U.S. Department
of Transportation
**Federal Transit
Administration**

REGION VIII
Colorado, Montana,
North Dakota,
South Dakota,
Utah and Wyoming

1961 Stout Street
Suite 13301
Denver, Colorado 80294
(303) 362-2400 (voice)

August 16, 2023

Mr. Carlos Braceras
Executive Director
Utah Department of Transportation
4501 South 2700 West
P.O. Box 141265
Salt Lake City, UT 84114-1265

Re: NEPA Approval for the **FrontRunner Forward Program – American Fork Double Track Project**

Dear Mr. Braceras:

Thank you for providing the environmental documentation for the **FrontRunner Forward Program – American Fork Double Track** project. The project is planning to utilize Federal Transit Administration (FTA) Capital Investment Grants (CIG) Program funding to develop a double track alignment near the FrontRunner American Fork Station in Utah County, Utah.

FTA funding is requested to design and construct a 4.2-mile section of double track extending from the FrontRunner American Fork Station at the east end of the alignment to the crossing at 2100 North at the west end of the alignment along the existing FrontRunner commuter rail system. The project includes filling and grading along the south side of the existing rail corridor to widen the existing mainline track bed and installation of a rail ballast to support the double track. The project will shift and reconstruct the existing FrontRunner mainline track where needed, remove an existing turnout, and reconstruct a new turnout. A new railroad bridge will be constructed over the waste ditch near Allred Park to accommodate the additional track. The existing signal house located on the north side of 2100 North will be removed. At-grade crossing improvements will require modifications of roadway profiles and relocation of signals and crossing arms. Approximately 5,600 linear feet of retaining walls 3 to 6 feet high would be constructed along the alignment to protect existing infrastructure, roadways, and development. The project is needed to improve the service reliability and on-time performance of FrontRunner. Based on the findings of the Categorical Exclusion (CE) for the project, FTA understands the following mitigation measures will be implemented:

- All acquisition and construction easements will comply with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (42 USC Chapter 61).
- In the event of the inadvertent discovery of human remains and/or archaeological resources are found during construction, construction will be halted, and SHPO will be contacted immediately.
- UTA will amend the lease agreement with Lehi City to exclude the portion of the UTA right-of-way at the Lehi Round-Up Rodeo Grounds that will be needed for the project. This lease amendment will be initiated when the lease expires in March of the year prior to construction. UTA will coordinate with Lehi City and the Lehi Round-Up Rodeo Committee, a volunteer group that operates the rodeo, to avoid disruptions to the annual rodeo.
- All existing street access to the Lehi Round-Up Rodeo Grounds will be maintained during the annual rodeo event.
- A Phase I Environmental Site Assessment will be conducted in accordance with ASTM standards for any property acquisitions and any recommended Phase II Environmental Site Assessments will be

conducted, as necessary.

- Hazardous materials handling and disposal plans will be developed which will include coordination with state and federal agencies with jurisdiction, as necessary.
- A floodplain evaluation will be completed during final design to confirm that no impacts to the floodplain would occur. If needed, a Floodplain Development permit will be obtained from Lehi City if there are any impacts to the floodplain.
- A Stream Alteration Permit will be obtained from the Utah State Division of Water Rights. Specific measures to avoid and minimize impacts on water resources identified in the general permit (as applicable for the project) will be implemented in final design and during construction.
- Construction of the project will disturb more than 1 acre of ground surface, which will require coverage under the Utah Pollutant Discharge Elimination System (UPDES) Construction General Permit UTRC00000 (CGP). Coverage under the CGP will be obtained prior to construction through the Utah Division of Water Quality. In compliance with this permit, a stormwater pollution prevention plan (SWPPP) will be developed for the construction phase of the project.
- Any unavoidable grubbing or tree removal will occur outside of migratory bird nesting season, April 1 through July 15, in order to avoid impacts to migratory birds. If clearing and grubbing does need to occur during nesting season, a pre-construction survey will be conducted to determine if there are any occupied nests in the area of disturbance. Construction activities will avoid disturbance to any occupied nests.
- Utility providers will be coordinated with regarding anticipated utility impacts as project design advances to avoid lapses in service during construction.
- Local noise ordinances will be complied with during construction.
- Work will be scheduled to minimize impacts to the passengers and roadway traffic (nights, weekends, holidays). If necessary, bus bridges will be provided for continuation of service.
- Mitigation to control fugitive dust and stormwater runoff will be implementation during construction.
- A public communication plan will be developed to coordinate construction activities with local residents, stakeholders, and businesses that could be affected by construction. Any changes to transit service due to construction will be communicated to riders.
- The local roadway jurisdiction will be coordinated with regarding grade crossing regrading work to provide detours, temporary closures, or lane restrictions. The roadway owner will be coordinated with to provide necessary pedestrian mitigation during this type of work.
- Traffic control plans will be developed to obtain proper permitting from local roadway jurisdiction for temporary lane closures, roadway closures, and detours.
- Any required state and local permitting and compliance requirements for the project will be adhered to and/or obtained.

Based on the documentation provided by your office, FTA concurs with the finding that the proposed project meets the definition of a CE pursuant to 23 CFR §771.118(c)(8). If you have any questions regarding this finding, please contact Robyn Kullas in my office at Robyn.Kullas@dot.gov or (303)362-2389. Please keep FTA informed of any additional changes to the project should they occur.

Sincerely,

CINDY ELISE TERWILLIGER

Digitally signed by CINDY ELISE TERWILLIGER
Date: 2023.08.16 14:11:05 -06'00'

Cindy Terwilliger
Regional Administrator

Cc:
Brian Allen, Utah Department of Transportation
Jay Fox, Utah Transit Authority
Janelle Robertson, Utah Transit Authority
Patti Garver, Utah Transit Authority
Autumn Hu, Utah Transit Authority

FTA REGION 8
CATEGORICAL EXCLUSION WORKSHEET

FTA Region 8 provides this Categorical Exclusion (CE) worksheet to help project sponsors (recipients) comply with the National Environmental Policy Act (NEPA). The information collected will help to better define the project scope for environmental analysis, identify potential impacts, and determine if other environmental laws and permits apply. If sufficiently completed, it can enable FTA to determine that the project does not result in significant environmental impacts and meets the criteria for a CE. All activities and projects to be supported with federal funds require a NEPA environmental finding as a prerequisite to award of funds.

This CE Worksheet should be completed for C-List projects involving construction and *all* D-List projects. **If a C-List project does not involve construction, you do not need to complete this worksheet.** All parts below must be completed prior to FTA review. Compliance with other environmental requirements must also be completed before FTA will issue a determination that the project meets the criteria for a CE. Certain project activities may not begin until this process is complete. For guidance on completing this worksheet, please refer to the CE Worksheet Instructions.

Prior to transmitting a grant application, complete and submit this CE Worksheet using the CE Worksheet Instructions allowing sufficient time for FTA review, especially if other environmental laws or permits apply. For assistance, please contact your assigned FTA Region 8 Pre-Award Manager, or you may call the office at 303-362-2400. To "check" a box, double-click on the box and select "checked" under default value.

PART A: PROJECT INFORMATION

Project Sponsor *Utah Transit Authority (UTA)*	FTA Application No/FAIN *CIG – Core Capacity Funds*
Project Contact (include mailing address, email address and phone number) *Janelle Robertson* *Project Manager* *Utah Transit Authority* *669 West 200 South* *Salt Lake City, UT 84101* *jarobertson@rideuta.com* *801-237-1951*	
Project Title *North of American Fork Double Track Project – FrontRunner Forward Program*	
Project Description *The Utah Transit Authority (UTA) is proposing to construct a second track along approximately 4.2 miles of existing single track FrontRunner commuter rail line from the FrontRunner American Fork Station at the east end of the alignment to the crossing at 2100 North at the west end of the alignment (the Project) in Utah County, Utah (see Figure 1 in Attachment 1). The purpose and need of the Project and further detail about investments associated with the FrontRunner Forward Program are included in a separate report, FrontRunner Forward Strategic Double Track Recommended Service Alternative Overview – A Planning and Environmental Linkage Study (PEL) (May 2023).* *The project would involve filling and grading along the south side of the existing rail corridor to widen the existing mainline track bed, including installation of rail ballast to support the new mainline track adjacent to and parallel with the existing FrontRunner mainline track. The Project would shift and reconstruct the existing FrontRunner mainline track where needed, remove an existing turnout, and reconstruct a new turnout. The Project would require construction of a new railroad bridge over the waste ditch near Allred Park to accommodate the additional track. Additionally, the existing signal house located*	

(Continued)

on the north side of 2100 North will need to be removed as part of construction. Figure 2 in Attachment 1 shows the various project elements, and a detailed plan set is included as Attachment 2.

The project includes adding a second mainline track at existing at-grade roadway crossings at Center Street, 200 South, Main Street, 900 North, and 1500 North; the at-grade crossings at 100 North and 500 West would require reconstruction for both the second mainline track and realignment of the existing mainline track. At grade crossing improvements would require modifications of roadway profiles and relocation of signals and crossing arms. Approximately 5,600 linear feet of retaining walls 3 to 6 feet high would be constructed along the alignment to protect existing infrastructure, roadways, and development. For the purposes of this analysis, a minor retaining wall is defined as a wall 4 feet tall or less, and a major retaining wall is defined as a wall over 4 feet tall.

Preliminary track design modeling shows the estimated depth of disturbance for the proposed trackwork would range from 2 to 5 feet. Depth of excavation for utilities would range from 7 to 18 feet deep. Retaining walls could require excavation between 2 and 20 feet deep, depending on the type and size of the wall, which would be determined during final design.
Duration of construction is expected to be approximately 14 months.

Throughout the worksheet, the term "Project area" is used to describe the area of potential Project impacts from construction and right-of-way acquisition. The boundary of the Project area is generally a 90-foot-wide corridor following the rail alignment as shown in Figure 2 in Attachment 1. The term "study area" is used to describe the area within which a specific resource was studied. The study area for each resource is the Project area unless otherwise stated.

Project Location (Include physical address)

Linear Project along FrontRunner corridor between milepost (MP) S 25.85 and MP S 30.2, from American Fork to Lehi, in Utah County, Utah.

Is this project included in the current approved TIP and/or STIP?

☐ YES – TIP/STIP ID/Page No.: ☒ NO – When will it be added? Pending

The Mountainland Association of Governments' (MAG) 2019-2050 regional transportation plan (RTP), with amendments, includes the full length of the proposed double track projects. The TIP will be updated in fall 2023 to include this Project, which is anticipated to be constructed within the next 5 years.

Is this a re-evaluation of a project previously evaluated/approved or currently under construction?

☒ NO

☐ YES

PART B: PROPOSED CATEGORICAL EXCLUSION DETERMINATION

Select the CE category under 23 CFR 771.118(c) or (d) that best describes the proposed project (select only one). FHWA and FRA CEs also may be used, if applicable. CE descriptions are included in the CE Worksheet Instructions.

CE (e.g., C-9 or D-6): *FTA C-8: Maintenance, rehabilitation, and reconstruction of facilities that occupy substantially the same geographic footprint and do not result in a change in functional use, such as: improvements to bridges, tunnels, storage yards, buildings, stations, and terminals; construction of platform extensions, passing track, and retaining walls; and improvements to tracks and railbeds.*

PART C: ENVIRONMENTAL EVALUATION

For each of the following resources, identify, evaluate and describe any adverse impacts to the built (including social and economic) and natural environment resulting from the proposed project. Select NO, if a resource is not present on or near the proposed project area, or if there are no adverse impacts. Select YES, if a resource is present and will be impacted; and succinctly describe the impacts, any mitigation necessary to minimize impacts, and any permits required. Please explain your answer. The level of detail you provide should be commensurate with the complexity of the project. For guidance on how to evaluate each resource for impacts, see the CE Worksheet Instructions. If, through your evaluation, you believe the project *will* result in significant environmental impacts or you aren't sure, and/or it is likely to generate substantial controversy on environmental grounds, contact FTA Region 8.

1. Land Use and Zoning

Is the proposed project incompatible or inconsistent with existing or future land use and/or zoning in the project area? Describe the surrounding land use and zoning. Provide a map with project location and surrounding land uses.

☒ NO

☐ YES

The Project alignment mostly falls within the municipal boundaries of the cities of American Fork and Lehi in Utah County, Utah, with small areas of the alignment located in unincorporated Utah County. Most of the Project alignment is located within Lehi City boundary. The boundary between American Fork and Lehi is roughly demarcated by 7400 North or Pioneer Crossing. Figure 3 in Attachment 1 shows the zoning maps for each of the jurisdictions.

In Lehi, zoning directly adjacent to the Project alignment is varied and includes the following zones: A-5 and A-1 Agricultural, R-1-8, R-1-12, R-1-15, R-1-22, R-1-Flex, R-2, and R-3 Residential, LI Light Industrial, RA-1 Residential/Agricultural, MU Mixed Use Commercial/Residential, PF Public Facilities, TH-5 Transitional Holding, and C Commercial. Current land uses adjacent to the alignment in Lehi include Public Facilities, Single Family Housing, Multi-Family Housing, Mobile Homes, Retail, Agricultural, Industrial, and Vacant Land. Planned land uses adjacent to the Project alignment in Lehi include Light Industrial, Very Low Density Residential/Agricultural, Low, Medium, and High Density Residential, Open Space, Public Facilities, Commercial, and Commercial/Residential uses. The Lehi Land Use Plan outlines a preferred land use scenario that includes transit-oriented development surrounding future and existing transit stations, mixed-use development along major corridors and in urban centers, diverse housing types in areas of change, and protecting existing neighborhoods.

In American Fork, zoning directly adjacent to the Project alignment consists of a PF Public Facilities zone, a R1-7500 residential zone, a PI-1 Planned Industrial zone, and a RA-5 Residential Agricultural zone, with current land uses consisting of Agricultural, Residential, Public Facilities, and Vacant Land. The most recent American Fork future land use map shows land uses adjacent to the Project alignment are projected to consist of Transit Oriented Development uses.

Unincorporated Utah County zoning adjacent to the alignment consists of TR-5 Transitional Residential, I-1 Industrial, and RA-5 Residential/Agricultural zones.

The construction of the Project would take place in an existing rail corridor and is not anticipated to substantially alter surrounding properties or land uses and is therefore compatible and consistent with land use plans and zoning in the Project area.

2. Land/Property Acquisition, Relocation, Leases and Easements

Does the proposed project require any land/property acquisition, easement or permit? Note: for acquisitions over $1 million, FTA concurrence with the property's valuation is also required (see Circular 5010.E). Explain.

☐ NO

☒ YES

The Project would occur primarily within the existing FrontRunner corridor, which is UTA-owned railroad right-of-way. However, to allow for the installation of the double track, the project would acquire approximately 148,000 square feet of right-of-way from 33 properties and approximately 198,000 square feet from the UP Railroad. In addition, the Project would affect the Lehi Round-Up Rodeo Ground's use of UTA property, which is currently being leased to Lehi City for use by the Rodeo. As this would not constitute a new acquisition, it is not reflected in the property impacts table. See Question 6, Park and Recreation Resources for more information.

These acquisitions would displace one residence but no businesses, and would require the removal or relocation of existing non-residential structures such as sheds or outbuildings from individual properties and from within existing UTA right-of-way. Table 1 in Attachment 1 lists the parcel ID, ownership, zoning, square footage, and impact details of all impacted properties. Figure 4 in Attachment 1 shows a map of parcels affected by acquisition. Temporary easements would be required for utilities and other construction activities. These easements would not require permanent conversion of properties and sites would be restored to previous conditions or better. Permanent easements or other property rights may be necessary and would be determined during final design. All acquisition and construction easements would comply with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (42 USC Chapter 61).

At this preliminary level of design, UTA does not yet know exactly where temporary construction easements would be needed. However, the design footprint used to assess impacts to resources includes the anticipated limits of physical disturbance, including space for potential temporary construction workspaces, and the limits of any anticipated right-of-way and temporary easement acquisition. Actual locations of temporary construction easements would be determined during final design.

3. Environmental Justice

Is the proposed project located in a neighborhood containing minority or low-income residents or businesses? If yes, will it result in disproportionately high and adverse impacts? Explain.

☐ NO

☒ YES

The Project is located in an existing rail corridor adjacent to neighborhoods with minority and low-income residents. Impacts include partial acquisitions of parcels adjacent to the Project alignment; the removal of non-residential structures, trees, and other vegetation from individual properties; and the relocation of one residence. No businesses would be displaced. Property owners would be compensated for the removal of any structures from their property, and trees and vegetation would be replaced where possible outside the rail corridor clear zone. Provisions for acquisitions and the relocation would be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act (1970) and FTA requirements. No disproportionately high and adverse effects on minority or low-income populations is anticipated. The Project would benefit the population of surrounding neighborhoods, including low-income and minority populations, by improving FrontRunner transit service capacity and reliability.

For the purposes of this analysis and in line with Census definitions, minority populations are defined as individuals who have identified as Hispanic or Latino, Black or African American, Asian, American Indian and Alaska Native, Native Hawaiian and Other Pacific Islander, some other race, or two or more races. Low-income residents are defined as households with an income level at or below the federal poverty level for a 4-person

3. *(Continued)*

household as determined by the Department of Health and Human Services ($25,750 for a family of four in 2019). To determine if environmental justice communities or populations are present in the Project vicinity, American Community Survey (ACS) 5-year estimate data from 2019 was used. Using GIS, all block groups that intersect within a half-mile buffer of the Project alignment were analyzed.

To determine if environmental justice communities or populations are present in the Project vicinity, American Community Survey (ACS) 5-year estimate data from 2019 was used. Using a geographic information system (GIS), all block groups that intersect within a half-mile buffer of the Project alignment were analyzed and compared to Utah County, American Fork City, and Lehi City.

Table 2 below shows total population, minority population, low-income population, and the percentage of the total population for those groups in Utah County, American Fork City, Lehi City, the half-mile study area (all block groups), and for each individual block group that intersects the half-mile study area. Figure 5 in Attachment 1 shows the location of each block group in the Project area. Most block groups in the study area contain minority and low-income residents. Individual block groups within the study area that have a minority or low-income population above the average percentage of the city in which they are located are identified in bold in Table 2.

Table 2. Project Area Minority and Low-Income Populations as Compared to Surrounding Jurisdictions

Local Geography	Total Population	Minority Population	Percent Minority	Total Population for whom Poverty Status is Determined	Population below Federal Poverty Level	Percent Population below Federal Poverty Level
Utah County	605,490	107,019	18%	590,617	62,829	11%
American Fork City	30,399	4,492	15%	30,102	1,305	4%
Lehi City	64,006	9,025	14%	63,953	4,074	6%
Block Group ID						
American Fork City						
490490002045	**342**	**76**	**22%**	**342**	**4**	**1%**
490490004001	**824**	**234**	**28%**	**824**	**81**	**10%**
490490101122	**704**	**112**	**16%**	**700**	**37**	**5%**
Lehi City						
490490001021	**537**	**264**	**49%**	**537**	**12**	**2%**
490490001022	**1,087**	**172**	**16%**	**1,073**	**145**	**14%**
490490001023	399	22	5%	399	0	0%
490490001024	**1,001**	**34**	**3%**	**1,001**	**218**	**22%**
490490001031	**600**	**23**	**4%**	**592**	**65**	**11%**
490490001032	**893**	**184**	**21%**	**893**	**27**	**3%**
490490001033	**643**	**9**	**1%**	**643**	**47**	**7%**
490490001034	**1,046**	**177**	**17%**	**1,046**	**53**	**5%**
490490101081	88	9	11%	88	0	0%
490490101083	**194**	**64**	**33%**	**194**	**0**	**0%**
490490101084	**1,531**	**251**	**16%**	**1,531**	**22**	**1%**
490490101101	240	18	7%	240	10	4%
490490101102	756	37	5%	756	11	1%
490490101121	811	68	8%	809	17	2%
All Block Groups	**11,696**	**1,752**	**15%**	**11,669**	**750**	**6%**

The Federal Poverty Level is determined by the 2019 U.S. Department of Health and Human Services' poverty threshold, or $25,750 for a family of four.* ***Bold* *indicates percentages of minority or low-income populations within Census block groups that are greater than the surrounding jurisdiction. Block groups that span multiple cities are listed in each corresponding city and may appear in the table multiple times.*

3. ***(Continued)***

In addition, a corridor-wide environmental justice analysis has been conducted to evaluate potential impacts of the future anticipated service increase along the FrontRunner corridor. The corridor-wide environmental justice analysis is documented in a separate report, FrontRunner Forward Corridor Level Environmental Justice Technical Memorandum (May 2023) and summarized in the PEL (May 2023).

4. **Cultural, Historic and Archaeological Resources**

Are there any cultural, historic or archaeological resources on or near the proposed project site? If yes and the proposed project has the potential to affect such resources, the Section 106 process must be followed and a Section 4(f) evaluation may be required. Explain, including what steps were taken to make the determination.

☐ NO

☒ YES

A cultural resource survey was conducted in spring 2022. For the purposes of this analysis, the Project area serves as the Area of Potential Effect (APE). [redacted]

If YES resources are present, does Section 106 apply? Explain.

☐ NO

☒ YES – Provide Section 106 Consultation Documentation

Project construction would avoid removing or relocating [redacted] *and would not impact the historical dump site or residence. Therefore, the Project would result in* ***no adverse effect*** *under Section 106 for 42UT1101 and* ***no historic properties affected*** *under Section 106 for 42UT1562. The Project would result in* ***no adverse effect*** *to* [redacted]

In the event of the inadvertent discovery of human remains and/or archaeological resources are found during construction, construction will be halted, and SHPO will be contacted immediately.

If YES resources are present, does Section 4(f) apply? Explain.

☐ NO

☒ YES – Provide Section 4(f) Evaluation

FTA has determined that the Project would result in **de minimis *impact*** *of the* [redacted] *under Section 4(f) and* **no use** *of* [redacted] *The Section 4(f) documentation is included in Attachment 3.*

In addition, a corridor-wide cultural resources survey has been conducted to evaluate potential cumulative impacts along the FrontRunner corridor. The corridor-wide survey is documented in a separate report, A Cultural Resources Survey for the Utah Transit Authority's FrontRunner Forward Double Track and Rail Realignment Project; Davis, Salt Lake, and Utah Counties, Utah (July 2022) and summarized in the PEL (May 2023).

5. Visual/Aesthetics

Will the proposed project degrade the existing visual/aesthetic character or quality of the site, its surroundings, and/or recognized view sheds? Explain.

☒ NO

☐ YES

Visual resources within the larger project vicinity include the Wasatch and Oquirrh mountain ranges including Mt. Timpanogos and Flat Top Mountain, and Utah Lake. The study area for this resource includes the Project area and its surroundings, which consist of varied land uses including residential, commercial, public facilities, industrial, agricultural land uses and the I-15 corridor, with no prominent visual or aesthetic resources.

Some visual changes would occur within the Project area including the addition of the second track, the shifting of the existing single track, multiple new signal houses, one bridge over a waste ditch, and the relocation of a WiFi tower on the southeast corner of the Center Street crossing. The existing WiFi tower (approximately 30 feet tall) would be relocated approximately 35 feet to the southwest, closer to Center Street and to a small strip of land attained through a right-of-way acquisition. Please see Attachment 2, Plan Sheet 4 of 9, for more details. This relocation and other project construction elements are consistent with scale and materials in the existing visual landscape and would not obstruct views in the larger project vicinity.

6. Park and Recreation Resources

Are there any public parks and/or recreation resources on or near the proposed project area that would be impacted? If the proposed project has the potential to impact publicly-owned parks or recreation areas, a Section 4(f) evaluation may be required. If a park is funded with LWCF funds, Section 6(f) may apply. Explain.

☒ NO

☐ YES

As shown in Figure 6 in Attachment 1, the Project area is adjacent to Allred Park, Greens Park, and the Lehi Round-up Rodeo Grounds, all of which qualify as 4(f) resources. Allred Park and Greens Park are small Lehi City parks with multi-use greenspace, playgrounds, basketball courts, and picnic pavilions. The Lehi Round-Up Rodeo Grounds is a Lehi City-owned facility that hosts rodeo events and related activities and is partially located on UTA-owned property.

Construction of the additional tracks would take place within the existing rail corridor, on the east side of the existing FrontRunner track approximately 30 feet from the northeast corners of Allred Park and Greens Park. There would be temporary and transitory impacts such as noise and dust as active construction occurs near the park. However, construction would not prohibit access to or use of the park and best management practices would be used to suppress dust and minimize noise. The project would not directly impact these parks or their facilities, and would have no permanent vicinity impacts such as changes to access, parking, noise, or visual conditions.

The Lehi Round-Up Rodeo Grounds is used for the annual one-week rodeo event, which is usually scheduled for the 3rd week June, and periodically by other civic and private groups for more informal events. Some rodeo-related facilities have been developed within UTA right-of-way under a lease agreement and would need to be relocated to within the City-owned property —see Attachment 4 for more detail. The lease agreement expires March 31 of each year. UTA plans to amend the lease agreement to exclude the portion of the UTA right-of-way that would be needed for the project. This lease amendment would be initiated when the lease expires in March of the year prior to construction. UTA has been in coordination with Lehi City and the Lehi Round-Up Rodeo Committee, a volunteer group that operates the rodeo, about relocating the rodeo-related facilities after the annual rodeo and prior to construction of the proposed FrontRunner improvements to avoid disruptions to the annual rodeo.

A small parking lot owned by Lehi City to the south of the Lehi Round-up Rodeo Grounds is occasionally used as overflow parking for rodeo events, but the parking lot is not part of the Rodeo Grounds and is not considered a park resource. Majority of the construction activities in this area would be paused for one week during the annual rodeo event due to the anticipated high attendance to this event. All existing street access to the Lehi Round-Up Rodeo Grounds would be maintained during the annual rodeo event.

6. (continued)

Future bike lanes are planned through the crossings on Center Street and 200 South in Lehi. At the 500 West Lehi crossing, Utah's Unified Transportation Plan has an unfunded, Phase 1 project for the Dry Creek South Trail. Lehi City has identified a side path in this location in their Bicycle and Pedestrian Master Plan. It is anticipated that the proposed trail would be added to the west side of the roadway. There are no existing or planned trails at any of the other crossing locations. The Project would not preclude the planning or construction of these future active transportation projects.

If YES, does Section 4(f) apply? Explain.

☐ NO

☒ YES – Provide Section 4(f) Evaluation

The Project would have no use of the Lehi Round-Up Rodeo Ground or its facilities. Although 9 rodeo-related facilities have been developed within UTA right-of-way, those facilities were developed under a lease agreement that expires March 31 of each year. This lease will be amended by UTA in March of the year prior to construction to exclude the portion of the right-of-way that would be needed by the project, and these facilities would be relocated prior to construction. A more detailed Section 4(f) Evaluation is included as Attachment 4.

If YES, does Section 6(f) apply? Explain.

☒ NO

☐ YES – Provide documentation

None of the parks or recreational facilities listed were funded with LWCF funds. Therefore, no impacts to Section 6(f) resources would occur.

7. Noise and Vibration

Are there any noise and/or vibration sensitive receptors located near the proposed project that would be impacted? Explain.

☐ NO

☒ YES

A noise and vibration impact assessment conducted in May 2022 determined that there would be no noise or vibration impacts associated with the Project. Adding the second track along the west side of the FrontRunner corridor would result in a slight decrease in the noise levels, and no change in vibration levels, for sensitive receivers on the east side of the tracks due to half the FrontRunner trains being moved further from those receivers. The Project would result in a slight increase (less than 0.1dB) in noise and vibration levels for sensitive receivers on the west side of the tracks, where train operations would be closer to sensitive receivers. However, the increase in noise and vibration would be below the thresholds for impact. For additional information see the Noise and Vibration Assessment in Attachment 5.

The FrontRunner corridor from Ogden to Provo is an established Federal Rail Administration (FRA) quiet zone corridor for both FrontRunner and freight train traffic. In a quiet zone, railroads have been directed to cease the routine sounding of their horns when approaching public grade crossings. Train horns may still be used in emergency situations. For this noise assessment, train horn noise was not included.

In addition, a corridor-wide noise and vibration analysis has been conducted to evaluate potential impacts of the future anticipated service increase along the FrontRunner corridor. The corridor-wide noise and vibration analysis is documented in a separate report, FrontRunner Forward Corridor Level Noise and Vibration Technical Memorandum (May 2023) and summarized in the PEL (May 2023).

8. Air Quality

Is the proposed project located in an Environmental Protection Agency (EPA)-designated non-attainment or maintenance area?

☐ NO

☒ YES - indicate the criteria pollutant and contact FTA to determine if a hot spot analysis is necessary.

- ☐ Carbon Monoxide (CO)
- ☐ Sulfur Dioxide (SO_2)
- ☐ Lead (Pb)
- ☐ Nitrogen Dioxide (NO_2)
- ☒ Ozone (O_3)
- ☒ Particulate Matter (PM_{10})
- ☒ Particulate Matter ($PM_{2.5}$)

Does the proposed project require a conformity analysis or regional analysis under 40 CFR Part 93?

☐ NO

☒ YES

If the non-attainment area is also in a metropolitan area, is the proposed project required to be and included in the MPO's air quality conformity analysis for the Transportation Improvement Program (TIP)?

☐ NO

☒ YES - Date of FHWA/FTA conformity finding

The Project is located in Utah County, which is currently designated as a Maintenance Area for PM_{10}, a Serious Non-Attainment Area for $PM_{2.5}$, and a Marginal Non-Attainment Area for Ozone.

Because the Project is located in a nonattainment area and is not exempt from a conformity analysis under 40 CFR 93.126, a General Conformity applicability assessment is needed, and the project must be listed on a conforming Metropolitan Transportation Plan and Transportation Improvement Plan. The Mountainland Association of Governments (MAG) considers air quality as part of their Regional Transportation Plans (RTP).

MAG has amended their 2019-2050 RTP to include the Project and other proposed double-track projects along the corridor. The Amendment was approved in September 2022. The draft 2023-2050 RTP will be provided for public comment in Spring 2023, and a final RTP is anticipated to be approved in June 2023.

In addition, a corridor-wide air quality analysis has been conducted to evaluate potential impacts of the future anticipated service increase along the FrontRunner corridor. The corridor-wide air quality analysis is documented in a separate report, FrontRunner Forward Corridor Level Air Quality Technical Memorandum (June 2023) and summarized in the PEL (May 2023).

9. Hazardous Materials

Is there any known or potential contamination at the proposed project site that would be impacted? Describe the steps taken to make the determination (Phase I ESA, etc.) and results. Note the mitigation and clean-up measures that will be taken to remove hazardous materials from the project site, if applicable.

☐ NO

☒ YES

A Hazardous Materials Assessment was completed using pertinent state and federal regulatory database information procured from Environmental Data Resources, Inc. (EDR) and publicly available sources to identify contaminated sites within 0.25 mile of the Project that have the potential to impact the Project. Of the 18 sites identified in the EDR report, one site was determined to be outside the 0.25-mile Project study area and the rest were determined to be low risk in terms of encountering contamination. Additionally, the sites are not expected to result in additional impacts to the environment as a result of the Project. For more information see Attachment 6.

In accordance with FTA Standard Operating Procedures and applicable regulatory requirements, UTA would conduct due diligence during final design, identifying whether hazardous materials are present prior to property acquisitions and construction. As part of this due diligence, UTA would conduct a Phase I Environmental Site Assessment in accordance with ASTM standards for any property acquisitions and conduct any recommended Phase II Environmental Site Assessment investigations. Plans for hazardous materials handling and disposal would be developed for the Project, and this would include coordination with state and federal agencies with jurisdiction over the properties.

10. Farmland

Are there any prime or unique farmlands located at the proposed project site that would be impacted? Explain.

☐ NO

☒ YES

A majority of the Project area is located in the Provo – Orem, UT Urbanized Area as designated by the U.S. Census Bureau (Figure 7 in Attachment 1) and is therefore not subject to the Farmland Protection Policy Act. The south side of the Project area between the FrontRunner American Fork Station and Pioneer Crossing is located outside of the Urbanized Area boundaries; portions of this area are zoned residential agriculture and rated as prime farmland if irrigated by the U.S. Department of Agriculture Natural Resources Conservation Service, based on the nature of the underlying soils. While the Project would include partial acquisitions from properties immediately adjacent to the rail corridor, it would not affect the ability of those properties to be farmed. In addition, American Fork land use maps show the area between the FrontRunner American Fork Station and Pioneer Crossing is planned for Transit Oriented Development.

11. Floodplains

Is the proposed project located within the Federal Emergency Management Agency (FEMA) 100-year floodplain or within the floodway? If yes, this project may require further evaluation under EO 11988. Explain.

☐ NO

☒ YES

As shown in Figure 8 in Attachment 1, the Project area spans a narrow flood hazard zone that corresponds with a drainage canal (Stream 1, as described in Question 12 below). The FrontRunner rail line currently crosses over the drainage canal and flood hazard zone via a low bridge. This bridge would be widened to carry the new track over the canal and flood hazard zone at approximately the same elevation as the current rail line leading over the bridge. The new bridge is expected to stay outside of the floodplain given the narrow width of the existing drainage canal. An evaluation would be completed during final design to confirm that no impacts to the floodplain would occur. If needed, a Floodplain Development permit would be obtained from the City of Lehi if there are any impacts to the floodplain.

