




Drilling Method Cable Percussion and Rotary Equipment Dando 2000 Hanjin Drill Fluid Water Crew/Vessel I Thompson/M Patterson Dates Drilled Start 22/09/2015 End 05/11/2015		Borehole Diameter 250mm to 4.00m 146mm to 35.35m Logged by CC Compiled by clm Approved by BC 03/11/2015 24/09/2015 19/01/2016		Casing Diameter 250mm to 3.95m 146mm to 11.60m BOREHOLE No. BH29900 Coordinates (National Grid)  E N m OD Ground Level	
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Date & Time	Casing Depth (m)	Water Depth (m) (Flush Return) %	Sample/Core Recovery				SPT Blows /N	Result or U100 Blows/ Rec. mm or Fracture Index	Description of Strata	Depth (Thickness) (m)	Level m OD	Legend
			Depth (m) From To	Type	No.	TCR %						
22/09			0.30-0.50	B	1		PID	0.0	Grass over TOPSOIL: Slightly sandy gravelly clay with frequent rootlets (1mm to 2mm diameter x 2mm to 10mm in length). Gravel is angular to subrounded fine to coarse of mixed lithologies including psammite. Sand is fine to coarse.	(0.20)	80.65	
			0.30-0.50	D	2				MADE GROUND: Comprising firm dark brown slightly sandy gravelly clay. Gravel is angular to subrounded fine to coarse of mixed lithologies including psammite and pelite. Sand is fine to coarse.	(0.55)		
			0.30-0.50	ES	3							
22/09		DRY	1.00-1.20	B	4		PID	0.0	Light brown silty fine to coarse SAND and angular to rounded fine to coarse GRAVEL of mixed lithologies including psammite and pelite with low cobble and boulder content. Cobbles and boulders (up to 500mm x 300mm) are angular to rounded of pelite and psammite.	(0.45)	80.10	
			1.00-1.20	D	5							
			1.00-1.20	ES	6				GLACIOFLUVIAL DEPOSIT			
26/10	1.50	DRY	1.50-1.95	D	7		S29		Medium dense orange brown very gravelly very silty fine to coarse SAND. Gravel is angular to subrounded fine to coarse of mixed lithologies including psammite and pelite.	(1.30)		
			1.50-2.00	B	8							
			2.00	D	9							
	2.45	DRY	2.50-2.95	D	10		S25		Medium dense light brown locally grey very gravelly silty fine to coarse SAND with low cobble content. Cobbles are subangular (up to 100mm x 70mm) of mixed lithologies including psammite. Gravel is angular to subrounded fine to coarse of mixed lithologies including psammite and pelite.	(0.60)	78.35	
			2.50-3.00	B	11							
			3.10-3.50	B	13				GLACIOFLUVIAL DEPOSIT			
			3.25	D	12				Grey locally orange brown gravelly clayey fine to coarse SAND with low to medium cobble content. Cobbles are subangular to subrounded (up to 120mm x 90mm) of psammite and pelite. Gravel is angular to subrounded fine to coarse of mixed lithologies including psammite and pelite.	(1.10)	77.75	
	3.50	DRY	3.50-3.64				C50/68					
26/10	3.95	DRY							GLACIOFLUVIAL DEPOSIT			
27/10	3.95	DRY										
27/10	4.00	DRY	4.00-4.20		100							
02/11	4.00	(100) DRY	4.20-4.70		64				Grey probably angular to subrounded fine to coarse GRAVEL of mixed lithologies including psammite, pelite and quartzite with medium cobble content. Cobbles are angular to subrounded (120mm x 100mm x 70mm) of psammite and pelite. (CQI=1).		76.65	
									GLACIOFLUVIAL DEPOSIT			
		(100)	4.70-5.10		25				Between 4.20m and 4.38m: Assumed zone of core loss Between 4.70m and 5.00m: Assumed zone of core loss			

Remarks (See notes & keysheets)

- Prior to boring a Cable Avoidance Tool (CAT) survey was carried out. An inspection pit (minimum dimension approx 400mm x 400mm) was hand-dug to 1.20m depth and rescanned using the CAT to check for services. Services were not located.
- Chiselled using CH from 3.25m to 3.45m (60 mins); chiselled using CH from 3.45m to 3.70m (60 mins); chiselled using CH from 3.70m to 3.90m (60 mins); chiselled using CH from 3.90m to 3.95m (60 mins); chiselled using CH from 3.95m to 4.00m (60 mins); chiselled using CH from 4.00m to 4.00m (60 mins).
- See separate sheet for installation.
- Groundwater was encountered at 17.40m during boring and driller notes artesian water.


