

Guidelines for Planning and Carrying out Construction Works at Egretries



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1. Introduction

The following guidelines set out the actions necessary to protect egrets and herons breeding and roosting sites at every stage of development or works projects (i.e. planning, design, construction and maintenance) of various scales. It is intended to be used by project proponents, consultants, contracting managers and contractors for both private and public works projects. A workshop for the development of the guideline was held in 2014. Various key stakeholders were engaged including consultants, Government departments, environmental NGOs, academics and companies with regular maintenance and construction works. Their comments and concerns were considered during the preparation and drafting of the guideline.

2. Background

2.1. Basic information about egretries

2.1.1. Herons and egrets nest together in colonies called egretries (which is also known as nesting colonies). The size of each nesting colony can range from several pairs to over 1,000 pairs. In Hong Kong five species breed regularly in some 20 colonies:

- i. Little Egret (*Egretta garzetta*),
- ii. Great Egret (*Egretta alba*),
- iii. Cattle Egret (*Bubulcus ibis*),
- iv. Black-crowned Night Heron (*Nycticorax nycticorax*), and
- v. Chinese Pond Heron (*Ardeola bacchus*).

2.1.2. Some people may mistake roosting sites as egretries. Egretries are nesting colonies which form generally from March to August; whereas roosting sites refers to the resting place of the egrets/herons which are generally occupied year-round, while some are only occupied during the non-breeding season (please refer to section 7 on page 10).

2.1.3. Egretries in Hong Kong are found in habitats ranging from remote rural areas to busy roadsides of urban areas. Locations of egretries tends to be relatively stable but can change slightly from year to year – there is still no clear explanation why this happens. It is important therefore to confirm the exact current location of an egretty before determining what measures should be taken to avoid and minimize potential impacts. Nests are found in various types of vegetation including bamboos and native/exotic trees (e.g. Chinese Banyan *Ficus microcarpa* and Chinese Hackberry *Celtis sinensis*, etc.).

2.1.4. Evidence of the presence of an egretty may not be obvious, and the following signs should be used (please refer to **Annex 1** for details):

- i. Bird droppings on vegetation or the ground
- ii. Birds carrying nesting material
- iii. Noises made by adult and fledgling birds

- 2.1.5. In Hong Kong, egrets and herons generally breed between March and August, with minor variations depending on the location, species and weather conditions of that year. During their breeding months, they are highly sensitive to human activities and physical disturbance (e.g. noise and vibrations). When subject to disturbance,
- i. parents become startled and take flight (flushing), leaving eggs and chicks unattended and exposed to predators (including human intruders) and adverse weather.
 - ii. chicks may attempt to escape by walking out of their nest if human disturbance is intense, for instance, construction is being undertaken. In some cases, chicks will fall onto the ground and are incapable of returning to the nest, leading to an eventual death on the ground by predation or lack of parental care.
 - iii. birds may abandon the nesting colony if intense disturbance persists.
- 2.1.6. In some extreme cases, the nesting site is completely destroyed by removal of all vegetation inside the colony during the breeding season. This will kill all chicks and eggs. Such cases have happened in Hong Kong before¹.

2.2. Ordinances

- 2.2.1. The Wild Animals Protection Ordinance (WAPO) (Cap. 170) provides for the protection of all wild birds, including egrets and herons and their eggs and nests, against hunting, trapping, removal, destruction and willful disturbance in Hong Kong.
- 2.2.2. The Environmental Impact Assessment Ordinance (EIAO) (Cap. 499) requires project proponents of designated projects to avoid, minimize, and control adverse impacts as far as practicable. If total avoidance is not practical, the proponents are required to mitigate the adverse impact to an acceptable level, or compensate for impact caused. Developers of designated projects that directly or indirectly impact egrettries are often required to regularly conduct construction and operational phase ecological monitoring at egrettries as a condition for granting an environmental permit².

2.3. Relevant stakeholders

2.3.1. Regulators

The Agriculture, Fisheries and Conservation Department (AFCD) is the Authority responsible for implementing the WAPO (Cap. 170) and is also responsible for providing advice to works departments for small-scale projects and to the Environmental Protection Department (EPD) during the EIAO process.

The Environmental Protection Department (EPD) is responsible for issuing environmental permits for designated projects under the EIAO (Cap. 499). EPD is also the department responsible for imposing and enforcing any environmental permit violations.

2.3.2. Contract managers

Government works departments and private utility/infrastructure companies are contract managers responsible for the planning and design of construction and maintenance projects. Decisions made during these stages, especially with regard to timing, design and planned mitigation measures, provide the best opportunities to avoid and minimize impacts to an egret.

