



Cut & Fill Volumes			
GROSS		NETT	
CUT (m³)	FILL (m³)	CUT (m³)	FILL (m³)
3112	42803	-	39691

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NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING IS INDICATIVE ONLY AND FOR DISCUSSION. IT SHOULD NOT BE RELIED UPON FOR CONSTRUCTION OR COSTING PURPOSES.
2. PROPOSED SITE BOUNDARY HAS BEEN ADJUSTED TO SUIT THE EXTENT OF ADJACENT HIGHWAY WORKS. TO BE REVIEWED AND CONFIRMED BY THE ARCHITECT.
3. PROPOSED LEVELS ARE INDICATIVE ONLY AND SUBJECT TO DETAILED DESIGN AND CO-ORDINATION.
4. LEVELS AT INTERFACE WITH EXISTING HIGHWAY SURROUNDING THE SITE TO BE CONFIRMED THROUGH FURTHER TOPOGRAPHIC SURVEY WORK.
5. VOLUMES ARE BASED ON A COMPARISON BETWEEN PROPOSED BUILDING FFL, AS ADVISED BY BDP, AND EXISTING TOPO SURVEY.
6. VOLUMES DO NOT ALLOW FOR ANY ARISING SUCH AS FLOOR SLABS, FOUNDATION, DRAINAGE, SERVICE TRENCHES, PAVEMENT BUILD-UPS ETC.
7. VOLUMES SHOWN DO NOT ALLOW FOR ANY BULKING AND ASSUMES ANY CUT MATERIAL IS SUITABLE FOR RE-USE.

KEY:

- CURRENT SITE BOUNDARY
- ADJUSTED SITE BOUNDARY
- MAJOR FILL CONTOUR (0.5m)
- MINOR FILL CONTOUR (0.1m)
- MAJOR CUT CONTOUR (0.5m)
- MINOR CUT CONTOUR (0.1m)

REV.	DATE	DETAILS	DRN.	CHK.
P1	11/06/18	ISSUED FOR DISCUSSION	ARJ	JS

DRAWING STATUS
PRELIMINARY

R&Cp
CONSULTING

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DRAWN ARJ	DATE 07/06/18	SCALES 1:500
CHECKED FWV	DATE 11/06/18	THE ABOVE SCALES APPLY WHEN PLOTTED AT A1 SIZE --DO NOT SCALE--
APPRVD. JS	DATE 11/06/18	EMAIL FOR DRAWINGS info@rocconsulting.com

CLIENT
THG

PROJECT TITLE
THG HIVE

DRAWING TITLE
**PRELIMINARY
CUT FILL ASSESSMENT**

PROJECT No. 3647	DRAWING No. CF03	REV. P1
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APPENDIX B - EXPLORATORY HOLE LOGSHEETS



Percussion Drilling Log

Project Name: THG HIVE, Airport City North		Client: Airport City Partnerships		Date: 05/11/2018	
Location: Manchester Airport		Contractor: Taylor Drilling Services Ltd		Co-ords: E382015.32 N385679.63	
Project No. : 3647		Crew Name: N. Topping		Drilling Equipment: N/A	
Borehole Number BH101	Hole Type CP	Level 72.85m AoD	Logged By LS	Scale 1:25	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		1.20	ES		1.20	72.85		Brown slightly sandy gravelly CLAY. Gravel is fine to coarse angular to subangular of limestone, sandstone, mudstone, brick, concrete and tarmac. (MADE GROUND)	1
									2
									3
									4
									5

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

1) Hand dug inspection pit completed to 1.2mbgl 2) No groundwater encountered 3) Borehole terminated at 1.20mbgl due to possible services located at depths greater than 1.20mbgl 4) Borehole backfilled with arisings and relocated

Percussion Drilling Log

Project Name: THG HIVE, Airport City North		Client: Airport City Partnerships		Date: 05/11/2018	
Location: Manchester Airport		Contractor: Taylor Drilling Services Ltd		Co-ords: E382007.59 N385672.96	
Project No. : 3647		Crew Name: N. Topping+I. Taylor		Drilling Equipment: Dando 150+Beretta T41	
Borehole Number BH101A	Hole Type CP+RC	Level 72.85m AoD	Logged By LS	Scale 1:27	Page Number Sheet 1 of 4

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		3.00 - 3.45 3.00	D SPT	N=10 (2,4/2,3,2,3)	3.00	72.85		Brown slightly sandy very gravelly CLAY. Gravel is fine to coarse subangular to rounded of limestone, sandstone concrete and tarmac. (MADE GROUND)	1
		4.00 - 4.45 4.00	D SPT	N=47 (2,3/10,10,12,15)	4.00	69.85		Firm reddish brown mottled grey slightly silty CLAY. (GLACIAL TILL)	3
		5.00 - 5.26	D					Reddish brown mottled grey slightly silty weathered de-structured MUDSTONE. (BOLLIN MUDSTONE MEMBER)	4
									5

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
		16.37	150	5.00	6.00	01:00					

Remarks
1) Hand dug inspection pit completed to 1.2mbgl 2) No groundwater encountered 3) Borehole installed with 50mm standpipe with a response zone between 0.50 and 4.00mbgl 4) Borehole terminated at 16.37mbgl at request of site engineer

Percussion Drilling Log

Project Name: THG HIVE, Airport City North			Client: Airport City Partnerships			Date: 05/11/2018		
Location: Manchester Airport			Contractor: Taylor Drilling Services Ltd			Co-ords: E382007.59 N385672.96		
Project No. : 3647			Crew Name: N. Topping+I. Taylor			Drilling Equipment: Dando 150+Beretta T41		
Borehole Number BH101A		Hole Type CP+RC		Level 72.85m AoD		Logged By LS		Page Number Sheet 2 of 4

Well	Water Strikes	Sample and In Situ Testing				Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results						
		5.00	SPT	50 (25 for 125mm/50 for 135mm)					Reddish brown mottled grey slightly silty weathered de-structured MUDSTONE. (BOLLIN MUDSTONE MEMBER) <u>... 5.00m becoming grey</u>	6
	6.00 - 6.16 6.00	D SPT	50 (25 for 80mm/50 for 80mm)							
		6.00 - 9.00		83	68	24	6.45	68.85 66.40	<u>... 6.40 - 6.57m de-structured zone recovered as grey medium to coarse gravel and clay</u> Weak to very weak grey banded white and dark grey thinly bedded partially weathered MUDSTONE. Joints dipping 83 - 96°, extremely close to closely spaced. (BOLLIN MUDSTONE MEMBER) <u>... 7.16 - 7.38m multiple clay filled fractures</u>	7
									<u>... 7.61 - 7.79m gravel and silt filled fracture</u> <u>... 7.62 - 7.79m vertical silt filled fracture</u> <u>... 8.01 - 8.03m reddish brown band</u> <u>... 8.31 - 8.33m silt and gravel filled fracture</u> <u>... 8.49 - 8.53m grey band</u> <u>... 8.61 - 8.70m clay and gravel filled fractures</u>	
						9.20	63.65	Weak to very weak reddish brown banded light brown thinly bedded partially weathered MUDSTONE. Joints dipping 90 - 108°, very closely to widely spaced. (BOLLIN MUDSTONE MEMBER) <u>... 9.91 - 9.92m grey band</u>	9	
			Type/FI	TCR	SCR	RQD				10

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
		16.37	150	5.00	6.00	01:00					

Remarks
1) Hand dug inspection pit completed to 1.2mbgl 2) No groundwater encountered 3) Borehole installed with 50mm standpipe with a response zone between 0.50 and 4.00mbgl 4) Borehole terminated at 16.37mbgl at request of site engineer

