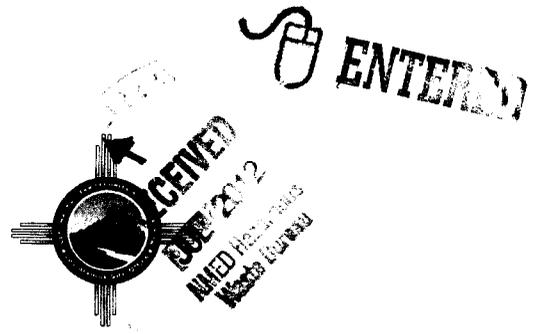


46



*Environmental Protection Division*  
Water Quality & RCRA Group (ENV-RCRA)  
P.O. Box 1663, K490  
Los Alamos, New Mexico 87545  
(505) 667-0666

*National Nuclear Security Administration*  
Los Alamos Site Office, A316  
3747 West Jemez Road  
Los Alamos, New Mexico 87545  
(505) 667-5794/FAX (505) 667-5948

Date: **JUL 17 2012**  
Refer To: ENV-RCRA-12-0165  
LAUR: 12-22929

Mr. Jerry Schoeppner, Chief  
Ground Water Quality Bureau  
New Mexico Environment Department  
Harold Runnels Building, Room N2261  
1190 St. Francis Drive  
P.O. Box 26110  
Santa Fe, NM 87502

Dear Mr. Schoeppner:

**SUBJECT: NOTICE OF CHANGED CONDITIONS, EXPANSION OF THE SANITARY EFFLUENT RECLAMATION FACILITY AND SIGMA MESA EVAPORATION BASINS, DP-857**

In accordance with §20.6.2.3107 of the New Mexico Administrative Code (NMAC), on March 13, 2012, the U.S. Department of Energy and Los Alamos National Security LLC (DOE/LANS) notified you of a planned change in the operating conditions at the Sanitary Effluent Reclamation Facility (SERF) and the Sigma Mesa SERF Evaporation Basins (ENV-DO-12-0008). The March 2012 notification provided the New Mexico Environment Department (NMED) with construction drawings for the planned expansion of the effluent reuse system at Los Alamos National Laboratory. Because this project is being constructed under a design-build contract, the construction drawings submitted in March 2012 were incomplete. This letter provides you with the remaining design drawings for the project.

Enclosures 1 and 2 are copies of the construction drawings for the civil/process and structural/architectural portions of the project's design, respectively. As-built drawings will be submitted to the NMED once they are available for release.



Mr. Jerry Schoepner  
ENV-RCRA-12-0165

- 2 -

Please contact Robert S. Beers by telephone at (505) 667-7969 or by email at [bbeers@lanl.gov](mailto:bbeers@lanl.gov) if you have questions regarding this notification.

Sincerely,



Alison M. Dorries  
Division Leader  
Environmental Protection Division  
Los Alamos National Security LLC

Sincerely,



Gene E. Turner  
Environmental Permitting Manager  
Environmental Projects Office  
Los Alamos Site Office  
U.S. Department of Energy

Enclosures:

1. SERF Expansion Project, Civil and Process Drawings
2. SERF Expansion Project, Structural and Architectural Drawings

AMD:GET:RSB/lm

Cy: James Hogan, NMED/SWQB, Santa Fe, NM, w/enc.  
John E. Kieling, NMED/HWB, Santa Fe, NM, w/enc.  
Steve W. Yanicak, NMED/DOE/OB, w/enc., M894, (E-File)  
Hai Shen, LASO-EPO, A316, w/enc., (E-File)  
Gene E. Turner, LASO-EPO, A316, w/enc., (E-File)  
Carl A. Beard, PADOPS, w/o enc., A102,  
Michael T. Brandt, ADESH, K491, w/o enc., (E-File)  
Alison M. Dorries, ENV-DO, K491, w/o enc., (E-File)  
Andrew W. Erickson, UI-DO, w/o enc., K760, (E-File)  
Lawrence V. Chavez, UI-OPS, w/o enc., K760, (E-File)  
Gary F. Blauert, ES-UI, w/o enc., K718, (E-File)  
Mark Trujillo, ES-UI, w/o enc., K718, (E-File)  
Chris L. Quartieri, MNGRFCT-DO, w/o enc., J590. (E-File)  
Michael T. Saladen, ENV-RCRA, K490, w/o enc., (E-File)  
Robert S. Beers, ENV-RCRA, w/enc., K490  
IRM-RMMSO, w/enc., A150, (E-File)  
ENV-RCRA Correspondence File, w/enc., K490

**ENCLOSURE 1**

**SERF Expansion Project, Civil and Process Drawings**

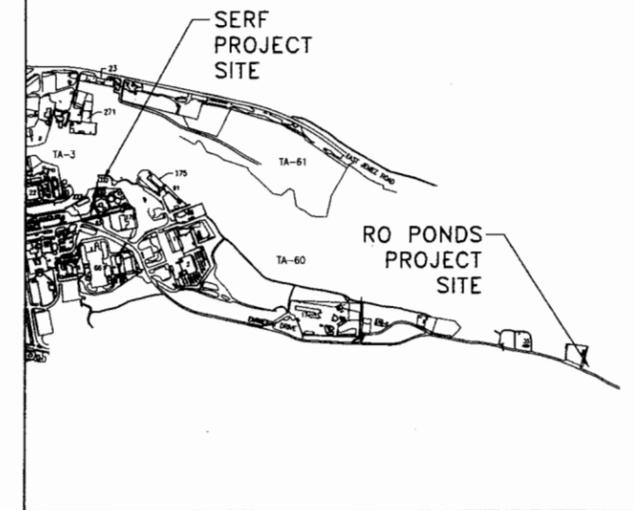
**ENV-RCRA-12-0165**

**LAUR-12-22929**

**Date:**           JUL 17 2012

# SANITARY EFFLUENT RECLAMATION FACILITY (SERF) EXPANSION PROJECT

## CIVIL AND PROCESS DRAWINGS FOR GRADING, EXCAVATION AND PIPING RELATED CONSTRUCTION ACTIVITIES OCTOBER 24, 2011 DESIGN-BUILD DELIVERY



LOCATION PLAN  
SCALE: NONE

### LIST OF DRAWINGS

REVISION NUMBER	SHEET NUMBER	DISCIPLINE/SHEET NUMBER	DRAWING TITLE
0	1	G-0001	COVER SHEET/INDEX
* 0	2	C-0001	GENERAL NOTES
* 0	3	C-0002	LEGEND AND ABBREVIATIONS
* 0	4	C-1000	OVERALL SITE/SURVEY
* 0	5	C-1001	SERF SITE AND PIPING PLAN
* 0	6	C-1002	SERF GRADING PLAN
* 0	7	C-1003	RO REJECT EVAP PONDS SITE AND PIPING PLAN
* 0	8	C-1004	RO REJECT EVAP PONDS GRADING PLAN
* 0	9	C-1005	SERF PLAN AND PROFILE
* 0	10	C-3000	RO REJECT EVAP PONDS SECTIONS
* 0	11	C-3001	RO REJECT EVAP PONDS DETAIL SECTIONS
* 0	12	C-5000	PIPING DETAILS
* 0	13	C-5001	MISCELLANEOUS DETAILS

1	14	S-0001	GENERAL NOTES
1	15	S-1000	SERF FOUNDATION PLAN
1	16	S-1001	SERF FRAMING PLAN
0	17	S-1002	400,000 GAL STORAGE TANK PLAN
1	18	S-3000	SERF FOUNDATION SECTIONS AND DETAILS
0	19	S-3001	SERF FRAMING SECTIONS AND DETAILS
1	20	S-3002	SERF FRAMING SECTIONS AND DETAILS
1	21	S-4000	SERF BUILDING SECTIONS
1	22	S-4001	SERF BUILDING SECTIONS
0	23	S-4002	400,000 GAL STORAGE TANK SECTION AND DETAIL
0	24	S-5000	STANDARD DETAILS
0	25	S-5001	STANDARD DETAILS
0	26	A-0001	LEGEND AND ABBREVIATIONS
0	27	A-1000	ARCHITECTURAL CODE DATA AND LIFE SAFETY PLAN
0	28	A-1001	ARCHITECTURAL FLOOR PLAN
0	29	A-1002	ARCHITECTURAL ROOF PLAN
0	30	A-2000	ARCHITECTURAL BUILDING ELEVATIONS
0	31	A-2001	ARCHITECTURAL BUILDING ELEVATIONS
0	32	A-3000	ARCHITECTURAL BUILDING SECTIONS
0	33	A-5000	ARCHITECTURAL DETAILS
0	34	A-7000	ARCHITECTURAL SCHEDULES AND DETAILS
0	35	P-0001	PLUMBING LEGEND AND ABBREVIATIONS
0	36	P-1000	SERF PLUMBING PLAN
0	37	P-5000	STANDARD DETAILS
0	38	P-7000	PLUMBING SCHEDULES

REVISION NUMBER	SHEET NUMBER	DISCIPLINE/SHEET NUMBER	DRAWING TITLE
0	39	D-1000	EXISTING SERF BUILDING GENERAL PROCESS EQUIPMENT ARRANGEMENT PLAN
0	40	D-1001	SERF BUILDING GENERAL PROCESS EQUIPMENT ARRANGEMENT PLAN
* 0	41	D-1002	PUMP STATION PLAN AND SECTION
0	42	D-3000	SERF BUILDING PROCESS SECTIONS
0	43	M-0001	MECHANICAL LEGEND
0	44	M-1000	SERF BUILDING HVAC PLAN
0	45	M-5000	STANDARD DETAILS
0	46	M-7000	MECHANICAL EQUIPMENT SCHEDULES
0	47	E-0001	ELECTRICAL LEGEND
0	48	E-1000	EXISTING SERF BUILDING ELECTRICAL PLAN
0	49	E-1001	SERF BUILDING ELECTRICAL SITE PLAN
0	50	E-1002	SERF BUILDING GROUNDING PLAN
0	51	E-1003	SERF BUILDING LIGHTNING PROTECTION PLAN
0	52	E-1004	SERF BUILDING POWER PLAN
0	53	E-1005	SERF BUILDING LIGHTING PLAN
0	54	E-1006	SERF BUILDING SPECIAL SYSTEMS PLAN
0	55	E-1007	40,000 GALLON TANK POWER PLAN
0	56	E-1008	BLOWDOWN PUMP STATION SITE PLAN
0	57	E-1009	BLOWDOWN PUMP STATION POWER PLAN
0	58	E-5000	STANDARD DETAILS
0	59	E-5001	STANDARD DETAILS
0	60	E-5002	FIRE ALARM RISER DIAGRAM
0	61	E-5003	GROUNDING SYSTEM DIAGRAM
0	62	E-6000	EXISTING SERF BUILDING ONE-LINE MODIFICATIONS
0	63	E-8001	ONE-LINE SWB-B
0	64	E-8002	ONE-LINE MCC-B
0	65	E-6003	ONE-LINE BLOWDOWN PUMP STATION
0	66	E-8004	PANELBOARD SCHEDULES
0	67	E-7000	LIGHTING FIXTURE SCHEDULE
0	68	E-7000	LIGHTING FIXTURE SCHEDULE
0	69	E-7000	LIGHTING FIXTURE SCHEDULE
0	70	E-7000	LIGHTING FIXTURE SCHEDULE
0	71	E-7000	LIGHTING FIXTURE SCHEDULE
0	72	E-7000	LIGHTING FIXTURE SCHEDULE
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0	78	E-7000	LIGHTING FIXTURE SCHEDULE
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0	80	E-7000	LIGHTING FIXTURE SCHEDULE
0	81	E-7000	LIGHTING FIXTURE SCHEDULE
0	82	E-7000	LIGHTING FIXTURE SCHEDULE
0	83	E-7000	LIGHTING FIXTURE SCHEDULE
0	84	E-7000	LIGHTING FIXTURE SCHEDULE
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0	86	E-7000	LIGHTING FIXTURE SCHEDULE
0	87	E-7000	LIGHTING FIXTURE SCHEDULE
0	88	E-7000	LIGHTING FIXTURE SCHEDULE
0	89	E-7000	LIGHTING FIXTURE SCHEDULE
0	90	E-7000	LIGHTING FIXTURE SCHEDULE
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0	99	E-7000	LIGHTING FIXTURE SCHEDULE
0	100	E-7000	LIGHTING FIXTURE SCHEDULE

\* DRAWINGS TO BE APPROVED BY LBO.

DRAWINGS PROVIDED FOR REFERENCE PURPOSES ONLY. DRAWINGS TO BE INCLUDED WITH FUTURE SUBMITTAL(S).

DRAWINGS NOT PART OF THIS SUBMITTAL. DRAWINGS TO BE INCLUDED WITH FUTURE SUBMITTAL(S).

NO	DATE	CLASS REV	DESCRIPTION	DWN	VER	CHKD	SUB	APP
SERF EXPANSION								
DRAWN HDR <i>GVB</i>								
DESIGN HDR <i>GVB</i>								
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DATE 10-24-11								
BLDG. TA-								
SUBMITTED <i>Coy &amp; Bays</i> APPROVED FOR RELEASE <i>[Signature]</i>								
SHEET G-0001								
1 OF 67								
Los Alamos NATIONAL LABORATORY PO Box 1663 Los Alamos, New Mexico 87545								
CLASSIFICATION UNCLASSIFIED DATE 11/7/11								
PROJECT ID 102310 DRAWING NO C-55752 REV 0								

LANE BUILDING DEPT  
11913  
11-17-11  
11-166  
APPROVED

CHRIS RODRIGUEZ  
NEW MEXICO  
16239  
912-111

C:\pwworking\pkx\0224114\102310-G-0001-RO.dwg, Oct 25, 2011 @ 8:23am

GENERAL CONSTRUCTION NOTES:

1. THE SUBCONTRACTOR SHALL ABIDE BY ALL LOCAL, STATE AND FEDERAL RULES AND REGULATIONS WHICH APPLY TO THE CONSTRUCTION OF THESE IMPROVEMENTS AND SHALL CONFORM WITH THE LATEST STANDARD DETAILS AND SPECIFICATIONS OF THE LOS ALAMOS NATIONAL LABORATORIES AND THE GUIDELINES FOR SITE DEVELOPMENT AND INFRASTRUCTURE CONSTRUCTION. IF THERE IS A CONFLICT, THE STRICTER REQUIREMENT SHALL GOVERN.
2. LOCATIONS, ELEVATIONS AND DIMENSIONS OF EXISTING UTILITIES, STRUCTURES AND OTHER FEATURES ARE SHOWN ACCORDING TO THE BEST INFORMATION AVAILABLE AT THE TIME OF THE PREPARATION OF THESE PLANS, BUT DO NOT PURPORT TO BE ABSOLUTELY CORRECT AND ARE APPROXIMATE. THE SUBCONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING LOCATIONS, ELEVATIONS AND DIMENSIONS OF ALL EXISTING UTILITIES, STRUCTURES AND OTHER FEATURES WHICH PERTAIN TO AND AFFECT THE CONSTRUCTION OF THIS PROJECT, WHICH SHALL BE CONSIDERED INCIDENTAL TO COST OF COMPLETING CONSTRUCTION RELATED WORK. IF THE LOCATION OF A UTILITY IS UNKNOWN, ELEVATION IS INDICATED "UNK".
3. FACILITIES WHICH ARE NOT SPECIFICALLY LOCATED WITH ACTUAL HORIZONTAL AND VERTICAL CONTROLS ARE LOCATED APPROXIMATELY AND TO THE BEST AVAILABLE INFORMATION. ALL ELEVATIONS AND LOCATIONS OF EXISTING PIPING, UTILITIES, AND STRUCTURES AFFECTING NEW WORK SHALL BE FIELD VERIFIED BY THE SUBCONTRACTOR PRIOR TO BEGINNING CONSTRUCTION, WHICH SHALL BE CONSIDERED INCIDENTAL TO THE COST OF COMPLETING CONSTRUCTION RELATED WORK.
4. PRIOR TO FABRICATION OF PIPE, SUBCONTRACTOR SHALL VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL OBSTRUCTIONS WITH POTENTIAL TO CHANGE THE PIPE ALIGNMENT AND VERIFY EXISTING SIZE AND PIPE MATERIAL TYPE AT ALL POINTS OF CONNECTION TO EXISTING UTILITY LINES PRIOR TO INSTALLATION. THIS WORK IS INCIDENTAL TO COST OF PIPE INSTALLATION. SHOULD A CONFLICT EXIST, THE SUBCONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED WITH MINIMAL DELAY.
5. THE SUBCONTRACTOR SHALL POTHOLE EXISTING UTILITIES AHEAD PRIOR TO CONSTRUCTION TO ALLOW FOR ANY NECESSARY ADJUSTMENTS OR REALIGNMENTS, AND TO VERIFY PIPE TYPES FOR ORDERING PROPER TRANSITION AND/OR TIE-IN FITTINGS WHICH MAY BE REQUIRED, WHICH SHALL BE CONSIDERED INCIDENTAL TO THE COST OF COMPLETING CONSTRUCTION RELATED WORK.
6. THE OWNER'S REPRESENTATIVE SHALL BE NOTIFIED 24 HOURS PRIOR TO ANY CONSTRUCTION WORK. CONSTRUCTION WORK PERFORMED WITHOUT NOTIFICATION AND APPROVAL BY THE OWNER'S REPRESENTATIVE SHALL BE SUBJECT TO EXPOSURE, INSPECTION, AND REPLACEMENT AT THE SUBCONTRACTOR'S EXPENSE.
7. UTILITIES SHALL BE NOTIFIED AT LEAST 48 HOURS IN ADVANCE OF EXCAVATION, DISCONNECTION, CONNECTION, OR REMOVAL OF ANY PIPE, CONDUIT, OR POWER SUPPLY IN ORDER FOR THE AFFECTED UTILITY TO HAVE A REPRESENTATIVE AT THE PROJECT SITE.
8. ANY ADJUSTMENT OR RELOCATION OF EXISTING UTILITIES (UNDERGROUND, SURFACE, OR OVERHEAD) SHALL BE COORDINATED WITH THE OWNER OF THE AFFECTED UTILITY AT LEAST 48 HOURS PRIOR TO CONSTRUCTION.
9. THE SUBCONTRACTOR SHALL COORDINATE WORK SCHEDULES WITH THE OWNER'S REPRESENTATIVE SO AS TO PREVENT ANY CONFLICTING WORK CONDITIONS.
10. ALL FACILITIES DAMAGED OR REMOVED SHALL BE REPLACED AT THE SUBCONTRACTOR'S EXPENSE INCLUDING DAMAGE TO ANY EXISTING SIDEWALKS. DAMAGE TO EXISTING LANDSCAPING BY SUBCONTRACTOR SHALL BE REPAIRED BY THE SUBCONTRACTOR (I.E., ALL RUTS FILLED WITH CLEAN ROCK OR TURF TO MATCH THE SURROUNDING GROUND). EXCESS SOIL, ROCK, ETC. SHALL BE REMOVED TO LEAVE THE SITES CLEAN. ALL LANDSCAPING WHICH IS DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO ORIGINAL CONDITIONS OR REPLACED IN ACCORDANCE WITH THESE DOCUMENTS.
11. THE GENERAL SUBCONTRACTOR/SUBCONTRACTOR SHALL BE RESPONSIBLE FOR ALL EXPENSES TO OBTAIN ALL REQUIRED NEW MEXICO CONSTRUCTION INDUSTRIES DIVISION (CID) PERMITS FOR BUILDING, ELECTRICAL, MECHANICAL, ETC. FOR THIS PROJECT AND SCHEDULE ALL REQUIRED INSPECTIONS.
12. THE SUBCONTRACTOR SHALL NOT INSTALL ITEMS AS SHOWN ON THESE PLANS WHEN FIELD CONDITIONS ARE DIFFERENT THAN SHOWN IN THE PLANS. SUCH CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IN A TIMELY MANNER. IN THE EVENT THE SUBCONTRACTOR DOES NOT NOTIFY THE ENGINEER IN A TIMELY MANNER, THE SUBCONTRACTOR ASSUMES FULL RESPONSIBILITY AND EXPENSE FOR ANY REVISIONS NECESSARY, INCLUDING ENGINEERING DESIGN FEES.
13. THE TERM "REMOVE" USED IN THIS PLAN SET INCLUDES THE DISPOSAL OF SAID MATERIAL. SUBCONTRACTOR SHALL BE RESPONSIBLE FOR DISPOSING OF ALL DEBRIS AND OTHER SUCH WASTE MATERIAL AT DISPOSAL SITES APPROVED BY GOVERNMENTAL AGENCIES REGULATING THE DISPOSAL OF SUCH MATERIALS.
14. IF ANY PREVIOUSLY UNIDENTIFIED ARCHEOLOGICAL OR CULTURAL ARTIFACTS ARE FOUND DURING CONSTRUCTION, WORK SHALL STOP IN THAT AREA AND THE SUBCONTRACTOR SHALL IMMEDIATELY NOTIFY THE LANL STR, WHO WILL NOTIFY THE LANL CULTURAL RESOURCES TEAM FOR FURTHER REQUIRED ACTIONS AND NECESSARY NOTIFICATIONS TO APPLICABLE AGENCIES.
15. THE SUBCONTRACTOR SHALL ADJUST ALL SURFACE FEATURES AFFECTED BY CONSTRUCTION ACTIVITIES TO FINAL GRADE, WHICH SHALL BE CONSIDERED INCIDENTAL TO THE COST OF COMPLETION RELATED CONSTRUCTION WORK. SURFACE FEATURES INCLUDE BUT ARE NOT LIMITED TO MANHOLES WITH ASSOCIATED RING COVER, AND CONCRETE SURFACE COMPLETION, VALVE VAULTS AND ACCESS COVERS, ETC. ANY DAMAGE TO THESE FEATURES SHALL BE REPLACED AT SUBCONTRACTORS EXPENSE.

SAFETY:

1. SUBCONTRACTOR SHALL COMPLY WITH APPLICABLE FEDERAL, STATE, AND LOCAL LAWS, ORDINANCES AND REGULATIONS CONCERNING CONSTRUCTION SAFETY AND HEALTH.
2. ONLY THE SUBCONTRACTOR SHALL BE RESPONSIBLE FOR SAFETY OF ALL WORK. ALL WORK, INCLUDING WORK WITHIN TRENCHES, SHALL BE IN ACCORDANCE WITH THE OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA).
3. SUBCONTRACTOR SHALL TAKE NECESSARY SAFETY PRECAUTIONS AS REQUIRED BY FEDERAL, STATE AND LOCAL AUTHORITIES TO PROTECT PEDESTRIAN AND VEHICULAR TRAFFIC IN THE CONSTRUCTION AREA, WHICH INCLUDE BUT ARE NOT LIMITED TO: MAINTAINING ADEQUATE WARNING SIGNS, BARRICADES, LIGHTS, GUARD FENCES, WALKS AND BRIDGES.
4. SUBCONTRACTOR SHALL MAINTAIN ALL CONSTRUCTION BARRICADES AND SIGNAGE AT ALL TIMES AND SHALL VERIFY THE PROPER LOCATION OF ALL BARRICADING AT THE BEGINNING AND END OF EACH DAY.
5. ALL EXCAVATION, TRENCHING, AND SHORING ACTIVITIES SHALL BE CARRIED OUT IN ACCORDANCE WITH OSHA 29 CFR 1926.650 SUBPART P AS A MINIMUM STANDARD.
6. IF A PAVEMENT DROP-OFF IS CREATED DURING CONSTRUCTION, THE SUBCONTRACTOR SHALL INITIATE PROTECTIVE ACTION IN ACCORDANCE WITH THE PROJECT REQUIREMENTS. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE COMPLETION OF THE PROJECT AND NO SEPARATE MEASUREMENT OR PAYMENT WILL BE MADE THEREFOR.

EROSION CONTROL AND ENVIRONMENTAL PROTECTION:

1. THE SUBCONTRACTOR SHALL CONFORM TO ALL LOCAL AND FEDERAL DUST AND EROSION CONTROL REGULATIONS. THE SUBCONTRACTOR SHALL PREPARE AND OBTAIN ANY DUST CONTROL OR EROSION CONTROL PERMITS FROM THE REGULATORY AGENCIES.
2. THE SUBCONTRACTOR SHALL SECURE NPDES PERMITS REQUIRED BY APPLICABLE LOCAL, STATE, AND FEDERAL REGULATIONS.
3. THE SUBCONTRACTOR SHALL PROMPTLY REMOVE ANY MATERIAL EXCAVATED WITHIN THE PUBLIC RIGHT-OF-WAY OR ADJACENT PROPERTY TO KEEP IT FROM WASHING OFF THE PROJECT SITE.
4. THE SUBCONTRACTOR SHALL INSTALL ANY TEMPORARY DRAINAGE CONTROL MEASURES NECESSARY TO SAFELY CONVEY STORM WATER RUNOFF TO EXISTING OUTFALLS. SUBCONTRACTOR SHALL ENSURE THAT NO SOIL ERODES FROM THE SITE ONTO ADJACENT PROPERTY BY IMPLEMENTATION OF BMPs AS IDENTIFIED IN THE PROJECT SWPPP (OR LIMITS OF CONSTRUCTION IF DESIGNATED) AND WETTING SOIL TO PREVENT IT FROM BLOWING. ANY DAMAGE TO PRIVATE PROPERTY OR IMPROVEMENTS CONSTRUCTED BY THE SUBCONTRACTOR RESULTING FROM STORM WATER FLOWS SHALL BE THE SOLE RESPONSIBILITY OF THE SUBCONTRACTOR.
5. WATERING, AS REQUIRED FOR CONSTRUCTION DUST CONTROL, SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION AND NO SEPARATE MEASUREMENT OR PAYMENT WILL BE MADE. CONSTRUCTION AREAS SHALL BE WATERED FOR DUST CONTROL IN COMPLIANCE WITH PROJECT SWPPP ORDINANCES. THE SUBCONTRACTOR SHALL COORDINATE WITH THE OWNER FOR WATER AVAILABILITY AND USE. THE SUBCONTRACTOR SHALL SUPPLY ALL EQUIPMENT AND MATERIALS NECESSARY FOR PROVIDING WATER.
6. ANY AREAS DISTURBED BY CONSTRUCTION AND NOT IDENTIFIED FOR SPECIFIC PERMANENT TREATMENT BY THE PROJECT LANDSCAPING PLAN OR IMPERVIOUS SURFACES ON THE SITE PLAN SHALL BE REVEGETATED WITH NATIVE PERENNIAL VEGETATION. SUBCONTRACTOR SHALL COORDINATE SPECIFIC TREATMENT WITH THE ENGINEER. SITE STABILIZATION SHALL BE IMPLEMENTED PER THE NPDES CONSTRUCTION GENERAL PERMIT REQUIREMENTS IDENTIFIED IN THE PROJECT SWPPP.
7. ALL WASTE PRODUCTS FROM THE CONSTRUCTION SITE, INCLUDING ITEMS DESIGNED FOR REMOVAL, CONSTRUCTION WASTE, CONSTRUCTION EQUIPMENT WASTE PRODUCTS (OIL, GAS, TIRES, ETC.), GARBAGE, GRUBBING, EXCESS CUT MATERIAL, VEGETATIVE DEBRIS, ETC. SHALL BE APPROPRIATELY DISPOSED OF OFFSITE AT NO ADDITIONAL COST TO THE OWNER. THE SUBCONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED FOR HAUL OR DISPOSAL OF WASTE PRODUCTS, AND TO ENSURE THAT THE WASTE DISPOSAL SITE COMPLIES WITH GOVERNMENT REGULATIONS REGARDING THE ENVIRONMENT, ENDANGERED SPECIES, AND ARCHAEOLOGICAL RESOURCES.
8. ALL EXCAVATED MATERIAL THAT IS NOT REQUIRED TO BE REUSED MUST BE REMOVED FROM THE PROJECT AREA WITHIN A TIMELY MANNER AS APPROVED BY ENGINEER. SPOIL PILES WILL BE ALLOWED ONLY AS DIRECTED BY THE ENGINEER AND LOS ALAMOS NATIONAL LABORATORY.
9. THE SUBCONTRACTOR SHALL BE RESPONSIBLE FOR THE CLEANUP AND REPORTING OF SPILLS OF HAZARDOUS MATERIALS ASSOCIATED WITH THE CONSTRUCTION SITE. HAZARDOUS MATERIALS, INCLUDES GASOLINE, DIESEL FUEL, MOTOR OIL, SOLVENTS, CHEMICALS, PAINT, ETC. WHICH MAY BE A THREAT TO THE ENVIRONMENT. THE SUBCONTRACTOR SHALL REPORT THE DISCOVERY OF PAST OR PRESENT SPILLS TO PROJECT SUBCONTRACTOR TECHNICAL REPRESENTATIVE (STR) IN ACCORDANCE WITH LANL REQUIREMENTS.
10. THE SUBCONTRACTOR SHALL PROPERLY HANDLE AND DISPOSE OF ALL ASPHALT REMOVED ON THE PROJECT BY HAULING TO AN APPROVED DISPOSAL SITE IN ACCORDANCE WITH THE REQUIREMENTS OF THE NEW MEXICO SOLID WASTE ACT.
11. THE SUBCONTRACTOR SHALL COMPLY WITH ALL APPLICABLE REGULATIONS CONCERNING CONSTRUCTION NOISE AND HOURS OF OPERATION AS STATED IN THE SPECIFICATIONS.
12. THE SUBCONTRACTOR SHALL COMPLY WITH ALL APPLICABLE REGULATIONS CONCERNING SURFACE AND UNDERGROUND WATER, CONTACT WITH SURFACE WATER BY CONSTRUCTION EQUIPMENT AND PERSONNEL SHALL BE MINIMIZED, EQUIPMENT MAINTENANCE AND REFUELING OPERATIONS SHALL BE PERFORMED IN AN ENVIRONMENTALLY SAFE MANNER IN COMPLIANCE WITH PROJECT SWPPP.
13. BMPs IN ACCORDANCE WITH THE PROJECT SWPPP WILL BE INSTALLED PRIOR TO ANY SOIL DISTURBING ACTIVITIES.
14. ALL RIPRAP MATERIAL USED ON THIS PROJECT SHALL BE A NATURAL ROCK MATERIAL CONFORMING TO THE SIZE AND MATERIAL PROPERTY REQUIREMENTS SET FORTH IN THE PROJECT SPECIFICATIONS.
15. SITE STABILIZATION SHALL BE IMPLEMENTED PER NPDES CONSTRUCTION GENERAL PERMIT REQUIREMENTS IDENTIFIED IN THE SWPPP.

CONSTRUCTION LIMITS:

1. SUBCONTRACTOR SHALL WORK WITHIN THE CONSTRUCTION LIMITS AS SHOWN ON THE PLANS. EQUIPMENT TRAFFIC OUTSIDE THESE LIMITS SHALL NOT BE PERMITTED WITHOUT WRITTEN PERMISSION OF THE ENGINEER.
2. PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITIES WITHIN ADJACENT RIGHT-OF-WAY OR WITHIN PROPERTY NOT OWNED BY THE OWNER OF THE PROJECT SITE, THE SUBCONTRACTOR SHALL OBTAIN ALL PERMITS AND PERMISSIONS IN WRITING.
3. OVERNIGHT PARKING OF CONSTRUCTION VEHICLES ON PRIVATE PROPERTY IS THE SOLE RESPONSIBILITY OF THE SUBCONTRACTOR.
4. SUBCONTRACTOR SHALL PARK EQUIPMENT AND VEHICLES SO AS NOT TO INTERFERE WITH NORMAL ACTIVITIES OF THE EXISTING FACILITIES.

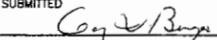
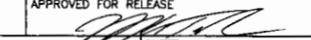
DEMOLITION:

1. THE OWNER HAS THE FIRST RIGHT TO SALVAGE ANY ITEMS IDENTIFIED FOR DEMOLITION. PRIOR TO DEMOLITION SUBCONTRACTOR SHALL COORDINATE WITH OWNER TO IDENTIFY ITEMS TO BE SALVAGED. SUBCONTRACTOR SHALL REMOVE AND PLACE SALVAGED ITEMS IN OWNERS DESIGNATED AREA ONSITE. SUBCONTRACTOR SHALL EXERCISE DUE CARE NOT TO DAMAGE ITEMS WHICH ARE TO BE SALVAGED TO THE OWNER.
2. REMOVE ALL CONDUIT, CONTROL PANELS, CONTROL WIRING AND APPURTENANCES ASSOCIATED WITH EQUIPMENT TO BE REMOVED
3. REMOVE EQUIPMENT PADS, MOUNTINGS AND PIPE SUPPORTS IF PRESENT
4. GRIND ATTACHMENT BOLTS FLUSH WITH CONCRETE.
5. PATCH CONCRETE IN ACCORDANCE WITH SPECIFICATIONS
6. DO NOT DAMAGE EXISTING STRUCTURES WHICH REMAIN

GENERAL UTILITIES:

1. ANY UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES SHOWN ON THE PLANS ARE SHOWN IN AN APPROXIMATE LOCATION ONLY BASED ON THE INFORMATION PROVIDED TO THE ENGINEER BY OTHERS THAT MAY BE INACCURATE OR INCOMPLETE. ADDITIONALLY, UNDERGROUND LINES MAY EXIST THAT ARE NOT SHOWN. THE SUBCONTRACTOR SHALL VERIFY THE LOCATION OF ANY UTILITY LINE, PIPELINE, OR UNDERGROUND UTILITY LINE IN OR NEAR THE AREA OF THE WORK, WHICH SHALL BE CONSIDERED INCIDENTAL TO COST OF COMPLETING CONSTRUCTION RELATED WORK. ANY DAMAGE TO ANY OTHER UTILITIES OR COLLATERAL DAMAGE CAUSED BY THE SUBCONTRACTOR SHALL BE THE FULL RESPONSIBILITY OF THE SUBCONTRACTOR.
2. SUBCONTRACTOR SHALL EXERCISE DUE CARE TO AVOID DISTURBING ANY EXISTING UTILITIES, ABOVE OR BELOW GROUND. UTILITIES THAT ARE DAMAGED BY CONSTRUCTION ACTIVITIES SHALL BE REPAIRED OR REPLACED AT THE SUBCONTRACTOR'S EXPENSE. SUBCONTRACTOR SHALL COORDINATE WITH UTILITY COMPANIES TO PREVENT DISRUPTION TO SERVICE.
3. ALL UTILITY LINES NOT SPECIFICALLY DESIGNATED TO BE REMOVED AND REPLACED ON THE PLANS, SHALL BE MAINTAINED IN SERVICE. SHORING, SHEETING AND OTHER MEANS OF SUPPORT SHALL BE EMPLOYED BY THE SUBCONTRACTOR TO PREVENT DAMAGE OR LOSS OF THESE EXISTING UTILITIES. BEAM AND CABLE OR OTHER ADEQUATE SUPPORTS SHALL BE USED FOR TEMPORARY SUPPORT OF ALL UTILITY LINES AS NECESSARY.
4. SUBCONTRACTOR SHALL PROVIDE A UTILITY SUPPORT DESIGN FOR ALL LARGE AND/OR CRITICAL SERVICES (E.G. COMMUNICATIONS AND ELECTRIC DUCT BANKS, EXPOSED GRAVITY LINE JOINTS, PRESSURIZED WATER LINES, SEWER FORCE MAINS, ETC.). SUPPORT FOR THESE CRITICAL SERVICES SHALL BE DESIGNED AND SEALED BY REGISTERED PROFESSIONAL ENGINEER AND SUBMITTED TO OWNER FOR APPROVAL. THE DESIGN AND INSTALLATION OF BOTH CRITICAL AND NONCRITICAL SUPPORTS SHALL BE PERFORMED AT THE SUBCONTRACTOR'S EXPENSE. ANY DAMAGE TO EXISTING UTILITIES SHALL PROMPTLY BE REPAIRED AT THE SUBCONTRACTOR'S EXPENSE. THE SUBCONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY SIGNIFICANT DEVIATION OF EXPOSED UTILITIES FROM THE LOCATIONS SHOWN ON THE PLANS SO THAT CONFLICTS CAN BE RESOLVED IN A TIMELY MANNER.
5. SUBCONTRACTOR SHALL COORDINATE WITH PERTINENT UTILITY COMPANIES OF ALL EXISTING UTILITY LINES AND APPURTENANCES ENCOUNTERED DURING CONSTRUCTION THAT REQUIRE RELOCATION. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR DELAYS OR INCONVENIENCES CAUSED BY UTILITY COMPANY WORK CREWS. THE SUBCONTRACTOR SHALL RESCHEDULE HIS ACTIVITIES AS NECESSARY TO ALLOW UTILITY CREWS TO PERFORM THEIR REQUIRED WORK.
6. PRIOR TO CONSTRUCTION, THE SUBCONTRACTOR SHALL EXCAVATE AND FIELD VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL POTENTIAL CONFLICTING UTILITIES AT NO ADDITIONAL COST TO THE OWNER. SHOULD A CONFLICT EXIST BETWEEN THE FIELD INFORMATION AND THE PLANS, THE SUBCONTRACTOR SHALL NOTIFY THE ENGINEER SO THE CONFLICT CAN BE RESOLVED WITH MINIMUM DELAY. SUBCONTRACTOR SHALL USE VACUUM EXCAVATION TECHNIQUES FOR ALL INITIAL TRENCHING OPERATIONS TO LOCATE AND VERIFY ALL EXISTING UTILITIES. THE COST OF VACUUM EXCAVATION SHALL BE CONSIDERED INCIDENTAL TO THE COST OF ALL TRENCH EXCAVATION WORK.
7. ALL INTERFERING PORTIONS OF ABANDONED UTILITY LINES WHICH ARE EXPOSED AS A RESULT OF CONSTRUCTION SHALL BE IMMEDIATELY REPORTED TO LOS ALAMOS NATIONAL LABORATORY.
8. SUBCONTRACTOR SHALL COORDINATE ANY REQUIRED UTILITY INTERRUPTIONS WITH THE AFFECTED UTILITY COMPANY A MINIMUM OF THREE WORKING DAYS BEFORE THE INTERRUPTION.
9. EXISTING VALVES SHALL ONLY BE OPERATED BY THE APPROPRIATE UTILITY COMPANY. SUBCONTRACTOR SHALL NOTIFY THE UTILITY A MINIMUM OF SEVEN (7) WORKING DAYS BEFORE ANY VALVE, NEW OR EXISTING, NEEDS TO BE OPERATED.
10. ANY DAMAGE TO THE EXISTING FACILITIES (CURB & GUTTER, PAVEMENT, CONDUITS, LANDSCAPING, UTILITY LINES, ETC.) DURING CONSTRUCTION SHALL BE REPLACED AT THE SUBCONTRACTORS' EXPENSE.

