PROGRESSIVE DESIGN BUILD – ATLANTA PLANE TRAIN TUNNEL WEST EXTENSION

Jake Coibion – Atkinson Sr Project Manager

April 13, 2022

RISK MANAGEMENT in Underground Construction

ATLNEXT

CLARK CONSTRUCTION ATKINSON CONSTRUCTION TECHNIQUE
A JOINT VENTURE

Today's Discussion

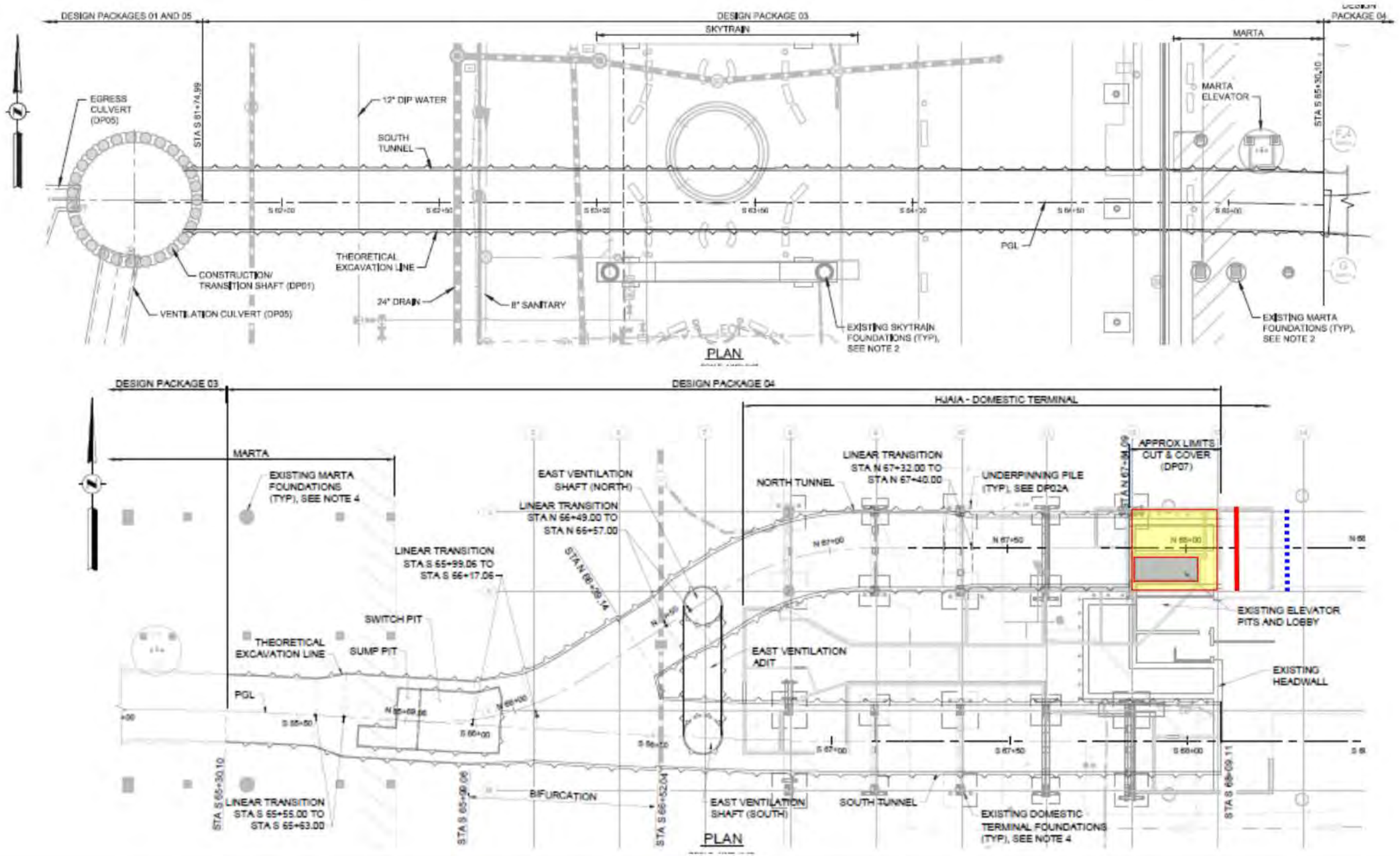
- Project Overview
- Progressive Design Build
- Risk Management
- Lessons Learned

CLARK CONSTRUCTION ATKINSON CONSTRUCTION TECHNIQUE
A JOINT VENTURE

Project Overview - Objectives

- **Add Turnback Switch west of Baggage Claim Station**
  - Reduce headway between trains
  - Add two trains to the system
  - Increase overall capacity of the AGTS by 20 percent
- **Relocate the existing elevators**
- **Increase vertical circulation at Baggage Claim Station**
  - Add 4th Escalator

