

Mon Jul 22 16:39:49 1996 s3-v18b2 J:\PLOTS\SEQUENCES\18B2\ST001.PRF  
 This document and the design it covers are the property of PARSONS. They are loaned only with the borrower's expressed written agreement that they will not be reproduced, copied, loaned, exhibited, or used in any other way, except by written consent from PARSONS to the borrower.

# ABBREVIATIONS

AB	ANCHOR BOLT	MAX	MAXIMUM
ACI	AMERICAN CONCRETE INSTITUTE	MCH	MACHINE BOLT
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION	MECH	MECHANICAL
APPROX	APPROXIMATE	MEZZ	MEZZANINE
ARCH	ARCHITECTURAL	MFR	MANUFACTURER
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS	MIN	MINIMUM
AMS	AMERICAN WELDING SOCIETY	MISC	MISCELLANEOUS
B/B	BACK TO BACK	MPH	MILES PER HOUR
B/P	BASE PLATE		
BM	BEAM	NS	NEAR SIDE
BOF	BOTTOM OF FOOTING	NTS	NOT TO SCALE
BOS	BOTTOM OF STEEL BRACING		
BRCG			
C	CAMBER	OC	ON CENTER
CC OR C/C	CENTER TO CENTER	OD	OUTSIDE DIAMETER
CG	CENTER OF GRAVITY	OH	OPENING
C/J	CONSTRUCTION JOINT	OPP	OPPOSITE
CLG	CEILING	OSB	OPERATIONS SUPPORT BUILDING
CLR	CLEAR	OTO	OUT TO OUT
CMU	CONCRETE MASONRY UNIT	PCF	POUNDS PER CUBIC FOOT
COL	COLUMN	PL	PLATE
CONC	CONCRETE	PSF	POUNDS PER SQUARE FOOT
CONT	CONTINUOUS	PSI	POUNDS PER SQUARE INCH
CU	CUBIC	PT	POINT
DET	DETAIL	R	RADIUS
DIAG	DIAGONAL	RD	ROOF DRAIN
DIM	DIMENSION	REF	REFERENCE
DL	DEAD LOAD	REF OR BARS	REINFORCING STEEL REQUIRED
DO	DITTO	REO	REVISION
DWG	DRAWING	REV	REVISION OR REVISION
DWL	DRAWING		
EA	EACH	SCHED	SCHEDULE
EF	EACH FACE	SECT	SECTION
EL	ELEVATION	SHT	SHEET
ENCL	ENCLOSURE	SIM	SIMILAR
ENGR	ENGINEER	SLV	SHORT LEG VERTICAL
EQ	EQUAL	SPAC	SPACED
EQUIP	EQUIPMENT	ST STL	STAINLESS STEEL
ETC	ETCETERA	STD	STANDARD
EW	EACH WAY	STIF	STIFFENER
EXIST	EXISTING	SYM	SYMMETRICAL
FD	FLOOR DRAIN	TAB	TOP AND BOTTOM
FDW	FOUNDATION	THK	THICKNESS
FIN	FINISH	TOC	TOP OF CONCRETE
FLR	FLOOR	TOP	TOP OF FOOTING
FLSHG	FLASHING	TOS	TOP OF STEEL
FOC	FACE OF CONCRETE	TOW	TOP OF WALL
FRMG	FRAMING	TP	TYPICAL
FS	FAR SIDE	UNON	UNLESS OTHERWISE NOTED
FT	FOOT, FEET		
FTG	FOOTING	VERT	VERTICAL
GA	GAUGE	W/	WITH
GALV	GALVANIZED	W/P	WATER PROOF
GR	GRADE	WP	WORKING POINT
		WS	WELDED STUD
HORIZ	HORIZONTAL	WT	WEIGHT
HP	HIGH POINT	WWF	WELDED WIRE FABRIC
HR	HANDRAIL	WWM	WELDED WIRE MESH
HSB	HIGH STRENGTH BOLT		
ID	INSIDE DIAMETER		
IN	INCH		
INFO	INFORMATION		
INSUL	INSULATION		
JST	JOIST		
JT	JOINT		
LB	POUND		
LG	LENGTH		
LL	LIVE LOAD		
LLH	LONG LEG HORIZONTAL		
LLV	LONG LEG VERTICAL		
LVA	LASER AND VACUUM EQUIPMENT AREA		
LWC	LIGHT WEIGHT CONCRETE		

