



**US Army Corps  
of Engineers®**  
Rock Island District

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## **OPERATION AND MAINTENANCE MANUAL**

### **BANNER MARSH HABITAT REHABILITATION AND ENHANCEMENT PROJECT**

**ILLINOIS RIVER**

**ENVIRONMENTAL MANAGEMENT PROGRAM**

**LA GRANGE POOL**

**RIVER MILES 138.5 – 143.9**

**FULTON AND PEORIA COUNTIES, ILLINOIS**

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**January 2005**

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**FULTON AND PEORIA COUNTIES, ILLINOIS**

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**1. INTRODUCTION**

**A. Purpose and Scope**

1. This manual serves as a guide for the operation and maintenance of Banner Marsh Habitat Rehabilitation and Enhancement Project (HREP). The instructions are consistent with the general procedures presented in the September 1995 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 that 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.

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

**B. Use of the Manual**

1. This manual is divided into the following sections:

Section 1: Introduction

Section 2: Historical Summary

Section 3: Description of Project Features

Section 4: Inspections

Section 5: Operation and Maintenance of Project Features

Section 6: Project Rehabilitation or Abandonment

Section 7: Performance Monitoring and Assessment

2. Sections 2 and 3 present historical summaries 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 explains maintenance procedures and responsibilities when annual maintenance requirements are exceeded. Section 7 summarizes monitoring activities that were conducted during construction, and gives 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" drawings.

4. Specific approved shop drawings have been sent to the Illinois Department of Natural Resources (ILDNR) site manager under separate cover. The shop drawings may have additional details or O&M instructions specific to supplied products.

## **2. HISTORICAL SUMMARY**

### **A. Authorization and Location**

1. This project is authorized by the 1985 Supplemental Appropriations Act (Public Law 99-88) and Section 1103 of the Water Resources Development Act of 1986 (Public Law 99-662). The U.S. Army Corps of Engineers, Rock Island District (Corps), funded and constructed this project under this authorization in cooperation with the ILDNR.

2. The 5,524-acre Banner Marsh HREP is on the right descending bank of the Illinois Waterway approximately 18 miles downstream of Peoria Lock and Dam, between River Miles (RM) 138.5 and 143.9. It is located in Fulton and Peoria Counties, approximately 1.5 miles west of Kingston Mines, Illinois, and 1 mile east of Banner, Illinois.

### **B. Planning and Construction Activities**

1. **Summary.** Table 2.1 provides a summary of planning and construction activities.

Table 2.1 Summary of Planning and Construction Activities

Project Phase	Purpose	Responsible Agency	Item	Significant Events	Date	Remarks
Pre-project	Identify and define problems and establish need of project	CORPS/ILDNR	Fact Sheet Submitted to ASA <sup>1</sup> Approved by ASA		OCT 88 JUN 89	
Design	Quantify project objectives, perform preliminary design, satisfy NEPA and permit requirements, develop performance evaluation plan, obtain project approval for construction.	CORPS	Definite Project Report Draft JAN 95 Final Approved NEPA Compliance SHPO Concurrence Public Review FONSI for EA		SEP 95 MAY 96 SEP 94 JUL 95 OCT 95	
Construction	Finalize plans and specifications, obtain operation and maintenance agreement, advertise and award construction contract, construct project.	CORPS	Permits Section 401 Section 404 Plans and Specifications Approved Real Estate PCA Agreement		SEP 95 OCT 95 MAY 96 JAN 98	Ref. App. A

<sup>1</sup> Assistant Secretary of the Army

<sup>2</sup> To Be Prepared

Project Phase	Purpose	Responsible Agency	Item	Significant Events	Date	Remarks
Post Construction	Operate and maintain project.	ILDNR	Construction Contracts			
			Stage I Contract (State) Awarded		MAR 98	
			Substantially Complete		APR 99	
			Stage II Contract (Federal) Awarded		SEP 99	
			Substantially Complete		JUL 01	
			Stage III Contract (Federal) Awarded		MAR 03	
			Substantially Complete		MAY 03	Reference Sections 4 and 5
Perform evaluation monitoring		CORPS	Performance Evaluation Report			
			Draft		TBP <sup>2</sup>	Reference Section 6
			Final		TBP <sup>2</sup>	
			Approved		TBP <sup>2</sup>	

<sup>1</sup> Assistant Secretary of the Army

<sup>2</sup> To Be Prepared



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

<b>Goal</b>	<b>Objective</b>	<b>Potential Enhancement Feature</b>
enhance wetland habitat	increase littoral zone for ducks and fish  improve flood control reliability	provide reliable water control/source for contiguous channels  littoral zone grading  clear and stabilize levee
enhance terrestrial habitat	increase food and cover for terrestrial birds and mammals	prairie plantings
enhance aquatic habitat	increase diversity in aquatic habitat	littoral zone grading

3. **Project Design.** The Corps designed the project in cooperation with the ILDNR. Design considerations and investigations are presented in the Definite Project Report dated September 1995.

4. **Construction Contracts**

a. Stage I Contract. The Illinois Capital Development Board Contract was awarded to D & M Earthmoving, Plymouth, IL, on January 29, 1998 in the amount of \$1,157,539. The ILDNR supervised the construction contract.

b. Stage II Contract. The Contract was awarded to D & M Earthmoving, Plymouth, IL, on September 30, 1999 in the amount of \$2,080,905.45.

c. Stage III Contract. The Contract was awarded to Central Landscaping, Princeville, IL, on March 11, 2003 in the amount of \$175,387.84.

5. **Construction Problems**

a. The user changed the management criteria for the interior of the wildlife unit after the contract was awarded. The water levels in the wildlife area were raised during construction, which did not match criteria in the original contract specifications.

b. Specifications for placing of riprap and levee reconstruction “in the dry” were too restrictive given the historic hydrology of the IL River in this area and the “Flat Pool Elevation” depicted on contract drawings.

- c. Numerous unknowns in the original design of the pump station sump area were cause for a differing site condition and resulted in significant cost increase during the project.
- d. Delayed award of significant options in the bid schedule caused scheduling and costing problems for the contractor.
- e. Working in a heavily used public area such as Banner Marsh increases safety issues with heavy equipment usage, dust control, etc.
- f. Some levee repair sections specified for major repairs needed only minor grading repairs.
- g. Design templates did not match existing conditions in several reaches of levee repair.

**C. Actual Project Costs.** The actual project costs are presented in Table 2.3.

**Table 2.3** Actual Project Costs

<b>Banner Marsh State Fish and Wildlife Area, Illinois, Habitat Rehabilitation and Enhancement Project</b>					
<b>Item</b>	<b>Description</b>	<b>Quantity</b>	<b>U/M</b>	<b>U/P</b>	<b>Amount</b>
<b>STAGE I</b>					
0001	Lump Sum	1	LS		\$ 1,157,539.00
<b>Subtotal</b>					<b>\$ 1,157,539.00</b>
<b>STAGE II</b>					
<b>CONTRACT NO. DACW25-99-C-0039</b>					
0001	Clearing and Grubbing	1	LS	162500.00	162500.00
0002	Levee Excavation				0.00
0002AA	First 70,000 Cubic Yards	65342	CY	0.95	62074.90
0002AB	Over 70,000 Cubic Yards	0	CY	0.95	0.00
0003	Levee embankment				0.00
0003AA	First 115,000 Cubic Yards	115000	CY	6.95	799250.00
0003AB	Over 115,000 Cubic Yards	10744	CY	6.95	74670.80
0004	Compacted Roadway Embankment				0.00
0004AA	First 7,000 Cubic Yards	7000	CY	4.25	29750.00
0004AB	Over 7,000 Cubic Yards	5578	CY	4.25	23706.50
0005	Uncompacted Roadway Embankment				0.00
0005AA	First 11,500 Cubic Yards	11500	CY	3.25	37375.00
0005AB	Over 11,500 Cubic Yards	9070	CY	3.25	29477.50
0006	Granular Surfacing				0.00
0006AA	First 1,100 Tons	1,100	TN	16	17600.00
0006AB	Over 1,100 Tons	171.55	TN	16	2744.80
0007	Seeding				0.00
0007AA	First 19 Acres	19	AC	700	13300.00
0007AB	Over 19 Acres	17.85	AC	700	12495.00

**STAGE II**  
**CONTRACT NO. DACW25-99-C-0039**

<b>Item</b>	<b>Description</b>	<b>Quantity</b>	<b>U/M</b>	<b>U/P</b>	<b>Amount</b>
0008	Deleted				0.00
0009	Deleted				0.00
0010	Pump Station Rehabilitation				0.00
0010AA	Demolition	1	LS	53502.80	53502.80
0010AB	Concrete Work	1	LS	16681.60	16681.60
0010AC	Structural Steel Work	1	LS	52348.40	52348.40
0010AD	Architectural Work	1	LS	13000.00	13000.00
0010AE	Mechanical Work	1	LS	277870.50	277870.50
0010AF	Electrical Work	1	LS	112377.95	112377.95
0010AG	Site and Miscellaneous Work	1	LS	26000.00	26000.00
0011	Staff Gages	9	EA	1502.35	13521.15
0012	Steel Pipe Gate/Wood Barrier Post	1	LS	6120.40	6120.40
0013	New Culvert	1	LS	8410.45	8410.45
0014	Temporary Field Office	1	LS	23205.00	23205.00
0015	Monthly Telephone Bills				0.00
0015AA	First \$135.00	135	DL	1.25	168.75
0015AB	Over \$135.00	728.58	DL	1.25	910.73
0016	First Size Plans (Two Sets)	1	LS	100.26	100.26
0017	Not Used				0.00
0018	Not Used				0.00
0019	Not Used				0.00
0020	Not Used				0.00
0021	Stone Prot/Sta. 276+26-285+00/Bed				0.00
0021AA	First 1,100 Tons	1072.93	TN	15.00	16093.95
0021AB	Over 1,100 Tons	0	TN	15.00	0.00

**STAGE II**

**CONTRACT NO. DACW25-99-C-0039**

<b>Item</b>	<b>Description</b>	<b>Quantity</b>	<b>U/M</b>	<b>U/P</b>	<b>Amount</b>
0022	Stone Prot/Sta 276+26-285+00/RR				0.00
0022AA	First 3,200 Tons	3200	TN	29.00	92800.00
0022AB	Over 3,200 Tons	426.41	TN	29.00	12365.89
0023	Stone Prot/Sta 285+00-295+00/Bed				0.00
0023AA	First 1,250 Tons	1000.35	TN	15.00	15005.25
0023AB	Over 1,250 Tons		TN	15.00	0.00
0024	Stone Prot/Sta 285+00-295+00/RR				0.00
0024AA	First 3,750 Tons	3750	TN	29.00	108750.00
0024AB	Over 3,750 Tons	642.13	TN	29.00	18621.77
0025	Stone Prot/Sta 295+00-305+00/Bed				0.00
0025AA	First 1,250 Tons	850.98	TN	15.00	12764.70
0025AB	Over 1,250 Tons		TN	15.00	0.00
0026	Stone Prot/Sta 295+00-305+00/RR				0.00
0026AA	First 3,750 Tons	3750	TN	29.00	108750.00
0026AB	Over 3,750 Tons	1457.09	TN	29.00	42255.61
0027	Stone Prot/Sta 305+00-315+00/Bed				0.00
0027AA	First 1,250 Tons	747.65	TN	15.00	11214.75
0027AB	Over 1,250 Tons	0	TN	15.00	0.00
0028	Stone Prot/Sta 305+00-315+00/RR				0.00
0028AA	First 3,750 Tons	3743.62	TN	29.00	108564.98
0028AB	Over 3,750 Tons	0	TN	29.00	0.00
0029	Stone Prot/Sta 315+00-325+00/Bed				0.00
0029AA	First 1,250 Tons	1218.05	TN	15.00	18270.75
0029AB	Over 1,250 Tons	0	TN	15.00	0.00

**STAGE II**  
**CONTRACT NO. DACW25-99-C-0039**

<b>Item</b>	<b>Description</b>	<b>Quantity</b>	<b>U/M</b>	<b>U/P</b>	<b>Amount</b>
0030	Stone Prot/Sta 315+00-325+00/RR				0.00
0030AA	First 3,750 Tons	3750	TN	29.00	108750.00
0030AB	Over 3,750 Tons	2576.42	TN	29.00	74716.18
0031	Stone Prot/Sta 325+00-335+00/Bed				0.00
0031AA	First 1,250 Tons	1250	TN	15.00	18750.00
0031AB	Over 1,250 Tons	6	TN	15.00	90.00
0032	Stone Prot/Sta 325+00-335+00/RR				0.00
0032AA	First 3,750 Tons	3750.00	TN	29.00	108750.00
0032AB	Over 3,750 Tons	2558.04	TN	29.00	74183.16
0033	Stone Prot/Sta 335+00-345+00/Bed				0.00
0033AA	First 1,250 Tons	1112.6	TN	15.00	16689.00
0033AB	Over 1,250 Tons		TN	15.00	0.00
0034	Stone Prot/Sta 335+00-345+00/RR				0.00
0034AA	First 3,750 Tons	3750	TN	29.00	108750.00
0034AB	Over 3,750 Tons	1183.49	TN	29.00	34321.21
0035	Stone Prot/Sta 345+00-355+00/Bed				0.00
0035AA	First 1,250 Tons	1250	TN	15.00	18750.00
0035AB	Over 1,250 Tons	183.12	TN	15.00	2746.80
0036	Stone Prot/Sta 345+00-355+00/RR				0.00
0036AA	First 3,750 Tons	3750	TN	29.00	108750.00
0036AB	Over 3,750 Tons	597.66	TN	29.00	17332.14
0037	Stone Prot/Sta 355+00-365+00/Bed				0.00
0037AA	First 1,250 Tons	1250	TN	15.00	18750.00
0037AB	Over 1,250 Tons	392.57	TN	15.00	5888.55

STAGE II					
CONTRACT NO. DACW25-99-C-0039					
Item	Description	Quantity	U/M	U/P	Amount
0038	Stone Prot/Sta 355+00-365+00/RR				0.00
0038AA	First 3,750 Tons	3750	TN	29.00	108750.00
0038AB	Over 3,750 Tons	2561.64	TN	29.00	74287.56
0039	Stone Prot/Sta 365+00-375+00/Bed				0.00
0039AA	First 1,250 Tons	1250	TN	15.00	18750.00
0039AB	Over 1,250 Tons	76.95	TN	15.00	1154.25
0040	Stone Prot/Sta 365+00-375+00/RR				0.00
0040AA	First 3,750 Tons	3750	TN	29.00	108750.00
0040AB	Over 3,750 Tons	779.21	TN	29.00	22597.09
0041	Not Used				0.00
0042	H2O Control Structure 1 (Opt K2)	1	LS	32362.98	32362.98
0043	Not Used				0.00
0044	H2O Control Structure 1 (Opt L2)	1	LS	31174.52	31174.52
*	P00001 Funding to \$2,000,000.00		N/A	N/A	0.00
*	P00002 Full Size Plans (0016)		N/A	N/A	0.00
*	P00003 Exercise Option K2 and L2		N/A	N/A	0.00
*	P00004 Exercise Options A thru J		N/A	N/A	0.00
*	P00005 Funding to \$1,500,000.00		N/A	N/A	0.00
*	P000A1 Revise Service Rd Alignment		N/A	N/A	0.00
*	P000A2 Revise Bedding Mat'l Gradation		N/A	N/A	0.00
*	P00006 Funding to \$1,750,000.00		N/A	N/A	0.00
*	P00007 Funding to \$1,860,812.00		N/A	N/A	0.00
*	Time Ext for Placement of Riprap		N/A	N/A	0.00
*	P00008 Funding to \$2,410,812.00		N/A	N/A	0.00
0042AA	P000A4 Additional Stop Logs	1	LS	1897.19	1897.19
*	P00009 Funding to \$2,670,812		N/A	N/A	0.00
0045	P00010 Pump Station Changes	1	LS	147780.00	147780.00
0046	Additional Pumping	1	LS	8726.18	8726.18
0047	New Stainless Steel Impeller	1	LS	18000.31	18000.31
0048	Impeller Crane Mobilization/Demob.	1	EA	3210.00	3210.00
<b>Subtotal</b>					<b>\$3,729,277.26</b>

**STAGE III**  
**CONTRACT NO. DACW25-99-C-0039**

<b>Item</b>	<b>Description</b>	<b>Quantity</b>	<b>U/M</b>	<b>U/P</b>	<b>Amount</b>
0001	Herbicide Treatment	144	AC	75.80	10915.20
0002	Seeding (Seed Mixture in accordance with 2.1.2.1.a)	144	AC	315.00	45360.00
0003	Mulching	144	AC	500.00	72000.00
0004	Seeding (Seed Mixture in accordance with 2.1.2.1.a)	144	AC	90.20	12988.20
0005	Seeding (Seed Mixture in accordance with 2.1.2.1.b)	144	AC	51.18	7369.92
0006	Not Used				
0007	Not Used				
0008	Seeding (Seed Mixture in accordance with 2.1.2.1.e)	144	AC	49.25	7092.00
0009	Not Used				
0010	Seeding (Seed Mixture in accordance with 2.1.2.1.g)	144	AC	24.61	3543.84
0011	Not Used				
0012	Seeding (Seed Mixture in accordance with 2.1.2.1.i)	144	AC	63.32	9118.08
0013	Not Used				
0014	Disking	1	LS	7000.00	7000.00
<b>Subtotal</b>					<b>\$175,387.84</b>
<b>TOTAL CONSTRUCTION</b>					<b>\$5,062,154.10</b>
<b>PLANNING, ENGINEERING CONSIDERATIONS AND DESIGN</b>					<b>\$1,454,216.71</b>
<b>SUPERVISION AND ADMINISTRATION</b>					<b>\$407,504.49</b>
<b>TOTAL PROJECT COSTS</b>					<b>\$6,923,875.30</b>

**Note: This is an estimate of contracts costs - pending modifications and closeout costs - and is subject to change.**



**D. Project References.** Table 2.4 summarizes related project references.

**Table 2.4** Project References

Title	Date	Purpose
Upper Mississippi River System Environmental and Management Program, Definite Project Report (R-12F) with Integrated Environmental Assessment, Banner Marsh State Fish and Wildlife Area Rehabilitation and Enhancement, U.S. Army Corps of Engineers, Rock Island District	May 93	Provide planning, engineering, and sufficient construction details of the selected plan for project approval processes.
Construction As-Builts	March 04	Provide as-built construction drawings.
Manufacturer's Data (Shop Drawings)	TBP <sup>1</sup>	Provide detailed operation and maintenance instructions for specific pieces of equipment as recommended by the manufacturer.
Performance Evaluation Report	TBP <sup>1</sup>	Provide summary of project performance based on project post-construction monitoring.

<sup>1</sup> To Be Prepared

### 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
<b>Levee Restoration</b>		
Length	44,500	feet
Crown width	10	feet
Side slopes	2.5:1	horizontal:vertical
Level of protection	100+	year event
Elevation	555.5 - 559.4	feet NGVD
Embankment volume	126,223	cubic yard
Riprap	51,551.72	ton
Bedding Stone	10,604.88	ton
<b>Pump Station Rehabilitation</b>		
New pump	35,000	GPM
Discharge diameter	48	inches
Pump power	265	Hp
<b>Improve Service Road</b>		
Embankment volume	33148	cubic yard
<b>Water Control Structures</b>		
	2	each
<b>Littoral Zone / Contour Grading</b>		
Surface Area	TBP <sup>1</sup>	acre
Material Volume Moved	TBP <sup>1</sup>	cubic yard
Area Seeded	TBP <sup>1</sup>	acre
<b>Prairie Planting</b>		
Surface Area	144	acre

<sup>1</sup> To Be Prepared

**B. General Description.** The Banner Marsh HREP project consists of aquatic habitat enhancement by levee improvement, pump station rehabilitation, littoral zone grading, and prairie plantings.

**C. Levee Improvement.** The existing levee slopes were restored to their original condition with a 2.5 horizontal feet on 1 vertical foot slope. Riprap was placed on selected reaches of the levee that have been historically vulnerable to scouring.

**D. Pump Station Rehabilitation.** The pump station at Banner Marsh was originally constructed in the early 1900's and had become badly dilapidated. Two of the three

existing pumps were antiquated and were removed, along with all associated controllers, vacuum pumps, and ancillary equipment. The third pump – a Couch 24-inch vertical turbine (model NW320X24) – was left in place. This pump was rebuilt in the early 1990's and was considered to be in acceptable working condition. Plan views and pump station details are shown on Plates 27 - 38.

Pump station rehabilitation included:

- installing new electrical transformers, service entrance, breakers, lighting
- replacing roof, siding, and doors
- stripping, painting, and selecting replacement of structural members
- capping the brick foundation with concrete
- placing a new concrete floor overlay
- re-grading existing ground around pump station and installing a foundation drain
- installing new decking and stairs over forebay
- replacing trash rack
- replacing 24-inch discharge pipe and flap gate for the Couch pump

After rehabilitation, a new 48-inch submersible pump manufactured by EBARA Corp. was installed with new controller, discharge can, and approximately 30 feet of new pipe. The new pipe was attached to the existing 48-inch pipe where it enters the levee. A new flap gate was installed on the existing pipe. This new pump is used primarily for backup pumping or during periods of extended precipitation, when the smaller pump is unable to evacuate the marsh.

The rated capacities of the 24-inch, 100HP and 48-inch, 265 HP pumps are 13,600 GPM @ 21.0' TDH, 885 RPM, and 39,000 GPM @ 15.2' TDH, 710 RPM, respectively. Primary pumping is performed with the 24-inch pump and backup pumping is performed with the 48-inch pump. Simultaneous pumping can be performed with both pumps although they are electrically interlocked to prevent simultaneous start-up and early re-start. The pump station is operated automatically with manual override for both pumps. The electric service provided to the pump station building is 480V, 800Amp, three-phase power. Pump status for both pumps are signaled with visual alarm lights located on the exterior west wall of the pump station building. A chart recorder was provided to record pump operation and duration for both pumps.

The pump station was furnished with a new galvanized steel trash rack and platform grating. The trash rack bar openings are spaced at 2 ½". The sump and location of the 48-inch pump were modified from the original plans due to an unforeseen submerged foundation footing and a formed suction intake from the original construction of the pump station.

Both pumps are located within a refurbished steel framed, insulated, and sided building. Discharge pipes slope downward through the levee section to a ripped discharge apron. Each pipe is equipped with a flap gate and a combination air/vacuum

relief valve. Staff gages were permanently installed on the riverside slope of the levee. The reference elevation for the forebay was marked to be the inside bottom steel channel of the floatwell, El. 432.14.

**E. Service Road Improvement.** Since the ILDNR started operating Banner Marsh as a wildlife area, the primary road to the pump station, known as Bell's Landing Road, was frequently inundated. The electric distribution lines serving the pump station were located adjacent to this road and the poles were nearly always inundated and had started to lean. A failure of these power lines would leave the pump station with no pumping capability. With the road inundated and no ability to pump water from the marsh, such a failure could have disastrous consequences on the pump station and the EMP project as a whole.

To remedy this situation, Bell's Landing Road was raised, as much as seven feet in areas, to a constant elevation of 439.0. A 30-ft wide shoulder was extended out beyond the power poles to allow service trucks and personnel access to the power lines without having to reach across water. Because this action compromised the line to ground clearance, Ameren CIPS replaced the poles with taller ones and reestablished minimum safe clearances.

**F. Water Control Structures.** To allow water levels in different parts of the marsh to be managed independently, two CMP stoplog structures were installed. Each structure consists of a 48-inch horizontal inlet pipe, a 60-inch vertical riser pipe with 4-inch stoplog slots, and a 48-inch horizontal outlet pipe. Each structure is provided with 25 stoplogs, a lifting hook, and a lockable, hinged metal grating cover. Pipe bollards protect the structures from vehicular damage. Staff gages installed upstream of each structure provide accurate water level measurement. The structures are designed to allow water levels to be varied within an 8-ft range between fully open and fully closed.

**G. Littoral Zone/Contour Grading.** Littoral zone grading occurred because of controlled borrow operations. A borrow area were excavated to an unknown elevation. The design called for excavation of the borrow area to an elevation of 433.5, but the area was never surveyed. According to the original design, the area would be re-flooded to water elevation 435 to provide the desired 18 inches of water depth; however, the ILDNR is currently maintaining a water depth of approximately three feet.

**H. Prairie Plantings.** Sites were selected for prairie planting in the project area (see Plate 24). Approximately 144 acres were planted.

The first herbicide treatment was completed on April 22, 2003 and the second herbicide treatment was completed on May 15, 2003. The disking, seeding, and mulching began on May 20, 2003 and were completed on May 29, 2003. Only 100 acres were disked before seeding. See Plate 24 for the disked area. Species were intermixed to avoid solid blocks of individual species. Planting rates per acre are as follows:

<b>Grass Species</b>	<b>Ounces/Acre</b>
Big bluestem ( <i>Andropogon gerardii</i> )	16
Little bluestem ( <i>Schizachyrium scoparium</i> )	32
Indian grass ( <i>Sorghastrum nutans</i> )	8
Sideoats gramma ( <i>Bouteloua curtipendula</i> )	48
Prairie dropseed ( <i>Sporobolus heterolepis</i> )	16
Canada wildrye ( <i>Elymus canadensis</i> )	48
<b>Forbe Species</b>	<b>Ounces/Acre</b>
Lead plant ( <i>Amorpha canescen</i> )	1
Butterfly Milkweed ( <i>Asclepias tuberos</i> )	1
New England aster ( <i>Aster novae-angliae</i> )	0.75
Milk vetch ( <i>Astragalus Canadensis</i> )	2
Partridge pea ( <i>Cassia fasciculate</i> )	3
Illinois bundleflower ( <i>Desmanthus illinoensis</i> )	3
Illinois tick trefoil ( <i>Desmodium illinoense</i> )	1.5
Purple coneflower ( <i>Echinacea purpurea</i> )	1
Early (false) sunflower ( <i>Heliopsis helianthoides</i> )	2
Roundhead lespedeza ( <i>Lespedeza capitata</i> )	1.5
Prairie blazing star ( <i>Liatris pycnostachya</i> )	3
Gray-headed coneflower ( <i>Ratibida pinnata</i> )	2.25
Black-eyed susan ( <i>Rudbeckia hirta</i> )	0.75
Rosin weed ( <i>Silphium integrifolium</i> )	1.5
Compass plant ( <i>Silphium laciniatum</i> )	2
Common ironweed ( <i>Vernonia fasciculate</i> )	1.5
Golden alexenders ( <i>Zizia aurea</i> )	1
Pale Indian plantain ( <i>Cacalia atriplicifolia</i> )	0.75
Prairie coreopsis ( <i>Coreopsis palmate</i> )	1
Purple prairie clover ( <i>Dalea purpureum</i> )	0.75
Pale beardstongue ( <i>Penstemon pallidus</i> )	0.75
False Dragonhead ( <i>Physostegia speciosa</i> )	0.75
Culver's Root ( <i>Veronicastrum virginicu</i> )	0.75
False indigo ( <i>Baptisia leucophaea</i> )	0.75
Prairie Alumroot ( <i>Heuchera richardsonii</i> )	0.75
Wild Petunia ( <i>Ruellia humilis</i> )	0.75
Blue-eyed Grass ( <i>Sisyrinchium albidum</i> )	0.75

## **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 Corps

### **B. Project Inspection by Site Manager**

1. For the purpose of noting routine deficiencies and initiating corrective actions the Project Inspection should be performed by the Site Manager or appropriate representative. 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 after-spring flood conditions. 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: 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 the U.S. Army Corps of Engineers**

1. Routine. A Joint Inspection by the Site Manager and the Corps shall be made in accordance with ER 1130-2-339. The purpose of this inspection is to assure that adequate maintenance is being performed as presented in the DPR 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. The Site Manager should formally request a Joint Inspection by the Site Manager and the Corps immediately following a specific storm or flood event which causes damage exceeding the annual operation and maintenance as specified in this manual and the DPR. The Project Inspection

by the Site Manager and Joint Inspection results will be the basis for determining maintenance responsibility and potential rehabilitation by the Corps.

## **5. OPERATION AND MAINTENANCE OF PROJECT FEATURES**

### **A. General**

1. This section presents operation and maintenance instructions for the major project features. All features were designed and constructed to minimize operation and maintenance requirements.
2. 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.
3. 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. 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. Drawings or prints showing improvements or alterations as finally constructed shall be furnished to the District Engineer after completion of such work.

### **B. Levee**

#### **1. Operation**

- a. During periods of high river stage, the levee should be inspected to assure that:
  - (1) there are no indications of slides or sloughs developing;
  - (2) wave wash or scouring action is not occurring;
  - (3) no low reaches of levee below design grade exist which may be overtopped; and
  - (4) 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.

## 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 periods of high river stage. Measures should be taken to promote the growth of sod, control burrowing animals, provide routine mowing (two per year) on the levee extending 10 feet horizontally from the toe of the levee, remove wild growth and drift deposits, and repair damage caused by erosion or other forces. Any weed growth on the riprap should be eradicated.

b. Project inspections should be made by the Site Manager to ensure that the above maintenance measures are being effectively carried out and to assure that:

- (1) no unusual settlement, sloughing or material loss has taken place that might affect the stability of the levee section;
- (2) no seepage, saturated areas, or sand boils are occurring;
- (3) no action is being taken, such as burning grass and weeds during inappropriate seasons, which will retard or destroy the growth of sods;
- (4) the crown of the levee is shaped to drain readily;
- (5) there is no unauthorized grazing or vehicular traffic on the levee; and
- (6) encroachments are not being made on the levee which might endanger the structure or hinder its proper and efficient functioning during high river stages.

c. Such inspections should be made prior to the beginning of a known high water event, immediately following major high water periods, and otherwise at intervals necessary to insure the best care of the levee or one time per year. 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.



## **C. Pump Station**

### **1. Operation**

- a. To drain the Banner Wildlife Management Area, the pump must be activated manually or by selecting automatic mode using the appropriate "MAN-OFF-AUTO" switch, located on the respective control panels.
- b. If the pump is in the manual mode, the pump will be initiated at the discretion of the Site Manger.
- c. If automatic mode is used the pump station will start evacuating the Banner Wildlife Management Area when the water level exceeds elevation 431.0 and will continue pumping until the water level drops to elevation 430.0, at which time the 48-inch pump will automatically stop. The 24-inch pump will continue operation until it stops at elevation 429.0. With the pump controls remaining in the "AUTO" position, the pump station will automatically turn on the 24-inch pump at water elevation 430.0 and the 48-inch pump at water elevation 431.0. If either "pump off" float should fail, the pumps will automatically shut off by a "Low Water" float at elevation 428.0

### **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:

- (1) Building. Visually inspect siding and insulation to discover damage, vandalism, faulty joints, or leaks. Check for damage to railings, stairs, safety chains, doors, vents, latches, and all other hardware. Inspect foundation and concrete surfaces for cracks, spilling, leaks, etc. Discourage rodents, birds, hornets, etc. from building nests in and around the building.

- (2) Pumps

- (a) Both the 48-inch and the 24-inch pump should be observed for indications of improper operation or damage. Operation of pumps during sump cavitations or ice conditions should be avoided. Both pumps will automatically shut down through the pump control unit located in the electrical panel on phase loss, phase reversal, phase imbalance, under-voltage, or ground fault. The 48-inch pump will

also shut down on high stator winding temperature, stator casing leakage, and high bearing temperature. Warning lights for system shutdown should be checked before restarting the respective pump. The outdoor pump indicator/warning lights should be checked for proper operation. Periodically, the sump should be checked for proper water depth, especially prior to extended operation. Mud in the sump may be a cause for cavitations during operation.

(b) The Site Manager should have an Ebara<sup>®</sup> authorized representative conduct pump inspections and maintenance and repair work in accordance with the manufacturer's specifications, and operations and maintenance manuals for the 48-inch 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.

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

(4) Trash Rack. Check for trash accumulation at rack and remove as necessary. Compare water depths both inside and outside of the trash rack. Should operating conditions or observations indicate trouble is developing and operating conditions will permit, inspect racks to indicate general condition. Repair as necessary to maintain a satisfactory condition. Underwater inspection of racks may be more practical than removal of racks.

(5) Adjacent Levee Embankment. Visually inspect embankments adjacent to the pump station foundation, the forebay, and the discharge piping for unusual settlement, seepage, erosion, and movement.

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

## **D. Water Control Structures**

### **1. Operation**

a. Two stoplog lifting hooks are furnished with each structure for the installation and removal of the stoplogs. These tools 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.

## 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:

- (1) stoplogs, staff gages, pipe bollards, grating, hinges, and locks are in good operating condition;
- (2) inlet and outlet channels are open;
- (3) sediment buildup is not occurring;
- (4) care is being exercised to prevent the accumulation of trash and debris near the structure; and
- (5) 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. Service Road

1. **Operation.** There are no specific operating requirements for the road. However, use by large trucks should be limited to dry periods, when the road surface is best suited for handling large loads.

2. **Maintenance.** The conditions of the road should be inspected as appropriate, such as after periods of high water. Inspections should check for:

- a. embankment instability and sloughing that might occur;
- b. loss of granular surfacing on the road; and
- c. deterioration, such as ruts and potholes.

## **F. Prairie Plantings**

**1. Operation.** There are no specific operating requirements for the prairie plantings.

**2. Maintenance.**

a. In the first year after the prairie is planted, the prairie should be mowed to a height of 12-15 inches until August 1<sup>st</sup>. In the second year, no mowing of the prairie should occur; however, if there are isolated spots where weed growth is excessive, the spots should be mowed. In the second or third year, a spring burn should be conducted. Sections of the prairie shall be burned every year until a healthy prairie is established. After the prairie is established, the prairie shall be burned every three years at a minimum.

b. The prairie should be inspected by a random traverse once per year to ensure adequate growth of diverse species. The Site Manager or appropriate representative should ensure that the species that were planted are present and healthy. In addition, the Site Manager or appropriate representative should record species that are out-competing others and note the presence of exotic species. If problems are noted the Corps Project Engineer shall be contacted.

## **G. Littoral Zone**

**1. Operation.** The littoral zone was originally designed to have 18 inches of water covering the area. Currently, the ILDNR is operating the area with approximately three feet of water submerging vegetation. The altered operation of the littoral zone area does not necessarily conflict with the project objectives, but may change the type of vegetation that will grow.

**2. Maintenance.** There are no specific maintenance requirements for the littoral zone.

## **6. PROJECT REHABILITATION OR ABANDONMENT**

**A. General.** In accordance with the PCA between the ILDNR and the Corps, the Corps will share the cost of any mutually agreed-upon repair and rehabilitation of the Banner Marsh project that exceeds the annual maintenance requirements and that may be 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. Project Rehabilitation or Abandonment.** 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 ILDNR 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 ILDNR versus potential rehabilitation by the Corps. Repair of damage attributable to lack of maintenance is an ILDNR responsibility.

The options of rehabilitation or abandonment of the project may be considered at such time. Any decision would be carried forth only upon written mutual agreement of the ILDNR 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**

**A. General.** 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 actual monitoring and data parameters grouped by project phase, responsible agency, and data collection intervals. Changes to the monitoring plan should be coordinated with the ILDNR, and the Corps.

**B. Post-Construction.** Table 7.3 presents the annual post-construction field observations to be performed by the Site Manager. Table 7.4 presents the post-construction quantitative measurements to be performed by the Corps. The monitoring parameters were developed to measure the effectiveness of the stated goals. The Site Manager should follow Table 7.3, 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**

<b>Project Phase</b>	<b>Type of Activity</b>	<b>Purpose</b>	<b>Responsible Agency</b>	<b>Implementing Agency</b>	<b>Funding Source</b>	<b>Implementation Instructions</b>
Pre-Project	Pre-Project Monitoring	Identify and define problems at HREP site. Establish need of proposed project features	IL DNR	IL DNR	IL DNR	---
	Baseline Monitoring	Establish baselines for performance evaluation.	Corps	Corps	HREP <sup>1</sup>	---
Design	Data Collection for Design	Include quantification of project objectives, design of project, and development of performance evaluation plan.	Corps	Corps	HREP <sup>1</sup>	---
	Construction Monitoring	Assess construction impacts; assures permit conditions are met.	Corps	Corps	HREP <sup>1</sup>	---
Post-Project	Performance Evaluation Monitoring	Determine success of project as related to objectives.	Corps (quantitative) Sponsor (field observation)	Corps IL DNR	HREP <sup>1</sup>	---

<sup>1</sup> Habitat Rehabilitation and Enhancement Projects of the Environmental Management Program (P.L. 99-662)

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	Pre-Project Phase	Design Phase	Post-Const. Phase		
	Oct-Mar	Apr-Sep	Oct-Mar	Apr-Sep	Oct-Mar	Apr-Sep	Oct-Mar	Apr-Sep	Oct-Mar	Apr-Sep	Oct-Mar	Apr-Sep		
<b>Point Measurements</b>														
Water Quality Stations														
W-M443.6 G														COE
Turbidity	2W	2W												
Secchi Disk Transparency	2W	2W												
Suspended Solids	2W	2W												
Dissolved Oxygen	2W	2W												
Specific Conductance	2W	2W												
Water Temperature	2W	2W												
Ph	2W	2W			2W	M								
Total Alkalinity	---	---			2W	M								
Chlorophyll	2W	2W												
Velocity	---	---												
Water Depth	2W	2W												
Water Elevation	2W	2W												
Sediment Test Stations														
Elutriate		1												
Bulk Sediment		1												
Column Settling Stations														
Column Settling Analysis										1				
Boring Stations														
Geotechnical Borings										1				

Table 7-2 (continued). 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-Sep	Apr-Sep	Oct-Mar	Apr-Sep									
Transect Measurements													
Sedimentation Transects													
Hydrographic Soundings					1								None required
Vegetation Transects													
Mast Tree/Vegetation Survey											5Y		
Area Measurements													
Mapping													
Aerial Photography									1				5Y

**Legend:** M = Monthly  
nW = n-Week interval  
Y = n-Year interval  
1, 2, 3 = number of times data is collected within designated project phase



**Table 7-3. Annual Post-Construction Field Observation**

<b>Goal</b>	<b>Objective</b>	<b>Unit of Measure</b>	<b>Enhancement Feature</b>	<b>Field Observation</b>
enhance wetland habitat	improve flood control reliability provide reliable food source for migratory birds	lineal feet of eroded levee acres of aquatic vegetation	levee restoration water control improvements	describe any erosional/seepage effects estimate effective acreage and wildlife use
enhance terrestrial habitat	increase overall vegetation diversity and availability of preferred wildlife foods	acres of native grass	prairie plantings	estimate area of established/regenerated vegetation
enhance aquatic habitat	increase diversity in aquatic habitat	acres of aquatic habitat less than 36"	littoral zone/contour grading	estimate area of aquatic habitat less than 36"

**Table 7-4. Post-Construction Quantitative Measurements**

<b>Goal</b>	<b>Objective</b>	<b>Unit of Measure</b>	<b>Enhancement Feature</b>	<b>Monitoring Plan</b>	<b>Monitoring Levels</b>
enhance wetland habitat	improve flood control reliability provide reliable food source for migratory birds increase overall vegetation diversity and availability of preferred wildlife foods	lineal feet of eroded levee acres of aquatic vegetation	levee restoration water control improvements	levee system transects/profiles vegetation surveys	yearly 5 years
enhance terrestrial habitat	increase diversity in aquatic habitat	acres of native grass acres of aquatic habitat less than 36"	prairie plantings littoral zone/contour grading	vegetation surveys hydrographic soundings	5 years 5 years

**APPENDIX A**  
**PROJECT COOPERATION AGREEMENT**

PROJECT COOPERATION AGREEMENT  
BETWEEN  
THE DEPARTMENT OF THE ARMY  
AND  
THE STATE OF ILLINOIS  
FOR CONSTRUCTION OF THE  
BANNER MARSH STATE FISH AND WILDLIFE  
HABITAT REHABILITATION AND ENHANCEMENT PROJECT  
IN FULTON AND PEORIA COUNTIES, ILLINOIS . . .

THIS AGREEMENT is entered into this 29 day of JANUARY, 1998, by and between the DEPARTMENT OF THE ARMY (hereinafter the "Government"), represented by the District Engineer for the Rock Island District, and THE STATE OF ILLINOIS DEPARTMENT OF NATURAL RESOURCES (hereinafter the "State"), represented by the Director, Illinois Department of Natural Resources.

WITNESSETH, THAT:

WHEREAS, construction of the Habitat Rehabilitation and Enhancement Project, at Banner Marsh State Fish and Wildlife Area in Fulton and Peoria Counties, Illinois was approved under the terms of the Upper Mississippi River System Environmental Management Program, as authorized by Section 1103(e) of the Water Resources Development Act of 1986, Public Law 99-662, as amended;

WHEREAS, the Government and the State desire to enter into a Project Cooperation Agreement for construction of the Banner Marsh State Fish and Wildlife Area Habitat Rehabilitation and Enhancement Project (hereinafter the "Project", as defined in Article I.A. of this Agreement);

WHEREAS, Section 906(e) of Public Law 99-662 provides that the first costs for enhancement of fish and wildlife resources shall be a Federal cost when certain specified circumstances are present;

WHEREAS, Section 906(e) further provides that when such specified circumstances are not present, 25 percent of the first cost of enhancement of fish and wildlife resources shall be provided by the Non-Federal Interest;

WHEREAS, the Government and the State agree that the specified circumstances referred to in Subsection 906(e) of Public Law 99-662 are not present for the Project;

WHEREAS, Section 1103(e)(7)(a) of the Water Resources Development Act of 1986, Public Law 99-662, as amended by Section 107(b) of the Water Resources Development Act of 1992, Public Law 102-580, specifies the operation and maintenance responsibilities for the Project;

WHEREAS, Section 221 of the Flood Control Act of 1970, Public Law 91-511, as amended, provides that the Secretary of that Army shall not commence construction of any water resources project, or separable element thereof, until each non-federal sponsor has entered into a written agreement to furnish its required cooperation for the project or separable element;

WHEREAS, Section 1103 of the Water Resources Development Act of 1986, Public Law 99-662, as amended, establishes the maximum amount of costs for the habitat rehabilitation and enhancement component of the Upper Mississippi River System Environmental Management Program;

WHEREAS, the State proposes to perform certain work, hereinafter referred to as the "Section 215 Work" which is a part of the Project;

WHEREAS, timely performance of the Section 215 Work by the State will repair sections of the authorized project to prevent additional damages by fluctuating water levels and advance the completion of the Project;

WHEREAS, Section 215 of Public Law 90-483, as amended, provides that the Secretary of the Army may enter into an agreement to credit or reimburse the costs of certain work accomplished by states or political subdivisions thereof, which later is incorporated into an authorized project when it is determined that such credit or reimbursement is in the public interest;

WHEREAS, the Secretary of the Army has determined that it is in the public interest to credit the State for that portion of the Section 215 Work, as defined in Article I.K. of this Agreement;

WHEREAS, Section 215 of Public Law 90-483, as amended, limits Federal credit for a single project to no more than \$5,000,000 or 1 percent of the total project costs, whichever is greater.

WHEREAS, pursuant to the Intergovernmental Cooperative Act, 5ILCS 220/1, Illinois Constitution Article 7, Section 10, and 20ILCS 805/63(B), the State has authority to enter into this agreement.

WHEREAS, the Government and the State have the full authority and capability to perform as hereinafter set forth and intend to cooperate in cost-sharing and financing of the construction of the Project in accordance with the terms of this Agreement.

NOW, THEREFORE, the Government and the State agree as follows:

#### ARTICLE I - DEFINITIONS AND GENERAL PROVISIONS

For purposes of this Agreement:

A. The term "Project" shall mean the improvement of the existing levee which is approximately 44,500 feet; relocation of an existing 14,000 gpm pump which includes constructing a permanent concrete building to house the diesel engine and supplies; contour grading of three selected sites for littoral zone development which will also be used for borrow; and planting of native grass on approximately 144 acres all as generally described in the Upper Mississippi River System Environmental Management Program Definite Project Report With Integrated Environmental Assessment (R-11F) Banner Marsh State Fish and Wildlife Area, LaGrange Pool, Illincis River, Miles 138.5 through 143.9, Fulton and Peoria County, Illinois, dated September 1995, and approved by the Assistant Secretary Of The Army-(Civil Works), on 20 March 1996.

B. The term "total project costs" shall mean all costs incurred by the State and the Government in accordance with the terms of this Agreement directly related to construction of the Project. Subject to the provisions of this Agreement, the term shall include, but is not necessarily limited to: continuing planning and engineering costs incurred after October 1, 1985; advanced engineering and design costs; preconstruction engineering and design costs;

engineering and design costs during construction; the costs of investigations to identify the existence and extent of hazardous substances in accordance with Article XV.A. of this Agreement; costs of historic preservation activities in accordance with Article XVIII.A. of this Agreement; actual construction costs including costs incurred for the Section 215 Work as defined in paragraph K. of this Article for which the Government affords credit in accordance with Article II.D.2. of this Agreement, to the extent that they do not duplicate costs otherwise included in this paragraph; supervision and administration costs; costs of participation in the Project Coordination Team in accordance with Article V of this Agreement; costs of contract dispute settlements or awards; the value of lands, easements, right-of-way, relocation, and suitable borrow and dredged or excavated material disposal areas for which the Government affords credit in accordance with Article IV of this Agreement; and costs of audit in accordance with Article X of this Agreement. The term does not include any costs for operation, maintenance, repair, replacement, or rehabilitation; any costs due to betterments; or any costs of dispute resolution under Article VII of this Agreement.

C. The term "financial obligation for construction" shall mean a financial obligation of the Government, other than an obligation pertaining to the provision of lands, easements, rights-of-way, relocations, and borrow and dredged or excavated material disposal areas, that results or would result in a cost that is or would be included in total project costs.

D. The term "non-Federal proportionate share" shall mean the ratio of the State's total cash contribution required in accordance with Article II.D.2. of this Agreement to total financial obligations for construction, as projected by the Government.

E. The term "period of construction" shall mean the time from the date the Government first notifies the State in writing, in accordance with Article VI.B. of this Agreement, of the scheduled date for issuance of the solicitation for the first construction contract to the date that the U.S. Army Engineer for the Rock Island District (hereinafter the "District Engineer") notifies the State in writing of the Government's determination that construction of the Project is complete.

F. The term "highway" shall mean any public highway, roadway, street, or way, including any bridge thereof.

G. The term "relocation" shall mean providing a functionally equivalent facility to the owner of an existing utility, cemetery, highway or other public facility, or railroad when such action is authorized in accordance with applicable legal principles of just compensation or as otherwise provided in the authorizing legislation for the Project or any report referenced therein. Providing a functionally equivalent facility may take the form of alteration, lowering, raising, or replacement and attendant removal of the affected facility or part thereof.

H. The term "fiscal year" shall mean one fiscal year of the Government. The Government fiscal year begins on October 1 and ends on September 30.

I. The term "functional portion of the Project" shall mean a portion of the Project that is suitable for tender to the State to operate and maintain in advance of completion of the entire Project. For a portion of the Project to be suitable for tender, the District Engineer must notify the State in writing of the Government's determination that the portion of the Project is complete and can function independently and for a useful purpose, although the balance of the Project is not complete.

