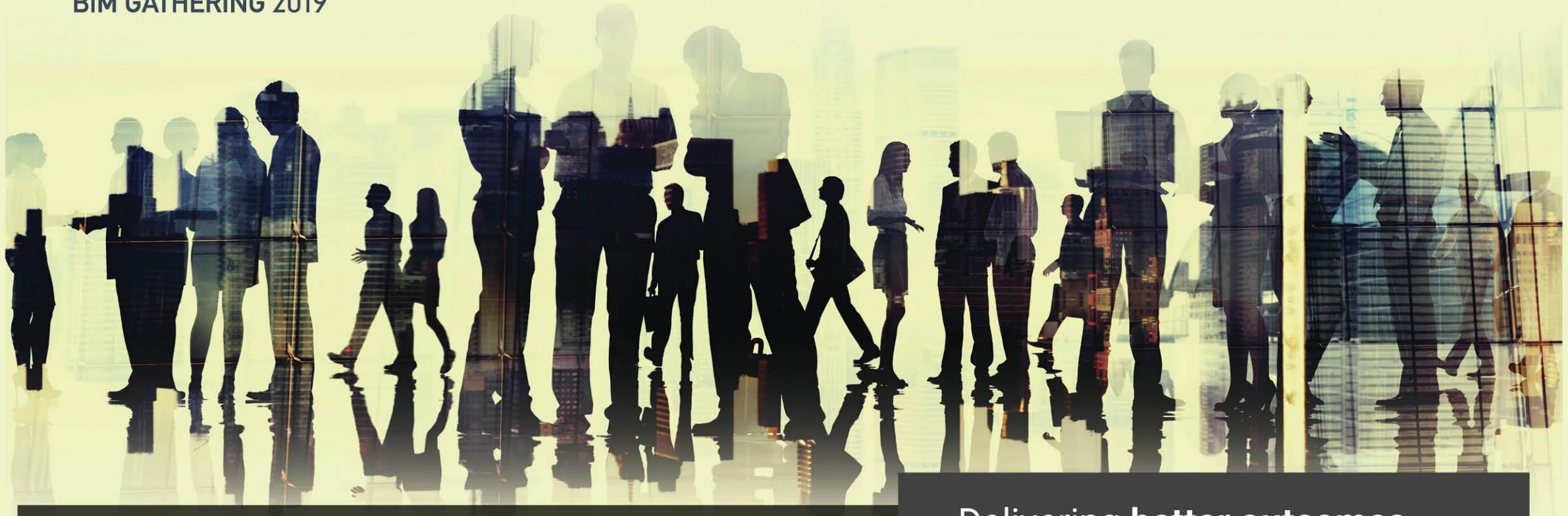


# CitA

BIM GATHERING 2019



**4th CitA BIM Gathering** 26th September 2019, Galway, Ireland.

Delivering **better outcomes**  
for Irish Construction



# BIM for Infrastructure on the Bonded and Re-Export Zone at King Abdullah Port, Kingdom of Saudi Arabia



- Brief Introduction
- The Project
- GARLAND BIM History
- GARLAND Project Approach
- Lessons Learned
- Conclusion
- Questions



# Introduction



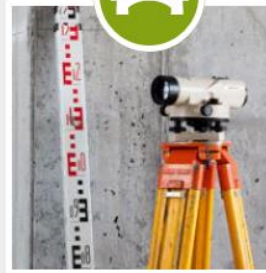


Pivotal International is a formation between four established **IRISH** professional service companies **Fewer Harrington & Partners**, **GARLAND**, **Noel Lawler Consulting Engineers** and **Carron + Walsh**. Each team member has a proven track record in the delivery of high quality projects. We place a strong emphasis on our ability to develop and maintain mutually beneficial relationships.



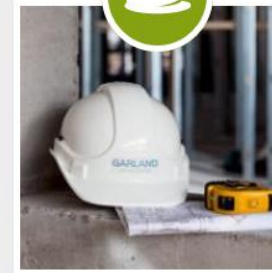


- **Consulting Civil and Structural Engineering Firm**
- Established in 1937
- Locations:
  - Dublin
  - Limerick
  - Waterford
  - London
  - Riyadh & Jeddah, Saudi Arabia
  - Ghana, Africa
- **Our Experience: – over 80 years**
  - Educational
  - Commercial
  - Healthcare
  - Residential
  - Infrastructure
  - Industrial
  - International
  - Conservation & Restoration



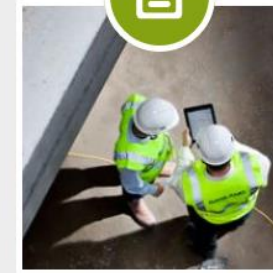
#### Engineering

Comprehensive civil, structural and environmental engineering services including: preliminary, scheme and detailed designs, feasibility studies, surveys, contract management, site supervision and master planning. We also provide services to the legal and financial professions.



#### Safety Management

Complete construction safety and health management services from PSDP and PSCS through to risk assessments and safety training. Garland also provides safety design, safety statements, standard operating procedures, construction regulation compliance and safety management systems.



