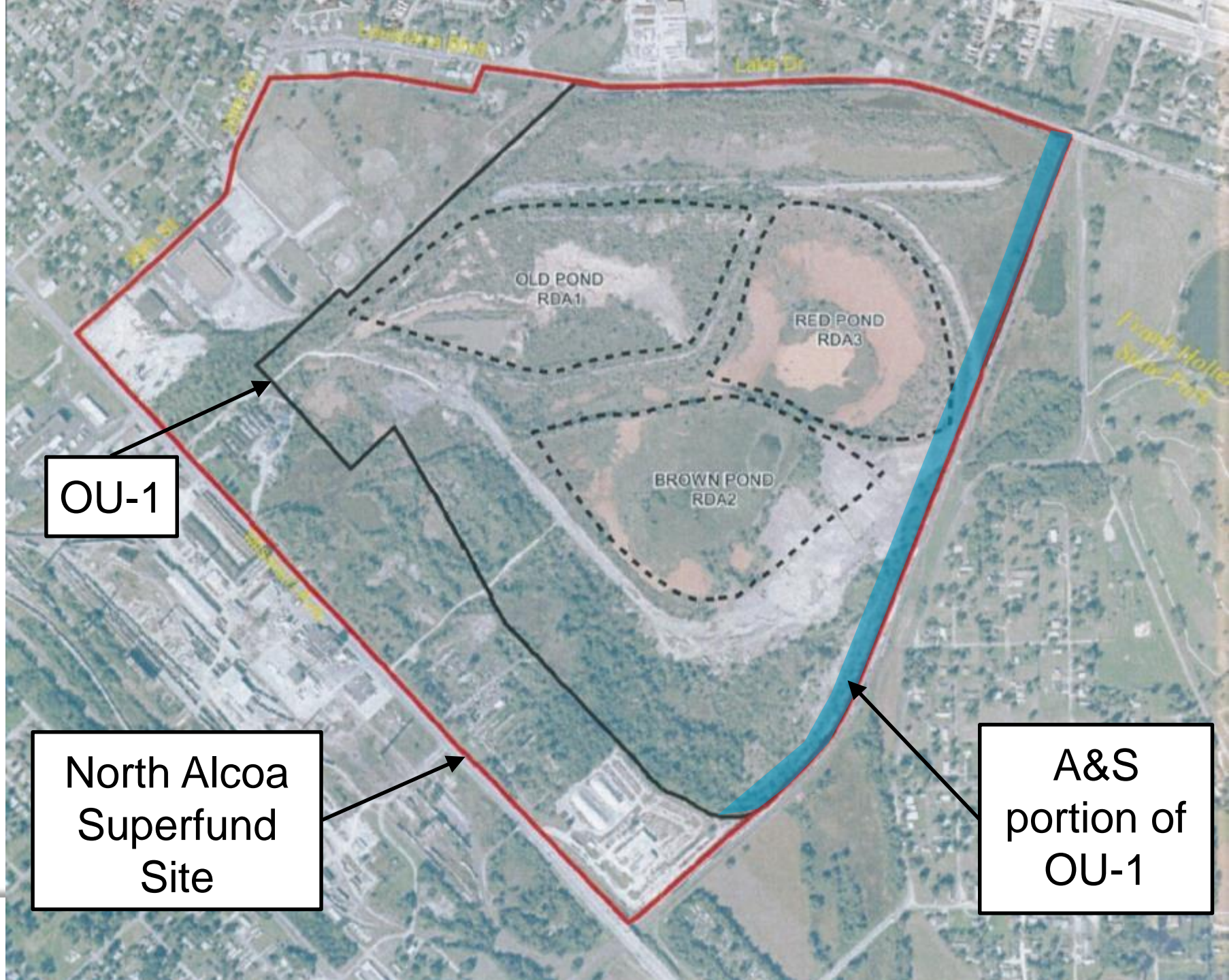


Building a New Railroad Track through a Superfund Site



Kevin Peterburs, ARCADIS
Ali Wright, ARCADIS
Geoff Reeder, Union Pacific

October 2014
Railroad Environmental Conference



OU-1

North Alcoa
Superfund
Site

A&S
portion of
OU-1

OLD POND
RDA1

RED POND
RDA3

BROWN POND
RDA2

Lansford Blvd

Lake Dr

Frank Miller
State Park

Waste Material Discovery

- Waste material encroached onto Alton & Southern (A&S) property
- Waste materials include
 - bauxite residue (“red mud”)
 - gypsum
- Constituents driving action: radium-226, radium-228, and metals

At the time of the discovery.....

- A&S was finalizing the design for a new railroad track expansion project
- Alcoa was well into Consent Decree (CD) negotiations with agencies

As a Result of the Discovery....

