

Site Specific Flood Risk Assessment

Existing Residential Accommodation at Highfield Court / Highfield Mews, Highfield Park, Dundrum, Dublin 14

Prepared By:

Pat O'Sullivan B.Sc. (Hons), M.Sc., MAIG
Hydrologist, CORE Ltd.



Google Earth snapshot of site with respect to the lower flood plain north of Saint Columbanus' Road

Prepared in accordance with the Planning System and Flood Risk Management Guidelines for Planning Authorities (2009).

Contents

About the Author

Executive Summary

1.0 Introduction, Site Description and Planning Context

- 1.1 Purpose of the Assessment
- 1.2 Site Location and Description
- 1.3 Flood-Risk Planning Context
- 1.4 Basis of the Site-Specific Assessment
- 1.5 Scope and Approach

2.0 Flood Mapping, Topography and Local Hydraulic Behaviour

- 2.1 Adopted Development Plan Flood Mapping
- 2.2 Detailed Dodder Catchment Flood Mapping
- 2.3 Site Topography and Architect's North–South Section
- 2.4 Surveyed Levels and the Slang River Corridor
- 2.5 Available Hydraulic Model Information
- 2.6 Evidence from the Nearby Assessment at 1 Dundrum Road
- 2.7 Local Flood Behaviour and the Subject Building
- 2.8 Findings of the Mapping and Topographical Assessment

3.0 Site-Specific Flood Risk and Planning Assessment

- 3.1 Flood Risk to the Existing Residential Accommodation
- 3.2 Flood Conveyance, Storage and Residual Risk
- 3.3 Access, Egress and Flood-Risk Mitigation
- 3.4 Planning Assessment

4.0 Conclusions and Recommendations

- 4.1 Conclusions
- 4.2 Recommendations

References

About the Author

Pat O'Sullivan, B.Sc. (Geology), M.Sc. (Hydrology), MAIG.

Pat O'Sullivan is a geoscience professional with qualifications in science and geology and a distinction for his surface and groundwater modelling thesis from Cardiff University.

This Site-Specific Flood Risk Assessment has been prepared by Pat O'Sullivan of CORE Ltd in support of the planning application concerning the retention of existing residential accommodation at Highfield Court / Highfield Mews, Highfield Park, Dundrum, Dublin 14.

The assessment examines the available flood-risk mapping, published hydraulic information, local topographical and level data, and relevant planning documentation for the site and adjoining lands. Particular attention is given to the relationship between the existing building, the Slang River corridor, and the variation in ground levels and mapped flood extents across the surrounding area.

The assessment distinguishes between established survey and modelling information, site observations, and interpretations requiring further verification. Its purpose is to provide a proportionate, site-specific evaluation of flood risk to inform the planning authority's consideration of the existing development.

Executive Summary

This Site-Specific Flood Risk Assessment (SSFRA) has been prepared by CORE Ltd in support of the retention of existing residential accommodation at Highfield Court / Highfield Mews, Highfield Park, Dundrum, Dublin 14.

The subject property is situated close to the Slang River, within an established residential area. The Dún Laoghaire-Rathdown County Development Plan 2022–2028 Strategic Flood Risk Assessment identifies the location within an area affected by fluvial flood risk. The adopted Development Plan flood map shows the subject building within Flood Zone B, representing land with a moderate probability of river flooding, between the 1% and 0.1% Annual Exceedance Probability (AEP) flood events.

The Development Plan Strategic Flood Risk Assessment also identifies flooding in the vicinity of Highfield Park and west of St Columbanus Road. This confirms the importance of considering the wider Slang River floodplain but does not, by itself, establish that flood depths and exposure are uniform across the area.

Local flood mapping and topographical evidence

The available flood mapping indicates a significant variation in flood probability across the immediate locality. In particular, the more detailed Dodder Catchment flood mapping differentiates between the 1% AEP flood extent affecting lower-lying adjoining lands and the wider 0.1% AEP extent in the vicinity of Highfield Court.

This distinction is consistent with the local topography illustrated by the architect's north–south site section and revised site-level plan, which indicate a relative rise in ground levels in the vicinity of Highfield Park and the subject accommodation compared with parts of the surrounding area.

The relationship between the Slang River channel, adjacent lower ground, local road levels and the subject building is therefore material to the assessment. The mapped flood extents suggest that floodwater may occupy lower-lying parts of the river corridor and adjoining lands before extending into locally higher areas during more extreme events. The precise floodwater route, depth and timing at the subject building cannot, however, be established from the flood maps and topographical section alone.

Site-specific assessment

The adopted Flood Zone B designation is acknowledged and is not disputed merely on the basis of the site's relative elevation. Rather, this assessment examines whether the strategic designation adequately represents the degree of flood exposure at the existing building, having regard to the available local evidence.

The assessment considers:

- The adopted Development Plan Flood Zones A and B mapping and the relevant provisions of its Strategic Flood Risk Assessment.
- The more detailed Dodder Catchment fluvial flood mapping, including the 1% and 0.1% AEP extents.
- The architect's north–south section and revised site plan showing local ground levels.

- Available topographical survey information and published hydraulic model water levels for the Slang River.
- The findings of a nearby site-specific flood assessment at 1 Dundrum Road and the associated planning authority drainage assessment.
- Residual flood risk, safe access and egress, and appropriate mitigation for the continued residential use.

The assessment of 1 Dundrum Road demonstrates that a more detailed examination of local ground and flood levels can materially refine the interpretation of strategic flood mapping. That finding provides a relevant methodological precedent, although its conclusions and flood levels cannot be transferred directly to the subject property.

Planning considerations

The application concerns the retention of existing residential accommodation rather than the construction of a new building within the floodplain. Subject to confirmation that no material changes to ground levels, building footprint or floodplain storage are proposed, the retention of the existing accommodation would not itself introduce additional physical obstruction to floodwater conveyance or displace flood storage.

Nevertheless, residential accommodation is classified as a highly vulnerable use for flood-risk planning purposes. The site's Flood Zone B designation therefore remains a material planning consideration, requiring a clear site-specific assessment and appropriate consideration of the relevant planning policy requirements.

