Presented by:

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  - Manager, 3D Information Modeling

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  - Gannett Fleming
  - Principal Project Engineer, Water Practice
Who are you?

- Design Team
- Contractor
- Owner
What if?

- Project on time or ahead of schedule?
- Project at or under budget?
- Reduce contingency budget by 50%?
- Reduce the number of errors & omission's
- Fewer Claims/Litigations?
Project Description

- Small Water Treatment Plant
- Project is a good candidate for BIM, and Client has agreed
What is BIM?

**Building Information Model** (noun)

**Building Information Modeling** (verb)

Concept introduced – 1975 – Dr. Charles Eastman
Are you the: Design team, Contractor, or Owner

How does a BIM project effect me?

What do I have to change?

How do I manage my projects time?

How do I manage my projects budget?

How do I manage my projects schedule?
Features of BIM

Building INFORMATION Model
BIM and Project Schedules/Budgets

- **Fees**
  - Non-BIM: 20%
  - BIM: 25%
  - Non-BIM: 15%
  - BIM: 20%
  - Non-BIM: 30%
  - BIM: 20%
  - Non-BIM: 25%
  - BIM: 25%
  - Non-BIM: 10%
  - BIM: 10%

- **BIM Workflow**
- **Traditional Workflow**

**TIME**

- Preliminary Design
- Detail Design
- Construction Documentation
- Construction
- Close Out

**COST**
BIM - A new way of thinking

What do you see?
By shifting perspective you might see an old woman or a young woman.

PLAN-centric  MODEL-centric

- **Who uses BIM**
  - Architects
    - 2009 – 37%
    - 2012 – 60%
    - 2014 – 75%
  - Engineers
    - 2009 – 21%
    - 2012 – 26%
    - 2014 – 43%

- **Who uses BIM**
  - Contractors
    - 2009 – 21%
    - 2012 – 31%
    - 2014 – 55%
  - Owners
    - 2009 – 18%
    - 2012 – 30%
    - 2014 – 44%
The Benefits of BIM

Drawing Coordination

Conflict Resolution

Decrease Change Orders
Top BIM Benefits for Owners

- Reduced Document Errors and Omissions
- Reduced Rework
- Reduced Construction Cost
- Reduced Project Duration
- Fewer Claims/Litigation
Owners Using BIM for O&M and FM

- Building performance against specified design
  - 18%
- Maintenance scheduling
  - 24%
- Asset management
  - 24%
- Space management and tracking
  - 25%
- Building Systems operation analysis
  - 32%
Uses of BIM after design

- **4D - Time**
  - Simulate construction sequencing
    - allows the contractor to evaluate and optimize construction sequencing and virtually plan all aspects of the construction

- **5D – Cost**
  - Estimate the construction costs
    - At any time during the process

- **6D - Operations**
  - Export information for input to CMMS or GIS for facility maintenance
    - SQL or Excel based
Challenges of BIM
Benefits over 2D workflow
BIM and the client
Red Lion Video
BIM and Contracts
Success or Failure – It’s up to you!