PUNGGOL WATERWAY TERRACES I

Construction with Productivity in Mind



CONTENTS

I. INTRODUCTION

A. PROJECT BRIEF

II. KEY CHALLENGES

A. SUBSTRUCTURE WORKS

B. EARTH CONTROL MEASURE (ECM)

III. CONSTRUCTION INITIATIVES

A. BUILDING INFORMATION MODELLING (BIM)

B. ENHANCEMENT OF PRECAST DESIGN

C. ADVANCE FORMWORK SYSTEM

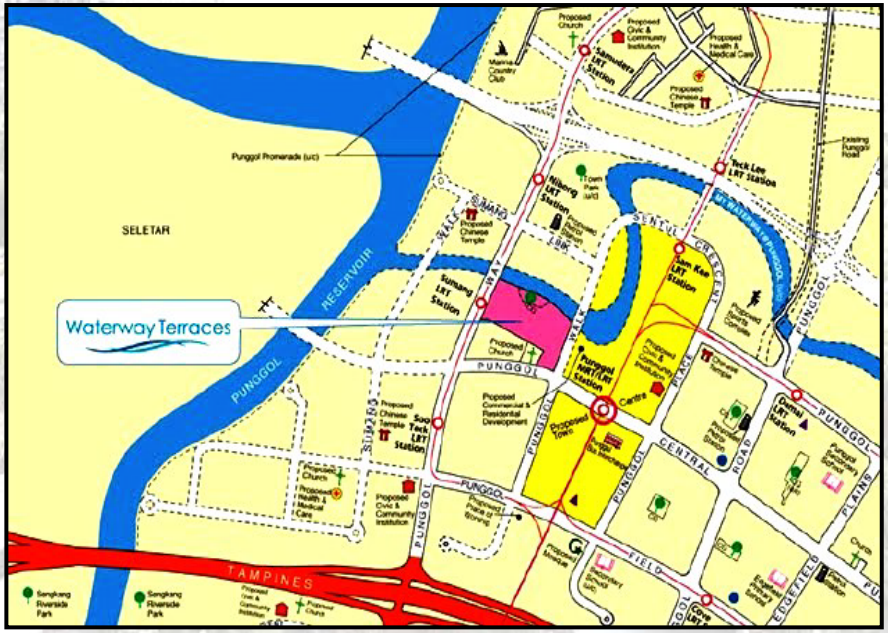
IV. GREEN INITIATIVES


INTRODUCTION
HEALTHY WORKPLACE
HAPPY WORKERS

PROJECT BRIEF

- Job Title: Waterway Terraces I (Punggol West C20)
- Location: Punggol Way/Punggol Walk/ Punggol Central
- No. Of Units: 1072 Units
  - 3R Units – 178
  - 4R Units – 588
  - 5R Units – 306
- Site Area: 44,802 m2
- GFA: 146,145.25 m2
- GPR: 3.26

