


Report Number	xxx		
Windfarm	xxx		
Client	xxx		
Turbine Number	T20		
Turbine Type	GE1.5		
Blade Type	LM34		
Repair Technicians	xxx		
Repair Date(s)	From: 30-08-2021	To: 16-09-2021	
Report Date	10-09-2021		
Report Author	xxx		
Report Approver	Alex Mountain		

Turbine Serial Number	37423
Turbine Serial Number Photo	

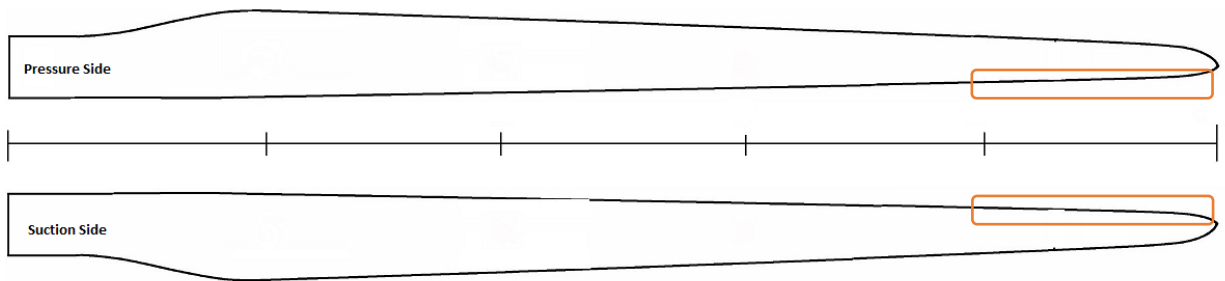
Repair Product Information

Product:	Sikaforce 7800 BLUE	
Batch #:	A-3004787168 B-3004793855	
Expiry Date:	01-10-2021	
Product:	Araldite 2021	
Batch #:	ADJ0382200	
Expiry Date:	05-11-2022	
Product:	489PA Resin	
Batch #:	000336278/CLP	
Expiry Date:	19-05-2022	
Product:	Catalyst, Peroxide Type D	
Batch #:	000	
Expiry Date:	19-05-2022	
Product:	Wind Protection Tape - Colourless Lot: 21060 Expiry: 03/23	
Batch #:	21060	
Expiry Date:	01-03-2023	
Product:	Carbolin Windmastic TC HSX repair kit, part A	
Batch #:	B16000540	
Expiry Date:	16-12-2022	
Product:	Carbolin Windmastic TC HSX repair kit part B	
Batch #:	B16001475	
Expiry Date:	07-11-2022	

Blade Number	0633
Blade Designation	1
Blade Badge	

Repair Summary
 Leading edge erosion was repaired with filler from 28m to the Tip.
 6 metres of 3M Wind Protection Tape was applied to the blade.

Blade 1 Repair Table					
Repair #	Distance from root (m)	Location (LE, PS, TE, SS)	Damage/Repair Type	Length (mm)	Width (mm)
347517	28	LE	Leading edge erosion	6000	100
347518					



Blade	Repair #	Distance from root (m)	Location	Damage/Repair Type
1	347517, 347518	28 - 34	LE	Leading edge erosion

