CitA
BIM GATHERING

Learning from Grangegorman

Louis Gunnigan
Campus Planning Team
Dublin Institute of Technology

Adam Goff
PhD Candidate
Dublin Institute of Technology

Grangegorman – Background

- 200 year+ history of psychiatric care
- In 2009 was hospital for treatment of mental illness
- Outdated facilities
- 30 hectares of walled brownfield site

Grangegorman 2010

The New Campus

Proximity to City Centre

Facts and Figures

- Planned final DIT Campus Population of 25,000
- 30 Building Plots
- 380,000m2 of floor space overall
- 140,000m2 is academic space for Dublin Institute of Technology (DIT)
  - Remainder of space
    - student residences,
    - sports facilities,
    - industry innovation park,
    - community and residential health facilities,
    - primary school
    - other associated structures to support the servicing of the campus.
- Timeframe
  - Completion planned for 2025 (dependent on availability of finance)
- Estimated overall cost
  - c. €1.5 billion

CitA
BIM GATHERING

Progress

- 2012 – HSE Phoenix Care Centre
- 2014 – Site Infrastructure
- 2014 – 8,000m2 adaptive reuse
- 2015 – Greenway Hub
- 2017 – HSE Primary Care

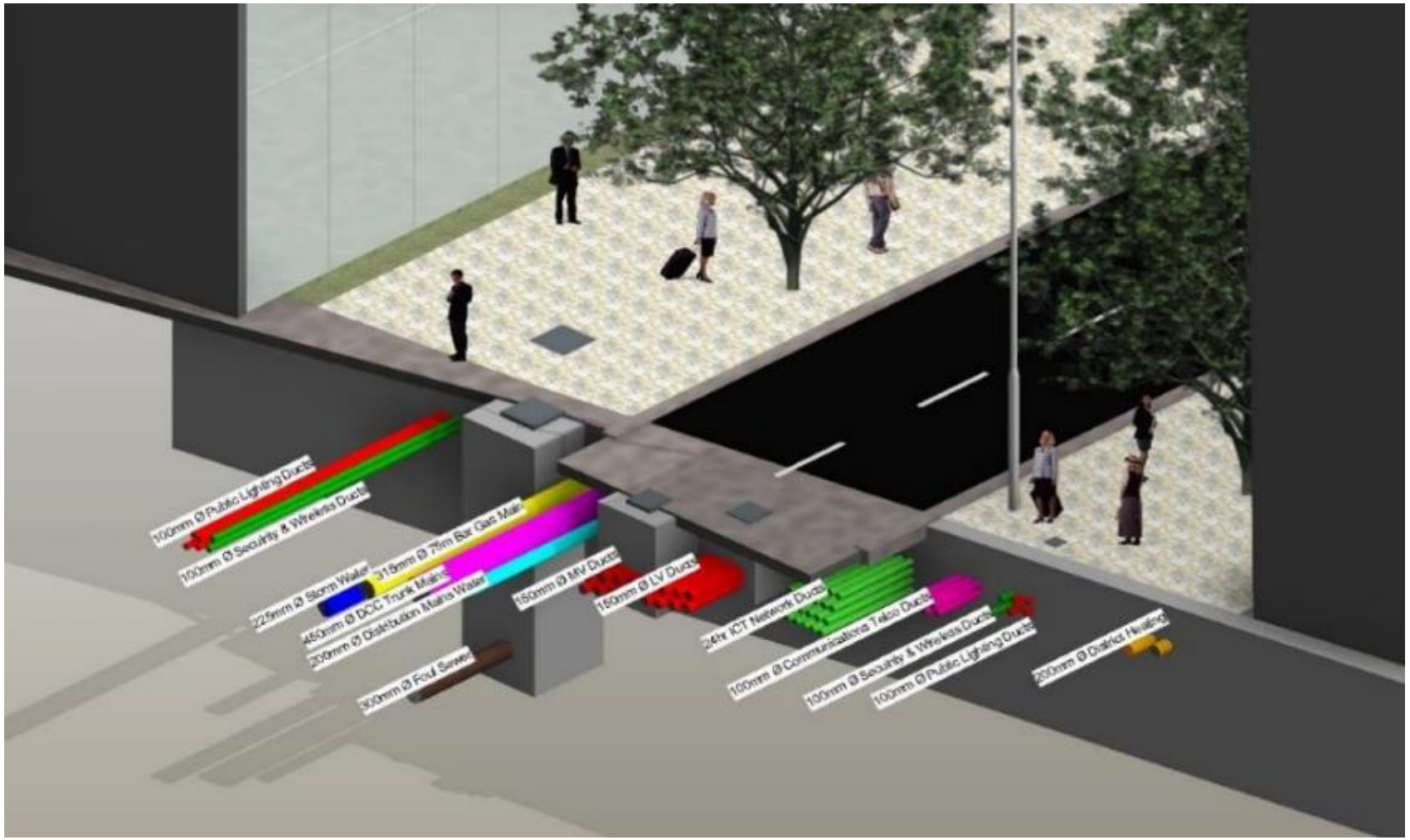
HSE Buildings

The Phoenix Centre

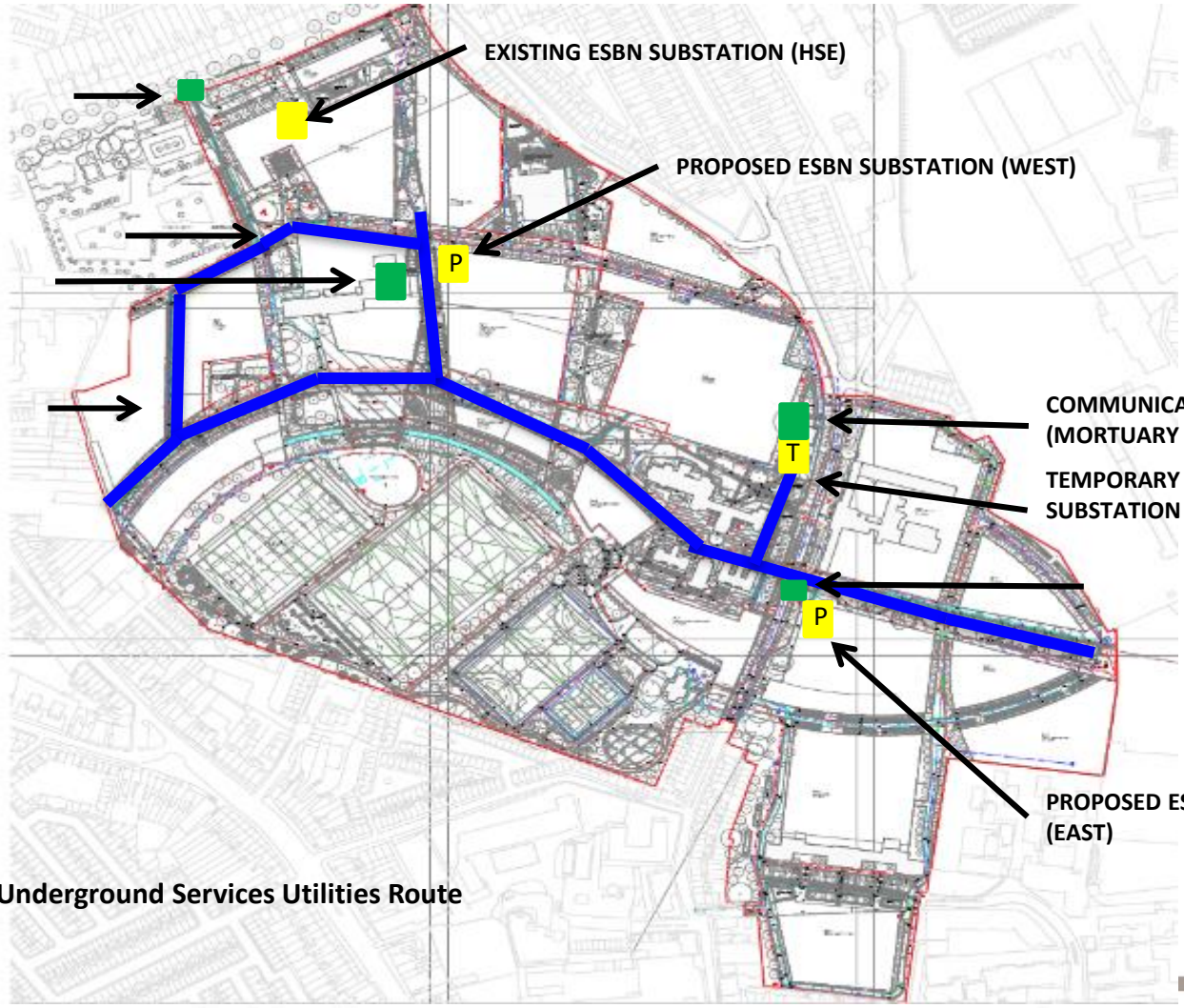
The Primary Care Centre

Services Infrastructure

CitA
BIM GATHERING



Energy Distribution



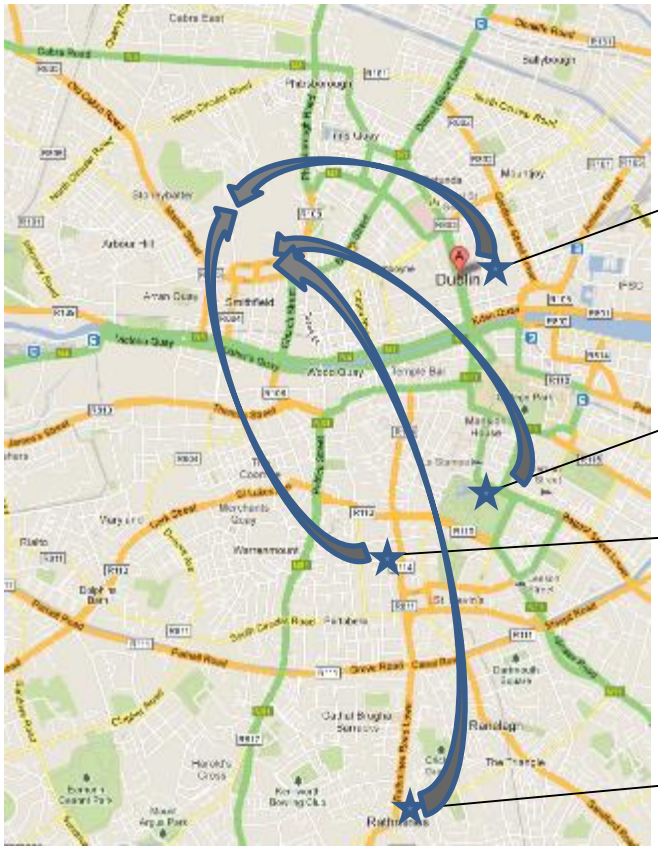
Greenway Hub
Research & Business Incubation

- First DIT New Build on Campus
- 4,500m2
