Beaver Survey Report

Land at A28 Sturry Link Road

August 2023

www.phlorum.com

Beaver Survey Report

Land at A28 Sturry Link Road

24/08/2023

Project Centre
Rutland House
8th Floor
148 Edmund Street
Birmingham
B3 2JR

Document Control:

Project no.:		Project name:		
11112		Land at A28 Sturry Link Road		
Version:	**Written by:**	**Checked by:**	**Authorised by:**	**Date:**
V1	Emily Phillips	Richard Schofield	Richard Schofield	25 October 2022
V2	Natalie Arscott	Richard Schofield	Richard Schofield	7 July 2023
V3	Natalie Arscott	Paul Carter	Paul Carter	24 August 2023

Phlorum Limited

Southern Office: Unit 12, Hunns Mere Way, Brighton, BN2 6AH

T: 01273 307 167 E: info@phlorum.com W: www.phlorum.com

Contents

Appendices

Non-technical Summary

Phlorum Ltd was commissioned by Project Centre, on behalf of Kent County Council, to undertake a beaver (*Castor fiber*) survey to assess the presence/likely absence and distribution of this species within land associated with the A28 Sturry Link Road planning application (Planning ref: CA/21/01854).The Client, Kent County Council, have planning permission to construct the north-south alignment of Sturry Link Road between 2024 and 2026 from the A28 Sturry Road south of the Great Stour River close to the Southern Water's Canterbury Wastewater Treatment Works in the southwest up to the roundabout within the Land at Sturry site, north of the Canterbury to Ramsgate railway line.

The beaver survey follows on from a Preliminary Ecological Appraisal (Phlorum, 2023) which identified potentially suitable habitat for this species within and adjacent to the Site Area.

The main findings of the survey are as follows:

- Beavers were confirmed to be **present** along the Great Stour River within and adjacent to the Site Area. This was confirmed through recordings of beavers on camera traps and the identification of distinctive field signs within the surveyed area, including foraging evidence and haul outs;
- A total of six likely beaver burrows were identified within the surveyed area. Five of these were located around the river fork where the A28 Sturry Link Road river crossing is proposed;
- As impact avoidance will not be possible, to comply with relevant legislation a beaver mitigation class licence (CL50) will be obtained by the project ecologist(s) prior to the commencement of works on or near the Great Stour River. A detailed method statement should also be produced, with input from the East Kent Beaver Advisory Group, to guide the mitigation in relation to beavers;
- The stretch of the Great Stour River within and adjacent to the Site Area will be frequently monitored in the interim before development commences, to identify any new beaver burrows or lodges that are created. The next survey will be carried out in November 2023;
- It is also recommended that, if possible, the riverside habitats are enhanced with the planting of suitable trees, including willow, to provide greater foraging opportunities for beavers; and
- Further information regarding mitigation and site enhancement is provided in Section 4 of this report.

1. Introduction

Background

1.1 Phlorum Ltd was commissioned by Project Centre, on behalf of Kent County Council, to undertake a beaver (*Castor fiber*) survey to assess the presence/likely absence and distribution of this species within land associated with the A28 Sturry Link Road planning application (Planning ref: CA/21/01854).

1.2 The Client, Kent County Council, have planning permission to construct the north-south alignment of Sturry Link Road between 2024 and 2026 from the A28 Sturry Road south of the Great Stour River close to the Southern Water's Canterbury Wastewater Treatment Works in the southwest up to the roundabout within the Land at Sturry site, north of the Canterbury to Ramsgate railway line.

1.3 The beaver survey follows on from a Preliminary Ecological Appraisal (Phlorum, 2023) which identified potentially suitable habitat for this species within and adjacent to the Site Area. The first survey visit was carried out concurrently with the Preliminary Ecological Appraisal.

1.4 The survey covered a stretch of the Great Stour River, between Vauxhall Road and White Mill Bridge on the A28 Sturry Road, and the land adjacent to the Great Stour River where access allowed. The surveyed areas were either within or directly connected to the Site Area, therefore any beavers using these areas could be affected by the development.

1.5 This report provides an assessment of the status of beavers within the Site Area and adjacent areas, providing information on their presence/likely absence and distribution. Potential impacts of the development are identified and measures to mitigate the effects of the development on beavers are discussed in outline.

Site Description

1.6 The Site Area for the proposed A28 Sturry Link Road scheme comprised three separate areas of land. These areas of land will be the responsibility of the A28 Sturry Link Road Scheme developers. See the areas highlighted in red in Figure 1 in Appendix A for the location of the three separate areas of land. The majority of the Site Area lies between the A28 Sturry Road, where the Site Area runs adjacent to Sturry Road Community Park, and the Canterbury to Ramsgate railway line. Part of a field to the north of the Canterbury to Ramsgate railway line covering the location of the proposed rail bridge is included. The Site Area also includes a section of the field to the west, providing a link road to Broad Oak Road, and a short section of Broad Oak Road and Shalloak Road immediately north of the Canterbury to Ramsgate railway line. A small area of road to the east of the main Site Area, comprising the A291 Herne Bay Road/Sturry Hill and A28 Island Road junction, also resides within the Site Area.

1.7 The Site Area comprised buildings, hardstanding, amenity grassland, agricultural land, improved grassland, semi-improved neutral grassland, marshy grassland, ruderal vegetation, continuous scrub, broad-leaved semi-natural woodland, water bodies, reedbed, individual trees, and hedgerow and trees.

1.8 The National Grid Reference for the centre of the Site Area is TR 16942 60093. The Site Area extends over approximately 7.7 hectares (ha).