Blade Condition Prior to Repair	Blade Prepared
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Repair Filled	Repair Profiled
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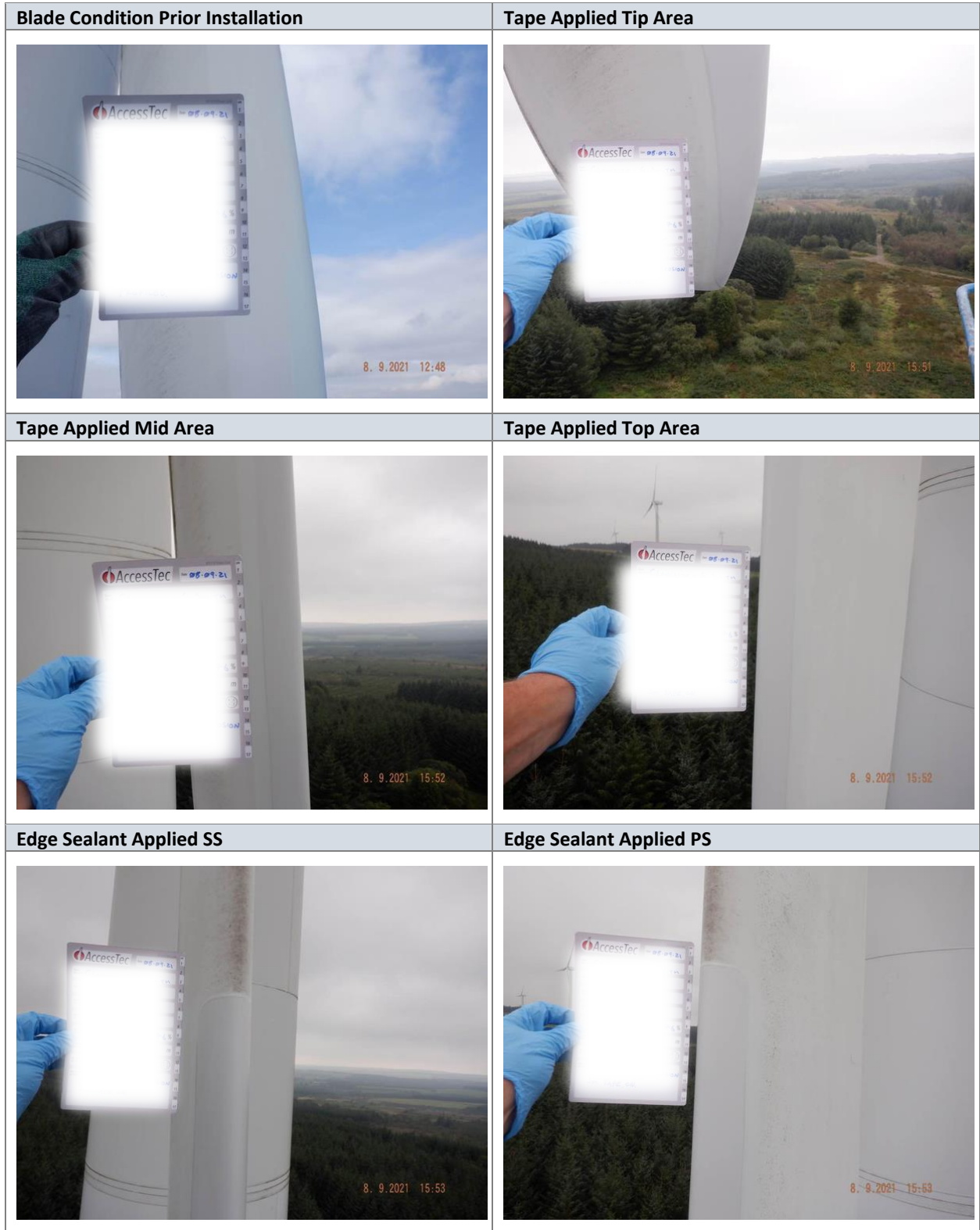
Repair Complete	Repair Complete
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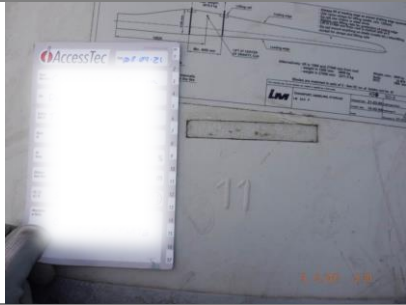


Environmental Conditions

Recorded When	Date	Surface Temperature (°C)	Ambient Temperature (°C)	Humidity (%)
Prior to Filling	08-09-2021	20.0	19.0	76.0
Prior to Painting	08-09-2021	20.0	19.0	76.0

