LEGEND/SCOPE OF WORK

SCOPE ITEM	SYMBOL	DESCRIPTION	UNITS	QUANTITY	REFERENCE REMARKS
–	–	PROJECT STARTUP	LS	1	–
–	–	MOBILIZATION	LS	1	–
BR		BULKHEAD RECONSTRUCTION	CY	18	SEE SHEET C3.6
CIF		CONCRETE IN-FILL ERODED AREA	CY	3	SEE SHEET C3.7
CR		CRACK REPAIR	LF	2,422	SEE SHEET TS-2
ETR		EXISTING (FENDER SYSTEM) TO REMAIN	–	–	–
IAF		INSTALL ARCH TYPE FENDER	EA	19	SEE SHEET C3.3
ICF		INSTALL CYLINDRICAL FENDER	EA	1	SEE SHEET C3.4
IFH		INSTALL FIRE HYDANT ASSEMBLY	EA	1	SEE SHEET C3.8
IPP		INSTALL PATCH PLATE (@ SHEET PILE)	SF	33	SEE SHEET C3.7
ISF		INSTALL SALVAGED CAPSULE FENDER	EA	2	Reinstall to Match Existing
PR		PAVEMENT REPAIR	SY	3,851	SEE SHEET C3.7
RAF		REMOVE/REPLACE ARCH TYPE FENDER	EA	14	SEE SHEET C3.3
RB		REMOVE/REPLACE (SINGLE BIT) BOLLARD	EA	20	SEE SHEET C3.5
RC		REMOVE/REPLACE CLEAT	EA	17	SEE SHEET C3.5
RCF		REMOVE/REPLACE CYLINDRICAL FENDER	EA	30	SEE SHEET C3.4
RCP		REMOVE/REPLACE STEEL COVER PLATE (CRANE TIE-DOWN)	EA	14	Replace Cover "In Kind"
RCR		REMOVE/REPLACE CRANE RAIL	LF	3,666	SEE SHEET C3.2
RD		REMOVE DEBRIS AT SEA BOTTOM (BY OTHERS)	N.I.C	–	Not In Contract (By Others)
REC		REMOVE/REPLACE ELECTRICAL PIT COVER ASSEMBLY	EA	8	SEE SHEET C3.9
RF		REMOVE CAPSULE FENDER	EA	6	–
RFC		REMOVE/REPLACE FUEL PIT COVER ASSEMBLY	EA	3	SEE SHEET C3.9 (SIMILAR)
RFS		REMOVE CAPSULE FENDER (SALVAGE)	EA	3	–
RHA		REMOVE/REPLACE FIRE HYDRANT ASSEMBLY	EA	2	SEE SHEET C3.8
RHC		REMOVE/READJUST FIRE HYDRANT COVER ASSEMBLY	EA	5	SEE SHEET C3.8
RMC		REMOVE/REPLACE MANHOLE COVER & FRAME ASSEMBLY	EA	14	SEE SHEET C3.7
RTF		REMOVE TIRE FENDER	EA	12	–
RVC		REMOVE/REPLACE VALVE COVER ASSEMBLY AND CONCRETE COLLAR	EA	12	SEE SHEET C3.8
RWC		REMOVE/REPLACE POTABLE WATER PIT COVER ASSEMBLY	EA	8	SEE SHEET C3.10
SGM		RAIL SWITCH GEAR MODIFICATION	EA	2	SEE SHEET C3.3
SPP		SANDBLAST PREP/PAINT (EXISTNG BOLLARD AND CLEAT)	EA	11	–
SR		SPALL REPAIR	SF	1,741	SEE SHEET TS-2 and C3.6
–	–	DEMOBILIZATION	LS	1	–
–	–	MISCELLANEOUS AND CLEANUP	LS	1	–

GENERAL NOTES

1. SITE LAYOUTS, VERTICAL AND HORIZONTAL CONTROLS WERE BASED ON THE TOPOGRAPHIC AND HYDROLOGICAL SURVEY BY DUENAS BORDALLO CAMACHO AND ASSOCIATES (DBC&A); DATED OCTOBER 2007. REFER TO SHEETS C4.1 THRU C4.7 FOR THE REFERENCED SURVEY. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS AS SHOWN ON THESE PLANS AND SHALL IMMEDIATELY NOTIFY THE CONTACTING OFFICER OF ANY DISCREPANCIES THAT MAY AFFECT THE DESIGN INTENT OF THIS PROJECT.