1.9 Phlorum have considered a larger 'Survey Area' in other ecological reports, including the Preliminary Ecological Appraisal. The Survey Area covered 14.7ha and included land associated with the Greenfield Shooting Grounds and the rest of the land within the Land at Sturry Application Site (Planning ref: CA/20/02826). However, for the purposes of the beaver survey, only the Great Stour River and adjacent terrestrial habitats were included. It was considered that the other parts of the Site Area and Survey Area had negligible potential to support beaver.

1.10 The Great Stour River flows through Kent past Ashford to Canterbury and Sandwich. Within the survey area, the banks of the Great Stour River were heavily vegetated with tall, dense ruderal vegetation places including species such as Himalayan balsam (*Impatiens glandulifera*), common nettle (*Urtica dioica*), hogweed (*Heracleum sphondylium*), bindweed (*Convolvulus arvensis*), common reed (*Phragmites australis*), bittersweet (*Solanum dulcamara*) and brambles (*Rubus fructicosus* agg.), hawthorn (*Crataegus monogyna*) and willow (*Salix* sp.).

2. Methodology

Data Search

2.1 Records for beavers within a 2km radius of the Survey Area were obtained from Kent and Medway Biological Records Centre (KMBRC 2022) as part of the Preliminary Ecological Appraisal (Phlorum, 2023).

Consultations

2.2 Personal communications with a staff member of the Environment Agency, who provided access to part of the Survey Area, were carried out in relation to beavers.

2.3 A meeting took place on the 10th May 2023 with Amy Fitzmaurice of the East Kent Beaver Advisory Group, which is part of Kent Wildlife Trust, to discuss the project in relation to beavers. Amy also attended the June 2023 survey visit in an advisory role.

Personnel

2.4 The first survey was led by Emily Phillips (BSc (Hons); QCIEEM), an ecological consultant with over three years' survey experience. The survey was assisted by Mika Valentini (BSc (Hons)), an ecological consultant with over two years' survey experience.

2.5 The second survey, camera trap surveys, and boat survey were led by Natalie Arscott (BSc (Hons); MRes; QCIEEM), an ecological consultant with over four years' professional survey experience. The second survey and camera trap surveys were assisted by Livia Dry (BSc (Hons), MSc), an ecological consultant with over two years' survey experience. The boat survey was assisted by Marian Cameron (BSc (Hons), MSc, MIEMA, CENV, PEIA) and Amy Fitzmaurice of Kent Wildlife Trust.

2.6 The survey results and assessment were reviewed by the project director Richard Schofield (BSc (Hons), MSc, CSJK, MCIEEM, MIEMA, CEnv), with over 20 years of experience in managing projects.

Beaver Surveys

2.7 The first survey visit to determine the presence/likely absence of beaver was carried out on the 13th September 2022. The weather conditions during the survey were dry and overcast.

2.8 The second survey visit to determine the presence/likely absence of beaver was carried out on the 25th April 2023. The weather conditions during the survey were dry and sunny.

2.9 Photographs from the beaver surveys are provided in Appendix D.

2.10 The survey methodology followed best practice guidelines as detailed in '*The Eurasian Beaver Handbook: Ecology and Management of Castor fiber*' (Campbell-Palmer et al, 2016). The first survey, in September 2022, was carried out entirely from the Great Stour River's banks. Where dense vegetation along the Great Stour River prevented close inspection of the riverbanks, binoculars were used to survey the banks from the opposite side of the Great Stour River. During the second survey, in April 2023, waders were used to walk along the Great Stour River. This allowed the riverbanks to be surveyed concurrently from both the water and adjacent land, where water levels allowed. Two ecologists were present for both surveys.

2.11 During the survey, a detailed search for beaver field signs was undertaken, paying particular attention to important riverine features such as bridges, tunnels, stream islands and reed beds.

2.12 Numerous terms can be used to describe signs of beaver activity and features used by beavers. For the avoidance of doubt, definitions of the terms used for the purpose of this survey are provided below:

- **Teeth marks –** the teeth pattern left in beaver-felled wood is highly distinctive;
- **Felled and gnawed trees –** on saplings and smaller side branches, the angle of the cut results in a 'whistle'-shaped profile, while on larger tree trunks the beavers' gnawing and felling can result in very distinctive 'pencil-sharpened' points. Marks left by their incisors can be clearly seen or felt by running a finger across the cut end. Beavers fell timber by cutting chips from the main stem with the upper and lower incisors, alternating from one side of the head to the other, creating a distinctive scalloped pattern in the trunk. When beavers gnaw through substantial timber, they produce distinctive chippings;
- **Ring-barking / bark stripping –** Ring-barking can typically be seen in non-typical food—tree species such as beech (*Fagus sylvatica*). This is when sections of barks are pulled from the trunk by the beaver, usually in an upward motion, in thin strips;

