

Pontefract and District Aeromodellers

RISK ASSESSMENT

PANDAS CLUB BACKGROUND

Model aircraft have been flown in Pontefract Park since the Second World War. PANDA's model club have been using the park as their official flying site since its formation in 1974. During the club's history there have been no reports of any members of the public being injured or damage to property that can be attributed to a constitution and set of rules which have been reviewed and revised as appropriate on an annual basis.

The rules set out have been developed with guidance from the British Model Flying Association (BMFA) and their additional safety bulletins and the club's own recognition to address safety concerns to its members, neighbours, and other users of the park facilities.

SECTION 1

CLUB DETAILS

Name of model club	Pontefract & District Aeromodellers (PANDAS)	
Location of flying site	Pontefract Park, Pontefract, West Yorkshire	
Owner of site	Wakefield Metropolitan District Council	
BMFA club number	0193	Date of assessment: 1 st January 2022
Assessors name 1	Chairman	Signature: Electronically Signed.
Position in club	Martin Lynn	
Assessors name 2	Secretary	Signature: Electronically Signed.
Position in club	Terry Lee	
Assessors name 3	Vice Chairman	Signature: Electronically Signed.
Position in club	Christopher Dean	
Risk assessment checked and authorised by club committee on:	11 th January 2022	
Submitted to Wakefield Metropolitan District Council on:	20 th January 2022	
Review of assessment due on:	January 2023	
Number of pages included in this risk assessment	17	

THIS RA SHOULD BE REVIEWED ANUALLY UNLESS CIRCUMSTANCES CHANGE

SECTION 2

SUBJECTS ASSESSED

The operation of radio controlled and control line model aircraft only at the site specified above.
The operation of model yachts and low powered model boats on allocated section of the boating lake.
Effects on PANDAS by none club members flying model aircraft in Pontefract Park.

SECTION 3

PERSONS AT RISK (Indicate YES / NO)

Model club members YES Members of the public YES Other YES

Specify here a response to "Others": Drivers of vehicles. Persons in full size aircraft. Animals.

SECTION 4

REFERENCES

Pages 3 to 5 cover specific safety requirements of PANDAS the BMFA and Civil Aviation Authority.

SECTION 5

GLOSSARY of TERMS

Pages 6 and 7 explains in more detail specific terminology used.

SECTION 6

RISK ASSESSMENT

Pages 8 to 17 cover the actual assessments that has been carried out in accordance with the pamphlet "Five Steps to Risk Assessment" published by the Health and Safety Executive. Risks in **SECTION 6** have been assessed by considering the **Potential Severity** of each hazard with the **Likelihood of its Occurrence** and **Risk Rated** in to three categories **Low, Medium or High**

SECTION 4 REFERENCES

Item	Description
Pontefract and District Aero Modellers (PANDAS)	See background section on previous page and club 2021 constitution and rules attached to this Risk Assessment. http://pandas.bmfa.org/
Health and Safety Executive 5 Steps to Risk Assessment	This Risk Assessment has been carried out in accordance with the pamphlet “Five Steps to Risk Assessment” published by the Health and Safety Executive. www.hse.gov.uk
British Model Flying Association (BMFA)	British Model flying Association (SMAE Ltd) Chacksfield House, 31 St Andrews Road, Leicester, LE28RE Telephone: 0116 244 0028, Fax: 0116 244 0645, e-mail admin@bmfa.org , Website: www.bmfa.org The BMFA handbook is available on line at www.bmfa.org
BMFA Achievement Scheme	The main aim of the R/C achievement schemes is to encourage model flyers to reach a given standard of flying ability and safety and to prove that standard to a club / BMFA examiner. There are two main grades as described below
'BPC or A' Certificate	The 'A' certificate equates to a 'safe solo' standard of flying.
'B' Certificate	The 'B' certificate which is designed to recognise the pilots more advanced ability and a demonstrated level of safety which may be considered by an event organiser as suitable for flying at a public display.
Large Model Association (LMA)	This UK organisation was set up to support and give guidance on large model flying. Large models being greater than 7.5 kg and special consideration for model aircraft in excess of 25 kg. The LMA act on behalf of the CAA with the inspection of design, planning, building and flying of large model aircraft. Further details at www.largemodelassociation.com

