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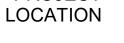


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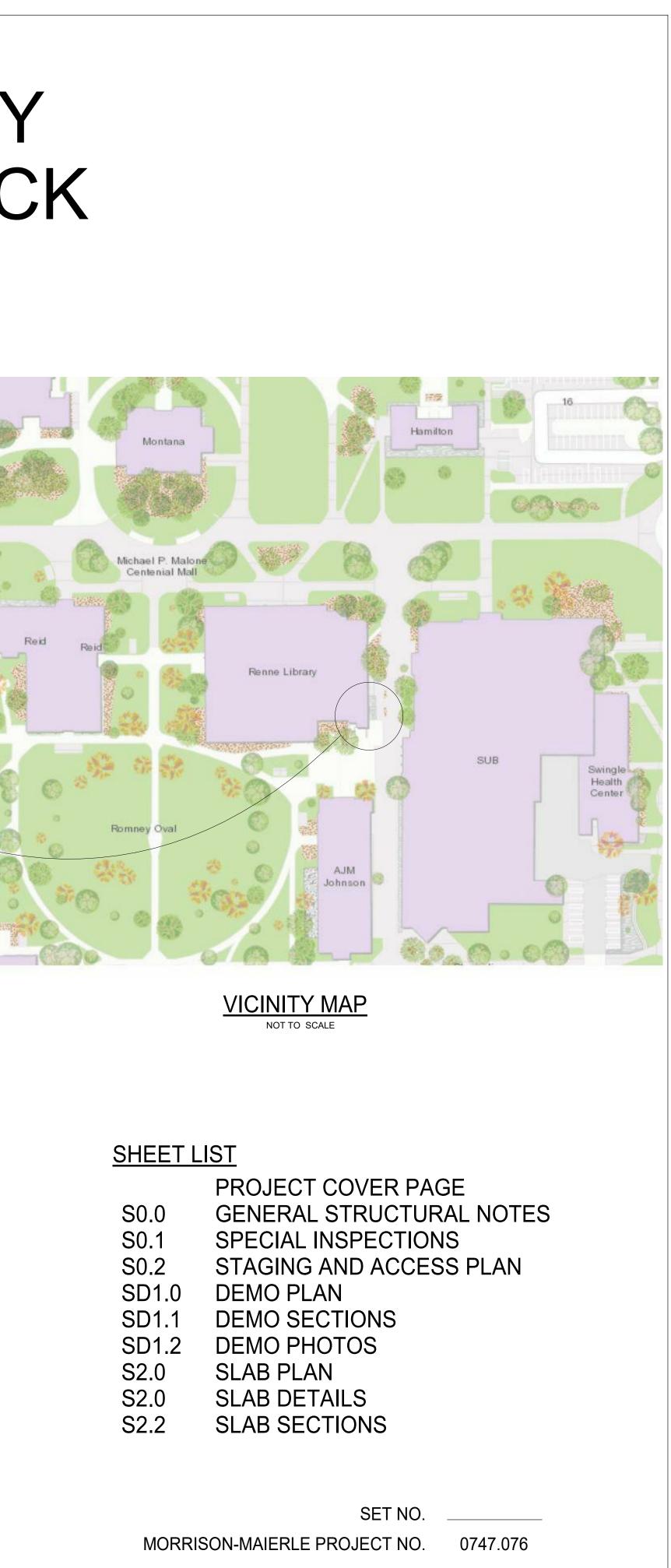






APPROVED BY:

JAY FISCHER, P.E. STRUCTURAL ENGINEER



CAST-IN-PLACE CONCRETE: **GENERAL STRUCTURAL NOTES: DESIGN CODES AND STANDARDS:** CAST-IN-PLACE CONCRETE 1. 2018 INTERNATIONAL BUILDING CODE (IBC), 2018 INTERNATIONAL EXISTING BUILDING CODE (IEBC) 2. ASCE 7-16 MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES MINIMUM 28 DA 3. ACI 318-14 BUILDING CODE REQUIREMENTS FOR CONCRETE STRUCTURES COMPRESSIVE STRE MAXIMUM WATE DESIGN LOADS: CEMENT RATIO (B) 1. DEAD LOADS: CONCRETE SLAB = 4PSF + SELF WT MAXIMUM AGGREGATE SI 2. LIVE LOADS: UNIFORM LIVE LOAD = 125 PSF (LIGHT STORAGE) PERCENT RANG OF AIR CONTER 3. SNOW LOADS: FLAT ROOF SNOW LOAD, Pf = 40 PSF (CITY OF BOZEMAN MIN.) - GROUND SNOW LOAD, Pg = 46 PSF (CITY OF BOZEMAN MIN.) MAXIMUM SLUM - SNOW EXPOSURE FACTOR, Ce = 1.0 (BASED ON EXPOSURE CATEGORY C) - SNOW LOAD IMPORTANCE FACTOR, Is = 1.0 - THERMAL FACTOR, Ct = 1.0 4. WIND LOADS: ULTIMATE DESIGN WIND SPEED (3-SECOND GUST), Vult = 115 MPH RISK CATEGORY = II MAINTAIN THE SPECIFIED W/C RATIO. WIND EXPOSURE = B INTERNAL WIND PRESSURE COEFFICIENT = ± 0.18 WIND IMPORTANCE FACTOR = 1.0 5. SEISMIC LOADS: SEISMIC DESIGN CATEGORY = D - RISK CATEGORY = II WHEN PLACED ON GROUND: -- SEISMIC IMPORTANCE FACTOR = 1.0 EXPOSED TO WATE - MAPPED ACCELERATION PARAMETER: SS = 0.671, S1 = 0.214 BACKFILL OR COND - SOIL SITE CLASS = D #5 BAR OR SMALLE - DESIGN SPECTRAL ACCELERATION PARAMETER, SDS = 0.569, SD1 = 0.314 #6 BAR OR LARGER ---- DESIGN BASE SHEAR: 7.3K - SEISMIC RESPONSE COEFFICIENT, Cs = 0.1138 - RESPONSE MODIFICATION FACTOR, R = 5 ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE PROCEDURE BASIC SEISMIC-FORCE-RESISTING SYSTEM: ORDINARY REINFORCED CONCRETE SHEARWALLS 6. SOIL LOADS LATERAL EARTH PRESSURE (EQUIV. FLUID WT.) = 60 PCF BAR SIZE FRICTION COEFFICIENT BETWEEN FOOTING BASE AND SUPPORTING SOIL = 0.45 LATERAL EARTH BEARING RESISTANCE (PASSIVE) = 200 PSF/FT. 0 TOP BAR * 1'-7" 2'-1" 2'-7" 3'-1" 4'-6" 5'-2" 5'-10" 6'-7" 7'-3" OTHER BAR 1'-4" 1'-7" 2'-0" 2'-4" 2'-9" 3'-6" 4'-6" 5'-1" 5'-8" GR. 60 **MISCELLANEOUS** 1. STRUCTURAL DRAWINGS SHALL BE USED FOR BIDDING AND CONSTRUCTION. CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO BIDDING AND CONSTRUCTION. CONSIDERED TOP BARS. 2. DRAWINGS INDICATE GENERAL AND TYPICAL DETAILS OF CONSTRUCTION. WHERE CONDITIONS ARE NOT SPECIFICALLY INDICATED BUT ARE OF SIMILAR CHARACTER TO DETAILS SHOWN, SIMILAR DETAILS OF CONSTRUCTION SHALL BE USED, SUBJECT TO REVIEW AND APPROVAL BY THE ENGINEER OF RECORD. 3. EXISTING BUILDING/SITE DIMENSIONS AND ASSUMED CONDITIONS ARE TO BE VERIFIED IN THE FIELD AND ARE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ALL DISCREPANCIES WHICH REQUIRE A SIGNIFICANT CHANGE IN THE DESIGN AND/OR CONSTRUCTION FROM THAT SHOWN ON THE DRAWINGS. 4. THE CONTRACTOR SHALL CHECK AND COORDINATE WITH THE OWNER FOR BLOCKOUTS, CONDUIT, PIPE 8. DOWELS SHALL BE THE LENGTH INDICATED. DOWELS SHALL BE WIRED IN POSITION PRIOR TO POURING SLEEVES, EMBEDDED ITEMS, ETC. TO BE EMBEDDED IN CONCRETE AND MASONRY, AS WELL AS OPENINGS IN CONCRETE. STRUCTURE FOR MECHANICAL AND ELECTRICAL INSTALLATIONS. STRUCTURAL DRAWINGS SHOW THIS INFORMATION FOR COORDINATION PURPOSES ONLY. 9. AT ALL FOUNDATION/CONCRETE WALL AND FOOTING CORNERS AND WALL INTERSECTIONS, CORNER BARS 5. ENGINEER SHALL REVIEW SHOP DRAWINGS ONLY FOR THE CONFORMANCE WITH THE DESIGN CONCEPT OF THE PROJECT AND FOR COMPLIANCE WITH THE INFORMATION GIVEN IN THE CONTRACT DOCUMENTS. DIMENSIONS AND QUANTITIES NOTED ON THE SHOP DRAWINGS ARE NOT GUARANTEED BY THE ENGINEER, AND THEREFORE, MUST BE VERIFIED BY THE GENERAL CONTRACTOR. CONTRACTOR IS RESPONSIBLE FOR INFORMATION THAT PERTAINS TO THE FABRICATION PROCESSES OR TO TECHNIQUES OF CONSTRUCTION. SHOP DRAWINGS MUST BE REVIEWED, STAMPED, AND SIGNED BY THE CONTRACTOR PRIOR TO THE REVIEW BY THE ENGINEER. 36 TIMES THE SLAB THICKNESS. 6. THE STRUCTURE SHALL BE ADEQUATELY BRACED FOR SOIL, WIND, EARTHQUAKE AND CONSTRUCTION LOADS UNTIL ALL FLOOR, ROOF, AND WALL UNITS HAVE BEEN PERMANENTLY ATTACHED THERETO. 7. CONTRACTOR IS RESPONSIBLE FOR EXPORTING ALL DEMO MATERIALS OFF-SITE AND THEIR DISPOSAL. APPLICATION NEW OR EXISTING CONCRETE EARTHWORK: 1. DATA ON INDICATED SUBSURFACE CONDITIONS ARE NOT INTENDED AS REPRESENTATIONS OR 14. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS. WARRANTIES OF CONTINUITY OF SUCH CONDITIONS. IT IS EXPRESSLY UNDERSTOOD THAT OWNER AND ENGINEER WILL NOT BE RESPONSIBLE FOR INTERPRETATIONS OR CONCLUSIONS DRAWN THEREFROM BY THE CONTRACTOR. THE DATA ARE MADE AVAILABLE FOR CONVENIENCE OF THE CONTRACTOR. 2. STABILITY OF CONSTRUCTION EXCAVATION AND WORKER SAFETY ARE THE RESPONSIBILITY OF THE CONTRACTOR. BASED UPON THE GEOTECHNICAL REPORT, TEMPORARY CONSTRUCTION EXCAVATIONS, ABOVE GROUNDWATER, TO BE PLANNED IN ACCORDANCE WITH OSHA PROVISIONS SHOULD ASSUME TYPE B MATERIAL FOR STIFF CLAY, AND TYPE C MATERIAL FOR SAND. 3. GROUNDWATER MAY BE PRESENT DURING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR ANY AND ALL DEWATERING. 4. KEEP EXCAVATIONS FREE OF STANDING WATER. REMOVE AND REPLACE MATERIAL THAT IS NOT WITHIN 3% OF OPTIMUM MOISTURE PRIOR TO PLACING ADDITIONAL FILL OR CONCRETE. 5. PROPER DRAINAGE SHALL BE MAINTAINED DURING CONSTRUCTION TO KEEP SURFACE RUNOFF FROM ENTERING THE EXCAVATIONS AND DIRECTED AWAY FROM THE STRUCTURE. 6. ALL EXCAVATION IS UNCLASSIFIED, REGARDLESS OF THE MATERIAL ENCOUNTERED. 7. COMPACTED. IMPORTED STRUCTURAL FILL IS REQUIRED BELOW SLABS. BACKFILL WITH 3/4" MINUS AND COMPACT SUBGRADE BELOW SLABS TO 95% OF ASTM D698 MAXIMUM DRY DENSITY. FILL ANY OVER-EXCAVATED OR EMBANKMENT AREAS BENEATH SLABS WITH IMPORTED STRUCTURAL FILL. PLACE FILL IN MAXIMUM LOOSE LAYERS 8" DEEP AND COMPACT TO 98% OF ASTM D698 MAXIMUM DRY DENSITY. 8. WHERE DRAINAGE GRAVEL IS REQUIRED FOR SLAB SUPPORT, DRAINAGE GRAVEL SHALL BE PLACED 4 INCHES MINIMUM IN DEPTH AND COMPACTED TO MINIMUM 95% DRY DENSITY PER ASTM D-698. IMPORTED DRAINAGE GRAVEL SHALL CONFORM TO THE FOLLOWING GRADATION; SCREEN OR SIEVE SIZE PERCENT PASSING BY WEIGHT NO. 4 10 MAX. NO. 200 9. USE ONLY HAND OPERATED COMPACTION EQUIPMENT. 10. DO NOT PLACE BACKFILL UNTIL ALL SUPPORTING STRUCTURES ARE IN PLACE AND CONCRETE WALLS AND SLABS HAVE ACHIEVED THE SPECIFIED 28-DAY COMPRESSIVE STRENGTH UNLESS OTHERWISE NOTED ON DRAWINGS.

