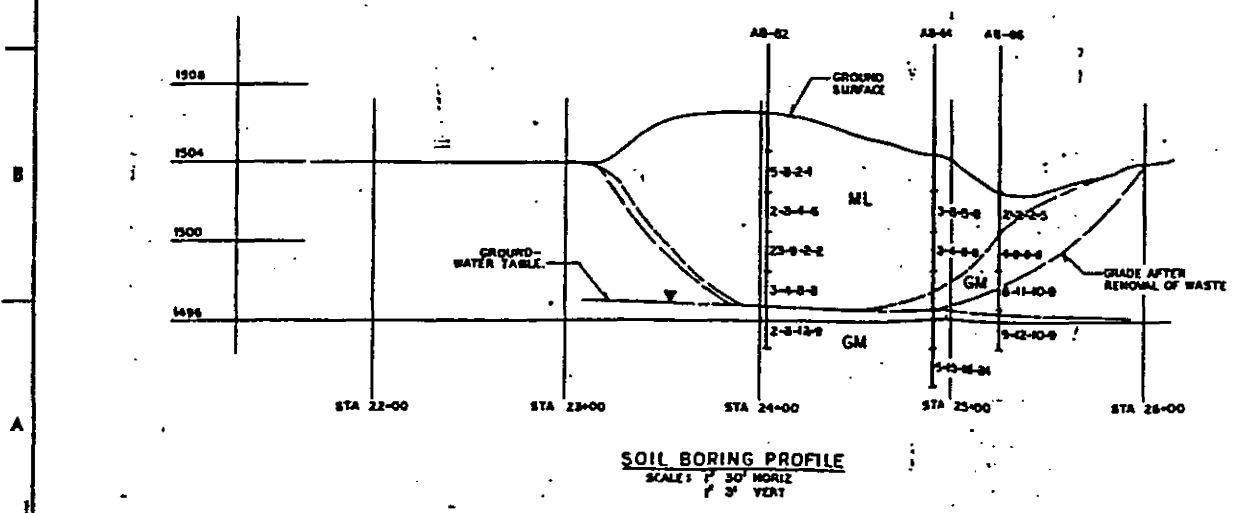
ARCO SINCLAIR REFINERY LANDFILL	
LOCATION MAP VICINITY MAP AND DRAWING INDEX	
EBASCO SERVICES INCORPORATED	
NO. DATE	REV. BY
1 10-90	REV. BY MS INDEX
SCALE AS NOTED	DATE 10-90
DR. CH	AR-1
DR. CH	
DR. CH	



ARCO SINCLAIR REFINERY LANDFILL	
CLEARING SLA REMEDIATION AND DIKE EXTENSION GRUBBING DIKE EXTENSION	
EBASCO SERVICES INCORPORATED	
NO. DATE	REVISION
1 1/1/89	REV. TO ELEV. (M) NOTE (L) EX.
BY: [Signature]	CH. APPROVED: [Signature]
SCALE: 1"=50'	DATE: 1/1/89
DR. CIVIL	AR-2



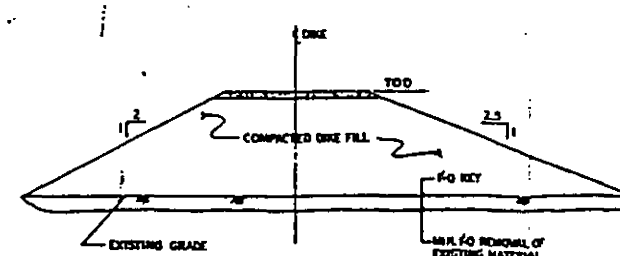
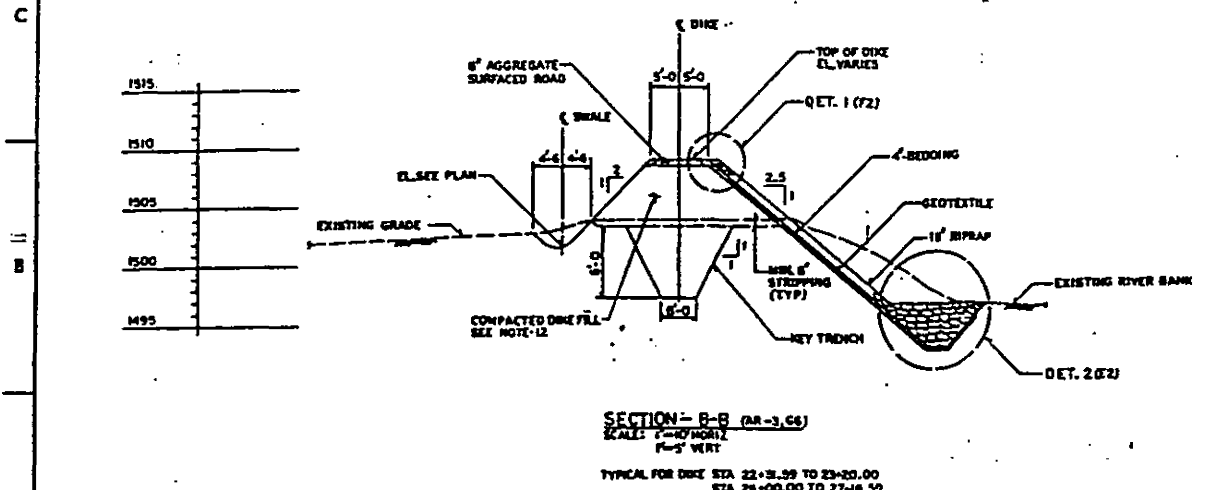
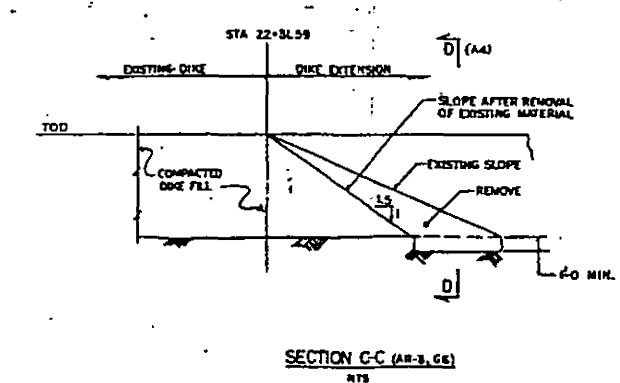
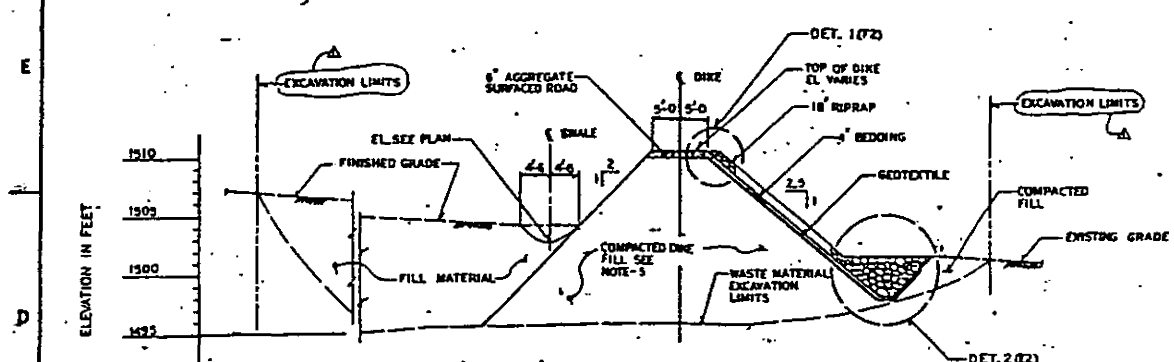
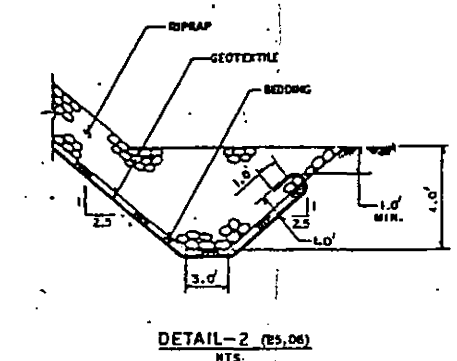
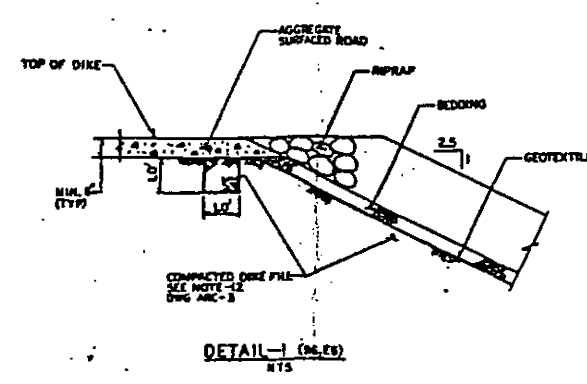
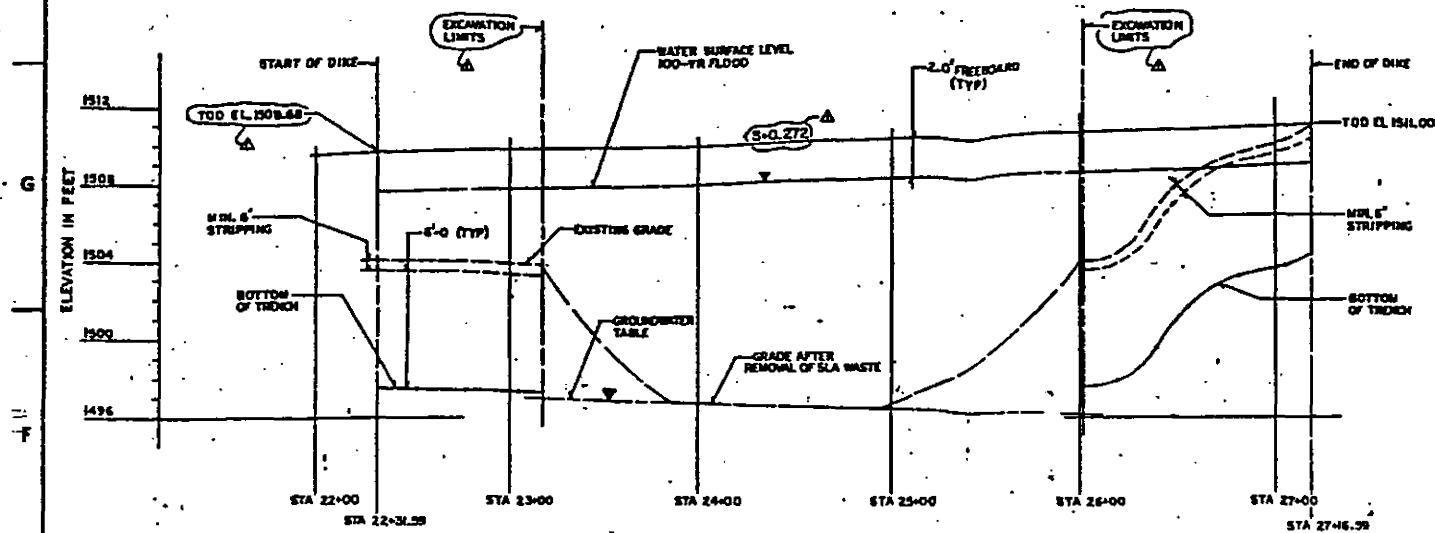
- NOTES:**
1. EXISTING AND PROPOSED CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS AND STANDARDS OF THE ARCO ENCLAVE REFINERY LANDFILL.
 2. FOR SIZE EXTENSION PROFILE AND DETAILS SEE DRAWING AR-3.
 3. FIELD & EXISTING OF DRAINAGE SHALL BE THE MOST NEARLY POSSIBLE TO THE EXISTING DRAINAGE SYSTEM.
 4. CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE TYPE OF UNDERGROUND UTILITIES AND STRUCTURES IN THE FIELD. SEE THE CONSTRUCTION THE FOLLOWING COMPANIES:
 - STANLEY POWER CORPORATION
235 WASHINGTON STREET
BETHLEHEM, PA 18010 (717) 657-1234
 - BRYAN STONE
WELLVILLE UTILITY CONSTRUCTION
(717) 652-1700
 - FOR ALLIANCE
NATIONAL FUEL COMPANY
ENGINEERING DEPARTMENT
18 LAFAYETTE SQUARE
BETHLEHEM, PA 18010 (717) 657-7000
 5. THE CONSTRUCTION SHALL CONTACT THE UNDERGROUND UTILITY LOCATION SERVICE PRIOR TO START OF CONSTRUCTION - THE CONSTRUCTION SHALL ASSURE ALL LIABILITY FOR DAMAGE TO UNDERGROUND UTILITIES.
 6. FIELD MATERIALS SHALL BE USED SHALL BE CONFINED TO 15 PERCENT OF SOLIDUS ONE HUNDRED IN ACCORDANCE WITH AISC 1944.
 7. UNDERLINE SHOWN ON THE DUE TO BASED ON TOPOGRAPHIC DATA MAP FIGURE 3-1 OF PLATE 2 REGIONAL INVESTIGATION, SINGAPORE REFINERY CITY, WELLSVILLE, NEW YORK BY INC. HARTER INC., 1942.
 8. CONSTRUCTION SHALL BE BASED ON FOR THE STATE OF PENNSYLVANIA.
 9. CONSTRUCTION SHALL BE BASED ON TOPOGRAPHIC DATA, CONSTRUCTION, FROM AERIAL PHOTOGRAPHS.
 10. ELEVATIONS SHOWN ARE BASED ON 1929 MEAN SEA LEVEL DATUM.
 11. THE CONSTRUCTION SHALL MAINTAIN ALL ACTIVITIES WITHIN THE TOWNSHIP CONSTRUCTION EASEMENTS ESTABLISHED FOR THIS PROJECT.
 12. CONSTRUCTION SHALL BE BASED ON THE LABORATORY, OF SOIL TO BE LESS THAN 1 x 10⁻⁵ CM/SEC.



- LEGEND**
- TEMPORARY CONSTRUCTION EASEMENT
 - LIMIT OF SOUTH LANDFILL AREA
 - BOTTOM OF KEY TRENCH
 - BEDDING
 - RIPRAP
 - GRAVEL
 - GEOTEXTILE
 - TOP
 - SIDE SLOPE
 - BOTTOM
 - LIMIT OF SLA
 - LIMIT OF CLEARING
 - BORING
 - WATER LINE
 - ML - SILT-DARK BROWN, SILT, MOIST
 - GM - GRAVEL-TAN TO GRAY, SAND AND GRAVEL, MOIST TO SATURATED
 - A - BORING LOCATION AND NUMBER
 - B - LOCATION OF SOIL SAMPLE
 - C - HAMMER BLOW PER 6" OF PENETRATION UNLESS OTHERWISE STATED.

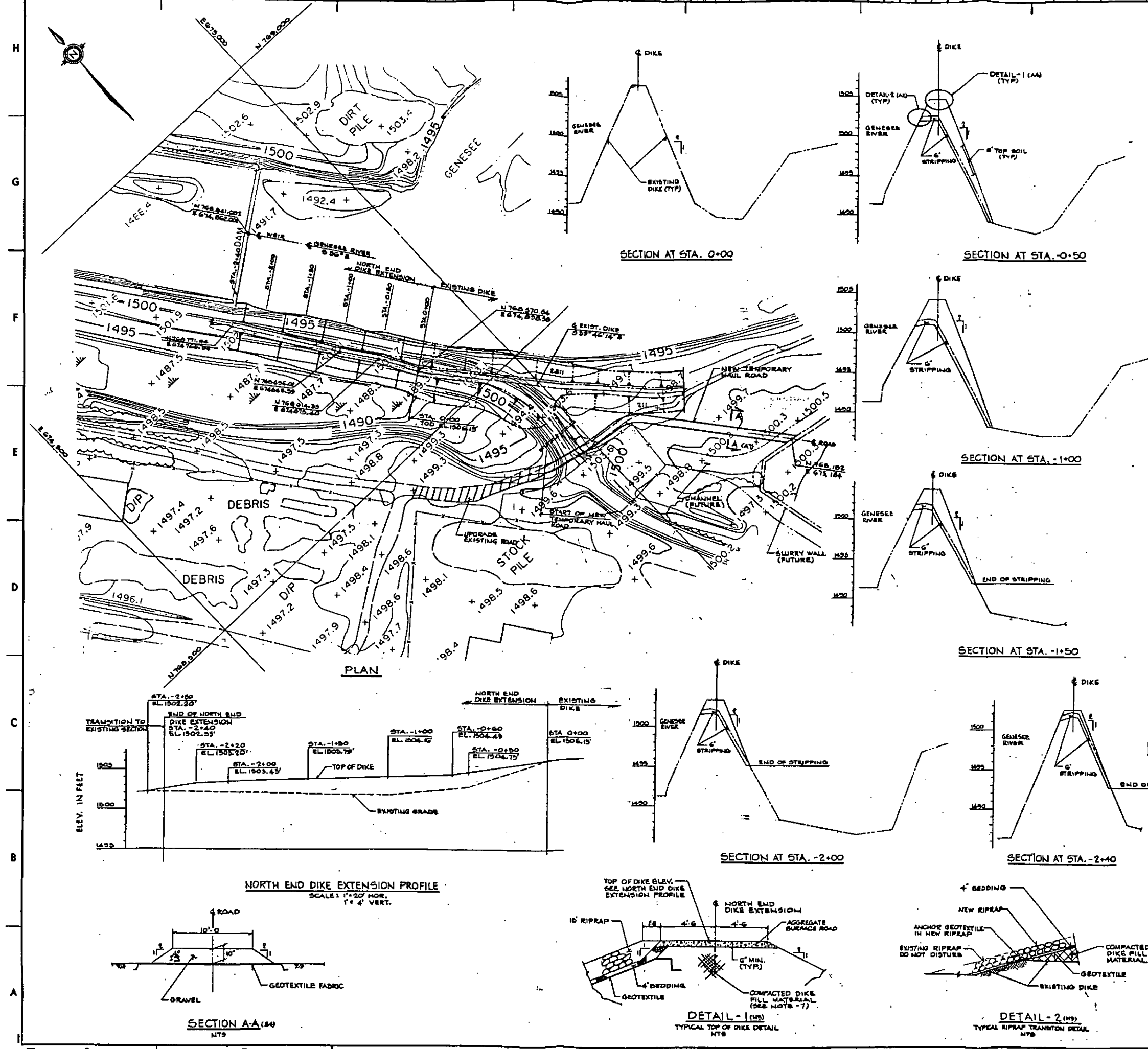
NO. DATE		REVISION		BY		ON		APPROVED	
1	11-2-90	REV. TOP ELEV. (64)	CO-ORDINATES (64)	LOTTES (64)	EX	RL	VP	MM	
ARCO ENCLAVE REFINERY LANDFILL									
SLA RESTORATION PLAN DIKE EXTENSION PLAN AND SOIL BORING PROFILE									
EBASCO SERVICES INCORPORATED									
SCALE AS NOTED		APPROVED		DATE		BY		ON	
CIVIL		[Signature]		11-2-90		[Signature]		[Signature]	
ON 64		[Signature]		[Signature]		[Signature]		[Signature]	
AR-3									

NOTES
FOR GENERAL NOTES SEE DRAWING AR-3



ARCO SINCLAIR REFINERY LANDFILL	
DIKE EXTENSION PROFILE SECTIONS & DETAILS	
EBASCO SERVICES INCORPORATED	
SCALE AS NOTED	DATE
DESIGNED BY	DATE
CHECKED BY	DATE
APPROVED BY	DATE
AR-4	

NO	DATE	REVISION	BY	CHK	APPROVED
1	11-14-90	REV. TO 04/10/90 (0.06) (0.06) (0.06) (0.06) (0.06) (0.06)	EL	EL	VP



- NOTES:
- FOR SITE GENERAL LAYOUT SEE DRAWING AR-10.
 - COORDINATES SHOWN ARE BASED ON THE NEW YORK STATE COORDINATE SYSTEM.
 - ELEVATIONS SHOWN ARE BASED ON 1985 MEAN SEA LEVEL DATUM.
 - CONTOURS SHOWN WERE PREPARED BY LOGAN ENGINEERING CORPORATION (PLAN NO. E-9007, DATED 4/11/99) FROM AERIAL PHOTOGRAPHS.
 - CONTRACTOR SHALL VERIFY LOCATION AND TYPE OF UNDERGROUND UTILITIES AND STRUCTURES IN THE FIELD, OR BY CONDUCTING THE FOLLOWING CONSIDERATIONS:
 - STANDARD HUNTER POWER CORPORATION 110 HARTFORD STREET SUFFOLK, NEW YORK (716) 887-4110
 - EAST STUDY HELLVILLE UTILITY CORPORATION (716) 887-1786
 - FOR ALLIANCE NATIONAL FUEL COMPANY ENGINEERING DEPARTMENT 18 LAFFETTE SQUARE SUFFOLK, NEW YORK (716) 887-1666
 - THE CONTRACTOR SHALL CONTACT THE UNDERGROUND UTILITY LOCATION SERVICE PRIOR TO START OF CONSTRUCTION - THE CONTRACTOR SHALL ASSUME ALL LIABILITY FOR DAMAGE TO UNDERGROUND UTILITIES.
 - SHOULDER AND GRADIENT CONTROL MEASURES SHALL BE PROVIDED AS PER SECTION AND SCHEDULE CONTROL PLAN PREPARED BY EASCO SERVICES INC.
 - COMPACTED DIRT FILL MATERIAL SHALL HAVE A PERMEABILITY, AS DETERMINED IN THE LABORATORY, OF NO MORE THAN 1 X 10⁻⁸ CM/SEC.
 - STRIPPED MATERIAL SHALL BE DEPOSED OF IN THE STRIPPING TEMPORARY STORAGE AREA ON TOP OF THE CELL. THE STRIPPED MATERIAL SHALL BE COVERED WITH A LAYER OF SOIL AVAILABLE ON SITE.
 - THE CONTRACTOR SHALL DECONTAMINATE ALL EQUIPMENT EXITS THE LENGTH OF WORK DESIGNATED ON DRAWING AR-4.
 - CONTRACTOR SHALL CONSTRUCT A TEMPORARY HAIL ROAD SHOW ON DRAWING AR-5 TO TRANSPORT STRIPPED MATERIAL TO THE CELL.
 - THE CONTRACTOR SHALL PLACE COMPACTED DIRT FILL IN SUBSEQUENT LAYERS.