Overall conclusion

The available evidence supports the conclusion that flood risk in the vicinity of Highfield Court is spatially variable and that the subject building occupies a locally distinct position relative to the lower-lying Slang River corridor and adjoining lands.

The adopted Flood Zone B classification should therefore be considered alongside the detailed flood mapping, measured ground levels and site-specific building information when assessing the actual risk associated with retaining the existing residential accommodation.

In my professional opinion, the available evidence demonstrates that flood risk within the mapped area is not uniform and that the subject building warrants a site-specific assessment reflecting its actual topographical setting. The detailed flood mapping places the subject building within the 0.1% AEP flood extent, rather than the more extensive areas affected by the 1% AEP event. My assessment of the relative ground and building levels observed on site, cross-referenced with the available surveyed levels along the Slang River and its banks, indicates that the building occupies a locally elevated position and that its finished floor level provides a degree of clearance above the surrounding lower-lying ground. This supports my professional conclusion that the risk of internal flooding is materially lower than might be inferred from the wider strategic flood-zone designation alone.

I am also of the professional opinion that the site's connection to the higher ground along Dundrum Road provides a favourable route for access and egress during a flood event, subject to appropriate flood-response arrangements and confirmation that the route remains passable under the relevant design flood

conditions. Taking account of the existing nature of the accommodation, the local topography, the differentiated flood extents and proportionate mitigation measures, I consider that the site-specific evidence provides a sound technical basis for the planning authority to assess the retention proposal on its individual circumstances.

1.0 Introduction, Site Description and Planning Context

1.1 Purpose of the Assessment

This Site-Specific Flood Risk Assessment (SSFRA) has been prepared by CORE Ltd in support of an application for the retention of existing residential accommodation at Highfield Court / Highfield Mews, Highfield Park, Dundrum, Dublin 14.

The purpose of the assessment is to examine the flood risk affecting the subject accommodation in the context of its particular location, the surrounding topography, the Slang River floodplain and the available flood-risk mapping and hydraulic information.

The assessment has been undertaken in response to the flood-risk planning concerns associated with the property's location within the area identified as Flood Zone B in the Dún Laoghaire-Rathdown County Development Plan 2022–2028.

The central issue addressed is whether the strategic flood-zone designation, when applied to the wider locality, adequately represents the degree of flood exposure at the existing building. Particular attention is given to the relationship between the subject building, the surrounding ground levels, the river channel and the mapped flood extents.

1.2 Site Location and Description

The subject property is located within the established residential development at Highfield Court, adjoining Highfield Park and Dundrum Road, Dundrum, Dublin 14.

The Slang River flows through the locality in a relatively confined channel, with adjacent areas of lower ground forming part of the wider river corridor and floodplain. The river passes beneath the road network in the vicinity of Highfield Park and St Columbanus Road.

The subject accommodation is situated within an existing developed area, where building levels, road levels, boundary features and the natural river valley give rise to local variations in ground elevation.

The architect's north–south section and revised site plan illustrate the relationship between the subject building and adjoining lands. These drawings indicate that the building occupies a relatively elevated position compared with parts of the surrounding area, an observation that is material to the assessment of potential flood exposure.

The existing physical development, rather than any proposed new construction, is the subject of this retention application. The assessment accordingly considers both the vulnerability of the established residential use and the extent to which retention would affect floodplain storage or the conveyance of floodwater.

1.3 Flood-Risk Planning Context

The Dún Laoghaire-Rathdown County Development Plan 2022–2028 includes a Strategic Flood Risk Assessment (SFRA) identifying areas potentially affected by fluvial and coastal flooding.

For fluvial flooding, the principal flood-zone classifications are:

- Flood Zone A: Land with a probability of river flooding greater than 1% in any year.
- Flood Zone B: Land with a probability of river flooding between 0.1% and 1% in any year.
- Flood Zone C: Land with a probability of river flooding below 0.1% in any year.

The adopted Development Plan mapping places the subject building within Flood Zone B. This designation is acknowledged as the starting point for the present assessment.



Figure 1: Site Location and Adopted Development Plan Flood Zones.

The Development Plan SFRA also identifies the wider area around Highfield Park and St Columbanus Road as an area of flood-risk concern. It records:

“Further to the north (29), flooding is indicated in the rear gardens of properties along Dundrum Road and to a neighbourhood centre between, but not limited to, Highfield Park and west of St. Columbanus Road (30), lands to the east of Patrick Doyle Road and Milltown Grove. Development in this area shall be limited to Minor Development as defined in Section 5.2.1.”

This description is consistent with the presence of a wider floodplain associated with the Slang River. It is also relevant that the mapped flood extents do not affect all adjoining properties and ground surfaces to the same degree.

Residential accommodation is classified as a highly vulnerable use in flood-risk planning guidance. Accordingly, the location of the property within Flood Zone B is a material planning consideration, and the applicable Development Plan provisions must be addressed.

1.4 Basis of the Site-Specific Assessment

The present assessment draws upon the adopted Development Plan flood-zone mapping, the more detailed Dodder Catchment flood mapping, available Slang River hydraulic model data, local topographical survey information, the architect's site drawings and observations made during site inspection.

The detailed Dodder Catchment mapping distinguishes between the areas affected by the 1% AEP flood event and the wider extent of the 0.1% AEP event. In the vicinity of Highfield Court, this distinction is particularly important because the mapped flood probability changes over relatively short distances. The architect's section and site-level plan provide further evidence of local differences in ground elevation. Considered together, these sources permit a more informed assessment of the subject building's relative position within the wider flood-risk area.

The assessment also considers the findings of the March 2024 site-specific flood-risk assessment for the nearby property at 1 Dundrum Road and the subsequent drainage assessment by the planning authority. These documents illustrate the relevance of detailed local levels and hydraulic interpretation when assessing individual properties within a wider strategic flood-risk area. Their findings are considered as supporting local context rather than as a direct determination of flood levels at the subject building.

1.5 Scope and Approach

The assessment proceeds by:

1. Comparing the adopted Development Plan flood-zone map with the more detailed 1% and 0.1% AEP flood extents.
2. Examining the local topography using the architect's north–south section, revised site plan and available surveyed levels.
3. Considering the hydraulic relationship between the Slang River, its adjoining floodplain and the subject building.
4. Assessing the implications for internal flooding, access and egress, and residual flood risk.
5. Identifying appropriate mitigation and flood-response measures for the continued residential use.