1. CONCRETE PROPERTIES (SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS): FOOTINGS/FOUNDATION SLABS ON GRADE/

	WALLS	ONE-WAY SLABS		
AY RENGTH	4500 PSI	4500 PSI *		
ER- Y WT.)	0.40	0.40		
IZE	1"	1 1/2"		
IGE INT	6.5% ± 1.5%	6.5% ± 1.5% **		
MP	4" ***	3" ***		

** AIR CONTENT OF SLABS ON GRADE MAY BE REDUCED TO 2% MIN. IF THE SLAB WILL BE PROTECTED FROM FREEZE/THAW CYCLES DURING AND AFTER CONSTRUCTION. *** MAXIMUM SLUMP MAY BE INCREASED TO 8" W/ THE USE OF WATER-REDUCING ADMIXTURES TO

2. ALL CONCRETE REINFORCING SHALL CONFORM TO ASTM A615, GRADE 60, EXCEPT FOR REINFORCING INDICATED AS REQUIRING WELDING, WHICH SHALL CONFORM TO ASTM A706, GR.60.

3. CLEARANCE FOR REINFORCEMENT BARS, UNLESS SHOWN OTHERWISE, SHALL BE: SURFACES:

GROUND: 3	INTERIOR DRT SURFA
ER, WEATHER,	SLABS 3/4"
DENSATION:	BEAMS 1-1/2"
R1-1/2"	COLUMNS 1-1/2"
R2"	WALLS 1"

4. ALL BENDS, UNLESS OTHERWISE SHOWN, SHALL BE A 90 DEGREE STANDARD HOOK AS DEFINED IN THE LATEST EDITION OF ACI 318. DETAIL ALL REINFORCEMENT IN ACCORDANCE WITH ACI 315.

5. ALL REINFORCEMENT LAPS, UNLESS OTHERWISE NOTED, SHALL BE AS FOLLOWS:

DETAIL OF REINFORCEMENT - LAP LENGTHS **

	#3	#4	#5	#6	#7	#8	#9	#10	#11
				4	500 PS	SI			
*	1'_7"	2'_1"	2'_7"	3'_1"	1'-6"	5'_2"	5'-10"	6'_7"	7'_3"

* TOP BARS SHALL BE DEFINED AS ANY HORIZONTAL BARS PLACED SUCH THAT MORE THAN 12" OF FRESH

CONCRETE IS CAST IN THE MEMBER BELOW THE BAR, IN ANY SINGLE POUR. HORIZONTAL WALL BARS ARE

** INCREASE LAP LENGTHS SHOWN ABOVE BY 25% WHERE BARS ARE SPACED CLOSER THAN 6" O.C. OR WHERE EDGE OF BAR MEASURED IN DIRECTION OF SPACING IS LESS THAN 3" FROM FACE OF MEMBER.