The USDOT Order 5650.2 implementation procedures for EO 11988 support a finding that the Project would not represent a significant encroachment because it expands a portion of an existing railroad already within a floodplain. There also would not be a practicable alternative because a routing other than along the railroad would not achieve the Project's purpose for achieving reliability improvements for the commuter rail line. UTA Commuter Rail Design Criteria state that county flood control and FEMA guidelines should be observed and disturbances to creek channels should be minimized.

12. Water Resources and Water Quality

Are there any surface or ground water resources present, including an EPA-designated sole source aquifer (SSA), near the proposed project that would be impacted? Explain.

☐ NO

☒ YES

In October 2022, biologists conducted a field investigation of the study area. The field investigation and wetland and stream delineations were conducted in accordance with the guidelines and procedures in the current U.S. Army Corps of Engineers (USACE) wetland delineation manual. See Attachment 6, Aquatic Resources Delineation Report, for more detail.

Three stream crossings and four ditches are present within the Project area. Stream 1, an unnamed tributary, flows under the Union Pacific track through a concrete-lined box culvert and then into a natural stream channel under the bridge supporting the UTA track. The stream flows east through concrete canals and vegetated channels and discharges into the Jordan River. The existing railroad alignment is built on a low bridge over the stream crossing. Dry Creek flows through a vegetated channel and is conveyed under the existing railroad alignment in a large concrete box culvert. Dry Creek flows south and drains into Utah Lake. Spring Creek flows through a vegetated channel and is conveyed under the existing railroad alignment in a concrete box culvert. Spring Creek flows south and drains into Utah Lake.

Ditch 1 is at the north end of the study area. It is approximately 2 feet wide and flows along a pasture field. Ditch 2 is a concrete lined channel directly north of Dry Creek and conveys flow under the UP and UTA tracks. Ditch 3 is a drainage canal with rip-rap armored banks and vegetation. The stream is conveyed under the existing railroad alignment in a concrete box culvert and daylights for approximately 80 feet before flowing into a small culvert within an agriculture field. Ditch 3 appears to drain into Spring Creek. Ditch 4 is located at the southern end of the study area and is connected to Wetland AF-02 (see Question 13 below). It carries drainage through a culvert under the UP and UTA tracks. Ditches 1, 2, and 4 were dry during the October 2022 delineation and likely have ephemeral flow.

All of the identified streams appear to be waters of the U.S. and thus regulated by the USACE. Please see Figure 9 in Attachment 1 for stream locations.

There are no anticipated permanent stream impacts associated with Project construction. The Project would require an extension of the existing Dry Creek box culvert and a new bridge crossing would be required to carry the rail track over the Stream 1. For the new bridge, the footings are expected to be constructed upland of the ordinary high water line. The work would occur within 30 feet of the stream banks and would require a Stream Alteration Permit issued by the Utah State Division of Water Rights.

The Division of Water Rights and USACE have entered into a joint permitting program under USACE Programmatic General Permit 10 (GP 10) that provides authorization by USACE under Section 404 of the Clean Water Act for activities authorized by the Division of Water Rights through a Stream Alteration Permit. The application process involves submitting a joint permit checklist to the Division of Water Rights. During the permit review process, the Division of Water Rights will coordinate with USACE to verify that the project would be covered under GP 10. The terms of GP 10 specify measures to avoid and minimize impacts on water resources, which will then be implemented in final design and during construction of the Project.

The remaining stream and ditch culverts are of sufficient length for the additional track and would not be impacted by the Project. The Project would be consistent with existing stormwater drainage patterns. No EPA-designated sole source aquifers are present within 1 mile of the Project area.

12 ***(Continued)***

Is there an increase in impervious surface (e.g., roofs, driveways, streets, parking lots, etc.) or restored pervious surface greater than one acre? If YES, a NPDES/storm water permit may be needed and must be acquired prior to construction. Explain.

☒ NO

☐ YES

A long-term facility storm water permit would not be required. The Project design does not include any new parking areas or other impervious surfaces directly related to the commuter rail system, but would widen at-grade rail crossings at seven locations. However, in total, these areas would not exceed 1 acre of new impervious surface; generally, they would rebuild part of an existing roadway, and they would not be continuous. Construction of the Project would disturb more than 1 acre of ground surface, which would require coverage under the Utah Pollutant Discharge Elimination System (UPDES) Construction General Permit UTRC00000 (CGP). Coverage under the CGP would be obtained prior to construction through the Utah Division of Water Quality. In compliance with this permit, a stormwater pollution prevention plan (SWPPP) would be developed for the construction phase of the Project.

13. Wetlands and Waters of the U.S.

Are there any wetlands or waters of the U.S. on or adjacent to the proposed project area that would be temporarily or permanently impacted? Explain.

☐ NO

☒ YES

In October 2022, biologists conducted a field investigation of the study area. The field investigation and wetland and stream delineations were conducted in accordance with the guidelines and procedures in the current USACE wetland delineation manual. Two wetlands (totaling 0.91 acre), three streams, and four ditches were identified within the study area. See Attachment 7, Aquatic Resources Delineation Report for more detail; the streams and ditches are described briefly in Question 12 above. The Project would require an extension of the existing Dry Creek box culvert beneath the tracks and a new bridge crossing would be required to carry the rail track over Stream 1. Both streams are considered waters of the U.S. as described above.

Wetland AF-01 is a palustrine emergent wetland located in a pasture field directly north of 9600 N, on the southwest side of the rail corridor. Wetland hydrology is provided by stormwater and irrigation, and the wetland outlets to a ditch outside of the study area. Wetland AF-02 is a palustrine scrub-shrub wetland located at the eastern end of the study area, east of the American Fork Station. Wetland hydrology is provided by flows from Ditch 4 (see Question 12 above) and stormwater runoff. Both wetlands are of moderate functional quality and considered Waters of the U.S.

If YES, is a permit from the US Army Corps of Engineers required? Explain.

☒ NO

☐ YES

As discussed in Question 12 (Water Resources and Water Quality), the extension of the Dry Creek box culvert and the new bridge over Stream 1 would require authorization under Stream Alteration Permit issued by the Utah Division of Water Rights.

There would be no impacts to Wetland AF-01 or Wetland AF-02. Construction of the double track would occur on the northeast side of the existing UP track, opposite the location Wetland AF-01, and Wetland AF-02 is east of the American Fork station, beyond the eastern terminus of project construction.

Please see Figure 9 in Attachment 1 for more detail.

14. Threatened and/or Endangered Species

Are there any listed threatened and/or endangered species (plant or animal) or critical habitat present on or near the proposed project area that would be impacted? How was this determined? If yes, Section 7 of the Endangered Species Act may apply. Explain.

☒ NO

☐ YES

The study area for threatened and/or endangered species includes all areas within 0.25 mile of the Project alignment, to encompass areas where Project construction and operation could disturb or affect habitat quality for sensitive plants and animals.

The U.S. Fish and Wildlife Service identifies three ESA-listed species with the potential to occur in the study area, based on the expected distribution of those species. These are Ute ladies'-tresses (Spiranthes diluvialis), June sucker (Chasmistes liorus), and yellow-billed cuckoo (Coccyzus americanus). The State of Utah does not maintain a list of threatened and endangered species separate from the ESA list. The Project is not expected to affect these species, as explained below.

Populations of Ute ladies'-tresses (a kind of orchid) are typically associated with well-established soils and vegetation along perennial streams and rivers, although it may also occur in roadside ditches. In 2005, biologists performed focused surveys for Ute ladies'-tresses within 300 feet of the Project alignment, during the species' flowering period. Survey results were negative, and it was determined that no Ute ladies'-tresses were present within the Project corridor. Given the disturbed condition of the Project corridor, the potential for new populations to have become established in the surveyed areas since 2005 is very low. Biologists performing field reviews for wetlands in April 2022 did not observe any evidence of Ute ladies'-tresses along the Project corridor.

June suckers are not known or expected to be present in any of the streams crossed by the Project alignment; therefore, Project construction would not affect this species.

Yellow-billed cuckoos breed in large (larger than 50 acres) patches of willow- and cottonwood-dominated riparian forest. No such habitat is present near the Project alignment; therefore, Project construction would not affect this species.

There is no designated critical habitat for any of these species present within 10 miles of the Project area.

15. Natural and Biological Resources

Are there any natural areas, biological resources (fish, birds, wildlife and habitat) or sensitive areas present on or near the proposed project area that would be impacted? If the proposed project has the potential to impact wildlife or waterfowl refuges, a Section 4(f) evaluation may be required. Explain.

☒ NO

☐ YES

If YES, does Section 4(f) apply? Explain.

☐ NO

☐ YES – Provide Section 4(f) Evaluation

The study area for natural and biological resources includes all areas within 100 feet of the Project area, to encompass areas where Project construction and operation could affect these resources.

There are no National Wildlife Refuge system lands or State Wildlife Management Areas within 10 miles of the Project area.

No known biologically sensitive areas, designated critical habitat, wildlife corridors, essential fish habitat, or other sensitive habitats are present in the study area.

Vegetation in the study area consists primarily of disturbed areas dominated by non-native grasses. Wildlife species found in such areas are generally widespread and tolerant of high levels of human activity. Populations of these species (e.g., mice, American robins, house sparrows, rock pigeons, and black-billed magpies) are not considered to be sensitive to impacts from Project construction.

The Utah Natural Heritage Program Online Species Search Report for the Project area indicates that four wildlife species classified as Species of Greatest Conservation Need have been observed within 0.5 mile of the Project area. These species are American bittern (last observed in 1942), burrowing owl (last observed in 1979), Green River pebblesnail (last observed in 1993), and Lewis' woodpecker (last observed in 1937). No suitable habitat for any of these species is present in the study area.

The project crosses Spring Creek and Dry Creek. Neither stream is managed for fisheries, and the streams at the crossing locations are not expected to provide habitat for sensitive aquatic species.

Any unavoidable grubbing or tree removal will occur outside of migratory bird nesting season, April 1 through July 15, in order to avoid impacts to migratory birds. If clearing and grubbing does need to occur during nesting season, a pre-construction survey will be conducted to determine if there are any occupied nests in the area of disturbance. Construction activities will avoid disturbance to any occupied nests.

16. Traffic and Parking

Does the proposed project have the potential to permanently impact traffic and/or parking (on and off street) in the project area? Explain.

☐ *NO*

☒ *YES*

The Project would have traffic and parking impacts on seven streets with at-grade crossings of the railroad.

<u>Center Street in Lehi</u>

Center Street is a two-lane minor collector at the crossing location. The new FrontRunner track would be located on the south side of this crossing. Center Street has an annual average daily traffic volume (AADT) of about 1,000 vehicles per day and the nearest driveway is 150 feet to the south. Neither Center Street nor the driveway would be impacted by the second FrontRunner track. The quiet zone median would be extended 15 feet, but would not cause any new driveway obstructions. There are no other anticipated traffic impacts at this location.

16. (continued)

There is no designated on-street parking near the existing railroad crossing. However, there is enough shoulder width to fit on-street parking adjacent to residential lots south of the crossing. The addition of the new FrontRunner track would impact one or two on-street parking spaces on each side of Center Street. However, there is on-street parking that continues further down the street that's available for shared use by residents and visitors. There is a pedestrian crossing of the railroad tracks on the west side of Center Street and the additional Frontrunner track would create a longer crossing distance for pedestrians.

<u>200 South in Lehi</u>

200 South is a two-lane minor collector at the crossing location. The new FrontRunner track would be located on the west side of this crossing. This crossing is a major school crossing for buses and school children, with an elementary school located 400 feet to the west. The AADT at this crossing is approximately 500 vehicles per day, and there are no traffic impacts anticipated at this location. The quiet zone median would be extended 15 feet, but would not cause any new driveway obstructions. The nearest residential driveway is located 150 feet to the west and would not be impacted by the median extension.

There is no on-street parking allowed in front of the two residential parcels west of the crossing, therefore the addition of the new FrontRunner track would not have any impacts to parking. There are pedestrian crossings on both sides of the track at this location, and the additional FrontRunner track would create a longer crossing distance for pedestrians.

<u>Main Street in Lehi</u>

Main Street at the crossing location is a two-lane major collector. The new FrontRunner track would be located on the west side of this crossing. The AADT is approximately 9,000 vehicles per day at the crossing, and traffic is often congested on this section of Main Street. There is a roundabout intersection approximately 400 feet west of the crossing, and traffic occasionally queues from the roundabout intersection back to the crossing; signs at the crossing instruct drivers not to stop on tracks. The additional FrontRunner track would decrease the queuing storage on westbound Main Street between the roundabout and the rail crossing by about one vehicle length, which may increase the frequency at which vehicle queues extend to the crossing area. Since queuing to this crossing is an existing condition, the Project would not create a significant change requiring mitigation. Signs instructing drivers to not stop on tracks will continue to be posted at the crossing.

There is a business driveway/access approximately 60 feet west of the existing tracks on the south side of Main Street. The addition of the track to the west would not result in the relocation or closure of this driveway access. There is no on-street parking allowed on the section of Main Street near the crossing. However, the new track would impact approximately ten parking spaces in the parking lot of Stella's Plaza located on the southwest corner of the crossing. The new track would also possibly impact a portion of the City parking lot on the northwest corner of the crossing that is occasionally used for Lehi Round-Up Rodeo overflow parking (see Question 2, Land/Property Acquisition, Relocation, Leases and Easements and Question 6, Parks and Resources for more detail). There are pedestrian crossings on both sides of Main Street at the crossing location, and the additional FrontRunner track would create a longer crossing distance for pedestrians.

<u>100 North in Lehi</u>

The crossing at 100 North is adjacent to the Lehi Round-Up Rodeo Grounds and is a private crossing that is gated off for most of the year, except for a few days per year during the Lehi Rodeo. The new FrontRunner track would be located on the west side of this crossing. Since there is no vehicular or pedestrian traffic at this crossing for most of the year, negligible traffic impacts are anticipated at this location.

16. (continued)

<u>500 West in Lehi</u>

500 West at the crossing location is a two-lane major collector. The new FrontRunner track would be constructed between the two existing tracks at this location. AADT on 500 West at the crossing location is about 6,000 vehicles per day. Because it would be located between existing tracks, the new track would have no right-of-way impact and therefore there are no anticipated traffic impacts or parking impacts at this location.

A pedestrian crossing is on the east side of 500 West at the crossing location. The skew of the rail alignment to 500 West creates a crossing distance of approximately 90 feet for pedestrians. The pedestrian crossing would be modified to accommodate the new tracks, but the length of the pedestrian crossing would not change.

<u>900 North in Lehi</u>

900 North at the crossing location is a two-lane minor collector. The new FrontRunner track would be constructed between the two existing tracks at this location. The AADT on 900 North is approximately 500 vehicles per day. Because it would be located between existing tracks, the new track would have no right-of-way impact and therefore there are no anticipated traffic impacts or parking impacts at this location. There is an existing pedestrian crossing on the south side of 900 North at the crossing location. The pedestrian crossing would be modified to accommodate the new tracks, but the length of the pedestrian crossing would not change.

<u>1500 North in Lehi</u>

1500 North is a two-lane major collector at the crossing location. The new FrontRunner track would be located between the two existing tracks at this location. The AADT on 1500 North near the crossing location is approximately 1,000 vehicles per day. Because it would be constructed between existing tracks, the new track would have no right-of-way impact and therefore there are no anticipated traffic impacts or parking impacts at this location. There are no existing pedestrian crossings at this location.

In addition, a corridor-wide traffic and safety analysis has been conducted to evaluate potential impacts of the future anticipated service increase along the FrontRunner corridor. The corridor-wide traffic and safety analysis is documented in a separate report, FrontRunner Forward Corridor Level Traffic and Safety Technical Memorandum (May 2023)and summarized in the PEL (May 2023).

17. Utilities

Are there any utilities that could be impacted by the proposed project? Explain.

☐ NO

☒ YES

The Project would intersect and require relocations or modifications to several above ground and underground structures and utilities, a WiFi tower at Center Street, and several UPRR gates; however, no major interruptions or relocations are anticipated.

For evaluation of the utility impacts, a base map was created using the utility files from the FrontRunner North and South Projects along with mapping that was requested from the utility owners. Utility impacts are based on the proximity of the utility to the tracks and the significance of the impact. UTA would coordinate with utility providers on these changes as the Project design advances to avoid lapses in service during construction. It is our understanding that the Lumen/MCI long-haul fiber has been relocated outside of the Project area during a previous project. The utilities impacted by the new track are as follows:

- *The UTA communications duct bank for the entire length of the Project. (14,558 LF).*
- *American Fork City 24" sewer line running along the west side of the tracks (4,350 LF).*
- *Dominion Energy 12" HP gas line running parallel to the tracks (800 LF).*
- *Lehi City 10" Irrigation crossing casing; potential need to extend casing.*
- *3 Lehi Power overhead crossings, 3 poles.*
- *Dominion Energy gas line casing; potential need to extend casing.*
- *Lehi City Pump House.*
- *One WiFi tower*
- *200 LF of longitudinal irrigation*
- *Drainage analysis for one detention pond due to encroachment of fill slope for new track*

There may be other utility conflicts in addition to the conflicts identified above. Impact to existing utility/third-party facilities would be confirmed and refined upon completion of a full Subsurface Utility Engineering (SUE) investigation during the design phase of the Project.

18. Construction Impacts

Will the proposed project result in impacts (e.g., noise, air, water, staging, parking, traffic detours, etc.) during construction? Explain.

☐ NO

☒ YES – Provide mitigation commitments

There will be some minor impacts during construction. Construction equipment such as trucks, bulldozers, graders, and rollers would add nominal noise to an already very loud, active freight and commuter rail corridor. Work would comply with local noise ordinances.

If temporary construction access is needed from a private property owner, it would be obtained through the proper federal right of way acquisition process. Minor temporary utility disruptions may occur for utility relocations or new service installations. These outages would be coordinated with the utility provider and any customers that may be affected.

Installation of switches would require temporary track shutdown that could disrupt FrontRunner service. Work would be scheduled to minimize impacts to the passengers (nights, weekends, holidays). If necessary, bus bridges would be provided for continuation of service.

The contractor would be required to control fugitive dust and storm water runoffs (see additional details in Section 21 State and Local Permits).

A public communication plan would be developed to coordinate construction activities with local residents, stakeholders, and businesses that may be affected by the work. Any changes to transit service due to construction would be communicated to riders.

Where an additional track would be added to existing grade crossings, regrading of the roadway would be required to provide a smooth, safe profile over the track. This grade crossing work would be coordinated with the local roadway jurisdiction to provide detours, temporary closures, or lane restrictions. Work would be scheduled on nights or weekends, when possible, to reduce impacts to the roadway traffic. Special consideration would be coordinated with the roadway owner to provide necessary pedestrian mitigation during this grade crossing work. Some temporary lane restrictions may be needed for utility relocations. Traffic control plans would be developed to obtain proper permitting from local roadway jurisdiction for temporary lane closures, roadway closures, and detours.

The soil and groundwater management plans specified under section 9, Hazardous Materials, should also be followed during construction.

19. Public Outreach and Agency Coordination

Was any public outreach and/or agency coordination conducted? Explain.

☐ NO

☒ YES

UTA in partnership with UDOT are committed to involving state and local agencies, area stakeholders and the public as the Project evolves. The Project team has been coordinated with the Metropolitan Planning Organizations (MPOs) including the Mountainland Association of Governments (MAG) and the Wasatch Front Regional Council (WFRC), and surrounding cities. The Project team has developed an Engagement Plan to steer involvement actives throughout the Project. Engagement would be tailored based on the needs and potential impacts in the Project area, and may include a combination of corridor-level communication and project-specific, one-on-one meetings.

20. Safety and Security

Are any measures required for the safe and secure operation of the proposed project after its construction? Explain.

☒ NO

☐ YES

The Project would not change how employees or passengers interact with the FrontRunner corridor and would not impact the safety of those users. It would not impact the security of the FrontRunner facilities and would not have potential construction safety concerns on those facilities.

UTA standard commuter rail design criteria would be followed to ensure that the Project meets safety and security requirements. This includes the Supplemental Safety Measures (SSM) and/or Alternative Safety Measures (ASM) at each affected grade crossing in order to maintain the established quiet zone. Also, UTA activation process would be followed which includes several safety and security reviews and a potential hazard analysis to ensure the design includes typical and site-specific safety and security measures.

The additional FrontRunner track would create a longer crossing distance for pedestrians at the Center Street, 200 South, and Main Street crossings. Existing pedestrian crossing gates and signals would be relocated as necessary to maintain safety and security requirements.

21. State and Local Permits, Policies and Ordinances

Does the proposed project require compliance with any applicable state and local permits, policies and ordinances? Explain.

☐ NO

☒ YES

The Project is anticipated to require the following permits and approvals:

- *Stream Alteration Permit from Utah Division of Water Rights for stream impacts*
- *Potential temporary construction easements relating to the piping of an existing drainage ditch*
- *Local permits related to the relocation of the existing 24-inch RCP sanitary sewer line*
- *UPDES Storm Water Construction General Permit from Utah Division of Water Quality*
- *Fugitive Dust Control Plan to be submitted to the Utah Division of Air Quality*
- *Floodplain Development Permit from Lehi City*