Contractors are managed by the contract managers (works departments or public works companies). The management and conduct of their frontline staff will determine the degree to which an egret near an ongoing project is affected by essential works.

2.3.3. Environmental NGOs

The Hong Kong Bird Watching Society (HKBWS) is a non-profit organization comprised of experts and members who are concerned about and actively engage in the protection of birds. An Egret Research Group has been established under the HKBWS, which is responsible for conducting annual surveys (commissioned by the AFCD since 1997) in order to determine the location, size and success rate of all the egretries in Hong Kong.

3. How to use these guidelines

These guidelines outline several scenarios typically confronting the abovementioned stakeholders. They will help relevant stakeholders to determine which scenario best fits the project under consideration and provides advice on the appropriate measures for addressing each stage (i.e. planning, design, construction and maintenance) of that scenario.

4. Consideration of egretry protection for all construction projects

4.1. Determining the presence of an egretry

The absence or presence of an egretry greatly influences how the construction will be carried out. During the early planning stage of all projects, the contract manager should seek advice from AFCD and/or HKBWS to determine the presence and exact location of any egretry that might be affected by the project.

This may be checked initially in the most recent Egret Count Report (link: <https://www.hkbws.org.hk/cms/index.php/component/phocadownload/category/16-egretry-counts-in-hong-kong>), which includes information on the location of all egretries in Hong Kong. As egretries may move from year to year and are often unoccupied and easily overlooked during the non-breeding months (September to February), it is essential to confirm the presence and exact location of the egretry during the relevant breeding season. Once the presence/absence of egretry is determined, reference to the flowchart in **Figure 1** will determine which scenario the project falls under.

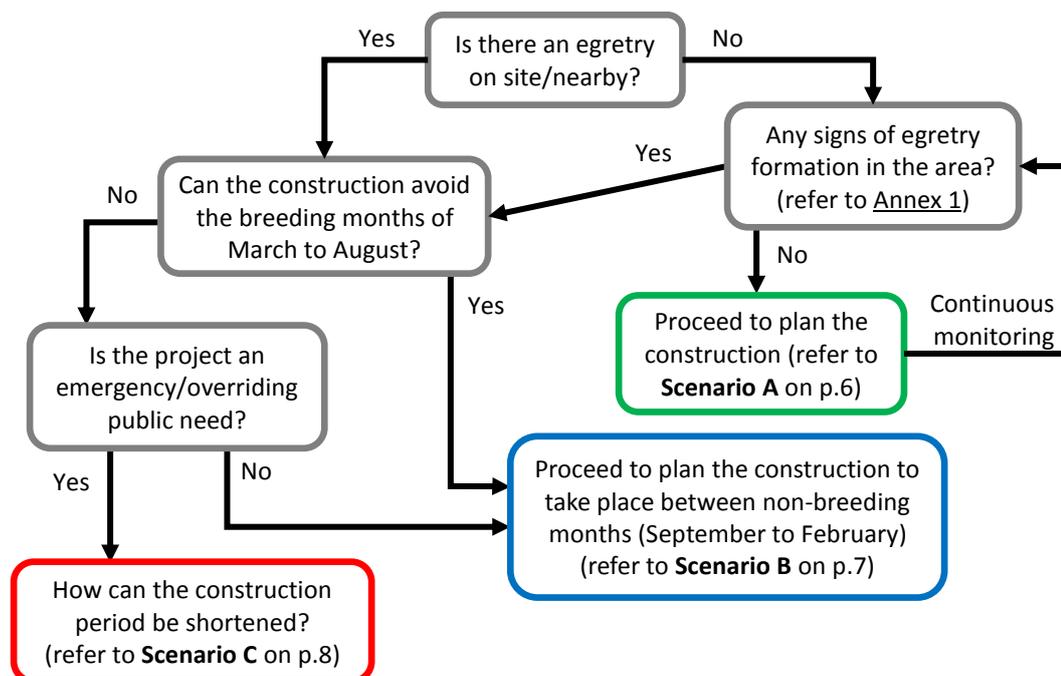


Figure 1. Flowchart for determining which scenario to follow for a development

4.2. Scenario A - No egretry identified

Scenario A applies when no egretry is identified at/near the site. If an egretry is abandoned or destroyed, there is still the possibility of a new egretry forming in the area. Special attention should be paid to the subject site and its surroundings for any signs of a suspected egretry (**Annex 1**). The recommended actions for scenario A are detailed in **Table 1**.

