

APPENDIX D
GRAB SAMPLE DESCRIPTION LOGS

FIELD AND DATA REPORT

**DOWNTOWN PORTLAND SEDIMENT
CHARACTERIZATION PHASE II**

WILLAMETTE RIVER
PORTLAND, OREGON

JUNE 2010

Station	Rep	Date	Time	Tape Water Depth (ft)	Penetration (cm)	Description	Debris	Odor	Sheen	Color	Comments
RM12.1E											
DPSC-G086	1	2/24/2010	8:35	2.8	<4	Leaf litter - reject	organic				
DPSC-G086	2	2/24/2010	8:38	2.8	2	Gravel, leaf litter - reject	organic				
DPSC-G086	3	2/24/2010	8:41	2.8	NA	Rock - reject	cobble				
DPSC-G086	4	2/24/2010	8:45	2.9	8	Dark brown-black SAND with organics (leaves, small twigs)	cigarette butt, some glass	Organic	None	Dark brown/black	
DPSC-G086	5	2/24/2010	8:59	4.2	9	Dark brown to black SAND with organic matter	cigarette butt, some glass	Organic	None	Dark brown/black	composited with R4
DPSC-G087	1	2/24/2010	9:41	19		Gravel - reject	cobble, gravel				
DPSC-G087	2	2/24/2010	9:43	22		Gravel, plastic bag - reject	cobble, gravel				
DPSC-G087	3	2/24/2010	9:46	24		Nothing in jaws	cobble, gravel				
DPSC-G087	4	2/24/2010	9:49	24.2		gravel/ cobble - reject	cobble, gravel				
DPSC-G087	5	2/24/2010	9:52	26		gravel/ cobble - reject	cobble, gravel				
DPSC-G087	6	2/24/2010	9:55	26		Cobble - jaws did not close	cobble, gravel				
DPSC-G087	7	2/24/2010	9:56	28		Moving out - cobble reject	cobble				
DPSC-G087	8	2/24/2010	9:58	28		Downstream edge of I-84 pier - well, rounded GRAVEL, no fines. Reject - no sample					
DPSC-G087	9	2/24/2010	9:59	28		Plastic & wood debris (photo) - reject		Organic			

Station	Rep	Date	Time	Tape Water Depth (ft)	Penetration (cm)	Description	Debris	Odor	Sheen	Color	Comments
DPSC-G087	10	2/24/2010	10:01	32		No sample, cobble - reject					
RM12.4W											
DPSC-G088	1	2/24/2010	10:09	30		By maritime museum - rock, reject					
DPSC-G088	2	2/24/2010		35		No sample					
DPSC-G088	3	2/24/2010		28		No sample					
DPSC-G088	4	2/24/2010		28		Rock - reject					Operator corrected station rep count
DPSC-G088	5	2/24/2010	10:17	28.5	3	Brown silty SAND, cobble, gravel					
DPSC-G088	6	2/24/2010	10:49			Rock - reject					
DPSC-G088	7	2/24/2010	10:52			Cobble - reject					
DPSC-G088	8	2/24/2010	11:56	28		Cobble - reject					
DPSC-G088	9	2/24/2010	11:08	28		Cobble - reject					
DPSC-G088	10	2/24/2010	11:30	28.5	8	Gravel 2.5-4 cm (60%), cobble to 12 cm, olive grey SILT (30%), olive grey fine SAND (10%), twigs, organic debris, sample is mostly rock	corbicula, wood/sticks	None	No SS	olive grey	
RM12.5E											
DPSC-G089	1	2/24/2010	15:16	15.8		No sand/fines - reject					
DPSC-G089	2	2/24/2010	15:18	15.8		Jaws did not close - reject					

