



TARGETED RESULTS. EXPERTLY MANAGED.

Runway 5 Ground Obstruction Removal – A 10-Year Journey

Yeager Airport (CRW)

March 4, 2015



Speakers



→ Tim Murnahan

- Assistant Airport Director for 19 Years
- Military Service – US Army Helicopter Pilot / Retired

→ Rick Holes, PE

- Aviation Services Operations Manager at L.R. Kimball
- BS in Civil Engineering from The Pennsylvania State University
- 26 Years with L.R. Kimball
- 20 Years in Aviation



Yeager Airport (CRW)



- Largest Airport in West Virginia
- Named for Chuck Yeager from Myra, WV
- 20 Daily Flights to 11 Destinations
 - American to Dallas, TX
 - Delta to Atlanta, GA and Detroit, MI
 - Spirit to Myrtle Beach, SC and Fort Lauderdale, FL
 - United to Chicago, IL; Houston, TX; and Washington, DC (Dulles)
 - US Airways to Charlotte, NC; Philadelphia, PA; and Washington, DC (Reagan)
- 250,509 Enplanements in 2014
- Home to the WV Air National Guard
- Single Runway (5-23) 6,802' x 150'
- ILS Approach to Runway 23 with CAT 1 Minimums



2

Runway 5 Ground Obstruction Removal



- Background and Timeline
 - A Preliminary Obstruction Study was completed by L.R. Kimball in 2005
 - Review of Runway End (Threshold) Siting Surfaces identified Obstructions to the 40:1 Departure Surface for R/W 23
 - Most of the southern half of the trapezoid was affected
 - Obstruction was located 4,100' from the R/W 5 Threshold
 - Average Ground Obstruction was 50'+
 - Max. Ground Obstruction was up to 120'
 - Additional Obstructions included trees and houses

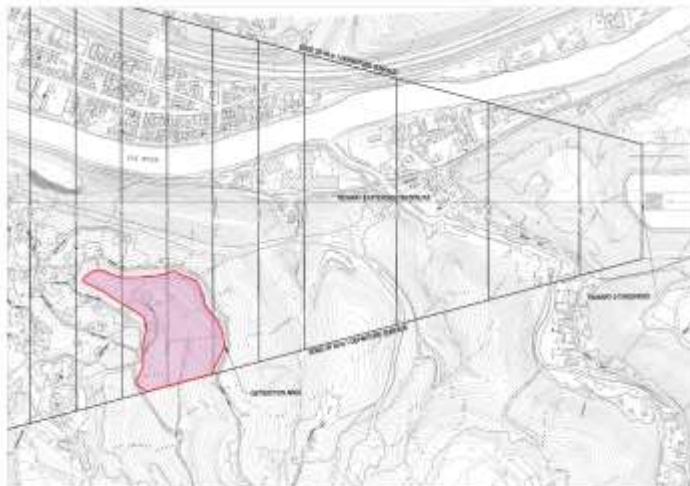


3

Runway 5 Ground Obstruction Removal



→ Runway 23 Departure Surface Information



4

Runway 5 Ground Obstruction Removal



→ More Background Information

- The obstruction affects departures from Runway 23
 - Limits aircraft takeoff weight during summer months
 - Primarily affects long routes such as Houston and Dallas
 - On some summer days, each flight may lose 3 to 4 seats due to weight restrictions as a result of the departure climb gradient
- The obstruction also affects approaches to Runway 5
 - Current minimums for the R/W 5 ILS are 500' HAT and 1-1/2 Mile Visibility
 - As a result, during poor weather conditions, Runway is not available for landing
 - Removing the obstruction can potentially reduce the minimums to 200' HAT and 3/4-Mile Visibility



5

Runway 5 Ground Obstruction Removal



→ Planning

- Obstruction would have to be removed to improve both departures from Runway 23 and approaches to Runway 5
- Affected area was a residential area known as the Coal Branch Neighborhood between the Airport and downtown Charleston



Runway 5 Ground Obstruction Removal



→ Coal Branch Neighborhood Subdivision Plan



Runway 5 Ground Obstruction Removal



→ Environmental

- Completed a full Environmental Assessment in 2006/2007
- Area of Impact was identified
 - Graded area
 - Buffer zone
- Wetlands and streams were identified
- Indiana Bat Habitat was identified