Table 1. Recommended actions when no egretry is identified (Scenario A)

<i>Planning stage</i>	Advice has been sought from AFCD who have confirmed there is no egretry present that might be impacted. Construction may be carried out at any time of the year (Table 4).
<i>Design, construction and maintenance stage</i>	Given the possibility of new egretries forming at or near the site, contracting managers and contractors should keep monitoring for signs of a suspected egretry (Annex 1) and be aware of the follow-up measures to take in this situation. If it is suspected that a breeding site might be present, advice should be sought from AFCD and/or HKBWS to confirm or dismiss the validity of the suspicion. Should an egretry be discovered, please refer to Scenarios B or C .

4.3. Scenario B - Presence of an egretry where works can avoid the breeding season

Scenario B applies when avoidance of the breeding season is possible. Under this scenario, the design of the construction will affect the habitat quality of the egretry. It is likely that measures to minimize the direct and indirect disturbances will be required. Contractors should be educated about the egretry and the importance of implementing the protection and mitigation measures (**Annex 2**). The recommended actions for scenario B are detailed below.

Table 2. Recommended actions when an egretry is identified and works can avoid the breeding season (Scenario B)

<i>Planning stage</i>	Avoidance of the entire breeding season (Table 4) is feasible and will be implemented. All development and construction layout options should have been thoroughly considered so that the chosen layout poses the least impacts to the egretry (e.g. minimal alteration of existing trees). Advice from AFCD must be sought.
<i>Design stage</i>	Although no breeding birds will be present during the construction period, it is necessary to retain the existing conditions of the egretry. <ul style="list-style-type: none"> • The tree protection measures stipulated in the “<i>ETWB Technical Circular (Works) No. 10/2013: Tree Preservation</i>” should be applied. Protection of trees, especially the crown and root conditions, is important to maintain the long-term habitat quality for which the birds return to nest at in the upcoming breeding season. Setting up a fenced-off egretry tree protection zone is highly recommended. It is also recommended that all pruning/trimming of any such trees should be avoided/kept to a minimum. • If any maintenance access is required, it should be designed in a way such that it does not intrude into the egretry core area. This is to avoid any unnecessary human disturbance to the egretry during the maintenance period.

<i>Construction stage</i>	Contract managers must ensure that all egretry and tree protection measures proposed in the design stage are properly implemented by the contractors.
<i>Maintenance stage</i>	<ul style="list-style-type: none"> Contract managers or supervisors should maintain good site management and practice so that the egretry will not be disturbed during the breeding season, and when workers are using the maintenance access. Any misuse of the maintenance access by the general public (including photographers) should be prohibited at all times. Lockable gates, hand railings, and warning signs should be installed/erected at the site where necessary. Tree Risk Assessment (TRA) for sites with egretries should be conducted earlier, such that any recommendations from the TRA (e.g. tree pruning or trimming) can be completed before the start of the breeding season (i.e. before March each year).

4.4. Scenario C - Unavoidable emergency works at an egretry during breeding season

Scenario C applies when avoidance of the breeding season is not possible in emergency situations. Under this scenario, the construction work will adversely affect the habitat quality of the egretry. Measures to minimize both the direct and indirect disturbances must be required. Contractors should be educated about the egretry and the importance of implementing the protection and mitigation measures (refer to **Annex 2**). The recommended actions for scenario C is detailed in **Table 3**.

Table 3. Recommended actions when an egretry is identified and works cannot avoid the breeding season (Scenario C)

