Western Energy Company

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Area A Final Highwall
Reclamation Project

Western Energy Company Facts

- Subsidiary of Westmoreland mining LLC.
- In production 36 years.
- More than 370 million tons of coal have been produced.

Area A Permitting, Mining and Reclamation History

- State program permit issued September 2, 1986.
- Coal shipped to out of state utilities through 1995.
- Postmining topography revisions for final reclamation approved in 1999.

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Area A Permitting, Mining and Reclamation History

- Spoil side regrading conducted from 1999-2003.
- Final highwall regrading begun in 2003.
- Phase I regrading, topsoil replacement and seeding completed in 2004.
- Final drainage construction in Phase I completed in 2005.
- Phase II regrading, topsoil replacement and seeding completed in 2005.

Final Reclamation Opportunity

- Preservation of unique topographic and habitat features.
- Preservation of approximately 5000 ponderosa pines.

Final Reclamation Problems

- Provide stable drainages through the reclaimed area.
- Balance the required fill with the volume of material available from a smaller highwall reduction area.
- Provide for topographic and vegetation diversity on the spoil side.

Final Reclamation Solutions: Stable Drainage Design Criteria

- Concave longitudinal slopes required.
- Slope steepness limited to limit erosion.

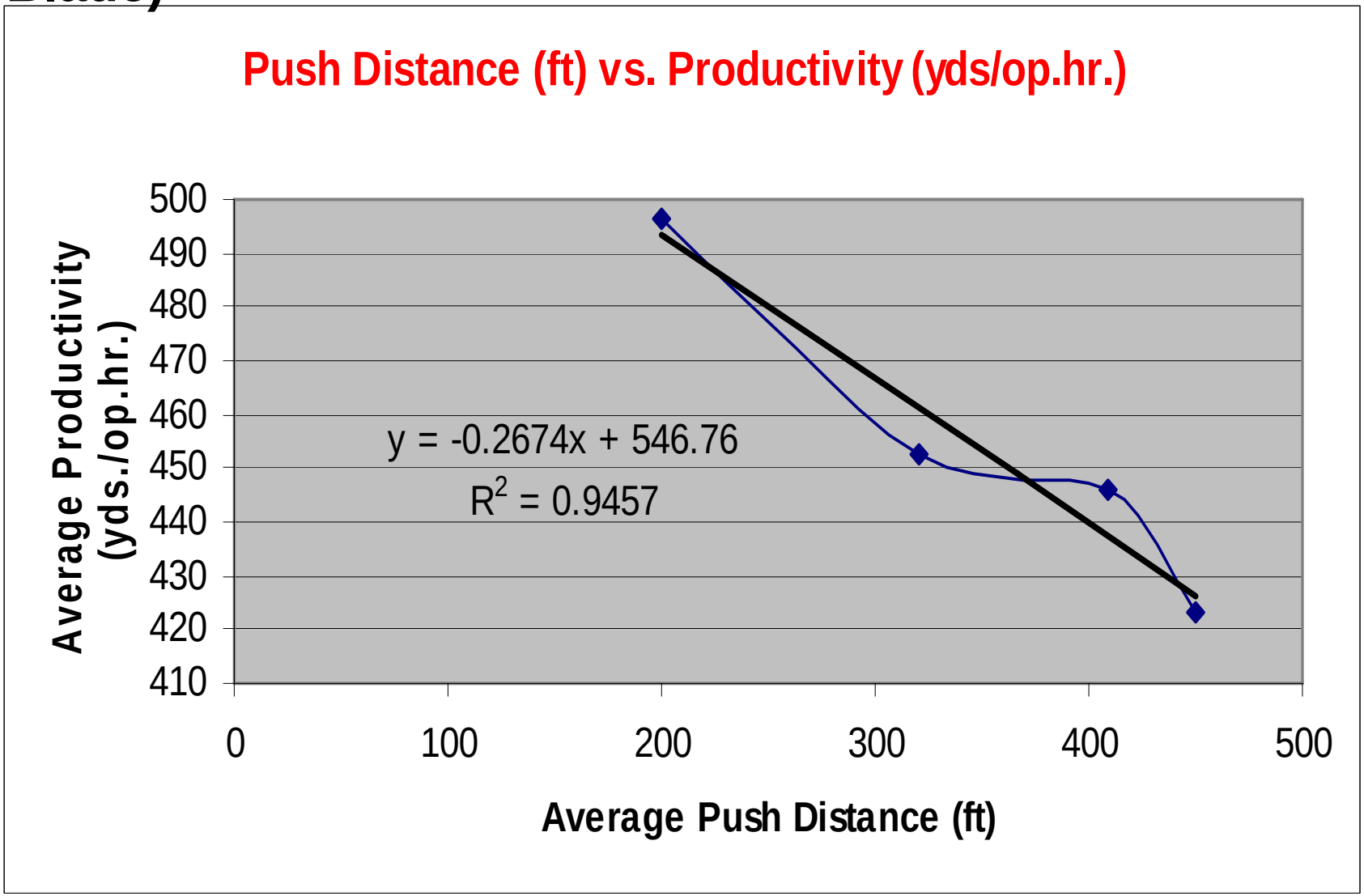
Final Reclamation Solutions: Balancing Fill With Cut