- Houses Environment, Sustainability & Health Institute (ESHI), DIT Technology Transfer, DIT Incubation Hothouse

Next Projects - The Energy Centre
(Planning achieved – Construction commencing early 2018)

- District heating
- Power generation
- Energy engineering education

Next Projects - PPP Central & East Quads
(Financial Close imminent - Construction to follow)



Cathal Brugha St.

Chatham Row

Media, Aungier St.

Kevin St.

Rathmines

Next Projects - Central Quad

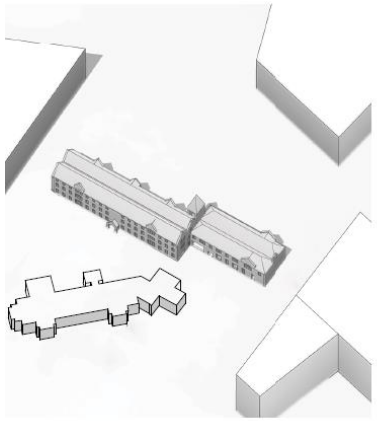
- Science & Health, Tourism & Food, Electrical/Electronic Engineering
- 6,000 students
- 35,000m^2 floor area

Next Projects - East Quad

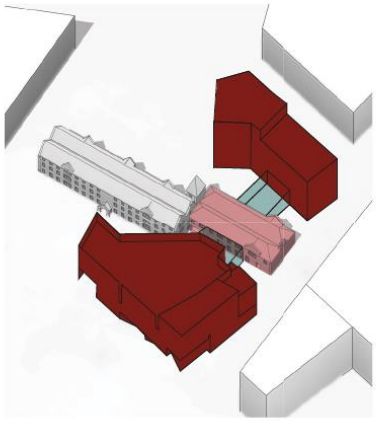
- Creative arts and digital media, music & drama, social sciences
- 3,500 students
- 16,000m2