<p>Civil Aviation Authority (CAP 722)</p>	<p>On 31st December 2020, new legislation was introduced relating to the flying of unmanned aircraft. This legislation is encompassed within a Civil Aviation Authority (CAA) document named CAP 722. Within this legal document is the facility for model flying clubs, flying under the umbrella of a CAA recognised model flying association, to exempt themselves from some of the new legislation. This exemption is named Article 16 and includes specific rules that must be followed for both safety and legal compliance. One of the recognised associations is The British Model Flying Association (BMFA). All PANDAS members must be a member of the BMFA and the club is a BMFA affiliated club. The club will conduct their business under the Article 16 legislation. The BMFA membership also provides important 3rd party insurance cover for its members and insurance cover for the club committee and officials. See www.caa.co.uk for more details.</p>
<p>Air Navigation Order 2016 (ANO)</p>	<p><u>Article 240 of the Air Navigation Order states</u></p> <p>‘A person shall not recklessly or negligently act in a manner likely to endanger an aircraft, or any person therein’.</p> <p><u>Article 241 of the Air Navigation Order states</u></p> <p>‘A person shall not recklessly or negligently cause or permit an aircraft to endanger a person or property’.</p> <p>CAA exemption under Article 16 of CAP 722, allows members of the BMFA, to fly aircraft with a maximum take-off mass (MTOM) under 7.5 Kg at heights of more than 400 feet. This exemption excludes any rotorcraft with more than 1 lift generating rotor or propeller.</p> <p>The PANDAS flying site hold a BMFA flying site permit issued under the Article 16 agreement, that allows aircraft with a MTOM over 7.5 Kg and under 25.00 Kg to fly up to 1400 feet. There is also a NOTAM in place.</p>
<p>European Aviation Safety Agency. EASA</p>	<p>This agency makes recommendations to 32 different European states regarding air safety including the UK’s Civil Aviation Authority. Due to the popularity of Drones across the world these being remotely piloted aircraft capable of flying autonomously. New regulations are currently being developed to reduce risks to full sized aircraft, persons or property. This risk assessment therefore acknowledges the current proposals by EASA that are expected to be introduced into the UK in July 2020. This risk assessment will be amended to capture EASA’s regulations when these become UK law. https://www.easa.europa.eu/</p>

Item	Description
Flight Line	This is a line usually marked with flags, painted lines, cones or tape, and is the location on the flying area for which pilots control their models whilst in flight. The flight line whilst physically marked for example 30 metres should actually be considered infinite in length at both ends of the line. All model flying must be flown in front of the flight line with the pits / spectators always behind the flight line.
Pits	An area designated to park models not in use, this area is safe for spectators to view models and walk round
Start-up box / area	Used for starting engines or arming electric powered models prior to flight. Only pilots and helpers allowed in this area
Tx / Rx	Tx =Transmitter (held by pilot) and Rx = Receiver (located in model), the equipment used to control radio-controlled models
Pegboard	A system used to ensure frequency control on model radio equipment (35 Mhz for model aircraft). PANDAS use the peg off /on method. The pilot takes an available frequency peg off the board and places the peg on the Tx aerial, and places his personal peg on the board. The pilot is then allowed to switch on the Tx. After flying, the model is turned off then the Tx is turned off and the pegs exchanged for other pilots to use if required. The pegboard must be out at all times during model flying in accordance with club rules.

Item	Description
Failsafe	Any powered model aircraft fitted with a receiver capable of operating in failsafe mode must have the failsafe set, as a minimum, to reduce the engine(s) speed to idle on loss or corruption of transmitter / receiver signal.
Fixed Wing Aircraft	Aeroplane
Control Line Models	Model aircraft controlled by a number of fixed lines. The aircraft is fixed at one end of the control lines and the pilot controls the aircraft from the other. This type of flying is restricted to flying in a circle of a fixed diameter
Model Boats	Sail powered model yachts and low powered boats (No Internal combustion engines or high-powered electric motors)
Rotary Wing	Helicopters
Multi Rotor	Aircraft with more than twin rotors
Autonomous Aircraft	Any aircraft capable of being programmed by the pilot to fly autonomously that is also able to be flown manually when the pilot takes manual control
Free flight	Aircraft having no radio control functions
FPV (first person view)	Aircraft piloted through visual telemetry (Fixed Wing, Multi Rotor and Drones)
Gliders	Aircraft that have no self-propelled engine. (those with electric power motors are classed as an Aeroplane / Fixed Wing)