REFERENCE DRAWING

TITLE	DATE
NORTH END DIKE EXTENSION WORK LIMITS	AR-6
NEW DIKE AND EAST BANK PROTECTION PLAN NO. 2 OF 3	AR-4

EXTENSIVE SPECIFICATIONS

SECTION	DESCRIPTION
00000	INTRODUCTION
00001	WEED AND WARD CONTROL
00002	SITE PREPARATION
00003	SITE CLEARING AND GRADING
00004	SITE MARKING
00005	RIPRAP, BEDDING, GEOTEXTILE
00006	SEEDING AND EROSION PROTECTION
00007	AGGREGATE SURFACE ROADS

- EXTENSIVE PROJECT PLAN
- HEALTH AND SAFETY PLAN INCLUDING CONTINGENCY PLAN, SINGULAR EXTENSIVE SITE, PARTIAL SITE CHARACTERIZATION PROJECT, HELLVILLE, NEW YORK, FEBRUARY, 1999
 - QUALITY ASSURANCE PROJECT PLAN, SINGULAR EXTENSIVE SITE, PARTIAL SITE CHARACTERIZATION PROJECT, HELLVILLE, NEW YORK, FEBRUARY, 1999

C 7/13/99	ISSUED FOR BID	EX	UP
D 6/27/99	TO EPA FOR APPROVAL	EX	
A 5-25-01	TO ARCO FOR REVIEW	EX	DS
NO	DATE	REVISION	BY CH APPROVED

SCALE
PLAN 1" = 40'
SECT. 1" = 20' HOR.
1" = 4' VERT.

ARCO
SINGLAIN REFINERY LANDFILL

NORTH END DIKE EXTENSION
PLAN, SECTIONS & DETAILS

EASCO SERVICES INCORPORATED

SCALE AS SHOWN	APPROVED	DATE
DR. G.W.L.		
DR. B.S.		
CH. D.S.		

AR-7

SECTION AT STA. 0+00

SECTION AT STA. 0+50

SECTION AT STA. 1+00

SECTION AT STA. 1+50

SECTION AT STA. 2+00

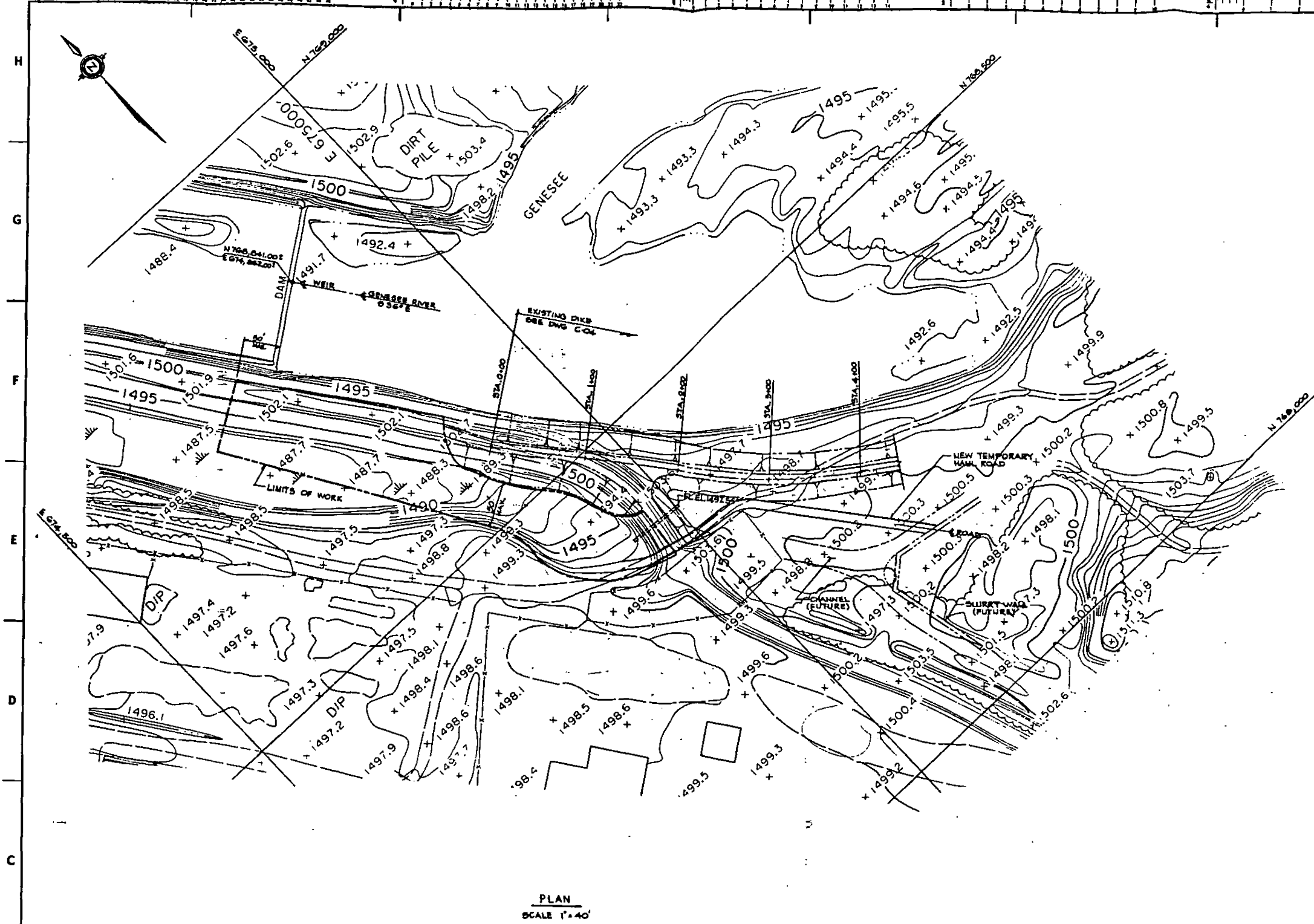
SECTION AT STA. 2+40

NORTH END DIKE EXTENSION PROFILE
SCALE: 1" = 20' HOR.
1" = 4' VERT.

SECTION A-A (MS)
NTS

DETAIL - 1 (MS)
TYPICAL TOP OF DIKE DETAIL
NTS

DETAIL - 2 (MS)
TYPICAL RIPRAP TRANSITION DETAIL
NTS



PLAN
SCALE 1" = 40'

- NOTES:
1. FOR GENERAL NOTES SEE DRAWING AR-7.
 2. CONTRACTOR SHALL, IF NECESSARY, CLEAR AREAS WITHIN THE LIMITS OF WORK.

D	6/7/91	TO EPA FOR APPROVAL	EK	
A	4/25/91	TO ARCO FOR REVIEW	EK	PS
NO	DATE	REVISION	BY	CH
				APPROVED

ARCO BINCLAIR REFINERY LANDFILL	
NORTH END DIKE EXTENSION WORK LIMITS	
EBASCO SERVICES INCORPORATED	
SCALE AS SHOWN	APPROVED
DIV. CIVIL	DATE
DR. E.K.	AR-8
CH. P.S.	

APPENDIX F
CONSENT DECREE FOR REFERENCE

IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF NEW YORK

UNITED STATES OF AMERICA,

Plaintiff,

v.

CIVIL ACTION NO.

ATLANTIC RICHFIELD COMPANY, INC.

Defendant.

CONSENT DECREE

WHEREAS, contemporaneously with the lodging of this Consent Decree, the United States of America ("United States"), on behalf of the Administrator of the United States Environmental Protection Agency ("EPA"), filed a Complaint in this matter pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. §9601 et seq., as amended by the Superfund Amendments and Reauthorization Act of 1986, Pub. L. No. 99-499, 100 Stat. 1613 (1986) ("CERCLA"), for the recovery of certain past response costs incurred by the United States and for the performance of remedial design/remedial action ("RD/RA") in response to releases and threatened releases of hazardous substances into the environment at a Site known as the Sinclair Refinery Site (the "Site"), located in the Town and Village of Wellsville, New York;

WHEREAS, the EPA, pursuant to Section 105 of CERCLA, 42 U.S.C. §9605, placed the Site on the National Priorities List ("NPL"), which is set forth at 40 CFR Part 300, Appendix B, by publication in the Federal Register on September 8, 1983, 48 Fed. Reg. 40658;

WHEREAS, for purposes of investigation and remediation under CERCLA, the Site is being addressed as two sub-sites: the 12.5-acre landfill portion of the Site (hereinafter sometimes referred to as the "landfill portion of the Site") and the approximately 90-acre portion of the Site where the Sinclair Refining Company conducted oil refining operations (hereinafter sometimes referred to as the "refinery portion of the Site");

WHEREAS, the landfill portion of the Site itself consists of a 9.2-acre landfilled area to the north, referred to as the "Central Elevated Landfill Area" or "CELA", a 2.3-acre landfilled area to the south, referred to as the "South Landfill Area" or "SLA", and a 1-acre sand and gravel borrow area between the two landfilled areas;

WHEREAS, the New York State Department of Environmental Conservation ("NYSDEC"), pursuant to a cooperative agreement with EPA, conducted a Remedial Investigation and Feasibility Study ("RI/FS") between April, 1984 and September, 1985 pursuant to 40 CFR §300.68 to determine the nature and extent of contamination at the Site and evaluate alternatives for the long-term remediation of the landfill portion of the Site;

WHEREAS, NYSDEC completed the Remedial Investigation ("RI") Report in March, 1985, and completed the Feasibility Study

("FS") Report in August, 1985;

WHEREAS, NYSDEC published notices of the completion of the RI and FS Reports and gave the public an opportunity to comment on those reports;

WHEREAS, certain persons provided comments on the RI/FS Reports;

WHEREAS, EPA issued a Record of Decision on September 30, 1985 (hereinafter referred to as the "September 30, 1985 ROD" or the "ROD") in which EPA selected a remedy for the landfill portion of the Site, discussed the reasons for its decision and responded to each of the significant comments received during the public comment period;

WHEREAS, the remedy selected in the September 30, 1985 ROD includes removal and off-site disposal of approximately 300 drums presently located on the surface of the Central Elevated Landfill Area, excavation of wastes from the 2.3-acre South Landfill Area, filling of the excavated area with clean fill, consolidation of the excavated South Landfill Area wastes onto the Central Elevated Landfill Area, capping of the consolidated wastes on the Central Elevated Landfill Area in accordance with the requirements of the Resource Conservation and Recovery Act ("RCRA"), 42 U.S.C. §6901, et seq., erection of a fence to secure the entire landfill site and partial channelization of the Genesee River to protect the landfill from erosion and flood inundation from the River;

WHEREAS, the State of New York (hereinafter, the "State") has given its concurrence with respect to the remedy selected in the ROD;

WHEREAS, EPA and the Atlantic Richfield Company (hereinafter, the "Settling Defendant") believe that the selected remedy is cost-effective; will effectively mitigate and minimize existing and potential damage to and will provide adequate protection of public health, welfare and the environment with respect to the landfill portion of the Site (subject to the consideration of possible groundwater control measures at the landfill during the supplemental RI/FS referred to below); and that the selected remedy is consistent with the National Oil and Hazardous Substances Pollution Contingency Plan ("NCP"), 40 CFR Part 300, and CERCLA (as it existed at the time that the ROD was issued);

WHEREAS, EPA and NYSDEC provided notice to the public of the ROD, and made it available to the public for review;

WHEREAS, the refinery portion of the Site is being addressed in a separate RI/FS;

WHEREAS, NYSDEC notified Settling Defendant of the remedy selected in the September 30, 1985 ROD and gave Settling Defendant an opportunity to agree to implement the remedy;

WHEREAS, NYSDEC and Settling Defendant entered into an Order on Consent on December 30, 1986 under which Settling Defendant agreed, among other things, to provide monies to NYSDEC for use in the implementation of the selected remedial action;

WHEREAS, NYSDEC, pursuant to a cooperative agreement with EPA, commenced the implementation of the remedy selected in the September 30, 1985 ROD;

WHEREAS, disputes between NYSDEC and its contractor resulted in the cessation of work on the RD/RA and the transfer of lead responsibility for implementation of the September 30, 1985 ROD from NYSDEC to EPA;

WHEREAS, on November 25, 1987, EPA, pursuant to Section 122 of CERCLA, 42 U.S.C. §9622, notified Settling Defendant of EPA's intent to resume and complete the implementation of the September 30, 1985 ROD and offered Settling Defendant the opportunity to perform certain portions of the work in EPA's stead;

WHEREAS, in accordance with Section 121(f)(1)(F) of CERCLA, 42 U.S.C. §9621(f)(1)(F), EPA has notified the State of EPA's negotiations with Settling Defendant regarding this Consent Decree (hereinafter, the "Consent Decree" or the "Decree") and has provided the State with an opportunity to participate in such negotiations and be a party to this Decree;

WHEREAS, pursuant to Section 122(j) of CERCLA, 42 U.S.C. §9622(j), EPA has notified the Federal natural resources trustees of its negotiations with Settling Defendant regarding this Decree and has encouraged the participation of the Federal natural resource trustees in such negotiations;

WHEREAS, Settling Defendant agrees to implement certain portions of the September 30, 1985 ROD, specified in this Decree, and EPA has determined that if this Consent Decree is complied with, the Work required under the Consent Decree will be done properly and promptly by Settling Defendant, and has determined

that Settling Defendant is qualified to implement the ROD;

WHEREAS, the Settling Defendant proposed that the protection of the Central Elevated Landfill Area from erosion and flood inundation from the Genesee River be accomplished by river control measures which differ in some respects from those selected in the September 30, 1985 ROD, and submitted a preliminary design of these measures to EPA;

WHEREAS, as set forth below, EPA will make a determination regarding the implementability and effectiveness of the river control measures proposed by Settling Defendant -- in particular, Settling Defendant's proposal to construct a dike along the west bank of the Genesee River, next to the CELA;

WHEREAS, EPA and the Settling Defendant believe that if the river control measures proposed by Settling Defendant are determined by EPA to be implementable and effective, such measures will be cost-effective, will be protective of public health and welfare, and will be more protective of the environment than the river control measures selected in the September 30, 1985 ROD;

WHEREAS, in accordance with Section 117(c)(3) of CERCLA, 42 U.S.C. §9617(c)(3), EPA is, concurrently with the lodging of this Decree, publishing an explanation of the significant differences between the river control measures proposed by Settling Defendant and those selected in the ROD, as well as the reasons for such changes;

WHEREAS, pursuant to Section 122 of CERCLA, 42 U.S.C. §9622, the United States and the Settling Defendant have each stipulated and agreed to the making and entry of this Consent

Decree prior to the taking of any testimony, based upon the pleadings herein;

NOW THEREFORE, it is ORDERED, ADJUDGED, AND DECREED as follows:

I.

JURISDICTION

The Court has jurisdiction over the subject matter of this action and the parties to this Consent Decree pursuant to Sections 106, 107, and 113 of CERCLA, 42 U.S.C. §§9606, 9607, and 9613, and 28 U.S.C. §1345. Settling Defendant waives all objections to this Court's jurisdiction to enter and enforce this Consent Decree. The Court has venue over this action pursuant to Section 113(b) of CERCLA, 42 U.S.C. §9613(b). The parties agree that nothing herein constitutes any admission of fact or law by Settling Defendant.

II.

PARTIES BOUND

This Consent Decree applies to and is binding upon the undersigned parties and their officers, directors, employees, agents, contractors, receivers, trustees, successors and assigns. Each undersigned representative of the parties to this Consent Decree certifies that she or he is authorized by the entity which she or he represents to enter into the terms and conditions of the Consent Decree and to execute and legally bind that entity to it. Settling Defendant shall provide a copy of this Consent Decree

to each contractor and subcontractor retained to perform the Work required by this Consent Decree and shall condition all contracts and subcontracts entered into for the performance of such Work upon compliance with the terms and conditions of this Consent Decree. Settling Defendant shall be responsible to the United States for ensuring that its contractors and subcontractors perform the Work contemplated herein in accordance with this Consent Decree.

III.

DEFINITIONS

Whenever the following terms are used in this Consent Decree, the following definitions specified in this Section shall apply:

A. "EPA" means the United States Environmental Protection Agency.

B. "Hazardous substance" shall have the meaning provided in Section 101(14) of CERCLA, 42 U.S.C. §9601(14).

C. "Landfill Remediation" means all elements of the remedial action authorized by the September 30, 1985 ROD and this Decree apart from the partial channelization of the Genesee River.

D. "Operation and Maintenance" or "O&M" means those activities required under this Consent Decree for the purpose of maintaining the effectiveness of the measures taken in the Remedial Action (as defined below) following the implementation of those measures.

E. "Party" or "Parties" means the United States of America and/or the Settling Defendant.

F. "Plaintiff" means the United States of America acting on behalf of EPA.

G. "Remedial Action" means those remedial measures authorized by the September 30, 1985 ROD, as further delineated in this Decree and in the various EPA-approved plans referred to in Section VI., below.

H. "Response Costs" means any costs incurred by Plaintiff pursuant to 42 U.S.C. §9601, et seq.

I. "River Channelization" means that portion of the remedial action authorized by the September 30, 1985 ROD which calls for the partial channelization of the Genesee River to protect the landfill at the Site from erosion and flood inundation from the river, as the said measure is further delineated in this Decree and in the various EPA-approved plans referred to in Section VI., below;

J. "Settling Defendant" means the Atlantic Richfield Company and its officers, directors, receivers, trustees, agents, successors and assigns.

