



14 Ft. Wind Tunnel Demolition, project history & lessons learned

A Case Study: the 14' WT Demolition
at Ames Research Center

Project Data

- Demolition of the 14'WT in three phases to match funding availability.
- Phase 1: Demo. of ½ tunnel structure and motor house.
 - Contract Amount: \$1,917,403.
 - Contract Award: April 27, 2006.
 - Work complete April 26, 2007.
- Phase 2: Demo. of ½ tunnel structure and air exchange building.
 - Contract Amount: \$ 1,850,443. (final)
 - Contract Award: May 24, 2007.
 - Work completed April 14, 2008.

Project Data

- Phase 3: Demo. of test chamber building and tunnel, office building, foundation removal and other abandoned structures.
 - Contract Amount: \$907,000.
 - Contract Award: August 13, 2008.
 - Work complete by August 13, 2009 (scheduled).
 - Contract with mods: \$1,200,000 (projected).
 - Site restoration to follow: \$240K (reserved)
- Other major demolition with funds available:
 - Abandoned cooling towers at N207 & N226.
 - 6 X 6 WT Support Equipment Demo, at N226.
 - Demo of N208 (Underground Ballistic Range Bldg.)
 - 1 X 3 Hypersonic WT Equipment Demo, at N207.
 - Demo misc. equipment at Arc Jet site. (Sphere 5, NASH Pumps, etc)
 - Demo abandoned equipment at N229A; was 3 ½' hypersonic WT.
 - Demo N209 (Pressurized Ballistic Range Bldg.)
 - Demo 7X10 Wind Tunnel #2. (in design)

14' WT: Pre-demolition



6/4/2009

14' WT Demolition, Phase 1



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14' WT Demolition, Phase 1



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14' WT Demolition, Phase 2



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14'WT Demolition, Phase 3



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6 X 6 WT Cooling Tower



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3 ½' WT Equipment (before demo)



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N226 Room (after equipment demo)



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1 X 3 WT Equip Demo.



Arc Jet Sphere 5 Demo.



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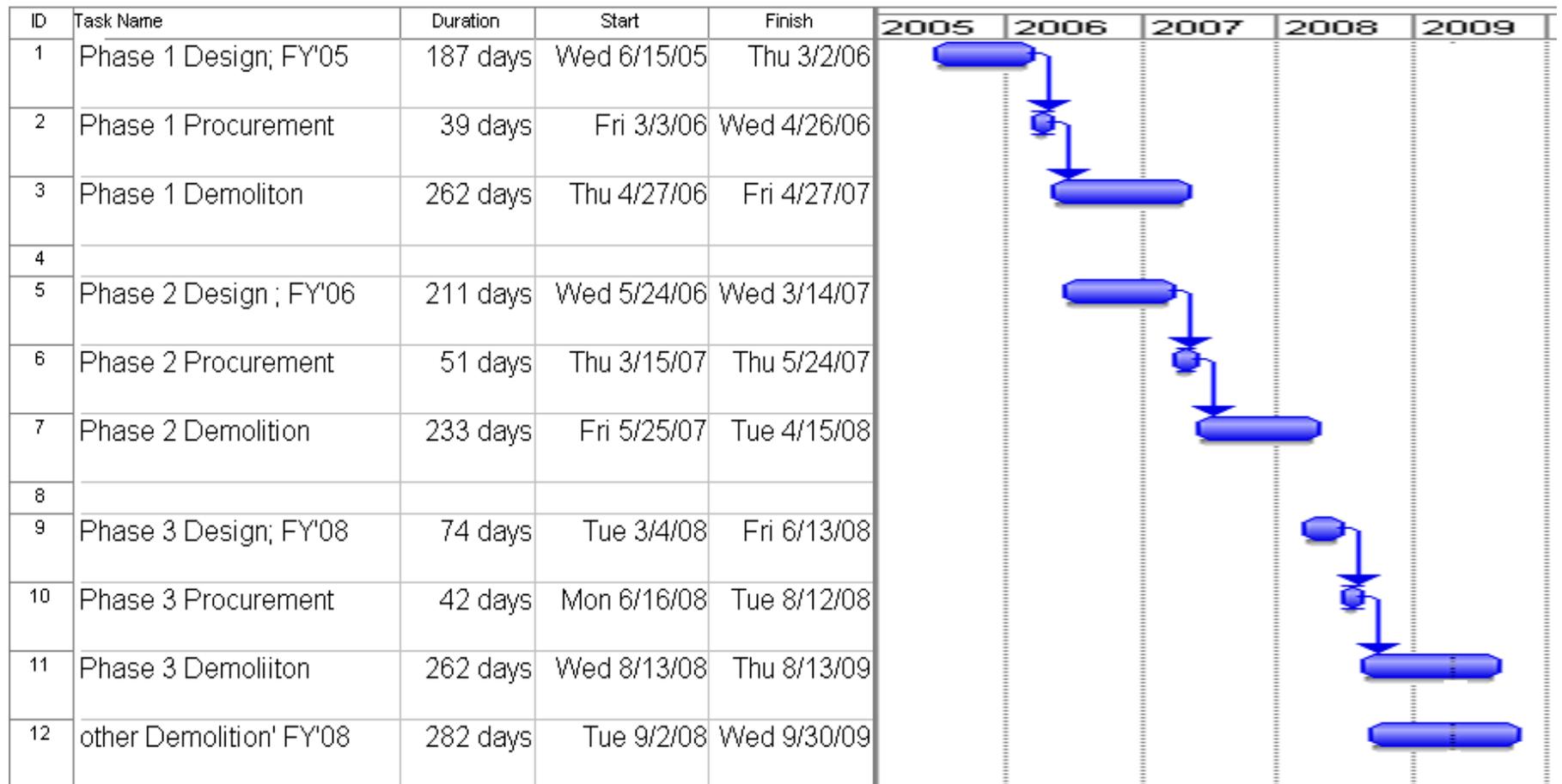
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Bid Analysis

