OPERATION AND MAINTENANCE MANUAL

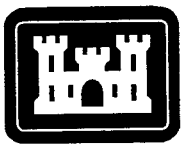
SPRING LAKE
HABITAT REHABILITATION AND ENHANCEMENT PROJECT

UPPER MISSISSIPPI RIVER
ENVIRONMENTAL MANAGEMENT PROGRAM

POOL 13
RIVER MILES 532-536
CARROLL COUNTY, ILLINOIS

JULY 2003

US Army Corps of Engineers
Rock Island District



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Contents

Tables

Appendices

Plates

OPERATION AND MAINTENANCE MANUAL
SPRING LAKE HABITAT REHABILITATION AND ENHANCEMENT
UPPER MISSISSIPPI RIVER
ENVIRONMENTAL MANAGEMENT PROGRAM
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1. INTRODUCTION.

a. Purpose and Scope.

(1) This manual serves as a guide for the operation and maintenance of Spring Lake Habitat Rehabilitation and Enhancement project. It provides operation and maintenance instructions for the major features of this environmental management project. The instructions are consistent with the general procedures presented in the May 1993 Definite Project Report (DPR). This document is written for project and management personnel who are familiar with the project and does not contain detailed information which is common to site personnel or which is presented in other existing manuals or regulations.

(2) The intent of the operating instructions is to provide information that allows orderly and efficient use of the constructed features to meet project goals and objectives. The intent of the maintenance instructions is to present preventative maintenance information consisting of systematic inspections and subsequent corrective actions, which should ensure long-term utilization of equipment and features. A timely preventative maintenance program reduces and virtually eliminates breakdown of essential equipment and prevents major damage to constructed features by early corrective action.

(3) This manual provides the general standards of maintenance and establishes an initial frequency of maintenance inspections that should ensure satisfactory project performance.

b. Use of Manual.

(1) This manual is divided into the following sections: Section 1: Introduction; Section 2: Project Background; Section 3: Description of Project Features; Section 4: Inspections; Section 5: Operation and Maintenance of Project Features; Section 6: Project Rehabilitation or Abandonment; and Section 7: Performance Monitoring and Assessment.

(2) Sections 2 and 3 present project history and descriptions of actual features constructed for this project. Section 4 includes project inspection procedures, and Section 5 presents operation and maintenance instructions for each project feature.

Section 6 provided rehabilitation and abandonment instructions in case of project damage. Section 7 summarizes monitoring activities conducted through construction as well as an overview of continued monitoring actions. Performance monitoring is considered necessary to properly evaluate effects of the constructed project features.

(3) The attached drawings have been included to provide general project "as-built" plans and typical sections.

2. PROJECT BACKGROUND.

a. Location. The Spring Lake complex encompasses approximately 3,300 acres of aquatic, wetland, and terrestrial habitat. It is located in Pool 13 on the Illinois side of the Upper Mississippi River navigation channel between river miles 532 and 536 in Carroll County, Illinois, approximately 2 miles south of the city of Savanna, Illinois.

b. Authorization. This project is authorized by the 1985 Supplemental Appropriations Act (Public Law 99-88) and Section 1103 of the Water Resources Development Act (WRDA) of 1986 (Public Law 99-662). The project was funded and constructed under this authorization by the U.S. Army Corps of Engineers, Rock Island District, in cooperation with the U.S. Fish and Wildlife Service (USFWS) and the Illinois Department of Natural Resources (ILDNR) formerly the Department of Conservation (DOC).

c. Planning, Design, and Construction Activities.

(1) Summary. Table 2-1 provides a summary of planning, design, and construction activities.

Table 2-1. Implementation Schedule			
Project Phase	**Purpose**	**Project Milestone**	**Date Completed**
Pre-Project	Identify and define problems and establish need of project	Fact Sheet Submitted	March 1990
		Fact Sheet Approved	September 1990
		SHPO Concurrence	March 1992
Engineering and Design	Quantify project objectives, perform preliminary design, satisfy NEPA and permit requirements, develop performance evaluation plan, obtain project approval for construction	Draft DPR	May 1992
		Refuge Compatibility	July 1992
		NEPA Public Review	January 1993
		Section 401 Permit	April 1993
		Final DPR	May 1993
		FONSI for EA	May 1993
		Section 404 Permit	May 1993
		DPR Approval	June 1994
		Plans and Specifications	September 1994
		Memorandum of Agreement with USFWS	October 1994
Construction	Finalize plans and specifications, obtain operation and maintenance agreement, advertise and award construction contracts, construct project	Main Contract Award	January 1995
		Main Contract Complete	July 1999
		Stage II Award	May 1999
		Stage II Complete	May 2000
		Stage III Award	September 2000
		Stage III Complete	June 2002

(2) Goals and Objectives. Goals and objectives were formulated during the design phase. Table 2-2 provides a summary of project goals and objectives.

Table 2-2.
Project Goals, Objectives, and Enhancement Potential

Goal	Objective	Unit of Measure	Enhancement Potential	
			Without Alternative	Year 50 Target
Enhance Aquatic Habitat	Improve water quality for fish	DO (mg/l)	<5.0 during critical periods	>5.0 at all times
	Maintain backwater lake	Linear feet of eroded levee	44,800	0
Enhance Wetland Habitat	Provide reliable food source in Upper Lake for migratory birds	Acres of vegetation	0	500
	Provide reliable food source in Lower Lake for migratory birds	Acres of vegetation	0	108

(3) Project Design. The project was designed by the U.S. Army Corps of Engineers, Rock Island District. The Corps funded 100% of the project. The project sponsors are the USFWS and the ILDNR. Design considerations and investigations are presented in the Definite Project Report dated May 1993.

(4) Construction Contracts.

(a) Main Contract. The construction contract, number DACW25-95-C-0020, was awarded to Illinois Constructors Corp., St. Charles, Illinois, on 25 January 1995 in the amount of $3,316,363.00. This bid was approximately 74% of the Government Estimate. After modifications, the total Main Contract cost was $4,152,982.74. The U.S. Army Corps of Engineers, Rock Island District, supervised the construction contract.

(b) Stage II – Hemi Marsh Well. The construction contract, number DACW25-99-C-0021, was awarded to Langman Construction, Inc., Rock Island, Illinois, on May 21, 1999 in the amount of $162,615.00. After modifications, the total Stage II Contract cost was $270,025.88.

(c) Stage III – Structural Modifications. The construction contract, number DACA25-00-D-0001, was awarded to Del-Jen, Inc., Rolling Hills Estates, California, on September 13, 2000 in the amount of $43,791.41. After contract modifications, the total Stage III Contract cost was $45,291.41.

(5) Construction Problems.

(a) Due to a higher percentage of sand than anticipated in the borrow, the perimeter levee cross-section was modified from 1V:4H to 1V:5H in some areas. The locations of these modified cross-sections are shown on the as-built drawings.

(b) The increased size of the scour hole at the setback levee necessitated the realignment of the setback levee to minimize fill requirements. Vehicular access across the setback levee alignment was needed to allow passage to the lower perimeter levee. To achieve this, a rock base was placed on the new setback levee alignment to an elevation just above the water surface and choked with coarse aggregate. The base was left in place, forming a rock core for the new setback levee.

(c) Flooding in spring of 1997 caused damage to some in-place embankment materials. Approximately 500 lineal feet of the cell B levee was washed out and the material displaced. Wave-wash also eroded the unprotected hemi-marsh levee causing considerable sloughing of the lake-side levee slope.

(d) The original stoplogs were found to be inadequate as they did not seal well, allowing water to flow between them and around them. The stoplogs were modified by eliminating the wooden end seals and bottom seals and replacing them with rubber, providing a more leak-resistant sealing surface.

(e) The contractor encountered areas of the upper perimeter levee approximately between stations 25+00 and 35+00 where borrow material had a sand content above the acceptable limit. Because of soft sediments in an old borrow ditch between the levee toe and the borrow area, the contractor also experienced great difficulty setting his equipment in this reach. For these reasons, the contractor was allowed to haul clay borrow material to this reach of the levee from a borrow source within the upper lake.

d. Actual Project Costs. The actual project costs are presented in Table 2-3.

Table 2-3. Actual Project Costs

Item	Description	Quantity	U/M	U/P	Amount
	Stage I, Contract Number DACW25-95-C-0020				
0001	Performance Bond	1	LS		$34,000.00
0002	Temporary Field Office	1	LS		27,700.00
0003	Telephone Bills for Temporary Field Office				
0003AA	First $1,100.00	1,100	DL	1.15	1265.00
0003AB	Over $1,100.00	225.33	DL	1.15	259.13
0004	Mobilization and Demobilization	1	LS		300,000.00
0005	Clearing and Grubbing	1	LS		435,000.00
0006	Extend Existing Gatewell	1	LS		6,500.00
0007	Gated Inlet Structure	1	LS		226,000.00
0008	24-Inch Gatewell Structure	1	LS		66,000.00
0009	Stoplog Structures				
0009AA	Stoplog Structure A	1	LS		24,000.00
0009AB	Stoplog Structure B	1	LS		40,000.00
0009AC	Stoplog Structure C	1	LS		40,000.00
0009AD	Stoplog Structure HM	1	LS		57,000.00
0010	Pump Station	1	LS		435,000.00
0011	Levee Restoration, Embankment				
0011AA	First 100,000 Cubic Yards	100,000	CY	2.60	260,000.00
0011AB	Over 100,000 Cubic Yards	94,225	CY	2.40	226,140.00
0012	New Levee, Embankment				
0012AA	First 125,000 Cubic Yards	104,642	CY	3.45	361,014.90
0012AB	Over 125,000 Cubic Yards	0	CY	3.05	0.00
0013	Access Road, Embankment	500	CY	6.90	3450.00
0014	Channel Excavation	6,167	CY	3.00	18,501.00
0015	Stabilization Fabric	23,174	SY	1.53	35,456.22
0016	Granular Surfacing	8,228	TN	9.80	80,634.40
0017	Deleted				
0018	Stone Protection, Riprap*				

* Riprap source: Savanna Quarry, Savanna, IL

Table 2-3. Actual Project Costs					
Item	**Description**	**Quantity**	**U/M**	**U/P**	**Amount**
0018AA	First 3,500 Tons	3,500	TN	21.85	76,475.00
0018AB	Over 3,500 Tons	6,059.82	TN	21.85	132,407.07
0019	Seeding	81.85	AC	2780.00	227,543.00
0020	Willow Stakes	1	LS		19,000.00
0021	Security Gates	4	EA	1500.00	6,000.00
0022	Temporary Haul Road	1	LS		15,000.00
0023	Excavation for Inspection of Intake Pipes, Existing Pump Station	1	LS		78,000
0024	Grading and Shaping	11,893	SY	0.54	6,422.22
0025	Existing Pump Station Repairs	1	LS		15,687.40
0026	Gatewell Extensions	1	LS		1,839.42
0027	North Hemimarsh Access Road Realignment	1	LS		666.53
0028	Crossdike Realignment	1	LS		1,340.48
0029	Temporary Access Road	1	LS		3,086.62
0030	Widen/Maintain Acess Road	1	LS		12,491.58
0031	Class E Revetment Stone				
0031AA	First 3000 Tons	3000	TN	22.44	67,320.00
0031AB	Over 3000 Tons	3,855.78	TN	22.44	86,523.70
0032	Granular Surfacing	1,176.85	TN	10.90	12,827.67
0033	Load, Haul, and Dump Borrow Material to Perimeter Dike	13,967	CY	5.20	72,628.40
0034	Bedding/48 Inch/Pump Station	1	LS		4,651.99
0035	Crossdike Breach	1	LS		11,324.50
0036	Setback Levee	48,358	CY	9.84	475,842.72
0037	Stoplog Structure Revisions	1	LS		27,636.85
	Total				**$4,152,982.74**
Stage II, Contract Number DACW25-99-C-0021					
0001	Performance Bond	1	LS	10,000.00	$10,000.00

Table 2-3. Actual Project Costs

Item	Description	Quantity	U/M	U/P	Amount
0002	Work Performed by Interstate Power at Contractor's Expense	1	LS	20,115.00	20,115.00
0003	Bedding Stone**				
0003AA	First 145 Tons	145	TN	25.00	3,625.00
0003AB	Over 145 Tons	15	TN	25.00	375.00
0004	Riprap**				
0004AA	First 350 Tons	350	TN	25.00	8,750.00
0004AB	Over 350 Tons	60	TN	25.00	1,500.00
0005	All Other Work - Well	1	LS	115,000.00	115,000.00
0006	Offshore Riprap	3190	TN	32.37	103,260.30
0007	Grading & Seeding	2	AC	1,500.00	3,000.00
0008	Extra Well Depth	1	LS	4,400.58	4,400.58
	Total				**$270,025.88**
	Stage III, Contract Number DACA25-00-D-0001				
0001	Dredge Inlet	1	LS	15,261.25	$15,261.25
0002	Sandbag/Weld Lift Gate	1	LS	17,178.10	17,178.10
0003	Modify Stem Covers	1	LS	3,951.67	3,951.67
0004	Install Grating/Rails	1	LS	3,993.20	3,993.20
0005	Install Locking Covers	1	LS	1,443.60	1,443.60
0006	Install Staff Gages	1	LS	2,267.48	2,267.48
0007	Extend Stoplog	1	LS	1,196.11	1,196.11
	Total				**$45,291.41**
	Summary of Project Costs				
	Description				**Amount**
	Real Estate				$1,564.16
	Definite Project Report				674,480.25
	Plans and Specifications				317,522.72
	Engineering and Design				313,631.23
	Stage I Construction Contract				4,152,982.74
	Stage II Construction Contract				270,025.88
	Stage III Construction Contract				45,291.41
	Construction Management				870,276.78
	Total Project Costs				**$6,645,775.17**

** Riprap source: Wendling Quarries, Mt. Carroll Quarry.

e. Project References. Table 2-4 summarizes related project references.

Table 2-4. Project References

Title	Purpose	Date
Upper Mississippi River System Environmental Management Program, Definite Project Report (R-12F) with Integrated Environmental Assessment, Spring Lake Rehabilitation and Enhancement, U.S. Army Corps of Engineers, Rock Island District	Provides planning, engineering and sufficient construction details of the selected plan for project approval purposes	May 1993
Construction As-Builts, Stage I	Provides as-built construction drawings	August 1996
Construction As-Builts, Stage II	Provides as-built construction drawings	March 2001
Construction As-Builts, Stage III	Provides as-built construction drawings	August 2002
Manufacturer's Data (Shop Drawings)	Provides detailed operation and maintenance instructions for specific pieces of equipment as recommended by the manufacturer	October 1999
Year 5 Performance Evaluation Report	Provides summary of project performance based on project post-construction monitoring	November 2002

3. DESCRIPTION OF PROJECT FEATURES.

a. Project Data. Table 3-1 presents a summary of project data.

Table 3-1. Project Data Summary

Item	Quantity	U/M
Upper Lake Perimeter Levee		
Length	2.6	miles
Crown Width	12	feet
Sideslopes	4:1	horizontal:vertical
Elevation	595 - 594.5	feet MSL
Embankment Volume	41,000	cubic yards
Upper Lake Interior Levees		
Length	7,700	feet
Crown Width	10-12	feet
Sideslopes	4:1	horizontal:vertical
Elevation	587	feet MSL
Embankment Volume	7,600	cubic yards
Cross Dike		
Length	1.4	miles
Crown Width	12	feet
Sideslopes	4:1	horizontal:vertical
Elevation	590	feet MSL
Embankment Volume	6,000	cubic yards
Cross Dike Overflow Sections		
Length (total)	400	feet
Crown Width	12	feet
Sideslopes	4:1	horizontal:vertical
Elevation	588.75	feet MSL
Riprap (IL RR5)	1,000	tons
Lower Lake Perimeter Levee		
Length	4.5	miles
Crown Width	12	feet
Sideslopes	4:1	horizontal:vertical
Elevation	594.5 - 593	feet MSL
Embankment Volume	105,500	cubic yards
Riprap (IL RR5)	3,000	tons
Pump Station		
Submersible Pumps (2)	5,200	nominal gpm
Station Invert	575	feet MSL
Trash Racks	2	Upper & lower end
Sluice Gate (1)	3 by 3	feet
Discharge Pipe	48	Inches
Power		
Electric	3	Phase
Transformer	37.5 (3-phase)	kVA
Buried Primary Feeder Length	3,000	Feet
Riprap (IL RR5)	280	Tons
Controller Platform	1	Each
Platform Elevation	599	feet MSL
Stoplog Structures		
Weir Length Per Structure	5	Feet
Concrete Sill Elevation		

Table 3-1. Project Data Summary		
Item	**Quantity**	**U/M**
Cell A	582	feet MSL
Cell B	579	feet MSL
Cell C	579	feet MSL
Hemi-Marsh	581	feet MSL
Water Control Structure		
Slide Gates (2)	5 by 5	feet
Invert Elevation	578	feet MSL
Trash Racks	1	Each
Riprap (IL RR5)	300	Tons
Gatewell Structure		
Slide Gate (1)	2 by 2	Feet
Invert Elevation	580	feet MSL
Riprap (IL RR5)	225	Tons
Hemi-Marsh Levee		
Length	7,600	Feet
Crown Width	10	Feet
Sideslopes	4:1	Horizontal:Vertical
Level of Protection	2	Year event
Elevation	586	feet MSL
Embankment Volume	10,000	Cubic yards
Crushed Stone	1,800	Tons
Riprap (IL RR5)	3,200	Tons
Well Station		
Well Depth	133	Feet
Casing Diameter	12	Inches
Well Screen		
Length	20	Feet
Diameter	12	Inches
Submersible Pump		
Capacity	1,170	Gpm
Depth	125	Feet
Discharge Pipe		
Diameter	8	Inches
Length	120	Feet
Riprap-Lined Discharge Channel		
Length	220	Feet
Width	20	Feet
Riprap Thickness (IL RR4)	16	Inches
Bedding thickness (IL RR1)	6	Inches
Power		
Electric (3-phase)	480	Volts
Transformer	22.5 (3-phase)	kVA
Overhead primary feeder length	2,000	Feet
Platform	1	Each
Service road		
Length	2,000	Feet
Width w/shoulder	12	Feet
Crushed stone (IL CA-6)	480	Tons

b. General Description. The Spring Lake project consists of aquatic habitat enhancement by levee restoration and water control structures. Wetland habitat is enhanced by creating a 3-cell, managed moist soil unit in the Upper Lake and a hemi-marsh in the Lower Lake. Water for the Upper Lake is provided by pumping from the Lower Lake. Water for the hemi-marsh is provided by a well located near the low-level hemi-marsh levee. Water level control for the hemi-marsh and the three cells in the Upper Lake is provided by containment dikes and stoplog structures.

c. Perimeter Levee. The existing perimeter levee was raised and strengthened by excavating adjacent soil for levee embankments. The levee top was restored to the 50-year design elevation with a 12-foot top width to ensure adequate levee stability. The perimeter levee provides no level of protection from floodwaters, as the levee is open to the river at the lower end.

d. Cross Dike. The existing cross dike was raised and strengthened by excavating adjacent soil for levee embankments. The levee top was raised to the 10-year flood elevation of 590.0 to increase protection against floodwater damage in the Upper Lake. The 590.0 elevation was chosen based on the depth of water to be impounded in the Upper Lake plus freeboard and the availability of adjacent borrow material. Two overflow sections depressed to elevation 588.75 will minimize overtopping damage to the cross dike. Granular surfacing is provided the entire length of the cross-dike to allow vehicular access to the pump station and the perimeter levee.

e. Pump Station. A new pump station is installed in the cross dike to fill and evacuate the Upper Lake. The pumps, manufactured by Flygt® Corp., are sized to fill the Upper Lake in approximately 30 days and evacuate it in 25 days. The pump station has two identical pumps that pump in opposite directions. This provides the capability to dewater the Upper Lake during drawdown times and to pump water from the Lower Lake into the Upper Lake during desired inundation periods. An electrical lock-out prevents the pumps from being operated simultaneously. The rated capacity of these pumps is 5200 gallons per minute at 8.5 feet of total dynamic head (TDH). The pump station is turned on manually and will operate automatically until turned off. An underground electric cable in the cross dike supplies 480-volt, three-phase power. The pump station is furnished with a trash rack on both the Upper Lake side and the Lower Lake side due to the dual pumping capacity. A mechanically excavated inlet channel on the Lower Lake side reduces sediment flow into the pump station forebay. In addition, a radius directly in front of the pump station inlet is over-excavated to inhibit vegetative growth in this area. The pump station includes a 3-foot by 3-foot sluice gate to allow for gravity flows. An electric motor operates the gate. The gate may be used any time the desired flow will occur by gravity, saving wear on the pumps and reducing operating costs. Both pumps and the gate are located within a durable concrete building. A 7-foot chain-link perimeter fence with barbed-wire crown surrounds the building to discourage vandalism.

f. Interior Levees. The three cells of the Upper Lake are separated by low-level interior levees, approximately 5 feet high. The levees separating Cells B and C are also used to provide a water feeder channel to Cell A. The Cell A and Cell B levees have a 10-foot top width, as no vehicle access is required. The Cell C levee has a 12-foot top width and a 10-foot wide granular roadway to allow vehicle access to the Cell A stoplog structure.

g. Stoplog Structures. Four reinforced concrete stoplog structures are utilized throughout the project to control water levels. All structures are the same type, consisting of a concrete sill, concrete abutments, and cast iron stoplog channels. The structures are used to control water levels in Cells A, B, and C, and the hemi-marsh. Heavy duty, removable AASHTO H-20 grating is provided to allow vehicular access across the structures.

h. Gated Inlet Structure. A reinforced concrete gated inlet structure allows river water to enter the Lower Lake to increase dissolved oxygen concentrations during periods of low flow. The structure consists of two 5-foot by 5-foot gated box culverts capable of passing 175 cubic feet per second, at typical low-flow river elevations. A 7-foot chain-link perimeter fence with barbed-wire crown surrounds the entire structure to discourage vandalism and unauthorized operation.

The 60-inch by 60-inch vertical sluice gates are raised and lowered by pedestal lifts located on top of the structure. Each lift is equipped with an indicator to show the position of the gates. These lifts may be operated by a hand crank or a portable engine operator. The portable engine operator is a hand-held gasoline engine-driven device for operating the pedestal lift. Each gatewell is furnished with an integral ladder and covered with removable grating to allow access to the gates and gate stems. The grating is equipped with a locking mechanism to prevent unauthorized entry to the gatewells.

i. Gatewell Structure. A 24-inch reinforced concrete gatewell structure provides extra management capability to provide oxygenated water to the southwest region of the Lower Lake. The structure was sized to be small enough to operate easily and large enough to not pose a habitual maintenance problem. The structure has a single 24-inch diameter vertical sluice gate operated by a pedestal lift located on top of the structure. This lift may be operated by a hand crank or a portable engine operator, and incorporates an indicator to show gate position. Access to the gate and gate stem is provided through a manhole on top of the structure. A lockable manhole cover prevents unauthorized entry.

j. Hemi-Marsh. This feature consists of an approximate 130-acre hemi-marsh located on the southeastern fringe of the Lower Lake. A low-level perimeter levee separates the hemi-marsh from the rest of the Lower Lake. The levee top elevation of 586.0 was chosen based on the need to pond 2 feet of water in the hemi-marsh. Water levels are controlled with a concrete stoplog structure at the southern end of the hemi-marsh and

an 1170-gallon-per-minute well. An offshore rock mound protects the hemi-marsh levee from erosion due to wind-induced waves in the Lower Lake.

k. Well. A well was installed in the northeast corner of the hemi-marsh. The well has a 10-inch, 15-horsepower, 460-volt pump delivering 1170 gallons per minute at 23 feet TDH. The well is approximately 130 feet deep and allows water levels within the marsh to be raised as needed. A vented well cover encloses the top of the well casing. A painted steel protective pipe with a lockable cap serves as a vandal-resistant cover over all exposed portions of the well. A riprap-lined ditch (IL gradation RR4, bedding stone IL gradation RR1) directs the well water into the hemi-marsh while preventing erosion of the surrounding ground.

4. INSPECTIONS.

a. General.

(1) An active maintenance program is based on inspections and subsequent servicing, adjustment, or repair. The two main objectives of inspections are to: (a) ensure project serviceability by timely and thorough inspections, thereby avoiding or reducing maintenance costs, and (b) document the condition of the project as a baseline for consideration of rehabilitation for project damage resulting from a major storm or flood event.

(2) The two types of inspections for the project are: (a) project inspection by the site manager, and (b) joint inspection by the site manager and personnel from the U.S. Army Corps of Engineers, Rock Island District.

b. Project Inspection by Site Manager.

(1) The project inspection should be performed by the site manager or appropriate representative for the purpose of noting routine deficiencies and initiating corrective actions. This inspection will be performed at periods not exceeding 12 months and will follow inspection guidance presented in subsequent sections of this manual. It is suggested that the inspection be conducted every May, which is representative of the conditions after spring flooding. Other project inspections should occur as necessary, after high water events or as scheduled by the site manager.

(2) A project inspection checklist has been developed as presented in Appendix B. The site manager shall furnish a copy of the completed checklist to the U.S. Army Corps of Engineers, Rock Island District, ATTN: EMP Project Manager, CEMVR-PM-M, Clock Tower Building, P.O. Box 2004, Rock Island, Illinois 61204-2004, immediately following each project inspection.

c. Joint Inspection by Site Manager and U.S. Army Corps of Engineers.

(1) Routine. A joint inspection by the site manager and the Corps of Engineers shall be performed annually. The purpose of this inspection is to assure that adequate maintenance is being performed as presented in the Definite Project Report and this manual. The District Engineer or Authorized Representative should have access to all portions of the constructed project upon coordination with the site manager for this purpose.

(2) Catastrophic. A joint inspection by the site manager and the Corps of Engineers should be formally requested by the site manager immediately following a specific storm or flood event which causes damage exceeding the annual operation and maintenance as specified in this manual and the Definite Project Report. The project inspections by the site manager and joint inspections results will be the basis for determining maintenance responsibility and potential rehabilitation by the Corps of Engineers.

5. OPERATION AND MAINTENANCE OF PROJECT FEATURES.

This section presents operation and maintenance instructions for the major project features. Steps will be taken by the site manager to correct conditions disclosed by project inspections or joint inspections. Regular maintenance repair measures will be accomplished during the appropriate season as scheduled by the site manager to ensure structure serviceability. Appropriate advance measures will be taken to ensure the availability of adequate labor and materials to meet contingencies.

Project features should be continuously maintained and operated to obtain maximum benefits. No encroachment or trespass, which will adversely affect the efficient operation or maintenance of the project, should be permitted upon the constructed features. No improvement should be passed over, under, or through the constructed features, nor should any excavation or construction be permitted within these features without prior approval by the Corps of Engineers, Rock Island District. Such improvements or alterations that are desirable and permissible should be constructed in accordance with standard engineering practice. Advice regarding the effect of proposed improvements or alterations on the functioning of the project and information concerning methods of construction acceptable under standard engineering practice should be obtained from the District Engineer or, if otherwise obtained, should be submitted for approval. Drawings or prints showing improvements or alterations as finally constructed should be furnished to the District Engineer after completion of such work.

The capability of the USFWS to carry out the maintenance responsibilities described below will be contingent upon the passage of sufficient appropriations for that purpose by Congress.

a. Perimeter Levee, Interior Levees, and Cross Dike.

(1) Operation.

(a) During operational inundation period, the levees should be inspected to be certain that:

(i) There are no indications of slides or sloughs developing;

(ii) Wave wash or scouring action is not occurring;

(iii) No low reaches of levee below design grade exist which may be overtopped; and

(iv) No other conditions exist which might endanger the levee.

(b) Appropriate advance measures should be taken to ensure availability of adequate labor and materials to meet contingencies. Steps should be taken to control any condition that endangers the levee and to repair the damaged section.

(c) **Emergency Fill Procedure.** During a high-water event, measures may need to be taken to minimize damage to the cross dike from overtopping. The cross dike is provided with armored overflow sections that were designed to allow the Upper Lake to fill before the cross dike is overtopped. However, a quick-rising flood may still overtop the cross dike before the Upper Lake has time to equalize with the Lower Lake. Hydraulic analysis shows that opening the pump station gate and the gatewell in Cell A at the onset of a high-water event will greatly reduce the risk of damage to the cross dike. Assuming a floodwater rise of 1 foot per day, with both gates open, the head differential (difference in water levels between Upper and Lower Lakes) when the cross dike overtops will be 0.8 to 2.0 feet, depending on the initial water level in the Upper Lake. This analysis assumes that the gates are opened when the Lower Lake reaches elevation 587.0, and that all stoplogs are removed. Therefore, when the water elevation in the Lower Lake reaches 587.0, and is expected to continue rising, stoplogs should be removed from structures A, B, and C and the pump station gate and gatewell structure should be opened fully.
NOTE: This paragraph is based on project as designed, and does not take into account any of the changes made to the Cross Dike in 2002 by Refuge personnel.

(2) Maintenance.

(a) The site manager should provide at all times such maintenance as may be necessary to ensure the serviceability of the levee in time of inundation. Measures should be taken to promote the growth of sod, control burrowing animals, remove wild growth and drift deposits, and repair damage caused by erosion or other forces. Routine burning or mowing shall be performed at least once per year on the levee extending 5 feet horizontally from the toe of the levee.

(b) Project inspections should be made by the site manager to ensure that the above maintenance measures are being effectively carried out and to be certain that:

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

(ii) no caving has occurred on either the landside or the riverside of the levee which might affect the stability of the levee section;

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

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

(v) the crown of the levee is shaped to drain readily;

(vi) there is no unauthorized grazing or vehicular traffic on the levee; and

(vii) encroachments are not being made on the levee which might endanger the structure or hinder its proper and efficient functioning during times of inundation.

(c) Such inspections should be made prior to the beginning of an inundation period, immediately following major high water periods, and otherwise at intervals necessary to insure the best care of the levee or one time per year as stated in section 6. Steps should be taken to correct conditions disclosed by such inspections. Regular maintenance repair measures should be accomplished during the appropriate season as scheduled by the site manager.

b. Stoplog Structures.

(1) Operation.

(a) A stoplog lifting hook is furnished with the project for the installation and removal of the stoplogs. This tool should be stored in a secure place to allow ready use when needed.

(b) Add or remove stoplogs as required to maintain desired water levels in impoundment areas (i.e., Cells A, B, & C, and hemi-marsh). Prior to high water events, stoplogs should be removed to allow water levels in all impoundment areas to equalize with the river stage. This will reduce the risk of levee damage in the event of overtopping.

(2) Maintenance.

(a) The water control structures should be inspected immediately following draining and after a high water event to determine whether seepage is taking place along the lines of its contact with the embankment. Corrective action should be taken upon discovery of any adverse conditions at the structure.

(b) Project inspections of the control structures should be made by the Site Manager to be certain that:

(i) stoplogs, headwalls, staff gages, stoplog keepers, steel rails posts, grating, and riprap are in good operating condition;

(ii) inlet and outlet channels are open;

(iii) sediment buildup is not occurring;

(iv) care is being exercised to prevent the accumulation of trash and debris near the structure; and

(v) erosion is not occurring adjacent to the structure which might endanger its function.

(c) Steps should be taken to repair damage, replace missing or broken parts, or remedy adverse conditions disclosed by such inspections.

c. Pump Station.

(1) Operation.

(a) To fill or drain the Upper Lake, the respective pump must be activated manually using the appropriate 'MAN-OFF-AUTO' switch, located on the control panel. If river levels are such that the desired action (filling or draining) will occur by gravity flow, the pump station gate should be opened and the pumps switched to the 'OFF' position. The pumps should not be on when the gate is open, as this will impede the desired action.

(b) During desired drawdown periods, the gate should be closed and pump #2 switched to the 'AUTO' position. The pump station will start evacuating the Upper Lake and will continue pumping until the water level drops to elevation 579.0, at which time the pump will automatically stop. With the #2 pump control remaining in the 'AUTO' position, the pump station will automatically turn on at water elevation 579.5 and turn off at water elevation 579.0.

(c) When it is desired to pump water into the Upper Lake, the gate should be closed and pump #1 switched to the 'AUTO' position. The pump station will start filling the Upper Lake and will continue pumping until the water level reaches elevation 585.0, at which time the pump will automatically stop. With the #1 pump control remaining in the 'AUTO' position, the pump station will automatically turn on at water elevation 584.5 and turn off at water elevation 585.0.

(d) When water levels in the Lower Lake reach elevation 587.0 and are expected to continue rising, the pump station gate should be opened to allow water levels in the Upper and Lower Lake to equalize. This will greatly reduce the risk of damage to the cross dike in the event of overtopping.

(e) The pumps are equipped with a 30-second lock-out feature. If a pump is stopped for any reason, there will be a delay timer, which disables the pump from being restarted for 30 seconds.

(2) Maintenance.

(a) The pump station should be inspected immediately following a high-water event to determine whether any damage occurred to the structure or the surrounding embankment. Corrective action should be taken upon discovery of any adverse conditions.

(b) Project inspections of the pump station should be made by the Site Manager. Inspections should include the following:

(i) Building. Visually inspect all surfaces to discover cracks, spalling of concrete, faulty joints, or leaks. Check for damage to railings, safety chains, ladders, doors, vents, latches and all other hardware.

(ii) Gate. When conditions permit, operate the gate through its operational range of travel to determine whether it functions as required. Examine exposed parts of the gate - including rivets, bolts and welds - for corrosion, cracking, and deterioration of coating, or other damage.

(iii) Pumps.

(a) Pumps should be observed for indications of improper operation or damage. Avoid operation of pumps during sump cavitation or ice conditions. The pumps will automatically shut down through the pump control unit located in the electrical panel on high stator winding temperature, stator casing leakage, high bearing temperature, phase loss, phase reversal, phase imbalance, undervoltage, or ground fault. Warning lights for system shutdown should be checked before restarting the respective pump. Periodically check the sump for proper water depth, especially prior to extended operation. Mud in the sump may be a cause for cavitation during operation.

(b) The Site Manager should have a Flygt® authorized representative conduct pump inspections and maintenance and repair work in accordance with the manufacturer's specifications, and operations and maintenance manuals (such as that for the electric pump). Ancillary equipment such as cables, level sensors, starter and monitoring equipment should also be periodically inspected. Damaged components should be repaired or replaced by a qualified mechanic or electrician.

(iv) Control Panel. Examine closely for overall condition. Tighten, repair, and clean as needed. Discourage rodents, birds, hornets, etc. from building nests in and around the control panel. Check tightness of electrical connections.

(v) Trash Racks. Check for trash accumulation at racks and remove as necessary. Should operating conditions or observations indicate trouble is developing and operating conditions will permit, inspect racks to indicate general condition. Underwater inspection may be more practical than removal of racks. The racks should be repaired as necessary to maintain a satisfactory condition.

(c) Steps should be taken to repair damage, replace missing or broken parts, or remedy adverse conditions disclosed by such inspections.

d. Gated Inlet Structure and Gatewell Structure

(1) Operation. To allow river water to enter the Lower Lake, the sluice gates must be opened manually. Each inlet is provided with a hand crank and a gate-position indicator. Additionally, the Gated Inlet Structure is provided with a portable engine operator. As river flows increase, the gates should be closed to prevent sediment-laden water from entering the Lower Lake.

(2) Maintenance.

(a) The structures should be inspected immediately following a high-water event to determine whether seepage is taking place along the lines of its contact with the embankment. Corrective action should be taken upon discovery of any adverse conditions at the structure.

(b) Project inspections of the structures should be made by the Site Manager to be certain that:

(i) hand cranks, headwalls, trash racks, staff gages, stoplog keepers, handrails, posts, grating, and riprap bank protection are in good operating condition;

(ii) inlet and outlet channels are open;

(iii) sediment buildup is not occurring;

(iv) care is being exercised to prevent the accumulation of trash and debris near the structure; and

(v) erosion is not occurring adjacent to the structure which might endanger its function.

(c) Steps should be taken to repair damage, replace missing or broken parts, or remedy adverse conditions disclosed by such inspections.

e. Well.

(1) Operation. To inundate the hemi-marsh, the pump must be activated manually. The pump also must be deactivated manually once the desired interior water elevation is achieved. Pumping to maintain interior elevations during hemi-marsh operation also will be by manual activation/deactivation. Water levels should be monitored periodically to assure adequate water levels are maintained.

The manual activation/deactivation of the pump is accomplished using the disconnect switch located on pole P4, adjacent to the electric meter. If the pump

fails to engage with the disconnect switch in the "ON" position, it is possible that a fault has caused the Motor Minder control to disengage the motor circuit. In this case, the Motor Minder, located on the control box on pole P5, must be reset in order for the pump to operate.

(2) Maintenance. Well inspections shall be performed by the site manager. Steps should be taken to correct conditions disclosed by such inspections. In general, the well inspection should include the following:

(a) Well. Visually inspect the protective casing, bollards, and the discharge apron to discover any adverse conditions. Conditions that may affect the operation of the hemi-marsh should be corrected as soon as practicable.

(b) Controls. All electrical controls and associated wiring should be examined closely and their overall condition assessed. Watertight connections should be inspected for integrity. Any corroded, loose, or broken contacts should be cleaned, tightened, and repaired as needed.

(c) Pump.

(i) The pump should periodically be observed for indications of improper operation or damage. The pump will automatically shut down through the control and status unit located in the electrical panel on high stator winding temperature, stator casing leakage, or high lower bearing temperature.

(ii) The site manager should have an authorized representative conduct pump inspections and maintenance and repair work in accordance with Pump Manufacturers Installation, Care, and Maintenance Manual. Ancillary equipment such as cables, level sensors, starter and monitoring equipment should also be periodically inspected. Damaged components should be repaired or replaced by a qualified technician.

6. PROJECT REHABILITATION OR ABANDONMENT.

a. General. As stated in the Operation, Maintenance, and Rehabilitation Agreement between the USFWS and the Corps, the Corps will be responsible for any mutually agreed upon repair and rehabilitation that exceeds the annual operation and maintenance requirements identified in the Definite Project Report and that is needed as a result of a specific storm or flood. The project will be inspected as previously described, following flood events or specific storms.

b. Post-Construction. Should inspection of the project area following a major flood or natural disaster disclose substantial damage to any of the major components of the project that appears to exceed the annual operation and maintenance as specified in this manual and the Definite Project Report, the Corps and the USFWS should meet and

discuss the appropriate course of action in light of the original project design. The inspections by the site manager (as summarized in the submitted checklist) and the joint inspections with the Corps will be the basis for determining maintenance responsibility by the U.S. Fish and Wildlife Service versus potential rehabilitation by the Corps. Repair of damage attributable to lack of maintenance is a U.S. Fish and Wildlife Service Responsibility. The options of rehabilitation or abandonment of the project may be considered at this time. Any decision would be carried forth only upon written mutual agreement of the USFWS and the Corps. Included within such agreement would be a description of the agreed upon course of action and funding responsibilities, if any.

7. PERFORMANCE MONITORING AND ASSESSMENT.

The purpose of this section is to summarize monitoring and data collection aspects of the project. Table 7-1 presents the principal types, purposes, and responsibility of monitoring and data collection. Table 7-2 summarizes inspection, monitoring, and data parameters grouped by project phase, responsible agency, and data collection intervals. Changes to the monitoring plan should be coordinated with the USFWS, the ILDNR, and the U.S. Army Corps of Engineers. Table 7-3 presents the post-construction quantitative measurements to be performed by the Corps of Engineers. The monitoring parameters were developed to measure the effectiveness of the stated goals. The Site Manager should follow Table 7-2, as shown, to make annual field observations. These observations are summarized in checklist form in Appendix B. The annual field observations and the quantitative monitoring parameters will form the basis of project evaluation.

Table 7-1. Monitoring and Performance Evaluation Plan		
Type of Activity	**Purpose**	**Responsibility**
Sedimentation Problem Analysis	Definition of system-wide problem definition and evaluation of planning assumptions	USFWS
Pre-Project Monitoring	Establishment of need for proposed project features	USFWS
Baseline Monitoring	Establishment of baseline for performance evaluation	Corps of Engineers
Data Collection for Design	Include quantification of project objectives, design of project, and development of performance evaluation plan	Corps of Engineers
Construction Monitoring	Assessment of construction impacts and assurance that permit conditions are met	Corps of Engineers
Performance Evaluation Monitoring	Continuing monitoring and determination of project success relative to goals and objectives	Corps of Engineers (quantitative) USFWS (field observations)
Biological Response Monitoring	Evaluation of predictions and assumptions made during WHAG analysis and incorporation of studies beyond scope of performance evaluation	Corps of Engineers

Table 7-2. Resource Monitoring and Data Collection Summary													
Type of Measurement	**Water Quality Data**						**Engineering Data**			**Natural Resource Data**			**Sampling Agency**
	Pre-Project Phase		Design Phase		Post-Const. Phase		Pre-Project Phase	Design Phase	Post-Const. Phase	Pre-Project Phase	Design Phase	Post-Const. Phase	
	APR-SEPT	OCT-MAR	APR-SEPT	OCT-MAR	APR-SEPT	OCT-MAR							
POINT MEASUREMENTS													
Water Quality Stations													USACE
Turbidity	--	--	2W	M	2W	M							
Secchi Disk Transparency	2W	--	2W	--	2W	M							
Suspended Solids	2W	--	2W	M	2W	M							
Dissolved Oxygen	2W	--	2W	M	2W	M							
Specific Conductance	2W	--	2W	M	2W	M							
Water Temperature	2W	--	2W	M	2W	M							
Ph	2W	--	2W	M	2W	M							
Total Alkalinity	--	--	2W	M	2W	M							
Chlorophyll	2W	--	2W	M	2W	M							
Velocity	--	--	2W	M	2W	M							
Water Depth	2W	--	2W	M	2W	M							
Water Elevation	2W	--	2W	M	2W	M							
Percent Ice Cover	--	--	--	M	--	M							
Ice Depth	--	--	--	M	--	M							
Percent Snow Cover	--	--	--	M	--	M							
Snow Depth	--	--	--	M	--	M							
Wind Direction	--	--	2W	M	2W	M							
Wind Velocity	--	--	2W	M	2W	M							
Wave Height	--	--	2W	M	2W	M							
Air Temperature	2W	--	2W	M	2W	M							
Percent Cloud Cover	--	--	2W	M	2W	M							
Elutriate Test Stations			1										USACE
Column Settling Stations								1					USACE
Column Settling Analysis													
Boring Stations								1					
Geotechnical Borings													

Table 7-2. Resource Monitoring and Data Collection Summary (continued)

Type of Measurement	Water Quality Data						Engineering Data			Natural Resource Data			Sampling Agency
	Pre-Project Phase		Design Phase		Post-Const. Phase		Pre-Project Phase	Design Phase	Post-Const. Phase	Pre-Project Phase	Design Phase	Post-Const. Phase	
	APR-SEPT	OCT-MAR	APR-SEPT	OCT-MAR	APR-SEPT	OCT-MAR							
Fish Stations										1	1	1	ILDNR
Electrofishing													
TRANSECT MEASUREMENTS													
Sedimentation Transects													
Hydrographic Soundings							1		5Y				USACE
Vegetation Monitoring													
Vegetation Survey												5Y	USACE
Levee System							1		5Y				
Cross-sections at even 500-foot intervals and profile of cross dike and perimeter levee													
AREA MEASUREMENTS													
Mapping													
Land Cover / Land Use Map										1		5Y	USACE

Legend

W = weekly
M = monthly
Y = yearly

nY = n-year interval
nW = n-week interval
1, 2, 3, ... = number of times data is collected within designated project phase

Note: Construction completed July 1999 and is the start date for performance monitoring.

Table 7-3.
Post-Construction Evaluation Plan

Goal	Objective	Unit of Measure	Enhancement Feature	Field Observation	Monitoring Plan	Monitoring Intervals
Enhance Aquatic Habitat	Improve water quality for fish	DO (mg/l)	Inlet structure/excavated channel	Description of fishing conditions	Water quality testing	April-September: every 2 weeks, October-March: every month
	Maintain backwater lake	Linear feet of eroded levee	Perimeter levee and cross dike	Description of erosion effects	Levee system transects and profiles	every 5 years
Enhance Wetland Habitat	Provide reliable food source in Upper Lake for migratory birds	Acres of vegetation	Upper Lake water control	Estimation of acres of emerged and submerged vegetation	Vegetation transects	every 5 years
	Provide reliable food source in Lower Lake for migratory birds	Acres of vegetation	Hemi-marsh	Estimation of acres of emerged and submerged vegetation	Vegetation transects	every 5 years

Appendix A

Memorandum of Agreement

MEMORANDUM OF AGREEMENT
BETWEEN
THE DEPARTMENT OF THE ARMY
AND
THE UNITED STATES FISH AND WILDLIFE SERVICE
FOR
ENHANCING FISH AND WILDLIFE RESOURCES
OF THE
UPPER MISSISSIPPI RIVER SYSTEM
AT SPRING LAKE

I. PURPOSE

The purpose of this Memorandum of Agreement (MOA) is to establish the relationships, arrangements, and general procedures under which the U.S. Fish and Wildlife Service (USFWS) and the Department of the Army (DA) will operate in constructing, operating, maintaining, and rehabilitating the Spring Lake, Illinois, separable element of the Upper Mississippi River System - Environmental Management Program (UMRS-EMP).

II. BACKGROUND

Section 1103 of the Water Resources Development Act of 1986, Public Law 99-662. authorizes construction of measures for the purpose of enhancing fish and wildlife resources in the Upper Mississippi River System. The project area is managed by the USFWS and is on lands managed as a national wildlife refuge. Under conditions of Section 906(e) of the Water Resources Development Act of 1986, Public Law 99-662, 100 percent of the construction costs of those fish and wildlife features at Spring Lake, Illinois, are the responsibility of (DA), and pursuant to Section 107(b) of the Water Resources Development Act of 1992, Public Law 102-580, 100 percent of operation and maintenance for Spring Lake, Illinois, project area are the responsibility of USFWS.

III. GENERAL SCOPE

The project to be accomplished pursuant to this MOA shall consist of providing 3 independent water-controlled cells in the Upper Lake; constructing a gated inlet water control structure and a gatewell structure in the Lower Lake; establishing 108 acres of hemi-marsh in the Lower Lake; and restoring 7.1 miles of the existing perimeter levee and 1.4 miles of the cross dike.

IV. RESPONSIBILITIES

A. The DA is responsible for:

1. **Construction:** Rehabilitation of the existing perimeter levee and cross dike; construction of interior levees, four (4) stoplog structures, one (1) pump station, one (1) water control structure, one (1) gatewell structure and one (1) well station.

2. **Major Rehabilitation:** The Federal share of any mutually agreed upon rehabilitation of the project that exceeds the annual operation and maintenance requirements identified in the Definite Project Report and that is needed as a result of specific storm or flood events.

3. **Construction Management:** Subject to and using funds appropriated by the Congress of the United States, and in accordance with Section 906(e) of the Water Resources Development Act of 1986, Public Law 99-662, the DA will construct the Spring Lake, Illinois, Fish and Wildlife Enhancement project as described in the Definite Project Report with Integrated Environmental Assessment, Spring Lake Rehabilitation and Enhancement, dated May 1993, applying those procedures usually followed or applied in Federal projects, pursuant to Federal laws, regulations, and policies. The USFWS will be afforded the opportunity to review and comment on all modifications and change orders prior to the issuance to the contractor of the Notice to Proceed. If the DA encounters potential delays related to construction of the project the DA will promptly notify the USFWS of such delays.

4. **Maintenance of Records:** The DA will keep books, records, documents, and other evidence pertaining to costs and expenses incurred in connection with construction of the project to the extent and in such detail as will properly reflect total costs. The DA shall maintain such books, records, documents, and other evidence for a minimum of 3 years after completion of construction of the project and resolution of all relevant claims arising therefrom, and shall make available at its evidence for inspection and audit by authorized representatives of the USFWS.