J. The term "betterment" shall mean a change in the design and construction of an element of the Project resulting from the application of standards that the Government determines exceed those that the Government would otherwise apply for accomplishing the design and construction of that element.

K. The term "Section 215 Work" means Project work commencing after the execution of this Agreement and for which the Government will give credit pursuant to Section 215 of Public Law 90-483 and the Section 215 Agreement incorporated herein by reference, and shall include stripping and clearing vegetation from critical reaches of the riverward levee slope between Stations 258+00 to 277+00 and Stations 356+00 to 380+00, excavation of approximately 87,000 cubic yards of borrow material, from specified locations within the Banner Marsh site, placement and semicompaction of the borrow material to restore the riverward slope of the levee, and placement of approximately 5,000 tons of bedding rock and 16,000 tons of riprap on all restored areas. The Section 215 Work shall not include the value of lands, easements, rights-of-way, or relocations, including suitable borrow and dredged or excavated material disposal areas necessary solely for the Section 215 Work.

L. The terms "operation," "repair," and "replacement" shall mean those actions required by the annual operation and maintenance requirements identified in the Definite Project Report described in paragraph A. of this Article.

M. The term "rehabilitation" shall mean those actions in excess of the annual operation and maintenance requirements identified in the Definite Project Report described in paragraph A. of this Article.

## ARTICLE II - OBLIGATIONS OF THE GOVERNMENT AND THE STATE

A. The Government, subject to receiving funds appropriated by the Congress of the United States (hereinafter, the "Congress") and using those funds and funds provided by the State, shall expeditiously construct the Project (with the exception of the Section 215 Work), applying those procedures usually applied to Federal projects, pursuant to Federal laws, regulations, and policies.

1. The Government shall afford the State the opportunity to review and comment on the solicitations for all contracts, including relevant plans and specifications, prior to the Government's issuance of such solicitations. The Government shall not issue the solicitation for the first construction contract until the State has confirmed in writing its willingness to proceed with the Project. To the extent possible, the Government shall afford the State the opportunity to review and comment on all contract modifications, including change orders, prior to the issuance to the contractor of a Notice to Proceed. In any instance where providing the State with notification of a contract modification or change order is not possible prior to issuance of the Notice to Proceed, the Government shall provide such notification in writing at the earliest date possible. To the extent possible, the Government also shall afford the State the opportunity to review and comment on all contract claims prior to resolution thereof. The Government shall consider in good faith the comments of the State, but the contents of solicitations, award of contracts, execution of contract modifications, issuance of change orders, resolution or contract claims, and performance of all work on the Project (with the exception of the Section 215 Work) (whether the work is performed under contract or by Government personnel), shall be exclusively within the control of the Government.



2. Throughout the period of construction, the District Engineer shall furnish the State with a copy of the Government's Written Notice of Acceptance of Completed Work for each contract for the Project.

3. For the Section 215 Work the Government shall be afforded the opportunity to review and comment on the solicitations for all contracts, including relevant plans and specifications, prior to the State's issuance of such solicitations. No construction shall commence under this Agreement until the designs, detailed plans and specifications, and arrangements for prosecution of the Section 215 Work have been approved in writing by the District Engineer, or his representative, all bids received and the proposed provisions of any contract shall be subject to review by the Government prior to contract award. In addition, all proposed changes in approved designs, plans, and specifications also must be reviewed and approved by the District Engineer or his representative in writing in advance of the related construction where practicable.

To the extent possible, the State also shall afford the Government the opportunity to review and comment on all contract claims prior to resolution thereof. The State shall consider in good faith the comments of the Government made as a result of its review, but the contents of solicitations, award of contracts, execution of contract modifications, issuance of change orders, resolution of contract claims, and performance of all Section 215 Work shall be exclusively within the control of the State. However, the failure of the State to comply with direction received from the District Engineer, with respect to the Section 215 Work, may result in the costs associated with such work being determined ineligible for credit towards the State's share of total project costs.

B. The State may request the Government to accomplish betterments. Such requests shall be in writing and shall describe the betterments requested to be accomplished. If the Government in its sole discretion elects to accomplish the requested betterments or any portion thereof, it shall so notify the State in a writing that sets forth any applicable terms and conditions, which must be consistent with this Agreement. In the event of conflict between such a writing and this Agreement, this Agreement shall control. The State shall be solely responsible for all costs due to the requested betterments and shall pay all such costs in accordance with Article VI.C. of this Agreement.

C. When the District Engineer determines that the entire Project is complete or that a portion of the Project has become a functional portion of the Project, the District Engineer shall so notify the State in writing and furnish the State with an Operation and Maintenance Manual (hereinafter the "O&M Manual") and with copies of all of the Government's Written Notices of Acceptance of Completed Work for all contracts for the Project or the functional portion of the Project that have not been provided previously. Upon such notification, the State shall operate and maintain the entire Project or the functional portion of the Project in accordance with Article VIII of this Agreement.

D. The State shall contribute 25 percent of total project costs in accordance with the provisions of this paragraph.

1. In accordance with Article III of this Agreement, the State shall provide all lands, easements, rights-of-way, and suitable borrow and dredged or excavated material disposal areas that the Government determines the State must provide for the construction, operation, and maintenance of the Project and shall perform or ensure performance of all relocations that the Government determines to be necessary for the construction, operation, and maintenance of the Project.

2. If the Government projects that the value of the State's contributions under paragraph D.1 of this Article and Articles V, X, and XV.A. of this Agreement will be less than 25 percent of total project costs, the State shall provide an additional cash contribution, in accordance with Article VI.B. of this Agreement, in the amount necessary to make the State's total contribution equal to 25 percent of total project costs. As authorized by Section 215 of Public Law 90-483, as amended, the Government may afford credit for the Section 215 Work. Such credit may be afforded in increments as useful increments of the Section 215 Work are completed by the State. The affording of such credit shall be subject to a technical review by the Government to verify that the credited work was accomplished in a satisfactory manner and in accordance with the limitations contained in this Agreement. To afford any such credit, the Government, as further specified in Article VI.B. of this Agreement, shall apply the actual amount of credit toward the cash contribution required by this paragraph. The actual amount of credit shall not exceed the State's actual costs attributable to the Section 215 Work. The actual amount of credit shall be subject to an audit in accordance with Article X.C. of this Agreement to determine reasonableness, allocability, and allowability of costs.

If the actual amount of credit exceeds the cash contribution required by this paragraph, the Government, subject to the availability of funds, shall, on behalf of the State, provide Project lands, easements, rights-of-way, and suitable borrow and dredged or excavated material disposal areas, or perform Project relocations, equal in value to such excess credit amount. As an alternative, and in its sole discretion, the Government may, subject to the availability of funds, reimburse the State in an amount equal to such excess credit amount.

3. If the Government determines that the value of the State's contributions provided under paragraphs D.1. and D.2. of this Article and Articles V, X, and XV.A. of this Agreement has exceeded 25 percent of total project costs, the Government, subject to the availability of funds, shall reimburse the State for any such value in excess of 25 percent of total project costs. After such a determination, the Government, in its sole discretion, may provide any remaining Project lands, easements, rights-of-way, and suitable borrow and dredged or excavated material disposal areas and perform any remaining project relocations on behalf of the State.

E. The State may request the Government to provide lands, easements, rights-of-way, and suitable borrow and dredged or excavated material disposal areas or perform relocations on behalf of the State. Such requests shall be in writing and shall describe the services requested to be performed. If in its sole discretion the Government elects to perform the requested services or any portion thereof, it shall so notify the State in a writing that sets forth any applicable terms and conditions, which must be consistent with this Agreement. In the event of conflict between such a writing and this Agreement, this Agreement shall control. The State shall be solely responsible for all costs of the requested services and shall pay all such costs in accordance with Article VI.C. of this Agreement. Notwithstanding the provision of lands, easements, rights-of-way, and suitable borrow and dredged or excavated material disposal areas or performance of relocations by the Government, the State shall be responsible, as between the Government and the State, for the costs of cleanup and response in accordance with Article XV.C. of this Agreement.

F. The Government shall perform a final accounting in accordance with Article VI.D. of this Agreement to determine the contributions provided by the State in accordance with paragraphs B., D., and E. of this Article and Articles V, X, and XV.A. of this Agreement and to determine whether the State has met its obligations under paragraphs B., D., and E. of this Article.

G. In addition to any other limitations contained in this Agreement, the affording and the amount of credit is subject to the following additional limitations:

1. Any reimbursement for the Section 215 Work performed by the State shall be dependent upon the appropriation of funds applicable thereto or funds available therefor, and shall not take precedence over other pending work of higher priority at the same or other improvement projects.

2. Any work undertaken by the State prior to the effective date of this Agreement shall not be subject to credit or reimbursement pursuant to this Agreement.

3. No credit shall be given or reimbursement made unless and until the District Engineer, U. S. Army Engineer District, Rock Island, has certified that the Section 215 Work subject to credit or reimbursement pursuant to this Agreement has been performed in accordance with this Agreement.

4. This Agreement shall not be construed as either committing the Government to assume any responsibility placed upon the State or any other non-Federal entity by the conditions of project authorization or any other applicable statute or regulation, or as committing the Government to reimburse the State if the Authorized Project is not undertaken or is modified so as to make the Section 215 Work performed by the State no longer an integral part of the Authorized Project.

5. Credit or reimbursement shall not be made for any work which does not, in the judgment of the Government, conform to the description set forth in Article I.K. of this Agreement.

6. The amount of credit or reimbursement, or combination thereof, to be provided by the Government to the State shall not exceed the Government's estimate of what the cost of the Section 215 Work would be if it were to be accomplished by the Government as a component of the Authorized Project, or the State's actual auditable costs for the Section 215 Work, whichever is less. The Government's estimate is \$1,300,000 which may be increased at its sole discretion.

7. The amount of credit or reimbursement for which the State may be eligible pursuant to this Agreement is not subject to interest charges, nor is it subject to adjustment to reflect changes in price levels between the time the Section 215 Work is completed and the time that the credit or reimbursement is afforded.

8. The amount of credit or reimbursement provided by the Government to the State for the Section 215 Work described herein, in combination with any credit or reimbursement provided pursuant to any other Section 215 Agreement executed for the Authorized Project, shall not exceed the statutory limitation of five million dollars (\$5,000,000) or one (1) percent of total project costs, whichever is greater.

9. The State shall obtain all applicable Federal, State and local permits required for the performance of the Section 215 Work and for operation, maintenance, repair, rehabilitation and replacement of the Project.

10. Any contract awarded by the State for the Section 215 Work under this Agreement shall include provisions consistent with all applicable Federal laws and regulations.

H. The State shall not use Federal funds to meet the State's share of total project costs under this Agreement unless the Federal granting agency verifies in writing that the expenditure of such funds is expressly authorized by statute.

I. Prior to construction, the State shall satisfy the requirements of the National Environmental Policy Act and any other applicable environmental statutes and executive orders

### ARTICLE III - LANDS, RELOCATIONS, DISPOSAL AREAS, AND PUBLIC LAW 91-646 COMPLIANCE

A. The Government, after consultation with the State, shall determine the lands, easements, and rights-of-way required for the construction, operation, and maintenance of the Project, including those required for relocations, borrow materials, and dredged or excavated material disposal. The Government in a timely manner shall provide the State with general written descriptions, including maps as appropriate, of the lands, easements, and rights-of-way that the Government determines the State must provide, in detail sufficient to enable the State to fulfill its obligations under this paragraph, and shall provide the State with a written notice to proceed with acquisition of such lands, easements, and rights-of-way. Prior to the end of the period of construction, the State shall acquire all lands, easements, and rights-of-way set forth in such descriptions. Furthermore, prior to issuance of the solicitation for each construction contract, the State shall provide the Government with authorization for entry to all lands, easements, and rights-of-way the Government determines the State must provide for that contract.

For so long as the Project remains authorized, the State shall ensure that lands, easements, and rights-of-way that the Government determines to be required for the operation and maintenance of the Project and that were provided by the State are retained in public ownership for uses compatible with the authorized purposes of the Project.

B. The Government, after consultation with the State, shall determine the improvements required on lands, easements, and rights-of-way to enable the proper disposal of dredged or excavated material associated with the construction, operation, and maintenance of the Project. Such improvements may include, but are not necessarily limited to, retaining dikes, wasteweirs, bulkheads, embankments, monitoring features, stilling basins, and de-watering pumps and pipes. The Government in a timely manner shall provide the State with general written descriptions of such improvements in detail sufficient to enable the State to fulfill its obligations under this paragraph, and shall provide the State with a written notice to proceed with construction of such improvements. Prior to the end of the period of construction, the State shall provide all improvements set forth in such descriptions. Furthermore, prior to issuance of the solicitation for each Government construction contract, the State shall prepare, or insure the preparation of, plans and specifications for all improvements the Government determines to be required for the proper disposal of dredged or excavated material under that contract, submit such plans and specifications to the Government for approval, and provide such improvements in accordance with the approved plans and specifications.

C. The Government, after consultation with the State, shall determine the relocations necessary for the construction, operation, and maintenance of the Project, including those necessary to enable the removal of borrow materials and the proper disposal of dredged or excavated material. The Government in a timely manner shall provide the State with general written descriptions, including maps as appropriate, of such relocations in detail sufficient to enable the State to fulfill its obligations under this paragraph, and shall provide the State with a written notice to proceed with such relocations. Prior to the end of the period of construction, the State shall perform or ensure the performance of all relocations as set forth in such descriptions. Furthermore, prior to issuance of the solicitation for each Government construction contract, the State shall prepare or ensure the preparation of plans and specifications for, and perform or ensure the performance of, all relocations the Government determines to be necessary for that contract.

D. The State in a timely manner shall provide the Government with such documents as are sufficient to enable the Government to determine the value of any contribution provided pursuant to paragraphs A., B., or C. of this Article. Upon receipt of such documents the Government, in accordance with Article IV of this Agreement and in a timely manner, shall determine the value of such contribution, include such value in total project costs, and afford credit for such value toward the State's share of total project costs.

E. The State shall comply with the applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646, as amended by Title IV of the Surface Transportation and Uniform Relocation Assistance Act of 1987 (Public Law 100-17), and the Uniform Regulations contained in 49 C.F.R. Part 24, in acquiring lands, easements, and rights-of-way required for the construction, operation, and maintenance of the Project, including those necessary for relocations, borrow materials, and dredged or excavated material disposal, and shall inform all affected persons of applicable benefits, policies, and procedures in connection with said Act.

#### ARTICLE IV - CREDIT FOR VALUE OF LANDS, RELOCATIONS, AND IMPROVEMENTS OF DISPOSAL AREAS

A. The State shall receive credit toward it's share of total project costs for the value of the lands, easements, rights-of-way, and suitable borrow and dredged or excavated material disposal areas that the State must provide pursuant to Article III of this Agreement, for the value of the relocations, that the State must perform or for which it must ensure performance pursuant to Article III of this Agreement and for the value of all legally acquired lands, easements, rights-of-way, and suitable borrow and dredged or excavated material disposal areas and relocations that the Government determines to be necessary for construction, operation and maintenance of the Section 215 work. However, the State shall not receive credit for the value of any lands, easements, rights-of-way, relocations, or borrow and dredged or excavated material disposal areas that have been provided previously as an item of cooperation for another Federal project, or that are owned by the State on the effective date of this agreement. The State also shall not receive credit for the value of lands, easements, rights-of-way, relocations, or borrow and dredged or excavated material disposal areas to the extent that such items are provided using Federal funds unless the Federal granting agency verifies in writing that such credit is expressly authorized by statute.

B. For the sole purpose of affording credit in accordance with this Agreement, the value of lands, easements, and rights-of-way, including those necessary for relocations, borrow materials, and dredged or excavated material disposal, shall be fair market value of the real property interests, plus certain incidental costs of acquiring those interests, as determined in accordance with the provisions of this paragraph.

1. Date of Valuation. The fair market value of lands, easements, or rights-of-way owned by the State on the effective date of this Agreement shall be fair market value of such real property interests as of the date the State provides the Government with authorization for entry thereto or, if the State performs the Section 215 Work, the date that the State begins construction of such work. However, for lands, easements, or rights-of-way owned by the State on the effective date of this agreement that are required for the construction of the Section 215 work, fair market value shall be the value of such real property interests as of the date the State awards the first construction contract for the Section 215 work, or, if the State performs the construction with its own labor, the date that the State begins construction of the Section 215 work. The fair market value of lands, easements, or rights-of-way acquired by the State after the effective date of this Agreement shall be the fair market value of such real property interests at the time the interests are acquired.

2. General Valuation Procedure. Except as provided in paragraph B.3. of this Article, the fair market value of lands, easements, or rights-of-way shall be determined in accordance with paragraph B.2.a. of this Article, unless thereafter a different amount is determined to represent fair market value in accordance with paragraph B.2.b. of this Article.

a. The State shall obtain, for each real property interest, an appraisal that is prepared by a qualified appraiser who is acceptable to the State and the Government. The appraisal must be prepared in accordance with the applicable rules of just compensation, as specified by the Government. The fair market value shall be the amount set forth in the State's appraisal, if such appraisal is approved by the Government. In the event the Government does not approve the State's appraisal, the State may obtain a second appraisal and the fair market value shall be the amount set forth in the State's second appraisal, if such appraisal is approved by the Government.



In the event the Government does not approve the State's second appraisal, or the State chooses not to obtain a second appraisal, the Government shall obtain an appraisal and the fair market value shall be the amount set forth in the Government's appraisal, if such appraisal is approved by the State. In the event the State does not approve the Government's appraisal, the Government, after consultation with the State shall consider the Government's and the State's appraisal and determine an amount based thereon, which shall be deemed to be the fair market value.

b. Where the amount paid or proposed to be paid by the State for the real property interest exceeds the amount determined pursuant to paragraph B.2.a. of this Article, the Government, at the request of the State, shall consider all factors relevant to determining fair market value and, in its sole discretion, after consultation with the State, may approve in writing an amount greater than the amount determined pursuant to paragraph B.2.a. Article, but not to exceed the amount actually paid or proposed to be paid. If the Government approves such an amount, the market value shall be the lesser of the approved amount or the amount paid by the State, but not less than the amount determined pursuant to paragraph B.2.a. of this Article.

3. Eminent Domain Valuation Procedure. For lands, easements, or rights-of-way acquired by eminent domain proceedings instituted after the effective date of this Agreement, the State shall, prior to instituting such proceedings, submit to the Government notification in writing of its intent to institute such proceedings and an appraisal of the specific real property interest to be acquired in such proceedings. The Government shall have 60 days after receipt of such notice and appraisal within which to review the appraisal, if not previously approved by the Government in writing.

a. If the Government previously has approved the appraisal in writing, or if the Government provides written approval of, or takes no action on, the appraisal within such 60-day period, the appraisal shall be considered approved and the State shall use the amount set forth in such appraisal as the estimate of just compensation for the purpose of instituting the eminent domain proceeding.

b. If the Government provides written disapproval of the appraisal, including the reasons for the disapproval, within such 60-day period, the Government and the State shall consult in good faith to promptly resolve the issues or areas of disagreement that are identified in the Government's written disapproval. If, after such good faith consultation; the Government and the State agree as to an appropriate amount, then the State shall use that amount as the estimate of just compensation for the purpose of instituting the eminent domain proceeding. If, after such good faith consultation, the Government and the State cannot agree as to an appropriate amount, then the State may use the amount set forth in its appraisal as the estimate of just compensation for the purpose of instituting the eminent domain proceeding.

c. For lands, easements, or rights-of-way acquired by eminent domain proceedings instituted in accordance with subparagraph B.3. of this Article, fair market value shall be either the amount of the court award for the real property interests taken, to the extent the Government determined such interests are required for the construction, operation, and maintenance of the Project, or the amount of any stipulated settlement or portion thereof that the Government approves in writing.

4. Incidental Costs. For lands, easements, or rights-of-way acquired by the State within a five-year period preceding the effective date of this Agreement, or at any time after the effective date of this Agreement, the value of the interest shall include the documented incidental costs of acquiring the interest as determined by the Government, subject to an audit in accordance with Article X.C. of this Agreement to determine reasonableness, allocability, and allowability of costs. Such incidental costs shall include, but not necessarily be limited to, closing and title costs, appraisal costs, survey costs, attorney's fees, plat maps, and mapping costs, as well as the actual amounts expended for payment of any Public Law 91-646 relocation assistance benefits provided in accordance with Article III.E. of this Agreement.

C. After consultation with the State, the Government shall determine the value of relocation in accordance with the provisions of this paragraph.

1. For a relocation other than a highway, the value shall be only that portion of relocation costs that the Government determines is necessary to provide a functionally equivalent facility, reduced by depreciation, as applicable and by the salvage value of any removed items.

2. For a relocation of a highway, the value shall be only that portion of relocation costs that would be necessary to accomplish the relocation in accordance with the design standard that the State of Illinois would apply under similar conditions of geography and traffic load, reduced by the salvage value of any removed items.

3. Relocation costs shall include, but not necessarily be limited to, actual costs of performing the relocation; planning, engineering and design costs; supervision and administration costs; and documented incidental costs associated with performance of the relocation, but shall not include costs due to betterments, as determined by the Government, nor any additional cost of using new material when suitable used material is available. Relocation costs shall be subject to an audit in accordance with Article X.C. of this Agreement to determine reasonableness, allocability, and allowability of costs.

D. The value of the improvements made to lands, easements, and rights-of-way for the proper disposal of dredged or excavated material shall be the costs of the improvements, as determined by the Government, subject to an audit in accordance with Article X.C. of this Agreement to determine reasonableness, allocability, and allowability of costs. Such costs shall include, but not necessarily be limited to, actual costs of providing the improvements; planning, engineering and design costs; supervision and administration costs; and documented incidental costs associated with providing the improvements, but shall not include any costs due to betterments, as determined by the Government.

#### ARTICLE V - PROJECT COORDINATION TEAM

A. To provide for consistent and effective communication, the State and the Government, not later than 30 days after the effective date of this Agreement, shall appoint named senior representatives to a Project Coordination Team. Thereafter, the Project Coordination Team shall meet regularly until the end of the period of construction. The Government's Project Manager and a counterpart named by the State shall co-chair the Project Coordination Team.

B. The Government's Project Manager and the State's counterpart shall keep the Project Coordination Team informed of the progress of construction and of significant pending issues and actions, and shall seek the views of the Project Coordination Team on matters that the Project Coordination Team generally oversees.

C. Until the end of the period of construction, the Project Coordination Team shall generally oversee the Project, including issues related to design; plans and specifications; scheduling; real property and relocation requirements; real property acquisition; contract awards and modifications; construction of the Section 215 Work; contract costs; the Government's cost projections; final inspection of the entire Project or functional portions of the Project; preparation of the proposed O&M Manual; anticipated requirements and needed capabilities for performance of operation, maintenance, repair, replacement, and rehabilitation of the Project; and other related matters. This oversight shall be consistent with a project management plan developed by the Government after consultation with the State.

D. The Project Coordination Team may make recommendations that it deems warranted to the District Engineer on matters that the Project Coordination Team generally oversees, including suggestions to avoid potential sources of dispute. The Government, in good faith, shall consider the recommendations of the Project Coordination Team. The Government, having the legal authority and responsibility for construction of the Project, has the discretion to accept, reject, or modify the Project Coordination Team's recommendations.

E. The costs of participation in the Project Coordination Team shall be included in total project costs and cost shared in accordance with the provisions of this Agreement.

#### ARTICLE VI - METHOD OF PAYMENT

A. The Government shall maintain current records of contributions provided by the parties and current projections of total project costs and costs due to betterments. By April 1 of each year and at least quarterly thereafter, the Government shall provide the State with a report setting forth all contributions provided to date and the current projections of total project costs, of total costs due to betterments, of the components of total project costs, of each party's share of total project costs, of the State's total cash contributions required in accordance with Articles II.B., II.D., and II.E. of this Agreement, of the non-Federal proportionate share, and of the funds the Government projects to be required from the State for the upcoming fiscal year. On the effective date of this Agreement, total project costs are projected to be \$4,910,728, and the State's cash contribution required under Article II.D. of this Agreement is projected to be \$1,179,115.

The amount of credit for the Section 215 Work to be afforded against the State's required contribution towards total project costs in accordance with Article II.D.2. of this Agreement is projected to be \$1,300,000. Such amounts are estimates subject to adjustment by the Government and are not to be construed as the total financial responsibilities of the Government and the State.

B. The State shall provide the cash contribution required under Article II.D.2. of this Agreement in accordance with the provisions of this paragraph.

1. Not less than 60 calendar days prior to the scheduled date for issuance of the solicitation for the first construction contract, the Government shall notify the State in writing of such scheduled date and the funds the Government determines to be required from the State to meet the non-Federal proportionate share of projected financial obligations for construction through the first fiscal year of construction, including the non-Federal proportionate share of financial obligations for construction incurred prior to the commencement of the period of construction. Not later than such scheduled date, the State shall provide the Government with the full amount of the required funds by delivering a check payable to "FAO, USAED, Rock Island" to the District Engineer.

2. For the second and subsequent fiscal years of construction, the Government shall notify the State in writing, no later than 60 calendar days prior to the beginning of that fiscal year, of the funds the Government determines to be required from the State to meet the non-Federal proportionate share of projected financial obligations for construction for that fiscal year. No later than 30 calendar days prior to the beginning of the fiscal year, the State shall make the full amount of the required funds for that fiscal year available to the Government through the funding mechanism specified in Article VI.B.1. of this Agreement.

3. The Government shall draw from the funds provided by the State such sums as the Government deems necessary to cover:  
(a) the non-Federal proportionate share of financial obligations for construction incurred prior to the commencement of the period of construction; and (b) the non-Federal proportionate share of financial obligations for construction as they are incurred during the period of construction.

4. If at any time during the period of construction the Government determines that additional funds will be needed from the State to cover the non-Federal proportionate share of projected financial obligations for construction for the current fiscal year, the Government shall notify the State in writing of the additional funds required, and the State, no later than 60 calendar days from receipt of such notice, shall make the additional required funds available through the payment mechanism specified in Article VI.B.1 of this Agreement.

C. In advance of the Government incurring any financial obligation associated with additional work under Article II.B. or II.E. of this Agreement, the State shall provide the Government with the full amount of the funds required to pay for such additional work by delivering a check payable to "FAO, USAED, Rock Island" to the District Engineer. The Government shall draw from the funds provided by the State such sums as the Government deems necessary to cover the Government's financial obligations for such additional work as they are incurred. In the event the Government determines that the State must provide additional funds to meet its cash contribution, the Government shall notify the State in writing of the additional funds required. Within 30 calendar days thereafter, the State shall provide the Government with a check for the full amount of the additional required funds.

D. Upon completion of the Project or termination of this Agreement, and upon resolution of all relevant claims and appeals, the Government shall conduct a final accounting and furnish the State with the results of the final accounting. The final accounting shall determine total project costs, each party's contribution provided thereto, and each party's required share thereof. The final accounting also shall determine costs due to betterments and the State's cash contribution provided pursuant to Article II.B. of this Agreement.

1. In the event the final accounting shows that the total contribution provided by the State is less than its required share of total project costs plus costs due to any betterments provided in accordance with Article II.B. of this Agreement, the State shall, no later than 90 calendar days after receipt of written notice, make a cash payment to the Government of whatever sum is required to meet the State's required share of total project costs plus costs due to any betterments provided in accordance with Article II.B. of this Agreement.

2. In the event the final accounting shows that the total contribution provided by the State exceeds its required share of total project costs plus costs due to any betterments provided in accordance with Article II.B. of this Agreement, the Government shall, subject to the availability of funds, refund the excess to the State no later than 90 calendar days after the final accounting is complete. In the event existing funds are not available to refund the excess to the State, the Government shall seek such appropriations as are necessary to make the refund.

#### ARTICLE VII - DISPUTE RESOLUTION

As a condition precedent to a party bringing any suit for breach of this Agreement, the party must first notify the other party in writing of the nature of the purported breach and seek in good faith to resolve the dispute through negotiation. If the parties cannot resolve the dispute through negotiation, they may agree to a mutually acceptable method of non-binding alternative dispute resolution with a qualified third party acceptable to both parties. The parties shall each pay 50 percent of any costs for the services provided by such a third party as such costs are incurred. The existence of a dispute shall not excuse the parties from performance pursuant to this Agreement.

#### ARTICLE VIII - OPERATION, MAINTENANCE, REPAIR, REPLACEMENT, AND REHABILITATION

A. Upon notification in accordance with Article II.C. of this Agreement and for so long as the Project remains authorized, the State, as required by Section 1103(c)(7)(A) of the Water Resources Development Act of 1986, as amended, shall operate, maintain, repair, and replace the entire Project or the functional portion of the Project, in a manner compatible with the Project's authorized purposes and in accordance with applicable Federal and State laws as provided in Article XI of this Agreement and specific directions prescribed by the Government in the O&M Manual and any subsequent amendments thereto. Operation, repair, and replacement costs shall be paid by the State at no cost to the Government. If any future rehabilitation of the Project is mutually agreed upon by the State and the Government, 75 percent of such costs shall be paid by the Government and 25 percent of such costs shall be paid by the State, in accordance with Section 906(e) of the Water Resources Development Act of 1986.

B. The State hereby gives the Government a right to enter, at reasonable times and in a reasonable manner, upon property that the State owns or controls for access to the Project for the purpose of inspection and, if necessary, for the purpose of completing, operating, maintaining, repairing, or replacing the Project. If an inspection shows that the State for any reason is failing to perform its obligations under this Agreement, the Government shall send a written notice describing the non-performance to the State. If, after 30 calendar days from receipt of notice, the State continues to fail to perform, then the Government shall have the right to enter, at reasonable times and in a reasonable manner, upon property that the State owns or controls for access to the Project for the purpose of completing, operating, maintaining, repairing, or replacing the Project. No completion, operation, maintenance, repair, or replacement by the Government shall operate to relieve the State of responsibility to meet the State's obligations as set forth in this Agreement, or to preclude the Government from pursuing any other remedy at law or equity to ensure faithful performance pursuant to this Agreement.

#### ARTICLE IX - INDEMNIFICATION

The State shall hold and save the Government free from all damages arising from the construction, operation, maintenance, repair, replacement, and rehabilitation of the Project and any Project-related betterments, or the Section 215 Work, except for damages due to the fault or negligence of the Government or its contractors.

#### ARTICLE X - MAINTENANCE OF RECORDS AND AUDIT

A. Not later than 60 calendar days after the effective date of this Agreement, the Government and the State shall develop procedures for keeping books, records, documents, and other evidence pertaining to costs and expenses incurred pursuant to this Agreement. These procedures shall incorporate, and apply as appropriate, the standards for financial management systems set forth in the Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments at 32 C.F.R. Section 33.20. The Government and the State shall maintain such books, records, documents, and other evidence in accordance with these procedures and for a minimum of three years after the period of construction and resolution of all relevant claims arising therefrom. To the extent permitted under applicable Federal laws and regulations, the Government and the State shall each allow the other to inspect such books, documents, records, and other evidence.



B. Pursuant to 32 C.F.R. Section 33.26, the State is responsible for complying with the Single Audit Act of 1984, 31 U.S.C. Sections 7501-7507, as implemented by Office of Management and Budget (OMB) Circular No. A-128 and Department of Defense Directive 7600.10. Upon request of the State and to the extent permitted under applicable Federal laws and regulations, the Government shall provide to the State and independent auditors any information necessary to enable an audit of the State's activities under this Agreement. The costs of any non-Federal audits performed in accordance with this paragraph shall be allocated in accordance with the provisions of OMB Circulars A-87 and A-128, and such costs as are allocated to the Project shall be included in total project costs and cost shared in accordance with the provisions of this Agreement.

C. In accordance with 31 U.S.C. Section 7503, the Government may conduct audits in addition to any audit that the State is required to conduct under the Single Audit Act. Any such Government audits shall be conducted in accordance with Government Auditing Standards and the cost principles in OMB Circular No. A-87 and other applicable cost principles and regulations. The costs of Government audits performed in accordance with this paragraph shall be included in total project costs and cost shared in accordance with the provisions of this Agreement.

#### ARTICLE XI - FEDERAL AND STATE LAWS

In the exercise of their respective rights and obligations under this Agreement, the State and the Government agree to comply with all applicable Federal and State laws and regulations, including, but not limited to, Section 601 of the Civil Rights Act of 1964, Public Law 88-352 (42 U.S.C. 2000d), and Department of Defense Directive 5500.11 issued pursuant thereto, as well as Army Regulations 600-7, entitled "Nondiscrimination on the Basis of Handicap in Programs and Activities Assisted or Conducted by the Department of the Army".

#### ARTICLE XII - RELATIONSHIP OF PARTIES

A. In the exercise of their respective rights and obligations under this Agreement, the Government and the State each act in an independent capacity, and neither is to be considered the officer, agent, or employee of the other.

B. In the exercise of its rights and obligations under this Agreement, neither party shall provide, without the consent of the other party, any contractor with a release that waives or purports to waive any rights such other party may have to seek relief or redress against such contractor either pursuant to any cause of action that such other party may have or for violation of any law.

#### ARTICLE XIII - OFFICIALS NOT TO BENEFIT

No member of or delegate to the Congress, nor any resident commissioner, shall be admitted to any share or part of this Agreement, or to any benefit that may arise therefrom.

#### ARTICLE XIV - TERMINATION OR SUSPENSION

A. If at any time the State fails to fulfill its obligations under Article II.B., II.D., II.E., VI, or XVIII.C. of this Agreement, the Assistant Secretary of the Army (Civil Works) shall terminate this Agreement or suspend future performance under this Agreement unless he determines that continuation of work on the Project is in the interest of the United States or is necessary in order to satisfy agreements with any other non-Federal interests in connection with the Project.

B. If the Government fails to receive annual appropriations in amounts sufficient to meet Project expenditures for the then-current or upcoming fiscal year, the Government shall so notify the State in writing, and 60 calendar days thereafter either party may elect without penalty to terminate this Agreement or to suspend future performance under this Agreement. In the event that either party elects to suspend future performance under this Agreement pursuant to this paragraph, such suspension shall remain in effect until such time as the Government receives sufficient appropriations or until either the Government or the State elects to terminate this Agreement.

C. In the event that either party elects to terminate this Agreement pursuant to this Article or Article XV of this Agreement, both parties shall conclude their activities relating to the Project and proceed to a final accounting in accordance with Article VI.D. of this Agreement.

D. Any termination of this Agreement or suspension of future performance under this Agreement in accordance with this Article or Article XV of this Agreement shall not relieve the parties of liability for any obligation previously incurred.

Any delinquent payment shall be charged interest at a rate, to be determined by the Secretary of the Treasury, equal to 150 per centum of the average bond equivalent rate of the 13-week Treasury bills auctioned immediately prior to the date on which such payment became delinquent, or auctioned immediately prior to the beginning of each additional 3-month period if the period of delinquency exceeds 3 months.

#### ARTICLE XV - HAZARDOUS SUBSTANCES

A. After execution of this Agreement and upon direction by the District Engineer, the State shall perform, or cause to be performed, any investigations for hazardous substances that the Government or the State determines to be necessary to identify the existence and extent of any hazardous substances regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (hereinafter "CERCLA"), 42 U.S.C. Sections 9601-9675, that may exist in, on, or under lands, easements, and rights-of-way that the Government determines, pursuant to Article III of this Agreement, to be required for the construction, operation, and maintenance of the Project. However, for lands that the Government determines to be subject to the navigation servitude, only the Government shall perform such investigations unless the District Engineer provides the State with prior specific written direction, in which case the State shall perform such investigations in accordance with such written direction. All actual costs incurred by the State for such investigations for hazardous substances shall be included in total project costs and cost shared in accordance with the provisions of this Agreement, subject to an audit in accordance with Article X.C. of this Agreement to determine reasonableness, allocability, and allowability of costs.

B. In the event it is discovered through any investigation for hazardous substances or other means that hazardous substances regulated under CERCLA exist in, on, or under any lands, easements, or rights-of-way that the Government determines, pursuant to Article III of this Agreement, to be required for the construction, operation, and maintenance of the Project, the State and the Government shall provide prompt written notice to each other, and the State shall not proceed with the acquisition of the real property interests until both parties agree that the State should proceed.

C. The Government and the State shall determine whether to initiate construction of the Project, or, if already in construction, whether to continue with work on the Project, suspend future performance under this Agreement, or terminate this Agreement for the convenience of the Government, in any case where hazardous substances regulated under CERCLA are found to exist in, on, or under any lands, easements, or rights-of-way that the Government determines, pursuant to Article III of this Agreement, to be required for the construction, operation, and maintenance of the Project. Should the Government and the State determine to initiate or continue with construction after considering any liability that may arise under CERCLA, the State shall be responsible, as between the Government and the State, for the costs of clean-up and response, to include the costs of any studies and investigations necessary to determine an appropriate response to the contamination. Such costs shall not be considered a part of total project costs. In the event the State fails to provide any funds necessary to pay for clean up and response costs or to otherwise discharge the State's responsibilities under this paragraph upon direction by the Government, the Government may, in its sole discretion, either terminate this Agreement for the convenience of the Government, suspend future performance under this Agreement, or continue work on the Project.

D. The State and the Government shall consult with each other in accordance with Article V of this Agreement in an effort to ensure that responsible parties bear any necessary clean up and response costs as defined in CERCLA. Any decision made pursuant to paragraph C. of this Article shall not relieve any third party from any liability that may arise under CERCLA.

E. As between the Government and the State, the State shall be considered the operator of the Project for purposes of CERCLA liability. To the maximum extent practicable, the State shall operate, maintain, repair, replace, and rehabilitate the Project in a manner that will not cause liability to arise under CERCLA.

#### ARTICLE XVI - NOTICES

a. Any notice, request, demand, or other communication required or permitted to be given under this Agreement shall be deemed to have been duly given if in writing and either delivered personally or by telegram or mailed by first-class, registered, or certified mail, as follows:

If to the State:

Director  
Illinois Department of Natural Resources  
Lincoln Tower Plaza  
524 South 2nd Street  
Springfield, Illinois 62701-1787

If to the Government:

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

B. A party may change the address to which such communications are to be directed by giving written notice to the other party in the manner provided in this Article.

C. Any notice, request, demand, or other communication made pursuant to this Article shall be deemed to have been received by the addressee at the earlier of such time as it is actually received or seven calendar days after it is mailed.

#### ARTICLE XVII - CONFIDENTIALITY

To the extent permitted by the laws governing each party, the parties agree to maintain the confidentiality of exchanged information when requested to do so by the providing party.

#### ARTICLE XVIII - HISTORIC PRESERVATION

A. The costs of identification, survey and evaluation of historic properties shall be included in total project costs and cost shared in accordance with the provisions of this Agreement.

B. As specified in Section 7(a) of Public Law 93-291 (16 U.S.C. Section 469c(a)), the costs of mitigation and data recovery activities associated with historic preservation shall be borne entirely by the Government and shall not be included in total project costs, up to the statutory limit of one percent of the total amount the Government is authorized to expend for the Project.

C. The Government shall not incur cost for mitigation and data recovery that exceed the statutory one percent limit specified in paragraph B. of this Article unless and until the Assistant Secretary of the Army (Civil Works) has waived that limit in accordance with Section 208(3) of Public Law 96-515 (16 U.S.C. Section 469c-2(3)). Any costs of mitigation and data recovery that exceed the one percent limit shall be included in total project costs and cost shared in accordance with the provisions of this Agreement.

#### ARTICLE XIX - SECTION 1103 PROJECT COST LIMITS

The State has reviewed the provisions set forth in Section 1103 of Public Law 99-662, as amended, and understands that Section 1103 establishes the maximum amount of costs for the habitat rehabilitation and enhancement component of the Upper Mississippi River System Environmental Management Program.

Notwithstanding any other provisions of this Agreement, the Government shall not make a new project expenditure, or afford credit toward total project costs for the value of any contribution provided by the State, if such obligation, expenditure, or credit would result in total project costs, plus the value of any obligations already made under the habitat rehabilitation and enhancement component of the Upper Mississippi River System Environmental Management Program, exceeding the maximum amount, unless otherwise authorized by law.

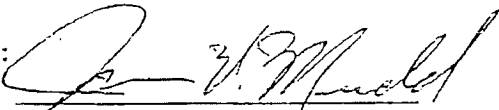
#### ARTICLE XX - OBLIGATION OF FUTURE APPROPRIATION


Nothing herein shall constitute, nor be deemed to constitute, an obligation of future appropriations by the Illinois General Assembly when such obligation would be inconsistent with the State's constitutional or statutory limitations.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement, which shall become effective upon the date it is signed by the District Engineer.

THE DEPARTMENT OF THE ARMY

THE STATE OF ILLINOIS  
DEPARTMENT OF NATURAL RESOURCES

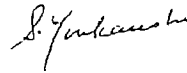
BY:   
JAMES V. MUDD  
Colonel, U.S. Army  
District Engineer

BY:   
BRENT MANNING  
Director

DATE: 1/29/98

DATE: 1/29/98

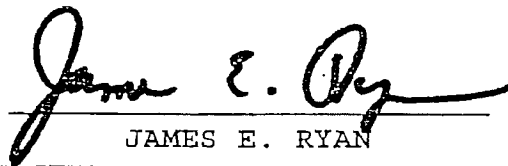
129.95



## CERTIFICATE OF AUTHORITY

I, James E. Ryan, do hereby certify that I am the principal legal officer of the State of Illinois, that the State of Illinois is a legally constituted public body with full authority and legal capability to perform the terms of the Agreement between the Department of the Army and the State of Illinois in connection with the Banner Marsh State Fish and Wildlife Area Habitat Rehabilitation and Enhancement Project, and to pay damages, in accordance with the terms of this agreement, if necessary, in the event of the failure to perform, as required by Section 221 of Public Law 91-611 (42 U.S.C. Section 1962d-5b), and that the persons who have executed this Agreement on behalf of the State of Illinois have acted within their statutory authority.

IN WITNESS WHEREOF, I have made and executed this certification this 29th day of January, 1997.

A handwritten signature in cursive script, reading "James E. Ryan", is written over a horizontal line.

