Building Material Reuse in Georgia Demolition of Advanced Individual Training Site Phase 1 Fort Jackson, SC

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US Army Corps of Engineers

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AIT Phase 1 Project

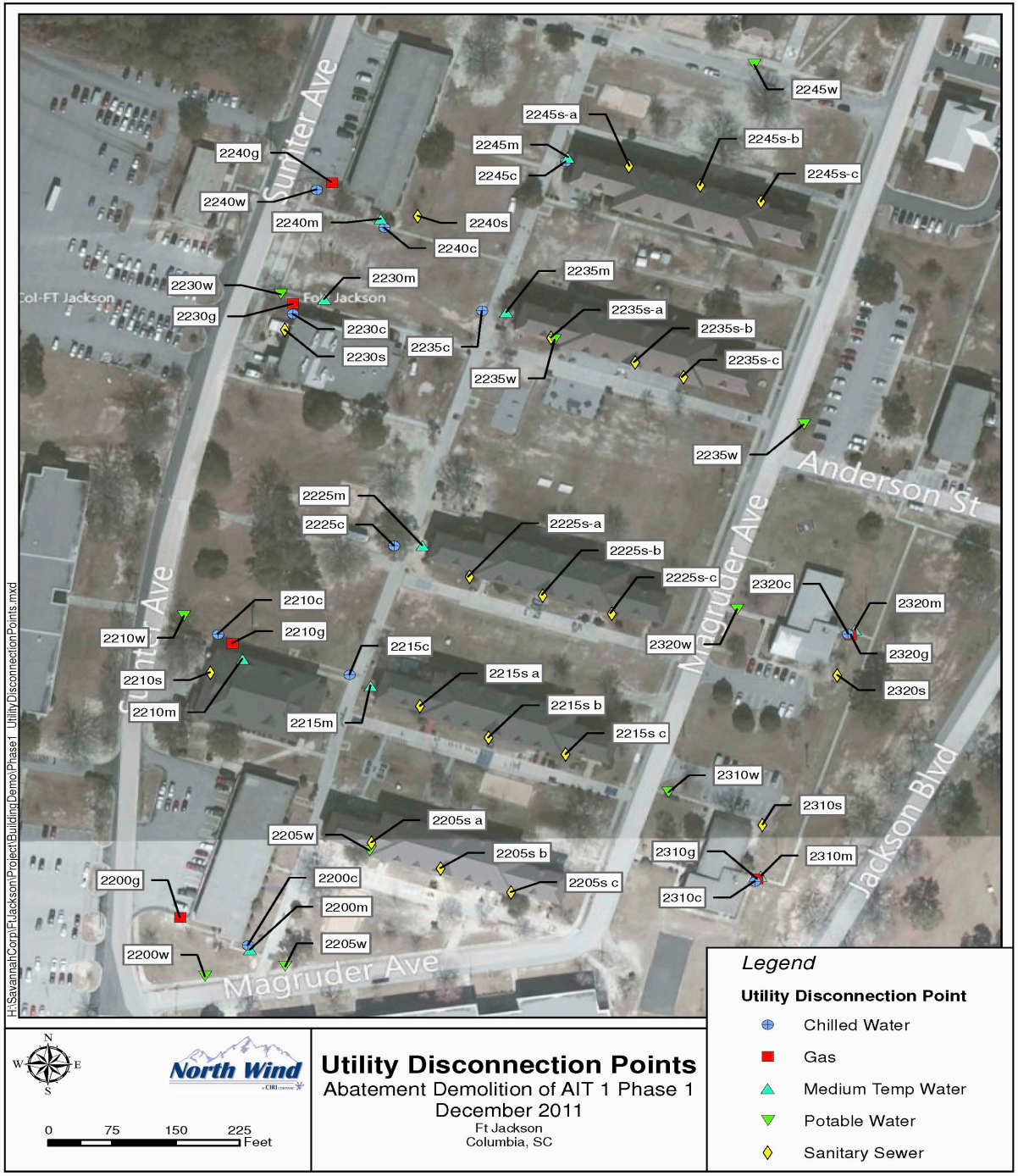
- Familiarize Those New to Demo-Decon
- Significant Recycling can be Accomplished for Complex, Tightly Scheduled Projects
- Highlight the Successful and Not so Successful Aspects of Recycling on a Military Base

AIT Phase 1 Project (Advanced Infantry Training)

- Ft Jackson established in 1917
- Covers 52,000 acres
- Trains 50% of all soldiers
  - (80% women)

AIT Phase 1 Project Specifics

- Total SF = **306,405** sf
- 5 ‘Rolling Pin’ barracks (3 story)
- 2 Admin/Training Bldgs (1 story)
- 2 Dining Halls (1 story):
  - 1-Active; 1 converted to classroom
- 2 Split-level Office/Loading Dock/Storage



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AIT Phase 1 Project Specifics

