



THE HAZARDOUS MATERIALS CORRIDOR ASSESSMENT PROCESS - A CASE STUDY

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PREPARED FOR
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US 91 Smithfield to Idaho State Line Project



Methodology

Initial Site Assessment =
risk determination

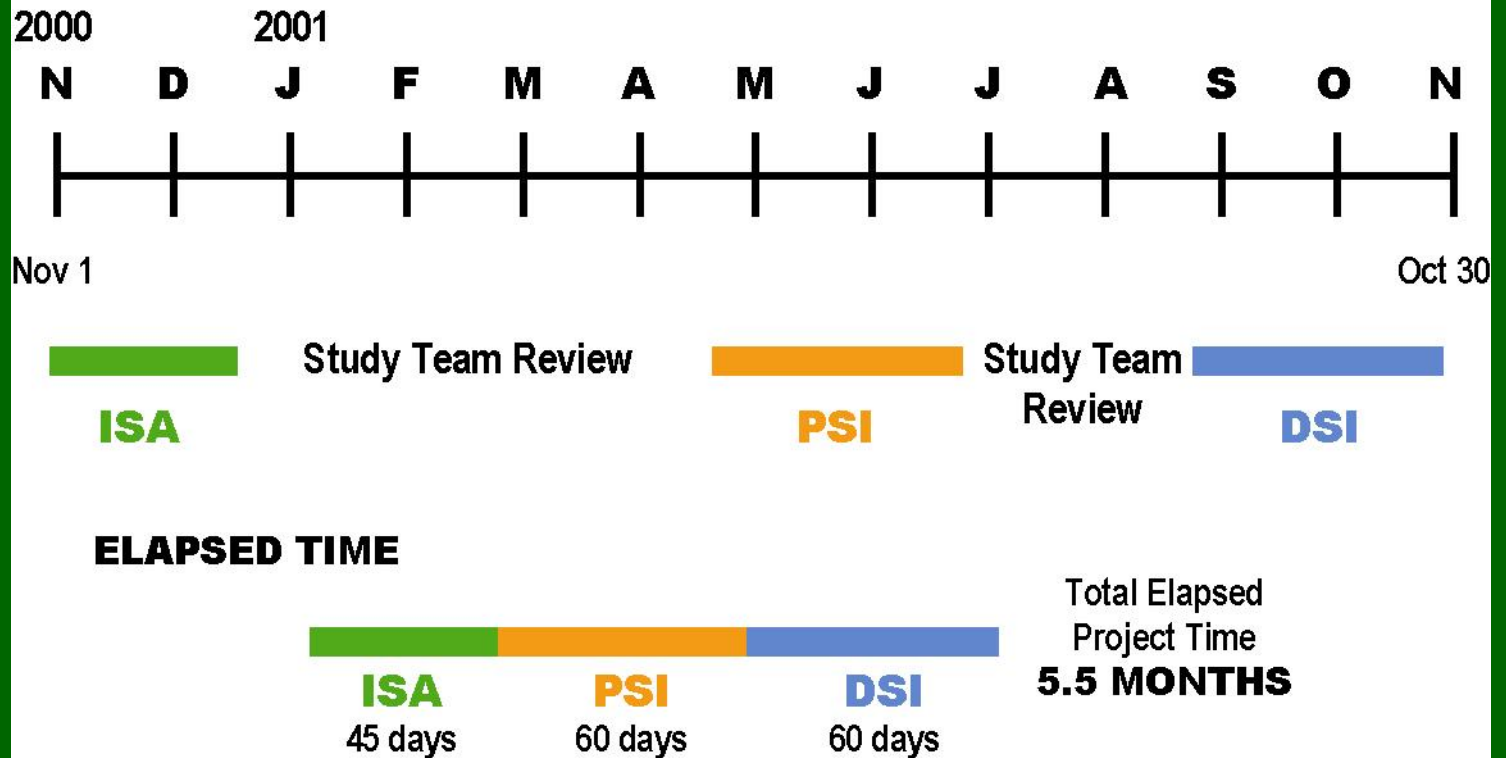
Preliminary Site Investigation =
impact verification

Detailed Site Investigation =
impact quantification





Project Timeline





Coordination with the NEPA Documentation Effort

- o Hazmat assessment can't start until the corridor is identified
- o NEPA effort can't be submitted until hazmat effort is complete
- o The hazmat world's interpretation of the NEPA term "mitigation"
- o Contrast in focus between the NEPA effort and the hazmat assessment effort