8

Runway 5 Ground Obstruction Removal



→ Land Acquisition

- Airport Authority started the Land Acquisition process in 2008
- O.R. Colan was brought in to manage land acquisition
- Total land acquired was nearly 39 acres
 - Included 60 separate properties, 9 residences and 3.8 acres of City of Charleston Streets



9

Runway 5 Ground Obstruction Removal



→ Land Acquisition

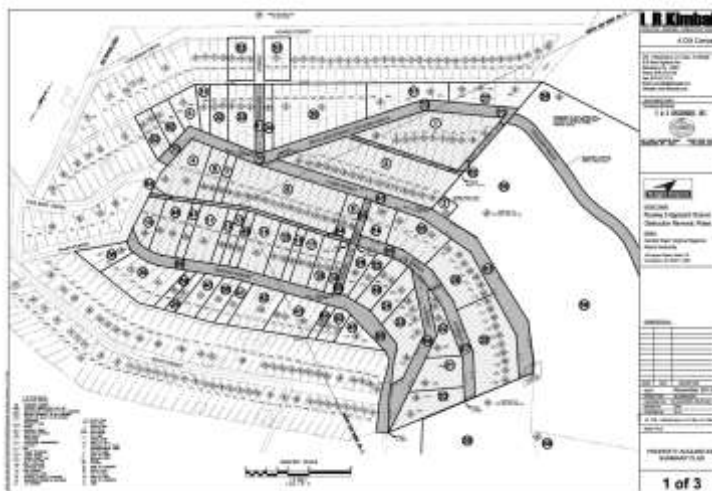
- Vast majority of the land in Coal Branch was owned by Corotoman, Inc, a local developer
- The Airport Authority negotiated a Land-Use Agreement with Corotoman
- A total of 10 properties were acquired through eminent domain
- Last property was acquired in early 2013
- Total Value of Land Acquisition = \$958,400
- The Airport Authority demolished the homes after acquisition



Runway 5 Ground Obstruction Removal



→ Property Acquisition Summary



Runway 5 Ground Obstruction Removal



→ Design

- Site was primarily the top of a hill with a ridge running through the middle
- Site was to be cut to 10' below the departure surface elevation
- Depth of cut varied from 15' to 95'
- Site was to be graded to drain away from residential area
- Two sedimentation/detention basins were constructed
- Rock was cut to 2' below finish grade
- 18" of subsoil and 6" of topsoil was placed on finished rock
- Total Earthwork = 1,350,000 CY



12

Runway 5 Ground Obstruction Removal



→ Design (Continued)

- It was decided to allow the Contractor to identify a waste area
- Several potential sites were located within a mile of the site
- Access to the site was a major issue
 - City streets are very narrow and steep
 - Residences were located very close to streets
 - An easement was negotiated with an adjacent landowner to provide access from Deitrick Boulevard (Private Street)
 - \$300,000 was set aside for Deitrick Boulevard maintenance
- Former streets would be available for Contractor vehicle access
- An allowance was included for hazardous material disposal