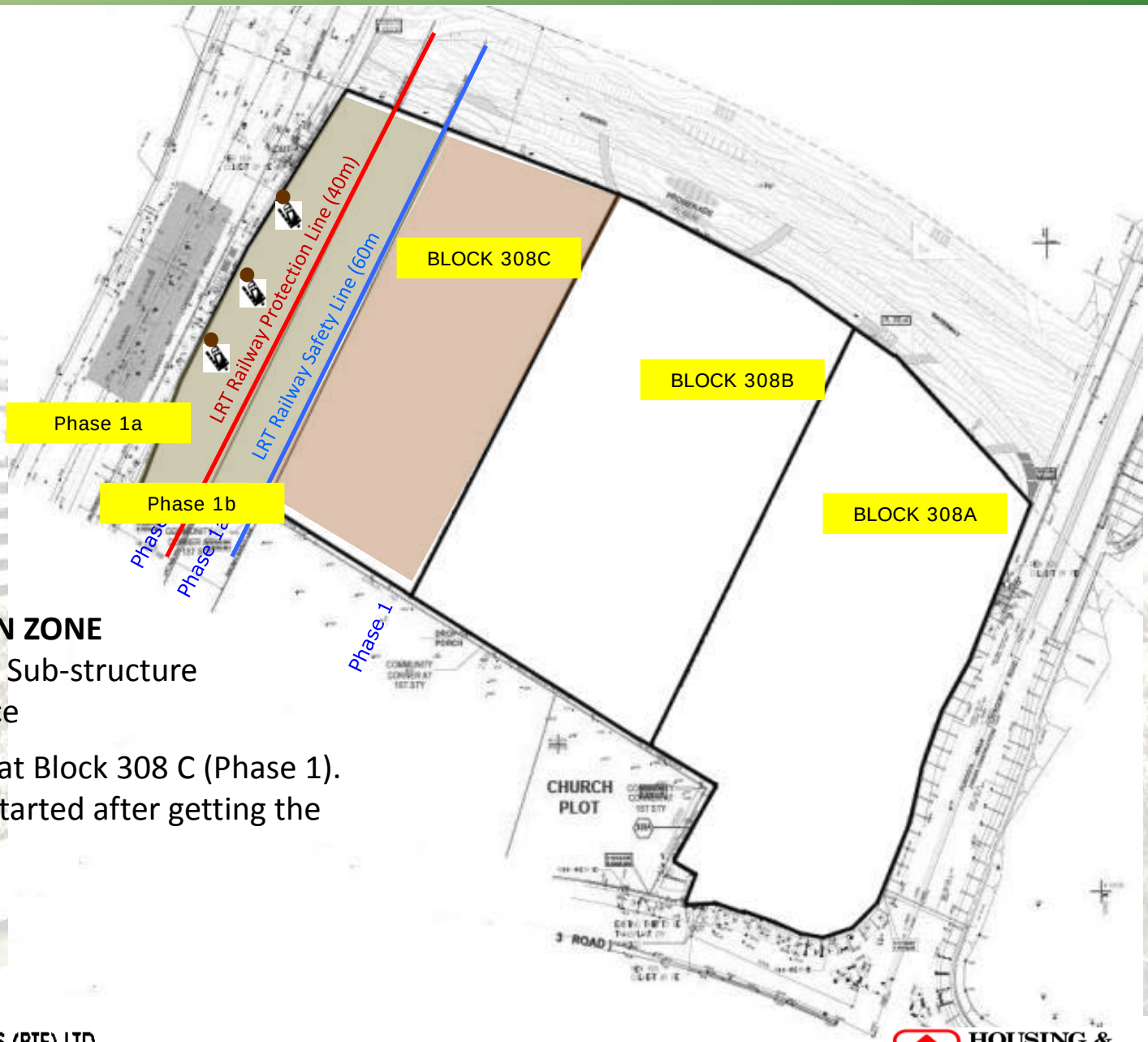






KEY CHALLENGES

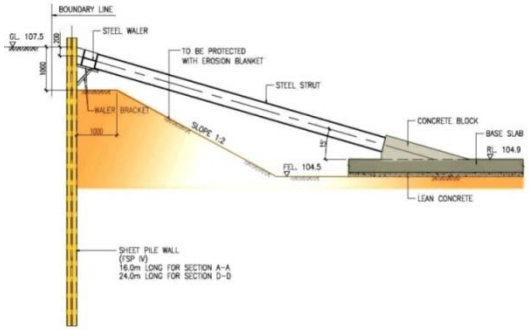
PILING



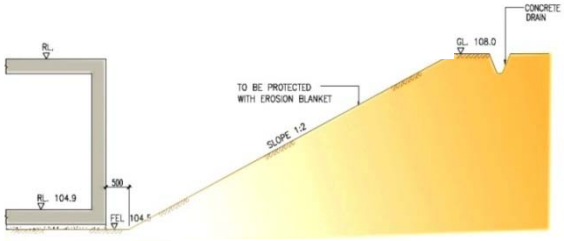
RAILWAY PROTECTION ZONE
needs to consider the Sub-structure Construction Sequence