A&S would be named a responsible party to the North Alcoa Site Superfund project (OU-1)



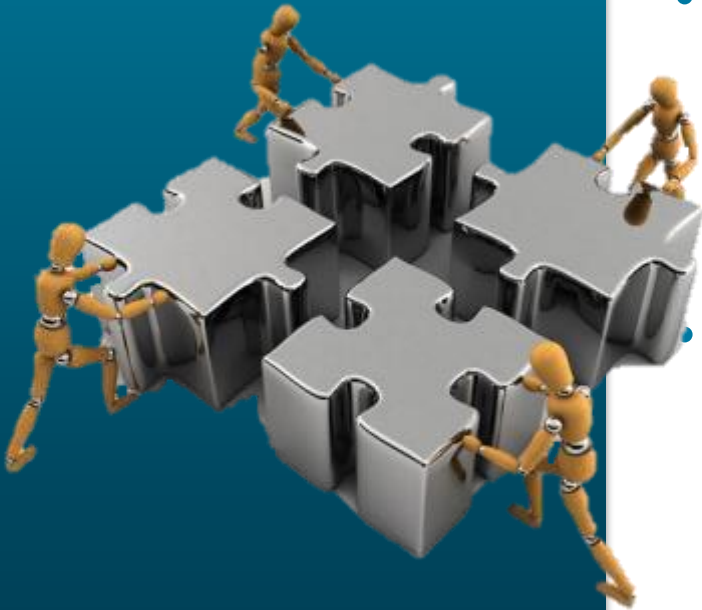
North Alcoa Superfund Site Stakeholders



Multiple Challenges Include...

- Legal –
 - Identify components of CD that impact 3rd Rail project
- Technical –
 - Develop a design that satisfies the requirements of both the CD and the 3rd Rail project
 - Demonstrate to agencies that the end use of an active track is feasible
 - Ensure designs match where the A&S portion of the OU-1 remedy meets with adjacent remedy
- Minimize project delays to the extent practical

Addressing Legal Challenges



- Due to the near finalization of the CD, minimal revisions to the CD would be approved
- Approved revisions did include –
 - Fencing modification (security)
 - Storm water management
- Key strategy – reference design in CD
 - Rely on design and remedial action work plan to illustrate project specifics

Design Requirements

A&S
OU-1
Remedy

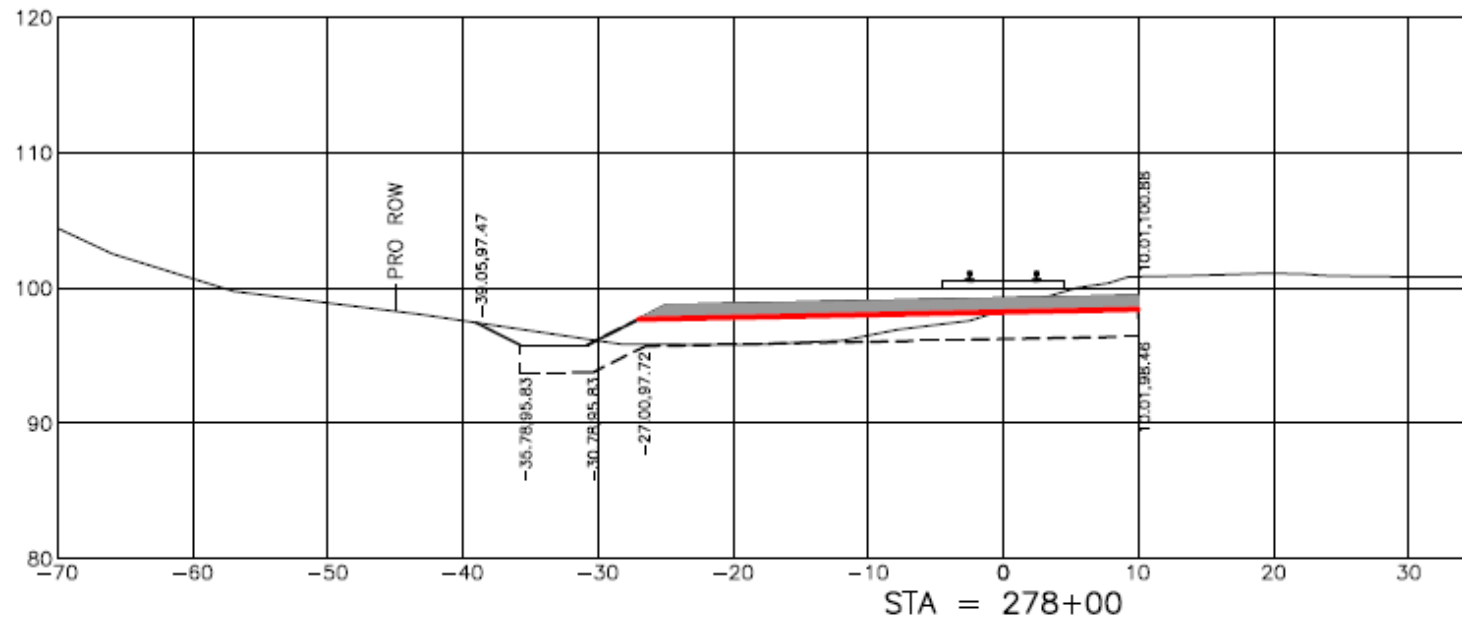
- Gabion retaining wall
- Soil Cover
 - Remove 2-feet of soil including any waste material
 - Import 2-feet of clean soil
 - Install geotextile fabric
 - Stabilize soil cover