Initial Site Assessment (ISA)

Risk Identification

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Elements of the ISA

- o Published data review / previous reports
- o Automated database search
- o Field review / site reconnaissance
- o Analysis of historic information sources
- o Interviews (OTN)
- o Integration of project design parameters
- o Photo or video logs
- o Draft and Final reports

ISA - the foundation for further analysis

- o The importance of a thorough ISA
- o The role of Geology
- o Understanding the highway design and construction process
- o Coordinating with the project team
- o Limitations – ugly “surprises”



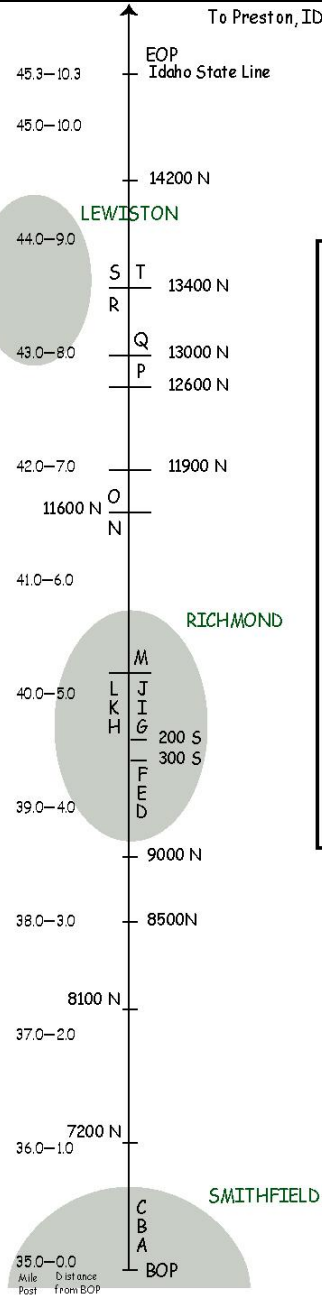
The US 91 Project ISA

- o Typical project – urban / rural
- o Project limits – determining the “radius of concern”
- o Unusual information sources on very old sites
- o Good “OTN” – local knowledge



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SR 91
 Project Length
 10.3 mi.
 MP 35.0-45.3