2. ONGOING MAINTENANCE WORK BY THE PORT AUTHORITY OF GUAM (PAG) MAY AFFECT THE SCOPE OF WORK AND/OR ITS QUANTITIES AS NOTED ON THE CONTRACT DOCUMENTS FOR THIS PROJECT. DAMAGE ASSESSMENT AND QUANTITIES AS SHOWN ON THE "LEGEND/SCOPE OF WORK" THIS SHEET WERE BASED ON THE FIELD ASSESSMENTS BY THE STRUCTURAL STAFF OF DBC&A DURING THE MONTHS OF NOVEMBER AND DECEMBER 2007 AND JANUARY 2008. PRIOR TO THE START OF THIS PROJECT AND PROCUREMENT OF ANY MATERIALS, THE CONTRACTOR SHALL FIELD VERIFY ALL QUANTITIES AND SHALL IMMEDIATELY NOTIFY THE CONTRACTING OFFICER OF ANY DISCREPANCIES BETWEEN THE CONTRACTOR'S FIELD VERIFICATION AND QUANTITIES NOTED ON THE CONSTRUCTION DOCUMENTS. CONTACTOR'S FAILURE TO REPORT ANY MAJOR DISCREPANCIES TO THE SCOPE OF WORK AND/OR ITS QUANTITIES WILL RESULT IN NON-PAYMENT BY PAG TO THE CONTRACTOR FOR THE PURCHASE OF EXCESS MATERIALS AND/OR MANPOWER ASSOCIATED WITH THE SCOPE OF WORK.

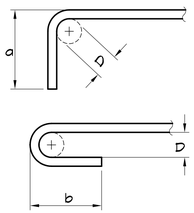
3. ALL EXISTING UNDERGROUND UTILITY LINES AS SHOWN ON THESE PLANS ARE APPROXIMATELY ONLY AND WERE BASED ON AVAILABLE DOCUMENTS PER PAG'S REFERENCE FILES. PRIOR TO ANY SITE EXCAVATIONS AND DEMOLITION WORK, THE CONTRACTOR SHALL FIELD VERIFY THE EXACT LOCATIONS OF ALL UNDERGROUND UTILITY LINES AND ITS DEPTH AND SHALL EXERCISE AND PROCEED WITH EXTREME CAUTION DURING ANY EXCAVATION WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGES TO EXISTING UTILITY LINES, DAMAGED BY THE CONTRACTOR DURING THE DURATION OF THIS CONTRACT, AND SHALL REPAIR THE DAMAGE UTILITY LINE AT NO ADDITIONAL COST TO THE GOVERNMENT.

4. THE CRANE RAIL CENTER LINE/REFERENCE LINE AS SHOWN ON SHEETS C1.3 THRU C1.9 IS FOR REFERENCE ONLY. IT IS BASED ON A STRAIGHT LINE PROJECTION FROM THE CENTER POINT AT "BEGIN CRANE RAIL" AT STATION 8+17 TO THE "END CRANE RAIL" AT STATION 26+50. THE CENTER RAIL DIMENSIONS SHOWN TO THIS REFERENCE LINE IS TAKEN AT EVERY 25' STATION AND DEPICTS THE APPROXIMATE EXISTING ALIGNMENT OF THE EXISTING CRANE RAIL AND IS INTENDED FOR REFERENCE ONLY.

