

Appendix A

Trench Mapping Details

Appendix A-1

**Excel Workbooks for Mapping Data from
GM-2, GM-3 and GM-4**

**Trench Mapping Data Spreadsheets for GM-2 workbook
contains the following sheets**

Lithologic Description: Selections Abbreviations
Lithologic Descriptions
Soil Description Abbreviations
Soil Descriptions
Fracture Description Abbreviations
Fracture Descriptions
Photographic Log
Bedding Orientations

GM-2 LITHOLOGIC DESCRIPTION SELECTIONS - ABBREVIATIONS

TRENCH & UNIT DESIGNATION		LITHOLOGY		MODIFIERS		COMPOSITION		GRAIN SIZE/ MAX CLAST SIZE (mm)		COLOR		ABUNDANCE RATIO	ROUNDING/ SORTING	TEXTURE	
GM2 U2	Trench ID. Unit ID.	CL	Claystone	C	Coarse	L	Lithic	C	Coarse	BR	Brownish red	ie:10/20/70 = % of gravel/sand/mud	<u>ROUNDING</u> A Angular R Rounded S Subrounded/ Subangular <u>SORTING</u> M Moderately P Poorly W Well	BI	Bimodal
		CG	Conglomerate	CLY	Clayey	Q	Quartz	F	Fine	DG	Dark gray			C	Clast Supported
		M	Mudstone	F-C	Fine-Coarse			M	Medium	DR	Dark Red			M	Matrix
		SS	Sandstone	F/S	Fine Sandy			SG	Small Gravel	DRB	Dark reddish brown			S	Supported
		ST	Siltstone	G	Gravelly			VC	Very Coarse	GO	Greyish orange			MS	Massive
		S/St	Sandstone/ Siltstone	M	Muddy			VF	Very Fine	GR	Greyish red			MS/C	Massive/Clast Supported
				S	Sandy			MC	Medium Coarse	LBG	Light blue green				
				ST	Silty			SG	Small Gravel	MB	Moderate brown				
				VF	Very Fine			ST	Silt	MG	Medium gray				
				P	Pebbly			CM	Coarse-Medium	MRB	Moderate reddish brown				
				Cn	Conglomeratic			FC	Fine-Coarse	MYB	Moderate yellowish brown				
				Cn/G	Conglomeratic/ Gravelly			MF	Medium-Fine	PGY	Pale greenish yellow				
				CnsSt	Conglomeratic/Silty			??S	Sandy	PR	Pale red				
				CS/G	Coarse- Sandy/Gravelly					PRB	Pale reddish brown				
				Cy	Clayey					PYB	Pale yellowish brown				
				F	Fine					RB	Reddish brown				
				FC	Fine-Coarse					VPO	Very pale orange				
				FM	Fine-Medium					YG	Yellowish gray				
				FM/St	Fine-Medium/Silty										
				FMC	Fine-Medium-Coarse										
				FS	Fine-Sandy										
				FSt	Fine-Silty										
				G	Gravelly										
				G/C	Gravelly-Coarse										
				M	Muddy										
				MC	Medium-Coarse										
				MC/G	Medium- Coarse/Gravelly										
				MC/S	Medium-Coarse/Sandy										
				Md/C	Muddy/Coarse										
				MS	Medium-Sandy										
				P/Md	Pebbly/Muddy										
				S	Sandy										
				S/Md	Sandy/Muddy										
				SI S	Slightly Sandy										
				SI St	Slightly Silty										
				SI	Slightly										
				St	Silty										

GM-2 LITHOLOGIC DESCRIPTION: SELECTIONS - A-1 ABBREVIATIONS (CONT.)

INDURATION	WEATHERING	THICKNESS (inches)	BEDDING	CONTACT/ BEDDING ANGLE	SECONDARY FEATURES	ACCES- SORIES	REMARKS
I Indurated	M Moderately	> Greater Than	GN Normal Graded	G Gradational	Mn Manganese		
M Moderate	S Severe	~ Approximately	GR Reverse Graded	GUx Gradational w/ Unit (X)	MOTL Mottled	GAR Garnet	CLB Collapse breccia
F Friable	C Complete	? Uncertain	MS Massive	S Sharp	T Bioturbated	EP Epidote	
	SL Slight		PAL Parallel Laminations	S/F Sharp-Flat	FeO Iron Oxides		
			PLL Planar Laminations	S/Ux Sharp w/ Unit (X)	B Blocky		
			TNB Thin Bedded	UNC Erosional/ Scoured			
				IG??			
				NX Not Exposed			

GM2 LITHOLOGIC DESCRIPTIONS (0'-100')

Trench & Unit Designation	Lithology	Modifiers	Composition	Grain Size/ Max Clast Size (mm)	Color	Abundance Ratio	Rounding/ Sorting	Texture	Induration	Weathering	Thickness (inches)	Bedding	Contact/ Bedding	Bed Markings	Bed Lamination Angle	Soft Sediment	Secondary	Accessories	Remarks
GM2-U1	ST	S	Q		GR	0/20/80					18	TNB/MS							
GM2-U1a	SS		Q	M/1	GR	0/60/40	S/M	C	M	M	3	MS	G						
GM2-U1b	SS		Q	M/1	GR	0/80/20	S/M	C	M	M	6	MS	G						
GM2-U1c	ST	S			GR	0/15/85			M	M	3	MS	G						
GM2-U1d	SS		Q	C/2	GR	0/60/40	S/M	C	M	M	4	MS	G						
GM2-U2	SS		Q	C/2	GR	20/50/30	S/M	C	M	M	16	MS	G/U2						Fining up, 4-8 inches of sand to top 16 inches silt, 3 inches pebble at base
GM2-U3	M	ST		F/0.3	PRB	0/20/80			F	M	40	MS	G/U1/U2						
GM2-U3a	SS		Q	F/0.5	PRB	0/90/10	R/M	C	I	M	4	MS	G						
GM2-U4	SS		Q	M/0.5	PR	0/95/05	S/M		M	M	12	PAL	S				MOTL		laminated to massive beds
GM2-U4a	SS	G	Q	C/2	PB	5/75/20	S/W		M	M	20	MS	S				MOTL		scoured base
GM2-U5	ST				YG	0/0/100			F	S	4	MS	G						Very little protolith remaining
GM2-U6	SS	P	L	M-C/8	DRB	2/98/0	S/W	C	F	S	12	MS	S/F						Weathering changes in <1 foot internally from M to SW
GM2-U6a	SS	ST	Q	M/1	GR	0/65/35	S/P	M	M	M	8	MS	G						
GM2-U7	M				GR/MG	0/0/100			M	M	40	MS	G				MOTL		reduced zones
GM2-U8	M	S			RB	0/10/90			F	S	12	MS	S/U7/U9				MOTL		
GM2-U9	SS	P	Q	C/5	PB	20/70/10	S/M	C	I	M	12	MS	S						
GM2-U10	CL			S	PGY	5/10/85			F	S	4	MS	G						

Described M. J. Bartholomew; recorded S. E. Lewis; 11-16 April 1997; checked P.B. Kaygi 1 May, 1997

GM2 LITHOLOGIC DESCRIPTIONS (100'-200')

Trench & Unit Designation	Lithology	Modifiers	Composition	Grain Size/ Max Clast Size (mm)	Color	Abundance Ratio	Rounding/ Sorting	Texture	Induration	Weathering	Thickness (inches)	Bedding	Contact/ Bedding	Bed Markings	Bed Lamination Angle	Soft Sediment	Secondary	Accessories	Remarks
GM2-U10a	M				YG	0/0/100			F	M	2	TNB/MS	G						
GM2-U10b	M				MB	0/0/100			F	M	4	TNB/MS	G						
GM2-U10c	ST	F/S	Q		MB	0/30/70			I	M	4	TNB/MS	G						
GM2-U11	S/ST	VF	Q	VF/0.2	MB	0/80/20	R/W	C	M	M	28	GN	G/U11						8 inches of very fine grained sand at base, silt at top
GM2-U11a	CG	S	Q	SG/15	DRB	70/20/10	S/P	C	M	M	6	MS	S/F				Mn		
GM2-U12	SS		Q	M/3	RB	0/100/0	S/W		F	S	15	GR	IG						
GM2-U12a	SS	G	Q/L	M/3	DRB	10/85/05	S/M	C	M	M	7	GR	G				Mn		
GM2-U12b	SS		Q	M/5	MRB	05/85/10	M/P	M	M	M	14	GN	G						Lithic fragments rare
GM2-U13	SS	ST	Q/L	F-M/2	MRB	05/80/15	S/MP	M	I	M	22	GN	G				Mn		Lithic fragments rare
GM2-U14	SS		Q	M/2	MRB	3/80/17	S/P	M	I	M	13	GR	G						
GM2-U15	SS	G	Q/L	C/10	DRB	20/40/40	S/P	M	I	M	30	GR	G						Triassic sandstone + small phyllite lithic fragments
GM2-U15a	CG		Q/L	SG/50	GB	65/30/05	S/P	C	I	S	12	MS	UNC				FeOx		Triassic ss, mudst, & siltst, small phyllite lithic fragments, white quartz
GM2-U15b	SS	G	Q/L	F-C/5	PRB	30/45/25	S/P	M	I	S	6	MS	G					gar?	Fine-coarse, laterally variable
GM2-U15c	SS		Q/L	M/3	MRB	15/55/30	S/P	M	I	S	4	MS	S/F					mica	Phyllite, small Fe-stained grains
GM2-U16	SS		Q/L	F-M/2	RB	05/65/30	S/M	C	M	M	18	MS	G						Rare feldspar; Triassic lithic fragments, mottled red-brown; ?burrowed
GM2-U16a	SS	ST		M/2	BR	0/80/20	S/M	C	F	M	4		G						
GM2-U17	M	ST	Q/L		DRB	0/10/90			F	M	32		S/F				Mn		Nodular
GM2-U17b	SS	P	Q/L	M/50	RB	10/75/15	S/M	C	I	S	6	MS	UNC				FeOx	ep	Siliceous cement, white quartz; ?mica
GM2-U18	M				GR	0/0/100			F	M	32		S/F						
GM2-U18a	SS		Q	VF/0.25	RB	0/85/15	W/W	C	I	M	7		S/F				MOTL		
GM2-U19	CL	ST			DG	0/0/100			M	M	27		S/F				MOTL		
GM2-U20	CL	ST			RB	0/0/100			F	M	13		G						*Hackly*, local red-green mottling
GM2-U20a	SS	ST	Q	VF/0.1	MRB	0/85/15	S/W	C	I	M	4	MS	G						Local Mn
GM2-U21	SS	ST	Q	VF/0.1	DRB	0/60/40	R/W	M	I	M	16		S/F				Mn		clasts not visible
GM2-U22	ST	S	Q	F/3	DRB	1/25/74			I	M	35		G				Mn		coated clasts
GM2-U23	SS	ST	Q/L	M/2	DRB	15/40/45	S/P	M	I	M	>30	GN	G						White quartz (<1mm), ?mica
GM2-U23a	SS	ST	Q/L	F-M/0.5	DRB	10/55/35		M	I	M	7		S/F						
GM2-U23b	SS		Q	C/2	DRB	0/95/5	S/P	C	M	S	4	MS	UNC					FeOx	Small white quartz, phyllite fragments, many angular grains

Described M. J. Bartholomew; recorded S. E. Lewis; 18-21 April 1997; checked P.B. Kaygi, 1 May, 1997

GM2 LITHOLOGIC DESCRIPTIONS (200'-400')

Trench & Unit Designation	Lithology	Modifiers	Composition	Grain Size/ Max Clast Size (mm)	Color	Abundance Ratio	Rounding/ Sorting	Texture	Induration	Weathering	Thickness (inches)	Bedding	Contact/ Bedding	Bed Markings	Bed Lamination Angle	Soft Sediment	Secondary	Accessories	Remarks
						G/S/M													
GM2-U24	M	S	L	/2	MRB	0/20/80	S/P	M	I	M	48	GN	G						phyllite clasts
GM2-U25	CG	S	L	C/30	DRB	80/20/0	S/M	C	F	M	24	MS	UNC						some phyllite fragments
GM2-U25a	SS	ST	L	M/1	DRB	0/50/50	S/M	M	F	S	9	GN	G						
GM2-U25b	M	S	L/Q	F/0.25	DRB	0/40/60	S/M	M	M	M	>4								
GM2-U25c	SS	G	L	VC/25	DRB	2070/10	A/M	C	M	M	15	MS	S						frequent phyllite clasts, rip-up clasts

Described N.L. Bogen; recorded A. E. Whitaker; 6 May, 1997

Trench & Unit Designation	Lithology	Modifiers	Composition	Grain Size/ Max Clast Size (mm)	Color	Abundance Ratio	Rounding/ Sorting	Texture	Induration	Weathering	Thickness (inches)	Bedding	Contact/ Bedding	Bed Markings	Bed Lamination Angle	Soft Sediment	Secondary	Accessories	Remarks
						G/S/M													
GM2-U26	SS		L	M-F/2.5	MRB	0/70/30	S/M	C	F	S	60	MS	G						phyllite fragments
GM2-U27	SS	C	L	M/2	GR	2/98/0	S/M	C	M	M	22	MS	C						
GM2-U27a	ST	S	L	F-M/1	DRB	0/45/55	S/M	M	M	M	11	MS	G				T/MOTL/B		some phyllite clasts
GM2-U28	M				DR	0/20/80	W		F	S	60		G				T/MOTL/B		
GM2-U28a	SS	C	Q/L	C/3	MYB	10/90/0	S/W	C	F	S	3.5	MS	S/F						
GM2-U29	SS	C	L	C/3	MYB	10/90/0	S/W	C	F	S	24	MS	S/F						
GM2-U29a	SS	G	L	C/3	RB	10/90/0	S/M	C	M	M	5		S/F						
GM2-U29b	M				MB	0/15/85	W		F	S	1.5		S/F						
GM2-U30	SS	P/M		F-M/1	DRB	0/80/20	W		F	S	12	MS	G						
GM2-U30a	SS		L	F/4	MYB	0/100/0	S/M	C	F	S	2.5	MS	S						

Described A.E. Whitaker; recorded N.L. Bogen; 6 May, 1997

GM2 LITHOLOGIC DESCRIPTIONS (200'-400')

Trench & Unit Designation	Lithology	Modifiers	Composition	Grain Size/ Max Clast Size (mm)	Color	Abundance Ratio	Rounding/ Sorting	Texture	Induration	Weathering	Thickness (inches)	Bedding	Contact/ Bedding	Bed Markings	Bed Lamination Angle	Soft Sediment	Secondary	Accessories	Remarks
						G/S/M													
GM2-U31	ST	S		/1	GR	0/90/10	W		M	M	6	MS	G						
GM2-U32	SS	ST	L/Q	M/5	GR	0/60/40	S/M	C	F	S	96?		S/F				MOTL		
GM2-U32a	SS	C	L/Q	F-C/2	GR	5/90/5	S/B	M	F	S	6	MS	G						
GM2-U32b	SS	M/C	L/Q	F-C/4	PR	0/100/0	S/W	C	M	M	4	MS	G						phyllite clasts common
GM2-U33	SS		Q/L	M/1	GR	0/75/25	S/P	M	F	S	30	MS	G				MOTL		
GM2-U33a	SS		Q/L	M/1	GR	1/70/29	S/P	M	F	S	21	MS	G						
GM2-U33b	SS		L/Q	F-C/4	DRB	15/85/0	S/M	C	F	S	13	MS	UNC/S/F						finer down dip
GM2-U33c	SS	G	Q/L	C/10	DRB	0/100/0	S/M	C	F	S	7		NX				MOTL		gravels are phyllite clasts
GM2-U33d	SS	G	L	F-C/2	GR	1/70/29	S/W	C	F	S	55	MS	S/F						
GM2-U34	SS		L	M/1	DRB	5/95/0	S/W	C	F	S	20	MS	G						
GM2-U34a	SS	F-C	L	F-C/2	GR	0/80/20	S/M	M	F	S	31		G						
GM2-U35	CG	S/C	L/Q	C/10	GR	30/70/0	S/W	C	F	S	15	MS	UNC						finer down dip, grades into 35a down-dip
GM2-U35a	SS		L	C/1	GR	0/90/10	S/W	C	F	S	7		G						
GM2-U35b	SS	M		M/1	GR	0/60/40	M	M	M	M		GN	G						

Described N.L. Bogen; recorded A.E. Whitaker; 6 May, 1997

GM2 LITHOLOGIC DESCRIPTION 30'-441'; 441' E is the end GM2)

Trench & Unit Designation	Lithology	Modifiers	Composition	Grain Size/ Max Clast Size (mm)	Color	Abundance Ratio	Rounding/ Sorting	Texture	Induration	Weathering	Thickness (inches)	Bedding	Contact/ Bedding	Bed Markings	Bed Lamination Angle	Soft Sediment	Secondary	Accessories	Remarks
						G/S/M			F	S	~48	GR&GN	G				T/MOTL		coarsens up at base, fines at top, burrows?
GM2-U36a	ST	S	L	/3	MRB	0/40/60			F	S	16	MS	G				MOTL		probably was sandier originally
GM2-U36b	M			/1	LBG/GR	0/1/99		MS	F	S	19	PLL	G						coarse sand near top down dip; possible CLB; observed on trench walkthrough: eastern part of unit is brokenly bedded to breccia with 1-5cm angular fragments; slickensides on irregular curved surfaces
GM2-U37a	M	S			MRB	0/20/80			F	S									
GM2-U37b	SS	ST	Q/L	F/0.5	MRB/PYB	0/95/5	S/W	C	M	M	0-4	PLL	S/F						some real quartz sandstone!
GM2-U37c	SS	F/ST		F/	VPO/ MRB	0/50/50		BI	F	S	0-3	MS	S/F						
GM2-U37d	M				RB/ MRB	0/0/100			F	S	2-6	PLL	G						possible CLB, partially brecciated, angular 0.5-1cm clasts
GM2-U38	SS	ST		F/0.5	DRB	0/80/20		BI	F	S	>17	PLL	G				MOTL		coarsens up from fine-medium silty sand to coarse sand over 15 inches into soil

Described N.L.Bogen; recorded C.H. Trupe; 31 May 1997

GM-2 SOIL DESCRIPTION ABBREVIATIONS

NUMBER	TYPE	COLOR	MODIFIER/ MOISTURE	REMARKS
GM2- Trench id.	SW- Well-graded sand	DR- Dusky red	D- Dry	Mn- Manganese
S1- Soil id.	SP- Poorly graded sand	DRB- Dark reddish brown	M- Moist	
U3sw- Severely weathered rock of unit	SM- Silty sand	DYO- Dark yellowish orange	SLM- Slightly moist	
	CL- Inorganic clay of low-medium plasticity	GO- Grayish orange		
	ML- Inorganic silts and very fine sands with slight plasticity	GOP- Grayish orange pink		
	MH - Inorganic silts of high plasticity	GR- Greyish red		
	CH- Inorganic clays of high plasticity	LB- Light brown		
		LBG- Light blue green		
		LOG- Light olive gray		
		MB- Moderate brown		
		MRB- Moderate reddish brown		
		MYB- Mod yellowish brown		
		PB- Pale brown		
		PG- Pinkish gray		
		PGY- Pale greenish yellow		
		PR- Pale red		
		PRB- Pale reddish brown		
		PYB- Pale yellowish brown		
		YG- Yellowish gray		

GM2 SOIL DESCRIPTIONS (0'-100')

Number	Type	Color	Modifier/ Moisture	Remarks
GM2-S	SP	DYQ	D	Main soil unit
GM2-S1	SW	PB	D	Mn oxide secondary cement; 90% 1-2mm sand; moderate sorting; subrounded
GM2-S2	SM	LB	D	~10% white quartz grains
GM2-S3	SM	LB	D	Mn oxide secondary cement; 90% 1-2mm sand; moderate sorting; subrounded
GM2-S4	SP	MB	D	
GM2-S5	SP	MB	D	
GM2-U2SW	SP	MB	SLM	
GM2-U4SW	SP	GR	M	
GM2-U5SW	CL	YG	M	4 inches thick; claystone protolith
GM2-U6SW	SP	GR	D	12 inches thick; some Mn oxides on grains
GM2-U7SW	CL	PB	M	12-20 inches thick
GM2-U8SW	CL	GO	M	10-12 inches thick; claystone protolith; U7/U9 sharp contact
GM2-U9SW	SP	MB	D	Locally gravelly
GM2-U10SW	CH	PGY	M	4 inches thick
GM2-U11SW	CH	MB	M	Claystone protolith; thickness indeterminate

Described M.J. Bartholomew; Recorded S.E. Lewis; 16 April, 1997; checked P.B. Kaygi

GM2 SOIL DESCRIPTIONS (100'-200')

Number	Type	Color	Modifier/ Moisture	Remarks
GM2-U12SW	SP	LB	D	
GM2-U13SW	SM	MRB	D	
GM2-U14SW	SP	LB	D	
GM2-U15aSW	GP	LB	D	
GM2-U15bSW	SP	LB	D	contains indurated pods
GM2-U15cSW	SP	MB	D	
GM2-U15dSW	SP	PRB	D	
GM2-U17SW	ML	MB	M	
GM2-U17bSW	SW	MB	D	
GM2-U18SW	CL	GR	M	
GM2-U18aSW	SM	GR	M	
GM2-U19SW	CH	PB	M	
GM2-U20SW	ML	MB	M	
GM2-U20aSW	SM	MB	D	
GM2-U21SW	ML	PR	M	
GM2-U22SW	ML	MRB	D	
GM2-U23SW	SP	MB	D	
GM2-U23bSW	SP	MRB	D	

Described M.J. Bartholomew; Recorded S.E. Lewis; 18 April, 1997; checked P.B. Kaygi

GM2 SOIL DESCRIPTIONS (200'-300')

Number	Type	Color	Modifier/ Moisture	Remarks
GM2-S6	SW	DRB	D	
GM2 S7	SM	MRB	M	
GM2 S8	MH	LB	SLM	
GM2 S9	MH	LB	SLM	
GM2 S10	ML	DYO	D	medium sandy silt
GM2 S11	ML	DYO	M	
GM2-U24SW	CL	MRB	SLM	
GM2-25SW	SW	DRB	SLM	
GM2-25aSW	SM	MYB/MRB	SLM	
GM2-26SW	MH	MRB	SLM	
GM2-27SW	CH	MRB	M	
GM2-27aSW	SM	DR	D	
GM2-28SW	CL/SM	MB	SLM	contains both types mixed
GM2-U29SW	SW	MYB	M	well graded; slightly plastic
GM2-U29aSW	CH	DYO	SLM	
GM2-U29bSW	ML	YGR	M	
GM2-U28aSW	ML	DRB	M	
GM2-U30SW	ML	MYB	SLM	
GM2-U31SW	ML	PB	SLM	
GM2-U32aSW	SM	PB	M	
GM2-U32bSW	ML	MYB	SLM	
GM2-32SW	ML	MRB	SLM	moderately plastic

Described S.B. Tougas; Recorded N.L. Bogen; 7 May 1997

GM2 SOIL DESCRIPTIONS (300'-400')

Number	Type	Color	Modifier/ Moisture	Remarks
GM2-U33SW	MH	MRB	SLM	
GM2-U33dSW	ML	PRB	SLM	
GM2-U33aSW	SM	PB	SLM	
GM2-U33bSW	SM	GR	SLM	well graded; coarse to fine; slightly plastic
GM2-U34aSW	SM	DR/MYB	D	
GM2-U34SW	SM	DRB	M	
GM2-U35SW	ML	MB	SLM	
GM2-U35bSW	MH	MRB	M	

Described S.B. Tougas; Recorded N.L. Bogen ; 7 May 1997

GM2 SOIL DESCRIPTIONS (400'-441, end GM2')

Number	Type	Color	Modifier/ Moisture	Remarks
GM2-36aSW	SM	DYO/MRB/ LOG	SLM	slightly clayey
GM2-U36bSW	CL	YG/ LBG/ PR	SLM	
GM2-U37aSW	ML	PYB	SLM	
GM2-37bSW	ML	YG/ LBG/ PR	SLM	
GM2-U37csw	SM	PR/ YG	SLM	
GM2-U37dSW	SM	MRB	SLM	
GM2-U38SW	SM	MRB/DYO/GOP or PG	SLM	
GM2-S12	SW	DYO/ MRB	SLM	

Described N.L. Bogen; Recorded N.L. Bogen; May 31,1997

GM-2 FRACTURE DESCRIPTION ABBREVIATIONS

ROCK	FRACTURE	STRIKE	DIP	PITCH	SHAPE	SURFACE	COLOR	FIT	FILL/ MINERAL	FILL CHARAC- TERISTIC
U1 Lithologic Unit	JT Joint	1°-360°	0°-90°	1°-180°	P Planar	S Smooth	BK Black	G Good	C Clay	F Filled O Open
	F Fault				C Curved	R Rough	BG Brownish grey		BL Bleached	
	RT Root trace				U undulating		GO Greenish orange		Mn Manganese	
	JTW Weathering feature				I Irregular		GOP Grayish orange-pink		NM Non-mineralized	
							GR Grayish red			
							LB Light brown			
							LOG Light olive gray			
							MRB Moderate reddish brown			
							MYB Moderate yellow brown			
							MB Moderate brown			
							PRP Pale red purple			
							RB Reddish brown			
							VPO Very pale orange			
							YG Yellowish gray			

GM-2 FRACTURE DESCRIPTION ABBREVIATIONS (CONT.)

