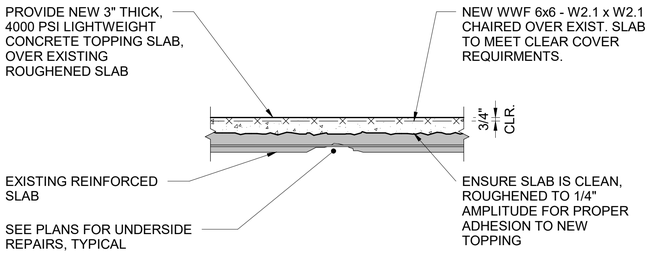
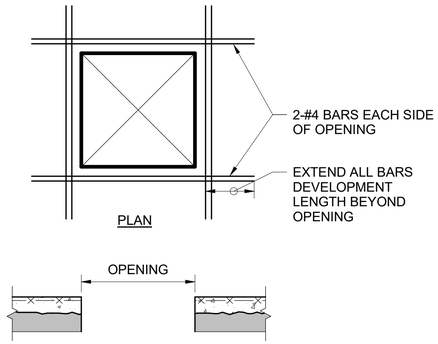
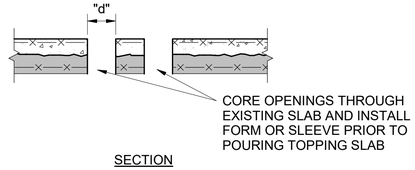


TYPICAL DETAIL OF STRUCTURAL TOPPING SLAB

(DETAIL SHOWN PARALLEL TO SLAB SPAN/PERPENDICULAR TO SLAB SUPPORT)



TYPICAL DETAIL OF NEW RECTANGULAR OPENINGS IN TOPPING SLAB



NOTES

1. SEE DETAILS ON S5.7 FOR SLAB CORING RESTRICTIONS.
2. ADJUST OPENING LOCATIONS OR REINFORCEMENT LOCATIONS SO OPENINGS DO NOT CONFLICT WITH EXISTING REINFORCEMENT. USE NON-DESTRUCTIVE TESTING TO SCAN AND LOCATION EXISTING REINFORCEMENT.
3. WHERE SPACING BETWEEN OPENINGS IS LESS THAN SHOWN ABOVE, TREAT THE GROUP OF OPENINGS AS A SINGLE LARGER OPENING WITH APPROPRIATE SUPPLEMENTAL STEEL SUPPORT OF EXISTING FLOOR ELEMENTS PER DETAILS ON S5.4.

TYPICAL DETAIL OF NEW PIPE OPENINGS IN TOPPING SLAB

1 S5.8 STRUCTURAL TOPPING AND FLOOR OPENINGS DETAIL

NO SCALE

DEFORMED BAR TENSION DEVELOPMENT LENGTH (Ld)				
FOR NORMAL WEIGHT STONE CONCRETE & UNCOATED BARS				
BAR SIZE	4000 PSI CONCRETE		5000 PSI CONCRETE	
	CASE I	CASE II	CASE I	CASE II
#3	15	22	13	20
#4	19	29	17	26
#5	24	36	22	32
#6	29	43	26	39
#7	42	63	38	56
#8	48	72	43	64
#9	54	81	48	72
#10	61	91	54	81
#11	67	101	60	90

DEFORMED TENSION BAR NOTES:

1. FOR HORIZONTAL REINFORCEMENT WITH 12 INCH OR MORE FRESH CONCRETE CAST BELOW IT, TENSION DEVELOPMENT LENGTH/ TENSION LAP SPLICE LENGTH SHALL BE 1.3x THE VALUES GIVEN.
2. FOR REINFORCEMENT IN LIGHTWEIGHT CONCRETE, TENSION DEVELOPMENT LENGTH/TENSION LAP LENGTH SHALL BE 1.3x THE VALUES GIVEN.
3. FOR EPOXY-COATED BARS:
   A. WHERE CONCRETE COVER IS LESS THAN 3x BAR DIAMETER, OR CLEAR SPACING IS LESS THAN 6x BAR DIAMETER, TENSION DEVELOPMENT LENGTH/ TENSION LAP SPLICE LENGTH SHALL BE 1.5x THE VALUES GIVEN.
   B. WHERE CONCRETE COVER IS EQUAL TO OR GREATER THAN 3x BAR DIAMETER AND CLEAR SPACING IS GREATER THAN 6x BAR DIAMETER, TENSION DEVELOPMENT LENGTH/ TENSION LAP SPLICE LENGTH SHALL BE 1.2x THE VALUES GIVEN.
4. CASE I APPLIES WHEN EITHER OF THE FOLLOWING SETS OF CONDITIONS ARE MET:
   A. ALL THREE OF THESE:
      a. CLEAR SPACING OF BARS BEING DEVELOPED OR SPLICED IS NOT LESS THAN DB AND
      b. CLEAR COVER IS NOT LESS THAN DB AND
      c. STIRRUPS OR TIES ARE PROVIDED THROUGHOUT THE DEVELOPMENT LENGTH AND THE QUANTITY IS NOT LESS THAN THE CODE MINIMUM.
   B. OR BOTH OF THESE:
      a. CLEAR SPACING OF BARS BEING DEVELOPED OR SPLICED IS NOT LESS THAN 2DB AND
      b. CLEAR COVER IS NOT LESS THAN DB.

