STRUCTURAL DESIGN CRITERIA

SD-1. GOVERNING CODE:
2001 CALIFORNIA BUILDING CODE (CBC)

SD-2. SEISMIC LOAD PARAMETERS:

SOIL PROFILE TYPE	= Sd
SEISMIC SOURCE TYPE	= B
DISTANCE TO SEISMIC SOURCE	= > 10K
SEISMIC ZONE	= 3
– Z	= 0.3
– Ca	= 0.36
– Cv	= 0.54
– Na	= 1.0
– Nv	= 1.0
SEISMIC IMPORTANCE	= 1.0

SD-3. LIVE LOADS:
AS INDICATED BASED ON EQUIPMENT CAPACITIES

PLATFORM DECKING	= 100 PSF
PLATFORM DECKING CONCENTRATED LOAD	= 1500 LBS

GENERAL NOTES

G-1. FIELD VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS PRIOR TO START OF CONSTRUCTION – RESOLVE ANY DISCREPANCY WITH ARCHITECT/ENGINEER.

DO NOT SCALE DRAWINGS

G-2. DETAILS MARKED "TYPICAL" MAY OR MAY NOT BE CUT ON PLANS, BUT SHALL APPLY UNLESS NOTED OTHERWISE.

G-3. STRUCTURAL SYSTEM IS DESIGNED TO WORK AS A COMPLETED SYSTEM. ANY SHORING, OR BRACING NECESSARY DURING CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.

G-4. NO PIPES OR SLEEVES FOR MECHANICAL TRADES SHALL PASS THROUGH STRUCTURAL MEMBERS WITHOUT APPROVAL OF THE STRUCTURAL ENGINEER.

G-5. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL SITE SAFETY AND ALL ACCIDENTS WHICH RESULT IN DEATH, PERSONAL INJURY, OR DAMAGE TO PROPERTY ARISING OUT OF OR IN CONNECTION WITH THE PERFORMANCE OF THE WORK.

G-6. IT IS THE OWNER'S RESPONSIBILITY TO POST ALLOWABLE LIVE LOADS.

G-7. SECTIONS, DETAILS, AND NOTES SHOWN ON THE DRAWINGS ARE INTENDED TO BE TYPICAL AND SHALL APPLY TO SIMILAR CONDITIONS ELSEWHERE, UNLESS OTHERWISE SHOWN.

STEEL BAR GRATING NOTES

GT-1. GRATING SHALL BE BANDED.

GT-2. BUTT GRATING OF ADJACENT SPANS AT BEAM CENTERLINES.

GT-3. UNLESS NOTED OTHERWISE, ATTACH GRATING TO EACH SUPPORT WITH SADDLE CLIP AND 1/4" DIA. FASTENER. MINIMUM 4 CONNECTIONS PER PANEL , ONE AT EACH SUPPORT.

GT-4. GRATING AND ASSOCIATED HARDWARE SHALL BE OF SAME MATERIAL.

GT-5. REMOVABLE OR HINGED SECTIONS OF GRATING SHALL BE LOCKABLE. COORDINATE WITH OWNER.

FOUNDATION NOTES

F-1. THE FOUNDATION DESIGN IS BASED ON THE MINIMUM RECOMMENDATIONS STATED IN CHAPTER 18 OF THE 2001 C.B.C., TABLE 18-1-A. THE FOUNDATION DESIGN IS BASED ON THE FOLLOWING ALLOWABLE DESIGN VALUES.

BEARING PRESSURE = 1500 PSF

*20% INCREASE PER ADDITIONAL FOOT OF DEPTH TO A MAXIMUM VALUE OF THREE TIMES THE DESIGNATED VALUE. ADDITIONALLY AN INCREASE OF ONE THIRD SHALL BE PERMITTED WHEN CONSIDERING LOAD COMBINATION, INCLUDING WIND OR EARTHQUAKE LOADS, AS PERMITTED BY SECTION 1612.3.2
UNLESS OTHERWISE INDICATED, FOUNDATION WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE C.B.C..