WEATHERING	AGE	UPWARD TERMINATION	DOWNWARD TERMINATION
M Moderate	YT Younger than	BS Base of Soil	BT Base of Trench
S Severe	OT Older than	BSW Base of Severely Weathered	BUx Base of Unit (x)
SL Slight		BUx Base of Unit (x)	DO Dies Out
		DO Dies Out	FRx Fracture (x)
		FRx Fracture (x)	TUx Top of Unit (x)
		TSW Top of severely weathered	
		TUx Top of Unit (x)	
		U- Unkown	

GM2 FRACTURE DESCRIPTIONS (0'-100')

Trench And Fracture Number	Rock	Fracture	Strike	Dip	Pitch	Shape	Surface	Height (inches)	Length (inches)	Color	Fabrics	Fit	Width (mm)	Fill/ Mineral	Fill Characteristic	Weathering	Age	Upward Termination	Downward Termination	Remarks
GM2-FR1	U1	JT	182	072		P	S	18		GOP		G	10	C	F	S		BS	BT	
GM2-FR2	U1	JT	174	022		P	S	14		VPO		G	10	C	F	S		BS	BT	
GM2-FR3	U3	JT	189	082		P	S	7		VPO		G	30	C	F	S		BS	DO	
GM2-FR4	U3	JT	346	085		P	S	12		VPO		G	10	C	F	S		BSW	BT	
GM2-FR5	U3	JT	186	090		C	S	12		VPO		G	5	C	F	S		BSW	BT	
GM2-FR6	U3	RT																		
GM2-FR7	U3	RT?	143	062		P	S	8		BG		G	20	BL	F	M		BSW	BT	
GM2-FR8	U3	RT?	174	080		P	S	8		BG		G	20	BL	F	M		BSW	BT	
GM2-FR9	U3	RT?	200	053		I	S	16		BG		G	40	BL	F	M		DO	DO	
GM2-FR10	U3	RT?	350	088		I	S	9		BG		G	20	BL	F	M		DO	BT	
GM2-FR11	U3	RT?	202	070		I	S	16		BG		G	60	BL	F	M		BU2	BT	
GM2-FR12	U2/U3	RT?	196	075		I	S	40		BG		G	60	BL	F	M		DO	BT	
GM2-FR13	U2/U3	RT				I	S	28		BG			40	BL	F	M		BS	DO	
GM2-FR14	U3	RT				I	S	24		BG			60	BL	F	M		BS	DO	
GM2-FR15	U4	JT	210	080		P	S	14.5		LB		G	10	BL	F	M		BU5	BU4	
GM2-FR16	U4	JT	194	078		P	S	14.5		LB		G	10	C	F	S		BU5	BU4a	
GM2-FR17	U4	JT	145	054		C	S	16		LB		G	60	C	F	S		BU5	BU6	
GM2-FR18	U4	JT	175	072		P	S	14.5		LB		G	70	C	F	S		BU5	BU7	
GM2-FR19	U4	JT	154	076		P	S	14.5		LB		G	5	C	F	M		BU5	BU8	
GM2-FR20	U4	JT	311	088		P	S	16.5		LB		G	5	C	F	M		BU5	BU9	
GM2-FR21	U4	JT	165	080		P	S	5		LB		G	5	C	F	M		BU5	BU10	
GM2-FR22	U7	JT	136	080		P	S	8		BK		G	0.1	Mn	O	M		BSW	BT	
GM2-FR23	U7	JT	134	087		P	S	8		BK		G	0.1	Mn	O	M		DO	BT	
GM2-FR24	U9	JT	180	067		P	S	6		GO		G	10	C	F	M		BS	BU9	
GM2-FR25	U9	JT	167	067		P	S	12		GO		G	50	C	F	M		BS	BU9	
GM2-FR26	U9	JT	189	060		P	S	12		GO		G	5	C	F	M		BS	BU9	
GM2-FR27	U9	JT	114	074		P	S	12		GO		G	100	C	F	M		BS	BU9	
GM2-FR28	U9	JT	042	085		P	S	8		GO		G	10	C	F	M	YT FR31	BU10	FR31	
GM2-FR29	U9	JT	187	068		P	S	12		GO		G	10	C	F	M		BU10	BT	
GM2-FR30	U9	JT	132	084		P	S	8		GO		G	30	C	F	M		BU10	BT	
GM2-FR31	U9	JT	188	080		P	S	8	8	GO		G	20	C	F	M	YT FR29	U	BT	
GM2-FR32	U9	JT	094	080		P	S	8		GO		G	30	C	F	M		BU10	BT	
GM2-FR33	U9	JT	090	087		P	S	12		GO		G	10	C	F	M		BS	BU9	
GM2-FR34	U9	JT	130	084		P	S	6	8	GO		G	3	C	F	M		BU10	BT	

Described M.J. Bartholomew; recorded S.E. Lewis 11-16 April, 1997; checked P.B. Kaygi 1 May, 1997

Final by U.S.C.
trenches\GM-2_A-1.xls
10/3/97

GM2 FRACTURE DESCRIPTION (100'-200')

Trench And Fracture Number	Rock	Fracture	Strike	Dip	Pitch	Shape	Surface	Height (inches)	Length (inches)	Color	Fabrics	Fit	Width (mm)	Fill/ Mineral	Fill Characteristic	Weathering	Age	Upward Termination	Downward Termination	Remarks
GM2-FR35	U12a/b	JT	155	043		C	S	22		GO		G	5	C	F	S		BU13	BT	
GM2-FR36	U12a/U13	JT	168	084		I	S	16		GO		G	20	C	F	S		DO	BT	Rooted
GM2-FR37	U13	JT	173	083		P	S	8		GO		G	20	C	F	S		DO	BT	
GM2-FR38	U13	JT	282	082		C	S	8		GO		G		C	F	M		BU14	BT	
GM2-FR39	U14	JT	308	075		I	R	10				G	0.1	NM	O	M		DO	BU14	
GM2-FR40	U15	JT	160	071		P	S	16		GO		G	20	C	F	M		DO	BT	
GM2-FR41	U16/17b	JT	151	086		P	S	10.5		GO		G	10	BL	F	M		BU17	DO	
GM2-FR42	U16	JT	142	080		C	S	10		GO		G	5	BL/C	F	M		BU17	DO	
GM2-FR43	U16	JT	144	081		C	R	10		GO		G	5	BL/C	F	M		BU17	DO	
GM2-FR44	U16	JT	321	089		P	S	13		GO		G	5	BL/C	F	M		BU17	DO	
GM2-FR45	U16	JT	250	083		P	S	16				G	0.1	NM	O	M	YT FR44	BU17	BT	
GM2-FR46	U16	JT	153	082		P	S	8		GO		G	0.1	BL/C	F	M		BU17	BT	
GM2-FR47	U16	JT	144	084		P	S	8		GO		G	5	BL/C	F	M		BU17	BT	
GM2-FR48	U16	JT	154	084		I	R	8				G	0.1	NM	O	M		BU17	BT	
GM2-FR49	U16	JT	155	081		P	S	8		GO		G	0.1	BL/C	F	M		BU17	BT	
GM2-FR50	U16	JT	145	082		P	S	8		GO		G	0.1	BL/C	F	M		BU17	BT	
GM2-FR51	U16/16a	JT	063	080		P	S	4				G	0.1	NM	O	M		DO	BT	
GM2-FR52	U16/16a	JT	212	081		P	S	4				G	0.1	NM	O			DO	BT	
GM2-FR53	U16/16a	JT	156	081		P	S	4		GO		G	2	BL/C	F	M		DO	BT	
GM2-FR54	U18a	JT				P	S	8				G			F	M		BU19	BU18a	Parallel to FR55; area collapsed in rain
GM2-FR55	U18a	JT	146	058		P	S	8		GO		G	50	C	F	M		BU19	BU18a	Seeping
GM2-FR56.1	U18a	JT	131	068		P	S	8		GO		G	30	C	F	M		BU19	BU18a	
GM2-FR56.2	U18a	JT	140	072		P	S	8		GO		G	5	BL/C	F	M		BU19	BU18a	Halfway between FR55 & FR56
GM2-FR57	U18a	JT	176	071		C		8		GO		G		NM	O	M		BU19	BU18a	
GM2-FR58	U18a	JT	133	070		P	S	8		GO		G	5	BL/C	F	M		BU19	BU18a	
GM2-FR59	U18a	JT	169	070		P	S	8		GO		G	30	C	F	M		BU19	BU18a	
GM2-FR60	U18a	JT	130	070		P	S	8		GO		G	20	C	F	M		BU19	BU18a	Set of 4 @ 4 inch spacing between FR59 & FR60
GM2-FR61	U18a	JT	138	081		P	S			GO		G	20	C	F	M		BU19	BU18a	
GM2-FR62	U18a	JT	157	072		P	S	8	12	GO		G	10	C	F	M		BU19	BU18a	
GM2-FR63	U20a	JT	115	058		P	S	6		GO		G	40	C	F	M		BU19	BU18a	

GM2 FRACTURE DESCRIPTIONS (100'-200') (cont.)

Trench And Fracture Number	Rock	Fracture	Strike	Dip	Pitch	Shape	Surface	Height (inches)	Length (inches)	Color	Fabrics	Fit	Width (mm)	Fill/ Mineral	Fill Characteristic	Weathering	Age	Upward Termination	Downward Termination	Remarks
GM2-FR64	U20a	JT	147	081		P	S	6		GO		G	10	C	F	M		BU21	BU28	
GM2-FR65	U20a	JT				P	S	8				G		C	F	M		BU21	BU28	
GM2-FR66	U20a	JT	234	080		P	S	6		GO		G	5	C	F	M		BU21	BU28	
GM2-FR67	U20a	JT	130	083		P	S	6		RB		G	10	C	F	M		BU21	BU28	
GM2-FR68	U20a	JT	135	076		P	S	6		GO		G	30	C	F	M		BU21	BU28	
GM2-FR69	U20a	JT	132	064		P	S	6		GO		G	10	C	F	M		BU21	BU28	
GM2-FR70	U20a	JT	138	072		P	S	6		GO		G	10	C	F	M		BU21	BU28	
GM2-FR71	U20a	JT	134	082		P	S	6		GO		G	10	C	F	M		BU21	BU28	
GM2-FR72	U20a	JT	130	076		P	S	6		GO		G	20	C	F	M		BU21	BU28	
GM2-FR73	U20a	JT	224	072		P	S	6		GO		G	10	C	F	M		BU21	BU28	
GM2-FR74	U20a	JT	162	084		P	S	6		GO		G	10	C	F	M		BU21	BU28	
GM2-FR75	U20a	JT	170	082		P	S	6		GO		G	20	C	F	M		BU21	BU28	
GM2-FR76	U20a	JT	020	074		P	S	6		GO		G	5	C	F	M		BU21	BU28	
GM2-FR77	U20a	JT	145	077		P	S	6		GO		G	5	C	F	M		BU21	BU28	
GM2-FR78	U20a	JT	149	082		P	S	6		GO		G	20	C	F	M		BU21	BU28	
GM2-FR79	U21/U22	JT	162	070		C	R	24		GO		G	20	C	F	M		DO	BT	Rooted
GM2-FR80	U23a	JT	062	090		P	S	12		GO		G	0.1	BL/C	F	M		BU23	BU23a	Rooted
GM2-FR81	U23/23a	JT	156	077		P	S	14		GO		G	2	BL/C	F	M		DO	BU23a	Rooted
GM2-FR82	U23	JT	055	080		I	R	4	6			G		NM	O	M	YT FR83	DO	FR83	
GM2-FR83	U23	JT	146	081		P	S	6		GO		G	2	BL/C	F	M		DO	BU23	Rooted
GM2-FR84	U23	JT	141	080		P	S	6		GO		G	20	C	F	M		DO	BU23	
GM2-FR85	U23	JT	152	088		P	S	12				G	0.1	NM	O	M		DO	BU23	
GM2-FR86	U23	JT	148	082		P	S	24		GO		G	70	C	F	M		DO	BT	

Described M.J. Bartholomew; recorded S.E. Lewis 18-21 April, 1997; checked P.B. Kaygi 1 May, 1997

GM2 FRACTURE DESCRIPTIONS (200'-300')

Trench And Fracture Number	Rock	Fracture	Strike	Dip	Pitch	Shape	Surface	Height (inches)	Length (inches)	Color	Fabrics	Fit	Width (mm)	Fill/ Mineral	Fill Characteristic	Weathering	Age	Upward Termination	Downward Termination	Remarks
GM2-FR87	U23	JT	180	090		C	R	8	3	MRB		G	2	C	F	S		DO	DO	
GM2-FR88	U23	JT	172	086		C	S	11	5	YG		G	2-3	C	F	S		BU24	BT	
GM2-FR89	U23	JT	194	060		P	R	6	12	YG		G	10	BL	C	S		DO	BT	Rooted
GM2-FR90	U23	JT	208	082		P	R	5	1.5			G		NM	O	SL		DO	BT	
GM2-FR91	U24	JT	148	086		P	S	2.5	0.5	YG		G	4	BL	C	M		DO	BT	
GM2-FR92	U24	JT	185	065		P	S	3	2			G	5	C	F	M		DO	BT	
GM2-FR93	U25	JT	195	083		I	R	20	4	PRP		G	10	BL	F	S		BSW	BT	
GM2-FR94	U25	JT	190	080		C	R	18	3	YG		G	1	C	F	S		TU25	BT	
GM2-FR95	U25/25c	JT	192	083		P	S	16	6	MRB		G	0.5	C/Mn	F	M		DO	BT	
GM2-FR96	U25/25c	JT	187	066		C	R	21	15	YG		G	2	BL	F	S		BSW	BT	Rooted
GM2-FR97	U25c	JT	164	083		C	R	14.5	1.5	YG		G	1	C	F	S		BSW	TU25b	
GM2-FR98	U25c/U26	JT	085	083		P	R	12	16	PRP		G	0.5	C	F	S	YT FR99	DO	FR99	rooted
GM2-FR99	U25	JT	140	068		P	R	14		PRP		G	0.5	BL	F	S		TU25c	BT/BU24c	
GM2-FR100	U26	JT	146	083		P	S	14	3	YG		G	1	C	F	M		DO	DO	Rooted
GM2-FR101	U26	JT	169	073		P	S	5	3	YG		G	0.2	C	F	M		DO	DO	
GM2-FR102	U26	JT	150	076		P	R	9	1	YG		G	0.4	C	F	M		DO	DO	
GM2-FR103	U27	JT	235	084		U	R	17	6	YG		G	0.2	C	F	M		DO	BU27	Rooted
GM2-FR104	U27	JT	158	077		P	R	22	4	YG		G	0.5	C	F	SL		BU27a	BT	Rooted
GM2-FR105	U29	JT	190	073		P	R	11	>15	MYB		G	2	C	F	S		TU29	BT	Rooted
GM2-FR106	U30	JT	132	090		I	R	9.5		YG		G	3	C	F	S		DO	BT	
GM2-FR107	U30	JT	185	055		I	R	8		YG		G	3	C	F	S		DO	BT	
GM2-FR108	U32a	JT	142	067		P	R	9	3	YG		G	1	C	F	S		TSW	TSW	

Described N.L. Bogen; Recorded C.H. Trupe; 31 May, 1997

GM2 FRACTURE DESCRIPTION (300'-350')

Trench And Fracture Number	Rock	Fracture	Strike	Dip	Pitch	Shape	Surface	Height (inches)	Length (inches)	Color	Fabrics	Fit	Width (mm)	Fill Mineral	Fill Characteristic	Weathering	Age	Upward Termination	Downward Termination	Remarks
GM2-FR109	U32	JT	143	082		P	S	20	0	YG		G	15	BL				BSW	BT	Rooted
GM2-FR110	U32	JT	314	080		P	S	16	>10	YG		G	10	BL	F	S		DO	BT	
GM2-FR111	U32	JT	300	080		P	S	3		GR		G	1	NM	F	S		DO	BT	
GM2-FR112	U32	JT	136	089		P	S	6		YG		G	5	C	O	SL		DO	BT	
GM2-FR113	U32	JT	286	090		I	S	5	>24	YG		G	5	C/BL	F	S		BSW	BT	Rooted
GM2-FR114	U32	JT	145	090		P	S	5	>11	YG		G	2.5	C/BL	F	S		BU33	BT	
GM2-FR115	U33	JT	120	085		P	R	19		YG		G	10	C/BL	F	M		BSW	BT	
GM2-FR116	U33	JT	110	090		P	S	5	>12	YG		G	15	C/BL	F	S		DO	BT	
GM2-FR117	U33	JT	140	086		C	S	7	>24	YG		G	10	C/BL	F	S		BSW	BT	
GM2-FR118	U33	JT	317	090		I	S	4	>9	YG		G	5	C/BL	F	S		BSW	BT	
GM2-FR119	U33	JT	144	088		P	S	4	>15	YG		G	15	C/BL	F	S		BSW	BT	
GM2-FR120	U33	JT	142	090		P	S	4	>12	YG		G	2.5	C/BL	F	S		BSW	BT	
GM2-FR121	U33	JT	355	090		P	S	5	>12	YG		G	15	C	F	S		BSW	BT	
GM2-FR122	U33b	JT	167	080		U	S	4	>50	YG		G	20	C/BL	F	M		BSW	BT	
GM2-FR123	U33b	JT	142	060		C	S	3	13	YG		G	5	BL	F	M		BSW	BT	

Described N.L. Bogen; Recorded S.B. Tougas; 7 May, 1997

GM2 FRACTURE DESCRIPTIONS (350'-400')

Trench And Fracture Number	Rock	Fracture	Strike	Dip	Pitch	Shape	Surface	Height (inches)	Length (inches)	Color	Fabrics	Fit	Width (mm)	Fill/ Mineral	Fill Characteristic	Weathering	Age	Upward Termination	Downward Termination	Remarks
								inch	inch				(mm)	MIN						
GM2-FR124	U33d	JT	130	070		C	S	19		YG		G	2.5	BL	F	M		BSW	BT	Rooted
GM2-FR125	U33d	JT	152	060		C	S	18	>20	YG		G	1	BL	O	M		BSW	BT	Rooted
GM2-FR126	U33d	JT	136	084		P	R	11	18	YG		G	5	C/BL	F	SL		BSW	BT	Rooted
GM2-FR127	U33d	JT	136	054		P	S	3	18	YG		G	10	BL	F	M		DO	BT	Rooted
GM2-FR128	U33d/U34	JT	128	070		P	S	19		YG		G	10	C/BL	F	S		BSW	DO	Rooted
GM2-FR129	U33d/U34	JT	134	078		P	S	21	11	YG		G	20	C/BL	F	S		BSW	BT	
GM2-FR130	U34	JT	138	080		P	S	18	10	YG		G	10	C/BL	F	M		BSW	BT	Rooted
GM2-FR131	U34a	JT	115	083		P	S	10	23	YG		G	15	C/BL	F	S		DO	BT	Rooted
GM2-FR132	U34a	JT	154	070		P	R	7	5	YG		G	10	C/BL	F	M		DO	BT	
GM2-FR133	U34a	JT	100	071		P	S	12	8	YG		G	5	BL	F	S		BSW	BT	
GM2-FR134	U35/35a	JT	136	080		U	S	14		YG		G	5	C/BL	F	S	OT FR138.1	T U35	B U35	
GM2-FR135	U35b	JT	130	070		U	R	14	24	YG		G	10	C/BL	F	S		BSW	BT	
GM2-FR136	U35b	JT	126	078		P	S	10	15	YG		G	10	C/BL	F	S		BSW	BT	
GM2-FR137	U35b	JT	126	076		P	S	12	>25	YG		G	2.5	BL	O	M		BSW	BT	
GM2-FR138.1	U35b	JT	118	032		U	S	8		YG		G	5	BL	F	S		FR134	DO	Rooted

Described S.B. Tougas; Recorded N.L. Bogen; 7 May, 1997

GM2 FRACTURE DESCRIPTIONS (400'-441', 441'E is end of GM2)

Trench And Fracture Number	Rock	Fracture	Strike	Dip	Pitch	Shape	Surface	Height (inches)	Length (inches)	Color	Fabrics	Fit	Width (mm)	Fill/ Mineral	Fill Characteristic	Weathering	Age	Upward Termination	Downward Termination	Remarks
GM2-FR138.2	U35b	JT	122	076		P	S	10	4			G						BSW	BT	Rooted
GM2-FR139	U35b	JT	047	090		P	S	4	3			G			F	M	YT FR138	DO	DO	
GM2-FR140	U35b/U36a	JTW	163	080		I	R	9	2			G			F	M		DO	BT	
GM2-FR141	U36a	JT	022	075		P	S	4	3	MB		G	2	C	F	S		DO	DO	
GM2-FR142	U36a	JT	140	070		P	S	3	3	YG		G	2	BL	F	S		DO	DO	
GM2-FR143	U36a	JT	225	077		C	R	4	2	YG		G	5	BL	F	S		DO	DO	
GM2-FR144	U38	JT	150	060		P	R	6	4	YG		G	5	BL	F	S		BS	BU38	
GM2-FR145	U38	JT	163	060		C	S	7	1	YG		G	20	C	O	S		BS	BU38	
GM2-FR146	U36b	JTW	045	084		P	S	4	4	LOG		G	2	C	F	S		DO	BT	
GM2-FR147	U37a	F	255	016		C	S	15	1.5	LOG		G	10	C	F	S		DO	DO	Above fold
GM2-FR148	U37a	F	297	021	045	C	S	10	2	LOG		G	10	C	F	S		BU38	DO	
GM2-FR149	U36b	F	010	010		C	S	16	1.5	MRB		G	15	C	F	S		DO	BT	

Described C.H. Trupe; Recorded N.L. Bogen; 31 May,1997

PHOTOGRAPHS- GM-2

TRENCH	INTERVAL (FT)	DATE	TAKER	NEGATIVE NUMBER	ROLL NO.	DESCRIPTION
GM-2	0 - 5	4/11/97	M.J. Bartholomew	3	None	
GM-2	5-10	4/11/97	M.J. Bartholomew	4	None	
GM-2	10-15	4/11/97	M.J. Bartholomew	5	None	
GM-2	15-20	4/11/97	M.J. Bartholomew	6	None	
GM-2	20-25	4/11/97	M.J. Bartholomew	7	None	
GM-2	25-30	4/11/97	M.J. Bartholomew	8	None	
GM-2	30-35	4/11/97	M.J. Bartholomew	9	None	
GM-2	35-40	4/11/97	M.J. Bartholomew	10	None	
GM-2	40-45	4/11/97	M.J. Bartholomew	11	None	
GM-2	45-50	4/11/97	M.J. Bartholomew	12	None	
GM-2	50-55	4/11/97	M.J. Bartholomew	13	None	
GM-2	55-60	4/11/97	M.J. Bartholomew	14	None	
GM-2	60-65	4/11/97	M.J. Bartholomew	15	None	
GM-2	65-70	4/11/97	M.J. Bartholomew	16	None	
GM-2	70-75	4/11/97	M.J. Bartholomew	17	None	
GM-2	75-80	4/11/97	M.J. Bartholomew	18	None	
GM-2	80-85	4/11/97	M.J. Bartholomew	19	None	
GM-2	85-90	4/11/97	M.J. Bartholomew	20	None	
GM-2	90-95	4/11/97	M.J. Bartholomew	21	None	
GM-2	90-95	4/19/97	M.J. Bartholomew	1	1413	
GM-2	95-100a	4/19/97	M.J. Bartholomew	2	1413	
GM-2	95-100b	4/19/97	M.J. Bartholomew	3	1413	
GM-2	100-105a	4/19/97	M.J. Bartholomew	4	1413	
GM-2	100-105b	4/19/97	M.J. Bartholomew	5	1413	
GM-2	105-110	4/19/97	M.J. Bartholomew	6	1413	
GM-2	110-115	4/19/97	M.J. Bartholomew	7	1413	
GM-2	110-115	4/19/97	M.J. Bartholomew	8	1413	"fuzzy"
GM-2	115-120	4/19/97	M.J. Bartholomew	9	1413	
GM-2	120-125	4/19/97	M.J. Bartholomew	10	1413	
GM-2	125-130	4/19/97	M.J. Bartholomew	11	1413	
GM-2	129	4/19/97	M.J. Bartholomew	12	1413	Seepage zone
GM-2	130-135	4/19/97	M.J. Bartholomew	13	1413	
GM-2	135-140	4/19/97	M.J. Bartholomew	14	1413	
GM-2	140-145	4/19/97	M.J. Bartholomew	15	1413	
GM-2	145-150	4/19/97	M.J. Bartholomew	16	1413	
GM-2	150-155	4/19/97	M.J. Bartholomew	17	1413	
GM-2	155-160	4/19/97	M.J. Bartholomew	18	1413	
GM-2	160-165	4/19/97	M.J. Bartholomew	19	1413	
GM-2	165-170	4/19/97	M.J. Bartholomew	20	1413	
GM-2	170-175	4/19/97	M.J. Bartholomew	21	1413	
GM-2	175-180	4/19/97	M.J. Bartholomew	22	1413	
GM-2	180-185	4/19/97	M.J. Bartholomew	23	1413	
GM-2	185-190	4/19/97	M.J. Bartholomew	24	1413	
GM-2	190-195	4/19/97	M.J. Bartholomew	25	1413	
GM-2	190-195	5/2/97	M.J. Bartholomew	23	none	
GM-2	195-200	5/2/97	M.J. Bartholomew	22	none	
GM-2	200-205	5/2/97	M.J. Bartholomew	1	none	
GM-2	205-210	5/2/97	M.J. Bartholomew	2	none	
GM-2	210-215	5/2/97	M.J. Bartholomew	3	none	
GM-2	215-220	5/2/97	M.J. Bartholomew	4	none	
GM-2	220-225	5/2/97	M.J. Bartholomew	5	none	

PHOTOGRAPHS- GM-2

TRENCH	INTERVAL (FT)	DATE	TAKER	NEGATIVE NUMBER	ROLL NO.	DESCRIPTION
GM-2	225-230	5/2/97	M.J. Bartholomew	6	none	
GM-2	230-235	5/2/97	M.J. Bartholomew	7	none	
GM-2	235-240	5/2/97	M.J. Bartholomew	8	none	
GM-2	240-245	5/2/97	M.J. Bartholomew	9	none	
GM-2	245-250	5/2/97	M.J. Bartholomew	10	none	
GM-2	250-255	5/2/97	M.J. Bartholomew	11	none	
GM-2	255-260	5/2/97	M.J. Bartholomew	12	none	
GM-2	260-265	5/2/97	M.J. Bartholomew	13	none	
GM-2	265-270	5/2/97	M.J. Bartholomew	14	none	
GM-2	270-275	5/2/97	M.J. Bartholomew	15	none	
GM-2	275-280	5/2/97	M.J. Bartholomew	16	none	
GM-2	280-285	5/2/97	M.J. Bartholomew	17	none	
GM-2	285-290	5/2/97	M.J. Bartholomew	18	none	
GM-2	290-295	5/2/97	M.J. Bartholomew	19	none	
GM-2	295-300	5/2/97	M.J. Bartholomew	20	none	
GM-2	300-305	5/2/97	W.C. Hoyt	1	1059	
GM-2	305-310	5/6/97	W.C. Hoyt	2	1059	
GM-2	310-315	5/6/97	W.C. Hoyt	3	1059	
GM-2	315-320	5/6/97	W.C. Hoyt	4	1059	
GM-2	320-325	5/6/97	W.C. Hoyt	5	1059	
GM-2	325-330	5/6/97	W.C. Hoyt	6	1059	
GM-2	330-335	5/6/97	W.C. Hoyt	7	1059	
GM-2	335-340	5/6/97	W.C. Hoyt	8	1059	
GM-2	340-345	5/6/97	W.C. Hoyt	9	1059	
GM-2	345-350	5/6/97	W.C. Hoyt	10 & 11	1059	
GM-2	350-355	5/6/97	W.C. Hoyt	12	1059	
GM-2	355-360	5/6/97	W.C. Hoyt	13	1059	
GM-2	360-365	5/6/97	W.C. Hoyt	14	1059	
GM-2	365-370	5/6/97	W.C. Hoyt	15	1059	
GM-2	370-375	5/6/97	W.C. Hoyt	16	1059	
GM-2	375-380	5/6/97	W.C. Hoyt	17	1059	
GM-2	380-385	5/6/97	W.C. Hoyt	18	1059	
GM-2	385-390	5/6/97	W.C. Hoyt	19	1059	
GM-2	390-395	5/6/97	W.C. Hoyt	20	1059	
GM-2	395-400	5/6/97	W.C. Hoyt	21	1059	
GM-2	400-405	5/30/97	W.C. Hoyt	4	1697	
GM-2	405-410	5/30/97	W.C. Hoyt	5	1697	
GM-2	410-415	5/30/97	W.C. Hoyt	6	1697	
GM-2	415-420	5/30/97	W.C. Hoyt	7	1697	
GM-2	420-425	5/30/97	W.C. Hoyt	8	1697	
GM-2	425-430	5/30/97	W.C. Hoyt	9	1697	
GM-2	430-435	5/30/97	W.C. Hoyt	10	1697	
GM-2	435-440	5/30/97	W.C. Hoyt	11	1697	
GM-2	440-441	5/30/97	W.C. Hoyt	12	1697	

441' E - END OF TRENCH GM2

GM2 Bedding Orientations

Location	Unit	Strike	Dip	Comments
86'E	top U9	350	15	south wall
91'E	U11 contact w/ clay bed in SWZ	300	25	
118'E	top U13	320	14	south wall
127'E	top U15	311	19	south wall
192'E	top U23b	336	17	south wall
195'E	w/in U23	297	26	south wall
230'E	U26 top ss bed	17	8	north wall
249'E	top U27	26	14	south wall
266'E	top U28	313	22	north wall
282'E	top U29	3	10	south wall
315'E	U32	89	29	north wall
same	same	93	33	north wall
364'E	top U34	314	16	south wall
273'E	top U28a	335	17	south wall
276'E	top U29a	339	14	south wall

**Trench Mapping Data Spreadsheets for GM-3 workbook
contains the following sheets**

Lithologic Description: Selections Abbreviations
Lithologic Descriptions
Soil Description Abbreviations
Soil Descriptions
Fracture Description Abbreviations
Fracture Descriptions
Photographic Log

GM-3 LITHOLOGIC DESCRIPTION: SELECTIONS - ABBREVIATIONS

Trench & Unit Designation		Lithology		Modifiers		Composition	Grain Size/ Max Clast Size (mm)		Color		Abundance Ratio	Rounding/ Sorting	
GM3 U2	Trench No.	CL	Claystone	C	Conglomeratic	A	Arkositic	C	Coarse	BG	Brownish gray	ie:10/20/70 = % of	<u>ROUNDING</u> A Angular
	Unit No.	M	Mudstone	CL	Clayey	L	Lithic	F	Fine	DR	Dark Red		
		SS	Sandstone	CS	Coarse-Sandy	Q	Quartz	M	Medium	DRB	Dark reddish brown	grav/sand/ clay	R Rounded
		ST	Siltstone	F	Fine			VC	Very Coarse	GR	Greyish red		S Subrounded/ Subangular
				F-C	Fine to Coarse			VF	Very Fine	GRP	Grayish red purple		
				F-M	Fine to Medium					LB	Light brown		
				FS	Fine-Sandy					LBG	Light brownish gray		<u>SORTING</u>
				G	Gravelly					LOG	Light olive gray		M Moderately
				GR	Gravelly					LB	Light brown		P Poorly
				M	Muddy					MB	Moderate brown		W Well
				M-C	Medium to Coarse					MG	Medium gray		
				MS	Medium-Sandy					MRB	Mod reddish brown		
				S	Sandy					MRO	Moderate reddish orange		
				SL	Slightly					MYB	Mod yellowish brown		
				ST	Silty					PR	Pale red		
										PRB	Pale reddish brown		
										PYB	Pale yellowish brown		
										VLG	Very light gray		
										VPG	Very pale gray		
										YG	Yellowish gray		

GM-3 LITHOLOGIC DESCRIPTION: SELECTIONS - ABBREVIATIONS (CONT.)