- **Grazed lawns and cut vascular plants –** Beavers feed on a wide variety of vascular plant species and woody shrubs. On more rigid cut stems, a distinctive 45^0 angle cut is visible. Beavers will clear a discrete area of up to several square metres where a crop or lawn is adjacent to a watercourse. The site will have obvious worn access trails and distinctive 45^0 angle feeding cuts on some crop types such as maize. Beavers can also produce tightly mown grazing lawns by regularly feeding on vascular plants within the same area. These lawns can be distinguished from the more general grazing patterns of larger waterfowl such as geese by the absence of feathers and guano, and worn forage trails, leading from the water's edge, are usually present nearby;
- **Sightings -** beavers are easily identifiable and difficult to mistake for other mammals in the UK except potentially for coypu. Beavers are large rodents with robust body, short neck, and limbs. Large, flattened, scale-covered tail. Webbed hindfeet. Distinct from smaller coypu and muskrat due to shape of tail. Large incisor teeth covered in orange enamel;
- **Lodges and Burrows -** Beavers generally prefer to dig burrows, but if the ground conditions are not suitable then a lodge will be built instead. Lodges are obvious piles of beaver-cut sticks (often stripped of bark) bound together with mud. The entrance to both lodges and burrows is usually under the surface of the water and therefore burrows can be difficult to spot. Lodges often develop from burrows when the burrow breaches the surface of the ground, and the beavers cover the gap with sticks. As a result, such lodges can be found several metres inland, connected to the water via the original burrow system. Strictly speaking, this type of lodge should be referred to as a bank lodge;
- **Food caches -** beaver will build underwater stores of cut saplings and branches to provide food over the winter. These caches are built up by initially forcing the ends of saplings or branches into the sediment in the water in front of the lodge or burrow and then later by knitting each fresh sapling into the growing food pile. Eventually, the cache is visible emerging from the water surface. This is one reason why beavers need deep water next to their main lodge/burrow. Food caches are built in late autumn and are most visible in early winter before they are depleted. The presence of a food cache outside a lodge/burrow is a good sign that it is being used over the winter and furthermore, usually only one cache is built per family and so a count of food caches is a good indicator of the number of beaver families;

- **Dams -** dams are the most obvious sign of beaver activity. They are usually made from beaver-cut branches (often stripped of their bark) and partially sealed with mud or other vegetation. As with lodges, dams can last for several years after a site has been abandoned, so their presence does not necessarily indicate an active beaver colony. Furthermore, families can build several dams or not build dams at all, and so their number is not a good indicator of the number of beaver families;
- **Feeding stations -** Instead of eating saplings wherever they are felled, beavers usually take felled trees back to the water and often will go further and swim with the tree to a favourite spot to eat. As a result, feeding stations develop and are clearly visible because much of the waterside vegetation has been scoured away and lots of stripped wood is left both on the bank and under the surrounding water. Feeding stations also tend to develop at the water-end of foraging trails (see below). Feeding stations are therefore a good indicator of activity but not necessarily a good indicator of favoured habitat;
- **Foraging trails and canals -** beavers will create clear paths at particular spots where they regularly forage away from water. This is a good sign that beavers are foraging in that area. However, the number of foraging trails does not necessarily correlate to the level of beaver activity since beavers do not always use such trails. Ultimately, if the beavers are regularly using trails to transport felled trees, they may begin to dig at the water end of the trail, eventually creating a water filled canal;
- **Haul outs –** points where beavers have moved between the water and land. Similar to otter slides, with a worn pathway through the vegetation, however beavers typically leave a more significant indent in the riverbank than otters;
- **Tracks -** The hind feet are webbed, although this may not be visible in the track, and are much larger than the un-webbed fore feet. Both feet have five digits. Kits also have large hind feet, although smaller than adults and therefore an experienced surveyor may be able to estimate whether the animal was young or full-grown. Often the marks of the tail will also be visible where the tip has been dragged along the surface; and
- **Scent mounds and scent marking sites -** beavers use scent marking as a means of communicating their presence both to other family members and to non-family members such as neighbours and wandering strangers. When scent marking, the beaver gathers together mud and other debris from the ground around it using its fore feet, forms it into a small mound with its hind feet and sprays scent (castoreum and possibly anal gland secretion) on to it. These mounds can be over-marked by other beavers when they find them. They are usually at the waterside and are often not difficult to spot.

Camera Trap Surveys

2.13 Two 3-week periods of camera trap monitoring were conducted in Spring (between March and May) 2023 along the Great Stour River.

2.14 Six wildlife cameras (Crenova RD1000) were installed at strategic locations along the Great Stour River, between Vauxhall Road and White Mill Bridge on the A28 Sturry Road. Some of the camera locations were moved for the second period of monitoring in accordance with the initial camera findings and findings from survey visit on the 25th April 2023. Camera locations are shown in the Survey Map in Appendix A.

2.15 The camera locations were selected to survey for water vole (*Arvicola amphibius*), otter (*Lutra lutra*), and beaver, therefore not all locations were optimal for specifically detecting beaver. However, multiple cameras were situated close to trees which displayed evidence of recent beaver foraging activity.

2.16 The wildlife cameras were set to record 30 seconds of video footage following being triggered by motion in the focal area.

2.17 For the first period of camera trap monitoring, the cameras were installed on the 2nd March 2023 and removed on the 23rd March 2023.

2.18 For the second period of camera trap monitoring, the cameras were installed on the 25th April 2023 and removed on the 16th May 2023.

Boat Survey

2.19 An additional survey was carried out on the 8th June 2023, during which the banks of the Great Stour River were viewed from a canoe with the aim of identifying beaver burrows, which had not previously been found during the surveys.

2.20 The boat survey was guided by Amy Fitzmaurice of the East Kent Beaver Advisory Group, who was experienced in identifying beaver burrows.

2.21 The water level of the Great Stour River was lower during the boat survey than it had been during the previous beaver surveys, providing an opportunity for previously submerged burrow entrances to be visible above the water level.

Constraints

Data Search Constraints

2.22 It is important to note that, even where data is held, a lack of records for a defined geographical area does not necessarily mean that there is a lack of ecological interest. Instead, the area may be simply under-recorded.

Survey Constraints

2.23 Ecological surveys are limited by factors that affect presence of plants and animals such as seasonality. Whilst every effort has been made to provide a comprehensive description of the site, no investigation can ensure the complete characterisation of the environment.

