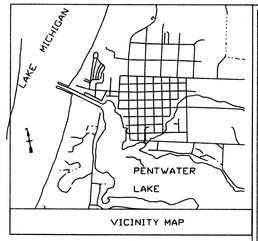
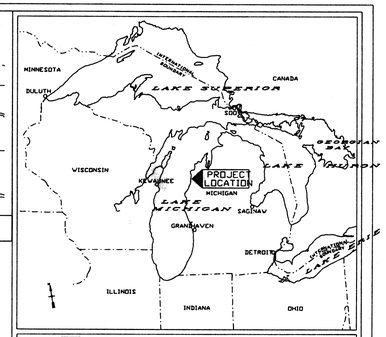
PENTWATER HARBOR, MICHIGAN

SOUTH PIER AND REVETMENT REPAIR
(SECTIONS G,H,B,J,K&F)



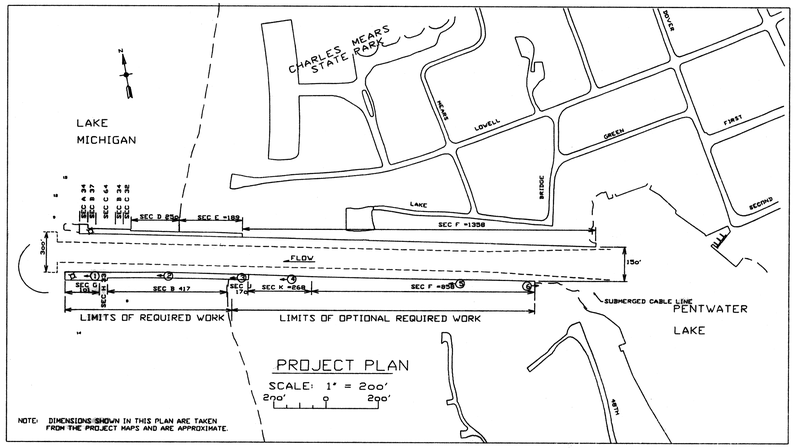
VICINITY MAP



US Army Corps of Engineers Detroit District

LOCATION MAP

SCALE OF MILES



NOTE: DIMENSIONS SHOWN IN THIS PLAN ARE TAKEN FROM THE PROJECT MAPS AND ARE APPROXIMATE.

PHOTO 1 - SOUTH PIER, SECTION G & H

PHOTO PIER 2 - SOUTH PIER, SECTION B

PHOTO 3 - SOUTH PIER/REVETMENT, SECTION J

PHOTO 4 - SOUTH REVETMENT, SECTION K

PHOTO 5 - SOUTH REVETMENT, SECTION F

PHOTO 6 - SOUTH REVETMENT, EAST END OF PROJECT

ABBREVIATIONS

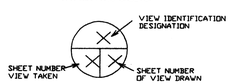
AVENUE..... AVE
SURVEY BASE LINE.....
CENTER LINE.....
DIAMETER..... DIA
EAST..... E
ELEVATION..... EL
FOOT..... ' OR FT
INCH..... " OR IN
INTERNATIONAL GREAT LAKES DATUM..... I.G.L.D.
LOW WATER DATUM..... LWD
MINIMUM..... MIN
NORTH..... N
NUMBER..... NO
OUTSIDE DIAMETER..... OD
POUNDS..... LBS
POUNDS PER SQUARE FOOT..... PSF
ROCK..... R
REQUIRED..... REQ'D
SOUTH..... S
SPACES..... SPA
STATION..... STA
STEEL SHEET PILE..... SSP
STEEL..... ST
TYPICAL..... TYP
UNITED STATES COAST GUARD..... U.S.C.G.
UNIFIED SOIL CLASSIFICATION SYSTEM..... U.S.C.S.
UNITED STATES..... U.S.
WEIGHT..... WT
WEST..... W

LEGEND (ALL SHEETS)

- SOIL BORING LOCATION
- NAVIGATION LIGHT
- HORIZONTAL CONTROL POINT
- VERTICAL CONTROL POINT
- DIRECTION PHOTO TAKEN
- SHORE LINE
- 8 — INDICATES APPROXIMATE DEPTHS AND LOCATIONS OF LAKE AND HARBOR BOTTOM.
- CONSTRUCTION CENTER LINE
- SURVEY BASE LINE
- WORK AND TEMPORARY STORAGE AREA
- CHANNEL LINE
- TREE- LINE
- POWER - LIGHT POLE
- SUBMERGED CABLE LINE
- EXISTING STONE
- INSPECTION HOLE
- BOLLARDS

REFERENCE CONVENTIONS

(TYPICAL ALL SHEETS)



GENERAL NOTES (APPLICABLE TO ALL SHEETS)

1. ALL SOUNDINGS, BENCH MARKS AND ELEVATIONS ARE REFERED TO LOW WATER DATUM (576.8 FEET ABOVE MEAN WATER LEVEL AT FATHER POINT, QUEBEC CANADA I.G.L.D. 1955).

2. ALL ITEMS SHOWN, ARE EXISTING UNLESS OTHERWISE INDICATED AS BUILT.

3. ALL STATIONING IS MEASURED FROM THE CONSTRUCTION BASE LINE.

4. THE CONTRACTOR LOCATED ALL ACTIVE UNDERGROUND UTILITIES PRIOR TO STARTING WORK AND CONDUCTED HIS OPERATIONS IN SUCH A MANNER AS TO ENSURE THAT THOSE UTILITIES NOT REQUIRING RELOCATION WERE NOT DISTURBED.

5. PIER SECTIONS G,H,B AND J WERE NOT SUBJECTED TO ANY LOADING GREATER THAN 300 PSF ANYTIME DURING CONSTRUCTION. REVETMENT SECTIONS K & F WERE NOT BE SUBJECTED TO ANY LOADING GREATER THAN 150 PSF ANYTIME DURING CONSTRUCTION.

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 THAT TIME.
   SURVEY BY GOSLING CZUBAK
   DATE OF SURVEY: DECEMBER 19 AND 20 1994
   APRIL 6,7 AND 8,1995: MAY 5,1995

7. PRIOR TO START OF CONSTRUCTION THE CONTRACTOR CONDUCTED CHECK SURVEYS ON EACH ASPECT OF THE WORK AS PROVIDED FOR IN THE SPECIFICATIONS. THE RESULTS OF THE CHECK SURVEYS MIGHT AFFECT THE QUANTITIES AND ALL CHANGES MUST BE APPROVED BY THE CONTRACTING OFFICERS' REPRESENTATIVE PRIOR TO START UP.

8. ELEVATIONS ABOVE LWD ARE SHOWN AS +5.00 OR +5.00R. SOUNDINGS BELOW LWD ARE SHOWN AS 10.00. OR 10.00R. 'R' INDICATES THE SOUNDING OR ELEVATION AT ROCK.

9. ALL SOUNDINGS WERE PERFORMED USING A 12" DIA. METAL BASKET.

10. REQUIRED WORK CONSISTED OF, BUT WAS NOT LIMITED TO PLACEMENT OF SSP WALLS & WALL SUPPORT HARDWARE, PLACEMENT OF NEW REINFORCED CONCRETE CAP AND WALKWAY, PLACEMENT OF RUBBLE MOUND WAVE ATTENUATION STRUCTURE, REMOVAL OF APPROXIMATELY 200LF OF EXISTING PIER STRUCTURE, REMOVAL OF EXISTING CONCRETE, PLACEMENT OF GUARD RAILS, LADDERS & GRABRAILS, RELOCATION OF EXISTING STONE.

11. SEE SHEET 13 & 14 FOR SOIL BORING NOTES.

12. LIMITS OF REQUIRED WORK WERE FROM STA 14+50 TO LAKEWARD END OF PROJECT (STA 8+37.5). LIMITS OF REQUIRED OPTIONAL WORK WERE FROM STA 14+50 TO STA 26+87.

DRAWING INDEX

SHT. NO.	DRAWING TITLE
1	LOCATION MAP,VICINITY MAP,PROJECT PLAN DRWG INDEX & PHOTOS
2	EXISTING CONDITIONS PLAN- STA 8+00 TO STA 17+00
3	EXISTING CONDITIONS PLAN- STA 17+00 TO STA 27+00
4	EXISTING CONDITIONS PLAN- STA 27+00 TO STA 36+50 & CROSS SECTIONS
5	STRUCTURE PLAN & SECTIONS - STA 8+00 TO STA 13+00
6	STRUCTURE PLAN & SECTIONS - STA 13+00 TO STA 18+00
7	STRUCTURE PLAN & SECTIONS - STA 18+00 TO STA 26+00
8	STRUCTURE PLAN - STA 26+00 TO STA 26+87 AND SECTIONS
9	CONCRETE CAP & WALKWAY DETAILS
10	STEEL SECTIONS AND DETAILS
11	MISCELLANEOUS SECTIONS AND DETAILS
12	MISCELLANEOUS SECTIONS AND DETAILS
13	SOIL BORING LOGS
14	SOIL BORING LOGS
15	REAL ESTATE PLAN

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 THEIR EMPLOYMENT AS REQUIRED BY ER 1110-1-8152.

CORPS OF ENGINEERS DETROIT DISTRICT

Value Engineering

Increase Profit...Submit VECP'S

NO.	DATE	REVISION	BY
		PRIOR TO CONSTRUCTION	

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

SIGNATURES AFFIXED BELOW INDICATE OFFICIAL RECOMMENDATION AND APPROVAL OF ALL DRAWINGS IN THIS SET AS INDEXED ON THIS SHEET.

