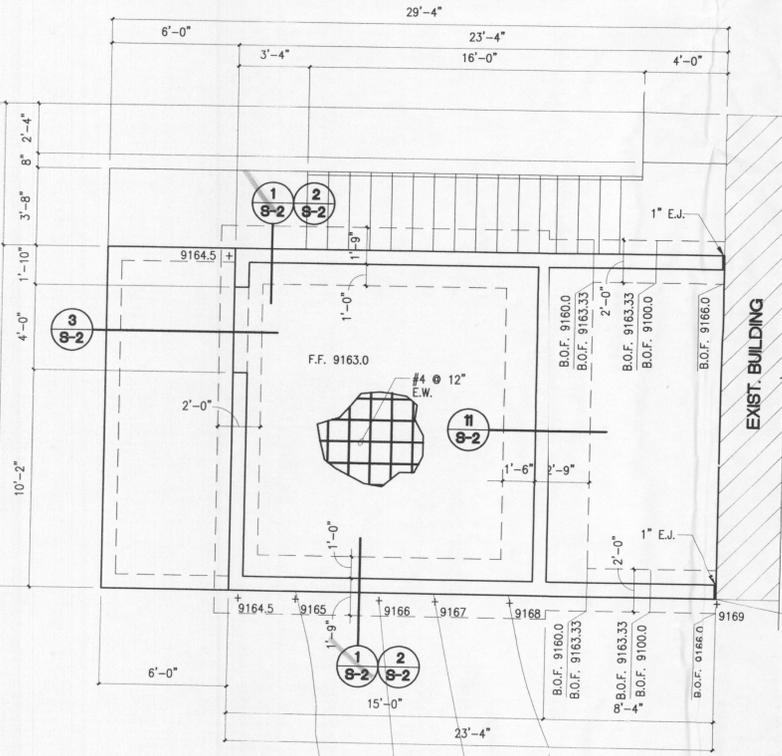


UPPER LEVEL FOUNDATION PLAN



LOWER LEVEL FOUNDATION PLAN

CONSTRUCTION NOTES AND OUTLINE SPECIFICATIONS

DESIGN CRITERIA

| ITEM | LIVE LOAD | DEAD LOAD | WIND PRESSURE |
|-------|-----------|-----------|--|
| ROOF | 30 PSF | 14 PSF | BASIC WIND SPEED = 80 MPH. (3 SEC. GUST = 100 MPH.) |
| FLOOR | 50 PSF | 100 PSF | 0-30 FT. = 20.0 PSF 30-40 FT. = 25.0 PSF |

SEISMIC

SEISMIC USE GROUP I
IMPORTANCE FACTOR I = 1.0
SOILS SITE CLASS D
SPECTRAL RESPONSE COEFFICIENTS:
SDS 0.3172g
SD1 0.1525g

IMPORTANCE FACTOR I = 1.0
EXPOSURE "C"