The assessment does not assume that a strategic Flood Zone B designation automatically implies a uniform flood depth or hazard across every part of the mapped area. Equally, local elevation alone is not treated as sufficient to remove the subject building from that designation.

The objective is to establish a proportionate and technically grounded assessment of the actual flood exposure associated with the existing accommodation, having regard to the available evidence and the requirements of the planning framework.

2.0 Flood Mapping, Topography and Local Hydraulic Behaviour

2.1 Adopted Development Plan Flood Mapping

The Dún Laoghaire-Rathdown County Development Plan 2022–2028 Strategic Flood Risk Assessment (SFRA) identifies the subject property at Highfield Court / Highfield Mews within Flood Zone B, representing land with a probability of fluvial flooding between 1% and 0.1% Annual Exceedance Probability (AEP).

The Development Plan flood-zone map shows Flood Zones A and B extending along the Slang River corridor, including parts of Highfield Court, Highfield Park and The Grove. The extent of the mapped floodplain reflects the river's relationship with the adjoining developed lands and the local valley topography.

The subject building, identified on Figure 1, is located towards the northern part of the Highfield Court development. It lies within the mapped Flood Zone B area, while more extensive Flood Zone A coverage is shown over lower-lying land associated with the river corridor, particularly to the south.

The Development Plan SFRA separately identifies flooding in the vicinity of Highfield Park and west of St Columbanus Road as a matter of planning concern. This reinforces the need for an assessment of fluvial flood risk but does not establish that all land within the designated area has the same ground elevation, potential flood depth or exposure.

The adopted Flood Zone B designation is accepted as the strategic planning classification of the subject building. The purpose of the following assessment is to examine the degree of risk associated with its particular position within that zone.

2.2 Detailed Dodder Catchment Flood Mapping

The Dodder Catchment flood mapping for the Dundrum Slang River, Drawing DSS/EXT/UA/CURS/105, dated 26 November 2010, provides a more differentiated representation of the fluvial flood extents than the generalised Development Plan flood-zone presentation.

The drawing identifies the areas associated with the 10%, 1% and 0.1% AEP flood events. The mapped extents indicate that flood probability varies over relatively short distances in the vicinity of Highfield Court.

In particular, the lower-lying lands adjoining the Slang River are shown as being affected by the more frequent 1% AEP event, while the subject building lies in the vicinity of the wider 0.1% AEP flood extent.

This distinction is material. The subject building's inclusion within the 0.1% AEP extent does not mean that it is subject to the same probability of inundation as nearby land within the 1% AEP extent. Rather, the mapping indicates a transition from higher-probability flooding in the lower parts of the river corridor to lower-probability flooding on adjoining higher ground.

The mapping is therefore consistent with the interpretation that the subject building occupies a relatively favourable topographical position within the wider flood-risk area.

The drawing also includes classifications expressing confidence in the delineation of the 1% AEP flood boundary. These classifications relate to the reliability of the mapped boundary and must not be confused with the probability of flooding itself.

The 2010 mapping is not more recent than the adopted Development Plan SFRA. Its particular value for this assessment lies in the greater differentiation of the individual AEP flood extents and their relationship with local ground features.

