5 Implementation

Developing a project of this size necessitates integration across a broad range of key areas including environment, planning, construction delivery methodology and other matters which are elaborated on in this chapter.

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5.1 Environmental Strategy

5.1.1 Requirements

The Grangegorman Strategic Plan is subject to a Strategic Environmental Assessment in accordance with the requirements under the SEA Directive (2001/42/EC) and the *European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004*. This means that the plan is undergoing a formal systematic evaluation of the likely significant environmental effects of implementation prior to adoption by the Grangegorman Development Agency. As such a *Draft Environmental Report* has been published alongside this *Draft Grangegorman Strategic Plan*. The *Draft Environmental Report* details the methodology involved in carrying out this environmental assessment, reviews the Grangegorman Strategic Plan's relationship with other plans at international, national, regional and local level, establishes an environmental baseline identifying existing environmental problems and issues, evaluates alternatives to the Strategic Plan, and details the environmental assessment of the *Draft Grangegorman Strategic Plan.*

The methodology adopted for the SEA process was based upon the SEA Directive and experience gained since the introduction of the Directive in July 2004. Reference was also made to the DoEHLG Guidelines, EPA Guidelines, current literature in the subject area and various national and international published reports during the preparation of the Environmental Report. The following summarises the key stages in the overall process of environmental assessment of the *Draft Grangegorman Strategic Plan* and the ultimate consequences for this draft strategic plan.

5.1.2 Scoping

The scope of environmental issues to be dealt with by the SEA together with the level of detail to be addressed was broadly decided on after preliminary data collection initially outlined in the Scoping Issues Papers. These Issues Papers were circulated to the identified Environmental Authorities and the issues extended to take account of submissions received from these Authorities. In particular the Environmental Protection Agency Ireland (EPA) and the National Roads Authority (NRA) provided detailed input and advice in response to this consultation. These submissions were taken account of in the final SEA Scoping Report.

The key strategic environmental issues identified with relevance to the Grangegorman site were as follows:

- Architectural heritage and the existing structures, building clusters and landscape features which will be impacted by the implementation of the Strategic Plan
- Possibility of protected species of flora and fauna located on site with particular emphasis on bats
- Traffic generation and the implications for noise and air quality as a result of the implementation of the Strategic Plan
- Impacts on the urban landscape including visual impacts, overshadowing, loss of character, impact on scenic amenity etc.
- Foul drainage and the combined foul and surface water sewer system currently in place in Grangegorman and
- The undisturbed nature of the site indicating potential for archaeology.

5.1.3 Environmental Objectives

The methodology involved in the environmental assessment of the Grangegorman Strategic Plan required the establishment of environmental protection objectives for each environmental receptor related to the key environmental issues identified in the Scoping process. Associated indicators and targets were identified for each environmental objective. These objectives were then used to evaluate the plan alternatives and therefore identify the preferred plan alternative and ultimately the Draft Grangegorman

Strategic Plan. The environmental objectives established for the Grangegorman Strategic Plan are as follows:

- Protect and enhance biodiversity, flora and fauna on the Grangegorman Site
- Enhance the overall socio economic profile and economic attractiveness of the Grangegorman Development Area
- Improve the quality of life for local communities based on the provision of accessible employment, recreational, educational, medical and other facilities
- Provide, maintain and improve access to public open space
- Preserve and enhance the natural and historic landscape features within the Grangegorman site
- Retain existing good quality trees.
- Limit adverse impacts on air quality and in particular traffic generated air emissions
- Limit adverse impacts on climate through use of sustainable energy sources
- Protect, conserve and enhance the architectural heritage on the Grangegorman site
- Identify and protect the archaeological heritage on the Grangegorman site in accordance with Best Practice Principles

- Provision for the reuse, recycling and conservation of water on site and
- Provision of separate foul and surface water drainage to service the Grangegorman Area.

As part of this SEA *Indicators* have been identified to act as representative examples of environmental data. Environmental objectives specify a desired direction for change (e.g. 'reduce air pollution'), while Indicators establish variables that can be measured over time and thus indicate the direction of this change over time. For each of the Environmental Objectives detailed above appropriate Indicators have been provided and associated achievable targets identified for each Indicator.

5.1.4 Alternatives Assessed

The Environmental Report is required to identify, describe and evaluate reasonable alternatives to the proposed plan taking into account the objectives and the geographical scope of the plan or programme. Three plan alternatives were examined in the course of the preparation of the Strategic Plan. The chosen preferred alternative was identified and later developed into the Draft Grangegorman Strategic Plan.

5.1.5 Environmental Assessment of the Grangegorman Strategic Plan

The Draft Environmental Report details the likely significant impacts on the environment as a result of the implementation of the *Draft Grangegorman Strategic Plan.* Each of the Project Visions, Aims and Objectives contained within the Draft Strategic Plan have been assessed against the Environmental Objectives established with regard to the Baseline Environmental Data. This methodology is then used to establish, firstly, the likely environmental effects of the implementation of the Strategic Plan and, secondly, the significance of these environmental effects having regard to the environmental baseline. Where required mitigation measures have been proposed to offset and reduce any of the negative environmental impacts as a result of the implementation of the Strategic Plan.

5.1.6 SEA Statement

At the end of the statutory process, involving public consultation on the draft Strategic Plan and the draft Environmental Report, the resulting Strategic Plan will be accompanied by an SEA Statement.

5.2 Planning Strategy

5.2.1 Introduction and Aims

Planning Aim 1: To secure planning permission to facilitate implementation of the Project and provide the future flexibility to allow for institutional development over time.

Planning Aim 2: To achieve a high degree of confidence in planning outcomes and timeframe in order to:

- Facilitate procurement processes
- Allow predictable timeframe for disposal of DIT properties and phased occupation of the Quarter and
- Create a best match with available finance and professional resources

Planning Aim 3: To allow for early applications in respect of HSE facilities and schools.

As stated in more detail above in Section 2.3, Section 12 of the *Grangegorman Development Agency Act 2005* (see Appendix A) provides for the preparation of a Strategic Plan which shall ***"have regard to the development plan made by Dublin City Council"*** (Section 12 (3)(a)). The Grangegorman site and the CIE Broadstone lands are located within Framework Development Area 8 (FDA8) as defined in the Dublin City Development Plan (i.e. extent of lands zoned Z10 and Z12). There is therefore a robust statutory proposition that the development of Grangegorman should be considered on a strategic rather than incremental basis.

5.2.2 Planning features of the GDA project

In deriving the optimal strategy for progressing the project through planning the GDA has identified the principal planning features of the project as follows:

- Within the Strategic Plan is an underpinning land use Masterplan which includes architectural and planning design parameters for future buildings on site
- All planning decisions on GDA applications by the relevant planning statutory body have to "consider anything relevant contained in the strategic plan" (GDA Act 2005)
- There will be an early planning application for the urgently required HSE replacement facilities, which in turn will free up the rest of the site for development
- There will be a large early infrastructural planning application package to support the bulk of all future development
- There will be multiple planning applications for different sized tranches of building development
- Various procurement models will be used for buildings delivery with Public Private Partnerships (PPPs) to be considered for certain facilities
- The timing of building developments will be linked to the gradual disposal of the DIT property portfolio and will be dependent on a structured flow of funds from property disposals
- There will be a structured phased move of DIT staff and students to the site which can only occur at appropriate limited gap periods in the academic calendar.

Two principal options were considered in determining the preferred approach to planning process. These are:

- Multiple standard planning applications

  or

- Early standard applications allied with the Strategic Development Zone (SDZ) process

While both options can deliver the project, it is considered that the option which best matches the strategic planning objectives and which takes account of the very particular features of this development is the SDZ process. The primary planning mechanism for the project is intended to be the Strategic Development Zone (SDZ) for reasons set out below this chapter, and of course, subject to receipt of the requisite Government Order.

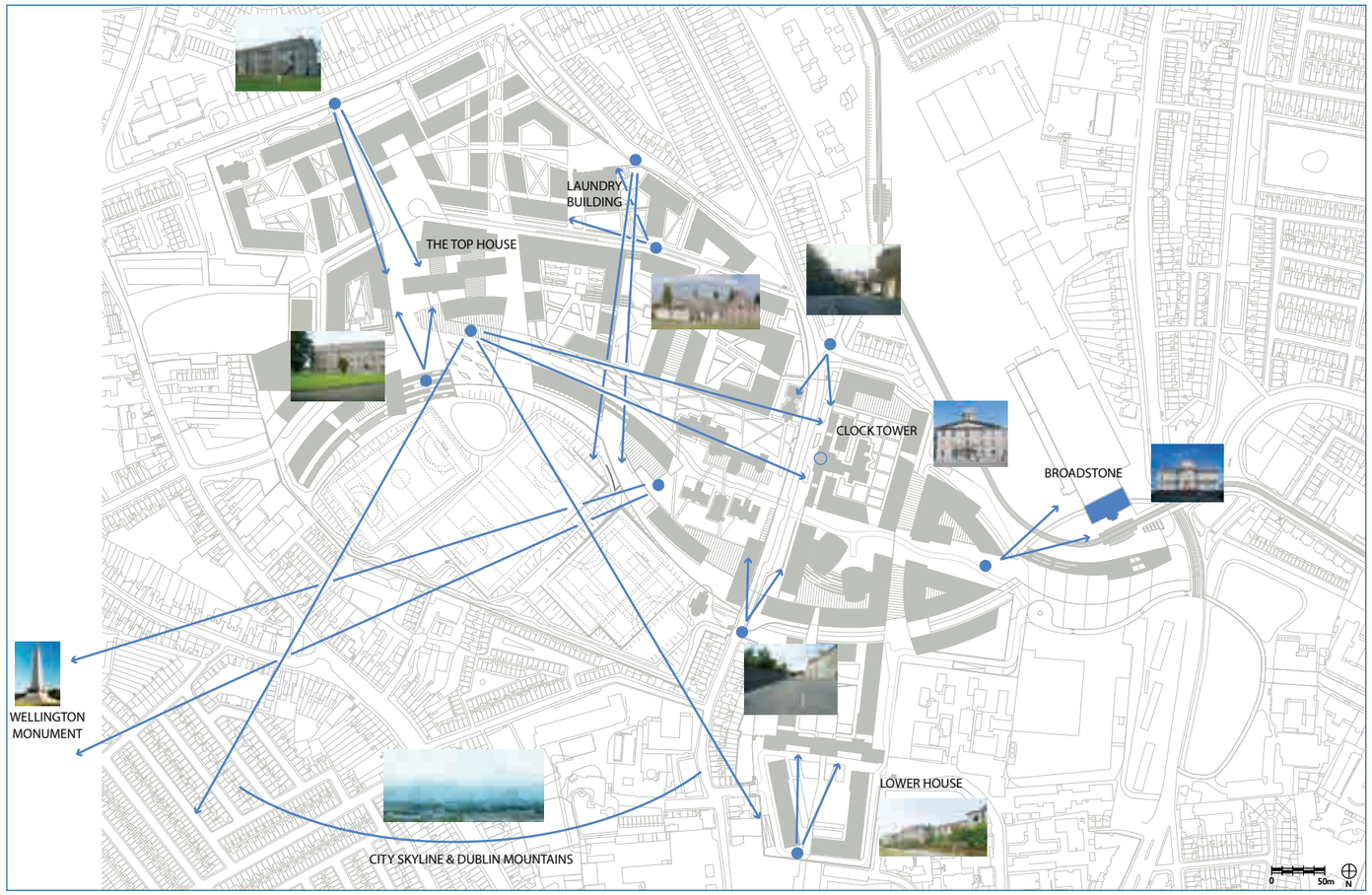
5.2.3 Strategic Development Zone

SDZ designation is intended for lands where, in the opinion of Government, specified development is of economic or social importance to the State (S. 166 of Planning and Development Act 2000 (as amended)). The two principal elements to delivery of development under the SDZ mechanism are designation as an SDZ by Government Order and adoption of a Planning Scheme for the designated lands.

In order for lands to be designated as a Strategic Development Zone (SDZ), the lands must be proposed by the Minister for the Environment, Heritage & Local Government and approved by Government Order ('GO'). The procedure would involve the GDA applying to the Minister for Government designation.

If the Government Order were confirmed the GDA would develop the Strategic Plan into a Draft Planning Scheme for the purposes of the SDZ. The Planning Scheme would consist of a written statement and a plan indicating:

- Type of development to be permitted
- Extent of development
- Proposals relating to design (maximum height, the external finish, general appearance and design)
- Proposals relating to transport (public transport, road layout, parking and traffic management)
- Proposals relating to services (waste and sewerage; water; electricity and telecommunications; oil and gas)
- Proposals to minimise impact on the environment
- Proposals for other amenities (where scheme is for residential development).



The SDZ route matches the strategic planning objectives and takes account of the very particular features of the project. Specifically the SDZ has the following key attributes for this project:

- **Strategic Planning Framework:** The Planning Scheme establishes a very clear urban design template and strategic framework to give full context and meaning to incremental planning applications
- **Risk Mitigation:** The Planning Scheme deals with the planning risk up-front thus reducing the procurement risk (and related cost risk) for incremental phases and elements and contribute to the risk management strategy set out in section 8 below in relation to funding and procurement
- **Confidence in Planning Outcomes:** Applications which are in compliance with the Scheme will be permitted. This simplifies the preparation of incremental planning applications and allows for the orderly scheduling of development and disposal of DIT properties. Planning confidence also facilitates the use of Public Private Partnership as a procurement tool
- **Speed of Individual Planning Outcomes:** Individual planning applications under the SDZ process will receive speedy decisions
- **Supported Site Assembly:** Section 167 of the Planning & Development Act, 2000, allows for the acquisition of lands by the Planning Authority or agreements to be made by a development agency to facilitate the establishment of an SDZ. This may be helpful where acquisition of third party land is desirable
- **Development Delivery Plan:** The SDZ route is strongly aligned with the Delivery plan set out in detail in Section 5.3 below. Delivering the wide range of facilities in a coherent manner that enables DIT to re-locate academic operations in a structured fashion is absolutely reliant on a timing certainty for planning and allied procurement.

In addition a Strategic Environmental Assessment (SEA) will be carried out in relation to the draft Planning Scheme and an Environmental Report will be published along with the draft Planning Scheme.

