

Olympic Park

Waterworks Nature Reserve

Sand Martin Nesting Tower

Monitoring Report

**Prepared for Olympic Delivery
Authority
by
Land Use Consultants**

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43 Chalton Street
London NW1 1JD
Tel: 020 7383 5784
Fax: 020 7383 4798
luc@landuse.co.uk

CONTENTS

- 1. Introduction 3**
- Overview.....3
- Background.....3
- 2. Monitoring..... 5**
- Methodology5
- Results.....5
- Discussion and recommendations8
- References..... 9**
- Appendix I: Sand Martin Nesting Tower Monitoring Results..... 11**

I. INTRODUCTION

OVERVIEW

- I.1. Between March and early April 2007 Land Use Consultants (LUC) installed a nesting tower for sand martin *Riparia riparia* at Waterworks Nature Reserve, Leyton, London. The tower was installed on behalf of the Olympic Delivery Authority (ODA) and in partnership with the Lea Valley Regional Park Authority (LVRPA).
- I.2. This report represents the second year of a five year monitoring project to establish the success of sand martin tower in terms of the number of animals nesting. In 2008 the tower was found to be extensively used by sand martin with nest confirmed in over half of the nesting holes. Full details of the project and results of 2008 monitoring are reported in Land Use Consultants (2008a).

BACKGROUND

- I.3. In 2006 LUC was appointed to identify a suitable location for the construction of an artificial sand martin nest, and to design, arrange for and supervise its construction. The aim was to provide replacement nest sites for those which may become abandoned within the Olympic Park due to disturbance during works. Historically, within the site of the future Olympic Park, sand martins nested within drainage tunnels in the vertical, concrete walls of the waterways. Between 2004 and 2008, eight separate colonies were recorded (Land Use Consultants, 2008b).
- I.4. In their natural environment, sand martins nest in vertical banks such as those created at river meanders. Sand martins are a migratory species, visiting Britain from Africa between March and September to breed. A receptor site was identified at the Waterworks Nature Reserve in filter beds in the western part of the site. These filter beds comprise a series of wedge shaped beds radiating from a central point. Prior to works, sand martins were known to forage over the filter beds but no nesting occurred on site. The proposed nest site was located in the north eastern most bed. A design for a nesting tower was drawn up by LUC, LVRPA and Waterside UK. Published guidance was used to inform and refine the design (Hopkins, 2001). Full details of the final specification, location and construction of the sand martin tower are reported in Land Use Consultants (2008a).

2. MONITORING

METHODOLOGY

- 2.1. Monitoring is proposed for five years starting in 2008. In 2009, one survey was undertaken on the 2nd June 2009 to monitor the condition and usage of the nest tunnels.
- 2.2. The monitoring visit involved a three hour period observing the tower using high powered binoculars or a scope. Only the front could be observed from a hide in the centre of the filter beds. However the rear could be viewed from vantage points in the vegetation nearby. Some of the lower holes could not be seen due to the vegetation that has grown up around the nesting tower.
- 2.3. In 2008 spring/summer visual activity surveys were supplemented by a winter time inspection to look for nesting material and thus confirm if the newly constructed nesting tubes were suitable for sand martin nesting. In 2009 winter surveys were not deemed necessary given the number of holes which indicated positive signs of nesting in 2008.

RESULTS

- 2.4. A summary of the 2008 and 2009 monitoring results are included in **Table 2.1**.