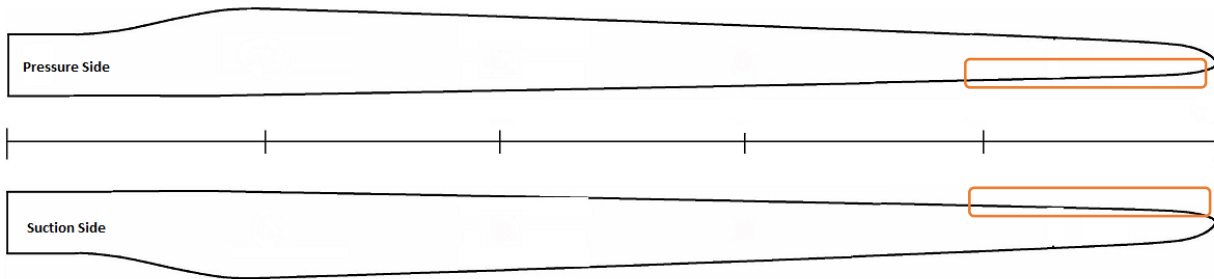
Blade	Repair #	Metres Applied (m)	Date Applied
1	3M LEP Installation	6	08-09-2021



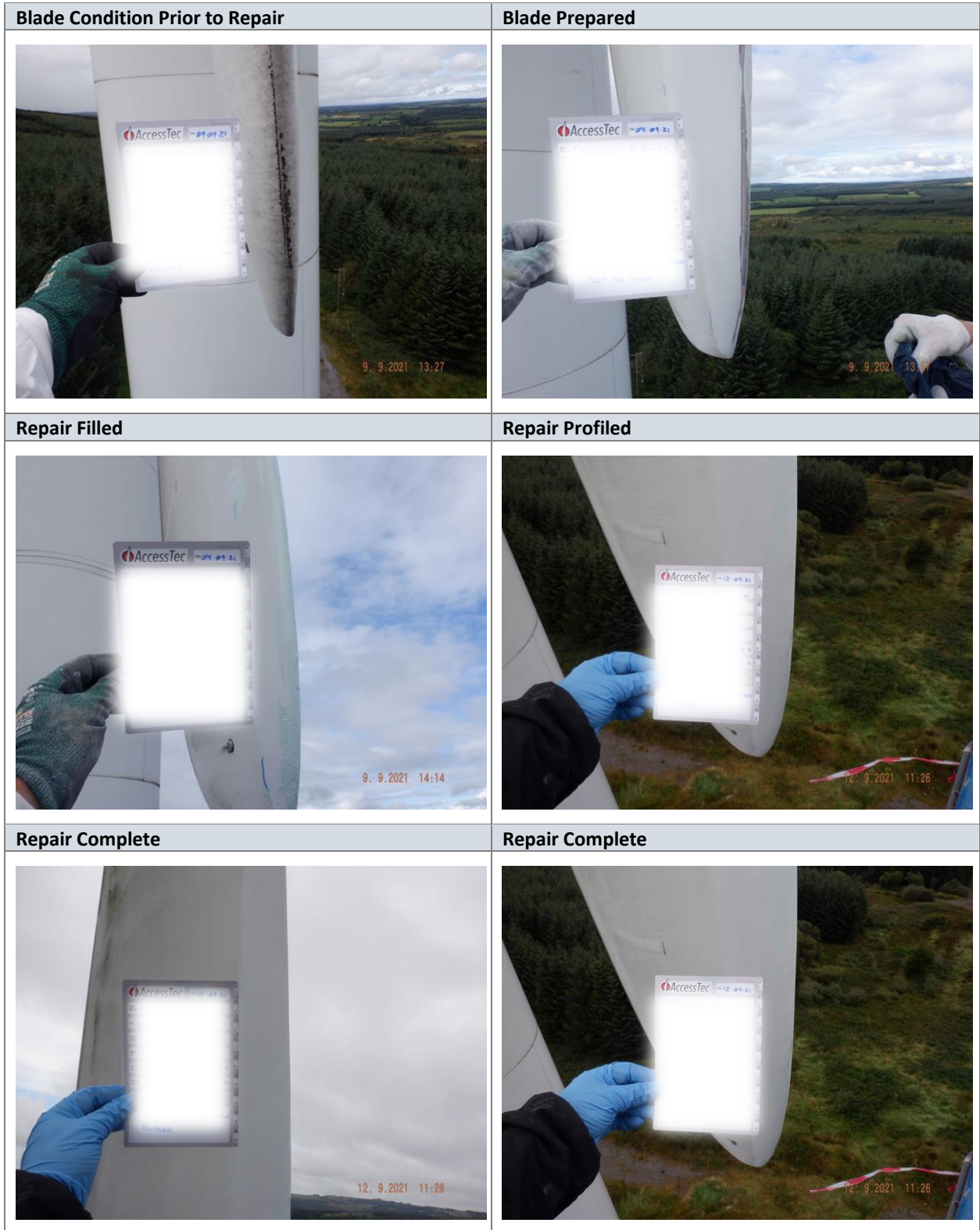
Blade Number	0630
Blade Designation	2
Blade Badge	