Station	Rep	Date	Time	Tape Water Depth (ft)	Penetration (cm)	Description	Debris	Odor	Sheen	Color	Comments
DPSC-G089	3	2/24/2010	15:20	15.8	12	Brown silty SAND with some coarse sand; organic black flecks, jaws help open by bark chunk		None	None	Brown with flecks of black	
DPSC-G089	4	2/24/2010	15:36	15.8	6	Brown silty SAND with gravel; fines washed		None	None	Brown with flecks of black	Composite R3, R4 for sample
DPSC-G090	1	2/24/2010	14:51	11.1	<2	Sand in jaws, jaws partially closed - rejected					
DPSC-G090	2	2/24/2010	14:52	11.2		Grab empty					
DPSC-G090	3	2/24/2010	14:54	11.4		Two pieces well -rounded gravel - rejected		None	None		
DPSC-G090	4	2/24/2010	14:56	15		Rounded to sub-rounded gravels 2-7 cm (90%), brown silty SAND (10%), some organics (sticks, grass)		None	None		
DPSC-G090	5	2/24/2010	15:02	15		Gravels, grab did not close - reject					
DPSC-G090	6	2/24/2010	15:05	18		Empty grab, no sample					
RM12.9W											
DPSC-G091	1	2/22/2010	10:22	50.0	NA	Cobbles - jaws didn't close	rock/cobble				
DPSC-G091	2	2/22/2010	10:24	50.0		Cobbles - reject	cobble				
DPSC-G091	3	2/22/2010	10:28	50.0		Gravel - jaws did not close	gravel				
DPSC-G091	4	2/22/2010	10:32	50.0		Gravel - jaws did not close	gravel/ cobble				
DPSC-G091	5	2/22/2010	10:33	50.0		Gravel - jaws did not close	gravel/ cobble				
DPSC-G091	6	2/22/2010	10:34	50.0		Gravel - jaws did not close	gravel/ cobble				

Station	Rep	Date	Time	Tape Water Depth (ft)	Penetration (cm)	Description	Debris	Odor	Sheen	Color	Comments
DPSC-G091	7	2/22/2010	10:36	50.0		Gravel - jaws did not close	gravel/ cobble				
DPSC-G091	8	2/22/2010	10:38	50.0		Jaws closed - no sample/clean sample	NA				
DPSC-G091	9	2/22/2010	10:41	50.0		Jaws closed - no sample/clean sample	NA				
DPSC-G091	10	2/22/2010	10:44	50.0		Jaws closed - no sample/clean sample	NA				
DPSC-G091	11	3/25/2010	14:35	39	13	Brown gravelly silty SAND with sub-rounded gravel-cobble to 5 cm, wood/leaf <gravel: 15%	wood, corbicula, shell leaf	None	Sheen floret to 5 mm	olive grey	
DPSC-G092	1	2/22/2010	11:15	37.9	NA						
DPSC-G092	2	2/22/2010	11:18	37.9		Jaws closed - no sample	NA				
DPSC-G092	3	2/22/2010	11:19	37.9		Rock - jaws did not close	gravel/ cobble				
DPSC-G092	4	2/22/2010	11:28	37.9	NA	Cobble - jaws did not close					
DPSC-G092	5	2/22/2010	11:30	37.9	NA	Cobble, gravel - jaws did not close (photo 90)					
DPSC-G092	6	3/25/2010	15:15	38	13	Flat bathymetry with boulder/concrete noted by diver. Brown silty fine SAND with rounded to sub-round cobbles to 9 cm. Radius of sample collection: ~4 ft	crayfish, plastic spoon		sheen floret to 4 mm (infrequent)	brown over olive grey	
DPSC-G093	1	2/22/2010	11:55	37.9	NA/<5 cm	Gravels in sampler, no fines, reject					
DPSC-G093	2	2/22/2010	11:59	37.9	NA	Gravel - reject					
DPSC-G093	3	2/22/2010	12:02	34.7		Moved toward seawall approx.. 4', cobble (~15 cm), jaws didn't close	large cobble				