MINIMUM EMBEDMENT REQUIREMENTS (INCHES)					MINIMUM LAP REQUIREMENTS (INCHES)								
					CLASS "A" SPLICE				CLASS "B" SPLICE				
BAR SIZE	f'c = 3000 psi		f'c = 4000 psi		f'c = 3000 psi		f'c = 4000 psi		f'c = 3000 psi		f'c = 4000 psi		BAR SIZE
	TOP [2]	OTHERS	TOP [2]	OTHERS	TOP [2]	OTHERS	TOP [2]	OTHERS	TOP [2]	OTHERS	TOP [2]	OTHERS	
#3	16	12	14	12	16	12	14	12	21	16	18	14	#3
#4	21	16	18	14	21	16	18	14	28	21	24	18	#4
#5	27	21	23	18	27	21	23	18	35	27	30	23	#5
#6	32	25	28	21	32	25	28	21	42	32	36	28	#6
#7	38	29	32	25	38	29	32	25	49	38	42	32	#7
#8	45	35	39	29	45	35	39	29	58	45	51	39	#8

EMBEDMENT AND LAP NOTES

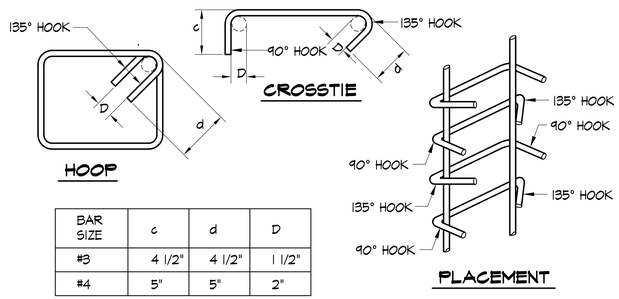
1. PROVIDE STANDARD ACI 90 DEGREE BEND OR HOOK IF EMBEDMENT IS LESS THAN MINIMUM SHOWN IN TABLE. REINFORCEMENT IN WALLS, SLABS, BEAMS, ETC. SHALL BE EMBEDDED INTO SUPPORTING OR INTERSECTING STRUCTURAL ELEMENTS.
2. TOP BARS ARE DEFINED AS REINFORCEMENT WITH MORE THAN 12 INCHES OF FRESH CONCRETE IN THE MEMBER BELOW THE REINFORCEMENT.



PRIMARY REINFORCING STD 90° and 180° HOOK			
BAR SIZE	a (MIN.)	b (MIIN.)	D
#3	6"	5"	2 1/4"
#4	8"	6"	3"
#5	10"	7"	3 3/4"
#6	12"	8"	4 1/2"
#7	14"	10"	5 1/4"
#8	16"	11"	6"
#9	19"	15"	9"

1 TS-1 PRIMARY REINFORCING TYPICAL BENDS

NOT TO SCALE



BAR SIZE	c	d	D
#3	4 1/2"	4 1/2"	1 1/2"
#4	5"	5"	2"

2 TS-1 TYP. HOOPS AND CROSS-TIES DETAIL

NOT TO SCALE

STRUCTURAL DESIGN CRITERIA

1. **BASIS OF DESIGN :** UNIFORM BUILDING CODE, 1994 EDITION
2. **WIND FORCE:**
   WIND VELOCITY ----------175 MPH EXPOSURE D
   WIND PRESSURE (BASIC)-----78.5 PSF IMPORTANCE FACTOR = 1.0
3. **SEISMIC FORCE**
   $V = \frac{ZIC}{Rw} W$ Z = 0.40 I = 1.0 Rw = 6 C = 2.75(MAX) W = ACTUAL
4. **LIVE LOAD**
   TRAFFIC = H20 LOADING
   CLEAT & BOLLARD = 70 KIPS
5. **REINFORCED CONCRETE**
   REINFORCING STEEL:---------- fy = 60,000 PSI (EPOXY COATED)
   CONCRETE:
   FOUNDATION, SLAB ON GRADE ---------- f'c = 4000 PSI
   OTHERS ---------- f'c = 4000 PSI
   MARINE CONCRETE:
   BULKHEAD REPAIR ---------- f'c = 6000 PSI
   OTHERS ---------- f'c = 5000 PSI
6. **CONCRETE STRENGTH DESIGN**
   1.4D + 1.7L
   0.75 (1.4D + 1.7L + 1.7W)
   1.4 (D + L + E)
   0.9D + 1.3W
   0.9D + 1.4E
   D = DEAD LOAD
   L = LIVE LOAD
   W = WIND LOAD
   E = SEISMIC LOAD
7. **CONCRETE COVERING**
   TOP OF SLABS ---------- 2"
   BOTTOM OF SLABS ---------- 1 1/2"
   INTERIOR FACE OF WALLS ---------- 2"
   FACE OF WALL AGAINST EARTH OR EXPOSED TO WEATHER- 2"
   FORMED FOOTINGS ---------- 2"
   FOOTINGS CAST AGAINST EARTH ---------- 3"
   NOTE: FOR CONCRETE COVER FOR MARINE CONCRETE REFER TO SPEC SECTION 03129.
8. **ALLOWABLE SOIL BEARING PRESSURES**
   DL + LL ---------- 4000 psf (Assumed)
   DL + LL + Wind (Earthquake)---------- 4000 psf (Assumed)
9. **STRUCTURAL STEEL**
   SHAPES and PLATES: ---------- ASTM A36
   TUBES and PIPES: ---------- ASTM A500B
   BOLTS ---------- ASTM A325
   ANCHOR BOLTS: ---------- ASTM A325
   WELDING ELECTRODE: ---------- E70XX
10. **STAINLESS STEEL**
    PLATES: ---------- ASTM A240 GRADE 316
    ANCHOR BOLTS: ---------- ASTM A193 GRADE 316
    NUTS: ---------- ASTM A194 GRADE 316

