

# AquaTerra

Celebrating 10 Years

## Cairngorm Ski Towers Inspection Report

for Highlands & Islands

Job Ref: SJ1021

August 2014



## Index

1. Introduction
2. Executive Summary
3. Inspection Summary
4. Detailed Results
5. Personnel and Equipment



**AquaTerra Group Ltd is a leading Oil and Gas industry specialist for difficult access operations and potentially hazardous environments.**

With extensive experience in Concrete Leg Intervention, NDT Inspection, Hull Gauging Surveys, Heavy Lift and Complex Rigging Projects, Upgrade and Decommissioning worksopes, our highly skilled and competent teams of professionals provide multi-disciplined engineering support, construction and project management services.

Established in 2004, AquaTerra is a quality and client focused business providing specialist access solutions and technicians to confidently undertake works in areas where other workers are not capable or competent to go.

Dynamic and innovative, AquaTerra is owned and operated by a committed team of managers with a wealth of experience in site operations, resource management and specialist training. Our management and technical support teams are highly-skilled, competent professionals with the knowledge and technical expertise to deliver cost-effective solutions.

AquaTerra operates throughout the world and across a wide range of industry sectors including oil & gas, renewable energy, marine, communications, civil engineering, pharmaceutical, power generation and petrochemical sectors.

Central to all our operations is our core objective, to provide all personnel with a safe environment in which to work, promoting the highest standards of Health and Safety at all times through a programme of continuous improvement.

On behalf of Highlands and Islands, AquaTerra was asked to carry out Non Destructive Inspections on the Cairngorm ski lift towers. The findings of these inspections are detailed within this report.

AquaTerra's Inspection Report provides a summary of the inspection activities undertaken, observations made during the inspection, deficiencies noted during the inspection, photographic evidence and the personnel who carried out the inspection.

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# Executive Summary of Inspection Results

Job No.	SJ1021	Order No.	HMS 9346524	Location	Cairngorms
Client	H & I	Report No.		Date	09.08.2014
Technician		Qualification	PCN L2 Inspectors		
Component	Cairngorms Ski Lift Towers				

## INSPECTION RESULTS

### Introduction

The scope of work was discussed with the client prior to the start of the job. The scope was detailed as;

- 100% visual inspection of the tower.
- MPI 100% of base connection welds.
- Ultrasonic thickness checks 500mm up from base.
- Ultrasonic thickness checks 3000mm up from base or at the highest point if the tower is less than 3000mm tall.

The towers selected for inspection were as follows.

- Tow 2, Car Park T Bar, T2, T6, T11
- Tow 3, Fiacaill Ridge Poma, T2, T6, T9
- Tow 4, Shelling Platter Poma, T1L, T3L
- Tow 5, Coire Cas T Bar, TA, TC, TE, T2, T5, T9
- Tow 6, M1 Poma, T2, T7, T11
- Tow 8, Coire na Ciste T Bar, T2, T4, T7
- Tow 9, Polar Express Poma, T1
- Tow 10, Ptarmigan T Bar, T1, T3, T5
- Tow 11, West Wall Poma, T2, T7, T15
- Tow 12, Day Lodge Poma, T3, T6, T9

All defects will be reported and welds cleaned pre and post inspection.

If anomalies are encountered it may be necessary to complete a temporary repair. The Cairngorm focal point will be advised and will advise of approved repair method prior to repair scope of work. All coatings are to be replaced if removal is required at time of inspection.

In addition to this scope the team were requested to carry out magnetic particle inspections to the fork lift fork welds. Report CM-MPI-011 refers.

### Findings

Reports correspond as follows:

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# Executive Summary of Inspection Results

## Tow 2

- Visual report CM-GVI-001. MPI report CM-MPI-001. UT report CM-UT-007.

## Tow 3

- Visual report CM-GVI-002. MPI report CM-MPI-002. UT report CM-UT-009.

## Tow 4

- Visual report CM-GVI-003. MPI report CM-MPI-003. UT report CM-UT-010.

## Tow 5

- Visual report CM-GVI-004. MPI report CM-MPI-004. UT report CM-UT-008.

## Tow 6

- Visual report CM-GVI-005. MPI report CM-MPI-005. UT report CM-UT-003.

## Tow 8

- Visual report CM-GVI-006. MPI report CM-MPI-006. UT report CM-UT-004.

## Tow 9

- Visual report CM-GVI-007. MPI report CM-MPI-007. UT report CM-UT-002.

## Tow 10

- Visual report CM-GVI-008. MPI report CM-MPI-008. UT report CM-UT-001.

## Tow 11

- Visual report CM-GVI-009. MPI report CM-MPI-009. UT report CM-UT-005.

## Tow 12

- Visual report CM-GVI-010. MPI report CM-MPI-010. UT report CM-UT-006.

## Fork Lift Forks

- MPI report CM-MPI-011.

## Defect List

Tow 2 – T11 Porosity found in base weld

Tow 3 – T2 Porosity found in base weld

Tow 5 – TC Porosity found in base weld  
TE Porosity found in base weld  
T2 7mm defect found in base weld

Tow 6 – T11 Porosity found in base weld

Tow 8 – T2 Porosity found in base weld and a 55mm non structural defect found

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# Executive Summary of Inspection Results

Tow 10 – T1 Porosity found and a 15mm and a 20mm defect found in base weld  
T13 Porosity found and a 4mm and a 30mm defect found in base weld  
T5 Porosity found in base weld

## General Recommendations

This report highlights the items found during the inspection for the client to decide on a course of action.

## Close Out

The first issue of these reports are field reports.

## TEST RESTRICTIONS/ COMMENTS

Restrictions with access are reported on the relevant reports.

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AQUATERRA

DATE

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# Summary of Inspection Results

Job No.	SJ1021	Order No.	HMS 9346524	Location	Cairngorms
Client	Cairngorms	Report No.		Date	09.08.2014
Technician	[REDACTED]		Qualification	PCN L2 Inspectors	
Component	Cairngorms Ski Lift Towers				

## INSPECTION RESULTS

The team arrived at the Cairngorm Mountain Centre on the morning of Tuesday 5<sup>th</sup> August 2014 and after inductions had a meeting with site representative [REDACTED]

The work began on the morning of the 5<sup>th</sup> August. The scope of the work was discussed and the team were requested to carryout additional inspection to the fork truck fork as well as the agreed scope.

The fork lift forks were found to be in good condition with no surface breaking defects noted during the Magnetic Particle inspection. There were various defects noted on the ski towers. All findings from the inspections are recorded on the relevant reports.

The team left the Cairngorms on the evening of the 9<sup>th</sup> August.

The team and AquaTerra would like to thank the Cairngorms crew for their assistance during the visit.

## TEST RESTRICTIONS/ COMMENTS

Any restrictions regarding access are recorded on the relevant reports

INSPECTOR	[REDACTED]	AQUATERRA	[REDACTED]
DATE	[REDACTED]	DATE	[REDACTED]
SIGNATURE	[REDACTED]	SIGNATURE	[REDACTED]

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ABS  
T: 08

AquaTerra Group

## MPI Inspection Report

Job No	SJ1021	Order No.	HMS 9346524	Report No.	CM-MPI-011
Client	Highlands and Island	Installation	Cairngorm Mountain	Date	09/08/2014
Procedure	WI011	Acceptance Criteria	EN-ISO-5817		
Technique Sheet	WI011-TS001				

EQUIPMENT USED		TECHNIQUE USED	
<input checked="" type="checkbox"/> Y6 Yoke	s/no. 1203280	<input checked="" type="checkbox"/> Wet Visible	type: TS001
<input type="checkbox"/> Perm. Magnet	s/no.	<input type="checkbox"/> Wet fluorescent	type:
<input type="checkbox"/> DC Electromagnet	s/no.	Current	<input checked="" type="checkbox"/> AC <input type="checkbox"/> DC
<input type="checkbox"/> UV-A lamp	s/no.	Illum. Light level (Lux)	N/A
UV-A Irradiance	N/A	Ambient light level (Lux)	<500 Lux
Ink concentration %	1.25-3.5%	Test weight	4.5Kg
Item/component	Forklift Fork Frame	Penetrameter	Foil Strip Type 1
Identification	Pisten Bully Forks	Pole spacing	100mm
Dimensions	N/A	Quantity	N/A
Stage of Test i.e. Pre or Post Heat Treatment	N/A		
Surface Prep.	Carbon Steel	Viewing Conditions	Good

### INSPECTION RESULTS /SKETCH/EXTENT OF TEST

As per client request out with SJ1021 work scope, Magnetic Particle Inspection was carried out on Forklift fork frame welds. Where Required, coatings were removed by mechanical means.

No defects were found on weld joints.

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## MPI Inspection Report



Standoff photo of forklift forks inspected

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DATE	[REDACTED]	DATE	[REDACTED]
SIGNATURE	[REDACTED]	SIGNATURE	[REDACTED]

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## Visual Inspection Report

<b>Job No.</b>	SJ 1021	<b>Order No.</b>	HMS 9346524	<b>Location</b>	Cairngorm Mountain
<b>Client</b>	Highlands & Island Enterprise	<b>Report No.</b>	CM-CV-001	<b>Date</b>	09/08/2014
<b>Procedure</b>	WI013	<b>Acceptance Criteria</b>		As per procedure	
<b>Technician</b>		<b>Qualification</b>		PCN 2	

<b>Type of inspection</b>	<input checked="" type="checkbox"/> General Visual	<input type="checkbox"/> Close Visual
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Inspection Details			
<b>Item Inspected</b>	Car Park T-Bar		
<b>Item Ref. No.</b>	Tow 2	<b>Drawing Ref No.</b>	CA6584/03
<b>Surface Condition</b>	As Coated	<b>Procedure Ref. No.</b>	W1013
<b>Photo Ref. No.</b>	As per report	<b>Anomaly Report Ref. No.</b>	N/A
<b>Equipment</b>	RA Harness & Camera		

INSPECTION RESULTS
<p>As per client request a Visual Inspection was carried out on Towers 2, 6 and 11 of the Car Park T-Bar. The Deck Plate Connection welds were 100% visually inspected, this was undertaken in conjunction with Cairngorm work-pack SJ1021.</p> <p>All Deck Plate Connection welds are in good condition. Magnetic Particle Inspection was also carried out as part of the work Scope (Report No. CM-MPI-001).</p> <p>All Anchor Bolts are hand tight with light to moderate corrosion. External fittings up to 3000mm in a safe and orderly condition.</p> <p>See photographs below.</p> <p>This work was carried out in accordance with AquaTerra standing instructions as per job No SJ1021 And General Visual Inspection procedures.</p>

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## Visual Inspection Report



Tower 2



Tower 2



Tower 6



Tower 6

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## Visual Inspection Report



Tower 11



Tower 11

INSPECTOR		AQUATERRA	
DATE		DATE	
SIGNATURE		SIGNATURE	

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## Visual Inspection Report

<b>Job No.</b>	SJ 1021	<b>Order No.</b>	HMS 9346524	<b>Location</b>	Cairngorm Mountain
<b>Client</b>	Highlands & Island Enterprise	<b>Report No.</b>	CM-CV-002	<b>Date</b>	09/08/2014
<b>Procedure</b>	WI013	<b>Acceptance Criteria</b>		As per procedure	
<b>Technician</b>		<b>Qualification</b>		PCN 2	

<b>Type of inspection</b>	<input checked="" type="checkbox"/> General Visual	<input type="checkbox"/> Close Visual
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Inspection Details			
<b>Item Inspected</b>	Fiacail Ridge Poma		
<b>Item Ref. No.</b>	Tow 3	<b>Drawing Ref No.</b>	CA6584/03
<b>Surface Condition</b>	As Coated	<b>Procedure Ref. No.</b>	W1013
<b>Photo Ref. No.</b>	As per report	<b>Anomaly Report Ref. No.</b>	N/A
<b>Equipment</b>	RA Harness & Camera		

### INSPECTION RESULTS

As per client request a Visual Inspection was carried out on Towers 2, 6 and 9 of the Fiacail Ridge Poma. The Deck Plate Connection welds were 100% visually inspected, this was undertaken in conjunction with Cairngorm work-pack SJ1021.

All Deck Plate Connection welds are in good condition. Magnetic Particle Inspection was also carried out as part of the work Scope (Report No. CM-MPI-002).

All Anchor Bolts are hand tight with light to moderate corrosion. External fittings up to 3000mm in a safe and orderly condition.

See photographs below.

This work was carried out in accordance with AquaTerra standing instructions as per job No SJ1021 And General Visual Inspection procedures.

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## Visual Inspection Report



Tower 2



Tower 2



Tower 6



Tower 6

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## Visual Inspection Report



Tower 9



Tower 9

INSPECTOR	[REDACTED]	AQUATERRA	[REDACTED]
DATE	[REDACTED]	DATE	[REDACTED]
SIGNATURE	[REDACTED]	SIGNATURE	[REDACTED]

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## Visual Inspection Report

<b>Job No.</b>	SJ 1021	<b>Order No.</b>	HMS 9346524	<b>Location</b>	Cairngorm Mountain
<b>Client</b>	Highlands & Island Enterprise	<b>Report No.</b>	CM-CV-003	<b>Date</b>	09/08/2014
<b>Procedure</b>	WI013	<b>Acceptance Criteria</b>		As per procedure	
<b>Technician</b>		<b>Qualification</b>		PCN 2	

<b>Type of inspection</b>	<input checked="" type="checkbox"/> General Visual	<input type="checkbox"/> Close Visual
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Inspection Details			
<b>Item Inspected</b>	Sheiling Platter Poma		
<b>Item Ref. No.</b>	Tow 4	<b>Drawing Ref No.</b>	CA6584/03
<b>Surface Condition</b>	As Coated	<b>Procedure Ref. No.</b>	W1013
<b>Photo Ref. No.</b>	As per report	<b>Anomaly Report Ref. No.</b>	N/A
<b>Equipment</b>	RA Harness & Camera		

INSPECTION RESULTS
<p>As per client request a Visual Inspection was carried out on Towers T1L (Left Facing Downhill) &amp; T3L (Left Facing Downhill) of the Sheiling Platter Poma. The Deck Plate Connection welds were 100% visually inspected, this was undertaken in conjunction with Cairngorm work-pack SJ1021.</p> <p>All Deck Plate Connection welds are in good condition. Magnetic Particle Inspection was also carried out as part of the work Scope (Report No. CM-MPI-003).</p> <p>All Anchor Bolts are hand tight with light to moderate corrosion. External fittings up to 3000mm in a safe and orderly condition. Porosity Found throughout lattice tower welds. Some signs of coating breakdown with light corrosion of weld caps.</p> <p>See photographs below.</p> <p>This work was carried out in accordance with AquaTerra standing instructions as per job No SJ1021 And General Visual Inspection procedures.</p>

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## Visual Inspection Report



Tower 1L



Tower 1L



Tower 1L



Tower 3L

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## Visual Inspection Report

	
<p style="text-align: center;">Tower 3L</p>	<p style="text-align: center;">Tower 3L</p>
Empty space for notes	

INSPECTOR	[REDACTED]	AQUATERRA	[REDACTED]		
DATE		DATE			
SIGNATURE		SIGNATURE			

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## Visual Inspection Report

<b>Job No.</b>	SJ 1021	<b>Order No.</b>	HMS 9346524	<b>Location</b>	Cairngorm Mountain
<b>Client</b>	Highlands & Island Enterprise	<b>Report No.</b>	CM-CV-004	<b>Date</b>	09/08/2014
<b>Procedure</b>	WI013	<b>Acceptance Criteria</b>		As per procedure	
<b>Technician</b>		<b>Qualification</b>		PCN 2	

<b>Type of inspection</b>	<input checked="" type="checkbox"/> General Visual	<input type="checkbox"/> Close Visual
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Inspection Details			
<b>Item Inspected</b>	Coire Cas T-Bar		
<b>Item Ref. No.</b>	Tow 5	<b>Drawing Ref No.</b>	CA6584/03
<b>Surface Condition</b>	As Coated	<b>Procedure Ref. No.</b>	W1013
<b>Photo Ref. No.</b>	As per report	<b>Anomaly Report Ref. No.</b>	N/A
<b>Equipment</b>	RA Harness & Camera		

### INSPECTION RESULTS

As per client request a Visual Inspection was carried out on Towers A, C & E and 2, 5 & 9 of the Coire Cas T-Bar. The Deck Plate Connection welds were 100% visually inspected, this was undertaken in conjunction with Cairngorm work-pack SJ1021.

