



RECYCLED IN ORSETT LTD
DANSAND QUARRY
STANFORD ROAD
ORSETT
ESSEX
RM16 3BB

DETS Ltd
Unit 1
Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Kent
ME17 2JN

DETS Report No: 25-76000

Site Reference: Recycled in Orsett

Project / Job Ref: 456602

Order No: RIO ECO SOIL & RIO PREMIUM SOIL BS3882 COMPLIANCE

Sample Receipt Date: 18/03/2025

Sample Scheduled Date: 20/03/2025

Report Issue Number: 1

Reporting Date: 21/03/2025

Authorised by:

Kevin Old
Associate Director of Laboratory

Authorised by:

Russell Jarvis
Associate Director of Client Services

BS3882 Topsoil Suite				RIO ECO SOIL			
DETS Report No: 25-76000		Date Sampled	18/03/2025	Compliance with Range			
RIO Soils Ltd		Time Sampled	None Supplied	Multipurpose	Acidic	Low Fertility	Calcareous
Site Reference: RIO ECO SOIL		TP / BH No	58152				
Project / Job Ref: 456602		Additional Refs	Dansand Quarry				
Order No: ECO		Depth (m)	None Supplied				
Reporting Date: 21/03/2025		QTSE Sample No	335737				
Determinand	Reporting Unit	RL					
Soil Texture							
Clay Content ^(S)	%	N/a	9.7	5 - 35			
Silt Content ^(S)	%	N/a	29.4	0 - 65			
Sand Content ^(S)	%	N/a	60.9	30 - 85			
Textural Class ^(S)	N/a	N/a	Sandy Loam	-			
Loss on Ignition	%	< 0.01	6.50	Clay Content 5 - 20%			
				3 - 20	3 - 30	2 - 20	3 - 20
				Clay Content 20 - 35%			
				5 - 20	5 - 30	2 - 20	5 - 20
Coarse Fragment Content							
>2mm ^(S)	%	N/a	22.9	0 - 30	0 - 30	0 - 30	0 - 30
>20mm ^(S)	%	N/a	0.0	0 - 10	0 - 10	0 - 10	0 - 10
>50mm ^(S)	%	N/a	0.0	0	0	0	0
pH ^{MU}	pH Units	N/a	7.6	5.5 - 8.5	3.5 - 5.5	3.5 - 9.0	7.5 - 9.0
Carbonate	%	< 0.1	2.4				> 1
Available Plant Nutrients							
Total Nitrogen ^(S)	%	< 0.01	0.21	≥ 0.15	≥ 0.15		≥ 0.15
Phosphorus (Extractable) ^(S)	mg/l	< 3	50	16 - 140	16 - 140	≤ 15	16 - 140
Potassium (Extractable) ^(S)	mg/l	< 20	382	121 - 1500	121 - 1500		121 - 1500
Magnesium (Extractable) ^(S)	mg/l	< 1	133	51 - 600	51 - 600		51 - 600
Carbon / Nitrogen Ratio ^(S)	:1	< 0.1	16.4	< 20 : 1	< 20 : 1	< 20 : 1	< 20 : 1
Exchangeable Sodium ^(S)	%	< 0.1	3.2				
Phytotoxic Elements (by soil pH)				Multipurpose & Specific Purpose Topsoils at pH range			
				< 6.0	6.0 - 7.0		> 7.0
Zinc ^{MU}	mg/kg	< 3	118	< 200	< 200		< 300
Copper ^{MU}	mg/kg	< 4	27	< 100	< 135		< 200
Nickel ^{MU}	mg/kg	< 3	12	< 60	< 75		< 110
Visible Contaminants (Air Dried Soil)							
>2mm	%	N/a	0.0	< 0.5			
Plastics	%	N/a	0.00	< 0.25			
Sharps	%	N/a	0.0	0			
Additional Analytes							
Available Sodium ^(S)	mg/l	< 1	107				
Available Calcium ^(S)	mg/l	< 1	2370				
Electrical Conductivity	uS/cm	< 5	2321	3300			
OVERALL COMPLIANCY				Y	N	N	Y
Results are expressed on a dry weight basis, after correction for moisture content where applicable							
Stated limits are for guidance only and QTS Environmental cannot be held responsible for any discrepancies with current legislation							
M Denotes MCERTS accredited test							
U Denotes ISO17025 accredited test							