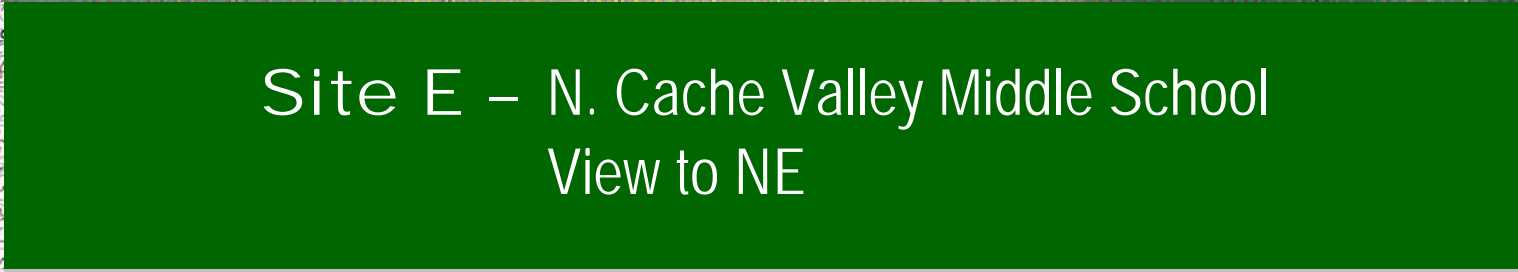
1"= Approx.
 0.85 mi

ISA Data Table

SITE CODE	NAME	ADDRESS	MP/ SIDE	BUSINESS TYPE	PSI. PRIORITY RECOM.M.
A	Absolute Collision Repair	710 N. Main, Smithfield	35.2/E	Auto Body/Repair	LOW
B	Don's Auto & Marine	740 N. Main, Smithfield	35.25/E	Engine Repair	LOW
C	Utah Power/Operations	780 N. Main, Smithfield	35.3/E	Power Co. Maint. Yard	LOW
D	Lower Foods	700 S, 200 W, Richmond	39.1/E	Manuf./Food	LOW
E	N. Cache Valley Middle Schl.	200 W, Richmond	39.3/E	FSS	HIGH
F	Fmr. Service Station	300 S 200 W, Richmond	39.5/E	R/DSS	HIGH
G	Fmr. Peterson's Service	19x S, 200 W, Richmond	39.6/E	R/DSS, FSS	HIGH
H	EZE Sav-on Gas	19x S, 200 W, Richmond	39.6/W	FSS	HIGH
I	City Park, Fmr. Handy Hut	xx S, 200 W, Richmond	39.9/E	R/DSS	HIGH
J	Randy's Texaco	11 S, 200 W, Richmond	40.05/E	CSS	HIGH
K	Fmr. Bain's Garage	1x S, 200 W, Richmond	40.00/W	Fmr. Garage	MOD.
L	Maverik #180	10 S, 200 W, Richmond	40.05/W	CSS	HIGH
M	Old Train Depot	1x N, 200 W, Richmond	40.1/E	Rail Depot	HIGH
N	Pepperidge Farm, Richmond	901 N, 200 W, Richmond	41.2/W	Manuf./Food	MOD.
O	Fmr. Hayes Serv. Station	13xxx N, 200 W, Richmond	41.4/W	R/DSS	HIGH
P	Cove Sand & Gravel	1015 E, 1200 N	42.7/E	Materials Yard	LOW
Q	Fmr. Service Station	? 13000 N, 200 W	43.1/E	FSS	HIGH
R	IFA	13395 N. Hwy 91	43.4/W	Farm Chemicals	LOW
S	Cache Valley Tire	13415 N. Hwy 91	43.5/W	Auto Service	LOW
T	Larsen's Service	13xxx N Hwy 91	43.6/E	Auto Svc./FSS	HIGH

LEGEND
 CSS - Current Service Station
 FSS - Former Service Station
 R/DSS - Redeveloped/Demolished Service Station
 Manuf. - Manufacturing Facility
 BOP - Beginning of Project
 EOP - End of Project





Site E – N. Cache Valley Middle School View to NE

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Site F – Former Service Station, View to SE



Site H – EZE Sav-On Gas, View to NW



Site I – City Park, Fmr. Handy Hut, View to E



Site J – Randy's Texaco, View to NE

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Site M – Old UIC Train Depot, View to NE



Site N – Pepperidge Farm Cookie Plant View to NW

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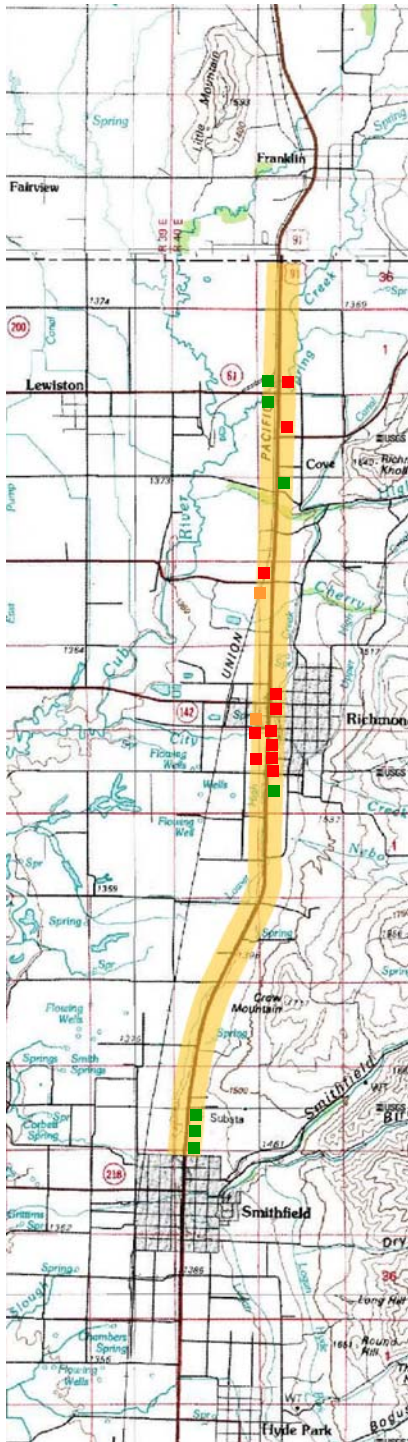
Site Q – Former Service Station, View to NE