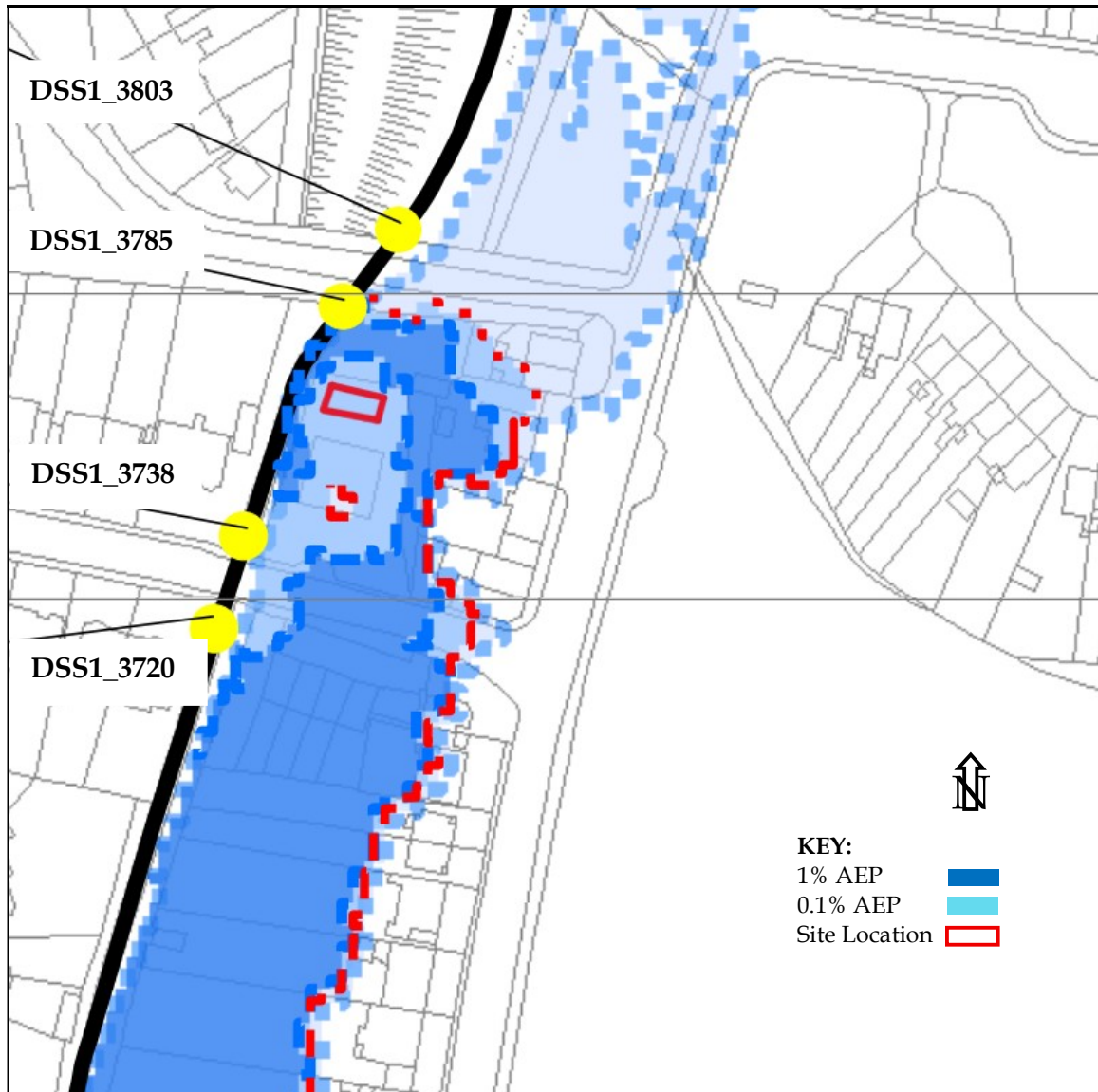


Figure 2: Dodder Catchment Fluvial Flood Extents - 1% and 0.1% AEP

2.3 Site Topography and Architect's North-South Section

The architect's revised site plan and north-south section provide important additional information concerning the relative elevation of the subject building and the adjoining lands.

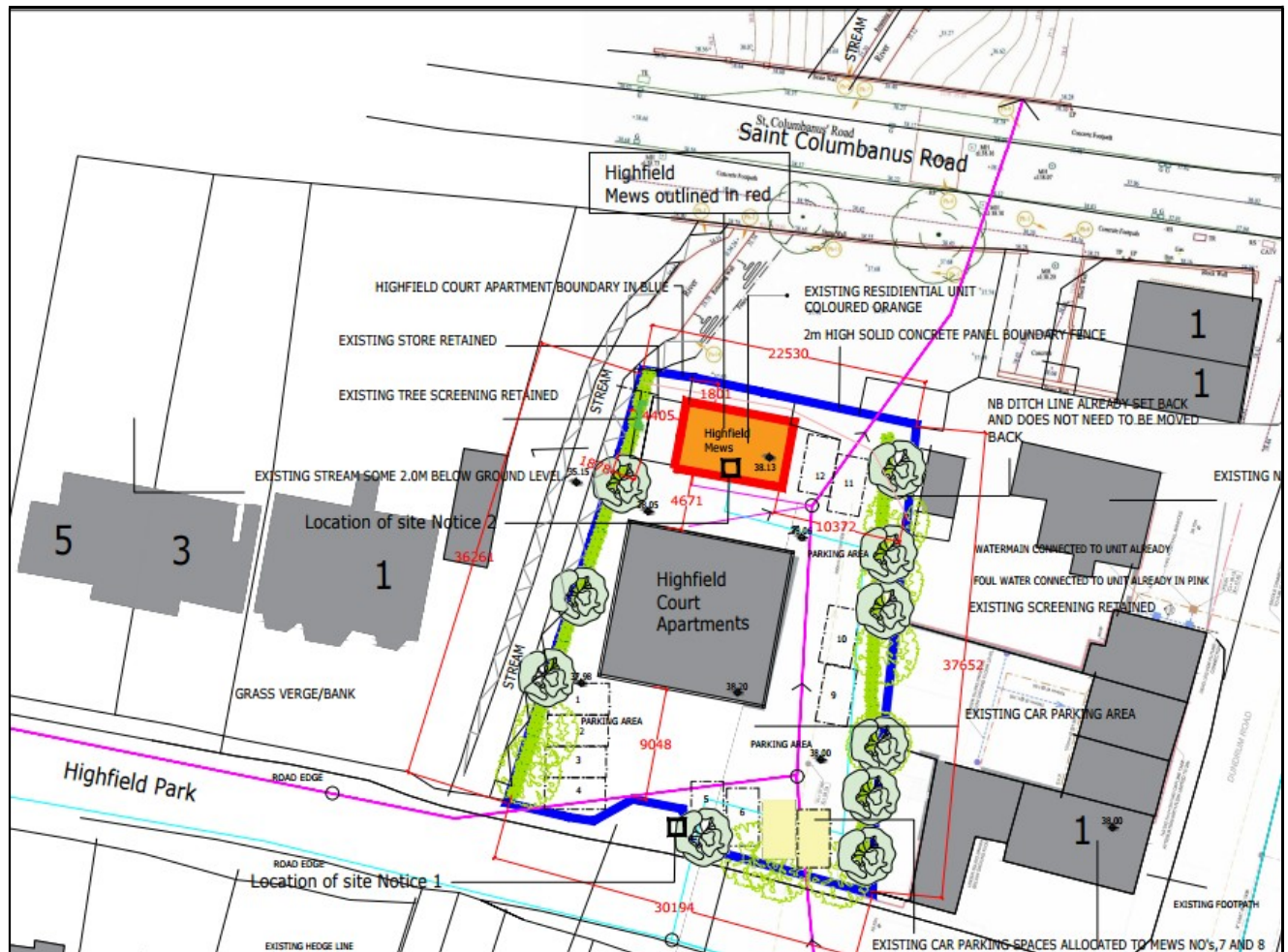


Figure 3: Architect's revised site plan showing ground levels

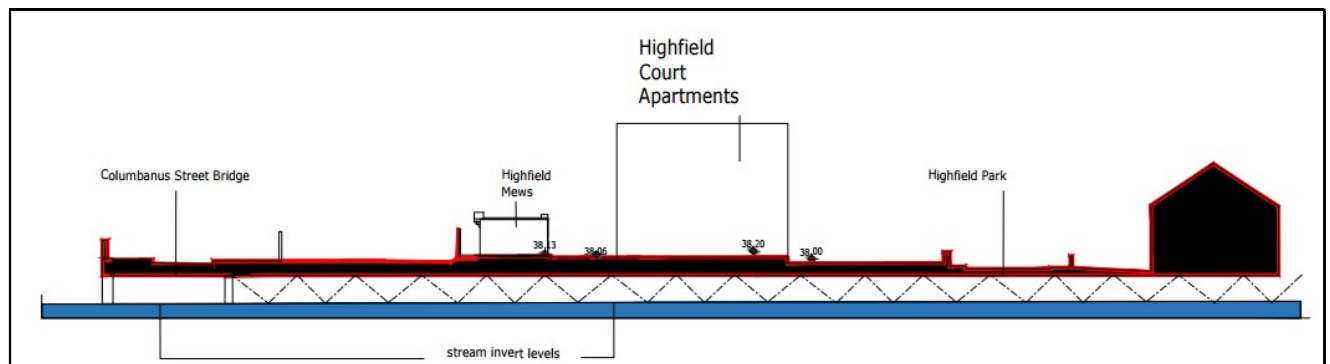


Figure 4: North-south section with juxtaposed stream levels on day of survey

The section illustrates the local variation in ground level across the site and its surroundings, with the Highfield Park / Highfield Mews area occupying a relative rise compared with parts of the adjoining lower ground.