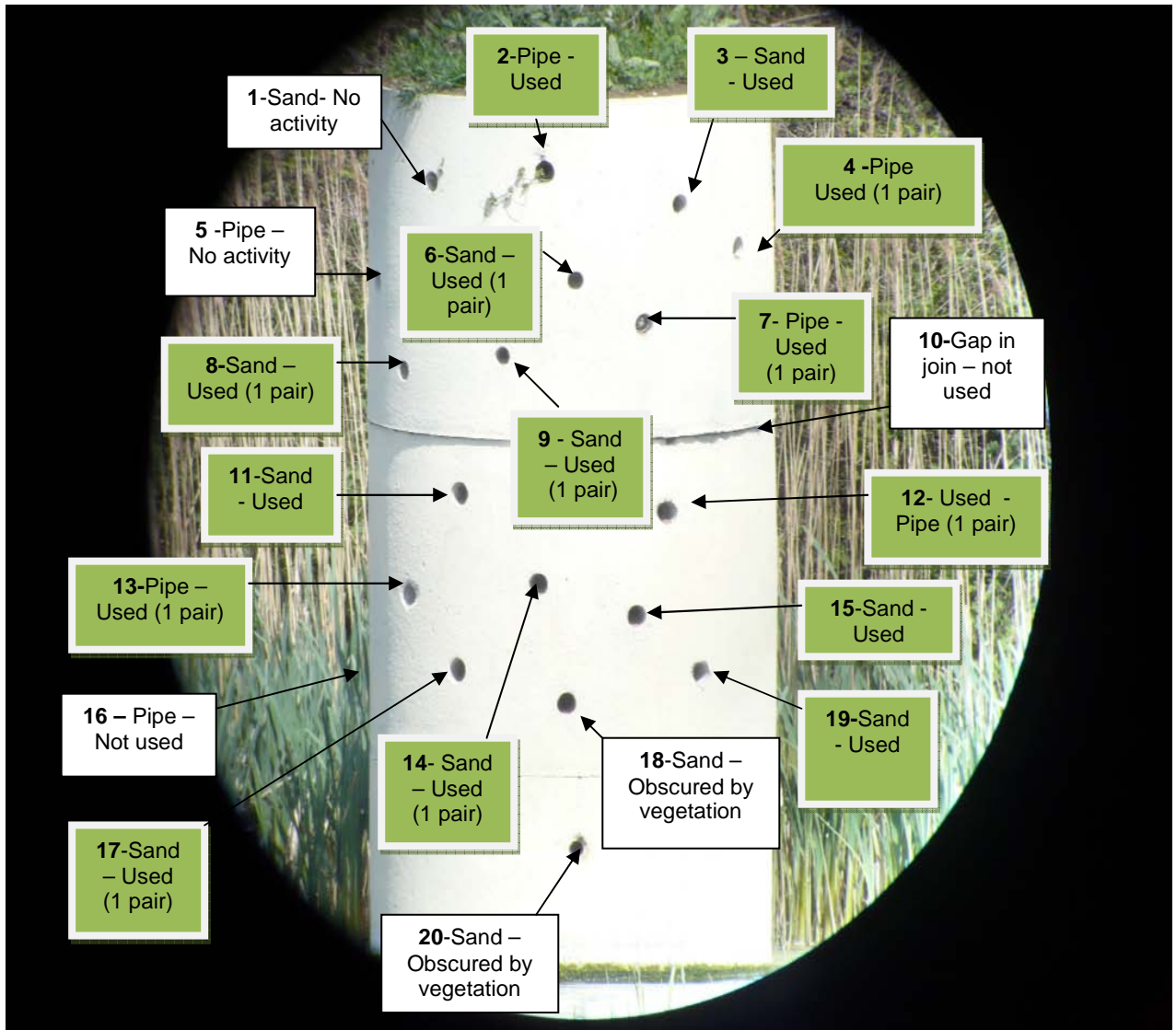
Visual activity surveys

- 2.5. Detailed visit results are provided in **Appendix 2**. Survey findings for 2009 are illustrated in **Figures 2.1a** and **2.1b**. 17 of the 26 holes were used by sand martins (birds seen flying in or out). Of these 17 of the 12 holes seemed to be used for nesting with individual birds remaining within the hole for a significant period of time and/or pairs of birds observed using the hole.