SECTION 6 RISK ASSESSMENT

Hazard Identified	Risk to who or what	Risk Rate (Low, Medium, High)
1. Strike by flying model aircraft (loss of control – pilot error)	Pilots, Club members, Public, Vehicles	Med
1. COMMENTS – CONTROL MEASURES <ul style="list-style-type: none"> • New members (non-flyers) are instructed by nominated club instructors. • Pilots without a BMFA ‘A’ certificate must be supervised when flying by a pilot who has a BMFA ‘A’ or ‘B’ Certificate. • Club members must attain a minimum of BMFA ‘A’ certificate to be able to fly unsupervised. • Committee member’s / club members to monitor aircraft in flight. • Committee members constantly monitoring and maintaining flying standards, disciplines & safety. 	Pilots, Club members, Public, Vehicles	Low
2. Strike by flying model aircraft (loss of control – radio interference / failure)	Pilots, Club members, Public, Vehicles	Low
2. COMMENTS – CONTROL MEASURES <p>Pegboard frequency control must be used at all times when R/C models are flying on 27 Mhz or 35 Mhz</p> <p>Ensure TX and RX batteries are fully charged, and battery checkers are used throughout the flying session to check battery state.</p> <p>The vast majority of members use 2.4 Ghz radio equipment which does not require frequency control (See BMFA handbook for further details) this significantly reduces internal and external interference in R/C model controls.</p> <p>Most aircraft use a failsafe where possible and practical (all models over 7.5 Kg must have failsafe system in place).</p> <p>All radio control equipment Tx and Rx must be CE approved and not modified in any way (manufactures give clear instruction on equipment use) BMFA periodically issue safety bulletins on issues with control equipment with regards to imports from America and Far Eastern countries.</p>	Pilots, Club members, Public, Vehicles	Low

Hazard Identified	Risk to who or what	Risk Rate (Low, Medium, High)
3. Strike by flying model aircraft (loss of control – structural failure)	Pilots, Club members, Public, Vehicles	Low
3. COMMENTS – CONTROL MEASURES <ul style="list-style-type: none"> • New models to be checked for structural integrity by an independent (experienced) club member. • Models of new club members are checked by an experienced club member usually an instructor or an examiner. • New club members are advised on suitable models before they purchase them i.e. a high wing trainer model is recommended for new starters. • Current models must be checked pre and post flight for any potential problems i.e. loose control surfaces, damage to airframe, etc. (See BMFA Handbook) 	Pilots, Club members, Public, Vehicles	Low
4. Potential accident victims (pilots)	Pilot	Low
4. COMMENTS – CONTROL MEASURES <ul style="list-style-type: none"> • Pilots must stand at the flight line • Stand close enough to communicate with each other • Models must not taxi towards the flight line and pits area (see club rules) • Pilots or helpers retrieving models from in front of the flight line must give a loud verbal warning to other pilots and watch overhead before venturing beyond the flight line to clear the landing strip of the model. 	Pilot	Low

Hazard Identified	Risk to who or what	Risk Rate (Low, Medium, High)
5. Potential accident victims (spectators)	Public	Low
<p>5. COMMENTS– CONTROL MEASURES</p> <p>All spectators (including club members and general public) are kept well back from the flight line. It is the responsibility of all club members to ensure that this happens.</p>	Public	Low
6. Potential accident victims (member/s) of the public in surrounding areas) fixed wing site	Public	Low
<p>6. COMMENTS – CONTROL MEASURES</p> <p>All activities in the park (football, cricket, play areas, etc) are situated behind the fixed wing flight line. The route for member’s vehicles, from the park gate to the car park, is also behind the flight line. The area for flying, which is only in front of the flight line, is detailed in the club rules.</p> <p>All members present at the flying site are requested to watch out for public, animals and low flying full size aircraft passing into the model flying area (low flying full size aircraft are covered in another section). If people are spotted, all pilots are warned to fly high and away from the potential hazard until the person(s) concerned have passed. General public where possible are advised of the dangers and offered alternative routes should they wish to take this advice.</p>	Public	Low
7. Potential accident victims (member(s) of the public in surrounding areas) Helicopter and Multi Rotor site	Public	Low
<p>7. COMMENTS – CONTROL MEASURES</p> <p>All activities in the park (mainly football) are situated in front of the helicopter/multi rotor flight line. Pilots are required to change flight pattern so as not to over fly any football pitches if in use, restrict flying to close in flying or fly over rough ground to right of flight line away from activities above. The route for member’s vehicles, from the park gate to the car park, is behind both fixed wing and helicopter, multi rotor flight lines.</p> <p>All members present at the flying site are requested to watch out for persons, animals and low flying full size aircraft passing into model flying area (low flying full size aircraft are covered in another section). If people are spotted, all pilots advised to land or hover low and at a safe area. General public where possible are advised of the dangers and offered alternative routes should they wish to take this advice.</p>	Public	Low