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NO	DATE	CLASS REV	DESCRIPTION	DWN	VER	CHKD	SUB	APP
 2188 LOUISIANA BLVD., NE SUITE 950 ALBUQUERQUE, NM 87110 MAIN (505) 833-5800 FAX: (505) 833-0454								
SERF EXPANSION			DRAWN	B.F.	GvB			
GENERAL NOTES			DESIGN	W.C.	GvB			
			CHECKED	E.D.	GvB			
BLDG. TA-			DATE	10-24-11				
SUBMITTED			APPROVED FOR RELEASE					
 Chris Rodriguez			 Chris Rodriguez					
SHEET			C-0001					
2			OF 67					
Los Alamos NATIONAL LABORATORY PO Box 1663 Los Alamos, New Mexico 87545			UNCLASSIFIED DATE 11/7/11					
PROJECT ID			DRAWING NO			REV		
102310			C-55752			0		

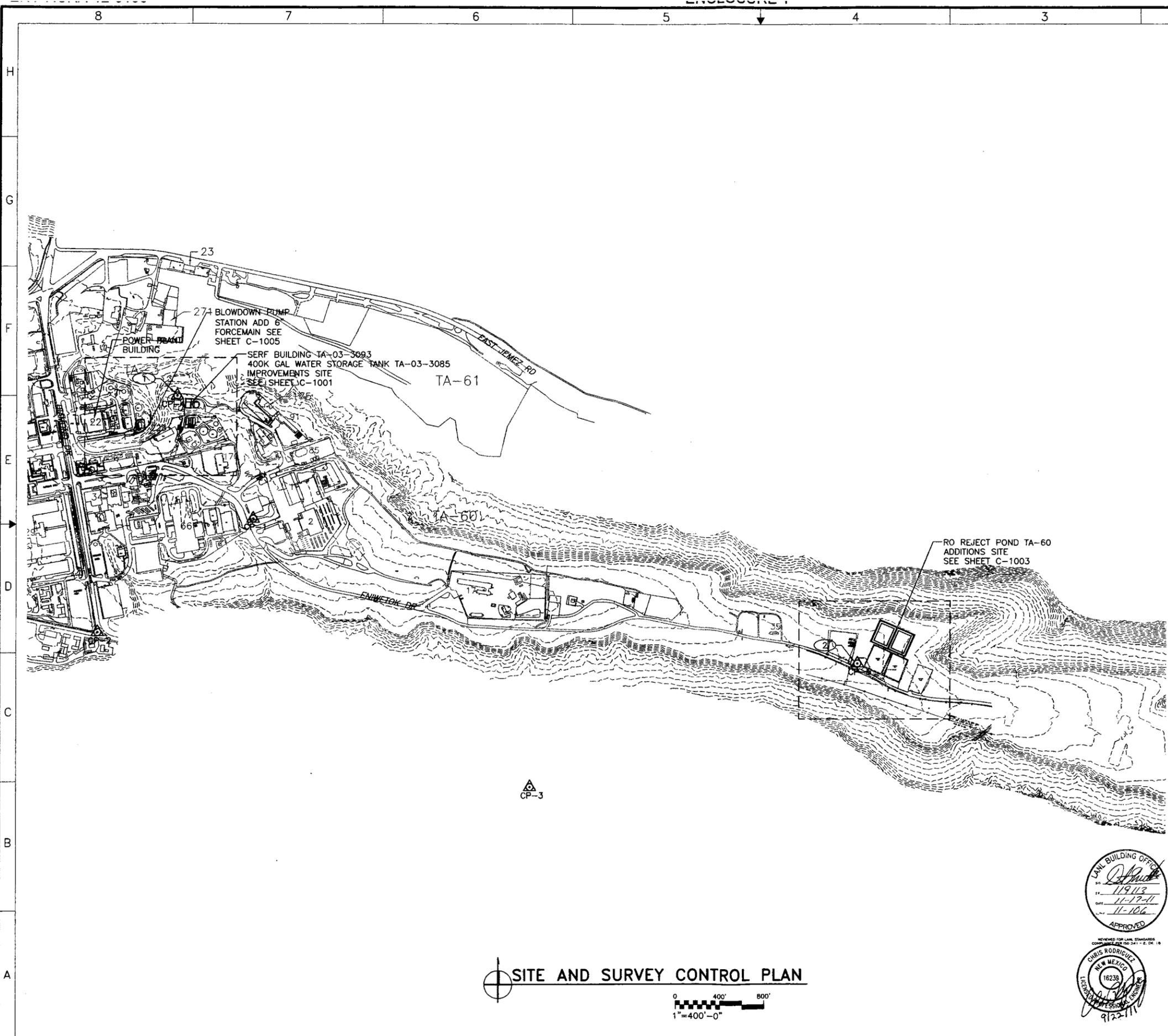


8		7		6		5		4		3		2		1	
ABBREVIATIONS				(NOT ALL ABBREVIATIONS WILL APPLY TO THIS PROJECT)				EXISTING FEATURES LEGEND				PROPOSED FEATURES LEGEND			
H	A	AIR LINE	OC	ON CENTER		EXISTING TO BE REMOVED		EXISTING WATERLINE		PROPOSED WATERLINE					
	AL	ALUMINUM	OD	OUTSIDE DIAMETER		ASPHALT REMOVAL									
	APPROX.	APPROXIMATE	OP	OVERHEAD POWER											
	BD	BLOWDOWN	P	PIPE											
	BLDG.	BUILDING	PC	POINT OF CURVATURE											
	C	COMMUNICATION LINE	PCC	PORTLAND CEMENT CONCRETE											
	CB	CATCH BASIN (DROP INLET)	PE/POLY	POLYETHYLENE											
	CI	CAST IRON	PVC	POLY VINYL CHLORIDE											
	CINT	CENTER FOR INTEGRATED NANOTECHNOLOGIES	PI	POINT OF INTERSECTION											
	C&G	CURB AND GUTTER	PIV	POST INDICATOR VALVE											
G	CLR	CLEAR	PSI	POUND PER SQUARE INCH											
	CONC	CONCRETE	PP	POWER POLE											
	CONST	CONSTRUCTION	PRV	PRESSURE RELIEF VALVE											
	CCP	CONCRETE CYLINDER PIPE	PLS	PURE LIVE SEED											
	CT	COOLING TOWER	PB	PULL BOX											
	CTR	COOLING TOWER RETURN	PT	POINT OF TANGENCY											
	CTS	COOLING TOWER SUPPLY	RAD	RADIUS											
	CU	COPPER	RAW	RADIOACTIVE INDUSTRIAL WASTE											
F	CW	CHILLED WATER	RFP	REQUEST FOR PROPOSAL											
	CMP	CORRUGATED METAL PIPE	RGLTR	REGULATOR											
	DIA	DIAMETER	RD	ROOF DRAIN											
	DI	DROP INLET (CATCH BASIN)	RLW	RADIOACTIVE LIQUID WASTE		EXISTING STORM DRAIN MANHOLE									
	E	ELECTRIC LINE	S/C	STEAM AND CONDENSATE		EXISTING STORM DRAIN INLET									
	EFF	EFFLUENT	SD	STORM DRAIN		EXISTING STORM DRAIN PIPE FLARED END SECTION									
	EW	EACH WAY	SS	SANITARY SEWER		EXISTING 1' CONTOUR									
	EB	ELECTRIC BOX	SS FM	SANITARY SEWER FORCE MAIN		EXISTING 5' CONTOUR									
	ELEC	ELECTRICAL	SCHED	SCHEDULE		EXISTING WATER VALVE									
	EP	ELECTRICAL PROTECTION	SHT	SHEET		EXISTING FIRE HYDRANT									
E	EL	ELEVATION	STA	STATION		EXISTING SANITARY SEWER MANHOLE									
	EXIST	EXISTING	STL	STEEL		EXISTING SANITARY SEWER CLEANOUT									
	EG	EXISTING GRADE	STS	STORM SEWER		EXISTING TELECOMMUNICATION MANHOLE									
	FFE	FINISHED FLOOR ELEVATION	SW	SIDEWALK		EXISTING ELECTRICAL MANHOLE									
	FN	FENCE	T	TELEPHONE LINE		EXISTING BUILDING FOOTPRINT									
	FF	FINISH FLOOR	TA	TOP OF ASPHALT / PAVEMENT		EXISTING TREE									
	FG	FINISH GRADE	TC	TOP OF CONCRETE											
	FLG	FLANGE	TC	TOP OF CONCRETE											
	FLR	FLOOR	TG	TOP OF GROUND / GRATE											
D	FPW/FP	FIRE PROTECTION WATERLINE	TOC	TOP OF CURB											
	FT	FOOT	TU/TEL	TELEPHONE											
	FM	FORCE MAIN	TW	TOP OF WALL											
	GPM	GALLONS PER MINUTE	T/P	TOP OF PIPE											
	GALV	GALVANIZED	T/C	TOP OF COMMUNICATION LINE											
	G	GAS	TYP	TYPICAL											
	GND	EXISTING GROUND	VCP	VITRIFIED CLAY PIPE											
	HC	HANDICAPPED	WTR/W	WATER											
	HDPE	HIGH DENSITY POLYETHYLENE	WL/W	WATERLINE											
C	HPT	HIGH POINT	YL	YARD LIGHT											
	HWL	HIGH WATER LEVEL	XING	CROSSING											
	HORIZ	HORIZONTAL													
	HP	HORSE POWER													
	ID	INSIDE DIAMETER													
	INV	INVERT													
	IB	IRRIGATION VALVE BOX													
	IRW	IRRIGATION WATER LINE													
	L	LABNET													
B	LANL	LOS ALAMOS NATIONAL LABORATORY													
	LB	POUND													
	LEN	LENGTH													
	LF	LINEAR FOOT													
	LPT	LOW POINT													
	MFG.	MANUFACTURER													
	MAX	MAXIMUM													
	MH	MANHOLE													
	MJ	MECHANICAL JOINT													
	MIN	MINIMUM													
A	MSTOB	MATERIAL SCIENCE & TECHNOLOGY OFFICE BUILDING													
	NC	NORMALLY CLOSED													
	NA	NOT APPLICABLE													
	NO	NUMBER													

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NO	DATE	CLASS REV	DESCRIPTION	DWN	VER	CHKD	SUB	APP
<b>SERF EXPANSION</b>								
<b>LEGEND AND ABBREVIATIONS</b>								
BLDG.	TA--							
SUBMITTED	APPROVED FOR RELEASE							
			PO Box 1663 Los Alamos, New Mexico 87545					
<b>UNCLASSIFIED</b>			DATE 11/7/11					
PROJECT ID 102310			DRAWING NO C-55752					



**△ SURVEY CONTROL POINTS:**

- CP-1 = LANL MONUMENT CALIBRATED A0308  
N=1772653.20  
E=1620942.17  
Z=7368.00
- CP-2 = LANL MONUMENT A0306  
N=1771637.23  
E=1619555.72  
Z=7400.98
- CP-3 = LANL MONUMENT A4801-CHECK  
N=1770252.42  
E=1623423.63  
Z=7326.61
- CP-4 = BENCHMARK SET NO. 4 REBAR  
N=1771356.60  
E=1626380.43  
Z=7276.01
- CP-5 = BENCHMARK NO. 4FD  
N=1773752.20  
E=1620260.89  
Z=7308.25

**GENERAL NOTES:**

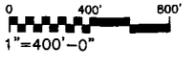
1. IF THIS SHEET IS NOT 24"x36" THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.
2. HORIZONTAL CONTROL IS BASED ON NAD83 CENTRAL ZONE NEW MEXICO STATE PLANE COORDINATES. ELEVATION IS BASED ON LANL MONUMENT A0308. ELEVATION MEASURED 7367.82' CALIBRATED FROM EXISTING LANL CONTROL:  
  
A0308 COORDINATE - N=1772653.1990, E=1620942.1730, CSF=0.99956 GRID
3. SURVEY CONTROL PROVIDED BY:  
SALVADOR I. VIGIL, RLS  
LAND SURVEYING COMPANY, LLC  
PO BOX 4384  
SANTA FE, NM 87502
4. EXISTING TOPOGRAPHY, FACILITIES, AND UTILITIES SHOWN ARE BASED ON MAPPING PROVIDED BY LANL. VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION ACTIVITIES FOR COORDINATION AND FIELD ADJUSTMENTS AS REQUIRED.

**KEYED NOTES:**

- ① ELEVATION DATUM BASED ON LANL MONUMENT A0308 ELEVATION = 7367.82'.
- ② ELEVATION DATUM BASED ON BENCHMARK AT THE SOUTHWEST CORNER OF PROPERTY AS DEPICTED. ELEVATION = 7276.01' TOP OF REBAR.

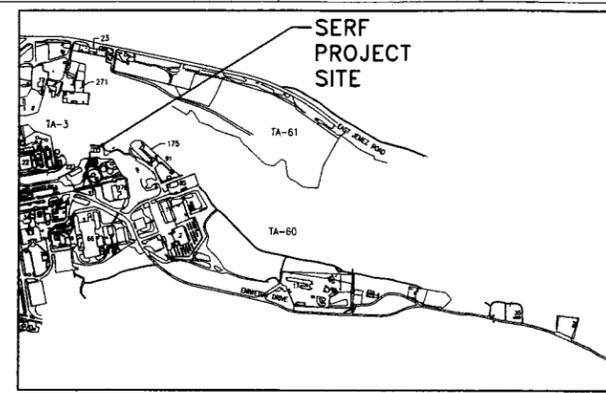
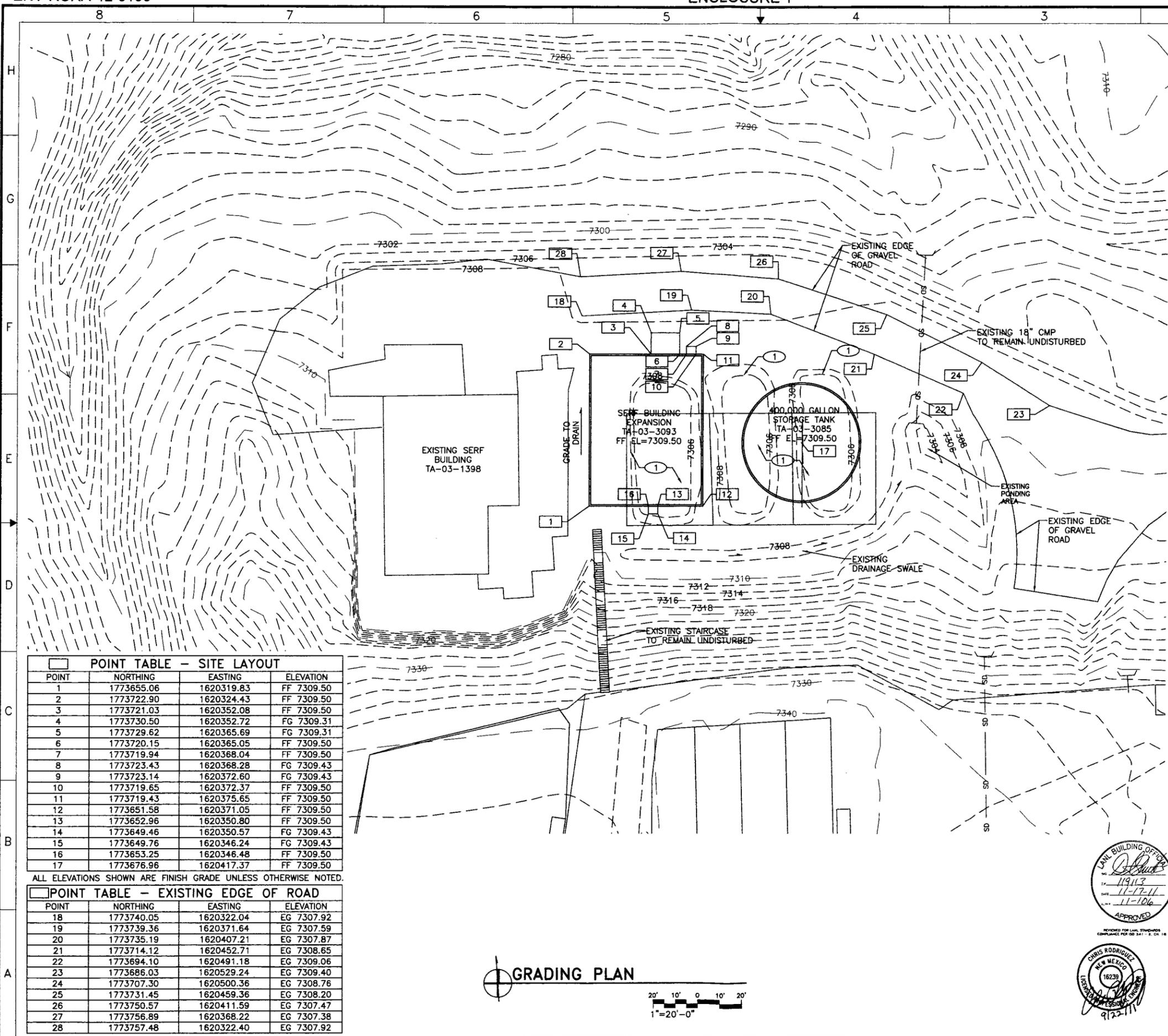
NO	DATE	CLASS REV	DESCRIPTION	DWN	VER	CHKD	SUB	APP
<div style="display: flex; justify-content: space-between;"> <div style="font-weight: bold; font-size: 1.2em;">HDR</div> <div style="font-size: 0.8em;">           2156 LOUISIANA BLVD., NE            SUITE 1000            ALBUQUERQUE, NM 87110            PHONE (505) 828-6400 FAX            (505) 828-6445         </div> </div>								
SERF EXPANSION				DRAWN	B.F.			
OVERALL SITE AND SURVEY PLAN				DESIGN	W.C.			
				CHECKED	E.D.			
				DATE	10-24-11			
BLDG. SUBMITTED			APPROVED FOR RELEASE					
				SHEET		C-1000		
UNCLASSIFIED				4		OF 67		
PROJECT ID				DRAWING NO		REV		
102310				C-55752		0		

**SITE AND SURVEY CONTROL PLAN**



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**KEY PLAN**  
SCALE: NONE

**GENERAL NOTES:**

- IF THIS SHEET IS NOT 24"x36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.
- ALL EARTHWORK ACTIVITIES SHALL BE CONDUCTED IN ACCORDANCE WITH LANL SPECIFICATION 31 2000.
- SUBCONTRACTOR TO UTILIZE BEST MANAGEMENT PRACTICES DETAILED IN THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP). SEE LANL SPECIFICATION SECTION 01 5705 FOR ADDITIONAL REQUIREMENTS.
- SUBCONTRACTOR SHALL REVEGETATE ALL DISTURBED AREAS IN ACCORDANCE WITH LANL SPECIFICATION 32 9219.
- EXISTING TOPOGRAPHY, FACILITIES, AND UTILITIES SHOWN ARE BASED ON MAPPING PROVIDED BY LANL. VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION ACTIVITIES FOR COORDINATION AND FIELD ADJUSTMENTS AS REQUIRED.

**KEYED NOTES:**

- ① FILL AND GRADE EXISTING ABANDONED SLUDGE DRYING BEDS. ALL DISTURBED SOILS FROM DRYING BEDS TO REMAIN ON-SITE.

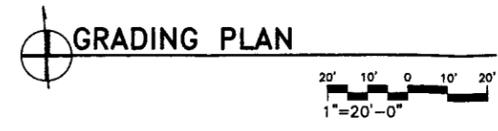
**POINT TABLE - SITE LAYOUT**

POINT	NORTHING	EASTING	ELEVATION
1	1773655.06	1620319.83	FF 7309.50
2	1773722.90	1620324.43	FF 7309.50
3	1773721.03	1620352.08	FF 7309.50
4	1773730.50	1620352.72	FG 7309.31
5	1773729.62	1620365.69	FG 7309.31
6	1773720.15	1620365.05	FF 7309.50
7	1773719.94	1620368.04	FF 7309.50
8	1773723.43	1620368.28	FG 7309.43
9	1773723.14	1620372.60	FG 7309.43
10	1773719.65	1620372.37	FF 7309.50
11	1773719.43	1620375.65	FF 7309.50
12	1773651.58	1620371.05	FF 7309.50
13	1773652.96	1620350.80	FF 7309.50
14	1773649.46	1620350.57	FG 7309.43
15	1773649.76	1620346.24	FG 7309.43
16	1773653.25	1620346.48	FF 7309.50
17	1773676.96	1620417.37	FF 7309.50

ALL ELEVATIONS SHOWN ARE FINISH GRADE UNLESS OTHERWISE NOTED.

**POINT TABLE - EXISTING EDGE OF ROAD**

POINT	NORTHING	EASTING	ELEVATION
18	1773740.05	1620322.04	EG 7307.92
19	1773739.36	1620371.64	EG 7307.59
20	1773735.19	1620407.21	EG 7307.87
21	1773714.12	1620452.71	EG 7308.65
22	1773694.10	1620491.18	EG 7309.06
23	1773686.03	1620529.24	EG 7309.40
24	1773707.30	1620500.36	EG 7308.76
25	1773731.45	1620459.36	EG 7308.20
26	1773750.57	1620411.59	EG 7307.47
27	1773756.89	1620368.22	EG 7307.38
28	1773757.48	1620322.40	EG 7307.92



NO	DATE	CLASS REV	DESCRIPTION	DWN	VER	CHKD	SUB	APP

**HDR** ENGINEERING INC. 2108 LOUISIANA BLVD, NE ALBUQUERQUE, NM 87110

**SERF EXPANSION**

**SERF GRADING PLAN**

BLDG. 3093/3085 TA-03

SUBMITTED: *Coy & Berg* APPROVED FOR RELEASE: *[Signature]*

DATE: 10-24-11

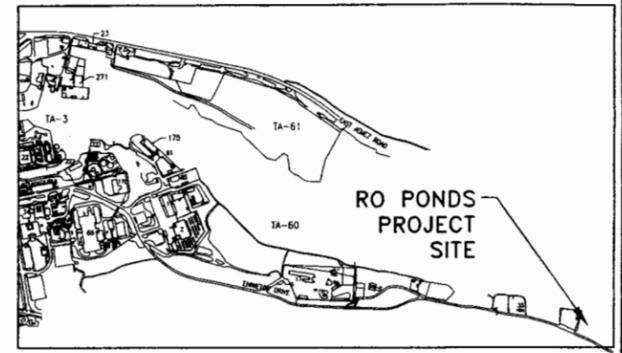
**Los Alamos NATIONAL LABORATORY** PO Box 1663 Los Alamos, New Mexico 87545

CLASSIFICATION: UNCLASSIFIED

PROJECT ID: 102310 DRAWING NO: C-55752 REV: 0

SHEET: 6 OF 67

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- GENERAL NOTES:**
- IF THIS SHEET IS NOT 24"x36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.
  - SUBCONTRACTOR TO DEFLECT PIPE JOINTS AS NECESSARY. DO NOT EXCEED MANUFACTURER'S RECOMMENDATIONS FOR PIPE JOINT DEFLECTION.
  - SUBCONTRACTOR TO UTILIZE BEST MANAGEMENT PRACTICES DETAILED IN THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) FOR ALL SOIL DISTURBANCE. SEE LANL SPECIFICATION SECTION 01 5705 FOR ADDITIONAL REQUIREMENTS.
  - SUBCONTRACTOR SHALL RESTORE ALL DISTURBED AREAS TO ORIGINAL CONDITIONS AND REVEGETATE APPLICABLE AREAS IN ACCORDANCE W/ LANL SPECIFICATION 32 9219.
  - EXISTING FACILITIES, AND UTILITIES SHOWN ARE BASED ON MAPPING PROVIDED BY LANL. VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION ACTIVITIES FOR COORDINATION AND FIELD ADJUSTMENTS AS REQUIRED.

- KEYED NOTES:**
- BEGIN 4" EFFLUENT PIPELINE AT EXISTING EFFLUENT PIPELINE W/ 4"x4"x4" TEE.
  - 4" EFFLUENT PIPELINE.
  - 4" 90° PIPE BEND.
  - 4"x4"x4" TEE.
  - 4" GATE VALVE W/ VALVE BOX. SEE DETAIL 3/C-5000.
  - 4" PERFORATED LEAK DETECTION PIPE.
  - LEAK DETECTION RISER. SEE SECTION A/C-3001.
  - 8" PVC EQUALIZATION PIPE. SEE SECTION C/C-3001.
  - 8' CHAINLINK FENCE. SEE DETAIL 2/C-5001.
  - CHAINLINK FENCE CORNER POST. SEE DETAIL 2/C-5001.
  - CHAINLINK FENCE POST AND CONNECT EXISTING FENCE. SEE DETAIL 2/C-5001.
  - VEHICLE GATE AND LATCHING. SEE DETAIL 3/C-5001.

NO	DATE	CLASS REV	DESCRIPTION	DWN	VER	CHKD	SUB	APP

**HDR** ENGINEERING INC.  
 2106 LOUISIANA BLVD., NE  
 SUITE 800  
 ALBUQUERQUE, NM 87110  
 PHONE: (505) 833-6400 FAX: (505) 833-6454

**SERF EXPANSION**

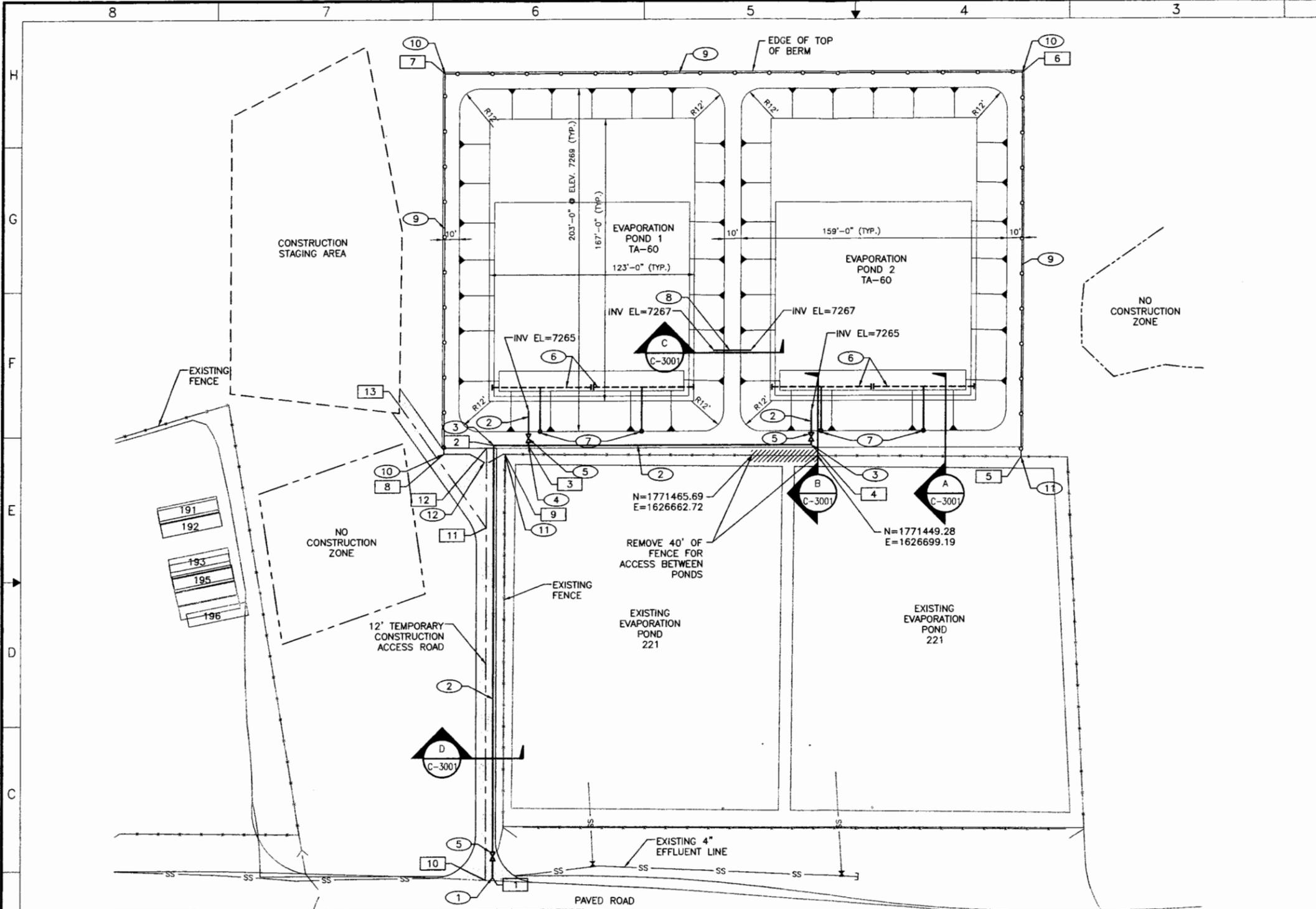
RO REJECT EVAPORATION PONDS  
 SITE AND PIPING PLAN

BLDG. TA-60  
 SUBMITTED: [Signature] APPROVED FOR RELEASE: [Signature]  
 DATE: 10-24-11

**Los Alamos NATIONAL LABORATORY**  
 PO Box 1663  
 Los Alamos, New Mexico 87545

CLASSIFICATION: UNCLASSIFIED  
 PROJECT ID: 102310  
 DRAWING NO: C-55752  
 REV: 0

DATE: 11-17-11  
 SHEET: 7 OF 67



**POINT TABLE - PIPE NETWORK**

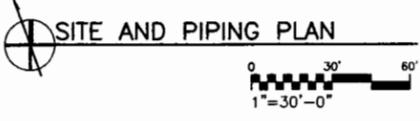
POINT	NORTHING	EASTING
1	1771298.78	1626419.13
2	1771534.12	1626523.03
3	1771525.62	1626542.30
4	1771456.68	1626698.46

**POINT TABLE - FENCE LAYOUT**

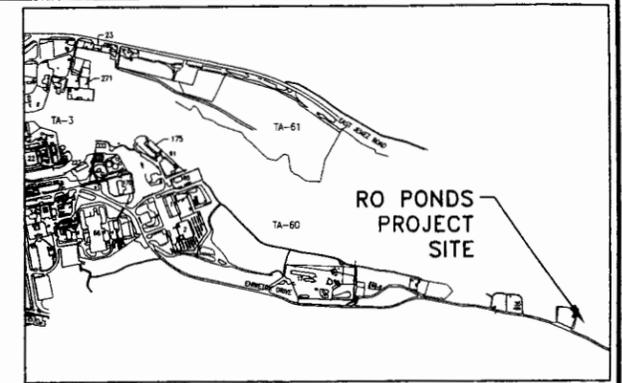
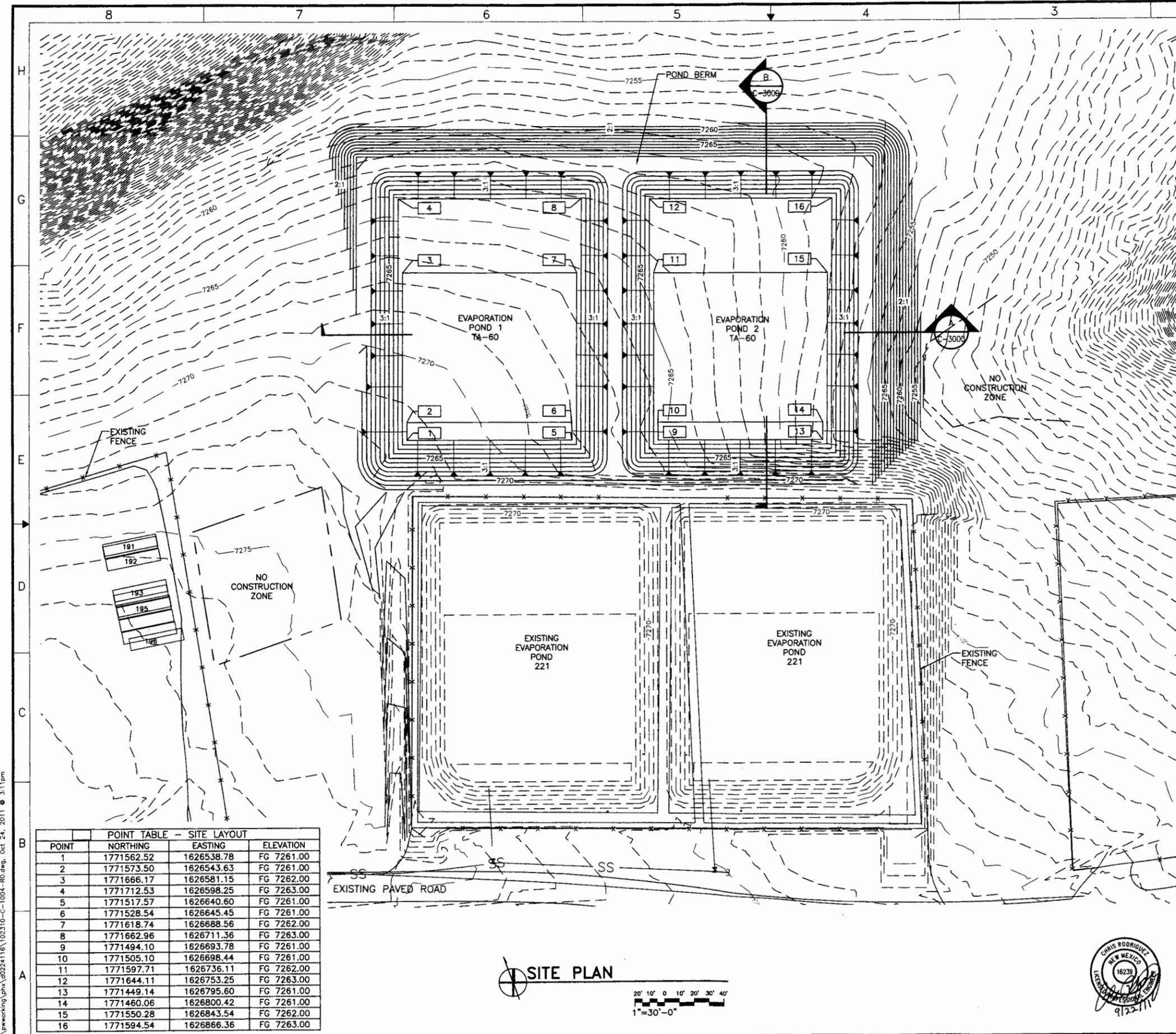
POINT	NORTHING	EASTING
5	1771399.54	1626809.72
6	1771608.37	1626901.98
7	1771748.11	1626584.41
8	1771541.56	1626493.50
9	1771526.70	1626527.00

**POINT TABLE - ACCESS ROAD**

POINT	NORTHING	EASTING
10	1771298.93	1626414.47
11	1771490.86	1626499.20
12	1771534.35	1626518.40
13	1771579.02	1626480.76



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KEY PLAN  
SCALE: NONE

GENERAL NOTES:

- IF THIS SHEET IS NOT 24"x36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.
- ALL EARTHWORK ACTIVITIES SHALL BE CONDUCTED IN ACCORDANCE WITH LANL SPECIFICATION 31 2000.
- SUBCONTRACTOR TO UTILIZE BEST MANAGEMENT PRACTICES DETAILED IN THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP). SEE LANL SPECIFICATION SECTION 01 5705 FOR ADDITIONAL REQUIREMENTS.
- SUBCONTRACTOR SHALL REVEGETATE ALL DISTURBED AREAS IN ACCORDANCE WITH LANL SPECIFICATION 32 9219.
- EXISTING TOPOGRAPHY, FACILITIES, AND UTILITIES SHOWN ARE BASED ON MAPPING PROVIDED BY LANL. VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION ACTIVITIES FOR COORDINATION AND FIELD ADJUSTMENTS AS REQUIRED.



NO	DATE	CLASS REV	DESCRIPTION	DWN	VER	CHKD	SUB	APP

**HDR** ENGINEERING INC. 255 LOURIANA BLVD., NE SUITE 800 ALBUQUENQUE, NM 87110 MAIL STOP 100-5460 FAX: (505) 830-5464

**SERF EXPANSION**

RO REJECT EVAPORATION PONDS GRADING PLAN

BLDG. TA-60

SUBMITTED: *Coy & Buz* APPROVED FOR RELEASE: *[Signature]*

DATE: 10-24-11

**Los Alamos NATIONAL LABORATORY** PO Box 1663 Los Alamos, New Mexico 87545

CLASSIFICATION: UNCLASSIFIED

PROJECT ID: 102310 DRAWING NO: C-55752

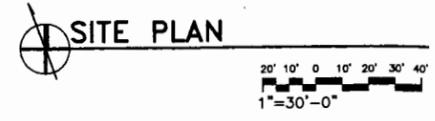
DATE: 10/11

REV: 0

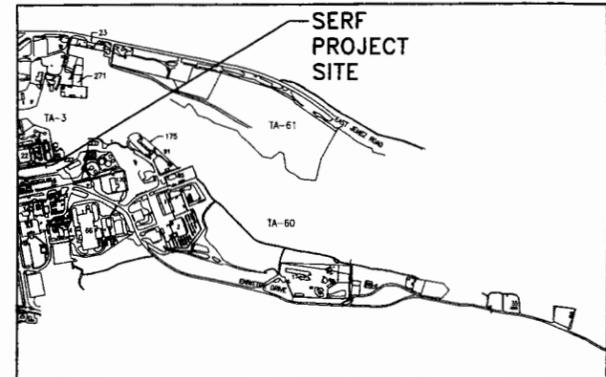
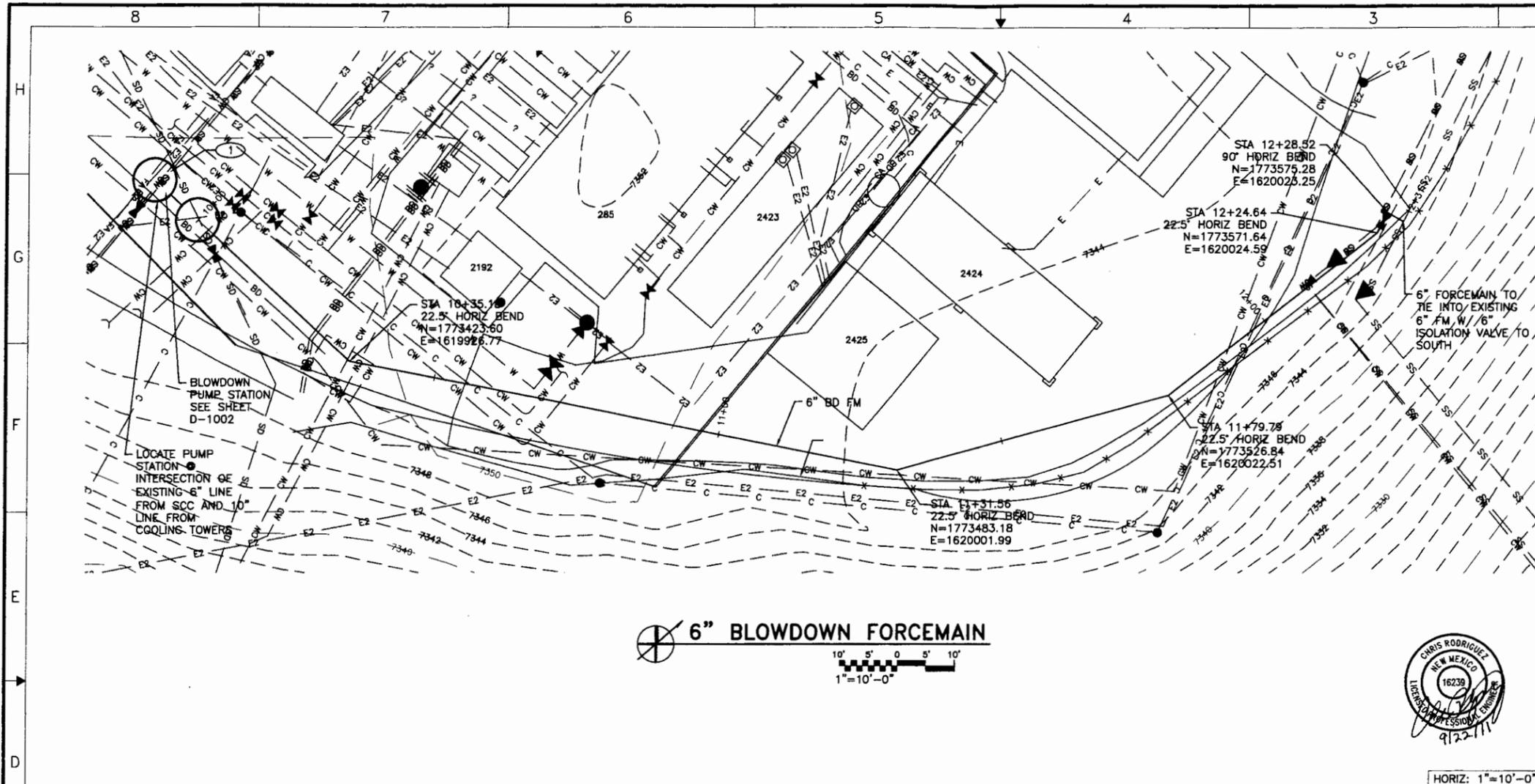
SHEET: 8 OF 67

DRAWN: B.F. DESIGN: W.C. CHECKED: E.D.

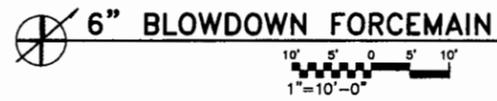
POINT	NORTHING	EASTING	ELEVATION
1	1771562.52	1626538.78	FG 7261.00
2	1771573.50	1626543.63	FG 7261.00
3	1771666.17	1626581.15	FG 7262.00
4	1771712.53	1626598.25	FG 7263.00
5	1771517.57	1626640.60	FG 7261.00
6	1771528.54	1626645.45	FG 7261.00
7	1771618.74	1626688.56	FG 7262.00
8	1771662.96	1626711.36	FG 7263.00
9	1771494.10	1626693.78	FG 7261.00
10	1771505.10	1626698.44	FG 7261.00
11	1771597.71	1626736.11	FG 7262.00
12	1771644.11	1626753.25	FG 7263.00
13	1771449.14	1626795.60	FG 7261.00
14	1771460.06	1626800.42	FG 7261.00
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16	1771594.54	1626866.36	FG 7263.00



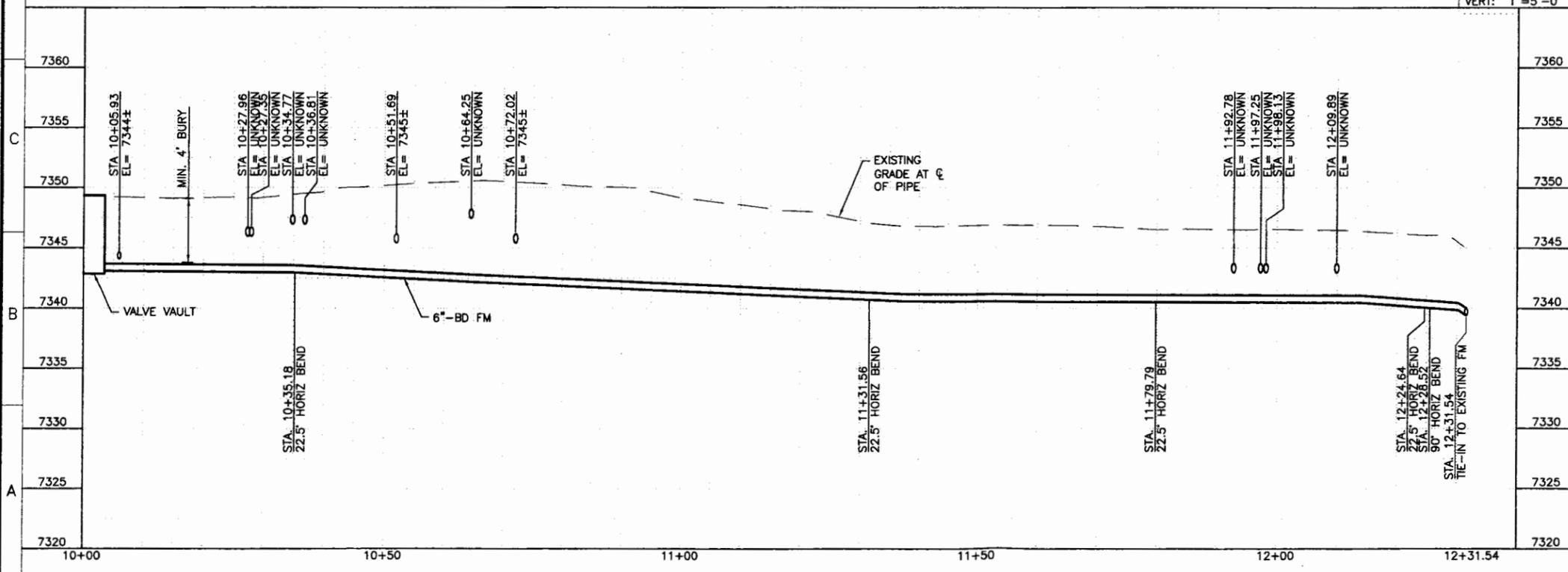
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- GENERAL NOTES:**
- IF THIS SHEET IS NOT 24"x36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.
  - SUBCONTRACTOR TO DEFLECT PIPE JOINTS AS NECESSARY TO MATCH ALIGNMENT. DO NOT EXCEED MANUFACTURERS RECOMMENDATIONS.
  - ALL EXISTING UTILITIES ARE SHOWN AT REQUIRED BURY DEPTHS PER LANL DESIGN STANDARDS. HOWEVER, ACTUAL ELEVATIONS ARE UNKNOWN. SUBCONTRACTOR SHALL DETERMINE ELEVATIONS AND NOTIFY THE ENGINEER PRIOR TO CONSTRUCTION.
  - EXISTING TOPOGRAPHY, FACILITIES, AND UTILITIES SHOWN ARE BASED ON MAPPING PROVIDED BY LANL. VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION ACTIVITIES FOR COORDINATION AND FIELD ADJUSTMENTS AS REQUIRED.
  - SUBCONTRACTOR TO FIELD MODIFY LOCATION OF BLOWDOWN PUMP STATION, PIPE ROUTING AND ASSOCIATED INFRASTRUCTURE BASED ON ACTUAL LOCATION OF EXISTING UTILITIES.



- KEYED NOTES:**
- SUBCONTRACTOR TO FIELD VERIFY LOCATION OF CONNECTION POINT TO THE EXISTING TANK TA-336 FILL LINE AND COORDINATE WITH LANL STAFF FOR FINAL CONNECTION.



HORIZ: 1"=10'-0"  
VERT: 1"=5'-0"

NO	DATE	CLASS REV	DESCRIPTION	DWN	VER	CHKD	SUB	APP

LANL BUILDING OFFICE  
19113  
DATE: 11-17-11  
11-10-16  
APPROVED

**HDR** ENGINEERING INC.  
2155 LOUISIANA BLVD., NE  
SUITE 8800  
ALBUQUERQUE, NM 87110  
PHONE: (505) 830-0400 FAX: (505) 830-6454

**SERF EXPANSION**

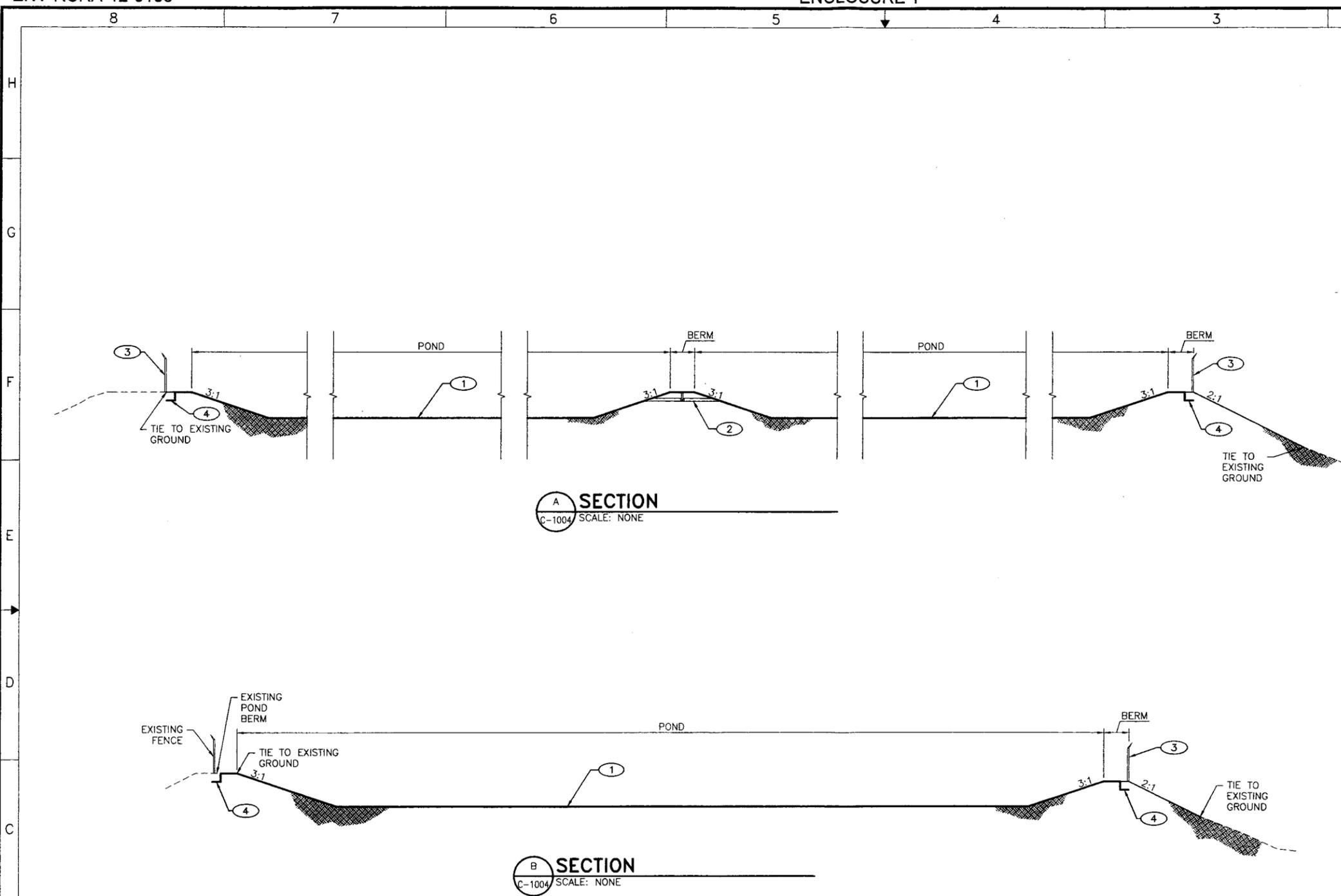
6" BLOWDOWN FORCEMAIN PLAN AND PROFILE

BLDG. TA-03  
SUBMITTED: [Signature]  
APPROVED FOR RELEASE: [Signature]

Los Alamos NATIONAL LABORATORY  
PO Box 1663  
Los Alamos, New Mexico 87545

CLASSIFICATION: UNCLASSIFIED  
PROJECT ID: 102310  
DRAWING NO: C-55752  
DATE: 11/11  
REV: 0

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**A SECTION**  
C-1004 SCALE: NONE

**B SECTION**  
C-1004 SCALE: NONE

**GENERAL NOTES:**

1. IF THIS SHEET IS NOT 24"x36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.
2. THESE SECTIONS ARE FOR ILLUSTRATIVE PURPOSES ONLY.