Piling Works started at Block 308 C (Phase 1). Phase 1a & 1b only started after getting the approval from LTA

EARTH RETAINING STRUCTURE SYSTEM (ERSS)



Section A-A



Section B-B





LEGEND

- Deep Cement Mixing (DCM)
- Sheet Piles

DEEP CEMENT MIXING (DCM)
Temporary Retaining Wall System

DCM USED AS RETAINING STRUCTURE



DCM TRIMMED TO ACT AS FORMWORK FOR BASEMENT WALL



DCM USED AS RETAINING STRUCTURE



STRUT FREE SYSTEM





Layout Plan



Silt Trap 2

Capacity: 360 cu. m

Water Collection Pond 2

Capacity: 1000 cu. m



Water Treatment Plant 2

Capacity: 600 m3/Hr

Water Discharge Point 2



Silt fence



Silt Trap 1

360 cu. m

Water Collection Pond

Capacity: 1000 cu. m



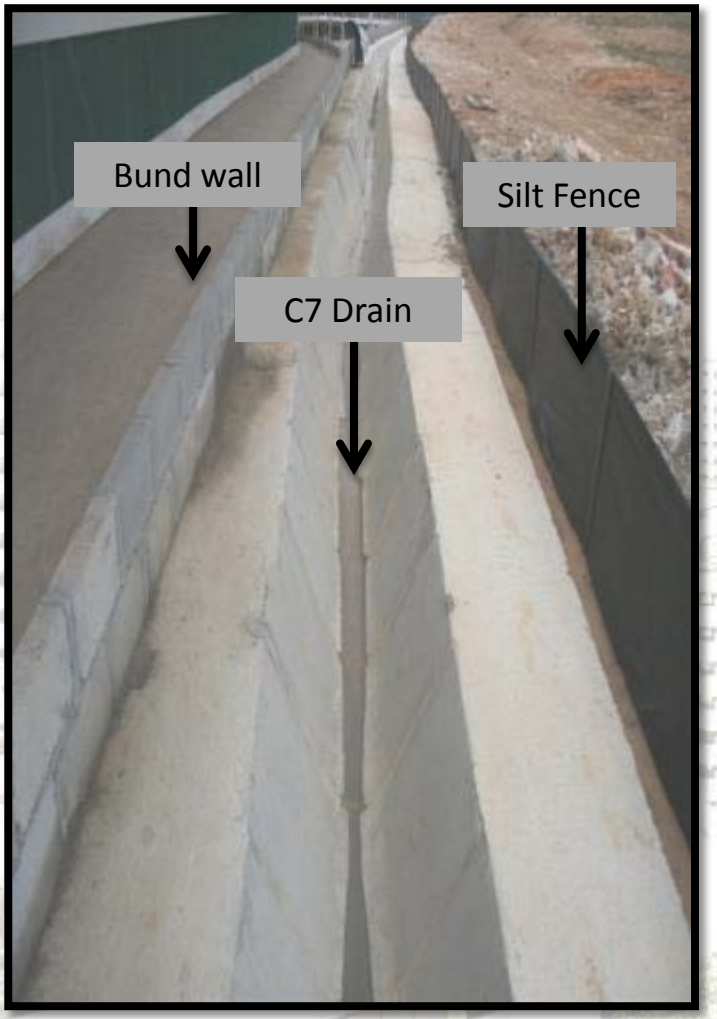
Water Treatment Plant 1

Capacity: 600 m3/Hr

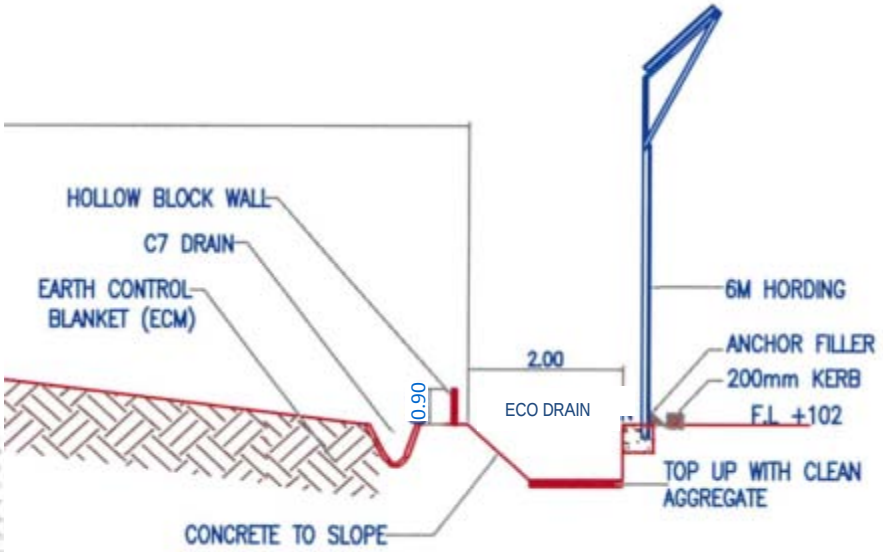
Water Discharge Point 1



EARTH CONTROL MEASURE (ECM)