All Deck Plate Connection welds are in good condition. Magnetic Particle Inspection was also carried out as part of the work Scope (Report No. CM-MPI-003).

All Anchor Bolts are hand tight with light to moderate corrosion. External fittings up to 3000mm in a safe and orderly condition. Stiffener Web Welds on T5 showed some porosity. Junction Box on T9 hanging off and mechanical damage noted on Stiffener Web Trims.

See photographs below.

This work was carried out in accordance with AquaTerra standing instructions as per job No SJ1021 And General Visual Inspection procedures.

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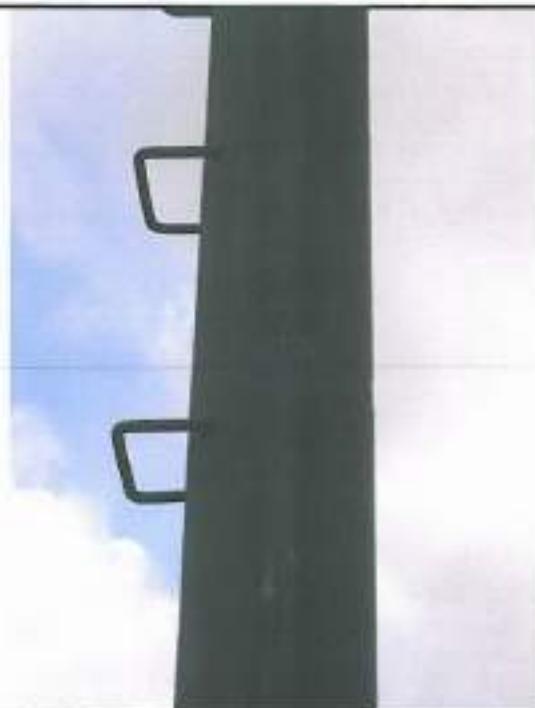
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## Visual Inspection Report



Tower 2



Tower 2



Tower 5



Tower 5

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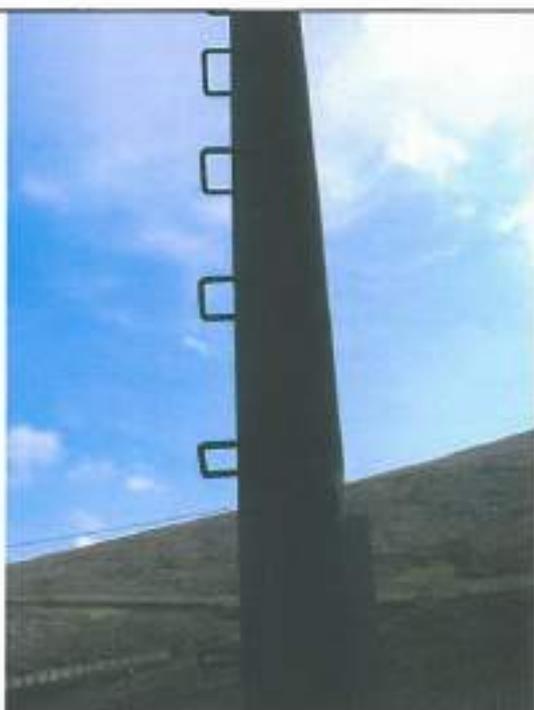
## Visual Inspection Report



Tower 9



Tower 9



Tower A



Tower A

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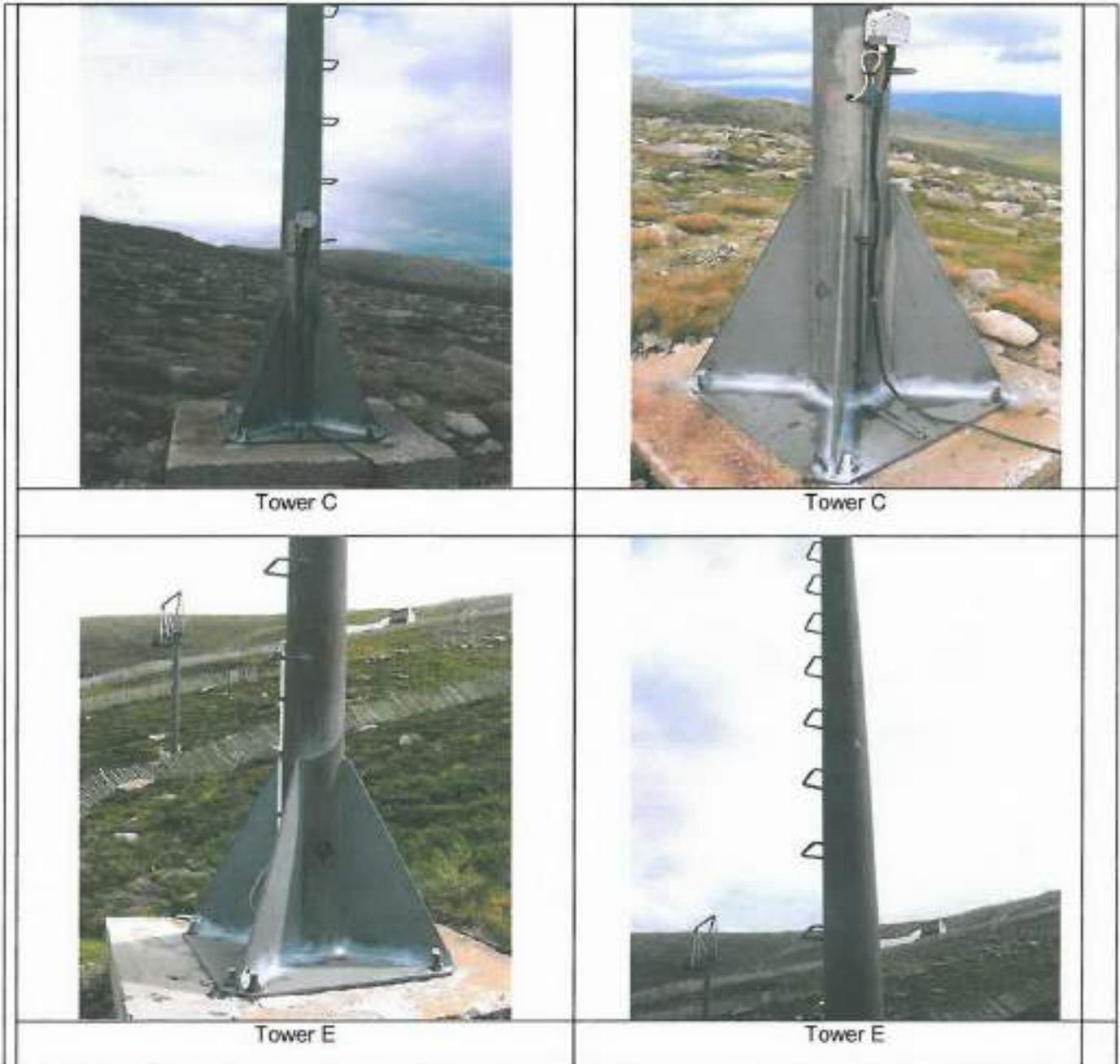
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## Visual Inspection Report



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DATE	[REDACTED]	DATE	[REDACTED]
SIGNATURE	[REDACTED]	SIGNATURE	[REDACTED]

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## Visual Inspection Report

<b>Job No.</b>	SJ 1021	<b>Order No.</b>	HMS 9346524	<b>Location</b>	Cairngorm Mountain
<b>Client</b>	Highlands & Island Enterprise	<b>Report No.</b>	CM-CV-005	<b>Date</b>	09/08/2014
<b>Procedure</b>	W1013	<b>Acceptance Criteria</b>		As per procedure	
<b>Technician</b>		<b>Qualification</b>		PCN 2	

<b>Type of inspection</b>	<input checked="" type="checkbox"/> General Visual	<input type="checkbox"/> Close Visual
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Inspection Details			
<b>Item Inspected</b>	M1 Poma		
<b>Item Ref. No.</b>	Tow 6	<b>Drawing Ref No.</b>	CA6584/03
<b>Surface Condition</b>	As Coated	<b>Procedure Ref. No.</b>	W1013
<b>Photo Ref. No.</b>	As per report	<b>Anomaly Report Ref. No.</b>	N/A
<b>Equipment</b>	RA Harness & Camera		

### INSPECTION RESULTS

As per client request a Visual Inspection was carried out on Towers 2, 7 & 11 on the M1 Poma. The Deck Plate Connection welds were 100% visually inspected, this was undertaken in conjunction with Cairngorm work-pack SJ1021.

All Deck Plate Connection welds are in good condition. Magnetic Particle Inspection was also carried out as part of the work Scope (Report No. CM-MPI-005).

All Anchor Bolts are hand tight with light to moderate corrosion. External fittings up to 3000mm in a safe and orderly condition.

See photographs below.

This work was carried out in accordance with AquaTerra standing instructions as per job No SJ1021 And General Visual Inspection procedures.

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## Visual Inspection Report



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 INVERURIE  
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INSPECTOR		AQUATERRA	
DATE		DATE	
SIGNATURE		SIGNATURE	

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## Visual Inspection Report

<b>Job No.</b>	SJ 1021	<b>Order No.</b>	HMS 9346524	<b>Location</b>	Cairngorm Mountain
<b>Client</b>	Highlands & Island Enterprise	<b>Report No.</b>	CM-CV-006	<b>Date</b>	09/08/2014
<b>Procedure</b>	WI013	<b>Acceptance Criteria</b>		As per procedure	
<b>Technician</b>		<b>Qualification</b>		PCN 2	

<b>Type of inspection</b>	<input checked="" type="checkbox"/> General Visual	<input type="checkbox"/> Close Visual
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Inspection Details			
<b>Item Inspected</b>	Coire Na Ciste T-Bar		
<b>Item Ref. No.</b>	Tow 8	<b>Drawing Ref No.</b>	CA6584/03
<b>Surface Condition</b>	As Coated	<b>Procedure Ref. No.</b>	W1013
<b>Photo Ref. No.</b>	As per procedure	<b>Anomaly Report Ref. No.</b>	N/A
<b>Equipment</b>	RA Harness & Camera		

INSPECTION RESULTS
<p>As per client request a Visual Inspection was carried out on Towers 2, 4 &amp; 7 on the Coire Na Ciste T-Bar. The Deck Plate Connection welds were 100% visually inspected, this was undertaken in conjunction with Cairngorm work-pack SJ1021.</p> <p>All Deck Plate Connection welds are in good condition. Magnetic Particle Inspection was also carried out as part of the work Scope (Report No. CM-MPI-006).</p> <p>All Anchor Bolts are hand tight with light to moderate corrosion. External fittings up to 3000mm in a safe and orderly condition.</p> <p>See photographs below.</p> <p>This work was carried out in accordance with AquaTerra standing instructions as per job No SJ1021 And General Visual Inspection procedures.</p>

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## Visual Inspection Report



Tower 2



Tower 2



Tower 4



Tower 4

### AquaTerra Group

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## Visual Inspection Report



INSPECTOR	[REDACTED]	AQUATERRA	[REDACTED]	
DATE		DATE		
SIGNATURE		SIGNATURE		

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## Visual Inspection Report

<b>Job No.</b>	SJ 1021	<b>Order No.</b>	HMS 9346524	<b>Location</b>	Cairngorm Mountain
<b>Client</b>	Highlands & Island Enterprise	<b>Report No.</b>	CM-CV-007	<b>Date</b>	09/08/2014
<b>Procedure</b>	WI013	<b>Acceptance Criteria</b>	As per procedure		
<b>Technician</b>		<b>Qualification</b>	PCN 2		

<b>Type of inspection</b>	<input checked="" type="checkbox"/> General Visual	<input type="checkbox"/> Close Visual
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Inspection Details			
<b>Item Inspected</b>	Polar Express Poma		
<b>Item Ref. No.</b>	Tow 9	<b>Drawing Ref No.</b>	CA6584/03
<b>Surface Condition</b>	As Coated	<b>Procedure Ref. No.</b>	W1013
<b>Photo Ref. No.</b>	As per report	<b>Anomaly Report Ref. No.</b>	N/A
<b>Equipment</b>	RA Harness & Camera		

INSPECTION RESULTS
<p>As per client request a Visual Inspection was carried out on Tower T1. The Deck Plate Connection welds were 100% visually inspected, this was undertaken in conjunction with Cairngorm work-pack SJ1021.</p> <p>All Deck Plate Connection welds are in good condition. Magnetic Particle Inspection was also carried out as part of the work Scope (Report No. CM-MPI-007).</p> <p>All Anchor Bolts are hand tight with light to moderate corrosion. External fittings up to 3000mm in a safe and orderly condition.</p> <p>See photographs below.</p> <p>This work was carried out in accordance with AquaTerra standing instructions as per job No SJ1021 And General Visual Inspection procedures.</p>

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## Visual Inspection Report

	
<p style="text-align: center;">Tower 1</p>	

INSPECTOR		AQUATERRA	
DATE		DATE	
SIGNATURE		SIGNATURE	

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## Visual Inspection Report

Job No.	SJ 1021	Order No.	HMS 9346524	Location	Cairngorm Mountain
Client	Highlands & Island Enterprise	Report No.	CM-CV-008	Date	09/08/2014
Procedure	WI013	Acceptance Criteria	As per procedure		
Technician		Qualification	PCN 2		

Type of inspection	<input checked="" type="checkbox"/> General Visual	<input type="checkbox"/> Close Visual
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Inspection Details			
Item Inspected	Ptarmigan T-Bar		
Item Ref. No.	Tow 10	Drawing Ref No.	CA6584/03
Surface Condition	As Coated	Procedure Ref. No.	W1013
Photo Ref. No.	As per report	Anomaly Report Ref. No.	N/A
Equipment	RA Harness & Camera		

### INSPECTION RESULTS

As per client request a Visual Inspection was carried out on Towers 1, 3 & 5 of the Ptarmigan T-Bar. The Deck Plate Connection welds were 100% visually inspected, this was undertaken in conjunction with Cairngorm work-pack SJ1021.