Next Projects - Academic Hub/Library
(Planning application imminent)

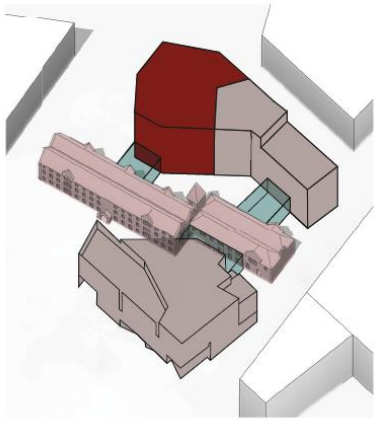
- Phased development of ~19,000m^2
- Incorporating protected structure
- Strong focus on natural light, natural ventilation



Existing Buildings and Demolition of Annexe 9

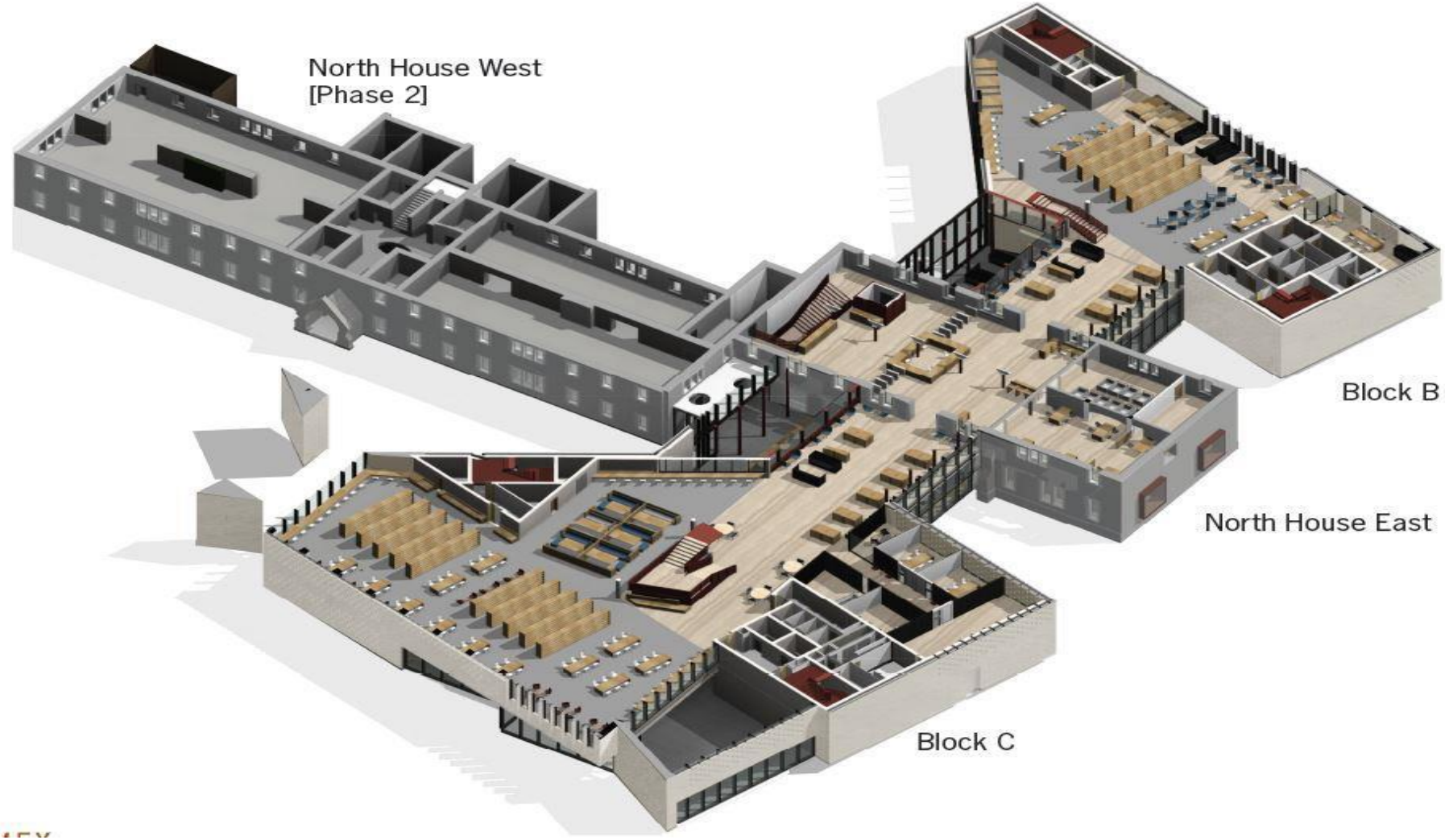


Phase 1



Phase 2

Academic Hub - Phase 1 Interior Design Proposal



Academic Hub - Phase 1 Exterior Design Proposal

CGIs

Student Accommodation
(PQQ imminent – procurement to follow)

- Distinctive blocks
- Range of settings
  - Active along St Brendan's way
  - Quieter options around Lower House
- Integrated with the overall provision
- Part of an integrated urban fabric
- Opportunities for active use at ground floor