Rotary Core Log

Project Name: THG HIVE, Airport City North	Client: Airport City Partnerships	Date: 05/11/2018
Location: Manchester Airport	Contractor: Taylor Drilling Services Ltd	Co-ords: E382007.59 N385672.96
Project No. : 3647	Crew Name: N. Topping+I. Taylor	Drilling Equipment: Dando 150+Beretta T41

Borehole Number BH101A	Hole Type CP+RC	Level 72.85m AoD	Logged By LS	Scale 1:27	Page Number Sheet 3 of 4
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Well	Water	Depth (m)	Type /FI	Coring			Diameter Recovery (SP1)	Depth (m)	Level (m)	Legend	Stratum Description	
				TCR	SCR	RQD						
		9.00 - 12.00		94	88	59		11.14	61.71		Weak to very weak reddish brown banded light brown thinly bedded partially weathered MUDSTONE. Joints dipping 90 - 108°, very closely to widely spaced. (BOLLIN MUDSTONE MEMBER)	11
											... 10.52 - 10.85m highly weathered zone recovered as gravelly clay	
											... 10.85m becoming grey banded reddish brown	
											... 10.98 - 11.12m vertical fracture	
											Weak to very weak grey banded bluish grey and white thinly bedded MUDSTONE. Joints dipping 85 - 90°, medium to widely spaced. (BOLLIN MUDSTONE MEMBER)	
		12.00 - 13.50		65	32	9		11.93	60.92		... 11.34 - 12.06m multiple clay, gravel, marl and silt filled fractures	12
											Weak to very weak grey banded white and reddish grey thinly bedded distinctly weathered MUDSTONE. Joints dipping 85 - 90°, very closely spaced. (BOLLIN MUDSTONE MEMBER)	
											... 12.09 - 12.12m de-structured weathered zone recovered as gravel	
											... 12.26 - 12.57m completely weathered mudstone recovered as silty fine to coarse gravel and discs of mudstone and clay.	
											... 12.65 - 12.68m gravel filled fracture	
								12.84	60.01		Grey de-structured MUDSTONE recovered as fine to coarse gravel. (BOLLIN MUDSTONE MEMBER)	13
											... 12.97 - 13.76m assumed zone of core loss	
											Weak to very weak grey banded white and reddish brown partially weathered MUDSTONE. Joints dipping 90 - 111°, very closely to medium spaced. (BOLLIN MUDSTONE MEMBER)	
											... 14.10 - 14.14m fine gravel and silt filled fracture	
								13.76	59.09		... 14.40m becoming reddish brown	14
												15

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)
		16.37	150	5.00	6.00	01:00											

Remarks
 1) Hand dug inspection pit completed to 1.2mbgl 2) No groundwater encountered 3) Borehole installed with 50mm standpipe with a response zone between 0.50 and 4.00mbgl 4) Borehole terminated at 16.37mbgl at request of site engineer

Rotary Core Log

Project Name: THG HIVE, Airport City North				Client: Airport City Partnerships				Date: 05/11/2018			
Location: Manchester Airport				Contractor: Taylor Drilling Services Ltd				Co-ords: E382007.59 N385672.96			
Project No. : 3647				Crew Name: N. Topping+I. Taylor				Drilling Equipment: Dando 150+Beretta T41			
Borehole Number BH101A		Hole Type CP+RC		Level 72.85m AoD		Logged By LS		Scale 1:27		Page Number Sheet 4 of 4	

Well	Water	Depth (m)	Type /FI	Coring			Diameter Recovery (SP1)	Depth (m)	Level (m)	Legend	Stratum Description	
				TCR	SCR	RQD						
		13.50 - 16.50		89	79	47		16.37	56.48		Weak to very weak grey banded white and reddish brown partially weathered MUDSTONE. Joints dipping 90 - 111°, very closely to medium spaced. (BOLLIN MUDSTONE MEMBER) ... 15.10 - 16.28m multiple gravel and clay filled fractures	16
												17
												18
												19
												20

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)
		16.37	150	5.00	6.00	01:00											

Remarks
 1) Hand dug inspection pit completed to 1.2mbgl 2) No groundwater encountered 3) Borehole installed with 50mm standpipe with a response zone between 0.50 and 4.00mbgl 4) Borehole terminated at 16.37mbgl at request of site engineer

Percussion Drilling Log

Project Name: THG HIVE, Airport City North		Client: Airport City Partnerships		Date: 02/11/2018	
Location: Manchester Airport		Contractor: Taylor Drilling Services Ltd		Co-ords: E382125.74 N385680.98	
Project No. : 3647		Crew Name: N. Topping+I. Taylor		Drilling Equipment: Dando 150+Beretta T41	
Borehole Number BH102	Hole Type CP+RC	Level 69.75m AoD	Logged By LS	Scale 1:27	Page Number Sheet 1 of 4

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.15			0.15	69.75		Greyish cream slightly clayey very sandy GRAVEL. Gravel is fine to coarse angular to subangular of sandstone. (MADE GROUND) Brown slightly clayey very gravelly fine to coarse SAND. (MADE GROUND)	
		0.50			0.50	69.60		... 0.40m crushed concrete ... 0.45m yellow sandstone ... 0.50m membrane	
		0.70			0.70	69.25		Grey clayey SILT with pockets of brown slightly gravelly clay. Gravel is fine to medium subangular to subrounded of mudstone. (GLACIAL TILL) Soft to firm grey mottled reddish brown slightly silty slightly gravelly CLAY. Gravel is fine to medium subangular of mudstone and sandstone. (GLACIAL TILL)	1
		1.20 1.20 - 1.65	ES U	Ublow=17					
		2.00 - 2.45 2.00	D SPT	N=9 (2,2/3,2,2,2)					2
		3.00 - 3.45 3.00	D SPT	N=8 (1,2/2,2,2,2)					3
		4.00 - 4.45 4.00	D SPT	N=42 (3,7/7,8,7,20)	4.00	69.05		Reddish brown mottled grey silty de-structured MUDSTONE. (BOLLIN MUDSTONE MEMBER)	4
		5.00 - 5.19	D						5

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
		15.24	150	5.00	6.00	01:00					

Remarks
1) Hand dug inspection pit completed to 1.2mbgl 2) No groundwater encountered 3) Borehole installed with 50mm standpipe with response zone between 0.50 and 4.00mbgl 4) Borehole terminated at 15.24mbgl at request of site engineer

Percussion Drilling Log

Project Name: THG HIVE, Airport City North		Client: Airport City Partnerships		Date: 02/11/2018	
Location: Manchester Airport		Contractor: Taylor Drilling Services Ltd		Co-ords: E382125.74 N385680.98	
Project No. : 3647		Crew Name: N. Topping+I. Taylor		Drilling Equipment: Dando 150+Beretta T41	
Borehole Number BH102	Hole Type CP+RC	Level 69.75m AoD	Logged By LS	Scale 1:27	Page Number Sheet 2 of 4