<i>Planning stage</i>	<p>It is only in emergency situations where there is an overriding public need that construction should take place at an active egretry during the breeding season (Table 4). Under this scenario, the breeding success of the egretry is at risk and project proponents and contractors should be aware of the consequences and prepared to handle emergency situations. Advice from AFCD must be sought.</p> <ul style="list-style-type: none"> Contractors should be informed of the actions likely to cause disturbance, and provided with the relevant guidelines and equipment to minimize such disturbance. They have also been alerted to the possibility of eggs or fledglings falling out of their nests. They should maintain a good site practice and should be able to identify any strange behavior of the birds (Annex 2). The construction time frame should be as short as possible to minimize the duration of disturbance. All development and construction layout options should have been thoroughly considered so that the chosen layout poses the least impacts to the egretry. <p style="text-align: right;">(P.T.O.)</p>
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	<ul style="list-style-type: none"> The direct loss of trees or alteration of tree crowns where nests are present should also be avoided as far as practicable. Should such works affect any birds/nests/eggs on the tree, a special permit under the WAPO must be obtained from the AFCD.
<i>Design stage</i>	<p>Breeding birds and active nests are expected to be present during the construction phase and all mitigation measures must be thoroughly considered, adequately resourced and properly implemented.</p> <ul style="list-style-type: none"> Can a buffer area be demarcated so that construction works are not allowed within a certain distance from the egretry? Is the construction phased so that works begin furthest away from the core area of the egretry³? (Please consult with AFCD and/or HKBWS on the details for each colony) Can less-disturbing construction activities be carried out first? What noise mitigation measures can be implemented (e.g. noise blanket, quiet machinery, etc.)? If any maintenance access is required, it should be designed in a way such that it does not intrude into the egretry core area. This is to avoid any unnecessary human disturbance to the egretry during the maintenance period.
<i>Construction stage</i>	<p>During the construction phase, works should be carried out diligently, keeping in mind the presence of breeding birds. Contracting managers should check regularly that all mitigation measures identified during the design stage are properly implemented by contractors. In the situation that fledglings have fallen out of their nests and onto the ground:</p> <ul style="list-style-type: none"> contractors should keep distance from the bird so that it does not become startled; suspend the construction work immediately; report the incident to the contract manager immediately; and contract managers should notify AFCD and/or HKBWS so that the impacts can be properly assessed. Consideration should be given to temporary suspension of the works. <p>Decisions for any further actions should be made with agreement between contract managers and AFCD and/or HKBWS.</p>
<i>Maintenance stage</i>	<ul style="list-style-type: none"> Contract managers or supervisors should maintain good site management practices so that the egretry will not be disturbed during the breeding season and when workers are using the maintenance access. Any misuse of the maintenance access by the general public (including photographers) should be prohibited at all times. Lockable gates, hand railings, and warning signs should be installed/erected at the site where necessary. Tree Risk Assessment (TRA) for sites with egretries should be conducted earlier, such that any recommendations from the TRA (e.g. tree pruning or trimming) can be completed before the start of the breeding season (i.e. before March each year).

Table 4. Months in which works are being carried out under each scenario

Scenario	Description	Jan	Feb	Mar*	Apr*	May*	Jun*	Jul*	Aug*	Sep	Oct	Nov	Dec
		A	Months to carry out works when there is no egretry	○	○	○	○	○	○	○	○	○	○
B	Months to carry out works to avoid breeding season	○	○							○	○	○	○
C	When breeding season cannot be avoided, consideration of how to shorten the construction period			○	○	○	○	○	○				

*Months highlighted in green are breeding season of herons and egrets

5. Potential to improve mitigation measures

Some designated projects will require construction phase monitoring to ensure that no adverse impacts are caused from the construction. Unfortunately such monitoring requirements are currently not required for non-designated projects. It is recommended the findings from egretry monitoring programmes are analyzed to help determine the effectiveness of different mitigation measures. These findings could then be incorporated when the guidelines are next updated.

6. Relocation of an egretry

There are no successful cases of egretry relocation in Hong Kong⁴. Egretry relocation is not considered as a favorable mitigation measure due to the lack of guarantee that the birds will use the relocated egretry in the future. It is important to remember that the birds' choice of breeding site is complicated and dependent on a number of factors aside from the location of where the nests are, such as distance to surrounding wetlands, prevailing level of disturbance, etc.

7. Guidelines for works near/at roosting sites of egrets and herons

Roosts differ from egretries because they are occupied by egrets and herons year-round or only during the non-breeding season, whereas egretries are only occupied during the breeding season (generally from March to August). Most egrets and herons feed during the day and return to roosts at night. As a result, works carried out during the day, after the birds leave the roost and before they return in the evening, may not cause much disturbance. The exception is Black-crowned Night Heron, which roosts throughout the day and leaves the roost to forage at night, and is therefore more vulnerable to disturbance by works carried out during typical daytime working hours. All wild birds are protected under the WAPO (Cap. 170); therefore, works near/at their roosting sites must also be cautiously considered to avoid any adverse impacts on birds.

7.1. Identification of roosting sites

Egrets and herons return to their roosts after feeding and congregate in the same patch of trees every day. By observing the flight line of egrets and herons in the evening or morning (depending on the bird species), their roosting locations can be traced. Roosts can also be identified if there are droppings on the understorey vegetation or on the ground. Day and night time bird surveys should be conducted at the roost first to identify the bird species utilizing the site, before determining the appropriate measures to be taken for works near/at the roosts.

