The Valuation of Urban Regeneration Land: A Contemporary Perspective

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Abstract

A fundamental element of UK urban policy, as outlined in the Urban White Paper, is the redevelopment of inner city land (DETR, 2000). However the valuation of urban regeneration land, in connection with grant funding, is said to be one of the most vexed issues in the appraisal of projects (Beattie, 1991). This is due to a lack of transparency across valuation and property data in urban regeneration markets, shortcomings in traditional valuation methodologies (Adams et al, 1985) and complexities of public sector grant procedures. The lack of transparency in urban regeneration property markets means that it is often difficult to assess the appropriate input data into the appraisal.

The value of land for development is normally estimated by the use of the comparative method or the residual approach. Guidance Note 17 in the RICS Red Book outlines the approach to a residual calculation in which the expected development cost to create the scheme is subtracted from the expected capital value on completion of the project in order to derive the expected profit. The authors were funded by the RICS Education Trust to investigate current practice in the application of Guidance Note 17. The aim of the research was to examine the bases of valuation, availability and utilisation of data, reporting of the valuation in terms of a single point estimate or a range of values and the management of risk within the valuation process. In addition the research also considered the appraisal guidelines outlined in HM Treasury Green Book. The paper reports the findings of a survey of valuers from leading practices throughout the UK, bank lenders who commission the valuations and developers who rely on valuations in terms of purchasing and selling brownfield sites. In addition an example of a valuation of an urban regeneration site is included in order to highlight the key issues within the discussion.

INTRODUCTION

The redevelopment of brownfield sites is a major element in urban regeneration policy (DETR, 2000). However, many of these sites contain derelict structures, outmoded infrastructure and contamination, all of which increase development risk and involve abnormally high reclamation costs for potential developers. The valuation of land is said to be one of the most vexed issues in the appraisal of urban regeneration projects (Beattie, 1991) due to a lack of transparency across valuation and property data in urban regeneration markets, shortcomings in traditional valuation methodologies (Adams et al, 1985) and complexities of public sector grant procedures. The lack of transparency in urban regeneration[1] property markets means that it is often difficult to assess the appropriate input data into the appraisal, a problem that policy makers have wrestled with since the inception of grant-aid (Jones 1996).

The RICS Appraisal and Valuation Manual or Red Book (1997) Guidance Note 17 outlines the principles for the valuation of land. The starting point, as with all valuation practice, is that the best evidence of value is the current price paid in the market for similar sites in similar locations. However due to the reasons outlined above there is often a marked lack of current and accurate valuation evidence in urban regeneration markets. In addition Government has recognised for a long time that it is bad practice to value sites using the comparable method where public sector subsidy has created the market for sites. Consequently urban regeneration agencies often admit that while they are good on estimating development costs they struggle with the estimation of land values.

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[1] In PPG3 (DETR, 2000, Annex C) previously-developed land is defined as "that which is or was occupied by a permanent structure … and associated fixed surface infrastructure" and in this paper the term regeneration land assumes this definition.

Guidance Note 17 further recommends that where the comparable method cannot be applied on a sound and rigorous basis the residual approach, should be adopted. The value of land for development is normally estimated by the use of the residual method, the traditional approach to development appraisal within the UK (Jones, 1996). In the residual calculation the expected development cost to create the scheme is subtracted from the estimated capital value on completion of the project in order to derive the target profit. Furthermore, Jones (1996) outlines the key variables which can be identified as the crux of any public sector appraisal, namely the level of developer's profit, value of the land, and the valuation of the completed project. In this paper the term residual valuation is used in a generic sense to encompass both the traditional residual method together with more sophisticated cash flow approaches in which there is a detailed treatment of specific site elements over time.

The valuation of redevelopment sites in urban regeneration locations is further complicated by the fact that frequently, the combined costs of land purchase, reclamation and construction are in excess of the predicted value of the completed development. Hence, residual valuations may indicate negative land values and render development schemes uneconomical. In such circumstances nominal land values are often set by development agencies in order to encourage landowners to sell thereby stimulating the development process.

Guidelines for the appraisal of land are also contained in the HM Treasury Green Book (1997) however differences of emphasis with the Red Book are apparent. The Red Book does not specify valuation methodologies to be utilised in a valuation task but rather concentrates upon the principles to be employed. The Green Book however in outlining a number of appraisal principles for the valuation of land and buildings highlights the role of cash flows in determining appraisal outcomes. Depreciated replacement cost may be used where there is insufficient relevant market information. Property appraisals can be undertaken in terms of either annual rental or capital values however it is normally appropriate to use capital values in appraising

freehold property, those with development value and properties held on ground leases with more than 10 years unexpired. At a time when greater attention is being focused on valuation practices the role of cash flow methodologies and the inherent data transparency need to be considered within an urban regeneration context.

The aim of the paper is to analyse the application of Guidance Note 17 of the Red Book in the valuation of urban regeneration land and in particular current practice relating to valuation methodology, market information and the reporting of ranges of values and treatment of uncertainty. The paper is structured as follows: the literature review provides an overview of the salient issues relating to the valuation of urban regeneration land and precedes the discussion of the methodology employed in the research. The results from the structured interviews provide a discussion of the bases and methods of valuation, market information and the reporting of values. A case study comprising a valuation of an urban regeneration site is utilised to highlight the key issues prior to a discussion of the conclusions arising from the research.

 LITERATURE REVIEW

Attempts to explain the triggers to the redevelopment of land have been the subject of considerable theoretical and empirical analyses (Healey *et. al.*, 1992). Neo-classical approaches have been employed by Brueckner (1980), Wheaton (1982) and Munneke (1996) to determine the stage at which redevelopment becomes feasible. The approaches rely on pricing such land through the market, leading to the conclusion that the redevelopment of land occurs when the price of land for new development exceeds the price of land in its current use by the cost of demolition and clearance, - the so-called 'optimal redevelopment rule'. In other words, if the value of land in its redeveloped state increases relative to its value in current use, then the probability of redevelopment is increased (Munneke, 1996). However in urban regeneration

areas disadvantages arising from location, infrastructure, condition and other factors may lead to insufficient demand to make redevelopment readily feasible (DETR, 2000, Annex C). In these circumstances the redevelopment approach depends to a very large extent, on the reliability and accuracy of the methods of valuation of regeneration land and the advice owners, investors and developers receive from the surveying profession. In a study of Inner Manchester, Adams et. al. (1985) suggest that inadequacies surrounding valuation practices – over reliance on comparable evidence - tend to prevent the price of regeneration land in the inner city from falling by retaining historical values even in the wake of decreasing demand for land. In other words, the valuation profession is blamed for inconsistencies and failure to reflect the risk and uncertainty associated with projects initiated on regeneration land (Syms, 1996).