All Deck Plate Connection welds are in good condition. Magnetic Particle Inspection was also carried out as part of the work Scope (Report No. CM-MPI-008).

All Anchor Bolts are hand tight with light to moderate corrosion. External fittings up to 3000mm in a safe and orderly condition.

See photographs below.

This work was carried out in accordance with AquaTerra standing instructions as per job No SJ1021 And General Visual Inspection procedures.

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## Visual Inspection Report



Tower 1



Tower 3



Tower 5



Tower 5

AQUATERRA GROUP LTD

AQUA

REG:

MIDMI

KINTO

PER

AD51

T: 084

INSPECTOR

DATE

SIGNATURE

AQUATERRA

DATE

SIGNATURE

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## Visual Inspection Report

<b>Job No.</b>	SJ 1021	<b>Order No.</b>	HMS 9346524	<b>Location</b>	Cairngorm Mountain
<b>Client</b>	Highlands & Island Enterprise	<b>Report No.</b>	CM-CV-009	<b>Date</b>	09/08/2014
<b>Procedure</b>	WI013	<b>Acceptance Criteria</b>		As per procedure	
<b>Technician</b>		<b>Qualification</b>		PCN 2	

<b>Type of inspection</b>	<input checked="" type="checkbox"/> General Visual	<input type="checkbox"/> Close Visual
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Inspection Details			
<b>Item Inspected</b>	West Wall Poma		
<b>Item Ref. No.</b>	Tow 11	<b>Drawing Ref No.</b>	CA6584/03
<b>Surface Condition</b>	As Coated	<b>Procedure Ref. No.</b>	W1013
<b>Photo Ref. No.</b>	As per report	<b>Anomaly Report Ref. No.</b>	N/A
<b>Equipment</b>	RA Harness & Camera		

INSPECTION RESULTS
<p>As per client request a Visual Inspection was carried out on Towers 2, 7 &amp; 15 of the West Wall Poma. The Deck Plate Connection welds were 100% visually inspected, this was undertaken in conjunction with Cairngorm work-pack SJ1021.</p> <p>All Deck Plate Connection welds are in good condition. Magnetic Particle Inspection was also carried out as part of the work Scope (Report No. CM-MPI-009).</p> <p>All Anchor Bolts are hand tight with light to moderate corrosion. External fittings up to 3000mm in a safe and orderly condition apart from Mechanical damage to ladder noted on Tower 15.</p> <p>See photographs below.</p> <p>This work was carried out in accordance with AquaTerra standing instructions as per job No SJ1021 And General Visual Inspection procedures.</p>

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## Visual Inspection Report



Tower 2



Tower 2



Tower 7



Tower 7

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## Visual Inspection Report

	
<p style="text-align: center;">Tower 15</p>	

INSPECTOR	[REDACTED]	AQUATERRA	[REDACTED]
DATE		DATE	
SIGNATURE		SIGNATURE	

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## Visual Inspection Report

<b>Job No.</b>	SJ 1021	<b>Order No.</b>	HMS 9346524	<b>Location</b>	Cairngorm Mountain
<b>Client</b>	Highlands & Island Enterprise	<b>Report No.</b>	CM-CV-010	<b>Date</b>	09/08/2014
<b>Procedure</b>	WI013	<b>Acceptance Criteria</b>		As per report	
<b>Technician</b>		<b>Qualification</b>		PCN 2	

<b>Type of inspection</b>	<input checked="" type="checkbox"/> General Visual	<input type="checkbox"/> Close Visual
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Inspection Details			
<b>Item Inspected</b>	Day Lodge Poma		
<b>Item Ref. No.</b>	Tow 12	<b>Drawing Ref No.</b>	CA6584/03
<b>Surface Condition</b>	As Coated	<b>Procedure Ref. No.</b>	W1013
<b>Photo Ref. No.</b>	As per report	<b>Anomaly Report Ref. No.</b>	N/A
<b>Equipment</b>	RA Harness & Camera		

INSPECTION RESULTS
<p>As per client request a Visual Inspection was carried out on Towers 3, 6 &amp; 9 of the Day Lodge Poma. The Deck Plate Connection welds were 100% visually inspected, this was undertaken in conjunction with Cairngorm work-pack SJ1021.</p> <p>All Deck Plate Connection welds are in good condition. Magnetic Particle Inspection was also carried out as part of the work Scope (Report No. CM-MPI-010).</p> <p>All Anchor Bolts are hand tight with light to moderate corrosion. External fittings up to 3000mm in a safe and orderly condition.</p> <p>See photographs below.</p> <p>This work was carried out in accordance with AquaTerra standing instructions as per job No SJ1021 And General Visual Inspection procedures.</p>

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## Visual Inspection Report



Tower 3



Tower 3



Tower 6



Tower 6

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## Visual Inspection Report



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INSPECTOR	[REDACTED]	AQUATERRA	[REDACTED]
DATE	[REDACTED]	DATE	[REDACTED]
SIGNATURE	[REDACTED]	SIGNATURE	[REDACTED]

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## Ultrasonic Inspection Report

ALL INSPECTION CARRIED OUT IN ACCORDANCE WITH BS EN ISO 17640:2010					
Job No	SJ1021	Installation	Cairngorm Ski Towers	Report No.	CM-UT-001
Client	Highlands and Islands			Date	08/08/2014
Procedure	WI015	Technique Number	TS001		
Equipment	Sonatest D-10+	Calibration Cert. No.	C9732		
Serial No	1008454	Couplant	Polycell		
Probe Type	Twin Crystal				
Probe Angle	0°				
Crystal Size	10mm				
Frequency	5Mhz				
Serial Number	38690				
Scanning Sensitivity	40dB				
Transfer Correction	+2dB				
Calibration Block	60546	Shear	N/A		
Reference Block	Step Wedge	Thickness	5-20mm	Hole/Notch Size	N/A
Time-Base Range Compression	50mm				
Sensitivity Setting-Comp	2 <sup>nd</sup> BWE 100% FSH		Shear	N/A	
Weld I.D or Item	T1,T3 & T5		Location	Ptarmigan T-Bar	
Weld Procedure	N/A		Heat Treatment	N/A	
Drawing No	CA6584/03	Surface Condition	Coated	Temp	N/A
Material	Carbon Steel	Dimensions	N/A	Quantity	3
Identification / Serial No	Ptarmigan T-Bar Towers T1, T3 & T5				

### INSPECTION RESULTS/SKETCH/EXTENT OF TEST

At the request of the client and as per Cairngorm work pack SJ1021, Ultrasonic thickness checks were carried out on the above ski lift towers. Spot checks at four cardinal points 12,3,6,9 o'clock measured 500mm and 3000mm up from the base plate of the tower have been recorded. Wall thickness readings were obtained using the 'echo to echo' technique to take into account coating thickness.

The known nominal thickness for the towers was not available at time of UT inspection. Please refer to attached tabled results and photo's for further illustration and results of inspected areas.

**All measurements are in millimetres (mm)**

#### AquaTerra Group

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## Ultrasonic Inspection Report



Ptarmigan T-Bar Tower 1

T1	12 o/c	3 o/c	6 o/c	9 o/c
500mm	7.8	7.8	7.3	7.6
3000mm	7.5	7.3	7.8	7.1

### AquaTerra Group

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## Ultrasonic Inspection Report



Ptarmigan T- Bar Tower 3

T3	12 o/c	3 o/c	6 o/c	9 o/c
500mm	8.4	8.1	7.5	8.6
3000mm	8.4	8.3	8.2	8.7

### AquaTerra Group

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## Ultrasonic Inspection Report



Ptarmigan T-Bar Tower 5

T5	12 o/c	3 o/c	6 o/c	9 o/c
500mm	8.9	8.1	7.3	8.4
3000mm	8.3	8.5	7.6	8.1

### AquaTerra Group

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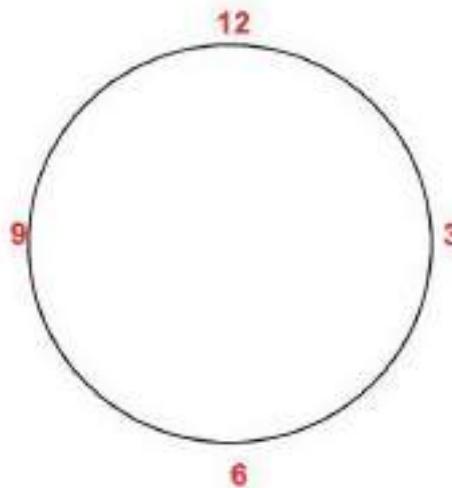
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## Ultrasonic Inspection Report

12 O'clock position being on the return side



6 O'clock position on the Drive side

INSPECTOR	[REDACTED]	AQUATERRA	[REDACTED]
DATE	[REDACTED]	DATE	[REDACTED]
SIGNATURE	[REDACTED]	SIGNATURE	[REDACTED]

## Ultrasonic Inspection Report

ALL INSPECTION CARRIED OUT IN ACCORDANCE WITH BS EN ISO 17640:2010					
Job No	SJ1021	Installation	Cairngorm Ski Towers	Report No.	CM-UT-002
Client	Highlands and Islands			Date	08/08/2014
Procedure	WI015	Technique Number	TS001		
Equipment	Sonatest D-10+		Calibration Cert. No.	C9732	
Serial No	1008454		Couplant	Polycell	
Probe Type	Twin Crystal				
Probe Angle	0°				
Crystal Size	10mm				
Frequency	5Mhz				
Serial Number	38690				
Scanning Sensitivity	40dB				
Transfer Correction	+2dB				
Calibration Block	60546	Shear	N/A		
Reference Block	Step Wedge	Thickness	5-20mm	Hole/Notch Size	N/A
Time-Base Range Compression	50mm				
Sensitivity Setting-Comp	2 <sup>nd</sup> BWE 100% FSH		Shear	N/A	
Weld I.D or Item	T1		Location	Polar Express Poma	
Weld Procedure	N/A		Heat Treatment	N/A	
Drawing No	CA6584/03	Surface Condition	Coated	Temp	N/A
Material	Carbon Steel	Dimensions	N/A	Quantity	1
Identification / Serial No	Polar Express Poma Tower T1				

### INSPECTION RESULTS/SKETCH/EXTENT OF TEST

At the request of the client and as per Cairngorm work pack SJ1021, Ultrasonic thickness checks were carried out on the above ski lift towers. Spot checks at four cardinal points 12,3,6,9 o'clock measured 500mm and 3000mm up from the base plate of the tower have been recorded. Wall thickness readings were obtained using the 'echo to echo' technique to take into account coating thickness.

The known nominal thickness for the towers was not available at time of UT inspection. Please refer to attached tabled results and photo's for further illustration and results of inspected areas.

**All measurements are in millimetres (mm)**

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## Ultrasonic Inspection Report



Polar Express Poma Tower 1

T1	12 o/c	3 o/c	6 o/c	9 o/c
500mm	4.9	4.8	4.3	4.4
3000mm	4.5	4.3	4.9	4.6

### AquaTerra Group

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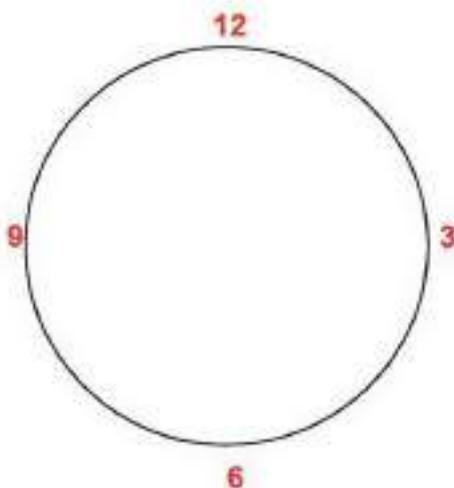
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## Ultrasonic Inspection Report

12 O'clock position being on the return side



6 O'clock position on the Drive side

INSPECTOR		AQUATERRA	
DATE		DATE	
SIGNATURE		SIGNATURE	

## Ultrasonic Inspection Report

ALL INSPECTION CARRIED OUT IN ACCORDANCE WITH BS EN ISO 17640:2010					
Job No	SJ1021	Installation	Cairngorm Ski Towers	Report No.	CM-UT-003
Client	Highlands and Islands			Date	08/08/2014
Procedure	WI015	Technique Number	TS001		
Equipment	Sonatest D-10+	Calibration Cert. No.	C9732		
Serial No	1008454	Couplant	Polycell		
Probe Type	Twin Crystal				
Probe Angle	0°				
Crystal Size	10mm				
Frequency	5Mhz				
Serial Number	38690				
Scanning Sensitivity	40dB				
Transfer Correction	+2dB				
Calibration Block	60546	Shear	N/A		
Reference Block	Step Wedge	Thickness	5-20mm	Hole/Notch Size	N/A
Time-Base Range Compression	50mm				
Sensitivity Setting-Comp	2 <sup>nd</sup> BWE 100% FSH		Shear	N/A	
Weld I.D or Item	T2,T7 & T11		Location	M1 Poma	
Weld Procedure	N/A		Heat Treatment	N/A	
Drawing No	CA6584/03	Surface Condition	Coated	Temp	N/A
Material	Carbon Steel	Dimensions	N/A	Quantity	3
Identification / Serial No	M1 Poma Towers T2,T7 & T11				

### INSPECTION RESULTS/SKETCH/EXTENT OF TEST

At the request of the client and as per Cairngorm work pack SJ1021, Ultrasonic thickness checks were carried out on the above ski lift towers. Spot checks at four cardinal points 12,3,6,9 o'clock measured 500mm and 3000mm up from the base plate of the tower have been recorded. Wall thickness readings were obtained using the 'echo to echo' technique to take into account coating thickness.