BS3882 Topsoil Suite				RIO PREMIUM SOIL			
DETS Report No: 25-76000		Date Sampled	18/03/2025	Compliance with Range			
RIO Soils Ltd		Time Sampled	None Supplied	Multipurpose	Acidic	Low Fertility	Calcareous
Site Reference: Recycled in Orsett		TP / BH No	58154				
Project / Job Ref: 456602		Additional Refs	Dansand Quarry				
Order No: PREMIUM SOIL		Depth (m)	None Supplied				
Reporting Date: 21/03/2025		QTSE Sample No	335738				
Determinand	Reporting Unit	RL					
Soil Texture							
Clay Content ^(S)	%	N/a	6.4	5 - 35			
Silt Content ^(S)	%	N/a	32.8	0 - 65			
Sand Content ^(S)	%	N/a	60.8	30 - 85			
Textural Class ^(S)	N/a	N/a	Sandy Loam	-			
Loss on Ignition	%	< 0.01	4.40	Clay Content 5 - 20%			
				3 - 20	3 - 30	2 - 20	3 - 20
				Clay Content 20 - 35%			
				5 - 20	5 - 30	2 - 20	5 - 20
Coarse Fragment Content							
>2mm ^(S)	%	N/a	6.8	0 - 30	0 - 30	0 - 30	0 - 30
>20mm ^(S)	%	N/a	0.0	0 - 10	0 - 10	0 - 10	0 - 10
>50mm ^(S)	%	N/a	0.0	0	0	0	0
pH ^{MU}	pH Units	N/a	7.7	5.5 - 8.5	3.5 - 5.5	3.5 - 9.0	7.5 - 9.0
Carbonate	%	< 0.1	2.8				> 1
Available Plant Nutrients							
Total Nitrogen ^(S)	%	< 0.01	0.18	≥ 0.15	≥ 0.15		≥ 0.15
Phosphorus (Extractable) ^(S)	mg/l	< 3	55	16 - 140	16 - 140	≤ 15	16 - 140
Potassium (Extractable) ^(S)	mg/l	< 20	181	121 - 1500	121 - 1500		121 - 1500
Magnesium (Extractable) ^(S)	mg/l	< 1	103	51 - 600	51 - 600		51 - 600
Carbon / Nitrogen Ratio ^(S)	:1	< 0.1	17.4	< 20 : 1	< 20 : 1	< 20 : 1	< 20 : 1
Exchangeable Sodium ^(S)	%	< 0.1	1.2				
Phytotoxic Elements (by soil pH)				Multipurpose & Specific Purpose Topsoils at pH range			
				< 6.0	6.0 - 7.0		> 7.0
Zinc ^{MU}	mg/kg	< 3	112	< 200	< 200		< 300
Copper ^{MU}	mg/kg	< 4	43	< 100	< 135		< 200
Nickel ^{MU}	mg/kg	< 3	15	< 60	< 75		< 110
Visible Contaminants (Air Dried Soil)							
>2mm	%	N/a	0.0	< 0.5			
Plastics	%	N/a	0.00	< 0.25			
Sharps	%	N/a	0.0	0			
Additional Analytes							
Available Sodium ^(S)	mg/l	< 1	32				
Available Calcium ^(S)	mg/l	< 1	2110				
Electrical Conductivity	uS/cm	< 5	1790	3300			
OVERALL COMPLIANCY				Y	N	N	Y
Results are expressed on a dry weight basis, after correction for moisture content where applicable							
Stated limits are for guidance only and QTS Environmental cannot be held responsible for any discrepancies with current legislation							
M Denotes MCERTS accredited test							
U Denotes ISO17025 accredited test							



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Soil Analysis Certificate - Sample Descriptions	
DETS Report No: 25-76000	
RIO Soils Ltd	
Site Reference: Recycled in Orsett	
Project / Job Ref: 456602	
Order No: ECO	
Reporting Date: 21/03/2025	

QTSE Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
335737	58152 ECO	Dansand Quarry	None Supplied	12.5	Brown sandy loam soil
335738	58154 PREMIUM	Dansand Quarry	None Supplied	8.8	Brown sandy loam soil

Moisture content is part of procedure E003

Soil Analysis Certificate - Methodology & Miscellaneous Information	
DETS Report No: 25-76000	
RIO Soils Ltd	
Site Reference: Recycled in Orsett	
Project / Job Ref: 456602	
Order No: ECO & PREMIUM TESTING 2025	
Reporting Date: 21/03/2025	

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphénylcarbazine followed by colorimetry	E016
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR	EPH (C10 - C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR	Sulphide	Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

D Dried
AR As Received