Risk and uncertainty

More recent debate on the valuation of regeneration land has focused on the uncertainty and risk associated with redevelopment. The terms 'risk and uncertainty' present important conceptual and analytical problems. It is essential to clarify their use. 'Risk' can be defined as the probability that a targeted return will not be realised. In other words, it assumes that all outcomes together with their probabilities of occurrence are known. 'Uncertainty' is sometimes used interchangeably and confusingly with 'risk'. However, 'uncertainty' denotes situations where outcomes and their probabilities of occurrence are not known (Bryne, 1996, Hargitay and Yu, 1993).

Some approaches to the analysis of markets for regeneration land emphasise the importance of risk. Capozza and Sick (1994) contend that the structure of risk in land and property development is poorly understood. They employ neo-classical methodologies to examine the spatial and temporal risk structure of land markets by incorporating modern theories of risk into spatial models of land markets. The resultant integrated approach, they argue, provides new

insights into both finance and urban land theory. Samworth and Lacey (1998) consider that the risk profile of redevelopment land is multi-faceted being closely associated with the possibility of failure to generate expected returns to investment commitments.

Risk is present when estimating the gross development value and development costs. Planning, rental growth and yields impact on the gross development value while construction costs, professional fees, inflation, time and finance affect the development costs. In a typical development appraisal, land value is regarded as a residual after all costs plus developer's profit have been deducted from the gross development value. Changes to any of the inputs in the appraisal, whether part of the development costs or the gross development value, affect the amount a developer may be prepared to pay for land (the residual). The various elements of risk, together with their possible effects on the residual land value are now considered below.

Planning

Fundamentally, the planning system has a distributive role in terms of the realisation of land values. The granting of planning permission can facilitate the realisation of value in a market where the new permitted use is in demand. From both a planning and developer viewpoint, regeneration land presents additional difficulties compared with greenfield sites, due to increased infrastructure costs and the challenge of ensuring compatibility of uses. In consequence, the granting of planning permission may take time to achieve, with the risk that in the ensuing period the buoyant market which had encouraged the original application may have changed. The initial stages of the appraisal process involve making assumptions about the density and end use of a development project, which may prove inaccurate by the completion of the project. Local authorities are minded to remain flexible with the planning of regeneration areas in order to capitalise on potential development opportunities. As a result, plans and initiatives are amended,

quite often at short notice (McNamara, 1993). This impacts adversely on investment appraisals and decisions due to increased uncertainty.

Yields and Rents

McNamara (1993) contends that additional risk is created by the lack of transparency about rates of return from inner city investments or how they have varied over time reflecting the limited information flows on urban regeneration property markets. Investors being asked to consider any market or investment where there is no existing track record of information will require some extra safety margin, by way of risk premium, for the uncertainty of investing in an unknown entity. Under these circumstances, investors would demand high yields. McNamara argues that this lack of transparency is largely an unnecessary risk that could be substantially reduced by concerted action by those with knowledge of such markets.

Over and above the risk presented by the lack of information on performance, the very nature of inner city properties and their tenants will cause investors to raise the risk premium that they would require before committing themselves to investment. Certain inner city areas are likely to attract weaker tenancy covenants (small and newly formed firms) that are less able to afford accommodation in preferred locations. These firms are among the most prone to failure and, hence, cause disruption to income flow. In addition, the small size of regeneration projects carries a disproportionate management cost and that combined with a weaker covenant necessitates the valuer to apply a higher yield as compensation for the higher risk.

The aggregate effects of changes in yields and rent are reflected in the gross development value. In prime redevelopment areas, certainty about the rental income stream coupled with good prospects of rental growth are reflected in lower yields. In turn, the lower yield increases the capitalisation factor leading to a higher gross development value. However, in regeneration

areas, low initial rental values reflect on poor levels of demand which raises the probability of void periods. Consequently, the yield is increased to compensate for the often low rental levels, intermittent rental income and poor rental growth prospects, thus reducing further the gross development value of the projects.

Development costs

Prospects for lower development profits and investment returns also arise from higher than normal development costs associated with urban regeneration locations. Increased development costs result from the replacement and/or re-adaption of buildings which have been used many times over. Furthermore, many urban regeneration properties are characterised by former industrial workings, culverts, shafts, old cellars, obstructions due to existing derelict buildings, uncompacted fill and toxic waste, all of which create uncertainties in pricing development work and lead to higher contingency costs and unforeseen remedial works. Additional problems such as sites with awkward access and the need to minimise inconvenience to neighbouring buildings add to the costs of developing the sites (Beattie, 1991).

Contamination and stigma

Regeneration land can be expected to have some residual characteristics or qualities associated with the preceding use(s). In many cases, such residuals are of no benefit to redevelopment efforts and are a potential liability, particularly where contamination is present. As a result, regeneration land is notoriously stigmatised with the consequent lowering of its value. Chalmers and Roehr (1993, p. 31) refer to stigma as "the impacts on value stemming from increased risk associated with the property and the effects of this on marketability and financiability". Syms (1997, p. 179) defines stigma as "That part of any diminution in value attributable to the

existence of land contamination, whether treated or not, which exceeds the costs attributable to a) the remediation of the subject property, b) the prevention of future contamination, c) any known penalties or civil liabilities, d) insurance, and e) future monitoring." It is the discount in excess of direct costs required to compensate investors and lenders for the risk associated with the property. 'Stigma' has been used to describe a variety of intangible factors from possible liability and fear of health hazards to 'fear of the unknown'.

While acknowledging the lack of universal consensus on the cause of stigma, Wiltshaw (1998) examines the market perceptions of stigma and categorises them into pre- and post- remediation. The latter refers to the difference between the value of land after remediation and the uncontaminated land value. In a way it represents some form of self-insurance cover should there be some as yet unidentified contamination or that the site may require further remediation should an alternative use be proposed in the future. Thus, investors tend to associate some previously contaminated land with a higher risk than uncontaminated land.

The valuation of regeneration land, particularly where contamination is evident, remains a critical issue. With the cost of remediation as high as £300,000 per hectare on heavily contaminated sites and pre-and post remediation stigma depressing the value of regeneration land, developers are reluctant to commit themselves to the redevelopment of such sites without special inducements (POST, 1998). However, there has been some improvement in both the techniques used to identify and assess various forms of contamination and the methods of cleaning-up such sites. Such advances have facilitated the valuation task and reduce the level of uncertainty (Kennedy, 1998).

Syms (1996) identifies three approaches commonly used by valuers in dealing with contaminated land, suspected or evident. First, valuers may prepare valuations of contaminated land when given reports detailing the contamination and the cost of treatment. Second, the valuation may

be based on the assumption that there is no contamination (even when it is known to exist or is suspected). Third, valuers may decline to value on the basis that they have no professional indemnity insurance for environmental work. Richards (1997) contends that valuation methods and procedures must be sufficient to enable valuers to adequately reflect the quantifiable costs of tackling contamination and provide meaningful advice to clients. The methods currently employed to account for stigma are predominantly based on upwards adjustments to the all-risks-yield (ARY) and percentage end deductions to value and may produce unrealistic and erroneous results. Richards goes further and argues that the use of 'rationally-based' DCF (discounted cash flow) techniques is preferable. This would include the use of probability analysis, and an objective analysis of stigma where appropriate.