CLARK CONSTRUCTION ATKINSON CONSTRUCTION TECHNIQUE
A JOINT VENTURE


DESIGN PACKAGES 01 AND 05
DESIGN PACKAGE 03
SKYTRAIN
MARTA
DESIGN PACKAGE 04
EGRESS CULVERT (DP05)
STA S 61+74.99
12" DIP WATER
SOUTH TUNNEL
MARTA ELEVATOR
STA S 65+30.10
CONSTRUCTION/ TRANSITION SHAFT (DP01)
VENTILATION CULVERT (DP05)
THEORETICAL EXCAVATION LINE
24" DRAIN
8" SANITARY
PGL
EXISTING SKYTRAIN FOUNDATIONS (TYP), SEE NOTE 2
EXISTING MARTA FOUNDATIONS (TYP), SEE NOTE 2
PLAN
DESIGN PACKAGE 03
DESIGN PACKAGE 04
HJAIA - DOMESTIC TERMINAL
MARTA
EXISTING MARTA FOUNDATIONS (TYP), SEE NOTE 4
EAST VENTILATION SHAFT (NORTH)
LINEAR TRANSITION STA N 66+49.00 TO STA N 66+57.00
LINEAR TRANSITION STA S 65+99.06 TO STA S 66+17.06
NORTH TUNNEL
LINEAR TRANSITION STA N 67+32.00 TO STA N 67+40.00
UNDERPINNING PILE (TYP), SEE DP02A
APPROX LIMITS CUT & COVER (DP07)
EXISTING ELEVATOR PITS AND LOBBY
SWITCH PIT
THEORETICAL EXCAVATION LINE
SUMP PIT
EAST VENTILATION ADIT
EXISTING HEADWALL
PGL
LINEAR TRANSITION STA S 65+55.00 TO STA S 65+63.00
BIFURCATION
EAST VENTILATION SHAFT (SOUTH)
SOUTH TUNNEL
EXISTING DOMESTIC TERMINAL FOUNDATIONS (TYP), SEE NOTE 4
PLAN


BOARDING LEVEL
APRON LEVEL
MEZZANINE LEVEL
AGTS TUNNEL LEVEL (PLATFORM)
CLARK CONSTRUCTION
ATKINSON CONSTRUCTION
TECHNIQUE
A JOINT VENTURE

Project Overview

- **Multiple GMPs and Component GMPs to support a phased delivery.**
  - Preconstruction
  - Design
  - GTC Modernization
  - Terminal Improvements
  - **Tunnel**
  - Employee Checkpoint Relocation

CLARK CONSTRUCTION ATKINSON CONSTRUCTION TECHNIQUE
A JOINT VENTURE

Why Progressive Design Build?

- A hybrid of CM at-Risk and Design-Build
  - The DOA was the first City department to implement CMAR (F-Concourse)
- So many "Known Unknowns"
- Produces the shortest Cradle-to-Grave timeline
- Allows the Construction Plans to adapt to a highly dynamic design evolution
  - And Provides for efficient issue resolution during construction while working for a massive agency

CLARK CONSTRUCTION ATKINSON CONSTRUCTION TECHNIQUE
A JOINT VENTURE

Further Advantages of PDB

- **Opportunity to get to the best price**
  - Though price certainty is a challenge early in the Project
- **Transparency in Pricing**
  - Must be open-book
  - Early contractor involvement
- **True Team Engagement and Partnering**
  - Critical with Multiple AHJs and End-users
  - The Owner does not lose that much control over the design

