GSA Data Repository item 2008251A
S.F. McGill et al., 2009, Slip rate of the western Garlock fault, at Clark Wash, near Lone Tree Canyon, Mojave Desert, California: GSA Bulletin, v. 121, p. 536-554.

TABLE DR1 SOIL PROFILE DESCRIPTIONS

Geo-logic unit	Hori-zon	Depth (cm)	Boun-dary (basal)	Color		Mott-ling	Texture		Structure	Consistence			Silica	Clay films	Roots	Pores	$CaCO_3$
				Dry	Moist		>2mm (%vol)	<2mm		Dry	Moist	Wet					
Hya	Abk	0-4	vaw	10YR7/3	10YR6/4	none	20	SL	sg	lo		vss,po		n.o.	1vf	int,d	e-es; d
(T11)	Bk	4-24	vaw	10YR7/3	10YR6/4	none	10	LS	1f-cabk	h		so,po		n.o.	1vf	vf,cnt,int	es-ev; I
				10YR6/4 (ped)											m-c,tub,sv		
	Akb	24-27	vaw-i	10YR6/3	10YR5/3	none	10	LS	sg;1f-mcr	lo		so,po		n.o.	1vf-f	vf-m,cnt,ob	es; d
	Bkb	27-42	vas-w	10YR7/3	10YR6-5/3	none	5-10	SL	1-2m-fcr	sh-h		vss,po		n.o.	1vf-f	vf-f,d,int	es-ev; I
															vf-f,tub,hz-ob		
	2Akb	42-56	as	10YR6/3	10YR5/4	none	15-20	SL	1m-fsbk	sh		so,po		n.o.	1f-c	1d,int; 1f,tub	es-ev; I
	2Bkb	56-107+		10YR7/3	10YR6/4	none	20	LS	sg	sh-h		so,po		n.o.	0f-m	1vf-f,d,int	es-ev; I
				10YR6/3 (ped)					1f-ccr								
									1f-mabk								
Qf2C		0-5.5	as	10YR6/4	10YR5/3-4	none	5-10	LS	gr-pl	lo		vss,po		n.o.	2vf	n.o.	0; 0
(T7)	Bq	5.5-15.5	as	10YR6/4	10YR5/4	none	5-10	SL	1m-csbk	sh,vfr		ss,ps	1nbr	n.o.	1vfmc	1f-m	evs; d
									m-fgr								

	Bqk	15.5-28.5	cs	10YR6-5/4	10YR5/4	none	10	SL	1m-csbk	wc-sh	lo	vss,ps	1nco-br	nco	2vf-m	2c-f	evs; I-
									1vf-mgr								
	Bk1	28.5-37.5	aw	10YR6/4	10YR5/4	none	30-40	LS	1	lo-wc	lo	so,po	0n	0nco	1f-m	1vf-f	es; d; I
	Bk2	37.5-59.5	aw	10YR6/4	10YR5/4	none	30-40	S	1m-cgr,lo	wc	lo	so,po	co?	n.o.	1f-m	2m,1f	e; I
	Bk3	59.5-81.5	as	10YR7/3	10YR6-5/4	none	50	LS	1f-mgr	lo	lo	so,po	n.o.	0nco	1f-m	1m	ev; I
	Btkb	81.5-161.5		8.5YR5/6-8	8.5YR5/8	none							n.o.	1nbr			d to I-
														0nfi			
Qf1	C	0-0.1															
(T9)	A	0.1-3.1	aw	10YR6/4	10YR4/4	none	10	SL	m-cpl	wc		ss,po		n.o.			0; 0
	Bwq1	3.1-12.6	cw	10YR6/4		none	5-10	SL	vc-fsrbk	sh		ss,po		n.o.	1	1-3f,ob,tub	0; 0
				10YR6-7/4	10YR5/4(ped)												
	Bwq2	12.6-23.6	cw	10YR7-6/6	10YR6/6		10		c-fsbk	sh-wc		ss,po		n.o.	2vf-v	vf-m,tub,ves,rn	0; 0
									m-fgr								
	Bwq3	23.6-45.1	gw	10YR7/6	10YR5/4-6	none	25	LS-SL	f-vcgr	wc		vss,po	co	n.o.	2f-c	1f,tub,rn,d	0; 0
	Bwkq	45.1-61.6	cw	10YR7/6	10YR6/4-6	none	25-30	LS	f-vcgr	wc		so,po		1co	1vf-f	1f,tub,rn,d	evs; I
					10YR6/6(ped)												
	Bkq	61.6-78.1	cw	10YR7/4	10YR6/6	none	25-30	LS	f-cgr	wc		so,po		1co	2vf-c	2vf,ves,tub,d,rn	es; I
	Bk	78.1-96.1	gw	10YR7/6	10YR5/6	carbonate	30-35	LS(SiCL?)	f-cgr csbk	sh		ss,po		n.o.	2vf	3vf-f,d,ves,tub,rn	ev; I/II
	Bk2	96.1-110.6	cw	10YR6/6	10YR5/6	none	30-35	LS	f-cgr	wc		ss,po		n.o.	2vf	1m,tub,hz,c,	es-ev; I
									csbk						3vf,d,ves,tub,rn		
	2Bk3	110.6-145.6	as	10YR7/4	10YR6/6	none	40-45	LS	csbk	sh-h		ss,po		n.o.	2f-vf	2vf,d,rn,ves	ev; I
									f-vcgr								