#### Assigned Certifier

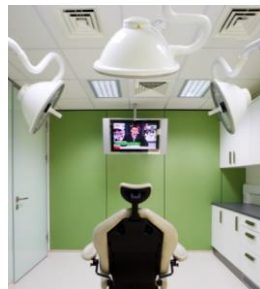
Providing Building Control Services including Assigned Certifier from project commencement to project completion in accordance with the Irish Building Control Amendment Regulations.



#### Planning, Social & Economic Development

Providing a consultancy service to the international development community focusing on the development of industrial parks and special economic zones; site evaluations and engineering perspective; feasibility studies; regional planning; foreign direct investment; market research; institutional development.

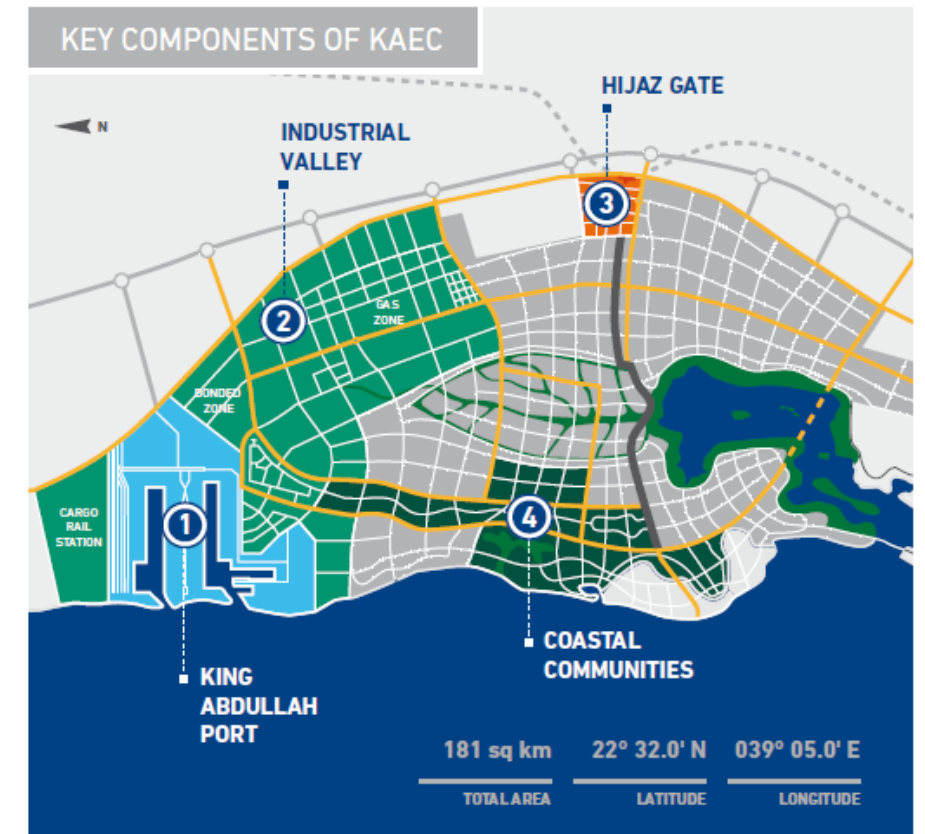
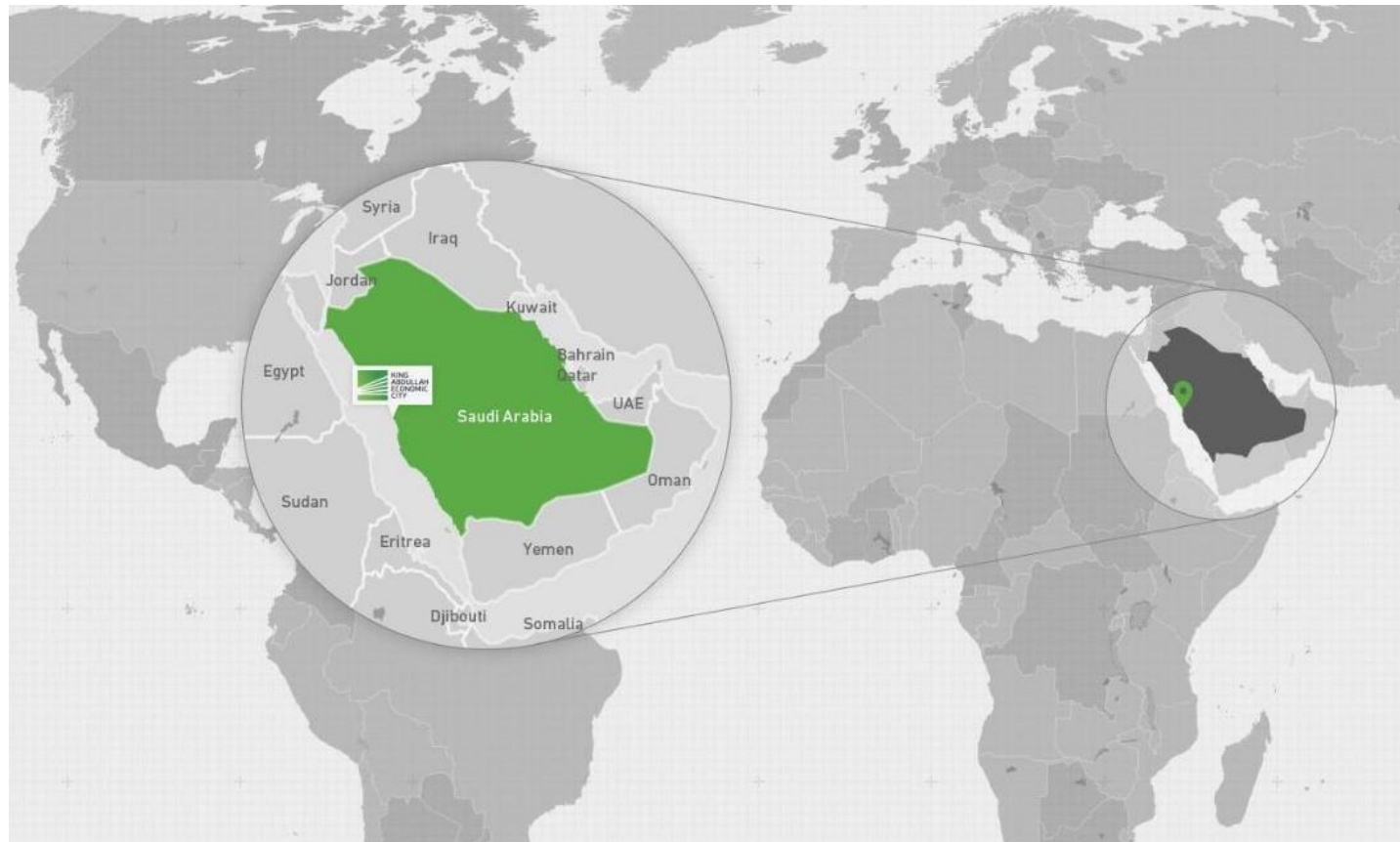