The known nominal thickness for the towers was not available at time of UT inspection. Please refer to attached tabled results and photo's for further illustration and results of inspected areas.

**All measurements are in millimetres (mm)**

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## Ultrasonic Inspection Report



**M1 Poma Tower 2**

T2	12 o/c	3 o/c	6 o/c	9 o/c
500mm	11.1	11.1	11.1	11.2
3000mm	7.4	7.4	7.5	7.7

### AquaTerra Group

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## Ultrasonic Inspection Report



**M1 Poma Tower 7**

T7	12 o/c	3 o/c	6 o/c	9 o/c
500mm	8.2	8.9	8.2	8.2
3000mm	8.8	8.7	8.8	8.7

### AquaTerra Group

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## Ultrasonic Inspection Report



**M1 Poma Tower 11**

T11	12 o/c	3 o/c	6 o/c	9 o/c
500mm	4.5	4.8	5.2	5.2
3000mm	4.9	5.3	4.8	5.3

### AquaTerra Group

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Tel: +44 (0) 845 257 7570

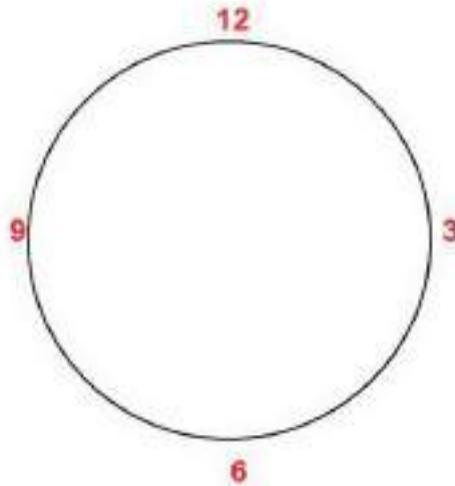
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## Ultrasonic Inspection Report

12 O'clock position being on the return side



6 O'clock position on the Drive side

INSPECTOR	[REDACTED]	AQUATERRA	[REDACTED]
DATE	[REDACTED]	DATE	[REDACTED]
SIGNATURE	[REDACTED]	SIGNATURE	[REDACTED]

### AquaTerra Group

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## Ultrasonic Inspection Report

ALL INSPECTION CARRIED OUT IN ACCORDANCE WITH BS EN ISO 17640:2010					
Job No	SJ1021	Installation	Cairngorm Ski Towers	Report No.	CM-UT-004
Client	Highlands and Islands			Date	08/08/2014
Procedure	WI015	Technique Number	TS001		
Equipment	Sonatest D-10+	Calibration Cert. No.	C9732		
Serial No	1008454	Couplant	Polycell		
Probe Type	Twin Crystal				
Probe Angle	0°				
Crystal Size	10mm				
Frequency	5Mhz				
Serial Number	38690				
Scanning Sensitivity	40dB				
Transfer Correction	+2dB				
Calibration Block	60546	Shear	N/A		
Reference Block	Step Wedge	Thickness	5-20mm	Hole/Notch Size	N/A
Time-Base Range Compression	50mm				
Sensitivity Setting-Comp	2 <sup>nd</sup> BWE 100% FSH		Shear	N/A	
Weld I.D or Item	T2,T4 & T7		Location	Coire Na Ciste T-Bar	
Weld Procedure	N/A		Heat Treatment	N/A	
Drawing No	CA6584/03	Surface Condition	Coated	Temp	N/A
Material	Carbon Steel	Dimensions	N/A	Quantity	3
Identification / Serial No	Coire Na Ciste T-Bar Towers T2,T4 & T7				

### INSPECTION RESULTS/SKETCH/EXTENT OF TEST

At the request of the client and as per Cairngorm work pack SJ1021, Ultrasonic thickness checks were carried out on the above ski lift towers. Spot checks at four cardinal points 12,3,6,9 o'clock measured 500mm and 3000mm up from the base plate of the tower have been recorded. Wall thickness readings were obtained using the 'echo to echo' technique to take into account coating thickness.

The known nominal thickness for the towers was not available at time of UT inspection. Please refer to attached tabled results and photo's for further illustration and results of inspected areas.

**All measurements are in millimetres (mm)**

#### AquaTerra Group

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## Ultrasonic Inspection Report



**Coire Na Ciste Tower 2**

<b>T2</b>	<b>12 o/c</b>	<b>3 o/c</b>	<b>6 o/c</b>	<b>9 o/c</b>
<b>500mm</b>	8.7	9	8.6	8.1
<b>3000mm</b>	7.7	8.8	8	7.9

### **AquaTerra Group**

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## Ultrasonic Inspection Report



Coire Na Ciste Tower 4

T4	12 o/c	3 o/c	6 o/c	9 o/c
500mm	8.3	8.8	8.3	8.3
3000mm	8.9	9.1	7.8	7.9

### AquaTerra Group

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## Ultrasonic Inspection Report



Coire Na Ciste Tower 7

T7	12 o/c	3 o/c	6 o/c	9 o/c
500mm	9.0	9.1	9.2	8.8
3000mm	8.6	8.6	8.9	9.2

### AquaTerra Group

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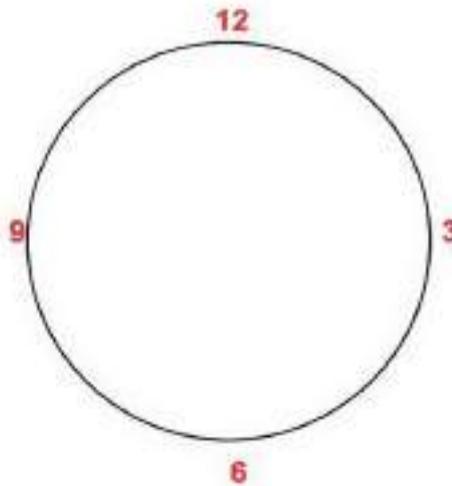
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## Ultrasonic Inspection Report

12 O'clock position being on the return side



6 O'clock position on the Drive side

INSPECTOR		AQUATERRA	
DATE		DATE	
SIGNATURE		SIGNATURE	

### AquaTerra Group

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## Ultrasonic Inspection Report

ALL INSPECTION CARRIED OUT IN ACCORDANCE WITH BS EN ISO 17640:2010					
Job No	SJ1021	Installation	Cairngorm Ski Towers	Report No.	CM-UT-005
Client	Highlands and Islands			Date	08/08/2014
Procedure	WI015	Technique Number	TS001		
Equipment	Sonatest D-10+	Calibration Cert. No.	C9732		
Serial No	1008454	Couplant	Polycell		
Probe Type	Twin Crystal				
Probe Angle	0°				
Crystal Size	10mm				
Frequency	5Mhz				
Serial Number	38690				
Scanning Sensitivity	40dB				
Transfer Correction	+2dB				
Calibration Block	60546	Shear	N/A		
Reference Block	Step Wedge	Thickness	5-20mm	Hole/Notch Size	N/A
Time-Base Range Compression	50mm				
Sensitivity Setting-Comp	2 <sup>nd</sup> BWE 100% FSH		Shear	N/A	
Weld I.D or Item	T2,T7 & T15		Location	West Wall Poma T- Bar	
Weld Procedure	N/A		Heat Treatment	N/A	
Drawing No	CA6584/03	Surface Condition	Coated	Temp	N/A
Material	Carbon Steel	Dimensions	N/A	Quantity	3
Identification / Serial No	West Wall Poma T- Bar Towers T2,T7 & T15				

### INSPECTION RESULTS/SKETCH/EXTENT OF TEST

At the request of the client and as per Cairngorm work pack SJ1021, Ultrasonic thickness checks were carried out on the above ski lift towers. Spot checks at four cardinal points 12,3,6,9 o'clock measured 500mm and 3000mm up from the base plate of the tower have been recorded. Wall thickness readings were obtained using the 'echo to echo' technique to take into account coating thickness.

The known nominal thickness for the towers was not available at time of UT inspection. Please refer to attached tabled results and photo's for further illustration and results of inspected areas.

**All measurements are in millimetres (mm)**

#### AquaTerra Group

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## Ultrasonic Inspection Report



**West Wall Poma Tower 2**

T2	12 o/c	3 o/c	6 o/c	9 o/c
500mm	5.3	5.3	5.8	5.5
3000mm	4.9	5.1	4.8	4.8

### AquaTerra Group

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## Ultrasonic Inspection Report



**West Wall Poma Tower 7**

T7	12 o/c	3 o/c	6 o/c	9o/c
500mm	7.4	8.3	8.4	7.7
3000mm	7.2	7.8	7.8	7.8

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## Ultrasonic Inspection Report



West Wall Poma Tower 15

T15	12 o/c	3 o/c	6 o/c	9 o/c
500mm	4.8	4.8	4.8	5.3
3000mm	4.8	4.9	4.9	4.6

### AquaTerra Group

AquaTerra House, Toftills Avenue, Midmill Business Park, Kintore, Aberdeen AB51 0QP

Tel: +44 (0) 845 257 7570

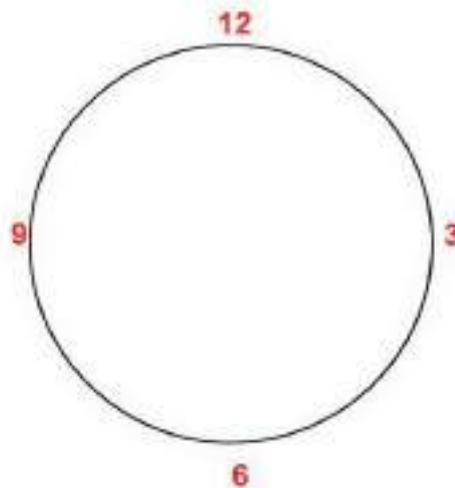
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Web: [www.theaquaterragroup.com](http://www.theaquaterragroup.com)

## Ultrasonic Inspection Report

12 O'clock position being on the return side



6 O'clock position on the Drive side

INSPECTOR		AQUATERRA	
DATE		DATE	
SIGNATURE		SIGNATURE	

### AquaTerra Group

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## Ultrasonic Inspection Report

ALL INSPECTION CARRIED OUT IN ACCORDANCE WITH BS EN ISO 17640:2010					
Job No	SJ1021	Installation	Cairngorm Ski Towers	Report No.	CM-UT-006
Client	Highlands and Islands			Date	08/08/2014
Procedure	WI015	Technique Number	TS001		
Equipment	Sonatest D-10+	Calibration Cert. No.	C9732		
Serial No	1008454	Couplant	Polycell		
Probe Type	Twin Crystal				
Probe Angle	0°				
Crystal Size	10mm				
Frequency	5Mhz				
Serial Number	38690				
Scanning Sensitivity	40dB				
Transfer Correction	+2dB				
Calibration Block	60546	Shear	N/A		
Reference Block	Step Wedge	Thickness	5-20mm	Hole/Notch Size	N/A
Time-Base Range Compression	50mm				
Sensitivity Setting-Comp	2 <sup>nd</sup> BWE 100% FSH		Shear	N/A	
Weld I.D or Item	T3,T6 & T9		Location	Day Lodge Poma	
Weld Procedure	N/A		Heat Treatment	N/A	
Drawing No	CA6584/03	Surface Condition	Coated	Temp	N/A
Material	Carbon Steel	Dimensions	N/A	Quantity	3
Identification / Serial No	Day Lodge Poma Towers T3,T6 & T9				

### INSPECTION RESULTS/SKETCH/EXTENT OF TEST

At the request of the client and as per Cairngorm work pack SJ1021, Ultrasonic thickness checks were carried out on the above ski lift towers. Spot checks at four cardinal points 12,3,6,9 o'clock measured 500mm and 3000mm up from the base plate of the tower have been recorded. Wall thickness readings were obtained using the 'echo to echo' technique to take into account coating thickness.

The known nominal thickness for the towers was not available at time of UT inspection. Please refer to attached tabled results and photo's for further illustration and results of inspected areas.

**All measurements are in millimetres (mm)**

#### AquaTerra Group

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## Ultrasonic Inspection Report



**Day Lodge Poma Tower 3**

T3	12 o/c	3 o/c	6 o/c	9 o/c
500mm	10.5	10.5	10.4	10.5
3000mm	5.6	5.7	5.5	5.4

### AquaTerra Group

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## Ultrasonic Inspection Report



**Day Lodge Poma Tower 6**

<b>T6</b>	<b>12 o/c</b>	<b>3 o/c</b>	<b>6 o/c</b>	<b>9 o/c</b>
<b>500mm</b>	5.6	4.8	4.9	4.8
<b>3000mm</b>	4.8	4.7	4.7	4.8

### **AquaTerra Group**

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## Ultrasonic Inspection Report



**Day Lodge Poma Tower 9**

T9	12 o/c	3 o/c	6 o/c	9 o/c
500mm	4.9	4.9	4.9	4.9
3000mm	4.6	4.6	4.6	4.8

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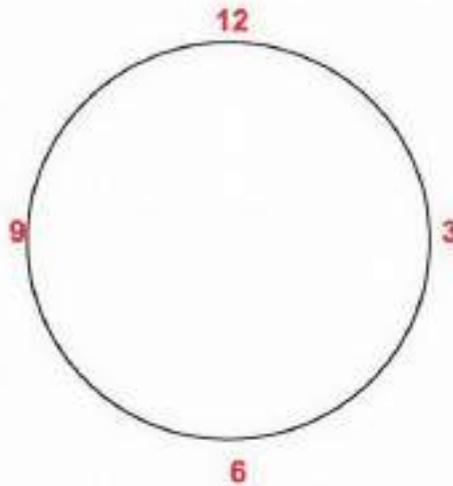
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## Ultrasonic Inspection Report

12 O'clock position being on the return side



6 O'clock position on the Drive side

INSPECTOR	[REDACTED]	AQUATERRA	[REDACTED]
DATE	[REDACTED]	DATE	[REDACTED]
SIGNATURE	[REDACTED]	SIGNATURE	[REDACTED]

### AquaTerra Group

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## Ultrasonic Inspection Report

ALL INSPECTION CARRIED OUT IN ACCORDANCE WITH BS EN ISO 17640:2010					
Job No	SJ1021	Installation	Cairngorm Ski Towers	Report No.	CM-UT-007
Client	Highlands and Islands			Date	08/08/2014
Procedure	WI015	Technique Number	TS001		
Equipment	Sonatest D-10+	Calibration Cert. No.	C9732		
Serial No	1008454	Couplant	Polycell		
Probe Type	Twin Crystal				
Probe Angle	0°				
Crystal Size	10mm				
Frequency	5Mhz				
Serial Number	38690				
Scanning Sensitivity	40dB				
Transfer Correction	+2dB				
Calibration Block	60546	Shear	N/A		
Reference Block	Step Wedge	Thickness	5-20mm	Hole/Notch Size	N/A
Time-Base Range Compression	50mm				
Sensitivity Setting-Comp	2 <sup>nd</sup> BWE 100% FSH		Shear	N/A	
Weld I.D or Item	T2,T6 & T11		Location	Car Park T-Bar	
Weld Procedure	N/A		Heat Treatment	N/A	
Drawing No	CA6584/03	Surface Condition	Coated	Temp	N/A
Material	Carbon Steel	Dimensions	N/A	Quantity	3
Identification / Serial No	Car Park T-Bar Towers T2,T6 & T11				

### INSPECTION RESULTS/SKETCH/EXTENT OF TEST

At the request of the client and as per Cairngorm work pack SJ1021, Ultrasonic thickness checks were carried out on the above ski lift towers. Spot checks at four cardinal points 12,3,6,9 o'clock measured 500mm and 3000mm up from the base plate of the tower have been recorded. Wall thickness readings were obtained using the 'echo to echo' technique to take into account coating thickness.