2.24 Accessibility along the Great Stour River for the first beaver survey was largely limited due to tall, dense ruderal vegetation along the riverbank edges which prevented the surveyors from being able to get into the riverbank to easily survey the bank sides.

2.25 The use of waders during the second beaver survey improved access to the riverbank edges, however the water level was too high for wading in places.

2.26 It is possible that signs of beaver activity may have been obscured and under-recorded in areas of dense bankside vegetation.

2.27 The entrances to beaver burrows and lodges are typically submerged beneath the water, making their detector very difficult. It is therefore possible that burrow or lodge entrances could be missed. However, the boat survey provided an optimal angle to view underwater entrances.

2.28 Field signs may have been removed by recent rainfall or high water levels during the second beaver survey. This was unlikely to be a constraint during the first beaver survey, due to a prolonged period of dry weather preceding the survey.

3. Results

Data Search

3.1 The data search returned 13 recent (post-2007) records for beaver within 2km of the Survey Area.

Previous Reports

3.2 To date, no targeted beaver surveys have been carried out for the A28 Sturry Link Road Scheme. It was, however, noted in the A28 Sturry Link Road, Canterbury, ES Addendum: Ecology and Conservation report (Amey, 2019) that personal communications with the Environment Agency confirmed the presence of beaver in the local area along the Great Stour River. The report reported records of beaver sightings and a beaver lodge in 2017/2018. Amey (2019) noted that a felled branch with gnaw marks characteristic for beaver was located on the riverbank opposite the willow in the survey area in 2019, however Amey (2019) stated it was possible this branch had been washed downstream from the Vauxhaull Lakes area. No further signs of beaver activity were located within the survey area in 2019.

Consultations

3.3 Personal communications with a staff member from the Environment Agency confirmed that beavers are relatively active within the local area.

3.4 Amy Fitzmaurice of the East Kent Beaver Advisory Group reviewed the initial survey findings and considered that the level of beaver activity recorded was indicative of a beaver territory within the surveyed area. This made it likely that beaver burrows could be present within or near the Site Area. It was recommended that Amy guided another survey with the specific aim of identifying burrows. Amy also advised on mitigation and the next steps for licensing, which is covered in Section 4 of this report.

First Beaver Survey (September 2022)

3.5 The first beaver survey was carried out from the land adjacent to the Great Stour River only. Dense vegetation along the banks of the Great Stour River restricted access for close inspection in places. It is therefore possible that field signs were obscured within the vegetation.

3.6 During the survey, beaver foraging evidence in the form of felled tree trunks, stripped tree bark, and gnawed wood was found. The colour of the exposed wood varied between features suggesting beavers have been active since the last winter period (2021-2022), as well as prior to the last winter period.

3.7 Flattened reedbeds under and next to a willow tree were also identified as potential mammal pathway.

3.8 The area surveyed and field signs are illustrated in the Survey Map in Figure 2 in Appendix A. The survey record form is shown in Appendix B. Photographs highlighting features of particular ecological interest to beaver are provided in Appendix D.

Second Beaver Survey (April 2023)

3.9 The second beaver survey was carried out from both the land adjacent to the Great Stour River and from within the Great Stour River using waders. Surveying from the water allowed for a close inspection of the banks of the Great Stour River, however the vegetation here was dense and therefore it is possible that field signs may have been obscured within the vegetation.

3.10 During the survey, an abundance of evidence of beaver foraging activity was identified. Most willow trees and saplings along the surveyed stretch of the Great Stour River displayed teeth marks, gnawing, and/or bark stripping. The colour of the exposed wood varied between features, but most of the woody vegetation appeared to have been subject to recent foraging activity, within the last winter period (2022-2023).

3.11 A small willow tree had been recently felled adjacent to the fork of the Great Stour RIver and had 'pencil-sharpened' points characteristic of beaver felling activity. There were also fresh chippings around this felled tree, indicating very recent foraging activity.

3.12 Vascular vegetation cut at a 45^{o} angle was also seen at numerous locations along the banks of the Great Stour River, however this may also have resulted from water vole foraging activity, which have been confirmed as present.

3.13 Most of the foraging evidence seen was near the fork and along the southern arm of the Great Stour River.

3.14 Several haul out points were noted, mostly near the fork of the Great Stour River. Whilst haul outs can look similar to otter slides, those seen during the survey had a significant indent into the bank and were therefore considered most likely to have been created by beavers (which are heavier than otters). The grid references for the likely haul out points are:

- TR 16828 59998;
- TR 16844 60000;

- TR 16938 60018;
- TR 16900 60000;
- TR 16946 60009;
- TR 16895 59980;
- TR 16937 59969;
- TR 17018 59933; and
- TR 17297 59970.

3.15 In addition, there were several mammal pathways through the vegetation within the land at the tip of the fork of the Great Stour River. These however may not have been created by beavers.

3.16 The area surveyed and field signs are illustrated in the Survey Map in Figure 2 in Appendix A. The survey record form is shown in Appendix B. Photographs highlighting features of particular ecological interest to beaver are provided in Appendix D.

Camera Trap Surveys (March – May 2023)

3.17 During the first 3-week period of camera trap monitoring, undertaken in March 2023, beavers were recorded foraging on willow trees by two of the cameras on seven different nights in total. One of these cameras, which was monitoring a single small willow tree, recorded a beaver felling the tree on the first night of monitoring. There was no subsequent beaver activity in this location. It is unclear whether these sightings were of the same or different individuals.

3.18 During the second 3-week period of camera trap monitoring, undertaken between April and May 2023, beavers were recorded foraging on willow trees by two of the cameras on six different nights in total. Beavers were seen to remove branches and then swim away with them, presumably to take them to a feeding station, food cache or lodge. It is unclear whether these sightings were of the same or different individuals.