Site T – Larsen's Service (FSS), View to NE

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H	EZE Sav-on Gas	19x S, 200 W, Richmond	39.8/W	FSS	HIGH ■
I	City Park, Fmr. Handy Hut	xx S, 200 W, Richmond	39.9/E	R/DSS	HIGH ■
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O	Fmr. Hayes Serv. Station	13xxx N, 200 W, Richmond	41.4/W	R/DSS	HIGH ■
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Q	Kingsford Korner	? 13000 N, 200 W	43.1/E	FSS	HIGH ■
R	IFA	13395 N. Hwy 91	43.4/W	Farm Chemicals	LOW ■
S	Cache Valley Tire	13415 N. Hwy 91	43.5/W	Auto Service	LOW ■
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LEGEND

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Manuf. -	Manufacturing Facility
BOP -	Beginning of Project
EOP -	End of Project



Preliminary Site Investigation (PSI)

Impact Verification

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Elements of the PSI

- o Preparation and approval of Workplan, Health and Safety Plan, Traffic Control Plan
- o Implementation of field sampling program
- o Changes "on the fly"
- o Inclusion of nondestructive testing
- o Analysis of geologic results and lab data
- o Preparation of Draft and Final reports



PSI – the “yes or no” step

- o Scoping the PSI – asking the right questions
- o The importance of geological accuracy
- o Regulatory action levels – what is the meaning of “clean”
- o Making generalizations



The US 91 Project PSI

- o Multiple sites
- o Tight right-of-way for drilling access
- o Multiple utility providers
- o Varied analytical program
- o Some sites no longer present – historical source analysis
- o Interesting local geology



Earthprobe, Inc.
Direct Push Unit

US 91 Smithfield to Idaho State Line Project





US 91 Smithfield to Idaho State Line Project





Collecting Groundwater Samples

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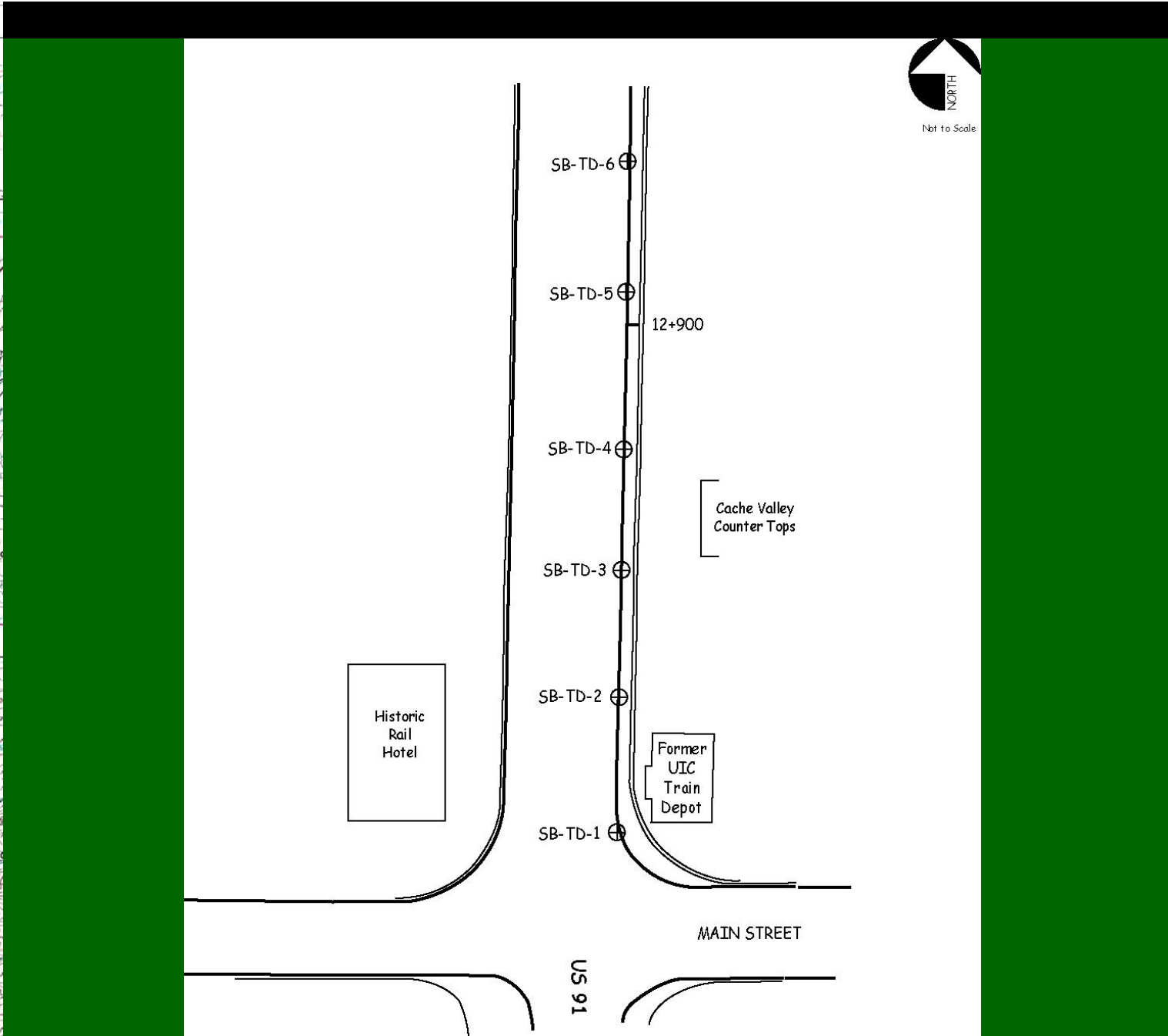