An alternative valuation approach to sites affected by contamination was put forward by Kennedy (1998). The certainty equivalent approach accounts for an investor's or market's aversion to financial risk through adjustments to future revenues or costs which are regarded as risky. "It attempts to define the certain equivalent which an investor or market would trade for a financially risky future revenue or cost" (Kennedy, 1998, p.96). The approach is used to adjust value to reflect downside risk without reflecting on the upside potential and is based on the assumption that all investment variables affected by financial risk have a normal distribution. The risk involved is represented by the standard deviation, with certainty equivalents quantified through an analysis of standard deviations. The probability density for each investment variable is derived subjectively on expert assessment, making adjustments to reflect market and investor perceptions of risk.

Project duration and short term finance

Projects undertaken on regeneration land tend to take longer to complete than greenfield sites,

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due to time-consuming initial processes such as site assembly, demolition, clearance and possible remediation (Adams *et al*. 1998). The aggregate effect of delays in completing the project and the possible extra costs, increase the cost of short term finance and expose the project to greater interest rate risk. A mistiming of the point at which redevelopment occurs could result in the project being completed at a time when demand is depressed, leading to poor covenants and low rental income. This has the affect of either reducing the land value where an extended development period is anticipated or reducing the developer's profit should unanticipated delays occur once the land purchase has taken place.

Volatility, sensitivity and illiquidity

The sensitivity of regeneration land markets to fluctuations in demand for land is skewed. Since such markets are not first choice destinations for investments, upturns in demand for land are first experienced elsewhere and transcend to regeneration sites with considerable time lags. On the other hand, downturns in demand initially affect the markets for regeneration land, further increasing the risk of development in these areas (McNamara, 1993). The high volatility of such land values causes additional uncertainty with respect to the level of returns that may be realised and a significant exposure to risk.

Generally, the performance of property markets shows cyclical patterns (Key *et. al*. 1994). In the main, development projects have long gestation periods and projects that suffer delays may be completed in market conditions significantly worse than anticipated originally. Often regeneration land markets fail to generate substantial investor interest with the net result that the number of investors in that market is limited. As such, considerable delays in disposing of regeneration land can be expected. The consequence of this illiquidity is greater risk and uncertainty and those investors who are active in this market require to be compensated in the form of an illiquidity premium.

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Current practice

With a government target of 60% of all new homes in England and Wales to be developed on brownfield land by 2008 (POST, 1998), the valuation of these sites is likely to assume particular significance. Yet, the valuation of regeneration land is one of the most challenging tasks confronting the valuation profession today for a number of possible reasons.

First, there would appear to be a lack of expertise among the profession in the valuation of regeneration sites. The nature and extent of the factors explained in the previous section which include planning, rental growth, yields, development costs, stigma, time and finance, result in the profession trying to value where there is considerable risk and uncertainty. Guidelines from the valuation profession often fall short of valuers' expectations of what is required to deliver their services reliably and confidently.

Second, the changing signals from government on how to deal with regeneration land, particularly where contamination is evident, means that valuation approaches could take various forms or even remain indeterminate. Richards (1995 p. 2) deplores the lack of clear valuation approaches and concludes that "There is therefore uncertainty as to which valuation methods to apply in the valuation of contaminated land and how these methods should be adapted for use in often unique circumstances".

Third, there is a scarcity of reliable data on regeneration projects, which includes for example, lack of information on rents and yields as well as the costs associated with remediation. This lack of transparency is often more prevalent in areas of weak demand. The paucity of data in the property market is a feature that distinguishes that market from other financial markets. Adair *et.*

al. (1998) emphasise that data deficiencies often lead valuers to work with secondary and incomplete information. The uniqueness of every property implies that a high level of data availability and analysis is required to facilitate increasingly analytical procedures. Data sources tend to focus on prime commercial properties often relegating secondary areas that fail to generate adequate interest from potential investors and the desired accuracy in valuation.

Fourth, the potential volatility of land values has serious consequences for traditional comparative analyses as past evidence is quickly out of date. This exacerbates the uncertainty regarding the level of returns from investments made. The valuation task becomes more difficult, given the severe limitations on the availability of information. Sawyers (1987) contends that the interpretation of market evidence demands a very high skill in any valuation. Given the high risk associated with regeneration land, the need for more accurate valuation techniques cannot be more pressing.

The RICS Red Book does not specify valuation methodologies to be utilised in a valuation task but rather concentrates upon the issues to be taken into account when preparing a valuation. The RICS Guidance Note 17.1.1 (GN17.1.1) indicates that development land and buildings may be valued by comparison or the residual method with the Guidance Note largely concerned with the latter. The residual approach is widely criticised for allowing for changes to all other inputs and treating the land value as the remainder. In the case of regeneration land where downside risk and stigma relating to 'fear of the unknown' are prevalent, it may be the case that the residual approach prejudices the values of such sites.

Nevertheless, residual valuation approaches can be differentiated, in terms of their sophistication, in relation to the development time frame. At the commencement of the project, for example, before the site has been purchased or in the case of a straightforward scheme a traditional residual may be undertaken to ascertain if the development is feasible. Later in the project when

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consultants have been appointed and plans are further advanced a more detailed residual or a cash flow valuation may be undertaken. The latter method is particularly applicable not only in valuing a phased development but more importantly it is the only approach which facilitates the utilisation of rigorous appraisal indicators such as net present value and the internal rate of return (Brown and Matysiak, 2000).

The use of the comparison method hinges on the availability of past market evidence that must be as closely related to the subject property as possible. In the case of regeneration land, there will be the requirement to obtain sales evidence of properties directly comparable to the subject property in terms of location, size, use and condition. The basis for such a valuation approach is that the valuer can implicitly assess the market's view of future investment cash flows and the related perceived financial risks. The fact that properties are heterogeneous gives rise to scepticism as to the accuracy of this approach. Every property is unique, if for nothing, other than its location. In the case of regeneration land, it is unlikely for example, that two pieces of such land would share the same levels of contamination, stigma and financial risk and other factors. Hence, comparison must be attempted carefully to make some adjustments that are reflective of the value of the subject property.

The Appraisal and Evaluation in Central Government (Treasury Guidance), (1997) (the Green Book), outlines a number of appraisal principles for the valuation of land and buildings and highlights the role of cash flows in determining appraisal outcomes. Depreciated replacement cost may be used where there is insufficient relevant market information. The appraisal should measure the opportunity cost of the land and buildings. The value should be current and based on the most valuable use possible. The guidelines suggest that an assessment of site value in the most valuable alternative use should be based on the advice of property experts either in-house valuers or suitably experienced chartered valuation surveyors.

The problems surrounding the valuation of regeneration land tend to exacerbate the uncertainty behind valuation practice. Both the availability and reliability of evidence that a valuer may use affect the integrity of the valuation. In many cases assumptions may be used, but these tend to facilitate the valuation procedures rather than remove the uncertainty altogether. The Mallinson Report (RICS, 1994) determined that all valuations are uncertain. "There will always be a degree of uncertainty in any valuation, but it should be incumbent upon the valuer to report "abnormal uncertainty" (Mallinson and French, 2000, p. 14).