WORKSHEET COMPLETED BY (RECIPIENT NAME AND TITLE): **DATE SUBMITTED:**

Autumn Hu *NEPA Project Administrator* *Utah Transit Authority*	*08/15/23*

Note: CE Worksheet must be signed by the Recipient of Funds

Attachment 1:
North of American Fork Double Track Project
Figures

Figure 1. Project Vicinity

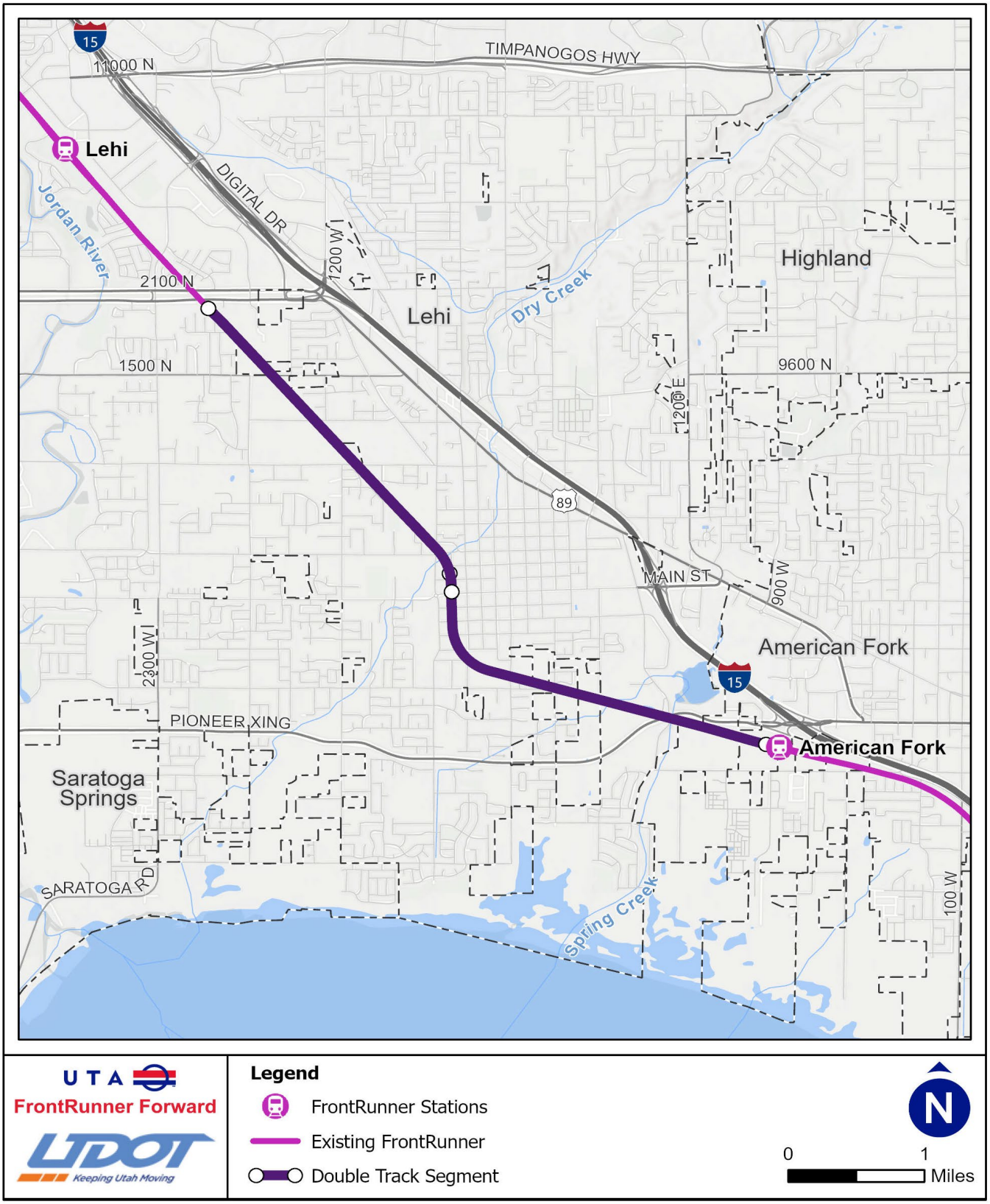


Figure 2. Project Overview, 1 of 5

Figure 2. Project Overview, 2 of 5

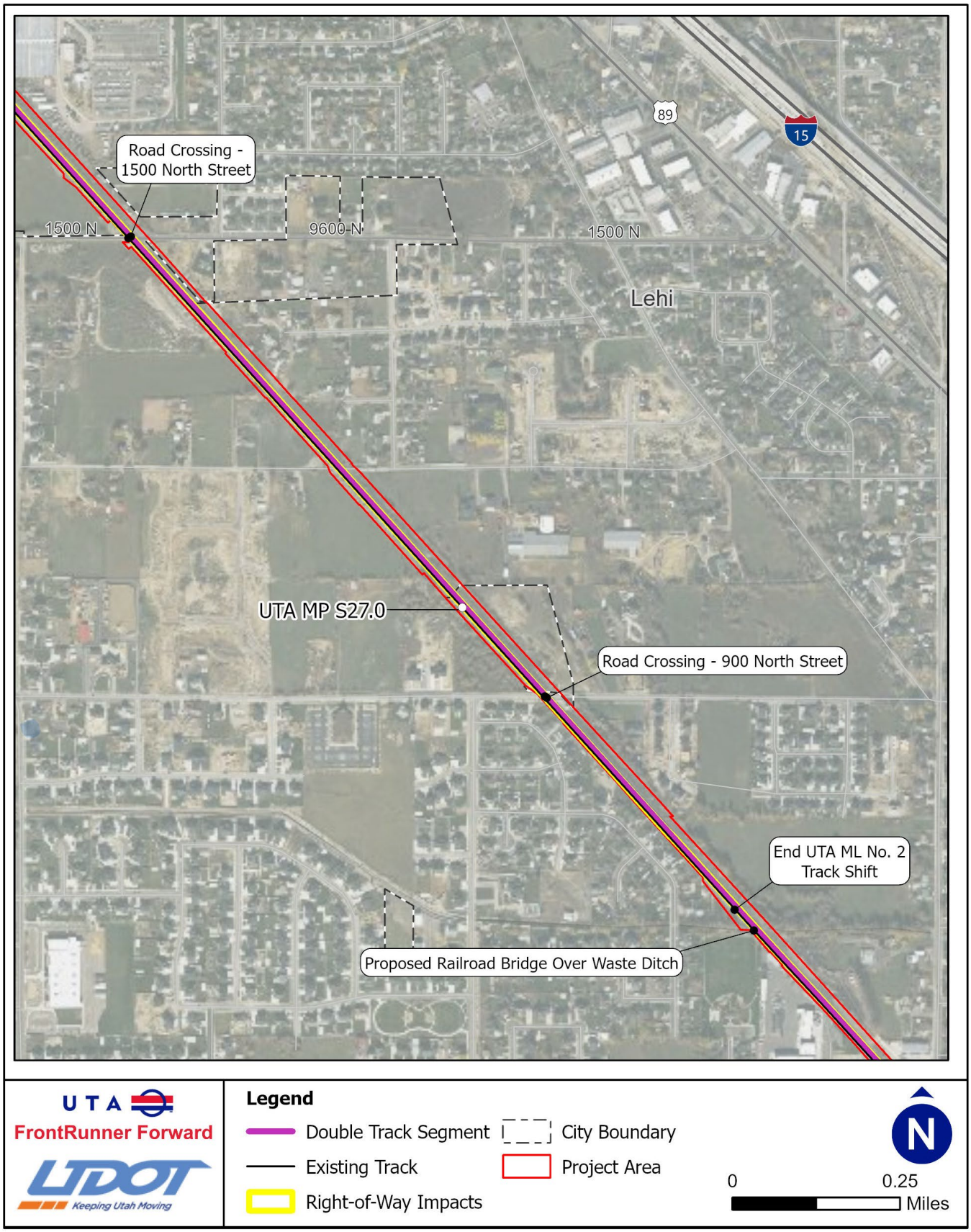


Figure 2. Project Overview, 3 of 5

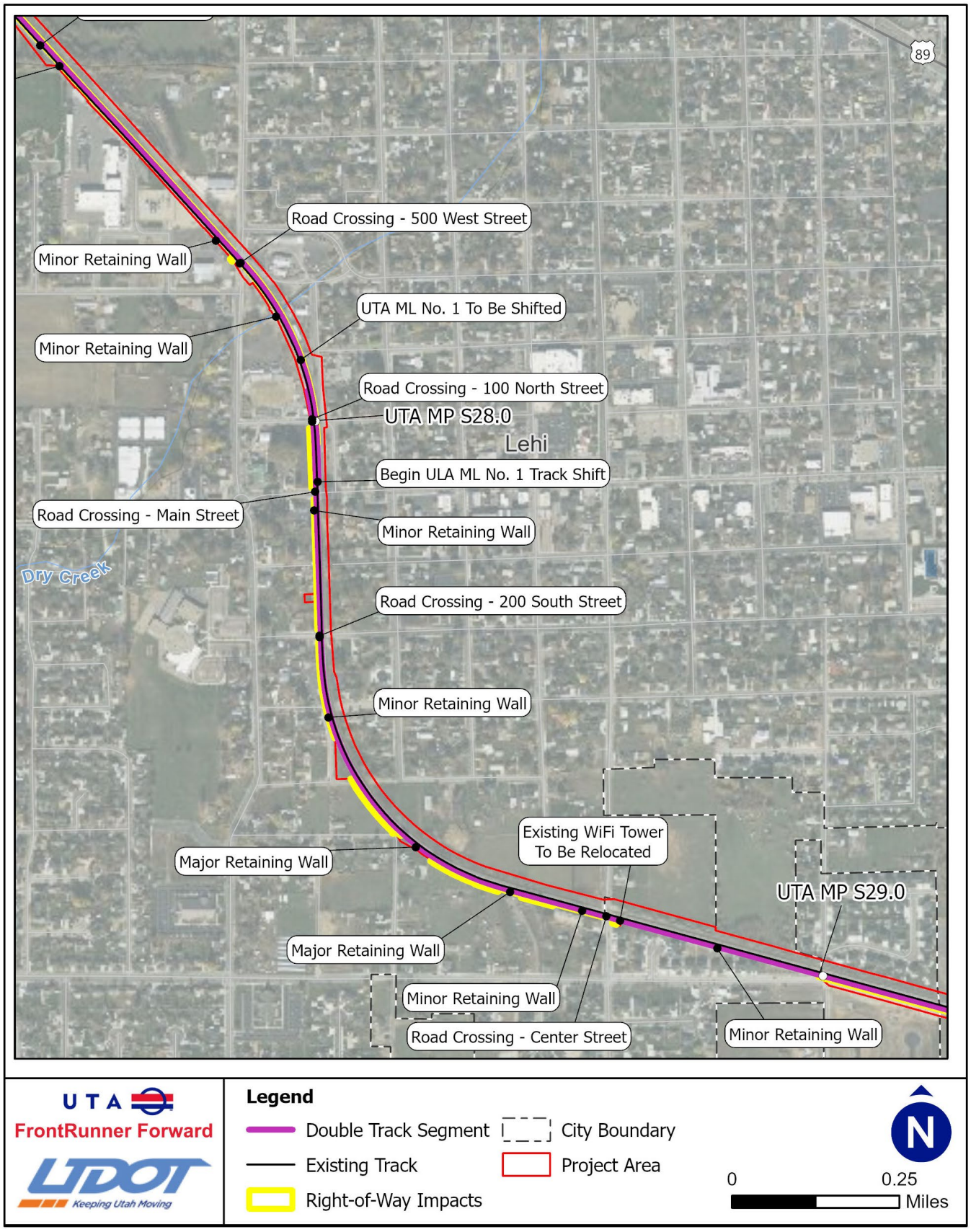


Figure 2. Project Overview, 4 of 5

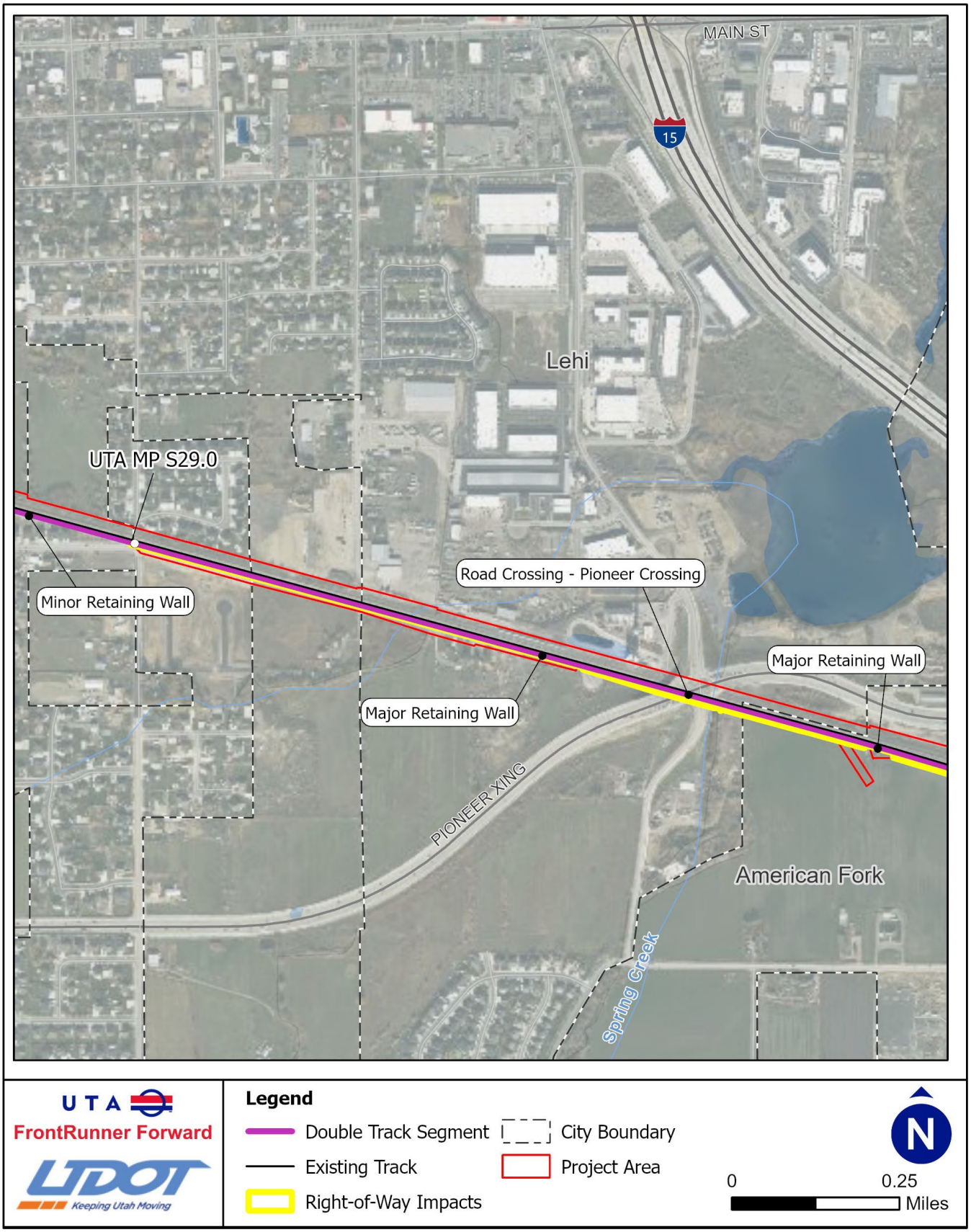


Figure 2. Project Overview, 5 of 5

Figure 3. Zoning, Lehi City, 1 of 2

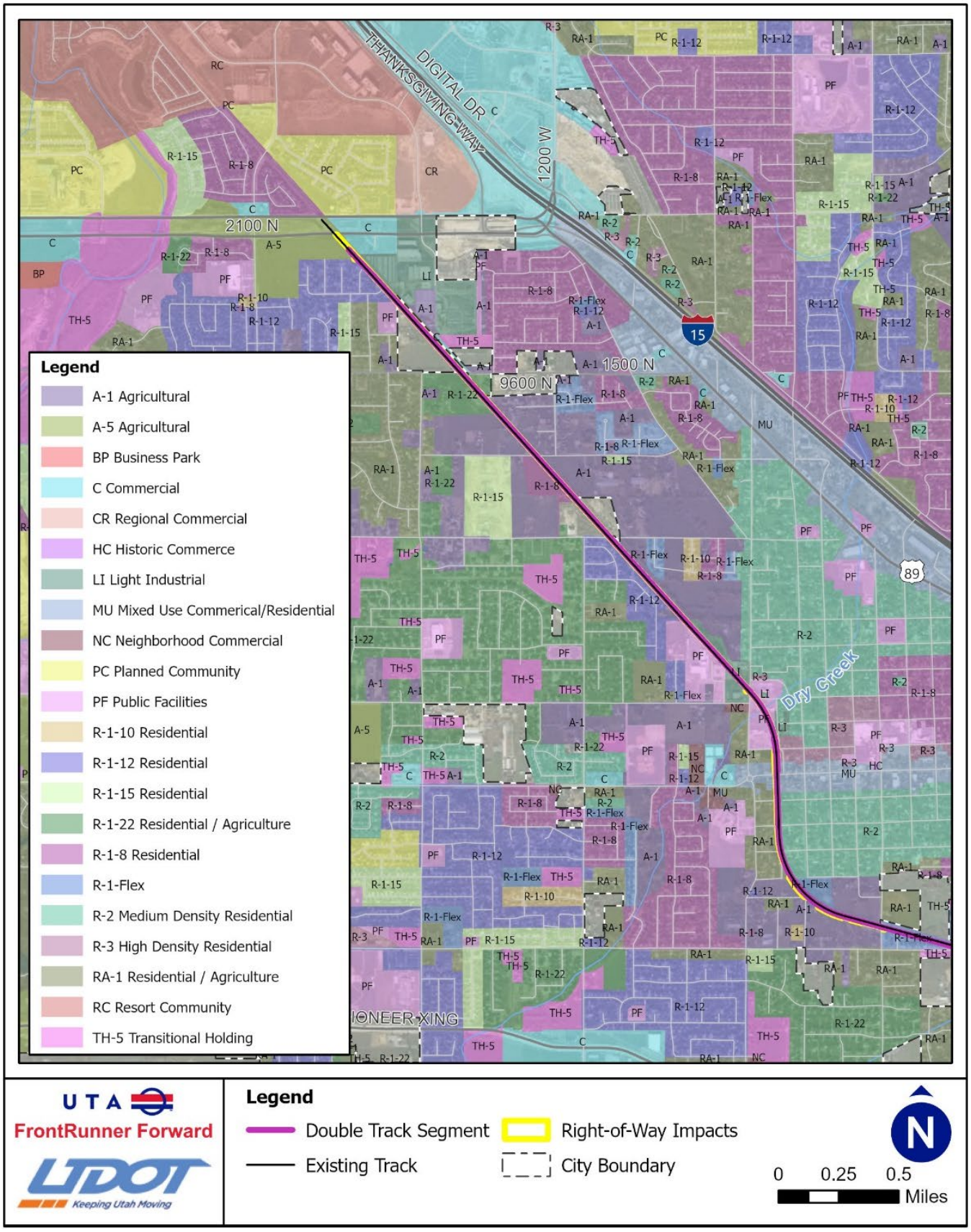


Figure 3. Zoning, Lehi City, 2 of 2

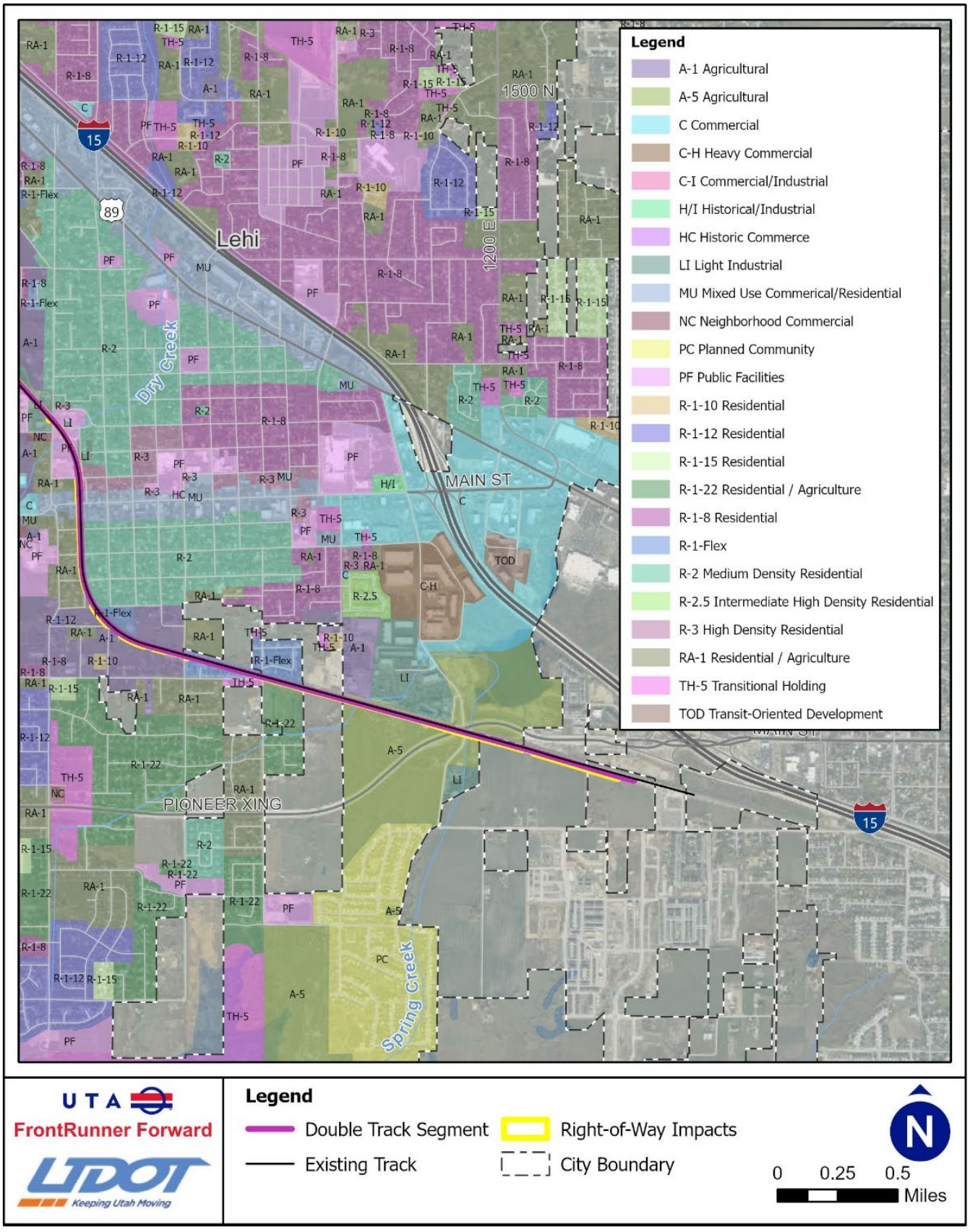


Figure 3. Zoning, American Fork City

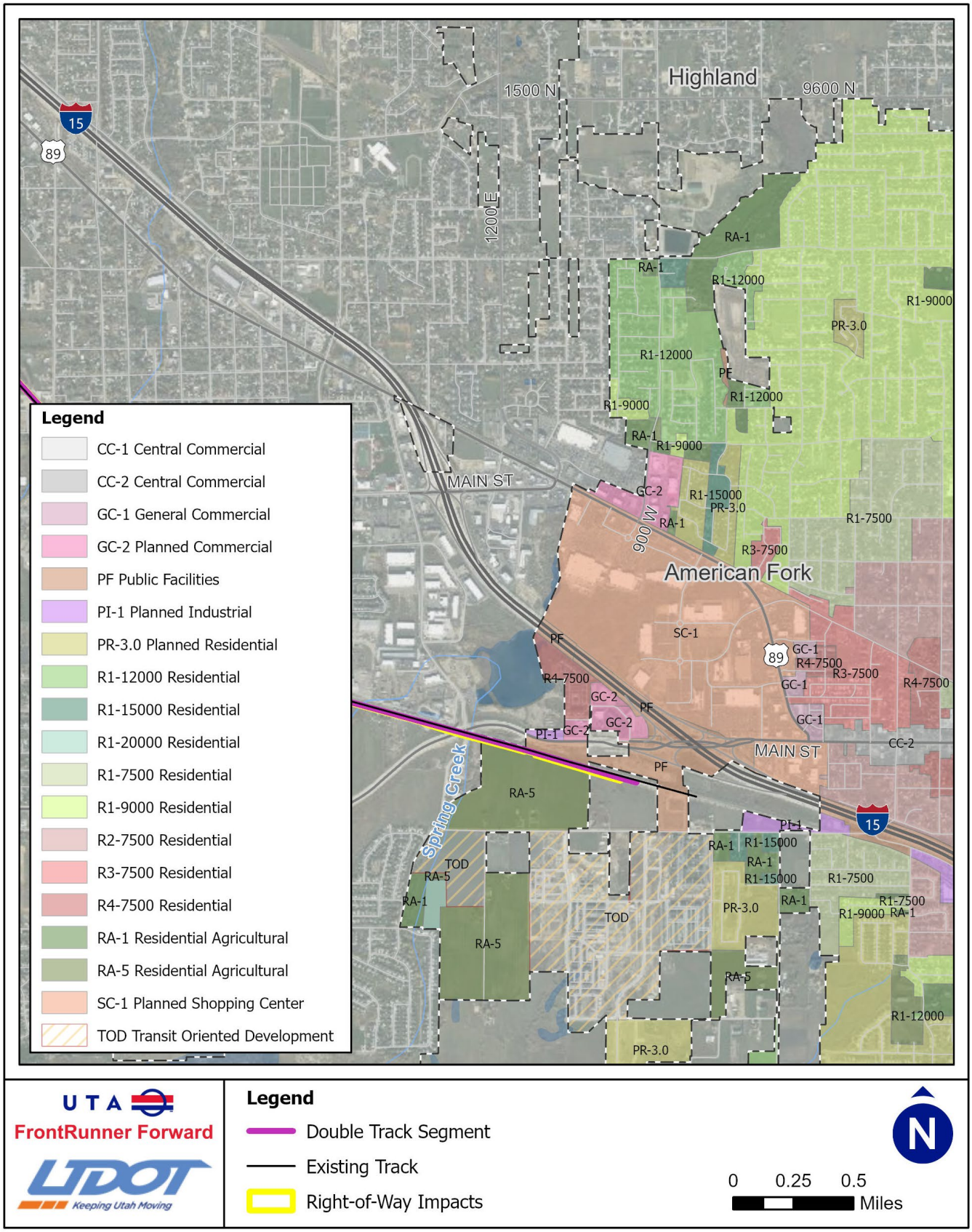


Figure 3. Zoning, Utah County, 1 of 2

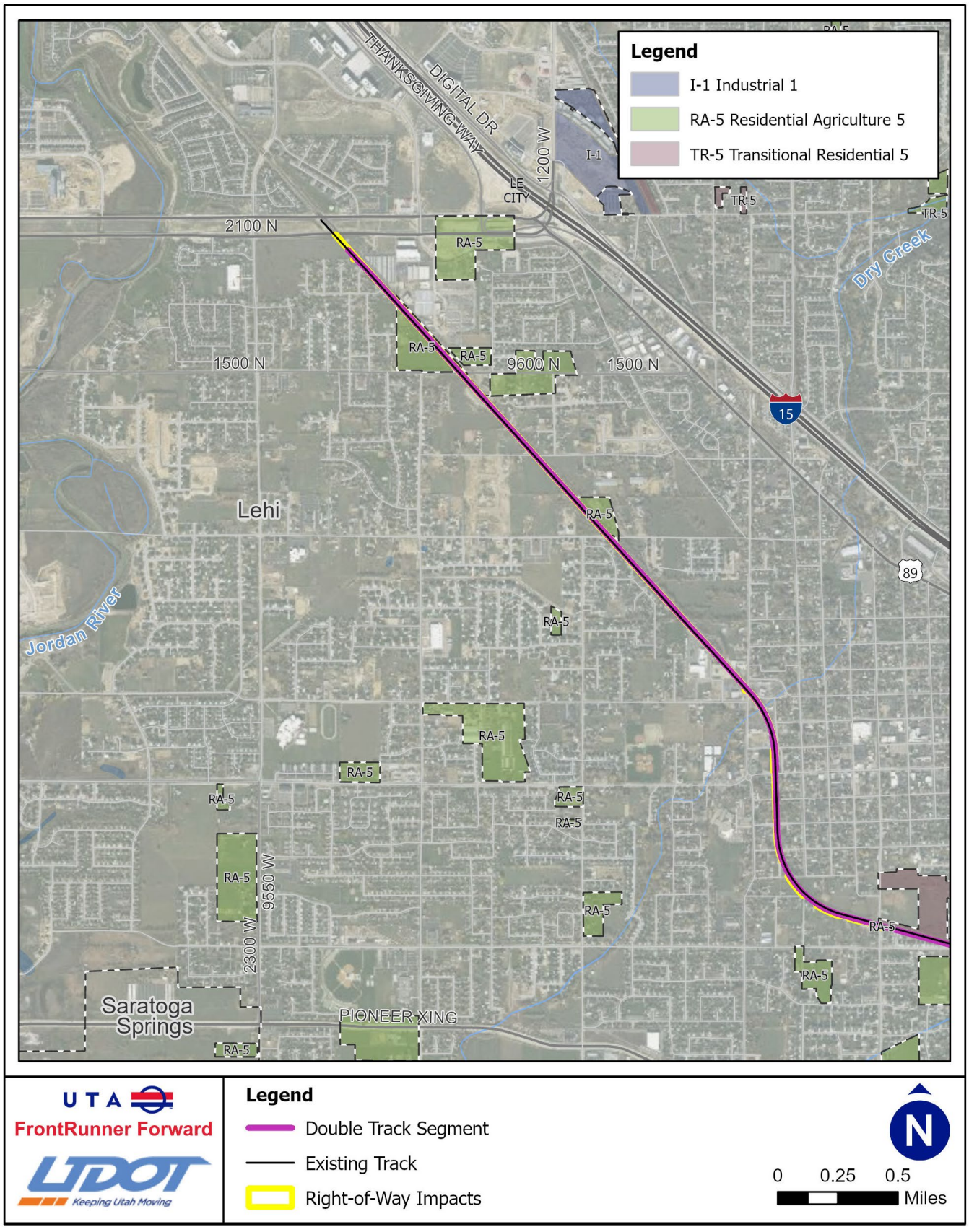


Figure 3. Zoning, Utah County, 2 of 2

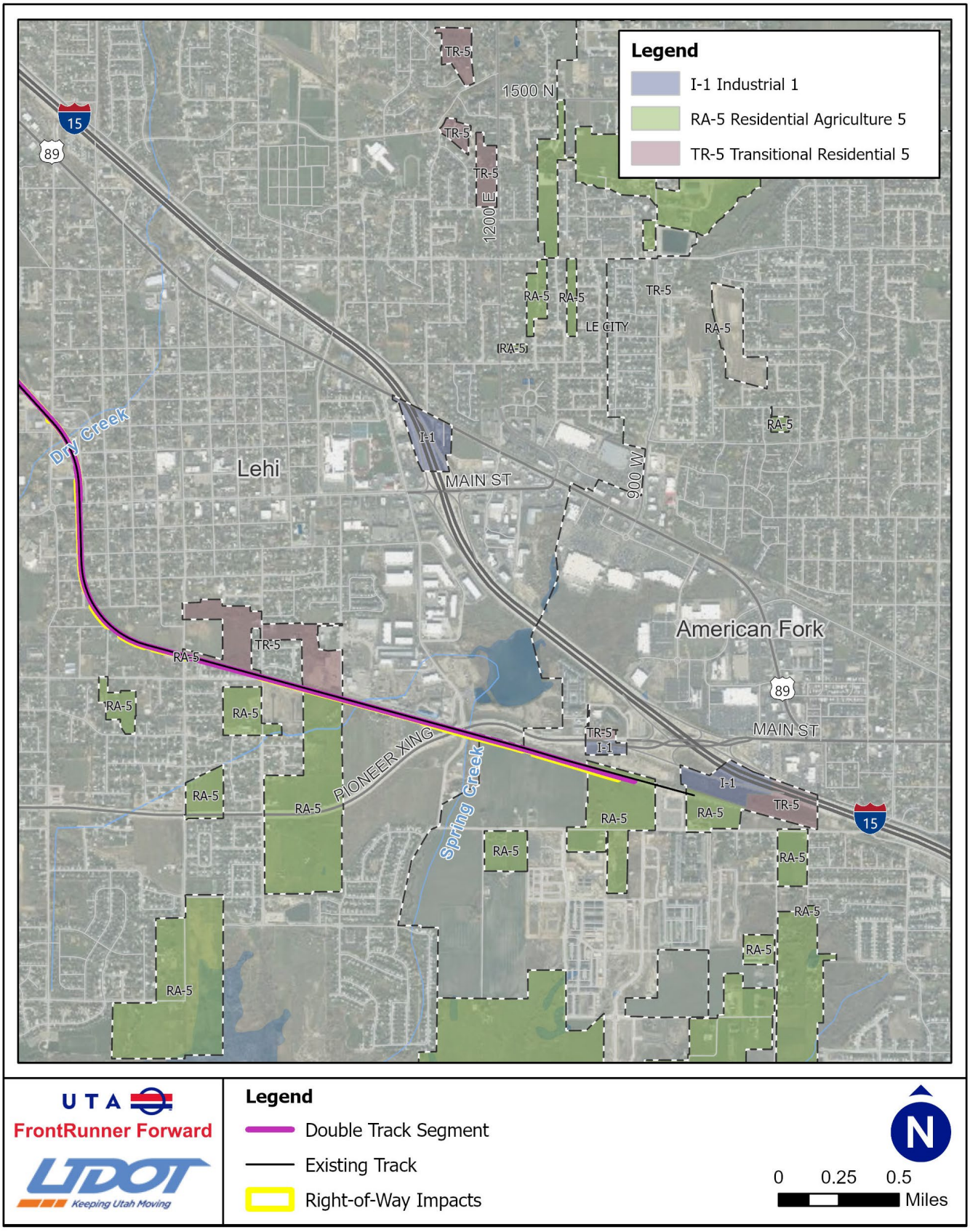


Table 4. Affected Property Location, Owner, and Use. Affected Property Location, Owner, and Use

Parcel ID	Address	Parcel City	Ownership Type	Owner	Existing Use	Partial or Full Acquisition	Area of Impact (square feet)	Relocation Necessary?
120270110	N/A	Lehi City	Public	X Lehi LLC	Vacant	Partial	328	No
-	N/A	UPRR	Public	UPRR	Rail ROW	Partial	189,079	No
-	N/A	UPRR	Public	UPRR	Rail ROW	Partial	8,778	No
120410010	N/A	Lehi City	Private	Eleven Eighty-Three LLC	Industrial	Partial	53	No
130220002	530 W 300 N	Lehi City	Private	Eleven Eighty-Three LLC	Industrial	Partial	147	No
10320022	N/A	Lehi City	Public	Lehi City Corp	Vacant	Partial	1,668	No
10320018	N/A	Lehi City	Public	Lehi City Corp	Vacant	Partial	1,195	No
10320020	N/A	Lehi City	Public	Lehi City Corp	Vacant	Partial	2,850	No
10310022	441 W MAIN	Lehi City	Private	Stella's Plaza LLC	Commercial	Partial	901	No
10310020	N/A	Lehi City	Private	Glines, Brexton	Residential	Partial	358	No
10310018	420 W 100 S	Lehi City	Private	Glines, Brexton	Residential	Partial	654	No
10180012	411 W 100 S	Lehi City	Private	Orduna,Juan & Delm	Residential	Full	11,360	Yes
10180014	N/A	Lehi City	Public	UTA	Vacant	Partial	849	No
431600004	404 W 200 S	Lehi City	Private	Orduna,Juan Carlos & Delm	Residential	Partial	2,091	No
10170012	431 W 200 S	Lehi City	Private	Mcgee, Kay E & Anita	Residential	Partial	1,809	No
10170010	440 W 300 S	Lehi City	Private	Johnson,Brett A & Kimberlee R	Commercial	Partial	978	No
10170010	440 W 300 S	Lehi City	Private	Johnson,Brett A & Kimberlee R	Commercial	Partial	460	No
10040014	N/A	Lehi City	Private	Tripp,Clay G & Judy A	Residential Agriculture	Partial	260	No
10040021	N/A	Lehi City	Private	Tripp,Clay G & Judy A	Residential Agriculture	Partial	5,905	No
130230019	N/A	Lehi City	Private	Marshall.Rick R & Jana L	Residential	Partial	5,813	No
461580008	198 W 700 S	Lehi City	Private	Asay,Susan B & Terry L	Residential	Partial	1,191	No
461580007	174 W 700 S	Lehi City	Private	Demetsky,Justin & Ellisa	Residential	Partial	1,352	No
461580006	148 W 700 S	Lehi City	Private	Goldston,Thomas Clay	Residential	Partial	1,122	No
461580005	124 W 700 S	Lehi City	Private	Long,Jason & Andrea	Residential	Partial	356	No
461580004	102 W 700 S	Lehi City	Private	Goldston,Ashley I	Residential	Partial	1,333	No
461580001	624 S CENTER ST	Lehi City	Private	Playharding LLC	Residential	Partial	3,386	No
666740001	631 S CENTER ST	Lehi City	Private	Jensen, Jonathan and Mariah	Residential	Partial	758	No
130080005	7611 W 8170 N	RA-5	Private	Kirkham,Robert W	Residential Agriculture	Partial	3,712	No
130160118	N/A	Lehi City	Public	UDOT	Roadway	Partial	12,662	No
130380055	N/A	Lehi City	Public	UDOT	Roadway	Partial	10,264	No
130380056	N/A	Lehi City	Public	UDOT	Vacant	Partial	4,225	No
130380030	N/A	AF City	Private	Lamph,L Claude	Agricultural	Partial	10,477	No
130410044	N/A	AF City	Private	Allred,Neal L & Cassie L	Agricultural	Partial	9,193	No
130410080	N/A	AF City	Private	Blue Spring Properties LLC	Agricultural	Partial	32,502	No
130410079	N/A	AF City	Private	Ocap Af Tod LLC	Vacant	Partial	4,543	No
Total							346,759	