Table 2.1: Summary of 2008 and 2009 monitoring surveys

	2008	2009	2010	2011	2012
Number of entrance holes used during visual surveys (2008 represents an average of three visits)	15/26	17/26	-	-	-
Number of holes where nesting was suspected following winter visual inspection	14/26	N/a	-	-	-
Number of used holes with pipe tunnels	6/14	8/14	-	-	-
Number of used holes with sand tunnels (2008 represents an average of three visits)	8/14	9/14	-	-	-

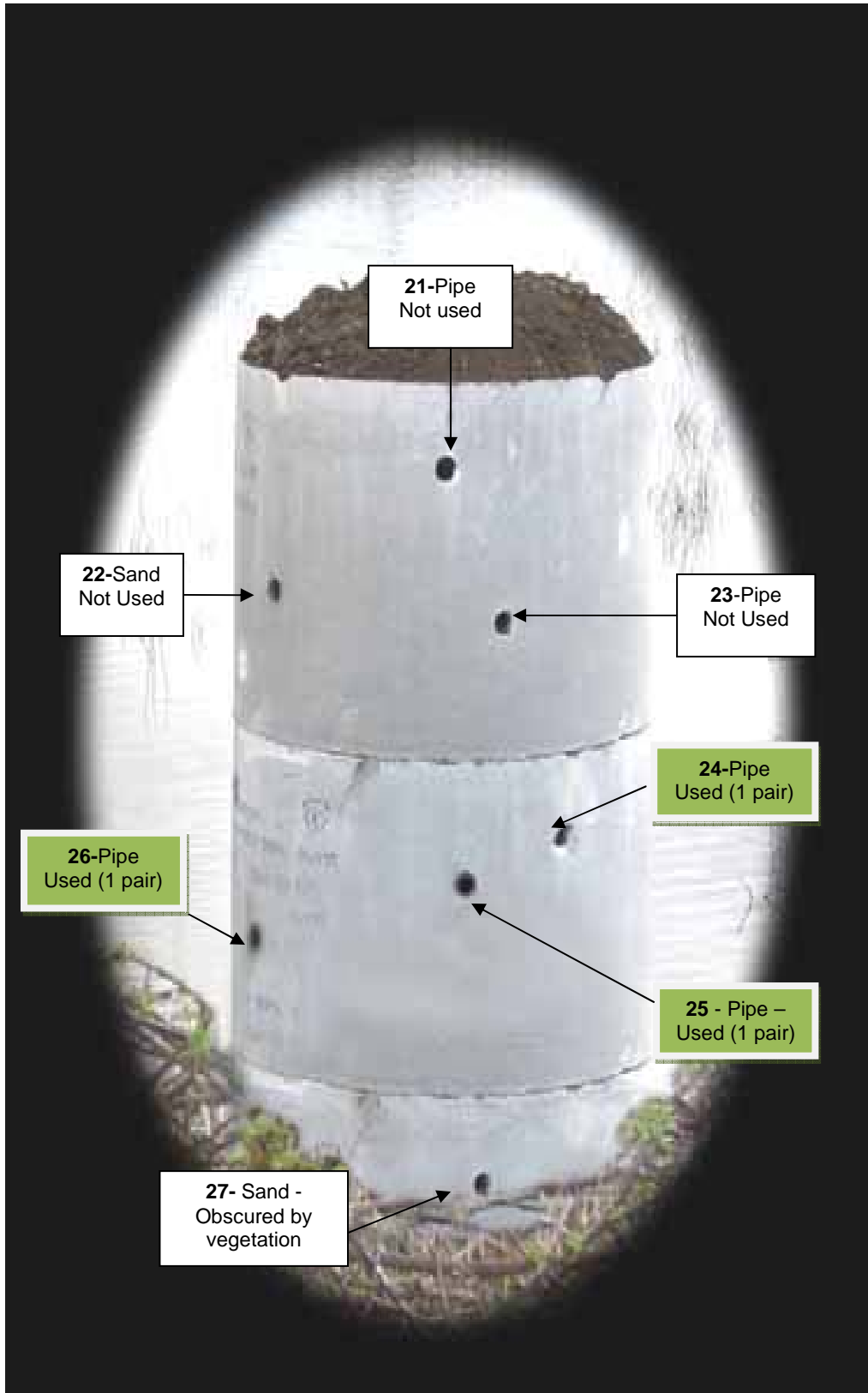
Figure 2.1a: Nest inspection survey 2009 (Front view)