IF SHEET IS LESS THAN 24" X 36"
REDUCED PRINT - USE GRAPHIC SCALES.
IF PRINT IS 11" X 17" PRINT IS HALF SCALE.

DBC
DUEÑAS · BORDALLO · CAMACHO

PORT AUTHORITY OF GUAM
GOVERNMENT OF GUAM

DESIGN BY:	DRAWN BY:	SUPV. BY:
TPC	AGC/PCP	TPC (FBS)

THOMAS P. CAMACHO
CERTIFICATE
NO. 752
STRUCTURAL
EXP. 04-30-09
GUAM
PROFESSIONAL ENGINEER

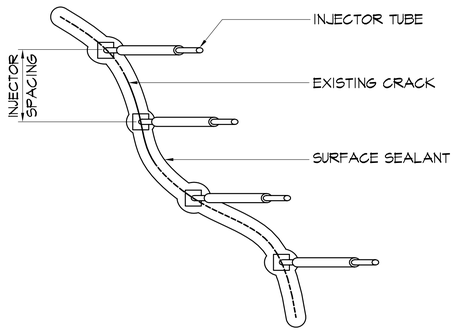
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION.
DATE: 05-19-08

REPLACEMENT OF WHARF GANTRY RAIL SYSTEM and WHARF UPGRADE

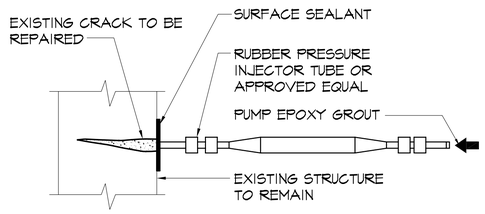
CONTENT:
SCOPE OF WORK,
STRUCTURAL DESIGN CRITERIA,
GENERAL NOTES,
AND TYPICAL DETAILS