Performing Geologic/Stratigraphic Analysis

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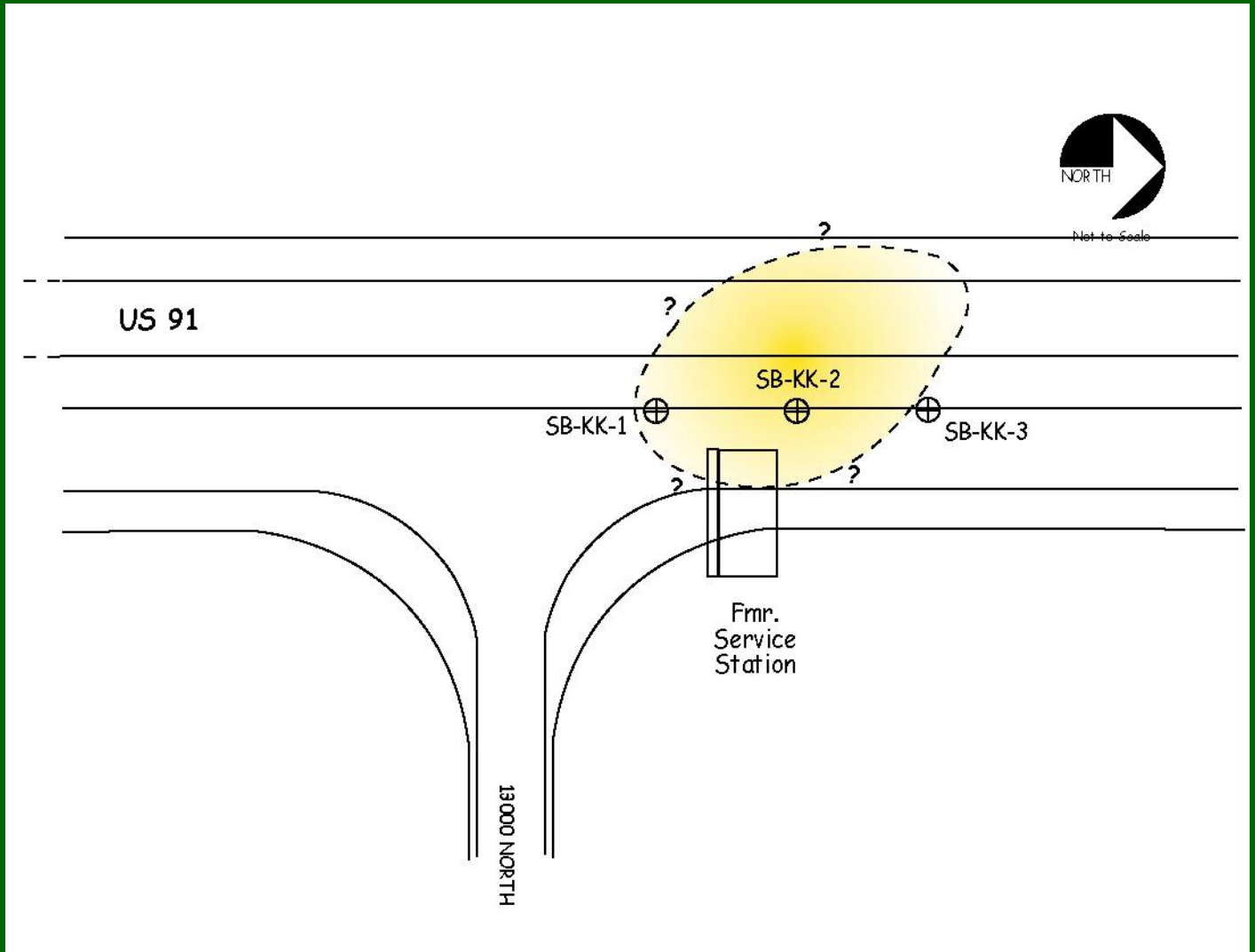


