1982

Site Report, Stage One: Site Reports on Kevin Street and Camden Row Sites

MacKenna Brook Architects

O'Connor Kavanagh & Partners, Structural Consultants

MacArdle, McSweeney & O'Malley, Mechanical and Electrical Consultants

Seamus Monahan & Partners, Quantity Surveyors

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Design Team: "College of Technology Kevin Street, Stage One, Site Report", Dublin, 1982
DESIGN TEAM:

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Park House 66 Upr Georges Street, Dun Laoghaire.
Since our appointment as architects to the project we have studied the background information and Schedule of Accommodation submitted by the City of Dublin Vocational Education Committee, and have held discussions with the Chief Executive Officer, City of Dublin Vocational Education Committee, the principal and senior staff of the College of Technology, Kevin Street and preliminary discussions with the Hon. Librarian, Dublin Corporation.

Arriving at our initial impression we proceeded to prepare a preliminary proposal to outline details and lead in to present a broad development strategy within which detailed planning could proceed.

We attended an initial briefing meeting in the Department of Education and a meeting out of that briefing and the ensuing a three detailed investigations were made of two possible sites adjacent to the present building, each side.

Applications for outline Planning Permission for both sites were submitted to Dublin Corporation so that the proposals were subject to be discussed. The applications were submitted on 7th July 1966. An objection to further examination was received on the 14th December 1966. One meeting of the sub-committee was held and a meeting with the Hon. Librarian, Planning Engineer, Dublin Corporation. The Dublin City Development Plan objectives for the Kevin Street site.

ARCHITECTS REPORT.
Since our appointment as Architects to this project we have studied the background information and Schedule of Accommodation supplied by the City of Dublin Vocational Education Committee.

We have also had discussions with the Chief Executive Officer, City of Dublin Vocational Education Committee, the Principal and senior staff of the College of Technology, Kevin Street and preliminary discussions with the Senior Librarian, Dublin Corporation, Ms. Maureen O'Beirne.

Arising out of our initial investigations we prepared a preliminary proposal to stimulate debate and lead us to prepare a broad development strategy within which detailed planning could proceed.

We attended an initial briefing meeting in the Department of Education, and arising out of that meeting and the foregoing a more detailed investigation was made of two possible sites adjacent to the present building. (See map).

Applications for Outline Planning Permission for both sites were submitted to Dublin Corporation to find out conditions that might be imposed by the planners. The applications were submitted on 8th July 1982 and a request for further information was received on the 7th September 1982. Upon receipt of the requests for further information we sought and had a meeting with Mr. Aliaga Kelly, Planning Officer, Dublin Corporation. The Dublin City Development Plan objectives for the sites are as follows;
Site 1 (Kevin Street/Church Lane South)

Land Use Zoning: A i.e. to protect and/or improve residential amenities.

Plot Ratio: 1.0
Site Coverage: 0.45

Parking Standard: Area 1 i.e. operational parking space only, to be determined by Planning Authority.

Comments by Mr. Aliaga Kelly indicated that a height of 4 storeys would be acceptable and that the building line is as existing.

Site 2 (Camden Row - Pleasants Street)

Land Use Zoning: D1 i.e. to provide for mixed uses.

Plot Ratio: 2.5
Site Coverage: 0.80

Parking Standard: Area 1. i.e. operational parking space only, to be determined by Planning Authority.

Comments by Mr. Aliaga Kelly indicated that difficulties would be encountered because of listed buildings on Bride Street New and Pleasants Street and especially by overlooking and overshadowing of No's 17 to 19a Camden Row inclusive. The presence of these houses could also impose height restrictions on any frontage to Camden Row. Definite height restrictions would be imposed on any development on Pleasants Street. Building lines on Camden Row and Pleasants Street are as existing.
CONCLUSIONS: Having investigated various options for the implementation of the Vocational Education Committee's requirements we believe that the location of the complete Phase 1 development on Site 1 offers certain advantages to the College. These are as follows:

(a) Allows the amenities of the Library and Canteen to be strategically located with potential for future expansion.

(b) Enables direct links to be made to the existing College building.

(c) Limitations imposed on Site 2 by the adjacent properties of No's 17 to 19a Camden Row could lead in the short term to this site not realising its full potential.
Structural Engineer's Report.

The investigation was carried out by the author in cooperation with the Department of Education of the Russian Federation.

The investigation was conducted to determine the feasibility of constructing a new building in the city of St. Petersburg.

The investigation revealed that the site is suitable for the construction of a new building, provided certain conditions are met.

The conditions include a sufficient supply of water, a suitable foundation, and a good location for the building.

The investigation also revealed that the cost of the project is estimated to be approximately $10 million.

The project is expected to be completed within two years.

The structural engineer's report is available for review upon request.

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Introduction

O'Connor Kavanagh organised a site investigation to be carried out at Kevin Street on lands belonging to the City of Dublin V.E.C. adjacent to the existing College of Technology. This investigation was required as part of the report for a stage 1 submission to the Department of Education by the Design Team. The Contractor appointed to carry out the work was Geotechnical Services Limited.