B: The USFWS is responsible for Operation, Maintenance, and Repair: Upon completion of construction as determined by the District Engineer, Rock Island, the USFWS shall accept the project and shall operate, maintain, and repair the project as defined in the Definite Project Report with Integrated Environmental Assessment, Spring Lake Rehabilitation and Enhancement, dated May 1993, in accordance with Section 107(b) of the Water Resources Development Act of 1992, Public Law 102-580.

V. MODIFICATION AND TERMINATION

This MOA may be modified or terminated at any time by mutual agreement of the parties. Any such modification or termination must be in writing. Unless otherwise modified or terminated, this MOA shall remain in effect for a period of no more than 50 years after initiation of construction of the project.

VI. REPRESENTATIVES

The following individuals or their designated representatives shall have authority to act under this MOA for their respective parties:

USFWS: Regional Director
U.S. Fish and Wildlife Service
Federal Building, Fort Snelling
Twin Cities, Minnesota 55111

DA: District Engineer
U.S. Army Engineer District, Rock Island
Clock Tower Building
P.O. Box 2004
Rock Island, Illinois 61204-2004

EFFECTIVE DATE OF MOA

This MOA shall become effective when signed by the appropriate representatives of both parties.

THE DEPARTMENT OF ARMY

BY: Charles S Cox
CHARLES S. COX
Colonel, U.S. Army
District Engineer

DATE: 7 Oct 94

THE U.S. FISH AND WILDLIFE SERVICE

BY: Sam Marler
SAM MARLER
Regional Director
U.S. Fish and Wildlife Service

DATE: 29 Sept 1994

Appendix B

Site Manager's
Project Inspection and Monitoring Results

OPERATION AND MAINTENANCE MANUAL
SPRING LAKE HABITAT REHABILITATION AND ENHANCEMENT
UPPER MISSISSIPPI RIVER
ENVIRONMENTAL MANAGEMENT PROGRAM
POOL 13, RIVER MILES 522.5 THROUGH 526
CARROLL AND WHITESIDE COUNTIES, ILLINOIS

SITE MANAGER'S PROJECT INSPECTION OBSERVATIONS

Inspected By_____ Date_____

Type of Inspection: ( ) annual ( ) emergency-disaster ( ) other

1. PROJECT INSPECTION.

Item	Condition
a. Upper Perimeter Levee	
( ) Settlement, sloughs or loss of section	_____
( ) Wavewash, scouring	_____
( ) Vegetative cover (mowing)	_____
( ) Burrowing animals	_____
( ) Unauthorized grazing or traffic	_____
( ) Encroachments	_____
( ) Unfavorable tree/shrub growth	_____
( ) Other	_____
b. Lower Perimeter Levee	
( ) Settlement, sloughs or loss of section	_____
( ) Wavewash, scouring	_____
( ) Vegetative cover (mowing)	_____
( ) Burrowing animals	_____
( ) Unauthorized grazing or traffic	_____
( ) Encroachments	_____
( ) Unfavorable tree/shrub growth	_____
( ) Other	_____

c. Interior Levees

( ) Settlement, sloughs or loss of section _____
( ) Wavewash, scouring _____
( ) Overtopping erosion _____
( ) Vegetative cover (mowing) _____
( ) Burrowing animals _____
( ) Unauthorized grazing or traffic _____
( ) Encroachments _____
( ) Unfavorable tree/shrub growth _____
( ) Other _____

d. Cross Dike

( ) Settlement, sloughs or loss of section _____
( ) Wavewash, scouring _____
( ) Overtopping erosion _____
( ) Vegetative cover (mowing) _____
( ) Burrowing animals _____
( ) Unauthorized grazing or traffic _____
( ) Encroachments _____
( ) Unfavorable tree/shrub growth _____
( ) Other _____

e. Hemimarsh Levee

( ) Settlement, sloughs or loss of section
( ) Wavewash, scouring _____
( ) Overtopping erosion _____
( ) Vegetative cover (mowing) _____
( ) Burrowing animals _____
( ) Unauthorized grazing or traffic _____
( ) Encroachments _____
( ) Unfavorable tree/shrub growth _____
( ) Other _____

f. Stoplog Structure A

( ) Stoplogs, stoplog keepers, stoplog slots _____
( ) Concrete _____
( ) Steel rails, grating, fasteners _____
( ) Displaced/missing riprap _____
( ) Erosion adjacent to structure _____
( ) Sedimentation _____
( ) Other _____

g. Stoplog Structure B

( ) Stoplogs, stoplog keepers, stoplog slots _____
( ) Concrete _____
( ) Steel rails, grating, fasteners _____
( ) Displaced/missing riprap _____
( ) Erosion adjacent to structure _____
( ) Sedimentation _____
( ) Other _____

h. Stoplog Structure C

( ) Stoplogs, stoplog keepers, stoplog slots _____
( ) Concrete _____
( ) Steel rails, grating, fasteners _____
( ) Displaced/missing riprap _____
( ) Erosion adjacent to structure _____
( ) Sedimentation _____
( ) Other _____

i. Stoplog Structure HM

( ) Stoplogs, stoplog keepers, stoplog slots _____
( ) Concrete _____
( ) Steel rails, grating, fasteners _____
( ) Displaced/missing riprap _____
( ) Erosion adjacent to structure _____
( ) Sedimentation _____
( ) Other _____

j. Pump Station

( ) Building/hardware _____
( ) Control panel _____
( ) Pumps _____
( ) Gate _____
( ) Sump (sediment, debris) _____
( ) Trash racks _____
( ) Inlet & outlet channels _____
( ) Displaced/missing riprap _____
( ) Erosion or seepage adjacent to structure _____
( ) other _____

k. Gated Inlet Structure

( ) Concrete _____
( ) Gates and operating mechanism _____
( ) Displaced/missing riprap _____
( ) Inlet & outlet channels _____
( ) Erosion or seepage adjacent to structure _____
( ) other _____

l. 24-in. Gatewell

( ) Concrete _____
( ) Gate and operating mechanism _____
( ) Inlet & outlet channels _____
( ) Erosion or seepage adjacent to structure _____
( ) other _____

m. Well

( ) Protective casing _____
( ) Bollards _____
( ) Outlet apron (riprap) _____
( ) Electrical controls _____
( ) Pump _____
( ) Other _____

n. Access Roads (on levee)

( ) Excessive rutting _____
( ) Erosion / loss of crown width _____
( ) Displaced granular surfacing _____

o. Overflow Spillway

( ) Displaced or missing riprap _____
( ) Debris accumulation _____
( ) Erosion _____

2. COMMENTS.

_____

Site Manager

Appendix C

Distribution List

Distribution List

Mr. Ed Britton
U.S. Fish and Wildlife Service
7071 Riverview Road
Thomson, Illinois 61285 (4 copies)

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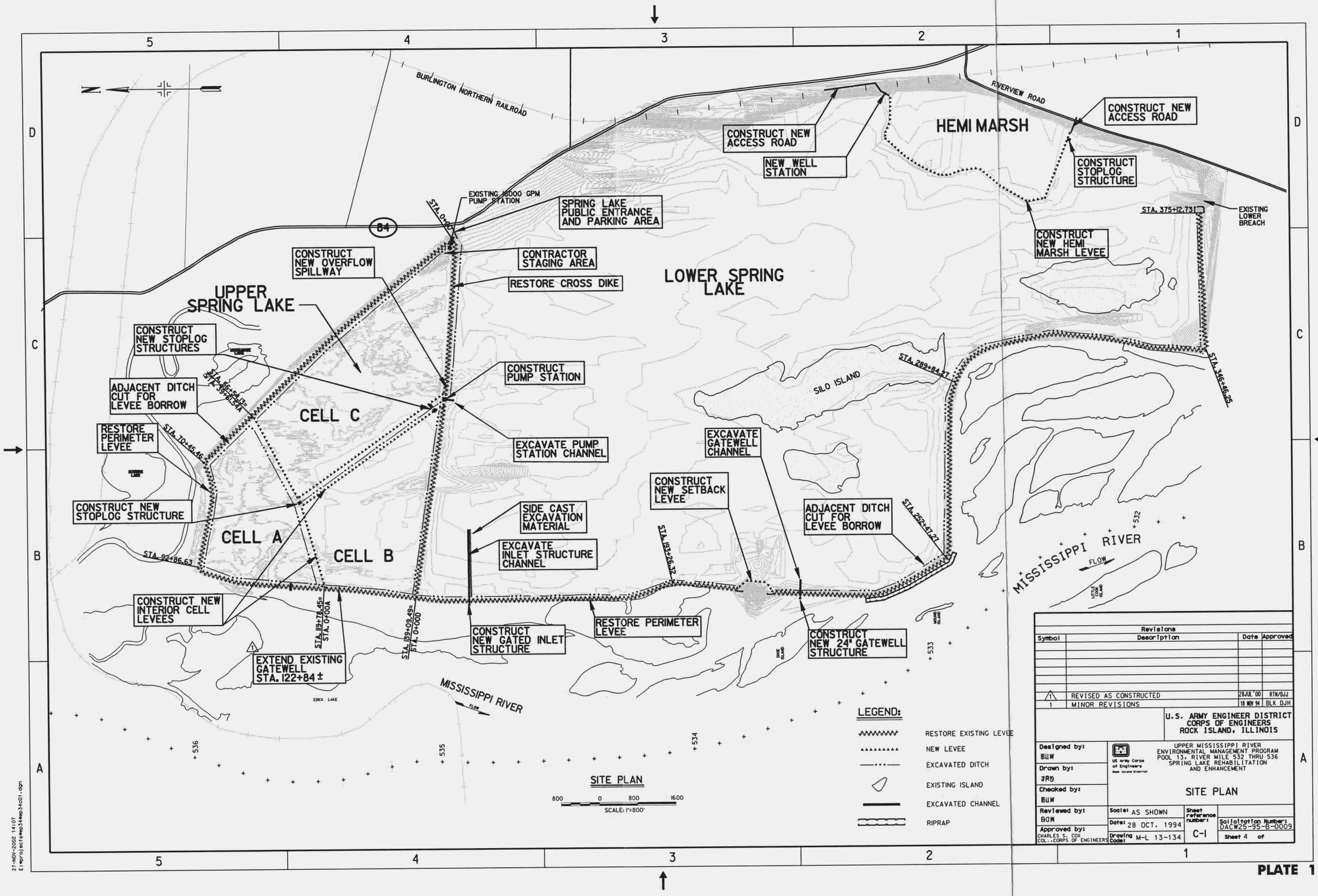
CEMVR-ED-DN (2 hard copies)
CEMVR-OD-MN (hard copy)
CEMVR-OD-T (hard copy)
CEMVR-PM-A (hard copy)
CEMVR-PM-M (2 hard copies)
CEMVR-CD (digital copy)
CEMVR-ED (digital copy)
CEMVR-ED-D (digital copy)
CEMVR-ED-DG (digital copy)
CEMVR-ED-DM (digital copy)
CEMVR-ED-DS (digital copy)
CEMVR-ED-G (digital copy)
CEMVR-ED-H (digital copy)
CEMVR-ED-HH (digital copy)
CEMVR-ED-HQ (digital copy)
CEMVR-ED-S (digital copy)

Plates



Revisions			
Symbol	Description	Date	Approved
1A	REVISED AS CONSTRUCTED	28JUL'00	RTW/DJJ
1	MINOR REVISIONS	18 NOV 94	BLK DJH

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ROCK ISLAND, ILLINOIS

Designed by: BLW	US Army Corps of Engineers Rock Island District
Drawn by: JRB	UPPER MISSISSIPPI RIVER ENVIRONMENTAL MANAGEMENT PROGRAM POOL 13, RIVER MILE 532 THRU 536 SPRING LAKE REHABILITATION AND ENHANCEMENT
Checked by: BLW	SITE PLAN
Reviewed by: BOM	Scale: AS SHOWN
Approved by: CHARLES S. COX COL., CORPS OF ENGINEERS	Date: 28 OCT. 1994
	Drawing Code: M-L 13-134
	Sheet reference number: C-1
	Solicitation Number: DACW25-95-B-0009
	Sheet 4 of

27-NOV-2002 14:07
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PLATE 1

NOTES:
1. CONTRACTOR SHALL COMPLETE THE TEMPORARY HAUL ROAD BY 1 JULY 1995. AFTER THAT TIME THE TEMPORARY HAUL ROAD SHALL BE EXCLUSIVELY USED FOR PROJECT ACCESS IN THIS AREA.
2. AFTER COMPLETION OF CONSTRUCTION, THE CONTRACTOR SHALL REMOVE THE TEMPORARY HAUL ROAD AND RESTORE THE AREA TO PRE-CONSTRUCTION CONDITION. RESTORATION TO PRE-CONSTRUCTION CONDITION INCLUDES, BUT IS NOT LIMITED TO:
   A. SHAPING AND GRADING
   B. SEEDING
   C. REINSTALLATION OF REMOVED SIGNS AND FENCING.
3. CONTRACTOR SHALL SCHEDULE TO EXPOSE INTAKE PIPES FOR INSPECTION DURING THE WEEK OF JUNE 5. 1995.
4. CONTRACTOR SHALL INSTALL TEMPORARY GATE AS REQUIRED TO SECURE STAGING AND PARKING AREA.

ILLINOIS STATE HWY 84

3 FIELD LOCATE AND CONSTRUCT TEMPORARY GRANULAR SURFACED HAUL ROAD, 15' WIDE AND APPROX. 240' LONG 2

EXISTING FENCING TO BE REMOVED

EXISTING WOOD POST SIGNS TO BE REMOVED

EXISTING PUBLIC USE PARKING LOT

3 EXISTING BUILDING AND POWER POLE

PI 1+51.49
222°13'11.9"

EXISTING GATE

PI 0+00=
PI 75+25.36D
270°07'8.5"

5+00

15+00D

71+00D

EXISTING PUMP HOUSING

EXISTING CHAIN LINK FENCING

EXISTING KIOSK TO BE REMOVED

TEMPORARY BORROW AREA FOR HAUL ROAD

EXCAVATE, DEWATER, AND EXPOSE EXISTING INTAKE PIPES FOR INSPECTION BY OTHERS. SEE SPEC'S

CONTRACTOR STAGING AND PARKING AREA

APPROXIMATE AREA FOR CONSTRUCTION ACTIVITIES BY OTHERS.

PLAN

40 20 0 40 80FT
SCALE: 1"= 40'

Revisions			
Symbol	Description	Date	Approved
3	REVISED AS CONSTRUCTED	28JUL'00	RTN/DJJ
2	AMD. #3 - MINOR REVISION	5 JUL 95	BLK / DJR
1	AMD. #1-SHEET ADDED TO SET	15 DEC. 94	BLK / DJR

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ROCK ISLAND, ILLINOIS

Designed by: BLK
Drawn by: DJR/TPD
Checked by: BLK
Reviewed by: RDAN
Approved by: CHARLES S. COX COL., CORPS OF ENGINEERS

US Army Corps of Engineers Rock Island District

UPPER MISSISSIPPI RIVER
ENVIRONMENTAL MANAGEMENT PROGRAM
POOL 13, RIVER MILE 532 THRU 536
SPRING LAKE REHABILITATION AND ENHANCEMENT

PUBLIC ENTRANCE AREA
SITE PLAN

Scale: AS SHOWN
Date: 28 OCT. 1994
Drawing Code: M-L 13-134
Sheet reference number: C-1A
Solicitation Number: DACW25-95-B-0009
Sheet 4A of

27-NOV-2002 14:07
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PLATE 2

EXISTING 16000 GPM PUMP STATION

BORROW DITCH EXCAVATION

CELL C

UPPER SPRING LAKE

CELL A

MATCH LINE STA. 73+00

KEY PLAN

LEVEE TRAVERSE

ABANDONED RAILROAD BED

BEGIN PERIMETER LEVEE RESTORATION STA 0+00

STA. 22+00 BEGIN LEVEE TURNAROUND SEE DETAIL SHEET C-23

PLAN

300 150 0 300 600FT

SCALE: 1"= 300'

LEGEND:

- BORROW DITCH EXCAVATION
- APPROXIMATE TREE LINE

3 NOTE:

REMOVED AND REINSTALLED 40' OF 24" DIA. C.I.P. AND 40' OF 36" R.C.P. AND REMOVED AND REINSTALLED A NEW GRATE ON THE 36" DIA. R.C.P. PIPE APRON ON THE EXISTING PUMP STATION.

NOTES:

1. DUE TO MEANDERING OF THE EXISTING LEVEE ALIGNMENT, THE LEVEE TRAVERSE ALIGNMENT DOES NOT COINCIDE WITH THE TOP THE EXISTING LEVEE IN SOME LOCATIONS.
2. FOR TYPICAL SECTIONS SEE SHEETS C-20 THRU C-22.
3. FROM STATIONS 156+50 TO STA. 375+00, BORROW EXCAVATION ADJACENT TO THE PERIMETER LEVEE SHALL NOT CREATE A CONTINUOUS DITCH. 20 FOOT GAPS IN THE DITCH SHALL BE MADE IN INTERVALS NO LESS THAN 500 FEET. GAPS IN THE DITCH SHALL CORRESPOND TO EXISTING TREE AREAS TO THE GREATEST EXTENT PRACTICABLE.

2

CLEAR GRUB, SHAPE AND SEED ONLY. NO EXCAVATION REQUIRED

STA. 0+00 EL. 595.0

RESTORED LEVEE DESIGN GRADE

STA. 73+00 EL. 595.0

SLOPE = 0 %

EXISTING GROUND LINE ALONG LEVEE TRAVERSE SEE NOTE 2

ELEVATION

DISTANCE IN STATIONS

PROFILE

Revisions			
Symbol	Description	Date	Approved
3	REVISED AS CONSTRUCTED	28JUL'00	RTN/DJJ
2	AMD. #1 MINOR REVISIONS	15 DEC 94	BLK DJH
1	MINOR REVISIONS	18 NOV 94	BLK DJH

U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS ROCK ISLAND, ILLINOIS

Designed by: BLW
Drawn by: JRB
Checked by: BLW
Reviewed by: BGN
Approved by: CHARLES S. COX COL., CORPS OF ENGINEERS

US Army Corps of Engineers Rock Island District

UPPER MISSISSIPPI RIVER ENVIRONMENTAL MANAGEMENT PROGRAM POOL 13, RIVER MILE 532 THRU 536 SPRING LAKE REHABILITATION AND ENHANCEMENT

PERIMETER LEVEE PLAN AND PROFILE STA. 0+00 TO STA. 73+00

Scale: AS SHOWN
Date: 28 OCT. 1994
Drawing Code: M-L 13-134
Sheet reference number: C-8
Solicitation Number: DACW25-95-B-0009
Sheet 11 of

27-NOV-2002 14:07
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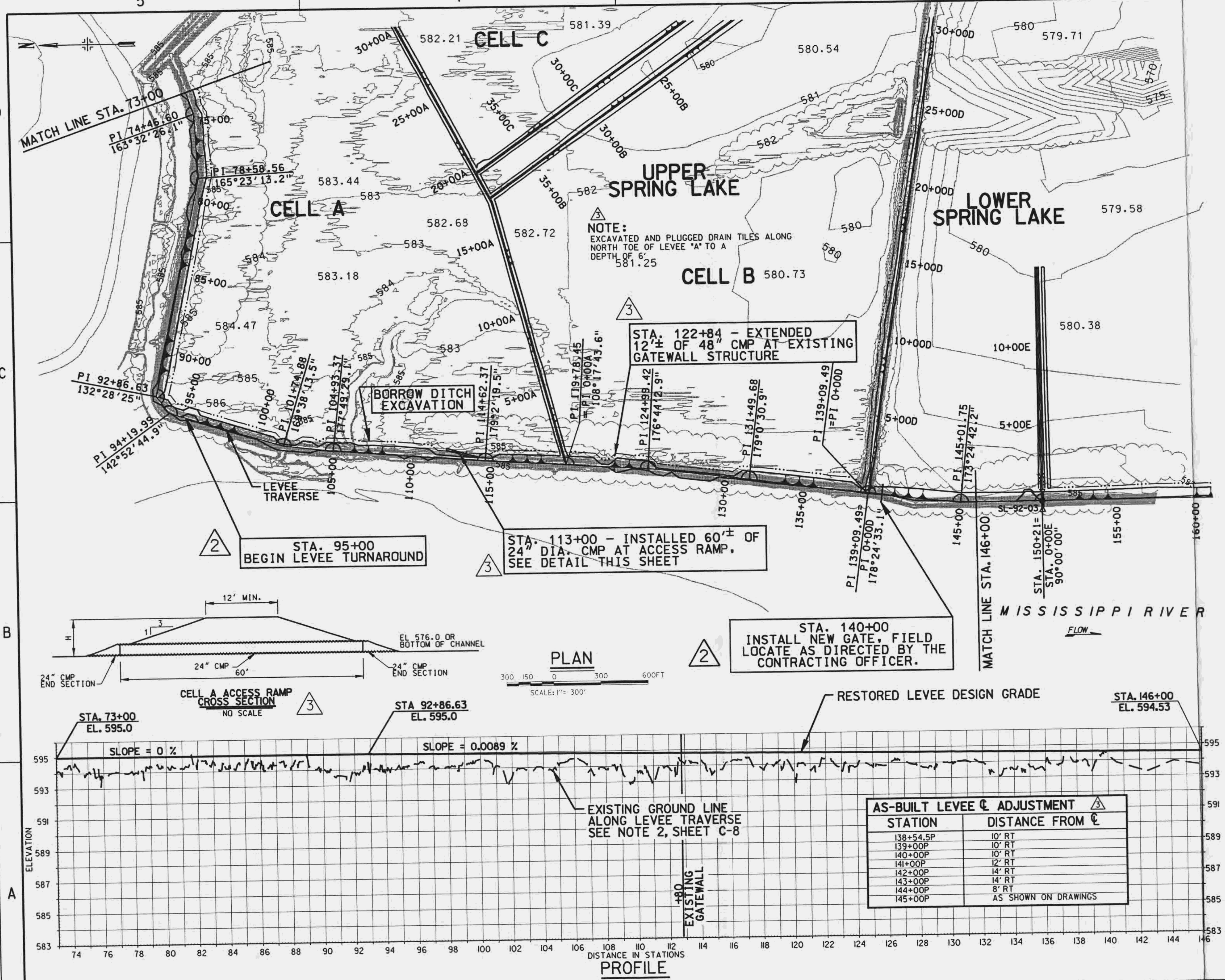
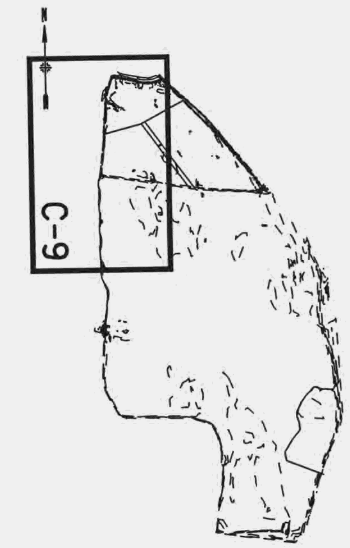
PLATE 3





KEY PLAN

LEGEND:

BORROW DITCH EXCAVATION

APPROXIMATE TREE LINE

NOTES:

FOR NOTES SEE SHEET C-8.

△3 **NOTE:**

ADDITIONAL 160 CUBIC YARDS OF EMBANKMENT PLACED ON INTERIOR DIKE "B" TO RAISE GRADE

AS-BUILT LEVEE ℄ ADJUSTMENT △3

STATION	DISTANCE FROM ℄
138+54.5P	10' RT
139+00P	10' RT
140+00P	10' RT
141+00P	12' RT
142+00P	14' RT
143+00P	14' RT
144+00P	8' RT
145+00P	AS SHOWN ON DRAWINGS

Revisions			
Symbol	Description	Date	Approved
△3	REVISED AS CONSTRUCTED	28JUL'00	RTN/DJJ
△2	AMD. #1 MINOR REVISIONS	15 DEC 94	BLK DJH
1	MINOR REVISIONS	18 NOV 94	BLK DJH

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ROCK ISLAND, ILLINOIS

US Army Corps of Engineers Rock Island District

UPPER MISSISSIPPI RIVER
ENVIRONMENTAL MANAGEMENT PROGRAM
POOL 13, RIVER MILE 532 THRU 536
SPRING LAKE REHABILITATION AND ENHANCEMENT

PERIMETER LEVEE PLAN AND PROFILE STA. 73+00 TO STA. 146+00

Designed by: BLW
Drawn by: JRB
Checked by: BLW
Reviewed by: BOM
Approved by: CHARLES S. COX COL., CORPS OF ENGINEERS

Scale: AS SHOWN
Date: 28 OCT. 1994
Drawing Code: M-L 13-134
Sheet reference number: C-9
Solicitation Number: DACW25-95-B-0009
Sheet 12 of

PLATE 4

27-NOV-2002 14:08
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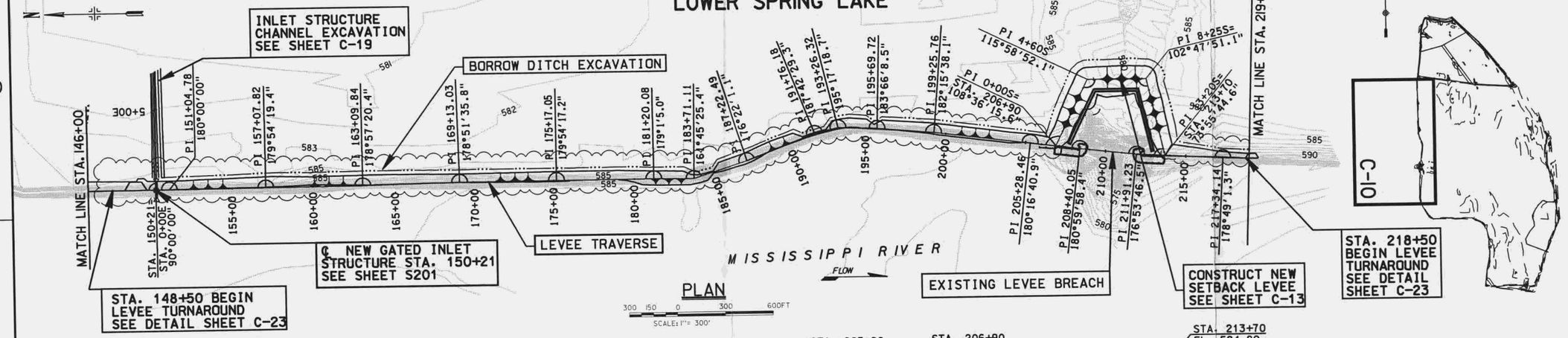
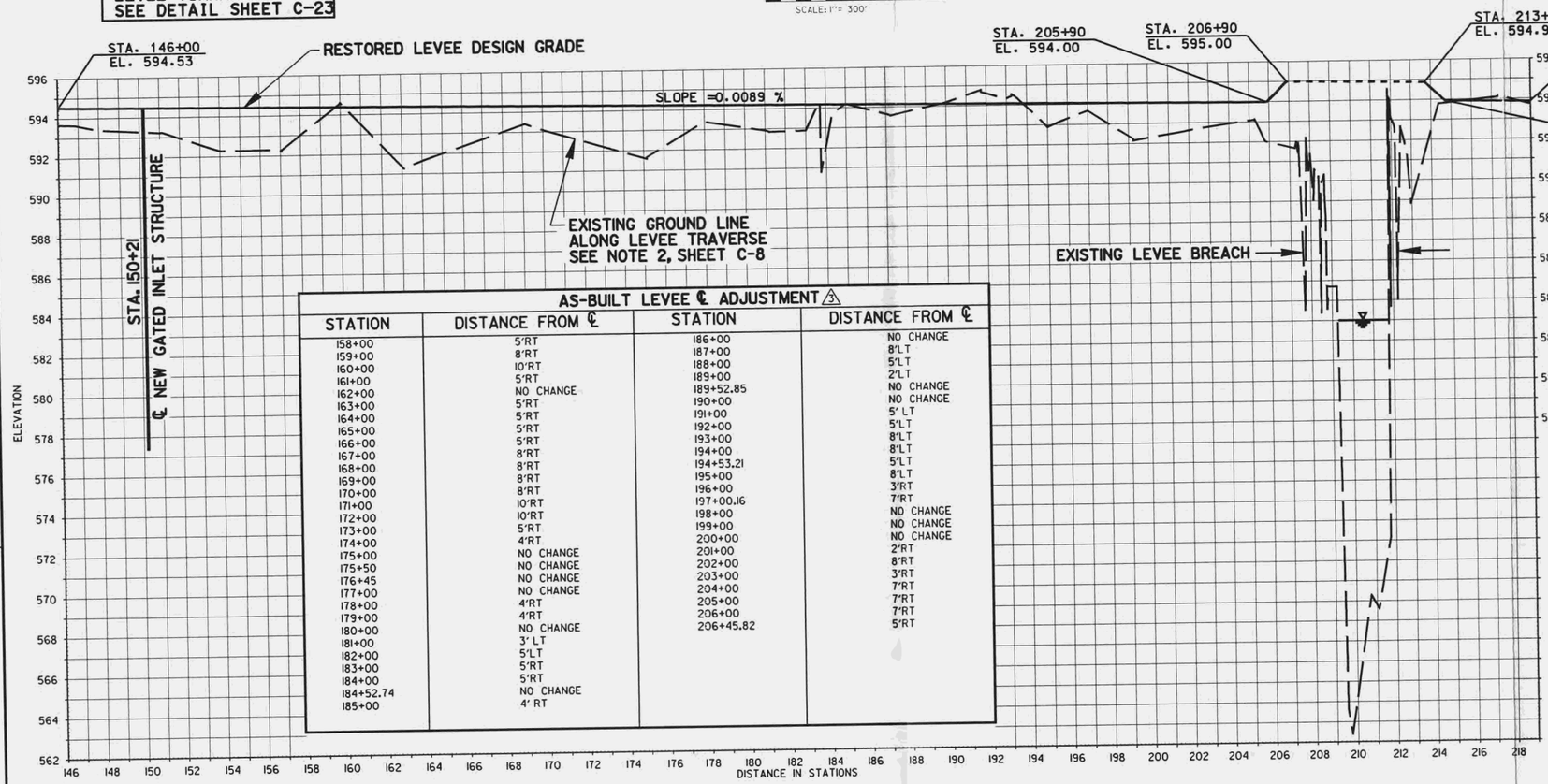
LOWER SPRING LAKE





AS-BUILT LEVEE ℄ ADJUSTMENT 3

STATION	DISTANCE FROM ℄	STATION	DISTANCE FROM ℄
158+00	5'RT	186+00	NO CHANGE
159+00	8'RT	187+00	8'LT
160+00	10'RT	188+00	5'LT
161+00	5'RT	189+00	2'LT
162+00	NO CHANGE	189+52.85	NO CHANGE
163+00	5'RT	190+00	NO CHANGE
164+00	5'RT	191+00	5' LT
165+00	5'RT	192+00	5'LT
166+00	5'RT	193+00	8'LT
167+00	8'RT	194+00	8'LT
168+00	8'RT	194+53.21	5'LT
169+00	8'RT	195+00	8'LT
170+00	8'RT	196+00	3'RT
171+00	10'RT	197+00.16	7'RT
172+00	10'RT	198+00	NO CHANGE
173+00	5'RT	199+00	NO CHANGE
174+00	4'RT	200+00	NO CHANGE
175+00	NO CHANGE	201+00	2'RT
175+50	NO CHANGE	202+00	8'RT
176+45	NO CHANGE	203+00	3'RT
177+00	NO CHANGE	204+00	7'RT
178+00	4'RT	205+00	7'RT
179+00	4'RT	206+00	7'RT
180+00	NO CHANGE	206+45.82	5'RT
181+00	3' LT		
182+00	5'LT		
183+00	5'RT		
184+00	5'RT		
184+52.74	NO CHANGE		
185+00	4' RT		

KEY PLAN

3 REVISION TO HAUL, FURNISH, AND PLACE 3" OF TOPSOIL ON LOWER PERIMETER LEVEE AT STA. 220+00 TO STA. 234+00 AND STA. 297+00 TO STA. 304+00.

LEGEND:

—·—·— BORROW DITCH EXCAVATION

APPROXIMATE TREE LINE

NOTE:

FOR NOTES SEE SHEET C-8.

Revisions			
Symbol	Description	Date	Approved
3	REVISED AS CONSTRUCTED	28JUL'00	RTN/DJJ
2	CONTRACT MOD. ALIGNMENT CHANGE	11MAR.'96	BLK DJJ
1	MINOR REVISIONS	18NOV.'94	BLK DJH

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ROCK ISLAND, ILLINOIS

Designed by: BLW
Drawn by: JRB
Checked by: BLW
Reviewed by: BGW
Approved by: CHARLES S. COX COL., CORPS OF ENGINEERS

US Army Corps of Engineers Rock Island District

UPPER MISSISSIPPI RIVER ENVIRONMENTAL MANAGEMENT PROGRAM
POOL 13, RIVER MILE 532 THRU 536
SPRING LAKE REHABILITATION AND ENHANCEMENT

PERIMETER LEVEE
PLAN AND PROFILE
STA. 146+00 TO STA. 219+00

Scale: AS SHOWN
Date: 28 OCT. 1994
Drawing Code: M-L 13-134
Sheet reference number: C-10
Solicitation Number: DACW25-95-B-0009
Sheet 13 of

27-NOV-2002 14:08
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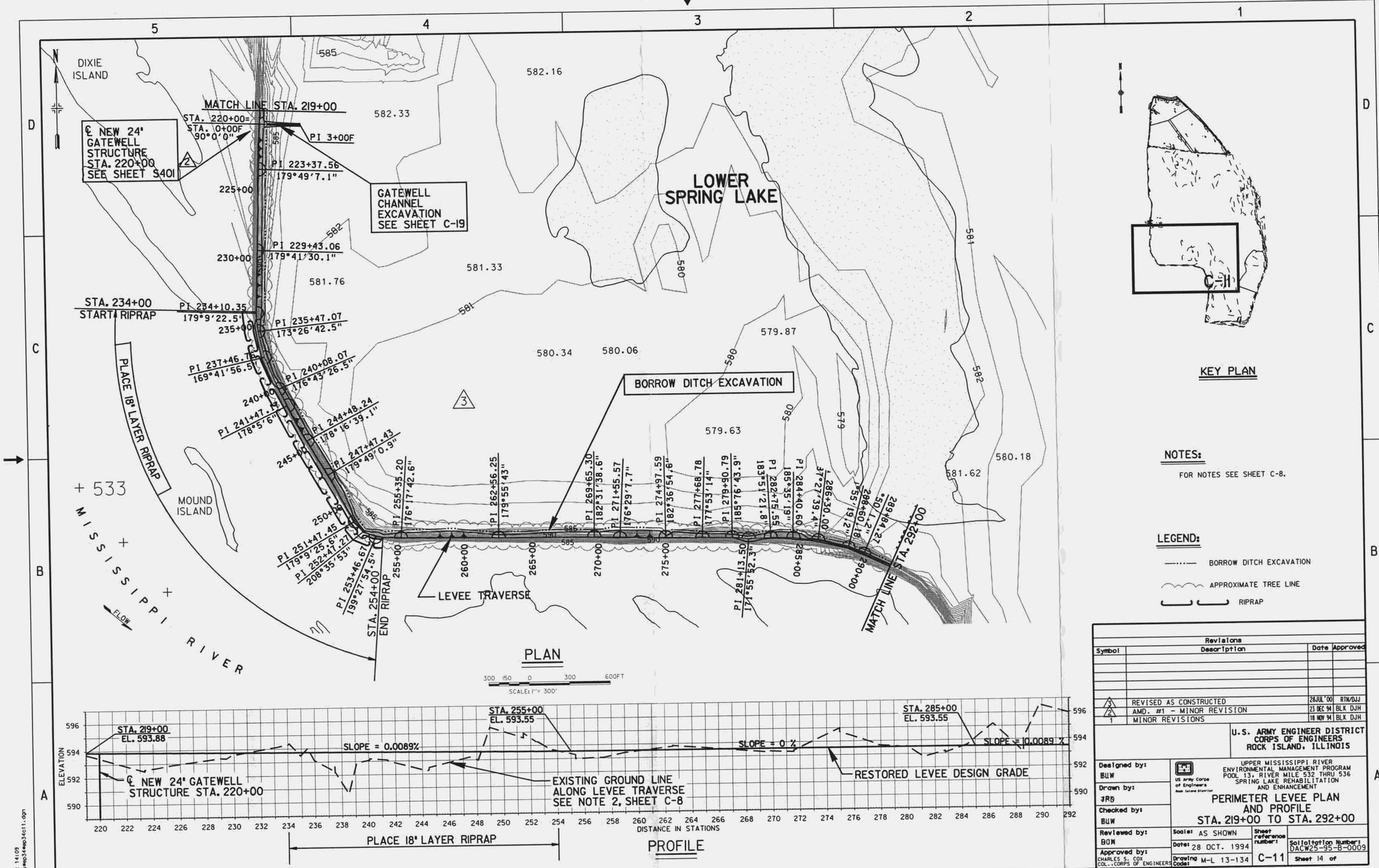
PLATE 5



Revisions			
Symbol	Description	Date	Approved
3	REVISED AS CONSTRUCTED	28JUL'00	RTN/DJJ
2	AMD. #1 - MINOR REVISION	23 DEC 94	BLK DJH
1	MINOR REVISIONS	18 NOV 94	BLK DJH

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ROCK ISLAND, ILLINOIS

Designed by: BLW
Drawn by: JRB
Checked by: BLW
Reviewed by: BDW
Approved by: CHARLES S. COX COL., CORPS OF ENGINEERS

US Army Corps of Engineers Rock Island District

UPPER MISSISSIPPI RIVER ENVIRONMENTAL MANAGEMENT PROGRAM
POOL 13, RIVER MILE 532 THRU 536
SPRING LAKE REHABILITATION AND ENHANCEMENT

PERIMETER LEVEE PLAN AND PROFILE STA. 219+00 TO STA. 292+00

Scale: AS SHOWN
Date: 28 OCT. 1994
Drawing Code: M-L 13-134
Sheet reference number: C-11
Solicitation Number: DACW25-95-B-0009
Sheet 14 of

PLATE 6

LOWER SPRING LAKE

BORROW DITCH EXCAVATION

LEVEE TRAVERSE

MISSISSIPPI RIVER

FLOW

MATCH LINE STA. 292+00

PLACE RIPRAP

STA. 375+80
END RIPRAP

END PERIMETER
LEVEE RESTORATION
STA. 375+00

STA. 372+50
BEGIN RIPRAP

REMOVE
EXISTING GATE
STRUCTURE
STA. 348+12

PI 367+54.70
183°30'18.8"

PI 364+86.27
177°17'3.8"

PI 362+51.24
184°02'26.5"

PI 358+07.85
176°9'14.3"

PI 353+01.79
179°58'3.9"

PI 349+79.76
191°00'8.2"

PI 348+12.26
168°58'35.3"

PI 346+46.25
109°14'17.9"

PI 345+49.45
147°55'5.9"

PI 342+60.42
185°47'27"

PI 339+15.33
178°47'12.5"

PI 336+51.12
169°43'10.3"

PI 333+16.72
180°32'29.2"

PI 325+28.73
182°3'16.2"

PI 320+52.75
180°26'10.9"

PI 317+16.35
182°28'46.1"

PI 314+52.58
190°32'59.7"

PI 311+94.00
186°56'2.8"

PI 309+68.35
179°8'43.3"

PI 308+17.91
179°6'21.5"

PI 303+67.03
181°22'48.2"

PI 302+48.39
181°54'56.6"

PI 300+38.23
185°38'23.7"

PI 298+51.54
189°11'15.8"

PI 297+37.85
185°04'48.1"

PI 295+88.80
188°69'9.3"

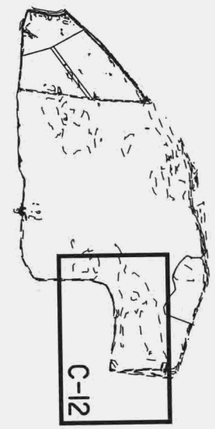
PI 294+44.51
194°24'49.9"

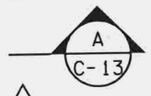
PI 292+59.96
187°16'59.1"

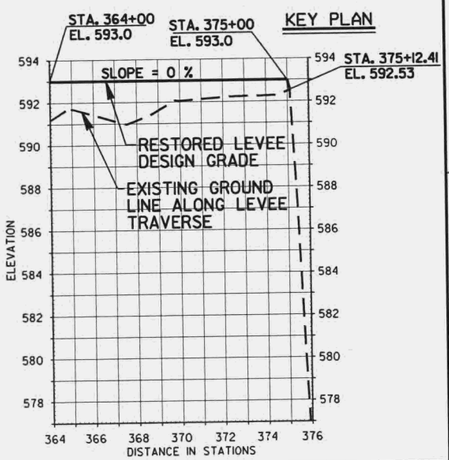
NOTES:

FOR NOTES SEE SHEET C-8.

KEY PLAN

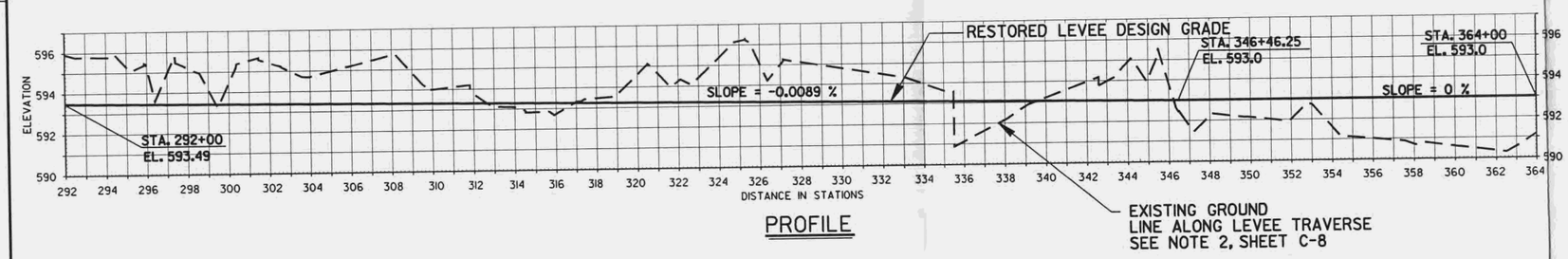






PLAN

SCALE: 1"= 300'



PROFILE

Revisions			
Symbol	Description	Date	Approved
3	REVISED AS CONSTRUCTED	28JUL'00	RTN/DJJ
2	AMD. #1 MINOR REVISIONS	15 DEC 94	BLK DJH
1	MINOR REVISIONS	18 NOV 94	BLK DJH

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ROCK ISLAND, ILLINOIS

Designed by: BLW
Drawn by: JRB
Checked by: BLW
Reviewed by: BDM
Approved by: CHARLES S. COX COL., CORPS OF ENGINEERS

US Army Corps of Engineers Rock Island District

UPPER MISSISSIPPI RIVER
ENVIRONMENTAL MANAGEMENT PROGRAM
POOL 13, RIVER MILE 532 THRU 536
SPRING LAKE REHABILITATION
AND ENHANCEMENT

PERIMETER LEVEE PLAN
AND PROFILE
STA. 292+00 TO STA. 375+99.65

Scale: AS SHOWN
Date: 28 OCT. 1994
Drawing Code: M-L 13-134
Sheet reference number: C-12
Solicitation Number: DACW25-95-B-0009
Sheet 15 of

PLATE 7

27-NOV-2002 14:09
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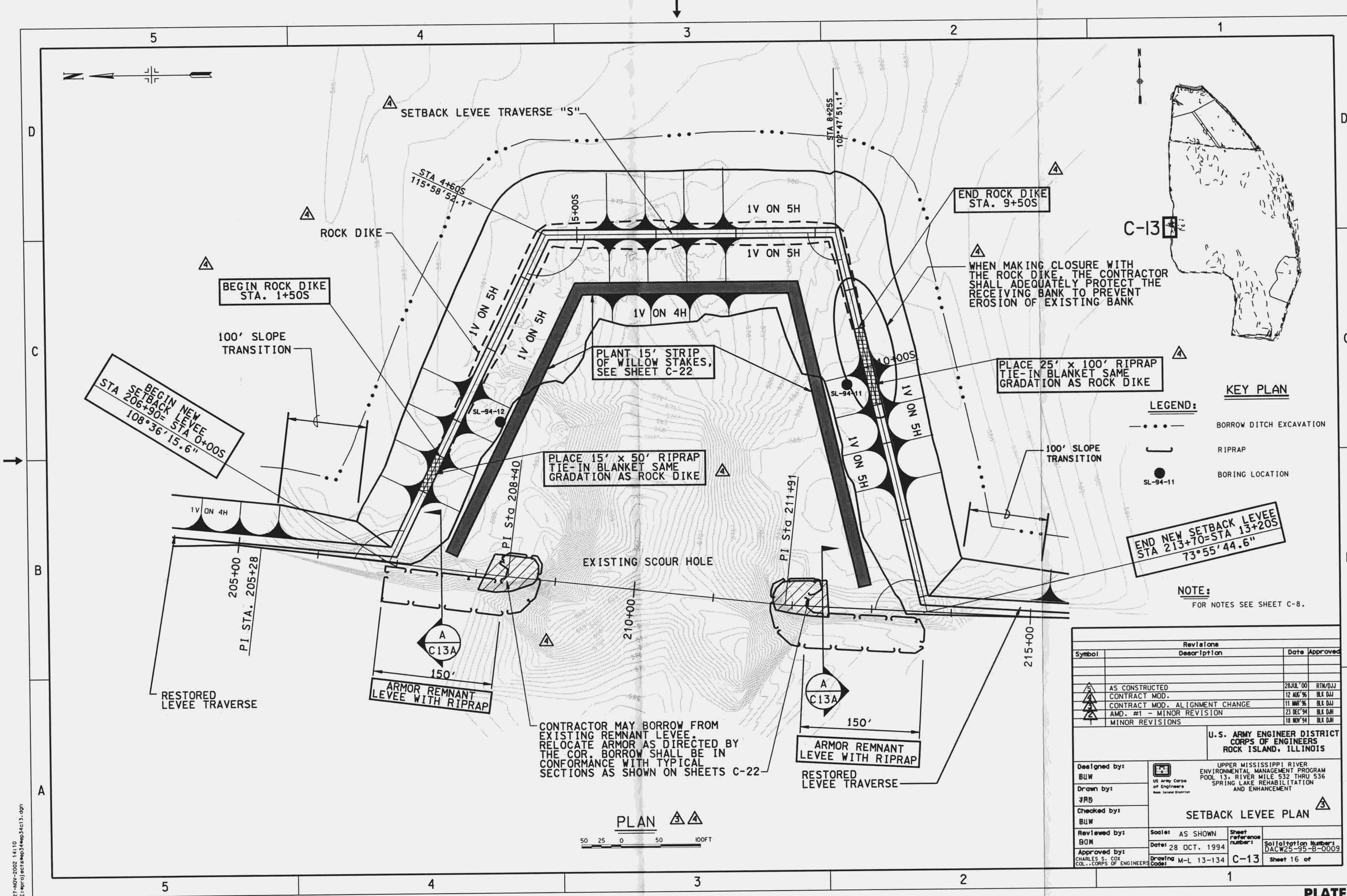
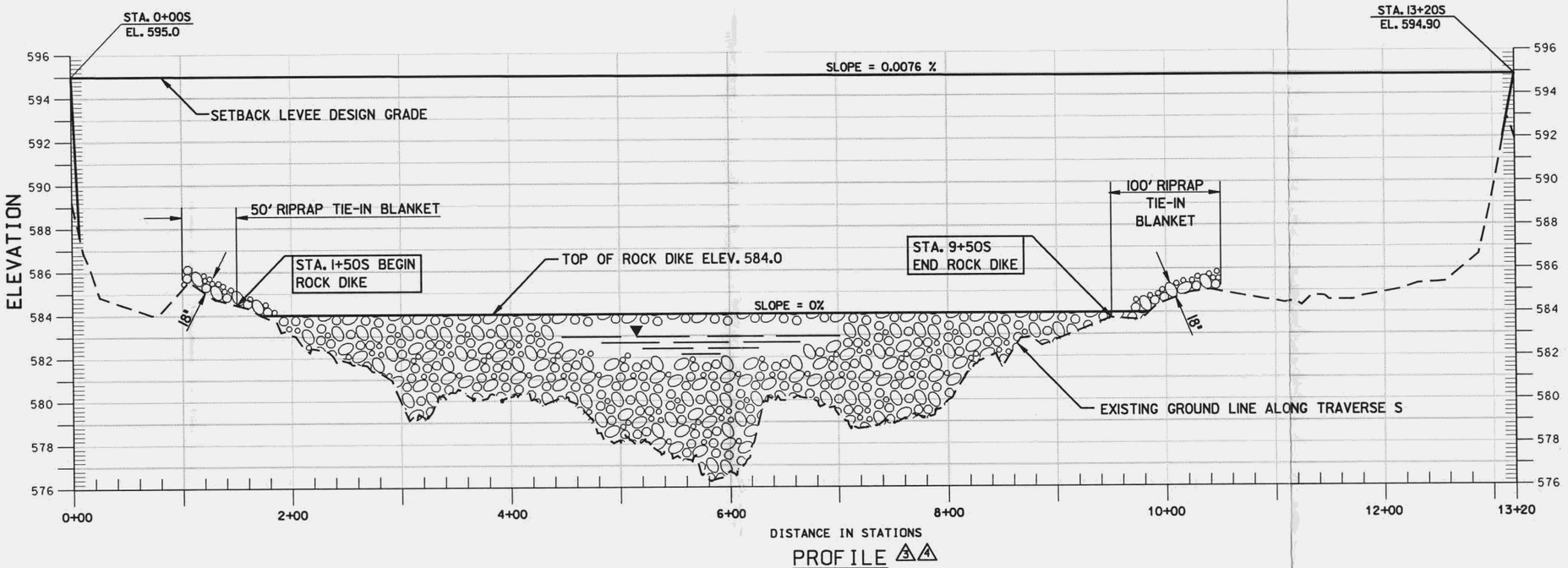
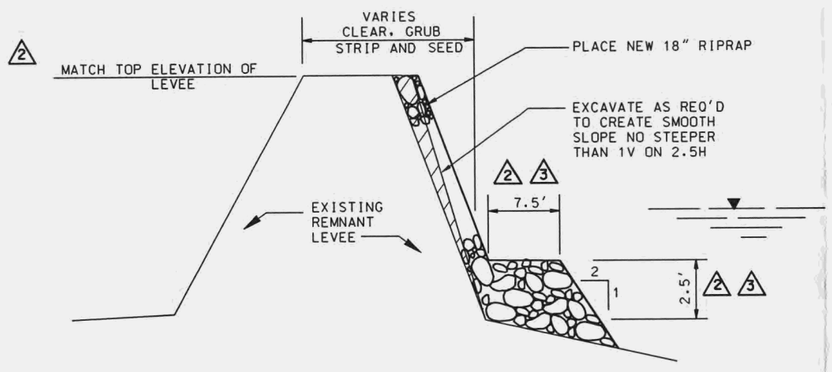

SETBACK LEVEE TRAVERSE "S"
STA 4+60S 115°58'52.1"
STA 8+25S 102°47'51.1"
ROCK DIKE
BEGIN ROCK DIKE STA. 1+50S
END ROCK DIKE STA. 9+50S
WHEN MAKING CLOSURE WITH THE ROCK DIKE, THE CONTRACTOR SHALL ADEQUATELY PROTECT THE RECEIVING BANK TO PREVENT EROSION OF EXISTING BANK
100' SLOPE TRANSITION
BEGIN NEW SETBACK LEVEE STA 206+90= STA 0+00S 108°36'15.6"
PLANT 15' STRIP OF WILLOW STAKES, SEE SHEET C-22
PLACE 25' x 100' RIPRAP TIE-IN BLANKET SAME GRADATION AS ROCK DIKE
PLACE 15' x 50' RIPRAP TIE-IN BLANKET SAME GRADATION AS ROCK DIKE
1V ON 5H
1V ON 4H
SL-94-12
SL-94-11
EXISTING SCOUR HOLE
PI Sta 208+40
PI Sta 211+91
205+00
PI STA. 205+28
210+00
215+00
END NEW SETBACK LEVEE STA 213+70=STA 13+20S 73°55'44.6"
ARMOR REMNANT LEVEE WITH RIPRAP
150'
RESTORED LEVEE TRAVERSE
CONTRACTOR MAY BORROW FROM EXISTING REMNANT LEVEE. RELOCATE ARMOR AS DIRECTED BY THE COR. BORROW SHALL BE IN CONFORMANCE WITH TYPICAL SECTIONS AS SHOWN ON SHEETS C-22
A C13A
PLAN
50 25 0 50 100FT
C-13
KEY PLAN
LEGEND:
BORROW DITCH EXCAVATION
RIPRAP
BORING LOCATION
NOTE:
FOR NOTES SEE SHEET C-8.
Revisions
Symbol Description Date Approved
AS CONSTRUCTED 28JUL'00 RTM/DJJ
CONTRACT MOD. 12 AUG'96 BLK DJJ
CONTRACT MOD. ALIGNMENT CHANGE 11 MAR'96 BLK DJJ
AMD. #1 - MINOR REVISION 23 DEC'94 BLK DJH
MINOR REVISIONS 18 NOV'94 BLK DJH
U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS ROCK ISLAND, ILLINOIS
UPPER MISSISSIPPI RIVER ENVIRONMENTAL MANAGEMENT PROGRAM POOL 13, RIVER MILE 532 THRU 536 SPRING LAKE REHABILITATION AND ENHANCEMENT
SETBACK LEVEE PLAN
Designed by: BHW
Drawn by: JRB
Checked by: BHW
Reviewed by: BON
Approved by: CHARLES S. COX COL., CORPS OF ENGINEERS
Scale: AS SHOWN
Date: 28 OCT. 1994
Drawing Code: M-L 13-134
C-13
Solicitation Number: DACW25-95-B-0009
Sheet 16 of
27-NOV-2002 14:10

PLATE 8



PROFILE 3 4



A C-12 A C13A REMNANT LEVEE ARMOR SECTION

NO SCALE

NOTE:

FOR NOTES SEE SHEET C-8.