The known nominal thickness for the towers was not available at time of UT inspection. Please refer to attached tabled results and photo's for further illustration and results of inspected areas.

**All measurements are in millimetres (mm)**

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## Ultrasonic Inspection Report



Car Park T-Bar Tower 2

T2	12 o/c	3 o/c	6 o/c	9 o/c
500mm	8.8	8.1	8.1	8.0
3000mm	7.5	7.1	7.2	7.3

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## Ultrasonic Inspection Report



Car Park T-Bar Tower 6

T6	12 o/c	3 o/c	6 o/c	9 o/c
500mm	8.7	8.1	8.1	8.6
3000mm	8.6	8.4	8.7	7.9

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## Ultrasonic Inspection Report



Car Park T-Bar Tower 11

T11	12 o/c	3 o/c	6 o/c	9 o/c
500mm	8.5	8.9	9.0	8.3
3000mm	7.9	8.9	8.8	8.2

### AquaTerra Group

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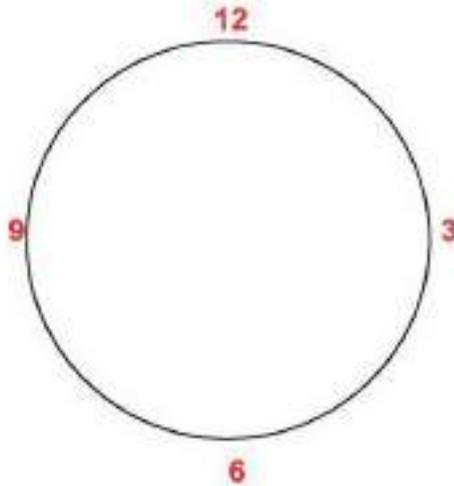
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## Ultrasonic Inspection Report

12 O'clock position being on the return side



6 O'clock position on the Drive side

INSPECTOR	[REDACTED]	AQUATERRA	[REDACTED]
DATE	[REDACTED]	DATE	[REDACTED]
SIGNATURE	[REDACTED]	SIGNATURE	[REDACTED]

### AquaTerra Group

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## Ultrasonic Inspection Report

ALL INSPECTION CARRIED OUT IN ACCORDANCE WITH BS EN ISO 17640:2010					
Job No	SJ1021	Installation	Cairngorm Ski Towers	Report No.	CM-UT-008
Client	Highlands and Islands			Date	08/08/2014
Procedure	WI015	Technique Number	TS001		
Equipment	Sonatest D-10+	Calibration Cert. No.	C9732		
Serial No	1008454	Couplant	Polycell		
Probe Type	Twin Crystal				
Probe Angle	0°				
Crystal Size	10mm				
Frequency	5Mhz				
Serial Number	38690				
Scanning Sensitivity	40dB				
Transfer Correction	+2dB				
Calibration Block	60546	Shear	N/A		
Reference Block	Step Wedge	Thickness	5-20mm	Hole/Notch Size	N/A
Time-Base Range Compression	50mm				
Sensitivity Setting-Comp	2 <sup>nd</sup> BWE 100% FSH		Shear	N/A	
Weld I.D or Item	TA,TC,TE,T2,T5 & T9		Location	Coire Cas T-Bar	
Weld Procedure	N/A		Heat Treatment	N/A	
Drawing No	CA6584/03	Surface Condition	Coated	Temp	N/A
Material	Carbon Steel	Dimensions	N/A	Quantity	6
Identification / Serial No	Coire Cas T-Bar Towers TA,TC,TE,T2,T5 & T9				

### INSPECTION RESULTS/SKETCH/EXTENT OF TEST

At the request of the client and as per Cairngorm work pack SJ1021, Ultrasonic thickness checks were carried out on the above ski lift towers. Spot checks at four cardinal points 12,3,6,9 o'clock measured 500mm and 3000mm up from the base plate of the tower have been recorded. Wall thickness readings were obtained using the 'echo to echo' technique to take into account coating thickness.

The known nominal thickness for the towers was not available at time of UT inspection. Please refer to attached tabled results and photo's for further illustration and results of inspected areas.

**All measurements are in millimetres (mm)**

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## Ultrasonic Inspection Report



**Coire Cas T-Bar Tower A**

TA	12 o/c	3 o/c	6 o/c	9 o/c
500mm	7.7	8.5	8.5	8.5
3000mm	8.2	8.3	8.6	8.9

### AquaTerra Group

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## Ultrasonic Inspection Report



Coire Cas T-Bar Tower 2

T2	12 o/c	3 o/c	6 o/c	9 o/c
500mm	9.4	8.8	9.0	8.1
3000mm	9.3	8.8	9.5	8.4

### AquaTerra Group

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## Ultrasonic Inspection Report



Coire Cas T-Bar Tower C

TC	12 o/c	3 o/c	6 o/c	9 o/c
500mm	7.7	7.6	7.7	7.8
3000mm	7.8	7.9	8.3	7.9

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## Ultrasonic Inspection Report



Coire Cas T-Bar Tower 5

T5	12 o/c	3 o/c	6 o/c	9 o/c
500mm	8.7	8.9	8.5	8.6
3000mm	7.7	8.4	7.8	7.8

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## Ultrasonic Inspection Report



**Coire Cas T-Bar Tower E**

TE	12 o/c	3 o/c	6 o/c	9 o/c
500mm	8.0	8.8	8.8	9.0
3000mm	7.6	7.9	8.1	7.8

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## Ultrasonic Inspection Report



**Coire Cas T-Bar Tower 9**

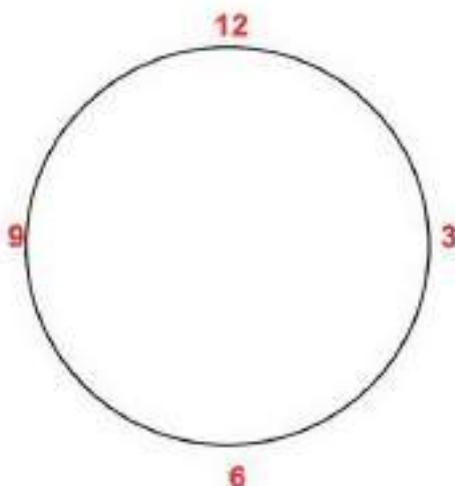
<b>T9</b>	<b>12 o/c</b>	<b>3 o/c</b>	<b>6 o/c</b>	<b>9 o/c</b>
<b>500mm</b>	8.3	8.9	8.6	9.1
<b>3000mm</b>	8.5	8.3	8.5	8.4

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## Ultrasonic Inspection Report

12 O'clock position being on the return side



6 O'clock position on the Drive side

INSPECTOR		AQUATERRA	
DATE		DATE	
SIGNATURE		SIGNATURE	

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## Ultrasonic Inspection Report

ALL INSPECTION CARRIED OUT IN ACCORDANCE WITH BS EN ISO 17640:2010					
Job No	SJ1021	Installation	Cairngorm Ski Towers	Report No.	CM-UT-2014-009
Client	Highlands and Islands			Date	08/08/2014
Procedure	W1015	Technique Number	TS001		
Equipment	Sonatest D-10+	Calibration Cert. No.	C9732		
Serial No	1008454	Couplant	Polycell		
Probe Type	Twin Crystal				
Probe Angle	0°				
Crystal Size	10mm				
Frequency	5Mhz				
Serial Number	38690				
Scanning Sensitivity	40dB				
Transfer Correction	+2dB				
Calibration Block	80546	Shear	N/A		
Reference Block	Step Wedge	Thickness	5-20mm	Hole/Notch Size	N/A
Time-Base Range Compression	50mm				
Sensitivity Setting-Comp	2 <sup>nd</sup> BWE 100% FSH		Shear	N/A	
Weld I.D or Item	T2,T6 & T9		Location	Fiacall Ridge Poma	
Weld Procedure	N/A		Heat Treatment	N/A	
Drawing No	CA6584/03	Surface Condition	Coated	Temp	N/A
Material	Carbon Steel	Dimensions	N/A	Quantity	3
Identification / Serial No	Fiacall Ridge Poma T2,T6 & T9				

### INSPECTION RESULTS/SKETCH/EXTENT OF TEST

At the request of the client and as per Cairngorm work pack SJ1021, Ultrasonic thickness checks were carried out on the above ski lift towers. Spot checks at four cardinal points 12,3,6,9 o'clock measured 500mm and 3000mm up from the base plate of the tower have been recorded. Wall thickness readings were obtained using the 'echo to echo' technique to take into account coating thickness.

The known nominal thickness for the towers was not available at time of UT inspection. Please refer to attached tabled results and photo's for further illustration and results of inspected areas.

**All measurements are in millimetres (mm)**

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## Ultrasonic Inspection Report



**Fiacaill Ridge Poma Tower 2**

T2	12 o/c	3 o/c	6 o/c	9 o/c
500mm	6.6	6.4	6.4	6.3
3000mm	6.5	6.3	6.6	6.5

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## Ultrasonic Inspection Report



**Fiacail Ridge Poma Tower 6**

<b>T6</b>	<b>12 o/c</b>	<b>3 o/c</b>	<b>6 o/c</b>	<b>9 o/c</b>
<b>500mm</b>	9.8	9.6	9.9	9.8
<b>3000mm</b>	9.8	9.8	9.8	9.6

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## Ultrasonic Inspection Report



**Fiacall Ridge Poma Tower 9**

T9	12 o/c	3 o/c	6 o/c	9 o/c
500mm	9.1	9.2	9.4	9.4
3000mm	9.3	9.7	9.1	9.4

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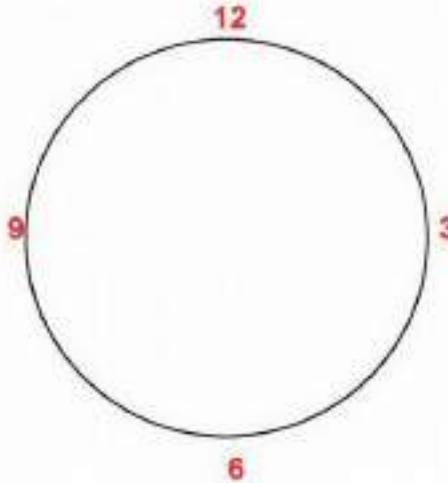
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## Ultrasonic Inspection Report

12 O'clock position being on the return side



6 O'clock position on the Drive side

INSPECTOR		AQUATERRA	
DATE		DATE	
SIGNATURE		SIGNATURE	

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## Ultrasonic Inspection Report

ALL INSPECTION CARRIED OUT IN ACCORDANCE WITH BS EN ISO 17640:2010					
Job No	SJ1021	Installation	Cairngorm Ski Towers	Report No.	CM-UT-010
Client	Highlands and Islands			Date	08/08/2014
Procedure	WI015	Technique Number	TS001		
Equipment	Sonatest D-10+	Calibration Cert. No.	C9732		
Serial No	1008454	Couplant	Polycell		
Probe Type	Twin Crystal				
Probe Angle	0°				
Crystal Size	10mm				
Frequency	5Mhz				
Serial Number	38690				
Scanning Sensitivity	40dB				
Transfer Correction	+2dB				
Calibration Block	60546	Shear	N/A		
Reference Block	Step Wedge	Thickness	5-20mm	Hole/Notch Size	N/A
Time-Base Range Compression	50mm				
Sensitivity Setting-Comp	2 <sup>nd</sup> BWE 100% FSH		Shear	N/A	
Weld I.D or Item	T1L & T3L		Location	Shelling Platter Poma	
Weld Procedure	N/A		Heat Treatment	N/A	
Drawing No	CA6584/03	Surface Condition	Coated	Temp	N/A
Material	Carbon Steel	Dimensions	N/A	Quantity	2
Identification / Serial No	Shelling Platter Poma Towers T1L & T3L				

### INSPECTION RESULTS/SKETCH/EXTENT OF TEST

At the request of the client and as per Cairngorm work pack SJ1021, Ultrasonic thickness checks were carried out on the above ski lift towers. Being of lattice construction and different configuration from the other towers, Spot checks at four cardinal points 12,3,6,9 o'clock were taken at the base and 500mm up from the base plate. Wall thickness readings were obtained using the 'echo to echo' technique to take into account coating thickness.

The known nominal thickness for the towers was not available at time of UT inspection. Please refer to attached tabled results and photo's for further illustration and results of inspected areas.

**All measurements are in millimetres (mm)**

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## Ultrasonic Inspection Report



**Sheiling Platter Tower 1L**

<b>T1L</b>	<b>12 o/c</b>	<b>3 o/c</b>	<b>6 o/c</b>	<b>9 o/c</b>
<b>Base</b>	7.6	8.6	7.9	8.8
<b>500mm</b>	3.6	3.1	3.5	3.5

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## Ultrasonic Inspection Report



Sheiling Platter Tower 3L

T3L	12 o/c	3 o/c	6 o/c	9 o/c
Base	7.0	8.1	7.2	7.3
500mm	3.9	3.7	3.5	3.3

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## Ultrasonic Inspection Report



X Marks spot checked areas

INSPECTOR	[REDACTED]	AQUATERRA	[REDACTED]
DATE	[REDACTED]	DATE	[REDACTED]
SIGNATURE	[REDACTED]	SIGNATURE	[REDACTED]

## MPI Inspection Report

<b>Job No</b>	SJ1021	<b>Order No.</b>	HMS 9346524	<b>Report No.</b>	CM-MPI-001
<b>Client</b>	Highlands and Island Enterprise	<b>Installation</b>	Cairngorm Mountain	<b>Date</b>	09/08/2014
<b>Procedure</b>	WI011	<b>Acceptance Criteria</b>		EN-ISO-5817	
<b>Technique Sheet</b>	WI011-TS001				

EQUIPMENT USED		TECHNIQUE USED	
<input checked="" type="checkbox"/> Y6 Yoke	s/no. 1203280	<input checked="" type="checkbox"/> Wet Visible	type: TS001
<input type="checkbox"/> Perm. Magnet	s/no.	<input type="checkbox"/> Wet fluorescent	type:
<input type="checkbox"/> DC Electromagnet	s/no.	Current	<input checked="" type="checkbox"/> AC <input type="checkbox"/> DC
<input type="checkbox"/> UV-A lamp	s/no.	Illum. Light level (Lux)	N/A
UV-A Irradiance	N/A	Ambient light level (Lux)	<500 Lux
Ink concentration %	1.25-3.5%	Test weight	4.5Kg
Item/component	Towers 2, 6 & 11 (Base Plate Connection Welds)	Penetrameter	Foil Strip Type 1
Identification	Car Park T-Bar	Pole spacing	100mm
Dimensions	N/A	Quantity	3
Stage of Test i.e. Pre or Post Heat Treatment		N/A	
Surface Prep.	Carbon Steel	Viewing Conditions	Good

### INSPECTION RESULTS /SKETCH/EXTENT OF TEST

As per client request and as part of SJ1021 work scope, Magnetic Particle Inspection was carried out on base plate connection welds on Towers 2, 6 and 11 of the Car Park T-Bar. Where necessary, coatings were removed.