Figure 4. Location of Affected Parcels 1 of 4

Figure 4. Location of Affected Parcels, 2 of 4

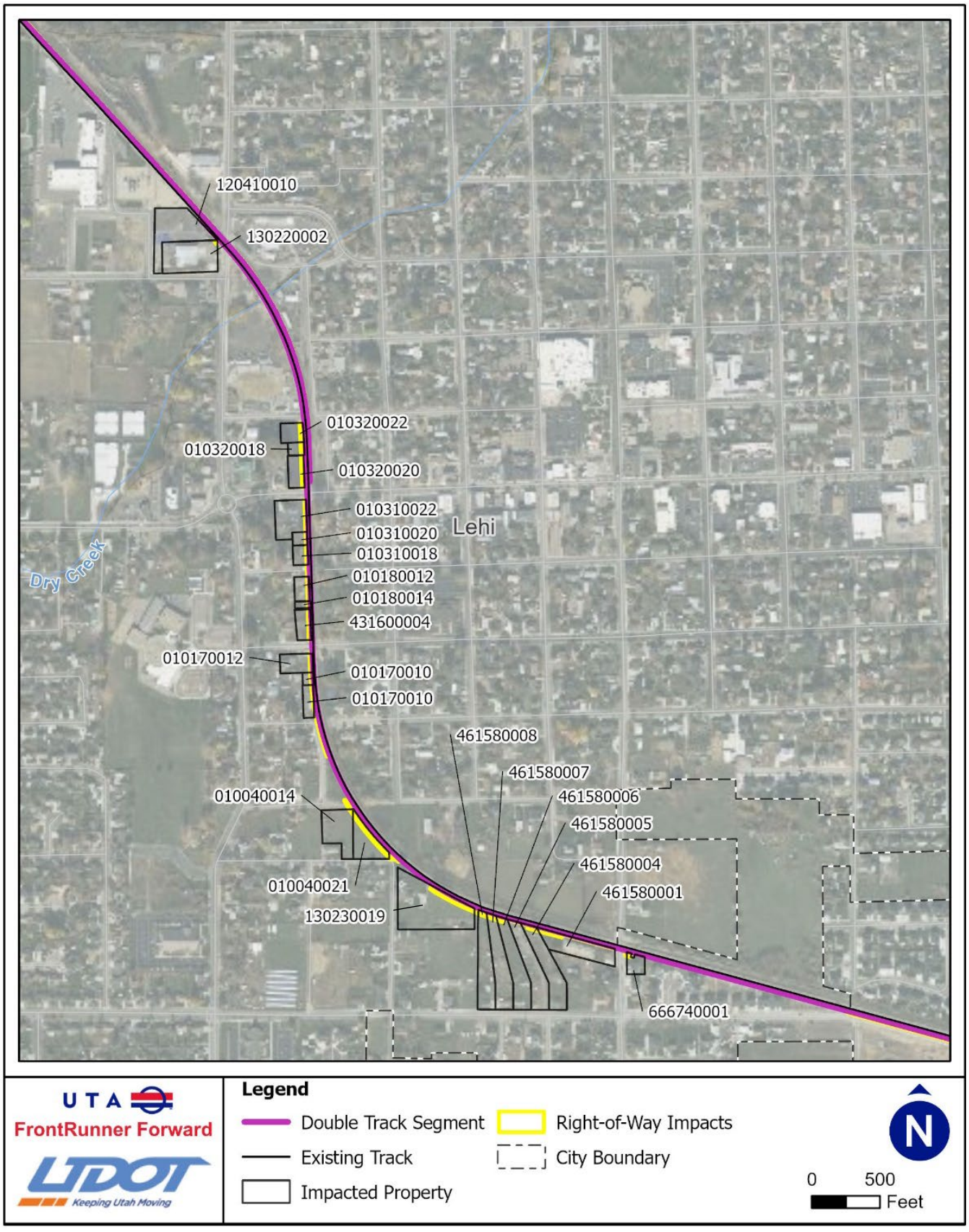


Figure 4. Location of Affected Parcels, 3 of 4

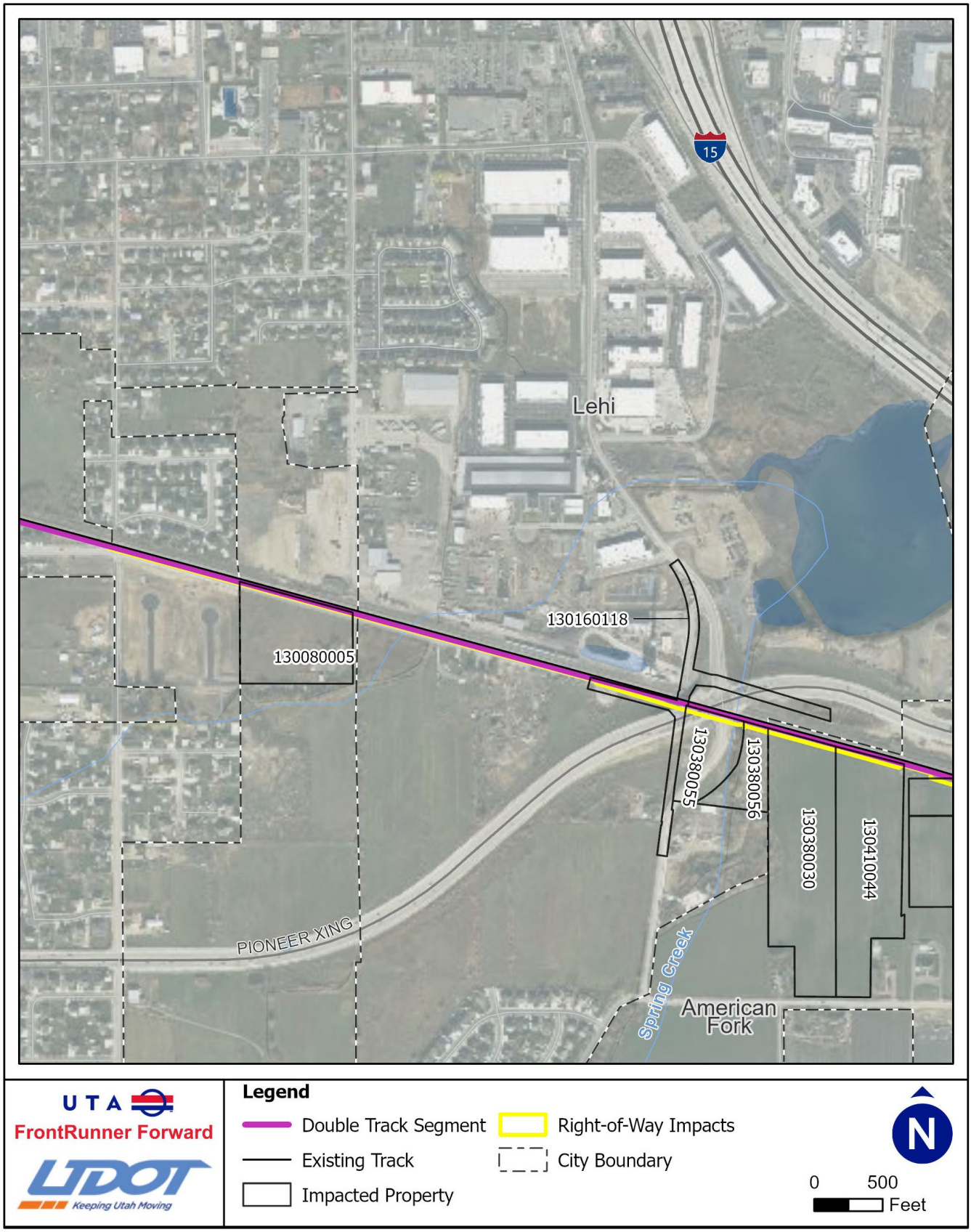


Figure 4. Location of Affected Parcels, 4 of 4

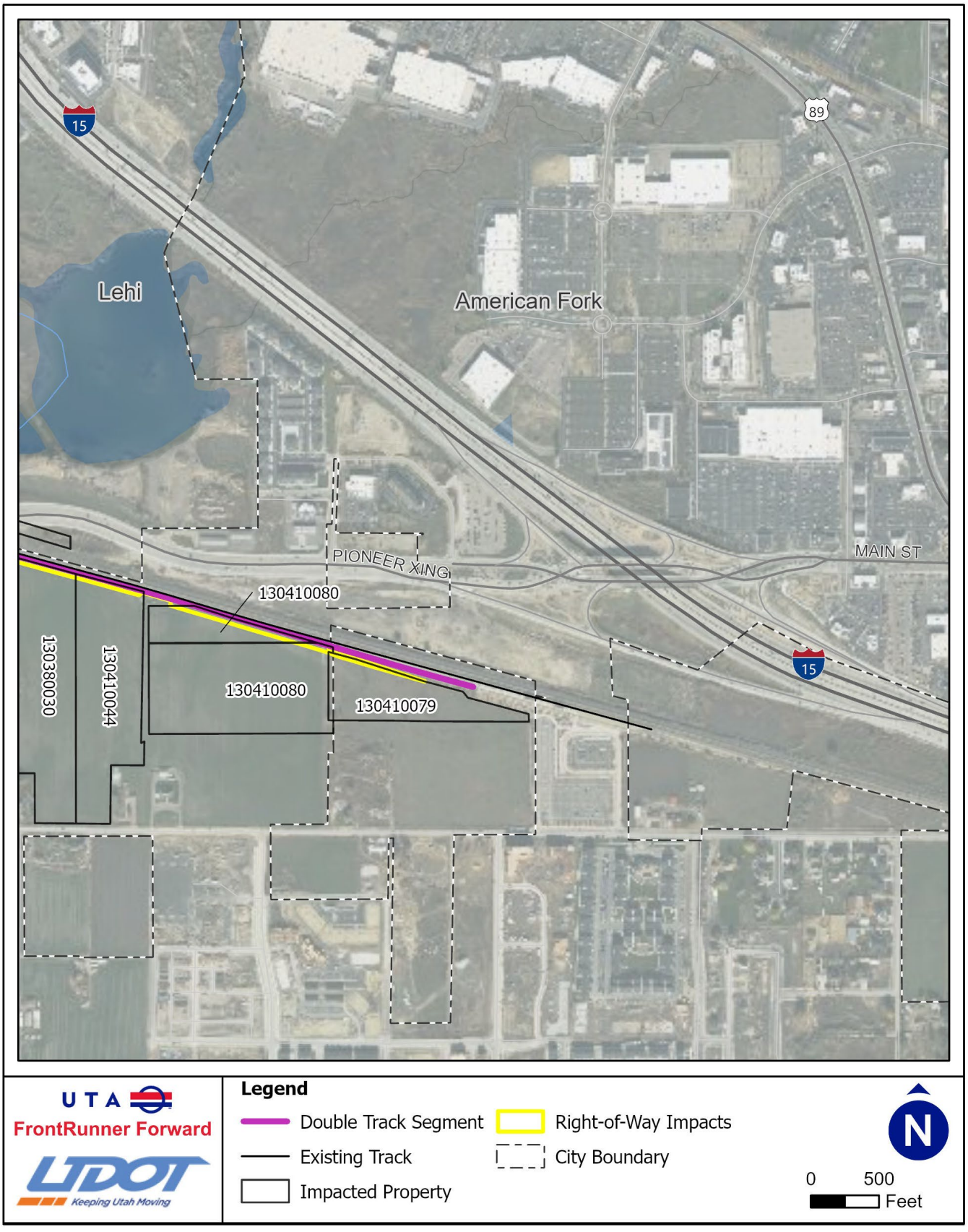


Figure 5. Census Block Groups

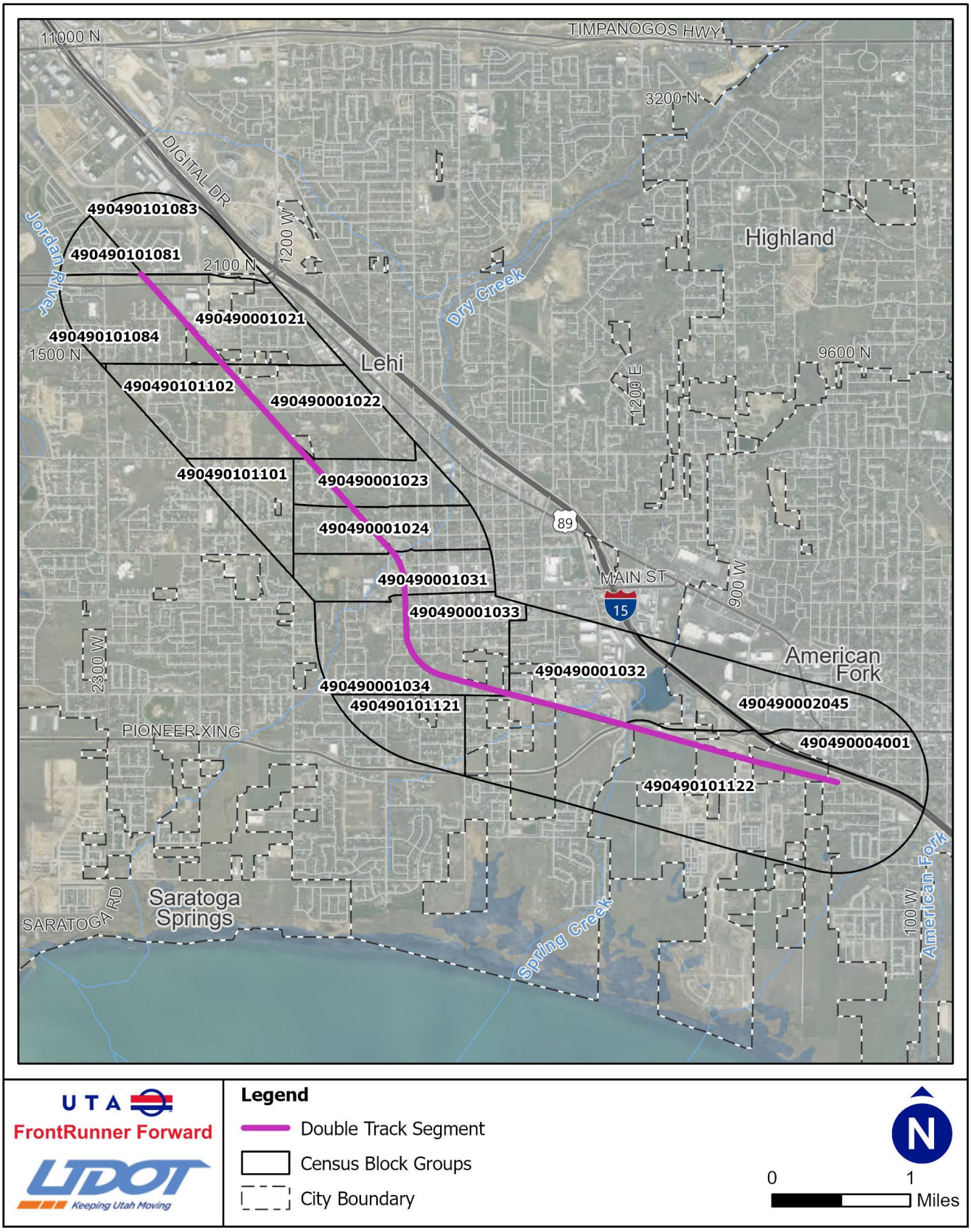


Figure 6. Recreation and Park Resources within the Project Area, 1 of 5

Figure 6. Recreation and Park Resources within the Project Area, 2 of 5

Figure 6. Recreation and Park Resources within the Project Area, 3 of 5

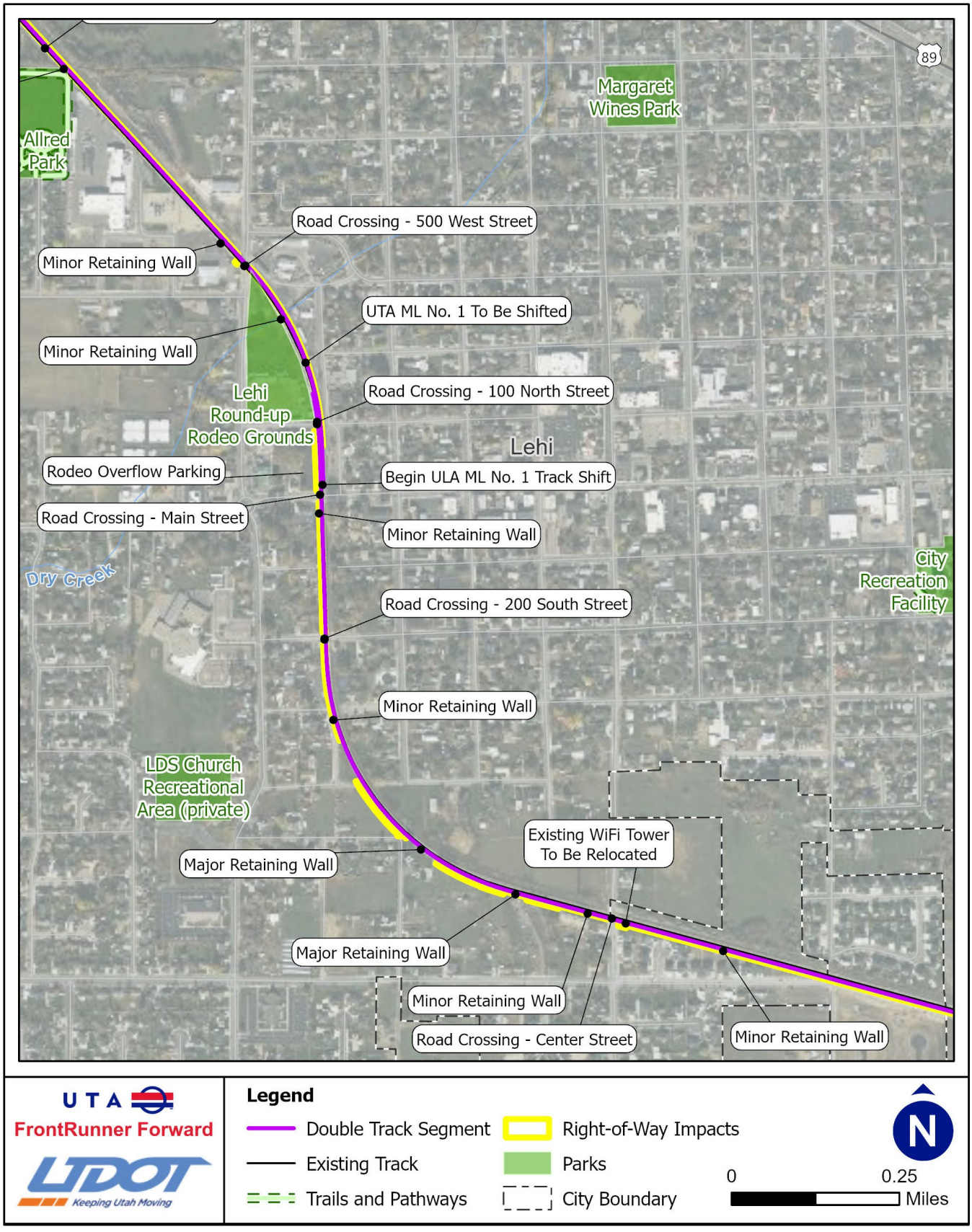


Figure 6. Recreation and Park Resources within the Project Area, 4 of 5

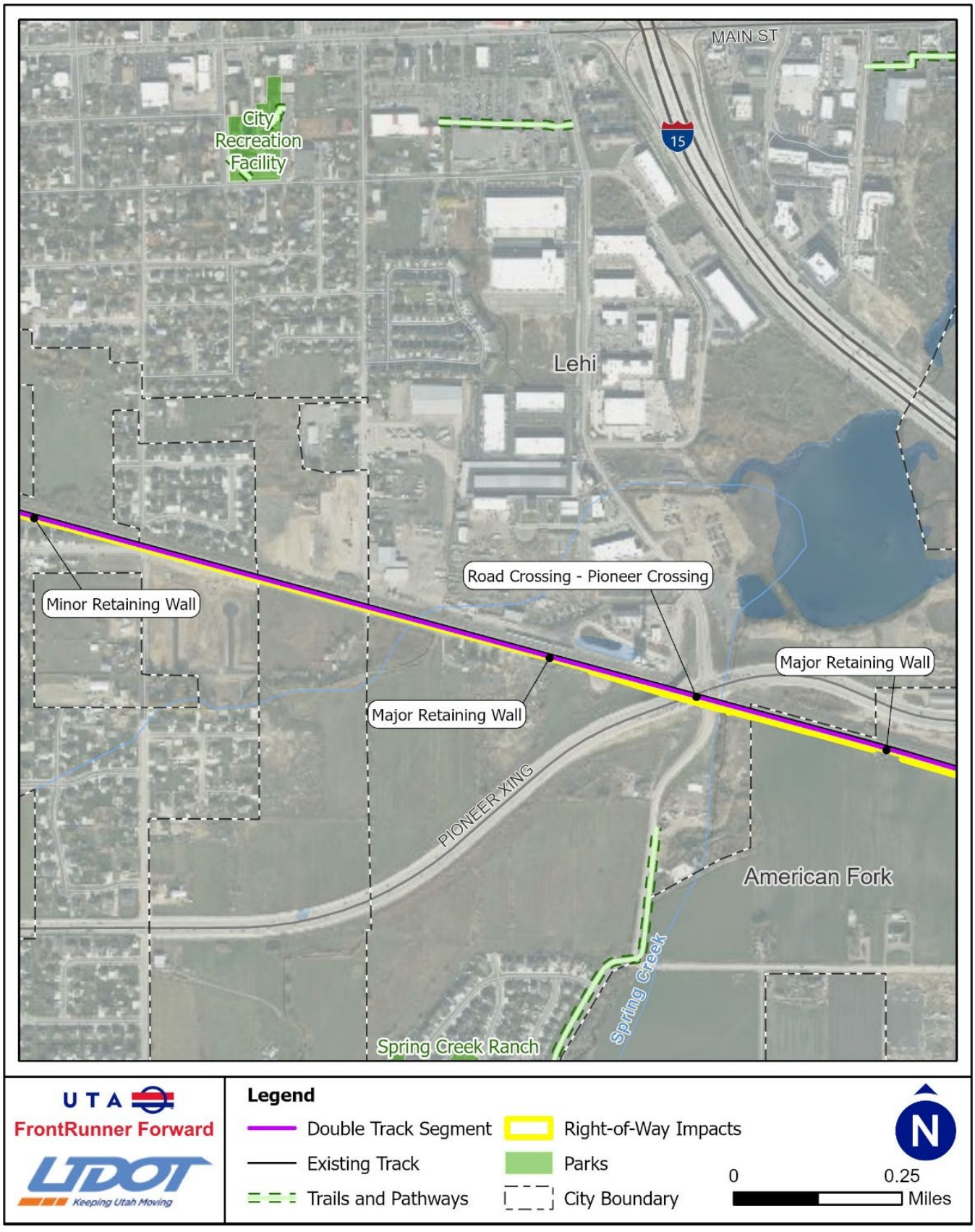


Figure 6. Recreation and Park Resources within the Project Area, 5 of 5

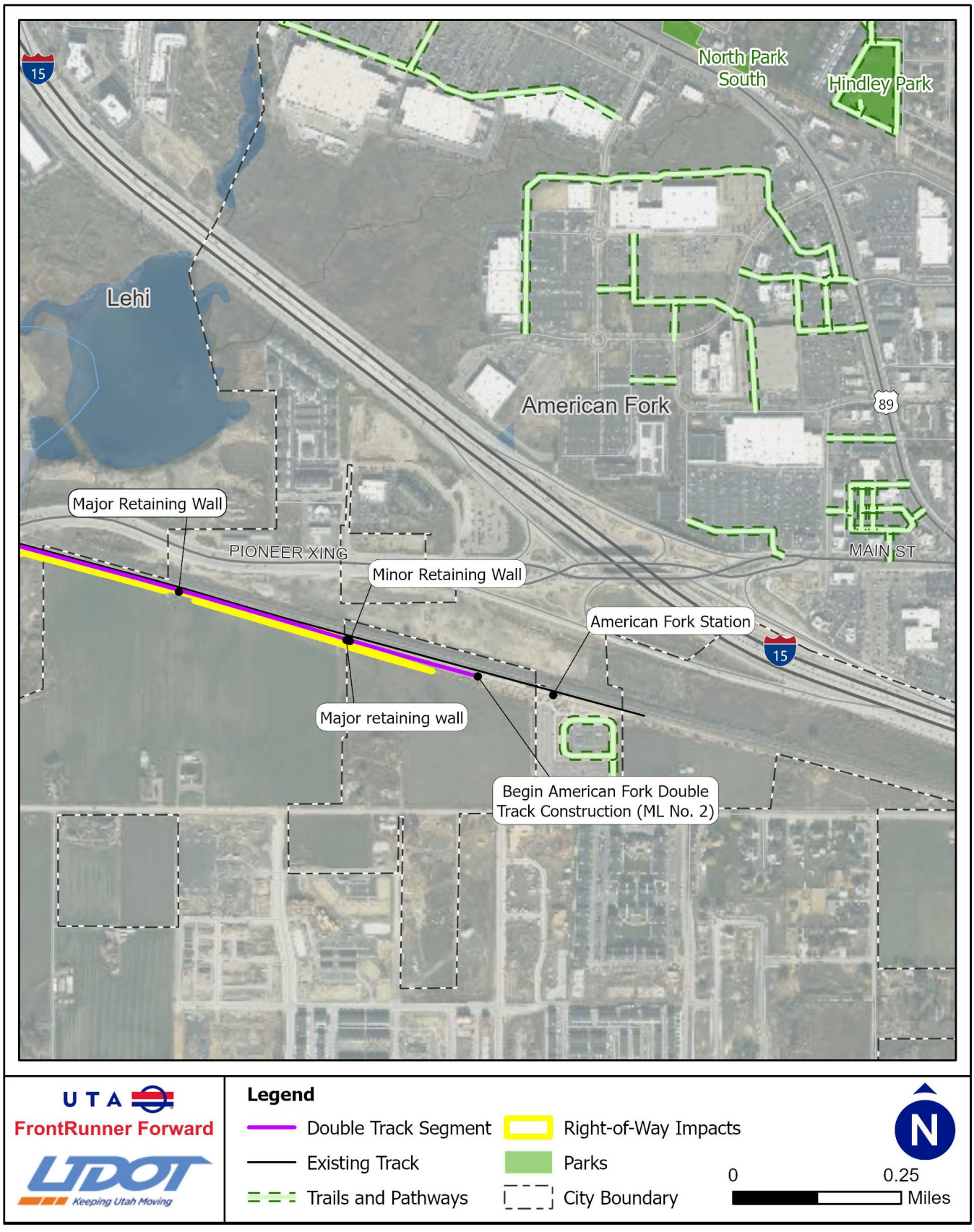


Figure 7. Urban Area Designations, 1 of 5

Figure 7. Urban Area Designations, 2 of 5

Figure 7. Urban Area Designations, 3 of 5

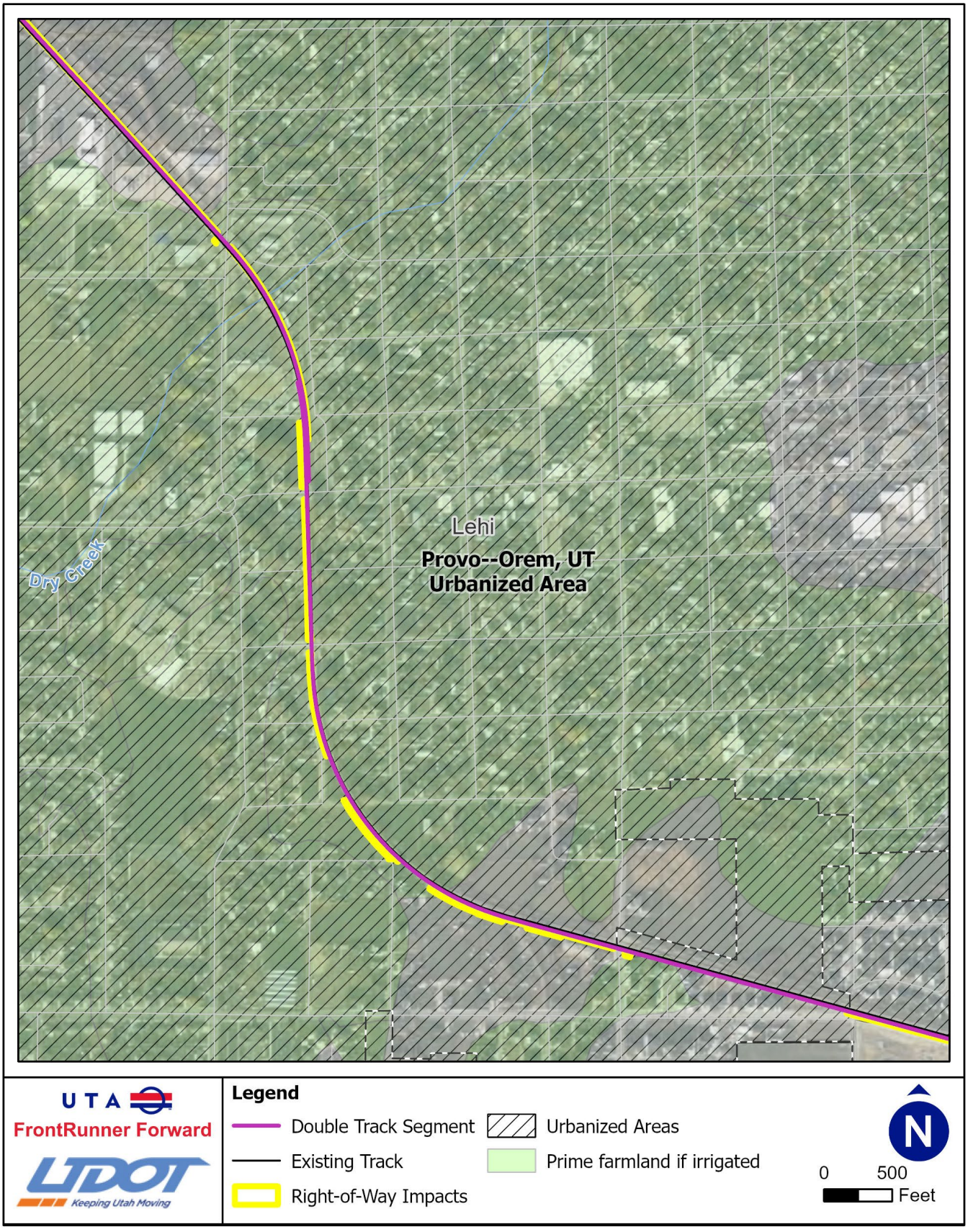


Figure 7. Urban Area Designations, 4 of 5

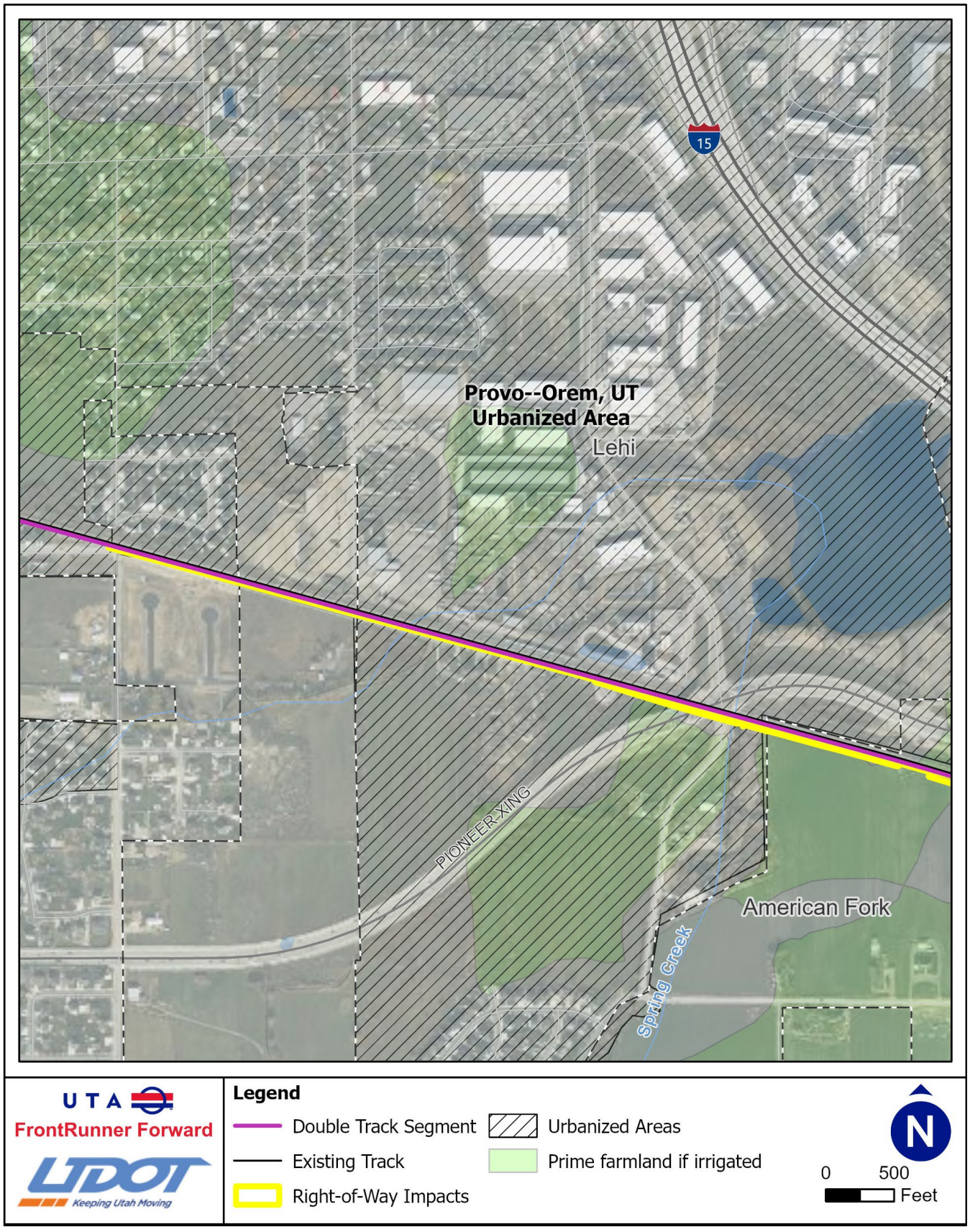


Figure 7. Urban Area Designations, 5 of 5

Figure 8. Floodplains, 1 of 2

Figure 8. Floodplains, 2 of 2

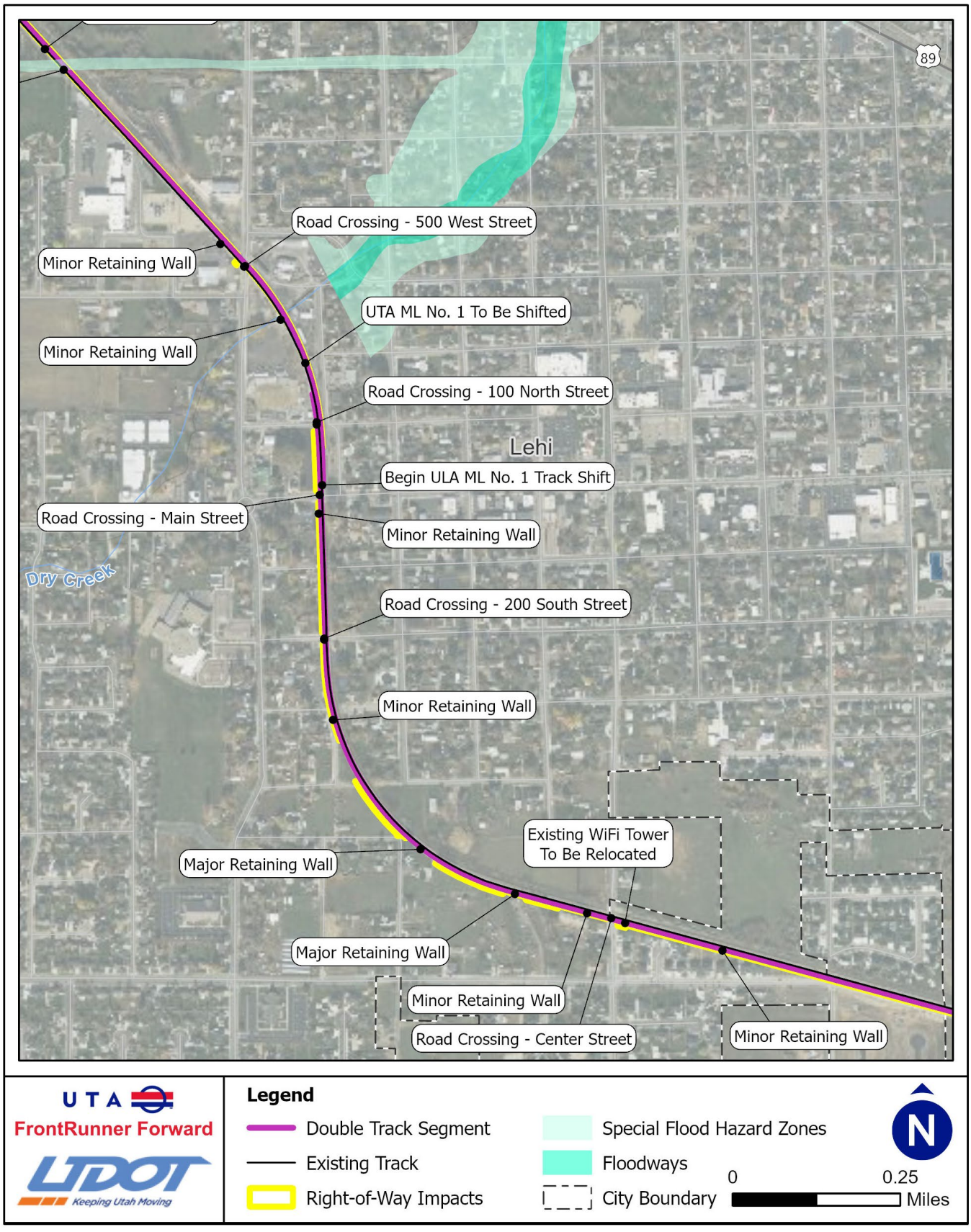


Figure 9. Wetlands and Waters of the U.S. in the Project Area, 1 of 6

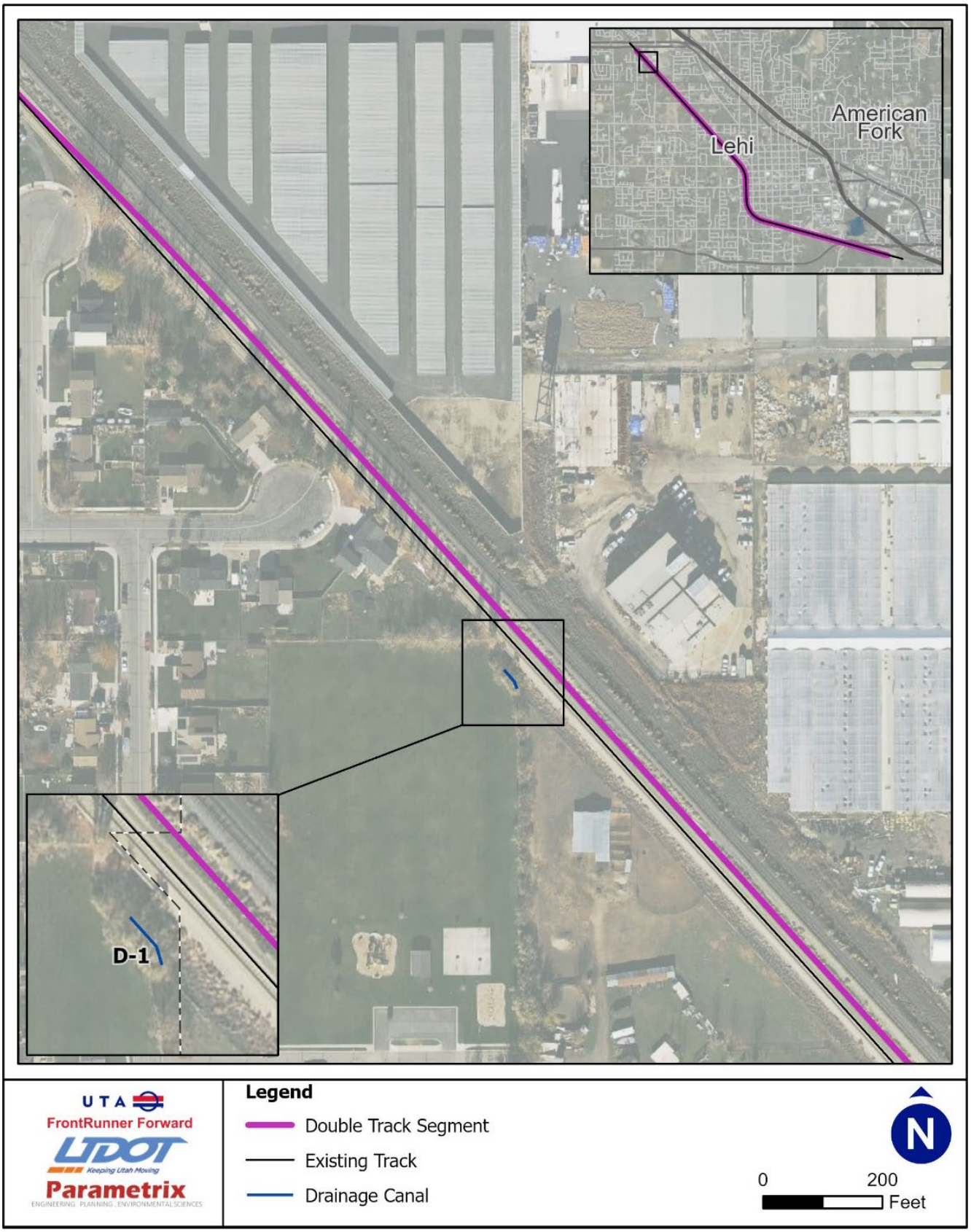


Figure 9. Wetlands and Waters of the U.S. in the Project Area, 2 of 6

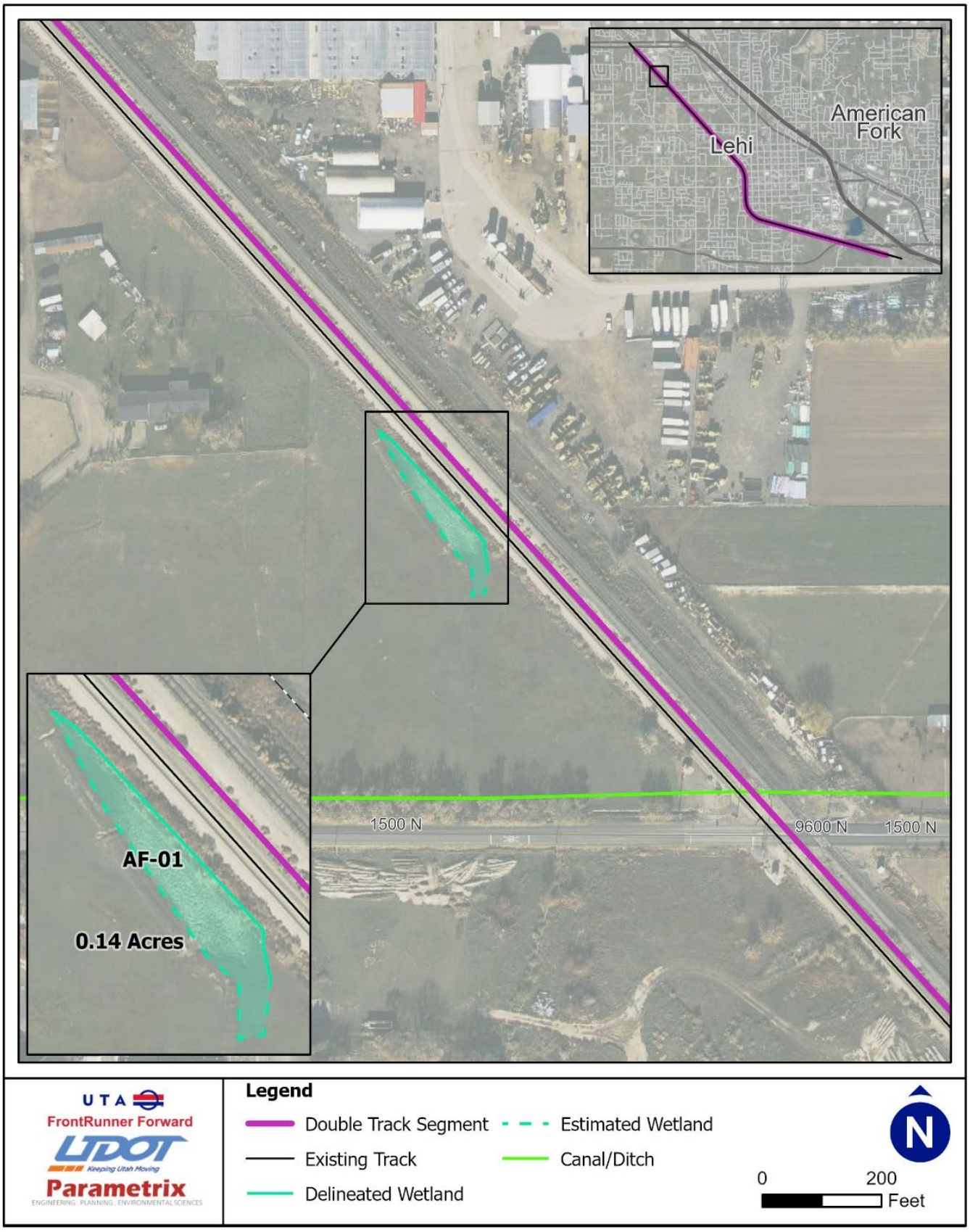


Figure 9. Wetlands and Waters of the U.S. in the Project Area, 3 of 6

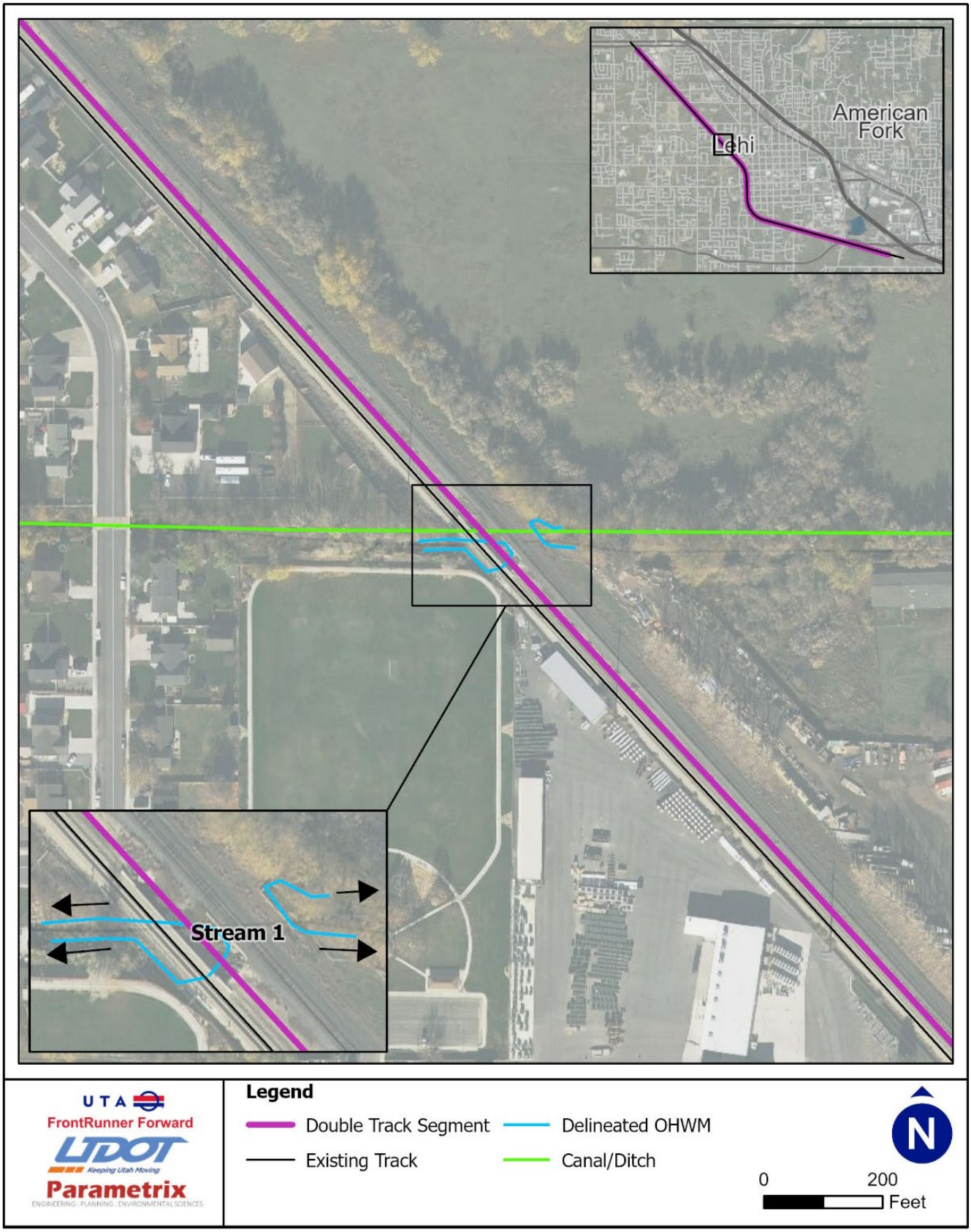


Figure 9. Wetlands and Waters of the U.S. in the Project Area, 4 of 6

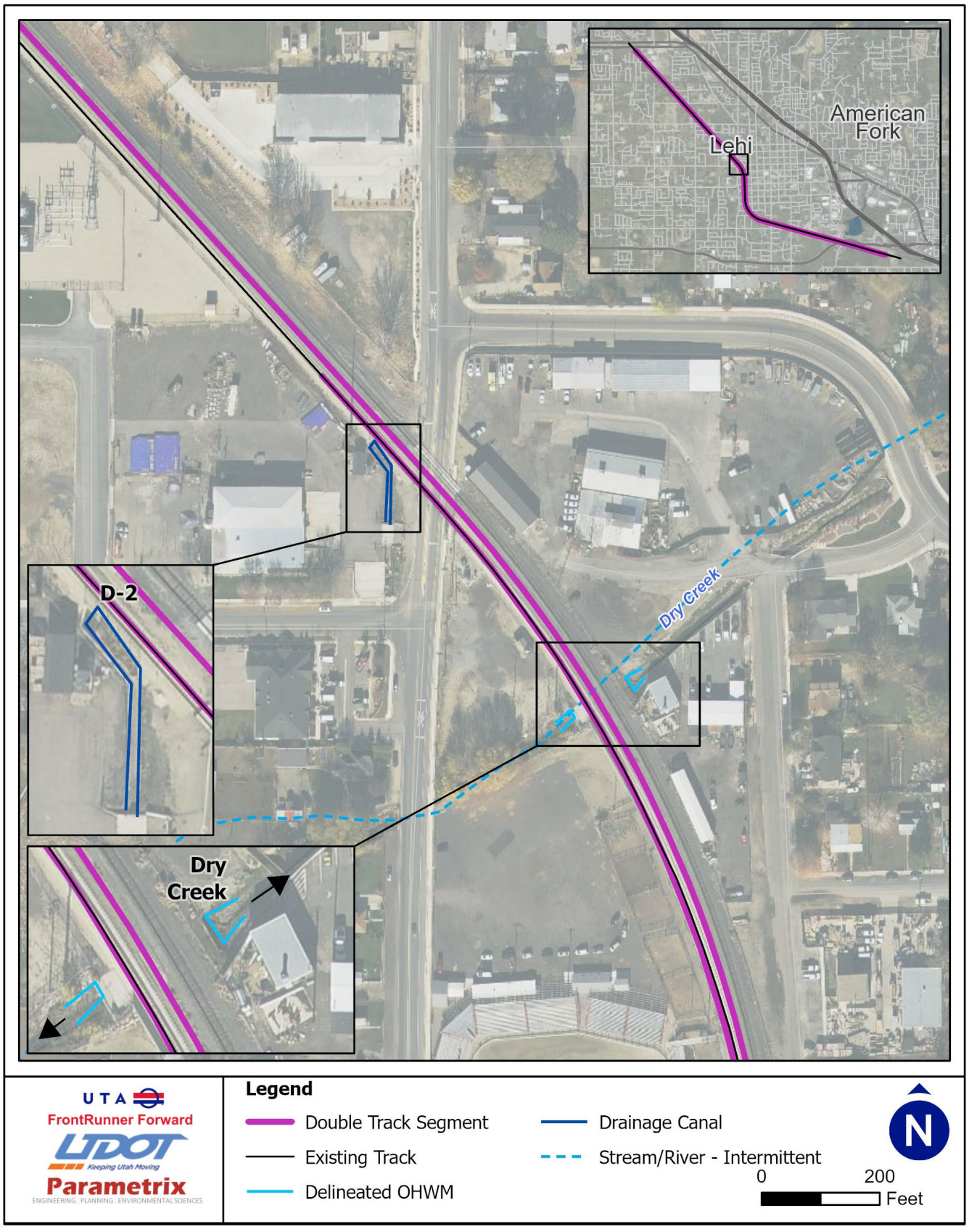


Figure 9. Wetlands and Waters of the U.S. in the Project Area, 5 of 6

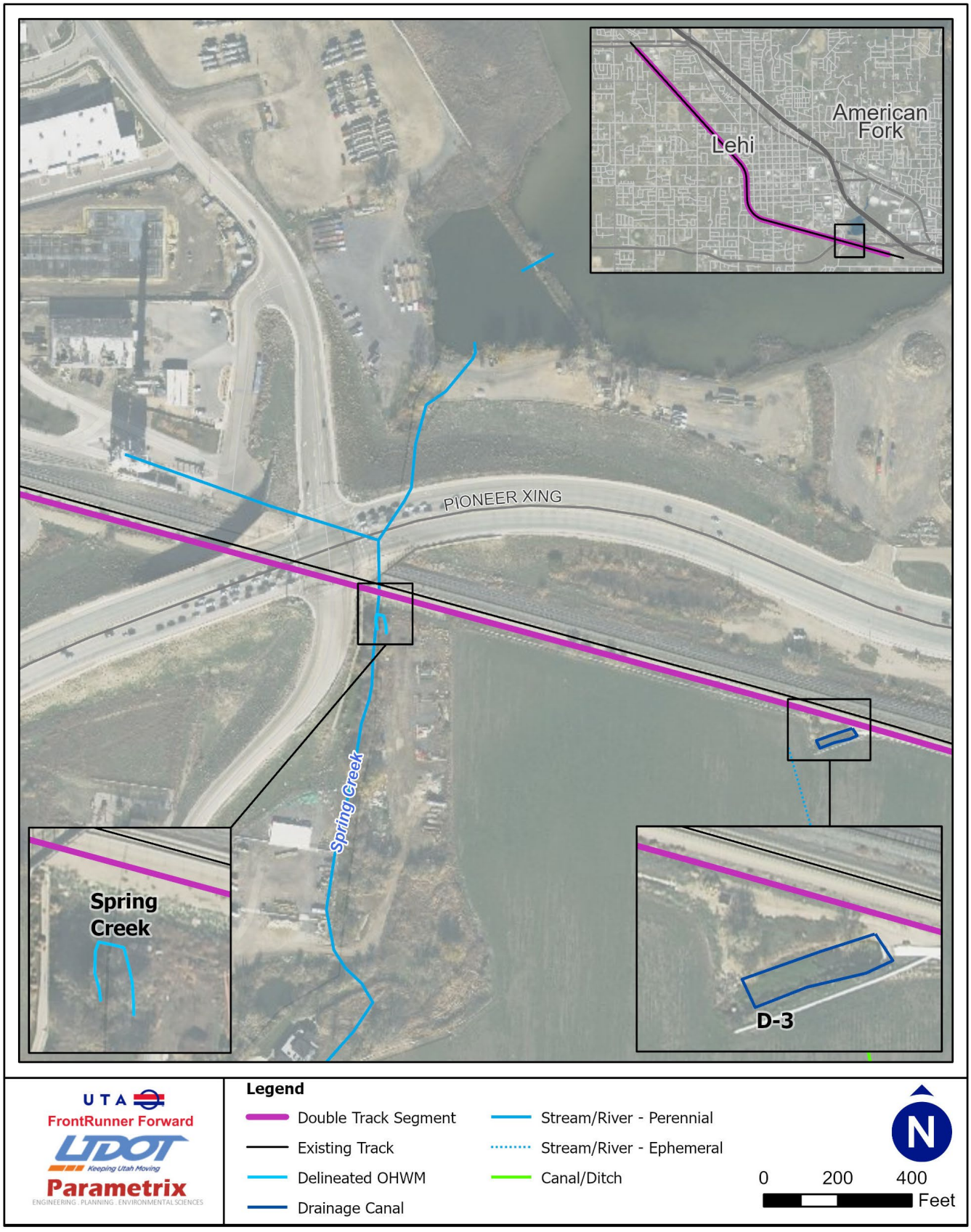
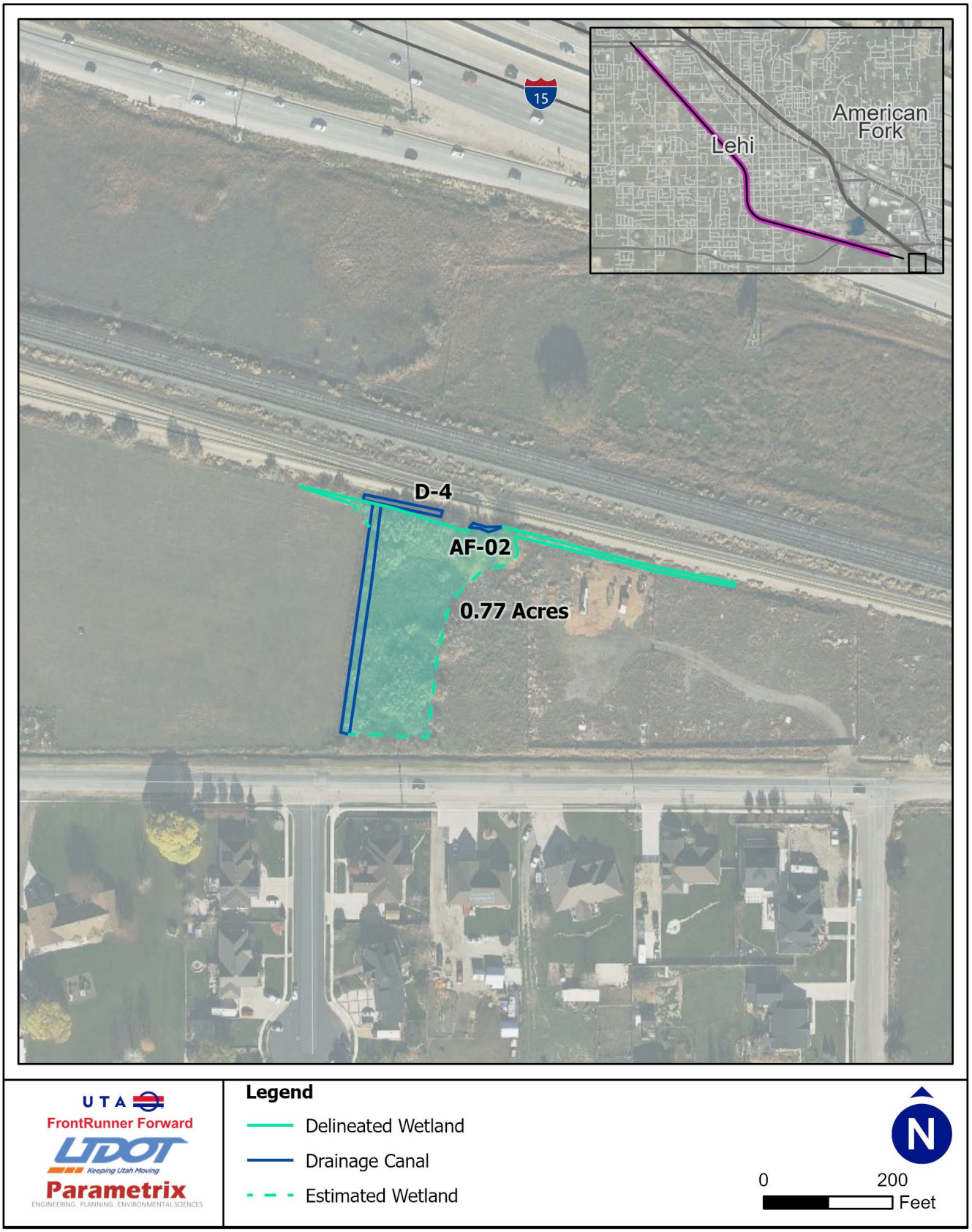
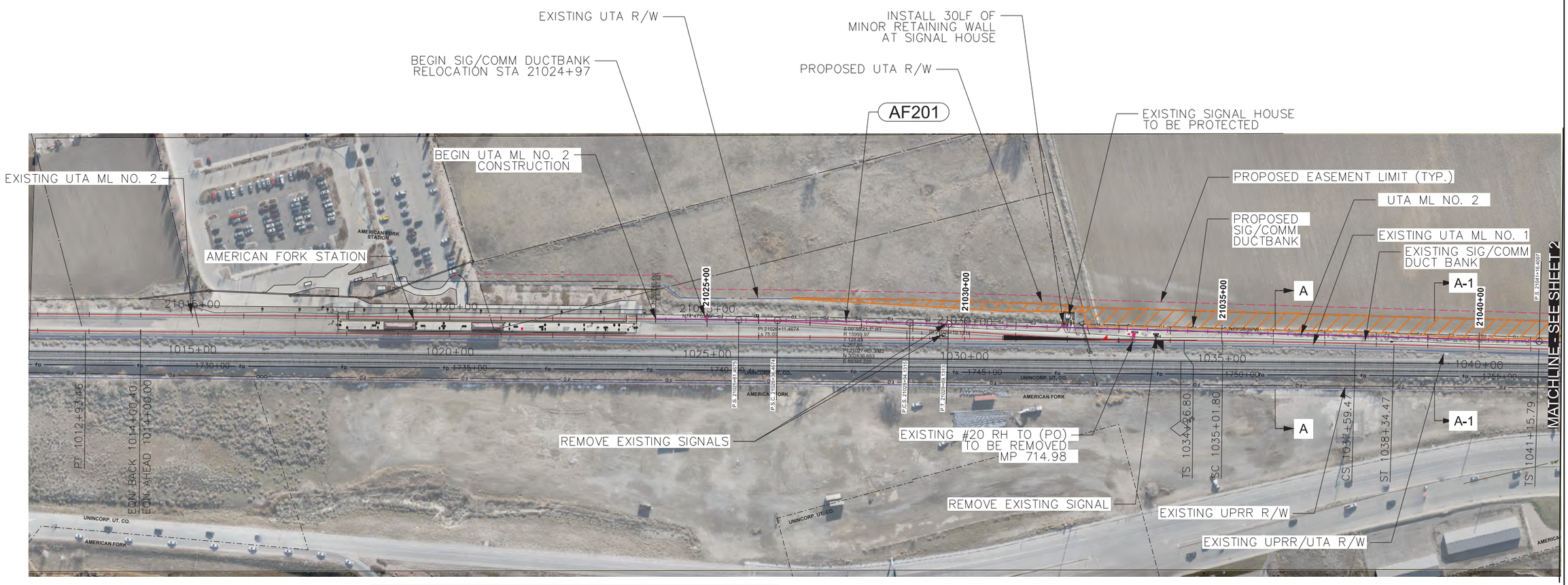


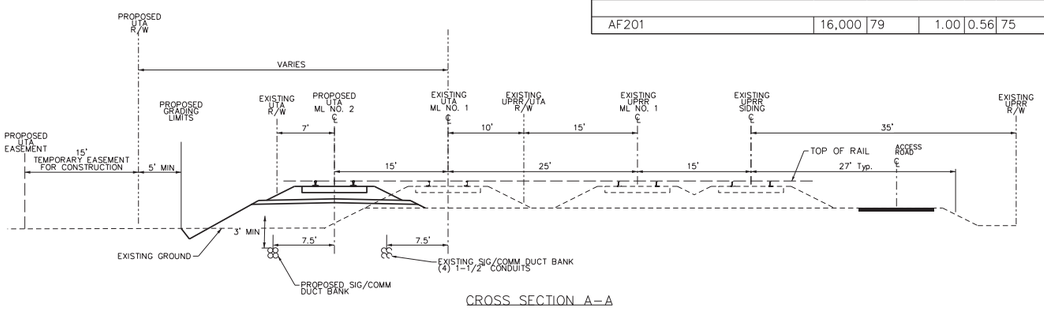