The uncertainty surrounding the valuation process manifests itself when a valuer determines a single valuation figure. Each calculation made to produce the single valuation figure has the potential to introduce uncertainty or to increase it. "The valuer will attempt to master this uncertainty in the eventual choice of figure but proper mastery is impossible, and compromise inevitable" (Mallinson and French, 2000, p.24). In an effort to determine the 'best price' it is inherent in the valuation process that less probable figures are discarded. While the discarded figures may appear less appropriate in the view of the valuer, they remain a possible outcome which is not reported to the client. If a range of variables is identified, then it will be possible to develop a matrix of single figure valuations. "Provided the extremes have been set correctly and realistically, all the possibilities will have been captured" (Mallinson and French, 2000, p. 24). It remains to be seen if clients would fully appreciate valuations expressed as a range of figures and accompanied by an explanation of the associated level of uncertainty.

In some cases, it may be incumbent upon a valuer to perform an appraisal based on calculations of worth in order to reveal the underlying investment value of an asset (Baum *et.al.,*1996; Hutchison and Nanthakumaran, 2000). This involves the estimation of worth of an asset to a specific individual or organisation. Calculations of worth are based on discounted cash flows to reflect the costs and benefits to the investor of holding the asset. It is an explicit estimation of

risk-adjusted and time-discounted value of expected future income flows. Calculations of worth do not necessarily equate to market price or valuation due to inefficiencies in the market. In the case of regeneration land, particularly where contamination is evident or suspected, the potential for a mismatch between market value and calculations of worth is greatly increased.

METHODOLOGY

The literature review identified a range of issues relating to the valuation of urban regeneration land. The research methodology comprised a scoping study to test the applicability of these issues within a practical valuation context and structured interviews with valuers, developers and financiers in order to explore the issues in greater detail. Furthermore a case study valuation is utilised to highlight the applicability of the issues within an appraisal context.

The examination of the currency and applicability of the issues identified in the literature review was undertaken in the scoping study. The issues comprised the valuation approach adopted, data availability, treatment of risk and uncertainty; and application of the Green Book to the valuation of urban regeneration sites. Individual interviews were conducted on a face-to-face basis with a panel of seven valuation experts, selected on the basis of their proven expertise in the discipline.

The principal stage in the research methodology comprised structured interviews with leading market participants namely, valuers, developers, financiers and economists involved in urban regeneration. On the basis of the results from the scoping study questionnaires were designed for each of the respective participants. The issues considered in the questionnaires focused on the valuation methodology employed in the appraisal of sites. Particular issues related to the utilisation of valuation bases involving open market value and calculation of worth; adequacy of

market data to enable the comparable method to be employed; analysis of market data availability including by region and by sector; treatment of grant aid, clawback procedures and contamination; reporting of a single point estimate as compared with a range of values; quantification of risk; and application of the Green Book approach.

Structured interviews on a face-to-face basis were undertaken with a panel of nineteen experts in June 2000. The initial sample selection of valuers was based on the top five UK chartered surveying firms, but was subsequently widened to include the main valuation firms in London in particular identifying their principal valuation staff involved in the appraisal of urban regeneration sites. In order to provide a regional comparison supplementary interviews were also conducted in Manchester in July 2000.

RESULTS FROM THE STRUCTURED INTERVIEWS

The results from the structured interviews are considered under the three dimensions of bases and methods of valuation, market information and the reporting of the valuation. In each section the views of valuers, developers and lenders are considered in order.

Bases and methods of valuation

In terms of advising a *vendor* on the amount to be realised from the sale of an urban regeneration site three of the valuers expressed an initial reluctance to carry out open market valuations of such sites due to the uncertainty surrounding the development prospects. Instead they preferred to give professional advice on the development options. Another of the valuers thought there was a difficulty in preparing an open market valuation as defined in the Red Book, as the latter assumes an unconditional sale in the market place when in reality many urban regeneration land

transactions are conditional on some future event such as securing planning permission for a particular use at a certain density within a certain time frame.

All of the valuers prepared open market valuations assuming the continuation of the existing use, with permitted uses and assuming best use. Only three of the valuers carried out a calculation of worth and then only occasionally. One valuer indicated that he would undertake an implicit calculation of worth in terms of who may be interested in buying the site, and the likely offer that they would make. In essence this is an attempt to identify a special purchaser.

In relation to the ranking of valuation methods employed nine out of the ten valuers indicated that they would normally adopt the residual method when valuing urban regeneration sites and that this would be subsequently checked against any available comparable evidence. The tenth valuer relied on comparable evidence in the first instance. The use of comparables was the instinctive first choice of many valuers but the unique characteristics of urban regeneration sites made it extremely unlikely that good comparable evidence was available with the possible exception of housing sites. However, good close comparable evidence was considered to be a very important cross check to ensure that the valuation was in step with prevailing market sentiment.

The residual is the preferred approach for several reasons primarily relating to site specific elements. Firstly, the residual method facilitates the fine tuning of the valuation by adjusting for a matrix of planning assumptions including uses and densities. Valuers indicated that they would normally draw up a matrix encompassing optimistic, realistic and pessimistic scenarios and the likely impact on open market value. Secondly, where the site is contaminated, the costs of remediation plus a stigma allowance can be built into the valuation. For example, the degree and cost of remediation may differ depending on the end use proposed and this can be adjusted in the

calculation. Thirdly, where the residual approach involves the preparation of a detailed cash flow, this enables the phasing of the development to be explicitly stated thus providing further information both to the developer and the funding body. One valuer indicated that approximately half of the residuals undertaken for urban regeneration valuations are cash flow based, as phasing of the development is normally a major issue.   In this respect there is clear evidence that practice has changed with more explicit cash flow based valuations being undertaken. One of the valuers adopted a "calibrated" DCF residual approach where the inputs into the valuation are given parameters based directly on comparable evidence. It was argued that this helps to ensure that the residual approach fully reflects underlying market sentiment.

Nevertheless the residual approach is highly sensitive to changes in the constituent parts and great care must be exercised in selecting the key variables. One valuer remarked that due to the conservative approach of valuers the residual valuation often understates the price paid in the market. All of the valuers used industry standard software packages to calculate the residual valuation.

In considering the bases and methods of valuation employed when acting for a *purchaser* of an urban regeneration site all of the valuers agreed that there would be no significant differences although the advice to their clients and the subsequent negotiation would be different. Two of the valuers mentioned that a calculation of worth may be more relevant and that a client interested in purchasing a redevelopment site is often well informed of the property market. Furthermore, as the buyer may be acquiring the site for a specific end use, it may be necessary to advise the client of alternative uses which may produce a higher offer price.