Texture	Induration	Weathering	Bedding	Contact/ Bedding	Bed Markings	Bed Lamination Angle	Secondary
BI Bimodal	F Friable	M Moderate	GR Graded Reverse	C Convoluted	RP Ripple Marks	L Low Angle	T Bioturbated
C Clast Supported	I Indurated	S Severe	GN Graded Normal	D Default	SF Scour & Fill	XBP Planar Crossbeds	M Mottling
MS Massive	M Moderately	SL Slight	PAL Parallel Laminations	G Gradational			MN Mn Nodule
M Matrix Supported		C Complete	PLL Planar Laminations	I Irregular			B Burrowed
			PALW Wavy Bedding/Laminations	S/F Sharp-Flat			IS Iron Stain
			MS Massive	UNC Erosional; Scoured			MS Manganese Stain
			PB Planar				
			TB Thick Bedded				
			TNB Thin Bedded				
			XB Crossbedded				

GM3 LITHOLOGIC DESCRIPTIONS (0'-85')

Trench & Unit Designation	Lithology	Modifiers	Composition	Grain Size/ Max Clast Size (mm)	Color	Abundance Ratio	Rounding/ Sorting	Texture	Induration	Weathering	Thickness (inches)	Bedding	Contact/ Bedding	Bed Markings	Bed Lamination Angle	Soft Sediment	Secondary	Accessories	Remarks
						G/S/M													
GM3-U1	SS	CS	A	C/2	DR	0/90/10	S/P	C	M	M		MS					M		
GM3-U2	M	S		VF/0.5	DR	0/10/90	.W	MS	F	M	48	PAL/XB	S/F		XBP				
GM3-U2a	SS	M	L	C/1	DR	0/90/10	A/M	MS	M	S	8	MS	G				M		
GM3-U2b	ST				DR	0/0/100	.W	MS	F	S	4 to 12	PLL	S/F						
GM3-U3	SS	CS	L	M/1.5	DR	0/95/5	A/P	C	I	S	36	PB	S/F						
GM3-U4	M	ST	Q		DR	0/0/100	.W	MS	M	M	20	PAL	S/F						
GM3-U4a	M				DR/VP	0/0/100	.W	M	M	M	30	PAL	S/F				M		
GM3-U4b	M				LBG/VLG	0/0/100	.W	M	M	M	42	PAL	S/F				M		
GM3-U5	SS	M-C	Q/L	M/0.75	LBG	5/80/15	A/P	C	F	S	12 to 30	MS	S/F	SF			M		
GM3-U5a	SS	CS	Q/L	C/4	PRB	5/95/0	S/M	C	I	M	24	MS	UNC						interfingers with U5
GM3-U6	M	S			DR	0/0/100	.M	MS	F	S	48	PAL/XB	S/F						
GM3-U6a	SS		A	C/1.75	LBG	0/100/0	S/W	C	M	SL	8		S/F						
GM3-U6b	SS		A	VF/1.25	PRB	0/100/0	S/W	MS	F	S	6	XB	C	RP	XBP/L				
GM3-U6c	M	ST			DR/LBG	0/0/100		MS	F	S	12	PB							interfingers with U6 and U7
GM3-U7	SS	S	L	M/5	DR	5/85/10	S/M	C	F	M	12	MS		SF					interfingers with U6
GM3-U8	SS	ST	L	C/0.75	DR	0/80/20	S/M	C	M	M	>24	MS	S/F						
GM3-U8a	SS	G	L	C/2.5	DR	10/40/50	S/P	C	F	M	6	GN	S/F						

Described S.B. Tougas; Recorded J.R. Pray; 6 May 1997

GM3 LITHOLOGIC DESCRIPTIONS (85'-120')

Trench & Unit Designation	Lithology	Modifiers	Composition	Grain Size/ Max Clast Size (mm)	Color	Abundance Ratio	Rounding/ Sorting	Texture	Induration	Weathering	Thickness (inches)	Bedding	Contact/ Bedding	Bed Markings	Bed Lamination Angle	Soft Sediment	Secondary	Accessories	Remarks
						G/S/M													
GM3-U9	M	S		/0.5	GR	0/10/90		MS	F	M	50	PAL	S/F				T		
GM3-U9a	SS	ST	Q/L	F/0.5	LB	0/70/30	M/W	C	I	S	3	PB	S/F				B		
GM3-U9b	M				GRP	0/0/100		MS	F	S	9		G				M		bioturbated
GM3-U10a	SS	ST	A/L	F/0.5	PR	0/65/35	/M	C	M	M	14	PB	S/F	SF			M		coarsens updip (W); interfingers
GM3-U10b	SS	ST	A/L	M/0.5	GR	0/65/35	S/P	MS	F	S	12	MS	G				T		
GM3-U10c	SS	C/ST	L	C/1.5	PR	5/85/10	S/P	C	F	S	6	MS	G				M		
GM3-U10d	ST	FS		F/0.3	GR	0/40/60		M	F	S	14	MS	S/F				B		
GM3-U10e	SS	ST	A/L	C/5	PR	0/75/25	S/P	BI	F	S	30	PLL	S/F				M		Mn staining
GM3-U10f	SS	ST		VF/0.5	GR	0/50/50	/P		M	S	17		G						interfingers w/ U10g & U10a
GM3-U10g	ST	S	A	F/0.5	PR	0/30/70	/M	C	M	M	6	PB	S/F						lens shaped

Described S.B. Tougas; recorded W.C. Hoyt; 16 May, 1997

GM3 LITHOLOGIC DESCRIPTIONS (120'-285')

Trench & Unit Designation	Lithology	Modifiers	Composition	Grain Size/ Max Clast Size (mm)	Color	Abundance Ratio	Rounding/ Sorting	Texture	Induration	Weathering	Thickness (inches)	Bedding	Contact/ Bedding	Bed Markings	Bed Lamination Angle	Soft Sediment	Secondary	Accessories	Remarks
						G/S/M													
GM3-U11	ST	FS	Q	/<0.1	PYB	0/5/95	.W	M	M	S	32		G				M		FeO stained; weathering to gray-orange clay
GM3-U11a	M			/<0.1	LOG	0/1/99	.W	M	M	S	>31	PAL	G				M		sand locally in funnel-shaped vertical features; coarsens upward into U11b; scoured at contact w/U11c
GM3-U11b	M	FS			YG	0/5/95	.W	M	M	S	8		G				M		lens; pinches out both ways
GM3-U11c	SS	G	L	M/3	PR	5/95/0	S/M	C	F	S	>15		S/F				Mn		phyllite clasts
GM3-U12	SS	G	L	F-C/5	MRB	5/85/10	S/M	C	I	M	25	MS	S/F				IS		phyllite clasts; more gravel locally in lenses
GM3-U13	ST	MS	Q		PRB	0/5/95	.W	M	I	M	38	MS	S/F				M		spheroidal weathering
GM3-U14	SS	G	L	C/7.5	DRB	10/90/0	S/P	C	M	S	15	MS	S/F				M		silica cement; phyllite clasts
GM3-U14a	ST	S		VF/2	MRB	0/5/95	.W	M	M	S	6	GN	S/F	SF					finer upward
GM3-U14b	ST	S	L/Q	F/1.5	DRB	0/40/60	.W	M	M	S	25	MS	S/F				M		phyllite clast; spheroidal weathering
GM3-U15a	ST	S			DRB	0/10/90	.W	M	M	S	26	MS	S/F				M		
GM3-U15b	ST	S	A	/<0.1	MRB	0/25/75	.W	M	M	S	42	MS	S/F				M		sandier downward
GM3-U15c	ST				GR	0/10/90	.W	M	M	C	48		S/F				M		
GM3-U16	CG	S	Q/L	C/6	GR	60/40/0	S/M	MS	M	M	28	PLL							yellow clay seams 0.5 cm thick
GM3-U16a	SS	G	Q/L	VC/15	GR	20/80/0	S/P	C	F	S	23	MS	S/F				MS		phyllite clasts common; more cong. @ base
GM3-U17	M		Q		PRB	0/0/100	.W	M	M	M	>36	MS	S/F				Mn		spheroidal weathering; coarse sand at base
GM3-U17a	SS	ST	Q	F/1.5	DRB	0/60/40	.W		M	S	>100		G				M		Coarsens upward
GM3-U17b	SS	G	L/Q	VC/15	GR	10/90/0	S/M	C	M	S	9		S/F						interbedded coarse grained and conglomeratic sandstone
GM3-U18	M	S			GR	0/5/95	.W	M	M	S	24		S/F				M		spheroidal weathering
GM3-U19	M	S			MRO	0/0/100	.W	M	M	S	>40		G				M		stinky
GM3-U19a	SS	ST	Q	F/0.1	DRB	0/70/30	.W	M	M	S	10	MS	G						
GM3-U19b	SS	ST	Q/L	F/3	MRB	0/60/40	.W	M	M	S	5	MS	G				M		

Described M.L. Stutz; Recorded A.E. Whitaker; 17 May, 1997

GM3 LITHOLOGIC DESCRIPTIONS (285'-375')

Trench & Unit Designation	Lithology	Modifiers	Composition	Grain Size/ Max Clast Size (mm)	Color	Abundance Ratio	Rounding/ Sorting	Texture	Induration	Weathering	Thickness (inches)	Bedding	Contact/ Bedding	Bed Markings	Bed Lamination Angle	Soft Sediment	Secondary	Accessories	Remarks
						G/S/M													
GM3-U19C	M	ST			DRB	0/0/100		MS	F	S	30	PLL	G						
GM3-U20	M				DRB	0/0/100			F	S	0 to 7	MS	S/F						lens in U20; contact sharp but nonplanar
GM3-U20a	SS	ST	L	VF/0.5	DRB	0/55/45	S/M	M	I	M	44	GR	G						coarsens upward
GM3-U20b	M	ST			DR	0/0/100		MS	M	M	0 to 15	MS	G						pinches out along upper contact of U20
GM3-U21	M	SL ST			GR	0/0/100		MS	F	S	>43	MS	S/F/I						interfingers with U20 @304 feet
GM3-U21a	SS		L/Q	F/<0.1	DRB	0/90/10	S/W	C	I	M	0 to 6	MS	S						lens; 317-324 feet; very hard
GM3-U21b	ST	MS		/0.5	DRB	0/5/95		MS	M	S	8 to 15	MS	S/F						
GM3-U22	SS	C	L/Q	VC/20	GR	10/85/5	S/P	C	F	M	40	GN/MS	S/F						conglomeratic at base; volcanoclastic clasts
GM3-U23a	SS	ST	L	M/2	DRB	0/50/50	S/P	M	M	M	0 to 9	MS	S/F						pinches out; coarsens downdip
GM3-U23	SS																		gravel present; fines upward to moderately sorted fine sandstone; coarse at base
		ST	L/Q	M/7	DRB	5/65/30	S/P	C	M	M	36	GN/MS	G						
GM3-U24a	ST	S		VF/1	MB	0/45/55			F	S	30		G						
GM3-U24	SS	ST	L	VF/1	MB	0/90/10	S/M	C	F	S	>40	PALW	S/F						possible crossbeds
GM3-U25	M	ST			DRB	0/0/100		MS	F	S	57	MS	G				M/B		YG mottling; locally some fine sand

Described C.H. Trupe; Recorded S.B. Tougas; 20 May, 1997

GM3 LITHOLOGIC DESCRIPTIONS (375'-410')

Trench & Unit Designation	Lithology	Modifiers	Composition	Grain Size/ Max Clast Size (mm)	Color	Abundance Ratio	Rounding/ Sorting	Texture	Induration	Weathering	Thickness (inches)	Bedding	Contact/ Bedding	Bed Markings	Bed Lamination Angle	Soft Sediment	Secondary	Accessories	Remarks
						G/S/M													
GM3-U26	SS	F	L	F/0.5	GR	0/50/50	R/M	M	M	M	~48	MS	G						GR to DRB; mottled
GM3-U27	M				MRB	0/0/100			F	M	>60	MS	G						only slightly silty
GM3-U28a	SS	M	L	M/.5	DRB	0/60/40	R/W	M	F	S	5	MS	S/F						pinches out updip
GM3-U28b	SS	F	L/Q	F/.2	DRB	0/70/30	R/W	M	F	S	9	MS	G						finer upward to fine sandy siltstone
Described and recorded N.L. Bogen; 22 May, 1997																			
GM3-U28c	SS	F-M	L/Q	F/.2	MB	0/90/10	S/M	C	F	S	9	MS	G						micaceous
GM3-U28d	SS	F/ST		F/<.1	DRB	0/90/10	S/W	C	F	S	0 to 3	MS	G						micaceous; silty; pinches out downdip
GM3-U28e	SS	F-M	L/Q	F-M/.5	DRB	0/100/0	S/M	C	F	S	0 to 9	MS	G						micaceous; weathers DYO; pinches out downdip
GM3-U29a	SS	S/M	L	F/1	DRB	0/90/10		C	F	S	12	MS	G						micaceous

Described N.L. Bogen; Recorded C.H. Trupe; 22 May, 1997

GM3 LITHOLOGIC DESCRIPTIONS (410'-550')

Trench & Unit Designation	Lithology	Modifiers	Composition	Grain Size/ Max Clast Size (mm)	Color	Abundance Ratio	Rounding/ Sorting	Texture	Induration	Weathering	Thickness (inches)	Bedding	Contact/ Bedding	Bed Markings	Bed Lamination Angle	Soft Sediment	Secondary	Accessories	Remarks
						G/S/M													
GM3-U29	M				DRB	0/0/100			F	S	30	MS	S/F						micaceous at top
GM3-U30	SS	F	L/O	F/0.1	MB	0/95/5	S/W	C	F	S	24	MS	S/F						finer upward
GM3-U30a	SS	ST	L	F/0.2	DRB	0/75/25	R/M	M	F	S	12	MS	G						finer upward; micaceous at top
GM3-U31	SS	C	L	C/1	MB	0/100/0	S/W	C	F	S	60	MS	S/F						contact planar to slightly undulating
GM3-U32a	SS	ST	L	C/0.5	MRB	0/80/20	S/M	Bi	F	S	24	MS	D						coarse sandy mudstone; sand fines upward
GM3-U32	M	S		/0.25	MRB	0/10/90	S/W	C	F	S	48	MS	G						coarsens upward; seep at 445 feet E, 0.25 gal/day
GM3-U38a	CL	ST			LOG	0/0/100			F	S	3 to 6	MS	S/F						LOG with MRB mottling; thins downdip
GM3-U38	CL	SL ST			BG	0/0/100			F	S	54	MS	G						LOG with GR mottling
GM3-U39a	SS	F-C	L	F-C/1	GR	0/100/0	S/M	C	F	S	9	TNB	S/F						finer upwards to fine sandstone; more massive at base
GM3-U39b	SS	C	L	C/0.7	GR	0/100/0	S/W	C	F	S	8 to 15	MS	S/F						GR to LB; contact locally undulating
GM3-U40	SS	ST	L/O	F-C/2	DRB	0/70/30	S/P	M	F	S	40	MS	G	SF					finer upward; contact irregular and undulating
GM3-U41	M																		contact slightly undulose; lower 6" is indurated, remainder very weathered, YG to DYO
		FS		F/0.5	MRB	0/5/95			F	S	72	MS	S/F						
GM3-U41a	SS		L	M/0.7	MRB	0/95/5	S/W	C	F	S	16	MS	G						indurated at base
GM3-U41b	M	ST			MRB				F	S	30	MS	G						uniform base to top
GM3-U42a	CL	ST			GR				F	S	15	MS	G						
GM3-U42b	ST				GR			M	M		15	MS	S/F						
GM3-U42c	CL	ST			LOG				F	S	3 to 10	MS	S/F						thins downdip
GM3-U43	M				MB				F	S	60	MS	S/F						planar contact
GM3-U43a	ST	S	L	/0.5	MRB	0/10/90	S/M	M	F	S	11	MS	G						
GM3-U43b	ST	FS		F/0.2	MRB	0/40/60			F	S	22	MS	G						nodular weathering
GM3-U44a	SS	M-C	L	M-C/1	MRB	0/100/0	S/W	C	F	M	7	MS	S/F						
GM3-U44b	SS	F-C	L	M/2	DRB	0/90/10	S/M	C	F	S	6	MS	G						phyllite clasts
GM3-U44c	SS																		gravel content increases upward; gravel mostly white metavolcanics with strong fabric
		F-M	L	F-M/10	MRB	15/85/0	S/M	C	F	S	36	MS	S/F/I						
GM3-U44	SS	ST	L	F-M/10	DRB	0/80/20	S/M	C	M	M	9	MS	G						
GM3-U44d	SS	M-C	L	C-M/10	LB	2/98/0	S/M	C	F	S	30	MS	G						white pebbles as in U44c
GM3-U44e	CL	ST			LOG	0/0/100			F	S	2 to 6	MS	S/F/I						

Described N.L. Bogen; Recorded C.H. Trupe; 23 May, 1997

Final by U.S.C.
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10/3/97

GM3 LITHOLOGIC DESCRIPTIONS (550'-760')

Trench & Unit Designation	Lithology	Modifiers	Composition	Grain Size/ Max Clast Size (mm)	Color	Abundance Ratio	Rounding/ Sorting	Texture	Induration	Weathering	Thickness (inches)	Bedding	Contact/ Bedding	Bed Markings	Bed Lamination Angle	Soft Sediment	Secondary	Accessories	Remarks
GM3-U45	ST				MRB	G/S/M 0/0/100			F	S	>60	MS							rubbly; nodular; shot with gray clay
GM3-U45a	ST				GR	0/0/100			F	S	28	MS	G						rubbly; nodular; upper contact terminates against FR 167
GM3-U45b	M				MB	0/0/100			F	S	120?	MS	G						rooted; blocky; local fine sand
GM3-U45c	SS	F		F/<.1	PRB	0/50/50	S/M	M	M	M	4 to 6	MS	G						better indurated than U45b
GM3-U46	SS	M-C	L	M-C/2	DRB	0/90/10	S/M	C	F	S	6 to 15	MS	G						
GM3-U47	M				DRB	0/0/100			M	M	~96	MS	G						nodular weathering
GM3-U48	SS																		white metavolcanic clasts; dark phyllite; quartz; lens, 2 beds
		GR-C	L/Q	C/10	DRB	20/80/0	S/P	C	F	S	>19	MS	G						
GM3-U48a	ST	S	L	F-C/1	DRB	0/10/90			F	S	13	MS	G						
GM3-U49	M	SLS			DRB	0/1/99			F	S	~60	MS	G						possible burrows, mottled GR
GM3-U49a	ST	FS			DRB	0/10/90		M	M	M	6	TB	S/F						
GM3-U50	M				DRB	0/0/100			F	S	20	MS	D						poorly exposed; deeply weathered
GM3-U51	SS	M		M/5	LOG/MRB	0/100/0	S/M	C	F	S	3 to >18	MS	S/F						contact locally undulose; locally
GM3-U51a	SS																		may have been DRB; locally pebbly;
		M-C		M-C/20	LOG/MYB	0/100/0	S/W	C	F	S	>24	MS	G						interfingers with U52 downdip
GM3-U52	SS																		contact not exposed; possibly thin-medium bedded locally
		F-M		F-M/1	DRB	0/90/10	S/M	C	M	S	>24	MS	D						
GM3-U53	SS	M-C		/2	DRB	0/100/0	S/P	C	F	S	>60	MS	S/F						
GM3-U56	SS	GR-C	L		DRB/ PR	5/95/0	S/P	C	I	M	4 to 72	MS	S/F/I						

Described C.H. Trupe; Recorded N.L. Bogen; 23 May, 1997

GM-3 SOIL DESCRIPTION ABBREVIATIONS

Number	Type	Color	Modifier/ Moisture	Remarks
GM3- Trench id.	CH- Inorganic clays of high plasticity	DR- Dusky red	D- Dry	Colors in color-column
S1- Soil id.	CL- Inorganic clay of low-medium plasticity	DRB- Dark reddish brown	M- Moist	Type in type-column
U2sw- Severely weathered rock of Unit	MH - Inorganic silts of high plasticity	DYO- Dark yellowish orange	SLM- Slightly Moist	BL- Bleached
	ML- Inorganic silts and very fine sands with slight plasticity	GG- Greenish gray	SP- Seeping	
	SC- Clayey sand	GO- Grayish orange	W- Wet	
	SM- Silty sand	GR- Grayish red		
	SP- Poorly graded sand	GY- Grayish yellow		
	SW- Well-graded sand	LB- Light brown		
		LOG- Light olive gray		
		MB- Moderate brown		
		MRB- Moderate reddish brown		
		MRO- Moderate reddish orange		
		MYB- Moderate yellowish brown		
		PG- Pinkish gray		
		PR- Pale red		
		PRB- Pale reddish brown		
		PYB- Pale yellowish brown		
		VLG- Very light gray		
		VP- Very pale gray		
		VPO- Very pale orange		
		YG- Yellowish gray		

GM3 SOIL DESCRIPTIONS (0'-85')

Number	Type	Color	Modifier/ Moisture	Remarks
GM3-S1	ML	GO	M	
GM3-S2	SM	PRB	SLM	
GM3-S3	CL	GR	SLM	
GM3-U1SW	SM	MRB	M	
GM3-U2SW	ML	MRB	W/SP	
GM3-U2aSW	SM	MB	SLM	
GM3-U2bSW	ML	GR	M	
GM3-U3SW	SM	MB	SLM	
GM3-U4SW	ML	DR	SLM	
GM3-U4	CH	VP	W/SP	
GM3-U4bSW	CH	VLG	W/SP	
GM3-U5SW	SM	LB	SLM	
GM3-U6aSW	ML	VLG	SLM	
GM3-U6bSW	ML	VLG	SLM	
GM3-U6SW	ML	DR	SLM	
GM3-U8SW	SM	DR	M	

Described S.B. Tougas; Recorded J.R. Pray; 6 May 1997

GM3 SOIL DESCRIPTIONS (85'-275')

Number	Type	Color	Modifier/ Moisture	Remarks
GM3-S4	SM	MB	D	
GM3-S5	SC	GO	SLM	lens (8")
GM3-S6	SM	MB	D	inclusion within soil
GM3-S7	SP	MB	M	small (4") inclusion; lots gravel
GM3-S8	ML	PYB	SLM	
GM3-S9	SC	PYB	M	
GM3-S10	CL	DYO	SLM	
GM3-S11	ML	LB	M	special lens
GM3-S12	CL	PYB	M	lens
GM3-S13	SP	LB	M	small lens
GM3-S14	CL	GO	M	
GM3-S15	CL	LB	M	small lens
GM3-S16	ML	DYO	SLM	
GM3-S17	CH	MB	SLM	small lens
GM3-S18	CL	MYB	SLM	
GM3-S19	CH	LB	W	organic material ; root seepage
GM3-U9SW	ML	MB	SLM	
GM3-U9aSW	ML	PYB	SLM	
GM3-U10aSW	ML	PR	M	
GM3-U10bSW	SM	MB	SLM	
GM3-U10cSW	SW	MB	SLM	
GM3-U10dSW	SC	MB	SLM	
GM3-U10eSW	SW	MB	SLM	scattered gravel
GM3-U10fSW	SM	MB	SLM	
GM3-U11SW	CL	PYB	M	
GM3-U11aSW	CH	GO	M	
GM3-U11bSW	SC	GO	M	
GM3-U11cSW	SM	MYB	M	
GM3-U12SW	SP	LB	M	gravelly
GM3-U13SW	SM	DRB	SLM	
GM3-U14SW	SP	DRB	SLM	gravelly; more indurated; drier
GM3-U14aSW	SW	MRB	SLM	
GM3-U14bSW	SM	MRB	M	
GM3-U15aSW	SC	GR	SLM	mottled
GM3-U15bSW	SM	LOG	SLM	
GM3-U15cSW	CL	MYB	M	
GM3-U17SW	CL	MRB	M	
GM3-U17aSW	CL	MB	M	
GM3-U18SW	CL	PR	SLM	

Described M.L. Stutz; Recorded A.E. Whitaker; 17 May, 1997

GM3 SOIL DESCRIPTIONS (275'-365')

Number	Type	Color	Modifier/ Moisture	Remarks
GM3-S20	ML	DYO	M	sand weathering as silt
GM3-S21	ML	MB	M	inclusion of weathered rock in soil
GM3-S22	CL	MB	SLM	lens relict rock; silty clay
GM3-S23	ML	MYB	SLM	

Described M.L. Stutz; Recorded N.L. Bogen; 20 May, 1997

GM3 SOIL DESCRIPTIONS (275'-365')

Number	Type	Color	Modifier/ Moisture	Remarks
GM3-U19cSW	CL	MRB	SLM	
GM3-U20aSW	CL	MRB	SLM	
GM3-U20SW	MH	MRB	SLM	
GM3-U21SW	ML	MB	SLM	
GM3-U22SW	SW	MB	SLM	
GM3-U23aSW	ML	DRB	SLM	
GM3-U23SW	SC	DRB	SLM	
GM3-U24SW	MH	MB	SLM	

Described S.B. Tougas; Recorded M.L. Stutz; 21 May, 1997

GM3 SOIL DESCRIPTIONS (365'-485')

Number	Type	Color	Modifier/ Moisture	Remarks
GM3-S23	ML	DYO	SLM	
GM3-S24	ML	DYO	SLM	mottled LOG
GM3-S25	SM	MYB	SLM	
GM3-S26	ML	GO	SLM	
GM3-S27	ML	DYO	SLM	very typical soil
GM3-U25SW	ML	PR	D	mottled YG
GM3-U26SW	ML	LOG	SLM	mottled MRO
GM3-U27SW	ML	DRB	SLM	also YG
GM3-U28aSW	SM	DRB	SLM	
GM3-U28bSW	ML	DRB	SLM	
GM3-U28cSW	SM	DRB	SLM	also DYO, LOG; micaceous
GM3-U28dSW	ML	DRB	SLM	also DYO, LOG; micaceous
GM3-U28eSW	SM	DYO	SLM	also YG; slightly micaceous
GM3-U29SW	ML	MB	SLM	LOG; micaceous
GM3-U29aSW	SM	GR	SLM	LOG; very fine sand; no clay
GM3-U30SW	SM/ML	GR	SLM	the SM is GR; the ML is YG; micaceous
GM3-U30aSW	MH	MRB	SLM	micaceous
GM3-U31SW	SW	GR	SLM	also DYO, YG
GM3-U32SW	ML	DRB	SLM	also LOG; mostly silt; micaceous; LOG is more cohesive
GM3-U32aSW	ML	MRB	SLM	LOG, GO; mostly all silt
GM3-U38SW	ML	GR	SLM	also YG; minor DYO
GM3-U38aSW	CL	LOG	SLM	also GG; slightly silty
GM3-U39aSW	SM	MYB	SLM	
GM3-U39bSW	SW	DRB	SLM	also MYB, YG; medium-fine silty sand
GM3-U40SW	ML	DRB	SLM	also YG, DYO; has numerous LOG BL stripes
GM3-U41SW	ML	DRB	SLM	also LOG, DYO

Described C.H. Trupe; Recorded N.L. Bogen; 24 May, 1997

GM3 SOIL DESCRIPTIONS (485'-760'; end of GM3)

Number	Type	Color	Modifier/ Moisture	Remarks
GM3-S28	ML	DYO/YG	SLM	40mm pebble; 20mm pebble; possible alluvium
GM3-S29	SM	MYB/YG	SLM	
GM3-S30	SW	DYO	SLM	
GM3-S31	ML	DYO	SLM	some clay; greasy; moderate plasticity
GM3-S32	ML	MB/MYB	SLM	clay present
GM3-S33	SM	DYO	SLM	
GM3-S34	ML	DYO/YG	SLM	also GO, MB; clayey
GM3-S35	SM	DYO/LOG	SLM	
GM3-S36	ML	DYO	SLM	
GM3-S37	ML	YG/MYB	SLM	mostly very fine quartz sand
GM3-U41aSW	ML	DRB/YG	SLM	
GM3-U41bSW	ML	GR/LOG	SLM	also DYO; feels greasy
GM3-U42aSW	CL	GY/LOG	SLM	slightly silty
GM3-U42bSW	ML	GR/LOG	SLM	
GM3-U42cSW	SM	LOG	SLM	
GM3-U43SW	ML	DRB/DYO	SLM	also PG
GM3-U43aSW	SM	GR/DYO	SLM	has LOG
GM3-U43bSW	SM	GR/GO	SLM	
GM3-U44SW	ML	MRB/PG	SLM	
GM3-U44aSW	ML	DRB	SLM	LOG stripes
GM3-U44bSW	SM	DRB	SLM	LOG stripes
GM3-U44cSW	ML	DRB/PG	SLM	DYO; has clasts up to 10mm locally
GM3-U44dSW	ML	DRB/YG	SLM	
GM3-U44eSW	SM	YG	SLM	
GM3-U45SW	ML	DRB/LOG	SLM	some medium sand
GM3-U45aSW	ML	GR/LOG	SLM	some clay
GM3-U45bSW	ML	DRB/LOG	SLM	
GM3-U45cSW	ML	DRB/LOG	SLM	mostly silt
GM3-U46SW	ML	DRB/MYB	SLM	mostly sily; very fine
GM3-U47SW	ML	MRB/LOG	SLM	little clay
GM3-U48SW	SW	DRB/DYO	SLM	some gravel
GM3-U48aSW	ML	DRB/LOG	SLM	some clay
GM3-U49SW	ML	MYB	SLM	clayey
GM3-U49aSW	ML	GR/YG	SLM	also MYB
GM3-U50SW	ML	DRB/DYO	SLM	also LOG
GM3-U51SW	SM	DYO/LOG	SLM	
GM3-U51aSW	SM	DYO/LOG	SLM	also MBR
GM3-U52SW	ML	DYO/LOG	SLM	also DRB
GM3-U53SW	ML	DYO/MRB	SLM	also MB, DRB
GM3-U56SW	ML	DRB/GO	SLM	also LOG

Described C.H. Trupe; Recorded N.L. Bogen; 24 May, 1997

GM-3 FRACTURE DESCRIPTION ABBREVIATIONS

Trench and Fracture Number	Rock	Fracture	Strike	Dip	Pitch	Shape	Surface	Color	Fit
GM3-Trench id.	Lith unit	F Fault	1°-360°	0°-90°	1°-180°	C curved	I Irregular	BG Brownish gray	G Good
FR1- Fracture id		JT Joint				I irregular	R Rough	GO Grayish orange	
		JTX Exfoliation				P planar	S Smooth	GOP Grayish orange-pink	
		JTW Weathering feature				U Undulating		PG Pale green	
		RT Root trace						LGG Light greenish gray	
								PO Pale Olive	
								PYB Pale yellowish brown	
								VPO Very pale orange	
								YG Yellowish gray	

GM-3 FRACTURE DESCRIPTION ABBREVIATIONS (CONT.)