K. "Site" means the Sinclair Refinery Site, located in the Town and Village of Wellsville, Allegany County, New York. The Site is of irregular shape and comprises approximately 100 acres. It is bounded by South Brooklyn Avenue to the west and the Genesee River to the east. The river bends sharply in the area of the Site and also forms part of the southern edge of the Site. An abandoned railroad bed running parallel to Weidrick Road, which runs almost due east off South Brooklyn Avenue as it crosses the

Genesee River, constitutes the remainder of the southern extremity of the Site. The northern boundary of the Site is defined roughly by an access road into the old refinery area at the Site and a railroad trestle bridge which crosses the Genesee River. The Site also includes an area approximately three-tenths of an acre in size where a tank farm formerly was located. This area is located approximately 2000 feet west of the portion of the Site where the oil refinery was situated. The Site's location is shown in the map attached hereto as Figure 1.

L. "State" means the State of New York.

M. "Statement of Work" or "SOW" means the Statement of Work attached hereto as Appendix 3, which document was prepared by Settling Defendant and approved by EPA and provides for Settling Defendant's performance of the Work.

N. "Work" means all work required by and pursuant to this Consent Decree, including the design, implementation and operation and maintenance, in accordance with Section VI hereof, of the remedial measures authorized by the September 30, 1985 ROD and the preparation of the schedules, plans and reports required hereunder to be submitted in connection therewith.

O. All terms not otherwise defined herein shall have their ordinary meanings except that those terms defined in Section 101 of CERCLA, 42 U.S.C. §9601, shall have the meanings set forth therein.

IV.

PURPOSE

The purpose of this Consent Decree is to serve the public interest by protecting the public health, welfare, and the environment from releases and threatened releases of hazardous substances at or from the landfill portion of the Site by the implementation of remedial source control actions and post-certification operation, monitoring, and maintenance by the Settling Defendant, and to settle certain claims asserted by the United States against the Settling Defendant as stated in the United States' Complaint.

V.

GENERAL PROVISIONS

A. Commitment of Settling Defendant:

Settling Defendant agrees to finance and perform the Work in accordance with the standards, specifications, requirements and schedules set forth in or approved by EPA pursuant to this Decree.

B. Permits and Approvals:

1. All activities undertaken by the Settling Defendant pursuant to this Consent Decree shall be undertaken in accordance with the requirements of all applicable local, state and federal laws, regulations and permits, including, but not limited to, laws relating to occupational safety and health. In the event that there is a conflict in an application of applicable federal, state or local laws or regulations, the more stringent

law or regulation shall apply. Notwithstanding any other provision in this Consent Decree, no federal, state or local permits shall be required for any response action conducted entirely on-site. //

For purposes of the previous sentence, the flood and erosion protection work to be performed hereunder on both the east and west banks of the Genesee River shall be considered on-site work. Settling Defendant shall obtain all permits and approvals necessary for off-site work under federal, state or local laws and shall submit timely applications and requests for any such permits and approvals. //

2. Settling Defendant shall include in all contracts or subcontracts entered into for work required under this Consent Decree provisions stating that such contractors or subcontractors, including their agents and employees, shall perform all activities required by such contracts or subcontracts in compliance with this Consent Decree and all applicable laws and regulations. This Consent Decree is not, nor shall it act as, nor is it intended by the Parties to be, a permit issued pursuant to any federal or state statute or regulation.

C. National Contingency Plan:

The Settling Defendant shall perform the Work in accordance with the NCP, 40 CFR Part 300, and any amendments thereto. The parties agree that the Record of Decision, as set forth in Appendix 1, and the Remedial Action are consistent with the NCP. EPA approval of all plans, reports and other submittals required hereunder shall constitute a finding that such submittals

are consistent with the NCP.

D. Compliance with Other Laws

The off-site transfer, treatment, storage, or disposal of hazardous substances removed from the Site by the Settling Defendant must be in compliance with the applicable requirements of the Resource Conservation and Recovery Act, 42 U.S.C. §6901, et seq., Section 121(d)(3) of CERCLA, 42 U.S.C. §9621(d)(3), the Toxic Substances Control Act, 15 U.S.C. §2601, et seq., as well as their implementing regulations and all other applicable laws. Settling Defendant shall ensure that the closure of the CELA complies with those requirements of 40 CFR Part 264 that are set forth in Section 7.6 of the Statement of Work. Settling Defendant also shall comply with the applicable provisions of 40 CFR Parts 262 and 263 and 6 NYCRR Parts 372 for all wastes which are shipped off-site. In particular, this obligation includes, but is not limited to, using and signing manifest forms for hazardous wastes transported from the Site. Furthermore, the Settling Defendant must designate, in the Prefinal Design of Phase I of the Landfill Remediation, required below, any facilities that the Settling Defendant proposes to use for such off-site transfer, storage, treatment, or disposal. The Settling Defendant shall conduct off-site disposal activities in conformance with the NCP, and any amendments thereto, and Revised Procedures for Planning and Implementing Off-site Response Actions, U.S. EPA Office of Solid Waste and Emergency Response, November 13, 1987.

E. Settling Defendant shall give EPA fourteen (14) days //

advance notice of field activities to be performed pursuant to this Consent Decree, and shall furnish EPA with as much notice as possible of any necessary changes to the schedule of field activities.

F. All plans, reports and other submittals required hereunder to be submitted to EPA shall, upon approval by EPA, be deemed to be incorporated in and an enforceable part of this Decree.

G. If any plan, report or other item required to be submitted to EPA for approval pursuant to this Consent Decree cannot be approved by EPA even after being resubmitted after EPA provides comments to Settling Defendant on the submittal, Settling Defendant shall be deemed to be out of compliance with this Consent Decree. As indicated in Section VI., below, in the event that a resubmitted plan, report or other item, or portion thereof, is disapproved by EPA, EPA retains the right to amend or develop the plan, report or other item. Subject only to its right to invoke the dispute resolution procedures of Section XVIII, below, Settling Defendant shall implement any such plan as amended or developed by EPA.

H. Within fourteen (14) days of the Court's entry of this Decree, Settling Defendant shall record this Decree in the Allegany County Clerk's Office in Belmont, New York.

I. Settling Defendant shall ensure that a qualified professional engineer is present at the Site at all times when work is being performed at the Site under this Decree, and that the said engineer observes and inspects such work.

J. All time periods referred to in this Decree shall be construed as calendar days, rather than business days.

VI.

WORK TO BE PERFORMED

A. All of the Work to be performed by Settling Defendant pursuant to this Consent Decree shall be under the direction and supervision of a qualified professional engineer licensed in the State of New York. At least fourteen (14) days prior to the initiation of remedial design or construction work with respect to the Site, or sampling, monitoring, analytical or operation and maintenance activities with respect to the Site, the Settling Defendant shall notify EPA, in writing, of the name, title, and qualifications of any engineer proposed to be used in carrying out such activities. EPA shall have the right to disapprove any such engineer based upon professional qualifications.

B. The ROD for the landfill portion of the Site, attached hereto as Appendix 1, is incorporated into and made an enforceable part of this Consent Decree, except to the extent that the SOW and any other plans and designs approved by EPA under this Decree establish a different specification for the work to be done. In accordance with the ROD, the following measures shall be performed with respect to the landfill portion of the Site:

- 1) Partial channelization of the Genesee River to protect the landfill from erosion and flood inundation from the river.
- 2) Erection of a fence to secure the entire landfill portion of the Site.
- 3) Removal and off-site disposal of approximately 300 drums located on the surface of the Central

Elevated Landfill Area.

4) Excavation of wastes from the 2.3-acre South Landfill Area and consolidation of this waste material on top of the cleared and grubbed CELA.

5) Filling of the excavated SLA with clean fill from an off-site source.

6) Closure of the CELA in accordance with applicable or relevant and appropriate provisions of RCRA, including capping of the consolidated wastes on the CELA.

7) Operation and maintenance of the completed Remedial Action, including periodic groundwater monitoring.

C. The Work shall be performed by the Settling Defendant in a manner consistent with the ROD, except to the extent that the SOW and any other plans and designs approved by EPA under this Decree establish a different specification for the Work. The Work shall also be performed by the Settling Defendant in a manner consistent with EPA's OSWER directive 9355.0-4A, entitled "Superfund Remedial Design and Remedial Action Guidance" (June, 1986) (hereinafter referred to as the "OSWER Directive"), attached and incorporated herein as Appendix 2, or, if said guidance is amended by EPA, in accordance with the amended version of the guidance.

D. EPA has approved a Statement of Work prepared by Settling Defendant, which provides for the performance of the Remedial Action. This SOW is attached hereto as Appendix 3, and is incorporated into and made an enforceable part of this Consent Decree. Settling Defendant shall perform the Work in conformance with the approved SOW, except to the extent that

subsequent plans, designs and other documents approved by EPA under this Decree establish a different specification for the Work.

E. River Channelization

1. Within thirty (30) days of the effective date of this Decree, the Settling Defendant shall submit to EPA, with respect to the River Channelization: (a) the Prefinal Design for the River Channelization, which shall include the plans and specifications, 95% complete, and other pertinent information as set forth in the above-mentioned OSWER Directive; (b) a Site Health and Safety Plan (including a Contingency Plan); (c) a Quality Assurance Project Plan; (d) a Sampling and Analysis Plan; and (e) a Project Construction Schedule. The aforementioned design, plans and schedule are hereinafter collectively referred to as the "River Channelization Design and Project Plans". The River Channelization Design and Project Plans shall be consistent with the OSWER Directive and the attached SOW.

2. EPA will either approve the River Channelization Design and Project Plans or require modifications. EPA will notify the Settling Defendant in writing of its approval or the required modifications.

3. Should EPA require modifications to any or all of the River Channelization Design and Project Plans, Settling Defendant shall have fourteen (14) days from the date of receipt of EPA's written request to make the

required modifications and submit the final River Channelization Design and Project Plans to EPA.

4. At such time as EPA determines that the River Channelization Design and Project Plans are acceptable, EPA will transmit to Settling Defendant a written statement to that effect. Prior to their approval by EPA, and subject only to the Dispute Resolution provision below, EPA may modify the River Channelization Design and Project Plans unilaterally.

5. Pursuant to an administrative order issued by EPA, Settling Defendant is conducting or has conducted geotechnical investigations necessary to determine whether Settling Defendant's proposed design of the River Channelization -- specifically, its proposal regarding the construction of a dike along the west bank of the Genesee River, next to the CELA -- is implementable and would be effective in protecting the landfill from erosion and flood inundation from the Genesee River. Based on the results of these investigations, EPA will make a determination as to the implementability and effectiveness of Settling Defendant's proposed design. Settling Defendant's proposed design will not be deemed implementable or effective if it would involve the installation of any portion of the proposed dike in waste material, in vegetation, or in soils which, in accordance with criteria set forth in the SOW, would be an unsuitable foundation for the dike. In the event that EPA determines that Settling

Defendant's proposed design of the River Channelization is not implementable and/or would not be effective in protecting the landfill from erosion and flood inundation, EPA will so notify Settling Defendant. The said notification will be deemed preliminary until thirty (30) days after Settling Defendant's receipt of the notification, so as to give the parties an opportunity to discuss EPA's determination. At the conclusion of this 30-day period, EPA's notification will automatically become final unless, during that period, EPA rescinds its notification. If EPA notifies Settling Defendant that the latter's proposed design of the River Channelization is not implementable and/or would not be effective in protecting the landfill from erosion and flood inundation, and EPA's notification becomes final in accordance with the above, Settling Defendant shall implement the EPA-approved River Channelization plans and specifications prepared on behalf of EPA and NYSDEC by Michael Baker, Jr. of New York, Inc. (These plans and specifications are hereinafter referred to as the "Baker Design."). Settling Defendant may invoke the Dispute Resolution procedures set forth below with respect to EPA's determination regarding the implementability and effectiveness of Settling Defendant's proposed design of the River Channelization. EPA will not require Settling Defendant to implement the Baker Design in lieu of Settling Defendant's design of the River Channelization

if the factors militating against the implementability or effectiveness of Settling Defendant's design are equally applicable to the Baker Design.

6. If EPA notifies Settling Defendant that the latter's proposal regarding the construction of a dike next to the CELA is not implementable and/or would not be effective, Settling Defendant shall, within thirty (30) days of the date on which said notification becomes final, submit revised River Channelization Project Plans (hereinafter, the "Revised River Channelization Project Plans") to EPA to reflect the work to be performed pursuant to the Baker Design. All of the terms of subsections VI.E.2. through 4., above, shall also apply with respect to these revised Project Plans, including, but not limited to, the requirement that the revised Project Plans conform with EPA's comments.

7. Within thirty (30) days of EPA's written approval of the River Channelization Design and Project Plans, the Settling Defendant shall let the contract for the construction of the River Channelization in conformance with the River Channelization Design and Project Plans. If EPA notifies Settling Defendant that its proposed design of the River Channelization is not implementable and/or would not be effective, within thirty (30) days of EPA's written approval of the Revised River Channelization Project Plans, Settling Defendant shall let the contract for the construction of the River Channelization in

conformance with the Baker Design and the Revised River Channelization Project Plans. Settling Defendant shall ensure that within twenty-one (21) days of letting the contract for the construction of the River Channelization, Site preparation work is commenced. EPA or its representatives will conduct oversight of the construction.

8. The Settling Defendant shall perform and complete the River Channelization component of the Remedial Action in conformance with the EPA-approved River Channelization Design and Project Plans, or (if EPA determines that Settling Defendant's proposed River Channelization design is not implementable and/or would not be effective) in conformance with the Baker Design and the Revised River Channelization Project Plans. Settling Defendant shall notify EPA and seek prior approval of any necessary changes to the EPA-approved plans and specifications for the River Channelization or to the manner of implementation of those plans and specifications. Such changes shall not be implemented without EPA approval.

9. Within thirty (30) days of the date of receipt of EPA's written approval of the River Channelization Design and Project Plans, or within thirty (30) days of the date of receipt of EPA's written approval of the Revised River Channelization Project Plans (should EPA determine, pursuant to subsection VI.E.5., above, that the Baker Design must be implemented), Settling Defendant

shall submit a Draft O&M Plan to EPA. If EPA determines that the Draft O&M Plan should be altered, EPA will provide to Settling Defendant a written statement describing the required alterations (the "O&M Comments"). Within fourteen (14) days of Settling Defendant's receipt of the O&M Comments, Settling Defendant shall submit to EPA a Final O&M Plan which conforms to the O&M Comments. At such time as EPA determines that the O&M Plan is acceptable, EPA will transmit to Settling Defendant a written statement to that effect. Subject only to the Dispute Resolution provision below, EPA may unilaterally modify the O&M Plan prior to its approval.

10. Within ten (10) days following completion of 95% of the construction, the Settling Defendant and/or its contractor shall be available for a pre-final inspection in conjunction with EPA and/or EPA's designated representatives. The pre-final inspection shall include a site inspection of the entire River Channelization area to determine project completeness and consistency with the River Channelization Design and Project Plans (or, as appropriate, the Baker Design and the Revised River Channelization Project Plans), and to discuss procedures and requirements for project close-out and completion.

11. Within fourteen (14) days following the pre-final inspection, the Settling Defendant shall submit a Pre-Final Inspection Report which shall include but not be limited to: a discussion of the outstanding construction items,

the actions required to resolve those items, the date when those items will be completed, and a proposed date for the final inspection.

12. Within ten (10) days following the completion of the outstanding items outlined in the Pre-Final Inspection Report, Settling Defendant and/or its contractor shall be available for a final inspection in conjunction with EPA and/or EPA's designated representative. This inspection will consist of a walk-through inspection of the entire River Channelization area. The inspection will focus on the outstanding construction items identified in the Pre-Final Inspection Report. If any items are still unresolved, the inspection will be considered a pre-final inspection requiring another Pre-Final Inspection Report.

13. Within sixty (60) days of completion of the River Channelization, the Settling Defendant shall submit a Draft Remedial Action Report for the River Channelization to EPA which includes a Notice of Completion indicating that the River Channelization has been completed in compliance with the terms set forth in the River Channelization Design and Project Plans (or the Baker Design and the Revised River Channelization Project Plans, if EPA determines, pursuant to subsection VI.E.5., above, that the Baker Design must be implemented) and this Consent Decree and which provides as-built engineering drawings which depict

the construction areas. The as-built drawings shall be signed and stamped by a professional engineer licensed to practice in the State of New York, and shall be accompanied by that engineer's certification that the River Channelization has been completed in conformance with the terms of the River Channelization Design and Project Plans (or, as appropriate, the Baker Design and the Revised River Channelization Project Plans).

14. The Draft Remedial Action Report submitted to EPA by the Settling Defendant shall also include, but shall not necessarily be limited to, the following:

- a) verification that all remedial equipment has been dismantled and removed from the Site;
- b) documentation that all other terms or specifications contained in the River Channelization Design and Project Plans, or, as appropriate, the Baker Design and the Revised River Channelization Project Plans, and the SOW have been implemented satisfactorily in accordance with this Consent Decree.

15. EPA will either approve the Draft Remedial Action Report, thus making it the Final Remedial Action Report, or require modifications. EPA will notify the Settling Defendant in writing of its approval or of the required modifications.

16. Should EPA require modifications to the Draft Remedial Action Report, the Settling Defendant shall have fifteen (15) days from the date of its receipt of

EPA's written requirements of modifications to make the required modifications and submit the revised Draft Remedial Action Report to EPA.

17. EPA will make a final evaluation of the sufficiency of the Draft Remedial Action Report and will notify the Settling Defendant of its determination. Subject only to the Dispute Resolution provision below, EPA may modify the Draft Remedial Action Report unilaterally.

F. Landfill Remediation

1. The Landfill Remediation shall be designed and implemented in two phases. "Phase I" of the Landfill Remediation shall include the actions specified in Subsections VI.B.2. through 5. and VI.B.7., above, as well as the placement of a temporary 1-foot clay cover over the portion of the CELA which receives wastes from the SLA (or an alternative measure, approved by EPA, which would be at least as effective as a 1-foot clay cover in protecting the SLA wastes and the surface of the CELA from volatilization, erosion, infiltration and surface runoff during the period prior to the placement of a permanent cap on the CELA). "Phase II" of the Landfill Remediation shall include the actions specified in Subsections VI.B.6. and 7., above.

2. Within thirty (30) days of the effective date of this Decree, Settling Defendant shall submit to EPA a Pre-Excavation Sampling and Analysis Plan relating to the additional sampling and analysis that is needed to support

the design of the Landfill Remediation. The Pre-Excavation Sampling and Analysis Plan shall include, but not necessarily be limited to, the following items:

- a. a map depicting sampling locations;
- b. an identification of the contractors and subcontractors that will assist in the performance of the sampling and analysis activities and a summary of their respective responsibilities;
- c. a schedule for performance of specific tasks;
- d. a Quality Assurance/Quality Control ("QA/QC") Plan which shall be completed in accordance with Section 10 of the EPA publication "Test Methods for Evaluating Solid Wastes" ("SW-846"), 2d ed., and the document entitled "Guidance for Preparation of Combined Work/Quality Assurance Project Plans for Environmental Monitoring" (USEPA, Office of Water Regulations and Standards, May, 1984);
- e. a description of the chain of custody procedures to be followed, which shall conform to those set forth in the National Enforcement Investigations Center Policies and Procedures Manual, as revised in November, 1984, the National Enforcement Investigations Center Manual for the Evidence Audit (September, 1981) and Section 1.3 of SW-846; and
- f. a Site Health and Safety Plan (including a Contingency Plan).

3. EPA will either approve the Pre-Excavation Sampling and Analysis Plan or require modifications, and will notify the Settling Defendant in writing of such approval or required modifications.