- Footprint Only Removal
- 22 acres Split Site (17 + 5)
- Mandatory 50% Landfill Waste Diversion
- All roads to remain open for troop training access (Buses, autos, joggers)
- Shared Utilities with Bldgs outside the site footprint

AIT Phase 1 Project Specifics

Aug 1 – Dec 15 (**137** days)

(198 days pre-Debt Ceiling Issues)

37,293.5 On-site Man Hours

10Hr/ Day

6 Days/Week

AIT Phase 1 Project

- AIT Typical Barracks Building (48,429 sf)

AIT Phase 1 Project

Footprint Only Removal

AIT Phase 1 Project

- Multiple Simultaneous Contractors/Phases
  - Furniture Removal (mattresses, non-metal misc.)
  - Precious Metal Removals (brass, copper , etc.)
  - Hazardous/Regulated Building Materials Removal
  - Area Prep & Asbestos Abatement
  - Recycled Metal (Mostly furniture) Load & Haul
  - Brick & Concrete Crushing & Structural Metal Segregation , Load & Haul All
  - Backfill, Compaction & Seeding

AIT Phase 1 Project Specifics

Total Recycling

26,320 Tons- **96.18%**

Crushables: Brick & Concrete

25,658 Tons – **93.76%**

Metals

662 Tons **2.42%**

Refrigerant Removal

AIT Phase 1 Project Specifics

AIT Phase 1 Project Specifics

- 477 Tons 1.63% of Asbestos/Asbestos contaminated waste to Class II Landfill
- **Friable Asbestos**
  - ►44,000 sf drywall joint compound
  - ►Spray-on ceiling texture
- **Nonfriable Asbestos**
  - ►27,000 sf VAT & mastic
  - ►Flashing, caulking, glazing, pipe mastic

Assumed Asbestos

Removing Asbestos Caulked & Glazed Aluminum Window Frames

AIT Phase 1 Project Specifics

2, 041 Florescent Lights (4ft & under)

896 lbs of Ballasts (CleanLites Recycling South LLC & Mid-Carolina Steel & Recycling)

2 lbs Misc Regulated Materials **0.004%**

Mercury Thermostats & Switches

596 Tons Non-Crushables **2.18%**

LBP block, Carpet, Fiberglass Insulation, etc.

Busy Site !

Wet Demo

Wet Demo

3-Story Demo!

11.01.2011 09:37

11-01-2011 13:50

11.07.2011 15:47

08.21.2011 08:51

10.28.2011 08:04

Rain!

Rain!

10.06.2011 16:13

09.30.2011 09:51

Dust Suppression

AIT Phase 1 Project

UNEXPECTED SURPRISES

AIT Phase 1 Project Surprises

- Midnight Requisitions
- Finding New Homes for Used Furnishings?
- Asbestos & Floor Tile Adhesives
- Glazed Latrine & Kitchen Tiles
- Terra Cotta Floor Tiles

AIT Phase 1 Project
Surprises-Midnight Requisitions

- 6-8 2-ton AC units “disappeared”
- Most all fire extinguishers
- All the pay phones
- Most all the exit lights (left live wires dangling)
- Doors & windows kicked in…

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New Homes for Used Furnishings

Available for New Homes…

- Steel Single and Bunk Beds >100
- Steel Free-standing Double Lockers >100
- Steel Desks, Tables <100
- Classroom/Cloth Chairs & , Desk Chairs<100
- Simple Desks <100
- Mattresses >100
- Display Cases -3
- Refrigerators-3
- Pool Table-1
- Wood Conference Table-1
- White Boards-3
- Metal Cabinets < 25

Asbestos Monitoring Team Liked the Conference Table!

New Homes for Used Furnishings

- 150 Mattresses to Base Furnishings
- 15 Free-standing lockers, a refrigerator , a couch, 3 3-drawer metal cabinets went to DPW/ Fire department
- Multiple cloth chairs, the pool table, conference table, white boards, 2 lockers, a display case, and hand sanitizer dispensers found homes with the onsite crews
- Remaining materials could not find a home…..

Remaining materials could not find a home.....

Remaining materials could not find a home.....