3Bk4	145.6-181.6 aw	10YR7/6	10YR5/4	none	55-55	LS	f-vcgr	sh	ss,po	n.o.	0f	2int	es-0; I(local)
4Avb	181.6-257.6	10YR7/3	10YR5/3	none	5-10	SL(L?)	M-cabk	sh-h	ss,po	n.o.	0m,1f	3f,ves,rn,d	ev; I
4Bt(?)b	257.6-277.6+												

Notes: Descriptions and abbreviations follow criteria in Soil Survey Staff (1999).

DATA REPOSITORY ITEM 2:

LATERAL SLIP IN THE MOST RECENT FAULTING EVENTS

We use the projection of the northeastern wall of the Hya channel fill deposits from trenches 3 and 5 to the fault zone to estimate the amount of left-lateral slip since incision of the late Holocene channel. The strike of the northeastern wall of the late Holocene channel fill (Hya) in trench 5 was determined by the surveyed position of the northeastern edge of a sub-channel on both walls of trench 5 (bold-labeled “a”, just right of center of log of trench 5 in Fig. 5), and by a small-scale, three-dimensional excavation of sub-channel “a” in the southeast wall of trench 5. Figure DR1 shows the projection of the strike of this channel edge (labeled “a”) to the fault. We use this intersection for five of our six offset estimates. Unfortunately, no sub-channel of similar size, shape and character of fill is present in trench 3. It is possible that the correlative channel in trench 3 was destroyed when the modern channel incised or that the character of the channel changed within the ~25 m between the two trenches.

Nonetheless, we can still make a very crude estimate of the left-lateral offset of the late Holocene channel. The location of sub-channel “a” in trench 3 must have been somewhere within the Hya or modern channel deposits. Projecting the elevation of the floor of sub-channel “a” parallel to the slope of the modern channel between T5 and T3 (assuming no vertical offset) suggests that it would have been at an elevation of about 863 m in trench 3. The point on the top of the Qf1 surface within trench 3 that has an elevation of 863 m provides a reasonable first guess for the location of the correlative channel in trench 3. At this location Qf1 is buried by deposits that were originally mapped as belonging to Hya. However, these deposits overly sample 3S-6, which has an age of only 0-490 BP, so these are shown as modern channel deposits in Figure 5 (see arrow labeled “1, 2, 5” in the log of trench 3). If the reported age of sample 3S-6 is correct, the original correlative of sub-channel “a” within the Hya deposits was probably eroded by the modern channel.

Various projections yield left-lateral offset estimates ranging between 2.0 and 16.0 meters for sub-channel a” within the Hya deposits. We use the 863-m-elevation structure contour on the top of Qf1 in trench 3 to approximate the location of the correlative channel to sub-channel “a” in our first, second and fifth projections. Projection 1 extends from this point southeastward to the fault along the strike of the local channel edge (top of Qf1) at this location. Projection 2 extends from this same point but using the strike of the edge of sub-channel “a” from trench 5. Combined with the northwestward projection of sub-channel “a” to the fault, these projections yield left-lateral offset estimates for the late Holocene channel of 2.5 m and 2.0 m, respectively (Figure DR1). Alternatively, if we project the top and base of a steeply dipping section of channel edge labeled “3, 4” in trench 3 (Figure 5) to the fault, this yields left-lateral offsets of 7.5 m and 9.5 m, respectively (Figure 5). An even larger offset is possible (projection 5 in

Figure DR1), if we use the 863-m structure contour on the top of Qf1 for the location of the correlative to sub-channel “a” in trench 3, but project from this point along a trend of projection 4 (approximately parallel to the modern channel). This projection yields 12.5 m of left-lateral slip when combined with the projection of sub-channel “a” to the fault from trench 5. Finally, our maximum estimate for the offset of the late Holocene channel combines projection 5 on the northwest side of the fault with an alternate projection of sub-channel “a” southeast of the fault (projection 6), which assumes that there was a bend in sub-channel “a” just northwest of trench 5, and projects from this point along a line parallel to projections 4 and 5 (approximately parallel to the modern channel). This yields a left-lateral offset of 16 meters (Figure DR1).

