Draft

Operation and Maintenance Manual for Green Bay DMDF, Cat Island Chains, Brown County, Green Bay, Wisconsin

March 2014

US Army Corps of Engineers
Detroit District

GREEN BAY DMDF
CAT ISLAND CHAINS
BROWN COUNTY
GREEN BAY, WISCONSIN

OPERATION AND MAINTENANCE MANUAL

NOTICE TO USERS OF THIS MANUAL

Regulations specify that this Operation and Maintenance Manual be issued in loose-leaf form, and only those sections, or parts there of, requiring changes will be revised and printed. Therefore, this copy should be preserved in good condition so that inserts can be made to keep the manual current.

GREEN BAY DMDF
CAT ISLAND CHAINS
BROWN COUNTY
GREEN BAY, WISCONSIN

OPERATION AND MAINTENANCE MANUAL

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CAT ISLAND CHAINS
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GREEN BAY, WISCONSIN

OPERATION AND MAINTENANCE MANUAL

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PART I – GENERAL

1. INTRODUCTION

A. **AUTHORITY.** Section 1 of the Act of June 23, 1866, Chapter 138, 39th Congress; Section 1 of the Act of July 5, 1884, Chapter 229, 48th Congress; Section 1 of the Act of July 13, 1892, Chapter 158, 52nd Congress; Section 1 of the Rivers and Harbors Act of 1910, Public Law 61-264 (June 26, 1910); Section 1 of the Rivers and Harbors Act of 1917, Public Law 65-37 (August 8, 1917); Section 1 of the Rivers and Harbors Act of 1925, Public Law 68-585 (March 3, 1925); Section 1 of the Rivers and Harbors Act of 1935, Public Law 74-409 (August 30, 1935); Section 1 of the Rivers and Harbors Act of 1937, Public Law 75-392 (August 26, 1937); Section 2 of the Rivers and Harbors Act of 1945, Public Law 79-14 (March 2, 1945); Section 101 of the Rivers and Harbors Act of 1962, Public Law 87-874 (October 23, 1962); and, Section 3173 of the Water Resources Development Act of 2007, Public Law 110-114 (November 8, 2007);

B. **PURPOSE**. To provide guidance and instruction to project personnel for proper operation and maintenance of Cat Island Chains wave barrier.

C. PARTS OF MANUAL

Part I - General
1. Introduction
2. Project Description
3. Non-Federal Cooperation

Part II- Operation and Maintenance
1. General Procedures
2. Features of the Project
3. Maintenance
4. Operation

D. SCOPE OF MANUAL. This manual is to provide essential Operation and maintenance instructions for trained project and management personnel.

2. PROJECT DESCRIPTION

A. **AUTHORIZATION AND DESCRIPTION**. The Cat Island Chain is in the Port of Green Bay, within the City of Green Bay, Brown County, Wisconsin was constructed under the authority granted to the Chief of Engineers by Section 3173 of the Water Resources Development Act of 2007, Public Law 110-114 (November 8, 2007)

B. **DESCRIPTION OF THE PROJECT** This project begins at the end of Bay

shore Rd. A 3,918 ft wave barrier was constructed with the purpose to create three islands; West, Central, and East Island. These islands will be built up over time using the material dredged from the Federal Channel in the Green Bay Harbor. The new constructed wave barrier has a total length of 4.3 miles containing Armor stone, Core stone and Gravel. The wave barrier is built on the existing lake bottom with Core stone to the height of 8 ft. The side slopes of the wave barrier are constructed of Armor stone with a slope of 1V on 2H. The top portion of the wave barrier is a 12ft wide gravel road that will be used as a haul road for transporting dredged material from the offload platform to the selected island and as a means to conduct annual maintenance operations. The offload platform is located on the southernmost part of the wave barrier. The offloading platform size is 330ft x 42ft and is constructed of Steel Sheet Piling. In order to maintain lake flow through the wave barrier two (2) 80ft long reinforced concrete culverts where constructed. Two 24" DIA culverts at stations 30+50, 103+46 and an 84" DIA culvert at station 75+00. The use of an 84" DIA culvert was used so that recreational kayakers' will be able to safely cross the wave barrier.

C. HISTORY In the early 1970's, the Cat Island Chain severely eroded leaving a series of shoals mostly below the low water datum. The original island named "Cat Island Archipelago" occupied this location, extending 2.5 miles, west to east, halfway across the bay. The former Cat Island Archipelago consisted, from west to east, of the two Bass Islands, Cat Island, and Grassy Island. This project focuses on the sites of the former Bass Islands and Cat Island. The site of Grassy Island, which lies east of the federal navigation channel, is not a part of this project.

D. PROJECT CONTRACTS. The work was accomplished under Detroit District Contract no. W911XK-12-C-0013, awarded on 09 September 2012 to Michaels Foundations, 817 West Main Street, Brownsville, WI 53006-0128. Construction was initiated on 23 October 2012 and completed on 19 December 2013. There is an upcoming FY 14 dredging contract that will be awarded in May 2014 and the placement of dredged material will be in the West Cell. Once, a cell is filled to capacity it then can be transferred over to Brown County.

3. NON-FEDERAL COOPERATION

A. **PROJECT COOPERATION REQUIREMENTS**. The project was

constructed subject to the condition that non-Federal interests give assurances satisfactory to the Secretary of the Army, that they will:

(1) Provide without cost to the Government, during the period of construction, all lands, easements, rights-of-way, and utility and facility alterations and relocations necessary for the construction and maintenance of the project, regardless of their value.

(2) The cost share is 75/25 with a requirement that Brown County to provide 10% in cash payable over 30 years ultimately ending up in a 65/35 split.

(3) Hold and save the Government free from claims for damages that may result from construction and subsequent maintenance of the project except damages due to the fault or negligence of the Government or its contractors.

(4) Operate, maintain, and rehabilitate the project upon turnover of all or part of the facility without cost to the Government, in accordance with regulations and directives prescribed by the Secretary of the Army.

B. ASSURANCE FURNISHED BY NON-FEDERAL INTERESTS. By signed Project Partnership Agreement (PPA) between the Department of the Army and the County of Brown, Wisconsin dated 24 July 2012.

PART II - OPERATION AND MAINTENANCE

1. GENERAL PROCEDURES

A. **REGULATIONS**. ER 1110-2-2902, Prescribed Procedures for Maintenance and Operations of Shore Protection Work, contains regulations for the operation and maintenance of protection works (see Appendix C).

B. **PROCEDURE FOR INSURING COMPLIANCE WITH REGULATIONS**. The District Engineer will be kept informed as to the extent of compliance with approved regulations for operation and maintenance through regular periodic inspection of the project and through careful analysis of the semi-annual reports which the operating and maintaining agency shall submit.

The District Engineer's views as to any measures required to conform to the approved regulations will be furnished to Brown County for operations and maintenance. Where the District Engineer has been unable to arrange satisfactory compliance, or where there is question or disagreement as to the measures required for compliance, a report of the circumstances, together with the recommendations of the Division and District Engineers, will be submitted to the Chief of Engineers for consideration. The District Engineer or his authorized representatives shall have access at all times to all portions of the project works.

C. **OPERATIONS AND MAINTENANCE MANUAL**. This Operation and Maintenance Manual has been prepared and is furnished to the Port of Green Bay, Brown County, Green Bay, WI and other responsible authorities. The manual provides information and advice for their use in carrying out their project operation and maintenance obligation after turnover of all or part of the facility.

D. **SUPERINTENDENT**. The Port of Green Bay, Brown County will designate an official called the “Superintendent” who will be responsible for carrying out the provisions for maintenance and operation of the protection project. The Superintendent shall be designated from available personnel, and his or her name, address and telephone number shall be given to the District Engineer at the mailing address given in paragraph E below. In case

of any change in the Superintendent, the District Engineer shall be notified. In addition to the duties which are outlined in other portions of the manual, the Superintendent has a general responsibility for developing and maintaining an organization which can efficiently carry out the maintenance and operation of all structures and facilities at the time of an emergency and the inspection and maintenance of the project works at all other times.

E. **IMPROVEMENTS OR ALTERATIONS TO THE PROJECT**. Drawings or prints of proposed improvements or alterations to the project structures are required and should be submitted, in triplicate, to the District Engineer, U.S. Army Engineer District, Detroit, Corps of Engineers, 477 Michigan Ave, 7th floor, Detroit, Michigan, 48226. Submission of the drawings should be sufficiently in advance of initiation of the proposed construction to permit adequate study and consideration of the work.

Drawings, in duplicate, or reproducible prints, showing any improvements or alteration as finally constructed should be furnished to the District Engineer after completion of the work.

F. **SEMI-ANNUAL REPORT TO THE CORPS OF ENGINEERS**. A semi-annual report shall be submitted to the District Engineer, U.S. Army Engineer District, Detroit, Corps of Engineers, 477 Michigan Ave, 7th floor, Detroit, Michigan, 48226. The report should cover inspection and maintenance of the protective works and should include dated inspection check lists or report sheets (see Appendix A) made during the period covered by the report. In case repairs have been made, either temporary or permanent, the nature and dates of construction are pertinent and should be included in the report, prints of any photographs showing the protective works during storms/floods creating high waves/water levels are desired whenever available.

G. **PERIODIC INSPECTION**. Periodic inspections as required should be made at the following times:

(1) Immediately following each major lake flood stage with high quantities of rain and or snow melt.
(2) Otherwise at periods not exceeding six (6) months to be scheduled in the spring and fall.
(3) At such other times as may be deemed necessary by the

Superintendent or the District Engineer or his authorized representative.

H. **JOINT INSPECTION**. It is desired that a joint inspection of the works be made annually by the District Engineer, or his authorized representatives and the Superintendent. Arrangements for this inspection should be initiated by the Superintendent. Points of contact are listed in Appendix E.

I. **CHECK SHEETS**. To facilitate inspection, either routine or emergency, a suggested form of check sheet is shown in Appendix A. This, or a similar form, should be used in each inspection to insure that no feature of the protective system is overlooked. Any items requiring repairs should be noted thereon; satisfactory items should be indicated by a check.

2. FEATURES OF THE PROJECT

A. **PROTECTIVE WORKS**. The protective works project is the reconstruction of the Cat Island chains which will restore approximately 1,440 acres of shallow water and wetland habitat and establish approximately 274 acres of island habitat. This project consists of a 4.3 miles of Wave barrier built 8ft high of Core stone with a 12ft wide gravel road on top. The side slopes are1V:2H and consists of Armor Stone. Materials used in construction are required in maintenance of the project must meet the following specifications below and attached in Appendix B.

1. Geo-textile furnished for bank protection is a non-woven pervious sheet of plastic yarn as defined by ASTM D 123. The geo-textile equals or exceeds the minimum average roll values listed in Table 1 of geo-textile specifications section 31 05 22 and conforms to the minimum physical requirements for drainage geo-textile as defined by ASTM D -4632, 4833, 4533, 4491, 4751, and 4355 test methods.

2. Government Furnished Stone (See Appendix B SECTION 35 31 19.45)
    a. Armor Stone: The government furnished Armor Stone has a minimum of 16 inches each and a maximum of 32 inches each and shall be free of fines. At least 75% of the stone shall be greater than 24 inches. USACE has stockpiled additional armor stone, which is located on Leg E-1 for future maintenance and repairs.

    b. Core Stone: The government furnished Core stone is well graded 6” minus Breaker Run quarried stone meeting WIDOT 2011 Stand

Specifications, section 301, part 301.2.2.

c. Gravel:

Sieve Size	% Passing
1 ¼”	95-100%
¾”	70-93%
3/8”	45-80%
No. 4	30-63%
No. 10	20-48%
No. 40	8-28%

3. Reinforced Concrete Culverts – (2) 24” DIA Trench and (1) 84” DIA Trench (Shown on Appendix B Drawings)

B. **SOURCE OF MATERIALS**. The Armor Stone, Rip Rap and Corestone source is: Michels Materials, Waterloo Quarry, Brownsville, WI.

3. MAINTENANCE

A. PROTECTIVE STRUCTURES

The possibility of one storm closely following another requires that protective structures be maintained to the extent practicable in a state of readiness. Measures to eliminate unauthorized encroachments and to affect repairs found necessary by inspection shall be undertaken immediately. All repairs shall be accomplished by methods acceptable to the District Commander or an authorized representative. The Superintendent shall insure the following maintenance is carried out expeditiously:

(a) Causes of seepage, saturated areas, or scour which endanger the stability or functioning of structures is removed.

(b) Areas of undue settlement or material loss are filled.

(c) Trash and debris adjacent to the structure are removed and disposed of properly.

(d) Bank caving, toe scour, or flanking erosion which endangers structure stability or functioning is remedied. The stone should be carefully examined for apparent movements or loss of stone. Placing of additional stone may be necessary. If there has been movement of stone, the bank should be examined for erosion and, if damaged, shall be repaired before placement of stone.

(e) Flared end sections/outlet pipes are repaired or replaced as needed and maintained in good working condition.

4. OPERATIONS

The Superintendent shall inspect the structures incorporated into the protection project prior to the storm season, immediately following each major storm, and otherwise at intervals not exceeding 90 days. During such inspections the Superintendent should be certain that:

(a) No seepage, saturated areas, or scour are endangering the structure.

(b) No undue settlement has occurred which affects the stability of the structure.

(c) There are no encroachments upon the structure or its right-of-way which might endanger the structure or hinder its function or repair.

(d) Care is being exercised to prevent accumulation of trash and debris adjacent to the structures.

(e) No bank caving, toe scour, or flanking erosion exist which may endanger stability or functioning of the structures.

(f) Visual observation should be made, if possible, of wave/high water action during storms/flood events to note any locations which may be damaged or that have been damaged. When the Superintendent or his representative anticipates that damage may occur, all necessary measures should be taken to provide protection to these areas where and when possible. All damaged areas should be repaired or protected to prevent further damage. The critical periods during which storms can be expected to occur will generally be during the spring and fall seasons, although severe storms could occur at any time.

(g) No excessive loss of materials such as stones or armor units exist that may endanger stability or functioning of the structures.

(h) Flared end sections/outlet pipes are repaired or replaced as needed and maintained in good working condition.

5. APPROVAL

The operations and maintenance procedures presented in the manual are approved as the basis for operating and maintaining the wave barrier of Cat Island Chains in Brown County, City of Green Bay, Wisconsin.

William Merte, PE
Chief, Cost & General Engineering Branch

Operation and Maintenance Manual Cat Island Chain Restoration, Green Bay, WI

APPENDIX A:
SAMPLE INSPECTION CHECK SHEET

March 2014

US Army Corps
of Engineers
Detroit District

CAT ISLAND CHAIN RESTORATION
GREEN BAY, WISCONSIN ANNUAL MAINTENANCE REPORT

Item No.	DESCRIPTION	Condition (Check one)				
		None	Good	Fair	Poor	Yes
	GENERAL					
1	Weed, Brush and Tree Control					
2	Unauthorized Encroachments on Right of Way					
3	Unauthorized Changes					
	BANKS					
4	Bank Slopes - Settlement					
5	Bank Slopes - Sloughing					
6	Armor Stone - Condition					
7	Gravel Condition					
	Outlet Pipes					
8	End Sections - Condition					
9	OTHER REMARKS:					

LEGEND:

Condition Not Applicable

[x] If the square is marked with an "X", furnish detailed description in "Other Remarks" or on a separate sheet and attach to this report.

SUBMITTED BY: _____ DATE: _____

Operation and Maintenance Manual Cat Island Chain Restoration, Green Bay, WI

APPENDIX B:
AS-BUILT CONDITION DRAWINGS & TECHNICAL SPECIFICATIONS

March 2014

US Army Corps of Engineers
Detroit District

AS-BUILT CROSS SECTIONS FOR DRAWINGS

CAT ISLAND CHAIN - 2012 WAVE BARRIER CONSTRUCTION

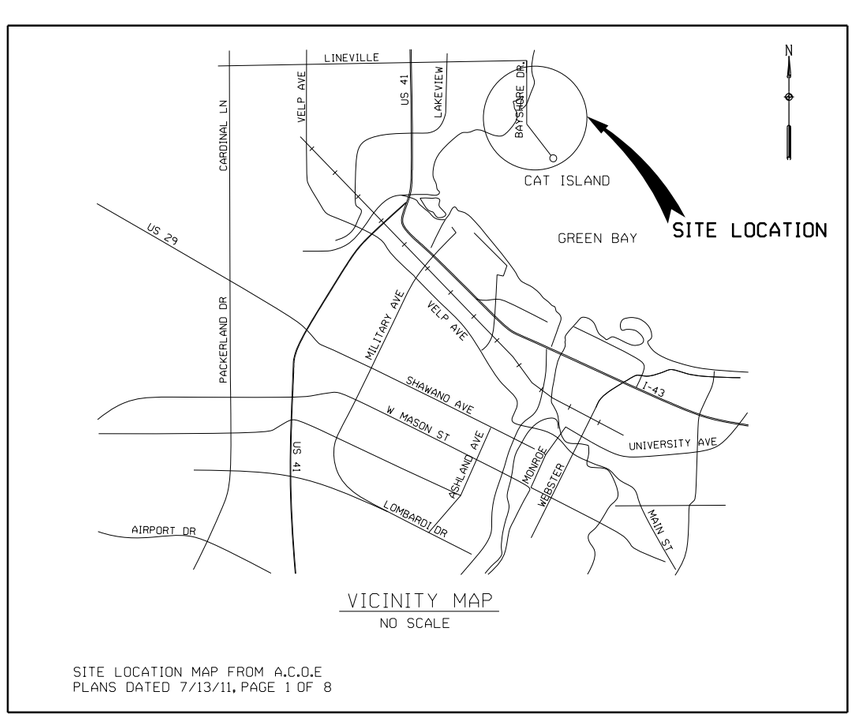
CONTRACT "1567"

GREEN BAY, BROWN COUNTY, WISCONSIN
OCTOBER, 2012

Prepared By

Foth
Foth Infrastructure & Environment, LLC

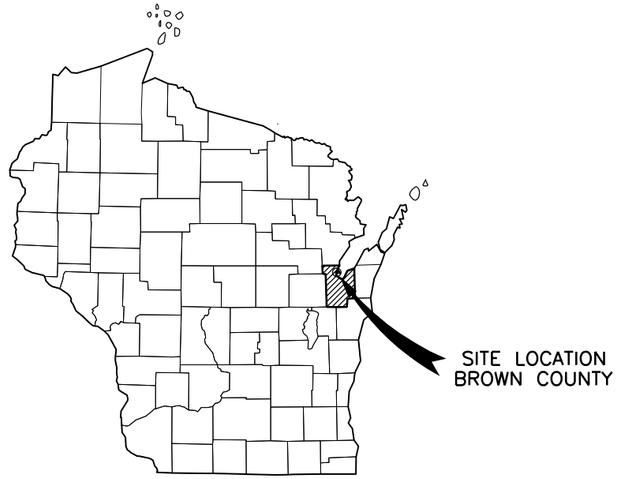
12B100



VICINITY MAP
NO SCALE

SITE LOCATION MAP FROM A.C.O.E
PLANS DATED 7/13/11, PAGE 1 OF 8

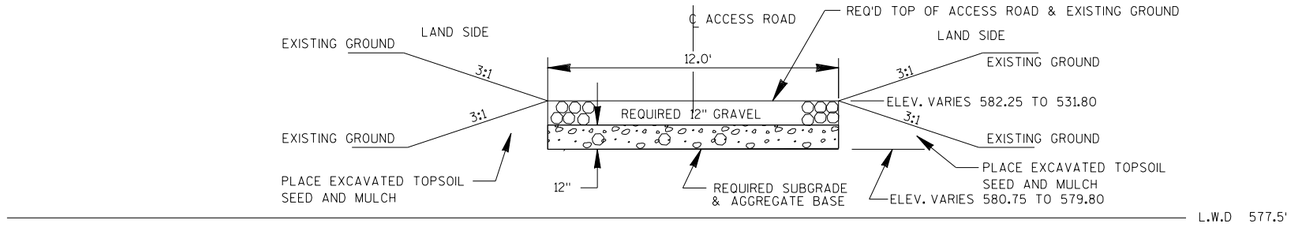
SITE LOCATION MAP
T. 24 N. , R. 20 W.



COUNTY LOCATION MAP
NOT TO SCALE

INDEX	
DRAWING NO.	DESCRIPTION
1	TITLE SHEET
2	TYPICAL SECTIONS
3	TYPICAL SECTIONS
4–12	CROSS SECTIONS

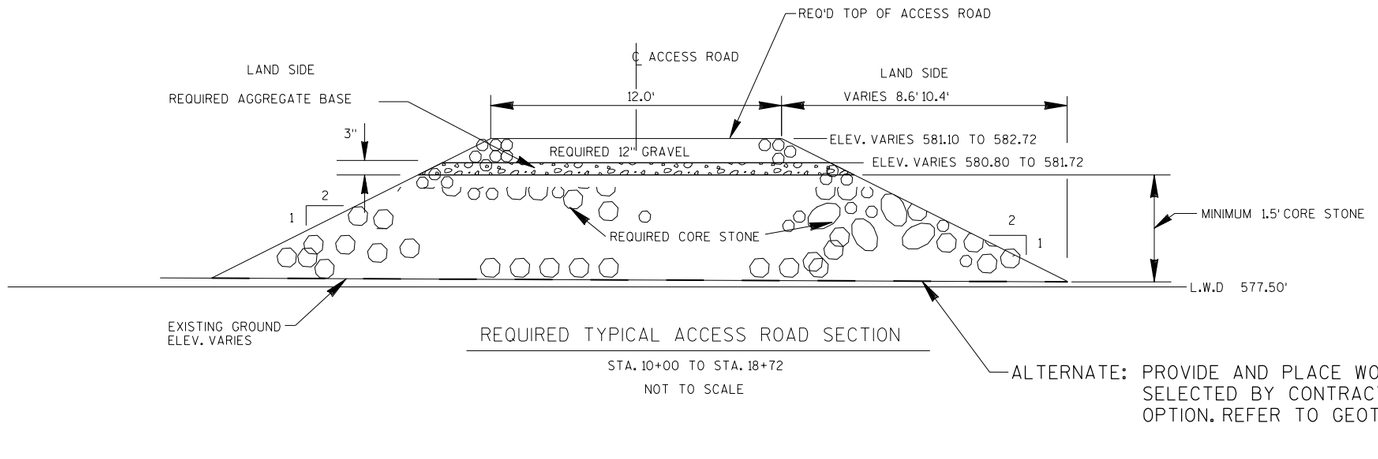
NOTE: THESE DRAWINGS ARE ACCOMPANIED BY THE PROJECT MANUAL AND PERMIT RENEWAL DOCUMENT OF THE SAME TITLE. THESE DOCUMENTS ARE INTERRELATED AND INTENDED TO BE USED TOGETHER.



REQUIRED TYPICAL ACCESS ROAD SECTION

STA. 1+45 TO STA. 10+00

NOT TO SCALE

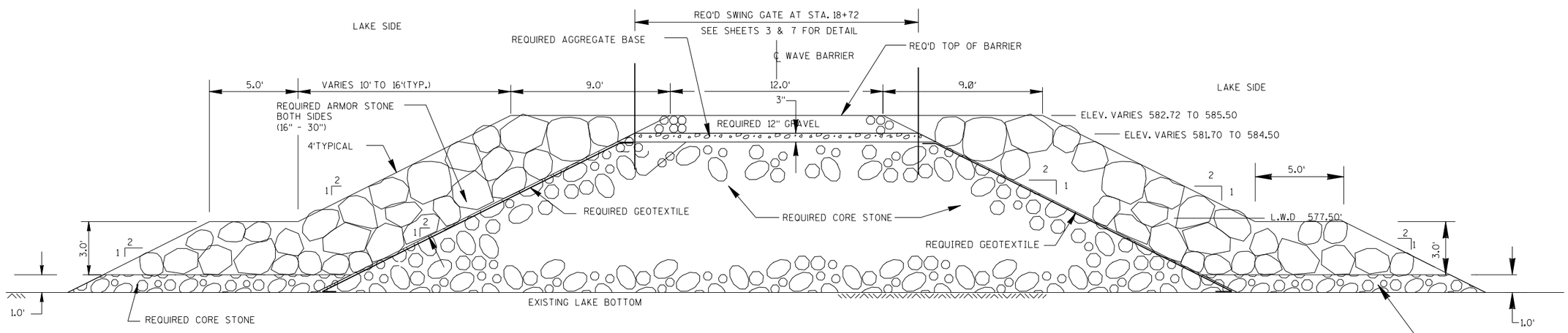


REQUIRED TYPICAL ACCESS ROAD SECTION

STA. 10+00 TO STA. 18+72

NOT TO SCALE

ALTERNATE: PROVIDE AND PLACE WOVEN GEOTEXTILE OR GEOGRID SELECTED BY CONTRACTOR AT CONTRACTOR'S OPTION. REFER TO GEOTECHNICAL REPORT.



REQUIRED TYPICAL WAVE BARRIER SECTION

STA. 18+72 TO STA. 40+00 WAVE BARRIER

NOT TO SCALE

NOTE: TYPICAL SECTIONS FROM A.C.O.E. PLANS DATED 7/13/11, PAGE 5 OF 8, EXCEPT AS MODIFIED.

Foth Infrastructure & Environment, LLC
2737 South Ridge Road, Suite 600
P.O. Box 12326
Green Bay, WI 54307-2326
Phone: 920-497-2500 Fax: 920-497-8516

AS-BUILT CROSS SECTIONS FOR 2012 WAVE BARRIER CONSTRUCTION CONTRACT "1567"

BROWN COUNTY WISCONSIN

NO.	BY	DATE	REVISIONS DESCRIPTION
1			
2			
3			
4			

RECORD DRAWING OF COMPLETED CONSTRUCTION BY: _____

RECORD DRAWINGS OF COMPLETED CONSTRUCTION CONFORMING TO CONTRACTOR AND/OR OWNERS RECORDS. BY _____ DATE _____

DATE OF PREPARATION

	BY	DATE
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DRAWN	JOW	10/9/2012
DESIGNED		
CHECKED	REM	10/9/2012

TYPICAL SECTIONS

NOT TO SCALE

PROJECT ID: 12B100

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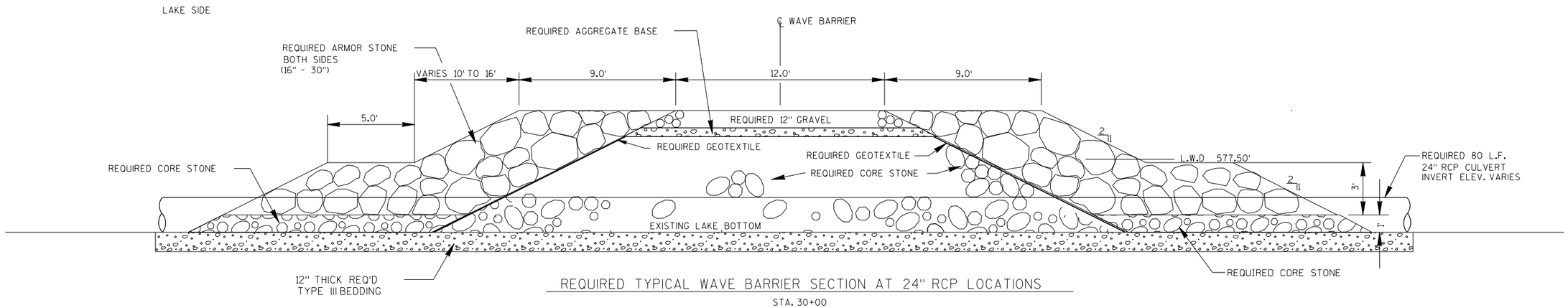
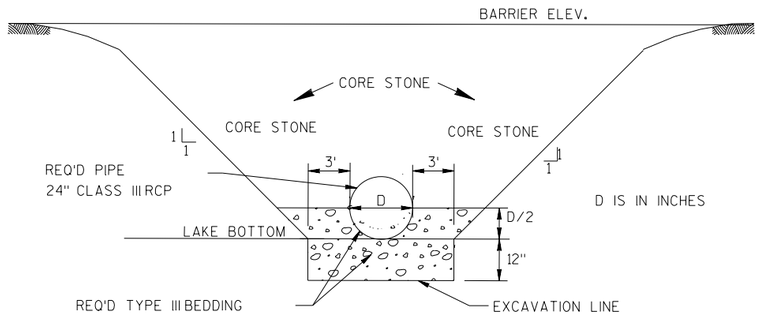


REQUIRED TYPICAL WAVE BARRIER SECTION AT 24" RCP LOCATIONS

STA. 30+00

NOT TO SCALE

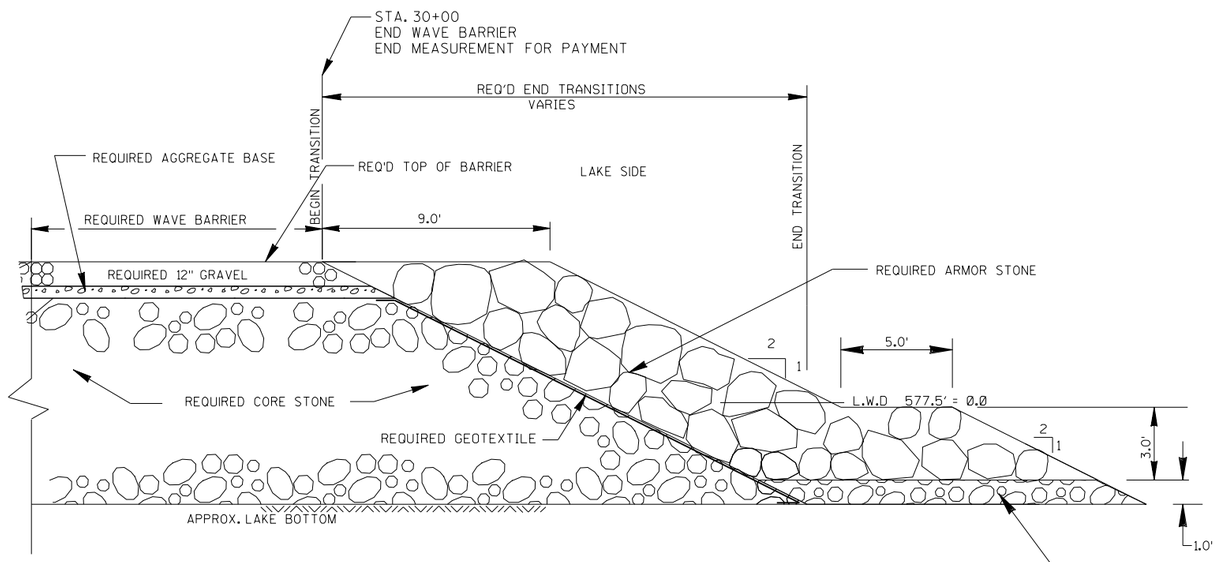
1. IF WAVE BARRIER ENDS AT STA. 30+00 THE CULVERT IS NOT TO BE INSTALLED.
2. IF WAVE BARRIER EXTENDS BEYOND STA. 30+00 THE CULVERT IS TO BE INSTALLED.



TYP REQ'D TRENCH

DETAIL FOR 24" RCPS

NOT TO SCALE



REQUIRED END TRANSITIONS DETAIL
(CUT LONGITUDINALLY)

NOT TO SCALE

STA. 30+00

NOTE: TYPICAL SECTIONS FROM A.C.O.E. PLANS DATED 7/13/11, PAGE 6 OF 8, EXCEPT AS MODIFIED AND NOTED.

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AS-BUILT CROSS SECTIONS FOR 2012 WAVE BARRIER CONSTRUCTION CONTRACT "1567"

BROWN COUNTY WISCONSIN

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TYPICAL SECTIONS

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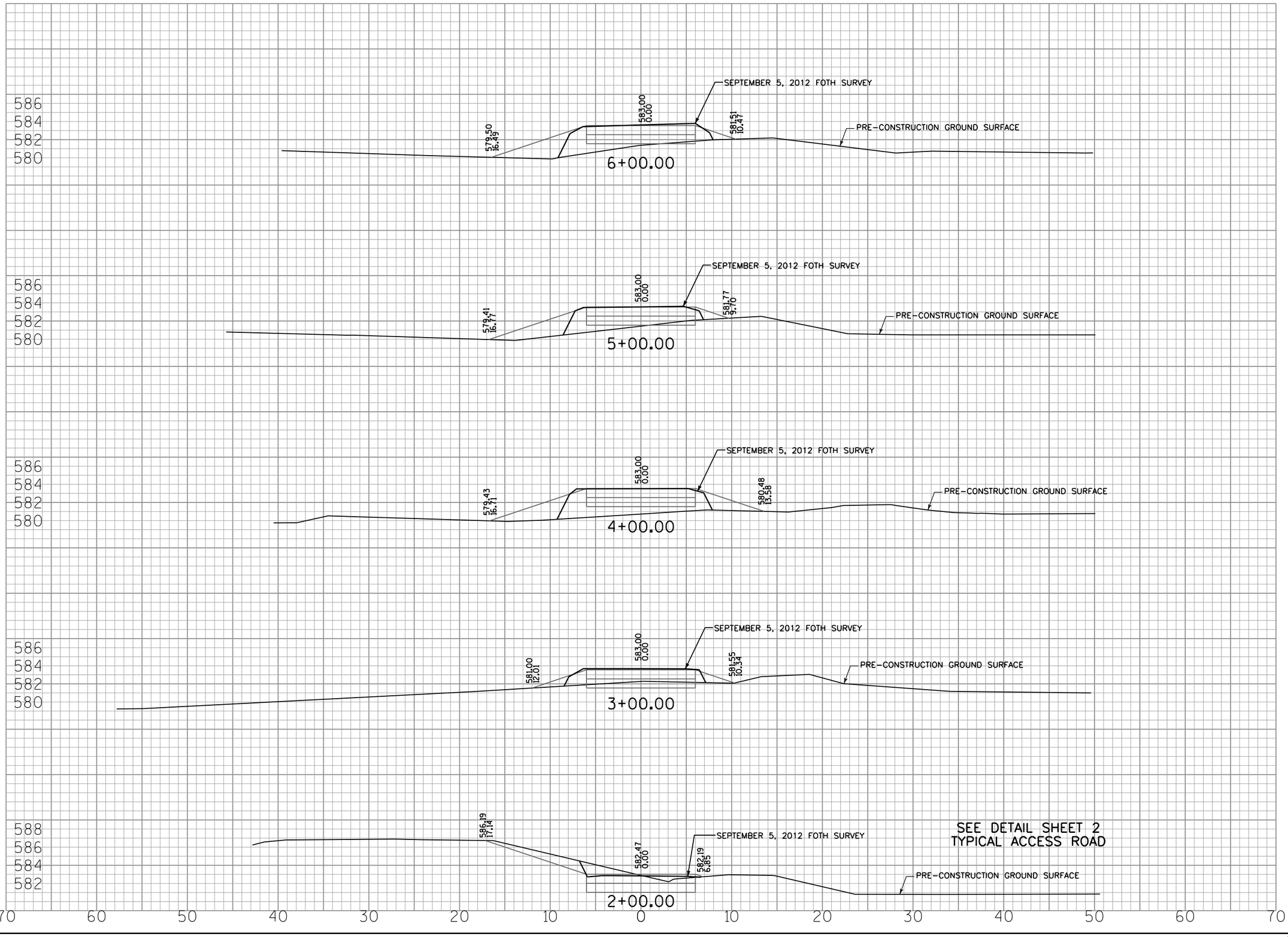

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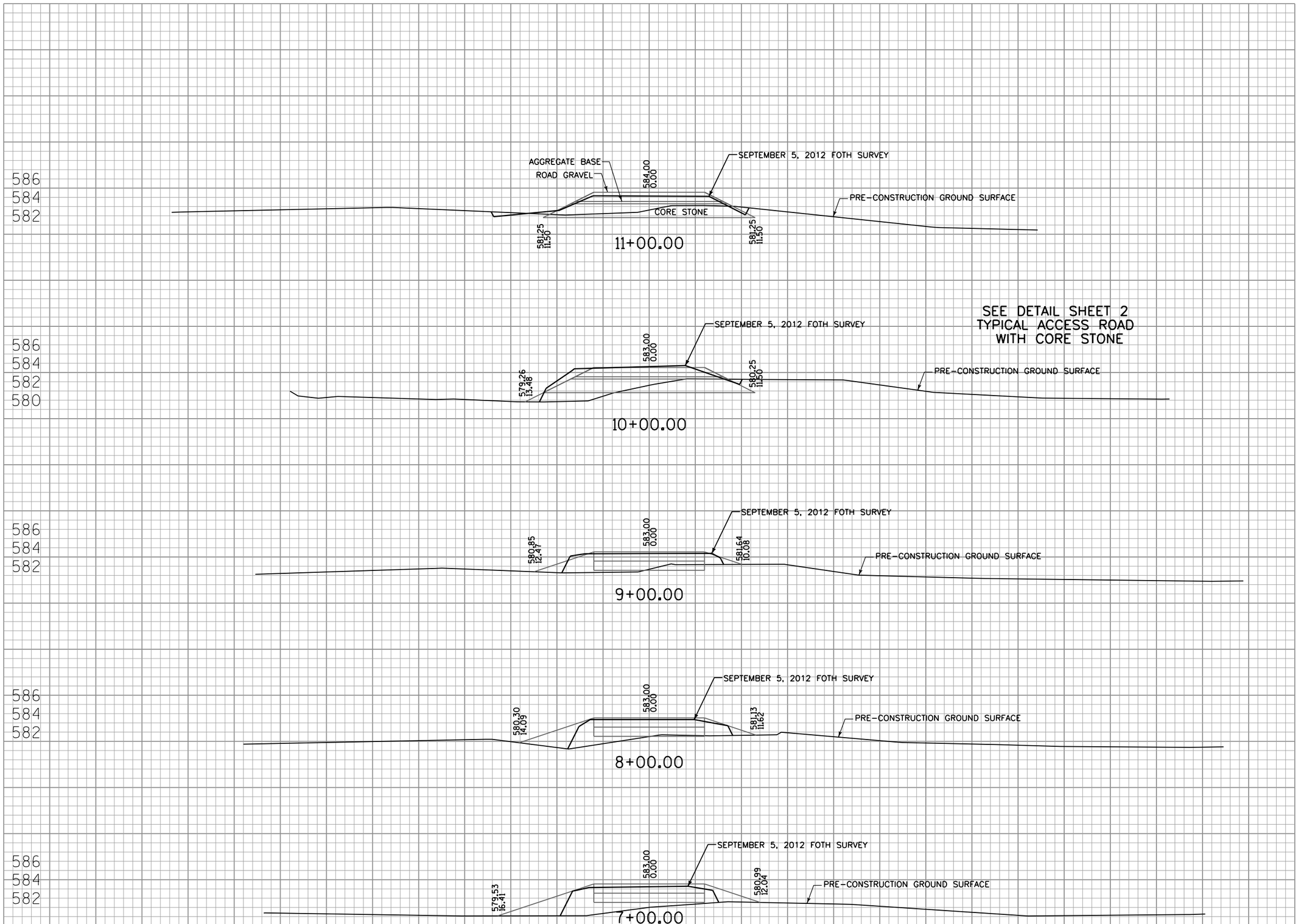

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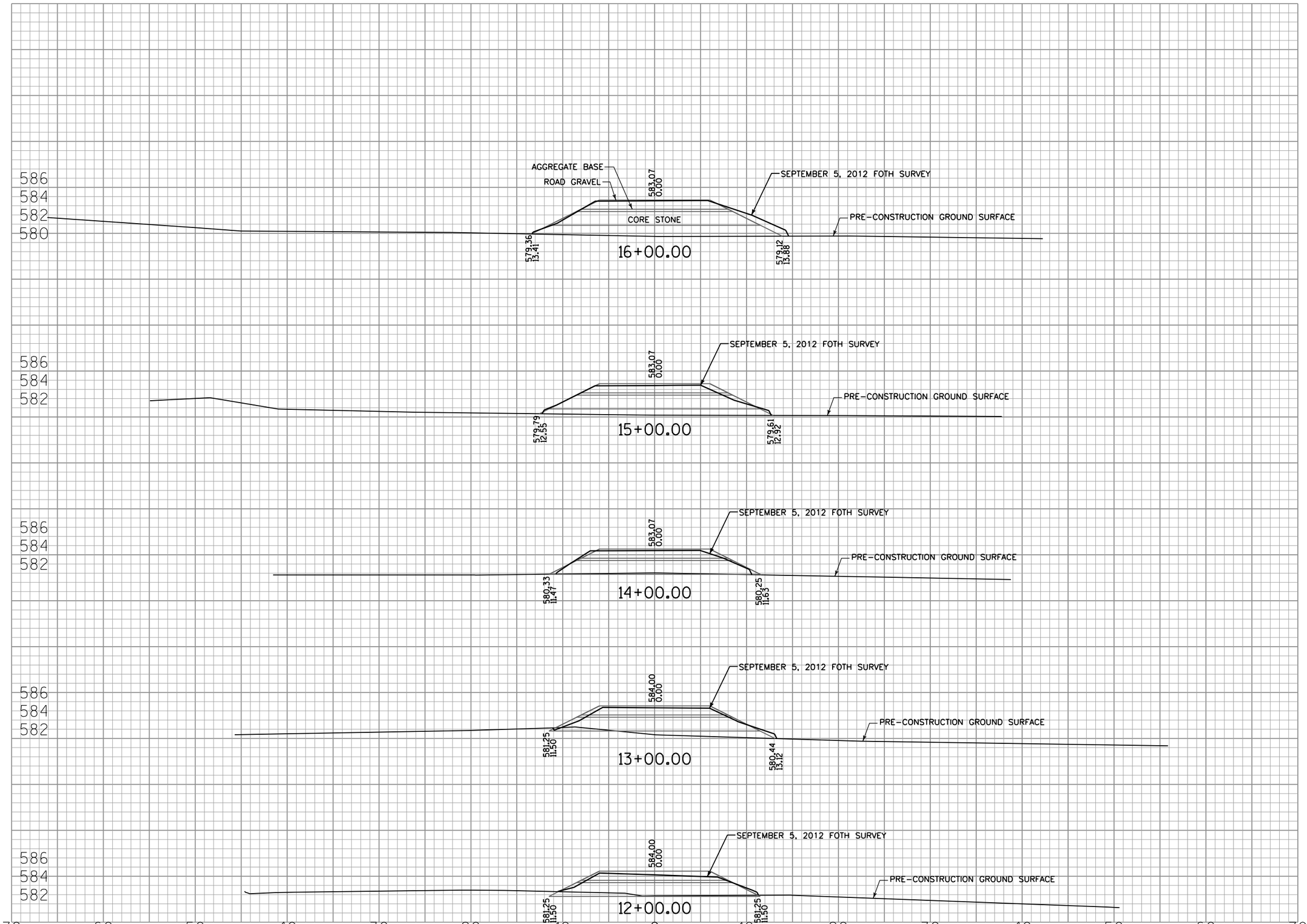

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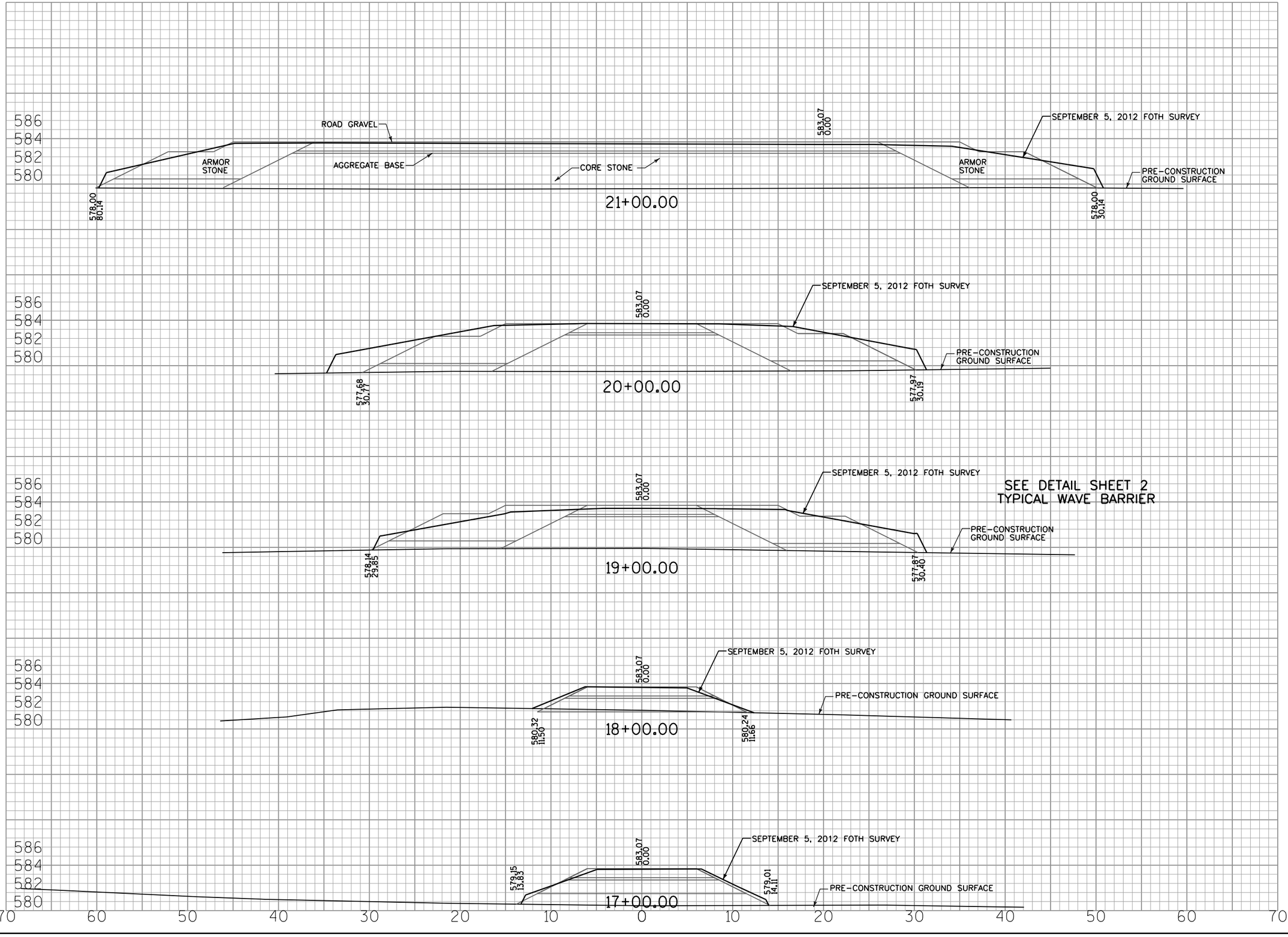

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4			

RECORD DRAWING OF COMPLETED CONSTRUCTION BY:

RECORD DRAWINGS OF COMPLETED CONSTRUCTION CONFORMING TO CONTRACTOR AND/OR OWNERS RECORDS.

BY _____

DATE _____

DATE OF PREPARATION

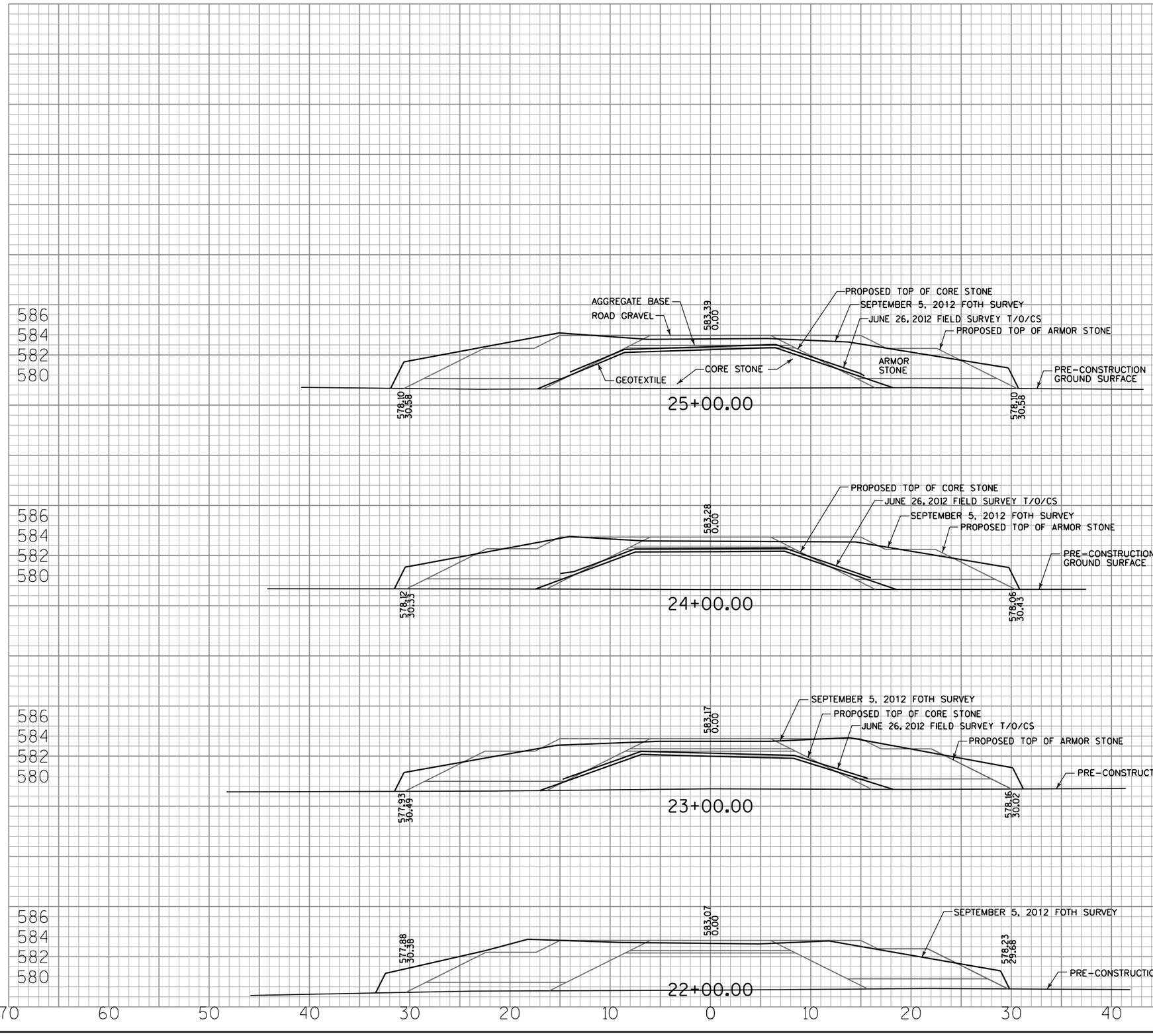
	BY	DATE
SURVEYED	BLK	9/5/2012
DRAWN	JOW	10/9/2012
DESIGNED		
CHECKED	REM	10/9/2012

CROSS SECTIONS

AS SHOWN

PROJECT ID: 12B100

7



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10/11/2012 11:46:05 AM jow

Foth
Foth Infrastructure & Environment, LLC
2737 South Ridge Road, Suite 600
P.O. Box 12326
Green Bay, WI 54307-2326
Phone: 920-497-2500 Fax: 920-497-8516

AS-BUILT CROSS SECTIONS FOR 2012 WAVE BARRIER CONSTRUCTION CONTRACT "1567"

BROWN COUNTY WISCONSIN

REVISIONS NO.	BY	DATE	DESCRIPTION
1			
2			
3			
4			

RECORD DRAWING OF COMPLETED CONSTRUCTION BY:
RECORD DRAWINGS OF COMPLETED CONSTRUCTION CONFORMING TO CONTRACTOR AND/OR OWNERS RECORDS.
BY _____
DATE _____

DATE OF PREPARATION		
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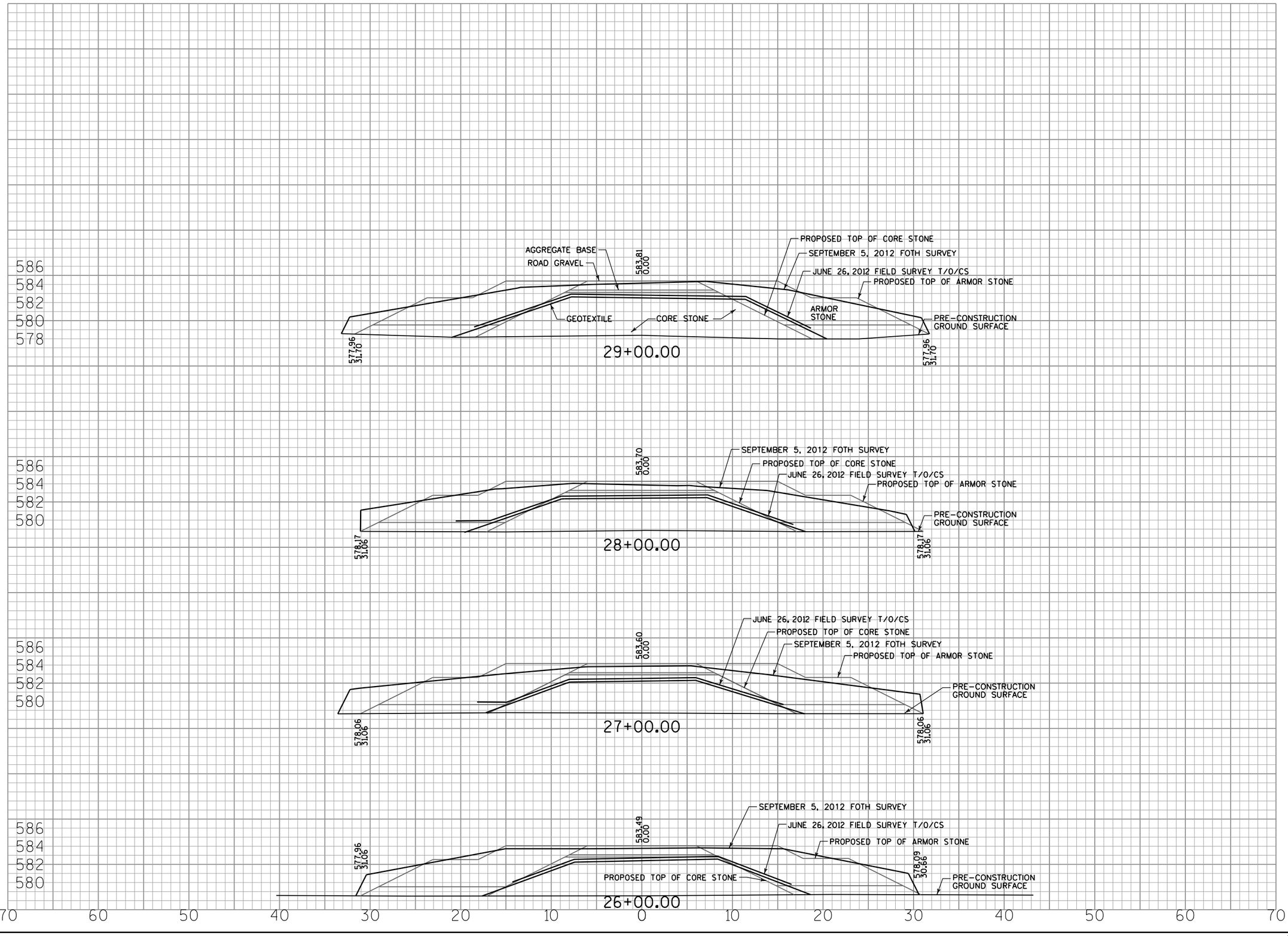
DRAWN	JOW	10/9/2012
DESIGNED		
CHECKED	REM	10/9/2012

CROSS SECTIONS

AS SHOWN

PROJECT ID: 12B100

8



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2737 South Ridge Road, Suite 600
P.O. Box 12326
Green Bay, WI 54307-2326
Phone: 920-497-2500 Fax: 920-497-8516

AS-BUILT CROSS SECTIONS FOR 2012 WAVE BARRIER CONSTRUCTION CONTRACT "1567"

BROWN COUNTY WISCONSIN

REVISIONS NO.	BY	DATE	DESCRIPTION
1			
2			
3			
4			

RECORD DRAWING OF COMPLETED CONSTRUCTION BY:

RECORD DRAWINGS OF COMPLETED CONSTRUCTION CONFORMING TO CONTRACTOR AND/OR OWNERS RECORDS.

BY _____ DATE _____

DATE OF PREPARATION

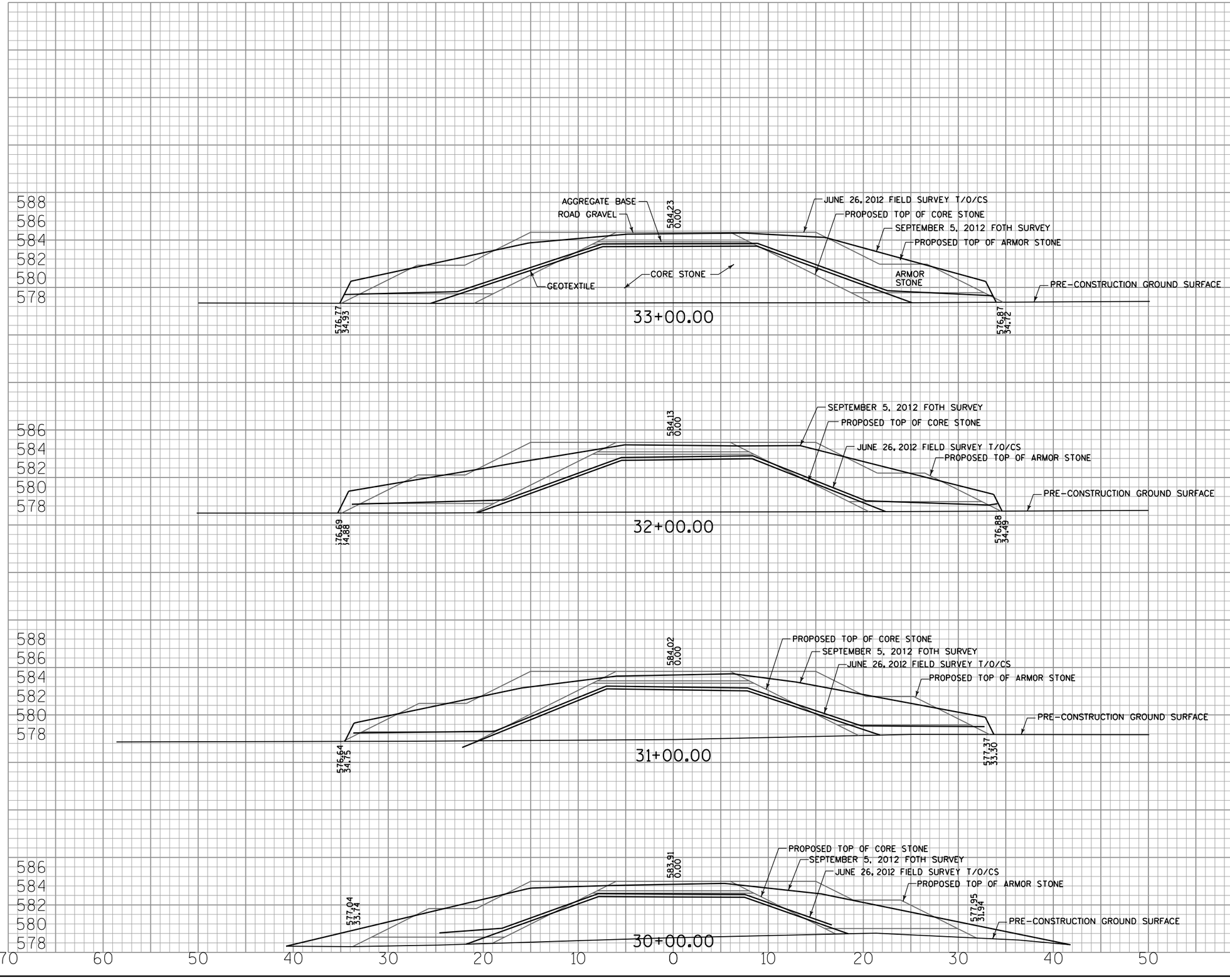
	BY	DATE
SURVEYED	BLK	9/5/2012
DRAWN	JOW	10/9/2012
DESIGNED		
CHECKED	REM	10/9/2012

CROSS SECTIONS

AS SHOWN

PROJECT ID: 12B100

9



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Foth Infrastructure & Environment, LLC
2737 South Ridge Road, Suite 600
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Phone: 920-497-2500 Fax: 920-497-8516

AS-BUILT CROSS SECTIONS FOR 2012 WAVE BARRIER CONSTRUCTION CONTRACT "1567"

BROWN COUNTY WISCONSIN

REVISIONS NO.	BY	DATE	DESCRIPTION
1			
2			
3			
4			

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BY _____

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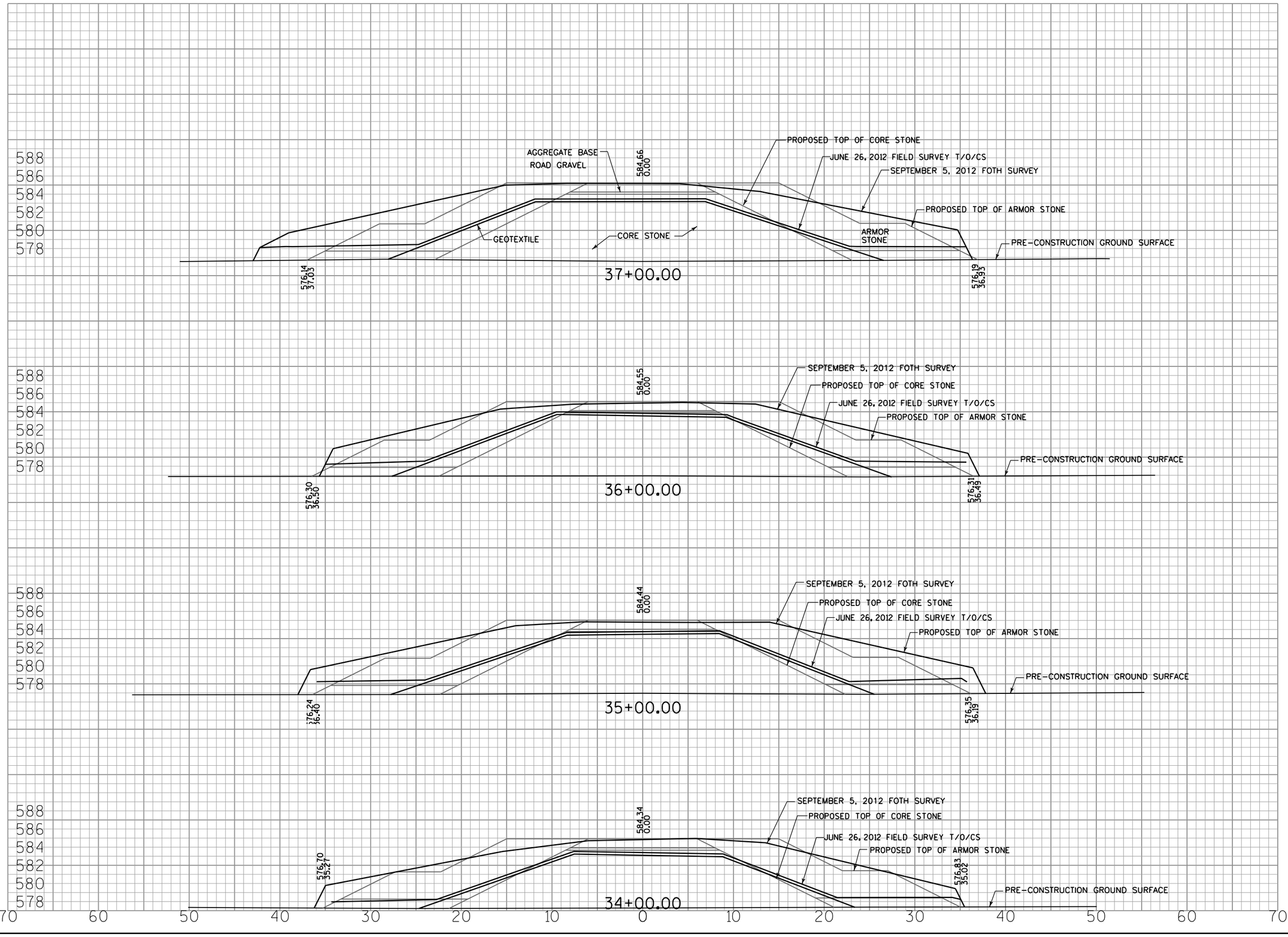
DRAWN	JOW	10/9/2012
DESIGNED		
CHECKED	REM	10/9/2012

CROSS SECTIONS

AS SHOWN

PROJECT ID: 12B100

10



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10/11/2012 1:47:13 AM jow

Foth Infrastructure & Environment, LLC
2737 South Ridge Road, Suite 600
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Green Bay, WI 54307-2326
Phone: 920-497-2500 Fax: 920-497-8516

AS-BUILT CROSS SECTIONS FOR 2012 WAVE BARRIER CONSTRUCTION CONTRACT "1567"

BROWN COUNTY WISCONSIN

REVISIONS

NO.	BY	DATE	DESCRIPTION
1			
2			
3			
4			

RECORD DRAWING OF COMPLETED CONSTRUCTION BY:

RECORD DRAWINGS OF COMPLETED CONSTRUCTION CONFORMING TO CONTRACTOR AND/OR OWNERS RECORDS.

BY _____

DATE _____

DATE OF PREPARATION

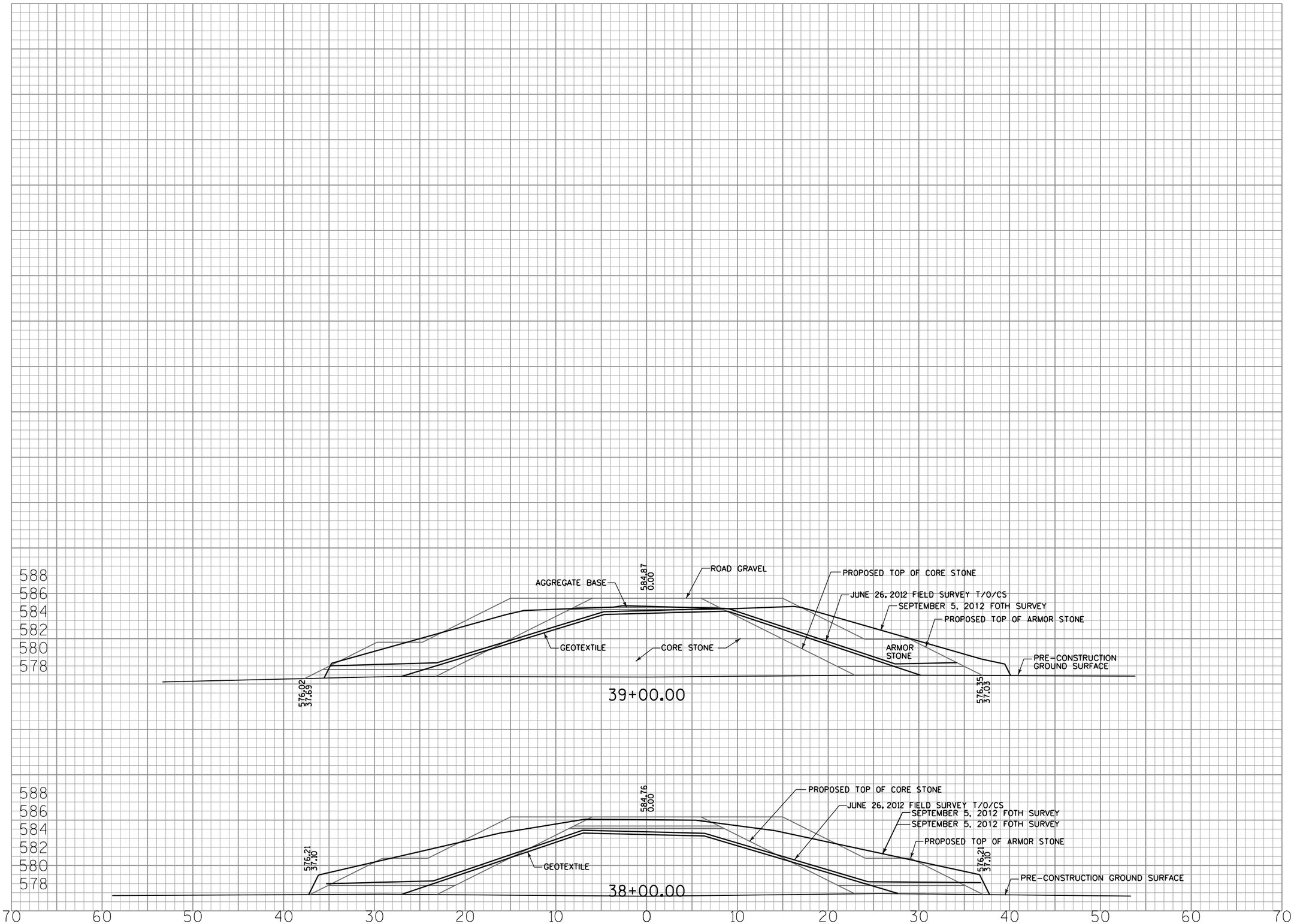
	BY	DATE
SURVEYED	BLK	9/5/2012
DRAWN	JOW	10/9/2012
DESIGNED		
CHECKED	REM	10/9/2012

CROSS SECTIONS

AS SHOWN

PROJECT ID: 12B100

11



AS-BUILT CROSS SECTIONS FOR 2012 WAVE BARRIER CONSTRUCTION CONTRACT "1567"

BROWN COUNTY WISCONSIN

Foth

Foth Infrastructure & Environment, LLC
2737 South Ridge Road, Suite 600
P.O. Box 12326
Green Bay, WI 54307-2326
Phone: 920-497-2500 Fax: 920-497-8516

REVISIONS			
NO.	BY	DATE	DESCRIPTION
1			
2			
3			
4			

RECORD DRAWING OF COMPLETED CONSTRUCTION BY:

RECORD DRAWINGS OF COMPLETED CONSTRUCTION CONFORMING TO CONTRACTOR AND/OR OWNERS RECORDS.

BY _____

DATE _____

DATE OF PREPARATION

	BY	DATE
SURVEYED	BLK	9/5/2012
DRAWN	JOW	10/9/2012
DESIGNED		
CHECKED	REM	10/9/2012

CROSS SECTIONS

AS SHOWN

PROJECT ID: 12B100

12

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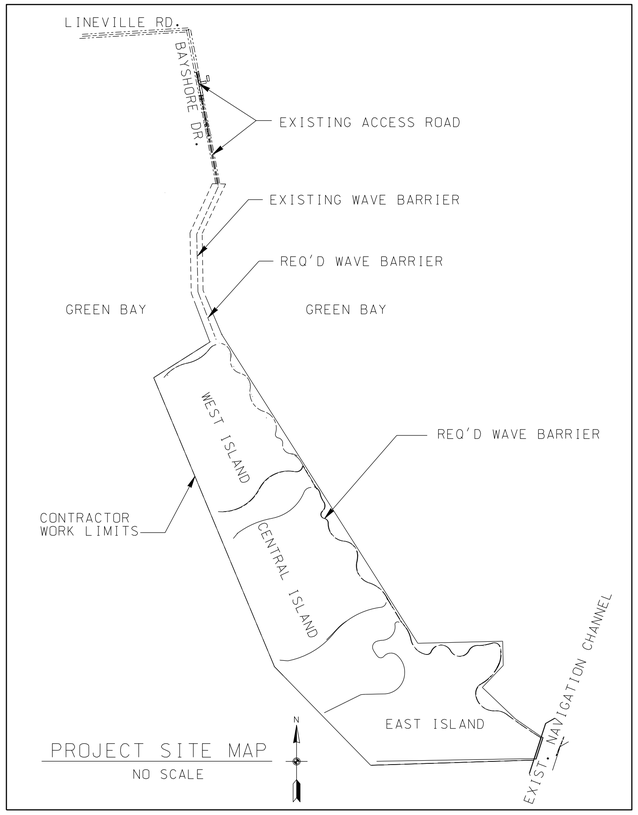
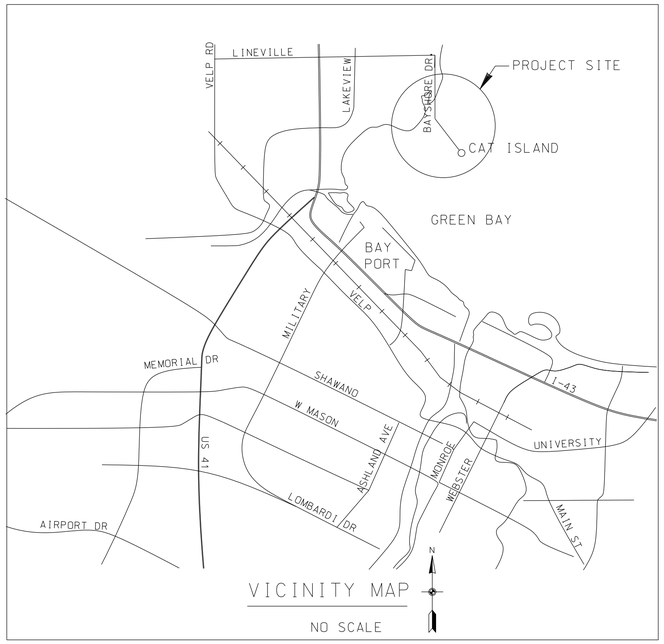
10/11/2012 1:47:32 AM jow

GREEN BAY DMDF
CAT ISLAND CHAINS
BROWN COUNTY, GREEN BAY, WISCONSIN

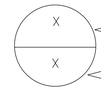
THIS PROJECT WAS DESIGNED BY THE DETROIT DISTRICT OF THE U.S. ARMY CORPS OF ENGINEERS. THE INITIALS OR SIGNATURES AND REGISTRATION DESIGNATIONS OF INDIVIDUALS APPEAR ON THESE PROJECT DOCUMENTS WITHIN THE SCOPE OF THIER EMPLOYMENT AS REQUIRED BY ER 1110-1-8152





BEFORE YOU DIG
CALL DIGGERS HOTLINE
800-242-8511
(TOLL FREE)
3 WORKING DAYS,
EXCLUDING SATURDAY,
SUNDAY & HOLIDAYS

SECTION & DETAIL CROSS REFERENCES



GENERAL NOTES

1. ALL SOUNDINGS AND ELEVATIONS ARE IN FEET. THEY ARE REFERRED TO LOW WATER DATUM (577.5 FEET ABOVE MEAN WATER LEVEL, IGLD 1985, FEET).
2. ELEVATIONS ABOVE LWD ARE SHOWN AS +5.00, SOUNDINGS BELOW LWD ARE SHOWN AS -5.00.
3. THE CONTRACTOR SHALL LOCATE ALL UTILITIES PRIOR TO STARTING WORK AND SHALL CONDUCT OPERATIONS IN SUCH A MANNER AS TO ENSURE THAT THOSE UTILITIES NOT REQUIRING RELOCATION WILL NOT BE DISTURBED.
4. THE GRIDS SHOWN ARE BASED ON THE NATIONAL GEODETIC SURVEY PROJECTION TABLES, STATE OF WISCONSIN, CENTRAL ZONE (4802), LAMBERT TWO, 1983 NORTH AMERICAN DATUM, (NAD83) US SURVEY FEET.
5. ALL ITEMS ARE EXISTING UNLESS MARKED AS REQUIRED.
6. THE EXISTING INFORMATION DEPICTED ON THESE DRAWINGS REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THE TIME. SURVEY BY GOURDIE FRASER ON FEB. 2010 AND OCTOBER 2010. SURVEY SHOWN ON SHEETS CS402, CS103 & CS104 WATER LEVEL AND CONDITIONS AT THE SITE SHOWN ARE BASED ON FEB. 2010 AND OCTOBER 2010 SURVEYS. CONTRACTORS MUST BE AWARE OF CLIMATE CHANGES AND OTHER CONDITIONS THAT COULD AFFECT THE WORK AND PROCEED ACCORDINGLY.
7. PRIOR TO START OF CONSTRUCTION THE CONTRACTOR WILL CONDUCT CHECK SURVEYS ON EACH ASPECT OF THE WORK AS PROVIDED FOR IN THE SPECIFICATIONS. IF RESULTS OF THE CHECK SURVEYS DIFFER FROM THE FEB. AND OCTOBER 2010, SURVEYS, NOTIFY CONTRACTING OFFICER PRIOR TO PROCEEDING WITH WORK.
8. THE REQUIRED WORK CONSISTS OF, BUT IS NOT LIMITED TO, CONSTRUCTION OF APPROXIMATELY 4.3 MILES OF EIGHT FEET HIGH WAVE BARRIER CORE STONE DIKE WITH 12' WIDE GRAVEL ROAD ON TOP AND 1V ON 2H ARMOR STONE SIDE SLOPES ON EXISTING GREEN BAY LAKE BOTTOM AND INSTALLING APPROXIMATELY 80 LINEAR FEET OF 24" & 80 LINEAR FEET OF 84" REINFORCED CONCRETE PIPE CULVERTS.
9. THE ABOVE REQUIRED WORK CONSISTS OF : BASE CONTRACT FROM STA. 39+18 TO STA. 104+08, WEST AND CENTRAL CELLS LEGS, OPTION 1 FROM STA. 104+08 TO STA. 146+18 AND OPTION 2 EAST CELL LEGS.
10. SEE SPECIFICATIONS SECTION 01 99 90 FOR BORING TEST RESULTS.
11. THE CONTRACTOR MUST MAINTAIN THE LINEVILLE AND BAYSHORE ROADS IN DRIVABLE CONDITION FOR THE DURATION OF THE PROJECT. DRIVABLE WILL BE DEFINED AS USEABLE FOR PASSENGER VEHICLES TO ACCESS RESIDENCES AS WELL AS FOR GARBAGE TRUCKS AND BUSES TO DRIVE ON. ANY POTHOLES WILL BE IMMEDIATELY REPAIRED WITH GRAVEL AND GRADED. ANY DAMAGED ASPHALT WILL BE PATCHED IMMEDIATELY TO ALLOW PASSENGER VEHICLES TO CONTINUE TO SAFELY USE THE ROAD.
12. NO STONE OR GRAVEL FOR THIS PROJECT MAY BE TEMPORARILY STOCKPILED OUTSIDE THE FOOTPRINT OF THE ACCESS ROAD, EXISTING OR NEW WAVE BARRIER OR CELL LEGS FOR THE THREE CELLS.

DRAWING INDEX

ABBREVIATIONS

AVERAGE -- AVE
CENTER TO CENTER -- C/C
CENTERLINE -- ℄
CORPS OF ENGINEERS -- COE
DIAMETER -- DIAM
ELEVATION -- EL
END OF PROJECT -- EOP
EXISTING -- EXIST
FEET -- FT
GRADE -- GR
INCHES -- IN
INTERNATIONAL GREAT LAKES DATUM -- IGLD
LOW WATER DATUM -- LWD
MAXIMUM -- MAX.
MINIMUM -- MIN.
MISCELLANEOUS -- MISC
ON CENTER -- O/C
PLATE -- PL
REINFORCED -- REIN
REQUIRED -- REQD
STATION -- STA
SHEET -- SHT
STEEL SHEET PILE -- SSP
STRUCTURE -- STRUCT.
TYPICAL -- TYP
UNITED STATES COAST GUARD -- USCG
WORKING POINT -- W.P.

LEGEND

SET BM
BM — EXISTING BM
CONTROL POINT (NAIL SET)
CONTROL POINT (IRON FOUND)
BORING
SHORELINE
-2.8 — GROUND SHOT
CONTROL POINT
REQUIRED GEOTEXTILE

WILLIAM D. MERTE /S/ 10-JULY-2012
WILLIAM D. MERTE P.E., CHIEF COST & GENERAL ENGINEERING BRANCH

MARK S. ALLEN /S/ 10-JULY-2012
MARK S. ALLEN P.E., CHIEF ENGINEERING & CONSTRUCTION OFFICE

MICHAEL K. O'BRYAN /S/ 10-JULY-2012
MICHAEL K. O'BRYAN P.E., CHIEF ENGINEERING & TECHNICAL SERVICES

US Army Corps of Engineers
Detroit District

MARK	DESCRIPTION	DATE	APPR.
JS	READY TO ADVERTISE	10-JULY-2012	
JS	PLAN IN HAND	26-JUNE-2012	
JS	UPDATED 100% BCOE	14-MAY-2012	
JS	CERTIFIED FINAL	27-APRIL-2012	
JS	100% BCOE	10-JAN-2011	
JS	50% BCOE	07-JULY-2010	
JS	VE STUDY	18-JUNE-2010	JS
MARK	DESCRIPTION	DATE	APPR.
	AS-AWARDED	19-SEPT-2012	

DESIGNED BY: J. SAFA
DRN BY: EB,JS,BM
SUBMITTED BY: M. ALLEN
PLOT SCALE: 1:1000
SIZE: 34X22
DATE: 20-SEPT-2012
CKD BY: WM
PLOT DATE:
FILE NAME: CIGI001C12.DGN
SOLICITATION NO.: W911KK-12-B-0003
CONTRACT NO.: W911KK-12-C-0013
FILE NUMBER:

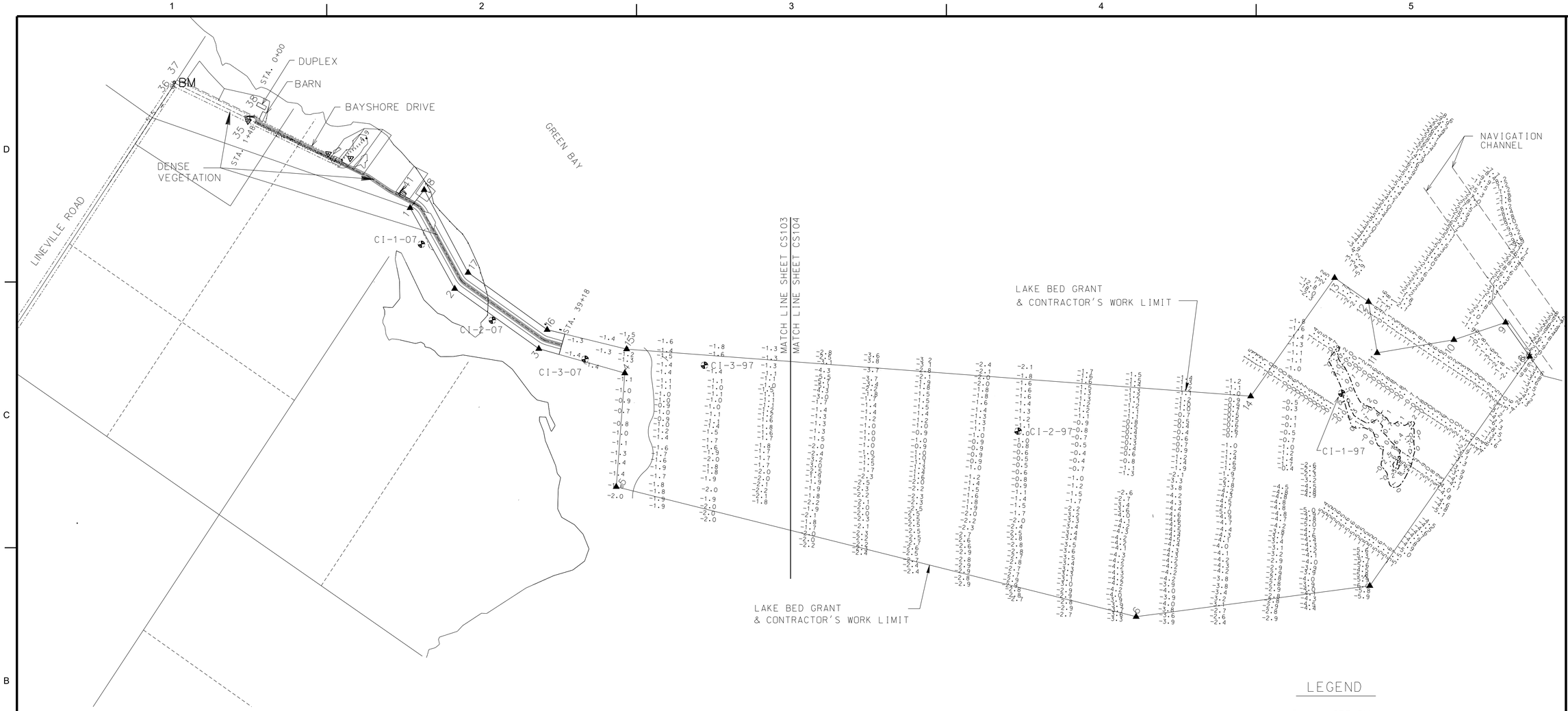
U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT
DETROIT, MICHIGAN

Value Engineering
Design Team Approved

BROWN COUNTY
GREEN BAY WISCONSIN
GREEN BAY DMDF
CAT ISLAND CHAINS

PROJECT TITLE SHEET

SHEET IDENTIFICATION
GI001
SHEET 01 OF 19



LEGEND

- SET BM
- BM — EXISTING BM
- ⊗ — CONTROL POINT (NAIL SET)
- CONTROL POINT (IRON FOUND)
- BORINGS
- SHORELINE
- -2.8 — GROUND SHOT
- ▽ — CONTROL POINT

EXTENDED LAKEBED GRANT
COORDINATE TABLE

Point	North	East
1	280398.21	2485489.44
2	279587.96	2485122.06
3	278591.39	2485143.11
4	277786.20	2485450.40
5	277197.03	2484522.42
6	272429.53	2486516.22
7	270801.63	2488103.07
8	270888.34	2490797.23
9	271270.94	2490921.49
10	271570.19	2490489.29
11	272087.92	2489945.42
12	272450.00	2490290.08
13	272849.79	2490280.23
14	272815.33	2488880.96
15	277910.41	2485646.05
16	278636.67	2485337.97
17	279577.05	2485323.41
18	280393.43	2485709.77

BORING NO.	NORTHING	EASTING
CI-1-07	280181.33	2485273.34
CI-2-07	279115.29	2485094.89
CI-3-07	278173.79	2485329.05
CI-1-97	272129.19	2489428.15
CI-2-97	274412.07	2487269.81
CI-3-97	277216.57	2485970.20

CONTROL POINTS DATA

CONTROL PT. NO.	North	East	Elevation	Description
35	282152.07	2485225.26	2.57	CP35
36	282933.38	2485058.85	5.99	CP36
37	282939.27	2485098.30	5.82	BM 1
38	282166.22	2485273.94	6.56	BM 2
39	281326.17	2485406.46	4.47	CP39
40	281129.13	2485499.00	5.09	CP40
41	280568.42	2485573.68	5.46	BM 3

OVERALL EXISTING SURVEY PLAN

SCALE: 1"= 500'

NOTES

1. THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF THE SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME.
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4. SURVEY INFORMATION FOR POINTS ON ACCESS ROAD SURVEY BY GOURDIE-FRASER DATE OF SURVEY 02-09-10 AND 10-28-2010.