**KEYED NOTES:**

- ① DUAL HDPE LINER SYSTEM.
- ② 8" EQUALIZATION PIPE SEE SECTION C/C-3001.
- ③ 8' CHAIN LINK FENCE SEE DETAIL 2/C-5001.
- ④ LINER ANCHOR TRENCH SEE SECTION A/C-3001.

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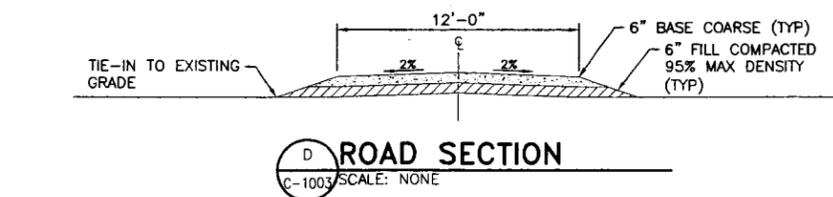
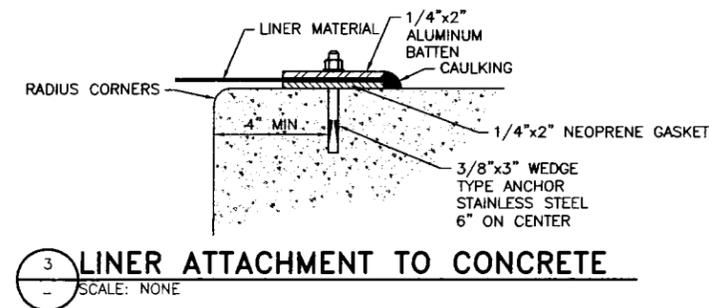
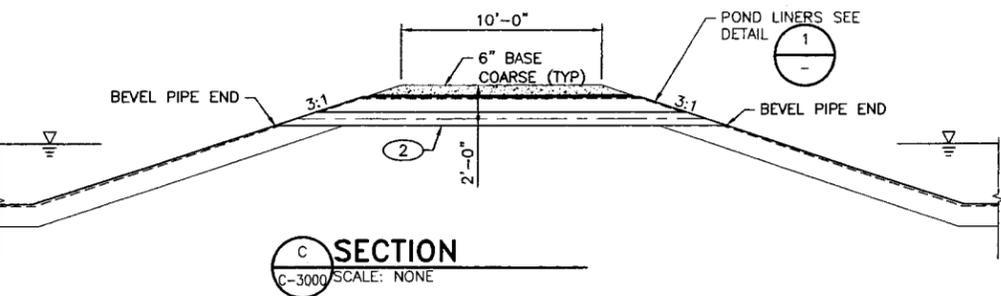
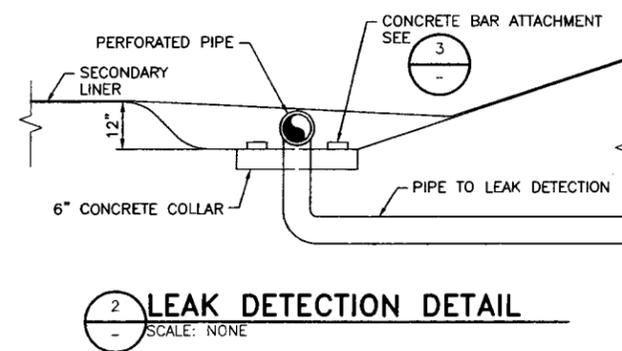
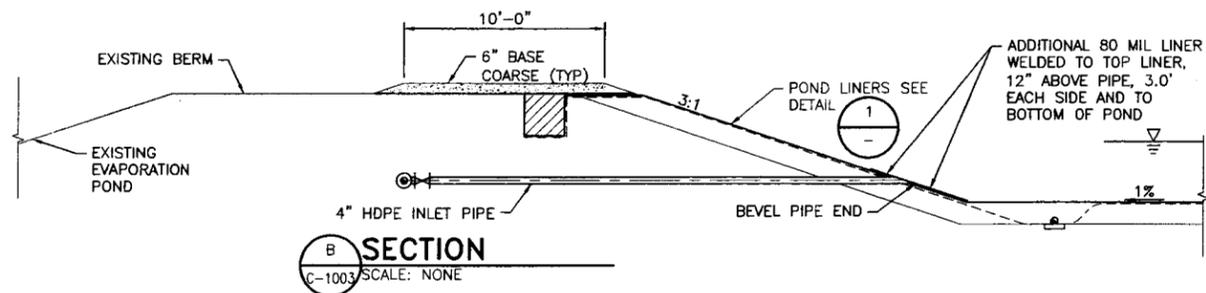
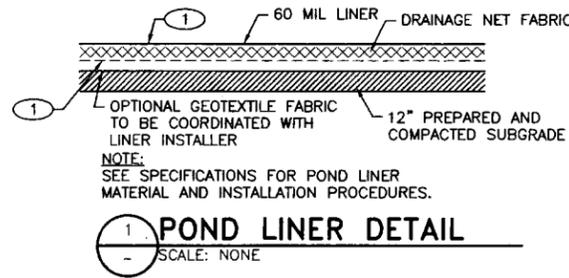
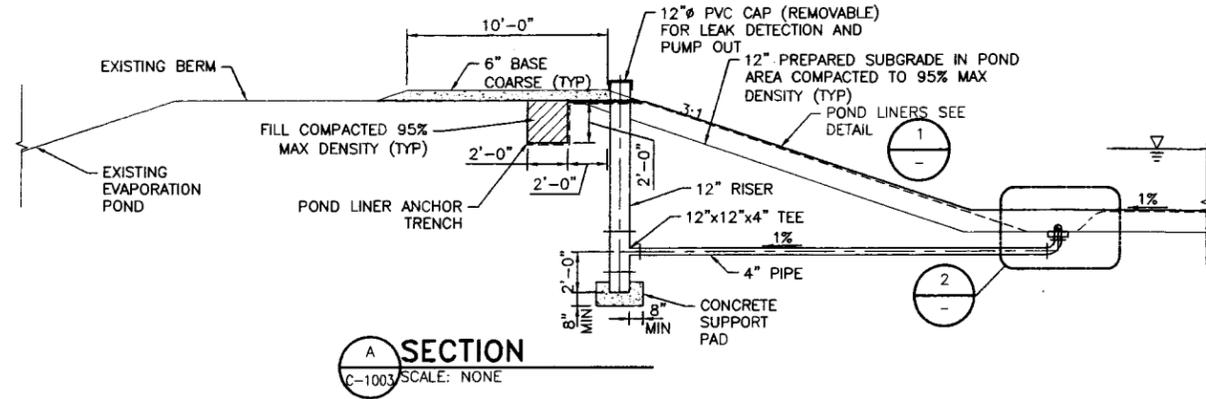
NO	DATE	CLASS REV	DESCRIPTION	DWN	VER	CHKD	SUB	APP
<div style="display: flex; justify-content: space-between;"> <div style="font-weight: bold; font-size: 1.2em;">HDR</div> <div style="font-size: 0.8em;">                     2155 LOUISIANA BLVD, NE                      SUITE 900                      ALBUQUERQUE, NM 87110                      MAIN (505) 833-6000 FAX:                      (505) 833-6454                 </div> </div>								
SERF EXPANSION				DRAWN	B.F.			
RO REJECT EVAPORATION PONDS SECTIONS				DESIGN	W.C.			
				CHECKED	E.D.			
BLDG. SUBMITTED		DATE		DATE		DATE		
		11-17-11		10-24-11		10-24-11		
APPROVED FOR RELEASE				DATE				
				SHEET <b>C-3000</b> OF 67				
Los Alamos NATIONAL LABORATORY PO Box 1663 Los Alamos, New Mexico 87545				CLASSIFICATION: UNCLASSIFIED PROJECT ID: 102310 DRAWING NO: C-55752 REV: 0				

**GENERAL NOTES:**

1. IF THIS SHEET IS NOT 24"x36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.
2. THESE SECTIONS ARE FOR ILLUSTRATIVE PURPOSES ONLY.
3. DIMENSIONS AND SLOPES SHOWN MAY NOT ACCURATELY REFLECT THE SECTIONS ON SHEET C-3000.

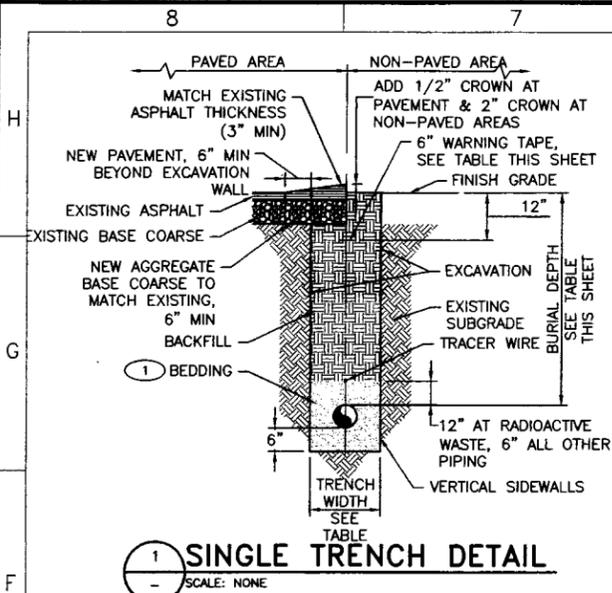
**KEYED NOTES:**

- 1 DUAL HDPE LINER SYSTEM:  
-PRIMARY LINER: 60 MIL TEXTURED HDPE  
-SECONDARY LINER: 60 MIL SMOOTH HDPE
- 2 8" EQUALIZATION PIPE



NO	DATE	CLASS	DESCRIPTION	DWN	VER	CHKD	SUB	APP	
<p><b>HDR</b> ENGINEERING INC. 7155 LOUISIANA BLVD, NE SUITE 900 ALBUQUERQUE, NM 87110</p> <p><b>SERF EXPANSION</b></p> <p>RO REJECT EVAPORATION PONDS SECTION DETAILS</p> <p>BLDG. TA-60 SUBMITTED: [Signature] APPROVED FOR RELEASE: [Signature]</p> <p><b>Los Alamos NATIONAL LABORATORY</b> PO Box 1663 Los Alamos, New Mexico 87545</p> <p>CLASSIFICATION: UNCLASSIFIED NEWER DATE: 10/9/11</p> <p>PROJECT ID: 102310 DRAWING NO: C-55752 REV: 0</p>									
							11	OF	67
							C-3001		

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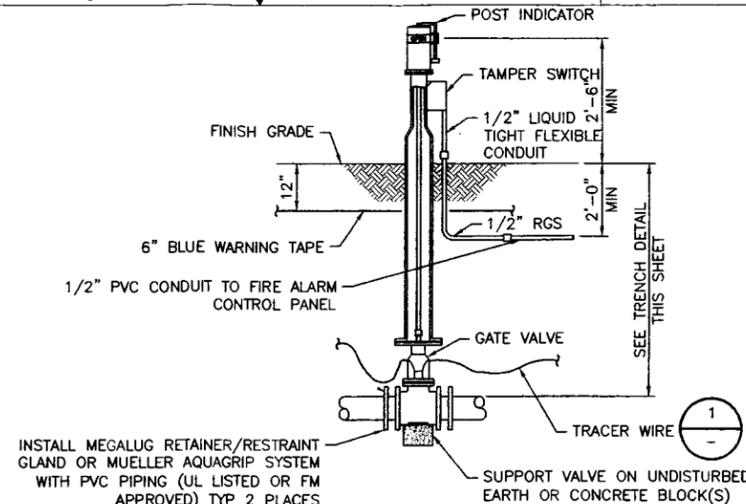
1 SINGLE TRENCH DETAIL  
SCALE: NONE

**NOTE:**  
1. ANY ASPHALT PAVEMENT SHALL BE SAW CUT PRIOR TO BEGIN TRENCHING OPERATIONS.

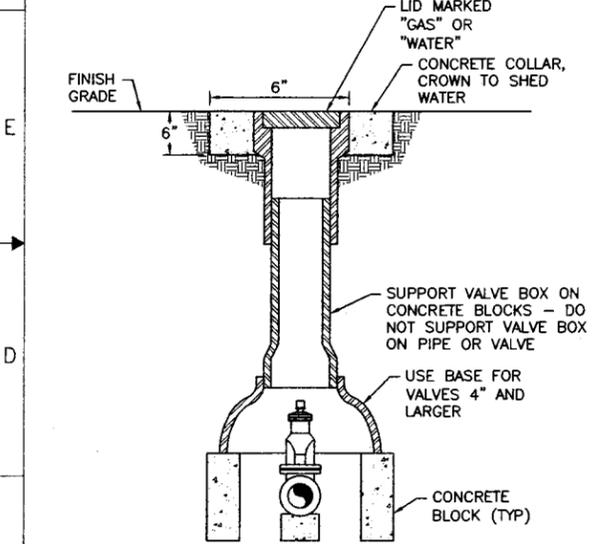
**KEYED NOTES:**  
1 PROVIDE A MINIMUM OF 6" OF SAND BEDDING BETWEEN PIPE AND VERTICAL SIDEWALLS.

TRENCH WIDTH		WARNING TAPE COLOR	
UTILITY SIZE	TRENCH WIDTH	TAPE	COLOR
TO 4"	24"	ELECTRIC	RED
6"	30"	NATURAL GAS	YELLOW
8"	32"	COMMUNICATION	ORANGE
10"	34"	SEWER	GREEN
12"	36"	OIL, FUEL, RAD. WASTE, ETC	YELLOW
14"	38"	WATER	BLUE
16"	40"	STEAM/CONDENSATE	YELLOW
18"	42"	EFFLUENT/RECLAIMED WATER	PURPLE

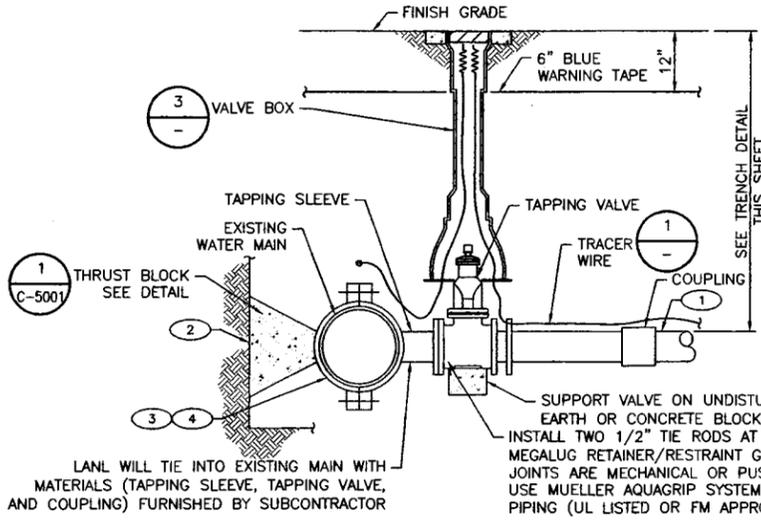
UTILITY BURIAL DEPTH	
SERVICE	MIN DEPTH
COMMUNICATIONS/ELECTRICAL CONDUITS/DUCT BANKS (TOP)	24"
NATURAL GAS MAINS	36"
FUEL/NATURAL GAS LINES UNDER ROADWAYS AND PARKING AREAS	30"
PE FUEL/NATURAL GAS LINES UNDER ROADWAYS AND PARKING AREAS	60"
SEWER/RAD WASTE LINES	48"
STEAM/CONDENSATE LINES	48"
WATER LINES	48"



6 SHUT-OFF VALVE DETAIL FOR FIRE LINE (PIV)  
SCALE: NONE

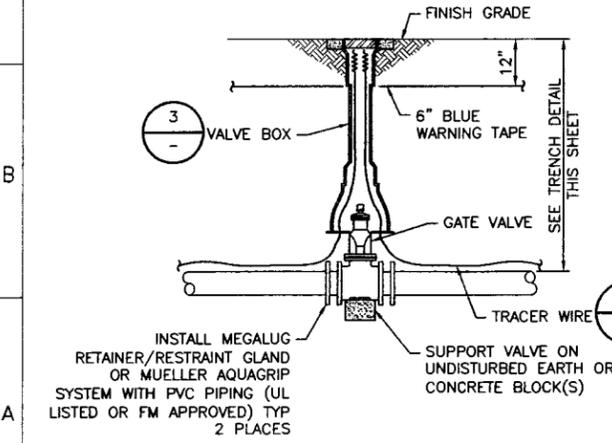


3 VALVE BOX DETAIL  
SCALE: NONE

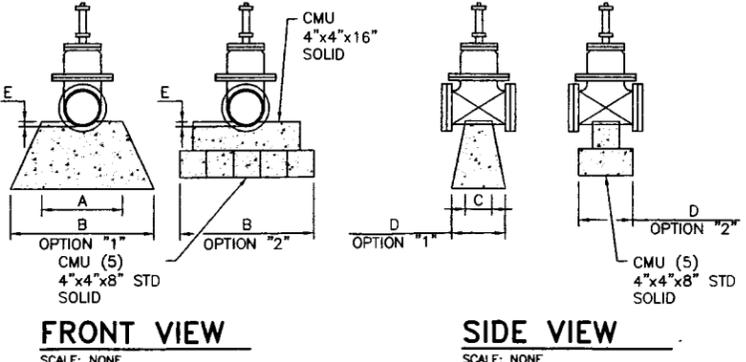


4 WATER PIPING TIE-IN DETAIL  
SCALE: NONE

- KEYED NOTES:**
- 1 RUN SERVICE LINE WITHIN 6" OF EXISTING MAIN.
  - 2 MINIMUM BELL HOLE AT BOTTOM OF TRENCH: 24" FROM CENTERLINE OF NEW PIPE ON EACH SIDE; 18" FROM EDGE OF MAIN BACKSIDE; 8'-0" IN FRONT OF MAIN (LENGTH OF BELL HOLE); 18" UNDER MAIN. TAPER OR STEP TRENCH TO MEET OSHA REQUIREMENTS.
  - 3 LANL CONSTRUCTION INSPECTOR WILL ENSURE MATERIALS REQUIRED FOR HOT TAP ARE AT JOBSITE, DISINFECTING AND PRESSURE TESTING OF SERVICE LINE HAVE BEEN COMPLETED, AND EXCAVATION OF BELL HOLE IS DONE.
  - 4 LANL CONSTRUCTION INSPECTOR WILL INFORM LANL 10 WORKING DAYS NOTICE OF THE NEED TO SCHEDULE A TIE-IN TO EXISTING UTILITIES.



5 WATER PIPING SHUT-OFF VALVE DETAIL  
SCALE: NONE



2 WATER VALVE SUPPORT DETAIL  
SCALE: NONE

VALVE SUPPORT TABLE				
VALVE SIZE	A	(MIN) B	C	(MIN) D
6"	12"	20"	4"	4"
8"	14"	24"	4"	4"
10"	16"	26"	5"	5"
12"	18"	28"	5"	5"
14"	20"	30"	6"	6"
16"	22"	32"	8"	8"
18"	24"	34"	10"	10"

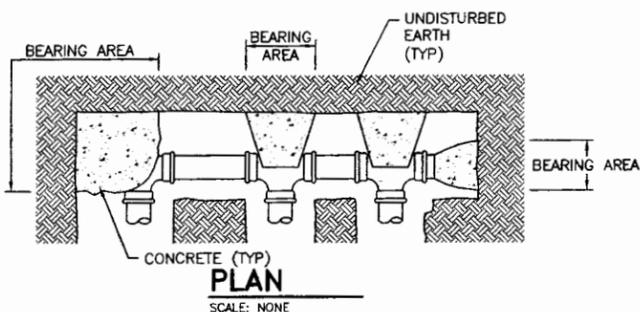
E = 1-1/2" MORTAR BED "CRADLE"

- GENERAL NOTES:**
1. CONCRETE f'c=2500 PSI MINIMUM.
  2. BASE AREA MAY BE MODIFIED WHEN SUBSTITUTING PRECAST BLOCK.
  3. BLOCK OR SUPPORT MUST BE UNIFORMLY SUPPORTED FROM BELOW BY UNDISTURBED SOILS.
  4. AT TOP OF SUPPORT, ALLOW SUFFICIENT ROOM FOR ACCESS TO FLANGE
  5. AT FRONT VIEWS, NEAR FLANGE NOT SHOWN FOR CLARITY.



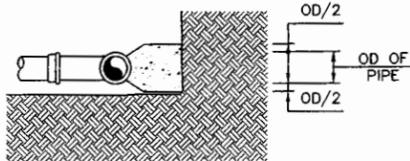
NO	DATE	CLASS REV	DESCRIPTION	DWN	VER	CHKD	SUB	APP
<p><b>HDR ENGINEERING INC.</b> 2156 LOUISIANA BLVD., SUITE 8000, ALBUQUERQUE, NM 87110 PHONE: (505) 833-4400 FAX: (505) 833-5454</p>								
<p>SERF EXPANSION PIPING DETAILS</p>							<p>DRAWN B.F. DESIGN W.C. CHECKED E.D.</p>	<p>DATE 10-24-11</p>
<p>BLDG. SUBMITTED</p>			<p>APPROVED FOR RELEASE</p>			<p>SHEET C-5000</p>		
<p>Los Alamos NATIONAL LABORATORY</p>			<p>PO Box 1663, Los Alamos, New Mexico 87545</p>			<p>12 OF 67</p>		
<p>CLASSIFICATION PROJECT ID</p>			<p>CLASSIFIED DRAWING NO</p>			<p>DATE REV</p>		
<p>102310</p>			<p>C-55752</p>			<p>0</p>		

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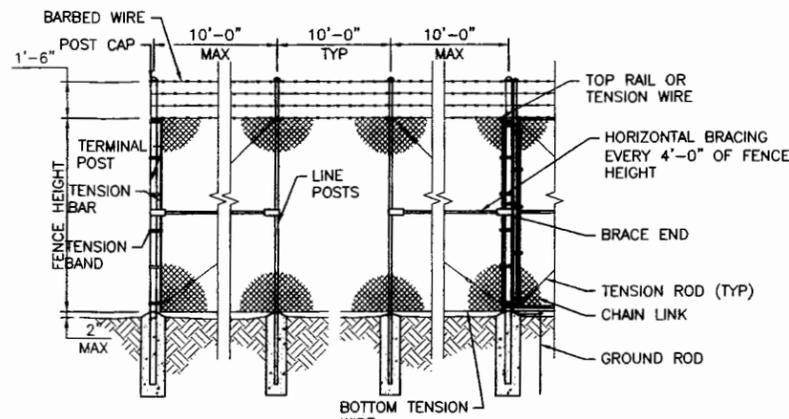


1 THRUST BLOCK DETAIL  
SCALE: NONE

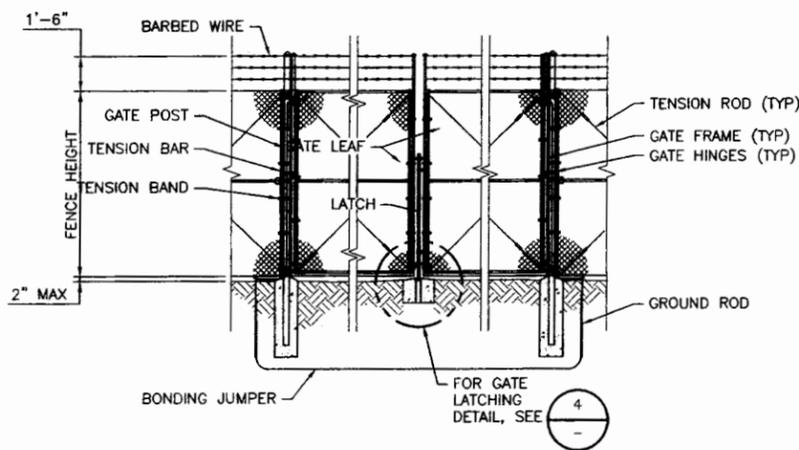
MIN THRUST BLOCK AREA (SQUARE FEET)			
PIPE DIA	PLUG TEE	90° BEND	45° BEND
4"	2	2	2
6"	4	5	3
8"	6	8	5
10"	9	13	7
12"	13	18	10
14"	18	25	14
16"	23	32	18



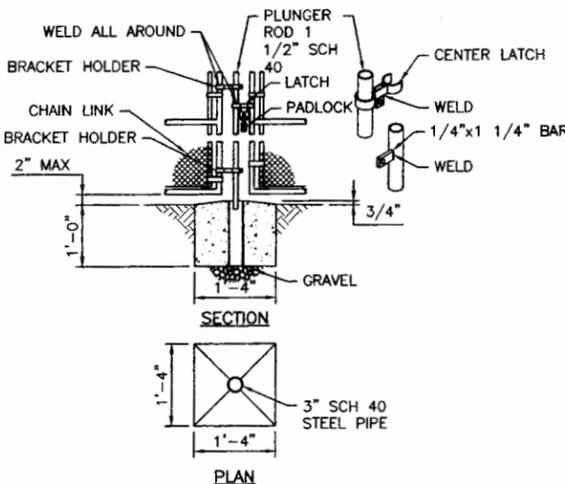
A SECTION  
SCALE: NONE



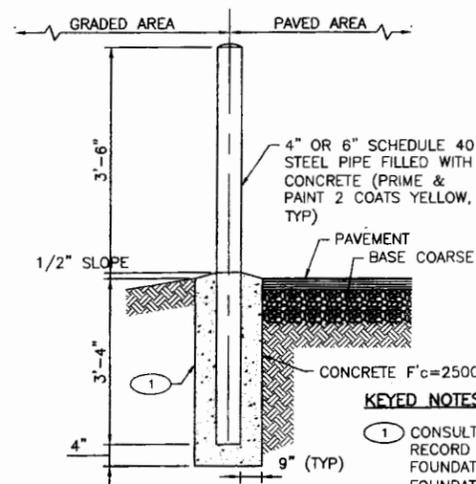
2 TYPICAL FENCE DETAIL  
SCALE: NONE



3 VEHICLE GATE DETAIL  
SCALE: NONE

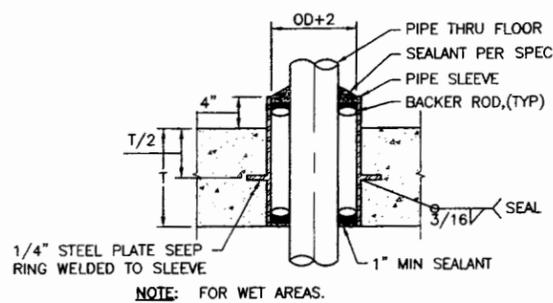


4 GATE LATCHING DETAIL  
SCALE: NONE

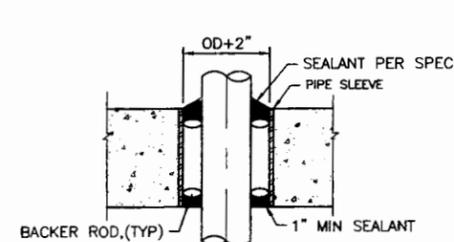


5 BOLLARD DETAIL  
SCALE: NONE

**KEYED NOTES:**  
1 CONSULT STRUCTURAL ENGINEER OF RECORD BEFORE POURING CONCRETE FOUNDATION FOR BOLLARD IF SIDE OF FOUNDATION WILL BE WITHIN 18" OF BELOW GRADE OBJECTS (E.G., PIPES, CONDUITS, ETC.) THAT OCCURS WITHIN THE HEIGHT OF THE FOUNDATION.



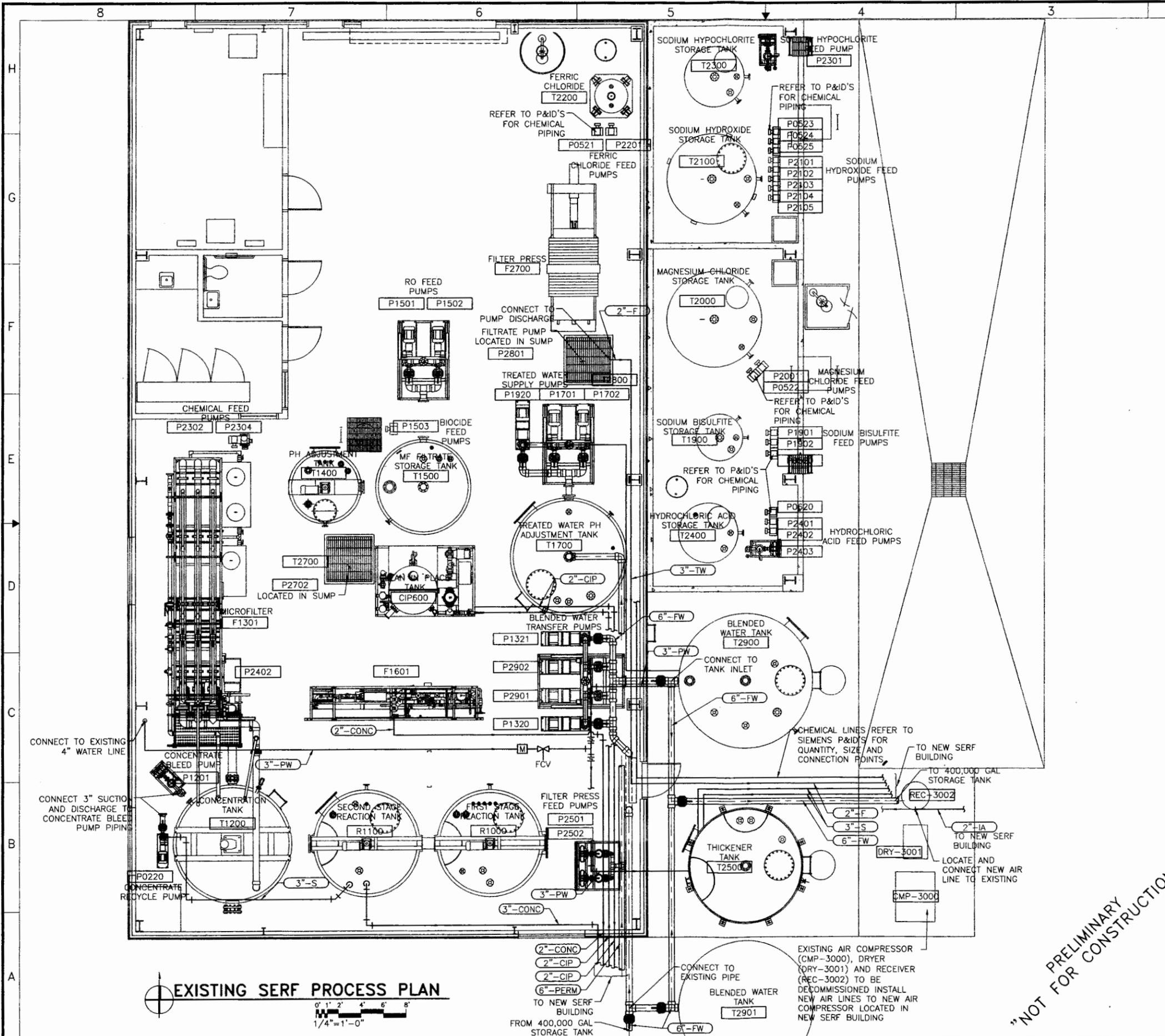
6 FLOOR PENETRATION  
SCALE: NONE



7 WALL & SUSPENDED SLAB PENETRATION, DRY AREAS  
SCALE: NONE



NO	DATE	CLASS REV	DESCRIPTION	OWN	VER	CHKD	SUB	APP
<p><b>HR</b> ENGINEERING INC. 2156 LOUISIANA BLVD., NE SUITE 5000 ALBUQUERQUE, NM 87110 MARK: (505) 833-6400 FAX: (505) 833-9454</p>								
SERF EXPANSION				DRAWN	B.F.			
MISCELLANEOUS DETAILS				DESIGN	W.C.			
				CHECKED	E.D.			
				DATE	10-24-11			
BLDG. SUBMITTED				APPROVED FOR RELEASE				
Coy & Boy				SHEET		C-5001		
Los Alamos NATIONAL LABORATORY				PO Box 1663 Los Alamos, New Mexico 87545		13 OF 67		
CLASSIFICATION UNCLASSIFIED				REVIEWER		DATE 11/2/11		
PROJECT ID 102310				DRAWING NO C-55752		REV 0		



- GENERAL NOTES:**
1. IF THIS SHEET IS NOT 24"x36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.
  2. SUBCONTRACTOR TO FIELD VERIFY ALL EXISTING EQUIPMENT AND COORDINATE WITH NEW EQUIPMENT AS REQUIRED.
  3. HEAT TRACE AND INSULATE ALL EXTERIOR EXPOSED PIPING.
  4. INSTALL PIPE SUPPORT AND HANGERS IN ACCORDANCE WITH SPECIFICATIONS.
  5. SUBCONTRACTOR TO COORDINATE PIPE ROUTING WITH EXISTING PIPING AND PROCESS EQUIPMENT.
  6. CHEMICAL PIPING NOT SHOWN. REFER TO SIEMENS P&ID'S FOR CHEMICAL PIPING.
  7. FOR CLARITY, VALVES, REDUCERS AND OTHER APPURTENANCES ARE NOT SHOWN. REFER TO SIEMENS P&ID'S.
  8. ALL PROCESS EQUIPMENT RELATED TO THE SERF FACILITY IS PROVIDED BY SIEMENS AND ALL SUPPORTING DOCUMENTATION FOR EQUIPMENT WILL BE PROVIDED BY SIEMENS AS A CONSTRUCTION SUBMITTAL.

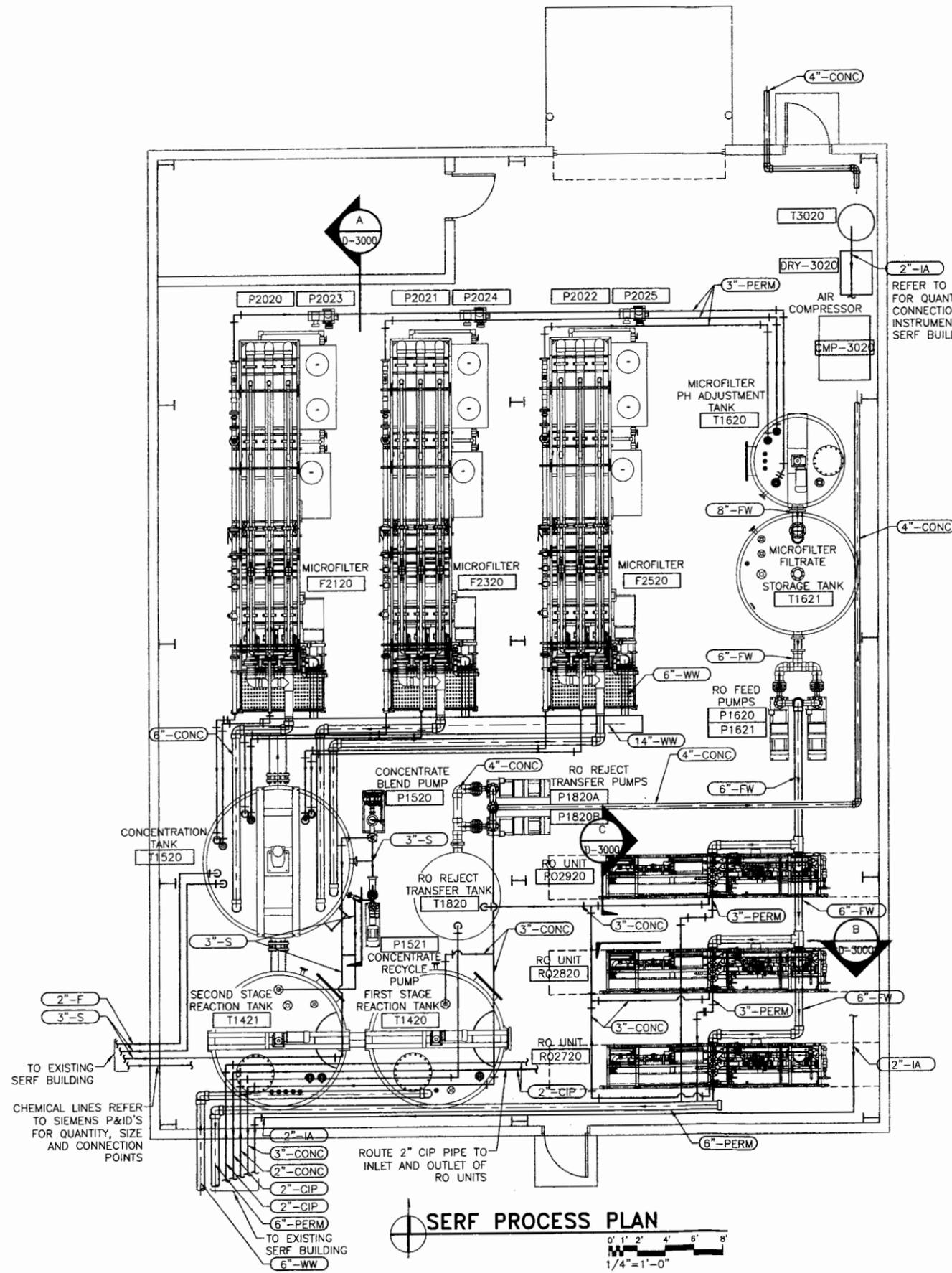
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"NOT FOR CONSTRUCTION"

NO	DATE	CLASS REV	DESCRIPTION	OWN	VER	CHKD	SUB	APP
<b>HDR</b> ENGINEERING INC.								
<b>SERF EXPANSION</b>								
EXISTING SERF BUILDING GENERAL PROCESS EQUIPMENT ARRANGEMENT PLAN								
BLDG. 3093			TA-03			DATE 10-24-11		
SUBMITTED			APPROVED FOR RELEASE			SHEET		
39			OF 67			D-1000		
<b>Los Alamos NATIONAL LABORATORY</b>								
CLASSIFICATION: UNCLASSIFIED								
PROJECT ID 102310			DRAWING NO C-55752			REV 0		

GENERAL NOTES:

1. IF THIS SHEET IS NOT 24"X36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.
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3. INSTALL PIPE SUPPORT AND HANGERS IN ACCORDANCE WITH SPECIFICATIONS.
4. SUBCONTRACTOR TO COORDINATE PIPE ROUTING WITH PROCESS EQUIPMENT.
5. CHEMICAL PIPING NOT SHOWN. REFER TO SIEMENS P&ID'S FOR CHEMICAL PIPING.
6. FOR CLARITY, VALVES, REDUCERS AND OTHER APPURTENANCES ARE NOT SHOWN. REFER TO SIEMENS P&ID'S.
7. ALL PROCESS EQUIPMENT RELATED TO THE SERF FACILITY IS PROVIDED BY SIEMENS AND ALL SUPPORTING DOCUMENTATION FOR EQUIPMENT WILL BE PROVIDED BY SIEMENS AS A CONSTRUCTION SUBMITTAL.