Tower 2: Restrictions were encountered at stiffener feet where anchor bolts and washers are hard up against the weld cap, toe and Heat Affected Zone (HAZ).

Tower 6: Restrictions were encountered at stiffener feet where anchor bolts and washers are hard up against the weld cap, toe and Heat Affected Zone (HAZ).

Tower 11: 3mm indication found on Right Hand side (facing up-hill) Stiffener Web. Porosity was also found on all 4 segments of Base Plate Welds. No Restrictions were encountered.

No defects were found on weld joints.

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## MPI Inspection Report



Stand-off Photographic record of Base Plate and Stiffeners on Tower 2. Red Arrows indicate Anchor Bolts and washers impeding inspection of Stiffener Foot Weld and HAZ.



Photographic record showing Deck Plate and Stiffener welds with Anchor bolts on Tower 2.



Photographic record showing 25% of inspection area of Base Plate Welds and Anchor Bolts and Washers on Tower 6.



Further Photographic record showing Anchor Bolts and Washers restricting inspection of Weld Cap and HAZ on Tower 6.

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## MPI Inspection Report

	
<p>Photographic Record showing Porosity on Stiffening Web facing up-hill (12 o'clock) on Tower 11.</p>	<p>Photographic Record showing Indication measuring 3mm and Porosity on Right Hand side (3 o'clock) Stiffener Web on Tower 11.</p>

INSPECTOR	[Redacted]	AQUATERRA	[Redacted]
DATE		DATE	
SIGNATURE		SIGNATURE	

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## MPI Inspection Report

Job No	SJ1021	Order No.	HMS 9346524	Report No.	CM-MPI-002
Client	Highlands and Island Enterprise	Installation	Cairngorm Mountain	Date	09/08/2014
Procedure	WI011	Acceptance Criteria	EN-ISO-58171		
Technique Sheet	WI011-TS001				

EQUIPMENT USED		TECHNIQUE USED	
<input checked="" type="checkbox"/> Y6 Yoke	s/no. 1203280	<input checked="" type="checkbox"/> Wet Visible	type: TS001
<input type="checkbox"/> Perm. Magnet	s/no.	<input type="checkbox"/> Wet fluorescent	type:
<input type="checkbox"/> DC Electromagnet	s/no.	Current	<input checked="" type="checkbox"/> AC <input type="checkbox"/> DC
<input type="checkbox"/> UV-A lamp	s/no.	Illum. Light level (Lux)	N/A
UV-A Irradiance	N/A	Ambient light level (Lux)	<500 Lux
Ink concentration %	1.25-3.5%	Test weight	4.5Kg
Item/component	Towers 2, 6 & 9 (Base Plate Connection Welds)	Penetrameter	Foil Strip Type 1
Identification	Fiacall Ridge Poma	Pole spacing	100mm
Dimensions	N/A	Quantity	3
Stage of Test i.e. Pre or Post Heat Treatment	N/A		
Surface Prep.	Carbon Steel	Viewing Conditions	Good

### INSPECTION RESULTS /SKETCH/EXTENT OF TEST

As per client request and as part of SJ1021 work scope, Magnetic Particle inspection was carried out on base plate connection welds on Towers 2, 6 and 9 of the Fiacall Ridge Poma. Where necessary, coatings were removed.

Tower 2: Restrictions were encountered where internal welds of Anchor Bolt Housings were inaccessible. No other restrictions were encountered. Porosity was found in the "Cone to Tower" weld at 6 o'clock (downhill).

Tower 6: Restrictions were encountered where internal welds of Anchor Bolt Housings were inaccessible. No other restrictions were encountered. No Indications were found.

Tower 9: Restrictions were encountered where internal welds of Anchor Bolt Housings were inaccessible. No other restrictions were encountered. No Indications were found.

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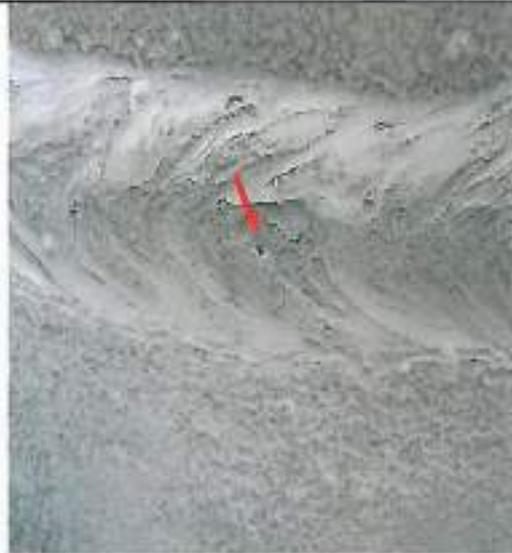
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## MPI Inspection Report



Stand-off Photographic record of Base Plate Cone and Anchor Bolt Housings on tower 2. Restrictions encountered within housings indicated by red arrows.



Photographic record showing Porosity in "Cone to Tower" weld at 6 o'clock (downhill) on Tower 2.



Photographic record showing extent of Magnetic Particle Inspection area at Base Plate Cone to Tower and Housing Welds and Anchor Bolts on Tower 6.



Photographic record showing Anchor Bolts/Washers and Cone to Tower Weld on Tower 9. High tensile wires are termination points for snow fences following the tow up the hill.

INSPECTOR	[REDACTED]	AQUATERRA	[REDACTED]
DATE	[REDACTED]	DATE	[REDACTED]
SIGNATURE	[REDACTED]	SIGNATURE	[REDACTED]

## MPI Inspection Report

Job No	SJ1021	Order No.	HMS 9346524	Report No.	CM-MPI-003
Client	Highlands and Island Enterprise	Installation	Cairngorm Mountain	Date	09/08/2014
Procedure	WI011	Acceptance Criteria	EN-ISO-5817		
Technique Sheet	WI011-TS001				

EQUIPMENT USED		TECHNIQUE USED	
<input checked="" type="checkbox"/> Y6 Yoke	s/no. 1203280	<input checked="" type="checkbox"/> Wet Visible	type: TS001
<input type="checkbox"/> Perm. Magnet	s/no.	<input type="checkbox"/> Wet fluorescent	type:
<input type="checkbox"/> DC Electromagnet	s/no.	Current	<input checked="" type="checkbox"/> AC <input type="checkbox"/> DC
<input type="checkbox"/> UV-A lamp	s/no.	Illum. Light level (Lux)	N/A
UV-A Irradiance	N/A	Ambient light level (Lux)	<500 Lux
Ink concentration %	1.25-3.5%	Test weight	4.5Kg
Item/component	Towers T1L & T3L (Base Plate Connection Welds)	Penetrameter	Foil Strip Type 1
Identification	Shelling Platter Poma	Pole spacing	100mm
Dimensions	N/A	Quantity	2
Stage of Test i.e. Pre or Post Heat Treatment	N/A		
Surface Prep.	Carbon Steel	Viewing Conditions	Good

### INSPECTION RESULTS /SKETCH/EXTENT OF TEST

As per client request and as part of SJ1021 work scope, Magnetic Particle Inspection was carried out on base plate connection welds on Towers T1L (Left looking down-hill) and T3L (Left looking down-hill) of the Shelling Platter Poma. Where necessary, coatings were removed.

Tower T1L: No restrictions were encountered. No Indications were found.

Tower T3L: No restrictions were encountered. No Indications were found.

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## MPI Inspection Report



Photographic record of Base Plate connection welds from angled latticework on T1L.



Photographic record showing base plate connection welds from angled lattice work and anchor bolt on T1L (facing down-hill).



Photographic record showing Base Plate connection weld from lattice tower facing down-hill on T3L.



Photographic record showing Square Tubular Base Plate to which Lattice tower was connected and ID.

INSPECTOR	[REDACTED]	AQUATERRA	[REDACTED]
DATE	[REDACTED]	DATE	[REDACTED]
SIGNATURE	[REDACTED]	SIGNATURE	[REDACTED]

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## MPI Inspection Report

Job No	SJ1021	Order No.	HMS 9346524	Report No.	CM-MPI-004
Client	Highlands and Island Enterprise	Installation	Cairngorm Mountain	Date	09/08/2014
Procedure	WI011	Acceptance Criteria	EN-ISO-5817		
Technique Sheet	WI011-TS001				

EQUIPMENT USED		TECHNIQUE USED	
<input checked="" type="checkbox"/> Y6 Yoke	s/no. 1203280	<input checked="" type="checkbox"/> Wet Visible	type: TS001
<input type="checkbox"/> Perm. Magnet	s/no.	<input type="checkbox"/> Wet fluorescent	type:
<input type="checkbox"/> DC Electromagnet	s/no.	Current	<input checked="" type="checkbox"/> AC <input type="checkbox"/> DC
<input type="checkbox"/> UV-A lamp	s/no.	Illum. Light level (Lux)	N/A
UV-A Irradiance	N/A	Ambient light level (Lux)	<500 Lux
Ink concentration %	1.25-3.5%	Test weight	4.5Kg
Item/component	Towers 2, 5 & 9 and A, C & E (Base Plate Connection Welds)	Penetrameter	Foil Strip Type 1
Identification	Coire Cas T-Bar	Pole spacing	100mm
Dimensions	N/A	Quantity	6
Stage of Test i.e. Pre or Post Heat Treatment	N/A		
Surface Prep.	Carbon Steel	Viewing Conditions	Good

### INSPECTION RESULTS /SKETCH/EXTENT OF TEST

As per client request and as part of SJ1021 work scope, Magnetic Particle Inspection was carried out on base plate connection welds on Towers 2, 5 & 9 and A, C & E of the Coire CasT-Bar. Where necessary, coatings were removed.

Tower 2: No restrictions were encountered. A 7mm Indication on right hand side Stiffener facing down-hill was found.

Tower 5: No restrictions were encountered. No Indications were found.

Tower 9: No restrictions were encountered. An 11mm Indication was found at the foot of the Stiffener web on the Left hand side looking up-hill.

Tower A: Restrictions were encountered when trying to inspect Tower to Deck connection weld facing up-hill (12 o'clock). An extra Square Tubular Stiffening section has been stitch welded to the Tower and Base Plate which rises 1 and a half meters up Tower A.

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## MPI Inspection Report

Tower C: No Restrictions were encountered. Porosity on Tower Deck connection weld and Stiffener Deck connection weld was found on left hand side down-hill Stiffener on Tower C. Porosity found Throughout Deck Connection welds on Tower C.

Tower E: No restrictions encountered. Undercutting was found on Tower to Deck Connection weld on Tower E facing down-hill. Porosity was also found on Stiffener Deck Connection weld on Right hand side Stiffener facing down-hill.



Stand-off Photographic record of Base Plate and Anchor Bolts on Tower 2. No Restrictions encountered. A 7mm Indication was found on the right hand side Stiffener facing down-hill.



Photographic record showing 7mm Indication on right hand side Stiffener facing down-hill on Tower 2 indicated by red arrow.



Photographic record showing 11mm Indication at foot of Stiffener web on Left hand side up-hill Stiffener on Tower 9.



Photographic record showing Porosity on Stiffener Deck Connection weld on left hand side down-hill Stiffener on Tower 9.

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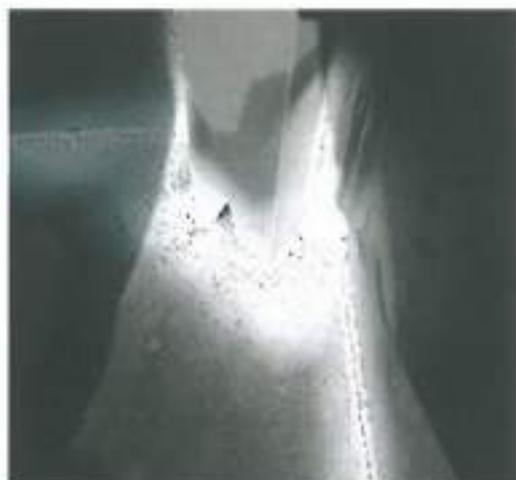
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## MPI Inspection Report



Photographic record showing Extra Stiffening Square Tubular Base Plate connection to Tower which rises 1 and a half meters intermittently welded up Tower A.



Photographic record showing Porosity on Tower Deck Connection weld and Stiffener Deck connection weld on left hand side down-hill Stiffener on Tower C. Porosity found Throughout Deck Connection welds on Tower C.



Photographic record showing undercut on Tower to Deck Connection weld on Tower E down-hill facing.



Photographic record showing Porosity on Stiffener Deck Connection weld on Right hand side down-hill Stiffener on Tower E.