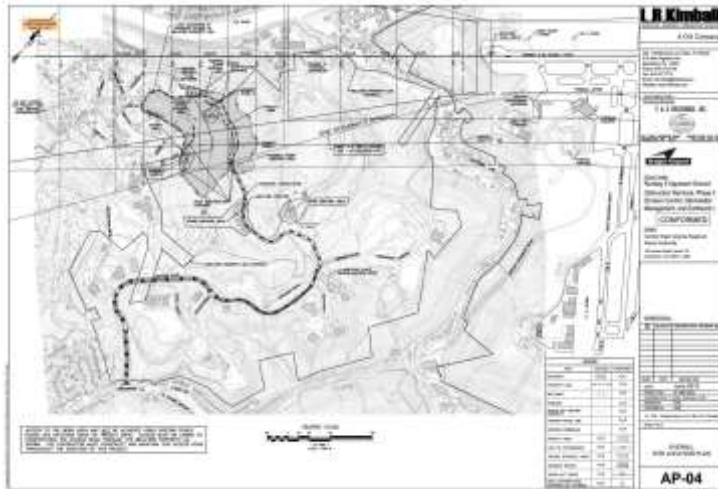


13

Runway 5 Ground Obstruction Removal



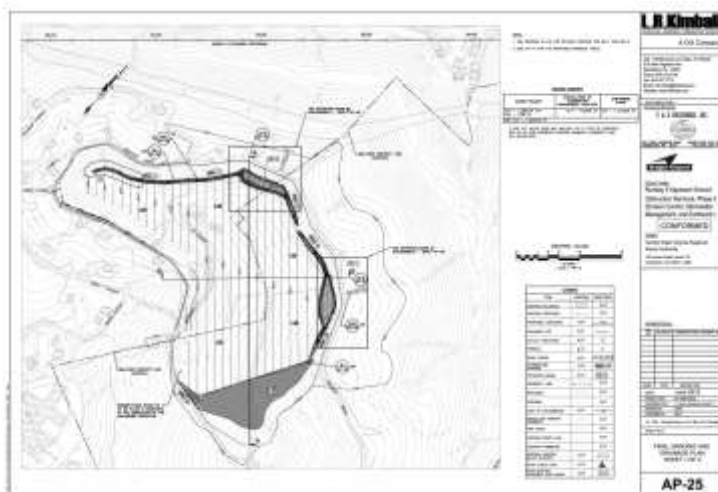
→ Overall Site Plan



Runway 5 Ground Obstruction Removal



→ Obstruction Removal Grading Plan



Runway 5 Ground Obstruction Removal



→ Access Road Plan



16

Runway 5 Ground Obstruction Removal



→ Public Involvement

- Significant blasting was required for project
- Airport had major blasting issues during previous projects
- Blasting would occur within 100' of residences
- Airport used local media to inform the public
 - TV and Radio interviews
 - Encouraged video of site
- A public meeting was held at St. Stephens Church in Coal Branch
 - City Councilman was invited to participate
 - Approximately 50 people attended
 - Most people were overwhelmingly supportive
 - Additional residences were added to Pre-Blast Survey
- A Local Liaison was established by the Airport
- Blasting complaint form was provided on Airport website



17

Runway 5 Ground Obstruction Removal



→ Phase 1 Construction – Tree Removal (March 2013)

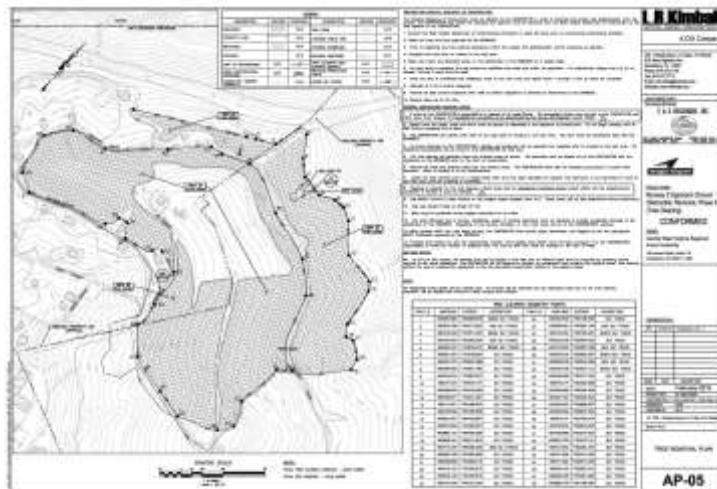
- Work included access road construction, clearing for 24 acres of trees and 6,500' of 36" super silt fence installation
- Contractor was required to remove trees and chip all limbs
- Contractor was S&E Clearing and Hydroseeding of Pineville, WV
- Contract Value = \$455,000



Runway 5 Ground Obstruction Removal



→ Tree Removal Plan



Runway 5 Ground Obstruction Removal



→ Phase 2 Construction – Earthwork (October 2013-Present)

- Work included permanent access road construction, all grading, stormwater management and erosion and sedimentation controls
- Contractor was responsible for identifying, negotiating, permitting and constructing a waste area
- Contractor is Central Contracting, Inc. from St. Albans, WV
- Contract Value = \$13,245,310.88