APPROVED BY: DATE:
GENERAL MANAGER
PORT AUTHORITY OF GUAM

PROJECT NO.: PAG 06-013
DRAWING NO.: TS-1
SCALE: AS NOTED
DATE: MAY 19, 2008
SHEET 3 OF 35



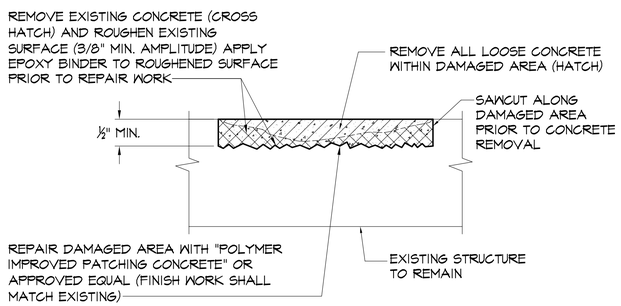
4A ISOMETRIC



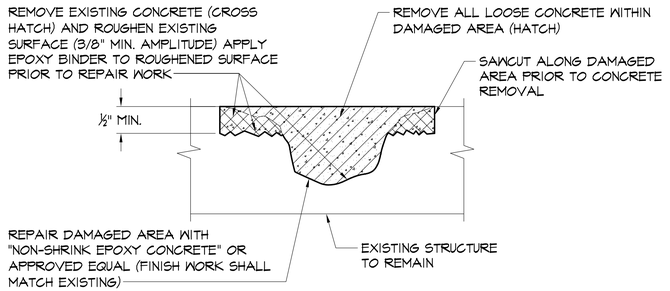
4B PLAN

4 CRACK REPAIR W/ PRESSURE INJECTED EPOXY

4 / TS-2 NOT TO SCALE



2A NON-STRUCTURAL REPAIR
(LESS THEN 1" DEEP)

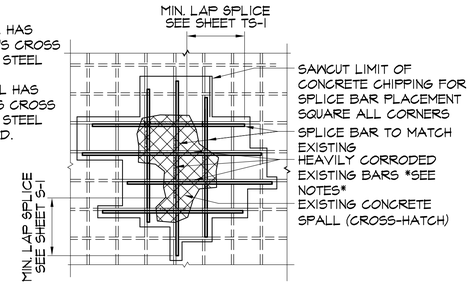


2B STRUCTURAL REPAIR
(1" THICK OR DEEPER)

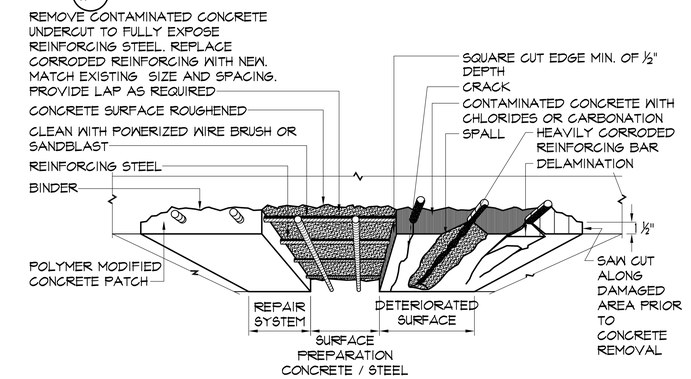
2 CHIP/SPALL REPAIR DETAIL

2 / TS-2 NOT TO SCALE

NOTE:
1. IF THE REINFORCING STEEL HAS LOST MORE THAN 25% OF IT'S CROSS SECTION, THEN REINFORCING STEEL SPLICE BAR IS REQUIRED.
2. IF THE REINFORCING STEEL HAS LOST LESS THAN 25% OF IT'S CROSS SECTION, THEN REINFORCING STEEL SPLICE BAR IS NOT REQUIRED.



1A SPLICE PLAN W/ CORRODED REINF.



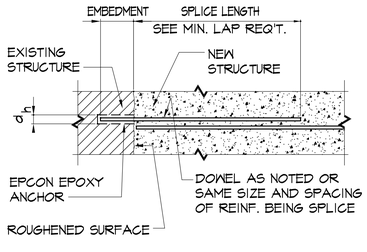
1B ELEVATION

1 TYP. DAMAGED/REPAIRED SECTION

1 / TS-2 NOT TO SCALE

NOTE:
1. DRILL HOLE 1/8 INCH GREATER THAN REINFORCEMENT BAR DIAMETER SIZE AND TO THE PROPER DEPTHS AS INDICATED ON THE DRAWINGS (6" MINIMUM) AND INSPECTED PRIOR TO INSTALLATION OF THE EPOXY DOWELS.
2. DO NOT DISTURB EXISTING REBARS.
3. PROPERLY CLEAN HOLES WITH COMPRESSED AIR PRIOR TO APPLICATION OF EPOXY.
4. ENGINEER'S INSPECTION OF DOWEL HOLE & OBSERVATION OF EPOXY INSTALLATION ARE REQUIRED DURING APPLICATIONS.
5. USE EPCON SYSTEM BY RAMSET/REDHEAD OR APPROVED EQUAL.
6. PROVIDE PROPER SIZE HOLE PLUG BY EPOXY SUPPLIER AT WALL AND CEILING APPLICATIONS.