Well	Water Strikes	Sample and In Situ Testing				Depth (m)	Level (m)	Legend	Stratum Description						
		Depth (m)	Type	Results											
		5.00	SPT	50 (25 for 95mm/50 for 95mm)					Reddish brown mottled grey silty de-structured MUDSTONE. (BOLLIN MUDSTONE MEMBER)	6					
		6.00 - 6.13 6.00	D SPT	50 (25 for 75mm/50 for 80mm)					6.13		63.62	Reddish brown and bluish grey de-structured MUDSTONE recovered as gravel. (BOLLIN MUDSTONE MEMBER)			
									6.35	63.40	Weak to very weak reddish brown and bluish grey partially weathered MUDSTONE. Joints dipping 52 - 140°, closely spaced. (BOLLIN MUDSTONE MEMBER)				
		6.00 - 9.00										... 6.66 - 6.76m highly weathered zone recovered as fine to medium gravel of mudstone and silt.	7		
												... 7.19 - 7.29m de-structured zone recovered as fine to coarse gravel.			
												7.40	62.35	Reddish brown and bluish grey highly / completely weathered MUDSTONE recovered as gravel and silt. (BOLLIN MUDSTONE MEMBER)	
												8.09	61.66	... 7.97 - 8.09m assumed zone of core loss	8
												Extremely weak reddish brown MUDSTONE. Joint dipping 102°, widely spaced. (BOLLIN MUDSTONE MEMBER)			
		8.77	60.98	Reddish brown highly / completely weathered MUDSTONE recovered as marl and gravel. (BOLLIN MUDSTONE MEMBER)	9										
		8.98	60.77	Weak to very weak Reddish brown MUDSTONE. Joints dipping 79 - 112°, widely spaced. (BOLLIN MUDSTONE MEMBER)											
													10		
		Type/Fl	TCR	SCRR	QD										

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
		15.24	150	5.00	6.00	01:00					

Remarks
1) Hand dug inspection pit completed to 1.2mbgl 2) No groundwater encountered 3) Borehole installed with 50mm standpipe with response zone between 0.50 and 4.00mbgl 4) Borehole terminated at 15.24mbgl at request of site engineer

Rotary Core Log

Project Name: THG HIVE, Airport City North				Client: Airport City Partnerships				Date: 02/11/2018			
Location: Manchester Airport				Contractor: Taylor Drilling Services Ltd				Co-ords: E382125.74 N385680.98			
Project No. : 3647				Crew Name: N. Topping+I. Taylor				Drilling Equipment: Dando 150+Beretta T41			
Borehole Number BH102		Hole Type CP+RC		Level 69.75m AoD		Logged By LS		Scale 1:27		Page Number Sheet 3 of 4	

Well	Water	Depth (m)	Type /FI	Coring			Diameter Recovery (SP1)	Depth (m)	Level (m)	Legend	Stratum Description	
				TCR	SCR	RQD						
		9.00 - 12.00		102	98	93					Weak to very weak Reddish brown MUDSTONE. Joints dipping 79 - 112°, widely spaced. (BOLLIN MUDSTONE MEMBER) ... 9.95 - 10.11m highly weathered zone recovered as fine to coarse gravel and silt ... 10.12m becoming mottled grey	11
											... 10.76 - 11.50m frequent gypsum inclusions	
											... 11.95 - 12.47m weathered zone recovered as reddish brown mottled grey friable clay	
											... 12.55 - 13.86m frequent gypsum inclusions	
											... 14.06 - 14.10m gypsum inclusion	
											... 14.43 - 14.57m grey bluish band	
											... 14.57m becoming mottled bluish grey	
		12.00 - 15.00		101	91	90						12
												13
												14
												15

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)
		15.24	150	5.00	6.00	01:00						6.00	15.00				

Remarks 1) Hand dug inspection pit completed to 1.2mbgl 2) No groundwater encountered 3) Borehole installed with 50mm standpipe with response zone between 0.50 and 4.00mbgl 4) Borehole terminated at 15.24mbgl at request of site engineer																	
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[illegible]

Percussion Drilling Log

Project Name: THG HIVE, Airport City North		Client: Airport City Partnerships		Date: 29/10/2018	
Location: Manchester Airport		Contractor: Taylor Drilling Services Ltd		Co-ords: E382209.20 N385637.69	
Project No. : 3647		Crew Name: N. Topping+I. Taylor		Drilling Equipment: Dando 150+Beretta T41	
Borehole Number BH103	Hole Type CP+RC	Level 69.29m AoD	Logged By LS	Scale 1:27	Page Number Sheet 1 of 4

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.30	ES		0.03	69.29		Grass over brown slightly gravelly CLAY with rootlets and organic matter. Gravel is fine subangular of mixed lithologies. (TOPSOIL) Dark brown sandy slightly gravelly CLAY. Gravel is fine to coarse subangular to rounded of limestone, sandstone, ceramic tile and brick with rare half bricks and cobbles of limestone. (MADE GROUND)	
		1.50 - 1.95 1.50	D SPT	N=10 (2,2/2,3,2,3)	1.00	69.26		Firm reddish brown mottled grey silty CLAY with pockets of silt. (GLACIAL TILL)	1
		2.00 - 2.45	U	Ublow=21					2
		3.00 - 3.45 3.00	D SPT	N=16 (3,4/4,4,4,4)					3
		4.00 - 4.45	U	Ublow=18					4
		5.00 - 5.40	D		4.60	68.29		Reddish brown fine silty SAND. (GLACIAL TILL)	5

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
		15.08	150	5.20	6.00	02:00					

Remarks
 1) Hand dug inspection pit completed to 1.2mbgl 2) No groundwater encountered 3) Borehole installed with 50mm standpipe with response zone between 0.50 and 4.00mbgl 4) Borehole terminated at 15.08mbgl at request of site engineer

Percussion Drilling Log

Project Name: THG HIVE, Airport City North			Client: Airport City Partnerships			Date: 29/10/2018		
Location: Manchester Airport			Contractor: Taylor Drilling Services Ltd			Co-ords: E382209.20 N385637.69		
Project No. : 3647			Crew Name: N. Topping+I. Taylor			Drilling Equipment: Dando 150+Beretta T41		
Borehole Number BH103		Hole Type CP+RC		Level 69.29m AoD		Logged By LS		Page Number Sheet 2 of 4

Well	Water Strikes	Sample and In Situ Testing				Depth (m)	Level (m)	Legend	Stratum Description					
		Depth (m)	Type	Results										
		5.00	SPT	50 (3,5/50 for 255mm)			5.20	64.69		Reddish brown fine silty SAND. (GLACIAL TILL)	6			
										Grey very silty de-structured MUDSTONE. (BOLLIN MUDSTONE MEMBER)				
										... 5.35 - 5.40m quartz band				
		6.00 - 6.35 6.00	D SPT	50 (25 for 95mm/50 for 255mm)			5.50	64.09		Reddish brown silty de-structured MUDSTONE. (BOLLIN MUDSTONE MEMBER)				
		6.00 - 9.00		70	66	66	6.35	63.79 62.94		Reddish and orangish brown and grey de-structured MUDSTONE recovered as fine to coarse gravel. (BOLLIN MUDSTONE MEMBER)	7			
										... 6.35 - 6.75m assumed zone of core loss				
									6.93	62.36			Extremely weak reddish brown MUDSTONE. Joint dipping 80 - 104°, widely spaced. (BOLLIN MUDSTONE MEMBER)	
													... 7.10 - 7.11m gravel filled fracture	
													... 7.87 - 7.90m gravel filled fracture	
										... 8.30m becoming cream and grey banded		8		
										... 9.00 - 9.33m assumed zone of core loss				
									9.22	60.07				Extremely weak reddish brown MUDSTONE. Joints dipping 69 - 140°, very closely to widely spaced. (BOLLIN MUDSTONE MEMBER)
										10				

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
		15.08	150	5.20	6.00	02:00					

Remarks
1) Hand dug inspection pit completed to 1.2mbgl 2) No groundwater encountered 3) Borehole installed with 50mm standpipe with response zone between 0.50 and 4.00mbgl 4) Borehole terminated at 15.08mbgl at request of site engineer