Repair Summary
 Leading edge erosion was repaired with filler from 28m to the Tip.
 6 metres of 3M Wind Protection Tape was applied to the blade.

Blade 2 Repair Table					
Repair #	Distance from root (m)	Location (LE, PS, TE, SS)	Damage/Repair Type	Length (mm)	Width (mm)
347534	28	LE	Leading edge erosion	6000	100
347535					



Blade	Repair #	Distance from root (m)	Location	Damage/Repair Type
2	347534, 347535	28 - 34	LE	Leading edge erosion



Environmental Conditions

Recorded When	Date	Surface Temperature (°C)	Ambient Temperature (°C)	Humidity (%)
Prior to Filling	09-09-2021	23.0	24.0	68.0
Prior to Painting	12-09-2021	12.0	12.0	87.0

Blade	Repair #	Metres Applied (m)	Date Applied
2	3M LEP Installation	3	12-09-2021

Blade Condition Prior Installation	Tape Applied Tip Area
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Tape Applied Mid Area	Tape Applied Top Area
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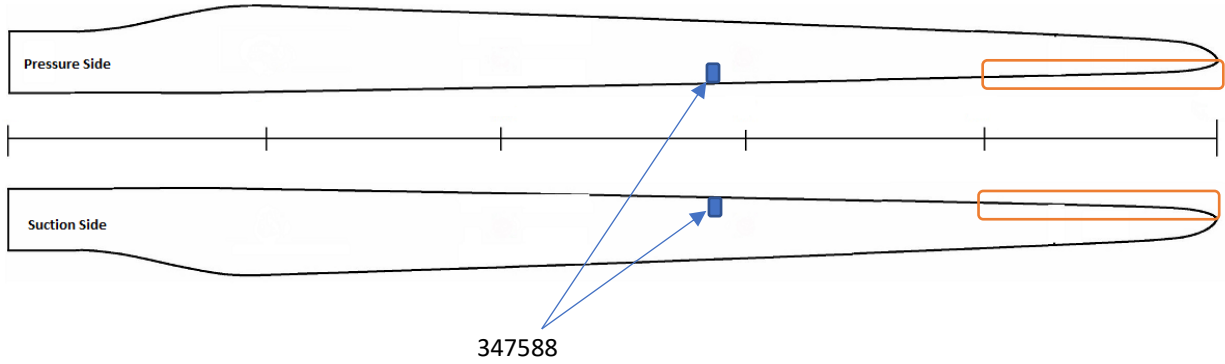
Edge Sealant Applied SS	Edge Sealant Applied PS
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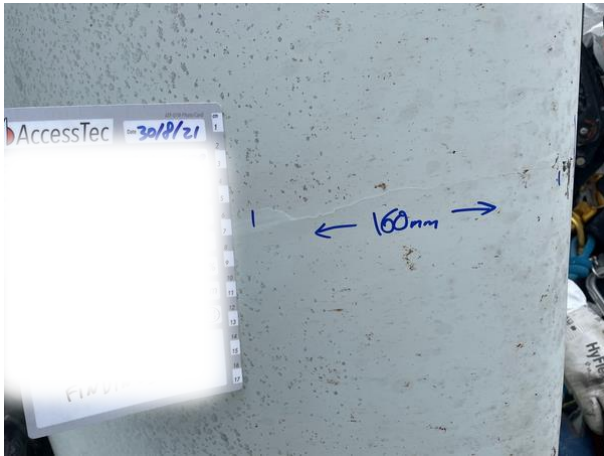



