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CPG4 BASEMENT
IMPACT ASSESSMENT
Heath & Hampstead
Soc. (hydrologist)

KEP/192/002

FRIENDS OF
Portobello
Robury
Road

12. That confidence is poorly founded. If water is travelling at a higher level than 4m below ground level it will be intersected by the basement and diverted to neighbouring properties. In light of the RBKC Subterranean SPD references to groundwater, these issues should be regarded as material considerations for groundwater is a potential problem of significance; this is explained below.

13. Lansdowne Road virtually follows the topographic contours of Notting Hill being at about 15m above Ordnance Datum. Notting Hill itself is at around 27m above Datum and on the margins of the Lynch Hill Gravel found at Notting Hill Gate; this is a terrace deposit of the old River Thames and an area where rain would be held as groundwater that can discharge down the surrounding slopes, including that of Notting Hill on which Lansdowne Road is located some 12m below. Thus there is evidence that a natural source of near surface groundwater exists nearby which could sustain an annual flow of groundwater to the clay on which it sits.

14. There is another source of groundwater, mentioned in part in the application; viz leaking services. It has to be accepted that any property downhill of urbanisation is vulnerable to the discharge from leaky services uphill. Such water would tend to travel in the Made Ground overlying the clay below and come in pulses if recharged from sewers carrying surface water at times of storm; such a source of water could also recharge the clay at depth.

15. It is not known how the movement of groundwater from Notting Hill affects the communal gardens that lie down slope and downstream of Lansdowne Road but assurances must be required before permission is given for a basement that can intercept what could be near surface flows of importance to the trees in the area. The ground is not an infinite resource – you cannot keep blocking flows within it without reaching a point where it can no longer accommodate such changes without modifications to the natural system being seen. This means that a basement cannot be justified simply because someone else has dug one nearby before. In this regard, each basement makes the next one more difficult to design.

16. In addition to this, the communal gardens at the rear of No.93 and its neighbours are a Heritage site as well as being a Site of Nature Conservation Importance (SNCI) for the RBKC (part of The Ladbrook Grove Garden Squares Complex); they have known drainage issues and as such the potentially detrimental impact on them which could result from the proposed basement interfering with established groundwater flows should be considered. At the moment the investigations supporting the application provide no data for making such an assessment.

17. It follows from the reasons described above that it is necessary to consider the ground conditions on this site in far greater detail than has been done so far to assure the Planning department that its own requirements have been satisfied.

18. To provide these assurances a systematic approach to investigating the ground is required; this is regardless of the policies that happen to be in place – without a systematic approach to ground investigation the answers to simple questions any planning policy may require will never be obtained. The London

HIDDEN ASPECTS & URBAN PLANNING 2002

what happened to

+ "PRECAUTIONARY PRINCIPLE in Planning

+ DUTY to "PRESERVE and ENHANCE"

???

5 m and width of 7 m, and a combined length of about 40 km. Electricity, water, heating and communication cables are accommodated with a roadway for vehicular access. The pipes and cables are easily inspected and serviced and can be repaired without digging up roads, a huge advantage in inner city areas. The depth of the tunnels also provides security. GIS systems provide the basis for storing and continuously updating utility records.

Issues for development and good practice principles

The issues associated with underground development are dependent on the types of underground structure involved and the ground conditions in which they are to be constructed. The main factors are outlined below for different types of structures.

Deep basements

The cost of basement construction is usually related to the type of retaining wall needed, how this is propped to prevent ground movements outside the excavation, the need to provide waterproofing measures and resistance against water pressures. The effects of basement construction on local water regimes should be considered and design should examine possible future changes in the groundwater table as described on page 47. The effects of excavation on nearby structures is described on page 44.

Heave movements can occur due to basement excavation and ground unloading. In stiff low-permeability clays heave movements can continue for decades after the end of construction, with tension piles being used to counteract this effect. Alternatively, it may be possible to reduce heave movements by replacing the removed load with new building loads, keeping the net change in load close to zero.