F-2. PROVIDE PVC SLEEVES THROUGH FOUNDATION WALLS/FOOTINGS FOR PIPE, CONDUIT, AND CABLE PENETRATIONS, INCLUDING ELECTRICAL GROUNDING SYSTEM CABLES. SEE APPROPRIATE DRAWINGS FOR LOCATIONS/SIZES. PLACE SLEEVES IN LOCATIONS TO AVOID DISPLACING REINFORCING STEEL.

F-3. FOOTING SUBGRADES SHALL BE CLEAN AND FREE OF DEBRIS, STANDING WATER, AND LOOSE SOIL.

FOUNDATION NOTES (CONT.)

F-4. ALL SUBTERRANEAN STRUCTURES, UTILITIES, PIPING, ETC. IN THE AREA OF EXCAVATIONS TO BE LOCATED AND MARKED BY CONTRACTOR PRIOR TO EARTH REMOVAL WORK. CONTRACTOR TO MAINTAIN MARKERS UNTIL EXCAVATION ACTIVITIES HAVE CEASED. IF UNDERGROUND UTILITY CONFLICTS ARE DISCOVERED BEFORE OR ENCOUNTERED DURING EXCAVATION, NOTIFY THE ARCHITECT/ENGINEER IMMEDIATELY.

F-5. BEFORE PLACING FOOTINGS, FOUNDATIONS OR SLAB-ON-GRADE, THE SUB-GRADE SHALL BE PREPARED AND INSPECTED AS REQUIRED BY THE SPECIFICATIONS.

F-6. ALL FILL TO SUPPORT FOUNDATIONS AND SLAB-ON-GRADE SHALL BE MINIMUM 2000 PSI CONCRETE, U.N.O..

F-7. NO FILL SHALL BE PLACED OVER FROZEN, MUDDY, OR OTHER DELETERIOUS MATERIAL. NO FILL SHALL BE PLACED OVER A PREVIOUS LIFT THAT HAS NOT BEEN ADEQUATELY COMPACTED PER SPECIFICATIONS.

JIB CRANE NOTES

JC-1. JIB CRANE SPECIFICATIONS; CONTRX MODEL A101220 "A" SERIES FULLY MANUAL EQUIPPED FOR OUTDOOR USE INCLUDING CAP CHANNEL, STAINLESS STEEL PINS AND ROLLERS, 360-DEGREE ROTATION.
UPPER AREA:
- 15 FOOT HEIGHT (UNDER BEAM)
- 20 FOOT SPAN
- 24 INCH FLANGE BEAM WITH 9 INCH FLANGE WIDTH
- BASE PLATE 72R12 WITH ANCHOR BOLT KIT TO ACCOMMODATE 3 FOOT THICK FOOTING.

LOWER AREA:
- 15 FOOT HEIGHT (UNDER BEAM)
- 16 FOOT SPAN
- 24 INCH FLANGE BEAM WITH 9 INCH FLANGE WIDTH
- BASE PLATE 66R12 WITH ANCHOR BOLT KIT TO ACCOMMODATE 2 FOOT THICK FOOTING.

JC-2 CM "CYCLONE" SERIES HAND CHAIN HOIST
UPPER AND LOWER AREA:
- 5-TON CAPACITY, 2-TON CAPACITY AT EACH JIB CRANE
- TOP HOOK MOUNTED HOIST INCLUDES SEPARATE SERIES 84A PULL TYPE TROLLEY, ONE TROLLEY PER CRANE.
- LIFT REQUIRED UP TO SPECIFIED HEIGHT, APPROXIMATELY 35 INCH COMBINED HEAD ROOM.

CONCRETE & REINFORCING STEEL NOTES

MATERIAL PROPERTIES (U.N.O.)