7.2. Recommended actions for works near/at roosting sites

- i. For roosts **without** Black-crowned Night Heron, all construction works should be conducted during daytime. No construction works should be allowed in the evening and at night. If Black-crowned Night Heron is **present** at the roost, it is only under emergency situations where there is an overriding public need that construction should take place when herons are roosting at the site. The construction works should be furthest away from the roost and the construction timeframe should be as short as possible to minimize the disturbance. A fenced off roost tree protection zone is also recommended.
- ii. The existing conditions of the trees at the roost should be protected and maintained as far as possible. All pruning/trimming of trees at the roosting site should be avoided/kept to a minimum.
- iii. All development/ construction layout options should have been thoroughly considered so that the chosen layout poses the least impacts to the roost (i.e. minimal alteration of existing trees).
- iv. The flight line of egrets and herons between the roost and their foraging ground should not be blocked by the construction works, construction materials, machineries or any temporary structures.
- v. No direct or indirect lighting should be directed towards the roosts during both the construction and operation phases.
- vi. Contract managers must ensure that all roosts and tree protection measures proposed are properly implemented by the contractors. Good site management practices should be maintained so that the roosts and trees will not be disturbed during the construction phase.
- vii. If any maintenance access is required, it should be designed in a way such that it does not intrude into the roosts. This is to avoid any unnecessary human disturbance to the roosts during the maintenance period.
- viii. The roosts should be surveyed and monitored before, during and after the construction to detect any adverse impacts of the works.
- ix. Advice from AFCD must be sought.

8. List of contacts

Any further enquiries on this guideline or related issues, please direct to:

- HKBWS (tel: 2377 4387, e-mail: hkbws@hkbws.org.hk)
- AFCD (e-mail: mailbox@afcd.gov.hk)

Endnotes

¹ Refer to the disturbances reported in the Summer Reports for 2003, 2004 and 2017 - Egretty Counts in Hong Kong, with Particular Reference to the Mai Po Inner Deep Bay Ramsar Site.

² AEIAR-064/2002 Deep Bay Link (Environmental Permit No.: EP-163/2003/G); AEIAR-103/2006 Yuen Long, Kam Tin, Ngau Tam Mei & Tin Shui Wai Drainage Improvement Stage 1, Phase 2B - Kam Tin Secondary Drainage Channel KT13 (Environmental Permit No.: EP-263/2007/A); AEIAR-175/2013 North East New Territories New Development Areas (Environmental Permit Nos.: EP-472/2013 & EP-473/2013)

³ This is only applicable for large egrettries (i.e. Tai Po Market, Mai Po Village).

⁴ In the Deep Bay Link project, the Ngau Hom Shek egretty was removed and the mature bamboos were transplanted to the wetland compensation area; however, to our knowledge, the area was not used by any egrets/herons for breeding. Another compensation egretty was proposed in the North East New Territories New Development Area project to mitigate for the loss of a section of the Man Kam To egretty. The project has not been implemented at this time and the effectiveness of this compensation egretty is still unclear.

Annex 1 - Indicators for Presence of Egretries

The presence of egrettries can be difficult to detect without close and targeted observations. It is recommended that such observations are made at least once during the breeding months (March to August) for verification.

When conducting on site observations, be aware of the following:

1. Presence of breeding egrets and/or herons

- Do you see any birds sitting in nests?



- Are the birds carrying twigs or grass in their beaks?
(This is common during the month of March as the birds start nest-building)
- Are the birds carrying food in their beaks?
(The birds are likely to be feeding their young)
- Pay attention to where the birds land when you observed these behaviors, it is likely that their nests are near where they land. The bird will likely land in the same location each time it returns to their nest.



2. Bird droppings on leaves and on the ground



3. Presence of nests



4. Fallen eggs on the ground



5. Fledglings – young birds will have wispier feathers on the tops of their head as their feathers are still developing.



Annex 2 - Education kit for contractors and frontline staff

Contractors and frontline staff play an important role. They are responsible for implementing the identified mitigation measures properly and also for detecting and reporting any potential adverse impacts to the birds due to the construction/maintenance works.

As contracting managers and project proponents, you are responsible for educating the contractors so that best practice is used on-site. Below is a simple list of Do's and Do Not's the contractors should be aware of:

Do	Do Not
✓ Set up “no-go” zone around the colony into which there should be no unauthorized entry	✗ Intentionally disturb the birds vocally or physically
✓ Maintain as much distance as possible from the nests at all times	✗ Throw objects into trees where nests are present
✓ Prevent physical damage to trees holding nests, including the roots of the trees	✗ Climb up trees where nests are
✓ Make daily observations of the activities of the birds	✗ Remove nests, eggs or chicks (which is a violation of WAPO Cap. 170)

Contractors should also be aware of strange behaviour of birds which could indicate that the level of disturbances has reached their threshold or beyond and thus affecting their daily activities, this includes:

- Fledglings falling out of their nests and onto the ground
- Adults refusing to come back to the nest but lingering in nearby trees
- Adults abandoned the nests

Contractors should suspend the construction works and report abnormal behaviour to their contract managers immediately.