Figure 9. Wetlands and Waters of the U.S. in the Project Area, 6 of 6



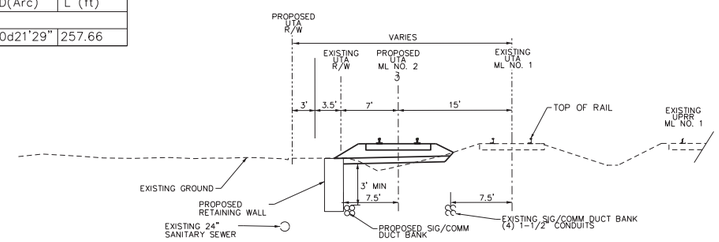
Attachment 2:
North of American Fork Double Track Project
Plan Set



CURVE DATA							
CURVE ID	RADIUS	SPEED	Ea	Eu	Ls (ft)	D(Arc)	L (ft)
AF201	16,000	79	1.00	0.56	75	0d21'29"	257.66



CROSS SECTION A–A
STA. 21036+04



CROSS SECTION A1–A1
WITH RETAINING WALL
STA. 21042+21

NOTES:

1. WHERE PROPOSED TRACKS ARE LESS THAN 6' FROM EXISTING TRACKS, A TRACK SHIFT IS ASSUMED. WHERE PROPOSED TRACKS ARE GREATER THAN 6' FROM EXISTING TRACKS, THEN NEW TRACK IS ASSUMED.

100 50 0 100 200
SCALE 1:100

- UTA PROPOSED TRACK
- UTA REMOVE TRACK
- UTA PROPOSED RETAINING WALL
- TEMPORARY CONSTRUCTION EASEMENT
- PROPOSED SANITARY SEWER LINE
- RIGHT–OF–WAY
- UTA PROPOSED R/W TAKE
- PUBLIC R/W IMPACTS

REV	DATE	DESCRIPTION

PRELIMINARY
25%
NOVEMBER 2022

Parametrix
ENGINEERING · PLANNING · ENVIRONMENTAL SCIENCES
700 NE MULTNOMAH, SUITE 1000 PORTLAND, OR 97232
P 503.233.2400
WWW.PARAMETRIX.COM
DAVID EVANS AND ASSOCIATES INC.

UDOT Keeping Utah Moving / UTA

CONTRACT NO.:

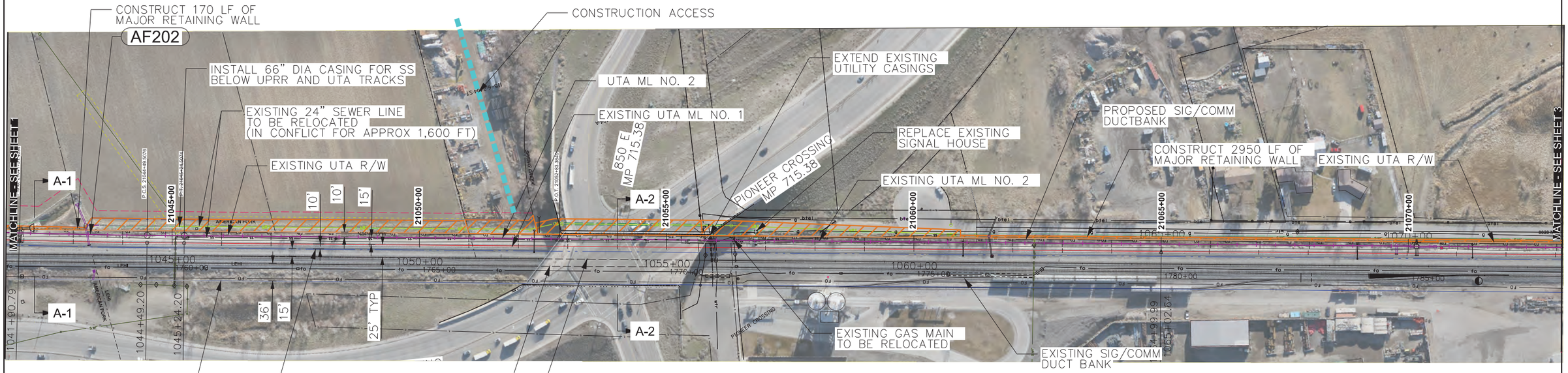
DESIGNED BY:
DRAWN BY:
CHECKED BY:
APPROVED BY:

NORTH OF AMERICAN FORK DOUBLE TRACK PROJECT

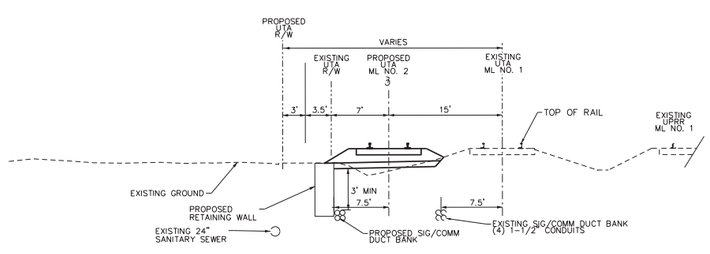
PLAN SHEET 1 OF 9

SCALE:
CADD FILENAME: AFAR1001–003.DGN
SUBMITTAL DATE
DRAWING No.: AFAR1001
SHEET No.:

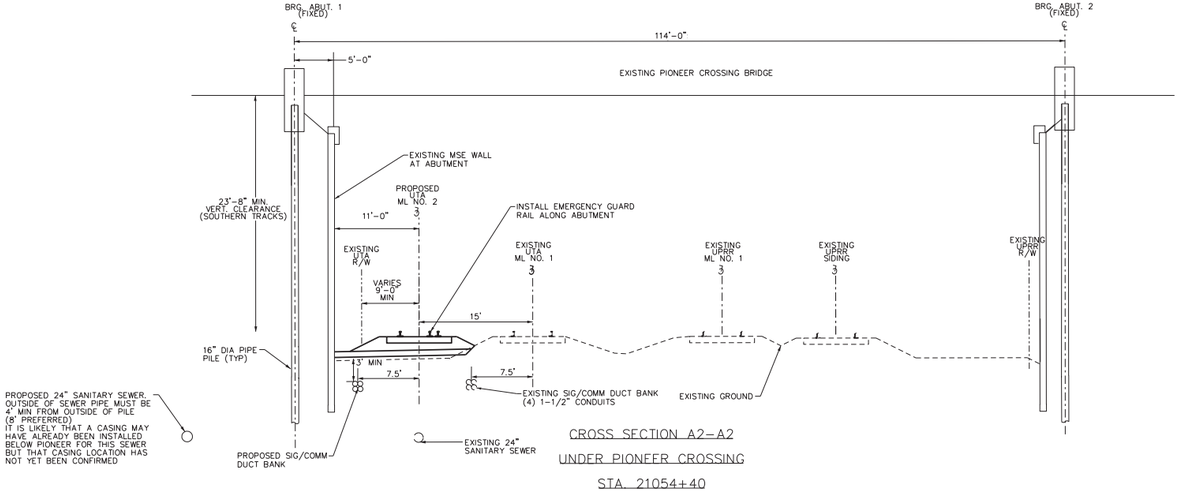
$User$ 11/1/2022 11:28:20 AM c:\pw_work\dea22\dms35462\AFAR1001-003-PLAN SHEETS.dgn



CURVE DATA							
CURVE ID	RADIUS	SPEED	Ea	Eu	Ls (ft)	D(Arc)	L (ft)
AF202	15,985	79	1.00	0.57	75	0d21'30"	258.10



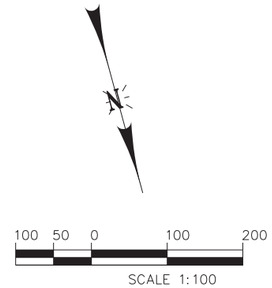
CROSS SECTION A1-A1
WITH RETAINING WALL
STA. 21042+21



CROSS SECTION A2-A2
UNDER PIONEER CROSSING
STA. 21054+40

NOTES:

1. WHERE PROPOSED TRACKS ARE LESS THAN 6' FROM EXISTING TRACKS, A TRACK SHIFT IS ASSUMED. WHERE PROPOSED TRACKS ARE GREATER THAN 6' FROM EXISTING TRACKS, THEN NEW TRACK IS ASSUMED.