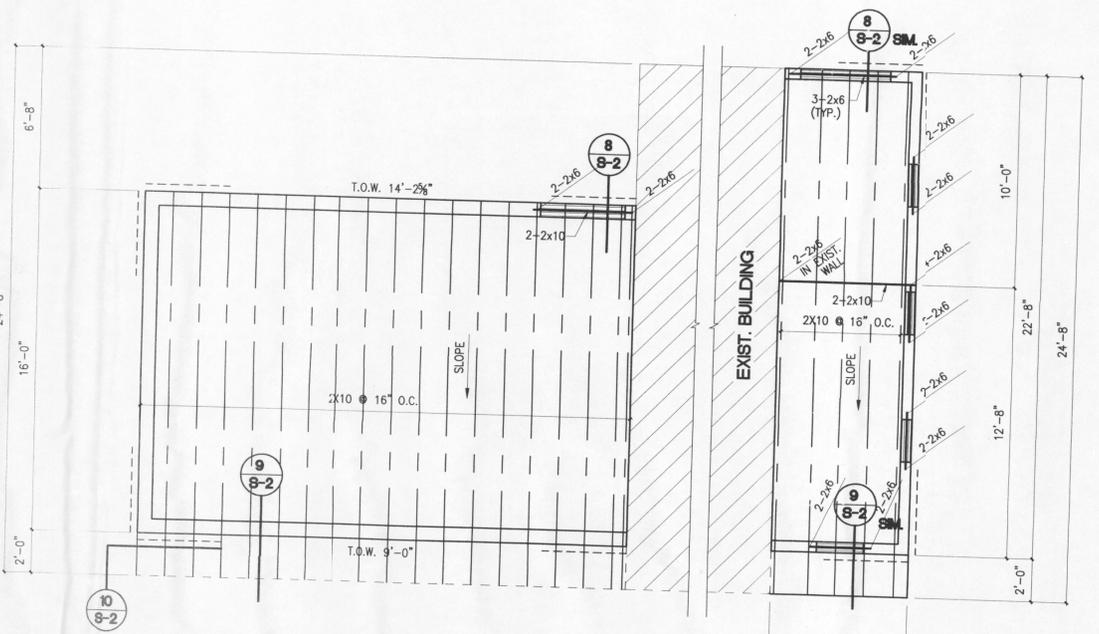
- GENERAL NOTES**
- THE CONTRACTOR SHALL COMPARE THE STRUCTURAL DRAWINGS WITH THE ARCHITECTURAL, PLUMBING, MECHANICAL AND ELECTRICAL DRAWINGS AS TO LAYOUT, DIMENSIONS AND ELEVATIONS. ALL DISCREPANCIES, IF ANY, SHALL BE REPORTED TO THE ARCHITECT/ENGINEER FOR PROPER ADJUSTMENT BEFORE PROCEEDING WITH WORK.
 - PRIOR TO BEGINNING ANY CONSTRUCTION, THE CONTRACTOR SHALL VERIFY ALL VERTICAL AND HORIZONTAL DIMENSIONS BY FIELD MEASUREMENTS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT/ENGINEER. ALL CONSTRUCTION SHALL MEET THE UNIFORM BUILDING CODE.
 - IN THE EVENT THAT CERTAIN FEATURES OF THE CONSTRUCTION ARE NOT FULLY SHOWN ON THE DRAWINGS, OR CALLED FOR IN THE STRUCTURAL NOTES OR IN THE SPECIFICATIONS, THEN SUCH CONSTRUCTION SHALL BE IN THE SAME CHARACTER FOR SIMILAR CONDITIONS THAT ARE SHOWN OR CALLED FOR.

- FIELD INSPECTION AND CONTROLS**
- THE CONTRACTOR SHALL PROVIDE TESTING AND INSPECTION SERVICE FOR ALL SOILS AND CONCRETE CONSTRUCTION INCLUDING SAMPLING AND TESTING OF ALL MATERIALS TO BE USED. THE TESTING AND INSPECTION SERVICE TO BE EMPLOYED IS SUBJECT TO PRIOR APPROVAL BY THE ARCHITECT/ENGINEER.
 - SOILS: INSPECT AND APPROVE ALL MATERIALS TO BE USED DURING CONSTRUCTION. INSPECT AND APPROVE ALL LAYERS OF SUBGRADES AND FILL BEFORE FURTHER CONSTRUCTION WORK IS PERFORMED. SOILS TESTS TO BE TAKEN SHALL BE AS FOLLOWS: NATURAL GROUND (1) TEST PER 2500 SQ. FT.; FILL (1) TEST PER 2500 SQ. FT. PER LAYER; FILL UNDER CONTINUOUS FOOTINGS (1) TEST PER 100 LINEAL FEET PER LAYER; FINISH GRADE (1) TEST PER 2500 SQ. FT. PER LAYER.
 - CONCRETE TEST CYLINDERS: USE ASTM C-31 AND ASTM C-172. MAKE FOUR OR SIX CYLINDERS. SIX REQUIRED IF FLY ASH IS USED. MAKE AT LEAST ONE SET FOR ALL DELIVERED CONCRETE FOR EVERY 20 OR LESS CUBIC YARDS OF CONCRETE OR ANY OTHER TIME DEEMED NECESSARY BY THE ARCHITECT/ENGINEER. COMPLY WITH ASTM C-94, READY MIXED CONCRETE. TEST PER ASTM C-39, WITHOUT FLY-ASH. 1 AT 7 DAYS, 2 AT 28 DAYS, WITH 1 LEFT WITH FLY-ASH. 1 AT 7 DAYS, 2 AT 28 DAYS, 1 AT 42 DAYS, WITH 2 LEFT.
 - SUMP: ASTM C-143, 1 FOR EACH TRUCK, TEST PROMPTLY AFTER ONE-HALF CUBIC YARD HAS BEEN DISCHARGED BEGINNING WITH THE FIRST LOAD OF EACH DAY.
 - AIR CONTENT: ASTM C-173, 1 FOR EACH TRUCK DELIVERING CONCRETE AND PERFORMED AT THE SAME TIME AS SUMP TEST IS TAKEN.