Cut off drain with additional low wall

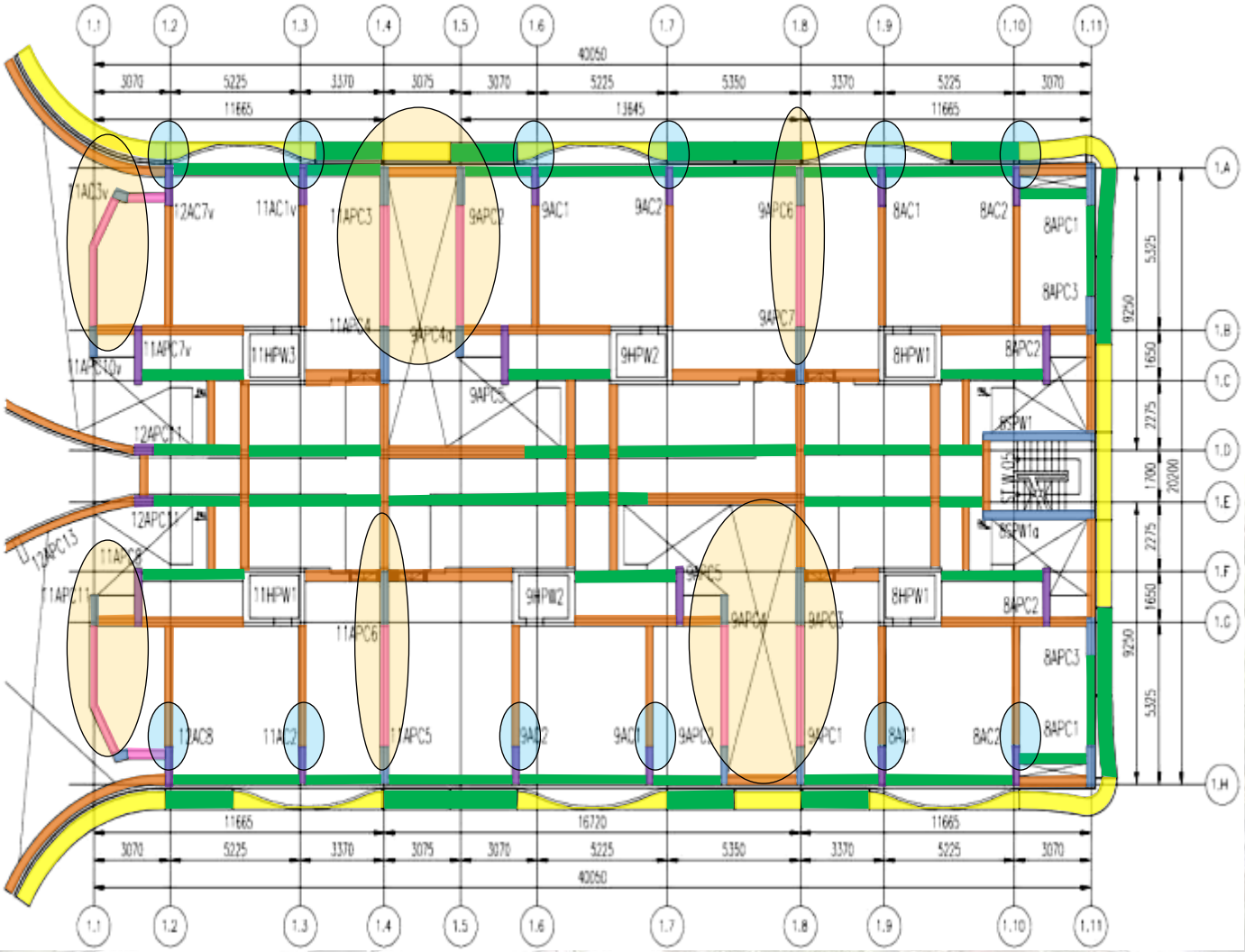




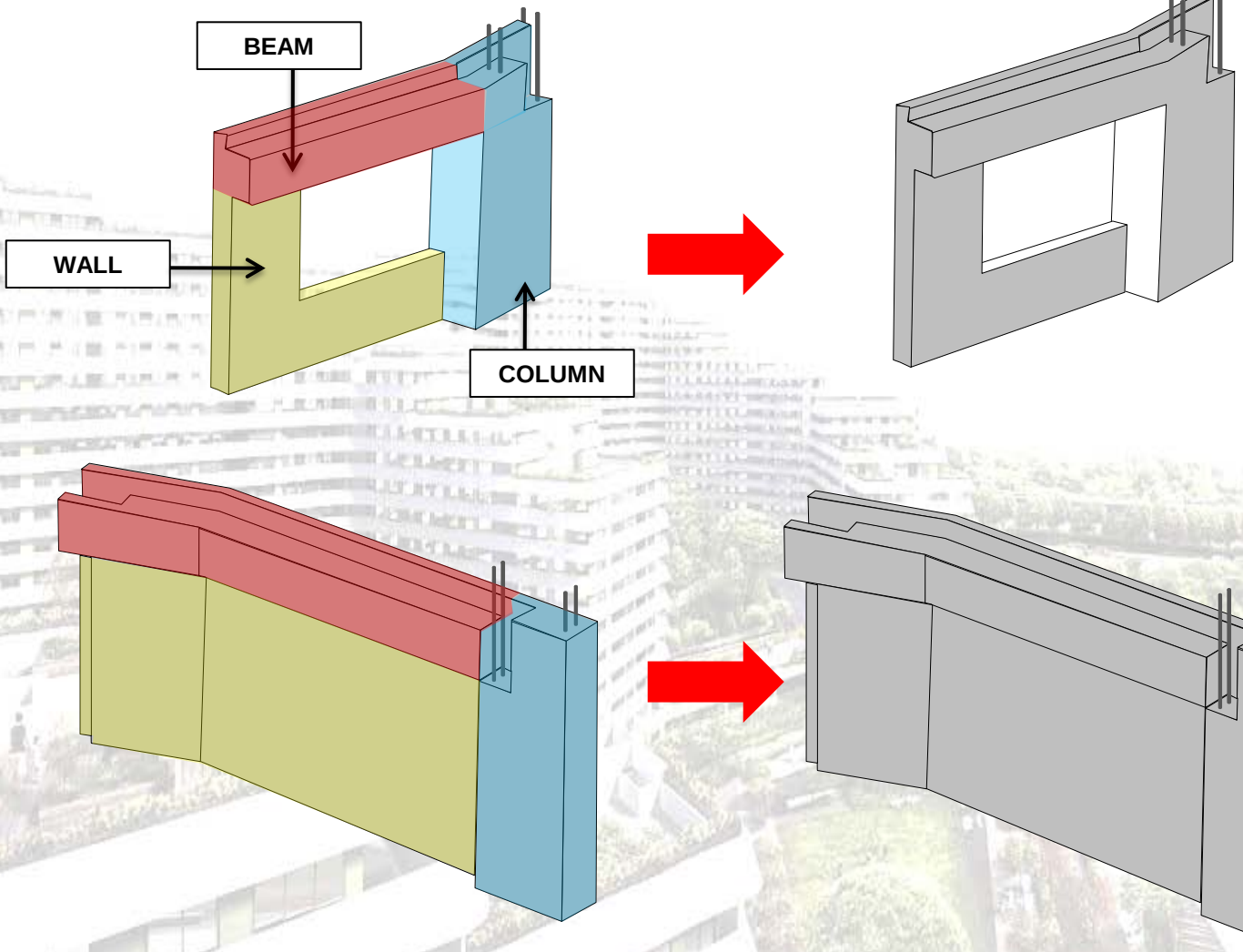


CONSTRUCTION INITIATIVES