# The Project







**173.0 Km<sup>2</sup> King Abdullah Economic City (KAEC)**

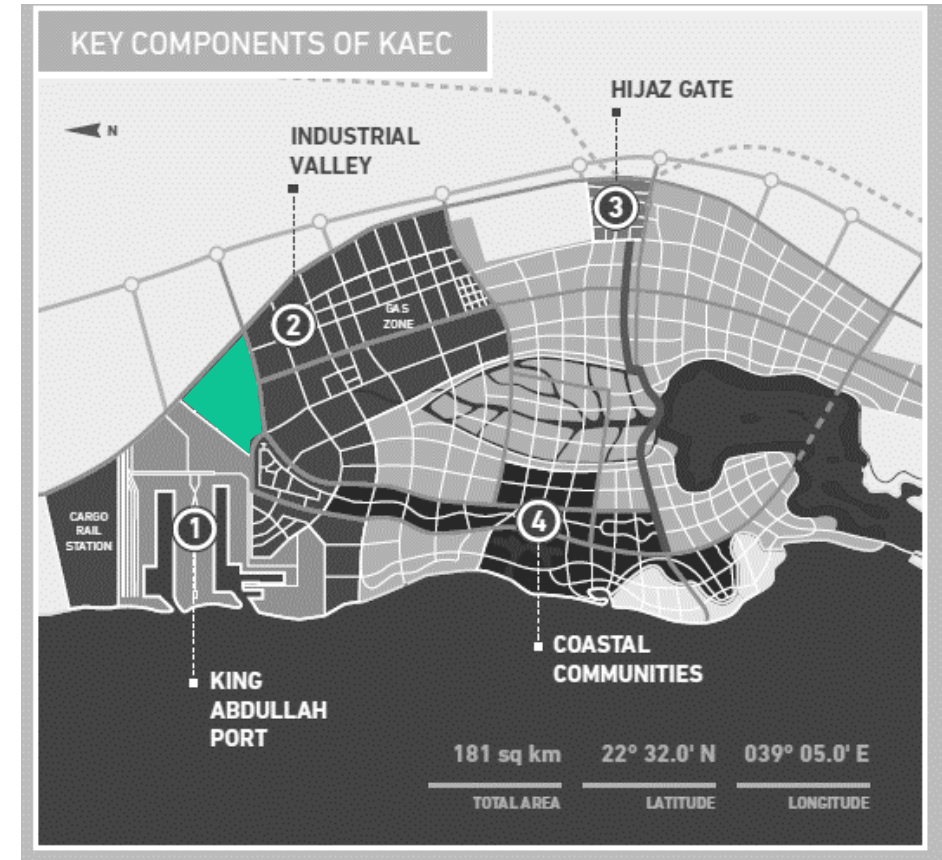
164.6Km<sup>2</sup> Cork City and Suburbs

