



Why Extract A Core Sample



We All Expect



Carriageways, Footways, Footpaths and Cycle Tracks when constructed are designed to last for a minimum of between 15 to 20 years.

These works traditionally involve overlaying or inlaying large areas of carriageways or if necessary deeper reconstruction where significant structural failures are evident.

This is carried out at an expense from the public purse, thus we all pay and ultimately expect a good standard of surface to drive, walk, run or cycle on.



We All Expect

Water to run through our pipes



Gas to heat our homes



Electric to light our houses



Communication Devices





What Do We See on Some Occasions



We all get very annoyed when we have to pay for repairs to our vehicles, push bikes etc and how would you feel if a member of your family tripped at one of these sites, let alone the costs and time associated with dealing with insurance claims





Why Has This Happened

- Lack of Investment in Carriageways/Footways/Footpaths/Cycle Tracks etc, mainly because of lack of money, as we keep hearing it will take years to bring them back to a good standard.
- Incorrect depths of reinstatements, do teams know the category of roads they are working on?
- Materials not being kept to the correct temperature before laying, weather conditions affect the temperature before laying, therefore hot boxes are critical to achieving the correct laying temperature, are temperature tests taken and recorded before laying?
- Calibration of compaction machinery, how old are these machines and when were they last tested?
- Are the correct compaction machines being used (Weight/Type)?
- Is the sub-base to the correct standard, if this is not compacted correctly how can you expect to compact bituminous materials correctly (you can't roll pastry on a sponge)?
- Are the correct skills being utilised by your workers or are mistakes being made (we are all human)?



Why Has This Happened

A footway that has been slurry sealed, within 12 months the utility trench below starts to break down, however the authority have now taken ownership of the footway – therefore how do you know how good the trenches are before they are covered up?





Why Has This Happened



One side of the road is failing badly due to utility works, the other side is perfect, the works were undertaken in 2008 and therefore out of guarantee, the term contractor estimated a cost of over £60,000 to remedy this, therefore 28 core samples were undertaken and 27 failed to meet the specification, all on depth and mostly considerably less than 285mm, the utility company in question has now agreed to undertake all remedial works.



Insufficient Depth



Layer Course	Material and aggregate type	Structural Thickness (mm)				Overall Thickness (mm)			Air voids (%)			Remarks	
		Found				Min	Pass/Fail	Found	Min	Pass/Fail	Found		Min - Max
Surface Course	AC 10 Close Surface Course	61				35	PASS	126	285	FAIL			
		60	60	63	60								
Binder Course	AC Binder Course	65				235	FAIL						
		63	66	62	67								
Road Base Identified: Stone		Site Length	0.96 m	Site Width	0.76 m	Site Dimensions		0.7296 m ²	OVERALL RESULT			FAILED	



A Type 2 road, that is 4 year old when the patch was showing signs of deterioration, frighteningly to date it is very rare that the correct depths are met on category 2 roads that we have tested.



Incorrect Material



A 6mm binder course used within a carriageway, however a 10mm surface course used



Excessive Air Void



Layer Course	Material and aggregate type	Structural Thickness (mm)				Overall Thickness (mm)			Air voids (%)			Remarks		
		Found				Min	Pass/Fail	Found	Min	Pass/Fail	Found		Min - Max	Pass/Fail
Surface Course	AC 10 Close Surface Course	43				35	PASS	101	100	PASS	19.2	2 - 10	FAIL	Failed by 8.7% S/C after tolerance has been applied - B/C passed.
		48	35	45	43									
Binder Course	AC Binder Course	58				50	PASS			PASS	9.8	2 - 10	PASS	
		55	64	51	62									
Road Base Identified: Recycled		Site Length 3.16 m		Site Width 0.5 m		Site Dimensions 1.58 m ²		OVERALL RESULT			FAILED			



Was the material cold, incorrectly compacted or was there not enough fines within the mix?