- EXCAVATION AND BACKFILL**
- ALL EXCAVATION, GRADING AND ENGINEERED BACKFILL SHALL BE COMPLETE PRIOR TO BEGINNING FOUNDATION EXCAVATION.
 - AFTER CLEARING AND GRUBBING ARE COMPLETE FOR THE BUILDING PAD AND BASES OF ALL FOUNDATIONS, TO THE EXISTING SUBSOIL ADD SUFFICIENT WATER TO BRING THE SOILS TO 2% OPTIMUM MOISTURE CONTENT AND COMPACTED TO 95%.
 - ALL FOUNDATION DEPTHS ARE MINIMUM AND SHALL NOT BE REDUCED WITHOUT THE WRITTEN APPROVAL OF THE ARCHITECT/ENGINEER. ALL MATERIALS USED IN THE CONSTRUCTION OF THIS PROJECT MUST BE SUPPLIED FROM OUTSIDE SOURCES AND SHALL HAVE A P.I. OF LESS THAN 12 PER ASTM D-4318, NO AGGREGATE SIZE TESTED FOR COMPLIANCE. FAILURE TO MEET THIS REQUIREMENT WILL BE CAUSE FOR REJECTION AND THE LAYER SHALL BE REMOVED AND RECOMPACTED.
 - ALL EXCAVATIONS SHALL BE FREE OF ALL LOOSE AND FOREIGN MATERIAL BEFORE ANY CONCRETE IS PLACED AND ALL AREAS TO RECEIVE CONCRETE SHALL BE THOROUGHLY WETTED PRIOR TO PLACEMENT.
 - THE ORIGINAL SOILS INVESTIGATION AND RECOMMENDATIONS WERE MADE BY SERGENT, HAUSKINS & BECKWITH PROJECT NO. E92-1137 DATED JULY 27, 1997 AND THIS DOCUMENT IS AVAILABLE FOR REVIEW AT THE ARCHITECT'S OFFICE.

- FORMWORK**
- PLYWOOD FORMS SHALL BE USED FOR ALL FORMED SURFACES. PLYWOOD FORMS SHALL BE MADE FROM PLYWOOD SHEETS OF ADEQUATE THICKNESS AND AS LARGE AS POSSIBLE WITH SMOOTH EVEN EDGES. FORMS SHALL CONFORM TO PS-91 OF U.S.
 - EARTH FORMS MAY BE USED ONLY FOR FOOTINGS AND ONLY IF THE CUT EARTH SURFACES CAN MAINTAIN THEIR SHAPE WITHOUT DANGER OF CAVE-IN THE SIDES AND BOTTOMS. FORMS SHALL BE GRouted AND TRUE TO THE SUBGRADE UNDER SLABS AND STANDARD MASONRY. SHALL CONFORM TO THE DRAWINGS.
 - PLYWOOD FORMS SHALL BE INSTALLED WITH CLOSED, FLUSHED JOINTS.
 - PLYWOOD SHALL BE SEALED AGAINST ABSORPTION OF MOISTURE FROM THE CONCRETE BY EITHER A FIELD APPLIED APPROVED FORM OIL, SEALER OR A FACTORY APPLIED NON-ABSORBENT LINER. ALL SEALING OF FORMS ALLOWED TO STAND IN FLOODS IN THE FORMS NOT ALLOWED TO COME IN CONTACT WITH CONCRETE, WHICH FRESH CONCRETE WILL BE PLACED AGAINST OR ANY REINFORCING STEEL. SEALER OR FORM OIL SHALL BE COMPATIBLE WITH FINAL FINISH REQUIREMENTS.