INSPECTOR	[REDACTED]	AQUATERRA	[REDACTED]
DATE	[REDACTED]	DATE	[REDACTED]
SIGNATURE	[REDACTED]	SIGNATURE	[REDACTED]

### AquaTerra Group

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## MPI Inspection Report

Job No	SJ1021	Order No.	HMS 9346524	Report No.	CM-MPI-005
Client	Highlands and Island Enterprise	Installation	Cairngorm Mountain	Date	09/08/2014
Procedure	WI011	Acceptance Criteria	EN-ISO-5817		
Technique Sheet	WI011-TS001				

EQUIPMENT USED		TECHNIQUE USED	
<input checked="" type="checkbox"/> Y6 Yoke	s/no. 1203280	<input checked="" type="checkbox"/> Wet Visible	type: TS001
<input type="checkbox"/> Perm. Magnet	s/no.	<input type="checkbox"/> Wet fluorescent	type:
<input type="checkbox"/> DC Electromagnet	s/no.	Current	<input checked="" type="checkbox"/> AC <input type="checkbox"/> DC
<input type="checkbox"/> UV-A lamp	s/no.	Illum. Light level (Lux)	N/A
UV-A Irradiance	N/A	Ambient light level (Lux)	<500 Lux
Ink concentration %	1.25-3.5%	Test weight	4.5Kg
Item/component	Towers 2, 7 & 11 (Base Plate Connection Welds)	Penetrameter	Foil Strip Type 1
Identification	M1 Poma	Pole spacing	100mm
Dimensions	N/A	Quantity	3
Stage of Test i.e. Pre or Post Heat Treatment	N/A		
Surface Prep.	Carbon Steel	Viewing Conditions	Good

### INSPECTION RESULTS /SKETCH/EXTENT OF TEST

As per client request and as part of SJ1021 work scope, Magnetic Particle Inspection was carried out on base plate connection welds on Towers 2, 7 & 11 of the M1 Poma. Where necessary, coatings were removed.

Tower 2: Restrictions were encountered to inspection on internals of Anchor Bolt Housings. No Indications Found.

Tower 7: Restrictions were encountered to inspection on internals of Anchor Bolt Housings. No Indications Found.

Tower 11: Restrictions were encountered to inspection on internals of Anchor Bolt Housings. Porosity was found on Anchor Bolt Housing weld on Left hand side facing down-hill. Undercutting was found on Left hand side (9 o'clock position). Porosity was also found on right hand side Cone to Tower Weld facing down-hill.

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## MPI Inspection Report



Photographic record of Base Plate and Anchor Bolt Housing on Tower 2. Restrictions were encountered on internal Base Cone Connection from Anchor Bolt Housing.



Photographic record showing Porosity on right hand side Cone to Tower Weld facing down-hill on Tower 11 indicated by red arrow.



Photographic record showing Porosity on Anchor Bolt Housing weld on Left hand side down-hill facing on Tower 11.



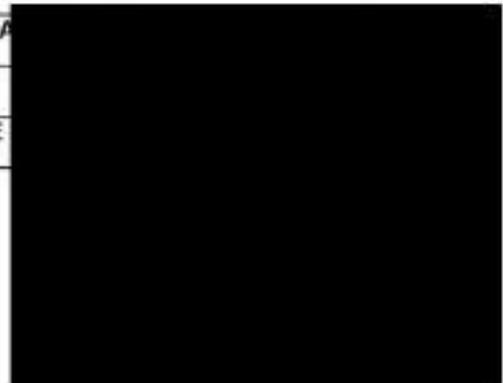
Photographic record showing Undercut on Left hand side (9 o'clock position) on tower 11.

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## MPI Inspection Report

INSPECTOR		AQUATERRA	
DATE		DATE	
SIGNATURE		SIGNATURE	



**AquaTerra Group**

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## MPI Inspection Report

<b>Job No</b>	SJ1021	<b>Order No.</b>	HMS 9346524	<b>Report No.</b>	CM-MPI-006
<b>Client</b>	Highlands and Island Enterprise	<b>Installation</b>	Cairngorm Mountain	<b>Date</b>	09/08/2014
<b>Procedure</b>	WI011	<b>Acceptance Criteria</b>		EN-ISO-5817	
<b>Technique Sheet</b>	WI011-TS001				

EQUIPMENT USED		TECHNIQUE USED	
<input checked="" type="checkbox"/> Y6 Yoke	s/no. 1203280	<input checked="" type="checkbox"/> Wet Visible	type: TS001
<input type="checkbox"/> Perm. Magnet	s/no.	<input type="checkbox"/> Wet fluorescent	type:
<input type="checkbox"/> DC Electromagnet	s/no.	Current	<input checked="" type="checkbox"/> AC <input type="checkbox"/> DC
<input type="checkbox"/> UV-A lamp	s/no.	Illum. Light level (Lux)	N/A
UV-A Irradiance	N/A	Ambient light level (Lux)	<500 Lux
Ink concentration %	1.25-3.5%	Test weight	4.5Kg
Item/component	Towers 2, 4 & 7 (Base Plate Connection Welds)	Penetrameter	Foil Strip Type 1
Identification	Coire Na Ciste T-Bar	Pole spacing	100mm
Dimensions	N/A	Quantity	3
Stage of Test i.e. Pre or Post Heat Treatment		N/A	
Surface Prep.	Carbon Steel	Viewing Conditions	Good

### INSPECTION RESULTS /SKETCH/EXTENT OF TEST

As per client request and as part of SJ1021 work scope, Magnetic Particle Inspection was carried out on base plate connection welds on Towers 2, 4 & 7 of the Coire Na Ciste T-Bar. Where necessary, coatings were removed.

Tower 2: Porosity Found throughout Anchor Bolt Housing to Web welds on Base Plate Connection to Stiffener web on Tower 2. 55mm indication on Base Plate Stiffener Web Trim (Non Structural) on T2.

Tower 4: No Indications were found and no restrictions encountered

Tower 7: Extra "L-Plate" weldments to Stiffener webs on Tower 7. No Restrictions were encountered and No Indications found.

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## MPI Inspection Report



Photographic record of Base Plate Connection weld to Stiffener web configuration on Tower 2. Porosity Found throughout Anchor Bolt Housing to Web welds.



Photographic record showing 55mm indication on Base Plate Stiffener Web Trim (Non Structural) on T2.



Photographic record showing 1 of 4 inspection segments of Tower 4. No Indications were found and no restrictions encountered.



Photographic record showing Extra "L-Plate" weldment to Stiffener web on Tower 7. No Restrictions were encountered and No Indications found.

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## MPI Inspection Report

INSPECTOR		AQUATERRA	
DATE		DATE	
SIGNATURE		SIGNATURE	

## MPI Inspection Report

Job No	SJ1021	Order No.	HMS 9346524	Report No.	CM-MPI-007
Client	Highlands and Island Enterprise	Installation	Cairngorm Mountain	Date	09/08/2014
Procedure	WI011	Acceptance Criteria	EN-ISO-5817		
Technique Sheet	WI011-TS001				

EQUIPMENT USED		TECHNIQUE USED	
<input checked="" type="checkbox"/> Y6 Yoke	s/no. 1203280	<input checked="" type="checkbox"/> Wet Visible	type: TS001
<input type="checkbox"/> Perm. Magnet	s/no.	<input type="checkbox"/> Wet fluorescent	type:
<input type="checkbox"/> DC Electromagnet	s/no.	Current	<input checked="" type="checkbox"/> AC <input type="checkbox"/> DC
<input type="checkbox"/> UV-A lamp	s/no.	Illum. Light level (Lux)	N/A
UV-A Irradiance	N/A	Ambient light level (Lux)	<500 Lux
Ink concentration %	1.25-3.5%	Test weight	4.5Kg
Item/component	Tower 1 (Base Plate Connection Welds)	Penetrameter	Foil Strip Type 1
Identification	Polar Express Poma	Pole spacing	100mm
Dimensions	N/A	Quantity	1
Stage of Test i.e. Pre or Post Heat Treatment	N/A		
Surface Prep.	Carbon Steel	Viewing Conditions	Good

### INSPECTION RESULTS /SKETCH/EXTENT OF TEST

As per client request and as part of SJ1021 work scope, Magnetic Particle Inspection was carried out on base plate connection welds on Tower 1 of the Polar Express Poma. Where necessary, coatings were removed.

Tower 1: No Restrictions were encountered during inspection and No Indications Found.

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## MPI Inspection Report



Photographic record of Base Plate Connection weld to Tower 1 looking down-hill (6 o'clock). No restrictions were encountered and no indications found.

INSPECTOR		AQUATERRA	
DATE		DATE	
SIGNATURE		SIGNATURE	

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## MPI Inspection Report

Job No	SJ1021	Order No.	HMS 9346524	Report No.	CM-MPI-008
Client	Highlands and Island Enterprise	Installation	Cairngorm Mountain	Date	09/08/2014
Procedure	WI011	Acceptance Criteria	EN-ISO-5817		
Technique Sheet	WI011-TS001				

EQUIPMENT USED		TECHNIQUE USED	
<input checked="" type="checkbox"/> Y6 Yoke	s/no. 1203280	<input checked="" type="checkbox"/> Wet Visible	type: TS001
<input type="checkbox"/> Perm. Magnet	s/no.	<input type="checkbox"/> Wet fluorescent	type:
<input type="checkbox"/> DC Electromagnet	s/no.	Current	<input checked="" type="checkbox"/> AC <input type="checkbox"/> DC
<input type="checkbox"/> UV-A lamp	s/no.	Illum. Light level (Lux)	N/A
UV-A Irradiance	N/A	Ambient light level (Lux)	<500 Lux
Ink concentration %	1.25-3.5%	Test weight	4.5Kg
Item/component	Towers 1, 3 & 5 (Base Plate Connection Welds)	Penetrameter	Foil Strip Type 1
Identification	Ptarmigan T-Bar	Pole spacing	100mm
Dimensions	N/A	Quantity	3
Stage of Test i.e. Pre or Post Heat Treatment	N/A		
Surface Prep.	Carbon Steel	Viewing Conditions	Good

### INSPECTION RESULTS /SKETCH/EXTENT OF TEST

As per client request and as part of SJ1021 work scope, Magnetic Particle Inspection was carried out on base plate connection welds on Towers 1, 3 & 5 of the Ptarmigan T-Bar. Where necessary, coatings were removed.

Tower 1: Indications found on both Stiffener Webs facing down-hill. 20mm indication on downward Left hand Stiffener web on Tower 1 and 15mm indication on downward web right hand side Tower 1.

Tower 3: 4mm indication on Stiffener to Deck Connection weld on up-hill right hand side. 30mm indication on upward Stiffener Web Trim left hand side (Non Structural).

Tower 5: 25mm indication on Web Stiffener Trim at 3 o'clock Position (looking up hill). Indication does not affect structural integrity of Stiffening Web.

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## MPI Inspection Report

	
<p>Photographic record of Base Plate and Anchor Bolts on Tower 1. Indications found on both Stiffener Webs facing down-hill.</p>	<p>Photographic record showing 20mm indication on downward Left hand Stiffener web on Tower 1.</p>
	
<p>Photographic record showing 15mm indication on downward web right hand side Tower 1.</p>	<p>Photographic record showing 4mm indication on Stiffener to Deck Connection weld on Tower 3 Up-hill right hand side.</p>

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## MPI Inspection Report



Photographic record showing 30mm indication on upward Stiffener Web Trim left hand side (Non Structural) on Tower 3.



Photographic record showing 25mm indication on Web Stiffener Trim on Tower 5 at 3 o'clock Position (looking up hill). Indication does not affect structural integrity of Stiffening Web.

INSPECTOR		AQUATERRA	
DATE		DATE	
SIGNATURE		SIGNATURE	

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## MPI Inspection Report

Job No	SJ1021	Order No.	HMS 9346524	Report No.	CM-MPI-009
Client	Highlands and Island Enterprise	Installation	Cairngorm Mountain	Date	09/08/2014
Procedure	WI011	Acceptance Criteria	EN-ISO-5817		
Technique Sheet	WI011-TS001				

EQUIPMENT USED		TECHNIQUE USED	
<input checked="" type="checkbox"/> Y6 Yoke	s/no. 1203280	<input checked="" type="checkbox"/> Wet Visible	type: TS001
<input type="checkbox"/> Perm. Magnet	s/no.	<input type="checkbox"/> Wet fluorescent	type:
<input type="checkbox"/> DC Electromagnet	s/no.	Current	<input checked="" type="checkbox"/> AC <input type="checkbox"/> DC
<input type="checkbox"/> UV-A lamp	s/no.	Illum. Light level (Lux)	N/A
UV-A Irradiance	N/A	Ambient light level (Lux)	<500 Lux
Ink concentration %	1.25-3.5%	Test weight	4.5Kg
Item/component	Towers 2, 7 & 15 (Base Plate Connection Welds)	Penetrameter	Foil Strip Type 1
Identification	West Wall Poma	Pole spacing	100mm
Dimensions	N/A	Quantity	3
Stage of Test i.e. Pre or Post Heat Treatment	N/A		
Surface Prep.	Carbon Steel	Viewing Conditions	Good

### INSPECTION RESULTS /SKETCH/EXTENT OF TEST

As per client request and as part of SJ1021 work scope, Magnetic Particle Inspection was carried out on base plate connection welds on Towers 2, 7 & 15 of the West Wall Poma. Where necessary, coatings were removed.

Tower 1: No Indications found. Restricted Access to Internal Anchor Bolt Housing.

Tower 3: No Indications found. Restricted Access to Internal Anchor Bolt Housing.

Tower 5: No Indications found. Restricted Access to Internal Anchor Bolt Housing.

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## MPI Inspection Report



Photographic record of Base Plate Cone and Anchor Bolts and Housings on Tower 2.



Photographic record of Base Plate Cone and Anchor Bolts and Housings on Tower 7.



Photographic record of Base Plate Cone and Anchor Bolts and Housing on Tower 15. Arrow indicates restricted access to internal Anchor Bolt Housing.

INSPECTOR	[REDACTED]	AQUATERRA	[REDACTED]
DATE	[REDACTED]	DATE	[REDACTED]
SIGNATURE	[REDACTED]	SIGNATURE	[REDACTED]

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## MPI Inspection Report

<b>Job No</b>	SJ1021	<b>Order No.</b>	HMS 9346524	<b>Report No.</b>	CM-MPI-010
<b>Client</b>	Highlands and Island Enterprise	<b>Installation</b>	Cairngorm Mountain	<b>Date</b>	09/08/2014
<b>Procedure</b>	WI011	<b>Acceptance Criteria</b>		EN-ISO-5817	
<b>Technique Sheet</b>	WI011-TS001				

EQUIPMENT USED		TECHNIQUE USED	
<input checked="" type="checkbox"/> Y6 Yoke	s/no. 1203280	<input checked="" type="checkbox"/> Wet Visible	type: TS001
<input type="checkbox"/> Perm. Magnet	s/no.	<input type="checkbox"/> Wet fluorescent	type:
<input type="checkbox"/> DC Electromagnet	s/no.	Current	<input checked="" type="checkbox"/> AC <input type="checkbox"/> DC
<input type="checkbox"/> UV-A lamp	s/no.	Illum. Light level (Lux)	N/A
UV-A Irradiance	N/A	Ambient light level (Lux)	<500 Lux
Ink concentration %	1.25-3.5%	Test weight	4.5Kg
Item/component	Towers 3, 6 & 9 (Base Plate Connection Welds)	Penetrameter	Foil Strip Type 1
Identification	Day Lodge Poma	Pole spacing	100mm
Dimensions	N/A	Quantity	3
Stage of Test i.e. Pre or Post Heat Treatment		N/A	
Surface Prep.	Carbon Steel	Viewing Conditions	Good

### INSPECTION RESULTS /SKETCH/EXTENT OF TEST

As per client request and as part of SJ1021 work scope, Magnetic Particle Inspection was carried out on base plate connection welds on Towers 3, 6 & 9 of the Day Lodge Poma. Where necessary, coatings were removed.