Revisions			
Symbol	Description	Date	Approved
5	AS CONSTRUCTED	28JUL'00	RTM/DJJ
4	CONTRACT MOD.	12 AUG'96	BLK DJJ
3	CONTRACT MOD. ALIGNMENT CHANGE	11 MAR'96	BLK DJJ
2	AMD. #1 - MINOR REVISION	23 DEC'94	BLK DJH
1	MINOR REVISIONS	18 NOV'94	BLK DJH

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ROCK ISLAND, ILLINOIS

Designed by: BLW
Drawn by: JRB
Checked by: BLW
Reviewed by: BDW
Approved by: CHARLES S. COX COL., CORPS OF ENGINEERS

US Army Corps of Engineers Rock Island District

UPPER MISSISSIPPI RIVER
ENVIRONMENTAL MANAGEMENT PROGRAM
POOL 13, RIVER MILE 532 THRU 536
SPRING LAKE REHABILITATION
AND ENHANCEMENT

SETBACK LEVEE SECTION AND PROFILE

Scale: AS SHOWN
Date: 28 OCT. 1994
Drawing Code: M-L 13-134
Sheet reference number: C13A
Solicitation Number: DACW25-95-B-0009
Sheet 16A of

27-NOV-2002 14:10
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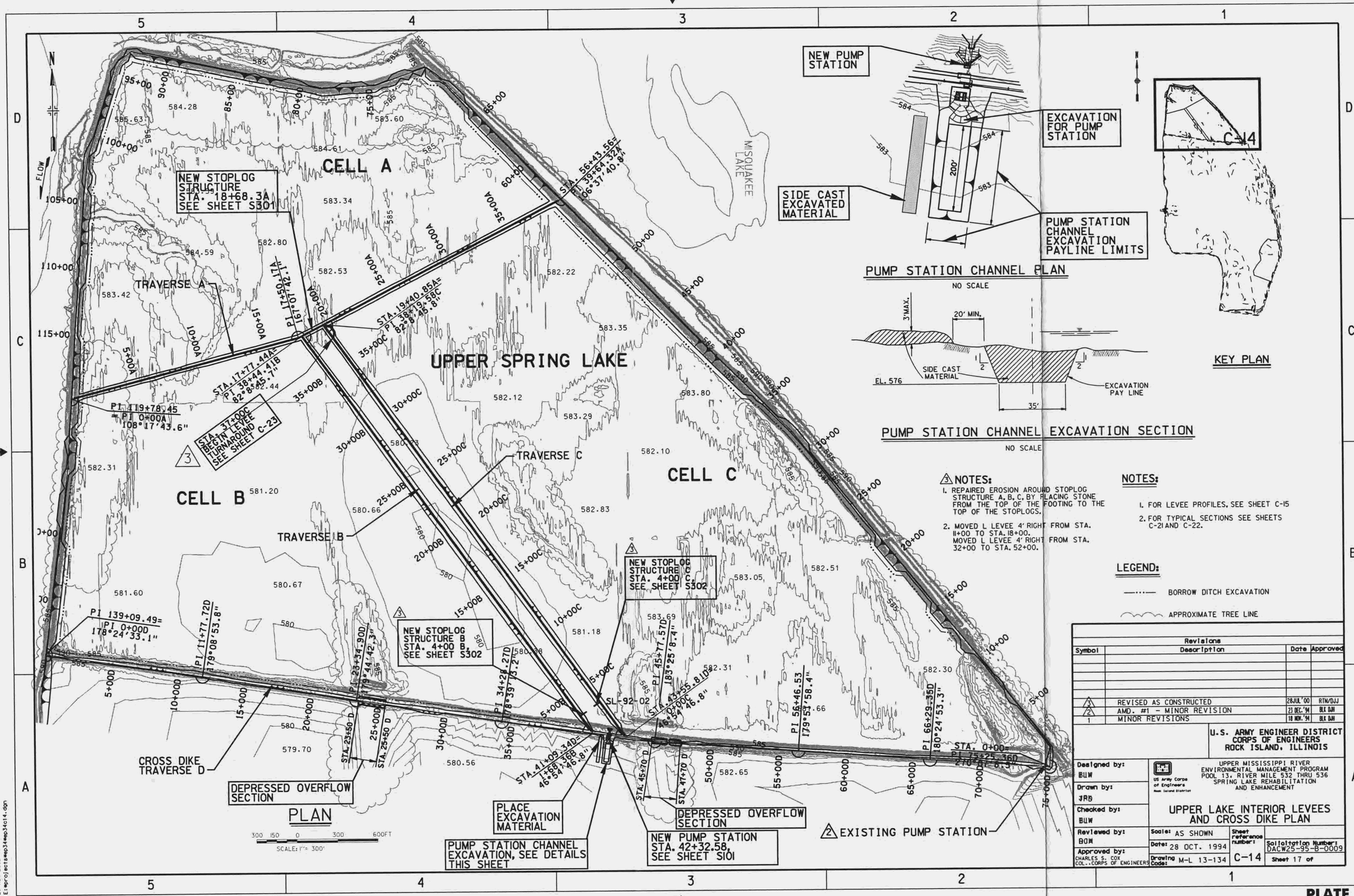
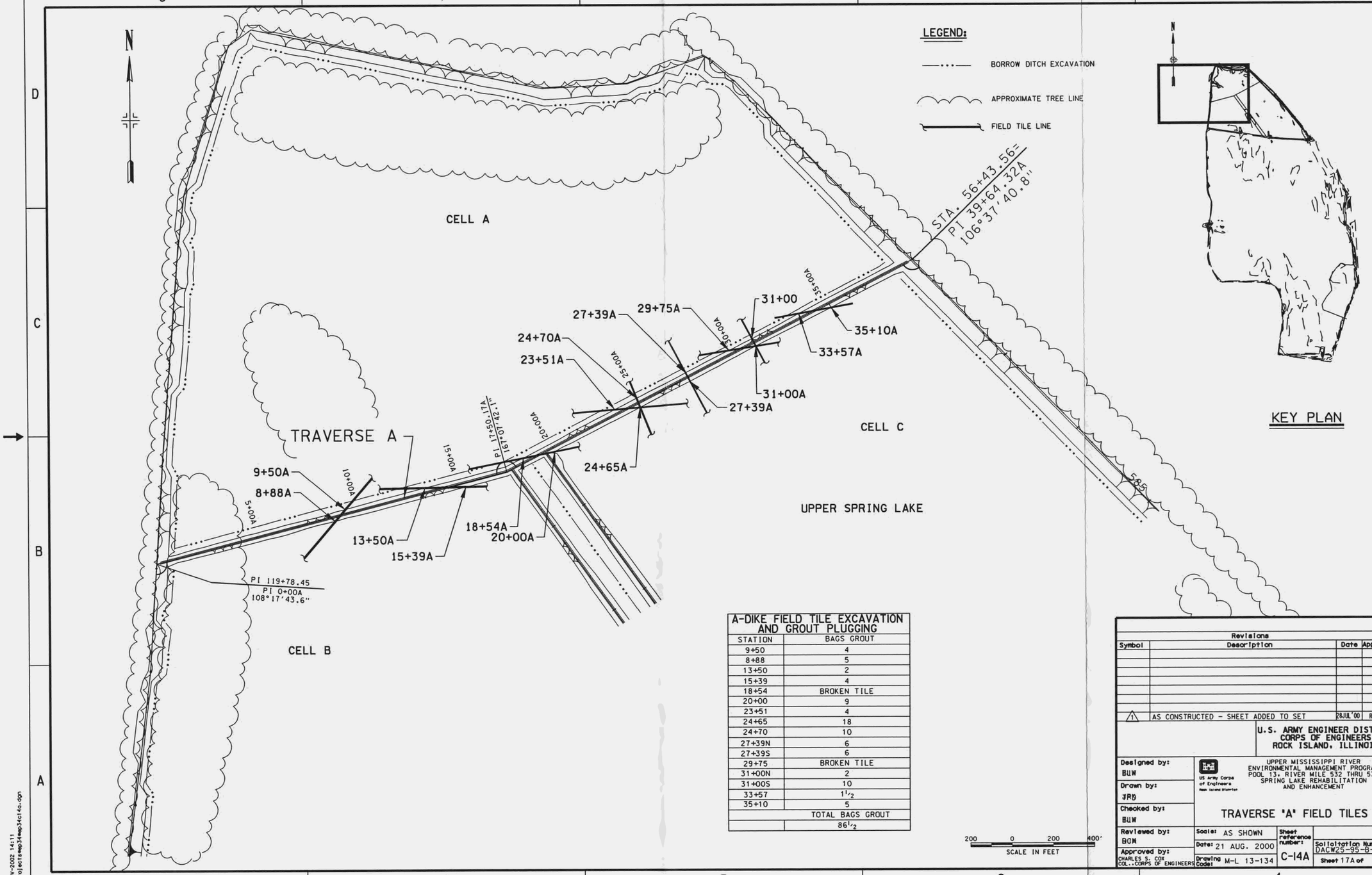
PLATE 9



CELL A
CELL B
CELL C
UPPER SPRING LAKE
MISQUAKEE LAKE
NEW STOPLOG STRUCTURE STA. 18+68.3A SEE SHEET S301
NEW STOPLOG STRUCTURE B STA. 4+00 B. SEE SHEET S302
NEW STOPLOG STRUCTURE C STA. 4+00 C. SEE SHEET S302
TRAVERSE A
TRAVERSE B
TRAVERSE C
CROSS DIKE TRAVERSE D
STA. 37+00C BEGIN LEVEE TURNAROUND SEE SHEET C-23
DEPRESSED OVERFLOW SECTION
PLACE EXCAVATION MATERIAL
PUMP STATION CHANNEL EXCAVATION, SEE DETAILS THIS SHEET
NEW PUMP STATION STA. 42+32.58, SEE SHEET S101
EXISTING PUMP STATION
PLAN
SCALE: 1"= 300'
NEW PUMP STATION
EXCAVATION FOR PUMP STATION
SIDE CAST EXCAVATED MATERIAL
PUMP STATION CHANNEL EXCAVATION PAYLINE LIMITS
PUMP STATION CHANNEL PLAN
NO SCALE
3' MAX.
20' MIN.
SIDE CAST MATERIAL
EL. 576
EXCAVATION PAY LINE
35'
PUMP STATION CHANNEL EXCAVATION SECTION
NO SCALE
KEY PLAN
C-14
NOTES:
1. REPAIRED EROSION AROUND STOPLOG STRUCTURE A, B, C, BY PLACING STONE FROM THE TOP OF THE FOOTING TO THE TOP OF THE STOPLOGS.
2. MOVED L LEVEE 4' RIGHT FROM STA. 11+00 TO STA. 18+00. MOVED L LEVEE 4' RIGHT FROM STA. 32+00 TO STA. 52+00.
NOTES:
1. FOR LEVEE PROFILES, SEE SHEET C-15
2. FOR TYPICAL SECTIONS SEE SHEETS C-21 AND C-22.
LEGEND:
BORROW DITCH EXCAVATION
APPROXIMATE TREE LINE
Revisions
Symbol | Description | Date | Approved
3 REVISED AS CONSTRUCTED 28 JUL '00
2 AMD. #1 - MINOR REVISION 23 DEC. '94
1 MINOR REVISIONS 18 NOV. '94
U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS ROCK ISLAND, ILLINOIS
UPPER MISSISSIPPI RIVER ENVIRONMENTAL MANAGEMENT PROGRAM POOL 13, RIVER MILE 532 THRU 536 SPRING LAKE REHABILITATION AND ENHANCEMENT
UPPER LAKE INTERIOR LEVEES AND CROSS DIKE PLAN
Designed by: BUW
Drawn by: JRB
Checked by: BUW
Reviewed by: BGW
Approved by: CHARLES S. COX COL., CORPS OF ENGINEERS
Scale: AS SHOWN
Date: 28 OCT. 1994
Drawing Code: M-L 13-134
Sheet reference number: C-14
Solicitation Number: DACW25-95-B-0009
Sheet 17 of

PLATE 10



A-DIKE FIELD TILE EXCAVATION AND GROUT PLUGGING	
STATION	BAGS GROUT
9+50	4
8+88	5
13+50	2
15+39	4
18+54	BROKEN TILE
20+00	9
23+51	4
24+65	18
24+70	10
27+39N	6
27+39S	6
29+75	BROKEN TILE
31+00N	2
31+00S	10
33+57	1½
35+10	5
	TOTAL BAGS GROUT
	86½

200 0 200 400'
SCALE IN FEET

Revisions			
Symbol	Description	Date	Approved
1	AS CONSTRUCTED - SHEET ADDED TO SET	28JUL'00	RTN/DJJ

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ROCK ISLAND, ILLINOIS

Designed by: BLW
Drawn by: JRB
Checked by: BLW
Reviewed by: BGM
Approved by: CHARLES S. COX COL..CORPS OF ENGINEERS

US Army Corps of Engineers Rock Island District

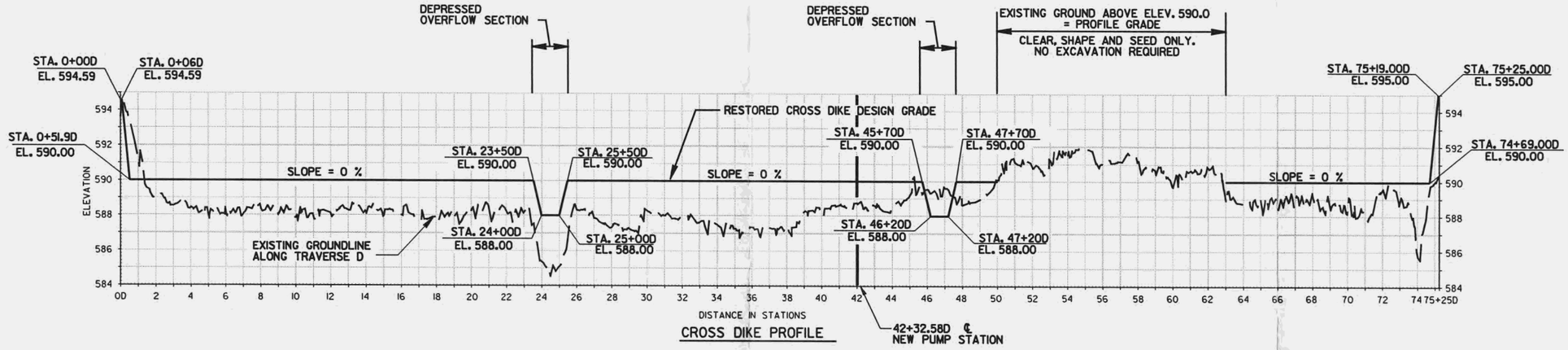
UPPER MISSISSIPPI RIVER
ENVIRONMENTAL MANAGEMENT PROGRAM
POOL 13, RIVER MILE 532 THRU 536
SPRING LAKE REHABILITATION
AND ENHANCEMENT

TRAVERSE 'A' FIELD TILES

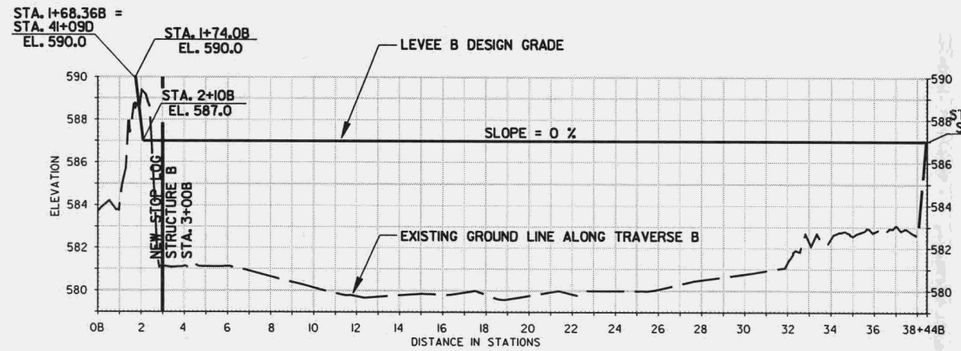
Scale: AS SHOWN
Date: 21 AUG. 2000
Drawing Code: M-L 13-134
Sheet reference number: C-14A
Solicitation Number: DACW25-95-B-0009
Sheet 17A of

27-NOV-2002 14:11
E:\projects\esp34\esp34c14a.dgn

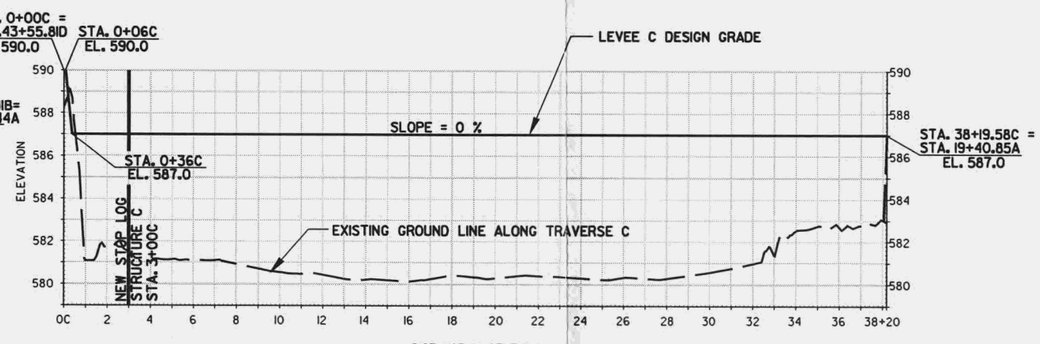
PLATE 11



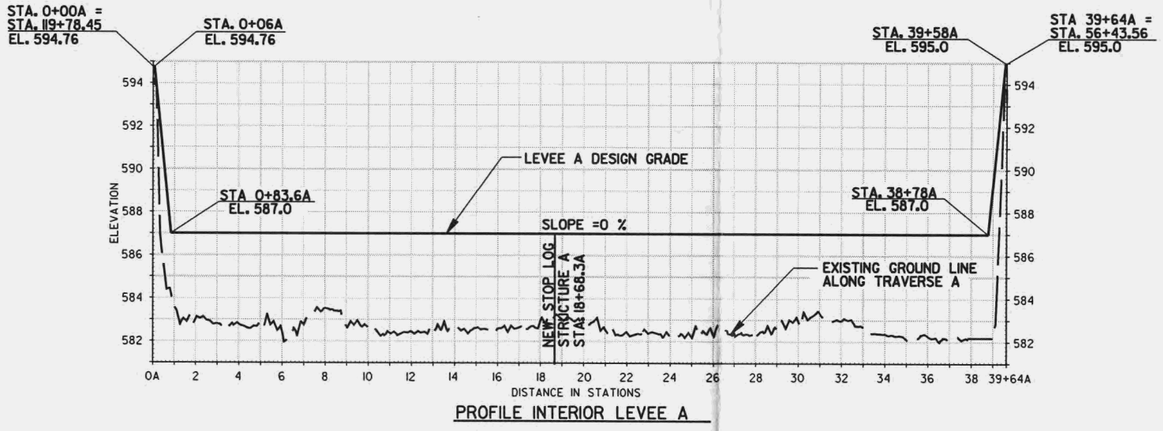
CROSS DIKE PROFILE



PROFILE INTERIOR LEVEE B



PROFILE INTERIOR LEVEE C



PROFILE INTERIOR LEVEE A

Revisions			
Symbol	Description	Date	Approved
3	AS CONSTRUCTED	28JUL'00	RTW/DJJ
2	AMD. #1 - MINOR REVISION	23 DEC '94	BLK DJH
1	MINOR REVISIONS	18 NOV '94	BLK DJH

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ROCK ISLAND, ILLINOIS

Designed by: BLW
Drawn by: JRB
Checked by: BLW
Reviewed by: BGW
Approved by: CHARLES S. COX COL., CORPS OF ENGINEERS

US Army Corps of Engineers Rock Island District

UPPER MISSISSIPPI RIVER ENVIRONMENTAL MANAGEMENT PROGRAM
POOL 13, RIVER MILE 532 THRU 536
SPRING LAKE REHABILITATION AND ENHANCEMENT

UPPER LAKE INTERIOR LEVEES AND CROSS DIKE LEVEES PROFILE 2

Scale: AS SHOWN
Date: 28 OCT. 1994
Drawing Code: M-L 13-134
Sheet reference number: C-15
Solicitation Number: DACW25-95-B-0009
Sheet 18 of

27-NOV-2002 14:12
E:\projects\mp334mp34c15.dgn

PLATE 12

5 4 3 2 1

D C B A

N

PI 10+00H

5+00H

5+00R

PI 10+64.12H
241°25'07.2"
10+00H

PL 10+30R

SL-92-01

PI 12+46.06H
156°54'27.8"

PI 14+64.83H
239°35'11.7"

15+00H

CONSTRUCT NORTH ACCESS ROAD SEE SHEET C-17

NEW WELL STATION

BEGIN HEMI MARSH LEVEE STA. 14+60H

20+00H

PI 19+97.06H
202°20'40.6"

PI 22+53.99H
155°45'48.9"

PI 23+85.39H

25+00H

PI 29+16.14H
171°42'12.2"

30+00H

2

PI 32+54.16H
175°00'9.1"

PI 35+01.39H
176°25'17.8"

35+00H

PI 37+88.56H
154°52'51.1"

40+00H

PI 42+46.31H
194°06'4.1"

PI 39+98.70H
131°31'11"

45+00H

PI 46+24.47H
226°52'8.1"

HEMI MARSH LEVEE TRAVERSE H

50+00H

PI 52+04.35H
174°40'54.1"

55+00H

PI 57+80H
209°12'22.6"

60+00H

PI 62+38H
219°49'6.3"

65+00H

70+00H

3

PI 79+53H

CONSTRUCT SOUTH ACCESS ROAD SEE SHEET C-18

GOOSE POINT OVERLOOK

SAVANNA TOWNSHIP ROAD

HEMI MARSH

LOWER SPRING LAKE

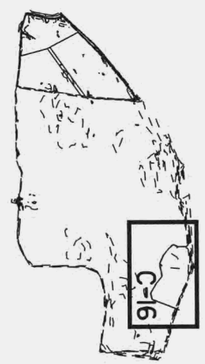
BORROW DITCH EXCAVATION

584 584.61 583.85 584.66 586 586.30 583.80 583.50 582.26 581.39 581.64 582 581 580.36 581.57 583.55 580

PLAN

200 100 0 200 400FT
SCALE: 1" = 200'

KEY PLAN



END HEMI MARSH LEVEE STA. 75+95H 3

75+00H

NEW STOPLOG STRUCTURE HM STA. 75+70H 3 SEE SHEET S302

LEGEND:

BORROW DITCH EXCAVATION

APPROXIMATE TREE LINE

NOTE:

FOR TYPICAL SECTIONS SEE SHEET C-21.

+00 BEGIN HEMI MARSH LEVEE

HEMI MARSH LEVEE DESIGN GRADE

STA. 15+00H EL 586.0

SLOPE = 0 %

STA. 46+00H EL 586.0

ELEVATION 594 590 585

14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46

DISTANCE IN STATIONS

EXISTING GROUND LINE ALONG TRAVERSE H

PROFILE

HEMI MARSH LEVEE DESIGN GRADE

END HEMI MARSH LEVEE 3

STA. 46+00H EL 586.0

SLOPE = 0 %

3 STA. 76+70H EL 586.0

ELEVATION 594 590 585

46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78

DISTANCE IN STATIONS

EXISTING GROUND LINE ALONG TRAVERSE H

STOPLOG STRUCTURE HM STA. 75+70 3

PROFILE

Revisions			
Symbol	Description	Date	Approved
3	REVISED AS CONSTRUCTED	28JUL'00	RTN/DJJ
2	AMD. #1 MOVE BORROW EXCAVATION DITCH TO EXTERIOR	15 DEC 94	BLK DJH
1	MINOR REVISIONS	18 NOV 94	BLK DJH

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ROCK ISLAND, ILLINOIS

Designed by: BLW
Drawn by: JRB
Checked by: BLW
Reviewed by: BDM
Approved by: CHARLES S. COX COL., CORPS OF ENGINEERS

US Army Corps of Engineers Rock Island District

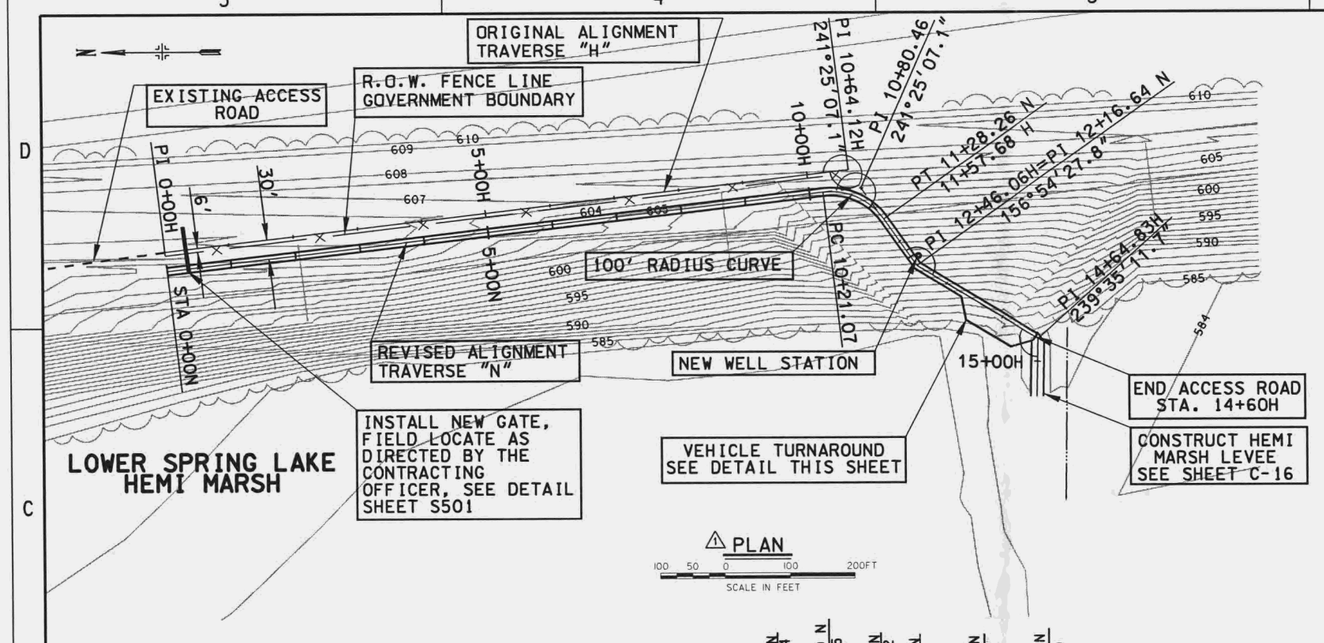
UPPER MISSISSIPPI RIVER ENVIRONMENTAL MANAGEMENT PROGRAM
POOL 13, RIVER MILE 532 THRU 536
SPRING LAKE REHABILITATION AND ENHANCEMENT

HEMI MARSH LEVEE PLAN AND PROFILE

Scale: AS SHOWN
Date: 28 OCT. 1994
Drawing Code: M-L 13-134
Sheet reference number: C-16
Solicitation Number: DACW25-95-B-0009
Sheet 19 of

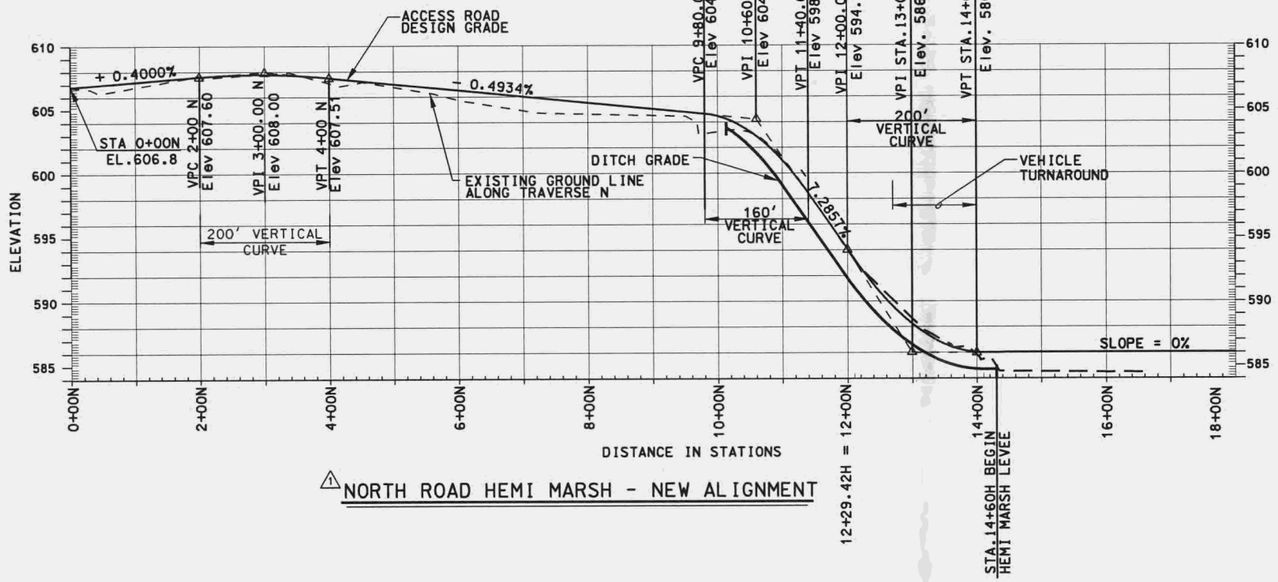
27-NOV-2002 14:12
E:\projects\mep34\mep34c16.dgn

PLATE 13

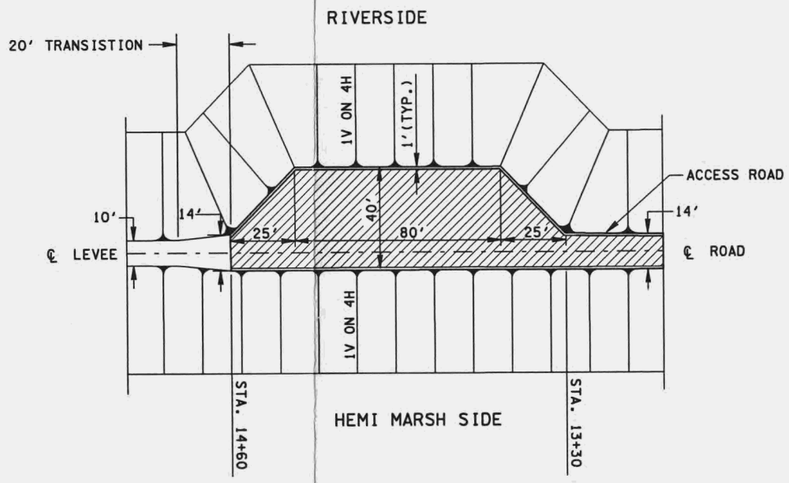


⚠ PLAN

100 50 0 100 200FT
SCALE IN FEET



⚠ NORTH ROAD HEMI MARSH - NEW ALIGNMENT



⚠ NORTH LEVEE VEHICLE TURNAROUND DETAIL

NO SCALE

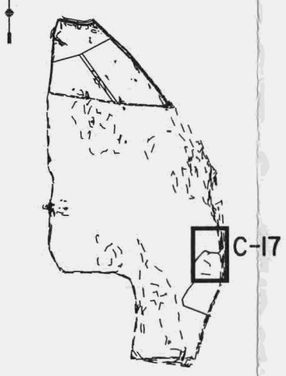
⚠ COORDINATES OF NEW PI'S		
STATION	EASTING	NORTHING
0+00 N	514153.772	1958398.419
10+80.46 N	514279.639	1957325.311

LEGEND:

- BORROW DITCH EXCAVATION
- APPROXIMATE TREE LINE
- GRANULAR SURFACING

NOTE:

FOR TYPICAL SECTIONS, SEE SHEET C-23.



KEY PLAN

Revisions			
Symbol	Description	Date	Approved
⚠ 1	REVISED AS CONSTRUCTED	28JUL'00	RTN/DJJ
1	MINOR REVISIONS	18 NOV 94	BLK DJH

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ROCK ISLAND, ILLINOIS

Designed by: BLW
Drawn by: JRB
Checked by: BLW
Reviewed by: BGN
Approved by: CHARLES S. COX COL., CORPS OF ENGINEERS

US Army Corps of Engineers Rock Island District

UPPER MISSISSIPPI RIVER ENVIRONMENTAL MANAGEMENT PROGRAM
POOL 13, RIVER MILE 532 THRU 536
SPRING LAKE REHABILITATION AND ENHANCEMENT

NORTH HEMI MARSH ACCESS ROAD PLAN AND PROFILE

Scale: AS SHOWN
Date: 28 OCT. 1994
Drawing Code: M-L 13-134
Sheet reference number: C-17
Solicitation Number: DACW25-95-B-0009
Sheet 20 of

27-NOV-2002 14:13
E:\projects\wp34\wp34ci7.dgn

PLATE 14

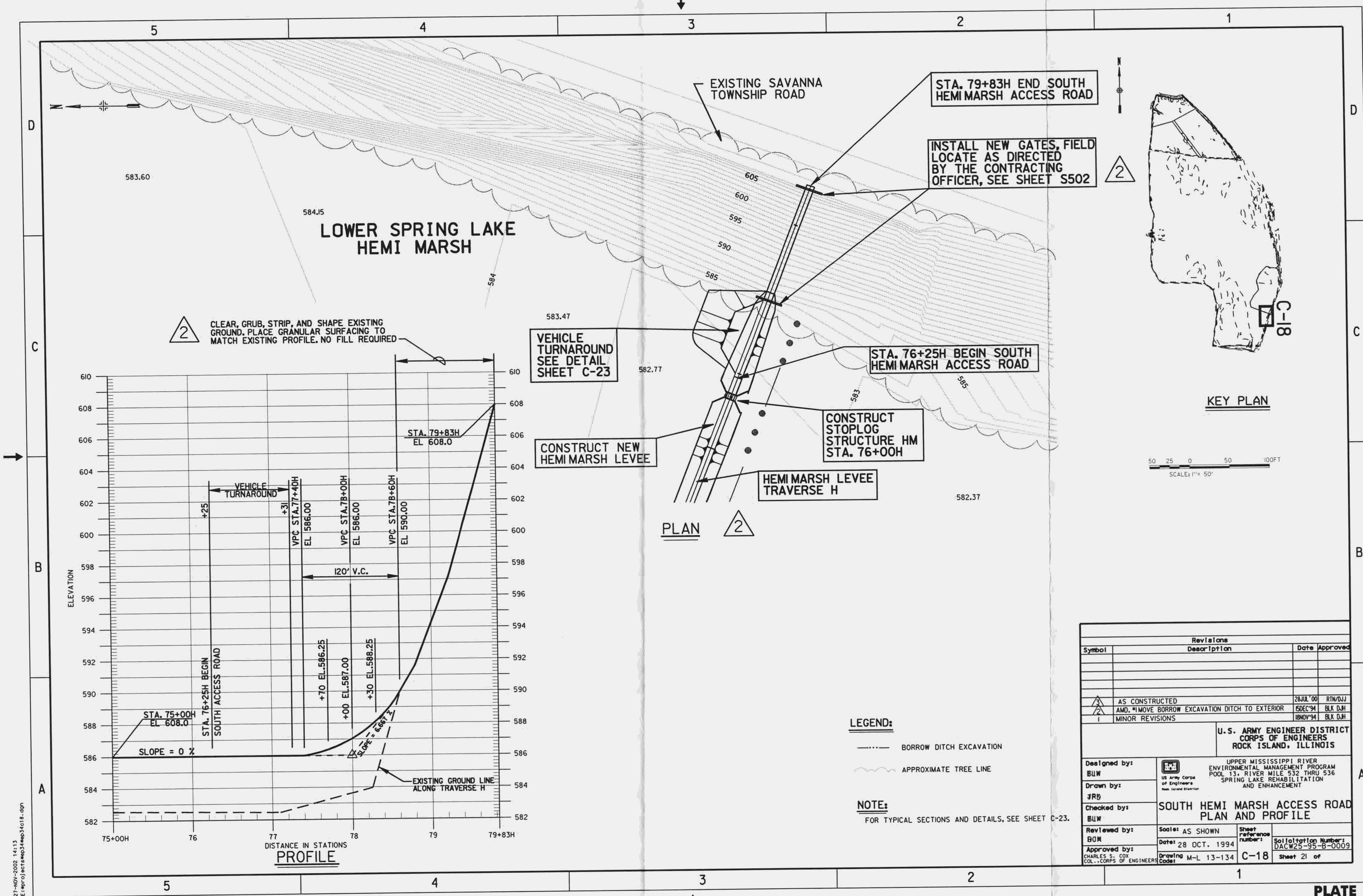
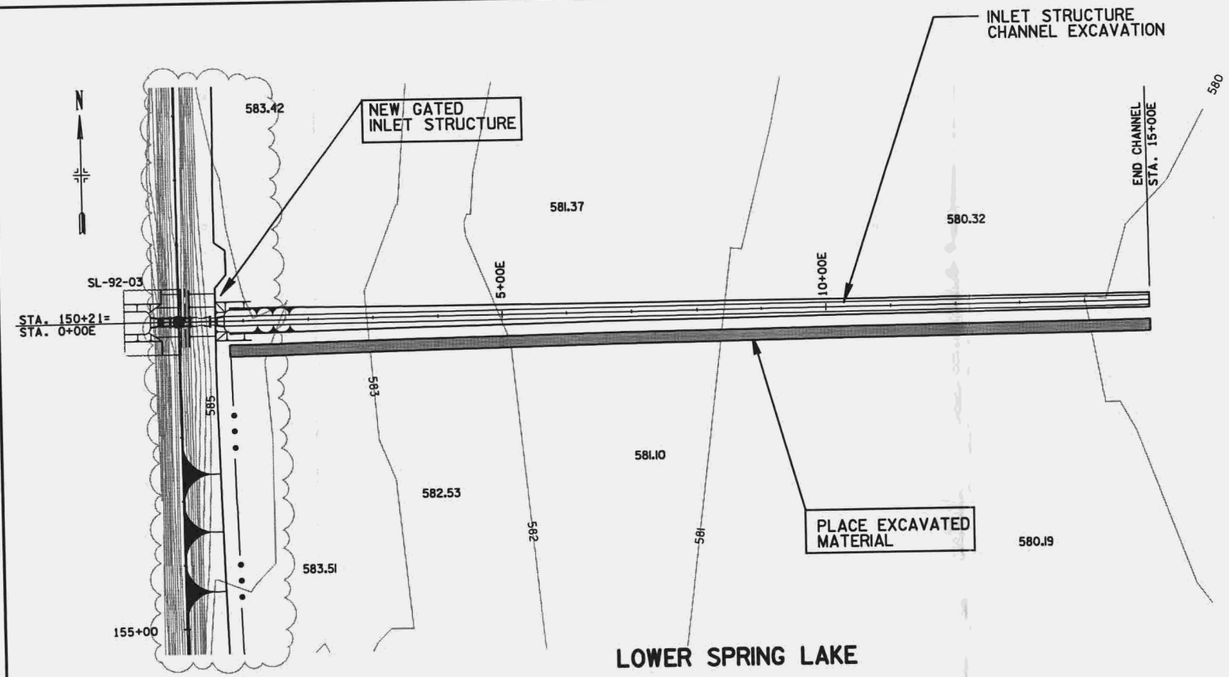

LOWER SPRING LAKE HEMI MARSH
583.60
584.15
584
583.47
582.77
583
585
582.37
605
600
595
590
585
EXISTING SAVANNA TOWNSHIP ROAD
STA. 79+83H END SOUTH HEMI MARSH ACCESS ROAD
INSTALL NEW GATES, FIELD LOCATE AS DIRECTED BY THE CONTRACTING OFFICER, SEE SHEET S502
2
VEHICLE TURNAROUND SEE DETAIL SHEET C-23
STA. 76+25H BEGIN SOUTH HEMI MARSH ACCESS ROAD
CONSTRUCT NEW HEMI MARSH LEVEE
CONSTRUCT STOPLOG STRUCTURE HM STA. 76+00H
HEMI MARSH LEVEE TRAVERSE H
PLAN
2
KEY PLAN
C-18
50 25 0 50 100FT
SCALE: 1"= 50'
2
CLEAR, GRUB, STRIP, AND SHAPE EXISTING GROUND. PLACE GRANULAR SURFACING TO MATCH EXISTING PROFILE. NO FILL REQUIRED
ELEVATION
610 608 606 604 602 600 598 596 594 592 590 588 586 584 582
STA. 79+83H
EL 608.0
VEHICLE TURNAROUND
+25
+31
VPC STA.77+40H
EL 586.00
VPC STA.78+00H
EL 586.00
VPC STA.78+60H
EL 590.00
120' V.C.
STA. 76+25H BEGIN SOUTH ACCESS ROAD
+70 EL.586.25
+00 EL.587.00
+30 EL.588.25
STA. 75+00H
EL 608.0
SLOPE = 0 %
SLOPE = 6.667 %
EXISTING GROUND LINE ALONG TRAVERSE H
75+00H 76 77 78 79 79+83H
DISTANCE IN STATIONS
PROFILE
LEGEND:
BORROW DITCH EXCAVATION
APPROXIMATE TREE LINE
NOTE:
FOR TYPICAL SECTIONS AND DETAILS, SEE SHEET C-23.
Revisions
Symbol | Description | Date | Approved
3 | AS CONSTRUCTED | 28JUL'00 | RTN/DJJ
2 | AMD. #1 MOVE BORROW EXCAVATION DITCH TO EXTERIOR | 15DEC'94 | BLK DJH
1 | MINOR REVISIONS | 18NOV'94 | BLK DJH
U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS ROCK ISLAND, ILLINOIS
Designed by: BUW
Drawn by: JRB
Checked by: BUW
Reviewed by: BOM
Approved by: CHARLES S. COX COL., CORPS OF ENGINEERS
US Army Corps of Engineers Rock Island District
UPPER MISSISSIPPI RIVER ENVIRONMENTAL MANAGEMENT PROGRAM POOL 13, RIVER MILE 532 THRU 536 SPRING LAKE REHABILITATION AND ENHANCEMENT
SOUTH HEMI MARSH ACCESS ROAD PLAN AND PROFILE
Scale: AS SHOWN
Date: 28 OCT. 1994
Drawing Code: M-L 13-134
Sheet reference number: C-18
Solicitation Number: DACW25-95-B-0009
Sheet 21 of
27-NOV-2002 14:13
E:projects\emp34\emp34c18.dgn

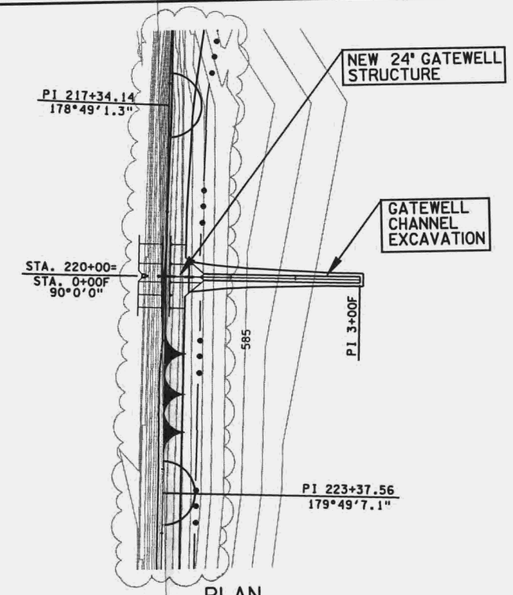
PLATE 15



PLAN

100 50 0 100 200FT

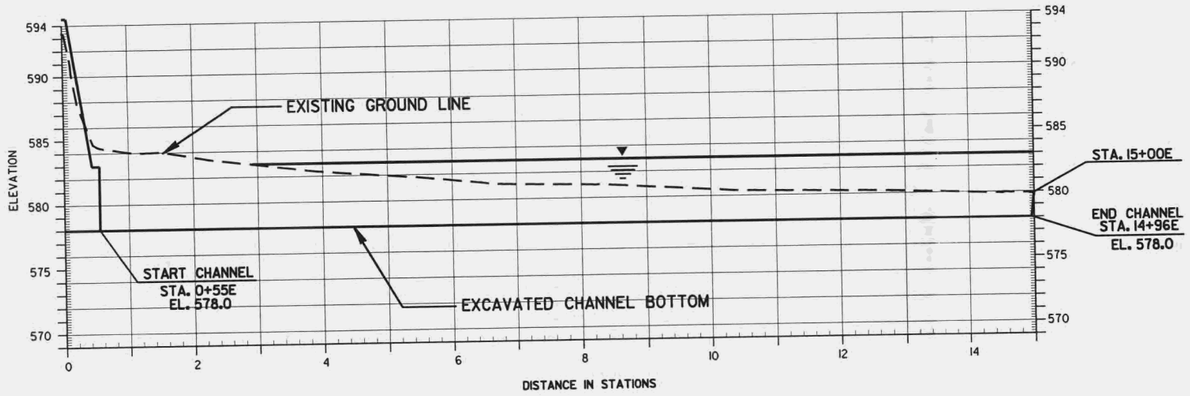
SCALE: 1"= 100'



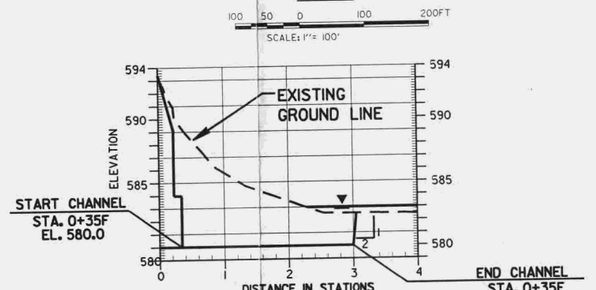
PLAN

100 50 0 100 200FT

SCALE: 1"= 100'



PROFILE INLET STRUCTURE CHANNEL



PROFILE GATEWELL CHANNEL

LEGEND:

BORROW DITCH EXCAVATION

APPROXIMATE TREE LINE

NOTE:

FOR TYPICAL SECTIONS SEE SHEET C-21.