- MASONRY**
- ALL CONCRETE, HOLLOW CORE, AND BLOCK SHALL CONFORM TO ASTM C-90, GRADE N, TYPE I. ALL SOLID NON-BEARING BLOCK SHALL BE SPLIT FACE BLOCK COMPLYING WITH ASTM C-90, GRADE N, TYPE I. COLOR SHALL BE AS SELECTED BY THE ARCHITECT WITH GRAY CEMENT. ALL CONCRETE SUMP BLOCK SHALL CONFORM TO ASTM C-145. BLOCK TYPE ON THIS PROJECT IS 8".
 - GROUT USED TO FILL MASONRY CELLS SHALL CONFORM TO THAT SPECIFIED ABOVE AND SLUMP USING PLACEMENT. WET CELLS BEFORE PLACEMENT AND PROVIDE CLEANOUT FOR EACH CELL TO BE GROUTED AND AT THE BOTTOM OF EACH LIFT FOR REMOVAL OF ALL MORTAR DROPPINGS, EXCESS WATER, ETC.
 - ALL MORTAR, ROCK WALLS AND STANDARD MASONRY, SHALL CONFORM TO ASTM C-270, TYPE S.
 - ALL HORIZONTAL JOINT REINFORCING, UNLESS OTHERWISE SHOWN ON THE DRAWINGS, SHALL BE SIMILAR TO SPECIFICATION 02-W-461. HORIZONTAL SPACING SHALL BE AT 16" O.C. ABOVE GRADE AND 8" O.C. BELOW GRADE UNLESS SHOWN OTHERWISE ON THE DRAWINGS.
 - ALL CONSTRUCTION JOINTS, INTERSECTIONS, EXPANSION JOINTS, DOOR JAMBS AND WINDOW JAMBS SHALL HAVE AT LEAST ONE #5 BAR ADDED AND GROUTED SOLID ON EITHER SIDE OF THE JOINT OR OPENING. ALL MASONRY WALLS BELOW GRADE SHALL HAVE BOND BEAMS AT 4" O.C. OR LESS. INSTALL A BOND BEAM AT FINISH GRADE OR FINISH FLOOR IN ALL CASES. ALL MASONRY WALLS ABOVE GRADE SHALL HAVE BOND BEAMS AT 8' O.C. OR LESS IN ALL CASES. ALL BOND BEAMS SHALL BE REINFORCED WITH 2-#5 CONTINUOUS.



ROOF FRAMING PLAN

- CONCRETE**
- REVIEW BY THE ARCHITECT IS REQUIRED OF ALL FOUNDATIONS, FORMS, REINFORCING STEEL, PIPES, CONDUITS, SLEEVES, INSERTS AND OTHER WORK REQUIRED TO BE BUILT INTO THE CONCRETE BEFORE THE CONCRETE IS PLACED.
 - PLACING OF CONCRETE SHALL BE IN ACCORDANCE WITH THE RECOMMENDED PRACTICE OF ACI 814 AND PCA DESIGN AND CONTROL OF CONCRETE MIXTURES. NO CONCRETE SHALL BE PLACED DURING RAIN, SLEET OR SNOW. ALL CONCRETE PLACED SHALL BE PROTECTED SUCH THAT THE TEMPERATURE AT THE SURFACE SHALL NOT DROP BELOW 55 DEGREES F. FOR 72 HOURS AFTER PLACEMENT AND PREVENTED FROM FREEZING 3 DAYS THEREAFTER. ALL CONCRETE SHALL BE PROTECTED DURING HOT WEATHER BY GIVING PROPER ATTENTION TO INGREDIENTS, PRODUCTION METHODS, HANDLING AND PLACING TO PREVENT EXCESSIVE CONCRETE TEMPERATURES AND WATER EVAPORATION.
 - ALL SLABS SHALL BE SAW CUT 1/4 OF DEPTH OF SLAB AT 12 FEET O.C. UNLESS SHOWN OTHERWISE ON THE DRAWINGS. IMMEDIATELY AFTER SAW CUTTING, THE JOINT SHALL BE CLEANED AND SEALED USING A SEALANT TO PREVENT DEBRIS FROM ACCUMULATING IN THE JOINT. SLABS ON GRADE SHALL BE CURED EITHER BY USING LIQUID MEMBRANE-FORMING COMPOUNDS AND MEETING CRS-C 300 AND ASTM C-309, BY USING WATER-PROOF PLASTIC COVERING 4 MILS THICK AND MEETING ASTM C-171.
 - ALL EXPOSED CONCRETE SURFACES SHALL BE RUBBED FREE FROM ALL FORM MARKS AND HONEYCOMBS. ALL EDGES SHALL BE CHAMFERED WITH 3/4" CHAMFER STRIPS.
 - THE FOLLOWING TABLE IS INTENDED TO IDENTIFY AND ESTABLISH THE RESPECTIVE CRITERIA FOR ALL THE CLASSES OF CONCRETE TO BE USED ON THIS PROJECT.