3.19 The locations of the beaver sightings are shown in the Survey Map in Figure 2 in Appendix A. Images of recorded beavers are provided in Appendix D.

Boat Survey (June 2023)

3.20 The banks of the Great Stour River were surveyed from a canoe in June 2023, with the aim of identifying any beaver burrows present within or near the Site Area.

3.21 A total of six likely beaver burrows were identified during the survey. Five of these were clustered near the fork of the Great Stour River, with three being within the Site Area and two being adjacent to the Site Area. One beaver burrow was found along the northern arm of the Great Stour River, adjacent to the Environmental Mitigation Area that falls within the Site Area.

3.22 All six burrows were partially or entirely above the water level, therefore were considered unlikely to be in active use at the time of the survey.

3.23 The grid references for the locations of these burrows are:

- TR 16843 60000;
- TR 16869 60004;
- TR 16900 59980;
- TR 16954 59962
- TR 16982 59932; and
- TR 17182 60098.

3.24 These locations are shown by the map in Figure 3 in Appendix A. A photograph of a likely beaver burrow is provided in Appendix D.

4. Discussion and Recommendations

Discussion

4.1 The Client, Kent County Council, have planning permission to construct the north-south alignment of Sturry Link Road between 2024 and 2026 from the A28 Sturry Road south of the Great Stour River close to the Southern Water's Canterbury Wastewater Treatment Works in the southwest up to the roundabout within the Land at Sturry site, north of the Canterbury to Ramsgate railway line.

4.2 The beaver survey comprised two walkover surveys, two 3-week periods of camera trap monitoring, and a survey of the banks of the Great Stour River for burrows from a canoe. The surveyed area included the stretch of the Great Stour River, between Vauxhall Road and White Mill Bridge on the A28 Sturry Road, and drainage ditches within and adjacent to the southern portion of the Site Area.

4.3 Biological data records and consultations revealed that there is a good population of beavers living along the Great Stour River, close to the Site Area.

4.4 The walkover surveys identified a large amount of beaver foraging evidence along the surveyed stretch of the Great Stour River, including within the Site Area itself. Much of the foraging evidence was very fresh, and likely created within recent weeks. Several haul out points and mammal pathways were also seen.

4.5 The camera traps recorded footage of beavers foraging on willow trees on several occasions during the total six weeks of monitoring. All recordings of beavers were close to the fork of the Great Stour River, within and adjacent to the Site Area.

4.6 During a subsequent boat survey, guided by Amy Fitzmaurice of the East Kent Beaver Advisory Group, a total of six likely beaver burrows were identified along the surveyed stretch of the Great Stour River. Five of these were clustered within or adjacent to the Site Area, near the fork of the Great Stour River where the A28 Sturry Link Road bridge will cross the Great Stour River, and another was found along the northern arm of the Great Stour River, adjacent to the Environmental Mitigation Area that falls within the Site Area. All six burrows were partially or entirely above the water level, therefore were considered unlikely to be in active use at the time of the survey.

4.7 Based on these findings, it is concluded that beavers are **present** within and adjacent to the Site Area and are using this stretch of the Great Stour River for both foraging and sheltering in burrows. It is unknown whether beavers are breeding and raising kits within this stretch, but given the presence of burrows this is a possibility. Burrows were identified at the location of the proposed river crossing for the A28 Sturry Link Road, therefore mitigation will be necessary.

4.8 Given the likelihood that construction of the A28 Sturry Link Road will result in disturbance to beavers and the damage or destruction of beaver burrows, it will be necessary to obtain a mitigation licence with respect to beavers prior to commencing works on or near the Great Stour River. It is recommended that a mitigation class licence (CL50) is used.

4.9 Further information regarding mitigation is provided in the Recommendations section below.

Recommendations

Further Survey Work

4.10 It is recommended that the stretch of the Great Stour River within and adjacent to the Site Area is frequently monitored in the interim before development commences, to identify any new beaver burrows or lodges that are created.

4.11 The next survey will be carried out in November 2023, since this is considered to be an optimal time for identifying burrows and other field signs of beaver activity. The survey will be undertaken using a boat to allow the banks of the Great Stour River to be fully inspected.

Mitigation Licence

4.12 As of the 1st October 2022, the Eurasian beaver is protected under the Conservation of Habitats and Species Regulations 2010 (as amended) and so is now a European protected species in England.

4.13 A licence is needed to:

- capture, transport, possess or control live Eurasian beavers;
- use the certified 'Bavarian type' trap to capture beavers;
- re-release captured beavers;
- modify or remove beaver dams, burrows, and lodges;
- possess and transport dead beavers or their body parts; or
- disturb beavers in a way that make affect their population numbers, distribution, or ability to survive, breed, reproduce, rear or nurture their young, hibernate, or migrate.

4.14 It is recommended that a mitigation class licence (CL50) is obtained for the development. To obtain this, the project ecologist(s) will need to attend a Natural England accredited training course before being granted a class licence by Natural England.

4.15 Before works commence, a detailed method statement should be produced to detail the methods to be undertaken to mitigate for impacts on beavers and avoid impacts as far as possible. It is recommended that input is sought from the East Kent Beaver Advisory Group for this.

4.16 Construction works on the Great Stour River and land adjacent to the Great Stour River should be timed to avoid the natal period for beavers which runs from December to June inclusive.

4.17 If burrows are present within the Site Area at the start of construction works, these will need to be removed under the guidance of a licenced Ecological Clerk of Works. The burrows will first need to be checked for beaver presence, and then carefully dug back providing they are empty.