Station	Rep	Date	Time	Tape Water Depth (ft)	Penetration (cm)	Description	Debris	Odor	Sheen	Color	Comments
DPSC-G093	4	2/22/2010	12:10	34.7		Cobble/gravel - jaws not closed	cobble, gravel				
DPSC-G093	5	2/22/2010	12:15	33.4		moved in - gravels, jaws closed, reject	cobble, gravel				
DPSC-G093	6	3/25/2010	11:41	39.0	8-Feb	Brown silt & sand with well-rounded to sub-rounded cobble to 6 cm. Debris includes concrete (bridge) clast (3cm); stainless steel nut; brick cobble: 20% sand SILT: 75% < fines 3 cm block of sand - broke apart during homogenizing (black inside) Five foot radius from clump weight (target) - took new coordinates at appx. station centroid	Oven brick (yellow-brown), nail puller, video feed shows anthropogenic material	None	SS to 5 mm, sparse iridescent	olive-grey, brown	
DPSC-G094	1	2/22/2010	12:42	33.1		Rock - reject	cobble, gravel				
DPSC-G094	2	2/22/2010	12:44	33.0		Rock - reject	cobble, gravel				
DPSC-G094	3	2/22/2010	12:46	33.2		Move upstream ~2', gravel in teeth - no closure	cobble, gravel				
DPSC-G094	4	2/22/2010	12:48	33.2		Move upstream ~2', gravels - did not close	cobble, gravel				
DPSC-G094	5	2/22/2010	12:51	32.4		Move upstream ~3'	cobble, gravel				
DPSC-G094	6	3/25/2010	13:10		8-Feb	Five foot radius (upstream) second tube, brown sandy silt/silty fine SAND with coarse gravels (sub-rounded to angular) and cobbles to 3 cm (sub-rounded)					
DPSC-G095	1	2/22/2010	13:15	21.0	(move offshore)	OF08A upstream from Hawthorn Bridge pier - riprap & armor	cobble				
DPSC-G095	2	2/22/2010	13:18	23.2		Gravel - no recovery, jaws open	gravel				
DPSC-G095	3	2/22/2010	13:20			Gravel - no recovery, jaws open	gravel				

Station	Rep	Date	Time	Tape Water Depth (ft)	Penetration (cm)	Description	Debris	Odor	Sheen	Color	Comments
DPSC-G095	4	2/22/2010	13:21			<1 cm sand - washed sample, rejected	gravel				
DPSC-G095	5	2/22/2010	13:25								
DPSC-G095	6	2/22/2010	13:28								
DPSC-G095	7	2/22/2010	13:30	27.0	2	Coarse to medium SAND with gravel, angular, brown to red		None	None	Brown-red	
DPSC-G095	8	2/22/2010	13:40	28.0	12-14.	Coarse sand with angular gravel, some silt/fines, brown		None	None	Brown	
DPSC-G095	9	2/22/2010	13:50	25.7		Rock ~10 cm - jaws did not close	cobble				
DPSC-G095	10	2/22/2010	13:58	25		Rock - reject					
DPSC-G095	11	2/22/2010	13:59	25	13	Brown medium to coarse SAND with trace gravel	corbicula, plastic debris	None	None	Brown, olive grey	G095 is not individual GRAB but composited from R7, R8 and R11 for sufficient sample volume
RM13.3E											
DPSC-G096	1	2/25/2010	13:40	14.2	2	Stick, gravel - jaws did not close, reject	wood				
DPSC-G096	2	2/25/2010	13:42	14.2	1.5	Gravel - reject	gravel	None	None		
DPSC-G096	3	2/25/2010	13:46	15		Angular cobble/asphalt to 10 cm, reject	cobble, asphalt	None	None		
DPSC-G096	4	2/25/2010	13:52	17		Moved 10 ft to river center. Slightly and silty GRAVEL - jaws did not close, reject	wood	None	None		
DPSC-G096	5	2/25/2010	14:00	25.2	6	Cobbles with olive grey silty GRAVEL, retained as composite	Cobble	None	None	olive grey	
DPSC-G096	6	2/25/2010	14:10	26		Cobble - reject	Cobble				