3rd Rail
Project

- Railroad track and sub-ballast
- Adjacent gravel access road
- Vegetated drainage ditch

Technical Challenge: Beyond Typical Track Construction

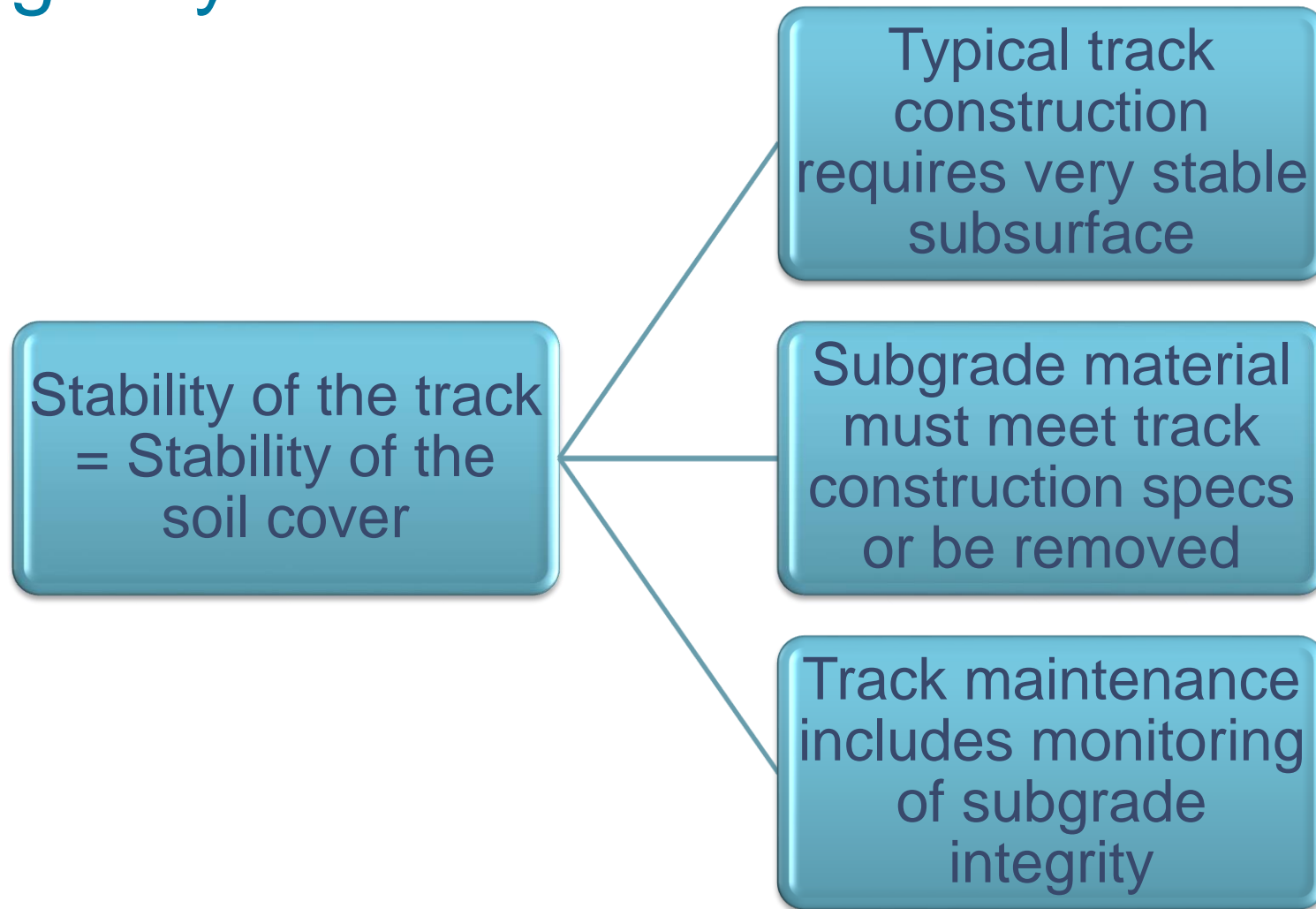
- Waste material excavation
- Import clean soil cover
- Geotextile between soil cover & track sub-ballast
- Contingency plans for unsuitable material and voids