'Top-down construction' can provide time and cost savings. This involves the installation of the building's foundations and retaining walls, casting of the ground floor slab and then the simultaneous excavation of the basement and construction of the superstructure.

Tunnels and caverns

Examples of tunnelling techniques include the following:

- cut-and-cover for shallow tunnels, where the box is constructed either in open cut or within retaining walls
- bored tunnels drilled using tunnel boring machines
- drill and blast tunnels in rock conditions
- *pipe jacking*, where small diameter pipes or large road underpasses are jacked beneath existing roads, railways or structures, minimising disruption
- micro-tunnelling and *directional drilling* for services.

After excavation, tunnels can be supported through a variety of methods, such as:

- Lining with pre-cast concrete units, in either segmental or complete rings depending on the tunnel diameter (**Figure 18(a)**).

Hidden aspects of urban planning

surface and underground development

Edited by Tim Paul, Fiona Chow and Oddvar Kjekstad

All surface and underground development has some interaction with the ground (and ground water) on, or within, which it is constructed. With the increasing need for planners and developers to understand geotechnical and geo-environmental issues involved in urban construction, this report aims to raise awareness, describe some of the concepts and illustrate how geotechnical engineering can be used to overcome potential problems within the urban planning frameworks across Europe.

Through a series of illustrated international case studies, the report demonstrates the benefits of using underground space and 'brownfield' sites and ways in which practices can be improved to allow sustainable development. It concludes by looking at future directions and recommendations and by emphasising the need for a multidisciplinary approach. Key topics include:

- Surface development
- Utilisation of underground space
- Geo-environmental aspects of urban development
- Use of geological and geotechnical information for urban planning

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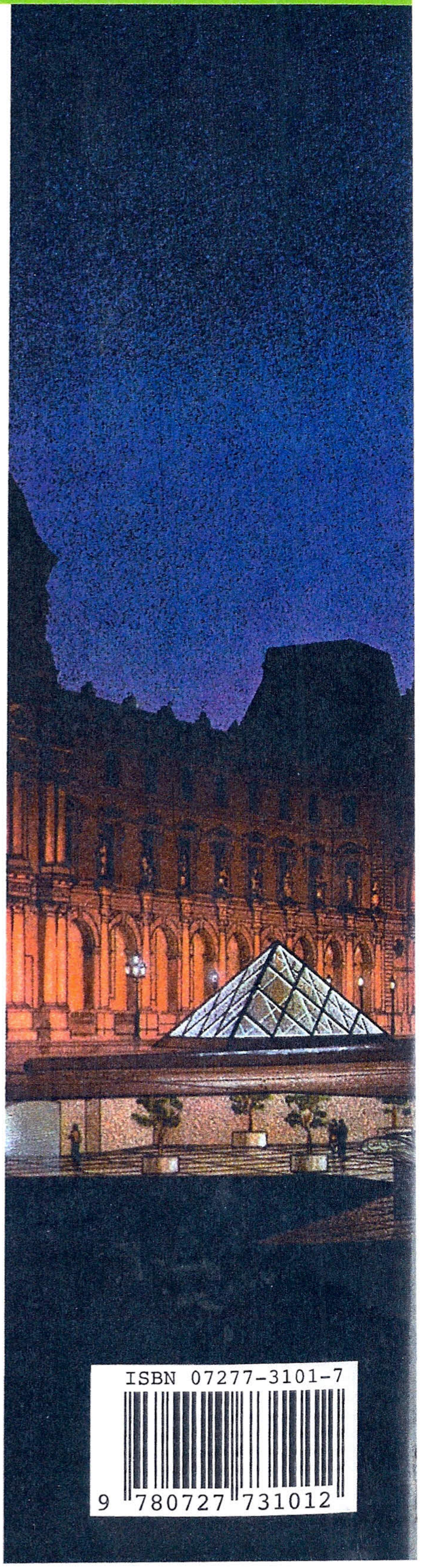

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