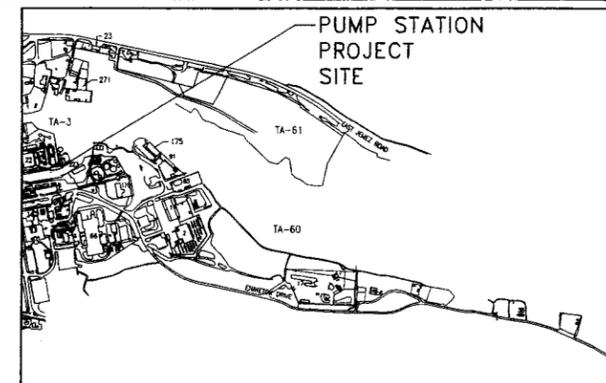


**SERF PROCESS PLAN**  
 0' 1' 2' 4' 6' 8'  
 1/4" = 1'-0"

NOT PRELIMINARY FOR CONSTRUCTION

NO	DATE	CLASS	DESCRIPTION	DWN	VER	CHKD	SUB	APP
<b>HDR</b> ENGINEERING INC.								
<b>SERF EXPANSION</b>								
<b>SERF BUILDING GENERAL PROCESS EQUIPMENT ARRANGEMENT PLAN</b>								
BLDG. 3093				TA-03				
SUBMITTED				APPROVED FOR RELEASE				
DATE 10-24-11				SHEET				
D-1001				40 OF 67				
<b>Los Alamos NATIONAL LABORATORY</b>								
UNCLASSIFIED								
PROJECT ID 102310			DRAWING NO C-55752			REV 0		

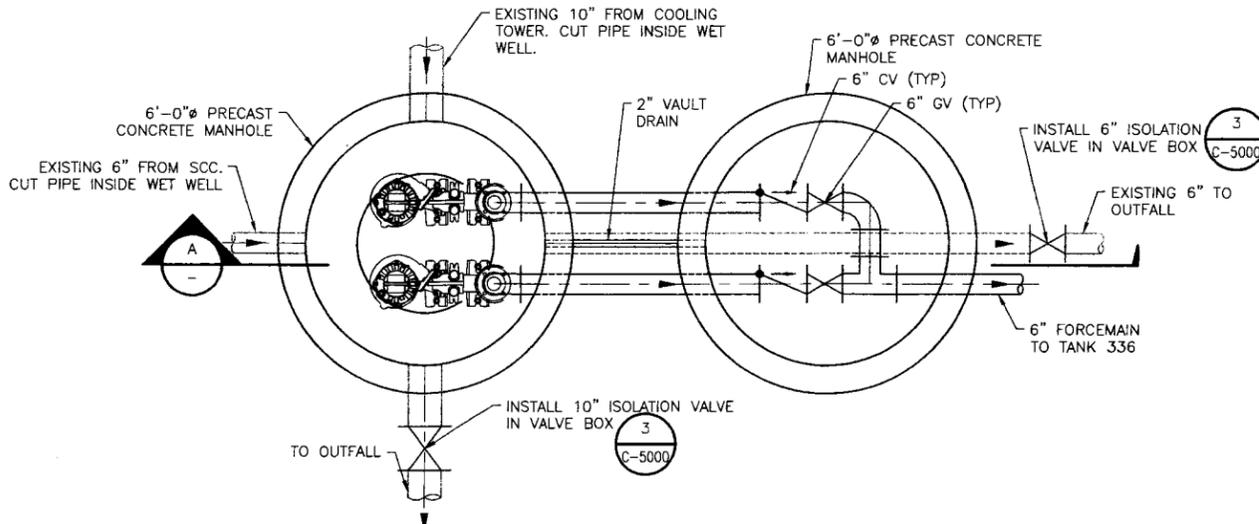
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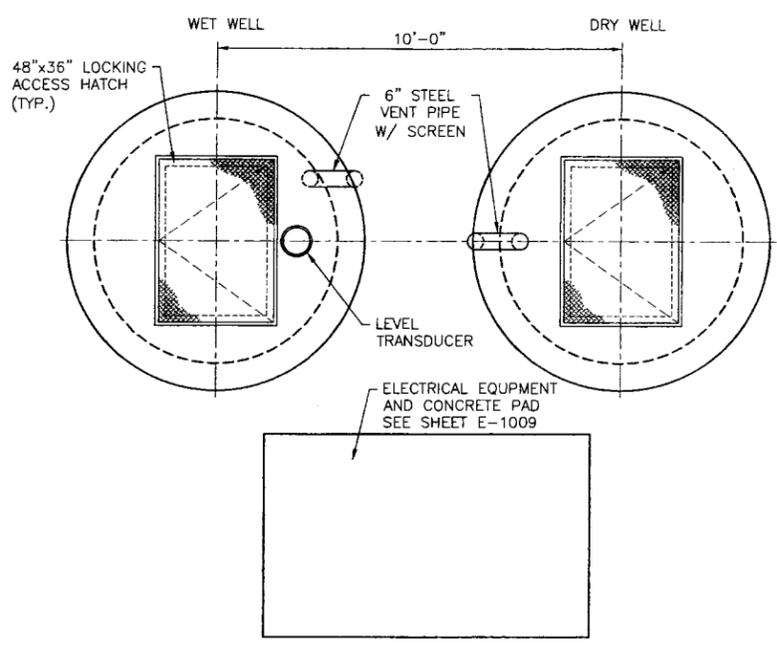
**KEY PLAN**  
SCALE: NONE

**GENERAL NOTES:**

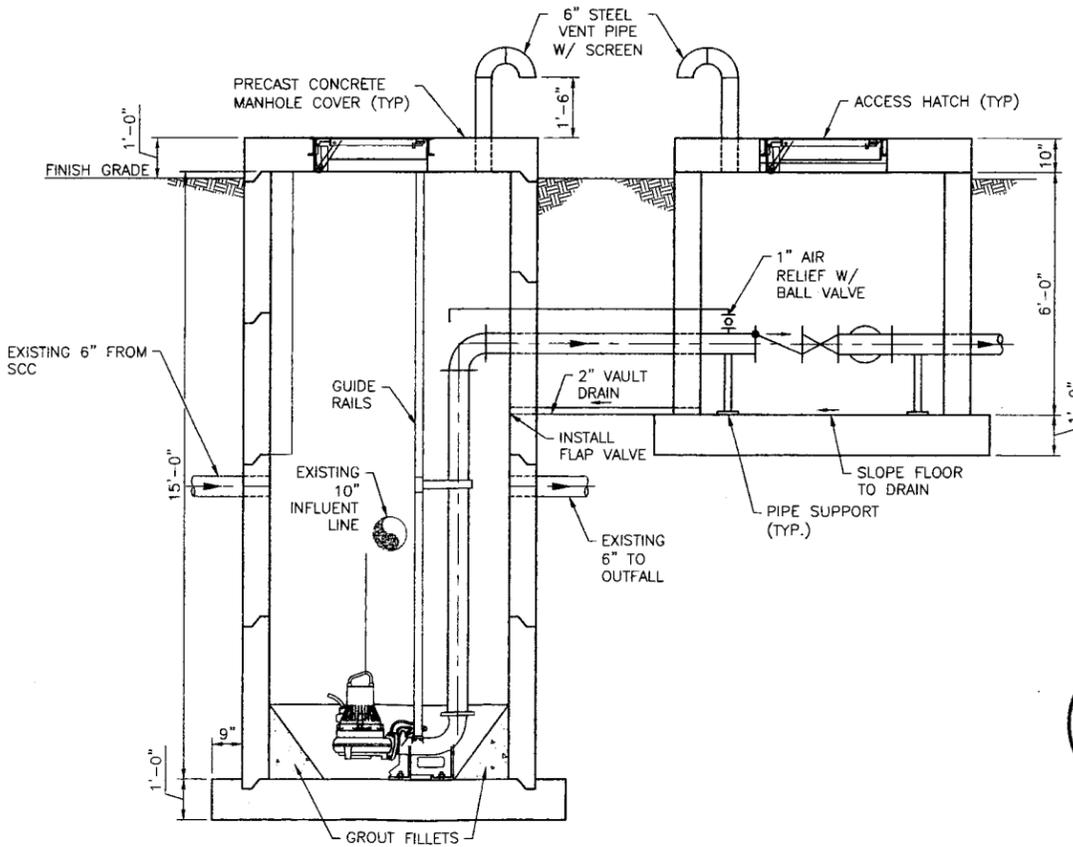
1. IF THIS SHEET IS NOT 24"X36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.
2. SEE LANL SPECIFICATION 33 3200 FOR PUMP REQUIREMENTS.
3. SUBCONTRACTOR TO FIELD MODIFY LOCATION OF BLOWDOWN PUMP STATION, PIPE ROUTING AND ASSOCIATED INFRASTRUCTURE BASED ON ACTUAL LOCATION OF EXISTING UTILITIES.



**2 PLAN DETAIL**  
SCALE: NONE



**1 TOP PLAN DETAIL**  
SCALE: NONE



**A SECTION**  
SCALE: NONE

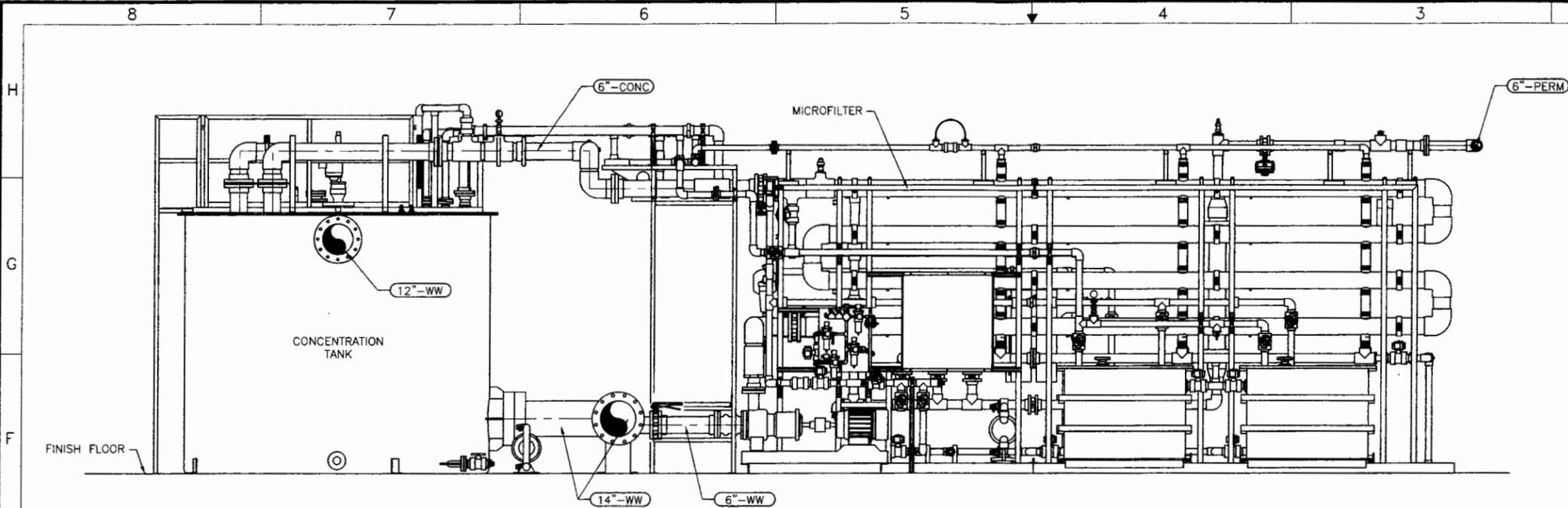


NO	DATE	CLASS REV	DESCRIPTION	DWN	VER	CHKD	SUB	APP
<p><b>HDR</b> ENGINEERING INC. 2195 LOKESHAH BLVD., NE SUITE 800 ALBUQUERQUE, NM 87110 PHONE (505) 830-9400 FAX (505) 830-9454</p>								
SERF EXPANSION				DRAWN	B.F.			
PUMP STATION PLAN AND SECTION				DESIGN	W.C.			
				CHECKED	E.D.			
BLDG. SUBMITTED				DATE	10-24-11			
APPROVED FOR RELEASE				<p>TA-03 DATE 10-24-11</p>				
<p>Los Alamos NATIONAL LABORATORY PO Box 1663 Los Alamos, New Mexico 87545</p>				<p>41 OF 67</p>		<p>D-1002</p>		
CLASSIFICATION: UNCLASSIFIED				REVIEWER	DATE	<p>11/7/11</p>		
PROJECT ID: 102310				DRAWING NO	C-55752		REV: 0	

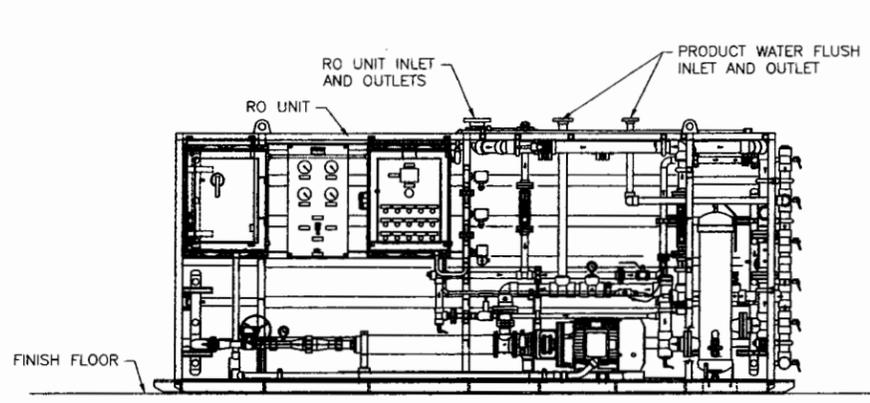
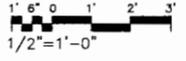
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**GENERAL NOTES:**

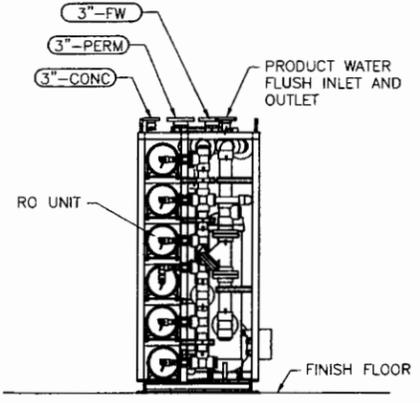
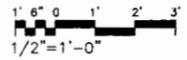
1. IF THIS SHEET IS NOT 24"x36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.
2. INSTALL PIPE SUPPORT AND HANGERS IN ACCORDANCE WITH SPECIFICATIONS.
3. CONTRACTOR TO COORDINATE PIPE ROUTING WITH PROCESS EQUIPMENT.
4. CHEMICAL PIPING NOT SHOWN. REFER TO SIEMENS P&ID'S FOR CHEMICAL PIPING.
5. FOR CLARITY, VALVES, REDUCERS AND OTHER APPURTENANCES ARE NOT SHOWN. REFER TO SIEMENS P&ID'S.
6. ALL PROCESS EQUIPMENT RELATED TO THE SERF FACILITY IS PROVIDED BY SIEMENS AND ALL SUPPORTING DOCUMENTATION FOR EQUIPMENT WILL BE PROVIDED BY SIEMENS AS A CONSTRUCTION SUBMITTAL.



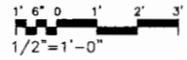
**A MICROFILTER SECTION**



**B RO UNIT SECTION**



**C RO UNIT SECTION**



90% REVIEW  
NOT FOR CONSTRUCTION

NO	DATE	CLASS REV	DESCRIPTION	DWN	VER	CHKD	SUB	APP
<b>SERF EXPANSION</b>								
<b>SERF BUILDING PROCESS SECTIONS</b>							DRAWN W.C.	✓
BLDG. 3093 SUBMITTED							DESIGN W.C.	✓
APPROVED FOR RELEASE							CHECKED E.D.	✓
TA-03							DATE 10-24-11	✓
							D-3000	
CLASSIFIED							42 OF 67	DATE 1/7/11
PROJECT ID 102310							DRAWING NO C-55752	REV 0

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SYMBOL LEGEND

(NOT ALL SYMBOLS WILL APPLY TO THIS PROJECT)

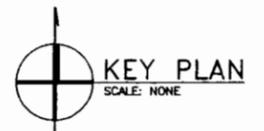
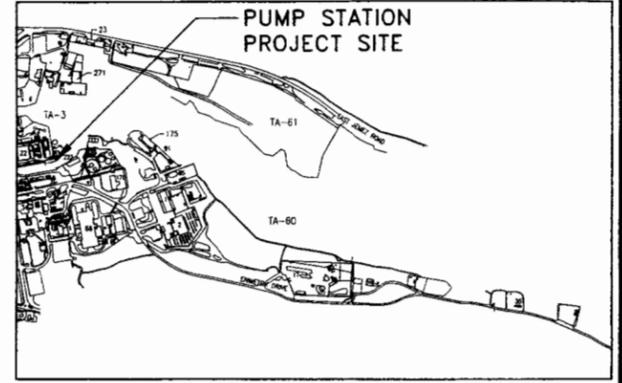
NON-STANDARD (NS) SYMBOLS

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
---	EXISTING		EMERGENCY LIGHTING UNIT		MEDIUM VOLTAGE DISCONNECT SWITCH		LIGHTING PANEL - 250 VOLTS TO 600 VOLTS
*-X-*	REMOVE		CEILING MOUNTED EXIT SIGN - ARROW AS INDICATED		MEDIUM VOLTAGE DRAWOUT CIRCUIT BREAKER		INSTRUMENTATION AND CONTROLS CONNECTION
---	NEW WORK		TWO FACED EXIT SIGN		TRANSFORMER (DELTA-WYE CONN.)	RVSS	REDUCED VOLTAGE STEADY STATE
---	HIDDEN OR BURIED		WALL MOUNTED EXIT SIGN		SHIELDED TRANSFORMER		EQUIPMENT CONNECTION
	HOMERUN CONDUIT		SWITCHBOARD, POWER PANELBOARD		DRAWOUT CIRCUIT BREAKER (TRIP FRAME)	-E-	CONCRETE ENCASED DUCTBANK
	GROUND		LIGHTING PANELBOARD		CIRCUIT BREAKER (TRIP FRAME) WITH GROUND FAULT INTERRUPTER	-E--	DIRECT BURRIED CONDUIT(S)
	PHASE		TRANSFORMER		MOTOR CIRCUIT PROTECTOR	-LP--	LIGHTNING PROTECTION GROUND LOOP
	SWITCHED NEUTRAL		NON-FUSIBLE SAFETY SWITCH (NUMBER INDICATES SWITCH SIZE)		MOTOR CONTROL CENTER STARTER UNIT	-OH-	OVERHEAD ELECTRIC LINE
	ISOLATED GROUND		FUSED SAFETY SWITCH (NUMBERS INDICATE FUSE/SWITCH SIZES)		FUSE	S <sub>M</sub>	MOTOR RATED SWITCH
	FLEXIBLE CONDUIT		COMBINATION MAGNETIC STARTER AND CIRCUIT BREAKER 2 - INDICATES NEMA STARTER SIZE 20 - INDICATES CIRCUIT BREAKER TRIP		GENERATOR		
	CONDUIT TURNING DOWN		MAGNETIC STARTER		CURRENT TRANSFORMER (NUMBERS INDICATE RATIO AND QUANTITY)		
	CONDUIT TURNING UP		ADJUSTABLE SPEED DRIVE		POTENTIAL TRANSFORMER (NUMBER INDICATES QUANTITY)		
	CONDUIT UP AND DOWN		MOTOR (NUMBER INDICATES HP)		AMMETER SWITCH		
	CONDUIT SEAL		BELL		VOLTMETER SWITCH		
	CONDUIT CAP		HORN "H" OR SIREN "S"		VOLTMETER		
	BUSWAY WITH DESCRIPTION		BUZZER		AMMETER		
	GROUNDING CONDUCTOR		PUSHBUTTON		KILOWATT METER		
	CABLE TRAY WITH DESCRIPTION		MANUAL PULL STATION		TRANSFER SWITCH		
	CEILING JUNCTION BOX		FIRE ALARM HORN (V=VISUAL SIGNAL)		KEY INTERLOCK #1		
	WALL JUNCTION BOX		PHOTOELECTRIC SMOKE DETECTOR		BATTERY		
	DUPLEX RECEPTACLE OUTLET		IONIZATION SMOKE DETECTOR		NORMALLY CLOSED CONTACT		
	SINGLE RECEPTACLE OUTLET		THERMAL DETECTOR		NORMALLY OPEN CONTACT		
	DOUBLE DUPLEX RECEPTACLE OUTLET		DUCT SMOKE DETECTOR (PHOTOELECTRIC)		PROTECTIVE RELAY, SOLENOID COIL		
	GFCI		MAGNETIC DOOR HOLDER		THERMAL OVERLOAD		
	DUPLEX OUTLET WITH WEATHERPROOF COVER		PRESSURE SWITCH		CONNECTION		
	SPLIT WIRED DUPLEX RECEPTACLE		FLOW SWITCH		CROSS, NO CONNECTION		
	DUPLEX ISOLATED GROUND		VALVE SUPERVISORY SWITCH		SURGE ARRESTOR		
	SPECIAL PURPOSE OUTLET - USE SUBSCRIPT TO IDENTIFY TYPE IN SPECS		FIRE ALARM CONTROL PANEL		TRANSIENT VOLTAGE SURGE SUPPRESSOR		
	FLOOR RECEPTACLE OUTLET USE SUBSCRIPT TO IDENTIFY TYPE IN SPECS		FIRE ALARM RACEWAY		CAPACITOR		
	RECEPTACLE RACEWAY		CEILING SPEAKER		CONTROL RELAY #1		
	SINGLE POLE SWITCH - USE SUBSCRIPT TO DESIGNATE CONTROL OF PARTICULAR OUTLETS		WALL SPEAKER		BUS PLUG CIRCUIT BREAKER		
	DOUBLE POLE SWITCH		TELECOMMUNICATIONS OUTLET		THERMOSTAT		
	THREE-WAY SWITCH		FLOOR MOUNTED TELECOMMUNICATIONS OUTLET		KEYED NOTE DESIGNATION		
	FOUR-WAY SWITCH		INTERCOM OUTLET		ELECTRICAL EQUIPMENT DESIGNATION (SEE SCHEDULE)		
	WEATHERPROOF SWITCH		TELECOMMUNICATIONS RACEWAY		MECHANICAL EQUIPMENT DESIGNATION (SEE SCHEDULE)		
	KEY OPERATED SWITCH		PROTECTED TRANSMISSION SYSTEM (PTS) DATA TERMINAL CONNECTION		NAMEPLATE DESIGNATION (SEE SCHEDULE)		
	DIMMER SWITCH - NUMBER INDICATES WATTAGE		TELEVISION OUTLET		WEATHERPROOF ABOVE FINISH FLOOR		
	OCCUPANCY SENSING SWITCH		CARD READER				
	PHOTOCELL		ELECTRIC DOOR STRIKE				
	REMOTE CONTROL SWITCH 6 POLE, 30 AMPS		DOOR CONTACTS				
	FLUORESCENT LUMINAIRE A=FIXTURE TYPE 1=CIRCUIT NUMBER b=SWITCH CONTROLLING FIXTURE		REMOTE ACCESS PANEL				
	FLUORESCENT STRIP LUMINAIRE		HAND GEOMETRY UNIT				
	WALL MOUNTED FLUORESCENT LUMINAIRE		MOTION DETECTOR				
	CEILING MOUNTED LUMINAIRE		CLOSED CIRCUIT TV CAMERA				
	WALL MOUNTED LUMINAIRE						
	EMERGENCY LUMINAIRE						
	LIGHT POLE WITH LUMINAIRE						

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"NOT FOR CONSTRUCTION"

NO	DATE	CLASS REV	DESCRIPTION	DWN	VER	CHKD	SUB	APP
SERF EXPANSION				DRAWN	B.Q.			
ELECTRICAL LEGEND				DESIGN	D.B.			
				CHECKED	P.D.			
				DATE	10-24-11			
BLDG. 3093				APPROVED FOR RELEASE				
SUBMITTED				SHEET		E-0001		
				47 OF 67				
CLASSIFICATION UNCLASSIFIED				DATE 11/7/11				
PROJECT ID 102310				DRAWING NO C-55752		REV 0		

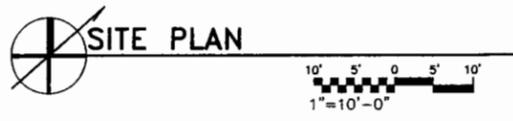
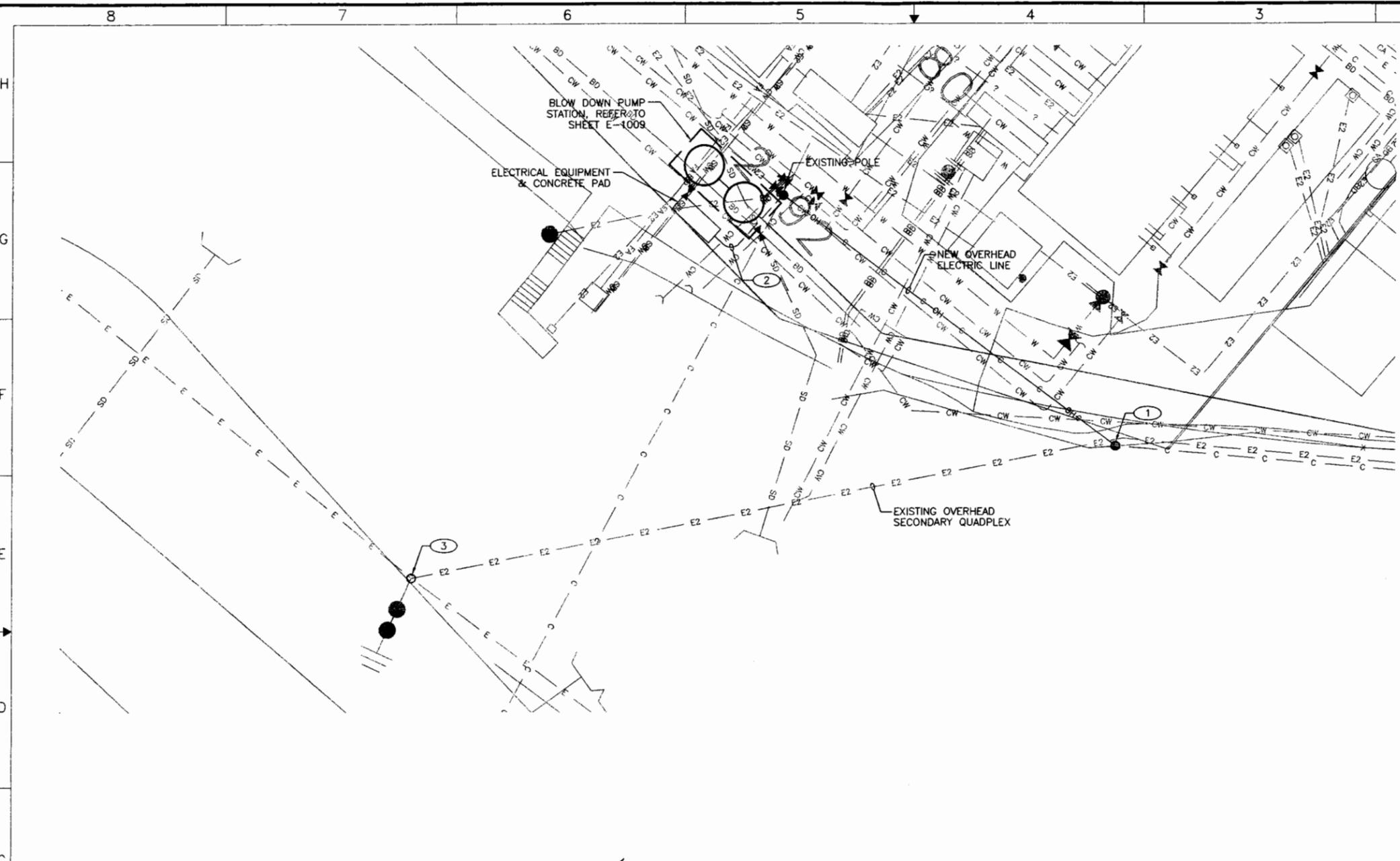


GENERAL NOTES:

- 1. IF THIS SHEET IS NOT 24"x36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.
- 2. REFER TO SHEET E-6003 PUMP STATION ELECTRICAL ONE-LINE DIAGRAM.

KEYED NOTES:

- ① THE NEW OVERHEAD ELECTRIC LINE TO EXISTING QUADPLEX ON EXISTING POLE.
- ② UNDERGROUND FEEDER AND TELECOMMUNICATION CONDUITS ROUTED FROM NEW PUMP STATION TO RISERS AND UP EXISTING POLE.
- ③ EXISTING 3-PH POLE-MOUNTED TRANSFORMER BANK.



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"NOT FOR CONSTRUCTION" 90% REVIEW

NO	DATE	CLASS REV	DESCRIPTION	DWN	VER	CHKD	SUB	APP
SERF EXPANSION							DRAWN	B.Q.
BLOWDOWN PUMP STATION SITE PLAN							DESIGN	D.B.
BLDG. 3093							CHECKED	P.D.
SUBMITTED							DATE	10-24-11
APPROVED FOR RELEASE								
							SHEET <b>E-1008</b> 56 OF 67	
CLASSIFICATION UNCLASSIFIED							DATE	11/11
PROJECT ID 102310							DRAWING NO	C-55752
							REV	0

8 7 6 5 4 3 2 1

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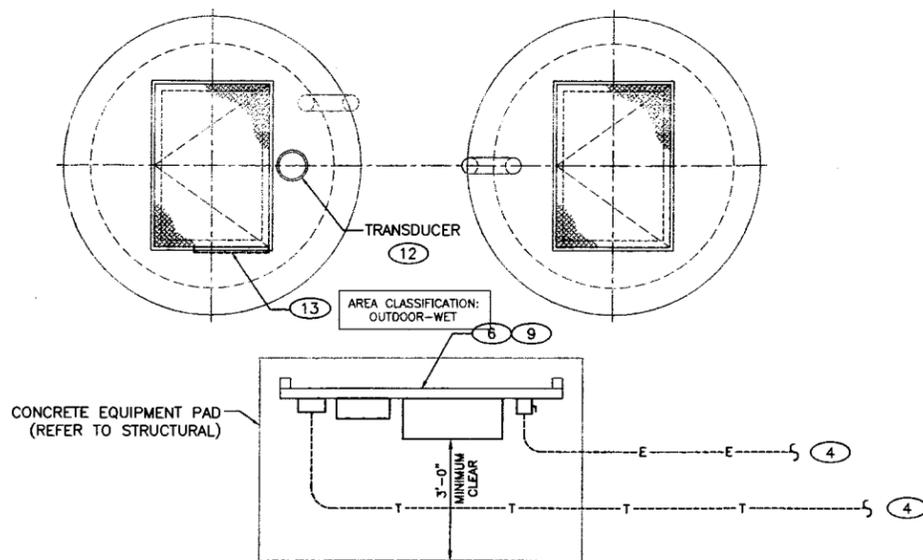
E

D

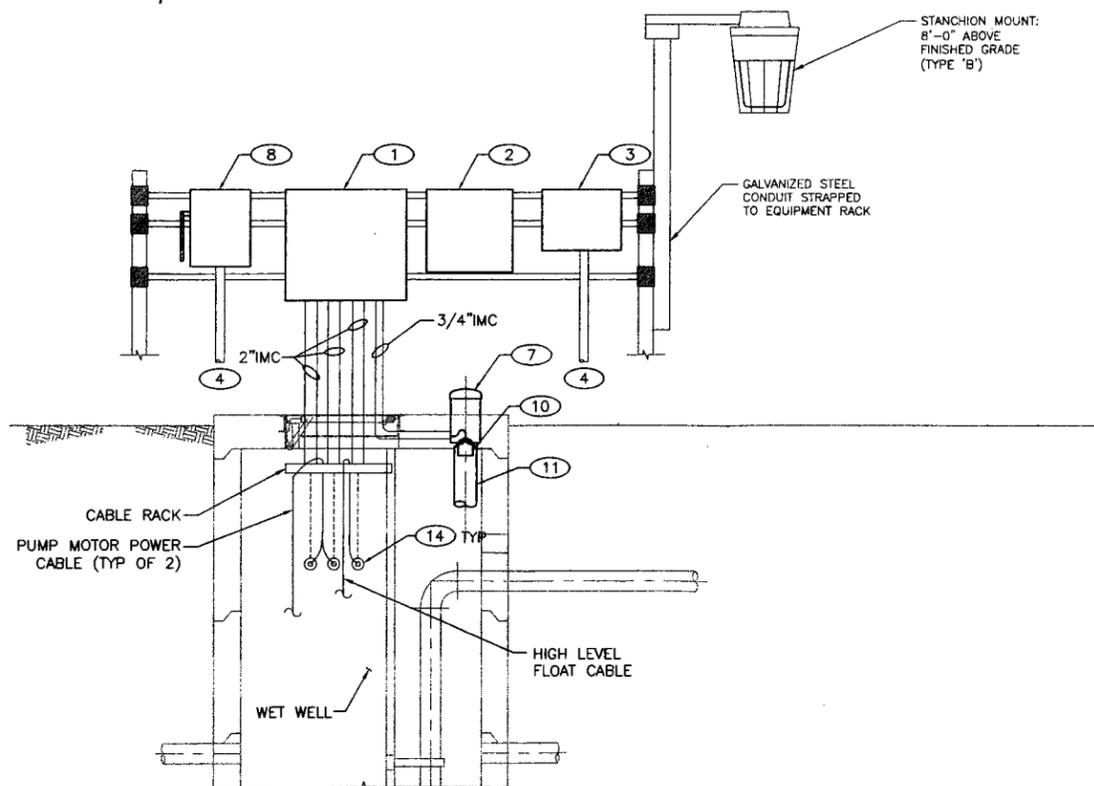
C

B

A



**PUMP STATION POWER PLAN**  
SCALE: NONE



**PUMP STATION AND POWER RACK DETAIL**  
SCALE: NONE

**GENERAL NOTES**

1. IF THIS SHEET IS NOT 24"x36", THEN IT IS A REDUCED SIZED PLOT. USE GRAPHIC SCALE ACCORDINGLY.
2. ALL CABLES ROUTED FROM LIFT STATION CONTROL PANEL TO PUMP POWER AND CONTROL DEVICES ARE PROVIDED BY MANUFACTURER.
3. REFER TO SHEET E-7000 FOR LIGHTING FIXTURE SCHEDULE.

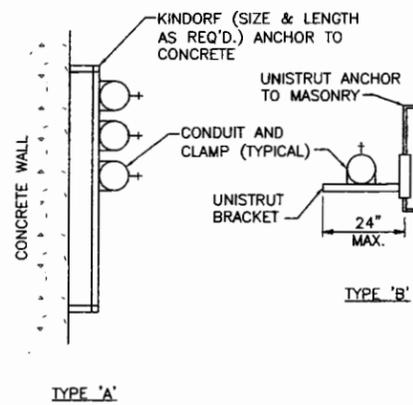
**KEYED NOTES**

- 1 PUMP STATION CONTROL PANEL FURNISHED BY MANUFACTURER INSTALLED BY CONTRACTOR.
- 2 INTERFACE ALARM AND CONTROL PANEL.
- 3 TELEPHONE LINE GROUNDING/TERMINATOR BOX. BOND TELEPHONE GROUNDING/TERMINATOR BOX TO MAIN FUSED SERVICE DISCONNECT WITH #4/0 GROUNDING CONDUCTOR.
- 4 ROUTE UNDERGROUND CONDUIT TO EXISTING POLE ADJACENT TO NEW PUMP STATION. REFER TO SHEET E-1008 FOR CONTINUATION.
- 5 TRANSUCER CONTRACTOR FURNISHED AND INSTALLED BY LANL UTILITIES.
- 6 MOUNT EQUIPMENT SHOWN ON UNISTRUT. REFER TO OUTDOOR EQUIPMENT MOUNTING DETAIL SHEET E-5000.
- 7 CPVC REDUCER COUPLING, PIPING AND CAP CONTRACTOR FURNISHED AND INSTALLED. SET INTO CONCRETE LID.
- 8 FUSED SAFETY DISCONNECT SWITCH. GROUND MAIN FUSED SERVICE DISCONNECT TO GROUNDING ELECTRODE. GROUND WITH #4/0 GROUNDING CONDUCTOR.
- 9 REFER TO PUMP STATION AND POWER RACK DETAIL THIS SHEET.
- 10 TRANSUCER AND PLEXIGLASS CONTRACTOR FURNISHED AND INSTALLED BY LANL SUPPORT SERVICES SUBCONTRACTOR (SSS).
- 11 STILLING WELL, FURNISHED AND INSTALLED BY LANL SSS.
- 12 LOCATE TO PROVIDE CLEAR SPACE BELOW FOR INSTALLATION OF 6" PVC STILLING WELL TO BASE OF WET WELL. STILLING WELL FURNISHED AND INSTALLED BY LANL SSS. REFER TO TRANSUCER MOUNTING DETAIL SHEET E-5001.
- 13 LOCATE CABLE RACK ON SAME SIDE OF CONTROL PANEL. DO NOT LOCATE TRANSUCER AND FLOAT IN DIRECT LINE WITH INLET AND DISCHARGE LINES.
- 14 CONDUITS FROM PUMP STATION CONTROL PANEL. SEAL OPEN ENDS WITH MASTIC WATERPROOF SEALANT.

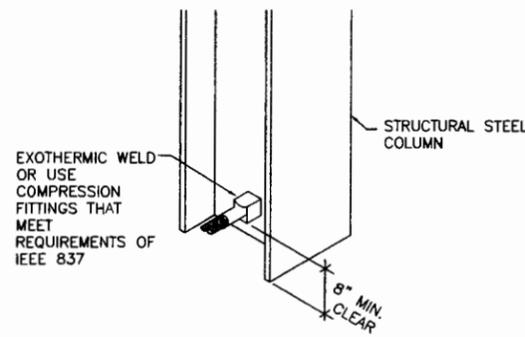
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BLOWDOWN PUMP STATION POWER PLAN				DESIGN	D.B.			
				CHECKED	P.D.			
BLDG. 3093				DATE	10-24-11			
SUBMITTED				APPROVED FOR RELEASE				
				<b>E-1009</b> 57 OF 67				
CLASSIFICATION: UNCLASSIFIED				DATE	10/2/11			
PROJECT ID: 102310				DRAWING NO	C-55752	REV: 0		

"NOT FOR CONSTRUCTION"

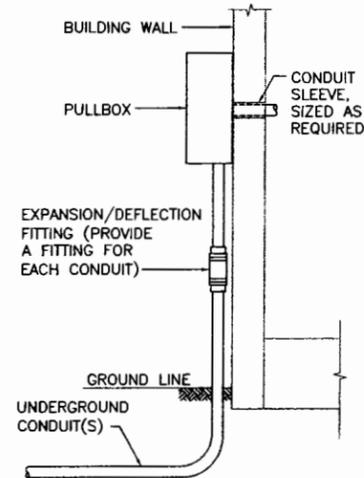
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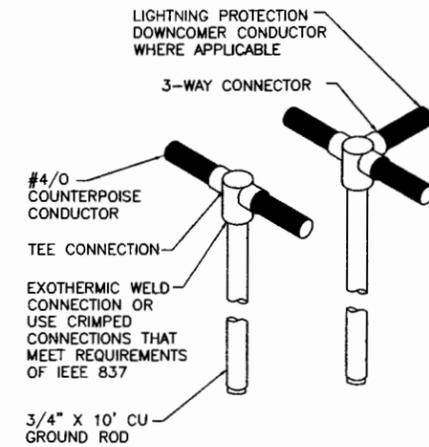
1 CONDUIT SUPPORT DETAIL  
E-5000 SCALE: NONE



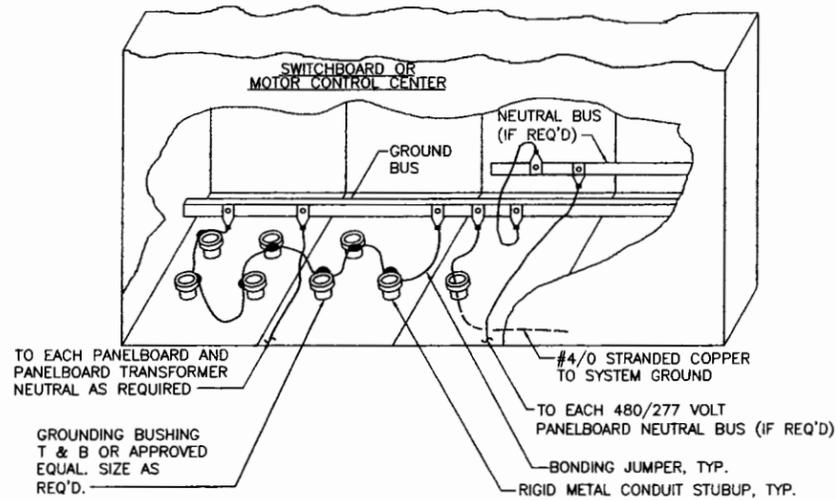
2 EXOTHERMIC WELD TO STEEL COLUMN  
E-5000 SCALE: NONE



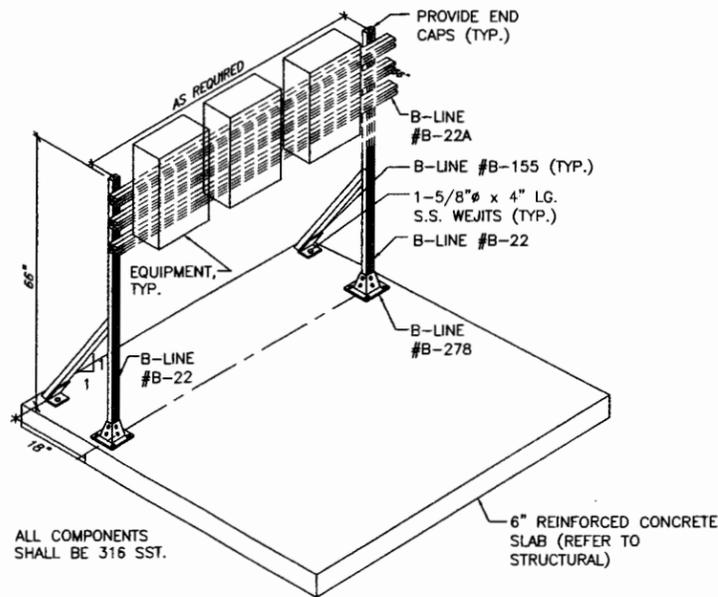
3 UNDERGROUND CONDUIT BUILDING ENTRY DETAIL  
E-5000 SCALE: NONE



4 GROUND ROD DETAIL  
E-5000 SCALE: NONE



5 TYPICAL SWITCHBOARD/MCC GROUNDING DETAIL  
E-5000 SCALE: NONE



6 OUTDOOR EQUIPMENT MOUNTING DETAIL  
E-5000 SCALE: NONE

"NOT FOR CONSTRUCTION"

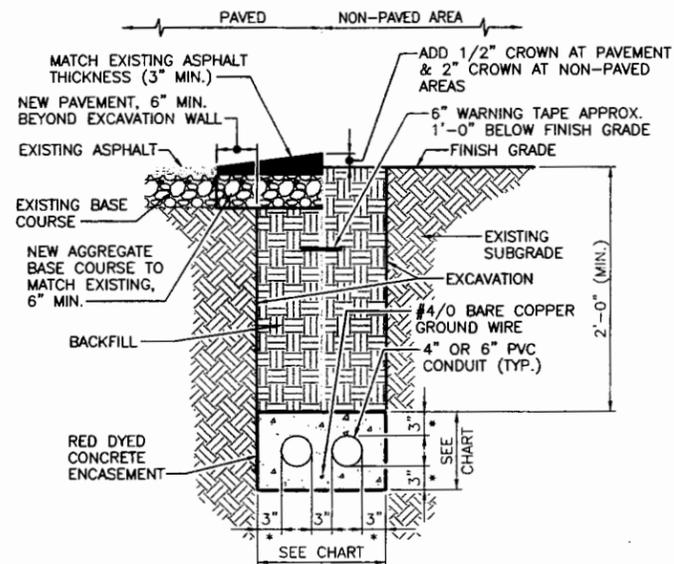
NO	DATE	CLASS REV	DESCRIPTION	DWN	VER	CHKD	SUB	APP	
<b>HR</b> ENGINEERING INC. 2156 LOUISIANA BLVD., NE SUITE 900 ALBUQUERQUE, NM 87110 MAIN: (505) 833-5400 FAX: (505) 833-3454									
SERF EXPANSION								DRAWN	B.O.
ELECTRICAL STANDARD DETAILS								DESIGN	D.B.
BLDG. 3093								CHECKED	P.D.
SUBMITTED								DATE	10-24-11
APPROVED FOR RELEASE								TA-03	
SHEET								E-5000	
Los Alamos NATIONAL LABORATORY								58 OF 67	
UNCLASSIFIED								DATE 11/7/11	
PROJECT ID 102310								DRAWING NO C-55752	
REV								0	

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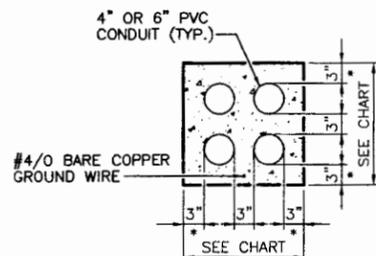
**GENERAL NOTES:**

(\* ) INDICATES THAT THE DIMENSION FOR TOP, BOTTOM, AND SIDE CONCRETE COVER IS NOMINAL.