4. Should EPA require modifications to the Pre-Excavation Sampling and Analysis Plan, the Settling Defendant shall have fourteen (14) days from the date of receipt of EPA's required modifications to make such modifications and submit the revised Sampling and Analysis Plan to EPA.

5. At such time as EPA determines that the Pre-Excavation Sampling and Analysis Plan is acceptable, EPA will transmit to Settling Defendant a written statement to that effect. Prior to its approval by EPA and subject only to the Dispute Resolution provision below, the Sampling and Analysis Plan may be modified by EPA unilaterally. Settling Defendant shall perform the sampling and analysis needed for the design of the Landfill Remediation in a manner that is in conformance with the EPA-approved Pre-Excavation Sampling and Analysis Plan.

6. Within sixty (60) days of the effective date of this Decree, the Settling Defendant shall submit to EPA the Preliminary Design for Phase I of the Landfill Remediation, which submittal shall include the plans and specifications, 30% complete, schedules and other pertinent information as set forth in the above-mentioned OSWER

Directive.

7. EPA will review the Preliminary Design submission and provide written comments to ensure that the design is progressing in a manner consistent with the September 30, 1985 ROD, the SOW and accepted environmental and construction standards. If desired by any party, a meeting will take place to discuss the comments and the remainder of the design. Settling Defendant shall perform the remainder of the design, and if necessary, shall amend those portions already completed, in conformance with EPA's comments.

8. Within thirty (30) days of receipt of the later of EPA's written comments on the Preliminary Design and EPA's approval of the Pre-Excavation Sampling and Analysis Plan, the Settling Defendant shall submit to EPA the Intermediate Design for Phase I of the Landfill Remediation which shall include the plans and specifications, 60% complete, schedules and other pertinent information as set forth in the above-mentioned OSWER Directive. The Intermediate Design shall also include the analytical results of all sampling conducted to support the design of Phase I of the Landfill Remediation, including, but not limited to, the results of soil borings of the SLA and CELA. A summary of said data, as well as a QA/QC evaluation of the data, shall also be submitted with the Intermediate Design.

9. EPA will review the Intermediate Design submission and provide written comments to ensure that the design is progressing in a manner consistent with the ROD, the SOW and accepted environmental and construction standards. If desired by any party, a meeting will take place to discuss the comments and the remainder of the design. Settling Defendant shall perform the remainder of the design, and if necessary, shall amend those portions already completed, in conformance with EPA's comments.

10. Within thirty (30) days of receipt of EPA's written comments on the Intermediate Design, the Settling Defendant shall submit to EPA the Prefinal Design for Phase I of the Landfill Remediation which shall include the plans and specifications, 95% complete, schedules and other pertinent information as set forth in the above-mentioned OSWER Directive and which shall identify the facilities that Settling Defendant proposes to use for the off-site transfer, treatment, storage or disposal of the wastes to be transported from the Site. *

11. EPA will either approve the Prefinal Remedial Design for Phase I of the Landfill Remediation, thus making it the Final Remedial Design for Phase I of the Landfill Remediation (hereinafter, the "Phase I Final Remedial Design") or require modifications and will notify the Settling Defendant in writing of such approval or required modifications.

12. Should EPA require modifications to the Prefinal Remedial Design for Phase I of the Landfill Remediation, the Settling Defendant shall have fourteen (14) days from the date of its receipt of EPA's written request to make the required modifications and submit the Phase I Final Remedial Design to EPA. At such time as EPA determines that the Phase I Final Remedial Design is acceptable, EPA will transmit to Settling Defendant a written statement to that effect. Prior to its approval by EPA and subject only to the Dispute Resolution provision below, EPA may modify the Phase I Final Remedial Design unilaterally.

13. Within thirty (30) days of EPA's written approval of the Phase I Final Remedial Design, the Settling Defendant shall submit to EPA: (a) a Site Health and Safety Plan (including a Contingency Plan); (b) a Draft O&M Plan; (c) a Quality Assurance Project Plan; (d) A Sampling and Analysis Plan; and (e) a Project Construction Schedule. These submittals are hereinafter collectively referred to as the "Landfill Project Plans". The Landfill Project Plans shall be consistent with the EPA-approved Final Remedial Design and the OSWER Directive.

14. EPA will either approve the Landfill Project Plans or require modifications. EPA will notify the Settling Defendant in writing of its approval or the required modifications.

15. Should EPA require modifications to any or all of the Landfill Project Plans, Settling Defendant shall have

fourteen (14) days from the date of receipt of EPA's written request to make the required modifications and submit the final Landfill Project Plans to EPA.

16. At such time as EPA determines that the Landfill Project Plans are acceptable, EPA will transmit to Settling Defendant a written statement to that effect. Prior to their approval by EPA and subject only to the Dispute Resolution provision below, EPA may modify the Landfill Project Plans unilaterally.

17. Within thirty (30) days of receipt of EPA's written approval of the Landfill Project Plans for Phase I of the Landfill Remediation, the Settling Defendant shall initiate the construction of said remedy in accordance with the approved Phase I Final Remedial Design and the Landfill Project Plans. The phrase "initiate the construction," for purposes of the previous sentence, means the commencement of Site preparation activities. EPA or its representatives will conduct oversight of Settling Defendant's construction activities.

18. The Settling Defendant shall perform and complete the construction of Phase I of the Landfill Remediation component of the Remedial Action in accordance with the EPA-approved Phase I Final Remedial Design and the EPA-approved Landfill Project Plans. Settling Defendant shall notify EPA and seek prior approval of any necessary changes to the EPA-approved Phase I Final Remedial Design

or to the manner of implementation of that Design. Such changes shall not be implemented without EPA approval.

19. If EPA determines that the Draft O&M Plan submitted by Settling Defendant pursuant to subsection VI.F.13., above (as modified according to EPA's comments on the Landfill Project Plans) need not be altered, EPA will provide Settling Defendant with a written statement to the effect that the Draft O&M Plan is acceptable and will be considered to be the Final O&M Plan. If EPA determines that the Draft O&M Plan should be altered, EPA will provide to Settling Defendant a written statement describing the required alterations ("the O&M Comments").

20. Within fourteen (14) days of Settling Defendant's receipt of the O&M Comments, Settling Defendant shall submit to EPA a Final O&M Plan which conforms to the O&M Comments. At such time as EPA determines that the O&M Plan is acceptable, EPA will transmit to Settling Defendant a written statement to that effect. Subject only to the Dispute Resolution provision below, EPA may unilaterally modify the O&M Plan prior to its approval. The O&M Plan shall provide for, among other things, maintenance and groundwater monitoring of the CELA in accordance with 40 CFR Part 264. X

21. Within ten (10) days following completion of 95% of the construction, the Settling Defendant and/or its contractor shall be available for a pre-final inspection in conjunction with EPA and/or EPA's designated represen-

tatives. The pre-final inspection shall include a site inspection of the landfill area to determine project completeness and consistency with the Phase I Final Remedial Design, and to discuss procedures and requirements for project completion and close-out.

22. Within fourteen (14) days following the pre-final inspection, the Settling Defendant shall submit a Pre-Final Inspection Report which shall include, but not be limited to, a discussion of the outstanding construction items, the actions required to resolve those items, the date when those items will be completed, and a proposed date for the final inspection.

23. Within ten (10) days following the completion of the outstanding items outlined in the Pre-Final Inspection Report, Settling Defendant and/or its contractor shall be available for a final inspection in conjunction with EPA and/or EPA's designated representative. This inspection will consist of a walk-through inspection of the entire Phase I Landfill Remediation area. The inspection will focus on the outstanding construction items identified in the Pre-Final Inspection Report. If any items are still unresolved, the inspection will be considered a pre-final inspection requiring another Pre-Final Inspection Report.

24. Within sixty (60) days of completion of Phase I of the Landfill Remediation component of the Remedial Action, the Settling Defendant shall submit a Draft Remedial Action Report for Phase I of the Landfill Remediation to EPA which

shall include a Notice of Completion indicating that Phase I of the Landfill Remediation has been completed in compliance with the terms set forth in the EPA-approved SOW and the Phase I Final Remedial Design and this Consent Decree and which provides as-built engineering drawings which depict the construction areas. The as-built drawings shall be signed and stamped by a professional engineer licensed to practice in the State of New York, and shall be accompanied by that engineer's certification that Phase I of the Landfill Remediation has been completed in conformance with the terms of the EPA-approved SOW and the Phase I Final Remedial Design.

25. The Draft Remedial Action Report for Phase I of the Landfill Remediation shall also include, but shall not necessarily be limited to, the following:

- a) verification that all remedial equipment has been decontaminated, dismantled and removed from the Site;
- b) the results of all verification sampling and analysis documenting that the SLA has been remediated according to the specifications in the Phase I Final Remedial Design, the Landfill Project Plans, the ROD, and this Consent Decree;
- c) the results of all verification sampling and analysis documenting that the temporary 1-foot clay cover (or the EPA-approved alternative measure described in subsection VI.F.1., above)

conforms with the specifications in the Phase I Final Remedial Design, the Landfill Project Plans, the ROD, and this Consent Decree;

- d) the results of the first round of groundwater monitoring performed pursuant to the Operation and Maintenance Plan.
- e) verification that the SLA has been graded and revegetated according to the specifications in the Phase I Final Remedial Design;
- f) documentation that all other terms or specifications contained in the Phase I Final Remedial Design and in those portions of the ROD and the SOW which deal with Phase I of the Landfill Remediation have been met in accordance with this Consent Decree.

26. EPA will either approve the Draft Remedial Action Report, thus making it the Final Remedial Action Report for Phase I of the Landfill Remediation, or require modifications. EPA will notify the Settling Defendant in writing of its approval or the required modifications.

27. Should EPA require modifications to the Draft Remedial Action Report, the Settling Defendant shall have fifteen (15) days from the date of its receipt of EPA's written requirements of modifications to make the required modifications and submit the revised Draft Remedial Action Report to EPA.

28. EPA will make a final evaluation of the sufficiency of the Draft Remedial Action Report and will notify the Settling Defendant of its determination. Prior to its approval by EPA, and subject only to the Dispute Resolution provision below, EPA may modify the Draft Remedial Action Report unilaterally.

G. Landfill Remediation - Phase II

1. Within sixty (60) days after EPA's issuance of the Record of Decision for the refinery portion of the Site, the Settling Defendant shall submit to EPA the Preliminary Design for Phase II of the Landfill Remediation, which submittal shall include the plans and specifications, 30% complete, schedules and other pertinent information as set forth in the above-mentioned OSWER Directive. EPA will review the Preliminary Design submission and provide written comments to insure that the design is progressing in a manner consistent with the September 30, 1985 ROD, the SOW and accepted environmental and construction standards. If desired by any party, a meeting will take place to discuss EPA's comments and the remainder of the design. Settling Defendant shall perform the remainder of the design, and if necessary, shall amend those portions already completed, in conformance with EPA's comments.

2. Within thirty (30) days of receipt of EPA's written comments on the Preliminary Design, Settling Defendant shall submit to EPA the Intermediate Design for Phase

II of the Landfill Remediation, which shall include the plans and specifications, 60% complete, schedules and other pertinent information as set forth in the above-mentioned OSWER Directive. The provisions of Subsection VI.F.9., above, shall also apply with respect to the Intermediate Design for Phase II of the Landfill Remediation.

3. The Settling Defendant shall make subsequent design submissions with respect to Phase II of the Landfill Remediation in the same manner as is required above with respect to the design of Phase I of the Landfill Remediation. All of the terms of subsections VI.F.10. through 12., above, shall also apply with respect to the design of Phase II of the Landfill Remediation, including, but not limited to, the time periods specified in those paragraphs and the requirement that the design documents conform with EPA's comments.

4. Within thirty (30) days of EPA's written approval of the Final Remedial Design for Phase II of the Landfill Remediation (hereinafter, the "Phase II Final Remedial Design"), the Settling Defendant shall submit to EPA revisions of the Landfill Project Plans previously submitted and approved pursuant to subsections VI.F.13. through 16. and VI.F.19. and 20., above, to reflect the work to be performed under Phase II of the Landfill Remediation. These revisions shall be consistent with the EPA-approved Phase II Final Remedial Design. All of the terms of

subsections VI.F.14. through 16., above, shall apply with respect to the revisions to the Landfill Project Plans, including, but not limited to, the time periods specified in those subsections and the requirement that the plans be modified as required by EPA. The Landfill Project Plans, as modified by the revisions which are to be submitted and approved pursuant to this paragraph, are hereinafter referred to as the "Phase II Landfill Project Plans."

5. Within thirty (30) days of receipt of EPA's written approval of the Phase II Landfill Project Plans, the Settling Defendant shall initiate the construction of Phase II of the Landfill Remediation in accordance with the Phase II Landfill Project Plans and the approved Phase II Final Remedial Design. The phrase "initiate the construction," for purposes of the previous sentence, means the commencement of Site preparation activities. EPA or its representatives will conduct oversight of Settling Defendant's construction activities.

6. The Settling Defendant shall perform and complete the construction of Phase II of the Landfill Remediation component of the Remedial Action in accordance with the EPA-approved Phase II Final Remedial Design and the EPA-approved Phase II Landfill Project Plans. Settling Defendant shall notify EPA and seek prior approval of any necessary changes to the EPA-approved Phase II Final Remedial Design or to the manner of implementation of that

Design. Such changes shall not be implemented without EPA approval.

7. If EPA determines, following the commencement of construction, that the O&M Plan included in the Phase II Landfill Project Plans need not be altered, EPA will provide Settling Defendant with a written statement to that effect. If EPA determines that the O&M Plan should be altered, EPA will provide to Settling Defendant a written statement describing the required alterations ("the O&M Comments").

8. Within fourteen (14) days of Settling Defendant's receipt of the O&M Comments, Settling Defendant shall submit to EPA a Final O&M Plan which conforms to the O&M Comments. At such time as EPA determines that the O&M Plan is acceptable, EPA will transmit to Settling Defendant a written statement to that effect. Subject only to the Dispute Resolution provision below, EPA may unilaterally modify the O&M Plan prior to its approval. The O&M Plan shall provide for, among other things, post-closure care and groundwater monitoring of the CELA in accordance with applicable portions of 40 CFR Part 264.

9. Within ten (10) days following completion of 95% of the construction, the Settling Defendant and/or its contractor shall be available for a pre-final inspection in conjunction with EPA and/or EPA's designated representatives. The pre-final inspection shall include a site inspection of the landfill area to determine project

completeness and consistency with the Phase II Final Remedial Design, and to discuss procedures and requirements for project completion and close-out.

10. Within fourteen (14) days following the pre-final inspection, the Settling Defendant shall submit a Pre-Final Inspection Report which shall include, but not be limited to, a discussion of the outstanding construction items, the actions required to resolve those items, the date when those items will be completed, and a proposed date for the final inspection.

11. Within ten (10) days following the completion of the outstanding items outlined in the Pre-Final Inspection Report, Settling Defendant and/or its contractor shall be available for a final inspection in conjunction with EPA and/or EPA's designated representative. This inspection will consist of a walk-through inspection of the entire Phase II Landfill Remediation area. The inspection will focus on the outstanding construction items identified in the Pre-Final Inspection Report. If any items are still unresolved, the inspection will be considered a pre-final inspection requiring another Pre-Final Inspection Report.

12. Within sixty (60) days of completion of Phase II of the Landfill Remediation component of the Remedial Action, the Settling Defendant shall submit a Draft Remedial Action Report for Phase II of the Landfill Remediation to EPA which shall include a Notice of Completion indicating that Phase II of the Landfill Remediation has

been completed in compliance with the terms set forth in the EPA-approved SOW and the Phase II Final Remedial Design and this Consent Decree and which provides as-built engineering drawings which depict the construction areas. The as-built drawings shall be signed and stamped by a professional engineer licensed to practice in the State of New York, and shall be accompanied by that engineer's certification that Phase II of the Landfill Remediation has been completed in conformance with the terms of the EPA-approved SOW and the Phase II Final Remedial Design.

13. The Draft Remedial Action Report for Phase II of the Landfill Remediation shall also include, but shall not necessarily be limited to, the following:

- a) verification that all remedial equipment has been decontaminated, dismantled and removed from the Site;
- b) the results of all verification sampling and analysis documenting that the CELA has been remediated according to the specifications in the Phase II Final Remedial Design, the Phase II Landfill Project Plans, the ROD, and this Consent Decree;
- c) the results of the first round of groundwater monitoring performed after the placement of the permanent cap on the CELA;
- d) verification that the CELA has been graded and revegetated according to the specifications in

the Phase II Final Remedial Design;

- e) documentation that all other terms or specifications contained in the Phase II Final Remedial Design and in those portions of the ROD and the SOW which deal with Phase II of the Landfill Remediation have been met in accordance with this Consent Decree.

14. All of the terms of subsections VI.F.26. through 28., above, shall apply with respect to the Draft Remedial Action Report for Phase II of the Landfill Remediation, including, but not limited to, the time periods specified in those paragraphs and the requirement that the Remedial Action Report conform with EPA's comments.

15. If the Record of Decision for the refinery portion of the Site selects a remedy which includes the disposal of material from the refinery portion of the Site onto the CELA, then the requirements of subsections VI.G.1. through 14., above, shall not apply. In that event, the closure of the CELA shall be accomplished in conjunction with the implementation of the Record of Decision for the refinery portion of the Site. EPA will give Settling Defendant an opportunity to agree to perform the remedial action selected by that Record of Decision.

H. Unless otherwise directed by EPA, Settling Defendant shall not commence construction activities with respect to the River Channelization until after EPA approval of the River Chan-

nelization Design and Project Plans (or after EPA approval of the Revised River Channelization Project Plans referred to in subsection VI.E.6., above) and shall not commence construction activities with respect to Phase I and Phase II of the Landfill Remediation until after EPA approval of the Final Remedial Design and the Project Plans for Phase I and Phase II of the Landfill Remediation, respectively. In addition, Settling Defendant shall not commence sampling activities at or about the Site until after EPA approval of the sampling and analysis plan pertaining to such sampling. 11

I. Operation and Maintenance

Settling Defendant shall perform operation and maintenance of the Remedial Action in conformance with the EPA-approved O&M Plans. The O&M Plans shall provide for, among other things, the periodic submittal of written reports summarizing O&M activities and problems during the preceding reporting period. These O&M reports shall be submitted to EPA by the dates specified in the EPA-approved O&M Plans. 11

VII.

U.S. EPA PERIODIC REVIEW TO ASSURE PROTECTION OF HUMAN
HEALTH AND ENVIRONMENT

Pursuant to Section 121(c) of CERCLA, 42 U.S.C. §9621(c), and any applicable regulations, EPA will review the Remedial Action at the Site at least every five (5) years after the entry of this Consent Decree to assure that human health and the environment are being protected by the Remedial Action being implemented. If upon any such review, EPA determines that further response action 11

is appropriate at the Site, to assure protection of human health and the environment, then EPA may take or require such additional response action.

Settling Defendant agrees to reimburse EPA for the costs incurred in conducting the periodic reviews referred to in this Section.

Upon completion of each of the reviews pursuant to this Section, EPA will notify Settling Defendant of its determination and may order additional response action pursuant to Section 106 of CERCLA, or may take additional response action pursuant to Section 104 of CERCLA, to assure protection of human health and the environment. Settling Defendant will be provided with an opportunity to confer with EPA on any response action ordered by EPA pursuant to this Section and to submit written comments for the record. After the period for submission of written comments is closed, EPA will either affirm, modify or rescind the order for further response action.

VIII.

SITE HEALTH AND SAFETY PLANS

The Site Health and Safety Plans that the Settling Defendant will submit pursuant to this Decree shall satisfy the requirements of the Occupational Safety and Health Guidance for Hazardous Waste Site Activities (October 1985 (DHH 5 NIOSH) Publication No. 85-115) and EPA's Standard Operating Safety Guides (November, 1984), or, if the said guidance documents are revised, the revised versions of those guidance documents. EPA agrees to notify Settling Defendant if the latter of the two

guidance documents referred to above is revised.