COMPRESSIVE STRENGTH	– F'c = 4 KSI
CONCRETE REINFORCEMENT	– Fy = 60 KSI (A615 GR 60)

CR-1. ALL BAR LAPS SHALL CONFORM TO ACI 318 CLASS "B" SPLICE CRITERIA. USE TOP BAR LAP LENGTHS FOR TOP BARS IN SLABS AND BEAMS OVER 14" DEEP.
MINIMUM BAR LAPS AS FOLLOWS U.N.O.:

#3: 1'-4" #4: 1'-4" #5: 1'-10" #6: 2'-7" #7: 4'-2"
#8: 5'-2" #9: 6'-4" #10: 7'-8" #11: 9'-0"

FOR EPOXY COATED BARS, PROVIDE 1.5 TIMES THE INDICATED LAP LENGTH. FOR TOP BARS PROVIDE 1.3 TIMES THE INDICATED LAP LENGTH.

CR-2. LAP LENGTH SHALL BE SPECIFICALLY NOTED ON SHOP DRAWINGS WHERE MORE THAN ONE BAR MAKES UP A CONTINUOUS STRING.

CR-3. HORIZONTAL BARS SHALL BE DETAILED TO SHOW THE DISTANCE FROM AT LEAST ONE END OF THE BAR TO THE NEAREST BUILDING GRID LINE OR WALL.

CR-4. REINFORCING SHALL BE DETAILED IN ACCORDANCE WITH ACI 315.

CR-5. ALL REINFORCEMENT BARS SHALL BE FABRICATED IN ACCORDANCE WITH THE LATEST CRSI MANUAL OF STANDARD PRACTICE AND SHALL BE CLEAN AND FREE OF GREASE AND SCALING RUST.

CR-6. PROVIDE HOT/COLD WEATHER PROCEDURES AND PROTECTION IN ACCORDANCE WITH ACI RECOMMENDATIONS AND PROJECT SPECIFICATIONS.

CONCRETE & REINFORCING STEEL NOTES (CONT.)

CR-7. CONCRETE REINFORCEMENT PROTECTION/CLEAR COVER, U.N.O.:

FOOTINGS:

BOTTOM & SIDES	– 3"
TOP	– 3"

CR-8. ALL CONCRETE DESIGN AND CONSTRUCTION SHALL CONFORM WITH THE LOCAL BUILDING CODE REQUIREMENTS AND THOSE OF THE FOLLOWING
STANDARDS (LATEST EDITION):
"ACI 318, BUILDING CODE REQUIREMENTS FOR REINFORCED CONC.".
"ACI 315, DETAILS AND DETAILING OF CONCRETE REINFORCEMENT".
"ACI 301, SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BLDGS.".
"ACI 307, RECOMMENDED PRACTICE FOR CONCRETE FORM WORK".

CR-9. ALUMINUM CONDUIT IS NOT PERMITTED TO BE EMBEDDED IN CONCRETE.

CR-10. SLOPE TOP OF CONCRETE FOUNDATIONS AS INDICATED.

CR-11. ALL DOWELS INTO EXISTING CONCRETE OR SOLID MASONRY TO BE EPOXY ANCHORED WITH HILTI HITHY150 ADHESIVE OR EQUIVALENT. (UNLESS NOTED OTHERWISE, U.N.O.)

STRUCTURAL STEEL NOTES

MATERIAL PROPERTIES (U.N.O.)

W-SHAPES	–Fy = 50 KSI (A992 OR A572 Gr 50)
C	–SHAPES & ANGLES–Fy = 36 KSI(A36)
PLATES & BARS	–Fy = 36 KSI (A36)
SQUARE TUBES	–Fy = 46 KSI (A500 Gr B)
ROUND TUBES	–Fy = 35 KSI(A53 TYPE S, Gr B)
RODS	–Fy = 36 KSI(A36)

S-1. ALL STEEL DESIGN AND CONSTRUCTION SHALL CONFORM WITH THE LOCAL BUILDING CODE REQUIREMENTS AND THOSE OF THE FOLLOWING (LATEST EDITION)
AISC LRFD SPECIFICATION
AISC ASD SPECIFICATION

S-2. STEEL BEAMS WITH RESIDUAL CAMBER RESULTING FROM MILL FABRICATION OR ROLLING SHALL BE SHOP FABRICATED AND ERECTED SUCH THAT THIS RESIDUAL CAMBER COUNTERACTS GRAVITY LOAD DEFLECTION.