Revisions			
Symbol	Description	Date	Approved
1	AS CONSTRUCTED	28JUL'00	RTN/DJJ
1	MINOR REVISIONS	18 NOV.'94	BLK DJH

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ROCK ISLAND, ILLINOIS

Designed by: BLW
Drawn by: JRB
Checked by: BLW
Reviewed by: BGM
Approved by: CHARLES S. COX COL., CORPS OF ENGINEERS

US Army Corps of Engineers Rock Island District

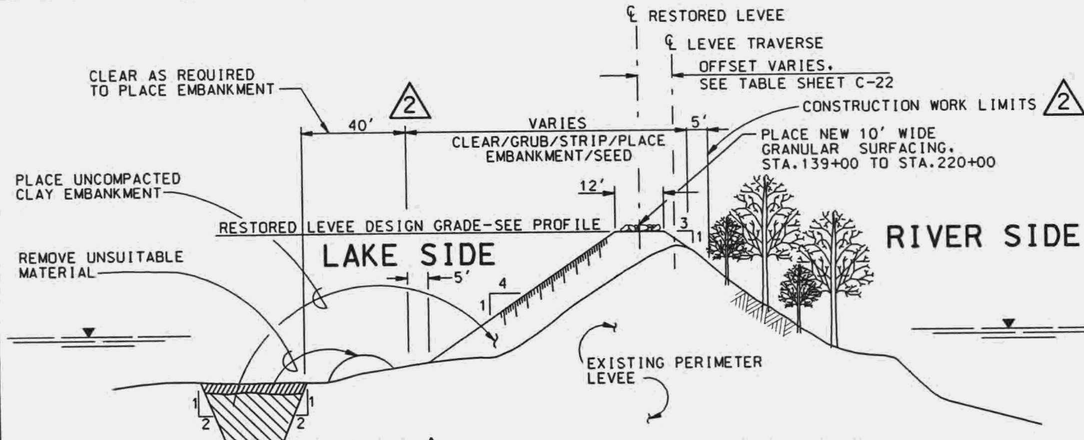
UPPER MISSISSIPPI RIVER ENVIRONMENTAL MANAGEMENT PROGRAM
POOL 13, RIVER MILE 532 THRU 536
SPRING LAKE REHABILITATION AND ENHANCEMENT

CHANNEL EXCAVATION PLANS AND PROFILES

Scale: AS SHOWN
Date: 28 OCT. 1994
Drawing Code: M-L 13-134
Sheet reference number: C-19
Solicitation Number: DACW25-95-B-0009
Sheet 22 of

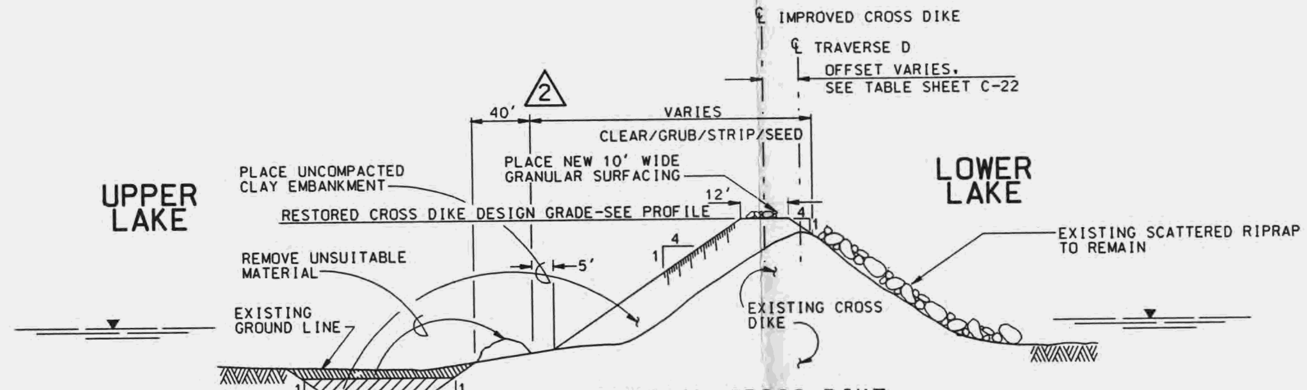
27-NOV-2002 14:14
E:\projects\ed34\ed34c19.dgn

PLATE 16



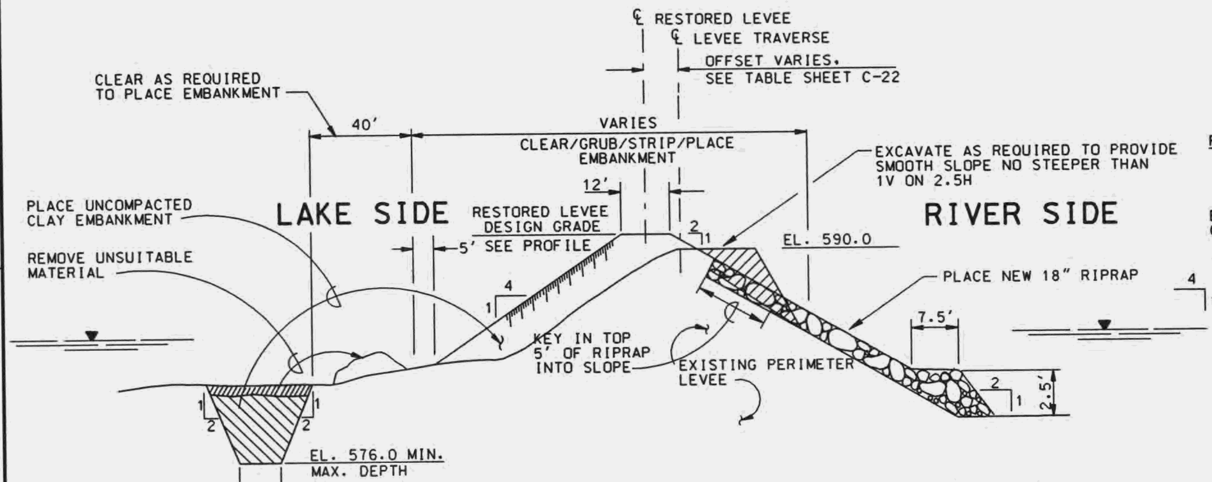
TYPICAL PERIMETER LEVEE

STA.0+00 TO STA.234+00
STA.254+00 TO STA.375+00
(STA.0+00 TO STA.1+00-NOEXCAVATION AND EMBANKMENT PLACEMENT REQ'D) 2



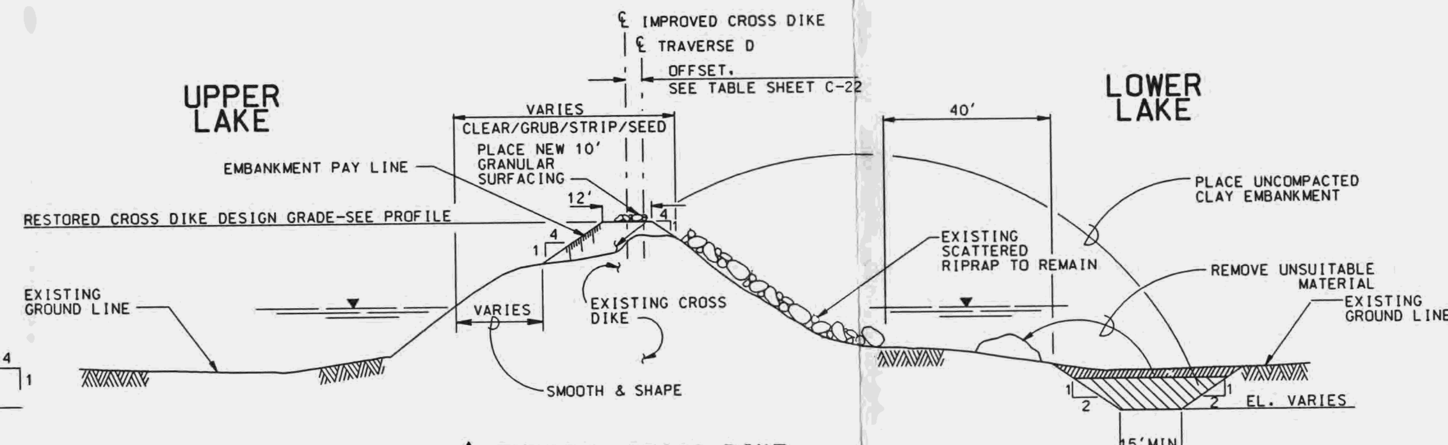
TYPICAL CROSS DIKE

STA.0+51.9D TO STA.23+50D
STA.25+50D TO STA.42+20D±



TYPICAL RIPRAP PERIMETER LEVEE SECTION 2

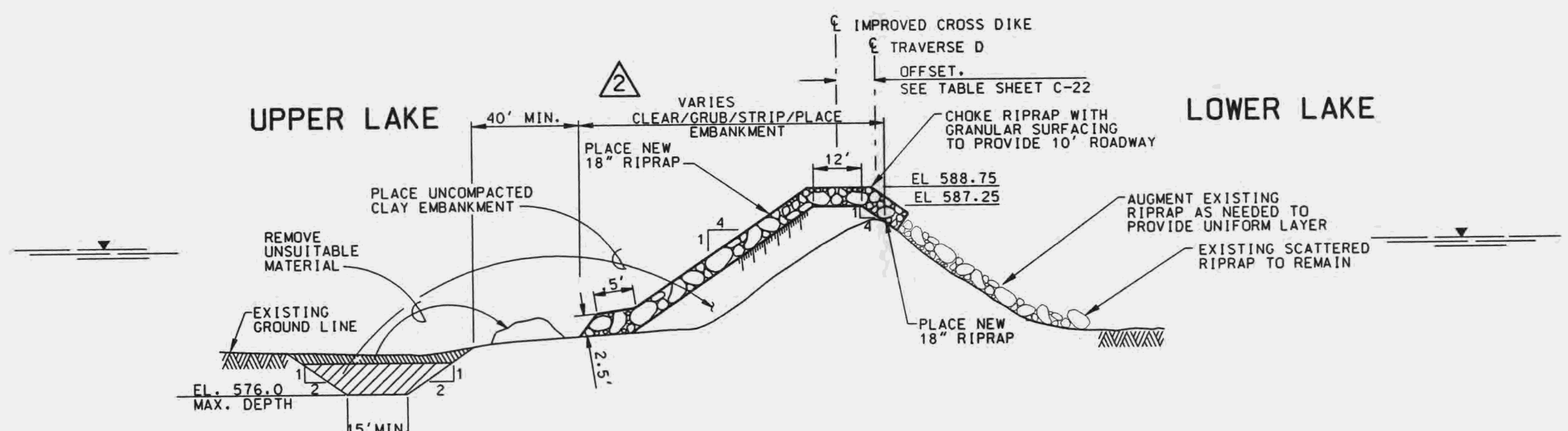
STA. 234+00 TO STA. 254+00



2 TYPICAL CROSS DIKE

STA.42+45D± TO STA.45+70D
STA.47+70D TO STA.50+00D±
STA.62+00D± TO STA.74+69D

NOTE:
1. SEEDING REQUIRED ON AREAS ABOVE ELEVATION 583.0 ONLY.
2. FOR WATER SURFACE ELEVATION INFORMATION. SEE SHEETS C-2 THROUGH C-4.
2 3. ALL GRANULAR SURFACING SHOWN SHALL BE 6" THICK.



TYPICAL CROSS DIKE OVERFLOW

3 2 STA.23+50D TO STA.25+50D (BORROW FROM UPPER LAKE SIDE AS SHOWN)
STA.45+70D TO STA.47+70D (BORROW FROM LOWER LAKE SIDE)

Symbol	Revisions Description	Date	Approved
3	REVISED AS CONSTRUCTED	28JUL'00	RTM/DJJ
2	AMD. #1 MINOR REVISIONS	15 DEC.94	BLK DJH
1	MINOR REVISIONS	18 NOV.94	BLK DJH

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ROCK ISLAND, ILLINOIS

UPPER MISSISSIPPI RIVER
ENVIRONMENTAL MANAGEMENT PROGRAM
POOL 13, RIVER MILE 532 THRU 536
SPRING LAKE REHABILITATION
AND ENHANCEMENT

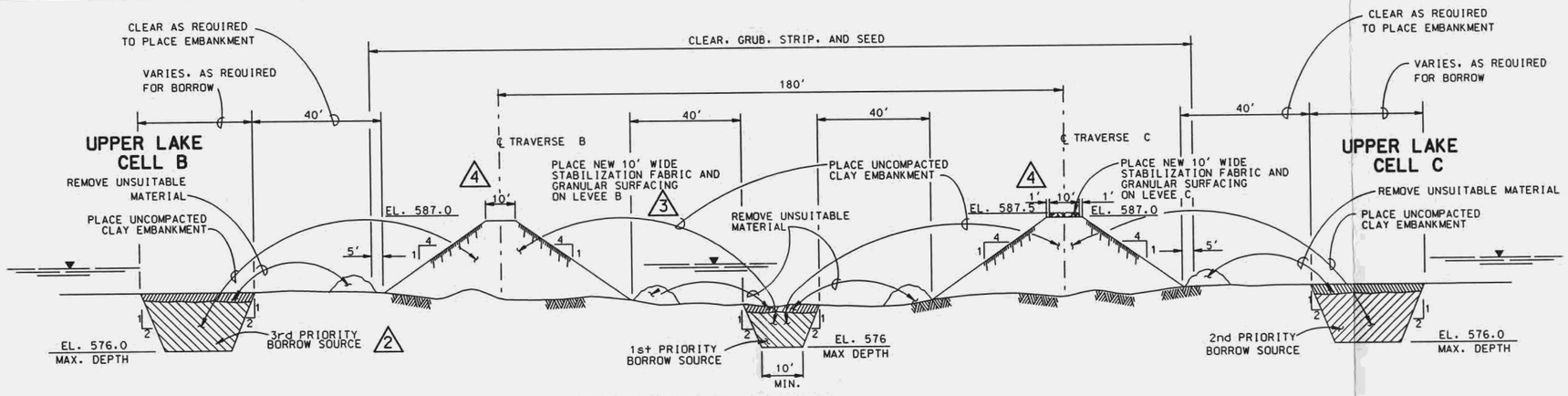
TYPICAL SECTIONS I

Designed by: BLW
Drawn by: JRB
Checked by: BLW
Reviewed by: BGN
Approved by: CHARLES S. COX COL., CORPS OF ENGINEERS

Scale: NO SCALE
Date: 28 OCT. 1994
Drawing Code: M-L 13-134
Sheet reference number: C-20
Solicitation Number: DACW25-95-B-0009
Sheet 23 of

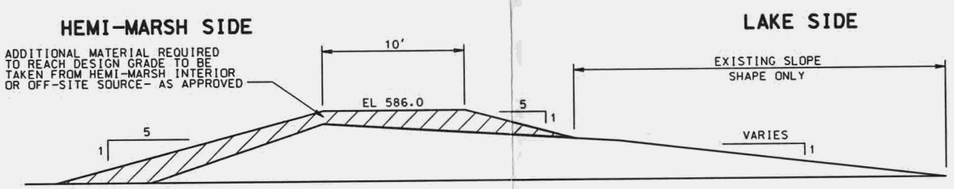
27-NOV-2002 14:14
E:\projects\sp34\sp34c20.dgn

PLATE 17



INTERIOR LEVEE SECTION

LEVEES B AND C
STA.1+68.36B TO STA.38+44.41B
STA.0+00C TO STA.38+19.58C



GATED INLET STRUCTURE CHANNEL EXCAVATION

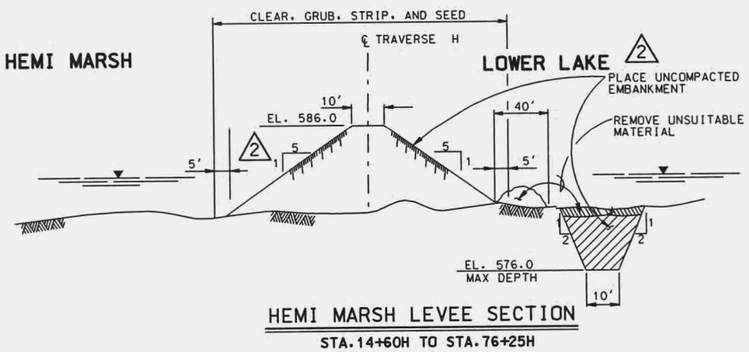
STA.0+55E TO STA.15+00E

PRECAST GATEWELL STRUCTURE CHANNEL EXCAVATION

STA.0+35F TO STA.3+00F

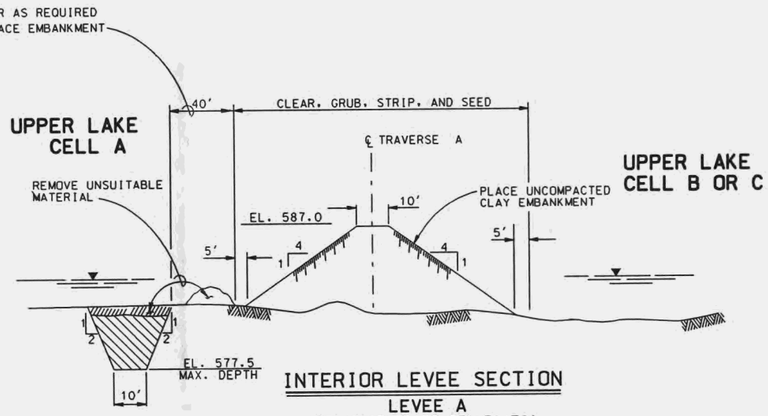
4 HEMI-MARSH LEVEE CROSS SECTION

NO SCALE



HEMI MARSH LEVEE SECTION

STA.14+60H TO STA.76+25H



INTERIOR LEVEE SECTION

LEVEE A
STA.0+83.6A TO STA.38+78A

NOTE:

1. SEEDING REQUIRED ON AREAS ABOVE ELEVATION 583.0 ONLY.
2. FOR WATER SURFACE ELEVATION INFORMATION, SEE SHEETS C-2 THRU C-4.
2. 3. ALL GRANULAR SUFACING SHOWN SHALL BE 6" THICK

Revisions			
Symbol	Description	Date	Approved
4	REVISED AS CONSTRUCTED	28JUL'00	RTN/DJJ
3	AMD. #3 - MINOR REVISION	5 JAN.'95	BLK DJH
2	AMD. #2 MINOR REVISIONS	15 DEC.'94	BLK DJH
1	MINOR REVISIONS	18 NOV.'94	BLK DJH

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ROCK ISLAND, ILLINOIS

Designed by:	BLW
Drawn by:	JRB
Checked by:	BLW
Reviewed by:	BGN
Approved by:	CHARLES S. COX COL., CORPS OF ENGINEERS

US Army Corps of Engineers Rock Island District

UPPER MISSISSIPPI RIVER ENVIRONMENTAL MANAGEMENT PROGRAM
POOL 13, RIVER MILE 532 THRU 536
SPRING LAKE REHABILITATION AND ENHANCEMENT

TYPICAL SECTIONS II

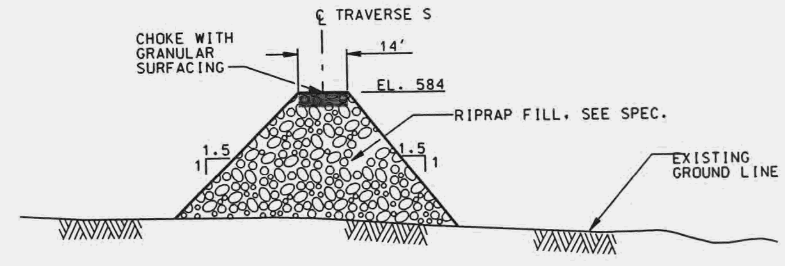
Scale:	NO SCALE	Sheet reference number:	ep01/ep01c022.dgn
Date:	28 OCT. 1994	C-21	Solicitation Number: DACW25-95-B-0009
Drawing Code:	M-L 13-134		Sheet 24 of

27-NOV-2002 14:14
E:\projects\ep34\ep34c21.dgn

PLATE 18

OFFSET DISTANCE FROM LEVEE TRAVERSE TO ℄ OF IMPROVED LEVEE

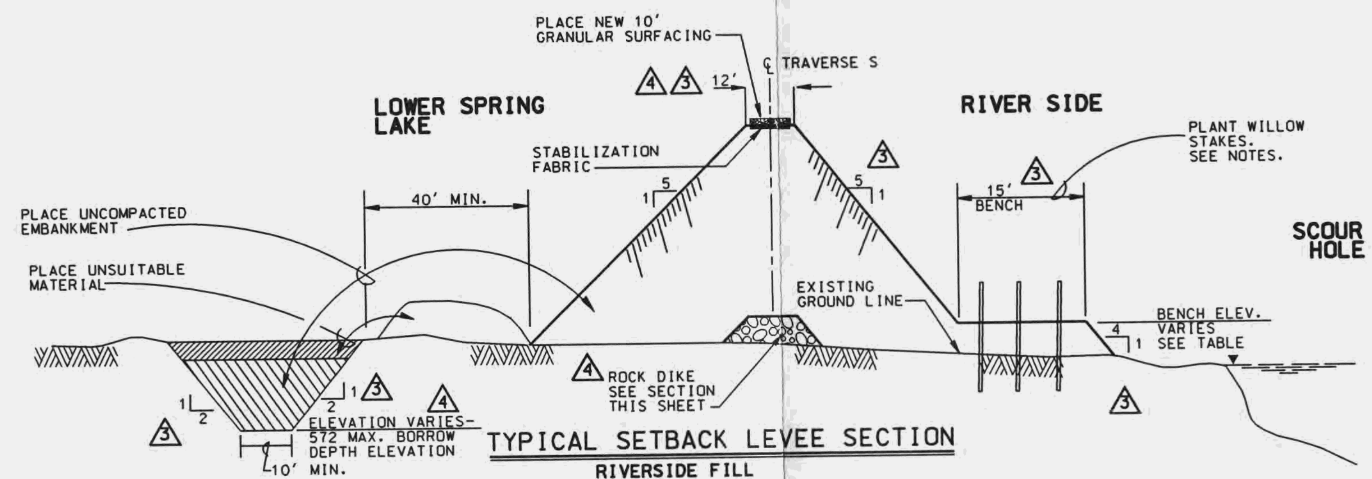
STATION	DISTANCE IN FEET	STATION	DISTANCE IN FEET	STATION	DISTANCE IN FEET	STATION	DISTANCE IN FEET	STATION	DISTANCE IN FEET
0+00	0	117+50	10 L	235+00	4 L	348+00	7 R	CROSS DIKE	
2+50	0	120+00	10 L	237+50	2 L	349+00	2 R	0+00D	3 L
5+00	4 L	122+50	10 L	240+00	5 L	350+00	6 R	2+00D	3 L
7+50	6 L	125+00	5 L	242+50	6 L	351+00	4 L	4+00D	5 L
10+00	4 L	127+50	0.5 L	245+00	7 L	352+00	3 L	6+00D	7 L
12+50	10 L	130+00	6 L	247+50	10 L	353+00	0	8+00D	8 L
15+00	13 L	132+50	2 L	250+00	7 L	354+00	3 R	10+00D	8 L
17+50	12 L	135+00	6 L	252+50	1L	355+00	0	12+00D	5 L
20+00	10 L	137+50	10 L	255+00	10 L	356+00	0	14+00D	5 L
22+50	9 L	140+00	13 L	257+50	10 L	357+00	5 R	16+00D	6 L
25+00	6 L	142+50	11 L	260+00	8 L	358+00	8 R	18+00D	8 L
27+50	4 L	145+00	10 L	262+50	7 L	359+00	8 R	20+00D	9 L
30+00	2 L	147+50	10 L	265+00	6 L	360+00	6 R	22+00D	8 L
32+50	19 L	150+00	10 L	267+50	7 L	361+00	6 R	24+00D	6 L
35+00	5 L	152+50	12 L	270+00	8 L	362+00	6 R	26+00D	7 L
37+50	9 L	155+00	15 L	272+50	10 L	363+00	4 R	28+00D	11 L
40+00	12 L	157+50	17 L	275+00	4 L	364+00	0	30+00D	15 L
42+50	15 L	160+00	18 L	277+50	8 L	365+00	6 R	32+00D	17 L
45+00	17 L	162+50	19 L	280+00	5 L	366+00	2 R	34+00D	19 L
47+50	16 L	165+00	16 L	282+50	0	367+00	6 L	36+00D	15 L
50+00	15 L	167+50	10 L	285+00	0	368+00	0	38+00D	10 L
52+50	16 L	170+00	7 L	287+50	0	369+00	0	40+00D	6 L
55+00	17 L	172+50	6 L	290+00	0	370+00	0	42+00D	4 L
57+50	16 L	175+00	6 L	292+50	5 R	371+00	0	44+00D	2 L
60+00	14 L	177+50	7 L	295+00	9 L	372+00	2 R	46+00D	0
62+50	12 L	180+00	4 L	297+50	0	372+50	2 R	48+00D	2 L
65+00	9 L	182+50	0	300+00	0	373+00	0	50+00D	2 L
67+50	15 L	185+00	0	302+50	1L			52+00D	3 L
70+00	0	187+50	2 L	305+00	4 L			54+00D	4 L
72+50	11 L	190+00	6 L	307+50	9 L			56+00D	5 L
75+00	5 L	192+50	0	310+00	0			58+00D	7 L
77+50	5 L	195+00	8 L	312+50	0			60+00D	8 L
80+00	2 L	197+50	7 L	315+00	0			62+00D	11 L
82+50	2 L	200+00	7 L	317+50	5 L			64+00D	14 L
85+00	3 L	202+50	6 L	320+00	1L			66+00D	19 L
87+50	1L	205+00	9 L	322+50	4 L			68+00D	24 L
90+00	1L	207+50	16 L	325+00	5 R			70+00D	26 L
92+50	1L	214+00	14 L	327+50	0			72+00D	16 L
95+00	4 L	215+00	13 L	330+00	0			74+00D	6 L
97+50	2 L	217+50	11 L	332+50	1R				
100+00	1L	220+00	7 L	335+00	3 L				
102+50	2 L	222+50	7 L	337+50	11L				
105+00	9 L	225+00	8 L	340+00	6 L				
110+00	10 L	227+50	9 L	342+50	0				
112+50	10 L	230+00	10 L	345+00	0				
115+00	9 L	232+50	9 L	347+50	0				



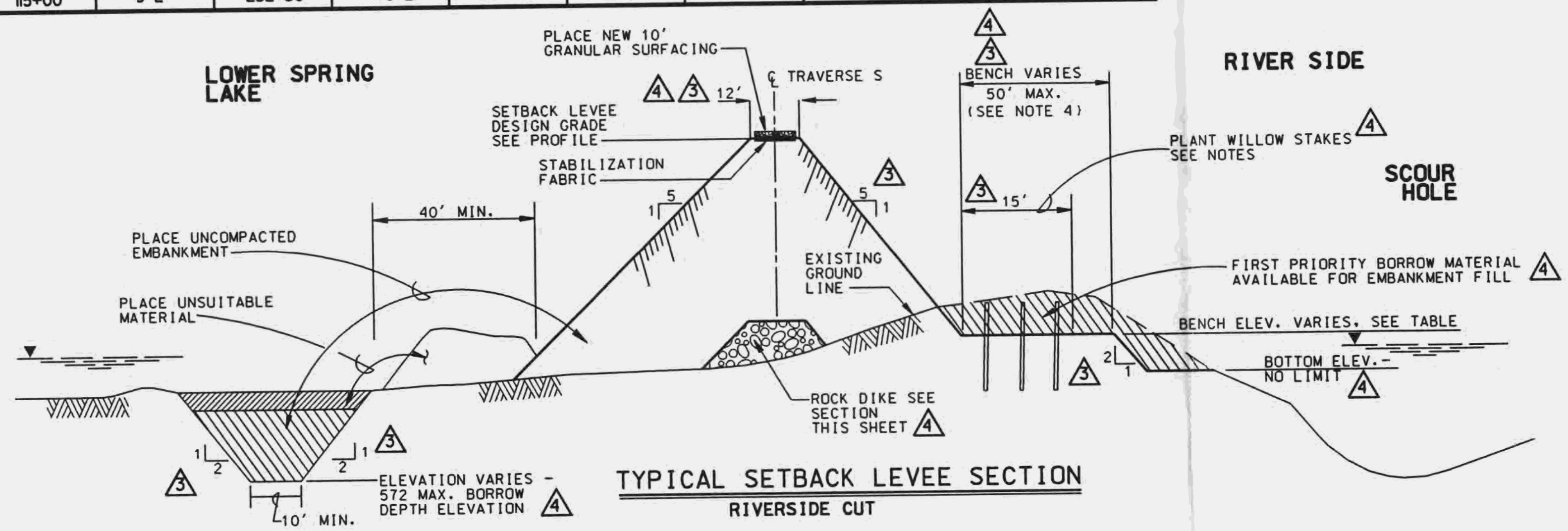
TYPICAL ROCK DIKE SECTION (4)
STA. 1+50S TO 9+50S

(3) BENCH ELEVATION TABLE

STATION	ELEVATION	STATION	ELEVATION
0+00	NO BENCH	10+25	584
0+50	586	10+50	586
2+75	586	12+75	NO BENCH
3+00	584		



TYPICAL SETBACK LEVEE SECTION
RIVERSIDE FILL



TYPICAL SETBACK LEVEE SECTION
RIVERSIDE CUT

NOTE:

1. CUTTINGS FOR WILLOW STAKES SHALL BE HARVESTED FROM WITHIN THE SPRING LAKE REFUGE AS DIRECTED BY THE CONTRACTING OFFICER.
2. (3) WILLOW STAKES SHALL BE PLANTED IN 3 ROWS SPACED 4' APART. STAKES SHALL BE SPACED 3' APART WITHIN ROWS. ROWS SHALL BE STAGGERED TO CREATE AN ASYMMETRICAL STAKE PATTERN. PLANTING DEPTH SHALL BE 5' TO 6'. (2)
3. (2) ALL GRANULAR SURFACING SHALL BE 6" THICK.
4. (3) CONTRACTOR MAY BORROW BEYOND 50' BENCH. A SIDE SLOPE NO STEEPER THAN 1V ON 2H MUST BE MAINTAINED ON ALL BORROW EXCAVATION.

Revisions			
Symbol	Description	Date	Approved
5	REVISED AS CONSTRUCTED	28JUL'00	RTN/DJJ
4	CONTRACT MOD.	12 AUGUST'96	BLK.DJJ
3	CONTRACT MOD.	11 MARCH '96	BLK.DJJ
2	AMD. #1 - MINOR REVISIONS	23 DEC.,1994	BLK.DJH
1	MINOR REVISIONS	18 NOV.,1994	BLK.DJH

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ROCK ISLAND, ILLINOIS

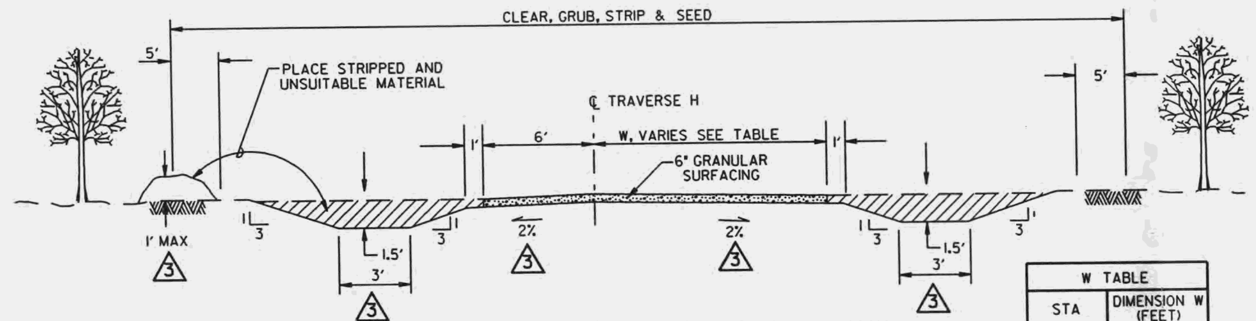
US Army Corps of Engineers
Rock Island District

UPPER MISSISSIPPI RIVER
ENVIRONMENTAL MANAGEMENT PROGRAM
POOL 13, RIVER MILE 532 THRU 536
SPRING LAKE REHABILITATION
AND ENHANCEMENT

TYPICAL SECTIONS III

Designed by: BUW
Drawn by: JRD
Checked by: BUW
Reviewed by: BOM
Approved by: CHARLES S. COX COL., CORPS OF ENGINEERS

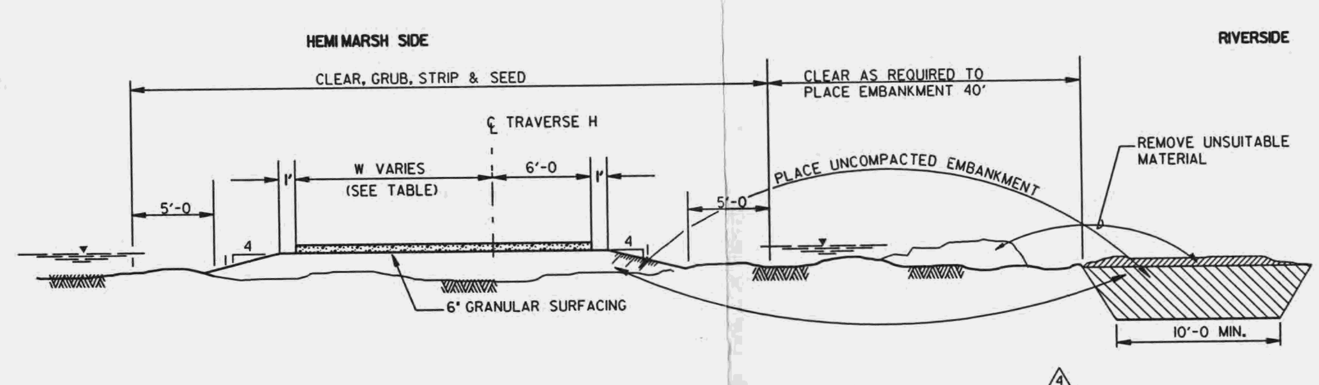
Scale: NO SCALE
Date: 28 OCT. 1994
Drawing Code: M-L 13-134
Sheet reference number: C-22
Solicitation Number: DACW25-95-B-0009
Sheet 25 of



NORTH ROAD TYPICAL TURNAROUND SECTION

STA.13+30H TO STA.14+60H

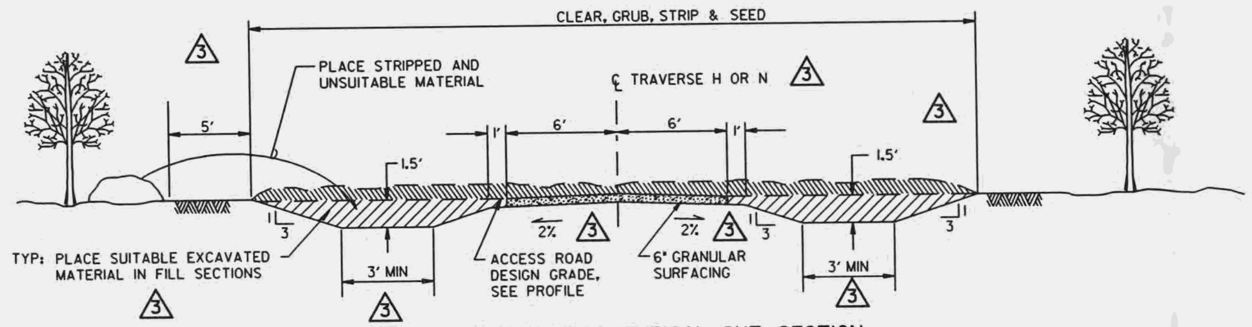
W TABLE	
STA	DIMENSION W (FEET)
13+30	6'
13+55	32'
14+35	32'
14+60	6'



SOUTH ROAD TYPICAL SECTION

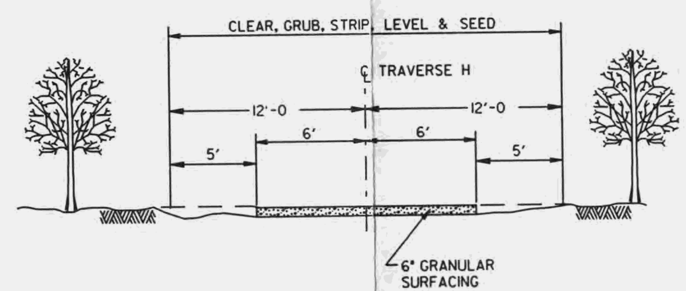
STA.77+25H TO STA.78+60H

W TABLE	
STA	DIMENSION W (FEET)
75+95H	6'
76+23H	32'
76+73H	32'
77+01H	6'
77+30H'	6'



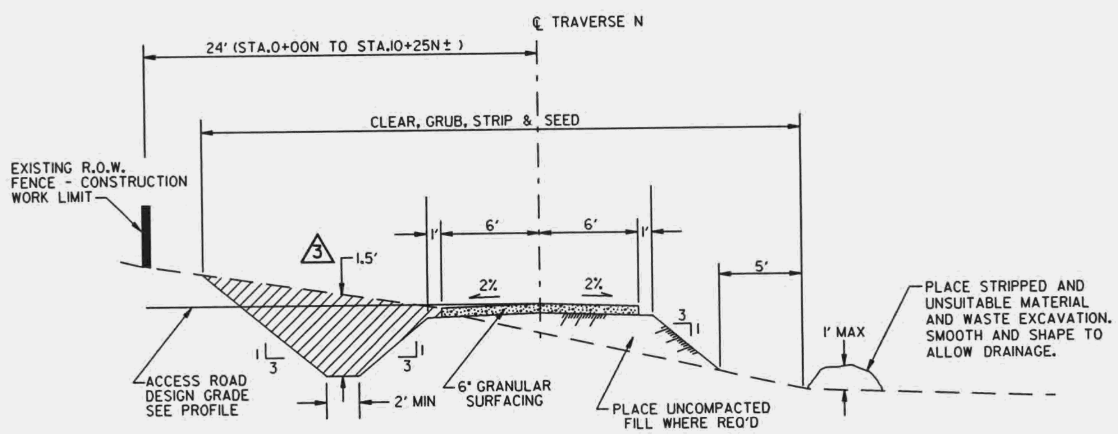
NORTH ROAD TYPICAL CUT SECTION

STA.11+00N TO STA.13+30H



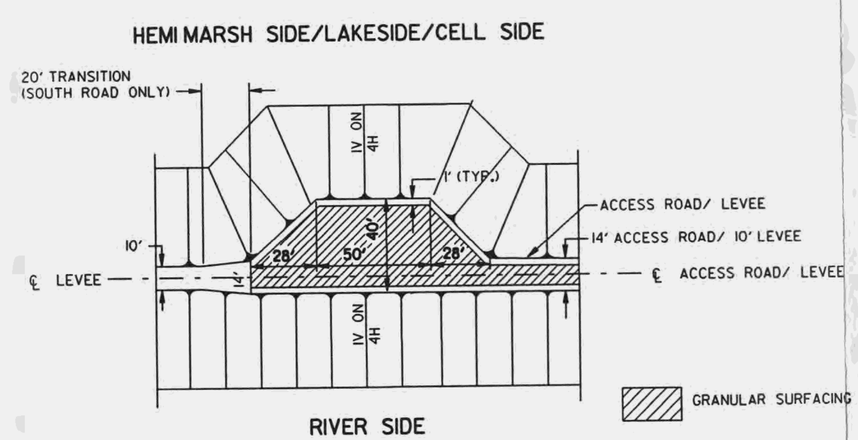
SOUTH ROAD TYPICAL SECTION

STA.78+60H TO STA.79+33H



NORTH ROAD TYPICAL SECTION

STA.0+00N TO STA.11+00N



SOUTH LEVEE TURNAROUND DETAIL

Revisions			
Symbol	Description	Date	Approved
4	REVISED AS CONSTRUCTED	28JUL'00	RTM/DJJ
3	CONTRACT MODIFICATION	8 DEC 95	BLK DJH
2	AMD. #1 MINOR REVISIONS	15 DEC 94	BLK DJH
1	MINOR REVISIONS	18 NOV 94	BLK DJH

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ROCK ISLAND, ILLINOIS

UPPER MISSISSIPPI RIVER ENVIRONMENTAL MANAGEMENT PROGRAM
POOL 13, RIVER MILE 532 THRU 536
SPRING LAKE REHABILITATION AND ENHANCEMENT

US Army Corps of Engineers Rock Island District

MISCELLANEOUS SECTIONS AND DETAILS

Designed by: BJW
Drawn by: JRD
Checked by: BJW
Reviewed by: BGW
Approved by: CHARLES S. COX COL., CORPS OF ENGINEERS

Scale: NO SCALE
Date: 28 OCT. 1994
Drawing Code: M-L 13-134
Sheet reference number: C-23
Solicitation Number: DACW25-95-B-0009
Sheet 25A of

27-NOV-2002 14:15
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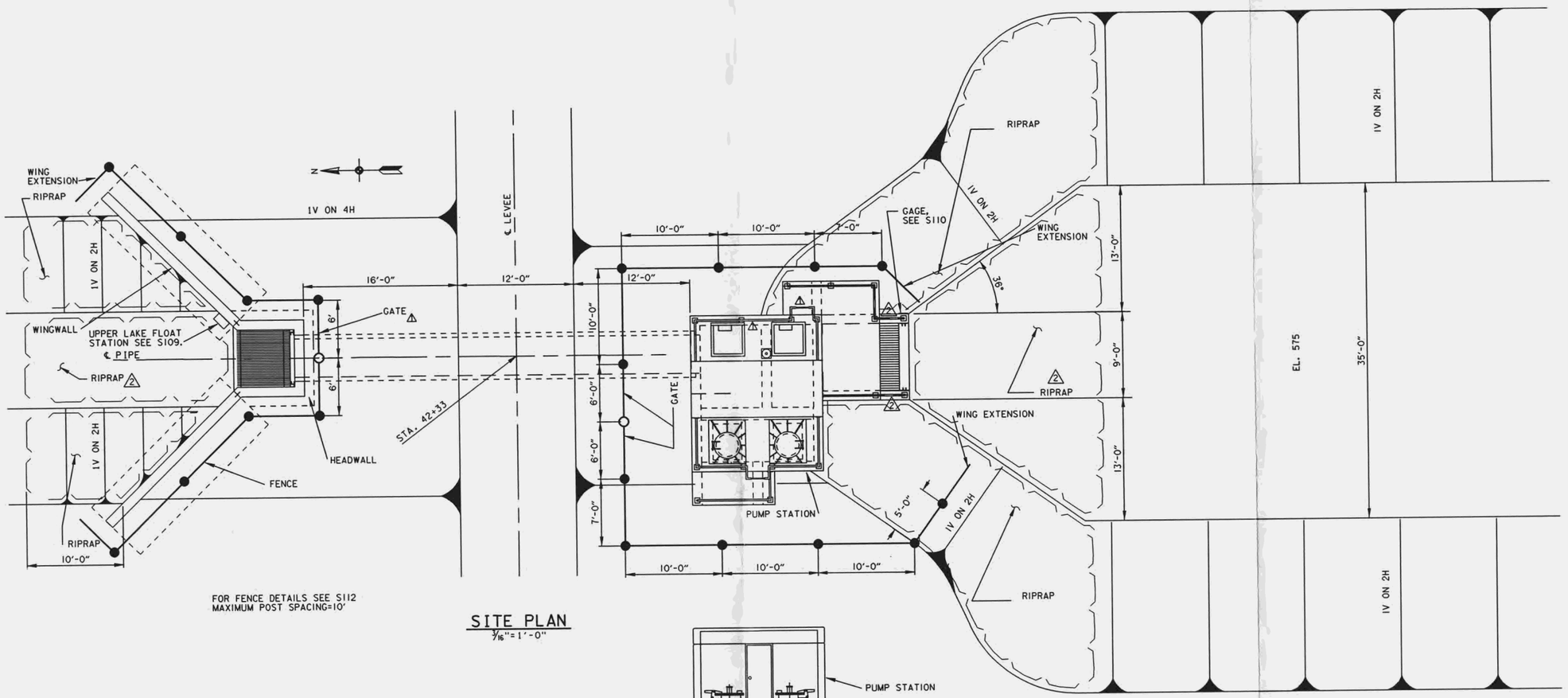
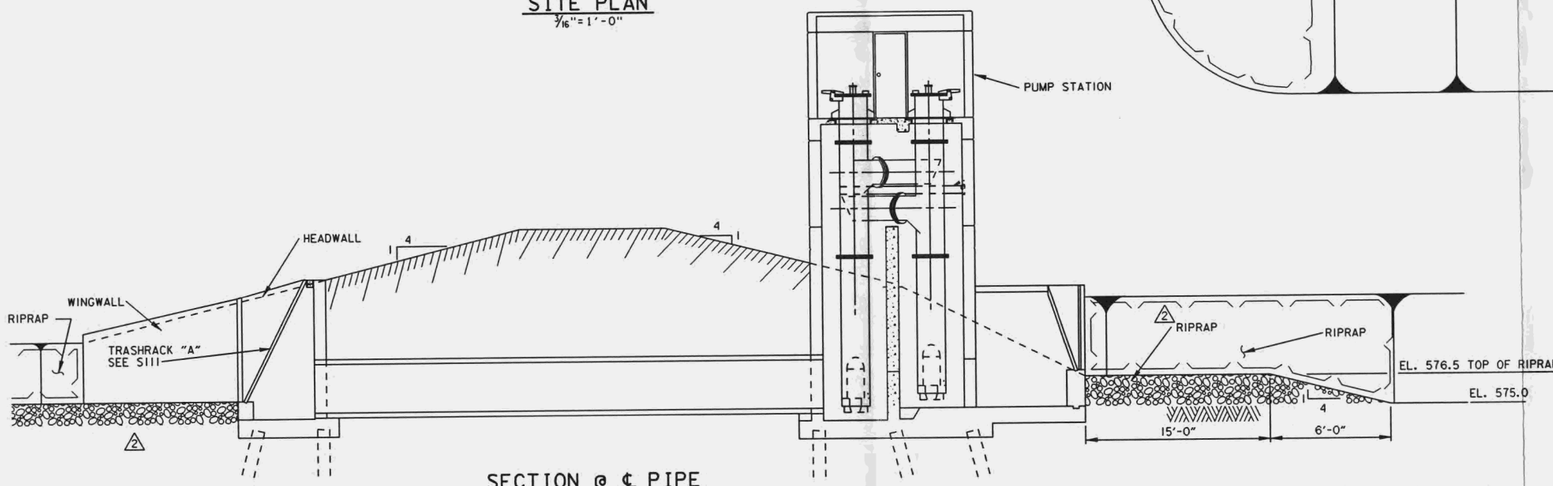


FOR FENCE DETAILS SEE S112
MAXIMUM POST SPACING=10'

SITE PLAN

3/16"=1'-0"



SECTION @ ℄ PIPE

3/16"-1'-0"

FENCE NOT SHOWN

SCALE: 3/16"=1'-0"

Revisions			
Symbol	Description	Date	Approved
2	REVISED AS CONSTRUCTED	28JUL'00	RTN/DJJ
1	AMD. #1, ADDED GATE, LADDER, AND HANDRAIL	09DEC94	TJW RCA
	MINOR REVISIONS	19NOV94	TJW RCA

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ROCK ISLAND, ILLINOIS

Designed by: TJW
Drawn by: JRK
Checked by: RCA
Reviewed by: DJH
Approved by: CHARLES S. COX COL., CORPS OF ENGINEERS

US Army Corps of Engineers Rock Island District

UPPER MISSISSIPPI RIVER
ENVIRONMENTAL MANAGEMENT PROGRAM
POOL 13, RIVER MILE 532 THRU 536
SPRING LAKE REHABILITATION
AND ENHANCEMENT

PUMP STATION GENERAL LAYOUT

Scale: 3/16"=1'-0"
Date: 28 OCT. 1994
Drawing Code: M-L 13-134
Sheet reference number: S101
Solicitation Number: DACW25-95-B-0009
Sheet 26 of

27-NOV-2002 14:15
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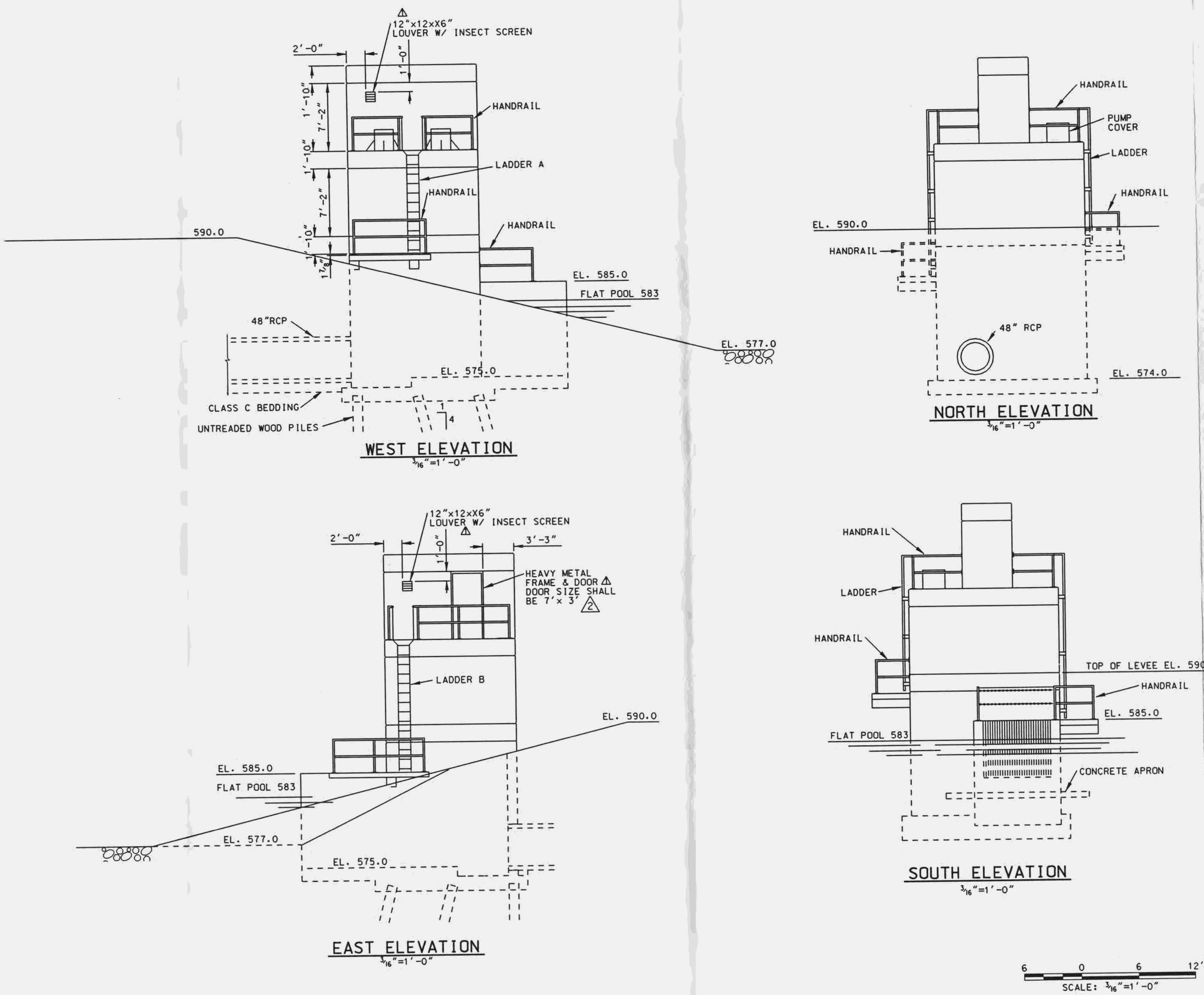
PLATE 21



REFERENCES:
1. FOR LADDERS SEE SHEET S109.
2. FOR HANDRAIL SEE SHEET S109.
3. FOR TRASHRACK SEE SHEET S111.

Revisions			
Symbol	Description	Date	Approved
3	AS CONSTRUCTED	28JUL'00	RTN/DJJ
2	AMD. #2 - DOOR SIZE ADDED	29DEC94	TJW RCA
1	AMD. #1 MOVE DOOR AND LOUVERS	09DEC94	TJW RCA
1	MINOR REVISIONS	19NOV94	TJW RCA

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ROCK ISLAND, ILLINOIS

US Army Corps of Engineers Rock Island District

UPPER MISSISSIPPI RIVER
ENVIRONMENTAL MANAGEMENT PROGRAM
POOL 13, RIVER MILE 532 THRU 536
SPRING LAKE REHABILITATION
AND ENHANCEMENT

PUMP STATION ELEVATIONS

Designed by: TJW
Drawn by: JRK
Checked by: RCA
Reviewed by: DJH
Approved by: CHARLES S. COX COL., CORPS OF ENGINEERS

Scale: 3/16"=1'-0"
Date: 28 OCT. 1994
Drawing Code: M-L 13-134
Sheet reference number: S102
Solicitation Number: DACW25-95-B-0009
Sheet 27 of

27-NOV-2002 14:16
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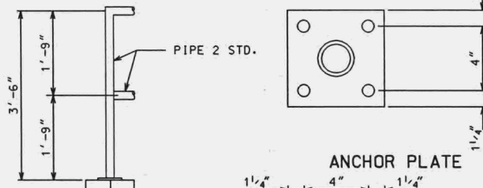
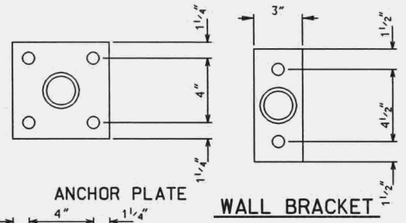
PLATE 22

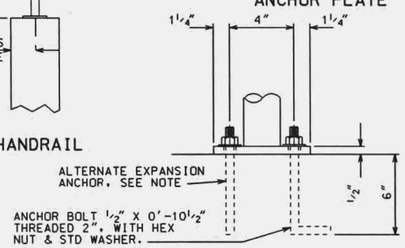


HANDRAIL

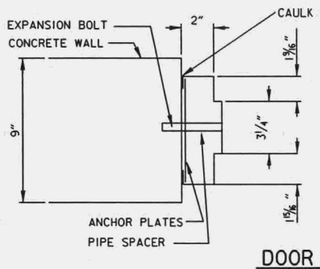


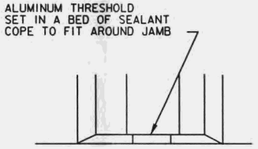
ANCHOR PLATE

WALL BRACKET



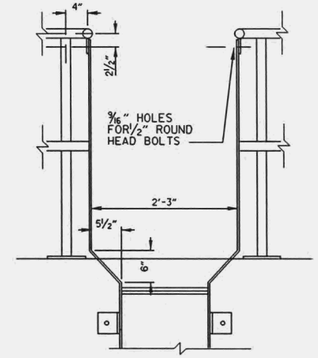
ANCHOR BOLTS-SECTION



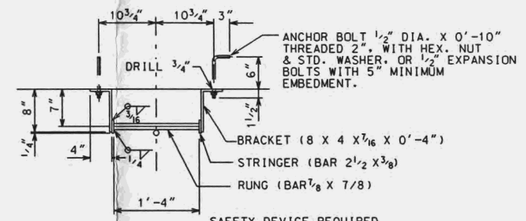


DOOR DETAILS
SCALE: 3"=1'-0"

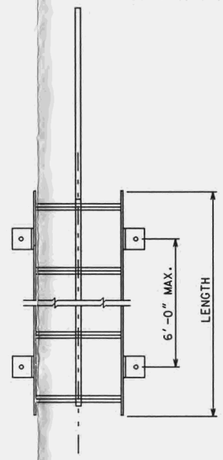
NOTES:
1. ANCHOR BOLTS-EITHER EMBEDDED BOLTS OR EXPANSION BOLTS MAY BE USED. EXPANSION BOLTS SHALL BE 1/2" DIA., HAVE ATLEAST 5 INCH EMBEDMENT, 4000 LB. ULTIMATE PULLOUT AND 6000 LB. ULTIMATE SHEAR. ALL ANCHOR BOLTS AND FASTENERS TO BE GALVANIZED.
2. WELD ALL PIPE JOINTS WITH CONTINUOUS BEAD, SIZE EQUAL TO PIPE WALL THICKNESS, AND DRESS SMOOTH.
3. HANDRAIL TO BE GALVANIZED AFTER FABRICATION.
4. MAXIMUM POST SPACING 6'-0"

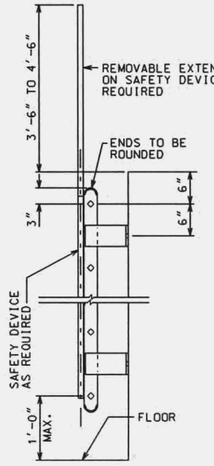


STEP THRU AT DECK
1"= 1'-0"



SAFETY DEVICE REQUIRED ON ALL LADDERS WHERE FALL DISTANCE EXCEEDS 20 FEET.





LADDER DETAIL

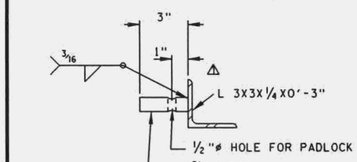
SCALE: 1" = 1'-0"

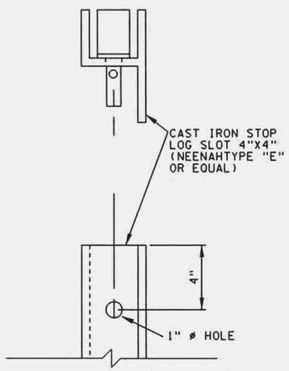
12" 6" 0 1'

SAFETY DEVICE REQUIRED ON ALL LADDERS WHERE FALL DISTANCE EXCEEDS 20 FEET.

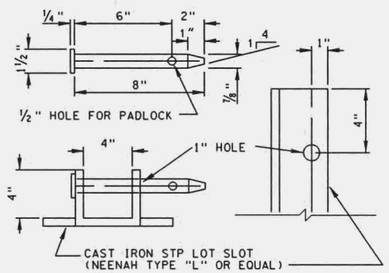
LADDER TABLE

LADDER	QUANTITY	WALKTHRU	LENGTH	GATE	SAFETY DEVICE	REFERENCE DRAWING
A	1	YES	10.5	YES	NO	S102
B	1	YES	13.5	YES	NO	S102
C	1	NO	24.5	NO	YES	S104
D	1	NO	23.5	NO	YES	S104
E	2	NO	16.5	NO	NO	S202

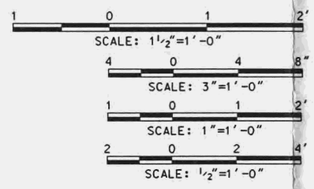




STOPLOG LOCKING PIN
3"=1'-0"
PLACE AT TOP OF EACH SLOT
(FOR TYPE "E" STOP LOG SLOTS)



STOPLOG LOCKING PIN
3"=1'-0"
PLACE AT TOP OF EACH SLOT
(FOR TYPE "L" STOP LOG SLOTS)



Revisions			
Symbol	Description	Date	Approved
2	REVISED AS CONSTRUCTED	26JUL'00	RTN/DJJ
1	AMD #1, LADDER GATE ADDED, ANCHOR PLATE REMOVED	09DEC94	TJW RCA
1	MINOR REVISIONS	19NOV94	TJW RCA

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ROCK ISLAND, ILLINOIS

Designed by: TJW
Drawn by: JRK
Checked by: RCA
Reviewed by: DJH
Approved by: CHARLES S. COX COL., CORPS OF ENGINEERS

US Army Corps of Engineers Rock Island District

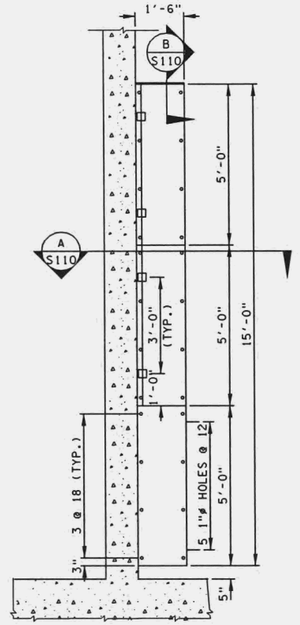
UPPER MISSISSIPPI RIVER ENVIRONMENTAL MANAGEMENT PROGRAM
POOL 13, RIVER MILE 532 THRU 536
SPRING LAKE REHABILITATION AND ENHANCEMENT

PUMP STATION
MISCELLANEOUS STEEL I

Scale: AS SHOWN
Date: 28 OCT. 1994
Drawing Code: M-L 13-134
Sheet reference number: S109
Solicitation Number: DACW25-95-B-0009
Sheet 34 of

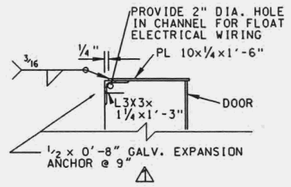
27-NOV-2002 14:17
E:\projects\esp34\esp34s109.dgn

PLATE 23

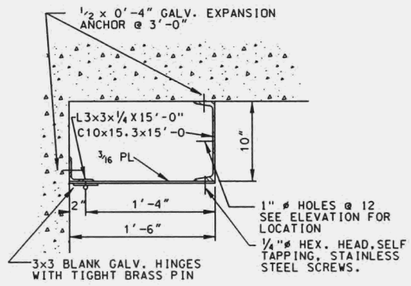


FLOAT STATION COVER
INSIDE PUMP STATION
½"=1'-0"

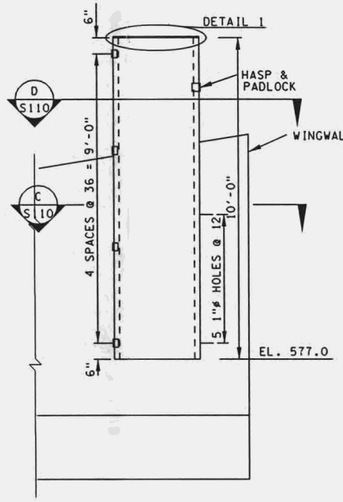
MAKE 1 AS SHOWN AND 1 OPPOSITE HAND



SECTION B S110
1½"=1'-0"

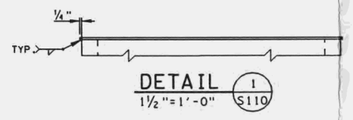


SECTION A S110
1½"=1'-0"

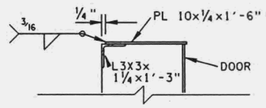


FLOAT STATION COVER
ON WINGWALL
½"=1'-0"

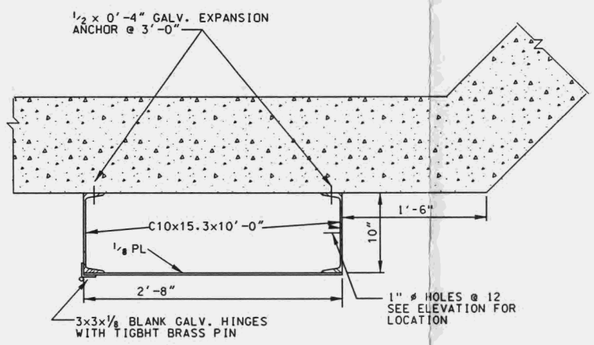
MAKE 1 AS SHOWN AND 1 OPPOSITE HAND



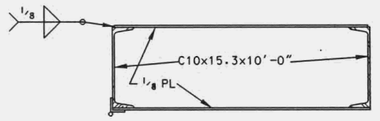
DETAIL 1 S110
1½"=1'-0"



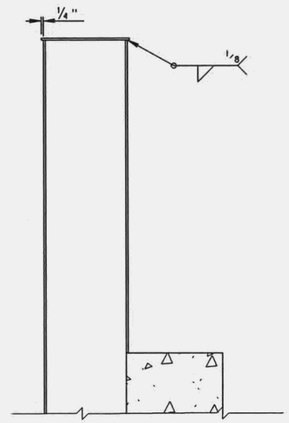
SECTION E S110
1½"=1'-0"



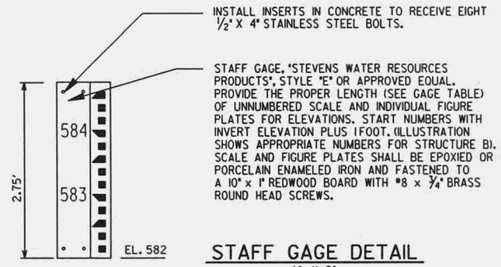
SECTION C S110
1½"=1'-0"



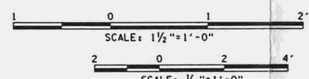
SECTION D S110
1½"=1'-0"



SECTION E S110
1½"=1'-0"



STAFF GAGE DETAIL
1"=1'-0"



Revisions			
Symbol	Description	Date	Approved
2	AS CONSTRUCTED	28JUL'00	RTN/DJJ
1	AMD. #1 ADDED GAGE, FLOATWELL ANCHORS	09DEC94	TJW RCA
1	MINOR REVISIONS	21NOV94	TJW RCA

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ROCK ISLAND, ILLINOIS

Designed by: TJW
Drawn by: JRK
Checked by: TJW
Reviewed by: RCA
Approved by: CHARLES S. COX COL., CORPS OF ENGINEERS

US Army Corps of Engineers Rock Island District

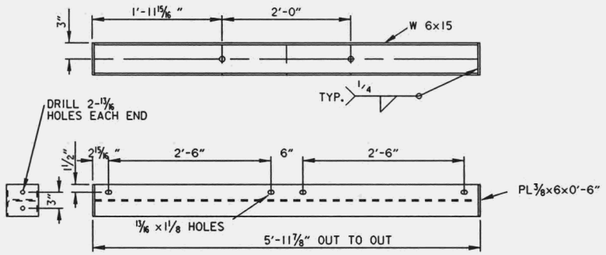
UPPER MISSISSIPPI RIVER
ENVIRONMENTAL MANAGEMENT PROGRAM
POOL 13, RIVER MILE 532 THRU 536
SPRING LAKE REHABILITATION
AND ENHANCEMENT

PUMP STATION
MISCELLANEOUS STEEL II

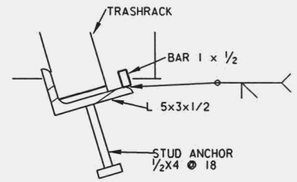
Scale:
Date: 28 OCT. 1994
Drawing Code: M-L 13-134
Sheet reference number: S110
Solicitation Number: DACW25-95-B-0009
Sheet 35 of

27-NOV-2002 14:17
E:\projects\ep34\ep34s110.dgn

PLATE 24

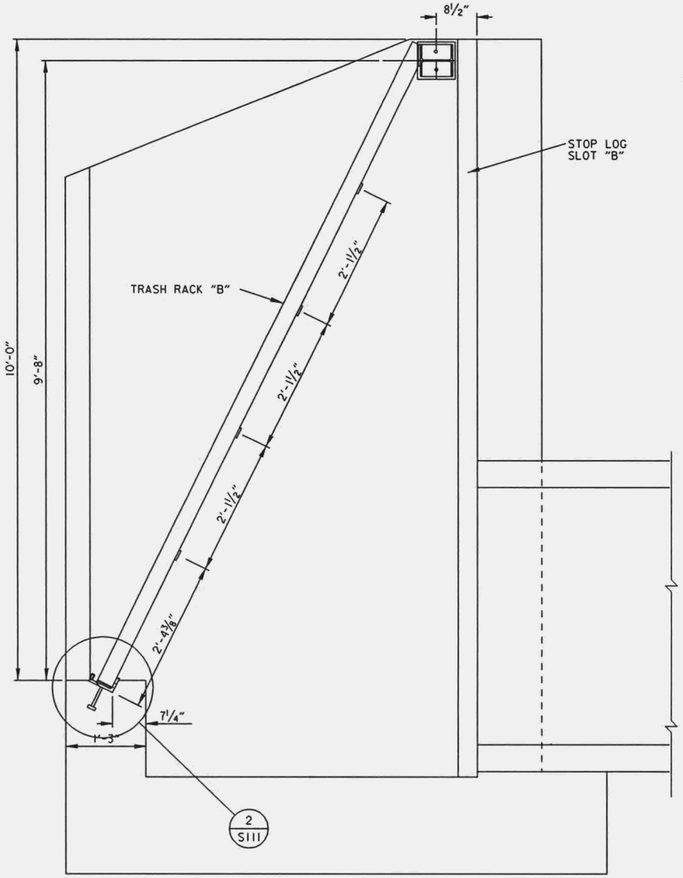


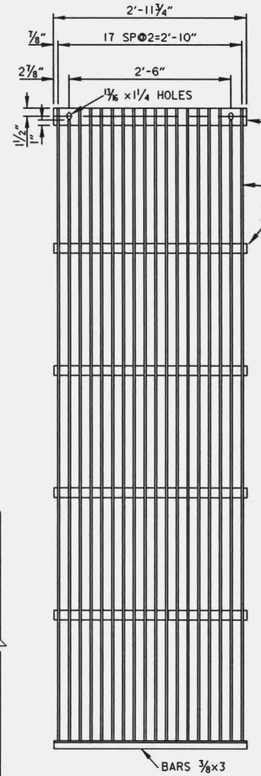
BEARING BEAM
1"= 1'-0"



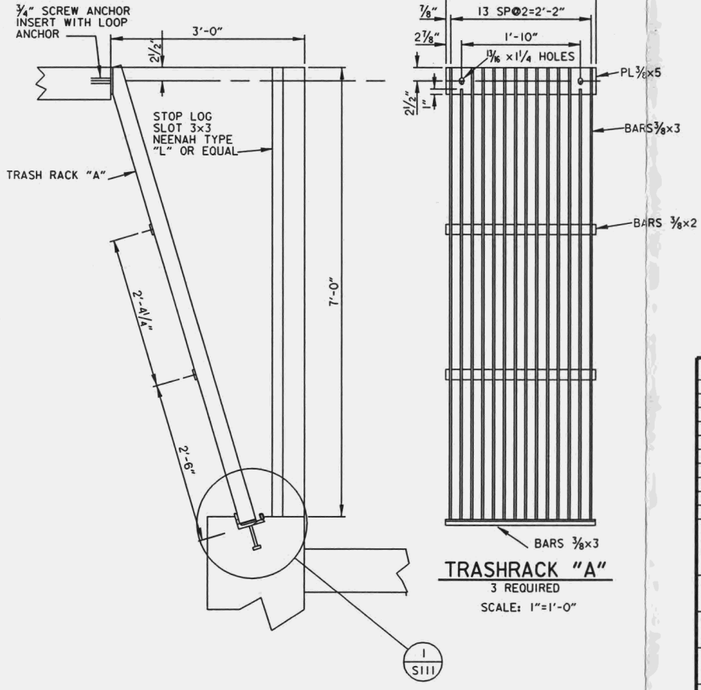
DETAIL 1 / S111
3"=1'-0"

DETAIL 2 / S111
(OPPOSITE HAND)





TRASHRACK "B"
2 REQUIRED
SCALE: 1"=1'-0"



TRASHRACK "A"
3 REQUIRED
SCALE: 1"=1'-0"

SCALE: 1"=1'-0"

Revisions			
Symbol	Description	Date	Approved
3	AS CONSTRUCTED	28JUL'00	RTN/DJJ
2	AMD. #1 - MINOR REVISION	23DEC94	TJW RCA
1	MINOR REVISIONS	21NOV94	TJW RCA

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ROCK ISLAND, ILLINOIS

Designed by: TJW
Drawn by: JRK
Checked by: RCA
Reviewed by: DJH
Approved by: CHARLES S. COX COL., CORPS OF ENGINEERS

US Army Corps of Engineers Rock Island District

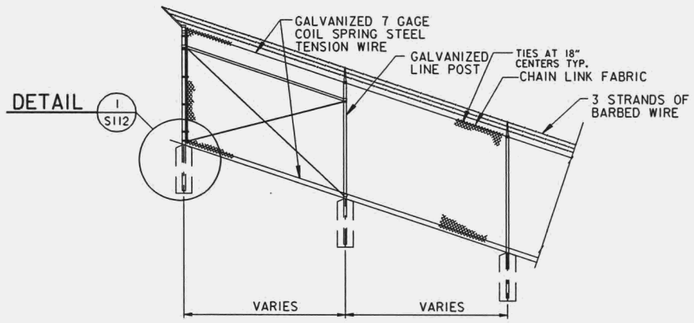
UPPER MISSISSIPPI RIVER
ENVIRONMENTAL MANAGEMENT PROGRAM
POOL 13, RIVER MILE 532 THRU 536
SPRING LAKE REHABILITATION
AND ENHANCEMENT 2

PUMP STATION
MISCELLANEOUS STEEL III

Scale: AS SHOWN
Date: 28 OCT. 1994
Drawing Codes: M-L 13-134
Sheet reference number: S111
Solicitation Number: DACW25-95-B-0009
Sheet 36 of

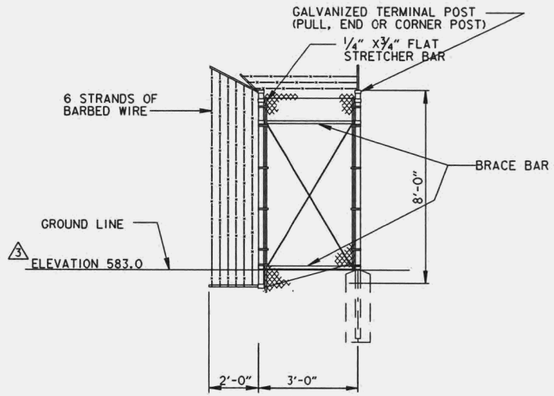
27-NOV-2002 14:17
E:\sprojects\emp34\emp34s111.dgn

PLATE 25



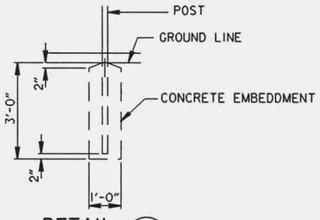
TYPICAL FENCE POST SPACING

3/8"=1'-0"



WING EXTENSION

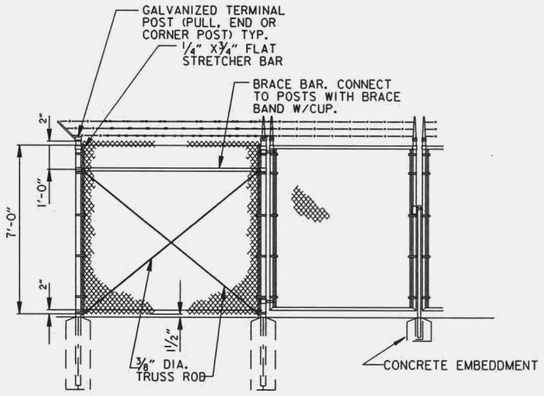
3/8"=1'-0"



DETAIL 1 S112

NO SCALE

(TYPICAL POST EMBEDMENT)



SWING GATE ELEVATION

3/8"=1'-0"

NOTE:
MAXIMUM POST SPACING=10'.

SCALE: 3/8"=1'-0"

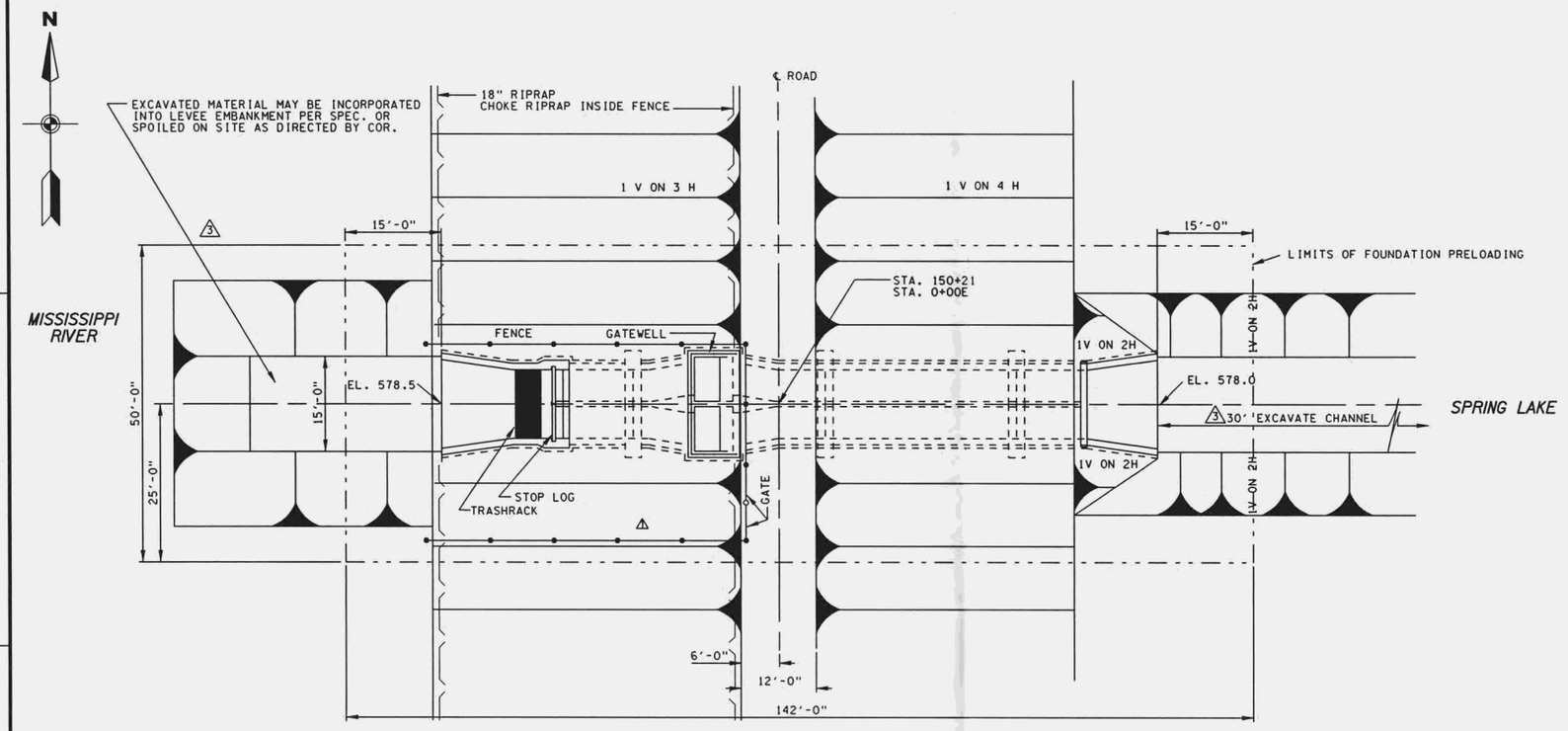
Revisions			
Symbol	Description	Date	Approved
3	REVISED AS CONSTRUCTED	28JUL'00	RTN/DJJ
2	AMD. #1 - MINOR REVISION	23DEC94	TJW RCA
1	MINOR REVISIONS	19NOV94	TJW RCA

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ROCK ISLAND, ILLINOIS

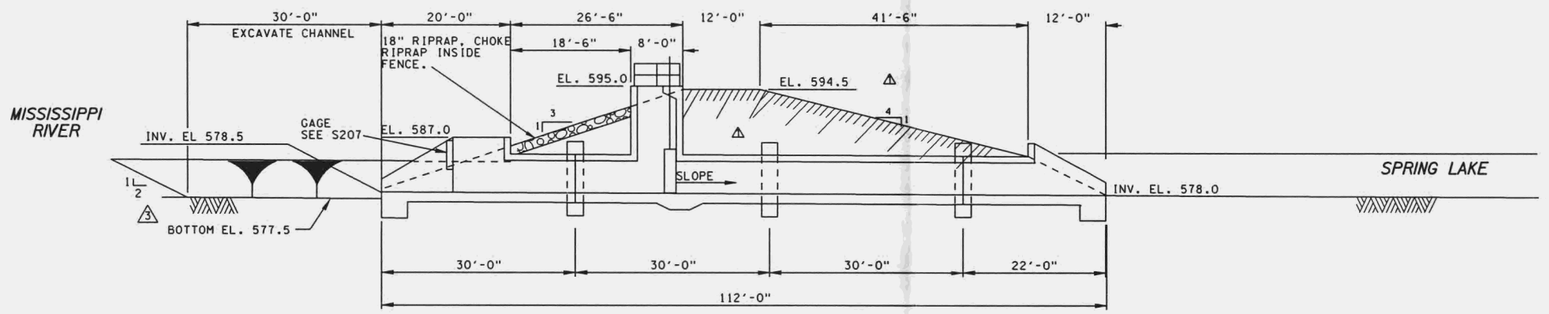
Designed by: TJW	US Army Corps of Engineers Rock Island District
Drawn by: JRK	UPPER MISSISSIPPI RIVER ENVIRONMENTAL MANAGEMENT PROGRAM POOL 13, RIVER MILE 532 THRU 536 SPRING LAKE REHABILITATION AND ENHANCEMENT 2
Checked by: RCA	PUMP STATION SECURITY FENCE LAYOUT
Reviewed by: DJH	Scale:
Approved by: CHARLES S. COX COL., CORPS OF ENGINEERS	Date: 28 OCT. 1994
	Drawing Code: M-L 13-134
	Sheet reference number: S112
	Solicitation Number: DACW25-95-B-0009
	Sheet 37 of

27-NOV-2002 14:18
E:\projects\mep34\mep34s112.dgn

PLATE 26



SITE PLAN
1"=10'-0"



ELEVATION
1"=10'-0"

10 0 10 20'
SCALE: 1"=10'

LEGEND:

SECTION D/S107 — SECTION DESIGNATION; LOOK ON THIS SHEET FOR SECTION LOCATION
⅜"-1'-0"

D/S107 — SECTION DESIGNATION; LOOK ON THIS SHEET FOR SECTION

NOTES:
1. FOR FOUNDATION & CONCRETE NOTES, SEE DRAWING S202.
2. FOR STEEL AND ALUMINUM NOTES, SEE DRAWING S206.

RELATED DRAWINGS:

PUMPSTATION REINFORCING SECTIONS	S107
MISCELLANEOUS STEEL I	S109
SITE PLAN & ELEVATION	S201
SECTIONS & ELEVATIONS	S202
STEEL SECTIONS & DETAILS	S207
FENCE DETAILS	S112

3. ENTIRE FOUNDATION SHALL BE PRELOADED TO AN ELEVATION 5 FEET ABOVE THE NEW LEVEE HEIGHT.

△2 4. A SETTLEMENT PLATE SHALL BE INSTALLED PRIOR TO PRELOADING. IT WILL BE LOCATED AT THE INTERSECTION OF THE LEVEE CENTERLINE AND THE STRUCTURE CENTERLINE.

Revisions			
Symbol	Description	Date	Approved
△3	REVISED AS CONSTRUCTED	28JUL'00	RTN/DJJ
△2	AMD. #2 - NOTES 3 & 4 ADDED	29DEC94	YSY RCA
△1	AMD. #1, FENCE ADDED,HYD FILL REMOVED	09DEC94	YSY RCA
	MINOR REVISIONS, RAISED INVERT 3'	19NOV94	YSY RCA

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ROCK ISLAND, ILLINOIS

Designed by: YSY
Drawn by: JRK
Checked by: RCA
Reviewed by: DJH
Approved by: CHARLES S. COX COL..CORPS OF ENGINEERS

US Army Corps of Engineers Rock Island District

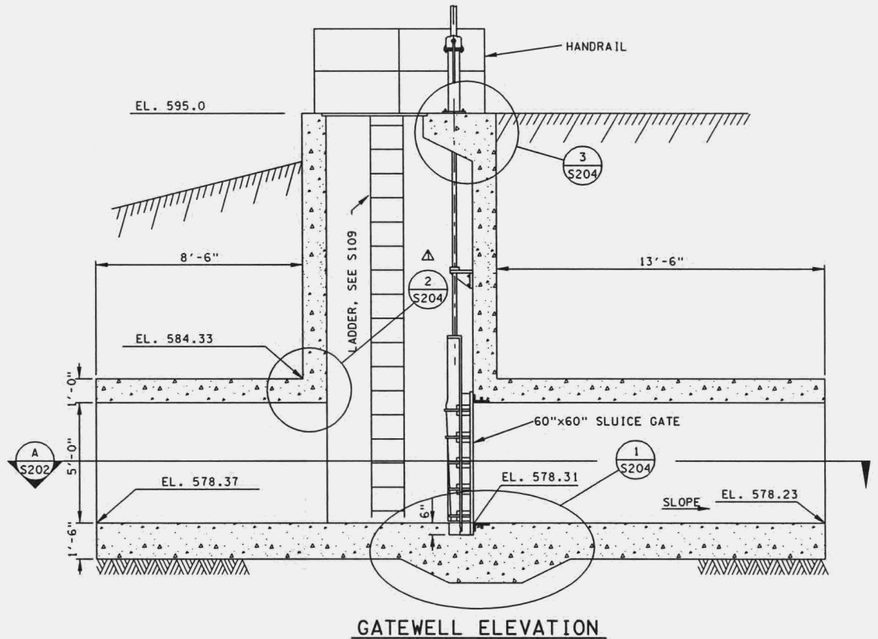
UPPER MISSISSIPPI RIVER ENVIRONMENTAL MANAGEMENT PROGRAM
POOL 13, RIVER MILE 532 THRU 536
SPRING LAKE REHABILITATION AND ENHANCEMENT

GATED INLET STRUCTURE SITE PLAN & ELEVATION

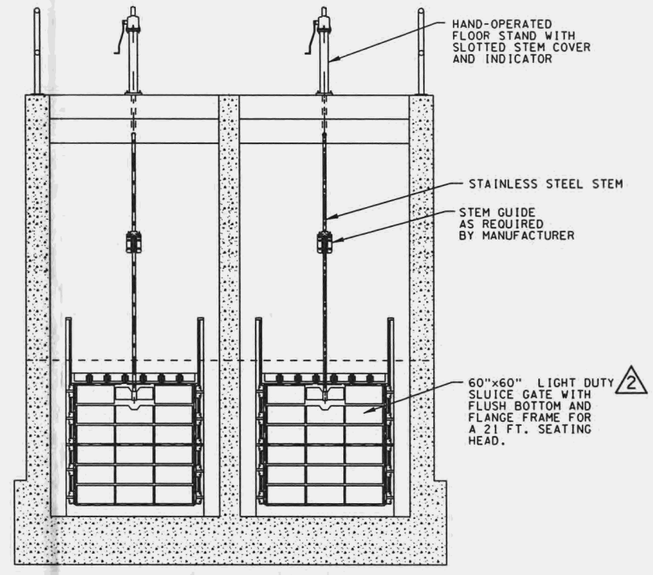
Scale: ⅛"=1'-0"
Date: 28 OCT. 1994
Drawing Code: M-L 13-134
Sheet reference number: S201
Solicitation Number: DACW25-95-B-0009
Sheet 38 of

27-NOV-2002 14:18
E:\projects\mp34\mp34s201.dgn

PLATE 27

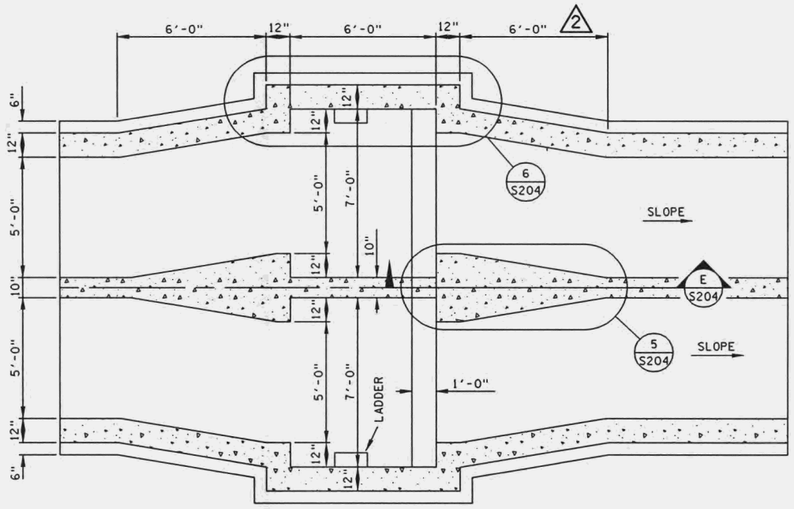


GATEWELL ELEVATION
SCALE: 3/8"=1'-0"

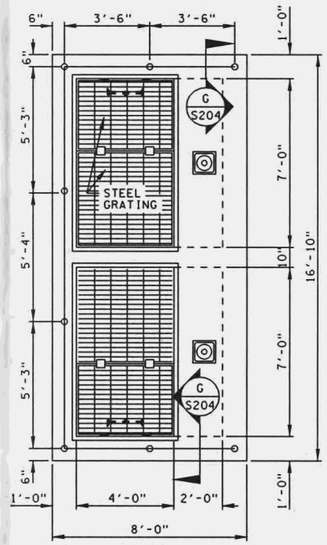


GATE ELEVATION
3/8" =1'-0"

NOTES:
1. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH THE "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (ACI 318)", "ACI MANUAL OF STANDARD PRACTICES", AND SPECIFICATIONS OF ARMY CORPS OF ENGINEERS.
2. MINIMUM COMPRESSIVE STRENGTH OF CONCRETE SHALL BE 4000 PSI AT 28 DAYS.
3. ALL REINFORCING STEEL SHALL BE NEW BILLET CONFORMING TO ASTM A615 GR60.
4. DETAILING, FABRICATION AND TAGGING OF REINFORCEMENT SHALL BE IN ACCORDANCE WITH ACI MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES (ACI 315).
5. A ¾" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE.
6. MINIMUM CONCRETE COVER
   a. CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH 4 in.
   b. EXPOSED TO EARTH OR WEATHER
      #6 THROUGH #18 BARS 2in.
      #5 BARS AND SMALLER 1.5in.
7. ALL ANCHOR BOLTS AND EMBEDDED STEEL SHALL BE ACCURATELY LOCATED AND SECURELY HELD SO AS NOT TO MOVE DURING CONCRETE PLACEMENT. NO ACCUMULATION OF ERROR SHALL BE PERMITTED.
8. IF SOIL FOUNDATION GRADE IS DEEMED UNACCEPTABLE FURTHER EXCAVATION SHALL BE PERFORMED AS DIRECTED BY THE GEOTECHNICAL ENGINEER. ALL BACKFILL UNDER FOUNDATIONS SHALL BE COMPACTED TO 95% OF MAX. DENSITY AT OPTIMUM MOISTURE DETERMINED BY ASTM SPECIFICATIONS E698.
9. ALL ANCHOR BOLTS FOR GATES AND ACCESSORIES SHALL BE SUPPLIED BY THE GATE MANUFACTURER AND INSTALLED BY THE CONTRACTOR.
10. LOCATE AND INSTALL ANCHOR BOLTS FOR STEM FROM DIMENSIONS FURNISHED BY THE GATE MANUFACTURER.
11. BEFORE PLACING ANY CONCRETE, ALL MECHANICAL, ELECTRICAL & ARCHITECTURAL DRAWINGS SHALL BE CHECKED TO ASCERTAIN THAT ALL EMBEDED ITEMS, UNDERGROUND PIPES, CONDUITS ETC., WHETHER INDICATED ON STRUCTURAL DRAWINGS OR NOT, ARE FURNISHED AND PROPERLY INSTALLED.
12. FOR TYPICAL GATEWELL SECTION, SEE DRAWING S204.
13. FOR TYPICAL CULVERT SECTION, SEE DRAWING S204.
14. FOR TYPICAL JOINT BETWEEN CONDUITS, SEE DRAWING S205.
15. WORK THIS DRAWING WITH DRAWINGS S201 & S203 THRU S207.
16. FOR SITE PLAN AND ELEVATION, SEE DRAWING S201.
17. FOR STEEL & ALUMINUM NOTES, SEE DRAWING S206.