6. TOLERANCES IN PLACING REINFORCEMENT SHALL BE: +/- 3/8 IN. FOR MEMBERS WITH D LESS THAN 8 IN. +/- 1/2 IN. FOR MEMBERS WITH D GREATER THAN 8 IN. WHERE D IS THE DISTANCE FROM THE OPPOSITE FACE OF CONCRETE TO THE CENTER OF THE REINFORCING.

7. PROVIDE SUPPORTS FOR REINFORCING AS SPECIFIED TO MAINTAIN BAR POSITION IN CONCRETE.

SHALL BE PROVIDED TO MATCH THE HORIZONTAL BARS.

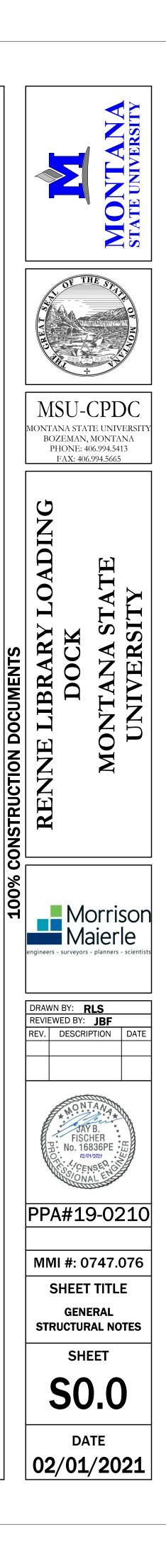
10. UNLESS INDICATED OTHERWISE, ALL ANCHOR BOLTS, HOLDOWNS AND OTHER REQUIRED ACCESSORIES SHALL BE WIRED IN PLACE PRIOR TO FOUNDATION INSPECTION AND CONCRETE PLACEMENT. DO NOT STAB THE ABOVE LISTED ITEMS INTO FRESH CONCRETE AFTER PLACEMENT. PROPERLY VIBRATE AROUND INSTALLED ITEMS TO ENSURE PROPER CONSOLIDATION OF CONCRETE.

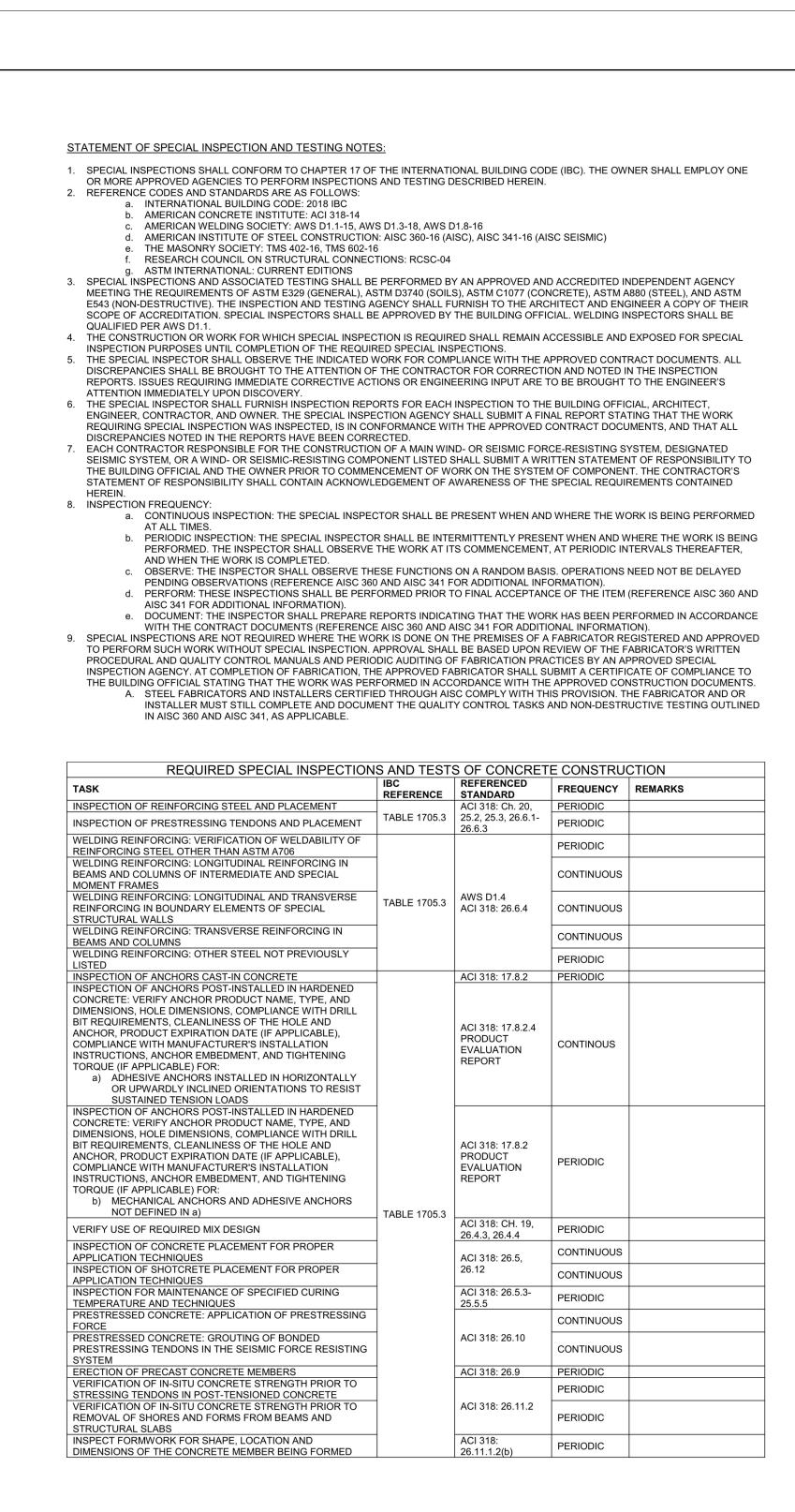
11. AT SLABS-ON-GRADE, PROVIDE JOINTING AS INDICATED IN THE DRAWINGS WITH SPACING NOT TO EXCEED