BAR SIZE	HOLE DIA. d_h	EMBEDMENT
#3	½"	6"
#4	⅝"	8"
#5	¾"	8"
#6	⅞"	12"

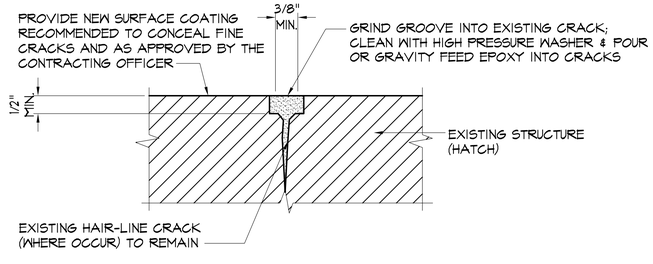


5A DETAIL

5 TYP. EPOXY ANCHOR DETAIL

5 / TS-2 NOT TO SCALE

NOTE:
1. ALL SLAB CRACKS SHALL BE REPAIRED WITH APPROVED GRAVITY FED EPOXY OR LOW VISCOSITY PRESSURE INJECTED EPOXY, SEE BOTH METHODS SHALL BE PER EPOXY MANUFACTURER'S APPROVED APPLICATION RECOMMENDATION. (4 / TS-2)
2. SLAB CRACKS WITH EXISTING REPAIRS SHALL BE INSPECTED FOR DAMAGES AND FAILURE; (I.E. DELAMINATION). WHERE DAMAGED OR FAILURE OCCUR, REMOVE EXISTING REPAIR MATERIAL AND REPAIR CRACK PER NOTE 1. ABOVE.



3 SLAB CRACK REPAIR DETAIL

3 / TS-2 NOT TO SCALE

IF SHEET IS LESS THAN 24" X 36" REDUCED PRINT - USE GRAPHIC SCALES. IF PRINT IS 11" X 17" PRINT IS HALF SCALE.

REPAIR NOTES:

1. FOR MINOR REPAIRS UP TO 2" DEEP USE "POLYMER-MODIFIED, FIBER REINFORCED" PATCHING CONCRETE WITH CORROSIVE INHIBITORS FOR MARINE ENVIRONMENT OR APPROVED EQUAL.
2. FOR MAJOR SPALL REPAIRS WITH DEPTHS GREATER THAN 2" DEEP OR FOR CONCRETE RECONSTRUCTION USE " MARINE CONCRETE" WITH f'c=5000 PSI FOR TOP OF BULKHEAD AND INLAND AND f'c=6000 PSI FOR FRONT FACE (WATER FRONT) OF BULKHEAD AND BELOW THE WATER SURFACE OR APPROVED EQUAL.
3. EPOXY COAT ALL EXPOSED EXISTING REINFORCEMENT WITHIN REPAIR WORK LIMITS AND PROVIDE EPOXY COATED SPLICE BARS AS REQUIRED TO RESTORE EXISTING REINFORCEMENT REQUIREMENT, SEE (1 / TS-2)
4. FINISH SURFACE OF ALL REPAIR WORK SHALL MATCH EXISTING.

DBC DUEÑAS · BORDALLO · CAMACHO

PORT AUTHORITY OF GUAM
GOVERNMENT OF GUAM

DESIGN BY:	DRAWN BY:	SUPV. BY:
TPC	AGC	TPC (FBS)

REPLACEMENT OF WHARF GANTRY RAIL SYSTEM and WHARF UPGRADE

CONTENT:
TYPICAL REPAIR DETAILS

THOMAS P. CAMACHO CERTIFICATE NO. 752 STRUCTURAL EXP. 04-30-09 GUAM PROFESSIONAL ENGINEER

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION.
DATE: 05-19-08

APPROVED BY: DATE:
GENERAL MANAGER
PORT AUTHORITY OF GUAM

PROJECT NO.: PAG 06-013
DRAWING NO.: TS-2

SCALE: AS NOTED
DATE: MAY 19, 2008

SHEET 4 OF 35