Fill/ Mineral	Fill Characteristic	Weathering	Upward Termination	Downward Termination
BL Bleached C Clay NM Non-mineralized	F Filled O Open	M Moderate S Severe SL Slight	BS Base of Soil BSW Base of Severely Weathered BUx Base of Unit (x) DO Dies Out JTx Joint (x) ISS Internal soil surface T IBP Top internal bedding plane	BT Base of Trench Bux Base of Unit (x) DO Dies Out Tux Top of Unit (x) FRx Fracture (x) BSW Base of Severely Weathered ISS Internal soil surface

GM3 FRACTURE DESCRIPTIONS (0'-85')

Trench and Fracture Number	Rock	Fracture	Strike	Dip	Pitch	Shape	Surface	Height (inches)	Length (inches)	Color	Fabrics	Fit	Width (mm)	Fill/ Mineral	Fill Characteristic	Weathering	Age	Upward Termination	Downward Termination	Remarks
GM3-FR1	U1	JT	166	084		P	S	6		BG		G	10	BL	F	M		BSW	BT	
GM3-FR2	U2	JT	346	077		C	S	8		BG		G	10	BL	F	M		BSW	BT	
GM3-FR3	U4	JT	182	074		C	S	8		BG		G	5	BL	F	M		BSW	BT	
GM3-FR4	U4	JT	048	088		P	S	12				G	0.1	NM	O	F		TU4	BT	
GM3-FR5	U6	JT	045	078		P	S	8		BG		G	5	BL	F	M		BSW	BT	
GM3-FR6	U7	JT	164	088		P	S	12				G	0.1	BL	O	F		BSW	BT	
GM3-FR7	U3	JT	173	070		P	S	12		BG		G	10	BL	F	S		BS	TU3	seep; rooted
GM3-FR8	U3	JT	177	007		C	S	12		BG		G	10	BL	F	S		BS	TU3	moist
GM3-FR9	U3	JTW	035	082		P	S	12		BG		G	10	BL	F	S		BSW	TSW	
GM3-FR10	U5a	JT	326	084		P	S	16		GO		G	30	BL	F	M		BS	BT	
GM3-FR11	U5a	JT	070	083		C	S	12										BU6	TU6	
GM3-FR12	U5a	JT	136	090		P	S	14		BG		G	20	BL	F	M		BU6	TU6	
GM3-FR13	U5/5a	JT	172	076		P	S	10		GO		G	80	BL	F	S		BU6	TU4	
GM3-FR14	U5/6b	JT	170	073		C	S	24										BU6	TU4	
GM3-FR15	U6c	JT	163	077		P	S	12		BG		G	10	BL	F	M		BU6	TU4	
GM3-FR16	U5	JT	161	074		P	S	8		BG		G	20	BL	F	M		BU6	TU4	
GM3-FR17	U5	JT	126	083		C	S	6		BG		G	15	BL	F	M		BU6a	TU4	
GM3-FR18	U5	JT	283	087		P	S	10										BU6a	TU4	
GM3-FR19	U7	JT	195	082		P	S	6		BG		G	3	BL	F	M		BU6c	TU6	

Described J.R. Pray; Recorded A.E. Whitaker; 6-7 May, 1997

GM3 FRACTURE DESCRIPTIONS (85'-150')

Trench and Fracture Number	Rock	Fracture	Strike	Dip	Pitch	Shape	Surface	Height (inches)	Length (inches)	Color	Fabrics	Fit	Width (mm)	Fill/ Mineral	Fill Characteristic	Weathering	Age	Upward Termination	Downward Termination	Remarks
GM3-FR20	U9	JTX?	010	070		P	S	10	3	PYB		G	10	BL/C	F	S		ISS	BT	
GM3-FR21	U9	JT	103	089		I	R	24	>7	PYB		G	10	BL/C	F	S		DO	BT	
GM3-FR22	U9	JT	125	085		I	R	12	>11	PYB		G	5	BL/C	F	S		DO	BT	rooted
GM3-FR23	U9	JTX?	140	085		C	S	9	>9	PYB		G	3	BL/C	F	S		BU9b	BT	widens up to 10mm
GM3-FR24	U9	JTX	010	070		P	S	11	>48	PYB		G	5	BL/C	F	S		BSW	BT	widens up to 30mm
GM3-FR25	U10a	JT	354	072		P	R	5	>21	PYB		G	10	BL/C	F	S		DO	BT	widens up to 30 mm
GM3-FR26	U10a	JT	176	068		U	S	14	>11	VPO		G	5	BL/C	F	S		DO	BT	rooted
GM3-FR27	U10a	JT	180	080		U	R	3	>18	PYB		G	8	BL/C	F	S		BU10a	BT	
GM3-FR28	U10a	JTX?	170	071		U	S	8	>22	PYB		G	8	BL/C	F	S		BSW	BT	
GM3-FR29	U10a	JT	180	075		P	S	12	>21	PYB		G	10	BL/C	F	M		BU10d	BT	rooted; narrows to 5mm
GM3-FR30	U10a	JT	188	084		C	R	8	>8	VPO		G	3	BL/C	F	S		BS	BT	
GM3-FR31	U10e	JTX?	170	070		P	S	4		PYB		G	3	BL	F	M		BSW	DO	rooted
GM3-FR32	U10f	JT	345	089		P	S	17	>48	PYB		G	10	BL/C	F	M		BSW	BT	
GM3-FR33	U10g	JT	198	070		P	R	10	>9	PYB		G	5	BL/C	F	S		BSW	BT	
GM3-FR34	U10g	JTX	158	054		C	S	8	>9	PYB		G	4	BL/C	F	M		BSW	BT	
GM3-FR35	U10f	JT	182	082		P	S	5	>11	PYB		G	8	BL/C	F	M		BSW	BT	
GM3-FR36	U10f	JT	360	061		P	S	3	>8	PYB		G	1	BL	F	M		BSW	BT	
GM3-FR37	U10e	JT	352	078		C	R	6	>17	YG		G	8	BL/C	F	S		BSW	BT	
GM3-FR38	U10e	JT	140	082		P	R	9		YG		G	12	BL/C	F	S		BS	BU10e	
GM3-FR39	U10e/f	JT	186	080		P	R	8		VPO		G	8	BL/C	F	S		BS	DO	
GM3-FR40	U10e	JT	180	078		P	S	3	>6	YG		G	3	BL/C	F	M		BU11	BT	
GM3-FR41	U10e	JT	360	086		P	R	3	>9	YG		G	4	BL/C	F	M		BU11	BT	
GM3-FR42	U11	JT	354	065		P	R	4		YG		G	10	C	F	S		DO	DO	
GM3-FR43	U11	JT	350	068		P	S	5		YG		G	1	C	F	S		BSW	DO	
GM3-FR44	U11	JT	240	082		P	S	5		YG		G	1	C	F	S		BSW	DO	
GM3-FR45	U11	JT	348	080		P	S	9		PO		G	6	C	F	S		DO	DO	rooted
GM3-FR46	U11	JT	332	078		P	S	8		PO		G	3	C	F	S		BSW	DO	

Described S.B. Tougas; recorded M.J. Bartholomew; 17 May, 1997

GM3 FRACTURE DESCRIPTIONS (150'-250')

Trench and Fracture Number	Rock	Fracture	Strike	Dip	Pitch	Shape	Surface	Height (inches)	Length (inches)	Color	Fabrics	Fit	Width (mm)	Fill/ Mineral	Fill Characteristic	Weathering	Age	Upward Termination	Downward Termination	Remarks
GM3-FR47	U11a	JT	176	084		P	S	3	>4	YG		G	1	C	F	S		DO	BT	rooted
GM3-FR48	U11a	JT	173	086		P	S	4	>5	YG		G	2	BL/C	F	S		DO	BT	rooted
GM3-FR49	U12	JT	154	078		P	S	7	>10	YG		G	10	BL/C	F	S		BSW	BT	
GM3-FR50	U12	JT	172	077		P	S	6	>10	YG		G	10	BL/C	F	S		BSW	BT	
GM3-FR51	U12	JTX?	145	076		P	R	8		PG		G	1	BL	F	S		BSW	DO	
GM3-FR52	U10a/f	JT	180	078		P	S	9	>12	PYB		G	7	BL/C	F	M		BSW	BT	
GM3-FR53	U12	JTX?	173	074		I	R	7		YG		G	3	BL	F	S		BSW	DO	
GM3-FR54	U12	JTX?	167	071		C	R	12				G	0.1	NM	O	S		DO	BT	
GM3-FR55	U10a/f	JT	180	062		P	S	16	>14	PYB		G	20	BL/C	F	M		BSW	BT	rooted
GM3-FR56	U12	JTW	025	090		P	R	6		YG		G	1	C	F	S		BSW	DO	NM downwards
GM3-FR57	U13	JT	185	081		I	R	2	>12	YG		G	10	BL/C	F	S		PED	BT	rooted
GM3-FR58	U13	JTX	174	064		I	R	9		LGG		G	10	C	F	S		ISS	ISS	rooted
GM3-FR59	U13	JTX	186	066		I	R	8		LGG		G	2	C	F	S		BSW	BT	rooted
GM3-FR60	U14	JT	184	075		I	R	11		YG		G	5	BL	F	S		DO	BU14	stepped
GM3-FR61	U13,14a,14	JT	181	066		P	R	14		YG		G	5	BL	F	S		DO	BU14	
GM3-FR62	U14	JT	150	078		I	R	13	>9	YG		G	5	BL	F	S		DO	BU14	
GM3-FR63	U14	JT	175	064		I	R	11		YG		G	2	BL	F	S		DO	BU14	
GM3-FR64	U14b	JT	188	063		P	R	5	>8	YG		G	30	BL/C	F	S		DO	BT	
GM3-FR65	U16	JTX?	180	050		P	R	11		YG		G	10	BL/C	F	S		BU17	BT	
GM3-FR66	U16	JT	181	084		I	S	8	10	YG		G	5	C	F	S		BSW	BU17	
GM3-FR67	U17b	JTX	183	070		C	R	3		YG		G	3	BL	F	S		DO	BT	
GM3-FR68	U17	JTX	170	080		I	R	12		YG		G	2	C	F	S		BSW	DO	rooted
GM3-FR69	U11	F	352	030	089	P	S	19		PO		G	2	C	F	S		DO	DO	
GM3-FR70	U17	JT	176	082		P	R	3	>3	YG		G	5	C	F	S		DO	BT	
GM3-FR71	U17	JT	021	088		I	R	4	>6	YG		G	5	C	F	S		BSW	BT	
GM3-FR72	U17	JT	208	086		P	R	15	>6	LGG		G	10	C	F	S		BS	BT	E side 18 in. seep; narrows downward
GM3-FR73	U17a	JTX	160	070		P	R	6		YG		G	2	C	F	S		BU15	DO	

Described M.J. Bartholomew; recorded S.B. Tougas; 17 May, 1997

GM3 FRACTURE DESCRIPTIONS (250'-370')

Trench and Fracture Number	Rock	Fracture	Strike	Dip	Pitch	Shape	Surface	Height (inches)	Length (inches)	Color	Fabrics	Fit	Width (mm)	Fill/ Mineral	Fill Characteristic	Weathering	Age	Upward Termination	Downward Termination	Remarks
GM3-FR74	U19c	JT	356	089		P	S	6	4	YG		G	10	C	F	S		FR75	BT	
GM3-FR75	U19c	JTW	017	078		P	S	8		YG		G	15	C	F	S		DO	FR74	
GM3-FR76	U19c	JT	029	060		P	S	13	4	YG		G	30	C	F	S		DO	BT	
GM3-FR77	U20a/U19c/U20	JT	019	077		P	S	19		YG		G	20	C	F	S		DO	DO	
GM3-FR78	U20/U20a	JT	002	076		C	S	9		YG		G	5	BL/C	F	M		DO	BT	
GM3-FR79	U20	JT	238	070		P	S	6	6	YG		G	10	BL/C	F	S		DO	BT	
GM3-FR80	U20	JTX	169	058		P	S	6		YG		G	2.5	C	O/F	SL		DO	DO	
GM3-FR81	U23/U23a	JT	003	086		I	R	17	9	YG		G	10	C	F	S		DO	BT	
GM3-FR82	U20	JT	167	050		U	R	14		YG		G	10	BL/C	F	M		BS	DO	
GM3-FR83	U20	JTX	236	084		C	S	6		YG		G	1	BL/C	F	M		DO	DO	
GM3-FR84	U20	JT	176	086		P	S	30	4	YG		G	20	BL/C	F	S		DO	BT	
GM3-FR85	U20	JT	135	059		P	S	15		YG		G	10	C	F	M		DO	DO	
GM3-FR86	U20	JT	047	020		P	S	10				G	1		O	SL		DO	DO	
Described M.L. Stutz; Recorded N.L. Bogen; 20 May, 1997																				
GM3-FR87	U20	JTX	025	075		C	S	8	4	YG		G	1	BL/C	F	M		DO	DO	
GM3-FR88	U20	JT	044	075		P	R	8.5	1	YG		G	1	C	F	SL		DO	DO	
GM3-FR89	U20	JTW	340	071		C	R	15	3	YG		G	20	C	F	S		DO	BSW	
GM3-FR90	U20	JT	220	080		P	R	23	12	YG		G	10	C	F	S		DO	BT	
GM3-FR91	U20	JT	005	045		P	S	4				G	2.5		O	SL		DO	BT	
GM3-FR92	U20	JT	038	087		P	S	9	2	YG		G	2	C	O/F	SL		DO	BT	
GM3-FR93	U20	JT	015	090		P	S	8	2	YG		G	2	C	F	M		DO	DO	
GM3-FR94	U20/U21	JT	045	087		P	S	20	>3	YG		G	1	C	F	SL		BSW	DO	
GM3-FR95	U20	JT	062	080		P	S	5	3.5			G	1		O	SL		FR96	DO	
GM3-FR96	U20	JT	310	078		P	R	23	13	YG		G	5	C	F	M		BSW/BU	DO	
GM3-FR97	U20b/U20	JTX	050	080		C	S	9	2	YG		G	1	C	F	SL		DO	DO	
GM3-FR98	U20	JT	067	073		P	S	5	10	YG		G	1	C	F	SL		DO	BT	
GM3-FR99	U21a	JTW	178	076		P	R	4	2	YG		G	20	C	F	S		BU21	BU21a	
GM3-FR100	U23	JTW	189	064		C	R	16	15	YG		G	10	C	F	S		BSW	DO	
GM3-FR101	U23/U23a	JT	205	077		I	R	33	7	YG		G	35	C	F	S		DO	BT	
GM3-FR102	U23	JT	174	067		P	S	19	12	YG		G	20	BL	F	S		BSW	BT	
Described N.L. Bogen; Recorded M.L. Stutz; 20 May, 1997																				
GM3-FR103	U24	JT	168	072		P	S	24	13	YG		G	20	BL/C	F	S		DO	BT	
GM3-FR104	U24	JT	185	088		U	S	21	3	YG		G	15	BL/C	F	S		BS	DO	
GM3-FR105	U24	JT	024	073		P	S	16		YG		G	5	BL/C	F	M		BSW	BT	
GM3-FR106	U25	JT	165	088		C	S	9	3	YG		G	5	BL/C	F	M		DO	BSW	
GM3-FR107	U25	JTX	157	084		P	S	8.5	2	YG		G	2	BL/C	F	S		DO	BSW	
Described M.L. Stutz; Recorded N.L. Bogen; 20 May, 1997																				

GM3 FRACTURE DESCRIPTIONS (350'-760')

Trench and Fracture Number	Rock	Fracture	Strike	Dip	Pitch	Shape	Surface	Height (inches)	Length (inches)	Color	Fabrics	Fit	Width (mm)	Fill/ Mineral	Fill Characteristic	Weathering	Age	Upward Termination	Downward Termination	Remarks
GM3-FR108	U24/25	JTW	180	087		I	R	13		GOP		G	3	C	F	S		DO	BT	rooted
GM3-FR109	U24/25	JTW	038	082		I	R	17		GOP		G	1	C	F	S		DO	BT	
GM3-FR110	U25	JTW	143	079		I	R	10		GOP		G	0.1	BL/C	F	S		DO	BT	rooted
GM3-FR111	U25	JTW	131	084		I	R	13				G	0.1		O	M		DO	BT	
GM3-FR112	U25	JTW	151	080		I	R	7		GOP		G	1	C	F	S		DO	BT	
GM3-FR113	U25	JTW	228	083		P	R	7		GOP		G	1	C	F	S		DO	BT	rooted
GM3-FR114	U25	JTW	166	089		I	R	6		GOP		G	3			S		DO	BT	rooted; possible RT
GM3-FR115	U26	JT	136	070		P	S	4	6			G	0.1		O	M		DO	DO	
GM3-FR116	U28a	JTX	172	026		P	R	22		GOP		G	10	BL/C	F	S		DO	BT	rooted
GM3-FR117	U28b/c	JTX	140	020		P	R	15		GOP		G	10	BL	F	S		DO	DO	
GM3-FR118	U28b/c	JT	163	076		I	R	8		GOP		G	20	BL/C	F	S		DO	DO	
GM3-FR119	U28c	JTX	161	045		P	R	16	>13	GOP		G	20	BL	F	S		BU29a	DO	rooted
GM3-FR120	U29a	JTW	170	083		P	R	8		GOP		G	10	BL	F	S		DO	BU29a	rooted
GM3-FR121	U29a	JTW	195	081		I	R	13		GOP		G	10	BL	F	S		BU29	DO	rooted
GM3-FR122	U29	JTW	007	084		I	R	17		GOP		G	5	BL	F	S		DO	DO	
GM3-FR123	U29	JTW	179	082		I	R	12		YG		G	3	BL/C	F	S		DO	DO	rooted
GM3-FR124	U30	JTW	172	086		I	R	7		GOP		G	10	C	F	S		BU30a	DO	
GM3-FR125	U30	JTW	179	088		I	R	10		GOP		G	10	BL	F	S		DO	BT	rooted
GM3-FR126	U30	JT	038	074		I	R	10				G	0.1		O	M		DO	BT	
GM3-FR127	U30a	JTW	025	030		I	R	19		GOP		G	10	C	F	S		ISS	BT	
GM3-FR128	U31	JT	115	086		P	R	10		GOP		G	30	C	F	S		DO	BT	
GM3-FR129	U31	JT	190	045		P	R	13		GOP		G	30	C	F	S		DO	BT	
GM3-FR130	U31	JT	164	088		P	R	17		GOP		G	5	C	F	S		DO	BT	
GM3-FR131	U31	JT	113	082		P	R	10		GOP		G	10	C	F	S		DO	BT	
GM3-FR132	U39a	JTX	204	080		P	S	6		GOP		G	1	BL	F	S		DO	BT	
GM3-FR133	U39b	JTW	177	076		P	I	8		YG		G	40	C	F	S		BSW	BT	rooted
GM3-FR134	U39b	JTW	185	068		P	I	10		YG		G	80	C	F	S		DO	BT	rooted
GM3-FR135	U40	JT	178	064		I	R	9	>15	GOP		G	20	C	F	S		BSW	BT	seep
GM3-FR136	U40	JT	188	073		P	R	5	>15	GOP		G	20	C	F	S		BSW	BT	
GM3-FR137	U40	JTW	002	065		C	R	10		GOP		G	20	C	F	S		DO	BT	rooted
GM3-FR138	U40	JT	209	070		P	R	4		GOP		G	10	C	F	S		DO	BT	
GM3-FR139	U40	JTX	010	050		P	R	9		GOP		G	10	C	F	S		DO	BT	
GM3-FR140	U40	JT	162	081		P	R	14		GOP		G	20	C	F	S		ISS	BT	
GM3-FR141	U40	JT	004	087		P	R	15		GOP		G	20	C	F	S		DO	BT	
GM3-FR142	U41/U40	JT	182	081		P	R	8	>15	GOP		G	30	C	F	S		DO	BT	
GM3-FR143	U40	JTW	349	070		P	R	7		GOP		G	10	C	F	S		ISS	BT	seep
GM3-FR144	U41	JTW	349	077		I	R	9		GOP		G	50	C	F	S		ISS	BT	
GM3-FR145	U41	JTW	341	089		P	R	7		GOP		G	70	C	F	S		ISS	BT	

GM3 FRACTURE DESCRIPTIONS (350'-760') (cont.)

Trench and Fracture Number	Rock	Fracture	Strike	Dip	Pitch	Shape	Surface	Height (inches)	Length (inches)	Color	Fabrics	Fit	Width (mm)	Fill/ Mineral	Fill Characteristic	Weathering	Age	Upward Termination	Downward Termination	Remarks
GM3-FR146	U41	JTW	153	084		P	S	4		GOP		G	0.1	C	F	S		ISS	BT	
GM3-FR147	U42b	JTW	002	089		I	R	8		GOP		G	5	C	F	S		DO	BT	
GM3-FR148	U42b	JTW	001	088		I	R	10		GOP		G	20	C	F	S		DO	BT	
GM3-FR149	U42b	JTW	130	057		I	R	8		GOP		G	2	C	F	S		BU42c	FR148	
GM3-FR150	U42b	JTW	153	080		I	R	6		GOP		G	20	C	F	S		DO	BT	
GM3-FR151	U43	JTW	164	084		I	R	5		GOP		G	30	C	F	S		DO	BT	
GM3-FR152	U43	JTW	004	081		I	R	7		GOP		G	10	C	F	S		DO	BT	
GM3-FR153	U43	JTW	061	089		P	R	6		GOP		G	3	C	F	S		DO	BT	
GM3-FR154	U43	JTW	039	069		P	R	9		GOP		G	3	C	F	S		DO	BT	
GM3-FR155	U43a/U43	JTW	120	068		I	R	10		GOP		G	20	C	F	S		DO	BT	
GM3-FR156	U43b	JTW	172	071		P	S	6		GOP		G	10	C	F	S		DO	BS	
GM3-FR157	U43b	JTW	173	084		I	R	11		GOP		G	20	C	F	S		DO	BT	
GM3-FR158	U44/U44a	JTW	157	068		I	R	12		GOP		G	10	C	F	S		DO	BT	
GM3-FR159	U44/U44c	JTW	192	040		I	R	11		GOP		G	20	C	F	S		DO	DO	
GM3-FR160	U44c	JTW	165	080		I	R	10		GOP		G	20	C	F	S		DO	BT	
GM3-FR161	U44c/d	JTW	186	053		I	R	20		YG		G	20	C	F	S		DO	BT	
GM3-FR162	U44d	JTW	191	020		C	R	7		GOP		G	10	C	F	S		DO	BT	
GM3-FR163	U44d	JTW	227	042		C	R	6		GOP		G	10	C	F	S		DO	BT	
GM3-FR164	U45	JT	024	071		I/C	R	13		GOP		G	20	C	F	S		DO	BT	
GM3-FR165	U45	RT				I	R	31				G	0-20	C	F	S				
GM3-FR166	U45a	F	359	039	083	C	S	50	48	YG		G	0.1	C	F	M		DO	BT	
GM3-FR167.1	U45b	F	356	018	081	C	S	152?	48	YG		G	0.1	C	F	M		DO	BT	
GM3-FR167.2	U45b	F	346	016	074															on FR167.1 surface
GM3-FR167.3	U45b	F	011	028	068															on FR167.1 surface
GM3-FR167.4	U45b	F	354	037	085															on FR167.1 surface
GM3-FR167.5	U45b	F	008	039	054															on FR167.1 surface
GM3-FR168	U26	JTW	158	065		P	R	20		GOP		G	60	C	F	S		BSW	DO	rooted
GM3-FR169	U45b	JT	020	046		P	R	13		YG		G	10	C	F	M		DO	DO	
GM3-FR170	U45b	JT	166	080		P	R	8		YG		G	10	BL/C	F	M		DO	DO	
GM3-FR171	U45b	RT						9	2.5				15	BL		M		DO	DO	
GM3-FR172	U45b	JT	170	087		P	S	21		YG			40							
GM3-FR173	U45b	JTW	163	056		P	R	17		YG		G	30	C	F	S		DO	DO	rooted
GM3-FR174	U46	JT	162	064		P	S	11		YG		G	20	C	F	M				
GM3-FR175	U46	JT	098	065		P	S	10		YG		G	5	C	F	M		BU47	DO	
GM3-FR176	U45b	JT	120	070		P	S			YG		G	1	C	F	M		DO	BT	
GM3-FR177	U56	JT	155	057		P	S	12		YG		G	30	BL/C	F	M		DO	?	
GM3-FR178	U56	JT	095	086		P	S	12	1	YG		G	10	C	F	S	FR1	BSW	FR179	parallel to trench

GM3 FRACTURE DESCRIPTIONS (350'-760') (cont.)