IX.

QUALITY ASSURANCE/QUALITY CONTROL ✕

In order to provide quality assurance and maintain quality control regarding all samples collected pursuant to this Decree, the Settling Defendant shall:

A. Ensure that all contracts with laboratories utilized by the Settling Defendant for analysis of samples taken pursuant to this Decree provide for access of EPA personnel and EPA-authorized representatives to assure the accuracy of laboratory results related to the Site.

B. Ensure that the laboratories utilized by the Settling Defendant for analysis of samples taken pursuant to this Decree perform all analyses according to accepted EPA methods or methods approved in writing by EPA. The accepted EPA methods are those documented in the "Contract Lab Program Statement of Work for Inorganic Analysis" and the "Contract Lab Program Statement of Work for Organic Analysis," dated July, 1985, and any amendments made thereto during the implementation of this Decree.

C. Ensure that all laboratories utilized by the Settling Defendant for analysis of samples taken pursuant to this Decree participate in an EPA or EPA-equivalent QA/QC program.

D. Ensure that the laboratories utilized by Settling Defendant for analysis of samples taken pursuant to this Consent Decree analyze samples that may be submitted by EPA for quality assurance monitoring.

X.

PROJECT COORDINATOR

A. Within ten (10) days of the effective date of this Consent Decree, EPA and the Settling Defendant shall each designate Project Coordinators to monitor the progress of the Remedial Action and to coordinate communication between EPA and the Settling Defendant. The EPA Project Coordinator shall have the authority vested in the On-Scene Coordinator by the NCP as well as the authority to ensure that the Remedial Action is performed in accordance with all applicable statutes, regulations, and this Consent Decree. The EPA Project Coordinator shall also have the authority to require a cessation of the performance of the Remedial Action or any other activity at the Site that, in the opinion of the EPA Project Coordinator, may present or contribute to an endangerment to public health, welfare, or the environment or cause or threaten to cause the release of hazardous substances from the Site. In the event the EPA Project Coordinator suspends the Remedial Action or any other activity at the Site, EPA may extend the compliance schedule of this Consent Decree as appropriate for a period of time equal to the time of the suspension of the Remedial Action or other activities. EPA shall notify Settling Defendant, in writing, of any such unilateral extension. EPA and the Settling Defendant shall have the right to change their respective Project Coordinators. Such a change shall be accomplished by notifying the other party in writing at least seven days prior to the change where possible, and concurrently with the change or as soon thereafter as possible in

the event that advance notification is not possible.

B. The Settling Defendant's Project Coordinator shall have technical expertise sufficient to adequately oversee all aspects of the Work. He or she may assign other representatives, including other contractors, to serve as a Site representative for oversight of performance of daily operations during remedial activities. Settling Defendant's selection of a Project Coordinator shall be subject to EPA approval.

C. The EPA Project Coordinator may assign other representatives, including other EPA employees or contractors, to serve as a Site representative for oversight of performance of daily operations during remedial activities. Prior to invoking formal Dispute Resolution procedures, any disputes arising between the EPA Site representative and Settling Defendant's Site representative or their contractors which cannot be resolved shall be referred to the EPA Project Coordinator.

XI.

FACILITY ACCESS, SAMPLING, DOCUMENT AVAILABILITY

A. To the extent that the Site or other areas where Work is to be performed hereunder is presently owned by parties other than those bound by this Consent Decree, Settling Defendant shall use its best efforts to obtain access agreements from the present owners within the following time periods for purposes of implementing the requirements of this Decree:

1. With respect to the access needed to perform the River Channelization, Settling Defendant shall use its best efforts to obtain such access agreements within ten (10)

days of EPA's approval of the River Channelization Design and Project Plans or, if the Baker Design is to be implemented pursuant to subsection VI.E.5., above, within ten (10) days of EPA's approval of the Revised River Channelization Project Plans.

2. With respect to the access needed to perform Phase I of the Landfill Remediation, Settling Defendant shall use its best efforts to obtain such access agreements within thirty (30) days of EPA's approval of the Phase I Final Remedial Design.

3. With respect to the access needed to perform Phase II of the Landfill Remediation, Settling Defendant shall use its best efforts to obtain such access agreements within thirty (30) days of EPA's approval of the Phase II Final Remedial Design.

4. With respect to the access needed to perform the required O&M of the River Channelization and Phases I and II of the Landfill Remediation, Settling Defendant shall use its best efforts to obtain such access agreements within sixty (60) days after the commencement of Site preparation work relating to each of those components of the Remedial Action.

5. With respect to the access needed to implement the Pre-Excavation Sampling and Analysis Plan referred to in Section VI.F., above, Settling Defendant shall use its best efforts to obtain such access within thirty (30) days of the effective date of this Decree. As appropriate,

access for such sampling need not be obtained in the form of a formal access agreement.

B. All access agreements and other arrangements for access that are obtained or made by Settling Defendant for purposes of implementing the requirements of this Decree shall provide access not only for Settling Defendant, but also for EPA and NYSDEC and authorized representatives or agents of EPA and NYSDEC.

C. If access is not obtained by Settling Defendant in accordance with and within the time periods specified in subsections A. and B., above, Settling Defendant shall so notify EPA, and the Settling Defendant shall use its best efforts to otherwise secure the necessary access. Should Settling Defendant, using its best efforts, be unable to obtain access to the Site or other areas where work is to be performed hereunder, Settling Defendant shall so notify EPA and shall include in that notification a summary of the steps Settling Defendant has taken to attempt to obtain access. If EPA determines that Settling Defendant's inability to obtain access is not the result of Settling Defendant's failure to exercise best efforts to obtain access, EPA will attempt to contact the property owners in question to request that the needed access be granted. As appropriate, EPA may also take additional measures to assist Settling Defendant in obtaining such access. Such measures may include, if deemed appropriate by EPA, the initiation of judicial or administrative action by EPA to obtain access. However, nothing in this paragraph or any other provision of this Decree shall be construed as a commitment or obligation on EPA's part to commence a

judicial or administrative action to obtain access. Settling Defendant shall reimburse EPA for all response costs, including enforcement costs, incurred by EPA in assisting Settling Defendant in obtaining such access.

D. During the effective period of this Decree, EPA, NYSDEC and their representatives, including contractors, shall have access at all reasonable times to the Site, and any other premises upon which field work or laboratory analytical work is to be performed under this Decree, for purposes of monitoring the progress of activities taking place, verifying any data or information submitted to EPA, conducting investigations relating to contamination at or near the Site, obtaining samples at the Site, inspecting and copying records, operating logs, contracts, or other documents required to assess the Settling Defendant's compliance with the Decree, or for any other purpose reasonably related to EPA's and/or NYSDEC's oversight of the implementation of this Decree.

E. Within seven (7) days of a request by EPA, Settling Defendant shall make available to EPA the results of all sampling and/or tests or other data generated by or on behalf of Settling Defendant with respect to the implementation of this Consent Decree.

F. At the request of EPA, Settling Defendant shall provide split or duplicate samples to EPA or allow split or duplicate samples to be taken by EPA or its authorized representatives of any samples collected by Settling Defendant during the

course of the implementation of this Consent Decree. Settling Defendant shall notify EPA not less than fourteen (14) days in advance of the commencement of any sample collection activity, and shall furnish as much notice as possible of any necessary changes to the schedule. In addition, EPA shall have the right to take any additional samples that it deems necessary.

G. In addition to any other requirement specified herein, any analytical or design data generated or obtained by the Settling Defendant that are related to the Site shall be provided to EPA within seven (7) days of any request by EPA for such data. EPA shall, upon request, make available to the Settling Defendant any analytical or design data generated or obtained by EPA that are related to the Site and are not privileged or confidential.

H. Notwithstanding any other provision of this Consent Decree, EPA hereby retains all of its information gathering, access and inspection authority under CERCLA, RCRA and any other applicable statute or regulations.

XII.

PUBLIC INSPECTION

All data, factual information, and documents submitted by the Settling Defendant to EPA pursuant to this Consent Decree shall be available for public inspection unless identified as confidential by Settling Defendant and determined by EPA to merit treatment as confidential business information in accordance with applicable law. The Settling Defendant shall not assert a claim of confidentiality regarding any monitoring or hydrogeologic data, any information specified under Section 104(e)(7)(F)(i)

through (viii) of CERCLA, or any other chemical, scientific or engineering data related to the Remedial Action or submitted pursuant to this Consent Decree.

XIII.

REPORTING REQUIREMENTS

A. In addition to any other requirement of this Consent Decree, Settling Defendant shall prepare and provide to EPA written monthly progress reports which: (1) describe the actions which have been taken toward achieving compliance with this Consent Decree during the previous month; (2) include all results of sampling and tests and all other data received by Settling Defendant during the previous month in the implementation of the Work; (3) describe all actions, data and plans which are scheduled for the next month and provide other information relating to the progress of design and construction as is customary in the industry; (4) include information regarding percentage of completion, all delays encountered or anticipated that may affect the future schedule for completion of the Remedial Action, and a description of all efforts made to mitigate those delays or anticipated delays. These progress reports are to be submitted to EPA by the tenth day of every month following the effective date of this Consent Decree.

B. If the date for submission of any item or notification required by this Consent Decree falls upon a weekend or State or federal holiday, the time period for submission of that item or notification is extended to the next working

day following the weekend or holiday.

C. Upon the occurrence of any event during performance of the Work which, pursuant to Section 103 of CERCLA, requires reporting to the National Response Center, Settling Defendant shall, within 24 hours, orally notify the EPA Project Coordinator, or, in the event of the unavailability of the EPA Project Coordinator, the Response and Prevention Branch, Region II, United States Environmental Protection Agency, in addition to the reporting required by Section 103. Within 20 days of the onset of such an event, Settling Defendant shall furnish to EPA a written report setting forth the events which occurred and the measures taken, and to be taken, in response thereto.

XIV.

ASSURANCE OF ABILITY TO COMPLETE WORK

The Settling Defendant shall demonstrate its ability to complete the Remedial Action and to pay all claims that may arise from the performance of the Remedial Action by obtaining, and presenting to EPA for approval within fifteen (15) days after the effective date of this Decree, one of the following items: 1) performance bond; 2) letter of credit; 3) guarantee by a third party; or 4) financial information in accordance with 40 CFR §264.143. The bond, letter of credit, guarantee or financial information must be sufficient to assure EPA that the Settling Defendant has enough assets to make it unnecessary to require additional assurances. The Settling Defendant shall annually submit such financial assurances. If EPA determines

such financial assurances to be inadequate, EPA shall so inform the Settling Defendant by written notice and the Settling Defendant shall have thirty (30) days from the date of receipt of such written notice to obtain and provide EPA with further financial assurances which shall assure EPA at its discretion that the Settling Defendant has sufficient assets to complete the Remedial Action and to pay all claims against Settling Defendant that may arise from the performance of the Remedial Action.

XV.

RETENTION OF RECORDS

A. The Settling Defendant shall preserve and retain all non-privileged records and documents now in its possession or control or which may come into its possession or control that relate in any manner to the Work at the Site, regardless of any document retention policy to the contrary, for six (6) years after the certification of completion of the Remedial Action.

B. Until completion of the Remedial Action and termination of this Consent Decree, the Settling Defendant shall preserve, and shall instruct its contractors, the contractors' subcontractors, and anyone else acting on the Settling Defendant's behalf at the Site to preserve (in the form of originals or exact copies, or, if approved by EPA, microfiche or microfilm of all originals) all non-privileged records, documents, and information of whatever kind, nature, or description relating to the performance of the Work at the Site. Upon the completion of the Remedial Action and if requested by EPA, copies of all non-

privileged records, documents, and information shall be delivered to the EPA Project Coordinator.

XVI.

RESPONSE AUTHORITY

Nothing in this Consent Decree shall be deemed to limit the response authority of EPA under Section 104 of CERCLA, 42 U.S.C. §9604, and its enforcement authority under Section 106 of CERCLA, 42 U.S.C. §9606, or any other federal response or enforcement authority, except as specifically provided in Section XXI, below.

XVII.

FORCE MAJEURE

A. "Force Majeure" for purposes of this Consent Decree is defined as any event arising from causes beyond the control of Settling Defendant which delays or prevents the performance of any obligation under this Consent Decree. "Force Majeure" shall not include inability of Settling Defendant to pay necessary costs, increased costs or expenses, or nonattainment of the requirements of this Decree, or failure to make timely and complete application for permits, access and any other necessary authorizations.

B. When circumstances occur which may delay the completion of any phase of the Work, or delay access to the Site or to any other property on which any part of the Work is to be performed -- whether or not such circumstances are caused by or constitute a "Force Majeure" event -- Settling Defendant shall, when it first becomes aware of such circumstances, immediately notify the EPA Project Coordinator by telephone, or in the event

of his or her unavailability, the Chief of the Site Compliance Branch of the Emergency and Remedial Response Division of EPA, Region II. Within ten (10) days of the date when Settling Defendant first becomes aware of the event which it contends is responsible for the delay, Settling Defendant shall supply to EPA in writing the reason(s) for and anticipated duration of such delay, Settling Defendant's rationale for interpreting such circumstances as being beyond its control (should that be Settling Defendant's claim), the measures taken and to be taken by Settling Defendant to prevent or minimize the delay, and the timetable for implementation of such measures. Such notice shall be accompanied by all available pertinent documentation, including, but not limited to, third party correspondence. Failure to give oral notice to the EPA Project Coordinator and to give written explanation to EPA in a timely manner shall constitute a waiver of any claim of Force Majeure. Settling Defendant shall use its best efforts to discover and keep apprised of any circumstances which may delay the completion of any phase of the Work or delay access to the Site or any other property on which any part of the Work is to be performed.

C. If the Settling Defendant claims and EPA agrees that a delay is or was attributable to "Force Majeure", the Parties may modify this Consent Decree or the affected plans or schedules incorporated in this Decree to provide such additional time as may be necessary to allow the completion of the specific phase of Work and/or any succeeding phase of the Work affected by such delay, with such additional time not to exceed the actual

duration of the delay caused by the Force Majeure.

D. If EPA does not agree that the reason for the delay was "Force Majeure", or that the duration of the delay is or was warranted under the circumstances, the Settling Defendant may seek to resolve the dispute according to Section XVIII, herein. Settling Defendant shall have the burden of proving that the delay is or was caused by circumstances beyond its control and that the amount of additional time requested is necessary to compensate for those circumstances.

XVIII.

DISPUTE RESOLUTION

A. Any dispute between EPA and the Settling Defendant which arises under or with respect to this Consent Decree shall in the first instance be the subject of informal negotiations between the parties to the dispute for a period of up to thirty (30) days from the time notice of the existence of the dispute is received. The period for negotiations may be extended by agreement between EPA and the Settling Defendant.

B. In the event that the parties cannot resolve a dispute by informal negotiations under the preceding paragraph, then the interpretation advanced by EPA shall be considered binding unless, within fourteen (14) days after the end of the informal negotiation period, the Settling Defendant files a petition with this Court setting forth the matter in dispute, the efforts made by the parties to resolve it, the relief requested, and the schedule, if any, within which the dispute must be resolved to ensure orderly implementation of this Consent Decree. EPA may file a response

to Settling Defendant's petition. Any party may present a disputed matter to the Court before the end of the thirty-day period if the matter concerns stipulated penalties or otherwise requires early resolution. The dispute resolution procedures of this Section shall be the exclusive mechanism to resolve disputes arising under or with respect to this Consent Decree.

C. The filing of a petition asking the Court to resolve a dispute shall not of itself extend or postpone or affect in any way any obligation of the Settling Defendant under this Consent Decree, except that payment of stipulated penalties with respect to the disputed matter shall be stayed pending resolution of the dispute. Notwithstanding the stay of payment, stipulated penalties shall accrue from the first day of noncompliance with any applicable provision of this Consent Decree. In the event that the Settling Defendant does not prevail on the disputed issue, EPA may assess stipulated penalties, and if such penalties are assessed, Settling Defendant shall pay them as provided in Section XX, unless otherwise ordered by the Court for good cause shown.

D. In proceedings on any dispute, the Settling Defendant shall have the burden of demonstrating that the position of EPA is arbitrary and capricious or otherwise not in accordance with law or the provisions of this Decree.

XIX.

REIMBURSEMENT

A. After the end of the 1988 federal fiscal year, the United States will provide Settling Defendant with a full

accounting of the amounts paid by the State to its contractor for the preparation and development of the Baker Design, to the extent that those costs are paid by EPA pursuant to its Cooperative Agreement with the State, as well as the costs incurred by EPA in having the U.S. Army Corps of Engineers and its contractors and subcontractors complete the Baker Design. The United States will, at the same time, provide Settling Defendant with supporting documentation of those costs. Settling Defendant shall, within sixty (60) days of receipt of the said accounting and documentation, pay to the EPA Hazardous Substance Superfund (the "Fund") the amount claimed by the United States pursuant to this paragraph.

B. Settling Defendant shall also pay to the Fund all costs incurred by the United States after the lodging of this Consent Decree in conducting the periodic reviews referred to in Section VII, above, in assisting Settling Defendant in obtaining needed access to the Site or other areas where Work is to be performed hereunder, in reviewing or developing the plans, reports and other items required hereunder or in otherwise overseeing the implementation of the Work. Payment of any amounts due under this paragraph shall be made by the Settling Defendant within sixty (60) days of its receipt of a full accounting of the costs claimed by the United States, together with supporting documentation. The United States will submit claims to Settling Defendant under this paragraph on an annual basis, except that following EPA's submission to the Court of a Certification of Completion, pursuant

to Section XXXIII., below, the United States will submit claims to Settling Defendant under this paragraph once every three (3) years.

C. All payments required by this section shall be made by cashier's or certified check made payable to the "EPA Hazardous Substance Superfund" and shall reference on their face the "Sinclair Refinery Site" and the civil action number of this case. Payment shall be deemed made when received at the following address:

U.S. Environmental Protection Agency
Superfund
P.O. Box 371003M
Pittsburgh, PA 15251

Settling Defendant shall transmit copies of each check to the persons specified in Section XXVII, below.

D. Disputes between the parties as to whether particular costs claimed by EPA under this section are not inconsistent with the NCP shall be resolved in accordance with the Dispute Resolution provision above; PROVIDED that should Settling Defendant wish to seek judicial resolution of any such disputes, Settling Defendant shall file a petition with this Court relating to the costs in dispute, and setting forth the information specified in Section XVIII.B., above, within forty-five (45) days of Settling Defendant's receipt of the claim which includes the disputed costs.

XX.

STIPULATED PENALTIES

A. EPA may assess stipulated penalties on Settling Defendant in the amounts set forth below for each day or part

thereof that the Settling Defendant fails to comply with any requirement of this Decree (including, but not limited to, any time limit set forth in this Decree and any requirement set forth in an EPA-approved plan or schedule prepared pursuant to this Decree) and for each instance of such noncompliance, unless such noncompliance is excused under the terms of Section XVII, above. If such penalties are assessed, Settling Defendant shall pay them, subject only to subsection C., below. Such penalties shall be due and payable within fifteen (15) days of the Settling Defendant's receipt from EPA of a notification of noncompliance describing the noncompliance and indicating the amount of penalties due. Such sums shall be paid to the EPA Hazardous Substance Superfund and shall be remitted in the manner specified in Section XIX.C., above. All penalties begin to accrue on the first day of failure to achieve compliance and continue to accrue through the final day of correction of the noncompliance. Payment of penalties shall not alter in any way the Settling Defendant's obligation to comply with the requirements of this Decree.