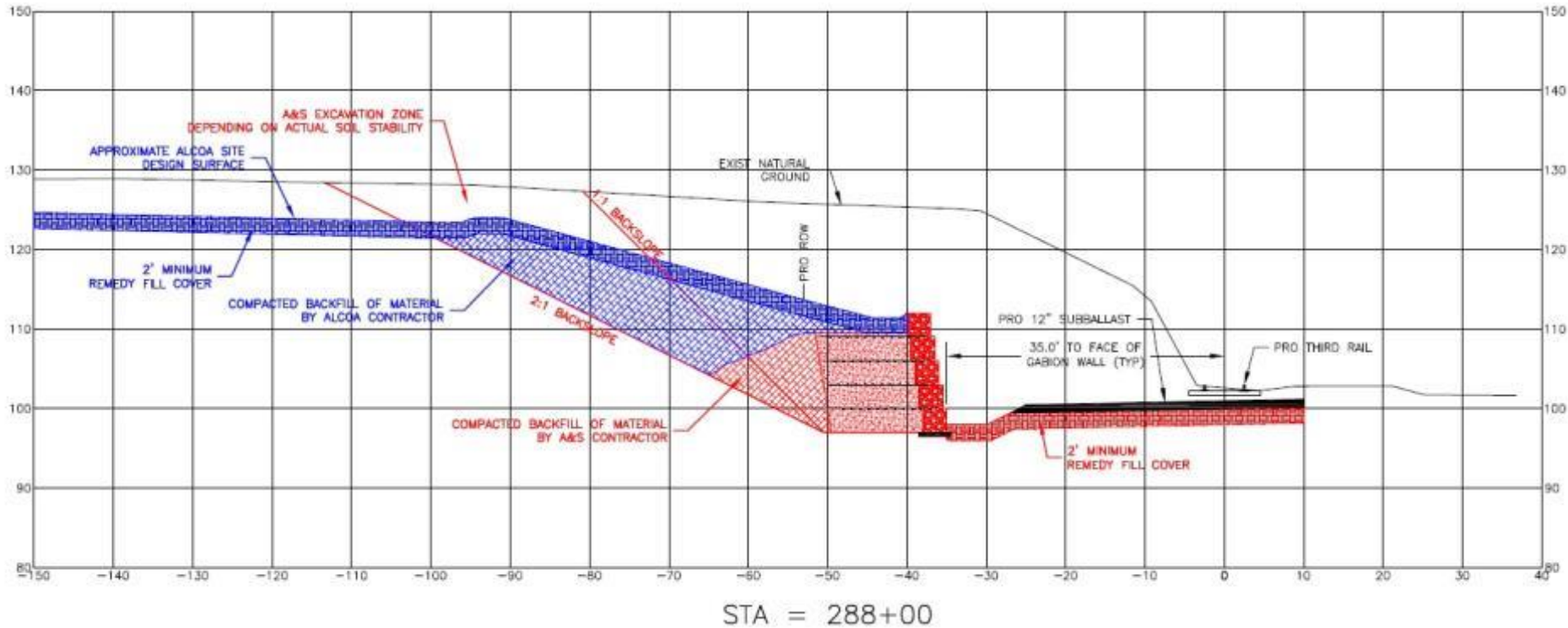
Technical Challenge: Agency Concerns

- Agency deemed the building of a railway over a soil cover “non typical reuse”
- Agency requested additional information to ensure:
 - Short and long term soil cover stability
 - Design includes consideration for physical properties of bauxite waste residue

Technical Challenge: Addressing Agency Concerns



Technical Challenge: Match Line



Remedy Construction Sequencing



Health and Safety First!

- Level-C for the first week until air samples could be collected and analyzed for worker protection



- Real-time dust monitoring
- Perimeter air monitoring
- Real-time radiological surveys
- Radiological exposure monitoring

Gabion Wall



Remedy Implementation



Construction Challenges: Unsuitable Material

- Placement of gravel under gabion wall instead of soil to obtain needed compaction
- Over excavation of waste material unsuitable for track construction and placement of gravel for stabilization



Construction Near Completion!

- 3rd Rail track in full operation
- Site restoration activities outstanding
- Operation and maintenance will continue to ensure remedy integrity



Precedent- Setting Results

- Developed and implemented plan that addressed CD and 3rd Rail objectives
- USEPA, Region V – 3rd Rail Project the first operational railroad constructed on a Superfund Site!



Imagine the result

UNION PACIFIC THE LEADER

Contact Information:
Kevin Peterburs
414.277.6230
kevin.peterburs@arcadis-us.com