SECTION A S202
SCALE: 3/8"=1'-0"



TOP OF GATEWELL
SCALE: 3/8"=1'-0"

4 0 4 8'
SCALE: 3/8"=1'-0"

Revisions			
Symbol	Description	Date	Approved
3	AS CONSTRUCTED	28JUL'00	RTN/DJJ
2	AMD. #1 MINOR REVISIONS	23DEC94	YSY RCA
1	REVISED NOTES	09DEC94	YSY RCA
	MINOR REVISIONS, RAISED INVERT 3'	19NOV94	YSY RCA

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ROCK ISLAND, ILLINOIS

Designed by: YSY
Drawn by: RDG JRK
Checked by: RCA
Reviewed by: DJH
Approved by: CHARLES S. COX COL., CORPS OF ENGINEERS

US Army Corps of Engineers Rock Island District

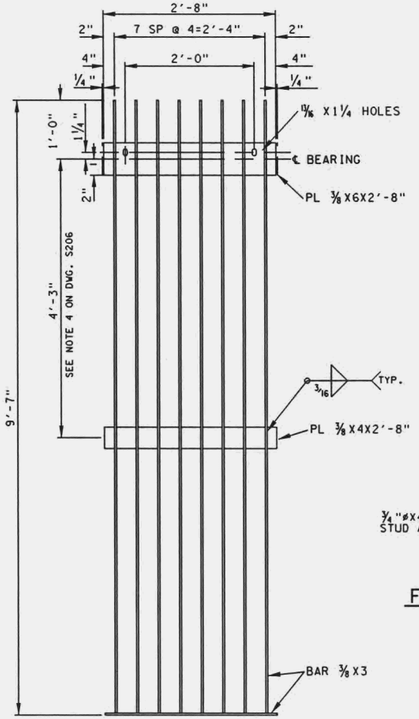
UPPER MISSISSIPPI RIVER ENVIRONMENTAL MANAGEMENT PROGRAM
POOL 13, RIVER MILE 532 THRU 536
SPRING LAKE REHABILITATION AND ENHANCEMENT
2

GATED INLET STRUCTURE SECTIONS AND ELEVATIONS

Scale: 3/8"=1'-0"
Date: 28 OCT. 1994
Drawing Code: M-L 13-134
Sheet reference number: S202
Solicitation Number: DACW25-95-B-0009
Sheet 39 of

27-NOV-2002 14:19
E:\projects\ep34\ep34s202.dgn

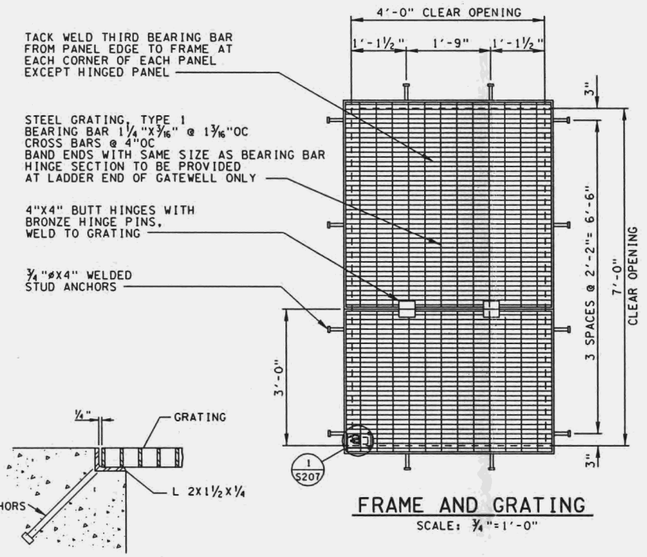
PLATE 28



TRASH RACK "C"

1"=1'-0"

MAKE 4, GALVANIZE AFTER FABRICATION

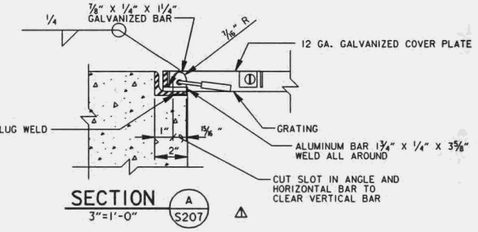


FRAME AND GRATING

SCALE: ¾"=1'-0"

FRAME ANCHOR DETAIL

SCALE: 3"=1'-0"

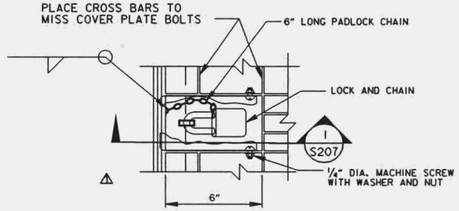


SECTION

A / S207

3"=1'-0"

⚠



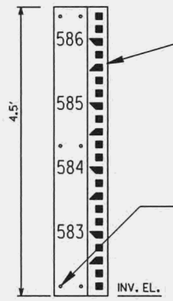
⚠

NOTE: PROVIDE PADLOCK CHAIN AS SPECIFIED. WELD END LINK TO 1" X ¼" BANDING BAR AS SHOWN.

GRATING LOCK DETAIL

1/S207

3"=1'-0"



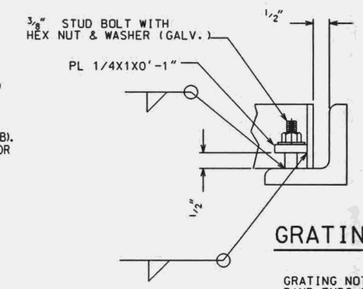
STAFF GAGE, "STEVENS WATER RESOURCES PRODUCTS", STYLE "E" OR APPROVED EQUAL. PROVIDE THE PROPER LENGTH (SEE GAGE TABLE) OF UNNUMBERED SCALE AND INDIVIDUAL FIGURE PLATES FOR ELEVATIONS. START NUMBERS WITH INVERT ELEVATION PLUS 1FOOT. (ILLUSTRATION SHOWS APPROPRIATE NUMBERS FOR STRUCTURE B). SCALE AND FIGURE PLATES SHALL BE EPOXIED OR PORCELAIN ENAMELED IRON AND FASTENED TO A 10" X 1" REDWOOD BOARD WITH #8 X ¾" BRASS ROUND HEAD SCREWS.

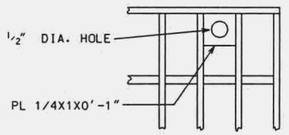
INSTALL INSERTS IN CONCRETE TO RECEIVE EIGHT ½" X 4" STAINLESS STEEL BOLTS.

STAFF GAGE DETAIL

1" =1'-0"

⚠

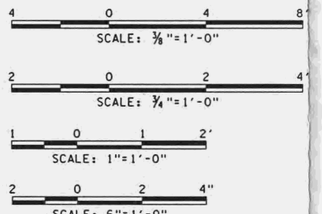




GRATING FASTENER DETAILS

6"=1'-0"

GRATING NOTES:
BAND ENDS OF BEARING BARS WITH BAR 1½ X 3/16.
BEARING BARS ARE 1½ X 3/16 ON 1 3/16 CENTERS.
CROSS BARS ARE AT 4".
PROVIDE FASTENER AT EACH CORNER AS SHOWN.
GRATING IS TO BE SERRATED TYPE.
THE FRAME AND GRATING ARE TO BE STEEL HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM-123. AFTER FABRICATION.



NOTES:
1. FOR FOUNDATION & CONCRETE NOTES, SEE DRAWING S206.
2. FOR RELATED DRAWINGS, SEE DRAWING S201.
3. WORK THIS DRAWING WITH DRAWINGS S201 THRU S207.

Revisions			
Symbol	Description	Date	Approved
3	AS CONSTRUCTED	28JUL'00	RTN/DJJ
2	AMD. #1 GAGE, LOCK DETAIL ADDED, HASP REMOVED	09DEC94	YSY RCA
1	MINOR REVISIONS	2INOV94	YSY RCA

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ROCK ISLAND, ILLINOIS

Designed by:	TJW
Drawn by:	JRK
Checked by:	TJW
Reviewed by:	RCA
Approved by:	CHARLES S. COX COL., CORPS OF ENGINEERS

US Army Corps of Engineers Rock Island District

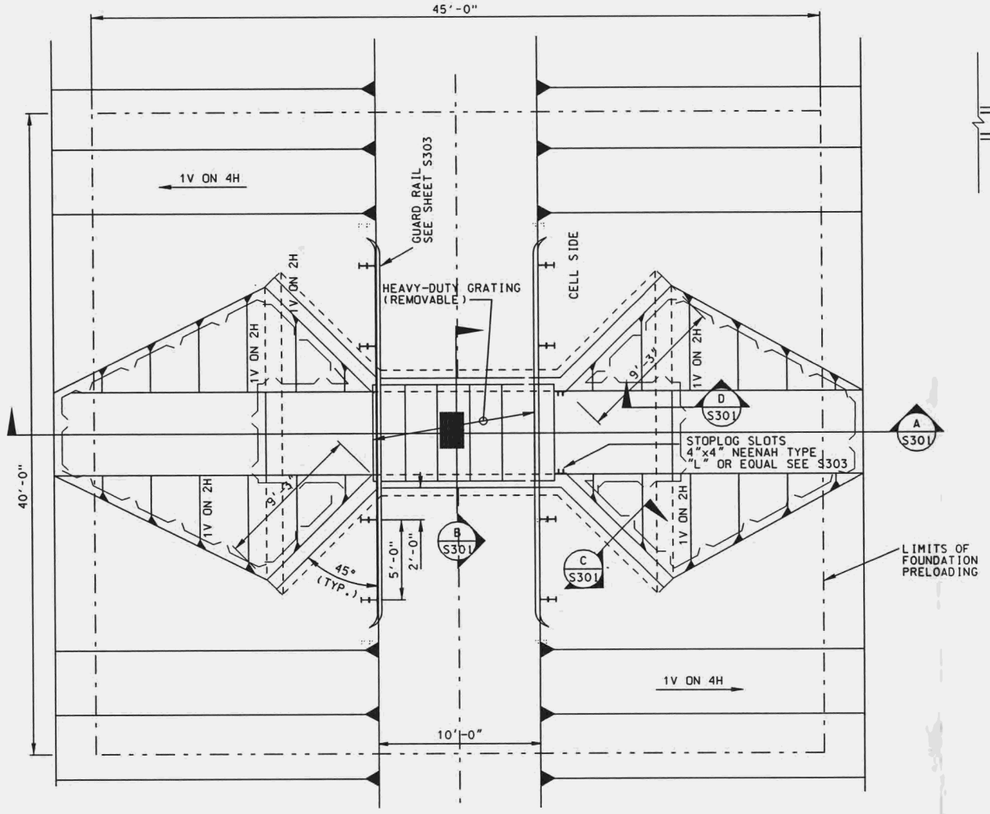
UPPER MISSISSIPPI RIVER ENVIRONMENTAL MANAGEMENT PROGRAM
POOL 13, RIVER MILE 532 THRU 536
SPRING LAKE REHABILITATION AND ENHANCEMENT

GATED INLET STRUCTURE STEEL SECTIONS & DETAILS

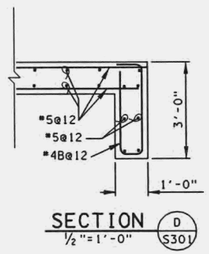
Scale:		Sheet reference number:	
Date: 28 OCT. 1994		S207	Solicitation Number: DACW25-95-B-0009
Drawing Code: M-L 13-134			Sheet 44 of

27-NOV-2002 14:19
E:\projects\eap\34eap34s207.dgn

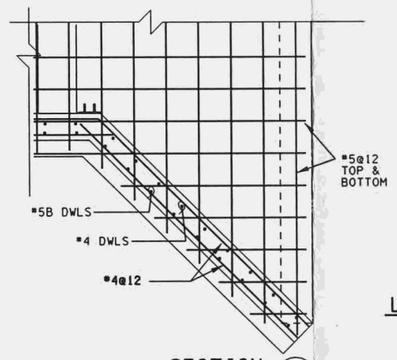
PLATE 29



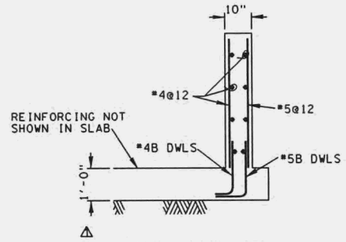
PLAN
1/4"=1'-0"



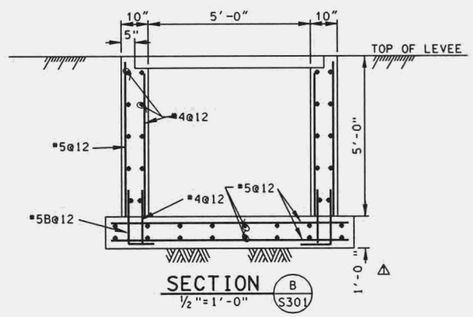
SECTION D S301
1/2"=1'-0"



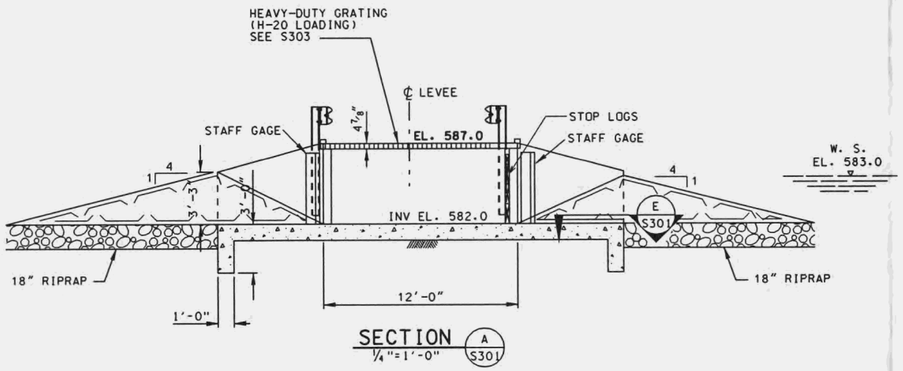
SECTION E S301
1/2"=1'-0"



SECTION C S301
1/2"=1'-0"



SECTION B S301
1/2"=1'-0"



SECTION A S301
1/4"=1'-0"

SCALE: 1/2"=1'-0"

SCALE: 1/4"=1'-0"

LEGEND:

SECTION D S103 — SECTION DESIGNATION; LOOK ON THIS SHEET FOR SECTION LOCATION
1/8"-1'-0"

D S107 — SECTION DESIGNATION; LOOK ON THIS SHEET FOR SECTION

NOTES:

1. ENTIRE FOUNDATION SHALL BE PRELOADED TO AN ELEVATION 5 FEET ABOVE THE NEW LEVEE HEIGHT.
2. (2) A SETTLEMENT PLATE SHALL BE INSTALLED PRIOR TO PRELOADING. IT WILL BE LOCATED AT THE INTERSECTION OF THE LEVEE CENTERLINE AND THE STRUCTURE CENTERLINE.
3. STOP LOG SIDE OF STRUCTURE SHALL BE ON THE CELL SIDE OF THE LEVEE.

REFERENCES:

1. FOR LOCATION OF STOPLOG STRUCTURE SEE SHEET C1.

Revisions			
Symbol	Description	Date	Approved
4	AS CONSTRUCTED	28JUL'00	RTN/DJJ
3	AMD. #2 - MINOR REVISION	29DEC94	TJW RCA
2	AMD. #1 DIMENSIONS	09DEC94	TJW RCA
1	MINOR REVISIONS	19NOV94	TJW RCA

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ROCK ISLAND, ILLINOIS

Designed by: TJW
Drawn by: DGP, JRK
Checked by: RCA
Reviewed by: DJH
Approved by: CHARLES S. COX COL., CORPS OF ENGINEERS

US Army Corps of Engineers Rock Island District

UPPER MISSISSIPPI RIVER ENVIRONMENTAL MANAGEMENT PROGRAM
POOL 13, RIVER MILE 532 THRU 536
SPRING LAKE REHABILITATION AND ENHANCEMENT

STOPLOG STRUCTURES
STOPLOG STRUCTURE A

Scale: AS SHOWN
Date: 28 OCT. 1994
Drawing Code: M-L 13-134
Sheet reference number: S301
ep01/ep01a004.dgn
Solicitation Number: DACW25-95-B-0009
Sheet 45 of

27-NOV-2002 14:19
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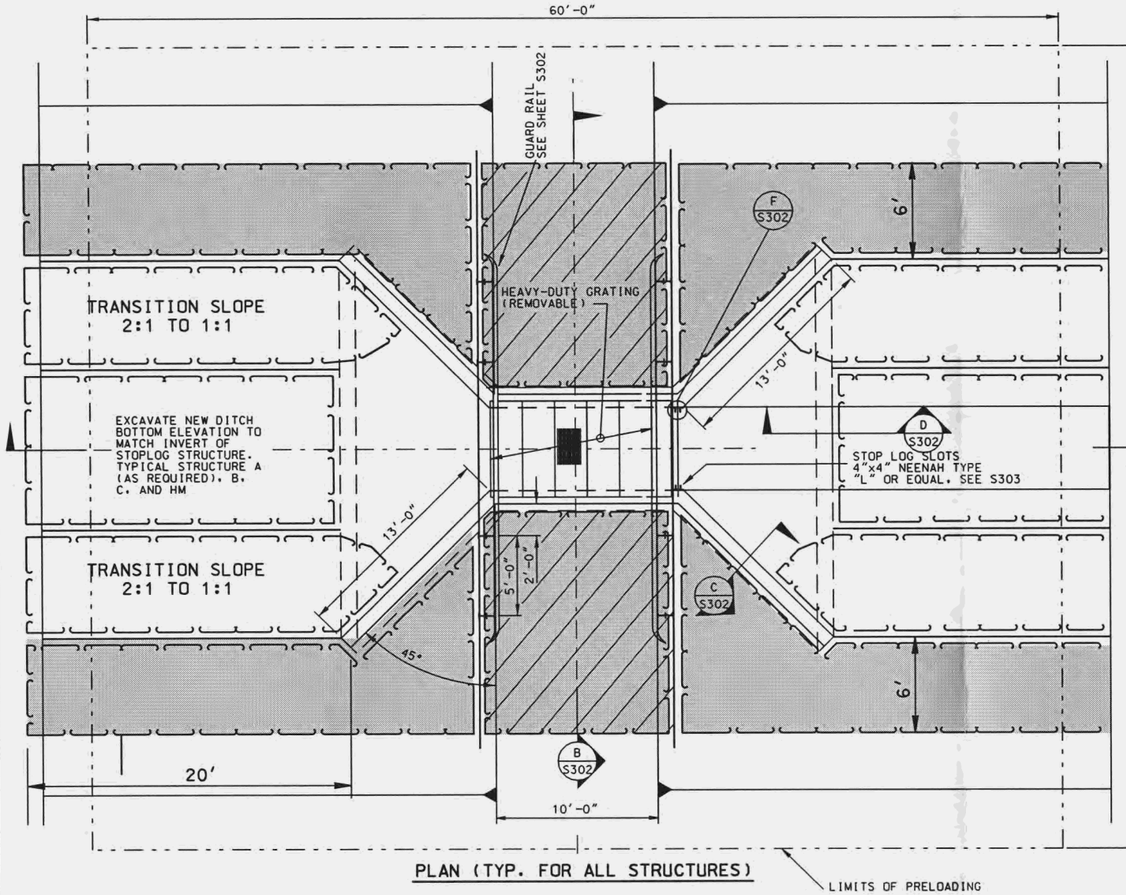
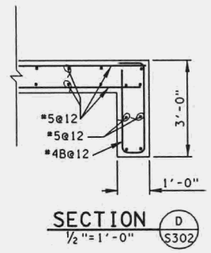
PLATE 30

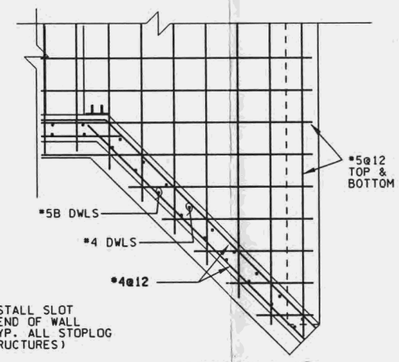


PLAN (TYP. FOR ALL STRUCTURES)

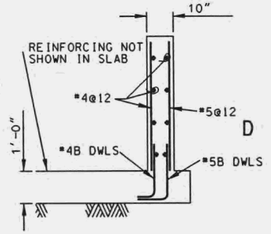
LIMITS OF PRELOADING



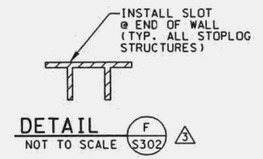
SECTION D S302
1/2"=1'-0"



SECTION E S302
1/2"=1'-0"



SECTION C S302
1/2"=1'-0"



DETAIL F S302
NOT TO SCALE
3

STOP LOG STRUCTURE	TOP OF LEVEE ELEVATION	INVERT ELEVATION
B	2 587.0	579.0
C	2 587.0	579.0
HM	2 586.0	581.0

LEGEND:

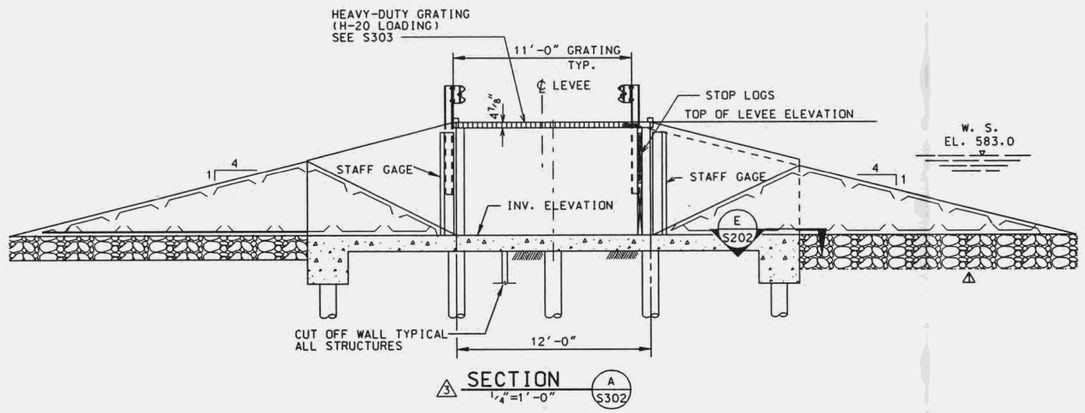
- RIPRAP ALL STRUCTURES A,B,C AND HM
- RIPRAP AT HM ONLY
- CHOKE WITH GRANULAR SURFACING (STRUCTURE HM ONLY)

NOTES:

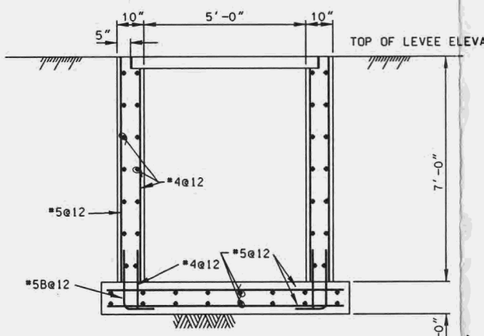
1. ENTIRE FOUNDATION SHALL BE PRELOADED TO AN ELEVATION 5 FEET ABOVE THE NEW LEVEE HEIGHT.
2. A SETTLEMENT PLATE SHALL BE INSTALLED PRIOR TO PRELOADING. IT WILL BE LOCATED AT THE INTERSECTION OF THE LEVEE CENTERLINE AND THE STRUCTURE CENTERLINE.
3. STOP LOG SIDE OF STRUCTURE SHALL BE ON THE CELL SIDE OF THE LEVEE.

REFERENCES:

1. FOR LOCATION OF STOPLOG STRUCTURE SEE SHEET C1.



3 SECTION A S302
1/4"=1'-0"



SECTION B S302
1/2"=1'-0"
SCALE: 1/2" = 1'-0"

SCALE: 1/4"=1'-0"

SCALE: 1/2"=1'-0"

Revisions			
Symbol	Description	Date	Approved
3	REVISED AS CONSTRUCTED	28JUL'00	RTN/DJJ
2	AMD. #2 REV. NOTE 1, DIMENSIONS	09DEC94	TJW RCA
1	MINOR REVISIONS	19NOV94	TJW RCA

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ROCK ISLAND, ILLINOIS

Designed by: TJW
Drawn by: DGP
Checked by: RCA
Reviewed by: DJH
Approved by: CHARLES S. COX COL., CORPS OF ENGINEERS

US Army Corps of Engineers Rock Island District

UPPER MISSISSIPPI RIVER ENVIRONMENTAL MANAGEMENT PROGRAM
POOL 13, RIVER MILE 532 THRU 536
SPRING LAKE REHABILITATION AND ENHANCEMENT

STOPLOG STRUCTURES
STOPLOG STRUCTURES B, C, & HM

Scale: AS SHOWN
Date: 28 OCT. 1994
Drawing Code: M-L 13-134
Sheet reference number: S302
ep01/ep01s004.dgn
Solicitation Number: DACW25-95-B-0009
Sheet 46 of

27-NOV-2002 14:20
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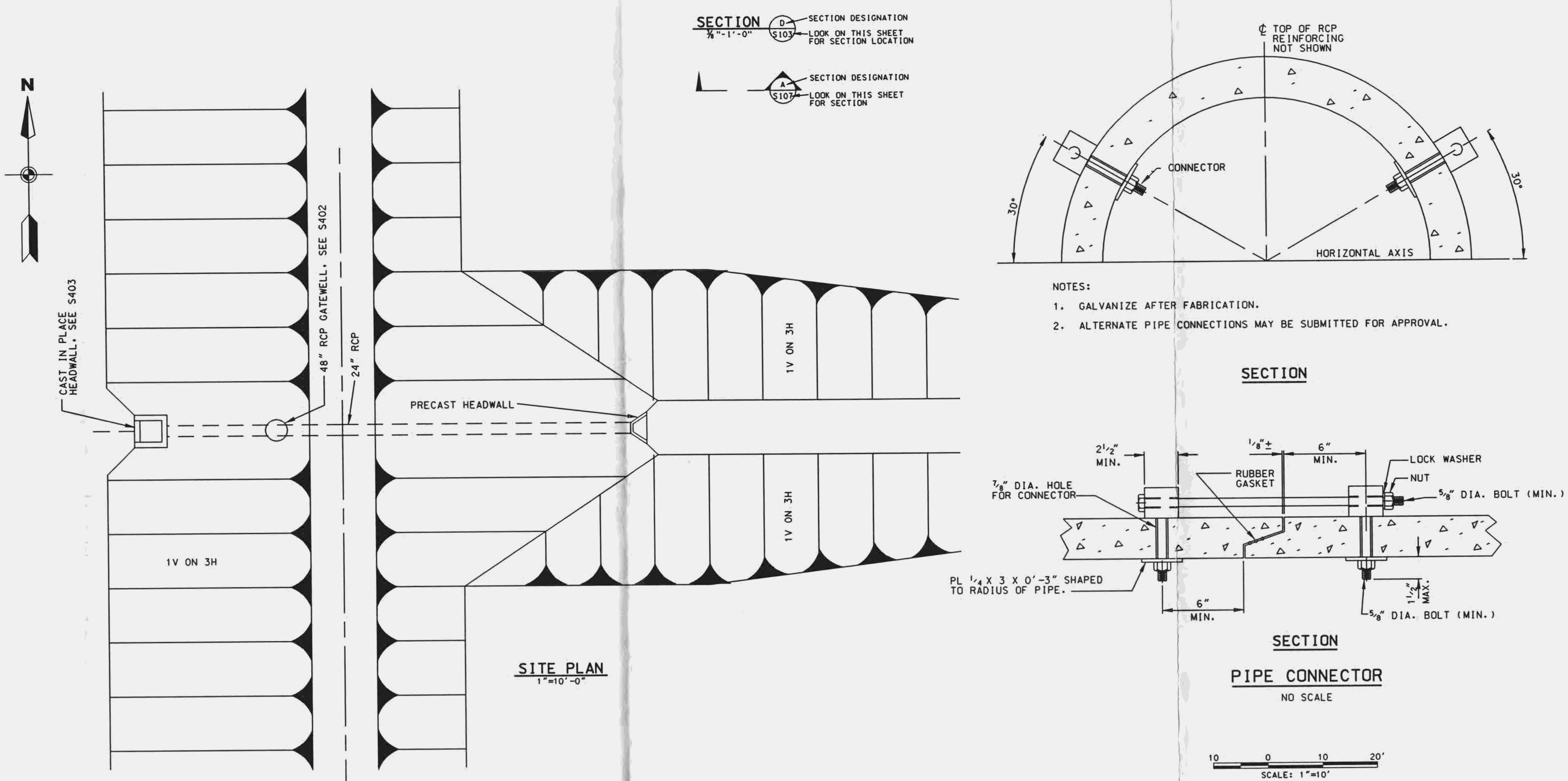
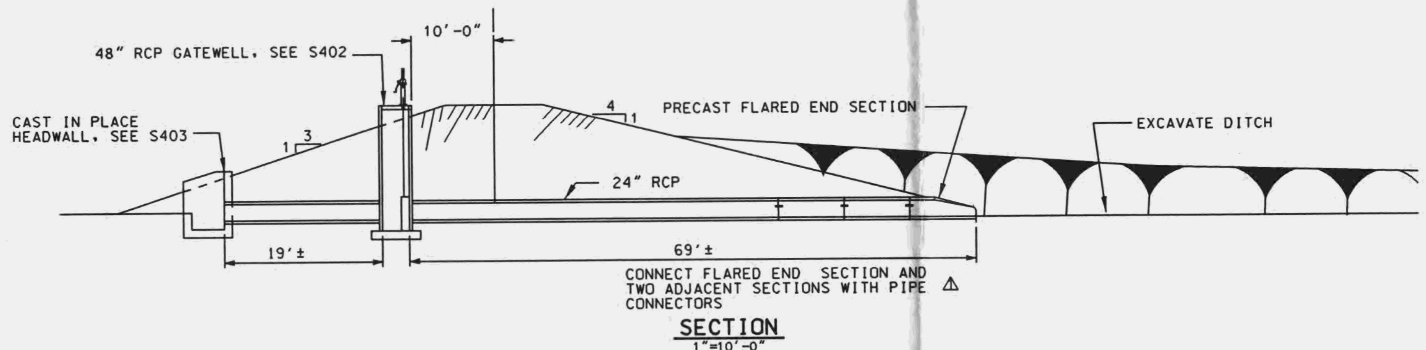
PLATE 31





Revisions			
Symbol	Description	Date	Approved
3	AS CONSTRUCTED	28JUL'00	RTN/DJJ
2	AMD. #1, MINOR REVISIONS	09DEC94	TJW RCA
1	MINOR REVISIONS	19NOV94	TJW RCA

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ROCK ISLAND, ILLINOIS

US Army Corps of Engineers Rock Island District

UPPER MISSISSIPPI RIVER
ENVIRONMENTAL MANAGEMENT PROGRAM
POOL 13, RIVER MILE 532 THRU 536
SPRING LAKE REHABILITATION
AND ENHANCEMENT

PRECAST GATEWELL
PLAN & SECTION

Designed by: TJW
Drawn by: JRK
Checked by: TJW
Reviewed by: RCA
Approved by: CHARLES S. COX COL., CORPS OF ENGINEERS

Scale:
Date: 28 OCT. 1994
Drawing Code: M-L 13-134
Sheet reference number: S401
Solicitation Number: DACW25-95-B-0009
Sheet 48 of

27-NOV-2002 14:20
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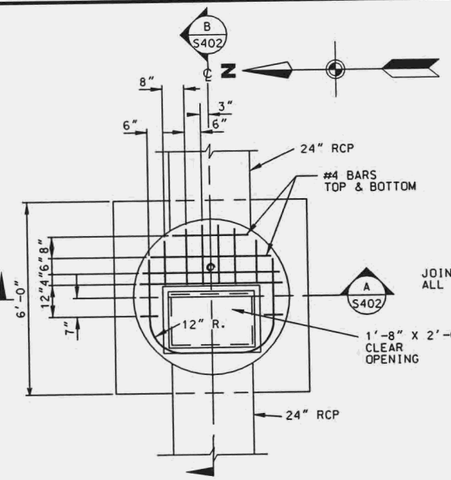
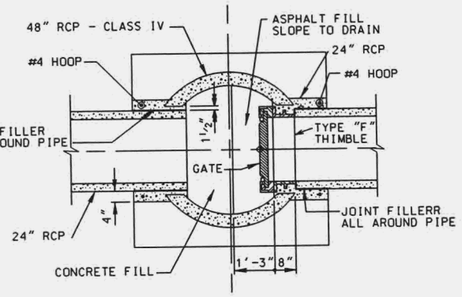
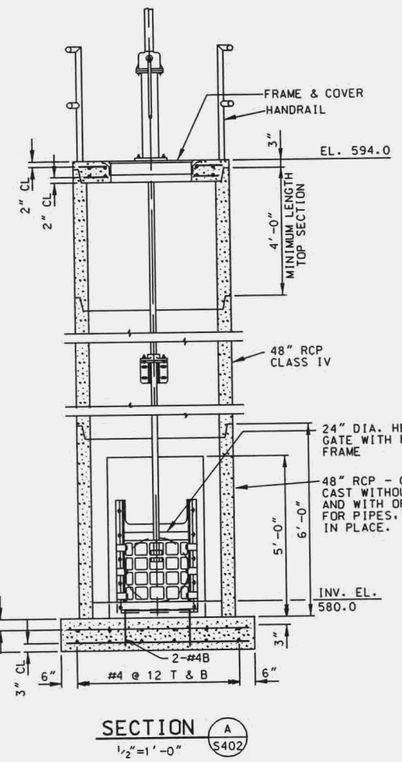
PLATE 32



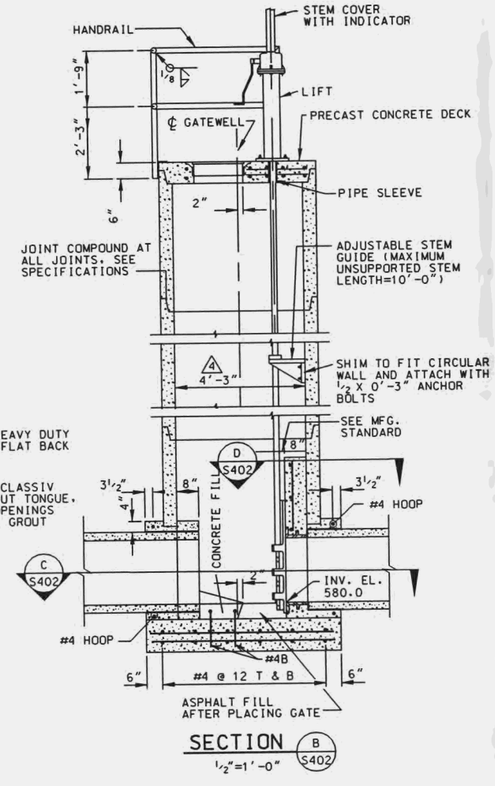
PLAN OF TOP SLAB
1/2"=1'-0"



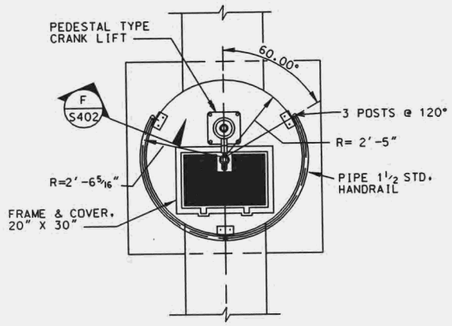
SECTION C S402
1/2"=1'-0"



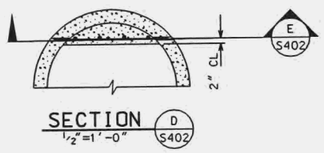
SECTION A S402
1/2"=1'-0"



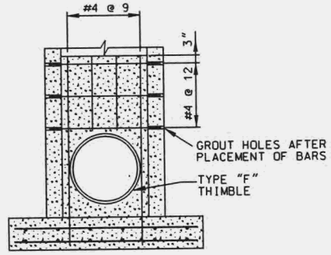
SECTION B S402
1/2"=1'-0"



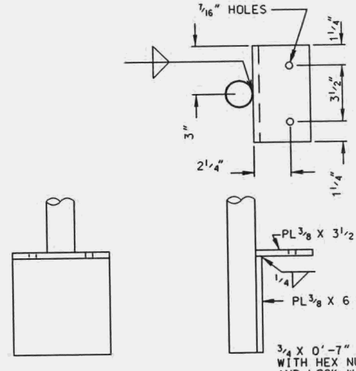
RAILING LOCATION PLAN



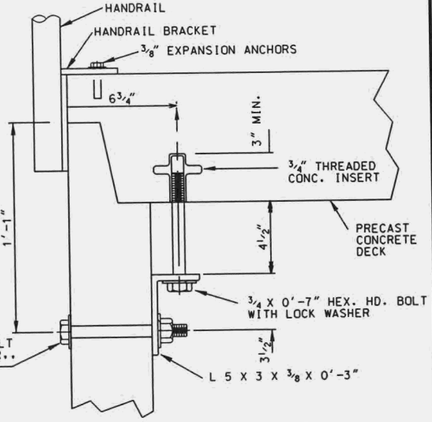
SECTION D S402
1/2"=1'-0"



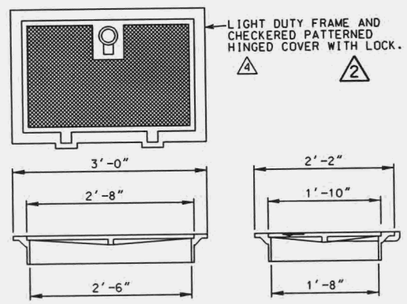
SECTION E S402
1/2"=1'-0"



HANDRAIL BRACKET DETAIL
3"=1'-0"



SECTION F S402
3"=1'-0"



MANHOLE FRAME & COVER
1"=1'-0"

SCALE: 3"=1'-0"

SCALE: 1"=1'-0"

SCALE: 1/2"=1'-0"

Revisions			
Symbol	Description	Date	Approved
4	REVISED AS CONSTRUCTED	28JUL'00	RTN/DJJ
3	AMD. #1 - MINOR REVISIONS	23DEC94	TJW RCA
2	REVISED NOTE	09DEC94	TJW RCA
1	MINOR REVISIONS	19NOV94	TJW RCA

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ROCK ISLAND, ILLINOIS

Designed by: TJW
Drawn by: JRK
Checked by: TJW
Reviewed by: RCA
Approved by: CHARLES S. COX COL., CORPS OF ENGINEERS

US Army Corps of Engineers Rock Island District

UPPER MISSISSIPPI RIVER ENVIRONMENTAL MANAGEMENT PROGRAM
POOL 13, RIVER MILE 532 THRU 536
SPRING LAKE REHABILITATION AND ENHANCEMENT 2

PRECAST GATEWELL STRUCTURAL DETAILS

Scale:
Date: 28 OCT. 1994
Drawing Code: M-L 13-134
Sheet reference number: S402
Sheet 49 of
Solicitation Number: DACW25-95-B-0009

27-NOV-2002 14:21
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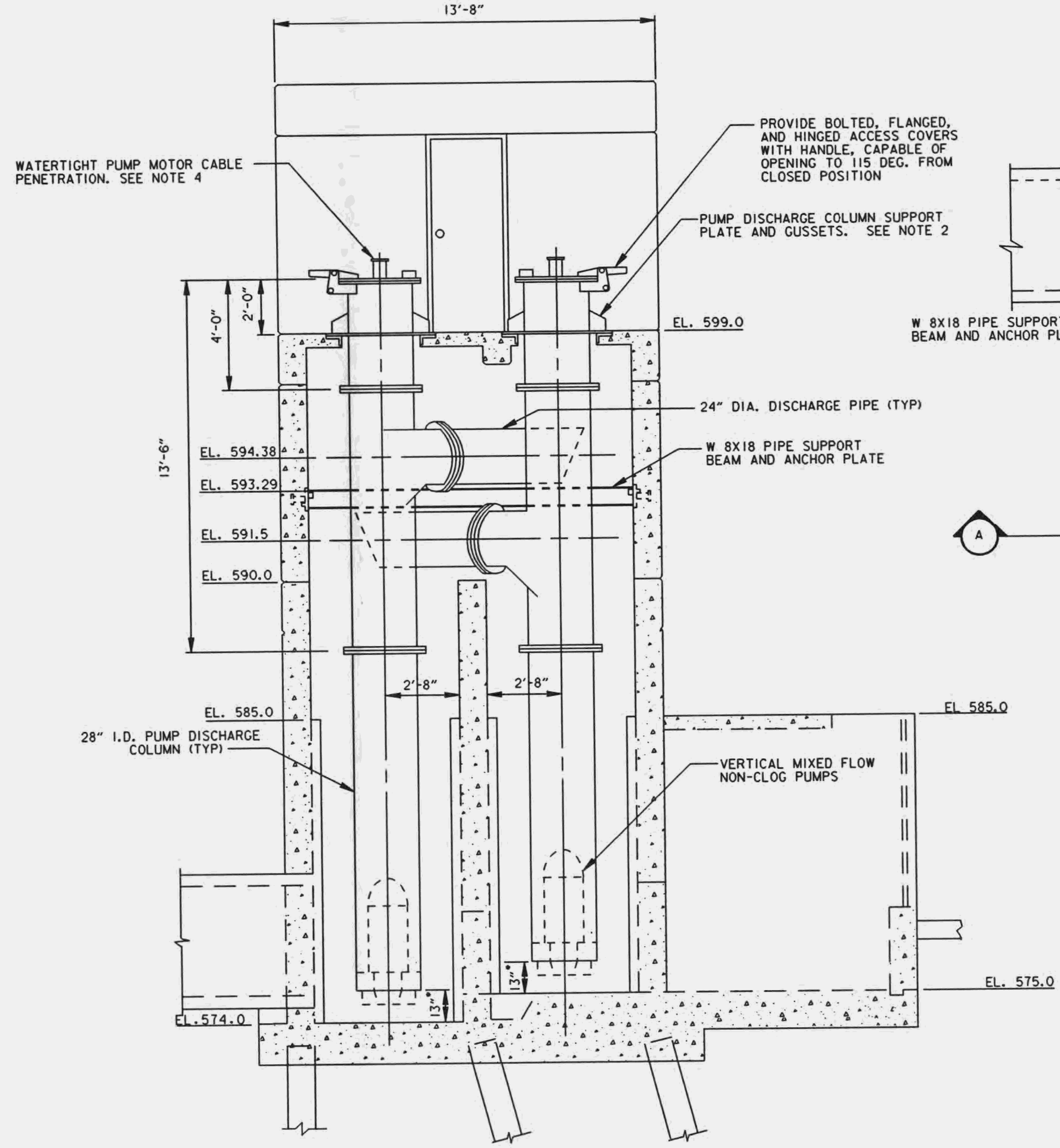
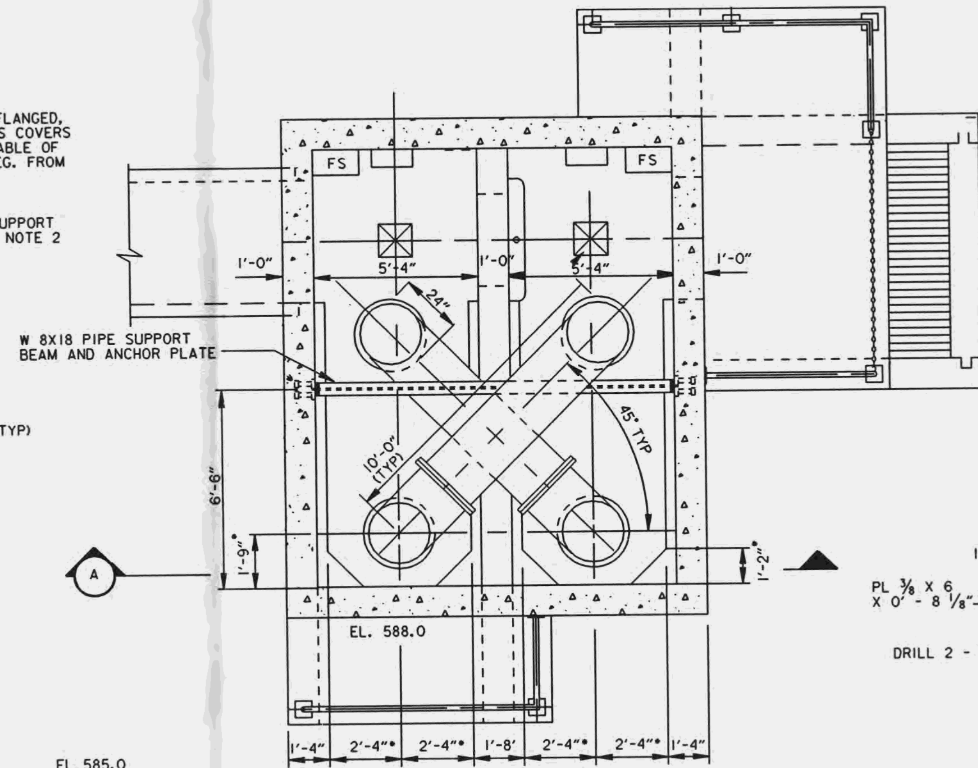


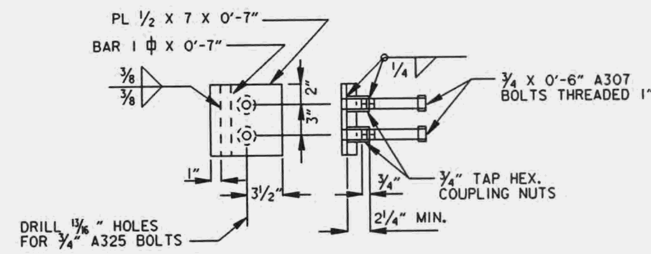
SECTION (A)

SCALE: 3/8" = 1'-0"



SUMP PLAN

3/8"=1'-0"

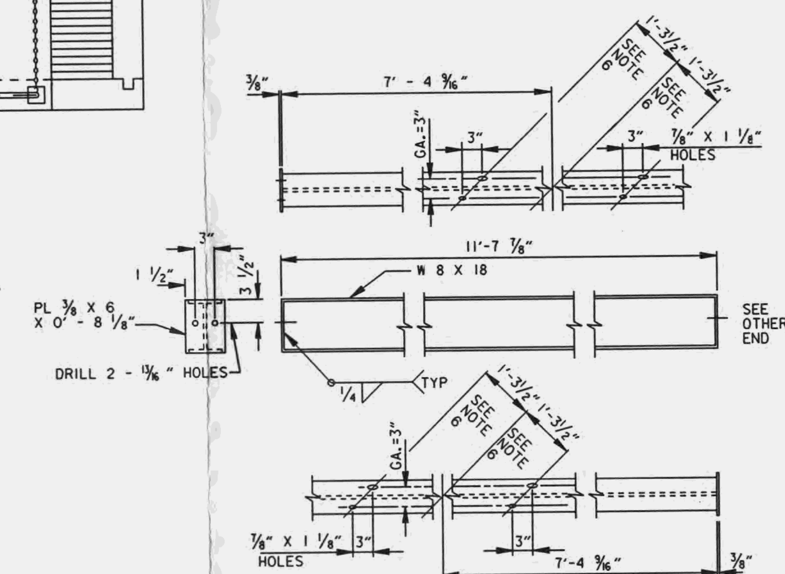


ANCHOR PLATE

SCALE: 1 1/2"= 1'-0"

NOTES:

1. THE PUMPS AND DISCHARGES ARE IDENTICAL EXCEPT FOR THE VERTICAL HEIGHT OF THE EXIT PIPES.
2. THE DISCHARGE COLUMN, SUPPORT PLATES, AND GUSSETS SHALL BE DESIGNED, DETAILED, AND FABRICATED BY THE PUMP MANUFACTURER.
3. INSTALL LATERAL SUPPORTS ON THE DISCHARGE COLUMN AND AT OTHER LOCATIONS DEEMED NECESSARY AS DESIGNED AND FABRICATED BY THE PUMP MANUFACTURER. LATERAL SUPPORTS SHALL BE DETACHABLE FROM PIPING FOR EASE OF INSTALLATION.
4. MOTOR CABLE PENETRATIONS SHALL BE LOCATED TO FACILITATE INSTALLATION AND MAINTENANCE OF THE PUMP.
5. DIMENSIONS NOTED BY AN ASTERISK MAY BE REVISED TO FIT THE PUMP SIZE SELECTED.
6. THE CONTRACTOR SHALL PROVIDE SUPPORT BRACKETS (i.e. ANGLES) FIELD WELDED TO THE DISCHARGE PIPES. THE BRACKETS SHALL CONFORM TO THE SLOTTED BOLT HOLE LOCATIONS INDICATED. VERIFY DIMENSIONS OF EXIT PIPES BEFORE FABRICATION OF SUPPORT BEAM.