12. AT SLABS-ON-GRADE, PROVIDE JOINTING AS INDICATED IN THE DRAWINGS.

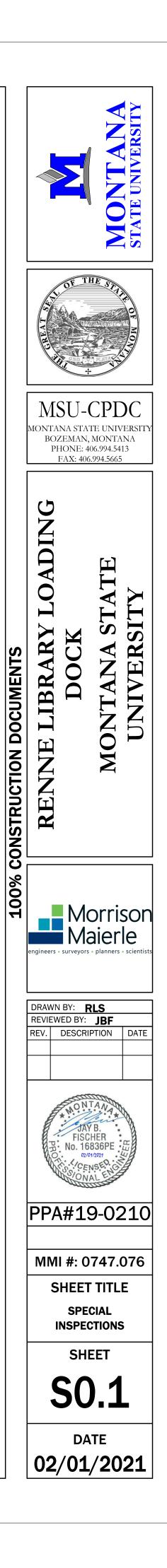
13. WHERE "DRILLING & EPOXYING" OF REINFORCING STEEL OR THREADED ANCHOR RODS (ASTM A36, U.N.O.) IS INDICATED, UNLESS NOTED OTHERWISE, PROVIDE THE FOLLOWING SYSTEM OR APPROVED EQUIVALENT:

EPOXY SYSTEM HILTI HIT HY200

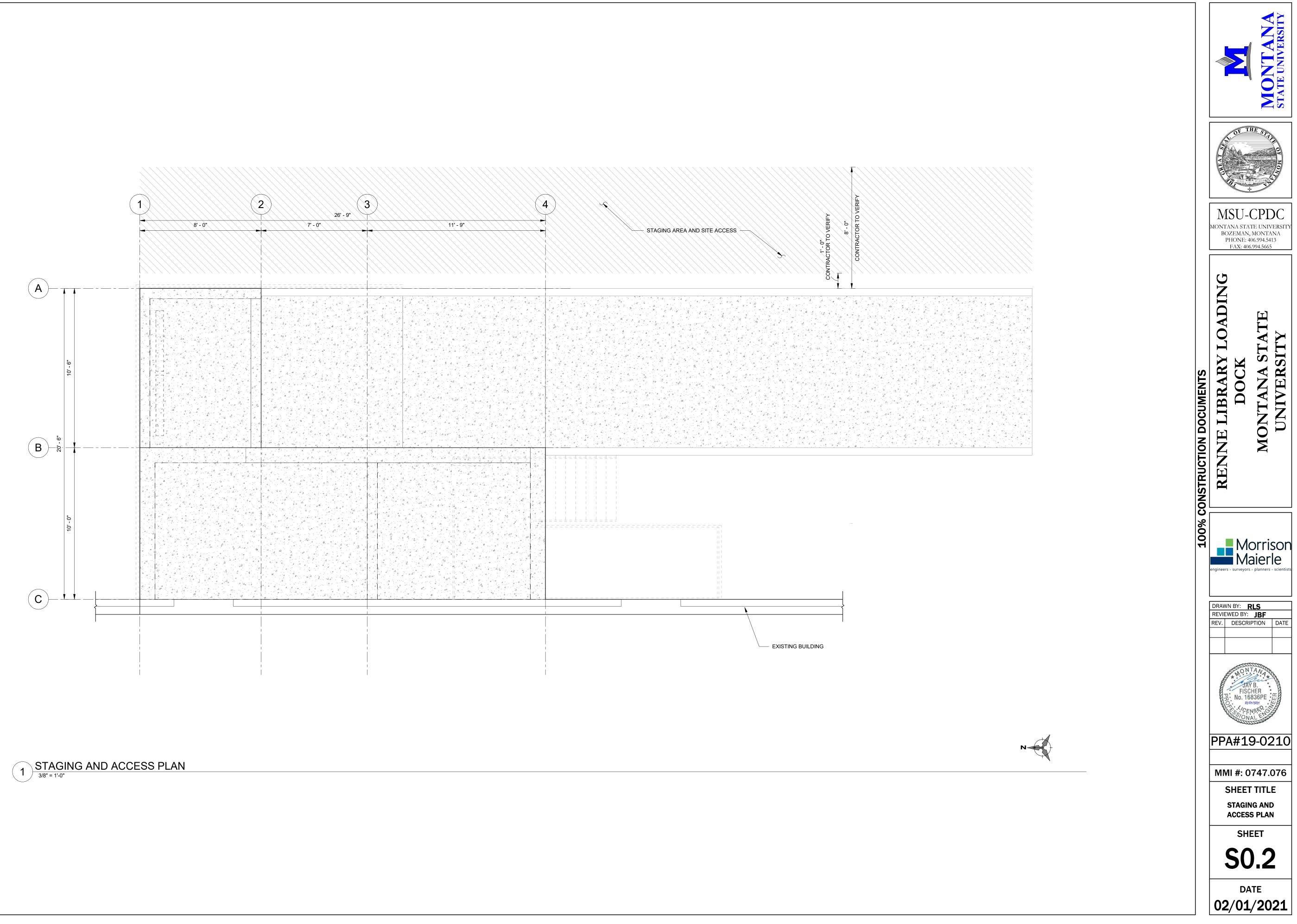


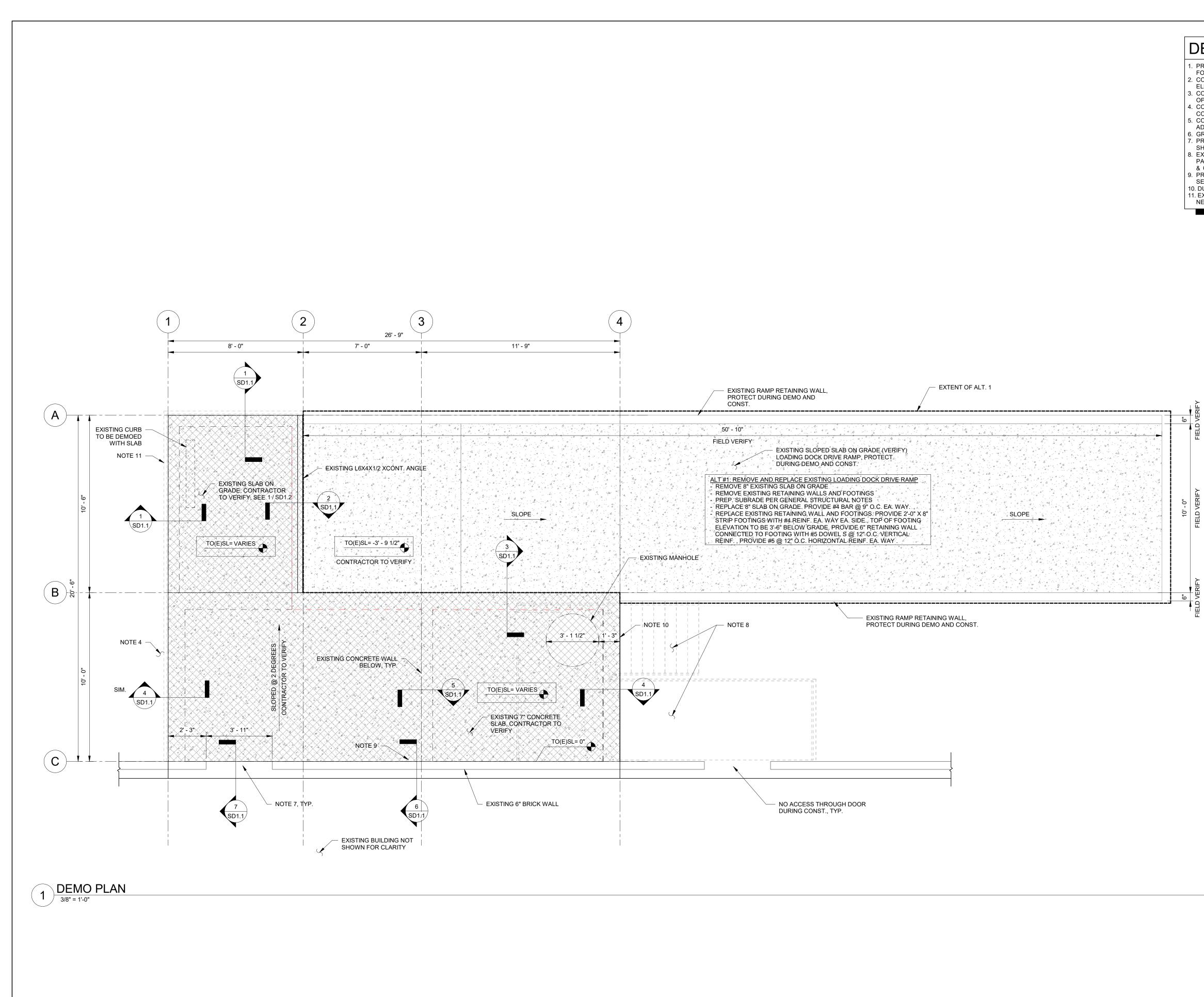


TESTING OF CONCRETE CONSTRUCTION					
TASK	IBC REFERENCE	REFERENCED STANDARD	FREQUENCY		
CONCRETE STRENGTH TEST SPECIMENS	TABLE 1705.3	ASTM C31 AND C39	FOR EACH CLASS OF CONCRETE (E.G. FOOTINGS, WALLS, OR SLAB ON GRADE), ONE SET OF SPECIMENS EACH DAY OR LESSER OF: ONE SET FOR EACH 150 YDS OF CONCRETE OR ONE SET FOR EACH 5,000 SQUARE FEET OF SLABS OR WALL		
AT THE TIME FRESH CONCRETE IS SAMPLED TO FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE TEMPERATURE OF CONCRETE		ASTM C172 ACI 318-14: 26.4 AND 26.12	FOR EACH SPECIMEN		