CONCRETE CLASSIFICATION TABLE

| CLASS OF CONCRETE | MINIMUM 28 DAY COMPRESSIVE STRENGTH (PSI) | MINIMUM 28 DAY TENSILE STRENGTH (PSI) | MINIMUM SACKS OF CEMENT/ CU. YD. | MAXIMUM AGGREGATE SIZE (INCHES) | REQUIRED SLUMP (INCHES) |
|--|---|---------------------------------------|----------------------------------|---------------------------------|-------------------------|
| EXTERIOR SLABS, PARKING, WALKS & CURBS | 3000 | 3300 | 5.5 | 1" | 1"-air |
| INTERIOR SLABS | 3000 | 3300 | 5.5 | 1" | 1" |
| MASONRY GROUT | 3000 | 3300 | 6.5 | 3/8" | 1" min |
| FOOTINGS | 3000 | 3300 | 5.5 | 1.5" | 4" |

- ALL EXPOSED CONCRETE, INCLUDING THAT UNDER THE ROOFED AREAS, SHALL BE DESIGNED WITH A MINIMUM OF 5% AIR-ENTRAPPED MEETING ASTM C-260.
- ALL CONCRETE DESIGNED WITH FLY-ASH MEETING ASTM C-618 SHALL HAVE 2 EXTRA CONCRETE CYLINDERS SUBSTITUTE FOR TESTS AT 42 AND 56 DAYS. NO CONCRETE SHALL BE DESIGNED WITH MORE THAN 5% FLY-ASH.
- FIBERS MAY BE ADDED AT THE PLANT OR JOB SITE AFTER REQUIRED SLUMP IS OBTAINED. HOWEVER, NO ADDITIONAL WATER SHALL BE ADDED TO THE CONCRETE. AFTER THIS POINT, SLUMPS SHOWN IN THE ABOVE TABLE ARE AT FINAL DESTINATION WITH A TOLERANCE OF PLUS OR MINUS 1 INCH FOR A SLUMP OF 4 INCHES OR GREATER. SLUMPS LESS THAN 4" SHALL BE WITHIN 1/2". THE CONTRACTOR, AT HIS OPTION, MAY INCREASE THE SLUMP TO AS MUCH AS 8 INCHES USING SUPER-PLASTICIZERS, BUT NOT WATER, TO AID IN PLACEMENT.
- ALL DRIVES, WALKS AND RAMPS SHALL HAVE A COARSE BROOM FINISH TO MINIMIZE SKIDDING AND SLIPPING OF VEHICLES AND PEOPLE. ALL INTERIOR FLOORS SHALL HAVE A SMOOTH "HARD" TROWELED FINISH.

- CONCRETE REINFORCING**
- ALL REINFORCING SHALL BE NEW BILLET GRADE 60, ASTM A-615.
 - ALL BAR SPICES SHALL BE 32 DIAMETERS FOR ALL LOCATIONS, I.E. FOOTINGS, WALLS, ETC.
 - ALL REINFORCING STEEL IN WALLS SHALL BE PLACED IN THE CENTER OF THE SLAB OR CORE AS APPLICABLE UNLESS SHOWN OTHERWISE ON THE DRAWINGS.
 - REINFORCING IN ALL SLABS SHALL BE ENGINEERED SYNTHETIC REINFORCING FIBERS MADE FROM 100% POLYPROPYLENE MATERIALS, WITH A SPECIFIC GRAVITY OF .91, TENSILE STRENGTH OF 70 TO 110 CSI, MODULUS OF ELASTICITY OF 500 TO 700 PSI AND IN LENGTHS OF 1/2" TO 1" AND MIXED WITH THE CONCRETE IN AMOUNTS OF 1.5 LBS. PER CUBIC YARD, NO REPROCESSED OLEFIN FIBERS ARE ALLOWED.
 - ALL REINFORCING FOR BOND BEAMS, LINTELS, VERTICAL, ETC., SHALL BE ASTM A-615, GRADE 60. ALL TIES AT COLUMNS MAY BE GRADE 40.
 - AT THE CONTRACTOR'S OPTION, REINFORCING IN SLABS SHALL BE #4 BARS GRADE 60 AT 16" O.C. SUPPORTED ON SAND CHAIRS.