Trench and Fracture Number	Rock	Fracture	Strike	Dip	Pitch	Shape	Surface	Height (inches)	Length (inches)	Color	Fabrics	Fit	Width (mm)	Fill/ Mineral	Fill Characteristic	Weathering	Age	Upward Termination	Downward Termination	Remarks
GM3-FR179	U56	JT	166	055		P	S	16	12	YG		G	5	BL/C	F	S		BSW	BT	
GM3-FR180	U56	JT	322	081		C	S	9		YG		G	30	BL/C	F	M		T IBP	BT	
GM3-FR181	U56	JT	130	080		P	S	8		YG		G	6	C	F	M		BSW	BT	
GM3-FR182	U56	JT	175	070		P	S	14	12	YG		G	10	BL/C	F	S		BSW	BT	
GM3-FR183	U49	JT	168	064		P	S	14		YG		G	10	C	F	S		DO	BT	
GM3-FR184	U49	JT	070	090		P	S	5		YG		G	2	F	F	SL		DO	DO	
GM3-FR185	U49a	JT	164	082		P	S	5		YG		G	40	BL/C	F	M		BU50	BU49a	
GM3-FR186	U52	JT	156	090		P	S	6	3	YG		G	4	C	F	M		DO	BT	
GM3-FR187	U49	JT	162	080		I	R	14	12	YG		G	8	BL/C	F	S		BSW	BT	
GM3-FR188	U50	F	320	024	093	P	S	2	5			G	1		O	SL		DO	DO	small fault; floor at 697' E

Described M.L. Stutz; recorded J.R. Pray; 23 May, 1997

PHOTOGRAPHS: GM-3

TRENCH	INTERVAL (FT)	DATE	TAKER	NEGATIVE NUMBER	ROLL NO.
GM-3	0 - 5	5/7/97	W.C. Hoyt	18	1190
GM-3	5-10	5/7/97	W.C. Hoyt	0	1190
GM-3	10-15	5/7/97	W.C. Hoyt	1	1190
GM-3	15-20	5/7/97	W.C. Hoyt	2	1190
GM-3	20-25	5/7/97	W.C. Hoyt	3	1190
GM-3	25-30	5/7/97	W.C. Hoyt	4	1190
GM-3	30-35	5/7/97	W.C. Hoyt	5	1190
GM-3	35-40	5/7/97	W.C. Hoyt	6	1190
GM-3	40-45	5/7/97	W.C. Hoyt	8	1190
GM-3	45-50	5/7/97	W.C. Hoyt	9	1190
GM-3	50-55	5/7/97	W.C. Hoyt	10	1190
GM-3	55-60	5/7/97	W.C. Hoyt	11	1190
GM-3	60-65	5/7/97	W.C. Hoyt	12	1190
GM-3	65-70	5/7/97	W.C. Hoyt	13	1190
GM-3	70-75	5/7/97	W.C. Hoyt	14	1190
GM-3	75-80a	5/7/97	W.C. Hoyt	15	1190
GM-3	80-85a	5/7/97	W.C. Hoyt	16	1190
GM-3	80-85b	5/17/97	W.C. Hoyt	4	3328
GM-3	85-90a	5/7/97	W.C. Hoyt	17	1190
GM-3	85-90b	5/17/97	W.C. Hoyt	5	3328
GM-3	90-95a	5/7/97	W.C. Hoyt	18	1190
GM-3	90-95b	5/17/97	W.C. Hoyt	6	3328
GM-3	95-100a	5/17/97	W.C. Hoyt	7	3328
GM-3	100-105a	5/17/97	W.C. Hoyt	8	3328
GM-3	105-110	5/17/97	W.C. Hoyt	9	3328
GM-3	110-115	5/17/97	W.C. Hoyt	10	3328
GM-3	115-120	5/17/97	W.C. Hoyt	11	3328
GM-3	120-125	5/17/97	W.C. Hoyt	12	3328
GM-3	125-130	5/17/97	W.C. Hoyt	13	3328
GM-3	130-135	5/17/97	W.C. Hoyt	14	3328
GM-3	135-140	5/17/97	W.C. Hoyt	15	3328
GM-3	140-145	5/17/97	W.C. Hoyt	16	3328
GM-3	145-150	5/17/97	W.C. Hoyt	17	3328
GM-3	150-155	5/17/97	W.C. Hoyt	18	3328
GM-3	155-160	5/17/97	W.C. Hoyt	19	3328
GM-3	160-165	5/17/97	W.C. Hoyt	20	3328
GM-3	165-170	5/17/97	W.C. Hoyt	21	3328
GM-3	170-175	5/17/97	W.C. Hoyt	22	3328
GM-3	175-180	5/17/97	W.C. Hoyt	23	3328
GM-3	180-185	5/17/97	W.C. Hoyt	24	3328
GM-3	185-190	5/17/97	W.C. Hoyt	25	3328
GM-3	190-195	5/17/97	W.C. Hoyt	4	3327
GM-3	195-200	5/17/97	W.C. Hoyt	5	3327
GM-3	200-205	5/17/97	W.C. Hoyt	6	3327
GM-3	205-210	5/17/97	W.C. Hoyt	7	3327
GM-3	210-215	5/17/97	W.C. Hoyt	8	3327
GM-3	215-220	5/17/97	W.C. Hoyt	9	3327

PHOTOGRAPHS: GM-3

TRENCH	INTERVAL (FT)	DATE	TAKER	NEGATIVE NUMBER	ROLL NO.
GM-3	220-225	5/17/97	W.C. Hoyt	10	3327
GM-3	225-230	5/17/97	W.C. Hoyt	11	3327
GM-3	230-235	5/17/97	W.C. Hoyt	12	3327
GM-3	235-240	5/17/97	W.C. Hoyt	13	3327
GM-3	240-245	5/17/97	W.C. Hoyt	14	3327
GM-3	245-250	5/17/97	W.C. Hoyt	15	3327
GM-3	250-255	5/17/97	W.C. Hoyt	16	3327
GM-3	255-260	5/17/97	W.C. Hoyt	17	3327
GM-3	260-265	5/17/97	W.C. Hoyt	18	3327
GM-3	265-270	5/17/97	W.C. Hoyt	19	3327
GM-3	270-275	5/17/97	W.C. Hoyt	20	3327
GM-3	275-280	5/17/97	W.C. Hoyt	21	3327
GM-3	280-285	5/17/97	W.C. Hoyt	22	3327
GM-3	285-290a	5/17/97	W.C. Hoyt	23	3327
GM-3	285-290b	5/20/97	W.C. Hoyt	2	0587
GM-3	290-295	5/20/97	W.C. Hoyt	3	0587
GM-3	295-300	5/20/97	W.C. Hoyt	4	0587
GM-3	300-305	5/20/97	W.C. Hoyt	5	0587
GM-3	305-310	5/20/97	W.C. Hoyt	6	0587
GM-3	310-315	5/20/97	W.C. Hoyt	7	0587
GM-3	315-320	5/20/97	W.C. Hoyt	8	0587
GM-3	320-325	5/20/97	W.C. Hoyt	9	0587
GM-3	325-330	5/20/97	W.C. Hoyt	10	0587
GM-3	330-335	5/20/97	W.C. Hoyt	11	0587
GM-3	335-340	5/20/97	W.C. Hoyt	12	0587
GM-3	340-345	5/20/97	W.C. Hoyt	13	0587
GM-3	345-350	5/20/97	W.C. Hoyt	14	0587
GM-3	350-355	5/20/97	W.C. Hoyt	15	0587
GM-3	355-360	5/20/97	W.C. Hoyt	16	0587
GM-3	360-365	5/20/97	W.C. Hoyt	17	0587
GM-3	365-370	5/20/97	W.C. Hoyt	18	0587
GM-3	370-375	5/20/97	W.C. Hoyt	19	0587
GM-3	375-380	5/20/97	W.C. Hoyt	20	0587
GM-3	380-385	6/4/97	W.C. Hoyt	2-8	0292
GM-3	385-390	5/23/97	W.C. Hoyt	00	0911
GM-3	390-395	5/23/97	W.C. Hoyt	0	0911
GM-3	395-400	5/23/97	W.C. Hoyt	1	0911
GM-3	400-405	5/23/97	W.C. Hoyt	2	0911
GM-3	405-410	5/23/97	W.C. Hoyt	3	0911
GM-3	410-415	5/23/97	W.C. Hoyt	4	0911
GM-3	415-420	5/23/97	W.C. Hoyt	5	0911
GM-3	420-425	5/23/97	W.C. Hoyt	6	0911
GM-3	425-430	5/23/97	W.C. Hoyt	7	0911
GM-3	430-435	5/23/97	W.C. Hoyt	8	0911
GM-3	435-440	5/23/97	W.C. Hoyt	9	0911
GM-3	440-445	5/23/97	W.C. Hoyt	10	0911
GM-3	445-450	5/23/97	W.C. Hoyt	11	0911

PHOTOGRAPHS: GM-3

TRENCH	INTERVAL (FT)	DATE	TAKER	NEGATIVE NUMBER	ROLL NO.
GM-3	450-455	5/23/97	W.C. Hoyt	12	0911
GM-3	455-460	5/23/97	W.C. Hoyt	13	0911
GM-3	460-465	5/23/97	W.C. Hoyt	14	0911
GM-3	465-470	5/23/97	W.C. Hoyt	15	0911
GM-3	470-475	5/23/97	W.C. Hoyt	16	0911
GM-3	475-480	5/23/97	W.C. Hoyt	17	0911
GM-3	480-485	5/23/97	W.C. Hoyt	18	0911
GM-3	485-490	5/23/97	W.C. Hoyt	19	0911
GM-3	490-495	5/23/97	W.C. Hoyt	20	0911
GM-3	495-500	5/23/97	W.C. Hoyt	21	0911
GM-3	500-505	5/23/97	W.C. Hoyt	22	0911
GM-3	505-510	5/23/97	W.C. Hoyt	1	0910
GM-3	510-515	5/23/97	W.C. Hoyt	2	0910
GM-3	515-520	5/23/97	W.C. Hoyt	3	0910
GM-3	520-525	5/23/97	W.C. Hoyt	4	0910
GM-3	525-530	5/23/97	W.C. Hoyt	5	0910
GM-3	530-535a	5/23/97	W.C. Hoyt	6	0910
GM-3	530-535b	5/24/97	M.J. Bartholomew	12	9831
GM-3	535-540b	5/23/97	W.C. Hoyt	7	0910
GM-3	535-540b	5/24/97	M.J. Bartholomew	13	9831
GM-3	540-545	5/23/97	W.C. Hoyt	8	0910
GM-3	545-550	5/23/97	W.C. Hoyt	9	0910
GM-3	550-555	5/23/97	W.C. Hoyt	10	0910
GM-3	555-560a	5/23/97	W.C. Hoyt	11	0910
GM-3	555-560b	5/23/97	W.C. Hoyt	12	0910
GM-3	560-565	5/23/97	W.C. Hoyt	13	0910
GM-3	565-570	5/23/97	W.C. Hoyt	14	0910
GM-3	570-575	5/23/97	W.C. Hoyt	15	0910
GM-3	575-580	5/23/97	W.C. Hoyt	16	0910
GM-3	580-585	5/23/97	W.C. Hoyt	17	0910
GM-3	585-590	5/23/97	W.C. Hoyt	18	0910
GM-3	590-595	5/23/97	W.C. Hoyt	19	0910
GM-3	595-600	5/23/97	W.C. Hoyt	20	0910
GM-3	600-605	5/23/97	W.C. Hoyt	21	0910
GM-3	605-610	5/23/97	W.C. Hoyt	22	0910
GM-3	610-615	5/23/97	W.C. Hoyt	23	0910
GM-3	615-620	5/23/97	W.C. Hoyt	24	0910
GM-3	620-625	5/24/97	M.J. Bartholomew	1&2	9832
GM-3	625-630	5/24/97	M.J. Bartholomew	3	9832
GM-3	630-635	5/24/97	M.J. Bartholomew	4	9832
GM-3	635-640	5/24/97	M.J. Bartholomew	5	9832
GM-3	640-645	5/24/97	M.J. Bartholomew	6	9832
GM-3	645-650	5/24/97	M.J. Bartholomew	7	9832
GM-3	650-655	5/24/97	M.J. Bartholomew	8	9832
GM-3	655-660	5/24/97	M.J. Bartholomew	9	9832
GM-3	660-665	5/24/97	M.J. Bartholomew	10	9832
GM-3	665-670	5/24/97	M.J. Bartholomew	11&12	9832

Final by U.S.C.
trenches\GM-3_A-1.xls
10/3/97

PHOTOGRAPHS: GM-3

TRENCH	INTERVAL (FT)	DATE	TAKER	NEGATIVE NUMBER	ROLL NO.
GM-3	670-675	5/24/97	M.J. Bartholomew	13	9832
GM-3	675-680	5/24/97	M.J. Bartholomew	14	9832
GM-3	680-685	5/24/97	M.J. Bartholomew	15	9832
GM-3	685-690	5/24/97	M.J. Bartholomew	16	9832
GM-3	690-695	5/24/97	M.J. Bartholomew	17	9832
GM-3	695-700	5/24/97	M.J. Bartholomew	18	9832
GM-3	700-705	5/24/97	M.J. Bartholomew	19	9832
GM-3	705-710	5/24/97	M.J. Bartholomew	20	9832
GM-3	710-715	5/24/97	M.J. Bartholomew	21	9832
GM-3	715-720	5/24/97	M.J. Bartholomew	22	9832
GM-3	720-725	5/24/97	M.J. Bartholomew	23	9832
GM-3	725-730	5/24/97	M.J. Bartholomew	24	9832
GM-3	730-735	5/24/97	M.J. Bartholomew	25	9831
GM-3	730-735	5/24/97	M.J. Bartholomew	1	9831
GM-3	735-740a	5/24/97	M.J. Bartholomew	2	9831
GM-3	735-740b	5/24/97	M.J. Bartholomew	3	9831
GM-3	740-745	5/24/97	M.J. Bartholomew	4	9831
GM-3	745-750	5/24/97	M.J. Bartholomew	5	9831
GM-3	750-755	5/24/97	M.J. Bartholomew	6	9831
GM-3	755-760a	5/24/97	M.J. Bartholomew	7	9831
GM-3	755-760B	5/24/97	M.J. Bartholomew	8	9831
GM-3	0 - 5	5/8/97	W.C. Hoyt	3	1066
GM-3	5-10				
GM-3	10-15				
GM-3	15-20	5/8/97	W.C. Hoyt	4	1066
GM-3	20-25	5/8/97	W.C. Hoyt	5	1066
GM-3	25-30				
GM-3	30-35	5/8/97	W.C. Hoyt	6	1066
GM-3	35-40	5/8/97	W.C. Hoyt	7	1066
GM-3	40-45	5/8/97	W.C. Hoyt	8	1066
GM-3	45-50	5/8/97	W.C. Hoyt	9	1066
GM-3	50-55	5/8/97	W.C. Hoyt	10	1066
GM-3	55-60	5/8/97	W.C. Hoyt	11	1066
GM-3	60-65	5/8/97	W.C. Hoyt	12	1066
GM-3	65-70	5/8/97	W.C. Hoyt	14	1066
GM-3	70-75	5/8/97	W.C. Hoyt	15	1066

760'- END OF TRENCH

Trench Mapping Data Spreadsheets for GM-4 workbook
contains the following sheets

Lithologic Description: Selections - Abbreviations
Lithologic Descriptions
Soil Description Abbreviations
Soil Descriptions
Fracture Description Abbreviations
Fracture Descriptions
Photographic Log

GM-4 LITHOLOGIC DESCRIPTION: SELECTIONS - ABBREVIATIONS

TRENCH & UNIT DESIGNATION	LITHOLOGY	MODIFIERS	COMPOSITION	GRAIN SIZE/ MAX CLAST SIZE (mm)	COLOR	ABUNDANCE RATIO	ROUNDING/ SORTING
GM4- U1 GM4- U2	CL- CLAYSTONE M- MUDSTONE SS- SANDSTONE ST- SILTSTONE	C- CONGLOMERATIC CS- COARSE SANDY F- FINE F-M- FINE to MEDIUM F-M-C- FINE to MEDIUM to F-S- FINE--SANDY G- GRAVELLY M-C MEDIUM to COARSE M- MUDDY S- SANDY SL- SLIGHTLY ST- SILTY	A- ARKOSIC L- LITHIC Q- QUARTZ	C- COARSE F- FINE M- MEDIUM VC- VERY COARSE VF- VERY FINE FS- FINE SAND ST- SILT MC- MED COARSE	BR- Blackish Red DG- Dark gray DR- Dark Red DRB- Dark reddish brown DYO- Dark yellowish orange GOP- Grayish orange pink GR- Greyish red LG- Light gray LGG- Light greenish gray LGP- Light Gray Purple MB- Moderate brown MDG- Medium dark gray MRB- Mod reddish brown MYB- Mod yellowish brown OG- Olive gray PR- Pale red PRB- Pale reddish brown PYB- Pale yellowish brown YG- Yellowish gray	ie:10/20/70 = %gravel/sand/clay	<u>ROUNDING</u> A- ANGULAR R- ROUNDED S- SUBROUNDED/ <u>SORTING</u> M- MODERATELY P- POORLY W- WELL

GM-4 LITHOLOGIC DESCRIPTION: SELECTIONS - ABBREVIATIONS- (CONT.)

TEXTURE	INDURATION	WEATHERING	BEDDING	CONTACT/ BEDDING ANGLE	BED LAMINATION	SECONDARY FEATURES	REMARKS
BI- BIMODAL C- CLAST SUPPORTED MS- MASSIVE M- MATRIX SUPPORTED	F- FRIABLE I- INDURATED M- MODERATELY	M- MODERATE S- SEVERE SL- SLIGHT	T- BIOTURBATED GR- GRADED REVERSE GN- GRADED NORMAL PLL- PLANAR LAMINATIONS MS- MASSIVE PALW- WAVY BEDDING/ LAMINATIONS PAL- PARALLEL LAMINATIONS PB- PLANAR XB- CROSSBEDDED	D- DEFAULT G- GRADATIONAL I- IRREGULAR S- SHARP-FLAT S/LD- SHARP W/ LOAD STRUCT UNC- EROSIONAL/SCOURD	L- LOW ANGLE XBP- PLANAR	T- BIOTURBATED M- MOTTLING LB- LIESEGANG BANDING IC- IRON OXIDE CEMENT R- ROOT CASTS	Mo- MANGANESE MnO ² - MANGANESE OXIDE

GM4 LITHOLOG DESCRIPTION (0'-100')

TRENCH & UNIT DESIGNATION	LITHOLOGY	MODIFIERS	COMPOSITION	GRAIN SIZE/ MAX CLAST SIZE (in mm)	COLOR	ABUNDANCE RATIO	ROUNDING/ SORTING	TEXTURE	INDURATION	WEATHERING	THICKNESS (inches)	BEDDING	CONTACT/ BEDDING	BED MARKINGS	BED LAMINATION	SOFT SEDIMENT	SECONDARY	ACCESSORIES	REMARKS
						G/S/M													
GM4-U1	SS			M/1.5	MB	0/100/0	W	MS	F	S		PALW							
GM4-U1a	SS	ST	A	M-C/2	PYB	0/80/20	SA/P	C	F	S		PLL/ GN	S		P				
GM4-U2f	ST	F-S		VC/1.5	GR	0/40/60	W	MS	M	M	6	PALW	G		L				
GM4-U2g	SS	CS	L	VC/4	MYB	0/70/30	A/M	C	M	S	~3	MS	G						lens
GM4-U2	SS	G	L/Q	C/3	DRB	5/90/5	R/W	MS/C	I	M	8	MS	G				M		2 inches of fine sand at base
GM4-U2a	ST	F/S			DRB	0/0/100		MS	F	M	2	MS	S						
GM4-U2b	SS	G	L/Q	VC/4	DRB	5/90/5	R/W	MS/C	I	M	3	MS	S						a 2.5 foot long lens
GM4-U2d	SS	G	L/Q	VC/4	DRB	5/90/5	R/W	MS/C	I	M	2	MS	S						a 2.5 foot long lens
GM4-U2c	M	S	Q/L	/1	DRB	0/10/90	R/M	M	M	M	14	MS	S				M		
GM4-U2e	SS		Q/L	C/1	DRB	0/95/5	R/W	C/MS	I	M	3	MS	S						a 2.5 foot long lens
GM4-U3	SS	ST	Q/L	C/2	DRB	0/90/10	R/W	C	M	M	10	PB/XB	G		L		M		0.5 inch siltstone beds alternate with 1 to 2 inch coarse sandstone beds
GM4-U3a	CO	S	Q/L	VC/10	DRB	40/55/5	S/P	C	F	M	15	GN	G/I				M		intertonguing with U3b, grades normally into U4
GM4-U3b	M	S	Q	/2	DRB	0/40/60			M	M	12	PAL							
GM4-U3c	SS	G	L/Q	M-C/15	DRB	5/90/5	S/P	C	M	M	18	MS	S				M		interfingers with U3b
GM4-U4	SS	S	L	M/1	DRB	0/50/50	S/M	M	F	M	>24	PB/PAL	G		L				grades from U3
GM4-U5	SS	G	L	C/20	DRB	5/75/20	S/P	C	F	M	>36	MS/GN	G				LB		local conglomerate
GM4-U10	SS	C/ST	L/Q	VC/3	DRB	10/40/50	S/P	M	I	M	>36	PLL/GN	S						MnO ₂
GM4-U9h	ST	S		/1	PRB	0/40/60			F	S	-12	MS	G				B/M/T		laterally gradational: updip (W) into sandy
GM4-U9g	SS	G	Q	C/1	GOP	5/95/0	S/W	C	I	S	10	MS					M/HC		lens
GM4-U9f	SS		Q	C/1	GOP	0/100/0	S/W	C	I	S	2	MS					M/HC		lens
GM4-U9e	M	S		/1	DRB	0/30/70			F	S	15	T	G				M/B/T		internal structure destroyed
GM4-U9d	SS	ST	Q	C/1	DRB/GOP	0/60/40	S/P	MS	M	S	15	GR	G				M/B/T		gradational in all directions
GM4-U9a	M				LQ/PRB	0/0/100		MS	F	S	6	T	G				M/T		gradational in all directions
GM4-U9c	SS	ST	Q	M/1	GOP	0/70/30	S/P	BI	F	S	12	MS	G				M		very badly weathered
GM4-U9b	SS	ST	Q	F-M/2	GOP	0/95/5	S/W	MS	I	S	10	MS	G						
GM4-U8	M				OG	0/0/100		MS	F	S	18	PLL	S				M		
GM4-U8N	M				OG	0/0/100		MS	M	M	20	PLL	S						
GM4-U7b	SS	ST	Q	F/1	GOP	0/55/45	R/W	M	I	S	16	PLL	S						
GM4-U7bN	SS	ST	Q	M/1	GOP	0/60/40	R/W	C	I	M	2	PLL	S						nice bed!
GM4-U7eN	SS	C	Q	VC/18	GOP	10/80/10	S/P	C	I	M	4	MS	S						lens
GM4-U7d	SS		Q	C/3	GOP	10/80/10	S/P	C	I	S	8	PB	G						
GM4-U7a	ST	F-S		/ < .5	GR	0/20/80		MS	I	M	20	PLL	S				M		a lot of limonite staining
GM4-U7aN	ST	F-S		/ < .6	GR	0/20/80		MS	I	M	30	PLL	S				M		
GM4-U7	SS	ST	Q	F/2	GR	0/70/30	S/M	C	M	M	20	PLL	G				M/R		
GM4-U6a	SS		L/Q	M/1	PRB	0/80/20	S/W	MS	I	M	15	XB	G		L		LB/M/R		
GM4-U6	M				DRB	0/0/100		MS	F	M	12	MS	S				M/B		

Described M.J. Bartholomew; Recorded S.B. Tougas; 12 May, 1997

GM4 LITHOLOGIC DESCRIPTIONS (100'-450')

TRENCH & UNIT DESIGNATION	LITHOLOGY	MODIFIERS	COMPOSITION	GRAIN SIZE/ MAX CLAST SIZE (in mm)	COLOR	ABUNDANCE RATIO	ROUNDING/ SORTING	TEXTURE	INDURATION	WEATHERING	THICKNESS (inches)	BEDDING	CONTACT/ BEDDING	BED MARKINGS	BED LAMINATION	SOFT SEDIMENT	SECONDARY	ACCESSORIES	REMARKS
						G/S/M													
GM4-U11	M	SL S		/0.25	DRB	0/1/99	W		F	S	2.5 to 9	FB	G						
GM4-U11a	SS	ST L/Q	C/2		GR	0/95/5	S/W	C	I	S	8	MS	S						phyllite clasts (volcanoclastic)
GM4-U11b	ST	S			GR	0/10/90			F	S	5 to 10	MS	S						local liesegang banding
GM4-U11c	ST				GR	0/0/100			F-M	S-M	8	MS	G						M(YB) liesegang, rubbly, nodular weathering
GM4-U11d	ST			VF	DRB	0/0/100			F	S	17	MS	G						M(Y) liesegang
GM4-U12	SS	ST L/Q	M/2		DRB	0/90/10	S/W	C	I	M	>24	MS	G						local color variation (GR/MRB), light gray volcanic clasts
GM4-U12a	ST	F-S		F/0.5	DRB	0/15/85		M	F	S	5 to 16	MS	G						
GM4-U13	SS	ST L/Q	F/1		GR	0/90/10		C	M	M	4 to >45	MS	G					B	coarsens upward, blockiness confined to upper half
GM4-U13a	SS	G	L/Q	M-C/10	GR	5/90/5		C	I	M	>26	MS	G						coarsens upward, pebbles, gravel common
GM4-U14d	SS	M/G	L/Q	M-C/20	MB	5/90/5		M	F	S-M	10 to 20	MS	UNC						erosional/ scoured contact, locally conglomeratic, locally 50% gravel
GM4-U13b	M				DRB	0/0/100			F	S	4 to 17	PAL	G						top scoured by U14, truncated down dip by U14
GM4-U14a	SS		L	M-C/2	GR	5/90/5	S/M	C	F	S	4 to 9	MS	G						truncated by U14 down dip, volcanoclastic clasts
GM4-U14b	SS		L/Q	F-M/0.5	GR	0/90/10	S/M	C	F	M-S	4 to >26	MS	S						terminates against FR181 up dip, thickness highly variable; interfingers with U14c (@205') and U14d (@210')
GM4-U14c	SS		L	M-C/1	GR/DG	0/95/5	S/W	C	M	M	0 to 10	MS	G						coarsens upward
GM4-U14	SS	C	L/Q	M-C/20	MB	5/90/5		C	F	S-M	>30	MS	UNC						erosional/ scoured contact, locally conglomeratic, locally 50% gravel
GM4-U15	SS			F-M/0.5	DRB	0/70/30	S/M	M	M	M	>37	MS	S/P						
GM4-U15a	SS	M-C S	Q/L	M-C/1	DRB	5/90/5	S/M	C	M	M	8 to 20	MS	G						gravelly lithics
GM4-U16	SS	F-S	L/Q	F-M/1	DRB	0/90/10	S/M	C	M	M	21	PB	G					B	finer upward
GM4-U17	M	F-S		/0.2	DRB	0/25/75	S/W	M	M	M	36		S					B	nodular weathering, extensively fractured, dendritic Mn staining
GM4-U17a	M	F-S			DRB	0/5/95		M	M	S			G						mottled, blocky and nodular weathering
GM4-U17b	ST	F-S		ST/0.1	MRB	0/5/95			I	SL	10 to 16	MS	S					B	thin bedded in the upper 3 inches
GM4-U18	M				DRB	0/0/100			M	M	>60	MS	S						fine sand in the lower 2 inches
GM4-U19	SS	F/ST	L/Q	F/0.5	MRB	0/75/25	S/M	BI	I	M	9 to 18	MS	S					B	
GM4-U20	SS	C	L/Q	C/3	DRB	10/90/0	S/M	C	M	M	>60	MS	UNC	S & F					local black stain (MnO ₂ ?), cuts out U19 at the base of the trench, fines up to a medium sand in the middle of the unit. S=327, D=33 @289F
GM4-U21	M				DRB	0/0/100			F	S	>60	MS	G						
GM4-U22	ST	F-S		/0.5	MRB	0/50/50	S/M	BI	I-M	M	13	MS	G					R	minor mica, coarsens upward slightly
GM4-U23	M				MRB	0/0/100			F	S	23	MS	G						becomes fine sandstone near the top
GM4-U23a	SS	CS/G	L/Q	/10	DR	15/85/0	S/M-P	C	F	S	19	MS	UNC	S & F					pinches out @ 382', lower 11" is one bed, upper 8" is deeply weathered
GM4-U24	SS	F	L	F/2	PR	0/100/0	W	C	F	M	15	MS	G						very micaceous
GM4-U24a	SS	F-M	L	F/25	MB	0/90/10	R/W	C	F	M	14	MS	S					R	less micaceous
GM4-U24b	SS	M	L/Q	M/5	MRB	0/100/0	S/W	C	I	M	10	MS	G					B/R	little mica
GM4-U25	ST	F-S		/0.25	MRB/GR	0/40/60	R/M	BI	I	M	>60	MS	S					R	fine sand is near the base, fines upward
GM4-U25a	SS	F-M-C	L/Q	F-C/1	PRB	0/95/5	S/M	C	I	M	9	MS	G					B/R	

Described N.L. Bogen, Recorded C.H. Trupe, 28 May, 1997

GM4 LITHOLOGIC DESCRIPTIONS (450'-663'; 663'E is end of GM4)