JAMES E. RYAN  
ATTORNEY GENERAL OF THE STATE OF ILLINOIS



CERTIFICATION REGARDING LOBBYING

The undersigned certifies, to the best of his or her knowledge and belief that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrant, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

*Brent Manning*  
Brent Manning  
Director

DATE: 1/28/98

1.27.98

*S. Yentecassis*

**APPENDIX B**  
**SITE MANAGER'S**  
**PROJECT INSPECTION AND MONITORING RESULTS**



**OPERATION AND MAINTENANCE MANUAL  
BANNER MARSH HABITAT REHABILITATION AND ENHANCEMENT PROJECT**

**UPPER MISSISSIPPI RIVER  
ENVIRONMENTAL MANAGEMENT PROGRAM  
LA GRANGE POOL, RIVER MILES 138.5 THROUGH 143.9  
FULTON AND PEORIA COUNTIES, ILLINOIS**

**SITE MANAGER'S PROJECT INSPECTION AND MONITORING RESULTS**

Inspected By \_\_\_\_\_ Date \_\_\_\_\_

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

**1. PROJECT INSPECTION.**

<u>Item</u>	<u>Condition</u>
<b>a. <u>Levee</u></b>	
( ) Settlement, sloughs or loss of section	_____
( ) Caving	_____
( ) Seepage, saturated areas, or sand boils	_____
( ) Burning grass or weeds at unusual times	_____
( ) Crown is not shaped for drainage	_____
( ) Unauthorized grazing or traffic	_____
( ) Encroachments	_____
( ) Other	_____
<b>b. <u>Pump Station</u></b>	
( ) Building/hardware	_____
( ) Control panels	_____
( ) Pumps	_____
( ) Electrical - accessories, lighting	_____
( ) Sump (sediment, debris)	_____
( ) Trash rack	_____
( ) Inlet & outlet channels	_____
( ) Displaced/missing riprap	_____
( ) Erosion or seepage adjacent to structure	_____
( ) Other	_____

c. Water Control Structure 1

- Stoplogs, lifting hooks, stoplog slots \_\_\_\_\_
- Metal pipe condition \_\_\_\_\_
- Grating, fasteners, hinges \_\_\_\_\_
- Erosion adjacent to structure \_\_\_\_\_
- Sedimentation \_\_\_\_\_
- Other \_\_\_\_\_

d. Water Control Structure 2

- Stoplogs, lifting hooks, stoplog slots \_\_\_\_\_
- Metal pipe condition \_\_\_\_\_
- Grating, fasteners, hinges \_\_\_\_\_
- Erosion adjacent to structure \_\_\_\_\_
- Sedimentation \_\_\_\_\_
- Other \_\_\_\_\_

e. Service Road

- Sloughing \_\_\_\_\_
- Loss of granular surface \_\_\_\_\_
- Ruts and potholes \_\_\_\_\_
- Other \_\_\_\_\_

f. Prairie Plantings

- Native species \_\_\_\_\_
- Exotic species \_\_\_\_\_
- Disease, insects, other stress factors \_\_\_\_\_
- Other \_\_\_\_\_

g. Littoral Zone

- Presence and type of aquatic vegetation \_\_\_\_\_
- Other \_\_\_\_\_

2. COMMENTS.

\_\_\_\_\_

Site Manager

**APPENDIX C**  
**DISTRIBUTION LIST**



Mr. Rick Nelson  
U. S. Fish and Wildlife Service  
4469 48th Avenue Court  
Rock Island, Illinois 61201

Arthur Neal  
Illinois Department of Natural Resources  
524 S. Second Street  
Springfield, Illinois 62706

Mr. Rick Mollahan  
Illinois Department of Natural Resources  
524 S. Second Street  
Springfield, Illinois 62706

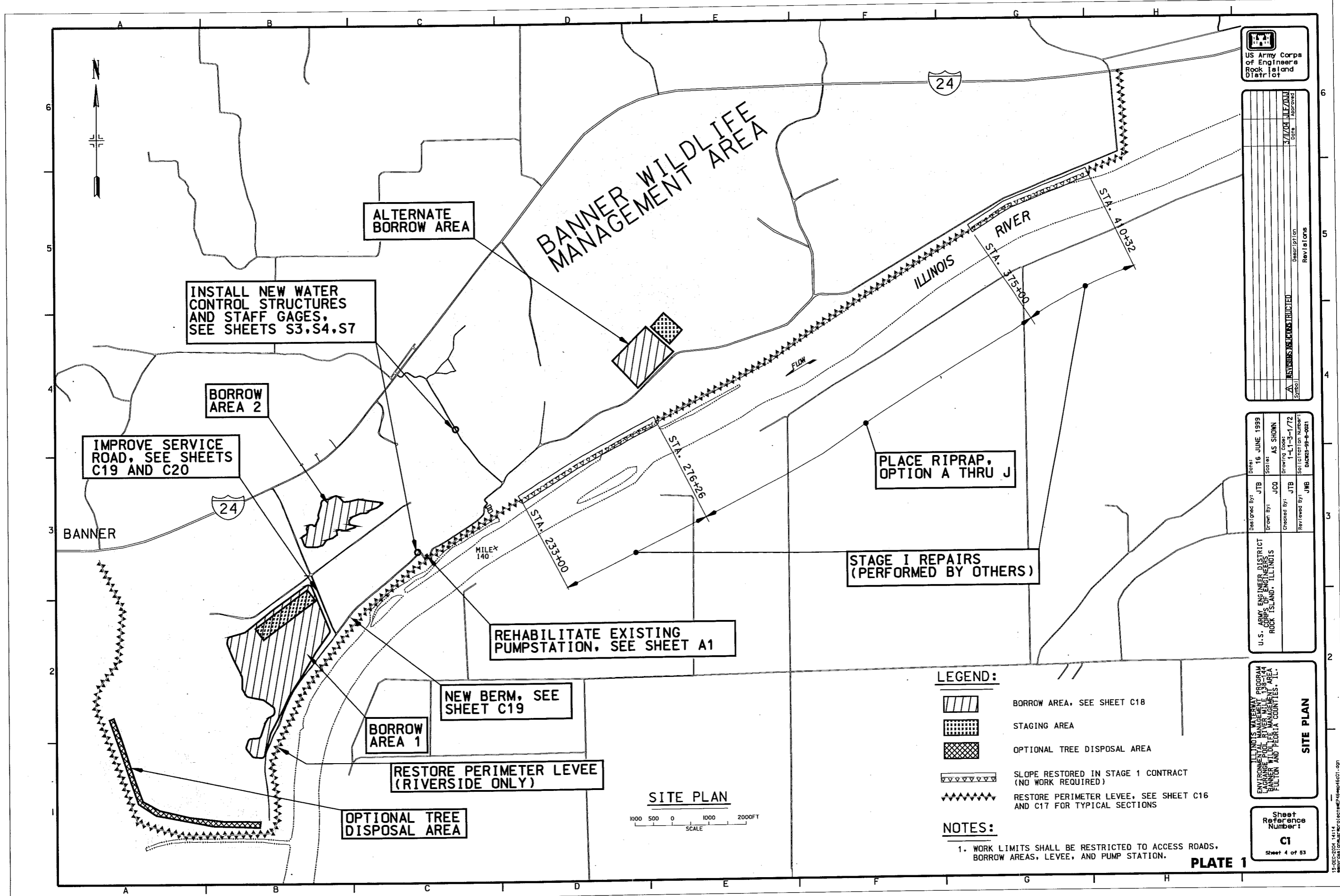
Mr. Scott Stuewe  
Illinois Department of Natural Resources  
524 S. Second Street  
Springfield, Illinois 62706

Mr. Bill Douglass  
Illinois DNR  
R.R. 3 Box 91  
Canton, Illinois 61520

Division Engineer  
U.S. Army Engineer Division,  
Mississippi Valley  
ATTN: CEMVD-PD/CEMVD-CO (Greg Ruff)  
1400 Walnut  
Vicksburg, Mississippi 39180



## **PLATES**



INSTALL NEW WATER CONTROL STRUCTURES AND STAFF GAGES, SEE SHEETS S3.S4.S7

ALTERNATE BORROW AREA

BORROW AREA 2

IMPROVE SERVICE ROAD, SEE SHEETS C19 AND C20

PLACE RIPRAP, OPTION A THRU J

STAGE I REPAIRS (PERFORMED BY OTHERS)

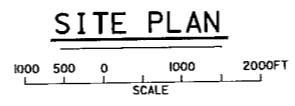
REHABILITATE EXISTING PUMPSTATION, SEE SHEET A1

NEW BERM, SEE SHEET C19

BORROW AREA 1

RESTORE PERIMETER LEVEE (RIVERSIDE ONLY)

OPTIONAL TREE DISPOSAL AREA



**LEGEND:**

- BORROW AREA, SEE SHEET C18
- STAGING AREA
- OPTIONAL TREE DISPOSAL AREA
- SLOPE RESTORED IN STAGE 1 CONTRACT (NO WORK REQUIRED)
- RESTORE PERIMETER LEVEE, SEE SHEET C16 AND C17 FOR TYPICAL SECTIONS

**NOTES:**

1. WORK LIMITS SHALL BE RESTRICTED TO ACCESS ROADS, BORROW AREAS, LEVEE, AND PUMP STATION.

**PLATE 1**

US Army Corps of Engineers  
Rock Island District

Symbol	Description	Rev	Date	Approved
A	REVISIONS			

Design By:	JTB	Date:	16 JUNE 1999
Drawn By:	JCO	Scale:	AS SHOWN
Checked By:	JTB	Drawing Code:	1-L-3-1-72
Reviewed By:	JWB	Specification Number:	D6222-19-001

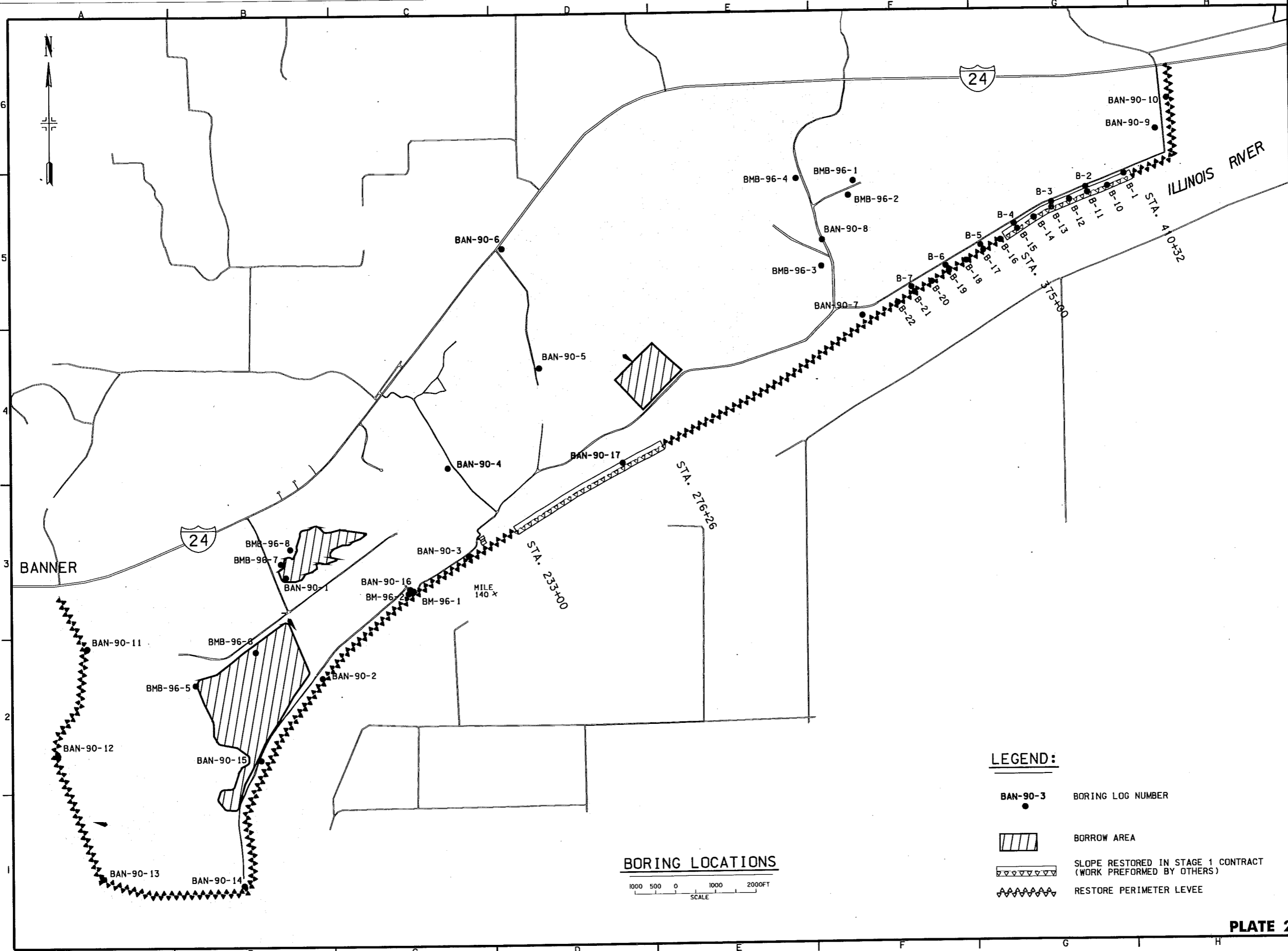
U.S. ARMY ENGINEER DISTRICT  
ROCK ISLAND, ILLINOIS

ENVIRONMENTAL WATERSHED PROGRAM  
EAGLE CREEK RIVER WILDLIFE AREA  
BANNER WILDLIFE MANAGEMENT AREA  
FULTON AND PEORIA COUNTIES, IL.

**SITE PLAN**

Sheet Reference Number:  
**C1**  
Sheet 4 of 53

15-DEC-2004 14:14  
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US Army Corps of Engineers  
Rock Island District

Symbol	Description	Rev/Iss	Date	Approved
A	REVISED AS CONSTRUCTED			

Designed By:	RTN	Date:	16 JUNE 1999
Drawn By:	TPD/SDB	Scale:	AS SHOWN
Checked By:	KJB	Drawing Code:	1-L1-3-1/72
Rev/Iss:	BLK	Specification Number:	DAHCR-99-001

U.S. ARMY ENGINEER DISTRICT  
ROCK ISLAND DISTRICT  
ILLINOIS

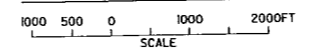
ENVIRONMENTAL QUALITY PROGRAM  
WATERWAY PROJECT  
BANNER RIVER MANAGEMENT AREA  
BANNER AND PEORIA COUNTIES, IL.

**BORING LOCATIONS**

**LEGEND:**

- BORING LOG NUMBER
- BORROW AREA
- SLOPE RESTORED IN STAGE 1 CONTRACT (WORK PERFORMED BY OTHERS)
- RESTORE PERIMETER LEVEE

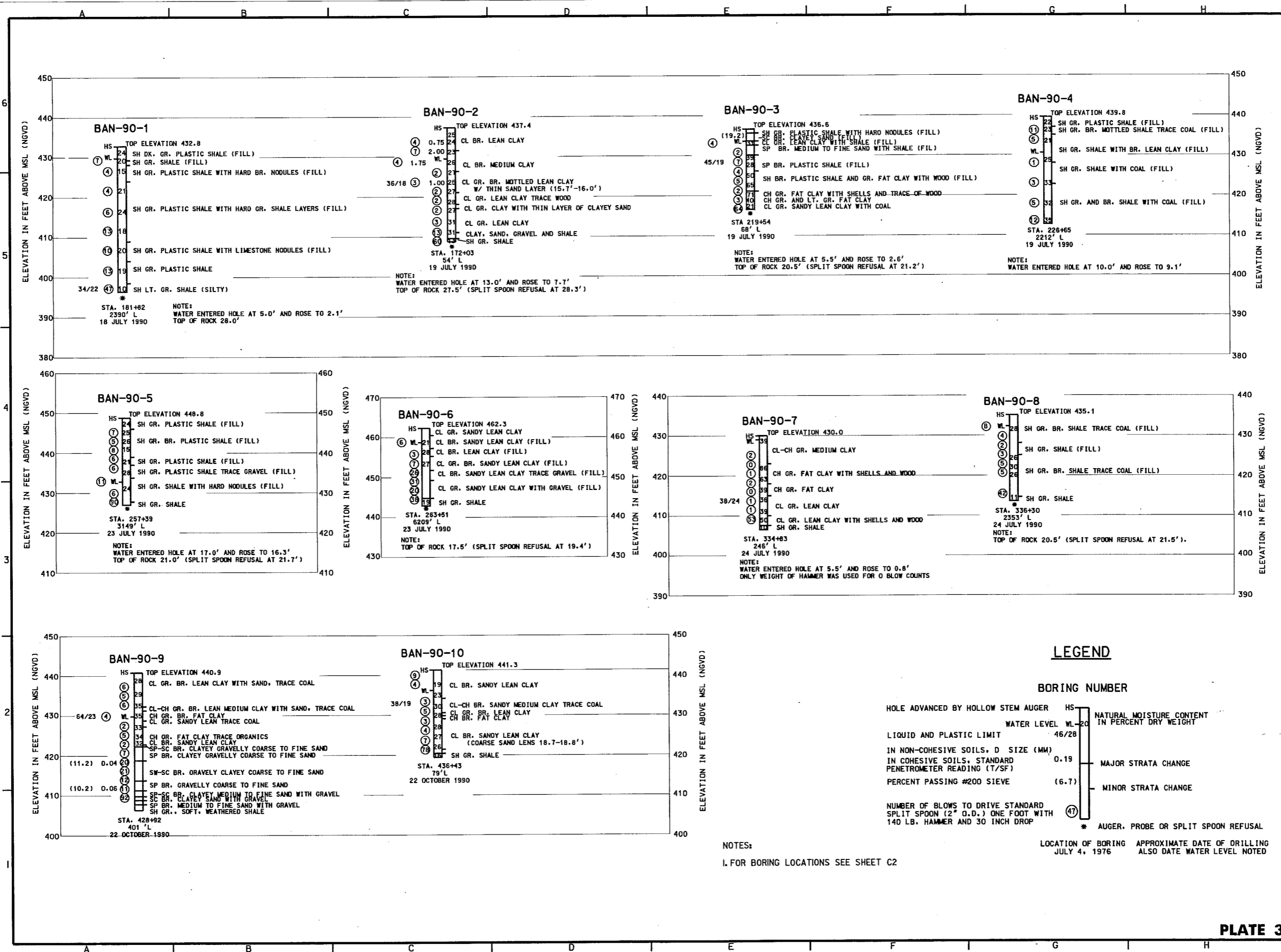
**BORING LOCATIONS**



**PLATE 2**

Sheet Reference Number:  
**C2**  
Sheet 5 of 53

15-DEC-2004 14:15



Date	Description	Revisions
AS CONSTRUCTED		

Designed By: RTN	Date: 16 JUNE 1989
Drawn By: TPO/SDB	Scale: AS SHOWN
Checked By: KJB	Drawing Code: 1-L-1-3-1-172
Reviewed By: BLK	Specification Number: DAC22-98-0021

ILLINOIS WATERWAY ENVIRONMENTAL MANAGEMENT PROGRAM  
 LAGRANGE FLOOD CONTROL DISTRICT  
 BRUNNEN WILSON WILSON AREA  
 POLLUTION AND FLOOD CONTROL DISTRICTS, ILL.

Sheet Reference Number: **C3**  
 Sheet 6 of 53

**LEGEND**

**BORING NUMBER**

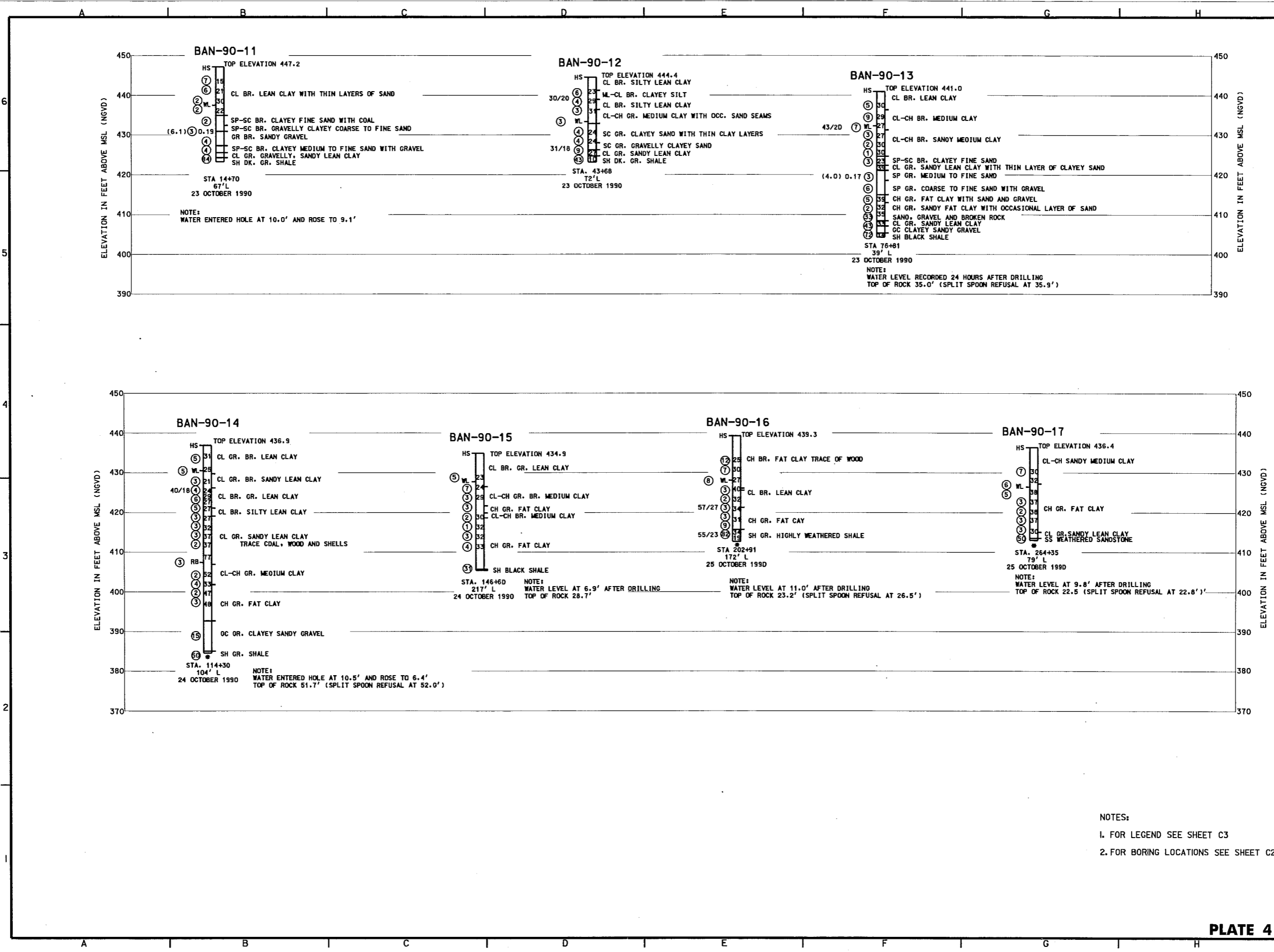
HOLE ADVANCED BY HOLLOW STEM AUGER HS  
 WATER LEVEL WL-20  
 LIQUID AND PLASTIC LIMIT 46/28  
 IN NON-COHESIVE SOILS, D SIZE (MM) 0.19  
 IN COHESIVE SOILS, STANDARD PENETROMETER READING (T/SF) (6.7)  
 PERCENT PASSING #200 SIEVE

NATURAL MOISTURE CONTENT IN PERCENT DRY WEIGHT  
 MAJOR STRATA CHANGE  
 MINOR STRATA CHANGE

NUMBER OF BLOWS TO DRIVE STANDARD SPLIT SPOON (2" O.D.) ONE FOOT WITH 140 LB. HAMMER AND 30 INCH DROP  
 \* AUGER, PROBE OR SPLIT SPOON REFUSAL

NOTES:  
 1. FOR BORING LOCATIONS SEE SHEET C2

LOCATION OF BORING APPROXIMATE DATE OF DRILLING  
 JULY 4, 1976 ALSO DATE WATER LEVEL NOTED



NOTES:  
 1. FOR LEGEND SEE SHEET C3  
 2. FOR BORING LOCATIONS SEE SHEET C2



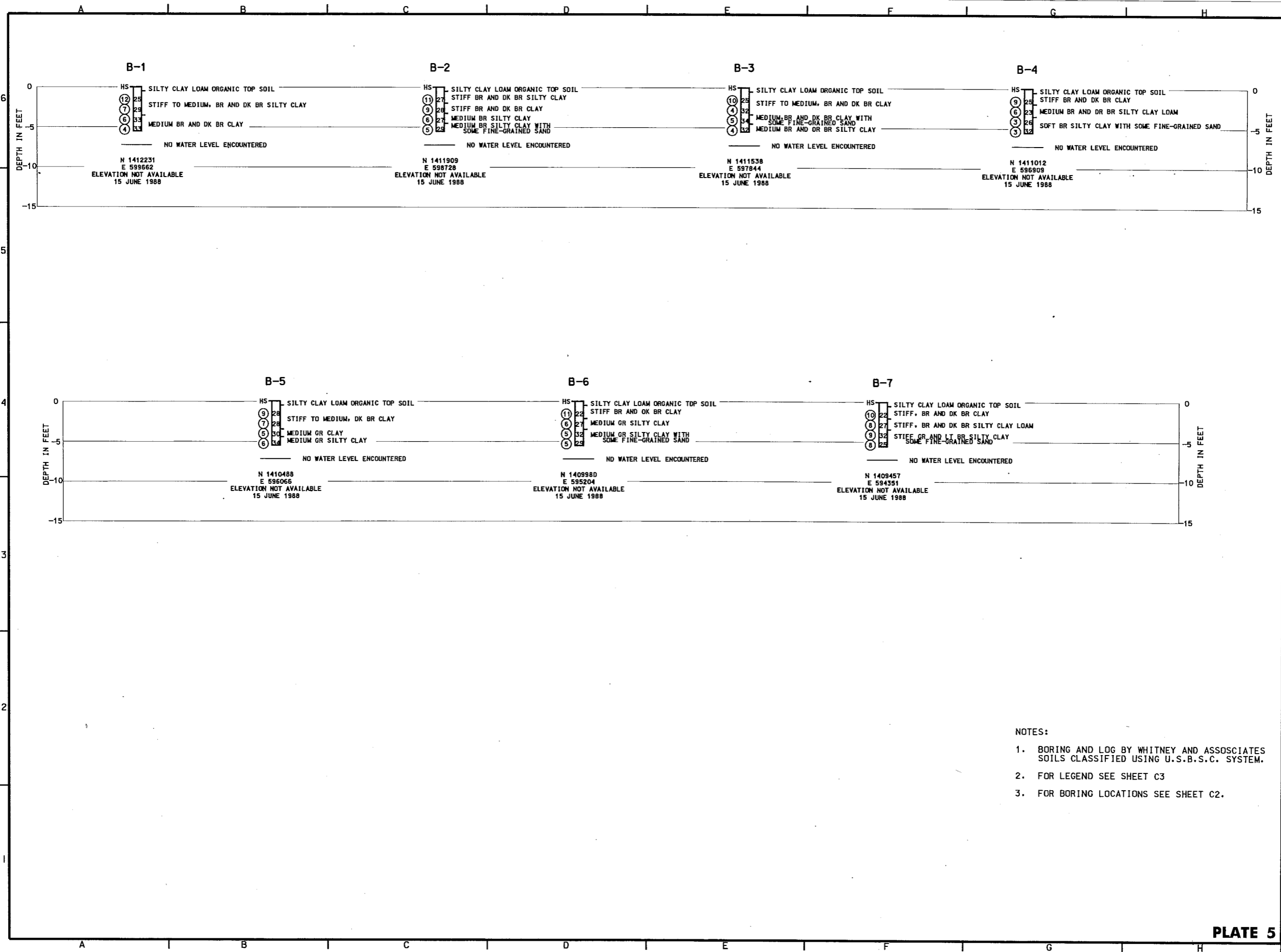
Symbol	Description	Revisions
AS	AS CONSTRUCTED	

Designed By:	RTN	Date:	16 JUNE 1999
Drawn By:	TPD/SDB	Scale:	AS SHOWN
Checked By:	KJB	Project No.:	11-3-1/72
Reviewed By:	BLK	Submittal Number:	District-99-001

ILLINOIS WATERWAY PROGRAM  
 ENVIRONMENTAL MANAGEMENT DISTRICT  
 CORPS OF ENGINEERS  
 ROCK ISLAND, ILLINOIS  
 BANGOR WILDLIFE MANAGEMENT AREA  
 FULTON AND PEORIA COUNTIES, IL.

**BORING LOGS II**

Sheet Reference Number:  
**C4**  
 Sheet 7 of 53



Symbol	Description	Revisions
AS	AS CONSTRUCTED	

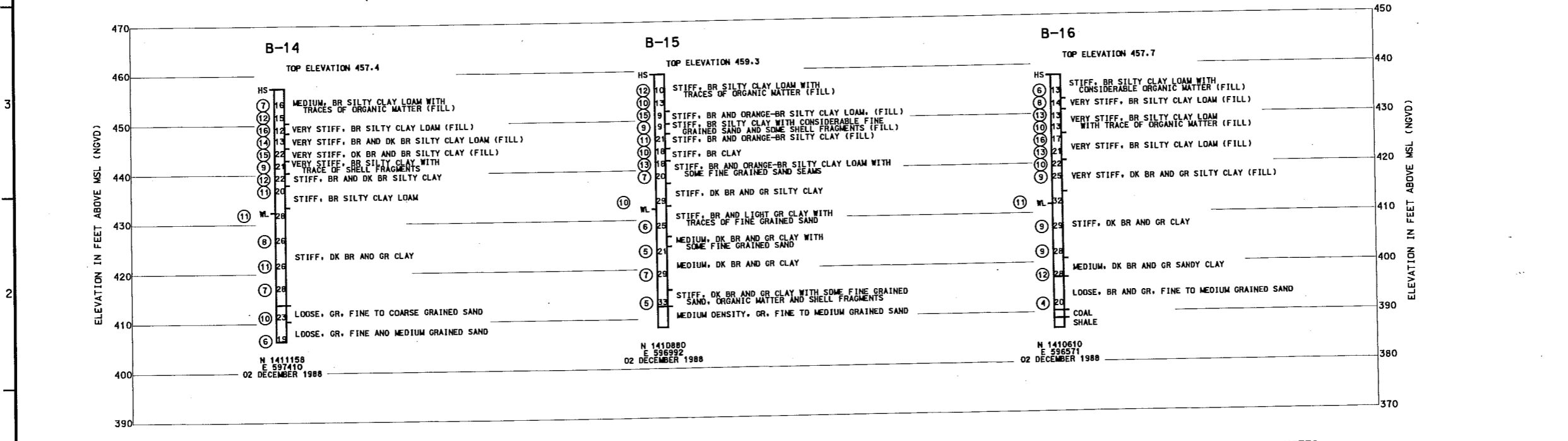
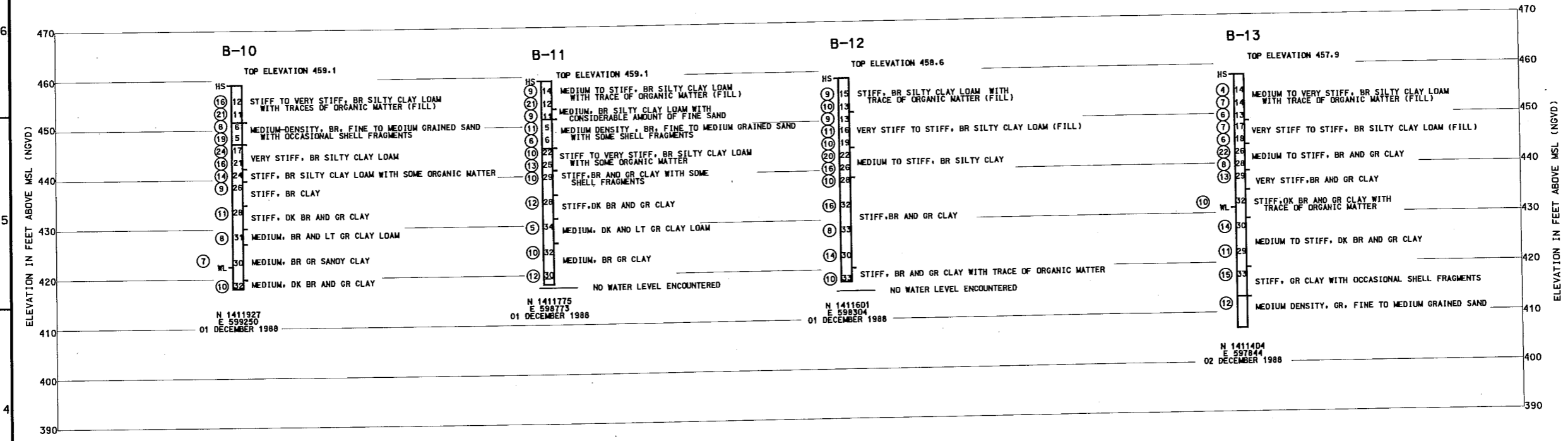
Date:	16 JUNE 1999
Drawn By:	RTN
Checked By:	TPD/SDB
Scale:	AS SHOWN
Revised By:	KJB
Drawing Code:	1-L-3-1/72
Revision Number:	02022-99-R-0021
U.S. ARMY ENGINEER DISTRICT	
CORPS OF ENGINEERS	
ROCK ISLAND, ILLINOIS	

- NOTES:
- BORING AND LOG BY WHITNEY AND ASSOCIATES SOILS CLASSIFIED USING U.S.B.S.C. SYSTEM.
  - FOR LEGEND SEE SHEET C3
  - FOR BORING LOCATIONS SEE SHEET C2.

ILLINOIS WATERWAY PROGRAM  
 ENVIRONMENTAL DIVISION  
 ENGINEERING DIVISION  
 BANNER POLICE MANAGEMENT AREA  
 FULLON AND PEORIA COUNTIES, IL.

**BORING LOGS III**

Sheet Reference Number:  
**C5**  
 Sheet 8 of 53



- NOTES:
- BORING AND LOG BY WHITNEY AND ASSOCIATES SOILS CLASSIFIED USING U.S.B.S.C. SYSTEM
  - FOR LEGEND SEE SHEET C3
  - FOR BORING LOCATIONS SEE SHEET C2.

**PLATE 6**

Symbol	Description	Date	Revised
A	AS CONSTRUCTED	3/17/04	JLE/ZJU

Design By:	RTN	Date:	16 JUNE 1999
Drawn By:	TPD/SDB	Scale:	AS SHOWN
Checked By:	KJB	Drawing Code:	1-LI-3-1/72
Revised By:	BLK	Specification Number:	DACS-99-001

ILLINOIS WATERWAY PROGRAM  
 ENVIRONMENTAL MANAGEMENT  
 LAKE MICHIGAN WETLANDS  
 HANCOCK WETLAND LIFE MANAGEMENT AREA  
 FULTON AND PEGATA COUNTIES, IL.

**BORING LOGS IV**

Sheet Reference Number:  
**C6**  
 Sheet 3 of 53





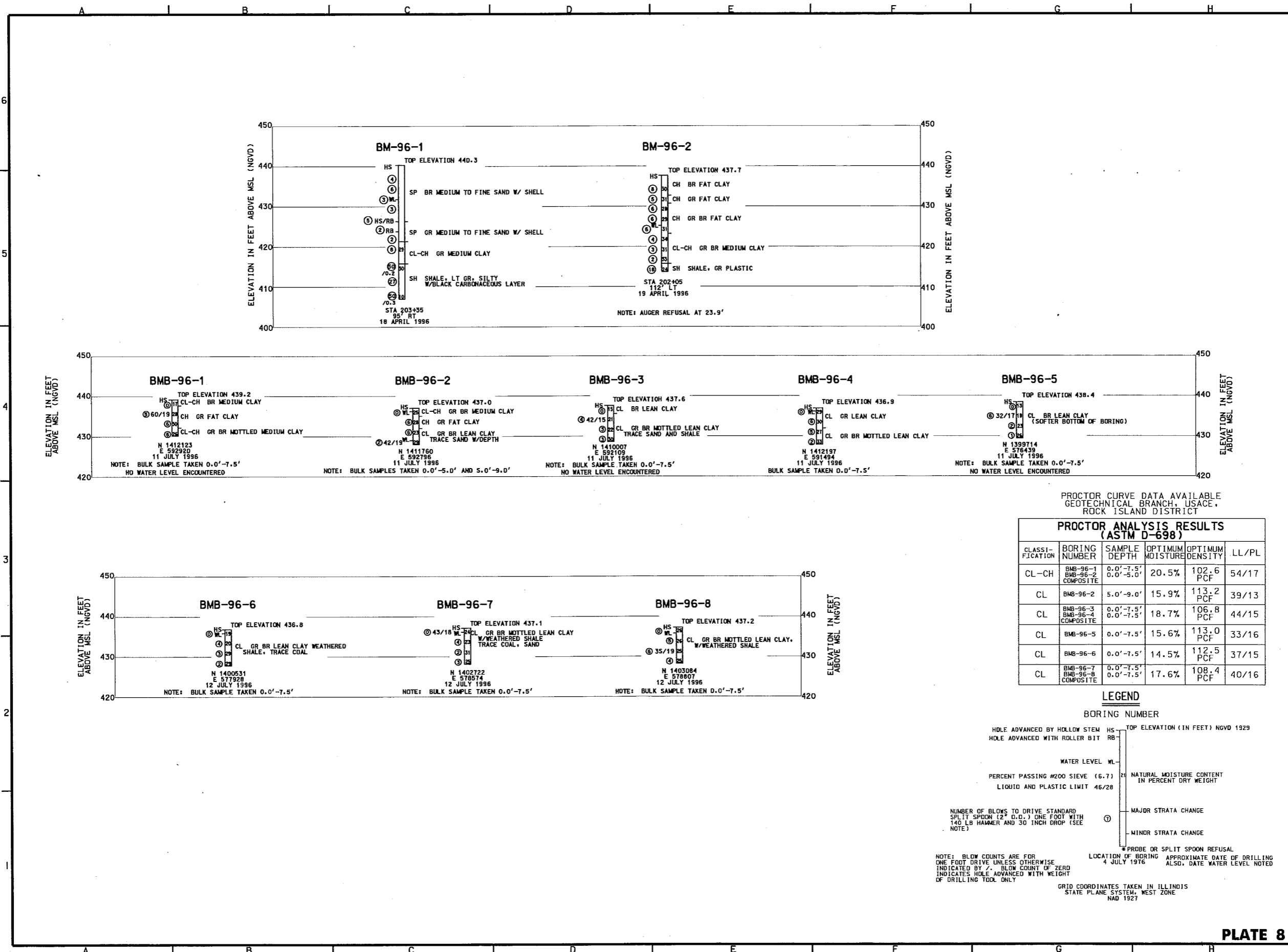


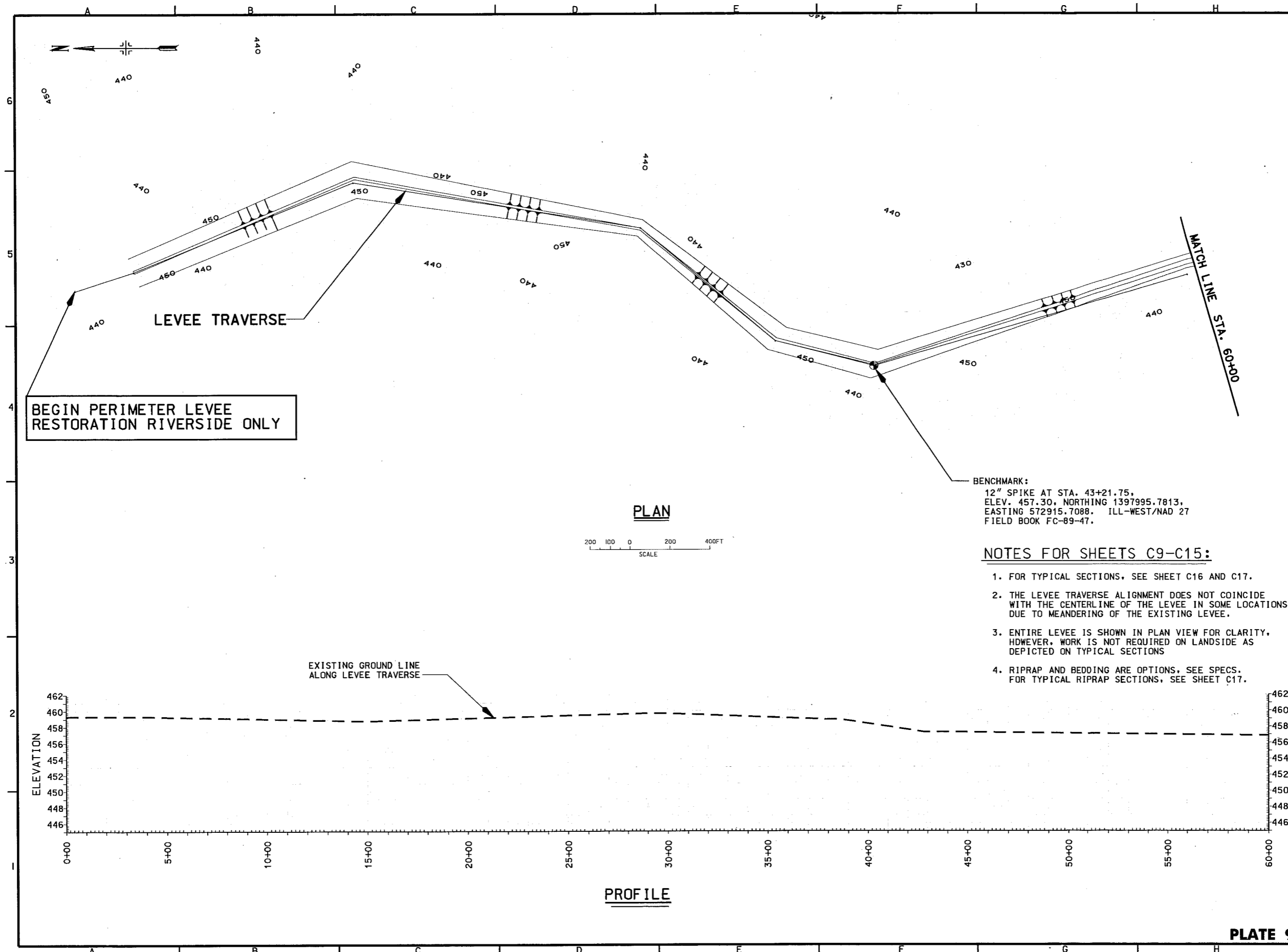
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DESCRIPTION		DESCRIPTION	
REVISIONS		REVISIONS	

DESIGNED BY:	RTN	DATE:	16 JUNE 1999
DRAWN BY:	TPD/SDB	ROUTE:	AS SHOWN
CHECKED BY:	KJB	PROJECT CODE:	1-L-1-3-1-72
REVIEWED BY:	BLK	SUBMITTAL NUMBER:	10022-99-0001

ILLINOIS WATERWAY PROGRAM  
 ENVIRONMENTAL MANAGEMENT  
 PROGRAM FOR THE ILLINOIS  
 RIVER AND PEORIA COUNTIES, ILL.

Sheet Reference Number:  
**C8**  
 Sheet 11 of 53





**BEGIN PERIMETER LEVEE RESTORATION RIVERSIDE ONLY**

**PLAN**

SCALE  
200 100 0 200 400FT

BENCHMARK:  
12" SPIKE AT STA. 43+21.75,  
ELEV. 457.30, NORTHING 1397995.7813,  
EASTING 572915.7088. ILL-WEST/NAD 27  
FIELD BOOK FC-89-47.

**NOTES FOR SHEETS C9-C15:**

- 1. FOR TYPICAL SECTIONS, SEE SHEET C16 AND C17.
- 2. THE LEVEE TRAVERSE ALIGNMENT DOES NOT COINCIDE WITH THE CENTERLINE OF THE LEVEE IN SOME LOCATIONS DUE TO MEANDERING OF THE EXISTING LEVEE.
- 3. ENTIRE LEVEE IS SHOWN IN PLAN VIEW FOR CLARITY, HOWEVER, WORK IS NOT REQUIRED ON LANDSIDE AS DEPICTED ON TYPICAL SECTIONS
- 4. RIPRAP AND BEDDING ARE OPTIONS. SEE SPECS. FOR TYPICAL RIPRAP SECTIONS, SEE SHEET C17.

EXISTING GROUND LINE ALONG LEVEE TRAVERSE

**PROFILE**

**MATCH LINE STA. 60+00**



U.S. Army Corps of Engineers  
Rock Island District

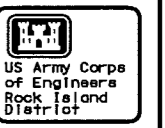
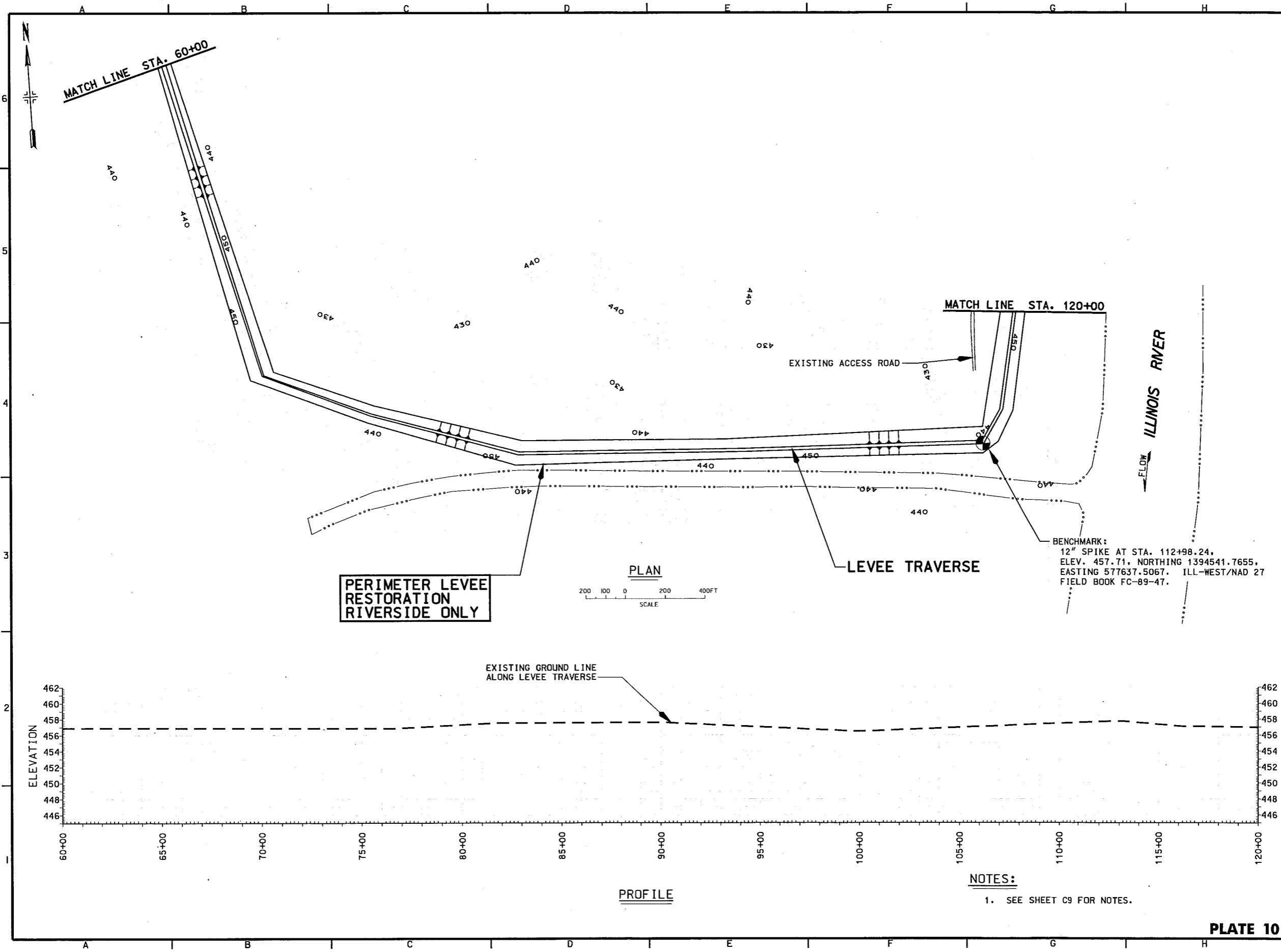
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Δ	AS CONSTRUCTED	3/17/04	JLE/ADD

Date:	16 JUNE 1999
Scale:	AS SHOWN
Drawing Code:	1-1-3-1/72
SOI (Station Number):	DUCR23-89-8-0021
Designated By:	RTN
Drawn By:	TPD/SDB
Checked By:	KJB
Reviewed By:	BLK

ILLINOIS WATERWAY PROGRAM  
ENVIRONMENTAL MANAGEMENT  
BANNER WILDLIFE MANAGEMENT AREA  
FULTON AND PEORIA COUNTIES, IL.  
**PERIMETER LEVEE  
PLAN AND PROFILE  
STA. 0+00 TO  
STA. 60+00**

Sheet Reference Number:  
**C9**  
Sheet 12 of 53

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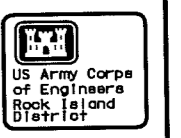
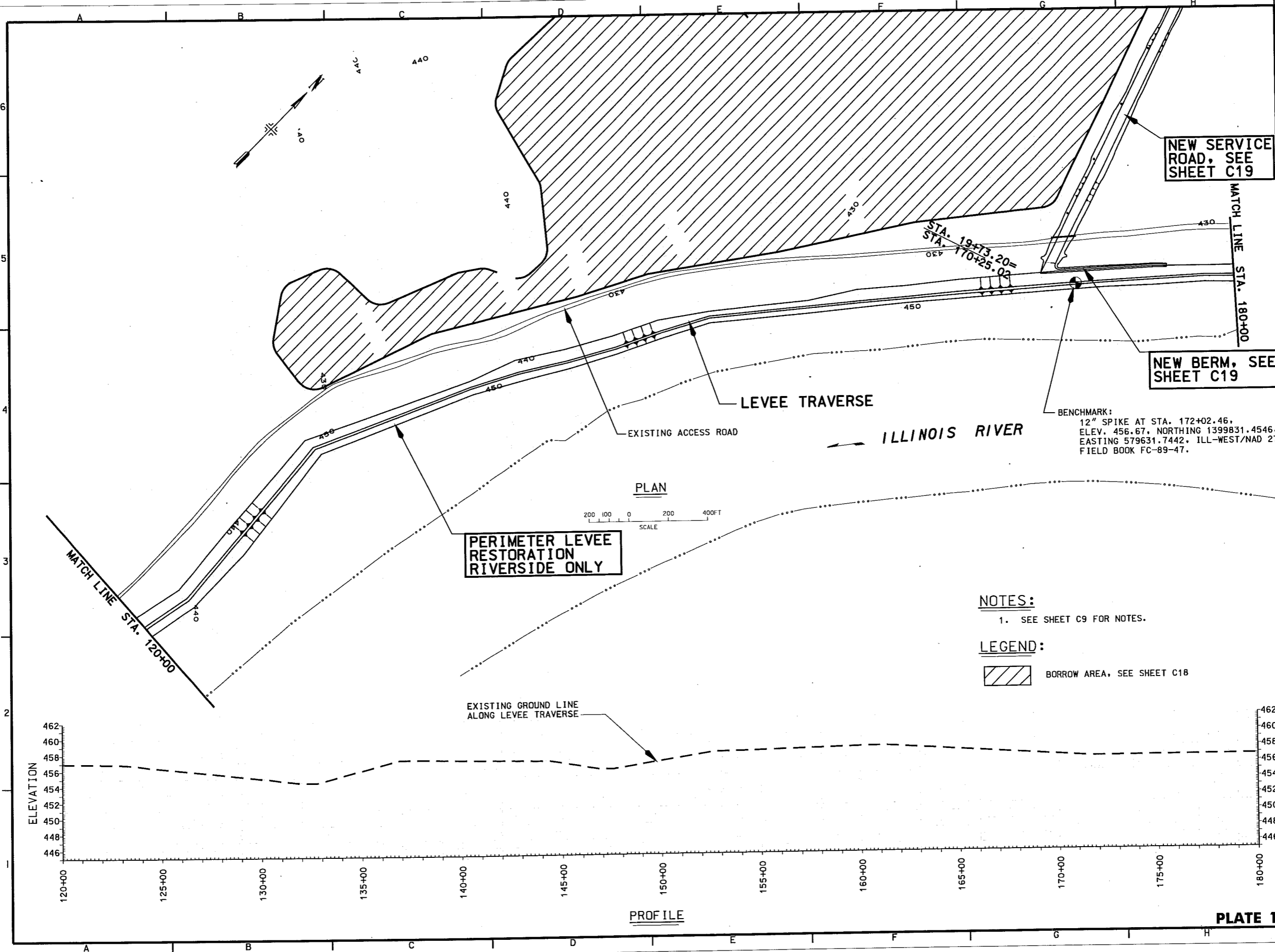