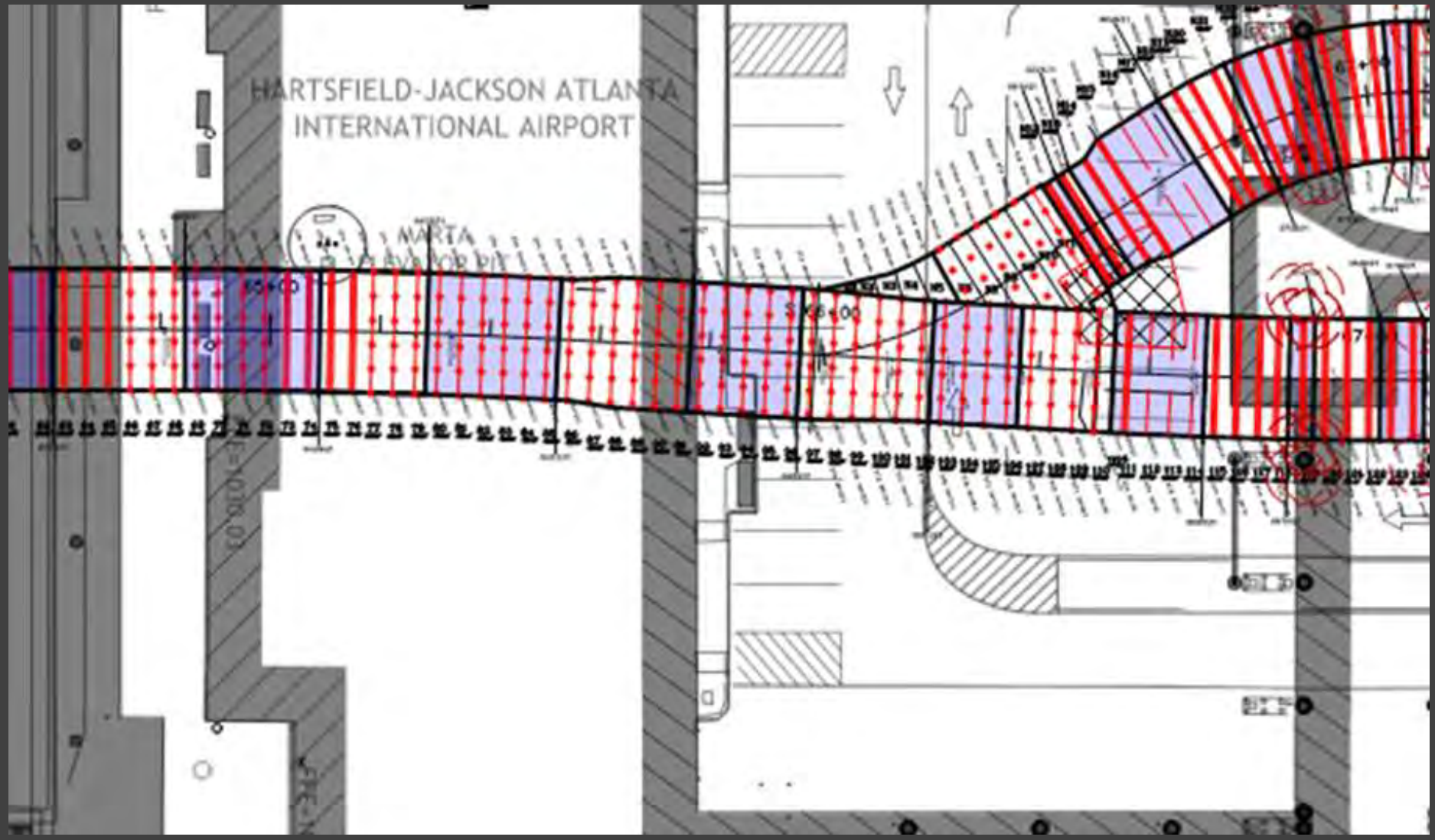
CLARK CONSTRUCTION ATKINSON CONSTRUCTION TECHNIQUE
A JOINT VENTURE

Risk Management

Whether you Allocate it, Shift it, or Share it; the Risk does not go away.

- **Early Contractor Involvement to better ID the risk**
  - **Risk mitigation is a team effort, and the earlier it is attacked head-on, the better chance you have to mitigate it.**
  - **Example – blasting adjacent to MARTA elevator plunger**

Risk Management



Risk Management

Whether you Allocate it, Shift it, or Share it; the Risk does not go away.

- **Pricing does not need to be firm until the challenges are properly understood.**
  - **The GeoTechnical Baseline Report can be specific and relevant**
  - **Pricing allowances can be established with detailed guidelines**

CLARK CONSTRUCTION ATKINSON CONSTRUCTION TECHNIQUE
A JOINT VENTURE

Lessons Learned

- **Properly establishing Allowances**
  - This helps handle the “known unknowns”.
  - Allows pricing to be deferred so that risk is not improperly priced.
- **Ensure all Parties understand the ground rules of the estimate.**
  - Cost of work, fee percentage, WBS
  - Self-perform estimate, Atkinson utilizes HCSS Heavy Bid

CLARK CONSTRUCTION ATKINSON CONSTRUCTION TECHNIQUE
A JOINT VENTURE

Lessons Learned

- **Elapsed time from GMP submission to Shovel-in-Ground**
  - Split hairs in the 60% estimate, not the 100% or GMP submission
  - NTP for each GMP needs an appropriate amount of lag to put a shovel in the ground.
  - The goal should be receiving the NTP and the IFC documents for each GMP at roughly the same time. An allowance can be established to handle changes between 100% documents, which was used for GMP proposal, and the IFC documents.
- **End-User Involvement**
  - Get the right person, early and often

CLARK CONSTRUCTION ATKINSON CONSTRUCTION TECHNIQUE
A JOINT VENTURE

QUESTIONS?