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Drilling Method Cable Percussion and Rotary Equipment Dando 2000 Hanjin Drill Fluid Water Crew/Vessel I Thompson/M Patterson Dates Drilled Start 22/09/2015 End 05/11/2015		Borehole Diameter 250mm to 4.00m 146mm to 35.35m Logged by CC 03/11/2015		Casing Diameter 250mm to 3.95m 146mm to 11.60m Compiled by cjm 24/09/2015 Approved by BC 19/01/2016		BOREHOLE No. BH29900 Coordinates (National Grid)  E Ground Level m OD	
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Date & Time	Casing Depth (m)	Water Depth (m) (Flush Return %)	Sample/Core Recovery				SPT Blows /N Core Size (mm)	Result or Fracture Index	Description of Strata	Depth (Thickness) (m)	Level m OD	Legend	
			Depth (m) From To		Type	No.							TCR %
	5.10	DAMP	5.10-5.54					C50/290		Between 5.10m and 5.35m: Assumed zone of core loss			
		(100)	5.10-5.75	62									
	6.60	DAMP	5.75-6.60					C50/6		Between 5.75m and 6.30m: Assumed zone of core loss	(3.90)		
		(100)	6.60-8.10	25									
8.10	DAMP	8.10-8.42					C50/170	AZCL	Medium strong thinly laminated grey medium grained PSAMMITE with thin very closely to closely spaced bands of quartzite. Weathering: partial grain disintegration associated with fracture zones. Fracture set 1: subhorizontal to inclined 20 degrees closely to medium spaced locally widely spaced planar smooth. SOUTHERN HIGHLAND GROUP Between 8.10m and 9.10m: Assumed zone of core loss Between 9.10m and 9.62m: Non-intact	8.10	72.75		
	(100)	8.10-9.60	33	0	0								
9.60	DAMP	9.60-9.71					C50/0	2					
	(100)	9.60-10.25 10.00-10.16	100 C	100 14	100								

Remarks
(See notes & keysheets)

Scale 1:25

 27/06/2016	Project A9 TAX CROSSING TO BALLINLUIG TRANSPORT SCOTLAND	Contract No. G151043UB Figure No. FR44 (2 of 9)
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[illegible]

Drilling Method Cable Percussion and Rotary Equipment Dando 2000 Drill Fluid Hanjin Crew/Vessel Water Dates Drilled I Thompson/M Patterson Start 22/09/2015 End 05/11/2015		Borehole Diameter 250mm to 4.00m 146mm to 35.35m Casing Diameter 250mm to 3.95m 146mm to 11.60m		BOREHOLE No. BH29900 Coordinates (National Grid) [REDACTED] E Ground Level [REDACTED] N m OD	
Logged by CC 03/11/2015		Compiled by c1m 24/09/2015		Approved by BC 19/01/2016	

Date & Time	Casing Depth (m)	Water Depth (m) (Flush Return %)	Sample/Core Recovery			SPT Blows /N Core Size (mm)	Result or Fracture Index	Description of Strata	Depth (Thickness) (m)	Level m OD	Legend	
			Depth (m) From To	Type TCR %	No. SCR %							RQD %
03/11	11.60	(100)	14.72-15.70	100	100	100	2					
			15.28-15.37	C	17							
			15.70-17.40	100	93	93						
			16.65-16.79	C	18							
03/11	11.60	GL	17.40-17.80	100	68	0	NI	25	Between 17.29m and 17.40m: Non-intact			
			17.80-18.05	100	60	60						
			17.95-18.08	C	19							
			18.05-20.35	100	85	81						
04/11	11.60	(100)	19.20-19.32	C	20		NI	14	Between 17.52m and 17.58m: Non-intact			
			17.80-18.05	100	60	60						
			17.95-18.08	C	19							
			18.05-20.35	100	85	81						
04/11	11.60	(100)	19.20-19.32	C	20		NI	14	Between 17.65m and 17.73m: Non-intact			
			17.80-18.05	100	60	60						
			17.95-18.08	C	19							
			18.05-20.35	100	85	81						
04/11	11.60	(100)	19.20-19.32	C	20		NI	10	Between 17.80m and 17.95m: Non-intact			
			17.80-18.05	100	60	60						
			17.95-18.08	C	19							
			18.05-20.35	100	85	81						
04/11	11.60	(100)	19.20-19.32	C	20		NI	10	Between 18.16m and 18.40m: Non-intact			
			17.80-18.05	100	60	60						
			17.95-18.08	C	19							
			18.05-20.35	100	85	81						

Remarks
(See notes & keysheets)

Scale 1:25


Project
A9 TAX CROSSING TO BALLINLUIG
TRANSPORT SCOTLAND
27/08/2016

Contract No. G1510430B

Figure No. FR44 (4 of 9)

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[illegible]

Drilling Method	Cable Percussion and Rotary	Borehole Diameter	250mm to 4.00m 146mm to 35.35m	Casing Diameter	250mm to 3.95m 146mm to 11.60m	BOREHOLE No.	BH29900
Equipment	Dando 2000 Hanjin	Logged by	CC	Compiled by	clm	Coordinates (National Grid)	E N m OD
Drill Fluid	Water	Approved by	BC	Ground Level			
Crew/Vessel	I Thompson/M Patterson	Start	22/09/2015	End	05/11/2015		

Date & Time	Casing Depth (m)	Water Depth (m) (Flush Return %)	Sample/Core Recovery				SPT Blows /N Core Size (mm)	Result or Fracture Index	Description of Strata	Depth (Thickness) (m)	Level m OD	Legend
			Depth (m)		Type	No.						
			From	To	TCR %	SCR %	RQD %					
		(100)	25.90-27.95	100	100	100						
			26.90-27.05	C	25							
04/11	11.60	GL										
05/11	11.60	GL	27.95-28.00	C	26			4				
		(100)	27.95-29.75	100	100	100						
			29.00-29.10	C	27							
			29.10-29.37	C	28				Below 29.10m: Strong.			