	Phase 1 Base + 3 Options	Phase 2 Base + 1 Option	Phase 3 Base + 5 Options
Gov't. Estimate	2,344K	2,609K	3,441K
No. of Proposals	7	6	6
Avg. Proposal Amount	2,085K	1,913K	1,674K
Award Amount	1,917K	1,697K	907K



14 FT. W.T. DEMOLITION PROJECT TIMELINE



Support Costs for all Phases

- Design & Pre-demo multiple contracts: 900K (estimate)
- Environmental monitoring and disposal costs: 125K (estimate)
- Utility shutdowns and isolations: 45K (estimate)
- CM Support: 200K (estimate)
- Removal of utilities: 300k (estimate)



Project Support Staff

- Contracting Officer: 2hrs./wk: Gov't.
- Project Manager/C.M.: 4 hrs./day: Gov't.
- Site Super/Inspector: 4 hrs./day: Contract.
- Safety Inspector: 1 hr./day: Contract.
- Environmental Inspector: 1 hr./day: Contract.

Contract Information



- Best Value, Fixed Price solicitation.
- Full and Open Competition.
- Offerer's needed "Demolition" license for demolition work.
- Safety & Environmental protection were emphasized.
- Scope included Based Bid and Option Items.
- Multiple proposals were received.

Recycling Data



- 50+ tons of non-ferrous metals recycled.
- 4500 tons of ferrous metals recycled.
- 1200 CY of concrete debris recycled.
- 4500 CY of concrete reused on site.
- All painted wood debris was classified as hazardous materials.
- Wood flooring (10,000 sq.ft) will be reused on other projects at Ames.
- General construction debris was minimal.
- Tunnel test equipment will be reused at other wind tunnels at Ames.

Cost Benefit of Metals Re-use



- Cost benefit was received in the bid proposal amounts.
- Estimated cost benefit: at \$1,166 K
- Contract amounts: \$4,674 K
- $1166/(1166+4674)= 20\%$ cost reduction.
- The Contractor assumes the control and risk for: materials processing, disposal options, shipping costs, variable material costs over the contract period.

Salvage Metal Variance





Other Re-use methods

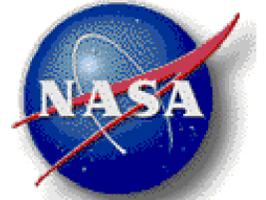
- Direct reuse of specialty items (test equipment, optical glass, electrical panels, mechanical equipment).
- Salvage and reuse of architectural flooring.
- Reuse of processed concrete on site.
- Site will be restored using conditioned local soils and compost processed on site.

Re-use of Utility Structure



- Removal of TA 14 for use elsewhere at Ames.

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Practices to Accomplish Zero Accidents

- Best Value Solicitation.
- Health & Safety Program Required.
- Work Procedures for high risk activities.
- Emphasize delegation of responsibilities and communications (meetings & reports).
- Partnering with Contractor: safety is everyone's concern.



Best Value Criteria

- 1) Past performance.
- 2) Project Team and organization.
- 3) Work Plan.
- 4) Construction Schedule.
- 5) Utilization of Small Disadvantaged Business.
- 6) Safety and Health Plan.
- 7) Sustainability Plan (added to Phase 3 contract requirement).

Possible Best Practices:



- Best Value selection.
- Full and Open competition if SOW includes sensitive environmental and safety concerns.
- Detailed description of materials and of environmental requirements.
- Isolate site utilities to minimize interface issues.