# SYMBOLS

L	ANGLE	△	DELTA
C	CHANNEL	⊕	SQUARE FEET
PL	PLATE	#	NUMBER OF POUND
℄	CENTER LINE	&	AND
∅	DIAMETER OF ROUND	⊙	AT
⊕	WORK POINT OR ELEV BENCH MARK		

  
  
  
  
  
  

# NOTES

### INSPECTIONS AND APPROVALS

#### GENERAL

- PROFESSIONAL SOILS ENGINEER REGISTERED IN THE STATE OF WASHINGTON SHALL INSPECT AND APPROVE ALL FOOTING EXCAVATIONS PRIOR TO PLACING CONCRETE ACCORDING TO SECTION 2200 OF THE SPECIFICATION.
- CONTINUOUS INSPECTION BY AN INSPECTOR, APPROVED BY THE DEPARTMENT OF BUILDING AND SAFETY SHALL BE PROVIDED FOR THE FOLLOWING FIELD WORK:
  - PLACEMENT OF COMPACTED FILL.
  - PLACEMENT OF CONCRETE AND REINFORCING STEEL AND ANCHOR BOLTS.
  - EXPANSION TYPE CONCRETE ANCHORS.
  - FIELD WELDING.
  - INSTALLATION OF HIGH STRENGTH BOLTS.
- FIELD WELDERS AND WELDING OPERATORS SHALL BE FULLY QUALIFIED IN ACCORDANCE WITH AWS D1.1 AND BE APPROVED BY THE DEPARTMENT OF BUILDING AND SAFETY.
- THE CONSTRUCTION SHALL COMPLY WITH REQUIREMENTS OF THE BUILDING CODE.

#### GENERAL

- ALL STRUCTURAL WORK AND MATERIALS SHALL CONFORM TO THE REQUIREMENTS OF THE JOB SPECIFICATIONS AND STANDARDS.
- ALL SHOP DRAWINGS SHALL BE REVIEWED AND APPROVED BY THE ENGINEER OF RECORD PRIOR TO FABRICATION.
- NO HOLES OTHER THAN THOSE SPECIFICALLY DETAILED, SHALL BE ALLOWED THROUGH STRUCTURAL STEEL MEMBERS, NO CUTTING OR BURNING OF STEEL SHALL BE PERMITTED WITHOUT APPROVAL OF THE ENGINEER OF RECORD.
- PAINTING AND SHOP PRIMING WHERE REQUIRED SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS.
- FOR TYPICAL DETAILS SEE DRAWINGS LA-5-002 THROUGH LA-5-009.
- CONTRACTOR SHALL PROVIDE TEMPORARY BRACING AND SHORING AS REQUIRED TO MAINTAIN THE ALIGNMENT OF BUILDING AND RETAINING WALLS UNTIL ALL CONNECTIONS ARE COMPLETED AND SLAB AND WALLS CONSTRUCTED.
- PRIOR TO PLACING FOUNDATIONS & SLABS, REFER TO UNDERDRAIN SYSTEM DRAWINGS, ARCHITECTURAL DWGS FOR SLOPES & ELECTRICAL DWGS FOR GROUNDING.
- FOR BUILDING COLUMN LOCATION COORDINATES SEE CIVIL DWGS.

# NOTES

### FOUNDATIONS

- FOUNDATION AND SOIL REQUIREMENTS ARE BASED ON SOIL REPORT BY DAMES AND MOORE; REPORT NO. 177-004-0016 DATED FEBRUARY 10, 1993.