Symbol	Description	Revisions
AS CONSTRUCTED		

Designed By: RTN	Date: 16 JUNE 1999
Drawn By: TPD/SDB	Scale: AS SHOWN
Checked By: KJB	Drawing Code: PL-13-1/72
Reviewed By: BLK	Specification Number: PL-13-1-001

ILLINOIS WATERWAY PROGRAM  
ENVIRONMENTAL MANAGEMENT  
DIVISION  
FULTON AND PEORIA COUNTIES, ILL.  
**PERIMETER LEVEE  
PLAN AND PROFILE  
STA. 60+00 TO  
STA. 120+00**

Sheet Reference Number:  
**C10**  
Sheet 13 of 53



DATE	DESCRIPTION	REVISED AS	APPROVED
3/17/04	REVISED AS CONSTRUCTED		

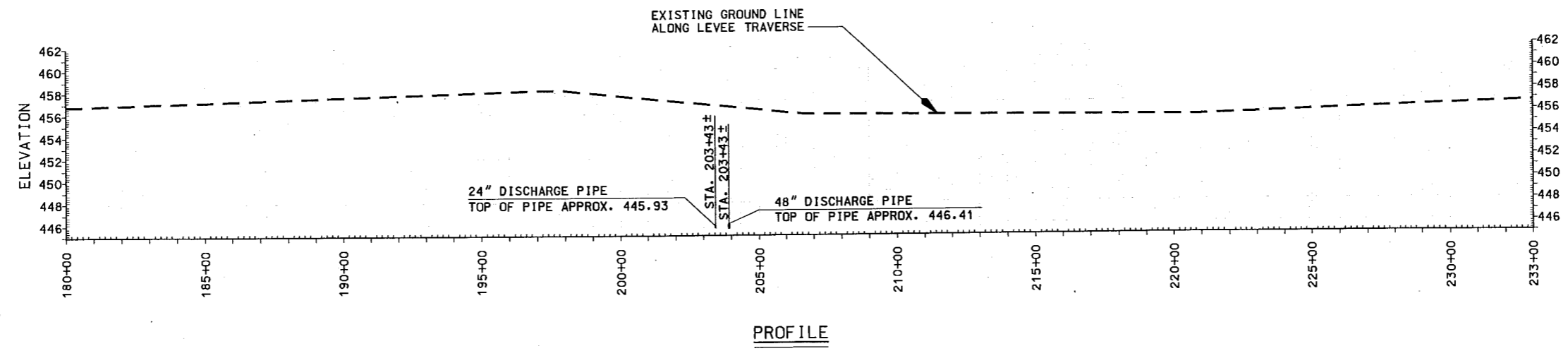
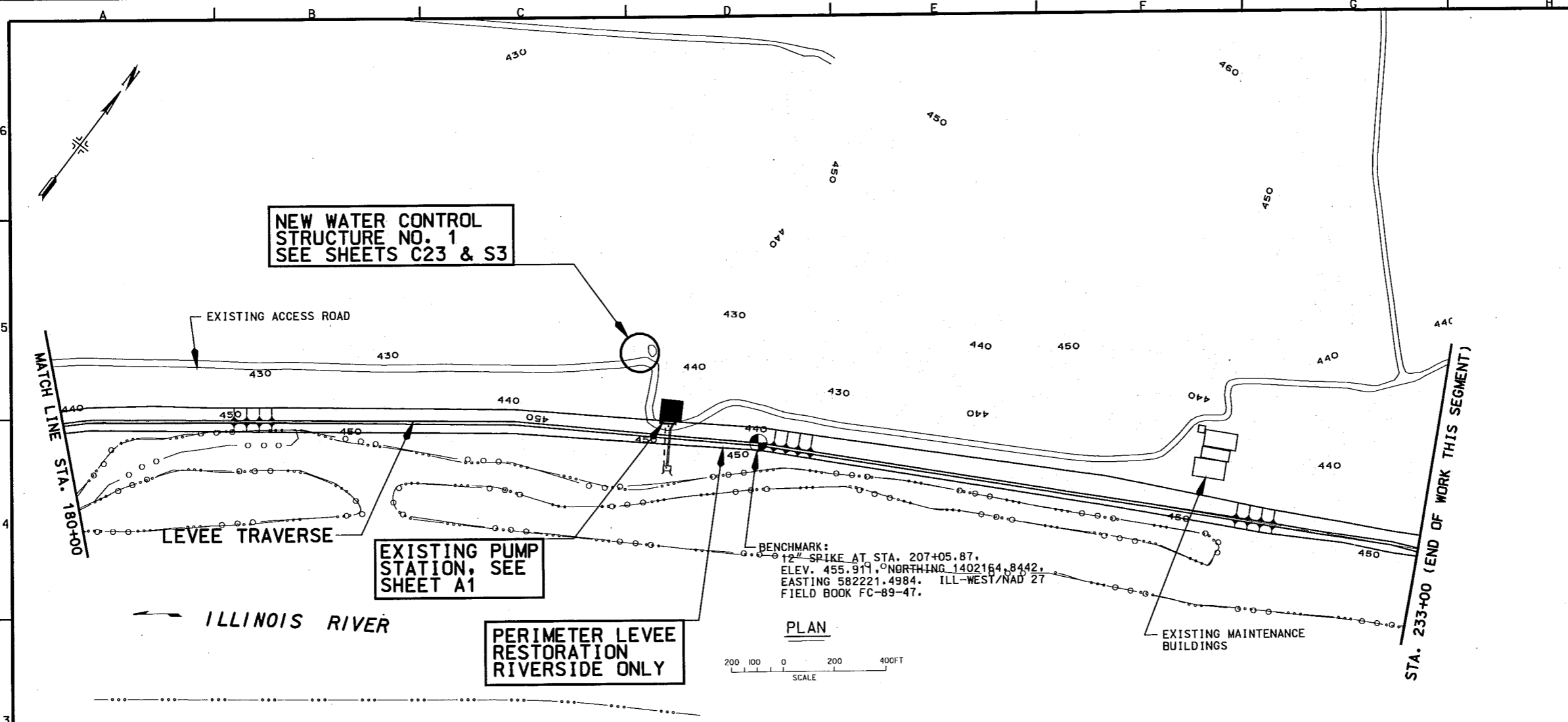
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Designed By: RTN	Drawn By: TPD/SDB	Checked By: KJB	Revised By: BLK
U.S. ARMY ENGINEER DISTRICT CORPS ENGINEERS ROCK ISLAND DISTRICT			

ILLINOIS WATERWAY PROGRAM  
ENVIRONMENTAL MANAGEMENT  
LEVEE AND LIFE MANAGEMENT AREA  
FULTON AND PEORIA COUNTIES, ILL.

**PERIMETER LEVEE  
PLAN AND PROFILE  
TO STA. 120+00  
TO STA. 180+00**

Sheet  
Reference  
Number:  
**C11**  
Sheet 14 of 53

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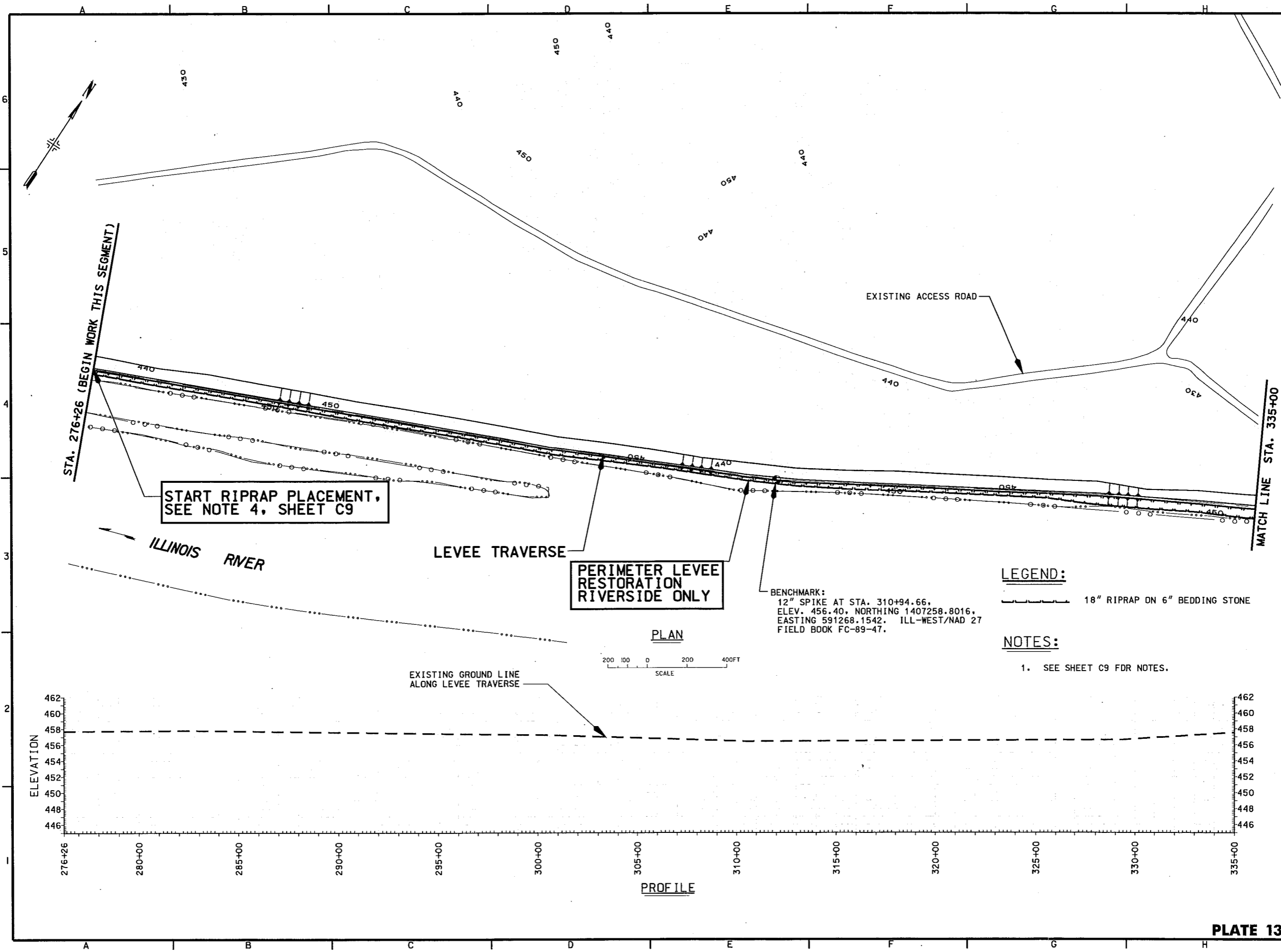
**NOTES:**  
1. SEE SHEET C9 FOR NOTES.

Symbol	Description	Rev/Date
AS CONSTRUCTED		

Designed By: RTN	Date: 16 JUNE 1999
Drawn By: TPD/SDB	Scale: AS SHOWN
Checked By: KUB	Drawings Code: 1-1-3-1/72
Reviewed By: BLK	Revision Number: 1002-99-002

ILLINOIS WATERWAY PROGRAM  
ENVIRONMENTAL MANAGEMENT  
LAGRANGE, ILLINOIS  
PERIMETER LEVEE RESTORATION  
PROGRAM  
PERIMETER LEVEE  
PLAN AND PROFILE  
STA. 180+00 TO  
STA. 233+00

Sheet Reference Number:  
**C12**  
Sheet 15 of 53



START RIPRAP PLACEMENT,  
SEE NOTE 4, SHEET C9

PERIMETER LEVEE  
RESTORATION  
RIVERSIDE ONLY

**LEGEND:**  
 18" RIPRAP ON 6" BEDDING STONE

**NOTES:**  
 1. SEE SHEET C9 FOR NOTES.

BENCHMARK:  
 12" SPIKE AT STA. 310+94.66,  
 ELEV. 456.40, NORTHING 1407258.8016,  
 EASTING 591268.1542. ILL-WEST/NAD 27  
 FIELD BOOK FC-89-47.

**PLAN**  
 SCALE 200 100 0 200 400FT

**PROFILE**



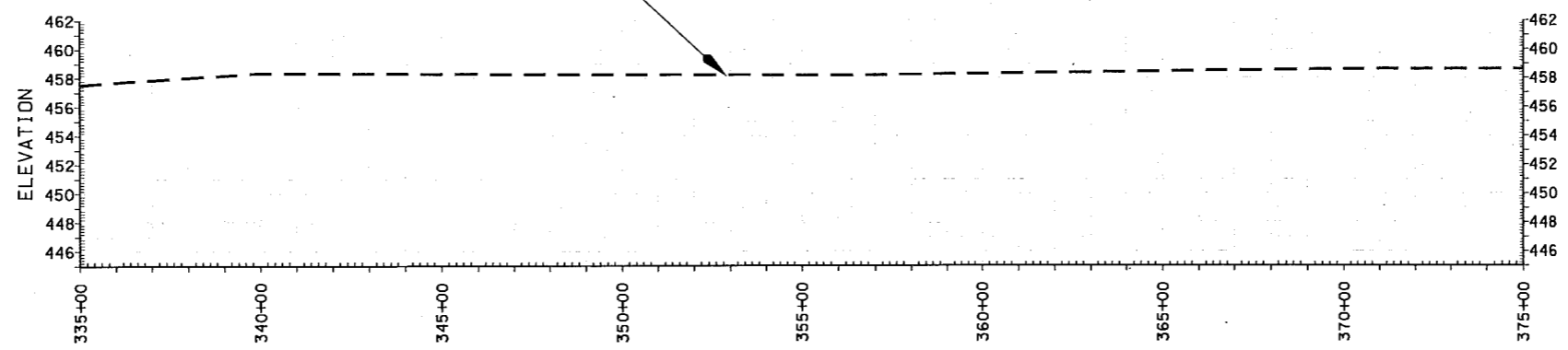
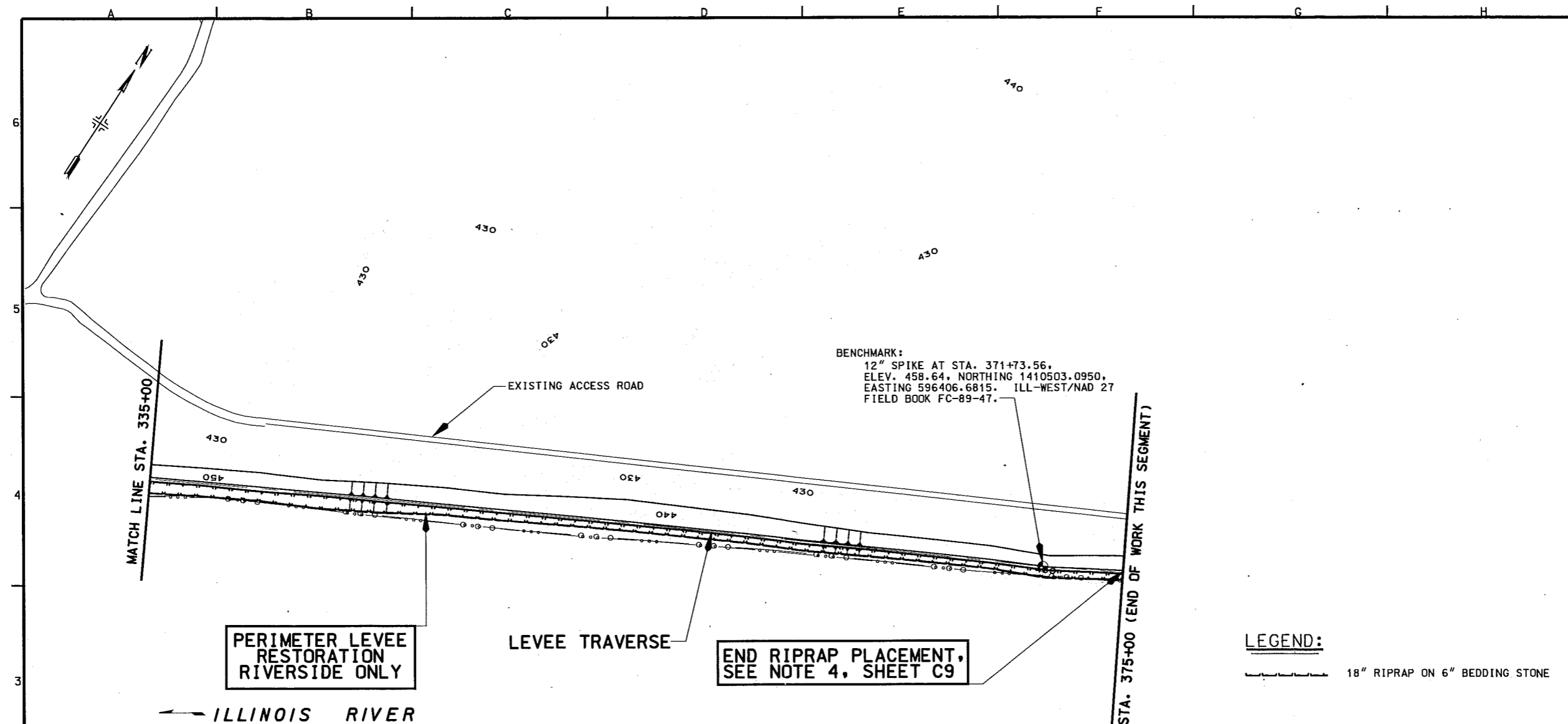
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▲	AS CONSTRUCTED	3/17/04	MLZ/MLL

Designed By:	RTN	Date:	16 JUNE 1999
Drawn By:	TPD/SDB	Scale:	AS SHOWN
Checked By:	KJB	Drawing Code:	PL-1-3-1/72
Reviewed By:	BLK	Soil/Location Number:	DA622-99-9-0001

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

ILLINOIS WATERWAY  
 ENVIRONMENTAL MANAGEMENT PROGRAM  
 LEVEE RESTORATION PROJECT  
 FULTON AND PEORIA COUNTIES, ILL.  
**PERIMETER LEVEE  
 PLAN AND PROFILE  
 STA. 276+26 TO  
 STA. 335+00**

Sheet  
 Reference  
 Number:  
**C13**  
 Sheet 16 of 53



**LEGEND:**

18" RIPRAP ON 6" BEDDING STONE

**NOTES:**

1. SEE SHEET C9 FOR NOTES.

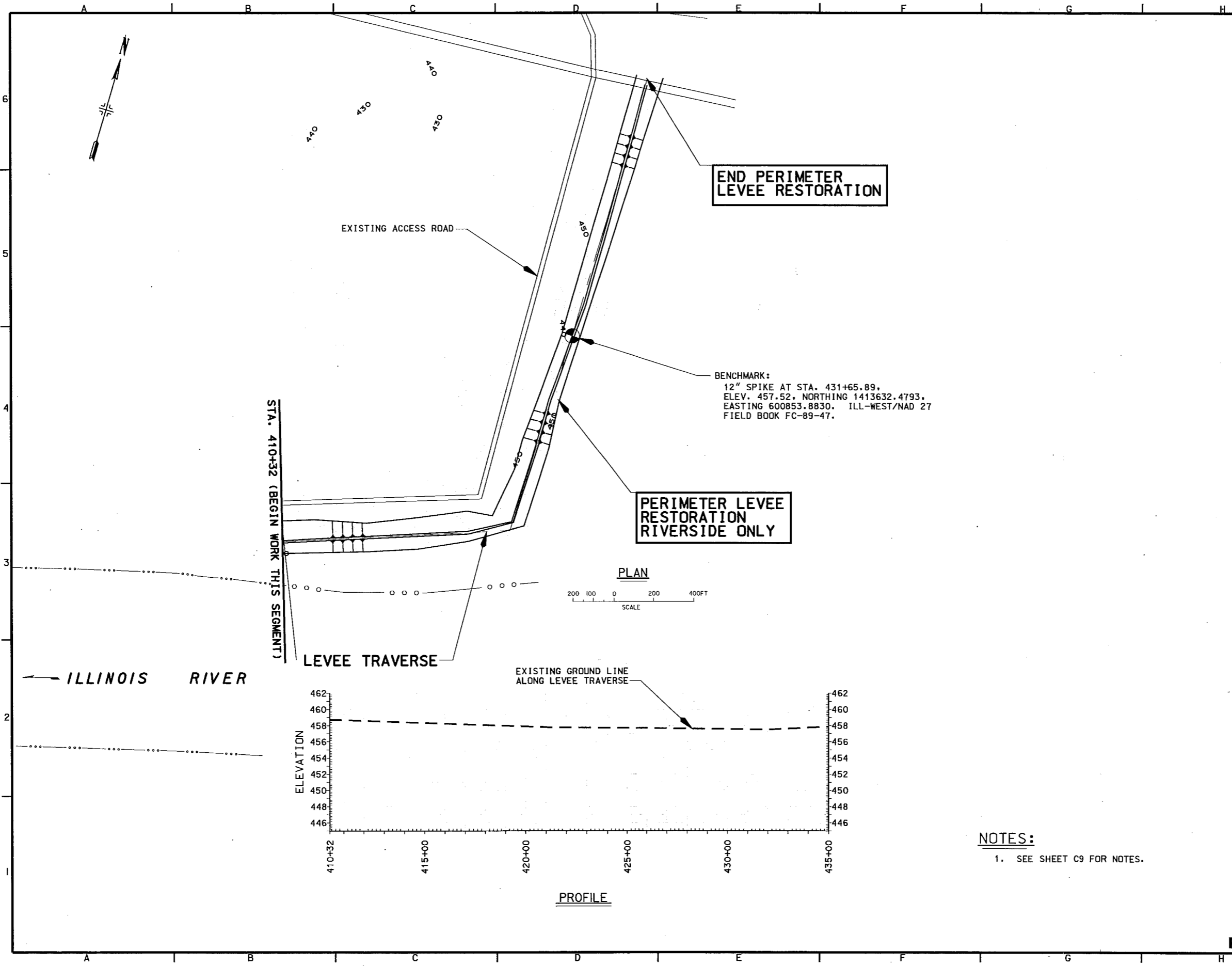
Date	Description	Revised By	Revisions
3/17/04	AS CONSTRUCTED		

Designed By: RTN	Date: 16 JUNE 1999
Drawn By: TPD/SDB	Scale: AS SHOWN
Checked By: KJB	Drawn: 1-11-3-1/72
Reviewed By: BLK	Soil Information Number: DUC22-88-0001

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

ILLINOIS WATERWAY PROGRAM  
ENVIRONMENTAL MANAGEMENT PROGRAM  
DESIGN AND CONSTRUCTION OF PERIMETER LEVEES  
FULTON AND PEORIA COUNTIES, ILL.  
**PERIMETER LEVEE  
PLAN AND PROFILE  
STA. 335+00  
TO STA. 375+00**

Sheet Reference Number:  
**C14**  
Sheet 17 of 53

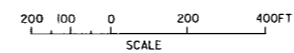


**END PERIMETER  
LEVEE RESTORATION**

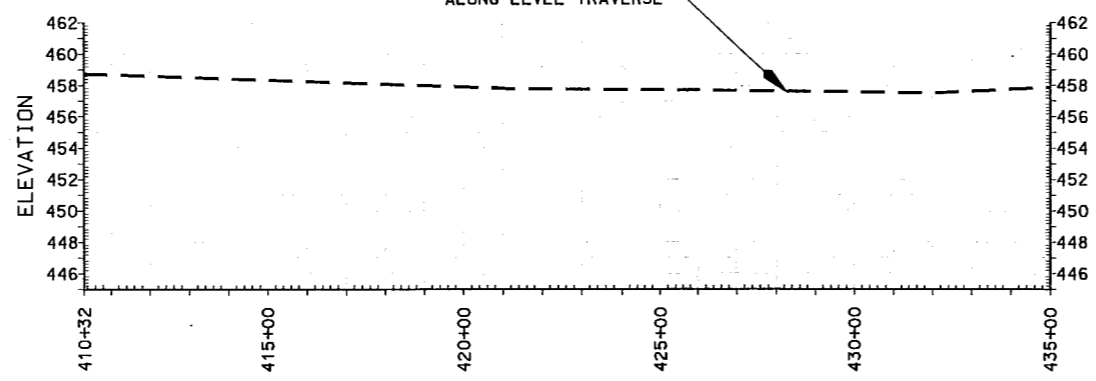
**PERIMETER LEVEE  
RESTORATION  
RIVERSIDE ONLY**

**BENCHMARK:**  
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ELEV. 457.52, NORTHING 1413632.4793.  
EASTING 600853.8830. ILL-WEST/NAD 27  
FIELD BOOK FC-89-47.

**PLAN**



**PROFILE**



**NOTES:**

- 1. SEE SHEET C9 FOR NOTES.



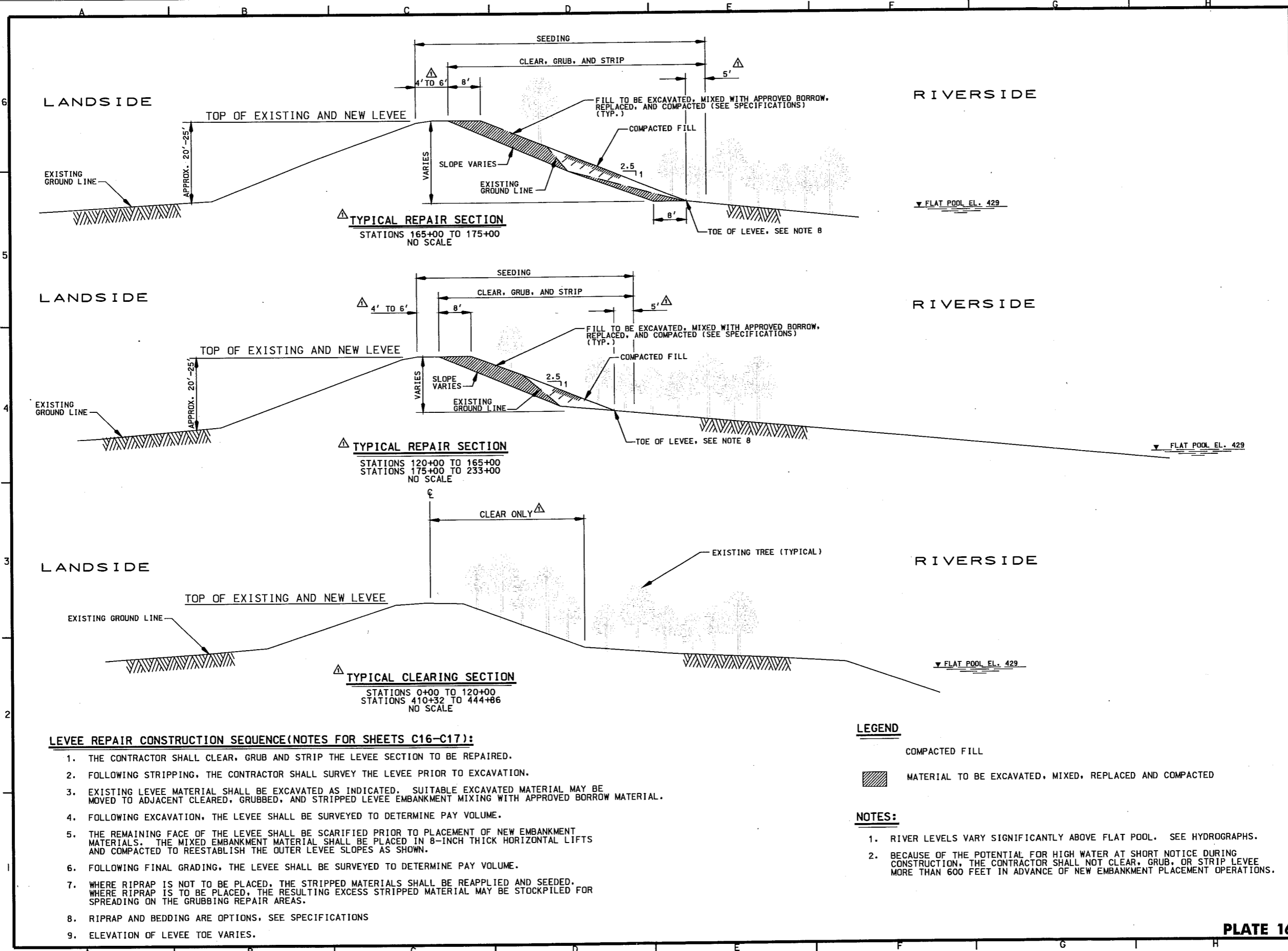
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▲	REVISED AS CONSTRUCTED	3/17/04	MLC/MLT

Designed By: RTN	Date: 16 JUNE 1999
Drawn By: TPD/SDB	Scale: AS SHOWN
Checked By: KJB	Drawn: 1-1-3-1/72
Reviewed By: BLK	Substitution Number: 0602-99-001

ILLINOIS WATERWAY PROGRAM  
ENVIRONMENTAL MANAGEMENT  
PROGRAM FOR LEVEE MAINTENANCE  
AND REPAIRS IN ILLINOIS  
AND PEORIA COUNTIES, ILL.  
**PERIMETER LEVEE  
PLAN AND PROFILE  
STA. 410 + 32 TO  
STA. 444 + 86**

Sheet  
Reference  
Number:  
**C15**  
Sheet 16 of 53





- LEVEE REPAIR CONSTRUCTION SEQUENCE (NOTES FOR SHEETS C16-C17):**
1. THE CONTRACTOR SHALL CLEAR, GRUB AND STRIP THE LEVEE SECTION TO BE REPAIRED.
  2. FOLLOWING STRIPPING, THE CONTRACTOR SHALL SURVEY THE LEVEE PRIOR TO EXCAVATION.
  3. EXISTING LEVEE MATERIAL SHALL BE EXCAVATED AS INDICATED. SUITABLE EXCAVATED MATERIAL MAY BE MOVED TO ADJACENT CLEARED, GRUBBED, AND STRIPPED LEVEE EMBANKMENT MIXING WITH APPROVED BORROW MATERIAL.
  4. FOLLOWING EXCAVATION, THE LEVEE SHALL BE SURVEYED TO DETERMINE PAY VOLUME.
  5. THE REMAINING FACE OF THE LEVEE SHALL BE SCARIFIED PRIOR TO PLACEMENT OF NEW EMBANKMENT MATERIALS. THE MIXED EMBANKMENT MATERIAL SHALL BE PLACED IN 8-INCH THICK HORIZONTAL LIFTS AND COMPACTED TO REESTABLISH THE OUTER LEVEE SLOPES AS SHOWN.
  6. FOLLOWING FINAL GRADING, THE LEVEE SHALL BE SURVEYED TO DETERMINE PAY VOLUME.
  7. WHERE RIPRAP IS NOT TO BE PLACED, THE STRIPPED MATERIALS SHALL BE REAPPLIED AND SEEDED. WHERE RIPRAP IS TO BE PLACED, THE RESULTING EXCESS STRIPPED MATERIAL MAY BE STOCKPILED FOR SPREADING ON THE GRUBBING REPAIR AREAS.
  8. RIPRAP AND BEDDING ARE OPTIONS, SEE SPECIFICATIONS
  9. ELEVATION OF LEVEE TOE VARIES.

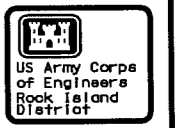
**LEGEND**

COMPACTED FILL

MATERIAL TO BE EXCAVATED, MIXED, REPLACED AND COMPACTED

**NOTES:**

1. RIVER LEVELS VARY SIGNIFICANTLY ABOVE FLAT POOL. SEE HYDROGRAPHS.
2. BECAUSE OF THE POTENTIAL FOR HIGH WATER AT SHORT NOTICE DURING CONSTRUCTION, THE CONTRACTOR SHALL NOT CLEAR, GRUB, OR STRIP LEVEE MORE THAN 600 FEET IN ADVANCE OF NEW EMBANKMENT PLACEMENT OPERATIONS.



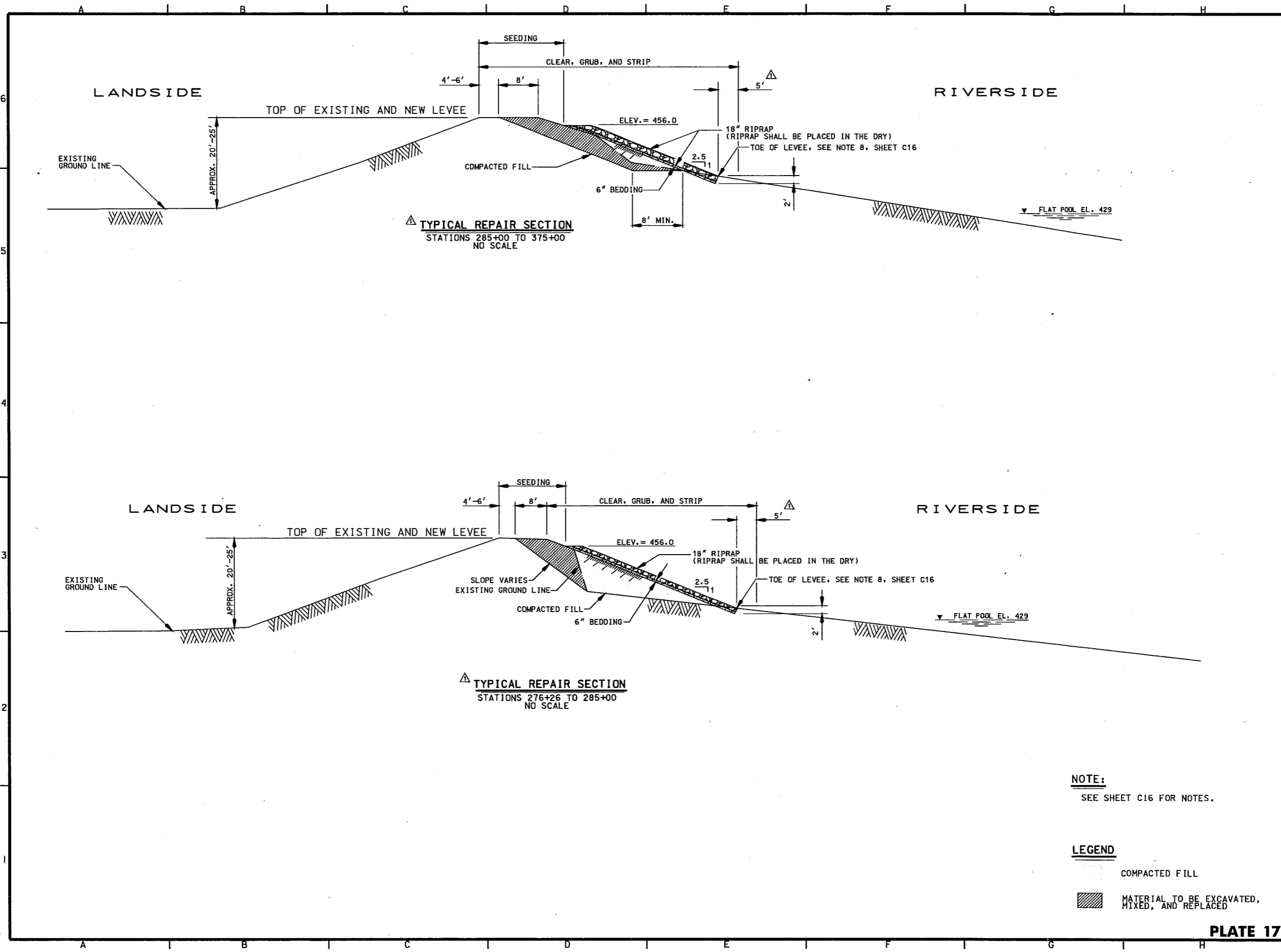
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△	REV. 255 - MINOR REVISION	3/7/03	THOMAS

Designed By:	RTN	Date:	16 JUNE 1999
Drawn By:	TPD/SDB	Scale:	AS SHOWN
Checked By:	KJB	Drawing Code:	1-L1-3-1-172
Reviewed By:	BLK	Specification Number:	DUCE-99-99-001



ENVIRONMENTAL MANAGEMENT PROGRAM  
LAGRANGE POOL RIVER MILE 138-144  
BANNER WILD RIFE MANAGEMENT AREA  
FULLTON AND PEORIA COUNTIES, IL.


**TYPICAL LEVEE REPAIR SECTIONS I**

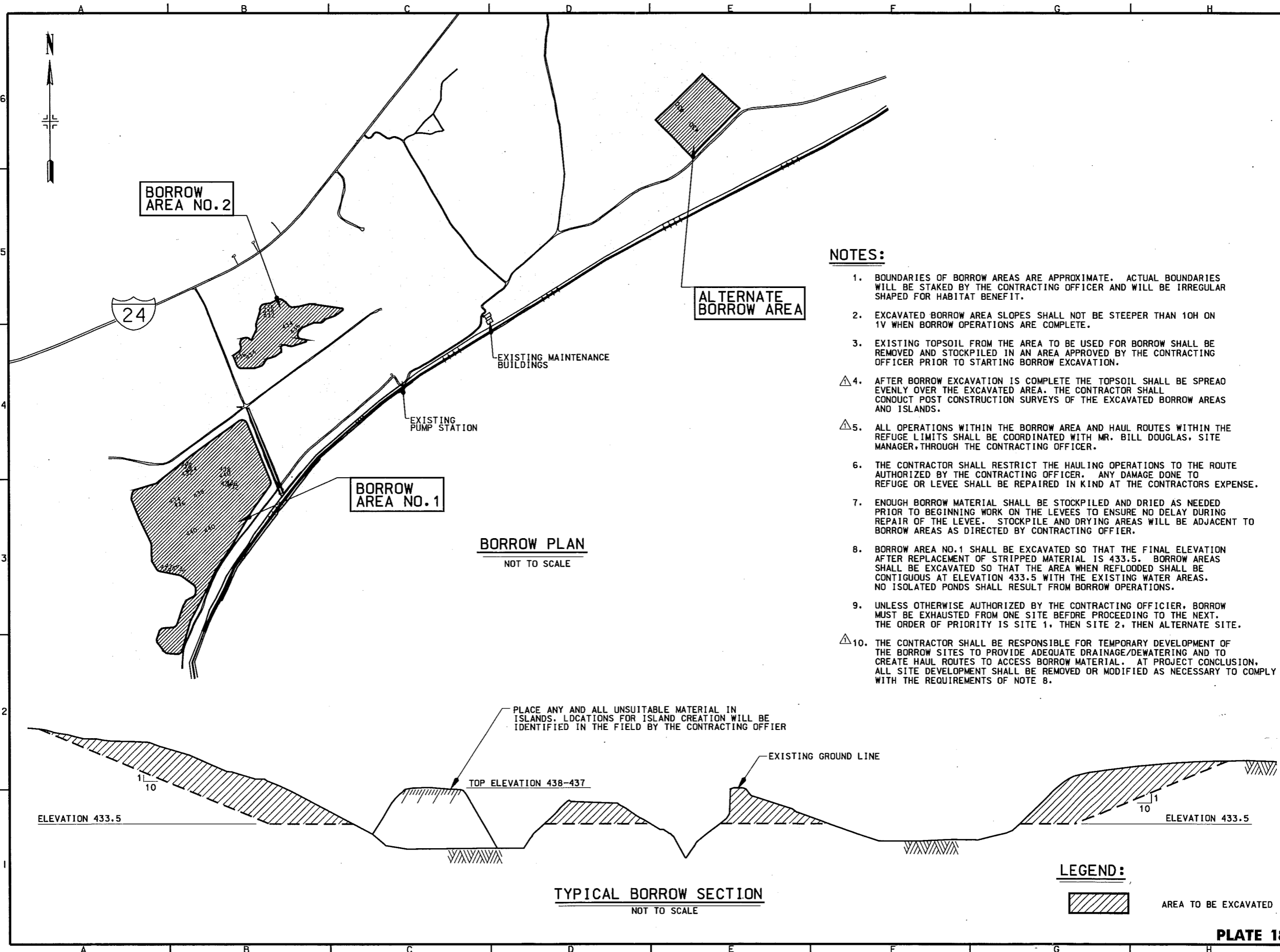
Sheet Reference Number:  
**C16**  
Sheet 19 of 53



**NOTE:**  
SEE SHEET C16 FOR NOTES.

**LEGEND**  
 COMPACTED FILL  
 MATERIAL TO BE EXCAVATED, MIXED, AND REPLACED

 US Army Corps of Engineers Rock Island District	
U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS ROCK ISLAND, ILLINOIS	
Date: 16 JUNE 1999 Design By: RTN Drawn By: TPD/SDB Checked By: KJB Reviewed By: BLK	Section: AS SHOWN Drawing Code: 1-11-3-1/72 Section Number: 20 Project Number: 2852-99-0021
ILLINOIS WATERWAY PROGRAM ENVIRONMENTAL MANAGEMENT BANNER WATERSHED MANAGEMENT AREA FULTON AND PEDIATA COUNTIES, IL.	
<b>TYPICAL LEVEE REPAIRS SECTIONS II</b>	
Sheet Reference Number: <b>C17</b> Sheet 20 of 53	

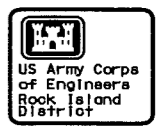


**NOTES:**

1. BOUNDARIES OF BORROW AREAS ARE APPROXIMATE. ACTUAL BOUNDARIES WILL BE STAKED BY THE CONTRACTING OFFICER AND WILL BE IRREGULAR SHAPED FOR HABITAT BENEFIT.
2. EXCAVATED BORROW AREA SLOPES SHALL NOT BE STEEPER THAN 10H ON 1V WHEN BORROW OPERATIONS ARE COMPLETE.
3. EXISTING TOPSOIL FROM THE AREA TO BE USED FOR BORROW SHALL BE REMOVED AND STOCKPILED IN AN AREA APPROVED BY THE CONTRACTING OFFICER PRIOR TO STARTING BORROW EXCAVATION.
- △ 4. AFTER BORROW EXCAVATION IS COMPLETE THE TOPSOIL SHALL BE SPREAD EVENLY OVER THE EXCAVATED AREA. THE CONTRACTOR SHALL CONDUCT POST CONSTRUCTION SURVEYS OF THE EXCAVATED BORROW AREAS AND ISLANDS.
- △ 5. ALL OPERATIONS WITHIN THE BORROW AREA AND HAUL ROUTES WITHIN THE REFUGE LIMITS SHALL BE COORDINATED WITH MR. BILL DOUGLAS, SITE MANAGER, THROUGH THE CONTRACTING OFFICER.
6. THE CONTRACTOR SHALL RESTRICT THE HAULING OPERATIONS TO THE ROUTE AUTHORIZED BY THE CONTRACTING OFFICER. ANY DAMAGE DONE TO REFUGE OR LEVEE SHALL BE REPAIRED IN KIND AT THE CONTRACTORS EXPENSE.
7. ENOUGH BORROW MATERIAL SHALL BE STOCKPILED AND DRIED AS NEEDED PRIOR TO BEGINNING WORK ON THE LEVEES TO ENSURE NO DELAY DURING REPAIR OF THE LEVEE. STOCKPILE AND DRYING AREAS WILL BE ADJACENT TO BORROW AREAS AS DIRECTED BY CONTRACTING OFFIER.
8. BORROW AREA NO.1 SHALL BE EXCAVATED SO THAT THE FINAL ELEVATION AFTER REPLACEMENT OF STRIPPED MATERIAL IS 433.5. BORROW AREAS SHALL BE EXCAVATED SO THAT THE AREA WHEN REFLOODED SHALL BE CONTIGUOUS AT ELEVATION 433.5 WITH THE EXISTING WATER AREAS. NO ISOLATED PONDS SHALL RESULT FROM BORROW OPERATIONS.
9. UNLESS OTHERWISE AUTHORIZED BY THE CONTRACTING OFFICIER, BORROW MUST BE EXHAUSTED FROM ONE SITE BEFORE PROCEEDING TO THE NEXT. THE ORDER OF PRIORITY IS SITE 1, THEN SITE 2, THEN ALTERNATE SITE.
- △ 10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TEMPORARY DEVELOPMENT OF THE BORROW SITES TO PROVIDE ADEQUATE DRAINAGE/DEWATERING AND TO CREATE HAUL ROUTES TO ACCESS BORROW MATERIAL. AT PROJECT CONCLUSION, ALL SITE DEVELOPMENT SHALL BE REMOVED OR MODIFIED AS NECESSARY TO COMPLY WITH THE REQUIREMENTS OF NOTE 8.