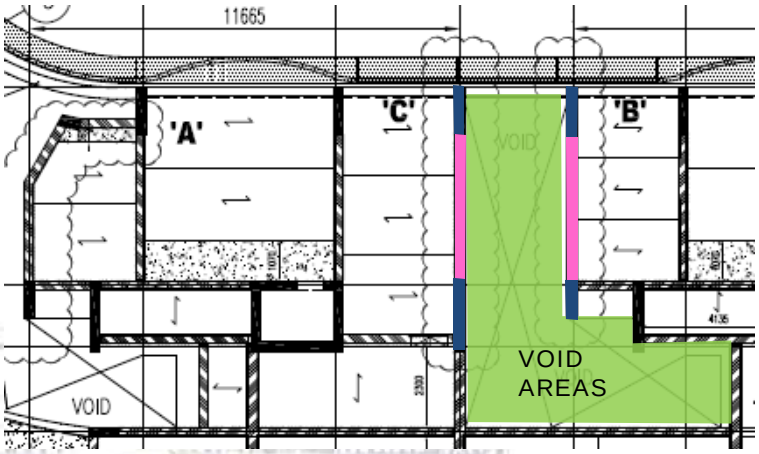
Proposed Layout Plan



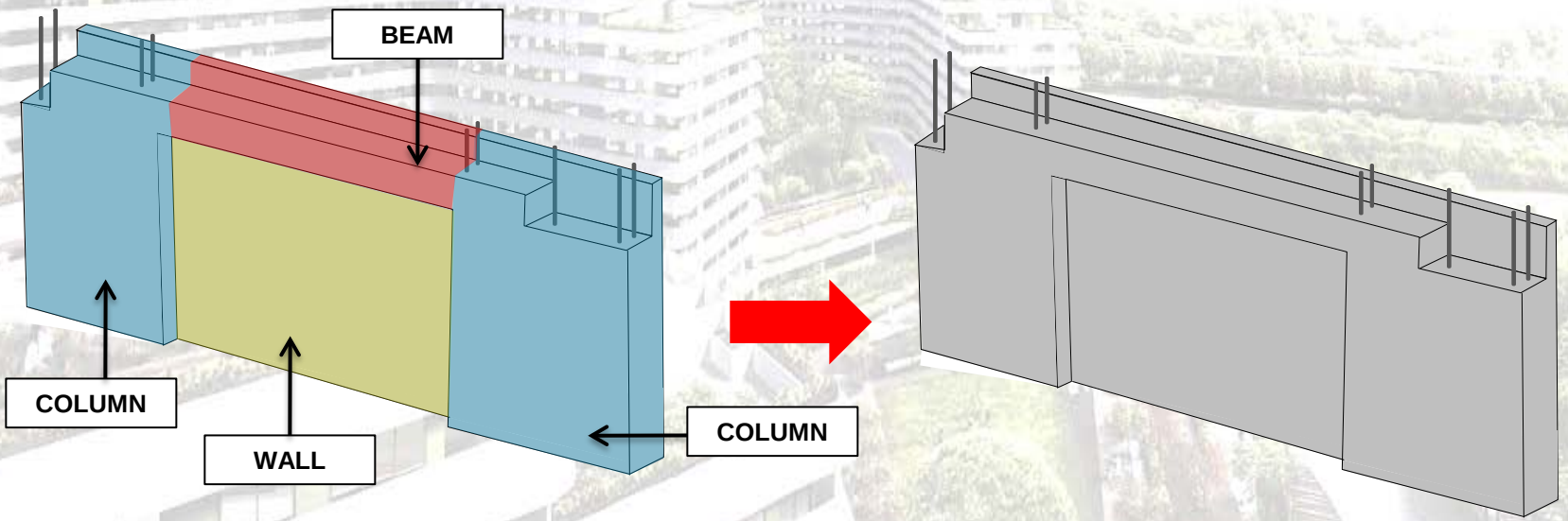
Fused Panel – 3 Components into 1 Integrated Panel



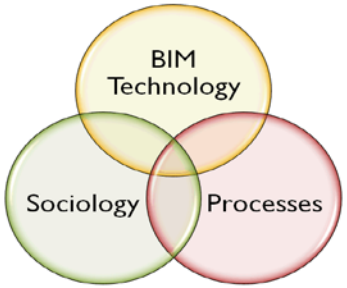