As expected all valuers excluded grant aid from their valuations in the first instance, to ensure that the true economic value of the land was estimated. If the land value turned out to be negative, this exposed the need for grant assistance. Where grants were available, the funding

was then built into the residual approach in order to estimate the likely level of developers' profit assuming the purchase of the land at a given price. This level of profit may have been subject to a clawback provision which was allowed for in the cash flow at the end of the scheme. One respondent indicated that where grant was subject to clawback procedures scenarios would be built showing rates of clawback with varying levels of profitability. Despite the initial attempts to value in a "no grant world" it was recognised that the availability of grants did tend to inflate land values as owners became aware of funding opportunities and raised their asking prices.

One developer suggested that where clawback may be triggered this should be reflected as an increased margin in order to mitigate risk. However from his experience this is unlikely to happen in practice. At a market level it appears that some developers will tackle schemes involving clawback whereas others will not. Those who do should take higher margins which is a form of diversification across low and high risk schemes.

Two of the valuers remarked on the understandable reluctance of owners to accept a nil or negative value for their land, particularly where the land has a current beneficial use as a car park or as open storage. In these cases the owner tends to require a nominal payment – reported on one site as between £20,000 to £30,000 per acre – to agree to the sale. This "nominal value" or "willing vendor value" is a negotiated figure which enables the land transaction to take place, but which is not calculated with reference to the underlying economic value of the land but rather reflects the realities of the bargaining process.

All of the lenders wanted as much information as possible on the method of valuation used along with supporting evidence with the clear expectation that a residual valuation would be carried out. In regeneration sites direct comparables are difficult to find therefore the bank looks for a residual valuation with comparables as supporting evidence. In preparing a residual valuation

the valuers were required to state their assumptions and it was clear that the banks were keenly concerned with the exit strategy of the borrower and thus close inspection was paid on the constituent elements of the gross development value along with the cash flow profile. Whether the scheme was speculative or prelet was considered the most important factor in assessing lending feasibility. Other significant risk factors comprised the track record of the developer, demand for the product, contamination, cash flow and capital value. Where comparable evidence existed this was required to be reported to support the valuation figure.

On new lending situations there was a consensus among the banks in requiring a specialist to undertake an environmental assessment as a check for contamination. The valuer would be asked for his comments on the results of the assessment in terms of the likely impact on value. Contamination stigma is a problematic area and the bank, where possible, will try to quantify the risk.

From a developer (both short-term trader and long-term investor developer) perspective the primary method of valuation is the residual with the two principal bases being open market value for existing use and for best use. Cash flow valuations are utilised primarily for appraising profitability and financial monitoring of projects. Normally they rely on valuers to provide current market analysis in terms of comparative rental levels, yields and capital values across all market sectors except leisure. In relation to the latter sector some respondents feel that valuers generally are not sufficiently highly skilled in undertaking cash flow based valuations. In addition valuers are also considered to be weak in analysing operational business data within the cash flow approach. In such situations developers look to management consultants to provide advice. Retail valuations are also considered to lag retailers' own estimations of value particularly from high turnover sites. In this context developers consider that they have superior knowledge of the market, obtained from their close working relationship with retailers. Occasionally they will require valuers to undertake residual valuations but all developers

considered that they have a more detailed and first hand knowledge of the economics of the development process.

Market information

At a general level the majority of the valuers were in agreement that there was insufficient detailed information on comparable evidence to analyse according to Guidance Note 17.2.2 of the RICS Red Book due to the unique characteristics of urban regeneration sites. (Guidance Note 17.2.2 advises that comparison on a unit basis may be appropriate for large greenfield sites where a low density development is proposed.) Furthermore detailed comparable evidence in large-scale urban regeneration schemes, many of which are new markets, is almost impossible to obtain.

While it was thought possible to value housing sites and industrial schemes directly from comparable evidence, it was felt that this became impossible where the proposed development is of mixed use or the site is contaminated. Nevertheless, even where a residual valuation was adopted in the first instance, the valuers were keen to point out that the residual approach is itself made up of individual pieces of comparable evidence and that there are useful "rules of thumb" which enable the valuer to check the resulting valuation. (For example, it was reported that the land value per sq ft for offices in the London core is expected to be within a certain band based on past transaction evidence.) The cost of construction is also used as a comparative benchmark.

In terms of variations in the level of information by sector the retail, office and industrial markets are well covered, however data on some leisure properties is more problematic. In addition leisure property is a relatively new market with available evidence in many cases arising from business appraisals, regarded as an accountant's area of expertise rather than a valuer's.

Table 1   Availability of Market Information

Rank	Descriptor
1	No information
2	Very limited level of information
3	Reasonable level of information
4	Good level of information
5	All facts known

		Level of information available *				
		1	2	3	4	5
Valuation data	Rental levels		1(1)	(2)	7(2)	1
	Yield levels		1(1)	(3)	7(1)	1
Density of permitted development	Gross external area		1(1)	5(1)	3(2)	
	Net internal area		1(1)	5(1)	3(2)	
Construction data	Site servicing		4(2)	4(1)	1(1)	
	Contamination remediation	2	6(3)	1	(2)	
	Building cost		(1)	2(1)	7(2)	
	Professional Fees		(1)	(1)	9(2)	
	Planning requirements		7(3)	2	(1)	
	Cost of finance		(1)	2	6(1)	1(1)
	Construction period		(2)	5	4(2)	
Profit and disposal	Level of developers profit	(1)	2(3)	1(1)	5	1
	Legal fees		1(2)	2(2)	6(1)	
	Marketing costs		(2)	1(2)	7(1)	

*Developer and lender responses are shown in parenthesis

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The respondents were than asked to rank the level of market information which is available on regeneration land (See Table 1). While statistical analysis cannot be undertaken due to small sample size nevertheless the results are indicative of clearly identified trends. Overall, the valuers believed that they possessed a good level of market information on valuation data, building cost, professional fees, profit levels and disposal costs, a reasonable level of information on the density of permitted development but only limited levels of information were available on parts of the construction data, including in particular, the costs associated with contamination remediation, site servicing and planning gain. This assessment of market information was broadly confirmed by the lenders but with reliance placed on the valuer to provide the comparable evidence. However across some elements of information for example, the level of developer's profit, legal fees and marketing costs, the lenders' and developers' responses indicate a lower level of availability than the valuers' ratings. For one of the lenders the concern was whether valuers were using all the available market information on credit worthiness to properly evaluate covenant strength. This was deemed to be a serious potential weakness which impacted on yield selection.

There was broad consensus among valuers that there were some differences in the level of information between local authorities. Large urban authorities are considered to have better information and to be more pro-active while some mainly rural authorities have less market information, but that this was improving as the latter began to tackle regeneration problems and gained experience of the issues. A further comment made was that there was a lack of published information on land transaction prices. There appeared to be little difference in the level of information by sector, with the exception of leisure, which the majority agreed was highly specialised and less easy to obtain market data.

Valuers adopted a number of different approaches in their treatment of contamination. The predominant approaches were either to make an estimated (or accurate) cost deduction in the calculation or to exclude the cost of remediation but include caveats warning of the potential liability. Other responses included a yield adjustment to reflect the reluctance of some institutional funds to purchase contaminated sites, thus reducing the liquidity of the investment. For the lenders, any possibility of contamination triggered a thorough investigation of the ground conditions. Where contamination was confirmed this did not automatically preclude a loan, but rather the lender sought to quantify the risk bearing in mind the track record of the developer in handling these issues, the location and proposed end use. The lenders relied on the valuer to make any necessary adjustments to the valuation to reflect the effects of stigma.