### CONCRETE

- ALL CONCRETE MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE REQUIREMENTS OF DIVISION 3 (CONCRETE) OF THE SPECIFICATIONS. (REGULAR WEIGHT AND LIGHT WEIGHT)
- STRUCTURAL CONCRETE SHALL HAVE AN ULTIMATE COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS UNLESS OTHERWISE NOTED. ALL CONCRETE SHALL BE REGULAR WEIGHT CONCRETE UNLESS OTHERWISE NOTED.
- ALL REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO ASTM A615 GRADE 60 (UNLESS OTHERWISE NOTED). SPLICES AND HOOKS SHALL CONFORM TO ACI 318-89, SPLICES SHALL BE CLASS B UNLESS OTHERWISE NOTED. MINIMUM LAP SHALL BE 30 DIAMETERS. STIRRUP AND TIE HOOKS SHALL HAVE 135-DEGREE BENDS.
- LOCATION OF ALL CONSTRUCTION JOINTS OR OTHER TYPES OF JOINTS, OTHER THAN SPECIFIED, SHALL BE APPROVED BY THE CONSTRUCTION MANAGER BEFORE PLACING.
- MINIMUM CONCRETE COVER PROVIDED FOR REINFORCEMENT SHALL BE IN ACCORDANCE WITH THE SPECIFICATION.
- ALL REINFORCING STEEL, ANCHOR BOLTS, DOWELS AND OTHER INSERTS SHALL BE WELL SECURED IN POSITION AND INSPECTED BY QUALIFIED INSPECTOR PRIOR TO PLACING CONCRETE.
- EXISTING PAVEMENT SHALL BE SAW CUT AND BROKEN OUT TO CLEAN, STRAIGHT EDGES OF DEMOLITION AREAS.
- EXPOSED EDGES OF CONCRETE SHALL HAVE A 1/4" CHAMFER UNLESS OTHERWISE NOTED ON DRAWINGS.
- EXCAVATING AND BACKFILLING SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS.
- CONSTRUCTION JOINTS SHALL BE CLEANED AND ROUGHENED TO 1/4" AMPLITUDE.
- PROVIDE REINFORCEMENT IN WALLS AT CORNER AND INTERSECTIONS AS PER DETAIL LA-5-002

### STRUCTURAL STEEL

- THE DESIGN, FABRICATION AND ERECTION OF ALL STRUCTURAL STEEL SHALL CONFORM TO AISC "MANUAL OF STEEL CONSTRUCTION" AND WITH THE SPECIFICATIONS. STRUCTURAL STEEL SHAPES & PLATES SHALL CONFORM TO ASTM A36 UNLESS OTHERWISE NOTED ON PLAN.
- PROVIDE FILLERS AT SPLICES OF PARTS HAVING MORE THAN 1/4" DIFFERENCE IN THICKNESS.
- ALL BEARING STIFFENER PLATES SHALL HAVE A CLOSE BEARING AGAINST THE INNER SURFACES OF BOTH FLANGES.

### CONNECTIONS

- PLATE FOR BOLTED SHEAR PLATE CONNECTIONS SHALL BE THE SAME THICKNESS AS THE BEAM WEB WITH A MINIMUM THICKNESS OF 3/8" UNLESS OTHERWISE NOTED. DIAGONAL GUSSET PLATE CONNECTIONS SHALL HAVE A MINIMUM THICKNESS OF 3/8" (UNLESS OTHERWISE NOTED) AND THE NET AREA THROUGH THE BOLTS HOLES SHALL DEVELOP TOTAL SHEAR CAPACITY OF THE BOLTS. ALL CONNECTIONS SHALL HAVE A MINIMUM OF TWO BOLTS. LOAD INDICATOR WASHERS SHALL BE USED WITH ALL ASTM A325SC BOLTS.
- ALL BOLTS SHALL BE ASTM A325SC, CLASS A, UNLESS OTHERWISE NOTED. 3/8" BOLTS SHALL BE USED FOR MID & END STATION, OSB BUILDING AND MAINTENANCE BUILDING AND 1/2" BOLTS SHALL BE USED FOR CORNER LREA BUILDING, UNLESS OTHERWISE NOTED.
- ALL STIFFENERS SHALL HAVE A MINIMUM THICKNESS OF 3/8", UNLESS OTHERWISE NOTED.
- GIRT CONNECTIONS SHALL HAVE A MINIMUM OF 2-1/2" ASTM A307 BOLTS.