- More cut on the spoil side.
- Create oversteepened slopes on the highwall side.
- Determine that material balance is achieved for the topography as designed.

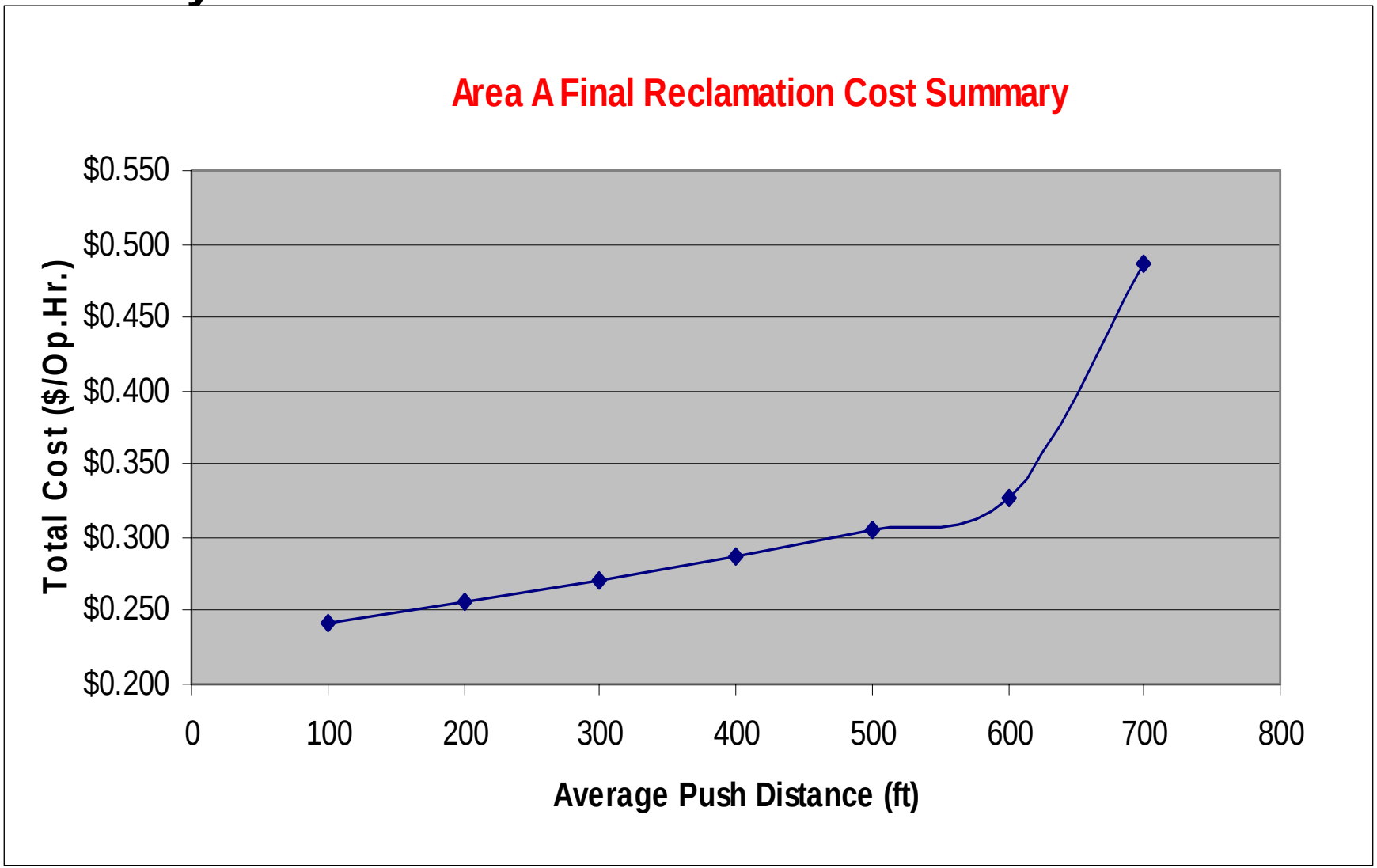
Material balance considerations

- Cost effective – material movement distance