Rotary Core Log

Project Name: THG HIVE, Airport City North				Client: Airport City Partnerships				Date: 29/10/2018			
Location: Manchester Airport				Contractor: Taylor Drilling Services Ltd				Co-ords: E382209.20 N385637.69			
Project No. : 3647				Crew Name: N. Topping+I. Taylor				Drilling Equipment: Dando 150+Beretta T41			
Borehole Number BH103		Hole Type CP+RC		Level 69.29m AoD		Logged By LS		Scale 1:27		Page Number Sheet 3 of 4	

Well	Water	Depth (m)	Type /FI	Coring			Diameter Recovery (SP1)	Depth (m)	Level (m)	Legend	Stratum Description	
				TCR	SCR	RQD						
		9.00 - 12.00		92	89	88					Extremely weak reddish brown MUDSTONE. Joints dipping 69 - 140°, very closely to widely spaced. (BOLLIN MUDSTONE MEMBER) ... 10.04 - 10.08m cream banding	11
											... 10.79 - 10.85m gravel and silt filled fracture	
											... 11.04 - 11.30m banded white and grey	
											... 11.152 - 11.55m grey band	
		12.00 - 15.00		100	92	68					... 12.13m becoming rare banded grey	12
											... 12.32 - 12.34m gravel filled fracture	
											... 12.34 - 12.36m grey band	13
											... grey de-structured zone of gravel and discs of mudstone	
											... 13.53 - 13.58m grey gravel filled fracture	
											... 13.78 - 13.79m gypsum, gravel and clay filled fracture	
											... 13.98 - 14.20m bluish grey and grey banding	
											... 14.49 - 14.67m vertical fracture	14
											... 14.70 - 14.76m grey band	
											... 14.87m becoming cream, grey and bluish grey	
												15

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)
		15.08	150	5.20	6.00	02:00						6.00	15.00				

Remarks

1) Hand dug inspection pit completed to 1.2mbgl 2) No groundwater encountered 3) Borehole installed with 50mm standpipe with response zone between 0.50 and 4.00mbgl 4) Borehole terminated at 15.08mbgl at request of site engineer



[illegible]

Percussion Drilling Log

Project Name: THG HIVE, Airport City North			Client: Airport City Partnerships			Date: 01/11/2018		
Location: Manchester Airport			Contractor: Taylor Drilling Services Ltd			Co-ords: E382215.08 N385760.18		
Project No. : 3647			Crew Name: N. Topping+I. Taylor			Drilling Equipment: Dando 150+Beretta T41		
Borehole Number BH104		Hole Type CP+RC		Level 69.28m AoD		Logged By LS		Page Number Sheet 1 of 5

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.30	ES		0.10	69.28		Grass over brown slightly sandy gravelly CLAY. Gravel is fine to coarse subangular of limestone, sandstone and siltstone. Frequent rootlets and organic matter. (TOPSOIL)	
					0.50	69.18		Brown very gravelly slightly sandy CLAY. Gravel is fine to coarse angular to subangular of limestone, sandstone, brick, asphalt and coal. (MADE GROUND)	
		1.20 - 1.65 1.20	D SPT	N=9 (1,2/2,3,2,2)				Light brown mottled grey slightly sandy reworked CLAY. (MADE GROUND)	1
		2.00 - 2.45 2.00	D SPT	N=8 (1,2/2,2,2,2)	1.70	68.78		Greyish black slightly sandy slightly silty ashy CLAY. Rare fine gravels of brick. Slight hydrocarbon odour. (MADE GROUND)	2
		2.50	ES		2.40	67.58		Dark greyish brown slightly silty very sandy CLAY. Strong hydrocarbon odour. (MADE GROUND)	
		3.00 - 3.45 3.00	D SPT	N=42 (3,7/7,7,10,18)	2.80	66.88		Reddish brown mottled grey de-structured MUDSTONE. (BOLLIN MUDSTONE MEMBER)	3
		4.00 - 4.44 4.00	D SPT	N=50 (8,12/50 for 295mm)					4
		5.00 - 5.38	D						5

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
		22.50	150	6.00	7.50	02:00					

Remarks
1) Hand dug inspection pit completed to 1.2mbgl 2) No groundwater encountered 3) Borehole installed with 50mm standpipe with response zone between 0.80 and 2.80mbgl 4) Borehole terminated at 22.50mbgl at request of site engineer

Percussion Drilling Log

Project Name: THG HIVE, Airport City North		Client: Airport City Partnerships		Date: 01/11/2018	
Location: Manchester Airport		Contractor: Taylor Drilling Services Ltd		Co-ords: E382215.08 N385760.18	
Project No. : 3647		Crew Name: N. Topping+I. Taylor		Drilling Equipment: Dando 150+Beretta T41	
Borehole Number BH104	Hole Type CP+RC	Level 69.28m AoD	Logged By LS	Scale 1:27	Page Number Sheet 2 of 5

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		5.00	SPT	N=50 (10,14/50 for 235mm)				Reddish brown mottled grey de-structured MUDSTONE. (BOLLIN MUDSTONE MEMBER)	6
		6.00 - 6.38 6.00	D SPT	N=50 (8,10/50 for 235mm)					
		7.50 - 7.73 7.50	D SPT	50 (3,18/50 for 80mm)				Weak to very weak reddish brown highly / completely weathered MUDSTONE recovered as marl. (BOLLIN MUDSTONE MEMBER) ... 7.50 - 8.40m assumed zone of core loss	
		7.50 - 10.50		73 71 52				Weak to very weak reddish brown banded cream thinly to medium bedded distinctly weathered MUDSTONE. Joints dipping 74 - 148°, very closely to closely spaced. (BOLLIN MUDSTONE MEMBER)	
			Type/Fl	TCR SCRRQD					10

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
		22.50	150	6.00	7.50	02:00					

Remarks
 1) Hand dug inspection pit completed to 1.2mbgl 2) No groundwater encountered 3) Borehole installed with 50mm standpipe with response zone between 0.80 and 2.80mbgl 4) Borehole terminated at 22.50mbgl at request of site engineer

Rotary Core Log

Project Name: THG HIVE, Airport City North				Client: Airport City Partnerships				Date: 01/11/2018			
Location: Manchester Airport				Contractor: Taylor Drilling Services Ltd				Co-ords: E382215.08 N385760.18			
Project No. : 3647				Crew Name: N. Topping+I. Taylor				Drilling Equipment: Dando 150+Beretta T41			
Borehole Number BH104		Hole Type CP+RC		Level 69.28m AoD		Logged By LS		Scale 1:27		Page Number Sheet 3 of 5	

Well	Water	Depth (m)	Type /FI	Coring			Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description	
				TCR	SCR	RQD						
								10.58	58.70		Weak to very weak reddish brown banded cream thinly to medium bedded distinctly weathered MUDSTONE. Joints dipping 74 - 148°, very closely to closely spaced. (BOLLIN MUDSTONE MEMBER) ... 10.20 - 10.22m gravel filled fracture	11
											Weak to very weak reddish brown banded grey distinctly weathered MUDSTONE. Joints dipping 40 - 154°, closely to medium spaced. (BOLLIN MUDSTONE MEMBER) ... 10.58 - 11.31m assumed zone of core loss	