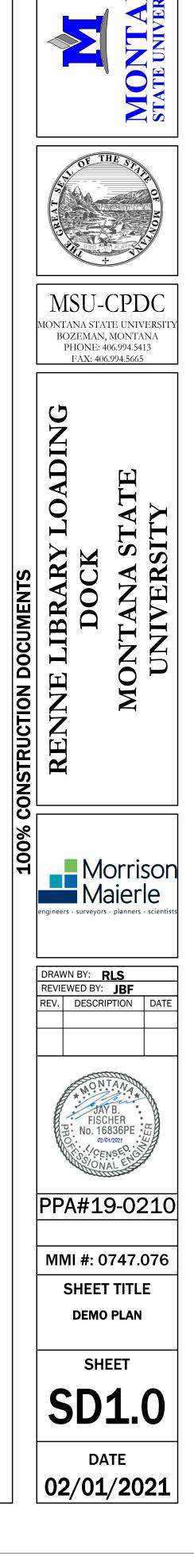
- . PROJECT DATUM ELEVATION = 0' 0" AT TOP OF SLAB. ALL SPOT ELEVATIONS FOR FOUNDATION ELEMENTS ARE IN REFERENCE TO THE DATUM ELEVATION.
- 2. CONTRACTOR TO FIELD VERIFY ALL ELEMENTS, DIMENSIONS, AND ELEVATIONS.
- 3. CONTRACTOR TO VERIFY ALL DIMENSIONS TO AND SIZES OF WALL & FLOOR OPENINGS AND PENETRATIONS.
- CONTRACTOR TO COORDINATE SITE HARDSCAPING WITH OWNER. CONTRACTOR TO PROTECT LANDSCAPING AND REPLACE IMPACTED AREAS. 5. CONTRACTOR TO REFER TO GENERAL STRUCTURAL NOTES ON S0.0 FOR
- ADDITIONAL REQUIREMENTS.
- 6. GRIDS ARE TO FACE OF FOUNDATION WALL, UNLESS NOTED OTHERWISE. PROTECT EXISTING DOOR DURING CONSTRUCTION. DOOR LOCATIONS ARE SHOWN FOR REPRESENTATION PURPOSE ONLY. SEE IMAGE 2/SD1.2.
- 8. EXISTING METAL STAIRS, RAILING AND GRATING TO BE REMOVED, RE-
- PAINTED AND RE-USED WITH NEW CONSTRUCTION. SEE IMAGES 5/SD1.2 & 6/SD1.2. 9. PROTECT EXISTING ELECTRICAL PANELBOARD AND ASSOCIATED CONDUITS. SEE IMAGE 3/SD1.2.
- 10. DUCT PENETRATION BELOW, SEE IMAGE 4 / SD1.2.
- 1. EXISTING WOOD RAILING TO BE REMOVED, RE-PAINTED AND RE-USED WITH NEW CONSTRUCTION. SEE IMAGE 7/SD1.2.