limited by type of equipment to be used (scraper or dozer).
- Maximum distance used for final design was <600 feet dozer and >600 feet for scraper.
- An optimized blasting plan was developed.

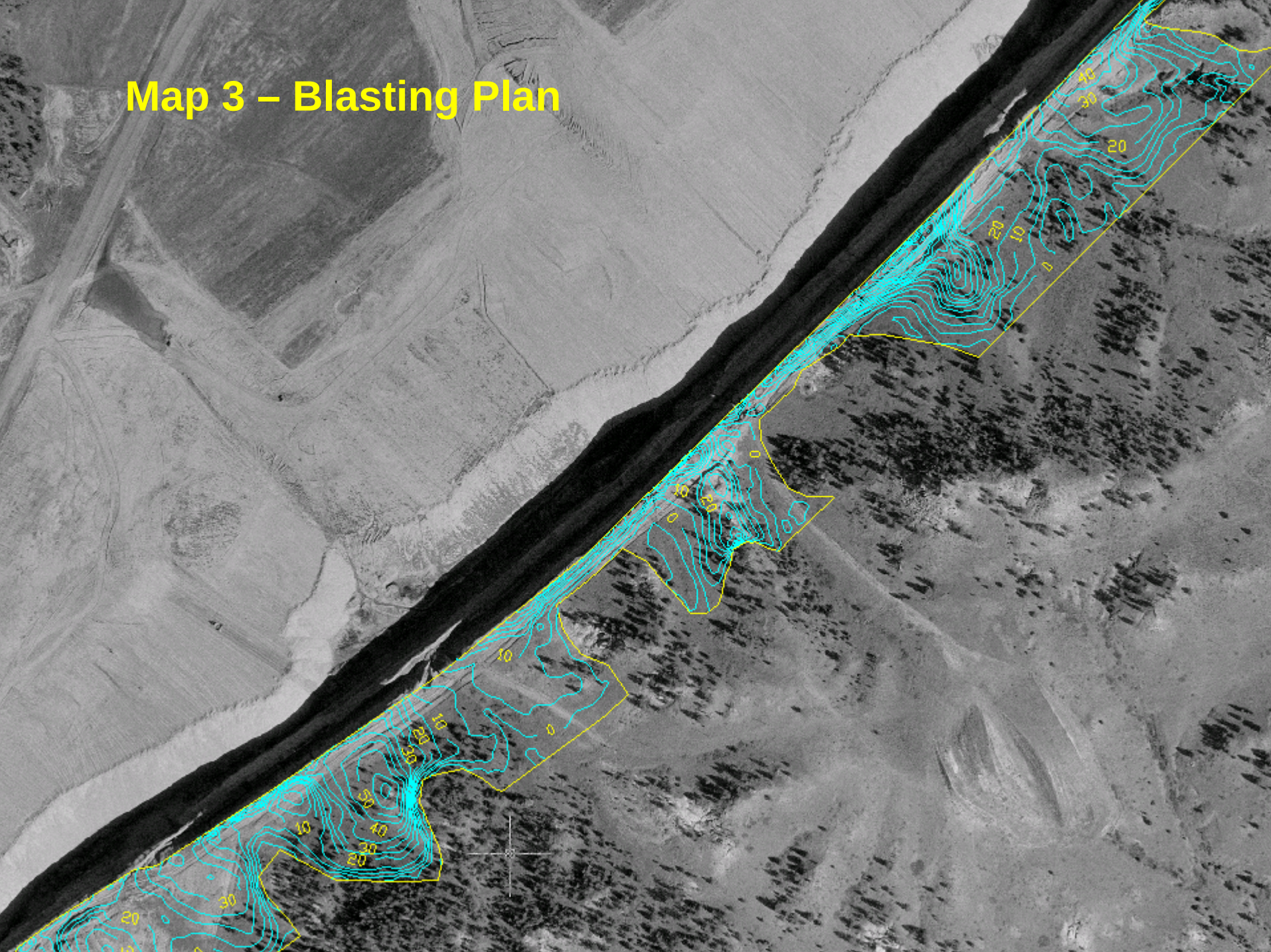
D11R Productivity Chart (Semi-U Blade)