US Army Corps of Engineers®
Detroit District

MARK	DESCRIPTION	DATE	APPR.
JS	AS-AWARDED	13-SEPT-2012	APPR.
JS	READY TO ADVERTISE	13-JULY-2012	
JS	PLAN IN HAND	26-JUNE-2012	
JS	UPDATED 100% BCOE	14-MAY-2012	
JS	CERTIFIED FINAL	27-APRIL-2012	
JS	100% BCOE	10-JAN-2011	
JS	50% BCOE	07-JULY-2010	
JS	VE STUDY	18-JUNE-2010	

DESIGNED BY: J. SAFA
DWN BY: EB,JS,BM
CKD BY: WM
SUBMITTED BY: M. ALLEN
PLOT SCALE: 1=500
PLOT DATE:
SIZE: 34X22
FILE NAME: CI6CS402121.DGN
DATE: 20-SEPT-2012
SOLICITATION NO.: W911XK-12-B-0003
CONTRACT NO.: W911XK-12-C-0013
FILE NUMBER:

U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT
DETROIT, MICHIGAN

Great Lakes Restoration Initiative

BROWN COUNTY
GREEN BAY WISCONSIN
GREEN BAY DMDF
CAT ISLAND CHAINS

EXISTING OVERALL SURVEY PLAN

SHEET IDENTIFICATION
CS402
SHEET 02 OF 19

BORING NO.	NORTHING	EASTING
CI-1-07	280181.33	2485273.34
CI-2-07	279115.29	2485094.89
CI-3-07	278173.79	2485329.05
CI-3-97	277216.57	2485970.20

EXTENDED LAKEBED GRANT
COORDINATE TABLE

Point	North	East
1	280398.21	2485489.44
2	279587.96	2485122.06
3	278591.39	2485143.11
4	277786.20	2485450.40
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15	277910.41	2485646.05
16	278636.67	2485337.97
17	279577.05	2485323.41
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37	282939.27	2485098.30	5.82	BM 1
38	282166.22	2485273.94	6.56	BM 2
39	281326.17	2485406.46	4.47	CP39
40	281129.13	2485499.00	5.09	CP40
41	280568.42	2485573.68	5.46	BM 3

LEGEND

- SET BM
- BM EXISTING BM
- ⊗ CONTROL POINT (NAIL SET)
- ● CONTROL POINT (IRON FOUND)
- BORINGS
- SHORELINE
- -2.8 GROUND SHOT
- CONTROL POINT

LINEVILLE ROAD
BAYSHORE DRIVE
BM
DUPLEX STA 1+45
BARN
STA. 1+48
STA. 18+72
STA. 20+00
EXISTING GATE STA. 18+72
EXISTING TURNOUT 1 CS103
BASE LINE EXISTING ACCESS ROAD G CS212
GREEN BAY
STA. 30+50
EXISTING 24" DIA X 80' LONG RCP
STA. 39+18
END EXISTING WAVE BARRIER 3 RC307
CI-1-07
CI-2-07
CI-3-07
CI-3-97
LAKE BED GRANT & CONTRACTOR'S WORK LIMIT
MATCHLINE SHEET CS103
MATCHLINE SHEET CS104

NOTES

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5. ELEVATIONS ABOVE LWD ARE SHOWN AS +5.00. SOUNDINGS BELOW LWD ARE SHOWN AS -5.00.
6. ALL ITEMS ARE EXISTING UNLESS MARKED AS REQUIRED (REQ'D)
7. SEE SHEETS RC305, RC306 & RC307 FOR EXISTING ACCESS ROAD AND WAVE BARRIER SECTIONS
8. SEE SHEET CS402 FOR EXISTING SURVEY PLAN
9. SEE SHEET RC307 FOR EXISTING GATE DETAIL

EXISTING SURVEY PLAN
SCALE 1"=300'

EXISTING TURNOUT PLAN VIEW 1 CS103
SCALE: 1"=50'

STA. 20+00
100'
50'
50'
12'
℄ BARRIER

US Army Corps of Engineers®
Detroit District

MARK	DESCRIPTION	DATE	APPR.
JS	AS-AWARDED	13-SEPT-2012	APPR.
JS	VE STUDY	18-JUNE-2010	
JS	50% BCOE	07-JULY-2010	
JS	100% BCOE	16-JAN-2011	
JS	CERTIFIED FINAL	27-APRIL-2012	
JS	UPDATED 100% BCOE	14-MAY-2012	
JS	PLAN IN HAND	26-JUNE-2012	
JS	READY TO ADVERTISE	10-JULY-2012	

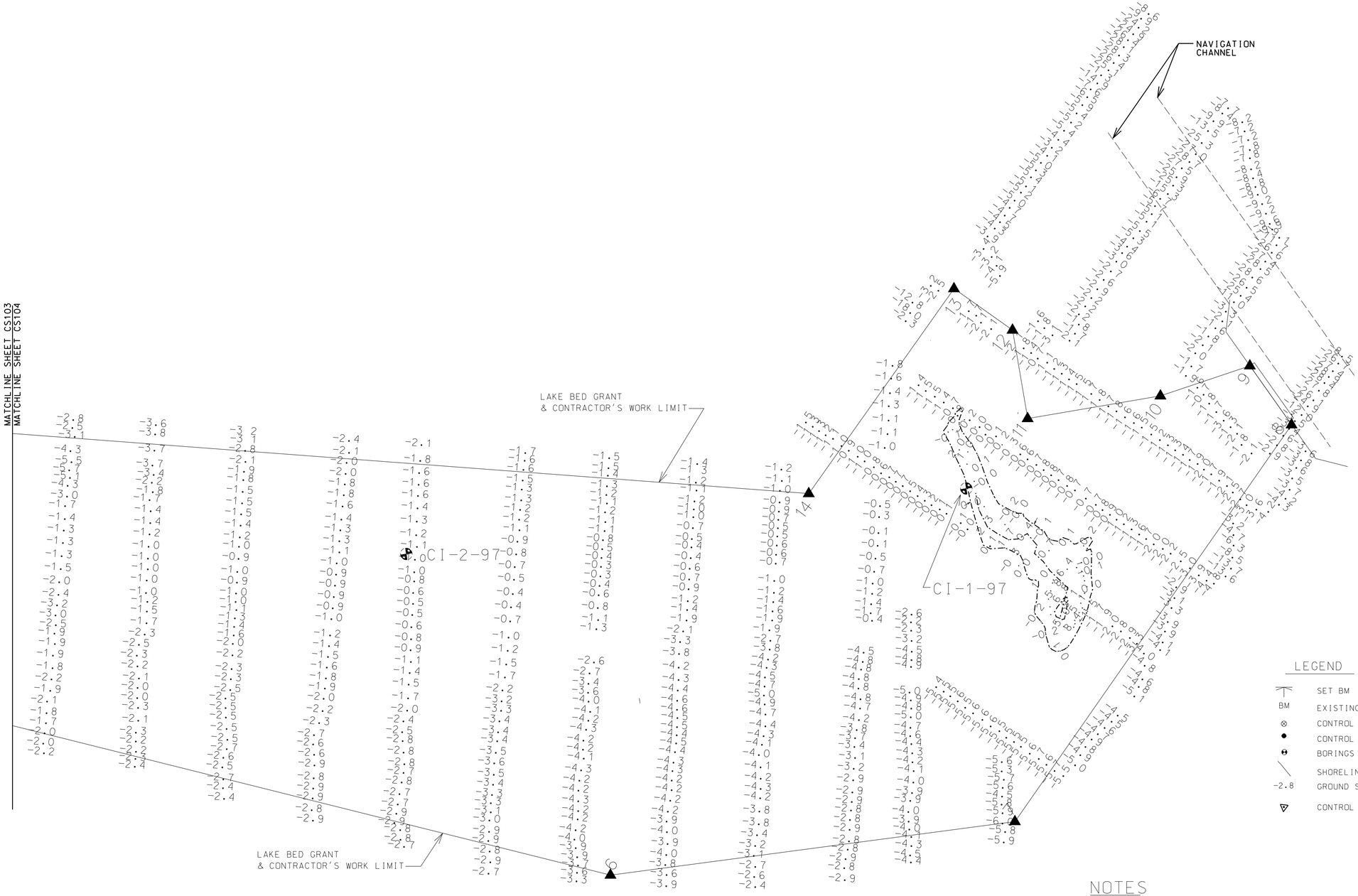
DESIGNED BY: J. SAFA
DWN BY: EB,JS,BM
SUBMITTED BY: M. ALLEN
PLOT SCALE: 1:500
SIZE: 34X22
CKD BY: WM
PLOT DATE:
FILE NAME: CICS103r12.DGN
DATE: 20-SEPT-2012
SOLICITATION NO.: W911XK-12-B-0003
CONTRACT NO.: W911XK-12-C-0013
FILE NUMBER:

U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT
DETROIT, MICHIGAN

BROWN COUNTY
GREEN BAY WISCONSIN
GREEN BAY DMDF
CAT ISLAND CHAINS

EXISTING SURVEY PLAN

SHEET IDENTIFICATION
CS103
SHEET 03 OF 19



BORING NO.	NORTHING	EASTING
CI-1-97	272129.19	2489428.15
CI-2-97	274412.07	2487269.81

EXTENDED LAKEBED GRANT
COORDINATE TABLE

Point	North	East
6	272429.53	2486516.22
7	270801.63	2488103.07
8	270888.34	2490797.23
9	271270.94	2490921.49
10	271570.19	2490489.29
11	272087.92	2489945.42
12	272450.00	2490290.08
13	272849.79	2490280.23
14	272815.33	2488880.96

EXISTING SURVEY PLAN
SCALE 1"=300'

NOTES

1. THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF THE SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME.
2. GRIDS SHOWN ARE BASED ON THE NATIONAL GEODETIC SURVEY PROJECTION TABLES, STATE OF WISCONSIN, CENTRAL ZONE (4802), LAMBERT TWO, 1983 NORTH AMERICAN DATUM, (NAD83) US SURVEY FEET.
3. ALL ELEVATIONS SHOWN ARE BASED ON LOW WATER DATUM (LWD) 577.5 FEET ABOVE MEAN WATER LEVEL, IGLD 1985, FEET.
4. SURVEY INFORMATION FOR POINTS ON ACCESS ROAD SURVEY BY GOURDIE-FRASER DATE OF SURVEY 02-09-10 AND 10-28-2010.

US Army Corps of Engineers®
Detroit District

MARK	DESCRIPTION	DATE	APPR
JS	AS-AWARDED	19-SEPT-2012	JS
JS	READY TO ADVERTISE	10-JULY-2012	JS
JS	PLAN IN HAND	26-JUNE-2012	JS
JS	UPDATED 100% BCOE	14-MAY-2012	JS
JS	CERTIFIED FINAL	27-APRIL-2012	JS
JS	100% BCOE	10-JAN-2011	JS
JS	50% BCOE	07-JULY-2010	JS
JS	VE STUDY	19-JUNE-2010	JS
MARK	DESCRIPTION	DATE	APPR

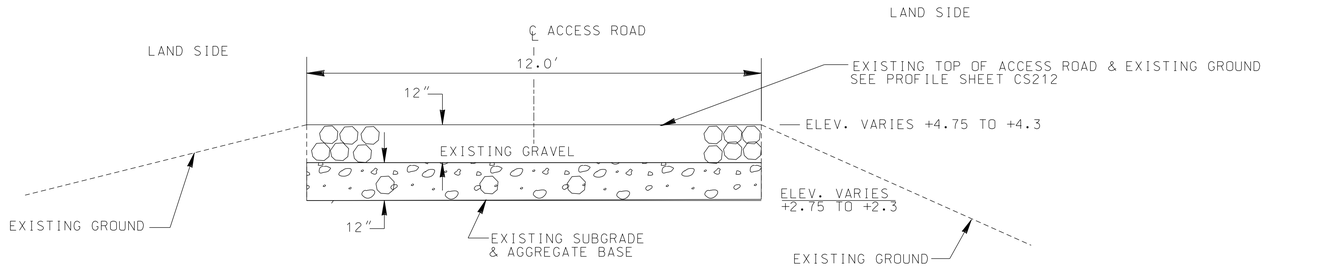
U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT
DETROIT, MICHIGAN

DESIGNED BY: J. SAFA
DRN BY: EB,JS,BM
SUBMITTED BY: M. ALLEN
PLOT SCALE: 1:200
SIZE: 36X22
CKD BY: WM
PLOT DATE:
FILE NAME: CICS104CI2.DGN
DATE: 20-SEPT-2012
SOLICITATION NO.: W911XK-12-B-0003
CONTRACT NO.: W911XK-12-C-0013
FILE NUMBER:

BROWN COUNTY
GREEN BAY WISCONSIN
GREEN BAY DMDF
CAT ISLAND CHAINS

EXISTING SURVEY PLAN

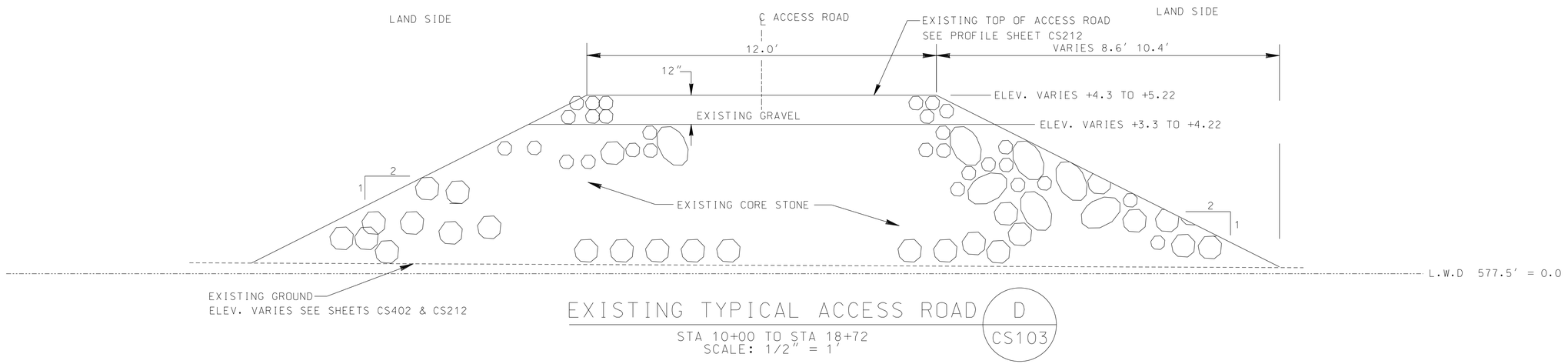
SHEET IDENTIFICATION
CS104
SHEET 04 OF 19



EXISTING TYPICAL ACCESS ROAD C

STA 1+48 TO STA 10+00
SCALE: 1/2″ = 1′

CS103



EXISTING TYPICAL ACCESS ROAD D

STA 10+00 TO STA 18+72
SCALE: 1/2″ = 1′

CS103

US Army Corps of Engineers®
Detroit District

MARK	DESCRIPTION	DATE	APPR.
JS	AS-AWARDED	13-SEPT-2012	JS
JS	READY TO ADVERTISE	15-JULY-2012	JS
JS	PLAN IN HAND	25-JUNE-2012	JS
JS	UPDATED 100% BCOE	14-MAY-2012	JS
JS	CERTIFIED FINAL	27-APRIL-2012	JS
JS	100% BCOE	10-JAN-2011	JS
JS	50% BCOE	07-JULY-2010	JS
JS	VE STUDY	18-JUNE-2010	JS

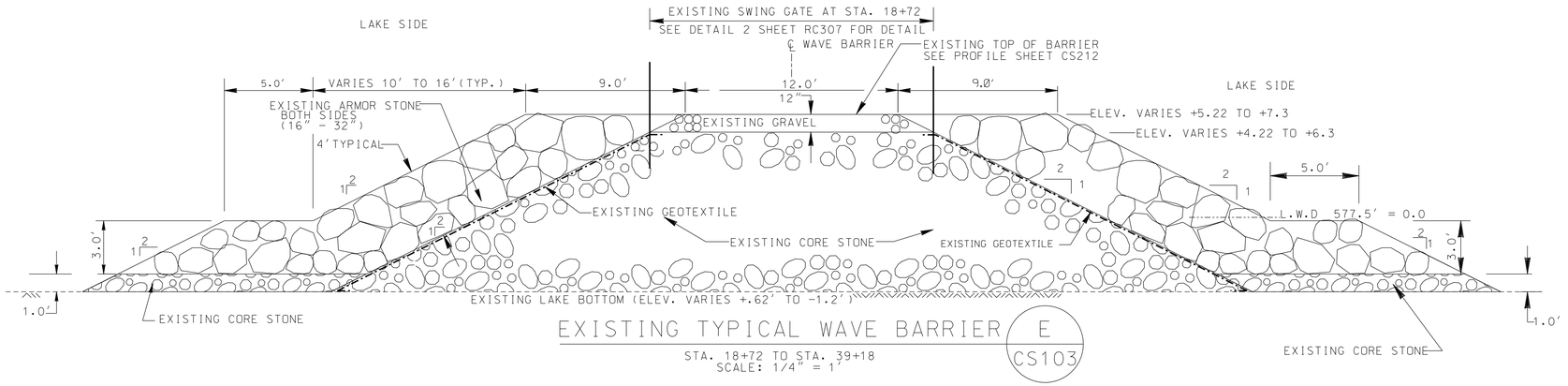
DESIGNED BY: J. SAFA
DRWN BY: EBJS,BM
SUBMITTED BY: M. ALLEN
PLOT SCALE: 1=2
SIZE: 34X22
DATE: 20-SEPT-2012
CKD BY: WM
PLOT DATE:
FILE NAME: CIRC305C12.DGN
SOLICITATION NO.: W911XK-12-B-0003
CONTRACT NO.: W911XK-12-C-0013
FILE NUMBER:

U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT
DETROIT, MICHIGAN

BROWN COUNTY
GREEN BAY WISCONSIN
GREEN BAY DMDF
CAT ISLAND CHAINS

EXISTING ACCESS ROAD
CROSS SECTIONS

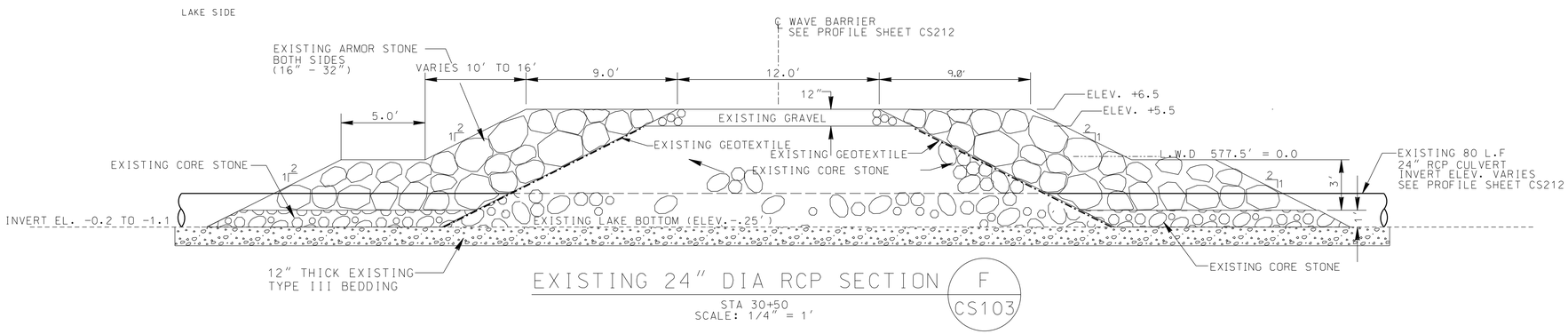
SHEET IDENTIFICATION
RC305
SHEET 05 OF 19



EXISTING TYPICAL WAVE BARRIER E

STA. 18+72 TO STA. 39+18
SCALE: 1/4" = 1'

CS103



EXISTING 24" DIA RCP SECTION F

STA 30+50
SCALE: 1/4" = 1'

CS103

US Army Corps of Engineers®
Detroit District

MARK	DESCRIPTION	DATE	APPR.
JS	AS-AWARDED	19-SEPT-2012	APPR.
JS	READY TO ADVERTISE	15-JULY-2012	
JS	PLAN IN HAND	26-JUNE-2012	
JS	UPDATED 100% BCOE	14-MAY-2012	
JS	CERTIFIED FINAL	27-APRIL-2012	
JS	100% BCOE	16-JAN-2011	
JS	50% BCOE	07-JULY-2010	
JS	VE STUDY	18-JUNE-2010	

DESIGNED BY: J. SAFA
DRWN BY: EB,JS,BM
SUBMITTED BY: M. ALLEN
PLOT SCALE: 1=1
SIZE: 34X22
DATE: 20-SEPT-2012
CKD BY: WM
PLOT DATE:
FILE NAME: CIRC306C12.DGN
SOLICITATION NO.: W911XK-12-B-0003
CONTRACT NO.: W911XK-12-C-0013
FILE NUMBER:

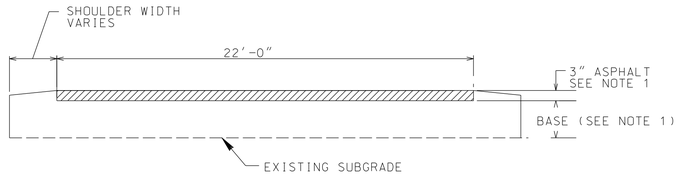
U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT
DETROIT, MICHIGAN

Value Engineering
Team Help, Team Spirit

BROWN COUNTY
GREEN BAY WISCONSIN
GREEN BAY DMDF
CAT ISLAND CHAINS

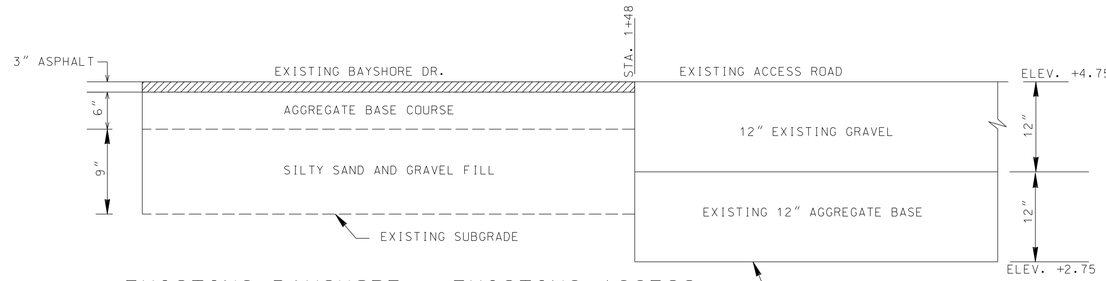
EXISTING CROSS SECTIONS
WAVE BARRIER & 24" DIA. RCP

SHEET IDENTIFICATION
RC306
SHEET 06 OF 19



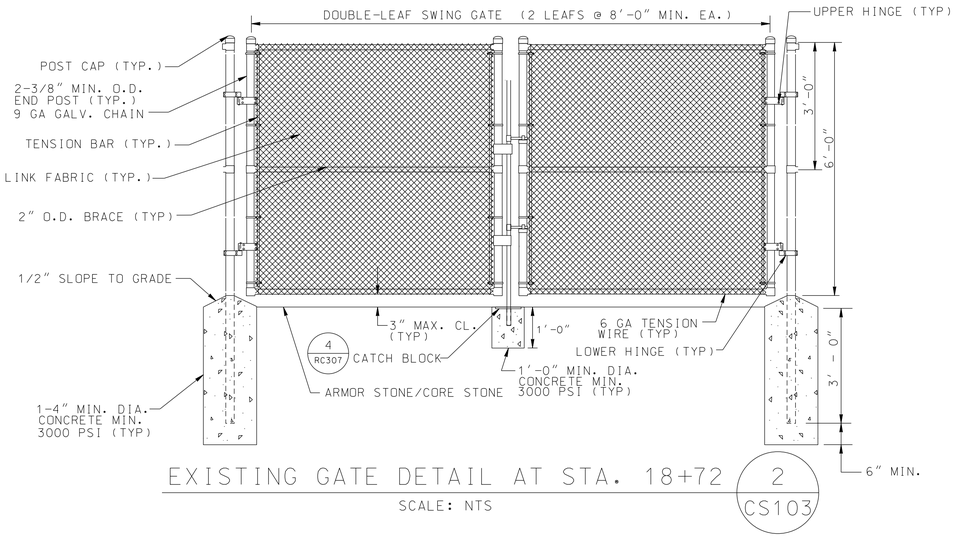
EXISTING SECTION
LINEVILLE RD./BAYSHORE DR. CROSS SECTION — A / CS103

SCALE: NTS



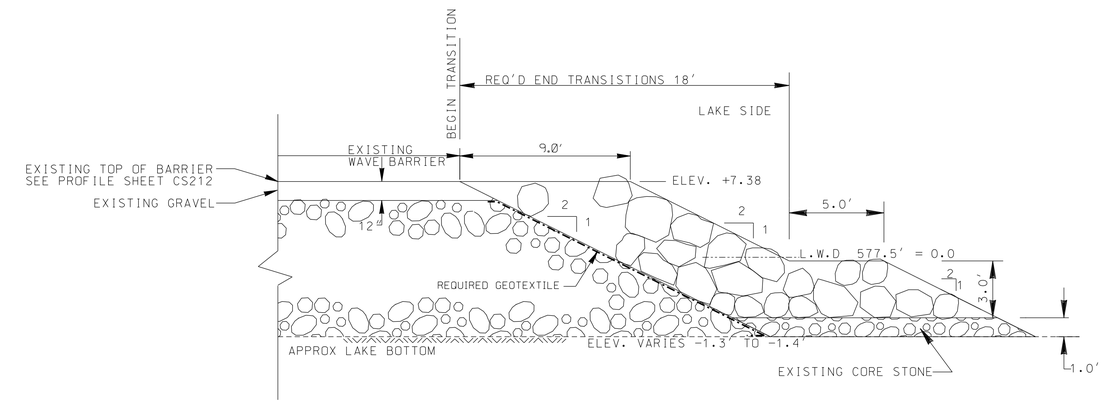
EXISTING BAYSHORE - EXISTING ACCESS
ROAD CONNECTION AT STA. 1+48 — B / CS103

SCALE: NTS



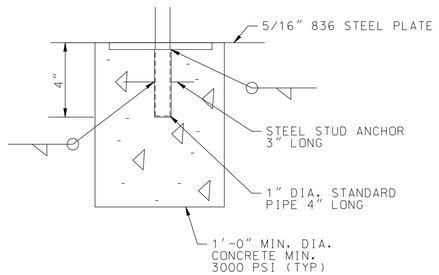
EXISTING GATE DETAIL AT STA. 18+72 — 2 / CS103

SCALE: NTS



EXISTING WAVE BARRIER
END TRANSITION — 3 / CS103

STA 39+00 TO STA 39+18
SCALE: 1/4" = 1'



EXISTING CATCH BLOCK DETAIL — 4 / RC307

SCALE: NTS

NOTE:

1. SEE SPECIFICATIONS SECTION 01 99 90 FOR BORING TEST RESULTS.

US Army Corps of Engineers
Detroit District

MARK	DESCRIPTION	DATE	APPR.
JS	READY TO ADVERTISE	15-JULY-2012	
JS	PLAN IN HAND	26-JUNE-2012	
JS	UPDATED 100% BCOE	14-MAY-2012	
JS	CERTIFIED FINAL	27-APRIL-2012	
JS	100% BCOE	10-JAN-2011	
JS	50% BCOE	07-JULY-2010	
JS	VE STUDY	18-JUNE-2010	
JS	AS-AWARDED	19-SEPT-2012	

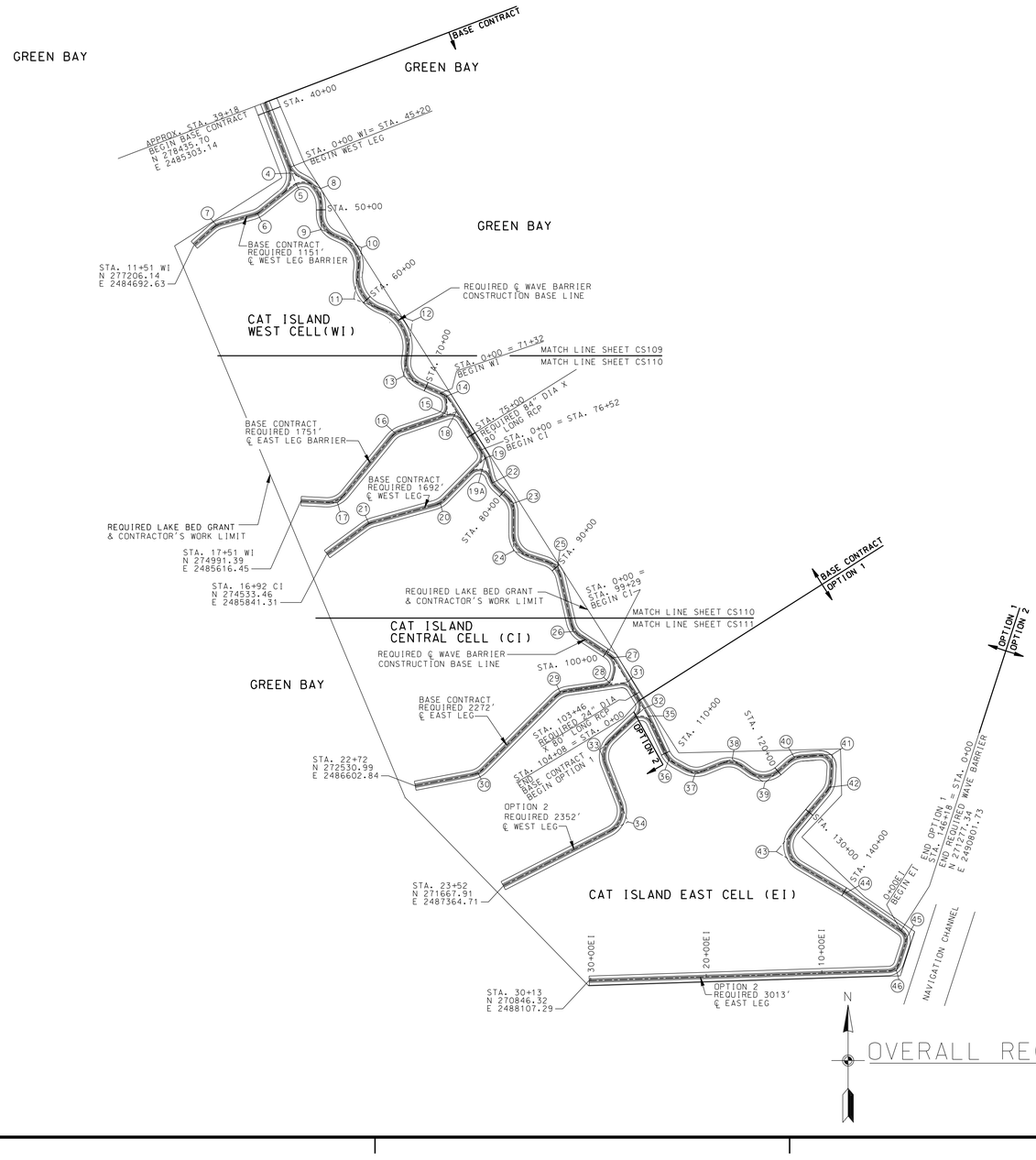
DESIGNED BY: J. SAFA
DRAWN BY: EB./S.BM
CKD BY: WM
SUBMITTED BY: M. ALLEN
PLOT SCALE: 64.64
PLOT DATE:
DATE: 20-SEPT-2012
SIZE: 34X22
FILE NAME: CIRC397C12.DGN
SOLICITATION NO.: W911XK-12-B-0003
CONTRACT NO.: W911XK-12-C-0013
FILE NUMBER:

U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT
DETROIT, MICHIGAN

BROWN COUNTY
GREEN BAY WISCONSIN
GREEN BAY DMDF
CAT ISLAND CHAINS

EXISTING CROSS SECTIONS & DETAILS

SHEET IDENTIFICATION
RC307
SHEET 07 OF 19



OVERALL REQUIRED SITE PLAN

SCALE: 1" = 600'

℄ WAVE BARRIER CURVE DATA

CURVE NO	PI STATION	PI NORTHING	PI EASTING	RADIUS	DELTA	TANGENT	LENGTH
4	45+72	277826.24	2485535.74	200′	40.91°	74.60′	142.80′
5	1+06 WI	277738.10	2485569.37	200′	72.32°	146.16′	252.44′
6	5+26 WI	277475.52	2485240.10	200′	23.06°	40.81′	80.51′
7	8+95 WI	277376.61	2484883.58	200′	26.25°	46.64′	91.63′
8	48+48	277692.42	2485785.30	250′	61.01°	147.29′	266.20′
9	51+74	277338.42	2485790.18	200′	65.26°	128.06	227.81
10	55+29	277182.88	2486140.37	250′	74.7°	190.80	325.95
11	59+24	276737.82	2486072.67	300′	78.35°	244.47′	410.25′
12	63+87	276549.91	2486580.74	350′	79.18°	289.46′	483.71′
13	67+78	276070.50	2486500.67	200′	74.86°	153.06′	261.29′
14	71+45	275899.03	2486874.75	400′	33.36°	59.93′	116.46′
15	2+12 WI	275736.46	2486880.54	100′	73.27°	74.36′	127.88′
16	6+71 WI	275582.07	2486426.13	200′	32.03°	57.41′	111.81′
17	14+51 WI	274975.45	2485931.36	200′	53.70°	101.24′	187.44′
18	73+02	275763.32	2486959.59	100′	76.76°	79.20′	133.96′
19	77+73	275364.41	2487208.96	200′	17.53°	30.84′	61.21′
19A	77+73	275364.41	2487208.96	100′	120.87°	176.28′	210.96′
20	6+04 CI	274971.50	2486820.75	200′	29.74°	53.11′	103.83′
21	12+45 CI	274798.76	2486202.09	200′	20.73°	36.58′	72.35′
22	79+98	275145.39	2487265.50	200′	32.98°	59.20′	115.11′
23	82+50	274972.68	2487453.67	200′	47.64°	88.29′	166.29′
24	86+52	274560.51	2487452.33	200′	72.64°	147.01′	253.54′
25	90+14	274439.25	2487835.70	200′	59.43°	114.14′	207.43′
26	95+82	273865.03	2487968.51	200′	43.78°	80.19′	152.53′
27	99+75	273639.09	2488312.74	200′	25.72°	45.66′	89.78′
28	2+92 CI	273405.97	2488298.37	100′	65.52°	64.35′	114.35′
29	7+26 CI	273341.96	2487855.44	200′	36.80°	66.54′	128.46′
30	17+21 CI	272635.32	2487149.41	200′	34.22°	61.56′	119.44′
31	102+21	273426.51	2488440.48	100′	67.22°	66.47′	117.33′
32	104+89	273196.69	2488578.66	100′	77.72°	80.57′	135.65′
33	5+76 EI	272839.85	2488199.63	200′	68.08°	135.06′	237.63′
34	12+11 EI	272218.89	2488442.43	200′	84.28°	180.96′	294.19′
35	105+64	273132.16	2488617.33	200′	5.82°	10.18′	20.33′
36	109+83	272753.29	2488795.42	200′	36.32°	65.60′	126.77′
37	112+36	272630.46	2489021.57	200′	50.60°	94.54′	176.63′
38	115.72	272761.48	2489344.36	200′	58.43°	111.85′	203.97′
39	119+01	272555.04	2489624.98	200′	77.65°	160.94′	271.03′
40	121+88	272778.40	2489879.17	200′	37.17°	67.25′	129.74′
41	125+16	272802.38	2490210.64	100′	97.69°	114.42′	170.51′
42	127+43	272518.81	2490193.01	200′	36.50°	65.94′	127.39′
43	134+66	271961.97	2489724.88	200′	99.45°	236.06′	347.16′
44	140+41	271605.81	2490327.16	200′	4.09°	7.14′	14.28′
45	0+74 EI	271234.99	2490862.91	100′	73.30°	74.41′	127.94′
46	3+72 EI	270931.84	2490764.45	100′	70.16°	70.24′	122.46′

BASE CONTRACT STA. 39+18 TO STA. 104+08

WEST CELL LEGS: STA. 0+00 TO STA. 11+51
STA. 0+00 TO STA. 17+51

CENTRAL CELL LEGS: STA. 0+00 TO STA. 16+92
STA. 0+00 TO STA. 22+72

OPTION 1: STA. 104+08 TO STA. 146+18

OPTION 2: STA. 0+00 TO 23+52
STA. 0+00 TO STA. 30+13

US Army Corps of Engineers®
Detroit District

MARK	DESCRIPTION	DATE	APPR.
JS	AS-AWARDED	13-SEPT-2012	APPR.
JS	READY TO ADVERTISE	13-JULY-2012	
JS	PLAN IN HAND	26-JUNE-2012	
JS	UPDATED 100% BCOE	14-MAY-2012	
JS	CERTIFIED FINAL	27-APRIL-2012	
JS	100% BCOE	10-JAN-2011	
JS	50% BCOE	07-JULY-2010	
JS	VE STUDY	18-JUNE-2010	
MARK	DESCRIPTION	DATE	APPR.

DESIGNED BY: J. SAFA
DWN BY: EB,JS,BM
CKD BY: WM
SUBMITTED BY: M. ALLEN
PLOT DATE:
PLOT SCALE: 1:600
FILE NAME: CI\CS408CI12.DGN
SIZE: 34X22
DATE: 20-SEPT-2012
SOLICITATION NO.: W911XK-12-B-0003
CONTRACT NO.: W911XK-12-C-0013
FILE NUMBER:

U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT
DETROIT, MICHIGAN

BROWN COUNTY
GREEN BAY WISCONSIN
GREEN BAY DMDF
CAT ISLAND CHAINS

OVERALL REQUIRED SITE PLAN

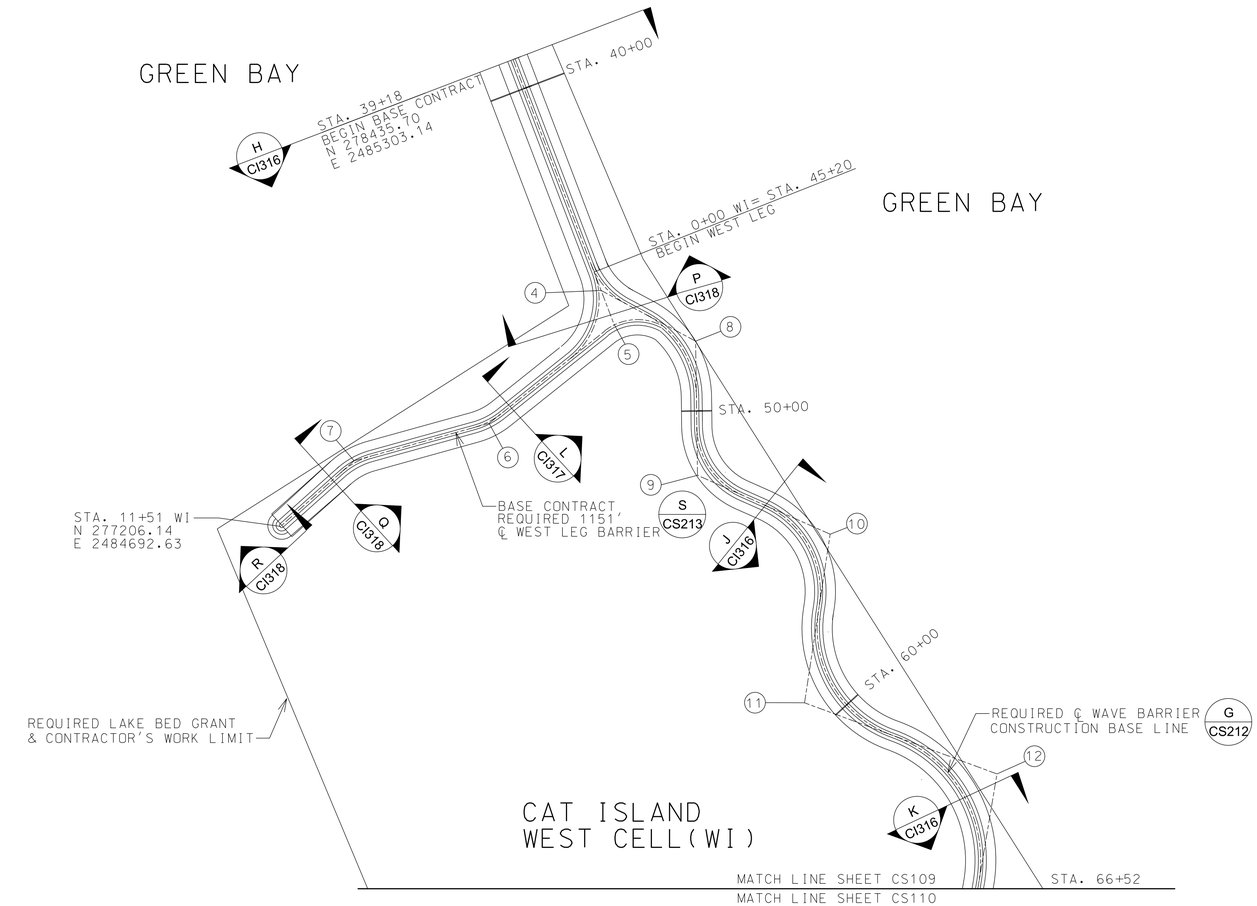
SHEET IDENTIFICATION
CS408
SHEET 08 OF 19

℄ WAVE BARRIER CURVE DATA

CURVE NO	PI STATION	PI NORTHING	PI EASTING	RADIUS	DELTA	TANGENT	LENGTH
4	45+72	277826.24	2485535.74	200′	40.91°	74.60′	142.80′
5	1+06 WI	277738.10	2485569.37	200′	72.32°	146.16′	252.44′
6	5+26 WI	277475.52	2485240.10	200′	23.06°	40.81′	80.51′
7	8+95 WI	277376.61	2484883.58	200′	26.25°	46.64′	91.63′
8	48+48	277692.42	2485785.30	250′	61.01°	147.29′	266.20′
9	51+74	277338.42	2485790.18	200′	65.26°	128.06	227.81
10	55+29	277182.88	2486140.37	250′	74.7°	190.80	325.95
11	59+24	276737.82	2486072.67	300′	78.35°	244.47′	410.25′
12	63+87	276549.91	2486580.74	350′	79.18°	289.46′	483.71′

BASE CONTRACT STA. 39+18 TO STA. 104+08
WEST CELL LEG: STA. 0+00 TO STA. 11+51

NOTE:
CONTRACTOR SHALL REMOVE ARMOR STONE LAKEWARD OF STA 39+18 BEFORE START OF BARRIER CONSTRUCTION AND REUSE ACCEPTABLE STONE IN THE PROJECT



N

REQUIRED SITE PLAN
STA 39+18 TO STA 66+52

SCALE: 1" = 200′

US Army Corps of Engineers®
Detroit District

MARK	DESCRIPTION	DATE	APPR.
JS	AS-AWARDED	13-SEPT-2012	APPR.
JS	50% BCOE	07-JULY-2010	
JS	VE STUDY	18-JUNE-2010	
JS	100% BCOE	10-JAN-2011	
JS	CERTIFIED FINAL	27-APRIL-2012	
JS	UPDATED 100% BCOE	14-MAY-2012	
JS	PLAN IN HAND	26-JUNE-2012	
JS	READY TO ADVERTISE	10-JULY-2012	

U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT
DETROIT, MICHIGAN

DESIGNED BY: J. SAFA
DWN BY: EBJS,BM
SUBMITTED BY: M. ALLEN
PLOT SCALE: 1:200
SIZE: 34X22
DATE: 20-SEPT-2012
CKD BY: WM
PLOT DATE:
FILE NAME: CICS10912.DGN
SOLICITATION NO.: W911XK-12-B-0003
CONTRACT NO.: W911XK-12-C-0013
FILE NUMBER:

BROWN COUNTY
GREEN BAY WISCONSIN
GREEN BAY DMDF
CAT ISLAND CHAINS

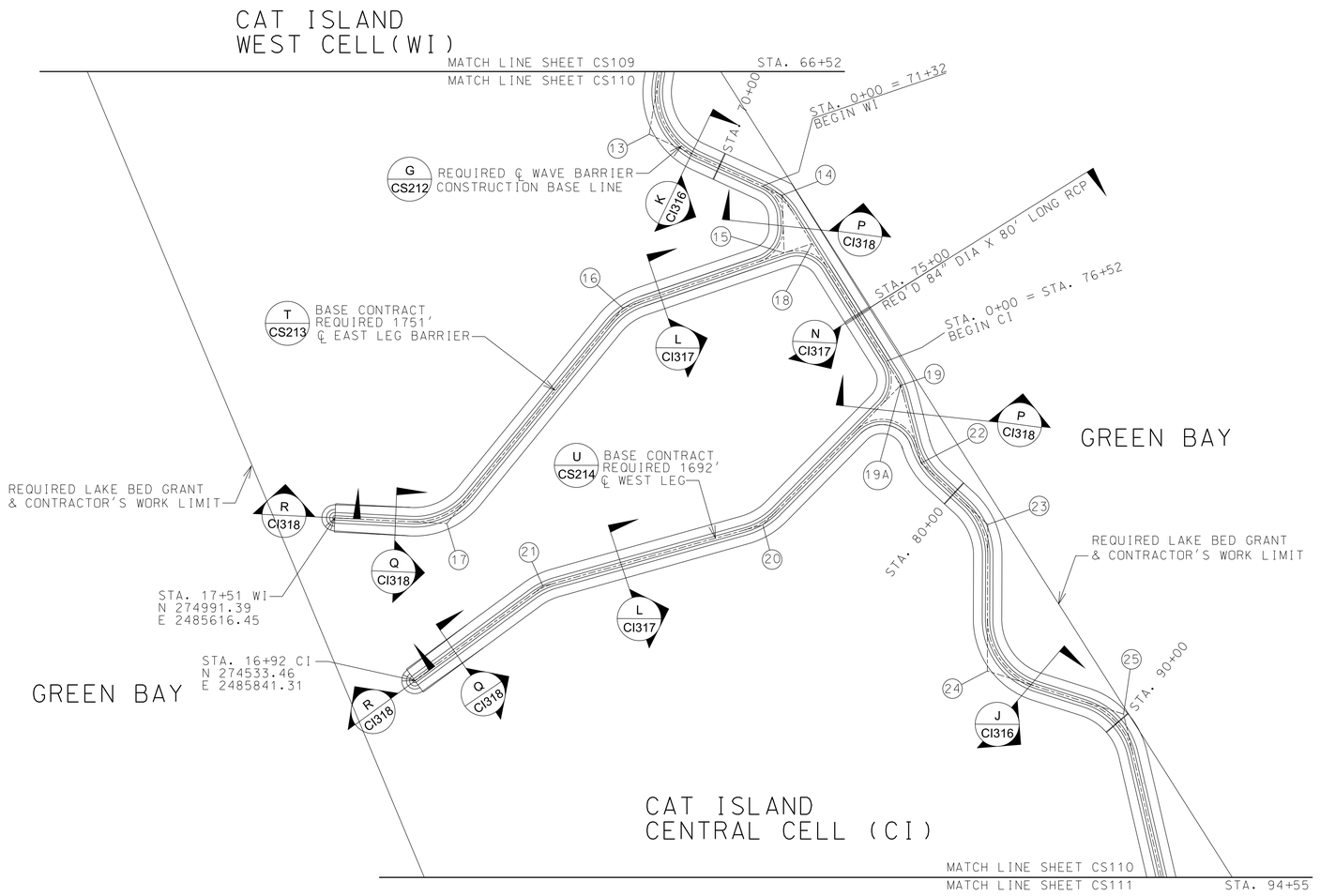
REQUIRED SITE PLAN
STA 39+18 TO STA 66+52

SHEET IDENTIFICATION
CS109
SHEET 09 OF 19

℄ WAVE BARRIER CURVE DATA

CURVE NO	PI STATION	PI NORTHING	PI EASTING	RADIUS	DELTA	TANGENT	LENGTH
13	67+78	276070.50	2486500.67	200′	74.86°	153.06′	261.29′
14	71+45	275899.03	2486874.75	400′	33.36°	59.93′	116.46′
15	2+12 WI	275736.46	2486880.54	100′	73.27°	74.36′	127.88′
16	6+71 WI	275582.07	2486426.13	200′	32.03°	57.41′	111.81′
17	14+51 WI	274975.45	2485931.36	200′	53.70°	101.24′	187.44′
18	73+02	275763.32	2486959.59	100′	76.76°	79.20′	133.96′
19	77+73	275364.41	2487208.96	200′	17.53°	30.84′	61.21′
19A	77+73	275364.41	2487208.96	100′	120.87°	176.28′	210.96′
20	6+04 CI	274971.50	2486820.75	200′	29.74°	53.11′	103.83′
21	12+45 CI	274798.76	2486202.09	200′	20.73°	36.58′	72.35′
22	79+98	275145.39	2487265.50	200′	32.98°	59.20′	115.11′
23	82+50	274972.68	2487453.67	200′	47.64°	88.29′	166.29′
24	86+52	274560.51	2487452.33	200′	72.64°	147.01′	253.54′
25	90+14	274439.25	2487835.70	200′	59.43°	114.14′	207.43′

BASE CONTRACT STA. 39+18 TO STA. 104+08
WEST CELL LEG: STA. 0+00 TO STA. 17+51
CENTRAL CELL LEG: STA 0+00 TO STA. 16+92



N

REQUIRED SITE PLAN
STA 66+52 TO STA 94+55

SCALE: 1" = 200'

US Army Corps of Engineers®
Detroit District

MARK	DESCRIPTION	DATE	APPR.
JS	AS-AWARDED	13-SEPT-2012	
JS	READY TO ADVERTISE	15-JULY-2012	
JS	PLAN IN HAND	26-JUNE-2012	
JS	UPDATED 100% BCOE	14-MAY-2012	
JS	CERTIFIED FINAL	27-APRIL-2012	
JS	100% BCOE	10-JAN-2011	
JS	50% BCOE	07-JULY-2010	
JS	VE STUDY	18-JUNE-2010	

DESIGNED BY: J. SAFA
DWN BY: EB, JS, BM
SUBMITTED BY: M. ALLEN
PLOT SCALE: 1:200
SIZE: 34X22
DATE: 20-SEPT-2012
CHD BY: WM
PLOT DATE:
FILE NAME: CICS110C12.DGN
SOLICITATION NO.: W911XK-12-B-0003
CONTRACT NO.: W911XK-12-C-0013
FILE NUMBER:

U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT
DETROIT, MICHIGAN

BROWN COUNTY
GREEN BAY WISCONSIN
GREEN BAY DMDF
CAT ISLAND CHAINS

REQUIRED SITE PLAN
STA 66+52 TO STA 94+55

SHEET IDENTIFICATION
CS110
SHEET 10 OF 19

MATCH LINE SHEET CS110
MATCH LINE SHEET CS111

STA. 94+55

CAT ISLAND CENTRAL CELL (CI)

G CS212 — REQUIRED ℄ WAVE BARRIER CONSTRUCTION BASE LINE

STA. 0+00 = STA. 99+29 BEGIN CI

STA. 100+00

P CI318

M CI317

STA. 103+46 REQUIRED 24" DIA X 80' LONG RCP

STA. 104+08 = STA. 0+00 END BASE CONTRACT BEGIN OPTION 1

V CS214 — BASE CONTRACT REQUIRED 2272' ℄ EAST LEG

L CI317

REQUIRED LAKE BED GRANT & CONTRACTOR'S WORK LIMIT

STA. 110+00

STA. 120+00

GREEN BAY

STA. 22+72
N 272530.99
E 2486602.84

R CI318

Q CI318

J CI316

REQUIRED LAKE BED GRANT & CONTRACTOR'S WORK LIMIT

W CS215 — OPTION 2 REQUIRED 2352' ℄ WEST LEG

L CI317

STA. 130+00

STA. 0+00 = STA. 146+18 END OPTION 1 BEGIN REQUIRED WAVE BARRIER
N 271277.34
E 2490801.73

43.78°
N 271667.91
E 2487364.71

R CI318

Q CI318

GREEN BAY

CAT ISLAND EAST CELL (EI)

STA. 140+00

0+00 EI BEGIN EI

30+00 EI

20+00 EI

10+00 EI

R CI318

Q CI318

STA. 30+13
N 270846.32
E 2488107.29

OPTION 2 REQUIRED 3013' ℄ EAST LEG

X CS215

L CI317

NAVIGATION CHANNEL

℄ WAVE BARRIER CURVE DATA

CURVE NO	PI STATION	PI NORTHING	PI EASTING	RADIUS	DELTA	TANGENT	LENGTH
26	95+82	273865.03	2487968.51	200′	43.75°	80.19′	152.53′
27	99+75	273639.09	2488312.74	200′	25.72°	45.66′	89.78′
28	2+92 CI	273405.97	2488298.37	100′	65.52°	64.35′	114.35′
29	7+26 CI	273341.96	2487855.44	200′	36.80°	66.54′	128.46′
30	17+21 CI	272635.32	2487149.41	200′	34.22°	61.56′	119.44′
31	102+21	273426.51	2488440.48	100′	67.22°	66.47′	117.33′
32	104+89	273196.69	2488578.66	100′	77.72°	80.57′	135.65′
33	5+76 EI	272839.85	2488199.63	200′	68.08°	135.06′	237.63′
34	12+11 EI	272218.89	2488442.43	200′	84.28°	180.96′	294.19′
35	105+64	273132.16	2488617.33	200′	5.82°	10.18′	20.33′
36	109+83	272753.29	2488795.42	200′	36.32°	65.60′	126.77′
37	112+36	272630.46	2489021.57	200′	50.60°	94.54′	176.63′
38	115.72	272761.48	2489344.36	200′	58.43°	111.85′	203.97′
39	119+01	272555.04	2489624.98	200′	77.65°	160.94′	271.03′
40	121+88	272778.40	2489879.17	200′	37.17°	67.25′	129.74′
41	125+16	272802.38	2490210.64	100′	97.69°	114.42′	170.51′
42	127+43	272518.81	2490193.01	200′	36.50°	65.94′	127.39′
43	134+66	271961.97	2489724.88	200′	99.45°	236.06′	347.16′
44	140+41	271605.81	2490327.16	200′	4.09°	7.14′	14.28′
45	0+74 EI	271234.99	2490862.91	100′	73.30°	74.41′	127.94′
46	3+72 EI	270931.84	2490764.45	100′	70.16°	70.24′	122.46′

N

REQUIRED SITE PLAN
STA 94+55 TO EoP

SCALE: 1" = 200'

BASE CONTRACT STA. 39+18 TO STA. 104+08

CENTRAL CELL LEG: STA. 0+00 TO STA. 22+72

OPTION 1: STA. 104+08 TO STA. 146+18

OPTION 2: STA. 0+00 TO STA. 23+52
STA. 0+00 TO STA. 30+13

US Army Corps of Engineers®
Detroit District

MARK	DESCRIPTION	DATE	APPR.
JS	READY TO ADVERTISE	15-JULY-2012	
JS	PLAN IN HAND	26-JUNE-2012	
JS	UPDATED 100% BCOE	14-MAY-2012	
JS	CERTIFIED FINAL	27-APRIL-2012	
JS	100% BCOE	10-JAN-2011	
JS	50% BCOE	07-JULY-2010	
JS	VE STUDY	18-JUNE-2010	
MARK	DESCRIPTION	DATE	APPR.
JS	AS-AWARDED	19-SEPT-2012	
	DESCRIPTION	DATE	APPR.

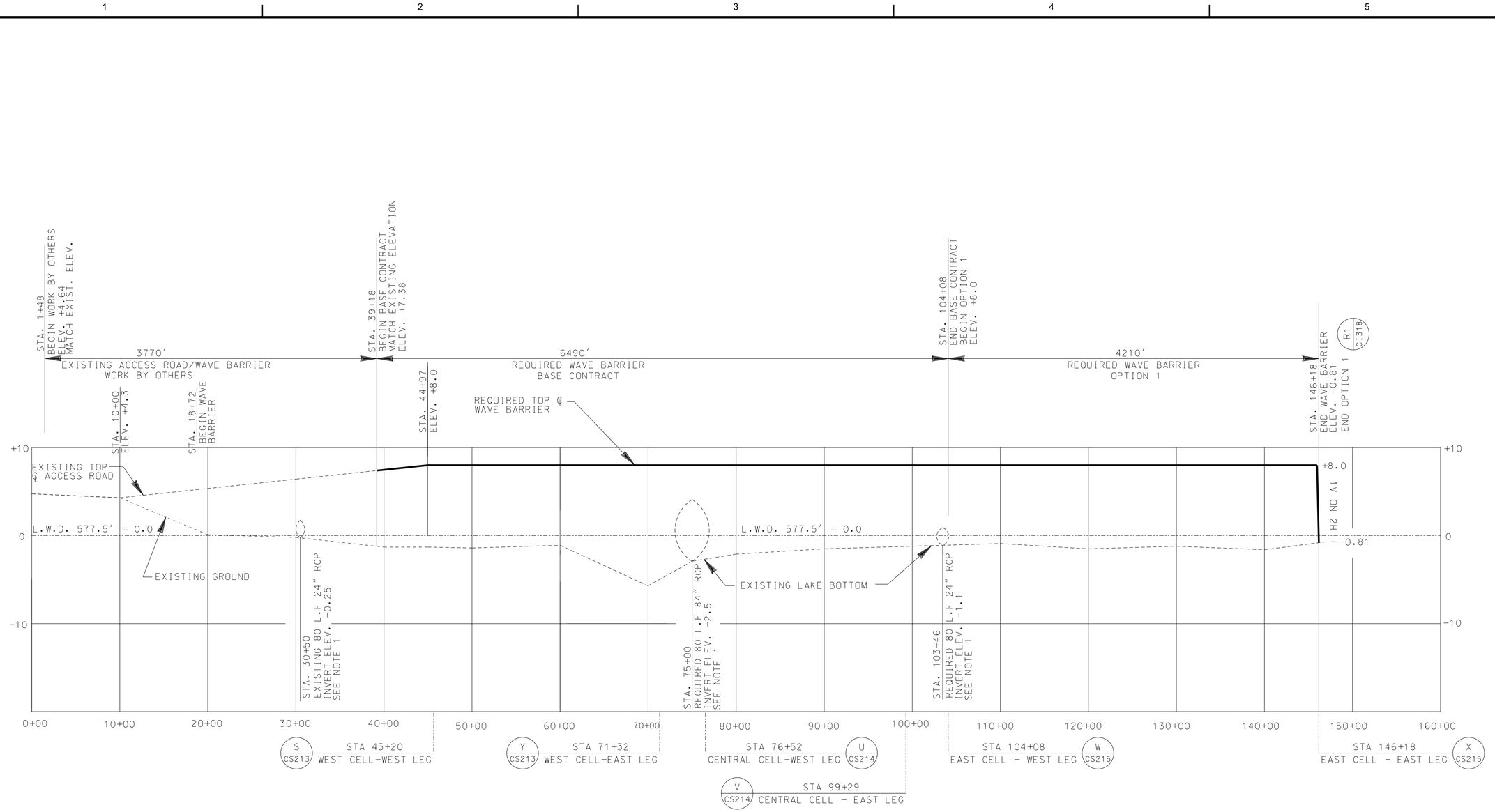
U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT
DETROIT, MICHIGAN

DESIGNED BY: J. SAFA
DWN BY: EB,JS,BM
CKD BY: WM
SUBMITTED BY: M. ALLEN
PLOT SCALE: 1:200
SIZE: 34X22
DATE: 20-SEPT-2012
SOLICITATION NO.: W911XK-12-B-0003
CONTRACT NO.: W911XK-12-C-0013
PLOT DATE:
FILE NUMBER:
FILE NAME: CICS111C12.DGN

BROWN COUNTY
GREEN BAY WISCONSIN
GREEN BAY DMDF
CAT ISLAND CHAINS

REQUIRED SITE PLAN
STA 94+55 TO END OF PROJECT

SHEET IDENTIFICATION
CS111
SHEET 11 OF 19



OVERALL REQUIRED ℄ PROFILE

STA. 39+18 TO STA. 146+18

G
CS109
CS110
CS111

HORIZONTAL SCALE: 1″=600′
VERTICAL SCALE: 1″=6′

NOTE:

1. PIPE WIDTH EXAGGERATED FOR CLARITY

US Army Corps of Engineers®
Detroit District

MARK	DESCRIPTION	DATE	APPR.
JS	AS-AWARDED	13-SEPT-2012	JS
JS	VE STUDY	18-JUNE-2010	JS
JS	100% BCOE	07-JULY-2010	JS
JS	50% BCOE	10-JAN-2011	JS
JS	CERTIFIED FINAL	27-APRIL-2012	JS
JS	UPDATED 100% BCOE	14-MAY-2012	JS
JS	PLAN IN HAND	26-JUNE-2012	JS
JS	READY TO ADVERTISE	10-JULY-2012	JS

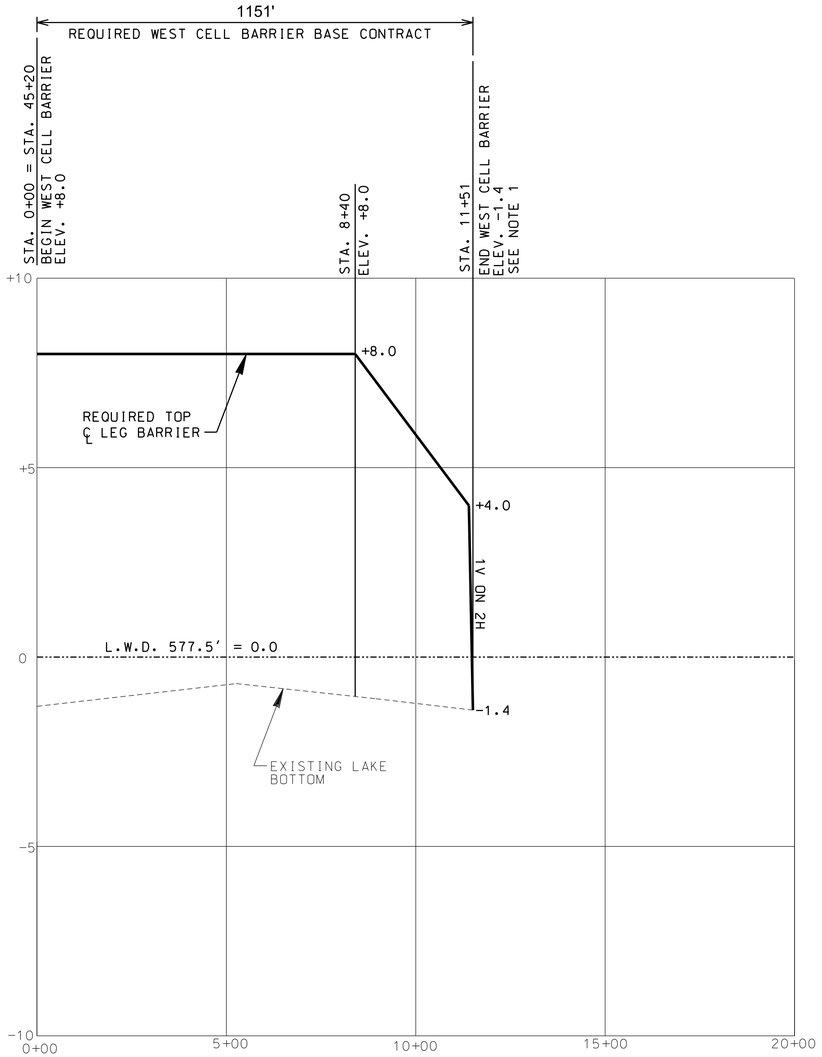
DESIGNED BY: J. SAFA
DWN BY: EB,JS,BM
CKD BY: WM
SUBMITTED BY: M. ALLEN
PLOT SCALE: FULL SCALE
PLOT DATE: 20-SEPT-2012
SIZE: 34X22
FILE NAME: CBCS212C12.DGN
FILE NUMBER:
SOLICITATION NO.: W911XK-12-B-0003
CONTRACT NO.: W911XK-12-C-0013

U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT
DETROIT, MICHIGAN

BROWN COUNTY
GREEN BAY WISCONSIN
GREEN BAY DMDF
CAT ISLAND CHAINS

OVER ALL REQUIRED ℄ PROFILE
STA 39+18 TO STA 146+18

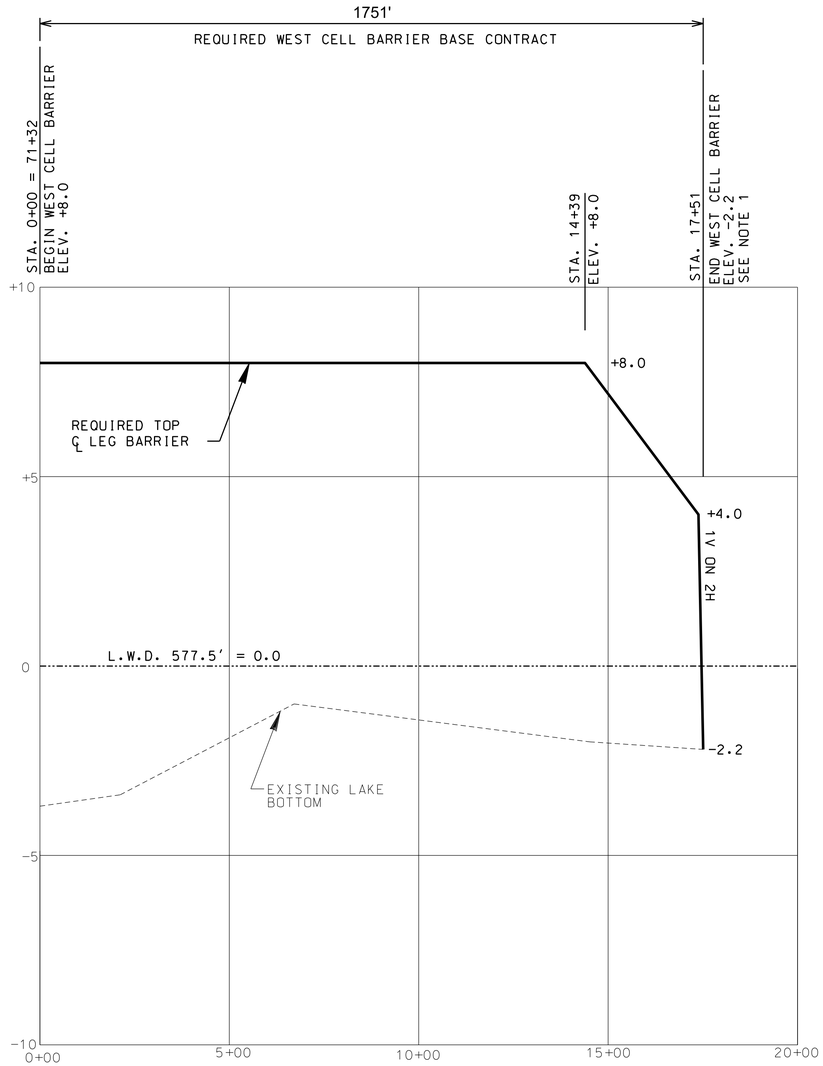
SHEET IDENTIFICATION
CS212
SHEET 12 OF 19



REQUIRED ℄ PROFILE S

WEST CELL-WEST LEG
STA 0+00 TO STA 11+51
HORIZONTAL SCALE: 1"=200'
VERTICAL SCALE: 1"=2'

CS109.
CS212



REQUIRED ℄ PROFILE T

WEST CELL-EAST LEG
STA 0+00 TO STA 17+51
HORIZONTAL SCALE: 1"=200'
VERTICAL SCALE: 1"=2'

CS110.
CS212

NOTE:
1. SEE SECTION R / CI318 FOR END TRANSITION.

US Army Corps of Engineers®
Detroit District

MARK	DESCRIPTION	DATE	APPR.
JS	AS-AWARDED	19-SEPT-2012	JS
JS	VE STUDY	18-JUNE-2010	JS
JS	100% BCOE	07-JULY-2010	JS
JS	50% BCOE	10-JAN-2011	JS
JS	CERTIFIED FINAL	27-APRIL-2012	JS
JS	UPDATED 100% BCOE	14-MAY-2012	JS
JS	PLAN IN HAND	26-JUNE-2012	JS
JS	READY TO ADVERTISE	19-JULY-2012	JS

DESIGNED BY: J. SAFA
DWN BY: EBJS,BM
CKD BY: WM
SUBMITTED BY: M. ALLEN
PLOT SCALE: 1=200
PLOT DATE:
FILE NAME: CICS213C12.DGN
SIZE: 34X22
DATE: 20-SEPT-2012
SOLICITATION NO.: W911XK-12-B-0003
CONTRACT NO.: W911XK-12-C-0013
FILE NUMBER:

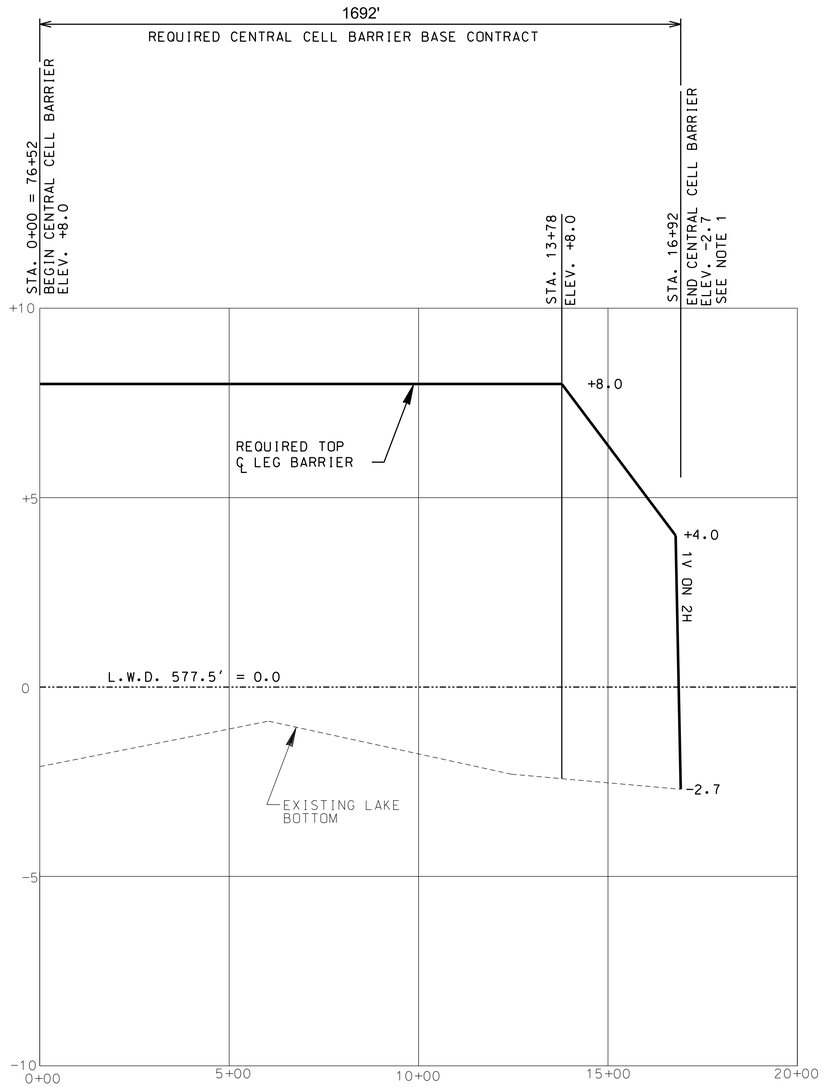
U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT
DETROIT, MICHIGAN

Value Engineering
Team Work, Team Spirit

BROWN COUNTY
GREEN BAY WISCONSIN
GREEN BAY DMDF
CAT ISLAND CHAINS

REQUIRED LEG ℄ PROFILE
WEST CELL

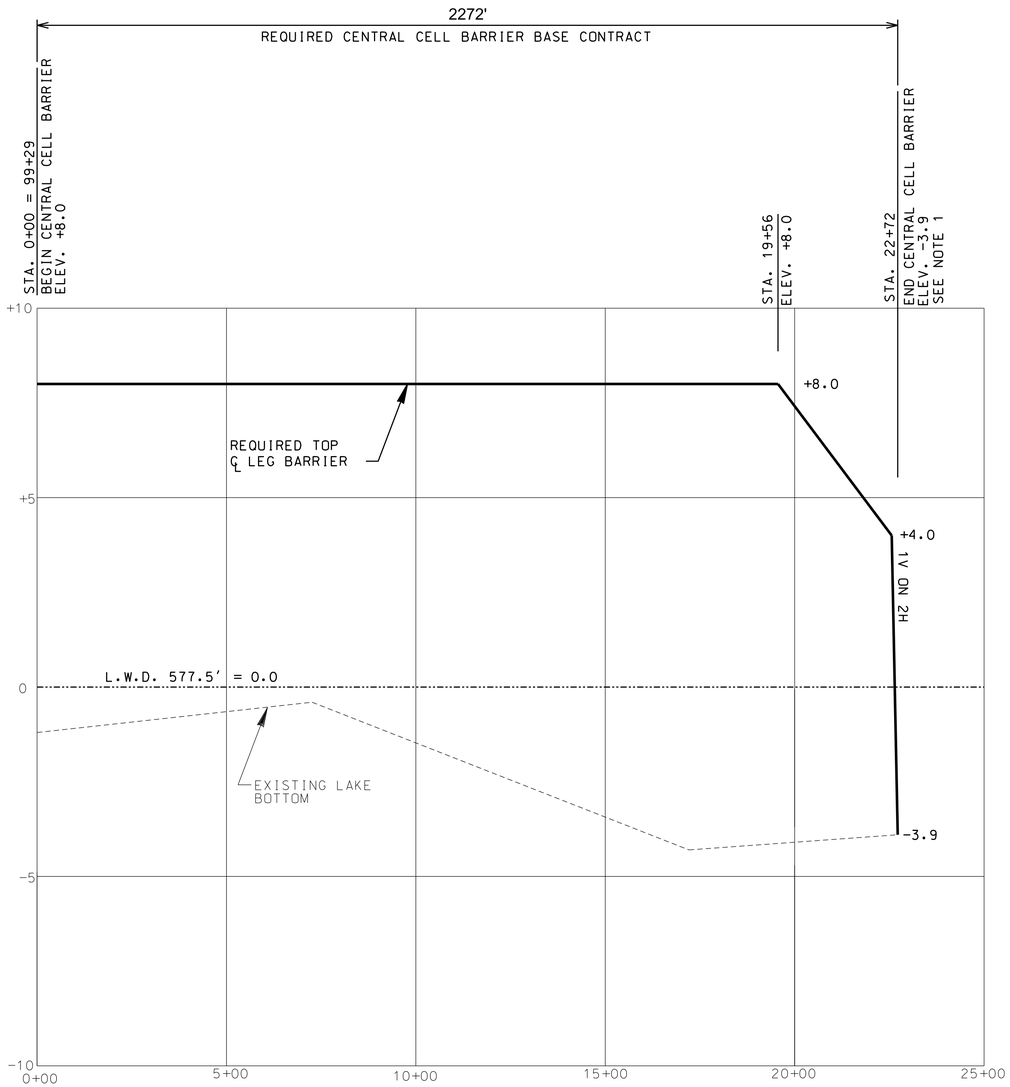
SHEET IDENTIFICATION
CS213
SHEET 13 OF 19



REQUIRED ℄ PROFILE U

CS110, CS212

CENTRAL CELL-WEST LEG
STA 0+00 TO STA 16+92
HORIZONTAL SCALE: 1"=200'
VERTICAL SCALE: 1"=2'



REQUIRED ℄ PROFILE V

CS111, CS212

CENTRAL CELL-EAST LEG
STA 0+00 TO STA 22+72
HORIZONTAL SCALE: 1"=200'
VERTICAL SCALE: 1"=2'

NOTE:
1. SEE SECTION R / CI318 FOR END TRANSITION.

US Army Corps of Engineers
Detroit District

MARK	DESCRIPTION	DATE	APPR.
JS	AS-AWARDED	13-SEPT-2012	JS
JS	READY TO ADVERTISE	10-JULY-2012	JS
JS	PLAN IN HAND	26-JUNE-2012	JS
JS	UPDATED 100% BCOE	14-MAY-2012	JS
JS	CERTIFIED FINAL	27-APRIL-2012	JS
JS	100% BCOE	10-JAN-2011	JS
JS	50% BCOE	07-JULY-2010	JS
JS	VE STUDY	18-JUNE-2010	JS

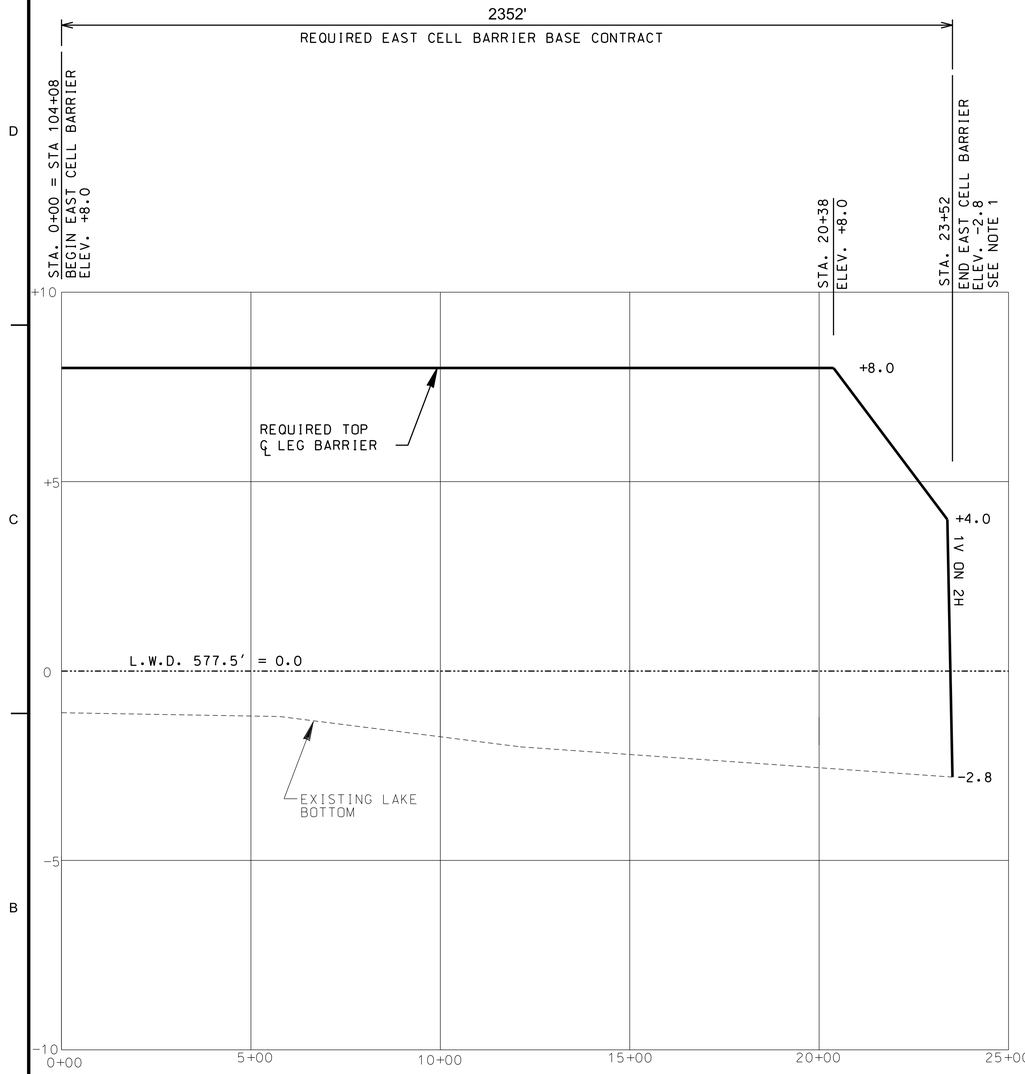
U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT
DETROIT, MICHIGAN

DESIGNED BY: J. SAFA
DRWN BY: EB,JS,BM
SUBMITTED BY: M. ALLEN
PLOT SCALE: 1:200
SIZE: 34X22
DATE: 20-SEPT-2012
CKD BY: WM
PLOT DATE:
FILE NAME: CICS214C12.DGN
SOLICITATION NO.: W911XK-12-B-0003
CONTRACT NO.: W911XK-12-C-0013
FILE NUMBER:

BROWN COUNTY
GREEN BAY WISCONSIN
GREEN BAY DMDF
CAT ISLAND CHAINS

REQUIRED LEG ℄ PROFILE
CENTRAL CELL

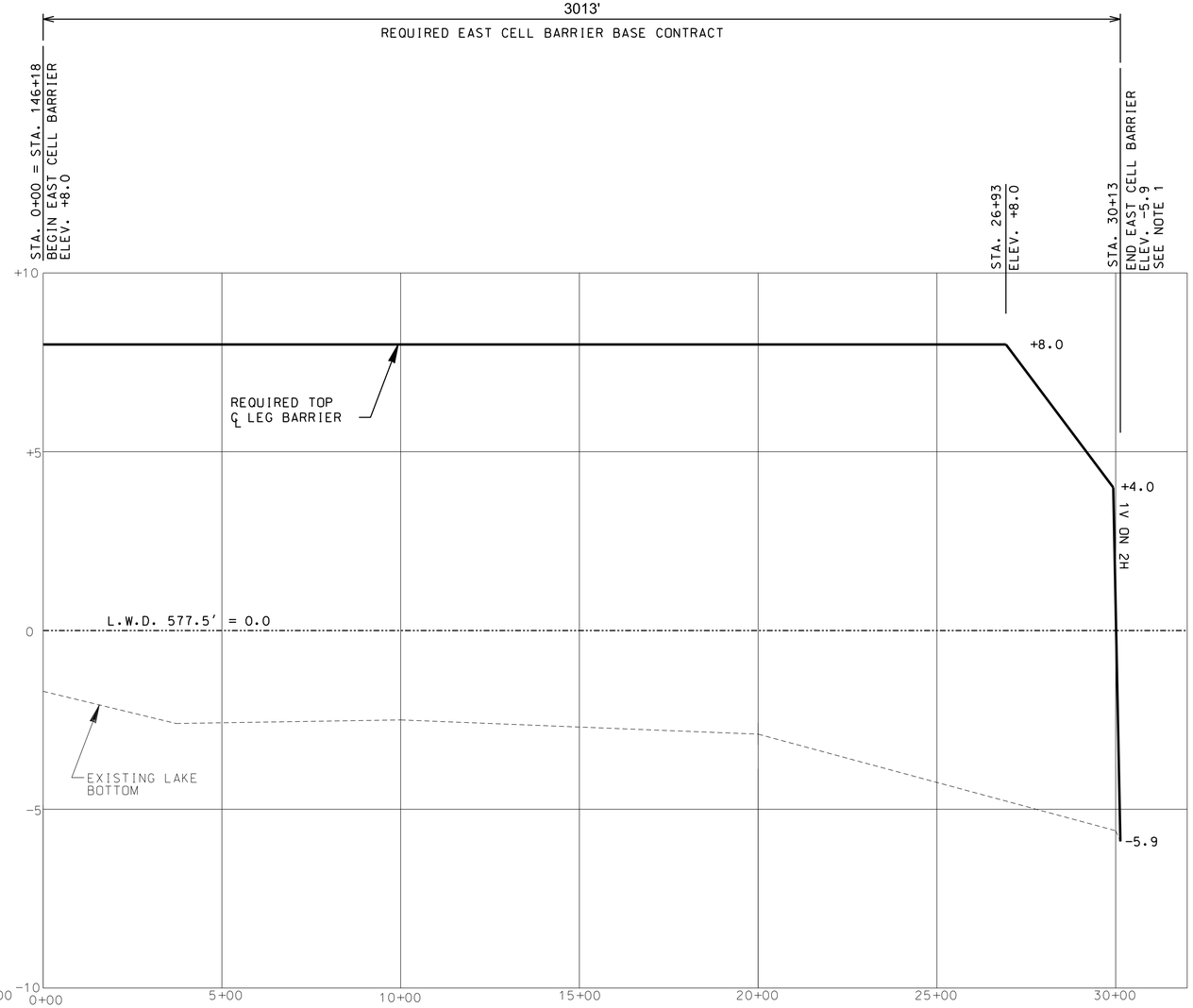
SHEET IDENTIFICATION
CS214
SHEET 14 OF 19



REQUIRED ℄ PROFILE (W)

EAST CELL-WEST LEG
STA 0+00 TO STA 23+52
HORIZONTAL SCALE: 1"=200'
VERTICAL SCALE: 1"=2'

CS111, CS212



REQUIRED ℄ PROFILE (X)

EAST CELL-EAST LEG
STA 0+00 TO STA 30+13
HORIZONTAL SCALE: 1"=200'
VERTICAL SCALE: 1"=2'

CS111, CS212

NOTE:
1. SEE SECTION R/CI318 FOR END TRANSITION.

