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HIGH DEFINITION SCANNING
What's the Buzz?

FIG Working Week 2016
CHRISTCHURCH, NEW ZEALAND 2–6 MAY 2016

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HIGH DEFINITION SCANNING – WHATS THE BUZZ?

WOODS

- 100 Employees, approx. 35 surveyors
- Surveyors, Planners, Engineers, Urban Designers
- Two Scanners, Scan station P20 and P40
- 8 years of laser scanning

CHRISTCHURCH REBUILD BUZZ
SCANNING DIVERSITY BUZZ
CHRISTCHURCH REBUILD – WHATS THE BUZZ?

TRIUMPHAL ARCH – BRIDGE OF REMEMBRANCE

- Structurally damaged, historical significant
- Strengthening required, but flexible
- Internal structural design
- Complex accurate relationship between internal cavities and external shape
- Plan, scan of 1-2 consecutive days
- Actual, 3 visits over 3-4 months
CHRISTCHURCH REBUILD – WHATS THE BUZZ?

TRIUMPHAL ARCH – BRIDGE OF REMEMBRANCE

- VISIT 1 - Primary External Scanning and outer arch cavities
- VISIT 2 - Secondary cavity scanning from top
- VISIT 3 - Scan from cavity bases
CHRISTCHURCH REBUILD – WHATS THE BUZZ?

TRIUMPHAL ARCH – BRIDGE OF REMEMBRANCE

POINT CLOUDS – EXTERNAL FACADES

POINT CLOUDS – LARGE ARCH INTERNAL CAVITIES

POINT CLOUD – LOOKING DOWN CAVITY
CHRISTCHURCH REBUILD – WHATS THE BUZZ?
TRIUMPHAL ARCH – BRIDGE OF REMEMBRANCE

STRUCTURAL STEEL WORK FOR POSITIONING INSIDE ARCH CAVITIES

STRUCTURAL STEEL MODEL INSIDE REVIT MODEL FROM SCAN DATA
CHRISTCHURCH REBUILD – WHATS THE BUZZ?
TRIUMPHAL ARCH – BRIDGE OF REMEMBRANCE

POINT CLOUDS SECTION – MAIN ARCH

POINT CLOUD SECTION – MAIN ARCH

POINT CLOUDS SECTION
OUTER ARCH SECTIONS
CHRISTCHURCH REBUILD – WHATS THE BUZZ?

TRIUMPHAL ARCH – BRIDGE OF REMEMBRANCE

CAD MODEL (DWG)  MESH MODEL  REVIT MODEL
CHRISTCHURCH REBUILD – WHATS THE BUZZ?

INDUSTRIAL PLANT RELOCATION

- NEW INDUSTRIAL 3D PLANT DESIGNED AND BUILT
- RELOCATION OF EXISTING PLANT TO NEW LOCATION
- MINIMAL PLANT DOWNTIME
- PLANNING FOR SPATIAL MANEUVERING IN 3D
- BASIC 3D PLANT MODELS CREATED
CHRISTCHURCH REBUILD – WHATS THE BUZZ?

CHRISTCHURCH SEWER PUMP STATIONS

- 100 PUMP STATIONS FEED 5 TERMINAL STATIONS
- NO TO CONVENTIONAL SURVEY OF 5 TERMINAL STATIONS
- YES TO SCAN AND MODEL
- MORE COMPLETE PICTURE OF EACH SITE INCLUDING SURROUNDING CLIFFS
CHRISTCHURCH REBUILD – WHATS THE BUZZ?

WALL VERTICALITY/SLAB FLATNESS

- NOT ONLY VERTICALITY OR HORIZONTAL DIFFERENCE
- HUMPS AND HOLLOWS
- DAMAGED SURFACES
ONE OF NZ PRIME EXPORTS

FOOD SAFETY STANDARD AND THE HIGHEST QUALITY

SCANNING AND MODELLING

MAINTANANCE AND REPLACEMENTS REGULARLY

INDUSTRIAL STANDARD
- ASB CLASSIC AND HEINEKEN OPEN
- CAPTURED TENNIS FACILITIES, NEIGHBORING TREES AND THEIR CANOPY
- RUNWAY SURVEY AT 5 DIFFERENT PACIFIC ISLANDS
- ONE FLIGHT PER WEEK BACK HOME
- AIR NEW ZEALAND PLANES SCANNING
- DESIGN MAINTANANCE FACILITIES
DIVERSITY BUZZ

AVIATION
TV Commercial
SKY TV – ‘THE ZONE’

- 5 SCENES IN DIFFERENT LOCATIONS
- SYNCHRONIZE CAMERA AND SCANNER
- SPATIALLY ACCURATE MESH MODELS
Technology Advantages

**Visual Alignment** – SPEED UP OUR REGISTRATION PROCESS AND FIELD WORK 4 TIMES

**Jet Stream** – NO MORE “cwregen” COMMAND
WHAT’S THE BUZZ

Conclusion

• LASER SCANNING CREATES A BUZZ

• INTRODUCED NEW BUSINESS TO WOODS

• SURVEYORS ARE WELL PLACED TO APPLY LASER SCANNING TO A VARIETY OF INDUSTRIES AND TASKS

• COMPUTERS AND SOFTWARE ARE MORE ACCEPTING AND COMPATABLE

• MANY PREVIOUS LIMITATIONS HAVE BEEN REMOVED ALLOWING A WORLD OF APPLICATIONS

THANK YOU

WOODS
LASER SCANNING
Engineers . Surveyors . Planners
Urban Designers . Architects

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