- WOOD FRAMING AND LUMBER**
- THE EXTENT OF WOOD FRAMING AND LUMBER IS SHOWN ON THE DRAWINGS AND INCLUDES ALL PLYWOOD, FRAMING MEMBERS, SHEATHING AND WOOD TRUSSES INCLUDING ALL NAILS, SCREWS, BOLTS AND OTHER SIMILAR ITEMS NOT SPECIFICALLY DESCRIBED BUT REQUIRE TO COMPLETE THE PROJECT. THE FOLLOWING IS A LIST OF THE MINIMUM REQUIREMENTS FOR SELECTED ITEMS TO BE FURNISHED AND IS INTENDED TO ESTABLISH THE STANDARDS OF QUALITY FOR THE MATERIALS ON THIS PROJECT.
 - ALL LUMBER ON THIS PROJECT INCLUDING JOISTS, HEADERS, LINTELS, BEAMS, TRUSSES SYSTEMS SHALL MEET THE REQUIREMENTS SHOWN IN THE "TIMBER CONSTRUCTION STANDARDS" BY AMERICAN INSTITUTE OF TIMBER CONSTRUCTION (AITC) AND THE CRITERIA SHOWN BELOW:
 - HORIZONTAL & VERTICAL FRAMING MEMBERS:
 - HEM-FIR: #1 GRADE & BETTER, E = 1,500,000 PSI, F_b = 1100 PSI, F_t = 725 PSI, F_c = 1350 PSI, E_v = 76 PSI.
 - PLYWOOD:
 - SHEATHING: STRUCTURAL I, C-DX 5/8".
 - DIAGONAL WIND BRACING: SHALL BE PLACED AT EACH CORNER USING 5/8" PLYWOOD FASTENED WITH 8d AT 4" O.C. AT PERIMETER AND 8" O.C. AT INTERMEDIATE SUPPORTS.
 - AT ALL PARTY WALLS "SIMPSON" WB X BRACING SHALL BE INSTALLED, FASTENED TO EACH STUD WITH 1-8d NAILS AND FASTENED TO EACH END WITH 3-16d NAILS.
 - PANEL SUBLEGOING: PANEL THICKNESS = 5/8", NAIL SIZE & TYPE = 8d COMMON, SUPPORT PANEL EDGES = 6. INTERMEDIATE SUPPORTS = 12. PLYWOOD SHALL BE ATTACHED TO JOIST/TRUSSES AS PER APA GLUE FLOOR SYSTEM.
 - TELEPHONE AND MISCELLANEOUS BACKBOARDS: 3/4" THICK, AD. GROUP 1, INTERIOR.



Pe PONCE ENGINEERING, INC.
CONSULTING STRUCTURAL ENGINEERING

2417 WYOMING AVE.
EL PASO, TEXAS 79903
(915) 544-2810
(915) 544-1640 (FAX)

7.0, BOX 2481
LAS CRUCES, NM 88004
(505) 523-8812

E-mail: ponceeng@aol.com
DRAWN BY: ANGEL JIMENEZ

APACHE POINT
OBSERVATORY
SISG BLDG EXPANSION

PREPARED FOR
ASTROPHYSICAL
RESEARCH CONSORTIUM
SUNSPOT
NEW MEXICO

| DATE | PHASE |
|---------|--------|
| 7/13/07 | |
| 7/10/07 | Permit |

denton ventures, inc.
architectural • engineering • planning
2480 roadrunner parkway
las cruces, nm 88011
office 505.525.0241
fax 505.525.9409
email dvi@denton.com

SHEET
S-1