EXIT PIPE SUPPORT BEAM

SCALE: 1"=1'-0"

Symbol	Description	Date	Approved
1	AS CONSTRUCTED	28JUL'00	RTN/DJJ

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ROCK ISLAND, ILLINOIS

US Army Corps of Engineers Rock Island District

UPPER MISSISSIPPI RIVER ENVIRONMENTAL MANAGEMENT PROGRAM POOL 13, RIVER MILE 532 THRU 536 SPRING LAKE REHABILITATION AND ENHANCEMENT

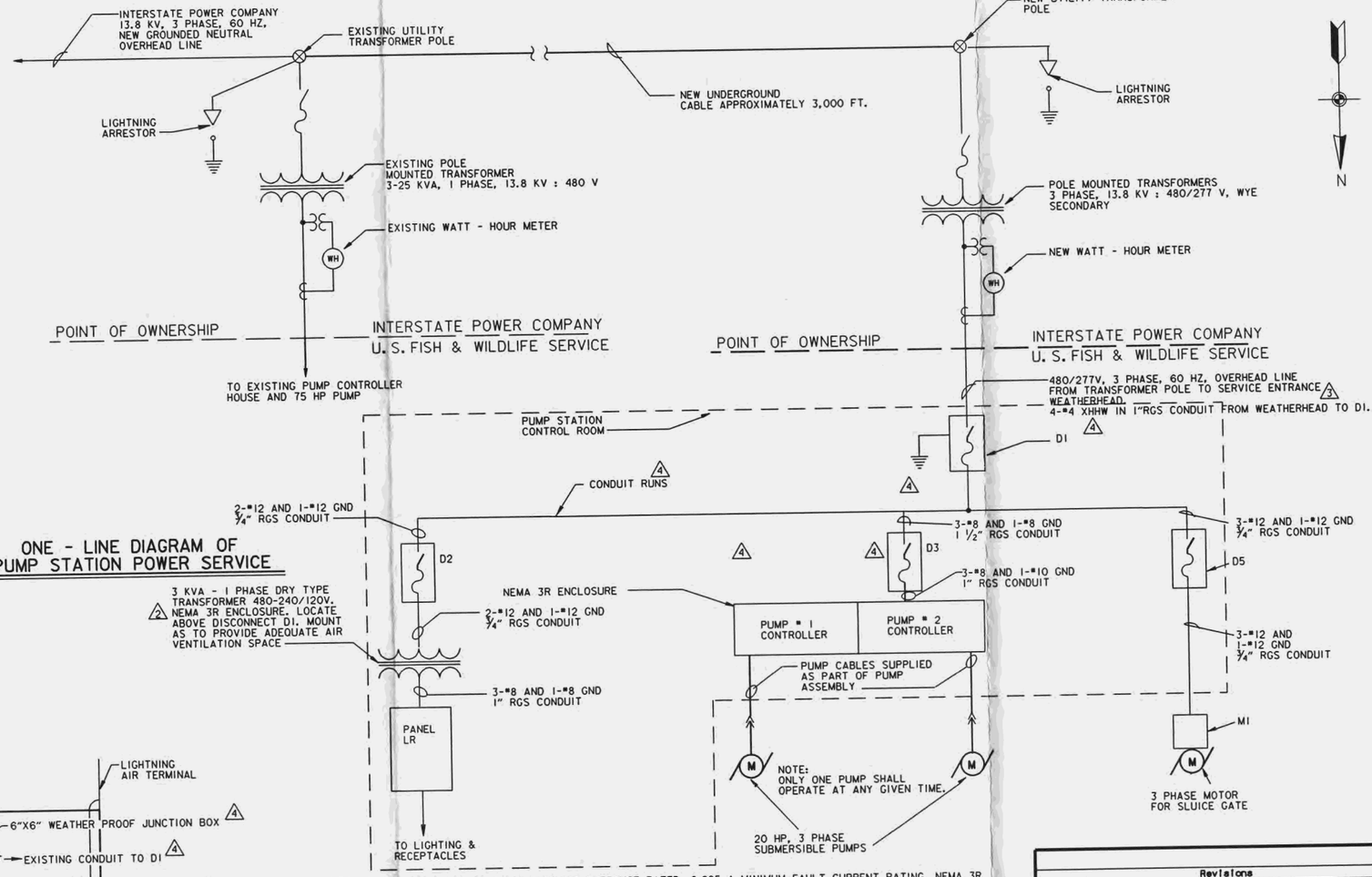
PUMP STATION MECHANICAL

Designed by: TJW JWB
Drawn by: JRK AJM
Checked by: TJW RVC
Reviewed by: RCA JJC
Approved by: CHARLES S. COX COL., CORPS OF ENGINEERS

Scale: AS SHOWN
Date: 28 OCT. 1994
Drawing Code: M-L 13-134
Sheet reference number: M-1
Solicitation Number: DACW25-95-B-0009
Sheet 51 of

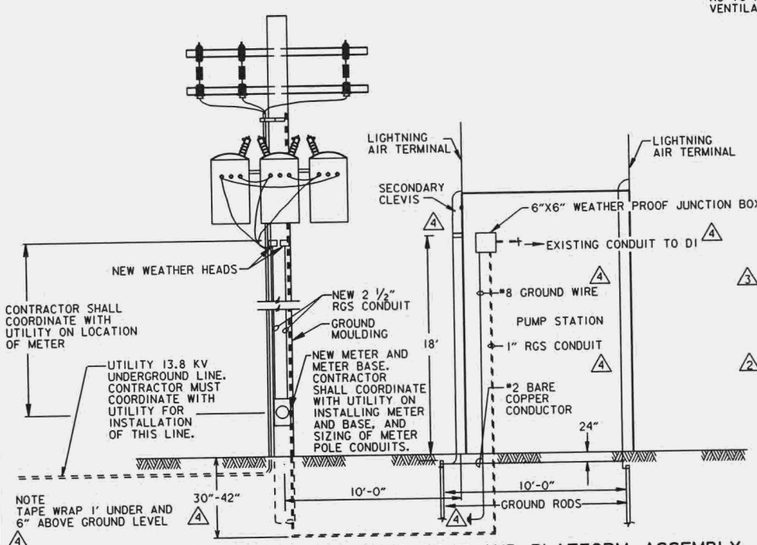
27-NOV-2002 14:21

PLATE 34



ONE - LINE DIAGRAM OF PUMP STATION POWER SERVICE

△2 3 KVA - 1 PHASE DRY TYPE TRANSFORMER 480-240/120V. NEMA 3R ENCLOSURE. LOCATE ABOVE DISCONNECT D1. MOUNT AS TO PROVIDE ADEQUATE AIR VENTILATION SPACE



UTILITY TRANSFORMER POLE AND PLATFORM ASSEMBLY

NOT TO SCALE

△3 D1 - FUSED DISCONNECT SWITCH 100A, 480V-3 PHASE, SERVICE ENTRANCE RATED, 2,295 A MINIMUM FAULT CURRENT RATING, NEMA 3R ENCLOSURE, 3 POLE VISIBLE BLADE, DEAD FRONT CONSTRUCTION, FUSE SIZE = 100A, DUAL ELEMENT TIME DELAY. LOCATE BELOW 3 KVA TRANSFORMER AND SO AS THE CENTER OF THE GRIP OF THE OPERATING HANDLE OF THE MAIN DISCONNECT, WHEN AT ITS HIGHEST POSITION, WILL NOT BE MORE THAN 6 1/2 FEET ABOVE CONTROL ROOM FLOOR. INCLUDE SERVICE ENTRANCE SURGE ARRESTER, 650V AC PHASE TO GROUND MOV TYPE, WITH INDICATOR FOR 277/480 VOLT, 3 PHASE, 4 WIRE, GROUNDED NEUTRAL SECONDARY SERVICE, SUITABLE FOR OUTSIDE AND SERVICE ENTRANCE LOCATION CATEGORY, AS DEFINED BY IEEE C62.41. THE SURGE ARRESTOR SHALL BE UL APPROVED.

△2 D2 - FUSED DISCONNECT SWITCH, 30A, 480V-1 PHASE 2,250 A MINIMUM FAULT CURRENT RATING, NEMA 3R ENCLOSURE, 2 POLE, VISIBLE BLADE DEAD FRONT CONSTRUCTION, FUSE SIZE = 10A, DUAL ELEMENT TIME DELAY. LOCATE ABOVE PANEL LR AND BELOW 200 AMP BUS AND SO AS THE CENTER OF THE GRIP OF THE OPERATING HANDLE OF D2, WHEN AT ITS HIGHEST POSITION, WILL NOT BE MORE THAN 6 1/2 FEET ABOVE CONTROL ROOM FLOOR.

D3 - FUSED CONNECT SWITCH, 60A, 480V-3 PHASE, 2,250 A MINIMUM FAULT CURRENT RATING, NEMA 3R ENCLOSURE, 3 POLE, VISIBLE BLADE, DEAD FRONT CONSTRUCTION, FUSE SIZE = 40A, DUAL ELEMENT TIME DELAY. LOCATE BOTTOM OF ENCLOSURE 4 FEET ABOVE CONTROL ROOM FLOOR.

D4 - FUSED DISCONNECT SWITCH, 60A, 480V-3 PHASE, 2,250 A MINIMUM FAULT CURRENT RATING, NEMA 3R ENCLOSURE, 3 POLE, VISIBLE BLADE, DEAD FRONT CONSTRUCTION, FUSE SIZE = 40A, DUAL ELEMENT TIME DELAY. LOCATE BOTTOM OF ENCLOSURE 4 FEET ABOVE CONTROL ROOM FLOOR. SPARE DISCONNECT. △4

D5 - FUSED DISCONNECT SWITCH, 30A, 480V-3 PHASE, 2,250 A MINIMUM FAULT CURRENT RATING, NEMA 3R ENCLOSURE, 3 POLE, VISIBLE BLADE, DEAD FRONT CONSTRUCTION, SIZE FUSE TO MATCH SLUICE GATE MOTOR. LOCATE BOTTOM OF ENCLOSURE 4 FEET ABOVE CONTROL ROOM FLOOR. INCLUDE PHASE SENSING PROTECTION WITH THE FOLLOWING CHARACTERISTICS:

- PHASE REVERSAL SENSE
- PHASE LOSS SENSE
- PHASE IMBALANCE BY 10%
- UNDER VOLTAGE OF ALL 3 PHASES BY 10%

M1 - SLUICE GATE MOTOR CONTROLLER - 480V - 3 PHASE, SUPPLIED AS PART OF SLUICE GATE MOTOR PACKAGE.

RGS - RIGID GALVANIZED STEEL

NOTE: ALL NEMA 3R ENCLOSURES SHALL HAVE A BOTTOM BREATHER.

Revisions			
Symbol	Description	Date	Approved
△4	REVISED AS CONSTRUCTED	28JUL'00	RTN/DJJ
△3	AMD. #2 - MINOR REVISIONS	27 DEC 94	RJW
△2	AMD. #1 - MINOR REVISIONS	23 DEC 94	RJW
1	MINOR REVISIONS	18 NOV 94	RJW

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ROCK ISLAND, ILLINOIS

Designed by: TJW RJW	UPPER MISSISSIPPI RIVER ENVIRONMENTAL MANAGEMENT PROGRAM POOL 13, RIVER MILE 532 THRU 536 SPRING LAKE REHABILITATION AND ENHANCEMENT
Drawn by: JRK AJM	US Army Corps of Engineers Rock Island District
Checked by: TJW DNR	ELECTRICAL ONE-LINE DIAGRAM PUMP STATION
Reviewed by: RCA JJC	Scale: NO SCALE; Sheet reference number: E-1; Solicitation Number: DACW25-95-B-0009
Approved by: CHARLES S. COX COL., CORPS OF ENGINEERS	Date: 28 OCT. 1994; Drawing Code: M-L 13-134; Sheet 52 of

27-NOV-2002 14:22
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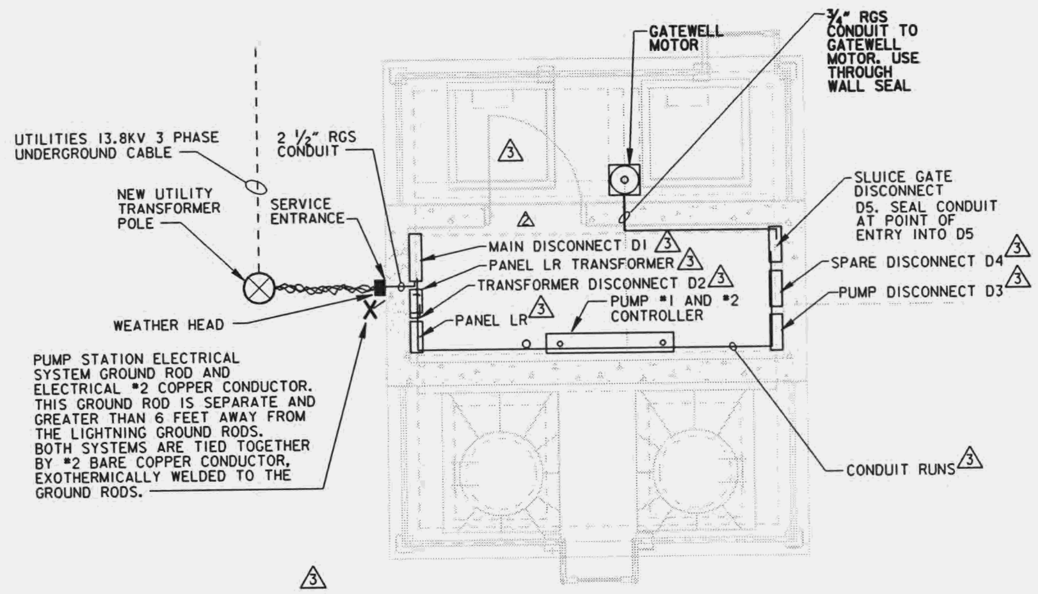
PLATE 35

GENERAL NOTES:

1. ALL WIRING IS XHHW COPPER SIZE #12 UNLESS OTHERWISE SPECIFIED.
2. ALL CONDUIT IS 3/4" MINIMUM RIGID GALVANIZED STEEL, SURFACE MOUNTED, IDENTIFIED FOR WET LOCATIONS. CONDUIT NEED NOT BE USED IN SUMP AREA TO HOUSE PUMP AND FLOAT CABLES. CONDUIT MUST BE USED TO HOUSE F2 LIGHT WIRING.
3. DIMENSIONS ON THIS DRAWING ARE APPROXIMATE. CONTRACTOR MUST FIELD VERIFY ACTUAL DIMENSIONS OF EQUIPMENT BEFORE INSTALLATION.
4. THESE DRAWINGS SHOW APPROXIMATE PLACEMENT OF ALL ELECTRICAL HARDWARE. CONTRACTOR SHALL USE DISCRETION DURING INSTALLATION TO GET BEST FIT AND MEET NFPA 70.
5. ALL ELECTRICAL HARDWARE AND CABLING SHALL BE SURFACE MOUNTED UNLESS SPECIFIED.
6. USE THROUGH WALL AND FLOOR SEALS WHERE CONDUIT PASSES THROUGH WALL OR FLOOR. EACH SEAL SHALL BE OF AN IRON OR STEEL BODY, PRESSURE RING, NEOPRENE GROMMET CONSTRUCTION.

NOTES:

1. CONTRACTOR SHALL COORDINATE WITH UTILITY FOR PLACEMENT OF TRANSFORMERS, TRANSFORMER POLE, METER, AND UTILITY GROUNDING SYSTEM.
2. CONTRACTOR SHALL COORDINATE WITH UTILITY FOR CONNECTION OF AND PAYMENT FOR SERVICE TO PUMP STATION.
3. CONTRACTOR SHALL COORDINATE WITH AND PAY UTILITY FOR INSTALLATION OF APPROXIMATELY 3000 FEET OF 13.8KV-3 PHASE BURIED CABLE. THE UTILITY POINT OF CONTACT IS AS FOLLOWS: INTERSTATE POWER
   201-NORTH 2ND STREET
   P.O. BOX 818
   CLINTON, IA. 52733-0818
   PHONE: 319-243-2611
   POC: RON SEYMOUR.
4. LIGHTNING PROTECTION SYSTEM FOR THE STRUCTURE SHALL BE A CLASS I INSTALLATION PER NFPA 780.



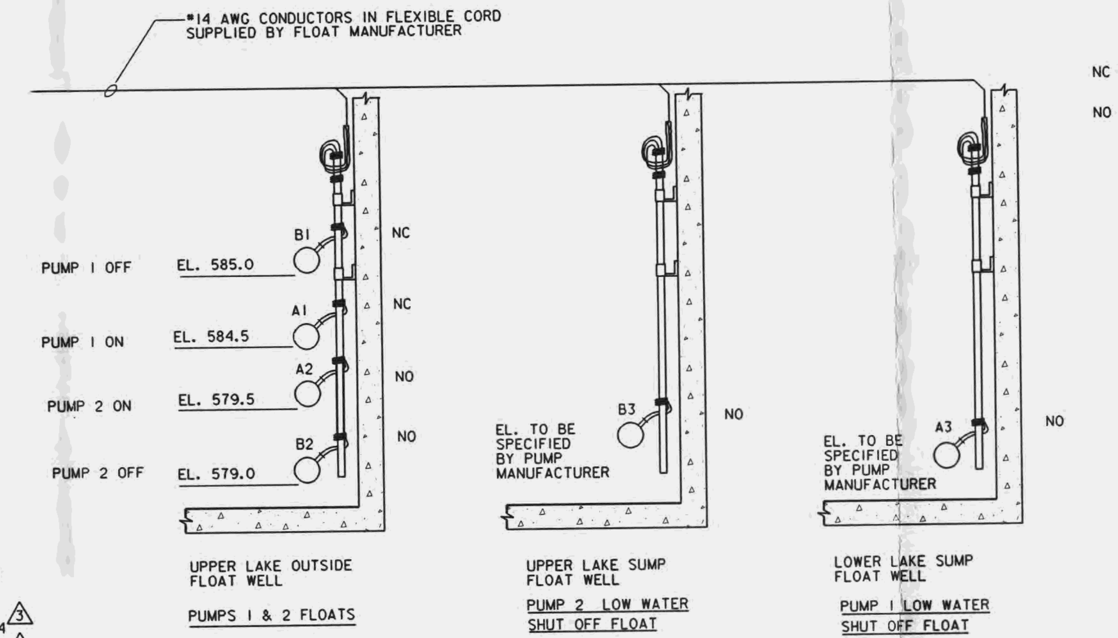
FLOOR PLAN
3/8"=1'-0"

PUMP STATION POWER PLANS

4 0 4 8'
SCALE: 3/8"=1'-0"

FLOAT NOTES:

1. THE FLOATS SHALL BE 316 SS, #20 GAUGE.
2. THE FLOATS SHALL HOUSE MERCURY TILT TYPE SWITCHES RATED TO HANDLE CONTROL CIRCUIT VOLTAGE AND CURRENT.
3. FLOAT ASSEMBLIES SHALL BE SECURELY FASTENED TO 1" DIAMETER GALVANIZED STEEL NPT PIPE (FLOAT POLE) BY GALVANIZED STEEL CLAMP AND BRACKET ASSEMBLIES AND ADJUSTED AS PER INSTRUCTIONS BY FLOAT MANUFACTURER.
4. THE 1" DIAMETER FLOAT POLE SHALL BE MOUNTED VERTICALLY IN ITS FLOAT WELL, SECURELY CLAMPED TO THE FLOAT WELL WALL (SHEETS E-5 AND E-6). ADJUST FLOAT POLE DISTANCE TO WALL AS PER INSTRUCTIONS FROM FLOAT MANUFACTURER. USE 2 GALVANIZED STEEL WALL MOUNTING CLAMPS, BOTH OF WHICH SHALL BE AS HIGH AS PRACTICAL ON THE FLOAT POLE.
5. FLOAT HARDWARE TO BE SUPPLIED BY FLOAT MANUFACTURER.



NC = NORMALLY CLOSED CONTACTS WHEN IN LOW WATER STATE.
NO = NORMALLY OPEN CONTACTS WHEN IN LOW WATER STATE.

FLOATS

Revisions			
Symbol	Description	Date	Approved
3	REVISED AS CONSTRUCTED	28JUL'00	RTM/DJJ
2	AMENDMENT #1 - MINOR REVISIONS	5 DEC 94	RJW
1	MINOR REVISIONS	18 NOV 94	RJW

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ROCK ISLAND, ILLINOIS

UPPER MISSISSIPPI RIVER ENVIRONMENTAL MANAGEMENT PROGRAM POOL 13, RIVER MILE 532 THRU 536 SPRING LAKE REHABILITATION AND ENHANCEMENT

POWER AND FLOAT PLANS

Designed by: BUW	RJW
Drawn by: JRB	AJM
Checked by: BUW	DNR
Reviewed by: BOM	JJC
Approved by: CHARLES S. COX COL., CORPS OF ENGINEERS	

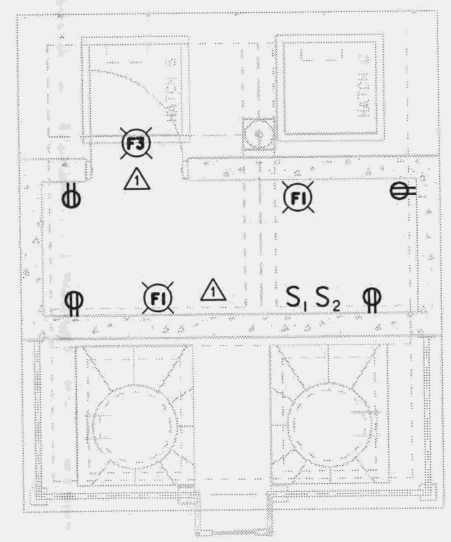
Scale: 3/8"=1'-0"
Date: 28 OCT. 1994
Drawing Code: M-L 13-134
Sheet reference number: E-2
Solicitation Number: DACW25-95-B-0009
Sheet 53 of

PLATE 36

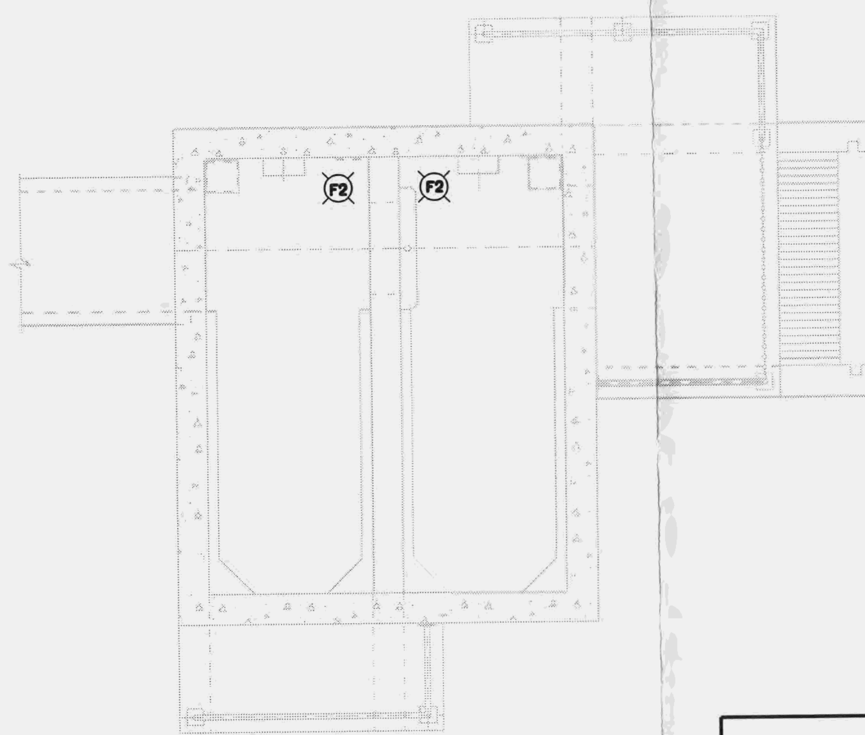
27-NOV-2002 14:22
E:\projects\eep34\eep34e002.dgn

GENERAL NOTES:

1. ALL WIRING IS XHHW COPPER SIZE *12 UNLESS OTHERWISE SPECIFIED.
2. ALL CONDUIT IS ¾" MINIMUM RIGID GALVANIZED STEEL, SURFACE MOUNTED, IDENTIFIED FOR WET LOCATIONS. CONDUIT NEED NOT BE USED IN SUMP AREA TO HOUSE PUMP AND FLOAT CABLES. CONDUIT MUST BE USED TO HOUSE F2 LIGHT WIRING.
3. DIMENSIONS ON THIS DRAWING ARE APPROXIMATE. CONTRACTOR MUST FIELD VERIFY ACTUAL DIMENSIONS OF EQUIPMENT BEFORE INSTALLATION.
4. THESE DRAWINGS SHOW APPROXIMATE PLACEMENT OF ALL ELECTRICAL HARDWARE. CONTRACTOR SHALL USE HIS DISCREATION DURING INSTALLATION TO GET BEST FIT AND MEET NFPA 70.
5. ALL ELECTRICAL HARDWARE AND CABLING SHALL BE SURFACE MOUNTED UNLESS SPECIFIED.
6. USE THROUGH WALL AND FLOOR SEALS WHERE CONDUIT PASSES THROUGH WALL OR FLOOR. EACH SEAL SHALL BE OF AN IRON OR STEEL BODY, PRESSURE RING, NEOPRENE GROMMET CONSTRUCTION.



FLOOR PLAN
3/8"=1'-0"



SUMP PLAN
3/8"=1'-0"

F1 - LIGHT FIXTURE, WALL MOUNT, SUSPEND 1FT. BELOW CONTROL ROOM CEILING, TYPE 107B VAPOR-TIGHT INCANDESCENT, 120V-1 PHASE, 100W

F2 - LIGHT FIXTURE, CEILING MOUNT IN SUMP. TYPE 107A, VAPOR-TIGHT INCANDESCENT 120V-1 PHASE, 100W

F3 - PUMP RUN LIGHT. LOCATE 1 FOOT BELOW TOP OF STRUCTURE, SURFACE WALL MOUNT. 120V, 100W, INCANDESCENT, VAPOR-TIGHT, TYPE 107B.

DUPLEX RECEPTACLE, 125V, 20A, GROUND FAULT INTERRUPTER, SPECIFICATION GRADE, LOCATE 1 FT. ABOVE CONTROL ROOM FLOOR, SURFACE MOUNT NEMA 5-20R. IDENTIFIED FOR USE IN WET LOCATIONS.

S_1 TOGGLE SWITCH, SPST, 120V, 20A, SURFACE MOUNT, OPERATES F1. IDENTIFIED FOR USE IN WET LOCATIONS.

S_2 TOGGLE SWITCH, SPST, 120V, 20A, SURFACE MOUNT, OPERATES F2. IDENTIFIED FOR USE IN WET LOCATIONS.

4 0 4 8'
SCALE: 3/8"=1'-0"

Revisions

Symbol	Description	Date	Approved
1	REVISED AS CONSTRUCTED	28JUL'00	RTN/DJJ

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ROCK ISLAND, ILLINOIS

US Army Corps of Engineers
Rock Island District

UPPER MISSISSIPPI RIVER
ENVIRONMENTAL MANAGEMENT PROGRAM
POOL 13, RIVER MILE 532 THRU 536
SPRING LAKE REHABILITATION
AND ENHANCEMENT

PUMP STATION LIGHTING AND RECEPTACLE PLAN

Designed by: TJW RJW
Drawn by: JRK AJM
Checked by: TJW DNR
Reviewed by: RCA JJC
Approved by: CHARLES S. COX COL., CORPS OF ENGINEERS

Scale: 3/8"=1'-0"
Date: 28 OCT. 1994
Drawing Code: M-L 13-134
Sheet reference number: E-3
Solicitation Number: DACW25-95-B-0009
Sheet 54 of

PLATE 37

PANEL SYMBOL LR (3)

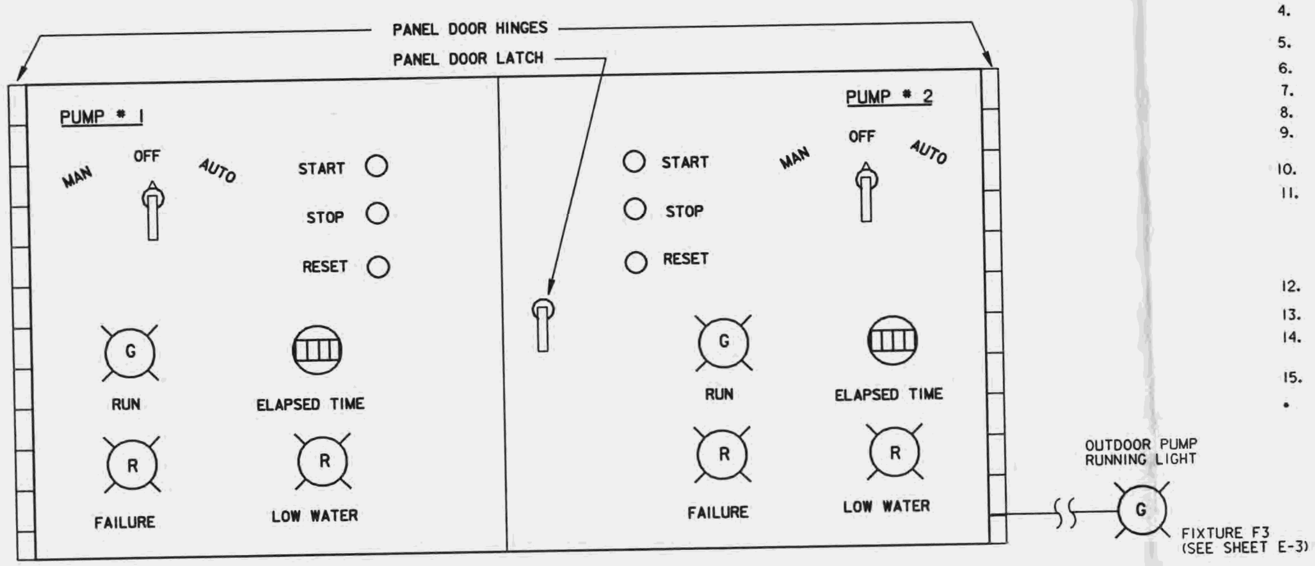
TYPE BRKS. BOLT-ON BREAKERS
MOUNTING TYPE SURFACE
MAIN BUS 60A

N/A MAIN BRK.
240/120 VOLTS
1 PHASE, 3 WIRE,

CKT NO.	DESCRIPTION	WIRE SIZE	KVA	BRKR (L1)	BRKR (L2)	KVA	WIRE SIZE	DESCRIPTION	CKT NO.
1	SUMP LIGHTS	12	.2	20	20	.2	12	CONTROL ROOM LIGHTS	2
3	RECEPTACLES	12	.8	20				SPARE	4
5	SPARE			20				SPACE	6
7	SPACE							↓	8
9	↓								10
11									12

PANEL SCHEDULE

NOTES:
1. 60A SERVICE, 10,000 AMP AIC, 240/120V-1 PHASE, NEMA 3R ENCLOSURE WITH BOTTOM BREATHER, BOLT-ON CIRCUIT BREAKERS, 20 INCH WIDE PANEL.
2. PROVIDE DEDICATED GROUND BAR IN PANEL. GROUND TO SYSTEM INDICATED ON SHEET E-2.
3. LOCATE PANEL JUST BELOW DISCONNECT D2 AS SHOWN ON SHEET E-2.
4. ONLY ONE CIRCUIT BREAKER SHALL BE USED FOR EACH SPACE. TANDEM CIRCUIT BREAKERS SHALL NOT BE USED.



SUBMERSIBLE PUMP CONTROLS (FRONT PANEL)

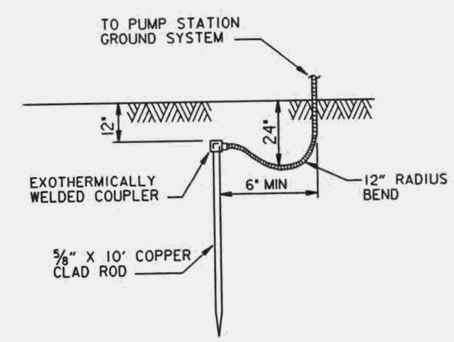
(2) SUBMERSIBLE PUMP OPERATION

1. THE PUMPS ARE INTERLOCKED SO ONLY 1 PUMP CAN RUN AT A TIME.
2. EACH PUMP CAN BE RUN IN EITHER MANUAL OR AUTO MODE. IN MANUAL MODE, FLOATS A1, B1, A2, AND B2 ARE OUT OF THE CIRCUIT. ONLY FLOATS A3 AND B3 ARE ACTIVE. IN AUTO MODE, ALL FLOATS ARE IN THE CIRCUIT.
3. WHEN PUMP 1, (PUMPS FROM LOWER LAKE TO UPPER LAKE, TO MAINTAIN UPPER LAKE WATER LEVEL), IS IN MANUAL OPERATING MODE, START BUTTON MUST BE PUSHED TO START. PUMP 1 WILL RUN UNTIL ITS STOP BUTTON IS PUSHED, ITS LOW WATER EMERGENCY FLOAT A3 OPENS, (LOCATED IN THE LOWER LAKE SUMP), OR A PUMP 1 FAILURE OCCURS.
4. WHEN PUMP 1 IS IN AUTO OPERATING MODE, START BUTTON MUST BE PUSHED TO START PUMP. PUMP 1 WILL START IF ITS UPPER LAKE "ON" FLOAT (FLOAT A1) IS CLOSED. THE PUMP WILL RUN UNTIL ITS UPPER LAKE "OFF" FLOAT, (FLOAT B1), OPENS, WHICH WILL STOP PUMP 1. PUMP 1 WILL RESTART WHEN THE UPPER LAKE WATER LEVEL IS LOW ENOUGH TO CAUSE FLOAT A1 TO CLOSE.THE PUMP WILL CONTINUE THRU THIS FLOAT CONTROLLED "ON-OFF" SEQUENCE UNTIL THE OPERATOR PRESSES THE STOP BUTTON, SWITCHES OUT OF AUTO MODE, THE LOW WATER FLOAT (A3) OPENS, OR A FAILURE OF PUMP 1 OCCURS.
5. PUMP 1 LOW WATER FLOAT (A3) IS LOCATED IN THE LOWER LAKE FLOAT SUMP. THIS SHUT OFF WATER LEVEL IS SPECIFIED BY PUMP MANUFACTURER. IF PUMP 1 IS SHUT OFF BY A3 OPENING, IT SHALL NOT AUTOMATICALLY RESTART. PUMP 1 WILL BE RESET WHEN A3 CLOSES BUT WILL NOT START UNTIL THE OPERATOR PUSHES START BUTTON.
6. IF PUMP 1 IS STOPPED FOR ANY REASON THERE WILL BE A DELAY TIMER WHICH DISABLES PUMP 1 FROM BEING RESTARTED FOR 30 SECONDS.
7. PUMP 1 GREEN RUN LIGHT SHALL BE LIT WHEN PUMP 1 IS RUNNING.
8. PUMP 1 ELAPSED TIME INDICATOR SHALL BE RUNNING WHEN PUMP 1 IS RUNNING AND SHALL INDICATE PUMP RUN TIME IN HOURS AND TENTHS OF HOURS.
9. PUMP 1 RED LOW WATER LIGHT SHALL LIGHT WHEN PUMP 1 IS SHUT OFF BY THE LOW WATER FLOAT (FLOAT A3).
10. PUMP 1 RED FAILURE LIGHT SHALL LIGHT WHEN PUMP 1 IS SHUT OFF FOR MOTOR THERMAL OVERLOAD, PUMP BEARING OVER TEMP*, PUMP SEAL LEAKAGE*, PHASE LOSS, PHASE IMBALANCE, ALL PHASES LOW VOLTAGE, OR PHASE REVERSAL. AN INDICATOR MODULE INSIDE THE PUMP CONTROLLER SHALL INDICATE EXACT SENSOR WHICH INITIATED FAILURE. AFTER FAILURE IS FIXED, RESET BUTTON WILL CLEAR FAILURE ALARM.
11. THERE SHALL BE A GREEN, 100W, OUTDOOR LAMP WHICH SHALL BE LIT WHENEVER EITHER PUMP IS RUNNING. IF EITHER PUMP STOPS FOR ANY REASON, THIS LIGHT WILL TURN OFF.
12. PUMP 2 PUMPS FROM THE UPPER LAKE TO THE LOWER LAKE TO MAINTAIN UPPER LAKE WATER LEVEL. PUMP 2 OPERATION WILL BE THE SAME AS THAT OF PUMP 1 EXCEPT PUMP 2 IS CONTROLLED BY DIFFERENT FLOATS (SHEET E-2). THE LOW WATER EMERGENCY SHUT OFF FLOAT, (FLOAT B3), IS LOCATED IN THE UPPER LAKE FLOAT WELL. FLOATS A2 AND B2 (LOCATED IN THE UPPER LAKE OUTSIDE FLOAT WELL ADJACENT TO PUMP 1 FLOATS) TURN PUMP 2 ON AND OFF RESPECTIVELY.

PUMP CONTROLLER NOTES:

1. CONTROL CIRCUIT SHALL BE 120VAC.
2. PUMP EMERGENCY LOGIC CIRCUIT MAY BE EITHER 24VAC OR 120VAC.
3. CONTROL CIRCUIT AND EMERGENCY LOGIC CIRCUIT TRANSFORMER SHALL BE PROTECTED BY FUSES OR CIRCUIT BREAKERS SIZED FOR THAT CIRCUIT LOAD.
4. NOMINAL PANEL SIZE IS 80" WIDE, 42" TALL, AND 12" DEEP. CONTRACTOR SHALL MAKE ALLOWANCES FOR BEST FIT IN CONTROL ROOM (SHEET E-2) . SIZE AND LAYOUT MAY VARY DEPENDING ON MANUFACTURER.
5. INTERNAL PANAL WIRING SHALL BE SIS WITH A MINIMUM INSTALLATION TEMPERATURE OF -10 F.
6. ALL INTERNAL WIRING SHALL BE COLOR CODED OR NUMBERED AND ANOTATED ON A SCHEMATIC SUPPLIED TO CORPS OF ENGINEERS BY CONTRACTOR.
7. ALL INTERNAL WIRING SHALL TERMINATE ON TERMINAL BOARDS OR ELECTRICAL DEVICES.
8. WIRE SHALL BE SIZED TO HANDLE ITS LOAD IN ACORDANCE WITH NEC TABLE 310-16.
9. WIRE BUNDLES WHICH RUN BETWEEN PANEL BODY AND PANEL DOOR SHALL HAVE A BEND LOOP SUCH THAT THE PANEL DOORS MAY BE FULLY OPENED WITHOUT PUTTING STRAIN ON THE WIRES.
10. PUMP CONTROLLER SHALL BE MOUNTED SO THE MIDDLE OF CONTROLLER IS APPROXIMATELY 4 FEET ABOVE CONTROL ROOM FLOOR.
11. FAILURE INDICATOR REPRESENTS A SUMMATION INDICATION OF MOTOR THERMAL OVERLOAD, PUMP BEARING OVER TEMP*, SEAL LEAKAGE*, PHASE LOSS, PHASE REVERSAL, PHASE IMBALANCE, UNDERVOLTAGE OR GROUND FAULT. WHEN A FAILURE OCCURS, (PANEL LIGHT LIT), THE OPERATOR SHALL OPEN THE FRONT PANEL DOOR AND SCAN A FAILURE MONITOR TO TELL WHICH OF THE ABOVE MENTIONED FAILURES HAS TRIGGERED THE FAILURE INDICATOR. THE OUTDOOR ALARM INDICATOR LIGHT (F3) WILL BE LIT IF EITHER PUMP IS RUNNING AND WILL GO OFF IF THAT PUMP STOPS. THE OPERATOR CAN DETECT THIS LIGHT FROM A DISTANCE WITHOUT HAVING TO GO INSIDE THE PUMP STATION.
12. RESET BUTTON IS USED TO RESET FAILURE SEQUENCE ONCE FAILURE HAS BEEN ELIMINATED.
13. PUMP CONTROLLER SHALL BE SUPPLIED BY PUMP MANUFACTURER.
14. CONTROLLER MANUFACTURER SHALL SUPPLY INTERNAL HEATER AND THERMOSTAT TO MAINTAIN INTERNAL PUMP CONTROLLER TEMPERATURE JUST ABOVE FREEZING WHEN AMBIENT TEMPERATURE IS AT 0°F.
15. CONTROLLER SHALL BE NEMA 3R ENCLOSURE WITH BOTTOM BREATHER.

* THESE FAILURE SENSORS AND INDICATORS MAY NOT BE AVAILABLE FOR ALL PUMP MODELS.