Remarks
(See notes
& keysheets)

Scale 1:25



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Project

A9 TAY CROSSING TO BALLINLUIG
TRANSPORT SCOTLAND

Contract No.

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Figure No.

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Drilling Method	Cable Percussion and Rotary	Borehole Diameter	250mm to 4.00m 146mm to 35.35m	Casing Diameter	250mm to 3.95m 146mm to 11.60m	BOREHOLE No.	BH29900
Equipment	Dando 2000 Hanjin	Logged by	CC	Compiled by	clm	Coordinates (National Grid)	E N m OD
Drill Fluid	Water	Approved by	BC	Ground Level			
Crew/Vessel	I Thompson/M Patterson	Start	22/09/2015	End	05/11/2015		

Date & Time	Casing Depth (m)	Water Depth (m) (Flush Return %)	Sample/Core Recovery				SPT Blows /N	Result or Fracture Index	Description of Strata	Depth (Thickness) (m)	Level m OD	Legend
			Depth (m)		Type	No.						
			From	To	TCR %	SCR %	RQD %	Core Size (mm)				
		(100)	29.75	32.55	100	100	100					
			31.68	31.86	C	29						
			31.86	32.17	C	30						
		(100)	32.55	35.35	100	100	100					
			34.05	34.15	C	31						
			34.15	34.40	C	32						

Remarks
(See notes
& keysheets)

Scale 1:25



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Project

A9 TAY CROSSING TO BALLINLUIG
TRANSPORT SCOTLAND

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Figure No.

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Drilling Method	Cable Percussion and Rotary	Borehole Diameter	250mm to 4.00m 146mm to 35.35m	Casing Diameter	250mm to 3.95m 146mm to 11.60m	BOREHOLE No.	BH29900
Equipment	Dando 2000 Hanjin					Coordinates (National Grid)	E N m OD
Drill Fluid	Water					Ground Level	
Crew/Vessel	I Thompson/M Patterson	Logged by	CC	Compiled by	cim	Approved by	BC
Dates Drilled	Start 22/09/2015 End 05/11/2015		03/11/2015		24/09/2015		19/01/2016

Date & Time	Casing Depth (m)	Water Depth (m) (Flush Return %)	Sample/Core Recovery				SPT Blows /N	Result or Fracture Index	Description of Strata	Depth (Thickness) (m)	Level m OD	Legend
			Depth (m)		Type	No.						
			From	To	TCR %	SCR %	RQD %	Core Size (mm)				
05/11	11.60	GL										
									End of Borehole	35.35	45.50	

Remarks
(See notes & keysheets)

Scale 1:25



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A9 TAY CROSSING TO BALLINLUIG
TRANSPORT SCOTLAND


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Figure No.

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Drilling Method Cable Percussion and Rotary Equipment Dando 2000 Hanjin Water Crew/Vessel I Thompson/M Patterson Dates Drilled Start 22/09/2015 End 05/11/2015		Borehole Diameter 250mm to 4.00m 146mm to 35.35m Logged by CC 03/11/2015 Compiled by clm 24/09/2015 Approved by BC 19/01/2016		BOREHOLE No. BH29900 Coordinates (National Grid) [REDACTED] E N m OD Ground Level		
Installation Details		Installation Depth (m)	Level m OD	Water Strikes	Strata Depth (m)	Strata Details
Instrumentation: 50mm slotted section (SL) from 1.50 to 8.00m SL=1.50-8.00m	Concrete	0.50	80.35		0.20	TOPSOIL
	Bentonite Seal	1.00	79.85		0.75	MADE GROUND
	Gravel Filter				1.20	Silty sandy GRAVEL
					2.50	Silty gravelly SAND
					3.10	Silty gravelly cobbly SAND
					4.20	Clayey gravelly cobbly SAND
						Cobbly GRAVEL
	Bentonite Seal	8.00	72.85		8.10	Coarse/Medium grained Metamorphic (SCHIST)
		35.35	45.50		35.35	Base of Hole
Remarks (See notes & keysheets) <input checked="" type="checkbox"/> Water Strike <input checked="" type="checkbox"/> Water Rise Upstanding cover with gas tap. Not to Scale Pipe diameter 50mm to 8.00m, installed on 05/11/2015.						
 27/05/2016		Project A9 TAY CROSSING TO BALLINLUIG TRANSPORT SCOTLAND			Contract No. G151043UB Figure No. FR44 (9 of 9)	