S-3. U.N.O., ALL BOLTED CONNECTIONS SHALL UTILIZE 3/4 INCH DIAMETER A325-X BOLTS TIGHTENED TO THE SNUG-TIGHT CONDITION. THE SNUG-TIGHT CONDITION IS DEFINED BY THE RCSC'S "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS".

S-4. ANCHOR BOLTS SHALL BE AS SPECIFIED BY THE JIB CRANE SUPPLIER ARE TO BE 1 INCH DIAMETER F1554 Gr. 36 THREADED RODS UNLESS NOTED OTHERWISE.

S-5. U.N.O., POST INSTALLED ANCHORS ARE TO BE HILTI HIT RE 500 ADHESIVE ANCHORS FOR SOLID BASE MATERIAL AS MANUFACTURED BY HILTI FASTENING SYSTEMS OF TULSA, OKLAHOMA OR EQUAL. INSTALL ANCHORS WITH EMBEDMENT DEPTHS INDICATED.

S-6. STUD ANCHORS ARE TO BE NELSON STUDS OR EQUAL (ASTM A108).

S-7. U.N.O., NON-SHRINK GROUT SHALL BE A NON-METALLIC PREMIXED FORMULATION EQUIVALENT TO MASTERFLOW 713 PLUS BY DEGUSSA BUILDING SYSTEMS. BEAM AND LINTEL PLATES SHALL BE FULLY GROUTED WITH A MINIMUM 1/2" NON-SHRINK GROUT.

S-8. ALL WELDING OF NEW STEEL IS TO BE WITH E70XX ELECTRODES, U.N.O. WELDING SHALL BE IN ACCORDANCE WITH THE LATEST AWS SPECIFICATIONS BY CERTIFIED WELDERS.

S-9. WHEN FIELD WELDING TO EXISTING STEEL, ADJUST WELDING PROCEDURES AS REQUIRED TO BE COMPATIBLE WITH THE NEW AND EXISTING STEEL.

STRUCTURAL TESTING AND INSPECTION

TI-1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSPECT ALL STRUCTURALWORK FOR CONFORMANCE WITH THE CONTRACT DOCUMENTS. ANY STRUCTURAL INSPECTION PROVIDED BY OTHERS DOES NOT RELIEVE THE CONTRACTOR OF THIS RESPONSIBILITY. ANY STRUCTURAL DEVIATIONS FROM THE CONTRACT DOCUMENTS THAT ARE FOUND AT A LATER DATE AND ARE DECLARED TO BE SIGNIFICANT BY THE STRUCTURAL ENGINEER SHALL BE CORRECTED BY THE CONTRACTOR WITHOUT COST OR ANY DELAY TO THE PROJECT SCHEDULE.

TI-2. THE CONTRACTOR SHALL RETAIN AN INDEPENDENT TESTING AGENCY TO PROVIDE FIELD AND LAB TESTING OF CONSTRUCTION MATERIALS AND TO PROVIDE CONSTRUCTION INSPECTIONS. THE CONSTRUCTION INSPECTION SHALL BE DONE BY QUALIFIED INSPECTORS THAT ARE SATISFACTORY TO THE ARCHITECT AND ENGINEER.

TI-3. THE CONTRACTOR SHALL PROVIDE THE TESTING AND INSPECTING AGENCY ACCESS TO ALL PLACES WHERE THE WORK IS BEING PERFORMED. A MINIMUM OF 24 HOURS NOTIFICATION SHALL BE GIVEN TO THE TESTING AGENCY AND ARCHITECT/ENGINEER PRIOR TO THE COMMENCEMENT OF WORK REQUIRING TESTING OR INSPECTION.

TI-4. THE TESTING AGENCY IS NOT AUTHORIZED TO DIRECT OR APPROVE ANY CHANGES FROM THE CONTRACT DOCUMENTS. IF THE CONTRACTOR WISHES TO QUESTION THE TESTING AGENCY'S INTERPRETATION OF THE CONTRACT DOCUMENTS, HE MAY DO SO DIRECTLY WITH THE ARCHITECT OR STRUCTURAL ENGINEER.