Statistics Since We Started

■ Pass ■ Fail

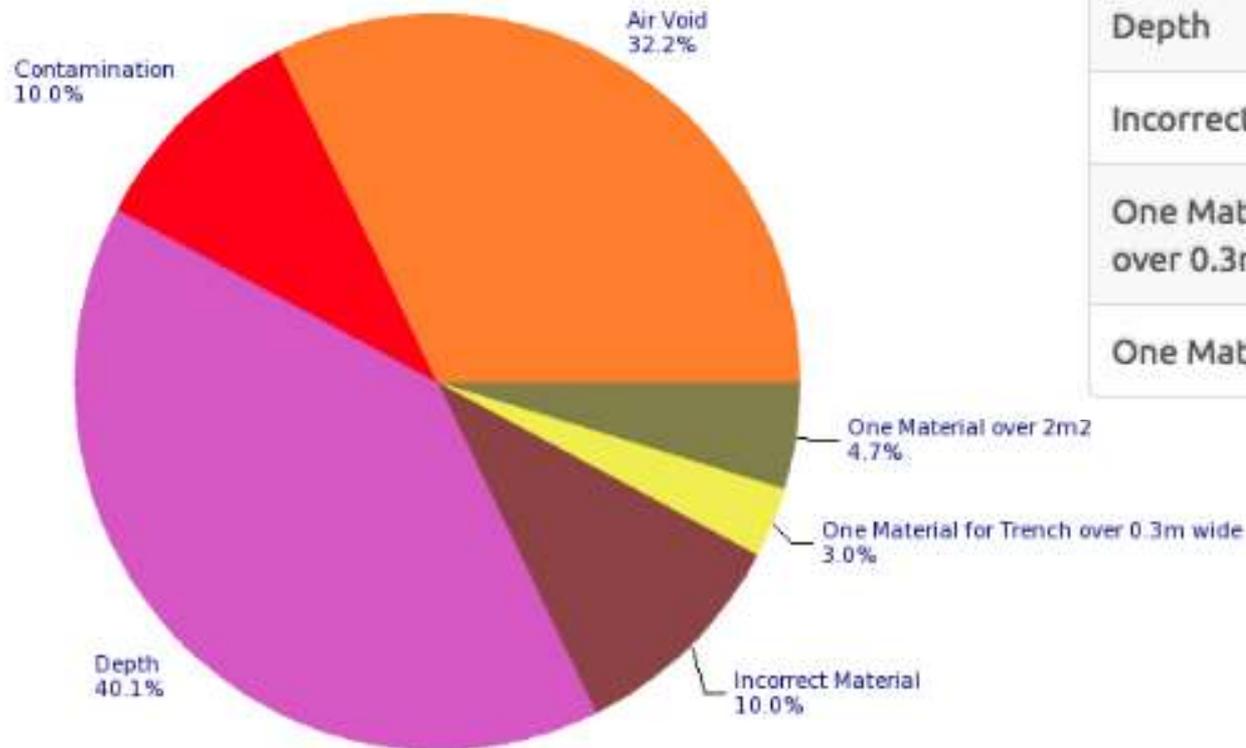
We keep being told that it is impossible to achieve the air void ratios, however 19.1% of the samples we have tested have passed and we are starting to see improvement from some utility companies where we extract these samples.



Statistics Since We Started

Reason	Count
Air Void	956
Contamination	297
Depth	1188
Incorrect Material	296
One Material for Trench over 0.3m wide	89
One Material over 2m2	140

- Air Void
- Contamination
- Depth
- Incorrect Material
- One Material for Trench over 0.3m wide
- One Material over 2m2





Why Extract A Core Samples

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Key to a Good Coring Regime

- ✓ Be Independent.
- ✓ Give plenty of notice before extracting samples on site.
- ✓ Be Open – Invite all parties to be present when the samples are extracted on site and tested at the laboratory.
- ✓ Turn around the results within 2 weeks from extracting.
- ✓ Supply easy to use and understandable test certificates.

"Communication is the Key to Success"



Thank You

For more information please contact :-

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