Blade Number	0631
Blade Designation	3
Blade Badge	

<p>Repair Summary</p> <p>Defect - 347588</p> <p>The core material was tested and the defective material removed, during this process a crack in the inner laminate on both PS and SS (one layer of Biax) was found. The crack was prepared before a repair to the inner laminate was made using two layers of Biax.</p> <p>Core material was replaced and profiled.</p> <p>The external laminate was repaired with a layup consisting of 2 layers of UD 650 and 4 layers of Biax 600.</p> <p>The repair was post-cured to improve its mechanical properties, then filler was applied and profiled to restore blade geometry. A layer of paint was hand rolled to finish the repair.</p> <p>Defects - 347591, 347594 - Leading edge erosion was repaired with filler from 28m to the Tip.</p> <p>6 metres of 3M Wind Protection Tape was applied to the blade.</p>
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Blade 3 Repair Table					
Repair #	Distance from root (m)	Location (LE, PS, TE, SS)	Damage/Repair Type	Length (mm)	Width (mm)
347591, 347594	28 - 34	LE	Leading edge erosion	6000	100
347588	20	PS	Crack	599	500
347588	20	SS	Crack	580	305



Blade	Repair #	Distance from root (m)	Location	Damage/Repair Type
3	PS	20	PS/SS/LE	Crack

Suction Side	Pressure Side
Condition Prior to Repair	Condition Prior to Repair
 <p>AccessTec - 30/8/21</p> <p>← 160mm →</p>	 <p>AccessTec - 30/8/21</p> <p>← 160mm →</p> <p>30. 8. 2021 13:10</p>
Damage Investigation	Damage Investigation
 <p>RH-75%</p> <p>15.5</p> <p>CRACK</p> <p>← 160mm →</p> <p>21.8</p> <p>23.6</p> <p>16.8</p> <p>TESTING</p>	 <p>AccessTec - 30/8/21</p> <p>30. 8. 2021 13:35</p>

Crack on inner laminate	Crack on inner laminate
	
Inner lamination	Inner lamination
	
Balsa Replaced	Balsa Replaced
	

Marked up	Balsa Replaced
 <p>1. 9. 2021 14:00</p>	 <p>1. 9. 2021 14:00</p>
Heat Blanket	Heat Blanket
 <p>3. 9. 2021 11:39</p>	 <p>3. 9. 2021 11:47</p>
Lamination complete	Lamination complete
 <p>4. 9. 2021 10:32</p>	 <p>4. 9. 2021 10:29</p>

Filler applied	Filler applied
 <p>A close-up photograph of a white wind turbine blade. A rectangular white repair patch is applied to the surface. A red fastener or cap is visible below the patch. The background shows a hazy landscape under a cloudy sky. A timestamp '4. 8. 2021 14:46' is visible in the bottom right corner.</p>	 <p>A close-up photograph of a white wind turbine blade. A rectangular white repair patch is applied to the surface. A person wearing a white protective suit is visible in the background. A timestamp '4. 8. 2021 14:46' is visible in the bottom right corner.</p>
Painted	Painted
 <p>A close-up photograph of a white wind turbine blade. The surface is smooth and appears to be freshly painted. A person wearing a white protective suit is visible in the background. A timestamp '4. 8. 2021 14:46' is visible in the bottom right corner.</p>	 <p>A close-up photograph of a white wind turbine blade. The surface is smooth and appears to be freshly painted. A person wearing a white protective suit is visible in the background. A timestamp '4. 8. 2021 14:46' is visible in the bottom right corner.</p>

Post Cure Times and Temperatures

Heat Blanket Applied: 13:30 (1 GMT)