DEMO LEGEND

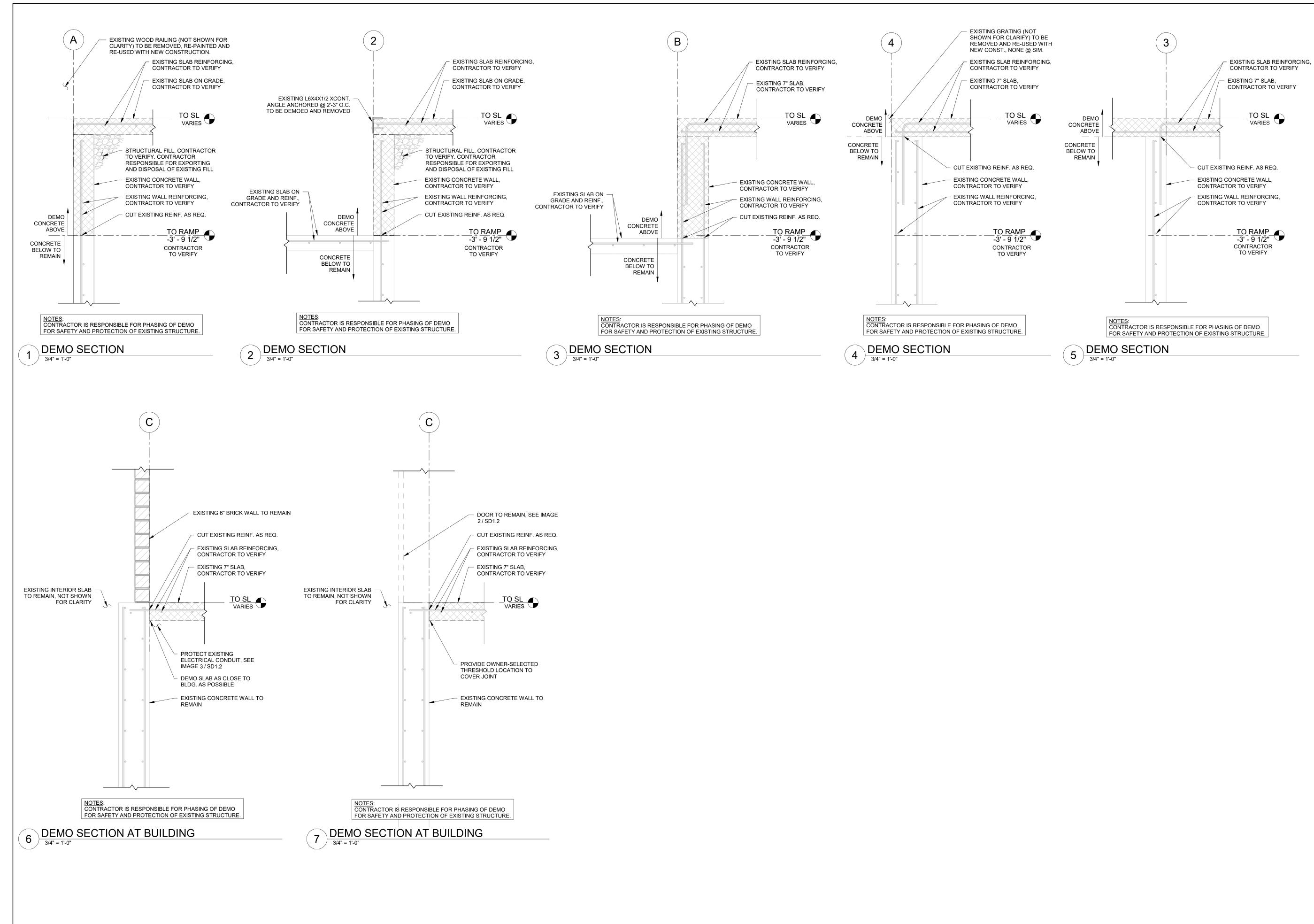
- DEMO AREA

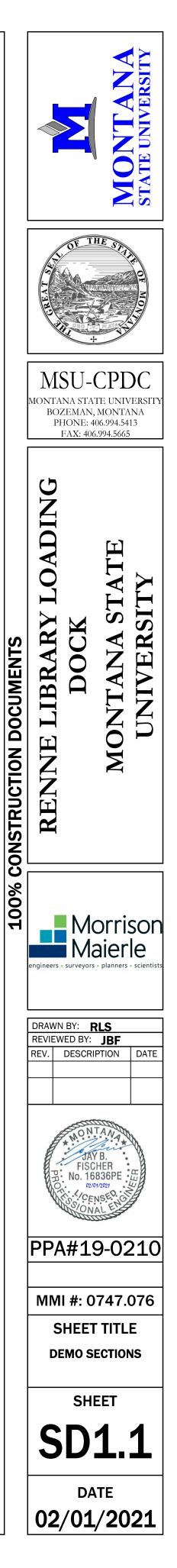
- _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ EXISTING CONCRETE WALL TO BE DEMOED

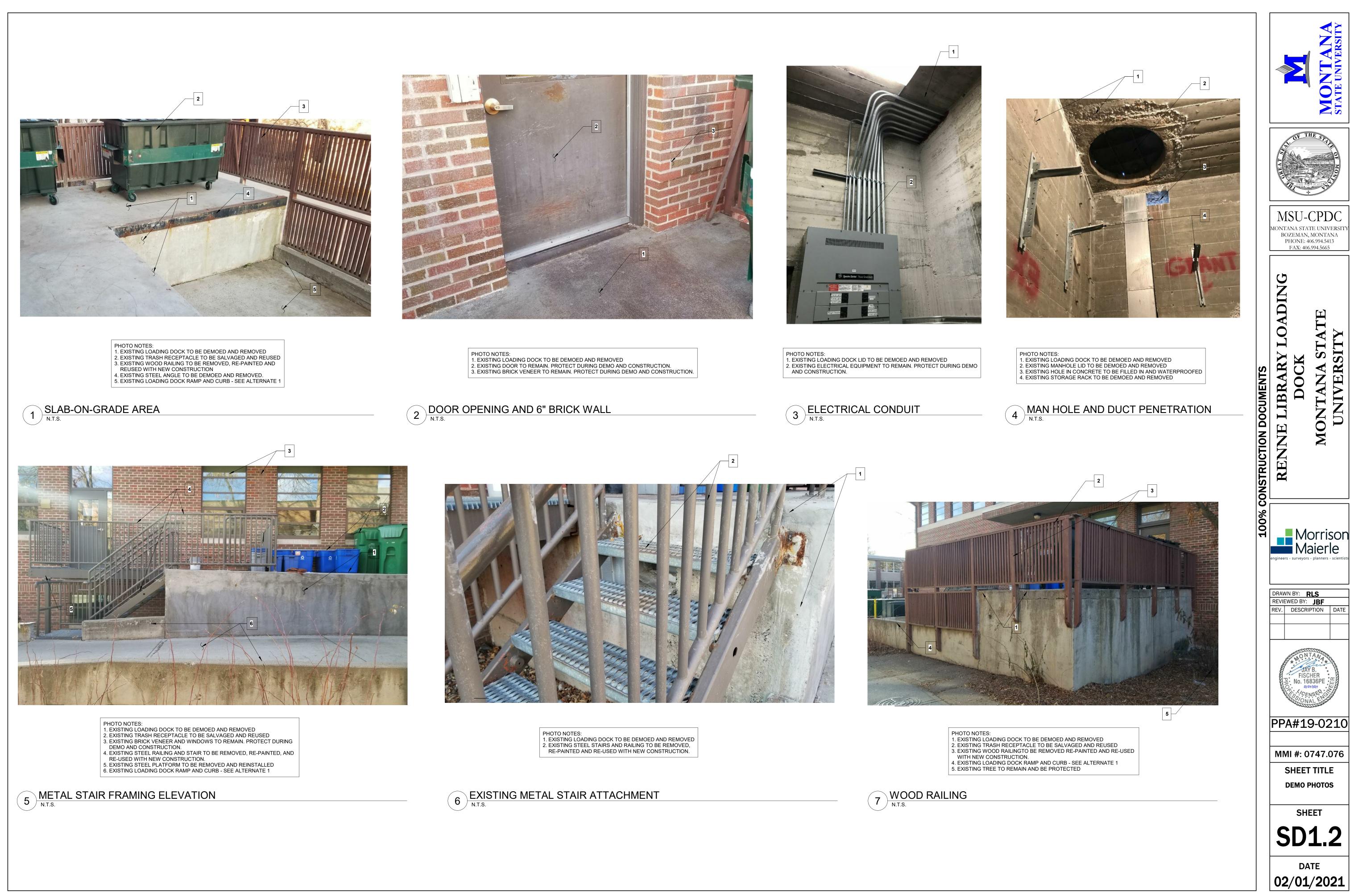
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