Station	Rep	Date	Time	Tape Water Depth (ft)	Penetration (cm)	Description	Debris	Odor	Sheen	Color	Comments
DPSC-G096	7	2/25/2010	14:13	26		Cobble - reject	Cobble				
DPSC-G096	8	2/25/2010	14:16	26	3	Brown silty SAND with gravel; woody debris including stick, piece of bark. Jaws closed; 1-2 mm brown SILT overlying sand material.	glass, corbicula x2	None	None	Brown	
DPSC-G096	9	2/25/2010	14:28	26		Cobble - reject					
DPSC-G096	10	2/25/2010	14:31	26		Brown silty GRAVEL with sub-rounded sand; gravel (70%) sub-angular to rounded; included volcanics; quartzite; concrete	concrete, glass (minor)	None	None		composite with R5 and R8
DPSC-G097	1	2/25/2010	15:15	<5		Outfall visible on shore bedded in 20-40 cm riprap. Attempted to find soft area to sample - too turbid for camera but too rocky for sample.	gravel	None	None		
DPSC-G097	2	2/25/2010	15:18	<5		Outfall visible on shore bedded in 20-40 cm riprap. Attempted to find soft area to sample - too turbid for camera but too rocky for sample.	gravel, cobble	None	None		
DPSC-G097	3	2/25/2010	15:20	<5		Outfall visible on shore bedded in 20-40 cm riprap. Attempted to find soft area to sample - too turbid for camera but too rocky for sample.	gravel, cobble	None	None		
DPSC-G097	4	3/24/2010	9:00	NA	2-5 cm	Brown-grey silty fine SAND, brown at surface, mottled with grey below surface. Collected fines within riprap and gravels.	wood/plant material, corbicula	None			
RM14.1W											
DPSC-G103	1	2/23/2010	9:05	39.0	17	brown sandy SILT with angular coarse sand - gravel @ surface 0-2 cm: surface irregular, slightly washed on right side	angular cobble (7cm) 0-2 cm: tile piece 2-17 cm: brick	None	2-3 mm sheen blebs	olive grey	
DPSC-G104	1	2/23/2010	9:36	13.0	None	Rock/gravel in jaws	cobble				
DPSC-G104	2	2/23/2010	9:38	13.0	None	Rock/gravel in jaws	cobble				
DPSC-G104	3	2/23/2010	9:40	12.8	None	Reject - 10 cm asphalt, jaws did not close	asphalt				
DPSC-G104	4	2/23/2010	9:45	13.0	None	Reject - rope & knot held jaws open	rope				
DPSC-G104	5	2/23/2010	9:48	13.0	5	Dark brown SILT with cobble, gravel	cobble	None	None	dark brown	

Station	Rep	Date	Time	Tape Water Depth (ft)	Penetration (cm)	Description	Debris	Odor	Sheen	Color	Comments
DPSC-G104	6	2/23/2010	9:58	14.0	None	Reject - cobble, sampler fell over, slope	None				
DPSC-G104	7	2/23/2010	10:02	14.0	None	Reject - cobble	cobble				
DPSC-G104	8	2/23/2010	10:04	14.0	None	Reject - cobble	cobble				
DPSC-G104	9	2/23/2010	10:06	11	3	Cobble in jaws - retained sit	cobble	None	None	Brown	
DPSC-G104	10	2/23/2010	10:13	11		Cobble - reject	cobble				
DPSC-G104	11	2/23/2010	10:16	11.5	3-Feb	Cobble/gravel - retained brown SILT	plastic bag, diaper	Organic	No sheen	Brown	
DPSC-G105	1	2/23/2010	10:48	43		Cobble - reject	cobble				
DPSC-G105	2	2/23/2010	10:51	43		Cobble - reject	cobble				
DPSC-G105	3	2/23/2010	10:54	41		Cobble - reject	cobble				
DPSC-G105	4	2/23/2010	10:58	41		Gravel - reject, material washed out of jaws on retrieval	gravel				
DPSC-G105	5	2/23/2010	11:01	42		Cobble - empty	cobble				
DPSC-G106	1	2/23/2010	11:08	45		Cobble - reject					
DPSC-G106	2	2/23/2010	11:15	45		Cobble - reject					
DPSC-G106	3	2/23/2010	11:18	45		Cobble - reject					

Station	Rep	Date	Time	Tape Water Depth (ft)	Penetration (cm)	Description	Debris	Odor	Sheen	Color	Comments
DPSC-G106	4	2/23/2010	11:21	45	13	Brown silty medium SAND, <5% coarse sand or gravel, <15% silt	wood, brick	None	Organic bleb 4-6 mm	Brown	
DPSC-G107	1	2/23/2010	12:00	40	22	Brown sandy SILT from 0-2 cm, mixed with silty SAND (0-4 cm), olive grey mud SAND beginning 2-3 cm to 18-20 depth, olive grey SILT interbedded in 3-5 cm this layers	pencil sized wood @ surface	None	sheen blebs <2 mm, rare/few	Brown to olive grey	
DPSC-G108	1	2/23/2010		17.5		Cobble - reject	cobble				
DPSC-G108	2	2/23/2010		17		Water only - no sample					
DPSC-G108	3	2/23/2010		17		Jaws empty - reject					
DPSC-G108	4	2/23/2010	13:20	15	3	Brown sub-angular GRAVEL with brown silt - composite approach	None	None			
DPSC-G108	5	2/23/2010	13:30	17		Brown GRAVEL with brown silt - wood in jaws, collected as possible					
DPSC-G108	6	2/23/2010	13:35	19.2		Red tile, cobble - reject	Tile to 10 cm	None			
DPSC-G108	7	2/23/2010	13:44	20	8	Brown gravelly SILT; gravels help open sampler, washed recovery	Brick fragment	None	None	Brown	
DPSC-G109	1	2/24/2010	13:06	18.7	2	Reject					
DPSC-G109	2	2/24/2010	13:08	19		Reject					
DPSC-G109	3	2/24/2010	13:10	19	12	brown silty, sandy GRAVEL (70%) with some fine SAND (30%), gravels are well-rounded, occasional concrete pieces	corbicula x3	None	None	Brown	
DPSC-G110	1	2/24/2010	13:45	57.0	22+, over-penetration	Brown silty SAND with clay clasts 2-5 cm, soft brown flocculent at surface. During homogenizing, sheen blebs appeared (2-4 mm diameter)		None	2-4 mm blebs, iridescent,	Brown	
DPSC-G111	1	2/24/2010	14:16	39.8		Gravels, rounded - reject, 2-4 cm rounded gravel		None	None		

Station	Rep	Date	Time	Tape Water Depth (ft)	Penetration (cm)	Description	Debris	Odor	Sheen	Color	Comments
DPSC-G111	2	2/24/2010	14:18	41.2		Gravels, rounded - reject, 2-4 cm rounded gravel					
DPSC-G111	3	2/24/2010	14:20	41.2		Gravel, cobble - reject					
DPSC-G111	4	2/24/2010	14:23	39.8		Gravel, cobble - reject					
DPSC-G111	5	2/24/2010	14:28	39.5		Cobble - jaws open, reject					Searched approx. 20 ft radius, using lead line to search for breaks in river cobble. Combination of current and difficult-to-penetrate substrate.
DPSC-G112	1	2/23/2010	14:25	20.0	21	Brown SILT/flocculent 0-2 mm, brown silty SAND, becomes grey silty fine SAND with rounded gravel to 21 cm	wood, organics	Organic	<2 mm bleb, organic	Brown	
RM15.1E											
DPSC-G113	1	2/25/2010	8:53	14		Wood, organics - reject	organic	NA	NA		
DPSC-G113	2	2/25/2010	9:01	14		wood, organic debris - reject	organic	NA	NA		
DPSC-G113	3	2/25/2010	9:03	14	8 - variable	Wood, plant matter - washed sample, jaws help open. Reject	organic	NA	NA		
DPSC-G113	4	2/25/2010	9:05	14		~5cm clay clast - reject		None	None		
DPSC-G113	5	2/25/2010	9:08	13.5	2	Insufficient penetration - reject		None	None		
DPSC-G113	6	2/25/2010	9:10	13.5		Log in jaws - reject	Wood	NA			
DPSC-G113	7	2/25/2010	9:15	13	8	Rock in jaws - no sample	Rock	None	None		
DPSC-G113	8	2/25/2010	9:18	12	11	Brown silty fine SAND - material slightly washed, half surface intact becomes GREY @ 0.5 cm to 11 cm	fish in sampler	None	None	Brown, grey	