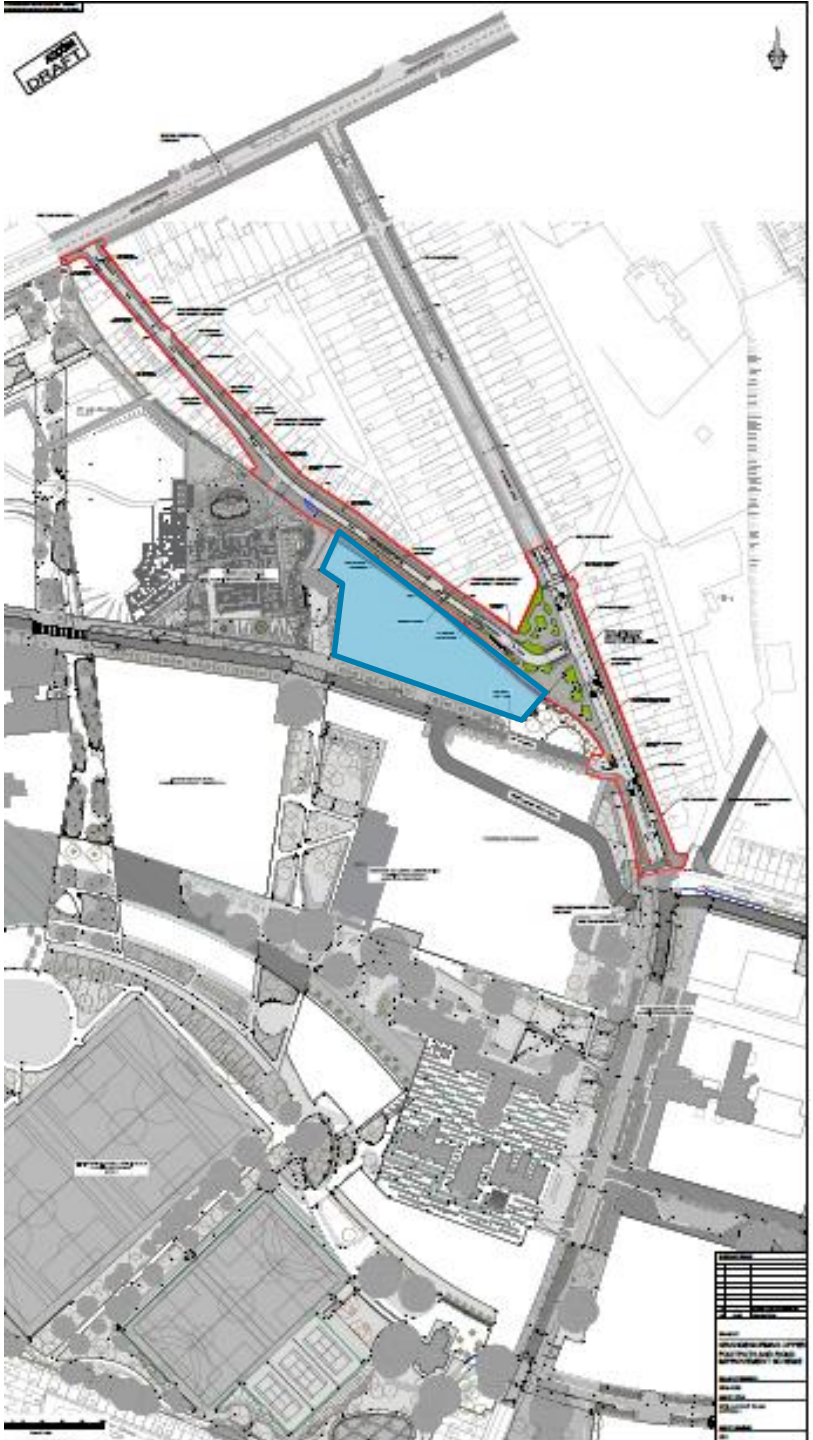
Student Accommodation

- Phase 1 / 650 - 1100 bed
  - Project completion 2022
  - primarily single en-suite rooms in cluster flats of 6-8 beds with shared kitchen/lounge
- Underpin student recruitment
- Dining, sport and student centre uses at ground floor


KAVANAGH TUITE ARCHITECTS
Artist's impression
Pedersen Focus

PRIMARY SCHOOL D7ETNS

- **Project:** Permanent home for Dublin 7 Educate Together
- **Design Team:** Grafton Architects
- **Site Location:** Adjacent to the HSE Primary Care Centre



Other Local Works

- Prussia Street Shopping Centre redevelopment
- Student Accommodation
  - GSA Lower Grangegorman (570 beds)
  - Lower Grangegorman (120 beds)

Learning Opportunities

- Unique learning opportunity
- Research opportunities
- Covers entire project lifecycle
- Existing and new buildings
- Numerous procurement methods
- Learning opportunities in:
  - Planning
  - Design
  - Architecture
  - Engineering
  - Development Financing
  - Construction Law
  - Construction Management and Technology
  - Facilities Management

Learning Realities

- 1st BIM Level 2 public sector building in Ireland
  - Review of Information Requirements to concentrate on outputs, not inputs or methodology
  - Development of protocols for sharing BIM
  - Review of how to use BIM during “Building in Use” phase
- Designers still struggling to maximise use of BIM
  - Evidence of use of “Pseudo BIM”
  - Collaboration not being maximised (It’s a decision-making process not a physical/virtual space)
- Users not fully convinced of cost vs value of BIM
  - BIM perceived to be aimed at design/construction, not operation
  - Legacy systems not BIM enabled
  - Cost of moving from the familiar to the new

From BIM To CIM (Campus Information Modelling)

- a fully-integrated information model of the campus that gives users unprecedented access to building and project data
- Comprises:
  - Spatial 3D digital model
  - Asset information
  - Modelling of energy use, security, facilities, etc.
  - Use for learning (Education/Training/Research)

Smart City, Smart Campus

The smart campus is defined as:

- a **development vision**
- to **integrate** multiple information and communication technology (ICT) and Internet of Things (IoT) solutions in a secure fashion
- to **manage** a campus's assets and activities in an efficient manner"