GROUND ROD DETAIL

NOT TO SCALE

Symbol	Revisions Description	Date	Approved
(3)	REVISED AS CONSTRUCTED	28JUL'00	RTN/DJJ
(2)	AMD. #1 - MINOR REVISION	23 DEC 94	RJW
(1)	MINOR REVISIONS	18 NOV 94	RJW

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ROCK ISLAND, ILLINOIS

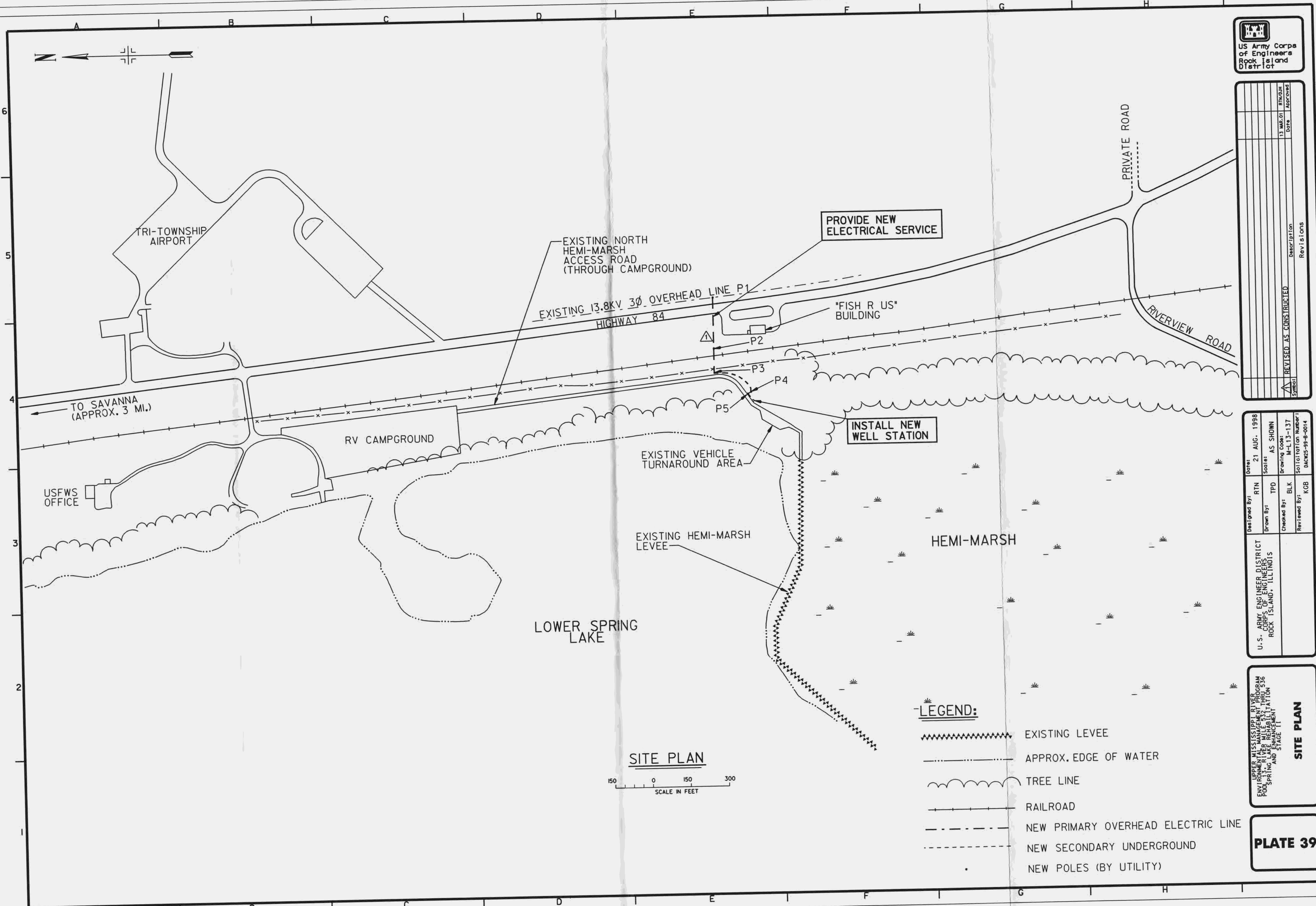
US Army Corps of Engineers Rock Island District

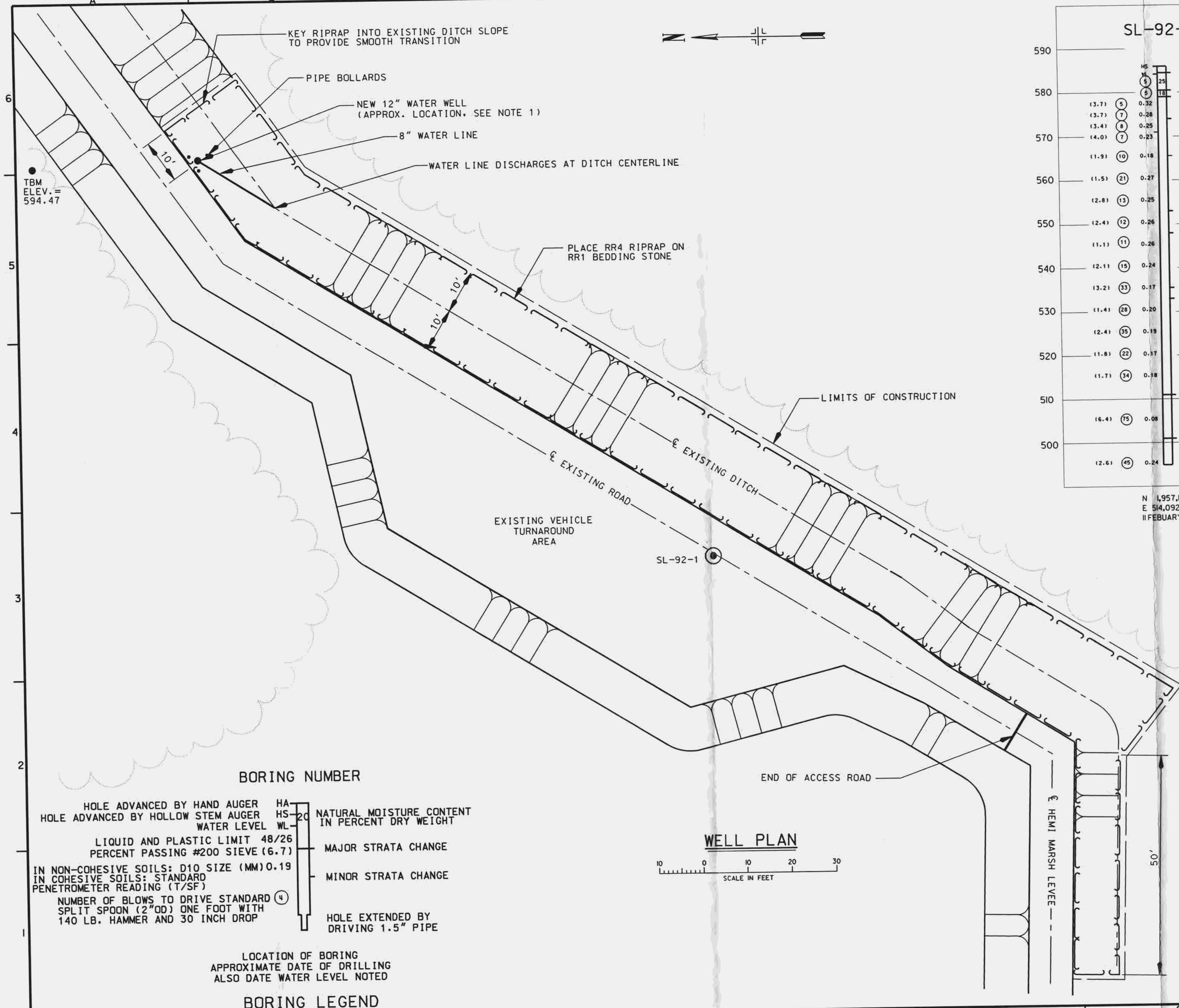
UPPER MISSISSIPPI RIVER
ENVIRONMENTAL MANAGEMENT PROGRAM
POOL 13, RIVER MILE 532 THRU 536
SPRING LAKE REHABILITATION
AND ENHANCEMENT

PUMP STATION CONTROL PLAN

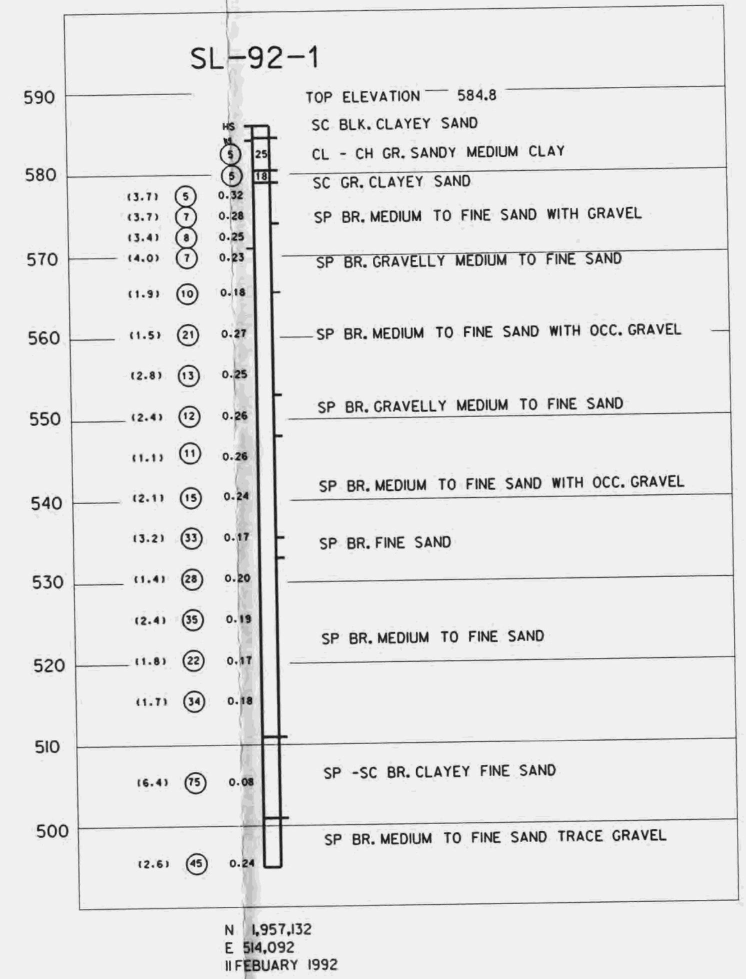
Designed by: TJW RJW
Drawn by: JRK AJM
Checked by: TJW DNR
Reviewed by: RCA JJC
Approved by: CHARLES S. COX COL., CORPS OF ENGINEERS

Scale: NO SCALE
Date: 28 OCT. 1994
Drawing Code: M-L 13-134
Sheet reference number: E-4
Solicitation Number: DACW25-95-B-0009
Sheet 55 of


US Army Corps of Engineers Rock Island District
TRI-TOWNSHIP AIRPORT
EXISTING NORTH HEMI-MARSH ACCESS ROAD (THROUGH CAMPGROUND)
PROVIDE NEW ELECTRICAL SERVICE
EXISTING 13.8KV 3Ø OVERHEAD LINE P1
HIGHWAY 84
"FISH R US" BUILDING
P2
P3
P4
P5
PRIVATE ROAD
RIVERVIEW ROAD
TO SAVANNA (APPROX. 3 MI.)
RV CAMPGROUND
INSTALL NEW WELL STATION
USFWS OFFICE
EXISTING VEHICLE TURNAROUND AREA
EXISTING HEMI-MARSH LEVEE
HEMI-MARSH
LOWER SPRING LAKE
SITE PLAN
150 0 150 300
SCALE IN FEET
LEGEND:
EXISTING LEVEE
APPROX. EDGE OF WATER
TREE LINE
RAILROAD
NEW PRIMARY OVERHEAD ELECTRIC LINE
NEW SECONDARY UNDERGROUND
NEW POLES (BY UTILITY)
REVISED AS CONSTRUCTED
Revisions
SITE PLAN
PLATE 39



KEY RIPRAP INTO EXISTING DITCH SLOPE TO PROVIDE SMOOTH TRANSITION
PIPE BOLLARDS
NEW 12" WATER WELL (APPROX. LOCATION. SEE NOTE 1)
8" WATER LINE
WATER LINE DISCHARGES AT DITCH CENTERLINE
TBM ELEV.= 594.47
10'
PLACE RR4 RIPRAP ON RR1 BEDDING STONE
10'
10'
LIMITS OF CONSTRUCTION
℄ EXISTING DITCH
℄ EXISTING ROAD
EXISTING VEHICLE TURNAROUND AREA
SL-92-1
END OF ACCESS ROAD
℄ HEMI MARSH LEVEE
50'
WELL PLAN
10 0 10 20 30
SCALE IN FEET
BORING NUMBER
HOLE ADVANCED BY HAND AUGER HA
HOLE ADVANCED BY HOLLOW STEM AUGER HS
WATER LEVEL WL
20
NATURAL MOISTURE CONTENT IN PERCENT DRY WEIGHT
LIQUID AND PLASTIC LIMIT 48/26
PERCENT PASSING #200 SIEVE (6.7)
MAJOR STRATA CHANGE
IN NON-COHESIVE SOILS: D10 SIZE (MM) 0.19
IN COHESIVE SOILS: STANDARD PENETROMETER READING (T/SF)
MINOR STRATA CHANGE
NUMBER OF BLOWS TO DRIVE STANDARD SPLIT SPOON (2"OD) ONE FOOT WITH 140 LB. HAMMER AND 30 INCH DROP 4
HOLE EXTENDED BY DRIVING 1.5" PIPE
LOCATION OF BORING
APPROXIMATE DATE OF DRILLING
ALSO DATE WATER LEVEL NOTED
BORING LEGEND



SL-92-1
590
580
570
560
550
540
530
520
510
500
TOP ELEVATION 584.8
HS
WL
SC BLK. CLAYEY SAND
CL - CH GR. SANDY MEDIUM CLAY
SC GR. CLAYEY SAND
SP BR. MEDIUM TO FINE SAND WITH GRAVEL
SP BR. GRAVELLY MEDIUM TO FINE SAND
SP BR. MEDIUM TO FINE SAND WITH OCC. GRAVEL
SP BR. GRAVELLY MEDIUM TO FINE SAND
SP BR. MEDIUM TO FINE SAND WITH OCC. GRAVEL
SP BR. FINE SAND
SP BR. MEDIUM TO FINE SAND
SP -SC BR. CLAYEY FINE SAND
SP BR. MEDIUM TO FINE SAND TRACE GRAVEL
5 25
5 18
(3.7) 5 0.32
(3.7) 7 0.28
(3.4) 8 0.25
(4.0) 7 0.23
(1.9) 10 0.18
(1.5) 21 0.27
(2.8) 13 0.25
(2.4) 12 0.26
(1.1) 11 0.26
(2.1) 15 0.24
(3.2) 33 0.17
(1.4) 28 0.20
(2.4) 35 0.19
(1.8) 22 0.17
(1.7) 34 0.18
(6.4) 75 0.08
(2.6) 45 0.24
N 1,957,132
E 514,092
11 FEBUARY 1992

LEGEND

- SL-92-1 — BORING LOCATION
- NEW 8" WATER LINE
- LIMITS OF NEW RIPRAP AND BEDDING STONE
- LIMITS OF CONSTRUCTION
- TREE LINE

NOTES:

1. WELL LOCATION WILL BE STAKED BY CONTRACTING OFFICER.

US Army Corps of Engineers Rock Island District

Symbol	Description	Date	Approved
1	AS CONSTRUCTED	13 MAR.01	RTN/DJH

Revisions

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ROCK ISLAND, ILLINOIS

Designed By: RTN	Date: 21 AUG. 1998
Drawn By: TPD	Scale: AS SHOWN
Checked By: BLK	Drawing Code: M-L13-137
Reviewed By: KGB	Solicitation Number: DACW25-99-B-0014

UPPER MISSISSIPPI RIVER
ENVIRONMENTAL MANAGEMENT PROGRAM
POOL 13, RIVER MILE 532 THRU 536
SPRING LAKE REHABILITATION
AND ENHANCEMENT
STAGE II

WELL PLAN AND BORING DATA

PLATE 40

27-NOV-2002 14:24
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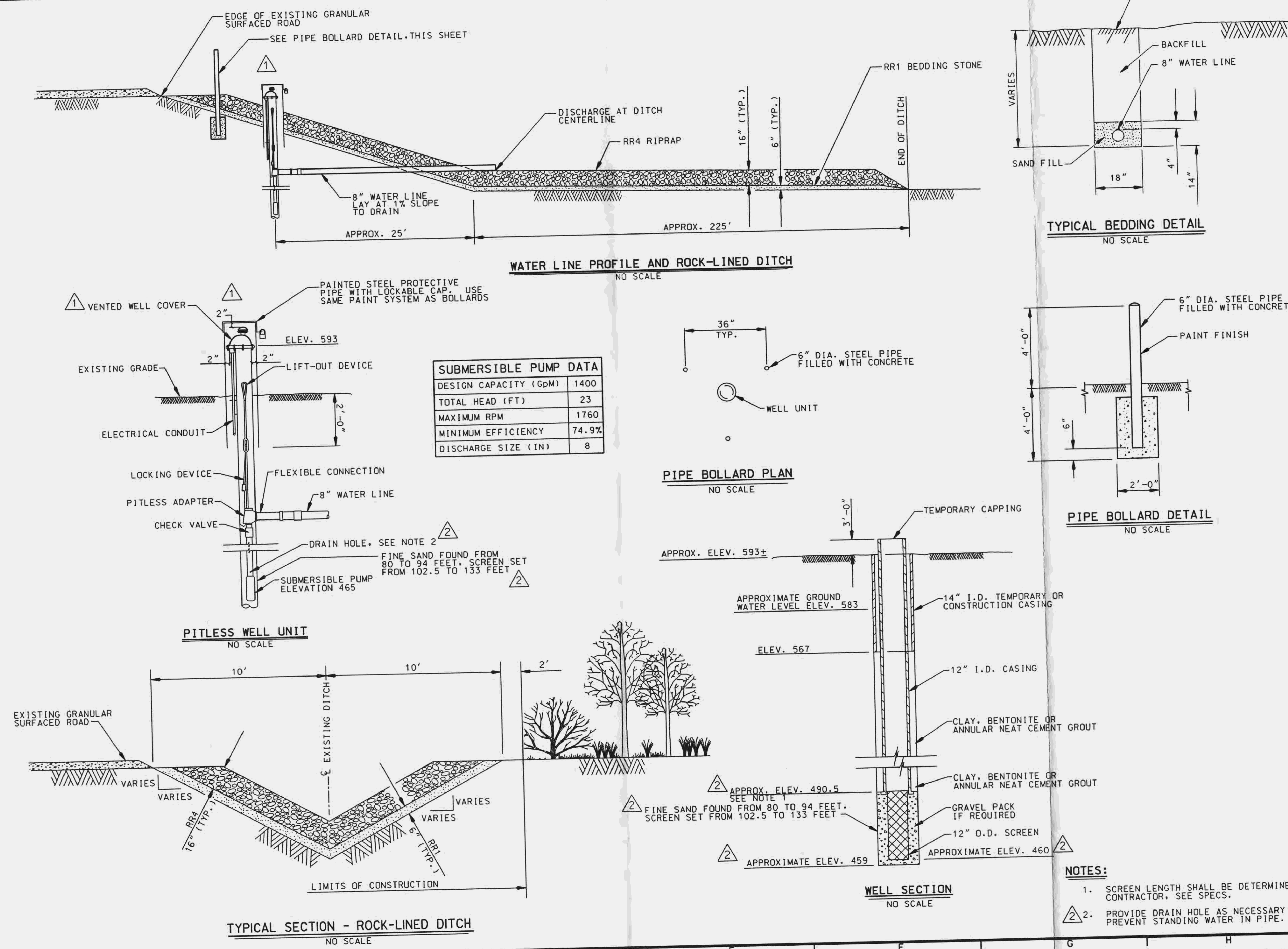


SUBMERSIBLE PUMP DATA	
DESIGN CAPACITY (GpM)	1400
TOTAL HEAD (FT)	23
MAXIMUM RPM	1760
MINIMUM EFFICIENCY	74.9%
DISCHARGE SIZE (IN)	8

NOTES:

1. SCREEN LENGTH SHALL BE DETERMINED BY CONTRACTOR, SEE SPECS.
2. PROVIDE DRAIN HOLE AS NECESSARY TO PREVENT STANDING WATER IN PIPE.

US Army Corps of Engineers Rock Island District

Symbol	Description	Date	Approved
1	REVISED AS CONSTRUCTED	13 MAR 01	RTN/SJH
2	MINOR REVISIONS	3/18/99	RTN/BLK

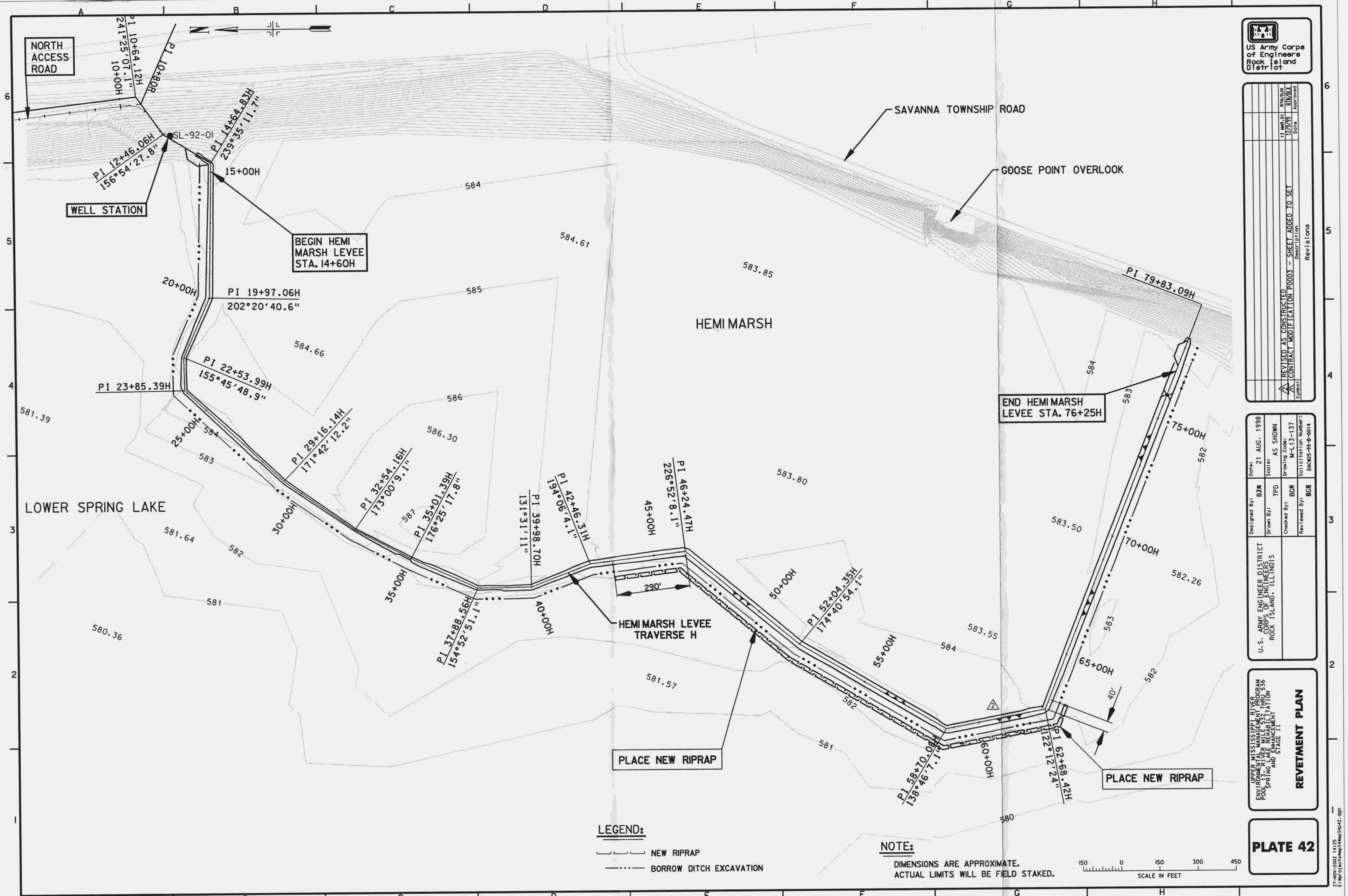
Designed By: RTN — Date: 21 AUG. 1998
Drawn By: TPD — Scale: AS SHOWN
Checked By: BLK — Drawing Code: M-L13-137
Reviewed By: KGB — Solicitation Number: DACW25-99-B-0014

U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS ROCK ISLAND, ILLINOIS

UPPER MISSISSIPPI RIVER ENVIRONMENTAL MANAGEMENT PROGRAM POOL 13, RIVER MILE 532 THRU 536 SPRING LAKE REHABILITATION AND ENHANCEMENT STAGE II

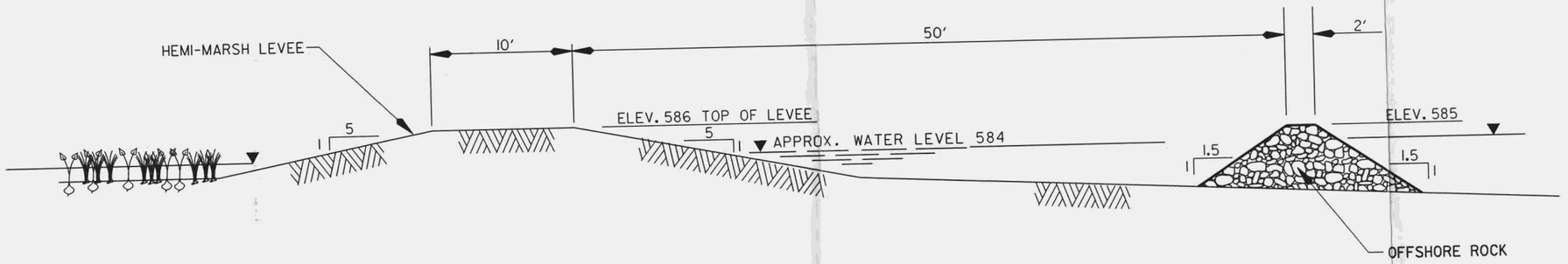
WELL DETAILS AND MISCELLANEOUS DETAILS

PLATE 41


NORTH ACCESS ROAD
PI 10+64.12H
241°25'07.1"
10+00H
PI 10+80R
SL-92-01
PI 12+46.06H
156°54'27.8"
PI 14+64.83H
239°35'11.7"
15+00H
WELL STATION
BEGIN HEMI MARSH LEVEE STA. 14+60H
SAVANNA TOWNSHIP ROAD
GOOSE POINT OVERLOOK
20+00H
PI 19+97.06H
202°20'40.6"
PI 22+53.99H
155°45'48.9"
PI 23+85.39H
25+00H
PI 29+16.14H
171°42'12.2"
PI 32+54.16H
173°00'9.1"
PI 35+01.39H
176°25'17.8"
30+00H
35+00H
PI 37+88.56H
154°52'51.1"
PI 39+98.70H
131°31'11"
40+00H
PI 42+46.31H
194°06'4.1"
45+00H
PI 46+24.47H
226°52'8.1"
290'
HEMI MARSH LEVEE TRAVERSE H
50+00H
PI 52+04.35H
174°40'54.1"
55+00H
PI 58+70.09H
138°46'7.1"
60+00H
PI 62+68.42H
122°12'24"
65+00H
40'
70+00H
75+00H
END HEMI MARSH LEVEE STA. 76+25H
PI 79+83.09H
HEMI MARSH
LOWER SPRING LAKE
PLACE NEW RIPRAP
PLACE NEW RIPRAP
584
584.61
583.85
585
584.66
586
586.30
587
581.39
584
583
581.64
582
581
580.36
581.57
583.80
583.50
582.26
583.55
584
583
582
581
580
LEGEND:
NEW RIPRAP
BORROW DITCH EXCAVATION
NOTE:
DIMENSIONS ARE APPROXIMATE.
ACTUAL LIMITS WILL BE FIELD STAKED.
150 0 150 300 450
SCALE IN FEET
US Army Corps of Engineers Rock Island District
REVISED AS CONSTRUCTED 13 MAR.01 RTN/DJH
CONTRACT MODIFICATION P0003 - SHEET ADDED TO SET 12/9/99 RTN/BLK
Symbol Description Date Approved
Revisions
U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS ROCK ISLAND, ILLINOIS
Designed By: BJW
Drawn By: TPD
Checked By: BGR
Reviewed By: BGB
Date: 21 AUG. 1998
Scale: AS SHOWN
Drawing Code: M-L13-137
Solicitation Number: DACW25-99-B-0014
UPPER MISSISSIPPI RIVER ENVIRONMENTAL MANAGEMENT PROGRAM POOL 13, RIVER MILE 532 THRU 536 SPRING LAKE REHABILITATION AND ENHANCEMENT STAGE II
REVETMENT PLAN
PLATE 42
27-NOV-2002 14:25

HEMI-MARSH

LOWER SPRING LAKE



TYPICAL SECTION OFFSHORE ROCK

NO SCALE

US Army Corps of Engineers
Rock Island District

Symbol	Revisions	Date	Approved
	AS CONSTRUCTED	13 MAR.01	RTN/DJH
	CONTRACT MODIFICATION P00003 - SHEET ADDED TO SET	12/5/99	RTN/BLK

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ROCK ISLAND, ILLINOIS

Designed By: RTN
Drawn By: TPD
Checked By: BLK
Reviewed By: KGB

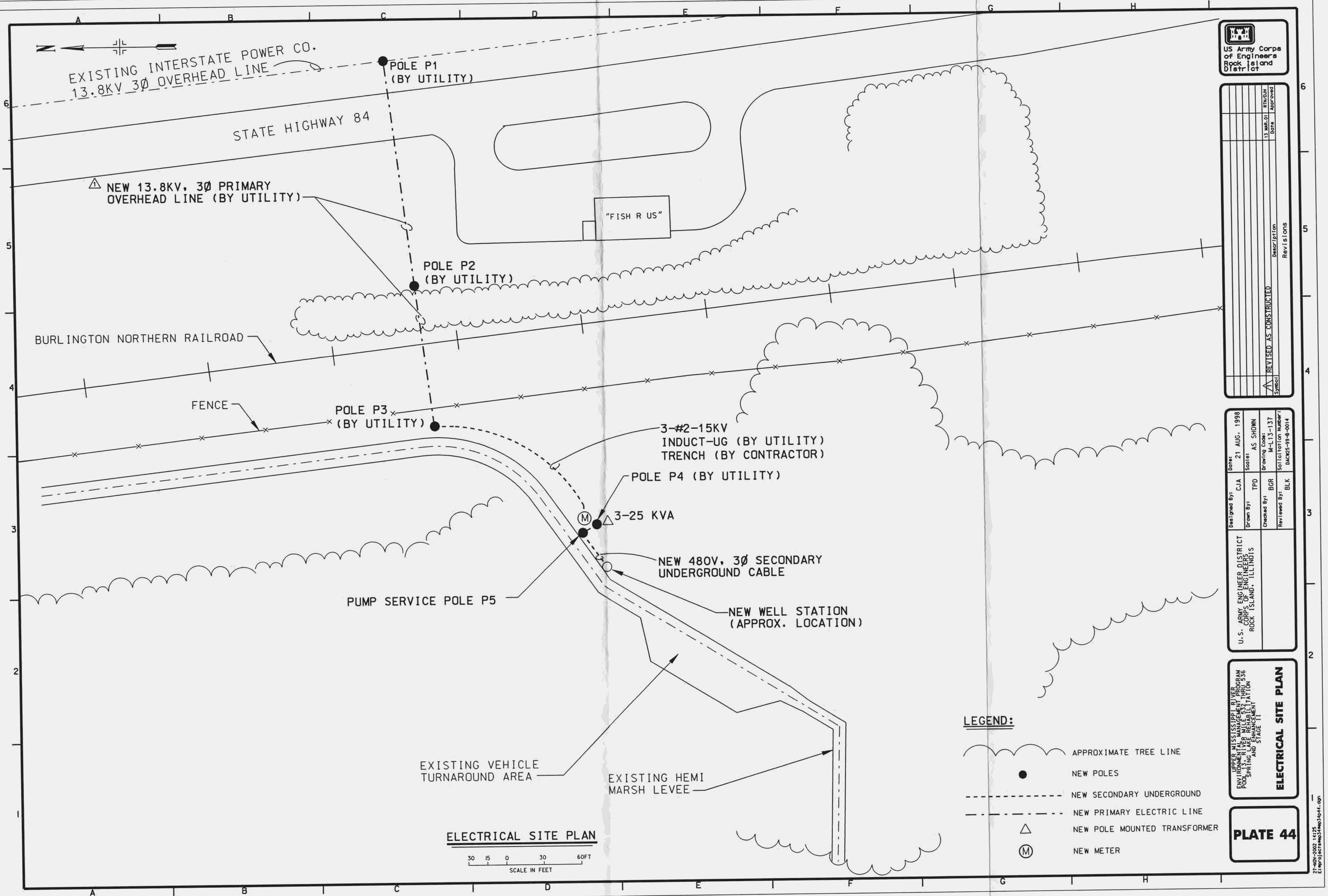
Date: 21 AUG. 1998
Scale: AS SHOWN
Drawing Code: M-L13-137
Solicitation Number: DACW25-99-B-0014

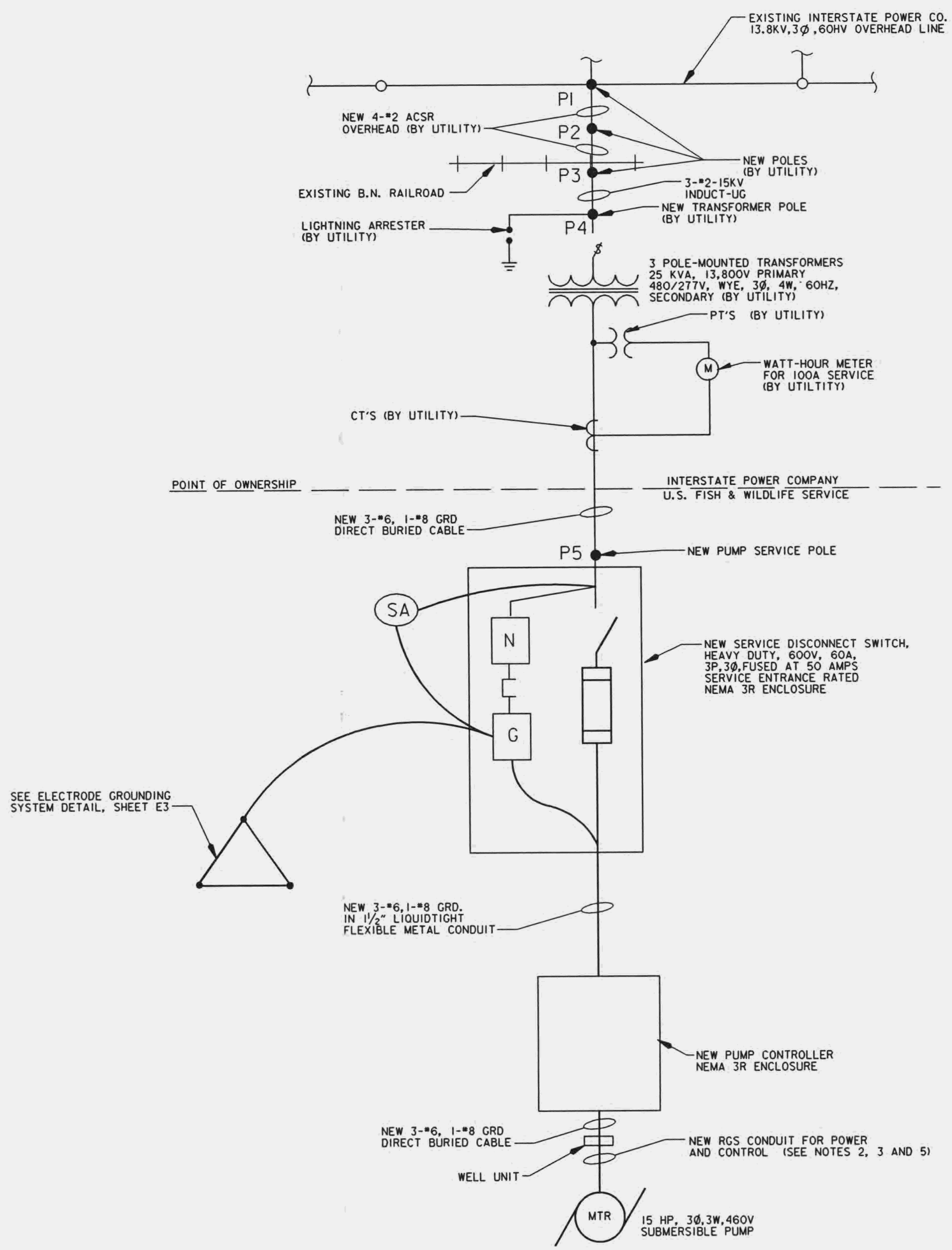
UPPER MISSISSIPPI RIVER
ENVIRONMENTAL MANAGEMENT PROGRAM
POOL 9 RIVER MILE 522 THRU 536
POOL SPRING LAKE REHABILITATION
AND ENHANCEMENT
STAGE II

HEMI-MARSH LEVEE
OFFSHORE ROCK
TYPICAL SECTION

PLATE 43

27-NOV-2002 11:27
d:\Projects\emp34\emp34pl43.dgn


EXISTING INTERSTATE POWER CO.
13.8KV 3Ø OVERHEAD LINE
POLE P1
(BY UTILITY)
STATE HIGHWAY 84
NEW 13.8KV, 3Ø PRIMARY
OVERHEAD LINE (BY UTILITY)
"FISH R US"
POLE P2
(BY UTILITY)
BURLINGTON NORTHERN RAILROAD
FENCE
POLE P3
(BY UTILITY)
3-#2-15KV
INDUCT-UG (BY UTILITY)
TRENCH (BY CONTRACTOR)
POLE P4 (BY UTILITY)
3-25 KVA
NEW 480V, 3Ø SECONDARY
UNDERGROUND CABLE
PUMP SERVICE POLE P5
NEW WELL STATION
(APPROX. LOCATION)
EXISTING VEHICLE
TURNAROUND AREA
EXISTING HEMI
MARSH LEVEE
ELECTRICAL SITE PLAN
30 15 0 30 60FT
SCALE IN FEET
LEGEND:
APPROXIMATE TREE LINE
NEW POLES
NEW SECONDARY UNDERGROUND
NEW PRIMARY ELECTRIC LINE
NEW POLE MOUNTED TRANSFORMER
NEW METER
US Army Corps
of Engineers
Rock Island
District
REVISED AS CONSTRUCTED
13 MAR.01
RTH/DJH
Symbol
Description
Date
Approved
Revisions
Designed By: CJA
Drawn By: TPD
Checked By: BGR
Reviewed By: BLK
Date: 21 AUG. 1998
Scale: AS SHOWN
Drawing Code: M-L13-137
Solicitation Number: DACW25-99-B-0014
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ROCK ISLAND, ILLINOIS
UPPER MISSISSIPPI RIVER
ENVIRONMENTAL MANAGEMENT PROGRAM
POOL 13, RIVER MILE 532 THRU 536
SPRING LAKE REHABILITATION
AND ENHANCEMENT
STAGE II
ELECTRICAL SITE PLAN
PLATE 44
27-NOV-2002 14:25
E:\projects\ep34\ep34p44.dgn



ELECTRICAL ONE-LINE DIAGRAM

NO SCALE

SCOPE OF ELECTRICAL WORK:

A. CONTRACTOR WORK INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING:

1. FURNISH AND INSTALL CONDUITS, CONDUCTORS, AND APPURTENANCES BETWEEN THE UTILITY TRANSFORMER POLE *4, AND THE SUBMERSIBLE WELL PUMP.
2. PROVIDE TRENCH AND BACKFILL BETWEEN UTILITY POLES *4, PUMP SERVICE POLE (P5) AND NEW WELL.
3. FURNISH AND INSTALL GROUNDING SYSTEM.
4. FURNISH AND INSTALL SECONDARY DISCONNECT SWITCH.
5. FURNISH AND INSTALL POLE (P5).
6. INSTALL METER BASE, FURNISHED BY UTILITY.
7. FURNISH AND INSTALL SECONDARY SURGE ARRESTER.
8. INSTALL PUMP CONTROLLER AND PUMP CABLE.
9. FURNISH AND INSTALL 1½" RGS CONDUIT RISER WITH WEATHERHEAD ON TRANSFORMER POLE P4.
10. PROVIDE TRENCH AND BACKFILL FOR PRIMARY CABLE. PRIMARY CABLE IS FURNISHED AND INSTALLED BY UTILITY.

B. UTILITY WORK INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING:

1. FURNISH AND INSTALL FOUR(4) POLES AND APPURTENANCES.
2. FURNISH AND INSTALL PRIMARY CABLES AND APPURTENANCES (OVERHEAD AND UNDERGROUND).
3. FURNISH AND INSTALL THREE (3) POLE MOUNTED TRANSFORMERS.
4. FURNISH AND INSTALL METER, CT'S, PT'S, CUTOUTS, ARRESTERS, GROUNDING, AND PRIMARY TERMINATION ON POLE P4.
5. PROVIDE SECONDARY CONNECTIONS TO TRANSFORMERS.

C THE ABOVE ELECTRICAL WORK IN PART B TO BE PROVIDED AT THE CONTRACTOR'S EXPENSE. COORDINATE ALL INTERSTATE POWER CO. WORK WITH THE CONTRACTOR.

D. INTERSTATE POWER CO. POINT OF CONTACT:
MR. BRUCE BIELEMA
201 NORTH SECOND STREET
CLINTON, IOWA 52732
TELEPHONE NO. (319) 243-2611 EXT.145

GENERAL NOTES:

1. PUMP MANUFACTURER SHALL FURNISH PUMP CONTROLLER.
2. PUMP MANUFACTURER SHALL SIZE AND FURNISH CABLE BETWEEN PUMP CONTROLLER AND SUBMERSIBLE WELL PUMP.
3. VERIFY CONDUIT SIZE WITH MANUFACTURER CABLE SIZE.
4. FOR WELL DETAILS, SEE SHEET C3.
5. NO SPLICES SHALL BE MADE TO PUMP MANUFACTURER SUPPLIED CABLE.
6. BOND GROUNDING ELECTRODES TOGETHER BELOW GRADE.
7. FOR GROUNDING DETAILS, SEE SHEET E3.
8. LEAVE ABOUT 3-4 FT. ADDITIONAL CABLE AT WEATHERHEAD ON POLE P4 FOR TRANSFORMER CONNECTIONS.
9. INSTALL SECONDARY SURGE ARRESTER IN NEMA 3R ENCLOSURE. ATTACH TO SIDE OF 60A SERVICE DISCONNECT SWITCH.
10. ALL NEMA 3R ENCLOSURES SHALL HAVE A BOTTOM BREATHER.
11. DISCONNECT AND CONTROLLER SHALL BE PADLOCKABLE.
12. BOND GROUNDING WELL CASING TO POWER SUPPLY GROUND.

ELECTRICAL LEGEND:

●	NEW POLE (BY UTILITY)		FUSIBLE DISCONNECT SWITCH
RGS	RIGID GALVANIZED STEEL		GROUNDING ELECTRODE
GRD	DENOTES GROUND	MTR	MOTOR
SA	SURGE ARRESTER		FUSE
CT	CURRENT TRANSFORMER	N	DENOTES NEUTRAL BUS
PT	POTENTIAL TRANSFORMER	G	DENOTES GROUND BUS
UG	UNDERGROUND	P1	DENOTES POLE NUMBER
		○	EXISTING UTILITY POLE

US Army Corps of Engineers Rock Island District

Symbol	Description	Date	Approved
1	REVISED AS CONSTRUCTED	13 MAR.01	RTN/DJH

Revisions

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ROCK ISLAND, ILLINOIS

Designed By:	CJA	Date:	21 AUG. 1998
Drawn By:	TPD	Scale:	AS SHOWN
Checked By:	BGR	Drawing Code:	M-L13-137
Reviewed By:	BLK	Solicitation Number:	DACW25-99-B-0014

UPPER MISSISSIPPI RIVER
ENVIRONMENTAL MANAGEMENT PROGRAM
POOL 13, RIVER MILE 532 THRU 536
SPRING LAKE REHABILITATION
AND ENHANCEMENT
STAGE II

ELECTRICAL ONE-LINE DIAGRAM AND SCOPE OF WORK

PLATE 45

27-NOV-2002 14:26
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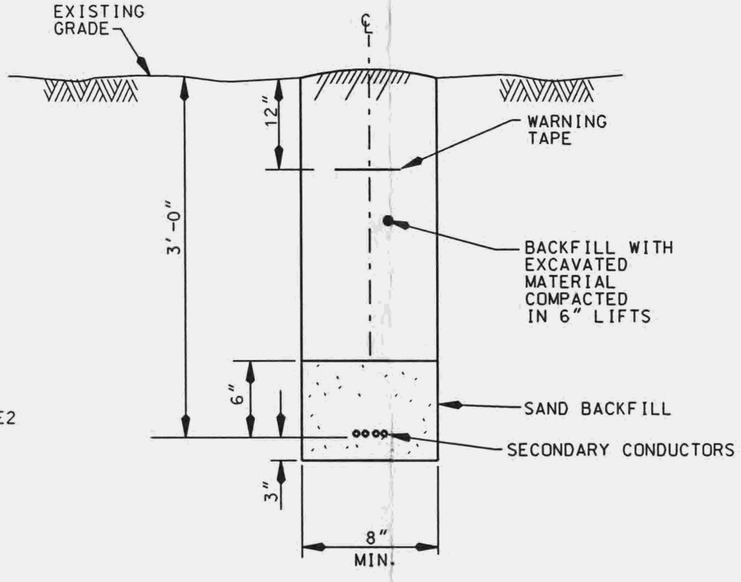
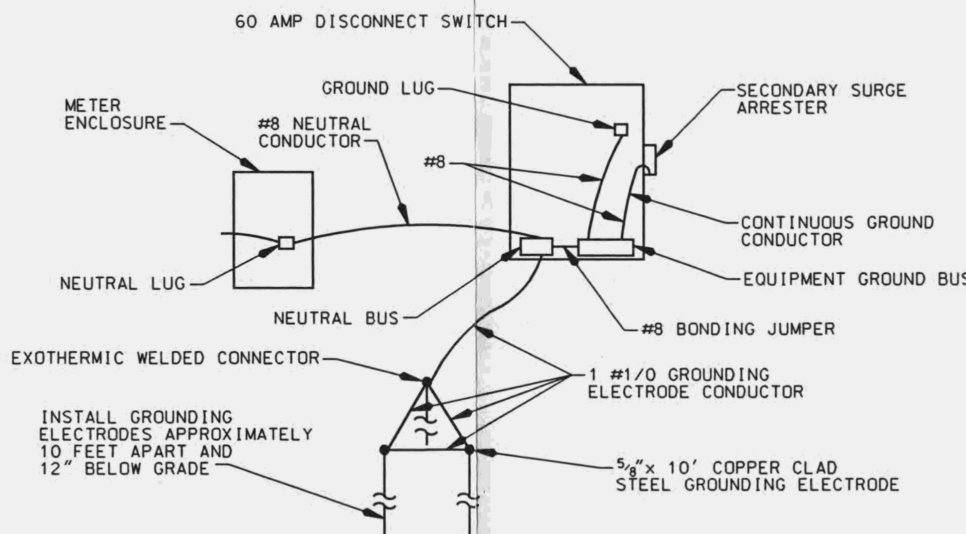


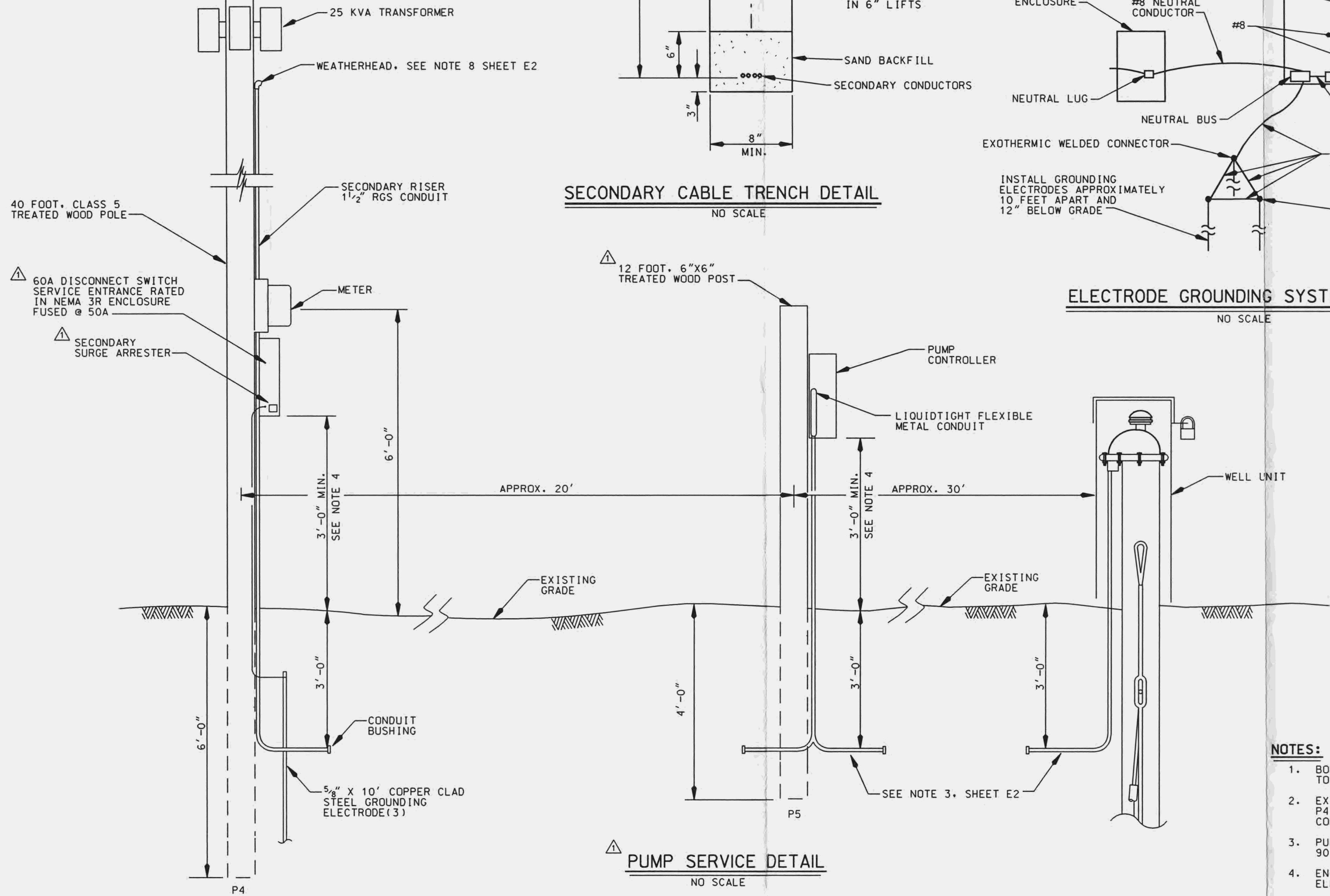
SECONDARY CABLE TRENCH DETAIL

NO SCALE



ELECTRODE GROUNDING SYSTEM DETAIL

NO SCALE



PUMP SERVICE DETAIL

NO SCALE

NOTES:

1. BOND GROUNDING OF WELL CASING TO POWER SUPPLY GROUND.
2. EXTEND CONDUIT 5 FOOT FROM POLES P4, P5 AND WELL UNIT. INSTALL CONDUIT BUSHINGS.
3. PUMP IS LOCATED IN WELL UNIT APPROX. 90-100 FT BELOW EXISTING GRADE.
4. ENCLOSURES MUST BE NO LOWER THAN ELEV. 597.

US Army Corps of Engineers Rock Island District

Symbol	Description	Date	Approved
1	REVISED AS CONSTRUCTED	13 MAR.01	RTR/DJK

Revisions

Designed By: CJA | Date: 21 AUG. 1998
Drawn By: TPD | Scale: AS SHOWN
Checked By: BGR | Drawing Code: M-L13-137
Reviewed By: BLK | Solicitation Number: DACW25-99-B-0014

U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS ROCK ISLAND, ILLINOIS

UPPER MISSISSIPPI RIVER ENVIRONMENTAL MANAGEMENT PROGRAM POOL 13, RIVER MILES 532 THRU 536 SPRING LAKE REHABILITATION AND ENHANCEMENT STAGE II

ELECTRICAL DETAILS

PLATE 46