B. 1. Stipulated penalties shall accrue as follows for failure by Settling Defendant to comply with any requirement of this Decree not specified in subsection B.2., below:

<u>Period of Noncompliance</u>		<u>Penalty per violation per day</u>
1st through 14th day	-	\$1,000
15th through 30th day	-	\$1,500
31st day and beyond	-	\$2,000

2. For failure by Settling Defendant to comply with

any of the following requirements of this Decree: Subsections VI.E.1., 3., 5. through 9., 11., 13., 14., 16., VI.F.1., 2., 4. through 10., 12., 13., 15., 17., 18., 20., 22., 24., 25., 27., VI.G.1. through 6., 8., 10., 12. through 14., and XIX.A. through C., stipulated penalties shall accrue as follows:

<u>Period of Noncompliance</u>		<u>Penalty per violation per day</u>
1st through 14th day	-	\$2,000
15th through 30th day	-	\$5,000
31st day and beyond	-	\$8,000

3. A single act or omission shall not be the basis for more than one type of stipulated penalty. However, a single act or omission may result in more than one day of stipulated penalties.

C. Settling Defendant may dispute EPA's right to the stated amount of stipulated penalties by filing a petition with the Court in accordance with Section XVIII, above, within 20 days of receipt of the notification of noncompliance. Penalties shall accrue but need not be paid during the dispute resolution period. If Settling Defendant fails to prevail upon resolution, however, EPA has the right to collect all penalties which accrued prior to and during the period of dispute.

D. Pursuant to 31 U.S.C. §3717, interest shall accrue on any amounts overdue under Subsections A. and B., above, at a rate established by the Department of Treasury for any period of such delinquency. A handling charge shall be assessed at the end

of each 30-day late period, and a six percent per annum penalty charge shall be assessed if the penalty is not paid within ninety (90) days of the due date.

E. Nothing in this section shall be construed as in any way limiting the right of the United States to seek any additional remedies, sanctions or penalties available by virtue of Settling Defendant's failure to comply with the requirements of this Consent Decree, including, but not limited to, penalties pursuant to Section 122(1) of CERCLA; PROVIDED THAT Settling Defendant's total penalty exposure for its first violation shall be limited to \$25,000 per day, and shall be limited to \$75,000 per day for second or subsequent violations of this Consent Decree.

F. No payments made under this section shall be tax deductible.

XXI.

COVENANT NOT TO SUE

A. In consideration of actions which will be performed and payments which will be made by the Settling Defendant under the terms of the Consent Decree, and except as otherwise specifically provided in this Decree, the United States covenants not to sue the Settling Defendant for Covered Matters. For purposes of this section, "Covered Matters" means any and all civil and administrative claims available to the United States under Sections 106(a) and 107(a) of CERCLA, 42 U.S.C. §§9606(a), 9607(a), and Section 7003 of RCRA, 42 U.S.C. §6973, for the performance or

funding of the Work required under this Consent Decree and for the reimbursement of the costs specified in Section XIX, above. This Covenant not to sue shall take effect upon EPA's issuance of a Certification of Completion in accordance with Section XXXIII, below, except that as to those actions that Settling Defendant is required, under this Decree, to perform after EPA's issuance of a Certification of Completion, this Covenant not to sue shall take effect upon Settling Defendant's satisfactory performance of those activities.

B. "Covered Matters" does not include:

- (1) Liability arising from hazardous substances removed from the Site;
- (2) Damages for injury to natural resources resulting from the release of hazardous substances at or from the Site;
- (3) Claims based on a failure by the Settling Defendant to meet the requirements of this Consent Decree, including, but not limited to, claims for injunctive relief or claims for civil penalties pursuant to Section 122(1) of CERCLA, 42 U.S.C. §9622(1);
- (4) Liability for violations of Federal or State law which occur during implementation of the Remedial Action;
- (5) Liability for response actions other than those specifically authorized by the September 30, 1985 ROD, including, but not limited to, liability for

any further response actions EPA deems necessary after conducting the periodic reviews referred to in Section VII, above.

- (6) Liability for all response costs incurred by the United States with respect to the Site, other than the response costs the reimbursement of which is required by Section XIX, above.

C. Notwithstanding any other provision in this Consent Decree, the United States reserves the right to institute proceedings in this action or to issue an order or to commence a new action: (1) seeking to compel the Settling Defendant to perform additional response work at the Site (or at any other area affected by a release or threat of release of hazardous substances at or from the Site), regardless of whether the additional response work is within the scope of the Work required under this Consent Decree or the September 30, 1985 ROD, or (2) seeking reimbursement of the United States' response costs, if:

- a. For proceedings prior to EPA certification of completion of the Remedial Action,

- (i) conditions at the Site, previously unknown to the United States, are discovered after the entry of this Consent Decree, or

- (ii) information is received, in whole or in part, after the entry of this Consent Decree,

and these previously unknown conditions or this information indicates that the Remedial Action is not protective of

human health and the environment; or

b. for proceedings subsequent to EPA certification of completion of the Remedial Action,

(i) conditions at the Site, previously unknown to the United States, are discovered after the certification of completion by EPA, or

(ii) information is received, in whole or in part, after the certification of completion by EPA,

and these previously unknown conditions or this information indicates that the Remedial Action is not protective of human health and the environment.

D. Notwithstanding any other provision in this Consent Decree, the covenant not to sue in subparagraph A, above, shall not relieve the Settling Defendant of its obligation to meet and maintain compliance with the requirements set forth in this Consent Decree, including the requirements of the September 30, 1985 ROD, which are incorporated herein (except to the extent that the SOW and other plans and designs approved by EPA under this Decree establish a different specification for the work to be done hereunder), and the United States reserves its right to take response actions at the Site in the event of a breach of the terms of this Consent Decree and to seek recovery of costs incurred after entry of the Consent Decree: 1) resulting from such a breach; 2) relating to any portion of the Work funded or performed by the United States and not reimbursed by Settling Defendant; or 3) incurred by the United States as a result of

having to take administrative action or seek judicial assistance to remedy conditions at or adjacent to the Site, and caused by conditions at the Site.

E. Nothing in this Consent Decree shall constitute or be construed as a release or a covenant not to sue regarding any claim or cause of action against any person, firm, trust, joint venture, partnership, corporation or other entity not a signatory to this Consent Decree for any liability it may have arising out of or relating to the Site. The United States expressly reserves the right to sue any person other than the Settling Defendant, in connection with the Site.

XXII.

NATURAL RESOURCES DAMAGES

This Consent Decree shall not be construed to affect in any way any claims that the United States may have against Settling Defendant for any liability for damages to, destruction of, or loss of natural resources in connection with or arising from the Site, and nothing in this Consent Decree shall be construed as a release or covenant not to sue Settling Defendant for any claims arising from damages to, destruction of, or loss of natural resources, or as the agreement of any Federal natural resource Trustee to covenant not to sue Settling Defendant pursuant to Section 122(j)(2) of CERCLA, 42 U.S.C. §9622(j)(2).

XXIII.

CONTRIBUTION PROTECTION

Settling Defendant may seek contribution from any other person

who is liable or potentially liable under Section 107(a) of CERCLA, 42 U.S.C. §9607(a), provided that the person has not resolved its liability to the United States in a judicially-approved settlement concerning the response action, pursuant to Section 113(f) of CERCLA, 42 U.S.C. §9613(f). EPA represents that it has not reached a settlement under CERCLA with respect to the Site with any other such party as of the effective date of this Decree. Upon EPA's issuance of a Certification of Completion pursuant to Section XXXIII, below, the Settling Defendant will have resolved its liability to the United States for the performance of the activities required by the September 30, 1985 ROD and this Decree and the payment of the costs specified in Section XIX, above, and pursuant to Section 113(f) of CERCLA, shall not be liable for claims for contribution regarding such matters; provided, that as to the particular actions that Settling Defendant is required, under this Decree, to perform after EPA's issuance of a Certification of Completion, Settling Defendant's liability to the United States for the performance of those actions will be deemed resolved, for purposes of Section 113(f) of CERCLA, upon Settling Defendant's satisfactory performance of those actions. The rights that Settling Defendant has, after resolving its liability to the United States in accordance with the preceding sentence, against any person who has not resolved its liability to the United States shall be subordinate to the rights of the United States. Settling Defendant shall notify EPA sixty (60) days prior to filing an action for contribution against any other party.

XXIV.

OTHER CLAIMS

A. Settling Defendant agrees to indemnify, save and hold harmless EPA and its representatives from any and all claims or causes of action arising from acts or omissions of Settling Defendant and/or its contractors, subcontractors, or any other person acting on their behalf in the performance of the Remedial Action or their failure to perform fully or complete the Remedial Action.

B. EPA is not to be construed as a party to, and does not assume any liability for, any contract entered into by Settling Defendant in carrying out the activities pursuant to this Consent Decree. The proper completion of the Work under this Consent Decree is solely the responsibility of Settling Defendant.

C. Settling Defendant waives any claims for damages or reimbursement from the United States or for set-off of any payments made or to be made to the United States, arising from or on account of any contract, agreement or arrangement between Settling Defendant and any person performing work on or with respect to the Site, including, but not limited to, claims on account of construction delays.

XXV.

CLAIMS AGAINST THE FUND

Settling Defendant waives any rights it may have to assert any claims pursuant to Sections 106(b)(2), 111 and/or 112 of CERCLA, 42 U.S.C. §§9606(b)(2), 9611, 9612, or any other provision of law, directly or indirectly, against the United

States for reimbursement from the Hazardous Substance Superfund of any past costs or costs incurred by Settling Defendant in performing the Work called for by this Consent Decree, and nothing in this Consent Decree shall be construed as EPA's preauthorization of a CERCLA claim against the Hazardous Substance Superfund within the meaning of 40 CFR §300.25.

XXVI.

INSURANCE/FINANCIAL RESPONSIBILITY

Prior to commencing any on-site work, the Settling Defendant shall secure and shall maintain for the duration of this Consent Decree general liability and automobile insurance with limits of five million dollars, combined single limit, naming as insured the United States. In addition, for the duration of this Consent Decree, the Settling Defendant shall satisfy all applicable laws and regulations regarding the provision of workmens' compensation insurance. Prior to the commencement of Work under this Consent Decree, the Settling Defendant shall provide EPA with a certificate of insurance and a copy of the insurance policy or policies, or shall provide EPA with documentation, satisfactory to EPA, demonstrating that Settling Defendant has self-insurance sufficient to meet the requirements specified above. If the Settling Defendant demonstrates by evidence satisfactory to EPA that any contractor or subcontractor maintains insurance equivalent to that described above, or insurance covering the same risks but in a lesser amount, then with respect to that contractor or subcontractor, the Settling Defendant need

provide only that portion of the insurance described above which is not maintained by the contractor or subcontractor.

XXVII.

NOTICES

Whenever, under the terms of this Consent Decree, notice is required to be given, a report or other document is required to be forwarded by one party to another, service of any papers or process is necessitated by the dispute resolution provisions contained herein, or any other written communication is required, such correspondence shall be directed to the following individuals at the addresses specified below:

A. As to the United States or EPA:

1 copy: Chief, New York/Caribbean Superfund Branch
Office of Regional Counsel
U.S. Environmental Protection Agency, Region II
26 Federal Plaza, Room 437
New York, New York 10278

Attention: Sinclair Refinery Site Attorney

3 copies: Chief, Site Compliance Branch
Emergency and Remedial Response Division
U.S. Environmental Protection Agency, Region II
26 Federal Plaza, Rm. 747
New York, N.Y. 10278

Attention: Sinclair Refinery Site Project Manager

1 copy: Chief, Environmental Enforcement Section
Land & Natural Resources Division
U.S. Department of Justice
Benjamin Franklin Station
P.O. Box 7611
Washington, D.C. 20044

B. As to Settling Defendant:

1 copy: M. Dianne Smith, Esq.
Senior Attorney
Atlantic Richfield Company
515 South Flower Street
Box 2679 - T.A.
Los Angeles, CA 90071

1 copy: R. Walter Simmons
Environmental Management
Atlantic Richfield Company
515 South Flower Street
Los Angeles, CA 90071

In addition, when submitting to EPA any written communication required hereunder, Settling Defendant shall simultaneously submit two (2) copies of that communication to:

Director, Division of Hazardous Waste Remediation
New York State Department of Environmental Conservation
Room 222
50 Wolf Road
Albany, N.Y. 12233

Attention: A. Joseph White, P.E.

XXVIII.

PUBLIC PARTICIPATION

Final approval and entry of this Consent Decree are subject to the requirements of Section 122(d)(2) of CERCLA, 42 U.S.C. §9622(d)(2), and 28 CFR §50.7.

XXIX.

MODIFICATION

No material modification shall be made to this Consent Decree without written approval of all parties to this Consent Decree and the Court. No oral modification of this Consent Decree shall be effective. Modifications that do not materially alter the requirements of this Consent Decree may be made upon the written consent of all parties, which consent shall be filed with this Court. Nothing herein shall be deemed to alter the Court's power to supervise or modify this Consent Decree.

XXX.

ADMISSIBILITY OF DATA

In the event that the Court is called upon to resolve a dispute concerning implementation of this Consent Decree, the parties waive any objection to the admissibility into evidence of the results of any analyses of samples collected by or for them at the Site or other analytical data gathered, generated, or evaluated pursuant to this Decree, provided that the appropriate QA/QC and chain of custody requirements have been met with respect to such samples and analyses. The parties do not, however, waive any objections as to the weight to be given those results or data.

XXXI.

CONTINUING JURISDICTION

The Court retains jurisdiction over both the subject matter of this Consent Decree and the Settling Defendant for the duration of the performance of the terms and provisions of this Consent Decree for the purposes of issuing such further orders or directions as may be necessary or appropriate to construe, implement, modify, enforce, terminate, or reinstate the terms of this Consent Decree or for any further relief as the interest of justice may require.

XXXII.

COMMUNITY RELATIONS

Settling Defendant shall cooperate with EPA in providing information relating to the Remedial Action to the public. As

requested by EPA, Settling Defendant shall participate in the preparation of all appropriate information disseminated to the public and, to the extent possible, in public meetings which may be held or sponsored by EPA to explain activities at or concerning the Site.

XXXIII.

EFFECTIVE AND TERMINATION DATES

A. This Consent Decree shall be effective upon the date of its entry by the Court.

B. Except as stated otherwise in Section XXI.A., above, the Covenant Not to Sue provided by Section XXI shall become effective upon EPA's issuance of a Certification of Completion according to the following:

- 1) Following receipt of the last of the Notices of Completion required by Sections VI.E., F. and G., above, EPA shall review the accompanying reports and any other supporting documentation. EPA shall issue a Certification of Completion upon its determination that Settling Defendant has satisfactorily completed the Work (apart from the activities referred to in paragraph (2) of this subsection) and has achieved all of the standards of performance required under this Consent Decree. After submittal of the aforementioned Notices of Completion, but prior to the issuance of any Certification of Completion, EPA shall undertake a review of the Remedial Action under Section VII. The Certification shall be issued only if EPA determines that no response action

under Section VII is then necessary.

2) Certification of completion of the Remedial Action does not in any way affect Settling Defendant's remaining obligations under the Consent Decree, including operation, maintenance and monitoring, and the reimbursement of those costs specified in Section XIX.B., above, which are incurred after the Certification of Completion is issued by EPA.

XXXIV.

RESERVATION OF RIGHTS AND RETENTION OF CLAIMS

A. Settling Defendant, by its consent to the entry of this Consent Decree and by the implementation of the Work hereunder, does not admit the truth of the allegations contained herein or in the Complaint filed in this action; nor does it admit any legal liability, under CERCLA or any other statute or regulation, with respect to the Site. In addition, Settling Defendant does not admit and specifically denies responsibility for the past disposal of materials at the Site and denies any legal or equitable liability under any statute, regulation, ordinance or common law for any response costs or damages caused by the presence or the past storage, treatment, handling or disposal of materials at the Site or the past releases or threatened releases of materials at the Site.

B. This Decree shall not be admissible in a judicial or administrative proceeding as an admission by Settling Defendant of liability or responsibility in respect to this Site, except in

an action to enforce the terms of this Consent Decree.

C. The entry of this Consent Decree shall have the effect specified in Section 122(d)(1)(B) of CERCLA.

D. Settling Defendant shall have the benefit of Section 113(f)(1) of CERCLA and any other applicable rights to seek contribution, together with any other equitable or legal remedy which it may have, from any person or entity not a party to this Consent Decree for costs incurred or relief with respect to the Site in order to enable it to recover the full relief available to it at law or equity from all persons or entities who may be liable for cost recovery and injunctive or other relief at the Site. In addition, upon issuance by EPA of a Certification of Completion pursuant to Section XXXIII.B., above, Settling Defendant shall have the benefit of Section 113(f)(2) of CERCLA and any other applicable rights to limit its liability to persons or entities not parties to this Consent Decree.

E. Settling Defendant specifically reserves all rights and defenses, claims, causes of action or counterclaims which it may have at law or equity against the United States or any other entity, except that Settling Defendant waives the right to contest the validity or terms of this Decree, and, in accordance with Section XXV., above, waives any rights it may have to seek reimbursement from the United States and/or the Fund of any past costs incurred by Settling Defendant. Further, Settling Defendant also waives any rights it may have to seek reimbursement from the United States and/or the Fund of any costs incurred by Settling Defendant in performing the Work called for by this Decree, except that if

Settling Defendant, pursuant to the Dispute Resolution provision above, demonstrates to the Court's satisfaction that a determination or comments provided by EPA to Settling Defendant pursuant to this Decree were arbitrary and capricious or otherwise not in accordance with law or the provisions of this Decree and that that determination or those comments made it necessary for Settling Defendant to incur costs that Settling Defendant would not otherwise have had to incur, then Settling Defendant may, pursuant to the Dispute Resolution provision above, petition the Court for an order requiring the United States to reimburse Settling Defendant for those incremental costs. The United States reserves the right to contest any such petition.

F. By entering into this Decree, the parties do not release any other persons or entities, not parties to this Decree, from any claims or liabilities which may exist. The right to pursue such claims or liabilities is expressly reserved.

G. This Consent Decree does not create any private causes of action in favor of any person not a signatory to this Consent Decree or release any party not a signatory to this Decree from any liability, duty, responsibility or obligation which they otherwise might have at law or equity. The preceding sentence shall not be construed to waive or nullify any rights that any person not a signatory to this Decree may have under applicable law.

XXXV.

SECTION HEADINGS

The section headings set forth in this Decree are included for convenience of reference only and shall be disregarded in the construction and interpretation of any of the provisions of this Decree.

APPROVED and ENTERED this ____ day of _____, 1988.

UNITED STATES DISTRICT JUDGE

WE HEREBY CONSENT to the entry of this decree.