This pattern is consistent with the detailed flood mapping, which shows the more frequent flood extents concentrated within lower-lying portions of the Slang River corridor and adjoining developed lands. The revised site plan further assists in relating the building, surrounding external ground and access arrangements to the levels indicated on the architect's section.

In my professional opinion, the agreement between the mapped differentiation in flood probability and the observed variation in local topography is significant. It provides a coherent physical explanation for why the subject building may experience a lower degree of flood exposure than other properties or external areas falling within the wider strategic flood-risk designation.

The architect's section is particularly useful in illustrating the relative ground profile. It should, however, be read in conjunction with the available topographical survey and hydraulic information when assessing floodwater levels. Relative changes in ground elevation do not, of themselves, establish the absolute level of a design flood.

2.4 Surveyed Levels and the Slang River Corridor

Available topographical survey information from the vicinity of 1 Dundrum Road and St Columbanus Road provides further context for the elevation of the developed lands relative to the Slang River.

The survey records a finished floor level of approximately **38.45 mOD** at 1 Dundrum Road and a nearby manhole cover level of approximately **38.20 mOD**. The surveyed river invert downstream of the St Columbanus Road bridge is approximately **32.95 mOD**, with an observed water level of approximately **33.05 mOD** at the time of survey.

These measurements demonstrate the appreciable vertical separation between the ordinary river channel and the adjoining developed ground. They also show that the surrounding area contains substantial local changes in elevation.

The observed river water level represents conditions at the time of survey and is not a design flood level. Similarly, the surveyed finished floor level at 1 Dundrum Road is a measurement for that property and cannot be adopted as the finished floor level of Highfield Mews.

The architect's site levels and the available survey data are nevertheless useful when considered together, provided that their reference points and vertical datums are correctly aligned.

The topographical evidence supports the view that the subject building is not situated at the lowest level of the adjoining floodplain. Instead, it occupies a relatively elevated position within a locally varied landscape.

2.5 Available Hydraulic Model Information

The Dodder Catchment hydraulic model includes water-level estimates for a series of nodes along the Slang River for the 10%, 1% and 0.1% AEP events.

The model indicates that floodwater levels vary along the river, reflecting changes in channel gradient, hydraulic structures, local geometry and the effects of floodplain interaction.

Of particular relevance are the model nodes associated with the Highfield Park and St Columbanus Road crossings. The published 0.1% AEP water levels include approximately 38.09 mOD at node DSS1-3738, associated with the Highfield Park bridge, and 37.85 mOD at node DSS1-3785, associated with the St Columbanus Road bridge.

Water Level (mOD) per AEP			
<i>Node Label</i>	<i>WL 10%</i>	<i>WL 1%</i>	<i>WL 0.1%</i>
<i>DSS1_3803</i>	34.75	35.50	35.84
<i>DSS1_3785</i>	35.24	36.25	37.85
<i>DSS1_3738</i>	36.71	37.22	38.09
<i>DSS1_3720</i>	36.88	37.41	38.19

Figure 5: Slang River Hydraulic Model Nodes and Published Design Flood Levels (See Figure 2 for locations on river close to site)

These figures provide useful hydraulic context. They must not, however, be treated as directly measured flood levels at the subject building. The application of any particular model-node level to the property requires consideration of the node's position, the river gradient, possible backwater effects and the hydraulic connection between the channel and the site.

The available model data confirm the importance of assessing floodwater levels locally rather than assuming that a single water level applies uniformly throughout the mapped floodplain.

2.6 Evidence from the Nearby Assessment at 1 Dundrum Road

A Site-Specific Flood Risk Assessment prepared in March 2024 for the nearby property at 1 Dundrum Road examined the local flood mapping, topography and hydraulic information in detail.

That assessment identified a local 0.1% AEP flood level of approximately 38.30 mOD for the property under consideration and compared it with a surveyed finished floor level of 38.45 mOD.

The subsequent Dún Laoghaire-Rathdown County Council Drainage Planning assessment, dated 17 April 2024, accepted the relevance of the more detailed site-specific analysis and treated the existing building at 1 Dundrum Road as being within Flood Zone C on the basis of that assessment, notwithstanding the wider strategic flood mapping.

This is a relevant local precedent for the method of assessment. It demonstrates that the planning authority has considered detailed topographical and hydraulic evidence when determining the actual flood exposure of an individual building.

It does not establish that Highfield Mews has the same finished floor level, design flood level or flood-zone classification. Those matters must be assessed independently for the subject building.

Nevertheless, the nearby assessment supports the principle that strategic flood mapping can be supplemented by detailed site-specific evidence where local ground conditions warrant closer examination.

2.7 Local Flood Behaviour and the Subject Building

The combined mapping, topographical and hydraulic evidence indicates that the Slang River floodplain in this locality is not a level surface.

The river occupies a lower channel, while adjoining ground rises and falls across relatively short distances. During an out-of-bank flood event, the extent and depth of inundation will depend upon the relationship between the floodwater surface and the elevations of the adjoining ground.

The detailed flood mapping is consistent with floodwater extending over lower-lying land within the river corridor during the 1% AEP event, with the wider 0.1% AEP event affecting additional adjoining areas. The architect's north–south section provides a corresponding topographical explanation for the relative position of the subject building.

In my professional opinion, this convergence of evidence supports the conclusion that the subject building has a materially different flood-risk profile from the lower-lying areas within the more frequent flood extent.