Hazard Identified	Risk to who or what	Risk Rate (Low, Medium, High)
8. Potential accident victims (member(s) of the public in surrounding areas) control line	Club Members, Public	Low
<p>8. COMMENTS – CONTROL MEASURES</p> <p>This type of flying is done on a regular basis at the park, with usually two competitions per year. During competitions the flying area (which is a circle up to 36 meters in diameter) is roped off and monitored by competition organisers. The area used for these activities can be on either the fixed wing-flying site or helicopter / multi rotor site.</p>	Club Members, Public	Low
9. Injury during starting / adjusting engines - fixed wing (potential risk - cut, bruised or broken fingers & risk of propeller failure or loose items propelled by them)	Pilot	Low
<p>9. COMMENTS – CONTROL MEASURES</p> <p>Models are restrained by a helper or (preferably) by a fixed restraint anchored in the ground to prevent them moving forward when the engine or electric motor starts. Models are positioned facing the flight line, i.e. away from any spectator, and all persons advised not to be in line with the rotating propeller. Mechanical aids are available to reduce the risk in the form of</p> <ul style="list-style-type: none"> • Heavy rubber finger stalls • A short stick to flick the propeller • Electric starter motor • A heavy glove <p>Recommendations</p> <p>A first aid kit for minor injuries is available in the club cabin. Fortunately, Pontefract hospital is only a few minutes away & more serious cases can be dealt with quickly.</p>	Pilot	Low

Hazard Identified	Risk to who or what	Risk Rate (Low, Medium, High)
10. Injury during starting / adjusting engines – helicopters or multi rotors (potential risk – cuts, bruises, and damage to body especially if hot start with rigid type carbon blades)	Pilot, Club member(s)	Low
<p>10. COMMENTS – CONTROL MEASURES</p> <p>When starting the helicopter or multi rotors ensure Tx controls are on throttle set to idle, fight mode set to normal to stop risk of a hot start.</p> <p>Main rotor blades on helicopters must be restrained with one hand at all times during start-up of the engine and until the helicopter is situated at the nominated take off point in front of the flight line.</p> <p>Electric helicopters or multi rotor aircraft should not be made live by connecting the battery source until at the nominated take off point in front of the flight line or in the designated start up area. Above recommendations then apply.</p> <p><u>Recommendations</u> Clear local start up area when starting any helicopter.</p>	Pilot	Low
11. Fire	Pilot	Low
<p>11. COMMENTS – CONTROL MEASURES</p> <p>Four types of fuel are in use in model aircraft:</p> <ul style="list-style-type: none"> • Petrol / oil mix used in the larger models. – Highly flammable. • Methanol / oil mix used in smaller ‘glow’ motors – not so flammable but burns with an almost invisible flame. • Jet fuel is simply paraffin – which will not support combustion unaided. • Lithium Polymer batteries – risk of fire if charged incorrectly, bare terminals touch or high impact i.e. crash <p>Liquid fuels should be carried in approved containers. Commercially purchased ‘glow’ fuel is supplied in suitable containers & labelled with appropriate safety instructions. All members flying jet models carry fire extinguishers. A ‘BMFA’ bulletin refers to fire hazard in flight boxes.</p> <p><u>Recommendations</u> Operators of petrol-powered & turbine aircraft should carry fire extinguishers. The club cabin contains a 6 kg powder fire extinguisher.</p>	Pilot	Low