4.18 The section of the banks where the A28 Sturry Link Road will cross the Great Stour River will be fenced during construction to prevent beavers from creating burrows or lodges here. The fencing will need to be buried into the ground along the riverbank. This should be guided by a licenced Ecological Clerk of Works.

Habitat Enhancement/Retention

4.19 It is recommended that, as far as possible, the bankside vegetation that borders the Great Stour River is retained and protected from damage during the works.

4.20 Habitat enhancement could include the widening of the strip of dense, bankside vegetation that borders the Great Stour River and planting suitable trees, including willow, along the riverside, subject to agreement with landowners and in accordance with licence specifications. This would provide greater foraging opportunities for beavers, as well as aiding in stabilising the banks.

4.21 Tree protection is advisable for young trees to prevent them from being felled or irreparably damaged before they are established. Funding is available from Natural England for this.

5. Conclusions

Conclusions

5.1 Phlorum Ltd was commissioned by Project Centre, on behalf of Kent County Council, to undertake a beaver survey to assess the presence/likely absence and distribution of this species within land associated with the A28 Sturry Link Road planning application (Planning ref: CA/21/01854).

5.2 The Client, Kent County Council, have planning permission to construct the north-south alignment of A28 Sturry Link Road between 2024 and 2026 from the A28 Sturry Road south of the Great Stour River close to the Southern Water's Canterbury Wastewater Treatment Works in the southwest up to the roundabout within the Land at Sturry site, north of the Canterbury to Ramsgate railway line.

5.3 The beaver survey confirmed the presence of beavers along the Great Stour River within and adjacent to the Site Area. Beaver burrows were identified within and adjacent to the Site Area, as well as an abundance of evidence of foraging activity.

5.4 As avoidance of impact will not be possible, to comply with relevant legislation a beaver mitigation class licence (CL50) will need to be obtained by the project ecologist(s) prior to the commencement of works on or near the Great Stour River. A detailed method statement should also be produced, with input from the East Kent Beaver Advisory Group, to guide the mitigation in relation to beavers.

5.5 It is recommended that the stretch of the Great Stour River within and adjacent to the Site Area is frequently monitored in the interim before development commences, to identify any new beaver burrows or lodges that are created. The next survey should be carried out in November 2023.

5.6 It is also recommended that, if possible, the riverside habitats are enhanced with the planting of suitable trees, including willow, to provide greater foraging opportunities for beavers.

6. References

- Campbell, R.D., Feber, R., Macdonald, D.W., Gaywood, M.J. and Batty, D. 2010. The Scottish Beaver Trial: Ecological monitoring of the European beaver Castor fiber and other riparian mammals – Initial methodological protocols 2009. Scottish Natural Heritage Commissioned Report No. 383.
- Campbell, R.D., Harrington, A., Ross, A. and Harrington, L. 2012. Distribution, population assessment and activities of beavers in Tayside. Scottish Natural Heritage Commissioned Report No. - SNH use only
- CIEEM – Chartered Institute of Ecology and Environmental Management (2016). Guidelines for Ecological Impact Assessment in the UK and Ireland – Terrestrial, Freshwater and Coastal. Winchester: CIEEM [On-line]. Available from: http://www.cieem.net/data/files/Publications/EcIA_Guidelines_Terrestrial_Freshwater_and_Coastal_Jan_2016.pdf [Accessed on 06/07/2023].
- Hill, D. Fasham, M. Tucker, G. Shewry, M. & Shaw, P (2005). *Handbook of Biodiversity Methods; Survey, Evaluation and Monitoring*. Cambridge: Cambridge University Press.
- Kent and Medway Biological Record Centre. (2022). *Kent and Medway Biological Records Centre report regarding Land at Sturry.* Report produced on behalf of Phlorum Ltd.
- MAGIC - Multi-Agency Geographic Information for the Countryside (2023). MAGIC Natural England, Leeds. [on-line]. Available from: www.magic.gov.uk [Accessed on 06/07/2023].
- NatureScot Nàdar Alba (Scotland Nature Agency). http://www.Standing advice for planning consultations - Beavers | NatureScot [Accessed on 06/07/2023].
- Newton, J. et al. (2011). Working With Wildlife: guidance for the construction industry. London: CIRIA. C691. Table 5.1 - Guidance on the optimal timing for carrying out specialist surveys and mitigation.
- Phlorum (2023). *Preliminary Ecological Appraisal. Land at A28 Sturry Link Road*. Unpublished report for Project Centre, London: Phlorum.