US Army Corps of Engineers®
Detroit District

MARK	DESCRIPTION	DATE	APPR.
JS	AS-AWARDED	13-SEPT-2012	
JS	VE STUDY	18-JUNE-2010	
JS	50% BCOE	07-JULY-2010	
JS	100% BCOE	10-JAN-2011	
JS	CERTIFIED FINAL	27-APRIL-2012	
JS	UPDATED 100% BCOE	14-MAY-2012	
JS	PLAN IN HAND	26-JUNE-2012	
JS	READY TO ADVERTISE	10-JULY-2012	

DESIGNED BY: J. SAFA
DWN BY: EB/JS,BM
SUBMITTED BY: M. ALLEN
CKD BY: WM
PLOT SCALE: 1=200
SIZE: 34X22
DATE: 20-SEPT-2012
SOLICITATION NO.: W911XK-12-B-0003
CONTRACT NO.: W911XK-12-C-0013
PLOT DATE:
FILE NUMBER:
FILE NAME: CH-52150-12.DGN

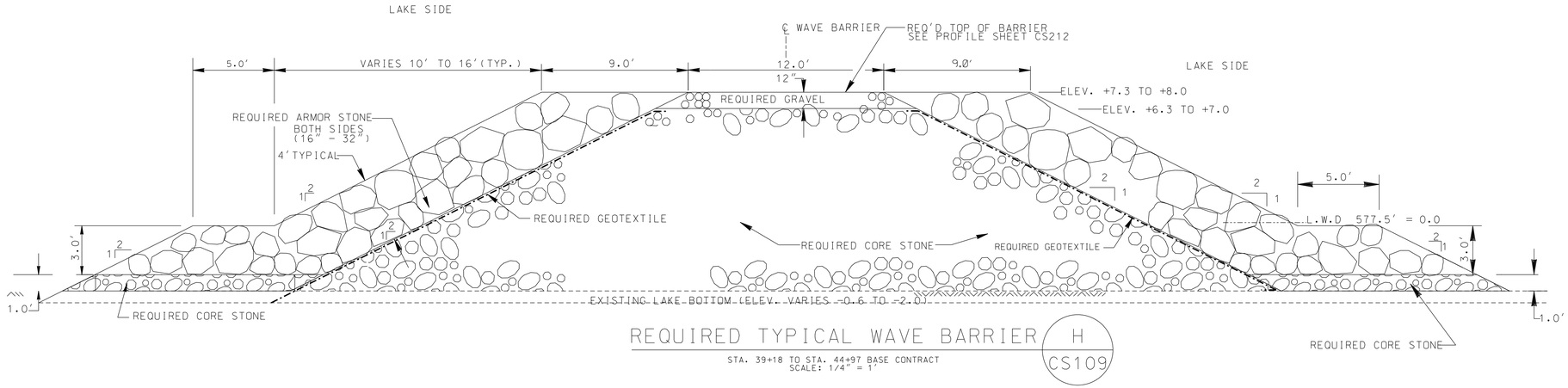
U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT
DETROIT, MICHIGAN

Silver Engineering
Power Safety, Speed Light

BROWN COUNTY
GREEN BAY WISCONSIN
GREEN BAY DMDF
CAT ISLAND CHAINS

REQUIRED LEG ℄ PROFILE
EAST CELL

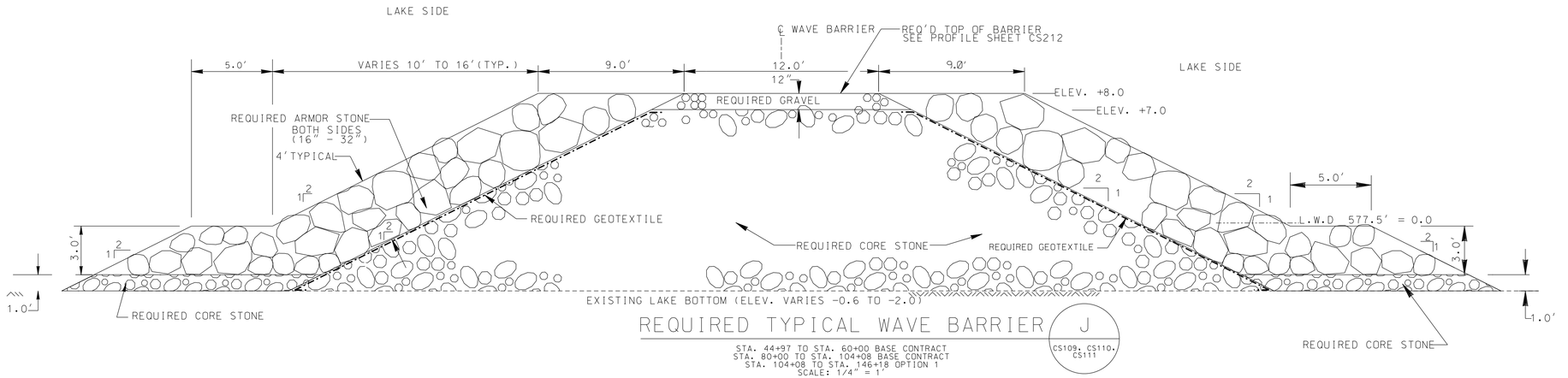
SHEET IDENTIFICATION
CS215
SHEET 15 OF 19



REQUIRED TYPICAL WAVE BARRIER H

STA. 39+18 TO STA. 44+97 BASE CONTRACT
SCALE: 1/4" = 1'

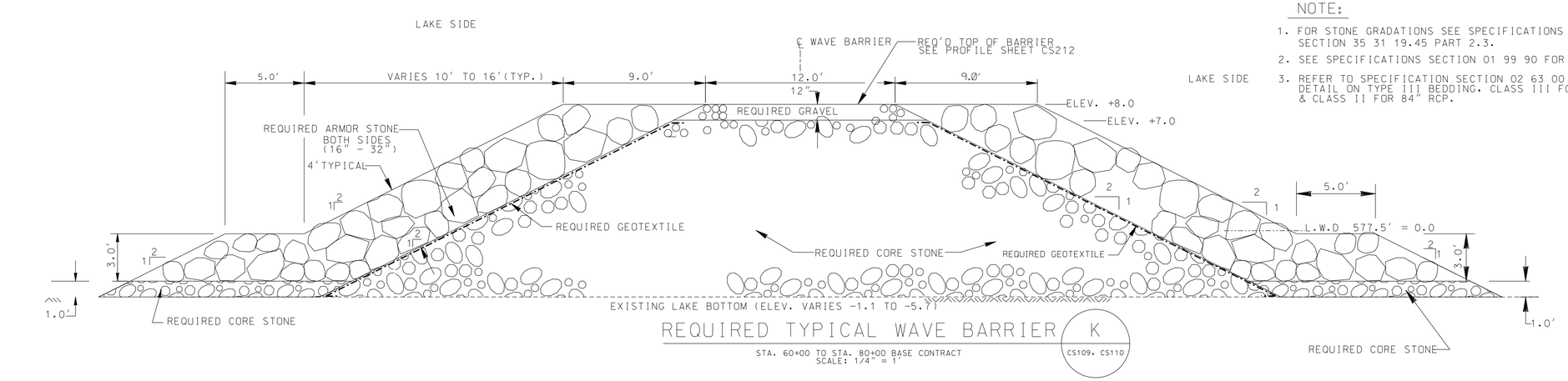
CS109



REQUIRED TYPICAL WAVE BARRIER J

STA. 44+97 TO STA. 60+00 BASE CONTRACT
STA. 80+00 TO STA. 104+08 BASE CONTRACT
STA. 104+08 TO STA. 146+18 OPTION 1
SCALE: 1/4" = 1'

CS109. CS110. CS111



REQUIRED TYPICAL WAVE BARRIER K

STA. 60+00 TO STA. 80+00 BASE CONTRACT
SCALE: 1/4" = 1'

CS109. CS110

NOTE:

1. FOR STONE GRADATIONS SEE SPECIFICATIONS SECTION 35 31 19.45 PART 2.3.
2. SEE SPECIFICATIONS SECTION 01 99 90 FOR BORING TEST RESULTS.
3. REFER TO SPECIFICATION SECTION 02 63 00 FOR MORE DETAIL ON TYPE III BEDDING, CLASS III FOR 24" RCP & CLASS II FOR 84" RCP.

US Army Corps of Engineers®
Detroit District

MARK	DESCRIPTION	DATE	APPR.
JS	AS-AWARDED	19-SEPT-2012	APPR.
JS	READY TO ADVERTISE	15-JULY-2012	
JS	PLAN IN HAND	25-JUNE-2012	
JS	UPDATED 100% BCOE	14-MAY-2012	
JS	CERTIFIED FINAL	27-APRIL-2012	
JS	100% BCOE	15-JAN-2011	
JS	50% BCOE	07-JULY-2010	
JS	VE STUDY	18-JUNE-2010	

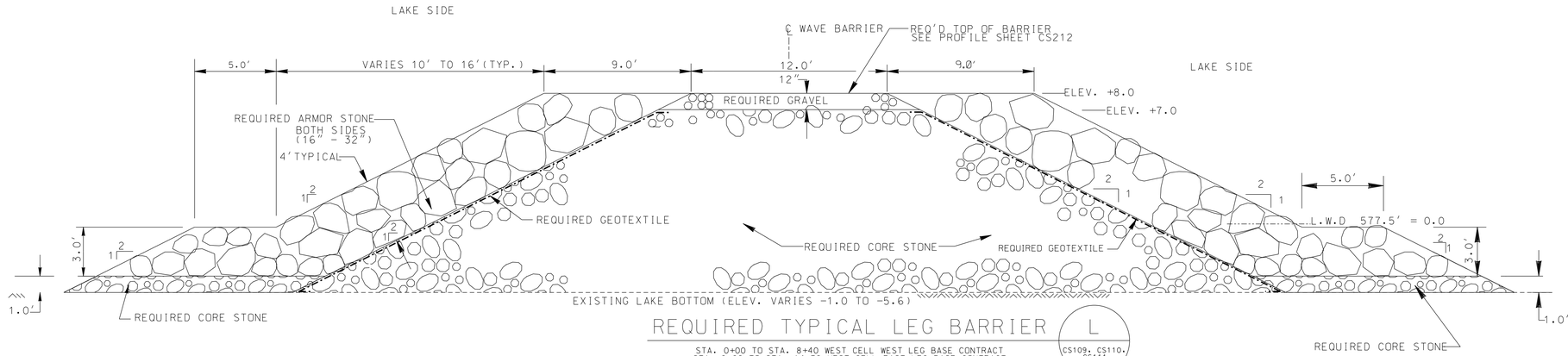
U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT
DETROIT, MICHIGAN

DESIGNED BY: J. SAFA
DRAWN BY: EB, JS, BM
SUBMITTED BY: M. ALLEN
PLOT SCALE: 1
SIZE: 34X22
CHKD BY: WM
DATE: 20-SEPT-2012
PLOT DATE:
FILE NAME: CI0316C12.DGN
SOLICITATION NO.: W911KX-12-B-0003
CONTRACT NO.: W911KX-12-C-0013
FILE NUMBER:

BROWN COUNTY,
GREEN BAY WISCONSIN
GREEN BAY DMDF
CAT ISLAND CHAINS

REQ'D CROSS SECTIONS
WAVE BARRIER

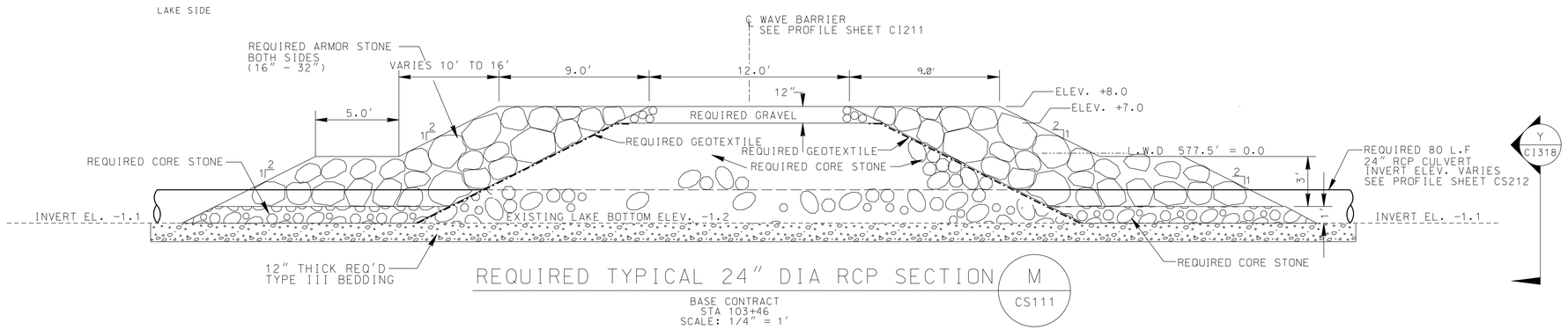
SHEET IDENTIFICATION
CI316
SHEET 16 OF 19



REQUIRED TYPICAL LEG BARRIER (L)

CS109, CS110, CS111

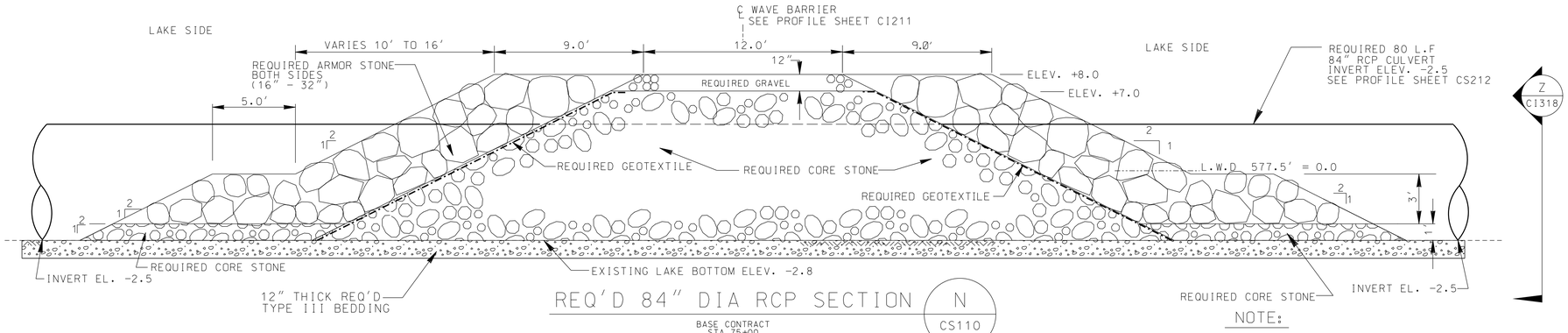
STA. 0+00 TO STA. 8+40 WEST CELL WEST LEG BASE CONTRACT
STA. 0+00 TO STA. 14+39 WEST CELL EAST LEG BASE CONTRACT
STA. 0+00 TO STA. 13+78 CENTRAL CELL WEST LEG BASE CONTRACT
STA. 0+00 TO STA. 19+56 CENTRAL CELL EAST LEG BASE CONTRACT
STA. 0+00 TO STA. 20+38 EAST CELL WEST LEG OPTION 1
STA. 0+00 TO STA. 26+93 EAST CELL EAST LEG OPTION 1
SCALE: 1/4" = 1'



REQUIRED TYPICAL 24" DIA RCP SECTION (M)

CS111

BASE CONTRACT
STA 103+46
SCALE: 1/4" = 1'



REQ'D 84" DIA RCP SECTION (N)

CS110

BASE CONTRACT
STA 75+00
SCALE: 1/4" = 1'

NOTE:

1. FOR STONE GRADATIONS SEE SPECIFICATIONS SECTION 35 31 19.45 PART 2.3.
2. SEE SPECIFICATIONS SECTION 01 99 90 FOR BORING TEST RESULTS.
3. REFER TO SPECIFICATION SECTION 02 63 00 FOR MORE DETAIL ON TYPE III BEDDING. CLASS III FOR 24" RCP & CLASS II FOR 84" RCP.

US Army Corps of Engineers®
Detroit District

MARK	DESCRIPTION	DATE	APPR.
JS	AS-AWARDED	19-SEPT-2012	APPR.
JS	50% BCOE	07-JULY-2010	
JS	VE STUDY	18-JUNE-2010	
JS	100% BCOE	10-JAN-2011	
JS	CERTIFIED FINAL	27-APRIL-2012	
JS	UPDATED 100% BCOE	14-MAY-2012	
JS	PLAN IN HAND	26-JUNE-2012	
JS	READY TO ADVERTISE	19-JULY-2012	

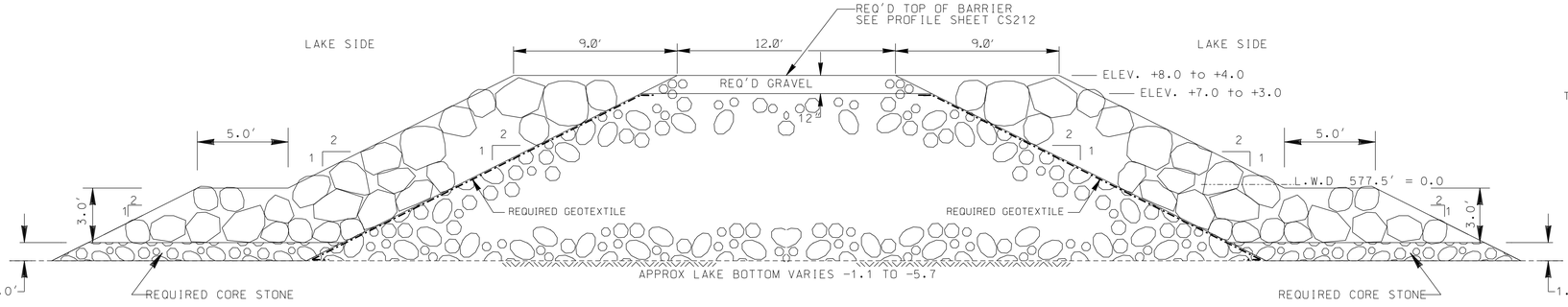
DATE: 20-SEPT-2012
SOLICITATION NO.: W911XK-12-B-0003
CONTRACT NO.: W911XK-12-C-0013
FILE NUMBER:
DESIGNED BY: J. SAFA
DRAWN BY: EB,JS,BM
SUBMITTED BY: M. ALLEN
CKD BY: WM
PLOT DATE:
PLOT SCALE: 1=1
SIZE: 34X22
FILE NAME: CI0317C12.DGN

U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT
DETROIT, MICHIGAN

BROWN COUNTY
GREEN BAY WISCONSIN
GREEN BAY DMDF
CAT ISLAND CHAINS

REQ'D CROSS SECTION
WAVE BARRIER, 24" DIA.
& 84" DIA. RCP

SHEET IDENTIFICATION
CI317
SHEET 17 OF 19

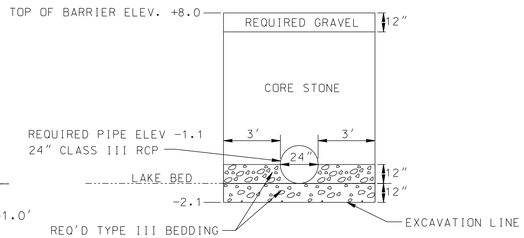


REQUIRED TYPICAL LEG TAPER WAVE BARRIER

Q

CS109
CS110
CS111

STA. 8+40 TO STA. 11+40 WEST CELL WEST LEG BASE CONTRACT
STA. 14+39 TO STA. 17+39 WEST CELL EAST LEG BASE CONTRACT
STA. 13+78 TO STA. 16+79 CENTRAL CELL WEST LEG BASE CONTRACT
STA. 19+56 TO STA. 22+56 CENTRAL CELL EAST LEG BASE CONTRACT
STA. 20+38 TO STA. 23+38 EAST CELL WEST LEG OPTION 1
STA. 26+93 TO STA. 30+93 EAST CELL EAST LEG OPTION 1
SCALE: 1/4" = 1'

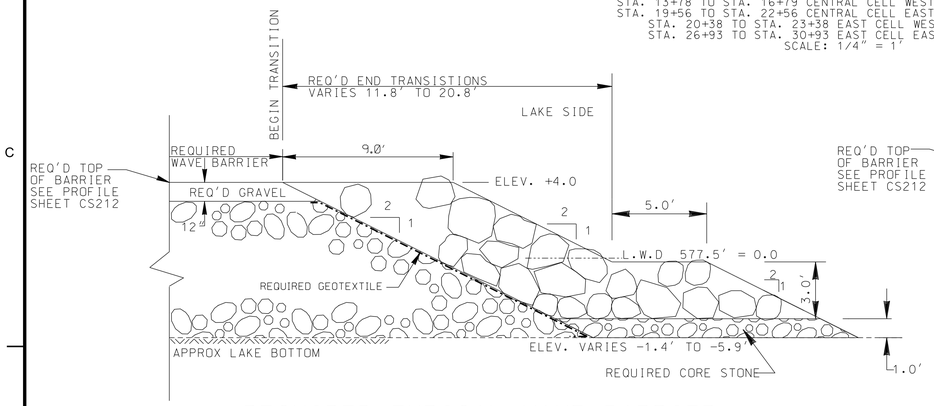


REQ'D TYP TRENCH DETAIL 24" RCP

Y

CI317

STA 103+46 BASE CONTRACT
SCALE: 1/4" =1'-0"

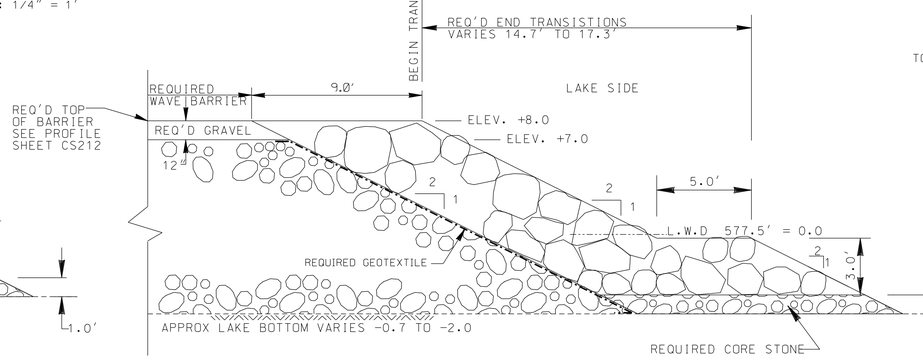


REQUIRED TYPICAL WAVE BARRIER END TRANSITION

R

CS109
CS110
CS111

STA. 11+40 TO STA. 11+51 WEST CELL WEST LEG BASE CONTRACT
STA. 17+39 TO STA. 17+51 WEST CELL EAST LEG BASE CONTRACT
STA. 16+79 TO STA. 16+92 CENTRAL CELL WEST LEG BASE CONTRACT
STA. 22+56 TO STA. 22+72 CENTRAL CELL EAST LEG BASE CONTRACT
STA. 23+38 TO STA. 23+52 EAST CELL WEST LEG OPTION 1
STA. 29+93 TO STA. 30+13 EAST CELL EAST LEG OPTION 1
SCALE: 1/4" = 1'

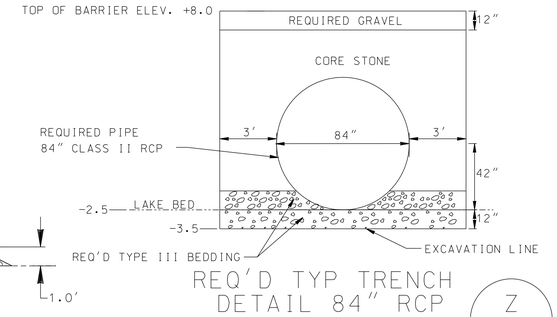


REQUIRED TYPICAL WAVE BARRIER END TRANSITION

R1

CS212

STA. 146+00 TO STA. 146+18 OPTION 1
SCALE: 1/4" = 1'

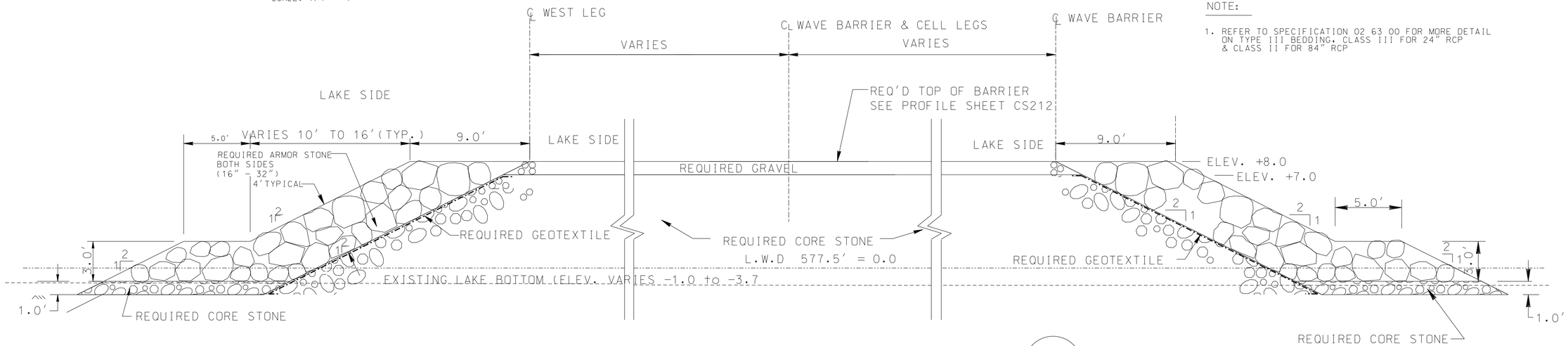


REQ'D TYP TRENCH DETAIL 84" RCP

Z

CI317

STA 75+00 BASE CONTRACT
SCALE: 1/4" =1'-0"



REQUIRED TYPICAL WAVE BARRIER & CELL LEGS

P

CS109
CS110
CS111

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

NOTE:

1. REFER TO SPECIFICATION 02 63 00 FOR MORE DETAIL ON TYPE III BEDDING. CLASS III FOR 24" RCP & CLASS II FOR 84" RCP

US Army Corps of Engineers
Detroit District

MARK	DESCRIPTION	DATE	APPR.
JS	AS-AWARDED	19-SEPT-2012	
JS	VE STUDY	18-JUNE-2010	
JS	50% BCOE	07-JULY-2010	
JS	100% BCOE	10-JAN-2011	
JS	CERTIFIED FINAL	27-APRIL-2012	
JS	UPDATED 100% BCOE	14-MAY-2012	
JS	PLAN IN HAND	26-JUNE-2012	
JS	READY TO ADVERTISE	10-JULY-2012	

DESIGNED BY: J.SAFA
DRAWN BY: EB./S.BM
CKD BY: WM
SUBMITTED BY: M. ALLEN
PLOT SCALE: 1=1
PLOT DATE:
SIZE: 34X22
FILE NAME: CI318P12.DGN
FILE NUMBER:
DATE: 20-SEPT-2012
SOLICITATION NO.: W911XK-12-B-0003
CONTRACT NO.: W911XK-12-C-0013

U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT
DETROIT, MICHIGAN

BROWN COUNTY
GREEN BAY WISCONSIN
GREEN BAY DMDF
CAT ISLAND CHAINS

REQ'D TRANSITIONS & DETAILS

SHEET IDENTIFICATION
CI318
SHEET 18 OF 19

NOTES:

1. ACCESS ROAD ALONG LANDS OF BROWN COUNTY CONSERVATION ALLIANCE PROPERTY CAN NOT ENCROACH ON SAID LANDS BEYOND THE 25' WIDE ROAD EASEMENT ON WESTERLY EDGE OF SAID LANDS.

2. ACCESS ROAD MUST NOT ENCROACH ON WDNR LANDS.

3. CONTRACTOR SHALL USE THE TEMPORARY WORK & STORAGE AREA FOR EMPLOYEE PARKING DURING CONSTRUCTION HOURS, TEMPORARY STAGING OF CONSTRUCTION EQUIPMENT AND CONSTRUCTION MATERIALS EXCEPT THAT NO STONE OR GRAVEL MAY BE STORED. THE CONTRACTOR SHALL HAVE ADEQUATE ROOM IN THE SITE TO ALLOW THE SCHOOL BUS TO TURN AROUND AND ROOM FOR PUBLIC PARKING. THE SITE HAS A 12" CLAY CAP OVER CONTAMINATED SOIL. NO PENETRATION OF ANY SORT IS ALLOWED INTO THE 12" CAPPED AREA. THE CONTRACTOR SHALL OBTAIN PRIOR APPROVAL FOR PLACEMENT OF SIGNS, FENCES, POSTS, MARKERS OR ANY MODIFICATIONS TO THE SITE FROM THE COR'S DESIGNATED REPRESENTATIVE. THE SITE IS NOT SECURED AND THE CONTRACTOR'S USE OF THE SITE IS AT HIS OR HER OWN RISK. THE CONTRACTOR SHALL RESTORE THE SITE TO IT'S PRE-USE CONDITION.

EXISTING ACCESS ROAD EASEMENT AA GC419

SCALE: NTS

REAL ESTATE PLAN

SCALE: 1"=600'

LEGEND

LAKE BED GRANT (APPROX TOTAL = 381.62 ACRE)

EXISTING ACCESS ROAD (APPROX TOTAL = 2.40 ACRE)

TEMPOPRARY WORK & STORAGE AREA (APPROX TOTAL = 0.57 ACRE)

EXTENDED LAKEBED GRANT COORDINATE TABLE

Point	North	East
1	280398.21	2485489.44
2	279587.96	2485122.06
3	278591.39	2485143.11
4	277786.20	2485450.40
5	277197.03	2484522.42
6	272429.53	2486516.22
7	270801.63	2488103.07
8	270888.34	2490797.23
9	271270.94	2490921.49
10	271570.19	2490489.29
11	272087.92	2489945.42
12	272450.00	2490290.08
13	272849.79	2490280.23
14	272815.33	2488880.96
15	277910.41	2485646.05
16	278636.67	2485337.97
17	279577.05	2485323.41
18	280393.43	2485709.77

US Army Corps of Engineers® Detroit District

MARK	DESCRIPTION	DATE	APPR.
JS	AS-AWARDED	19-SEPT-2012	APPR.
JS	50% BCOE	07-JULY-2010	
JS	100% BCOE	10-JAN-2011	
JS	CERTIFIED FINAL	27-APRIL-2012	
JS	UPDATED 100% BCOE	14-MAY-2012	
JS	PLAN IN HAND	26-JUNE-2012	
JS	READY TO ADVERTISE	19-JULY-2012	

U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT
DETROIT, MICHIGAN

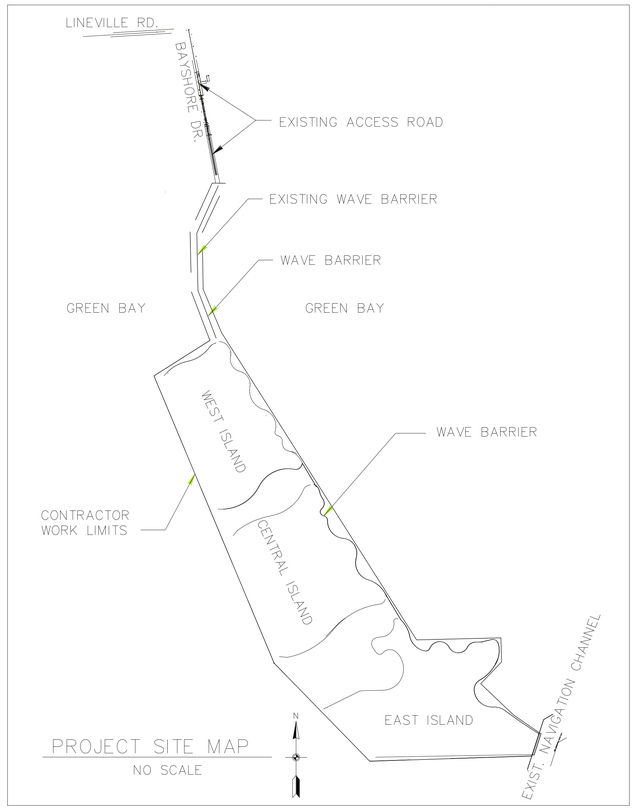
DESIGNED BY: J. SAFA
DWN BY: EB, JS, BM
CKD BY: WM
SUBMITTED BY: M. ALLEN
PLOT SCALE: 1:600
PLOT DATE:
SIZE: 34X22
DATE: 20-SEPT-2012
SOLICITATION NO.: W911XK-12-B-0003
CONTRACT NO.: W911XK-12-C-0013
FILE NUMBER:
FILE NAME: CEGC419C12.DGN

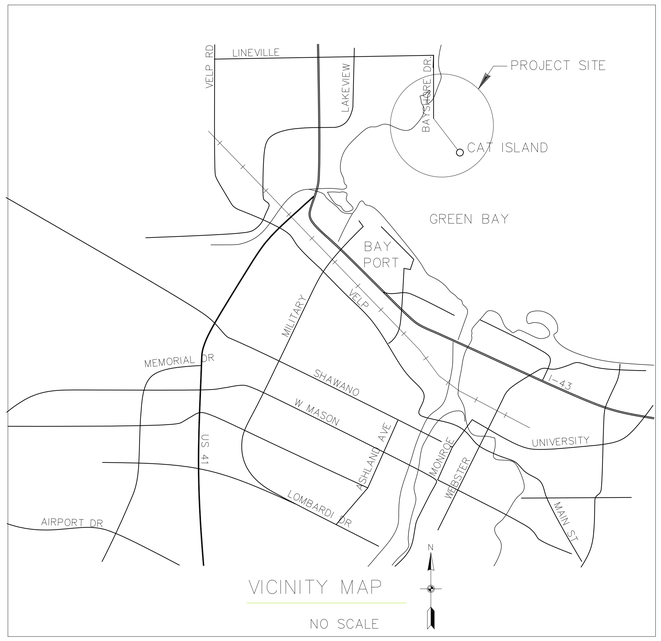
BROWN COUNTY
GREEN BAY WISCONSIN
GREEN BAY DMDF
CAT ISLAND CHAINS

REAL ESTATE PLAN

SHEET IDENTIFICATION
GC419
SHEET 19 OF 19

AS BUILT GREEN BAY DMDF
CAT ISLAND CHAINS
BROWN COUNTY, GREEN BAY, WISCONSIN





BEFORE YOU DIG
CALL DIGGERS HOTLINE
800-242-8511
(TOLL FREE)
3 WORKING DAYS,
EXCLUDING SATURDAY,
SUNDAY & HOLIDAYS

SECTION & DETAIL CROSS REFERENCES

X — IDENTIFICATION NUMBER
X — NUMBER OF SHEET WHERE DRAWN

GENERAL NOTES

1. ALL SOUNDINGS AND ELEVATIONS ARE IN FEET. THEY ARE REFERRED TO LOW WATER DATUM (577.5 FEET ABOVE MEAN WATER LEVEL, IGLD 1985, FEET).
2. ELEVATIONS ABOVE LWD ARE SHOWN AS +5.00, SOUNDINGS BELOW LWD ARE SHOWN AS -5.00.
3. THE CONTRACTOR DID LOCATE ALL UTILITIES PRIOR TO STARTING WORK AND DID CONDUCT OPERATIONS IN SUCH A MANNER AS TO ENSURE THAT THOSE UTILITIES NOT REQUIRING RELOCATION WILL NOT BE DISTURBED.
4. THE GRIDS SHOWN ARE BASED ON THE NATIONAL GEODETIC SURVEY PROJECTION TABLES, STATE OF WISCONSIN, CENTRAL ZONE (4802), LAMBERT TWO, 1983 NORTH AMERICAN DATUM, (NAD83) US SURVEY FEET.
5. ALL ITEMS ARE EXISTING UNLESS MARKED AS REQUIRED.
6. THE EXISTING INFORMATION DEPICTED ON THESE DRAWINGS REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THE TIME. SURVEY BY GOURDIE FRASER ON FEB. 2010 AND OCTOBER 2010. SURVEY SHOWN ON SHEETS CS402, CS103 & CS104 WATER LEVEL AND CONDITIONS AT THE SITE SHOWN ARE BASED ON FEB. 2010 AND OCTOBER 2010 SURVEYS. CONTRACTORS MUST BE AWARE OF CLIMATE CHANGES AND OTHER CONDITIONS THAT COULD AFFECT THE WORK AND PROCEED ACCORDINGLY.
7. PRIOR TO START OF CONSTRUCTION THE CONTRACTOR DID CONDUCT CHECK SURVEYS ON EACH ASPECT OF THE WORK AS PROVIDED FOR IN THE SPECIFICATIONS. IF RESULTS OF THE CHECK SURVEYS DIFFER FROM THE FEB. AND OCTOBER 2010, SURVEYS, NOTIFY CONTRACTING OFFICER PRIOR TO PROCEEDING WITH WORK.
8. THE REQUIRED WORK CONSISTED OF, BUT NOT LIMITED TO, CONSTRUCTION OF APPROXIMATELY 4.3 MILES OF EIGHT FEET HIGH WAVE BARRIER CORE STONE DIKE WITH 12' WIDE GRAVEL ROAD ON TOP AND 1V ON 2H ARMOR STONE SIDE SLOPES ON EXISTING GREEN BAY LAKE BOTTOM AND INSTALLING APPROXIMATELY 80 LINEAR FEET OF 24" & 80 LINEAR FEET OF 84" REINFORCED CONCRETE PIPE CULVERTS.
9. THE ABOVE REQUIRED WORK CONSISTS OF : BASE CONTRACT FROM STA. 39+18 TO STA. 104+08, WEST AND CENTRAL CELLS LEGS, OPTION 1 FROM STA. 104+08 TO STA. 146+18 AND OPTION 2 EAST CELL LEGS.
10. SEE SPECIFICATIONS SECTION 01 99 90 FOR BORING TEST RESULTS.
11. THE CONTRACTOR DID MAINTAIN THE LINEVILLE AND BAYSHORE ROADS IN DRIVABLE CONDITION FOR THE DURATION OF THE PROJECT. DRIVABLE WILL BE DEFINED AS USEABLE FOR PASSENGER VEHICLES TO ACCESS RESIDENCES AS WELL AS FOR GARBAGE TRUCKS AND BUSES TO DRIVE ON. ANY POTHOLES WERE IMMEDIATELY REPAIRED WITH GRAVEL AND GRADED. ANY DAMAGED ASPHALT WAS PATCHED IMMEDIATELY TO ALLOW PASSENGER VEHICLES TO CONTINUE TO SAFELY USE THE ROAD.
12. NO STONE OR GRAVEL FOR THIS PROJECT WAS TEMPORARILY STOCKPILED OUTSIDE THE FOOTPRINT OF THE ACCESS ROAD, EXISTING OR NEW WAVE BARRIER OR CELL LEGS FOR THE THREE CELLS.

DRAWING INDEX

ABBREVIATIONS

AVERAGE -- AVE
CENTER TO CENTER -- C/C
CENTERLINE -- $\mathcal{L}$
CORPS OF ENGINEERS -- COE
DIAMETER -- DIAM
ELEVATION -- EL
END OF PROJECT -- EOP
EXISTING -- EXIST
FEET -- FT
GRADE -- GR
INCHES -- IN
INTERNATIONAL GREAT LAKES DATUM -- IGLD
LOW WATER DATUM -- LWD
MAXIMUM -- MAX.
MINIMUM -- MIN.
MISCELLANEOUS -- MISC
ON CENTER -- O/C
PLATE -- PL
REINFORCED -- REIN
REQUIRED -- REQD
STATION -- STA
SHEET -- SHT
STEEL SHEET PILE -- SSP
STRUCTURE -- STRUCT.
TYPICAL -- TYP
UNITED STATES COAST GUARD -- USCG
WORKING POINT -- W.P.

LEGEND

- SET BM
- BM — EXISTING BM
- CONTROL POINT (NAIL SET)
- CONTROL POINT (IRON FOUND)
- BORING
- SHORELINE
- -2.8 — GROUND SHOT
- CONTROL POINT
- REQUIRED GEOTEXTILE

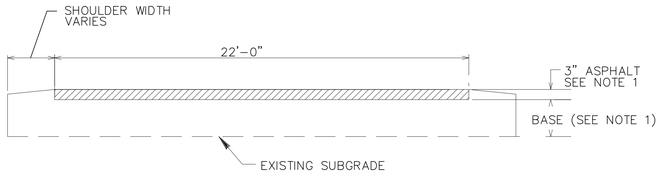
MICHELS CORPORATION

MARK	DESCRIPTION	DATE	APPR
PRW	AS BUILT	1/6/2014	

BROWN COUNTY
GREEN BAY WISCONSIN
GREEN BAY DMDF
CAT ISLAND CHAINS

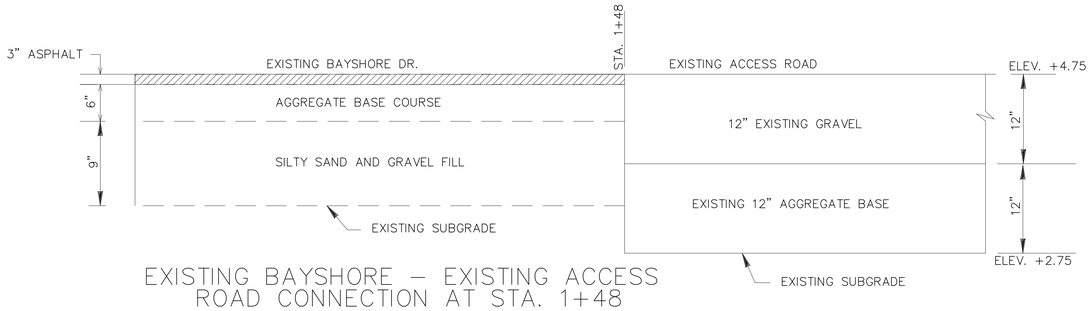
AS BUILT PROJECT TITLE SHEET

SHEET IDENTIFICATION
01
SHEET 01 OF 06



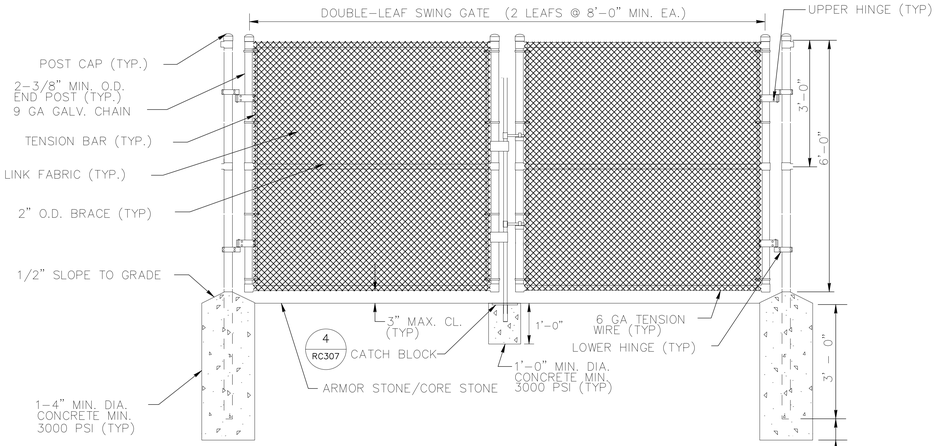
EXISTING SECTION
LINEVILLE RD./BAYSHORE DR. CROSS SECTION

SCALE: NTS



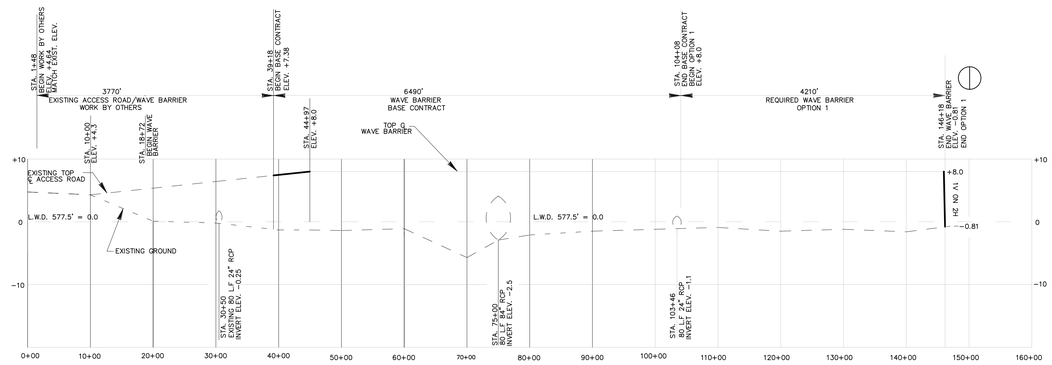
EXISTING BAYSHORE – EXISTING ACCESS ROAD CONNECTION AT STA. 1+48

SCALE: NTS

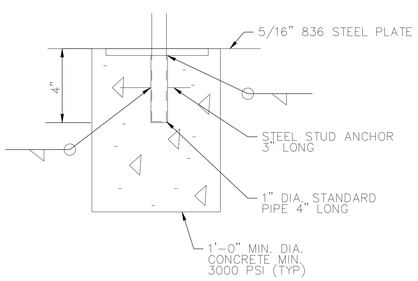


EXISTING GATE DETAIL AT STA. 1+48

SCALE: NTS



OVERALL ℄ PROFILE
STA. 39+18 TO STA. 146+18
SCALE: NTS



EXISTING CATCH BLOCK DETAIL

SCALE: NTS

MICHELS CORPORATION

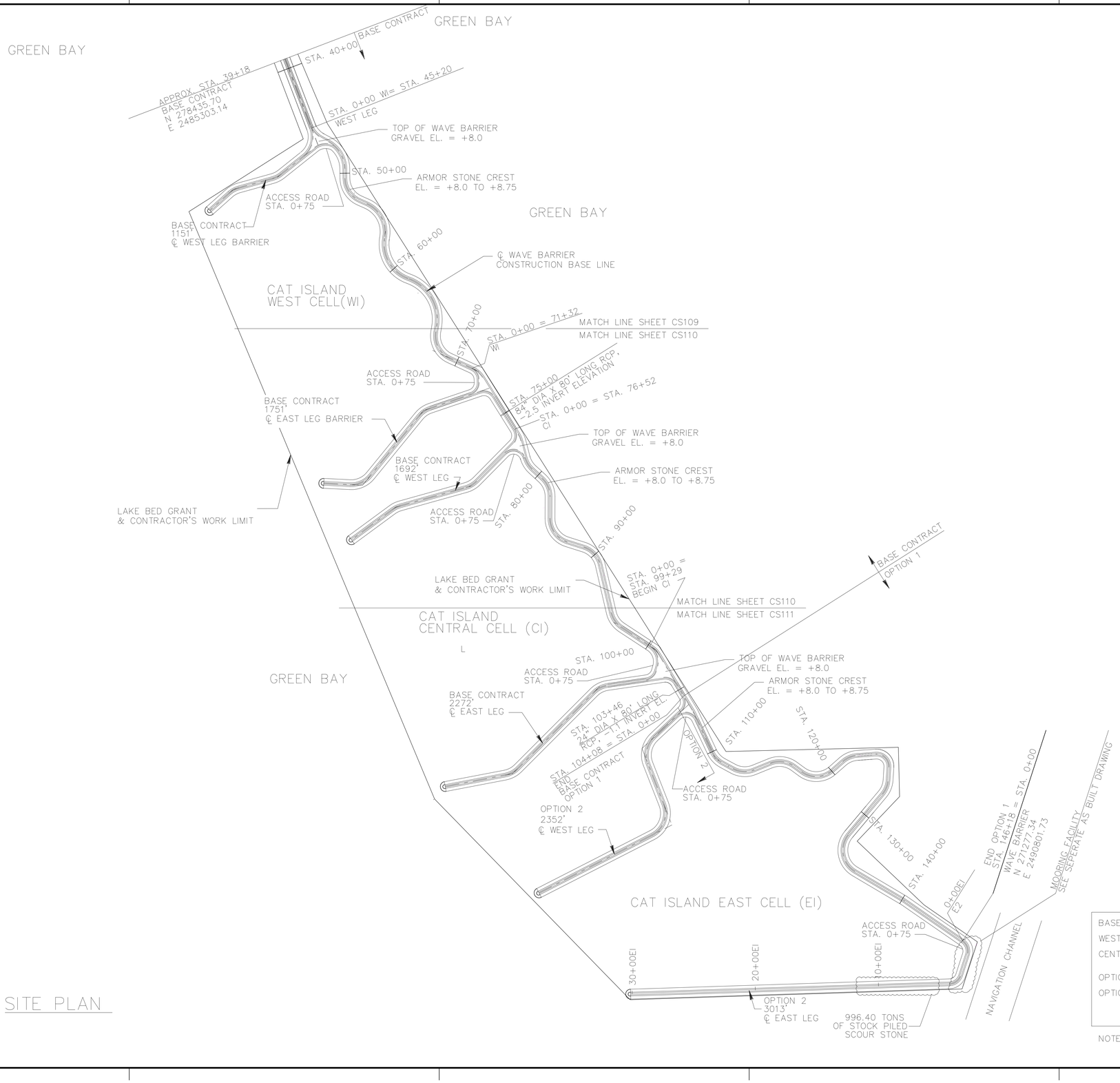
MARK	DESCRIPTION	DATE	APPR
PRW	AS BUILT	1/6/2014	

MARK	DESCRIPTION	DATE	APPR

BROWN COUNTY
GREEN BAY WISCONSIN
GREEN BAY DMDF
CAT ISLAND CHAINS

EXISTING CROSS SECTIONS & DETAILS

SHEET IDENTIFICATION
02
SHEET 02 OF 06



SITE PLAN

BASE CONTRACT STA. 39+18 TO STA. 104+08

WEST CELL LEGS: STA. 0+00 TO STA. 11+51
STA. 0+00 TO STA. 17+51

CENTRAL CELL LEGS: STA. 0+00 TO STA. 16+92
STA. 0+00 TO STA. 22+72

OPTION 1: STA. 104+08 TO STA. 146+18

OPTION 2: STA. 0+00 TO 23+52
STA. 0+00 TO STA. 30+13

NOTE: CONTOUR LINE ELEVATIONS NOT SHOWN FOR CLARITY, SEE SHEET 04 AND 05 FOR SPOT ELEVATIONS

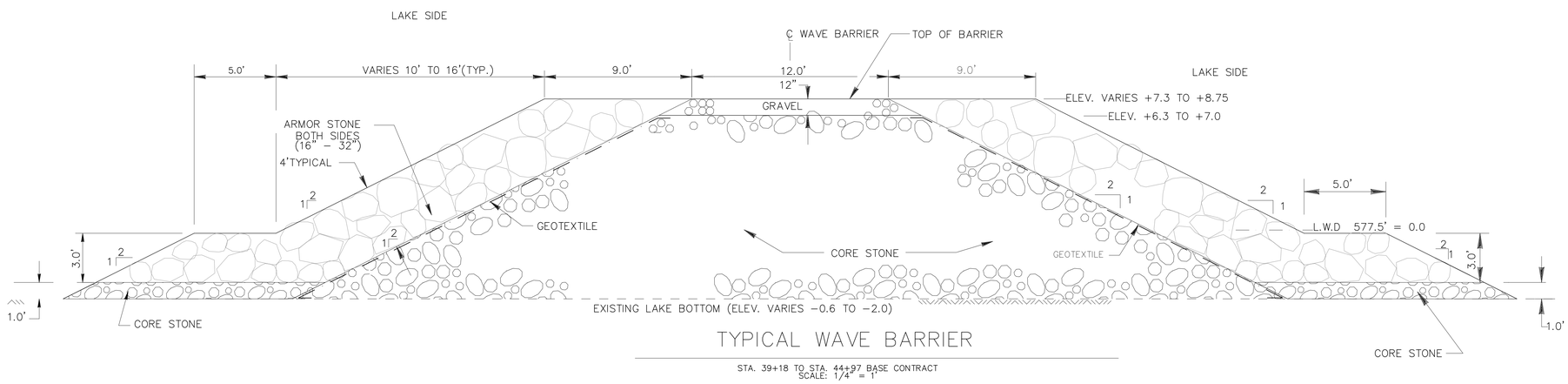
MICHELS CORPORATION

MARK	DESCRIPTION	DATE	APPR.
PRW	AS BUILT	1/6/2014	

BROWN COUNTY
GREEN BAY WISCONSIN
GREEN BAY DMDF
CAT ISLAND CHAINS

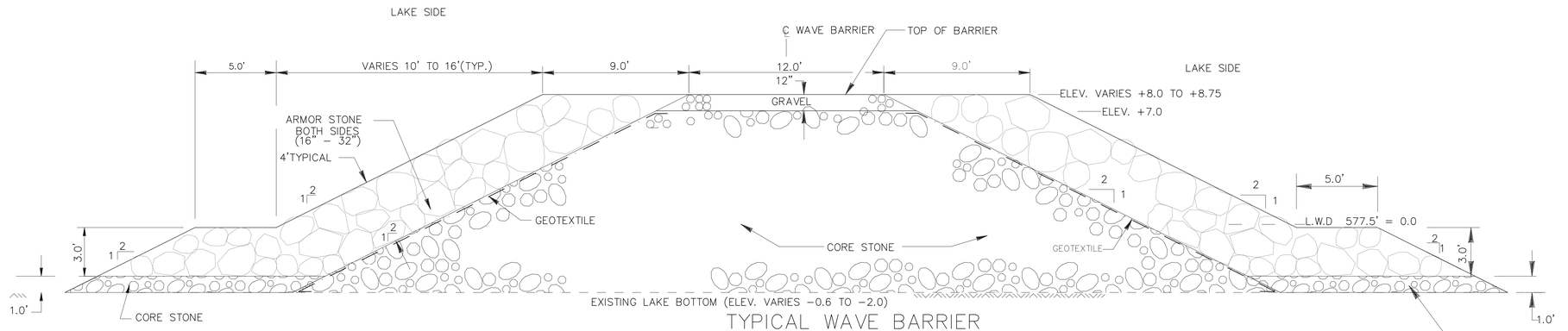
OVERALL SITE PLAN

SHEET IDENTIFICATION
03
SHEET 03 OF 06



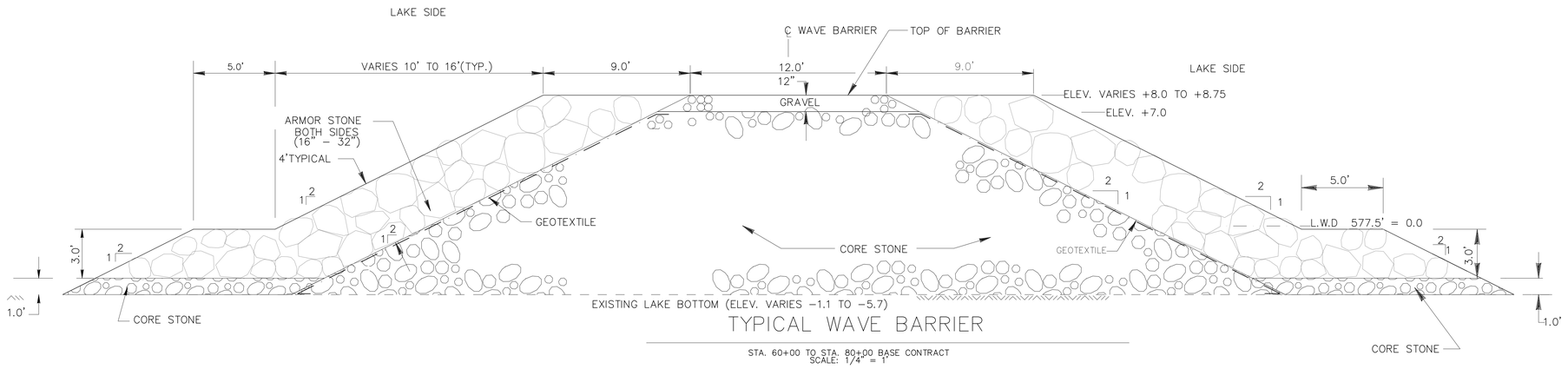
TYPICAL WAVE BARRIER

STA. 39+18 TO STA. 44+97 BASE CONTRACT
SCALE: 1/4" = 1'



TYPICAL WAVE BARRIER

STA. 44+97 TO STA. 60+00 BASE CONTRACT
STA. 80+00 TO STA. 104+08 BASE CONTRACT
STA. 104+08 TO STA. 146+18 OPTION 1
SCALE: 1/4" = 1'



TYPICAL WAVE BARRIER

STA. 60+00 TO STA. 80+00 BASE CONTRACT
SCALE: 1/4" = 1'

MICHELS CORPORATION

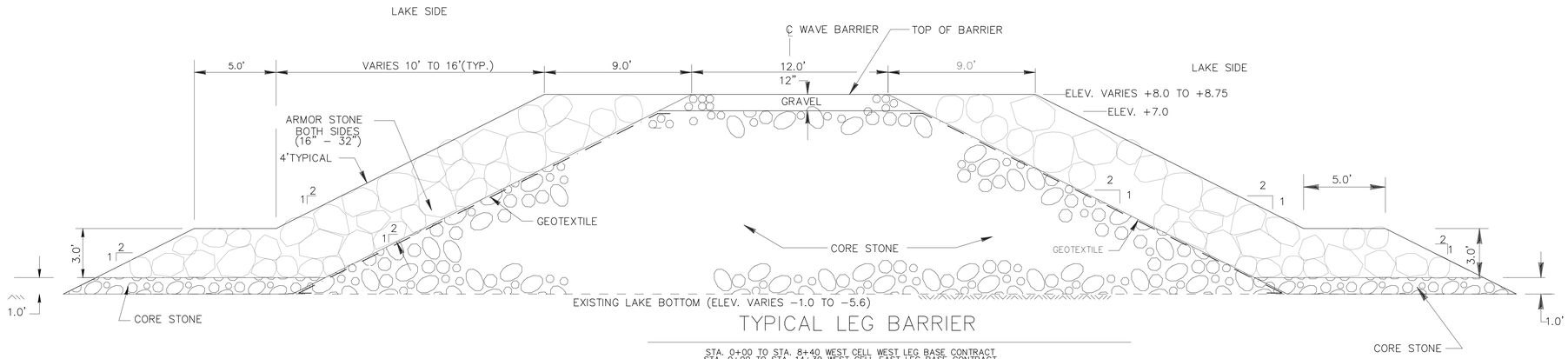
MARK	DESCRIPTION	DATE	APPR.
PRW	AS BUILT	1/6/2014	

MARK	DESCRIPTION	DATE	APPR.

BROWN COUNTY
GREEN BAY WISCONSIN
GREEN BAY DMDF
CAT ISLAND CHAINS

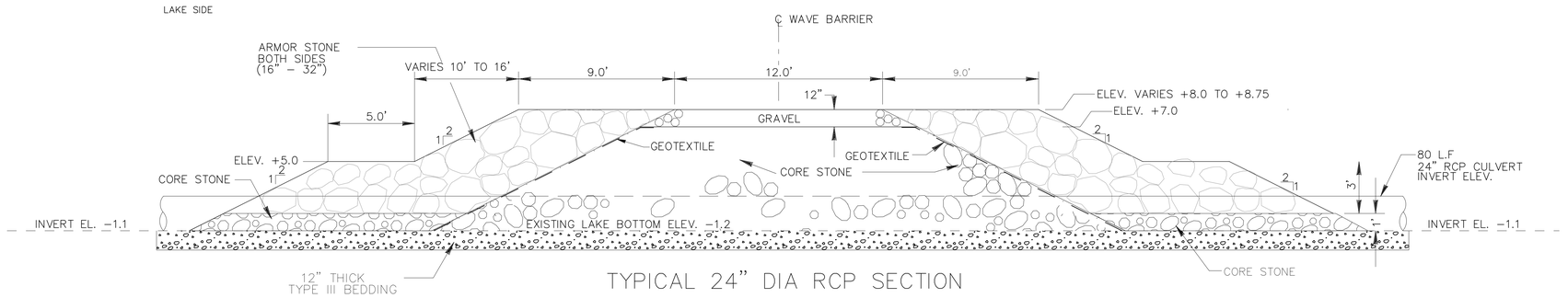
CROSS SECTIONS
WAVE BARRIER

SHEET IDENTIFICATION
04
SHEET 04 OF 06



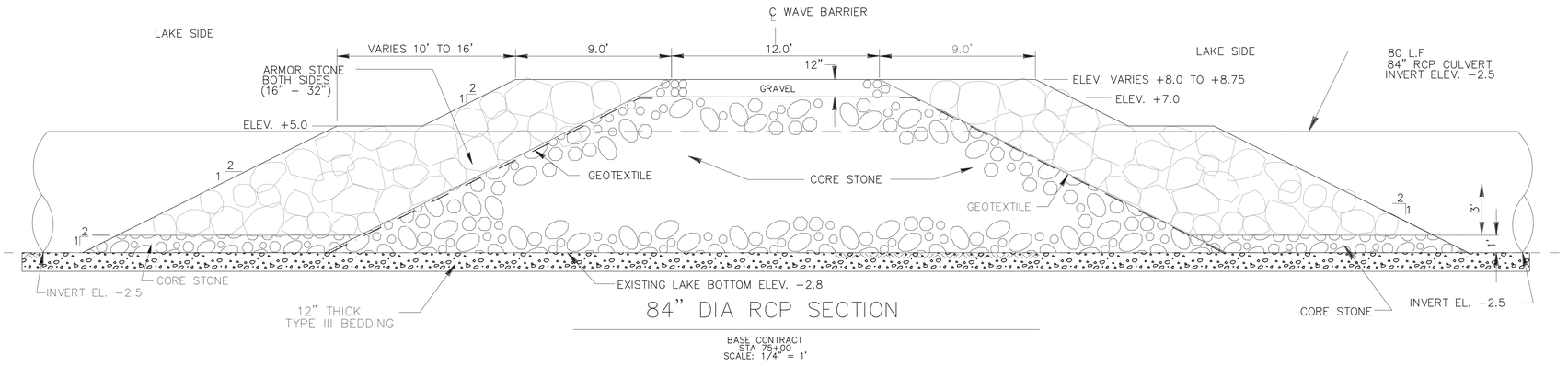
TYPICAL LEG BARRIER

STA. 0+00 TO STA. 8+40 WEST CELL WEST LEG BASE CONTRACT
STA. 0+00 TO STA. 14+39 WEST CELL EAST LEG BASE CONTRACT
STA. 0+00 TO STA. 13+78 CENTRAL CELL WEST LEG BASE CONTRACT
STA. 0+00 TO STA. 19+56 CENTRAL CELL EAST LEG BASE CONTRACT
STA. 0+00 TO STA. 20+38 EAST CELL WEST LEG OPTION 1
STA. 0+00 TO STA. 26+93 EAST CELL EAST LEG OPTION 1
SCALE: 1/4" = 1'



TYPICAL 24" DIA RCP SECTION

BASE CONTRACT
STA 103+46
SCALE: 1/4" = 1'



84" DIA RCP SECTION

BASE CONTRACT
STA 75+00
SCALE: 1/4" = 1'

MICHELS CORPORATION

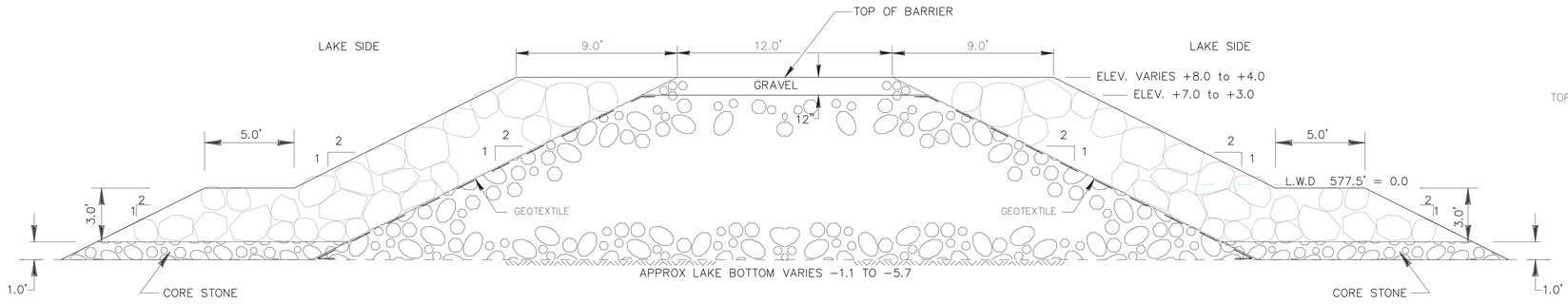
MARK	DESCRIPTION	DATE	APPR.
PRW	AS BUILT	1/6/2014	

MARK	DESCRIPTION	DATE	APPR.

BROWN COUNTY
GREEN BAY WISCONSIN
GREEN BAY DMDF
CAT ISLAND CHAINS

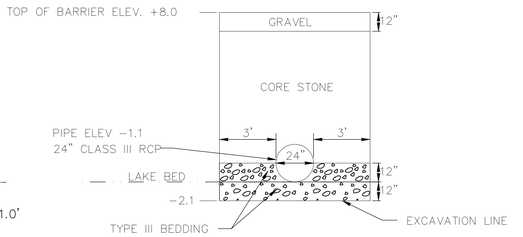
CROSS SECTION
WAVE BARRIER, 24" DIA.
& 84" DIA. RCP

SHEET IDENTIFICATION
05
SHEET 05 OF 06



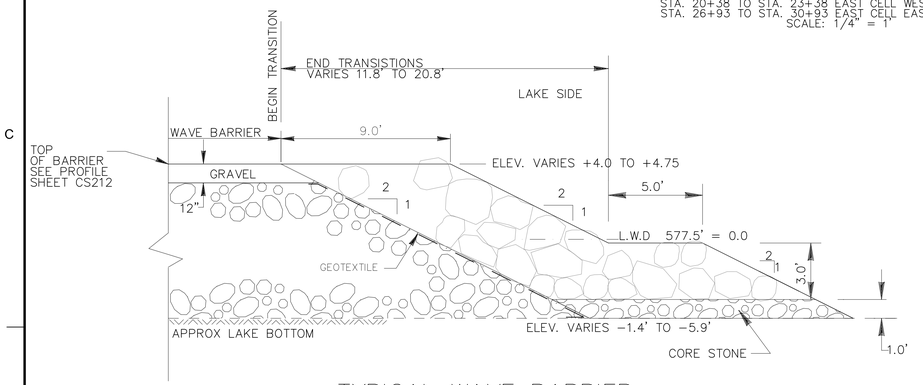
TYPICAL LEG TAPER WAVE BARRIER

STA. 8+40 TO STA. 11+40 WEST CELL WEST LEG BASE CONTRACT
STA. 14+39 TO STA. 17+39 WEST CELL EAST LEG BASE CONTRACT
STA. 13+78 TO STA. 16+79 CENTRAL CELL WEST LEG BASE CONTRACT
STA. 19+56 TO STA. 22+56 CENTRAL CELL EAST LEG BASE CONTRACT
STA. 20+38 TO STA. 23+38 EAST CELL WEST LEG OPTION 1
STA. 26+93 TO STA. 30+93 EAST CELL EAST LEG OPTION 1
SCALE: 1/4" = 1'



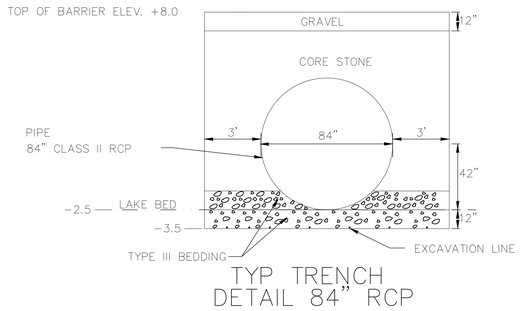
TYP TRENCH DETAIL 24" RCP

STA 103+46 BASE CONTRACT
SCALE: 1/4" =1'-0"



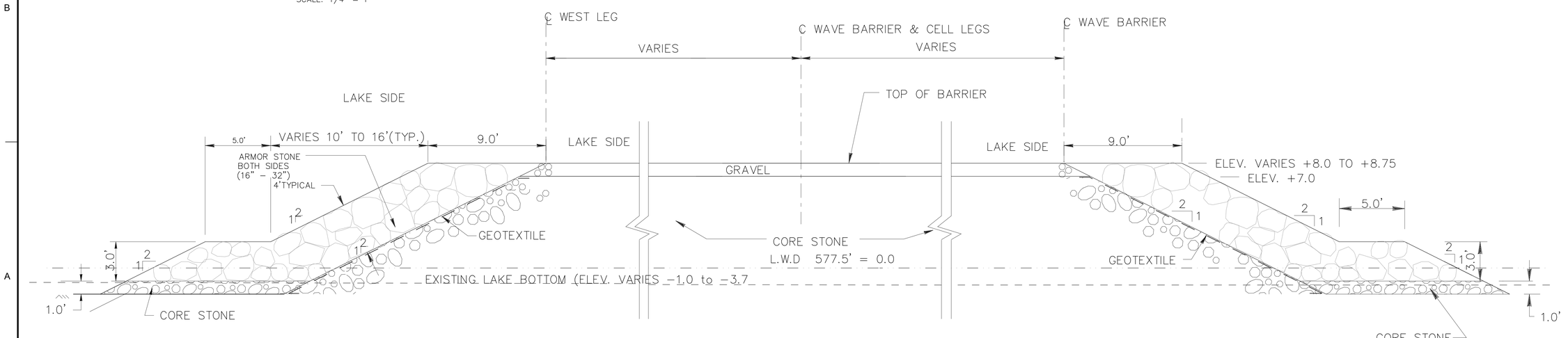
TYPICAL WAVE BARRIER END TRANSITION

STA. 11+40 TO STA. 11+51 WEST CELL WEST LEG BASE CONTRACT
STA. 17+39 TO STA. 17+51 WEST CELL EAST LEG BASE CONTRACT
STA. 16+79 TO STA. 16+92 CENTRAL CELL WEST LEG BASE CONTRACT
STA. 22+56 TO STA. 22+72 CENTRAL CELL EAST LEG BASE CONTRACT
STA. 23+38 TO STA. 23+52 EAST CELL WEST LEG OPTION 1
STA. 29+93 TO STA. 30+13 EAST CELL EAST LEG OPTION 1
SCALE: 1/4" = 1'



TYP TRENCH DETAIL 84" RCP

STA 75+00 BASE CONTRACT
SCALE: 1/4" =1'-0"



TYPICAL WAVE BARRIER & INTERSECTION OF CELL LEGS

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

MICHELS CORPORATION

MARK	DESCRIPTION	DATE	APPR.
PRW	AS BUILT	1/6/2014	APPR.

BROWN COUNTY
GREEN BAY WISCONSIN
GREEN BAY DMDF
CAT ISLAND CHAINS

TRANSITIONS & DETAILS

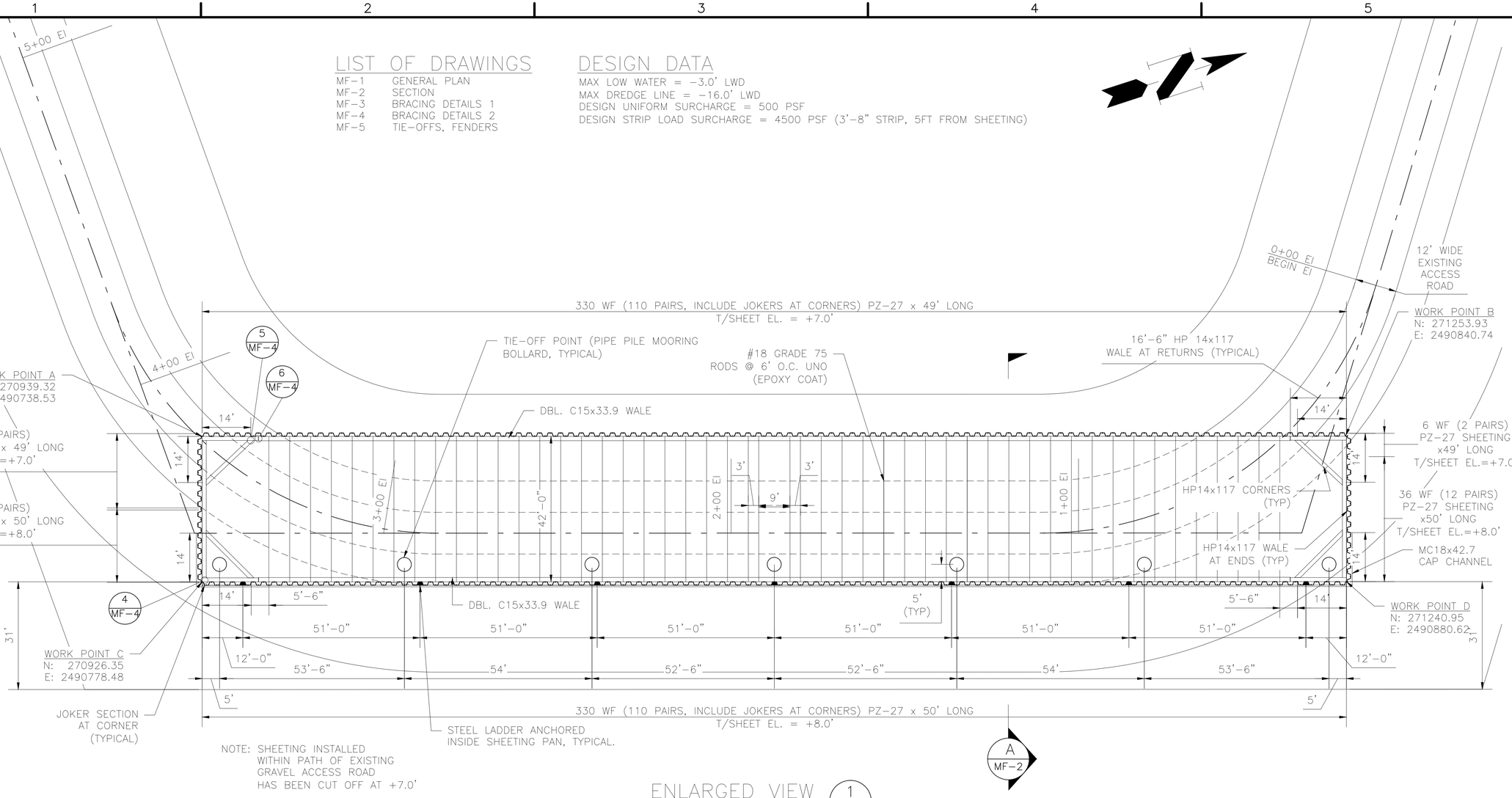
SHEET IDENTIFICATION
06
SHEET 06 OF 06

LIST OF DRAWINGS

MF-1	GENERAL PLAN
MF-2	SECTION
MF-3	BRACING DETAILS 1
MF-4	BRACING DETAILS 2
MF-5	TIE-OFFS, FENDERS

DESIGN DATA

MAX LOW WATER = -3.0' LWD
MAX DREDGE LINE = -16.0' LWD
DESIGN UNIFORM SURCHARGE = 500 PSF
DESIGN STRIP LOAD SURCHARGE = 4500 PSF (3'-8" STRIP, 5FT FROM SHEETING)



ENLARGED VIEW

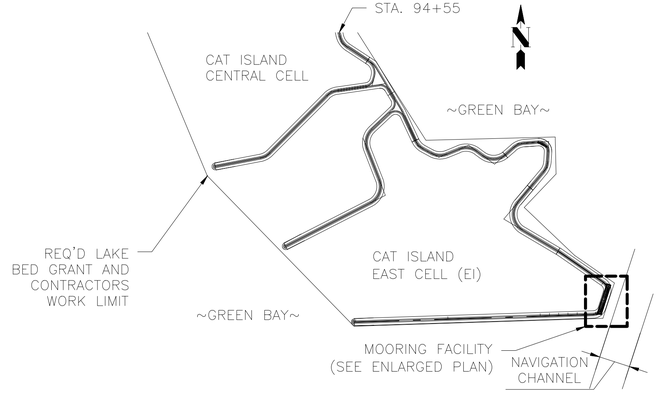
SCALE: 1/16" = 1'-0"

MATERIAL PROPERTIES

1. SHEETING IS GRADE 50
2. STEEL SECTIONS ARE GRADE 50
3. PLATE STEEL IS GRADE A36 OR BETTER
4. PIPE STEEL IS A252, GRADE 3
5. TIE RODS ARE GRADE 75, EPOXY COATED
6. WELDS ARE E70XX PER AWS D1.1
7. UNCONFINED COMPRESSION STRENGTH AT 28 DAYS (f'c) IS 3000PSI (MIN)
8. REINFORCING STEEL IS GRADE 60.

CONSTRUCTION SEQUENCE

1. INSTALLED SHEETING
2. INSTALLED BOLLARDS
3. INSTALLED WALES
4. INSTALLED TIE RODS
5. BACKFILLED
6. POURED BOLLARDS
7. INSTALLED FENDERS/CAP CHANNELS



ALL ELEVATIONS REFERENCED TO LOW WATER DATUM (LWD)

OVERALL PLAN VIEW

SCALE: N.T.S.