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South		North			
SB-KK-1		SB-KK-2		SB-KK-3	
Ft.	PID	Ft.	PID	Ft.	PID
2'	205	2'	10.3	2'	8.9
2 - 4'	85	4'	798	4'	7.9
6'	70	6'	>2000	6'	7.2
? - 8'	44	6'	>2000	8'	10.1
10'	371	10'	1784	10'	10.2
15'	368	15'	791	15'	8.4
20'	65	20'	61	20'	8.2



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Detailed Site Investigation (DSI)

Impact Quantification

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Elements of the DSI

- o Preparation and approval of Workplan, Health and Safety Plan, Traffic Control Plan
- o Negotiation for private property access
- o Implementation of field sampling program
- o Inclusion of nondestructive testing
- o Analysis of geologic results and lab data
- o Preparation of Draft and Final reports



The US 91 Project DSI

- o Site Q – very old former service station
- o Impacts identified in PSI phase
- o Cooperative property owner (with UDOT help)
- o Unavoidable site - design limitations



Railroad Tracks

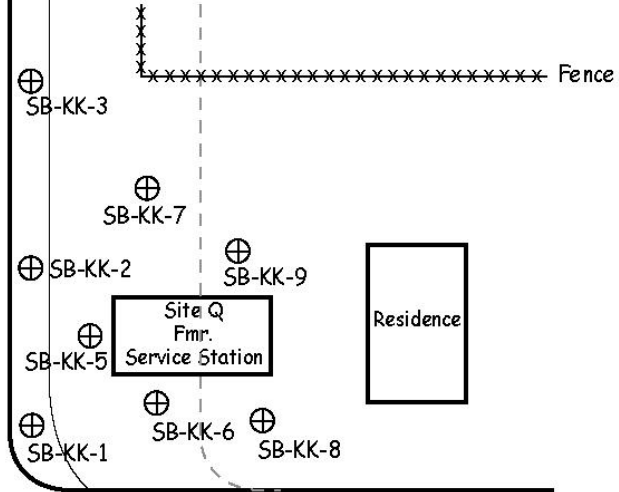


SB-KK-4

US 91

Approximate Proposed New R-O-W Limit

Agricultural Field



13000 NORTH

Agricultural Field

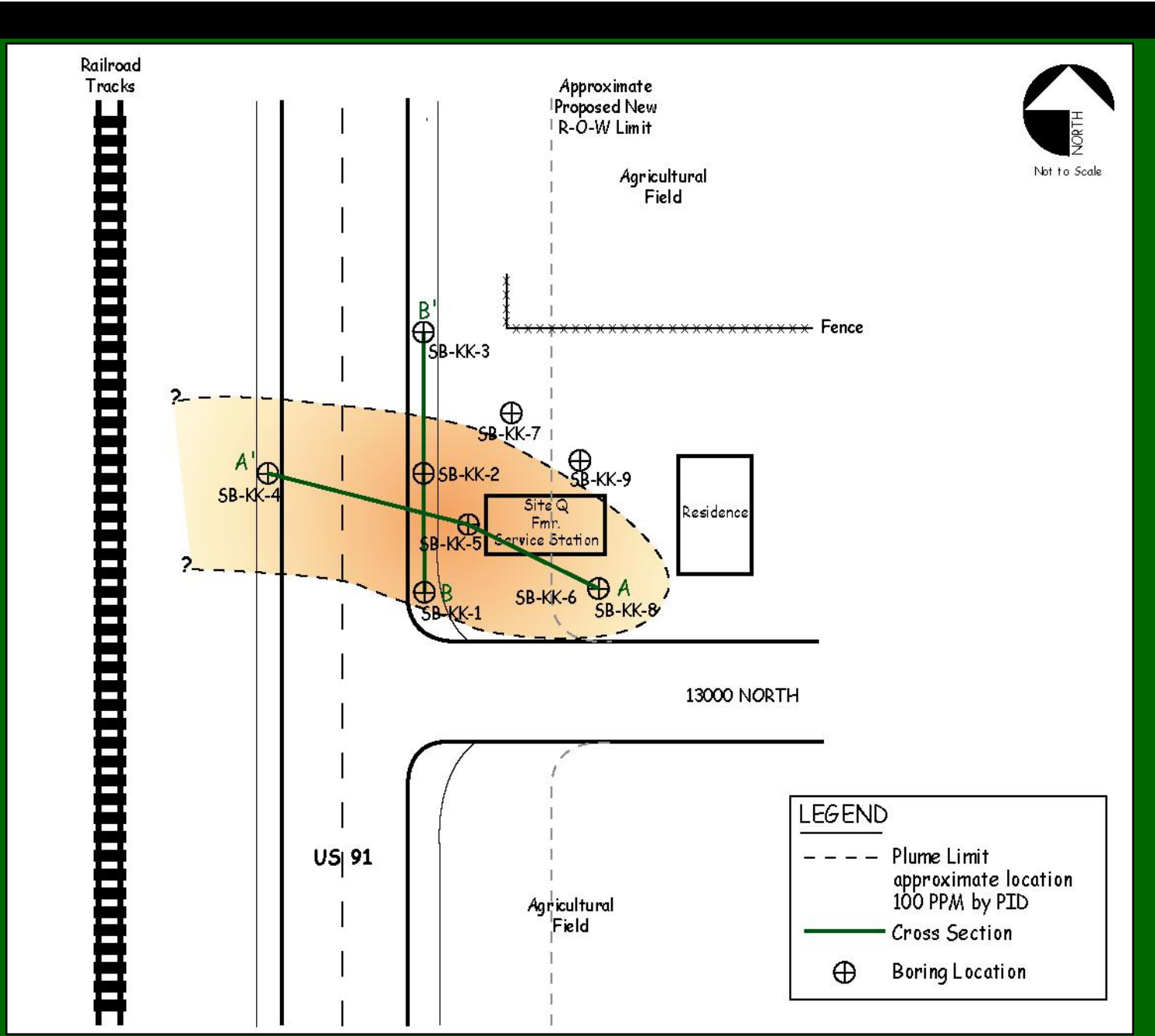


Not to Scale



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West **Cross Section A'-A** East

SB-KK-4		SB-KK-5		SB-KK-8	
Ft. PID		Ft. PID		Ft. PID	
2'	152.0	2'	442.0	2'	23.4
4'	295.5	4'	>2000	4'	48.6
6'	341.2	6'	>2000	6'	69.8
8'	>2000	8'	>2000	8'	80.1
10'	895.0	10'	1450.0	10'	90.1
15'	310.0	15'	1185.0	15'	116.0