The adjoining lower ground may provide routes for the movement and temporary storage of out-of-bank floodwater. However, the direction, depth, velocity and timing of such flows cannot be established solely from the flood-extent mapping and the architect's section. These characteristics would require a more detailed hydraulic assessment.

The principal finding is that the subject building should not be assumed to experience the same flood hazard as the lower-lying parts of the wider mapped area simply because both are situated within or near the strategic floodplain.

2.8 Findings of the Mapping and Topographical Assessment

The available evidence supports the following findings:

1. The subject building is identified within Flood Zone B on the adopted Development Plan mapping.
2. The detailed Dodder Catchment mapping differentiates the wider 0.1% AEP flood extent from the more frequent 1% AEP flooding affecting lower-lying adjoining lands.
3. The architect's north–south section and revised site plan indicate that the Highfield Park / Highfield Mews area occupies a relative rise within the surrounding topography.
4. Available surveyed levels and hydraulic model information confirm substantial local variation in ground and floodwater levels along the Slang River corridor.
5. The nearby assessment at 1 Dundrum Road demonstrates the value of building-specific topographical and hydraulic analysis in interpreting strategic flood mapping.
6. Taken together, the evidence supports a professional assessment that flood exposure at the existing Highfield Mews building is likely to be lower than that affecting the adjoining lower-lying floodplain.

These findings provide the technical basis for the assessment of building vulnerability, finished floor clearance, access and egress, residual flood risk and mitigation in Section 3.

3.0 Site-Specific Flood Risk and Planning Assessment

3.1 Flood Risk to the Existing Residential Accommodation

The adopted Dún Laoghaire-Rathdown County Development Plan 2022–2028 flood mapping places the existing Highfield Mews accommodation within Flood Zone B. This classification is acknowledged as a material planning consideration, particularly as residential accommodation is categorised as a highly vulnerable use under national flood-risk planning guidance.

The site-specific evidence examined in Section 2, however, indicates that the probability and potential severity of flooding vary considerably across the locality. The detailed Dodder Catchment mapping distinguishes the more frequent 1% Annual Exceedance Probability (AEP) flood extent affecting lower-lying parts of the Slang River corridor from the wider 0.1% AEP extent associated with more extreme flooding.

The architect's revised site plan and north–south section provide a corresponding topographical context. They indicate that the existing accommodation is situated on a relative rise in ground level, compared with parts of the adjoining river corridor and surrounding lands.

In my professional opinion, the agreement between these independent sources is significant. It indicates that the building's exposure to fluvial flooding is likely to be materially lower than that affecting the adjoining lower-lying areas, notwithstanding their inclusion within the same wider flood-risk locality.

Site observations further support this interpretation. The Slang River occupies a visibly incised channel, with adjoining ground rising towards the developed site. The photographs of the channel and banks provide useful qualitative confirmation of the local landform, although the ordinary water level and apparent bank height cannot be used as substitutes for modelled design flood levels.

The available hydraulic model data also indicate variation in design floodwater levels along the river. The published 0.1% AEP water levels at the Highfield Park and St Columbanus Road bridge nodes provide relevant context, but the water level applicable to the subject building cannot be established by adopting either node value without considering its precise location and hydraulic connectivity.



Figure 7: Existing Highfield Mews accommodation

The principal site-specific consideration is therefore the relationship between the potential floodwater surface and the existing building's floor and entrance threshold levels.

Based on the relative levels observed on site and their relationship with the surrounding topography, I consider that the building occupies a comparatively favourable position within the mapped flood-risk area. The evidence supports a professional judgement of reduced flood exposure relative to the adjoining lower ground. The existing finished floor is approximately 200 mm above the immediately adjoining external ground level. This raised threshold provides an additional degree of protection against shallow inundation of the surrounding ground and is a favourable characteristic when assessing the potential for internal flooding.

Although the building is situated within a mapped flood extent, an elevated finished floor can reduce the likelihood of internal inundation.

3.2 Flood Conveyance, Storage and Residual Risk

The detailed flood mapping and local topography indicate that the Slang River corridor and adjoining lower-lying lands provide the principal areas affected by the more frequent fluvial flood events.

The incised river channel and adjacent lower ground may provide preferential routes for the conveyance and temporary storage of out-of-bank floodwater. This interpretation is consistent with the spatial variation in mapped flood extents and the ground-level relationships illustrated by the architect's section.



Figure 8: Slang River channel and exposed bank

The precise direction, velocity and timing of floodwater movement have not been established by the available evidence. Accordingly, the assessment does not assume that the river channel will contain all

flood flows or that the lower adjoining lands will necessarily flood before the subject building in every event.

The retention application concerns an existing building. Provided that the proposal involves no increase in building footprint, raising of external ground levels, or construction of additional barriers within potential flood-flow routes, retention would not itself introduce new physical displacement of floodwater or additional obstruction to floodplain conveyance.

This does not eliminate residual flood risk. The principal matters requiring consideration are:

- Potential shallow flooding of external ground during an extreme fluvial event.
- Possible entry of floodwater through low-level doors, openings or service penetrations if local water levels rise sufficiently.
- Localised surface-water accumulation during intense rainfall, particularly where drainage is restricted by buildings or boundary walls.
- Temporary loss of safe pedestrian or vehicular access where lower sections of the surrounding road network become inundated.
- Blockage of bridges or culverts, local backwater effects, and changes in channel conditions during exceptional events.

The existing boundary walls, fences, paved areas and drainage arrangements should be maintained so that they do not unintentionally trap surface water against the building or obstruct an existing drainage route.

The site photographs showing the building perimeter, drainage channels and narrow rear passage are relevant to this assessment and should be retained as supporting evidence.

3.3 Access, Egress and Flood-Risk Mitigation

The subject accommodation benefits from its position within an established residential development with access towards Highfield Park and Dundrum Road.

The adjoining road network rises towards parts of both Highfield Park and Dundrum Road, providing a potentially favourable direction for access and egress away from the lower Slang River corridor.

In my professional opinion, this topographical relationship is an advantage when considering the management of residual flood risk. However, the existence of higher ground at the destination does not, by itself, establish that the entire route would remain safe during the 1% or 0.1% AEP flood event.