Dozer Push Distance Cost Summary



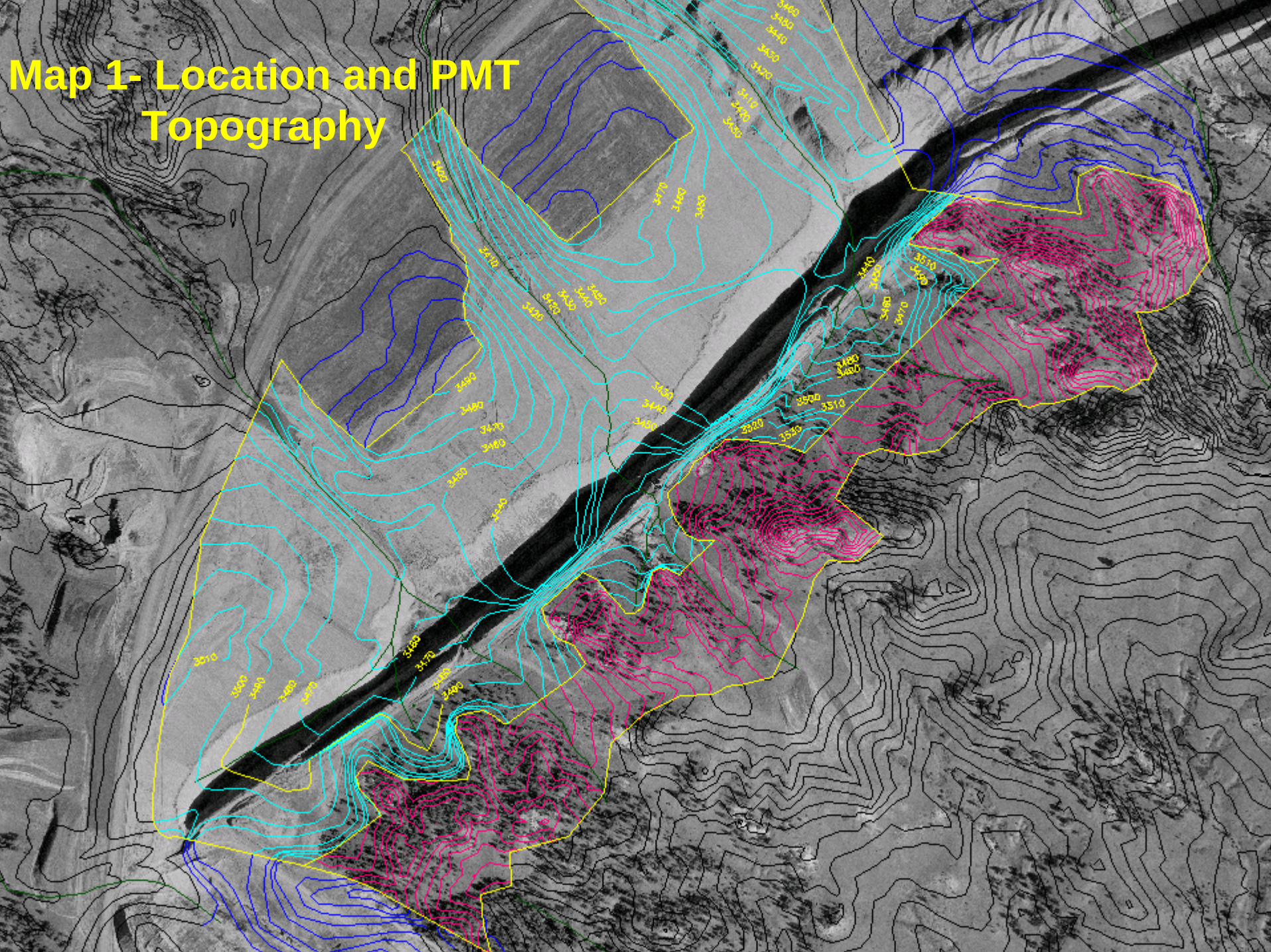
Map 3 – Blasting Plan



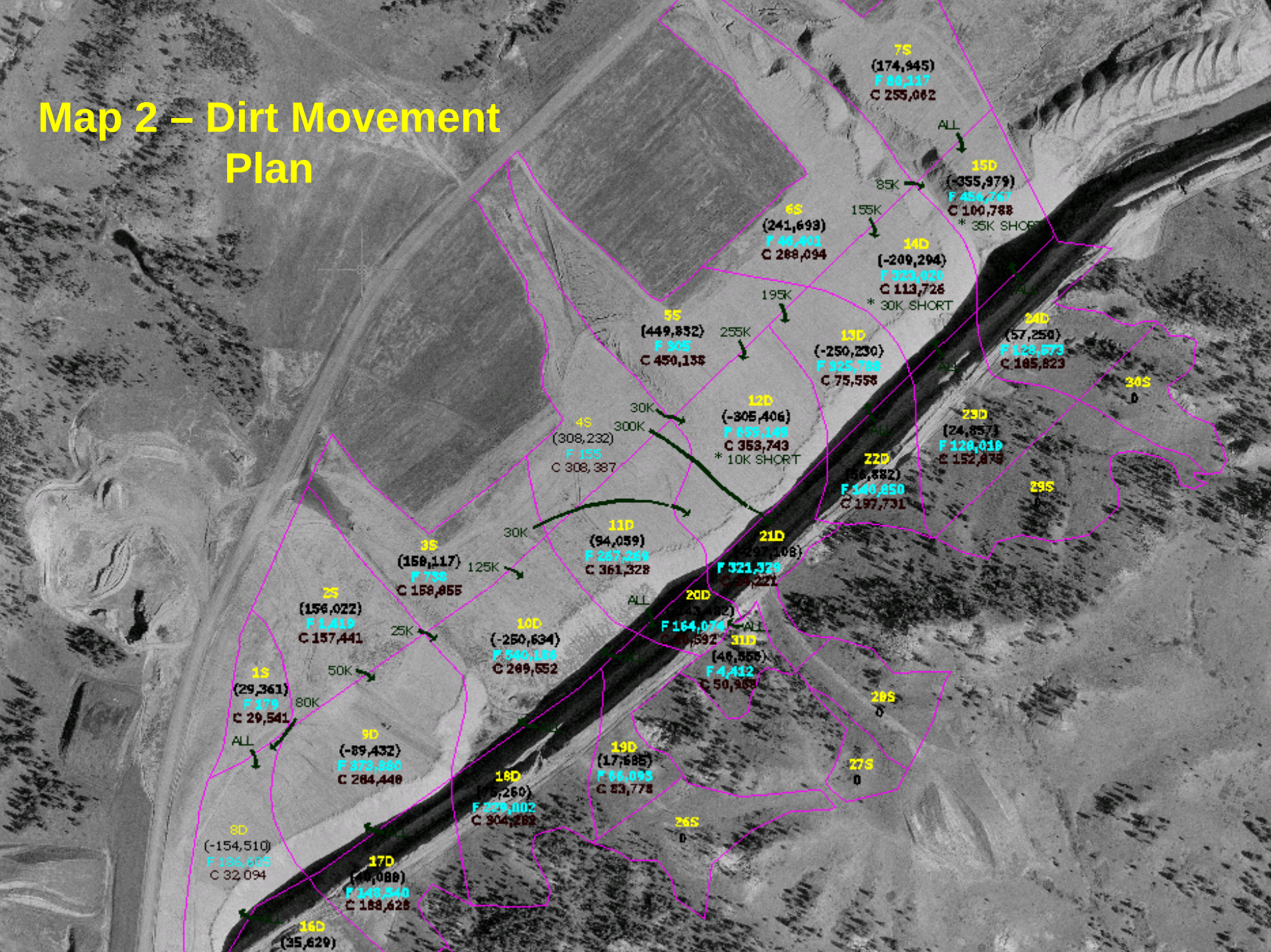
Material Balance Considerations

- Designs were iterative. About 15 topographies were designed before the optimum design was obtained.
- The regrade area was divided into logical work areas based on the type of equipment to be used.
- Each regrade block is input into the dozer’s GPS guidance system to optimize dozer productivity.

Map 1- Location and PMT Topography



Map 2 – Dirt Movement Plan



Final Reclamation Solutions: Providing for Spoil Side Topographic Diversity

- Addition of tributaries to the main drainages.
- Variable soil replacement depths to enhance vegetation diversity.

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