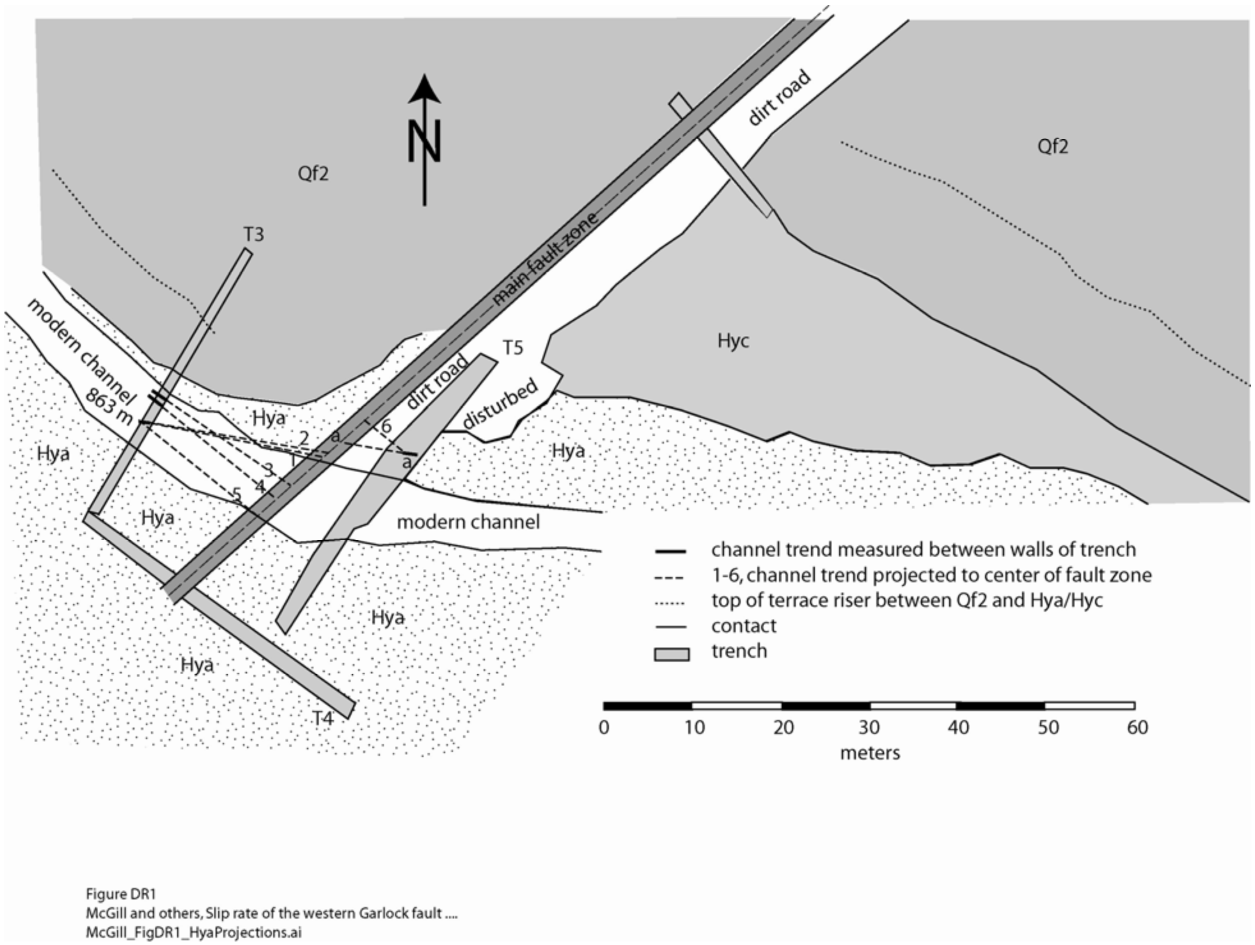

Figure DR1: Projection of late Holocene channel trends to fault. The letter “a” labels the trend of sub-channel “a” in trench 5 and its projection to the fault. The characters “863 m” mark the location and trend of the structure contour on the top of Qf1 in trench 3 that is at the elevation (863 meters) at which the base of sub-channel “a” in trench 5 is expected to project to the location of trench 3, assuming a slope equal to the slope of the modern channel. Projections 1-6 are explained in the text.