Key

Nest hole in use in 2009

Figure 2.1b: Nest inspection survey 2009 (back view)



DISCUSSION AND RECOMMENDATIONS

- 2.6. It was encouraging to find that in 2009, as was the case in 2008, the sand martin tower was extensively used. Indeed, in 2009, slightly more holes were confirmed as being used by sand martin than in 2008.
- 2.7. The 2009 results reinforce the conclusion formed in 2008 that there seems to be no clear preference between plastic and sand tunnels for nesting by sand martin.
- 2.8. During the 2009 survey it was found that vegetation (mainly common reed *Phragmites australis*) had grown to obscure several of the nesting holes (holes 18, 20 and 27) in the lower section of the tower. Consideration could be given to the removal of common reed from the immediate vicinity of the tower during autumn 2009 when it can be confirmed that sand martins are no longer present. In addition, it is recommended that the tower and tunnels are closely inspected to determine whether the sand/cement mix requires replenishing. Given the extent of use, a large proportion of the mix may have been excavated by nesting birds. At the least, the tunnels should be cleaned out and additional sand added for birds to excavate.
- 2.9. Monitoring will continue during the sand martin nesting season in 2010.

REFERENCES

Hopkins, L. (2001) *Artificial Bank Creation for Sand Martins and Kingfishers*. The Environment Agency.

Land Use Consultants (2008a). *Olympic Park Waterworks Nature Reserve Sand Martin Nesting Tower: Monitoring Report*. LUC.

Land Use Consultants (2008b). *Olympic Park: Kingfisher and Sand Martin Surveys 2008*. LUC

APPENDIX I: SAND MARTIN NESTING TOWER MONITORING RESULTS

Flight activity nesting surveys 2008 and 2009								
Sand martin tower hole number	14-May-08		15-May-08		27-May-08		02-June-09	
	In use?	Individual staying in hole / pair	In use?	Individual staying in hole / pair	In use?	Individual staying in hole / pair	In use?	Individual staying in hole / pair
1							No	No
2			Yes	No/yes	Yes	Yes/no	Yes	No
3	Yes	Yes/no	Yes	Yes/yes			Yes	No
4	Yes	Yes/no	Yes		Yes	No/yes	Yes	Yes/ Yes
5	Yes	Yes/no	Yes	No/yes	Yes	No/yes	No	No
6	Yes		Yes		Yes	No/yes	Yes	No/ Yes
7	Yes	Yes/no	Yes	Yes/yes	Yes	Yes/no	Yes	No/ Yes
8					Yes	Yes/no	Yes	Yes/ Yes
9	Yes	Yes/no	Yes	No/yes	Yes	No/yes	Yes	No/ Yes
10 (Gap between sections)			Yes				No	No
11							Yes	No
12	Yes	Yes/yes	Yes	Yes/yes	Yes	No/yes	Yes	No/ Yes
13	Yes	Yes/yes	Yes	Yes/yes	Yes	Yes/no	Yes	No/ Yes
14	Yes	No/yes	Yes	No/yes	Yes	No/yes	Yes	No/ Yes
15	Yes	No/yes	Yes				Yes	No
16							No	No
17	Yes	Yes/no	Yes				Yes	No/ Yes
18	Yes	No/yes	Yes	No/yes	Yes	Yes/no	Out of view	N/a
19	Yes	Yes/no	Yes	No/yes			Yes	No
20	Yes	Yes/no					Out of view	N/a
21	Yes	Yes/no	Yes		Yes	No/yes	No	No
22			Yes		Yes	Yes/no	No	No

Flight activity nesting surveys 2008 and 2009								
	14-May-08		15-May-08		27-May-08		02-June-09	
23							No	No
24							Yes	No/ Yes
25							Yes	No/ Yes
26							Yes	No/ Yes
27							Out of view	N/a
Total in use	15		17		13		17	
Nesting confirmed		14		10		13		12