Hazard Identified	Risk to who or what	Risk Rate (Low, Medium, High)
12. Glider launch equipment	Pilot, Club Members, Public	Low
<p>12. COMMENTS – CONTROL MEASURES</p> <p>Gliders are launched into the air by one of 5 methods:</p> <ul style="list-style-type: none"> • A towline up to 100 metres long being pulled by another club member. • An electric winch (battery powered) pulling the line. • By 'bungee' (an elastic / tow line combination) being tethered at one end by a ground anchor. • Air tow by a fixed wing aircraft • DLG or Discus launched gliders are hand launched <p>Because the towlines intrude into the flying area, gliders are not normally flown alongside other powered models. Potential hazards are: people tripping over the lines, or a ground anchor becoming loose.</p> <p>Existing precautions Lines are only laid out just prior to a launch, so are only a trip hazard for a few minutes. Helpers and flyers are always vigilant for third parties coming close to lines & will not lay out a line or launch if any person is near. If an anchor of a bungee launch system becomes detached, it will travel towards the operator, but not usually reaching that person.</p>	Pilot, Club Members, Public	Low
13. Noise	Pilot, Club Members, Public	Low
<p>13. COMMENTS – CONTROL MEASURES</p> <p>The club requires that all models should not produce excessive noise. An effective silencer must be fitted to ensure this is met. Our flying area is of sufficient distance from any dwelling to have caused no noise related complaints since the club was formed. As the M62 motorway is close by, the traffic noise often covers any aircraft noise.</p>	Pilot, Club Members, Public	Low

Hazard Identified	Risk to who or what	Risk Rate (Low, Medium, High)
14. Large model and jet flying	Club members, public, Animals & Vehicles	Med
<p>14. COMMENTS – CONTROL MEASURES</p> <p>BMFA ‘B’ certificate or over is needed to fly large models (Heavier than 7,5 Kg) and or gas turbine jets, see club rules, BMFA guidelines, LMA guidelines, CAA (CAP 722), CAA (CAP 658), 240, & 241.</p>	Club members, public, Animals & Vehicles	Low
15. Flying at club events including Wakefield Council events in Pontefract Park	Club members, public, Animals & Vehicles	Low
<p>15. COMMENTS – CONTROL MEASURES</p> <p>Take-off and landing area to be roped off along with pits area; all pilots must attend a safety briefing on club and park safety before flying. With FPV events the whole flight boundary area is to be cordoned off with hazard marker tape, or rope providing safety by distance control. This is to be designated by an appointed senior event official of the day. All club rules and BMFA guidelines, etc. are relevant. Signs to be displayed to advise the public of potential hazards. Event organizer to have final say on whether flying is allowed or suspended.</p>	Club members, public, Animals & Vehicles	Low
16. Injury to third parties by model wreckage / rubbish	Club members, Public, Animals	Low
<p>16. COMMENTS – CONTROL MEASURES</p> <p>It is the responsibility of all club members to remove wreckage from impact site especially sharps i.e. broken propellers and other crash debris.</p> <p>Recommendations</p> <p>New members are to be advised of clearing site of wreckage and rubbish when joining club.</p> <p>No wreckage to left on site or in park bins.</p> <p>Committee / club members to monitor flying site for rubbish</p>	Club members, Public, Animals	Low

Hazard Identified	Risk to who or what	Risk Rate (Low, Medium, High)
17. Injury to self / third parties entering site by vehicle	Club members, public, Animals & Vehicles	Low
<p>17. COMMENTS – CONTROL MEASURES</p> <p>Club members and visitors are to observe safety signs and mandatory 10 mph speed limits; show consideration to other users especially animals. Secure all model items in such a way that in the event of sudden impact they will not slide forwards and cause occupant's injury. Be especially careful with liquid fuels and lithium polymer batteries in vehicles.</p>	Club members, public, Animals & Vehicles	Low
18. Fly away models	Club members, public, Animals & Vehicles	Low
<p>18. COMMENTS – CONTROL MEASURES</p> <p>The following actions will reduce flyaway models</p> <ul style="list-style-type: none"> • Fly within agreed boundaries • Following club safety rules • Only fly with batteries in a safe charged state (battery checker recommended) • Pre and post flight checks carried out • Use of failsafe system were appropriate • Beginners to fly with experienced pilot 	Club members, public, Animals & Vehicles	Low
19. Low flying aircraft i.e. light full-size aircraft, micro lights, police helicopter, air ambulance, etc.	Aircraft	Low
<p>19. COMMENTS – CONTROL MEASURES</p> <p>Observer for model pilot or other club members present at flying field to advise pilot of low flying aircraft and either land the model aircraft immediately or bring the model aircraft safely away from the over flying aircraft. Observer to verbally advise model pilot of full-size aircraft position until out of park perimeter.</p>	Aircraft	Low