In relation to the availability of information, lenders find that rental levels and yield data are reasonably good at a general level however the UK market is not as transparent as Germany or the USA. In London the coverage is excellent however, outside of London there is less transparency. Market data is generally good in the case of conventional retail/industrial property where there is a good level of comparisons available for cost/uses. The most difficult area is sufficient information on leisure property and on contamination.

One respondent commented that valuers were often acting under specific instructions from the owner to assume that contamination does not exist, even if this instruction does not reflect reality. In carrying out these instructions the valuer may be overstating the value of the land which may then be included in the balance sheet. If contamination is then found by a prospective purchaser and a lower valuation results, it was suggested that owners are then reluctant to sell at a price lower than the valuation previously reported. This introduces a degree of illiquidity into the land market, which is not the fault of the valuer.

One developer indicated that he has followed the evolution of the National Land Information Service (NLIS) with interest, believing that the system has potential to deliver high quality information for valuation purposes. Developers undertake projects across a wide geographical area however it is considered that there is a greater availability of information across the south and east than in the north and west of Great Britain. In relation to the property sector the level of information for office, industrial and retail is high however developers feel that the dynamics of retailing are not as well understood by valuers as by developers.

The principal risks were identified by developers as occupier and investor demand, planning permission, structure of the transaction with the landowner, location and cost of remediation. Developers felt that contamination is a highly critical issue sensitive to funders which is now more important and requires a higher level of certainty. Approaches utilised by developers to take account of contamination encompassed an accurate cost deduction included in the calculation or to exclude the cost of remediation but include caveats warning of potential liability.

Reporting of the valuation

The reporting of the valuation as a single point estimate of value or a range of values produced a mixed response depending upon the purpose of the valuation and the role of the valuer. In cases where valuers expressed a reluctance to carry out open market valuations professional advice would be tendered on the development options incorporating a range of values reflecting a number of different scenarios such as the end use, letting conditions and a variety of construction cost estimates. However, concern was expressed that in order to retain credibility the range of values had to be tightly drawn. Others preferred to give single point estimates of value along with a detailed explanation of the assumptions that have been made. Many valuers felt that the

reporting of valuation uncertainty under Red Book guidance needs to be improved upon.

All of the valuers agreed that it was necessary to fully brief the client on the uncertainty behind many of the inputs into the appraisal. Techniques applied to help quantify this uncertainty included the use of sensitivity analysis, scenarios and the use of Monte Carlo simulations. However most valuers felt that risk management approaches are underdeveloped. As a basic step it is considered that the valuation profession should be moving away from traditional residual approaches to fully reasoned cash flow based valuations. It was also felt that intuitive and subjective linear approaches to ranking risk (say on a five point linear scale) could be enhanced by more probability based methods. To this end most valuers would welcome the publication of an RICS information paper on the valuation of urban regeneration land comparable to those on investment properties and the calculation of worth. Such a publication would make the profession more aware of how to deal with complex valuation scenarios, inadequacies in the data, best practice in methodology and the treatment of risk and uncertainty.

The lenders favoured single point estimates of value, while recognising the need for a full explanation of the underlying assumptions. One of the lenders commented that where a range of values was reported they would expect the range to be no wider than 5% and that in practice they would tend to base their lending decision on the lowest figure reported. For this reason the developers preferred single point estimates believing that this would result in a higher level of gearing. If an explanation of uncertainty is reported the bank looks for a quantification of risk in terms of information on market conditions, position of the market in the property cycle, demand, capacity and future price movements. However it is felt that over time valuation reports have become more explicit particularly over the past five years and there is an improvement in the way valuers state assumptions and justify opinions. In relation to an RICS information paper the lenders feel that the current system is working fairly well but it needs to be improved in certain areas for example the provision of more information to support the valuation.

Developers consider that justification of a single point estimate is essential however they would accept a range of values or an expression of uncertainty when valuers can support their opinions, identify the elements of risk and can assist the developer in making a decision. Qualification of the risk in terms of statistical validity would be very helpful. In contrast many valuers have difficulty with expressing a range in a quantitative manner for example in terms of a standard deviation. Valuers need to develop a wider skills base particularly in the use of scenarios, probability analysis and dealing with correlation between variables. An RICS information paper would be helpful in taking the profession forward in terms of developing competencies in the use of concepts of risk, correlation and understanding of quantitative aspects of uncertainty.

Whereas the Red Book does not prescribe a valuation methodology the HM Treasury Green Book (1997) approach is highly prescriptive, and somewhat artificial, requiring a cash flow at a pre-determined discount rate (6% real) although similar sensitivity analyses would be undertaken. Nevertheless respondents feel that the Green Book provides a much more rigorous assessment of risk than valuers are generally capable of undertaking. In order to overcome such deficiencies respondents feel that valuers need to adopt a standard methodology in the reporting of risk and uncertainty within the valuation.

Worked example

There are a number of risk adjustment techniques which can be adopted and these can be found in Byrne (1996). In this paper Monte Carlo simulation is used to illustrate the use of risk analysis. The Monte Carlo simulation technique is useful in development appraisal especially when the cashflows are difficult to estimate and are therefore risky. Variables which are likely to have a significant effect on the outcome (measured by changes in land value, profitability, NPV

or IRR) of the appraisal can be identified by the use of sensitivity analysis. These variables are than ascribed probability distributions and the appraisal calculations are performed. The output from the exercise will usually be a distribution of the variable of interest (land value).

In order to provide a realistic worked example, the paper uses the data from the valuation of an urban regeneration site in south east England which was undertaken in late 2000. For the full list of assumptions used in the valuation of the site, see Appendix 1.

The Monte Carlo simulation was carried out using a Microsoft Excel spreadsheet with a risk analysis "add in" Crystal Ball[2]. For the purpose of illustration the rental level, exit yield and building cost were treated as random variables, with the land value as the forecast variable. Crystal Ball offers a range of distribution functions but for simplicity a triangular distribution was used which requires minimum, most likely and maximum value. Based on the views of the original valuer, the exit yield values were set at 6.50 per cent, 6.75 per cent and 7.00 per cent. Rental values and building costs were allowed to vary between +/- 10% of the likeliest value of £167.50 per m^2 and £405 per m^2, respectively. Crystal Ball allows the valuer to set correlation coefficients but due to a lack of data on the relationship between the inputs (e.g. rental level and exit yield), the variables were allowed to vary randomly within the distribution ascribed.

A total of 50,000 calculations of the residual land value (NPV) were performed and the results from the simulations are shown in Table 2 and Fig.1 below.

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[2] Decisioneering UK Ltd.