Rotary Core Log

Project Name: THG HIVE, Airport City North				Client: Airport City Partnerships				Date: 01/11/2018									
Location: Manchester Airport				Contractor: Taylor Drilling Services Ltd				Co-ords: E382215.08 N385760.18									
Project No. : 3647				Crew Name: N. Topping+I. Taylor				Drilling Equipment: Dando 150+Beretta T41									
Borehole Number BH104		Hole Type CP+RC		Level 69.28m AoD		Logged By LS		Scale 1:27		Page Number Sheet 4 of 5							
Well	Water	Depth (m)	Type /FI	Coring			Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description						
				TCR	SCR	RQD											
		13.50 - 16.50			97	92	73				Weak to very weak Reddish brown banded light brown partially weathered MUDSTONE. Joints dipping 68 - 108°, closely spaced. (BOLLIN MUDSTONE MEMBER)						
											... 15.97 - 16.00m medium to coarse gravel filled fracture	16					
											... 16.25 - 16.29m fine silty sand and gravel filled fracture						
											... 16.55 - 16.87m assumed zone of core loss						
									16.87	52.41		Weak to very weak reddish brown MUDSTONE. (BOLLIN MUDSTONE MEMBER)	17				
									17.00	52.28		Reddish brown de-structured MUDSTONE recovered as medium to coarse gravel. (BOLLIN MUDSTONE MEMBER)					
									17.17	52.11		Weak to very weak reddish brown distinctly weathered MUDSTONE. Joints dipping 45 - 90°, very closely spaced. (BOLLIN MUDSTONE MEMBER)					
												... 17.20 - 17.28m multiple clay and gravel filled fractures					
				16.50 - 19.50			90	63	31				... 17.99 - 18.07m completely weathered zone recovered as gravelly clay	18			
												... 18.12 - 18.50m vertical fracture					
												Weak to very weak reddish brown banded light brown thinly bedded MUDSTONE. Joints dipping 64 - 180°, closely to medium spaced. (BOLLIN MUDSTONE MEMBER)					
												... 18.39 - 18.41m grey band					
										... 18.51 - 18.67m completely weathered zone recovered as gravelly clay and coarse gravel of mudstone	19						
											... 19.37 - 19.43m completely weathered zone recovered as fine gravelly clay						
											... 19.58 - 19.62m grey band	20					
Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)
		22.50	150	6.00	7.50	02:00						7.50	22.50				
Remarks																	
1) Hand dug inspection pit completed to 1.2mbgl 2) No groundwater encountered 3) Borehole installed with 50mm standpipe with response zone between 0.80 and 2.80mbgl 4) Borehole terminated at 22.50mbgl at request of site engineer																	
																	

Rotary Core Log

Project Name: THG HIVE, Airport City North				Client: Airport City Partnerships				Date: 01/11/2018			
Location: Manchester Airport				Contractor: Taylor Drilling Services Ltd				Co-ords: E382215.08 N385760.18			
Project No. : 3647				Crew Name: N. Topping+I. Taylor				Drilling Equipment: Dando 150+Beretta T41			
Borehole Number BH104		Hole Type CP+RC		Level 69.28m AoD		Logged By LS		Scale 1:27		Page Number Sheet 5 of 5	

Well	Water	Depth (m)	Type /FI	Coring			Diameter Recovery (SP1)	Depth (m)	Level (m)	Legend	Stratum Description	
				TCR	SCR	RQD						
		19.50 - 22.50		95	89	65		20.20	49.08		Weak to very weak reddish brown banded light brown thinly bedded MUDSTONE. Joints dipping 64 - 180°, closely to medium spaced. (BOLLIN MUDSTONE MEMBER)	21
								20.67	48.61		Weak to very weak reddish brown banded grey partially weathered MUDSTONE. Joints dipping 30 - 130° very closely spaced. (BOLLIN MUDSTONE MEMBER)	
											... 20.20 - 20.32m de-structured zone recovered as fine to coarse gravel	
											... 20.42 - 20.48m de-structured zone recovered as fine to coarse gravel.	
											Weak to very weak reddish brown MUDSTONE. Joints dipping 34 - 105°, very closely to medium spaced. (BOLLIN MUDSTONE MEMBER)	
											... 20.68 - 21.21m occasional grey banding	
								21.53	47.75			
								21.66	47.62		Reddish brown de-structured MUDSTONE recovered as coarse gravel. (BOLLIN MUDSTONE MEMBER)	
											Extremely weak reddish brown banded light brown and grey MUDSTONE. Joints dipping 76 - 90°, medium spaced. (BOLLIN MUDSTONE MEMBER)	
											... 22.04 - 22.10m de-structured zone recovered as gravel	
											... 22.24 - 22.29m de-structured zone recovered as gravel	22
								22.50	46.78			
												23
												24
												25

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)
		22.50	150	6.00	7.50	02:00						7.50	22.50				

Remarks

1) Hand dug inspection pit completed to 1.2mbgl 2) No groundwater encountered 3) Borehole installed with 50mm standpipe with response zone between 0.80 and 2.80mbgl 4) Borehole terminated at 22.50mbgl at request of site engineer



Percussion Drilling Log

Project Name: THG HIVE, Airport City North		Client: Airport City Partnerships		Date: 30/10/2018	
Location: Manchester Airport		Contractor: Taylor Drilling Services Ltd		Co-ords: E382151.15 N385760.87	
Project No. : 3647		Crew Name: N. Topping+I. Taylor		Drilling Equipment: Dando 150+Beretta T41	
Borehole Number BH105	Hole Type CP+RC	Level 68.74m AoD	Logged By LS	Scale 1:27	Page Number Sheet 1 of 3

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20	ES		0.30	68.74		Dark brown slightly sandy slightly gravelly CLAY with rootlets and organic matter. Gravel is fine subangular to subrounded of coal, brick and concrete with frequent fragments of glass. (REWORKED TOPSOIL)	
					0.50	68.44		Stiff reddish brown mottled brown, grey and dark brown reworked CLAY with pockets of yellowish brown sand and rare rootlets and organic matter. (MADE GROUND)	
								Stiff reddish brown silty CLAY. (TILL, DEVENSIAN - DIAMICTON)	
		1.20 - 1.65 1.20	D SPT	N=9 (1,2/2,2,3,2)					1
		2.00 - 2.42 2.00	D SPT	50 (25 for 125mm/50 for 295mm)	2.00	68.24		Reddish brown silty de-structured MUDSTONE. (BOLLIN MUDSTONE MEMBER)	2
		3.00 - 3.34 3.00	D SPT	50 (25 for 95mm/50 for 245mm)					3
		4.00 - 4.45 4.00	D SPT	N=11 (1,2/3,3,2,3)					4
		5.00 - 5.34	D						5

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
		14.95	150	5.00	6.00	01:30					

Remarks
1) Hand dug inspection pit completed to 1.2mbgl 2) No groundwater encountered 3) Borehole terminated at 14.95mbgl at request of site engineer 4) Borehole backfilled with arisings on completion

Percussion Drilling Log

Project Name: THG HIVE, Airport City North		Client: Airport City Partnerships		Date: 30/10/2018	
Location: Manchester Airport		Contractor: Taylor Drilling Services Ltd		Co-ords: E382151.15 N385760.87	
Project No. : 3647		Crew Name: N. Topping+I. Taylor		Drilling Equipment: Dando 150+Beretta T41	
Borehole Number BH105	Hole Type CP+RC	Level 68.74m AoD	Logged By LS	Scale 1:27	Page Number Sheet 2 of 3