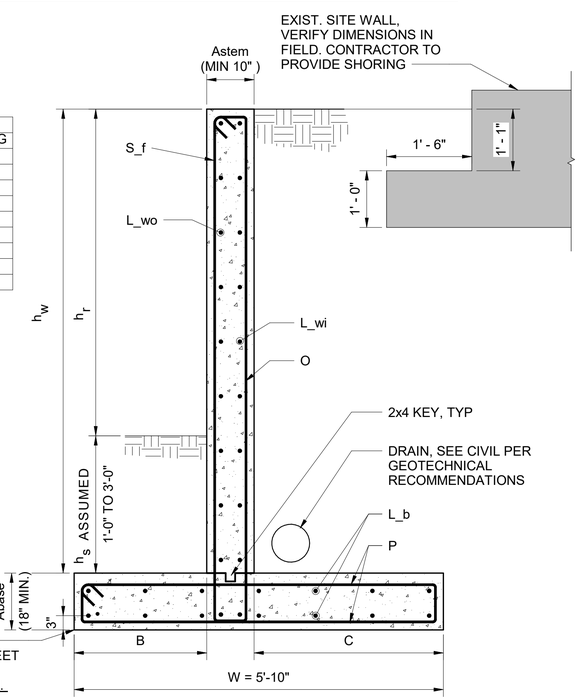
   CASE II APPLIES TO ALL OTHER CONDITIONS NOT DESCRIBED IN CASE I

DEFORMED BAR TENSION LAP SPLICE CLASS B				
FOR NORMAL WEIGHT STONE CONCRETE & UNCOATED BARS				
BAR SIZE	4000 PSI CONCRETE		5000 PSI CONCRETE	
	CASE I	CASE II	CASE I	CASE II
#3	19	28	17	25
#4	25	37	23	34
#5	31	47	28	42
#6	37	56	34	50
#7	54	81	49	73
#8	62	93	56	83
#9	70	105	63	94
#10	79	118	71	106
#11	87	131	78	117

DEFORMED BAR COMPRESSION DEVELOPMENT LENGTH (Ldc)		
FOR NORMAL WEIGHT STONE CONCRETE & UNCOATED BARS		
BAR SIZE	4000 PSI CONCRETE	5000 PSI CONCRETE
#3	8	8
#4	10	9
#5	12	12
#6	15	14
#7	17	16
#8	19	18
#9	22	21
#10	25	23
#11	27	26

DEFORMED BAR COMPRESSION LAP SPLICE		
FOR NORMAL WEIGHT STONE CONCRETE & UNCOATED BARS		
BAR SIZE	4000 PSI CONCRETE	5000 PSI CONCRETE
#3	12	12
#4	15	15
#5	19	19
#6	23	23
#7	27	27
#8	30	30
#9	34	34
#10	39	39
#11	43	43

TYPE	h_r	REBAR		
RW8	8 FT MAX	BARS	BAR SIZE	BAR SPACING
		S_f	#4	18 IN O.C.
		O	#6	10 IN O.C.
		P	#6	12 IN O.C.
		L_wi	#4	18 IN O.C.
		L_wo	#4	18 IN O.C.
		L_b	#5	18 IN O.C.
		FOOTING DIMENSION		
		B	2.0 FT	
		C	3.0 FT	



BEARING ELEVATION TO MATCH EXIST. BUILDING FOUNDATION (V.I.F.) AND SHALL MEET MIN. FROST DEPTH. NOTIFY CONTRACTING OFFICER IF h_s > 3'-0" BEFORE INSTALLATION.

NOTES:

1. "O" BARS MAY BE SPLICED ABOVE BASE OF WALL AS AN ALTERNATE.
2. RETAINING WALL TO HAVE GRANULAR BACKFILL AND DRAIN LINE INSTALLED BEHIND THE BASE OF WALLS.
3. **NOTE: DESIGN IS BASED ON TERRACON SUPPLEMENTAL SEISMIC SITE CLASSIFICATION LETTER, PROJECT NO. 35225081, DATED 09/20/2023 FOR MAURICE BATHHOUSE. CONTRACTOR TO PLACE GRANULAR BACKFILL AGAINST THE STRUCTURE WITH MAXIMUM UNIT WEIGHT OF 130 PCF AND MINIMUM INTERNAL FRICTION ANGLE OF 32 DEGREES. CONTRACTOR TO PERFORM TEST PITS AT THE EXISTING BUILDING AND AT LANSCAPE SITE WALL TO DETERMINE FOUNDATION ELEVATIONS AND CONFIGURATION.**
4. DESIGN INCLUDES A SURCHARGE LOAD = 40 PSF.
5. DESIGN BASED ON 3,000 PSF SOIL BEARING CAPACITY.

2 S5.8 REINFORCED CONCRETE CANTILEVERED RETAINING WALL

NO SCALE

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER NATHANIEL OPPENHEIMER No. 14877 10/27/2023

A/E FIRMS
PRIME/ARCH: **STRATA ARCHITECTURE** 1701 OAK STREET, SUITE 100 KANSAS CITY, MO T: 816.474.0900
ENG: **SILMAN** 211 N 4TH AVE. ANN ARBOR, MI T: 734.800.2460

DESIGNED: KH
CADD: CM
TECH. REVIEW: NH
DATE: 10.27.2023

SUB SHEET NO. 01 S5.8

TITLE OF SHEET
MAURICE BATHHOUSE
TYPICAL DETAILS

REHABILITATE BATHHOUSES
HOT SPRINGS NATIONAL PARK

DRAWING NO. 128 182951
PMIS/PKG NO. 318915

10/24/2023 1:41:31 PM