Figures and Appendices

Appendix A

Site Area and Beaver Survey Maps

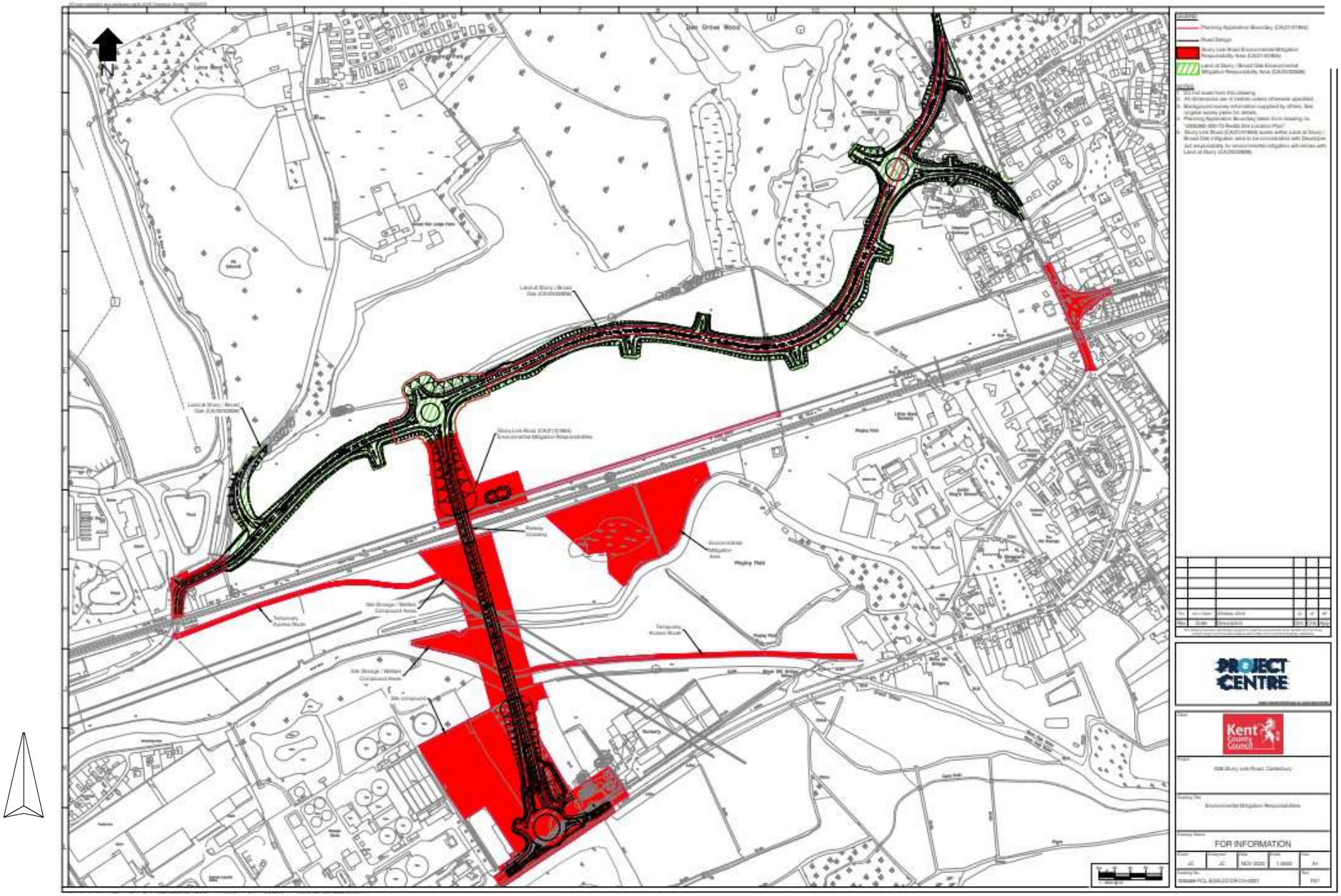

Figure 1: The Site Area

Drawn by: EP
On the: 19/12/2022
Not to Scale
Ref: 11112

Phlorum Limited, 12 Hunns Mere Way,
Woodingdean, Brighton, East Sussex,
BN2 6AH
Tel: +44(0)1273 307167
Web: www.phlorum.com
Email: info@phlorum.com

Figure 2: Land at A28 Sturry Link Road Beaver Survey Map

Drawn by: NA
On the: 06/07/2023
Not to Scale
Ref: 11112

Phlorum Limited, 12 Hunns Mere Way,
Woodingdean, Brighton, East Sussex,
BN2 6AH
Tel: +44(0)1273 307167
Web: www.phlorum.com
Email: info@phlorum.com

Figure 3: Land at A28 Sturry Link Road Beaver Burrows

Drawn by: NA
On the: 06/07/2023
Not to Scale
Ref: 11112

Phlorum Limited, 12 Hunns Mere Way,
Woodingdean, Brighton, East Sussex,
BN2 6AH
Tel: +44(0)1273 307167
Web: www.phlorum.com
Email: info@phlorum.com

Appendix B

Survey Record Forms

Beaver Survey Recording/Monitoring Form.

SITE: Land at A28 Sturry Link Road, Kent	Date: 13/09/2022
RIVER: Great Stour River	
MAP REF: TR 16993 59981	
WEATHER: Warm and overcast	RECENT WEATHER: Warm/dry
WATER LEVELS: Summer, high flow	CLIENT: Project Centre
BEAVER RECORDS: Felled tree trunks, gnawed wood and stripped tree bark.	
COMMENTS: The colour of the exposed wood suggests the feeding activity occurred since the last winter period as well as prior to the last winter period.	
HABITAT DESCRIPTION: Great Stour River is the second largest river in Kent which flows from the Weald, past Ashford, through to Canterbury and Sandwich. Within the survey area, the river was heavily vegetated with tall, dense ruderal vegetation places including species such as Himalayan balsam (*Impatiens glandulifera*), common nettle (*Urtica dioica*), hogweed (*Heracleum sphondylium*), bindweed (*Convolvulus arvensis*), common reed (*Phragmites australis*), bittersweet (*Solanum dulcamara*) and brambles (*Rubus fruticosus agg*.). Hawthorn (*Crataegus monogyna*) and willow (*Salix sp.)* were also along the banks.	
HABITAT EVALUATION: High potential to support foraging and commuting beavers and moderate potential to support breeding beavers because of the dense vegetation and frequent individual trees along stretches of the river.	
HUMAN IMPACT: A stretch of the survey area is within and adjacent to the Junior King's School and so these areas will be subject to disturbance.	
OTHER NOTABLE SPECIES: Potential signs of otter.	
RECOMMENDATIONS:	
(1) *A second survey for beaver evidence be carried out concurrently with the required second water vole survey in 2023. If a second survey is not carried out then we would recommend that an updated survey should be undertaken if more than 12 months have elapsed since the date of this survey (12 months will have elapsed on 13th September 2022).* (2) *We would recommend that camera traps be deployed to improve our understanding of the current level of beaver activity at the previously identified resting place and along the stretch of river in general.*	
SURVEYOR(S): Emily Phillips and Mika Valentini	