FOR THE UNITED STATES:

DATE

ROGER MARZULLA
Assistant Attorney General
Land and Natural Resources
Division
U.S. Department of Justice
Washington, D.C. 20530

DATE

MELISSA MARSHALL
Trial Attorney
Land and Natural Resources Division
U.S. Department of Justice

ROGER P. WILLIAMS
United States Attorney
Western District of New York

DATE

BY: MARTIN J. LITTLEFIELD
Assistant United States Attorney
Western District of New York

DATE

THOMAS L. ADAMS, JR.
Assistant Administrator
Office of Enforcement and
Compliance Monitoring
U.S. Environmental Protection Agency

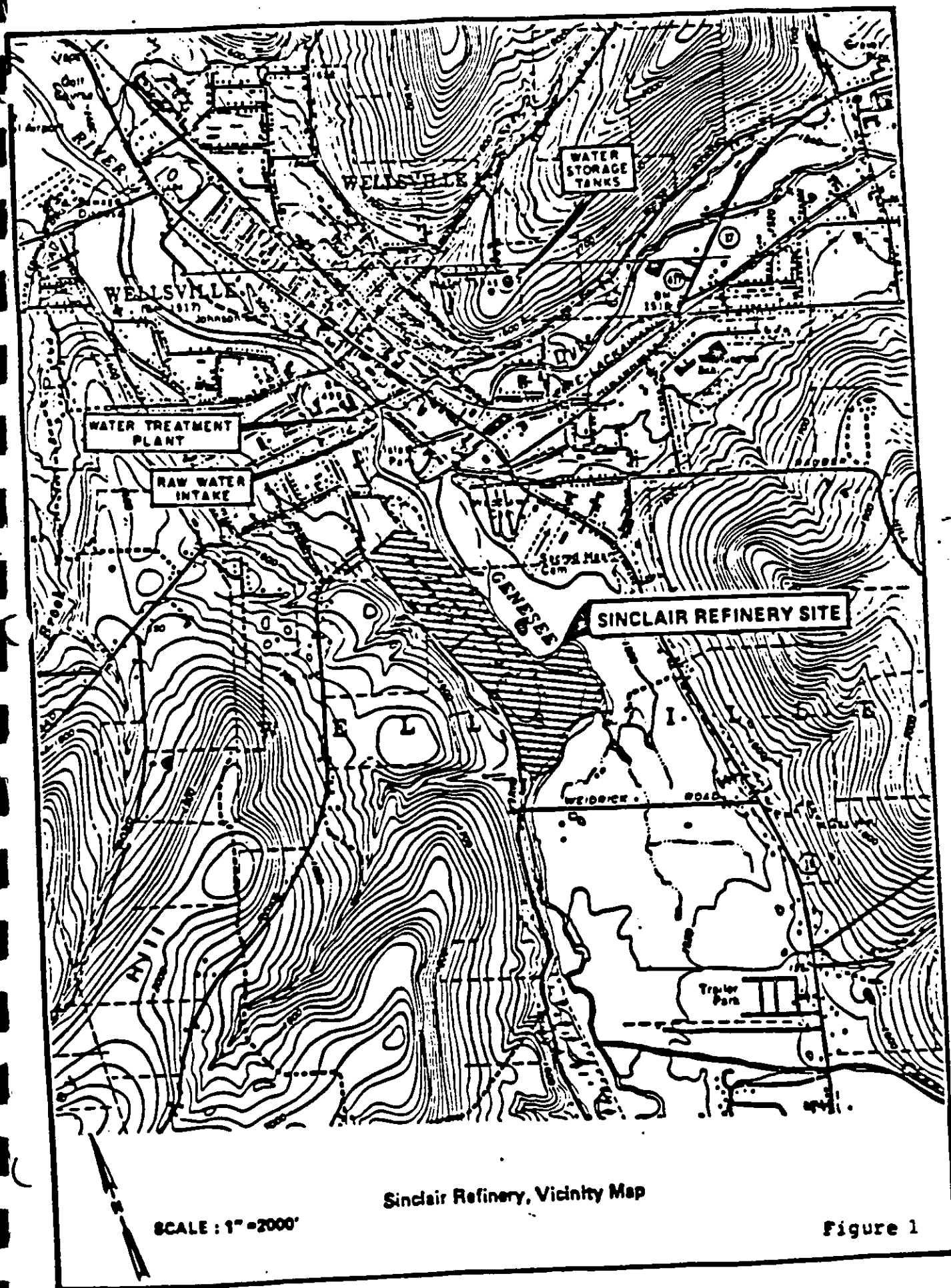
DATE

PAUL SIMON
Assistant Regional Counsel
Office of Regional Counsel
U.S. Environmental Protection Agency

ATLANTIC RICHFIELD COMPANY
By:

August 16, 1988
DATE

William E. Link
Vice President, Corporate
Environmental Protection



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION II

-----X
IN THE MATTER OF :

Atlantic Richfield Company, Inc., :

Respondent :

Proceeding under Sections 104 and :
122 of the Comprehensive Environ- :
mental Response, Compensation and :
Liability Act, 42 U.S.C. §§9604, :
9622 :

ADMINISTRATIVE ORDER
ON CONSENT

Index No. II CERCLA-80210

-----X
I. JURISDICTION

1. This Administrative Order on Consent ("Order") is issued to the Atlantic Richfield Company, Inc. (hereinafter referred to as "Respondent") pursuant to the authority vested in the President of the United States under Sections 104(a) and (b), 122(a) and 122(d)(3) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986 ("CERCLA"), 42 U.S.C. §§9604(a), 9604(b), 9622(a), 9622(d)(3), which authority was delegated to the Administrator of the United States Environmental Protection Agency ("EPA") and duly redelegated to the Regional Administrators of EPA. Notice of this Order and the negotiations preceding its issuance were provided to the New York State Department of Environmental Conservation ("NYSDEC").

II. FINDINGS

2. The Sinclair Refinery Site (hereinafter referred to as the "Site" or the "Facility") is located in the Town and Village of Wellsville, Allegany County, New York, approximately ten miles north of the New York - Pennsylvania border. The Site is of irregular shape and comprises approximately 100 acres. It is bounded by South Brooklyn Avenue (locally referred to as "River Road") to the west, and the northerly flowing Genesee River to the east. The river bends sharply and also forms part of the southern edge of the Site. An abandoned railroad bed running parallel to Weidrick Road, which runs almost due east off South Brooklyn Avenue as it crosses the Genesee River, constitutes the remainder of the southern extremity of the Site. The northern boundary of the Site is defined roughly by an access road into the old refinery area at the Site and a railroad trestle bridge which crosses the Genesee River. The Site also includes an area approximately

three-tenths of an acre in size where a tank farm formerly was located. This area is located approximately 2000 feet west of the portion of the Site where the oil refinery was situated. The Site location is shown in Figure 1, attached hereto.

3. The Site is on the National Priorities List, 40 CFR Part 300, Appendix B, which has been issued pursuant to Section 105(a)(8)(B) of CERCLA, 42 U.S.C. §9605(a)(8)(B).

4. The Site constitutes a "facility" within the meaning of Section 101(9) of CERCLA, 42 U.S.C. §9601(9).

5. A residential area is located to the north of the Site, with the closest residences being situated within approximately 150 feet of the Site.

6. Between the late 1800s and 1958, an oil refining operation was conducted at the Site. Beginning in 1924, the oil refinery was owned and operated by the Sinclair Refining Company. During the period of that company's ownership of the Site, the company manufactured products such as heavy oils and grease for lubrication applications, light oil for fuel, naptha, gasolines, lighter fluid and paraffin at the Site. Production operations continued until 1958 when operations ceased as a result of a fire. During the next several years, the Sinclair Refining Company transferred ownership of the parcels comprising the Site to several entities, including the Town and Village of Wellsville. The Town and Village subsequently conveyed some of the parcels to various companies and other entities. Presently, the Site is comprised of a number of parcels owned and/or occupied by various manufacturing companies, educational institutions and other entities.

7. While the oil refinery was in operation at the Site, the southernmost portion of the Site was used as a landfill. Wastes of various types that were generated during the course of the refinery operations were disposed of at the landfill. In addition, the available evidence suggests that additional material was disposed of at the landfill during the 1960s and 1970s, after the oil refinery operation had been terminated.

8. For purposes of investigation and remediation under CERCLA, the Site is being addressed in two parts: the 12.5-acre landfill portion of the Site and the approximately 90-acre portion of the Site where the Sinclair Refining Company conducted refinery operations. The tank farm referred to in paragraph 2, above, is being addressed as part of the refinery portion of the Site. The landfill and refinery portions of the Site are depicted in the figure attached hereto as Figure 2.

9. The northern boundary of the Site is approximately one-fourth of a mile upstream of the current water intake structure used by the Village of Wellsville. This water intake is the

primary source of drinking water for the 6000 residents of the Village. As a result of concern regarding the potential impact of the Site on the Village's drinking water, NYSDEC, pursuant to a cooperative agreement entered into with EPA, conducted a Focused Feasibility Study in 1984-85 to evaluate alternative methods of abating this threat. Subsequently, on September 27, 1985, EPA authorized the performance of an Initial Remedial Measure ("IRM") consisting of the relocation of the Village's raw water intake to a point on the Genesee River upstream of the Site. This IRM was implemented by NYSDEC, pursuant to a cooperative agreement with EPA.

10. In 1984-85, pursuant to a cooperative agreement with EPA, NYSDEC conducted a Remedial Investigation and Feasibility Study ("RI/FS") at the Site. The Remedial Investigation was aimed at determining, among other things, the nature and extent of the contamination at the Site. The Feasibility Study was directed specifically at the landfill portion of the Site; it evaluated remedial alternatives for the abatement of the threat posed to public health and the environment by the landfill. On September 30, 1985, following the completion of the RI/FS, EPA issued a Record of Decision ("ROD") which selected certain remedial actions to address the landfill. Design of these measures is ongoing.

11. The health effects of exposure to some of the contaminants identified at the Site are summarized as follows:

- a) Benzene is a carcinogen. Acute exposure to benzene results in central nervous system depression. Recent epidemiologic exposures have led the National Institute of Occupational Safety and Health to conclude that benzene is leukemogenic.
- b) Symptoms common to exposure to trans 1,2-dichloroethylene are damage to the liver and central nervous system.
- c) Cyclohexane is a central nervous system depressant, although its acute toxicity is low. Symptoms of acute exposure are excitement, loss of equilibrium, stupor or coma.
- d) Arsenic is a carcinogen. It causes skin tumors when ingested and lung tumors when inhaled. Arsenic compounds are teratogenic. Chronic exposure is associated with polyneuropathy.

12. The presence of hazardous substances in soil, groundwater and surface water at and about the Site, and the migration of such hazardous substances, constitutes an actual and threatened "release", within the meaning of Section 101(22) of CERCLA, 42 U.S.C. §9601(22).

13. Respondent is a "person", within the meaning of Section 101(21) of CERCLA, 42 U.S.C. §9601(21).

14. The Sinclair Refining Company owned and operated the Site during part of the time that hazardous substances were disposed of there. Respondent, a corporation organized and existing under the laws of the State of Delaware, is the successor in interest of the Sinclair Refining Company and is thus a responsible party under Section 107(a)(2) of CERCLA, 42 U.S.C. §9607(a)(2).

15. Respondent has offered to implement the remedy selected by the September 30, 1985 ROD concerning the Site. Respondent's implementation of this remedy is expected to be addressed by a judicial consent decree entered pursuant to Sections 106 and 122 of CERCLA, 42 U.S.C. §9606, 9622. Respondent has submitted to EPA a conceptual design of the river channelization portion of the remedy. This design calls for, inter alia, the construction of a dike along the west bank of the Genesee River, next to the Central Elevated Landfill Area ("CELA") at the Site. Field investigations must be conducted to determine whether Respondent's conceptual design is implementable and would be effective in protecting the landfill from erosion and flood inundation from the Genesee River. EPA and Respondent agree that these field investigations will be conducted by Respondent pursuant to this Order. Respondent has prepared a Statement of Work for these field investigations. This Statement of Work is attached hereto as Appendix 1 and is incorporated into and an enforceable part of this Order. The determination as to the implementability and effectiveness of Respondent's conceptual design of the river channelization is expected to be made pursuant to the aforementioned judicial consent decree.

16. Respondent has been given an opportunity to discuss with EPA the basis for issuance of this Order and its terms. Respondent does not admit any of the findings set forth in this Order and, except as expressly provided in this Order, including paragraph 61 below, reserves the right to raise, in any other proceedings, any and all rights and defenses which Respondent may have regarding the Site and regarding any matters contained in this Order and/or in documents prepared by Respondent or its contractor pursuant to this Order. Respondent's consent to this Order should not be construed as and does not constitute an agreement by Respondent to implement the remedy selected by the September 30, 1985 ROD or perform other response actions at the Site apart from those actions called for by this Order.

ORDER

17. Based on the foregoing and upon the entire administrative record, it is hereby ordered and agreed that Respondent shall, in accordance with the requirements set forth below,

perform field investigations to determine whether the conceptual design referred to in paragraph 15, above, is implementable and would be effective in protecting the CELA from erosion and flood inundation from the Genesee River. All activities required by this Order shall be completed as soon as possible even though maximum time periods for their completion are set forth herein and in the EPA-approved Work Plan referred to below.

Dike Investigation

18. Within ten (10) business days of the effective date of this Order, Respondent shall submit to EPA for review and approval a detailed workplan for the performance of the geotechnical investigations necessary to determine whether Respondent's proposal regarding the construction of a dike along the west bank of the Genesee River, next to the CELA, is implementable and would be effective in protecting the landfill from erosion and flood inundation from the Genesee River (This work is hereinafter sometimes referred to as the "Dike Investigation"). This workplan (hereinafter, the "Work Plan") shall provide for the performance of the work specified in Appendix 1 hereto and shall be consistent with that appendix. The Work Plan shall include:

- (1) a detailed schedule for the performance of the field investigations to be conducted;
- (2) the overall management plan, including identification of contractors and subcontractors and their respective responsibilities for performance of the specific tasks set forth in Appendix 1 and the Work Plan;
- (3) a Quality Assurance/Quality Control ("QA/QC") plan for the investigations to be performed;
- (4) a Health and Safety Plan prepared in accordance with the April, 1985 EPA guidance document entitled, "Field Standard Operating Procedures for Preparation of a Site Safety Plan (F.S.O.P. #9)", together with a Contingency Plan; and
- (5) a description of the responsibilities and the anticipated levels of effort of the professionals expected to participate in the Dike Investigation, together with the curricula vitae of those professionals that are expected to play a significant role in the Dike Investigation.

19. EPA will review the Work Plan and comment thereon in writing. Within five (5) business days of receipt of EPA's comments, Respondent shall amend the Work Plan as required by EPA's comments or as otherwise agreed upon by EPA, and shall submit the amended Work Plan to EPA.

20. Subject only to the reservation of rights by Respondent set forth in subparagraph 39.c., below, EPA shall remain the final arbiter in any dispute regarding the sufficiency or acceptability of the Work Plan, and EPA may modify it unilaterally. At such time as EPA determines that the Work Plan is acceptable, EPA will transmit to Respondent a written statement to that effect. Upon approval by EPA, the Work Plan shall be deemed to be incorporated in and an enforceable part of this Order.

21. Respondent shall commence the field investigations called for by Appendix 1 and the EPA-approved Work Plan within ten (10) business days of EPA's approval of the Work Plan. Respondent shall perform the Dike Investigation in conformance with Appendix 1 and the EPA-approved Work Plan (including the implementation schedule contained therein). Respondent shall complete all activities specified in Appendix 1 and the EPA-approved Work Plan.

22. Within the time period specified in the EPA-approved Work Plan, Respondent shall submit to EPA for review and approval a draft engineering report detailing the results of the Dike Investigation (hereinafter, the "Draft Dike Investigation Report"). This report shall include, but not be limited to: logs of all borings and test pits; the analytical results of those borings and test pits; Respondent's conclusion regarding whether the proposed construction of a dike next to the CELA is implementable and would be effective in protecting the landfill from erosion and flood inundation from the Genesee River; and (if Respondent's conclusion is that the proposed dike is implementable and would be effective) drawings showing the recommended location of the dike on the west bank of the Genesee River.

23. Upon receipt of the Draft Dike Investigation Report, EPA will review the report and comment thereon in writing. Within ten (10) business days of receipt of EPA's comments, Respondent shall amend the Draft Dike Investigation Report as required by EPA's comments or as otherwise agreed upon by EPA, and shall submit the amended report to EPA.

24. EPA's comments on the Draft Dike Investigation Report may require Respondent to perform additional investigatory work if EPA determines that such work is necessary to satisfy the criteria and objectives established for the Dike Investigation by Appendix 1 hereto and the EPA-approved Work Plan. Such work (including any necessary work plans, field work and reports) shall be performed by Respondent in a manner approved by, and in conformance with a schedule approved by, EPA.

25. Subject only to the reservation of rights by Respondent set forth in subparagraph 39.c., below, EPA shall remain the final arbiter in any dispute regarding the sufficiency or

acceptability of the Draft Dike Investigation Report and any supplementary submissions prepared in accordance with paragraph 24 above, and EPA may modify them unilaterally. At such time as EPA determines that the Draft Dike Investigation Report is acceptable, EPA will transmit to Respondent a written statement to that effect and the report will be deemed the Final Dike Investigation Report.

Insurance/Financial Responsibility

26. Prior to commencing any on-site work, Respondent shall secure and shall maintain for the duration of the work under this Order general liability and automobile insurance with limits of five million dollars, combined single limit, naming as insured the United States. In addition, for the duration of the work under this Order, Respondent shall satisfy all applicable laws and regulations regarding the provision of workmens' compensation insurance. Prior to the commencement of the work under this Order, Respondent shall provide EPA with a certificate of insurance and a copy of the insurance policy or policies, or shall provide EPA with documentation, satisfactory to EPA, demonstrating that Respondent has self-insurance sufficient to meet the requirements specified above. If Respondent demonstrates by evidence satisfactory to EPA that any of its contractors or subcontractors maintain insurance equivalent to that described above, or insurance covering the same risks but in a lesser amount, then with respect to that contractor or subcontractor, Respondent need provide only that portion of the insurance described above which is not maintained by the contractor or subcontractor.

Notification And Reporting Requirements

27. Respondent shall provide monthly written progress reports to EPA by the tenth day of every month following the effective date of this Order. The progress reports shall develop a chronological record of activities conducted pursuant to this Order and shall address at a minimum the items specified in the document attached hereto as Appendix 2.

28. All work plans, reports and other documents required to be submitted to EPA under this Order shall be sent by certified or express mail, return receipt requested, to the following addressees:

3 copies: Chief, Site Compliance Branch
Emergency and Remedial Response Division
United States Environmental Protection Agency
Region II
26 Federal Plaza, Room 747
New York, NY 10278

Attention: Christine Beling
Project Officer, Sinclair Refinery Site

1 copy: Chief, New York/Caribbean Superfund Branch
Office of Regional Counsel
United States Environmental Protection Agency
Region II
26 Federal Plaza, Room 437
New York, NY 10278

Attention: Paul Simon, Esq.
Sinclair Refinery Site Attorney

2 copies: Director, Division of Hazardous Waste Remediation
New York State Department of Environmental Con-
servation
Room 222
50 Wolf Road
Albany, NY 12233

Attention: A. Joseph White, P.E.

Correspondence to be submitted by EPA to Respondent under this Order shall be sent to the Project Coordinator designated pursuant to paragraph 32 below and to:

M. Dianne Smith, Esq.
Senior Attorney
Atlantic Richfield Company
515 South Flower Street
Box 2679 - T.A.
Los Angeles, CA 90071

29. Respondent shall give EPA ten (10) business days advance notice of all field activities to be performed pursuant to this Order, and shall furnish EPA with as much notice as possible of any necessary changes to the schedule of field activities.

30. All reports and other documents submitted by Respondent to EPA in the course of implementing this Order shall be available for public inspection unless identified as confidential by Respondent and determined by EPA to merit treatment as confidential business information, in accordance with applicable law. In addition, EPA may release all such documents to NYSDEC and NYSDEC may make those documents available to the public unless Respondent conforms with appropriate New York law and regulations regarding confidentiality. Respondent shall not assert a claim of confidentiality regarding any monitoring or hydrogeologic data, any information specified under Section 104(e)(7)(F)(i) through (viii) of CERCLA, or any other chemical, scientific or engineering data related to the Dike Investigation or submitted pursuant to this Order.

31. Respondent shall use its best efforts to avoid or minimize any delay or prevention of performance of its obligations under this Order. In accordance with paragraph 51 herein, Respondent shall provide written notification to EPA of any circumstances which have caused or which Respondent believes are likely to cause a delay in performance. Such notification shall not in and of itself relieve Respondent of any of its obligations under this Order.

Respondent's Project Coordinator, Other Personnel

32. Not later than seven (7) days after the effective date of this Order, Respondent shall select an individual to be known as the Project Coordinator and shall notify EPA in writing of the name, address, qualifications, job title and telephone number of the Project Coordinator. The Project Coordinator shall be responsible for oversight of the implementation of this Order. He or she shall have technical expertise sufficient to adequately oversee all aspects of the work contemplated by this Order. EPA correspondence to the Respondent with respect to this Order will be sent to the Project Coordinator. Respondent shall have the right to change the person designated as Project Coordinator, and shall notify EPA prior to any such change, or, if such advance notice is not possible, concurrently with the change or as soon thereafter as possible.