US Army Corps of Engineers®
DETROIT DISTRICT

MARK	DESCRIPTION	DATE	APP
1	AS BUILT	1/6/2014	PRM

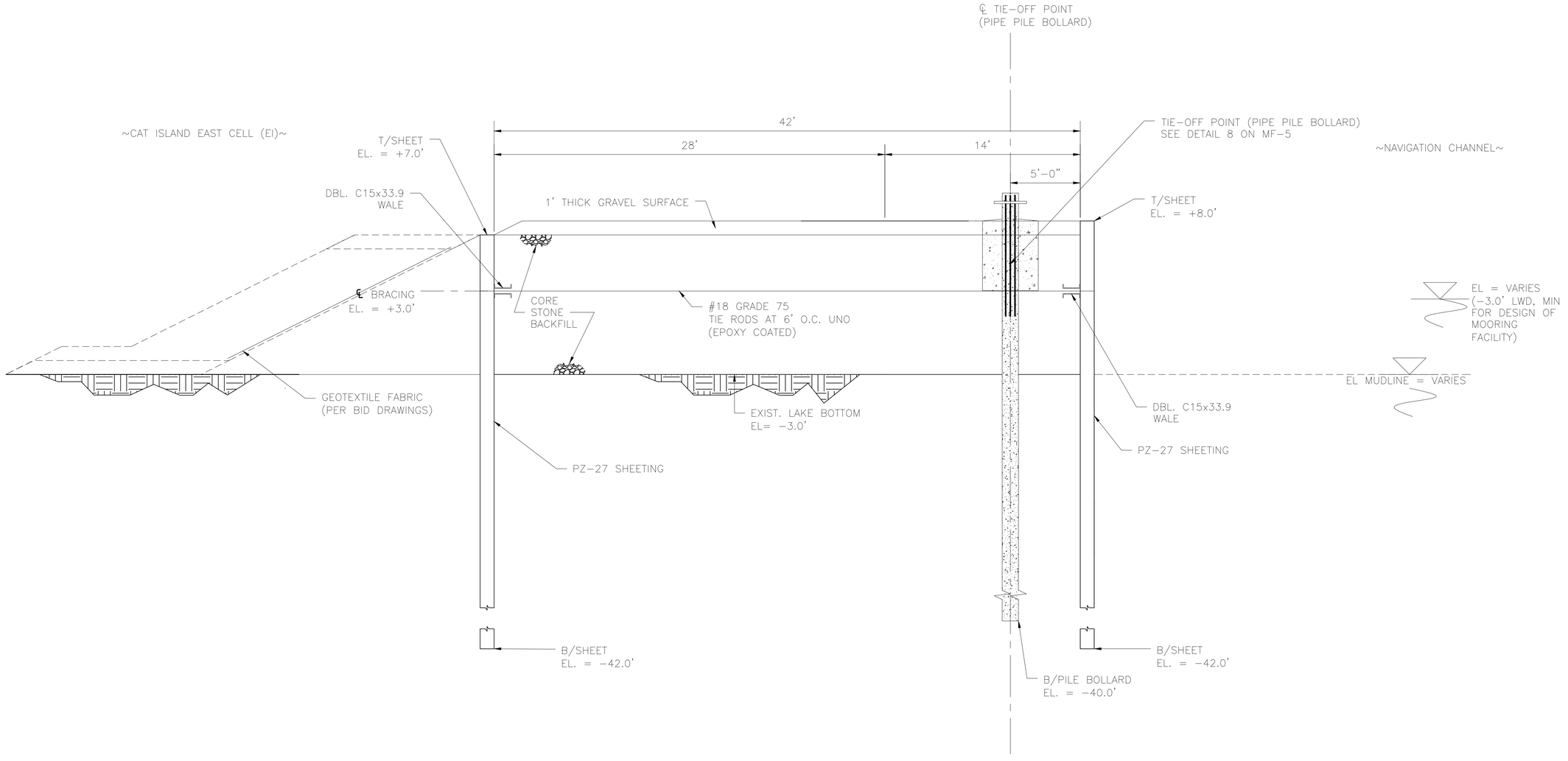
DESIGNED BY: DRS
DWN BY: SJM
CHK BY:
DATE: 04/19/2013
SUBMITTED BY:
FILE NO.:

MICKELS CORPORATION — SYSTEMS INNOVATION, ENGINEERING AND CONSTRUCTION

US Army Corps of Engineers
Detroit District

BROWN COUNTY
GREEN BAY WISCONSIN
GREEN BAY DMDF
CAT ISLAND MOORING FACILITY
AS BUILT

SHEET REFERENCE NUMBER: MF-1



SECTION – MOORING FACILITY (A / MF–2)

SCALE: ¼" = 1'–0"

ALL ELEVATIONS REFERENCED TO LOW WATER DATUM (LWD)

US Army Corps of Engineers®
DETROIT DISTRICT

MARK	DESCRIPTION	DATE	APP'D
1	AS BUILT	1/6/2014	PRD

DESIGNED BY: DRS | DATE: 04/19/2013 | SUBMITTED BY: | FILE NO.:
DWN BY: SJM | CHK BY:

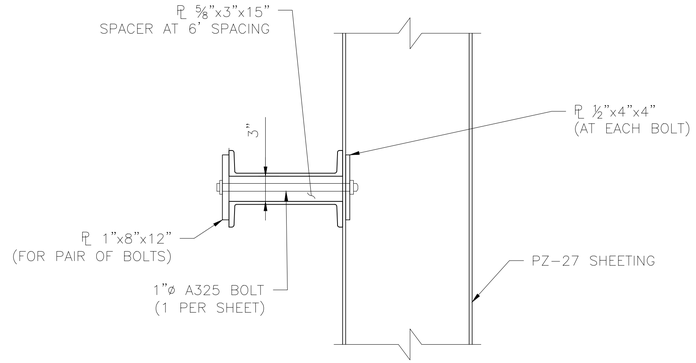
NICKELS CORPORATION
DREDGING DEMOLITION
ENVIRONMENTAL CONSTRUCTION

US Army Corps of Engineers
Detroit District

BROWN COUNTY
GREEN BAY WISCONSIN
GREEN BAY DMDF
CAT ISLAND MOORING FACILITY

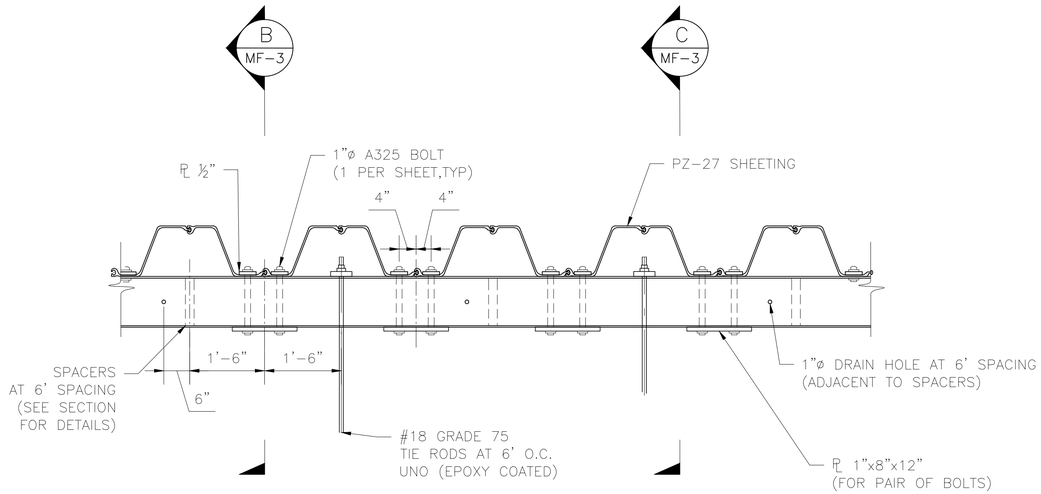
AS BUILT SECTION

SHEET REFERENCE NUMBER:
MF–2



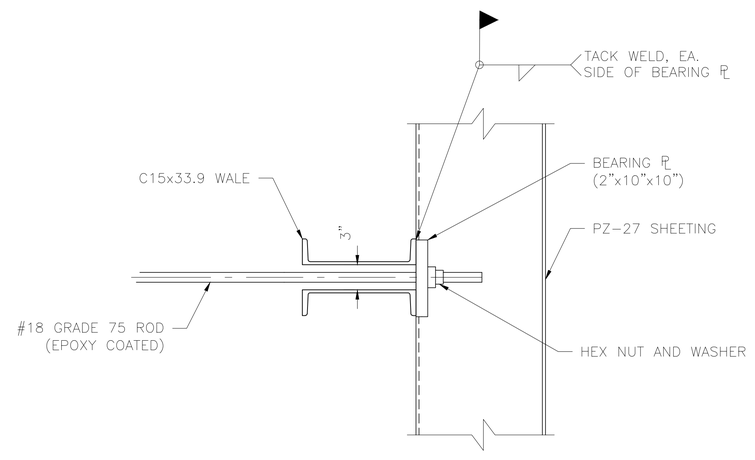
SECTION AT SHEETING/CHANNEL WALE (B / MF-3)

SCALE: NTS



DETAIL AT CHANNEL-WALE (TYP) (2 / MF-3)

SCALE: NTS



SECTION AT TIE ROD (C / MF-3)

SCALE: NTS

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DETROIT DISTRICT

MARK	DESCRIPTION	DATE	APP'D
1	AS BUILT	1/6/2014	PRM

DESIGNED BY: DRS | DATE: 04/19/2013
DWN BY: SJM | SUBMITTED BY:
CHK BY: | FILE NO.:

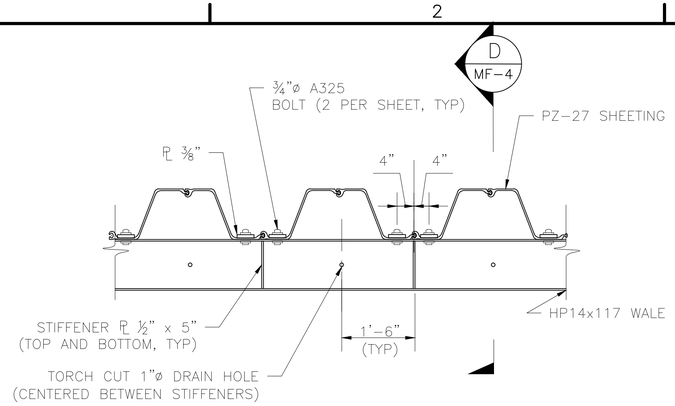
NICKELS CORPORATION
STRUCTURAL INNOVATION THROUGH CONSTRUCTION

US Army Corps of Engineers
Detroit District

BROWN COUNTY
GREEN BAY WISCONSIN
GREEN BAY DMDF
CAT ISLAND MOORING FACILITY

AS BUILT BRACING DETAILS 1

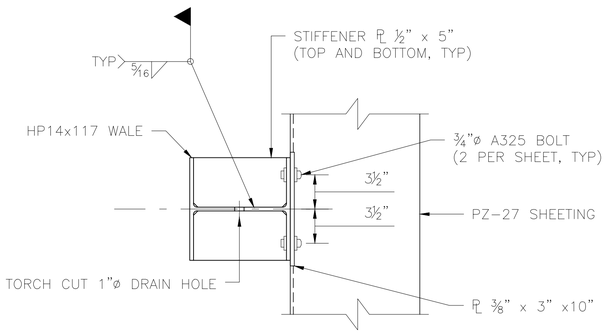
SHEET REFERENCE NUMBER:
MF-3



DETAIL AT HP WALE

3 MF-4

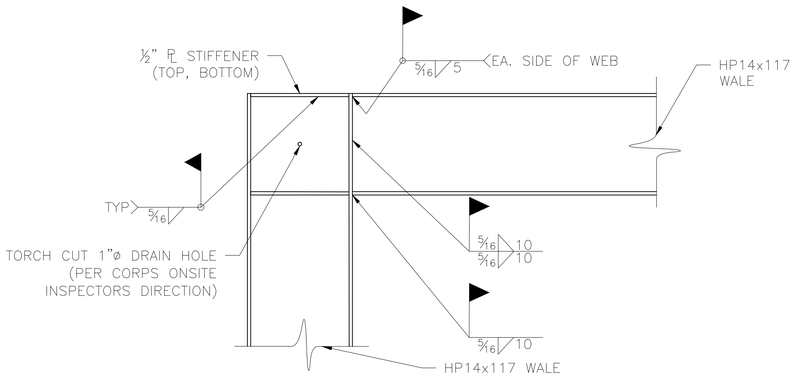
SCALE: NTS



SECTION AT SHEETING/HP WALE

D MF-4

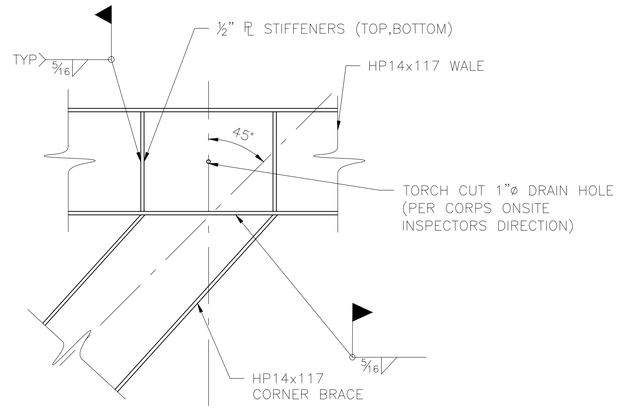
SCALE: NTS



DETAIL AT HP/HP CORNER (TYP)

4 MF-4

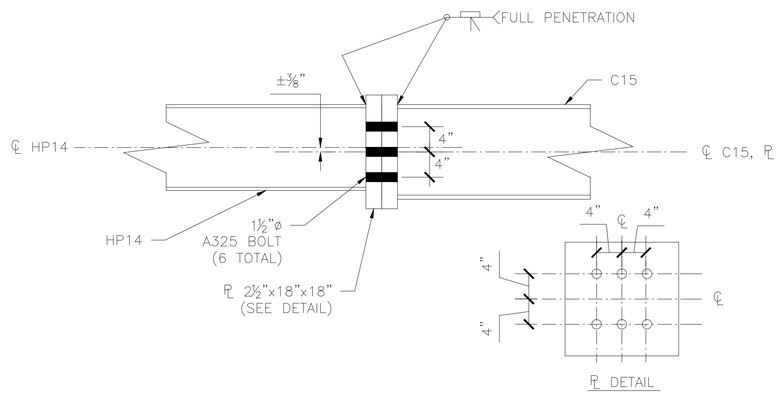
SCALE: NTS



DETAIL AT HP/HP SPLICE (TYP)

5 MF-4

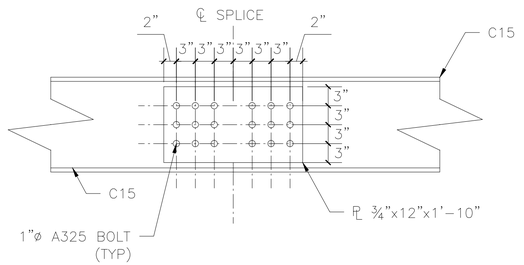
SCALE: NTS



DETAIL AT HP/CHANNEL SPLICE (TYP)

6 MF-4

SCALE: 1"=1'-0"



NOTE: SPLICE LOCATIONS FOR TOP CHANNEL AND BOTTOM CHANNEL SHOULD BE STAGGERED AND LOCATED AT ⅓RD POINTS BETWEEN TIE RODS

DETAIL AT CHANNEL/CHANNEL SPLICE (TYP)

7 MF-4

SCALE: 1"=1'-0"

US Army Corps of Engineers®
DETROIT DISTRICT

MARK	DESCRIPTION	DATE	APP'D
1	AS BUILT	1/6/2014	PRM

DESIGNED BY: DRS
DATE: 04/19/2013
DWN BY: SJM
SUBMITTED BY:
CHK BY:
FILE NO.:

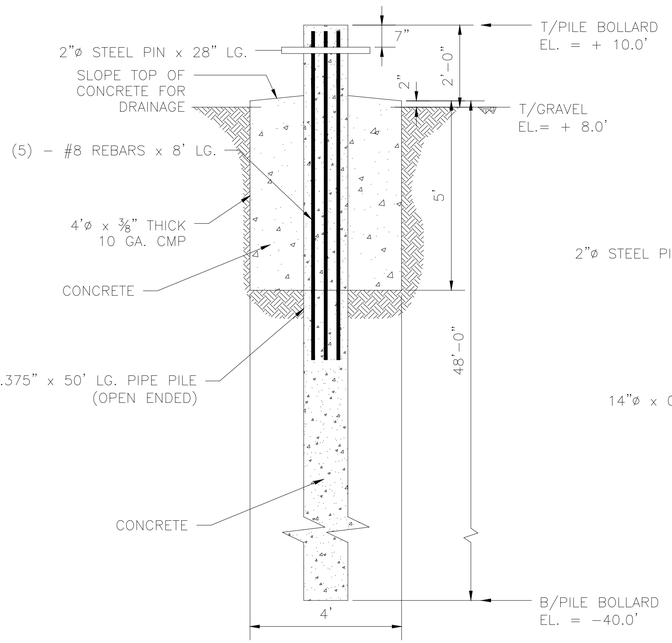
MICHELS CORPORATION
DRIVEN BY INNOVATION. BUILT BY CONSTRUCTION.

US Army Corps of Engineers
Detroit District

BROWN COUNTY
GREEN BAY WISCONSIN
GREEN BAY DMDF
CAT ISLAND MOORING FACILITY

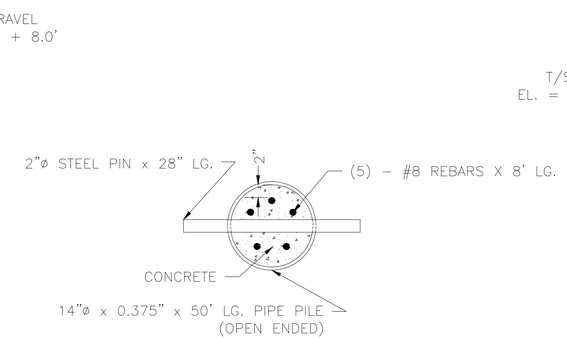
AS BUILT BRACING DETAILS 2

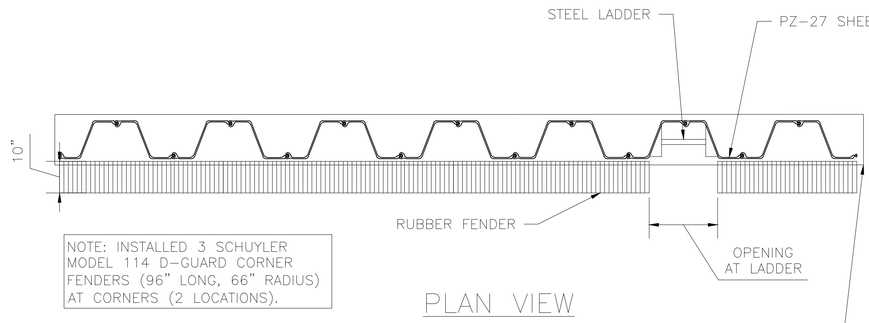
SHEET REFERENCE NUMBER:
MF-4



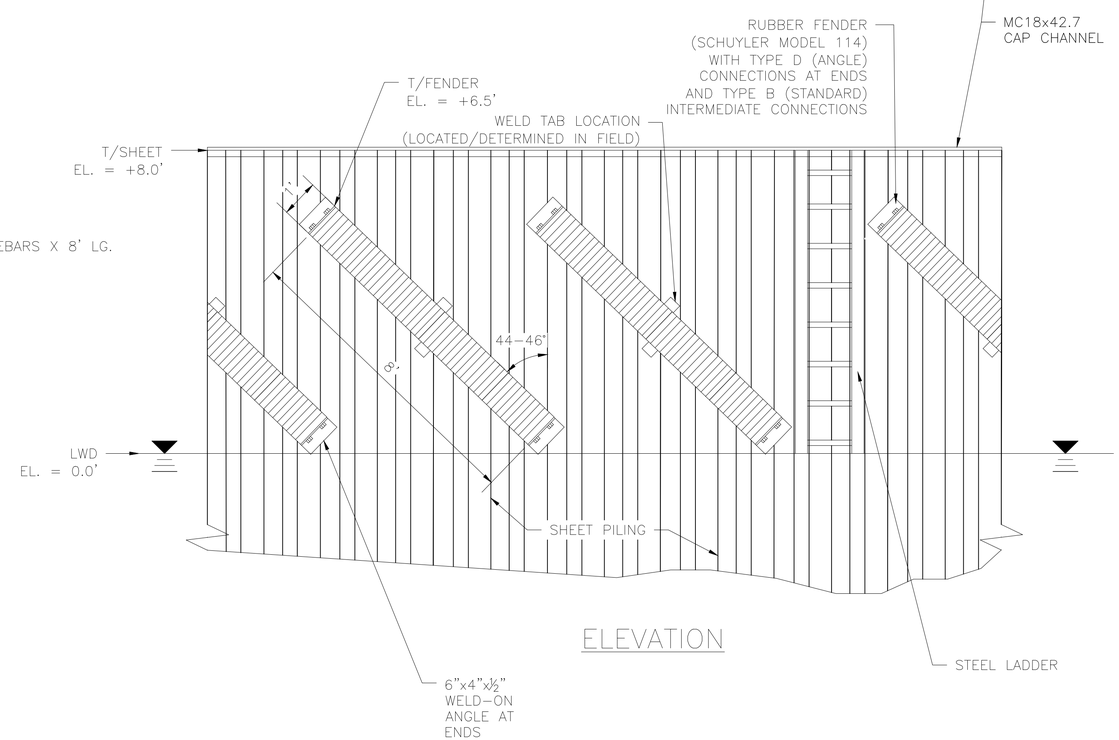
DETAIL – TYP TIE–OFF POINT (PIPE PILE BOLLARD) 8 MF–5

SCALE: NTS





PLAN VIEW



ELEVATION

DETAIL–SHEET PILE FENDER 9 MF–5

SCALE: ½" = 1'–0"

ALL ELEVATIONS REFERENCED TO LOW WATER DATUM (LWD)

US Army Corps of Engineers®
DETROIT DISTRICT

MARK	DESCRIPTION	DATE	APP'D
1	AS BUILT	1/6/2014	PRD

DESIGNED BY: DRS | DATE: 04/19/2013
DWN BY: SJM | SUBMITTED BY:
CHK BY: | FILE NO.:

MICHELS CORPORATION — BUILDING INNOVATION, TRADITION AND CONSTRUCTION

US Army Corps of Engineers
Detroit District

BROWN COUNTY
GREEN BAY WISCONSIN
GREEN BAY DMDF
CAT ISLAND MOORING FACILITY

AS BUILT TIE–OFFS, FENDERS

SHEET REFERENCE NUMBER: MF–5

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REAL ESTATE

-- End of Section Table of Contents --

SECTION 01 10 10

REAL ESTATE

PART 1 GENERAL

1.1 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only or as otherwise designated. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Additional Property Agreements; G; RE.

Copies of any agreements for Contractor-acquired real estate rights for this project shall be furnished and must be approved in writing by the Government before Contractor entering thereon.

1.2 REGULATORY REQUIREMENTS

1.2.1 Real Estate Rights

Rights for the use of the work and storage area will be provided and the general limits of the areas are shown on the Real Estate Drawing.

1.2.2 Additional Real Estate Rights

Any additional property agreements and/or real estate rights desired by the Contractor shall be obtained by the Contractor at its own expense. Such agreements shall clearly relieve the Government of any responsibility for damages or liability resulting from the Contractor's use of such grounds.

1.3 PROJECT/SITE CONDITIONS

1.3.1 Location and Verification

It shall be the Contractor's responsibility to accurately locate the limits of all lands utilized under the contract. The corner and angle points of each area for which rights have been obtained shall be marked with semipermanent markers except where there is an approved existing property marker. Temporary markers shall be placed at points on alignment. The points on alignment shall be marked at stations so that intervals between points do not exceed 200 feet.

1.3.2 Survey Markers

All markers shall be installed in an area prior to its use and they shall be available for reference during and upon completion of use of the area. Where approved existing property markers are found, a witness stake, as specified in Subparagraph, "Semipermanent Markers" below, shall be provided. If the types of markers specified hereinafter cannot be used, other types, as approved by the Contracting Officer, shall be provided.

1.3.2.1 Semipermanent Markers

The markers shall be a steel rod one-half inch in diameter and four (4) feet long. The steel rod shall be driven vertically into the ground so that the top is flush with the finished ground surface. Each marker shall be witnessed by a 2" x 2" yellow stake extending two (2) feet above the ground surface and driven into the ground until stable, with not less than one (1) foot penetration.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

-- End of Section --

SECTION TABLE OF CONTENTS

DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01 22 00.00 10

MEASUREMENT AND PAYMENT

-- End of Section Table of Contents --

SECTION 01 22 00.00 10

MEASUREMENT AND PAYMENT

PART 1 GENERAL DEFINITIONS

1.1 LUMP SUM PAYMENT ITEMS

Payment items for the work of this contract for which contract lump sum payments will be made are listed in the BIDDING SCHEDULE and described below. All costs for items of work, which are not specifically mentioned to be included in a particular lump sum or unit price payment item, shall be included in the listed lump sum item most closely associated with the work involved. The lump sum price and payment made for each item listed shall constitute full compensation for furnishing all plant, labor, materials, and equipment, and performing any associated Contractor quality control, environmental protection, meeting safety requirements, tests and reports, and for performing all work required for which separate payment is not otherwise provided.

1.2 UNIT PRICE PAYMENT ITEMS

Payment items for the work of this contract on which the contract unit price payments will be made are listed in the BIDDING SCHEDULE and described below. The unit price and payment made for each item listed shall constitute full compensation for furnishing all plant, labor, materials, and equipment, and performing any associated Contractor quality control, environmental protection, meeting safety requirements, tests and reports, and for performing all work required for each of the unit price items.

1.2 BASE BID ITEMS - STA. 39+18 TO STA. 104+08, WEST CELL LEGS & CENTRAL CELL LEGS

Item No. 0001 "MOB AND DEMOB"

(1) Lump sum payment will be made for costs associated with mobilization and demobilization as defined in Clause titled "PAYMENT FOR MOBILIZATION AND DEMOBILIZATION".

(2) Unit of measure: Job.

Item No. 0002 "SITE PREPARATION"

(1) Lump Sum payment will be made for costs associated with any incidental site preparation, road maintenance and repairs and Parterning Clause as required in SECTION 01 35 13.10 SPECIAL PROJECT PROCEDURES and SECTION 01 58 01 PROJECT SIGN AND SAFETY SIGN.

(2) Unit of measure: Job.

Item No. 0003 "CORE STONE GOVERNMENT FURNISHED"

(1) Unit Price payment for core stone will be made by the Ton for costs associated with, loading, transporting, stockpiling (if applicable), placing, and constructing the wave barrier as specified in SECTION

35 31 19.45 03 STONE MATERIALS and SECTION 35 31 19 STONE PLACEMENT AND CONSTRUCTION for the following payment items:

Bid Item 0003 "Core Stone Government Furnished"
Bid Item 0003AA "First 266,000 Tons"
Bid Item 0003AB "Over 266,000 Tons"

(2) Unit of measure: Tons.

Item No. 0004 "ARMOR STONE GOVERNMENT FURNISHED"

(1) Unit Price payment for Armor stone will be made by the Ton for costs associated with loading, transporting, stockpiling (if applicable), placing, and constructing the stone protection as specified in SECTION 35 31 19.45 03 STONE MATERIALS and SECTION 35 31 19 STONE PLACEMENT AND CONSTRUCTION for the following payment items:

Bid Item 0004 "Armor Stone Government Furnished"
Bid Item 0004AA "First 97,000 Tons"
Bid Item 0004AB "Over 97,000 Tons"

(2) Unit of measure: Tons.

Item No. 0005 "GRAVEL GOVERNMENT FURNISHED"

(1) Unit Price payment will be made by the ton for costs associated with loading, transporting, stockpiling (if applicable) and placing the gravel as specified in SECTION 35 31 19.45 03 STONE MATERIALS and SECTION 35 31 19 STONE PLACEMENT AND CONSTRUCTION.

Bid Item 0005 "Gravel Government Furnished"
Bid Item 0005AA "First 9,200 Tons"
Bid Item 0005AB "Over 9,200 Tons"

(2) Unit of measure: Tons.

Item No. 0006 "GEOTEXTILE FABRIC"

(1) Unit Price payment will be made by the square yard for costs associated with installation of geotextile fabric as required in Section 31 05 22 GEOTEXTILES USED AS FILTERS.

(2) Unit of measure: Square Yard.

Item No. 0007 "REINFORCED CONCRETE PIPE"

(1) Lump Sum payment will be made for costs associated with installation of reinforced concrete pipes as required in Section 02 63 00 PIPE CULVERTS, to include required excavation of stone construction pad and pipe bedding material.

(2) Unit of measure: Job.

Item No. 0008 "SITE RESTORATION"

(1) Lump Sum payment will be made for costs associated with site

restoration and road repair as required in Sections and CLAUSE titled "PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES, AND IMPROVEMENTS".

(2) Unit of measure: Job.

1.3 OPTION 1 BID ITEMS STA. 104+08 TO STA. 146+18 WAVE BARRIER

Item No. 0009 "CORE STONE GOVERNMENT FURNISHED"

(1) Unit Price payment for core stone will be made by the Ton for costs associated with loading, transporting, stockpiling (if applicable), placing, and constructing the wave barrier as specified in SECTION 35 31 19.45 03 STONE MATERIALS and SECTION 35 31 19 STONE PLACEMENT AND CONSTRUCTION for the following payment items:

Bid Item 0009 "Core Stone Government Furnished"
Bid Item 0009AA "First 84,000 Tons"
Bid Item 0009AB "Over 84,000 Tons"

(2) Unit of measure: Tons.

Item No. 0010 "ARMOR STONE GOVERNMENT FURNISHED"

(1) Unit Price payment for Armor stone will be made by the Ton for costs associated with loading, transporting, stockpiling (if applicable), placing, and constructing the stone protection as specified in SECTION 35 31 19.45 03 STONE MATERIALS and SECTION 35 31 19 STONE PLACEMENT AND CONSTRUCTION for the following payment items:

Bid Item 0010 "Armor Stone Government Furnished"
Bid Item 0010AA "First 31,000 Tons"
Bid Item 0010AB "Over 31,000 Tons"

(2) Unit of measure: Tons.

Item No. 0011 "GRAVEL GOVERNMENT FURNISHED"

(1) Unit Price payment will be made by the ton for costs associated with furnishing, loading, transporting, stockpiling (if applicable) and placing the gravel as specified in SECTION 35 31 19.45 03 STONE MATERIALS and SECTION 35 31 19 STONE PLACEMENT AND CONSTRUCTION.

Bid Item 0011 "Gravel Government Furnished"
Bid Item 0011AA "First 2,900 Tons"
Bid Item 0011AB "Over 2,900 Tons"

(2) Unit of measure: Tons.

Item No. 0012 "GEOTEXTILE FABRIC"

(1) Unit Price payment will be made by the square yard for costs associated with installation of geotextile fabric as required in Section 31 05 22 GEOTEXTILES USED AS FILTERS.

(2) Unit of measure: Square Yard.

1.4 OPTION 2 BID ITEMS - STA. 0+00 TO STA. 23+52 EAST CELL WEST LEG AND STA. 0+00 TO STA. 30+13 EAST CELL EAST LEG

Item No. 0013 "CORE STONE GOVERNMENT FURNISHED"

(1) Unit Price payment for core stone will be made by the Ton for costs associated with loading, transporting, stockpiling (if applicable), placing, and constructing the wave barrier as specified in SECTION 35 31 19.45 03 STONE MATERIALS and SECTION 35 31 19 STONE PLACEMENT AND CONSTRUCTION for the following payment items:

Bid Item 0013 "Core Stone Government Furnished"
Bid Item 0013AA "First 119,000 Tons"
Bid Item 0013AB "Over 119,000 Tons"

(2) Unit of measure: Tons.

Item No. 0014 "ARMOR STONE GOVERNMENT FURNISHED"

(1) Unit Price payment for Armor stone will be made by the Ton for costs associated with loading, transporting, stockpiling (if applicable), placing, and constructing the stone protection as specified in SECTION 35 31 19.45 03 STONE MATERIALS and SECTION 35 31 19 STONE PLACEMENT AND CONSTRUCTION for the following payment items:

Bid Item 0014 "Armor Stone Government Furnished"
Bid Item 0014AA "First 40,000 Tons"
Bid Item 0014AB "Over 40,000 Tons"

(2) Unit of measure: Tons.

Item No. 0015 "GRAVEL GOVERNMENT FURNISHED"

(1) Unit Price payment will be made by the ton for costs associated with furnishing, loading, transporting, stockpiling (if applicable) and placing the gravel as specified in SECTION 35 31 19.45 03 STONE MATERIALS and SECTION 35 31 19 STONE PLACEMENT AND CONSTRUCTION.

Bid Item 0015 "Gravel Government Furnished"
Bid Item 0015AA "First 3,700 Tons"
Bid Item 0015AB "Over 3,700 Tons"

(2) Unit of measure: Tons.

Item No. 0016 "GEOTEXTILE FABRIC"

(1) Unit Price payment will be made by the square yard for costs associated with installation of geotextile fabric as required in Section 31 05 22 GEOTEXTILES USED AS FILTERS.

(2) Unit of measure: Square Yard.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

-- End of Section -- -- End of Section --

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DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01 32 01.00 10

PROJECT SCHEDULE

-- End of Section Table of Contents --

SECTION 01 32 01.00 10

PROJECT SCHEDULE

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

U.S. ARMY CORPS OF ENGINEERS (USACE)

ER 1-1-11	(1995) Administration -- Progress, Schedules, and Network Analysis Systems

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for [Contractor Quality Control approval.][information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government.] Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Project Schedule; G, AOF

1.3 QUALITY ASSURANCE

Designate an authorized representative to be responsible for the preparation of the schedule and all required updating (activity status) and preparation of reports. The authorized representative shall be experienced in scheduling projects similar in nature and complexity to this project and shall be experienced in the use of the scheduling software that meets the requirements of this specification.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

Prepare for approval a Project Schedule, as specified herein, pursuant to the Contract Clause, SCHEDULE FOR CONSTRUCTION CONTRACTS. Show in the schedule the sequence in which the Contractor proposes to perform the work and dates on which the Contractor contemplates starting and completing all schedule activities. The scheduling of the entire project, including the design and construction sequences, is required. The scheduling of is the responsibility of the Contractor. Contractor management personnel shall actively participate in its development. Working on the project shall also

contribute in developing and maintaining an accurate Project Schedule. Provide a schedule that is a forward planning as well as a project monitoring tool.

3.1.1 Approved Project Schedule

Use the approved Project Schedule to measure the progress of the work and to aid in evaluating time extensions. Make the schedule cost loaded and activity coded. The schedule will provide the basis for all progress payments. If the Contractor fails to submit any schedule within the time prescribed, the Contracting Officer may withhold approval of progress payments until the Contractor submits the required schedule.

3.1.2 Schedule Status Reports

Provide a Schedule Status Report on at least a monthly basis. If, in the opinion of the Contracting Officer, the Contractor falls behind the approved schedule, take steps necessary to improve its progress including those that may be required by the Contracting Officer, without additional cost to the Government. In this circumstance, the Contracting Officer may require the Contractor to increase the number of shifts, overtime operations, days of work, and/or the amount of construction plant, and to submit for approval any supplementary schedule or schedules as the Contracting Officer deems necessary to demonstrate how the approved rate of progress will be regained.

3.1.3 Default Terms

Failure of the Contractor to comply with the requirements of the Contracting Officer shall be grounds for a determination, by the Contracting Officer, that the Contractor is not prosecuting the work with sufficient diligence to ensure completion within the time specified in the contract. Upon making this determination, the Contracting Officer may terminate the Contractor's right to proceed with the work, or any separable part of it, in accordance with the default terms of the contract.

3.2 BASIS FOR PAYMENT AND COST LOADING

Use the schedule as the basis for determining contract earnings during each update period and therefore the amount of each progress payment. Lack of an approved schedule update, or qualified scheduling personnel, will result in the inability of the Contracting Officer to evaluate contract earned value for the purposes of payment. Failure of the Contractor to provide all required information will result in the disapproval of the preliminary, initial and subsequent schedule updates. In the event schedule revisions are directed by the Contracting Officer and those revisions have not been included in subsequent revisions or updates, the Contracting Officer may hold retainage up to the maximum allowed by contract, each payment period, until such revisions to the Project Schedule have been made. Activity cost loading shall be reasonable, as determined by the Contracting Officer. The aggregate value of all activities coded to a contract CLIN shall equal the value of the CLIN on the Schedule.

3.3 PROJECT SCHEDULE DETAILED REQUIREMENTS

The computer software system utilized to produce and update the Project Schedule shall be capable of meeting all requirements of this specification. Failure of the Contractor to meet the requirements of this specification will result in the disapproval of the schedule.

3.3.1 Critical Path Method

Use the Critical Path Method (CPM) of network calculation to generate the Project Schedule. Prepare the Project Schedule using the Precedence Diagram Method (PDM).

3.3.2 Level of Detail Required

Develop the Project Schedule to an appropriate level of detail. Failure to develop the Project Schedule to an appropriate level of detail, as determined by the Contracting Officer, will result in its disapproval. The Contracting Officer will consider, but is not limited to, the following characteristics and requirements to determine appropriate level of detail:

3.3.2.1 Activity Durations

Reasonable activity durations are those that allow the progress of ongoing activities to be accurately determined between update periods. Less than 2 percent of all non-procurement activities shall have Original Durations (OD) greater than 20 work days or 30 calendar days. Procurement activities are defined herein.

3.3.2.2 Procurement Activities

The schedule must include activities associated with the submittal, approval, procurement, fabrication and delivery of long lead materials, equipment, fabricated assemblies and supplies. Long lead procurement activities are those with an anticipated procurement sequence of over 90 calendar days. A typical procurement sequence includes the string of activities: submit, approve, procure, fabricate, and deliver.

3.3.2.3 Mandatory Tasks

The following tasks must be included and properly scheduled:

c. Submission and approval of O & M manuals.

d. Submission and approval of as-built drawings.

p. Contractor's pre-final inspection.

q. Correction of punchlist from Contractor's pre-final inspection.

r. Government's pre-final inspection.

s. Correction of punch list from Government's pre-final inspection.

t. Final inspection.

3.3.2.4 Government Activities

Show Government and other agency activities that could impact progress. These activities include, but are not limited to: approvals, inspections, and Notice to Proceed (NTP) for phasing requirements.

3.3.2.5 Activity Responsibility Coding (RESP)

Assign responsibility Code for all activities to the Prime Contractor,

Subcontractor or Government agency responsible for performing the activity. Activities coded with a Government Responsibility code include, but are not limited to: Government approvals, Government design reviews, environmental permit approvals by State regulators, Government Furnished Equipment (GFE) and Notice to Proceed (NTP) for phasing requirements. Code all activities not coded with a Government Responsibility Code to the Prime Contractor or Subcontractor responsible to perform the work. Activities shall not have more than one Responsibility Code. Examples of acceptable activity code values are: DOR (for the designer of record); ELEC (for the electrical subcontractor); MECH (for the mechanical subcontractor); and GOVT (for USACE). Unacceptable code values are abbreviations of the names of subcontractors.

3.3.2.6 Activity Work Area Coding

Assign Work Area code to activities based upon the work area in which the activity occurs. Define work areas based on resource constraints or space constraints that would preclude a resource, such as a particular trade or craft work crew, from working in more than one work area at a time due to restraints on resources or space. Examples of Work Area Coding include different areas within a floor of a building, different floors within a building, and different buildings within a complex of buildings. Activities shall not have more than one Work Area Code. Not all activities are required to be Work Area coded. A lack of Work Area coding will indicate the activity is not resource or space constrained.

3.3.2.7 Contract Changes/Requests for Equitable Adjustment (REA) Coding (MODF)

Assign Activity code to any activity or sequence of activities added to the schedule as a result of a Contract Modification, when approved by the Contracting Officer, with a Contract Changes/REA Code. Key all Code values to the Government's modification numbering system. Any activity or sequence of activities added to the schedule as a result of alleged constructive changes made by the Government may be added to a copy of the current schedule, subject to the approval of the Contracting Officer. Assign Activity codes for these activities with a Contract Changes/REA Code. Key the code values to the Contractor's numbering system. Approval to add these activities does not necessarily mean the Government accepts responsibility and, therefore, liability for such activities and any associated impacts to the schedule, but rather the Government recognizes such activities are appropriately added to the schedule for the purposes of maintaining a realistic and meaningful schedule. Such activities shall not be Responsibility Coded to the Government unless approved. An activity shall not have more than one Contract Changes/REA Code.

3.3.2.8 Contract Line Item (CLIN) Coding (BIDI)

Code all activities to the CLIN on the Contract Line Item Schedule to which the activity belongs. An activity shall not contain more than one CLIN Item Code. CLIN Item code all activities, even when an activity is not cost loaded.

3.3.2.9 Phase of Work Coding (PHAS)

Assign Phase of Work Code to all activities based upon the phase of work in which the activity occurs. Code activities to a Construction Phase. Code fast track construction phases proposed by the Contractor to allow filtering and organizing the schedule by fast track design and construction

packages. If the contract specifies construction phasing with separately defined performance periods, identify a Construction Phase Code to allow filtering and organizing the schedule accordingly. Each activity shall be identified with a single project phase and have only one Phase of Work code.

3.3.2.10 Category of Work Coding (CATW)

Assign Category of Work Code to all Activities based upon the category of work to which the activity belongs. Category of Work Code must include, but is not limited to: construction submittal approvals, Acceptance, Procurement, Fabrication, Delivery, Weather Sensitive Installation, Non-Weather Sensitive Installation, Start-Up, Test and Turnover. Assign a Category of Work Code to each activity. Each activity shall have only one Category of Work Code.

3.3.2.11 Definable Features of Work Coding (FOW1, FOW2, FOW3)

Assign a Definable Feature of Work Code to appropriate activities based on the definable feature of work to which the activity belongs. Definable Feature of Work is defined in Specification Section 01 45 00.00 10 QUALITY CONTROL. An activity shall not have more than one Definable Feature of Work Code. Not all activities are required to be Definable Feature of Work Coded.

3.3.3 Scheduled Project Completion and Activity Calendars

The schedule interval shall extend from NTP date to the required contract completion date. The contract completion activity (End Project) shall finish based on the required contract duration in the accepted contract proposal, as adjusted for any approved contract time extensions. The first scheduled work period shall be the day after NTP is received by the Contractor. Schedule activities on a calendar to which the activity logically belongs. Activities may be assigned to a 7 day calendar when the contract assigns calendar day durations for the activity such as a Government Acceptance activity. If the Contractor intends to perform physical work less than seven days per week, schedule the associated activities on a calendar with non-work periods identified including weekends and holidays. Assign the Category of Work Code - Weather Sensitive Installation to those activities that are weather sensitive. Original durations must account for anticipated normal adverse weather. The Government will interpret all work periods not identified as non-work periods on each calendar as meaning the Contractor intends to perform work during those periods.

3.3.3.1 Project Start Date

The schedule shall start no earlier than the date on which the NTP was acknowledged. Include as the first activity in the project schedule an activity called "Start Project"(or NTP). The "Start Project" activity shall have an "ES" constraint date equal to the date that the NTP was acknowledged, and a zero day duration.

3.3.3.2 Schedule Constraints and Open Ended Logic

Constrain completion of the last activity in the schedule by the contract completion date. Schedule calculations shall result in a negative float when the calculated early finish date of the last activity is later than the contract completion date. Include as the last activity in the project schedule an activity called "End Project". The "End Project" activity

shall have an "LF" constraint date equal to the contract completion date for the project, and with a zero day duration or by using the "project must finish by" date in the scheduling software. The schedule shall have no constrained dates other than those specified in the contract. The use of artificial float constraints such as "zero fee float" or "zero total float" are typically prohibited. There shall only be 2 open ended activities: Start Project (or NTP) with no predecessor logic and End Project with no successor logic.

3.3.3.3 Early Project Completion

In the event the Preliminary or Initial project schedule calculates an early completion date of the last activity prior to the contract completion date, identify those activities that it intends to accelerate and/or those activities that are scheduled in parallel to support the Contractor's "early" completion. The last activity shall have a late finish constraint equal to the contract completion date and the schedule will calculate positive float. The Government will not approve an early completion schedule with zero float on the longest path. The Government is under no obligation to accelerate activities for which it is responsible to support a proposed early contract completion.

3.3.4 Interim Completion Dates

Constrain contractually specified interim completion dates to show negative float when the calculated early finish date of the last activity in that phase is later than the specified interim completion date.

3.3.4.1 Start Phase

Include as the first activity for a project phase an activity called "Start Phase X" where "X" refers to the phase of work. The "Start Phase X" activity shall have an "ES" constraint date equal to the date on which the NTP was acknowledged, and a zero day duration.

3.3.4.2 End Phase

Include as the last activity for a project phase an activity called "End Phase X" where "X" refers to the phase of work. The "End Phase X" activity shall have an "LF" constraint date equal to the specified completion date for that phase and a zero day duration.

3.3.4.3 Phase "X" Hammock

Include a hammock type activity for each project phase called "Phase X" where "X" refers to the phase of work. The "Phase X" hammock activity shall be logically tied to the earliest and latest activities in the phase.

3.3.5 Default Progress Data Disallowed

Do not automatically update Actual Start and Finish dates with default mechanisms that may be included in the scheduling software. Activity Actual Start (AS) and Actual Finish (AF) dates assigned during the updating process shall match those dates provided from Contractor Quality Control Reports. Failure of the Contractor to document the AS and AF dates on the Daily Quality Control report for every in-progress or completed activity, and failure to ensure that the data contained on the Daily Quality Control reports is the sole basis for schedule updating shall result in the disapproval of the Contractor's updated schedule and the inability of the

Contracting Officer to evaluate Contractor progress for payment purposes. Updating of the percent complete and the remaining duration of any activity shall be independent functions. Disable program features which calculate one of these parameters from the other.

3.3.6 Out-of-Sequence Progress

Activities that have progressed before all preceding logic has been satisfied (Out-of-Sequence Progress) will be allowed only on a case-by-case basis subject to approval by the Contracting Officer. Propose logic corrections to eliminate all out of sequence progress or justify not changing the sequencing for approval prior to submitting an updated project schedule. Correct out of sequence progress that continues for more than two update cycles by logic revision, as approved by the Contracting Officer.

3.3.7 Negative Lags and Start to Finish Relationships

Lag durations contained in the project schedule shall not have a negative value. Do not use Start to Finish (SF) relationships.

3.3.8 Calculation Mode

Schedule calculations shall retain the logic between predecessors and successors even when the successor activity starts and the predecessor activity has not finished. Software features that in effect sever the tie between predecessor and successor activities when the successor has started and the predecessor logic is not satisfied ("progress override") will not be allowed.

3.3.9 Milestones

The schedule must include milestone activities for each significant project event including but not limited to: milestone activities for each fast track design package released for construction; design complete; foundation/substructure construction complete; superstructure construction complete; building dry-in or enclosure complete to allow the initiation of finish activities; permanent power complete; and building systems commissioning complete.

3.4 PROJECT SCHEDULE SUBMISSIONS

Provide the submissions as described below. The data CD, reports, and network diagrams required for each submission are contained in paragraph SUBMISSION REQUIREMENTS.

3.4.1 Preliminary Project Schedule Submission

Submit the Preliminary Project Schedule, defining the Contractor's planned operations for the first 90 calendar days for approval within 15 calendar days after the NTP is acknowledged. The approved Preliminary Project Schedule will be used for payment purposes not to exceed 90 calendar days after NTP. Completely cost load the Preliminary Project Schedule to balance the contract award CLINS shown on the Price Schedule. Detail it for the first 90 calendar days. It may be summary in nature for the remaining performance period. It must be early start and late finish constrained and logically tied as previously specified. The Preliminary Project Schedule forms the basis for the Initial Project Schedule specified herein and must include all of the required Plan and Program preparations, submissions and approvals identified in the contract (for example, Quality

Control Plan, Safety Plan, and Environmental Protection Plan) as well as design activities, the planned submissions of all early design packages, permitting activities, design review conference activities and other non-construction activities intended to occur within the first 90 calendar days. Schedule any construction activities planned for the first 90 calendar days after NTP. Constrain planned construction activities by Government acceptance of the associated design package(s) and all other specified Program and Plan approvals. Activity code any activities that are summary in nature after the first 90 calendar days with Responsibility Code (RESP) and Feature of Work code (FOW1, FOW2, FOW3).

3.4.2 Initial Project Schedule Submission

Submit the Initial Project Schedule for approval within 42 calendar days after NTP. The schedule shall demonstrate a reasonable and realistic sequence of activities which represent all work through the entire contract performance period. The Initial Schedule shall be at a reasonable level of detail as determined by the Contracting Officer.

3.4.3 Periodic Schedule Updates

Based on the result of the meeting, specified in PERIODIC SCHEDULE UPDATE MEETINGS, submit periodic schedule updates. These submissions will enable the Contracting Officer to assess Contractor's progress. If the Contractor fails or refuses to furnish the information and project schedule data, which in the judgment of the Contracting Officer or authorized representative is necessary for verifying the Contractor's progress, the Contractor shall be deemed not to have provided an estimate upon which progress payment may be made.

3.4.4 Standard Activity Coding Dictionary

Use the activity coding structure defined in the Standard Data Exchange Format (SDEF) in ER 1-1-11, Appendix A. This exact structure is mandatory, even if some fields are not used. A template SDEF compatible schedule backup file (sdef.prx) is available on the QCS website: http://rms.usace.army.mil/. The SDEF format is as follows:

SDEF Format			
Field	Activity Code	Length	Description
1	WRKP	3	Workers per Day
2	RESP	4	Responsible Party (e.g. GC, subcontractor, USACE)
3	AREA	4	Area of Work
4	MODF	6	Modification or REA number
5	BIDI	6	Bid Item (CLIN)
6	PHAS	2	Phase of Work
7	CATW	1	Category of Work

SDEF Format			
Field	Activity Code	Length	Description
8	FOW1	10	Feature of Work (used up to 10 characters in length)
9	FOW2	10	Feature of Work (used up to 20 characters in length)
10	FOW3	10	Feature of Work (used up to 30 characters in length)

3.5 SUBMISSION REQUIREMENTS

Submit the following items for the Preliminary Schedule, Initial Schedule, and every Periodic Schedule Update throughout the life of the project:

3.5.1 Data CD's

Provide two sets of data CD's containing the project schedule in the backup format. Each CD shall also contain all previous update backup files. File medium shall be CD. Label each CD indicating the type of schedule (Preliminary, Initial, Update), full contract number, Data Date and file name. Each schedule shall have a unique file name as determined by the Contractor.

3.5.2 Narrative Report

Provide a Narrative Report with the Preliminary, Initial, and each Periodic Update of the project schedule, as the basis of the progress payment request. The Narrative Report shall include: a description of activities along the 2 most critical paths where the total float is less than or equal to 20 work days, a description of current and anticipated problem areas or delaying factors and their impact, and an explanation of corrective actions taken or required to be taken. The narrative report is expected to communicate to the Government, the Contractor's thorough analysis of the schedule output and its plans to compensate for any problems, either current or potential, which are revealed through that analysis. Identify and explain why any activities that, based their calculated late dates, should have either started or finished during the update period but did not.

3.5.3 Approved Changes Verification

Include only those project schedule changes in the schedule submission that have been previously approved by the Contracting Officer. The Narrative Report shall specifically reference, on an activity by activity basis, all changes made since the previous period and relate each change to documented, approved schedule changes.

3.5.4 Schedule Reports

The format, filtering, organizing and sorting for each schedule report shall be as directed by the Contracting Officer. Typically reports shall contain: Activity Numbers, Activity Description, Original Duration, Remaining Duration, Early Start Date, Early Finish Date, Late Start Date, Late Finish Date, Total Float, Actual Start Date, Actual Finish Date, and Percent Complete. The following lists typical reports that will be requested. One or all of these reports may be requested for each schedule

submission.

3.5.4.1 Activity Report

A list of all activities sorted according to activity number.

3.5.4.2 Logic Report

A list of detailed predecessor and successor activities for every activity in ascending order by activity number.

3.5.4.3 Total Float Report

A list of all incomplete activities sorted in ascending order of total float. List activities which have the same amount of total float in ascending order of Early Start Dates. Do not show completed activities on this report.

3.5.4.4 Earnings Report by CLIN

A compilation of the Contractor's Total Earnings on the project from the NTP to the data date. This report shall reflect the earnings of specific activities based on the agreements made in the schedule update meeting defined herein. Provided that the Contractor has furnished a complete schedule update, this report shall serve as the basis of determining progress payments. Group activities by CLIN item number and sort by activity number. This report shall: sum all activities coded to a particular CLIN and provide a CLIN item percent earned value; and complete and sum CLIN items to provide a total project percent complete. The printed report shall contain, for each activity: the Activity Number, Activity Description, Original Budgeted Amount, Total Quantity, Quantity to Date, Percent Complete (based on cost), and Earnings to Date.

3.5.5 Network Diagram

The network diagram is required for the Preliminary, Initial and Periodic Updates. The network diagram shall depict and display the order and interdependence of activities and the sequence in which the work is to be accomplished. The Contracting Officer will use, but is not limited to, the following conditions to review compliance with this paragraph:

3.5.5.1 Continuous Flow

Diagrams shall show a continuous flow from left to right with no arrows from right to left. Show the activity number, description, duration, and estimated earned value on the diagram.

3.5.5.2 Project Milestone Dates

Show dates on the diagram for start of project, any contract required interim completion dates, and contract completion dates.

3.5.5.3 Critical Path

Clearly show the critical path.

3.5.5.4 Banding

Organize activities as directed to assist in the understanding of the

activity sequence. Typically, this flow will group activities by category of work, work area and/or responsibility.

3.5.5.5 S-Curves

Earnings curves showing projected early and late earnings and earnings to date.

3.6 PERIODIC SCHEDULE UPDATE MEETINGS

Conduct periodic schedule update meetings for the purposes of reviewing the Contractor's proposed out of sequence corrections, determining causes for delay, correcting logic, maintaining schedule accuracy and determining earned value. Meetings shall occur at least monthly within five days of the proposed schedule data date and after the Contractor has updated the schedule with Government concurrence respecting actual start dates, actual finish dates, remaining durations and percent complete for each activity it intend to status. Provide a computer with the scheduling software loaded and a projector during the meeting which allows all meeting participants to view the proposed schedule update during the meeting. The meeting and resultant approvable schedule update shall be a condition precedent to a formal submission of the update as described in SUBMISSION REQUIREMENTS and to the submission of an invoice for payment. The meeting will be a working interactive exchange which will allow the Government and the Contractor the opportunity to review the updated schedule on a real time and interactive basis. The Contractor's authorized scheduling representative will organize, sort, filter and schedule the update as requested by the Government. The meeting will last no longer than 8 hours. A rough draft of the proposed activity logic corrections and narrative report shall be provided to the Government 48 hours in advance of the meeting. The Contractor's Project Manager and Authorized Scheduler shall attend the meeting with the Authorized Representative of the Contracting Officer.

3.6.1 Update Submission Following Progress Meeting

Submit a complete update of the project schedule containing all approved progress, revisions, and adjustments, pursuant to paragraph SUBMISSION REQUIREMENTS not later than 4 working days after the periodic schedule update meeting, reflecting only those changes made during the previous update meeting.

3.6.2 Status of Activities

Update information, including Actual Start Dates (AS), Actual Finish Dates (AF), Remaining Durations (RD), and Percent Complete shall be subject to the approval of the Government prior to the meeting. As a minimum, address the following items on an activity by activity basis during each progress meeting.

3.6.2.1 Start and Finish Dates

Accurately show the status of the AS and/or AF dates for each activity currently in-progress or completed since the last update. The Government may allow an AF date to be assigned with the percent complete less than 100% to account for the value of work remaining but not restraining successor activities. Only assign AS dates when actual progress occurs on an activity.

3.6.2.2 Remaining Duration

Update the estimated RD for all incomplete activities independent of Percent Complete. Remaining Durations may exceed the activity OD or may exceed the activity's prior update RD if the Government considers the current OD or RD to be understated based on current progress, insufficient work crews actually manning the job, unrealistic OD or deficiencies that must be corrected that restrain successor activities.

3.6.2.3 Percent Complete

Update the percent complete for each activity started, based on the realistic assessment of earned value. Activities which are complete but for remaining minor punch list work and which do not restrain the initiation of successor activities may be declared 100 percent complete. To allow for proper schedule management, cost load the correction of punch list from Government pre-final inspection activity(ies) not less than 1 percent of the total contract value, which activity(ies) may be declared 100 percent complete upon completion and correction of all punch list work identified during Government pre-final inspection(s).

3.6.2.4 Logic Changes

Specifically identify and discuss all logic changes pertaining to NTP on change orders, change orders to be incorporated into the schedule, Contractor proposed changes in work sequence, corrections to schedule logic for out-of-sequence progress, and other changes that have been made pursuant to contract provisions. The Government will only approve logic revisions for the purpose of keeping the schedule valid in terms of its usefulness in calculating a realistic completion date, correcting erroneous logic ties, and accurately sequencing the work.

3.6.2.5 Other Changes

Other changes required due to delays in completion of any activity or group of activities include: 1) delays beyond the Contractor's control, such as strikes and unusual weather. 2) delays encountered due to submittals, Government Activities, deliveries or work stoppages which make re-planning the work necessary. 3) Changes required to correct a schedule that does not represent the actual or planned prosecution and progress of the work.

3.7 REQUESTS FOR TIME EXTENSIONS

In the event the Contractor believes it is entitled to an extension of the contract performance period, completion date, or any interim milestone date, furnish the following for a determination by the Contracting Officer: justification, project schedule data, and supporting evidence as the Contracting Officer may deem necessary. Submission of proof of excusable delay, based on revised activity logic, duration, and costs (updated to the specific date that the delay occurred) is a condition precedent to any approvals by the Government. In response to each Request For Proposal issued by the Government, submit a schedule impact analysis demonstrating whether or not the change contemplated by the Government impacts the critical path.

3.7.1 Justification of Delay

The project schedule shall clearly display that the Contractor has used, in full, all the float time available for the work involved with this

request. The Contracting Officer's determination as to the number of allowable days of contract extension shall be based upon the project schedule updates in effect for the time period in question, and other factual information. Actual delays that are found to be caused by the Contractor's own actions, which result in a calculated schedule delay, will not be a cause for an extension to the performance period, completion date, or any interim milestone date.

3.7.2 Submission Requirements

Submit a justification for each request for a change in the contract completion date of less than 2 weeks based upon the most recent schedule update at the time of the NTP or constructive direction issued for the change. Such a request shall be in accordance with the requirements of other appropriate Contract Clauses and shall include, as a minimum:

a. A list of affected activities, with their associated project schedule activity number.

b. A brief explanation of the causes of the change.

c. An analysis of the overall impact of the changes proposed.

d. A sub-network of the affected area.

Identify activities impacted in each justification for change by a unique activity code contained in the required data file.

3.7.3 Additional Submission Requirements

The Contracting Officer may request an interim update with revised activities for any requested time extension of over 2 weeks. Provide this disk within 4 days of the Contracting Officer's request.

3.8 DIRECTED CHANGES

If the NTP is issued for changes prior to settlement of price and/or time, submit proposed schedule revisions to the Contracting Officer within 2 weeks of the NTP being issued. The Contracting Officer will approve proposed revisions to the schedule prior to inclusion of those changes within the project schedule. If the Contractor fails to submit the proposed revisions, the Contracting Officer may furnish the Contractor with suggested revisions to the project schedule. Include these revisions in the project schedule until revisions are submitted, and final changes and impacts have been negotiated. If the Contractor has any objections to the revisions furnished by the Contracting Officer, advise the Contracting Officer within 2 weeks of receipt of the revisions. Regardless of the objections, continue to update the schedule with the Contracting Officer's revisions until a mutual agreement in the revisions is reached. If the Contractor fails to submit alternative revisions within 2 weeks of receipt of the Contracting Officer's proposed revisions, the Contractor will be deemed to have concurred with the Contracting Officer's proposed revisions. The proposed revisions will then be the basis for an equitable adjustment for performance of the work.

3.9 WEEKLY PROGRESS MEETINGS

a. Meet weekly with the Government (or as otherwise mutually agreed to) between the meetings described in paragraph PERIODIC SCHEDULE UPDATE

MEETINGS for the purpose of jointly reviewing the actual progress of the project as compared to the as planned progress and to review planned activities for the upcoming two weeks. The then current and approved schedule update shall be used for the purposes of this meeting and for the production and review of reports. The Contractor's Project Manager and the Authorized Representative of the Contracting Officer shall attend. The weekly progress meeting will address the status of RFI's, RFP's and Submittals.

b. Provide a bar chart produced by the scheduling software, organized by Total Float and Sorted by Early Start Date, and a two week "look-ahead" schedule by filtering all schedule activities to show only current ongoing activities and activities schedule to start during the upcoming two weeks, organized by Work Area Code (AREA) and sorted by Early Start Date.

c. The Government and the Contractor shall jointly review the reports. If it appears that activities on the longest path(s) which are currently driving the calculated completion date (driving activities), are not progressing satisfactorily and therefore could jeopardize timely project completion, corrective action must be taken immediately. Corrective action includes but is not limited to: increasing the number of work crews; increasing the number of work shifts; increasing the number of hours worked per shift; and determining if Government responsibility coded activities require Government corrective action.

3.10 OWNERSHIP OF FLOAT

Float available in the schedule, at any time, shall not be considered for the exclusive use of either the Government or the Contractor.

3.11 TRANSFER OF SCHEDULE DATA INTO RMS/QCS

Download and upload the schedule data into the Resident Management System (RMS) prior to RMS databases being transferred to the Government and is considered to be additional supporting data in a form and detail required by the Contracting Officer pursuant to FAR 52.232-5 - Payments under Fixed-Price Construction Contracts. The receipt of a proper payment request pursuant to FAR 52.232-27 - Prompt Payment for Construction Contracts is contingent upon the Government receiving both acceptable and approvable hard copies and electronic export from QCS of the application for progress payment.

-- End of Section --

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DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01 33 00

SUBMITTAL PROCEDURES

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SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 DEFINITIONS

1.1.1 Submittal

Contract Clauses "FAR 52.236-5, Material and Workmanship," paragraph (b) and "FAR 52.236-21, Specifications and Drawings for Construction," paragraphs (d), (e), and (f) apply to all "submittals."

1.1.2 Submittal Descriptions (SD)

Submittals requirements are specified in the technical sections. Submittals are identified by SD numbers and titles as follows.

SD-01 Preconstruction Submittals

Certificates of insurance.
Surety bonds.
List of proposed subcontractors.
List of proposed products.
Construction Progress Schedule.
Submittal register.
Schedule of prices.
Health and safety plan.
Activity Hazard Analysis.
Work plan.
Quality control plan.
Environmental protection plan.

SD-02 Shop Drawings

Drawings, diagrams and schedules specifically prepared to illustrate some portion of the work.

Diagrams and instructions from a manufacturer or fabricator for use in producing the product and as aids to the Contractor for integrating the product or system into the project.

Drawings prepared by or for the Contractor to show how multiple systems and interdisciplinary work will be coordinated.

SD-04 Samples

Fabricated or unfabricated physical examples of materials, equipment or workmanship that illustrate functional and aesthetic characteristics of a material or product and establish standards by which the work can be judged.

Color samples from the manufacturer's standard line (or custom color samples if specified) to be used in selecting or approving colors for the project.

Field samples and mock-ups constructed on the project site establish standards by which the ensuring work can be judged. Includes assemblies or portions of assemblies which are to be incorporated into the project and those which will be removed at conclusion of the work.

SD-06 Test Reports

Report signed by authorized official of testing laboratory that a material, product or system identical to the material, product or system to be provided has been tested in accord with specified requirements. (Testing must have been within three years of date of contract award for the project.)

Report which includes findings of a test required to be performed by the Contractor on an actual portion of the work or prototype prepared for the project before shipment to job site.

Report which includes finding of a test made at the job site or on sample taken from the job site, on portion of work during or after installation.

Investigation reports.

Daily logs and checklists.

Final acceptance test and operational test procedure.

SD-07 Certificates

Statements printed on the manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements. Must be dated after award of project contract and clearly name the project.

Document required of Contractor, or of a manufacturer, supplier, installer or subcontractor through Contractor, the purpose of which is to further quality of orderly progression of a portion of the work by documenting procedures, acceptability of methods or personnel qualifications.

Confined space entry permits.

Text of posted operating instructions.

1.1.3 Approving Authority

Office authorized to approve submittal; such as

Area Office Field (AOF)
Real Estate Office (REO)
Engineering, Design and Construction Office (EDC)

1.1.4 Work

As used in this section, on- and off-site construction required by contract documents, including labor necessary to produce submittals, construction,

materials, products, equipment, and systems incorporated or to be incorporated in such construction.

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only or as otherwise designated. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Submittal register; G

1.3 SUBMITTAL CLASSIFICATION

Submittals are classified as follows:

1.4 SUBMITTAL REGISTER

At the end of this section is a submittal register showing items of equipment and materials for which submittals are required by the specifications; this list may not be all inclusive and additional submittals may be required. The Contractor shall maintain a submittal register for the project in accordance with Section 01 45 02.00 10 QUALITY CONTROL SYSTEM (QCS).he Government will provide the initial submittal register in electronic format. Thereafter, the Contractor shall maintain a complete list of all submittals, including completion of all data columns. Dates on which submittals are received and returned by the Government will be included in its export file to the Contractor. The Contractor shall track all submittals.

1.5 SCHEDULING

Submittals covering component items forming a system or items that are interrelated shall be scheduled to be coordinated and submitted concurrently. Certifications to be submitted with the pertinent drawings shall be so scheduled. Adequate time (a minimum of 10 calendar days exclusive of mailing time) shall be allowed and shown on the register for review and approval. No delay damages or time extensions will be allowed for time lost in late submittals.

1.6 TRANSMITTAL FORM (ENG FORM 4025)

The sample transmittal form (ENG Form 4025) attached to this section shall be used for submitting both Government approved and information only submittals in accordance with the instructions on the reverse side of the form. These forms will be furnished to the Contractor. This form shall be properly completed by filling out all the heading blank spaces and identifying each item submitted. Special care shall be exercised to ensure proper listing of the specification paragraph and/or sheet number of the contract drawings pertinent to the data submitted for each item.

1.7 SUBMITTAL PROCEDURES

Submittals shall be made as follows:

1.7.1 Deviations

For submittals which include proposed deviations requested by the Contractor, the column "variation" of ENG Form 4025 shall be checked. The Contractor shall set forth in writing the reason for any deviations and annotate such deviations on the submittal. The Government reserves the right to rescind inadvertent approval of submittals containing unnoted deviations.

1.8 CONTROL OF SUBMITTALS

The Contractor shall carefully control his procurement operations to ensure that each individual submittal is made on or before the Contractor scheduled submittal date shown on the approved "Submittal Register."

1.9 GOVERNMENT APPROVED SUBMITTALS

Upon completion of review of submittals requiring Government approval, the submittals will be identified as having received approval by being so stamped and dated. The distribution of approved copies will be as specified in CLAUSE titled "SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION".

1.10 INFORMATION ONLY SUBMITTALS

Normally submittals for information only will not be returned. Approval of the Contracting Officer is not required on information only submittals. The Government reserves the right to require the Contractor to resubmit any item found not to comply with the contract. This does not relieve the Contractor from the obligation to furnish material conforming to the plans and specifications; will not prevent the Contracting Officer from requiring removal and replacement of nonconforming material incorporated in the work; and does not relieve the Contractor of the requirement to furnish samples for testing by the Government laboratory or for check testing by the Government in those instances where the technical specifications so prescribe.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

-- End of Section --

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION

Green Bay DMDF, Cat Island Chains, Brown County, Green Bay, WI

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAG # RAPH	CLASSIFICATION	GOVT OR A/E REVWR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
							SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE	DATE OF ACTION		
(a)	(b)	(c)	(d)	(e)	(f)		(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		01 10 10	SD-01 Preconstruction Submittals															
			Additional Property Agreements	1.2.2														
			G; RE															
		01 32 01.00 10	SD-01 Preconstruction Submittals															
			Project Schedule	3.4	G AOF													
		01 33 00	SD-01 Preconstruction Submittals															
			Submittal register	1.1.2	G													
		01 35 13.10	SD-01 Preconstruction Submittals															
			Payrolls and Basic Records	1.8.2														
			Progress Chart	1.8.3	G AOF													
			Utility Location Findings		G													
			Video of municipal portions of															
			Lineville Road and Bayshore Dr.															
			AO, TWNSHP															
			Traffic control plan	1.5.10	G AO													
			SD-07 Certificates															
			As-Built Technician's	2.1														
			Qualifications															
			As-built Drawings	2.1	G AO													
		01 35 29	SD-01 Preconstruction Submittals															
			Accident Prevention Plan (APP)	1.6	G AOF													
			Activity Hazard Analysis (AHA)	1.7	G AOF													
			Crane Critical Lift Plan	1.6.1	G													
			Crane Operators	1.5.1.2	G													
			SD-06 Test Reports															
			Reports	1.11														

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Green Bay DMDF, Cat Island Chains, Brown County, Green Bay, WI

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAG # RAPH	CLASSIFICATION	GOVT OR A/E REVWR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
							SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE	DATE OF ACTION		
(a)	(b)	(c)	(d)	(e)	(f)		(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		01 35 29	Accident Reports	1.11.1														
			Monthly Exposure Reports	1.11.3														
			Crane Reports	1.11.4														
			Regulatory Citations and															
			Violations															
			SD-07 Certificates															
			Confined Space Entry Permit	1.8														
			Certificate of Compliance	1.11.5														
		01 45 04.00 10	SD-01 Preconstruction Submittals															
			Contractor Quality Control Plan		G	AOF												
		01 57 20.00 20	SD-01 Preconstruction Submittals															
			Environmental Protection Plan	1.7	G	ECD												
		01 58 01	SD-02 Shop Drawings															
			Sign Layouts		G	AOF												
		02 63 00	SD-07 Certificates															
			Placing Pipe															
			Pipeline Testing															
			Hydrostatic Test on Watertight															
			Joints															
			Determination of Density															
		31 05 22	SD-04 Samples															
			Geotextile	2.1.1														
			SD-07 Certificates															
			Geotextile	2.1.1														

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SPECIAL PROJECT PROCEDURES

SECTION 01 35 13.10

SPECIAL PROJECT PROCEDURES

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

U.S. GOVERNMENT CODE OF FEDERAL REGULATIONS (CFR)

33 CFR 320-330	General Regulatory Policies, Permits, Enforcement and Definitions

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only or as otherwise designated. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Payrolls and Basic Records

Contractor shall submit payrolls and basic records in accordance with the CLAUSE entitled "PAYROLLS AND BASIC RECORDS (FEB 1988)".

Progress Chart; G-AOF

Contractor shall submit progress chart in accordance with the Contract clause entitled "SCHEDULE FOR CONSTRUCTION CONTRACTS (APR 1984)".

Utility Location Findings; G.

Submit a copy of the utility location findings prior to commencing work on the site.

Video of municipal portions of Lineville Road and Bayshore Dr.; AO, TWNSHP

Traffic control plan; G-AO.

SD-07 Certificates

As-Built Technician's Qualifications

Submit the identity and qualifications of the persons assigned to prepare the as-built information at least 10 calendar days in advance of preparing the drawings.

As-built Drawings; G-AO.

Within ten (10) calendar days after the substantial completion date as established by the Contracting Officer, submit the as-built details of the work performed under this contract on a set of blue-line prints of the contract drawings marked in red. Following review and approval by the Government, the Contractor shall prepare electronic and mylar copies of as-built drawings for submittal within 15 calendar days following receipt of comments from the Government. Electronic files shall be submitted in latest version of Microstation, CADD file format, suitable for plotting with Intergraph IPLOT Software. The electronic medium for file transfers shall be agreed to prior to the time of submittal and shall be compatible with current industry standards and hardware configurations.

1.3 REGULATORY REQUIREMENTS

Contractor will need Wisconsin Department of Natural Resources certification in order to use the US Army Corps of Engineers permit in most cases. The US Army Corps of Engineers permit will identify if DNR approval is required. State law requires landowners to avoid wetlands whenever possible. To obtain DNR approval, Contractor will need to explain why they cannot avoid or minimize wetland impacts and that the project will not significantly impact wetland functions.

1.3.1 Additional Work Proposed and Not Authorized

1.3.1.1 Work Subject to 33 CFR 320-330

Any additional work (not specifically shown on the plans or delineated in the specifications) proposed by the Contractor in or affecting navigable waters, including wetlands (as defined in 33 CFR 320-330, http://ecfr.gpoaccess.gov) shall not be performed without a Department of the Army Permit. This requirement shall be applicable to all work, permanent or temporary, and/or fill(s). The Department of the Army Permit shall be approved by the District Engineer or Deputy District Engineer in accordance with the laws of the United States and the regulations promulgated thereunder, including, but not limited to, the River and Harbor Act of 1899, the Clean Water Act and the National Environmental Policy Act of 1969, as amended. Corps employees (Contracting Officer's Representatives (COR) or inspectors) are not delegated authority to authorize such work. Information on making application for such permit(s) may be obtained by contacting one of the offices as listed hereinafter. When applying for information or a permit, a copy of any correspondence should be directed to the Contracting Officer of this contract. If a permit is not obtained, the additional work cannot be accomplished. Any delay in processing the permit will not constitute the basis of a claim under this contract. The fact that the Contractor is performing work under a Department of the Army Contract will give the Contractor no greater rights than any other applicant for a Department of the Army Permit.

WISCONSIN-MINNESOTA

Regulatory Functions Branch
Construction-Operations Division
U.S. Army Engineer District, St. Paul
190 Fifth Street East
St. Paul, MN 55101
Telephone: 651-290-5376

1.4 PARTNERING

In order to most effectively accomplish this contract, the Government requires forming a partnership with the Contractor to develop a cohesive building team. It is anticipated that this partnership would involve the Corps of Engineers, The Contractor, primary Sub-contractors and Brown County. This partnership would strive to develop a cooperative management team drawing on the strengths of each team member in an effort to achieve a quality project within budget and on schedule. This partnership would be bilateral in membership and participation is absolutely required and will be included in section 01 22 00.00 10 MEASUREMENT AND PAYMENT Item No. 0002 'Site Preparation'. All cost, excluding labor and travel expenses shall be shared equally between the Government and the Contractor.

1.5 PROJECT/SITE CONDITIONS

1.5.1 Condition and Use of Project Site

The drawings indicate elevations at the project site as found in condition surveys made as stated on the contract drawings. A notification of at least five (5) calendar days shall be given to the Contracting Officer prior to bringing any construction equipment or material upon the work site. The Contractor shall be responsible for damages that may be suffered due to its operations. The Contractor shall note CLAUSE titled "PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES, AND IMPROVEMENTS."

1.5.1.1 Physical Conditions

The physical conditions shown on the drawings are indicative of those that prevailed at the time of the site investigations and may be different than those at the time of construction. Significant variations that would require changes to the plans or specification shall be reported to the Contracting Officer immediately. The information shown on the logs of soil borings enclosed in SECTION 01 99 90 is from borings located within or near the work areas. While the borings are representative of subsurface conditions at their respective locations and for their respective vertical reaches, localized variations of characteristics of the subsurface materials of this region are anticipated. Field logs of borings taken in the project area, soil samples, and other subsurface information obtained or prepared for this contract are available for examination upon request at the Engineering & Construction Division Design Branch, U.S. Army Corps of Engineers, Detroit District, 477 Michigan Avenue, Detroit, MI 48226.

1.5.1.2 Work and Storage Areas

Work and storage areas shown on the drawings will be provided at the site and will be as designated on the contract drawings and/or approved by the Contracting Officer. Areas made available to the Contractor will be selected to minimize interference with Government operations and other contractors.

1.5.2 Prevailing Lake Levels

Average water levels in Lake Michigan fluctuate above Low Water Datum (LWD). Lake levels as much as 4 feet or more above LWD may occur during periods of high lake levels and storms. Portions of the work which could be accomplished above water during average years may have to be accomplished under water if lake levels are unusually high. Information on

current and anticipated lake levels may be obtained from Detroit District, Corps of Engineers; CELRE-HH-W; P.O. Box 1027; Detroit, Michigan 48231.

1.5.3 Vehicular Access

Throughout the period of work on this contract, the Contractor shall maintain an all-weather roadway through or around its work area when work therein would otherwise block an existing roadway. Such permanent or temporary roadways shall be kept open for use by emergency vehicles, as well as residential and commercial traffic at all times.

1.5.4 Utility Services

1.5.4.1 Contractor-Furnished Utility Services

The Contractor shall furnish, all water, electric current and other utilities required for its use.

1.5.4.2 Sanitary Facilities

Restroom facilities will be provided by the Contractor.

1.5.5 Protection and Maintenance of Traffic

1.5.5.1 Haul Roads

The Contractor shall, at its own expense, construct access and haul roads necessary for proper prosecution of the work under this contract. Haul roads shall be constructed with suitable grades and widths; sharp curves, blind corners, and dangerous cross traffic shall be avoided. The Contractor shall take video of municipal portions of Lineville Road and Bayshore Dr. with stationing painted on the roads of sufficient detail to document the existing conditions of municipal pavement and submit to the municipalities prior to beginning hauling work. The Contractor shall provide necessary lighting, signs, barricades, and distinctive markings for safe movement of vehicular traffic and restriction of pedestrian traffic. The method of dust control shall be adequate to ensure safe operation at all times. Location, grade, width, and alignment of construction and hauling roads shall be subject to approval by the Contracting Officer. Lighting shall be adequate to assure full and clear visibility for full width of haul road and work areas during any night work operations. Upon completion of the work, haul roads shall be removed unless otherwise approved by the Contracting Officer. Any dirt or mud which is tracked onto paved or surfaced roadways shall be promptly cleaned away.

1.5.5.2 Barricades

The Contractor shall erect and maintain temporary barricades to limit public access to hazardous areas. Such barricades shall be required whenever safe and public access to paved areas such as roads, parking areas or sidewalks is prevented by construction activities or as otherwise necessary to ensure the safety of both pedestrian and vehicular traffic. Barricades shall be securely placed, clearly visible with adequate illumination to provide sufficient visual warning of the hazard during both day and night.

1.5.6 Identification of Employees

The Contractor shall be responsible for requiring each employee engaged on

the work to wear a hardhat with labeling as required to identify that the person is an employee of the Contractor or to display other identification as may be approved.

1.5.7 Security Requirements and Clearance of Personnel

1.5.7.1 Loitering

Contractor personnel shall not loiter in or around the place of duty during off-duty hours. Upon completion of assigned duty, employees shall depart the grounds.

1.5.8 Contract Supervision and Representation

The Contractor's local representative shall be available to Government representatives during duty hours, 8 a.m. to 4:30 p.m., on normal working days and shall be available by telephone at other times. The name of the Contractor's representative and the contact telephone number shall be furnished to the Government.

1.5.9 Quantity Surveys

The CLAUSE titled "QUANTITY SURVEYS" is applicable other than for measurement of quantities of work performed for stone construction utilizing new stone. Measurement and payment for stone construction is as specified in SECTION 01 22 00.00 10, "MEASUREMENT AND PAYMENT" and SECTION 35 31 19, "STONE PLACEMENT AND CONSTRUCTION".

1.5.10 Traffic Control Plan

The Contractor shall control traffic in accordance with its approved plan. The Contractor shall ensure that local residents have unimpeded access to and from their property at all times.

1.5.11 Temporary Lights, Signals and Buoys Required by Coast Guard

All temporary lights, signals and buoys required by the U.S. Coast Guard must be displayed during the required work. Information regarding required signals, lights, buoys and other requirements may be obtained from the Commander (oan), Ninth Coast Guard District, 1240 East Ninth Street, Cleveland, Ohio 44199-2060, Telephone (216) 522-3990.

1.5.12 Navigation Buoys

1.5.12.1 Relocation of Existing Buoys

If the relocation of existing navigation buoys is required to perform the contract work, the Contractor shall request permission for their relocation from the U.S. Coast Guard through the Contracting Officer. Once relocated, a record shall be maintained of the buoy relocation position(s). The request shall be provided to the Contracting Officer not less than three (3) weeks prior to need of the buoy relocation. The Contractor shall be responsible for performing the relocation work, which shall be in accordance with U.S. Coast Guard requirements.

1.5.12.2 Temporary Dredging and Construction Buoys

In order to distinguish temporary buoys placed and maintained by the Contractor for dredging or construction purposes from aids to navigation

placed by the U.S. Coast Guard, the Contractor's buoys shall be white and the top two (2) feet shall be light green in color. The Contractor shall remove its temporary buoys at the completion of the work.

1.5.12.3 Buoy Markings

If buoys with special markings are needed to indicate the different sides of the navigable channel, prior arrangements shall be made with the U.S. Coast Guard, through the Contracting Officer.

1.5.13 Layout of Work and Surveys

1.5.13.1 Layout of Work

The following requirements are in addition to the requirements of CLAUSE titled "LAYOUT OF WORK, (IGLD 1985)." The Government has established bench marks and horizontal control points at the site of the work. Horizontal control points and descriptions of bench marks are shown on the drawings or supplied by the Contracting Officer Representative (COR).

1.5.13.2 Surveyor Requirements

From these control points and bench marks, the Contractor shall lay out the work by establishing all lines, grades, range markers and gauges at the site as necessary to control the work. The Contractor shall obtain the services of a surveyor registered. All survey work shall meet the minimum requirements for third-order control in accordance with the American Congress on Surveying and Mapping, 1978 Edition, of "Definition of Surveying and Associated Terms, Appendix D, Tables I, II and III." All additional stakes and markers as may be necessary for control and guidance of the Contractor's construction operations shall be placed and established under the direction of the registered surveyor. All survey information shall be recorded in accordance with standard and approved methods and in the survey note format approved by the Contracting Officer. All field notes, sketches, recordings and computations made by the Contractor in performing the layout work shall be available at all times during the progress of the work for ready examination by the Contracting Officer or his or her duly authorized representative and upon completion of the contract work the originals shall be turned over to the Contracting Officer in ring binders.

1.5.13.3 Suspension

The Contracting Officer may require that work be suspended at any time when location and limit marks established by the Contractor are not reasonably adequate to permit checking the work. Such suspension will be withdrawn upon satisfactory replacement of location and limit marks. Such suspension shall be at no additional cost to the Government and shall not entitle the Contractor to an extension of time for completing the work.

1.5.13.4 Verification

The Government may make checks as the work progresses to verify lines and grades established by the Contractor and to determine the conformance of the completed work as it progresses with the requirements of contract specifications and drawings. Such checking by the Contracting Officer or his or her representative shall not relieve the Contractor of its responsibility to perform all work in accordance with the contract drawings and specifications and the lines and grades given therein.

1.6 SEQUENCING AND SCHEDULING

1.6.1 Exclusion of Period in Computing Completion Schedules

No work will be required during the period between 16 November and 16 April inclusive and the days in this period will not be counted when computing the required completion dates. The Contractor may perform work, unless otherwise prohibited, during all or any part of this period upon giving prior written notice to the Contracting Officer.

1.6.2 Sunday, Holiday And Night Operations

When the Contractor elects to work more than 8 hours per day, Monday through Fridayon Saturdays, Sundays, holidays or nights when not prohibited herein, notice of its intention to do so shall be given to the Contracting Officer not less than forty-eight (48) hours in advance thereof. Adequate lighting for thorough inspection of night operations shall be provided by the Contractor at its expense.

1.6.3 Work Period Restrictions

No work is allowed at the project sites during the following periods:

a. Weekdays between 8 p.m. and 6 a.m.

b. Regular weekends between 6 p.m. Friday and 6 a.m. Monday.

c. All Federal holidays.

Noise generating activities such as, but not limited to, pile driving, concrete breaking, and jackhammering are not allowed between 6 p.m. and 6 a.m. daily. The Government's on-site representative will make the final determination of which activities are allowed between 6 p.m. and 6 a.m. daily.

The above-stated no-work periods, as applicable, are included in the number of calendar days within which the Contractor is required to complete the work as established in the BIDDING SCHEDULE by the Contractor and incorporated into CLAUSE titled "COMMENCEMENT, PROSECUTION, AND COMPLETION OF WORK" and therefore the above-stated no-work periods will not entitle the Contractor to additional time for completing the work.

1.6.4 Start Work

Evidence that the Contractor has started mobilization and preparation of submittal register, and other preparatory work will satisfy the requirement that work commence within ten (10) calendar days after receipt of Notice to Proceed. (See Clause titled COMMENCEMENT, PROSECUTION, AND COMPLETION OF WORK, FAR 52.212-0003.)

1.7 ACCOMMODATIONS FOR INSPECTORS

The Contractor shall, prior to the start of work, furnish a temporary field office for Government personnel, physically and acoustically separated from the Contractor's offices, located near the site of the work, as approved by the Contracting Officer. The Contractor shall have the option of providing the field office facility in an existing or new building, or a trailer. All utilities as specified or required shall be hooked up and in working

order prior to the start of work and shall be maintained during the entire contract period. The entire cost to the Contractor for furnishing, equipping and maintaining the accommodations shall be included in the contract price. If the Contractor fails to meet these requirements, the facilities will be secured by the Contracting Officer and the cost thereof will be deducted from payments to the Contractor. All facilities provided for the use of Government personnel under this Paragraph shall remain the property of the Contractor.