**63.0 Km<sup>2</sup> Industrial Valley KAEC**

56.8Km<sup>2</sup> Limerick City and Suburbs

**3.2 Km<sup>2</sup> Bonded Re-Export Zone (BRZ)**

2.02 Km<sup>2</sup> Principality of Monaco





**173.0 Km<sup>2</sup> King Abdullah Economic City (KAEC)**

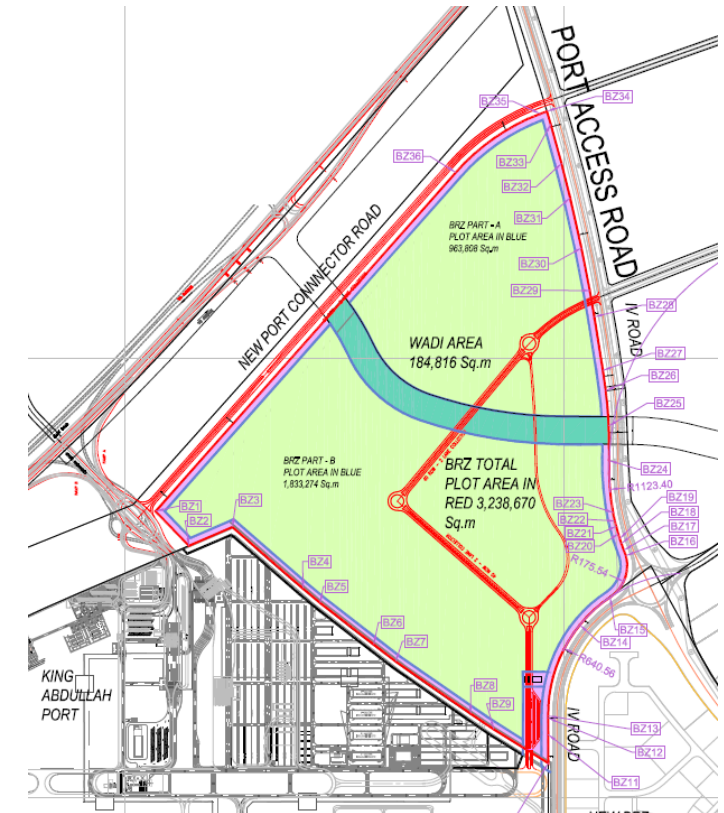
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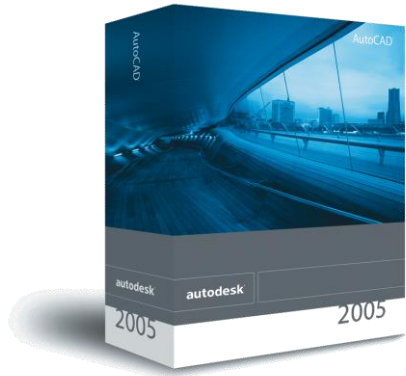
- > **6,000,000m<sup>3</sup>** fill
- > **20 km** of 32m to 6 m wide roadway
- > **13km** of watermain
- > **10km** of foul sewer
- > **20km** of swales and surface water sewers
- > **500,000m<sup>2</sup>** of concrete slab
- 3 major roundabouts





# GARLAND BIM History

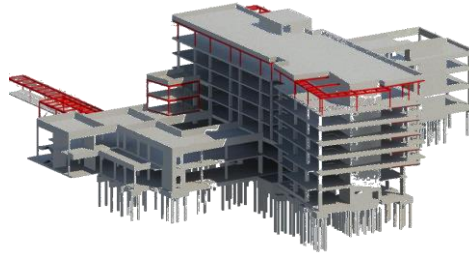




2005  
AutoCAD Civil 3D



2011  
Revit Structure



2013  
1<sup>st</sup> Large Structural  
Project



2014  
BRZ Design  
Commenced



2018  
BRZ Detailed  
Design



# Project Approach

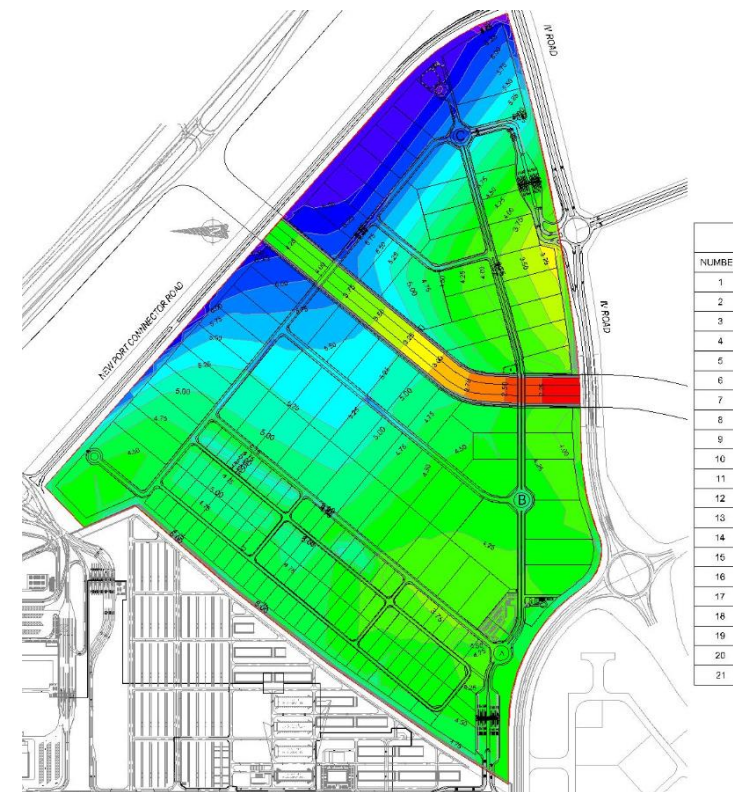
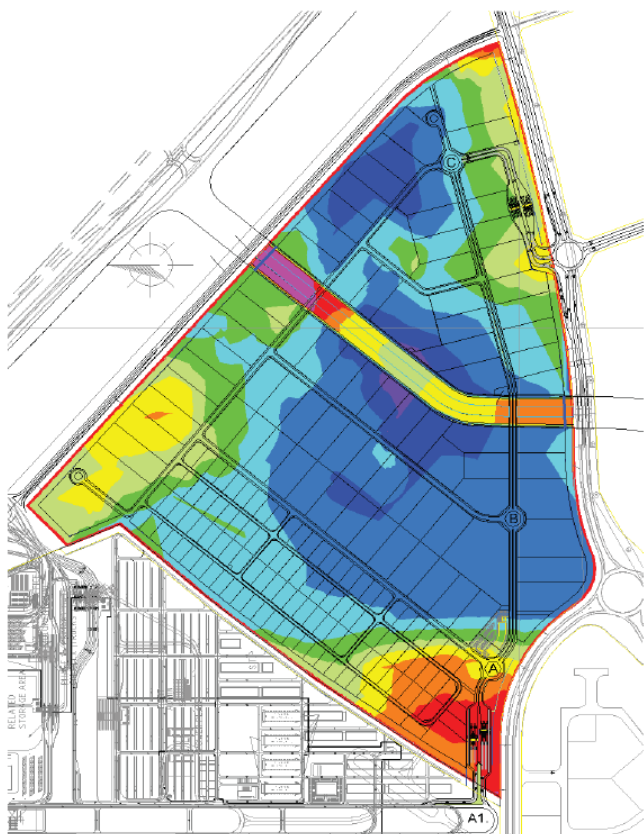