### WELDING

- ALL WELDING SHALL CONFORM TO THE REQUIREMENTS OF AWS D1.1-90 STRUCTURAL WELDING CODE AND THE SPECIFICATION.
- ALL WELDING PROCEDURE SPECIFICATIONS AND WELDING PROCEDURE QUALIFICATIONS, WELDERS, AND WELDING OPERATORS SHALL BE FULLY QUALIFIED IN ACCORDANCE WITH AWS D1.1-90.
- LENGTHS OF WELDS SHOWN ARE EFFECTIVE LENGTHS AS SPECIFIED IN AISC SPECIFICATIONS. WHERE LENGTH OF WELD IS NOT SHOWN, IT SHALL BE FULL LENGTH OF JOINT. ALL BUTT WELDS SHALL BE FULL PENETRATION WELDS, UNLESS OTHERWISE NOTED.
- ALL WELDING ELECTRODES SHALL BE E70XX.
- WITH REFERENCE TO MINIMUM SIZE OF FILLET WELD REQUIREMENTS IN SECTION 1.17 OF AISC SPECIFICATIONS, MINIMUM SIZE OF FILLET WELDS WHEN NOT SPECIFIED ON WELD SYMBOLS SHALL BE AS FOLLOWS:
  - 1/2" WELD FOR MATERIAL THICKNESS UP TO AND INCLUDING 3/4"
  - 3/8" WELD FOR MATERIAL THICKNESS OVER 3/4" TO 1 1/2"
- WELDING PROCEDURES AND SEQUENCES SHALL BE PLANNED TO MINIMIZE WELD SHRINKAGE THAT COULD RESULT IN LAMELLAR TEARING, AND APPROVED BY OWNER'S REPRESENTATIVE.
- GRIND SMOOTH WELDED JOINTS WHERE FLUSH SURFACE IS REQUIRED.

### METAL DECK

- ALL METAL DECKING SHALL BE IN ACCORDANCE WITH SECTION 5312 OF THE SPECIFICATIONS.
- ROOF DECK SHALL HAVE SINGLE RIBS 3" DEEP AND MADE OUT OF 20 GAGE STEEL WITH MINIMUM EQ. 875 IN FOOT OF WIDTH AND MINIMUM 5 IN FOOT WIDTH AND 5 IN FOOT WIDTH. ATTACHMENT OF ROOF DECK TO SUPPORTS SHALL BE PER MANUFACTURER'S RECOMMENDATIONS. THE ATTACHMENT SHALL BE CAPABLE OF RESISTING 80 PSF NET UPLIFT AND 300 POUNDS PER LINEAR FOOT OF SHEAR.
- ACOUSTICAL ROOF DECK OF SAME SECTION PROPERTIES AS INDICATED IN ITEM 2 ABOVE SHALL BE USED FOR THE ROOF OVER MULTIPURPOSE ROOM OF THE OSB BLDG AS INDICATED ON THE DWG.
- ROOF DECK SHALL HAVE A MINIMUM OF TWO (2) SPANS UNLESS OTHERWISE NOTED.

# MATERIALS LEGEND

	STEEL (LARGE SCALE SECTION)		SPAN DIRECTION
	CONCRETE		WELDED WIRE FABRIC
	CONCRETE MASONRY UNIT		EARTH
	FLOOR OPENING		STRUCTURAL BACKFILL
	GRATING		

NO.	DATE	BY	CHK'D	ENGR	PROJ	DESCRIPTION
C	7-24-96	MCS	BLK	BP	TOM	ISSUED FOR BID
B	6-14-96	MCS	DDM	BP	TOM	FINAL DESIGN REVIEW
A	10-31-95				TOM	PRELIMINARY DESIGN REVIEW

  

DRAWN	MCS
CHECKED	
ENGINEER	
PROJ	

REFERENCES						
------------	--	--	--	--	--	--

 100 WEST WALNUT STREET PASADENA, CALIFORNIA	 CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY	LASER INTERFEROMETER GRAVITATIONAL-WAVE OBSERVATORY SITE NO. 2 - LIVINGSTON, LOUISIANA		
		TITLE: STRUCTURAL GENERAL NOTES, ABBREVIATIONS & LEGEND	SCALE: NONE	CONTRACT NUMBER: PP150969
LIGO-D960907-C-0		<b>LA-S-001</b>		