- UTA PROPOSED TRACK
- UTA REMOVE TRACK
- UTA PROPOSED RETAINING WALL
- TEMPORARY CONSTRUCTION EASEMENT
- PROPOSED SANITARY SEWER LINE
- RIGHT-OF-WAY
- UTA PROPOSED R/W TAKE
- PUBLIC R/W IMPACTS

REV	DATE	DESCRIPTION

PRELIMINARY
25%
NOVEMBER 2022

Parametrix
ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES
700 NE MULTNOMAH, SUITE 1000 PORTLAND, OR 97232
P 503.233.2400
WWW.PARAMETRIX.COM
DAVID EVANS AND ASSOCIATES INC.

CONTRACT NO.:

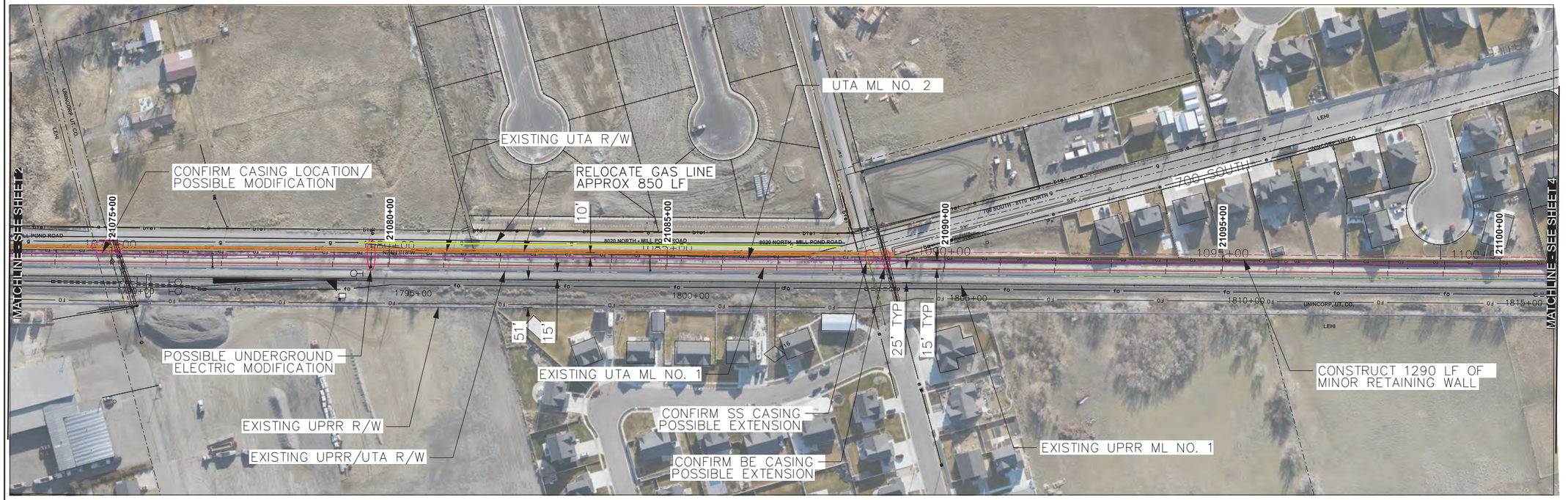
DESIGNED BY:
DRAWN BY:
CHECKED BY:
APPROVED BY:

NORTH OF AMERICAN FORK DOUBLE TRACK PROJECT

PLAN SHEET 2 OF 9

SCALE:
CADD FILENAME: AFAR1001-003.DGN
SUBMITTAL DATE
DRAWING No.: AFAR1001
SHEET No.:

$User$ 11/1/2022 11:39:07 AM c:\pw_work\dea22\dms354624\AFAR1001-003-PLAN SHEETS.dgn



100 50 0 100 200

SCALE 1:100

- UTA PROPOSED TRACK
- UTA REMOVE TRACK
- UTA PROPOSED RETAINING WALL
- TEMPORARY CONSTRUCTION EASEMENT
- PROPOSED SANITARY SEWER LINE
- RIGHT-OF-WAY
- UTA PROPOSED R/W TAKE
- PUBLIC R/W IMPACTS

NOTES:

1. WHERE PROPOSED TRACKS ARE LESS THAN 6' FROM EXISTING TRACKS, A TRACK SHIFT IS ASSUMED. WHERE PROPOSED TRACKS ARE GREATER THAN 6' FROM EXISTING TRACKS, THEN NEW TRACK IS ASSUMED.

REV	DATE	DESCRIPTION

PRELIMINARY
25%
NOVEMBER 2022

Parametrix
ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES
700 NE MULTNOMAH, SUITE 1000 PORTLAND, OR 97232
P 503.233.2400
WWW.PARAMETRIX.COM

DAVID EVANS AND ASSOCIATES INC.

UDOT Keeping Utah Moving / UTA

CONTRACT NO.:

DESIGNED BY:
DRAWN BY:
CHECKED BY:
APPROVED BY:

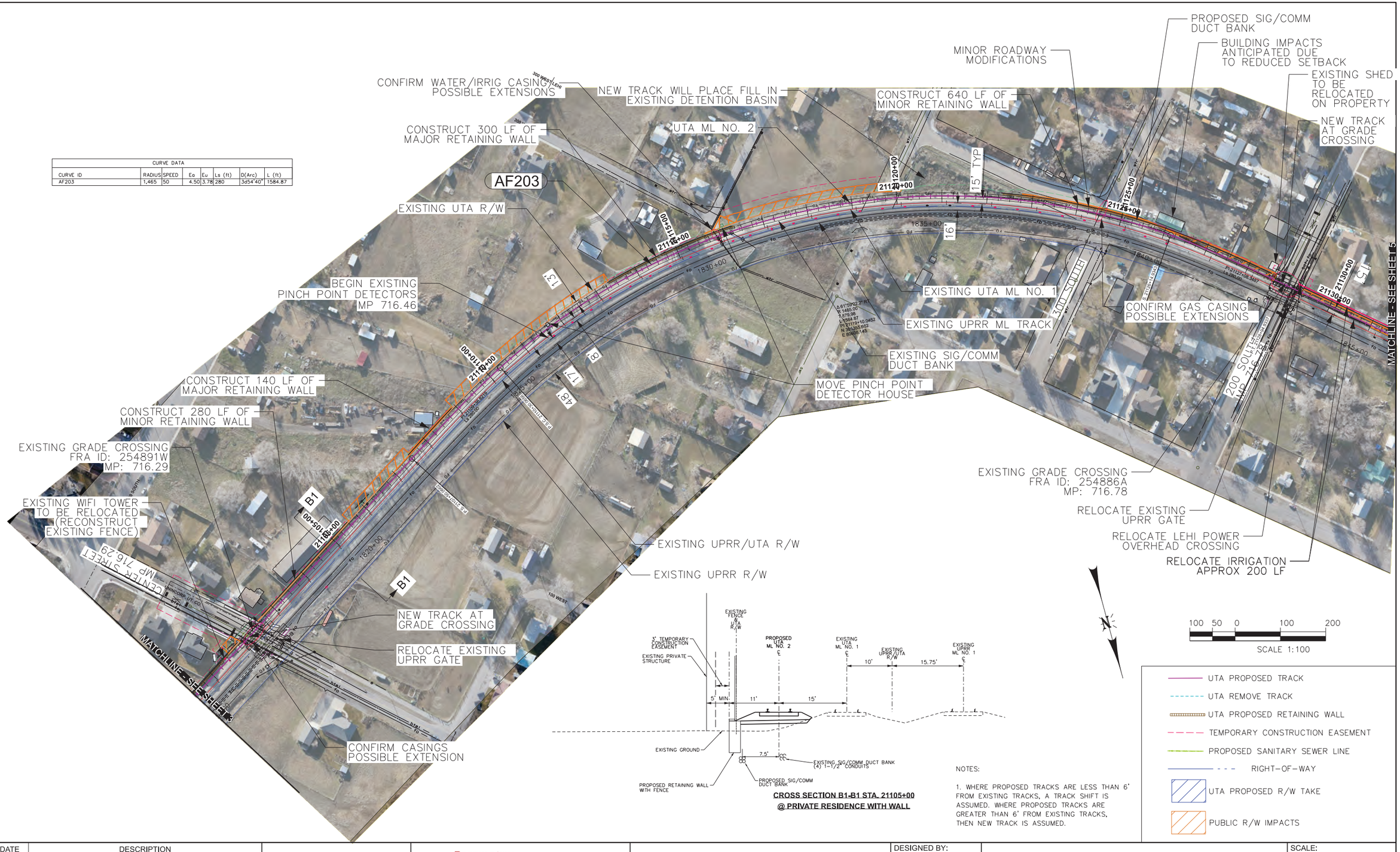
NORTH OF AMERICAN FORK DOUBLE TRACK PROJECT

PLAN SHEET 3 OF 9

SCALE:
CADD FILENAME: AFAR1001-003.DGN
SUBMITTAL DATE
DRAWING No.: AFAR1001
SHEET No.:

$User$ 11/1/2022 11:29:51 AM c:\pw_work\dea22\dms354624\AFAR1001-003-PLAN SHEETS.dgn

CURVE DATA							
CURVE ID	RADIUS	SPEED	Ea	Eu	Ls (ft)	D(Arc)	L (ft)
AF203	1,465	50	4.50	3.78	280	3d54'40"	1584.87



CROSS SECTION B1-B1 STA. 21105+00 @ PRIVATE RESIDENCE WITH WALL

NOTES:

1. WHERE PROPOSED TRACKS ARE LESS THAN 6' FROM EXISTING TRACKS, A TRACK SHIFT IS ASSUMED. WHERE PROPOSED TRACKS ARE GREATER THAN 6' FROM EXISTING TRACKS, THEN NEW TRACK IS ASSUMED.

- UTA PROPOSED TRACK
- UTA REMOVE TRACK
- UTA PROPOSED RETAINING WALL
- TEMPORARY CONSTRUCTION EASEMENT
- PROPOSED SANITARY SEWER LINE
- RIGHT-OF-WAY
- UTA PROPOSED R/W TAKE
- PUBLIC R/W IMPACTS

REV	DATE	DESCRIPTION

PRELIMINARY
25%
NOVEMBER 2022

Parametrix
ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES
700 NE MULTNOMAH, SUITE 1000 PORTLAND, OR 97232
P 503.233.2400
WWW.PARAMETRIX.COM

DAVID EVANS AND ASSOCIATES INC.

UDOT / UTA Keeping Utah Moving

CONTRACT NO.:

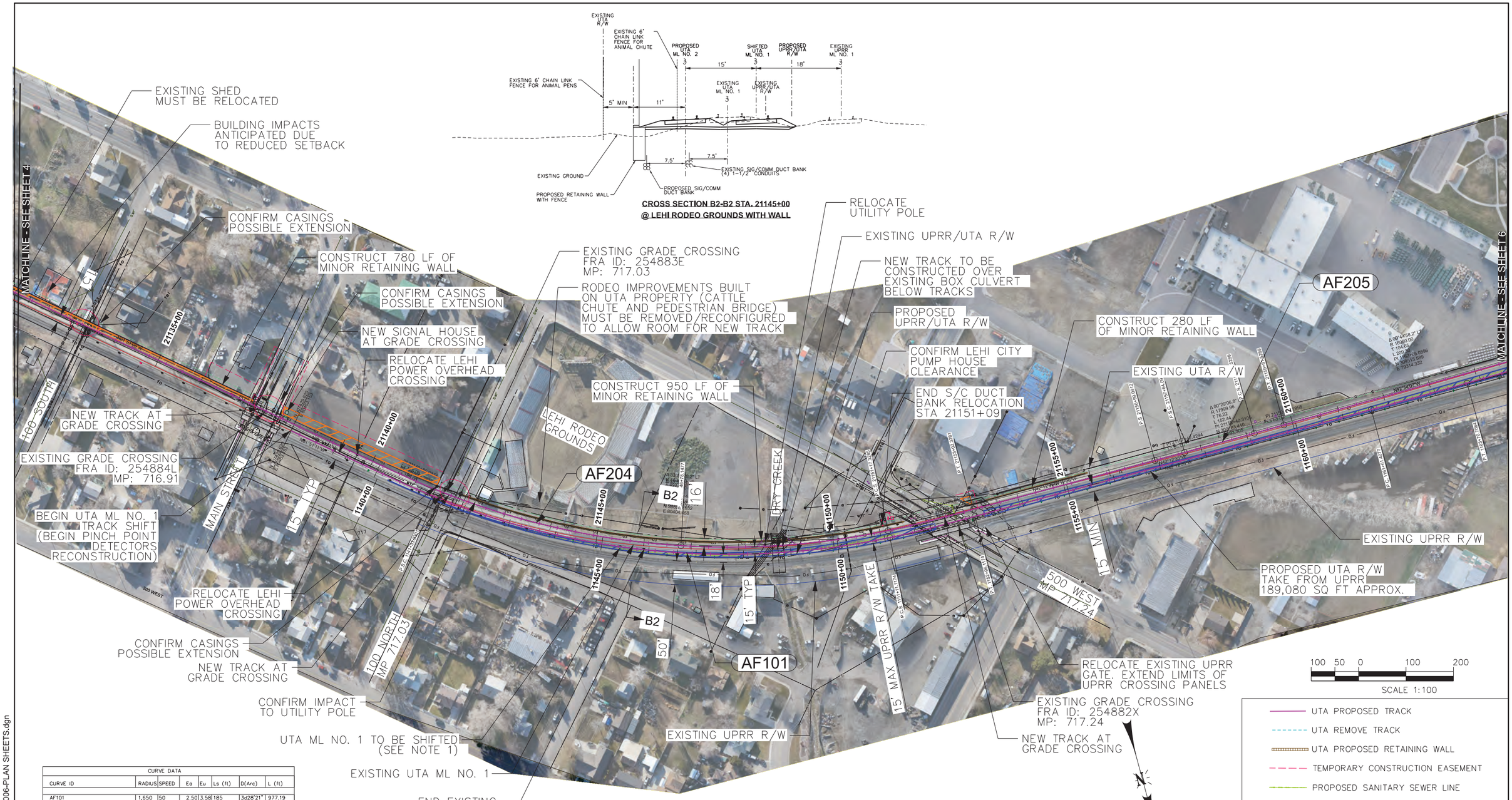
DESIGNED BY:
DRAWN BY:
CHECKED BY:
APPROVED BY:

NORTH OF AMERICAN FORK DOUBLE TRACK PROJECT

PLAN SHEET 4 OF 9

SCALE:
CADD FILENAME: AFAR1001-003.DGN
SUBMITTAL DATE
DRAWING No.: AFAR1001
SHEET No.:

$User$ 11/1/2022 11:31:08 AM c:\pw_work\dea22dms35462\AFAR1004-006-PLAN SHEETS.dgn



CROSS SECTION B2-B2 STA. 21145+00 @ LEHI RODEO GROUNDS WITH WALL

CURVE DATA							
CURVE ID	RADIUS	SPEED	Ea	Eu	Ls (ft)	D(Arc)	L (ft)
AF101	1,650	50	2.50	3.58	185	3d28'21"	977.19
AF204	1,635	50	2.50	3.63	185	3d30'16"	966.65
AF205	18,000	79	1.00	0.39	65	0d19'6"	152.44

100 50 0 100 200
SCALE 1:100

- UTA PROPOSED TRACK
- UTA REMOVE TRACK
- UTA PROPOSED RETAINING WALL
- TEMPORARY CONSTRUCTION EASEMENT
- PROPOSED SANITARY SEWER LINE
- RIGHT-OF-WAY
- UTA PROPOSED R/W TAKE
- PUBLIC R/W IMPACTS

NOTES:

1. WHERE PROPOSED TRACKS ARE LESS THAN 6' FROM EXISTING TRACKS, A TRACK SHIFT IS ASSUMED. WHERE PROPOSED TRACKS ARE GREATER THAN 6' FROM EXISTING TRACKS, THEN NEW TRACK IS ASSUMED.

REV	DATE	DESCRIPTION

PRELIMINARY
25%
NOVEMBER 2022

Parametrix
ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES
700 NE MULTNOMAH, SUITE 1000 PORTLAND, OR 97232
P 503.233.2400
WWW.PARAMETRIX.COM
DAVID EVANS AND ASSOCIATES INC.

UDOT Keeping Utah Moving / UTA

CONTRACT NO.:

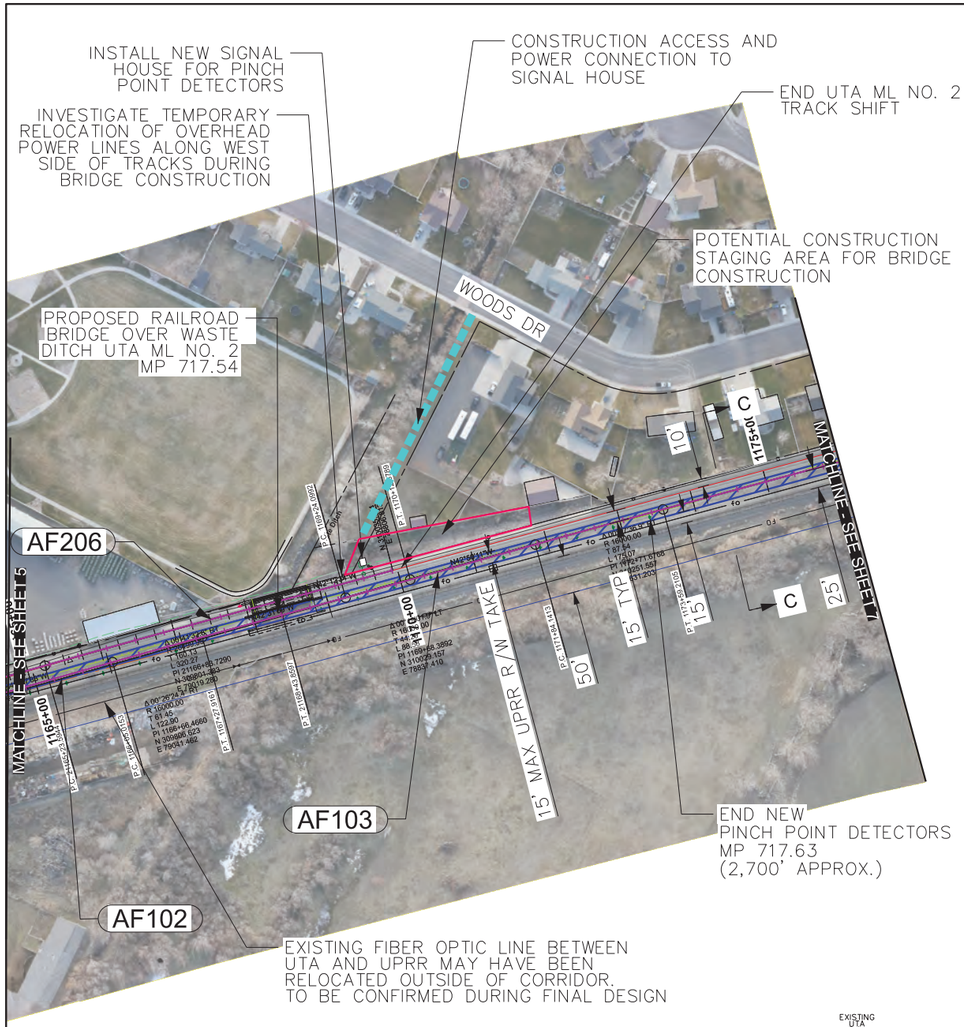
DESIGNED BY:
DRAWN BY:
CHECKED BY:
APPROVED BY:

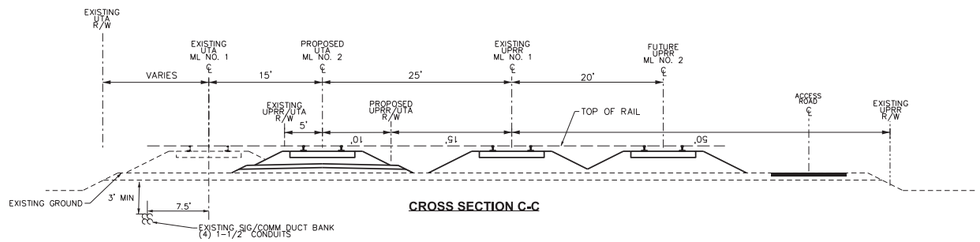
NORTH OF AMERICAN FORK DOUBLE TRACK PROJECT

PLAN SHEET 5 OF 9

SCALE:
CADD FILENAME: AFAR1001-003.DGN
SUBMITTAL DATE
DRAWING No.: AFAR1001
SHEET No.:

$User$ 11/1/2022 11:32:45 AM c:\pw_work\dea22\dms35462\AFAR1004-006-PLAN SHEETS.dgn





CROSS SECTION C-C

NOTES:

1. WHERE PROPOSED TRACKS ARE LESS THAN 6' FROM EXISTING TRACKS, A TRACK SHIFT IS ASSUMED. WHERE PROPOSED TRACKS ARE GREATER THAN 6' FROM EXISTING TRACKS, THEN NEW TRACK IS ASSUMED.

100 50 0 100 200

SCALE 1:100

- UTA PROPOSED TRACK
- UTA REMOVE TRACK
- UTA PROPOSED RETAINING WALL
- TEMPORARY CONSTRUCTION EASEMENT
- PROPOSED SANITARY SEWER LINE
- RIGHT-OF-WAY
- UTA PROPOSED R/W TAKE
- PUBLIC R/W IMPACTS

REV	DATE	DESCRIPTION

PRELIMINARY
25%
NOVEMBER 2022

Parametrix
ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES
700 NE MULTNOMAH, SUITE 1000 PORTLAND, OR 97232
P 503.233.2400
WWW.PARAMETRIX.COM

DAVID EVANS AND ASSOCIATES INC.

CONTRACT NO.:

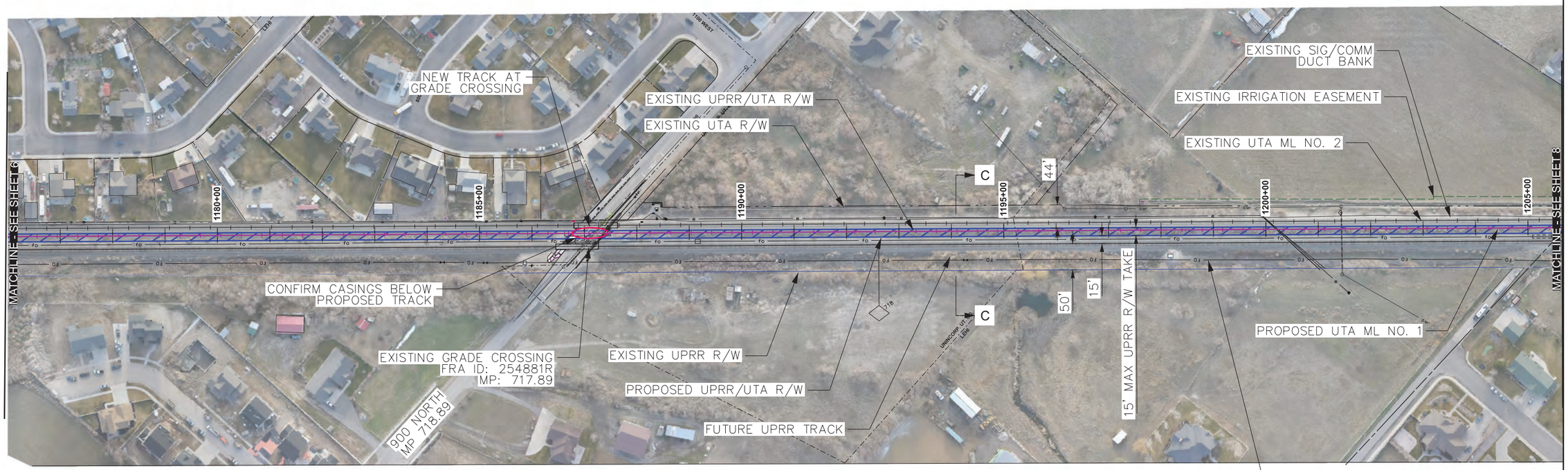
DESIGNED BY:
DRAWN BY:
CHECKED BY:
APPROVED BY:

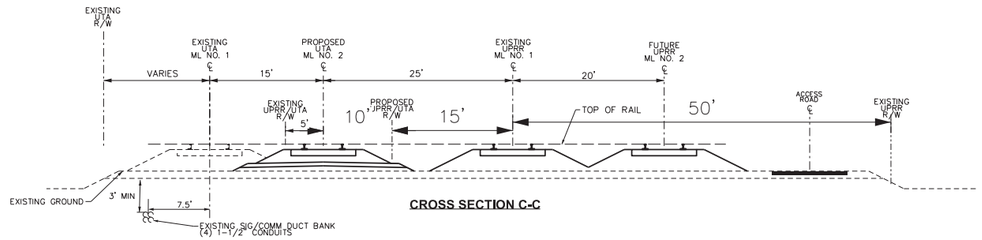
NORTH OF AMERICAN FORK DOUBLE TRACK PROJECT

PLAN SHEET 6 OF 9

SCALE:
CADD FILENAME: AFAR1001-003.DGN
SUBMITTAL DATE
DRAWING No.: AFAR1001
SHEET No.:

$User$ 11/1/2022 11:33:19 AM c:\pw_work\dea22\dms354624\AFAR1004-006-PLAN SHEETS.dgn





CROSS SECTION C-C

100 50 0 100 200

SCALE 1:100

- UTA PROPOSED TRACK
- UTA REMOVE TRACK
- UTA PROPOSED RETAINING WALL
- TEMPORARY CONSTRUCTION EASEMENT
- PROPOSED SANITARY SEWER LINE
- RIGHT-OF-WAY
- UTA PROPOSED R/W TAKE
- PUBLIC R/W IMPACTS

NOTES:

1. WHERE PROPOSED TRACKS ARE LESS THAN 6' FROM EXISTING TRACKS, A TRACK SHIFT IS ASSUMED. WHERE PROPOSED TRACKS ARE GREATER THAN 6' FROM EXISTING TRACKS, THEN NEW TRACK IS ASSUMED.

REV	DATE	DESCRIPTION

PRELIMINARY
25%
NOVEMBER 2022

Parametrix
ENGINEERING | PLANNING | ENVIRONMENTAL SCIENCES
700 NE MULTNOMAH, SUITE 1000 |PORTLAND, OR 97232
P 503.233.2400
WWW.PARAMETRIX.COM

DAVID EVANS AND ASSOCIATES INC.

UDOT Keeping Utah Moving / UTA

CONTRACT NO.:

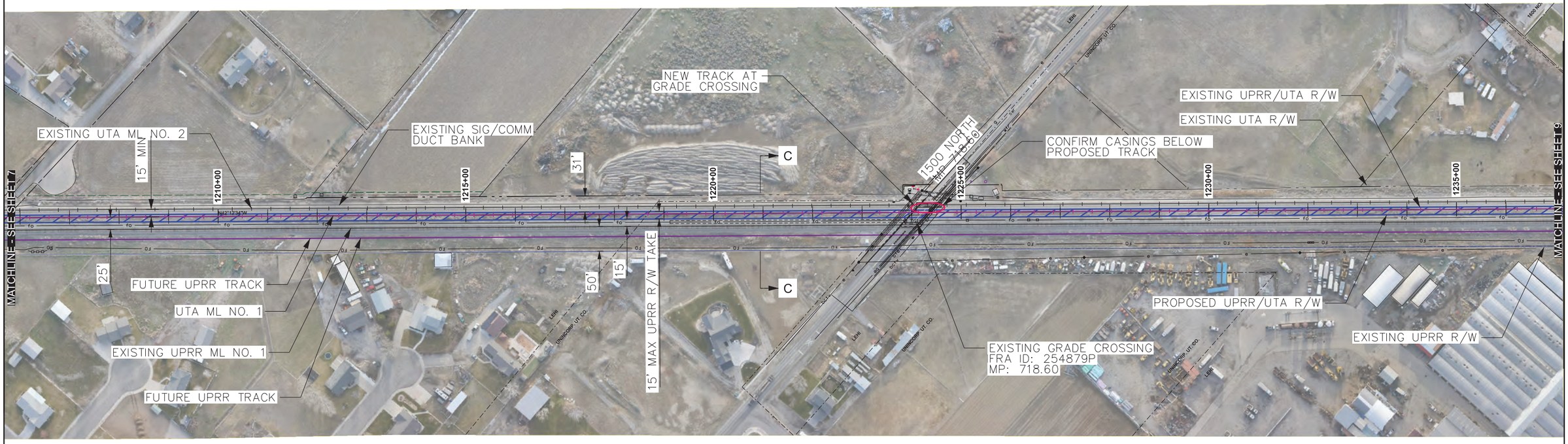
DESIGNED BY:
DRAWN BY:
CHECKED BY:
APPROVED BY:

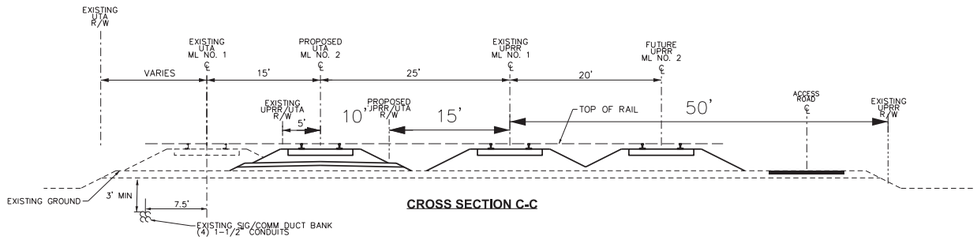
NORTH OF AMERICAN FORK DOUBLE TRACK PROJECT

PLAN SHEET 7 OF 9

SCALE:
CADD FILENAME: AFAR1001-003.DGN
SUBMITTAL DATE
DRAWING No.: AFAR1001
SHEET No.:

$User$ 11/1/2022 11:34:13 AM c:\pw_work\dea22\dms354462\AFAR1007-009-PLAN SHEETS.dgn





CROSS SECTION C-C

100 50 0 100 200

SCALE 1:100

UTA PROPOSED TRACK
UTA REMOVE TRACK
UTA PROPOSED RETAINING WALL
TEMPORARY CONSTRUCTION EASEMENT
PROPOSED SANITARY SEWER LINE
RIGHT-OF-WAY
UTA PROPOSED R/W TAKE
PUBLIC R/W IMPACTS

NOTES:

1. WHERE PROPOSED TRACKS ARE LESS THAN 6' FROM EXISTING TRACKS, A TRACK SHIFT IS ASSUMED. WHERE PROPOSED TRACKS ARE GREATER THAN 6' FROM EXISTING TRACKS, THEN NEW TRACK IS ASSUMED.

REV	DATE	DESCRIPTION

PRELIMINARY
25%
NOVEMBER 2022

Parametrix
ENGINEERING , PLANNING , ENVIRONMENTAL SCIENCES
700 NE MULTNOMAH, SUITE 1000 PORTLAND, OR 97232
P 503.233.2400
WWW.PARAMETRIX.COM
DAVID EVANS AND ASSOCIATES INC.