# Lessons Learned





Data Management

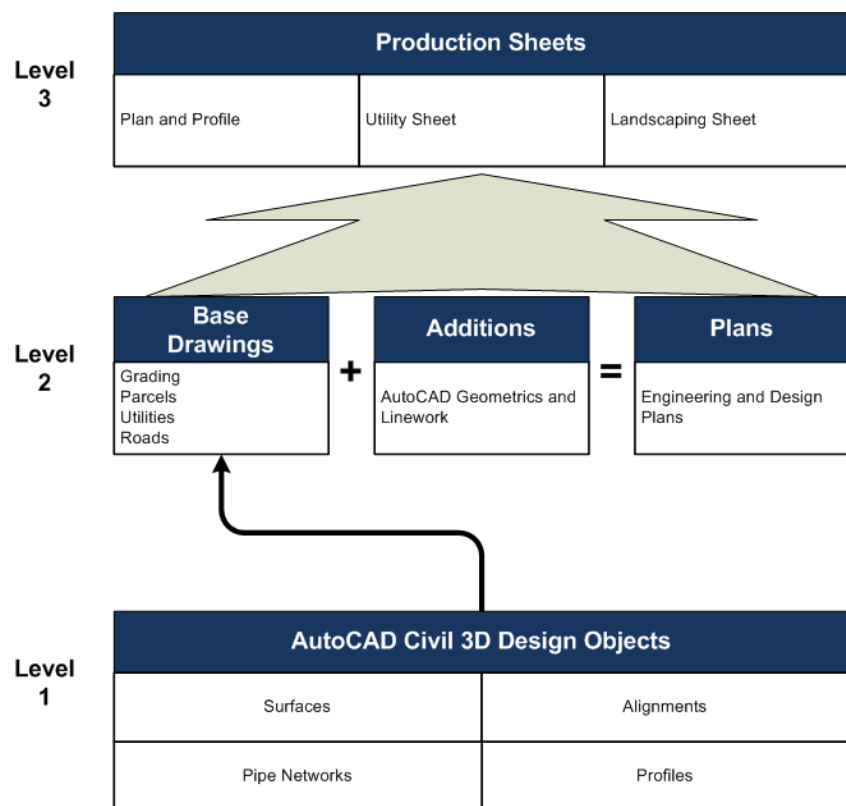
More efficient deliverable  
production

Program Interoperability

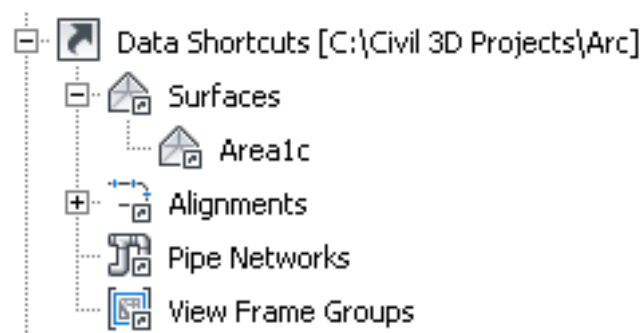
Lean Inputs

KISS - Keep it Simple Stupid

Clash Avoidance



AutoCAD Civil 3D 2010 Best Practices. (2009). [ebook]



l:) > A14-010 > DRG > Civil 3D >

Name

- \_Shortcuts
- Documents
- External References
- Presentation
- Production Drawings
- Reports
- Source Drawings