SITE: Land at A28 Sturry Link Road, Kent	Date: 25/04/2023
RIVER: Great Stour River	
MAP REF: TR 16993 59981	
WEATHER: Dry and sunny	RECENT WEATHER: Wet
WATER LEVELS: Spring, high flow	CLIENT: Project Centre
BEAVER RECORDS: Felled trees, knawed trees, bark stripping, cut vascular plants, haul outs, mammal pathways	
COMMENTS: Much of the field signs appear fresh and recently created. It is appears that beavers are currently very active along this stretch of the river.	
HABITAT DESCRIPTION: Great Stour River is the second largest river in Kent which flows from the Weald, past Ashford, through to Canterbury and Sandwich. Within the survey area, the river was heavily vegetated with tall, dense ruderal vegetation places including species such as Himalayan balsam (*Impatiens glandulifera*), common nettle (*Urtica dioica*), hogweed (*Heracleum sphondylium*), bindweed (*Convolvulus arvensis*), common reed (*Phragmites australis*), bittersweet (*Solanum dulcamara*) and brambles (*Rubus fruticosus agg*.). Hawthorn (*Crataegus monogyna*) and willow (*Salix sp.)* were also along the banks.	
HABITAT EVALUATION: High potential to support foraging and commuting beavers and moderate potential to support breeding beavers because of the dense vegetation and frequent individual trees along stretches of the river.	
HUMAN IMPACT: A stretch of the survey area is within and adjacent to the Junior King's School and so these areas will be subject to disturbance.	
OTHER NOTABLE SPECIES: Potential signs of water vole.	
RECOMMENDATIONS:	
(1) A mitigation licence will be required for the development, *(2) A survey should be carried out to identify whether beaver burrows are present.*	
SURVEYOR(S): Natalie Arscott and Livia Dry	

Appendix C

Legislation

Legislation

This section contains information pertaining to the legislation and planning policy applicable in Britain. This information is not applicable to Northern Ireland, the Republic of Ireland the Isle of Man or the Channel Islands. Information contained in the following appendix is provided for guidance only.

Species

The objective of the EC Habitats Directive[1] is to conserve plants and animals which are considered to be rare across Europe. The Directive is transposed into UK law by The Conservation of Habitats and Species Regulations 2017 (as amended) (formerly The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) and The Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2007 (as amended).

The Wildlife and Countryside Act 1981 (as amended) implements the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) and also implements the obligations set out for species protection from the Council Directive 2009/147/EC (formerly 79/409/EEC) on the Conservation of Wild Birds (EC Birds Directive) in Great Britain.

Various amendments have been made since the Wildlife & Countryside Act came into force in 1981. Further details pertaining to alterations of the Act can be found on the following website: www.opsi.gov.uk. Key amendments have been made through the Countryside and Rights of Way (CRoW) Act (2000) and Nature Conservation (Scotland) Act 2004.

There are a number of other legislative Acts affording protection to species and habitats. These include:

- Countryside and Rights of Way (CRoW) Act 2000;
- Deer Act 1991;
- Natural Environment & Rural Communities (NERC) Act 2006;
- Protection of Badgers Act 1992; and
- Wild Mammals (Protection) Act 1996.

Beavers

On 1 October 2022, beavers (*Castor fiber*) the legislation changed to protect wild-living beavers in England. Beavers are now listed in Schedule 2 of the Conservation of Habitats and Species Regulations 2017. This legislation lists beavers as a European protected species. This means that without the appropriate wildlife management licence it is an offence to:

- deliberately disturb a beaver - this includes any action likely to impair their ability to survive, breed or rear their young
- deliberately injure, capture or kill a beaver

[1] Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora.

- damage or destroy the breeding site or resting place of a beaver

It is also an offence to:

- possess, control or transport a beaver
- sell or exchange a beaver
- offer a beaver for sale or exchange

This applies whether the beaver is alive or dead and includes beaver parts and derivatives.

Appendix D

Survey Photographs

Survey Photographs

Photo	Feature	Photograph of Feature
1	Gnawed tree trunk and felled tree trunks, seen during the first survey (September 2022).	
2	Stripped tree bark, seen during the first survey (September 2022).	

3	Felled tree trunk, seen during the first survey (September 2022).	
4		

	Freshly stripped bark. Seen during the second survey (April 2023).	
	Freshly cut woody vegetation. Seen during the second survey (April 2023).	
7	Likely beaver haul out. Seen during the second survey (April 2023).	

8	Likely beaver burrow, seen during the boat survey (June 2023).	
9	Beaver captured by a camera trap in March 2023.	
	Beaver captured by a camera trap in March 2023.	

11	Beaver captured by a camera trap in April 2023.	

Phlorum Limited

Head Office & Registered Office:
Unit 12
Hunns Mere Way
Woodingdean
Brighton
East Sussex
BN2 6AH
T: 01273 307 167

Northern Office:
Ground Floor
Adamson House
Towers Business Park
Wilmslow Road
Didsbury
Manchester
M20 2YY
T: 0161 955 4250

Western Office:
One Caspian Point
Pierhead Street
Cardiff Bay
Cardiff
CF10 4DQ
T: 029 2092 0820

info@phlorum.com
www.phlorum.com

Registered in England & Wales. Reg No. 4967256