UDOT Keeping Utah Moving / UTA

CONTRACT NO.:

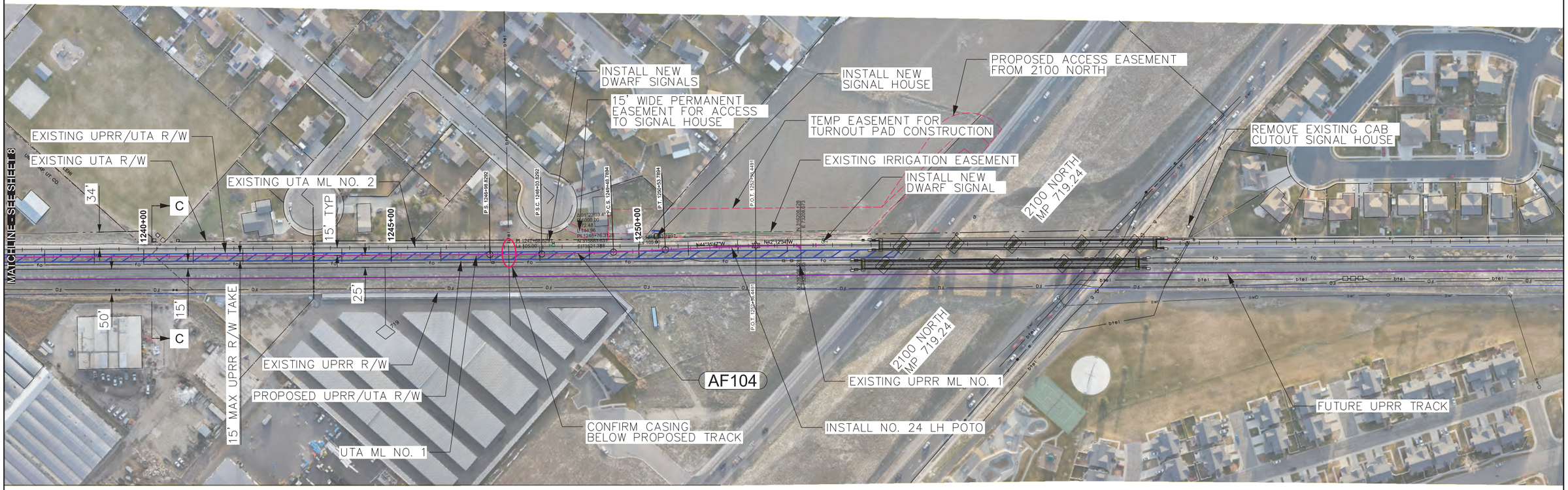
DESIGNED BY:
DRAWN BY:
CHECKED BY:
APPROVED BY:

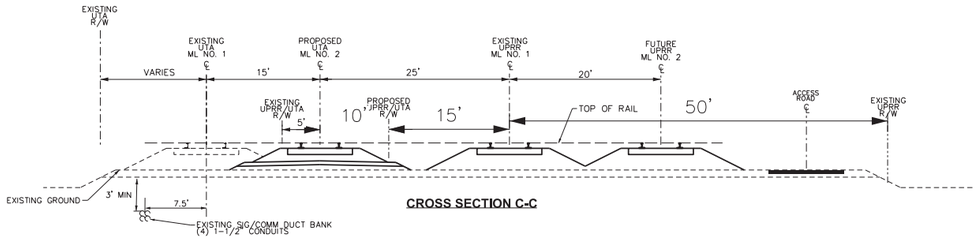
NORTH OF AMERICAN FORK DOUBLE TRACK PROJECT

PLAN SHEET 8 OF 9

SCALE:
CADD FILENAME: AFAR1001-003.DGN
SUBMITTAL DATE
DRAWING No.: AFAR1001
SHEET No.:

$User$ 11/1/2022 11:34:49 AM c:\pw_work\dea22\dms354624\AFAR1007-009-PLAN SHEETS.dgn





CROSS SECTION C-C

100 50 0 100 200

SCALE 1:100

- UTA PROPOSED TRACK
- UTA REMOVE TRACK
- UTA PROPOSED RETAINING WALL
- TEMPORARY CONSTRUCTION EASEMENT
- PROPOSED SANITARY SEWER LINE
- RIGHT-OF-WAY
- UTA PROPOSED R/W TAKE
- PUBLIC R/W IMPACTS

NOTES:

1. WHERE PROPOSED TRACKS ARE LESS THAN 6' FROM EXISTING TRACKS, A TRACK SHIFT IS ASSUMED. WHERE PROPOSED TRACKS ARE GREATER THAN 6' FROM EXISTING TRACKS, THEN NEW TRACK IS ASSUMED.

REV	DATE	DESCRIPTION

PRELIMINARY
25%
NOVEMBER 2022

Parametrix
ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES
700 NE MULTNOMAH, SUITE 1000 PORTLAND, OR 97232
P 503.233.2400
WWW.PARAMETRIX.COM
DAVID EVANS AND ASSOCIATES INC.

UDOT / UTA

CONTRACT NO.:

DESIGNED BY:	
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	

NORTH OF AMERICAN FORK DOUBLE TRACK PROJECT

PLAN SHEET 9 OF 9

SCALE:	
CADD FILENAME:	AFAR1001-003.DGN
SUBMITTAL DATE	
DRAWING No.:	AFAR1001
SHEET No.:	

$User$
11/1/2022 11:41:50 AM
c:\pw_work\dea22\dms35462\AFAR1007-009-PLAN SHEETS.dgn

Attachment 3:
North of American Fork Double Track Project
Section 106 Consultation

Per the Archaeological Resources Protection Act (ARPA) and guidance from the Utah State Historic Preservation Office (SHPO), archaeological site information has been redacted to protect sensitive cultural resources.

Attachment 4:
North of American Fork Double Track Project
Section 4(f) Evaluation

North of American Fork Double Track Segment

Section 4(f) Evaluation

The Utah Transit Authority (UTA) is proposing to construct a new double-track segment along approximately 5 miles of existing single-track FrontRunner commuter rail line from the FrontRunner American Fork Station at the east and south end of the alignment to the crossing at 2100 North at the west and north (the Project) in Utah County, Utah (see Figure 1). This segment runs parallel to the existing Union Pacific (UP) rail corridor to the north. The Project would improve reliability and reduce delays of the FrontRunner service.

UTA intends to apply for federal funds administered by the Federal Transit Administration (FTA), making the Project subject to the requirements of Section 4(f) of the Department of Transportation Act of 1966. Section 4(f) and its implementing regulations, defined at 23 Code of Federal Regulations (CFR) Part 774, protects certain properties, including parks and recreational properties. This evaluation supports UTA and FTA as they comply with 4(f) requirements.

Section 4(f)

Section 4(f) of the U.S. Department of Transportation Act of 1966 affords special protection to publicly owned parks, recreational resources, wildlife and waterfowl refuges, and publicly or privately owned historic sites. Use of a Section 4(f) property occurs when: (1) land is permanently incorporated into a transportation facility; (2) there is a temporary occupancy of land that is adverse in terms of the statute's preservation purpose, or (3) there is a constructive use (the project's impacts are so severe that the protected activities, features, or attributes of an adjacent property are substantially impaired).

Lehi Round-Up Rodeo Grounds Activities, Features, and Attributes

The Project area is adjacent to the Lehi Round-Up Rodeo Grounds, which is a Lehi City-owned facility that hosts rodeo events and related activities and qualifies as a Section 4(f) resource. In addition to the yearly Professional Rodeo Cowboys Association rodeo (the Lehi Round-Up Rodeo), the rodeo grounds are periodically used by civic and private groups such as 4-H and riding clubs. The rodeo grounds help support the western heritage that is deeply engrained in Lehi, while maintaining a space for the community.

The property has a permanent arena surrounded by bleachers, livestock pens, staging areas, and various other facilities related to rodeo events and competitions. The grounds also hold a variety of support buildings as well as adjacent areas for loading and unloading livestock and equipment and accommodating various activities. There are several access points to the rodeo grounds, including a gated crossing of the railroad on 100 N, which is periodically opened by UTA in coordination with Lehi City to accommodate events.

There are some adjacent rodeo-related features that have been constructed within UTA's existing right-of-way, including site fencing, paddock fencing, a cattle chute, a portion of the restroom building, and a portion of the pedestrian bridge. These features were developed under a lease agreement with UTA that expires March 31 of each year. UTA's right-of-way is for transportation purposes and does not constitute a Section 4(f) resource.

To the south of the rodeo grounds and south of 100 N is a separate parcel owned by the Lehi City that is occasionally used as overflow parking for rodeo events. This parcel is not part of the Rodeo Grounds

property and Lehi City has confirmed that this parcel is not within the jurisdiction of the Lehi City Parks Division. While it is not used for any other formal events other than the rodeo, it is open and available for use by the public; it does not involve park or recreational activities as its primary purpose. Therefore, the parking lot does not qualify as a Section 4(f) resource.

Project Effects to Lehi Round-Up Rodeo Grounds Activities, Features, and Attributes

Figure 2 shows the Project actions in the vicinity of the Lehi Round-Up Rodeo Grounds. In order to construct the second track, UTA would need to acquire property beyond its existing right-of-way. However, the Project would not involve any temporary or permanent acquisition or occupation of the Section 4(f) property. There would be a strip of property required from the separate parcel to the south of the Lehi Round-Up Rodeo Grounds and 100 N, which is not a Section 4(f) property, and which is occasionally used as overflow parking for rodeo events.

Currently, there are several rodeo-related features within the existing UTA right-of-way. These include stock holding pens, fencing, a return alley used to move stock to the arena, and part of a footbridge over the return alley that allows spectators to cross over the stock pens. The pens, fencing, return alley, and staircase will be relocated or modified to be out of UTA's right-of-way prior to project construction. The lease agreement expires March 31 of each year. UTA plans to amend the lease agreement to exclude the portion of the UTA right-of-way that would be needed for the project. This lease amendment would be initiated when the lease expires in March of the year prior to construction. UTA has been in coordination with Lehi City and the Lehi Round-Up Rodeo Committee, a volunteer group that operates the rodeo, about relocating the rodeo-related facilities after the annual rodeo event and prior to construction of the proposed FrontRunner improvements to avoid disruptions to the annual rodeo.

In addition, the majority of the construction activities in this area would pause for one week during the annual rodeo event due to the anticipated high attendance to this event. All existing street access to the Lehi Round-Up Rodeo Grounds would be maintained during the annual rodeo event.

Determination of Use

The project would have no use of Section 4(f) resources. The minor reduction of overflow parking on the parcel to the south of the Rodeo Grounds would not be considered a Section 4(f) use or an impairment to rodeo activities because overflow parking would still be available and parking supply remains available in other locations, including on nearby city streets.

During final design and construction planning, UTA would coordinate with Lehi City and the Lehi Round-Up Rodeo Committee to relocate rodeo improvements from the UTA right-of-way and to coordinate other construction activities to avoid access or logistical impacts to rodeo operations or events. With these measures in place, there would be no permanent or temporary impacts from the Project that would adversely affect the activities, features, and attributes that qualify the rodeo grounds as a Section 4(f) resource.

Figure 1: Project and Vicinity

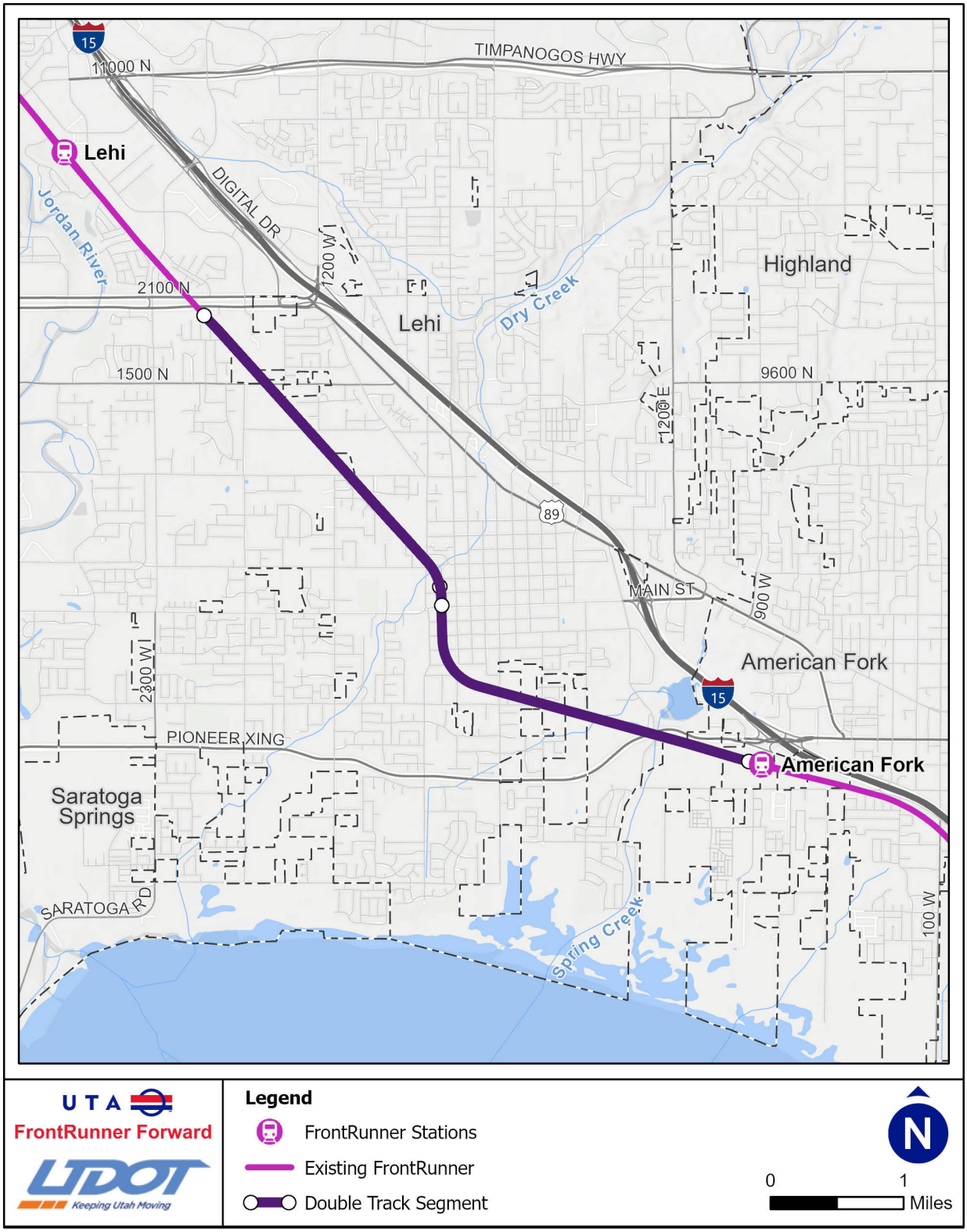
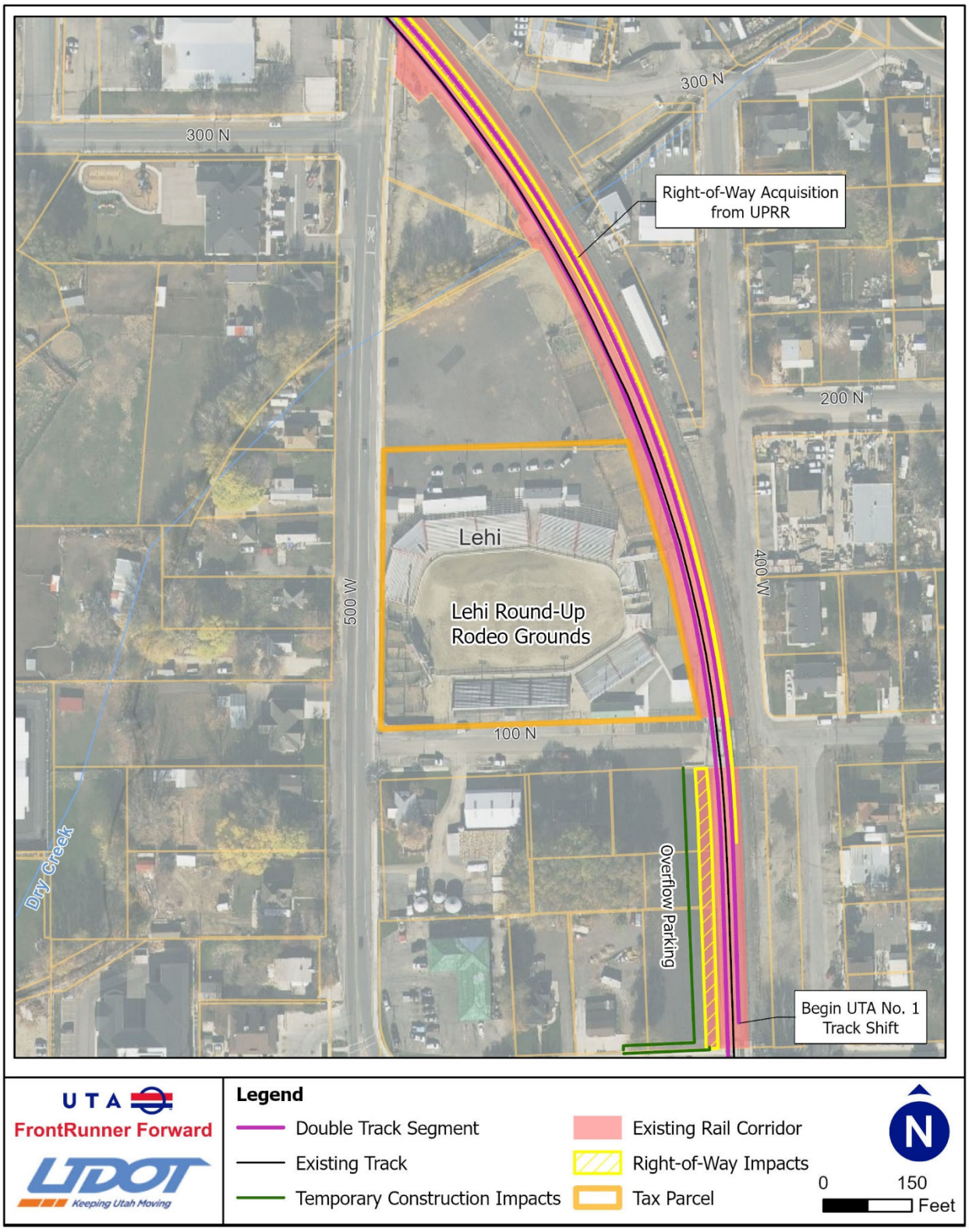


Figure 2: Project Impacts Adjacent to Lehi Round-Up Rodeo Grounds



Attachment 5:
North of American Fork Double Track Project
Noise and Vibration Assessment

FrontRunner Forward Technical Memorandum

To: Daryl Wendle, Parametrix

From: Lance Meister, Cross-Spectrum Acoustics, Inc.

Date: November, 2022

Subject: North of American Fork Double Track Project Noise and Vibration Assessment

Summary

The purpose of this memorandum is to summarize the noise and vibration impact assessment of the North of American Fork Double Track Project (the Project), which extends the American Fork Siding from its current location at the American Fork FrontRunner Station at the south and east end of the alignment to the crossing at 2100 North at the north and west end of the alignment. This Project would allow for a meet near American Fork, rather than adding dwell time at Lehi. The Project proposes to construct a new second mainline UTA track (UTA ML No. 2) 15 feet west of the existing UTA mainline track (UTA ML No. 1), adding approximately 5 miles of mainline double-tracking to the FrontRunner system. Anticipated track work would consist of constructing new mainline track, shifting and reconstructing the existing mainline track at the north end of the siding, removing an existing turnout at the southern end of the segment, and installing a new turnout at the northern end of the segment.

The results of the noise and vibration assessment indicate that there would be no noise or vibration impacts associated with the double tracking of the American Fork Segment. At all locations, there would either be a slight decrease in the noise levels, and no change in vibration levels due to half the FrontRunner trains being moved further from the sensitive receivers on the east side of the tracks, or a slight increase in noise and vibration levels at locations where tracks are being moved closer to sensitive receivers on the west side of the tracks, but still below the thresholds for impact.

FTA Noise and Vibration Impact Criteria

The FTA noise and vibration criteria for transit projects are detailed in the FTA's noise and vibration guidance manual.[1]

The FTA noise criteria are based on the land use category of the sensitive receiver. The descriptors and criteria for assessing noise impact vary according to land use categories adjacent to the project. For Category 2, land uses where people live and sleep (e.g., residential neighborhoods, hospitals, and hotels), the Ldn is the assessment parameter. For other land use types (Category 1 or 3) where there are noise-sensitive uses (e.g., outdoor concert areas, schools, and libraries), the Leq for an hour of noise sensitivity that coincides with train activity is the assessment parameter.

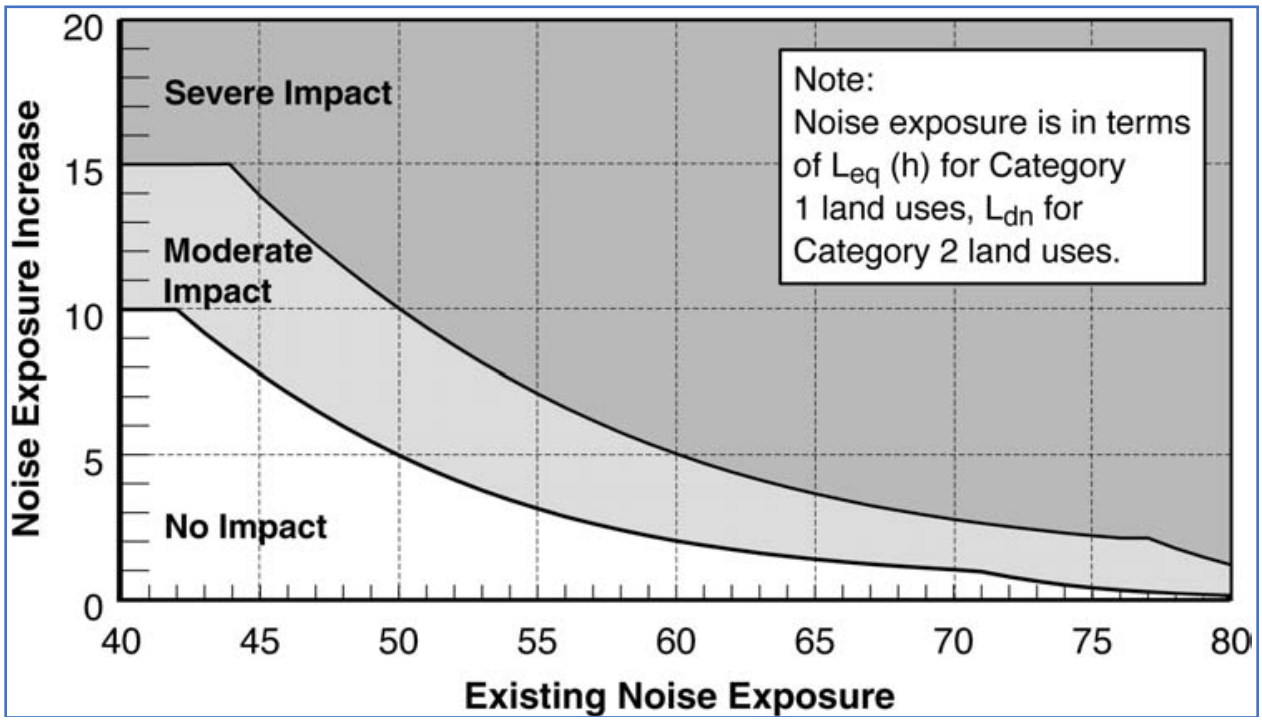
The noise impact criteria are defined by the two curves in Figure 1, which compares the change in noise due to the project to the existing noise before the introduction of the project. These criteria are used in projects where there is not a new project, but where there can be changes in noise, such as with the

[1] Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, FTA Report No. 0123, September 2018.

introduction of a second track. The FTA noise impact criteria include three levels of impact, as shown in Figure 1. The three levels of impact include:

- **No Impact:** In this range, the project is considered to have no impact since, on average, the introduction of the project will result in an insignificant increase in the number of people highly annoyed by the new project noise.
- **Moderate Impact:** Project-generated noise in this range is considered to cause impact at the threshold of measurable annoyance. Moderate impacts serve as an alert to project planners for potential adverse impacts and complaints from the community. Mitigation should be considered at this level of impact based on project specifics and details concerning the affected properties.
- **Severe Impact:** Project-generated noise in this range is likely to cause a high level of community annoyance. Noise mitigation should be applied for severe impacts where feasible.

Figure 1. FTA Cumulative Noise Impact Criteria



SOURCE: FTA 2018

The FTA vibration criteria for new projects are based on the vibration level and number of project operations, and not on the increase in vibration levels. As the number of operations increase, the vibration impact threshold becomes more stringent. In a project location with existing vibration from trains, the criterion is based on a change in vibration relative to the existing. For locations with more than 12 operations per day (such as the FrontRunner corridor), vibration impact occurs when the increase in vibration is at least 3 VdB over the existing vibration levels.

Noise and Vibration Assessment Methodology

Noise and vibration from the Project were modeled using the detailed assessment methods described in the FTA guidance manual—the model results are included in Appendix A. The Project would involve adding a second track and moving half the current UTA FrontRunner operations from the existing track to the new second track. The Project would eliminate a turnout at the southern end of the segment and add a new turnout at the northern end of the segment where the double tracking ends. The entire FrontRunner corridor is a quiet zone and no horns are sounded.

The noise assessment is based on the increase in noise at sensitive receivers due to the addition of the second track and the change in noise due to the new turnout. The model assumes that half the trains would utilize the second track, and half the trains would remain on the original track. The noise levels from UTA FrontRunner operations would increase slightly at locations on the side of the segment where the new track is located, and the noise would decrease slightly at locations on the side of the segment adjacent to the existing track, since some of the trains would be located further away relative to the existing track. New crossovers or turnouts on the FrontRunner tracks would also increase the noise levels for sensitive receivers located within 300[2] feet of the special trackwork. Removing crossovers or turnouts would decrease noise impacts.

In order to model the existing noise on the American Fork segment, operations information, including the number of UP freight trains, UTA FrontRunner commuter rail trains, speeds and the number of locomotives and cars for each data from the Federal Railroad Administration (FRA) grade crossing database, the UTA website, and field observations. The existing UP operations included:

- 10 freight trains per day from the FRA database
- 5 locomotives and 120 cars per train on average from field observations and Google Earth imaging
- 40 mph speeds from the FRA database

The existing UTA FrontRunner operations included:

- 46 trains per day, based on the UTA schedule
- 1 locomotive and 4 cars per train
- 79 mph speeds

The reference noise levels for the UP trains were obtained from the CREATE noise assessment spreadsheet for freight operations and the reference noise levels for the UTA FrontRunner commuter trains were obtained from the FTA guidance manual.

The vibration assessment is based on the increase in vibration at sensitive receivers due to the addition of the second track and the change in vibration due to the new turnout. Similar to noise, the model assumes that half the trains would utilize the second track, and half the trains would remain on the original track. The vibration levels would increase slightly at locations on the side of the segment where the new track is located, and the vibration would remain the same at locations on the side of the segment adjacent to the existing track. New crossovers or turnouts would also increase the vibration

[2] See Table 4-10, Computation of Noise Exposure at 50 ft for Fixed-Guideway General Noise Assessment, FTA Transit Noise and Vibration Impact Assessment Manual, 2018.

levels for sensitive receivers located within 200[3] feet of the special trackwork. Removing crossovers or turnouts would decrease vibration impacts.

Affected Environment

The land uses adjacent to the Project include a mix of commercial and residential uses on both sides of the track throughout the segment. The existing noise levels range from 56-81 dBA Ldn, depending on the distance from the tracks to the receiver, and the number of rows of intervening buildings. The existing noise is dominated by the UP freight train operations.

Impact Assessment

The new American Fork track would be located on the west side of the existing FrontRunner track for the southern third of the segment. In the middle of the segment, the existing track would be shifted slightly to the west and the new track would be on the east side of the existing FrontRunner track. At the northern end of the segment, the new track would be on the east side of the existing FrontRunner track. For receivers on the side of the segment without the new track the noise levels would decrease slightly (less than 0.1 dB). For receivers on the side of the segment with the new track (or in the middle of the segment where both tracks would be shifted slightly), the noise levels would increase slightly (less than 0.1 dB for most receivers). The additional noise generated by the turnout at the north end of the Project would not be enough to cause noise impacts for receivers within 300 feet of the turnout. See Figure 2.

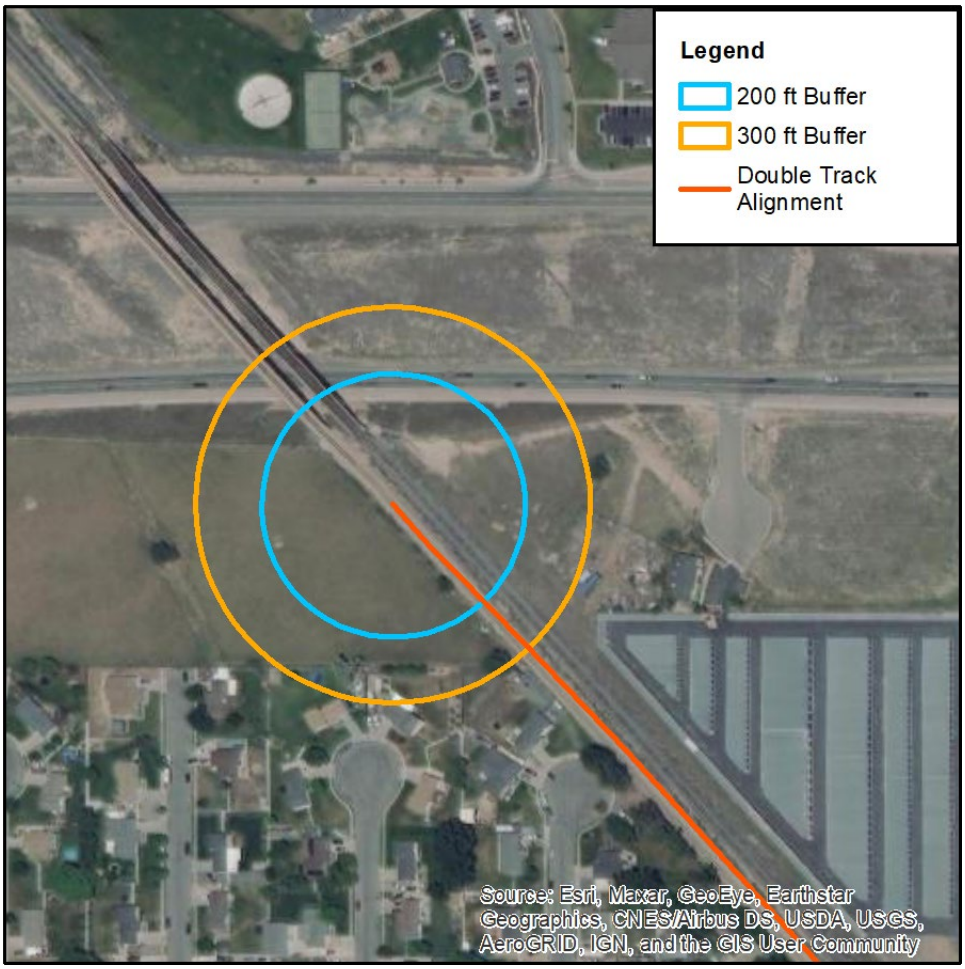
Because the new track (or shifted tracks in the middle of the segment) is a maximum of 14 feet from the existing track, a receiver would need to be located within 40 feet of the existing UTA FrontRunner track for the change in vibration level to be greater than 3 VdB. There are no sensitive receivers located within that distance, and therefore there is no vibration impact. Similarly, the new turnout at the north end of the segment is located more than 200 feet from any sensitive receptors so that there would be no vibration impacts.

Mitigation

Because there are no impacts identified for either noise or vibration, no mitigation would be required.

[3] See Table 6-11, Source Adjustment Factors for Generalized Predictions of GB Vibration and Noise, FTA Transit Noise and Vibration Impact Assessment Manual, 2018.