20

Runway 5 Ground Obstruction Removal



→ Pre-Blast Survey

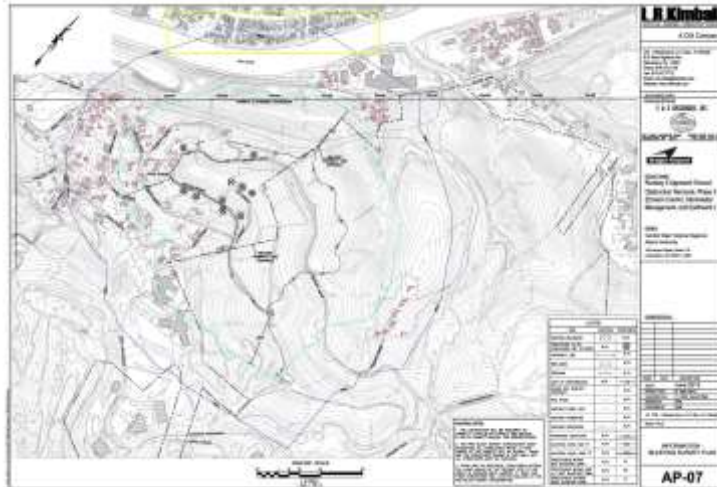
- Contractor was required to hire a Blasting Subcontractor and a Seismic Subcontractor to oversee and monitor blasting
- Dyno Nobel from Charleston handled all blasting
- Sauls Seismic, Inc. from Logan, WV provided the Pre-Blast Surveys and Seismic Monitoring
- A Pre-Blast Survey Area was established within 1,000' of the site perimeter
- Additional structures were added in areas of prior concern from previous projects
- All structures within the area were given an ID number and were included in the Survey



21

Runway 5 Ground Obstruction Removal

→ Pre-Blast Survey Plan



Runway 5 Ground Obstruction Removal

→ Construction Information

- Contract time is 600 continuous calendar days
 - No stop of contract time for weather
- Construction started on September 23, 2013
- Contractor was required to construct an access road from Deitrick Boulevard to Twilight Drive
- Blasting was initially scheduled to start January 6, 2014, but was delayed due to weather.
- On January 9, 2014, the Freedom Industries chemical spill occurred immediately downstream of the Airport and the Site
- First blast occurred the week of February 17, 2014

Runway 5 Ground Obstruction Removal



→ Waste Area

- An adjacent valley was identified by the Contractor as the preferred waste area.
- Property was primarily owned by Corotoman, Inc. with an additional 13+ acres owned by the Nutter Family
- The Contractor negotiated a fee with Corotoman, Inc. for the placement of fill on that property
- The Kanawha County Economic Development Authority purchased the Nutter Farm for use as a Waste Area
- Approximately 125' of fill will be placed in the valley
- Waste area will result in a 12-acre graded area for future development
- The access road for the project will be developed as a permanent access to both the cut and fill sites



24

Runway 5 Ground Obstruction Removal



→ Earthwork Project Construction Photos (Sept. 2013 to Feb. 2014)



25

Runway 5 Ground Obstruction Removal



→ Earthwork Project Construction Photos (March/April 2014)



Runway 5 Ground Obstruction Removal



→ Earthwork Project Construction Photos (May/June 2014)



Runway 5 Ground Obstruction Removal



→ Earthwork Project Construction Photos (July/August 2014)



Runway 5 Ground Obstruction Removal



→ Earthwork Project Construction Photos (Sept./Oct. 2014)



Runway 5 Ground Obstruction Removal



→ Earthwork Project Construction Photos (Nov./Dec. 2014)



30

Runway 5 Ground Obstruction Removal



→ Earthwork Project Summary Through December 2014

- Total cost to date = \$12,480,150
- Total volume of material removed = 1,265,886 CY
- All drainage installation has been completed
- Approximately 75% of the final area has been covered with subsoil, and topsoiled and seeded
- Approximately 180 trees have been cut around the site perimeter



31

Runway 5 Ground Obstruction Removal



→ Remaining Work for Spring 2015

- Approximately 50,000 CY of material remains to be removed
- All blasting has been completed
- Airport will repave Deitrick Boulevard
- Stabilize new site access road
- Maintain all E&S measures until NPDES Permit is satisfied
- Complete final as-built survey of site
- Submit as-built survey information to FAA to determine new Runway 23 departure requirements and new Runway 5 approach minimums
- Projected final cost is approximately \$250,000 below bid



32

Runway 5 Ground Obstruction Removal



→ Project Summary

- Total Project Duration = 10 years
- Final Cost = \$17,239,500 +/-
 - Preliminary Obstruction Study = \$182,500
 - Environmental Assessment = \$231,000
 - Land Acquisition Fees = \$303,900
 - Land Acquisition Costs = \$958,400
 - Design = \$438,000
 - Tree Clearing Construction = \$513,200
 - Earthwork Construction = \$14,612,500



33

Thank You



For Additional Information Contact:

L.R. Kimball

Rick Holes, PE

Operations Manager - Aviation Services

Office Phone: 814-472-7700, Ext. 601272

Cell Phone: 814-659-7565

Rick.Holes@LRKimball.com

www.lrkimball.com