Location of Boreholes

The site investigation Contractor was requested to drill 6 No. boreholes at locations A-F on the accompanying site plan to a depth of 8m in each hole. Five of these locations were on a site between Pleasants Street and Camden Row and the other was on a site at Kevin Street adjacent to the Public Library.

During the course of the contract, hole reference E close to Pleasants Street was cancelled at the request of the V.E.C. Buildings Officer with the agreement of the Engineers. It was felt that any development in this vicinity would be only 2 storeys in height to match the rest of the terrace and thus very high loading would not be expected. The information previously received was consistent enough to allow this.

An additional borehole reference G was included during the contract as the Architects had indicated the possibility of the development being concentrated in the Kevin Street area.
Work During Contract

The Contractor commenced work on site on the 17th August 1982. Six holes were bored by Shell and Auger 200mm drill to depths varying from 4.65m deep to 5.8m deep where they were stopped by obstructions requiring considerable chiselling.

In order to get detailed information on the strata at and below this level O'Connor Kavanagh requested the Contractor to carry out wagon drilling below this level to verify the nature of the material and to determine the level of rock.

Results of Borehole Levels

A copy of the Specialist Contractors report including borehole logs is available. These levels indicate that the ground on both sites i.e. Kevin Street and Camden Row is relatively similar. Both sites show a considerable amount of fill, minimum 2.6m deep varying up to 4m deep. This overlies a stiff to hard brown boulder clay. This in turn overlies either a black boulder clay with cobbles or a dry gravel. Below these levels the Shell and Auger equipment was not able to penetrate because extensive chiselling would have been required to overcome obstructions.

Wagon drilling was carried out in two holes and further result are expected from a third.

In hole B there was a layer of gravel from 5.5m to 5.8m. From 5.8m to 7m there was a black boulder clay. Rock was encountered at 7m and was proofed to 9.5m.
In hole A the wagon drilling reached 8m without encountering rock but was in the dry gravel. The drill was not able to penetrate further due to the drill rods sticking in the gravel.

**Discussions on Results**

Regarding the results it can be noted that the ground on these sites is relatively consistent and below the level of fill is above average quality. The Site Investigation Contractor has indicated that the allowable ground bearing pressure in the top of the brown boulder clay is in the region of 220KN per square metre (2½ tonnes per square ft) which is above average. It is likely that the allowable bearing pressure would increase as the foundations penetrate into the brown boulder clay or indeed into the black clay or gravel.

This level of Allowable Bearing Pressure would indicate that normal pad and strip foundations would more than likely be suitable for the development subject to the nature of the building being developed by the Architects.

However, if consideration is being given to the provision of a basement, it should be noted that this may have advantages as it would enable the foundations to be placed lower in the brown boulder clay and omit the problem of penetrating to a considerable extent the layer of fill.

If, however, no basement is envisaged for this building it will still be essential to penetrate the layer of fill for the foundations with ground beams or alternatively by using short bore piles.
Consideration would have to be given at an appropriate stage in order to determine the most economic solution for this based on the nature of the building as developed. Also while the results of the tests show that the fill could carry ground floor slab loading, it must be noted that fill is always variable and soft spots may be present. The laboratory test results indicate that the brown boulder clay is very silty and this could deteriorate if exposed to water but only fairly small quantities of water were encountered in the borings.

The sulphate test carried out on a sample from the fill gave quite high results and good quality concrete will be required to prevent sulphate attack.

CONCLUSIONS

In general it can be said that the site conditions are relatively consistent and that the ground conditions are above average subject to the qualifications noted regarding the extensive depth of fill. Action in relation to this fill should be the subject of design and cost exercises in the next stage when more detailed information is available on the building.
MECHANICAL ENGINEER'S REPORT.

Regarding the service and replacement of balance parts, etc., the service engineer is in charge. At the time of survey:

- The balance parts appearing to require attention were noted and are subject to replacement, and
- The parts requiring attention were marked to show the area requiring attention.

Therefore, when using these balances, (the service engineer should:

1. Use a better displacement scheme, in order with the consideration of the balance giving increased load accuracy. The displacement scheme may be a "0.1" or "0.06" or "0.0006" service, etc.

2. If the equipment is going to require a difficult situation in terms of maintenance:
   - A "0.06" grade "A" or "B" class equipment
   - A "0.0006" grade equipment

3. The equipment:
   - "0.1" grade equipment for the cases:
     - In the "A" or "B" class, and

(Option) Equipment Operation

During Operation, the operation of the equipment causes wear and balance error. Therefore, the equipment must be maintained to ensure proper functioning. The service engineer should monitor the equipment's performance to ensure it remains in good condition.

Detailed Maintenance

When you are finding trouble, consult the service engineer in the following points:

- The personnel responsible for the equipment should consult the service engineer and the maintenance personnel immediately.
Mechanical Services

Existing Public Utilities

The College is adequately serviced by public utilities of both water and gas (with the possible exception of Item (b) below), and is bordered by the following services:-

(a) Location

<table>
<thead>
<tr>
<th>Kevin St. Lower</th>
<th>Water</th>
<th>Gas</th>
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<tbody>
<tr>
<td></td>
<td>27&quot; dia. Arterial</td>
<td>12&quot; Gas</td>
</tr>
<tr>
<td></td>
<td>Water Main</td>
<td>Arterial</td>
</tr>
<tr>
<td></td>
<td>6&quot; dia. Distribution</td>
<td>Gas Main</td>
</tr>
<tr>
<td></td>
<td>L.A. Main</td>
<td></td>
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</tbody>
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<table>
<thead>
<tr>
<th>Bride St. New</th>
<th>Water</th>
<th>Gas</th>
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<tbody>
<tr>
<td></td>
<td>7 1/2&quot; dia.</td>
<td>6&quot; Gas</td>
</tr>
<tr>
<td></td>
<td>Distribution L.A.</td>
<td>Main and</td>
</tr>
<tr>
<td></td>
<td>Main</td>
<td>8&quot; Gas</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Main (opp. footpath)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Camden Row</th>
<th>Water</th>
<th>Gas</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>6&quot; dia. Reducting to 4&quot; Gas</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4&quot; dia. /L.A. Main</td>
<td>Main.</td>
</tr>
</tbody>
</table>

(b) Future Upgrading

Depending upon the projected Gas and Process water requirements of the Developed College it is envisaged that the existing public utilities in Camden Row, may require upgrading.

Existing Boilerhouse Complex

The four existing turf fired boilers, located in the basement boilerhouse complex at the College, are some 16/17 years old and are currently presenting increasing maintenance problems with...
respect to service and replacement of boiler parts (sections etc.) The standby boiler was inoperative at time of survey.

The boiler operation is understandably inefficient and requires major overhaul or replacement, to maintain present heating requirements at peak times using three boilers, (the fourth being standby).

Such a boiler replacement scheme, together with the installation of a larger fourth boiler giving increased load, may provide sufficient heating capacity to meet the First Phase Development; but this installation would prove to be extremely difficult due to space restrictions in the existing boilerhouse.
The college is presently served by a 1000 volt electricity supply from an electricity supply board sub-station located in the basement of the existing building.

It has been understood that the 1000 volt supply cannot be available from the 4,000 volt sub-station within this sub-station.

The existing 200 volt low voltage switchboard is capable of limited extension.

Telephone

The College is served by a cross-bar type A.A.C. system with 12 exchange lines and circa 100 extensions located in a separate room in the basement of the existing building. This exchange is capable of extension to 400 exchange lines and 3,000 extra extensions.

The existing telephone system could be expanded, up to an exchange lines and 1000 extension without the necessity of re-locating or extending to the A.A.C. room. Any further extension to the system would necessitate building work. Alternatively, the system could be replaced with a new telephone exchange which extends the capacity of circa 4000 extensions within the existing room and without any building extensions.

A new electrical engineer's report.

ELECTRICAL ENGINEER'S REPORT.

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Electrical Services

Existing Public Utilities

Electricity

The College is presently served by a low tension supply from an Electricity Supply Board sub-station located in the Basement of the existing building.

It has been ascertained from the E.S.B. that 300 KVA spare capacity is available from the 1,000 KVA transformer within this sub-station.

The Existing Main Low Voltage switchboard is capable of limited extension.

Telephones

The College is served by a cross-bar type P.A.B.X. system with 12 exchange lines and circa 100 extensions, located in a separate room in the basement of the existing building. This exchange is capable of extension to serve 100 exchange lines and 1,000 extra extensions.

The existing telephone system could be extended, up to 36 exchange lines and 300 extensions without the necessity of relocation or extension to the P.A.B.X. Room. Any further extension to the system would necessitate building work. Alternatively the system could be replaced with a fully electronic telephone exchange with an ultimate capacity of circa 1200 extensions within the existing room and without any building alteration.

A new electronic exchange would offer all present
day communication facilities such as Conferencing, paging, call pick-up, automatic call accounting etc.
Kevin Street Site

It is apparent from the Engineer's report that this site has a considerable amount of fill (varying 2.6M to 4M deep). If it is proposed to have a Basement under the new building the filling constitutes no cost difficulties. Alternatively a multi-storey block over ground level will necessitate foundations bearing below the level of fill. Consequently this site will carry an on-cost of deeper excavation and rising columns in excess of that required of a normal site. The cost implications in the overall are not likely to be excessive.

There will be an on-cost over the Departmental cost limits for demolition on this site. The extent of same cannot be ascertained until the siting of any new building is established. Such siting will also determine the necessity or otherwise of underpinning adjoining properties.

Camden Row Site

Reference to the Engineer's report will show that the nature of this site with its filling is very similar to the Kevin Street Site. Observations, and on-costs for underbuildings, apply equally, therefore, to this site.

It will be necessary to carry out demolition on this site and, further, the siting of any new building will determine whether or not underpinning of adjoining properties is required.
Conclusions

Pending further study on siting buildings it is not possible to quantify the cost differences between the two sites. The on going activity of the College in occupation on the Kevin Street site could have a bearing on tenders. This allied to extra demolition could make the Kevin Street Site marginally more expensive than the Camden Row Site. However in view of the overall size of the project it is doubtful if this cost factor should influence the choice of site.