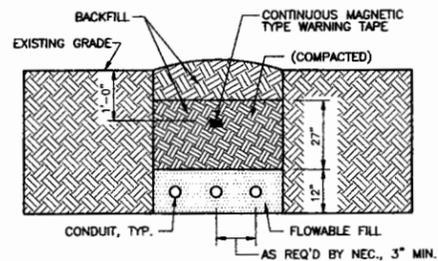
DUCTBANK	4" CONDUIT		6" CONDUIT	
	WIDTH	HEIGHT	WIDTH	HEIGHT
ONE-WAY	11"	11"	1'-1"	1'-1"
TWO-WAY	1'-6"	11"	1'-10"	1'-1"
THREE-WAY	2'-2"	11"	2'-8"	1'-1"
FOUR-WAY (SQ.)	1'-6"	1'-6"	1'-10"	1'-10"
FOUR-WAY (FLAT)	2'-9"	11"	3'-6"	1'-1"
SIX-WAY	2'-2"	1'-6"	2'-8"	1'-10"
NINE-WAY	2'-2"	2'-2"	2'-8"	2'-8"



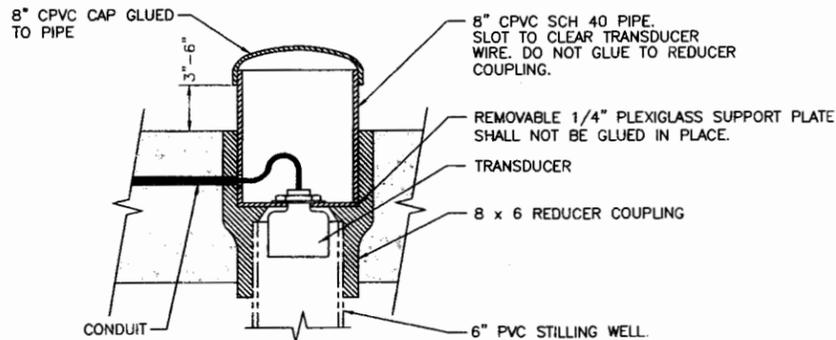
**1 TYPICAL DUCTBANK INSTALLATION**  
E-5001 SCALE: NONE



**3 TYPICAL FOUR-WAY DUCTBANK (SQUARE)**  
E-5001 SCALE: NONE



**2 DIRECT BURIED CONDUIT DETAIL**  
E-5001 SCALE: NONE

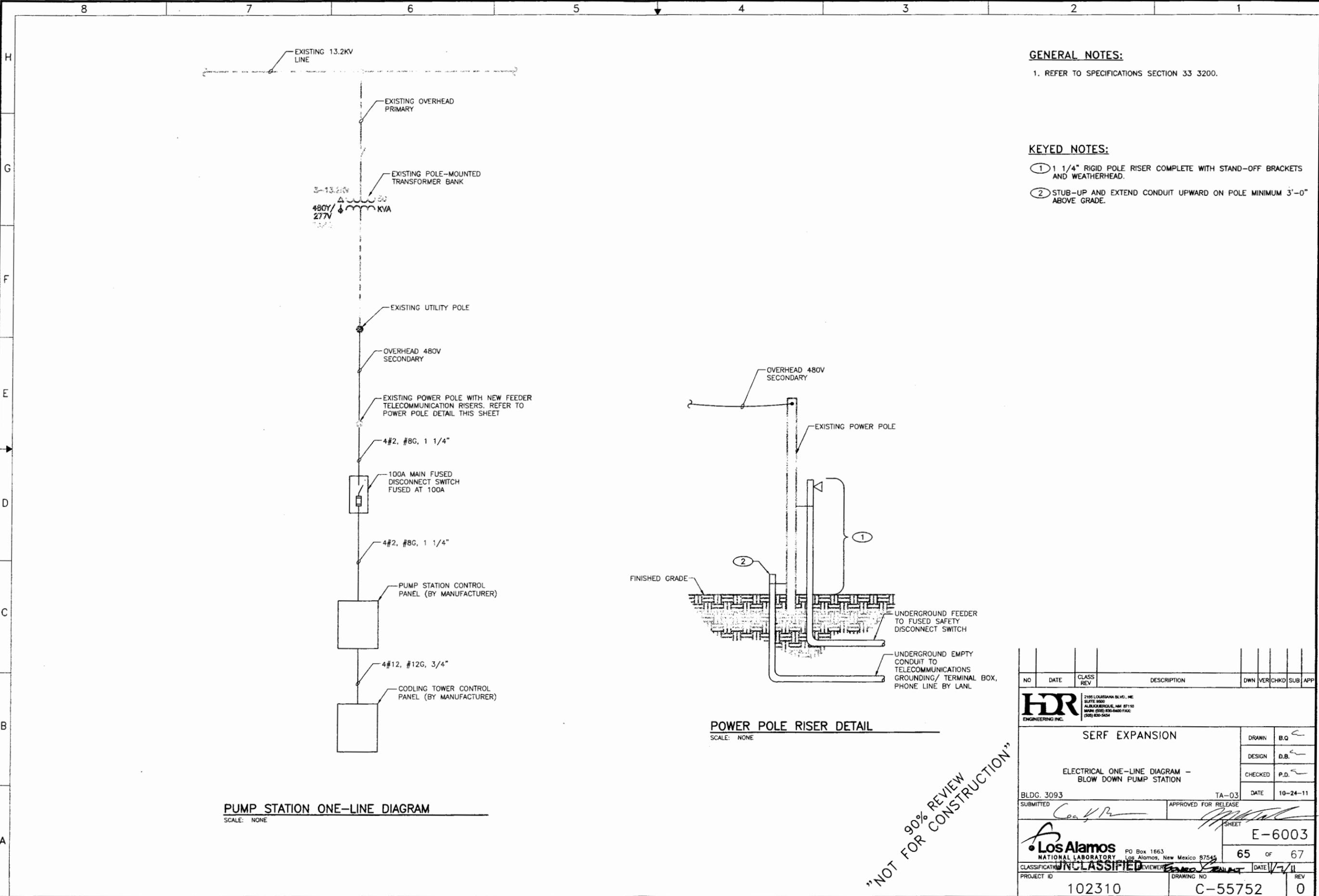


**4 TRANSDUCER MOUNTING DETAIL**  
E-5001 SCALE: NONE

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"NOT FOR CONSTRUCTION"

NO	DATE	CLASS REV	DESCRIPTION	DWN	VER	CHKD	SUB	APP	
 2185 LOUISIANA BLVD., NE SUITE 9000 ALBUQUERQUE, NM 87110 MADE (505) 830-5400 FAX: (505) 830-5454									
SERF EXPANSION							DRAWN	B.O.	←
ELECTRICAL STANDARD DETAILS							DESIGN	D.B.	←
BLDG. 3093							CHECKED	P.D.	←
SUBMITTED							DATE	10-24-11	
APPROVED FOR RELEASE							TA-03		
 Los Alamos, New Mexico 87545							E-5001		
CLASSIFICATION: UNCLASSIFIED							59	OF	67
PROJECT ID: 102310							DRAWING NO:	C-55752	REV: 0



**GENERAL NOTES:**

1. REFER TO SPECIFICATIONS SECTION 33 3200.

**KEYED NOTES:**

- ① 1 1/4" RIGID POLE RISER COMPLETE WITH STAND-OFF BRACKETS AND WEATHERHEAD.
- ② STUB-UP AND EXTEND CONDUIT UPWARD ON POLE MINIMUM 3'-0" ABOVE GRADE.

**PUMP STATION ONE-LINE DIAGRAM**  
SCALE: NONE

**POWER POLE RISER DETAIL**  
SCALE: NONE

"NOT FOR CONSTRUCTION"  
90% REVIEW

NO	DATE	CLASS	REV	DESCRIPTION	DWN	VER	CHKD	SUB	APP
<p><b>HDR</b> ENGINEERING INC. 2155 LOUISIANA BLVD., NE SUITE 5000 ALBUQUERQUE, NM 87110 MARK (505) 832-5400 FAX (505) 832-5434</p>									
<p>BLDG. 3093 SUBMITTED</p>					<p>TA-03 DATE 10-24-11</p>				
<p>APPROVED FOR RELEASE</p>					<p>SHEET</p>				
<p>Los Alamos NATIONAL LABORATORY</p>					<p>P.O. Box 1663 Los Alamos, New Mexico 87545</p>				
<p>CLASSIFICATION UNCLASSIFIED</p>					<p>DATE 1/7/11</p>				
<p>PROJECT ID 102310</p>					<p>DRAWING NO C-55752</p>				
<p>REV 0</p>					<p>REV 0</p>				

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**ENCLOSURE 2**

**SERF Expansion Project, Structural and Architectural Drawings**

**ENV-RCRA-12-0165**

**LAUR-12-22929**

**Date: JUL 17 2012**

GENERAL CONSTRUCTION NOTES

- ALL CONSTRUCTION SHALL CONFORM TO THE REQUIREMENTS OF THE 2006 INTERNATIONAL BUILDING CODE (IBC) ASCE7 AND ALL ASSOCIATED CODES.
- STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS FOR LOCATION AND SIZE OF OPENINGS, BLOCKOUTS, FLOOR DEPRESSIONS, CURBS, DIMENSIONS, ETC., NOT SHOWN ON THE STRUCTURAL DRAWINGS. THE LOCATION AND SIZE OF MECHANICAL AND ELECTRICAL OPENINGS IN SLABS, WALLS, AND DECKS SHALL BE COORDINATED BY THE SUBCONTRACTOR. PROVIDE ALL ADDITIONAL FRAMING OR REINFORCING TO ACCOMMODATE OPENINGS AS REQUIRED BY THE APPLICABLE STANDARD DETAILS SHOWN OR NOTED ON THE STRUCTURAL DRAWINGS.
- DRAWINGS SHALL NOT BE SCALED.
- SUBCONTRACTOR SHALL VISIT SITE AND FAMILIARIZE HIMSELF WITH EXISTING CONDITIONS, CHECK AND VERIFY EXISTING DIMENSIONS AND TAKE ADDITIONAL MEASUREMENTS AS NEEDED. NOTIFY ENGINEER OF ANY DISCREPANCY BETWEEN ACTUAL DIMENSIONS AND DIMENSIONS ASSUMED IN DESIGN.
- IT IS THE SUBCONTRACTOR'S RESPONSIBILITY TO PLACE OR STORE CONSTRUCTION MATERIALS ON THE STRUCTURE IN A MANNER THAT DOES NOT EXCEED THE ALLOWABLE LIVE LOAD. PROVIDE COMPLETE AND ADEQUATE SHORING, BRACING, OR ADDITIONAL FRAMING WHEN OVERLOAD IS ANTICIPATED.
- TYPICAL SECTIONS AND DETAILS ON SHEET (S-5000 TO S-5001) SHALL BE USED WHENEVER THE APPLICABLE SITUATION OCCURS UNLESS NOTED OTHERWISE.
- WHERE DIMENSIONS ARE PROVIDED FOR OPENINGS, BLOCKOUTS, FLOOR DEPRESSIONS, ETC., BUT MAY BE EFFECTED BY THE EQUIPMENT PURCHASED, THE SUBCONTRACTOR SHALL VERIFY THE INFORMATION PRIOR TO FABRICATION AND CONSTRUCTION.
- DO NOT BACKFILL AROUND STRUCTURES UNTIL CONCRETE HAS GAINED 100% OF ITS DESIGN STRENGTH.
- ALL DIMENSIONS REFERRING TO EXISTING STRUCTURES SHALL BE FIELD VERIFIED PRIOR TO FABRICATION AND CONSTRUCTION.
- ALL JOINTS IN STRUCTURE THAT IS DESIGNED TO CONTAIN LIQUID SHALL HAVE WATERSTOPS, NO EXCEPTIONS.
- SAFETY AND STRUCTURAL STABILITY DURING CONSTRUCTION ARE THE SOLE RESPONSIBILITY OF THE SUBCONTRACTOR. STRUCTURES HAVE BEEN DESIGNED TO RESIST THE DESIGN LOADS ONLY AS A COMPLETE STRUCTURE.

STRUCTURAL STEEL

- ALL FIELD-BOLTED SHEAR CONNECTIONS SHALL BE MADE WITH 7/8" DIAMETER A325-N BOLTS, UNLESS NOTED OTHERWISE.
- PLACE NON-SHRINK GROUT UNDER ALL COLUMN BASE PLATES BEFORE ADDING ANY VERTICAL LOADS.
- WHEN THE FILLET WELD SIZE IS NOT INDICATED ON A WELD SYMBOL, PROVIDE SIZE ACCORDING TO THE MINIMUM FILLET WELD SCHEDULE, PER AISC.
- FIELD WELDS INDICATED ON THE DRAWINGS ARE NOT INTENDED TO LIMIT THE WELD FROM BEING MADE IN THE SHOP.
- ALL WELDING SHALL BE PERFORMED BY PROPERLY QUALIFIED WELDERS, AS PRESCRIBED UNDER "STANDARD QUALIFICATION PROCEDURE" OF THE AMERICAN WELDING SOCIETY.
- THE STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE SPECIFICATIONS AND THE ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS. THE SUBCONTRACTOR SHALL VERIFY THE REQUIREMENTS OF OTHER TRADES AS TO SLEEVES, CHASES, HANGERS, INSERTS, ANCHORS, HOLES, ETC. TO BE PLACED OR SET IN THE STRUCTURAL WORK.
- WHERE THE WORK OF OTHER TRADES REQUIRES CUTS OR HOLES TO BE MADE IN STRUCTURAL STEEL MEMBERS, APPROVAL SHALL BE OBTAINED FROM THE ENGINEER. SUCH OPENINGS SHALL BE MADE IN THE SHOP AND CLEARLY INDICATED ON THE SHOP DRAWINGS.
- THE SUBCONTRACTOR SHALL PROVIDE ALL TEMPORARY GUYING AND BRACING REQUIRED TO ERECT AND HOLD THE STEEL FRAME IN PROPER ALIGNMENT UNTIL ALL FLOOR AND ROOF DECK, DIAGONAL BRACING, FLOOR SLABS, WELDED CONNECTIONS, ETC. ARE IN PLACE AND THE CONCRETE HAS DEVELOPED A STRENGTH OF MINIMUM 3000 PSI MIN.
- ELEVATIONS: TOP OF STEEL (TOS) REFERS TO TOP OF SURFACE OF MEMBER OR FLANGE, UNO.
- MEMBERS AND CONNECTIONS INDICATED AS SLRS ARE PART OF THE SEISMIC FORCE RESISTING SYSTEM (SLRS). ALL BOLTS FOR THE SLRS SHALL BE PRETENSIONED A325-N WITH LOAD INDICATING WASHERS OR TWIST-OFF TYPE BOLTS. SEE SPECIFICATIONS FOR SPECIAL REQUIREMENTS. ALL SURFACES SHALL BE CLASS A FAYING SURFACES PER AISC 360-05 SPECIFICATION FOR STRUCTURAL JOINTS, SECTION 3.

FOUNDATION DESIGN

- THE FOUNDATION DESIGN IS BASED UPON THE RECOMMENDATIONS PRESENTED IN THE GEOTECHNICAL INVESTIGATION REPORT PREPARED BY: AMEC EARTH & ENVIRONMENTAL, INC. 8519 JEFFERSON, NE ALBUQUERQUE, NM 87113 TELEPHONE NO. (505)821-1801 PROJECT NO. 11-517-00054
- FOOTINGS ARE DESIGNED TO BEAR UPON NATIVE UNDISTURBED SOIL OR ENGINEERED FILL WITH AN ALLOWABLE BEARING CAPACITY OF 4,000 PSF. BUILDING SOIL SUBGRADE MODULUS - 200 PCI WITHOUT GRANULAR SUBBASE OR 300 PCI WITH 6" COMPACTED GRANULAR SUBBASE.
- ALL STRUCTURES TO BE PLACED ON ENGINEERED FILL, DOWN TO COMPITENT TUFF FORMATION.

DESIGN CODE

- 2006 INTERNATIONAL BUILDING CODE (IBC), ASCE7-05 AND ALL ASSOCIATED CODES.
- ANSI/AISC341-05 SEISMIC PROVISIONS FOR STRUCTURAL STEEL BUILDINGS.

CONCRETE

- ALL REINFORCEMENT SHALL BE DETAILED, FABRICATED, AND PLACED IN ACCORDANCE WITH ACI 315.
- SEE ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS FOR LOCATION OF OPENINGS AND SLEEVES. SPREAD REINFORCEMENT AT OPENINGS AND SLEEVES UNLESS NOTED OTHERWISE. DO NOT CUT REINFORCEMENT UNLESS INDICATED BY SECTION OR DETAIL. SUBCONTRACTOR SHALL VERIFY THE SIZE AND LOCATION OF ALL OPENINGS, SLEEVES, INSERTS, ETC. WITH SHOP DRAWINGS FOR THE EQUIPMENT TO BE PROVIDED.
- CONTINUOUS REINFORCEMENT IN WALLS AND FOOTINGS MAY BE SPLICED AS REQUIRED, PROVIDED THAT BARS ARE OF THE LONGEST PRACTICAL LENGTH AND ALL SPLICES ARE SHOWN ON THE REINFORCING BAR SHOP DRAWINGS. SPLICES ARE TO BE STAGGERED AND OF REQUIRED LENGTH.
- THE SUBCONTRACTOR SHALL BE RESPONSIBLE FOR ADEQUATE DESIGN AND CONSTRUCTION OF ALL FORMS, SHORING, AND TEMPORARY BRACING.
- ABSOLUTELY NO WELDING OF REINFORCING BARS OR TORCHING TO BEND REINFORCING BARS SHALL BE ALLOWED WITHOUT SPECIFIC APPROVAL FROM THE STRUCTURAL ENGINEER.
- SUBCONTRACTOR SHALL SUBMIT A CONCRETE PLACEMENT PLAN IDENTIFYING JOINT TYPES, JOINT LOCATIONS AND CONCRETE PLACEMENT SEQUENCE.

DEFORMED BAR & HEADED STUD ANCHORS

- HEADED STUDS AND DEFORMED BAR ANCHORS SHALL BE ELECTRIC-ARC STUD WELDED TO THE SUPPORT PER MANUFACTURER'S RECOMMENDATIONS. FILLET WELDING OF DEFORMED BARS AND HEADED STUDS IS NOT ALLOWED.
- ANCHORS SHALL COMPLY WITH ASTM A-108 AND A-496 WITH A MINIMUM YIELD STRENGTH OF 70 KSI. DEFORMED BARS TO COMPLY WITH ASTM A-706 WITH MINIMUM YIELD STRENGTH OF 60 KSI.

POST INSTALLED ANCHORS

- ANCHORS NOT SPECIFIED BY THE ENGINEER SHALL BE DESIGNED BY SUBCONTRACTOR IN ACCORDANCE WITH THE APPLICABLE PROJECT CODE REQUIREMENTS. COORDINATE SIZE, LOCATION AND EMBEDMENT PRIOR TO INSTALLATION.
- LOCATE AND MARK LOCATION OF REINFORCEMENT PRIOR TO DRILLING. DO NOT DRILL INTO EXISTING REINFORCEMENT.
- ALL ANCHORS SHALL HAVE THE ICC REPORT SHOWING ANCHOR LOAD CAPACITY. SUBMIT CALCULATIONS SHOWING LOAD CAPACITY IN ACCORDANCE WITH ACI APPENDIX D AND THE ICC REPORT AND INSTALL PER THE ICC EVALUATION REPORT.

COLD FORMED STEEL FRAMING

- LIGHT GAUGE FRAMING MEMBERS SHALL BE DESIGNED BY A LICENSED PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF NEW MEXICO, SEE SPECIFICATIONS.
- LIGHT GAUGE MEMBERS LESS THAN 54 MILS SHALL BE 33 KSI STEEL AND LIGHT GAUGE MEMBERS EQUAL TO OR GREATER THAN 54 MILS SHALL BE 55 KSI STEEL, UNO.
- UNLESS NOTED OTHERWISE, MEMBER CONNECTIONS SHALL BE WITH (2) #12 TEK SCREWS, MINIMUM.

MATERIALS OF CONSTRUCTION

- NORMAL WEIGHT CONCRETE** 28 DAY COMPRESSIVE STRENGTH  
a. ALL CONCRETE UNO Fc = 4,000 PSI
- STRUCTURAL STEEL**  
STRUCTURAL W SHAPES AND WT SHAPES - ASTM A992 FY = 50 KSI  
PLATES AND OTHER SHAPES - ASTM A36 (UNO) FY = 36 KSI  
HOLLOW STRUCTURAL SECTION (HSS) - ASTM A500 GRADE B FY = 46 KSI  
PIPES - ASTM A53 GRADE B FY = 35 KSI  
HIGH STRENGTH BOLTS - A325-N  
ANCHOR BOLTS - ASTM F1554 GRADE 36 UNO (GALVANIZED)  
THREADED RODS - ASTM A36
- REINFORCING STEEL**  
REINFORCING STEEL - ASTM A615 GR60 FY = 60 KSI  
REINFORCING STEEL TO BE WELDED - ASTM A706 GR60 FY = 60 KSI

QUALITY ASSURANCE

- THE OWNER SHALL EMPLOY QUALIFIED SPECIAL INSPECTORS TO PERFORM INSPECTIONS IN ACCORDANCE WITH SECTION 109 AND CHAPTER 17 OF THE 2006 IBC.
- SECTION 01-4000 OF THE PROJECT SPECIFICATIONS.

DESIGN LOADS

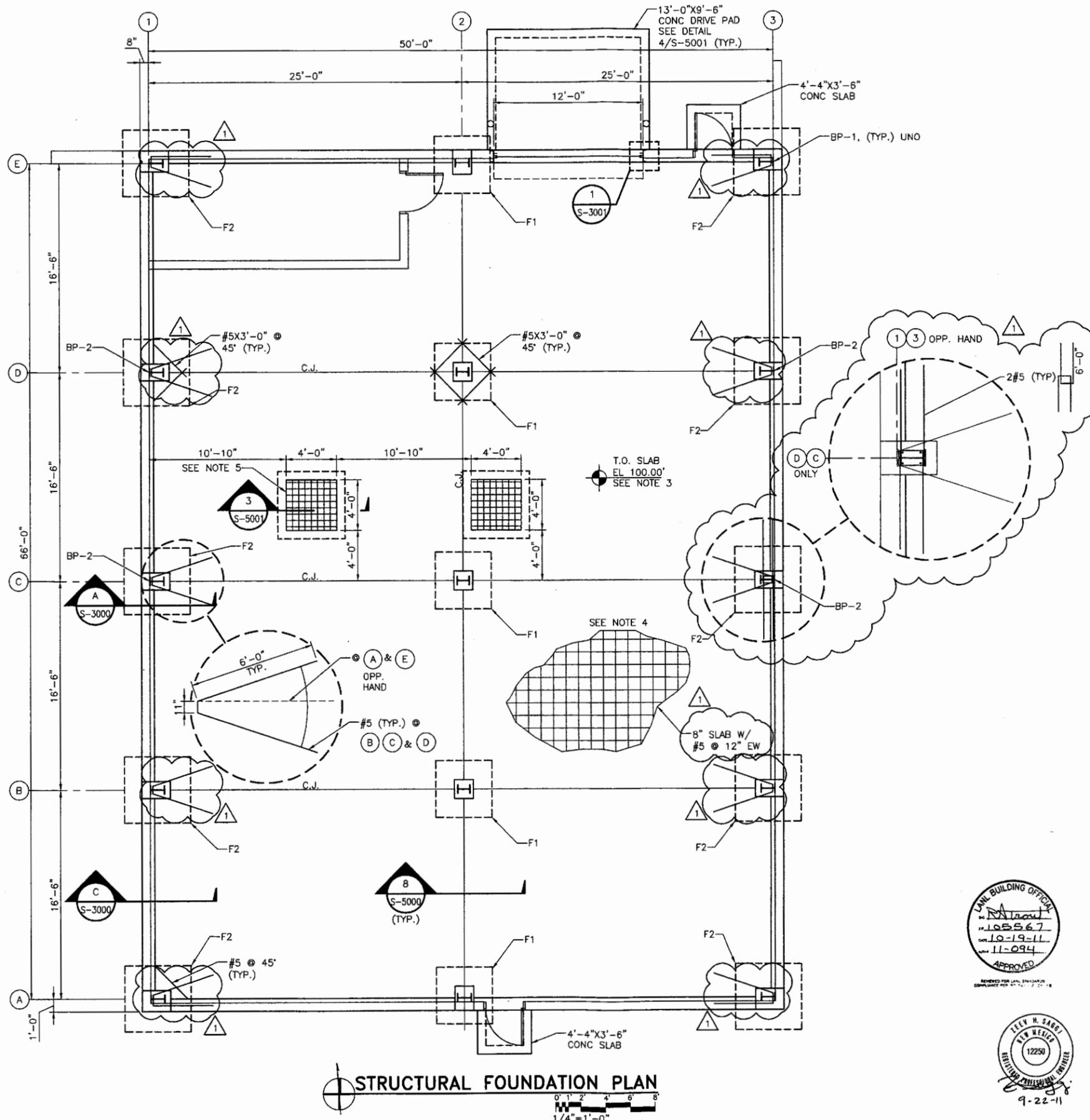
- DESIGN DEAD LOAD:**  
ACTUAL WEIGHT OF MATERIALS USED ROOF - 10 PSF  
A. COLLATERAL ROOF - 30 PSF (NONE REDUCIBLE) OR 2,000 LB CONC. LOAD  
STAIRS & EXIT WAYS - 100 PSF + 300 LBS CONC. LOAD  
SLAB ON GRADE - 250 PSF + 3000 LB CONC. LOAD  
TRUCK LOAD - AASHTO - HS 20
- DESIGN LIVE LOADS:**  
ROOF - 30 PSF (NONE REDUCIBLE) OR 2,000 LB CONC. LOAD  
STAIRS & EXIT WAYS - 100 PSF + 300 LBS CONC. LOAD  
SLAB ON GRADE - 250 PSF + 3000 LB CONC. LOAD  
TRUCK LOAD - AASHTO - HS 20
- WIND LOAD:**  
BASIC WIND VELOCITY = 90 MPH (3 SECOND GUST)  
IMPORTANCE FACTOR = 1.15  
EXPOSURE FACTOR = C  
OCCUPANCY CATEGORY = II  
TOPOGRAPHIC FACTOR, Kzt = 1.60
- SNOW LOAD:**  
GROUND SNOW LOAD, Pg = 30 PSF  
EXPOSURE FACTOR = C  
IMPORTANCE FACTOR, I<sub>s</sub> = 1.2
- SEISMIC LOAD:**  
S<sub>DS</sub> = 0.75g  
S<sub>DI</sub> = 0.64g  
SITE CLASSIFICATION = D  
OCCUPANCY CATEGORY = II  
SEISMIC DESIGN CATEGORY = D  
IMPORTANCE FACTOR, I<sub>e</sub> = 1.0  
ANALYSIS PROCEDURE SYSTEM = EQUIVALENT LATERAL FORCE INTERMEDIATE MOMENT FRAMES (EAST/WEST DIRECTION) ORDINARY CONCENTRICALLY BRACED FRAME (NORTH/SOUTH DIRECTION)



1	10/4/11	-	LAHL REVIEW COORDINATION UPDATE	BF	CZ	ZS	-	-
NO	DATE	CLASS REV	DESCRIPTION	DWN	VER	CHKD	SUB	APP
				<b>SERF EXPANSION</b> STRUCTURAL GENERAL NOTES				
BLDG. 3093				TA-03		DATE 10-14-11		
SUBMITTED <i>Coy &amp; Ryan</i>				APPROVED FOR RELEASE <i>[Signature]</i>				
				SHEET 14 OF 67				
CLASSIFICATION UNCLASSIFIED				DATE 10/17/11				
PROJECT ID 102310				DRAWING NO C-55752				
				REV 1				

GENERAL NOTES:

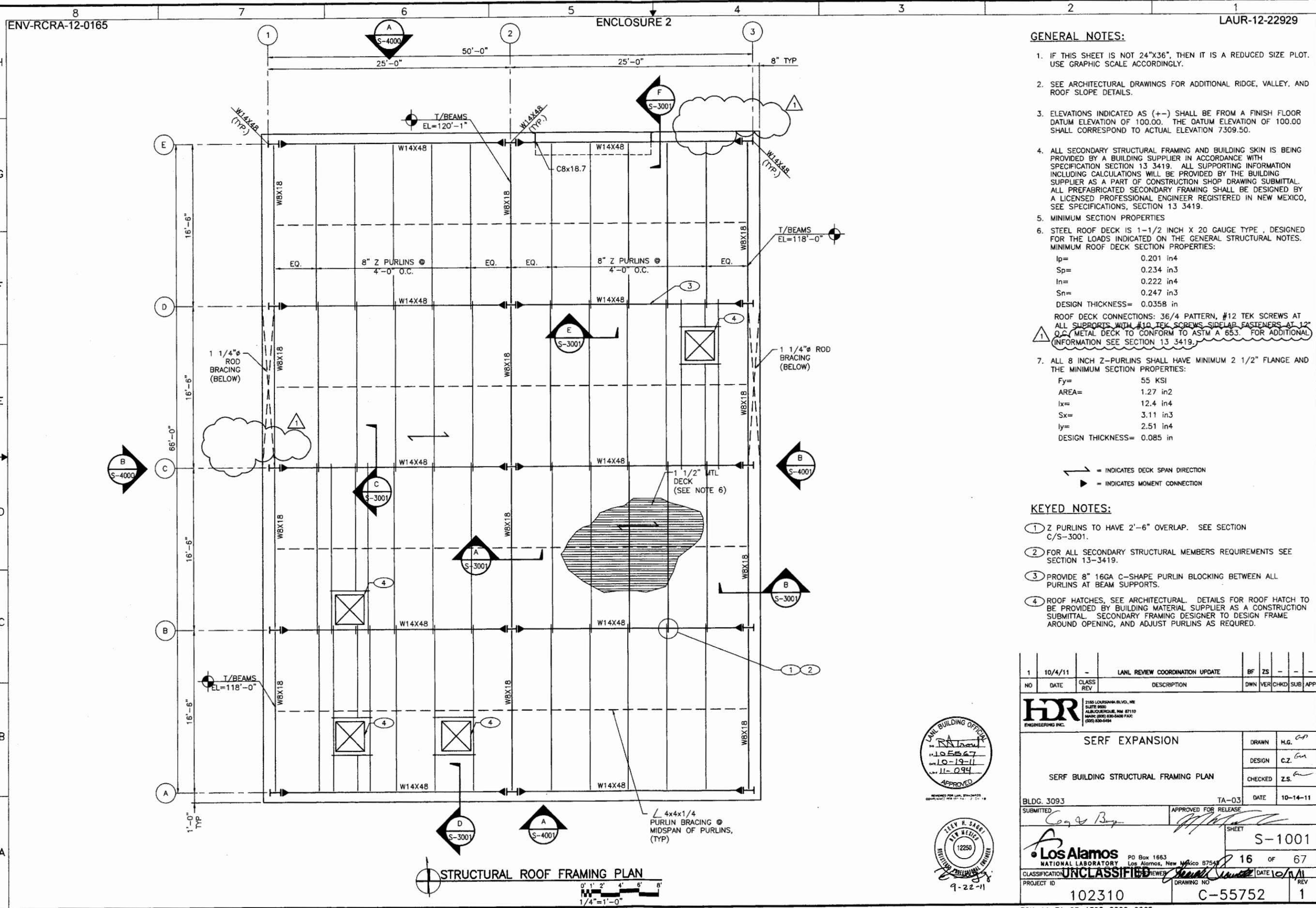
1. IF THIS SHEET IS NOT 24"x36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.
2. SLAB AND FOUNDATION TO BE PLACED ON 3' OF STRUCTURAL FILL. SEE DETAIL 1/S-5001.
3. TOP OF SLAB ELEVATION 100.00. FOR ACTUAL ELEVATION SEE SHEET C-1002.
4. THE SLAB IS A STRUCTURAL DIAPHRAGM AND PART OF THE LATERAL-FORCE-RESISTING SYSTEM.
5. FOR ADDITIONAL REINFORCEMENT AROUND SUMP PIT SEE DETAIL 4/S-5000.
6. PLACE SLAB OVER 4" COMPACTED GRANULAR SUBBASE
7. ALL HAIRPIN BARS TO BE WRAPPED AROUND ANCHORS.



**STRUCTURAL FOUNDATION PLAN**  
 1/4" = 1'-0"



NO	DATE	CLASS	DESCRIPTION	DWN	VER	CHKD	SUB	APP
1	10/4/11	-	LANL REVIEW COORDINATION UPDATE	BF	ZS	-	-	-
			2186 LOUISIANA BLVD., NE SUITE 6600 ALBUQUERQUE, NM 87110 (505) 833-4400 FAX (505) 833-4454					
SERF EXPANSION				DRAWN	H.G.	CWB		
SERF BUILDING STRUCTURAL FOUNDATION PLAN				DESIGN	C.Z.	CWB		
BLDG. 3093				CHECKED	Z.S.	CWB		
SUBMITTED				DATE	10-14-11			
APPROVED FOR RELEASE				TA-03 SHEET S-1000				
				15 OF 67				
CLASSIFICATION UNCLASSIFIED				DATE 10/11				
PROJECT ID 102310				DRAWING NO. C-55752				REV 1



LAUR-12-22929

- GENERAL NOTES:**
- IF THIS SHEET IS NOT 24"x36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.
  - SEE ARCHITECTURAL DRAWINGS FOR ADDITIONAL RIDGE, VALLEY, AND ROOF SLOPE DETAILS.
  - ELEVATIONS INDICATED AS (+/-) SHALL BE FROM A FINISH FLOOR DATUM ELEVATION OF 100.00. THE DATUM ELEVATION OF 100.00 SHALL CORRESPOND TO ACTUAL ELEVATION 7309.50.
  - ALL SECONDARY STRUCTURAL FRAMING AND BUILDING SKIN IS BEING PROVIDED BY A BUILDING SUPPLIER IN ACCORDANCE WITH SPECIFICATION SECTION 13 3419. ALL SUPPORTING INFORMATION INCLUDING CALCULATIONS WILL BE PROVIDED BY THE BUILDING SUPPLIER AS A PART OF CONSTRUCTION SHOP DRAWING SUBMITTAL. ALL PREFABRICATED SECONDARY FRAMING SHALL BE DESIGNED BY A LICENSED PROFESSIONAL ENGINEER REGISTERED IN NEW MEXICO. SEE SPECIFICATIONS, SECTION 13 3419.
  - MINIMUM SECTION PROPERTIES
  - STEEL ROOF DECK IS 1-1/2 INCH X 20 GAUGE TYPE, DESIGNED FOR THE LOADS INDICATED ON THE GENERAL STRUCTURAL NOTES. MINIMUM ROOF DECK SECTION PROPERTIES:  
 $I_p = 0.201 \text{ in}^4$   
 $S_p = 0.234 \text{ in}^3$   
 $I_n = 0.222 \text{ in}^4$   
 $S_n = 0.247 \text{ in}^3$   
 DESIGN THICKNESS = 0.0358 in  
 ROOF DECK CONNECTIONS: 3/4" PATTERN, #12 TEK SCREWS AT ALL SUPPORTS WITH #10 TEK SCREWS SIDELAP FASTENERS AT 12" O.C. METAL DECK TO CONFORM TO ASTM A 653. FOR ADDITIONAL INFORMATION SEE SECTION 13 3419.
  - ALL 8 INCH Z-PURLINS SHALL HAVE MINIMUM 2 1/2" FLANGE AND THE MINIMUM SECTION PROPERTIES:  
 $F_y = 55 \text{ KSI}$   
 $AREA = 1.27 \text{ in}^2$   
 $I_x = 12.4 \text{ in}^4$   
 $S_x = 3.11 \text{ in}^3$   
 $I_y = 2.51 \text{ in}^4$   
 $DESIGN \ THICKNESS = 0.085 \text{ in}$

← = INDICATES DECK SPAN DIRECTION  
 ▶ = INDICATES MOMENT CONNECTION

- KEYED NOTES:**
- Z PURLINS TO HAVE 2'-6" OVERLAP. SEE SECTION C/S-3001.
  - FOR ALL SECONDARY STRUCTURAL MEMBERS REQUIREMENTS SEE SECTION 13-3419.
  - PROVIDE 8" 16GA C-SHAPE PURLIN BLOCKING BETWEEN ALL PURLINS AT BEAM SUPPORTS.
  - ROOF HATCHES, SEE ARCHITECTURAL. DETAILS FOR HATCH TO BE PROVIDED BY BUILDING MATERIAL SUPPLIER AS A CONSTRUCTION SUBMITTAL. SECONDARY FRAMING DESIGNER TO DESIGN FRAME AROUND OPENING, AND ADJUST PURLINS AS REQUIRED.

NO	DATE	CLASS REV	DESCRIPTION	DWN	VER	CHKD	SUB	APP
1	10/4/11	-	LANL REVIEW COORDINATION UPDATE	BF	ZS	-	-	-

**HDR** ENGINEERING INC.  
 2185 LOUISIANA BLVD., NE  
 SUITE 800  
 ALBUQUERQUE, NM 87110  
 PHONE: (505) 830-5400 FAX: (505) 830-5404

SERF EXPANSION		DRAWN	H.G.	CP
SERF BUILDING STRUCTURAL FRAMING PLAN		DESIGN	C.Z.	GN
		CHECKED	Z.S.	GN
BLDG. 3093		DATE	10-14-11	

APPROVED FOR RELEASE  
 Coq & Byg

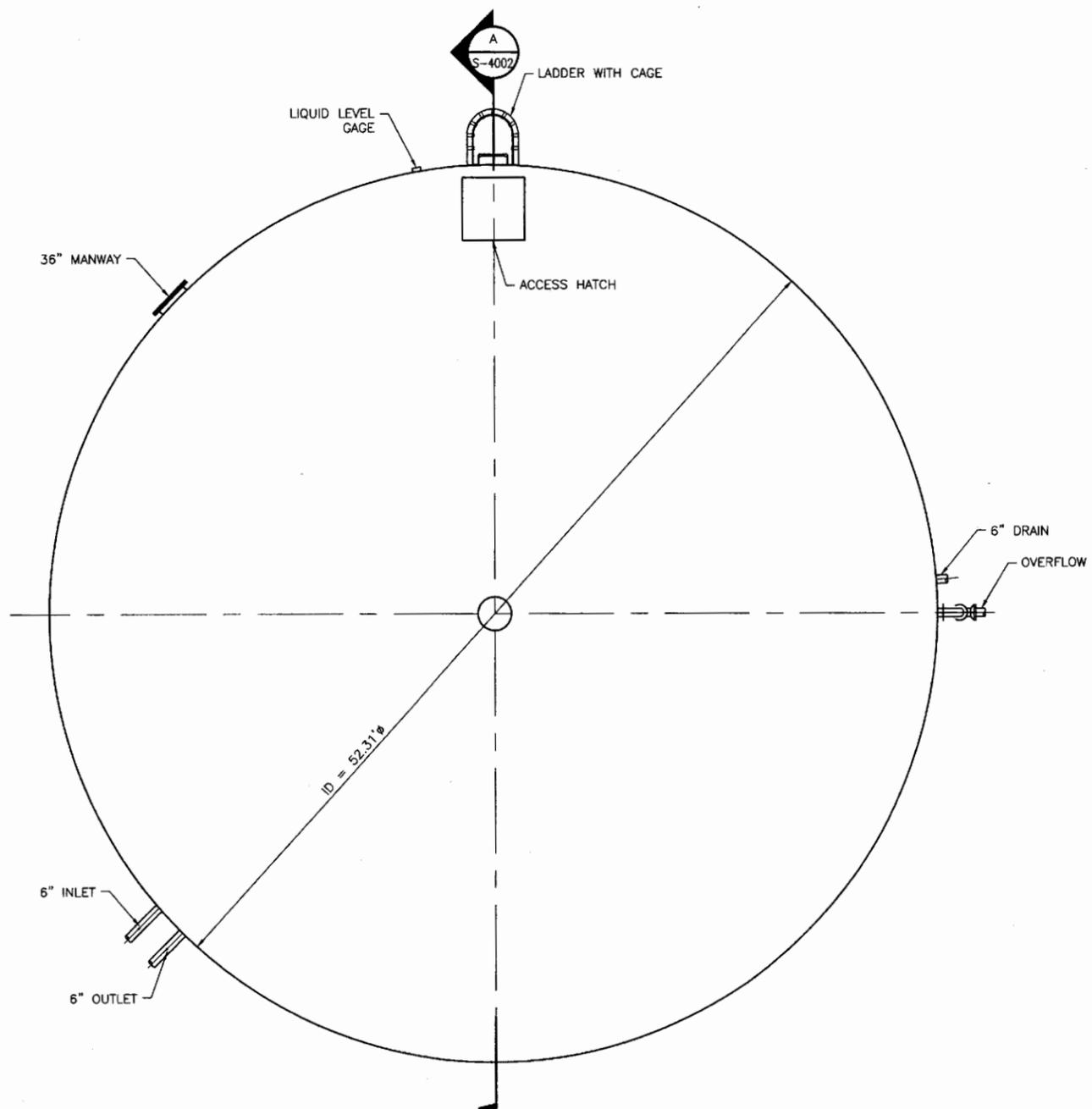
**Los Alamos NATIONAL LABORATORY**  
 UNCLASSIFIED  
 PROJECT ID: 102310  
 DRAWING NO: C-55752  
 SHEET: S-1001  
 DATE: 10/11  
 REV: 1



C:\working\ahh\02310-S-1001-R1.dwg, Oct 13, 2011 4:06pm

H  
G  
F  
E  
D  
C  
B  
A

- GENERAL NOTES:**
1. IF THIS SHEET IS NOT 24"x36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.
  2. TANK DIMENSIONS SHOWN ARE PRELIMINARY AND MAY BE MODIFIED BASED ON FINAL GEOTECHNICAL RESULTS. FINAL TANK DIMENSIONS WILL BE SHOWN IN CONSTRUCTION SUBMITTAL PROVIDED BY TANK SUPPLIER.
  3. TANK DESIGN WILL BE COMPLETED BY TANK SUPPLIER. SEE LANL SPECIFICATION 43 4116. SUPPORTING DOCUMENTATION REGARDING THE TANK WILL BE PROVIDED AS A CONSTRUCTION SUBMITTAL BY THE TANK SUPPLIER.