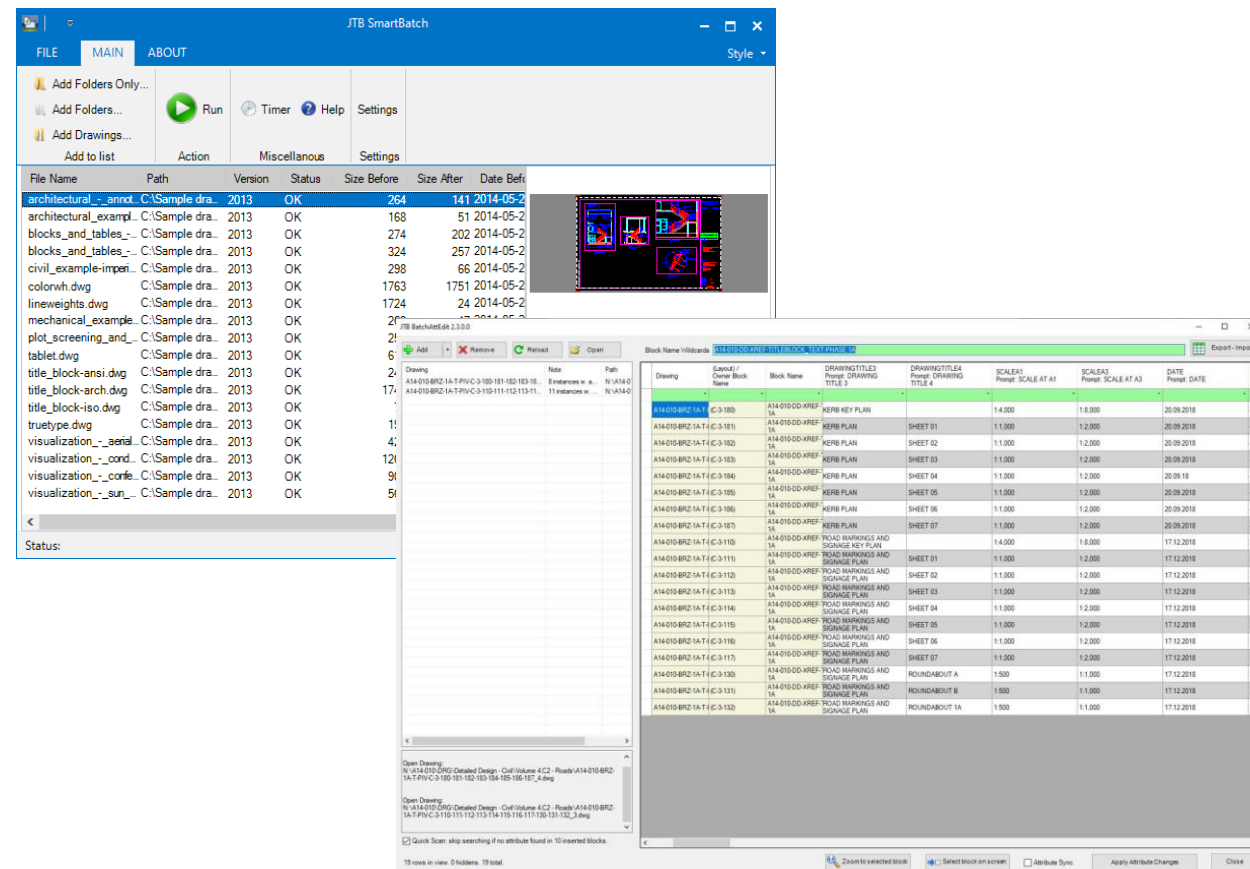
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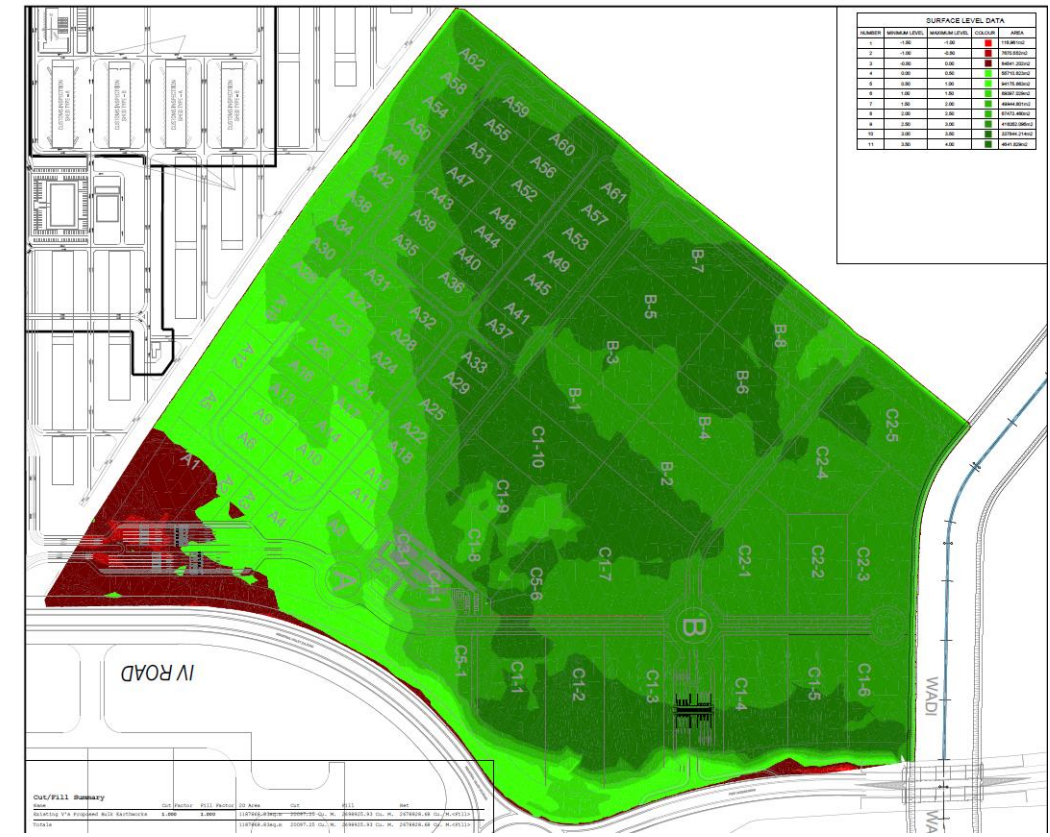
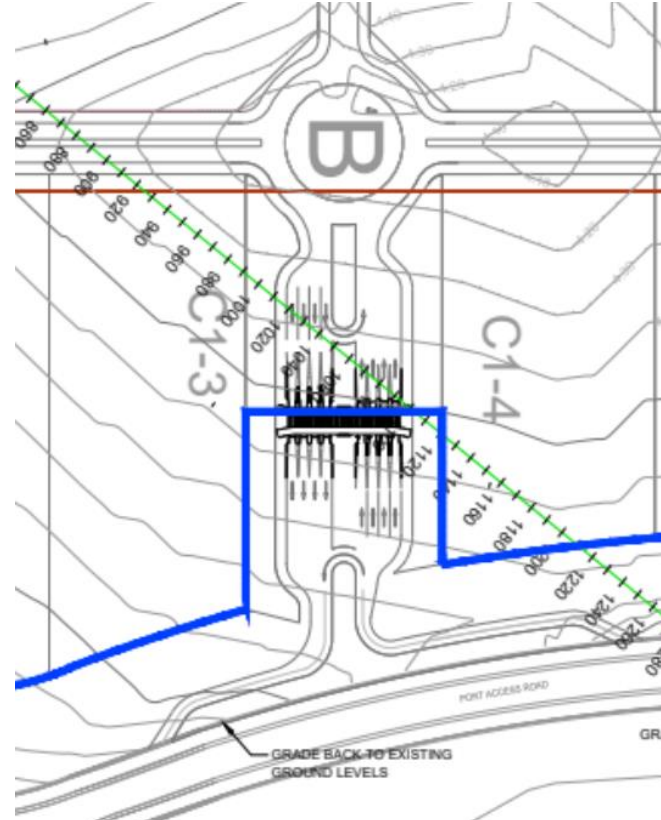
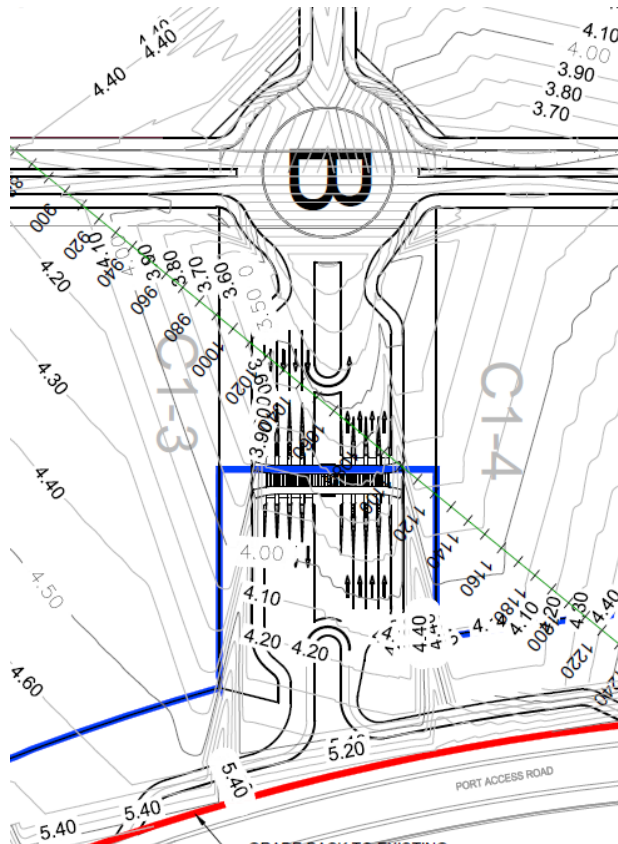