1.7.1 Field Office

The temporary field office shall have approximately 200 square feet of floor space and a minimum of seven (7) feet of headroom. An eight (8) foot by thirty (30) foot office trailer may be made available in lieu of the building. The field office or trailer shall be provided with a work table, two (2) lockable desks, and five (5) chairs. It shall be weatherproof and be supplied with heat in season, a minimum of one (1) door, electric lights, a telephone answering device with handset, a facsimile machine, a medium production rate plain paper copier with sorter and paper supplies, a sufficient number of adjustable windows for adequate light and ventilation, toilet facilities with a wash basin with unheated water, and water cooler with approved drinking water. Telephone and high speed internet service to the Government's field office will be provided by the Contractor. Exterior portable toilet facilities without wash basin may be provided in lieu of interior toilet facilities. The windows shall be screened and provided with locking devices, arranged to open and be securely fastened from the inside. In warm weather, air conditioning shall be furnished which will maintain the office at 50 percent relative humidity and a room temperature of 75 degrees F, or 20 degrees below the outside temperature when the outside temperature is 95 degrees F or higher. In addition to the above requirements, the Government field office or trailer shall be provided with the following:

1.7.1.1 Door Locks

Each exterior door shall be provided with an approved deadbolt lock in the door, key operated from both sides and tamperproof heavy duty hasp bolted to the door. Each lock shall be provided with two (2) keys.

1.7.1.2 Security Window Guards

All exterior window openings and glazed panels of exterior doors shall be provided with security window guards. As a minimum, they shall be round frame stationary window guards consisting of 1-1/2 inch diamond mesh No. 10 W & M gage wire, clinched to 3/8 inch round rod frames, secured to the building or trailer with tamperproof fastenings and shall cover the entire glazed opening.

1.7.1.3 Lighting

A light shall be installed over each exterior door and shall be kept lighted at night, including Saturdays, Sundays and holidays.

1.7.1.4 Storage Closet

The field office building or trailer shall have a closet for storage of pilferable equipment. The closet shall be at least three (3) foot by three (3) foot, floor to ceiling height, and have one (1) upper shelf. The door to the closet shall have an approved deadbolt lock or a hasp with an

approved padlock. The hasp shall be installed with tamperproof type fastenings. Two (2) keys shall be provided for the deadbolt lock or padlock. Leaves of door hinges shall be unexposed.

1.7.1.5 Cleaning

The Contractor shall clean the office facility once each work week, or as directed. Cleaning shall include, but not be limited to, sweeping the floor, dusting furniture, collecting trash, floor scrubbing, window washing and toilet facility cleaning.

1.8 REPORT REQUIREMENTS

1.8.1 Accident Prevention Plan

Contractor shall provide an accident prevention plan including an activity hazard analysis to the Contracting Officer within 15 calendar days after receipt of award. Plan shall be in accordance with Contract Clause entitled "ACCIDENT PREVENTION (NOV 1991) - ALTERNATE 1.

1.8.2 Payrolls and Basic Records

Contractor shall submit payrolls and basic records in accordance with the CLAUSE entitled "PAYROLLS AND BASIC RECORDS (FEB 1988)".

1.8.3 Progress Chart

Contractor shall submit progress chart in accordance with the Contract clause entitled "SCHEDULE FOR CONSTRUCTION CONTRACTS (APR 1984)".

PART 2 PRODUCTS

2.1 AS-BUILT DRAWINGS

The as-built drawing details shall be accurate and of professional quality prepared those with adequate as-built technician's qualifications.

PART 3 EXECUTION

3.1 Safety Reflectors

During the construction of the barrier and each individual cell, plastic (or equivalent) safety reflectors must be installed and maintained within the toe of the structure beginning at Sta. 18+72. At least one reflector for each 100 feet of length of the structure, visible from all directions, must be in place at all times to inform boaters and snowmobilers that a structure is under construction and exists. The reflectors must be placed along both the interior and exterior of the wave barrier. Upon completion of construction of the access roadway and each individual cell, the safety reflectors may be removed.

3.2 Winter Construction

Should the contractor construct during the winter and break ice during construction, the contractor shall mark the ice openings consistent with Section 167.26 Wisconsin Statute.

3.3 Lakebed Grant Area/Work Limits

Heavy equipment shall not be used below the OHWM outside of the lakebed grant area. The contractor shall limit equipment use below the OHWM to the wave barrier and cell leg footprint alignments as depicted on the plans titled: Brown County, Green Bay, Wisconsin, Green Bay DMDF, Cat Island Chain. Any equipment operation within the lakebed grant area outside of the wave barrier or cell leg footprint alignment shall only occur upon written authorization by the Corps project representative. No construction materials shall be stockpiled on the lakebed below the OHWM.

Materials shall not be deposited or stored in any wetland or below the ordinary high water mark of any waterway outside of the construction area detailed in the approved plans.

-- End of Section --

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SAFETY AND OCCUPATIONAL HEALTH REQUIREMENTS

-- End of Section Table of Contents --

SECTION 01 35 29

SAFETY AND OCCUPATIONAL HEALTH REQUIREMENTS

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI A10.32	Personal Fall Protection - Safety Requirements for Construction and Demolition Operations
ANSI Z359.1	(1992; R 1999) Safety Requirements for Personal Fall Arrest Systems, Subsystems and Components
ANSI/ASSE A10.34	(2001) Protection of the Public on or Adjacent to Construction Sites

ASME INTERNATIONAL (ASME)

ASME B30.22	(2005) Articulating Boom Cranes
ASME B30.3	(2004) Construction Tower Cranes
ASME B30.5	(2007) Mobile and Locomotive Cranes
ASME B30.8	(2004) Floating Cranes and Floating Derricks

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 10	(2007; Errata 2007; AMD 1 2007) Standard for Portable Fire Extinguishers
NFPA 70	(2008; AMD 1 2008) National Electrical Code - 2008 Edition
NFPA 70E	(2009; Errata 2009) Standard for Electrical Safety in the Workplace

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1	(2008) Safety and Health Requirements Manual

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

29 CFR 1910.146	Permit-required Confined Spaces

29 CFR 1926	Safety and Health Regulations for Construction
29 CFR 1926.500	Fall Protection

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

Government acceptance is required for submittals with a "G, A" designation.

SD-01 Preconstruction Submittals

Accident Prevention Plan (APP); G, AOF

Activity Hazard Analysis (AHA); G, AOF

Crane Critical Lift Plan; G

Proof of qualification for Crane Operators; G

SD-06 Test Reports

Reports

Submit reports as their incidence occurs, in accordance with the requirements of the paragraph entitled, "Reports."

Accident Reports

Monthly Exposure Reports

Crane Reports

Regulatory Citations and Violations

SD-07 Certificates

Confined Space Entry Permit

Certificate of Compliance (Crane)

1.3 DEFINITIONS

b. High Visibility Accident. Any mishap which may generate publicity and/or high visibility.

c. Medical Treatment. Treatment administered by a physician or by registered professional personnel under the standing orders of a physician. Medical treatment does not include first aid treatment even through provided by a physician or registered personnel.

d. Recordable Injuries or Illnesses. Any work-related injury or illness that results in:

(1) Death, regardless of the time between the injury and death, or the length of the illness;

(2) Days away from work (any time lost after day of injury/illness onset);

(3) Restricted work;

(4) Transfer to another job;

(5) Medical treatment beyond first aid;

(6) Loss of consciousness; or

(7) A significant injury or illness diagnosed by a physician or other licensed health care professional, even if it did not result in (1) through (6) above.

e. "USACE" property and equipment specified in USACE EM 385-1-1 should be interpreted as Government property and equipment.

1.4 REGULATORY REQUIREMENTS

In addition to the detailed requirements included in the provisions of this contract, work performed shall comply with USACE EM 385-1-1, and the following federal laws, ordinances, criteria, rules and 29.CFR 1910 and 29. CFR 1926. Submit matters of interpretation of standards to the appropriate administrative agency for resolution before starting work. Where the requirements of this specification, applicable laws, criteria, ordinances, regulations, and referenced documents vary, the most stringent requirements shall apply.

1.5 SITE QUALIFICATIONS, DUTIES AND MEETINGS

1.5.1 Personnel Qualifications

1.5.1.1 Site Safety and Health Officer (SSHO)

Site Safety and Health Officer (SSHO) shall be provided at the work site at all times to perform safety and occupational health management, surveillance, inspections, and safety enforcement for the Contractor. The Contractor Quality Control (QC) person can be the SSHO on this project. The SSHO shall meet the following requirements:

Level 3:
A minimum of 5 years safety work on similar projects.
30-hour OSHA construction safety class or equivalent within the last 5 years.
An average of at least 24 hours of formal safety training each year for the past 5 years.
Competent person training as needed.

1.5.1.2 Crane Operators

Crane operators shall meet the requirements in USACE EM 385-1-1, Section 16 and Appendix I. In addition, for mobile cranes with Original Equipment Manufacturer (OEM) rated capacitates of 50,000 pounds or greater, crane operators shall be designated as qualified by a source that qualifies crane operators (i.e., union, a government agency, or and organization that tests

and qualifies crane operators, qualified consultant (can be an in-house resource). Proof of current qualification shall be provided.

1.5.2 Personnel Duties

1.5.2.1 Site Safety and Health Officer (SSHO)/Superintendent

a. Conduct daily safety and health inspections and maintain a written log which includes area/operation inspected, date of inspection, identified hazards, recommended corrective actions, estimated and actual dates of corrections. Safety inspection logs shall be attached to the Contractors' daily quality control report.

b. Conduct mishap investigations and complete required reports. Maintain the OSHA Form 300 and Daily Production reports for prime and sub-contractors.

c. Maintain applicable safety reference material on the job site.

d. Attend the pre-construction conference, pre-work meetings including preparatory inspection meeting, and periodic in-progress meetings.

e. Implement and enforce accepted APPS and AHAs.

f. Maintain a safety and health deficiency tracking system that monitors outstanding deficiencies until resolution. A list of unresolved safety and health deficiencies shall be posted on the safety bulletin board.

g. Ensure sub-contractor compliance with safety and health requirements.

Failure to perform the above duties will result in dismissal of the superintendent and/or SSHO, and a project work stoppage. The project work stoppage will remain in effect pending approval of a suitable replacement.

1.5.3 Meetings

1.5.3.1 Preconstruction Conference

a. Contractor representatives who have a responsibility or significant role in accident prevention on the project shall attend the preconstruction conference. This includes the project superintendent, site safety and health officer, quality control supervisor, or any other assigned safety and health professionals who participated in the development of the Accident Prevention Plan (APP) (including the Activity Hazard Analyses (AHAs) and special plans, program and procedures associated with it).

b. The Contractor shall discuss the details of the submitted APP to include incorporated plans, programs, procedures and a listing of anticipated AHAs that will be developed and implemented during the performance of the contract. This list of proposed AHAs will be reviewed at the conference and an agreement will be reached between the Contractor and the Contracting Officer's representative as to which phases will require an analysis. In addition, a schedule for the preparation, submittal, review, and acceptance of AHAs shall be established to preclude project delays.

c. Deficiencies in the submitted APP will be brought to the attention of the Contractor at the preconstruction conference, and the Contractor shall revise the plan to correct deficiencies and re-submit it for acceptance. Work shall not begin until there is an accepted APP.

d. The functions of a Preconstruction conference may take place at the Post-Award Kickoff meeting for Design Build Contracts.

1.6 ACCIDENT PREVENTION PLAN (APP)

The Contractor shall use a qualified person to prepare the written site-specific APP. Prepare the APP in accordance with the format and requirements of USACE EM 385-1-1 and as supplemented herein. Cover all paragraph and subparagraph elements in USACE EM 385-1-1, Appendix A, "Minimum Basic Outline for Accident Prevention Plan". Specific requirements for some of the APP elements are described below. The APP shall be job-specific and shall address any unusual or unique aspects of the project or activity for which it is written. The APP shall interface with the Contractor's overall safety and health program. Any portions of the Contractor's overall safety and health program referenced in the APP shall be included in the applicable APP element and made site-specific. The Government considers the Prime Contractor to be the "controlling authority" for all work site safety and health of the subcontractors. Contractors are responsible for informing their subcontractors of the safety provisions under the terms of the contract and the penalties for noncompliance, coordinating the work to prevent one craft from interfering with or creating hazardous working conditions for other crafts, and inspecting subcontractor operations to ensure that accident prevention responsibilities are being carried out. The APP shall be signed by the person and firm (senior person) preparing the APP, the Contractor, the on-site superintendent, the designated site safety and health officer and any designated CSP and/or CIH.

Submit the APP to the Contracting Officer 15 calendar days prior to the date of the preconstruction conference for acceptance. Work cannot proceed without an accepted APP.

Once accepted by the Contracting Officer, the APP and attachments will be enforced as part of the contract. Disregarding the provisions of this contract or the accepted APP will be cause for stopping of work, at the discretion of the Contracting Officer, until the matter has been rectified.

Once work begins, changes to the accepted APP shall be made with the knowledge and concurrence of the Contracting Officer, project superintendent, SSHO and quality control manager. Should any hazard become evident, stop work in the area, secure the area, and develop a plan to remove the hazard. Notify the Contracting Officer within 24 hours of discovery. Eliminate/remove the hazard. In the interim, all necessary action shall be taken to restore and maintain safe working conditions in order to safeguard onsite personnel, visitors, the public (as defined by ANSI/ASSE A10.34,) and the environment.

Copies of the accepted plan will be maintained at the resident engineer's office and at the job site.
The APP shall be continuously reviewed and amended, as necessary, throughout the life of the contract. Unusual or high-hazard activities not identified in the original APP shall be incorporated in the plan as they are discovered.

1.6.1 EM 385-1-1 Contents

In addition to the requirements outlines in Appendix A of USACE EM 385-1-1, the following is required:

a. Crane Critical Lift Plan. Prepare and sign weight handling critical lift plans for lifts over 75 percent of the capacity of the crane or hoist (or lifts over 50 percent of the capacity of a barge mounted mobile crane's hoists) at any radius of lift; lifts involving more than one crane or hoist; lifts of personnel; and lifts involving non-routine rigging or operation, sensitive equipment, or unusual safety risks. The plan shall be submitted 15 calendar days prior to on-site work and include the requirements of USACE EM 385-1-1, paragraph 16.H.02. and the following:

(1) For lifts of personnel, the plan shall demonstrate compliance with the requirements of 29 CFR 1926.550(g).

(2) For barge mounted mobile cranes, barge stability calculations identifying barge list and trim based on anticipated loading; and load charts based on calculated list and trim. The amount of list and trim shall be within the crane manufacturer's requirements.

1.7 ACTIVITY HAZARD ANALYSIS (AHA)

The Activity Hazard Analysis (AHA) format shall be in accordance with USACE EM 385-1-1. Submit the AHA for review at least 15 calendar days prior to the start of each phase. Format subsequent AHAs as amendments to the APP. The analysis should be used during daily inspections to ensure the implementation and effectiveness of the activity's safety and health controls.

The AHA list will be reviewed periodically (at least monthly) at the Contractor supervisory safety meeting and updated as necessary when procedures, scheduling, or hazards change.

The activity hazard analyses shall be developed using the project schedule as the basis for the activities performed. Any activities listed on the project schedule will require an AHA. The AHAs will be developed by the contractor, supplier or subcontractor and provided to the prime contractor for submittal to the Contracting Officer.

1.8 DISPLAY OF SAFETY INFORMATION

Within 1 calendar days after commencement of work, erect a safety bulletin board at the job site. The safety bulletin board shall include information and be maintained as required by EM 385-1-1, section 01.A.06. Additional items required to be posted include:

a. Confined space entry permit.

1.9 SITE SAFETY REFERENCE MATERIALS

Maintain safety-related references applicable to the project, including those listed in the article "References." Maintain applicable equipment manufacturer's manuals.

1.10 EMERGENCY MEDICAL TREATMENT

Contractors will arrange for their own emergency medical treatment. Government has no responsibility to provide emergency medical treatment.

1.11 REPORTS

1.11.1 Accident Reports

a. For recordable injuries and illnesses, and property damage accidents resulting in at least $2,000 in damages, the Prime Contractor shall conduct an accident investigation to establish the root cause(s) of the accident, complete the USACE Accident Report Form 3394 and provide the report to the Contracting Officer within 5 calendar day(s) of the accident. The Contracting Officer will provide copies of any required or special forms.

1.11.2 Accident Notification

Notify the Contracting Officer as soon as practical, but not later than four (4) hours, after any accident meeting the definition of Recordable Injuries or Illnesses or High Visibility Accidents, property damage equal to or greater than $2,000, or any weight handling equipment accident. Information shall include contractor name; contract title; type of contract; name of activity, installation or location where accident occurred; date and time of accident; names of personnel injured; extent of property damage, if any; extent of injury, if known, and brief description of accident (to include type of construction equipment used, PPE used, etc.). Preserve the conditions and evidence on the accident site until the Government investigation team arrives on-site and Government investigation is conducted.

1.11.3 Monthly Exposure Reports

Monthly exposure reporting to the Contracting Officer is required to be attached to the monthly billing request. This report is a compilation of employee-hours worked each month for all site workers, both prime and subcontractor. The Contracting Officer will provide copies of any special forms.

1.11.4 Crane Reports

Submit crane inspection reports required in accordance with USACE EM 385-1-1, 16.D and as specified herein with Daily Reports of Inspections.

1.11.5 Certificate of Compliance

The Contractor shall provide a Certificate of Compliance for each crane entering an activity under this contract (see Contracting Officer for a blank certificate). Certificate shall state that the crane and rigging gear meet applicable OSHA regulations (with the Contractor citing which OSHA regulations are applicable, e.g., cranes used in construction, demolition, or maintenance shall comply with 29 CFR 1926 and USACE EM 385-1-1 section 16. Certify on the Certificate of Compliance that the crane operator(s) is qualified and trained in the operation of the crane to be used. The Contractor shall also certify that all of its crane operators working on the DOD activity have been trained in the proper use of all safety devices (e.g., anti-two block devices). These certifications shall be posted on the crane.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 CONSTRUCTION AND/OR OTHER WORK

3.1.1 Unforeseen Hazardous Material

The design should have identified materials such as PCB, lead paint, and friable and non-friable asbestos. If additional material, not indicated, that may be hazardous to human health upon disturbance during construction operations is encountered, stop that portion of work and notify the Contracting Officer immediately. Within 60 calendar days the Government will determine if the material is hazardous. If material is not hazardous or poses no danger, the Government will direct the Contractor to proceed without change. If material is hazardous and handling of the material is necessary to accomplish the work, the Government will issue a modification pursuant to "FAR 52.243-4, Changes" and "FAR 52.236-2, Differing Site Conditions."

3.2 PRE-OUTAGE COORDINATION MEETING

Contractors are required to apply for utility outages at least 15 days in advance. As a minimum, the request should include the location of the outage, utilities being affected, duration of outage and any necessary sketches. Special requirements for electrical outage requests are contained elsewhere in this specification section. Once approved, and prior to beginning work on the utility system requiring shut down, the Contractor shall attend a pre-outage coordination meeting with the Contracting Officer Public Utilities representative to review the scope of work and the lock-out/tag-out procedures for worker protection. No work will be performed on energized electrical circuits unless proof is provided that no other means exist.

3.3 FALL HAZARD PROTECTION AND PREVENTION PROGRAM

The Contractor shall establish a fall protection and prevention program, for the protection of all employees exposed to fall hazards. The program shall include company policy, identify responsibilities, education and training requirements, fall hazard identification, prevention and control measures, inspection, storage, care and maintenance of fall protection equipment and rescue and evacuation procedures.

3.3.1 Training

The Contractor shall institute a fall protection training program. As part of the Fall Hazard Protection and Prevention Program, the Contractor shall provide training for each employee who might be exposed to fall hazards. A competent person for fall protection shall provide the training. Training requirements shall be in accordance with USACE EM 385-1-1, section 21.B.

3.3.2 Fall Protection Equipment and Systems

The Contractor shall enforce use of the fall protection equipment and systems designated for each specific work activity in the Fall Protection and Prevention Plan and/or AHA at all times when an employee is exposed to

a fall hazard. Employees shall be protected from fall hazards as specified in EM 385-1-1, section 21. In addition to the required fall protection systems, safety skiff, personal floatation devices, life rings etc., are required when working above or next to water in accordance with USACE EM 385-1-1, paragraphs 05.J. and 05.K. Personal fall arrest systems are required when working from an articulating or extendible boom, swing stages, or suspended platform. In addition, personal fall arrest systems are required when operating other equipment such as scissor lifts if the work platform is capable of being positioned outside the wheelbase. The need for tying-off in such equipment is to prevent ejection of the employee from the equipment during raising, lowering, or travel. Fall protection must comply with 29 CFR 1926.500, Subpart M, USACE EM 385-1-1 and ANSI A10.32.

3.3.2.1 Personal Fall Arrest Equipment

Personal fall arrest equipment, systems, subsystems, and components shall meet ANSI Z359.1. Only a full-body harness with a shock-absorbing lanyard or self-retracting lanyard is an acceptable personal fall arrest body support device. Body belts may only be used as a positioning device system (for uses such as steel reinforcing assembly and in addition to an approved fall arrest system). Harnesses shall have a fall arrest attachment affixed to the body support (usually a Dorsal D-ring) and specifically designated for attachment to the rest of the system. Only locking snap hooks and carabiners shall be used. Webbing, straps, and ropes shall be made of synthetic fiber. The maximum free fall distance when using fall arrest equipment shall not exceed 1.8 m (6 feet). The total fall distance and any swinging of the worker (pendulum-like motion) that can occur during a fall shall always be taken into consideration when attaching a person to a fall arrest system.

3.3.3 Fall Protection for Roofing Work

Fall protection controls shall be implemented based on the type of roof being constructed and work being performed. The roof area to be accessed shall be evaluated for its structural integrity including weight-bearing capabilities for the projected loading.

a. Low Sloped Roofs:

(1) For work within 1.8 m (6 feet) of an edge, on low-slope roofs, personnel shall be protected from falling by use of personal fall arrest systems, guardrails, or safety nets.

(2) For work greater than 1.8 m (6 feet) from an edge, warning lines shall be erected and installed in accordance with 29 CFR 1926.500 and USACE EM 385-1-1.

b. Steep-Sloped Roofs: Work on steep-sloped roofs requires a personal fall arrest system, guardrails with toe-boards, or safety nets. This requirement also includes residential or housing type construction.

3.3.4 Existing Anchorage

Existing anchorages, to be used for attachment of personal fall arrest equipment, shall be certified (or re-certified) by a qualified person for fall protection in accordance with ANSI Z359.1. Exiting horizontal lifeline anchorages shall be certified (or re-certified) by a registered professional engineer with experience in designing horizontal lifeline

systems.

3.3.5 Horizontal Lifelines

Horizontal lifelines shall be designed, installed, certified and used under the supervision of a qualified person for fall protection as part of a complete fall arrest system which maintains a safety factor of 2 (29 CFR 1926.500).

3.3.6 Guardrails and Safety Nets

Guardrails and safety nets shall be designed, installed and used in accordance with EM 385-1-1 and 29 CFR 1926 Subpart M.

3.3.7 Rescue and Evacuation Procedures

When personal fall arrest systems are used, the contractor must ensure that the mishap victim can self-rescue or can be rescued promptly should a fall occur. A Rescue and Evacuation Plan shall be prepared by the contractor and include a detailed discussion of the following: methods of rescue; methods of self-rescue; equipment used; training requirement; specialized training for the rescuers; procedures for requesting rescue and medical assistance; and transportation routes to a medical facility. The Rescue and Evacuation Plan shall be included in the Activity Hazard Analysis (AHA) for the phase of work, in the Fall Protection and Prevention (FP&P) Plan, and the Accident Prevention Plan (APP).

3.4 SCAFFOLDING

Employees shall be provided with a safe means of access to the work area on the scaffold. Climbing of any scaffold braces or supports not specifically designed for access is prohibited. Access to scaffold platforms greater than 6 m (20 feet) in height shall be accessed by use of a scaffold stair system. Vertical ladders commonly provided by scaffold system manufacturers shall not be used for accessing scaffold platforms greater than 6 m (20 feet) in height. The use of an adequate gate is required. Contractor shall ensure that employees are qualified to perform scaffold erection and dismantling. Do not use scaffold without the capability of supporting at least four times the maximum intended load or without appropriate fall protection as delineated in the accepted fall protection and prevention plan. Stationary scaffolds must be attached to structural building components to safeguard against tipping forward or backward. Special care shall be given to ensure scaffold systems are not overloaded. Side brackets used to extend scaffold platforms on self-supported scaffold systems for the storage of material is prohibited. The first tie-in shall be at the height equal to 4 times the width of the smallest dimension of the scaffold base. Work platforms shall be placed on mud sills. Scaffold or work platform erectors shall have fall protection during the erection and dismantling of scaffolding or work platforms that are more than six feet. Delineate fall protection requirements when working above six feet or above dangerous operations in the Fall Protection and Prevention (FP&P) Plan and Activity Hazard Analysis (AHA) for the phase of work.

3.5 EQUIPMENT

3.5.1 Material Handling Equipment

a. Material handling equipment such as forklifts shall not be modified with work platform attachments for supporting employees unless

specifically delineated in the manufacturer's printed operating instructions.

b. The use of hooks on equipment for lifting of material must be in accordance with manufacturer's printed instructions.

c. Operators of forklifts or power industrial trucks shall be licensed in accordance with OSHA.

3.5.2 Weight Handling Equipment

a. Cranes and derricks shall be equipped as specified in EM 385-1-1, section 16.

b. The Contractor shall comply with the crane manufacturer's specifications and limitations for erection and operation of cranes and hoists used in support of the work. Erection shall be performed under the supervision of a designated person (as defined in ASME B30.5). All testing shall be performed in accordance with the manufacturer's recommended procedures.

c. The Contractor shall comply with ASME B30.5 for mobile and locomotive cranes, ASME B30.22 for articulating boom cranes, ASME B30.3 for construction tower cranes, and ASME B30.8 for floating cranes and floating derricks.

d. Under no circumstance shall a Contractor make a lift at or above 90% of the cranes rated capacity in any configuration.

e. When operating in the vicinity of overhead transmission lines, operators and riggers shall be alert to this special hazard and shall follow the requirements of USACE EM 385-1-1 section 11 and ASME B30.5 or ASME B30.22 as applicable.

f. Crane suspended personnel work platforms (baskets) shall not be used unless the Contractor proves that using any other access to the work location would provide a greater hazard to the workers or is impossible. Personnel shall not be lifted with a line hoist or friction crane.

g. Portable fire extinguishers shall be inspected, maintained, and recharged as specified in NFPA 10, Standard for Portable Fire Extinguishers.

h. All employees shall be kept clear of loads about to be lifted and of suspended loads.

i. The Contractor shall use cribbing when performing lifts on outriggers.

j. The crane hook/block must be positioned directly over the load. Side loading of the crane is prohibited.

k. A physical barricade must be positioned to prevent personnel from entering the counterweight swing (tail swing) area of the crane.

l. Certification records which include the date of inspection, signature of the person performing the inspection, and the serial number or other identifier of the crane that was inspected shall always

be available for review by Contracting Officer personnel.

m. Written reports listing the load test procedures used along with any repairs or alterations performed on the crane shall be available for review by Contracting Officer personnel.

n. Certify that all crane operators have been trained in proper use of all safety devices (e.g. anti-two block devices).

3.6 EXCAVATIONS

The competent person shall perform soil classification in accordance with 29 CFR 1926.

3.6.1 Utility Locations

Prior to digging, the appropriate digging permit must be obtained. All underground utilities in the work area must be positively identified by a private utility locating service in addition to any station locating service and coordinated with the station utility department. Any markings made during the utility investigation must be maintained throughout the contract.

3.6.2 Utility Location Verification

The Contractor must physically verify underground utility locations by hand digging using wood or fiberglass handled tools when any adjacent construction work is expected to come within three feet of the underground system. Digging within 0.061 m (2 feet) of a known utility must not be performed by means of mechanical equipment; hand digging shall be used. If construction is parallel to an existing utility the utility shall be exposed by hand digging every 30.5 m (100 feet) if parallel within 1.5 m (5 feet) of the excavation.

3.6.3 Shoring Systems

Trench and shoring systems must be identified in the accepted safety plan and AHA. Manufacture tabulated data and specifications or registered engineer tabulated data for shoring or benching systems shall be readily available on-site for review. Job-made shoring or shielding shall have the registered professional engineer stamp, specifications, and tabulated data. Extreme care must be used when excavating near direct burial electric underground cables.

3.6.4 Trenching Machinery

Trenching machines with digging chain drives shall be operated only when the spotters/laborers are in plain view of the operator. Operator and spotters/laborers shall be provided training on the hazards of the digging chain drives with emphasis on the distance that needs to be maintained when the digging chain is operating. Documentation of the training shall be kept on file at the project site.

3.7 UTILITIES WITHIN CONCRETE SLABS

Utilities located within concrete slabs or pier structures, bridges, and the like, are extremely difficult to identify due to the reinforcing steel used in the construction of these structures. Whenever contract work

involves concrete chipping, saw cutting, or core drilling, the existing utility location must be coordinated with station utility departments in addition to a private locating service. Outages to isolate utility systems shall be used in circumstances where utilities are unable to be positively identified. The use of historical drawings does not alleviate the contractor from meeting this requirement.

3.8 ELECTRICAL

3.8.1 Conduct of Electrical Work

Underground electrical spaces must be certified safe for entry before entering to conduct work. Cables that will be cut must be positively identified and de-energized prior to performing each cut. Positive cable identification must be made prior to submitting any outage request for electrical systems. Arrangements are to be coordinated with the Contracting Officer and Station Utilities for identification. The Contracting Officer will not accept an outage request until the Contractor satisfactorily documents that the circuits have been clearly identified. Perform all high voltage cable cutting remotely using hydraulic cutting tool. When racking in or live switching of circuit breakers, no additional person other than the switch operator will be allowed in the space during the actual operation. Plan so that work near energized parts is minimized to the fullest extent possible. Use of electrical outages clear of any energized electrical sources is the preferred method. When working in energized substations, only qualified electrical workers shall be permitted to enter. When work requires Contractor to work near energized circuits as defined by the NFPA 70, high voltage personnel must use personal protective equipment that includes, as a minimum, electrical hard hat, safety shoes, insulating gloves with leather protective sleeves, fire retarding shirts, coveralls, face shields, and safety glasses. In addition, provide electrical arc flash protection for personnel as required by NFPA 70E. Insulating blankets, hearing protection, and switching suits may also be required, depending on the specific job and as delineated in the Contractor's AHA.

3.8.2 Portable Extension Cords

Portable extension cords shall be sized in accordance with manufacturer ratings for the tool to be powered and protected from damage. All damaged extension cords shall be immediately removed from service. Portable extension cords shall meet the requirements of NFPA 70.

3.9 WORK IN CONFINED SPACES

The Contractor shall comply with the requirements in Section 34 of USACE EM 385-1-1, OSHA 29 CFR 1910.146 and OSHA 29 CFR 1926.21(b)(6). Any potential for a hazard in the confined space requires a permit system to be used.

-- End of Section --

U. S. Army Corps of Engineers Great Lakes Districts
Safety and Occupational Health Office

CONTRACTOR ACCIDENT PREVENTION PLAN (APP) CHECKLIST (EM 385-1-1, Appendix - A, dated; 15 Sep 08)

Minimum Basic Outline for Accident Prevention Plan

The APP is the Contractor Safety and Health Program Document. The following Site Specific Areas will be addressed:

NOTE: 1. Contractor will complete Checklist and Submitt with their APP.
NOTE: 2. Contractor APP WILL be submitted in format below.
NOTE: 2. Safety Office will review Contractor APP and return to PM / COR.
NOTE: 3. Contractor APP's ARE NOT APPROVED by the USACE, only found as Acceptable or Non-Acceptable.

Safety Office Review Status: ACCEPTED BY-DATE:_____ NOT ACCEPTED BY/DATE:_____

Contractor Name: **Contract No:**

Project Title & Location:	Included ?			
	Yes	No	N/A	Page(s)
ALL CHECKLIST ITEMS WILL BE COMPLETED!				
1. SIGNATURE SHEET. Title, signature, and phone number of the following:				
a. *Plan Preparer* (qualified person such as corporate safety staff person, QC)				
b. *Plan Approval* by company/corporate officers authorized to obligate the company (e.g. owner company president, regional vice president etc.				
c. *Plan Concurrence* (e.g. Chief of Operations, Corporate Chief of Safety, Corporate Industrial Hygienist, project manager or superintendent, project safety professional, project QC) . (provide concurrence of other applicable corporate and project personnel (Contractor)				
2. BACKGROUND INFORMATION. List the following:				
a. Contractor;				
b. Contract number;				
c. Project name;				
d. Brief project description, description of work to be performed, and location map				
e. Contractor accident experience (provide OSHA 300 Log, EMR, etc.				
f. Listing of phases of work and hazardous activities requiring AHA's -Activity Hazards Analyses				
3. STATEMENT OF SAFETY AND HEALTH POLICY. Provide a copy of your current corporate/company Safety & Health Policy Statement.				
4. RESPONSIBILITIES AND LINES OF AUTHORITIES.				
a. Identification and accountability of personnel responsible for safety - at both corporate and project level (contracts specifically requiring safety or industrial hygiene personnel should include a copy of their resume - the District Safety and Occupational Health Office will review the qualifications for acceptance).				
b. Lines of authority				
5. SUBCONTRACTORS AND SUPPLIERS. Provide the following:				
a. Identification of subcontractors and suppliers (if known);				
b. Means for controlling and coordinating subcontractors and suppliers; and				
c. Safety responsibilities of subcontractors and suppliers				
6. TRAINING.				
a. List subjects to be discussed with employees in safety indoctrination				
b. List mandatory training and certifications which are applicable to this project (e. g., explosive actuated tools, confined space entry, crane operator, diver, vehicle operator, HAZWOPER training and certification, personal protective equipment) and any requirements for periodic retraining/recertification				
c. Identify requirements for emergency response training.> See paragraph 12.b. below for operations that may require emergency response training..				
d. Outline requirements (who attends, when given, who will conduct etc.) for supervisory and employee safety meetings.				
7. SAFETY AND HEALTH INSPECTIONS. Provide details on:				
a. Who will conduct safety inspections (e.g., project manager, safety professional, QC, supervisors, employees, etc.), proof of inspector's training/qualifications, when inspections will be conducted, how the inspections will be recorded, deficiency tracking system, follow-up procedures, etc. The names of competent and/or qualified person(s) and proof of competency/qualification to meet specific OSHA requirements must be attached.				

U. S. Army Corps of Engineers Great Lakes Districts
Safety and Occupational Health Office

CONTRACTOR ACCIDENT PREVENTION PLAN (APP) CHECKLIST (EM 385-1-1, Appendix - A, dated; 15 Sep 08)

Minimum Basic Outline for Accident Prevention Plan

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NOTE: 2. Contractor APP WILL be submitted in format below.
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Safety Office Review Status: ACCEPTED BY-DATE:_____ NOT ACCEPTED BY/DATE:_____

Contractor Name: **Contract No:**

Project Title & Location:	Included ?			
	Yes	No	N/A	Page(s)
b. Any external inspections/certifications that may be required (e.g., Coast Guard				
8. SAFETY AND HEALTH EXPECTATIONS, INCENTIVE PROGRAMS, AND COMPLIANCE.				
a. The company's written safety program goals, objectives, and accident experience goals for this contract should be provided				
b. A brief description of the company's safety incentive programs (if any) should be provided				
c. Policies and procedures regarding noncompliance with safety requirements (to include disciplinary actions for violation of safety requirements) should be identified				
d. Provide written company procedures for holding managers and supervisors accountable for safety				
9. ACCIDENT REPORTING. The contractor shall identify who, how, and when the following will be completed:				
a. Exposure data (man-hours worked)				
b. Accident investigations, reports and logs				
c. Immediate notification of major accidents.				
10. MEDICAL SUPPORT. Outline on-site medical support and off-site medical arrangements including rescue and medical duties for those employees who are to perform them, and the name(s) of on-site Contractor personnel trained in First Aid and CPR.				
11. PERSONAL PROTECTIVE EQUIPMENT (PPE). Outline procedures (who, when, how) for conducting hazard assessments and written certifications for use of PPE. Outline procedures to be followed to to asure the proper use, selection, and maintenance of PPE and life saving equipment (e.g. protective footwear-gloves-hard hats-glasses-hearing protection-harnesses-lanyards, etc.				
12. PLANS (PROGRAMS, PROCEDURES) REQUIRED BY THE SAFETY MANUAL (as applicable).				
a. Layout Plans (04.A.01)				
b. Emergency Response Plans that include:				
(1) Procedures & Test (01.E.01)				
(2) Spill Plans (01.E.01, 06.A.02)				
(3) Firefighting Plan (01.E.01, 19.A.04)				
(4) Posting of Emergency Telephone Numbers (01.E.05)				
(5) Wild-Land Fire Prevention Plan (09.K.01)				
(6) Man overboard/abandon ship (19.A.04)				
c. Hazard Communication (HAZCOMM) Program (06.B.01)				
d. Respiratory Protection Plan (05.G.03)				
e. Health Hazard Control Program (06.A.02)				
f. Lead Abatement Plan (06.B.05 & specifications)				
g. Asbestos Abatement Plan (06.B.05 & specifications)				
h. Abrasive Blasting (06.H.01)				
I. Confined Space (Section 34)				
j. Hazardous Energy Control Plan/Lockout-Tagout (12.A.12)				
k. Critical Lift Procedures (16.H.02)				
l. Contingency Plan for Severe Weather (19.A.03)				

U. S. Army Corps of Engineers Great Lakes Districts
Safety and Occupational Health Office

CONTRACTOR ACCIDENT PREVENTION PLAN (APP) CHECKLIST (EM 385-1-1, Appendix - A, dated; 15 Sep 08)

Minimum Basic Outline for Accident Prevention Plan

The APP is the Contractor Safety and Health Program Document. The following Site Specific Areas will be addressed:

NOTE: 1. Contractor will complete Checklist and Submitt with their APP.
NOTE: 2. Contractor APP WILL be submitted in format below.
NOTE: 2. Safety Office will review Contractor APP and return to PM / COR.
NOTE: 3. Contractor APP's ARE NOT APPROVED by the USACE, only found as Acceptable or Non-Acceptable.

Safety Office Review Status: ACCEPTED BY-DATE:_____ NOT ACCEPTED BY/DATE:_____

Contractor Name: **Contract No:**

Project Title & Location:	Included ?			
	Yes	No	N/A	Page(s)
m. Access and haul road plan (04.B)				
n. Demolition Plan (engineering and asbestos surveys) (23.A.01)				
o. Emergency Rescue (tunneling) (26.A.05)				
p. Underground Construction Fire Prevention-Protection Plan (26.D.01)				
q. Compressed Air Plan (26.I.01)				
r. Formwork and Shoring Erection and Removal Plans (27.C.02)				
s. Jacking (lift) Slab Plans (27.D.01)				
t. For HTRW work, a Site Specific Safety & Health Plan must be submitted and shall contain all information required by the APP-Accident Prevention Plan - two documents are **not** required (28.B)				
u. Blasting Plan (29.A.01)				
v. Diving Plan (30.A.17)				
w. Plan for prevention of alcohol and drug abuse (Defense Federal Acquisition Regulation Supplement (DFARS) Subpart 252.223-7004)				
x Fall Protection Plan (Section 21)				
y. Steel Erection Plan (27.F.01)				
z. Night Operations Lighting Plan (07.A.08)				
aa. Site Sanitation Plan (Section 02)				
bb. Fire Prevention Plan (09.A.01)				
13. The contractor shall provide information on **how** they will meet the requirements of applicable Sections of this Manual in the APP. As a minimum, excavations, scaffolding, medical and first aid requirements, sanitation, PPE, fire prevention, machinery and mechanized equipment, electrical safety, public safety requirements, and chemical, physical agent, and biological occupational exposure prevention requirements shall be addressed as applicable				
14. SITE-SPECIFIC HAZARDS & CONTROLS. Detailed site-specific hazards and controls shall be provided in the AHA for each acitivity of the operation.				

CERTIFICATE OF COMPLIANCE

This certificate shall be signed by an official of the company that provides cranes for any application under this contract. Post a completed certificate on each crane utilized during this contract.

CONTRACTING OFFICER'S POINT OF CONTACT	PHONE
PRIME CONTRACTOR/PHONE	CONTRACT NUMBER
CRANE SUPPLIER/PHONE (if different from prime contractor)	CRANE(S) NUMBER (i.e., ID number)
CRANE MANUFACTURER/TYPE/CAPACITY	
CRANE OPERATOR'S NAME(S)	

I certify that

1. The above noted crane and associated rigging gear conform to applicable OSHA regulations and applicable ASME B30 standards. The following OSHA regulations and ASME standards apply: 29 CFR 1910.180 & B30.8-2004
2. The operators noted above have been trained and are qualified for the operation of the above noted crane(s).
3. The operators noted above have been trained not to bypass safety devices during lifting operations.

COMPANY OFFICIAL SIGNATURE	DATE
COMPANY OFFICIAL NAME/TITLE	

POST ON CRANE

(IN CAB OR VEHICLE)

USACE Great Lakes Districts - Monthy Man Hour
Contractor Exposure Report

(Ref. EM 385-1, page-10, para 01.D.05.a)

MONTH:_____ YEAR:_____

PROJECT NAME	TYPE OF OPERATION	LOCATION (City & State)	CONTRACTOR NAME	CONTRACT NUMBER	MANHOURS WORKED	# OF LOST WORK-DAYS DUE TO INJURY	# OF DAYS SINCE LAST LOST WORK-DAY(since start of contract)
TOTALS >>>>>>>>>>>>>>>>>>	>>>>>>>>>>>>>>>>>>	>>>>>>>>>>>>>>>>>>	>>>>>>>>>>>>>>>>>>>>>>>	>>>>>>>>>>>>>>>>			

(For Safety Staff only)	REPORT NO.	EROC CODE	**UNITED STATES ARMY CORPS OF ENGINEERS ACCIDENT INVESTIGATION REPORT** *(For Use of this Form See Help Menu and USACE Suppl to AR 385-40)*	**REQUIREMENT CONTROL SYMBOL: CEEC-S-8(R2)**

1. **ACCIDENT CLASSIFICATION**

PERSONNEL CLASSIFICATION	INJURY/ILLNESS/FATAL	PROPERTY DAMAGE	MOTOR VEHICLE INVOLVED	DIVING
GOVERNMENT ☐ CIVILIAN ☐ MILITARY	☐	☐ FIRE INVOLVED ☐ OTHER	☐	☐
☐ CONTRACTOR	☐	☐ FIRE INVOLVED ☐ OTHER	☐	☐
☐ PUBLIC ☐ FATAL ☐ OTHER			☐	

2. **PERSONAL DATA**

a. Name *(Last, First, MI)*	b. AGE	c. SEX ☐ MALE ☐ FEMALE	d. SOCIAL SECURITY NUMBER	e. GRADE

f. JOB SERIES/TITLE	g. DUTY STATUS AT TIME OF ACCIDENT	h. EMPLOYMENT STATUS AT TIME OF ACCIDENT
	☐ ON DUTY ☐ TDY ☐ OFF DUTY	☐ ARMY ACTIVE ☐ ARMY RESERVE ☐ VOLUNTEER ☐ PERMANENT ☐ FOREIGN NATIONAL ☐ SEASONAL ☐ TEMPORARY ☐ STUDENT ☐ OTHER *(Specify)*

3. **GENERAL INFORMATION**

a. DATE OF ACCIDENT *(month/day/year)*	b. TIME OF ACCIDENT *(Military time)* hrs	c. EXACT LOCATION OF ACCIDENT	d. CONTRACTOR'S NAME (1) PRIME: (2) SUBCONTRACTOR:

e. CONTRACT NUMBER	f. TYPE OF CONTRACT	g. HAZARDOUS/TOXIC WASTE ACTIVITY
☐ CIVIL WORKS ☐ MILITARY ☐ OTHER *(Specify)*	☐ CONSTRUCTION ☐ SERVICE ☐ A/E ☐ DREDGE ☐ OTHER *(Specify)*	☐ SUPERFUND ☐ DERP ☐ IRP ☐ OTHER *(Specify)*

4. **CONSTRUCTION ACTIVITIES ONLY** *(Fill in line and corresponding code number in box from list - see help menu)*

a. CONSTRUCTION ACTIVITY	(CODE) #	b. TYPE OF CONSTRUCTION EQUIPMENT	(CODE) #

5. INJURY/ILLNESS INFORMATION *(Include name on line and corresponding code number in box for items e, f & g - see help menu)*

a. SEVERITY OF ILLNESS/INJURY	(CODE) #	b. ESTIMATED DAYS LOST	c. ESTIMATED DAYS HOSPITALIZED	d. ESTIMATED DAYS RESTRICTED DUTY

e. BODY PART AFFECTED	(CODE) #	g. TYPE AND SOURCE OF INJURY/ILLNESS	(CODE) #
PRIMARY		TYPE	
SECONDARY		SOURCE	
f. NATURE OF ILLNESS/INJURY			

6. PUBLIC FATALITY *(Fill in line and correspondence code number in box - see help menu)*

a. ACTIVITY AT TIME OF ACCIDENT	(CODE) #	b. PERSONAL FLOATATION DEVICE USED?
		☐ YES ☐ NO ☐ N/A

7. MOTOR VEHICLE ACCIDENT

a. TYPE OF VEHICLE	b. TYPE OF COLLISION	c. SEAT BELTS	USED	NOT USED	NOT AVAILABLE
☐☐ PICKUP/VAN ☐☐ AUTOMOBILE ☐☐ TRUCK ☐☐ OTHER *(Specify)*	☐ SIDE SWIPE ☐ HEAD ON ☐ REAR END ☐ BROADSIDE ☐ ROLL OVER ☐ BACKING ☐ OTHER *(Specify)*	(1) FRONT SEAT			
		(2) REAR SEAT			

8. PROPERTY/MATERIAL INVOLVED

a. NAME OF ITEM	b. OWNERSHIP	c. $ AMOUNT OF DAMAGE
(1)		
(2)		
(3)		

9. VESSEL/FLOATING PLANT ACCIDENT *(Fill in line and correspondence code number in box from list - see help menu)*

a. TYPE OF VESSEL/FLOATING PLANT	(CODE) #	b. TYPE OF COLLISION/MISHAP	(CODE) #

10. ACCIDENT DESCRIPTION *(Use additional paper, if necessary)*

11. **CAUSAL FACTOR(S)** *(Read Instruction Before Completing)*

a. (Explain YES answers in item 13)	YES	NO
DESIGN: Was design of facility, workplace or equipment a factor?	☐	☐
INSPECTION/MAINTENANCE: Were inspection & maintenance procedures a factor?	☐	☐
PERSON'S PHYSICAL CONDITION: In your opinion, was the physical condition of the person a factor?	☐	☐
OPERATING PROCEDURES: Were operating procedures a factor?	☐	☐
JOB PRACTICES: Were any job safety/health practices not followed when the accident occurred?	☐	☐
HUMAN FACTORS: Did any human factors such as, size or strength of person, etc., contribute to accident?	☐	☐
ENVIRONMENTAL FACTORS: Did heat, cold, dust, sun, glare, etc., contribute to the accident?	☐	☐

a. *(CONTINUED)*	YES	NO
CHEMICAL AND PHYSICAL AGENT FACTORS: Did exposure to chemical agents, such as dust, fumes, mists, vapors or physical agents, such as, noise, radiation, etc., contribute to accident?	☐	☐
OFFICE FACTORS: Did office setting such as, lifting office furniture, carrying, stooping, etc., contribute to the accident?	☐	☐
SUPPORT FACTORS: Were inappropriate tools/resources provided to properly perform the activity/task?	☐	☐
PERSONAL PROTECTIVE EQUIPMENT: Did the improper selection, use or maintenance of personal protective equipment contribute to the accident?	☐	☐
DRUGS/ALCOHOL: In your opinion, was drugs or alcohol a factor to the accident	☐	☐

b. WAS A WRITTEN JOB/ACTIVITY HAZARD ANALYSIS COMPLETED FOR TASK BEING PERFORMED AT TIME OF ACCIDENT?

☐ YES *(If yes, attach a copy.)* ☐ NO

12. **TRAINING**

a. WAS PERSON TRAINED TO PERFORM ACTIVITY/TASK?	b. TYPE OF TRAINING.	c. DATE OF MOST RECENT FORMAL TRAINING.
☐ YES ☐ NO	☐ CLASSROOM ☐ ON JOB	(Month) (Day) (Year)

13. **FULLY EXPLAIN WHAT ALLOWED OR CAUSED THE ACCIDENT; INCLUDE DIRECT AND INDIRECT CAUSES** *(See instruction for definition of direct and indirect causes.) (Use additional paper, if necessary)*

a. DIRECT CAUSE

b. INDIRECT CAUSE(S)

14. **ACTION(S) TAKEN, ANTICIPATED OR RECOMMENDED TO ELIMINATE CAUSE(S).**

DESCRIBE FULLY:

15. **DATES FOR ACTIONS IDENTIFIED IN BLOCK 14.**

a. BEGINNING (Month/Day/Year)	b. ANTICIPATED COMPLETION (Month/Day/Year)		
c. SIGNATURE AND TITLE OF SUPERVISOR COMPLETING REPORT CORPS _____ CONTRACTOR _____	d. DATE *(Mo/Da/Yr)*	e. ORGANIZATION IDENTIFIER *(Div, Br, Sect)*	f. OFFICE SYMBOL

16. **MANAGEMENT REVIEW** *(1st)*

a. ☐ CONCUR b. ☐ NON CONCUR c. COMMENTS

SIGNATURE	TITLE	DATE

17. **MANAGEMENT REVIEW** *(2nd - Chief Operations, Construction, Engineering, etc.)*

a. ☐ CONCUR b. ☐ NON CONCUR c. COMMENTS

SIGNATURE	TITLE	DATE

18. **SAFETY AND OCCUPATIONAL HEALTH OFFICE REVIEW**

a. ☐ CONCUR b. ☐ NON CONCUR c. ADDITIONAL ACTIONS/COMMENTS

SIGNATURE	TITLE	DATE

19. **COMMAND APPROVAL**

COMMENTS

COMMANDER SIGNATURE	DATE

*U.S. GOVERNMENT PRINTING OFFICE: 1993-0-791-757

10. ACCIDENT DESCRIPTION ***(Continuation)***

13a. DIRECT CAUSE ***(Continuation)***

13b. INDIRECT CAUSES *(Continuation)*

14. ACTION(S) TAKEN, ANTICIPATED, OR RECOMMENDED TO ELIMINATE CAUSE(S) *(Continuation)*

GENERAL. Complete a separate report for each person who was injured, caused, or contributed to the accident (excluding uninjured personnel and witnesses). Use of this form for reporting USACE employee first-aid type injuries not submitted to the Office of Workers' Compensation Programs (OWCP) shall be at the descretion of the FOA commander. Please type or print legibly. Appropriate items shall be marked with an "X" in box(es). If additional space is needed, provide the information on a separate sheet and attach to the completed form. Ensure that these instructions are forwarded with the completed report to the designated management reviewers indicated in sections 16 and 17.

INSTRUCTIONS FOR SECTION 1 - ACCIDENT CLASSIFICATION

(Mark All Boxes That Are Applicable)

a. GOVERNMENT. Mark "CIVILIAN" box if accident involved government civilian employee; mark "MILITARY" box if accident involved U.S. military personnel.

(1) INJURY/ILLNESS/FATALITY - Mark if accident resulted in any government civilian employee injury, illness, or fatality that requires the submission of OWCP Forms CA-1 (injury), CA-2 (illness) or CA-6 (fatality) to OWCP; mark if accident resulted in military personnel lost-time or fatal injury or illness.

(2) PROPERTY DAMAGE - Mark the appropriate box if accident resulted in any damage of $1000 or more to government property (including motor vehicles).

(3) VEHICLE INVOLVED - Mark if accident involved a motor vehicle, regardless of whether "INJURY/ILLNESS/FATALITY" or "PROPERTY DAMAGE" are marked.

(4) DIVING ACTIVITY - Mark if the accident involved an in-house USACE diving activity.

b. CONTRACTOR.

(1) INJURY/ILLNESS/FATALITY - Mark if accident resulted in any contractor lost-time injury/illness or fatality.

(2) PROPERTY DAMAGE - Mark the appropriate box if accident resulted in any damage of $1000 or more to contractor property (including motor vehicles).

(3) VEHICLE INVOLVED - Mark if accident involved a motor vehicle, regardless of whether "INJURY/ILLNESS/FATALITY" or "PROPERTY DAMAGE" are marked.

(4) DIVING ACTIVITY - Mark if the accident involved a USACE Contractor diving activity.

c. PUBLIC.

(1) INJURY/ILLNESS/FATALITY - Mark if accident resulted in public fatality or permanent total disability. (The "OTHER" box will be marked when requested by the FOA to report an unusual non-fatal public accident that could result in claims against the government or as otherwise directed by the FOA Commander).

(2) VOID SPACE - Make no entry.

(3) VEHICLE INVOLVED - Mark if accident resulted in a fatality to a member of the public and involved a motor vehicle, regardless of whether "INJURY/ILLNESS/FATALITY" is marked.

(4) VOID SPACE - Make no entry.

INSTRUCTIONS FOR SECTION 2 - PERSONAL DATA

a. NAME - (MANDATORY FOR GOVERNMENT ACCIDENTS. OPTIONAL AT THE DISCRETION OF THE FOA COMMANDER FOR CONTRACTOR AND PUBLIC ACCIDENTS). Enter last name, first name, middle initial of person involved.

b. AGE - Enter age.

c. SEX - Mark appropriate box.

d. SOCIAL SECURITY NUMBER - (FOR GOVERNMENT PERSONNEL ONLY) Enter the social security number (or other personal identification number if no social security number issued).

e. GRADE - (FOR GOVERNMENT PERSONNEL ONLY) Enter pay grade. Example: 0-6; E-7; WG-8; WS-12; GS-11; etc.

f. JOB SERIES/TITLE - For government civilian employees enter the pay plan, full series number, and job title, e.g., GS-0810/Civil Engineer. For military personnel enter the primary military occupational specialty (PMOS), e.g., 15A30 or 11G50. For contractor employees enter the job title assigned to the injured person, e.g., carpenter, laborer, surveyor, etc.

g. DUTY STATUS - Mark the appropriate box.

(1) ON DUTY - Person was at duty station during duty hours or person was away from duty station during duty hours but on official business at time of the accident.

(2) TDY - Person was on official business, away from the duty station and with travel orders at time of accident. Line-of-duty investigation required.

(3) OFF DUTY - Person was not on official business at time of accident.

h. EMPLOYMENT STATUS - (FOR GOVERNMENT PERSONNEL ONLY) Mark the most appropriate box. If "OTHER" is marked, specify the employment status of the person.

INSTRUCTION FOR SECTION 3 - GENERAL INFORMATION

a. DATE OF ACCIDENT - Enter the month, day, and year of accident.

b. TIME OF ACCIDENT - Enter the local time of accident in military time. Example: 1430 hrs (not 2:30 p.m.).

c. EXACT LOCATION OF ACCIDENT - Enter facts needed to locate the accident scene, (installation/project name, building number, street, direction and distance from closest landmark, etc.).

d. CONTRACTOR NAME

(1) PRIME - Enter the exact name (title of firm) of the prime contractor.

(2) SUBCONTRACTOR - Enter the name of any subcontractor involved in the accident.

e. CONTRACT NUMBER - Mark the appropriate box to identify if contract is civil works, military, or other: if "OTHER" is marked, specify contract appropriation on line provided. Enter complete contract number of prime contract, e.g., DACW 09-85-C-0100.

f. TYPE OF CONTRACT - Mark appropriate box. A/E means architect/engineer. If "OTHER" is marked, specify type of contract on line provided.

g. HAZARDOUS/TOXIC WASTE ACTIVITY (HTW) - Mark the box to identify the HTW activity being performed at the time of the accident. For Superfund, DERP, and Installation Restoration Program (IRP) HTW activities include accidents that occurred during inventory, predesign, design, and construction. For the purpose of accident reporting, DERP Formerly Used DoD Site (FUDS) activities and IRP activities will be treated separately. For Civil Works O&M HTW activities mark the "OTHER" box.

INSTRUCTIONS FOR SECTION 4 - CONSTRUCTION ACTIVITIES

a. CONSTRUCTION ACTIVITY - Select the most appropriate construction activity being performed at time of accident from the list below. Enter the activity name and place the corresponding code number identified in the box.

CONSTRUCTION ACTIVITY LIST

1. MOBILIZATION
2. SITE PREPARATION
3. EXCAVATION/TRENCHING
4. GRADING (EARTHWORK)
5. PIPING/UTILITIES
6. FOUNDATION
7. FORMING
8. CONCRETE PLACEMENT
9. STEEL ERECTION
10. ROOFING
11. FRAMING
12. MASONRY
13. CARPENTRY
14. ELECTRICAL
15. SCAFFOLDING/ACCESS
16. MECHANICAL
17. PAINTING
18. EOUIPMENT/MAINTENANCE
19. TUNNELING
20. WAREHOUSING/STORAGE
21. PAVING
22. FENCING
23. SIGNING
24. LANDSCAPING/IRRIGATION
25. INSULATION
26. DEMOLITION

b. TYPE OF CONSTRUCTION EQUIPMENT - Select the equipment involved in the accident from the list below. Enter the name and place the corresponding code number identified in the box. If equipment is not included below, use code 24, "OTHER", and write in specific type of equipment.

CONSTRUCTION EQUIPMENT

1. GRADER
2. DRAGLINE
3. CRANE (ON VESSEL/BARGE)
4. CRANE (TRACKED)
5. CRANE (RUBBER TIRE)
6. CRANE (VEHICLE MOUNTED)
7. CRANE (TOWER)
8. SHOVEL
9. SCRAPER
10. PUMP TRUCK (CONCRETE)
11. TRUCK (CONCRETE/TRANSIT MIXER)
12. DUMP TRUCK (HIGHWAY)
13. DUMP TRUCK (OFF HIGHWAY)
14. TRUCK (OTHER)
15. FORKLIFT
16. BACKHOE
17. FRONT-END LOADER
18. PILE DRIVER
19. TRACTOR (UTILITY)
20. MANLIFT
21. DOZER
22. DRILL RIG
23. COMPACTOR/VIBRATORY ROLLER
24. OTHER

INSTRUCTIONS FOR SECTION 5 - INJURY/ILLNESS INFORMATION

a. SEVERITY OF INJURY/ILLNESS - Reference para 2-10 of USACE Suppl 1 to AR 385-40 and enter code and description from list below.

NOI NO INJURY
FAT FATALITY
PTL PERMANENT TOTAL DISABILITY
PPR ERMANENT PARTIAL DISABILITY
LWD LOST WORKDAY CASE INVOLVING DAYS AWAY FROM WORK
NLW RECORDABLE CASE WITHOUT LOST WORKDAYS
RFA RECORDABLE FIRST AID CASE

b. ESTIMATED DAYS LOST - Enter the estimated number of workdays the person will lose from work.

c. ESTIMATED DAYS HOSPITALIZED - Enter the estimated number of workdays the person will be hospitalized.

d. ESTIMATED DAYS RESTRICTED DUTY - Enter the estimated number of workdays the person, as a result of the accident, will not be able to perform all of their regular duties.

e. BODY PART AFFECTED - Select the most appropriate primary and when applicable, secondary body part affected from the list below. Enter body part name on line and place the corresponding code letters identifying that body part in the box.

GENERAL BODY AREA	CODE	BODY PART NAME
ARM/WRIST	AB	ARM AND WRIST
	AS	ARM OR WRIST
TRUNK, EXTERNAL MUSCULATURE	B1	SINGLE BREAST
	B2	BOTH BREASTS
	B3	SINGLE TESTICLE
	B4	BOTH TESTICLES
	BA	ABDOMEN
	BC	CHEST
	BL	LOWER BACK
	BP	PENIS
	BS	SIDE
	BU	UPPER BACK
	BW	WAIST
	BZ	TRUNK OTHER
HEAD, INTERNAL	C1	SINGLE EAR INTERNAL
	C2	BOTH EARS INTERNAL
	C3	SINGLE EYE INTERNAL
	C4	BOTH EYES INTERNAL
	CB	BRAIN
	CC	CRANIAL BONES
	CD	TEETH
	CJ	JAW
	CL	THROAT, LARYNX
	CM	MOUTH
	CN	NOSE
	CR	THROAT, OTHER
	CT	TONGUE
	CZ	HEAD OTHER INTERNAL
ELBOW	EB	BOTH ELBOWS
	ES	SINGLE ELBOW
FINGER	F1	FIRST FINGER
	F2	BOTH FIRST FINGERS
	F3	SECOND FINGER
	F4	BOTH SECOND FINGERS
	F5	THIRD FINGER
	F6	BOTH THIRD FINGERS
	F7	FOURTH FINGER
	F8	BOTH FOURTH FINGERS
TOE	G1	GREAT TOE
	G2	BOTH GREAT TOES
	G3	TOE OTHER
	G4	TOES OTHER

GENERAL BODY AREA	CODE	BODY PART NAME
HEAD, EXTERNAL	H1	EYES EXTERNAL
	H2	BOTH EYES EXTERNAL
	H3	EAR EXTERNAL
	H4	BOTH EARS EXTERNAL
	HC	CHIN
	HF	FACE
	HK	NECK/THROAT
	HM	MOUTH/LIPS
	HN	NOSE
	HS	SCALP
KNEE	KB	BOTH KNEES
	KS	KNEE
LEG, HIP, ANKLE, BUTTOCK	LB	BOTH LEGS/HIPS/ ANKLES/BUTTOCKS
	LS	SINGLE LEG/HIP ANKLE/BUTTOCK
HAND	MB	BOTH HANDS
	MS	SINGLE HAND
FOOT	PB	BOTH FEET
	PS	SINGLE FOOT
TRUNK, BONES	R1	SINGLE COLLAR BONE
	R2	BOTH COLLAR BONES
	R3	SHOULDER BLADE
	R4	BOTH SHOULDER BLADES
	RB	RIB
	RS	STERNUM (BREAST BONE)
	RV	VERTEBRAE (SPINE; DISC)
	RZ	TRUNK BONES OTHER
SHOULDER	SB	BOTH SHOULDERS
	SS	SINGLE SHOULDER
THUMB	TB	BOTH THUMBS
	TS	SINGLE THUMB
TRUNK, INTERNAL ORGANS	V1	LUNG, SINGLE
	V2	LUNGS, BOTH
	V3	KIDNEY, SINGLE
	V4	KIDNEYS, BOTH
	VH	HEART
	VL	LIVER
	VR	REPRODUCTIVE ORGANS
	VS	STOMACH
	VV	INTESTINES
	VZ	TRUNK, INTERNAL; OTHER

f. NATURE OF INJURY/ILLNESS - Select the most appropriate nature of injury/illness from the list below. This nature of injury/illness shall correspond to the primary body part selected in 5e, above. Enter the nature of injury/illness name on the line and place the corresponding CODE letters in the box provided.

*** The injury or condition selected below must be caused by a specific incident or event <u>which occurred during a single work day or shift.</u>**

GENERAL NATURE CATEGORY	CODE	NATURE OF INJURY NAME
*TRAUMATIC INJURY OR DISABILITY	TA	AMPUTATION
	TB	BACK STRAIN
	TC	CONTUSION; BRUISE; ABRASION
	TD	DISLOCATION
	TF	FRACTURE
	TH	HERNIA
	TK	CONCUSSION
	TL	LACERATION, CUT
	TP	PUNCTURE
	TS	STRAIN, MULTIPLE
	TU	BURN, SCALD, SUNBURN
	TI	TRAUMATIC SKIN DISEASES/CONDITIONS INCLUDING DERMATITIS
	TR	TRAUMATIC RESPIRATORY DISEASE
	TQ	TRAUMATIC FOOD POISONING
	TW	TRAUMATIC TUBERCULOSIS
	TX	TRAUMATIC VIROLOGICAL/ INFECTIVE/PARASITIC DISEASE
	T1	TRAUMATIC CEREBRAL VASCULAR CONDITION/STROKE
	T2	TRAUMATIC HEARING LOSS
	T3	TRAUMATIC HEART CONDITION
	T4	TRAUMATIC MENTAL DISORDER, STRESS; NERVOUS CONDITION
	T8	TRAUMATIC INJURY - OTHER (EXCEPT DISEASE, ILLNESS)

** A nontraumatic physiological harm or loss of capacity produced by systemic infection; continued or repeated stress or strain; exposure to toxins, poisons, fumes, etc.; or other continued and <u>repeated exposures to conditions of the work environment over a long period of time</u>. For practical purposes, an occupational illness/disease or disability is any reported condition which does not meet the definition of traumatic injury or disability as described above.

GENERAL NATURE CATEGORY	CODE	NATURE OF INJURY NAME
**NON-TRAUMATIC ILLNESS/DISEASE OR DISABILITY		
RESPIRATORY DISEASE	RA	ASBESTOSIS
	RB	BRONCHITIS
	RE	EMPHYSEMA
	RP	PNEUMOCONIOSIS
	RS	SILICOSIS
	R9	RESPIRATORY DISEASE, OTHER
VIROLOGICAL, INFECTIVE & PARASITIC DISEASES	VB	BRUCELLOSIS
	VC	COCCIDIOMYCOSIS
	VF	FOOD POISONING
	VH	HEPATITIS
	VM	MALARIA
	VS	STAPHYLOCOCCUS
	VT	TUBERCULOSIS
	V9	VIROLOGICAL/INFECTIVE/ PARASITIC - OTHER
DISABILITY, OCCU-PATIONAL	DA	ARTHRITIS, BURSITIS
	DB	BACK STRAIN, BACK SPRAIN
	DC	CEREBRAL VASCULAR CONDITION; STROKE

GENERAL NATURE CATEGORY	CODE	NATURE OF INJURY NAME
	DD	ENDEMIC DISEASE (OTHER THAN CODE TYPES R&S)
	DE	EFFECT OF ENVIRON-MENTAL CONDITION
	DH	HEARING LOSS
	DK	HEART CONDITION
	DM	MENTAL DISORDER, EMOTIONAL STRESS, NERVOUS
CONDITION		
	DR	RADIATION
	DS	STRAIN, MULTIPLE
	DU	ULCER
	DV	OTHER VASCULAR CONDITIONS
	D9	DISABILITY, OTHER
SKIN DISEASE OR CONDITION	SB	BIOLOGICAL
	SC	CHEMICAL
	S9	DERMATITIS, UNCLASSIFIED

g. TYPE AND SOURCE OF INJURY/ILLNESS (CAUSE) - Type and Source Codes are used to describe what caused the incident. The Type Code stands for an ACTION and the Source Code for an OBJECT or SUBSTANCE. Together, they form a brief description of how the incident occurred. Where there are two different sources, code the initiating source of the incident (see example 1, below). Examples:

(1) An employee tripped on carpet and struck his head on a desk.
TYPE: 210 (fell on same level) SOURCE: 0110 (walking/working surface).

NOTE: This example would NOT be coded 120 (struck against) and 0140 (furniture).

(2) A Park Ranger contracted dermatitis from contact with poison ivy/oak.
TYPE: 510 (contact) SOURCE: 0920 (plant)

(3) A lock and dam mechanic punctured his finger with a metal sliver while grinding a turbine blade.
TYPE: 410 (punctured by) SOURCE: 0830 (metal)

(4) An employee was driving a government vehicle when it was struck by another vehicle.
TYPE: 800 (traveling in) SOURCE: 0421 (government-owned vehicle, as driver)

NOTE: The Type Code 800, "Traveling In" is different from the other type codes in that its function is not to identify factors contributing to the injury or fatality, but rather to collect data on the type of vehicle the employee was operating or traveling in at the time of the incident.

Select the most appropriate TYPE and SOURCE identifier from the list below and enter the name on the line and the corresponding code in the appropriate box.

CODE	TYPE OF INJURY NAME
	STRUCK
0110	STRUCK BY
0111	STRUCK BY FALLING OBJECT
0120	STRUCK AGAINST
	FELL, SLIPPED, TRIPPED
0210	FELL ON SAME LEVEL
0220	FELL ON DIFFERENT LEVEL
0230	SLIPPED, TRIPPED (NO FALL)
	CAUGHT
0310	CAUGHT ON
0320	CAUGHT IN
0330	CAUGHT BETWEEN
	PUNCTURED, LACERATED
0410	PUNCTURED BY
0420	CUT BY
0430	STUNG BY
0440	BITTEN BY
	CONTACTED
0510	CONTACTED WITH (INJURED PERSON MOVING)
0520	CONTACTED BY (OBJECT WAS MOVING)
	EXERTED
0610	LIFTED, STRAINED BY (SINGLE ACTION)
0620	STRESSED BY (REPEATED ACTION)
	EXPOSED
0710	INHALED
0720	INGESTED
0730	ABSORBED
0740	EXPOSED TO
0800	TRAVELING IN

CODE	SOURCE OF INJURY NAME
0100	BUILDING OR WORKING AREA
0110	WALKING/WORKING SURFACE (FLOOR, STREET, SIDEWALKS, ETC.)
0120	STAIRS, STEPS
0130	LADDER
0140	FURNITURE, FURNISHINGS, OFFICE EQUIPMENT
0150	BOILER, PRESSURE VESSEL
0160	EQUIPMENT LAYOUT (ERGONOMIC)
0170	WINDOWS, DOORS
0180	ELECTRICITY
0200	ENVIRONMENTAL CONDITION
0210	TEMPERATURE EXTREME (INDOOR)
0220	WEATHER (ICE, RAIN, HEAT, ETC.)
0230	FIRE, FLAME, SMOKE (NOT TOBACCO)
0240	NOISE
0250	RADIATION
0260	LIGHT
0270	VENTILATION
0271	TOBACCO SMOKE
0280	STRESS (EMOTIONAL)
0290	CONFINED SPACE
0300	MACHINE OR TOOL
0310	HAND TOOL (POWERED; SAW, GRINDER, ETC.)
0320	HAND TOOL (NONPOWERED)
0330	MECHANICAL POWER TRANSMISSION APPARATUS
0340	GUARD, SHIELD (FIXED, MOVEABLE, INTERLOCK)

CODE	TYPE OF INJURY NAME
0350	VIDEO DISPLAY TERMINAL
0360	PUMP, COMPRESSOR, AIR PRESSURE TOOL
0370	HEATING EQUIPMENT
0380	WELDING EQUIPMENT
0400	VEHICLE
0411	AS DRIVER OF PRIVATELY OWNED/RENTAL VEHICLE
0412	AS PASSENGER OF PRIVATELY OWNED/RENTAL VEHICLE
0421	DRIVER OF GOVERNMENT VEHICLE
0422	PASSENGER OF GOVERNMENT VEHICLE
0430	COMMON CARRIER (AIRLINE, BUS, ETC.)
0440	AIRCRAFT (NOT COMMERCIAL)
0450	BOAT, SHIP, BARGE
0500	MATERIAL HANDLING EQUIPMENT
0510	EARTHMOVER (TRACTOR, BACKHOE, ETC.)
0520	CONVEYOR (FOR MATERIAL AND EQUIPMENT)
0530	ELEVATOR, ESCALATOR, PERSONNEL HOIST
0540	HOIST, SLING CHAIN, JACK
0550	CRANE
0551	FORKLIFT
0560	HANDTRUCK, DOLLY
0600	DUST, VAPOR, ETC.
0610	DUST (SILICA, COAL, ETC.)
0620	FIBERS
0621	ASBESTOS
0630	GASES
0631	CARBON MONOXIDE
0640	MIST, STEAM, VAPOR, FUME
0641	WELDING FUMES
0650	PARTICLES (UNIDENTIFIED)
0700	CHEMICAL, PLASTIC, ETC.
0711	DRY CHEMICAL - CORROSIVE
0712	DRY CHEMICAL - TOXIC
0713	DRY CHEMICAL - EXPLOSIVE
0714	DRY CHEMICAL FLAMMABLE
0721	LIQUID CHEMICAL - CORROSIVE
0722	LIQUID CHEMICAL - TOXIC
0723	LIQUID CHEMICAL - EXPLOSIVE
0724	LIQUID CHEMICAL - FLAM-MABLE
0730	PLASTIC
0740	WATER
0750	MEDICINE
0800	INAMINATE OBJECT
0810	BOX, BARREL, ETC.
0820	PAPER
0830	METAL ITEM, MINERAL
0831	NEEDLE
0840	GLASS

CODE	SOURCE OF INJURY NAME
0850	SCRAP, TRASH
0860	WOOD
0870	FOOD
0880	CLOTHING, APPAREL, SHOES
0900	ANIMATE OBJECT
0911	DOG
0912	OTHER ANIMAL
0920	PLANT
0930	INSECT
0940	HUMAN (VIOLENCE)
0950	HUMAN (COMMUNICABLE DISEASE)
0960	BACTERIA, VIRUS (NOT HUMAN CONTACT)
1000	PERSONAL PROTECTIVE EQUIPMENT
1010	PROTECTIVE CLOTHING, SHOES, GLASSES, GOGGLES
1020	RESPIRATOR, MASK
1021	DIVING EQUIPMENT
1030	SAFETY BELT, HARNESS
1040	PARACHUTE

INSTRUCTIONS FOR SECTION 6 - PUBLIC FATALITY

a. ACTIVITY AT TIME OF ACCIDENT - Select the activity being performed at the time of the accident from the list below. Enter the activity name on the line and the corresponding number in the box. If the activity performed is not identified on the list, select from the most appropriate primary activity area (water related, non-water related or other activity), the code number for "Other", and write in the activity being performed at the time of the accident.

WATER RELATED RECREATION

1. Sailing
2. Boating-powered
3. Boating-unpowered
4. Water skiing
5. Fishing from boat
6. Fishing from bank dock or pier
7. Fishing while wading
8. Swimming/supervised area
9. Swimming/designated area
10. Swimming/other area
11. Underwater activities (skin diving, scuba, etc.)
12. Wading
13. Attempted rescue
14. Hunting from boat
15. Other

NON-WATER RELATED RECREATION

16. Hiking and walking
17. Climbing (general)
18. Camping/picnicking authorized area
19. Camping/picnicking unauthorized area
20. Guided tours
21. Hunting
22. Playground equipment
23. Sports/summer (baseball, football, etc.)
24. Sports/winter (skiing, sledding, snowmobiling etc.)
25. Cycling (bicycle, motorcycle, scooter)
26. Gliding
27. Parachuting
28. Other non-water related

OTHER ACTIVITIES

29. Unlawful acts (fights, riots, vandalism, etc.)
30. Food preparation/serving
31. Food consumption
32. Housekeeping
33. Sleeping
34. Pedestrian struck by vehicle
35. Pedestrian other acts
36. Suicide
37. "Other" activities

b. PERSONAL FLOTATION DEVICE USED - If fatality was water-related was the victim wearing a person flotation device? Mark the appropriate box.

INSTRUCTIONS FOR SECTION 7 - MOTOR VEHICLE ACCIDENT

a. TYPE OF VEHICLE - Mark appropriate box for each vehicle involved. If more than one vehicle of the same type is involved, mark both halves of the appropriate box. USACE vehicle(s) involved shall be marked in left half of appropriate box.

b. TYPE OF COLLISION - Mark appropriate box.

c. SEAT BELT - Mark appropriate box.

INSTRUCTIONS FOR SECTION 8 - PROPERTY/MATERIAL INVOLVED

a. NAME OF ITEM - Describe all property involved in accident. Property/material involved means material which is damaged or whose use or misuse contributed to the accident. Include the name, type, model; also include the National Stock Number (NSN) whenever applicable.

b. OWNERSHIP - Enter ownership for each item listed. (Enter one of the following: USACE; OTHER GOVERNMENT; CONTRACTOR; PRIVATE)

c. $ AMOUNT OF DAMAGE - **E**nter the total estimated dollar amount of damage (parts and labor), if any.

INSTRUCTIONS FOR SECTION 9 - VESSEL/ FLOATING PLANT ACCIDENT

a. TYPE OF VESSEL/FLOATING PLANT - Select the most appropriate vessel/floating plant from list below. Enter name and place corresponding number in box. If item is not listed below, enter item number for "OTHER" and write in specific type of vessel floating plant.

VESSEL/FLOATING PLANTS

1. ROW BOAT
2. SAIL BOAT
3. MOTOR BOAT
4. BARGE
5. DREDGE/HOPPER
6. DREDGE/SIDE CASTING
7. DREDGE/DIPPER
8. DREDGE/CLAMSHELL, BUCKET
9. DREDGE/PIPE LINE
10. DREDGE/DUST PAN
11. TUG BOAT
12. OTHER

b. COLLISION/MISHAP - Select from the list below the object(s) that contributed to the accident or were damaged in the accident.

COLLISION/MISHAP

1. COLLISION W/OTHER VESSEL
2. UPPER GUIDE WALL
3. UPPER LOCK GATES
4. LOCK WALL
5. LOWER LOCK GATES
6. LOWER GUIDE WALL
7. HAULAGE UNIT
8. BREAKING TOW
9. TOW BREAKING UP
10. SWEPT DOWN 0N DAM
11. BUOY/DOLPHIN/CELL
12. WHARF OR DOCK
13. OTHER

INSTRUCTIONS FOR SECTION 10 - ACCIDENT DESCRIPTION

DESCRIBE ACCIDENT - Fully describe the accident. Give the sequence of events that describe what happened leading up to and including the accident. Fully identify personnel and equipment involved and their role(s) in the accident. Ensure that relationships between personnel and equipment are clearly specified. Continue on blank sheets if necessary and attach to this report.

INSTRUCTIONS FOR SECTION 11 - CAUSAL FACTORS

a. Review thoroughly. Answer each question by marking the appropriate block. If any answer is yes, explain in item 13 below. Consider, as a minimum, the following:

(1) DESIGN - Did inadequacies associated with the building or work site play a role? Would an improved design or layout of the equipment or facilities reduce the likelihood of similar accidents? Were the tools or other equipment designed and intended for the task at hand?

(2) INSPECTION/MAINTENANCE - Did inadequately or improperly maintained equipment, tools, workplace, etc. create or worsen any hazards that contributed to the accident? Would better equipment, facility, work site or work activity inspections have helped avoid the accident?

(3) PERSON'S PHYSICAL CONDITION - Do you feel that the accident would probably not have occurred if the employee was in "good" physical condition? If the person involved in the accident had been in better physical condition, would the accident have been less severe or avoided altogether? Was over exertion a factor?

(4) OPERATING PROCEDURES - Did a lack of or inadequacy within established operating procedures contribute to the accident? Did any aspect of the procedures introduce any hazard to, or increase the risk associated with the work process? Would establishment or improvement of operating procedures reduce the likelihood of similar accidents?

(5) JOB PRACTICES - Were any of the provisions of the Safety and Health Requirements Manual (EM 385-1-1) violated? Was the task being accomplished in a manner which was not in compliance with an established job hazard analysis or activity hazard analysis? Did any established job practice (including EM 385-1-1) fail to adequately address the task or work process? Would better job practices improve the safety of the task?

(6) HUMAN FACTORS - Was the person under undue stress (either internal or external to the job)? Did the task tend toward overloading the capabilities of the person; i.e., did the job require tracking and reacting to many external inputs such as displays, alarms, or signals? Did the arrangement of the workplace tend to interfere with efficient task performance? Did the task require reach, strength, endurance, agility, etc., at or beyond the capabilities of the employee? Was the work environment ill-adapted to the person? Did the person need more training, experience, or practice in doing the task? Was the person inadequately rested to perform safely?

(7) ENVIRONMENTAL FACTORS - Did any factors such as moisture, humidity, rain, snow, sleet, hail, ice, fog, cold, heat, sun, temperature changes, wind, tides, floods, currents, dust, mud, glare, pressure changes, lightning, etc., play a part in the accident?

(8) CHEMICAL AND PHYSICAL AGENT FACTORS - Did exposure to chemical agents (either single shift exposure or long-term exposure) such as dusts, fibers (asbestos, etc.), silica, gases (carbon monoxide, chlorine, etc.,), mists, steam, vapors, fumes, smoke, other particulates, liquid or dry chemicals that are corrosive, toxic, explosive or flammable, byproducts of combustion or physical agents such as noise, ionizing radiation, non-ionizing radiation (UV radiation created during welding, etc.) contribute to the accident/incident?

(9) **OFFICE FACTORS** - Did the fact that the accident occurred in an office setting or to an office worker have a bearing on its cause? For example, office workers tend to have less experience and training in performing tasks such as lifting office furniture. Did physical hazards within the office environment contribute to the hazard?

(10) **SUPPORT FACTORS** - Was the person using an improper tool for the job? Was inadequate time available or utilized to safely accomplish the task? Were less than adequate personnel resources (in terms of employee skills, number of workers, and adequate supervision) available to get the job done properly? Was funding available, utilized, and adequate to provide proper tools, equipment, personnel, site preparation, etc.?

(11) **PERSONAL PROTECTIVE EQUIPMENT** - Did the person fail to use appropriate personal protective equipment (gloves, eye protection, hard-toed shoes, respirator, etc.) for the task or environment? Did protective equipment provided or worn fail to provide adequate protection from the hazard(s)? Did lack of or inadequate maintenance of protective gear contribute to the accident?

(12) **DRUGS/ALCOHOL** - Is there any reason to believe the person's mental or physical capabilities, judgment, etc., were impaired or altered by the use of drugs or alcohol? Consider the effects of prescription medicine and over the counter medications as well as illicit drug use. Consider the effect of drug or alcohol induced "hangovers".

b. **WRITTEN JOB/ACTIVITY HAZARD ANALYSIS** - Was a written Job/Activity Hazard Analysis completed for the task being performed at the time of the accident? Mark the appropriate box. If one was performed, attach a copy of the analysis to the report.

INSTRUCTIONS FOR SECTION 12 - TRAINING

a. **WAS PERSON TRAINED TO PERFORM ACTIVITY/TASK?** - For the purpose of this section "trained" means the person has been provided the necessary information (either formal and/or on-the-job (OJT) training) to competently perform the activity/task in a safe and healthful manner.

b. **TYPE OF TRAINING** - Mark the appropriate box that best indicates the type of training; (classroom or on-the-job) that the injured person received before the accident happened.

c. **DATE OF MOST RECENT TRAINING** - Enter the month, day, and year of the last formal training completed that covered the activity task being performed at the time of the accident.

INSTRUCTIONS FOR SECTION 13 - CAUSES

a. DIRECT CAUSES - The direct cause is that single factor which most directly lead to the accident. See examples below.

b. INDIRECT CAUSES - Indirect causes are those factors which contributed to but did not directly initiate the occurrence of the accident.

Examples for section 13:

a. Employee was dismantling scaffold and fell 12 feet from unguarded opening.

Direct cause: failure to provide fall protection at elevation.
Indirect causes: failure to enforce USACE safety requirements; improper training/motivation of employee (possibility that employee was not knowledgeable of USACE fall protection requirements or was lax in his attitude towards safety); failure to ensure provision of positive fall protection whenever elevated; failure to address fall protection during scaffold dismantling in phase hazard analysis.

b. Private citizen had stopped his vehicle at intersection for red light when vehicle was struck in rear by USACE vehicle. (Note: USACE vehicle was in proper/safe working condition).

Direct cause: failure of USACE driver to maintain control of and stop USACE vehicle within safe distance.
Indirect cause: failure of employee to pay attention to driving (defensive driving).

INSTRUCTIONS FOR SECTION 14 - ACTION TO ELIMINATE CAUSE(S)

DESCRIPTION - Fully describe all the actions taken, anticipated, and recommended to eliminate the cause(s) and prevent reoccurrence of similar accidents/illnesses. Continue on blank sheets of paper if necessary to fully explain and attach to the completed report form.