Fused Panel – 3 Components into 1 Integrated Panel

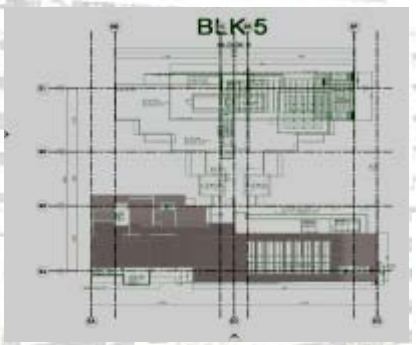


PART PLAN

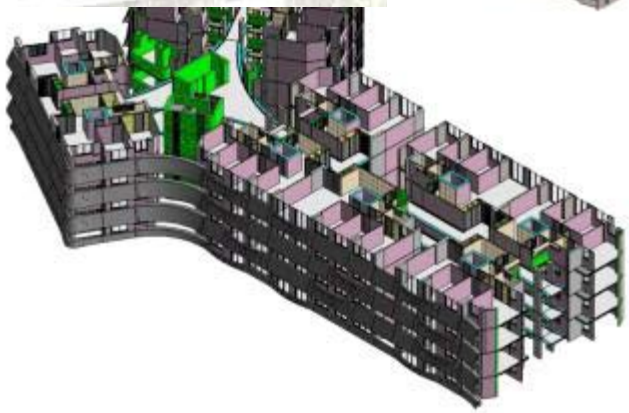












Advantages of BIM

- Enhance Design Quality
- Consistency of Changes & Eliminate Errors
- Improved visualization
- Improved productivity due to easy retrieval of information