Station	Rep	Date	Time	Tape Water Depth (ft)	Penetration (cm)	Description	Debris	Odor	Sheen	Color	Comments
DPSC-G113	9	2/25/2010	9:37	12	10	Brown clayey fine sandy SILT - rip up clasts of clay noted near bottom of sampler (3-5 cm). Brown to 1 cm; grey 1 cm-12 cm	None	None	None		
DPSC-G114	1	2/25/2010	10:18	20.8		Reject	Plastic	NA	NA		
DPSC-G114	2	2/25/2010	10:20	20.8	6	Rounded gravel 1-3 cm, <10% fines - reject		NA	NA		
DPSC-G114	3	2/25/2010	10:23	20.3		Water in sample - reject		NA	NA		
DPSC-G114	4	2/25/2010	10:29	20	3	Grey-brown clayey fine sandy SILT with wood/stick holding sampler open		None	NA	Olive grey	
DPSC-G114	5	2/25/2010	10:40	19.3	13	Reddish brown gravelly medium SAND Brown from 0-3 cm, reddish-brown from 3-13 cm Well-rounded gravel <20%	glass <1%, car reflect	Organic, slight H2S odor	None	Red-Brown; grey	composited with R4
DPSC-G115	1	2/25/2010	11:12	18.2		Some gravel, grab did not close - reject					
DPSC-G115	2	2/25/2010	11:14	19		4 cm cobble, wood - grab did not close					
DPSC-G115	3	2/25/2010	11:15	20	4	2-4 cm gravel, well rounded - reject					
DPSC-G115	4	2/25/2010	11:17	20		Cobble - reject	Cobble				
DPSC-G115	5	2/25/2010	11:18	20		Cobble - reject	Cobble				
DPSC-G115	6	2/25/2010	11:20	19.9	7	Sandy GRAVEL - brown with red, quartzite, other well-rounded to sub-round 2-4 cm gravel		None	None	Brown	
DPSC-G115	7	2/25/2010	11:39	20	5	Sandy GRAVEL with trace silt - well-rounded to sub-rounded red/quartzite 2-4 cm	Corbicula, glass	None	None	Brown	composited with R6
DPSC-G115	8	2/25/2010	11:44	20		Gravel, plastic bag - reject	Plastic				

Station	Rep	Date	Time	Tape Water Depth (ft)	Penetration (cm)	Description	Debris	Odor	Sheen	Color	Comments
DPSC-G115	9	2/25/2010	11:47	20		Gravel, cobble - reject	cobble				
DPSC-G115	10	2/25/2010	11:50	21		Gravel, cobble, plastic bag - reject	plastic				
DPSC-G116	1	2/25/2010	12:08	5		Brown flocculent layer 0-2 mm, fine sandy SILT becoming medium sand, brown-grey at approx 10 cm to bottom. Gravel, well-rounded <1%	None	None	None	Brown grades to grey brown	
TriMet Supplemental Sampling											
DPSC-G098	1	2/26/2010	13:46	45		Jaws closed - no sample (probably cobble/rock)					
DPSC-G098	2	2/26/2010	13:48	44.8	21	0-1cm: brown fine sandy SILT grades to silty medium SAND, grey with spherical oxidized regions 205 diameter 10-21cm: becomes SANDY, grey medium SAND to 21	bark/sticks, leaves	Organic odor	None	brown to grey	
DPSC-G099	1	2/26/2010	10:46	44.5	5	Gravel, cobble - reject	cobble				Lead line at hard angle; high current, hard substrate
DPSC-G099	2	2/26/2010	10:55	45	5-6.	Gravel - <10% fines, reject	gravel				
DPSC-G099	3	2/26/2010	10:59	45		Jaws did not close - reject					
DPSC-G099	4	2/26/2010	11:02	45	9	Well-rounded GRAVEL with olive grey silty SAND; partly washed					
DPSC-G099	5	2/26/2010	11:10	45	5	Rounded to sub-rounded GRAVEL (65%) with iron oxide staining. Brown silty fine SAND (35%).					Composited with R4
DPSC-G100	1	3/25/2010	9:00	34	22+	Light brown silt 2 mm thick, olive grey fine sandy SILT, very soft to depth; organic matter (leaf, twigs to 1/4" diameter, grass)	organic	None	Organic blebs <2 mm (bluish)	light brown, olive grey	
DPSC-G101	1	2/26/2010	10:16	36	14	Surface intact - accept. 0-1cm: light brown/brown silt, flocculent; soft brown SILT 1-10cm: grey silty medium SAND				brown to grey	
DPSC-G102	1	2/26/2010	14:46		20	0-1cm: brown fine sandy SILT with flocculent and organic debris 1-20cm: olive grey fine sandy SILT with 2-10 cm	organic: grass, etc	None	ribbony, iridescent, 1-4 mm blebs	olive grey to grey	
DPSC-G102-2		2/26/2010	9:30	34.5	22+ (approx 24)	0-1cm: very soft brown SILT, flocculent; organic content 1-15cm: fine sandy SILT, olive grey clay rip-up clasts 1-3 cm diameter, leaf, twig, other organics <5%. 2-4 mm		light petroleum-like odor	moderate iridescent sheen	Brown to olive grey	Labeled as DPSC-G100 on field notes; subsequently corrected to DPSC-C102-2