5.2.4 Statutory Process for an SDZ Planning Scheme

Subject to receiving the Government Order and following the preparation of a draft Planning Scheme the stages in progressing the Draft Planning Scheme to formal approval are as set out below:

Steps	Adoption of a Planning Scheme
Step 1	Draft Planning Scheme is submitted to Dublin City Council which copies the Scheme to the Minister for Environment, Heritage and Local Government, Bord Pleanála and any other prescribed authorities.
Step 2	Dublin City Council must publish a notice and invite submissions over the following 6 weeks (at least) while the scheme is on public display
Step 3	Not more than 12 weeks after giving notice the Dublin City Manager must prepare a report for submission to the Council on submissions received.
Step 4	The elected members must then consider the Draft Planning Scheme and the submissions received (summarised in the Manager's Report).
Step 5	The Council may ■ resolve to make the scheme without variations ■ resolve to make the scheme with variations ■ resolve to refuse to make the scheme The Scheme shall otherwise be deemed to be made 6 weeks from the date of issue of the scheme (and the Manager's Report) to the Council
Step 6	An appeal against the Scheme or against the resolution of the Council may be made to An Bord Pleanála. If no appeal is made the Scheme will come into force after a further 4 weeks Notice by GDA of the making of the Scheme must be given to the Minister, An Bord Pleanála, prescribed authorities and to all those who made submissions on the Scheme and must also be notified by newspaper advertisement.
Step 7	In the event of an appeal An Bord Pleanála can require modifications to be made before granting the Scheme. The estimated average time at Bord Pleanála is approximately 3 - 6 months.
	Total Timeframe: 22 weeks from publication of a Draft Planning Scheme by a Planning Authority for a scheme to come into force, assuming no appeal to An Bord Pleanála. Note that this does not include the initial time to obtain a Government Order

In the event that there is a 3rd party appeal to An Bord Pleanála the estimated time from publication of a draft Planning Scheme to its final statutory adoption would be in the order of 12 months, inclusive of the circa 22 weeks period with the planning authority.

5.2.5 Development of Strategic Plan into a Planning Scheme

Section 12 of the GDA Act requires that the Strategic Plan includes a "plan" in addition to a "written statement" and this is described in Section 4 The Masterplan. The Masterplan clearly demonstrates the physical proposition of the Strategic Plan as required in the Act and will be the basis from which the draft Planning Scheme is formed. For this purpose the Planning Scheme will require a greater level of specificity and detail in relation to building heights, design, traffic & transportation etc.

All planning decisions on GDA applications by the planning authority have to ***"consider anything relevant contained in the strategic plan"*** (GDA Act 2005). The Strategic Plan therefore gives the planning framework for any planning applications which may be lodged in advance or absence of the SDZ such as HSE phase 1.

Landscape Plan excluding tree planting

5.2.6 Early Standard Planning Applications

It is proposed to progress a standard planning application for the HSE Tranche 1 development. The content of this is essentially a relocation of the existing uses on site and other priority healthcare uses and the location is to the north of the site at the North Circular Road. It is critical to progress this phase first so that

a) the very poor accommodation conditions of residents of St. Brendan's Hospital can be improved as soon as possible

b) other clinical services provided from the site are provided in appropriate buildings and

c) the development site can be vacated to enable the DIT phases of development.

As part of the enabling works for this HSE Tranche 1 of development, a planning application was submitted in January 2009 for the refurbishment of a small Victorian building (former laundry building) on the site. This building can then be used to accommodate healthcare staff operating from buildings on the site. Planning permission was granted by DCC for this in April 2009.

The principal planning application for the replacement Mental Health facilities was lodged in May 2009. Planning permission was granted by DCC for this in September 2009.

An early planning application was submitted in September 2008 for the temporary relocation of the existing Dublin 7 Educate Together National School to the Grangegorman site. This school was established in 1999 and has been located in temporary accommodation at Joseph's School for the Deaf, Navan Road, Dublin 7 since 2001. This lease expired on the 30th June 2009. The school currently occupies a temporary building on the Grangegorman Site which it moved into in September 2009. The Strategic Plan incorporates a permanent primary school in the Quarter. However, the site for the permanent school will not become available for a number of years due to the relatively complex phasing of the overall redevelopment of Grangegorman. Therefore, given the urgent need for school accommodation it is considered necessary to secure a temporary facility in the short term. This project is further detailed in Section 5.7.3.

In July 2010 planning permission was sought to upgrade the sports changing facilities.

Planning Objective: GDA will seek to secure SDZ status for the Grangegorman site and then develop the Masterplan into a Draft Planning Scheme.

5.3 Development Delivery Plan

5.3.1 Introduction and Aims

Delivery Aim 1: To organise the sequence of development works to permit an orderly roll-out of the Project.

Delivery Aim 2: To achieve the earliest possible completion of the replacement health facilities for the HSE.

Delivery Aim 3: To progress the Project as quickly as possible consistent with economic efficiency, and appropriate mitigation of construction environmental impacts and subject to the constraints of planning and finance.

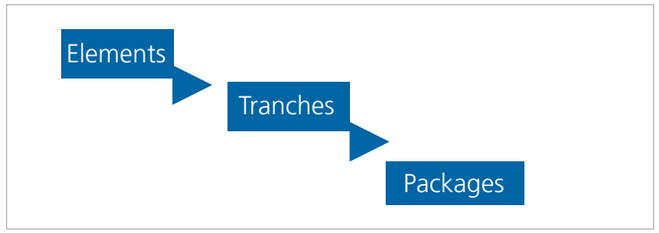
Delivery Aim 4: To move a minimum of 50% of the DIT student body into the new campus in a single first relocation from existing DIT accommodations and ensure concurrent provision of essential support services and amenities.

Delivery Aim 5: To enable the expeditious delivery of the permanent primary school

Delivery Aim 6: To enable the delivery of DIT and HSE facilities that follow at later stages in an orderly manner without impairing occupied uses of the site

This section sets out the proposed development delivery plan and programme for the project.

The delivery plan has been developed on a collaborative basis in consultation with relevant stakeholders, the Masterplan team and GDA. Through these discussions the project has evolved with a number of distinct Elements, Tranches and Packages to realise delivery of the project; the hierarchy of these is illustrated below.



An Element defines ownership of property for delivery. The project comprises four distinct elements namely (defined in Diagram 5.3a below):

- Element 1 – Health Service Executive (HSE)
- Element 2 – Dublin Institute of Technology (DIT)
- Element 3 – Mixed-Use Development
- Element 4 – GDA for other Public Bodies

Each Element is then broken down into a number of Tranches dictated by the delivery strategy that arise from the needs and constraints. A Tranche comprises a number of buildings that will be

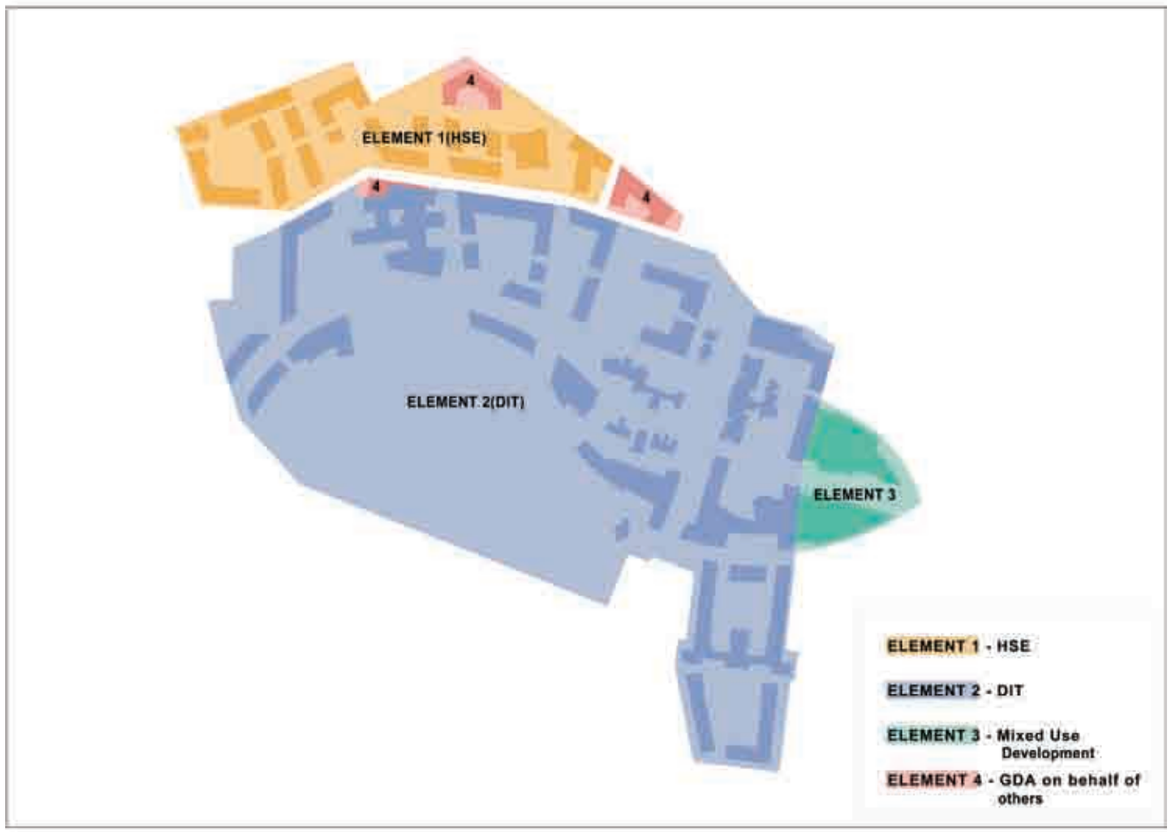


Diagram 5.3a – Elements 1 – 4

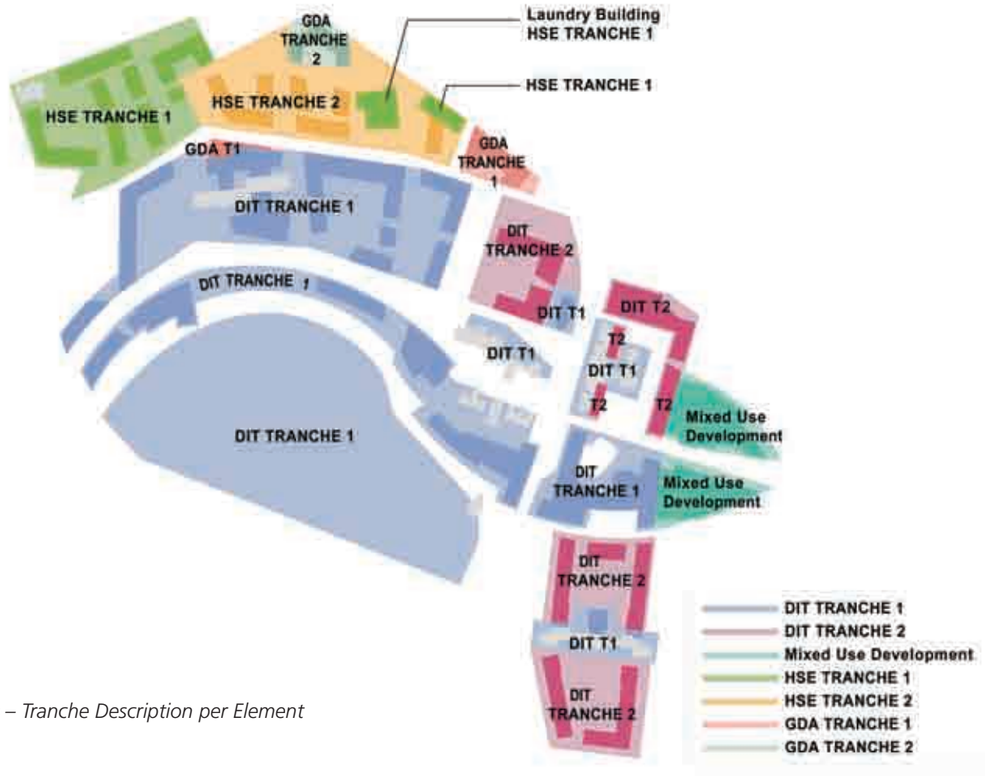


Diagram 5.3b – Tranche Description per Element

delivered at a broadly similar point in time. In arriving at estimated times of completion the Delivery Plan is contingent on the Planning Strategy set out in section 5.2. The various Tranches within each Element are identified on Diagram 5.3b above.

Each Tranche is further broken down into a number of Packages. A Package can be defined as a quantum of buildings that will be procured together. There are a number of influencing factors which contribute to the formation of Packages and Tranches, these include:

- DIT requirements – this includes consideration of adjacencies of colleges, schools, departments, support services and the requirement for a critical mass of student activity on campus at first opening
- HSE requirements – this includes resolving, as a first priority, the needs of resident patients of St Brendan's Hospital and providing replacement accommodation for local clinical services operated from the site
- Procurement – Appropriate sizes and types of procurement packages have been developed reflecting a best strategy to deliver value for money. Please refer to Section 8 Project Funding for further details
- Funding – management of the various funding sources drives package types in order to minimise complexity and ensure deliverability. Again, please refer to Section 8 Project Funding for further details
- Property Disposal – maximising the proceeds from DIT property sales while maintaining coherence of DIT academic delivery shapes packages. Please refer to Section 5.4 on Disposal Strategy for further details
- Package location within the site
- Services – the roll-out of infrastructure through the site
- Constructability – capacity of the site and infrastructure
- Sequence of Construction
- Size of Package – to ensure design variation throughout the site, and to match with the capacity of contractors to deliver individual packages.

The various Packages are identified in Diagram 5.3c on the next page. Further details of the various Tranches & Packages are detailed within subsequent sections.

As noted previously within this report the overall DIT building floor areas proposed for the campus are divided into Core and Complementary (i.e. Non-Core) categories. The primary funding available to GDA will be used to construct the Core areas. Please refer to Section 8.1.1 for more information on Core and Non Core definitions.

In order to provide a more integrated campus and vibrant city quarter the Masterplan has integrated these core and non-core areas throughout the Quarter There are instances where these core and non-core areas are within the same building/package; accordingly they may be procured and constructed together.

Certain Non-Core areas are of particular importance and are required in advance of other Non-Core areas. For example the Student Housing and Indoor Sports are required in advance of certain commercial research spaces. Integration of Core and Non-Core and prioritisation of Non-Core are further considerations in formation of the various packages. Please refer to Section 8.3 Project Funding for more detail on procurement.

Table A, on page 5.09, provides a gross floor area schedule for each Element, Tranche and Package and a short description. This includes all core and non-core space. Please note that all areas are gross sq.m. This table also sets out the area of expansion space that is provided for in the Masterplan for long term expansion for DIT and HSE.

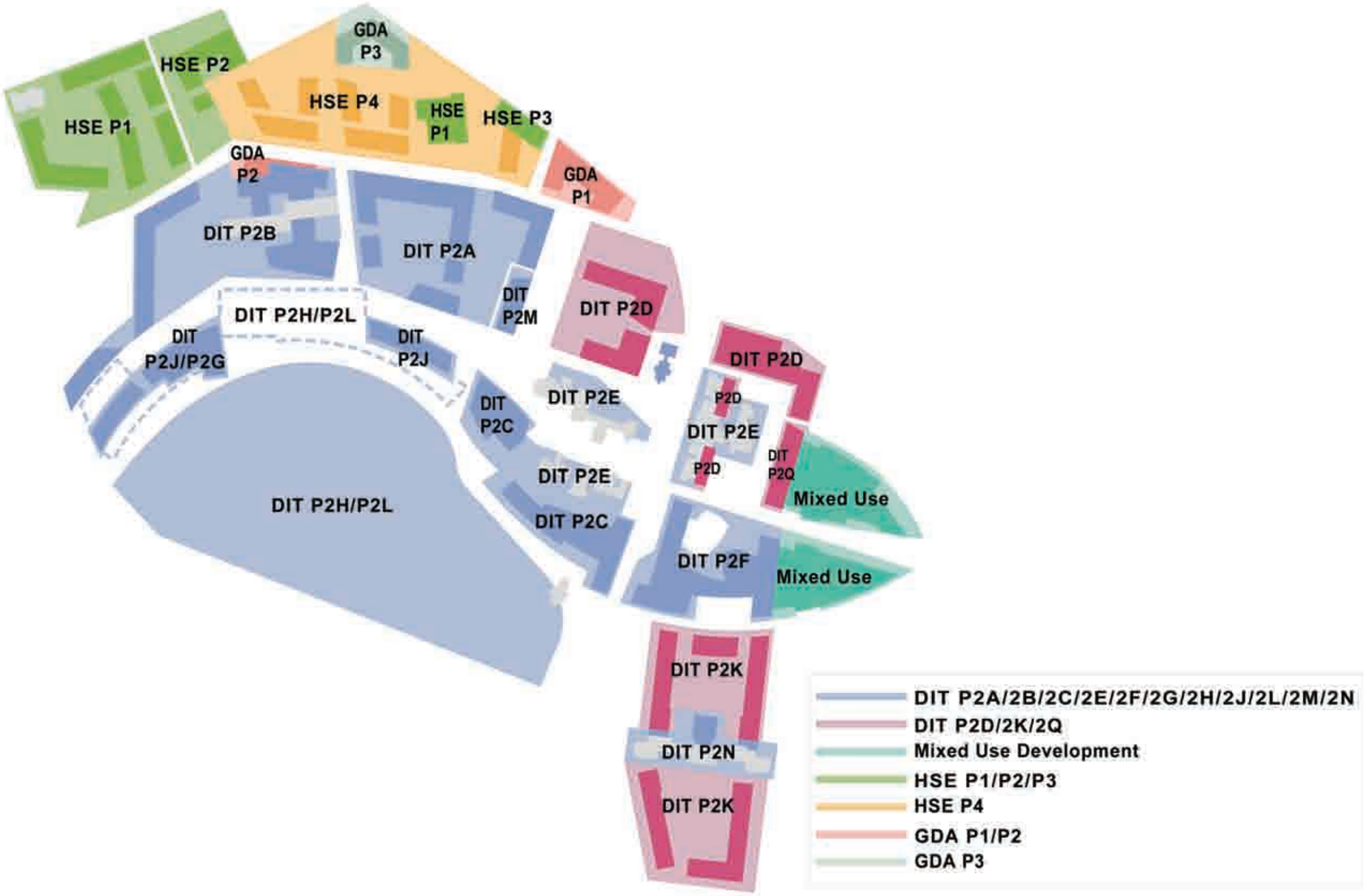


Diagram 5.3c – Package Layout

Implementation

Delivery Plan				Total Area sq.m		
Element	**Tranche**	**Package**	**Package Description**	**Package**	**Tranche**	**Element**
Element 1 (HSE)						42,130
	Tranche 1				21,630	
		Package 1	Replacement Mental Health	14,510		
			Laundry Refurb	1,450		
			Connolly Norman Refurb	560		
		Package 2	Primary Care	4,100		
			**DIT Optometry*	*600*		
		Package 3	High Support Hostel	1,010		
	Tranche 2				20,500	
			Community Generated Rehab	1,410		
			Primary Care	7,460		
			Dementia Unit	1,670		
			Community Nursing Unit	5,480		
			Respite / Intermediate Care Unit	1,380		
			Services for People with Disabilities	3,100		
Element 2 (DIT) (Core and Complementary Elements)						229,220
	Tranche 1				149,940	
		Package 1A	Primary Infrastructure	N/A		
		Package 2A	Tourism & Food, Science, Engineering Craft Training (Part), DIT Research Centre, support and ancillary space	37,630		
		Package 2B	Business, Library with support space	28,300		
		Package 2C	Cafeteria incl. staff common, Social Hub (Part), Student Housing (Part) and Retail (Part)	8,880		
		Package 2E	Student Hub (Part) and Clock Tower Refurb.	6,970		
		Package 2F	Applied Arts	21,340		
		Package 2G	Cafeteria and Retail (Part)	3,800		
		Package 2H	Indoor Sports	2,000		
		Package 2J	Student Accommodation (Part)	31,820		
		Package 2M	Research Centre	3,900		
		Package 2N	Science & Industry Centre / Incubation	5,300		
		Sports Pitches and Parkland		N/A		
	Tranche 2				78,680	
		Package 2D	Engineering & Built Environment incl. Craft Training (Part)	31,860		
		Package 2K	Student Accommodation (Part)	28,370		
		Package 2L	Sports Centre	6,980		
		Package 2Q	Research Centre	7,890		
			additionally funded performance space	3,580		
Element 3 (Mixed Use)						60,430
			Mixed Use	60,430		
Element 4 (GDA Managed Developments)						7,730
	Tranche 1				4,430	
		Package 1	Primary School	2,770		
		Package 2	DCC Library	1,660		
	Tranche 2				3,300	
		Package 3	Social Housing	3,300		
SUB-TOTAL AREA						**339,510**
Expansion DIT						34,000
Other ancillary spaces (includes former mortuary, infirmary and CoI church; energy centre etc.)						6,420
TOTAL AREA FOR GDA SITE						**379,930**
Expansion HSE (on adjacent HSE owned site)						8,000
Residential Accommodation (on adjacent HSE owned site)						6,310
Total for GDA site plus adjacent HSE owned site						**394,240**

** DIT Optometry included in area calculations for Element 2 (DIT)*

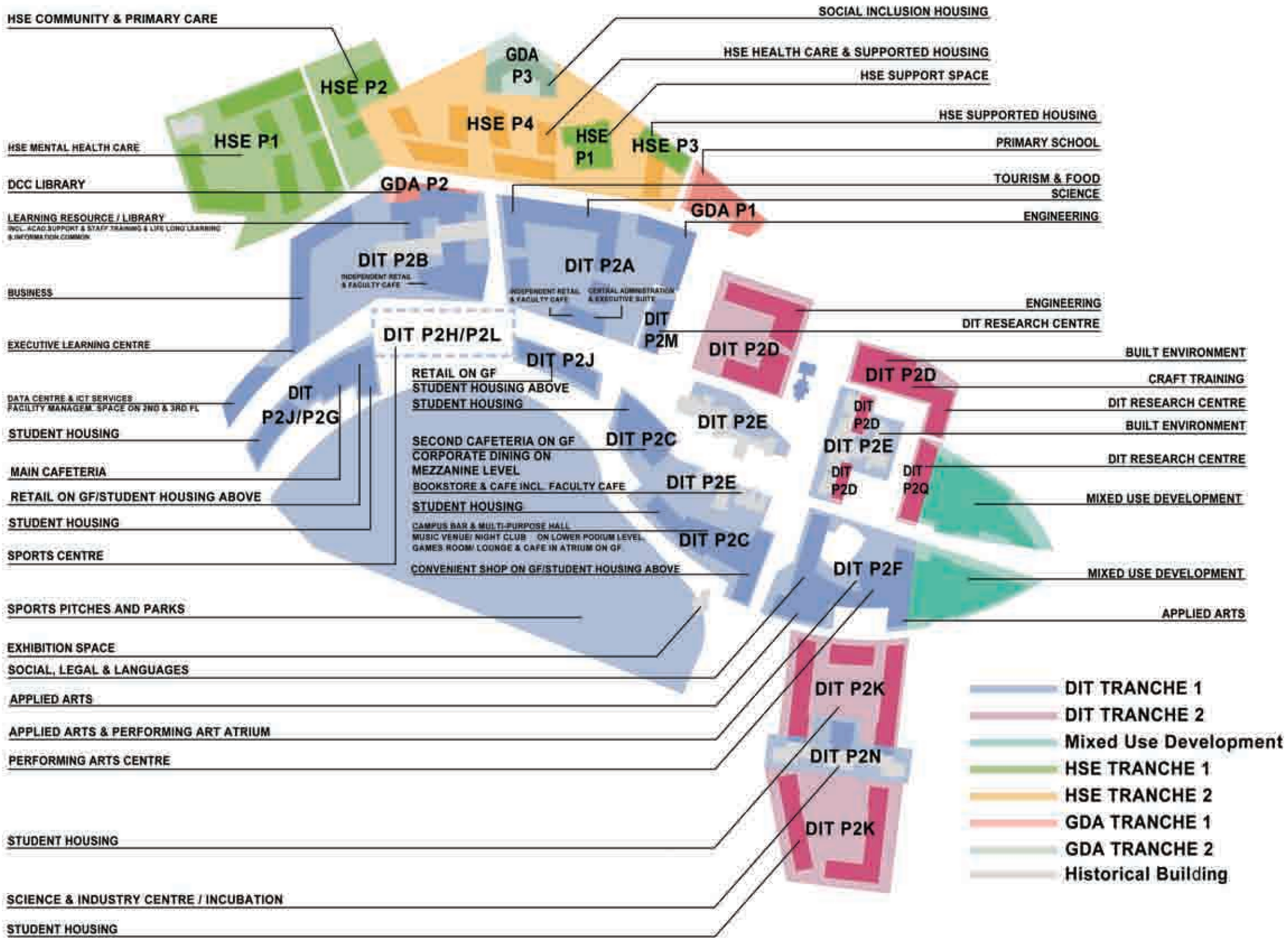


Diagram 5.3d – Packages and Buildings Layout

Diagram 5.3d opposite illustrates the various Tranches and Packages including identification of the buildings within each.

5.3.3 Element 1 – HSE

The HSE currently has a widespread occupancy of the site. Consolidation and relocation into new purpose-built facilities is urgently required to resolve the poor accommodation. In addition a new consolidated complex will open up the entire Grangegorman site for delivery of the overall program development. Currently the HSE have a number of different uses on the site. These include mental health care, special care therapy, clinical assessment, occupational therapy, addiction outpatient service, clinical, administration and ancillary uses.

Development of the delivery strategy has identified three distinct Tranches for delivery of the HSE brief. These are outlined below:

Tranche	Accommodation
1	Mental Health Care and refurbishment works to facilitate Day Care services
2	Care Facilities

The first Tranche will be the relocation of the Mental Health Care Facilities and associated Primary Care units into new purpose built replacement facilities and into the refurbished Laundry Building. This relocation is a priority for the entire site development as it will vacate a significant portion of the site to enable the Quarter to be developed.

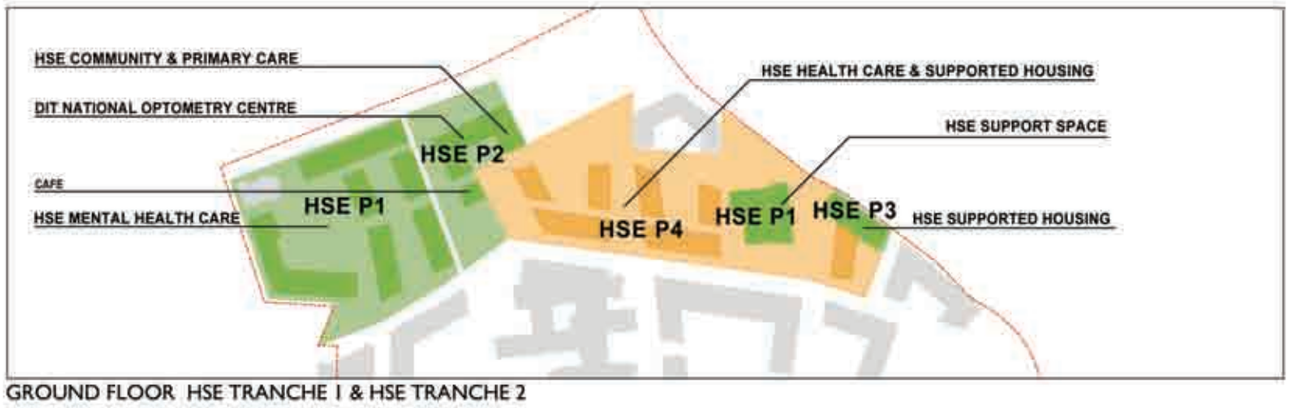


Diagram 5.3e – Tranches HSE 1 and 2 Packages Description

Tranche 2 of the HSE site will be developed as funding sources become available and will be located into the construction blocks set aside on the site. Tranche 2 can be developed immediately following completion of HSE Tranche 1 or at a later date with minimum impact on occupiers.

Tranche 1 will be further broken down into a number of deliverable Packages determined by programme requirements, and as noted below:

Package	Accommodation	Target Construction Completion
1	Mental Health Care	2012
2	Primary Care	to be Confirmed (subject to funding)
3	High support accommodation for community mental healthcare	To be Confirmed (subject to funding)

Following completion of Package 1, HSE staff will move into the new facilities thereby vacating the buildings comprising St. Brendan's Hospital together with the Clock Tower building and the Nurses Home and allowing the remainder of the area to be re-developed for DIT core facilities.

The standard planning route will enable this tranche of the development to progress ahead to facilitate timely HSE relocation and decanting from their existing on-site facilities.

It is anticipated that Package 1 will be complete for occupation in mid-2012. This will allow decanting and, where appropriate, demolition of the existing buildings and progression of the DIT tranches.

It is anticipated that the HSE Tranche 1 will initially be provided with stand-alone services infrastructure and on completion of the Quarter infrastructure the HSE Tranche 1 package will be integrated with the new infrastructure.

It is proposed to use the area identified as HSE Tranche 2 & GDA Tranche 2 as Contractor Compounds for development of HSE Tranche 1, DIT Tranche 1 and GDA Tranche 1

5.3.4 Element 2 – Dublin Institute of Technology

5.3.4.1 Overview

DIT accommodation is the most significant and intricate part of the project delivery. Relocation of existing HSE facilities on the site is critical to delivering DIT's schedule of accommodation. The various needs and constraints identified in the Introduction dictate the specific Tranches and Packages for delivery.

The DIT Tranches which have evolved are as follows;

Tranche	Accommodation
1	Primary Infrastructure Tourism & Food Science Engineering Craft Training (Part) Business Applied Arts Library/Learning Resource, Teaching/Exam space, Research Centre, Executive Suite & Central Admin., Information Commons, Academic Support, Life Long Learning, Early Learning Centre/Créche, Training, Central Large Tiered & Seminar Bank, Executive Learning Centre Data Centre, Building Maintenance, Energy Centre, ICT, Facility Management Cafeteria including staff common room, Student Union & Recreation, Student Support & Academic Student Services One-Stop-Shop, Social Hub & Clock Tower Refurbishment, Student Accommodation (Part) Retail Indoor Sports Sports pitches and Parkland Completion of Tranche 1 Infrastructure
2	Completion of Tranche 2 Infrastructure Engineering & Built Environment including Craft Training (Part) Student Housing (Part) Sports Aquatics Centre

There are two distinct tranches of accommodation that will be delivered. Delivery of Tranche 1 will meet the DIT objective of achieving a minimum of 50% critical mass of students and staff on campus at first opening. In fact it will house 22 of DIT's 27 schools. Support Services such as Cafeteria, Social Hub and the Library, which are an integral part of the campus operations, will also be delivered in Tranche 1.

Tranche 1 will also incorporate adequate infrastructure to support the new campus facility. Diagram 5.3f identifies DIT Tranche 1 and Tranche 2.

Most of DIT Core area will be delivered in Tranche 1 with the remainder of Core area be delivered in Tranche 2, together with other Non-Core area.

Procurement vehicles for all Packages include both traditional and PPP models. This is discussed further in section 8.

5.3.4.2 DIT Tranche 1

Tranche 1 will be further broken down into a number of deliverable Packages. Packages have been derived from a combination of DIT needs / Procurement / Funding / Property Disposal influences. This will facilitate an orderly development of the Quarter.

Table B overleaf details target construction completion dates for Tranche 1 Facilities.

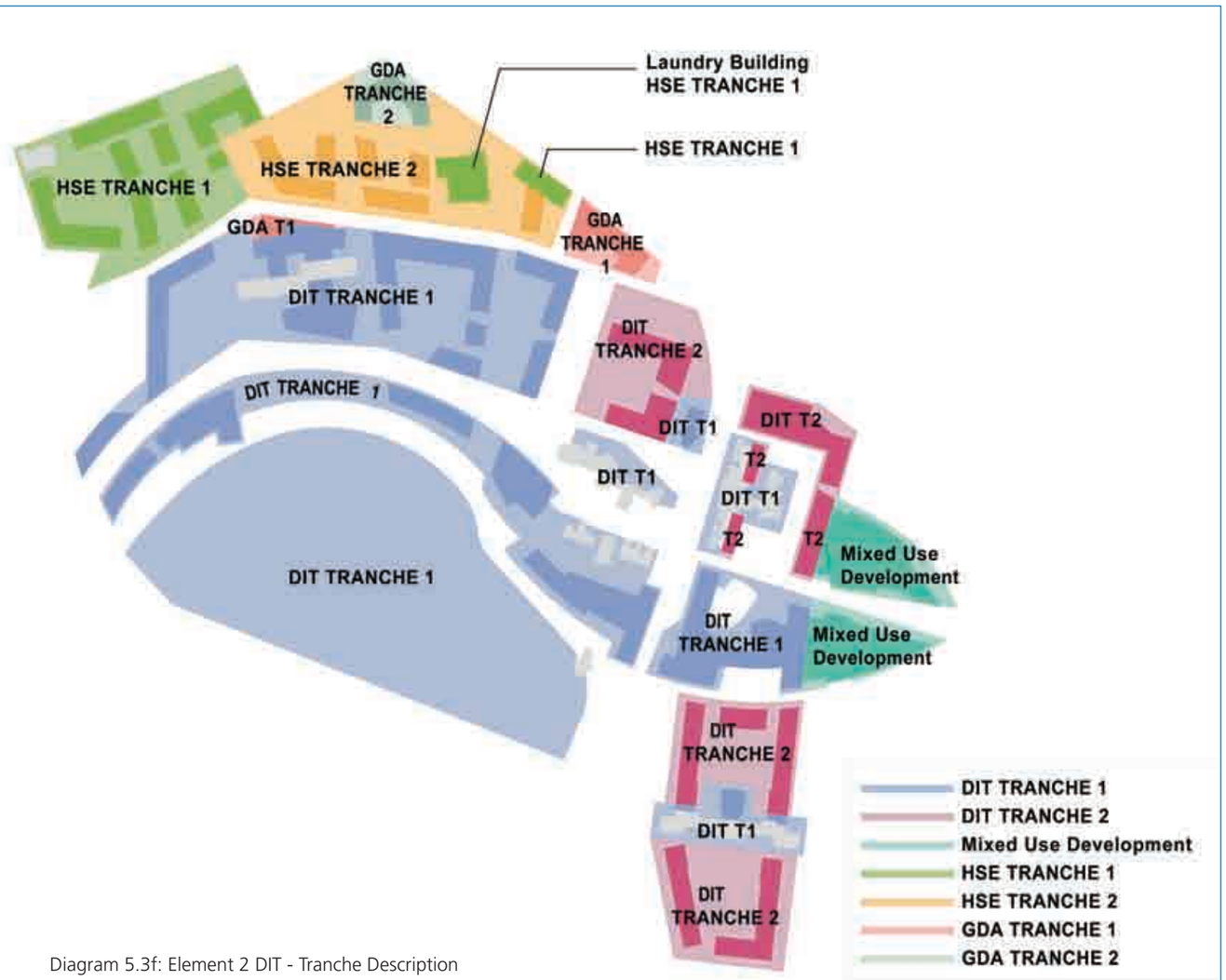


Diagram 5.3f: Element 2 DIT - Tranche Description

Implementation

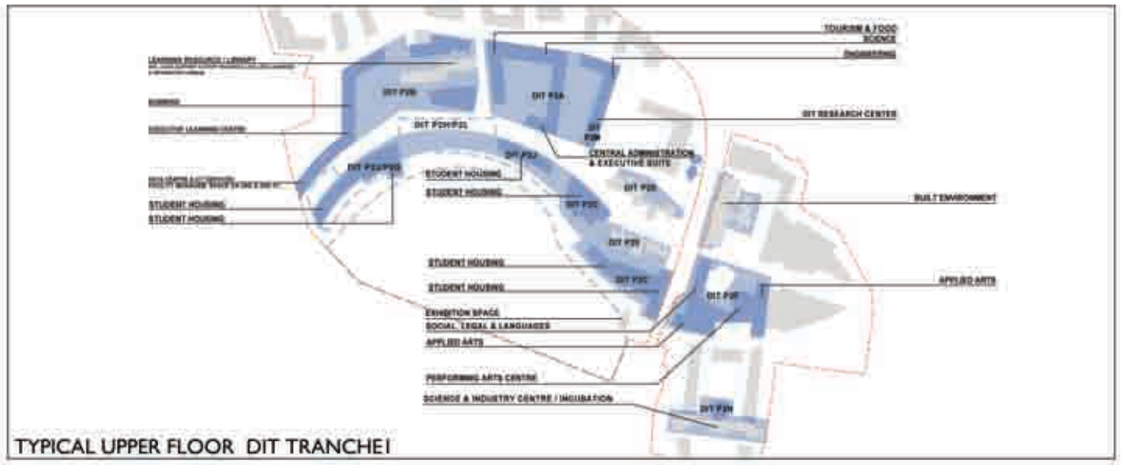
Package	Accommodation	Target Construction Completion and Occupation
1A	Primary Infrastructure	Spring 2016
2A	Data & Energy Centre, Tourism & Food, Science, Engineering Craft Training (Part), DIT Research Centre, Executive Suite & Central Admin., Large flat teaching/ exam space.	Autumn 2016
2B	Business & Library/ Learning Resource, Information Commons, Academic Support, Life Long Learning, Staff Training, Central Large Tiered & Seminar Bank, Executive Learning Centre, Retail (Part), Data Centre, Energy Centre	Autumn 2016
2C, 2G & 2J	Cafeteria incl. staff common room, Student Union & Recreation (Part), Student Support & Academic Student Services One-stop-shop, Building Maintenance, Student Housing (Part), Retail (Part)	Autumn 2016
2E	Student Union & Recreation (Part) & Clock Tower Refurb.	Summer 2016
2F	Applied Arts Earl Learning Centre/Créche	Autumn 2016
2H	Indoor Sports Sports pitches and Parkland	Summer 2016
1B	Completion of Tranche 1 Infrastructure	Spring 2017
-	National Optometry Centre*	tbc

Table B – Tranche 1 DIT – Package Description

Note

* *In accordance with the Masterplan design, DIT's National Optometry centre is to be included within part of HSE P2.*

Diagram 5.3g below identifies the DIT packages in Tranche 1over a number of floor levels.



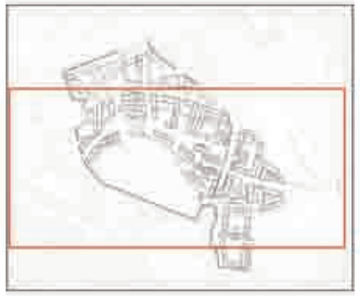


Diagram 5.3g – Package Details DIT Tranche 1

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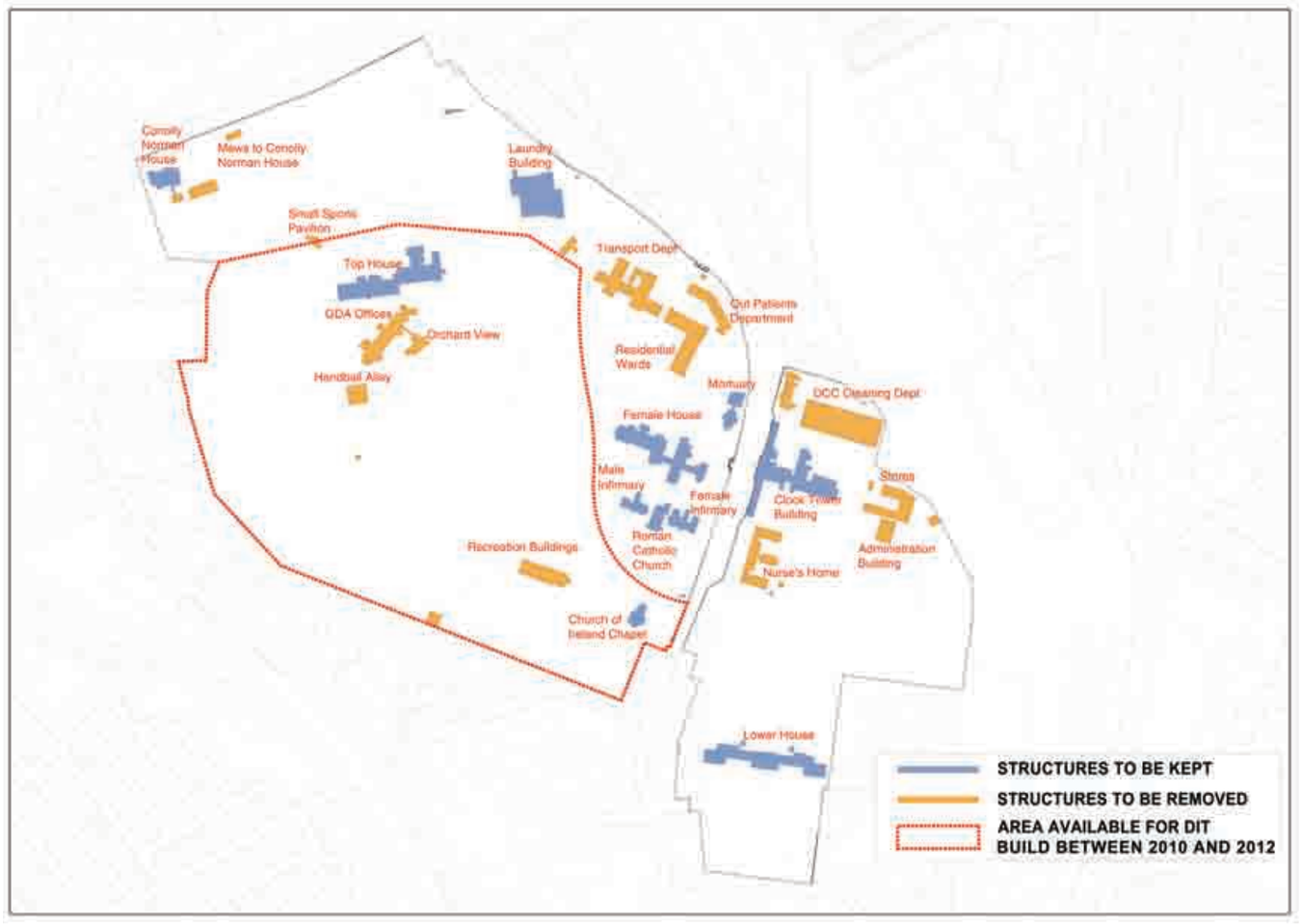


Diagram 5.3h – Site availability for DIT build 2010 - 2012 (within dotted red line)

The DIT Campus will generally be built out from west to east. This will allow the orderly completion of buildings and the associated occupation to allow for a complete Tranche 1 operational campus ready for occupation for the 2016/17 academic year.

As can be seen from diagram 5.3h, the majority of the East side of the site is occupied by the HSE and will not be available to GDA until mid to late 2012. The north western corner of the site adjacent to North Circular Road is assigned for HSE replacement facilities. Thus only the western area of the site west of Grangegorman Lower is available to the GDA between 2010 – 2012 to enable commencement of construction. In addition construction of Data and Energy Centres is required before any college buildings can become operational.

In order to accommodate the development of the Quarter, an initial infrastructure package including primary elements such as drainage, water, etc will be required upfront. It is planned that this would be let as a separate contract with a planning application for same made in mid-2012 following the approval of the SDZ, Draft Planning Scheme. Follow on infrastructure work will be completed as the buildings are developed and the Quarter is completed. Construction is likely to start on site in 1st quarter 2013 with occupation of the DIT Tranche 1 campus commencing in mid 2016.

Consideration has to be given to the following key dependencies to enable completion of the DIT Tranche 1:

- Completion of the HSE Package 1 is required so that the existing buildings on site can be vacated to enable demolition and construction of DIT Tranche 1.
- The Nurses Building and Clock Tower need to be decanted to allow construction of the DIT Arts in subsequent Packages of development.
- Completion of Packages 1A, 2B, 2C, 2E and 2F will all be affected by the existing buildings. There will also be a smaller impact on Package 2A.

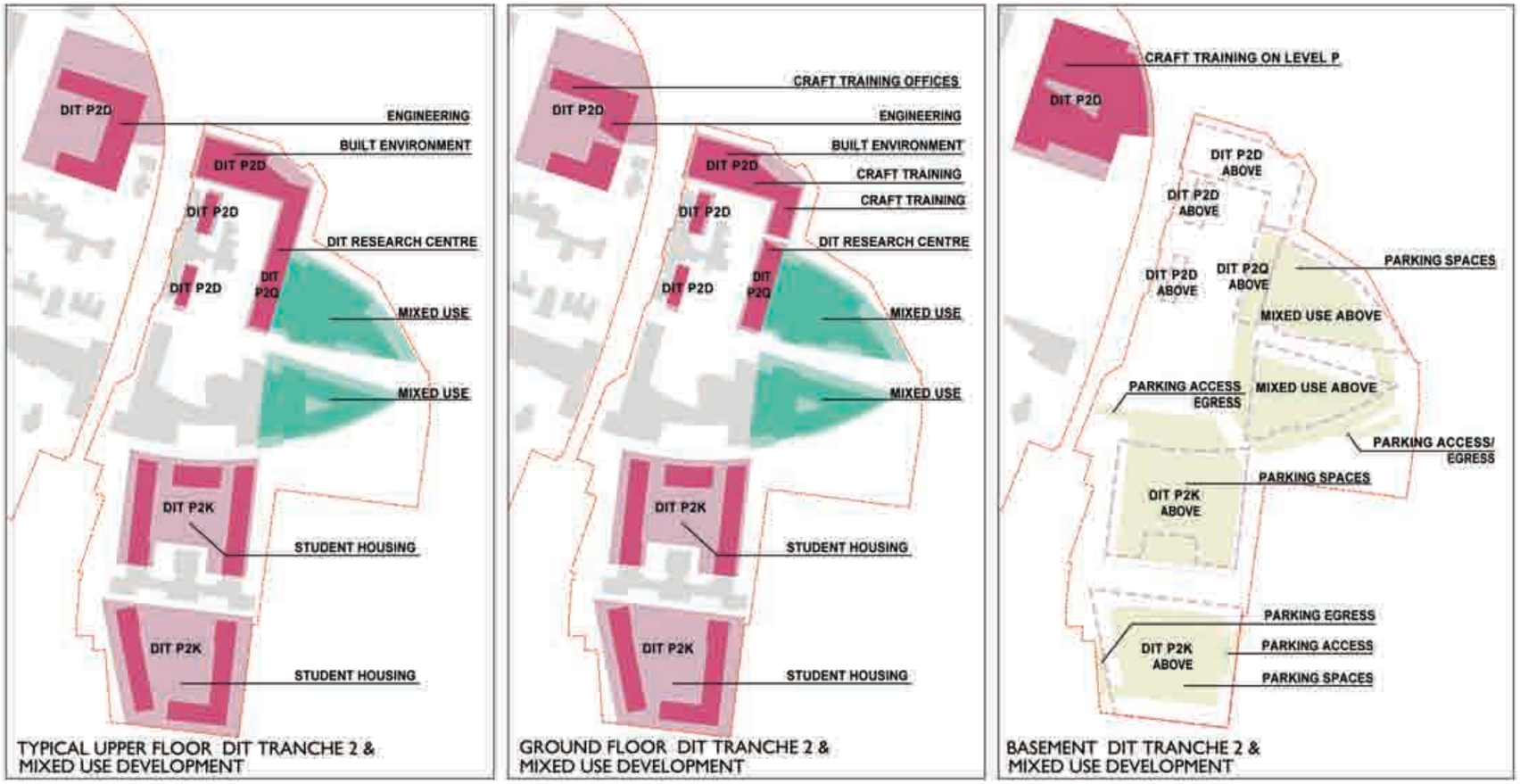


Diagram 5.3i – DIT Tranche 2 and Mixed-Use Development

5.3.4.3 Tranche 2

Tranche 2 will also be further broken down into a number of deliverable Packages. Like Tranche 1 they have been derived from a combination of key needs and constraints.

The Table below and Diagram 5.3i identify the proposed delivery Packages for Tranche 2.

Package	Accommodation	Target Construction Completion
2D	Engineering & Built Environment including Craft Training (Part)	Summer 2019
2K	Student Housing (Part)	Summer 2019
2L	Sports Centre (Aquatics)	Spring 2018
1C	Completion of Tranche 2 Infrastructure	Spring 2019

Construction of Tranche 2 could commence in late 2016 following the occupation of the Tranche 1 works and be completed and ready for occupation by 2019.

Consideration has to be given to the following key dependencies to enable completion of the DIT Tranche 2:

- Confirmation of funding to enable construction of the Sports Facilities (Package 2H).
- Completion of the Primary School to enable demolition of the Temporary Primary School and construction of Package 2K (Student Housing).
- Identification of funding source for Engineering.

5.3.5 Element 3 – Mixed Use Development

Element 3 of the development which is on the eastern side of the Quarter in an area called Broadstone Gate comprises mixed use facilities. This area is immediately west of the CIE land bank at Broadstone.

The land use plan allows for an area for the development of a range of mixed uses which could include offices, business incubation, a science and industry centre, healthcare and other related administration, HSE administration, local retail, restaurants/ cafes and commercial research laboratories.

The uses within the mixed-use development will support the educational, residential and health facilities to be developed on the Grangegorman site. Allied with the adjoining CIE lands, this particular area of the site would create a spatial cluster of economic, commercial and cultural activities which would support the objectives of Dublin City Council in promoting Dublin as a vibrant knowledge economy.

5.3.6 Element 4 – GDA for other Public Bodies

Element 4 comprises facilities to be procured by the GDA in two Tranches:

Tranche	Accommodation
1	Primary School DCC Library
2	Social Housing for the Elderly

Tranche 1 consists of the following works:

Package	Accommodation	Target Construction Completion
1 2	Primary School DCC Library	Summer 2016 T.B.C. (DOEHLG grant and philanthropy dependent)

Tranche 2 consists of the following works:

Package	Accommodation	Target Construction Completion
3	Social Housing for the Elderly	T.B.C.

It is planned the Primary School site will be used as a Construction Compound during the Construction of DIT Tranche 1. The compound must be vacated in late 2014 so that construction of the Primary School can commence.

5.3.7 Construction Management Plan

Once the Strategic Plan has been adopted, a Construction Plan will be prepared. This shall detail how the development of the entire site is to be managed and will examine issues such as traffic management, logistics, health & safety, risk management, site security, fire safety, quality assurance and control, environmental and site management.

5.3.8 Contractor Compounds

The sites for future works in Element 3 and latter end of Element 2 at Broadstone Gate will provide adequate additional compound space for the early Packages. These sites could also be used for material staging areas, temporary car parking for construction workers, site offices, huts, etc.

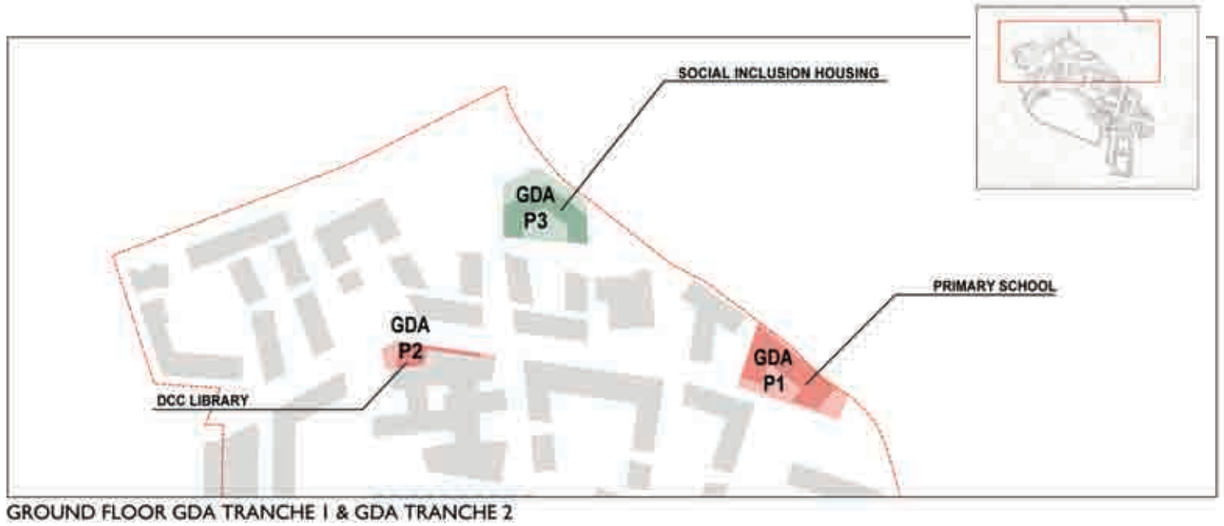


Diagram 5.3k – GDA Tranche/Package Details

5.3.9 Summary

By mid 2012 the target is to deliver the following facilities:

- HSE Mental Health Care & Primary Care

By Sept 2016 the target is to deliver the following facilities:

- DIT Data & Energy Centres
- DIT Arts and Tourism facilities
- DIT Science facilities
- DIT Library
- DIT Business facilities
- Student Housing (Part) including cafeteria, student union and recreation
- DIT Support services including building maintenance
- DIT Social Hub & Clock Tower Refurbishment
- Indoor Sports (Part)
- Primary School
- Landscaped playing fields and parkland including playgrounds and public spaces.

The aim is to follow on at a later date with a further range of DIT facilities including:

- DIT Engineering & Built Environment
- DIT Craft Training (Part)
- DIT Student Housing (Part)
- DIT Sports Centre.

Delivery Objective 1: GDA will develop the HSE replacement accommodation as the first phase in order to meet the critical needs of local healthcare services and to allow the site to be vacated for the further development of the Quarter.

Delivery Objective 2: GDA will work with HSE to complete design briefs for the first phase accommodation and to develop a decanting strategy for current HSE and associated occupation of the site.

Delivery Objective 3: GDA will work with DIT to detail comprehensively their first relocation, to develop an aligned decanting strategy, and to refine arrangements forcollege movements to ensure alignment of academic and construction programmes.

Delivery Objective 4: GDA will develop a Construction Management Plan to ensure an integrated approach to construction logistics as well as to manage local impacts and ensure effective application of GDA consultation principles.

Delivery Objective 5: GDA will plan the location of construction compounds and the boundaries of DIT construction sites to enable the expeditious delivery of the primary school.

5.4 DIT Property Disposal Strategy

DIT Disposal Aim 1: To maximise the disposal value of the DIT property portfolio to fund the project.

DIT Disposal Aim 2: To effect disposals in a manner that supports the project phasing strategy and enables unimpeded functioning of DIT.

5.4.1 Property Portfolio

The proceeds of sale of the existing DIT properties will contribute to funding the core development of the DIT campus in Grangegorman. The Camden Row property disposal will be ring fenced to deliver a replacement research centre.

DIT's freehold/long leasehold portfolio comprises 26 properties and the Institute also occupies 17 leasehold properties. The total existing portfolio has a floor area of just over 120,000 square metres, of which the freehold properties represent 87.5%. The usage of the properties is mainly teaching but also includes libraries, offices, administration, research, innovation space and support services.

There are five major property holdings comprising the principal colleges and located respectively in Kevin St, Aungier St, Bolton St, Cathal Brugha St and Rathmines. The majority of the remaining properties in the portfolio are ancillary and adjoin or are located close to the main colleges, having been acquired for the purposes of expansion over many years.

The buildings are of varying age and origin. The main core college buildings were purpose-built at various stages during the last century with Bolton St and Rathmines dating back to the 1910's through to recent constructions in Aungier St and Cathal Brugha St in the 1990's. All of the colleges have had extensions added over the decades, some in the form of new buildings and some in the form of buildings converted from other uses. In more recent times, against a background of the impending move in Grangegorman, investment in the existing portfolio has been minimised, not just in meeting the functional and facility needs of a growing student population but also in the upkeep of buildings and building services.

The multiple buildings and the dispersed nature of the locations makes efficiencies in estate management and the use of space difficult to achieve in any event. Overall, much of the buildings, facilities and equipment would require major investment to create a fitting physical environment for a modern third level educational establishment.

It is quite likely that, in the event of sale, many of the properties would be purchased for uses other than education and some would be regarded as development prospects. The properties are all centrally located with potential for commercial and residential use. Under the zonings of the properties in the Dublin City Development Plan, development for a wide range of uses would be generally permissible. There are some protected structures within the portfolio.

At this stage, it is considered that, having regard to the proposed phased move to the new campus and the dispersed and varied nature of the portfolio, a sale of the portfolio as a whole is unlikely and it is believed that value will be maximised through individual sales of buildings or groups of buildings.

As new buildings are provided in Grangegorman and existing buildings are vacated, some flexibility is possible in the timing of the disposal of the freehold properties. The leasehold properties are subject to varying lease expiry dates and the estate management of these properties has, for some time, been directed towards attempting to align expiry and lease break option dates with projected exit dates.

5.4.2 Disposal Options

For the freehold properties, the main disposal options which are open for consideration are as follows:

5.4.2.1 Sale with Immediate Vacant Possession

Under this option, disposal would occur when students and staff had vacated the old building and moved to the new replacement building in Grangegorman. This is the most straightforward method of sale and is likely to attract the widest market. However, this method would mean that proceeds of sale would not be available at the outset and there would be a need for interim development funding.

5.4.2.2 Sale subject to Leaseback

Under this option, sale would take place prior to development of the new college building in Grangegorman. During the construction period, DIT would remain in possession of the old building subject to a lease or licence from the purchaser. The advantage of this method is that it provides funds to finance development and the vacating of the property is matched with the construction period for the new facilities. From a purchaser's point of view, the deferment of possession could correspond with time which would be taken up in any event in preparation of plans for the property and in engagement with the planning process.

5.4.2.3 Linked Sale/Development

Under this method, the consideration for the sale of the property would be the construction by the purchaser of a replacement building in Grangegorman. As in the previous option, DIT would remain in possession of the existing property and the purchaser would have the opportunity during this period to advance his plans for the older property through the planning process. This method is also advantageous from a development-funding point of view and the vacating/occupation issue is fully addressed. However the market would be narrowed to major contractors/ developers and would most probably exclude the owner/occupier market that would be particularly interested in some of DIT's flagship properties, for example Aungier St., Cathal Brugha St. and Rathmines.

5.4.3 Sales Procedures

Sales are likely to take place by public tender and the actual timing and mechanism to be employed will be for decision closer to the actual development dates and will be subject to a range of factors relating to the Grangegorman development while also having regard to conditions in the property and funding markets and to Department of Finance guidelines in relation to disposal of assets.

5.4.4 Market Background

Beginning in 2007, various global events such as the sharp credit contraction, major liquidity problems in financial and stock markets, oil price inflation and other problems in commodity markets have combined to put unprecedented pressure on the Irish property market. The value of Irish commercial and residential property has significantly declined since 2008 but the rate of decline, and its variability within the various sectors of the market, is not yet clearly discernible as there have been few transactions against which it can be measured.

Recovery in the property market will depend on when such current trends as falling employment, oversupply of commercial and residential stock, consumption and business investment are reversed, reviving demand for commercial and residential space, and when funding appetite and interest rate conditions that facilitate investment are re-established.

The current negative trends are generally predicted to persist in 2010 with prospects for commencement of recovery in the latter half of the year. There is no scenario under which it may be necessary to sell properties in 2010 or 2011, but prospects for disposal will come under active consideration from late 2012 onwards.

5.4.5 Disposal Strategy

The emerging procurement/funding strategy (see Section 8) foresees that, at the outset of development in Grangegorman, it will be necessary to contribute to funding of the initial buildings by the sale of one or two of the major properties. A program for the disposal of properties is outlined in section 8, however, final decisions on which properties should be sold will be confirmed closer to the relevant dates. The state of the property market will be assessed and it is possible, for instance, that, at that point in the market, properties which have more potential for owner occupation may be favoured over properties whose potential is more biased towards development.

The form of disposal of the initial properties is likely to be sale and leaseback. There will be wider options and greater flexibility in the form and timing of disposals of the remaining properties.

DIT Disposal Objective 1: GDA will co-ordinate disposals and development to achieve an efficient and cost effective transfer from existing properties to the new buildings.

DIT Disposal Objective 2: GDA to select a sale strategy for individual properties in terms of timing and form which will best exploit the then current market possibilities.

DIT Disposal Objective 3:GDA to maximise the value of the DIT portfolio and achieve the best possible prices and sale terms for individual properties.

5.5 Site Engineering and Infrastructure – Sustainable Solutions

5.5.1 Introduction and Aims

SE&I Aim 1: To ensure the provision of a sustainable supply of services - water, drainage, energy, telecommunications, security and waste disposal to meet the needs of the project generally and the Sustainable Energy Strategy in particular.

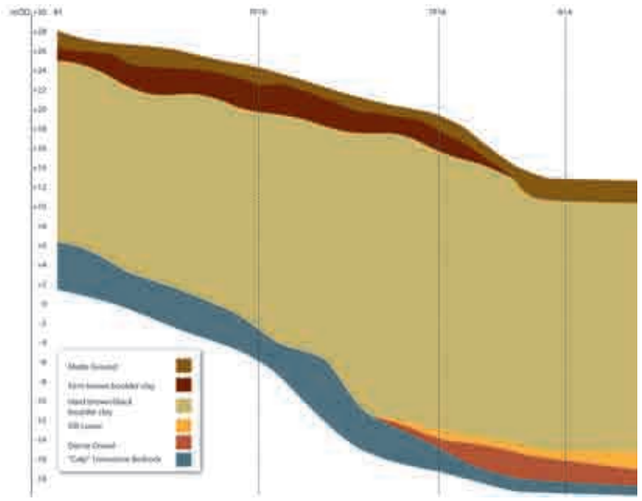
SE&I Aim 2: To provide a sustainable waste management system for the development of the Quarter to serve the end users requirements as detailed in the briefs with suitable expansion capacity.

The Quarter will require a comprehensive infrastructure system to be developed in an integrated arrangement which capitalises upon existing utility resources and facilitates the appropriate sequencing of development and good facilities management, but which also provides a platform for sustainable solutions to utilities and in particular energy management.

5.5.2 Soil Conditions

The geology of the Grangegorman area is generally glacial deposits over Carboniferous limestone bedrock, with the glacial deposits ranging from lodgement tills to glacial sands and gravels to clays formed during the ice age. Site investigations carried out at the Grangegorman site confirm that ground conditions within the site are typical of the Dublin area. The glacial deposits in the Dublin area are generally brown or black boulder clays. Isolated pockets of soft material can occur in boulder clay areas due to the presence or past presence of streams, ponds or similar physical interventions. In brown boulder clay where soft material is found, the strength and compressibility of the material can vary. The black boulder clay is generally a consistent stiff material.

The Bradogue River once ran through the site of Grangegorman but has now been culverted for public drainage with a branch running down the Grangegorman Road and a second branch running through the hospital. Although it was not encountered in the course of the site investigation it is possible that soft deposits of an alluvial nature may be found in areas where the Bradogue



River ran. These deposits if encountered are likely to be more permeable and water bearing.

Boulder clays generally have low permeability and therefore would represent a poor aquifer source. The underlying bedrock at Grangegorman has been identified as a potential aquifer, and this is particularly significant if there is a highly weathered zone at the interface between the bedrock and overlying soils.

On the aquifer classification map for Ireland Dublin is shown to lie on a poor to minor aquifer which is locally productive. The GSI National draft bedrock aquifer map concurs with this and describes the bedrock aquifer in Dublin as a locally important aquifer which is generally moderately productive in local areas. An interim study of groundwater vulnerability for Dublin city centre found the vulnerability to range from high to low, with a number of small areas of extreme vulnerability to the south resulting from shallow rock to Karst features. As water is a precious resource it is important that the redevelopment of the site incorporates conservation and sustainability measures in relation to the treatment of water.

5.5.3 Waste Management Strategy

All phases of the development will utilise environmental responsibility as a strategic tool that places the development in a better position to manage waste efficiently. It is proposed to develop an Environmental Management System (EMS) which

will encompass the Construction and Operation phases of the development. The storage and collection of waste will be in accordance with the Waste Management Act 1996, the Packaging Regulations 1997 and the Waste Management (Amendment) Act, 2001.

Waste management has been considered in respect of both the construction phase of the Quarter and its post construction operations. Proper management of both of these phases will ensure the protection of the natural environment and the overall success of the development. The new-build opportunity will be used as an opportunity to incorporate as many environmentally conscious design decisions and construction methods as practical, realising that the integration of such items as waste management compounds, organic ground maintenance facilities, and kitchen wash-up weight/volume reduction plant may be impossible to retrofit easily. Of particular concern to the Agency will be waste streams generated by laboratory, catering and healthcare facilities, and the procurement of appropriate discharge licences.

Construction Phase

The principal waste management concerns to be addressed during the construction phase will include:

- Temporary storage of spoil
- Disposal of excess spoil
- Re-use and recycling of materials
- Disposal of spare materials, waste and containers
- Storage of materials on site
- Suitability and qualifications of waste disposal contractors.

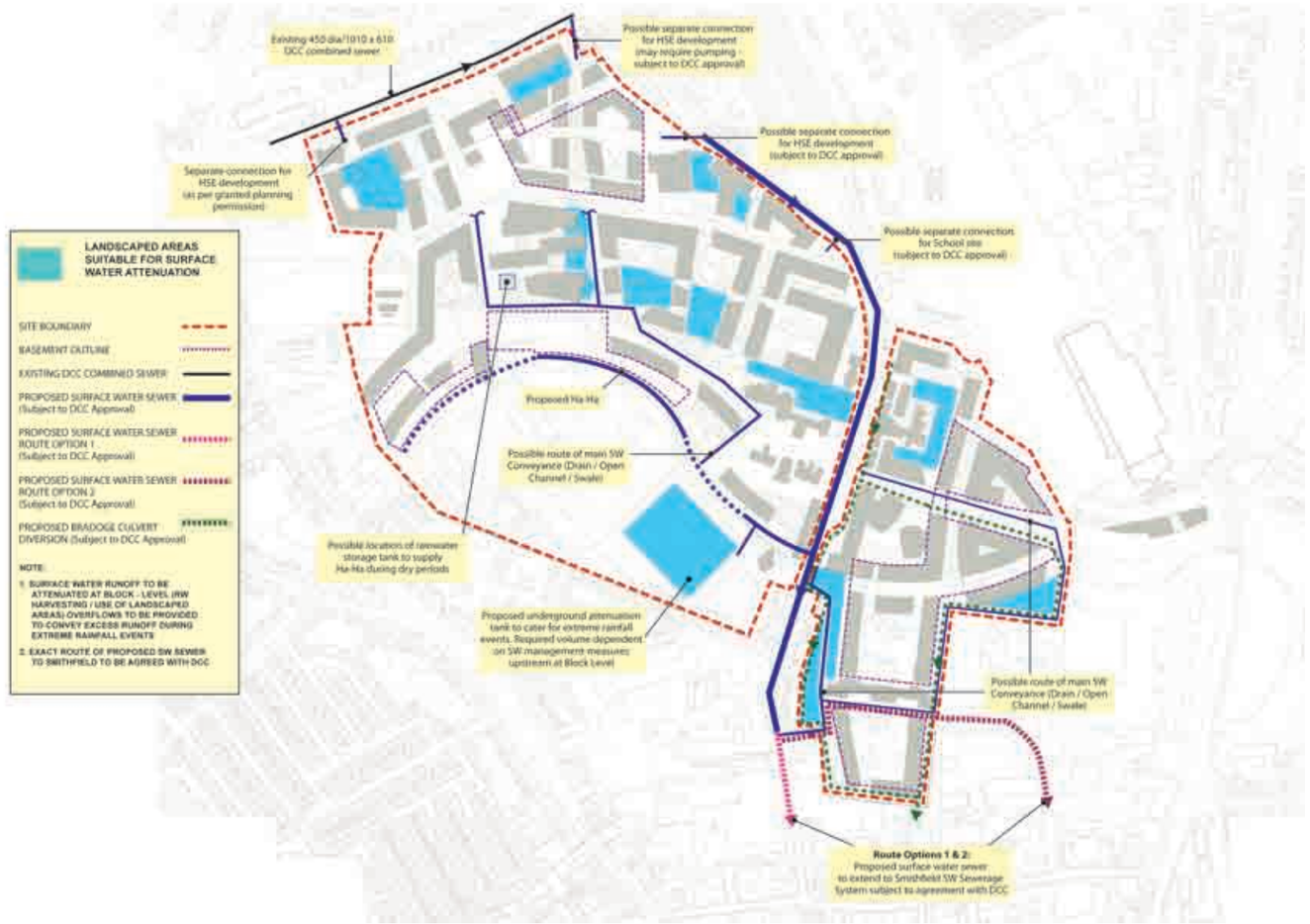
Potential environmental impacts requiring mitigation include:

- The loss of fertility of stored topsoil
- Potential pollution from stored material run-off
- Improper protection and conservation of natural resources
- Possible degradation of the soil structure by travel movements of tracked vehicles
- Potential pollution problems arising from residual wastes and leakage from oil and fuel tanks.

Operational Phase

Potential environmental impacts of the development's operational waste management procedures include:

- Additional road traffic emissions associated with specialist waste disposal contractors' vehicles
- Possible contamination of surrounding environment (land, air and water) from inappropriate waste management; Accidental spillages of chemicals
- Damage to filtration beds at sewage treatment works due to dangerous concentrations of toxic materials in waste water
- Degradation of flora and fauna due to use of artificial fertilisers and chemical pesticides for Grounds Maintenance.



Proposed surface water drainage layout

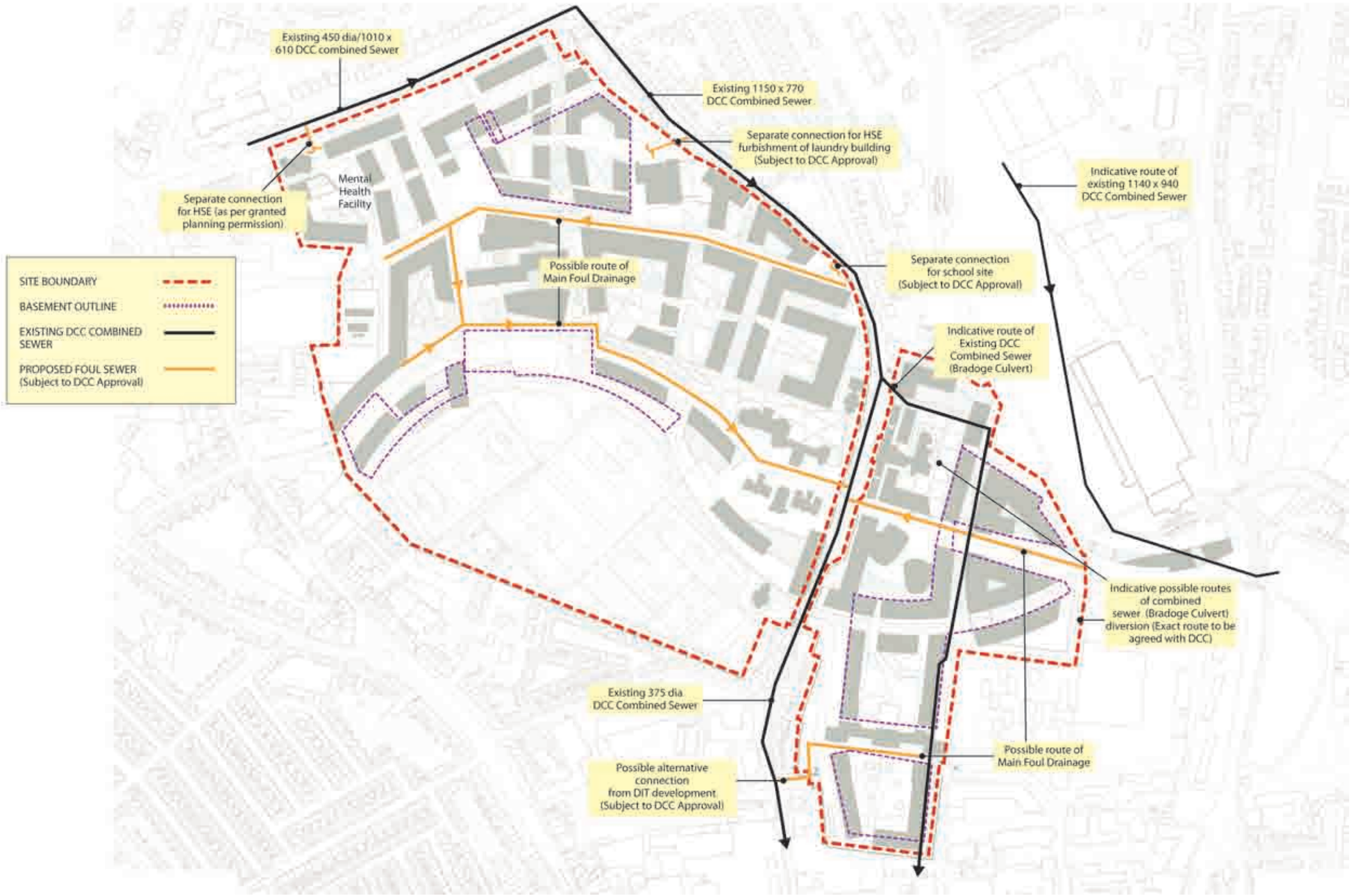
Main waste streams that should be segregated, handled and ultimately recycled or disposed will include: Bottles and Glass, Metal, Cardboard, Paper, Aluminium Cans, Food Waste, Waste Cooking Oil, Grounds Maintenance Waste, General Waste and Litter.

The operation of a site specific Waste Management Compound where the development's waste shall be segregated, baled and stored for onward recycling or disposal by Specialist will be identified and incorporated into the end user waste management procedures.

The successful implementation of a waste management plan will be influenced by the selection of competent, licensed waste management contractors for transporting and ultimate disposal of waste together with waste management documentation procedures, necessary waste management methods and emergency spillage procedure.

5.5.4 Drainage

The proposed development of the Grangegorman site will require a new internal drainage system for both waste water and surface water, and due to the proposed design for the site it is unlikely that any of the existing drainage lines across the site will be retained. However in the event that sections of existing drains could be utilised, their structural integrity and capacity shall be verified, and these drains shall be utilised for waste water disposal only. Currently there is a combined sewerage system in operation



Existing and proposed foul drainage

across the site but it is intended, as part of the redevelopment, to separate the waste water and surface water lines and create two new separate systems that will connect independently into Dublin City Council's surrounding drainage system, subject to Dublin City Council's agreement.

5.5.4.1 Waste Water

a) It is probable that initially all drainage within the Grangegorman Quarter will be privately controlled. However, this will be subject to review, and with this in mind all drainage lines running along the main circulation routes within the Grangegorman Quarter will be constructed to DCC standards, as set out below:

(i) Proposed waste water and surface water sewers shall be a minimum of 225mm diameter.

(ii) Sewers shall comply with Dublin City Council Drainage Division's (DCCDD) "Code of Practice".

(iii) Sewers and manholes shall be constructed to the details and specification of the Drainage Division.

As the HSE development will consist of particular healthcare facilities and the DIT development will have a laboratory element, the requirement for a discharge licence from Dublin City Council at the waste water connection point into their sewerage system will be necessary. The waste water drainage lines for the HSE and DIT developments will be kept independent of one another and have independent distinct connection points to DCC's sewerage system. In addition the number of waste water drainage connection points should be kept to a minimum to reduce the number of discharge licences required for the development as a whole. The development of separate waste water drainage systems will facilitate the proposed phased development of the site and will enable the proposed HSE development to progress independent to the overall development.

The existing surrounding sewerage system will be used for waste water connections from the Grangegorman site only, with surface water being dealt with separately. This proposed removal of surface water will assist in reducing impacts on the foul waste water system.

5.5.4.2 Surface Water

In relation to the surface water drainage system, there are no issues in principle with combining the surface water drainage systems from both the HSE and DIT developments. However, the replacement facilities required for the HSE in the north west corner of the site will separately drain to the existing public mains on the North Circular Road, as per the granted planning permission.

Currently there is no separate DCC surface water sewer in the vicinity of the Grangegorman site. However the construction of a new surface water sewer is proposed between the closest existing line which is located in Smithfield Plaza up to Grangegorman Road Upper, subject to agreement with Dublin City Council and site surveys. In addition to controlled discharge of surface water run off from the proposed development every effort will be taken in the design of the surface water drainage system to incorporate Sustainable Urban Drainage Systems (SUDS) into the scheme. This is in line with the Greater Dublin Strategic Drainage Study published in March 2005.

The drainage design strategy will combine various techniques of storm water management and treatment to ensure that both runoff quantity and quality are addressed. A primary aim is to incorporate as many of the following SUDS measures into the redevelopment as possible:

- Infiltration systems including infiltration trenches, infiltration basins, permeable paving, soak-aways and green roofs (roof gardens)
- Filtration systems including swales, bio-retention systems and filter strips
- Constructed wetlands including large ponds and storm-water wetlands
- Retention systems including retention ponds
- Detention systems including underground tanks, underground attenuation, detention basins and filter drains
- In addition extreme storm events can be accommodated by designing landscaped areas or playing pitches to temporarily flood and thus control the rate of outflow from the site.

Surface water attenuation will be dealt with as locally as practicable with surface water attenuation facilities being sized in accordance with Dublin County Council's requirements.

5.5.5 Water Supply

Water is a precious natural resource and the development of the Grangegorman Quarter will incorporate all practical sustainable measures to reduce water consumption across the development. The installation of a "Grey Water" recycling system that collects stores and where necessary treats rainwater and grey-water for WC and urinal flushing will be considered on a building by building basis. The landscape design proposal for the Quarter provides for the installation of rain water harvesting for the irrigation system for use within garden and landscape areas including any fountains and water features, thus reducing the mains water demand.

Following discussions with the Water Division of Dublin City Council it is anticipated that a new trunk water main will be required to supply the Grangegorman Development, linking the existing high pressure 800mm water main on Brunswick St. North (which runs up to Constitution Hill, which gives the option of linking via Broadstone) to the existing 450mm high pressure water main on North Circular Road. The design details, including the size and route of the proposed water main are to be agreed with DCC Water Division.

It is envisaged that new connections to the public water mains will be made along the primary circulation routes within the development. New building blocks will be served by ring mains with sluice valves and fire hydrants located to the requirements of Part B of the Building Regulations 1997. The water-mains shall comply with the "Specification for the Laying of New Water Mains in Private Property" issued by Dublin City Council's Water Division.

The requirements of Dublin City Council Fire Brigade will be accommodated. Testing will confirm the suitability of the existing mains system and will determine the need if any for pressure boosting.

5.5.6 Gas

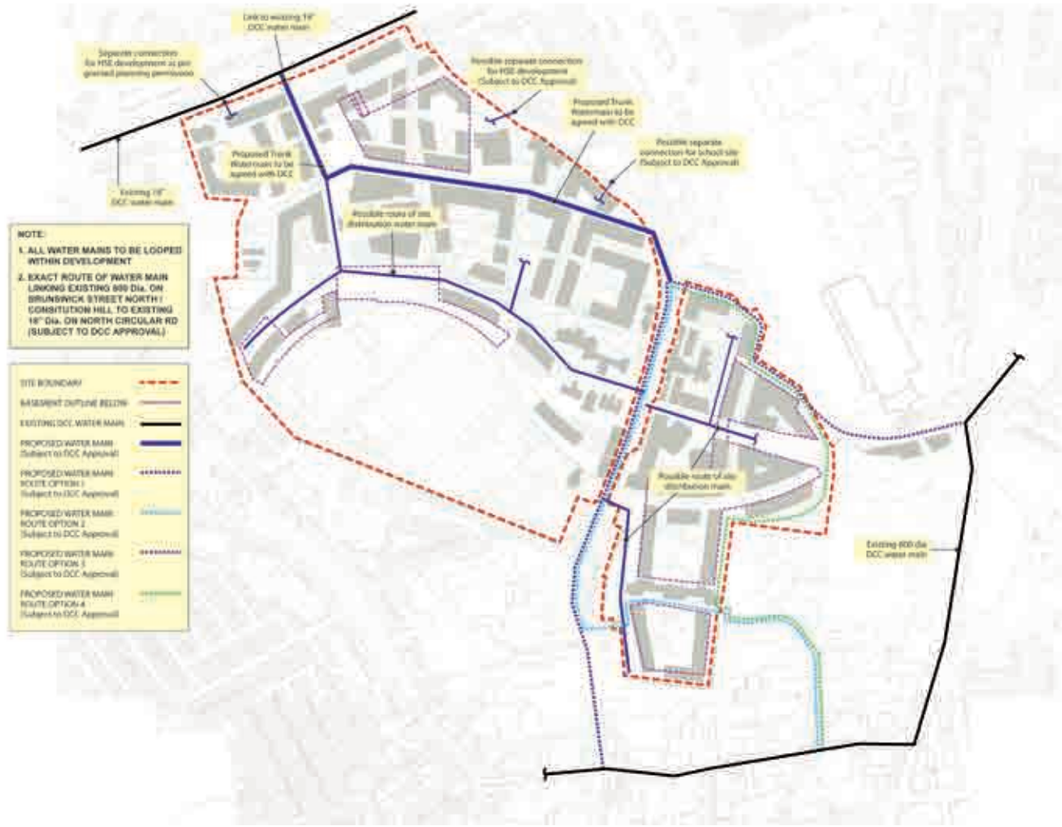
It has been established from Bord Gáis Éireann Networks (BGE) that there is currently sufficient capacity within the existing city network to serve the proposed Quarter. Gas would be distributed from the BGE Network to the centrally located CHP units as proposed in the Sustainable Energy Strategy (Section 6.4) and modulating condensing boilers located at the central Energy Centre for heating throughout the Quarter. Smaller individual users such as laboratories and catering would be provided with individual metered connections. BGE will distribute gas through mains at 4 Bar pressure, reducing in pressure to below 100m Bar pressure entering buildings. Existing redundant gas network will be removed.

A temporary packaged boiler plant will be installed local to the HSE Phase 1 Facility and will provide heating and hot water to the HSE, prior to delivery of the Grangegorman Energy Centre. This boiler plant will be sized to cater for the HSE heating load and a gas connection will be provided. Following completion of the Quarter Main Energy Infrastructure the temporary facilities will be decommissioned and removed.

5.5.7 Heating & Hot Water Distribution

In advance of the Energy Centre being completed, a packaged boiler plant would provide heat to the HSE buildings. Heating pipe-work connections would be left adjacent to the temporary plant-room for future connection to the Quarter's Main Energy Centre circuit, once constructed. Following this connection, the temporary HSE boiler house would be decommissioned and removed.

Following completion of the Energy Centre, the underground Distinct Heating Network will be installed throughout the Quarter. On completion of each building phase, the Distinct Heating Network will be connected to the buildings.



Existing and proposed water mains

5.5.8 Electricity

The entire Quarter is to be served by the existing ESB infrastructure, which is capable of meeting the Quarter's future load demands.The electrical power will distribute from the incoming ESB substations through the site in a buried network of PVC ducts containing cable distributing power at 20kV.

There will be 2 separate elements to this network, the client Medium Voltage (MV- 20kV) networks serving the DIT and HSE elements, and the ESB infrastructure serving all elements of the Quarter not importing power at MV. Both DIT and HSE will import electrical power from the ESB at MV and distribute from the central plant area adjacent to the substation on the client MV networks. The network will need to be flexible enough to accommodate locally generated power from any CHP Plant.

Other elements of the Quarter requiring power will be distributed via the ESB Strategic Plan 2008 infrastructure and supplied to the end user at Low Voltage (LV- 400V). The DIT and HSE elements of the Quarter will be served by independent MV ring networks. These substations will comprise an MV switchgear, MV transformer and low voltage switch-room for local power distribution to each building. All power distribution will be designed in accordance with current ESB regulations..

5.5.9 Telecoms/Cable Television Distribution

The Quarter will be supported by a site wide IT infrastructure. A network of in ground ducts will distribute any telecoms required throughout the Quarter from a Central Communications Hub to each building's Intermediate Distribution Frame (IDF).

Any existing telecoms network on the Grangegorman Hospital site would not be suitable for use with the new Quarter and would be removed during excavation.

The services to be incorporated with this network are Eircom main trunk routes, cable television services and any potential Wide Area Network (WAN) services which may be required.

The initial infrastructure will incorporate the construction of the Quarter's Central Hub and site distribution network of ductwork. The Central Communications Hub will be constructed adjacent to the Energy Centre in this phase. IT infrastructure will be installed as part of each phase of infrastructure. As the Central Communication Hub will not be in place when the HSE Phase 1 works are implemented, the HSE replacement health facilities will connect directly to the service provider's network as an interim measure.

5.5.10 CCTV and Security Installation

A Quarter wide CCTV and security system will be installed. All Quarter CCTV cameras and security devices can be linked to a Central monitoring station onsite.

The Central Monitoring Station and associated site infrastructure will be installed as part of the initial infrastructure provision. The HSE CCTV system will be fully installed and operational in advance of the Quarter-wide system. This will be integrated into the Central System as it is commissioned.

SE&I Objective 1: GDA will mandate compliance with Department of the Environment 'Best Practice Guidelines' for Construction and Demolition Waste Management in the procurement of all construction works.

SE&I Objective 2: GDA will put in place a waste management strategy to ensure that best practice in this area is integrated across the site.

SE&I Objective 3: GDA will develop a centralised energy centre and utilities spine to convey essential services across the site such as will permit all building elements to connect.

SE&I Objective 4: GDA will ensure all site drainage systems are built to meet SUDS (Sustainable Urban Drainage Systems) standards and in all respects meet the requirements of Dublin City Council Drainage Division's standards and "Code of Practice".

SE&I Objective 5: GDA will ensure that the site water supply network is built to Dublin City Council Water Division Standard for New Water Mains in Private Property.

SE&I Objective 6: GDA will ensure the implementation of sustainable water use strategies and measures for each building development.

SE&I Objective 7: The GDA will work closely with Dublin City Council in the design of adequate water services infrastructure to serve the quarter.

5.6 Complementary Mixed-Use Activities

5.6.1 Introduction and Aims

CMA Aim 1: To procure the development of commercial activities that will complement and support the core activities of DIT and HSE.

CMA Aim 2: To procure the necessary accommodation to facilitate the Research and Development Strategy

CMA aim 3: To maximise the leverage of employment opportunities from the complementary commercial activities

In keeping with similar developments world wide, there will be a range of complementary activities developed through the Quarter. These facilities will support and complement the needs of DIT and HSE and in turn be accessible by surrounding communities. These facilities will extend to the following areas:

- On campus student accommodation
- Retail outlets
- Research and Development Facilities
- Office accommodation.

5.6.2 On Campus Student Accommodation

DIT has a real need to provide a level of student accommodation for its students. At present, DIT is unique within the higher education sector in that, given its scale of activity; it does not provide student accommodation.

The Strategic Plan provides for accommodation of up to c.2,000 bed-spaces equating to a provision of approximately 15% of their full time students. This figure is comparable to the average level of provision available within the higher education sector.

Student accommodation on campus will:

- Create an 'urban' feel to the campus
- Assist in building a community spirit on campus complementary to the surrounding communities
- Reduce traffic as a result of reduced student travel to and from the Quarter

Residential occupation and activity will:

- contribute to greater security and safety in the Quarter and in the surrounding area
- Facilitate DIT support for student wellbeing and quality of student life
- Contribute to passive security measures in the Quarter.

5.6.3 Research & Development and Industry Co-location

5.6.3.1 Introduction

Section 6.1 details the Research and Development Strategy of DIT and GDA and this section outlines the related property issues. The Research and Development Strategy targets occupiers with strategic synergies with DIT and the property solution is not therefore a standard commercial form of development.

The Strategy will be enabled by the following built elements:

- Incubator Centre Hot House
- Commercial Laboratories
- Science and Technology Park Spaces.

The Research and Development Strategy also refers to Dedicated Research Centres. This accommodation is fundamentally academic and not therefore part of the complementary estate.

5.6.3.2 Incubator Centre Innovation and Technology Transfer Centre

The DIT *Hot House* incubator centre will extend to approximately 5,000m^2. The Centre will also provide common space and facilities and will have the benefit of support staff on a full time and part time mentoring basis.

The occupants of the Incubation Centre are anticipated to be mainly indigenous companies who will avail of the space and facilities from start up through the early stages of enterprise development. These ventures will include campus companies where DIT has a commercial interest and others where DIT has no equity participation. Preference will be given in Hothouse to start-ups which leverage ICT and Biotechnologies to create new products. It is intended that, as the Hothouse companies outgrow the innovation space, they will take up commercial residence elsewhere in the Science and Technology Park where DIT will assist them to grow to IPO or trade sale size. Rents in the Hothouse will be set at a discount relative to market levels and will include a high standard of services

Enterprise Ireland has plans to develop with DIT a portion of the Incubation space to be created in the new Quarter

5.6.3.3 Laboratory based Industry

The objective of this concept is to commercialise DIT research. It is planned to provide specialist "wet lab" space to attract science based industry partners, including the multi-national sector, which will be interested in collaborative initiatives between the Institute and industry and could share specialist laboratories, services and facilities.

5.6.3.4 Science and Technology Park Offices

DIT aims to attract companies to the area, who will forge strategic alliances with DIT in the areas of research, education and training. This space will have to compete for occupiers on commercial terms in the general office market. In this respect, the new Quarter has excellent prospects of becoming attractive and competitive as a business location.

This Science and Technology Park can be accommodated in the mixed-use development area at Broadstone Gate, described in section 5.6.4 below.

5.6.4 Mixed-Use Development at Broadstone Gate

The proposed location for high quality mixed-use accommodation is at the eastern end of the Quarter that is immediately west of Broadstone Station. This area, called "Broadstone Gate", will also, in the future have access through Broadstone from Constitution Hill, thereby providing good pedestrian linkage to the city centre through Kings Inns. Broadstone is planned to become a major transport hub with a Luas link to the city metro system. The likely development of the Broadstone site itself will, over time, convert Grangegorman/Broadstone into a major business, commercial and research district. The area will form part of a wider new commercial zone in the west central city including Smithfield, Markets, Heuston Gate and Digital Hub.

Accommodation will be provided in a series of buildings at Broadstone Gate that in aggregate can extend to some 60,100 m2. The buildings will be capable of incremental construction to respond to demand.

Development will comprise a range of mixed uses which may include offices, a science and industry centre, healthcare and other related administration, HSE administration, local retail, restaurants/ cafes and commercial research laboratories. These uses will contribute to Dublin as a vibrant knowledge hub.

The location has the potential to be attractive to a wide range of businesses including science, pharmaceutical, food, IT, media, communications, financial, professional, law and others.

5.6.5 Retail

The staff, student and visitor population will generate a considerable demand for meals and snacks and also for food and convenience shopping.

Two large scale cafeterias are planned to cater for main meals with one likely to remain open during the summer months. Provision for DIT staff and corporate dining is planned for incorporation in one of the cafeterias. There will be a selection of smaller more casual independent food outlets spread throughout the Quarter, including coffee shops, delicatessen and fast food. Other retail uses that the Quarter will require and can support may include a local convenience store, bookshop, stationery, bank, pharmacy, hairdresser/barber, laundrette, etc.

There will be some retail uses associated with the sports centre including sports goods and injuries clinic and a bar/venue space will be incorporated in the student centre. As the Science Park and the Broadstone area are developed, a working population with significant footfall and spending power will be generated which may support a broader range of retail uses including some comparison retail.

The variety and commerciality of campus-related retail uses is somewhat constrained by the reduced population during academic holiday periods. Also, the range and extent of retail is limited by the fact that it should be complementary to the adjoining commercial areas of Prussia St, Manor St, Stoneybatter and Smithfield which will provide diversity and command a significant proportion of the retail spend.

The provision of retail space will be phased to match the demand arising from the development of the core academic facilities and the growth of the Quarter population.

CMA Objective 1: GDA will seek to meet the needs of DIT in relation to accommodation for its student population by procuring circa 1,500-2,000 student accommodation units on campus

CMA Objective 2: GDA will seek to procure an Incubator and Innovation and Technology Transfer Centre.

CMA Objective 3: GDA will seek to procure a range of mixed-use development at Broadstone Gate.

CMA Objective 4: GDA will seek to procure Commercial Laboratories to commercialise DIT research.

CMA Objective 5: GDA will seek to ensure the provision of retail and food outlets of a standard and range expected by the occupants of a modern higher education and medical quarter and in a fashion complimentary to existing local retail provision.

5.7 Development of Social Infrastructure

5.7.1 Introduction and Aim

The Project includes a broad range of social amenity and community access and use of public realm and DIT facilities in particular. However, there are in addition, three distinct building elements of social infrastructure proposed; a public library, a primary school and social housing for the elderly.

Social Infrastructure Aim: To seek to secure, in addition to the general public amenity of the Project, social infrastructure through specific inclusion in the Project works of a public library, primary school and social housing for the mid-dependency elderly.

5.7.2 Dublin City Council Branch Library

The Strategic Plan proposes the development of a public library adjacent to and operating in tandem with the DIT library located in the academic heart of the Quarter. DIT intend that the complementary operation of the libraries will encourage greater community use of and access to library resources including access to IT facilities and technology enabled resources. The block incorporating the public and DIT libraries will be designed and constructed together such as to ensure the effective realisation of these objectives. GDA will work with DIT and Dublin City Council to develop this proposal into a deliverable project.

5.7.3 Primary School

GDA is proposing the development of a primary school for approximately 400 pupils to be located at the intersection of Grangegorman Upper, Rathdown Road and Ivy Avenue. This location provides a strong connection to the community and optimizes easy, convenient access for pupils and their guardians. The configuration of the school ensures a safe and secure site with generous play areas.

The Department of Education and Skills has confirmed that the patron for this school will be the Educate Together body. Dublin 7 Educate Together National School is a multi-denominational, co-educational primary school in Cabra which operates under the patronage of Educate Together, a representative organisation of the Educate Together schools and associations throughout the Republic of Ireland. Educate Together has over 40 schools in the Republic of Ireland, many of them in the greater Dublin area.

Dublin 7 Educate Together National School opened in September 2000 and has operated with permanent recognition from the Department of Education and Skills since that time. The school currently has the facilities to cater for special needs pupils including those with intellectual, physical, sensory impairment disabilities and autistic spectrum disorder and uses an integrated model of an assisted learning centre (ALC) to cater for these children. This capacity will be maintained in the new school.

The School moved into temporary accommodation on the site in September 2009. It has become a very positive addition to the local area.

In order to meet this deadline ahead of the development of the Quarter it is proposed to relocate the school during 2009 in temporary buildings within the south eastern corner of the Grangegorman site. A planning application for this temporary school was submitted in September 2008 an approval was granted in November 2008.

5.7.4 Social Housing for the Elderly

It is proposed to provide in the order of 25 independent type apartments in a cluster style complex for the 'Frail elderly', which would be run as social housing by an approved housing body in association with the HSE.

Residential units will be to a specialist design to optimise the resident's independence. This approach is intended to enhance the quality of life and sense of independence of the resident, and reduce the "institutionalisation" of the frail elderly.

This residential accommodation will be close to the HSE Primary Care buildings and other supporting health facilities.

GDA will further develop the project for the independent living homes with HSE, Dublin City Council and the Department of Environment, Heritage and Local Government.

Social Infrastructure Objective 1: GDA will work with Dublin City Council and DIT to secure the development of a local public library as an integral element of the DIT library complex.

Social Infrastructure Objective 2: GDA will work closely with the Department of Education and Skills and Educate Together to secure the development of a primary school (and related play-grounds) with capacity for approximately 400 pupils.

Social Infrastructure Objective 3: GDA will work with Dublin City Council, Department of Environment, Heritage and Local Government and the HSE to secure the development of approximately 25 units of social housing for independent living of the frail elderly.

5.8 Access to the Quarter

5.8.1 Introduction and Aim

Access Aim : To allow the site to be opened up to adjoining areas to ensure permeability so that it can evolve as a new city quarter both for the stakeholders who are going to be located in the Quarter and for the people of Dublin.

As a result of the historic use of the site as a mental institution and the evolution of the adjoining Broadstone site as a bus depot, Grangegorman has been dislocated from the rest of the city. The site has in fact acted as a barrier to the proper planning and development of the area.

It is one of the primary aims of the Masterplan to connect the new Quarter into the neighbouring City fabric, allowing the site to be opened up to adjoining areas. The accessibility of the Quarter for its stakeholders is of critical importance. It is essential that as many access points as possible are created to facilitate the proper planning and development of the site.

The aim is to create a permeable city area that is linked to the maximum extent with the city and its neighbouring communities. Easy and convenient access to the new Quarter for local communities is important in order to enable local residents and groups to avail of the park landscape, sporting facilities, play areas, educational and health facilities and also, to avail of the re-created link between the city to the east and Stoneybatter to the west. It is considered that, in addition to access at North Circular Road and via Grangegorman Road and Grangegorman Lower which are on the frontages of the site, that access to/from the site at four other locations would particularly support proper planning and development and would enable the full potential of the Master Plan to be realised.

5.8.2 Broadstone

Broadstone has particular significance in that it has the potential to be:

- The principal point of connectivity between the Quarter and the transport interchange at Constitution Hill
- A major pedestrian route between the Quarter and the city centre via Henrietta Street and O'Connell Street
- A major address and high profile gateway for the Quarter in general

- A medium for physical integration between Broadstone and Grangegorman and
- A future location of high value economic uses complementary to the Quarter.

GDA will work with CIE and the Railway Procurement Agency in order to optimise the synergy between the further realisation of the Quarter gateway and the development of the Broadstone site as a major mixed use development site and possible inter-modal transport hub.

5.8.3 Other HSE land on North Circular Road

To the north-east of the site is an area of land belonging to and occupied by HSE. The land accommodates HSE residential accommodation within three large detached house buildings and buildings to the rear. The site is relatively undeveloped and comprises an important frontage to the North Circular Road. The Masterplan anticipates its future development such as will give completion and continuity to the frontage of the Quarter to the North Circular Road and allow an important pedestrian connection in the north-east corner. This pedestrian connection is one of the Green Fingers of the Masterplan proposal and will add greatly to the permeability of the Quarter and to its accessibility to the local community.

GDA will maintain dialogue with HSE in respect of possible future development of the north-east corner site and in particular concerning the possibility of achieving the Green Finger route. The HSE, not the GDA, will be the developer of this land area.

5.8.3.1 Prussia Street

The laneway at Fingal Place is a public road and leads to an existing gateway into the fields of Grangegorman. This access-way would be suitable as a pedestrian point of entry but due to its relative seclusion would benefit from an appropriate regime of control – perhaps day-time access only. Opening this gateway would allow easy community access to the park landscape and play areas during the day and would also provide a link for staff and students of DIT to the Quality Bus network on Prussia St.

The Park Shopping Centre has been considering re-development options and Dublin City Council conditioned a January 2004 planning permission that a pedestrian route be formed into Grangegorman. GDA has consulted with the land owners and intends working closely with them to achieve a suitable pedestrian and possibly an ancillary low-intensity vehicle and service route, in the event of development taking place.

The Masterplan suggests a possible location for a roadway into the Quarter at the site of the car-sales yard at 22/28 Prussia St. This would significantly enhance pedestrian permeability and accessibility to the Quarter's community and sports facilities and would also provide an ancillary low intensity vehicle and service access to the Quarter. Preliminary consultations have taken place with the land owners and it is intended to further pursue these discussions.

5.8.3.2 Smithfield

Direct connectivity between the Grangegorman Quarter and nearby and recently developed Smithfield Quarter should be strengthened. Indirect routes do exist but these are not particularly legible and likely to be ineffective in connecting the two new quarters. This situation can be improved by the formation of a pedestrian route from the southern corner of Grangegorman, as illustrated on the Masterplan proposal, through lands belonging to Albion Properties and out onto North Brunswick Street. Albion Properties is considering the development of the lands at North Brunswick Road and a related planning permission was conditioned by a requirement for such a pedestrian route by An Bord Pleanála. GDA will maintain dialogue with the developer to ensure that any such route is designed to compliment the design and nature of the Quarter.

Access Objective 1: GDA to secure a major public point of entry to the Quarter through the CIE and Dublin City Council lands at Broadstone.

Access Objective 2: GDA to liaise with the HSE, regarding adjacent lands at N. Circular Rd., and with the developer Albion Properties, regarding lands adjacent to the Lower House quadrangle, in relation to integrated pedestrian access to the Quarter.

Access Objective 3: GDA to explore opportunities for further entry points to the Quarter from Prussia St.

Access Objective 4: The GDA will support the principles of universal/inclusive access in line with Dublin City development Plan 2011-2017.

Access Objective 5: Permeability is a key principal of the Grangegorman Plan. The GDA will explore all possibilities for increasing permeability while also aiming to minimise any potential serious adverse impact on neighbouring residents.