TRENCH & UNIT DESIGNATION	LITHOLOGY	MODIFIERS	COMPOSITION	GRAIN SIZE/ MAX CLAST SIZE (in mm)	COLOR	ABUNDANCE RATIO	ROUNDING/ SORTING	TEXTURE	DURATION	WEATHERING	THICKNESS (inches)	BEDDING	CONTACT/ BEDDING	BED MARKINGS	BED LAMINATION	SOFT SEDIMENT	SECONDARY	ACCESSORIES	REMARKS
						G/S/M													
GM4-U25b	M	ST		/0.1	MRB	0/2/98		M	M	M	19 to 25	MS	G				B		
GM4-U26a	SS	C/G	L/Q	C/20	DRB	20/80/0	S/P	C	I	SL	19	MS	G						clasts are 2/3 volcanics and 1/3 gray quartz
GM4-U26	SS	F-M-C	L/Q	M-C/4	GR/ PRB	2/98/0	S/M	C	M	M	32	MS	G				B		finer upward
GM4-U27	SS	C	L/Q	C/5	DRB	2/98/0	S/W	C	F-M	M	20 to 27	MS	S						finer upward, possible local erosion of lower contact, local gravel. S=342, D=17 @ 477'E
GM4-U28	ST	F-S		/0.1	MRB	0/5/95	R/M	M	F-M	S-M	~60	MS	G				B		sand disappears upward
GM4-U29	SS	F-M	L	M/5	DRB/MRB	0/100/0	S/M	C	M	M	12	MS	S				B		contact locally S/F, locally G
GM4-U29a	SS	F/ST	L/Q	F/5	MRB	0/80/20	S/M	BI	F	S	8	MS	G						less medium sand than U29
GM4-U30	ST			/0.5	DRB/ GR	0/3/97			M	M	~48	MS	S				R		mottled; MnO ₂ locally, fine sandstone at the base, black lines and dots are possibly organic
GM4-U31	CG	F	L/Q	VC/20	DRB	35/65/0	S/P	C	F	S	4 to 24	MS	S						locally scoured; changes down dip into a coarse sandstone (U31a)
GM4-U31a	SS	C	L/Q	C/6	PR	2/98/0	S/W	C	F	S	72	MS	D						possibly laminated
GM4-U31b	ST	SL S		/0.25	GR/DYO/PR	0/1/99			F-M	S	0 to 30	MS	S						a lens in U31a
GM4-U31c	SS	F-M/ST	L/Q	F-M/1	GR	0/70/30	S/P	BI	M-F	M-S	0 to 24	MS	S						interfingers with U32. S=312, D=22 @ 595'E
GM4-U32	SS	M-C/G	Q/L	C/5	GR/ BR/ VDR	5/90/5	S/P	C	F-M	S-M	33	MS	G						finer upward; MnO ₂ on fractures locally
GM4-U33	ST	S		/0.5	MDG	0/5/95		M	I	SL	~48	MS	S				B		spheroidal, extensively mottled reddish-green, unusual gray colors. S=003; D=15 @ 612'E
GM4-U34	ST				GR/ LGG	0/0/100			I	M	7 to 14	MS	G				R/LB		LGG mottling along upper contact; lower contact based on color
GM4-U35	ST	SL S		/0.1	PR	0/3/97			I	SL	21	MS	G						
GM4-U36	ST				GR	0/0/100			I	SL	40	PAL	S				B		Strike=342, Dip=19 @ 646'E
GM4-U37	SS	F-M-C	L	F-C/1	PR/ MRB	0/100/0	S/P	C	I	SL	>24	MS	G						liesegang banding, mottled extensively, nodules. Strike=342, Dip=14 @ 652'E

Described C.H. Trupe, Recorded N.L. Bogen, 29 May, 1997

GM-4SOIL DESCRIPTION ABBREVIATIONS

TYPE	COLOR	MODIFIER/ MOISTURE	REMARKS
CL- Inorganic clay of low-medium plasticity	DRB- Dark reddish brown	D- Dry	SL- Slightly
GP- Poorly graded gravel	DYO- Dark yellowish orange	M- Moist	
MH - Inorganic silts of high plasticity	GO- Greyish orange	SLM- Slightly moist	
ML- Inorganic silts and very fine sands with slight plasticity			
SC- Clayey sand	GOP- Grayish orange pink		
SM- Silty sand	GR- Greyish red		
SP- Poorly graded sand	GRP- Grayish red purple		
SW- Well-graded sand	LB- Light brown		
	LOG- Light olive gray		
	MB- Moderate brown		
	MRB- Moderate reddish brown		
	MYB- Mod yellowish brown		
	PYO- Pale yellowish orange		
	PP- Pale purple		
	PR- Pale red		
	PRB- Pale reddish brown		
	PYB- Pale yellowish brown		
	VLG- Very light gray		
	VPO- Very pale orange		
	YG- Yellowish grey		

GM4 SOIL DESCRIPTIONS (0'-130')

NUMBER	TYPE	COLOR	MODIFIER/ MOISTURE
GM4-S1	SW	MB	M
GM4-S2	ML	DYO	SLM
GM4-S3	SP	DYO	M
GM4-S4	SW	PYB	M
GM4-S5	SM	GO	SLM
GM4-S6	SM	GO	SLM
GM4-U1SW	SM	PR	M
GM4-U1aSW	SM	PR	M
GM4-U2SW	SM	MB	M
GM4-U2cSW	SM	MB	SLM
GM4-U3SW	SC	LB	SLM
GM4-U3aSW	GP	MB	SLM
GM4-U4SW	SM	LB	D
GM4-U5SW@ 40FT	SW	MYB	D
GM4-U5SW@58FT	SW	GO	SLM
GM4-U6SW	SM	LB	D
GM4-U6aSW	SM	LB	D
GM4-U7SW	SM	PR	D
GM4-U7aSW	SC	VPO	SLM
GM4-U7dSW	SM	DYO	D
GM4-U7bSW	SM	GO	D
GM4-U8SW@92FT	SM	GO	SLM
GM4N-U8SW	CL	YG	D
GM4N-U7bSW	SM	GO	D
GM4N-U7cSW	SP	GO	D
GM4N-U7aSW	CL	PYO	D
GM4-U8SW@ 102FT	SM	GO	D
GM4-U9aSW@ 107FT	ML	PYB	SLM
GM4-U9bSW	SM	VPO	SLM
GM4-U9cSW	SM	VPO	SLM
GM4-U9aSW@ 111FT	CL	MYB	M
GM4-U9dSW	ML	VPO	SLM
GM4-U9eSW	CL	DYO	SLM
GM4-U9gSW	SW	GO	D
GM4-U9hSW	ML	GO	SLM
GM4-U10SW	SP	MB	D

Described: M.J. Bartholomew; Recorded: S.B. Tougas; 11 May, 1997

GM4 SOIL DESCRIPTIONS (130'-270')

NUMBER	TYPE	COLOR	MODIFIER/ MOISTURE	REMARKS
GM4-S7	ML	MYB	SL M	fragments of red sandstone in pebbly sandy silt; granitic pebbles
GM4-S8	SM	DYO	SL M	fragments of PRB sandstone in small rare pebbles
GM4-S9	SM	MYB	SL M	locally pebbly; mottled with relict sandstone
GM4-S10	ML	DYO	SL M	pebbles include red sandstone and volcanic fragments
GM4-S11	SM	MYB	SL M	relict red/brown sandstone fragments
GM4-S12	ML	YG	SL M	mottled with DYO relict rock fragments
GM4-S13	SW	MB	M	pebbly; roots; above seep at 197"; relict MRB sandstone nodules
GM4-S14	ML	MYB	SL M	locally pebbly; relict rock fragments
GM4-S15	ML	MB	SL M	pebbly
GM4-S16	ML	MB	SL M	
GM4-U11SW	ML	YG/LB	SLM	mottled
GM4-U11aSW	ML	GO/MB	D/SLM	mottled
GM4-U11bSW	ML	MB	SLM	mottled YG
GM4-U11cSW	ML	MB	SLM	mottled DYO
GM4-U11dSW	ML	MB	SLM	mottled DYO
GM4-U12SW	SM	GR/DYO	SLM	volcanic pebbles; mottled
GM4-U12aSW	ML	PYB	SLM	mottled DYB
GM4-U13SW	SM	YG/GO	SLM	
GM4-U13aSW	ML	GO/MB	SLM	large block of relict sandstone
GM4-U13bSW	ML	YG	D	GR rock fragments
GM4-U14SW	ML	GO	SLM	deeply weathered; very coarse sandstone goes to ML
GM4-U14aSW	SW	DRB	D	YG streaks
GM4-U14bSW	ML	DYO/YG	SLM	DRB residual rock strata
GM4-U14cSW	SW	YG	SLM	weathered zone in gravelly sandstone
GM4-U15SW	ML	MB	SLM	relict rock fragments
GM4-U15aSW	ML	MRB/MB	SLM	sandy; YG streaks
GM4-U16SW	ML	YG	SLM	pebbles, MB rock fragments
GM4-U17SW	ML	GOP	SLM	GR relict weathering nodules
GM4-U17aSW	ML	GR	SLM	

Described: C.H. Trupe; Recorded, N. L. Bogen; 16 May, 1997

GM4 SOIL DESCRIPTIONS (270'-663')

NUMBER	TYPE	COLOR	MODIFIER/ MOISTURE	REMARKS
GM4-S17	ML	DYO/YG	M	clayey silt; alluvium; rare pebbles
GM4-S18	ML	MRB	SLM	slightly sandy
GM4-S19	ML	MYB	D	
GM4-S20	ML	MYB	SLM	silt, no sand
GM4-S21	ML	DYO/YG	D	some medium sand
GM4-S22	ML	DYO/VLG	D	some medium quartz sand
GM4-S23	SM	LB	D	
GM4-U17bSW	ML	MRB	D	
GM4-U18SW	ML	DRB	SLM	clayey silt
GM4-U19SW	ML	DRB	SLM	fine sandy silt
GM4-U20SW	SM	GR/DRB	D	
GM4-U21SW	ML	DRB	M	
GM4-U22SW	ML	DRB/DYO	M	pebbly; also YG
GM4-U23SW	ML	DRB	M	slightly sandy
GM4-U23aSW	ML	DRB	SLM	slightly clayey
GM4-U24SW	SM	MRB	SLM	labelled "U24" (not SW) but has SW section
GM4-U24aSW	SM	MRB	D	
GM4-U24bSW	ML	MB	D	minor medium sand
GM4-U25SW	ML	MB	D	also GRP
GM4-U25aSW	ML	DRB/YG	D	slightly clayey; also MB
GM4-U25bSW	SM	DRB	D	also YG, MB
GM4-U26SW	ML	MRB	D	sandy
GM4-U27SW	SM	MRB	D	
GM4-U28SW	ML	MRB	SLM	also LOG, DYO
GM4-U29SW	SM	DRB/MYB	D	
GM4-U29aSW	ML	DRB/MRB	D	
GM4-U30SW	ML	MRB	D	fine sandy silt
GM4-U31SW	SM	VPO/DYO	D	
GM4-U31aSW	ML	DYO/VLG	D	
GM4-U31bSW	ML	DYO/YG	D	
GM4-U31cSW	ML	GR/VPO	D	
GM4-U32sw	SM	GO	D	quartz; also VPO, VLG
GM4-U33SW	SM	GOP/PP	D	
GM4-U34SW	ML	LB	D	
GM4-U35SW	SM	LB	D	
GM4-U36SW	ML	PRB/VPO	D	
GM4-U37SW	SM	LB	D	
GM4-S17	ML	DYO/YG	M	clayey silt; alluvium; rare pebbles
GM4-S18	ML	MRB	SLM	slightly sandy
GM4-S19	ML	MYB	D	
GM4-S20	ML	MYB	SLM	silt, no sand
GM4-S21	ML	DYO/YG	D	some medium sand
GM4-S22	ML	DYO/VLG	D	some medium quartz sand
GM4-S23	SM	LB	D	

Described: N.L. Bogen; recorded: N.L. Bogen; 29 May, 1997

GM-4 FRACTURE DESCRIPTION ABBREVIATIONS

NUMBER	ROCK	FRACTURE	STRIKE	DIP	PITCH	SHAPE	SURFACE	COLOR	FIT	FILL/ MINERAL
GM4- Trench id. FR2- Fracture id.	Lith unit	F- FAULT JT- JOINT CD- Clastic dike JTX- Exfoliation JTW - Weathering Feature	1°-360°	0°-90°	1°-180°	C-curved I-irregular P-planar U-undulating	I- Irregular R- Rough S- Smooth VR-Very rough	BG- Brownish grey Bk- Black GO- Greenish orange GOP- Grayish orange-pink LB- Light brown VPO- Very pale orange LB- Light brown YG- Yellowish gray MB- Moderate brown PG- Pale green GOP- Gray-ish orange pink PYB- Pale yellowish brown LGG- Light greenish gray PG- Pale green MOP- Moderate orange pink PB- Pale brown MRB- Mod reddish brown LOG- Light olive gray DR- Dark red GG- Greenish gray PRB- Pale reddish brown LBG- Light brownish gray DG- Dark Gray	G- Good	C- Clay BL- Bleached NM- Non-mineralized Mn- Manganese S- Sand CG- Conglomerate CS- Coarse sand

GM-4 FRACTURE DESCRIPTION ABBREVIATIONS- (CONT.)

FILL CHARAC- TERISTIC	WEATHERING	AGE	UPWARD TERMINATION	DOWNWARD TERMINATION
F- Filled O- Open V- Veneer	M- Moderate S- Severe	OT- Older Than YT- Younger Than	BS- Base of Soil BSW- Base of Severely Weathered Bux- Base of Unit (x) DO- Dies Out UxSW- Unit(x) Severely Weathered BASE (x)- Base of unit (x) TUx- Top of Unit (x) FRx- Fracture (x) UNK- Unkown ISS- Internal soil surface BBP- Base of bedding plane TT- Top of trench	BT- Base of Trench B(ux)- Base of Unit (x) DO- Dies Out T(ux)- Top of Unit (x) UNK- Unkown BSW- Base of Severely Weathered BASE- Base of trench FRx- Fracture (x) ISS- Internal soil surface BBP- Base of bedding plane

GM4 FRACTURE DESCRIPTION (0'-100')

TRENCH AND FRACTURE NUMBER	ROCK	FRACTURE	STRIKE	DIP	PITCH	SHAPE	SURFACE	HEIGHT (INCHES)	LENGTH (INCHES)	COLOR	FABRICS	FIT	WIDTH (mm)	FILL/ MINERAL	FILL CHARACTERISTIC	WEATHERING	AGE	UPWARD TERMINATION	DOWNWARD TERMINATION	REMARKS
GM4-FR1	U2f	JT	182	077		1	R	6	5	YG			2.5	C	F	M		DO	BT	
GM4-FR2	U2f	JT	173	073		P	S	6		YG			1.0	C	F	M		BU2a	BT	
GM4-FR3	U2f	JT	188	077		P	S	2	13	YG			5.0	C	F	M		DO	BT	
GM4-FR4	U2f	JT	095	077		P	S	8	7	YG			10.0	C	F	M		BU3	BT	
GM4-FR5	U2f	JT	197	074		P	S	2	2	YG			1.0	C	F	S		DO	BT	
GM4-FR6	U2a/U2b	JT	152	074		P	S	4		YG			2.0	C	F	M		BU2a	BT	

Described N.L. Bogen, Recorded M.L. Stutz, 11 May, 1997

TRENCH AND FRACTURE NUMBER	ROCK	FRACTURE	STRIKE	DIP	PITCH	SHAPE	SURFACE	HEIGHT (INCHES)	LENGTH (INCHES)	COLOR	FABRICS	FIT	WIDTH (mm)	FILL/ MINERAL	FILL CHARACTERISTIC	WEATHERING	AGE	UPWARD TERMINATION	DOWNWARD TERMINATION	REMARKS
GM4-FR7	U3b/U4	JT	160	075		C	R	19		YG			20.0	C	F	M		DO	BU3b	rooted
GM4-FR8	U3b/U4	JT	178	072		P	S	24	12	YG			40.0	BL	F	M		BSW	BT	rooted
GM4-FR9	U3c/U4	JT	164	078		P	R	24	18	YG			40.0	BL	F	M		BSW	BT	rooted
GM4-FR10	U4	JT	167	072		U	S	10		YG			5.0	C	F	M		BSW	DO	
GM4-FR11	U3c/U4	JT	180	070		P	S	21	20	YG			10.0	C	F	M		BSW	BT	rooted
GM4-FR12	U4	JT	161	075		P	S	4	2	YG			5.0	C	F	M		DO	BT	
GM4-FR13	U4	JT	157	075		P	S	12	3	YG			15.0	BL/C	F	M		BSW	BT	
GM4-FR14	U4	JT	175	076		1	R	13	20	YG			15.0	C	F	M		BSW	BT	rooted
GM4-FR15	U4	JT	011	087		C	S	8		YG			10.0	C/BL	F	M		BSW	DO	rooted

Described M.L. Stutz, Recorded N.L. Bogen, 11 May, 1997

GM4 FRACTURE DESCRIPTION (0'-100')

TRENCH AND FRACTURE NUMBER	ROCK	FRACTURE	STRIKE	DIP	PITCH	SHAPE	SURFACE	HEIGHT (INCHES)	LENGTH (INCHES)	COLOR	FABRICS	FIT	WIDTH (mm)	FILL/ MINERAL	FILL CHARACTERISTIC	WEATHERING	AGE	UPWARD TERMINATION	DOWNWARD TERMINATION	REMARKS
GM4-FR16	U4	JT	129	087		P	S	12	9	YG			5.0	C/BL	F	M		BSW	BT	rooted
GM4-FR17	U4	JT	347	067		C	R	8	12	YG			10.0	C	F	M		BSW	BT	
GM4-FR18	U5	JT	136	085		P	VR	10	12	YG			20.0	BL	F	S		BSW	BT	
GM4-FR19	U5	JT	150	087		P	R	10	10	YG			20.0	C/BL	F	M		BSW	BT	
GM4-FR20	U5	JT	157	075		P	R	8	10	YG			20.0	BL	F	S		DO	BT	
GM4-FR21	U5	JT	062	053		I	R	11	10	YG			5.0	BL	F	M		DO	BT	
GM4-FR22	U5	JT	166	053		P	R	16		YG			5.0	BL/C	F	M	YT FR21	BSW	FR21	rooted
GM4-FR23	U5	JT	170	073		P	R	6	11	YG			10.0	BL/C	F	M		BSW	BT	
GM4-FR24	U5	JT	253	053		P	R	4	7	YG			2.5	C	F	S		DO	BT	
GM4-FR25	U5	JT	028	087		P	R	4	11	YG			5.0	BL/C	F	M		BSW	BT	

Described N.L. Bogen; Recorded M.L. Stutz; 11 May, 1997

TRENCH AND FRACTURE NUMBER	ROCK	FRACTURE	STRIKE	DIP	PITCH	SHAPE	SURFACE	HEIGHT (INCHES)	LENGTH (INCHES)	COLOR	FABRICS	FIT	WIDTH (mm)	FILL/ MINERAL	FILL CHARACTERISTIC	WEATHERING	AGE	UPWARD TERMINATION	DOWNWARD TERMINATION	REMARKS
GM4-FR26	U5	JT	176	077		P	R	5	10	YG			15.0	BL	F	M		BSW	BT	
GM4-FR27	U5	JT	180	059		P	R	8	10	YG			5.0	BL/C	F	M		BSW	BT	
GM4-FR28	U5	JT	025	055		P	R	3	18	YG			5.0	C	F	M		DO	BT	
GM4-FR29	U5	JT	127	071		P	S	3	17	YG			2.5	C/BL	F	M		DO	BT	
GM4-FR30	U5	JT	151	066		P	S	6	18	YG			10.0	C/BL	F	M		BSW	BT	rooted
GM4-FR31	U5	JT	151	068		P	VR	4	13	YG			10.0	C/BL	F	M		DO	BT	
GM4-FR32	U5	JT	138	058		P	R	4	15	YG			5.0	C/BL	F	M	YT FR102	DO	BT	
GM4-FR33	U5	JT	160	040		P	S	7	>24	YG			2.5	C/BL	F	M		DO	BT	

Described M.L. Stutz; Recorded N.L. Bogen; 11 May, 1997

GM4 FRACTURE DESCRIPTION (0'-100')

TRENCH AND FRACTURE NUMBER	ROCK	FRACTURE	STRIKE	DIP	PITCH	SHAPE	SURFACE	HEIGHT (INCHES)	LENGTH (INCHES)	COLOR	FABRICS	FIT	WIDTH (mm)	FILL/ MINERAL	FILL CHARACTERISTIC	WEATHERING	AGE	UPWARD TERMINATION	DOWNWARD TERMINATION	REMARKS
GM4-FR34	U5	JT	160	079		P	R	8	11	YG			1.0	C	F	S		DO	BT	
GM4-FR35	U5	JT	137	083		P	R	7					1.0		O	SL		DO	BT	
GM4-FR36	U6a	JT	175	078		I	R	8		YG			60.0	C/BL	F	S		BSW	DO	rooted
GM4-FR37	U6a	JT	141	080		I	R	10					1.0	C	O	SL		BSW	BT	
GM4-FR38	U6a	JT	150	078		C	S	7		YG			1.0	C/BL	F	SL		BSW	BT	
GM4-FR39	U6a	JT	175	079		P	VR	4	6	YG			1.0	C/BL	F	M		BSW	BT	
GM4-FR40	U6a	JT	177	078		P	R	6	6	YG			2.5	C	F	S		BSW	BT	
GM4-FR41	U7	JT	020	075		P	VR	8					1.0		O	SL		DO	DO	
GM4-FR42	U7	JT	140	075		I	VR	10		YG			1.0	C	F	M		BSW	DO	
GM4-FR43	U7	JT	240	074		I	R	16					1.0		O	SL		BSW	BT	
GM4-FR44	U7	JT	137	083		P	R	4		YG			1.0	C	F	SL	YTFR43	DO	DO	
GM4-FR45	U7	JT	333	090		I	R	11		YG			5.0	C/BL	F	S		BSW	DO	
GM4-FR46	U7	JT	342	070		U	R	19		YG			2.0	BL	F	M		BSW	BT	
GM4-FR47	U7	JT	130	075		P	VR	12					2.5		O	SL		BSW	DO	
GM4-FR48	U7	JT	122	065		P	R	13	49				0.1		O	SL		DO	BT	
GM4-FR49	U7	JT	138	079		P	R	9	7	YG			0.1	C	O	SL		BU7	BT	
GM4-FR50	U7	JT	178	075		P	R	6	10				0.1		O	SL		BU7	BT	
GM4-FR51	U7/U7a	JT	174	083		P	S	5					0.1		O	SL		DO	BT	
GM4-FR52	U7a	JT	179	071		I	R	6	5				0.1		O	SL		BSW	BT	
GM4-FR53	U7a	JT	335	081		P	R	5					0.1		O	SL		BSW	BT	
GM4-FR54	U7a	JT	172	081		P	R	5					0.1		O	SL		DO	DO	
GM4-FR55	U7a	JT	016	087		P	R	5					0.1		O	SL		DO	DO	
GM4-FR56	U7a	JT	319	069		P	S	6					0.1		O	SL		DO	DO	
GM4-FR57	U7a	JT	149	084		P	R	6					0.1		O	SL		DO	DO	
GM4-FR58	U7a	JT	154	075		P	R	5					0.1		O	SL		DO	DO	
GM4-FR59	U7b	JT	169	079		I	R	5					0.1		O	SL		DO	BU7b	
GM4-FR60	U7b	JT	186	065		P	R	6					0.1		O	SL		DO	BU7b	

Described M.L. Stutz; Recorded N.L. Bogen; 11 May, 1997

GM4 FRACTURE DESCRIPTIONS (100'-110')

TRENCH AND FRACTURE NUMBER	ROCK	FRACTURE	STRIKE	DIP	PITCH	SHAPE	SURFACE	HEIGHT (INCHES)	LENGTH (INCHES)	COLOR	FABRICS	FIT	WIDTH (mm)	FILL/ MINERAL	FILL CHARACTERISTIC	WEATHERING	AGE	UPWARD TERMINATION	DOWNWARD TERMINATION	REMARKS
GM4-FR61	U7a	JT	200	085		P	S	6		YG		G	10.0	C	F	M		DO	BSW	
GM4-FR62	U7b	F	337	057	080	P	S	12		PG			0.1	C	F	M		DO	DO	
GM4-FR63	U7a/U7b	CD	180	090		P	R	24		GOP		G	40.0	S	F	S		DO	DO	
GM4-FR64	U7b	JT	156	080		P	R	15		YG		G	8.0	C	F	M		DO	DO	
GM4-FR65	U7b	JT	160	085		P	S	7		YG		G	4.0	C	F	M		DO	BU7b	
GM4-FR66	U7b	JTW	160	085		C	R	14		GOP			15.0	C	F	S		DO	BU7b	
GM4-FR67	U7b	JT	181	080		P	S	5		GOP		G	10.0	C	F	M		DO	BU7b	
GM4-FR68	U7b	JT	176	070		P	R	7		GOP		G	20.0	C	F	S		DO	BT	
GM4-FR69	U7b	JT	195	055		P	S	15	12	YG		G	3.0	C	F	S		TU7b	BT	
GM4-FR70	U7b	JT	145	070		P	S	13		GOP		G	4.0	C	F	S		TU7b	BT	
GM4-FR71	U7b	JTX	350	005		P	R	4		GOP		G	10.0	C	F	S		DO	BT	
GM4-FR72	U9a	CD	200	070		I	VR	10		GOP		G	40.0	S	F	S		TU9a	DO	
GM4-FR73	U8	JTW	175	085		P	R	13		GOP/YG		G	10.0	C	F	S		BU8	BT	

Described: S.B. Tougas; Recorded A.E. Whitaker 11 May 1997

GM4 FRACTURE DESCRIPTIONS (110'-125')

TRENCH AND FRACTURE NUMBER	ROCK	FRACTURE	STRIKE	DIP	PITCH	SHAPE	SURFACE	HEIGHT (INCHES)	LENGTH (INCHES)	COLOR	FABRICS	FIT	WIDTH (mm)	FILL/ MINERAL	FILL CHARACTERISTIC	WEATHERING	AGE	UPWARD TERMINATION	DOWNWARD TERMINATION	REMARKS
GM4-FR74	U8	JT	122	082		P	R	8		YG			10.0	C	F	S		BU9a	BT	
GM4-FR75	U8	JT	156	065		P	R	9	4	YG			7.5	C	F	S		BU9c	BT	
GM4-FR76	U9a/U9c	F	144	029		P	S	6					2.5		O	S		DO	DO	
GM4-FR77	U10	JT	135	078		P	R	2	10	PYB			5.0	BL	F	SL		DO	TU9h	
GM4-FR78	U10	JT	129	080		I	R	24	8	YG			15.0	C/BL	F	S		DO	BT	terminates against FR80 in trench floor
GM4-FR79	U10	JT	147	081		P	R	10		YG			10.0	C/BL	F	M		FR80	DO	
GM4-FR80	U10	JT	049	064		P	R	24	>18	YG			15.0	BL	F	M		DO	BT	
GM4-FR81	U10	JT	146	081		P	S	10		YG			5.0	C	F	S		FR80	BT	
GM4-FR82	U10	JT	130	067		P	S	12		YG			1.0	BL	F	M		BSW	FR80	

Described: M.L. Stutz; Recorded S.B. Tougas 11 May 1997

GM4 FRACTURE DESCRIPTIONS (90'-105')

TRENCH AND FRACTURE NUMBER	ROCK	FRACTURE	STRIKE	DIP	PITCH	SHAPE	SURFACE	HEIGHT (INCHES)	LENGTH (INCHES)	COLOR	FABRICS	FIT	WIDTH (mm)	FILL/ MINERAL	FILL CHARACTERISTIC	WEATHERING	AGE	UPWARD TERMINATION	DOWNWARD TERMINATION	REMARKS
GM4-FR83	U7b	F	118	067		P	VR	13					0.1		O	M		BU8	DO	
GM4-FR84	U7b	F	354	064	099	P	S	10				G		C	F	M		BS	FR86	
GM4-FR85	U7b/U8	F	327	045	085	P	S	11		PG		G	0.1	C	F	M		BS	DO	contact between U7b & U8
GM4-FR86	U8	F	340	007	130	C	S		6	PG		G	0.1	C	F	M		DO	DO	
GM4-FR87	U7b	F	164	014	085	P	S	5	1				0.1	C		SL		DO	DO	
GM4-FR88.1	U8	F	240	050	095	P/C	S		10			G	1.0	NM	O	SL		UNK	UNK	stained
GM4-FR88.2	U8	F	240	050	064															second pitch on FR88

Described: S.B. Tougas; Recorded A.E. Whitaker 11 May 1997

GM4 (north wall) FRACTURE DESCRIPTIONS (10'-70'; N 85'-N105';)

TRENCH AND FRACTURE NUMBER	ROCK	FRACTURE	STRIKE	DIP	PITCH	SHAPE	SURFACE	HEIGHT (INCHES)	LENGTH (INCHES)	COLOR	FABRICS	FIT	WIDTH (mm)	FILL/ MINERAL	FILL CHARACTERISTIC	WEATHERING	AGE	UPWARD TERMINATION	DOWNWARD TERMINATION	REMARKS
GM4-FR89	U2	JT	172	076		P	S	3	7	YG			1.0	C	F	SL		BU3	BT	
GM4-FR90	U2a	JT	176	080		P	S	0	12	YG			2.5	C	F	SL		DO	BT	
GM4-FR91	U3c/U4	JT	166	068		P	S	7		YG			2.5	C	F	M		DO	BT	
GM4-FR92	U8	JT	040	085		C	S	4		GOP			4.0	C	F	S		DO	DO	rooted
GM4-FR93	U8	JT	195	080		P	R	4		YG			1.0	C	F	SL		DO	DO	
GM4-FR94	U8	JT	195	080		P	R	6					0.1		O	M		DO	DO	
GM4-FR95	U8	JT	010	070		C	S	4		YG			2.0	C	F	M	YTFR34	DO	FR34	
GM4-FR96	U8	JT	025	062		P	R	5		GOP			4.0	C/BL	F	SL		DO	DO	
GM4-FR97	U8	JT	063	090		P	S	12	3	GOP			5.0	C	F	M		TU8	BT	rooted; stained
GM4-FR98	U8	JT	245	080		P	S	3					0.5	NM	O	SL		DO	BU8	
GM4-FR99	U8	F	360	048		C	S	13		PG			2.5	C	F	M		DO	DO	
GM4-FR100	U7	JT	350	084		C	S	12		YG			10.0	C	F	M		TU7	DO	rooted
GM4-FR101	U5	JT	158	076		I	R	7	>12	YG			40.0	C	F	S		BSW	BT	rooted
GM4-FR102	U5	JT	029	046		P	S	8		YG			5.0	C/BL	F	M	OTFR132	DO	BT	
GM4-FR103	U7a	F	018	050		P	S		12			G	0.5	NM	O	SL		DO	BT	rooted
GM4-FR104	U7a	F	090	080		P	S		4			G	0.5	NM	O	SL		UNK	UNK	rooted

Described: S.B. Tougas; Recorded: M.L. Stutz 11 May 1997

GM4 FRACTURE DESCRIPTIONS (125'-170')

TRENCH AND FRACTURE NUMBER	ROCK	FRACTURE	STRIKE	DIP	PITCH	SHAPE	SURFACE	HEIGHT (INCHES)	LENGTH (INCHES)	COLOR	FABRICS	FT	WIDTH (mm)	FILL/ MINERAL	FILL CHARACTERISTIC	WEATHERING	AGE	UPWARD TERMINATION	DOWNWARD TERMINATION	REMARKS
GM4-FR105	U10	JT	124	079		P S	6			LG			1.0	C	F M			DO	BT	
GM4-FR106	U10	JT	158	082		P R	8			PB			10.0	BL	F M			DO	BT	
GM4-FR107	U10	JT	148	076		P S	15	>12					2.0		O S			DO	BT	rooted
GM4-FR108	U10	JT	154	071		P R	5						5.0		O M			DO	DO	
GM4-FR109	U10	JT	160	076		P S	6	>24		GOP			10.0	BL	F S			DO	BT	
GM4-FR110	U10	JT	150	080		P S	7			GOP			10.0	BL	F S			DO	DO	
GM4-FR111	U10	JT	154	070		P S	22			GOP			7.0	BL	F M			BU11	DO	rooted
GM4-FR112	U10	JT	159	072		C S	18	>12		GOP			1.0	BL	P S			DO	BT	
GM4-FR113	U10	JT	164	064		C	18	>8		GO			5.0	BL	F S			BU11	BT	
GM4-FR114	U11a	JT	166	070		C S	6			GO			5.0	BL	F M			BU11b	BU11a	
GM4-FR115	U10	JT	148	088		C S	15			LB			1.0	C	F M			BU11	BT	rooted
GM4-FR116	U11a	JT	165	076		P S	6			GOP			7.0	BL	F M			DO	BU11a	
GM4-FR117	U11a	JT	145	072		P S	9			PYB			5.0	BL	F M			BU11b	BU11a	rooted
GM4-FR118	U11a	JT	150	072		C S	8			PYB			2.0	BL	F M			BU11b	BU11a	
GM4-FR119	U11a	JT	156	066		P S	9						1.0		M			BU11b	BU11a	
GM4-FR120	U11b	JT	042	084		P S	7			LGG			1.0	BL	F M			BU11c	BT	
GM4-FR121	U11b	JTW	010	082		C	15			PG			3.0	BL	F S			DO	DO	lots of roots
GM4-FR122	U12	JTW	158	090		P	11			GO			10.0	BL	F S			BSW	BU12	lots of roots
GM4-FR123	U11b	JT	147	074		P S	7						<1		O SL			DO	DO	
GM4-FR124	U12	JT	138	080		P S	15	>24		VPO			7.0	BL	F M	YTFR125		DO	BT	rooted; truncated by FR125 in wall
GM4-FR125	U12	JT	236	080		P S	4	>4					<1		O SL	OTFR124		DO	DO	
GM4-FR126	U12	JT	165	080		P S	5			PYB			1.0	C	F SL			DO	DO	
GM4-FR127	U12	JT	158	082		P S	9	>18		PR			1.5	BL	F S			DO	BT	
GM4-FR128	U12	JT	160	082		C S	6			PYB			1.0	C	F M			DO	DO	rooted
GM4-FR129	U12	JT	167	080		P S	4						<1	NM	O M			DO	DO	mottled; rooted
GM4-FR130	U12	JT	142	082		P S	12			VPO			2.5	BL	F M			DO	DO	few roots
GM4-FR131	U12	JT	134	080		P S	8	>15		PYB			10.0	C	F M			DO	BT	rooted
GM4-FR132	U12	JT	238	078		P S	9	>7					1.0		O SL			DO	DO	
GM4-FR133	U12	JT	143	062		P S	8			YG			2.5	BL	P S			DO	DO	fill is eroded; rooted
GM4-FR134	U12	JT	146	080		P S	8	>3		YG			1.0	BL	P M			DO	DO	partially filled; partially mottled; rooted
GM4-FR135	U12	JTW	140	074		P S	18	>4		YG			2.0	BL	P M			BSW	BT	mottled; slightly rooted
GM4-FR136	U12	JT	153	088		I S	15	>12		YG			2.0	C	P M			BSW	BT	very rooted
GM4-FR137	U10/U11	JTW	164	078		I S	36			MOP			5.0	BL	F S			DO	BT	
GM4-FR138	U11b	JT	060	080		P S	7	>6					1.0		O M			BU11c	DO	
GM4-FR139	U11b	JT	146	078		P S	14	6					1.0		O M			DO	BT	
GM4-FR140	U12	JT	137	072		P S	15	>18		VPO			1.0	BL	P M			DO	BT	minor roots; fill at top
GM4-FR141	U12	JT	145	082		C S	15						<1		O SL			DO	BT	
GM4-FR142	U12	JT	156	086		P S	10						1.0		O SL			DO	BT	
GM4-FR143	U12	JT	146	080		P S	10	15					1.0		O SL			BSW	BT	
GM4-FR144	U12	JT	130	082		P S	8	>6		YG			5.0	BL	F M			DO	BT	rooted
GM4-FR145	U12	JTW	151	082		I	7	>6		PYB			2.5	BL	F S			DO	BT	

Described: A.E. Whitaker, recorded: A.E. Whitaker, 15 May 1997

GM4 FRACTURE DESCRIPTIONS (165'-175')

TRENCH AND FRACTURE NUMBER	ROCK	FRACTURE	STRIKE	DIP	PITCH	SHAPE	SURFACE	HEIGHT (INCHES)	LENGTH (INCHES)	COLOR	FABRICS	FIT	WIDTH (mm)	FILL/ MINERAL	FILL CHARACTERISTIC	WEATHERING	AGE	UPWARD TERMINATION	DOWNWARD TERMINATION	REMARKS
GM4-FR146	U12	JT	026	070		P	S	12	>17				Δ		O	SL		BSW	BT	
GM4-FR147	U12	JT	154	090		P	S	11	>5				Δ		O	SL		BSW	BT	
GM4-FR148	U13/U13a	JT	140	085		C	R	18	13	PYB			15.0	C	F	M		DO	BU13	rooted
GM4-FR149	U13	JT	165	048		P	S	5	4						O	SL		DO	BU13	
GM4-FR150	U13	JT	145	080		P	R	6	>3						O	SL	OT FR210	BU13a	DO	truncates FR210 in wall
GM4-FR151	U13	JT	162	058		P	S	5	>2	PYB			10.0	C	F	M		DO	DO	
GM4-FR152	U13a	JTW	170	090		P		13	>1	PYB			10.0	BL	F	S		DO	DO	
GM4-FR153	U13a	JT	156	042		P	S	5	>2				1.0		O	M		DO	BU13a	
GM4-FR154	U13	JT	145	065		C	S	12	>3	PB			10.0	C	F	S		BU13a	DO	rooted
GM4-FR155	U13	JT	150	079		P	S	6	>2.5	PB			1.0	C	F	SL		DO	DO	rooted
GM4-FR156	U13	JT	338	087		P	S	6	>1				1.0			SL		DO	DO	rooted
GM4-FR157	U13	JT	358	070		C	S	5	>1	PYB			2.0	C	P	SL		DO	DO	rooted
GM4-FR158	U12	JT	125	086		P	S	6	>14				<1		O	M		TU12	BT	
GM4-FR159	U13	JT	132	075		P	S	9	>2	PYB			10.0	C/BL	F	M		DO	DO	rooted

Described: C.H. Trupe; Recorded: A.E. Whitaker 15 May 1997

GM4 FRACTURE DESCRIPTIONS (175'-185')

TRENCH AND FRACTURE NUMBER	ROCK	FRACTURE	STRIKE	DIP	PITCH	SHAPE	SURFACE	HEIGHT (INCHES)	LENGTH (INCHES)	COLOR	FABRICS	FIT	WIDTH (mm)	FILL/ MINERAL	FILL CHARACTERISTIC	WEATHERING	AGE	UPWARD TERMINATION	DOWNWARD TERMINATION	REMARKS
GM4-FR160	U13	JT	138	072		P	S	11	>6	PYB				C	F	M		DO	BU12a	rooted
GM4-FR161	U13	JT	152	076		C	S	14		PR			25.0	BL	F	S		DO	BT	
GM4-FR162	U13	JT	153	062		P	S	14	>18	PYB			3.0	BL	F	M		DO	BT	
GM4-FR163	U13	JT	138	075		P	S	8	>4	PR			1.0	C	F	M		DO	BT	
GM4-FR164	U13	JT	148	079		P	S	3	>15	PR			1.0	BL	F	M		DO	BT	
GM4-FR165	U13	JT	046	077		P		8	>7	VPO			1.0	C	F	S		DO	BT	
GM4-FR166	U13	JT	130	082		P	S	8		VPO			2.0	BL	F	M		BSW	DO	rooted
GM4-FR167	U13	JTW	162	081		I	S	15	>7	VPO			2.0	C	F	S		BSW	BT	rooted

Described: A.E. Whitaker; recorded: A.E. Whitaker, 16 May 1997

GM4 FRACTURE DESCRIPTIONS (180'-270')

TRENCH AND FRACTURE NUMBER	ROCK	FRACTURE	STRIKE	DIP	PITCH	SHAPE	SURFACE	HEIGHT (INCHES)	LENGTH (INCHES)	COLOR	FABRICS	FIT	WIDTH (mm)	FILL/MINERAL	FILL CHARACTERISTIC	WEATHERING	AGE	UPWARD TERMINATION	DOWNWARD TERMINATION	REMARKS
GM4-FR168	U13	JT	011	088		P	S	9		VPO			5.0	BL	F	M		BSW	DO	
GM4-FR169	U13	JT	172	075		P	S	5		VPO			10.0	C	F	M		DO	BT	
GM4-FR170	U13	JT	167	083		P	S	11		VPO			10.0	BL	F	M		DO	BT	
GM4-FR171	U14	JT	169	076		P	S	12		VPO			10.0	BL/C	F	M		BSW	DO	
GM4-FR172	U14	JT	128	078		P	S	5	>13	VPO			5.0	C/BL	F	M		DO	BT	
GM4-FR173	U14c	JT	335	088		P	S	3		VPO			3.0	BL	F	S		FR174	DO	
GM4-FR174	U14c/U14b	JTX	076	089		C	R	10	7	VPO			5.0	C/BL	F	S		DO	FR175	rooted
GM4-FR175	U14c/U14b	JTX	133	075		C	R	10		VPO			5.0	C	F	S		BS	FR174	rooted
GM4-FR176	U14	JTX	127	076		P	R	4		VPO			5.0	C	F	S		ISS	ISS	
GM4-FR177	U14/U14b	JT	165	072		P	R	8	>48	VPO			2.0	BL	F	M		BSW	BT	visible on both sides of trench
GM4-FR178	U14/U14b	JT	158	071		P	R	16		VPO			3.0	C/BL	F	S		DO	DO	rooted
GM4-FR179	U14	JT	151	067		P	R	5		VPO			3.0	BL	F	M		DO	DO	
GM4-FR180	U14	JT	173	068		P	R	7		VPO			3.0	BL	F	M		DO	DO	
GM4-FR181	U13b/U14	CD	036	082		C	R	12		PR			45.0	S	F	M		FR212	TU13b	widens upward
GM4-FR182	U13b	CD?	336	089		C	R	10		PR			5.0	CG/S	F	S		BU14	DO	
GM4-FR183	U13b	CD?	064	088		C	R	13		PR			5.0	CG/S	F	S		BU14	DO	
GM4-FR184	U13/U13b	CD	244	083		C	R	30	20	PR			45.0	CG/S	F	S		BU14	BT	widens upward
GM4-FR185	U13b	CD?	356	088		C	R	7		PR			5.0	CS	F	S		BU14	DO	
GM4-FR186	U14b	JTW	160	070		C	R	7	4	VPO			5.0	BL/C	F	M	YT FR187	FR187	DO	
GM4-FR187	U14b	JT	087	085		ST	R	9	>9	VPO			5.0	BL/C	F	M		DO	DO	
GM4-FR188	U14b	JTX	152	080		C	R	11		VPO			5.0	BL	F	M		BSW	BT	rooted
GM4-FR189	U14b	JT	156	076		P	S	5	18	VPO			2.0	C/BL	F	M		BSW	BT	
GM4-FR190	U14b	JTX	157	082		I	R	10		VPO			5.0	C	F	M		BSW	DO	rooted
GM4-FR191	U14b	JT	050	076		C	R	7					1.0	NM	O	M		BSW	DO	
GM4-FR192	U14b	JTX	117	083		C	R	9	10	VPO			2.0	C	F	M	YTFR193	FR193	DO	rooted
GM4-FR193	U14b	JT	030	090		P	R	15		VPO			3.0	BL	F	M		BSW	BT	rooted
GM4-FR194	U14b	JT	181	079		P	S	16	>22	VPO			5.0	BL	F	M		BSW	BT	narrows downward to 1mm
GM4-FR195	U15a	JTX	173	070		LP	R	6		PR			3.0	C	F	S		BSW	TU15	
GM4-FR196	U15a	JTX	162	078		P	VR	10		PR			3 TO 1	C	F	S		BSW	TU15	
GM4-FR197	U15a	JT	162	077		P	R	11		PR			5.0	BL/C	F	S		BSW	TU15	
GM4-FR198	U15a/U16	JT	153	075		P	R	13		PR			10.0	C	F	S		BSW	DO	
GM4-FR199	U15a/U16	JT	143	080		C	R	16		VPO			1.5	C	F	S		BSW	BT	rooted
GM4-FR200	U15a	JT	154	082		P	S	3					0.1	NM	O	M		DO	DO	
GM4-FR201	U16	JT	152	084		P	S	7					0.1	NM	O	M		BU17	BT	
GM4-FR202	U17	JT	132	078		C	S	9		VPO			5.0	C	F	S		DO	DO	rooted
GM4-FR203	U17	JT	330	077		C	S	6		VPO			3.0	C	F	M		DO	DO	
GM4-FR204	U17	JT	142	073		C	R	12		VPO			3.0	C	F	M		DO	DO	
GM4-FR205	U17	JT	162	081		I	R	9					1.0	NM	O	M		DO	DO	rooted
GM4-FR206	U17	JT	233	086		P	ST	4	4				0.1	NM	O	M		BU17a	DO	shares common corner with FR207
GM4-FR207	U17	JT	120	084		P	S	3	4				0.1	NM	O	M		BU17a	DO	shares common corner with FR206
GM4-FR208	U14b	JTW	145	072		I	R	4	16	VPO			5.0	BL/C	F		YTFR187	FR187	BT	JTW
GM4-FR209	U13a	JT	151	067		P	S	4	4				1.0	NM	O	M		DO	DO	
GM4-FR210	U13	JT	224	083		P	S	5	6				<1		O	SL	YTFR150	BU13a	DO	truncated by FR149
GM4-FR211	U12	JT	162	078		P	S	11					1.5		O	SL		BSW	DO	slightly rooted
GM4-FR212	U14	JT	164	071		C	R	25		VPO			10.0	C/BL	F	S		BS	FR181	rooted
GM4-FR213	U14c/U14b	JT	164	060		P	R	12		VPO			5.0	BL	F	S		BU14	BU14c	

Description: M.J. Bartholomew : Recorded: A.E. Whitaker 16 May 1997

GM4 FRACTURE DESCRIPTIONS (270'-430')

TRENCH AND FRACTURE NUMBER	ROCK	FRACTURE	STRIKE	DIP	PITCH	SHAPE	SURFACE	HEIGHT (INCHES)	LENGTH (INCHES)	COLOR	FABRICS	FIT	WIDTH (mm)	FILL/ MINERAL	FILL CHARACTERISTIC	WEATHERING	AGE	UPWARD TERMINATION	DOWNWARD TERMINATION	REMARKS
GM4-FR214	U17	JT	222	081		P	S	6	2						O	SL		BU17a	BT	
GM4-FR215	U17b	JT	172	063		P	S	6	3	PYB			5.0	C	F	M		TU17b	BU17b	
GM4-FR216	U17a/U17b	JT	122	079		P	S	12	5	MRB			5.0	C	F	S		DO	DO	rooted
GM4-FR217	U17b	JT	340	090		P	S	6	5	YG/LOG				C	F/O	S		TU17b	DO	
GM4-FR218	U17b	JT	215	088		P	S	5	3	PR/LOG				C	F	S		TU17b	DO	
GM4-FR219	U17b	JT	122	053		P	R	5	14	DR/MRB			5.0	BL	F	S		BU18	BU17b	rooted
GM4-FR220	U17b	JT	158	063		P	S	6	4	YG				BL	F	S		BU18	BU17b	
GM4-FR221	U17b	JT	158	060		P	S	9	3						F	SL		BU18	BU17b	
GM4-FR222	U17b	JT	142	085		I	R	7	3						F	SL		BU18	DO	
GM4-FR223	U17b/U18	JT	167	070		P	S	13	8	YG/LOG			1.0	C	F	M		BSW	BU17b	
GM4-FR224	U17b/U18	JT	158	085		I	R	8	9						O	SL		BSW	DO	
GM4-FR225	U18	JT	017	059		P	S	17	1	YG			1.0	C	F	S		BSW	DO	
GM4-FR226	U18	JT	140	080		P	S	10	14	YG			5.0	C	F	S		DO	BT	
GM4-FR227	U18	JT	137	081		P	S	10	18	LOG			10.0	BL	F	S		DO	BT	
GM4-FR228	U19	JT	173	063		P	S	6	5	YG			5.0	BL	F	S		DO	DO	
GM4-FR229	U19	JT	192	070		P	S	8	2				5.0		O	SL		DO	BU19	
GM4-FR230	U19	JT	135	073		P	S	8	7	PR/YG			10.0	BL	O	S		BU20	BU19	rooted
GM4-FR231	U20	JT	172	061		P	S	15	5	DYO/YG			20.0	BL	F	S		BS	BSW	
GM4-FR232	U20	JT	164	075		P	S	5	3	DYO/YG			20.0	BL	F	S		DO	DO	
GM4-FR233	U19	JT	057	084		P	S	8	8	GR/YG			20.0	BL	F	S		BU19	BT	
GM4-FR234	U20	JT	159	067		P	S	14	22	YG			30.0	BL	F	S		BS	BT	rooted
GM4-FR235	U20	JT	140	032		P	S	15	2	GG/LOG			10.0	BL	F	S		BSW	BSW	
GM4-FR236	U20	JT	168	087		P	S	6	1	LOG			30.0	BL	F	S		DO	DO	rooted
GM4-FR237	U20	JT	155	082		P	S	7		LOG			3.0	BL	F	S		DO	DO	
GM4-FR238	U21	JT	126	082		P	S	8	18	YG			20.0	C	F	S		DO	BT	
GM4-FR239	U21	JTW	345	083		I	VR	12	21	LGG/YG			40.0	C	F	S		BS	BT	
GM4-FR240	U21	JTW	167	087		I	VR	9	10	YG			80.0	C	F	S		DO	BT	rooted
GM4-FR241	U23	JT	145	027		P	S	10	1	YG			2.5	C	F	S		DO	DO	
GM4-FR242	U24a	JT	342	074		P	S	6	1						F	S		BU24a	BT	rooted
GM4-FR243	U24b	JT	167	078		P	S	8	3	PRB/YG			2.5	BL	F	S		BU25	BU24b	
GM4-FR244	U24b	JT	147	066		P	S	4	2	PRB/YG			2.5	BL	F	S		DO	DO	
GM4-FR245	U24b	JT	165	074		P	S	7	2	MRB			5.0	C	F	M		BU25	DO	rooted
GM4-FR246	U25	JT	160	079		P	S	12	10	LOG/PR			10.0	C	F	S		DO	BT	rooted
GM4-FR247	U25	JT	158	084		P	S	10	16	YG			5.0	BL	F	S		DO	BT	rooted

Described C.H. Trupe; Recorded N.L. Bogen; 30 May, 1997

GM4 FRACTURE DESCRIPTIONS (430'-480')

TRENCH AND FRACTURE NUMBER	ROCK	FRACTURE	STRIKE	DIP	PITCH	SHAPE	SURFACE	HEIGHT (INCHES)	LENGTH (INCHES)	COLOR	FABRICS	FIT	WIDTH (mm)	FILL/MINERAL	FILL CHARACTERISTIC	WEATHERING	AGE	UPWARD TERMINATION	DOWNWARD TERMINATION	REMARKS
GM4-FR248	U25	F	076	027		P	S	86	3							S		DO	DO	
GM4-FR249	U25	F	094	021	094	P	S	49	2	GOP			5.0	C	F	S		DO	DO	
GM4-FR250	U25	JTX	192	073		C	S	4	3	VPO			10.0	BL	F	S		DO	DO	
GM4-FR251	U25	JTW	153	073		C	S	5	3	VPO			50.0	BL	F	S		BU25a	DO	
GM4-FR252	U25b	JT	184	090		C	S	10	1	MRB/YG			10.0	BL	F	S		DO	BT	
GM4-FR253	U26a	JT	176	074		P	R	7	2	LB			5.0	BL	F	S		DO	BU26a	
GM4-FR254	U26a	JT	188	079		P	R	8	2	YG			10.0	BL	F	S		DO	BU26a	rooted
GM4-FR255	U26a	JT	190	090		C	S	5	1				10.0	BL	F	M		DO	BT	
GM4-FR256	U26	JT	238	070		P	S	5	2						F	SL		DO	DO	
GM4-FR257	U26	JT	209	086		P	S	8	2						F	L/M		DO	DO	rooted
GM4-FR258	U26	JT	298	080		C	S	8	6						F	M		DO	DO	
GM4-FR259	U27	JT	174	054		P	R	8	2				2.5		O	S		DO	DO	locally open
GM4-FR260	U26	JT	159	087		C	R/I	6	4						F	M		DO	BT	rooted
GM4-FR261	U25	F	311	025	064	C	S	14	2	GR			10.0	C		S		DO	DO	
GM4-FR262	U27	JT	187	075		C	S	4		MRB			10.0	C	F	S/M		DO	DO	
GM4-FR263	U27	JT	119	085		P	R	9	9	MRB			20.0	C	F	S		DO	DO	rooted
GM4-FR264	U27	JTW	185	077		C	R	6	3	MRB			10.0	C	F	S		DO	DO	
GM4-FR265	U26	JT	080	085		P	R	4	4						F	SL	YTFR260	DO	BT	terminates against FR260
GM4-FR266	U26a	JT	196	080		C	R	8	1	MRB			15.0	BL	F	M		DO	BT	
GM4-FR267	U26	JT	082	087		P	S	2	3						F	SL		DO	BT	
GM4-FR268	U27	JT	093	086		P	R	9	9						F	S		DO	DO	
GM4-FR269	U26	JT	163	067		C	S	5	3						F	SL		DO	DO	
GM4-FR270	U26a	JT	220	074		P	R	9	6				10.0		O	M		DO	BT	locally open
GM4-FR271	U27	JT	098	085		I	R	14	4				2.5		O/F	S		DO	BU27	
GM4-FR272	U27	JT	187	074		P	R	7	7	YG			5.0	BL	F	M		DO	DO	rooted
GM4-FR273	U27	JT	194	083		C	R	6	6	PG			10.0	BL	F	S		DO	DO	rooted
GM4-FR274	U26	JT	265	077		I	R	9	6						F	SL		BU27	BT	rooted
GM4-FR275	U27	JT	177	069		C	VR	5	6	GOP			5.0	BL	F	M		DO	DO	rooted
GM4-FR276	U26	JT	150	080		C	S	6	4						F	M		DO	BT	
GM4-FR277	U27	JTX	279	074		I	R	10	9	YG			10.0	BL	F	M	YTFR275	DO	BU27	rooted; terminates against FR275
GM4-FR278	U26	JT	175	074		C	S	6	4						F	SL		BU27	DO	rooted
GM4-FR279	U27	JT	163	073		C	S	6	5						F	SL	YTFR278	BU27	FR 278	terminates against FR278

Described N.L. Bogen; Recorded C.H. Trupe; 30 May, 1997

GM4 FRACTURE DESCRIPTIONS (480'-510')

TRENCH AND FRACTURE NUMBER	ROCK	FRACTURE	STRIKE	DIP	PITCH	SHAPE	SURFACE	HEIGHT (INCHES)	LENGTH (INCHES)	COLOR	FABRICS	FIT	WIDTH (mm)	FILL/ MINERAL	FILL CHARACTERISTIC	WEATHERING	AGE	UPWARD TERMINATION	DOWNWARD TERMINATION	REMARKS
GM4-FR280	U27	JT	099	085		I	R	10	17	PR				BL		M		DO	DO	severely rooted zone
GM4-FR281	U27	JT	176	082		C	S	8	3	PR			10.0	BL	O/F	SL		DO	DO	rooted
GM4-FR282	U27	JT	090	087		I	R	10	5				2.0		O	SL		DO	DO	rooted
GM4-FR283	U27	JT	193	074		P	R	5	3						F	SL		DO	DO	rooted
GM4-FR284	U27	JT	005	070		P	S	5	1				2.0		O	M		DO	DO	
GM4-FR285	U27	JT	171	083		C	R	7	6				2.0	BL	O	SL		DO	DO	rooted
GM4-FR286	U27	JT	222	083		C	R	6	7							SL	YTFR285	DO	DO	
GM4-FR287	U27	JTX	058	089		C	R	6	3				5.0		O	SL		DO	DO	
GM4-FR288	U27	JT	180	077		P	S	19	23	YG			10.0	BL	F	SL		DO	BT	
GM4-FR289	U27	JT	155	085		P	S	8	3	YG			10.0	BL	F	M		DO	DO	
GM4-FR290	U27	JTX	324	061		C	R	7	4						F	M		DO	BT	
GM4-FR291	U28	JTW	147	078		I	?	8	4	LBG			5.0	BL	F	S		DO	DO	rooted
GM4-FR292	U28	JT	250	090		P	S	6	3	YG			5.0	BL	F	M		DO	DO	rooted
GM4-FR293	U28	JT	210	040		P	S	3	2						F	M		DO	DO	rooted
GM4-FR294	U29	JTX	179	084		C	S	9	5	YG			20.0	BL	F	S		BS	DO	rooted
GM4-FR295	U29	JT	115	086		P	S	10	11	LG/LB			10.0	BL	F	S		BS	DO	
GM4-FR296	U29	JTX	159	067		C	S	9	7	LG/LB			50.0	BL	F	S		TU29	DO	rooted; slicks; can't orient
GM4-FR297	U28	JT	165	086		P	S	4	12	YG			1.0	BL	F	M		DO	BT	rooted
GM4-FR298	U29	JT	156	053		C	S	9	5	YG			5.0	BL	F	S		DO	DO	

Described C.H. Trupe; Recorded N.L. Bogen; 31 May, 1997

DESCRIPTIONS (510'-560')

TRENCH AND FRACTURE NUMBER	ROCK	FRACTURE	STRIKE	DIP	PITCH	SHAPE	SURFACE	HEIGHT (INCHES)	LENGTH (INCHES)	COLOR	FABRICS	FTT	WIDTH (mm)	FILL/MINERAL	FILL CHARACTERISTIC	WEATHERING	AGE	UPWARD TERMINATION	DOWNWARD TERMINATION	REMARKS
GM4-FR299	U29	JTW	180	084		C	R	7	4	GOP			5.0	BL	F	S		DO	DO	rooted
GM4-FR300	U29	JT	170	061		I	R	7	4				1.0		F	M		DO	BU29	
GM4-FR301	U28	JT	002	079		P	S	7	18	PRB			2.5	C	F	M		DO	BT	rooted
GM4-FR302	U29	JT	034	047		P	S	5	2				0.0		F	M		DO	BU29	
GM4-FR303.1	U28	F	050	014		U	R	30		YG			15.0	C	F	S		DO	DO	rooted; slicks not measureable
GM4-FR303.2	U28	F	355	018																second reading on the same fault
GM4-FR304	U29	JTX	276	056		P	R	8	6							M		DO	BU29	
GM4-FR305	U28	F	005	010		P	S	11		LGG			10.0	C	F	S		DO	BT	rooted; no slicks apparent
GM4-FR306	U29	JTX	160	070		P	R	9	7	YG			10.0	BL	F	S		DO	BU29	rooted
GM4-FR307	U29	JT	058	085		P	S	9	10	YG			5.0	C	F	M		DO	BT	rooted
GM4-FR308	U29	JT	154	080		C	S	6	10	YG			10.0	C	F	S		DO	BT	
GM4-FR309	U29a	JTW	169	042		P	S	6	1	YG			2.5	C	F	S		BU30	DO	rooted
GM4-FR310	U29a	JT	165	065		I	S	6	2					C/BL	F	S		BU30	DO	
GM4-FR311	U30	JTW	345	087		P	S	7	1	YG			10.0	BL	F	S		DO	DO	rooted
GM4-FR312	U30	JT	173	075		P	S	5	1	YG			2.5	BL	F	S		BSW	BT	rooted
GM4-FR313	U30	JTW	130	079		P	S	9	9	VPO			10.0	C	F	S		DO	BT	
GM4-FR314	U30	JTW	000	081		C	S	8		VPO			2.5	BL	F	S		DO	DO	
GM4-FR315	U30	JT	050	085		P	S	13	5	VPO			5.0	BL	F	S		DO	BT	
GM4-FR316	U30	JTW	136	066		I	R	5	2	VPO			10.0	BL	F	S		DO	DO	
GM4-FR317	U30	JTX	146	072		C	S	9	6	VPO			10.0	BL		S		DO	BSW	
GM4-FR318	U30	JTW	225	073		P	R	8	5	VPO			5.0	BL		S		BSW	BT	
GM4-FR319	U30	JT	063	085		P	R	4	2					BL	F	S		BSW	DO	
GM4-FR320	U31	JT	162	071		P	S	4	2	YG				BL	F	S		DO	BU31	
GM4-FR321	U31	JT	048	090		I	R	5	1	YG			5.0	C	F	S		DO	BU31	DYO stain
GM4-FR322	U31	JT	177	073		P	S	5	1	YG			5.0	C	F	S		DO	DO	
GM4-FR323	U31	JT	135	074		I	R	8	6	YG				BL	F	S		DO	BU31	

Described C.H. Trupe; Recorded M.L. Stutz; 31 May, 1997

GM4 FRACTURE DESCRIPTIONS (560'-620')

TRENCH AND FRACTURE NUMBER	ROCK	FRACTURE	STRIKE	DIP	PITCH	SHAPE	SURFACE	HEIGHT (INCHES)	LENGTH (INCHES)	COLOR	FABRICS	FTT	WIDTH (mm)	FILL/ MINERAL	FILL CHARACTERISTIC	WEATHERING	AGE	UPWARD TERMINATION	DOWNWARD TERMINATION	REMARKS
GM4-FR324	U31a	JT	131	085		I	R	7	3	YG			5.0	BL		S		BSW	BT	
GM4-FR325	U31a	JT	185	056		P	R	11	3					NM	F	M		DO	DO	
GM4-FR326	U31a	JTX	185	067		C	S	8	5	YG			10.0	BL		S		DO	DO	rooted
GM4-FR327	U31a	JTW	175	072		C	S	7	2	YG			40.0	BL		S		DO	DO	rooted
GM4-FR328	U31a	JT	175	074		P	R	10	>30	YG			40.0	BL		S		DO	BT	
GM4-FR329	U31a	JTX	143	062		C	S	8	3	YG			20.0	BL	F	S		DO	DO	
GM4-FR330	U31a	JTX	072	060		C	S	5	>1.5	YG				BL		S		DO	DO	
GM4-FR331	U31a	JT	217	075		P	S	5	13	YG			5.0	C	F	M		DO	BT	
GM4-FR332	U31a	JT	098	086		P	S	8	1	YG			2.5	BL		S		TU31a	DO	
GM4-FR333	U31a	JT	149	070		P	R	4	2	YG			10.0	BL	F	M		DO	DO	
GM4-FR334	U31a	JTW	060	090		C	S	6	1	YG			10.0	BL	F	S		BU31e	DO	
GM4-FR335	U31a	JT	151	081		P	R	10	>12	YG			10.0	BL		S		DO	BT	
GM4-FR336	U31c	JTW	045	088		P	S	5	2	YG				BL	F	S		TU31c	DO	rooted
GM4-FR337	U32	JT	167	084		C	R	10	7	YG				C	O	S		TU32	BSW	rooted
GM4-FR338	U31a	JT	329	086		P	R	6	5	YG			1.0	BL	F	M		TU31a	BT	rooted
GM4-FR339	U31c	JT	080	054		P	S	9	4					NM	F	M		DO	TU31c	
GM4-FR340	U32	JTX	166	064		C	S	5	1	GOP			1.0	BL	F	M		DO	DO	
GM4-FR341	U32	JTW	236	082		I	R	8	2	GOP			10.0	BL	F	S		DO	DO	rooted
GM4-FR342	U32	JTW	225	067		C	R	8		YG			10.0	BL	F	S		BSW	FR343	rooted
GM4-FR343	U32	JT	230	088		C	S	11	2	YG			10.0	BL	F	M		FR342	DO	rooted
GM4-FR344	U31c/U32	JTX	136	085		P	R	6	2	GOP				Mn/BL	F	M		DO	BT	
GM4-FR345	U32	JTX	167	071		C	R	6	3	GOP			2.0	BL	F	M		DO	DO	rooted
GM4-FR346	U32	JT	096	061		C	S	12	15					Mn	F	M		DO	FR348	
GM4-FR347	U32	JT	350	089		P	S	5	2					Mn	F	M	YTFR346	DO	FR346	rooted
GM4-FR348	U32	JT	265	080		P	R	14	7	GOP			2.5	BL	F	M		DO	BT	
GM4-FR349	U32	F	319	032	093	U	S	108		MB				C	F	S		BS	DO	rooted
GM4-FR350	U32	JT	049	042		P	S	8	2					Mn	F	M		DO	DO	
GM4-FR351	U32	JTX	002	090		C	S	6	8				0.1	Mn	O	SL	OTFR352	BU33	DO	rooted
GM4-FR352	U32	JT	185	086		P	S	6	3				0.1	NM	O	M		BU33	DO	rooted
GM4-FR353	U32	JT	255	086		P	S	15	11				0.1	Mn	O	SL		BU33	DO	
GM4-FR354	U32	JT	174	082		P	S	12					0.1	NM	O	M		DO	BSW	
GM4-FR355	U32	JT	165	083		P	S	4					1.0	BL	F	M		DO	BSW	rooted
GM4-FR356	U33	JT	062	075		P	S	5					1.0	Mn/BL	F	SL		BU33	BT	
GM4-FR357	U33	JT	060	080		P	S	4	>2	GOP			0.1	BL	F	SL		BBP	BBP	
GM4-FR358	U32	JT	146	090		P	S	8	9	DG			0.1	Mn/C	F	S		BBP	BBP	
GM4-FR359	U33	JT	053	082		P	R	6		PYB				NM	F	M		DO	DO	rooted
GM4-FR360	U33	F	177	080	090	P	S	7	>3	PRB				Mn	F	M		BU33	DO	rooted

Described: C.H. Trupe; Recorded: M.L. Stutz; 31 May 1997

GM4 FRACTURE DESCRIPTIONS (620'-645')

TRENCH AND FRACTURE NUMBER	ROCK	FRACTURE	STRIKE	DIP	PITCH	SHAPE	SURFACE	HEIGHT (INCHES)	LENGTH (INCHES)	COLOR	FABRICS	FTT	WIDTH (mm)	FILL/ MINERAL	FILL CHARACTERISTIC	WEATHERING	AGE	UPWARD TERMINATION	DOWNWARD TERMINATION	REMARKS
GM4-FR361	U33	JTX	052	065		P	S	8	3				1.0	NM	F	S		DO	DO	rooted
GM4-FR362	U33	JTX	178	081		C	S	9	3	GOP			1.0	Mn	V	S		DO	DO	rooted
GM4-FR363	U33	JT	140	072		C	S	6	3				1.0	Mn	V	S		DO	DO	
GM4-FR364	U33	JT	005	082		P	S	7	2	GOP			150.0	Mn	V	S		DO	DO	rooted
GM4-FR365	U33	F	180	082	000	P	S	16	>3	GOP			1.0	Mn/C	F	S	YT FR414	FR 414	BT	rooted; JT reactivated as fault
GM4-FR366	U33	F	184	082	071	P	S	12	>9				1.0	Mn	V	S		FR414	BT	rooted; JT reactivated as fault
GM4-FR367	U33	JTX	188	080		C	S	4	3				50.0	NM	O	M		FR414	DO	
GM4-FR368	U33	F	182	082	090	P	S	13	4	PRB				C	F	S		FR414	BT	rooted; JT reactivated as fault
GM4-FR369	U33	JTX	182	080		P	S	5	3	LB			100.0	C	F	S		DO	DO	rooted
GM4-FR370	U33	JT	184	087		C	S	6	2	LB				C	F	S		DO	DO	rooted
GM4-FR371	U33	JT	176	090		P	S	9	4	LB			100.0	C	F	S		DO	DO	rooted
GM4-FR372	U33	JT	189	090		I	R	8	2	LB			1.0	C	F	S		DO	DO	
GM4-FR373	U33	JT	324	076		C	S	12	5					Mn	V	S		DO	DO	rooted
GM4-FR374	U33	JT	244	075		P	S	5	5				1.0	Mn	V	M		DO	BT	
GM4-FR375	U33	JT	312	083		P	S	10	11				25.0	Mn	V	S		DO	BT	rooted
GM4-FR376	U33	JT	037	084		P	R	4	1	LB			1.0	C	F	S		DO	BU34	
GM4-FR377	U35	F	040	007	124	U	S	21	>2					NM	F	M		FR374	DO	
GM4-FR378	U35	F	336	014	096	U	S	13	3				1.0	NM	F	M		DO	DO	
GM4-FR379.1	U35	F	066	007	036	C	S	33	>4				1.0	NM	F	M		DO	DO	
GM4-FR379.2	U35	F	350	008	036															second measurement on the same fault

Described: M.L. Stutz; Recorded: A.E. Whitaker; 31 May 1997

GM4 FRACTURE DESCRIPTIONS (635'-650')

TRENCH AND FRACTURE NUMBER	ROCK	FRACTURE	STRIKE	DIP	PITCH	SHAPE	SURFACE	HEIGHT (INCHES)	LENGTH (INCHES)	COLOR	FABRICS	FTT	WIDTH (mm)	FILL/ MINERAL	FILL CHARACTERISTIC	WEATHERING	AGE	UPWARD TERMINATION	DOWNWARD TERMINATION	REMARKS
								inch	inch				mm							
GM4-FR380.1	U35/U36	F	190	010	014	U	S	180					1.0	Mn	V	M		BS	BT	partial contact U35/U36; has ramps and flats
GM4-FR380.2	U35/U36	F	194	020	012															second measurement on the same fault
GM4-FR380.3	U35/U36	F	199	010	015															third measurement on the same fault
GM4-FR381	U36	F	024	019	000	C	R	9	>3.5				1.0	NM	F	M		DO	DO	rooted
GM4-FR382	U36	F	256	028	050	U	S	28		GOP			1.0	C	F	M		DO	FR380	rooted
GM4-FR383.1	U36	F	260	024	070	U	S	70					1.0			SL		TT	DO	
GM4-FR383.2	U36	F	244	008	048															second measurement on the same fault
GM4-FR383.3	U36	F	040	012																third measurement on the same fault
GM4-FR384.1	U36	F	330	010	092	U	S	141		PRB			1.0	Mn	F	S		BS	BT	rooted
GM4-FR384.2	U36	F	360	020																second measurement on the same fault

Described: A.E. Whitaker; recorded: A.E. Whitaker; 31 May 1997

GM4 FRACTURE DESCRIPTIONS (640'-663')

TRENCH AND FRACTURE NUMBER	ROCK	FRACTURE	STRIKE	DIP	PITCH	SHAPE	SURFACE	HEIGHT (INCHES)	LENGTH (INCHES)	COLOR	FABRICS	FIT	WIDTH (mm)	FILL/ MINERAL	FILL CHARACTERISTIC	WEATHERING	AGE	UPWARD TERMINATION	DOWNWARD TERMINATION	REMARKS
GM4-FR385	U35	JT	300	082		P	S	4	6				0.1	Mn	O	S		DO	DO	
GM4-FR386	U35	JT	154	077		P	R	7	5				1.0	Mn	O	M		DO	DO	
GM4-FR387	U36	JT	174	090		P	R	6	8				0.1	Mn	O	S		DO	DO	rooted
GM4-FR388	U36	JT	154	072		P	S	6	>3	BLACK			0.1	Mn	O	M		BU37	DO	
GM4-FR389	U36	JT	114	072		P	S	7	6				0.1	Mn	O	S		FR384	DO	
GM4-FR390	U36	JT	130	044		P	S	6	>3	BLACK			0.1	Mn	O	M		FR388	DO	
GM4-FR391	U35	JT	274	090		P	R	6	2				0.1	BL	F	M		BU36	FR380	
GM4-FR392	U36	JT	270	080		C	R	9					0.1	Mn	O	S	OT FR411	DO	BT	rooted
GM4-FR393	U36	JT	096	090		P	R	5	2	BLACK			0.1	Mn		M		DO	DO	
GM4-FR394	U37	JT	271	082		P	R	5	9				0.1	NM		S		DO	DO	
GM4-FR395	U33	JTX	078	085		I	R	8	5				0.1	Mn	O	S		DO	DO	
GM4-FR396	U36	JT	242	084		I	R	3	5				0.1	NM	O	S		BU37	DO	rooted
GM4-FR397	U35	JT	234	085		P	S	3	1				0.1	NM	O	M		DO	DO	
GM4-FR398	U36/U37	JT	012	083		P	S	8	6				0.1	Mn	O	S		DO	DO	rooted
GM4-FR399	U36	JT	222	075		P	S	4					1.0	Mn	O	M		FR384	BT	
GM4-FR400	U36	JT	198	086		P	R	6	2	PRB			3.0	C	F	S		BSW	DO	rooted
GM4-FR401	U36	JT	174	079		C	R	10	6					NM	O	S	YT FR382	FR382	BU36	
GM4-FR402	U36	JT	197	071		P	S	7	3	PRB			0.3	C	F	S		DO	DO	rooted
GM4-FR403	U36	JT	192	078		P	I	8					10.0	Mn/BL	F	S		BSW	DO	rooted
GM4-FR404	U37	JT	350	081		P	R	3	7				0.1	NM	O	M		DO	DO	
GM4-FR405	U34	JT	180	062		P	S	4	2				0.1	NM	O	M		DO	DO	
GM4-FR406	U35	JT	161	054		P	S	6	2					NM	O	M		BSW	BU35	
GM4-FR407	U35	JT	159	060		P	S	4	4	PRB			10.0	C	F	S		DO	DO	rooted
GM4-FR408	U37	JT	156	072		P	S	11	3				0.1	NM		S		TT	BU37	rooted
GM4-FR409	U35	JT	162	077		P	S	4	4	PRB			1.0	Mn/C	F/O	S		BSW	DO	rooted
GM4-FR410	U36	JT	158	063		I	R	6	8				3.0	Mn	F/O	S		DO	BU36	rooted
GM4-FR411	U36	JT	166	060		P	S	10	12					Mn	O	S	YT FR392	DO	BU36	rooted
GM4-FR412	U36	JT	154	088		P	R	7	>4				0.1	NM	O	M		DO	DO	

Described: M.L. Stutz; Recorded: A.E. Whitaker 30 May 1997

GM4 FRACTURE DESCRIPTIONS (600'-663'; end of GM4 at 663')

TRENCH AND FRACTURE NUMBER	ROCK	FRACTURE	STRIKE	DIP	PITCH	SHAPE	SURFACE	HEIGHT (INCHES)	LENGTH (INCHES)	COLOR	FABRICS	FIT	WIDTH (mm)	FILL/ MINERAL	FILL CHARACTERISTIC	WEATHERING	AGE	UPWARD TERMINATION	DOWNWARD TERMINATION	REMARKS
GM4-FR413	U33	F	337	015	015	U	S	42					1.0	NM	O	M		DO	DO	rooted; has ramp and flat
GM4-FR414	U33	F	338	016	010	C	S	121	>14				1.0	NM	O	M		DO	BSW	
GM4-FR415	U32	F	116	030	086	U	S	22		LB			10.0	C		SL		BSW	DO	contact thin beds/ thick bed

Described: A.E. Whitaker; Recorded: A.E. Whitaker; 30 May, 1997

PHOTOGRAPHS- GM-4

TRENCH	INTERVAL (FT)	DATE	TAKER	NEGATIVE NUMBER	ROLL NO.	DESCRIPTION
GM-4	0 - 5	5/12/97	W.C. HOYT	2	1632	
GM-4	5-10	5/12/97	W.C. HOYT	3	1632	
GM-4	10-15	5/12/97	W.C. HOYT	4	1632	
GM-4	15-20	5/12/97	W.C. HOYT	5	1632	
GM-4	20-25	5/12/97	W.C. HOYT	6	1632	
GM-4	25-30	5/12/97	W.C. HOYT	7	1632	
GM-4	30-35	5/12/97	W.C. HOYT	8	1632	
GM-4	35-40	5/12/97	W.C. HOYT	9	1632	
GM-4	40-45	5/12/97	W.C. HOYT	10	1632	
GM-4	45-50	5/12/97	W.C. HOYT	11	1632	
GM-4	50-55	5/12/97	W.C. HOYT	12	1632	
GM-4	55-60a	5/12/97	W.C. HOYT	13	1632	
GM-4	55-60b	5/12/97	W.C. HOYT	14	1632	
GM-4	60-65	5/12/97	W.C. HOYT	15	1632	
GM-4	65-70	5/12/97	W.C. HOYT	17	1632	
GM-4	70-75	5/12/97	W.C. HOYT	18	1632	
GM-4	75-80	5/12/97	W.C. HOYT	19	1632	
GM-4	80-85	5/12/97	W.C. HOYT	20	1632	
GM-4	85-90	5/12/97	W.C. HOYT	21	1632	
GM-4	90-95	5/12/97	W.C. HOYT	22	1632	
GM-4	95-100	5/12/97	W.C. HOYT	23	1632	
GM-4	100-105	5/12/97	W.C. HOYT	24	1632	
GM-4	105-110	5/12/97	W.C. HOYT	25	1632	
GM-4	110-115	5/12/97	W.C. HOYT	2	1631	
GM-4	115-120	5/12/97	W.C. HOYT	3	1631	
GM-4	120-125	5/12/97	W.C. HOYT	4	1631	
GM-4 N Wall	85-90a	5/12/97	W.C. HOYT	5	1631	
GM-4 N Wall	85-90b	5/12/97	W.C. HOYT	7	1631	
GM-4 N Wall	90-95a	5/12/97	W.C. HOYT	6	1631	
GM-4 N Wall	90-95b	5/12/97	W.C. HOYT	8	1631	
GM-4 N Wall	95-100	5/12/97	W.C. HOYT	9	1631	
GM-4 N Wall	100-105	5/12/97	W.C. HOYT	10	1631	
GM-4	125-130	5/16/97	W.C. HOYT	2	0042	fuzzy
GM-4	130-135	5/16/97	W.C. HOYT	3	0042	blueish hue
GM-4	135-140	5/16/97	W.C. HOYT	4	0042	blueish hue
GM-4	140-145	5/16/97	W.C. HOYT	5	0042	
GM-4	145-150	5/16/97	W.C. HOYT	6	0042	
GM-4	150-155	5/16/97	W.C. HOYT	7	0042	
GM-4	155-160	5/16/97	W.C. HOYT	8	0042	
GM-4	160-165	5/16/97	W.C. HOYT	9	0042	
GM-4	165-170	5/16/97	W.C. HOYT	10	0042	
GM-4	170-175	5/16/97	W.C. HOYT	11	0042	
GM-4	175-180	5/16/97	W.C. HOYT	12	0042	
GM-4	180-185	5/16/97	W.C. HOYT	13	0042	
GM-4	185-190	5/16/97	W.C. HOYT	14	0042	
GM-4	190-195	5/16/97	W.C. HOYT	15	0042	no print
GM-4	195-200	5/16/97	W.C. HOYT	16	0042	

PHOTOGRAPHS- GM-4

TRENCH	INTERVAL (FT)	DATE	TAKER	NEGATIVE NUMBER	ROLL NO.	DESCRIPTION
GM-4	200-205	5/16/97	W.C. HOYT	17	0042	
GM-4	205-210	5/16/97	W.C. HOYT	18	0042	
GM-4	210-215	5/16/97	W.C. HOYT	19	0042	
GM-4	215-220	5/16/97	W.C. HOYT	20	0042	
GM-4	220-225	5/16/97	W.C. HOYT	21	0042	
GM-4	225-230	5/16/97	W.C. HOYT	22	0042	
GM-4	230-235	5/16/97	W.C. HOYT	23	0042	
GM-4	235-240	5/16/97	W.C. HOYT	24	0042	
GM-4	240-245	5/16/97	W.C. HOYT	25	0042	
GM-4	245-250	5/20/97	W.C. HOYT	21	0587	
GM-4	250-255	5/20/97	W.C. HOYT	22	0587	
GM-4	255-260	5/20/97	W.C. HOYT	23	0587	
GM-4	260-265	5/20/97	W.C. HOYT	24	0587	
GM-4	265-270	5/20/97	W.C. HOYT	25	0587	
GM-4	245-250	5/29/97	W.C. HOYT	2	5919	
GM-4	250-255	5/29/97	W.C. HOYT	3	5919	
GM-4	255-260	5/29/97	W.C. HOYT	4	5919	
GM-4	260-265	5/29/97	W.C. HOYT	5	5919	underexposed
GM-4	265-270	5/29/97	W.C. HOYT	6	5919	
GM-4	270-275	5/29/97	W.C. HOYT	7	5919	
GM-4	275-280	5/29/97	W.C. HOYT	8	5919	
GM-4	280-285	5/29/97	W.C. HOYT	9	5919	
GM-4	285-290	5/29/97	W.C. HOYT	10	5919	
GM-4	290-295	5/29/97	W.C. HOYT	11	5919	
GM-4	295-300	5/29/97	W.C. HOYT	12	5919	
GM-4	300-305	5/29/97	W.C. HOYT	13	5919	
GM-4	305-310	5/29/97	W.C. HOYT	14	5919	
GM-4	310-315	5/29/97	W.C. HOYT	15	5919	
GM-4	315-320	5/29/97	W.C. HOYT	16	5919	
GM-4	320-325	5/29/97	W.C. HOYT	17	5919	
GM-4	325-330	5/29/97	W.C. HOYT	18	5919	
GM-4	330-335	5/29/97	W.C. HOYT	19	5919	
GM-4	335-340	5/29/97	W.C. HOYT	20	5919	
GM-4	340-345	5/29/97	W.C. HOYT	22	5919	underexposed
GM-4	345-350	5/29/97	W.C. HOYT	23	5919	
GM-4	350-355	5/29/97	W.C. HOYT	24	5919	
GM-4	355-360	5/29/97	W.C. HOYT	25	5919	
GM-4	355-360	5/31/97	W.C. HOYT	2	8836	
GM-4	360-365	5/31/97	W.C. HOYT	3	8836	
GM-4	365-370	5/31/97	W.C. HOYT	4	8836	
GM-4	370-375	5/31/97	W.C. HOYT	5	8836	
GM-4	375-380	5/31/97	W.C. HOYT	6	8836	
GM-4	380-385	5/31/97	W.C. HOYT	7	8836	
GM-4	385-390	5/31/97	W.C. HOYT	8	8836	
GM-4	390-395	5/31/97	W.C. HOYT	9	8836	
GM-4	395-400	5/31/97	W.C. HOYT	10	8836	
GM-4	400-405	5/31/97	W.C. HOYT	11	8836	

PHOTOGRAPHS- GM-4

TRENCH	INTERVAL (FT)	DATE	TAKER	NEGATIVE NUMBER	ROLL NO.	DESCRIPTION
GM-4	405-410	5/31/97	W.C. HOYT	12	8836	
GM-4	410-415	5/31/97	W.C. HOYT	13	8836	
GM-4	415-420	5/31/97	W.C. HOYT	14	8836	
GM-4	420-425	5/31/97	W.C. HOYT	15	8836	
GM-4	425-430	5/31/97	W.C. HOYT	16	8836	
GM-4	430-435	5/31/97	W.C. HOYT	17	8836	
GM-4	435-440	5/31/97	W.C. HOYT	18	8836	
GM-4	440-445a	5/31/97	W.C. HOYT	19	8836	
GM-4	440-445b	5/31/97	W.C. HOYT	20	8836	
GM-4	445-450	5/31/97	W.C. HOYT	21	8836	
GM-4	450-455	5/31/97	W.C. HOYT	22	8836	
GM-4	455-460	5/31/97	W.C. HOYT	23	8836	
GM-4	460-465	5/31/97	W.C. HOYT	24	8836	
GM-4	465-470	5/30/97	W.C. HOYT	2	1695	
GM-4	470-475	5/30/97	W.C. HOYT	3	1695	
GM-4	475-480	5/30/97	W.C. HOYT	4	1695	
GM-4	480-485	5/30/97	W.C. HOYT	5	1695	
GM-4	485-490	5/30/97	W.C. HOYT	6	1695	
GM-4	490-495	5/30/97	W.C. HOYT	7	1695	
GM-4	495-500	5/30/97	W.C. HOYT	8	1695	
GM-4	500-505	5/30/97	W.C. HOYT	9	1695	
GM-4	505-510	5/30/97	W.C. HOYT	10	1695	
GM-4	510-515	5/30/97	W.C. HOYT	11	1695	
GM-4	515-520	5/30/97	W.C. HOYT	12	1695	
GM-4	520-525	5/30/97	W.C. HOYT	13	1695	
GM-4	525-530	5/30/97	W.C. HOYT	14	1695	
GM-4	530-535	5/30/97	W.C. HOYT	15	1695	
GM-4	535-540	5/30/97	W.C. HOYT	16	1695	
GM-4	540-545	5/30/97	W.C. HOYT	17	1695	
GM-4	545-550	5/30/97	W.C. HOYT	18	1695	
GM-4	550-555	5/30/97	W.C. HOYT	19	1695	
GM-4	555-560	5/30/97	W.C. HOYT	20	1695	
GM-4	560-565	5/30/97	W.C. HOYT	21	1695	
GM-4	565-570	5/30/97	W.C. HOYT	22	1695	
GM-4	570-575	5/30/97	W.C. HOYT	23	1695	
GM-4	575-580	5/30/97	W.C. HOYT	24	1695	
GM-4	580-585	5/30/97	W.C. HOYT	25	1695	
GM-4	585-590	5/30/97	W.C. HOYT	2	1696	
GM-4	590-595	5/30/97	W.C. HOYT	3	1696	
GM-4	595-600	5/30/97	W.C. HOYT	4	1696	
GM-4	600-605	5/30/97	W.C. HOYT	5	1696	
GM-4	605-610	5/30/97	W.C. HOYT	6	1696	
GM-4	610-615	5/30/97	W.C. HOYT	7	1696	
GM-4	615-620	5/30/97	W.C. HOYT	8	1696	
GM-4	620-625	5/30/97	W.C. HOYT	9	1696	
GM-4	625-630	5/30/97	W.C. HOYT	10	1696	
GM-4	630-635a	5/30/97	W.C. HOYT	11	1696	

PHOTOGRAPHS- GM-4

TRENCH	INTERVAL (FT)	DATE	TAKER	NEGATIVE NUMBER	ROLL NO.	DESCRIPTION
GM-4	630-635b	5/30/97	W.C. HOYT	12	1696	
GM-4	635-640a	5/30/97	W.C. HOYT	13	1696	
GM-4	635-640b	5/30/97	W.C. HOYT	14	1696	
GM-4	640-645a	5/30/97	W.C. HOYT	15	1696	
GM-4	640-645b	5/30/97	W.C. HOYT	16	1696	
GM-4	645-650a	5/30/97	W.C. HOYT	17	1696	
GM-4	645-650b	5/30/97	W.C. HOYT	18	1696	
GM-4	650-655a	5/30/97	W.C. HOYT	19	1696	
GM-4	650-655b	5/30/97	W.C. HOYT	20	1696	
GM-4	655-660a	5/30/97	W.C. HOYT	21	1696	
GM-4	655-660b	5/30/97	W.C. HOYT	22	1696	

663'- END OF TRENCH