Almost **90%** of the data is not being used*

29 billion IoT devices will be connected by 2020*

Smart Campus Deliverables

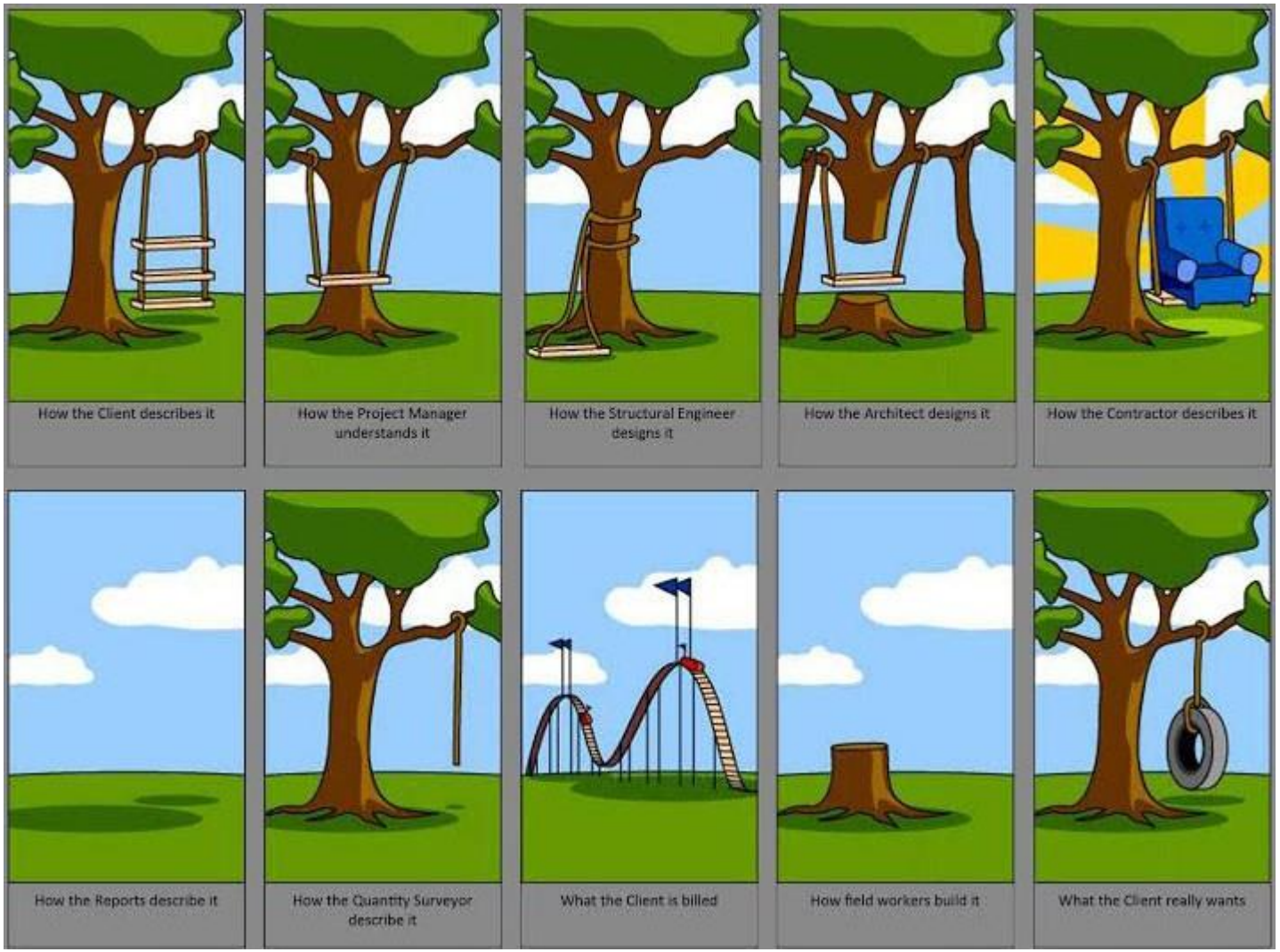
- **Develop Information Management** strategy which guide the compilation of OIR, AIR, and Built Asset Security Information Requirements (BASIR)
- **Approve project** BIM **EIRs** before tender and **monitor progress** as per the EIR
- **Identify** a suitable Common Data Environment **(CDE),** a Computer-Aided Facility Management **(CAFM)** and other associated software
- Develop a **strategy** which will contribute to achieving the vision for "the **Campus as a Learning Institution** and '**Centre of Excellence' for technology**"

Managing Functionality Risk

in the

Building Development Process

PhD Student Research Project



Proposed Aims and Objectives

- Identify and review existing research in the field of Functionality Risk in different industries and assess how these models could be applied to building design.

- Identify how, and if the identification of functionality risk in the building design process is currently being undertaken by designers.

- Research buildings that either achieved or failed to achieve user functionality requirements and analyse the contributing factors involved.

Proposed Aims and Objectives

- Following on from the above research, develop a “working model” for the identification, assessment and control of functionality risk in the building design and development process.

- Test the “working model” concept to evaluate its effectiveness at identifying, assessing and controlling functionality risk.

Potential Outcomes

- Identification of causational factors directly influencing the success or failure of a design in the context of “User Functionality”

- Development and testing of a “Best Practice” working model for managing building functionality risk.

Call for Help!

- If you or anybody you know has done work or research in this area I would be delighted to hear from you and learn from your experiences.

Adam.goff@arup.com

CitA
BIM GATHERING

THANK YOU

Louis Gunnigan
@LGunnigan_ICPMA
www.linkedin.com/in/louisgunnigan
louis.gunnigan@dit.ie

Adam Goff
www.linkedin.com/in/adam-goff
Adam.Goff@arup.com