Tower 1: No Indications Found. Restrictions encountered on internal Anchor Bolt Housing.

Tower 3: No Indications Found. Restrictions encountered on internal Anchor Bolt Housing.

Tower 5: Porosity at 10 o'clock Anchor Bolt Housing facing up hill. Restrictions encountered on internal Anchor Bolt Housing.

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## MPI Inspection Report



Photographic record of Base Plate and Anchor Bolt Housing on Tower 3. Restrictions encountered on internal Anchor Bolt Housing.



Photographic record showing Base Plate Cone to Tower Connection on Tower 3.



Photographic record showing Anchor Bolt Housing and internal Restricted Inspection area on Tower 8.



Photographic record showing Porosity at 10 o'clock Anchor Bolt Housing facing up hill on Tower 9.

INSPECTOR	[REDACTED]	AQUATERRA	[REDACTED]
DATE	[REDACTED]	DATE	[REDACTED]
SIGNATURE	[REDACTED]	SIGNATURE	[REDACTED]

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**RECORD OF PCN CERTIFICATION**

Further information on the scope of certification available may be obtained from The Certification Services Division, British Institute of NDT, Newton Building, St. George's Avenue, Northampton, NN2 6JB, United Kingdom. E-mail: [pcn@bindt.org](mailto:pcn@bindt.org). Tel: +44 01804 883811 Fax: +44 01604 883868

Valid only when signed on behalf of BINDT and impressed with the PCN cold seal.

This document may be withdrawn or revoked in part or in total at any time.

**PART 1 - HOLDER'S DETAILS**

PCN NUMBER: [REDACTED]

ISSUE DATE: 28/03/2013

ISSUE NUMBER: 1

1 NAME & ADDRESS: [REDACTED]

NORMAL SIGNATURE: [REDACTED]

**PART 2 - NOTIFICATION OF PERMANENT CHANGE OF HOLDER'S ADDRESS**

PCN NUMBER: [REDACTED] ISSUE DATE: 28/03/2013 ISSUE NUMBER: 1

This part is used by the certificate holder to notify the BINDT Certification Records Office of a permanent change of address. Please complete in BLOCK LETTERS, carefully detach this portion (retaining the remainder as evidence of certification), and fax or post to: BINDT CRO, Newton Building, St. George's Avenue, Northampton, NN2 6JB, England, or by email to [PCN\\_CRO@bindt.org](mailto:PCN_CRO@bindt.org)

FULL NAME: \_\_\_\_\_

NEW ADDRESS: \_\_\_\_\_

POSTAL CODE: \_\_\_\_\_ TELEPHONE: \_\_\_\_\_

EMAIL ADDRESS: \_\_\_\_\_

**PART 3 - CERTIFICATION HELD (All certificates comply with EN ISO:9712 unless otherwise stated)**

CERTIFICATE NUMBER	ISSUE	LEVEL	SECTOR	METHOD	SCOPE OF CERTIFICATE (see over for key to codes)	ISSUE DATE	EXPIRY DATE
F011S5425147	1	2	G	M	Fixed installations, Portable equipment, NDT instruction writing	26/03/2013	25/03/2018
F012S3121889	1	2	W	E1	NDT instruction writing, Single frequency	26/03/2013	25/03/2018



**PART 1 - HOLDER'S DETAILS**

PCN NUMBER: [REDACTED]  
 ISSUE DATE: 08/05/2014

ISSUE NUMBER: 1

Further information on the scope of certification available may be obtained from The Certification Services Division, British Institute of NDT, Newton Building, St George's Avenue, Northampton NN2 6JL, United Kingdom. E-mail: pcm@bndt.org, Tel: +44 (0)1604 893811 Fax: +44 (0)1604 893868

And only when signed on behalf of BINDT and processed with the PCN code 3881

This document may be withdrawn or revoked in part or in total at any time

**RECORD OF PCN CERTIFICATION**

This part is used by the certificate holder to notify the BINDT Certificate Issuance Office of any permanent change of address. Please complete in BLOCK LETTERS, carefully detaching the perforated strip (evidence of certification), and fax or post to: BINDT/NDT, Newton Building, St George's Avenue, Northampton NN2 6JL, England, or by email to pcm@bndt.org

FULL NAME: [REDACTED]  
 NEW ADDRESS: [REDACTED]  
 POSTAL CODE: [REDACTED] TELEPHONE: [REDACTED]  
 EMAIL ADDRESS: [REDACTED]

**PART 2 - NOTIFICATION OF PERMANENT CHANGE OF HOLDER'S ADDRESS**

PCN NUMBER: [REDACTED] ISSUE DATE: 08/05/2014

**PART 3 - CERTIFICATION HELD: (All certificates comply with EN ISO 9712 unless otherwise stated)**

CERTIFICATE NUMBER	ISSUE	LEVEL	SECTOR	METHOD	SCOPE OF CERTIFICATE (see over for key to codes)	ISSUE DATE
F01354324456	1	2	F	U	(does not comply with ISO 9712), ISO 20807- Inspection of Wrought Plate	01/05/2014
F01355428022	1	2	G	M	Fixed installations, Portable equipment, Forgings, NDT instruction writing, Welds, Castings	03/05/2014

Document is valid only when presented on original cream paper, and when supported by a laminated wallet card bearing the signature and a photograph of the holder. Original certification data is strongly encouraged and is available at www.bndt.org/PCN or by post, telephone, fax or e-mail giving the original PCN number.



OCEANSCAN LTD

### CERTIFICATE OF CALIBRATION

Client:

Certificate Number:

Contract Number:

<b>Description</b>	<b>Dual Light Meter</b>	<b>Customer Address:</b>
<b>Unit Model</b>	Levy Hill Dual Light Meter	Denmore Road
<b>Serial Number</b>	7938	Bridge of Don
<b>Received Date</b>	12/06/2014	Aberdeen, AB23 8JW

Results

<b>Location of Calibration:</b>	<b>As Received / Shipped Status</b>	<b>Calibration Procedure:</b>
Oceanscan Ltd	Before Cal: <input type="text" value="Out"/>	TM-002/004
Denmore Road	After Cal: <input type="text" value="In"/>	
Bridge of Don		<b>Test Standard:</b>
Aberdeen		BSEN3059:2001/BS667
AB23 8JW	UV Accuracy <input type="text" value="10"/> Amb Accuracy <input type="text" value="10"/> %	

#### Test Results

UV	0	Full
Standard	0	0.91
Measured	0	0.84
Pass/Fail	Pass	Pass

AMB	0	Full
Standard	0	1401
Measured	0	1407
Pass/Fail	Pass	Pass

This is to Certify that the above product has been calibrated in compliance with a quality system registered to ISO9001 using Oceanscan procedures. This certifies that the above meets manufacturer's specification and that any adjustments or maintenance which has been carried out prior to the calibration will be listed in the accompanying service report. The Measurement equipment used during this calibration is all traceable to a National Standard.

Name:

Calibration Date: 12/06/2014

Function: Trainee Calibration Engineer

Recommended next calibration due date: 11/06/2015

Signature:

This Certificate shall not be reproduced, except in full, without written approval of Oceanscan Ltd

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This document is invalid without a CIA Stamp

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MIDMILL BUSINESS PARK  
KINTORE  
INVERURIE  
AB51 0QP  
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OCEANSCAN LTD

CERTIFICATE OF CALIBRATION

Client: Oceanscan Limited
Certificate Number: C9950
Contract Number: 25936

Description: Permanent Magnet
Unit Model: Keiyu KY-P2
Serial Number: 19007
Received Date: 04/06/2014
Customer Address: Oceanscan Limited, Denmore Rd., Aberdeen, AB23 8JW

Results: Pass

Location of Calibration: Oceanscan Ltd, Denmore Road, Bridge of Don, Aberdeen, AB23 8JW
As Received / Shipped Status: Before Cal: In, After Cal: In
Calibration Procedure: TM-013
Test Standard: BS6072 Para 15.3 (Superceeded but not withdrawn - ref doc only)

Test Results

Condition: Pass Lift Test: Pass 4.53Kg

This is to Certify that the above product has been calibrated in compliance with a quality system registered to ISO9001 using Oceanscan procedures. This certifies that the above meets manufacturer's specification and that any adjustments or maintenance which has been carried out prior to the calibration will be listed in the accompanying service report. The Measurement equipment used during this calibration is all traceable to a National Standard.

Name: [Redacted] Calibration Date: 04/06/2014
Function: Base Engineer Recommended next calibration: [Redacted]
Signature: [Redacted]

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The uncertainties are for a confidence probability of not less than 95%

This document is invalid without a QA Stamp



OCEANSCAN LTD

### CERTIFICATE OF CALIBRATION

Client:

Certificate Number:

Contract Number:

<b>Description</b>	<b>Electromagnet</b>	<b>Customer Address:</b>
Unit Model	MY-2	Denmore Road
Serial Number	1203280	Aberdeen
Received Date	02/04/2014	AB23 8JW

Results:

<b>Location of Calibration:</b>	<b>As Received / Shipped Status</b>	<b>Calibration Procedure:</b>
Oceanscan Ltd	Before Cal: <input type="text" value="In"/>	TM-005
Denmore Road	After Cal: <input type="text" value="In"/>	
Bridge of Don		<b>Test Standard:</b>
Aberdeen		BS 9934-3:2002
AB23 8JW		

**Test Results**

Condition:     Lift Test:     4.53Kg

Lamp:     Temperature:



This is to Certify that the above product has been calibrated in compliance with a quality system registered to ISO9001 using Oceanscan procedures. This certifies that the above meets manufacturer's specification and that any adjustments or maintenance which has been carried out prior to the calibration will be listed in the accompanying service report. The Measurement equipment used during this calibration is all traceable to a National Standard.

<b>Name:</b>	<input type="text"/>	<b>Calibration Date:</b>	02/04/2014
<b>Function:</b>	<input type="text"/>	<b>Recommend</b>	<input type="text"/>
<b>Signature:</b>	<input type="text"/>	<b>calibration c</b>	

This Certificate shall not be reproduced, except in full, without written ap

The uncertainties are for a confidence probability of not less than

This document is invalid without a QA Stamp



OCEANSCAN LTD

### CERTIFICATE OF CALIBRATION



Client:

Certificate Number:

Contract Number:

Description: **Ultrasonic Flaw Detector**

Unit Model: **D10+**

Serial Number: **1008454**

Received Date: **14/04/2014**

Results:

<b>Location of Calibration:</b>	<b>Customer Address:</b>	<b>Calibration Procedure:</b>
Oceanscan Ltd	Oceanscan Ltd.	TM-001
Denmore Road	Denmore Road	
Bridge of Don	Bridge of Don	<b>Test Standard:</b>
Aberdeen	Aberdeen	BSEN12668-1:2010 Group 2
AB23 8JW	AB23 8JW	

**As Received / Shipped Status**

Before Calibration:	In: <input type="text" value="v"/>	Out: <input type="text"/>	N/A: <input type="text"/>
After Calibration:	In: <input type="text" value="v"/>	Out: <input type="text"/>	N/A: <input type="text"/>

This certificate is issued in accordance with the Laboratory accreditation requirements of the United Kingdom Accreditation Service. It provides traceability of measurement to the SI system of units and/or to units of measurement realised at the National Physical Laboratory or other recognised national metrology institutes. This certification may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

Name:  Calibration Date: **14/04/2014**

Function: **Trainee Base Engineer** Recommended next calibration date:

Signature:

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage probability of approximately 95%. The uncertainty evaluation has been carried out in accordance with ISO/IEC 17025:2005.



**OCEANSCAN LIMITED**  
**CERTIFICATE OF CONFORMITY**

Serial No : 60546

Model : V2X12.5X1.5

The reliability and test accuracy of the equipment referred above is as laid down by the Manufacturer's Specifications.  
The test equipment used has been calibrated and is traceable to National Standards.

ISSUED BY: OCEANSCAN

Calibration Certificate Number:

5188

Customer: **[REDACTED]**

Description: **[REDACTED]**

Manufacturer: MA

Specifications: BS EN 2704

Temperature: 21.05/20.5 °C

Test Engineer: **[REDACTED]**

Date: 08.05.08

Signed: **[REDACTED]**

Test Results	
Visual	PASS
Dimensions (±0.1mm)	PASS
LT Checks	PASS

Test Equipment: Callipers - 0000286, Cert No 210032, Due Date 26.06.10  
DB2 s/n PM35/C820, Cert No 537882, Due Date 26.04.10

**OCEANSCAN LIMITED**  
Denmore Road, Bridge of Don  
Aberdeen, AB238JW  
Scotland, UK

TEL: +44 (0) 1224 797800 FAX: +44 (0) 1224 797881

info@oceanscan.co.uk



# RSL NDT LTD.

REPAIR • SERVICE • CALIBRATION

11/06/2013  
11:00 AM  
11/06/2013  
11:00 AM  
11/06/2013  
11:00 AM

## *Certificate of Conformity*

**Certification Number:** NE 8997  
**Date of Calibration:** 11.06.2013  
**Customer:** Oceanscan Ltd  
**Description:** 5-20mm Steel Stopwedge  
**Material:** C3393143  
**Heat Treatment:** 061539  
**Serial Number:** 13/11/69  
**Temperature:** 19.9 °C  
**Test Standard:** Micrometers:

S/N: W3-2-9801201, Cert. No: 1342300001, UKAS Lab: 0095, Cal. Date: 15.05.13  
S/N: W3-3-9810401, Cert. No: 1342300002, UKAS Lab: 0095, Cal. Date: 15.05.13  
S/N: W3-4-9824001, Cert. No: 1342300003, UKAS Lab: 0095, Cal. Date: 15.05.13  
S/N: W3-5-9758201, Cert. No: 1342300004, UKAS Lab: 0095, Cal. Date: 15.05.13  
S/N: W3-6-9878801, Cert. No: 1342300005, UKAS Lab: 0095, Cal. Date: 15.05.13  
S/N: W3-7-9801401, Cert. No: 1342300006, UKAS Lab: 0095, Cal. Date: 15.05.13

The equipment used has been calibrated and is traceable to National Standards!

### TEST RESULTS:

Stated Value / mm	Actual Value / mm
5	5.02
10	10
15	15.01
20	20.01

The Uncertainties Are For a Confidence Of Not Less Than 95%.

Authorised Signature:

