

# *NFAA RANGE GUIDELINES & ROUND SUMMARIES*

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**NOTE: The information provided herein is meant to be a high-level summary of the topics. Please refer to the *NFAA Constitution & By-Laws* for further details and clarification on rules and regulations.**

## SECTION I: SUMMARY OF NFAA ROUNDS

### I.A. Field Archery

Field archery is a roving archery game in which successive targets are shot at varying distances and often in wooded terrain (see Figure 1). The round was created as practice for bowhunters but was soon standardized as a competitive round for any archer to enjoy.



Figure 1: Field Archery

#### I.A.1. NFAA Field Round

##### I.A.1.a. Standard Unit and Shooting Positions



Figure 2: NFAA Field Round Target

A standard unit consists of four arrows each at 14 different targets. For 10 of the 14 targets, the archer shoots four arrows from a single stake at a single target face. For the remaining four targets, the archer shoots one arrow from each of four stakes at a single target. Twice around the unit makes a round or two such units make a round. The 14 targets can occur in any order and include:

- ◆ 15, 20, 25 and 30 yards at a 35-cm face (4 total).
- ◆ 40, 45 and 50 yards at a 50-cm face (3 total).
- ◆ 55, 60 and 65 yards at a 65-cm face (3 total).
- ◆ 35-yd, 4-position fan at a 50-cm face (1 total).
- ◆ 4-position walk-ups (3 total): 35-30-25-20 feet at a 20-cm face. 45-40-35-30 yards at a 50-cm face. 80-70-60-50 yards at a 65-cm face.

The foregoing distances are for adults. The fan target involves shooting each of the four arrows from the same distance, but from different positions. The walk-up targets involve shooting each of the four arrows from a different distance.

NFAA youth and cubs shoot at reduced distances in all outdoor archery games. See the *Constitution and By-Laws of the National Field Archery Association* for details.

##### I.A.1.b. Targets and Scoring

Four target sizes are used. The outermost ring diameters for each target size are 65 cm, 50 cm, 35 cm, and 20 cm. Each spot consists of two black rings (with a white X in the center ring), two white middle rings, and two outside black rings. To minimize glance-outs and arrow damage, multiple target faces may be used at all distances, but are typically used only at the shorter distances. The target is shown in Figure 2 and the target ring diameters are shown in Table 1.

Target Diameter	65 cm	50 cm	35 cm	20 cm
Outer outside black ring	65 cm	50 cm	35 cm	20 cm
Inner outside black ring	52 cm	40 cm	28 cm	16 cm
Inner outside black ring	39 cm	30 cm	21 cm	12 cm
Inner middle white ring	26 cm	20 cm	14 cm	8 cm
Black center spot	13 cm	10 cm	7 cm	4 cm
X-ring	6.5 cm	5 cm	3.5 cm	2 cm

Table 1: Ring Diameters for NFAA Field Round Target

scoring is 5 points for the center spot, 4 points for the two white rings, and 3 points for the outside black rings. The X-ring is used

for tiebreakers in the amateur classes and counts as 1 bonus point in all Professional Divisions. In all NFAA Rounds, an arrow shaft need only touch the line to be counted in the area of next higher value.

## I.A.2. NFAA Hunter Round

### I.A.2.a. Standard Unit and Shooting Positions

As with the Field Round, a Hunter Round standard unit consists of four arrows each at 14 different targets. Twice around the unit makes a round or two such units make a round. The 14 targets can occur in any order and include:

- ◆ Single-position (4 total):
  - ◆ 40, 44, 48 yards at a 50-cm face.
  - ◆ 11 yards at a 20-cm face.
- ◆ 4-position walk-ups (4 total):
  - ◆ 53-48-44-41 yards at a 50-cm face.
  - ◆ 58-53-48-45 yards at a 65-cm face.
  - ◆ 64-59-55-52 yards at a 65-cm face.
  - ◆ 70-65-61-58 yards at a 65-cm face.
- ◆ 2-position walk-ups (3 total):
  - ◆ 23-20, 19-17, and 15-14 yards at a 35-cm face.
- ◆ 4-position fans (3 total):
  - ◆ 36 yards at a 50-cm face.
  - ◆ 28 and 32 yards at a 35-cm face.

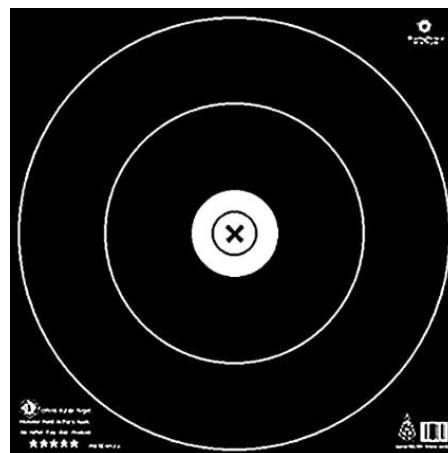


Figure 3: NFAA Hunter Round Target

The foregoing distances are for adults. The fan targets involve shooting each of the four arrows from the same distance, but from different positions. The 4-position walk-up targets involve shooting each of the four arrows from a different distance, and the 2-position walk-up targets require two arrows at each of the distances.

NFAA youth and cubs shoot at reduced distances in all outdoor archery games. See the *Constitution and By-Laws of the National Field Archery Association* for details.

### I.A.2.b. Targets and Scoring

Four target sizes are used. The outermost ring diameters for each target size are 65 cm, 50 cm, 35 cm, and 20 cm. The target has two white rings with a black X in the center ring, and two outside black rings. Again, multiple target faces are used at the shorter distances. The target is shown in Figure 3 and the target ring diameters are shown in Table 2.

Target Diameter	65 cm	50 cm	35 cm	20 cm
Outside black ring	65 cm	50 cm	35 cm	20 cm
Middle black ring	39 cm	30 cm	21 cm	12 cm
White center spot	13 cm	10 cm	7 cm	4 cm
X-ring	6.5 cm	5 cm	3.5 cm	2 cm

Table 2: Ring Diameters for NFAA Hunter Round Target

The scoring is 5 points for the center spot, 4 for the middle black ring, and 3 for the outside black ring. The X-ring is used for tiebreakers in the amateur classes and counts as 1 bonus point in all Professional Divisions. In all NFAA Rounds, an arrow shaft need only touch the line to be counted in the area of next higher value.

### I.A.3. NFAA Animal Round

#### I.A.3.a. Standard Unit and Shooting Positions

A standard unit for the Animal Round consists of a single "scored" shot at 14 different targets. Twice around the unit makes a round or two such units laid out differently make a round. The 14 targets and their corresponding distances include:

- ◆ Three, Group 1 targets at marked distances varying from 60 yards down to 40 yards. These are 3-position walk-ups offered in intervals of 5 yards.
- ◆ Three, Group 2 targets at marked distances varying from 45 yards down to 30 yards. These are 3-position walk-ups offered in intervals of 3 yards.
- ◆ Four, Group 3 targets at marked distances varying from 35 yards down to 20 yards, offered from a single position.
- ◆ Four, Group 4 targets at marked distances varying from 20 yards down to 10 yards, offered from a single position.

A maximum of three marked arrows may be shot, in successive order, and the highest scoring arrow will count. In the case of walk-up targets, the first arrow must be shot from the farthest stake, the second arrow from the middle stake, and the third arrow from the nearest stake. If the first arrow scores (either vital or non-vital), then there is no need to shoot the second arrow. If the first arrow misses, and the second arrow scores, then there is no need to shoot the third arrow. The third arrow is shot only if the first and second arrows are suspected misses. No archer is permitted to advance to the target and then return to the stake to shoot again in the event of a missed arrow. As a result, it is best to shoot another arrow if you are not sure whether the previous arrow scored.

#### I.A.3.b. Targets and Scoring

The targets for this round are animal targets with the scoring area divided into two parts. The high scoring area is oblong while the low scoring area is the area between the high scoring area and the "hide and hair" line or "feathers", as the case may be. The area between the "hide and hair" line to the outside of the carcass is considered a non-scoring area. A bonus dot (valued one point) is located in the middle of the high scoring area and colored white on dark targets and black on light targets. This bonus dot is mandatory at NFAA National and Sectional Field Championships and optional at other events. See Figure 4 for an example of an Animal Round Target. The following are the high scoring area dimensions (plus or

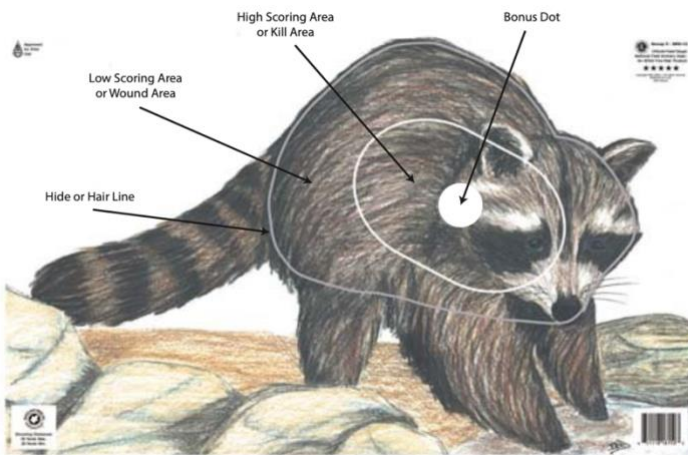


Figure 4: NFAA Animal Round Target

minus 1/8") for each of the four Groups:

- ◆ Group 1:  $8 \frac{3}{4} \times 14 \frac{1}{4}$  inches with a bonus  $6 \frac{1}{2}$  cm dot. These targets include black bear, grizzly, moose, deer, caribou and elk.
- ◆ Group 2:  $6 \frac{3}{4} \times 10 \frac{1}{4}$  inches with a bonus 5 cm dot. These targets include small black bear, antelope, ram, small deer, mountain lion and wolf.

- ◆ Group 3:  $4 \frac{1}{4} \times 6 \frac{3}{4}$  inches with a bonus  $3 \frac{1}{2}$  cm dot. These targets include raccoon, javelina, wildcat, coyote, turkey, fox, goose and pheasant.
- ◆ Group 4:  $2 \times 3 \frac{3}{8}$  inches with a bonus 2 cm dot. These targets include duck, turtle, grouse, rock chuck, wood chuck, skunk, jack rabbit and crow.

The scoring is as follows: 21, 20 or 18 points for the first arrow, 17, 16 or 14 points for the second arrow, and 13, 12 or 10 points for the third arrow. An arrow shaft need only touch the scoring line to be counted in the next higher value.

## **I.B. Outdoor Target Archery**

Target Archery includes any one of the classic archery rounds laid out on a relatively flat, treeless field or park-like area. The archers shoot simultaneously and walk back to the static shooting line after each end, rather than moving on to the next target as in Field Archery.

### **I.B.1. NFAA 900 Target Round**

The 900 Target Round consists of 30 arrows each at 60, 50 and 40 yards using the standard 122 cm target face. Youth and Cubs shoot at 50, 40, and 30 yards and 30, 20, and 10 yards, respectively. There are five, 6-arrow ends at each distance, in descending order. There is a five-minute time limit to shoot each end. The target face is divided into five concentric color zones arranged from the center outward as follows: Gold (yellow), Red, Blue, Black and White with ten concentric rings arranged to divide each color. The ten rings range in value from 10 points for the inner gold and decreasing all the way to 1 point for the outer white. See Figure 5 for the 122 cm faces used during the 900 Target Round.



*Figure 5: 122 cm Target Faces For 900 Target Round*

### **I.B.2. NFAA 600 Target Round**

The only difference between the 600 Round and the 900 Round is the number of arrows per end and the number of ends per distance. All other rules apply. 20 arrows will be shot at each distance in four ends of five arrows for score. The time limit shall be four minutes per end.



Figure 6: 92 cm Target Faces at the Dakota Classic

### I.B.3. NFAA Classic 600 Target Round

The NFAA Archery Classic 92 cm target face is used for this round. Typically, only the center version of the face is used (i.e., only the 6 through 10 rings). Archers who want to use the full 92 cm target face must state their desire during registration. The round is shot starting at the closest distance and progressing to the longest distance. All other rules of the NFAA 600 Target Round apply. See Figure 6 for a picture of 92 cm target faces used at the Dakota Classic.

## I.C. NFAA 3-D Marked and Unmarked Rounds

### I.C.1. Standard Unit and Shooting Positions

The National marked 3-D consists of 70 3-D targets and the National Unmarked 3-D consists of a minimum of 60 3-D targets. Sectional and State marked and unmarked rounds consist of a minimum of 30 targets in at least two courses. Tournaments may be two or three-day events. The maximum distance for the National marked 3-D tournament is 101 yards, famously shot at Big Foot at the Western Trail (Redding) event (see Figure 6). The maximum distance for sectional and state marked 3-D events is 60 yards. National, sectional, and state unmarked 3-D events all utilize a maximum distance of 50 yards. These maximums are different for youth, cub, and adult traditional and longbow competitors. Please refer to the *NFAA Constitution and By-Laws* for details.



Figure 7: Big Foot at the Western Trail (Redding) Event

### I.C.2. Scoring

The National marked 3-D conforms to the Western Trail (Redding) event format of 2 arrows, scoring 11-10-8 each. As shown in Figure 7, all targets have an orange dot that counts for 11 points and many targets also have an outer ring that is worth 10 points. Any arrow placed on the animal outside of the white ring counts for 8 points. On those smaller targets that do not have a white ring, any arrow that hits the animal outside of the orange dot is worth 10 points.

Marked and unmarked sectional and state 3-D events utilize a 1-arrow format, scoring 12-10-8 points for the 3 scoring rings and 5 points for a hit on the animal outside of the scoring rings. The National Unmarked 3-D uses the same format. In all cases, hits on the antlers or horns of an animal do not score points.



## I.D. NFAA Indoor Round

### I.D.1. Standard Unit and Shooting Positions

A standard unit consists of 60 arrows, shot as 3 games, at a distance of 20 yards. Archers in the Cub division shoot at 10 yards. Each game consists of 4 ends of 5 arrows per end. A time limit of 4 minutes per end is used. Halfway through the scoring portion, archers shooting on the bottom targets will move their target faces to the top, and archers shooting on the top targets will move their target faces to the bottom. Those archers shooting on the bottom targets shoot the first line each end.

### I.D.2. Targets and Scoring

#### I.D.2.a. Single Spot Target

This target is 40 cm. in diameter and is dull blue with a white center spot. The spot is 8 cm. in diameter with a 4 cm. X-ring. The spot is scored as 5 points while the X-ring is used for tie-breaks. There are 4 blue rings each scoring 4-3-2-1 points in descending order.



Figure 8: Targets at NFAA Indoor Nationals

#### I.D.2.b. Five Spot Target

This target consists of five 16 cm. targets on a single 40 cm. face. Scoring is the same as the single-spot target except that the outer 3 rings are not present. An archer may shoot the spots in any order and as many arrows into each spot as desired, not to exceed the prescribed number of arrows per end. This target face is designed for the precision archer who wishes to avoid glance-outs or damaged arrows. See Figure 8 for NFAA Indoor Round targets.

## I.E. Vegas Round

### I.E.1. Standard Unit

This round is shot at 20 yards, except for archers in the Cub division who shoot at 10 yards. Three arrows are shot per end and there are 5 ends per game. The Tournament Director will decide if 2, 3, or 4 games will be used, scoring 300, 450, or 600 points, respectively. A time limit of 2 minutes per end is used. The halfway target switch addressed in I.D.1. also applies to the Vegas Round.

### I.E.2. Targets and Scoring

#### I.E.2.a. Single Spot Target

This target face is 40 cm. in diameter with rings of multiple colors. Starting from the outside, the colored rings count as the following amount of points: white rings are 1 and 2 points, black rings are 3 and 4 points, blue rings are 5 and 6 points, red rings are 7 and 8 points, and yellow rings are 9 and 10 points. The centermost ring is the X-ring and is used for tie-breaks.



*Figure 9: Single Spot & 3 Spot Targets at the World Archery Festival*

### **I.E.2.b. Vegas 3 Spot Target**

This target consists of 3 spots on a 40 cm. face with only scoring rings 10 through 6 included for each spot. Like the Five Spot Target, an archer may shoot the spots in any order and as many arrows into each spot as desired, not to exceed the prescribed number of arrows per end. Also like the Five Spot Target, this target face is designed for the precision archer who wishes to avoid glance-outs or damaged arrows. See Figure 9 for NFAA Vegas Round targets.

## **SECTION II: ARCHERY RANGE GUIDELINES**

All NFAA sanctioned leagues and tournament competitions must be conducted on a NFAA certified range. Range requirements are established to ensure minimum safety standards and shooting conditions. The requirements for each range type are provided in the respective Course Approval Form and are applicable to both club and commercial facilities. To obtain course approval for any range, the Club Secretary/Shop Manager must contact the NFAA State Director. The Director will provide the necessary forms and arrange for inspection.

Course approval expires two years from the date of issuance. When a change is made in the course, a new Course Approval Form must be obtained. The \$15.00 course approval fee applies to each range. If the Course Approval Form is completed within a month period from the effective date of new charter, no fee will be required for the initial approval. Course approval may be withdrawn at any time when, in the opinion of the NFAA Director, a condition falls below the requirements listed in the Course Approval Form. Revocation or expiration of course approval means that no NFAA sanctioned events may be conducted on the course.

The Guidelines provided herein are complementary to the requirements listed in the Course Approval Form and are not meant to be exhaustive. To ensure all NFAA course requirements are met, please refer to the respective Course Approval Form.

### **II.A. Indoor Archery Range**

#### **II.A.1. General Range Layout**

The distance between the shooting line and the target bales is at least 60 feet +/- 4 inches. The measurement is taken from the center point of the target butt to the shooting line. A minimum clearance of 5 feet is recommended behind the butts to allow for a backstop, as well as sufficient "elbow room" to retrieve arrows which may have passed through the target butts. Clearance behind the shooting line must be at least 15 feet to allow room for bow racks, benches, tables, traffic, etc. Thirty feet is much more desirable.

The 10-foot "dropped arrow" line must be clearly marked and run the distance of the entire shooting line.

Entrance to the range must be located behind the shooting line. Any ancillary door openings into the range (from the outside or adjacent rooms) in front of the shooting line must be secured from the inside to prevent personnel from entering while shooting is in progress. Signs must be posted on the outside of such doors that provide warning of shooting range

#### **II.A.2. Target Lanes**

The width of each target lane must be 24 inches, though 30 inches or more is much more desirable. The target butts must be consistently spaced according to the width of each lane. For example, if lanes are 24 inches wide, 48-inch bales are touching side-by-side. If lanes are 30 inches wide, target bale centerlines are 5 feet apart.

Individual target lanes must be suitably and plainly marked either by center lines or by lines designating the side boundaries of each lane.

#### **II.A.3. Side and Vertical Clearance**

All pillars or structural parts of the building, including automatic equipment, must be properly

protected so as not to damage arrows and to prevent rebound to the shooting lines.

The vertical clearance between the floor and anything hanging from the ceiling in the line-of-fire, such as structural beams or light fixtures, must be at least 8 feet 6 inches. This excludes light fixtures immediately in front of the target bales so long as they are not in the line of fire. Note that 10 feet is better for those youth who use bows with light poundages.

#### **II.A.4. Target Butt Set-Up and Dimensions**

Each butt must be large enough to carry the needed target faces for the round being shot. There must be at least one face on the butt for each archer shooting on the line. Each target must have sufficient backing without overlapping one another. The minimum butt size is 40" square or 48" diameter. A deviation in minimum size is permitted in those club-type operations where each archer is assigned his own butt, providing it is large enough to fully support a 40-cm target face. The thickness of a target butt should be no greater than the length of the shortest arrow. A completely buried "pass-through" is almost impossible to extract and presents a hazard.

The target butt must be secured to prevent accidental toppling or pitching forward during arrow removal. The bottom of the target butt must be at least 16 inches from the floor. For easel-mounted butts, the backward tilt must be between 0° and 10° from vertical, and the tilt-angle must be the same for all butts.

Each butt must have an identifying target number. These numbers must be at least 6 inches in size and be fixed above or below the center of each target butt, so they are clear of the target faces.

#### **II.A.5. Target Butt and Backstop Materials**

Excelsior, corrugated cardboard, layered carpet, and foam are common materials used for permanent indoor target butts. However, indoor target butts may be constructed of any material so long as:

- ◆ It doesn't damage or "goop up" the arrows.
- ◆ It doesn't allow frequent pass-throughs. If at any time butts begin to allow pass-through arrows, the condition must be corrected at once.
- ◆ It allows the arrows to be withdrawn easily, or at least without much effort.

An indoor target backstop may be made of any material so long as it will stop an arrow and doesn't damage any pass-through, overshot or side-shot arrow. The backstop must be at least 8 feet high. Standard sheets of (thick) plywood, butted side-by-side, are commonly used as backstops. A curtain-like, closed-mesh fabric backstop is also common especially for large events in temporary facilities.

#### **II.A.6. Indoor Lighting**

The acceptable amount of light on the targets is 30-foot candles. The whole range should maintain a 30-foot candle lighting illumination, though this maintenance is not required. There must be sufficient illumination at the shooting line for reading of sight marks and doing other close work.

The illumination on the target is situated and placed so as not to allow the light rays to be directed toward the shooting line. At no time will direct light rays be allowed to be in view of the archers so as to disturb his/her shooting.

Fluorescent overhead light fixtures are recommended because of the uniform illumination and

lack of harsh shadows. Floor-mounted fixtures in front of the butts are sometimes used to augment target illumination, but these must not pose a hazard.

## **II.A.7. Indoor Range Accessories and Design Elements**

### **II.A.7.a. Miscellaneous Range Accessories**

All range accessories must be of a design and position so as to not create a hazard to equipment or personnel and must be placed at least 5 feet behind the shooting line. The following items should be provided whenever possible.

- ◆ Bow racks or hooks. Remember to provide enough racks to handle a full house of shooters (two times the number of lanes). Also, remember that many bows have extra-long stabilizers, wide v-bars, and/or extra short or parallel limbs.
- ◆ Equipment tables. Places should be provided to store bow cases and to assemble/repair archery tackle. Inexpensive, folding, "cafeteria" tables are adequate.
- ◆ Chairs or benches. These, along with the tables noted above, should be located behind the bow racks, and should provide sufficient seating for the expected number of spectators, plus at least one-half the number of shooters.
- ◆ Coat racks or hooks, refrigerator or vending machine for drinks, and bow press. These items provide added comfort and convenience.

### **II.A.7.b. Restroom Facilities**

The range must provide appropriate restroom facilities. It is most desirable that these restrooms should meet the minimum requirements provided by the laws of their state or townships. Such requirements can be obtained from the local county Board of Health. Please note, due to the condition of many of these facilities, city or county Board of Health affidavits should be required. A "Privy Law" is on the books of every state of the nation. Each city, county and township also has its own requirements and very often is more strict than the state's.

### **II.A.7.c. Security Considerations**

To track people with access to the range, consider incorporating people counters or cameras at the range entrance. This can reduce the threat of vandalism and theft. Digital check-in and check-out range systems can allow experienced users to utilize the range without supervision.

### **II.A.7.d. Fee Boxes**

Fee boxes may be a good idea for unstaffed facilities and allow users to pay for their sessions and/or utilization of target faces on the honor system. Such boxes should be locked to prevent theft.

### **II.A.7.e. Timing System**

It is good practice to display a visual timing system that counts down from the allotted amount of shooting time. At the very least, a stoplight-like timer is required for any NFAA sanctioned tournaments or leagues. Such timer will display green for START shooting, amber for 30 SECONDS TO GO, and red for STOP SHOOTING. The timer may be overridden by a tournament official behind the shooting line. A raised platform

behind the shooting line should be provided for the Director of Shooting and Clock/Timer Operator.

## **II.A.7.f. Signage**

### **II.A.7.f.i. Welcome Sign**

A “welcome” sign must be present near the entrance that provides details of range rules, shooting procedures, and emergency phone numbers.

- ◆ Shooting Procedure Examples:
  - Verify that the range is clear.
  - Give “Range is Hot” or other similar command to indicate shooting may commence.
  - When finished shooting, place bow on rack or set it down and wait behind the shooting line until all archers are finished shooting.
  - Give a “Cease Fire” or other similar command to indicate all shooting should stop.
  - Verify all equipment is put down and remains behind the shooting line.
  - Proceed to the target to retrieve arrows.
  - When using whistle commands use the following:
    - 1 whistle blast to indicate shooting may commence.
    - 2 blasts during programs to indicate participants can pick up their equipment. This is not necessary during open shooting.
    - 3 blasts to indicate arrows may be retrieved.
    - 5 or more blasts if an emergency occurs and shooting must stop immediately.
- ◆ Range Rules Examples
  - Follow archery shooting procedures.
  - Always keep bow pointed toward target.
  - Always draw bow with arrow parallel to the ground.
  - Only nock arrows at the shooting line.
  - Always have an arrow nocked when drawing to eliminate the possibility of a dry fire.
  - Archers may not shoot obviously damaged or defective equipment.
  - No crossbows or bows with unguarded overdraws are permitted.
  - Anyone ages 16 and under must be under adult supervision.
  - No alcohol or drug use on range premises.

### **II.A.7.f.ii. Advancement Sign**

Walk-up ranges must have a sign posted stating that no one shall advance to the targets until an appropriate visual signal is given. The signal may be a switch-operated or manual signal. The signal is conspicuous from the shooting line. There is no size requirement.

### II.A.7.g. Moveable Equipment / Automatic Target Butts

Automatic target butts returning with embedded arrows must stop without creating a hazard to archers on the shooting line (between 30 to 36 inches from the line). Further, movable equipment must be capable of stopping the target butt at the following distances, plus or minus 4 inches: 20, 15 and 10 yards. 55, 50, 40, 35, 25 and 20 feet.

Ranges with movable equipment must have a warning system in the event anyone should advance to the target. Once a participant has passed the shooting line in the direction of the target, the alarm will activate. Alarm systems may be bells or horns audible to the entire range.

## II.B. Outdoor Field Archery Range

Safety is the overwhelming factor dictating whether there is enough room for 14 or 28 targets (or more). The actual shooting lane dimensions account for only a very small fraction of the total area requirement as safety buffer areas must be considered. Terrain is also quite important as proper use of terrain can alleviate many safety concerns by providing natural backstops and buffers.

The development of a good field archery range always starts with a well-thought-out plan. First, it is helpful to create a surveyor-type sketch of the property showing significant contours, creeks, etc. Use of a large-scale topographical map would be better yet. Second, it is a good idea to develop a preliminary range layout on the topo sketch or map, considering all the safety criteria described below. Then, going out to the range and physically staking each target's shooting line and target butt position is the best way to see the distance and direction in relation to the previous target and the next target. Always carefully consider the location of shooting stakes, walking lanes, and target butts. When in doubt, err on the side of caution!

### II.B.1. General Range Layout

The following are size-related requirements for laying out a field range:

- ◆ If the target is not backstopped (either fabricated or earthen), 25 yards or one-half of the target distance, whichever greater, must be cleared behind the butt. Keep in mind, the more that's cleared, the better.
- ◆ An area one-fourth the shooting distance must be cleared in front of the target butt.
- ◆ A minimum clearance of 25 to 50 feet, depending on terrain and target distance, must be provided between any path or shooting lane paralleling another shooting lane.
- ◆ The cleared distance on each side of the target butt must be greater than the target distance times the tangent of 15° to 30° (safest), depending on terrain and target distance. As a compromise, the tangent of 26.5° is 0.5, making it easy to "stake out" while surveying the range. For example, the safety zone on either side of a 40-yd target butt is  $40 \times \tan(26.5^\circ) = 40 \times 0.5 = 20$  yards. The safety zone for this 40-yd butt would therefore be 25 yards deep by 40 (20 + 20) yards wide. No waiting area or shooting position should be inside this safety zone. Additionally, in no case should an errant arrow cross the buffer boundaries, even if the adjoining property is uninhabited. In other words, all the safety buffer zones must be included *within* the total range area requirements. See Table 3 for a summary of the recommended safety zones to *each side* and *behind* outdoor archery target butts.

Target Distance	Side Safety Zones	Depth Behind Butt
Up to 30 yds	15 yds	25 yds
30 to 50 yds	One-half target distance	25 yds
50 to 80 yds	One-half target distance	One-half target distance

Table 3: Target Butt Side & Depth Safety Zones

- ◆ The target lanes should be sufficiently wide to support two archers shooting simultaneously side-by-side, though this is not absolutely required. Four-wide is highly recommended for the longer walk-up targets, which generally take longer to shoot.

It is most desirable that the targets be laid out to allow maximum variety and best use of the terrain. Within the safety parameters, be creative with the design and take advantage of uphill, downhill, and sidehill shots when possible. Ideally, the targets should also be laid out such that the archer never has to walk back on the lane just shot unless the target is about 30 yards or less. These walk-back targets require less land, but are an aggravation during tournaments because of the time wasted waiting for the lane to clear and the amount of extra walking. As such, walk-through targets are always preferred.

The range should be laid out such that the Target 1 (and 15) entrance and Target 14 (and 28) exit are near the clubhouse or assembly area. The walking distance from this central area to the furthest target should be no more than 15 minutes normal walking. With the right terrain and under perfect conditions, a safe, 28-target field range, with no long walk-backs and with no fabricated backstops, but with a 10-target practice range, clubhouse and modest parking lot, can fit on about 20 acres. Thirty acres is more comfortable. 28-target ranges with lots of walk-backs and backstops can fit on as little as 15 acres. For initial planning purposes, a rule-of-thumb is one acre per target, two acres for a nice practice range, and about one acre for the parking lot and building(s).

### **II.B.2. Common Range Safety Issues**

It is good practice to have “trial” shoot-through rounds with a few archers after initially building your field course and prior to hosting any events. These trial rounds aid in finding small issues that may not be clear until the range is actively used. It is important, however, that all archers be on high alert during these trial rounds as safety should be the main concern. Field archery range safety may be divided into two categories: (1) factors related to range layout and terrain, and (2) factors related to maintainable items, such as target butts, target lanes and lane obstructions. The following are some examples of common range safety issues from both categories that a trial round may bring to light:

- ◆ Waiting areas and shooting positions at the next target within the danger zone of the preceding target. This is often the result of not having enough land. The safety buffer areas described above in Section II.B.1 are good rules-of-thumb.
- ◆ Target butt positioned such that a road, path or another target is directly behind the butt, even if at a reasonably safe distance. This may pose a problem as any unnatural movement in the sight window can cause an unnatural flinch and inadvertent arrow release.
- ◆ Lack of backstop or inadequately cleared area behind target butt. People *will* miss, and they *will* look for that missed arrow. Uncleared brush not only increases the chance of a ricochet, but it also increases the exposure of the search party to other target danger zones.
- ◆ Arrows passing through butts. Like missing the target, the more people go behind target bales to find arrows, the more opportunity there is to accidentally stray from the safe zones.
- ◆ Non-backstopped target positioned on a brow of a hill, such that a missed shot becomes a flight risk.
- ◆ Uncleared paths to and between targets (i.e., safety afoot). The usual method of clearing field archery lanes is to brush-hog the saplings about one or two inches above



the ground and clear any other potential tripping hazards.

- ◆ Inadequate clearance above the target lane. It is often forgotten that light-bowed and traditional shooters require more vertical clearance.
- ◆ Walk-ups which are also fan shaped. The problem here is that unlike a straight walk-up, an angled walk-up often gives the option of shooting four at a time. It depends on the angle of the fan whether this is safe or not.

### II.B.3. Target Butt & Backstop Set-Up & Construction

The minimum size requirements for field archery butts are based on the target faces being shot. Table 4 relates butt dimensions with target configuration.

Distance	Critical Target	Minimum Butt Dimensions
Up to 15 yds	4 x 4 – 20-cm	36" x 36"
15 to 35 yds	2 x 2 – 35-cm	30" x 30"
35 to 40 yds	1 x 2 – 50-cm	30" x 42"
40 to 80 yds	Group 1 Animal	42" x 42"

*Table 4: Target Butt Dimensions*

There are hundreds of different target butt materials available worldwide including various fibrous natural materials, forest or agricultural by-products, bundled rags and recycled plastic. The most common choices, however, are foam and composite materials. A medium cost compromise is the do-it-yourself fabrication using cardboard, insulation board, or any one of many sheet foam materials, stacked and compressed in a custom screw-down frame. No matter the chosen material, the most important part is that the butt does not leak arrows and any reinforcement material behind the butt does not damage the arrows. It also best that the target butt material does not leave residue on the arrows or make them excessively difficult to extract.

Many ranges have a simple roof over each of the target butts to afford the paper target faces protection from rain, especially if they're to be shot more than one day. Most constructed roofs are at least six feet from the ground to allow for head clearance and about four feet wide.

The target butt platform, roof and/or supporting posts should be made from materials that won't damage an errant arrow. Ordinary pressure-treated pine is a good choice. Often, the front of target frames are covered with rubber, used fire hose or other materials to help protect the wood from arrows and vice versa. If steel fence posts are used to hold the butt upright, the posts should be kept out of sight and on the back edges of the butt. It is also a good idea (and welcomed by all novice shooters) to keep the ground around the butts free of rocks and large stones, especially at targets further than 50 yards.

Unlike indoor archery, there is no minimum height above the ground for field archery target faces. The absolute minimum should be the height afforded by a standard wooden pallet (i.e., about 5 inches). A platform about 16 inches above the ground is much better, since the center of the target would then be about waist-high, thus making it easier to score and extract arrows. Most importantly, the butts must be stable so there is no danger of tipping forward or backward. If such a chance exists, the butts must be braced or anchored.

When backstops are necessary, a rule-of-thumb for their size is three butt-widths wide and two butt-heights high. For example, a backstop behind a 4 x 4-ft butt would be 12-ft wide by 8-ft high. Plywood panels or other materials would be sufficient. The only requirement is that the backstop must stop the arrow without substantially damaging it and without endangering anyone on or off the range. Of course, unnatural target backstops are not generally desired on a field

archery range unless dictated by safety concerns. Given that fabricated backstops can be eyesores and quite expensive, it is always best to utilize natural barriers when possible (e.g., hills, ravines, and earthen berms).

#### **II.B.4. Field Range Accessories & Design Elements**

The NFAA offers bonus points for qualifying field ranges and grants star ratings based on those bonus points. Ranges can be classified as having anywhere from one to five stars. For more information on qualities that provide bonus points, please refer to the Course Approval Form for Outdoor F/H/A Ranges and/or the *NFAA Constitution & By-Laws*. The following are some examples of elements that would provide such bonus points.

##### **II.B.4.a. Miscellaneous Range Accessories**

All range accessories must be of a design and position so as to not create a hazard to equipment or personnel. The following items should be provided whenever possible.

- ◆ Bow racks or hooks. It is best to have at least 4 hooks or 1 rack available for archers to rest their bows both near the furthest shooting stake and by the target.
- ◆ Benches. These should be placed about 5 yards behind the furthest shooting stake at as many targets as possible. Benches are especially helpful at the longer targets where groups are more likely to get backed up and spend time waiting.
- ◆ Designated target(s) for broadhead use. By nature of their design, shooting arrows with broadheads will decrease the longevity of targets on the range. Equipment bans are not recommended as they don't always prevent use. Providing at least one clearly labeled target for broadhead use and placing it at 20 yards is the best way to accommodate hunters and increase the longevity of the main targets on your range.