TI-5. THE TESTING AGENCY IS NOT AUTHORIZED TO STOP OR DELAY THE WORK. IF THE CONTRACTOR ELECTS TO CONTINUE WITH A CERTAIN PORTION OF WORK AFTER BEING NOTIFIED BY THE TESTING AGENCY THAT SUCH WORK IS NOT IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS, THE CONTRACTOR DOES SO AT THEIR OWN RISK AND MAY BE REQUIRED TO CORRECT THE WORK AT A LATER DATE.

TI-6. THE TESTING AND INSPECTING AGENCY IS NOT INSPECTING FOR O.S.H.A. COMPLIANCE OR REQUIRED TO INSPECT TEMPORARY CONSTRUCTION, SUCH AS TEMPORARY BRACING. TEMPORARY CONSTRUCTION IS THE CONTRACTOR'S SOLE RESPONSIBILITY.

TI-7. TESTING AND INSPECTION IS NOT REQUIRED FOR WORK PERFORMED AT AN OFF-SITE FABRICATION SHOP, UNLESS SPECIFICALLY NOTED OR SPECIFIED OTHERWISE.

TI-8. THE TESTING AND INSPECTING AGENCY SHALL ISSUE ONGOING REPORTS OF INSPECTIONS AND TESTS TO THE CONTRACTOR, ENGINEER, AND ARCHITECT OF RECORD. ALL DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION, THEN IF UNCORRECTED, TO THE ENGINEER AND ARCHITECT OF RECORD.

TI-9. INSPECTION AGENCY SHALL INSPECT FOR CONFORMANCE TO SPECIFIED REQUIREMENTS FOR PROTECTING NEW CONCRETE FROM THE ADVERSE EFFECTS OF WEATHER, AND OTHER POTENTIALLY HARMFUL CONDITIONS.

TI-10. CONSTRUCTION TESTING AND INSPECTION BY THE TESTING AND INSPECTING AGENCY IS REQUIRED AS FOLLOWS:

A. CONCRETE TESTING PER THE SPECIFICATIONS.

B. CONCRETE INSPECTION SHALL INCLUDE THE PLACEMENT OF REINFORCEMENT. REINFORCING BAR SIZES, SPACING, TIES, LAPS, AND COVER.

C. FIELD BOLTING INSPECTIONS SHALL INCLUDE VISUAL INSPECTION OF ALL THE CONNECTIONS RELATED TO STRUCTURAL STEEL. THE SIZE, TYPE, AND QUANTITY OF BOLTS AND THEIR INSTALLATION SHALL BE INSPECTED. WHERE SLIP-CRITICAL OR PRE-TENSIONED BOLTS ARE SPECIFIED, PRE-TENSIONING OF BOLTS SHALL BE VERIFIED BY TESTING.

TI-11. SPECIAL STRUCTURAL INSPECTIONS SHALL CONFORM TO THE REQUIREMENTS OF CHAPTER 17 OF THE CBC

REGISTERED PROFESSIONAL ENGINEER – NATHAN D. ROCKWOOD – C63443 – Exp. SEP. 30, 2008 – CIVIL – STATE OF CALIFORNIA

REV	DATE	DESCRIPTION	JOB NO	DSG/DWN	CHKD	SUPV	APVD
2	6/3/09	AS BUILT DRAWINGS					

REVISION 1
DSG N.ROCKWOOD
DWN S.MONTEITH
CHKD A.LAMBERTH
SUPV .
APVD
APVD .
DATE : 08/23/2007

CIVIL
GENERAL NOTES AND SPECIFICATIONS
SPAULDING POWERHOUSE
TRAM SAFETY IMPROVEMENT PROJECT

HYDRO GENERATION DEPARTMENT
PACIFIC GAS AND ELECTRIC COMPANY
SAN FRANCISCO, CALIFORNIA

MICROFILM .
BILL OF MATL .
DWG LIST 055013
SUPSDS .
SUPSD BY .
SHEET NO 2 OF 12 SHEETS
393220 REV 2

SCAN 2 IC

DRAWING NUMBER

PRF
UNIT EXT -
ADDRESS ,
NAME

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