Hazard Identified	Risk to who or what	Risk Rate (Low, Medium, High)
20. Operation of model boats on lake	Club members and members of the public	Low
<p>20. COMMENTS – CONTROL MEASURES</p> <p>Model boats shall be operated between the signs (if any) designating the boating area of the lake. Keep well clear of the water's edge, except when launching and retrieving the model. Take a note of the availability of lifesaver rings (if any) and ensure they are ready for immediate use before launching the model. Take extra care when launching and retrieving models. Avoid leaning out too far over the water. Never enter the water to retrieve a model. Never operate the model whilst your back is turned to the water. Do not leave equipment near the water's edge or pathway that could be a tripping hazard, e.g. model boat stand. Be aware of other model operators in close proximity and give room for each to operate safely. Long transmitter aerials' (27 Mhz and 40 Mhz) should have the antenna end fitted with a table tennis ball (or similar) to prevent eye injury. Be aware of spectators who take an interest. Ensure unsupervised children are kept well away from the water's edge. Do not let children help with launching or retrieval of models.</p> <p>It is recommended to have someone else in attendance, whilst operating a model, able to help if difficulties arise.</p> <p>NB: Fast Electric or IC powered boats are not allowed.</p>	Club members and members of the public	Low

Hazard Identified	Risk to who or what	Risk Rate (Low, Medium, High)
21. FPV (first person view)	Club members and members of the public	Med
<p>21. COMMENTS – CONTROL MEASURES</p> <p>In line with BMFA and CAA regulations. Pilots flying FPV must have a competent spotter by their side at all times who is able to warn the pilot of any potential dangers to other person in the park. Aircraft must remain within the allocated flying zones.</p>	Club members and members of the public	Low
22. Aircraft capable of flying autonomously (Drones)	Club members and members of the public	Med
<p>22. COMMENTS – CONTROL MEASURES</p> <p>Aircraft must remain within the allocated flying zones and the pilot be capable of taking manual control in the event of a flight system malfunction.</p> <p>Plus, all the above PANDAS safety control measures in this risk assessment apply to this type of remotely piloted aircraft.</p>	Club members and members of the public	Low
23. Drones - Remotely piloted aircraft flown by members of the public (None Club Members) weighing less than 250 grammes.	Club members and members of the public. Property and vehicles.	Low
<p>23. COMMENTS – CONTROL MEASURES</p> <p>Due to the small mass / weight of these aircraft the proposed EASA regulations De-Regulate these and class them as Toys.</p>	Club members and members of the public. Property and vehicles.	Low

Hazard Identified	Risk to who or what	Risk Rate (Low, Medium, High)
24. Use of mobile phones close to aircraft transmitter, receiver, flight controller or GPS receiver that interfere with frequency sensitive equipment especially when calibrating magnetic sensors or GPS systems.	Club members and members of the public. Property and vehicles	Low
24. Although recorded incidents of a mobile phone or device effecting the above frequency sensitive equipment is varied and minimal. It is still a firm recommendation from the BMFA and CAA approved Remote Pilot Certificate Trainers. That a mobile phone should not be used, in close proximity of a remotely piloted aircraft.	Club members and members of the public. Property and vehicles	Low
25. Multi Rotor (drone / quad) Racing using FPV. These are small radio-controlled aircraft usually flown at extremely high speeds at low levels through a series of obstacles with the pilot viewing only what the aircraft on board camera sees. The pilots of this type of aircraft, must have a spotter, who must maintain visual sight of the aircraft, to advise of any potential hazards.	Club members and members of the public. Property and vehicles	Medium
25. This type of aircraft flying is hazardous without extensive, effective controls in place that the club are unable to implement in a public park and is therefore prohibited.	No risk due to being prohibited.	Low