20'	32.7	20'	88.0	20'	110.0
		25'	22.0		

South **Cross Section B-B'** North

SB-KK-1		SB-KK-2		SB-KK-3	
Ft. PID		Ft. PID		Ft. PID	
2'	205	2'	40.2	2'	8.9
4'	85	4'	798	4'	7.9
6'	70	6'	>2000	6'	7.2
8'	44	8'	>2000	8'	10.1
10'	371	10'	1784	10'	10.2
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ISA / PSI / DSI Process Results

- o ISA identified 20 potential risk sites
- o Nine sites recommended for PSI (10th site had no excavation or ROW acquisition planned)
- o Two sites found to be impacted during PSI – one minor / deep, one more severe (Site Q)
- o DSI quantified limits and severity of Site Q impacts
- o All assessment data integrated into design process
- o ISA / PSI / DSI completed on time and within budget

Integration into the Design Process

- o ISA indicated no “fatal flaws” early in process
- o PSI narrowed down level of mitigation effort before PS&E and EA completion
- o DSI completed for inclusion in construction plans and right-of-way negotiation
- o Another “layer” of information available to the project team throughout the design process



The Bottom Line

- o Cost for ISA / PSI / DSI - ~\$54,000
- o Cost of typical service station remediation effort – (ONE) - ~\$100,000 to \$500,000
- o Cost savings at right-of-way acquisition –
Value of property diminished by contamination –
Amount of reduction negotiated - \$28,000
- o Peace of mind of the Project Engineer –
Priceless





Q & A

Thank you

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