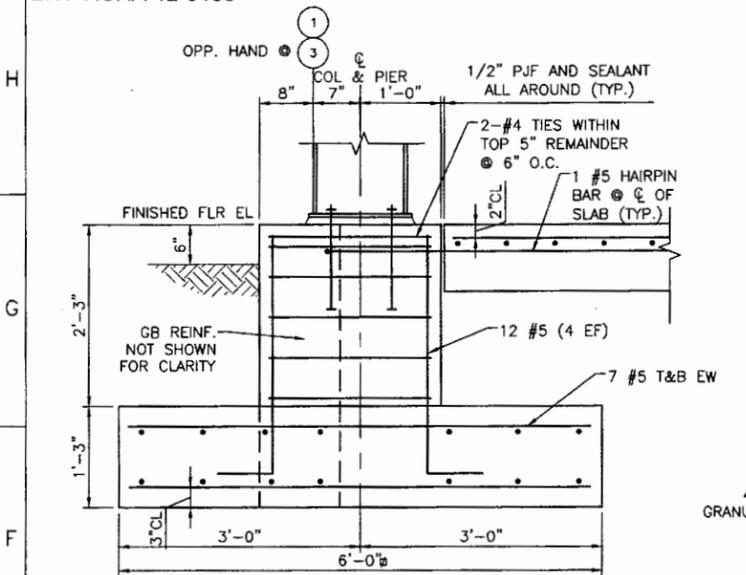


**STORAGE TANK PLAN**  
 0' 1' 2' 4' 6' 8'  
 1/4" = 1'-0"

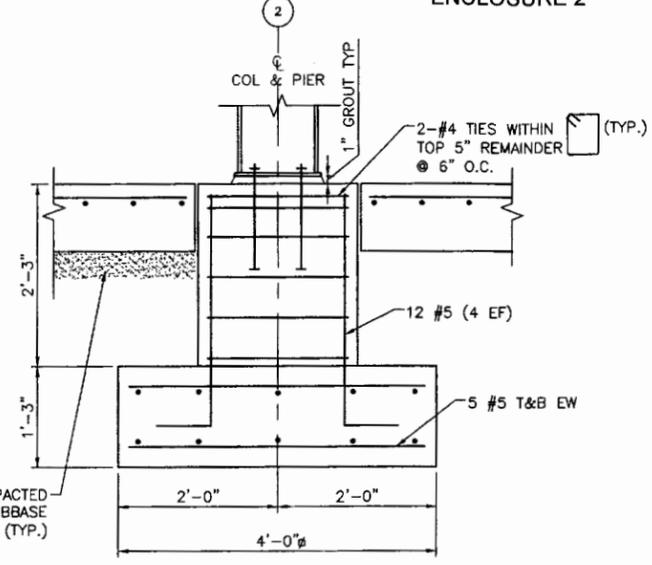


NO	DATE	CLASS REV	DESCRIPTION	DWN	VER	CHKD	SUB	APP	
<p><b>HDR</b> ENGINEERING INC.                  2100 LOUISIANA BLVD., NE                  SUITE 2000                  ALBUQUERQUE, NM 87110                  PHONE (505) 830-9000 FAX (505) 830-5454</p>									
SERF EXPANSION							DRAWN	H.G. ✓	
400,000 GALLON STORAGE TANK PLAN							DESIGN	C.Z. ✓	
							CHECKED	Z.S. ✓	
BLDG. 3085							DATE	10-14-11	
SUBMITTED							APPROVED FOR RELEASE	DATE	10-14-11
SHEET							S-1002		
<p><b>Los Alamos</b> NATIONAL LABORATORY                  PO Box 1663                  Los Alamos, New Mexico 87545</p>							DATE	10/17/11	
PROJECT ID							DRAWING NO.	REV	
102310							C-55752	0	

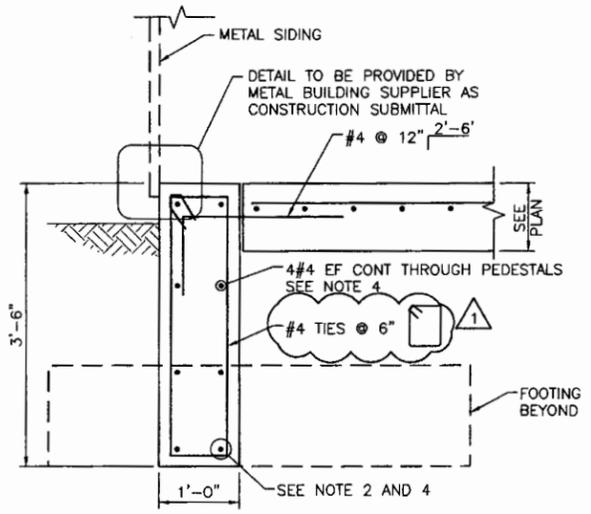
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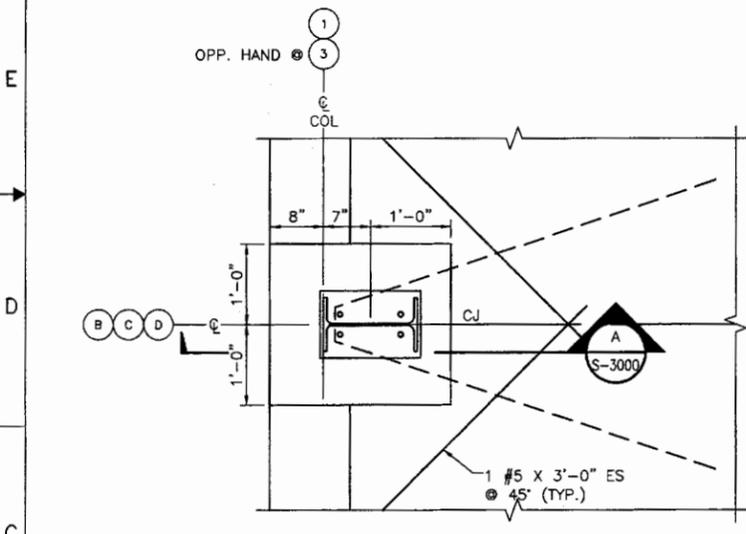
A SECTION, FOOTING F2



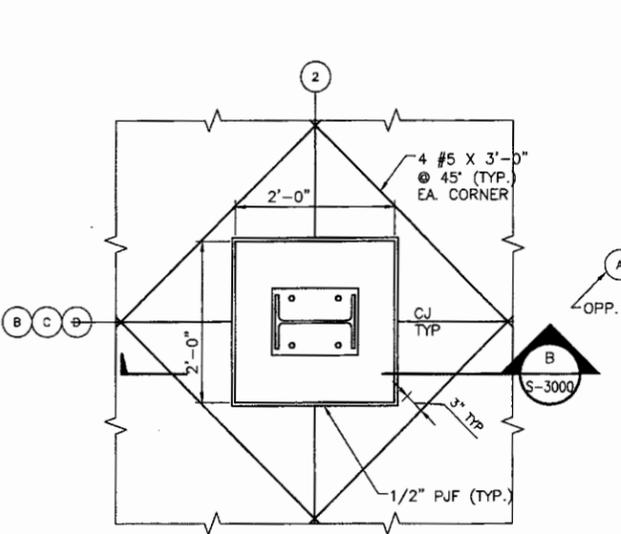
B SECTION, FOOTING F1



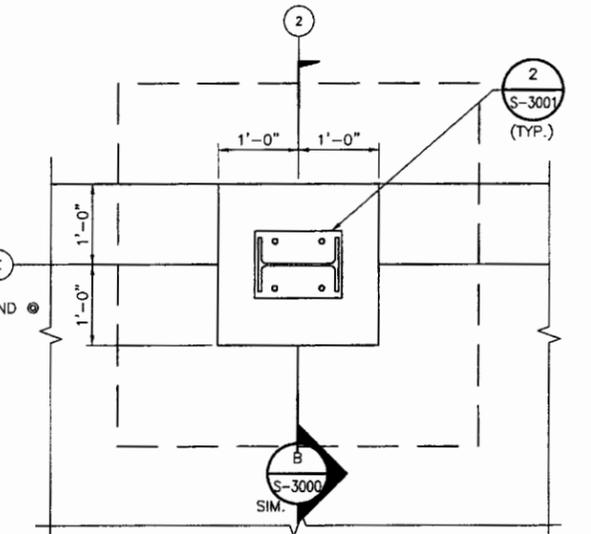
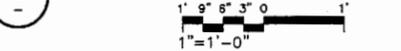
C SECTION, TYP GRADE BEAM



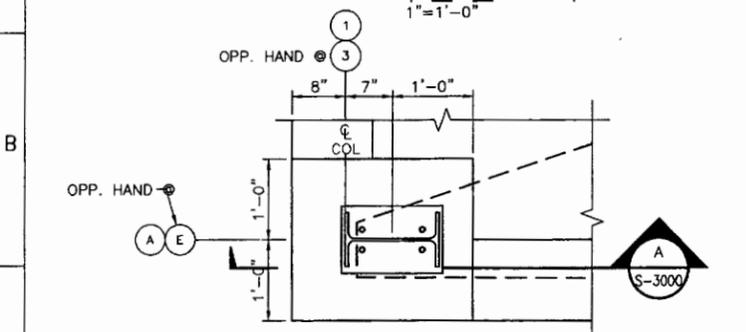
1 DETAIL



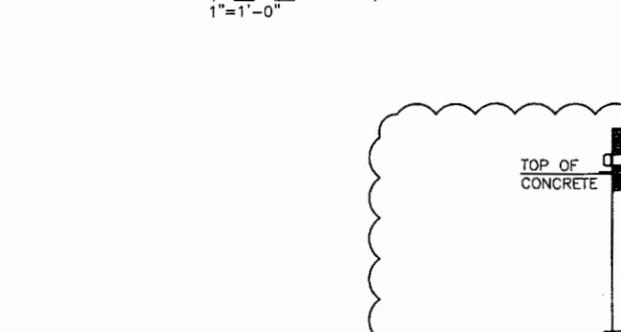
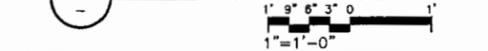
2 DETAIL



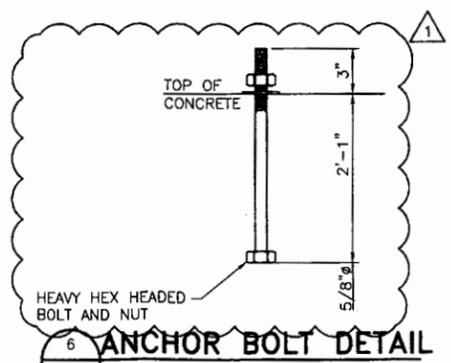
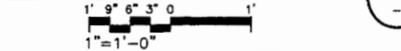
3 DETAIL



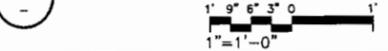
4 DETAIL



5 DETAIL (NOT USED)



6 ANCHOR BOLT DETAIL



- GENERAL NOTES:**
- IF THIS SHEET IS NOT 24"x36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.
  - EMBED HORIZONTAL REINFORCEMENT IN GRADE BEAM AT COLUMN'S FOOTING LEVEL 1'-3" INTO THE FOOTING.
  - FOR BASE PLATE AND ANCHOR LOCATIONS SEE S-3001.
  - ALL HORIZONTAL BARS IN GRADE BEAMS ABOVE FOOTING ARE CONTINUED THROUGH THE PEDESTALS. HORIZONTAL BARS TERMINATING AT CORNER PEDESTALS SHALL HAVE 90° HOOK SIMILAR TO DETAIL 5/C-5000. USE THE LONGEST PRACTICAL BARS. SPLICES SHALL BE IN MID POINT BETWEEN PEDESTALS AND STAGGERED.



NO	DATE	CLASS REV	DESCRIPTION	OWN	VER	CHKD	SUB	APP
1	10/4/11	-	LAIL REVIEW COORDINATION UPDATE	BF	ZS	-	-	-

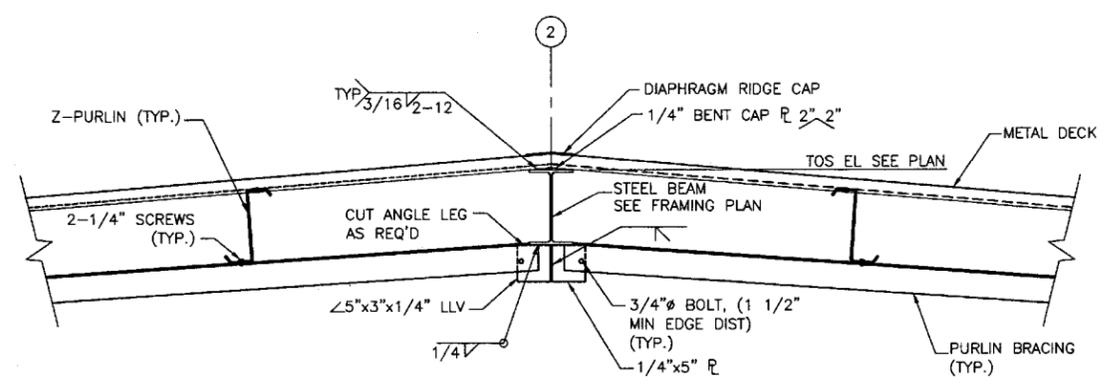
  

<b>HDR</b> ENGINEERING INC.		2195 LOUISIANA BLVD., NE SUITE 9000 ALBUQUERQUE, NM 87110 PHONE (505) 830-5400 FAX (505) 830-5454	
SERF EXPANSION		DRAWN	H.G. GA
SERF BUILDING STRUCTURAL FOUNDATION SECTIONS AND DETAILS		DESIGN	C.Z. GA
BLDG. 3093		CHECKED	Z.S. GA
SUBMITTED		DATE	10-14-11
APPROVED FOR RELEASE		SHEET	S-3000
Los Alamos NATIONAL LABORATORY		18	OF 67
PROJECT ID 102310		DATE	10/17/11
DRAWING NO C-55752		REV	1

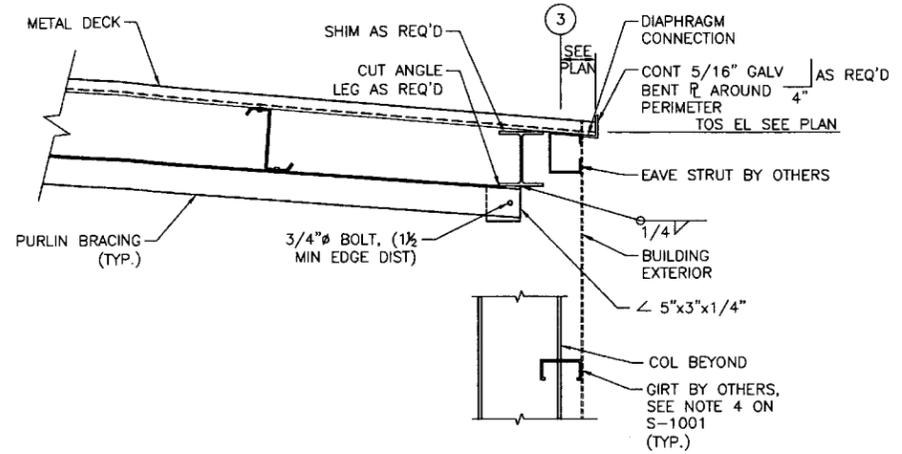
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GENERAL NOTES:

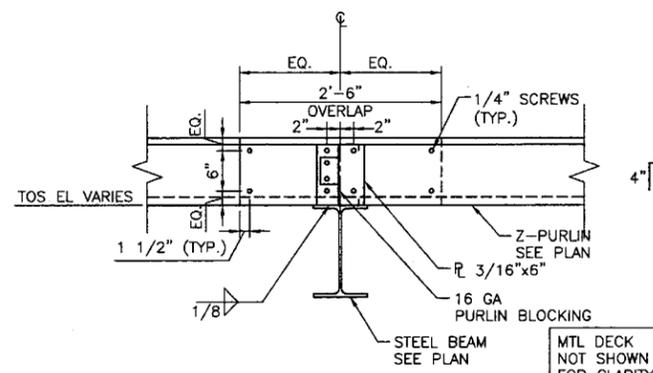
1. IF THIS SHEET IS NOT 24"x36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.
2. ALL SECONDARY STRUCTURAL FRAMING AND BUILDING SKIN IS BEING PROVIDED BY A BUILDING SUPPLIER IN ACCORDANCE WITH SPECIFICATION SECTION 13 3419. ALL SUPPORTING INFORMATION INCLUDING CALCULATIONS WILL BE PROVIDED BY THE BUILDING SUPPLIER AS A PART OF CONSTRUCTION SHOP DRAWING SUBMITTAL. ALL PREFABRICATED SECONDARY FRAMING SHALL BE DESIGNED BY A LICENSED PROFESSIONAL ENGINEER REGISTERED IN NEW MEXICO, SEE SPECIFICATIONS, SECTION 13 3419.



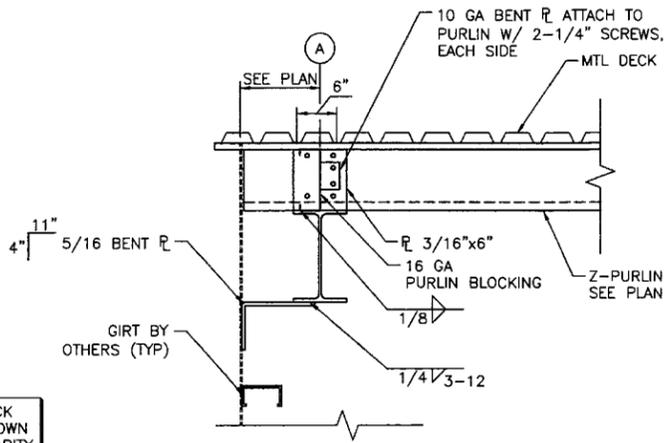
**A SECTION**  
S-1001  
1" = 1'-0"



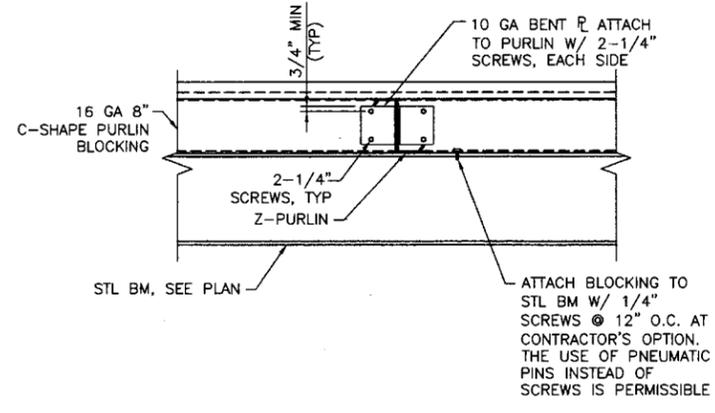
**B SECTION**  
S-1001  
1" = 1'-0"



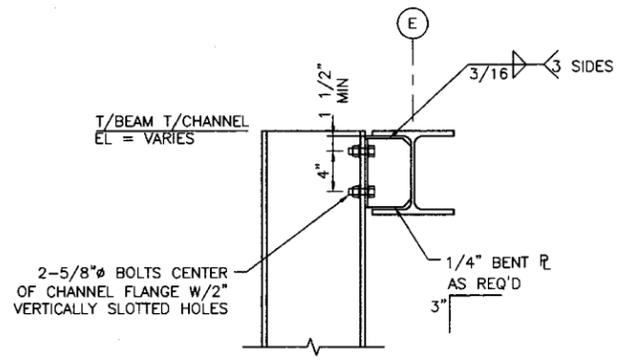
**C SECTION**  
S-1001  
1" = 1'-0"



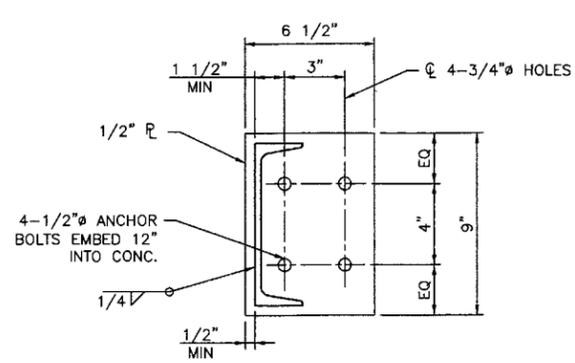
**D SECTION**  
S-1001  
1" = 1'-0"



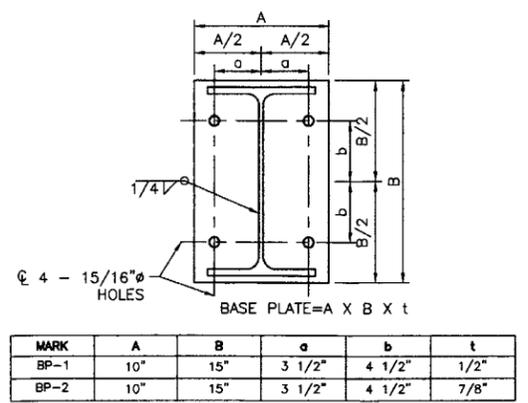
**E SECTION**  
S-1001  
1" = 1'-0"



**F SECTION**  
S-1001  
1 1/2" = 1'-0"



**1 DETAIL**  
S-4000  
3" = 1'-0"



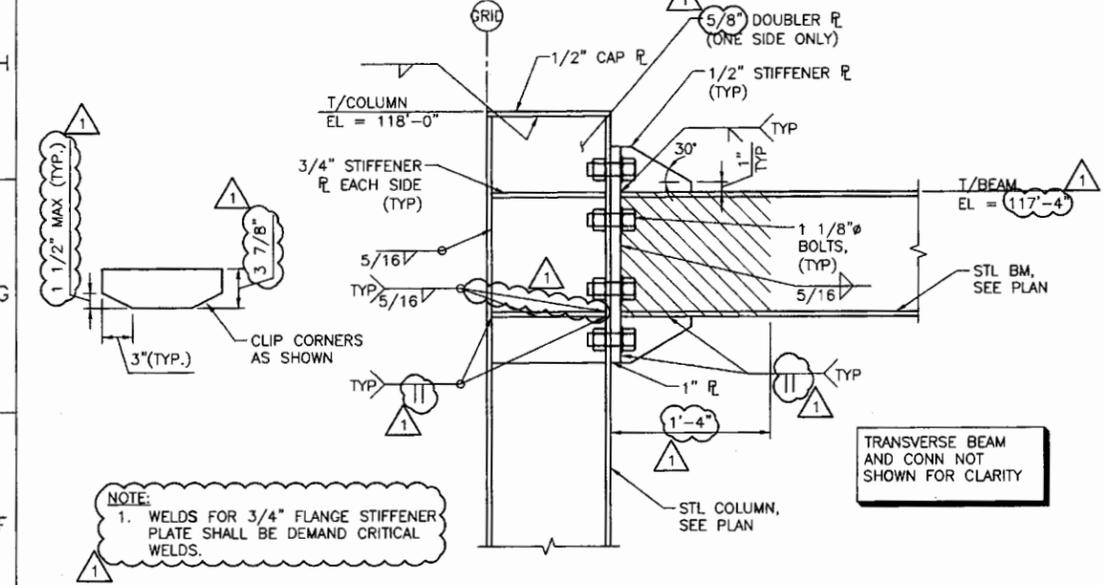
**2 BASE PLATE SCHEDULE DETAIL**  
SCALE: NONE

MARK	A	B	a	b	t
BP-1	10"	15"	3 1/2"	4 1/2"	1/2"
BP-2	10"	15"	3 1/2"	4 1/2"	7/8"



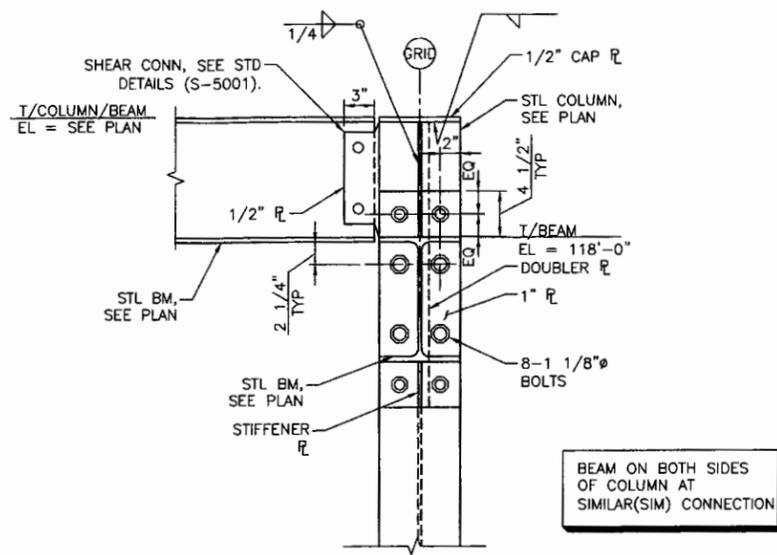
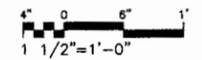
NO	DATE	CLASS REV	DESCRIPTION	DWN	VER	CHKD	SUB	APP
<b>HDR</b> ENGINEERING INC.								
<b>SERF EXPANSION</b>								
<b>SERF BUILDING STRUCTURAL FRAMING SECTIONS AND DETAILS</b>								
BLDG. 3093			TA-03			DATE 10-14-11		
SUBMITTED			APPROVED FOR RELEASE			SHEET S-3001		
Los Alamos NATIONAL LABORATORY			PO Box 1663 Los Alamos, New Mexico 87545			19 OF 67		
CLASSIFICATION UNCLASSIFIED			REVIEWER			DATE 10/17/11		
PROJECT ID 102310			DRAWING NO C-55752			REV 0		

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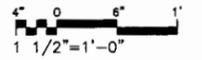
A TYPICAL MOMENT CONNECTION AT EXTERIOR (SLRS)

S-4000



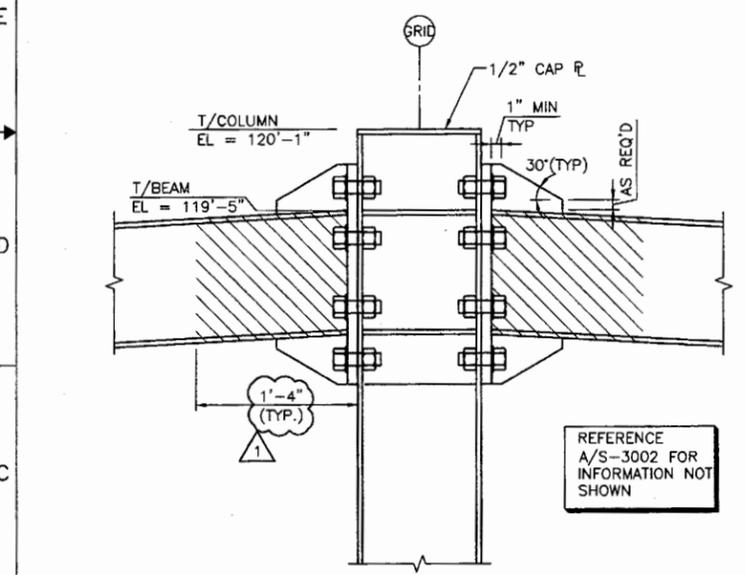
B SECTION (SLRS)

S-4000



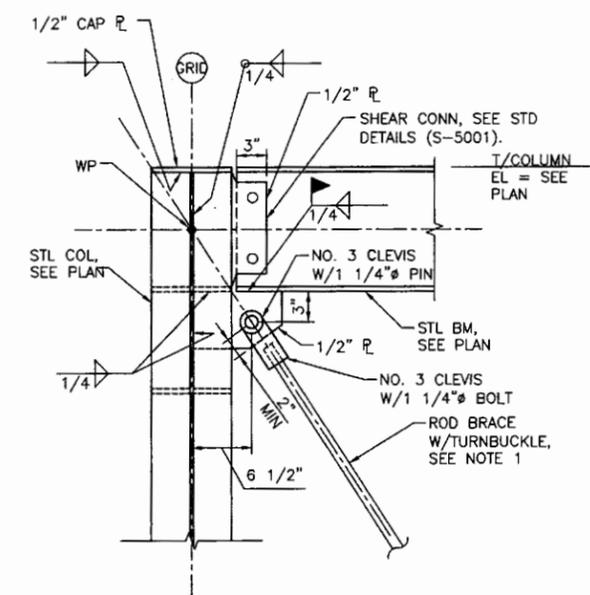
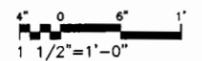
GENERAL NOTES:

1. IF THIS SHEET IS NOT 24"x36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.



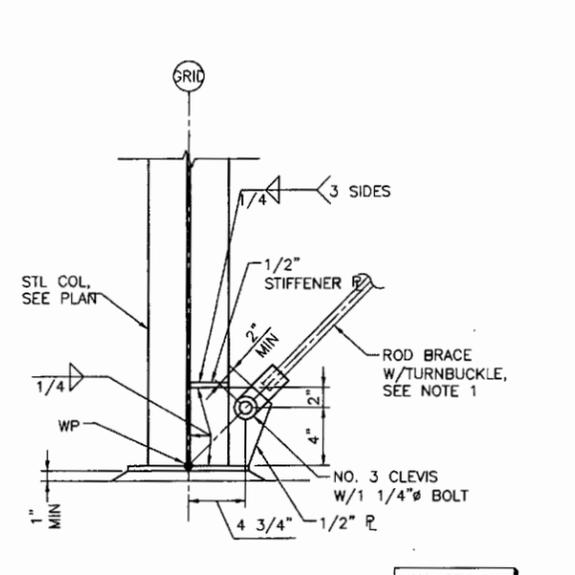
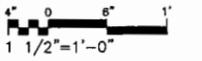
C TYPICAL MOMENT CONNECTION AT INTERIOR (SLRS)

S-4000



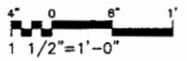
D TYPICAL BRACE CONN TOP (SLRS)

S-4000



E TYPICAL BRACE CONN AT BASE (SLRS)

S-4000



ANCHORS NOT SHOWN FOR CLARITY

NO	DATE	CLASS	REV	DESCRIPTION	DWN	VER	CHKD	SUB	APP
1	10/4/11	-	-	LANL REVIEW COORDINATION UPDATE	BF	CZ	ZS	-	-

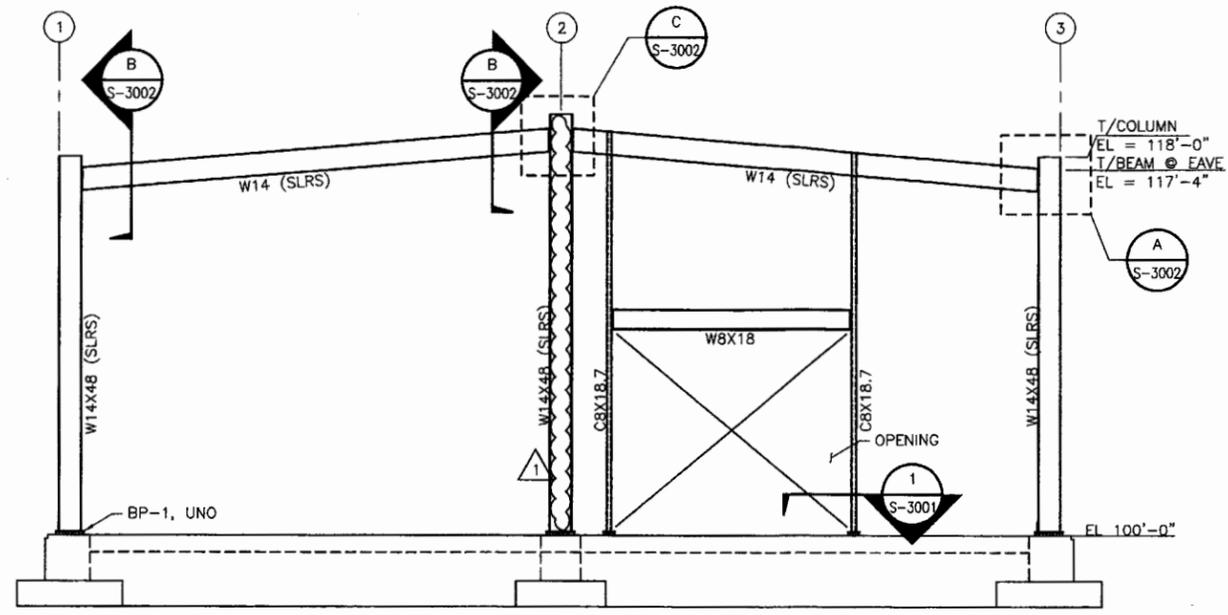
**HDR** ENGINEERING INC.  
 2150 LOUISIANA BLVD., NE  
 SUITE 6000  
 ALBUQUERQUE, NM 87110  
 MAIN (505) 833-6000 FAX (505) 833-6464

SERF EXPANSION		DRAWN	H.G. G
SERF BUILDING STRUCTURAL FRAMING SECTIONS AND DETAILS		DESIGN	C.Z.
		CHECKED	Z.S.
		DATE	10-14-11

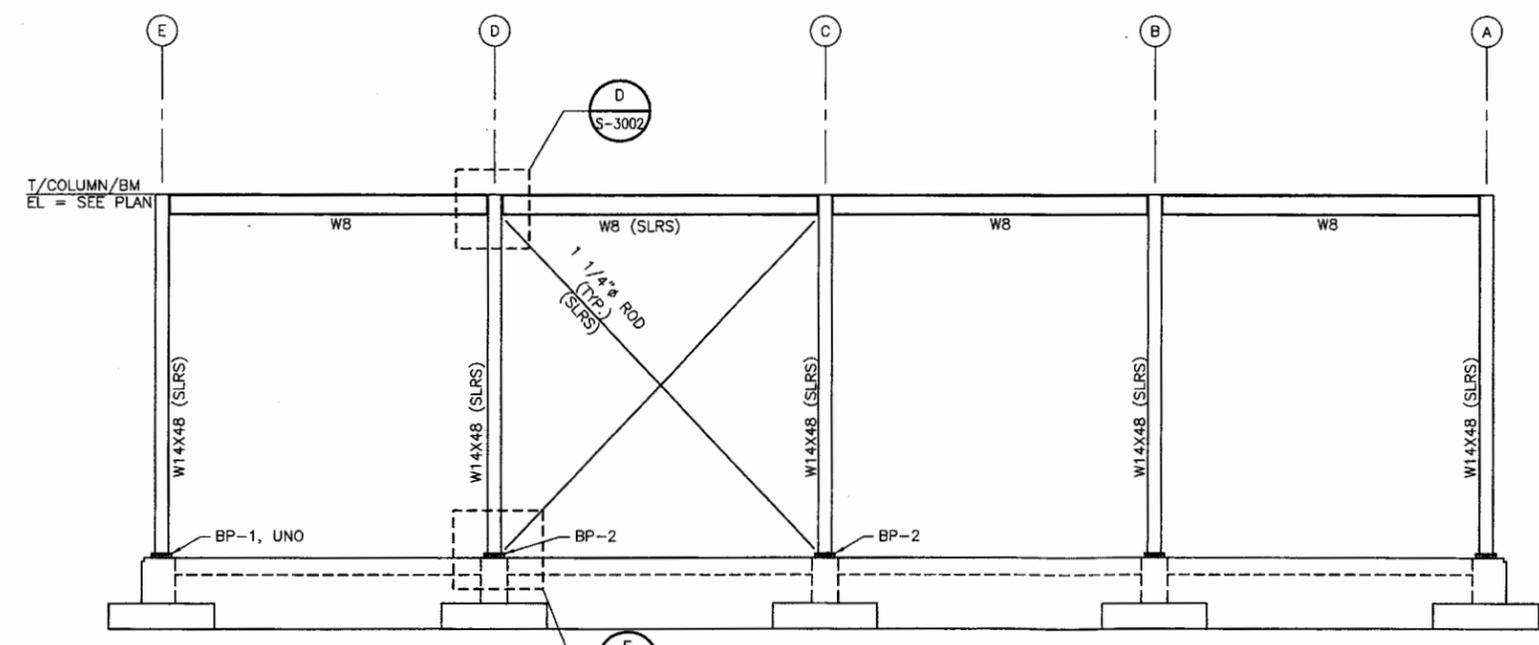
BLDG. 3093  
 SUBMITTED: *Cozy B...*  
 APPROVED FOR RELEASE: *[Signature]*  
 SHEET: **S-3002**  
 DATE: 10/17/11  
 20 OF 67  
 Los Alamos NATIONAL LABORATORY  
 UNCLASSIFIED  
 PROJECT ID: 102310  
 DRAWING NO: C-55752  
 REV: 1



**GENERAL NOTES:**  
 1. IF THIS SHEET IS NOT 24"x36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.  
 2. REFERENCE ARCHITECTURAL DRAWINGS FOR OPENINGS AND SIZES.



**STRUCTURAL BUILDING SECTION NORTH**  
 Scale: 1/4" = 1'-0"



**STRUCTURAL BUILDING SECTION WEST**  
 Scale: 1/4" = 1'-0"

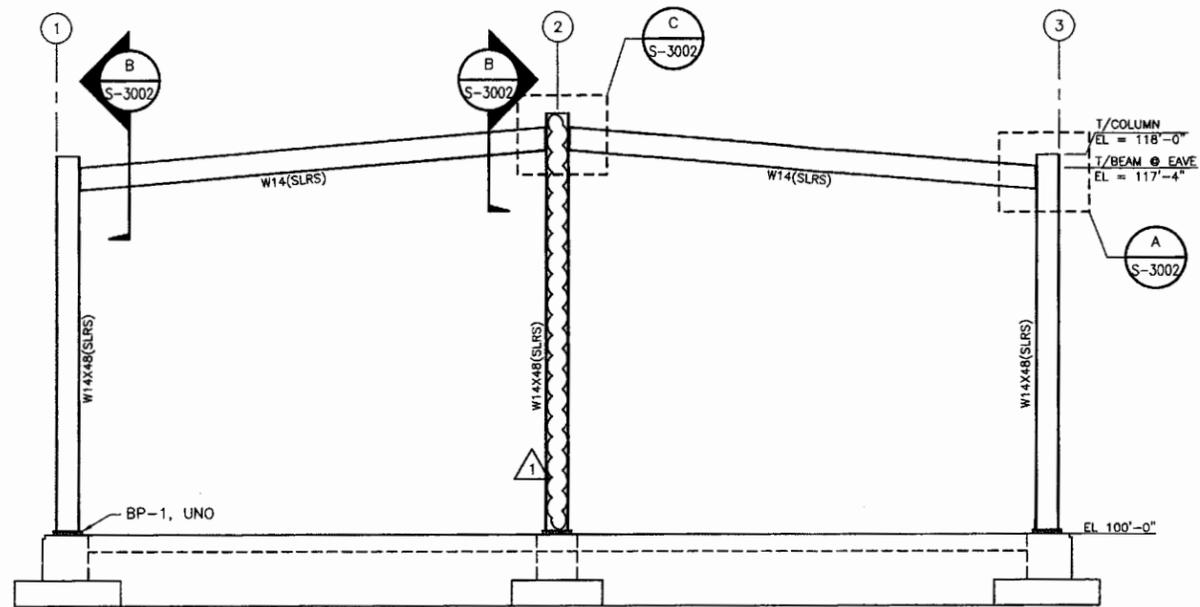


NO	DATE	CLASS REV	DESCRIPTION	DWN	VER	CHKD	SUB	APP
1	10/4/11	-	LANL REVIEW COORDINATION UPDATE	BF	CZ	ZS	-	-
<p><b>HDR</b> ENGINEERING INC. 2155 LOUISIANA BLVD., NE SUITE 800 ALBUQUERQUE, NM 87110 PHONE (505) 833-0400 FAX: (505) 833-5454</p>								
<p><b>SERF EXPANSION</b></p>				<p>DRAWN H.G. ✓</p>				
<p>SERF BUILDING STRUCTURAL SECTIONS</p>				<p>DESIGN C.Z. ✓</p>				
				<p>CHECKED Z.S. ✓</p>				
<p>BLDG. 3093</p>			<p>TA-03</p>		<p>DATE 10-14-11</p>			
<p>SUBMITTED <i>Coy B...</i></p>				<p>APPROVED FOR RELEASE <i>[Signature]</i></p>				
<p><b>Los Alamos NATIONAL LABORATORY</b> PO Box 1663 Los Alamos, New Mexico 87545</p>				<p>SHEET <b>S-4000</b></p>		<p>21 OF 67</p>		
<p>CLASSIFICATION <b>UNCLASSIFIED</b></p>				<p>REVIEWER <i>[Signature]</i></p>		<p>DATE 10/17/11</p>		
<p>PROJECT ID 102310</p>				<p>DRAWING No. C-55752</p>		<p>REV 1</p>		

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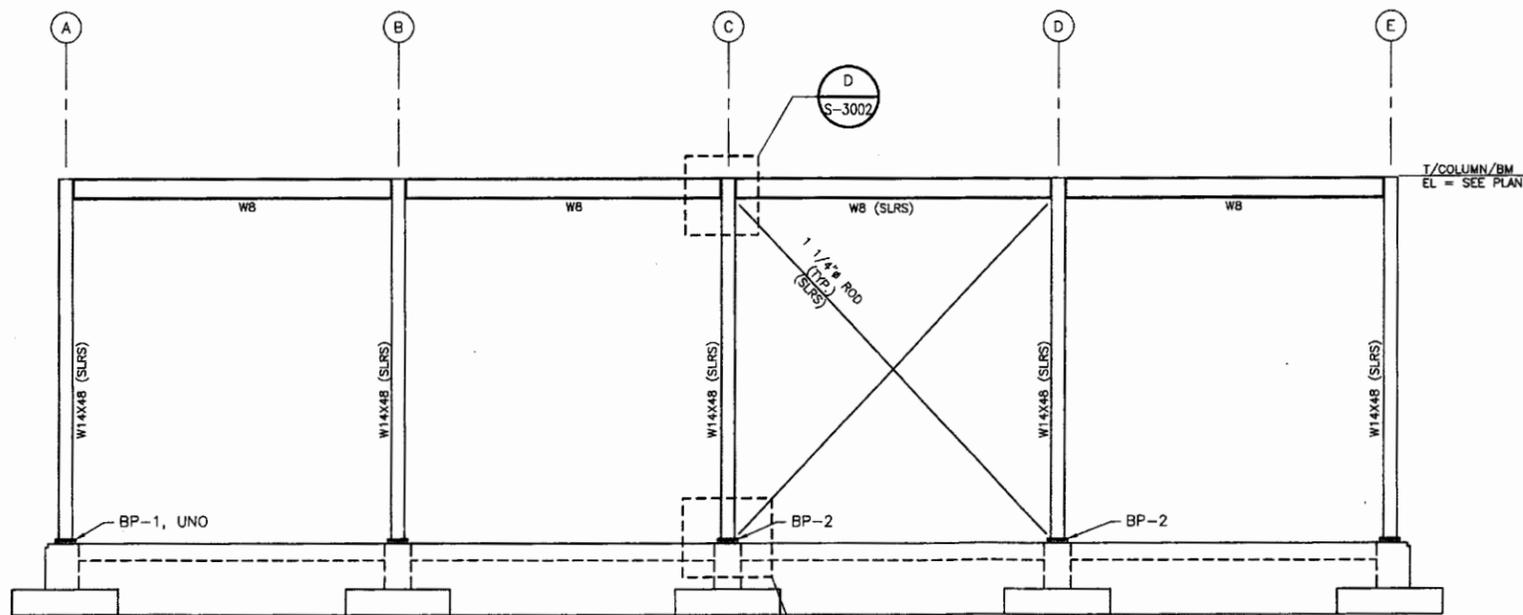
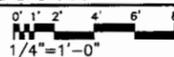
GENERAL NOTES:

- 1. IF THIS SHEET IS NOT 24"x36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.
- 2. REFERENCE ARCHITECTURAL DRAWINGS FOR OPENINGS AND SIZES.



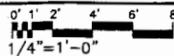
STRUCTURAL BUILDING SECTION SOUTH

S-1001



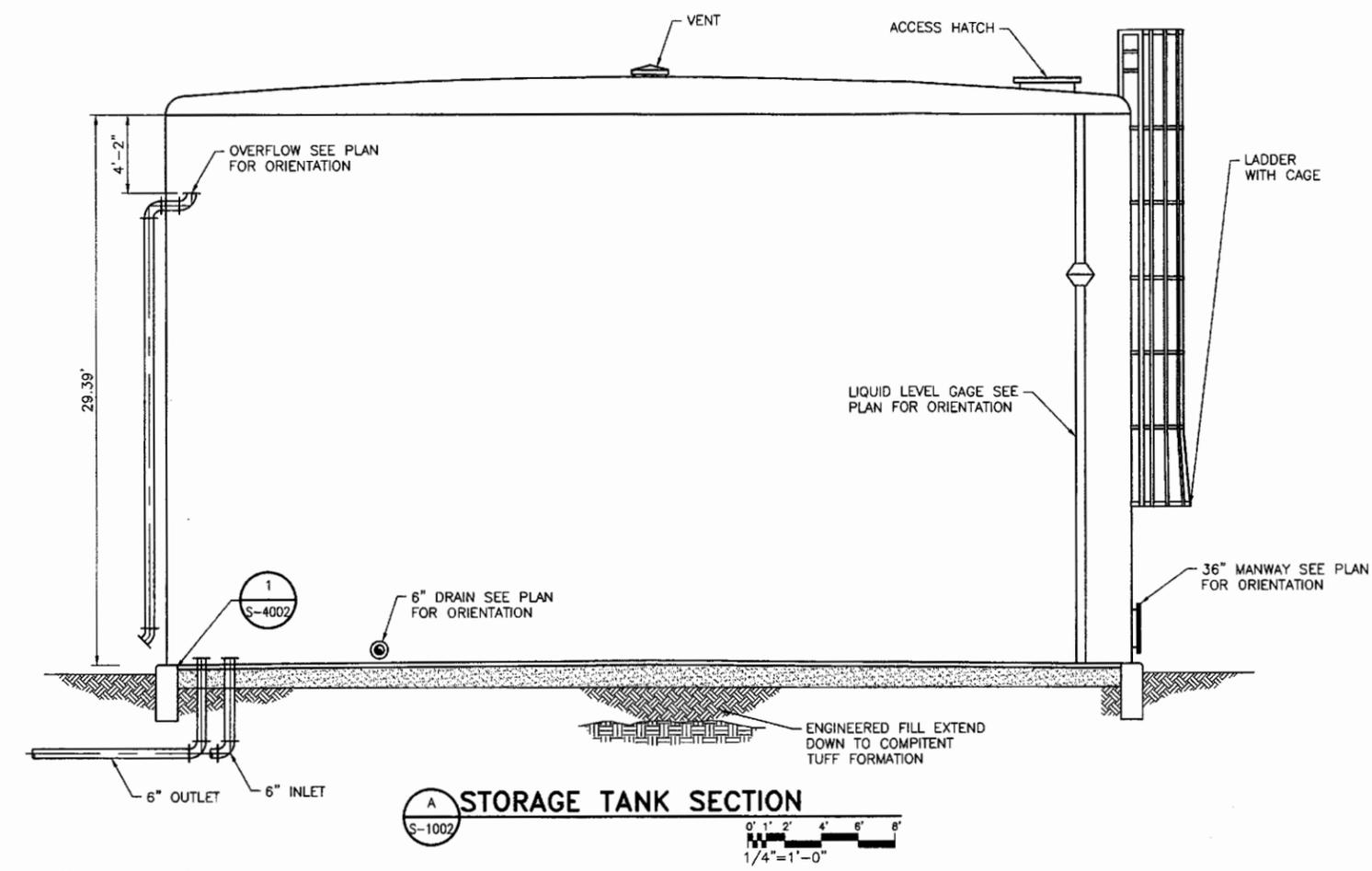
STRUCTURAL BUILDING SECTION EAST

S-1001

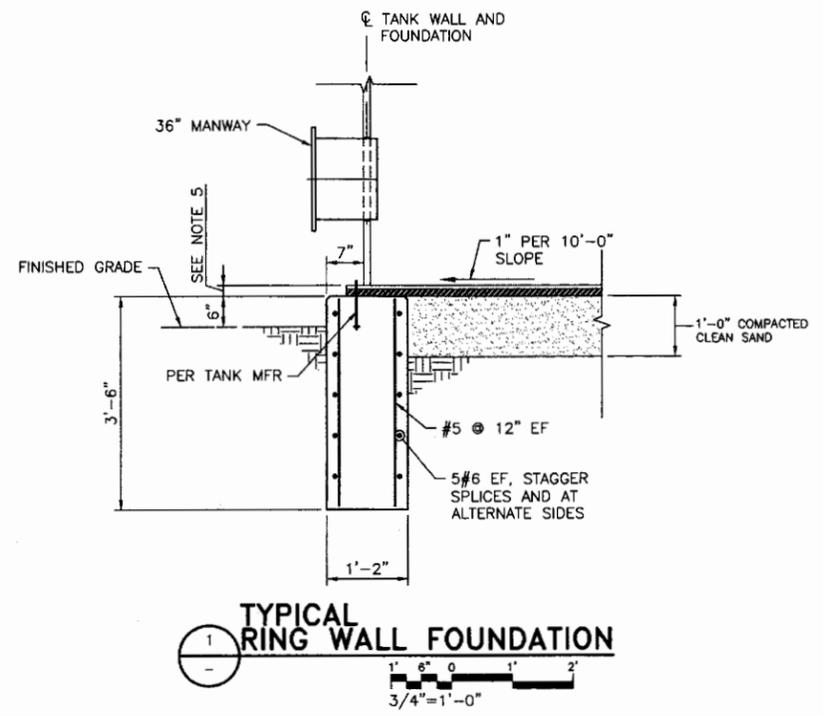


1	10/4/11	-	LANL REVIEW COORDINATION UPDATE	BF	CZ	ZS	-	-
NO	DATE	CLASS REV	DESCRIPTION	DWN	VER	CHKD	SUB	APP
<b>HDR</b> ENGINEERING INC. 2188 LOUISIANA BLVD, NE SUITE 860 ALBUQUERQUE, NM 87110 PHONE (505) 830-5400 FAX: (505) 830-5464				SERF EXPANSION SERF BUILDING STRUCTURAL SECTIONS		DRAWN H.G. DESIGN C.Z. CHECKED Z.S. DATE 10-14-11		
BLDG. 3093			TA-03					
SUBMITTED				APPROVED FOR RELEASE				
Los Alamos NATIONAL LABORATORY PO Box 1663 Los Alamos, New Mexico 87545				SHEET S-4001 22 OF 67				
CLASSIFICATION UNCLASSIFIED PROJECT ID 102310				REVIEWER DRAWING NO C-55752		DATE 10/17/11 REV 1		

- GENERAL NOTES:**
1. IF THIS SHEET IS NOT 24"x36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.
  2. FOR EXTENT OF ENGINEERED FILL SEE 1/S-5001.
  3. TANK DIMENSIONS SHOWN ARE NOMINAL AND MAY BE MODIFIED. FINAL TANK DIMENSIONS WILL BE SHOWN IN CONSTRUCTION SUBMITTAL PROVIDED BY TANK SUPPLIER.
  4. TANK DESIGN WILL BE COMPLETED BY TANK SUPPLIER. SEE LANL SPECIFICATION 43-4116. SUPPORTING DOCUMENTATION REGARDING THE TANK WILL BE PROVIDED AS A CONSTRUCTION SUBMITTAL BY THE TANK SUPPLIER.
  5. PLACE MINIMUM 1/2" THICK ASPHALT IMPREGNATED FIBERBOARD UNDER STEEL BOTTOM OF TANK.
  6. TANK DESIGNER REFER TO SPECIFICATION SECTION 43-4116.