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		5.00	SPT	40 (25 for 105mm/40 for 235mm)				Reddish brown silty de-structured MUDSTONE. (BOLLIN MUDSTONE MEMBER)	
								... 5.45m rare white quartz	
		6.00 - 6.06 6.00	D SPT	50 (25 for 80mm/50 for 30mm)	6.00 6.06	66.74 62.68		Reddish brown completely / highly weathered MUDSTONE recovered as silty gravelly clay. (BOLLIN MUDSTONE MEMBER) Very weak to extremely weak reddish brown partially weathered MUDSTONE. Joints dipping 65 - 123°, closely to medium spaced. (BOLLIN MUDSTONE MEMBER) ... at 6.37m becoming rare banded cream and light grey	6
		6.00 - 9.00		98 94 85					7
								... 8.14 - 8.15m silt filled fracture ... 8.20 - 8.22m marl filled fracture ... 8.36 - 8.40 grey band	8
								... 8.96 - 9.00m de-structured zone recovered as gravel of mudstone	9
								... 9.56 - 9.57m clay filled fracture	
		Type/Fl	TCR	SCRRQD					

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
		14.95	150	5.00	6.00	01:30					

Remarks
1) Hand dug inspection pit completed to 1.2mbgl 2) No groundwater encountered 3) Borehole terminated at 14.95mbgl at request of site engineer 4) Borehole backfilled with arisings on completion

Rotary Core Log

Project Name: THG HIVE, Airport City North				Client: Airport City Partnerships				Date: 30/10/2018			
Location: Manchester Airport				Contractor: Taylor Drilling Services Ltd				Co-ords: E382151.15 N385760.87			
Project No. : 3647				Crew Name: N. Topping+I. Taylor				Drilling Equipment: Dando 150+Beretta T41			
Borehole Number BH105		Hole Type CP+RC		Level 68.74m AoD		Logged By LS		Scale 1:27		Page Number Sheet 3 of 3	

Well	Water	Depth (m)	Type /FI	Coring			Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description	
				TCR	SCR	RQD						
		9.00 - 12.00		96	93	81					Very weak to extremely weak reddish brown partially weathered MUDSTONE. Joints dipping 65 - 123°, closely to medium spaced. (BOLLIN MUDSTONE MEMBER) ... 10.24 - 10.28m gravel and clay filled fracture ... 10.53 - 10.91m vertical fracture ... 10.75 - 10.76m grey band ... 10.85 - 10.87m gravel and silt filled fracture	11
		12.00 - 15.00		96	83	52		12.20	56.54		Reddish brown de-structured MUDSTONE recovered as medium to coarse gravel. (BOLLIN MUDSTONE MEMBER)	12
								12.40	56.34		Extremely weak to very weak reddish brown thinly bedded distinctly weathered MUDSTONE. Joints dipping 87 - 108°, very closely spaced. (BOLLIN MUDSTONE MEMBER) ... 12.79 - 12.81m gravel filled fracture	
											... 12.95 - 13.02m gravel and silt filled fractures	
								13.06	55.68		Weak to very weak reddish brown MUDSTONE. Joints dipping 78 - 90° closely to medium spaced. (BOLLIN MUDSTONE MEMBER)	
											... 13.75 - 13.77m grey band	
								14.22	54.52		... 14.19 - 14.21m gravel and silt filled fracture	
											Weak to very weak reddish brown thinly bedded banded cream and grey partially weathered MUDSTONE. Joints dipping 73 - 86°, very closely spaced. (BOLLIN MUDSTONE MEMBER)	
								14.72	54.02		Reddish brown de-structured MUDSTONE recovered as silty medium to coarse gravel. (BOLLIN MUDSTONE MEMBER)	
								14.95	53.79			

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)
		14.95	150	5.00	6.00	01:30						6.00	15.00				

Remarks
1) Hand dug inspection pit completed to 1.2mbgl 2) No groundwater encountered 3) Borehole terminated at 14.95mbgl at request of site engineer 4) Borehole backfilled with arisings on completion

Percussion Drilling Log

Project Name: THG HIVE, Airport City North		Client: Airport City Partnerships		Date: 31/10/2018	
Location: Manchester Airport		Contractor: Taylor Drilling Services Ltd		Co-ords: E382102.07 N385862.26	
Project No. : 3647		Crew Name: N. Topping+I. Taylor		Drilling Equipment: Dando 150+Beretta T41	
Borehole Number BH106	Hole Type CP+RC	Level 68.43m AoD	Logged By LS	Scale 1:27	Page Number Sheet 1 of 4

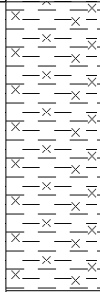
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.50	ES		0.10	68.43		Dark brown slightly sandy CLAY with rootlets and organic matter. (TOPSOIL)	1 2 3 4 5
					0.30	68.33		Reddish brown mottled grey slightly silty reworked CLAY with pockets of silt and rare pockets of yellowish brown fine sand. (MADE GROUND)	
					0.40	68.13		Dark brown sandy CLAY with rootlets. (RELIC TOPSOIL)	
					0.60	68.03		Dark brown slightly sandy slightly gravelly CLAY. Gravel is fine rounded to subrounded of mudstone, siltstone, rare coal, ceramic tile and cobble of sandstone. (MADE GROUND)	
		1.20 - 1.65	U	Ublow=21				Stiff reddish brown slightly silty CLAY. (TILL, DEVENSIAN - DIAMICTON)	
		2.00 - 2.45 2.00	D SPT	N=9 (2,2/2,2,3,2)					
		3.00 - 3.45	U	Ublow=19					
		4.00 - 4.45 4.00	D SPT	N=9 (1,1/2,2,2,3)					
		5.00 - 5.45	D						

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
		15.12	150	5.80	6.00	01:00					

Remarks
1) Hand dug inspection pit completed to 1.2mbgl 2) No groundwater encountered 3) Borehole installed with 50mm standpipe with response zone between 0.50 and 4.00mbgl 4) Borehole terminated at 15.12mbgl at request of site engineer

Percussion Drilling Log

Project Name: THG HIVE, Airport City North		Client: Airport City Partnerships		Date: 31/10/2018	
Location: Manchester Airport		Contractor: Taylor Drilling Services Ltd		Co-ords: E382102.07 N385862.26	
Project No. : 3647		Crew Name: N. Topping+I. Taylor		Drilling Equipment: Dando 150+Beretta T41	
Borehole Number BH106	Hole Type CP+RC	Level 68.43m AoD	Logged By LS	Scale 1:27	Page Number Sheet 2 of 4

Well	Water Strikes	Sample and In Situ Testing				Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results							
		5.00	SPT	N=10 (2,2/3,3,2,2)			6.00	67.83		Stiff reddish brown slightly silty CLAY. (TILL, DEVENSIAN - DIAMICTON)	6
		6.00 - 6.09 6.00	D SPT	50 (25 for 50mm/50 for 40mm)						Stiff reddish brown slightly silty slightly gravelly de-structured MUDSTONE. (BOLLIN MUDSTONE MEMBER)	
		6.00 - 9.00		88	81	64	6.45	62.43 61.98		Weak to very weak reddish brown rare banded cream partially weathered MUDSTONE. Joints dipping 50 - 110°, very closely to closely spaced. (BOLLIN MUDSTONE MEMBER)	7
										... 6.88 - 6.94m de-structured zone recovered as gravel	
		... 7.25m becoming grey banded									
		... 7.45 - 7.59m clay and gravel filled fractures									
		... 7.59 - 7.60m quartz band									
		... 8.10 - 8.14m completely weathered zone of grey friable mudstone									
		... 9.30 - 9.38m medium to coarse gravel filled fracture									
		Weak to very weak reddish brown and grey distinctly weathered MUDSTONE. Joints dipping 11 - 111°, very closely spaced. (BOLLIN MUDSTONE MEMBER)									
	Type/FI	TCR	SCR	RQD					10		