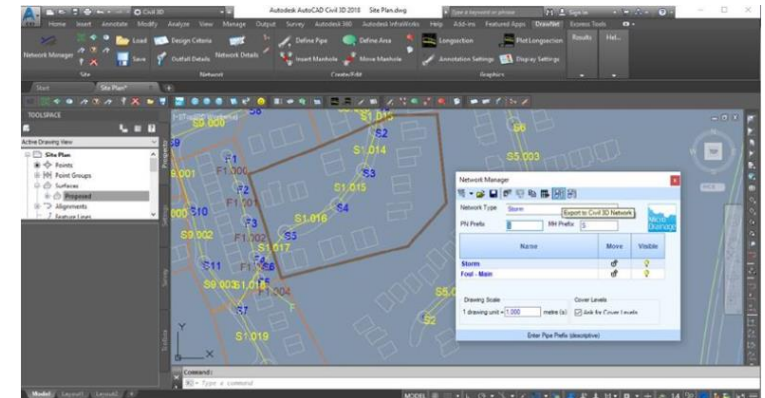
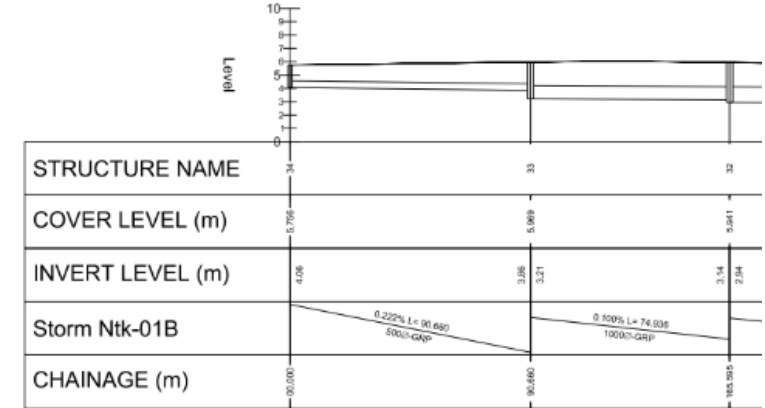
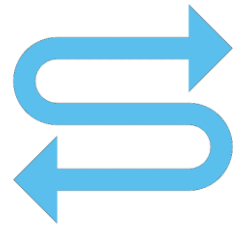