The lowest points along the proposed route, including any sections adjoining the river crossings, must be considered when determining whether safe access and egress can be relied upon during flooding.



Figure 9: Entrance threshold and external drainage

For the continued occupation of the existing accommodation, the following proportionate measures are recommended:

1. **Flood awareness and response:** Occupants should be informed of the property's mapped flood-risk status and provided with a simple flood-response procedure, including relevant flood warnings and arrangements for leaving the property in advance of an anticipated severe event.
2. **Access and egress:** A preferred route towards higher ground on Dundrum Road should be identified. The route should be checked against available flood-extent and depth information, with particular attention to its lowest sections. Occupants should not be advised to enter or cross floodwater.

3. **Threshold and drainage protection:** Existing external drains, gullies and linear drainage channels should be inspected and maintained. Door thresholds, service penetrations and other potential water-entry points should be reviewed, with appropriate property-level protection considered where necessary.
4. **Protection of services:** Electrical installations, heating controls and other vulnerable services should, where practicable, be protected against potential low-level flooding.
5. **Maintenance of flood pathways:** No additional filling, solid barriers or alterations to external ground levels should be undertaken where these could increase flood risk to the subject building or adjoining properties.
6. **Inspection following significant events:** External drainage, boundary structures and nearby riverbank conditions should be inspected following major flood events, particularly where blockage, erosion or damage is evident.

These measures are appropriate to the existing nature and scale of the development. They are intended to manage residual risk and improve resilience; they should not be regarded as a substitute for demonstrating an acceptable level of flood risk under the relevant planning policy.

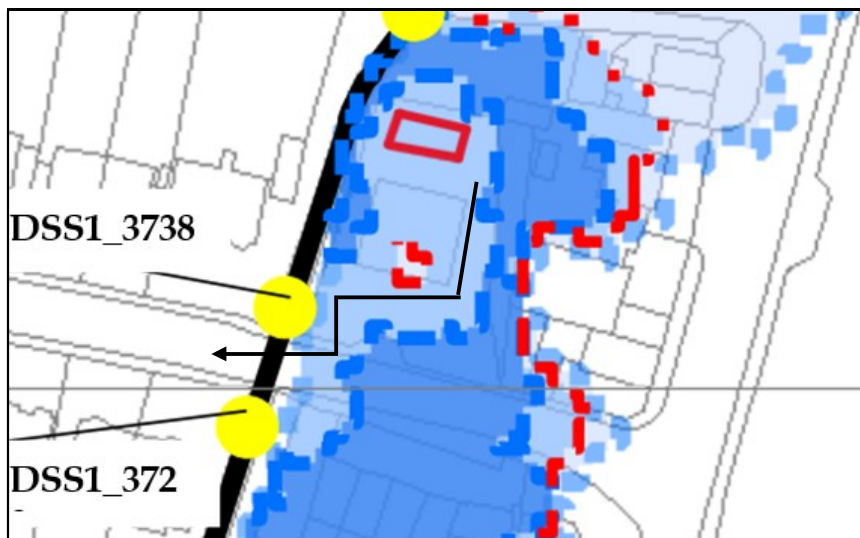


Figure 10: Extract from the detailed 0.1% AEP flood mapping showing the subject building and the adjoining Highfield Park access route.

3.4 Planning Assessment

The planning authority's consideration of the retention application must begin with the adopted Development Plan flood mapping and the provisions of the Strategic Flood Risk Assessment.

The subject building is mapped within Flood Zone B, while residential accommodation is a highly vulnerable use. The relevant flood-risk planning restrictions, including the Development Plan's provisions for development within identified flood-risk areas therefore require explicit consideration.

The fact that the accommodation already exists does not, of itself, remove the flood-risk planning constraints. It is nevertheless relevant to the assessment that the application concerns the retention of an existing building rather than the introduction of a new structure or additional physical encroachment into the floodplain.

The local assessment undertaken for 1 Dundrum Road in 2024 provides an important methodological precedent. It demonstrates that the planning authority has considered detailed site-specific topographical and hydraulic evidence when assessing an individual building within a wider area of strategic flood-risk concern.

The conclusions reached for that neighbouring property cannot be transferred directly to Highfield Mews. However, the underlying principle is applicable: strategic mapping provides the starting point for flood-risk assessment, while reliable local evidence may assist in determining the actual degree of exposure at a particular building.

In this case, the detailed flood mapping, architect's section, revised site levels, available hydraulic information and site observations provide a consistent indication that the subject accommodation occupies a locally elevated position relative to the more frequently inundated parts of the Slang River floodplain.

It is my professional opinion that the subject building has a materially more favourable flood-risk setting than the lower-lying adjoining lands, and that this distinction should be given substantial weight in the assessment of the retention application.

The mapped Flood Zone B designation is not disregarded. Rather, the available evidence supports a building-specific evaluation of potential internal flooding, residual risk and the practicality of proportionate mitigation.

The retention proposal should therefore be considered on its individual circumstances, including the existing nature of the accommodation, the absence of proposed additional floodplain encroachment, the local variation in flood probability and ground levels, and the measures available to manage residual risk.

Subject to satisfactory consideration of the applicable planning-policy requirements and the safety of occupants, I consider that the site-specific evidence provides a sound technical basis for the planning authority to assess the continued residential use without assuming that the building experiences the same flood hazard as the surrounding lower-lying floodplain.

4.0 Conclusions and Recommendations

4.1 Conclusions

This Site-Specific Flood Risk Assessment has examined the existing residential accommodation at Highfield Court / Highfield Mews, Highfield Park, Dundrum, with particular reference to the Slang River, the adopted Development Plan flood mapping, detailed Dodder Catchment flood extents, local topography and available hydraulic information.

The adopted Dún Laoghaire-Rathdown County Development Plan 2022–2028 identifies the subject building within Flood Zone B. This designation is acknowledged and remains relevant to the planning assessment of residential accommodation, which is classified as a highly vulnerable use.

However, the evidence presented in this report demonstrates that the floodplain in the vicinity of Highfield Park is not uniform in either elevation or flood exposure.

The detailed Dodder Catchment mapping distinguishes between the more frequent 1% Annual Exceedance Probability (AEP) flood extent affecting lower-lying parts of the Slang River corridor and the wider 0.1% AEP extent affecting additional adjoining lands. The subject building is associated with the latter, lower-probability flood extent.

This pattern is consistent with the architect's revised site-level plan and north–south section, which show that the Highfield Mews accommodation occupies a local rise relative to parts of the surrounding land. The available survey information, published hydraulic model levels and site observations provide further support for the interpretation that local ground elevation and hydraulic conditions vary significantly over relatively short distances.

In my professional opinion, the correspondence between the flood mapping and the observed topography provides a sound physical basis for distinguishing the flood exposure of the subject building from that of the adjoining lower-lying floodplain.

The existing accommodation is not situated within the more extensive 1% AEP inundation area shown on the detailed mapping. Its location within the wider 0.1% AEP extent indicates a lower probability of direct inundation than that affecting neighbouring land within the 1% AEP flood extent.

The building's finished floor is understood to be approximately 200 mm above the immediately adjoining external ground. This additional elevation is a favourable feature in relation to the potential for internal flooding. The precise clearance above the 0.1% AEP design floodwater level, however, depends upon the floodwater level applicable at the building itself and should not be equated with the 200 mm threshold difference alone.

The surrounding road network also rises towards Highfield Park and Dundrum Road, providing a potentially favourable connection to higher ground. This is relevant to the management of residual risk, although the safety of the complete access and egress route during an extreme flood event requires consideration of any intervening low points.

The application concerns the retention of existing accommodation. Provided no additional filling, building extension or obstruction to flood-flow routes is proposed, retention would not introduce new physical encroachment into the floodplain or further displace floodwater storage.

The March 2024 assessment for 1 Dundrum Road and the subsequent planning authority drainage assessment provide a relevant local example of the value of detailed topographical and hydraulic evidence in interpreting strategic flood-risk mapping. While the findings for that property cannot be applied directly to Highfield Mews, they support the use of an appropriately evidenced, building-specific approach.

It is my professional opinion that the existing Highfield Mews accommodation occupies a materially more favourable flood-risk position than the lower-lying adjoining lands, and that its actual exposure to fluvial flooding should be assessed on that basis rather than by assuming uniform hazard throughout the wider mapped flood-risk area.

The adopted Flood Zone B classification is not challenged merely by reference to the local rise in ground level. Rather, the evidence establishes a clear basis for considering the particular flood probability, potential depth of flooding, building threshold, access arrangements and residual risk associated with the existing accommodation.

4.2 Recommendations

Having regard to the existing nature of the accommodation, its locally elevated position and the site-specific flood-risk evidence presented in this assessment, the following proportionate measures are recommended:

Flood awareness and response: Occupants should be made aware of the residual risk associated with an exceptional fluvial flood event and provided with appropriate guidance on flood warnings and precautionary action.

Access and egress: The existing connection towards higher ground along Highfield Park and Dundrum Road should be identified as the preferred direction for access and egress, subject to prevailing flood conditions. Occupants should not attempt to travel through floodwater.

Maintenance of existing drainage: External gullies, drainage channels and other surface-water drainage arrangements should be kept clear and maintained to minimise localised accumulation of water around the accommodation.

Property-level resilience: Existing door thresholds, low-level openings and vulnerable services should be maintained in good condition, with additional local protection considered where appropriate.

Preservation of existing flood pathways: No alterations should be undertaken to external ground levels, boundary structures or drainage arrangements that could impede floodwater conveyance or increase flood risk to adjoining properties.

These measures are considered proportionate to the retention of the existing residential accommodation. They address residual flood risk while recognising that the application does not involve the construction of a new building or additional physical encroachment into the floodplain.

References:

1. Department of the Environment, Heritage and Local Government and Office of Public Works (2009). *The Planning System and Flood Risk Management: Guidelines for Planning Authorities*. Government of Ireland.
2. Department of the Environment, Heritage and Local Government and Office of Public Works (2009). *The Planning System and Flood Risk Management: Guidelines for Planning Authorities – Technical Appendices*. Government of Ireland.
3. Dún Laoghaire-Rathdown County Council (2022). *County Development Plan 2022–2028*, Appendix 15: *Strategic Flood Risk Assessment*. Including the provisions concerning development in Flood Zones A and B and the identification of areas of flood-risk concern in the vicinity of Highfield Park and St Columbanus Road.
4. Dún Laoghaire-Rathdown County Council (2022). *County Development Plan 2022–2028: Adopted Flood Zone Mapping*, relevant map sheet covering Dundrum, Highfield Park and the Slang River. Source of Figure 1.
5. Dodder Catchment Flood Mapping (2010). *Present Day Dundrum Slang – Fluvial Flood Extents*, Drawing DSS/EXT/UA/CURS/105, dated 26 November 2010. Including mapped 10%, 1% and 0.1% Annual Exceedance Probability flood extents and hydraulic model node locations. Source of Figure 2 and associated extracts.
6. Dodder Catchment Hydraulic Model (source dataset accompanying the flood mapping). *Published Design Water Levels for the Slang River*, including nodes DSS1-3720, DSS1-3738, DSS1-3785 and DSS1-3803. Source of the hydraulic information presented in Section 2.5 and Figure 5.
7. BD Surveys (2024). *Topographical Survey of Lands at 1 Dundrum Road and St Columbanus Road, Dundrum, Dublin 14*. Including surveyed local ground levels, finished floor level at 1 Dundrum Road and Slang River channel levels.
8. Project Architect (drawing dates and numbers to be inserted). *Highfield Court / Highfield Mews: Revised Site Plan Showing Levels and North–South Site Section*. Drawings prepared in connection with the subject retention application. Sources of Figures 3 and 4.

9. Flood Risk Consultants (March 2024). *Stage 2 Site-Specific Flood Risk Assessment, 1 Dundrum Road, Dundrum, Dublin 14*. Nearby assessment providing local topographical and hydraulic context.
10. Dún Laoghaire-Rathdown County Council, Drainage Planning (17 April 2024). *Drainage Planning Assessment concerning 1 Dundrum Road*, Planning Reference D24A/0155.
11. CORE Ltd. *Site Inspection Notes, Relative-Level Observations and Photographic Record, Highfield Court / Highfield Mews, Dundrum*. Supporting field observations and photographs included in this assessment.