**LEGEND:**

AREA TO BE EXCAVATED

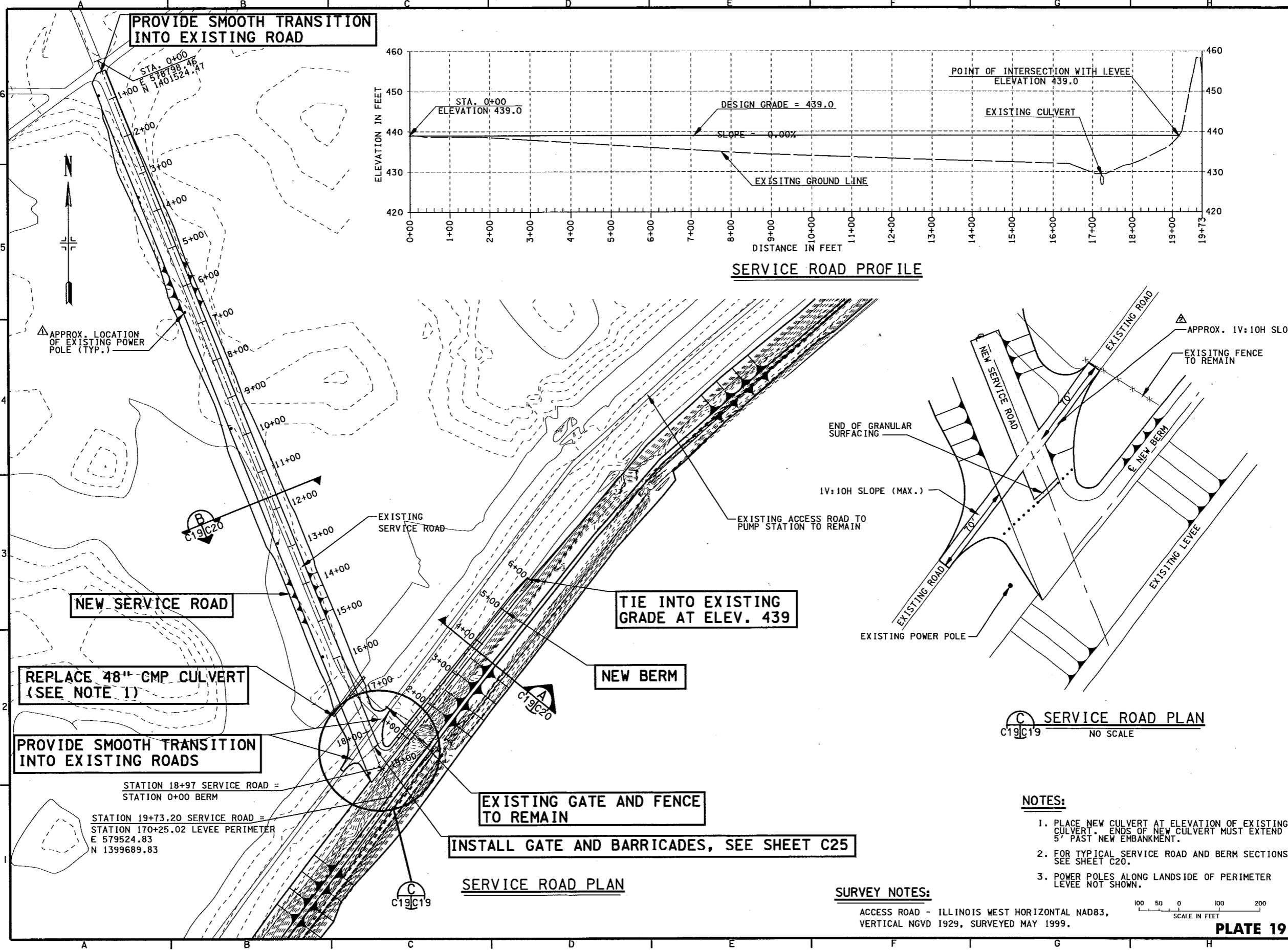


Symbol	Description	Date	Revisions
△	REVISIONS AS CONSTRUCTED AND REVISION NOTES	3/7/04	1
		8/22/99	2

Designed By:	RTN	Date:	16 JUNE 1999
Drawn By:	TPD/SDB	Scale:	AS SHOWN
Checked By:	KJB	Project No.:	1-41-3-1/72
Reviewed By:	BLK	Specification Number:	DUCR2-99-8-0001

ILLINOIS WATERWAY PROGRAM  
 ENVIRONMENTAL MANAGEMENT PROGRAM  
 BANNER WETLAND MANAGEMENT AREA  
 FULTON AND PEDIATA COUNTIES, IL.  
**BORROW PLAN AND TYPICAL SECTION**

Sheet Reference Number:  
**C18**  
 Sheet 21 of 53



- NOTES:**
1. PLACE NEW CULVERT AT ELEVATION OF EXISTING CULVERT. ENDS OF NEW CULVERT MUST EXTEND 5' PAST NEW EMBANKMENT.
  2. FOR TYPICAL SERVICE ROAD AND BERM SECTIONS SEE SHEET C20.
  3. POWER POLES ALONG LANDSIDE OF PERIMETER LEVEE NOT SHOWN.

**SURVEY NOTES:**  
 ACCESS ROAD - ILLINOIS WEST HORIZONTAL NAD83, VERTICAL NGVD 1929, SURVEYED MAY 1999.

SCALE IN FEET: 100 50 0 100 200

**PLATE 19**



Symbol	Description	Date	Appr.
▲	REVISIONS CONSTRUCTED	3/7/99	JULY/AUG
▲	AND NO. 3 - MINOR REVISIONS	7/17/99	JULY/SEP

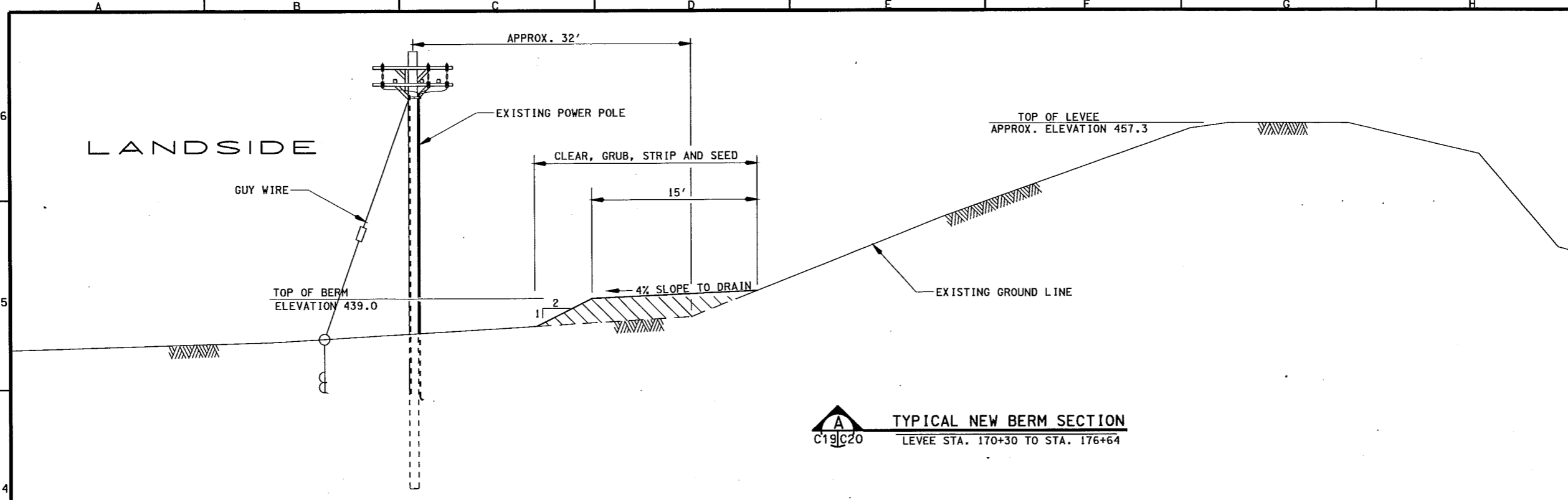
Designed By:	RTN	Date:	16 JUNE 1999
Drawn By:	TPD/SDB	Scale:	AS SHOWN
Checked By:	KJB	Drawing Code:	1-11-3-1/72
Reviewed By:	BLK	Soil Station Number:	Duck2-99-9-001

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

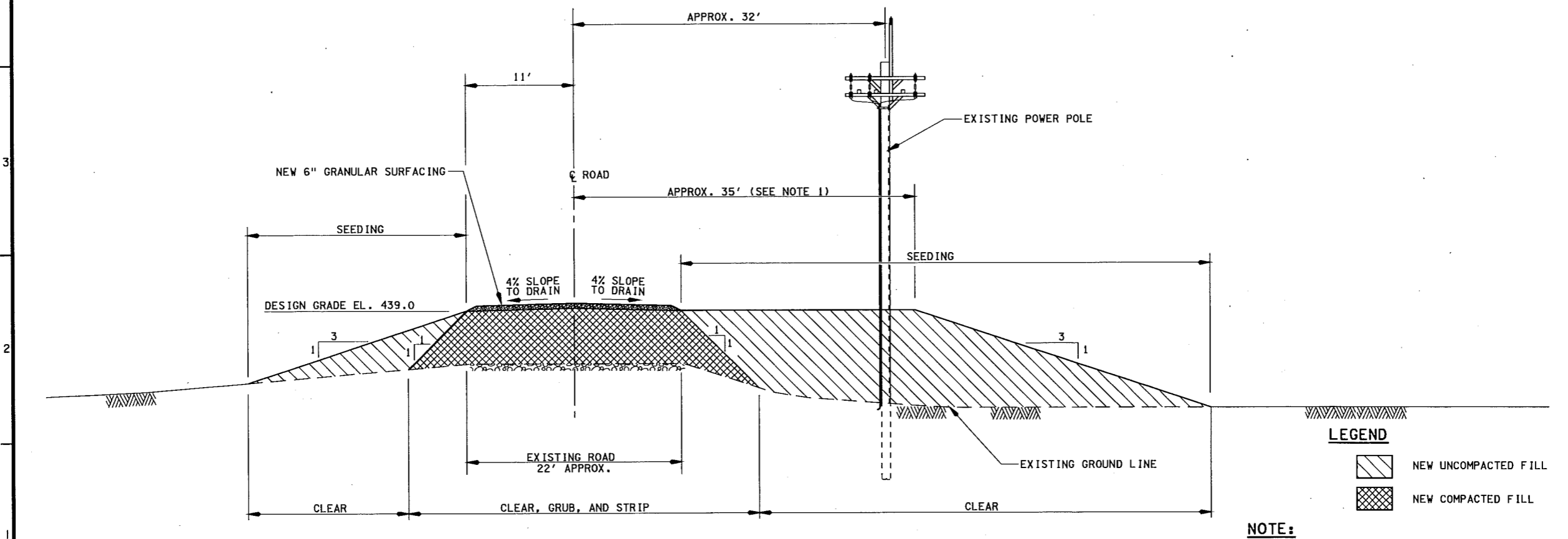
ILLINOIS WATERWAY PROGRAM  
 ENVIRONMENTAL MANAGEMENT  
 BANNER WOODS WILDLIFE MANAGEMENT AREA  
 FULTON AND PEDRIA COUNTIES, IL.

**SERVICE ROAD PLAN AND PROFILE**

Sheet Reference Number:  
**C19**  
 Sheet 22 of 53



**A** TYPICAL NEW BERM SECTION  
 C19/C20 LEVEE STA. 170+30 TO STA. 176+64



**B** TYPICAL NEW SERVICE ROAD SECTION  
 C19/C20

**LEGEND**

NEW UNCOMPACTED FILL

NEW COMPACTED FILL

**NOTE:**

1. THE SHOULDER SHALL BE EXTENDED TO 3' BEYOND THE EXISTING POWER POLES THE ENTIRE LENGTH OF THE EXISTING SERVICE ROAD.

5 0 5 10  
 SCALE IN FEET

**PLATE 20**



Date	Symbol	Description	Revisions
12/04	11/EZ/BJ	REVISED AS CONSTRUCTED	

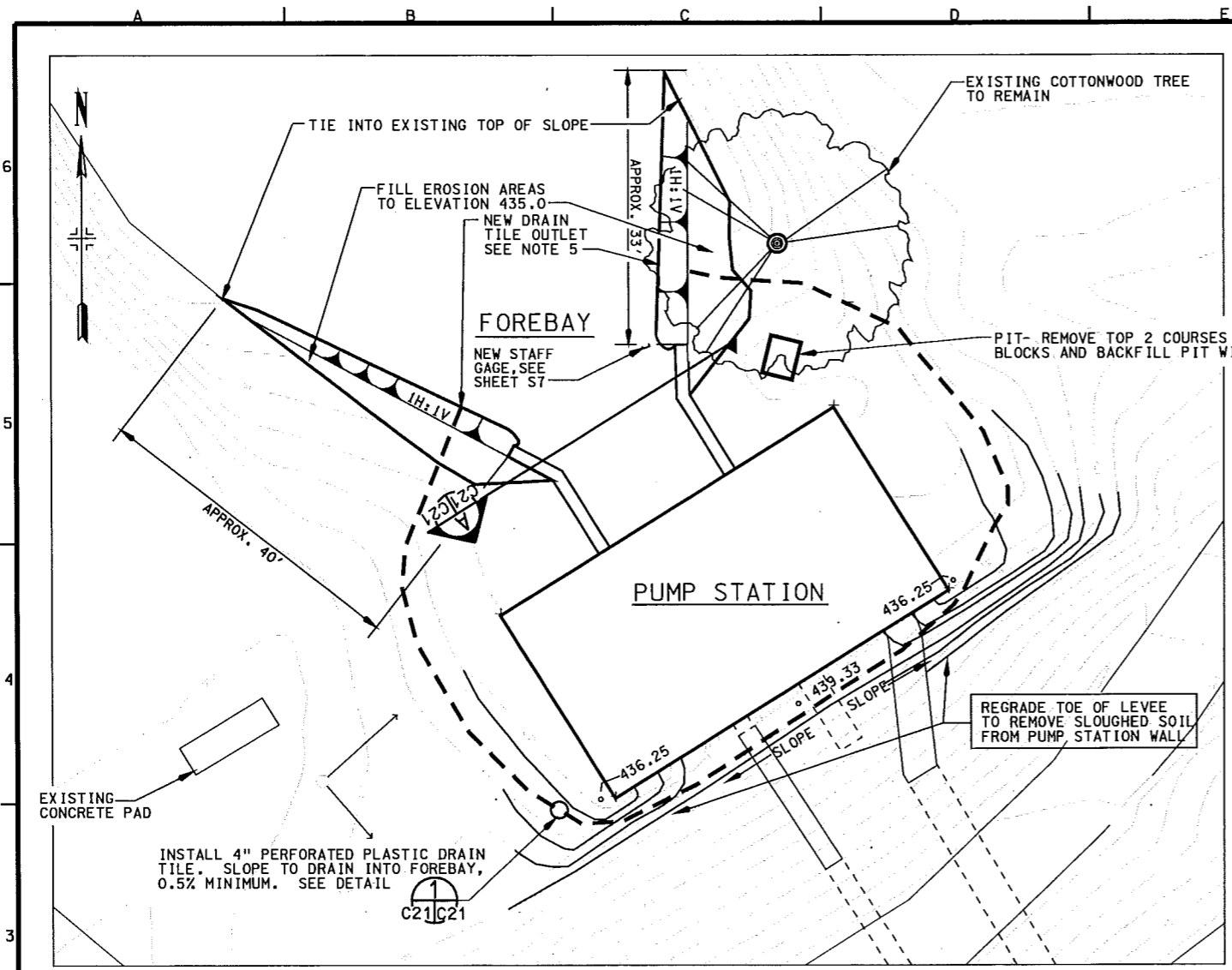
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Drawn By: TPD/SDB	Scale: AS SHOWN
Checked By: KJB	Project Code: 1-11-3-1/72
Reviewed By: BLK	SOI (Station Number): 170+30-176+64

ILLINOIS WATERWAY PROGRAM  
 ENVIRONMENTAL MANAGEMENT PLAN AREA 4  
 HANOVER, ILLINOIS  
 FULTON AND PEDRA COUNTIES, IL

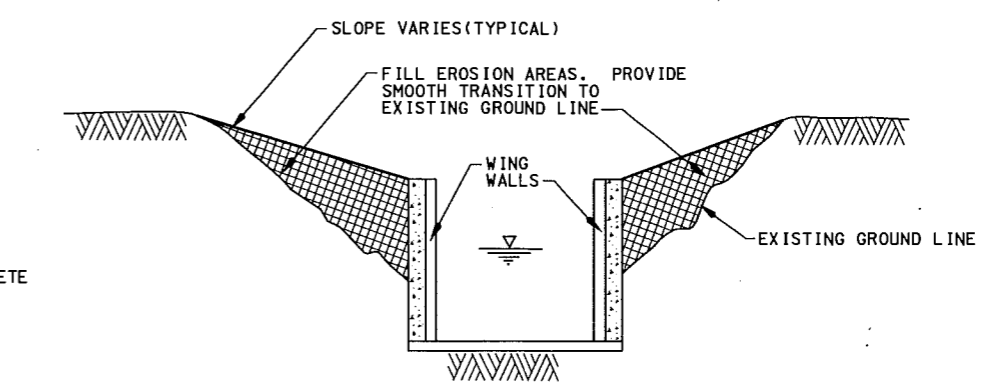
**TYPICAL SERVICE ROAD AND BERM SECTIONS**

Sheet Reference Number:  
**C20**  
 Sheet 23 of 53

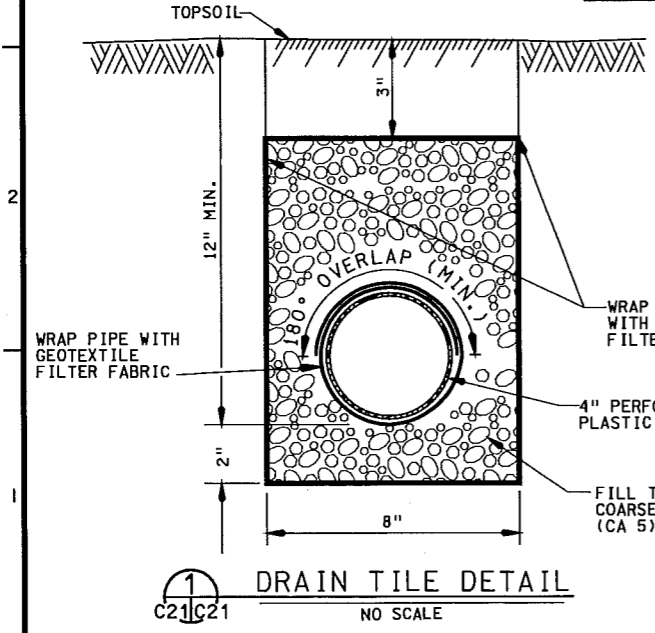
15-REC-2004 14189  
 15-REC-2004 14189



**PUMP STATION GRADING PLAN**  
NO SCALE



**SECTION A-A**  
C21/C21 NO SCALE

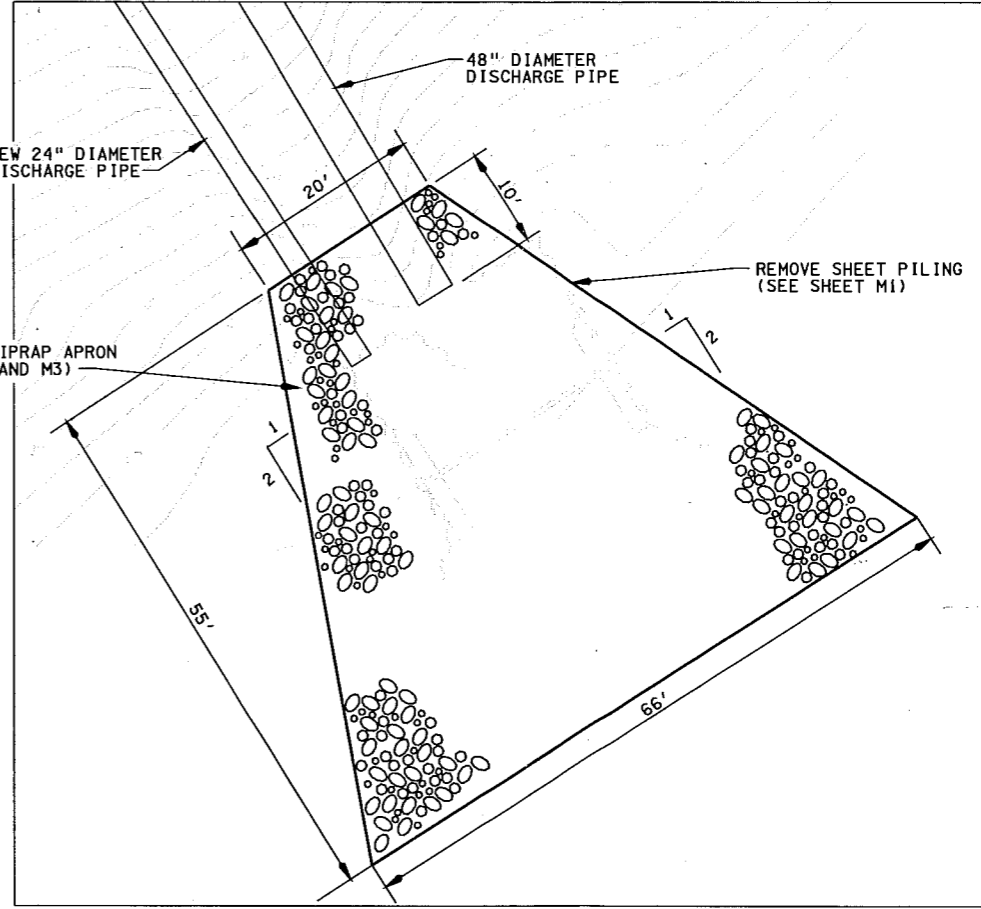


**1 DRAIN TILE DETAIL**  
C21/C21 NO SCALE

**NOTES:**

1. BEFORE PROCEEDING WITH ANY EARTHWORK, REMOVE WOOD, PIPING, MISCELLANEOUS STEEL, CABLE, WIRE AND ALL OTHER TRASH OR DEBRIS WITHIN 100 FEET OF PUMP STATION, AND DISPOSE OFF SITE.
2. IN EROSION REPAIR AREAS, TAMP NEW FILL BY HAND OR MACHINE BUCKET TO PROVIDE SEMI-COMPACTION.
3. SEE SHEETS M1, M2 AND M3 FOR EXISTING AND NEW SITE CONDITIONS, GRADING AND FEATURES AT DISCHARGE BAY.
4. SEE SPEC. SECTION 02072 PHOTO E8 FOR EXISTING CONDITIONS OF FOREBAY.
5. PROVIDE VARMIT GUARD OVER OUTLET OF NEW DRAIN TILE.
6. ALL DISTURBED AREAS SHALL BE SEEDED.
7. ENDS OF DRAIN TILE LINES SHALL BE UNPERFORATED (5 FEET FROM OUTLET).

PLACE NEW 24" RIPRAP APRON (SEE SHEETS M2 AND M3)



**DISCHARGE BAY PLAN**

SCALE IN FEET  
0 8 16

**PLATE 21**



Symbol	Description	Date	Revisions
Δ	REVISED AS CONSTRUCTED	3/17/04	

Designed By:	RTN	Date:	16 JUNE 1999
Drawn By:	TPD/SDB	Scale:	AS SHOWN
Checked By:	KJB	Project Code:	PL-1-3-172
Reviewed By:	BLK	Soil Collection Number:	Duct-99-001

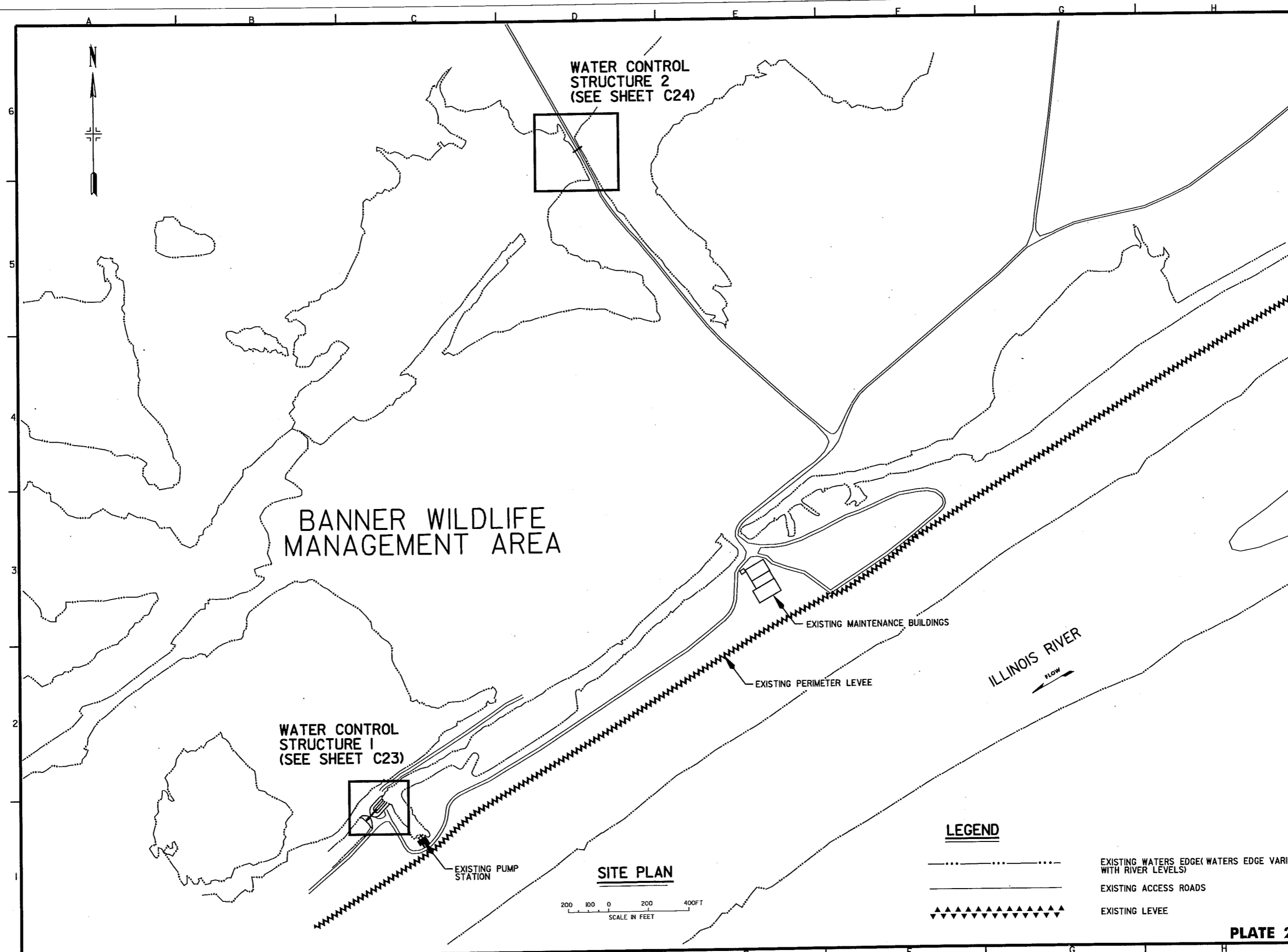
U.S. ARMY ENGINEER DISTRICT  
CORPS OF ENGINEERS  
ROCK ISLAND, ILLINOIS

ILLINOIS WATERWAY PROGRAM  
ENVIRONMENTAL MANAGEMENT  
DESIGN AND CONSTRUCTION  
FULTON AND PEGASUS COUNTIES, IL

**PUMP STATION GRADING PLAN**

Sheet Reference Number:  
**C21**  
Sheet 24 of 53

15-000-0004 14152  
DRAWING (SCALE) (REV) (DATE) (BY) (APP) (CHECK) (DATE)



US Army Corps  
of Engineers  
Rock Island  
District

Symbol	Description	Date	Approved
▲	REVISSED AS CONSTRUCTED	11/2/04	JLE/2004

Designed By:	RTN	Date:	16 JUNE 1999
Drawn By:	TPD/SDB	Scale:	AS SHOWN
Checked By:	KJB	Drawn To Code:	11-L-3-1/72
Reviewed By:	BLK	Soil Criteria Used:	DA-22-2-1-001

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

ILLINOIS WILDLIFE MANAGEMENT AREA  
LAGRANGE POOL RIVER WILDLIFE AREA  
BANNER WILDLIFE MANAGEMENT AREA  
FULTON AND PEORIA COUNTIES, IL.

**WATER CONTROL  
STRUCTURE SITE PLAN**

Sheet  
Reference  
Number:  
**C22**  
Sheet 25 of 53

**LEGEND**

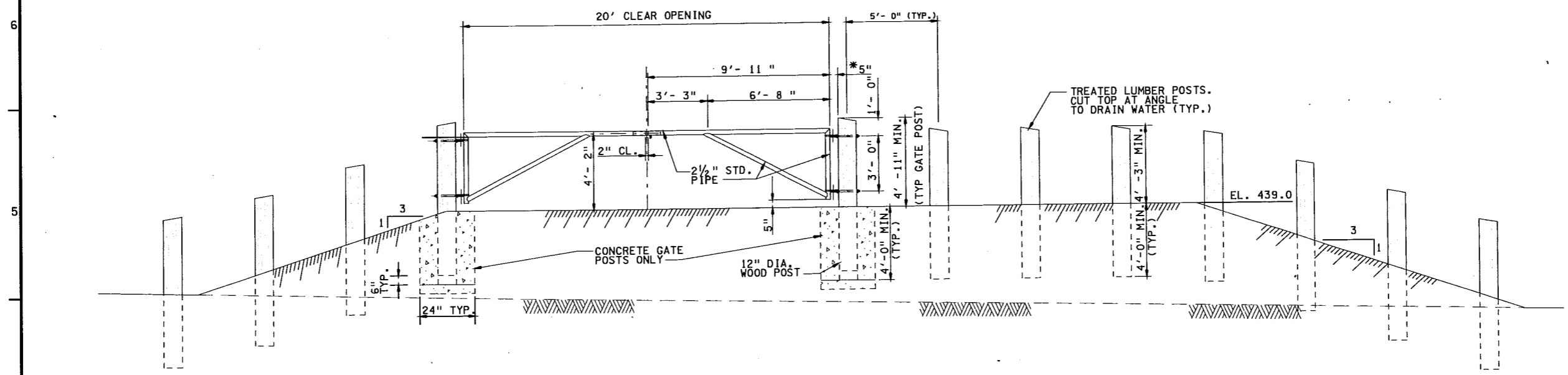
- ..... EXISTING WATERS EDGE (WATERS EDGE VARIES WITH RIVER LEVELS)
- EXISTING ACCESS ROADS
- ▲▲▲▲▲ EXISTING LEEVE

**PLATE 22**

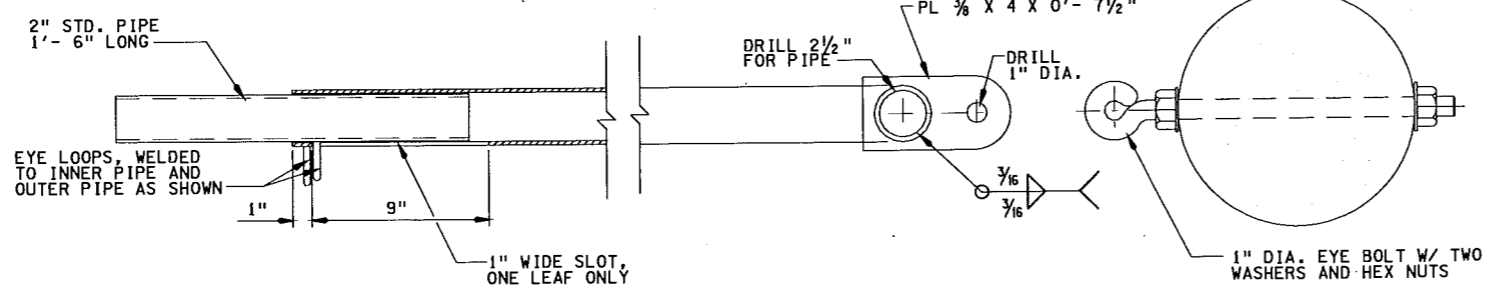
15-DEC-2004 1:41:52  
Banner Wildlife Management Area Water Control Structure C22.dgn



\*THIS DIMENSION MAY REQUIRE MINOR ADJUSTMENT TO MAINTAIN THE 20' CLEAR OPENING, DEPENDING ON THE EXACT DIMENSIONS OF THE EYE BOLT ETC. VERIFY THIS BEFORE SETTING THE POSTS.

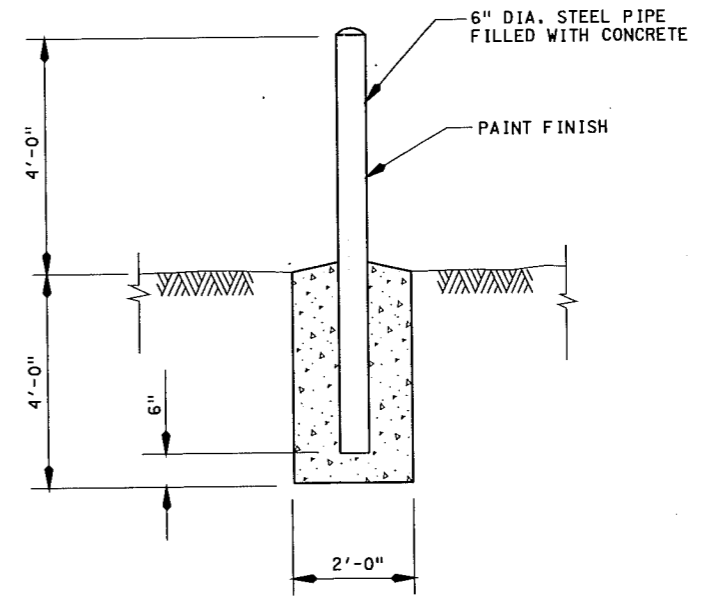


**GATE ELEVATION**  
SEE PLAN, SHEET C19  
SCALE IN FEET



**LOCK DETAIL**  
SCALE IN INCHES

NOTE:  
HINGE PINS ARE  
3/4" X 3" BOLTS  
WITH TWO NUTS EACH



**PIPE BOLLARD DETAIL**  
SCALE IN FEET

**NOTES:**

1. EXACT LOCATION OF GATES AND PIPE BOLLARDS WILL BE ADJUSTED IN THE FIELD, AS DIRECTED BY CONTRACTING OFFICER.
2. WELD ALL PIPE JOINTS WITH CONTINUOUS BEAD, SIZE EQUAL TO PIPE WALL THICKNESS, AND DRESS SMOOTH.
3. THE PIPE BOLLARDS SHALL BE PAINTED AFTER INSTALLATION, PRIOR TO BACK FILL.
4. ALL GATE COMPONENTS SHALL BE GALVANIZED AFTER FABICATION.

Symbol	Description	Date	Revised By	Approved
AS	AS CONSTRUCTED			

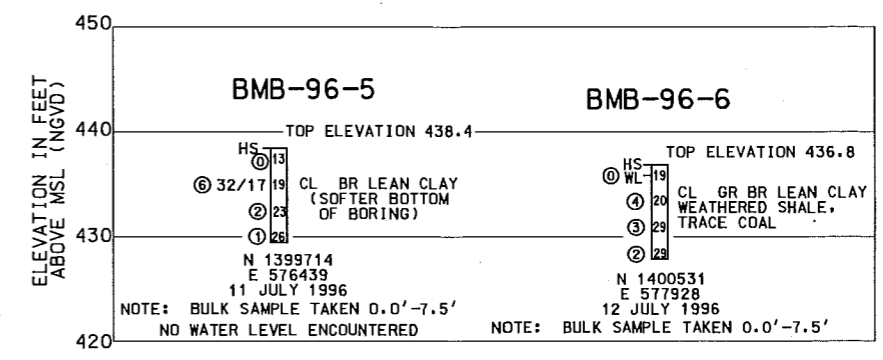
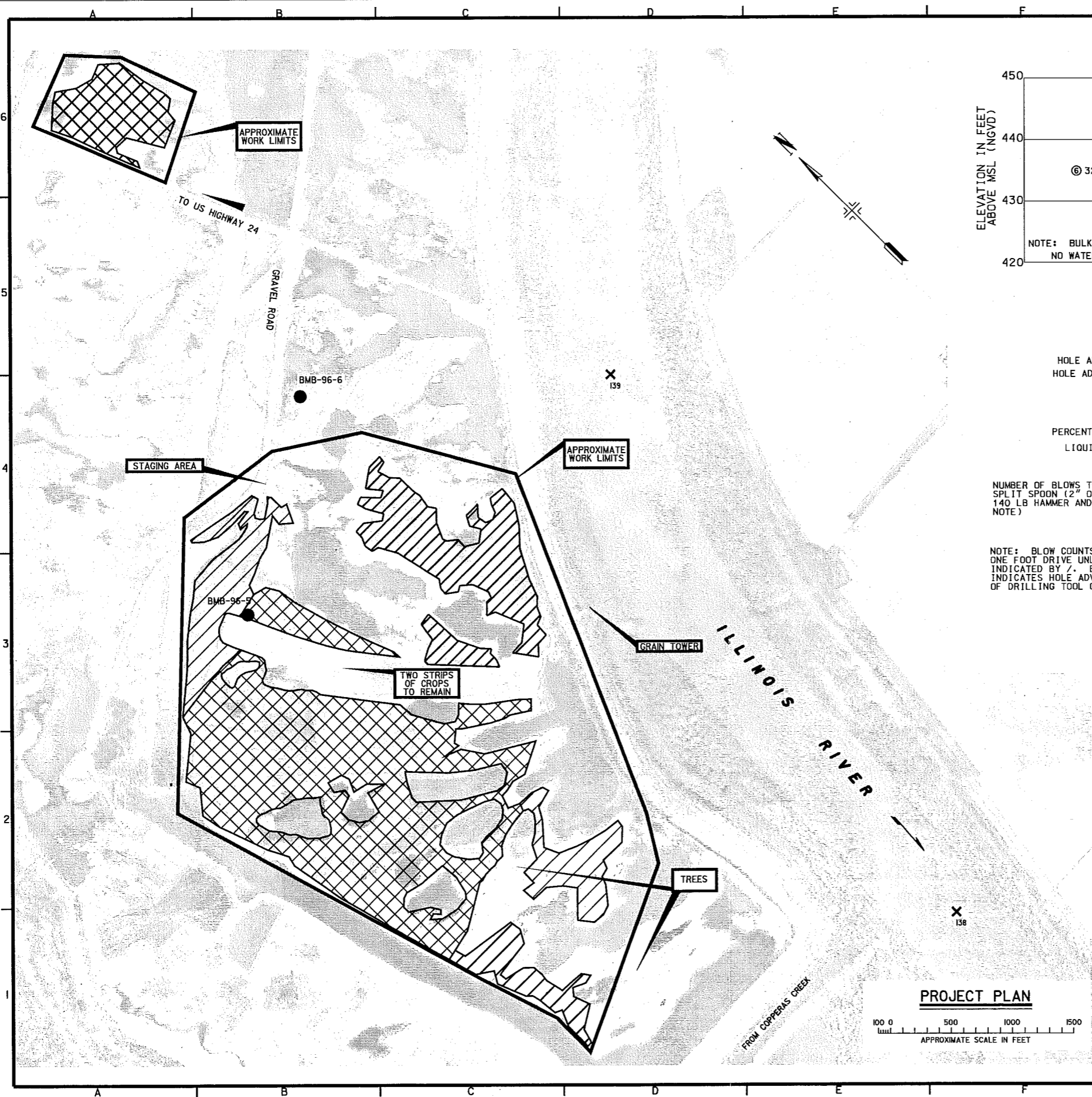
Designated By:	RTN	Date:	16 JUNE 1999
Drawn By:	TPD/SDB	Scale:	AS SHOWN
Checked By:	BMA	Drawn Date:	1-1-3-1-72
Reviewed By:	BLK	Scale (if diff. from above):	BLK

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

ILLINOIS UNIVERSITY PROGRAM  
ENVIRONMENTAL MANAGEMENT  
LAGRANGE, ILLINOIS  
BANNER WOODS MANAGEMENT AREA  
FULTON AND PEORIA COUNTIES, IL.

Sheet Reference Number:  
**C25**  
Sheet 28 of 53





**BORING LEGEND**

**BORING NUMBER**

HOLE ADVANCED BY HOLLOW STEM HS TOP ELEVATION (IN FEET) NGVD 1929  
HOLE ADVANCED WITH ROLLER BIT RB

WATER LEVEL WL

PERCENT PASSING #200 SIEVE (6.7) 2% NATURAL MOISTURE CONTENT IN PERCENT DRY WEIGHT  
LIQUID AND PLASTIC LIMIT 46/28

NUMBER OF BLOWS TO DRIVE STANDARD SPLIT SPOON (2" O.D.) ONE FOOT WITH 140 LB HAMMER AND 30 INCH DROP (SEE NOTE) (1) MAJOR STRATA CHANGE  
(2) MINOR STRATA CHANGE

NOTE: BLOW COUNTS ARE FOR ONE FOOT DRIVE UNLESS OTHERWISE INDICATED BY /. BLOW COUNT OF ZERO INDICATES HOLE ADVANCED WITH WEIGHT OF DRILLING TOOL ONLY

\* PROBE OR SPLIT SPOON REFUSAL

LOCATION OF BORING APPROXIMATE DATE OF DRILLING  
4 JULY 1976 ALSO, OATE WATER LEVEL NOTED

GRID COORDINATES TAKEN IN ILLINOIS STATE PLANE SYSTEM, WEST ZONE NAD 1927

PROCTOR CURVE DATA AVAILABLE  
GEOTECHNICAL BRANCH, USACE,  
ROCK ISLAND DISTRICT

**PROCTOR ANALYSIS RESULTS (ASTM D-698)**

CLASSIFICATION	BORING NUMBER	SAMPLE DEPTH	OPTIMUM MOISTURE	OPTIMUM DENSITY	LL/PL
CL	BMB-96-5	0.0'-7.5'	15.6%	113.0 PCF	33/16
CL	BMB-96-6	0.0'-7.5'	14.5%	112.5 PCF	37/15

**LEGEND**

SEEDING LIMITS  $\Delta$

DISKED AND SEEDED LIMITS  $\Delta$

**NOTE:**

1. AERIAL PHOTO WAS TAKEN 21 MAY 2002, DURING ILLINOIS RIVER FLOODING. WATER LEVELS MAY VARY FROM THOSE SHOWN.

US Army Corps of Engineers  
Rock Island District

Revised As Constructed	Symbol	Date	Approved
Contract Modification/Revisions	Description	Date	Revisions

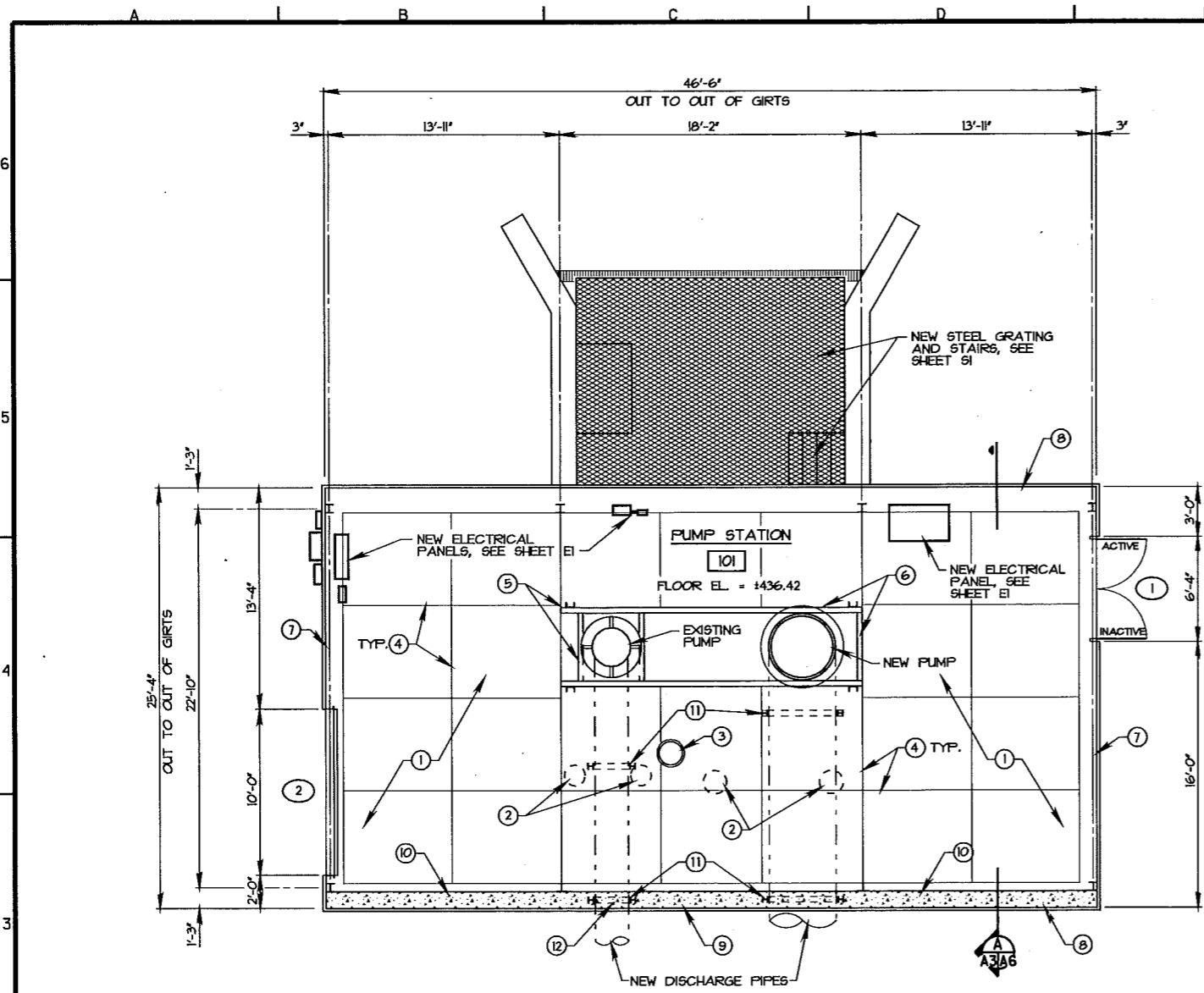
Designed By:	CEH	Date:	16 JUNE 1999
Drawn By:	RLC	Scale:	AS SHOWN
Checked By:	JET	Drawing Code:	1-11-3-1/72
Reviewed By:	JWB	Soil Section Number:	Duck2-99-4-0001

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

ILLINOIS WATERWAY PROGRAM  
ENVIRONMENTAL MANAGEMENT  
BANNER WILDLIFE MANAGEMENT AREA  
FULTON AND PEDRIA COUNTIES, IL

**PROJECT PLANS**

Sheet Reference Number:  
**C1**  
Sheet 3 of 53



**CONSTRUCTION NOTES**

- ① CLEAN EXISTING BROKEN-UP CONCRETE FLOOR SLAB OF ALL DEBRIS AND MUD PRIOR TO INSTALLATION OF NEW CONCRETE FLOOR SLAB. INSTALL NEW FLOOR SLAB AFTER NEW PUMP IS IN PLACE.
- ② COVER EXISTING PIPE OPENINGS IN EXISTING FLOOR WITH 22 GAGE METAL PANELS PRIOR TO INSTALLATION OF NEW CONCRETE FLOOR SLAB.
- ③ PROVIDE MANHOLE ADJUSTING RINGS AS REQUIRED TO BRING EXISTING MANHOLE LID FLUSH WITH TOP OF NEW CONCRETE FLOOR SLAB.
- ④ CONTROL JOINTS IN NEW CONCRETE FLOOR SLAB, TOOL JOINTS OR SAWCUT JOINTS TO A DEPTH OF 1" AND FILL WITH SEALANT.
- ⑤ PROVIDE ISOLATION JOINT BETWEEN NEW CONCRETE FLOOR SLAB AND EXISTING STEEL CHANNEL BASE FOR PUMPS BY USING 1/2" EXPANSION JOINT MATERIAL, BOND BREAKER, AND SEALANT.
- ⑥ CLEAN AND PAINT EXISTING STEEL CHANNEL BASE AND PLATES SUPPORTING PUMPS.
- ⑦ INSTALL NEW LOWER GIRT IN ENDWALLS OF BUILDING, SEE ELEVATIONS ON SHEET A5.
- ⑧ INSTALL NEW BOTTOM TWO GIRTS IN THIS BAY, SEE ELEVATIONS ON SHEET A5.
- ⑨ INSTALL ALL NEW GIRTS IN THIS BAY, SEE ELEVATIONS ON SHEET A5.
- ⑩ NEW REINFORCED CONCRETE FOUNDATION WALL, SEE DETAIL 1 ON SHEET A6.
- ⑪ NEW STRUCTURAL STEEL SUPPORTS FOR DISCHARGE PIPES, SEE SHEET S8 FOR DETAILS.
- ⑫ WELD 3/4" X 2" STOP TAB TO 24" DISCHARGE PIPE, SEE SHEET S2 FOR STOP TAB DETAIL.