##### **II.B.4.b. Designated Practice Range**

It is best to provide a few practice targets for archers to warm up and/or check their sight marks. Targets should be placed at a wide range of distances and reach out to the furthest distance shot on the main range. If present, the practice range must be treated as a giant-sized target, and so cleared and backed to provide the appropriate safety buffer zones.

##### **II.B.4.c. Covered Shelter, Pavilion, or Clubhouse**

It is preferable to have a main gathering area for outdoor ranges. This area can be used to hold meetings, make announcements, work on equipment, and socialize. The following items are often found at such an area: picnic tables and chairs, grills and/or fire pits for cooking, a refrigerator or vending machine for drinks, and a bow press or other maintenance equipment.

##### **II.B.4.d. Restroom Facilities**

Refer to Section II.A.7.b.

##### **II.B.4.e. Security Considerations**

Refer to Section II.A.7.c

##### **II.B.4.f. Fee Boxes**

Refer to Section II.A.7.d.

##### **II.B.4.g. Signage**

In addition to the Welcome Sign described in Section II.A.7.f.i., field ranges must also post “Warning” or “Caution” signs around the range boundary lines to deter people from crossing onto the property.

## **II.C. Outdoor Target Archery Range**

Like a field archery range, safety is the top priority in the design of any outdoor target range and a well-thought out-plan should be the top priority in the beginning. Staking out the available area for a target range will make it easier to see how many target butts can fit while still allowing for the required safety buffer zones. This will dictate the overall design the range.

### **II.C.1. General Range Layout & Safety Requirements**

The following are size-related requirements for laying out a target range:

- ◆ The distance between the shooting line and the target bales must accommodate the type of NFAA round to be hosted on the range. The following rounds require at least 60 yards: 900 Target Round, NFAA 810 Target Round, NFAA 600 Target Round, and NFAA Classic 600 Target Round. The NFAA International Round requires at least 65 yards. Range distances are measured from the shooting line on the ground perpendicular to the center ring on the target face. The tolerances for distances are as follows: 12 inches for 60+ yards, 6 inches for 30-59 yards, and 4 inches for less than 30 yards.
- ◆ The cleared distance on each side of the target line must be greater than the target distance times the tangent of 15° to 30° (safest), depending on target distance. The tangent of 26.5° is 0.5, making it easy to “stake out” while surveying the range. Additionally, if the targets are not backstopped, 25 yards or one-half the target distance, whichever is greater, must be cleared behind the butts and managed in a way that prevents personnel from entering the buffer area. In no case should an errant arrow cross the buffer boundaries, even if the adjoining property is uninhabited. In other words, all the safety buffer zones must be included *within* the total range area requirements. Importantly, this area must be managed in a way that prevents personnel from entering. Temporary or permanent fences or walls are not required but are the most effective way to guard this safety zone. See Table 3 for a summary of the recommended safety zones to *each side* and *behind* outdoor archery target butts.
  - For example, the safety zone on either side of a 60-yard target line is  $60 \times \tan(26.5^\circ) = 60 \times 0.5 = 30$  yards. The safety zone of this 60-yard target line would therefore be 30 yards deep by 60 (30 + 30) yards wide.
- ◆ Each target butt must have two shooting lanes. The minimum width of each lane must be 36 inches. Individual target lanes must be suitably and plainly marked by center lines and lines designating the side boundaries of each lane. Pegs, chalk lines, or paint lines are suitable markings.
- ◆ The 10-foot “dropped arrow” line must be clearly marked and run the distance of the entire shooting line. On the opposite side of the shooting line, there must be a 3-yard waiting line that archers cannot pass until given the signal to do so.

The field must be relatively flat, free from obstructions, and laid out so that shooting is from South to North. A maximum deviation of 45% is allowed for local tournaments if required by terrain or safety.

Target lines and shooting lines must be plainly and accurately marked on the ground and be no more than 6 inches in width. Target lines or shooting lines may be arranged to require the shooters to move forward from the longest distance to shorter distances while the targets remain stationary, or to require the target butts to be brought forward from longest to shorter distances while the shooters use a stationary line.

Target numbers must be present at the base of each target butt and be at least 8 inches in size. The entirety of the target number must be clear of the target face. The numbers must be made of a suitable material to withstand weather conditions and be easily visible from the furthest distance. Additionally, at least every other target butt must have a small flag, of a size and color easily visible from the farthest distance, mounted at least 2 feet above the top of the target bale. These visual aids assist archers in determining wind strength and direction.

### **II.C.2. Target Butt & Backstop Set-Up & Construction**

Target butts can be made of any suitable material that will not damage arrows or allow them to pass through or bounce out frequently. If at any time butts begin to allow pass-through arrows, the range representative acknowledges the condition must be corrected at once. Refer to Section II.B.3 for target butt material suggestions.

Given that the distances on an outdoor target range are further than those shot on an indoor range, the acceptable angle for target butts is greater. All target butts must be set up at an angle of no more than 15 degrees from vertical, and the tilt angle must be the same for all butts.

Target butts or their frames must be securely anchored to the ground to prevent accidental toppling. They must be firmly attached to any supports or framing. There is no minimum size for the target butt. They must be large enough to ensure that any arrow hitting the butt and just missing the outermost edge of the scoring zone remains in the butt.

### **II.C.3. Outdoor Target Range Accessories & Design Elements**

All of the accessories and design elements noted under Section II.B.4 are also relevant to outdoor target ranges. However, there is no star rating system for outdoor target ranges.

## **II.D. Outdoor 3-D Archery Range**

As with field archery ranges, the actual land area required between the shooting stakes and targets is a small fraction of the total area required for 3-D ranges. Although the distances shot on a 3-D range average less than those shot on a field range, there are multiple factors which make the total area requirements greater. The first is that arrow speed and the probability of arrow ricochet are higher for the 3-D archer than for the field archer because 3-D setups are typically faster to better account for the possibility of misjudging yardage. Additionally, more space is needed because fabricated backstops are not generally desired due to the preference for realism. Earthen backstops, whether manmade or natural, can greatly cut down on the total area needed.