33. All activities required of Respondent under the terms of this Order shall be performed only by well-qualified persons possessing all necessary permits, licenses, and other authorizations required by federal, state, and local governments.

Access and Availability of Data

34. Respondent shall be responsible for obtaining in a timely fashion such access to the Site and any other premises where work under this Order is to be performed as is necessary for Respondent to carry out the requirements of this Order. This Order does not convey any rights of access to Respondent. If such access cannot be obtained despite best efforts by Respondent, or if access granted is subject to conditions that might delay activities under this Order, Respondent shall so notify EPA. As appropriate, EPA will then endeavor to assist Respondent in obtaining such access.

35. EPA and its designated representatives, including but not limited to their employees, agents, contractors and consultants, shall be permitted to observe the work carried out pursuant to this Order. All EPA officials or their representatives entering the Site shall be subject to the requirements of the Health and Safety Plan approved by EPA for the Site. EPA and its designated representatives shall have access to and freedom of movement at the Site (and any other premises where work under this Order is performed) at all times for purposes of inspecting

or observing Respondent's progress in implementing the requirements of this Order, verifying the information submitted to EPA by Respondent, or for any other purpose reasonably related to EPA oversight of the implementation of this Order. Notwithstanding the above, EPA hereby retains all of its inspection authority under CERCLA, the Resource Conservation and Recovery Act ("RCRA"), 42 U.S.C. §6901 et seq., and any other applicable statutes. NYSDEC and its designated representatives shall be eligible to be designated representatives of EPA under this paragraph.

36. All data, including raw sampling and monitoring data, generated pursuant to this Order by or on behalf of Respondent shall, without delay, be made available to EPA on request, and EPA shall be permitted to copy such data. In addition, upon request, Respondent shall make available to EPA, without delay, all other documents created or maintained by or on behalf of Respondent in connection with the implementation of the work required under this order (except those documents that are privileged under law), and EPA shall be permitted to copy all such documents.

37. No data, information or records generated, created or maintained by Respondent or its contractors or consultants in connection with implementation of the work required by this Order shall be destroyed for six (6) years after completion of the work required by this Order without either the express written approval of EPA or a written offer by Respondent to provide such material to EPA, followed by EPA's written rejection of that offer.

38. Upon request by EPA, Respondent shall provide EPA or its designated representatives with duplicate and/or split samples or allow EPA or its representatives to take duplicate and/or split samples of any material sampled in connection with the implementation of this Order. Upon request by Respondent, EPA will make available to Respondent the analytical results of any such split or duplicate samples, if such data passes EPA's QA/QC review. If EPA conducts sampling at the Site as part of its oversight of Respondent's implementation of this Order, EPA will, upon request, provide Respondent with or allow Respondent to take split and/or duplicate samples of the material sampled by EPA.

Dispute Resolution

39. a. Respondent and EPA shall make reasonable efforts to informally and in good faith resolve all disputes or differences of opinion which arise with respect to the implementation of this Order.

b. If Respondent, in good faith, disagrees in whole or in

part with EPA's comments on the Work Plan or the Draft Dike Investigation Report or with unilateral modifications made by EPA to those submittals (if the unilateral modifications are concerned with issues not addressed by comments previously provided to Respondent by EPA), Respondent shall notify EPA in writing of Respondent's objections and the bases therefor as soon as possible, but not later than ten (10) business days after receipt of such comments or modifications from EPA. If Respondent so notifies EPA within the aforesaid period, EPA shall provide a written response to Respondent setting forth EPA's position and the basis for that position. EPA's written response shall be sent by the Chief, Site Compliance Branch, Emergency and Remedial Response Division, EPA Region II, or by one of his superiors. EPA's written response shall constitute the resolution of the dispute and shall be deemed to be incorporated in this Order. If the dispute and its resolution cause a delay that makes it impossible for Respondent to meet a deadline set forth in or established pursuant to this Order, then that deadline shall be extended by a period of time not to exceed the delay resulting from the dispute and its resolution; PROVIDED, that Respondent shall not be entitled to any such extension if EPA determines that Respondent's disagreement with the comments or modifications referred to above is not in good faith or otherwise lacks a reasonable basis. Notwithstanding any of the foregoing, if Respondent requests an extension of a deadline set forth in or established pursuant to this Order, and if EPA declines to grant an extension in response to such a request, any delay caused solely by the resolution of such a dispute shall not entitle Respondent to an extension of time.

c. Notwithstanding any of the foregoing, EPA will be the final arbiter of all disputes under this Order and the final arbiter as to the sufficiency and acceptability of all work conducted pursuant to this Order. However, nothing in this paragraph shall affect any rights that Respondent may have to judicial review of EPA's actions or determinations under this Order, and, except as provided in paragraph 61, below, Respondent expressly reserves all rights and defenses that it may have pursuant to applicable law.

General Provisions

40. This Order shall apply to and be binding upon Respondent and Respondent's officers, directors, employees, agents, contractors, receivers, trustees, successors and assigns.

41. All actions performed by Respondent pursuant to this Order shall be carried out in conformance with all applicable federal, state, and local laws, regulations, and requirements, including, but not limited to, the NCP and any amendments thereto that are promulgated while this Order is in effect. In the event that there is a conflict in an

application of federal, state or local requirements, the more stringent requirement shall apply.

42. All work conducted pursuant to this Order shall be performed in accordance with prevailing professional standards.

43. Respondent shall be responsible for obtaining all necessary permits, licenses and other authorizations. If Respondent is unable to obtain such authorizations despite its making best efforts to do so, EPA will, at its discretion, attempt to assist Respondent in obtaining such authorizations.

44. Neither the United States Government nor any agency thereof shall be liable for any injuries or damages to persons or property resulting from acts or omissions by Respondent or Respondent's officers, directors, employees, agents, contractors, consultants, receivers, trustees, successors or assigns in carrying out any action or activity pursuant to this Order; nor shall the United States Government or any agency thereof be construed or held out as a party to any contract entered into by Respondent in carrying out any activities pursuant to this Order.

45. Respondent agrees to indemnify and hold harmless EPA and the United States Government, its agencies, departments, agents and employees, from all claims, causes of action, damages and costs of any type or description by third parties for any injuries or damages to persons or property resulting from acts or omissions of Respondent, its officers, directors, officials, agents, servants, receivers, trustees, successors or assigns, as a result of the fulfillment or attempted fulfillment of the terms and conditions of this Order by Respondent.

46. Nothing herein shall constitute or be construed as a satisfaction or release from liability for Respondent or Respondent's directors, officers, employees, agents, contractors, consultants, receivers, trustees, successors or assigns or for any other individual or entity. Nothing herein shall constitute a finding that Respondent is the sole responsible party with respect to the release and threatened release of hazardous substances from the Facility.

47. Nothing contained in this Order shall affect any right, claim, interest, defense, or cause of action of any party hereto with respect to third parties.

48. Respondent agrees not to make any claims pursuant to Sections 106(b)(2), 111 and/or 112 of CERCLA, 42 U.S.C. §§9606(b)(2), 9611, 9612, or any other provision of law, either directly or indirectly, for reimbursement from the Hazardous Substance Superfund of costs incurred by Respondent in complying with this Order.

49. Nothing in this Order shall be construed to constitute preauthorization under Section 111(a)(2) of CERCLA, 42 U.S.C. §9611(a)(2), and 40 CFR §300.25(d).

50. No informal advice, guidance, suggestions or comments by EPA shall be construed to relieve Respondent of any of its obligations under this Order.

51. a. Respondent's activities under this Order shall be performed within the time limits set forth herein, or otherwise established or approved by EPA, unless performance is delayed by events which constitute a force majeure. For purposes of this Order, "force majeure" is defined as any event arising from causes beyond Respondent's control. "Force majeure" shall not include inability of Respondent to pay the costs or expenses associated with complying with this Order, increases in such costs or expenses, or failure to make timely and complete application for access, permits and any other necessary authorizations. "Force majeure" may include inability on the part of Respondent to obtain necessary permits or other authorizations, provided that such inability is not the result of Respondent's failure to make timely and complete applications for such permits or authorizations, and provided further that failure on the part of EPA to assist Respondent in obtaining such permits or authorizations shall not in and of itself constitute a force majeure.

b. When an event constituting a force majeure occurs, Respondent shall perform the affected activities within a time period which shall not exceed the time provided in this Order together with the period of delay attributed to the force majeure; provided, however, that no deadline shall be extended beyond a period of time that is reasonably necessary. Respondent shall verbally notify the EPA Project Officer identified in paragraph 28 above as soon as possible after discovering that circumstances have occurred or are likely to occur which may delay or prevent the performance of any activity required by this Order, regardless of whether those circumstances constitute a force majeure or not. If the Project Officer cannot be reached, Respondent shall leave a message at her office. In addition, Respondent shall notify EPA in writing within seven (7) business days after the date when Respondent first becomes aware of the circumstances which may delay or prevent performance. Such written notice shall be accompanied by all available pertinent documentation including, but not limited to, third-party correspondence, and shall contain the following: 1) a description of the circumstances, and Respondent's rationale for interpreting such circumstances as being beyond its control (should that be Respondent's claim); 2) the actions (including pertinent dates) that Respondent has taken and/or plans to take to minimize any delay; and 3) the date by which or the time period within which Respondent

proposes to complete the delayed activities. Such notification shall not relieve Respondent of any of its obligations under this Order. Respondent's failure to timely and properly notify EPA as required by this paragraph shall render the remaining provisions of this paragraph 51 null and void insofar as they may entitle Respondent to an extension of time. If Respondent contends that the circumstances which may delay or prevent performance constitute a force majeure, and Respondent timely and properly notifies EPA as required by this paragraph, EPA will provide a written response setting forth EPA's determination regarding whether the circumstances constitute a force majeure. EPA's written response shall be sent by the Chief, Site Compliance Branch, Emergency and Remedial Response Division, EPA Region II, or by one of his superiors. If EPA determines that the circumstances alleged to constitute a force majeure do not constitute a force majeure, EPA will inform Respondent of the bases for its conclusion. The burden of proving that an event constituting a force majeure has occurred shall rest with the Respondent.

52. This Order may be amended by mutual agreement of EPA and Respondent. Such amendments shall be in writing and shall have as their effective date that date on which such amendments are signed by EPA.

53. Except where expressly stated otherwise herein, all time periods specified in this Order shall be construed as calendar days rather than business days.

Enforcement

54. Failure of the Respondent to comply with any of the requirements of this Order may result in EPA taking the required actions unilaterally, pursuant to Section 104 of CERCLA, 42 U.S.C. §9604.

55. If Respondent fails, without prior EPA approval, to comply with any of the requirements or time limits set forth in or established pursuant to this Order (apart from the requirement set forth in paragraph 17, above, that Respondent complete the activities required by this Order "as soon as possible"), and such failure is not excused under the terms of paragraph 51 above, Respondent shall, upon demand by EPA, pay a stipulated penalty to EPA in the amount indicated below for each day of noncompliance:

Period of Noncompliance

Penalty Per Violation Per Day

0 to 5 days	\$ 0.00
6 to 15 days	\$1000.00
16 to 30 days	\$1500.00
31 days or more	\$2500.00

Any such penalty shall accrue as of the first day after the applicable deadline has passed, and shall continue to accrue until the noncompliance is corrected. Such penalties shall be due and payable ten (10) days following receipt of a written demand therefor from EPA and shall be due and payable every thirtieth day thereafter. Payment of any such penalty to EPA shall be made by cashier's or certified check made payable to the "Hazardous Substance Superfund," with a notation of the docket number of this Order, and shall be mailed to the following address:

U.S. Environmental Protection Agency
Superfund
P.O. Box 371003M
Pittsburgh, PA 15251

A letter stating the basis for the penalties, the name and address of Respondent, the name of the Site (the Sinclair Refinery Site), and the EPA Region number (EPA Region II) shall accompany each such payment; a copy of the letter and a copy of the check remitted shall be mailed to the first two addressees listed in paragraph 28 above. Payment of penalties shall not alter in any way Respondent's obligation to comply with the requirements of this Order.

56. Notwithstanding any other provision of this Order, EPA reserves its right to bring an action against Respondent (or any other responsible parties) pursuant to Section 107 of CERCLA, 42 U.S.C. §9607, for recovery of any response costs incurred by the United States Government with respect to the Site.

57. Notwithstanding any other provision of this Order, EPA reserves its right to take enforcement actions against Respondent (or any other responsible parties), including, but not limited to, actions for monetary penalties for any violation of law or this Order. Such enforcement actions may include, though need not be limited to, actions pursuant to Sections 107(c)(3) and/or 109 of CERCLA, 42 U.S.C. §§9607(c)(3), 9609.

58. Nothing herein shall preclude EPA from taking any additional enforcement actions and/or additional removal or remedial actions as it may deem necessary or appropriate for any purpose, including, but not limited to, the investigation, prevention or abatement of a threat to the public health, welfare, or the environment arising from conditions at the Site.

Termination and Satisfaction

59. The provisions of this Order shall be deemed satisfied

upon Respondent's receipt of written notice from EPA that all of the terms of this Order, including any additional tasks that EPA has determined to be necessary, have been satisfactorily carried out.

Effective Date and Effect of Consent

60. This Order shall become effective on the first (1st) business day after it is signed by the Regional Administrator of EPA Region II and received by Respondent, and all times for performance of actions or activities to be performed under this Order shall be calculated from said effective date.

61. Nothing contained in this Order or in any documents prepared or other actions taken pursuant to this Order shall constitute or be construed as an admission by Respondent with respect to any liability or responsibility concerning the Site or to any factual finding or legal determination. However, Respondent agrees not to contest the authority or jurisdiction of the Regional Administrator of EPA Region II to issue this Order, and also agrees not to contest the validity or terms of this Order in any action to enforce its provisions. Further, by consenting to this Order, Respondent waives any rights it may have to seek reimbursement pursuant to Sections 106(b)(2), 111 and/or 112 of CERCLA for the costs it incurs in complying with this Order.

U.S. ENVIRONMENTAL PROTECTION AGENCY

CHRISTOPHER J. DAGGETT
Regional Administrator
U.S. Environmental Protection Agency
Region II

DATE

CONSENT

The Respondent identified below has had an opportunity to confer with EPA to discuss this Order. The Respondent hereby consents to the issuance of this Order and to its terms. Furthermore, the individual signing this Order on behalf of the Respondent certifies that he or she is fully authorized to agree to the terms and conditions of this Order and to legally bind the Respondent.

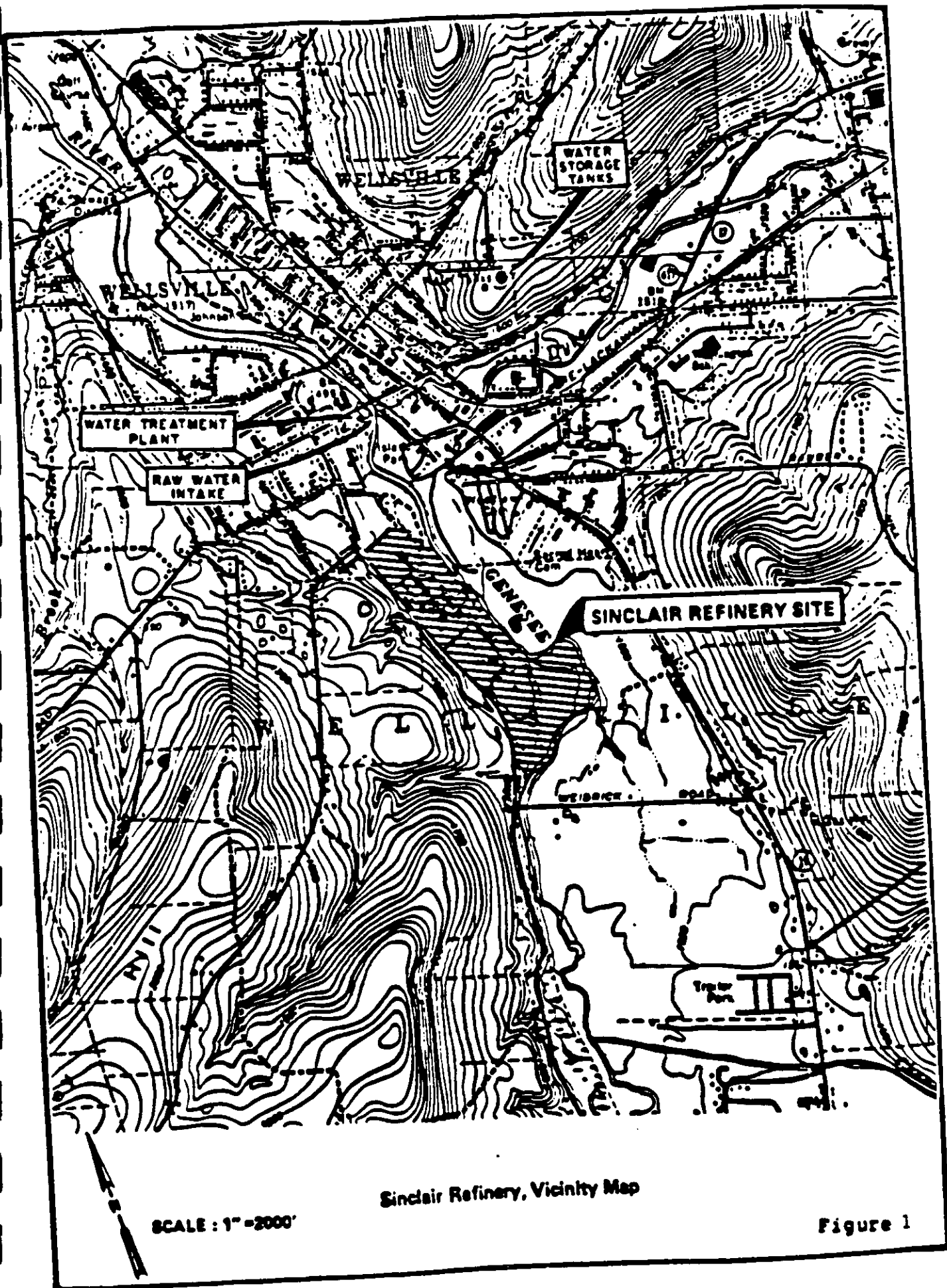
ATLANTIC RICHFIELD COMPANY, INC.

(signature)

DATE

(printed name of signatory)

(title of signatory)



Sinclair Refinery, Vicinity Map

Figure 1

APPENDIX 2

PROGRESS REPORT FORMAT

SITE NAME:

PREPARED BY:

REPRESENTING:

DATE:

REPORTING PERIOD:

1. Progress Made this Reporting Period - Description of progress made during the reporting period, including problem areas encountered, and recommendations for resolving those problems.
2. Anticipated Problem Areas and Recommended Solutions - Anticipated problems and recommendations for resolution, including technical and scheduling implications.
3. Problems Resolved - Results obtained relating to previously identified problem areas.
4. Deliverables Submitted - Deliverables completed and submitted, and dates of those submittals; deliverables anticipated to be submitted, and dates of anticipated submittals; and reasons if Respondents believe due dates may need to be revised. Any delays should be explained fully.
5. Upcoming Events/Activities Planned - Important upcoming dates, including sampling events, meetings, etc.; major tasks to be performed within the next reporting period.
6. Key Staffing Changes - Any changes in key personnel assigned to the work, including but not limited to consultant, contractor or subcontractor personnel.
7. Percentage Complete - Level of technical completion achieved, reported as percent completed.
8. Data - Copies of daily contractor reports and all monitoring and testing data, as well as all QA/QC documentation, regardless of whether the necessary QA/QC has been completed.
9. Community Contracts/Concerns - Significant contacts with community officials or groups regarding the project, and description of any significant concerns expressed by such persons.