**GENERAL NOTES**

- 1. FOR MECHANICAL WORK SEE SHEETS MI THRU M4.
- 2. FOR ELECTRICAL WORK SEE SHEETS EI THRU E7.
- 3. FOR STRUCTURAL WORK SEE SHEETS S1 THRU S8.



**NEW FLOOR PLAN**



ROOM FINISH SCHEDULE						
LEGEND	FLOORING	WALL BASE	WALLS	CEILING		CEILING HEIGHT
	CONCRETE	EXPOSED CONSTRUCTION	EXPOSED CONSTRUCTION	PAINT	EXPOSED CONSTRUCTION	
⊙ DENOTES FINISH REQUIRED						
① DENOTES FINISH REQUIRED AND TO ALSO SEE REMARK NO.						
RM. NO. & NAME						
101 PUMP STATION	①	⊙	⊙	②	⊙	VARIES

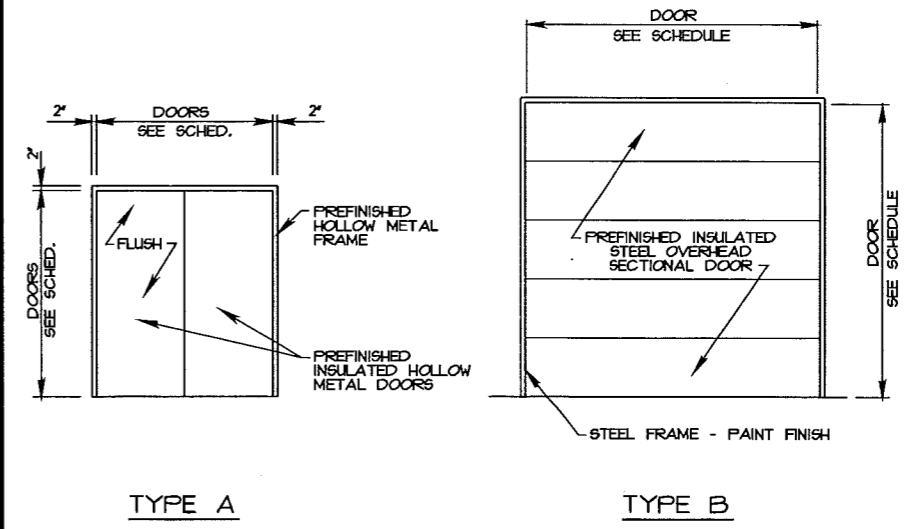
REMARKS

- PLACE NEW 4" THICK CONCRETE FLOOR SLAB OVER EXISTING BROKEN-UP SLAB AND REINFORCE W/ 6 X 6 - W1.4 X W1.4.
- SANDBLAST AND PAINT EXISTING STRUCTURAL FRAMING PRIOR TO INSTALLATION OF NEW WALL PANELS AND INSULATION, SEE SPEC. SECTION 09900.
- SANDBLAST AND PAINT EXISTING STRUCTURAL FRAMING PRIOR TO INSTALLATION OF NEW ROOF PANELS AND INSULATION, SEE SPEC. SECTION 09900.

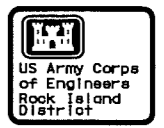
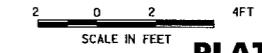
DOOR SCHEDULE						
DOOR NO.	DOOR SIZE	TYPE	DOOR DETAILS			REMARKS
			HEAD	JAMB	SILL	
1	PR 3'-0" X 7'-0" X 1 1/2"	A	1-A3/A4	1-A3/A4	1-A3/A4	HW-1
2	10'-0" X 10'-0" X 2"	B	2-A3/A4	2-A3/A4	2-A3/A4	

REMARKS

**SCHEDULES**



**DOOR & FRAME AND WINDOW TYPES**



Symbol	Description	Date	Approved
Δ	REUSEL AS CONSTRUCTED	5/21/04	JLE/DBT

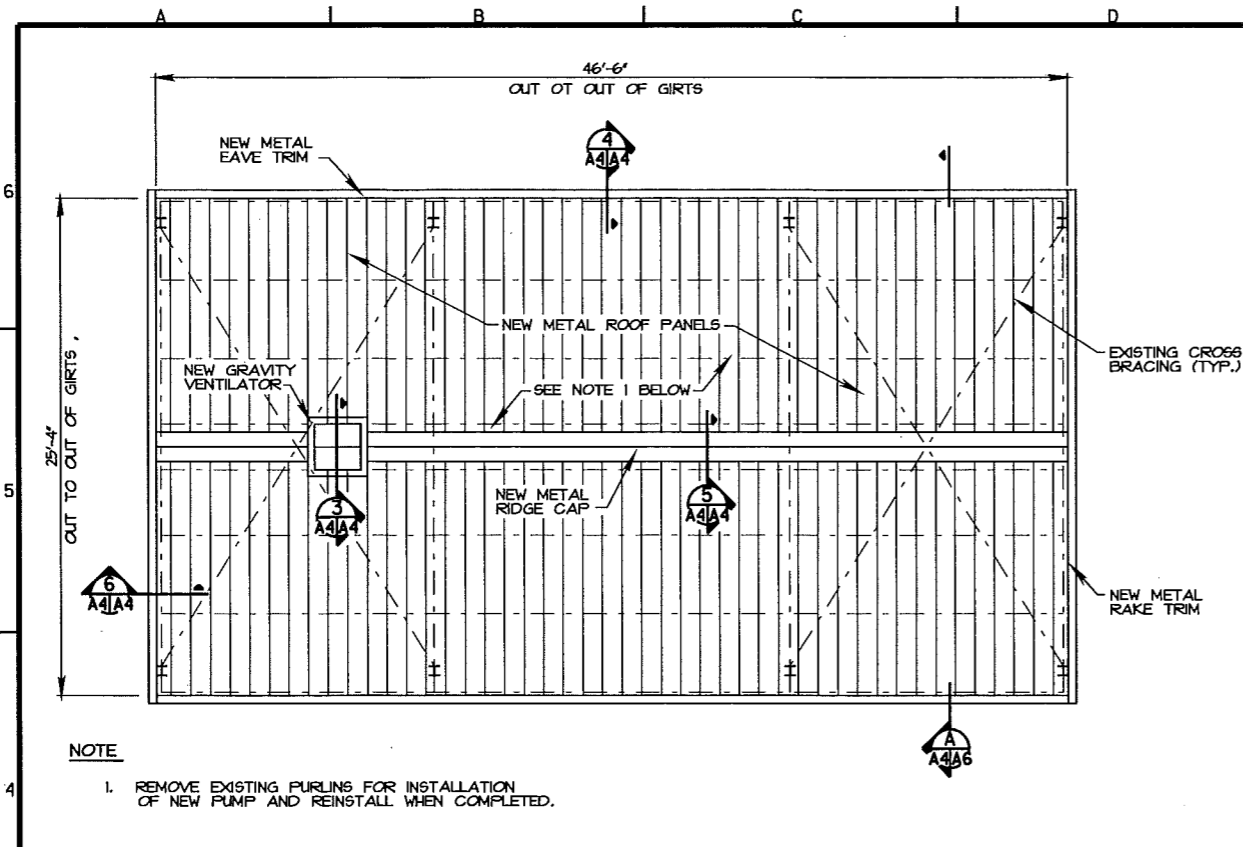
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Drawn By:	TPD/SDB	Scale:	AS SHOWN
Checked By:	KJB	Project No.:	1-41-3-1/72
Reviewed By:	BLK	Specification Number:	DACR22-99-8-0001

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

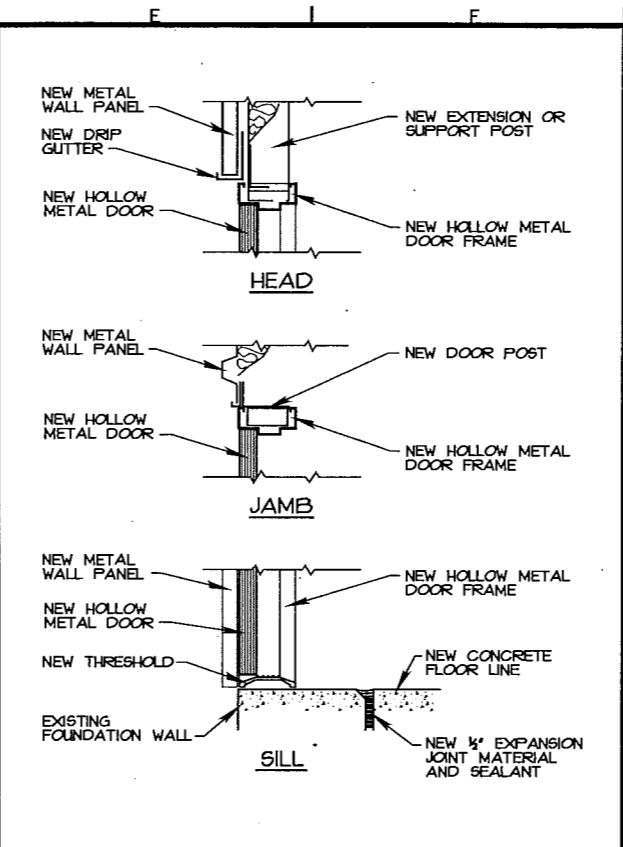
ILLINOIS WATERWAY  
MANAGEMENT PROGRAM  
BANNER WILDLIFE MANAGEMENT AREA  
FULTON AND PEORIA COUNTIES, ILL.

**NEW FLOOR PLAN  
AND SCHEDULES**

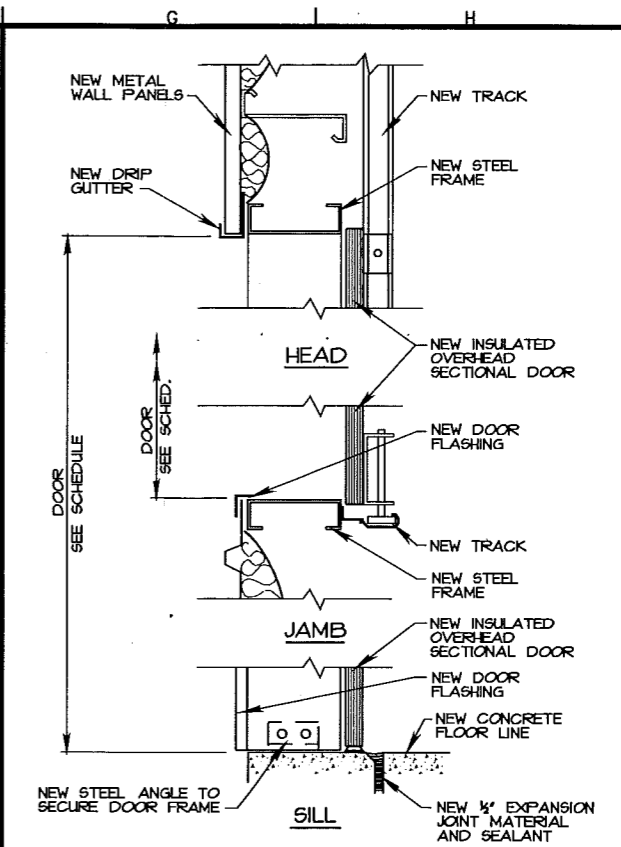
Sheet Reference Number:  
**A3**  
Sheet 31 of 53



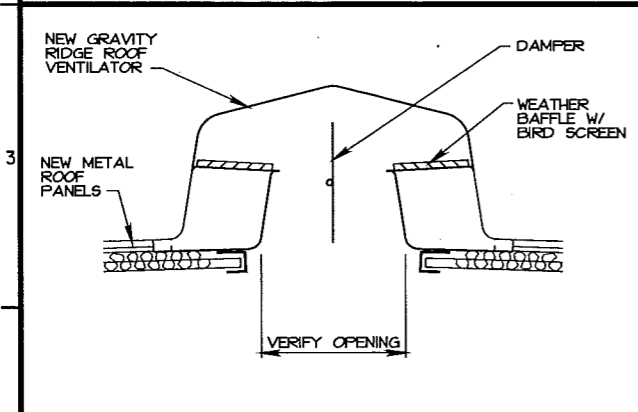
**1 ROOF PLAN** SCALE IN FEET



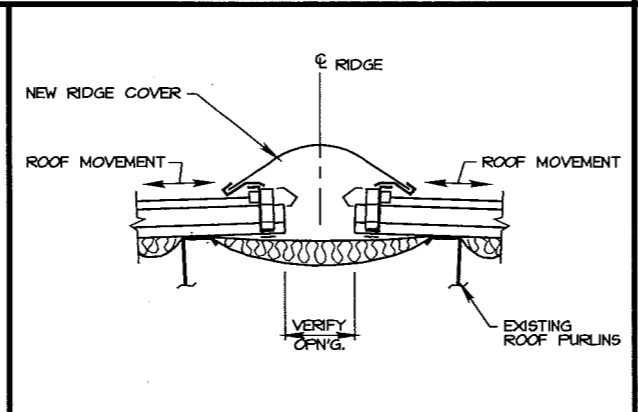
**1 DOOR DETAILS** SCALE IN FEET



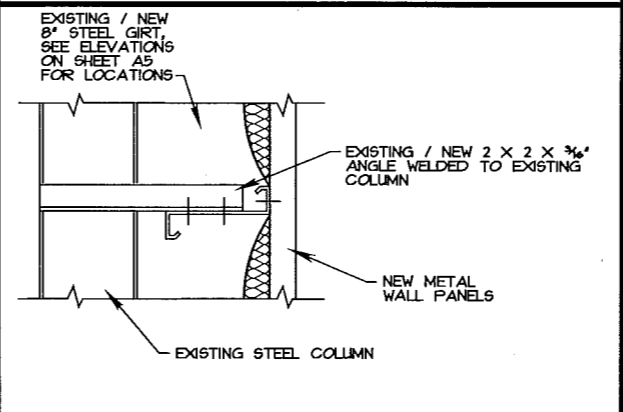
**2 OVERHEAD DOOR DETAILS** SCALE IN FEET



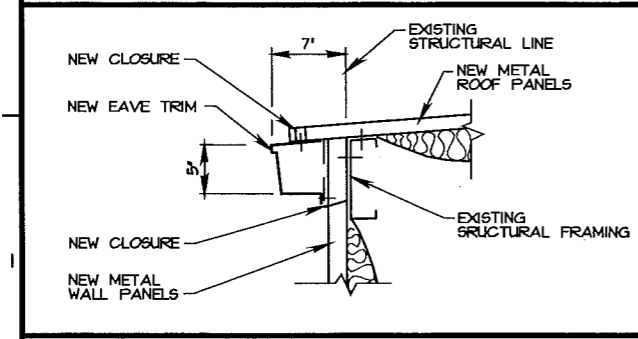
**3 VENTILATOR DETAIL** NOT TO SCALE



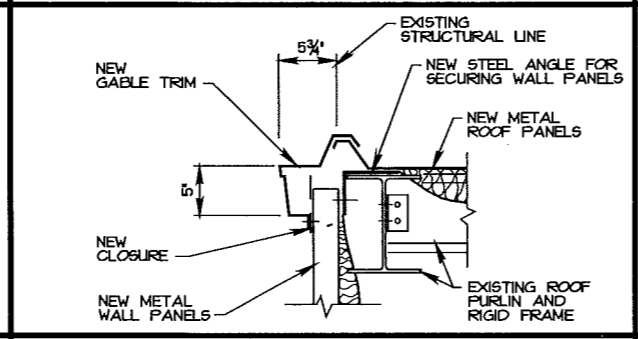
**5 RIDGE CAP DETAIL** SCALE IN FEET



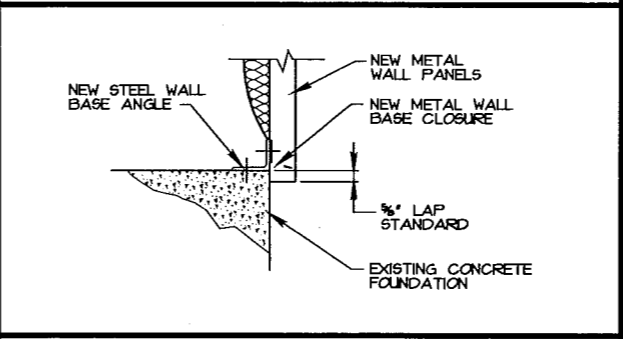
**7 TYPICAL DETAIL** SCALE IN FEET



**4 EAVE DETAIL** SCALE IN FEET



**6 RAKE DETAIL** SCALE IN FEET



**8 BASE DETAIL** SCALE IN FEET



NO.	DATE	BY	DESCRIPTION
1	11/13/17	KJB	REVISED AS CONSTRUCTED

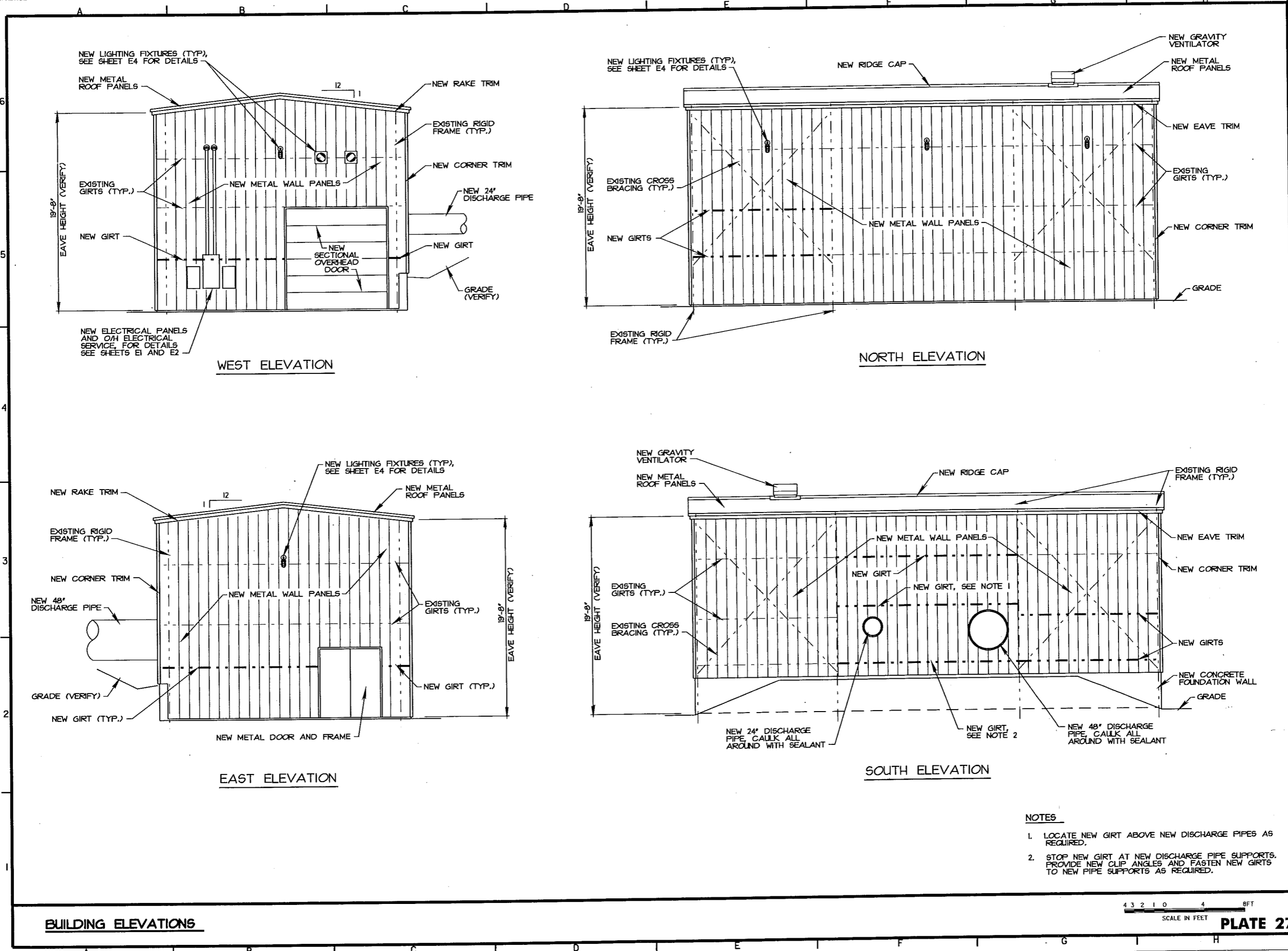
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Drawn By:	TPD/SDB	Scale:	AS SHOWN
Checked By:	KJB	Drawn Scale:	1"=1'-3" (1/2)
Reviewed By:	BLK	SO (STRUCTURE NUMBER):	DUCKETT-99-8-0001

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

ILLINOIS WATERWAY PROGRAM  
ENVIRONMENTAL MANAGEMENT  
BANNER W/ LIFE MANAGEMENT AREA  
FULLON AND PEDRIA COUNTIES, IL.

**PUMP STATION  
ROOF PLAN  
AND DETAILS**

Sheet Reference Number:  
**A4**  
Sheet 32 of 53



**BUILDING ELEVATIONS**

4 3 2 1 0 4 8 FT  
SCALE IN FEET

**PLATE 27**

**NOTES**

1. LOCATE NEW GIRT ABOVE NEW DISCHARGE PIPES AS REQUIRED.
2. STOP NEW GIRT AT NEW DISCHARGE PIPE SUPPORTS. PROVIDE NEW CLIP ANGLES AND FASTEN NEW GIRTS TO NEW PIPE SUPPORTS AS REQUIRED.



Symbol	REVISOR	DATE	APPROVED
Description			Revisions

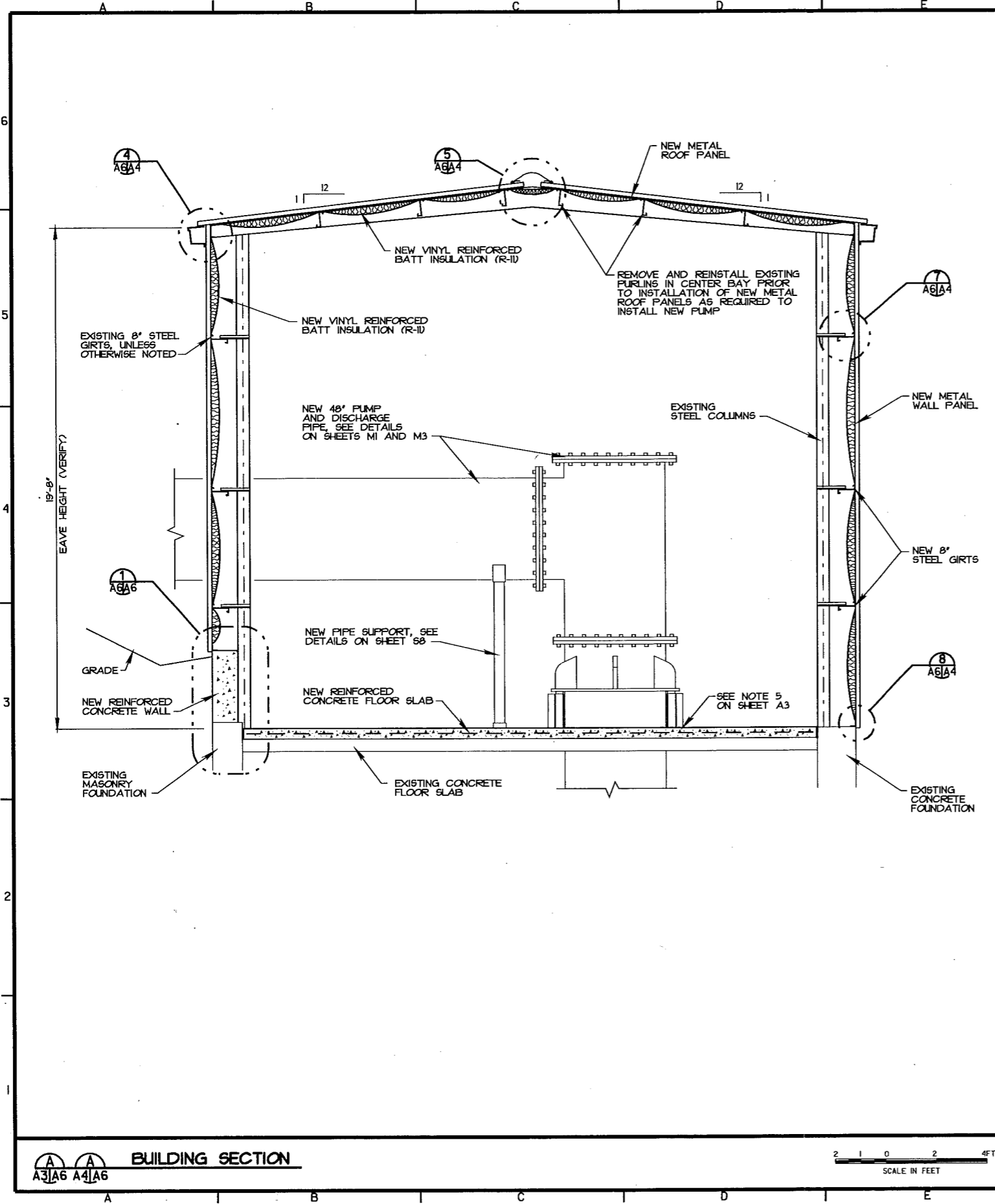
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Drawn By:	TPD/SDB	Scale:	AS SHOWN
Checked By:	KJB	Drawing Code:	1-LT-5-1/72
Reviewed By:	BLK	Specification Number:	16040-99-001

U.S. ARMY ENGINEER DISTRICT  
 ROCK ISLAND DISTRICT  
 ENVIRONMENTAL QUALITY PROGRAM  
 ENLARGED POND RIVER WTL 138-144  
 BANNER WILDLIFE MANAGEMENT AREA  
 FULTON AND PEORIA COUNTIES, IL.

**PUMP STATION BUILDING ELEVATIONS**

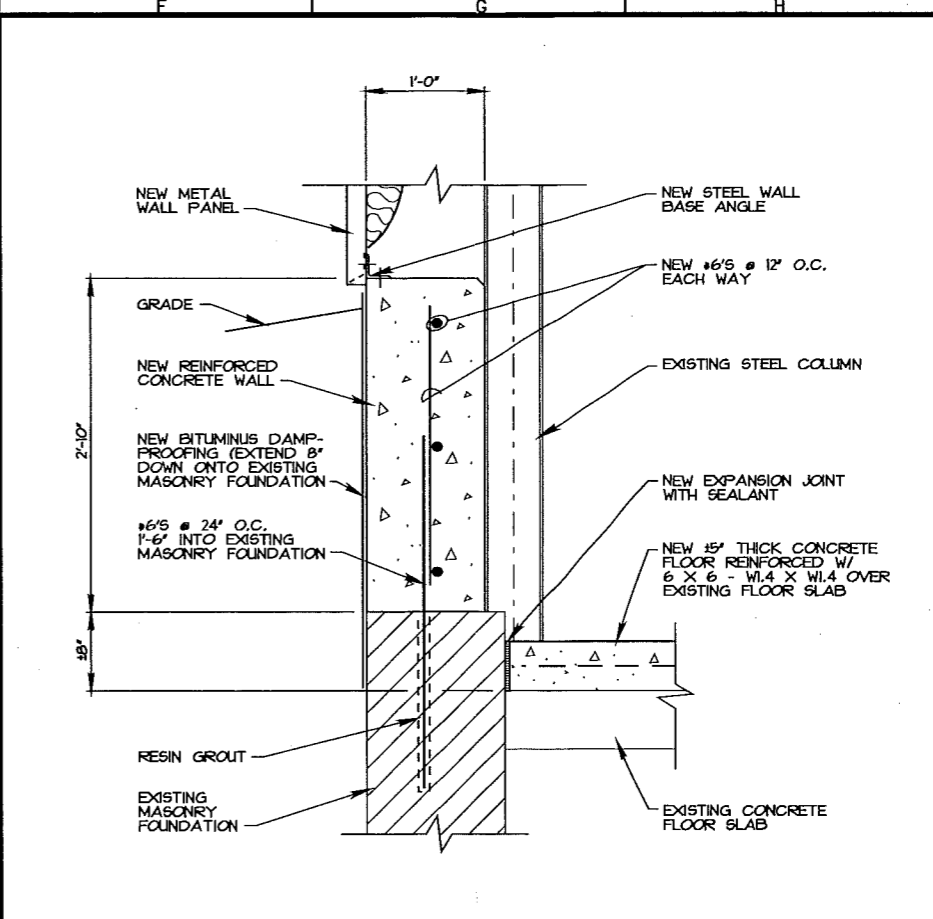
Sheet Reference Number:  
**A5**  
 Sheet 33 of 53

15-DEC-2004 15:01  
 15-DEC-2004 15:01  
 15-DEC-2004 15:01



**BUILDING SECTION**  
 A3/A6 A4/A6

SCALE IN FEET  
 2 1 0 2 4 FT



**FOUNDATION WALL DETAIL**  
 A3/A6

SCALE IN FEET  
 0 1 FT



Date	Description	By	Appr.
16 JUNE 1999	AS SHOWN	TPD/SDB	KJB
	REVISIONS		

Designed By: RTN	Date: 16 JUNE 1999
Drawn By: TPD/SDB	Scale: AS SHOWN
Checked By: KJB	Project No.: 14-L-3-172
Reviewed By: BLK	Soil Report Number: D622-99-001

ILLINOIS WATERWAY PROGRAM  
 ENVIRONMENTAL MANAGEMENT  
 PROGRAM FOR THE STATES OF  
 ILLINOIS, INDIANA, KENTUCKY,  
 MISSISSIPPI, OHIO, TENNESSEE,  
 VIRGINIA AND WEST VIRGINIA  
**PUMP STATION  
 BUILDING SECTION**

Sheet Reference Number:  
**A6**  
 Sheet 34 of 53



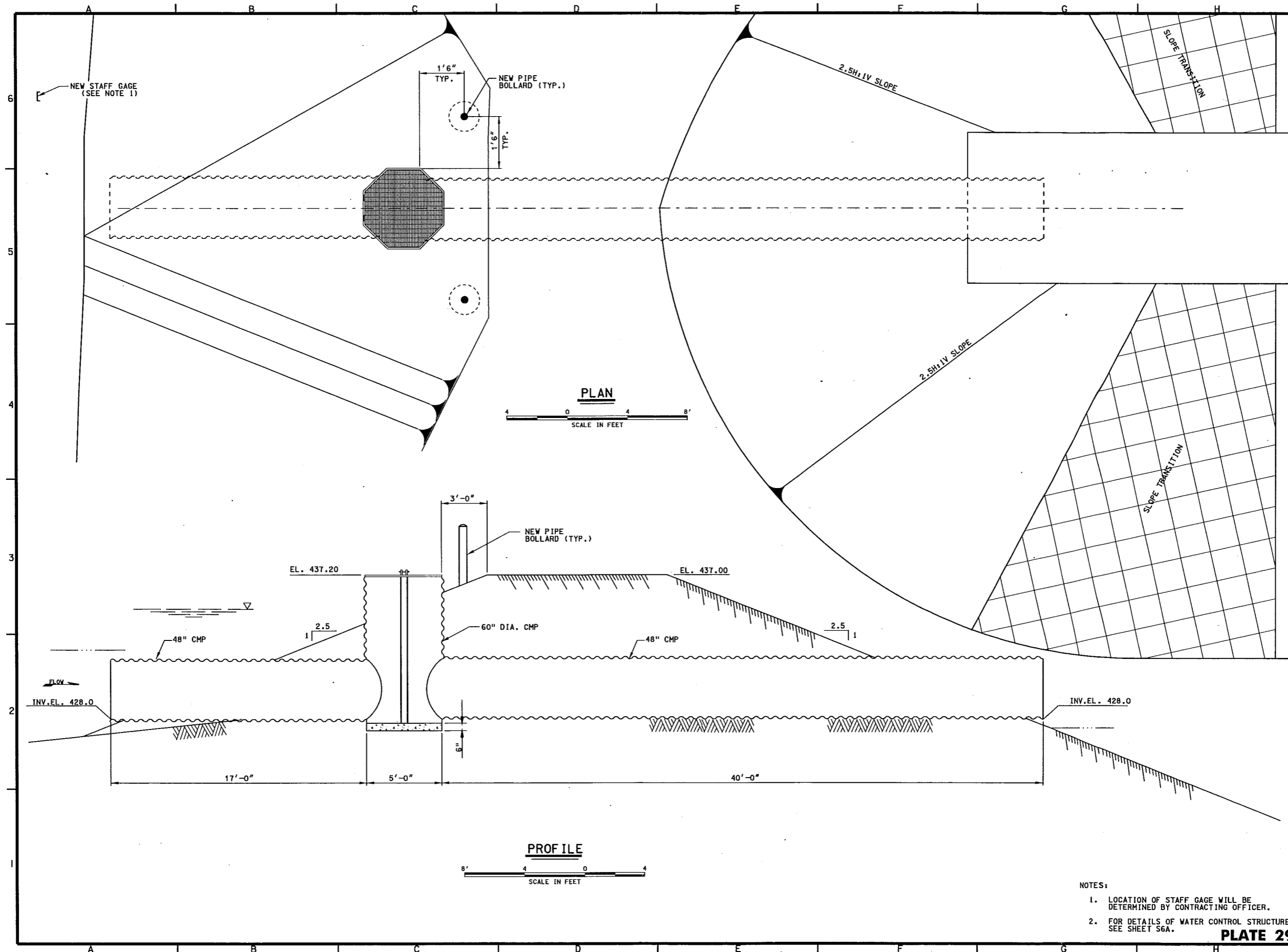
Symbol	Description	Revisions
▲	REVISED AS CONSTRUCTED	
AND NO. 3	SHEET ADDED TO SET	
Date	3/2/04	3/2/04
By	BLM	BLM
Approved		

Designed By:	BNM	Date:	16 JUNE 1999
Drawn By:	TPOXB08	Scale:	AS SHOWN
Checked By:	KBB	Drawing Code:	1-1-1-3-1/72
Reviewed By:	BLM	Specification Number:	DICR23-99-0-0001

ILLINOIS WATERWAY PROGRAM  
 ENVIRONMENTAL MANAGEMENT  
 ENGINEERING DISTRICT  
 CORPS OF ENGINEERS  
 ROCK ISLAND, ILLINOIS  
 BANNER WILDLIFE MANAGEMENT AREA  
 FULTON AND PEORIA COUNTIES, IL.

**WATER CONTROL  
 STRUCTURE NO. 1  
 (OPTION K2)**

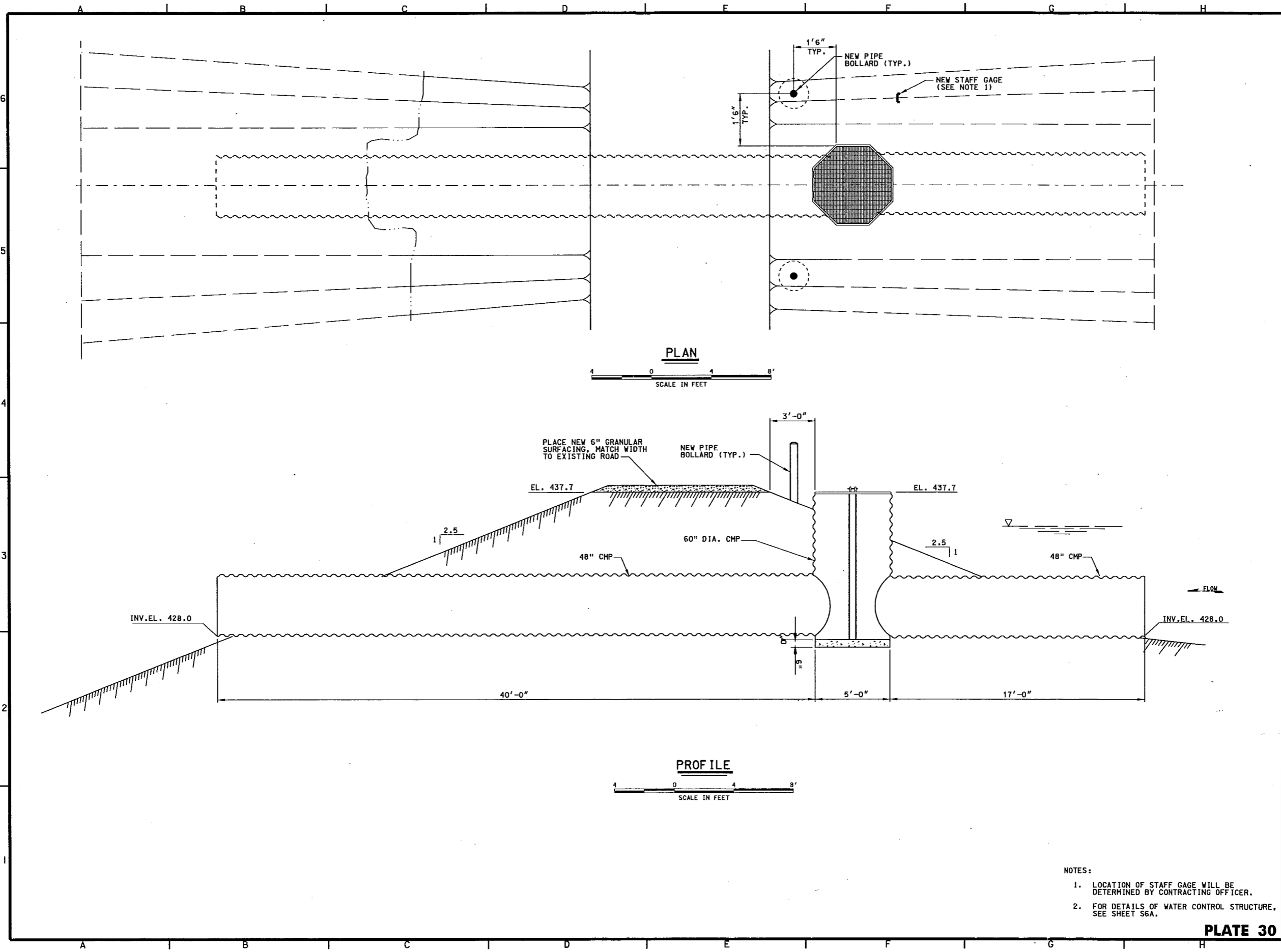
Sheet Reference Number:  
**S3A**  
 Sheet 137A of 53



**PLAN**  
 SCALE 1/8" = 1' FEET

**PROFILE**  
 SCALE 1/8" = 1' FEET

- NOTES:
1. LOCATION OF STAFF GAGE WILL BE DETERMINED BY CONTRACTING OFFICER.
  2. FOR DETAILS OF WATER CONTROL STRUCTURE, SEE SHEET S6A.



Symbol	Description	Date	Revisions
AS CONSTRUCTED	AS CONSTRUCTED	3/1/72	
NO. 3	SHEET ADDED TO SET	3/1/72	

Designed By:	BNA	Date:	16 JUNE 1989
Drawn By:	RDG	Scale:	AS SHOWN
Checked By:	FRJ	Drawing Code:	1-1-3-1/72
Reviewed By:	MMM	Specification Number:	DACS-98-8-001

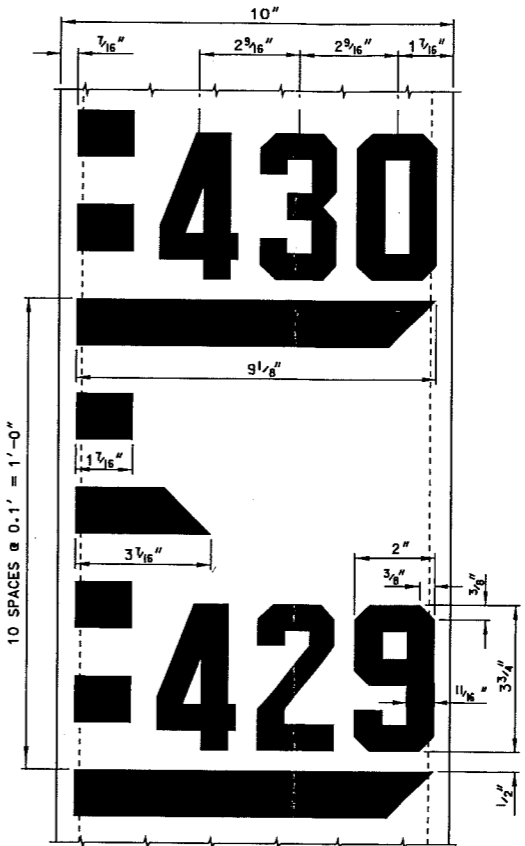
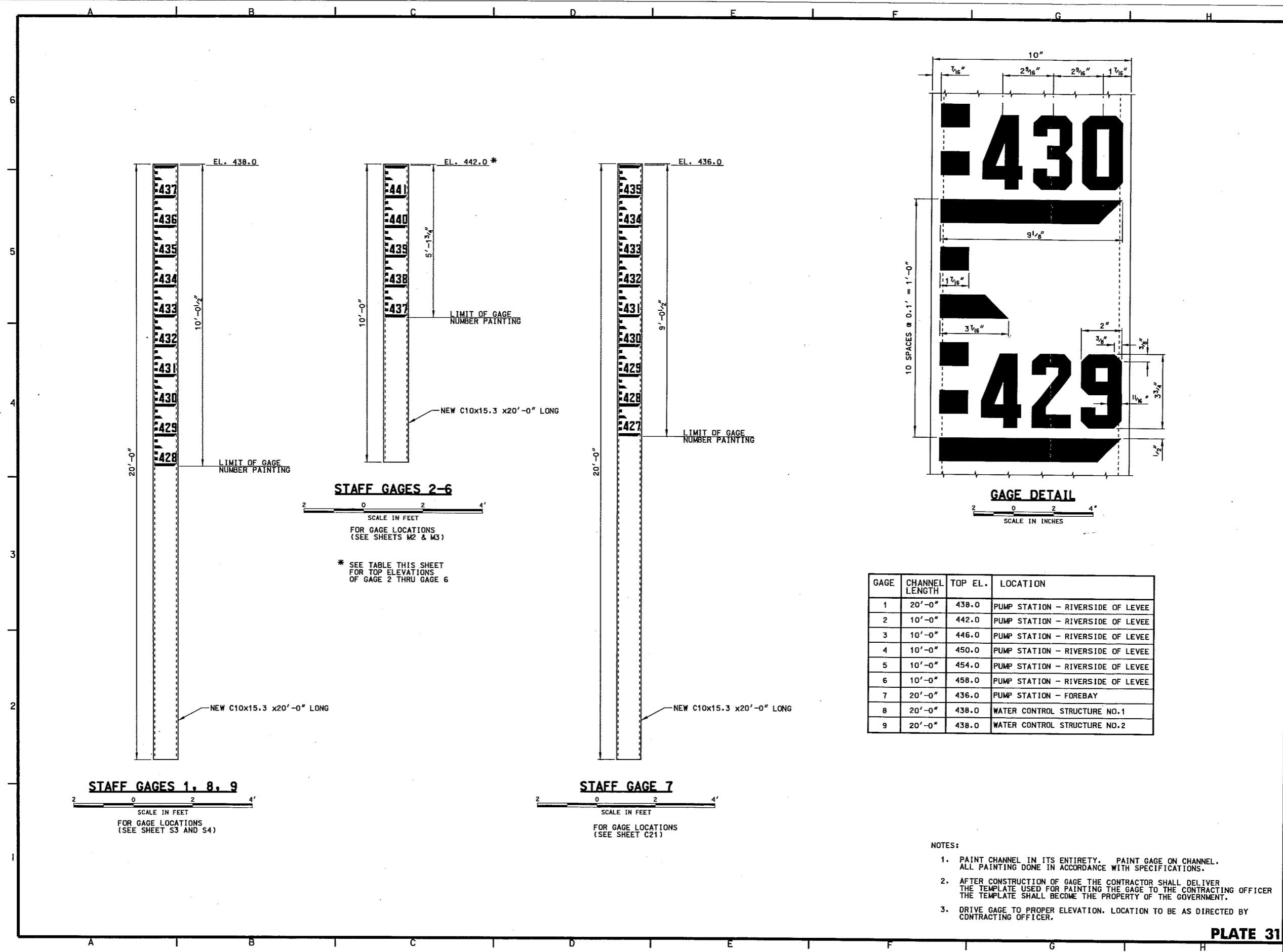
ILLINOIS WATERWAY PROGRAM  
 ENVIRONMENTAL MANAGEMENT  
 BANNER WILDLIFE MANAGEMENT AREA  
 FULTON AND PEDRA COUNTIES, IL.  
**WATER CONTROL NO. 2  
 (OPTION L2)**

Sheet Reference Number:  
**S4A**  
 Sheet 38 of 53

- NOTES:
1. LOCATION OF STAFF GAGE WILL BE DETERMINED BY CONTRACTING OFFICER.
  2. FOR DETAILS OF WATER CONTROL STRUCTURE, SEE SHEET S6A.

**PLATE 30**

15-DEC-2004 15:05  
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GAGE	CHANNEL LENGTH	TOP EL.	LOCATION
1	20'-0"	438.0	PUMP STATION - RIVERSIDE OF LEVEE
2	10'-0"	442.0	PUMP STATION - RIVERSIDE OF LEVEE
3	10'-0"	446.0	PUMP STATION - RIVERSIDE OF LEVEE
4	10'-0"	450.0	PUMP STATION - RIVERSIDE OF LEVEE
5	10'-0"	454.0	PUMP STATION - RIVERSIDE OF LEVEE
6	10'-0"	458.0	PUMP STATION - RIVERSIDE OF LEVEE
7	20'-0"	436.0	PUMP STATION - FOREBAY
8	20'-0"	438.0	WATER CONTROL STRUCTURE NO.1
9	20'-0"	438.0	WATER CONTROL STRUCTURE NO.2

- NOTES:
1. PAINT CHANNEL IN ITS ENTIRETY. PAINT GAGE ON CHANNEL. ALL PAINTING DONE IN ACCORDANCE WITH SPECIFICATIONS.
  2. AFTER CONSTRUCTION OF GAGE THE CONTRACTOR SHALL DELIVER THE TEMPLATE USED FOR PAINTING THE GAGE TO THE CONTRACTING OFFICER THE TEMPLATE SHALL BECOME THE PROPERTY OF THE GOVERNMENT.
  3. DRIVE GAGE TO PROPER ELEVATION. LOCATION TO BE AS DIRECTED BY CONTRACTING OFFICER.