ADVANCE FORMWORK SYSTEM





IMPROVED

Engineering

Safety

Planning

Management

Productivity





FORMWORK FOR COLUMN

- Easy to assemble
- Saves Time
- Less manpower



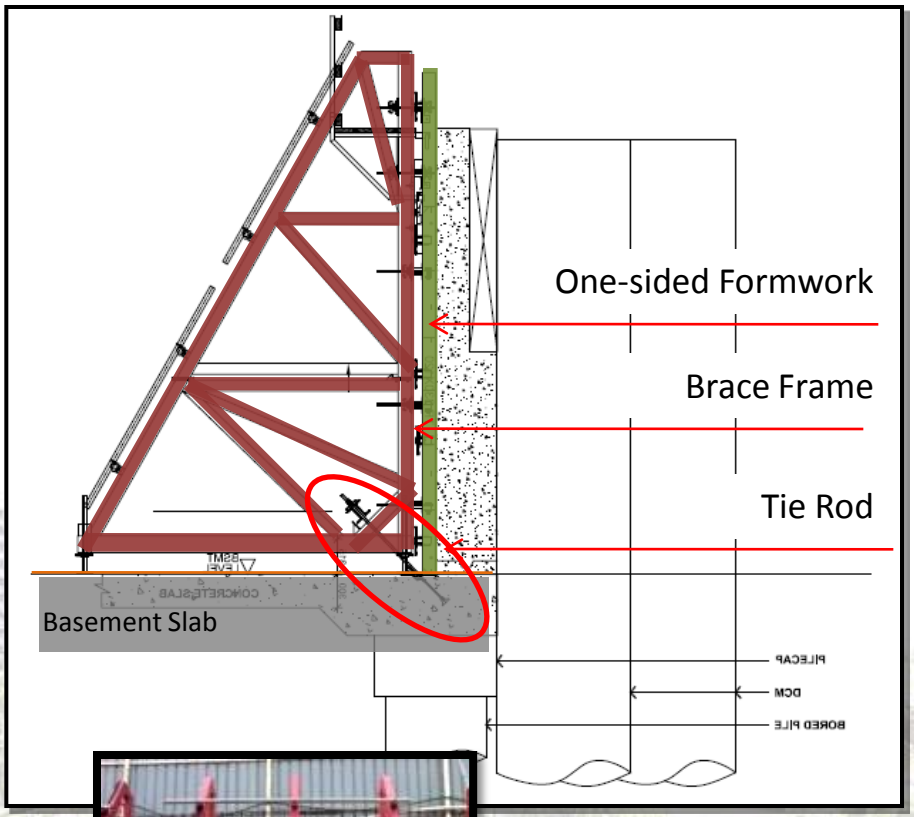


ONE-SIDED RETAINING WALL

- One time cast for 36 linear meter
- Easy to assemble and shift









1 MODULE = 3.6 METERS

FORMWORK FOR SLAB

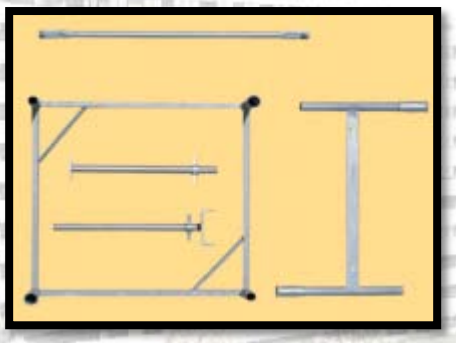
- Only 4 components
- Easy Erection
- Needs fewer props
- Earlier and easier striking





SHORING SYSTEM

- Simple and fast to assemble
- High load-bearing capacity, 1 tower capacity is 20-ton
- Can stand up to 22 meters height equivalent to until 7th Storey














GREEN INITIATIVES




WASTE CONCRETE USED AS PRECAST COMPONENT HOLDERS AND MAIN ACCESS SLAB



PRECAST HOLDER



PRECAST SLAB FOR ACCESS ROAD

USE OF WATER RECYCLING PLANT (WRP)



WATER RECYCLING PLANT (WRP)



TREATED WATER IS USE FOR CLEANING AND TOILET FLUSHING ON-SITE


THANK YOU