INSTRUCTIONS FOR SECTION 15 - DATES FOR ACTION

a. **BEGIN DATE** - Enter the date when the corrective action(s) identified in section 14 will begin.

b. **COMPLETE DATE** - Enter the date when the corrective action(s) identified in section 14 will be completed.

c. **TITLE AND SIGNATURE** - Enter the title and signature of supervisor completing the accident report. For a GOVERNMENT employee accident/illness the immediate supervisor will complete and sign the report. For PUBLIC accidents the USACE Project Manager/Area Engineer responsible for the USACE property where the accident happened shall complete and sign the report. For CONTRACTOR accidents the Contractor's project manager shall complete and sign the report and provide to the USACE supervisor responsible for oversight of that contractor activity. This USACE supervisor shall also sign the report. Upon entering the information required in 15.d, 15.e and 15.f below, the responsible USACE supervisor shall forward the report for mangement review as indicated in section 16.

d. **DATE SIGNED** - Enter the month, day, and year that the report was signed by the responsible supervisor.

e. **ORGANIZATION NAME** - For GOVERNMENT employee accidents enter the USACE organization name (Division, Branch, Section, etc.) of the injured employee. For PUBLIC accidents enter the USACE organization name for the person identified in block 15.c. For CONTRACTOR accidents enter the USACE organization name for the USACE office responsible for providing contract administration oversight.

f. **OFFICE SYMBOL** - Enter the latest complete USACE Office Symbol for the USACE organization identified in block 15.e.

INSTRUCTIONS FOR SECTION 16 - MANAGEMENT REVIEW (1st)

1ST REVIEW - Each USACE FOA shall determine who will provide 1st management review. The responsible USACE supervisor in section 15.c shall forward the completed report to the USACE office designated as the 1st Reviewer by the FOA. Upon receipt, the Chief of the Office shall review the completed report, mark the appropriate box, provide substantive comments, sign, date, and forward to the FOA Staff Chief (2nd review) for review and comment.

INSTRUCTIONS FOR SECTION 17 - MANAGEMENT REVIEW (2nd)

2ND REVIEW - The FOA Staff Chief (i.e., FOA Chief of Construction, Operations, Engineering, Planning, etc.) shall mark the appropriate box, review the completed report, provide substantive comments, sign, date, and return to the FOA Safety and Occupational Health Office.

INSTRUCTIONS FOR SECTION 18 - SAFETY AND OCCUPATIONAL HEALTH REVIEW

3RD REVIEW - The FOA Safety and Occupational Health Office shall review the completed report, mark the appropriate box, ensure that any inadequacies, discrepancies, etc. are rectified by the responsible supervisor and management reviewers, provide substantive comments, sign, date and forward to the FOA Commander for review, comment, and signature.

INSTRUCTION FOR SECTION 19 - COMMAND APPROVAL

4TH REVIEW - The FOA Commander shall (to include the person designated Acting Commander in his absence) review the completed report, comment if required, sign, date, and forward the report to the FOA Safety and Occupational Health Office. Signature authority shall not be delegated.

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SOURCES FOR REFERENCE PUBLICATIONS

SECTION 01 42 00

SOURCES FOR REFERENCE PUBLICATIONS

PART 1 GENERAL

1.1 REFERENCES

Various publications are referenced in other sections of the specifications to establish requirements for the work. These references are identified in each section by document number, date and title. The document number used in the citation is the number assigned by the standards producing organization, (e.g. ASTM B 564 Nickel Alloy Forgings). However, when the standards producing organization has not assigned a number to a document, an identifying number has been assigned for reference purposes.

1.2 ORDERING INFORMATION

The addresses of the standards publishing organizations whose documents are referenced in other sections of these specifications are listed below, and if the source of the publications is different from the address of the sponsoring organization, that information is also provided. Documents listed in the specifications with numbers which were not assigned by the standards producing organization should be ordered from the source by title rather than by number.

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)
444 North Capital Street, NW, Suite 249
Washington, DC 20001
Ph: 202-624-5800
Fax: 202-624-5806
E-Mail: info@aashto.org
Internet: http://www.aashto.org

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)
1819 L Street, NW, 6th Floor
Washington, DC 20036
Ph: 202-293-8020
Fax: 202-293-9287
E-mail: info@ansi.org
Internet: http://www.ansi.org/

--- ANSI documents beginning with the letter "S" can be ordered from:

Acoustical Society of America (ASA)
2 Huntington Quadrangle, Suite 1NO1
Melville, NY 11747-4502
Ph: 516-576-2360
Fax: 516-576-2377
E-mail: asa@aip.org
Internet: http://asa.aip.org

ASME INTERNATIONAL (ASME)
Internet: http://www.asme.org/

ASTM INTERNATIONAL (ASTM)
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428-2959
Ph: 610-832-9500
Fax: 610-832-9555
E-mail: service@astm.org
Internet: http://www.astm.org

CODE OF FEDERAL REGULATIONS (CFR)
Internet: http://www.gpoaccess.gov/cfr/index.html

U.S. ARMY CORPS OF ENGINEERS (USACE)
Order CRD-C DOCUMENTS from:
U.S. Army Engineer Waterways Experiment Station
ATTN: Technical Report Distribution Section, Services Branch, TIC
3909 Halls Ferry Road
Vicksburg, MS 39180-6199
Ph: 601-634-2664
Fax: 601-634-2388
E-mail: mtc-info@erdc.usace.army.mil
Internet: http://www.wes.army.mil/SL/MTC/handbook.htm

Order Other Documents from:
USACE Publications Depot
Attn: CEHEC-IM-PD
2803 52nd Avenue
Hyattsville, MD 20781-1102
Ph: 301-394-0081
Fax: 301-394-0084
E-mail: pubs-army@usace.army.mil
Internet: http://www.usace.army.mil/publications
or http://www.hnd.usace.army.mil/techinfo/engpubs.htm

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QUALITY CONTROL SYSTEM (QCS)

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SECTION 01 45 02.00 10

QUALITY CONTROL SYSTEM (QCS)

PART 1 GENERAL

1.1 GENERAL

The Government will use the Resident Management System for Windows (RMS) to assist in its monitoring and administration of this contract. The Contractor shall use the Government-furnished Construction Contractor Module of RMS, referred to as QCS, to record, maintain, and submit various information throughout the contract period. The Contractor module, user manuals, updates, and training information can be downloaded from the RMS web site.This joint Government-Contractor use of RMS and QCS will facilitate electronic exchange of information and overall management of the contract. QCS provides the means for the Contractor to input, track, and electronically share information with the Government in the following areas:

Administration
Finances
Quality Control
Submittal Monitoring
Scheduling
Import/Export of Data

1.1.1 Correspondence and Electronic Communications

For ease and speed of communications, both Government and Contractor will, to the maximum extent feasible, exchange correspondence and other documents in electronic format. Correspondence, pay requests and other documents comprising the official contract record shall also be provided in paper format, with signatures and dates where necessary. Paper documents will govern, in the event of discrepancy with the electronic version.

1.1.2 Other Factors

Particular attention is directed to Contract Clause, "Schedules for Construction Contracts", Contract Clause, "Payments", Section 01 33 00, SUBMITTAL PROCEDURES, and Section 01 45 04.00 10, CONTRACTOR QUALITY CONTROL, which have a direct relationship to the reporting to be accomplished through QCS. Also, there is no separate payment for establishing and maintaining the QCS database; all costs associated therewith shall be included in the contract pricing for the work.

1.2 QCS SOFTWARE

QCS is a Windows-based program that can be run on a stand-alone personal computer or on a network. The Government will make available the QCS software to the Contractor after award of the construction contract. Prior to the Pre-Construction Conference, the Contractor shall be responsible to download, install and use the latest version of the QCS software from the Government's RMS Internet Website (www.rmssupport.com/qcs/updates.aspx). Upon specific justification and request by the Contractor, the Government can provide QCS on 3-1/2 inch high-density diskettes or CD-ROM. Any

program updates of QCS will be made available to the Contractor via the Government RMS Website as they become available.

1.3 SYSTEM REQUIREMENTS

The following is the minimum system configuration that the Contractor shall have to run QCS:

QCS and QAS System

Hardware

IBM-compatible PC with 1000 MHz Pentium or higher processor

256+ MB RAM for workstation / 512+ MB RAM for server

1 GB hard drive disk space for sole use by the QCS system

3 1/2 inch high-density floppy drive

Compact Disk (CD) Reader 8x speed or higher

SVGA or higher resolution monitor (1024x768, 256 colors)

Mouse or other pointing device

Windows compatible printer. (Laser printer must have 4 MB+ of RAM)

Connection to the Internet, minimum 56k BPS

Software

MS Windows 2000 or higher

QAS-Word Processing software: MS Word 2000 or newer

Latest version of: Netscape Navigator, Microsoft Internet Explorer, or other browser that supports HTML 4.0 or higher

Electronic mail (E-mail) MAPI compatible

Virus protection software that is regularly upgraded with all issued manufacturer's updates

1.4 RELATED INFORMATION

1.4.1 QCS User Guide

After contract award, the Contractor shall download instructions for the installation and use of QCS from the Government RMS Internet Website; the Contractor can obtain the current address from the Government. In case of justifiable difficulties, the Government will provide the Contractor with a CD-ROM containing these instructions.

1.4.2 Contractor Quality Control(CQC) Training

The use of QCS will be discussed with the Contractor's QC System Manager during the mandatory CQC Training class.

1.5 CONTRACT DATABASE

Prior to the pre-construction conference, the Government shall provide the Contractor with basic contract award data to use for QCS. The Government will provide data updates to the Contractor as needed, generally by files attached to E-mail. These updates will generally consist of submittal reviews, correspondence status, QA comments, and other administrative and QA data.

1.6 DATABASE MAINTENANCE

The Contractor shall establish, maintain, and update data for the contract in the QCS database throughout the duration of the contract. The Contractor shall establish and maintain the QCS database at the Contractor's site office. Data updates to the Government shall be submitted by E-mail with file attachments, e.g., daily reports, schedule updates, payment requests. If permitted by the Contracting Officer, a data diskette or CD-ROM may be used instead of E-mail (see Paragraph DATA SUBMISSION VIA COMPUTER DISKETTE OR CD-ROM). The QCS database typically shall include current data on the following items:

1.6.1 Administration

1.6.1.1 Contractor Information

The database shall contain the Contractor's name, address, telephone numbers, management staff, and other required items. Within 14 calendar days of receipt of QCS software from the Government, the Contractor shall deliver Contractor administrative data in electronic format via E-mail.

1.6.1.2 SubContractor Information

The database shall contain the name, trade, address, phone numbers, and other required information for all subContractors. A subContractor must be listed separately for each trade to be performed. Each subContractor/trade shall be assigned a unique Responsibility Code, provided in QCS. Within 14 calendar days of receipt of QCS software from the Government, the Contractor shall deliver subContractor administrative data in electronic format via E-mail.

1.6.1.3 Correspondence

All Contractor correspondence to the Government shall be identified with a serial number. Correspondence initiated by the Contractor's site office shall be prefixed with "S". Letters initiated by the Contractor's home (main) office shall be prefixed with "H". Letters shall be numbered starting from 0001. (e.g., H-0001 or S-0001). The Government's letters to the Contractor will be prefixed with "C".

1.6.1.4 Equipment

The Contractor's QCS database shall contain a current list of equipment planned for use or being used on the jobsite, including the most recent and planned equipment inspection dates.

1.6.1.5 Management Reporting

QCS includes a number of reports that Contractor management can use to track the status of the project. The value of these reports is reflective

of the quality of the data input, and is maintained in the various sections of QCS. Among these reports are: Progress Payment Request worksheet, QA/QC comments, Submittal Register Status, Three-Phase Inspection checklists.

1.6.2 Finances

1.6.2.1 Pay Activity Data

The QCS database shall include a list of pay activities that the Contractor shall develop in conjunction with the construction schedule. The sum of all pay activities shall be equal to the total contract amount, including modifications. Pay activities shall be grouped by Contract Line Item Number (CLIN), and the sum of the activities shall equal the amount of each CLIN. The total of all CLINs equals the Contract Amount.

1.6.2.2 Payment Requests

All progress payment requests shall be prepared using QCS. The Contractor shall complete the payment request worksheet and include it with the payment request. The work completed under the contract, measured as percent or as specific quantities, shall be updated at least monthly. After the update, the Contractor shall generate a payment request report using QCS. The Contractor shall submit the payment requests with supporting data by E-mail with file attachment(s). If permitted by the Contracting Officer, a data diskette may be used instead of E-mail. A signed paper copy of the approved payment request is also required, which shall govern in the event of discrepancy with the electronic version.

1.6.3 Quality Control (QC)

QCS provides a means to track implementation of the 3-phase QC Control System, prepare daily reports, identify and track deficiencies, document progress of work, and support other Contractor QC requirements. The Contractor shall maintain this data on a daily basis. Entered data will automatically output to the QCS generated daily report. The Contractor shall provide the Government a Contractor Quality Control (CQC) Plan within the time required in Section 01 45 04.00 10, CONTRACTOR QUALITY CONTROL. Within seven calendar days of Government acceptance, the Contractor shall submit a data diskette or CD-ROM reflecting the information contained in the accepted CQC Plan: schedule, pay activities, features of work, submittal register, QC requirements, and equipment list.

1.6.3.1 Daily Contractor Quality Control (CQC) Reports.

QCS includes the means to produce the Daily CQC Report. The Contractor may use other formats to record basic QC data. However, the Daily CQC Report generated by QCS shall be the Contractor's official report. Data from any supplemental reports by the Contractor shall be summarized and consolidated onto the QCS-generated Daily CQC Report. Daily CQC Reports shall be submitted as required by Section 01 45 04.00 10, CONTRACTOR QUALITY CONTROL. Reports shall be submitted electronically to the Government using E-mail or diskette within 24 hours after the date covered by the report. Use of either mode of submittal shall be coordinated with the Government representative. The Contractor shall also provide the Government a signed, printed copy of the daily CQC report.

1.6.3.2 Deficiency Tracking.

The Contractor shall use QCS to track deficiencies. Deficiencies

identified by the Contractor will be numerically tracked using QC punch list items. The Contractor shall maintain a current log of its QC punch list items in the QCS database. The Government will log the deficiencies it has identified using its QA punch list items. The Government's QA punch list items will be included in its export file to the Contractor. The Contractor shall regularly update the correction status of both QC and QA punch list items.

1.6.3.3 Three-Phase Control Meetings

The Contractor shall maintain scheduled and actual dates and times of preparatory and initial control meetings in QCS.

1.6.3.4 Accident/Safety Tracking.

The Government will issue safety comments, directions, or guidance whenever safety deficiencies are observed. The Government's safety comments will be included in its export file to the Contractor. The Contractor shall regularly update the correction status of the safety comments. In addition, the Contractor shall utilize QCS to advise the Government of any accidents occurring on the jobsite. This brief supplemental entry is not to be considered as a substitute for completion of mandatory reports, e.g., ENG Form 3394 and OSHA Form 300.

1.6.3.5 Features of Work

The Contractor shall include a complete list of the features of work in the QCS database. A feature of work may be associated with multiple pay activities. However, each pay activity (see subparagraph "Pay Activity Data" of paragraph "Finances") will only be linked to a single feature of work.

1.6.3.6 QC Requirements

The Contractor shall develop and maintain a complete list of QC testing, transferred and installed property, and user training requirements in QCS. The Contractor shall update all data on these QC requirements as work progresses, and shall promptly provide this information to the Government via QCS.

1.6.4 Submittal Management

The Government will provide the initial submittal register in electronic format. Thereafter, the Contractor shall maintain a complete list of all submittals, including completion of all data columns. Dates on which submittals are received and returned by the Government will be included in its export file to the Contractor. The Contractor shall use QCS to track and transmit all submittals. ENG Form 4025, submittal transmittal form, and the submittal register update shall be produced using QCS. RMS will be used to update, store and exchange submittal registers and transmittals, but will not be used for storage of actual submittals.

1.6.5 Schedule

The Contractor shall develop a construction schedule consisting of pay activities, in accordance with Contract Clause "Schedules for Construction Contracts", as applicable. This schedule shall be input and maintained in the QCS database either manually or by using the Standard Data Exchange Format (SDEF). The updated schedule data shall be included with each pay

request submitted by the Contractor.

1.6.6 Import/Export of Data

QCS includes the ability to export Contractor data to the Government and to import submittal register and other Government-provided data, and schedule data using SDEF.

1.7 IMPLEMENTATION

Contractor use of QCS as described in the preceding paragraphs is mandatory. The Contractor shall ensure that sufficient resources are available to maintain its QCS database, and to provide the Government with regular database updates. QCS shall be an integral part of the Contractor's management of quality control.

1.8 DATA SUBMISSION VIA COMPUTER DISKETTE OR CD-ROM

The Government-preferred method for Contractor's submission of updates, payment requests, correspondence and other data is by E-mail with file attachment(s). For locations where this is not feasible, the Contracting Officer may permit use of computer diskettes or CD-ROM for data transfer. Data on the disks or CDs shall be exported using the QCS built-in export function. If used, diskettes and CD-ROMs will be submitted in accordance with the following:

1.8.1 File Medium

The Contractor shall submit required data on 3-1/2 inch double-sided high-density diskettes formatted to hold 1.44 MB of data, capable of running under Microsoft Windows 95 or newer. Alternatively, CD-ROMs may be used. They shall conform to industry standards used in the United States. All data shall be provided in English.

1.8.2 Disk or CD-ROM Labels

The Contractor shall affix a permanent exterior label to each diskette and CD-ROM submitted. The label shall indicate in English, the QCS file name, full contract number, contract name, project location, data date, name and telephone number of person responsible for the data.

1.8.3 File Names

The Government will provide the file names to be used by the Contractor with the QCS software.

1.9 WEEKLY COORDINATION MEETING

The Contractor shall update the QCS database each workday. At least monthly, the Contractor shall generate and submit an export file to the Government with schedule update and progress payment request. As required in Contract Clause "Payments", at least one week prior to submittal, the Contractor shall meet with the Government representative every week to review the planned progress payment data submission for errors and omissions.
The Contractor shall make all required corrections prior to Government acceptance of the export file and progress payment request. Payment requests accompanied by incomplete or incorrect data submittals will be returned. The Government will not process progress payments until an

acceptable QCS export file is received.

1.10 NOTIFICATION OF NONCOMPLIANCE

The Contracting Officer will notify the Contractor of any detected noncompliance with the requirements of this specification. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification.

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CONTRACTOR QUALITY CONTROL

PART 1 GENERAL

1.1 PAYMENT

Separate payment will not be made for providing and maintaining an effective Quality Control program, and all costs associated therewith shall be included in the applicable unit prices or lump-sum prices contained in the Bidding Schedule.

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only or as otherwise designated. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Contractor Quality Control Plan; G-AOF.

Submit in writing a Quality Control Plan within ten (10) calendar days after receipt of Notice to Proceed.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

The Contractor is responsible for quality control and shall establish and maintain an effective quality control system in compliance with the Contract Clause titled "Inspection of Construction." The quality control system shall consist of plans, procedures, and organization necessary to produce an end product which complies with the contract requirements. The system shall cover all construction operations, both onsite and offsite, and shall be keyed to the proposed construction sequence. The site project superintendent will be held responsible for the quality of work on the job and is subject to removal by the Contracting Officer for non-compliance with the quality requirements specified in the contract. The site project superintendent in this context shall be the highest level manager responsible for the overall construction activities at the site, including quality and production. The site project superintendent shall maintain a physical presence at the site at all times, except as otherwise acceptable to the Contracting Officer, and shall be responsible for all construction and construction related activities at the site.

3.2 QUALITY CONTROL PLAN

The Contractor shall furnish for review by the Government, not later than 10 days after receipt of notice to proceed, the Contractor Quality Control (CQC) Plan proposed to implement the requirements of the Contract Clause titled "Inspection of Construction." The plan shall identify personnel, procedures, control, instructions, tests, records, and forms to be used. The Government will consider an interim plan for the first 30 days of operation. Construction will be permitted to begin only after acceptance of the CQC Plan or acceptance of an interim plan applicable to the particular feature of work to be started. Work outside of the features of work included in an accepted interim plan will not be permitted to begin until acceptance of a CQC Plan or another interim plan containing the additional features of work to be started.

3.2.1 Content of the CQC Plan

The CQC Plan shall include, as a minimum, the following to cover all construction operations, both onsite and offsite, including work by subContractors, fabricators, suppliers, and purchasing agents:

a. A description of the quality control organization, including a chart showing lines of authority and acknowledgment that the CQC staff shall implement the three phase control system for all aspects of the work specified. The staff shall include a CQC System Manager who shall report to the project superintendent.

b. The name, qualifications (in resume format), duties, responsibilities, and authorities of each person assigned a CQC function.

c. A copy of the letter to the CQC System Manager signed by an authorized official of the firm which describes the responsibilities and delegates sufficient authorities to adequately perform the functions of the CQC System Manager, including authority to stop work which is not in compliance with the contract. The CQC System Manager shall issue letters of direction to all other various quality control representatives outlining duties, authorities, and responsibilities. Copies of these letters shall also be furnished to the Government.

d. Procedures for scheduling, reviewing, certifying, and managing submittals, including those of subContractors, offsite fabricators, suppliers, and purchasing agents. These procedures shall be in accordance with Section 01 33 00 SUBMITTAL PROCEDURES.

e. Control, verification, and acceptance testing procedures for each specific test to include the test name, specification paragraph requiring test, feature of work to be tested, test frequency, and person responsible for each test. (Laboratory facilities approved by the Contracting Officer shall be used.)

f. Procedures for tracking preparatory, initial, and follow-up control phases and control, verification, and acceptance tests including documentation.

g. Procedures for tracking construction deficiencies from identification through acceptable corrective action. These procedures shall establish verification that identified

deficiencies have been corrected.

h. Reporting procedures, including proposed reporting formats.

i. A list of the definable features of work. A definable feature of work is a task which is separate and distinct from other tasks, has separate control requirements, and may be identified by different trades or disciplines, or it may be work by the same trade in a different environment. Although each section of the specifications may generally be considered as a definable feature of work, there are frequently more than one definable features under a particular section. This list will be agreed upon during the coordination meeting.

3.2.2 Acceptance of Plan

Acceptance of the Contractor's plan is required prior to the start of construction. Acceptance is conditional and will be predicated on satisfactory performance during the construction. The Government reserves the right to require the Contractor to make changes in his CQC Plan and operations including removal of personnel, as necessary, to obtain the quality specified.

3.2.3 Notification of Changes

After acceptance of the CQC Plan, the Contractor shall notify the Contracting Officer in writing of any proposed change. Proposed changes are subject to acceptance by the Contracting Officer.

3.3 COORDINATION MEETING

After the Preconstruction Conference, before start of construction, and prior to acceptance by the Government of the CQC Plan, the Contractor shall meet with the Contracting Officer or Authorized Representative and discuss the Contractor's quality control system. The CQC Plan shall be submitted for review a minimum of 3 calendar days prior to the Coordination Meeting. During the meeting, a mutual understanding of the system details shall be developed, including the forms for recording the CQC operations, control activities, testing, administration of the system for both onsite and offsite work, and the interrelationship of Contractor's Management and control with the Government's Quality Assurance. Minutes of the meeting shall be prepared by the Government and signed by both the Contractor and the Contracting Officer. The minutes shall become a part of the contract file. There may be occasions when subsequent conferences will be called by either party to reconfirm mutual understandings and/or address deficiencies in the CQC system or procedures which may require corrective action by the Contractor.

3.4 QUALITY CONTROL ORGANIZATION

3.4.1 Personnel Requirements

The requirements for the CQC organization are a CQC System Manager and sufficient number of additional qualified personnel to ensure safety and contract compliance. The Safety and Health Manager shall receive direction and authority from the CQC System Manager and shall serve as a member of the CQC staff. Personnel identified in the technical provisions as requiring specialized skills to assure the required work is being performed properly will also be included as part of the CQC organization. The

Contractor's CQC staff shall maintain a presence at the site at all times during progress of the work and have complete authority and responsibility to take any action necessary to ensure contract compliance. The CQC staff shall be subject to acceptance by the Contracting Officer. The Contractor shall provide adequate office space, filing systems and other resources as necessary to maintain an effective and fully functional CQC organization. Complete records of all letters, material submittals, shop drawing submittals, schedules and all other project documentation shall be promptly furnished to the CQC organization by the Contractor. The CQC organization shall be responsible to maintain these documents and records at the site at all times, except as otherwise acceptable to the Contracting Officer.

3.4.2 CQC System Manager

The Contractor shall identify as CQC System Manager an individual within the onsite work organization who shall be responsible for overall management of CQC and have the authority to act in all CQC matters for the Contractor. The CQC System Manager shall be a construction person with a minimum of 10 years in related work. This CQC System Manager shall be on the site at all times during construction and shall be employed by the prime Contractor. The CQC System Manager shall be assigned as System Manager but may have duties as project superintendent in addition to quality control. An alternate for the CQC System Manager shall be identified in the plan to serve in the event of the System Manager's absence. The requirements for the alternate shall be the same as for the designated CQC System Manager.

3.4.3 Organizational Changes

The Contractor shall maintain the CQC staff at full strength at all times. When it is necessary to make changes to the CQC staff, the Contractor shall revise the CQC Plan to reflect the changes and submit the changes to the Contracting Officer for acceptance.

3.5 SUBMITTALS AND DELIVERABLES

Submittals, if needed, shall be made as specified in Section 01 33 00 SUBMITTAL PROCEDURES. The CQC organization shall be responsible for certifying that all submittals and deliverables are in compliance with the contract requirements.

3.6 CONTROL

Contractor Quality Control is the means by which the Contractor ensures that the construction, to include that of subContractors and suppliers, complies with the requirements of the contract. At least three phases of control shall be conducted by the CQC System Manager for each definable feature of the construction work as follows:

3.6.1 Preparatory Phase

This phase shall be performed prior to beginning work on each definable feature of work, after all required plans/documents/materials are approved/accepted, and after copies are at the work site. This phase shall include:

a. A review of each paragraph of applicable specifications, reference codes, and standards. A copy of those sections of referenced codes and standards applicable to that portion of the work to be

accomplished in the field shall be made available by the Contractor at the preparatory inspection. These copies shall be maintained in the field and available for use by Government personnel until final acceptance of the work.

b. A review of the contract drawings.

c. A check to assure that all materials and/or equipment have been tested, submitted, and approved.

d. Review of provisions that have been made to provide required control inspection and testing.

e. Examination of the work area to assure that all required preliminary work has been completed and is in compliance with the contract.

f. A physical examination of required materials, equipment, and sample work to assure that they are on hand, conform to approved shop drawings or submitted data, and are properly stored.

g. A review of the appropriate activity hazard analysis to assure safety requirements are met.

h. Discussion of procedures for controlling quality of the work including repetitive deficiencies. Document construction tolerances and workmanship standards for that feature of work.

i. A check to ensure that the portion of the plan for the work to be performed has been accepted by the Contracting Officer.

j. Discussion of the initial control phase.

k. The Government shall be notified at least 24 hours in advance of beginning the preparatory control phase. This phase shall include a meeting conducted by the CQC System Manager and attended by the superintendent, other CQC personnel (as applicable), and the foreman responsible for the definable feature. The results of the preparatory phase actions shall be documented by separate minutes prepared by the CQC System Manager and attached to the daily CQC report. The Contractor shall instruct applicable workers as to the acceptable level of workmanship required in order to meet contract specifications.

3.6.2 Initial Phase

This phase shall be accomplished at the beginning of a definable feature of work. The following shall be accomplished:

a. A check of work to ensure that it is in full compliance with contract requirements. Review minutes of the preparatory meeting.

b. Verify adequacy of controls to ensure full contract compliance. Verify required control inspection and testing.

c. Establish level of workmanship and verify that it meets minimum acceptable workmanship standards. Compare with required sample panels as appropriate.

d. Resolve all differences.

e. Check safety to include compliance with and upgrading of the safety plan and activity hazard analysis. Review the activity analysis with each worker.

f. The Government shall be notified at least 24 hours in advance of beginning the initial phase. Separate minutes of this phase shall be prepared by the CQC System Manager and attached to the daily CQC report. Exact location of initial phase shall be indicated for future reference and comparison with follow-up phases.

g. The initial phase should be repeated for each new crew to work onsite, or any time acceptable specified quality standards are not being met.

3.6.3 Follow-up Phase

Daily checks shall be performed to assure control activities, including control testing, are providing continued compliance with contract requirements, until completion of the particular feature of work. The checks shall be made a matter of record in the CQC documentation. Final follow-up checks shall be conducted and all deficiencies corrected prior to the start of additional features of work which may be affected by the deficient work. The Contractor shall not build upon nor conceal non-conforming work.

3.6.4 Additional Preparatory and Initial Phases

Additional preparatory and initial phases shall be conducted on the same definable features of work if: the quality of on-going work is unacceptable; if there are changes in the applicable CQC staff, onsite production supervision or work crew; if work on a definable feature is resumed after a substantial period of inactivity; or if other problems develop.

3.7 COMPLETION INSPECTION

3.7.1 Punch-Out Inspection

Near the end of the work, or any increment of the work established by a time stated in the SPECIAL CONTRACT REQUIREMENTS Clause, "Commencement, Prosecution, and Completion of Work", or by the specifications, the CQC Manager shall conduct an inspection of the work. A punch list of items which do not conform to the approved drawings and specifications shall be prepared and included in the CQC documentation, as required by paragraph DOCUMENTATION. The list of deficiencies shall include the estimated date by which the deficiencies will be corrected. The CQC System Manager or staff shall make a second inspection to ascertain that all deficiencies have been corrected. Once this is accomplished, the Contractor shall notify the Government that the facility is ready for the Government Pre-Final inspection.

3.7.2 Pre-Final Inspection

The Government will perform the pre-final inspection to verify that the facility is complete and ready to be occupied. A Government Pre-Final Punch List may be developed as a result of this inspection. The Contractor's CQC System Manager shall ensure that all items on this list

have been corrected before notifying the Government, so that a Final inspection with the customer can be scheduled. Any items noted on the Pre-Final inspection shall be corrected in a timely manner. These inspections and any deficiency corrections required by this paragraph shall be accomplished within the time slated for completion of the entire work or any particular increment of the work if the project is divided into increments by separate completion dates.

3.7.3 Final Acceptance Inspection

The Contractor's Quality Control Inspection personnel, plus the superintendent or other primary management person, and the Contracting Officer's Representative shall be in attendance at the final acceptance inspection. Additional Government personnel including, but not limited to, those from Base/Post Civil Facility Engineer user groups, and major commands may also be in attendance. The final acceptance inspection will be formally scheduled by the Contracting Officer based upon results of the Pre-Final inspection. Notice shall be given to the Contracting Officer at least 14 days prior to the final acceptance inspection and shall include the Contractor's assurance that all specific items previously identified to the Contractor as being unacceptable, along with all remaining work performed under the contract, will be complete and acceptable by the date scheduled for the final acceptance inspection. Failure of the Contractor to have all contract work acceptably complete for this inspection will be cause for the Contracting Officer to bill the Contractor for the Government's additional inspection cost in accordance with the contract clause titled "Inspection of Construction".

3.8 DOCUMENTATION

The Contractor shall maintain current records providing factual evidence that required quality control activities and/or tests have been performed. These records shall include the work of subContractors and suppliers and shall be on an acceptable form that includes, as a minimum, the following information:

a. Contractor/subContractor and their area of responsibility.

b. Operating plant/equipment with hours worked, idle, or down for repair.

c. Work performed each day, giving location, description, and by whom. When Network Analysis (NAS) is used, identify each phase of work performed each day by NAS activity number.

d. Test and/or control activities performed with results and references to specifications/drawings requirements. The control phase shall be identified (Preparatory, Initial, Follow-up). List of deficiencies noted, along with corrective action.

e. Quantity of materials received at the site with statement as to acceptability, storage, and reference to specifications/drawings requirements.

f. Submittals and deliverables reviewed, with contract reference, by whom, and action taken.

g. Offsite surveillance activities, including actions taken.

h. Job safety evaluations stating what was checked, results, and instructions or corrective actions.

i. Instructions given/received and conflicts in plans and/or specifications.

j. Contractor's verification statement.

These records shall indicate a description of trades working on the project; the number of personnel working; weather conditions encountered; and any delays encountered. These records shall cover both conforming and deficient features and shall include a statement that equipment and materials incorporated in the work and workmanship comply with the contract. The original and one copy of these records in report form shall be furnished to the Government daily within 24 hours after the date covered by the report, except that reports need not be submitted for days on which no work is performed. As a minimum, one report shall be prepared and submitted for every 7 days of no work and on the last day of a no work period. All calendar days shall be accounted for throughout the life of the contract. The first report following a day of no work shall be for that day only. Reports shall be signed and dated by the CQC System Manager. The report from the CQC System Manager shall include copies of test reports and copies of reports prepared by all subordinate quality control personnel.

3.9 NOTIFICATION OF NONCOMPLIANCE

The Contracting Officer will notify the Contractor of any detected noncompliance with the foregoing requirements. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders shall be made the subject of claim for extension of time or for excess costs or damages by the Contractor.

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ENVIRONMENTAL PROTECTION

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ENVIRONMENTAL PROTECTION

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

CODE OF FEDERAL REGULATIONS (CFR)

40 CFR 261	Identification and listing of Hazardous Waste

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1	(2008) Safety and Health Requirements Manual

WISCONSIN DEPARTMENT OF TRANSPORTATION (WDOT)

WDOT 2010	(2010) Standard Specifications for Highway and Structure Construction

1.2 DEFINITIONS

Environmental pollution and damage is defined as the presence of chemical, physical, or biological elements or agents that adversely affect human health or welfare; unfavorably alter ecological balances of plant or animal communities; or degrade the environment from an aesthetic, cultural or historic perspective. Environmental protection is the prevention/control of pollution and habitat disruption that may occur during construction. The control of environmental pollution and damage requires consideration of air, water, land, biological and cultural resources (archaeological and historic resources); and includes management of visual aesthetics; noise; solid, chemical, gaseous, and liquid waste; radiant energy and radioactive materials; and other pollutants.

1.3 Land Application for Discharge Water

The term "Land Application" for discharge water implies that the Contractor shall discharge water at a rate which allows the water to percolate into the soil. No sheeting action, soil erosion, discharge into storm sewers, discharge into defined drainage areas, or discharge into the "waters of the United States" shall occur. Land Application shall be in compliance with all applicable Federal, State, and local laws and regulations.

1.4 Surface Discharge

The term "Surface Discharge" implies that the water is discharged with possible sheeting action and subsequent soil erosion may occur. Waters that are surface discharged may terminate in drainage ditches, storm

sewers,creeks, and/or "waters of the United States" and would require a discharge permit from the applicable governing agency.

1.5 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only or as otherwise designated. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Environmental Protection Plan; G-ECD.

Submit in writing an Environmental Protection Plan within ten (10) calendar days after receipt of Notice to Proceed. See Article titled ENVIRONMENTAL PROTECTION PLAN for details.

1.6 ENVIRONMENTAL PROTECTION REQUIREMENTS

The Contractor shall be knowledgeable of and comply with all applicable Federal, State, and local laws, regulations, permits and licenses concerning environmental protection, pollution control and abatement that are applicable to the Contractor's proposed operations. Note any unique requirements for this contract in the environmental pollution control plan. Also see Clauses titled "CLEAN AIR AND WATER" and "PERMITS AND RESPONSIBILITIES." The Contractor shall provide environmental protective measures and procedures to prevent and control pollution, limit habitat disruption, and correct environmental damage that occurs during construction.

1.6.1 Protection of Features

This section supplements the Contract Clause PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES, AND IMPROVEMENTS. The Contractor shall prepare a list of features requiring protection under the provisions of the contract clause which are not specially identified on the drawings as environmental features requiring protection. The Contractor shall confine its activities to areas defined by the drawings and specifications. The Contractor shall protect those environmental features, indicated specially on the drawings or in the specifications, in spite of interference which their preservation may cause to the Contractor's work under the contract.

1.6.2 Permits

The Contractor shall obtain any necessary permits and licenses that have not been obtained by the Government. This section supplements the Contractor's responsibility under the contract clause PERMITS AND RESPONSIBILITIES to the extent that the Government has already obtained environmental permits. The Contractor shall comply with the terms, and conditions of these permits. The Contractor shall also comply with other environmental commitments made by the Government, including any environmental documents pertaining to the project.

1.6.3 Environmental Assessment of Contract Deviations

The Contract specifications have been prepared to comply with the special conditions and mitigation measures of an environmental nature which were established during the planning and development of this project. The Contractor is advised that deviations from the drawings or specifications (e.g., proposed alternate borrow areas, disposal areas, staging areas, alternate access routes, etc.) could result in the requirement for the Government to reanalyze the project from an environmental standpoint. Deviations from the construction methods and procedures indicated by the plans and specifications which may have an environmental impact will require a extended review, processing, and approval time by the Government. The Contracting Officer reserves the right to disapprove alternate methods, even if they are more cost effective, if the Contracting Officer determines that the proposed alternate method will have an adverse environmental impact.

1.7 ENVIRONMENTAL PROTECTION PLAN

The Contractor shall submit an Environmental Protection Plan for review and acceptance by the Contracting Officer. The Government will consider an interim plan for the first 30 days of operations. However, the Contractor shall furnish an acceptable final plan not later than 30 calendar days after receipt of the Notice to Proceed. Acceptance is conditional and is predicated upon satisfactory performance during construction. The Government reserves the right to require the Contractor to make changes in the Environmental Protection Plan or operations if the Contracting Officer determines that environmental protection requirements are not being met. The plan shall detail the actions which the Contractor shall take to comply with all applicable Federal, State, and local laws and regulations concerning environmental protection and pollution control and abatement, as well as the additional specific requirements of this contract. The Contractor shall refer to the applicable existing environmental documentation to ensure that the natural, historic, and cultural resources specific or unique to this project are protected. Any necessary coordination with and/or notices to all interested agencies and the public have been made by the Government for environmental documentation prepared by the Government. Copies of the documents are available for review at the offices of the Detroit District, Planning, Programs and Project Division, Environmental Analysis Branch, 7th Floor, 477 Michigan Avenue, Detroit, MI 48226. No physical work at the site shall begin prior to acceptance of the Contractor's plan or an interim plan covering the work to be performed. The environmental protection plan shall include, but not be limited to, the following:

1.7.1 Federal, State and Local Laws and Regulations

The Contractor shall be knowledgeable of all Federal, State and local environmental laws and regulations which apply to the construction operations under the Contract and shall list any unique requirements applicable to this contract as part of the Environmental Protection Plan.

1.7.2 Spill Control Plan

The Contractor shall include as part of the Environmental Protection Plan, a Spill Control Plan. The plan shall include the procedures, instructions, and reports to be used in the event of an unforeseen spill of a substance regulated by the Emergency Response and Community Right-to-Know Act or regulated under State or local laws or regulations. The Spill Control Plan

supplements the requirements of EM 385-1-1. This plan shall include as a minimum:

a. The name of the individual who will be responsible for implementing and supervising the containment and cleanup.

b. Training requirements for Contractor's personnel and methods of accomplishing the training.

c. A list of materials and equipment to be immediately available at the job site, tailored to cleanup work of the potential hazard(s) identified.

d. The names and locations of suppliers of containment materials and locations of additional fuel oil recovery, cleanup, restoration, and material-placement equipment available in case of an unforeseen spill emergency.

e. The methods and procedures to be used for expeditious contaminant cleanup.

f. The name of the individual who will report any spills or hazardous substance releases and who will follow up with complete documentation. This individual shall immediately notify the Contracting Officer in addition to the legally required Federal, State, and local reporting channels (including the National Response Center 1-800-424-8802) if a reportable quantity spill occurs. The plan shall contain a list of the required reporting channels and telephone numbers.

1.7.3 Recycling and Waste Minimization Plan

The Contractor shall submit a Recycling and Waste Minimization Plan as a part of the Environmental Protection Plan. The plan shall detail the Contractor's actions to comply with the following recycling and waste minimization requirements:

a. The Contractor shall participate in State and local government sponsored recycling programs to reduce the volume of solid waste materials at the source.

1.7.4 Contaminant Prevention Plan

As a part of the Environmental Protection Plan, the Contractor shall prepare a contaminant prevention statement identifying potentially hazardous substances to be used on the job site and intended actions to prevent accidental or intentional introduction of such materials into the air, water, or ground. The Contractor shall detail provisions to be taken to meet Federal, State, and local laws and regulations regarding the storage and handling of these materials.

1.7.5 Environmental Monitoring

The Contractor shall include in the plan the details of environmental monitoring requirements under the laws and regulations and a description of how this monitoring will be accomplished, including, but not limited to, monitoring of land, air, and water resources, including noise, odors and vibrations.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION

3.1 SPECIAL ENVIRONMENTAL PROTECTION REQUIREMENTS

3.1.1 Work Area Limits

Prior to any construction, the Contractor shall mark the areas where the work is to be performed under this contract. Isolated areas within the general work area which are to be saved and protected shall also be marked or fenced. Monuments and markers shall be protected before construction operations commence. Where construction operations are to be conducted during darkness, the markers shall be visible during darkness. The Contractor shall convey to its personnel the purpose of marking and/or protection of all necessary objects.

3.1.2 Protection of Landscape

Trees, shrubs, vines, grasses, land forms and other landscape features to be preserved, indicated and defined on the drawings submitted by the Contractor as a part of the Environmental Protection Plan shall be clearly identified by marking, fencing, or wrapping with boards, or any other approved techniques. Vegetated soil surfaces disturbed by construction activities shall be re-vegetated as soon as practicable after completing operations in the disturbed area. Trees, brush and vegetation which will be covered with dredged material within a confined disposal facility (CDF) are not required to be preserved and protected.

3.1.2.1 Tree Protection

No ropes, cables, or guys shall be fastened to or attached to any tree(s) for anchorage unless specifically authorized by the Contracting Officer. Where such special use is permitted, the Contractor shall provide effective protection to prevent damage to the tree and other land and vegetative resources. Unless specifically authorized by the Contracting Officer, no construction equipment or materials shall be placed or used within the drip line of trees shown on the drawings to be saved. No excavation or fill shall be permitted within the drip line of trees to be saved except as shown on the drawings. Trees, brush and vegetation which will be covered with dredged material within a confined disposal facility (CDF) are not required to be protected and preserved.

3.1.3 Reduction of Exposure of Unprotected Erodible Soils

Earthwork brought to final grade shall be finished as indicated and specified. Where stormwater/erosion control requirements of the drawings and specifications conflict with those of the NPDES Permit for Stormwater Discharges from Construction Sites (if such permit is required), the NPDES permit requirement will prevail. Side slopes and back slopes shall be protected as soon as practicable upon completion of rough grading. All earthwork shall be planned and conducted to minimize the duration of exposure of unprotected soils. Except in instances where the constructed features obscures borrow areas, quarries and waste material areas, these areas shall not initially be cleared in total. Clearing of such areas shall progress in reasonably sized increments as needed to use the areas developed as approved by the Contracting Officer.

3.1.3.1 Temporary Protection of Disturbed Areas

Such methods as necessary shall be utilized to effectively prevent erosion and control sedimentation.

a. Retardation and Control of Runoff

Runoff from the construction site shall be controlled by construction of diversion ditches, benches, and berms to retard and divert runoff to protected drainage courses, and the Contractor shall also utilize any measure required by area-wide plans approved under Section 208 of the Clean Water Act.

Construction activities may not result in the discharge or deposition of materials such as paint, sand or abrasives, metal petroleum products or chemicals into the waterway.

3.1.3.2 Erosion and Sedimentation Control Devices

The Contractor shall construct or install all temporary erosion and sedimentation control features as may be required. Temporary erosion and sediment control measures such as berms, dikes, drains, sedimentation basins, plastic sheeting or geotextile over staked straw bales, grassing and mulching shall be maintained until permanent drainage and erosion control facilities are completed and operative.

3.1.4 Land Resources

The Contractor shall confine all activities to areas defined by the drawings and specifications. Prior to the beginning of any construction, the Contractor shall identify any land resources to be preserved within the work area. Except in areas indicated on the drawings or specified to be cleared, the Contractor shall not remove, cut, deface, injure, or destroy land resources including trees, shrubs, vines, grasses, topsoil, and land forms without approval. No ropes, cables, or guys shall be fastened to or attached to any trees for anchorage unless specifically authorized. The Contractor shall provide effective protection for land and vegetation resources at all times as defined in the following subparagraphs. Stone, soil, or other materials displaced into uncleared areas shall be removed by the Contractor.

3.1.5 U.S. Department of Agriculture (USDA) Quarantine Considerations

All equipment used for the project including but not limited to tracked vehicles, barges, boats, silt or turbidity curtain, hoses, sheet pile and pumps shall be decontaminated fro invasive and exotic viruses and species prior to use and after use.

The following steps should be taken every time equipment is moved from another construction project to this project or from this project to another construction project to avoid transporting invasive and exotic viruses and species. To the extent practicable, equipment and gear used on infested waters should not be used on other non-infested waters.

1. Inspect and remove aquatic plants, animals and mud from equipment.

2. Drain all water from equipment that comes in contact with infested waters, including but not limited to tracked vehicles, barges, boats, silt or turbidity curtain, hoses, sheet pile, and pumps.

3. Dispose of aquatic plants, animals in the trash. Never release or transfer aquatic plants, animals or water from one water body to another.

4. Wash your equipment with hot (>104 F) and/or high pressure water OR allow your equipment to dry thoroughly for 5 days.

The Contractor shall consult with the USDA Plant Protection and Quarantine (USDA - PPQ) jurisdictional office for additional cleaning requirements that may be necessary.

3.1.5.1 Control of Non-Indigenous Aquatic Nuisance Species

The Contractor shall conduct diligent operating practices to prevent the spread of Aquatic Nuisance Species (ANS) from one location to another on the Great Lakes, or from one waterbody to another. Such practices shall include, but not be limited to, cleaning equipment and watercraft (prior to it's being brought to the project site and prior to its removal when no longer needed at the site) to prevent the spread of seeds, eggs, larvae, soil, plant material, or other dispersal vectors; and discharging or exchanging ballast water or other water from a vessel of any type only at a location where the chances for survival of ANS are minimal, such as at cold, deep regions of the Great Lake which are far from shore.

3.1.6 Soil Disposal Areas on Government Property

Material disposal on Government property shall be disposed only in those areas designated on the contract drawings. Hazardous, toxic, and radiological wastes (HTRW) shall not be disposed of on Government property. Disposal operations shall be managed and controlled to prevent erosion of soil or sediment from entering nearby waters or wetlands. Disposal operations shall be developed and managed in accordance with the grading plan shown on the drawings or as approved by the Contracting Officer.

3.1.7 Disposal of Waste Materials

Disposal of any materials, waste, effluents, trash, garbage, oil, grease, chemicals, etc., in areas adjacent to streams, rivers, or lakes and in areas not authorized for waste disposal shall not be permitted. If any waste material is dumped or placed in unauthorized areas, the Contractor shall remove the material and restore the area to the condition of the adjacent undisturbed area. If necessary, ground which has become contaminated through the fault or negligence of the Contractor shall be excavated, disposed of as directed by the Contracting Officer, and replaced with suitable fill material compacted and finished with topsoil and planted as required to re-establish vegetation, all at the expense of the Contractor. Disposal of waste, trash and other materials off the project site shall be in accordance with all applicable Federal, State, and local laws, rules and regulations. Removed vegetation, including trees, shall be put to beneficial reuse and not placed into landfills.

3.1.7.1 Disposal of Solid Wastes

Solid waste is rubbish, debris, waste materials, garbage, and other discarded solid materials (excluding clearing debris and hazardous waste as defined in following paragraphs). Solid waste shall be placed in containers and disposed of on a regular schedule. All handling and disposal shall be conducted in such a way as to prevent spillage and

contamination. The Contractor shall transport all solid waste off Government property and dispose in compliance with Federal, State, and local requirements.

3.1.7.2 Chemicals and Chemical Wastes

Chemicals shall be dispensed ensuring no spillage to the ground or water. Periodic inspections of dispensing areas to identify leakage and initiate corrective action shall be performed and documented. This documentation will be periodically reviewed by the Government. Chemical waste shall be collected in corrosion resistant, compatible containers. Collection drums shall be monitored and removed to a staging or storage area when contents are within 6 inches of the top. Wastes shall be classified, managed, stored, and disposed of in accordance with Federal, State, and local laws and regulations.

3.1.7.3 Spillages

Special measures shall be taken to prevent chemicals, fuels, oils, greases, bituminous materials, ashes, sawdust, waste washings, herbicides and insecticides, rubbish or sewage, and other pollutants from entering public waters.

3.1.8 Clearing Debris

Clearing debris is trees, tree stumps, tree trimmings, and shrubs, and leaves, vegetative matter, excavated natural materials (e.g., dirt, sand, and rock), and demolition products (e.g., brick, concrete, glass, and metals).

a. The Contractor shall collect trees, tree stumps, tree trimmings, shrubs, leaves, and other vegetative matter; and shall transport from Government property for proper disposal in compliance with Federal, State, and local requirements. The Contractor shall segregate the matter where appropriate for proper disposal. Untreated and unpainted scrap lumber may be disposed of with this debris where appropriate.

b. Excavated natural materials shall be placed in the designated area on the drawings.

c. Demolition products shall be transported from Government property for proper disposal in compliance with Federal, State, and local requirements.

3.1.9 Disposal of Contractor Generated Hazardous Wastes

Hazardous wastes are hazardous substances as defined in 40 CFR 261, or as defined by applicable State and local regulations. Hazardous waste generated by construction activities shall be removed from the work area and be disposed in compliance with Federal, State, and local requirements. The Contractor shall segregate hazardous waste from other materials and wastes, and shall protect it from the weather by placing it in a safe covered location; precautionary measures against accidental spillage such as berming or other appropriate measures shall be taken. Hazardous waste shall be removed from Government property within 60 days. Hazardous waste shall not be dumped onto the ground, into storm sewers or open water courses, or into the sanitary sewer system. A copy of the manifest shall be provided to the Contracting Officer for any hazardous waste disposed of under this contract.

3.1.10 Fuels and Lubricants

Fueling and lubrication of equipment and motor vehicles shall be conducted in a manner that affords the maximum protection against spills and evaporation. Lubricants and waste oil to be discarded shall be stored in marked corrosion-resistant containers and recycled or disposed in accordance with Federal, State, and local laws and regulations.

3.1.11 Hydrocarbons, Carbon Monoxide, and Oxides of Nitrogen and Sulfur

Vapor/gaseous emissions of hydrocarbons, carbon monoxide, oxides of nitrogen and sulfur oxides from equipment shall be controlled to Federal and State limits at all times.

3.1.12 Odors

Odors from all construction activities, processing and preparation of shall be controlled at all times and shall not cause a health hazard.

3.1.13 Ground Vibrations

Ground vibrations from construction activities shall be controlled at all times to prevent damage.

3.1.14 Protection from Sound Intrusions

The Contractor shall keep construction activities under surveillance and control to prevent damage by noise. Construction equipment shall be fitted with noise control devices.

3.2 HISTORICAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES

3.2.1 Discovered Historic, Archaeological, and Cultural Resources

If, during construction activities, items are observed that may have historic or archaeological value (e.g., human remains or associated objects, or artifacts are discovered), such items shall be protected in place and the observations shall be reported immediately to the Contracting Officer so that the District Archaeologist may be notified and a determination made as to their significance and what, if any, special disposition of the finds should be made. The Contractor shall cease all activities that may result in impact to, or the destruction of, these resources. The Contractor shall prevent its employees from trespassing on, removing, or otherwise disturbing such resources.

3.3 PROTECTION OF WATER RESOURCES

The Contractor shall keep construction activities under surveillance, management, and control to avoid pollution of surface and ground waters.

3.3.1 Waste Water

Disposal of waste water shall be as specified below.

a. Waste water from construction activities, such as onsite material processing, concrete curing, foundation and concrete clean-up, water used in concrete trucks, forms, etc. shall not be allowed to enter water ways or to be discharged prior to being treated to

remove pollutants. The Contractor shall dispose of the construction related waste water off-Government property in accordance with all Federal, State, Regional and Local laws and regulations.

b. For discharge of ground water, the Contractor shall surface discharge in accordance with all Federal, State, and local laws and regulations.

c. Water generated from the flushing of lines after hydrostatic testing shall be land applied in accordance with all Federal, State, and local laws and regulations for land application.

3.3.2 Monitoring of Water Areas Affected by Construction Activities

The Contractor shall perform discharge monitoring, inspections, stormwater sampling and testing, reporting, and record keeping as set forth in the permit conditions.

3.3.3 Wetlands

The Contractor shall not enter, disturb, destroy, or allow discharge of contaminants into any wetlands except as authorized herein. The Contractor shall be responsible for the protection of wetlands shown on the drawings in accordance with paragraph ENVIRONMENTAL PERMITS, REVIEWS, AND APPROVALS. Authorization to enter specific wetlands identified shall not relieve the Contractor from any obligation to protect other wetlands within, adjacent to, or in the vicinity of the construction site and associated boundaries.

3.4 PROTECTION OF FISH AND WILDLIFE RESOURCES

3.4.1 Protection of Fish, Wildlife and Flora

The Contractor shall keep construction activities under surveillance, management and control to minimize interference with, disturbance to and damage of fish, wildlife, migratory birds and flora. Species that require specific attention along with measures for their protection shall be listed by the Contractor prior to beginning construction operations. See Subparagraph titled "Environmental Protection Plan."

3.4.2 Migratory Bird Protection

Contractor shall not disturb the migratory birds or destroy the gull nests, eggs or fledglings located on the wave barrier dike.

3.5 PROTECTION OF AIR RESOURCES

Special management techniques as set out below shall be implemented to control air pollution by the construction activities. These techniques supplement the requirements of Federal, State, and local laws and regulations; and the safety requirements under this Contract. If any of the following techniques conflict with the requirements of Federal, State, or local laws or regulations, or safety requirements under this contract, then those requirements shall be followed in lieu of the following.

3.5.1 Particulates

Airborne particulates, including dust particles, aerosols, and gaseous

by-products from construction activities and processing and preparation of materials, shall be controlled at all times, including weekends, holidays, and hours when work is not in progress. The Contractor shall maintain all excavations, stockpiles, haul roads, permanent and temporary access roads, plant sites, disposal sites, borrow areas, and all other work areas free from airborne dust which would cause a hazard or nuisance.

3.6 INSPECTION

If the Contracting Officer notifies the Contractor in writing of any observed noncompliance with contract requirements or Federal, State, or local laws, regulations, or permits, the Contractor shall inform the Contracting Officer of proposed corrective action and take such action to correct the noncompliance. If the Contractor fails to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action is taken. No time extensions will be granted or costs or damages allowed to the Contractor for any such suspension.

3.7 MAINTENANCE OF POLLUTION CONTROL FACILITIES

The Contractor shall maintain all constructed pollution control facilities and portable pollution control devices for the duration of the Contract or for the length of time construction activities create the particular pollutant.

3.8 TRAINING OF CONTRACTOR PERSONNEL

Contractor personnel shall be trained in environmental protection and pollution control. The Contractor shall conduct environmental protection/pollution control meetings for all Contractor personnel monthly. The training and meeting agenda shall include methods of detecting and avoiding pollution, familiarization with pollution standards, both statutory and contractual, installation and care of facilities (vegetative covers, etc.), and instruments required for monitoring purposes to ensure adequate and continuous environmental protection/pollution control. Anticipated hazardous or toxic chemicals or wastes, and other regulated contaminants, shall also be discussed. Other items required to be discussed shall include recognition and protection of archaeological sites, artifacts, and historic structures.

3.9 POST CONSTRUCTION CLEANUP OR OBLITERATION

The Contractor shall obliterate all signs of temporary facilities such as haul roads, work area, structures, stock piles of excess or waste materials, fencing, buoys, stakes, or other vestiges of construction within the work, storage and access areas or as directed by the Contracting Officer. Except for surfaced areas, the areas shall be restored to near natural conditions which will permit the growth of vegetation thereon. In areas where restoration to near natural conditions is not required, surfaces shall be evenly and smoothly dressed, sloped to drain, and the edges of the restored area graded to be flush with the surrounding existing grade even if original contours are not restored. All damaged non-surfaced areas shall be restored by topsoiling, fertilizing, seeding and mulching, unless otherwise specified or directed. The topsoiling, fertilizing, seeding, and mulching shall be in accordance with the applicable provisions of WDOT 2010.

3.10 RESTORATION OF LANDSCAPE

The Contractor shall restore all landscape features damaged of destroyed during construction operations outside the limits of the approve work areas. Such restoration shall be in accordance with the Contractor's submitted plan, as approved by the Contracting Officer. The work shall be accomplished at the Contractor's expense.

-- End of Section --

SECTION TABLE OF CONTENTS

DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01 58 01

PROJECT SIGN AND SAFETY SIGN

-- End of Section Table of Contents --

SECTION 01 58 01

PROJECT SIGN AND SAFETY SIGN

PART 1 GENERAL

1.1 SCOPE

The work covered by this Section consists of providing the fabrication, erection and maintenance of one (1) Project Identification Sign and one (1) Safety Performance Sign. The items furnished in accordance with this Section shall be furnished within 10 calendar days after Notice to Proceed and shall be maintained in good condition throughout the construction period. All items will remain the property of the Contractor and shall be removed at the end of the contract.

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only or as otherwise designated. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Sign Layouts; G-AOF.

Submit the proposed layouts before production.

1.3 APPLICABLE PUBLICATIONS

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

U.S. ARMY CORPS OF ENGINEERS (USACE)

EP 310-1-6 Graphic Standards Manual

EP 310-6a Sign Standards Manual

EP 310-6b Sign Standards Manual

1.4 PAYMENT

No separate or direct payment will be made for the items listed in this Section, and such work will be considered as a subsidiary obligation of the Contractor.

PART 2 PRODUCTS

2.1 CONSTRUCTION PROJECT SIGNS

a. Construction project signs shall be coordinated with the Contracting

Officer. The signs include one (1) Project Identification Sign and one (1) Safety Performance Sign.

b. The construction project sign panels will each be electronically printed as a single decal and mounted on single sided vinyl faced White Board as described in Paragraph "MATERIALS" below.

c. The layout of all signs shall be in accordance with the standards specified in the USACE graphics and sign standards manuals referenced above. Relevant portions of the manuals will be provided to the Contractor upon request. Examples of generic signs are shown on Plates 01 58 00.00 03-1 and 01 58 00.00 03-2 included at the end of this specification section.

2.1.1 Project Identification Sign

One (1) project identification sign constructed in accordance with Plate 01 58 00.00 03-1 and EP 310-6a shall be provided by the Contractor.

2.1.2 Safety Performance Sign

a. One (1) safety performance sign constructed in accordance with Plate 01 58 00.00 03-2 and EP 310-6a shall be provided by the Contractor.

b. The safety performance record shall be updated daily.

2.1.3 Project Identification Label

FOR LINE 1, Project Name
FOR LINE 2, Brief Project Description
FOR LINE 3, Great Lakes RESTORATION with emblem
FOR LINE 4, Brown County
FOR LINE 5, Brown County, Port Authority
FOR LINE 6, U. S. Army Corps of Engineers with emblem

2.1.4 Great Lakes RESTORATION Emblem

All construction projects funded by the Great Lakes RESTORATION shall display signage that features the Primary Emblem throughout the construction phase. The signage shall be displayed in a prominant location on site. The Primary Emblem should not be displayed at a size less than 6 inches in diameter. Images of the emblem are attached at the end of this Section.

2.1.5 Materials

The following are requirements for all of the construction project signs.

a. The sign faces shall be electronically printed on white non-reflective vinyl decals four (4) mil thick.

b. The sign face decals shall be mounted on panels of 1/2" thick White Board with single-sided vinyl facing. The entire circumference of the sign panels will be sealed and protected with white vinyl trim cap.

c. A protective overlaminate film shall be applied over the sign face decals capable of minimizing the deteriorating effects of ultraviolet

radiation and providing additional protection against weathering and application of graffiti.

d. 2"x4" struts will be installed between the 4"x4" support posts to reinforce the top and bottom edges of the sign panels.

e. Wood material for the posts shall be preservative treated, structural grade Douglas Fir or No. 1 Southern Pine, or better.
All other wood members shall be of well seasoned, kiln dried, clear redwood, bald cypress, red cedar, Douglas fir, spruce, tulip poplar, or white pine. The lumber materials shall be free of splits, wane, and loose knots or pitch pockets. All members of the sign shall be fastened with screws or bolts of type, size, number, and spacing to provide rigid construction and neat appearance. If the vertical supports system does not rigidly support the sign due to local soil conditions and/or wind loading additional bracing of the sign supports shall be provided. This additional bracing shall be composed of 2"X4" bracing bolted to the inside face of each 4"x4" support post and firmly anchored to the ground behind the sign. This additional bracing is not required to be treated lumber.

f. All bolts shall be 0.375" diameter and 4" long Allen head bolts, threaded to match T-nuts.

PART 3 EXECUTION

3.1 INSTALLATION

The Contractor shall affix the panels to the posts with the Allen head bolts prior to erection of the signs, including drilling counter-sunk 0.375 inch diameter holes in the posts to match the T-nut locations. The Contractor shall take all precautions necessary to protect the faces of the signs from damage during assembly and construction. The signs shall be installed upon commencement of the work under this contract. The location in which each sign is to be installed shall be cleared and leveled to facilitate the installation of, and provide easy visual contact with, the signs. Installation and positioning of the sign plate and posts shall be as indicated on Plates 01 58 00.00 03-1 and 01 58 00.00 03-2, found at the end of this section. Excavation and backfilling of the holes for posts and installation of the posts, braces, and stakes shall be such that signs are installed plumb and level.

3.2 MAINTENANCE

The Contractor shall maintain the signs in good condition and the sign site in a neat condition throughout the construction period.

3.3 QUALITY CONTROL

The Contractor shall establish and maintain a quality control system for all operations performed under this section to assure compliance with contract requirements. The Contractor shall maintain records of his quality control for all operations performed, including, but not limited to, the following:

a. Quality of materials and workmanship

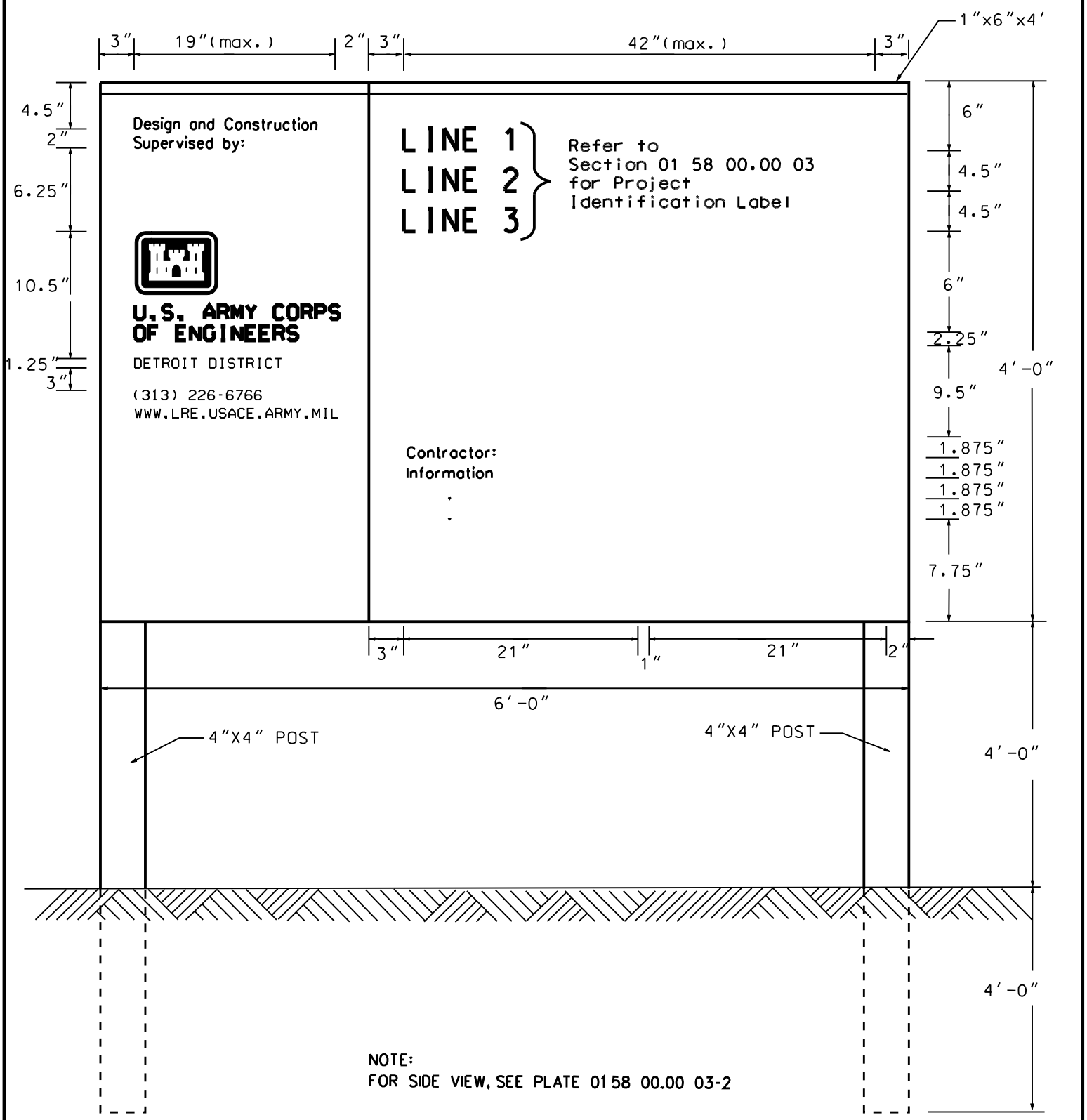
b. Overall appearance of signs and site

c. Observance of safety regulations

3.3.1 Records

A copy of the record of inspections, as well as records of any corrective action taken, shall be furnished to Contracting Officer in accordance with SECTION 01 45 04.00 10 CONTRACTOR QUALITY CONTROL.

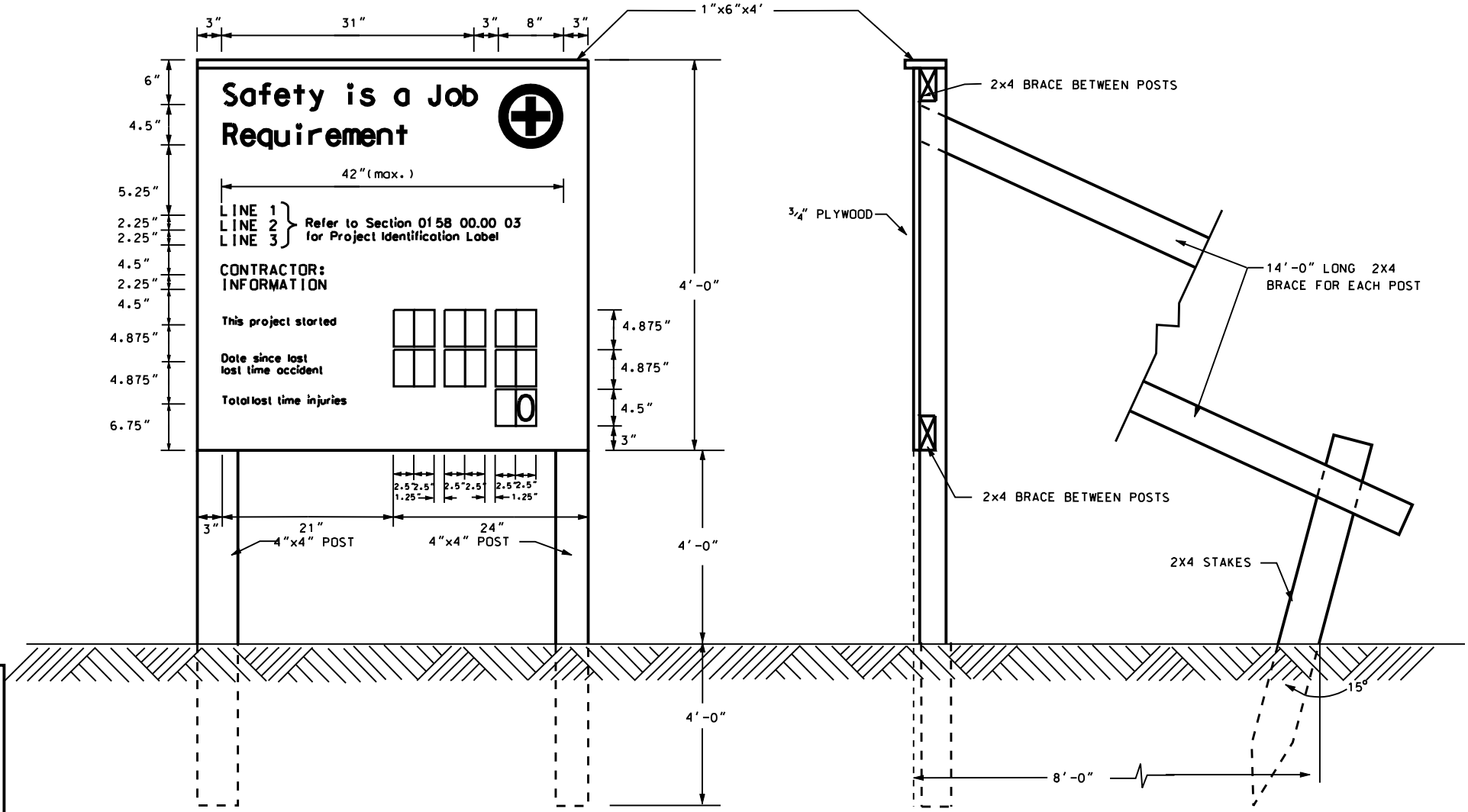
-- End of Section --



NOTE:
FOR SIDE VIEW, SEE PLATE 01 58 00.00 03-2

GENERIC PROJECT IDENTIFICATION SIGN

NOT TO SCALE



GENERIC SAFETY PERFORMANCE SIGN

NOT TO SCALE

PLATE 0158 00.00 03-2


Great Lakes
RESTORATION

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SECTION 01 99 90

LISTING OF ENCLOSED DOCUMENTS, EXHIBITS AND OTHER ATTACHEMENT

-- End of Section Table of Contents --

SECTION 01 99 90

LISTING OF ENCLOSED DOCUMENTS, EXHIBITS AND OTHER ATTACHEMENT

PART 1 GENERAL

1.1 ENCLOSURES

This Section contains documents referenced in other Sections of the specifications. They are consolidated in this Section for the convenience of the Contractor and the Government. The Contractor may reproduce the enclosed forms for its use or obtain a supply of the forms from the Contracting Officer.

TITLE

SOIL BORINGS

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

-- End of Section --

Hole No. CI-1-07

DRILLING LOG

DIVISION

INSTALLATION

SHEET 1 OF 1 SHEETS

1. PROJECT: Cat Island	JOB NUMBER: 200700579
2. LOCATION (Coordinates or Station): 280,181.33N 2,485,273.34E	
3. DRILLING AGENCY: STS Consultants, Ltd.	
4. HOLE NO. (As shown on drawing title and file number): CI-1-07	
5. NAME OF DRILLER: John D.	
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED _____ DEG. FROM VERT.	
7. THICKNESS OF OVERBURDEN	
8. DEPTH DRILLED INTO ROCK	
9. TOTAL DEPTH OF HOLE: 29.5	
10. SIZE AND TYPE OF BIT	
11. DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL	
12. MANUFACTURES'S DESIGNATION OF DRILL	
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 11; UNDISTURBED 2	
14. TOTAL NUMBER CORE BOXES	
15. DEPTH GROUND WATER: 1.5	
16. DATE HOLE: STARTED 2-19-07; COMPLETED 2-19-07	
17. ELEVATION TOP OF HOLE: 578.5	
18. TOTAL CORE RECOVERY FOR BORING %	
19. SIGNATURE OF INSPECTOR	

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	CORE RECOVERY (ft.) e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth weathering, etc., if significant) g
578.50	0	0.0-2.0	Gray to black silty sand with organics and trace wood (SM)	1	1	5 - 4 - 3 - 3 N = 7
	2	2.0-4.0	Brown silty sand with trace roots (SM)	1.2	2	WOH - 3 - 2 - 3 N = 5
	4	4.0-6.0	Brown sandy silt (ML)	1.8	3	2 - 5 - 2 - 3 N = 7
	6	6.0-8.0	Red brown silty clay (CL)	1.3	4	2 - 2 - 3 - 5 Qp = 2.5 tsf
	8	8.0-10.0	Red brown silty clay - varved - with gray silt (4mm) (CL)	1.5	5	4 - 5 - 7 - 9 Qp = 1.0 tsf Set casing to 8.0 feet
568.50	10	10.0-12.0		1.7	6	Osterberg Sample Qp = 1.25 tsf
	12	12.0-12.5	Drilled with rock bit		NS	
		12.5-14.5	Red brown silty clay - varved - with sand seams at 14.0 feet (5mm thick) (CL)	2	7	3 - 3 - 2 - 3 Qp = 0.75 tsf
	14	14.5-15.0	Drilled with rock bit		NS	
		15.0-17.0	Brown sandy silt - wet (ML)	.6	8	Osterberg Sample
	16	17.0-17.5	Drilled with rock bit		NS	
		17.5-19.5	Brown silty fine to medium sand (SM)	1.8	9	8 - 7 - 9 - 7
	18	19.5-20.0	Drilled with rock bit		NS	
558.50	20	20.0-22.0	Brown silty fine to medium sand (SM)	1.3	10	5 - 6 - 7 - 8
	22	22.0-22.5	Drilled with rock bit		NS	
		22.5-24.5	Brown silty fine to medium sand (SM)	1.1	11	5 - 6 - 8 - 8
	24	24.5-25.0	Drilled with rock bit		NS	
		25.0-27.0	Brown silty fine to medium sand (SM)	1.7	12	1 - 2 - 3 - 3
	26	27.0-27.5	Drilled with rock bit		NS	
		27.5-29.5	Brown silty fine to medium sand (SM)	.6	13	3 - 6 - 7 - 9
549.00	28		End of Boring			

Lake Mud
LWD
577.3'

Hole No. CI-2-07

DRILLING LOG

DIVISION		INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT: Cat Island	JOB NUMBER: 200700579	10. SIZE AND TYPE OF BIT	
2. LOCATION (Coordinates or Station): 279,115.28N 2,485,094.89E		11. DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL	
3. DRILLING AGENCY: STS Consultants, Ltd.		12. MANUFACTURES'S DESIGNATION OF DRILL	
4. HOLE NO (As shown on drawing title and file number): CI-2-07		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 8	UNDISTURBED 5
5. NAME OF DRILLER: John D.		14. TOTAL NUMBER CORE BOXES	
6. DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED _____ DEG. FROM VERT.		15. DEPTH GROUND WATER	
7. THICKNESS OF OVERBURDEN		16. DATE HOLE: STARTED 2-19-07	COMPLETED 2-19-07
8. DEPTH DRILLED INTO ROCK		17. ELEVATION TOP OF HOLE: 578.0	
9. TOTAL DEPTH OF HOLE: 29.5		18. TOTAL CORE RECOVERY FOR BORING	%
		19. SIGNATURE OF INSPECTOR	

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	CORE RECOVERY (ft.) e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth weathering, etc., if significant) g
578.00	0	0.0-2.0	Ice	2	1	65 -77
			Black silty fine sand - trace organics (SM)			
	2	2.0-4.0	Brown silty sand - trace roots (SM)	1.3	2	33 - 4 - 5 - 4 N=9
	4	4.0-6.0	Brown silty very fine sand with trace clay (SM)	1.6	3	4 - 3 - 2 - 4 N=5
	6	6.0-8.0		2	4	4 - 4 - 3 - 6 Clay -- Qp = 1.25 tsf
			Red brown silty clay - trace 2mm sand seams (CL)			
	8	8.0-10.0		1	5	Osterberg Sample Qp = 1.5 tsf
568.00	10	10.0-12.0		1.2	6	Osterberg Sample Qp = 4.5 tsf
	12	12.0-12.5	Drilled with rock bit		NS	
		12.5-14.5	Red brown silty clay - trace 2mm sand seams (CL)	1.2	7	3" Shelby Tube Qp = 4.5 tsf
	14	14.5-15.0	Drilled with rock bit		NS	
		15.0-17.0	Red brown silty clay - trace 2mm sand seams (CL)	2	8	3" Shelby Tube Qp = 1.25 tsf
	16	17.0-17.5	Drilled with rock bit		NS	
		17.5-19.5	Red brown silty clay - trace 2mm sand seams (CL)	2	9	1 - 2 - 2 - 2 Qp = 0.5 tsf
	18	19.5-20.0	Drilled with rock bit		NS	
558.00	20	20.0-22.0	Red brown silty clay - trace 2mm sand seams (CL)	1.3	10	3" Shelby Tube Qp = 1.0 tsf
	22	22.0-22.5	Drilled with rock bit		NS	
		22.5-24.5	Red brown silty clay - trace 2mm sand seams (CH) - with sand seam at 23.5 to 23.9 feet	2	11	3 - 10 - 7 - 7 Qp = 2.5 tsf
	24	24.5-25.0	Drilled with rock bit		NS	
		25.0-27.0	Red brown silty clay - trace 2mm sand seams (CL) - with 10mm thick sand seam at 25.2 feet	2	12	WOH - 2 Qp =0 .25 tsf
	26	27.0-27.5	Drilled with rock bit		NS	
		27.5-29.5	Red brown silty clay - trace 2mm sand seams (CH)	2	13	WOH - 2 - 2 Qp = 0 tsf
548.50	28		End of Boring			

Hole No. CI-3-07

DRILLING LOG

DIVISION

INSTALLATION

SHEET 1 OF 2 SHEETS

1. PROJECT: Cat Island	JOB NUMBER: 200700579
2. LOCATION (Coordinates or Station): 278,173.79N 2,485,329.05E	
3. DRILLING AGENCY: STS Consultants, Ltd.	
4. HOLE NO. (As shown on drawing title and file number): CI-3-07	
5. NAME OF DRILLER: John D.	
6. DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED _____ DEG. FROM VERT.	
7. THICKNESS OF OVERBURDEN	
8. DEPTH DRILLED INTO ROCK	
9. TOTAL DEPTH OF HOLE: 59.5	
10. SIZE AND TYPE OF BIT	
11. DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL	
12. MANUFACTURES'S DESIGNATION OF DRILL	
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 19 / UNDISTURBED 4	
14. TOTAL NUMBER CORE BOXES	
15. DEPTH GROUND WATER	
16. DATE HOLE: STARTED 2-20-07 / COMPLETED 2-20-07	
17. ELEVATION TOP OF HOLE: 577.8	
18. TOTAL CORE RECOVERY FOR BORING: %	
19. SIGNATURE OF INSPECTOR	

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	CORE RECOVERY (ft.) e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth weathering, etc., if significant) g
577.80	0	0.0-2.0	Drilled with auger --- Ice with frost	0	NS	Too hard to sample
	2	2.0-4.0	Brown to black silty fine to medium sand with organics (SM) - trace roots (wet)	1.7	1	WOH - 1 - 3 - 4 N=4
	4	4.0-6.0	Brown silty sand - trace roots (SM)	1.5	2	2 - 3 - 8 - 7 N=11
	6	6.0-8.0	Brown silty sand (SM)	1.4	3	6 - 7 - 10 - 7 Set casing at 8.0 feet N=17
	8	8.0-10.0		1.3	4	2 - 2 - 1 - 1 N=3
567.80	10	10.0-12.0		1.9	5	WOH - 1 - 1 - 1 N=2
	12	12.0-12.5	Drilled with rock bit		NS	
		12.5-14.5	Brown silty sand (SM) becoming more silty	2	6	WOH N=0
	14	14.5-15.0	Drilled with rock bit		NS	
		15.0-17.0	Brown very silty fine to medium sand (SM)	2	7	WOH "
	16	17.0-17.5	Drilled with rock bit		NS	
		17.5-19.5	Brown very silty fine to medium sand (SM)	2	8	WOH "
	18	19.5-20.0	Drilled with rock bit		NS	
557.80	20	20.0-22.0	Brown very silty fine to medium sand (SM) - with trace shells - more silt	2	9	WOH "
	22	22.0-22.5	Drilled with rock bit		NS	
		22.5-24.5	Gray brown fine sandy silt - trace shells (MH)	2	10	WOH - 2 - 1 N=3
	24	24.5-25.0	Drilled with rock bit		NS	
		25.0-27.0	Gray brown fine sandy silt - trace shells (ML)	2	11	WOH - 3
	26	27.0-27.5	Drilled with rock bit		NS	
		27.5-29.5	Gray brown fine very silty clay - trace shells (CL)	2	12	WOH - 3
	28	29.5-30.0	Drilled with rock bit		NS	
547.80	30	30.0-32.0	Gray brown fine sandy silt - trace shells (ML)	2	13	WOH - 3 - 2 - 3
	32	32.0-32.5	Drilled with rock bit		NS	
		32.5-34.5	Gray silt - with trace shells and trace wood chips (ML)	2	14	WOH - 2 - 3 - 3
	34	34.5-35.0	Drilled with rock bit		NS	

Hole No. CI-3-07

DRILLING LOG

DIVISION

INSTALLATION

SHEET 2 OF 2 SHEETS

1. PROJECT: Cat Island	JOB NUMBER: 200700579
2. LOCATION (Coordinates or Station): 278,173.79N 2,485,329.05E	
3. DRILLING AGENCY: STS Consultants, Ltd.	
4. HOLE NO. (As shown on drawing title and file number): CI-3-07	
5. NAME OF DRILLER: John D.	
6. DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED ____ DEG. FROM VERT.	
7. THICKNESS OF OVERBURDEN	
8. DEPTH DRILLED INTO ROCK	
9. TOTAL DEPTH OF HOLE: 59.5	
10. SIZE AND TYPE OF BIT	
11. DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL	
12. MANUFACTURES'S DESIGNATION OF DRILL	
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 19; UNDISTURBED 4	
14. TOTAL NUMBER CORE BOXES	
15. DEPTH GROUND WATER	
16. DATE HOLE: STARTED 2-20-07; COMPLETED 2-20-07	
17. ELEVATION TOP OF HOLE: 577.8	
18. TOTAL CORE RECOVERY FOR BORING: %	
19. SIGNATURE OF INSPECTOR	

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	CORE RECOVERY (ft.) e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth weathering, etc., if significant) g
		35.0-37.0	Gray silt - with trace shells and trace wood chips (ML)	2	15	3" Shelby Tube
	36					
		37.0-37.5	Drilled with rock bit		NS	
		37.5-39.5	Gray silt - with trace shells and trace wood chips (ML)	2	16	3" Shelby Tube
	38					
		39.5-40.0	Drilled with rock bit		NS	
537.80	40	40.0-42.0	Gray silty clay - with trace shells and trace wood chips (CL)	1.5	17	WOH - 2 -2
	42					
		42.0-42.5	Drilled with rock bit		NS	
		42.5-44.5	Gray silt - with trace shells and trace wood chips (MH)	2	18	3" Shelby Tube
	44					
		44.5-45.0	Drilled with rock bit		NS	
		45.0-45.7	Gray silt - with trace shells and trace wood chips (ML)		19	2 - 1 - 4 - 3
	46	45.7-47.0	Light gray clayey silt (ML)		19A	Qp = 0.25 tsf
		47.0-47.5	Drilled with rock bit		NS	
	48	47.5-49.5	No sample - tried twice	0		3" Shelby Tube
		49.5-50.0	Drilled with rock bit		NS	
527.80	50	50.0-52.0	Light gray clayey silt (ML)	1.5	20	Osterberg Qp = 0.25 tsf
	52					
		52.0-52.5	Drilled with rock bit		NS	
		52.5-54.5	Gray brown organic silt - trace fine sand - trace shells - trace wood (ML)	2	21	WOH
	54					
		54.5-55.0	Drilled with rock bit		NS	
		55.0-57.0	Gray brown very silty clay - trace fine sand - trace shells - trace wood (CL)	2	22	WOH - 2
	56					
		57.0-57.5	Drilled with rock bit		NS	
		57.5-59.5	Gray brown organic silt - trace fine sand - trace shells - trace wood (ML)	2	23	2 - 2 - 3 - 4
	58					
518.30			End of Boring			

STS Consultants, Ltd.

Table 2 - Laboratory Test Summary

Project Name: Geotechnical Investigation Cat Island Chain
STS Project No.: 200700579
Location: Green Bay, Wisconsin
COE Contract Number W912P8-06-D-0001 Geotechnical Services
COE Delivery Order #DC05

Boring	Sample No.	Sample Depth (ft. bgs)	USCS/Visual Soil Description [1]	Dry Density (pcf)	Natural Moisture Content (%)	Specific Gravity (Gs)	Atterburg Limits LL	PL	PI	Sieve #4 / P-200 and Hydrometer	Remarks/Comments
CI-1-07	S-1	0.0' - 2.0'	Gray to black silt with organics and trace wood ML	--	40.00	--	--	--	--	See enclosed laboratory data	--
	S-3	4.0' - 6.0'	Brown silty sand with trace roots SM	--	25.20	--	--	--	--	See enclosed laboratory data	--
	S-5	8.0' - 10'	Red brown silty clay - varved - with gray silts (CL)	--	30.10	--	--	--	--	See enclosed laboratory data	--
	S-6	10' - 12'	Red brown silty clay - varved - with gray silts (CL)	98.05	27.83	--	--	--	--	--	Consolidation test and unconfined compression test data results see enclosed laboratory data.
	S-8	15' - 17'	Brown silty sand - wet SM	--	18.30	--	--	--	--	See enclosed laboratory data	--
	S-10	20' - 22'	Brown silty fine to medium sand (SM)	--	25.00	--	--	--	--	See enclosed laboratory data	--
	S-13	27.5' - 29.5'	Brown silty fine to medium sand (SM)	--	18.30	--	--	--	--	See enclosed laboratory data	--
CI-2-07	S-2	2.0' - 4.0'	Brown silty sand - trace roots (SM)	--	24.10	--	--	--	--	See enclosed laboratory data	--
	S-4A	6.0' - 7.0'	Brown silty very fine sand with trace clay SM	--	28.80	--	--	--	--	See enclosed laboratory data	--
	S-4B	7.0' - 8.0'	Red brown silty clay - trace 2mm sand seams CL	--	24.00	--	--	--	--	See enclosed laboratory data	--
	S-5	8.0' - 10'	Red brown silty clay - trace 2mm sand seams (CL)	101.00	--	--	--	--	--	See enclosed laboratory data	Unconfined compression test data results, see enclosed laboratory data
	S-6	10' - 12'	Red brown silty clay - trace 2mm sand seams (CL)	--	22.40	--	31	13	18	See enclosed laboratory data	--
	S-8	15' - 17'	Red brown silty clay - trace 2mm sand seams (CL)	--	32.10	--	45	19	26	See enclosed laboratory data	Triaxial compression test data and consolidation test data, see enclosed laboratory data.
	S-10	20' - 22'	Red brown silty clay - trace 2mm sand seams (CL)	97.98	--	--	--	--	--	See enclosed laboratory data	Unconfined compression test data and triaxial compression test data, see enclosed laboratory data.
	S-11A	22.5' - 24.5'	Red brown silty clay - trace 2mm sand seams CL - with sand seams at 23.5 to 23.9 feet	--	46.50	--	--	--	--	See enclosed laboratory data	--
	S-11B	22.5' - 24.5'	Red brown silty clay - trace 2mm sand seams CL - with sand seams at 23.5 to 23.9 feet	--	15.20	--	--	--	--	See enclosed laboratory data	--
	S-13	27.5' - 29.5'	Red brown silty clay - trace 2mm sand seams CL	--	43.30	--	--	--	--	See enclosed laboratory data	--
CI-3-07	S-2	4' - 6'	Brown silty sand - trace roots (SM)	--	29.00	--	--	--	--	See enclosed laboratory data	--
	S-4	8.0' - 10'	Brown silty sand (SM)	--	33.10	--	--	--	--	See enclosed laboratory data	--
	S-6	12.5' - 14.5'	Brown silty sand becoming more silty (SM)	--	32.30	--	--	--	--	See enclosed laboratory data	--
	S-11	25' - 27'	Gray brown fine sandy silt - trace shells ML	--	53.80	--	--	--	--	See enclosed laboratory data	--
	S-13	30' - 32'	Gray brown fine sandy silt - trace shells ML	--	75.60	--	--	--	--	See enclosed laboratory data	--
	S-16	37.5' - 39.5'	Gray silt - with trace shells and trace wood chips ML	--	--	--	--	--	--	--	Consolidation test data, see enclosed laboratory data.
	S-17	40' - 42'	Gray silt - with trace shells and trace wood chips ML	--	85.70	--	65	24	40	See enclosed laboratory data	Triaxial compression test data, see enclosed laboratory data.
	S-19	45' - 45.7'	Gray silt - with trace shells and trace wood chips ML	--	111.90	--	126	94	32	See enclosed laboratory data	Triaxial compression test data, see enclosed laboratory data
	S-19A	45.7' - 47'	Light gray clayey silt ML	--	75.50	--	73	27	46	See enclosed laboratory data	Triaxial compression test data, see enclosed laboratory data.
	S-22	55' - 57'	Gray brown organic silt - trace fine sand - trace shells - trace wood DL	--	48.30	--	62	27	35	See enclosed laboratory data	Consolidation test data and triaxial compression test data, see enclosed laboratory data.

Notes: (1) Italicized USCS material descriptions selected automatically from STS laboratory software, and do not necessarily reflect the STS Soil Classification System. Non-italicized material descriptions are visual classifications in accordance with the STS Soil Classification System.

Hole No. CI-1-97

DRILLING LOG

DIVISION: North Central

INSTALLATION: Detroit

SHEET 1 OF 2 SHEETS

1. PROJECT: Cat Island - Green Bay, WI
2. LOCATION (Coordinates or Station): See Remarks
3. DRILLING AGENCY: Coleman Engineering Company
4. HOLE NO. (As shown on drawing title and file number): CI-1-97
5. NAME OF DRILLER: Scott Strigel
6. DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED 0.0 DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN: N/A
8. DEPTH DRILLED INTO ROCK: 0
9. TOTAL DEPTH OF HOLE: 24.2
10. SIZE AND TYPE OF BIT: 4-1/4" HSA, SPT
11. DATUM FOR ELEVATION SHOWN (TBM or MSL): IGLD '55
12. MANUFACTURES'S DESIGNATION OF DRILL: Diedrich D-50 ATV
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 9; UNDISTURBED 1
14. TOTAL NUMBER CORE BOXES: 0
15. ELEVATION GROUND WATER: 579.7
16. DATE HOLE: STARTED MAY 21 97; COMPLETED MAY 21 97
17. ELEVATION TOP OF HOLE: 579.7
18. TOTAL CORE RECOVERY FOR BORING: 0 %
19. SIGNATURE OF INSPECTOR: Chris Rasmussen

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth weathering, etc., if significant) g
			Water			4-1/4" HSA, SPT Sampling 140# Hammer, 30" Drop 2" Split Spoon Lat = 44° 33' 43.94" Long = 88° 00' 03.97
576.0	3.7		3.7'			
			Wet, loose, SAND, grayish-light brown, fine, some organics, shells, trace of silt	47%	1 3.7 5.2	SPT 3.7' to 5.2' Blows 1 - 1 - 4 N = (5)
574.5	5.2		5.2'			
			Wet, SAND, grayish-light brown, fine, trace of gravel, organics, trace of silt, loose	60%	2 5.2 6.7	SPT 5.2' to 6.7' Blows 4 - 4 - 4 N = (8)
573.0	6.7		6.7'			
			Wet, SAND, grayish-light brown, fine, trace of gravel, trace of organics, trace of silt, loose	87%	3 6.7 8.2	SPT 6.7' to 8.2' Blows 4 - 3 - 2 N = (5)
571.5	8.2		8.2'			
			Wet, SAND, grayish-light brown, fine, trace of gravel, trace of organics, trace of silt, loose	80%	4 8.2 9.7	SPT 8.2' to 9.7' Blows 5 - 3 - 4 N = (7)
569.4	10.3		10.3'	93%	5 9.7 11.2	SPT 9.7' to 11.2' Blows 3 - 2 - 2 N = (4)
			Wet, SILTY SAND, grayish-light brown, fine, loose			
568.5	11.2		11.2'			
			Wet, SAND, grayish-light brown, fine, trace of organics, trace of gravel and silt, very loose (wet, clayey, silty sand 2.5' to 12.6')	80%	6 11.2 12.7	SPT 11.2' to 12.7' Blows 1/12" - 1 N = (1)
567.0	12.7		12.7'			
			Wet, SILTY SAND, dark brown, fine, very loose, trace of clay	27%	7 12.7 14.2	SPT 12.7' to 14.2' Blows 1/12" - 1 N = (1)
565.5	14.2		14.2'			
			Gray, fine to medium, SAND, trace of silt	90%	8 14.2 16.2	3" ST 14.2' to 16.2' Sampler Pushed 2.0' Rec - 1.8'
564.1	15.6		15.6'			
563.5	16.2		Brown, varved, plastic, CLAY, medium stiff			
			16.2'	100%	9 16.2 17.7	SPT 16.2' to 17.7' Blows 1 - 2 - 3 N = (5) Torvane 0.4 to 0.5
			Wet, CLAY, grayish-brown, plastic, medium stiff			
562.4	17.3		17.3'			
562.0	17.7		Wet, CLAY, brown, plastic, medium stiff 17.7'			

DRILLING LOG

DIVISION: North Central

INSTALLATION: Detroit

SHEET 2 OF 2 SHEETS

1. PROJECT: Cat Island - Green Bay, WI
2. LOCATION (Coordinates or Station): See Remarks
3. DRILLING AGENCY: Coleman Engineering Company
4. HOLE NO. (As shown on drawing title and file number): CI-1-97
5. NAME OF DRILLER: Scott Strigel
6. DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED 0.0 DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN: N/A
8. DEPTH DRILLED INTO ROCK: 0
9. TOTAL DEPTH OF HOLE: 24.2
10. SIZE AND TYPE OF BIT: 4-1/4" HSA, SPT
11. DATUM FOR ELEVATION SHOWN (TBM or MSL): IGLD '55
12. MANUFACTURES'S DESIGNATION OF DRILL: Diedrich D-50 ATV
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 9, UNDISTURBED 1
14. TOTAL NUMBER CORE BOXES: 0
15. ELEVATION GROUND WATER: 579.7
16. DATE HOLE: STARTED MAY 21 97, COMPLETED MAY 21 97
17. ELEVATION TOP OF HOLE: 579.7
18. TOTAL CORE RECOVERY FOR BORING: 0 %
19. SIGNATURE OF INSPECTOR: Chris Rasmussen

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth weathering, etc., if significant) g
557.0	22.7					
			Wet, CLAY, brown, plastic, medium stiff	53%	10 22.7 24.2	SPT 22.7' to 24.2' Blows 3 - 2 - 5 N = (7) Pen .75 tp 1.25, Torvane 0.4
555.5	24.2		24.2'			
			End of Boring			
			Borehole was backfilled with a mixture of 95% cement and 5% quick gel (3 bags cement approximately 45 gallons) from 24.2' to 3.7'			

Hole No. CI-2-97

DRILLING LOG

DIVISION: North Central
INSTALLATION: Detroit
SHEET 1 OF 2 SHEETS

1. PROJECT: Cat Island - Green Bay, WI
2. LOCATION (Coordinates or Station): See Remarks
3. DRILLING AGENCY: Coleman Engineering Company
4. HOLE NO. (As shown on drawing title and file number): CI-2-97
5. NAME OF DRILLER: Scott Strigel
6. DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED 0.0 DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN: N/A
8. DEPTH DRILLED INTO ROCK: 0
9. TOTAL DEPTH OF HOLE: 23.8
10. SIZE AND TYPE OF BIT: 4-1/4" HSA, SPT
11. DATUM FOR ELEVATION SHOWN (TBM or MSL): IGLD '55
12. MANUFACTURES'S DESIGNATION OF DRILL: Diedrich D-50 ATV
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 10, UNDISTURBED 1
14. TOTAL NUMBER CORE BOXES: 0
15. ELEVATION GROUND WATER: 579.7
16. DATE HOLE: STARTED MAY 21 97, COMPLETED MAY 21 97
17. ELEVATION TOP OF HOLE: 579.7
18. TOTAL CORE RECOVERY FOR BORING: 0 %
19. SIGNATURE OF INSPECTOR: Chris Rasmussen

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth weathering, etc., if significant) g
			Water to 3.5'			4-1/4" HSA, SPT Sampling 140# Hammer, 30" Drop 2" Split Spoon Lat = 44° 34' 07" Long = 88° 00' 33"
576.2	3.5		3.5'			
			Wet, SAND, light grayish-brown, fine, trace of silt, organics, loose	67%	1 3.5 5.0	SPT 3.5' to 5.0' Blows 1 - 4 - 3 N = (7)
574.7	5.0		5.0'			
			Wet, SAND, grayish-brown, fine, trace of silt and organics, loose	67%	2 5.0 6.5	SPT 5.0' to 6.5' Blows 2 - 3 - 1 N = (4)
573.2	6.5		6.5'			
			Wet, SILTY SAND, grayish-brown, fine to medium, loose ...fine	67%	3 6.5 8.0	SPT 6.5' to 8.0' Blows 2 - 2 - 3 N = (5)
571.7	8.0		8.0'			
			Wet, SILTY SAND, light grayish-brown, fine, loose, clay at 9.4' (stiff)	67%	4 8.0 9.5	SPT 8.0' to 9.5' Blows 3 - 1 - 2 N = (3)
570.2	9.5		9.5'			
			Wet, CLAYEY SILT, sandy, brown, thinly layered, low plasticity, hard	67%	5 9.5 11.0	SPT 9.5' to 11.0' Blows 19 - 21 - 35 N = (56) Pen 2.5 to 5.0, Torvane 0.4 to 0.9
568.7	11.0		11.0'			
			Wet, SILTY SAND, brown, fine, trace of clay, very dense	100%	6 11.0 12.5	SPT 11.0' to 12.5' Blows 29 - 29 - 34 N = (63) Pen 3.5 to 5.0, Torvane 0.1 to 0.2
567.2	12.5		12.5'			
			Wet, SILT, with sand, brown, trace of clay, very stiff, non-plastic	93%	7 12.5 14.0	SPT 12.5' to 14.0' Blows 20 - 28 - 38 N = (66) Pen 0.3, Torvane 0.1
566.4	13.3		13.3'			
			Wet, SILTY SAND, brown, fine, very dense			
565.7	14.0		14.0'			
			Wet, SILTY SAND, brown, fine, very dense	80%	8 14.0 15.5	SPT 14.0' to 15.5' Blows 17 - 31 - 41 N = (72)
564.2	15.5		15.5'			
			Wet, non-plastic, SANDY SILT, gray	53%	9 15.5 16.3	3" Shelby Tube 15.5' to 16.3' Pushed 0.8' Rec - 0.8'
563.4	16.3		16.3'			
						Standing drilling rig up when pushing
562.4	17.3					
			Wet, SILT, brown, hard, non-plastic, thin layer of wet, silty sand, fine, gray, trace of organics at 18.5'	100%	10 17.3 18.8	SPT 17.3' to 18.8' Blows 33 - 33 - 33 N = (66)

DRILLING LOG

DIVISION: North Central

INSTALLATION: Detroit

SHEET 2 OF 2 SHEETS

1. PROJECT	Cat Island - Green Bay, WI
2. LOCATION (Coordinates or Station)	See Remarks
3. DRILLING AGENCY	Coleman Engineering Company
4. HOLE NO. (As shown on drawing title and file number)	CI-2-97
5. NAME OF DRILLER	Scott Strigel
6. DIRECTION OF HOLE	[X] VERTICAL [ ] INCLINED 0.0 DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN	N/A
8. DEPTH DRILLED INTO ROCK	0
9. TOTAL DEPTH OF HOLE	23.8
10. SIZE AND TYPE OF BIT	4-1/4" HSA, SPT
11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	IGLD '55
12. MANUFACTURES'S DESIGNATION OF DRILL	Diedrich D-50 ATV
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN	DISTURBED 10 / UNDISTURBED 1
14. TOTAL NUMBER CORE BOXES	0
15. ELEVATION GROUND WATER	579.7
16. DATE HOLE	STARTED MAY 21 97 / COMPLETED MAY 21 97
17. ELEVATION TOP OF HOLE	579.7
18. TOTAL CORE RECOVERY FOR BORING	0 %
19. SIGNATURE OF INSPECTOR	Chris Rasmussen

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth weathering, etc., if significant) g
				100%	11	
556.9	22.8				22.3	
					23.8	
			Alternating layers of moist, SANDY SILT, non-plastic, grayish-brown, and silty clay, brown, fine, plastic, hard			SPT 22.8' to 23.8'
						Blows 20 - 20 - 32
555.9	23.8					N = (52)
			23.8'			Pen 4.5 to 5.0, Torvane 0.7 to 0.8
			End of Boring			

Borehole was backfilled with mixture of 95% cement and 5% quick gel (3 bags cement approximately 45 gallons) from 23.8' to 3.5'

Hole No. CI-3-97

DRILLING LOG

DIVISION: North Central | INSTALLATION: Detroit | SHEET 1 OF 2 SHEETS

1. PROJECT: Cat Island - Green Bay, WI
2. LOCATION (Coordinates or Station): See Remarks
3. DRILLING AGENCY: Coleman Engineering Company
4. HOLE NO. (As shown on drawing title and file number): CI-3-97
5. NAME OF DRILLER: Scott Strigel
6. DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED 0.0 DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN: N/A
8. DEPTH DRILLED INTO ROCK: 0
9. TOTAL DEPTH OF HOLE: 35.1
10. SIZE AND TYPE OF BIT: 4-1/4" HSA, SPT
11. DATUM FOR ELEVATION SHOWN (TBM or MSL): IGLD '55
12. MANUFACTURES'S DESIGNATION OF DRILL: Diedrich D-50 ATV
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 19 | UNDISTURBED 1
14. TOTAL NUMBER CORE BOXES: 0
15. ELEVATION GROUND WATER: 579.7
16. DATE HOLE: STARTED MAY 22 97 | COMPLETED MAY 22 97
17. ELEVATION TOP OF HOLE: 579.7
18. TOTAL CORE RECOVERY FOR BORING: 0 %
19. SIGNATURE OF INSPECTOR: Chris Rasmussen

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth weathering, etc., if significant) g
			Water to 4.6'			4-1/4" HSA, SPT Sampling 140# Hammer, 30" Drop 2" Split Spoon Lat = 44° 34' 35" Long = 88° 00' 50"
575.1	4.6		4.6'			
			Wet, SAND, light grayish-brown, fine, trace of silt, trace of organics, loose	67%	1 4.6 6.1	SPT 4.6' to 6.1' Blows 1 - 2 - 3 N = (5)
573.6	6.1		6.1'			
			Wet, SAND, light grayish-brown, fine, trace of silt, trace of organics, very loose	60%	2 6.1 7.6	SPT 6.1' to 7.6' Blows 2 - 2 - 1 N = (3)
572.1	7.6		7.6'			
			Wet, SAND, light grayish-brown, fine, trace of silt, trace of organics, very loose	47%	3 7.6 9.1	SPT 7.6' to 9.1' Blows 1/18" N = (<1)
570.6	9.1		9.1'			
			Wet, SAND, light grayish-brown, fine, some silt, trace of organics, very loose	60%	4 9.1 10.6	SPT 9.1' to 10.6' Blows WH/12" - 1 N = (<2)
569.1	10.6		10.6'			
			Wet, SAND, light grayish-brown, fine, some silt, trace of organics, trace of shells	67%	5 10.6 12.1	SPT 10.6' to 12.1' Blows 1 - 2 - 1 N = (3)
567.6	12.1		12.1'			
			Wet, SAND, light grayish-brown, fine, some silt, trace of organics, trace of shells, very loose	80%	6 12.1 13.6	SPT 12.1' to 13.6' Blows 1 - 2 - 1 N = (3)
566.1	13.6		13.6'			
			Wet, SAND, light grayish-brown, fine, some silt, trace of organics, very loose	67%	7 13.6 15.1	SPT 13.6' to 15.1' Blows 2 - 1 - 1 N = (2)
564.6	15.1		15.1'			
			Wet, SAND, light grayish-brown, fine, some silt, trace of shells, trace of organics, very loose	53%	8 15.1 16.6	SPT 15.1' to 16.6' Blows 2 - 1 - 1 N = (2)
563.1	16.6		16.6'			
			Wet, SILTY SAND, light grayish-brown, fine, with silt, trace of organics, very loose	100%	9 16.6 18.1	SPT 16.6' to 18.1' Blows 1 - 1/1/12" N = (<1)
561.6	18.1		18.1'			
			Wet, SILTY SAND, light grayish-brown, fine, trace of shells, very loose	100%	10 18.1 19.6	SPT 18.1' to 19.6' Blows WR/12" - WH N = (<1)
560.1	19.6		19.6'			
				100%	11	

DRILLING LOG

DIVISION: North Central

INSTALLATION: Detroit

SHEET 2 OF 2 SHEETS

1. PROJECT	Cat Island - Green Bay, WI
2. LOCATION (Coordinates or Station)	See Remarks
3. DRILLING AGENCY	Coleman Engineering Company
4. HOLE NO. (As shown on drawing title and file number)	CI-3-97
5. NAME OF DRILLER	Scott Strigel
6. DIRECTION OF HOLE	[X] VERTICAL [ ] INCLINED 0.0 DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN	N/A
8. DEPTH DRILLED INTO ROCK	0
9. TOTAL DEPTH OF HOLE	35.1
10. SIZE AND TYPE OF BIT	4-1/4" HSA, SPT
11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	IGLD '55
12. MANUFACTURES'S DESIGNATION OF DRILL	Diedrich D-50 ATV
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 19 / UNDISTURBED 1
14. TOTAL NUMBER CORE BOXES	0
15. ELEVATION GROUND WATER	579.7
16. DATE HOLE	STARTED MAY 22 97 / COMPLETED MAY 22 97
17. ELEVATION TOP OF HOLE	579.7
18. TOTAL CORE RECOVERY FOR BORING	0 %
19. SIGNATURE OF INSPECTOR	Chris Rasmussen

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth weathering, etc., if significant) g
			Wet, SILTY SAND, light grayish-brown, fine, trace of shells, very loose		19.6 21.1	SPT 19.6' to 21.1' Blows WR/18" N = (<1)
558.6	21.1		21.1'			
			Wet, SILTY SAND, light grayish-brown, fine, trace of shells, trace of organics, very loose	73%	12 21.1 22.6	SPT 21.1' to 22.6' Blows WR/18" N = (<1)
557.1	22.6		22.6'			
			Wet, SILTY SAND, light grayish-brown, fine, trace of shells, trace of organics, very loose	100%	13 22.6 24.1	SPT 22.6' to 24.1' Blows WR/18" N = (<1)
555.6	24.1		24.1'			
			Wet, SILTY SAND, light grayish-brown, fine, trace of shells, trace of organics, very loose (24.4' to 25.1' sample is moist)	100%	14 24.1 25.6	SPT 24.1' to 25.6' Blows WR/18" N = (<1)
554.1	25.6		25.6'			
			Wet, SANDY SILT, light grayish-brown, fine, trace of organics, very soft, non-plastic	100%	15 25.6 27.1	SPT 25.6' to 27.1' Blows WR/6" - WH/12" N = (<1) Pen 0, Torvane 0.1 to .2
552.6	27.1		27.1'			
			Wet, SANDY SILT, light grayish-brown, fine, trace of organics, very soft, non-plastic	100%	16 27.1 28.6	SPT 27.1' to 28.6' Blows WH/18" N = (<1) Pen 0.0, Torvane 0.15 - 0.25
551.1	28.6		28.6'			
			Wet, SANDY SILT, light grayish-brown, fine, trace of organics, trace of shells, very soft, non-plastic	100%	17 28.6 30.1	SPT 28.6' to 30.1' Blows WH/12" - 2 N = (2) Pen 0.0, Torvane 0.1
549.6	30.1		30.1'			
			Wet, ORGANIC SOIL, light grayish-brown, trace of fine sand, soft, low plasticity	100%	18 30.1 31.6	SPT 30.1' to 31.6' Blows 1 - 2 - 1 N = (3) Pen 0.25, Torvane 0.15
548.1	31.6		31.6'			
			Wet, ORGANIC SOIL, light grayish-brown, trace of fine sand, slightly plastic, soft	73%	19 31.6 33.1	3" Shelby Tube 31.6' to 33.6' Pushed 2.0' Rec. - 1.1' Test taken from tip of Shelby Tube Pen 0.0, Torvane 0.1
545.7	34.0		34.0'	100%	20 33.6 35.1	SPT 33.6' to 35.1' Blows 1 - 2 - 1 N = (3) Pen. .2 to .25, Torvane .15 to .25
			Moist, ORGANIC SOIL, gray, soft, low plasticity			
544.6	35.1		35.1'			
			End of Boring Borehole was backfilled with a mixture of 95% cement and 5% quick gel (5 bags cement approximately 65 gallons) from 35.1' to 4.6'			

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Soil Boring Location Diagram
Cat Island Access Roads
Village of Howard, WI

Drawn:	ATV	01/27/2011
Approved:	TMT	01/27/2011
Scale:	AS SHOWN	
PROJECT NUMBER	60190697	
FIGURE NUMBER	1	

DRILLING LOG

DIVISION: ACOE

INSTALLATION: Detroit District

SHEET 1 OF 2 SHEETS

1. PROJECT: Cat Island Access Roads
2. LOCATION (Coordinates or Station): Green Bay, WI N 282,676.7 E 2,480,833.5
3. DRILLING AGENCY: Subsurface Exploration Services
4. HOLE NO. (As shown on drawing title and file number): CI-1-10
5. NAME OF DRILLER: John Carlson
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED --- DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN:
8. DEPTH DRILLED INTO ROCK:
9. TOTAL DEPTH OF HOLE: 22.0
10. SIZE AND TYPE OF BIT: 2 - 7/8" Rock Bit
11. DATUM FOR ELEVATION SHOWN (TBM or MSL): IGLD 85 (vertical) NAD 83 (horizontal)
12. MANUFACTURER'S DESIGNATION OF DRILL: B-57
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 8; UNDISTURBED 1
14. TOTAL NUMBER CORE BOXES:
15. ELEVATION GROUND WATER: -2.9
16. DATE HOLE: STARTED 12/22/2010; COMPLETED 12/22/2010
17. ELEVATION TOP OF HOLE: 0.0
18. TOTAL CORE RECOVERY FOR BORING: %
19. ENGINEER: Tim Tomlanovich

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth weathering, etc., if significant) g
0.0	0.0		Bituminous asphalt pavement (8")			
-0.7	0.7		FILL: Silty fine sand - dark brown - frozen (SM)	100	1 1.0 1.7	48/6" N = 96*
-1.7	1.7		Silty sand, some organics (peat) - black - frozen (SM) (NOTE: Frost depth equal to 2.2 ft at time of drilling)	100	1A 1.7 2.2	18/6" N = 36*
-2.2	2.2		Silty fine sand - orangish brown - medium dense to loose - moist to wet (SM)	63	1B 2.2 3.0	11, 12 N = 23
				90	2 3.0 5.0	3, 3, 5, 5 N = 8
				80	3 5.0 7.0	2, 3, 3, 4 N = 6
-7.5	7.5					
			Sandy silt - brown - loose to very loose - wet (ML)	65	4 7.5 9.5	2, 2, 2, 2 N = 4
				100	5 10.0 12.0	1, 1, 2, 3 N = 3
-12.5	12.5					
			Silt, trace fine sand, with 5" silty clay layer from 15.8 to 16.2 ft - brown - loose - wet (ML)	85	6 12.5 14.5	3, 2, 5, 6 N = 7

DRILLING LOG (Cont Sheet) | ELEVATION TOP OF HOLE 0.0 | **Hole No. CI-1-10**

PROJECT: Cat Island Access Roads | INSTALLATION: Detroit District | SHEET 2 OF 2 SHEETS

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV-ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth weathering, etc., if significant) g
			Silt, trace fine sand, with 5" silty clay layer from 15.8 to 16.2 ft - brown - loose - wet (ML) *(continued)*	70	7 15.0 17.0	5, 5, 2, 9 N = 7 Qp = 1.5-1.75 tsf
-17.5	17.5					
			Silty clay, trace fine gravel, ocassional thin silt seams - brown - stiff to hard (CL)	100	8 17.5 19.5	2, 2, 4, 5 N = 6 Qp = 1.25-1.75 tsf
				45	9 20.0 22.0	Shelby Tube Qp = 3.5-4.5+ tsf SPT Sampling with 140 lb. Hammer 30" of Fall 2" O.D. Split Spoon Sampler
-22.0	22.0					
			End of boring at 22 feet below ground surface. Boring backfilled with bentonite hole plug and asphalt patching material. Boring advanced to 5 feet deep with solid stem augers. HW casing driven to 7.5 feet. Boring advanced from 5 to 20 feet with 2-7/8" rock bit and drilling fluid. Boring drilled 6 ft North of centerline of existing road *: SPT-N value estimated from 6-inches of penetration.			

DRILLING LOG

DIVISION: ACOE

INSTALLATION: Detroit District

SHEET 1 OF 2 SHEETS

1. PROJECT: Cat Island Access Roads
2. LOCATION (Coordinates or Station): Green Bay, WI N 282,834.2 E 2,483,423.9
3. DRILLING AGENCY: Subsurface Exploration Services
4. HOLE NO. (As shown on drawing title and file number): CI-2-10
5. NAME OF DRILLER: John Carlson
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED --- DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN
8. DEPTH DRILLED INTO ROCK
9. TOTAL DEPTH OF HOLE: 22.0
10. SIZE AND TYPE OF BIT: 2 - 7/8" Rock Bit
11. DATUM FOR ELEVATION SHOWN (TBM or MSL): IGLD 85 (vertical) NAD 83 (horizontal)
12. MANUFACTURER'S DESIGNATION OF DRILL: B-57
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 6; UNDISTURBED 3
14. TOTAL NUMBER CORE BOXES
15. ELEVATION GROUND WATER: -2.8
16. DATE HOLE: STARTED 12/22/2010; COMPLETED 12/22/2010
17. ELEVATION TOP OF HOLE: 0.0
18. TOTAL CORE RECOVERY FOR BORING: %
19. ENGINEER: Tim Tomlanovich

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth weathering, etc., if significant) g
0.0	0.0		Bituminous asphalt pavement (6")			
-0.5	0.5		FILL: Silty fine sand, trace fine gravel - brown - frozen (SM)			
				100	1 1.0 1.9	40, 16/6" N = 32
-1.9	1.9		Silty sand, some organics, trace peat - loose - moist to wet (SM-PT) (NOTE: Frost depth equal to 2.1 ft at time of drilling)	100	1A 1.9 2.6	6/6" N = 12*
-2.6	2.6		Fine sand, trace to little silt, brown - loose to medium dense - moist to wet (SP-SM)	75	1B 2.6 3.0	8/6" N = 16*
				80	2 3.0 5.0	2, 4, 6, 7 N = 10
-5.0	5.0		Silt, trace fine sand, trace clay, with reddish brown silty clay layer from 10.4 to 10.7 feet - brown - loose - wet (ML)	75	3 5.0 7.0	3, 3, 4, 4 N = 7
				63	4 7.5 9.5	2, 3, 3, 3 N = 6
				100	5 10.0 12.0	3, 2, 6, 7 N = 8 Qp = 1.5 to 1.75 tsf
-12.5	12.5		Silty clay, trace fine gravel, ocassional thin silt seams - brown - very stiff to hard (CL)	75	6 12.5 14.5	3, 3, 4, 5 N = 7 Qp = 3.25 - 3.5 tsf

DRILLING LOG (Cont Sheet) | ELEVATION TOP OF HOLE 0.0 | **Hole No. CI-2-10**

PROJECT: Cat Island Access Roads | INSTALLATION: Detroit District | SHEET 2 OF 2 SHEETS

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV-ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth weathering, etc., if significant) g
			Silty clay, trace fine gravel, ocassional thin silt seams - brown - very stiff to hard (CL) *(continued)*	50	7 15.0 17.0	Shelby Tube Qp = 4.0-4.5+ tsf
-17.5	17.5					
			Silty clay, trace fine gravel, ocassional layers of highly plastic clay - brown - medium to very stiff (CL-CH)	94	8 17.5 19.5	Shelby Tube Qp = 0.75-1.25 tsf
				100	9 20.0 22.0	Shelby Tube Qp = 0.5-2.25 tsf SPT Sampling with 140 lb. Hammer 30" of Fall 2" O.D. Split Spoon Sampler
-22.0	22.0					
			End of boring at 22 feet below ground surface. Boring backfilled with bentonite hole plug and asphalt patching material. Boring advanced to 5 feet deep with solid stem augers. HW casing driven to 7.5 feet. Boring advanced from 5 to 20 feet with 2-7/8" rock bit and drilling fluid. Boring drilled 5 ft North of centerline of existing road. *: SPT-N value estimated from 6-inches of penetration.			

DRILLING LOG

DIVISION: ACOE

INSTALLATION: Detroit District

SHEET 1 OF 2 SHEETS

1. PROJECT: Cat Island Access Roads
2. LOCATION (Coordinates or Station): Green Bay, WI N 282,917.0 E 2,485,078.7
3. DRILLING AGENCY: Subsurface Exploration Services
4. HOLE NO. (As shown on drawing title and file number): CI-3-10
5. NAME OF DRILLER: John Carlson
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED ___ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN
8. DEPTH DRILLED INTO ROCK
9. TOTAL DEPTH OF HOLE: 22.0
10. SIZE AND TYPE OF BIT: 2 - 7/8" Rock Bit
11. DATUM FOR ELEVATION SHOWN (TBM or MSL): IGLD 85 (vertical) NAD 83 (horizontal)
12. MANUFACTURER'S DESIGNATION OF DRILL: B-57
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 7; UNDISTURBED 2
14. TOTAL NUMBER CORE BOXES
15. ELEVATION GROUND WATER: -5.2
16. DATE HOLE: STARTED 12/22/2010; COMPLETED 12/22/2010
17. ELEVATION TOP OF HOLE: 0.0
18. TOTAL CORE RECOVERY FOR BORING: %
19. ENGINEER: Tim Tomlanovich

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth weathering, etc., if significant) g
-0.3	0.3		Bituminous asphalt pavement (3")			
			FILL: Aggregate base course (9")			
-1.0	1.0					
			FILL: Silty sand and gravel - gray - loose - moist (SM) (NOTE: Frost depth equal to 2.0 ft at time of drilling)	100	1 1.0 1.5	58/6" N = 106*
				15	2 3.0 5.0	8, 5, 4, 11 N = 9
-5.0	5.0					
-5.4	5.4		Silty sand, some organics, little peat - black - loose - wet (SM)	100	3 5.0 5.4	3/6" N = 6*
			Silty fine sand - brown - medium dense to loose - wet (SM)	88	3A 5.4 7.0	5, 5, 6 N = 10
				85	4 7.5 9.5	2, 2, 2, 2 N = 4
-10.0	10.0					
			SIlt, trace fine sand - brown - loose - wet (ML)	63	5 10.0 12.0	1, 2, 2, 3 N = 4
-12.5	12.5					
-13.1	13.1		Silty clay, trace thin silt seams - reddish brown - stiff (CL)	100	6 12.5 13.1	1, 3/6" N = 6*
			Silt, trace clay -brown - loose to medium dense - wet (ML)	93	6A 13.1 14.5	Qp = 1.0-1.5 tsf 5, 6 N = 11

DRILLING LOG (Cont Sheet) | ELEVATION TOP OF HOLE 0.0 | Hole No. CI-3-10

PROJECT: Cat Island Access Roads | INSTALLATION: Detroit District | SHEET 2 OF 2 SHEETS

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV-ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth weathering, etc., if significant) g
			Silt, trace clay -brown - loose to medium dense - wet (ML) *(continued)*	100	7 15.0 16.3	9, 16 N = 32*
-16.3	16.3					
			Silty clay, ocassional thin silt seams, trace higher plasticity clay layers - reddish brown very stiff to stiff (CL-CH)	29	7A 16.3 17.0	14, 10 N = 24 Qp = 3.5-4.0 tsf
				70	8 17.5 19.5	Shelby Tube Qp = 2.0-2.5 tsf
				25	9 20.0 22.0	Shelby Tube Qp = 1.5-2.5 tsf SPT Sampling with 140 lb. Hammer 30" of Fall 2" O.D. Split Spoon Sampler
-22.0	22.0					
			End of boring at 22 feet below ground surface. Boring backfilled with bentonite hole plug and asphalt patching material. Boring advanced to 7.5 feet deep with solid stem augers. HW casing driven to 8.0 feet. Boring advanced from 7.5 to 20 feet with 2-7/8" rock bit and drilling fluid. Boring drilled 4 ft North of centerline of existing road. *: SPT-N value estimated from 6-inches of penetration.			

DRILLING LOG

DIVISION: ACOE

INSTALLATION: Detroit District

SHEET 1 OF 2 SHEETS

1. PROJECT: Cat Island Access Roads
2. LOCATION (Coordinates or Station): Green Bay, WI N 282,084.7 E 2,485,257.5
3. DRILLING AGENCY: Subsurface Exploration Services
4. HOLE NO. *(As shown on drawing title and file number)*: CI-4-10
5. NAME OF DRILLER: John Carlson
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED --- DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN
8. DEPTH DRILLED INTO ROCK
9. TOTAL DEPTH OF HOLE: 24.5
10. SIZE AND TYPE OF BIT: 2 - 7/8" Rock Bit
11. DATUM FOR ELEVATION SHOWN *(TBM or MSL)*: IGLD 85 (vertical) NAD 83 (horizontal)
12. MANUFACTURER'S DESIGNATION OF DRILL: CME-850
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 8 UNDISTURBED 1
14. TOTAL NUMBER CORE BOXES
15. ELEVATION GROUND WATER: -3.8
16. DATE HOLE: STARTED 12/21/2010 COMPLETED 12/21/2010
17. ELEVATION TOP OF HOLE: 0.0
18. TOTAL CORE RECOVERY FOR BORING: %
19. ENGINEER: Tim Tomlanovich

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth weathering, etc., if significant) g
-0.3	0.3		Bituminous asphalt pavement (3")			
-0.8	0.8		FILL: Aggregate base course (6")			
			FILL: Silty sand and gravel - gray and black - medium dense - frozen to moist (SM) (NOTE: Frost depth equal to 1.9 ft at time of drilling)	100	1 1.0 1.6	40/6" N = 80*
				225	1A 1.6 2.0	40, 14 N = 54
-3.0	3.0					
			Silty sand, some organics, trace roots, trace to little peat - black - moist (SM)	100	2 3.0 3.8	3, 7/6" N = 14
-3.8	3.8					
			Silty fine sand - brown - medium dense - wet (SM)	67	2A 3.8 5.0	11/6" N = 22*
				85	3 5.0 7.0	3, 5, 6, 6 N = 11
				65	4 7.5 9.5	4, 5, 5, 5 N = 10
-10.0	10.0					
			Silt, trace fine sand, trace to little clay - brown - loose - wet (ML)	70	5 10.0 12.0	3, 2, 2, 3 N = 4
				80	6 12.5 14.5	2, 3, 2, 2 N = 5

DRILLING LOG (Cont Sheet)

ELEVATION TOP OF HOLE: 0.0

Hole No. CI-4-10

PROJECT: Cat Island Access Roads

INSTALLATION: Detroit District

SHEET 2 OF 2 SHEETS

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV-ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth weathering, etc., if significant) g
			Silt, trace fine sand, trace to little clay - brown - loose - wet (ML) *(continued)*	100	7 15.0 16.0	2, 2/6" N = 4*
-16.0	16.0					
			Silty clay, trace thin silt seams - brown - very soft (CL)	40	7A 16.0 17.0	1/12" N = 1 Qp < 0.25 tsf
				100	8 17.5 19.5	WOH/24" N = 0 Qp < 0.25 tsf
-21.0	21.0					
			Clayey silt, trace fine sand - brown - stiff - wet (CL-ML)			
				66	9 22.5 24.5	Shelby Tube Qp = 1.0 tsf SPT Sampling with 140 lb. Hammer 30" of Fall 2" O.D. Split Spoon Sampler
-24.5	24.5					
			End of boring at 24.5 feet below ground surface. Boring backfilled with bentonite hole plug and asphalt patching material. Boring advanced to 5.0 feet deep with solid stem augers. HW casing driven to 3.5 feet. Boring advanced from 3.0 to 22.5 feet with 2-7/8" rock bit and drilling fluid. *: SPT-N value estimated from 6-inches of penetration.			

DRILLING LOG

DIVISION: ACOE

INSTALLATION: Detroit District

SHEET 1 OF 2 SHEETS

1. PROJECT: Cat Island Access Roads
2. LOCATION (Coordinates or Station): Green Bay, WI N 281,331.0 E 2,485,546.0
3. DRILLING AGENCY: Subsurface Exploration Services
4. HOLE NO. (As shown on drawing title and file number): CI-5-10
5. NAME OF DRILLER: John Carlson
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED ___ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN:
8. DEPTH DRILLED INTO ROCK:
9. TOTAL DEPTH OF HOLE: 19.5
10. SIZE AND TYPE OF BIT: 2 - 7/8" Rock Bit
11. DATUM FOR ELEVATION SHOWN (TBM or MSL): IGLD 85 (vertical) NAD 83 (horizontal)
12. MANUFACTURER'S DESIGNATION OF DRILL: CME-850
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 7; UNDISTURBED 2
14. TOTAL NUMBER CORE BOXES:
15. ELEVATION GROUND WATER: -1.4
16. DATE HOLE: STARTED 12/21/2010; COMPLETED 12/21/2010
17. ELEVATION TOP OF HOLE: 0.0
18. TOTAL CORE RECOVERY FOR BORING: %
19. ENGINEER: Tim Tomlanovich

ELEVATION (a)	DEPTH (b)	LEGEND (c)	CLASSIFICATION OF MATERIALS (Description) (d)	% CORE RECOVERY (e)	BOX OR SAMPLE NO. (f)	REMARKS (Drilling time, water loss, depth weathering, etc., if significant) (g)
0.0	0.0		Silty sand, trace roots - brown - very loose - moist (SM)	100	1 0.0 0.5	1/6" N = 2*
-0.5	0.5		Silty sand, some organics, trace to little roots, trace peat - black - very loose - moist to wet (SM)	60	1A 0.5 2.0	1/12", 1 N = 1
-2.4	2.4			100	2 2.0 2.4	3/6" N = 6*
			Silty fine sand, trace roots - brown - loose - wet (SM)	56	2A 2.4 4.0	4, 4, 4 N = 8
				45	3 4.0 6.0	1, 2, 2, 4 N = 4
-6.0	6.0					
			Silt, trace to little fine sand, trace clay - brown - very loose to loose - wet (ML)	87	4 6.0 7.5	2, 2/12" N = 2
				80	5 7.5 9.5	1, 2, 3, 4 N = 5
-10.8	10.8			100	6 10.0 10.8	3, 3/6" N = 6*
			Silty clay, trace fine gravel, trace to little fine sand, trace higher plasticity clay layers, ocassional silt seams - brown - very stiff to medium (CL-CH)	92	6A 10.8 12.0	3, 5 N = 8 Qp = 2.0-2.5 tsf
			End of boring at 19.5 feet below ground surface. Boring backfilled with bentonite hole plug and asphalt patching material.			
				85	7 12.5 14.5	2, 3, 6, 7 N = 9 Qp = 2.0-2.5 tsf
			Boring advanced to 2.0 feet deep with solid stem augers. HW casing driven to 13.5 feet. Boring advanced from 2.0 to 17.5 feet with 2-7/8" rock bit and drilling fluid.			
			*: SPT-N value estimated from 6-inches of penetration.			

DRILLING LOG (Cont Sheet) | ELEVATION TOP OF HOLE 0.0 | Hole No. CI-5-10

PROJECT: Cat Island Access Roads | INSTALLATION: Detroit District | SHEET 2 OF 2 SHEETS

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV-ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth weathering, etc., if significant) g
			Silty clay, trace fine gravel, trace to little fine sand, trace higher plasticity clay layers, ocassional silt seams - brown - very stiff to medium (CL-CH)	85	8 15.0 17.0	Shelby Tube Qp = 2.25-2.5 tsf
			End of boring at 19.5 feet below ground surface. Boring backfilled with bentonite hole plug and asphalt patching material.			
			Boring advanced to 2.0 feet deep with solid stem augers. HW casing driven to 13.5 feet. Boring advanced from 2.0 to 17.5 feet with 2-7/8" rock bit and drilling fluid.	100	9 17.5 19.5	Shelby Tube Qp = 0.5-2.0 tsf SPT Sampling with 140 lb. Hammer 30" of Fall 2" O.D. Split Spoon Sampler
-19.5	19.5		*: SPT-N value estimated from 6-inches of penetration. *(continued)*			

SECTION TABLE OF CONTENTS

DIVISION 02 - EXISTING CONDITIONS

SECTION 02 63 00

PIPE CULVERTS

-- End of Section Table of Contents --

SECTION 02 63 00

PIPE CULVERTS

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM C 76	(1997) Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe
ASTM C 443	(1994) Joints for Circular Concrete Sewer and Culvert Pipe, Using Rubber Gaskets
ASTM C 425	(2004; R 2009) Standard Specification for Compression Joints for Vitrified Clay Pipe and Fittings
ASTM D 1056	(2007) Standard Specification for Flexible Cellular Materials - Sponge or Expanded Rubber
ASTM D 1171	(1999; R 2007) Rubber Deterioration - Surface Ozone Cracking Outdoors or Chamber (Triangular Specimens)

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)

AASHTO M 198	(2008) Standard Specification for Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only or as otherwise designated. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government.

SD-07 Certificates

Placing Pipe.

Printed copies of the manufacturer's recommendations for installation procedures of the material being placed, prior to installation.

Pipeline Testing. Hydrostatic Test on Watertight Joints. Determination of Density.

Certified copies of test reports demonstrating conformance to applicable pipe specifications, before pipe is installed.

1.3 DELIVERY, STORAGE, AND HANDLING

1.3.1 Delivery and Storage

Materials delivered to site shall be inspected for damage, unloaded, and stored with a minimum of handling. Materials shall not be stored directly on the ground. The inside of pipes and fittings shall be kept free of dirt and debris. The Contractor shall have a copy of the manufacturer's instructions available at the construction site at all times and shall follow these instructions unless directed otherwise by the Contracting Officer. Solvents in use shall be discarded when the recommended pot life is exceeded.

1.3.2 Handling

Materials shall be handled in a manner that ensures delivery to the trench in sound, undamaged condition. Pipe shall be carried to the trench, not dragged.

PART 2 PRODUCTS

2.1 PIPE FOR CULVERTS

Pipe for culverts shall be of the sizes indicated and shall conform to the requirements specified.

2.1.1 Concrete Pipe

ASTM C 76, Class III for 24" RCP and Class II for 84" RCP.

2.2 MISCELLANEOUS MATERIALS

2.2.1 Joints

2.2.1.1 Flexible Watertight Joints

a. Materials: Flexible watertight joints shall be made with plastic or rubber-type gaskets for concrete pipe The design of joints and the physical requirements for plastic gaskets shall conform to AASHTO M 198, and rubber-type gaskets shall conform to ASTM C 443. Factory-fabricated resilient joint materials shall conform to ASTM C 425. Gaskets shall have not more than one factory-fabricated splice, except that two factory-fabricated splices of the rubber-type gasket are permitted if the nominal diameter of the pipe being gasketed exceeds 54 inches.

b. Test Requirements: Watertight joints shall be tested and shall meet test requirements of paragraph HYDROSTATIC TEST ON WATERTIGHT JOINTS. Rubber gaskets shall comply with the standard gasket requirements of ASTM C 443, ASTM C1619C and ASTM C1619E. Certified copies of test results shall be delivered to the Contracting Officer before gaskets or jointing materials are installed. Alternate types of watertight joint may be furnished, if specifically approved.

2.2.1.2 Flexible Watertight, Gasketed Joints

a. Gaskets: When infiltration or exfiltration is a concern for pipe lines, the couplings may be required to have gaskets. The closed-cell expanded rubber gaskets shall be a continuous band approximately 7 inches wide and approximately 3/8 inch thick, meeting the requirements of ASTM D 1056, Type 2 A1, and shall have a quality retention rating of not less than 70 percent when tested for weather resistance by ozone chamber exposure, Method B of ASTM D 1171. Rubber O-ring gaskets shall be 13/16 inch in diameter for pipe diameters of 36 inches or smaller and 7/8 inch in diameter for larger pipe having 1/2 inch deep end corrugation. Rubber O-ring gaskets shall be 1-3/8 inches in diameter for pipe having 1 inch deep end corrugations. O-rings shall meet the requirements of AASHTO M 198 or ASTM C 443. Flexible plastic gaskets shall conform to requirements of AASHTO M 198, Type B.

PART 3 EXECUTION

3.1 EXCAVATION FOR PIPE CULVERTS

Excavation of trenches and backfilling for culverts shall be in accordance with the requirements specified below.

3.2 BEDDING

The bedding surface for the pipe shall provide a firm foundation of uniform density throughout the entire length of the pipe. Bedding for the 24" and 84" RCP's shall be Type III as defined in American Concrete Pipe Association Design Data.

3.3 PLACING PIPE

Each pipe shall be thoroughly examined before being laid; defective or damaged pipe shall not be used. Pipelines shall be laid to the grades and alignment indicated. Proper facilities shall be provided for lowering sections of pipe into trenches. Pipe shall not be laid when trench conditions or weather are unsuitable for such work.

3.4 JOINTING

3.4.1 Concrete

3.4.1.1 Plastic Sealing Compound Joints for Tongue-and-Grooved Pipe

Sealing compounds shall follow the recommendation of the particular manufacturer in regard to special installation requirements. Surfaces to receive lubricants, primers, or adhesives shall be dry and clean. Sealing compounds shall be affixed to the pipe not more than 3 hours prior to installation of the pipe, and shall be protected from the sun, blowing dust, and other deleterious agents at all times. Sealing compounds shall be inspected before installation of the pipe, and any loose or improperly affixed sealing compound shall be removed and replaced. The pipe shall be aligned with the previously installed pipe, and the joint pulled together. If, while making the joint with mastic-type sealant, a slight protrusion of the material is not visible along the entire inner and outer circumference of the joint when the joint is pulled up, the pipe shall be removed and the joint remade. After the joint is made, all inner protrusions shall be cut off flush with the inner surface of the pipe. If nonmastic-type sealant

material is used, the "Squeeze-Out" requirement above will be waived.

3.4.1.2 Flexible Watertight Joints

Gaskets and jointing materials shall be as recommended by the particular manufacturer in regard to use of lubricants, cements, adhesives, and other special installation requirements. Surfaces to receive lubricants, cements, or adhesives shall be clean and dry. Gaskets and jointing materials shall be affixed to the pipe not more than 24 hours prior to the installation of the pipe, and shall be protected from the sun, blowing dust, and other deleterious agents at all times. Gaskets and jointing materials shall be inspected before installing the pipe; any loose or improperly affixed gaskets and jointing materials shall be removed and replaced. The pipe shall be aligned with the previously installed pipe, and the joint pushed home. If, while the joint is being made the gasket becomes visibly dislocated the pipe shall be removed and the joint remade.

-- End of Section --

SECTION TABLE OF CONTENTS

DIVISION 31 - EARTHWORK

SECTION 31 05 22

GEOTEXTILES USED AS FILTERS

-- End of Section Table of Contents --

SECTION 31 05 22

GEOTEXTILES USED AS FILTERS

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM D 123	(2007) Terminology Relating to Textiles
ASTM D 4355	(2007) Deterioration of Geotextiles from Exposure to Light, Moisture and Heat in a Xenon-Arc Type Apparatus
ASTM D 4491	(1999a; R 2004e1) Water Permeability of Geotextiles by Permittivity
ASTM D 4533	(2004) Trapezoid Tearing Strength of Geotextiles
ASTM D 4632	(1991; R 2003) Grab Breaking Load and Elongation of Geotextiles
ASTM D 4751	(2004) Determining Apparent Opening Size of a Geotextile
ASTM D 4833	(2000e1) Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products
ASTM D 4873	(2002) Identification, Storage, and Handling of Geosynthetic Rolls and Samples
ASTM D 4884	(1996; R 2003) Strength of Sewn or Thermally Bonded Seams of Geotextiles

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 1110-2-1601	(1994; Change 1) Hydraulic Design of Flood Control Channels

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-04 Samples

Geotextile

Submit geotextile samples for product being used to determine compliance with the requirements in this specification. Submit samples a minimum of 60 days prior to the beginning of installation of the same textile. Upon delivery of the geotextile, submit duplicate copies of the written certificate of compliance signed by a legally authorized official of the manufacturer. The certificate shall state that the geotextile shipped to the site meets the chemical requirements and exceeds the minimum average roll value listed in TABLE 1, MINIMUM PHYSICAL REQUIREMENTS FOR DRAINAGE GEOTEXTILE. Upon request, supply quality control and quality assurance tests for the geotextile. All samples provided shall be from the same production lot as will be supplied for the contract, and shall be the full manufactured width of the geotextile by at least 10 feet long, except that samples for seam strength may be a full width sample folded over and the edges stitched for a length of at least 5 feet. Samples submitted for testing shall be identified by manufacturers lot designation. For needle punched geotextile, the manufacturer shall certify that the geotextile has been inspected using permanent on-line metal detectors and does not contain any needles.

SD-07 Certificates

Geotextile

Submit the manufacturer's certification of the geotextile material.

1.3 SHIPMENT, HANDLING, AND STORAGE

1.3.1 Shipment and Storage

Only approved geotextile rolls shall be delivered to the project site. All geotextile shall be labeled, shipped, stored, and handled in accordance with ASTM D 4873. No hooks, tongs, or other sharp instruments shall be used for handling geotextile.

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Geotextile

2.1.1.1 General

The geotextile shall be a non-woven pervious sheet of plastic yarn as defined by ASTM D 123. The geotextile shall equal or exceed the minimum average roll values listed in TABLE 1, MINIMUM PHYSICAL REQUIREMENTS FOR DRAINAGE GEOTEXTILE. Strength values indicated in the table are for the weaker principal direction.

TABLE 1
MINIMUM PHYSICAL REQUIREMENTS FOR DRAINAGE GEOTEXTILE

TABLE 1
MINIMUM PHYSICAL REQUIREMENTS FOR DRAINAGE GEOTEXTILE

PROPERTY	UNITS	ACCEPTABLE VALUES		TEST METHOD
GRAB STRENGTH	lb	200		ASTM D 4632
SEAM STRENGTH	lb	180		ASTM D 4632
PUNCTURE	lb	80		ASTM D 4833
TRAPEZOID TEAR	lb	50		ASTM D 4533
APPARENT OPENING SIZE	U.S. SIEVE	50		ASTM D 4751
PERMITTIVITY	sec -1	0.1		ASTM D 4491
ULTRAVIOLET DEGRADATION	Percent	50 AT 500 Hrs	50 AT 500 Hrs	ASTM D 4355

2.1.1.2 Geotextile Fiber

Fibers used in the manufacturing of the geotextile shall consist of a long-chain synthetic polymer composed of at least 85 percent by weight of polyolefins, polyesters, or polamides. Stabilizers and/or inhibitors shall be added to the base polymer if necessary to make the filaments resistant to deterioration caused by ultraviolet light and heat exposure. Reclaimed or recycled fibers or polymer shall not be added to the formulation. Geotextile shall be formed into a network such that the filaments or yarns retain dimensional stability relative to each other, including the edges. The edges of the geotextile shall be finished to prevent the outer fiber from pulling away from the geotextile.

2.1.2 Seams

The seams of the geotextile shall be sewn with thread of a material meeting the chemical requirements given above for geotextile yarn or shall be bonded by cementing or by heat. The sheets of geotextile shall be attached at the factory or another approved location, if necessary, to form sections not less than 10 feet wide. Seams shall be tested in accordance with method ASTM D 4884. The strength of the seam shall be not less than 90 percent of the required grab tensile strength of the unaged geotextile in any principal direction.

2.1.3 Securing Geotextile

The geotextile shall be secured to the foundation to prevent movement prior to placement of revetment materials. The Contractor shall use appropriate means to prevent movement such as securing pins, staples, sand bags, and stone. Securing pins shall be inserted through both strips of overlapped geotextile along the line passing through midpoints of the overlap. Securing pins shall be removed as placement of revetment materials are placed to prevent tearing of geotextile or enlarging holes maximum spacing between securing pins depends on the steepness of the embankment slope. The maximum pins spacing shall be equal to or less than the values listed in TABLE 2, MAXIMUM SPACING FOR SECURING PINS. When windy conditions prevail at the construction site, the number of pins should be increased upon the demand of the Contracting Officer. Terminal

ends of the geotextile shall be anchored with key trench or apron at crest, toe of the slope and upstream and downstream limits of installation.

TABLE 2
MAXIMUM SPACING FOR SECURING PINS

EMBANKMENT	SPACING, feet
STEEPER THAN 1V ON 3H	2
1V ON 3H TO 1V ON 4H	3
FLATTER THAN 1V ON 4H	5

2.2 INSPECTIONS, VERIFICATIONS, AND TESTING

2.2.1 Manufacturing and Sampling

Geotextiles and factory seams shall meet the requirements specified in TABLE 1, MINIMUM PHYSICAL REQUIREMENTS FOR DRAINAGE GEOTEXTILE. Conformance testing shall be performed in accordance with the manufacturers approved quality control manual.

2.2.2 Site Verification and Testing

Samples shall be collected at approved locations upon delivery to the site at the request of the Contracting Officer. Samples shall be tested to verify that the geotextile meets the requirements specified in TABLE 1, MINIMUM PHYSICAL REQUIREMENTS FOR DRAINAGE GEOTEXTILE. Samples shall be identified by manufacturers name, type of geotextile, lot number, roll number, and machine direction. Testing shall be performed at an approved laboratory. Test results from the lot under review shall be submitted and approved prior to deployment of that lot of geotextile. Rolls which are sampled shall be immediately rewrapped in their protective covering.

PART 3 EXECUTION

3.1 SURFACE PREPARATION

Surface on which the geotextile will be placed shall be prepared to a relatively smooth surface condition, in accordance with the applicable portion of this specification and shall be free from obstruction, debris, depressions, erosion feature, or vegetation. Any irregularities will be removed so as to insure continuous, intimate contact of the geotextile with all the surface. Any loose material, soft or low density pockets of material, will be removed; erosion features such as rills, gullies etc. must be graded out of the surface before geotextile placement.

3.2 INSTALLATION OF THE GEOTEXTILE

3.2.1 General

The geotextile shall be placed in the manner and at the locations shown. At the time of installation, the geotextile shall be rejected if it has defects, rips, holes, flaws, deterioration or damage incurred during manufacture, transportation or storage.

3.2.2 Placement

The geotextile shall be placed with the long dimension parallel to the centerline of the temporary causeway and laid smooth and free of tension, stress, folds, wrinkles, or creases. The strips shall be placed to provide a minimum width of 12 inches of overlap for each joint above the waterline, and 3 feet below the waterline. The overlaps at the end of strips shall be staggered at least 5 feet. The placement procedure requires that the length of the geotextile be greater than the slope length. The Contractor shall adjust the actual length of the geotextile used based on initial installation experience. Temporary pinning of the geotextile to help hold it in place until the armor stone is placed shall be allowed. The temporary pins shall be removed as the armor stone is placed to relieve high tensile stress which may occur during placement of material on the geotextile. Design protection of armor stone should be in compliance with EM 1110-2-1601. Trimming shall be performed in such a manner that the geotextile shall not be damaged in any way.

3.3 PROTECTION

The geotextile shall be protected at all times during construction from contamination by surface runoff and any geotextile so contaminated shall be removed and replaced with uncontaminated geotextile. Any damage to the geotextile during its installation or during placement of armor stone shall be replaced by the Contractor at no cost to the Government. The work shall be scheduled so that the covering of the geotextile with a layer of the specified material is accomplished within 7 calendar days after placement of the geotextile. Failure to comply shall require replacement of geotextile. The geotextile shall be protected from damage prior to and during the placement of armor stone or other materials. Care should be taken to ensure that the utilized cushioning materials shall not impede the flow of water. Before placement of armor stone or other materials, the Contractor shall demonstrate that the placement technique will not cause damage to the geotextile. In no case shall any type of equipment be allowed on the unprotected geotextile.

3.4 OVERLAPPING AND SEAMING

3.4.1 Overlapping

The overlap of geotextile rolls shall be minimum 12 inches above the water line and 36 inches minimum below water line. Appropriate measures will be taken to insure required overlap exists after cushion placement.

3.4.2 Sewn Seams

High strength thread should be used such that seam test should conform to ASTM D 4884. The thread shall meet the chemical, ultraviolet, and physical requirements of the geotextile, and the color shall be different from that of the geotextile. The seam strength shall be equal to the strength required for the geotextile in the direction across the seam. Overlapping J-type seams are preferable over prayer-type seams as the overlapping geotextile reduces the chance of openings to occur at the seam. Double sewing shall be used specially for field seams to provide a safety factor against undetected missed stitches.

-- End of Section --

SECTION TABLE OF CONTENTS

DIVISION 35 - WATERWAY AND MARINE CONSTRUCTION

SECTION 35 31 19.45 03

STONE MATERIALS (GOVERNMENT FURNISHED)

-- End of Section Table of Contents --

SECTION 35 31 19.45 03

STONE MATERIALS (GOVERNMENT FURNISHED)

PART 1 GENERAL

1.1 SCOPE

This Section covers stone materials and submittals for Government approval or information, and quality control tasks as they relate to production of stone for the project.

1.2 REFERENCES

The following publications of the issues listed below, but referred to thereafter by basic designation only, form a part of this specification to the extent indicated by reference thereto:

ASTM INTERNATIONAL (ASTM)

ASTM C 42/C 42M	(2004) Obtaining and Testing Drilled Cores and Sawed Beams of Concrete
ASTM C 127	(2004) Density, Relative Density (Specific Gravity), and Absorption of Coarse Aggregate
ASTM C 295	(2003) Petrographic Examination of Aggregates for Concrete
ASTM C 535	(2003e1) Resistance to Degradation of Large-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
ASTM C 88	(2005) Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
ASTM D 4992	(1994; R 2001) Evaluation of Rock to be Used for Erosion Control
ASTM D 5312	(2004) Evaluation of Durability of Rock for Erosion Control Under Freezing and Thawing Conditions
ASTM D 5313	(2004) Evaluation of Durability of Rock for Erosion Control Under Wetting and Drying Conditions

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

PART 2 PRODUCTS

2.1 STONE MATERIALS

2.1.1 General

The materials to be furnished by the Government shall meet all requirements specified in this Section of the specification. If any stockpiled Government furnished stone materials appear unacceptable to meet these requirements, they shall not be loaded and transported to the project site. The COR shall be promptly notified of any unacceptable materials at the quarries. The contractor shall make arrangements for loading of the Government furnished stone into trucks with the supplier/sources stated in SECTION 35 31 19.45 03 paragraph 2.1.2 Material Sources & Quantities of the specifications. The contractor shall include all costs for loading stone in their unit bid prices, including those required by the supplier/source.

2.1.2 Material Sources & Quantities

Armor Stone Source:
Anderson Bros & Johnson's, Hayton Quarry, W 1478 Lime Kiln Road, Chilton, WI 53014

Armor Stone Quantities:
Armor stone will be available at the maximum rate of 12,000 tons/month during the period from 17 April to 15 November. If the Contractor would like to place more material than the above quantity, the Contractor shall coordinate this request with the Government. The Government does not guarantee the availability of additional quantity above the 12,000 tons/month above stated quantity.

Core Stone Source:
Michels Materials, Chase Quarry #133, 1456 Yurek Rd., Pulaski, WI 54162

Core Stone Quantities:
Core stone will be available at the maximum rate of 22,000 tons/month during the period from 17 April to 15 November. If the Contractor would like to place more material than the above quantity, the Contractor shall coordinate this request with the Government. The Government does not guarantee the availability of additional quantity above the 22,000 tons/month above stated quantity.

Gravel Source:
Michels Materials, Chase Quarry #133, 1456 Yurek Rd., Pulaski, WI 54162

Gravel Quantities:
Gravel will be available at the maximum rate of 3,000 tons/month during the period from 17 April to 15 November. If the Contractor would like to place more material than the above quantity, the Contractor shall coordinate this request with the Government. The Government does not guarantee the availability of additional quantity above the 3,000 tons/month above stated quantity.

2.1.3 Material Quality

2.1.3.1 General

All stone materials shall be of a quality to insure permanence of the structure in the climate in which it is to be used. The stone shall be durable, sound, and free of features, which may tend to increase deterioration from natural causes or breakage during handling, transportation, or placement. These features may include, but are not limited to fractures, seams, vugs, bedding, stylolites, planes of separation, weathering, argillaceous material, and micaceous minerals. Stone exhibiting vugs totaling not more than five (5) percent of the total surface area of any face and less than 4-inches in maximum diameter, provided that they are not aligned along bedding planes or planes of weakness will be acceptable, other provisions of this specification withstanding. All stone shall be highly resistant to weathering and disintegration under freeze / thaw and wetting / drying conditions.

2.1.3.2 Acceptability of Stone Materials

Acceptability of stone material will be based on the criteria in this Section and as determined by the COR by visual inspections. All off-site materials shall meet the minimum quality requirements listed in Table 1 below, based on field examination and applicable laboratory testing. Laboratory results shall be representative of the same lithologic unit as the corresponding stones or materials. Laboratory test results shall be from a Government or Government-approved laboratory, and shall be less than 5 years old at the time of submittal, unless otherwise accepted by the COR. Field and Laboratory tests to which the material may be subjected are listed in the paragraph titled REFERENCES. The COR may waive the requirement for laboratory testing of stone, based on the results of visual inspections and service records in projects similar to this project.

TABLE 1
Criteria for Stone Quality

Test	Test Method	Acceptance Criteria
Specific Gravity	ASTM C 127	2.5 - 3.0
Absorption	ASTM C 127	< 1.5 percent
Los Angeles Abrasion	ASTM C 535	< 35 percent loss after 500 revs.
Sodium Sulfate Soundness	ASTM C 88	< 5 percent loss after 5 cycles
Freeze-Thaw	ASTM D 5312	< 3 percent loss after 35 cycles
Wetting-Drying	ASTM D 5313	< 3 percent loss after 80 cycles
Petrographic Examination	ASTM C 295	No deleterious materials or features allowed

Field Examination	ASTM D 4992	No deleterious materials or features allowed
Compressive Strength	ASTM C 42/C 42M	Minimum 3000 psi

2.1.4 Curing Stone

The Government supplier shall conduct curing operations on freshly quarried armor stone to allow it to release stored energy and moisture and to allow the stone to demonstrate that the stone will not fracture during the energy release and drying out phase. Armor stone shall be temporarily stockpiled in a single layer at the quarry site for a minimum of 30 consecutive calendar days without any occurrence of 32 degrees Fahrenheit or below before being inspected from all sides and approved for shipping to the project site. Daily record of minimum temperature in the quarry shall be maintained during the curing period for all stones.

2.1.5 Curing Stone Quarried In Freezing Weather

Armor stone quarried between 16 September and 14 April North of the 43rd parallel and between 2 October and 14 April South of the 43rd parallel will not be inspected and approved for use in the project until after it has cured at the quarry for at least 30 consecutive calendar days without any occurrences of 32 degrees F or less at the quarry or 15 May, whichever is earlier.

2.2 STONE GRADATIONS

2.2.1 Gradations

Material having the gradations listed below shall be placed as indicated in Section 35 31 19 and on the contract drawings. Gradation limits are in place requirements. Adjustments in production and placing methods shall be made as necessary to assure final placed materials are within specified ranges.

2.2.1.1 Armor Stone

The stones Government furnished for Armor stone shall be a minimum of 16 inches each and a maximum of 32 inches each and shall be free of fines. At least 75% of the stone shall be greater than 24 inches. The stone shall conform to the Material Quality requirements of this section, as well as those in Table 1. The greatest dimension of armor stone in no case shall be more than three times the least dimension and preferably the pieces shall be as nearly cubical as practicable. Light, thin or shaly stone will not be accepted. The inclusion of objectionable quantities of dirt, sand, clay and rock fines will not be permitted. At least 10 calendar days in advance of shipment of stone to the work site the Government supplier shall submit a copy of the Stone Gradation Test results for Government approval. Gradation testing by the COR, with a 20 stone minimum sample size, shall occur for every 10,000 tons produced.

2.2.1.2 Core Stone

The Government furnished Core stone shall be well graded 6" minus Breaker Run quarried stone meeting WIDOT 2011 Standard Specifications, Section 301, part 301.2.2 to achieve a dense mass fill. At least 10 calendar days in advance of shipment of core stone to the work site the Government supplier shall submit a copy of gradation test results for Government approval. Visual gradation inspection by the COR shall occur for every 10,000 tons produced.

2.2.1.3 Gravel

Gravel shall meet the following gradation:

Gravel

Sieve Size	% Passing
1 1/4 "	95-100%
3/4"	70-93%
3/8"	45-80%
No. 4	30-63%
No. 10	20-48%
No. 40	8-28%

2.3 PRODUCTION QUALITY CONTROL

2.3.1 Quality Assurance

During the contract period, both prior to and after material are delivered to the job site/storage site, visual inspections and measurements of the stone materials may be performed by the COR. If the COR, during the inspections, finds that the stone quality, gradation or weights of stone being furnished are not as specified or are questionable, re-sampling and retesting by the Government supplier will be required. Sampling and the manner in which the testing of the delivered stones/stockpiled stone at the source for shipment is to be performed, shall be directed by the COR. The final acceptability of the stone will depend on meeting the requirements for visual inspection, as stated in the specifications. Any material rejected shall be removed or disposed of by the Government supplier as specified or directed by the COR.

PART 3 EXECUTION

Refer to Section 35 31 19 STONE PLACEMENT AND CONSTRUCTION.

-- End of Section --

SECTION TABLE OF CONTENTS

DIVISION 35 - WATERWAY AND MARINE CONSTRUCTION

SECTION 35 31 19

STONE PLACEMENT AND CONSTRUCTION

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SECTION 35 31 19

STONE PLACEMENT AND CONSTRUCTION

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY (NIST)

NIST HB 44	(2007) NIST Handbook 44: Specifications, Tolerances, and other Technical Requirements for Weighing and Measuring Devices

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only or as otherwise designated. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

1.3 UNIT PRICES

1.3.1 Armor, Core and Gravel Stone

1.3.1.1 Measurement

Armor, Core and Gravel stone will be measured for payment by the ton as determined by weighing the truckload on approved scales meeting the requirements of paragraph TRUCKLOAD. Armor, Core and Gravel stone will be measured for Quality Assurance purposes by the ton as determined by weighing the truckload on approved scales at the quarry.

a. Truckload. Each truck load will be weighed to the nearest 0.1 ton and the final quantity rounded to the nearest whole ton. Armor, Core and Gravel stone will be measured for payment by weighing on approved scales before being placed in the work. Scales shall be of sufficient length to permit simultaneous weighing of all axle loads and shall have an accuracy within 0.2 percent throughout the range of the scales. The scale's accuracy shall conform to the applicable requirements of NIST HB 44 and shall have a Weight Scale Certification by an inspector of the State Inspection Bureau charged with scales inspection within the state in which the project is located prior to weighing any Armor, Core and Gravel stone. The scales shall be located at the construction

site of work. The scales shall be capable of printing a weight ticket including time, date, truck number, and weight. The Contractor shall furnish the scales and shall weigh the Armor, Core and Gravel stone in the presence of the COR or the COR's designated representative, who will certify the correctness thereof. The COR may elect to accept certified weight scale tickets furnished by a public weighmaster in lieu of scale weights at the jobsite. Scales will be checked and certified before hauling Armor, Core and Gravel stone and after each 50,000 tons increment of Armor, Core and Gravel and stone weighed under this contract.

c. Stockpiled Armor, Core and Gravel stone. If the Contractor elects to stockpile Armor, Core and Gravel stone on the worksite or offsite, the Armor, Core and Gravel stone shall be weighed immediately before placement by the method described above. Armor, Core and Gravel stone placed in temporary storage on the worksite as specified in paragraph 3.1.1 Stone Stockpile will not be required to be re-weighed prior to placement.

(1) Determination of Excess Stone. All stone outside the limits and tolerances of the cross sections of the structure, except variations so minor as not to be measurable, will be deducted from the quantity of new stone for which payment is to be made. Weight of excess stone will be determined from the cross sections obtained by the method provided for in paragraph FINAL SURVEYS, on the basis that the cubic feet of volume (including voids) for each type of stone, as listed in the Table in paragraph FACTORS USED FOR CONVERTING IN PLACE VOLUME TO WEIGHT, is equal to one ton or 2,000 pounds for the bulk specific gravity and percentage of voids shown. Should any excess stone be disclosed above the tolerance line as defined in paragraph CONSTRUCTION TOLERANCES, its volume will be computed by the average end area method, based upon the cross section in the following manner. The average end area of excess stone above the tolerance line for two (2) successive cross sections, multiplied by the distance between the cross sections will be accepted as the volume. The Contractor will not be required to remove such excess stone and deductions for the weights thereof will be made from contract payments for new stone. In addition to the above, stone, which has been delivered to the site and has been lost or wasted or otherwise not properly incorporated into the final required work, shall be deducted from the quantity for which payment is to be made.

(2) Final Surveys. Survey work and measurements required for determination of excess volume computations for stone materials shall be performed by the Contractor in the presence of the COR. The Contractor shall notify the COR not less than 3 days in advance of each survey. In the event of unavailability of the COR, the Contractor shall perform the survey and certify to the COR that it complies with the specifications. Cross section surveys shall be taken perpendicular to the axis of the structures. Elevations and soundings shall be taken on lines 25 feet apart measuring along the structure reference line, with the readings at 5-foot intervals and at breaks in the grade along the line. Other survey intervals and readings may be used if deemed appropriate or advisable by the Government's on-site representative. Additional cross sections, elevations, and soundings may be taken if determined necessary by the Government's on-site representative. Determination of quantities will be made

by the Government's on-site representative and having once been made, will not reopen, except on evidence of collusion, fraud or obvious error. Prior to performing any work under this Section, the Contractor shall coordinate all operations with the Government's on-site representative so that excess volume surveys will be made at the appropriate time. Stone quantity computations shall be based entirely upon weights of new stone as determined from carrier displacement or certified scale weight tickets. Existing stone placed in lieu of new stone from off-site sources is excluded from measurement and payment.

1.4 CONSTRUCTION TOLERANCES

The finished surface and stone layer thickness shall not deviate from the lines and grades shown by more than the tolerances listed below. Tolerances are measured perpendicular to the indicated neatlines. Extreme limits of the tolerances given shall not be continuous in any direction for more than five (5) times the nominal stone dimension nor for an area greater than 200 square feet of the structure surface.

NEATLINE TOLERANCES

MATERIAL	ABOVE NEATLINE inches	BELOW NEATLINE inches
Core Stone	+ 6	- 3
Armor Stone Slopes	+ 12	- 6
Armor Stone Crest	+ 6	0

The intention is that the work shall be built generally to the required elevations, slope and grade and that the outer surfaces shall be even and present a neat appearance. Placed material not meeting these limits shall be removed or reworked as directed by the COR. Payment will not be made for excess material which the COR permits to remain in place.

PART 2 PRODUCTS

Refer to Section 35 31 19.45 03 STONE MATERIALS.

PART 3 EXECUTION

3.1 PLACEMENT OF STONE

3.1.1 Stone Stockpile

Storage of stone at the worksite is not to be confused with off-site stockpiling of stone. If the Contractor elects to provide off-site stockpiling areas, the COR shall be notified by the Contractor of all such areas. The Contractor's stockpile shall be a maximum of 12 feet high and formed by a series of layers of truckload dumps, where the rock essentially remains where it is placed. Subsequent layers shall be started 10 feet from the edge of the previous layer so that the rock will not roll down the edges of the previous layers. The first layer shall be a maximum of 6 feet high. After being stockpiled, any stone which has become contaminated with soil or refuse shall not be put into the work unless the contaminating material has been removed from the stone prior to placement.

3.1.2 Debris

Any timbers, unsatisfactory material and debris within the reaches for construction shall be removed except as otherwise directed by the COR, and upon removal shall become the property of the Contractor. All materials shall be properly disposed of in accordance with the requirements of Section 01 57 20.00 10 ENVIRONMENTAL PROTECTION, including any applicable local requirements.

3.1.3 Armor Stone

Place stone in the locations and at the thickness shown without deviating from the lines and grade shown, including allowance for tolerances. Final shaping of the slope shall be performed concurrently with the initial placement of the stone. Stones shall be randomly selected and set in contact with each other so that the interstices between adjacent stones shall be as small as the character of the stone will permit. Begin placement at the bottom of the slope. The heaviest stones shall be placed as toe stones. Stones shall be placed in a manner to avoid displacing underlying materials or placing undue impact force on underlying material that would cause the breaking of stones. Unless otherwise specified, stone shall not be dropped from a height greater than two feet. The equipment used in placing the stone shall be suitable for handling materials of the sizes required including the ability to place the stone over its final position before release and if necessary pick up and reposition the stone. Dragline buckets and skips shall not be used in placement. Moving stone by drifting or manipulating down the slope will not be permitted. The finished work shall be a well distributed mass, free of pockets of either smaller or larger stone, having a minimum of voids and with total interlocking of stones. It should be anticipated that rehandling of individual stones after initial placement will be required to achieve the above requirements. Stones required to be placed over or adjacent to drains and subsurface pipes shall not be dropped, but gently lowered and placed in their final position by material handling equipment. During winter shutdown months all core stone shall be protected with Armor stone.

3.1.4 Core Stone

Place stone to the lines, grades and thickness shown. The method used in placement shall be such that any soft and organic materials on the lake floor will be displaced outward towards the extreme outside toes of the required sections of the structure and in the direction of the construction. Stone placement shall start at the centerline of the stone structure and extend outward to the toes of the structure in a fashion whereby the line of stone advancement takes an inverted "U" shape. Placement shall be with reasonably systematic care that segregation of particle sizes will not occur. The finished surface of the stone shall be adequately smooth and shall be free of mounds or windrows. Compact core stone with a dozer or other suitable equipment approved by the COR until displacement no longer occurs.

3.1.5 Gravel

Compact gravel with dozer or other suitable equipment approved by the COR until displacement no longer occurs.

3.1.5.1 Gravel Density Testing

Test gravel stone density in accordance with ASTM D 1557 or ASTM D 6938. Perform one density test for every 2000 square feet of gravel. Include density test results in daily report.

3.1.6 Slides

In the event of the sliding or failure of any part of the structure during its construction, or after its completion, but prior to its acceptance, the Contractor shall, upon written order of the COR, cut out and remove the slide from the structure and then rebuild that portion of the structure with new materials or reuse the displaced materials for rebuilding if deemed appropriate. The COR shall determine the nature and cause of the slide. In case the slide is caused through fault of the Contractor, the foregoing operations shall be performed without cost to the Government.

3.1.7 Disposal of Unsuitable Material

The Contractor is responsible for disposing of all unsuitable material generated by this project. Unsuitable material must be disposed of off-site, and in accordance with all applicable Federal, State, and local laws and regulations.

3.2 PLACEMENT CONTROL

3.2.1 Quality Control Measures

The Contractor shall establish and maintain quality control for all work performed at the job site under this section to assure compliance with contract requirements. He shall maintain records of his quality control tests, inspections and corrective actions. Quality control measures shall cover all construction operations including, but not limited to, the placement of all materials to the slope and grade lines shown and in accordance with this section.

-- End of Section --

Operation and Maintenance Manual for Cat Island Chain Restoration, Green Bay, WI

APPENDIX C:

ER No. 1110-2-2902, Prescribed Procedures for the Maintenance and Operation of Shore Protection Works

March 2014

US Army Corps of Engineers
Detroit District

CECW-EH-D Engineer Regulation 1110-2-2902	Department of the Army U.S. Army Corps of Engineers Washington, DC 20314-1000	ER 1110-2-2902 30 June 1989
	Engineering and Design PRESCRIBED PROCEDURES FOR THE MAINTENANCE AND OPERATIONOF SHORE PROTECTION WORKS	
	Distribution Restriction Statement Approved for public release; distribution is unlimited.	

DEPARTMENT OF THE ARMY
U.S. Army Corps of Engineers
Washington, D.C. 20314-1000

ER 1110-2-2902

CEEC-EH-D

Engineer Regulation
No. 1110-2-2902

30 June 1989

Engineering and Design
PRESCRIBED PROCEDURES FOR THE MAINTENANCE AND OPERATION OF SHORE PROTECTION WORKS

1. Purpose. This regulation provides specific performance requirements and guidance for accomplishing the satisfactory maintenance and operation of shore protection works, including coastal structures, beach fill projects, and protective dunes.

2. Applicability. This regulation is applicable to all HQUSACE and field operating activities (FOA) responsible for the planning, design, construction, operation, and maintenance of Civil Works projects on the tidal and Great Lakes shores of the United States, the tidal shores of the Federated States of Micronesia and the Marshall Islands, the Commonwealths of Puerto Rico and Northern Marianas Islands, and the Territories of the United States (U.S. Virgin Islands, Guam, American Somoa). This regulation is applicable for the above purpose to local cooperation agreements (LCA) signed more than 60 days after publication of this regulation in the Federal Register.

3. References.

a. Public Law 79-727, 13 August 1946, as amended

b. Public Law 84-826, 28 July 1956

c. Public Law 87-874, 23October 1962

d. Public Law 89-298, 27 October 1965

e. Public Law 91-611, 31 December 1970

f. Public Law 99-662, 17 November 1986

4. Background. The Federal role in beach erosion control has been defined primarily by Public Law 727, 79th Congress as subsequently amended. The Act provides for Federal assistance in the construction but not the maintenance of work for restoration and protection against wave induced erosion of non-Federal public shores. The law specifies that when the most suitable and economic remedial measure would be provided by periodic beach nourishment, the term "construction" is construed to include the deposit of sand fill at suitable intervals of time. Thus, the Corps, while not responsible for the maintenance of shore protection projects, is involved in the periodic reconstruction or nourishment of many such projects. The Federal participation is conditioned

on non-Federal interest assuring operation, maintenance, replacement, and repair of improvements during the economic life of the project as required to serve the intended purposes. The sponsor of such a project is required to enter into a legally binding agreement with the Secretary of the Army to provide required items of local cooperation and cost sharing (PL 91-611 and PL 99-662).

5. Objective. This regulation prescribes operations, maintenance, inspection, and record keeping procedures required to obtain the intended purposes of shore protection projects.

6. Scope. The Department of the Army will furnish local interest with an operation and maintenance manual for each completed project, or separate useful part thereof, to assist them in carrying out their obligations under these regulations. The efforts prescribed in the following paragraphs should be incorporated into the local operations and maintenance manual and into the planning, design, construction, operation and maintenance, and inspection of all shore protection projects, as applicable.

7. Authority. Section 912(b)(1) of the Water Resources Development Act of 1986 (PL 99-662) amended Section 221 of PL 91-611 to include the following :

"The Secretary may require compliance with any requirements pertaining to cooperation by non-Federal interests in carrying out any water resources project authorized before, on, or after the date of enactment of this Act."

8. Shore protection works; maintenance and operation of structures and facilities.

a. General.

(1) The structures and facilities constructed by or with the financial assistance of the United States for local shore protection and required locally furnished appurtenant facilities shall be maintained and operated in such a manner and for such periods as necessary to obtain the anticipated project benefits.

(2) The agency, which furnished assurances that it will maintain and operate shore protection works in accordance with Federal law, shall appoint a permanent official, hereinafter called the "Superintendent", who shall be directly in charge of an organization responsible for the efficient operation of all of the structures and facilities, and for inspection and maintenance of the project works, all without cost to the United States. The Superintendent may be established from within the existing governmental organization.

(3) The Superintendent will develop a storm emergency plan to cope with storm events greater than the project design storm. The plan should cover measures that minimize the threat to life and damage to property and provide

instructions for an orderly storm recovery effort. Depending on circumstances, it may be desirable to acquire and store certain types of goods, materials, and equipment for evacuation, flood fighting, emergency food, water and sanitary needs, and security.

(4) No other improvement shall be constructed over, under, or through the beach fill or other protective feature, nor shall any excavation or construction be permitted within the limits of the project right-of-way, nor shall any change be made in the project without prior written approval of the District Commander, U.S. Army Corps of Engineers or an authorized representative. Advice regarding the effect of proposed improvements or alterations on the functioning of the project and information concerning methods of construction, acceptable under standard engineering practice, shall be obtained from the District Commander or, if otherwise obtained, shall be submitted for the District Commander's approval. Standard engineering drawings showing such improvements or alterations as finally constructed shall be furnished the District Commander not more than 90 days after completion of the work.

(5) It shall be the duty of the Superintendent to maintain organized records of activities and costs covering maintenance, operation, condition, inspection, repair and replacement of protective works available for the District Commander's or authorized representative's inspection and notation in the Superintendent's offices upon written request.

(6) The District Commander, and authorized representatives, shall have access at all times to all portions of the project.

(7) The Superintendent shall assure that maintenance measures or repairs which the District Commander deems necessary are promptly taken or made. Failure to act within 30 calendar days after receipt of the District Commander's notice may result in the Government completing the work and pursuing a remedy by law as provided in the local agreement contract.

b. Beach berm and foreshore.

(1) Operation. A beach fill project anticipates erosion of the sand directly in front of, or beneath, the beach front development. The rate and extent of erosion depends on the water elevations, storm wave climate, storm durations, and characteristics of the shore material. The level of storm protection obtained will depend on the fill volume in the beach berm and its elevation. During the recreation season, appropriate beach conditions shall be provided to promote and encourage healthful public recreation. The Superintendent should be certain that:

(a) At least one complete survey of profiles (identified in the operations and maintenance manual) is made each year prior to the storm season.

(b) The dry beach width above normal high tide is measured periodically to determine seasonal changes and storm induced sand deficiencies. This is accomplished by direct measurement at predetermined stations along the length of the project and repeated as prescribed in the operation and maintenance manual.

(c) Conditions such as a beach scarp, steepening of the beach face, or the presence of runnels or beach cusps are noted and recorded at each profile during the above surveys.

(d) If the beach berm fails to naturally build back to the minimum cross section within 14 days after the passage of a storm, beach nourishment action is initiated.

(e) No drains discharge onto the beach berm (the intent is to prevent erosion of the beach berm). Health and safety restrictions determine if storm and/or sanitary drains are permitted to discharge into recreational waters.

(f) Sand stockpiles and other resources and equipment required for flood fighting, storm warnings, and evacuations are adequate and maintained in serviceable condition.

(g) Vehicle parking is restricted to parking areas which do not interfere with the function or recreational use of the project.

(2) Maintenance. The Superintendent shall provide such maintenance (excluding periodic nourishment when defined as construction) as is required to insure serviceability of the beach berm and foreshore for erosion control during storms and for recreation during non-storm periods. Measures shall be taken to prevent sand from blowing off the berm onto nearby streets and into gutters and yards. When the berm has narrowed to the point that its protective function is jeopardized, the Superintendent shall initiate action to accomplish maintenance or nourishment of the project. When periodic nourishment is construed as construction for project purposes, such action will be coordinated with the District Commander. Conditions for initiating early nourishment or delaying scheduled nourishment shall be outlined in the operation and maintenance manual. The Superintendent shall insure that:

(a) Prompt action is taken to correct localized, excessive loss or gain of berm cross section beyond that which is allowed in the operations and maintenance manual (this may include grading and reshaping the beach berm in order to move sand from areas of excessive accumulation to areas of depletion); prevent erosion from flanking structures; and placing needed additional sand fill when materials are stockpiled for this purpose.

(b) Devices and/or vegetation used to catch blowing sand are preserved and replaced where needed.

(c) Hazardous conditions are eliminated where possible. Abrupt variations in berm grade are smoothed out and the beach berm and foreshore are kept free of trash and hazardous debris during periods of recreational use. Hazardous conditions which can not be eliminated are clearly marked and isolated from public access to the extent practicable.

c. Protective dune.

(1) Operation. During storm periods, particularly those which are accompanied by abnormal high tides, the storm protection dune may be eroded. The rate and extent of the erosion depends on the height and duration of the storm tide, the beach profile in front of the dune, the extent of vegetative or sand fence stabilization, and characteristics of the material in the dune and berm. The protection provided depends on the volume of material in the dune and its height. To insure satisfactory performance of the storm protection dune, periodic inspections shall be made by the Superintendent to insure maintenance measures are carried out and that:

(a) At least one complete survey of profiles (identified in the operations and maintenance manual) is made each year prior to the storm season.

(b) Post storm surveys are made as required by the operations and maintenance manual.

(c) No action is being taken, such as burning, grazing, or mowing, which is retarding or preventing the growth of vegetation on the dune or promoting erosion on the dune.

(d) No action such as mining of dune sand or degrading the dune is permitted without specific advance written approval of the District Commander.

(e) Encroachments are not made on the dune right-of-way which might hinder its proper functioning during storms or hinder necessary repairs and maintenance.

(f) There is no unauthorized pedestrian or vehicular traffic on the dune and authorized access crossovers are open and safe.

(2) Maintenance. The protective dune (when combined with beach erosion control works) is designed to withstand the project design storm. The protection provided by the dune depends on the crown elevation and the amount and characteristics of sand maintained within the project cross section. Maintenance and repair of the protective dune cross section is a local responsibility. A predetermined minimum cross section must be maintained to obtain the anticipated storm protection benefits. Pedestrian and vehicle traffic on the dune must be limited to the minimum necessary. This requires specific designated crossovers at controlled access points through or over the dune. Areas found to be below minimum grade and which pose a threat to the

integrity of the dune shall be repaired expeditiously and revegetated, if required. The Superintendent will take immediate steps to insure the following maintenance:

(a) Damage to the dune is repaired immediately. Trapping wind blown sand in the dune section by use of devices or, sometimes more effectively, by use of vegetation is appropriate for maintaining the minimum cross section or building a larger cross section.

(b) Designated access walkways and roads over or through the dunes are properly repaired and replaced as needed.

(c) Devices and/or vegetation used to catch blowing sand and stabilize the dune cross section are repaired and replaced as needed.

d. Coastal structures.

(1) Operation. The Superintendent will insure the proper functioning of sand bypass systems, closure structures, and other features requiring operation or adjustment as prescribed in the operations and maintenance manual. The Superintendent shall inspect the structures incorporated into the shore protection project (such as, but not limited to, groins, revetments, seawalls, bulkheads, breakwaters, closure structures, and sand bypassing systems) prior to the storm season, immediately following each major storm, and otherwise at intervals not exceeding 90 days. During such inspections the Superintendent should be certain that:

(a) Post storm condition surveys are made as required by the operations and maintenance manual.

(b) No seepage, saturated areas, piping, or scour are endangering the structure.

(c) No undue settlement has occurred which affects the stability of the structure.

(d) Concrete is not cracking, spalling, or breaking to an extent which might affect the integrity of the structure.

(e) There are no encroachments upon the structure or its right-of-way which might endanger the structure or hinder its function or repair.

(f) Care is being exercised to prevent accumulation of trash and debris adjacent to the structures.

(g) No bank caving, toe scour, or flanking erosion exist which may endanger stability or functioning of the structure.

(h) The drainage systems and mechanical features such as pumps or flood gates are in good working condition.

(i) No excessive loss of materials such as stones or armor units exist that may endanger stability or functioning of the structures.

(j) No floating plant or boats are allowed to lie against or tie up to the structures unless they are designed for such use or it is necessary for repair efforts.

(2) Maintenance. The possibility of one coastal storm closely following another requires that coastal structures, particularly those which provide storm protection, be maintained to the extent practicable in a state of readiness. Measures to eliminate unauthorized encroachments and to effect repairs found necessary by inspection shall be undertaken immediately. All repairs shall be accomplished by methods acceptable to the District Commander or an authorized representative. The Superintendent shall insure the following maintenance is carried out expeditiously:

(a) Causes of seepage, saturated areas, piping, or scour which endanger the stability or functioning of structures are removed.

(b) Areas of undue settlement or material loss are filled.

(c) Cracking, chipping, or breaking of concrete which affects the integrity or functioning of structures is repaired.

(d) Trash and debris adjacent to the structure are removed and disposed of properly.

(e) Bank caving, toe scour, or flanking erosion which endangers structure stability or functioning is remedied.

(f) Drainage systems and mechanical features are repaired or replaced as needed and maintained in working condition.

e. Appurtenant facilities and services. To assure realization of public recreation benefits, certain appurtenant facilities and services are required at local expense, such as: public access, parking areas, and sanitary facilities. The required items are considered self liquidating and therefore not included in the project cost.

(1) Operation. Appurtenant facilities shall be operated to provide safe and healthful public recreation on a nondiscriminatory basis. Facilities should be sized and operated to produce the recreation benefits anticipated for the justification of the project. Those facilities dedicated to support the beach erosion control project shall not be used for conflicting purposes or otherwise diverted without the approval of the District Commander.

(2) Maintenance. The Superintendent shall provide such maintenance as is required to insure safety and serviceability of required public access, parking areas and sanitary facilities during periods of recreational use of the project beach. The facilities shall be inspected 20 to 30 days prior to the recreation season and at least once a month during the recreation season to insure that all required facilities are providing safe, serviceable public use. Proper measures shall be taken to provide for the prompt maintenance or repair of deficiencies noted during such inspections. Violations of public health and building codes shall be treated as evidence of inadequate project maintenance.

9. Compliance. District Commanders shall keep informed as to the extent of compliance with provisions of this regulation and the project Operation and Maintenance Manuals through periodic inspections of the projects, and analysis of project records maintained by the Superintendents. These actions shall be included in the continuing inventory of local cooperation agreements and the status of their performance, transmitted to Congress annually in compliance with Section 221(e) of PL 91-611. The agreements, upon being accepted on behalf of the Secretary of the Army, become enforceable in a court of law. Federal funds are withheld on projects with documented accumulated deficient maintenance. Federal expenditures may be resumed upon correction.

FOR THE COMANDER:

ALBERT J. GENETTI, JR.
Colonel, Corps of Engineers
Chief of Staff

Operation and Maintenance Manual for Cat Island Chain Restoration, Green Bay, WI

APPENDIX D:
RIGHT OF ACCESS

RIGHT OF ACCESS:

Access required to perform future site inspections and to operate, repair, maintain, replace and rehabilitate the construction shall be in accordance with Paragraph b, Article VIII of the Project Cooperation Agreement, Appendix F.

March 2014

US Army Corps of Engineers
Detroit District

Operation and Maintenance Manual for Green Bay DMDF, Cat Island Chains, Brown County, Green Bay, WI

APPENDIX E:
POINTS OF CONTACT

March 2014

US Army Corps of Engineers
Detroit District

Points of Contact
Cat Island Chain Restoration, Green Bay, Wisconsin

Name	Title	Representing	Phone	Email Address
Dean Haen	Port Director	Brown County	920-492-4950	haen_de@co.brown.wi.us
Robert J. Ells LTC	District Engineer	U.S. Army Corps of Engineers	313-226-6762	robert.j.ells@usace.army.mil
Steve Check	Project Manager	U.S. Army Corps of Engineers	313-226-2074	stephen.check@usace.army.mil
Maria Schneider	Office Engineer	U.S. Army Corps of Engineers	920-388-3720	maria.t.schneider@usace.army.mil
Thomas W. O'Bryan	Area Engineer	U.S. Army Corps of Engineers	616-842-5510 x 25523	thomas.w.o'bryan@usace.army.mil
Paul Wiedmeyer	Construction Contractor	Michels Foundations	414-788-6271	pwiedmeyer@michels.us

Operation and Maintenance Manual for Green Bay DMDF, Cat Island Chains, Brown County, Green Bay, Wisconsin

APPENDIX F:
PROJECT PARTNERSHIP AGREEMENT

March 2014

US Army Corps of Engineers
Detroit District

PROJECT PARTNERSHIP AGREEMENT
BETWEEN
THE DEPARTMENT OF THE ARMY
AND
THE COUNTY OF BROWN, WISCONSIN
FOR CONSTRUCTION OF
DREDGED OR EXCAVATED MATERIAL DISPOSAL FACILITY
AT CAT ISLAND FOR DISPOSAL OF MATERIAL FROM THE
EXISTING GENERAL NAVIGATION FEATURES
AT GREEN BAY HARBOR, WISCONSIN

THIS AGREEMENT entered into this __24___ day of __July_____, _2012_, by and between the Department of the Army (hereinafter the "Government") represented by the U.S. Army Engineer, Detroit District and the County of Brown, Wisconsin (hereinafter the "Non-Federal Sponsor"), represented by its County Executive.

WITNESSETH, THAT:

WHEREAS, construction, operation, and maintenance of the general navigation features of the Green Bay Harbor at Green Bay, Wisconsin (hereinafter the "*existing general navigation features*", as defined in Article I.A. of this agreement) was authorized by:

Section 1 of the Act of June 23, 1866, Chapter 138, 39th Congress; Section 1 of the Act of July 5, 1884, Chapter 229, 48th Congress; Section 1 of the Act of July 13, 1892, Chapter 158, 52nd Congress; Section 1 of the Rivers and Harbors Act of 1910, Public Law 61-264 (June 26, 1910); Section 1 of the Rivers and Harbors Act of 1917, Public Law 65-37 (August 8, 1917); Section 1 of the Rivers and Harbors Act of 1925, Public Law 68-585 (March 3, 1925); Section 1 of the Rivers and Harbors Act of 1935, Public Law 74-409 (August 30, 1935); Section 1 of the Rivers and Harbors Act of 1937, Public Law 75-392 (August 26, 1937); Section 2 of the Rivers and Harbors Act of 1945, Public Law 79-14 (March 2, 1945); Section 101 of the Rivers and Harbors Act of 1962, Public Law 87-874 (October 23, 1962); and, Section 3173 of the Water Resources Development Act of 2007, Public Law 110-114 (November 8, 2007);

WHEREAS, the Government and the Non-Federal Sponsor entered into a Local Cooperation Agreement (hereinafter the "Existing Agreement") on November 16, 1977 for construction of the *existing general navigation features*;

WHEREAS, the Government and the Non-Federal Sponsor desire to enter into a Project Partnership Agreement (hereinafter the "Agreement") for construction of a *dredged or excavated material disposal facility* at Cat Island (hereinafter the "*Project*", as defined in Article I.B. of this Agreement) to enable continued operation and maintenance of the *existing general navigation features*;

ORIGINAL

WHEREAS, Section 101 of the Water Resources Development Act of 1986, Public Law 99-662, as amended (33 U.S.C. 2211), specifies the cost-sharing requirements applicable to the *Project*;

WHEREAS, Section 221(a)(4) of the Flood Control Act of 1970, Public Law 91-611, as amended (42 U.S.C. 1962d-5b(a)(4)), authorizes the Secretary of the Army, subject to certain limitations and conditions, to afford credit toward the non-Federal share of the cost of the *Project* for the value of in-kind contributions that the Secretary of the Army determines are integral to the *Project*;

WHEREAS, the Non-Federal Sponsor desires to receive credit toward its required contribution of funds for the *Project* in accordance with the provisions of this Agreement for certain work (hereinafter the "*in kind contributions*" as defined in Article I.T. of this Agreement) that were determined to be integral to the *Project* on May 15, 2012;

WHEREAS, Section 217(a) of the Water Resources Development Act of 1996, Public Law 104-303 (33 U.S.C. 2326a(a)), provides that the Government may provide additional capacity at a *dredged or excavated material disposal facility* constructed by the Government beyond the capacity that would be required for water resources project purposes, if a non-Federal sponsor agrees to pay all costs associated with the construction of the additional capacity;

WHEREAS, Section 221 of the Flood Control Act of 1970, Public Law 91-611, as amended (42 U.S.C. 1962d-5b), and Section 101 of the Water Resources Development Act of 1986, Public Law 99-662, as amended (33 U.S.C. 2211), provide, *inter alia*, that the Secretary of the Army shall not commence construction of any water resources project, or separable element thereof, until each non-Federal interest has entered into a written agreement to furnish its required cooperation for the project or separable element;

WHEREAS, on May 6, 2010, an interagency agreement between the Environmental Protection Agency and the Department of the Army was executed under which the Environmental Protection Agency agreed to transfer funds to the Army Corps of Engineers to carry out projects in support of the Great Lakes Restoration Initiative (hereinafter the "GLRI"), pursuant to the authority provided by Title II, Division A of the Department of Interior, Environment, and Related Agencies Appropriations Act, Public Law 111-88;

WHEREAS, the Assistant Secretary of the Army (Civil Works) has determined that implementation of the *Project* supports the GLRI and that a portion of the funds provided by the Environmental Protection Agency will be used to carry out some of the work on the *Project;*

WHEREAS, the Government and the Non-Federal Sponsor have the full authority and capability to perform as hereinafter set forth and intend to cooperate in cost-sharing and financing of the *Project* in accordance with the terms of this Agreement; and

WHEREAS, the Government and the Non-Federal Sponsor, in connection with this Agreement, desire to foster a "partnering" strategy and a working relationship between the Government and the Non-Federal Sponsor through a mutually developed formal strategy of

commitment and communication embodied herein, which creates an environment where trust and teamwork prevent disputes, foster a cooperative bond between the Government and the Non-Federal Sponsor, and facilitate the successful implementation of the *Project*.

NOW, THEREFORE, the Government and the Non-Federal Sponsor agree as follows:

ARTICLE I - DEFINITIONS AND GENERAL PROVISIONS

A. The term "*existing general navigation features*" shall mean the outer harbor channel, with a total length of approximately 11¼ miles, varying in width inland from 500 to 300 feet and varying in depth inland from 26 to 24 feet; the inner harbor channel, with a total length of approximately 7 miles in the Fox River extending from the mouth upstream to the City of DePere, Wisconsin, at varying channel width and channel depth varing from 24 feet to 18 feet; three turning basins, first, 24 feet deep at the mouth of the East River; second, 20 feet deep upstream of the Chicago & Northwestern Railroad Bridge, and third, 18 feet deep and 75 feet wide at the terminus of the Federal project at the City of De Pere. The term does not include any lands, easements, rights-of-way, *relocations*; *removals*; *betterments*; aids to navigation; or *local service facilities*.

B. The term "*Project*" shall mean the *general navigation features*; all *removals* accomplished in accordance with Article II of this Agreement; and all lands, easements, rights-of-way, and *relocations* that the Government, in accordance with Article III of this Agreement, determines to be necessary for construction or operation and maintenance of the *general navigation features*, but shall not include aids to navigation or *local service facilities*.

C. The term "*general navigation features*" shall mean the approximately 240-acre *dredged or excavated material disposal facilities* at the Cat Islands, Green Bay Harbor, Wisconsin, consisting of three dredged material disposal cells (65 acre West Cell, 81 acre Central Cell and 94 acre East Cell) partially confined by 4.75 miles of eight-foot-high core stone dike with armor stone side slopes with a 12-foot-wide gravel operations and maintenance road on top of the dike and an approximately 4,500 foot-long, 12-foot-wide access road all as generally described in the Phase II Report Dredged Material Management Plan Study and Environmental Assessment, Green Bay Harbor, Wisconsin, dated July, 2011, and approved by the Chief of Operations, Directorate of Civil Works on October 5, 2011. The term includes the *in-kind contributions* described in paragraph T. of this Article. The term does not include any lands, easements, rights-of-way, *relocations*; *removals*; *betterments*; any capacity provided pursuant to II.J.3. of this Agreement; aids to navigation; or *local service facilities*.

D. The term "*period of construction*" shall mean the time from the date that the Government either issues the solicitation for the first construction contract for the *general navigation features* or commences construction of the *general navigation features* using the Government's own forces, whichever is earlier, to the date that construction of the *general navigation features* is complete, as determined by the Government, or the date that this Agreement is terminated in accordance with Article XIII or Article XIV.C. of this Agreement, whichever is earlier.

E. The term "*total costs of construction of the general navigation features*" shall mean all costs incurred by the Non-Federal Sponsor or the Government in accordance with the terms of this Agreement directly related to construction of the *general navigation features*. Subject to the provisions of this Agreement, the term shall include, but is not necessarily limited to: the Government's Preconstruction Engineering and Design costs; the Government's engineering and design costs during construction; the Non-Federal Sponsor's and the Government's costs of investigations to identify the existence and extent of hazardous substances in accordance with Article XIV.A. of this Agreement; the Government's costs of historic preservation activities in accordance with Article XVII.A.1. and Article XVII.C.1. of this Agreement; the Government's actual construction costs (including the costs of alteration, lowering, raising, or replacement and attendant demolition of any *bridge over navigable waters of the United States*); the costs of *in-kind contributions* for which credit will be afforded in accordance with Article II.C.4. of this Agreement; the Government's supervision and administration costs; the Non-Federal Sponsor's and the Government's costs of participation in the Project Coordination Team in accordance with Article V of this Agreement; the Government's costs of contract dispute settlements or awards; incidental costs of *removals* accomplished by the Non-Federal Sponsor in accordance with Article II.I.3. of this Agreement; direct and incidental costs of *removals* accomplished by the Government in accordance with Article II.H. of this Agreement; and costs of audit in accordance with Article X.B. and Article X.C. of this Agreement. The term does not include the value of any lands, easements, rights-of-way, or *relocations*; any costs of *removals* accomplished by the Non-Federal Sponsor other than incidental costs; any financial obligations for operation and maintenance of the *existing general navigation features* or the *general navigation features*; any costs of additional work under Articles II.J.2. and II.J.3. of this Agreement; any costs of dispute resolution under Article VII of this Agreement; any costs of *in-kind contributions* or other construction work on the *Project* performed by the Non-Federal Sponsor, including but not limited to construction of the access road with *Federal program funds*, that were determined in accordance with Article II.C.3. of this Agreement to not be eligible for credit; or the Non-Federal Sponsor's costs of negotiating this Agreement.

F. The term "*financial obligation for construction*" shall mean a financial obligation of the Government and the costs for the *in-kind contributions*, as determined by the Government, that results or would result in a cost that is or would be included in *total costs of construction of the general navigation features*.

G. The term "*non-Federal proportionate share*" shall mean the ratio of the sum of the costs included in *total costs of construction of the general navigation features* for the *in-kind contributions*, as determined by the Government, and the Non-Federal Sponsor's total contribution of funds required by Article II.C.1.b. of this Agreement to total *financial obligations for construction*, as projected by the Government.

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

I. The term "*bridge over navigable waters of the United States*" shall mean a lawful bridge over the navigable waters of the United States, including approaches, fenders, and appurtenances thereto, which is used and operated for the purpose of carrying railroad traffic, or

both railroad and *highway* traffic, or if a state, county, municipality, or other political subdivision is the owner or joint owner thereof, which is used and operated for the purpose of carrying *highway* traffic.

J. The term "*relocation*" shall mean providing a functionally equivalent facility to the owner of a utility, cemetery, *highway*, railroad (including any bridge thereof), or public facility, excluding any *bridge over navigable waters of the United States*, when such action is authorized in accordance with applicable legal principles of just compensation or providing a functionally equivalent facility when such action is specifically provided for, and is identified as a *relocation*, 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 demolition of the affected facility or part thereof.

K. The term "*removal*" shall mean eliminating an obstruction (other than a *bridge over the navigable waters of the United States*) where the Government determines, after consultation with the Non-Federal Sponsor, that: 1) elimination is necessary for construction or operation and maintenance of the *general navigation features*, including the borrowing of material or the disposal of dredged or excavated material associated therewith; and 2) the Non-Federal Sponsor, the State of Wisconsin, or the Government has the legal capability to accomplish elimination of the obstruction at the expense of the owner or operator thereof.

L. The term "*betterment*" shall mean a difference in the engineering and design or construction of an element of the *general navigation features* that results from the application of standards that the Government determines exceed those that the Government would otherwise apply to the engineering and design or construction of that element. The term does not include features in addition to the *general navigation features*, nor does it include capacity provided, pursuant to Article II.J.3. of this Agreement, at any *dredged or excavated material disposal facility* for disposal of dredged or excavated material from outside the *existing general navigation features*.

M. The term "*dredged or excavated material disposal facility*" shall mean improvements necessary on lands, easements, or rights-of-way to enable the disposal of dredged or excavated material associated with operation and maintenance of the *existing general navigation features*. Such improvements may include, but are not necessarily limited to, retaining dikes, wasteweirs, bulkheads, embankments, monitoring features, stilling basins, or de-watering pumps or pipes. The term also includes modifications to a dredged or excavated material disposal facility to increase capacity beyond that created by regularly recurring operation and maintenance activities. Such modifications may include, but are not limited to, major raising of dikes, expansion of the dredged or excavated material disposal facility, or a significant investment in dewatering facilities.

N. The term "*over-depth*" shall mean additional dimensions associated with a given depth that are required to accomplish advanced maintenance, if any, and to compensate for dredging inaccuracies at that depth.

O. The term "*utility*" shall mean that which is defined as a public utility pursuant to generally applicable law of the State of Wisconsin.

P. The term "*Federal program funds*" shall mean funds provided by a Federal agency, other than the Department of the Army, plus any non-Federal contribution required as a matching share therefor.

Q. The term "*fiscal year*" shall mean one year of the Government beginning on October 1 and ending on September 30.

R. The term "*local service facilities*" shall mean those facilities that the Non-Federal Sponsor must construct or operate and maintain to realize the benefits of the *existing general navigation features*.

S. The term "*functional portion of the Project*" shall mean a portion of the *Project* for which construction has been completed and that can function independently, as determined by the District Engineer in writing, although the remainder of the *Project* is not complete.

T. The term "*in-kind contributions*" shall mean approximately 548,000 tons of core stone, and 131,000 tons of armor stone, that will be performed or provided after the effective date of this Agreement, and that were determined to be integral to the *Project* on May 15, 2012.

U. The term "*Non-Federal Sponsor's credit request(s)*" shall mean documentation provided by the Non-Federal Sponsor containing the following: (1) a written certification by the Non-Federal Sponsor to the Government that it has made specified payments to contractors, suppliers, or employees for *in-kind contributions* and the Non-Federal Sponsor's contributions under Article V, Article X.B. and Article XIV.A.1. of this Agreement in accordance with the provisions of this Agreement; (2) copies of all relevant invoices and evidence of such payments; (3) written identification of costs that have been paid with *Federal program funds*; and (4) a written request for credit of a specific amount not in excess of such specified payments.

ARTICLE II - OBLIGATIONS OF THE GOVERNMENT AND THE NON-FEDERAL SPONSOR

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 Non-Federal Sponsor, shall expeditiously construct the *general navigation features* (including alteration, lowering, raising, or replacement and attendant demolition of any *bridge over navigable waters of the United States*), except for the *in-kind contributions*, applying those procedures usually applied to Federal projects, in accordance with Federal laws, regulations, and policies. The Non-Federal Sponsor expeditiously shall provide or perform the *in-kind contributions* in accordance with applicable Federal, State, and local laws, regulations, and policies.

1. The Government shall not issue the solicitation for the first construction contract for the *general navigation features* or commence construction of the *general navigation features* using the Government's own forces until the Non-Federal Sponsor has confirmed in writing its willingness to proceed with the *Project*.

2. The Non-Federal Sponsor shall obtain all permits and licenses necessary for the design and construction of the *in-kind contributions*, and in the exercise of its rights and obligations under this Agreement, shall comply with all applicable Federal, State, and local laws, regulations, and policies including the laws and regulations specified in Article X of this Agreement.

3. The Government shall afford the Non-Federal Sponsor the opportunity to review and comment on the solicitations for all Government contracts for construction, and the relevant plans and specifications prior to the Government's issuance of such solicitations. To the extent possible, the Government shall afford the Non-Federal Sponsor the opportunity to review and comment on all proposed contract modifications, including change orders, prior to the issuance to the contractor of a Notice to Proceed. In any instance where providing the Non-Federal Sponsor with notification of a contract modification is not possible prior to execution of the contract modification, the Government shall provide such notification in writing at the earliest date possible. To the extent possible, the Government also shall afford the Non-Federal Sponsor the opportunity to review and comment on all contract claims prior to resolution thereof. In the event the Government performs all or some of the construction for the *Project* using its own forces, the Government shall afford the Non-Federal the opportunity to review and comment on the relevant plans and specifications prior to the commencement of such work using the Government's own forces. The Government shall consider in good faith the comments of the Non-Federal Sponsor, but the contents of solicitations, plans and specifications, award of contracts or commencement of construction using the Government's own forces, execution of contract modifications, resolution of contract claims, and performance of all work on the *general navigation features,* except for the *in-kind contributions*, shall be exclusively within the control of the Government.

4. At the time the District Engineer furnishes the contractor with the Government's Written Notice of Acceptance of Completed Work for each contract for the *general navigation features*, the District Engineer shall furnish the Non-Federal Sponsor with a copy thereof.

5. The Non-Federal Sponsor shall not commence any activities required to provide or perform the *in-kind contributions* until the designs, detailed plans and specifications, and arrangements for the prosecution of such *in-kind contributions* have been approved by the Government. Changes proposed by the Non-Federal Sponsor to approved designs and plans and specifications also must be approved by the Government in advance of the related construction. The Non-Federal Sponsor shall afford the Government the opportunity to review and comment on the solicitations for all contracts and plans and specifications for the *in-kind contributions* including those the Non-Federal Sponsor intends to construct with its own forces, prior to the Non-Federal Sponsor's issuance of such solicitations or commencement of work using the Non-Federal Sponsor's own forces. To the extent possible, the Non-Federal Sponsor

shall afford the Government the opportunity to review and comment on all proposed contract modifications, including change orders. In any instance where providing the Government with notification of a contract modification is not possible prior to execution of the contract modification, the Non-Federal Sponsor shall provide such notification in writing at the earliest date possible. To the extent possible, the Non-Federal Sponsor also shall afford the Government the opportunity to review and comment on all contract claims prior to resolution thereof. The Non-Federal Sponsor shall consider in good faith the comments of the Government but the contents of solicitations, award of contracts, execution of contract modifications, resolution of contract claims, and performance of all work on the *in-kind contributions* shall be exclusively within the control of the Non-Federal Sponsor, except as otherwise required by the provisions of this Agreement, including compliance with applicable Federal, State, and local laws, regulations, and policies. The Non-Federal Sponsor shall include appropriate provisions in its contracts for the design and construction of the *in-kind contributions*, as necessary, to ensure compliance with such laws, regulations, and policies.

6. At the time the Non-Federal Sponsor furnishes a contractor with a notice of acceptance of completed work for each contract awarded by the Non-Federal Sponsor for the *in-kind contributions*, the Non-Federal Sponsor shall furnish a copy thereof to the Government. Upon completion of the *in-kind contributions*, the Non-Federal Sponsor shall furnish to the Government a copy of all final as-built drawings for the construction portion of such work.

B. In accordance with Article III of this Agreement, the Non-Federal Sponsor shall provide all lands, easements, and rights-of-way that the Government determines the Non-Federal Sponsor must provide for construction or operation and maintenance of the *general navigation features*, including the borrowing of material or the disposal of dredged or excavated material associated therewith, and shall perform or ensure performance of all *relocations* that the Government determines to be necessary for construction or operation and maintenance of the *general navigation features*.

C. The Non-Federal Sponsor shall contribute 25 percent of *total costs of construction of the general navigation features* in accordance with the provisions of this paragraph.

1. The Non-Federal Sponsor shall provide a contribution of funds as determined below:

a. If the Government projects at any time that the collective value of the Non-Federal Sponsor's contributions listed in the next sentence will be less than the Non-Federal Sponsor's required share of 25 percent of *total costs of construction of the general navigation features*, the Government shall determine the amount of funds that would be necessary to meet the Non-Federal Sponsor's required share prior to the Government affording credit for the *in-kind contributions* pursuant to paragraph C.4. of this Article. To determine such amount, the Government shall subtract from the Non-Federal Sponsor's required share of 25 percent of *total costs of construction of the general navigation features* the collective value of the following: (a) the value of the Non-Federal Sponsor's contributions under paragraph B. of this Article as determined in accordance with Article IV of this Agreement; and (b) the value of the Non-

Federal Sponsor's contributions under Article V, Article X, and Article XIV.A. of this Agreement.

b. The Non-Federal Sponsor shall provide a contribution of funds in the amount determined by this paragraph in accordance with Article VI.B. of this Agreement. To determine such required contribution of funds, the Government shall reduce the amount determined in accordance with paragraph C.1.a. of this Article by the amount of credit the Government projects will be afforded for the *in-kind contributions* pursuant to paragraph C.4. of this Article.

2. The Government, subject to the availability of funds and as limited by paragraph C.5. of this Article, shall refund or reimburse to the Non-Federal Sponsor any contributions in excess of 25 percent of *total costs of construction of the general navigation features* if the Government determines at any time that the collective value of the following has exceeded 25 percent of *total costs of construction of the general navigation features*: (a) the value of the Non-Federal Sponsor's contributions under paragraph B. of this Article as determined in accordance with Article IV of this Agreement; (b) the Non-Federal Sponsor's contribution of funds required by paragraph C.1.b. of this Article; (c) the amount of credit afforded for the *in-kind contributions* pursuant to paragraph C.4. of this Article; and (d) the value of the Non-Federal Sponsor's contributions under Article V, Article X, and Article XIV.A. of this Agreement.

3. The Government, in accordance with the conditions and limitations of this paragraph, shall determine the amount of the costs for *in-kind contributions* that may be eligible for credit.

a. The Non-Federal Sponsor in a timely manner shall provide the Government with *Non-Federal Sponsor's credit request(s)* and any other documents required by the Government to enable the Government to determine the costs of *in-kind contributions* that may be eligible for credit.

b. The Non-Federal Sponsor's costs for *in-kind contributions* that may be eligible for credit pursuant to this Agreement shall be subject to an audit in accordance with Article X.C. of this Agreement to determine the reasonableness, allocability, and allowability of such costs.

c. The Non-Federal Sponsor's costs for *in-kind contributions* that may be eligible for credit pursuant to this Agreement are not subject to interest charges, nor are they subject to adjustment to reflect changes in price levels between the time the *in-kind contributions* were or are completed and the time the credit is afforded.

d. None of the costs for *in-kind contributions* paid by the Non-Federal Sponsor using *Federal program funds* are eligible for credit pursuant to this Agreement unless the Federal agency providing the Federal portion of such funds verifies in writing that expenditure of such funds for such purpose is authorized.

e. Costs for *in-kind contributions* that are in excess of the Government's estimate of the costs for the Government to have performed or provided such work or materials are not eligible for credit pursuant to this Agreement.

f. Costs for *betterments* or the provision of lands, easements, rights-of-way, and *relocations* are not eligible for credit as *in-kind contributions*.

g. In the performance of the construction portion of the *in-kind contributions*, the Non-Federal Sponsor must comply with applicable Federal labor laws covering non-Federal construction, including, but not limited to, 40 U.S.C. 3141-3148 and 40 U.S.C. 3701-3708 (revising, codifying and enacting without substantive change the provisions of the Davis-Bacon Act (formerly 40 U.S.C. 276a *et seq.*), the Contract Work Hours and Safety Standards Act (formerly 40 U.S.C. 327 *et seq.*), and the Copeland Anti-Kickback Act (formerly 40 U.S.C. 276c)). The Government may determine that costs for the construction portion of the *in-kind contributions*, in whole or in part, are not be eligible for credit pursuant to this Agreement, as a result of the Non-Federal Sponsor's failure to comply with its obligations under these laws.

h. Costs for *in-kind contributions* are not eligible for credit pursuant to this Agreement unless the Government determines through a review or on-site inspection, as applicable, performed by the Government that the work was accomplished in a satisfactory manner and in accordance with the applicable permits and the plans and specifications approved by the Government and the provisions of this Agreement.

i. No costs for *in-kind contributions* performed prior to compliance with all applicable environmental laws and regulations covering such work, including, but not limited to NEPA and Section 401 of the Federal Water Pollution Control Act (33 U.S.C. 1341) are eligible for credit pursuant to this Agreement.

4. The Government, in accordance with this paragraph, shall afford credit toward the amount of funds determined in accordance with paragraph C.1.a. of this Article for the costs of the *in-kind contributions* determined in accordance with paragraph C.3. of this Article. However, the maximum amount of credit afforded shall not exceed the lesser of the following amounts as determined by the Government: (a) the amount of funds determined in accordance with paragraph C.1.a. of this Article; or (b) the costs of the *in-kind contributions* determined in accordance with paragraph C.3. of this Article.

5. Notwithstanding any other provision of this Agreement, the Non-Federal Sponsor shall not be entitled to reimbursement of any costs for *in-kind contributions* that exceed the amount of credit afforded in accordance with C.4. of this Article.

D. In accordance with Article VI.D. of this Agreement, the Non-Federal Sponsor shall pay an additional amount equal to 10 percent of *total costs of construction of the general navigation features* less the amount of credit afforded by the Government for the value of the lands, easements, rights-of-way, and *relocations* provided or performed pursuant to Article III of this Agreement, plus interest thereon except as provided by Article VI.D.7. of this Agreement.

The Non-Federal Sponsor shall not be entitled to reimbursement for any value of such lands, easements, rights-of-way, and *relocations* that exceeds 10 percent of *total costs of construction of the general navigation features*.

E. The District Engineer shall promptly notify the Non-Federal Sponsor in writing of the conclusion of the *period of construction*. Upon providing such notification, the Government shall conduct an accounting, in accordance with Article VI of this Agreement, and furnish the results to the Non-Federal Sponsor.

F. The Government, subject to the availability to funds and as it deems necessary, shall operate and maintain the *general navigation features* in accordance with Article VIII of this Agreement. The Government shall be responsible for all financial obligations for operation and maintenance of the *general navigation features*.

G. The Non-Federal Sponsor shall not use *Federal program funds* to meet any of its obligations for the *Project* under this Agreement unless the Federal agency providing the Federal portion of such funds verifies in writing that expenditure of funds for such purpose is authorized.

H. The Government shall accomplish all *removals* that neither the Non-Federal Sponsor nor the State of Wisconsin has the legal capability to accomplish where both the Non-Federal Sponsor and the State of Wisconsin make a written request for the Government to accomplish such *removals*, and shall accomplish all *removals* that the Government is expressly required to accomplish in the authorizing legislation for the *Project* or any report referenced therein.

1. In the event a court determines that the owner of an obstruction is entitled to payment of just compensation as the result of elimination of the obstruction, such *removal* shall be reclassified as part of the Non-Federal Sponsor's responsibility to provide lands, easements, and rights-of-way, or to perform or ensure performance of *relocations*, as appropriate, pursuant to Article II.B. of this Agreement.

2. All costs incurred by the Government in accomplishing removals shall be included in *total costs of construction of the general navigation features* and shared in accordance with the provisions of this Agreement.

I. The Non-Federal Sponsor shall accomplish all *removals*, other than those *removals* specifically assigned to the Government by paragraph H. of this Article, in accordance with the provisions of this paragraph.

1. The Government in a timely manner shall provide the Non-Federal Sponsor with general written descriptions, including maps as appropriate, of such *removals*, in detail sufficient to enable the Non-Federal Sponsor to fulfill its obligations under this paragraph, and shall provide the Non-Federal Sponsor with a written notice to proceed with accomplishing such *removals*. Unless the Government agrees to a later date in writing, prior to the issuance of the solicitation for each Government contract for construction or operation and maintenance of the *general navigation features*, or prior to the Government incurring any financial obligation for construction or operation and maintenance of the *general navigation features* using the

Government's own forces, the Non-Federal Sponsor shall accomplish all *removals* set forth in such descriptions that the Government determines to be necessary for that work.

2. In the event a court determines that the owner of an obstruction is entitled to payment of just compensation as the result of elimination of the obstruction, such *removal* shall be reclassified as part of the Non-Federal Sponsor's responsibility to provide lands, easements, and rights-of-way, or to perform or ensure performance of *relocations*, as appropriate, pursuant to Article II.B. of this Agreement.

3. The documented incidental costs incurred by the Non-Federal Sponsor in accomplishing *removals* shall be included in *total costs of construction of the general navigation features*, subject to an audit in accordance with Article X.C. of this Agreement to determine reasonableness, allocability, and allowability of such costs, and shared in accordance with the provisions of this Agreement. Incidental costs may include legal and administrative costs (such as owner or operator notification costs, public notice or hearing costs, attorney's fees, and litigation costs) incurred by the Non-Federal Sponsor in accomplishing *removals*, but shall not include any costs that the Non-Federal Sponsor or the State of Wisconsin has the legal capability to require of, assign to, or recover from the owner or operator of the obstruction.

J. The Non-Federal Sponsor may request the Government to perform or provide, on behalf of the Non-Federal Sponsor, one or more of the services (hereinafter the "additional work") described below. Such requests shall be in writing and shall describe the additional work requested to be performed or provided. If in its sole discretion the Government elects to perform or provide the requested additional work or any portion thereof, it shall so notify the Non-Federal Sponsor 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 Non-Federal Sponsor shall be solely responsible for all costs of the additional work performed or provided by the Government under this paragraph and shall pay all such costs in accordance with Article VI.E. of this Agreement.

1. Acquisition of lands, easements, or rights-of-way or performance of *relocations* for the *general navigation features* only. Notwithstanding the acquisition of lands, easements, or rights-of-way or performance of *relocations* by the Government, the Non-Federal Sponsor shall be responsible, as between the Government and the Non-Federal Sponsor, for any costs of cleanup and response in accordance with Article XIV.C. of this Agreement.

2. Inclusion of *betterments* in the engineering and design or construction of the *general navigation features*. In the event the Government elects to include any *betterments*, the Government shall allocate the costs of constructing the *general navigation features* that include *betterments* between *total costs of construction of the general navigation features* and the costs of the additional work.

3. Provision of capacity at a *dredged or excavated material disposal facility* for dredged or excavated material from outside the *existing general navigation features*. In the event the Government elects to provide such capacity, the Government shall allocate the costs of engineering and design and construction of the *dredged or excavated material disposal facility*

between *total costs of construction of the general navigation features* and the costs of the additional work. The Government also shall allocate any operation and maintenance costs of the *dredged or excavated material disposal facility* between the costs of operation and maintenance for the *general navigation features* and the costs of the additional work.

K. Notwithstanding any other provision of this Agreement, Federal financial participation in the *Project* is limited by the following provisions of this paragraph.

1. As of the effective date of this Agreement, $0 of Federal Civil Works funds have been made available for the *Project*. In addition, as of the effective date of this Agreement, $76,832,000 of Federal funds have been transferred from the Environmental Protection Agency to the Army Corps of Engineers for the GLRI, of which $12,000,000 is currently projected to be available for the *Project*. The Government makes no commitment to request Congress to provide additional Federal funds for the GLRI, or the *Project*. The Government's financial participation in the *Project* is limited to the Federal funds that the Government makes available to the *Project*.

2. In the event the Government projects that the amount of Federal funds the Government will make available to the *Project* through the then-current *fiscal year*, or the amount of Federal funds the Government will make available for the *Project* through the upcoming *fiscal year*, is not sufficient to meet the Federal share of the costs of work on the *Project* that the Government projects to be incurred through the then-current or upcoming *fiscal year*, as applicable, the Government shall notify the Non-Federal Sponsor in writing of such insufficiency of funds and of the date the Government projects that the Federal funds that will have been made available to the *Project* will be exhausted. Upon exhaustion of Federal funds made available by the Government to the *Project*, future performance under this Agreement shall be suspended and the parties shall proceed in accordance with Article XIII.B. of this agreement.

ARTICLE III - LANDS, RELOCATIONS, AND COMPLIANCE WITH PUBLIC LAW 91-646, AS AMENDED

A. The Government, after consultation with the Non-Federal Sponsor, shall determine the lands, easements, and rights-of-way necessary for construction or operation and maintenance of the *general navigation features*, including those lands, easements, and rights-of-way necessary for the borrowing of material, the disposal of dredged or excavated material, and *relocations*, and including those lands, easements, and rights-of-way that the Government determines to be subject to the navigation servitude. The Government in a timely manner shall provide the Non-Federal Sponsor with general written descriptions, including maps as appropriate, of the lands, easements, and rights-of-way that the Government determines the Non-Federal Sponsor must provide, in detail sufficient to enable the Non-Federal Sponsor to fulfill its obligations under this paragraph, and shall provide the Non-Federal Sponsor with a written notice to proceed with acquisition of such lands, easements, and rights-of-way. Prior to the issuance of the solicitation for each Government contract for construction or operation and maintenance of the *general navigation features*, or prior to the Government incurring any financial obligation for construction or operation and maintenance of a *general navigation feature* using the

Government's own forces, the Non-Federal Sponsor shall acquire all lands, easements, and rights-of-way the Government determines the Non-Federal Sponsor must provide for that work and shall provide the Government with authorization for entry thereto. Furthermore, prior to the end of the *period of construction*, the Non-Federal Sponsor shall acquire all lands, easements, and rights-of-way necessary for construction or operation and maintenance of the applicable *general navigation features*, as set forth in such descriptions and shall provide the Government with authorization for entry thereto. For so long as the *Project* remains authorized, the Non-Federal Sponsor shall ensure that lands, easements, and rights-of-way that the Government determines to be required for the operation and maintenance of the *general navigation features* and that were provided by the Non-Federal Sponsor are retained in public ownership for uses compatible with the authorized purposes of the *Project*.

B. The Government, after consultation with the Non-Federal Sponsor, shall determine the relocations necessary for construction or operation and maintenance of the *general navigation features*, including those necessary to enable the borrowing of material or the disposal of dredged or excavated material. The Government in a timely manner shall provide the Non-Federal Sponsor with general written descriptions, including maps as appropriate, of such *relocations* in detail sufficient to enable the Non-Federal Sponsor to fulfill its obligations under this paragraph, and shall provide the Non-Federal Sponsor with a written notice to proceed with such *relocations*. Prior to the issuance of the solicitation for each Government contract for construction or operation and maintenance of the *general navigation features*, or prior to the Government incurring any financial obligation for construction or operation and maintenance of a *general navigation feature* using the Government's own forces, the Non-Federal Sponsor 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 work.

C. The Non-Federal Sponsor 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 (42 U.S.C. 4601-4655), and the Uniform Regulations contained in 49 C.F.R. Part 24, in acquiring lands, easements, and rights-of-way necessary for construction or operation and maintenance of the *general navigation features*, including those necessary for *relocations*, the borrowing of material, or the disposal of dredged or excavated material, and shall inform all affected persons of applicable benefits, policies, and procedures in connection with said Act.

ARTICLE IV - CREDIT FOR VALUE OF LANDS AND RELOCATIONS

A. To determine the additional amount, the Government shall afford credit toward an amount equal to 10 percent of *total costs of construction of the general navigation features* for the value of the lands, easements, and rights-of-way that the Non-Federal Sponsor must provide pursuant to Article III of this Agreement, and for the value of the *relocations* that the Non-Federal Sponsor must perform or for which it must ensure performance pursuant to Article III of this Agreement. However, no credit shall be afforded for the value of any lands, easements, rights-of-way, or *relocations* that have been provided previously as an item of cooperation for another Federal project. In addition, no credit shall be afforded for the value of lands, easements, rights-of-way, or *relocations* that were acquired or performed using *Federal program funds*

unless the Federal agency providing the Federal portion of such funds verifies in writing that affording credit for the value of such items is authorized.

B. The Non-Federal Sponsor 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 paragraph A. or B. of Article III of this Agreement. Upon receipt of such documents, the Government in a timely manner shall determine the value of such contribution for the purpose of determining the amount of credit to be afforded toward an amount equal to 10 percent of *total costs of construction of the general navigation features*.

C. For the sole purpose of determining the amount of credit to be afforded for the value of lands, easements, and rights-of-way, including those necessary for the *relocations*, borrowing of material, and the disposal of dredged or excavated material, other than those the Government acquires on behalf of the Non-Federal Sponsor pursuant to Article II.J.1. of this Agreement, shall be the 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.

a. The fair market value of lands, easements, or rights-of-way owned by the Non-Federal Sponsor on the effective date of this Agreement shall be the fair market value of such real property interests as of the date the Non-Federal Sponsor provides the Government with authorization for entry thereto. However, for lands, easements, or rights-of-way owned by the Non-Federal Sponsor on the effective date of this Agreement that the Government determines are required for the *in-kind contributions*, fair market value shall be the value of such real property interests as of the date the Non-Federal Sponsor awards the first construction contract for the *in-kind contributions*, or, if the Non-Federal Sponsor performs the construction with its own forces, the date that the Non-Federal Sponsor began construction of the *in-kind contributions*.

b. The fair market value of lands, easements, or rights-of-way acquired by the Non-Federal Sponsor 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 C.3., C.4., or C.5. of this Article, the fair market value of lands, easements, or rights-of-way shall be determined in accordance with paragraph C.2.a. of this Article, unless thereafter a different amount is determined to represent fair market value in accordance with paragraph C.2.b. of this Article.

a. The Non-Federal Sponsor shall obtain, for that real property interest, an appraisal that is prepared by a qualified appraiser who is acceptable to the Non-Federal Sponsor and the Government. The Non-Federal Sponsor shall provide the Government with the appraisal no later than 6 months after the Non-Federal Sponsor provides the Government with an authorization for entry for such real property interest. 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 Non-Federal Sponsor's appraisal, if such

appraisal is approved by the Government. In the event the Government does not approve the Non-Federal Sponsor's appraisal, the Non-Federal Sponsor may obtain a second appraisal, and the fair market value shall be the amount set forth in the Non-Federal Sponsor's second appraisal, if such appraisal is approved by the Government. In the event the Government does not approve the Non-Federal Sponsor's second appraisal, the Non-Federal Sponsor chooses not to obtain a second appraisal, or the Non-Federal Sponsor does not provide the first appraisal as required in this paragraph, 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 Non-Federal Sponsor. In the event the Non-Federal Sponsor does not approve the Government's appraisal, the Government, after consultation with the Non-Federal Sponsor, shall consider the Government's and the Non-Federal Sponsor's appraisals 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 Non-Federal Sponsor for the real property interest exceeds the amount determined pursuant to paragraph C.2.a. of this Article, the Government, at the request of the Non-Federal Sponsor, shall consider all factors relevant to determining fair market value and, in its sole discretion, after consultation with the Non-Federal Sponsor, may approve in writing an amount greater than the amount determined pursuant to paragraph C.2.a. of this Article, but not to exceed the amount actually paid or proposed to be paid. If the Government approves such an amount, the fair market value shall be the lesser of the approved amount or the amount paid by the Non-Federal Sponsor, but no less than the amount determined pursuant to paragraph C.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 Non-Federal Sponsor, prior to instituting such proceedings, shall submit to the Government notification in writing of its intent to institute such proceedings and an appraisal of the specific real property interests to be acquired in such proceedings. The Government shall have 60 days after receipt of such a 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 Non-Federal Sponsor 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 disapproval, within such 60-day period, the Government and the Non-Federal Sponsor 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 Non-Federal Sponsor agree as to an appropriate amount, then the Non-Federal Sponsor 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 Non-Federal Sponsor cannot agree as to an appropriate amount, then the Non-Federal Sponsor 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 paragraph C.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 necessary for construction or operation and maintenance of the *general navigation features*, 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 Non-Federal Sponsor 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. In the event the Government modifies its determination made pursuant to Article III.A. of this Agreement, the Government shall afford credit for the documented incidental costs associated with preparing to acquire the lands, easements, or rights-of-way identified in the original determination, 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 (including appraisals required for crediting purposes pursuant to Article IV.C.2. of this Agreement), survey costs, attorney's fees, plat maps, and mapping costs, as well as the actual amounts expended for payment of any relocation assistance benefits provided in accordance with Article III.C. of this Agreement.

5. Waiver of Appraisal. Except as required by paragraph C.3. of this Article, the Government may waive the requirement for an appraisal for the purpose of determining the value of a real property interest for crediting purposes if it determines that an appraisal is unnecessary because the valuation problem is uncomplicated and that the estimated fair market value of the real property interest is $10,000 or less based upon a review of available data. In such event, the Government and the Non-Federal Sponsor must agree in writing to the value of such real property interest in an amount not in excess of $10,000.

D. For the sole purpose of determining the amount of credit to be afforded for the value of lands, easements, and rights-of-way, including those necessary for *relocations*, the borrowing of material, and the disposal of dredged or excavated material that the Government acquires on behalf of the Non-Federal Sponsor pursuant to Article II.J.1. of this Agreement shall be the 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. The fair market value of such real property interests shall be the amount paid by the Government.

2. The value of the interest shall include the documented incidental costs of acquiring the interest. 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 relocation assistance benefits in accordance with Public Law 91-646, as amended.

E. After consultation with the Non-Federal Sponsor, the Government, for the sole purpose of determining the amount of credit to be afforded, shall determine the value of *relocations* in accordance with the provisions of this paragraph.

1. For a *relocation* other than a *highway* or a *utility*, 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 Wisconsin would apply under similar conditions of geography and traffic load, reduced by the salvage value of any removed items.

3. For a *relocation* of a *utility*, the value shall be only that portion of *relocation* costs borne by the Non-Federal Sponsor 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.

4. *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*, as determined by the Government. *Relocation* costs shall not include 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.

F. Any credit afforded for the value of *relocations* performed within the *Project* boundaries is subject to satisfactory compliance with applicable Federal labor laws covering non-Federal construction, including, but not limited to, applicable Federal labor standards in 40 U.S.C. 3141-3148 and 40 U.S.C. 3701-3708 (revising, codifying and enacting without substantive change the provisions of the Davis-Bacon Act (formerly 40 USC 276a *et seq.*), the Contract Work Hours and Safety Standards Act (formerly 40 USC 327 *et seq.*) and the Copeland Anti-Kickback Act (formerly 40 USC 276c)). Crediting may be withheld, in whole or in part, as a result of the Non-Federal Sponsor's failure to comply with its obligations under these laws.

ARTICLE V - PROJECT COORDINATION TEAM

A. To provide for consistent and effective communication, the Non-Federal Sponsor 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 Non-Federal Sponsor shall co-chair the Project Coordination Team.

B. The Government's Project Manager and the Non-Federal Sponsor'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 but not necessarily limited to matters related to: engineering and design; plans and specifications; scheduling; real property, *relocation*, and *removal* requirements; real property acquisition; contract awards or modifications; contract costs; the application of and compliance with 40 U.S.C. 3141-3148 and 40 U.S.C. 3701-3708 (revising, codifying and enacting without substantive change the provisions of the Davis-Bacon Act (formerly 40 USC 276a *et seq.*), the Contract Work Hours and Safety Standards Act (formerly 40 USC 327 *et seq.*) and the Copeland Anti-Kickback Act (formerly 40 USC 276c)) for *relocations* and the construction portion of the *in-kind contributions*; the performance of, scheduling for, and determining eligibility of costs of *in-kind contributions*; the Government's cost projections; final inspection of the entire *Project* or *functional portions of the Project*; anticipated requirements for operation and maintenance of the *general navigation features*; and other matters related to the *Project*. The Project Coordination Team shall also generally oversee the coordination of schedules for the *Project*. Oversight of the *Project* shall be consistent with a project management plan developed by the Government after consultation with the Non-Federal Sponsor.

D. The Project Coordination Team may make recommendations that it deems warranted to the District Engineer on matters related to the *Project* 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 *general navigation features* has the discretion to accept or reject, in whole or in part, the Project Coordination Team's recommendations.

E. The Non-Federal Sponsor's costs of participation in the Project Coordination Team shall be included in *total costs of construction of the general navigation features* and 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 such costs. The Government's costs of participation in the Project Coordination Team shall be included in *total costs of construction of the general navigation features* and shared in accordance with the provisions of this Agreement.

ARTICLE VI - METHOD OF PAYMENT

A. In accordance with the provisions of this paragraph, the Government shall maintain current records of, and provide to the Non-Federal Sponsor current projections of, costs,

financial obligations, contributions provided by the parties, credit afforded for the value of lands, easements, rights-of-way, and *relocations*, and the amount of credit to be afforded for *in-kind contributions* pursuant to Article II.C.4. of this Agreement.

1. As of the effective date of this Agreement, *total costs of construction of the general navigation features* are projected to be $27,899,000; the value of the Non-Federal Sponsor's contributions under Article V, Article X, and Article XIV.A. of this Agreement is projected to be $75,000; the amount of funds determined in accordance with Article II.C.1.a. of this Agreement is projected to be $6,899,750; the amount of credit to be afforded for *in-kind contributions* pursuant to Article II.C.4 of this Agreement is projected to be $6,899,750; the Non-Federal Sponsor's contribution of funds required by Article II.C.1.b. of this Agreement is projected to be $0; the *non-Federal proportionate share* is projected to be 0 percent; the Government's total financial obligations for additional work and the Non-Federal Sponsor's contribution of funds for such obligations required by Article II.J. of this Agreement are projected to be $0; 10 percent of *total costs of construction of the general navigation features* is projected to be $2,789,900; the credit to be afforded for the value of lands, easements, rights-of-way, and *relocations* is projected to be $0; and the additional amount required by Article II.D. of this Agreement is projected to be $2,789,900. These amounts are estimates subject to adjustment by the Government, after consultation with the Non-Federal Sponsor, and are not to be construed as the total financial responsibilities of the Government and the Non-Federal Sponsor.

2. By December 15, 2012, the Government shall provide the Non-Federal Sponsor with a report setting forth all contributions provided to date and the current projections of the following: *total costs of construction of the general navigation features*; the value of the Non-Federal Sponsor's contributions under Article V, Article X, and Article XIV.A. of this Agreement; the amount of funds determined in accordance with Article II.C.1.a. of this Agreement; the amount of credit to be afforded for *in-kind contributions* pursuant to Article II.C.4. of this Agreement; the Non-Federal Sponsor's contribution of funds required by Article II.C.1.b. of this Agreement; the *non-Federal proportionate share*; the Government's total financial obligations for additional work and the Non-Federal Sponsor's contribution of funds for such obligations required by Article II.J. of this Agreement; 10 percent of *total costs of construction of the general navigation features*; the credit to be afforded for the value of lands, easements, rights-of-way, and *relocations*; the additional amount required by Article II.D. of this Agreement; and the annual installments calculated in accordance with paragraph D. of this Article.

B. The Non-Federal Sponsor shall provide the contributions of funds required by Article II.C.1.b. of this Agreement in accordance with the provisions of this paragraph.

1. Not less than 15 calendar days after the effective date of this Agreement, the Government shall notify the Non-Federal Sponsor in writing of such scheduled date and the funds the Government determines to be required from the Non-Federal Sponsor to meet its projected share under Article II.C.1.b. of this Agreement. Not later than such scheduled date, the Non-Federal Sponsor shall provide the Government with the full amount of such required funds by delivering a check payable to "FAO, USAED, Detroit " to the District Engineer, or verifying to the satisfaction of the Government that the Non-Federal Sponsor has deposited such required

funds in an escrow or other account acceptable to the Government, with interest accruing to the Non-Federal Sponsor, or presenting the Government with an irrevocable letter of credit acceptable to the Government for such required funds, or providing an Electronic Funds Transfer of such required funds in accordance with procedures established by the Government.

2. The Government shall draw from the funds provided by the Non-Federal Sponsor such sums as the Government deems necessary, after consideration of the credit the Government projects will be afforded for the *in-kind contributions* pursuant to Article II.C.4. of this Agreement, 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 *financial obligations for construction* are incurred; . If at any time the Government determines that additional funds will be needed from the Non-Federal Sponsor to cover the Non-Federal Sponsor's share of such financial obligations, the Government shall notify the Non-Federal Sponsor in writing of the additional funds required and provide an explanation of why additional funds are required. Within 60 calendar days from receipt of such notice, the Non-Federal Sponsor shall provide the Government with the full amount of such additional required funds through any of the payment mechanisms specified in paragraph B.1. of this Article.

C. Upon conclusion of the *period of construction* and resolution of all relevant claims and appeals and all eminent domain proceedings, the Government shall conduct a final accounting for the *period of construction* and furnish the Non-Federal Sponsor with written notice of the results of such final accounting. If due to outstanding relevant claims and appeals or eminent domain proceedings a final accounting cannot be conducted in a timely manner, the Government shall conduct an interim accounting and furnish the Non-Federal Sponsor with written notice of the results of such interim accounting. Once all outstanding relevant claims and appeals and all eminent domain proceedings are resolved, the Government shall amend the interim accounting to complete the final accounting and furnish the Non-Federal Sponsor with written notice of the results of such final accounting. The final or interim accounting, as applicable, shall determine *total costs of construction of the general navigation features* and also shall determine each party's required share thereof and each party's total contributions thereto as of the date of such accounting.

1. In the event the final or interim accounting, as applicable, shows that the Non-Federal Sponsor's total required share for *total costs of construction of the general navigation features* exceeds the Non-Federal Sponsor's total contributions provided thereto, the Non-Federal Sponsor, no later than 90 calendar days after receipt of written notice, shall make a payment to the Government of an amount equal to the excess by delivering a check payable to "FAO, USAED, Detroit " to the District Engineer or providing an Electronic Funds Transfer in accordance with procedures established by the Government.

2. In the event the final or interim accounting, as applicable, shows that the total contributions provided by the Non-Federal Sponsor for *total costs of construction of the general navigation features* exceed the Non-Federal Sponsor's total required shares thereof, the Government, subject to the availability of funds and as limited by Article II.C.5. of this Agreement, shall refund the excess to the Non-Federal Sponsor no later than 90 calendar days

after providing written notice. In the event funds are not available to refund the excess to the Non-Federal Sponsor, the Government shall seek such appropriations as are necessary to make the refund. To the extent that such appropriations are not received, the Government shall apply the excess toward the Non-Federal Sponsor's upcoming installment payment, if any, in accordance with paragraph D. of this Article.

D. The Non-Federal Sponsor shall pay any additional amount plus any interest thereon required by Article II.D. of this Agreement in accordance with the provisions of this paragraph.

1. Each time the Government conducts a final or interim accounting for the *period of construction*, the Government shall determine:

a. an amount equal to 10 percent of *total costs of construction of the general navigation features* as of the date of such accounting;

b. the value, in accordance with Article IV of this Agreement, of the lands, easements, rights-of-way, and *relocations* provided or performed pursuant to Article III of this Agreement as of the date of such accounting; and

c. the additional amount to be paid by the Non-Federal Sponsor as of the date of such accounting. The additional amount is equal to the amount determined in accordance with paragraph D.1.a. of this Article less the amount of credit afforded by the Government for the value of the lands, easements, rights-of-way, and *relocations*, determined in accordance with paragraph D.1.b. of this Article. In the event the result of the aforesaid calculation is a negative number, the additional amount shall be zero.

2. The first time the Government determines that the additional amount is greater than zero; the Government shall calculate annual installments for payment of the additional amount that shall be substantially equal. To calculate the annual installments, the Government shall amortize the additional amount over a period of 30 years (hereinafter the "payment period"), beginning on the date the Government notifies the Non-Federal Sponsor of the additional amount, using an interest rate determined by the Secretary of the Treasury, taking into consideration the average market yields on outstanding marketable obligations of the United States with remaining periods of maturity comparable to the payment period during the month preceding the *fiscal year* in which the *period of construction* commences, plus a premium of one-eighth of one percentage point for transaction costs. The Government shall notify the Non-Federal Sponsor in writing of the additional amount and the annual installments.

3. For all subsequent occurrences where the Government determines the additional amount is greater than zero, and the payment period has not elapsed, the Government shall recalculate the annual installments by amortizing the outstanding portion of the additional amount over the remaining portion of the payment period using an interest rate determined by the Secretary of the Treasury, taking into consideration such average market yields on outstanding marketable obligations of the United States with remaining periods of maturity comparable to the remaining portion of the payment period during the month preceding the *fiscal year* in which the recalculation is made, plus a premium of one-eighth of one percentage point

for transaction costs. The Government shall notify the Non-Federal Sponsor in writing of the recalculated additional amount and the recalculated annual installments and the Non-Federal Sponsor shall pay the recalculated annual installments in lieu of the previous annual installments.

4. For all subsequent occurrences where the Government determines the additional amount is greater than zero, and the payment period has elapsed, the Government shall notify the Non-Federal Sponsor in writing of the recalculated additional amount. The Non-Federal Sponsor, not later than 90 days from receipt of such notice, shall pay to the Government the outstanding portion of the additional amount by delivering a check payable to "FAO, USAED, Detroit" to the District Engineer or providing an Electronic Funds Transfer in accordance with procedures established by the Government.

5. In addition to any recalculation of the annual installments in accordance with paragraph D.3. of this Article, the Government shall recalculate the annual installments at five year intervals by amortizing the outstanding portion of the additional amount over the remaining portion of the payment period using an interest rate determined by the Secretary of the Treasury, taking into consideration such average market yields on outstanding marketable obligations of the United States with remaining periods of maturity comparable to the payment period during the month preceding the *fiscal year* in which the *period of construction* commences, plus a premium of one-eighth of one percentage point for transaction costs. The Government shall notify the Non-Federal Sponsor in writing of the recalculated annual installments and the Non-Federal Sponsor shall pay the recalculated annual installments in lieu of the previous annual installments.

6. Subject to paragraphs C.2. and E.3.b. of this Article, the Non-Federal Sponsor shall pay the installments calculated or recalculated pursuant to paragraphs D.2., D.3., or D.5. of this Article each year on the anniversary of the date the Government notifies the Non-Federal Sponsor of the additional amount, over a period not to exceed the payment period, by delivering a check payable to "FAO, USAED, Detroit " to the District Engineer or providing an Electronic Funds Transfer in accordance with procedures established by the Government.

7. Notwithstanding paragraph D.6. of this Article, the Non-Federal Sponsor, in its sole discretion, may prepay the additional amount, in whole or in part, at any time. Notwithstanding paragraphs D.2., D.3., or D.5., of this Article, there shall be no charges for interest on any portion of the additional amount that is prepaid within 90 days after the Government notifies the Non-Federal Sponsor of the additional amount, nor shall there be interest charges on any portion of an increase to the additional amount that is caused by recalculation of the additional amount and that is prepaid within 90 days after the Government notifies the Non-Federal Sponsor of such recalculated additional amount.

8. If the Government determines that the Non-Federal Sponsor has made payments towards the additional amount that exceed the additional amount, the Government, subject to the availability of funds, shall refund the amount of the excess, without interest. In the event funds are not available to make such refund, the Government shall seek such appropriations as are necessary to make such refund.

E. The Non-Federal Sponsor shall provide the contribution of funds required by Article II.J. of this Agreement in accordance with the provisions of this paragraph.

1. Not less than 30 calendar days prior to the scheduled date for the first financial obligation for additional work, the Government shall notify the Non-Federal Sponsor in writing of such scheduled date and of the full amount of funds the Government determines to be required from the Non-Federal Sponsor to cover the costs of the additional work. No later than 30 calendar days prior to the Government incurring any financial obligation for additional work, the Non-Federal Sponsor shall provide the Government with the full amount of the funds required to cover the costs of such additional work through any of the payment mechanisms specified in paragraph B.1. of this Article.

2. The Government shall draw from the funds provided by the Non-Federal Sponsor such sums as the Government deems necessary to cover the Government's financial obligations for such additional work as they are incurred. If at any time the Government determines that the Non-Federal Sponsor must provide additional funds to pay for such additional work, the Government shall notify the Non-Federal Sponsor in writing of the additional funds required and provide an explanation of why additional funds are required. Within 30 calendar days from receipt of such notice, the Non-Federal Sponsor shall provide the Government with the full amount of such additional required funds through any of the payment mechanisms specified in paragraph B.1. of this Article.

3. At the time the Government conducts the final or interim accounting, as applicable, , the Government shall conduct an accounting of the Government's financial obligations for additional work incurred during the applicable period and furnish the Non-Federal Sponsor with written notice of the results of such accounting. Such accounting shall determine the Government's total financial obligations for additional work incurred during the applicable period and the Non-Federal Sponsor's contribution of funds provided thereto.

a. In the event such accounting shows that the total obligations for additional work incurred during the applicable period exceed the total contribution of funds provided by the Non-Federal Sponsor for such additional work, the Non-Federal Sponsor, no later than 90 calendar days after receipt of written notice, shall make a payment to the Government of an amount equal to the excess by delivering a check payable to "FAO, USAED, Detroit " to the District Engineer or providing an Electronic Funds Transfer in accordance with procedures established by the Government.

b. In the event such accounting shows that the total contribution of funds provided by the Non-Federal Sponsor for additional work during the applicable period exceeds the total obligations for such additional work, the Government, subject to the availability of funds, shall refund the excess to the Non-Federal Sponsor no later than 90 calendar days after providing written notice. In the event funds are not available to refund the excess to the Non-Federal Sponsor, the Government shall seek such appropriations as are necessary to make the refund. To the extent that such appropriations are not received, the Government shall apply the excess toward the Non-Federal Sponsor's upcoming installment payment, if any, in accordance with paragraph D. of this Article.

ARTICLE VII - DISPUTE RESOLUTION

As a condition precedent to a party bringing any suit for breach of this Agreement, that 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 an equal share 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 AND MAINTENANCE

A. The Government, subject to the availability of funds and as it determines necessary, shall operate and maintain the *general navigation features*.

B. The Non-Federal Sponsor hereby authorizes the Government to enter, at reasonable times and in a reasonable manner, upon property that the Non-Federal Sponsor now or hereafter owns or controls for the purpose of operating and maintaining the *general navigation features*. However, nothing contained herein shall convey to the Government any interest in real property owned or controlled by the Non-Federal Sponsor.

C. The Non-Federal Sponsor hereby authorizes the Government to perform all activities on the lands, easements, and rights-of-way provided by the Non-Federal Sponsor that, in the Government's sole discretion, are necessary for the operation and maintenance of the *general navigation features*. Such activities include, but are not necessarily limited to management of disposal of dredged or excavated material associated with operation and maintenance of the *existing general navigation features*. In addition, as between the Government and the Non-Federal Sponsor, for so long as a *dredged or excavated material disposal facility* is required for operation and maintenance of the *existing general navigation features* as determined by the Government, the Government shall have the full authority and exclusive right to operate and maintain or manage such facility including the exclusive right to place, remove, use, or reuse the materials therein for any purpose without charge to the Government.

ARTICLE IX - HOLD AND SAVE

The Non-Federal Sponsor shall hold and save the Government free from all damages arising from design, construction, or operation and maintenance of the *Project* and any *betterments*, and the provision of capacity pursuant to Article II.J.3. of this Agreement, 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 Non-Federal Sponsor shall develop procedures for keeping books, records, documents, or 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 Non-Federal Sponsor shall maintain such books, records, documents, or other evidence in accordance with these procedures and for a minimum of three years after completion of the accounting for which such books, records, documents, or other evidence were required. To the extent permitted under applicable Federal laws and regulations, the Government and the Non-Federal Sponsor shall each allow the other to inspect such books, records, documents, or other evidence.

B. In accordance with 32 C.F.R. Section 33.26, the Non-Federal Sponsor is responsible for complying with the Single Audit Act Amendments of 1996 (31 U.S.C. 7501-7507), as implemented by Office of Management and Budget (OMB) Circular No. A-133 and Department of Defense Directive 7600.10. Upon request of the Non-Federal Sponsor and to the extent permitted under applicable Federal laws and regulations, the Government shall provide to the Non-Federal Sponsor and independent auditors any information necessary to enable an audit of the Non-Federal Sponsor'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-133, and such costs as are allocated to the *general navigation features* shall be included in *total costs of construction of the general navigation features* and 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 Non-Federal Sponsor is required to conduct under the Single Audit Act Amendments of 1996. 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 costs of construction of the general navigation features* and 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 Non-Federal Sponsor 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; Army Regulation 600-7, entitled "Nondiscrimination on the Basis of Handicap in Programs and Activities Assisted or Conducted by the Department of the Army"; and all applicable Federal labor standards requirements including, but not limited to, 40 U.S.C. 3141-3148 and 40 U.S.C. 3701-3708 (revising, codifying and enacting without substantive change the

provisions of the Davis-Bacon Act (formerly 40 USC 276a *et seq.*), the Contract Work Hours and Safety Standards Act (formerly 40 USC 327 *et seq.*) and the Copeland Anti-Kickback Act (formerly 40 USC 276c)).

ARTICLE XII - RELATIONSHIP OF PARTIES

A. In the exercise of their respective rights and obligations under this Agreement, the Government and the Non-Federal Sponsor 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 the other party may have to seek relief or redress against that contractor either pursuant to any cause of action that the other party may have or for violation of any law.

ARTICLE XIII - TERMINATION OR SUSPENSION

A. If at any time the Non-Federal Sponsor fails to fulfill its obligations under this Agreement, the Assistant Secretary of the Army (Civil Works) shall terminate this Agreement or suspend future performance under this Agreement unless she determines that continuation of work on the *general navigation features* 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 determines that Federal funds for the *Project* are not sufficient to meet the Federal share of the costs of work on the *Project* in the then-current or upcoming *fiscal year*, the Government shall so notify the Non-Federal Sponsor 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 Federal funds for the *Project* or until either the Government or the Non-Federal Sponsor elects to terminate this Agreement, whichever is earlier.

C. In the event that either party elects to terminate this Agreement pursuant to this Article or Article XIV.C. of this Agreement, both parties shall conclude their activities relating to the *Project* and proceed to a final or interim accounting, as applicable, in accordance with Article VI.C. of this Agreement. To provide for this eventuality, the Government may reserve a percentage of total Federal funds made available for the *Project* and an equal percentage of the total funds contributed by the Non-Federal Sponsor in accordance with Article II.C.1.b. of this Agreement as a contingency to pay costs of termination, including any costs of resolution of contract claims and contract modifications.

D. Any termination of this Agreement or suspension of future performance under this Agreement in accordance with this Article or Article XIV.C. of this Agreement shall not relieve the parties of liability for any obligation previously incurred. Any delinquent payment owed by the Non-Federal Sponsor 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 XIV - HAZARDOUS SUBSTANCES

A. After execution of this Agreement and upon direction by the District Engineer, the Non-Federal Sponsor shall perform, or ensure performance of, any investigations for hazardous substances that the Government or the Non-Federal Sponsor 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. 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 necessary for construction or operation and maintenance of the *general navigation features*. However, for lands, easements, and rights-of-way that the Government determines to be subject to the navigation servitude, only the Government shall perform such investigations unless the District Engineer provides the Non-Federal Sponsor with prior specific written direction, in which case the Non-Federal Sponsor shall perform such investigations in accordance with such written direction.

1. All actual costs incurred by the Non-Federal Sponsor for such investigations for hazardous substances that are determined by the Government to be attributable to the *general navigation features* shall be included in *total costs of construction of the general navigation features* and 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 such costs.

2. All actual costs incurred by the Government for such investigations for hazardous substances that are determined by the Government to be attributable to the *general navigation features* shall be included in *total costs of construction of the general navigation features* and shared in accordance with the provisions of this Agreement.

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 necessary for construction or operation and maintenance of the *general navigation features*, the Non-Federal Sponsor and the Government, in addition to providing any other notice required by applicable law, shall provide prompt written notice to each other, and the Non-Federal Sponsor shall not proceed with the acquisition of the real property interests until the parties agree that the Non-Federal Sponsor should proceed.

C. The Government and the Non-Federal Sponsor shall determine whether to initiate construction or operation and maintenance of the *general navigation features*, or, if already in construction or operation and maintenance of the *general navigation features*, whether to continue with construction or operation and maintenance of the *general navigation features*, 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 necessary for construction or operation and maintenance of the *general navigation features*. Should the Government and the Non-Federal Sponsor determine to initiate or continue with construction or operation and maintenance of the *general navigation features* after considering any liability that may arise under CERCLA, the Non-Federal Sponsor shall be responsible, as between the Government and the Non-Federal Sponsor, for the costs of cleanup 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 costs of construction of the general navigation features*. In the event the Non-Federal Sponsor fails to provide any funds necessary to pay for cleanup and response costs or to otherwise discharge the Non-Federal Sponsor's responsibilities under this paragraph upon direction by the Government, the Government, in its sole discretion, may either terminate this Agreement for the convenience of the Government, suspend future performance under this Agreement, or continue work on the *general navigation features*.

D. The Non-Federal Sponsor 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 cleanup 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. To the maximum extent practicable, the Government and the Non-Federal Sponsor shall perform their responsibilities under this Agreement in a manner that will not cause liability to arise under CERCLA.

ARTICLE XV - 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 Non-Federal Sponsor:

County of Brown
Port and Solid Waste Department
ATTN: Port Manager
2561 South Broadway
Green Bay, Wisconsin 54304

If to the Government:

U.S. Army Corps of Engineers, Detroit District
Project Management Office
ATTN: Cat Island DMDF Project Manager
477 Michigan Avenue
Detroit, Michigan 48226-2550

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 XVI - 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 XVII - HISTORIC PRESERVATION

A. Except as provided in paragraph B. below, the Government, as it determines necessary for the *Project*, shall perform any identification, survey, or evaluation of historic properties.

1. Any costs of identification, survey, and evaluation of historic properties determined by the Government to be attributable to construction of the *general navigation features* shall be included in *total costs of construction of the general navigation features* and shared in accordance with the provisions of this Agreement.

2. Any costs of identification, survey, and evaluation of historic properties determined by the Government to be attributable to operation and maintenance of the *general navigation features* shall be considered financial obligations for operation and maintenance of the *general navigation features* and shared in accordance with Article II.F. of this Agreement.

B. In the event that the Government determines that any identification, survey, or evaluation of historic properties is required for construction of the *in-kind contributions*, and if the Government and the Non-Federal Sponsor agree in writing that the Non-Federal Sponsor should perform such identification, survey, or evaluation of historic properties, the Non-Federal Sponsor shall perform such identification, survey, or evaluation in accordance with this paragraph and other written directions of the Government.

1. The Non-Federal Sponsor shall ensure that its studies are conducted by qualified archaeologists, historians, architectural historians and historic architects, as appropriate, who meet, at a minimum, the Secretary of the Interior's Professional Qualifications Standards. The Non-Federal Sponsor shall submit study plans and reports to the Government for review and approval and the Non-Federal Sponsor shall be responsible for resolving any deficiencies identified by the Government.

2. Any costs of identification, survey, or evaluation of historic properties incurred by the Non-Federal Sponsor pursuant to this paragraph shall be included in the costs for *in-kind contributions* subject to an audit in accordance with Article X.C. of this Agreement to determine reasonableness, allocability, and allowability of such costs.

C. Except as provided in paragraph C.2. below, the Government, as it determines necessary for the *Project*, shall perform any archeological data recovery activities associated with historic preservation.

1. Any costs incurred by the Government for such mitigation activities, except for data recovery activities associated with historic preservation, shall be included in *total costs of construction of the general navigation features,* and shared in accordance with the provisions of this Agreement.

2. In the event that the Government determines that mitigation activities or actions other than data recovery activities associated with historic preservation are required for construction of the *in-kind contributions*, and if the Government and the Non-Federal Sponsor agree in writing that the Non-Federal Sponsor should perform such activities or actions, the Non-Federal Sponsor shall perform such activities or actions in accordance with the written directions of the Government. The Non-Federal Sponsor shall perform the agreed upon activities or actions prior to construction of such *in-kind contributions*. Any costs incurred by the Non-Federal Sponsor in accordance with the provisions of this paragraph shall be included in the costs for *in-kind contributions* subject to an audit in accordance with Article X.C. of this Agreement to determine reasonableness, allocability, and allowability of such costs.

3. As specified in Section 7(a) of Public Law 86-523, as renumbered and amended by Public Law 93-291 (16 U.S.C. 469c(a)), the costs of archeological data recovery activities associated with historic preservation shall be borne entirely by the Government and shall not be included in *total costs of construction of the general navigation features*, up to the statutory limit of one percent of the total amount authorized to be appropriated to the Government for the *general navigation features*.

D. The Government shall not incur costs for archeological data recovery activities that exceed the statutory one percent limit specified in paragraph C.3. of this Article unless and until the Assistant Secretary of the Army (Civil Works) has waived that limit (and the Secretary of the Interior has concurred in the waiver) in accordance with Section 208(3) of Public Law 96-515, as amended (16 U.S.C. 469c-2(3)).

1. Any costs of archeological data recovery activities that exceed the one percent limit and are determined by the Government to be attributable to construction of the *general navigation features* shall be included in *total costs of construction of the general navigation features* and shared in accordance with the provisions of this Agreement.

2. Any costs of archeological data recovery activities that exceed the one percent limit and are determined by the Government to be attributable to operation and maintenance of the *general navigation features* shall be considered financial obligations for operation and maintenance of the *general navigation features* and shared in accordance with Article II.F. of this Agreement.

E. If, during its performance of *relocations* or performance of the *in-kind contributions*, the Non-Federal Sponsor discovers historic properties or other cultural resources that have not been evaluated in accordance with this Article; the Non-Federal Sponsor shall provide prompt written notice to the Government of such discovery. The Non-Federal Sponsor shall not proceed with performance of the *relocation* or performance of such *in-kind contributions* related to such discovery until the Government provides written notice to the Non-Federal Sponsor that it should proceed with such work.

F. The Non-Federal Sponsor shall include provisions in all of its construction contracts for *in-kind contributions* for the protection of cultural resources discovered during construction. These provisions shall include, at a minimum, the requirement to cease all work in the immediate area of a discovered cultural resource until the situation is properly evaluated, and the requirement to immediately provide verbal and written notice to the Non-Federal Sponsor and the Government in the event of such discovery. Upon receipt of notice that cultural resources have been discovered, the Government, pursuant to its responsibilities under the National Historic Preservation Act, must authorize further action or study before construction may continue. If the Government concludes that such discovery warrants consultation under the National Historic Preservation Act, the Non-Federal Sponsor shall participate as a consulting party. In such a case, construction of the *in-kind contributions* related to such discovery shall not continue until the Government sends written notification to the Non-Federal Sponsor. Where the Non-Federal Sponsor elects to perform the construction of the *in-kind contributions* using its own forces, the same procedures shall be followed.

ARTICLE XVIII - THIRD PARTY RIGHTS, BENEFITS, OR LIABILITIES

Nothing in this Agreement is intended, nor may be construed, to create any rights, confer any benefits, or relieve any liability, of any kind whatsoever in any third person not party to this Agreement.

ARTICLE XIX - NON-LIABILITY OF OFFICERS AND EMPLOYEES

No officer, agent, consultant, or employee of the Non-Federal Sponsor, nor any officer, agent, consultant, or employee of the Government, may be charged personally, or held liable, under the terms or provisions of this Agreement because of any breach, attempted breach, or alleged breach thereof, except as provided in Section 912(b) of the Water Resources Development Act of 1986, Public Law 99-662, as amended (42 U.S.C. 1962d-5b note), or other applicable law.

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

DEPARTMENT OF THE ARMY

BY: _____
Robert J. Ells
Lieutenant Colonel, U.S. Army
District Engineer

DATE: 24 JUL 12

COUNTY OF BROWN, WISCONSIN

BY: _____
Troy Streckenbach
County Executive
Brown County, Wisconsin

DATE: 7/27/12

ORIGINAL

CERTIFICATE OF AUTHORITY

I, Kristen Hooker, do hereby certify that I am the principal legal officer of the County of Brown, Wisconsin, that the County of Brown, Wisconsin 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 County of Brown in connection with the Dredged or Excavated Material Disposal Facilities at Cat Island for Disposal of Material from the Existing General Navigation Features at Green Bay Harbor, Wisconsin, 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, as amended (42 U.S.C. Section 1962d-5b), and that the persons who have executed this Agreement on behalf of the County of Brown, Wisconsin have acted within their statutory authority.

IN WITNESS WHEREOF, I have made and executed this certification this 27th day of July 2012.

Kristen Hooker,
Interim Counsel for County of Brown, Wisconsin

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, subgrants, 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.

Troy Streckenbach
County Executive
Brown County, Wisconsin

DATE: 7/27/12

ORIGINAL