US Army Corps  
of Engineers  
Rock Island  
District

Symbol	Description	Revision
AS CONSTRUCTED		
7/7/08	REVISION	

Designed By: BMA	Date: 16 JUNE 1999
Drawn By: RDG	Scale: AS SHOWN
Checked By: FRJ	Drawing Code: 1-1-3-1-72
Reviewed By: MAM	Scale/Offset on Numerals: 0.025
U.S. ARMY ENGINEER DISTRICT ROCK ISLAND, ILLINOIS	

ILLINOIS WATERWAY PROGRAM  
ENGINEER DISTRICT  
BANNER POINT FLOOD CONTROL AREA  
FULTON AND PEORIA COUNTIES, IL.

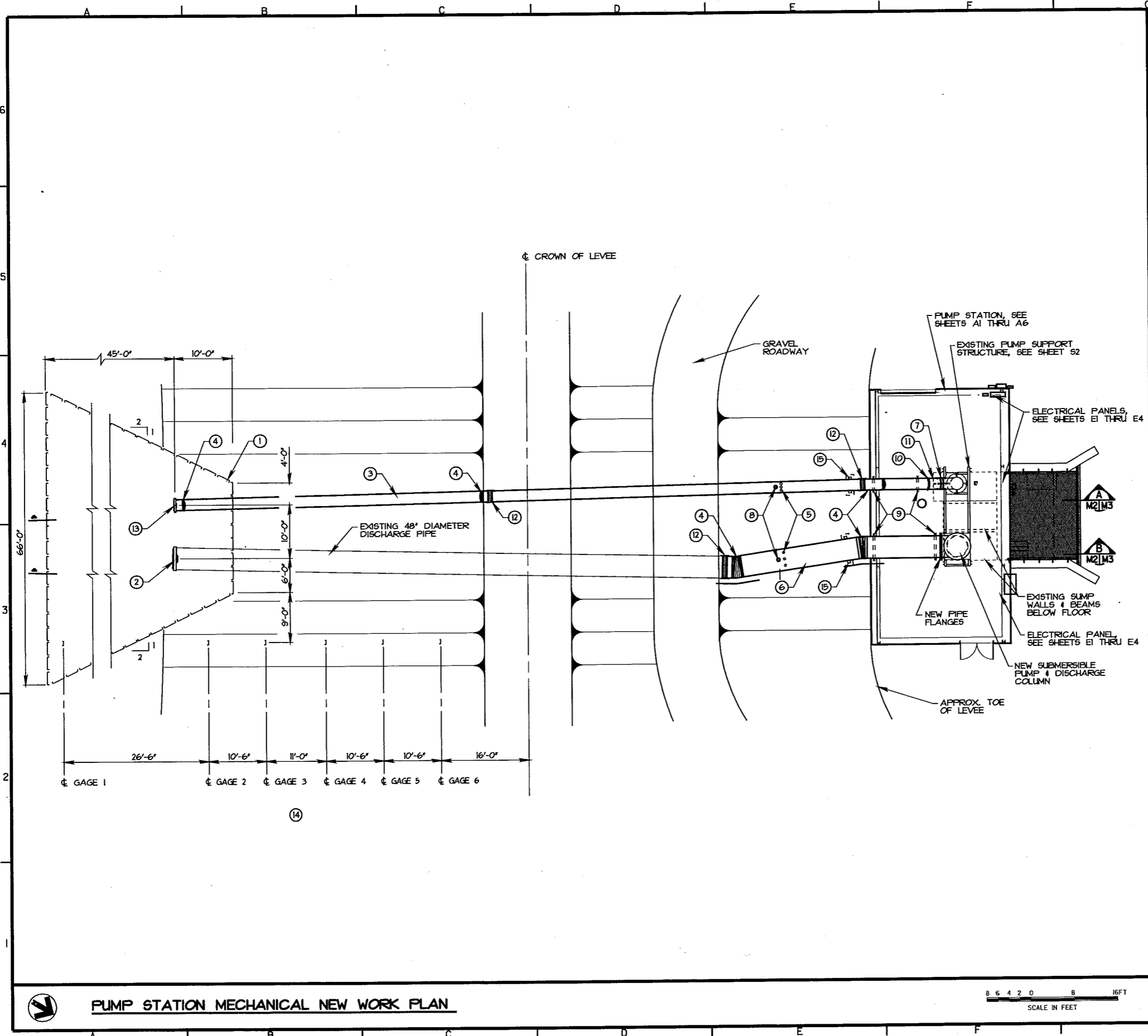
**STAFF GAGE DETAILS**

Sheet Reference Number:  
**57**  
Sheet 41 of 53

**PLATE 31**

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**CONSTRUCTION NOTES**

- ① SEE SHEET C21 FOR RIPRAP PROTECTION AT THE DISCHARGE PIPE OUTLET AREA.
- ② INSTALL NEW 48" FLAP GATE WELDED 48" SLIP-ON FLANGE. SEE SPECIFICATION SECTION 02631 FOR FLAP GATE REQUIREMENTS.
- ③ INSTALL APPROX. 150 LF. OF NEW 24" DIA. DISCHARGE PIPE WITH FLAP GATE AT DISCHARGE OUTLET. SEE SPECIFICATION SECTION 02631 FOR REQUIREMENTS OF DISCHARGE PIPE AND FLAP GATE. INVERT ELEVATION OF DISCHARGE PIPE SHALL MATCH EXISTING 48" DISCHARGE PIPE INVERT ELEVATION.
- ④ THE CONTRACTOR SHALL FABRICATE AND INSTALL THE NECESSARY MITERED WELDED ELBOWS TO OBTAIN THE REQUIRED PIPE SPACING AT THE DISCHARGE OUTLET. DETERMINATION OF THE DEGREE OF ANGLE FOR THE ELBOW SHALL BE THE CONTRACTORS RESPONSIBILITY.
- ⑤ INSTALL NEW PITOT TUBE CONNECTIONS. NEW CONNECTIONS SHALL BE INSTALLED AT LOCATION WHERE TOP OF DISCHARGE PIPE MEETS LEVEE GRADE. SEE PITOT TUBE CONNECTION DETAIL ON SHEET M4.
- ⑥ NEW 48" OUTSIDE DIAMETER DISCHARGE PIPE WITH MITERED ELBOWS AND FLANGED END FOR CONNECTION TO THE NEW PUMP DISCHARGE COLUMN WITHIN THE PUMP STATION BUILDING.
- ⑦ THE CONTRACTOR SHALL INSTALL A 24" SLEEVE TYPE COUPLING TO CONNECT THE NEW DISCHARGE PIPE TO THE EXISTING VERTICAL PUMP. SEE REFERENCE DRAWING R1 FOR DIMENSIONS OF THE PUMP.
- ⑧ A 6" AND 8" AIR/ VACUUM VALVE SHALL BE INSTALLED ON 4' TALL PIPE RISERS WELDED TO THE 24" AND 48" DISCHARGE PIPES AT THE LOCATIONS SHOWN, RESPECTIVELY. SEE SPECIFICATION SECTION 02631 FOR AIR/ VACUUM VALVE REQUIREMENTS.
- ⑨ PIPE SADDLES AND SUPPORTS SHALL BE INSTALLED TO SUPPORT THE DISCHARGE PIPES FROM THE FLOOR AND FOUNDATION. SEE STRUCTURAL SHEET S8 FOR DETAILS.
- ⑩ 24" FLANGES SHALL BE INSTALLED ON THE NEW DISCHARGE PIPE. SCALE: 1/8"=1'-0"
- ⑪ 24" DIAMETER PIPE SPOOL WITH LIFTING EYE.
- ⑫ FLEXIBLE PIPE COUPLING
- ⑬ 24" FLAP GATE AND PIPE FLANGE.
- ⑭ INSTALL NEW GAGES. DIMENSIONS FROM CENTERLINE TO BE VERIFIED BY CONTRACTOR. SEE SHEET S7 FOR GAGE DETAILS.
- ⑮ NEW CONCRETE PIPE SADDLE SUPPORT, SEE SHEET S8 FOR DETAILS.



Symbol	Description	Revision
Δ	REVISED AS CONSTRUCTED	

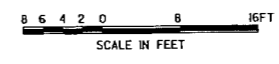
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Designed By:	RTN
Drawn By:	TPD/SDB
Checked By:	KJB
Reviewed By:	BLK
Scale:	AS SHOWN
Project No.:	1-11-3-1-172
Contract No.:	DAWZ2-99-9-0021

ILLINOIS WATERWAY PROGRAM  
 ENVIRONMENTAL MANAGEMENT  
 LABORATORY, PULASKI AVENUE  
 PULASKI AND FLORIDA COUNTIES, IL.

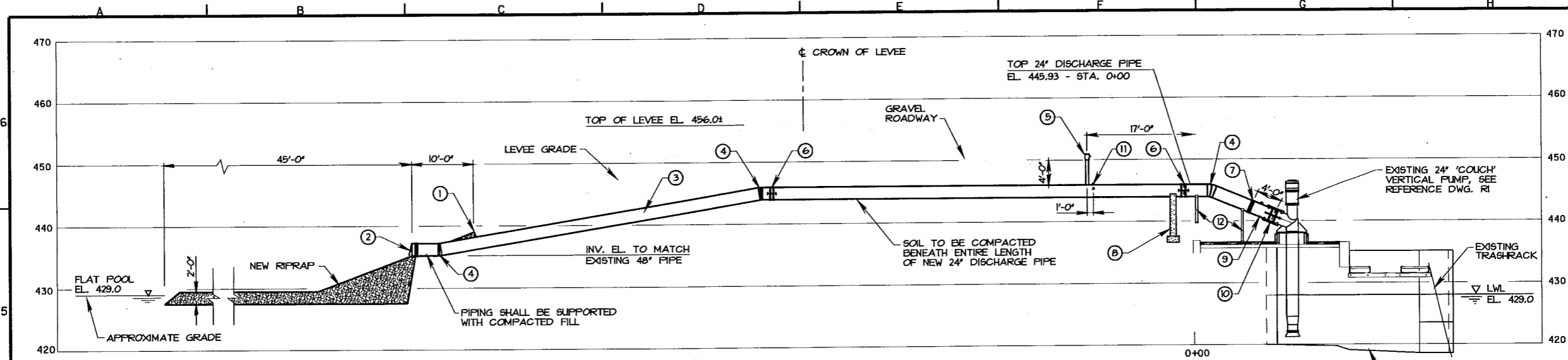
**PUMP STATION  
 MECHANICAL  
 NEW WORK PLAN**

Sheet Reference Number:  
**M2**  
 Sheet 44 of 53

**PUMP STATION MECHANICAL NEW WORK PLAN**



**PLATE 32**

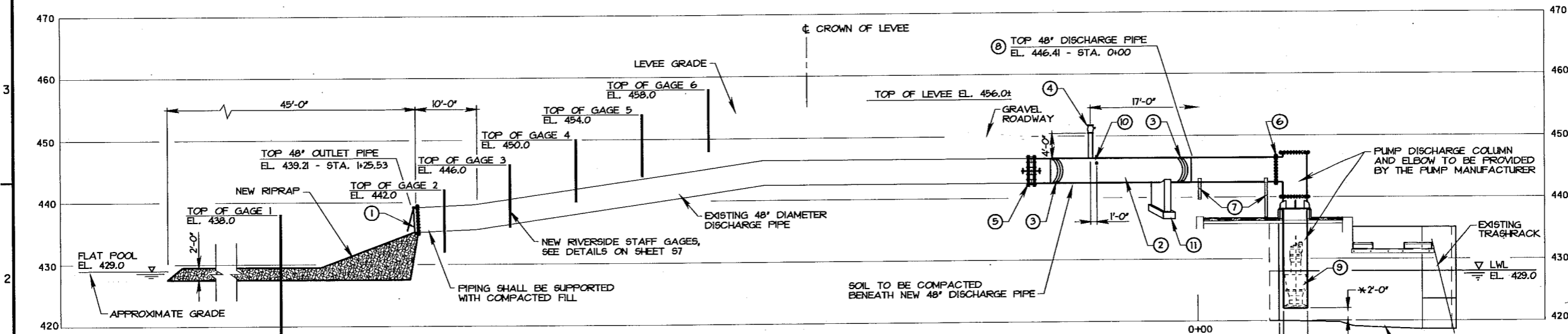


**CONSTRUCTION NOTES**

- ① THE CONTRACTOR SHALL EXCAVATE AS REQUIRED TO MATCH TOP OF NEW CLASS 'C' RIPRAP TO EXISTING GRADE.
- ② THE DISCHARGE OUTLET SHALL HAVE A NEW 24" FLANGE PROVIDED FOR INSTALLATION OF A NEW 24" FLAP GATE. THE DISCHARGE PIPE AT THE OUTLET SHALL BE INSTALLED HORIZONTAL WITH THE INVERT ELEVATION MATCHING THAT OF THE EXISTING 48" DISCHARGE PIPE OUTLET. NOT SHOWN. (SEE PROFILE BELOW) SEE SPECIFICATIONS FOR REQUIREMENTS OF FLANGES AND FLAP GATE.
- ③ INSTALL APPROX. 150 L.F. OF NEW 24" DIA. DISCHARGE PIPE. SEE SPECIFICATIONS FOR REQUIREMENTS.
- ④ THE CONTRACTOR SHALL FABRICATE AND INSTALL THE NECESSARY MITERED WELDED ELBOWS TO INSTALL THE 24" DISCHARGE PIPE AT THE REQUIRED ELEVATIONS.
- ⑤ A 6" AIR/VACUUM VALVE SHALL BE INSTALLED ON A 6" DIA. STEEL STANDPIPE 4' TALL AND WELDED TO THE 24" DISCHARGE PIPE AT THE LOCATION SHOWN.
- ⑥ THE CONTRACTOR SHALL INSTALL A FLEXIBLE COUPLING.
- ⑦ CONTRACTOR SHALL INSTALL 24" FLANGES.
- ⑧ CONCRETE PIPE SADDLE WITH CONCRETE FOOTING, TO BE PLACED AFTER PIPE INSTALLATION AND PRIOR TO OPERATION, SEE PIPE SADDLE DETAILS ON SHEET S8.
- ⑨ CONTRACTOR SHALL INSTALL A 24" DIA. PIPE SPOOL WITH A FLANGE END AND A FLANGED END, SEE SHEET M4 FOR DETAILS.
- ⑩ CONTRACTOR SHALL INSTALL A FLEXIBLE COUPLING WITH HARNESS, THE BOLT PATTERN SHALL MATCH THE EXISTING DISCHARGE ELBOW OF THE PUMP. SEE REFERENCE DWG. R1.
- ⑪ CONTRACTOR SHALL INSTALL PITOT CONNECTIONS, SEE DETAIL ON SHEET M4.
- ⑫ PIPE SADDLES AND SUPPORTS, SEE DETAILS ON SHEET S8.

**A 24" PUMP & DISCHARGE PIPE PROFILE**  
M2/M3

8 6 4 2 0 8 16 FT  
SCALE IN FEET



**CONSTRUCTION NOTES**

- ① THE DISCHARGE OUTLET SHALL HAVE A NEW 48" FLANGE PROVIDED FOR INSTALLATION OF A NEW 48" FLAP GATE. SEE SPECIFICATIONS FOR REQUIREMENTS OF FLANGES AND FLAP GATE.
- ② INSTALL APPROX. 41 L.F. OF 48" DIA. DISCHARGE PIPE. SEE SPECIFICATIONS FOR REQUIREMENTS.
- ③ THE CONTRACTOR SHALL FABRICATE AND INSTALL THE NECESSARY MITERED WELDED ELBOWS TO MATE THE 48" DISCHARGE PIPE TO THE EXISTING 48" PIPE AND NEW PUMP DISCHARGE COLUMN.
- ④ AN 8" AIR/VACUUM VALVE SHALL BE INSTALLED ON AN 8" DIA. STEEL STANDPIPE 4' TALL AND WELDED TO THE 48" DISCHARGE PIPE AT THE LOCATION SHOWN.
- ⑤ THE CONTRACTOR SHALL CONNECT EXISTING PIPE TO NEW PIPE WITH A NEW FLEXIBLE COUPLING.
- ⑥ CONTRACTOR SHALL INSTALL 48" FLANGES.
- ⑦ PIPE SADDLES AND SUPPORTS, SEE DETAILS ON SHEET S8.
- ⑧ THE CONTRACTOR SHALL VERIFY THE ELEVATION OF THE EXISTING 48" DISCHARGE PIPE PRIOR TO INSTALLING THE NEW 48" PIPE. THE NEW 48" DISCHARGE PIPE SHALL BE INSTALLED HORIZONTALLY FROM THE PUMP DISCHARGE COLUMN TO THE NEW CONNECTION WITH THE EXISTING PIPE AND AT THE SAME ELEVATION AS THE EXISTING PIPE. THE FINAL ELEVATION SHALL BE RECORDED ON THE "AS-BUILT" DRAWINGS.
- ⑨ NEW SUBMERSIBLE PUMP AND DISCHARGE COLUMN PIPE, SEE SPECIFICATIONS FOR REQUIREMENTS.
- ⑩ CONTRACTOR SHALL INSTALL PITOT CONNECTIONS, SEE DETAILS ON SHEET M4.
- ⑪ CONCRETE PIPE SADDLE WITH CONCRETE FOOTING, TO BE PLACE AFTER PIPE INSTALLATION AND PRIOR TO OPERATION, SEE PIPE SADDLE DETAILS ON SHEET S8.

\* DIMENSIONS ARE DEPENDENT UPON REQUIREMENTS OF THE EQUIPMENT MANUFACTURER SELECTED

**B 48" PUMP & DISCHARGE PIPE PROFILE**  
M2/M3

8 6 4 2 0 8 16 FT  
SCALE IN FEET

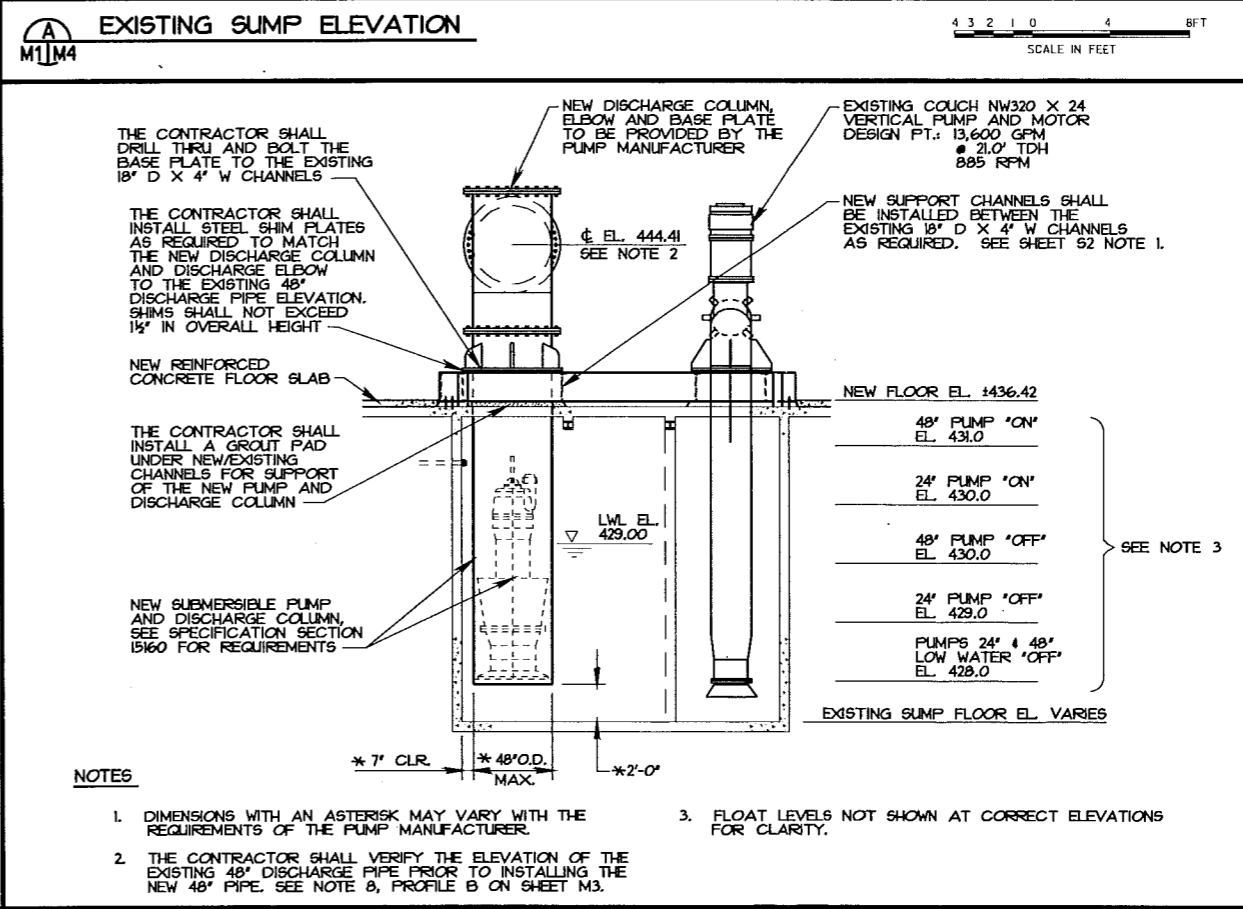
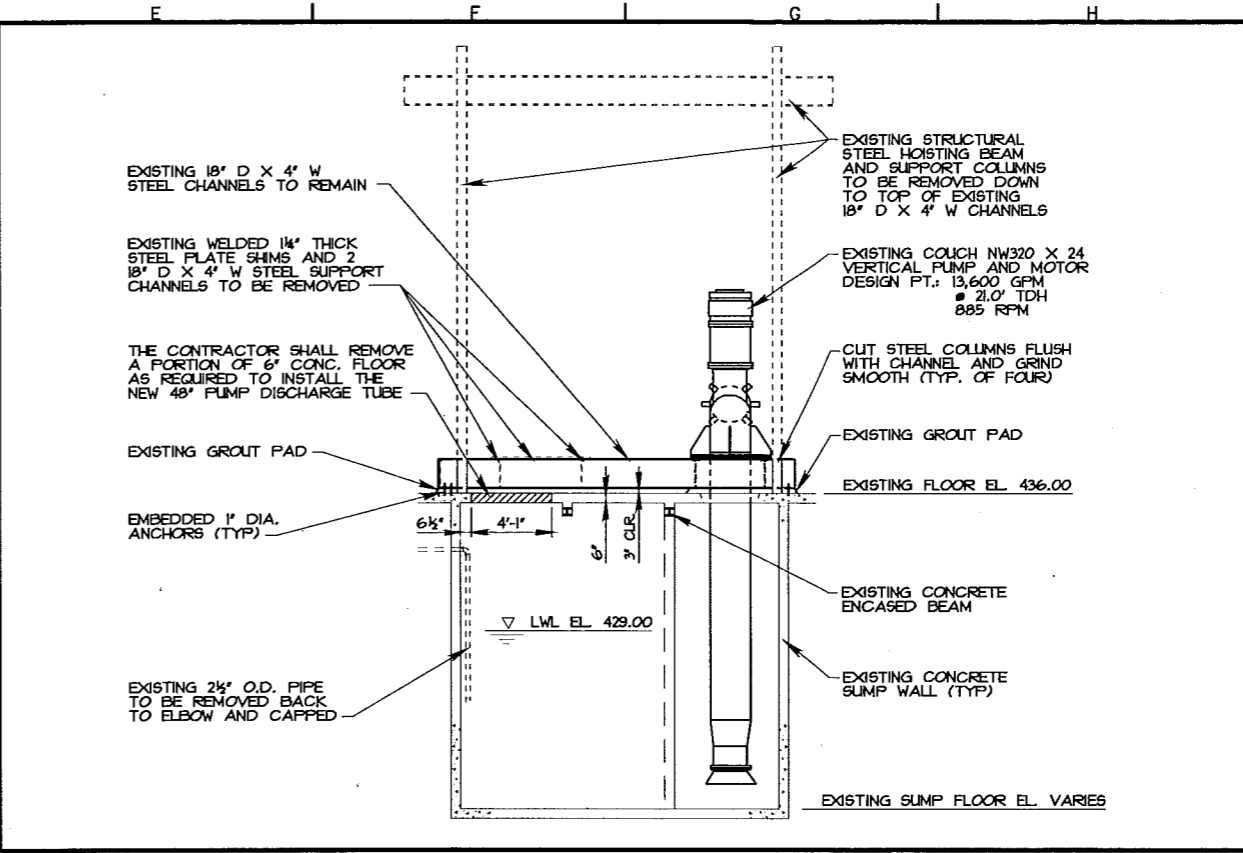
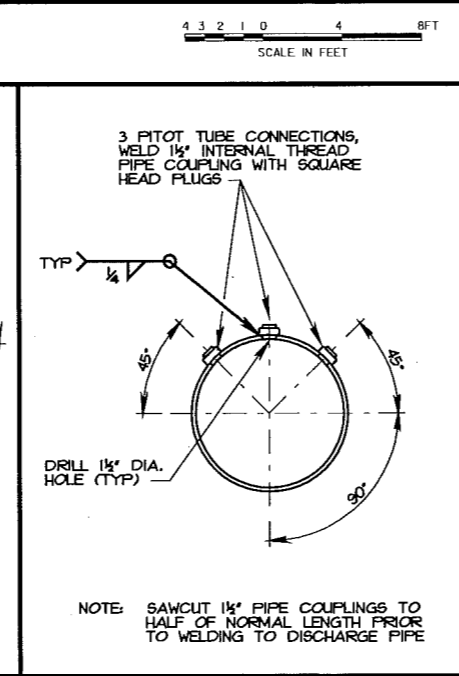
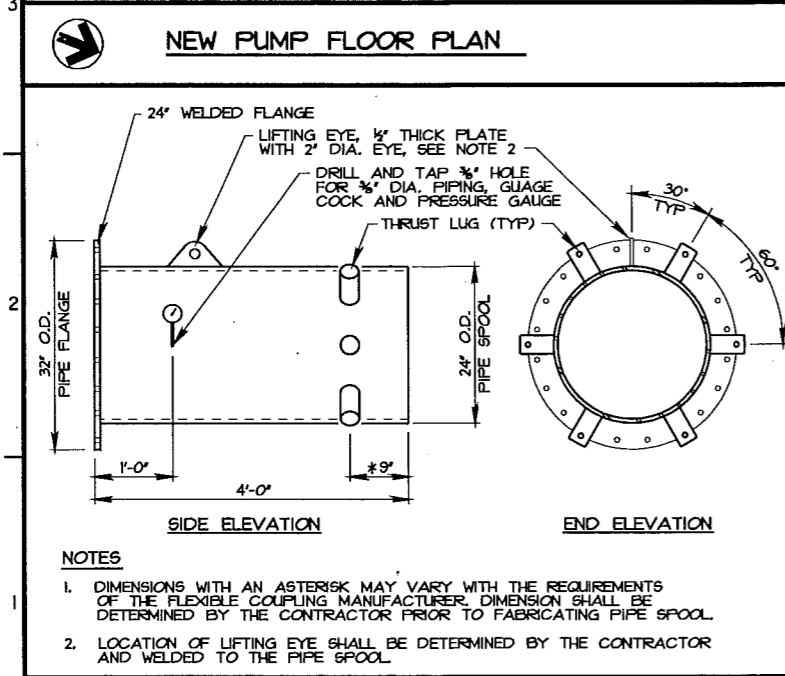
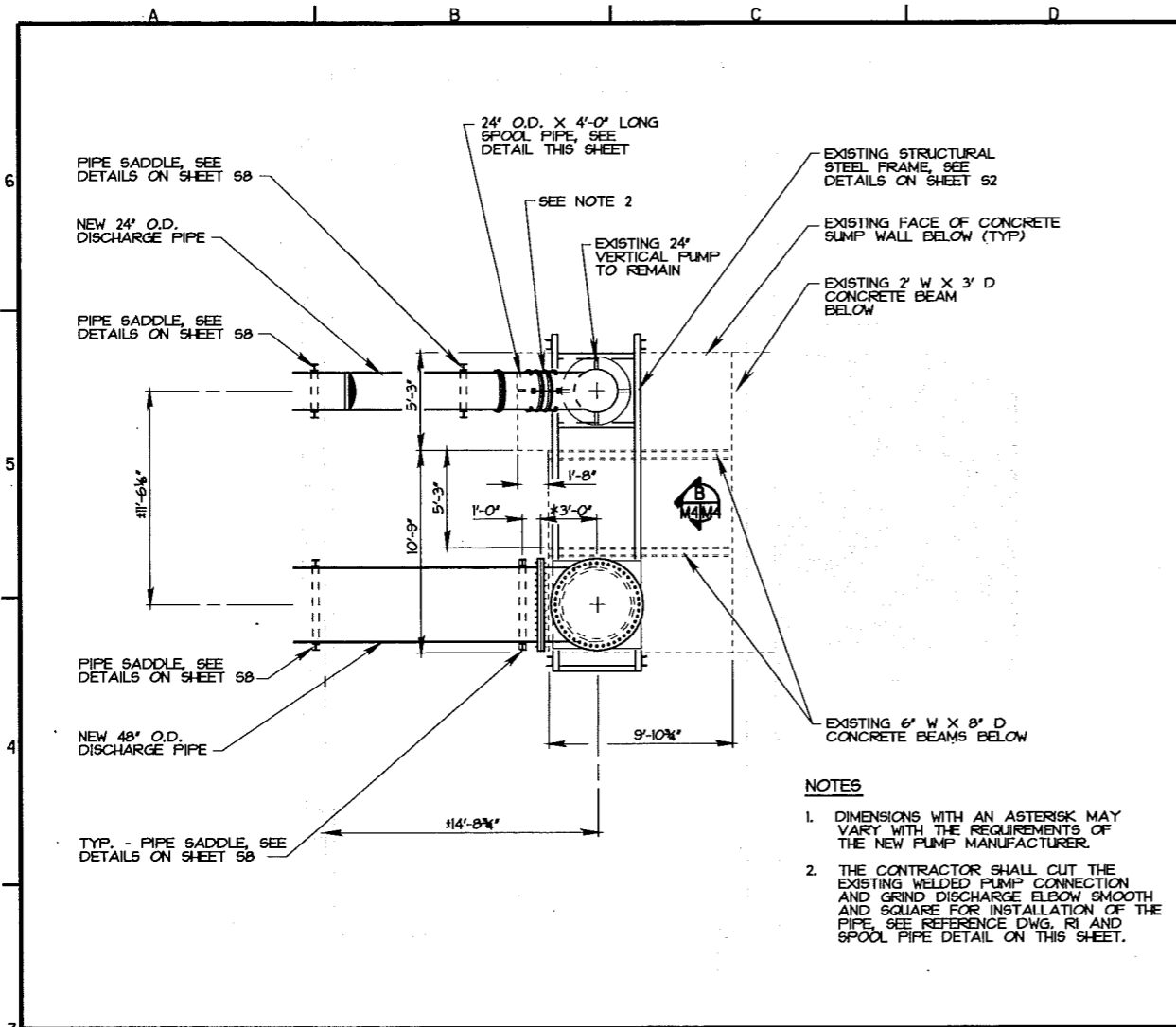
DATE	DESCRIPTION	REVISIONS
10/13/03	REVISED AS CONSTRUCTED	1

DESIGNED BY:	RTN	DATE:	16 JUNE 1999
DRAWN BY:	TPD/SDB	SCALE:	AS SHOWN
CHECKED BY:	KUB	PROJECT NO.:	1-11-3-172
REVIEWED BY:	BLK	DISTRICT:	RR-9-001

ILLINOIS WATERWAY PROGRAM  
ENVIRONMENTAL MANAGEMENT  
LAGRANGE, ILLINOIS  
PULASKI AND FLORIDA COUNTIES, IL.

**PUMP STATION  
24" AND 48" PUMPS &  
DISCHARGE PIPE PROFILES**

Sheet Reference Number:  
**M3**  
Sheet 48 of 53



NO.	DATE	DESCRIPTION	BY	CHKD.
1	3/17/04	REVISED AS CONSTRUCTED	MLM	MLM

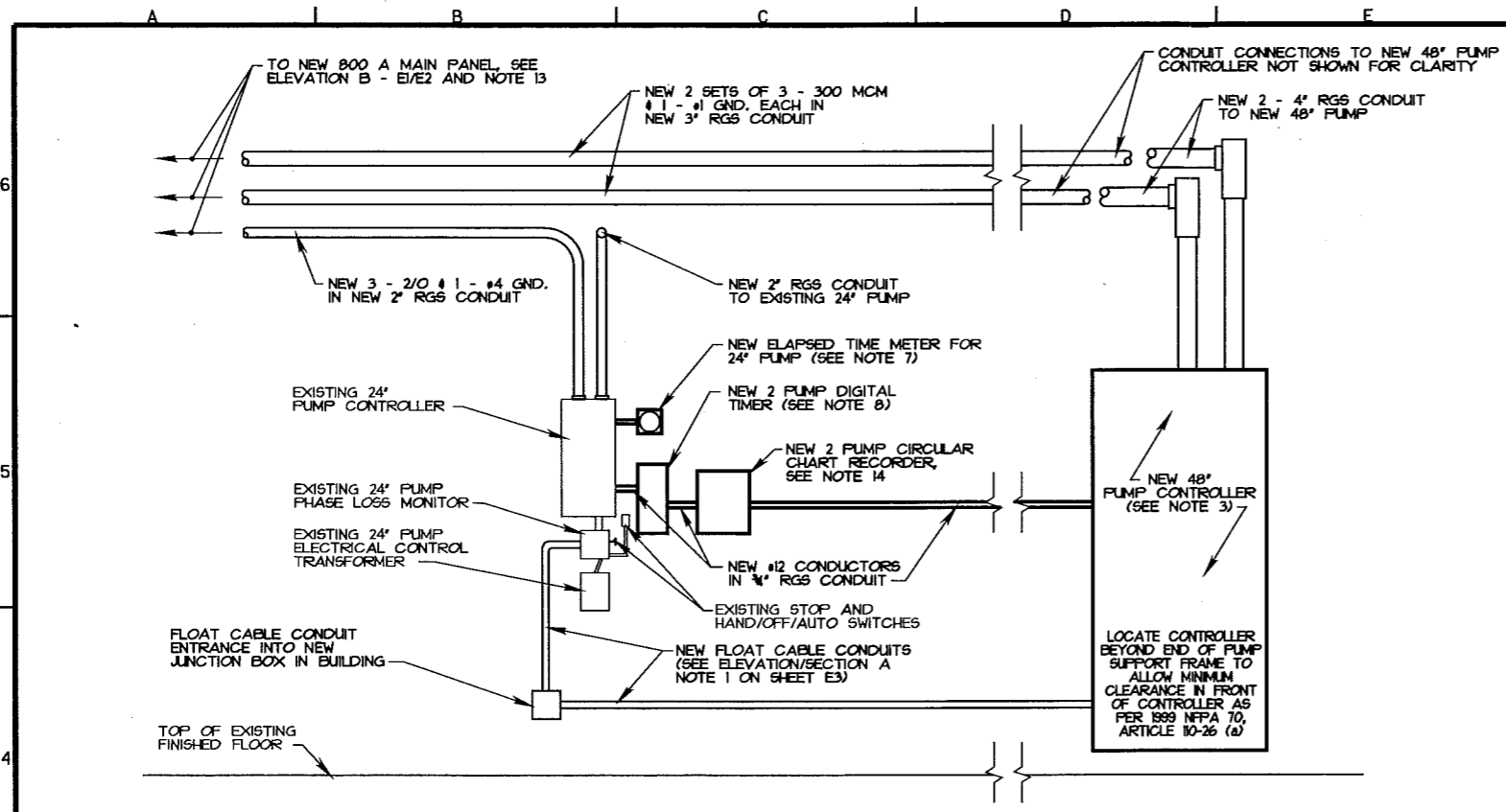
Designed By:	RTN	Date:	16 JUNE 1999
Drawn By:	TPD/SDB	Scale:	AS SHOWN
Checked By:	KJB	Project Code:	1-L1-3-1-172
Reviewed By:	BLK	Specification Number:	ducr2-99-001

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

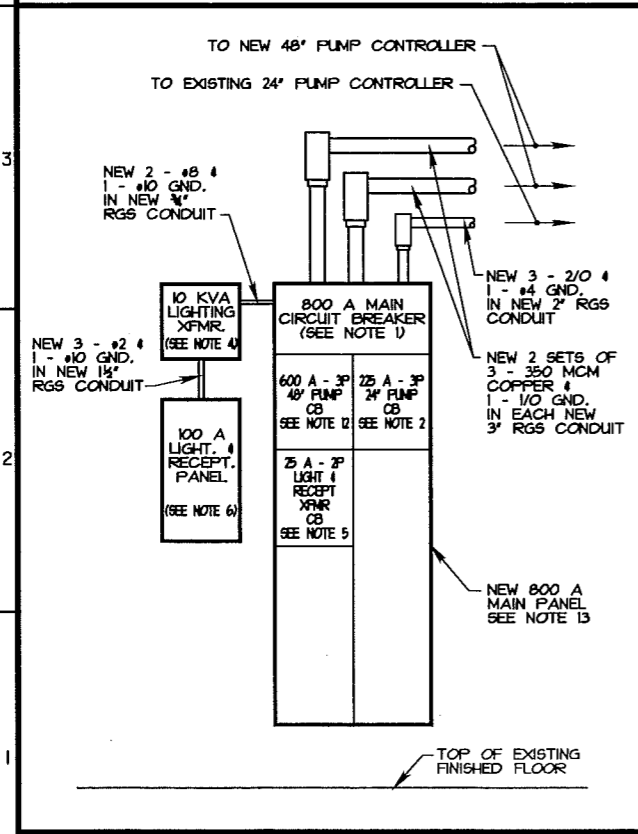
ILLINOIS WATERWAY PROGRAM  
ENVIRONMENTAL MANAGEMENT  
LAGRANGE, ILLINOIS  
PULMON AND FLORIDA COUNTIES, AL.

**PUMP STATION FLOOR PLAN,  
MECHANICAL FLOOR PLAN,  
ELEVATIONS AND DETAILS**

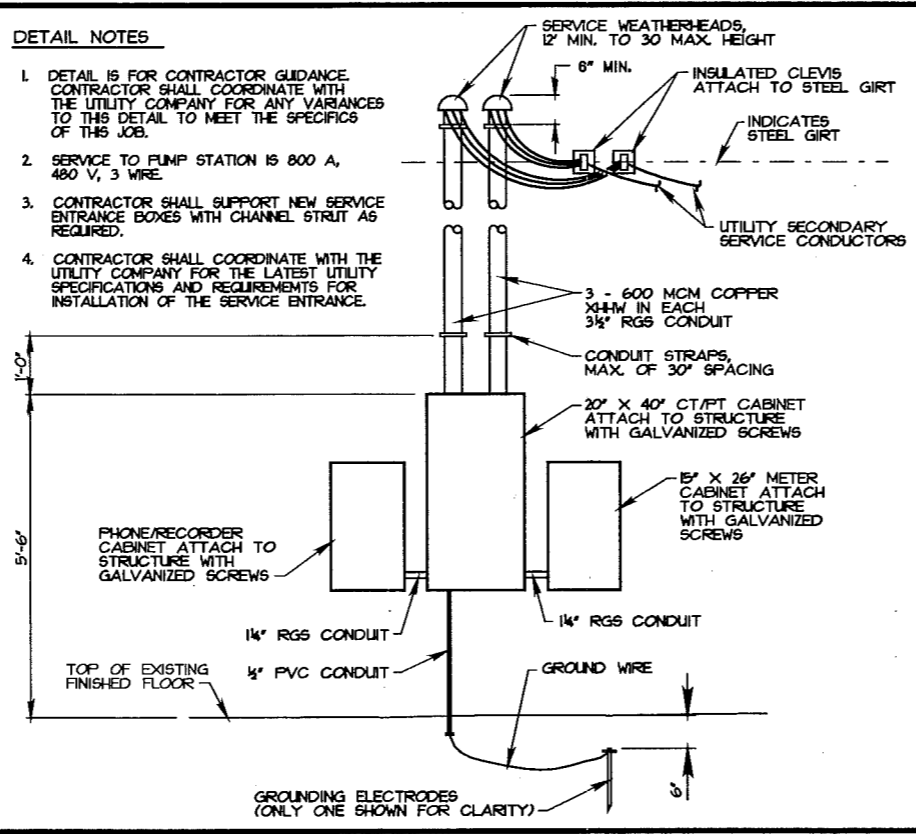
Sheet Reference Number:  
**M4**  
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**A**  
E1E2  
**ELEVATION ELECTRICAL EQUIPMENT**



**B**  
E1E2  
**ELEVATION SERVICE EQUIPMENT DISCONNECT**



**C**  
E1E2  
**ELEVATION SERVICE ENTRANCE EQUIPMENT**

**ELECTRICAL EQUIPMENT LAYOUT NOTES**

- SERVICE ENTRANCE MAIN DISCONNECT, 800A THERMAL-MAGNETIC MOLDED CASE CIRCUIT BREAKER, 3 POLE, 480V, 30,000 AIC MINIMUM, BOLT ON.
- TWENTY-FOUR INCH PUMP DISCONNECT, 225A THERMAL-MAGNETIC MOLDED CASE CIRCUIT BREAKER DISCONNECT, 3 POLE, 480V, 30,000AIC MINIMUM, BOLT ON. CIRCUIT BREAKER SHALL BE LOCKABLE IN THE OFF POSITION.
- CONTROLLER FOR NEW 48 INCH PUMP. STARTING SHALL BE REDUCED VOLTAGE OF EITHER AUTOTRANSFORMER OR SOLID STATE ELECTRONIC TYPE ADJUSTABLE SO AS THE INITIAL STARTING VOLTAGE AT THE MOTOR DOES NOT EXCEED 65% OF THE RUN VOLTAGE. MOTOR STARTER SIZE SHALL BE NEMA SIZE 6 OR EQUIVALENT. THERMAL OVERLOAD RELAYS SHALL BE CLASS 10 QUICK TRIP HAND RESET MELTING ALLOY OR EQUIVALENT SIZED FOR MOTOR. CONTROLLER SHALL BE RATED FOR 480VAC, 3 PHASE, AND 48 INCH PUMP HORSE POWER.  
CONTROL VOLTAGE SHALL BE 120V. CONTROL TRANSFORMER SHALL BE AN INTEGRAL PART OF THE CONTROLLER.  
CONTROLLER SHALL INCLUDE A PHASE FAILURE AND UNDERVOLTAGE RELAY ABLE TO DETECT A PHASE LOSS, PHASE REVERSAL, PHASE UNBALANCE, AND UNDERVOLTAGE. THE RELAY SHALL BE INSTALLED ON THE LOAD SIDE OF THE OVERLOADS FOR LOAD SIDE MONITORING OF POWER TO THE MOTOR.  
CONTROLLER SHALL INCLUDE AN ELAPSED TIME METER WHICH HAS A RANGE FROM 0-99,999.9, NON-RESETTABLE, TO RECORD 48 INCH PUMP RUNNING TIME.  
ENCLOSURE SHALL BE TYPE NEMA 12 WALL MOUNTED, BOTTOM OF CONTROLLER SHALL BE 18" MINIMUM ABOVE FINISHED FLOOR. SEE SHEET E5 FOR PANEL 4 CONTROL DETAILS.
- LIGHTING AND RECEPTACLE TRANSFORMER SHALL BE RATED FOR 10KVA, 480V/240/120V SINGLE PHASE, AIR COOLED, NEMA 1 ENCLOSURE.
- LIGHTING AND RECEPTACLE TRANSFORMER PRIMARY DISCONNECT SHALL BE A 25A THERMAL-MAGNETIC MOLDED CASE CIRCUIT BREAKER DISCONNECT, 2 POLE, 480V, 30,000AIC MINIMUM, BOLT ON. CIRCUIT BREAKER SHALL BE LOCKABLE IN THE OFF POSITION.
- LIGHTING AND RECEPTACLE PANEL SHALL BE RATED FOR 240/120V, 100A, 20 SINGLE POLE CIRCUIT BREAKER SPACES, 50A DOUBLE POLE MAIN CIRCUIT BREAKER, 20 INCH WIDE, NEMA 1 SURFACE MOUNT ENCLOSURE.
- ELAPSED TIME METER FOR 24 INCH PUMP SHALL HAVE A RANGE FROM 0-99,999.9, NON-RESETTABLE, TO RECORD 24" PUMP RUNNING TIME. METER SHALL EITHER BE MOUNTED IN ITS OWN NEMA 1 ENCLOSURE OR IT MAY BE MOUNTED IN THE 24 INCH PUMP CONTROLLER ENCLOSURE.
- TWO PUMP DIGITAL TIMER SHALL CONTROL THE 24 INCH AND 48 INCH PUMP INDEPENDENTLY, PLUS HAVE THE ABILITY TO CONTROL 2 ADDITIONAL INDEPENDENT CIRCUITS. TIMER SHALL HAVE AUTOMATIC DAYLIGHT SAVING TIME AND LEAP YEAR ADJUSTMENT. HOLIDAYS MAY BE PROGRAMMED IN, BATTERY BACKUP, MANUAL OVERRIDE FOR EACH CIRCUIT INDEPENDENTLY, TO THE MINUTE INDEPENDENT CONTROL WITH 300 SET POINTS MINIMUM. ENCLOSURE SHALL BE 18 GAUGE STEEL MINIMUM, NEMA 1 RATED, SURFACE MOUNT. CONTACTS SHALL BE RATED FOR 15A MINIMUM RESISTIVE.
- A 3 PHASE MOV CATEGORY "C" SURGE ARRESTER SHALL BE INSTALLED ON THE 800A MAIN DISCONNECT FOR PUMP STATION ELECTRICAL PROTECTION. THE SURGE ARRESTER SHALL COMPLY WITH IEEE C62.11, C62.22, C62.41 AND UL1449. ARRESTERS SHALL BE EQUIPPED WITH MOUNTING BRACKETS SUITABLE FOR THE INDICATED INSTALLATION. SURGE ARRESTER RATINGS SHALL BE 480V, 3 PHASE, 3 WIRE HIGH ENERGY (METAL OXIDE SILICON) MINIMUM. PROTECTION SHALL BE PHASE TO PHASE. SURGE ARRESTER SHALL BE EQUIPPED WITH DIAGNOSTIC INDICATORS TO SHOW ARRESTER CONDITION (A GOOD AND FAILED MOV CONDITION MINIMUM). ARRESTER SHALL INCORPORATE REDUNDANT PROTECTORS FOR CONTINUOUS PROTECTION IF ONE SHOULD FAIL. ALSO INCLUDE PLUG-IN REPLACEMENT MODULES TO REPLACE FAILED ONES. EACH PHASE OF THE ARRESTER SHALL BE INDEPENDENTLY FUSED RATED AT 300,000 AIC. IF ARRESTER CANNOT BE INSTALLED WITHIN THE MAIN SERVICE ENTRANCE PANEL ENCLOSURE, ARRESTER ENCLOSURE SHALL BE ADJACENT TO THE PANEL AND BE NEMA 1 RATED.
- THE POWER FACTOR OF THE NEW 48" PUMP SHALL BE BETWEEN .80 AND 1.0 (LAGGING). IF THE POWER FACTOR IS LOWER THAN .80 THE CONTRACTOR SHALL ADD POWER FACTOR CORRECTION CAPACITORS TO THE 48" PUMP TO BRING UP THE POWER FACTOR TO THE .80 MINIMUM. THE CONTRACTOR SHALL MEASURE THE POWER FACTOR OF THE EXISTING 24" PUMP. THE POWER FACTOR OF THE 24" PUMP AND CORRECTED POWER FACTOR OF THE 48" PUMP SHALL BE SUBMITTED AS A TEST REPORT. ENCLOSURE SHALL BE NEMA TYPE 1 WALL MOUNTED LOCATED ADJACENT TO THE MOTOR CONTROLLER OF THE PUMP IT IS CONNECTED TO. BOTTOM OF THE ENCLOSURE SHALL BE 18" MINIMUM ABOVE FINISHED FLOOR.
- CONTRACTOR SHALL SUPPORT ALL ELECTRICAL BOXES WITH CHANNEL STRUT AS REQUIRED OR EXISTING ELECTRICAL PANEL SUPPORT FRAME ON THE NORTH WALL. CHANNEL STRUT SHALL BE GALVANIZED AND CUT ENDS SHALL BE PAINTED WITH ZINC RICH PAINT.
- FORTY-EIGHT INCH PUMP DISCONNECT, 600A THERMAL-MAGNETIC MOLDED CASE CIRCUIT BREAKER DISCONNECT, 3 POLE, 480V, 30,000AIC MINIMUM, BOLT ON. THE 600A 600A BREAKER SIZE IS TENTATIVE SIZE BASED ON DESIGN CALCULATIONS. CONTRACTOR SHALL COORDINATE WITH THE PUMP MANUFACTURER TO MATCH THE CORRECT CIRCUIT BREAKER WITH THE SELECTED PUMP, BOLT ON. CIRCUIT BREAKER SHALL BE LOCKABLE IN THE OFF POSITION.
- MAIN SERVICE ENTRANCE PANEL. SERVICE ENTRANCE RATED, 800A, 480V, 3 PHASE, 3 WIRE. MINIMUM RATED COPPER BUSES, SURFACE MOUNT. PANEL SHALL BE COMPATIBLE WITH AND HAVE THE CIRCUIT BREAKER MOUNTING SPACES AVAILABLE FOR CIRCUIT BREAKERS MENTIONED ABOVE PLUS 3, 3 POLE SPACES FOR ADDITIONAL CIRCUIT BREAKERS.
- TWO CHANNEL CIRCULAR CHART RECORDER. CASE SHALL BE OF DIECAST ALUMINUM OR HIGH IMPACT PLASTIC DESIGNED FOR INDUSTRIAL APPLICATIONS. TIME PER REVOLUTION OF CIRCLE CHART SHALL BE ADJUSTABLE FROM 24 HOURS TO 31 DAYS. CHART DRIVE SHALL BE ELECTRIC 120 V. TRANSDUCER INPUT SHALL BE 120 V "ON" OR 0 V "OFF" FROM PUMP MOTOR CONTROL CIRCUIT. THE TRANSDUCER OUTPUT SHALL BE PROPORTIONAL TO ITS INPUT AND INTERFACE WITH CHART RECORDER INPUT. RECORDING MECHANISM SHALL BE MADE OF STAINLESS STEEL. PEN SHAFTS ARE FITTED WITH BALL PIVOTS. CALIBRATION ADJUSTMENTS SHALL BE MADE WITH EASILY ACCESSIBLE SCREW ADJUSTMENTS. CHARTS SHALL BE 12 INCH AND PRINTED ON MOISTURE RESISTANT PAPER. PENS WILL SHALL BE OF V-TYPE, FOUNTAIN OR BUCKET TYPE OR CHARTOMATIC TYPE. RECORDER SHALL RECORD THE "ON" AND "OFF" DURATION OF EACH PUMP (EACH ON AN INDEPENDANT CHANNEL).



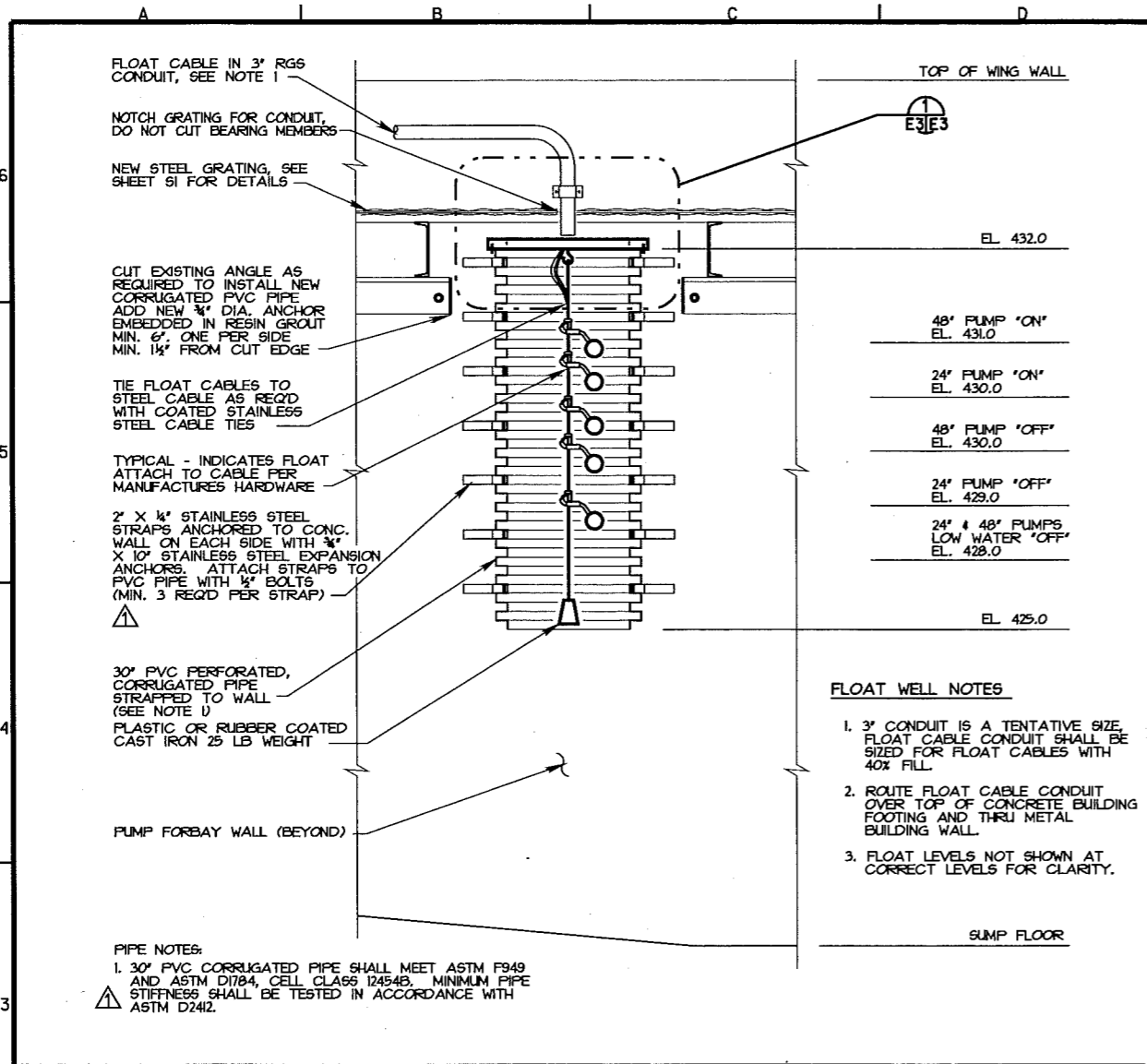
Date	Description	Revisions
15/06/2004	AS CONSTRUCTED	

Designed by:	RTK	Date:	16 JUNE 1999
Drawn by:	TPD/EDB	Scale:	AS SHOWN
Checked by:	BOB	Drawing Code:	1-11-3-172
Reviewed by:	BWS	Soil Report Number:	DUCE2-99-8-001

ILLINOIS WATERWAY PROGRAM  
ENVIRONMENTAL MANAGEMENT  
PROGRAM FOR THE  
BANNER AND PEBETA COUNTIES, IL.  
PUMP STATION ELECTRICAL EQUIPMENT ELEVATIONS

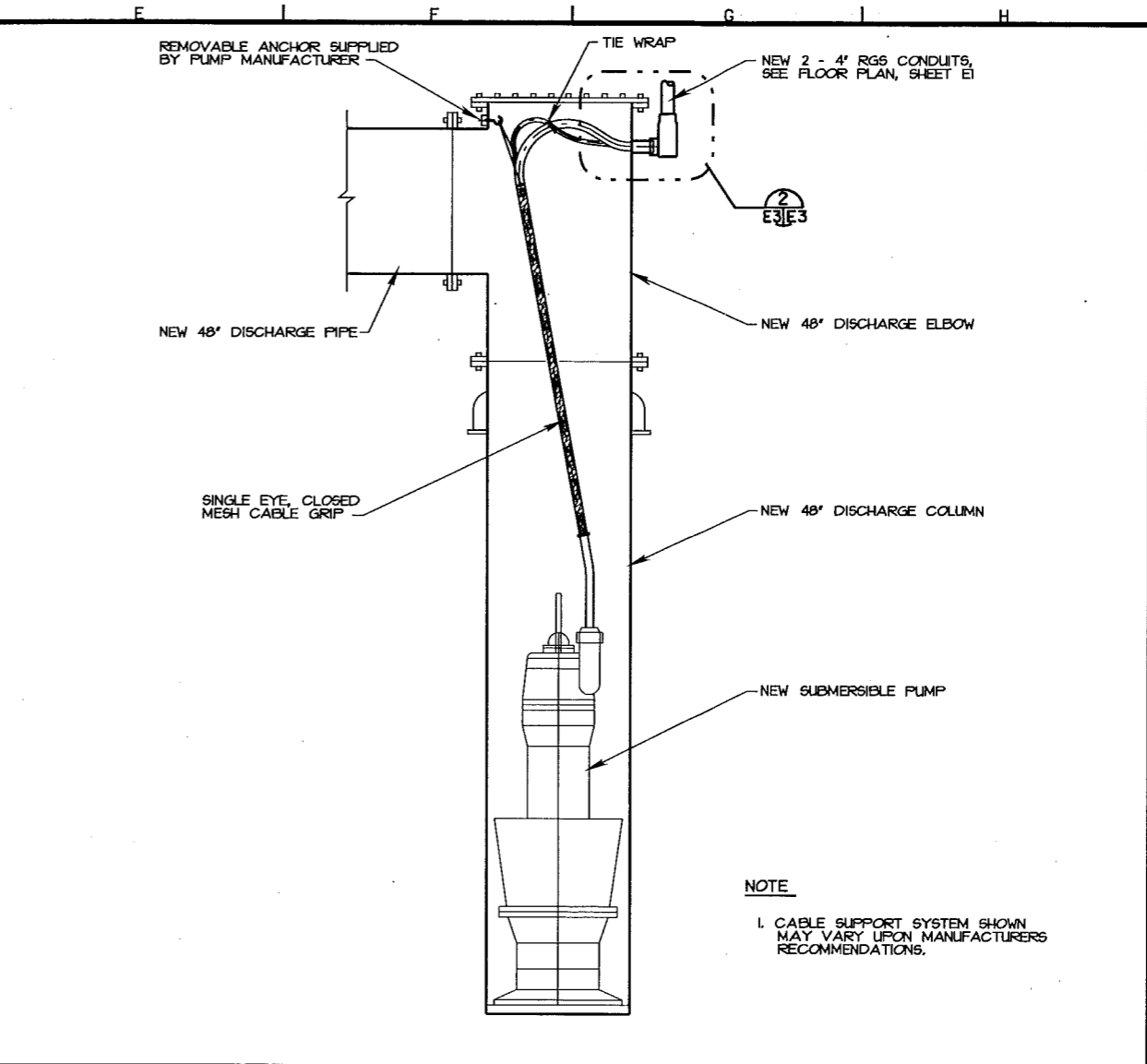
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Sheet 48 of 53

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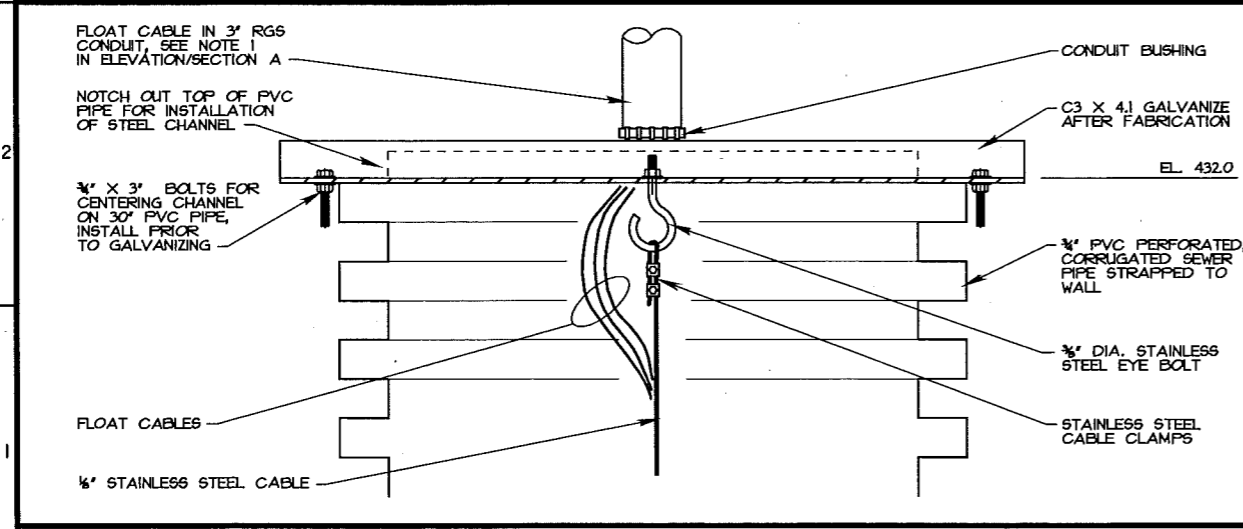
**A** E3/E3 ELEVATION/SECTION FLOAT WELL

0 1 2 FT SCALE IN FEET



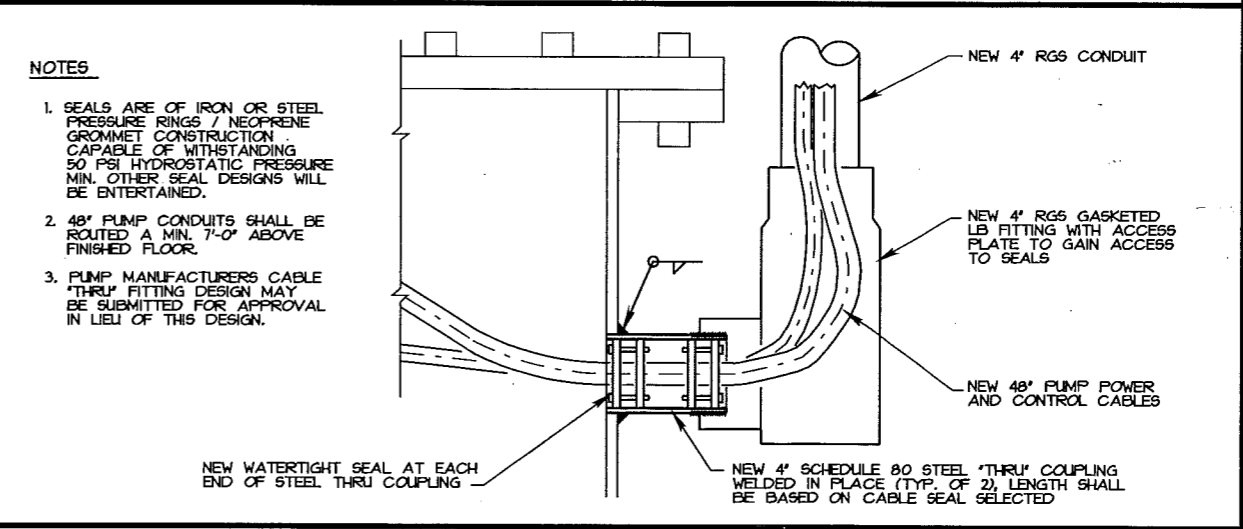
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2 1 0 2 4 FT SCALE IN FEET



**1** E3/E3 DETAIL FLOAT WELL

6 4 2 0 6 IN SCALE IN INCHES



**2** E3/E3 DETAIL CABLE/CONDUIT CONNECTION

6 0 6 IN SCALE IN INCHES



Symbol	Description	Date	Approved
AS CONSTRUCTED	AS CONSTRUCTED	3/27/04	JMB
REVISED	MODIFICATION 1	3/27/00	JMB

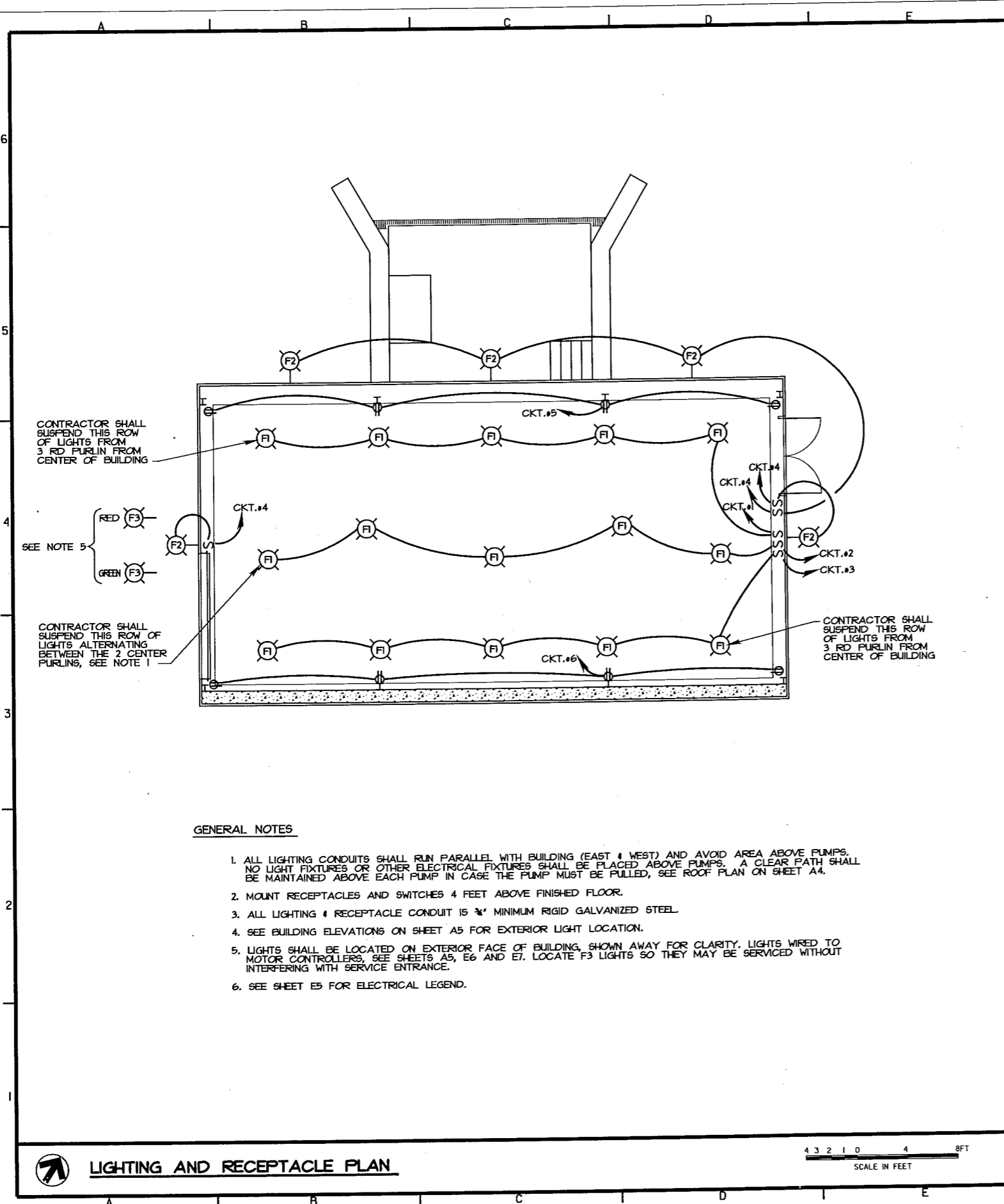
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Drawn By:	TPD	Scale:	AS SHOWN
Checked By:	BGR	Drawing Code:	1-L-1-3-1/72
Reviewed By:	JMB	Specification Number:	DUCK23-99-9-0021

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

ENVIRONMENTAL WATERWAY PROGRAM  
FACILITY DEVELOPMENT DIVISION  
1310144  
BANNER WILDLIFE MANAGEMENT AREA  
FULTON AND PEORIA COUNTIES, IL.

**PUMP STATION  
FLOAT WELL AND  
MISCELLANEOUS DETAILS**

Sheet Reference Number:  
**E3**  
Sheet 49 of 53



CONTRACTOR SHALL SUSPEND THIS ROW OF LIGHTS FROM 3 RD PURLIN FROM CENTER OF BUILDING

SEE NOTE 5  
 RED F3  
 GREEN F3

CONTRACTOR SHALL SUSPEND THIS ROW OF LIGHTS ALTERNATING BETWEEN THE 2 CENTER PURLINS, SEE NOTE 1

CONTRACTOR SHALL SUSPEND THIS ROW OF LIGHTS FROM 3 RD PURLIN FROM CENTER OF BUILDING

**GENERAL NOTES**

1. ALL LIGHTING CONDUITS SHALL RUN PARALLEL WITH BUILDING (EAST & WEST) AND AVOID AREA ABOVE PUMPS. NO LIGHT FIXTURES OR OTHER ELECTRICAL FIXTURES SHALL BE PLACED ABOVE PUMPS. A CLEAR PATH SHALL BE MAINTAINED ABOVE EACH PUMP IN CASE THE PUMP MUST BE PULLED, SEE ROOF PLAN ON SHEET A4.
2. MOUNT RECEPTACLES AND SWITCHES 4 FEET ABOVE FINISHED FLOOR.
3. ALL LIGHTING & RECEPTACLE CONDUIT IS 3/4" MINIMUM RIGID GALVANIZED STEEL.
4. SEE BUILDING ELEVATIONS ON SHEET A5 FOR EXTERIOR LIGHT LOCATION.
5. LIGHTS SHALL BE LOCATED ON EXTERIOR FACE OF BUILDING, SHOWN AWAY FOR CLARITY. LIGHTS WIRED TO MOTOR CONTROLLERS, SEE SHEETS A5, E6 AND E7. LOCATE F3 LIGHTS SO THEY MAY BE SERVICED WITHOUT INTERFERING WITH SERVICE ENTRANCE.
6. SEE SHEET E5 FOR ELECTRICAL LEGEND.

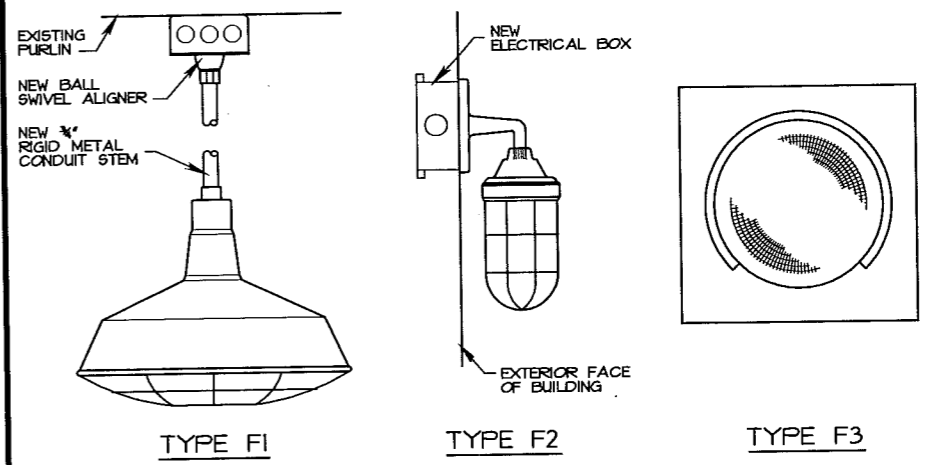
**LIGHTING AND RECEPTACLE PLAN**

4 3 2 1 0 1 2 3 4 FT  
 SCALE IN FEET

TYPE BRKS.	BOLT ON	50 A	MAIN BRKR.
MOUNTING TYPE	SURFACE	240/120	VOLTS
MAIN BUS	100 A	1 PHASE, 3 WIRE, S/N	

CKT. NO.	DESCRIPTION	CON. WIRE SIZE	KVA	50 C-C		KVA	WIRE CON. SIZE	DESCRIPTION	CKT. NO.
				20	20				
1	INDOOR LIGHTING, NORTH ROW	#12	.75	20	20	.75	#12	INDOOR LIGHTING, MIDDLE ROW	2
3	INDOOR LIGHTING, SOUTH ROW	#12	.75	20	20	.75	#12	OUTDOOR LIGHTING	4
5	RECEPTACLES, NORTH WALL	#12	.72	20	20	.72	#12	RECEPTACLES, SOUTH WALL	6
7	OUTDOOR STATUS LIGHTS	#12	.3	20	20			SPARE	8
9	SPARE							SPARE	18
11									12
13									14
15									16
16									18
17									20
19									

**LIGHTING AND RECEPTACLE PANEL**



**FIXTURE TYPES**

6 4 2 0 2 4 IN  
 SCALE IN INCHES

**ELECTRICAL & LIGHT FIXTURE LEGEND**

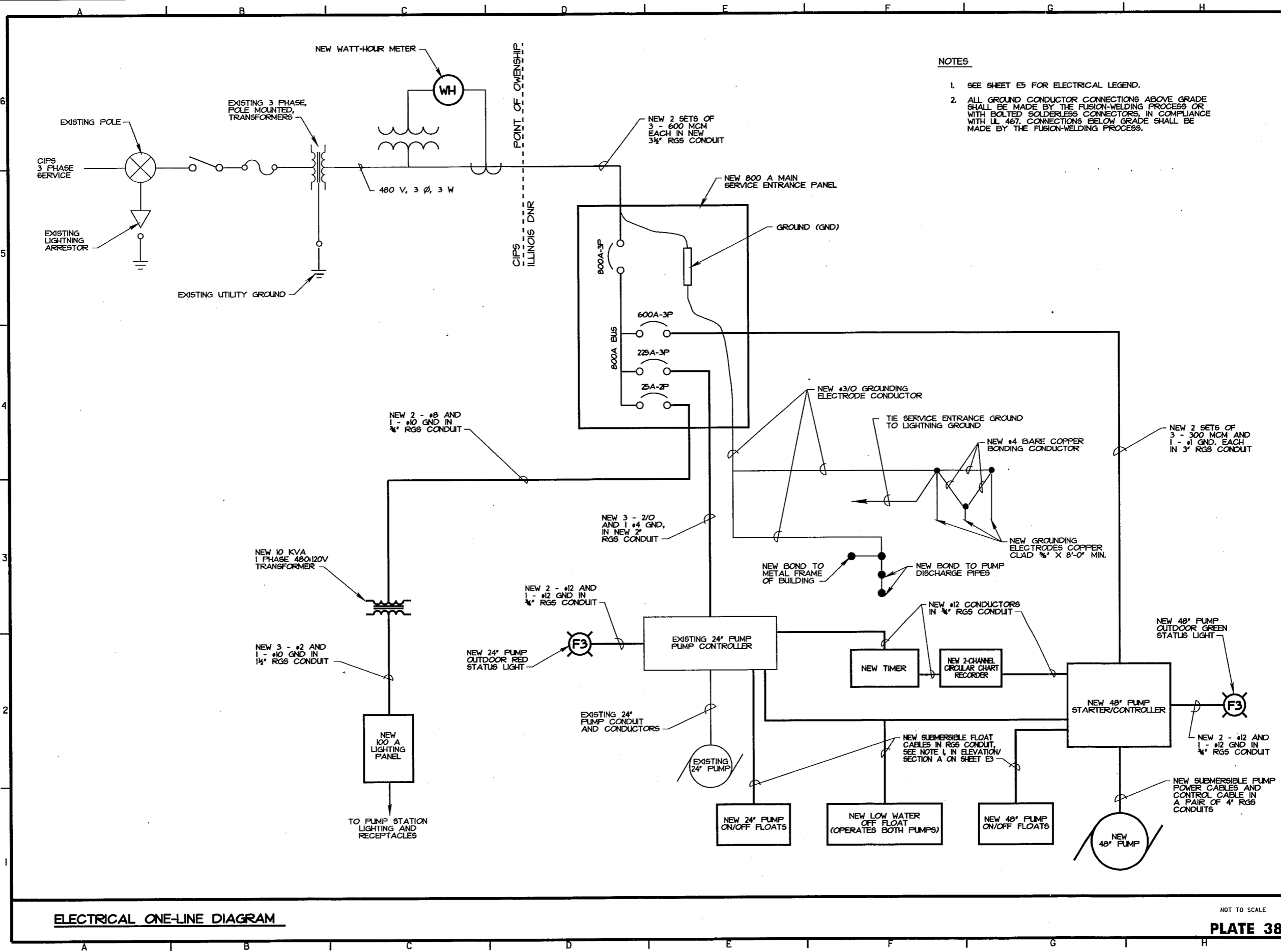
- F1 FIXTURES SHALL CONFORM TO UL 1571. THE FIXTURES SHALL BE DESIGNED FOR SINGLE 150 WATT, INSTALLED LAMP SIZE SHALL BE 150 WATT, 120 VOLT INCANDESCENT LAMP. LAMP SOCKETS SHALL BE PORCELAIN MEDIUM BASE. MOUNTING HUB SHALL BE CAST ALUMINUM TAPPED FOR 3/8" NPT CONDUIT. REFLECTOR SHALL BE HEAVY-DUTY SPUN GALVANIZED STEEL CONSTRUCTION WITH POLYESTER POWER FINISH OR PORCELAIN ENAMELED STEEL CONSTRUCTION. FIXTURE SHALL INCLUDE WIRE GUARDS WITH CENTER OPENING FOR RELAMPING. GUARDS SHALL BE PROTECTIVE COATED WITH MANUFACTURERS STANDARD COATING. MOUNTING HEIGHT SHALL BE 16 FEET ABOVE FINISHED FLOOR. FURNISH ONE RELAMPING POLE.
- F2 FIXTURES SHALL CONFORM TO UL 1571 AND BE LISTED FOR OUTDOOR LOCATIONS. THE FIXTURES SHALL BE DESIGNED FOR SINGLE 150 WATT, INSTALLED LAMP SIZE SHALL BE 150 WATT, 120 VOLT INCANDESCENT LAMP. LAMP SOCKETS SHALL BE HEAVY DUTY PORCELAIN MEDIUM BASE. BODIES SHALL BE COPPER FREE CAST ALUMINUM. GLOBE REFLECTOR AND GUARD ATTACHMENT SHALL BE OF THREADED CONSTRUCTION. GLOBES SHALL BE CLEAR TEMPERED GLASS. BUILDING OUTDOOR FIXTURES SHALL BE WALL MOUNTED 16 FEET ABOVE FINISHED FLOOR LEVEL. GUARDS SHALL BE COPPER FREE CAST ALUMINUM. ALL DIE CAST PARTS SHALL BE FINISHED IN CORROSION RESISTANT EPOXY/POLYESTER PAINT.
- F3 FIXTURES SHALL BE 12 INCH ONE SECTION TRAFFIC SIGNAL FLAT BLACK ELECTROSTATIC POWDER COATED, ALUMINUM BODY. DOOR IS ALUMINUM WITH STAINLESS STEEL HINGE ALUMINUM TUNNEL VISION REFLECTOR SHALL BE ALUMINUM TREATED WITH ALZAK FINISH AND SILVERED GLASS. LENS SHALL BE OF GLASS OR POLYCARBONATE. LAMPS SHALL BE INCANDESCENT 150 W, 120 V. FIXTURES SHALL BE GASKETED WITH NEOPRENE SO AS TO BE WEATHERPROOF. ONE F3 FIXTURE SHALL BE RED AND THE OTHER GREEN. MOUNT FIXTURES AT APPROX. 16' ABOVE FINISHED FLOOR.
- R RECEPTACLES - DUPLEX, 120 VOLT, 20 AMP, GFI.
- S LIGHT SWITCHES - TOGGLE, SINGLE POLE, SINGLE THROW.



U.S. ARMY ENGINEER DISTRICT ROCK ISLAND, ILLINOIS	DESIGNED BY: RTN DRAWN BY: TPD/SDB CHECKED BY: KJB REVIEWED BY: BLK	DATE: 16 JUNE 1999 SCALE: AS SHOWN DRAWING CODE: 1-LT-3-1-72 SHEET NO.: 50 OF 53
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ILLINOIS WATERWAY PROGRAM  
 ENVIRONMENTAL REVIEW FILE 130-044  
 BANNER HOLLOW MANAGEMENT AREA  
 FULL BANNER HOLLOW MANAGEMENT AREA  
 PUMP STATION AND LIGHTING AND RECEPTACLE PLAN

Sheet Reference Number:  
**E4**  
 Sheet 50 of 53



- NOTES**
- SEE SHEET E5 FOR ELECTRICAL LEGEND.
  - ALL GROUND CONDUCTOR CONNECTIONS ABOVE GRADE SHALL BE MADE BY THE FUSION-WELDING PROCESS OR WITH BOLTED SOLDERLESS CONNECTORS, IN COMPLIANCE WITH UL 467. CONNECTIONS BELOW GRADE SHALL BE MADE BY THE FUSION-WELDING PROCESS.



Symbol	Description	Rev/Iss
AS UNRESTRICTED		
AS RESTRICTED		

U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS ROCK ISLAND, ILLINOIS	Date: 16 JUNE 1999	Scale: AS SHOWN
Drawn By: RTN	Drawn By: TPD/SDB	Created By: KUB
Checked By: KUB	Reviewed By: BLK	Subcontract Number: 68-001

ILLINOIS WATERWAY PROGRAM  
ENVIRONMENTAL MANAGEMENT  
DIVISION  
FULTON AND PEDIANA COUNTIES, ILL.

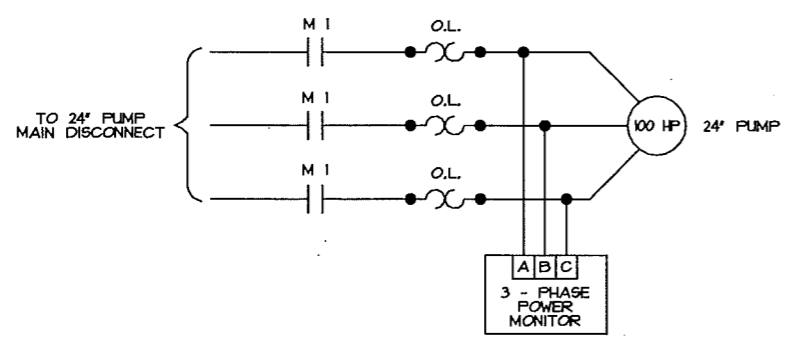
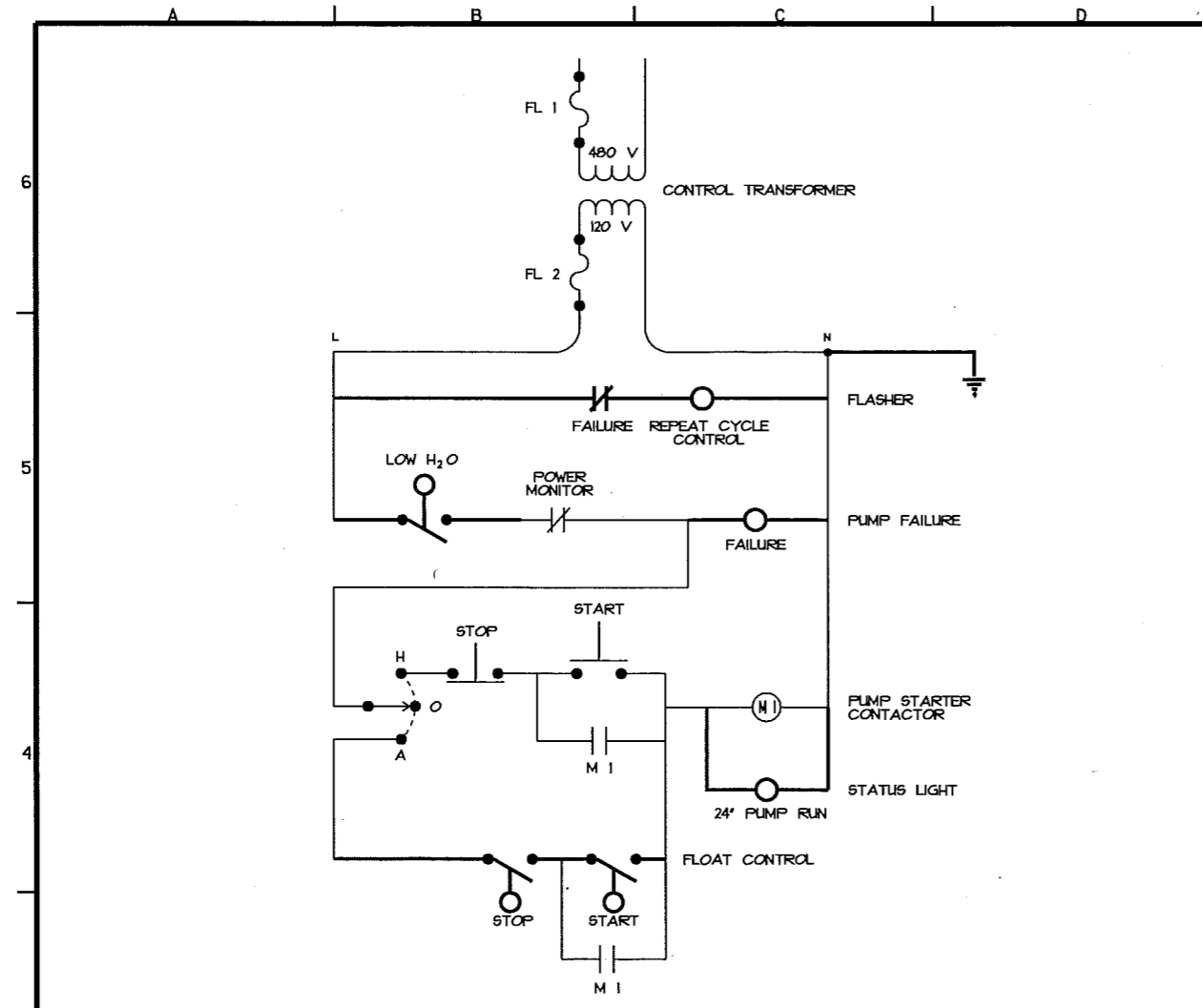
**PUMP STATION  
ELECTRICAL  
ONE-LINE DIAGRAM**

Sheet Reference Number:  
**E6**  
Sheet 52 of 53

**ELECTRICAL ONE-LINE DIAGRAM**

NOT TO SCALE  
**PLATE 38**

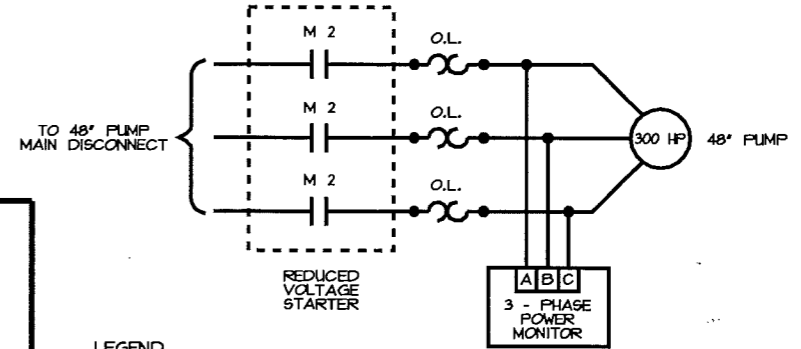
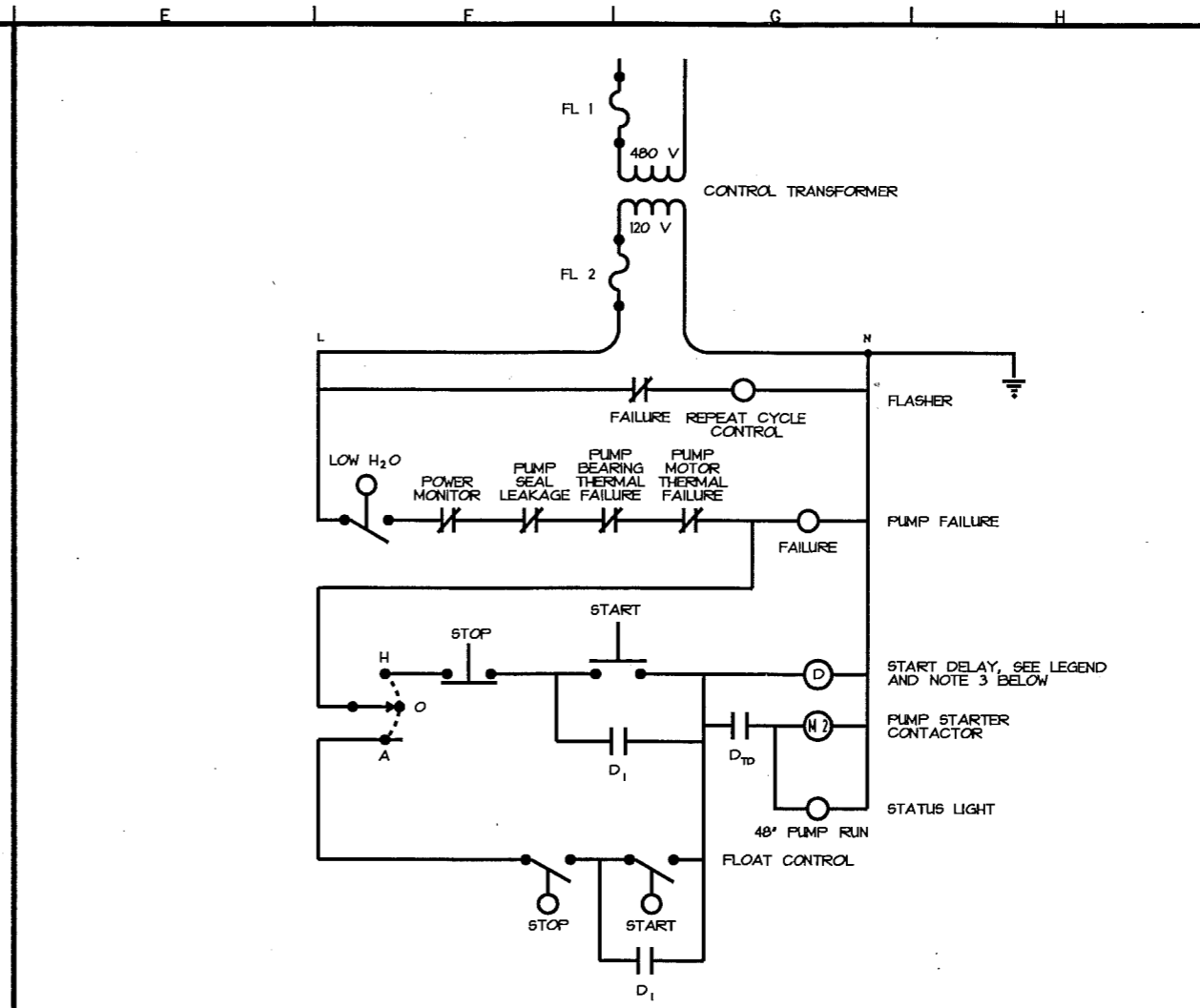
15-DEC-2004 15:14  
m:\csl\form\ar\ecore\p16esp16e06.dgn



- GENERAL NOTES**
1. DARK LINES INDICATE NEW CONSTRUCTION.
  2. THE ELECTRICAL WIRING SHOWN FOR THE 24" PUMP IS A GENERAL SCHEMATIC. THE ACTUAL PUMP CONTROLLER WIRING MAY VARY FROM WHAT IS INDICATED. CONTRACTOR SHALL VERIFY PUMP CONTROLLER WIRING AND MAKE ADJUSTMENTS AS NECESSARY TO INSTALL FLOATS AND PUMP STATUS LIGHTS.
  3. THE ON/OFF TIMING FOR THE FLASHING STATUS LIGHT SHALL BE ADJUSTABLE FROM 'ON' FOR 1/2 SECOND / 'OFF' FOR 1/2 SECOND TO 'ON' FOR 5 SECONDS / 'OFF' FOR 5 SECONDS. THE 'ON' TIME AND 'OFF' TIME MAY BE THE SAME. CONTRACTOR SHALL COORDINATE OPTIMUM SETTING WITH THE C.O.R..
  4. CONTACTS OF REPEAT CYCLE RELAY SHALL BE RATED FOR 3A MINIMUM RESISTIVE.

**24' PUMP CONTROL WIRING DIAGRAM**

NOT TO SCALE



- LEGEND**
- D<sub>1</sub> START RELAY, INSTANTANEOUS CONTACTS
  - D<sub>TD</sub> START RELAY, TIME DELAY CONTACTS
- GENERAL NOTES**
1. THE ON/OFF TIMING FOR THE STATUS LIGHT SHALL BE ADJUSTABLE FROM 'ON' FOR 1/2 SECOND / 'OFF' FOR 1/2 SECOND TO 'ON' FOR 5 SECONDS TO 'OFF' FOR 5 SECONDS. THE 'ON' TIME AND 'OFF' TIME MAY BE THE SAME. CONTRACTOR SHALL COORDINATE OPTIMUM SETTING WITH C.O.R..
  2. CONTACTS OF REPEAT CYCLE RELAY SHALL BE RATED FOR 3A MINIMUM RESISTIVE.
  3. D AND D CONTACTS OPEN INSTANTANEOUSLY UPON DE-ENERGIZING COIL D.
  4. PUMP PANEL PILOT LIGHTS AND MOTOR CONTROLLER HEATERS ARE OMITTED FROM CONTROL DRAWINGS FOR SIMPLICITY.

**48' PUMP CONTROL WIRING DIAGRAM**

NOT TO SCALE  
**PLATE 39**

NO.	DATE	DESCRIPTION	BY	CHKD.
1	3/7/04	AS CONSTRUCTED		

Designed By:	RTN	Date:	16 JUNE 1999
Drawn By:	TPD/SDB	Scale:	AS SHOWN
Checked By:	KJB	Drawing Code:	PL-3-1/72
Reviewed By:	BLK	Specification Number:	DA-22-99-0001

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

ILLINOIS WATERWAY PROGRAM  
ENVIRONMENTAL MANAGEMENT  
FOR THE MISSISSIPPI RIVER  
VALLEY AND PEORIA COUNTIES, ILL.  
**PUMP STATION  
24" AND 48" PUMP  
CONTROL WIRING DIAGRAMS**

Sheet Reference Number:  
**E7**  
Sheet 53 of 53