It is important to note that the range inspector must be provided with a map of the range layout at the time of inspection that shows distances, direction, targets, and shooting positions. This map must be submitted to NFAA Headquarters with the completed Approval Form. This is different from the other range approval processes as field, indoor, and target ranges do not require the submission of a range layout map.

### **II.D.1. General Range Layout**

The following are size-related requirements for laying out a 3-D range:

- ◆ If the target is not backstopped (either fabricated or earthen), a minimum of 50 yards must be provided as a buffer area behind the target free of any path, target, road, or building. The entire buffer area must be on the range property even if the adjoining property is vacant.
- ◆ A minimum clearance of 25 to 50 feet, depending on terrain and target distance, must

be provided between any path or shooting lane paralleling another shooting lane.

- ◆ The cleared distance on each side of the target must be greater than the target distance times the tangent of 15° to 30° (safest), depending on terrain and target distance. As a compromise, the tangent of 26.5° is 0.5, making it easy to “stake out” while surveying the range. For example, the safety zone on either side of a 40-yd target butt is  $40 \times \tan(26.5^\circ) = 40 \times 0.5 = 20$  yards. The safety zone for this 40-yd butt would therefore be 25 yards deep by 40 (20 + 20) yards wide. No waiting area or shooting position should be inside this safety zone. Additionally, in no case should an errant arrow cross the buffer boundaries, even if the adjoining property is uninhabited. In other words, all the safety buffer zones must be included *within* the total range area requirements.

It is most desirable that the targets be laid out to allow maximum variety and best use of the terrain while simulating real hunting conditions and placing the animals in their typical habitats. Within the safety parameters, be creative with the design and take advantage of uphill, downhill, and sidehill shots when possible. Ideally, the targets should also be laid out such that the archer never has to walk back on the lane just shot unless the target is about 30 yards or less. These walk-back targets require less land but are an aggravation during tournaments because of the time wasted waiting for the lane to clear and the amount of extra walking. As such, walk-through targets are always preferred.

The range should be laid out such that the first target and the last target are near the clubhouse or assembly area. The walking distance from this central area to the furthest target should be no more than 15 minutes normal walking.

Shooting stakes must be marked with target numbers or a separate target number marker must be present. For marked 3-D course, the stake must be labeled with the corresponding yardage.

### **II.D.2. Common Range Safety Issues**

The following are examples of common range safety issues:

- ◆ Waiting areas and shooting positions at the next target are within the danger zone of the preceding target. This is often the result of not having enough land. The safety buffer areas described above in Section II.D.1 are good rules-of-thumb and are even important on 3-D ranges because of the likelihood of more arrow ricochets.
- ◆ The target is positioned such that a road, path or another target is directly behind the target, even if at a reasonably safe distance. This may pose a problem as any unnatural movement in the sight window can cause an unnatural flinch and inadvertent arrow release.
- ◆ A non-backstopped target is positioned on a brow of a hill, such that a missed shot becomes a flight risk.
- ◆ There are uncleared and poorly marked paths to and between targets. Paths must be conspicuously marked and clear enough for easy walking with no obstructions.
- ◆ Non-yielding obstructions (e.g., trees and limbs) are blocking the animal vitals. When setting up a 3-D target, the shot should not be any different from that which an archer would take in a real hunting situation. Moreover, the visual from the perspective of the short person, lefthander, and light-bowed bowhunter should be considered.
- ◆ The presence of overlapping "miss" areas behind the targets. As a result of the lack of backstops and more missed shots at 3-D targets, special care must be taken to make sure that a missed arrow doesn't end up behind another target.
- ◆ Shots taken from an elevated position. Shooting from elevated platforms is fun, but

the shots should not be overly difficult (e.g., hanging out over the railing). Additionally, special care should be taken to see that the bow limb doesn't slap any part of the tree or platform upon release.

### **II.D.3. Target Butt & Backstop Set-Up & Construction**

Target butts must not leak arrows and any reinforcement material must not damage arrows. If at any time butts begin to allow pass-through arrows, the range representative must correct the condition right away.

All target butts or their frames must be stable so there is no danger of tipping. If such a chance exists, then they must be braced or anchored. They must be firmly attached to any supports or framing.

### **II.D.4. 3-D Range Accessories & Design Elements**

All of the accessories and design elements noted under Section II.B.4 are also relevant to 3-D ranges except that benches and bow racks/hooks are welcome features but not customarily found on 3-D ranges. Additionally, there is no star rating system for outdoor 3-D ranges.

## **SECTION III: DESIGNING A RANGE FOR ADA ACCESSIBILITY**

### **III.A. Indoor Ranges**

Assuming that the building and restroom(s) are already wheelchair accessible, nothing special is needed for an indoor range, except to provide more maneuvering room behind the shooting line. Also, since a wheelchair requires extra lane width at the shooting line, the handicapped archer should be provided with two lanes of space on the shooting line.

### **III.B. Outdoor Target Ranges**

Because of the flat terrain, outdoor target archery ranges require very little modification for the wheelchair archer. Narrow-wheeled wheelchairs, however, do not maneuver well in sand, loose soil or gravel so the path to the shooting line should be hard-packed or paved and free of obstructions (e.g., rocks, stumps, etc.). Unless some assistance is provided in scoring and retrieving the archer's arrows, lanes to the target should have the same characteristics. Like indoor ranges, two lanes should also be provided on the shooting line to provide room for the wheelchair and the restroom(s) should be wheelchair accessible.

### **III.C. Field & 3-D Ranges**

To make a field and 3-D ranges ADA accessible, there are a few considerations. The grade should be about 5 percent or less (though ramps can increase the grade to 8.33 percent). Additionally, like target ranges, walkways should be hard-packed or paved and free of obstructions. It is also best to provide extra wide shooting lanes and ensure restrooms and bridges are accessible and safe for wheelchairs.

It is most challenging to accomplish a varied target layout and natural habitat realism while also making the field and/or 3-D range ADA accessible. Given this reality, if cost and space allow, it is best to offer more than one field and/or 3-D range with one being suited for able-bodied archers and the other ADA accessible.