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
		15.12	150	5.80	6.00	01:00					

Remarks
 1) Hand dug inspection pit completed to 1.2mbgl 2) No groundwater encountered 3) Borehole installed with 50mm standpipe with response zone between 0.50 and 4.00mbgl 4) Borehole terminated at 15.12mbgl at request of site engineer

Rotary Core Log

Project Name: THG HIVE, Airport City North			Client: Airport City Partnerships			Date: 31/10/2018		
Location: Manchester Airport			Contractor: Taylor Drilling Services Ltd			Co-ords: E382102.07 N385862.26		
Project No. : 3647			Crew Name: N. Topping+I. Taylor			Drilling Equipment: Dando 150+Beretta T41		
Borehole Number BH106		Hole Type CP+RC		Level 68.43m AoD		Logged By LS		Page Number Sheet 3 of 4

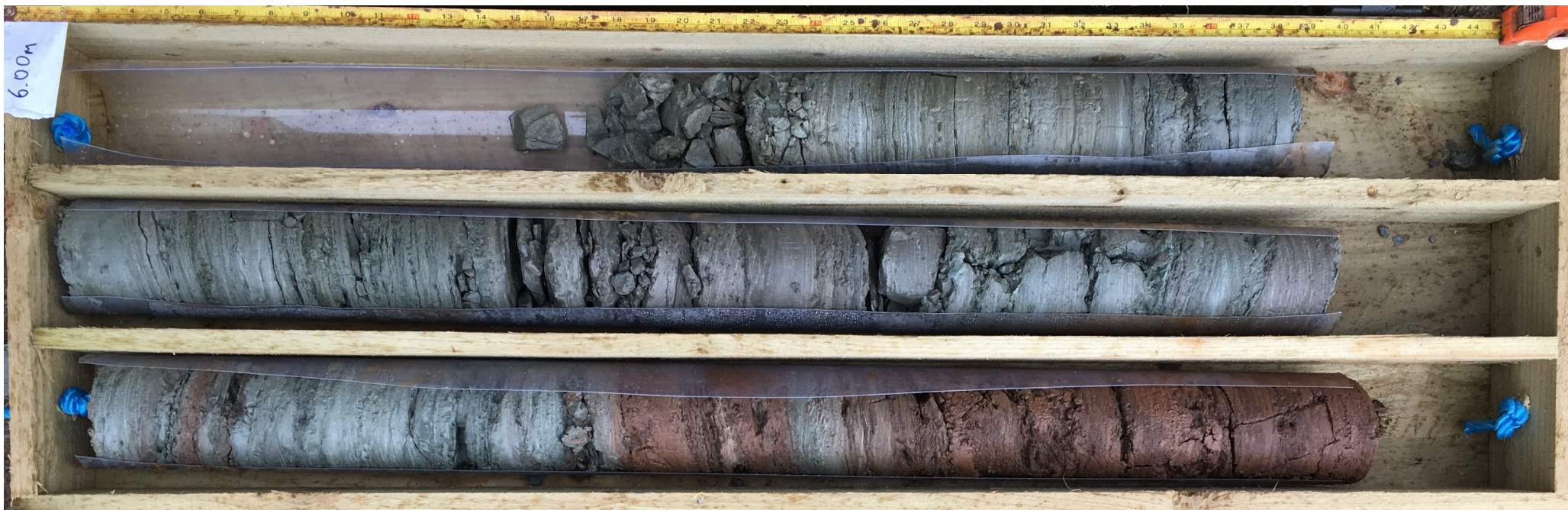
Well	Water	Depth (m)	Type /FI	Coring			Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description	
				TCR	SCR	RQD						
		9.00 - 12.00		100	95	72		11.04	57.39		Weak to very weak reddish brown and grey distinctly weathered MUDSTONE. Joints dipping 11 - 111°, very closely spaced. (BOLLIN MUDSTONE MEMBER) ... 9.62 - 9.78m clay and gravel filled fracture ... 10.34 - 10.51m vertical fracture	11
											... 10.99 - 11.03m grey completely weathered zone recovered as silt and gravel Weak to very weak reddish brown banded white, light grey and bluish grey partially weathered MUDSTONE. Joints dipping 110°, closely spaced. (BOLLIN MUDSTONE MEMBER)	
		12.00 - 15.00		96	88	84		12.16	56.27		... 12.04 - 12.16m de-structured zone recovered as mudstone gravel Weak to very weak reddish brown banded cream, dark reddish brown and light grey MUDSTONE. Joints dipping 50 - 110° widely spaced. (BOLLIN MUDSTONE MEMBER)	12
											... 13.70 - 13.78m de-structured zone recovered as fine to coarse gravel ... 14.15 - 14.30m de-structured zone recovered as medium to coarse gravel	
							14.88	53.55		Weak to very weak reddish brown and grey	15	

Hole Diameter		Casing Diameter		Chiselling			Inclination and Orientation				Drilling Flush						
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)
		15.12	150	5.80	6.00	01:00						6.00	15.00				

Remarks
1) Hand dug inspection pit completed to 1.2mbgl 2) No groundwater encountered 3) Borehole installed with 50mm standpipe with response zone between 0.50 and 4.00mbgl 4) Borehole terminated at 15.12mbgl at request of site engineer



Project Name: THG H!VE, Airport City North				Client: Airport City Partnerships				Date: 31/10/2018				
Location: Manchester Airport				Contractor: Taylor Drilling Services Ltd				Co-ords: E382102.07 N385862.26				
Project No. : 3647				Crew Name: N. Topping+I. Taylor				Drilling Equipment: Dando 150+Beretta T41				
Borehole Number BH106		Hole Type CP+RC		Level 68.43m AoD		Logged By LS		Scale 1:27		Page Number Sheet 4 of 4		
Well	Water	Depth (m)	Type /FI	Coring			Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description	
				TCR	SCR	RQD						
								15.12	53.31		Weak to very weak reddish brown and grey partially weathered MUDSTONE. Joints dipping 70 - 110°, closely spaced. (BOLLIN MUDSTONE MEMBER) ... 14.96 - 15.03m gravel filled fractures	



	JOB NO	3647	SKETCH	BH101	DRAWN BY
	PROJECT TITLE	The Hut Group, Hive	SKETCH TITLE	Rock Core Photos	ES