There has to be a better way!

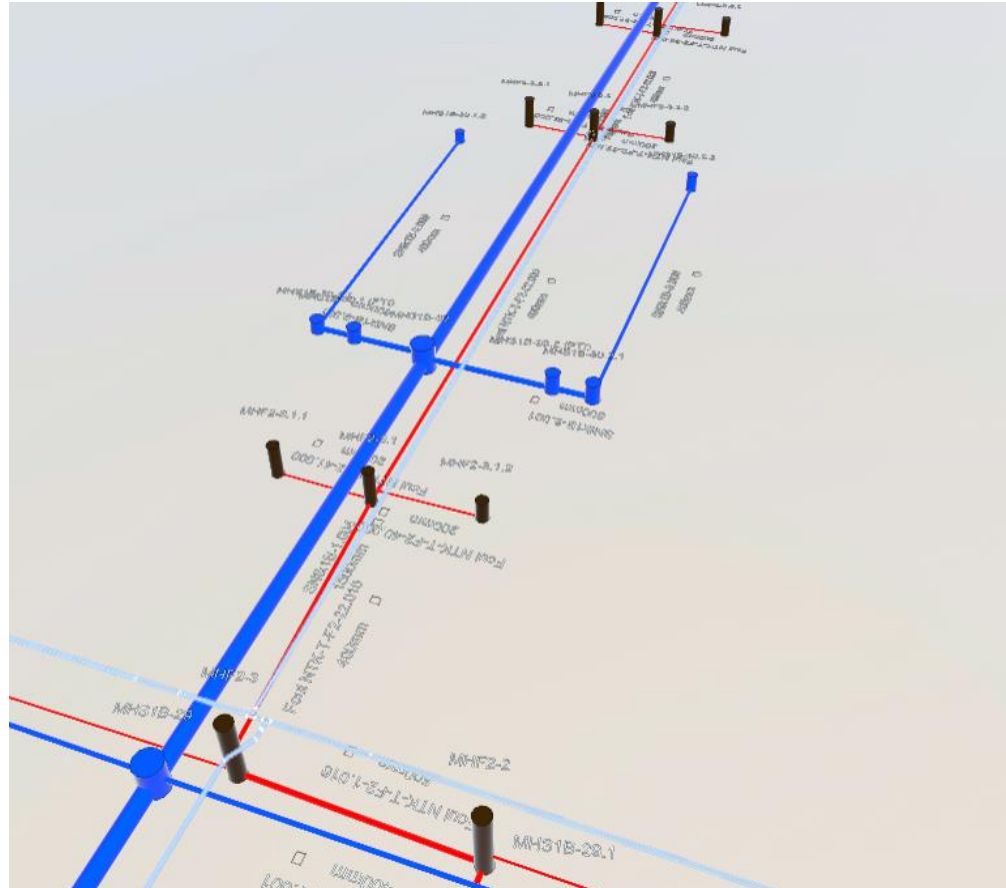














# Conclusion



- Data, Data, Data – Lean and Structured
- There is always a better way (usually!)
- An educated client can influence
- Keep it simple stupid - Just because you can do something does not mean that you should
- We delivered these projects without BIM (but difference in speed, resources required and change management) – Don't abandon pre BIM techniques







Thank you