Table 2: Results of the simulation

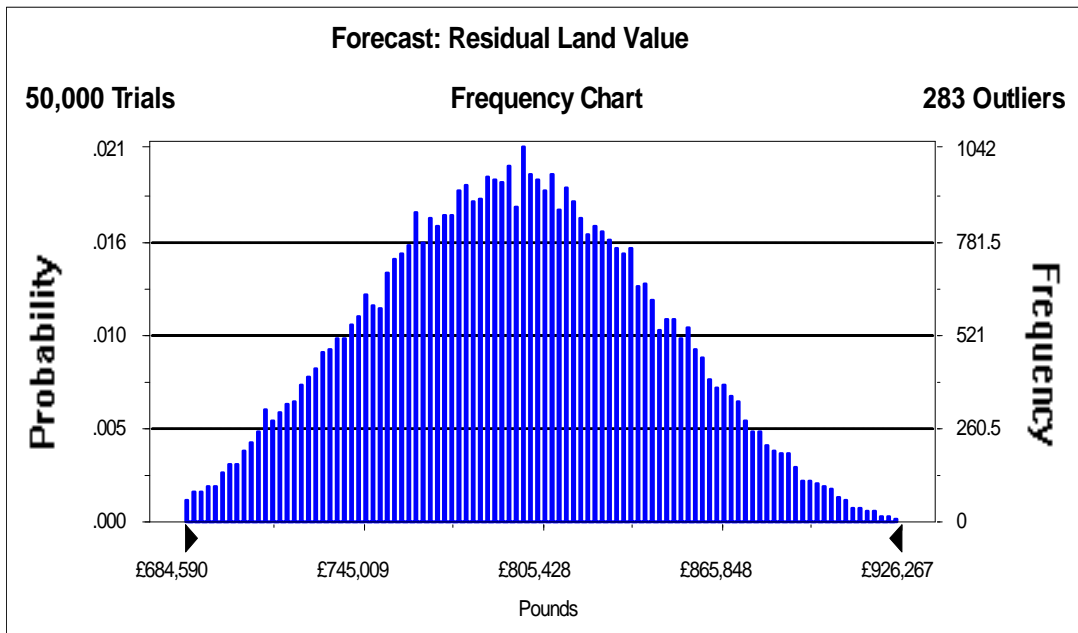|	Land Value
Mean	£795,665
Standard deviation	£47,678
Maximum	£954,363
Minimum	£649,808

Fig.1: Frequency Chart

Table 3 illustrates the probability distribution of the residual land value. While these figures still require interpretation by the valuer and the client, they certainly provide more information compared to single point estimates produced by conventional methods. For example there is a

70% chance that the value of the site is greater than £769,156 and this may provide some comfort to the client in deciding how much to bid for the site. In reality, the vendor of this site was not prepared to accept a figure of less than £1 million and some gap funding was needed in order for the scheme to go ahead.

Table 3: Frequency. Probability of value being greater than indicated.

Probability	Land Value
90 per cent	£732,450
80 per cent	£753,758
70 per cent	£769,156
60 per cent	£782,889
50 per cent	£795,596
40 per cent	£808,265
30 per cent	£821,909
20 per cent	£837,368
10 per cent	£858,548

The calculations described above assumed a "normal", level market, with neither a boom or bust period anticipated prior to the completion of the project. During our survey a number of respondents indicated that they undertook scenario testing with different states of the market considered along with changes to the density and end use. Developers and lenders are usually concerned with the "worst case" scenario and to illustrate this point a further simulation was undertaken assuming a severe downturn in the market.

Following further consultations with the valuer, the exit yield values were reset at 6.25 per cent, 6.75 per cent and 7.25 per cent while rental values were allowed to vary between +/- 20% of the likeliest value. (No changes were made to the building cost distribution.) A further 50,000

calculations of the residual land value were performed and the minimum land value, the "worst case" scenario, was £532,134 which is a shortfall of over £263,000 from the mean value in the normal market scenario. The quantification of the downside risk, of particular interest to financiers, reinforces the highly volatile nature of urban regeneration land values in the downturn of the property cycle.

CONCLUSIONS

One of the most interesting findings from the research is the reluctance of some valuers to provide open market valuations of urban regeneration sites preferring instead to give professional advice on the development options. This raises two points: first on the appropriateness of the OMV definition in such circumstances; and secondly whether clients are sufficiently aware of the range of services available from valuers. Wyatt (2000) argues that clients ask for a Red Book valuation because they perceive calculations of exchange price to be the standard service. The challenge for the profession is to educate clients in the range of services that are available from the valuer.

The normal valuation approach adopted by valuers and developers is the residual method which is subsequently checked against available comparable evidence. Many valuers indicated that the use of comparables was their instinctive first choice but that the unique characteristics of urban regeneration sites made it extremely unlikely that good comparable evidence was available with the possible exception of housing sites. However, where close comparable evidence was available this was considered to be an important cross check to ensure that the residual valuation was in step with prevailing market sentiment. The finding that approximately half of the residual valuations are cash flow based reflects the changes in practice that have occurred in recent years

and confirms the view that valuations have become more explicit in the late 1990s. Nevertheless it is considered that the skills base of valuers needs to be improved in undertaking cash flow valuations particularly in utilising operational business data for leisure properties. In this respect the authors would argue that the RICS should revise Guidance Note 17 to emphasise the limitations of the comparative approach in valuing urban regeneration land and should advocate a move away from the traditional residual to fully reasoned cash flow based valuation.

While valuers generally considered that they possessed good market information on valuation data, profit levels and disposal costs this perception was not shared by the developers and lenders. In contrast developers were of the opinion that valuers' calculations of retail value lagged retailers' own estimations particularly from high turnover sites. In addition the developers considered that they had superior knowledge of retail market dynamics obtained from close working relationships with retailers. Valuers considered that they had a reasonable level of information on the density of permitted development but only limited levels of data on construction and contamination remediation costs, site servicing and planning gain. There is an urgent need to disseminate sources of data for development appraisal among valuers, highlight deficiencies in information and facilitate data sharing.

The research highlights a variety of reporting practices involving in many cases a tightly drawn range of values whereas other valuers provided single point estimates along with a detailed explanation of the assumptions employed. Generally developers and lenders favoured the latter approach but they appeared to be open minded about a range of values or an expression of uncertainty being reported provided there is a clear and well supported justification. All of the valuers agreed that it was necessary to brief the client fully on the uncertainty behind the inputs into the appraisal and the resulting estimate of value. However it is clear that risk management approaches, for example sensitivity analysis, scenarios and Monte Carlo simulations are underdeveloped within the profession. In this respect the findings of the research reinforce the

conclusions of the recently published Investment Property Forum/IPD (2000) study which highlights the need for more rigorous risk assessment measures within the property profession. The IPF/IPD report identifies a large number of risks to which property investments are exposed however it concludes that the profession employs an inadequate range of techniques to measure and control these risks.