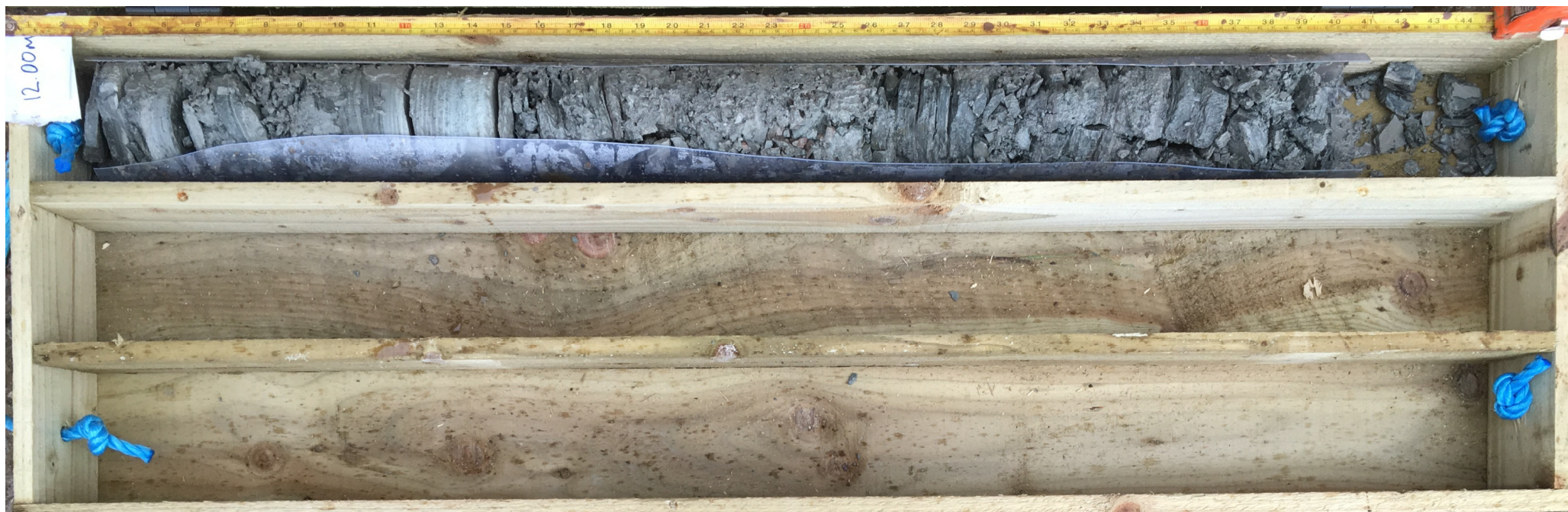
COMPLEX CHALLENGES ... MADE SIMPLE



	JOB NO	3647	SKETCH	BH101	DRAWN BY
	PROJECT TITLE	The Hut Group, Hive	SKETCH TITLE	Rock Core Photos	ES



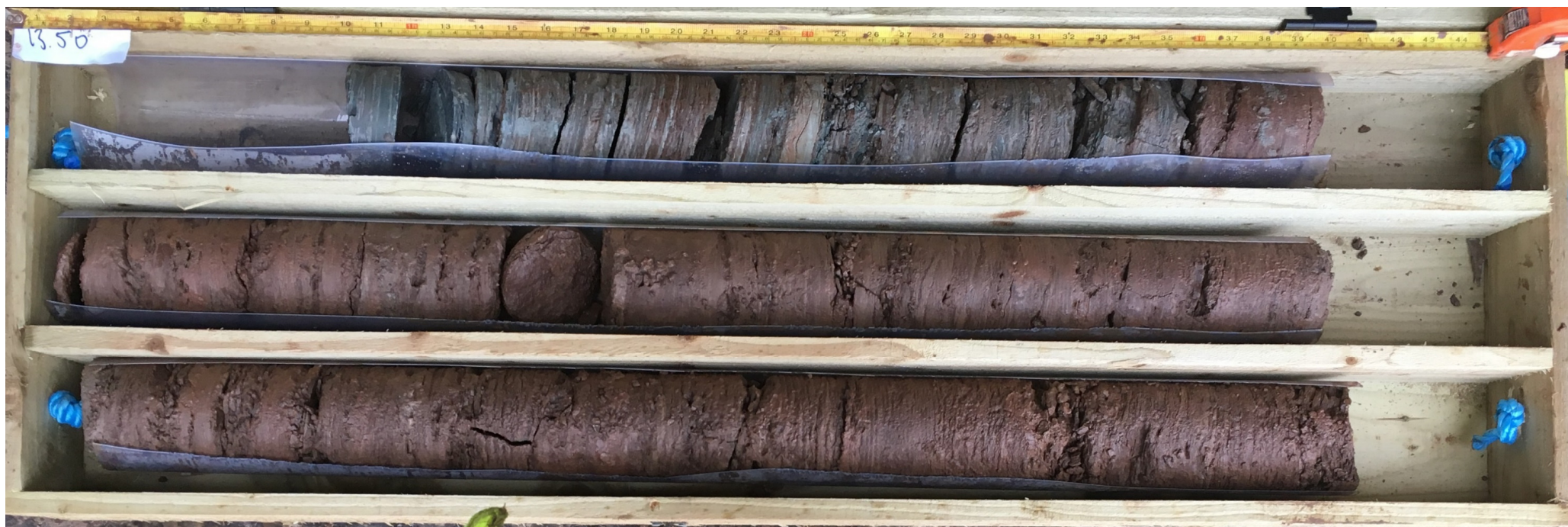
COMPLEX CHALLENGES ... MADE SIMPLE



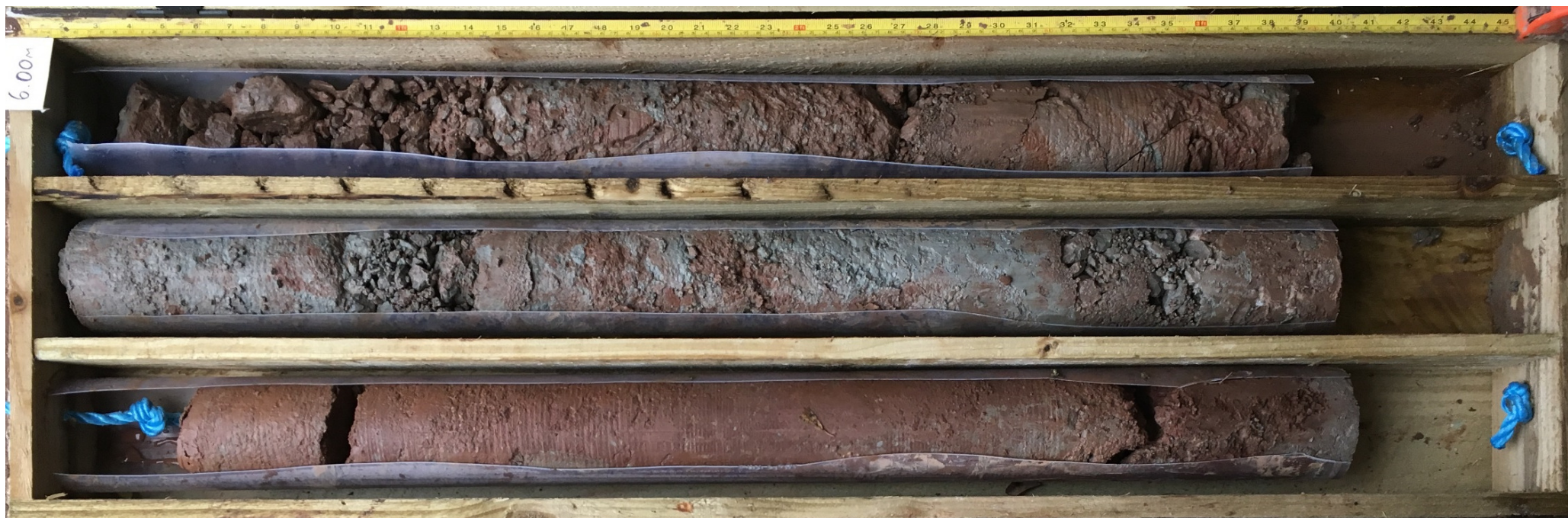
	JOB NO	3647	SKETCH	BH101	DRAWN BY	ES
	PROJECT TITLE	The Hut Group, Hive	SKETCH TITLE	Rock Core Photos		



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	JOB NO	3647	SKETCH	BH102	DRAWN BY
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	JOB NO	3647	SKETCH	BH103	DRAWN BY
	PROJECT TITLE	The Hut Group, Hive	SKETCH TITLE	Rock Core Photos	ES



	JOB NO	3647	SKETCH	BH103	DRAWN BY ES
	PROJECT TITLE	The Hut Group, Hive	SKETCH TITLE	Rock Core Photos	