**STORAGE TANK SECTION**  
 0' 1' 2' 4' 6' 8'  
 1/4" = 1'-0"

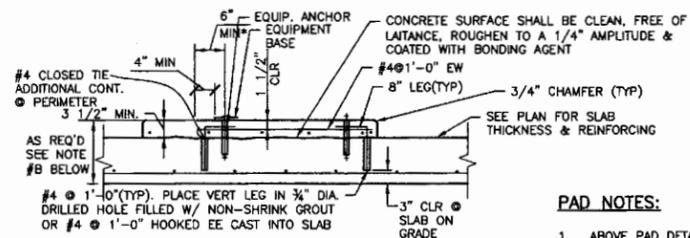


**TYPICAL RING WALL FOUNDATION**  
 1' 6" 0' 1' 2'  
 3/4" = 1'-0"



NO	DATE	CLASS	REV	DESCRIPTION	DWN	VER	CHKD	SUB	APP
<b>HDR</b> ENGINEERING INC. 2100 LOUISIANA BLVD., SUITE 1000 ALBUQUERQUE, NM 87110 PHONE (505) 833-5400 FAX (505) 833-5454									
SERF EXPANSION					DRAWN	H.G.			
400,000 GAL EFFLUENT STORAGE TANK SECTIONS AND DETAILS					DESIGN	C.Z.			
					CHECKED	Z.S.			
BLDG. 3085		TA-03		DATE	10-14-11				
SUBMITTED <i>Cory W. Boush</i>				APPROVED FOR RELEASE <i>[Signature]</i>					
<b>Los Alamos NATIONAL LABORATORY</b>					SHEET				
PO Box 1663 Los Alamos, New Mexico 87545					S-4002				
CLASSIFICATION UNCLASSIFIED					23 OF 67				
PROJECT ID 102310				DRAWING NO C-55752		REV 0			

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**MINIMUM PAD THICKNESS TABLE**

AB DIA	MIN PAD THK
1/4" DIA.	5"
3/8" DIA.	6 1/2"
1/2" DIA.	8"
5/8" DIA.	9 1/2"
3/4" DIA.	11"
7/8" DIA.	12 1/2"
1" DIA.	14"

**PAD NOTES:**

- ABOVE PAD DETAILS APPLY FOR SUPPORT OF ALL EQUIPMENT UNLESS INDICATED OTHERWISE ON THE DRAWINGS.
- BEFORE EQUIPMENT SUPPORT PADS ARE CAST, THE PAD SIZES AND REINFORCING SHALL BE APPROVED BY THE ENGINEER AS BEING CAPABLE OF SUPPORTING EQUIPMENT TO BE PLACED THEREON. EQUIPMENT BASE DIMENSIONS SHALL BE THE LARGER OF a. AS DETERMINED BY THE EQUIPMENT MANUFACTURER OR b. AS INDICATED ON THE DRAWINGS. SUBMIT ALL EQUIPMENT DIMENSIONS AND LOADS TO ENGINEER. THE SIZE, NUMBER, (TYP), LOCATION, AND THREAD PROJECTION OF THE ANCHORS SHALL BE AS DETERMINED BY THE EQUIPMENT MANUFACTURER AND SHALL BE AS APPROVED BY THE ENGINEER. ANCHORS SHALL BE HELD IN POSITION WITH A TEMPLATE WHILE EQUIPMENT PAD IS CAST.
- 6" MINIMUM PAD EDGE DIMENSION TO EQUIPMENT ANCHORS APPLIES FOR ALL EQUIPMENT SUPPORT PADS.

**NOTES:**

- PROVIDE ABOVE PAD UNDER ALL ELECTRICAL AND MECHANICAL EQUIPMENT SUPPORTED ON STRUCTURAL SLABS. ALSO PROVIDE FOR EQUIPMENT WEIGHING LESS THAN 5000 POUNDS WHICH ARE SUPPORTED ON GRADE OR WHERE SPECIFICALLY NOTED ON PLANS.
- PAD THICKNESS SHALL BE THE LARGER OF SLAB THICKNESS PLUS 3 3/4" OR MINIMUM PAD THICKNESS FROM TABLE. PROVIDE AN ADDITIONAL LAYER OF #4 #1'-0" EACH WAY WITH 1 1/2" CLEAR TOP AND BOTTOM FOR EACH 8" ADDITIONAL PAD THICKNESS EXCEEDING THE 3 3/4" MINIMUM THICKNESS.
- THIS DETAIL SHOULD BE USED FOR PADS UP TO 14" HIGH. ANCHOR SIZES TO FOLLOW THE RECOMMENDATION OF THE EQUIPMENT MANUFACTURER, IF NO SIZES ARE GIVEN, USE SIZES SHOWN ON THE DETAIL.

**(TYP) EQUIPMENT SUPPORT PAD DETAIL**

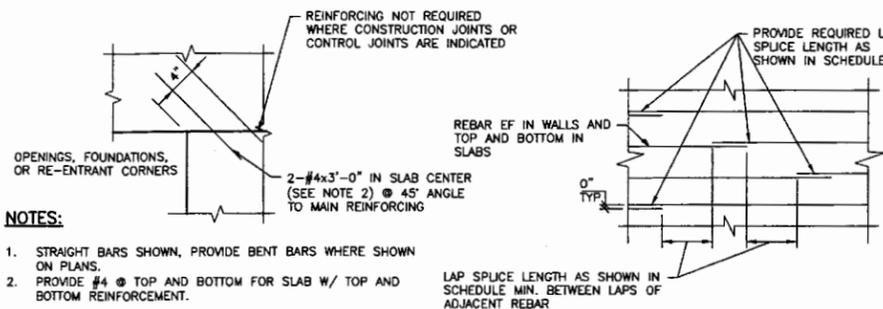
1  
SCALE: NONE

**(TYP) SLAB ON GRADE RE-ENTRANT CORNER DETAIL**

2  
SCALE: NONE

**CIRCULAR HORIZONTAL SLAB & WALL REINFORCING**

3  
SCALE: NONE



**NOTES:**

- STRAIGHT BARS SHOWN, PROVIDE BENT BARS WHERE SHOWN ON PLANS.
- PROVIDE #4 @ TOP AND BOTTOM FOR SLAB W/ TOP AND BOTTOM REINFORCEMENT.

**CONCRETE NOTES:**

- MINIMUM LAP SPlice: PER TABLE UNLESS OTHERWISE NOTED.

**MINIMUM LAP SPlice LENGTHS (fc=4000 psi)**

BAR	MIN BAR SPACING	LAPS FOR BARS SPACED GREATER THAN MIN. BAR SPACING		LAPS FOR BARS SPACED CLOSER THAN MIN. BAR SPACING	
		VERTICAL	OTHER	VERTICAL	OTHER
#3	3"	1'-4"	1'-6"	1'-4"	1'-6"
#4	3"	1'-7"	2'-0"	1'-8"	2'-2"
#5	3"	1'-11"	2'-6"	2'-7"	3'-4"
#6	4"	2'-4"	3'-0"	3'-8"	4'-9"
#7	4"	3'-6"	4'-6"	4'-11"	6'-5"
#8	4"	4'-7"	5'-11"	6'-6"	8'-6"
#9	4 1/2"	5'-9"	7'-6"	8'-3"	10'-9"
#10	5"	7'-4"	9'-8"	10'-6"	13'-7"
#11	5 5/8"	9'-0"	11'-6"	12'-10"	16'-8"

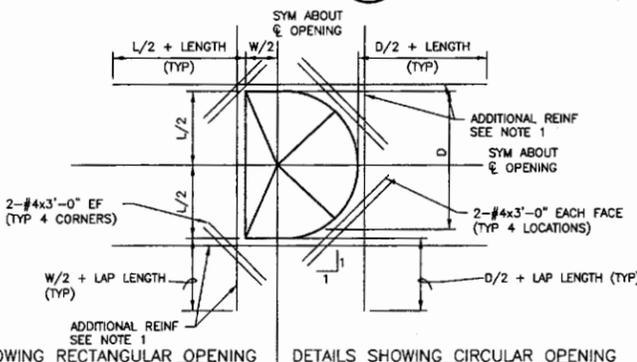
- ALL REBAR SPLICES SHALL BE AS SHOWN UNDER HEADING "VERTICAL" EXCEPT IF SPLICED BARS ARE HORIZONTAL BARS WITH 1'-0" OR MORE CONCRETE BELOW. THEN SPLICE LENGTH SHALL BE AS SHOWN UNDER HEADING "OTHER".
- \* AT SPLICES THE BAR SPACING IS THE CENTER TO CENTER DISTANCE BETWEEN ADJACENT REBAR.
- ALL SPLICES SHALL BE CONTACT SPLICES AND WIRED TOGETHER.
- NO WELDED OR MECHANICAL SPLICES ARE PERMITTED UNLESS INDICATED OTHERWISE.
- TACK WELDING OF REINFORCING OR ANCHOR BOLTS IS NOT PERMITTED.
- UNLESS OTHERWISE NOTED PROVIDE COVERING FOR REINFORCING AS FOLLOWS:
  - CONCRETE DEPOSITED AGAINST EARTH: 3 INCHES
  - ALL OTHER REINFORCING: 2 INCHES
- ALL BARS INDICATED AS BEING HOOKED SHALL HAVE STANDARD 90° HOOKS, UNO.

**STANDARD 90° HOOKS**

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

**6 SPLICE & STD. 90° HOOK DETAILS**

6  
SCALE: NONE



DETAILS SHOWING RECTANGULAR OPENING

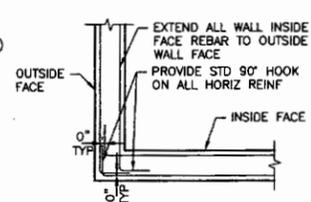
DETAILS SHOWING CIRCULAR OPENING

**NOTES:**

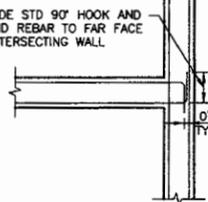
- ADDITIONAL REINFORCING SHALL BE THE SAME SIZE AS DISCONTINUOUS REINFORCEMENT AT OPENING. QUANTITY OF REINFORCING IN EACH DIRECTION SHALL BE EQUAL TO OR ONE GREATER THAN THE NUMBER OF DISCONTINUOUS BARS. PLACE 1/2 OF ADDITIONAL REINFORCING BARS EACH SIDE OF OPENING. PLACE ADDITIONAL REINFORCEMENT AT 3" O.C. ((TYP) BOTH DIRECTIONS AND ALL LAYERS OF REINFORCEMENT).
- ADDITIONAL REINFORCING SHALL EXTEND BEYOND EDGE OF OPENING AS SHOWN ABOVE. ADDITIONAL BARS MAY TERMINATE AT THE END OF THE WALL WITH A STANDARD HOOK WHERE THE LENGTH OF THE WALL WILL NOT PERMIT BARS TO EXTEND AS SHOWN ABOVE.
- ((TYP) WALL OR SLAB REINFORCING NOT SHOWN FOR CLARITY. TERMINATE ((TYP) REINFORCING 2" CLEAR TO OPENING.
- OPENINGS 1'-0" OR LESS IN SLABS & OPENINGS 1'-6" OR LESS IN WALLS, NO EXTRA REBAR ARE REQUIRED UNLESS SHOWN OTHERWISE. ((TYP) REINFORCING SHALL BE SPREAD (NOT CUT) TO ALLOW OR OPENINGS TO BE MADE.
- UNLESS SHOWN OTHERWISE ON DRAWINGS, PROVIDE EXTRA REINFORCING AROUND OPENINGS AS SHOWN AND INDICATED ABOVE.

**4 OPENINGS IN SLABS & WALLS DETAIL EXTRA REBAR AROUND**

4  
SCALE: NONE



PLAN "A" WALL CORNER



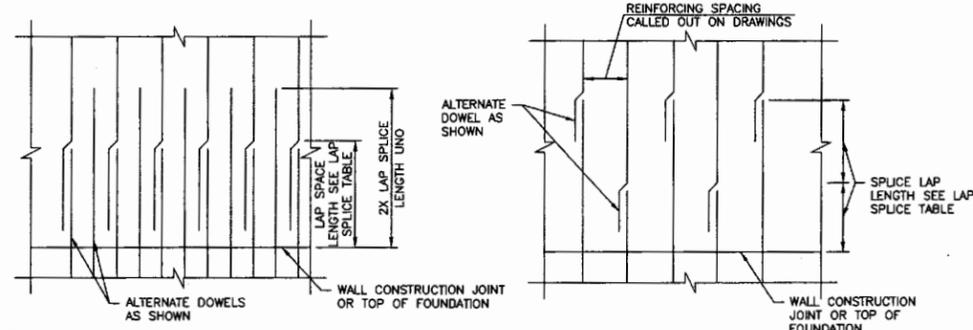
PLAN "B" WALL INTERSECTION

**NOTES:**

- SEE INDIVIDUAL STRUCTURES FOR EXTRA HORIZONTAL REBAR AT CORNERS & WALL INTERSECTIONS.
- WALL VERTICAL REBAR NOT SHOWN FOR CLARITY.
- SEE DETAIL 6 THIS SHEET FOR STD 90° HOOK LENGTHS.

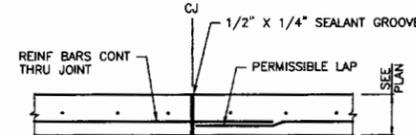
**5 (TYP) WALL HORIZ REINFORCING DETAIL**

5  
SCALE: NONE



**7 STAGGERED REINFORCING DETAIL**

7  
SCALE: NONE



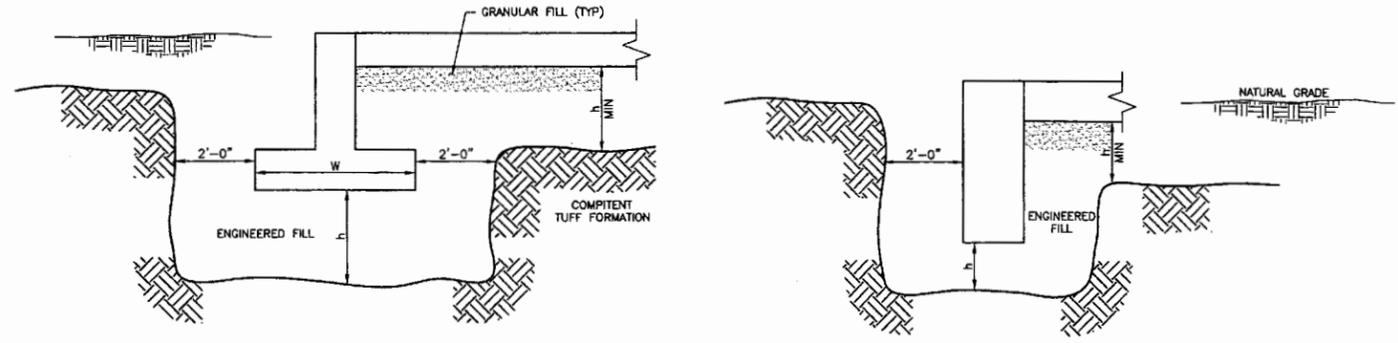
**8 SLAB REINF & CONTROL JOINT DETAIL**

8  
SCALE: NONE

NOTE: SIMILAR DETAIL FOR SLAB WITH 2 LAYERS OF REINFORCEMENT.

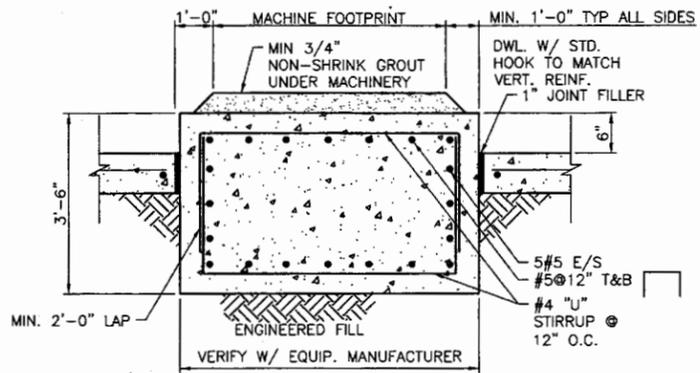


NO	DATE	CLASS REV	DESCRIPTION	DWN	VER	CHKD	SUB	APP
<p><b>HDR</b> ENGINEERING INC. 2158 LOUISIANA BLVD., SUITE 6000 ALBUQUERQUE, NM 87110</p>								
SERF EXPANSION							DRAWN	H.G.
STRUCTURAL STANDARD DETAILS							DESIGN	C.Z.
							CHECKED	Z.S.
BLDG. TA-03							DATE	10-14-11
SUBMITTED			APPROVED FOR RELEASE			SHEET		
S-5000			24			OF 67		
UNCLASSIFIED			DATE 10-17-11			REV		
102310			C-55752			0		

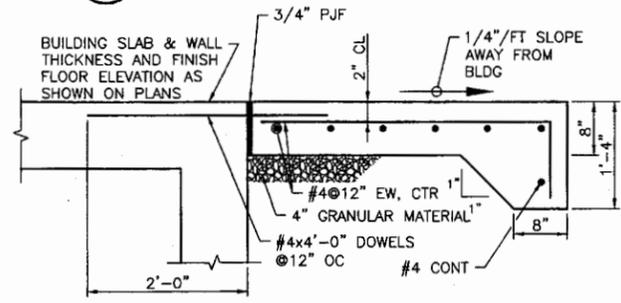


h = ENGINEERED FILL TO EXTEND DOWN TO COMPETENT TUFF FORMATION  
APPROXIMATELY 1'-5" TO 2'-0"

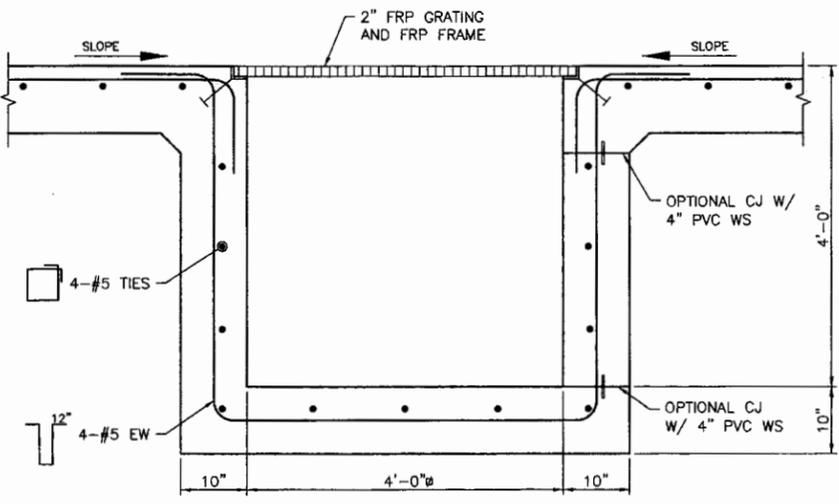
1 GENERAL FOOTING AND SLAB REQUIREMENT  
SCALE: NONE



2 EQUIPMENT PAD THROUGH SLAB  
SCALE: NONE

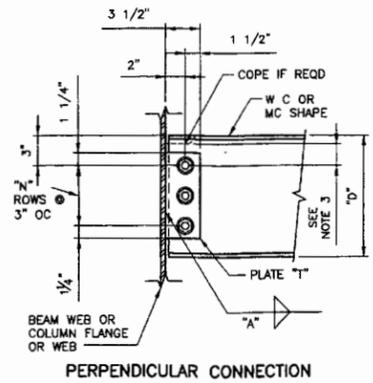


4 EXTERIOR CONCRETE SLAB REINFORCEMENT  
SCALE: NONE



3 FLOOR SUMP SECTION  
SCALE: NONE

- NOTES:
- ALL BOLTS SHALL BE 7/8" DIA A325-N, UNO.
  - PROVIDE MINIMUM NUMBER OF BOLT ROWS "N" SHOWN AS THE TYPICAL CONNECTION. INCREASE NUMBER OF ROWS AND/OR BOLT DIA IF INDICATED ON PLANS.
  - MIN DISTANCE FROM  $\phi$  OF THE BOLT TO A COPE SHALL BE 1 1/2" WHERE DEEP COPES ARE READ, INCREASE DISTANCE FROM TOP OF BEAM TO  $\phi$  OF TOP BOLT.
  - USE STANDARD OR SHORT HORIZONTAL SLOTTED HOLES AS REQ'D.



5 SINGLE PLATE BEAM CONNECTION  
SCALE: NONE

SINGLE PLATE BEAM CONNECTION SCHEDULE			
3/4" DIA BOLTS			
NOMINAL BEAM DEPTH "D"	NUMBER OF BOLT ROWS "N"	PLATE THICKNESS "T"	WELD SIZE "A"
W8	2	5/16"	1/4"
W10	2	5/16"	1/4"
W12	3	5/16"	1/4"
W14	3	5/16"	1/4"
W16	4	5/16"	1/4"
W18	5	5/16"	1/4"
W21	6	5/16"	1/4"
W24	7	3/8"	5/16"
W27	7	3/8"	5/16"
W30	8	7/16"	3/8"
W33	9	7/16"	3/8"
W36	10	7/16"	3/8"



NO	DATE	CLASS REV	DESCRIPTION	DWN	VER	CHKD	SUB	APP
<p><b>HDR</b> ENGINEERING INC. 2156 LOUISIANA BLVD., SUITE 900 ALBUQUERQUE, NM 87110 MARK (505) 833-5400 FAX: (505) 833-5404</p>								
SERF EXPANSION				DRAWN	H.G.			
STRUCTURAL STANDARD DETAILS				DESIGN	C.Z.			
				CHECKED	Z.S.			
BLDG. TA-03				DATE	10-14-11			
SUBMITTED <i>Cory A. Benz</i>				APPROVED FOR RELEASE <i>[Signature]</i>				
PROJECT ID 102310				DRAWING NO C-55752		SHEET S-5001		
CLASSIFICATION UNCLASSIFIED				DATE 10/17/11		25 OF 67		
PROJECT ID 102310				DRAWING NO C-55752		REV 0		

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**MATERIALS**

	SUBGRADE		PLASTICS
	GRAVEL		RUBBER SEALANT AND JOINT FILLER
	SAND		ROUGH WOOD LUMBER (CONTINUOUS)
	ASPHALT		ROUGH WOOD LUMBER (NON-CONTINUOUS)
	CONCRETE		WOOD FINISH (SURFACE)
	GROUT		WOOD FINISH (END GRAIN)
	BRICK		PLYWOOD
	CONC. MASONRY UNIT		GLASS (SECTION)
	STEEL		RIGID INSULATION
	BRASS/BRONZE		BATT INSULATION
	STONE		GYPSUM BOARD
	ALUMINUM		SUSPENDED ACOUSTICAL TILE

**CEILING ASSEMBLIES**

	1' x 4' FLUORESCENT LIGHT
	1' x 8' FLUORESCENT LIGHT
	2' x 2' FLUORESCENT LIGHT
	2' x 4' FLUORESCENT LIGHT
	2' x 4' EMERGENCY LIGHT
	LIGHT
	WALL LIGHT
	DOWNLIGHT
	SUPPLY REGISTER (REGULAR AND STRIP)
	RETURN AIR GRILLE (REGULAR AND STRIP)

**PLUMBING ASSEMBLIES**

	WATER CLOSET (FLOOR MOUNTED)
	WATER CLOSET (WALL MOUNTED)
	URINALS
	WALL MOUNTED LAVATORIES
	COUNTER LAVATORIES
	SERVICE SINK
	FLOOR DRAIN
	SAFETY SHOWER AND EYE WASH
	EYE WASH
	SAFETY SHOWER AND EYE WASH (BOOTH)

**ARCHITECTURAL ABBREVIATIONS**

AAF	ABOVE ACCESS FLOOR	ELEC	ELECTRIC
AC	ACOUSTICAL TILE	EL/ELEV	ELEVATION
ADA	AMERICANS WITH DISABILITIES ACT	EM	ENTRANCE MAT
AFF	ABOVE FINISH FLOOR	EMERG	EMERGENCY
AIB	AIR INFILTRATION BARRIER	EQ	EQUAL
ALUM	ALUMINUM	EJ	EXPANSION JOINT
ANSI	AMERICAN NATIONAL SAFETY INSTITUTE	EXP	EXPOSED
APPROX	APPROXIMATE	EXT	EXTERIOR
ARCH	ARCHITECTURAL	(E)	EXISTING
ASTM	AMERICAN SOCIETY FOR TESTING MATERIAL	FACT	FACTORY
AWT	ACOUSTICAL WALL TREATMENT	FEXT	FIRE EXTINGUISHER
L	ANGLE	FF	FINISH FLOOR
@	AT	FG	FINISH GRADE
BD	BOARD	FHS	FIRE HOSE STATION
BLKG	BLOCKING	FIN	FINISH
BLDG	BUILDING	FLG	FLASHING
BM	BEAM	FLR	FLOOR
BOC	BOTTOM OF CONCRETE	FM	FACTORY MUTUAL
BOS	BOTTOM OF STEEL	FO	FACE OF
BOTT	BOTTOM	FOC	FACE OF CONCRETE
CG	CORNER GUARD	FOF	FACE OF FINISH
CHK	CHECKERED	FOM	FACE OF MASONRY
CH/C	CHANNEL	FOS	FACE OF STUDS
CIP	CAST-IN-PLACE	FRP	FIBERGLASS REINFORCED PLASTIC
CJ	CONTROL JOINT	FT	FOOT/FEET
CLG	CEILING	GA	GAUGE
CLKG	CAULKING	GALV	GALVANIZED
CMU	CONCRETE MASONRY UNIT	GB	GRAB BAR
COL	COLUMN	GL	GLASS
CONC	CONCRETE	GR	GRILLE
CONT	CONTINUOUS	GRB	GYPSUM WALLBOARD
COORD	COORDINATE	GYP	GYPSUM
CPT	CARPET	HB	HOSE BIBB
CR	CRASH RAIL	HC	HOLLOW CORE
CT	CERAMIC TILE	HDBD	HARDBOARD
CTR	CENTER	HDWR	HARDWARE
CL	CENTERLINE	HM	HOLLOW METAL
DAT	DATUM	HORIZ	HORIZONTAL
DF	DRINKING FOUNTAIN	HT/HGT	HEIGHT
DIA	DIAMETER	HC	HANDICAPPED
DIM	DIMENSION	IN	INCH/INCHES
DN	DOWN	INSUL	INSULATION
DR	DOOR	INT	INTERIOR
DS	DOWNSPOUT	JT	JOINT
DTL	DETAIL	KEC	KITCHEN EQUIPMENT CONTRACTOR
DWG	DRAWING	LAM	LAMINATED
EA	EACH		
EIFS	EXTERIOR INSULATION AND FINISH SYSTEM		

MAS	MASONRY	SIM	SIMILAR
MATL	MATERIAL	SS	STAINLESS STEEL
MBS	MARKER BOARD SURFACE	SSM	SOLID SURFACE MATERIAL
MECH	MECHANICAL	STC	SOUND TRANSMISSION COEFFICIENT
MEZZ	MEZZANINE	STD	STANDARD
MFR	MANUFACTURER	STL	STEEL
MIN	MINIMUM	STRUCT	STRUCTURAL
MIR	MIRROR	SUSP	SUSPENDED
MISC	MISCELLANEOUS	SV	SHEET VINYL
MO	MASONRY OPENING	TEMP	TEMPERED
MS	MOP SINK	THKNS	THICKNESS
MTL	METAL	THR	THRESHOLD
NA	NOT APPLICABLE	T.O.C.	TOP OF CONCRETE
ND	NAPKIN DISPOSAL	T.O.M.	TOP OF MASONRY
NIC	NOT IN CONTRACT	T.O.P.	TOP OF PARAPET
NTS	NOT TO SCALE	T.O.S.	TOP OF STEEL
NV	NAPKIN VENDOR	TPD	TOILET PAPER DISPENSER
OC	ON CENTER	TR	TREAD
OCFI	OWNER FURNISHED CONTRACTOR INSTALLED	TS	TUBE STEEL
OPP	OPPOSITE	TYP	TYPICAL
OTO	OUT TO OUT	T/	TOP OF
P	PAINT	UL	UNDERWRITERS LABORATORY
PL	PLATE	UNO	UNLESS NOTED OTHERWISE
PLAM	PLASTIC LAMINATE	V	VENT
PLYWD	PLYWOOD	VB	VAPOR BARRIER
PNL	PANEL	VCT	VINYL COMPOSITION TILE
PR	PAIR	VERT	VERTICAL
PREFAB	PREFABRICATED	VP	VENT PIPE
PTD	PAPER TOWEL DISPENSER	VRFY	VERIFY
PVC	POLYVINYL CHLORIDE	VTR	VENT THROUGH ROOF
R	RISER	VWC	VINYL WALL COVERING
RB	RUBBER BASE	WC	WALLCOVERING
RD	ROOF DRAIN	WD	WOOD
REF	REFERENCE	WP	WATERPROOF/WEATHERPROOF
REQD	REQUIRED	WT	WEIGHT
RF	RESILIENT FLOORING	WTRPC	WATERPROOF COATING
RFG	ROOFING	W/	WITH
RL	RAIN LEADER	W/O	WITHOUT
RM	ROOM		
RO	ROUGH OPENING		
SAC	SUSPENDED ACOUSTICAL CEILING		
SAT	SUSPENDED ACOUSTICAL TILE		
SCD	SEAT COVER DISPENSER		
SD	SOAP DISPENSER		
SECT	SECTION		
SHT	SHEET		
SIB	STRUCTURAL ISOLATION BREAK		

**BUILDING SYSTEM SYMBOLS**

**DOOR TYPES**

	SINGLE DOOR
	DOUBLE DOOR
	OVERHEAD COILING DOOR

**WINDOW TYPES**

	FIXED
--	-------

**ANNUNCIATOR**

**ACCESS PANEL**

**VENT**

**GYPSUM WALL BOARD CEILING ASSEMBLY**

**THERMOSTAT**

**SPEAKER**

**MICROPHONE**

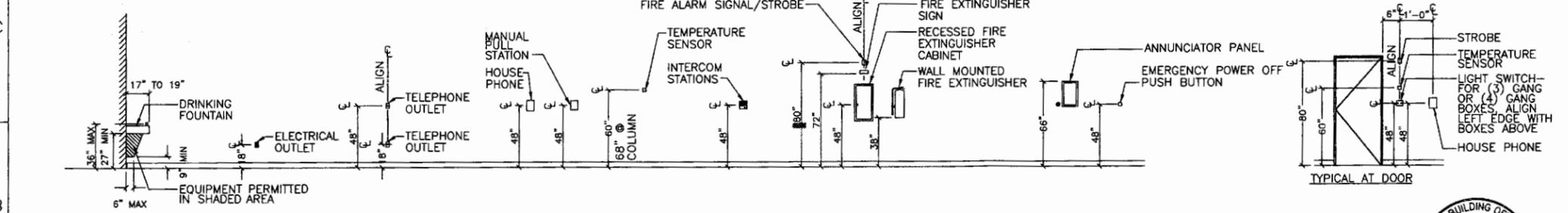
**ANNOTATION SYMBOLS**

	COLUMN LINE CALLOUT
	SECTION
	DETAIL
	INTERIOR ELEVATION
	ELEVATION
	REVISION NOTE
	KEYED NOTE
	DOOR NUMBER
	DOOR DESIGNATION
	ROOM NUMBER
	FLOOR LEVEL
	WALL TYPES
	INSUL. TYPE
	FIRE RATING (HOURS)
	WALL TYPE AND STUD TYPE
	ELEVATION DATUM

**STANDARD MOUNTING HEIGHTS**

NOTES:

1. VERIFY ACCESSORY SIZE WITH MANUFACTURER TO ENSURE CONFORMANCE WITH ADA MOUNTING HEIGHTS.
2. DIMENSIONS TO TOILET ROOM ACCESSORIES ARE TO THE HIGHEST PORTION OF THE OPENING OR OPERATING DEVICE.
3. PLACE ELECTRICAL AND TELEPHONE DEVICES AT 44" ABOVE FINISH FLOOR AT CREDENZAS AND COUNTER TOPS.



NO	DATE	CLASS REV	DESCRIPTION	DWN	VER	CHKD	SUB	APP
<p><b>SERF EXPANSION</b></p>								
<p>LEGEND AND ABBREVIATIONS</p>							<p>DRAWN B.S.</p>	<p>DESIGN A.T.</p>
<p>BLDG. 3093</p>							<p>CHECKED W.W.</p>	<p>DATE 09-22-11</p>
<p>SUBMITTED</p>			<p>APPROVED FOR RELEASE</p>			<p>TA-03</p>		
<p>Los Alamos NATIONAL LABORATORY</p>								
<p>UNCLASSIFIED</p>								
<p>PROJECT ID 102310</p>			<p>DRAWING NO C-55752</p>			<p>REV 0</p>		



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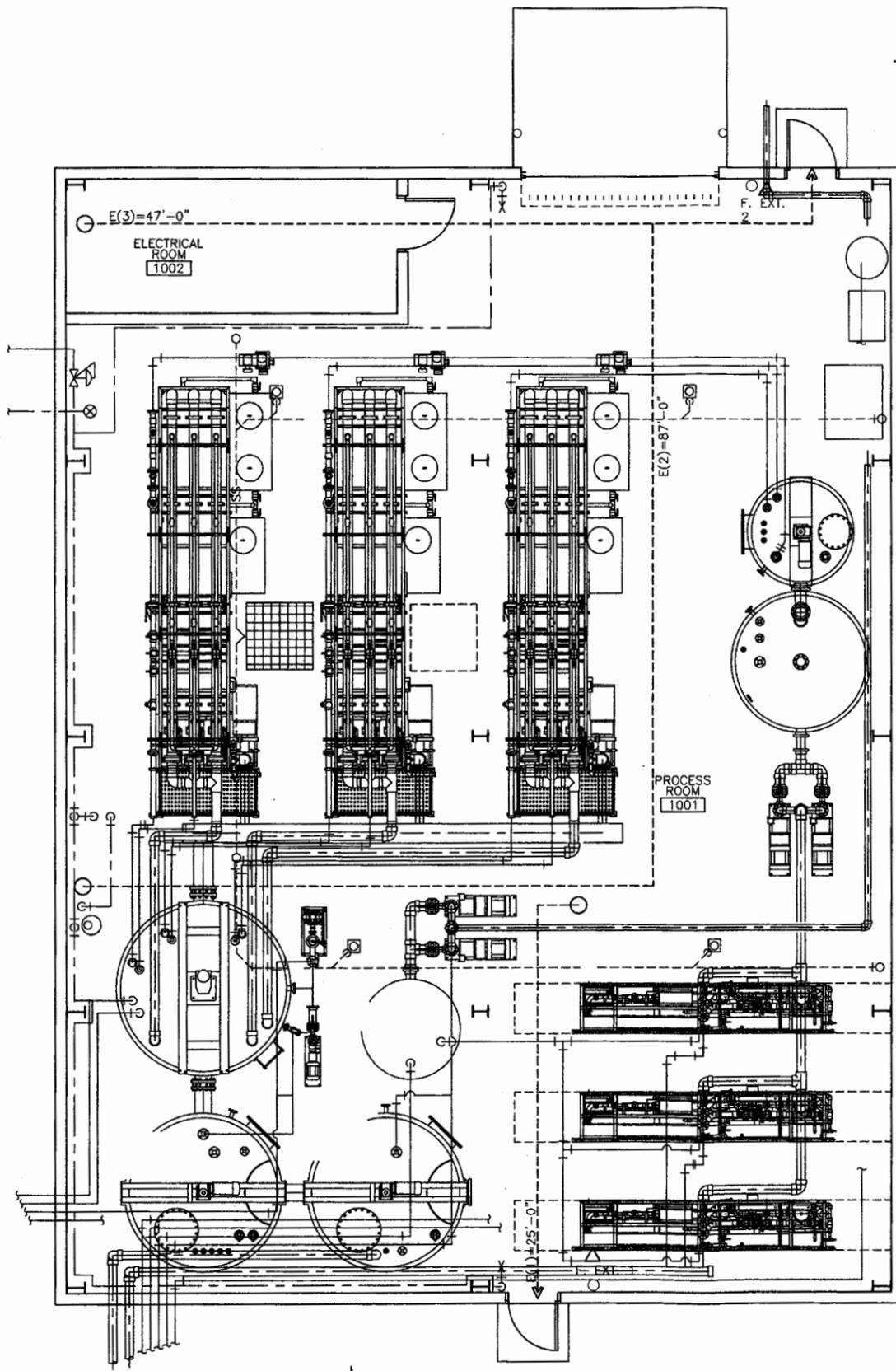
FACILITY NAME: SANITARY EFFLUENT RECLAMATION FACILITY	
PROJECT DESCRIPTION Advanced water treatment facility that includes mechanical process equipment used to treat secondary treated wastewater and blowdown from SCC LANL facility. The project elements include a steel metal building for housing treatment equipment and associated chemicals.	
OCCUPANCY GROUP [IBC CHAPTER 3]	OCCUPANCY WATER TREATMENT FACILITY F-1
HAZARDOUS MATERIALS NONE	
INCIDENTAL USE SEPARATIONS [IBC TABLE 508.2]	NONE REQUIRED
OCCUPANCY SEPARATION / FIRE RATING [IBC TABLE 508.3.3]	NONE REQUIRED
CONSTRUCTION TYPE [IBC CHAPTER 6]	AUTOMATIC SPRINKLER SYSTEM (WET RISERS ARE BEING PROVIDED) TYPE II-B
GENERAL BUILDING LIMITATIONS [IBC TABLE 503]	AUTOMATIC SPRINKLER SYSTEM INCREASES MAXIMUM HEIGHT BY 20' AND MAXIMUM STORIES BY ONE
MAXIMUM STORIES/HEIGHT ALLOWED	3 STORIES/75 FT
ACTUAL NUMBER OF STORIES/HEIGHT	1 STORY/18'-0" FT
MAXIMUM AREA ALLOWED PER FLOOR	15,500 SF
ACTUAL AREA PER FLOOR	3,300 GROSS SF
ACTUAL TOTAL AREA	3,300 GROSS SF
RATIO OF ACTUAL TO ALLOWABLE [IBC 508.3.3.2]	NA
FIRE RESISTANCE OF BUILDING ELEMENTS [IBC TABLE 601]	
REQUIRED RATINGS	UNRATED FOR CONSTRUCTION TYPE II-B
EXTERIOR WALL FIRE RESISTANCE [IBC TABLE 602]	
ACTUAL FIRE SEPARATION DISTANCE	30+ FEET
REQUIRED WALL RATING	UNRATED WHEN OVER 10 FEET FIRE SEPARATION
ACTUAL WALL RATING	UNRATED
EXTERIOR OPENING PROTECTION [IBC TABLE 704.8]	
ACTUAL FIRE SEPARATION DISTANCE	30+ FEET
REQUIRED OPENING PROTECTION	UNPROTECTED/UNLIMITED WHEN OVER 30 FEET
ACTUAL OPENING PROTECTION	UNPROTECTED
FIRE PROTECTION SYSTEMS [IBC CHAPTER 9]	
AUTOMATIC SPRINKLER SYSTEMS [IBC 903]	NOT REQUIRED (BUT PROVIDED)
FIRE EXTINGUISHERS [IBC 906.1]	HAND HELD, MULTIPURPOSE FIRE EXTINGUISHER, RATED 4A-60 B:C, 10 LBS AT EACH EXTERIOR EXIT DOOR
FIRE ALARM SYSTEM [IBC 907.2]	NOT REQUIRED (BUT PROVIDED)
MEANS OF EGRESS [IBC CHAPTER 10]	
OCCUPANT LOAD FACTOR [IBC TABLE 1004.1.1]	
PROCESS ROOM	3154 SF (GROSS)
ELECTRICAL ROOM	160 SF (GROSS)
ALLOWABLE TRAVEL DISTANCE [IBC TABLE 1016.1]	
F-1	250 FEET (WITH SPRINKLER SYSTEM)
ACTUAL TRAVEL DISTANCE MAXIMUM TRAVEL DISTANCE TO AN EXIT = 87 FT	
EXITS REQUIRED	
PROCESS ROOM: ONE	3154 NET SF/300 = 10.51 < 50
ELECTRICAL ROOM: ONE	160 NET SF/300 = 0.53
EXITS PROVIDED TWO (DIRECT TO EXTERIOR) ONE	

LEGEND:

- ▷ FIRE EXTINGUISHER (F.EXT)
- FIRE EXIT PATH
- START OF FIRE EXIT PATH MEASUREMENT
- E(X) EXIT FROM BUILDING

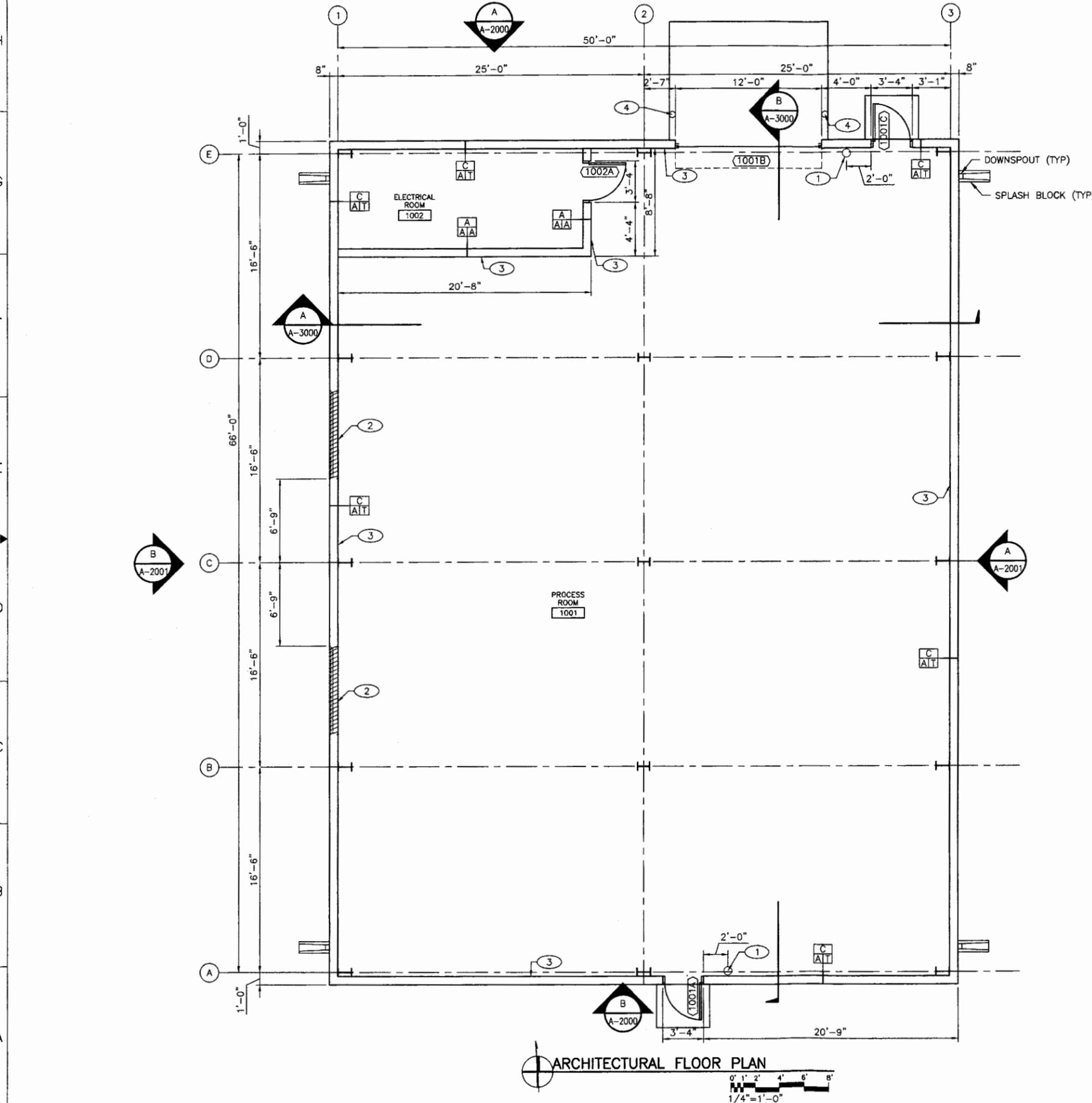
GENERAL NOTES:

1. IF THIS SHEET IS NOT 24"x36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.



NO	DATE	CLASS REV	DESCRIPTION	DWN	VER	CHKD	SUB	APP
<div style="display: flex; justify-content: space-between;"> <div> <p><b>HDR</b> ENGINEERING INC.</p> <p>2158 LOUISIANA BLVD., NE SUITE 900 ALBUQUERQUE, NM 87110 PHONE: (505) 833-6400 FAX: (505) 833-6454</p> </div> <div> <p><b>SERF EXPANSION</b></p> <p>ARCHITECTURAL CODE DATA AND LIFE SAFETY PLAN</p> <p>BLDG. 3093 SUBMITTED <i>Coy &amp; Boy</i></p> </div> <div> <p>DATE: 09-22-11</p> <p>APPROVED FOR RELEASE <i>[Signature]</i></p> </div> </div>								
<p>PROJECT ID: 102310</p>				<p>DATE: 10/11/11</p>				
<p>CLASSIFICATION: UNCLASSIFIED</p>				<p>DATE: 10/11/11</p>				
<p>PROJECT ID: 102310</p>				<p>DATE: 10/11/11</p>				
<p>PROJECT ID: 102310</p>				<p>DATE: 10/11/11</p>				

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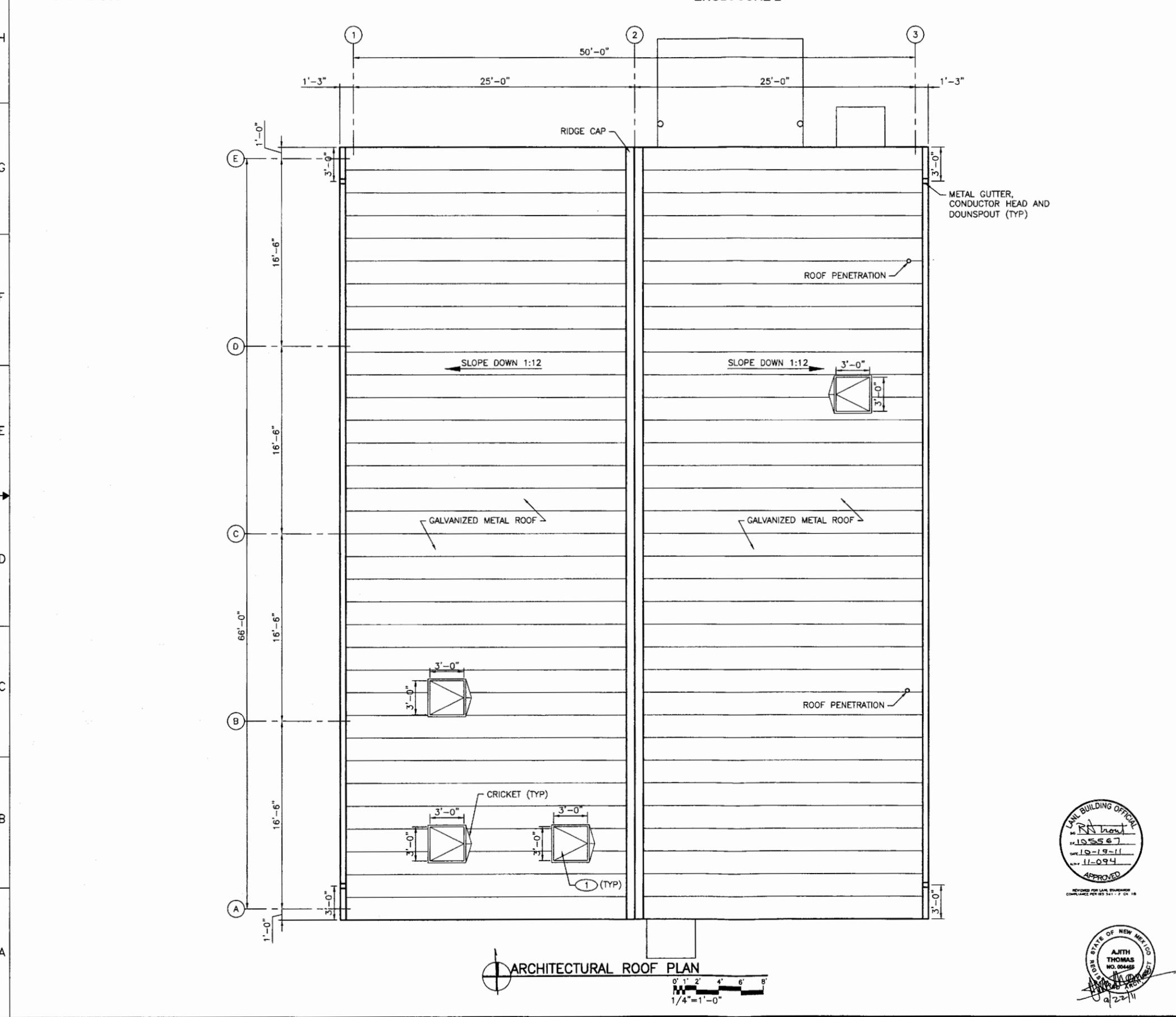
- GENERAL NOTES:**
1. IF THIS SHEET IS NOT 24"x36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.
  2. ALL SECONDARY STRUCTURAL FRAMING AND BUILDING SKIN IS BEING PROVIDED BY A BUILDING SUPPLIER IN ACCORDANCE WITH SPECIFICATION SECTION 13 3419. ALL SUPPORTING INFORMATION INCLUDING CALCULATIONS WILL BE PROVIDED BY THE BUILDING SUPPLIER AS A PART OF CONSTRUCTION SHOP DRAWING SUBMITTAL.
  3. INTERIOR DIMENSIONS ARE TO GYP BOARD FINISH.
  4. SEE DRAWING A-5000 FOR WALL TYPES.
  5. SEE DRAWING A-7000 FOR ROOM FINISH AND DOOR SCHEDULES.

- KEYED NOTES:**
- (1) BRACKET MOUNTED ABC TYPE FIRE EXTINGUISHER.
  - (2) METAL WALL LOUVER SEE MECHANICAL LOUVER SCHEDULE AND DETAILS.
  - (3) PROVIDE FIBERGLASS REINFORCED PLASTIC ANGLE AROUND ENTIRE PERIMETER OF PROCESS ROOM 1001 PER DETAIL 7/A-5000.
  - (4) BOLLARD, REFER TO CIVIL DETAILS.

ARCHITECTURAL FLOOR PLAN  
 0' 1' 2' 4' 6' 8'  
 1/4" = 1'-0"



NO	DATE	CLASS REV	DESCRIPTION	OWN	VER	CHKD	SUB	APP	
<p><b>HDR</b> ENGINEERING INC. 2156 LOUISIANA BLVD. NE SUITE 8600 ALBUQUERQUE, NM 87119 PHONE: (505) 830-9400 FAX: (505) 830-5454</p>									
SERF EXPANSION				DRAWN	B.S. <i>CAJ</i>				
ARCHITECTURAL FLOOR PLAN				DESIGN	A.T. <i>CAJ</i>				
BLDG. 3093				CHECKED	W.W. <i>CAJ</i>				
SUBMITTED				DATE	09-22-11				
APPROVED FOR RELEASE				DATE 09-22-11					
SHEET				A-1001					
Los Alamos NATIONAL LABORATORY				28 OF 67					
CLASSIFICATION UNCLASSIFIED				DATE 10/17/11					
PROJECT ID 102310				REV 0					
DRAWING NO C-55752									



**GENERAL NOTES:**

1. IF THIS SHEET IS NOT 24"x36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.

**KEYED NOTES:**

① ROOF HATCH - REFER TO SPECIFICATION 07 7233 FOR DETAILS. DETAILS FOR OPENING TO BE PROVIDED BY BUILDING MATERIALS SUPPLIER AS A CONSTRUCTION SUBMITTAL.

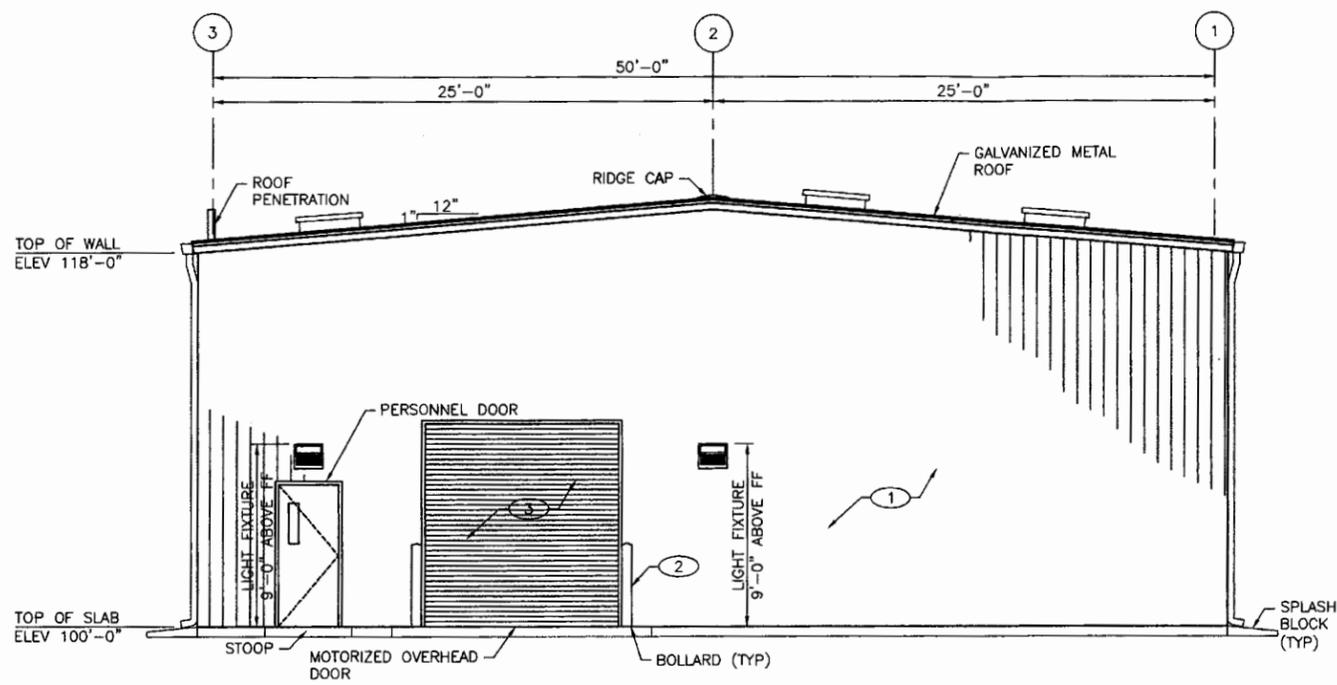
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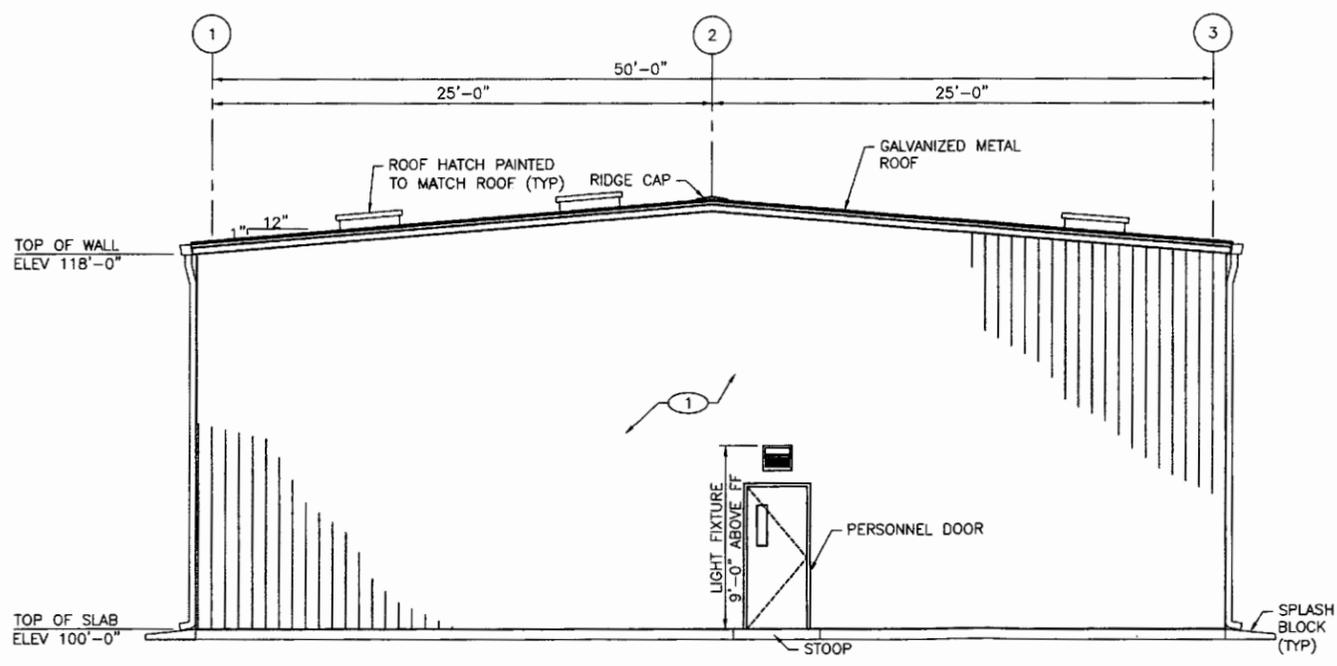
NO	DATE	CLASS REV	DESCRIPTION	DWN	VER	CHKD	SUB	APP	
<p><b>HDR</b> 2185 LOUISIANA BLVD., NE                  SUITE 9000                  ALBUQUERQUE, NM 87110                  MAIN (505) 830-5400 FAX:                  (505) 830-5454                  ENGINEERING INC.</p>									
SERF EXPANSION							DRAWN	B.S.	GVB
ARCHITECTURAL ROOF PLAN							DESIGN	A.T.	GVB
							CHECKED	W.W.	GVB
BLDG. 3093			TA-03			DATE	09-22-11		
SUBMITTED				APPROVED FOR RELEASE					
<p><b>Los Alamos</b> NATIONAL LABORATORY                  PD Box 1663                  Los Alamos, New Mexico 87545</p>							SHEET	A-1002	
CLASSIFICATION UNCLASSIFIED							DATE	10/11	
PROJECT ID 102310			DRAWING NO C-55752			REV	0		

ARCHITECTURAL ROOF PLAN  
 0' 1' 2' 4' 6' 8'  
 1/4" = 1'-0"

**GENERAL NOTES:**  
 1. IF THIS SHEET IS NOT 24"x36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.



**A NORTH ELEVATION**  
 A-1000  
 0' 1' 2' 4' 6' 8'  
 1/4" = 1'-0"



**B SOUTH ELEVATION**  
 A-1000  
 0' 1' 2' 4' 6' 8'  
 1/4" = 1'-0"

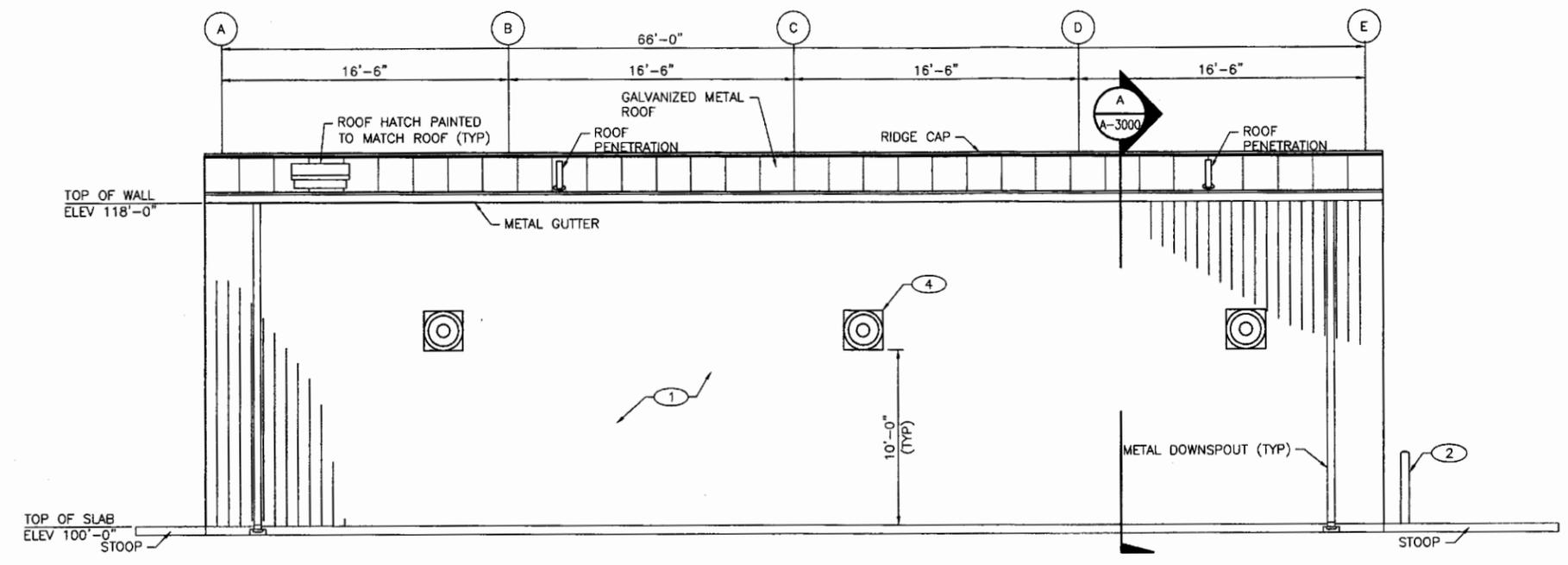
- KEYED NOTES:**
- ① EXTERIOR METAL PANEL SYSTEM
  - ② 6" DIAMETER CONCRETE FILLED STEEL BOLLARD, SEE STRUCTURAL DETAILS
  - ③ OVERHEAD COILING DOOR, SEE DOOR SCHEDULE
  - ④ WALL MOUNTED EXHAUST FANS, SEE MECHANICAL DETAILS
  - ⑤ METAL WALL LOUVER, SEE FLOOR PLAN

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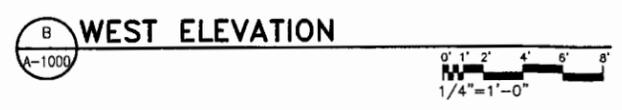
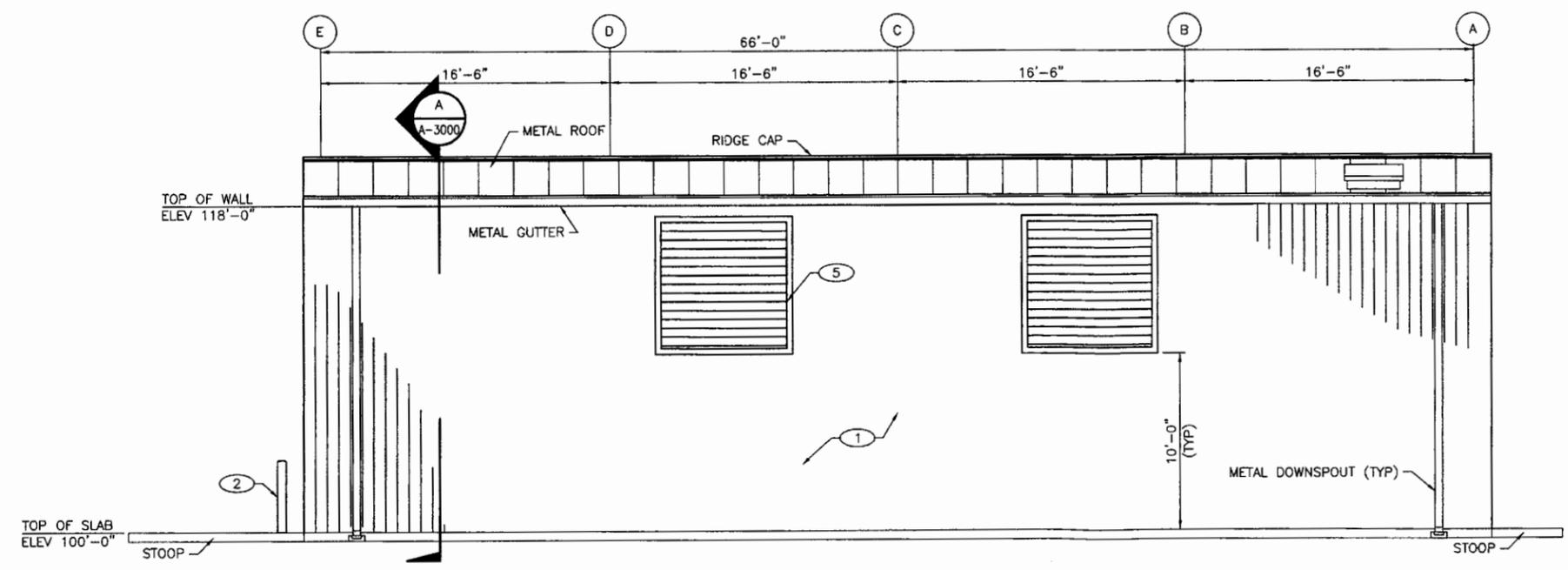


NO	DATE	CLASS REV	DESCRIPTION	DWN	VER	CHKD	SUB	APP	
<p><b>HDR</b> 2155 LOUISIANA BLVD., NE SUITE 5000 ALBUQUERQUE, NM 87110 PH: (505) 836-5400 FAX: (505) 836-5454                      ENGINEERING INC.</p>									
SERF EXPANSION				DRAWN	B.S. <i>CVB</i>				
ARCHITECTURAL BUILDING ELEVATIONS				DESIGN	A.T. <i>CVB</i>				
BLDG. 3093				CHECKED	W.W. <i>CVB</i>				
SUBMITTED				DATE	09-22-11				
APPROVED FOR RELEASE									
PROJECT ID				SHEET					
102310				A-2000					
CLASSIFICATION				30 OF 67					
UNCLASSIFIED				DATE 10/7/11					
DRAWING NO				REV					
C-55752				0					

**GENERAL NOTES:**  
 1. IF THIS SHEET IS NOT 24"x36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.



- KEYED NOTES:**
- ① EXTERIOR METAL PANEL SYSTEM
  - ② 6" DIAMETER CONCRETE FILLED STEEL BOLLARD, SEE STRUCTURAL DETAILS
  - ③ OVERHEAD COILING DOOR, SEE DOOR SCHEDULE
  - ④ WALL MOUNTED EXHAUST FANS, SEE MECHANICAL DETAILS
  - ⑤ METAL WALL LOUVER, SEE MECHANICAL FLOOR PLAN



NO	DATE	CLASS	DESCRIPTION	DWN	VER	CHKD	SUB	APP
<p><b>HDR</b> ENGINEERING INC. 2150 LOUISIANA BLVD., NE SUITE 800 ALBUQUERQUE, NM 87110 PHONE (505) 833-3420 FAX (505) 833-6484</p>								
SERF EXPANSION				DRAWN	B.S.	C.M.		
ARCHITECTURAL BUILDING ELEVATIONS				DESIGN	A.T.	G.W.		
BLDG. 3093				CHECKED	W.W.	C.V.R.		
SUBMITTED				DATE	08-22-11			
APPROVED FOR RELEASE				<p>Los Alamos NATIONAL LABORATORY PO Box 1663 Los Alamos, New Mexico 87545</p>				
PROJECT ID				DATE		SHEET		
102310				10/21/11		A-2001		
CLASSIFICATION				DRAWING NO		REV		
UNCLASSIFIED				C-55752		0		

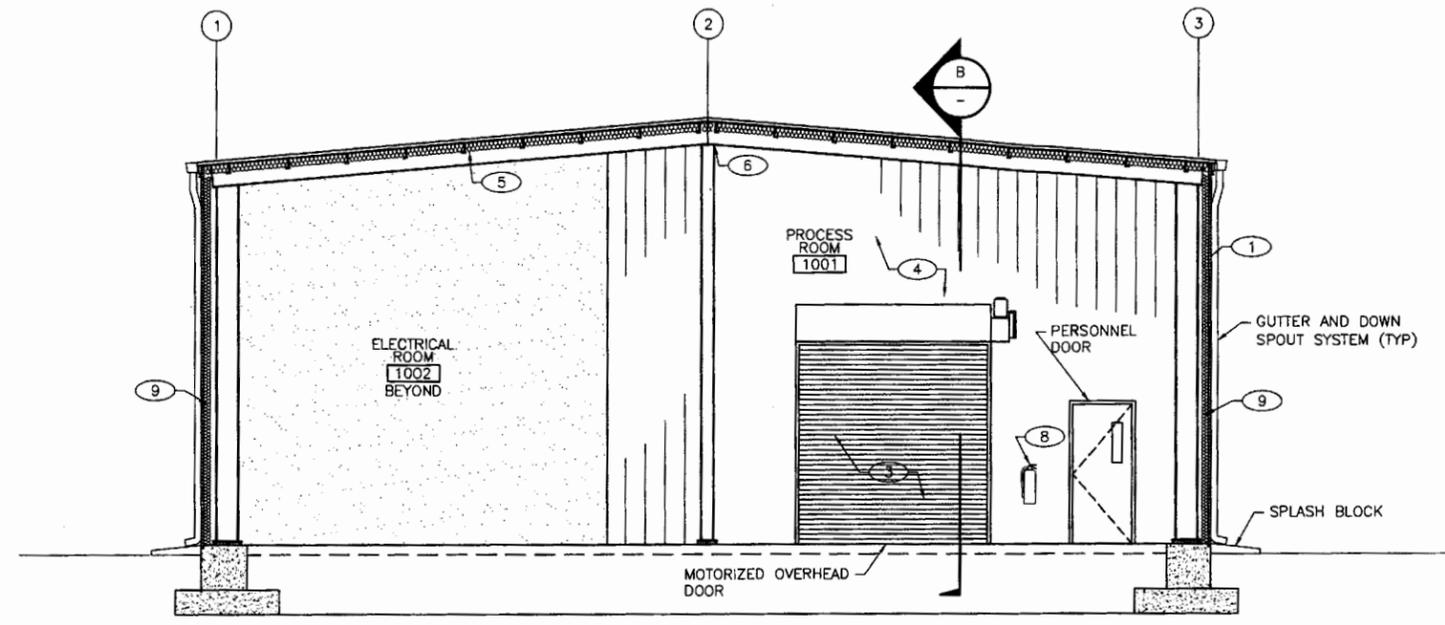
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GENERAL NOTES:

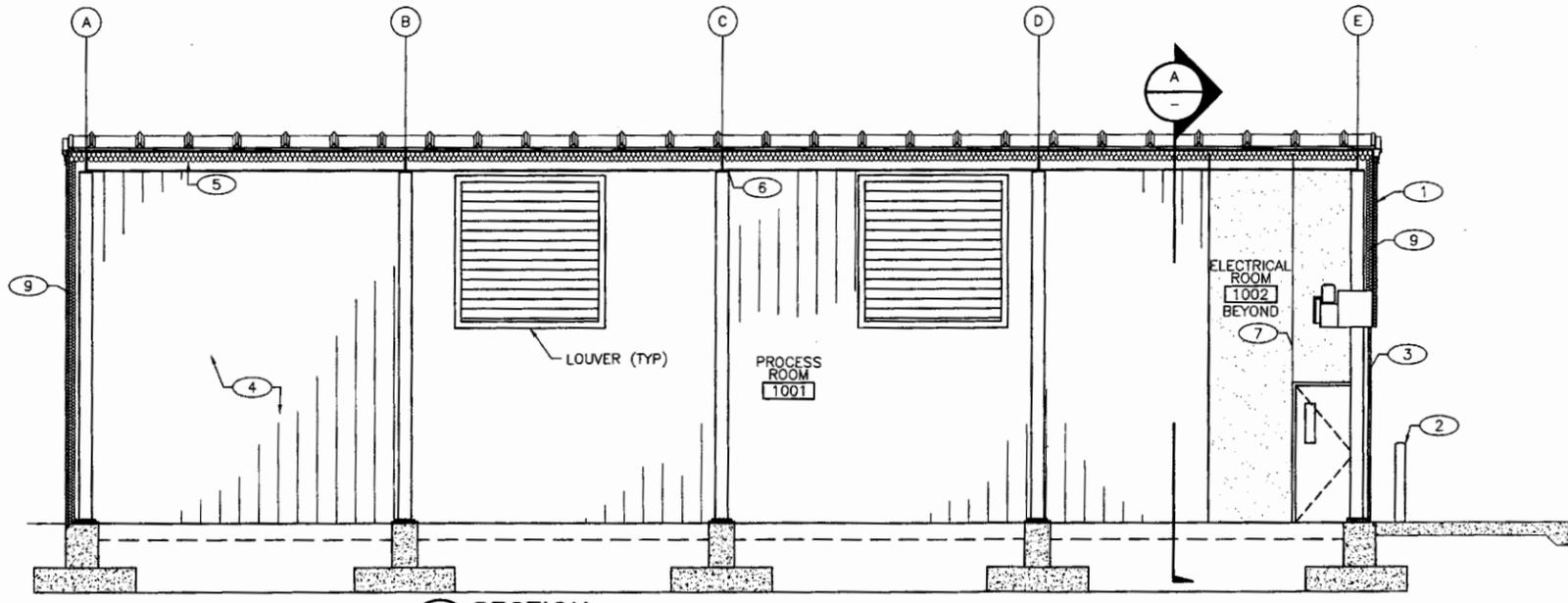
- 1. IF THIS SHEET IS NOT 24"x36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.
- 2. ALL SECONDARY STRUCTURAL FRAMING AND BUILDING SKIN IS BEING PROVIDED BY A BUILDING SUPPLIER IN ACCORDANCE WITH SPECIFICATION SECTION 13 3419. ALL SUPPORTING INFORMATION INCLUDING CALCULATIONS WILL BE PROVIDED BY THE BUILDING SUPPLIER AS A PART OF CONSTRUCTION SHOP DRAWING SUBMITTAL. ALL PREFABRICATED SECONDARY FRAMING SHALL BE DESIGNED BY A LICENSED PROFESSIONAL ENGINEER REGISTERED IN NEW MEXICO, SEE SPECIFICATIONS, SECTION 13 3419.

KEYED NOTES:

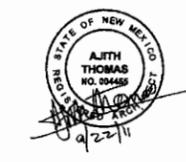
- 1 EXTERIOR METAL PANEL SYSTEM
- 2 6" DIAMETER CONCRETE FILLED STEEL BOLLARD, SEE STRUCTURAL DETAILS
- 3 OVERHEAD COILING DOOR, SEE DOOR SCHEDULE
- 4 INTERIOR METAL LINER PANELS
- 5 R-30 VINYL FACED BATT INSULATION
- 6 REFER TO STRUCTURAL DRAWINGS FOR FRAMING DETAILS
- 7 CONTROL JOINT, TYPICAL AT OUTSIDE CORNER OF HOLLOW METAL DOORS
- 8 BRACKET MOUNTED FIRE EXTINGUISHER



**A SECTION**  
A-1001  
0' 1' 2' 4' 6' 8'  
1/4"=1'-0"

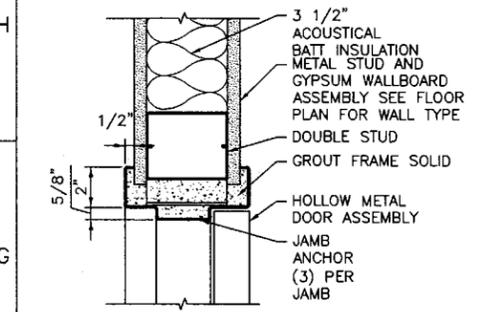
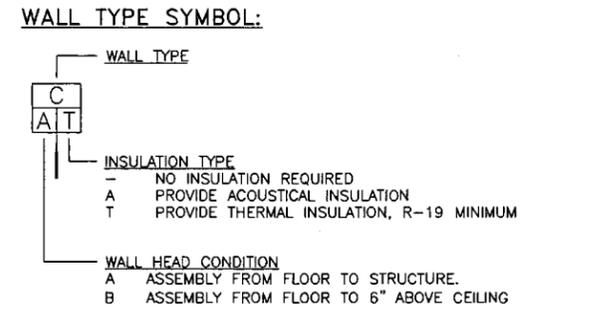


**B SECTION**  
A-1001  
0' 1' 2' 4' 6' 8'  
1/4"=1'-0"

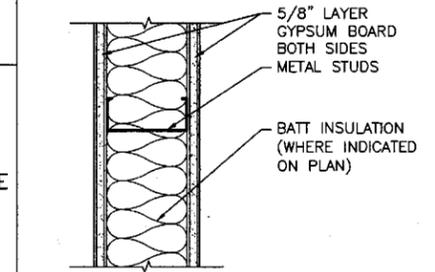


NO	DATE	CLASS	REV	DESCRIPTION	DWN	VER	CHKD	SUB	APP	
<p><b>HDR</b> ENGINEERING INC. 2108 LOUISIANA BLVD, NE SUITE 900 ALBUQUERQUE, NM 87110 MARK (505) 839-5400 FAX: (505) 839-5454</p>										
SERF EXPANSION					DRAWN	B.S.	CAJ			
ARCHITECTURAL BUILDING SECTIONS					DESIGN	A.T.	CAJ			
					CHECKED	W.W.	CAJ			
BLDG. 3093					DATE	08-22-11				
SUBMITTED					APPROVED FOR RELEASE					
SHEET					A-3000					
Los Alamos NATIONAL LABORATORY					PO Box 1663	Los Alamos, New Mexico 87540				
CLASSIFICATION UNCLASSIFIED					DATE	10/1/11				
PROJECT ID 102310					DRAWING NO	C-55752				
					REV	0				

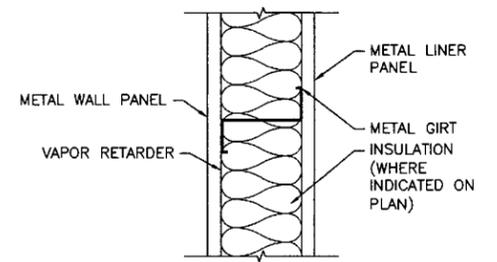
- GENERAL NOTES:**
1. PROVIDE 5/8" TYPE 'X' GYPSUM BOARD AT FIRE RATED WALL ASSEMBLIES. SEE CODE AND FLOOR PLANS FOR SCOPE OF FIRE RATED WALLS.
  2. INSTALL FIRE RATED WALLS CONTINUOUS TO FORM REQUIRED SEPARATION ASSEMBLY.
  3. DIAGONALLY BRACE WALLS THAT EXTEND 6" ABOVE THE CEILING. SEE DETAIL 4.
  4. WALLS INDICATED WITH ACOUSTICAL INSULATION SHALL MEET OR EXCEED AN STC RATING OF 48, UNLESS OTHERWISE INDICATED, WITH SPECIFICATIONS SECTION 09260, GYPSUM BOARD ASSEMBLIES.
  5. ALL SECONDARY STRUCTURAL FRAMING AND BUILDING SKIN IS BEING PROVIDED BY A BUILDING SUPPLIER IN ACCORDANCE WITH SPECIFICATION SECTION 13 3419. ALL SUPPORTING INFORMATION INCLUDING CALCULATIONS WILL BE PROVIDED BY THE BUILDING SUPPLIER AS A PART OF CONSTRUCTION SHOP DRAWING SUBMITTAL.



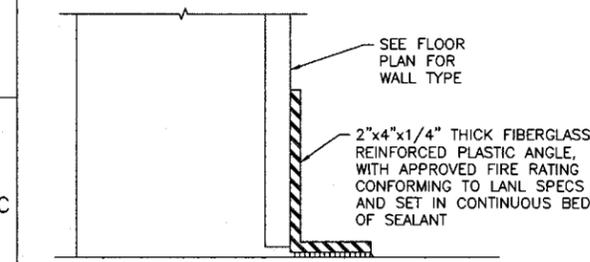
**1 DOOR JAMB (HEAD SIMILAR)**  
 SCALE: NONE



**4 WALL TYPE A**  
 SCALE: NONE



**6 WALL TYPE C**  
 SCALE: NONE



**7 CONTAINMENT CURB**  
 SCALE: NONE

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NO	DATE	CLASS REV	DESCRIPTION	DWN	VER	CHKD	SUB	APP	
<p><b>HDR</b> 2155 LOUISIANA BLVD., NE SUITE 800 ALBUQUERQUE, NM 87110 MARK (505) 830-5400 FAX: (505) 830-5454 ENGINEERING INC.</p>									
SERF EXPANSION							DRAWN	B.S.	GWB
ARCHITECTURAL STANDARD DETAILS							DESIGN	A.T.	GWB
							CHECKED	W.W.	GWB
BLDG. 3093							DATE	08-22-11	
SUBMITTED							APPROVED FOR RELEASE		
<p><i>Cog &amp; B...</i></p>							<p>TA-03</p>		
<p><b>Los Alamos</b> NATIONAL LABORATORY PO Box 1663 Los Alamos, New Mexico 87545</p>							<p>SHEET</p>		
<p>CLASSIFICATION UNCLASSIFIED</p>							<p>33 OF 67</p>		
<p>PROJECT ID 102310</p>							<p>DATE 9/21/11</p>		
<p>DRAWING NO C-55752</p>							<p>REV 0</p>		

ROOM FINISH SCHEDULE																		
NUMBER	ROOM NAME	IBC GROUP	FLOOR		BASE		CEILING		HEIGHT	INTERIOR FINISHES								REMARKS
			MAT'L	FINISH	MAT'L	FINISH	MAT'L	FINISH		NORTH		EAST		SOUTH		WEST		
1001	PROCESS ROOM	F1	C	P	-	FC	ES	ES	~18 FT	G/M	P/FAC	M	P/FAC	M	FAC	G/M	P/FAC	-
1002	ELECTRICAL ROOM	F1	C	P	G	RB	ES	ES	~18 FT	G	P	G	P	G	P	G	P	-

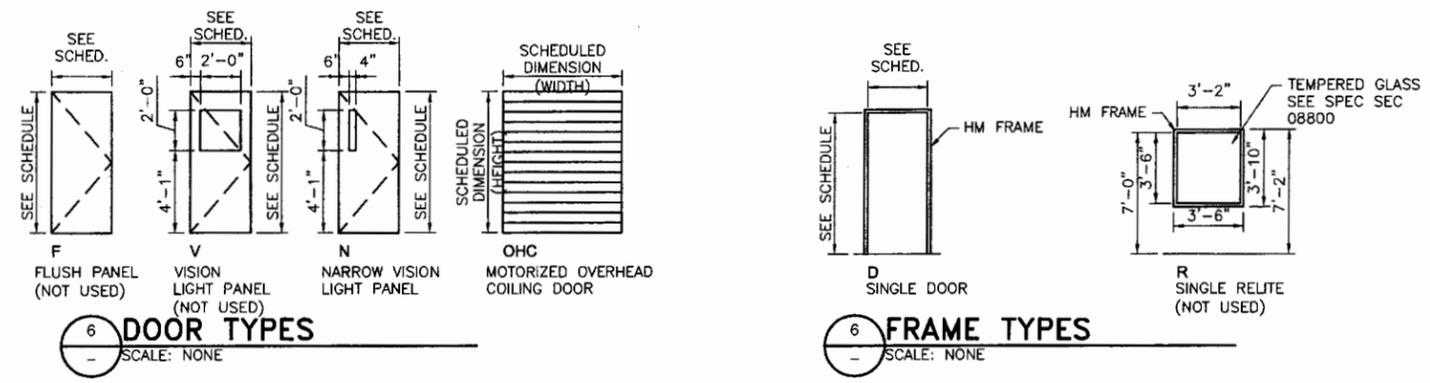
SEE ROOM FINISH SCHEDULE ABBREVIATIONS AT RIGHT

- ROOM FINISH SCHEDULE ABBREVIATIONS:**
- C CONCRETE
  - ES EXPOSED STRUCTURE
  - F1 MODERATE HAZARD INDUSTRIAL OCCUPANCY
  - FAC FACTORY FINISH
  - FG FIBERGLASS CURB
  - G GYPSUM WALLBOARD
  - H7 HIGH HAZARD (HEALTH) OCCUPANCY
  - M METAL LINER PANEL, SEE SPECIFICATION 13 3419 - PRE-ENGINEERED METAL BUILDING
  - P PAINT SYSTEM - SEE SPECIFICATION SECTION 09900 - PAINTING
  - RB RESILIENT BASE

**HARDWARE GROUPS:**  
SEE SPECIFICATION SECTION 13 3419 - METAL BUILDING

**KEYED NOTES:**  
① PER MANUFACTURER'S STANDARD INSTALLATION PRACTICE.

DOOR SCHEDULE										
MARK	SIZE DOOR	DOOR		FRAME		GROUP HARDWARE	DETAILS			REMARKS
		TYPE	MAT'L	MAT'L	TYPE		HEAD	JAMB	SILL	
1001A	3'-0"x7'-0"x1 1/4"	N	HM	HM	D	#3	①	①		
1001B	12'-0"x10'-0"	OHC	STL	STL	D	#6	①	①		MOTORIZED
1001C	3'-0"x7'-0"x1 1/4"	N	HM	HM	D	#3	①	①		
1002A	3'-0"x7'-0"x1 1/4"	N	HM	HM	D	#1	1*	1*		* SEE DWG-5000



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NO	DATE	CLASS REV	DESCRIPTION	DWN	VER	CHKD	SUB	APP
<div style="display: flex; justify-content: space-between;"> <div> <p><b>HDR</b> ENGINEERING INC.</p> <p>2100 LOUISIANA BLVD, NE SUITE 1000 ALBUQUERQUE, NM 87110 PHONE: (505) 833-5400 FAX: (505) 833-5454</p> </div> <div> <p><b>SERF EXPANSION</b></p> <p>ARCHITECTURAL SCHEDULES AND DETAILS</p> </div> </div>								
BLOG. 3093				TA-03		DATE 09-22-11		
SUBMITTED			APPROVED FOR RELEASE					
<p>Los Alamos NATIONAL LABORATORY</p> <p>PO Box 1663 Los Alamos, New Mexico 87545</p>				SHEET		A-7000		
CLASSIFICATION				DATE		REV		
PROJECT ID 102310				UNCLASSIFIED		34 OF 67		
DRAWING NO C-55752				DATE 10/11		REV 0		