Time Checked: 13:45 (1 GMT) Temperature: 43 °C

Time Checked: 14:15 (1 GMT) Temperature: 64 °C

Time Checked: 15:30 (1 GMT) Temperature: 91 °C

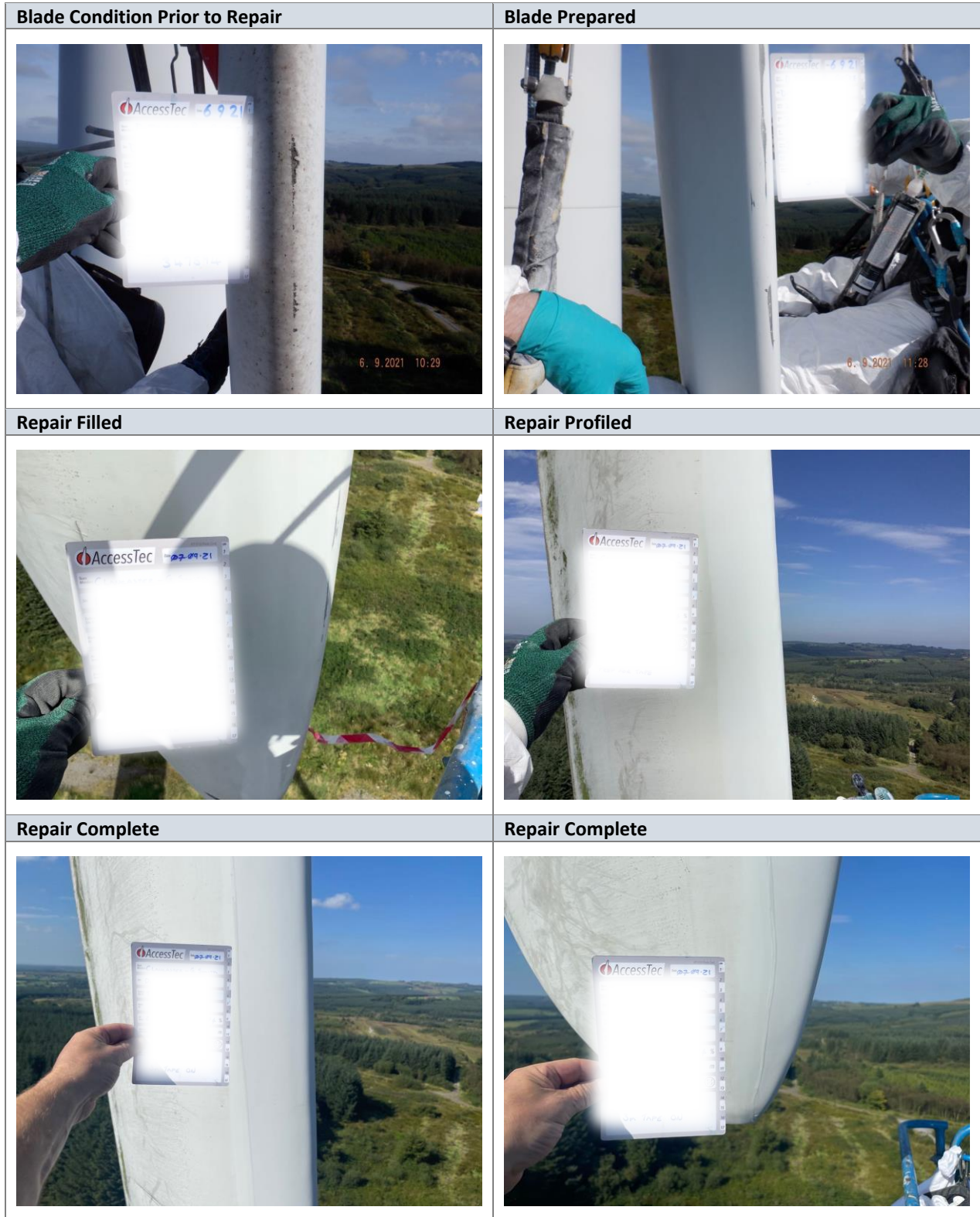
Time Checked: 17:15 (1 GMT) Temperature: 77 °C

Heat Blanket Removed: 17:20 (1 GMT)

Environmental Conditions

Recorded When	Date	Surface Temperature (°C)	Ambient Temperature (°C)	Humidity (%)
Prior to Lamination	03-09-2021	13.0	14.0	77.0
Prior to heat blanket	03-09-2021	15.0	16.0	77.0
Prior to Filling	04-09-2021	17.0	18.0	68.0
Prior to Painting	04-09-2021	17.0	18.0	68.0

Blade	Repair #	Distance from root	Location	Damage/Repair Type
3	347588	28	LE	Leading edge erosion



Blade	Repair #	Metres Applied (m)	Date Applied
3	3M LEP Installation	6	07-09-2021