PENTWATER HARBOR MICHIGAN
SOUTH PIER AND REVETMENT REPAIR
(SECTIONS G,H,B,J,K& F)
LOCATION MAP, VICINITY MAP,PROJECT PLAN
DRAWING INDEX & SITE PHOTOS

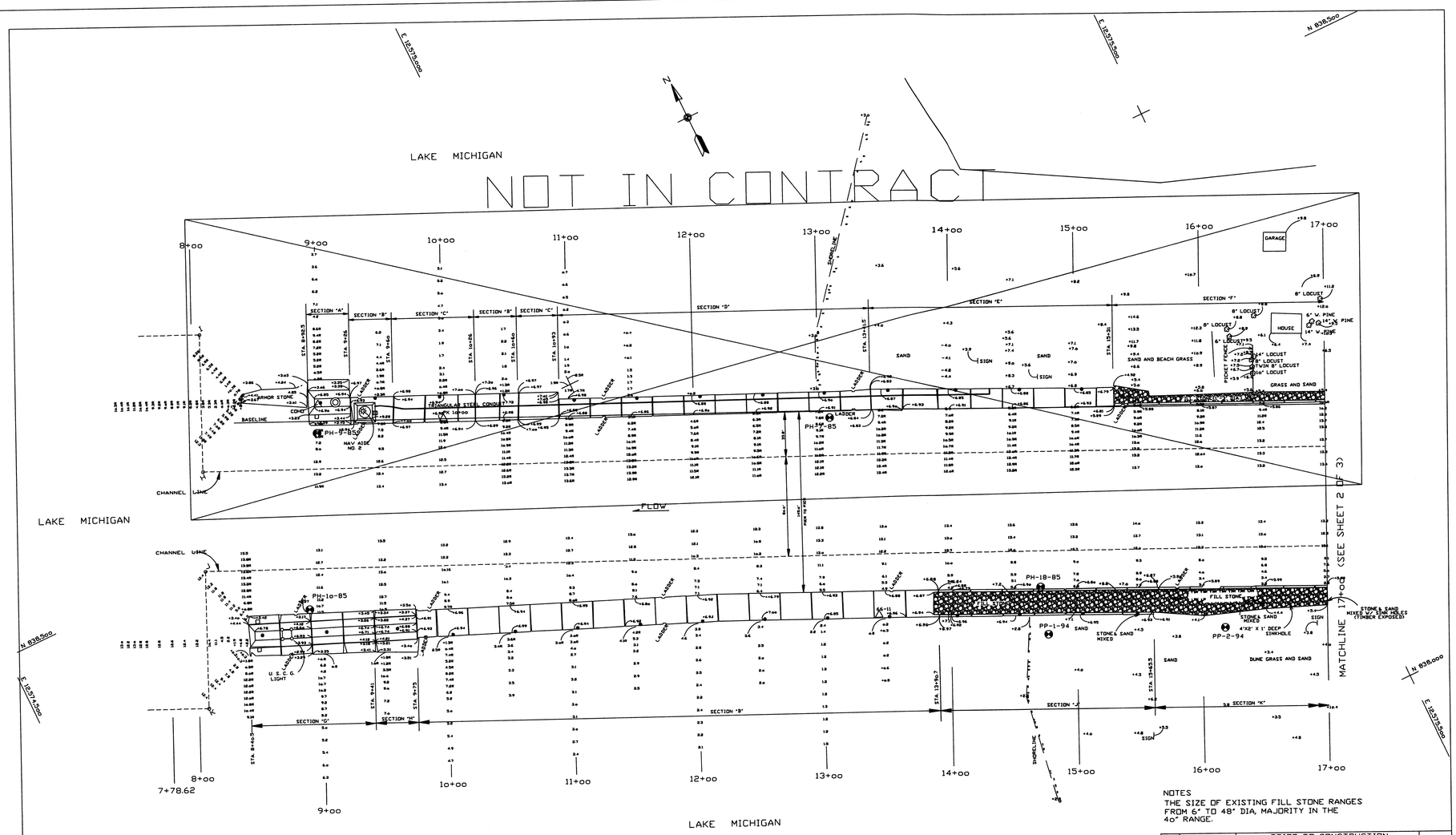
SUBMITTED BY:
CHIEF, DESIGN BRANCH P.E.

APPROVED:
COL, C.E. DISTRICT ENGINEER P.E.

APPROVAL RECOMMENDED
CHIEF, ENGINEERING & PLANNING DIVISION P.E.

SCALE AS SHOWN
CADD FILE NAME PVLo1A95.DGN
DRAWING NUMBER
SHEET 1 OF15

SOLICITATION NUMBER: DACW35-96-B-00



NOTES
THE SIZE OF EXISTING FILL STONE RANGES FROM 6" TO 48" DIA, MAJORITY IN THE 40" RANGE.

EXISTING CONDITIONS PLAN (PRIOR TO CONSTRUCTION)

(STA 8+00 TO STA 17+00)

30' 0 30' 60' 90'
scale feet

HORIZONTAL SCALE: 1" = 30'

HORIZONTAL CONTROL			
STATION NUMBER	COORDINATES NORTH	EAST	DESCRIPTION
CONC	838,573.877	1,574,811.816	HOLE IN CONCRETE
66-11	838,825.397	1,575,141.108	STANDARD DISK IN CONCRETE

NORTH BASELINE CONTROL			
STATION NUMBER	COORDINATES NORTH	EAST	DESCRIPTION
PK 10+00	838,519.823	1,574,897.044	PK NAIL- IN CONCRETE

NO.	DATE	REVISION	BY
		PRIOR TO CONSTRUCTION	

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

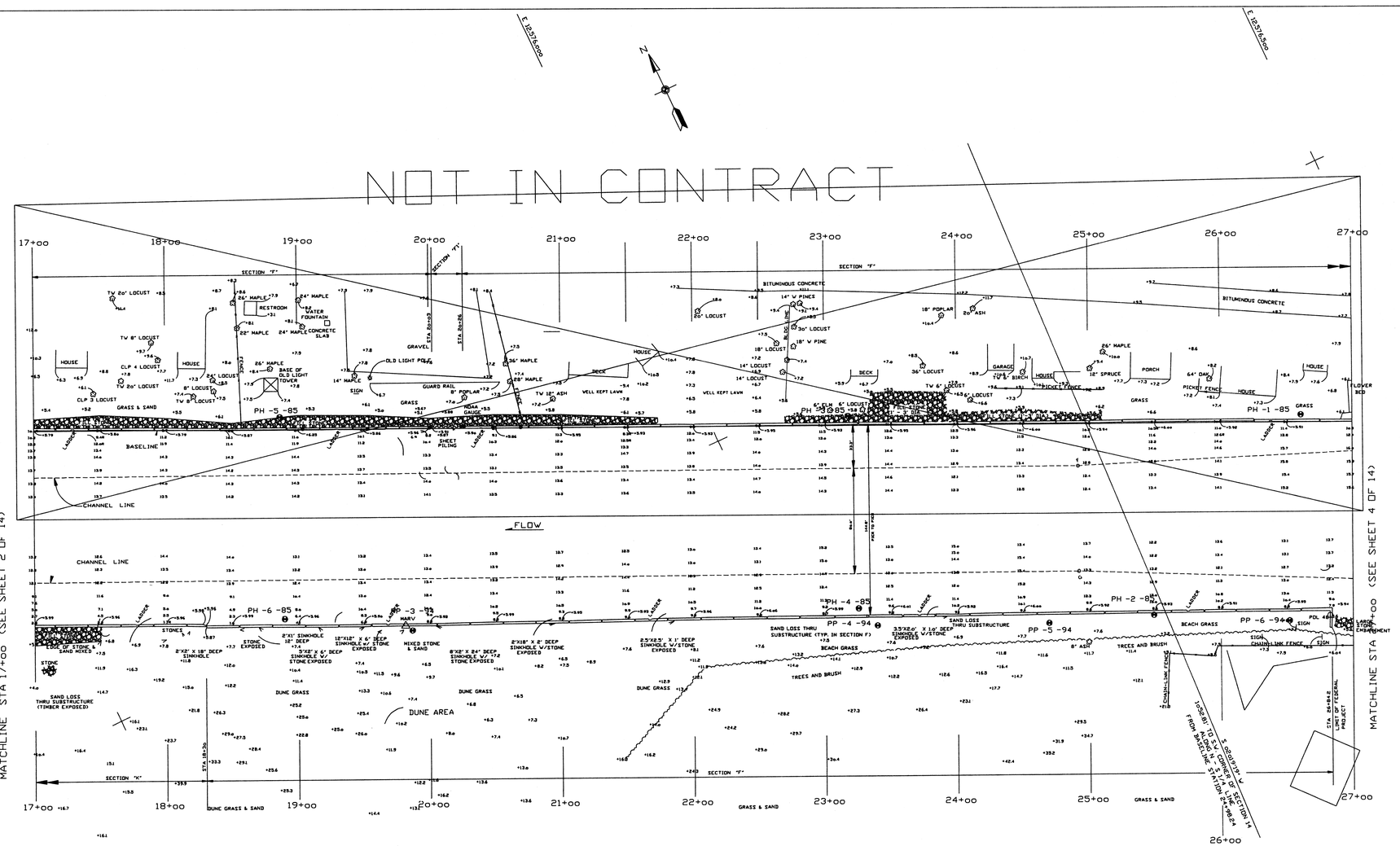
DESIGNED BY: GJ
DRAWN BY: DG
CHECKED BY: EB
REVIEWED BY: P.E.
CHIEF, STRUCTURAL DESIGN SECTION

PENTWATER HARBOR MICHIGAN
SOUTH PIER AND REVETMENT REPAIR
(SECTIONS G,H,B,J,K & F)

EXISTING CONDITIONS PLAN - STA 8+00 TO STA 17+00

SCALE AS SHOWN
CADD FILE NAME PWT02A95.DGN
DRAWING NUMBER
SHEET 2 OF 15 14-10/139

SOLICITATION NUMBER: DACW35-96-B-00



EXISTING CONDITIONS PLAN (PRIOR TO CONSTRUCTION)

(STA 17+00 TO STA 27+00)

30' 0 30' 60' 90'
scale feet

HORIZONTAL SCALE: 1" = 30'

NOTE: EXISTING STONE IN SECTION F RANGES IN SIZE FROM 12"- 24" DIA.

HORIZONTAL CONTROL			
STATION NUMBER	COORDINATES NORTH	EAST	DESCRIPTION
MARV	837,973.931	575,726.238	STANDARD DISK IN CONCRETE

NO.	DATE	REVISION	BY
		PRIOR TO CONSTRUCTION	

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

DESIGNED BY: GJ
DRAWN BY: DG
CHECKED BY: EB
REVIEWED BY:
CHIEF, STRUCTURAL DESIGN SECTION P.E.

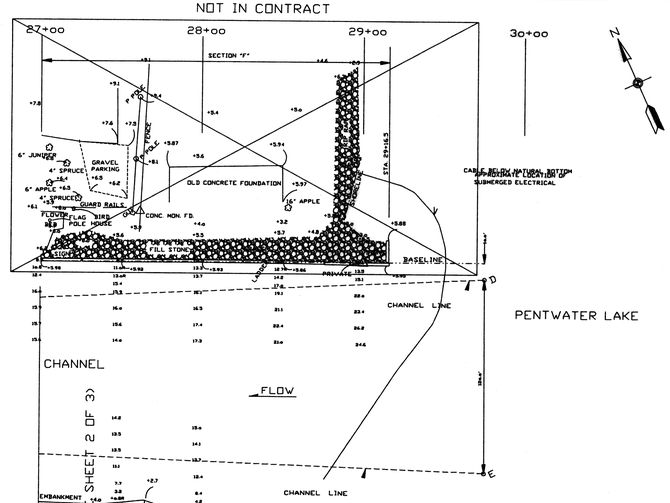
PENTWATER HARBOR MICHIGAN

SOUTH PIER AND REVETMENT REPAIR
(SECTIONS G,H,B,J,K & F)
EXISTING CONDITIONS PLAN
STA 17+00 TO STA 27+00

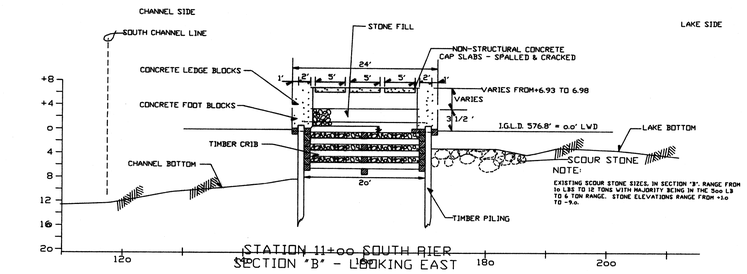
SCALE AS SHOWN
CADD FILE NAME PVTo3A95.DGN
DRAWING NUMBER
SHEET 3 OF 15 14-10/140

SOLICITATION NUMBER: DACW35-96-B-00

NOT IN CONTRACT

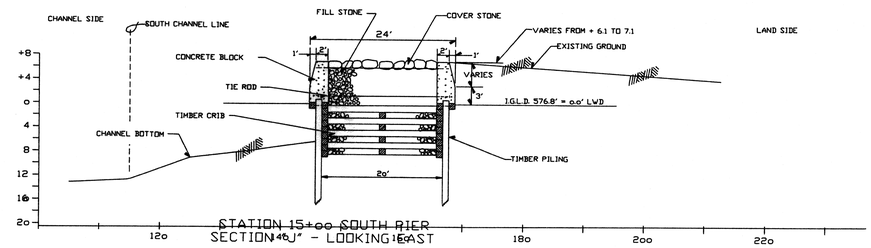


EXISTING CONDITIONS PLAN
(STA 27+00 TO STA 30+00

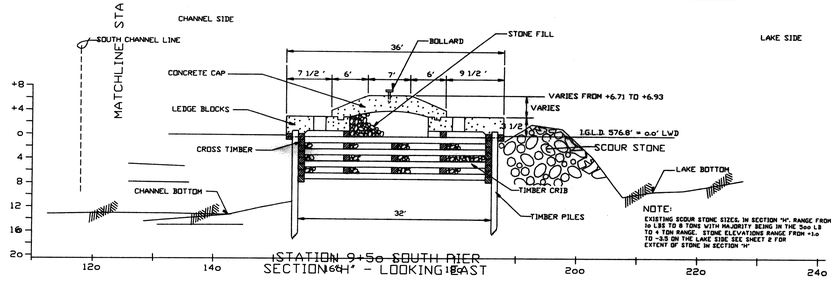


NOTE:
EXISTING SCOUR STONE SIZES, IN SECTION "B", RANGE FROM 10 LBS TO 12 TONS WITH MAJORITY BEING IN THE 500 LB TO 6 TON RANGE. STONE ELEVATIONS RANGE FROM +1.0 TO -9.0.

STATION 11+00 SOUTH PIER
SECTION "B" - LOOKING EAST

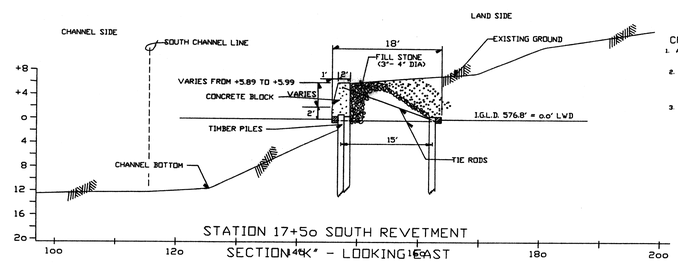


STATION 15+00 SOUTH PIER
SECTION "J" - LOOKING EAST



NOTE:
EXISTING SCOUR STONE SIZES, IN SECTION "H", RANGE FROM 10 LBS TO 8 TONS WITH MAJORITY BEING IN THE 500 LB TO 4 TON RANGE. STONE ELEVATIONS RANGE FROM +1.0 TO -3.5 ON THE LAKE SIDE. SEE SHEET 8 FOR EXTENT OF STONE IN SECTION "H"

STATION 9+50 SOUTH PIER
SECTION "H" - LOOKING EAST



STATION 17+50 SOUTH REVETMENT
SECTION "K" - LOOKING EAST

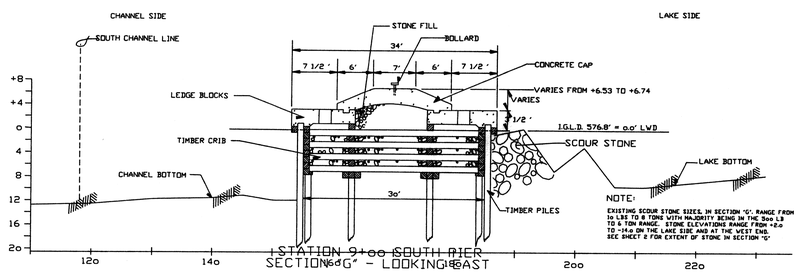
CROSS SECTION NOTES:

1. ALL ITEMS SHOWN ARE EXISTING PRIOR TO CONSTUCTION AND REPRESENT THE GENERAL CONDITION OF THE STRUCTURE.
2. ELEVATIONS AND DEPTHS ARE REFERRED TO LOW WATER DATUM (L.W.D.) FOR LAKE MICHIGAN WHICH IS 576.8 FEET ABOVE MEAN WATER LEVEL AT FATHER POINT, QUEBEC, CANADA INTERNATIONAL GREAT LAKES DATUM (I.G.L.D.) 1955.
3. DISTANCES SHOWN ARE MEASURED FROM THE BASE LINE LOCATED ON THE NORTH STRUCTURE.

CROSS SECTION LEGEND:

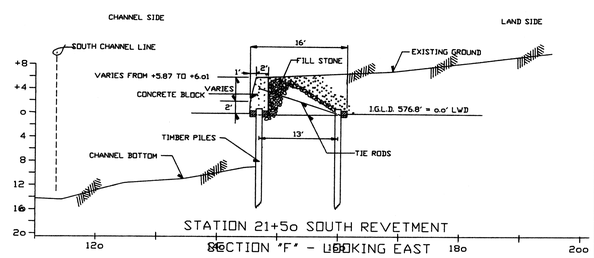
- BASELINE
- CHANNEL LINE
- CONCRETE
- STONE FILL, SIZE AS INDICATED

CROSS SECTION SCALE: 1/8" = 1' - 0"



NOTE:
EXISTING SCOUR STONE SIZES, IN SECTION "G", RANGE FROM 10 LBS TO 8 TONS WITH MAJORITY BEING IN THE 500 LB TO 4 TON RANGE. STONE ELEVATIONS RANGE FROM +2.0 TO -14.0 ON THE LAKE SIDE AND AT THE WEST END. SEE SHEET 8 FOR EXTENT OF STONE IN SECTION "G"

STATION 9+00 SOUTH PIER
SECTION "G" - LOOKING EAST



STATION 21+50 SOUTH REVETMENT
SECTION "F" - LOOKING EAST

NO.	DATE	REVISION	BY
		PRIOR TO CONSTRUCTION	

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

DESIGNED BY: XXX
DRAWN BY: DLH
CHECKED BY: EAB
REVIEWED BY:
CHIEF, STRUCTURAL DESIGN SECTION P.E.

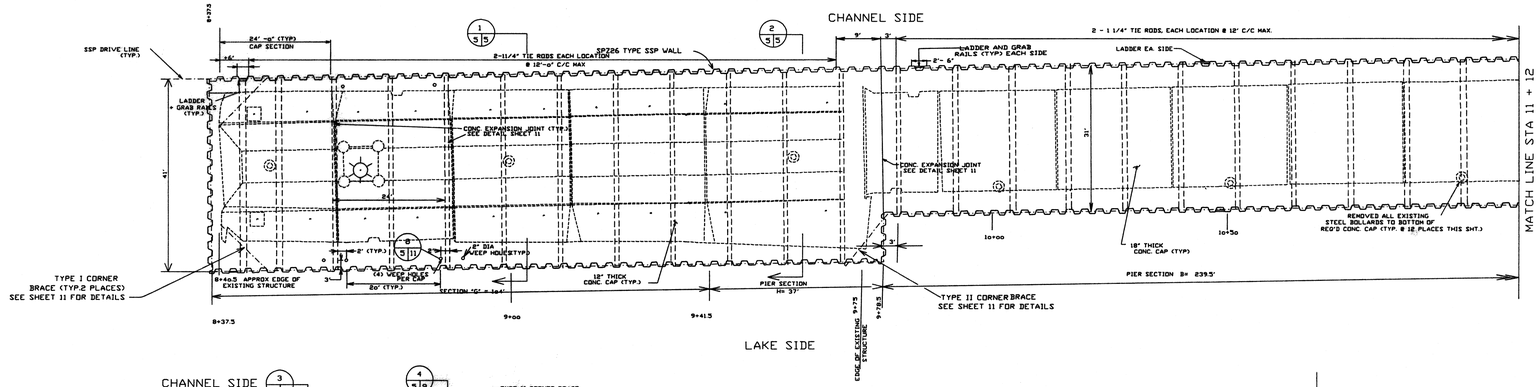
PENTWATER HARBOR MICHIGAN

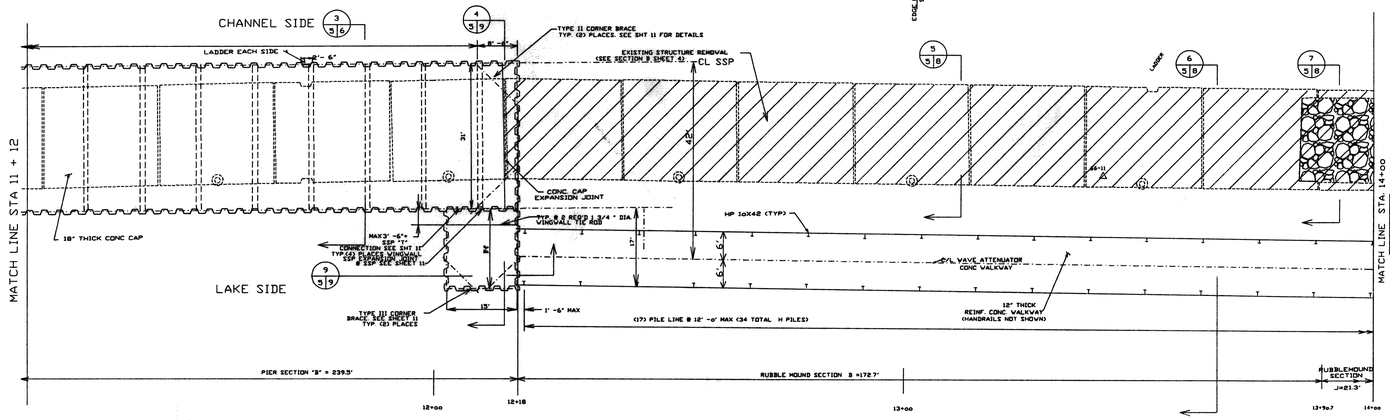
SOUTH PIER AND REVETMENT REPAIR (SECTIONS G,H,B,J,K AND F)

EXISTING CONDITIONS PLAN - STA 27+00 TO STA 30+00 AND CROSS SECTIONS

SCALE AS SHOWN
CADD FILE NAME PWT06495.DGN
DRAWING NUMBER 14-107
SHEET 4 OF 15

SOLICITATION NUMBER: DACW35-96-B-00





LEGEND

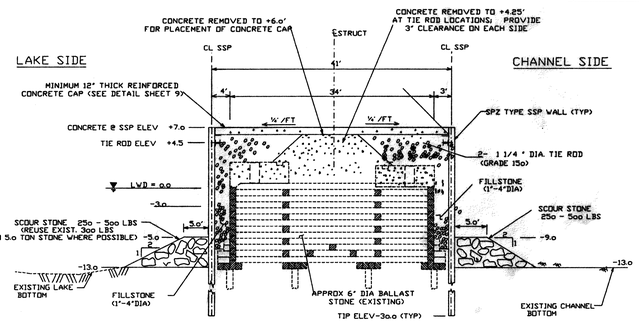
- CONCRETE EXPANSION JOINT
- OUTLINE OF EXISTING STRUCTURE
- CHANNEL LIMITS
- SSP WALL
- NEW TIE ROD
- EXISTING INSPECTION WELL(COVERED)
- BOLLARDS (REMOVED)
- EXISTING STRUCTURE (REMOVED)

DESIGN LOADS

SECTIONS : G,H,B & J	LIVE LOAD = 300 PSF (SNOW & ICE) DEAD LOAD = 225 PSF (REINFORCED CONC.)
SECTIONS : K & F (REVETMENTS)	LIVE LOAD= 150 PSF (SNOW & ICE) DEAD LOAD=150 PSF (REINFORCED CONC.)
SECTIONS : SSP CELLS (WING WALLS)	LIVE LOAD= 300 PSF (SNOW & ICE) DEAD LOAD =225 PSF (REINFORCED CONC.)

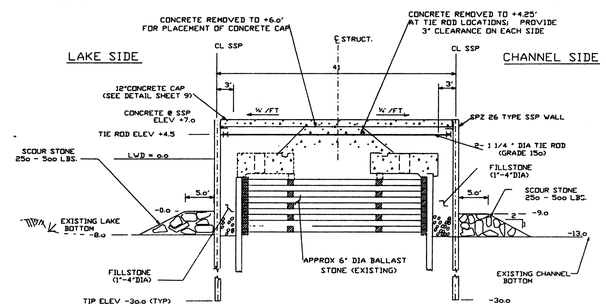
STRUCTURE PLAN -SECTIONS G, H, B & J

SCALE 1" = 10'



REPAIR CROSS SECTION (PIER SECTION G) 1/3|5

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



REPAIR CROSS SECTION (PIER SECTION H) 2/3|5

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

NOTES

1. ALL ITEMS SHOWN ARE EXISTING UNLESS INDICATED "AS BUILT".
2. MAINTAIN SSP DRIVE LINE WITH RESPECT TO THE ESTABLISHED BASE LINE.
3. SEE SHEET SPECIFICATIONS FOR SSP REQUIREMENTS.
4. ALL SSP DRIVE LINE CORNERS ARE 90 DEGREES UNLESS OTHERWISE NOTED.
5. SEE SHEET 9 &11 FOR TYPICAL CONC. DETAILS AND CONC. JOINTING PLAN.
6. SEE SHEET 12 FOR REQ'D LADDER DETAILS, SSP CORNER DETAILS AND TYPICAL STEEL DETAILS.
7. FIELD VERIFY SSP ALIGNMENT TO CLEAR EXISTING STRUCTURE, WHICH MAY HAVE SHIFTED SINCE SURVEY WAS TAKEN.
8. EXISTING CONC. PARAPETS AND PILE CAP PIECES REMOVED ARE TO BE REUSED AS PART OF APPLICABLE RUBBLE MOUND LAYER SHOWN ON SHEET 9.
9. SEE SPECIFICATIONS FOR STONE GRADATIONS.
10. LADDERS WERE INSTALLED AS SHOWN ON BOTH SIDES OF THE PIER (SECTIONS G,H, & B), AND, ON THE CHANNEL SIDE OF THE REVETMENT.
11. THE SSP LAYOUT SHOWN IS SCHEMATIC.

NO.	DATE	REVISION	BY
		AS BUILT	

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

DESIGNED BY: GJ
DRAWN BY: DG
CHECKED BY: GJ
REVIEWED BY: P.E. CHIEF, STRUCTURAL DESIGN SECTION

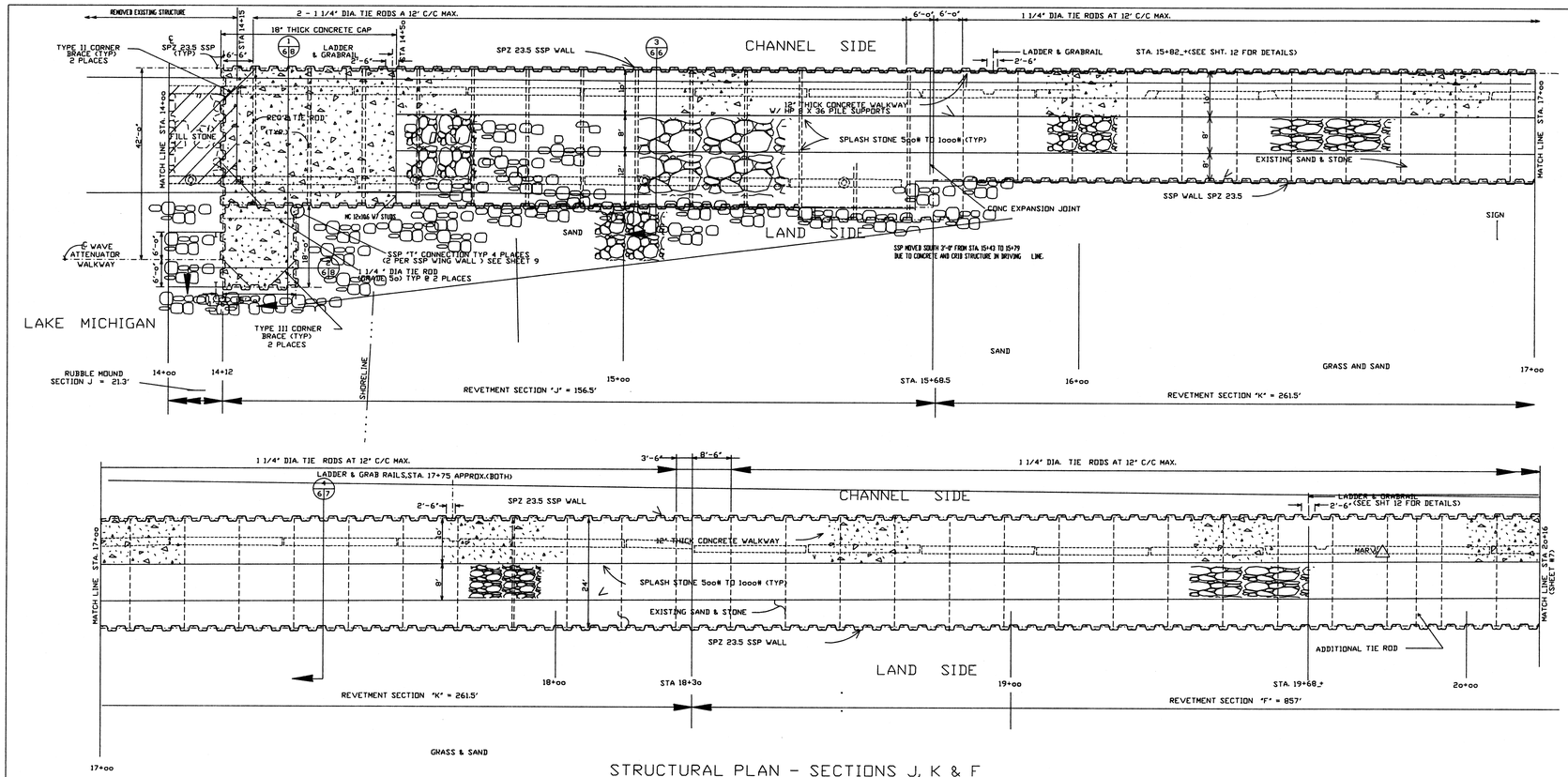
PENTWATER HARBOR MICHIGAN

SOUTH PIER AND REVETMENT REPAIR (SECTIONS G,H,B,J,K AND F)

STRUCTURE PLAN AND SECTIONS STA 8+00 TO STA 13+00

SCALE AS SHOWN 1" = 10'-0"
CADD FILE NAME PWN05A93.DGN
DRAWING NUMBER
SHEET 5 OF 14 14 10 /142

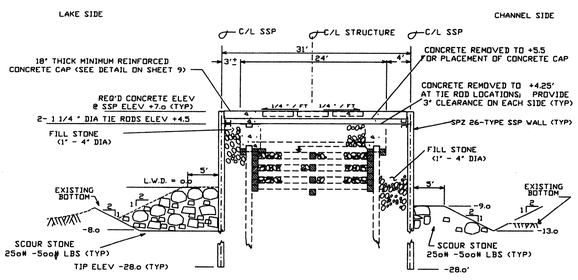
SOLICITATION NUMBER: DACW35-96-B-00



STRUCTURAL PLAN - SECTIONS J, K & F

10' 5' 0 10' 20'

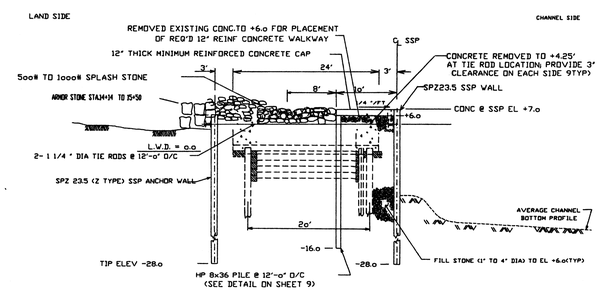
SCALE: 1" = 10'



REPAIR CROSS SECTION (3 / 5 6)

(PIER SECTION B)

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



REPAIR CROSS SECTION (3 / 6 6)

(PIER SECTION J)

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

NO.	DATE	REVISION	BY
		AS BUILT	

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

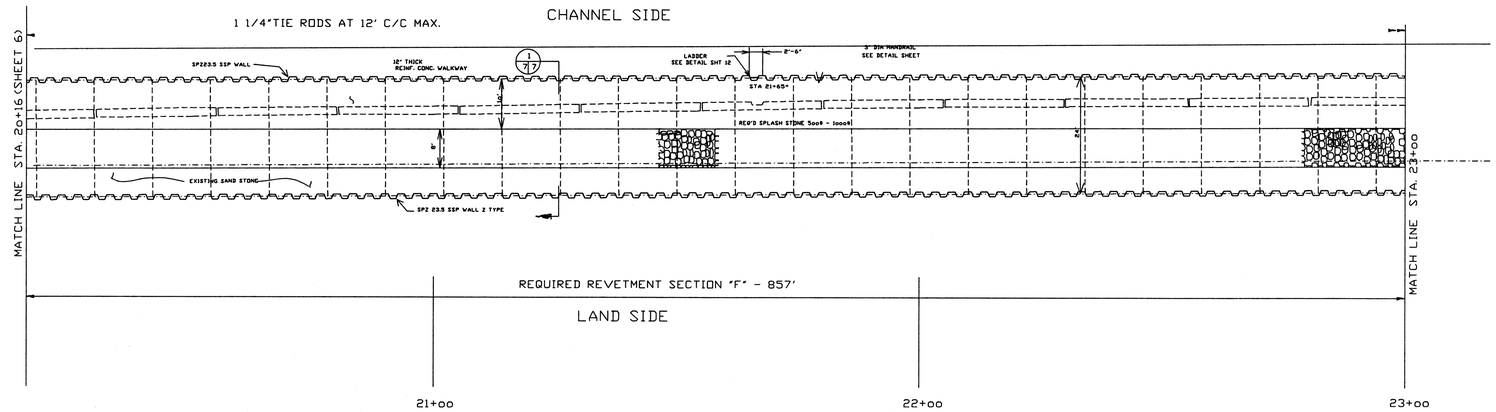
PENTWATER HARBOR MICHIGAN

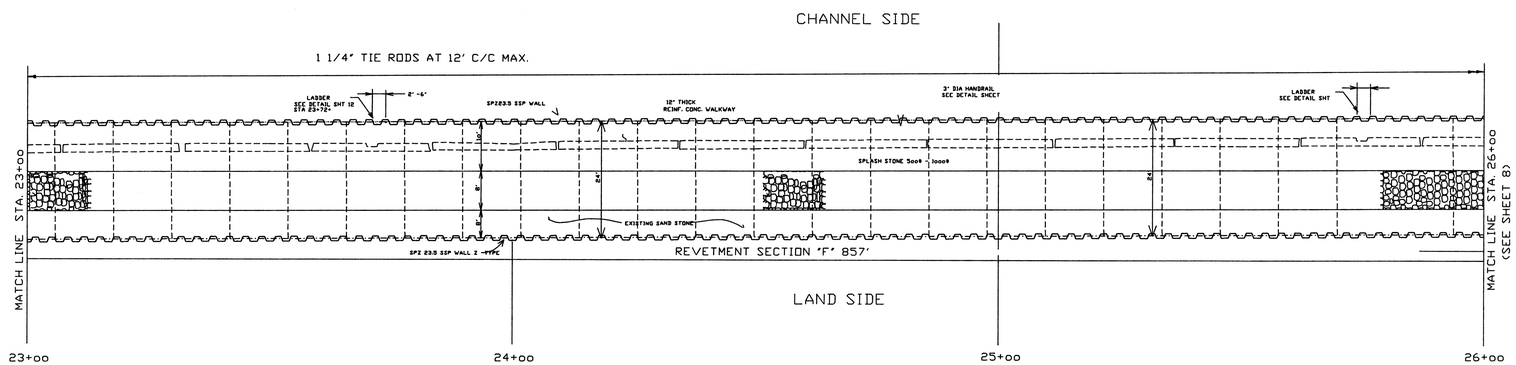
SOUTH PIER AND REVETMENT REPAIR
(SECTIONS G,H,B,J,K, AND F)
STRUCTURE PLAN AND SECTIONS
STA 13+00 TO STA 18+00

DESIGNED BY:
DRAWN BY: DG
CHECKED BY: GJ
REVIEWED BY:
CHIEF, STRUCTURAL DESIGN SECTION P.E.

SCALE AS SHOWN 1" = 10'- 0"
CADD FILE NAME PWW06895.DGN
DRAWING NUMBER
SHEET 6 OF 15 14 to /143

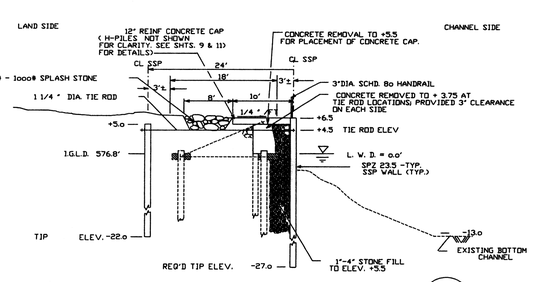
SOLICITATION NUMBER DACW35-96-B-00





STRUCTURE PLAN - SECTION F

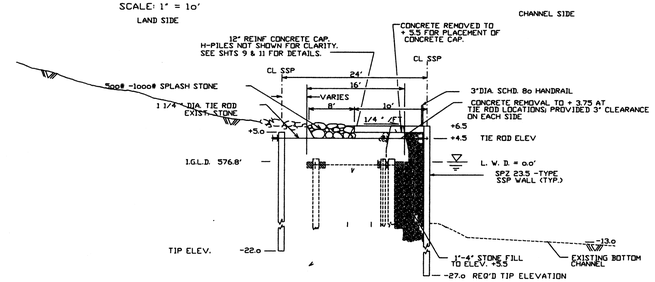
SCALE: 1" = 10'



REPAIR CROSS SECTION
(REVETMENT SECTION K)

4 / 6 7

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



REPAIR CROSS SECTION
(REVETMENT SECTION F)

1 / 7 7

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

NO.	DATE	REVISION	BY
		AS BUILT	

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

DESIGNED BY: GJ
DRAWN BY: DG
CHECKED BY: EB
REVIEWED BY:
CHIEF, STRUCTURAL DESIGN SECTION P.E.

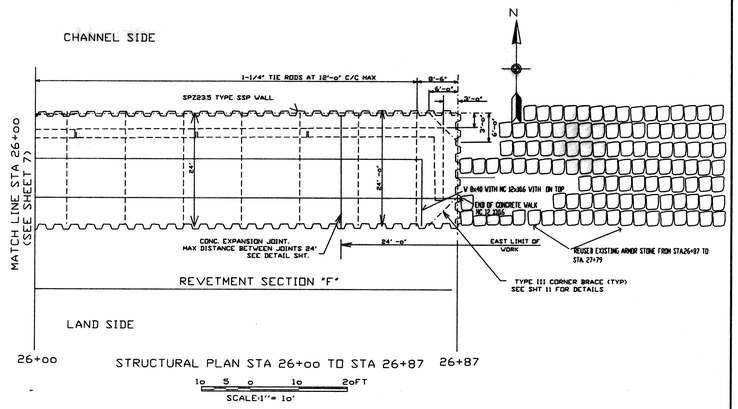
PENTWATER HARBOR MICHIGAN

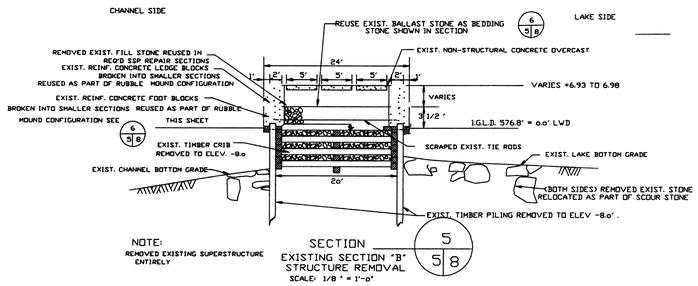
SOUTH PIER AND REVETMENT REPAIR (SECTIONS G,H,B,J,K AND F)

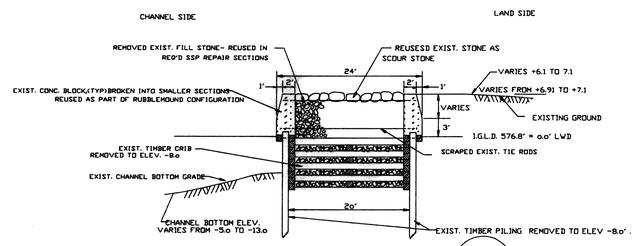
STRUCTURE PLAN AND SECTIONS
STA 18+00 TO STA 26+00

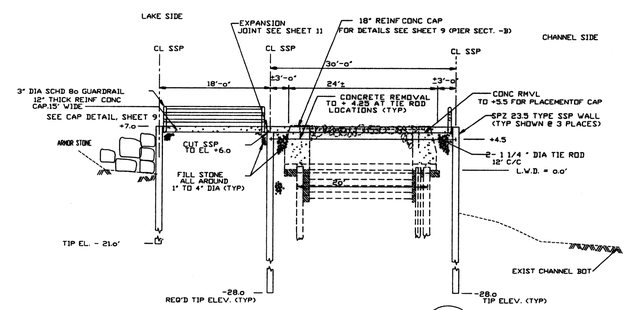
SCALE AS SHOWN 1" = 10'- 0"
CADD FILE NAME PWW07A95.DGN
DRAWING NUMBER 14 10 /144
SHEET 7 OF 15

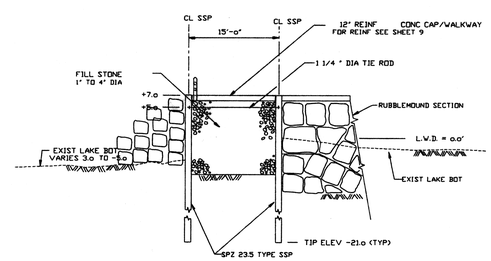
SOLICITATION NUMBER: DACW35-96-B-00

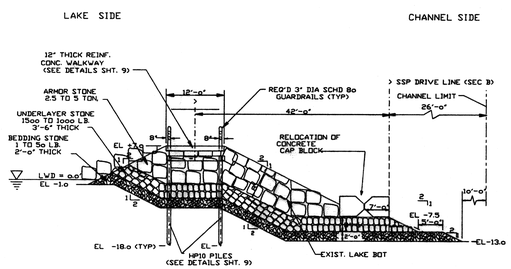












NO.	DATE	REVISION	BY
		AS BUILT	

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

PENTWATER HARBOR MICHIGAN

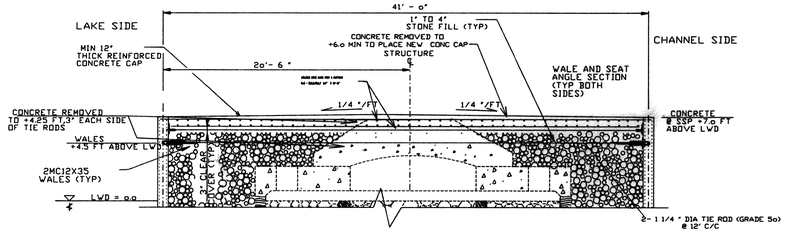
SOUTH PIER AND REVETMENT REPAIR
(SECTIONS G,H,B,J,K AND F)

STRUCTURAL PLAN STA 26+00 TO STA 26+87
AND SECTIONS

DESIGNED BY: GJ
DRAWN BY: DG
CHECKED BY: EB
REVIEWED BY: P.E.
CHIEF, STRUCTURAL DESIGN SECTION

SCALE AS SHOWN 1/8" = 1'- 0"
CADD FILE NAME
DRAWING NUMBER 14 10 /145
SHEET 8 OF 15

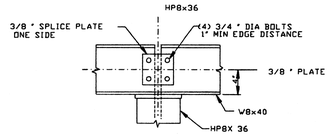
SOLICITATION NUMBER: DACW35-96-B-00



REINFORCED CONCRETE CAP DETAIL

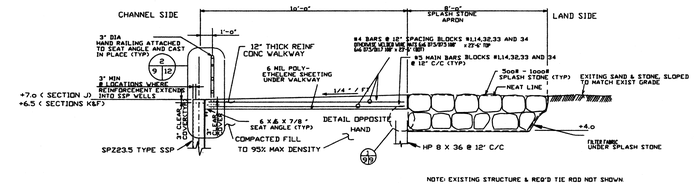
(PIER SECTIONS G & H)

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



TYPICAL BEAM SPLICE DETAIL

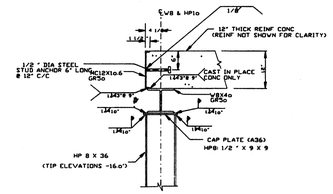
SCALE: 1 1/2 " = 1'



10' WIDE CONCRETE WALKWAY AND SPLASH STONE APRON DETAIL

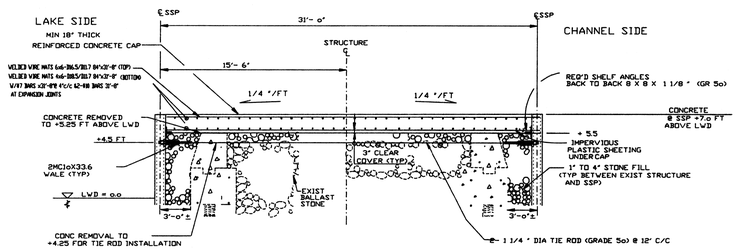
(SECTIONS J,K & F)

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



DETAIL 1/9 9

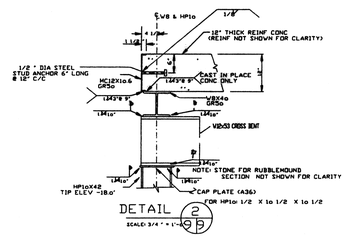
SCALE: 3/4 " = 1'-0"



REINFORCED CONCRETE CAP DETAIL

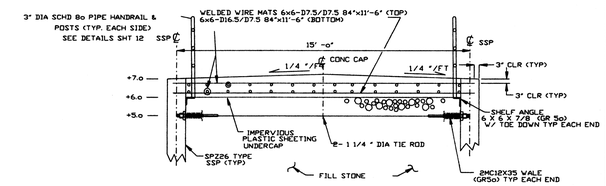
(PIER SECTION B)

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



DETAIL 2/9 9

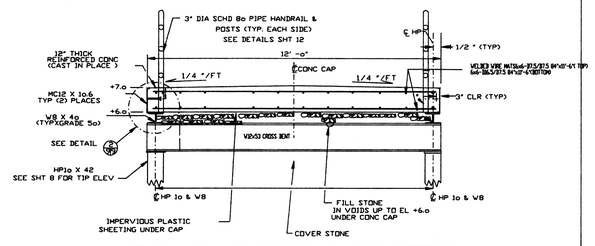
SCALE: 3/4 " = 1'-0"



15 FT WIDE CONCRETE CAP DETAIL

(SECTIONS B & J)

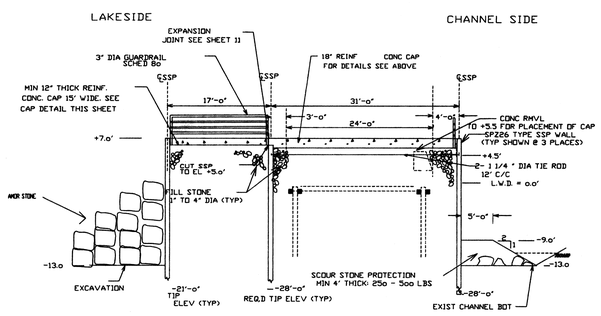
SCALE: 3/8 " = 1'-0"



12 FT WIDE CONCRETE WALKWAY DETAIL

(RUBBLEMOUND WAVE ATTENUATOR)

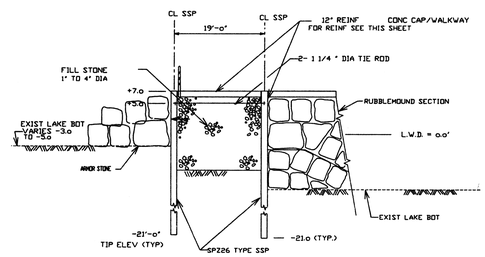
SCALE: 1/2 " = 1'-0"



REPAIR CROSS SECTION 4/9 9

(PIER SECTION B -ADJACENT TO RUBBLE MOUND STRUCTURE)

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



SECTION 9/9 9

SECTION B REPAIRS ADJACENT TO RUBBLEMOUND STRUCTURE

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

NOTES:

1. DASHED LINE ITEMS REPRESENT THE EXISTING STRUCTURE.
2. SEE SHEET 6, 7 & 8 FOR SSP REQUIREMENTS.
3. SEE THIS SHEET FOR TYPICAL REINF CONC DETAILS FOR EACH DIFFERENT SPAN OF CONC SLAB.
4. ALL ELEVATIONS REFERENCED FROM I.G.L.D. = 576.8 (LOW WATER DATUM)
5. EXIST CONC PARAPETS AND PILE CAP PIECES REMOVED WERE REUSED AS PART OF APPLICABLE RUBBLE MOUND LAYER SHOWN SHEET 12.
6. SEE SPECIFICATIONS FOR STONE GRADATIONS.
7. BLENDED CROWN ELEVATIONS WITHIN 5 FEET BETWEEN PIER OR REVETMENT SECTIONS HAVING DIFFERENT WIDTHS.

NO.	DATE	REVISION	BY
		AS BUILT	

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

DESIGNED BY: GJ
DRAWN BY:
CHECKED BY: GJ
REVIEWED BY:
CHIEF, STRUCTURAL DESIGN SECTION

PENTWATER HARBOR MICHIGAN

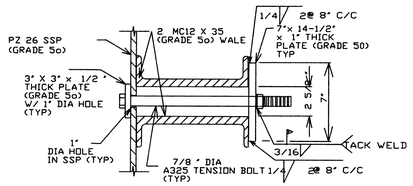
SOUTH PIER AND REVETMENT REPAIR (SECTIONS G,H,B,J,K AND F)

CONCRETE CAP AND WALKWAY DETAILS

P.E.

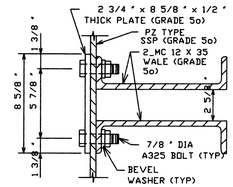
SCALE AS SHOWN
CADD FILE NAME
DRAWING NUMBER
SHEET 9 OF 15

SOLICITATION NUMBER: DACW35-96-B-00



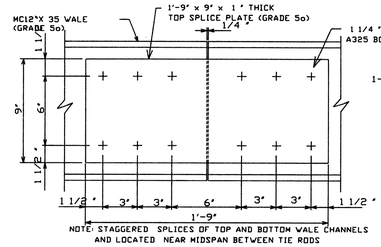
SSP WALE CONNECTION DETAIL

SCALE: 1/4" = 1"



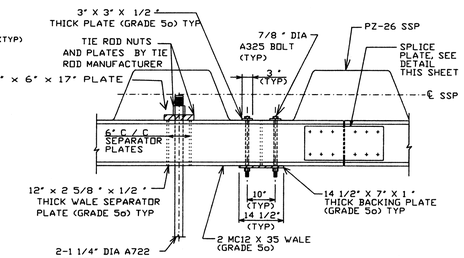
SSP WALL CORNER BOLT CONNECTION SECTION

SCALE: 1/4" = 1"



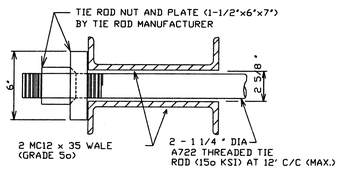
WALE SPLICE PLATE DETAIL

SCALE: 3" = 1'-0"



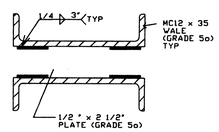
SSP WALL PLAN

SCALE: 1" = 1'-0"



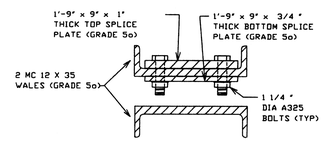
TIE ROD SECTION

SCALE: 1/4" = 1"



WALE SEPARATOR DETAIL

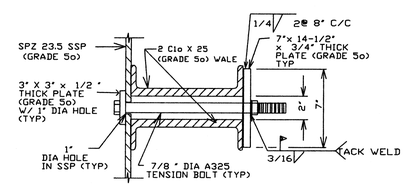
SCALE: 1/4" = 1"



WALE SPLICE PLATE SECTION

SCALE: 3" = 1'-0"

PIER SECTIONS G, H & B



SSP WALE CONNECTION DETAIL

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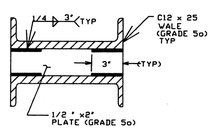
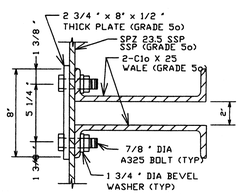


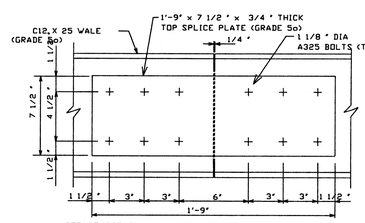
WALE SEPARATOR DETAIL

SCALE: 1/4" = 1"



SSP WALL CORNER BOLT CONNECTION SECTION

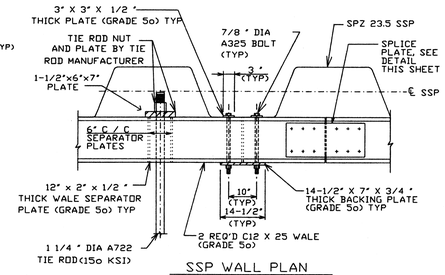
SCALE: 1/4" = 1"



WALE SPLICE PLATE DETAIL

(SECTIONS J, K, & F)

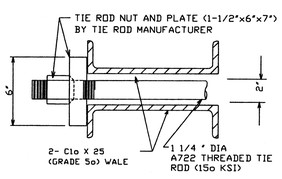
SCALE: 3" = 1'-0"



SSP WALL PLAN

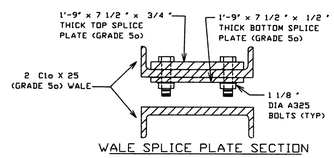
(SECTION J, K, & F)

SCALE: 1" = 1'-0"



TIE ROD SECTION

SCALE: 1/4" = 1"



WALE SPLICE PLATE SECTION

SCALE: 3" = 1'-0"

REVETMENT SECTIONS J, K & F

NOTES:

1. ALL STEEL PLATES WERE A36 UNLESS NOTED.
2. ALL STRUCTURAL SHAPES WERE GRADE 50 UNLESS NOTED.
3. ALL BOLTS WERE A325 UNLESS NOTED.
4. DRILLED HOLES 1/16" OVER NOMINAL BOLT DIAMETER DID NOT REQUIRED FLAT WASHERS UNLESS NOTED: ALL OVERSIZE HOLES REQUIRE FLAT WASHERS UNDER BOLT OR NUT.
5. NUT TO BOLT CONNECTION WERE TACK WELDED AFTER FINAL TIGHTENING AT REQIRED LOCATIONS.

NO.	DATE	REVISION	BY
		AS BUILT	

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

DESIGNED BY: GJ

DRAWN BY: DAG

CHECKED BY: GJ

REVIEWED BY:

CHIEF, STRUCTURAL DESIGN SECTION — P.E.

PENTWATER HARBOR MICHIGAN

SOUTH PIER AND REVETMENT REPAIR
(SECTIONS G,H,B,J,K AND F)

STEEL SECTIONS AND DETAILS

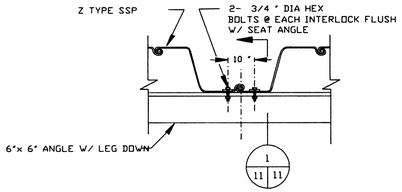
SCALE AS SHOWN

CADD FILE NAME: PW010A95.DGN

DRAWING NUMBER

SHEET 10 OF 15 — 14 - 10 /147

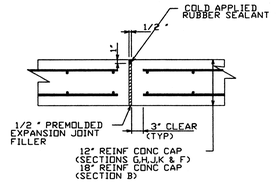
SOLICITATION NUMBER: DACW35-96-B-00



SSP WALL PLAN @ SEAT ANGLE

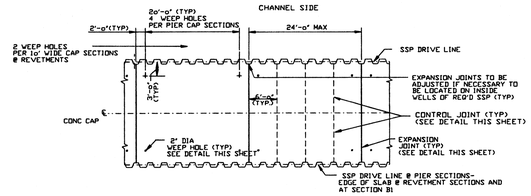
(REVETMENT SECTIONS K & F)

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



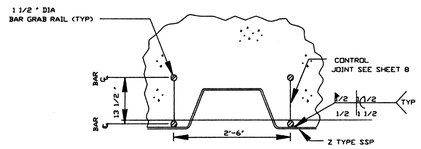
TYPICAL CONCRETE EXPANSION JOINT DETAIL

SCALE: 1" = 1'-0"



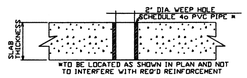
CONCRETE CAP JOINTING PLAN TYPICAL FOR ALL SPANS

NOT TO SCALE



CONTROL JOINT PLAN AT LADDER GRAB RAIL

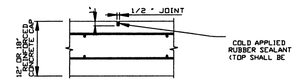
SCALE: 1" = 1'-0"



TYPICAL WEEP HOLE DETAIL

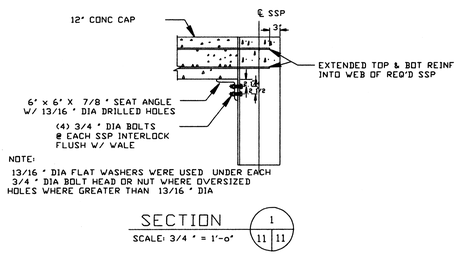
8 / 5 11

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



TYPICAL CONCRETE CONTROL JOINT

SCALE: 1" = 1'-0"



SECTION

1 / 11 11

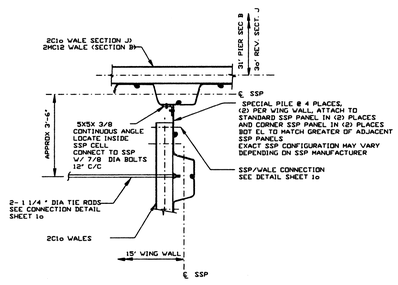
SCALE: 3/4 " = 1'-0"

CORNER BRACE DETAILS TYPE I,II & III

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

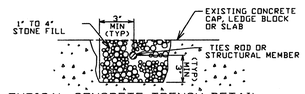
NOTES:

1. ALL STEEL PLATES WERE A36 UNLESS NOTED OTHERWISE.
2. ALL STRUCTURAL SHAPES WERE GRADE 50 UNLESS NOTED OTHERWISE.
3. ALL BOLTS WHERE A325 UNLESS NOTED OTHERWISE.
4. DRILLED HOLES 1/16 " OVER NOMINAL BOLT DIAMETER DID NOT REQUIRE FLAT WASHERS UNLESS NOTED. ALL OVERSIZE HOLES REQUIRED FLAT WASHERS UNDER BOLT OR NUT HEAD.
5. CONTRACTOR COORDINATED LOCATION OF WEEP HOLES.



SPECIAL "T" PILE DETAIL

(LOCATED @ 2 WING WALLS) SCALE: 1/2 " = 1'-0"



TYPICAL CONCRETE TRENCH DETAIL

SCALE: 1" = 2'-0"

NO.	DATE	REVISION	BY
		AS BUILT	

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

DESIGNED BY:

DRAWN BY: DAG

CHECKED BY: EB

REVIEWED BY: P.E.
CHIEF, STRUCTURAL DESIGN SECTION

PENTWATER HARBOR MICHIGAN

SOUTH PIER AND REVETMENT REPAIR (SECTIONS G,H,B,J,K AND F)

MISCELLANEOUS SECTIONS AND DETAILS

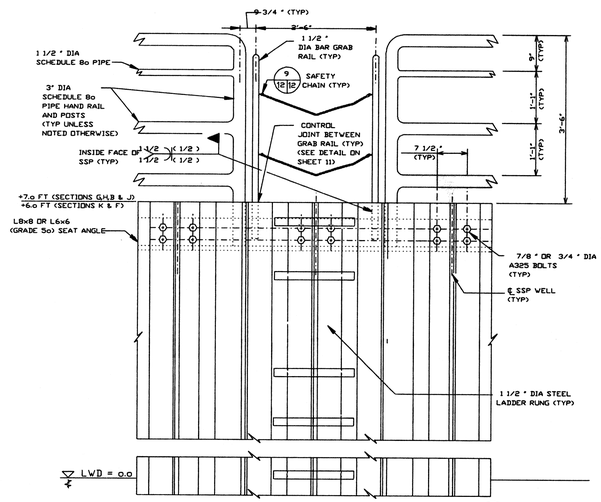
SCALE AS SHOWN

CADD FILE NAME PW011A95.DGN

DRAWING NUMBER 14 - 10 /14B

SHEET 11 OF 15

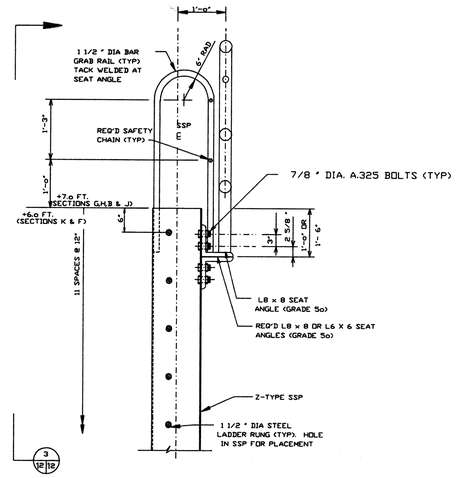
SOLICITATION NUMBER: DACW35-96-B-00



LADDER GRAB RAIL ELEVATION AND SEAT ANGLE 3 12|12

(SECTIONS J,K & F)

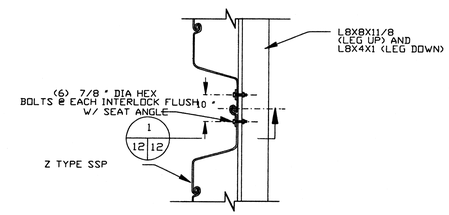
SCALE: 1" = 1'-0"



*CONCRETE CAP & WALE NOT SHOWN FOR CLARITY

LADDER GRAB RAIL AND SEAT ANGLE SECTION 2 9|12

SCALE: 1" = 1'-0"

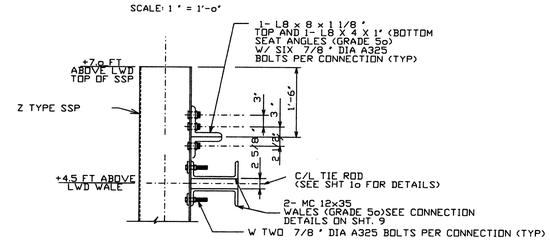


SSP WALL PLAN @ SEAT ANGLE

(SECTIONS G,H,B & J)

NOTE: THE CONTRACTOR INSTALLED HANDRAILS AS SHOWN IN THE CROSS SECTIONS, ALONG REVETMENT SECTIONS J,K, & F, AND, ALONG THE WAVE ATTENUATOR, SECTIONS B & J. HANDRAILS WERE PLACED IN SECTIONS NOT TO EXCEED 23'-0" IN LENGTH. POSTS WERE NOT BE PLACED FARTHER APART THAN 5'-9". A CLEARANCE OF 9" WAS BE FURNISHED BETWEEN SECTIONS. POST TO RAIL CONNECTIONS WERE WELDED. REFER TO SPECIFICATIONS, SECTION 05552, FOR SHOP & ERECTION DRAWING REQUIREMENTS.

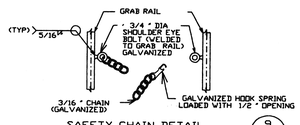
SCALE: 1 " = 1'-0"



* CONCRETE CAP NOT SHOWN FOR CLARITY

WALE AND SEAT ANGLE SECTION 1 12|12

SCALE: 1" = 1'-0"



SAFETY CHAIN DETAIL 9 12|12

1 1/2 " = 1'-0"

NO.	DATE	REVISION	BY
		AS BUILT	

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

DESIGNED BY: GJ
DRAWN BY: DG
CHECKED BY: EB
REVIEWED BY: P.E.
CHIEF, STRUCTURAL DESIGN SECTION

PENTWATER HARBOR MICHIGAN

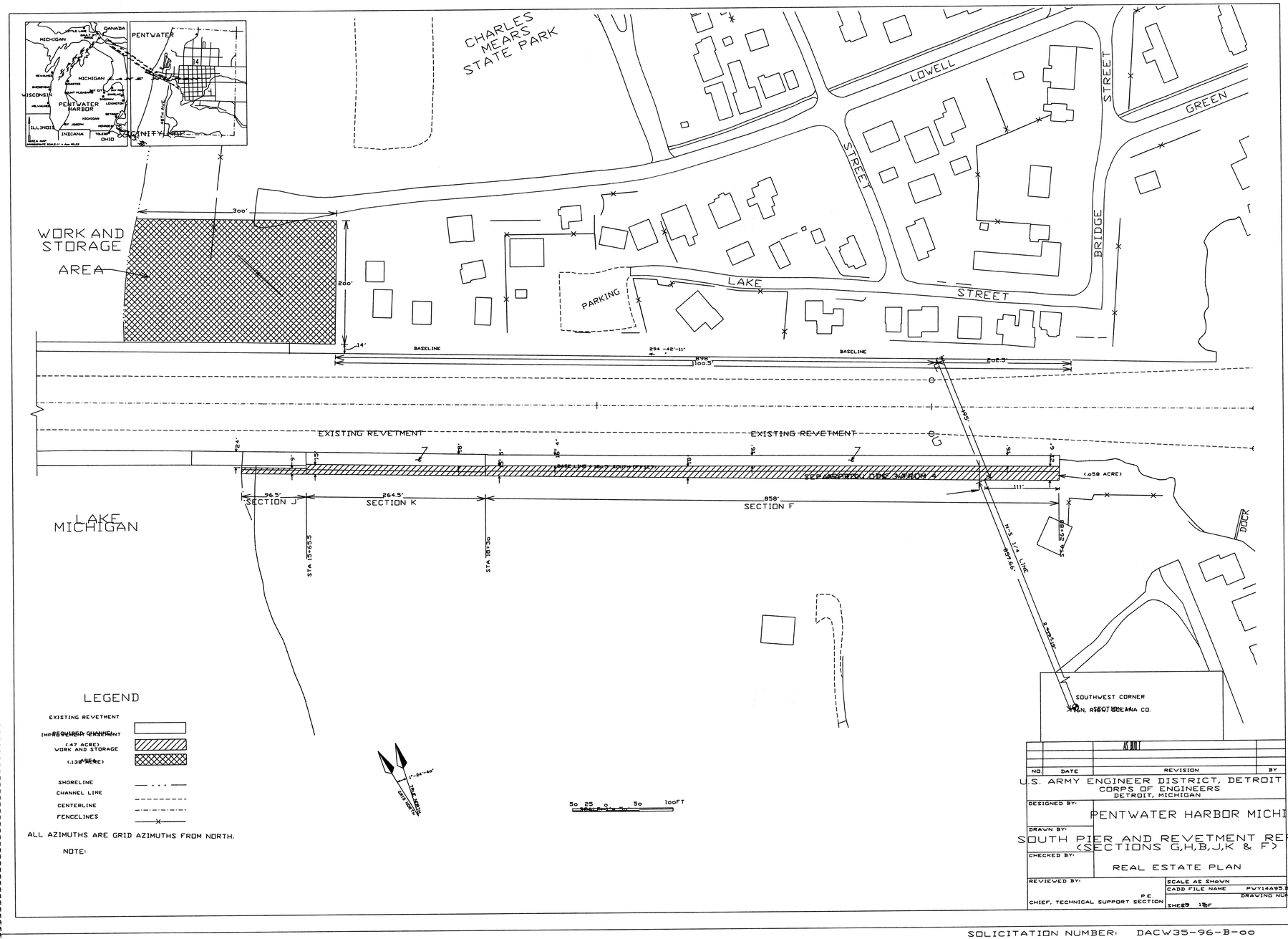
SOUTH PIER AND REVETMENT REPAIR
(SECTIONS G,H,B,J,K AND F)

MISCELLANEOUS SECTIONS AND DETAILS

SCALE AS SHOWN
CADD FILE NAME PW012A95.DGN
DRAWING NUMBER
SHEET 12 OF 15 14 to /149

SOLICITATION NUMBER DACW35-96-B-00

$$$$QUEUE$$$$



SOLICITATION NUMBER: DACW35-96-B-00