Improvements therefore need to be made in the provision of more information to support the valuation and the reporting of uncertainty in a quantitative rather than a qualitative manner. Valuers should provide more information in the form of a reasoned analysis of the variables, the limitations of the inputs into the residual and cash flow approaches and an explanation of the valuer's confidence in the data. In order to overcome data deficiencies valuers need to adopt a standard methodology in the reporting of risk and uncertainty within the valuation. It is interesting to note that those valuers who have experience of using the Green Book feel that it provides a much more rigorous assessment of risk than valuers are generally capable of undertaking. In this respect it is concluded that valuers need to adopt more rigorous cash flow approaches to urban regeneration valuations involving a standard methodology for reporting risk and uncertainty. Finally the authors would recommend that the RICS should publish an information paper on the valuation of urban regeneration land comparable to those on investment properties and the calculation of worth. Such a publication would make the profession more aware of how to deal with complex valuation scenarios, inadequacies in the data, best practice in methodology and the treatment of risk and uncertainty.

References

Adair A., Berry J., Deddis B., McGreal S., Keogh G. and Key T. (1998) Barriers to data sharing in the surveying profession: implications for the commercial property market, *Journal of Property Research*, 15, 4. pp. 331-346.

Adair A., Berry J., McGreal S., Deddis B. and Hirst S. (1999) Evaluation of investor behaviour in urban regeneration, *Urban Studies,* 36 (12), pp. 2031-2045.

Adams C.D., Baum A.E. and McGregor B.D. (1985) The influence of valuation practices upon the price of vacant city land, *Land Development Studies,* 2, pp. 157 – 173.

Adams D., Disberry A., Hutchison N. and Munjoma T. (1998) Do landowners constrain urban redevelopment? *Aberdeen Papers in Land Economy: Discussion Paper 99-01,* University of Aberdeen.

Baum A., Crosby, N. and MacGregor, B.D. (1996) Price formation misprcing and investment analysis in the property market, *Journal of Property Valuation and Investment*, Vol.14, pp. 36-49.

Beattie R. (1991) City Grant, *Journal of Property Finance*, 1(4), pp. 588-592.

Brown, G and Matysiak, G (2000) *Real Estate Investment, A Capital Market Approach,* Financial Toimes, Prentice Hall, Harlow

Brueckner J. (1980) A vintage model of urban growth, *Journal of Urban Economics*, 8, pp. 389-402.

Bryne P. (1996) *Risk, Uncertainty and Decision Making in Property Development,* 2nd ed., E. & F.N. Spon, London.

Capozza D.R. and Sick G.A. (1994) The risk structure of land markets, *Journal of Urban Economics,* 35, pp. 297-319.

Chalmers J.A. and Roehr S.A. (1993) Issues in the valuation of contaminated property, *The Appraisal Journal* (January), pp. 28-41.

DETR (2000) *Our towns and cities: the future*, HMSO, London.

HM Treasury (1997) *Appraisal and Evaluation in Central Government* (The Green Book), HM Treasury.

Hargitay S.E. and Yu S. (1993*) Property Investment Decisions: A Quantitative Approach*, E. & F.N. Spon, London.

Healey P., Davardi S., O'Toole M., Tavsanoglu S. and Usher D. (1992) *Rebuilding the City: Property-led Urban Regeneration*, E. & F.N. Spon, London.

Hutchison N. and Nanthakumaran N. (2000) The calculation of investment worth: issues of market efficiency, variable estimation and risk analysis. *Journal of Property Investment and Finance*, 18, 1, pp. 33-51.

Investment Property Forum/IPD (2000) *The Assessment and Management of Risk in the Property Investment Industry*, Investment Property Forum/Investment Property Databank, London.

Jones, C (1996) Urban regeneration, property development and the land market, *Environment and Planning C: Government and Policy,* 14, pp. 269-279.

Kennedy, P.J. (1998) *Investment valuation of contaminated land and UK practice: a study with special reference to former gas works*, PhD thesis, The Nottingham Trent University.

Key, T., MacGregor, B.D., Nanthakumran, N. and Zarkesh, N. (1994) *Understanding the Property Cycle* , RICS, London.

Mallinson M. and French N. (2000) Uncertainty in property valuation: the nature and relevance of uncertainty and how it might be measured, *Journal of Property Investment and Finance,* 18, 1, pp. 13-32.

McNamara P. (1993) Parameters for institutional investment in inner city commercial property markets in J. Berry, S. McGreal and B. Deddis (eds) *Urban Regeneration Property Investment and Development,* E.&F.N. Spon, pp. 5-15.

Munneke H.J. (1996) Redevelopment decisions for commercial and industrial properties*, Journal of Urban Economics*, 39, pp. 229 – 253.

Richards T. (1995/2) *A changing landscape: the valuation of contaminated land and property,* Research Report, The College of Estate Management, Reading.

Richards T. (1997/1) *Is it worth the risk? The impact of environmental risk on property investment valuation,* Research Report, The College of Estate Management, Reading.

RICS (1997) *Appraisal and Valuation Manual*, Royal Institution of Chartered Surveyors, Incorporated Society of Valuers and Auctioneers and Institute of Revenues Rating and Valuation, London.

Samworth M. and Lacey C. (1998) Remove guesswork from spec work, *Estates Gazette*, Issue 9842, pp. 160-161.

Sawyers R.D. (1987) The valuation of landfill sites, *Journal of Valuation*, 6, pp. 119-126.

Syms P. (1996) Perceptions of risk in the valuation of contaminated land, *Journal of Property Valuation and Investment*, 15, 1, pp. 27-39.

Syms P.M. (1997) *Contaminated Land: The Practice and Economics of Redevelopment*, Blackwell Science Limited, Oxford.

The Parliamentary Office for Science and Technology (POST) (1998) *A Brown and Pleasant Land, Household Growth and Brownfield Sites,* Report 117, POST, London.

Wheaton W. (1982) Urban residential growth under perfect foresight, *Journal of Urban Economics,* 12, pp. 1-21.

Wiltshaw D.G. (1998) Stigma, perception and the remediation of contaminated land, *Journal of Property Research,* 15**,** 4, pp. 285-303.

Wyatt P. (2000) An investigation into the nature of the valuation service offered to business occupiers, RICS Cutting Edge Conference 2000, RICS, London.

APPENDIX 1.

The following were the assumptions used in the valuation of the site;

1. Planning permission will be obtained for a retail warehouse of 600 m^2 net.

2. The warehouse will be let to a good covenant for 15 years on FRI terms with upward only rent reviews every 5 years.

3. The current estimate of rental value is £167.5 per m$^2.$

4. It is believed that a fully let investment of this type would attract investors willing to accept an initial yield of 6.75%.

5. Building costs are estimated at £405 per m^2, with a contingency allowance of 2.5%. Professional fees are taken to be 8.75%.

6. Site purchase costs are estimated at 6%, letting fees at 15% and sale fees at 2%.

7. It is expected to take 9 months to complete the construction of the property.

8. The letting of the property and the completion of the investment sale will take place immediately on completion of the construction work.

9. It is thought possible to borrow money to finance the site purchase and building costs at an effective rate of 7.50%.

10. The developer is prepared to accept a profit margin based on 12% of the gross development value.