Bunk Beds Going to be Crushed

Lockers, Beds, and Bookshelves to be Crushed

Furniture Crushing

Fall Protection for Load-out

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10.19.2011 15:25

09.08.2011 08:12

AIT Phase 1 Project

Surprises: Asbestos & Floor Tile

AIT Phase 1 Project

Surprises: Asbestos & Floor Tile

- Vinyl Asbestos Floor Tile with asbestos mastic-abated (?)
- Replacement tile was secured with Adhesive & not Mastic
- Asbestos survey . Over 15 samples came up Non-Detect (NAD)
- Abatement did not reach under temporary partitions and the ‘hot’ mastic remained
- New adhesive could not be solvent dissolved & a heat machine was required before concrete could be crushed

09.06.2011 09:02

AIT Phase 1 Project
Surprises

Lead (Pb++)

Lead-Based Paint

AIT Phase 1 Project
Surprises: Glazed & Terra Cotta Tiles

- During Lead-based Paint XRF testing of paint (LBP was anticipated) the ceramic tiles were ‘Shot’ in the Dining Hall & Latrines.
- Sub-Contractor did not want to add these materials to his company’s crushed stock piles
- Analytical testing had to be performed and a judgment made by the state of South Carolina

Typical Glazed Latrine Tiles

Please refer to the XRF analysis results found in the Appendix. The instrument was used in accordance with its Housing and Urban Development (HUD) performance characteristics sheet. Calibration checks were within acceptable limits.

Conclusions

Lead-based paint at or above the South Carolina standard of 0.7 mg/cm^2 was detected on the following surfaces:

COMPONENT	SUBSTRATE	CONDITION	COLOR	SITE	ROOM	Results	PbC	Units
Wall	Ceramic Tile	INTACT	GREEN	2345	BATHROOM	Positive	4.5	mg / cm ^2
Wall	Ceramic Tile	INTACT	GREEN	2345	BATHROOM 224	Positive	3	mg / cm ^2
Wall	Ceramic Tile	INTACT	GREEN	2345	149	Positive	4.1	mg / cm ^2
Wall	Ceramic Tile	INTACT	Grey	2235	BATHROOM 324	Positive	3.4	mg / cm ^2
Wall	Ceramic Tile	INTACT	Grey	2235	BATHROOM 241	Positive	3.1	mg / cm ^2
Wall	Ceramic Tile	INTACT	Grey	2235	145	Positive	3.3	mg / cm ^2
Wall	Ceramic Tile	INTACT	YELLOW	2225	BATHROOM319	Positive	2.7	mg / cm ^2
Wall	Ceramic Tile	INTACT	YELLOW	2225	BATHROOM 217	Positive	3.5	mg / cm ^2
Floor	Concrete	INTACT	Grey	2225	Stairwell	Positive	1.1	mg / cm ^2
Wall	Ceramic Tile	INTACT	GREEN	2215	BATHROOM 115	Positive	3.8	mg / cm ^2
Landing	Concrete	INTACT	BLUE	2205	OUTSIDE	Positive	4.1	mg / cm ^2

The OSHA Lead Regulation sets exposure limits on airborne lead and does not reference the paint lead concentration. Contractors disturbing painted surfaces should be notified of these survey results so as to comply with the OSHA requirements.

Limitations

This survey and report have been executed at the request of Mr. Don Buchanan and Asbestos and Demolition, Inc. and are intended solely for their use.

This report summarizes the most significant findings of XRF analysis of painted surfaces of the readily accessible areas of this structure and the tested components. The presence or absence of lead-based paint or lead-based paint hazards applies only to surfaces which were assessed or tested on the date of the site visit as those conditions may change due to deterioration or

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AIT Phase 1 Project
Glazed Tile

- “Per our discussion, attached are the sampling protocols and test results for the ceramic tile we obtained from the applicable buildings at Fort Jackson. Some RSL, MCL, and TCLP toxicity levels are exceeded but the tiles are not considered to be hazardous materials. The attached e-mail thread indicates that Mr. __XX__ approved the inclusion of the tile for use as structural fill. The rationale was that the tile constituted approximately 1.1% of the weight the construction and demolition debris. As a result, a homogenous mixture of the tile with brick and block found in the debris would dilute the presence of toxic substances to negligible levels. We would like to understand whether or not the logic that applies to structural fill would also apply to reuse of the same materials as crushed aggregate.”

AIT Phase 1 Project
Glazed Tile

From: Manager, Solid and Hazardous Waste Compliance

Bureau of Land and Waste Management

SC DHEC

"We have evaluated the additional information provided regarding the demolition project at Fort Jackson, SC. The Department has determined that the crushed concrete aggregate (brick, block, concrete, and tile) are suitable for structural fill and unrestricted beneficial reuse."

AIT Phase 1 Project
Terra Cotta Tile

The same conclusion was applied to the Terra Cotta Dining Room Floor Tiles whose entire composition contained lead.

AIT Phase 1 Project

CONCLUSIONS

AIT Phase 1 Project

- Accidents: **No Lost Time Accidents!** (2 Stitch cases & a bruised hand)
- Other safety Issues:
- Asbestos Abatement Crew had 1 English speaking person per crew of 8 (3-4 simultaneous crews)
- Unexpected Power Outage while in Asbestos Containment
- Dust Suppression (Drought)
- Traffic Control (7 haul trucks making 16 loads out a day)
- Rain & flooding
- Heat Stress (Temps in high 90's Indexes up to 115 F)

12.21.2011 08:07

AIT Phase 1 New Construction