Figure 2. Area of Potential Impacts from New Turnout



Appendix A

North of American Fork Double Track Project

Noise Assessment Inputs and Outputs

Table A.1 - Assessment Inputs and Outputs

Receiver Number	Land Use Information	Row	Name	Land Use Category	Dwelling Units	Segment	Section	Distance to New UTA Track SB	Distance to Existing UTA Track	Distance to Existing UP Track	New Crossover (Y/N)	Distance to New UTA Track NB	Calculated Existing Noise	Moderate Impact Criteria	Severe Impact Criteria	Change in Noise	Impact
382	SF	1		2	1	Pioneer Crossing to N 8000 W	American Fork	128	143	170	N	143	74.9	0.4	4.9	0.1	--
383	SF	1		2	1	Pioneer Crossing to N 8000 W	American Fork	100	115	142	N	115	76.2	0.3	4.7	0.1	--
384	SF	1		2	1	Pioneer Crossing to N 8000 W	American Fork	223	238	265	N	238	71.7	0.8	5.5	0.1	--
385	SF	1		2	1	Pioneer Crossing to N 8000 W	American Fork	36	53	77	N	53	80.6	0.1	3.0	0.1	--
386	SF	1		2	1	Pioneer Crossing to N 8000 W	American Fork	61	77	104	N	77	78.5	0.2	3.9	0.1	--
387	SF	1		2	1	Pioneer Crossing to N 8000 W	American Fork	74	90	117	N	90	77.6	0.2	4.4	0.1	--
388	SF	1		2	1	Pioneer Crossing to N 8000 W	American Fork	156	172	198	N	172	73.8	0.5	5.1	0.1	--
389	SF	1		2	1	Pioneer Crossing to N 8000 W	American Fork	37	53	77	N	53	80.6	0.1	3.0	0.1	--
390	SF	1		2	1	Pioneer Crossing to N 8000 W	American Fork	42	58	83	N	58	80.0	0.1	3.0	0.1	--
391	SF	1		2	1	Pioneer Crossing to N 8000 W	American Fork	50	65	90	N	65	79.5	0.2	3.3	0.1	--
392	SF	1	REPRESENTS 3 HOUSES	2	3	Pioneer Crossing to N 8000 W	American Fork	108	124	150	N	124	75.8	0.3	4.8	0.1	--
393	SF	1		2	1	N 8000 W to Main St	American Fork	45	60	85	N	60	79.9	0.1	3.1	0.1	--
394	SF	1		2	1	N 8000 W to Main St	American Fork	83	100	124	N	100	77.1	0.3	4.7	0.1	--
395	SF	1		2	1	N 8000 W to Main St	American Fork	96	114	139	N	114	76.4	0.3	4.7	0.1	--
396	SF	1		2	1	N 8000 W to Main St	American Fork	263	280	306	N	280	70.7	1.0	5.7	0.1	--
397	SF	1		2	1	N 8000 W to Main St	American Fork	213	228	254	N	228	72.0	0.8	5.4	0.1	--
398	SF	2		2	1	N 8000 W to Main St	American Fork	343	359	385	N	359	62.6	1.7	8.0	0.1	--
399	SF	1		2	1	N 8000 W to Main St	American Fork	316	335	350	N	335	69.7	1.1	5.9	0.1	--
400	SF	1		2	1	N 8000 W to Main St	American Fork	236	256	269	N	256	71.6	0.9	5.5	0.1	--
401	SF	1		2	1	N 8000 W to Main St	American Fork	93	112	125	N	112	77.1	0.3	4.6	0.1	--
402	SF	1		2	1	N 8000 W to Main St	American Fork	152	167	183	N	167	74.4	0.5	5.0	0.1	--
403	SF	1		2	1	N 8000 W to Main St	American Fork	91	104	120	N	104	77.4	0.2	4.6	0.1	--
404	SF	1		2	1	N 8000 W to Main St	American Fork	94	107	123	N	107	77.2	0.3	4.6	0.1	--
406	SF	1		2	1	N 8000 W to Main St	American Fork	50	67	80	N	67	80.3	0.1	3.0	0.1	--
407	SF	1		2	1	Mains St to 900 N	American Fork	272	172	209	N	186	73.4	0.6	5.2	0.1	--
408	SF	1		2	1	Mains St to 900 N	American Fork	315	105	143	N	119	76.2	0.3	4.7	0.0	--
409	SF	1		2	1	Mains St to 900 N	American Fork	428	77	115	N	91	77.7	0.2	4.3	0.1	--
410	SF	1		2	1	Mains St to 900 N	American Fork	68	68	107	N	83	78.3	0.2	4.0	0.1	--
411	SF	1		2	1	Mains St to 900 N	American Fork	62	62	101	N	76	78.7	0.2	3.8	0.1	--
412	SF	1		2	1	Mains St to 900 N	American Fork	67	67	106	N	81	78.3	0.2	3.9	0.1	--
414	SF	1		2	1	Mains St to 900 N	American Fork	187	171	156	N	172	75.5	0.4	4.8	0.0	--
415	MF	1		2	3	Mains St to 900 N	American Fork	127	114	95	N	112	79.0	0.2	3.5	0.0	--
416	MF	1		2	2	Mains St to 900 N	American Fork	118	104	86	N	103	79.8	0.1	3.2	0.0	--
417	SF	1		2	1	Mains St to 900 N	American Fork	209	199	175	N	194	74.7	0.5	5.0	0.0	--
418	DAYCARE	1	Bright Beginnings Childcare Center	3	1	Mains St to 900 N	American Fork	256	257	289	N	271	55.7	6.1	6.8	0.8	--
419	SF	1		2	1	Mains St to 900 N	American Fork	330	341	316	N	330	70.5	1.0	5.7	0.0	--
420	SF	1		2	1	Mains St to 900 N	American Fork	434	444	421	N	434	68.4	1.1	6.2	0.0	--
421	SF	1		2	1	Mains St to 900 N	American Fork	524	534	512	N	524	67.0	1.2	6.5	0.0	--
422	SF	1		2	1	Mains St to 900 N	American Fork	568	577	556	N	568	66.4	1.3	6.7	0.0	--
423	SF	1		2	1	Mains St to 900 N	American Fork	187	187	147	N	172	75.9	0.3	4.8	0.0	--
424	SF	1		2	1	Mains St to 900 N	American Fork	180	180	140	N	165	76.3	0.3	4.7	0.0	--
425	SF	1		2	1	Mains St to 900 N	American Fork	273	273	233	N	258	72.6	0.7	5.3	0.0	--
426	SF	1		2	1	Mains St to 900 N	American Fork	236	236	195	N	220	73.9	0.5	5.1	0.0	--
427	SF	1		2	1	900 N ro 1500 N	American Fork	382	382	344	N	366	69.9	1.1	5.9	0.0	--
428	SF	1		2	1	900 N ro 1500 N	American Fork	258	258	220	N	243	73.0	0.6	5.2	0.0	--
429	SF	1		2	1	900 N ro 1500 N	American Fork	220	220	181	N	205	74.4	0.5	5.0	0.0	--
430	SF	1		2	1	900 N ro 1500 N	American Fork	198	198	158	N	183	75.4	0.4	4.9	0.0	--
431	SF	1		2	1	900 N ro 1500 N	American Fork	274	274	234	N	258	72.6	0.7	5.3	0.0	--
432	SF	1		2	1	900 N ro 1500 N	American Fork	215	215	174	N	199	74.7	0.5	5.0	0.0	--
433	SF	1		2	1	1500 N to 2100 N	American Fork	49	49	90	N	52	79.5	0.2	3.3	0.1	--
434	SF	1		2	1	1500 N to 2100 N	American Fork	198	198	238	Y	210	72.5	0.7	5.3	0.3	--
435	SF	1		2	1	1500 N to 2100 N	American Fork	137	137	178	N	139	74.6	0.5	5.0	0.1	--

Table A.2 - Train Inputs

Union Pacific Inputs

Source	Ref SEL at 50ft, dBA	
Freight Cars	85.4	From Create Model
Loco - Diesel	97	From Create Model
Loco - Electric	90	
DMU	85	
Loco Horn	113	

Trains/Day	Pk Hour		Day	Night
5	0.208333333	Schedule:	3.125	1.875
^^In EACH Direction			Locos	Cars
		Consist:	5	120

Front Runner Inputs

Source	Ref SEL at 50ft, dBA
Commuter Rail Car	82
Loco - Diesel	92
Loco - Electric	90
DMU	85
Loco Horn	103

Trains/Day	Pk Hour		Day	Night
23.1	1	Schedule:	1.3	0.4
^^In EACH Direction			Locos	Cars
		Consist:	1	4

Attachment 6:
North of American Fork Double Track Project
Hazardous Materials Assessment

FrontRunner Forward

North of American Fork Double Track Project

DRAFT Hazardous Materials Assessment

November 2022

Table of Contents

List of Tables

List of Figures

Introduction

Project Purpose and Description

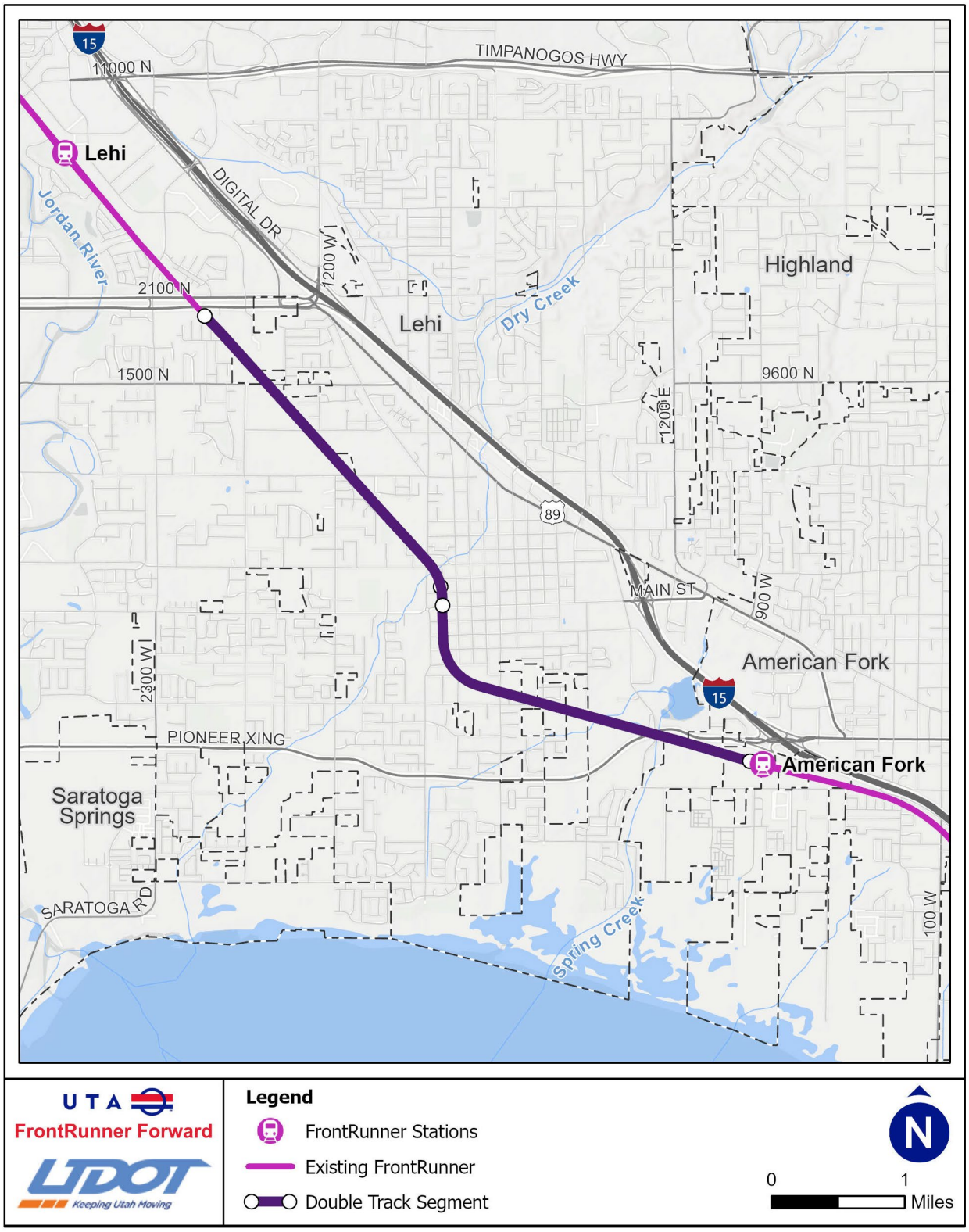
The Utah Transit Authority (UTA), in conjunction with the Federal Transit Administration (FTA), proposes to construct new double-track segments at eight locations along the Front Runner commuter rail line in Davis, Salt Lake, and Utah Counties, Utah. The Hazardous Materials Assessment Report was prepared for the UTA to document the hazardous materials impacts associated with the North of American Fork Double Track Project.

American Fork

The North of American Fork Double Track Project (the Project) is approximately 5 miles of new double track segment along the FrontRunner commuter rail line running from the FrontRunner American Fork Station at the east end of the alignment to the crossing at 2100 North at the west end of the alignment in Utah County, Utah. This segment runs parallel to the existing Union Pacific (UP) rail corridor to the north. Beginning at the FrontRunner American Fork Station, surrounding land uses include primarily undeveloped or agricultural uses at the east end of the alignment, residential uses through the middle of the alignment, then a mix of low-density residential uses, undeveloped or agricultural land, and industrial uses at the west end of the alignment.

The Project alignment and vicinity is shown in Figure 1. The Project area for the hazardous materials assessment is defined as the limits of anticipated construction, acquired property and right-of-way (ROW), and temporary constructions easements. The study area for hazardous materials was defined as the Project area plus the standard search distances for environmental databases as defined in the American Society for Testing and Materials (ASTM) *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process (E 1527-21)* (ASTM 2021).

Figure 1. Project and Vicinity



Methodology

Resource Identification and Evaluations Methods

The purpose of this report is to evaluate the potential for encountering hazardous materials or petroleum hydrocarbons as a result of Project activities in compliance with the National Environmental Policy Act (NEPA) and to determine the presence and location of documented hazardous materials or hazardous waste sites within the Project corridor.

Regulatory Database Review

Pertinent state and federal regulatory database information was procured from Environmental Data Resources Inc. (EDR). The complete EDR database report is included in Appendix A. All sites identified within 0.25 mile of the Project alignment were assessed for the potential to impact the Project; however, due to the anticipated limited ground disturbance involved in the Project, only sites with known or suspected releases within 0.25 mile (state databases) of the Project alignment were evaluated in depth. A comprehensive list of regulatory databases reviewed is contained in the EDR report (EDR 2022) (Appendix A).

Sites identified on priority databases (databases indicating a release of hazardous materials or petroleum to soil or groundwater) were evaluated based on the proximity of the site to the proposed Project and the potential for contamination from or associated with the site to exist within or close to the Project (Table 1). Historical uses of the sites and site vicinities, as well as acquisition status, were considered in the evaluation of the potential for the site to affect the proposed Project alignment or adjacent properties.

Regulatory File Review

Some sites identified in the regulatory database review as having confirmed releases were further evaluated for pertinent details via the online Utah Department of Environmental Quality Environmental Cleanup Site Information Database (DEQ 2022) and the U.S. EPA Superfund Database (EPA 2022). These tools provide additional details of site conditions and regulatory status, as well as electronic site documents, where available.

Affected Environment

Area of Potential Impact

For the analysis of hazardous materials, the area of potential impact (API) included the Project area and adjacent properties due to potential impacts likely being restricted to the immediate vicinity of the Project or adjacent properties. The EDR search distance was set to the ASTM standard for hazardous materials analyses of either side of the Project footprint. A complete listing of the databases reviewed and the associated search distances is included in the EDR report.

Geology, Hydrogeology, and Soils

The Project alignment lies at approximately 4,500 feet in elevation to the north of Utah Lake, west of the Wasatch Mountains, and east of the White and Oquirrh Mountains. The area is located within the Basin and Range Province on the southern portion of the East Shore Aquifer. The geological unit in the area is classified as upper Pleistocene fine-grained lacustrine deposits, with silt and clay soils and some fine-grained sand. The subsurface in the vicinity of the Project area is characterized by unconsolidated and

semi-consolidated sediments eroded from the mountains. The sediments tend to be thick and coarse, and they derive from delta, alluvial, fan, and mudflow deposits (Utah Geological Survey [UGS] 2022a).

Utah Lake is located approximately 1.5 miles to the south of the Project alignment. Groundwater in the vicinity of the Project is part of the East Shore Aquifer, which has been subdivided into shallow (60 to 250 feet below ground surface [bgs]), intermediate (250 to 500 feet bgs), and deep (greater than 500 feet bgs) artesian aquifers. Shallow groundwater levels in the Project vicinity are assumed to range from approximately 4 to 30 feet bgs (Ellis Environmental 2019).

The soils in the area mostly consist of the Sunset loam unit, a moderately well-drained loam and gravelly substratum, the Bramwell/Taylorsville silty clay loam units, and the Vineyard fine sandy loam unit. Soils in the area are generally silty clay loam, characteristic of flood plains (USDA 2022).

Regulatory Database Review

The affected environment within the study area was assessed by reviewing the state and federal regulatory database records as described above. The identified sites were assigned to one of three risk categories based on proximity to the study area, the type and number of databases in which the site was found, known releases of hazardous materials or petroleum products, and the status of remediation or cleanup efforts at sites with known releases. One of three risk categories was assigned to sites within the study area: high, medium, and low.

- **High Risk.** This category is defined as sites that involve substantial contamination of large areas, including soil, groundwater, and multiple contaminants, and might represent higher risk of further releases of hazardous materials to human health or the environment; that would be likely to involve high levels of regulatory approvals or extensive or lengthy remediation activities that may create other impacts to the environment; or that could pose major delays to the development of the project.
- **Medium Risk.** This category is defined as sites where the nature of potential contamination is known based on existing investigation data, the potential contaminants are not extremely toxic or difficult to treat, and probable remediation approaches are straightforward.
- **Low Risk.** This category is defined as sites where the nature of potential contamination is known based on existing investigation data, and the sites are not expected to have notable impacts on the project due to their location, or sites where hazardous materials were used, but had no or only very small, reported releases.

State databases list several sites that indicate a confirmed release of a hazardous material or petroleum hydrocarbons within 0.25 mile of the Project area and that are of potentially greater concern. One site associated with federal databases indicating a confirmed release was found within 1 mile of the Project area. A list of sites evaluated within 0.25 mile of the Project area can be found in Table 1, and they are shown in Figure 2 below, except for site no. 2 (TM Crushing, LLC), which was found to have incorrect location information and is outside the 0.25-mile study area.

Based on location, regulatory or cleanup status, and/or the minor nature and extent of the release, all of the sites are classified as having a low risk of impacting the project area. Site no. 4 (600 West 200 South Plume—Neilson Property Holdings, LLC) is discussed below and shown on Figure 3 because of the proximity to the alignment; however, it was determined to be at a sufficient distance to be of low risk to

the project. Based on the assessment, the likelihood of encountering hazardous materials during construction of the American Fork Double Track Project is low.

Table 1. List of Evaluated Sites

SITE NO.	FACILITY NAME	STREET ADDRESS	CITY	EDR ID	RANKING	RANKING RATIONALE
1	LEHI CITY SHOPS	439 W 300 N	LEHI	U003151346	L	Adjacent to the alignment, this LUST was closed in 1996; three tanks are listed, but all are out of use and closed. Another Environmental Incident found on the Utah Department of Environmental Quality [UDEQ] DERR, the Lehi City Public Works discharge of wastewater into a dry creek bed near this site. This incident is not on any EDR cleanup database, and it does not appear to have a larger impact than on the property adjacent to the alignment. There is a low risk that it has migrated to the Project alignment.
2	TM CRUSHING, LLC			1016508893	L	This mine appears to be several miles west of the alignment, has an incorrect lat/long, and land use at the point of this facility is agricultural. Therefore this site is not shown in Figure 2.
3	INTERMOUNTAIN PARTS CLEANERS	550 W 200 S	AMERICAN FORK	1007210886, 1000216198	L	No release is associated with this listing; three tanks are listed, and all three are closed.
4	600 WEST 200 SOUTH PLUME (Neilsen Property Holdings, LLC)	600 WEST 200 SOUTH	AMERICAN FORK	1026004752	L	There is perchloroethylene (PCE) contamination along the alignment; the origin is unknown. Subsurface investigations in 2018 found PCE in soil and groundwater on a site south of the alignment and delineated the source to be near the southern terminus of the project alignment. See additional description following Figure 2.
5	KURTS TRANSMISSION SHOP	1045 W MAIN ST	AMERICAN FORK	1021566851	L	This is not adjacent to the alignment; no release is associated with this listing.
6	MAVERIK COUNTRY STORES INC.	520 W MAIN ST	LEHI	1020289494, 1022198005, U004197546	L	This is not adjacent to the alignment, a leaking underground storage tank (LUST) associated with this facility was closed in 2009.
7	HART'S #20 PIONEER CROSSING	21 N 1020 W	AMERICAN FORK	U004257324	L	This is not adjacent to the alignment, no release is associated with this listing.
8	LEHI COGENERATION	1697 WEST 2100 NORTH	LEHI	1010336364	L	This is not adjacent to the alignment; no release is associated with this listing.
9	PECK CLAY PITS	415 S. 600 E.	LEHI	1024924494, 1024924444	L	This address appears to be the office for the mining company; the mine is located west of Utah Lake.
10	GERBER CONSTRUCTION	815 E 675 S	LEHI	A100356668	L	This is not adjacent to the alignment; an AST is in use; no release is associated with this property.
11	HADCO CONSTRUCTION LLC	1850 N 1450 W	LEHI	A100319571	L	This is adjacent to the alignment; an AST is in use; no release is associated with this property.

SITE NO.	FACILITY NAME	STREET ADDRESS	CITY	EDR ID	RANKING	RANKING RATIONALE
12	CALIBER COLLISION CENTER - AMERICAN FORK 0241	62 NORTH 1020 WEST	AMERICAN FORK	1015754660	L	This is not adjacent to the alignment; no release is associated with this listing.
13	GATEWAY TEXACO	605 WEST MAIN	LEHI	U003151349	L	This is not adjacent to the alignment; the LUST was closed in 2001.
14	HART'S GAS & FOOD AMERICAN FORK WEST	717 W MAIN ST	AMERICAN FORK	U003151332	L	This is not adjacent to the alignment; the LUST was closed in 2009.
15	EXTEC SCREEN	268 E. 360 S	LEHI	1024924746	L	This address appears to be residential, and no mining operations are visible in the vicinity from the aerial photographs.
16	U.S. WEST 671240	34 S 100 W	LEHI	U003151339	L	This is not adjacent to the alignment; the LUST was closed in 1995.
17	RAM-X INC.			1024079052	L	The lat/long appears to be in a residential area, and no mining operations are visible in the vicinity from the aerial photographs.
18	THOMAS J PECK & SONS INC.			1011229938	L	The lat/long appears to be in a residential area, and no mining operations are visible in the vicinity from the aerial photographs.

Figure 2. Map of Evaluated Sites, 1 of 3

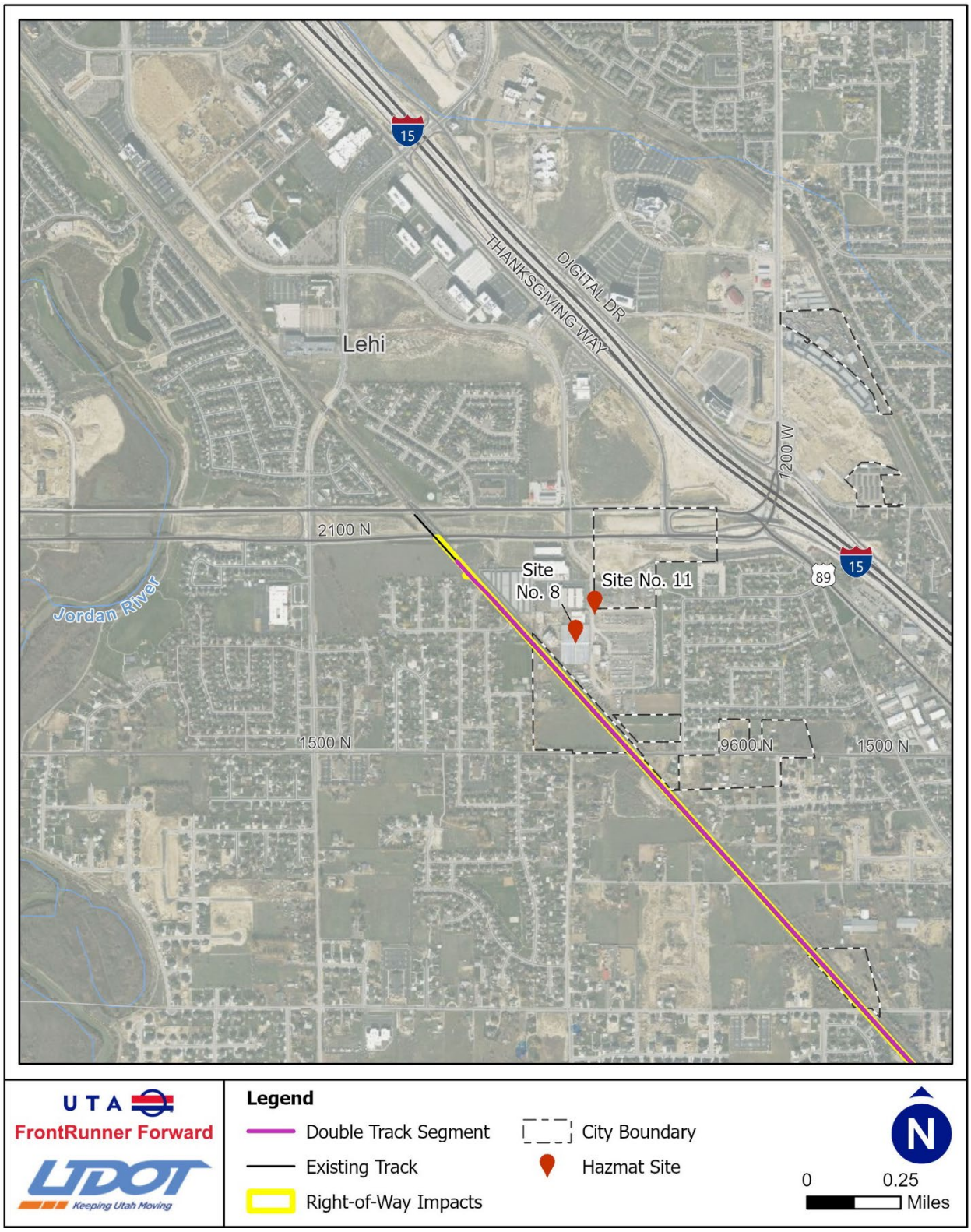


Figure 2. Map of Evaluated Sites, 2 of 3

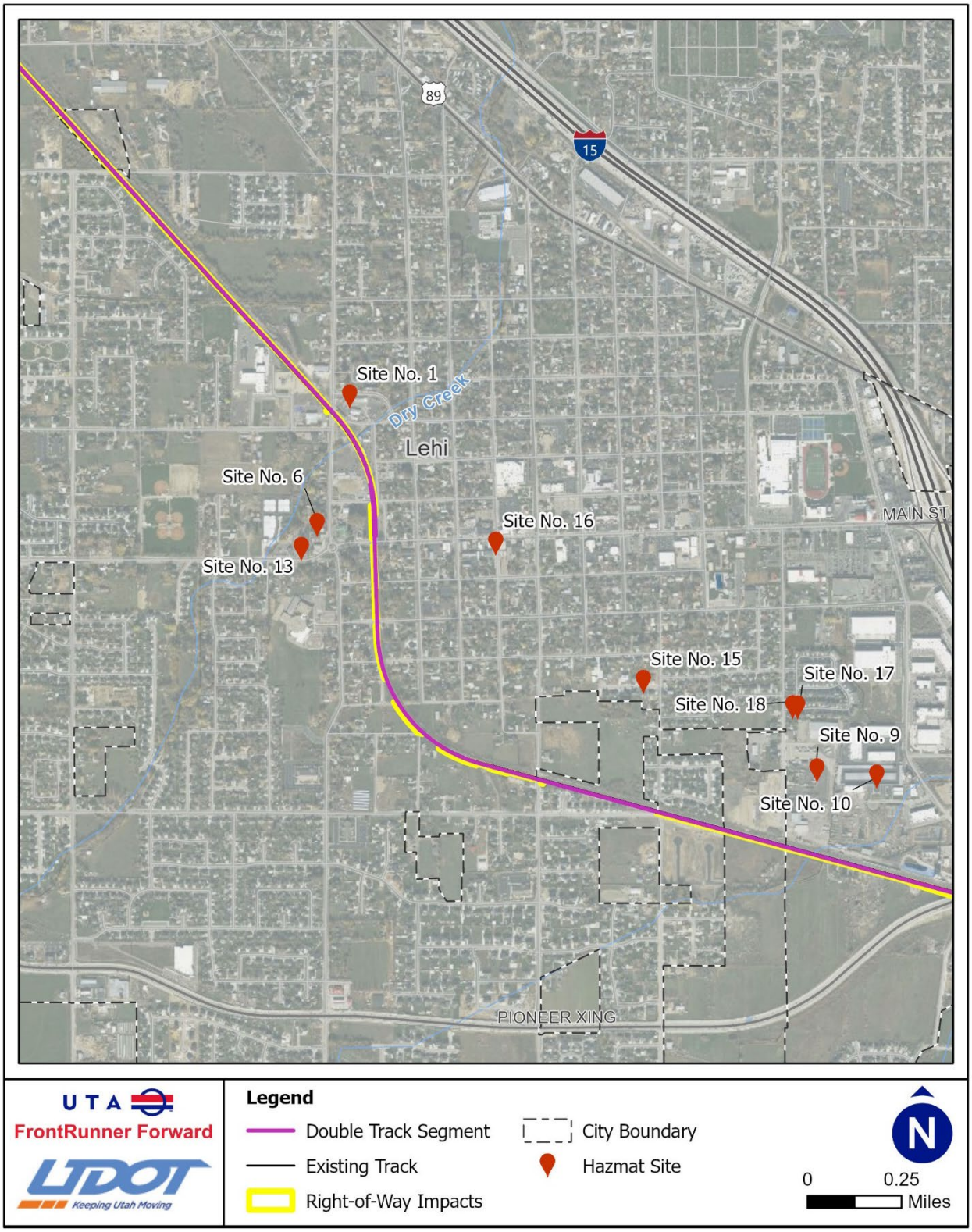


Figure 2. Map of Evaluated Sites, 3 of 3

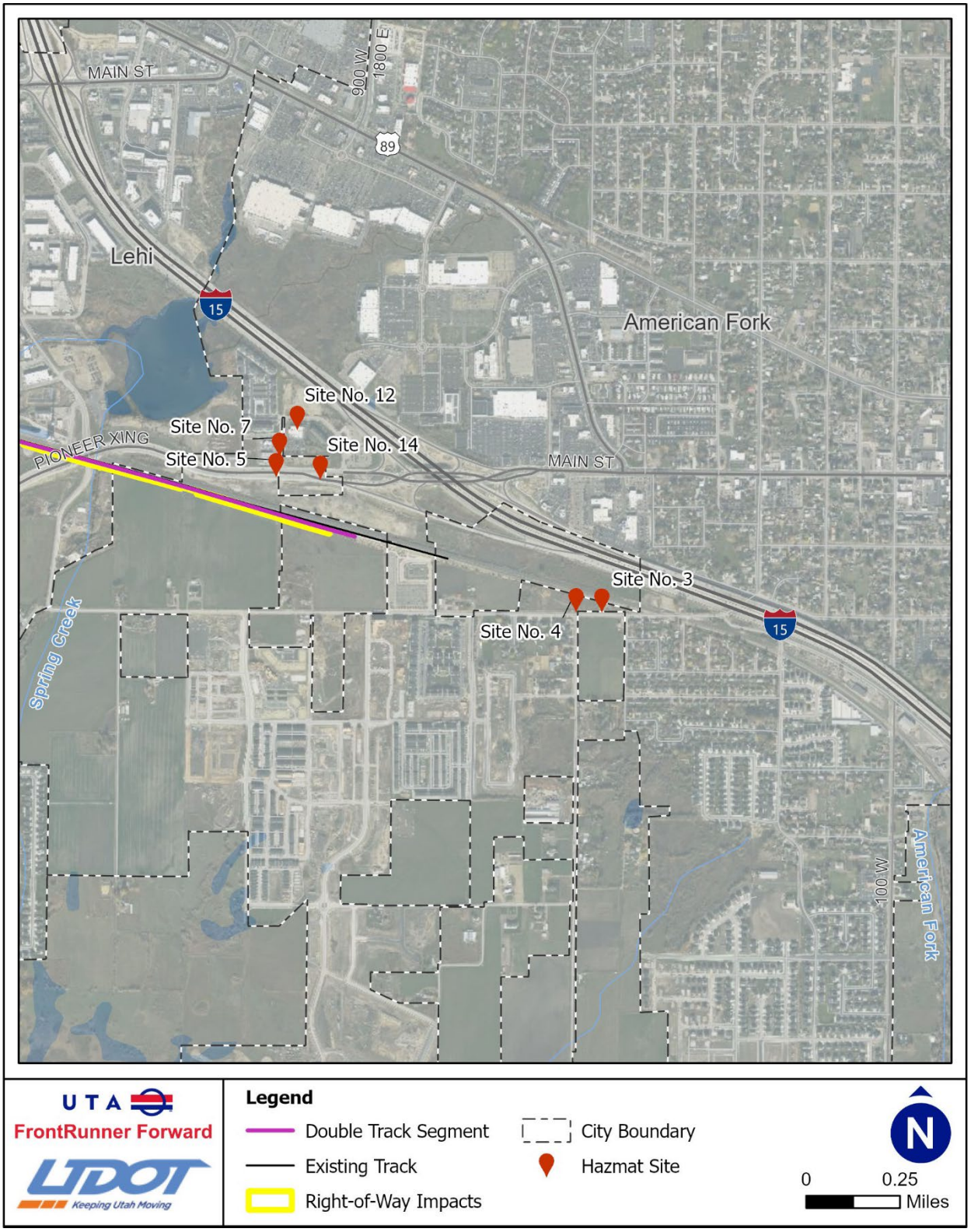


Figure 3. Neilsen Property Holdings, LLC Site

Low Risk

600 West 200 South Plume – Neilsen Property Holdings LLC

The 600 West 200 South Plume, also known as the Neilsen Property Holdings, LLC site, is located south of the southern terminus of the project alignment and outside the Project area, shown in Figure 3. However, because of the proximity to the project and the known PCE contamination on this property, the site warrants additional explanation.

The site is listed as a non-National Priorities List Superfund site for a plume of contamination with currently unknown origins. According to several subsurface investigations on the property, perchloroethylene (PCE) contamination was found in the soil and groundwater on the property. The delineated plume shows the contamination originating from the north of the site. The plume potentially originates from the ditch that drains the railroad tracks and is north of the site and the Project alignment. Potential origins listed in the reviewed documents were illegal dumping, nearby transformers along the railroad, or metal cleaning during track installation for the UTA commuter rail line. Groundwater levels at the site were measured at around 80 to 95 feet bgs. According to the Phase III Site Assessment conducted in 2019, no further action was recommended because of the current land use (undeveloped), as long as groundwater at the site would not be used for drinking purposes. The site was referred to Utah State for further investigation (Ellis Environmental 2019).

The extent of soil contamination outside of the boundaries of the property was not determined as part of the investigations and the contamination plume was not delineated. However, the site is located over 1,000 feet to the southeast of the project terminus. Based on the distance of the site to the Project alignment, the site is classified as low-risk in this hazardous materials assessment. The site will most likely not require additional investigation. Acquisition status for the American Fork segment has not been finalized as of the submittal date of this draft report.

Historical Review

Historical Aerial Photographs

Historical aerial photographs of the study area were obtained from publicly available sources (UGS 2022 and Google Earth Historical Aerial). Aerial photographs were examined for the years 1953, 1969, 1993, 2002, 2006, 2014, and 2020. Observations are listed below.

- 1953-2002: The Union Pacific Railroad is visible, and it is oriented northwest-southeast. Interstate 15 is visible to the east of the project alignment. The center of the project area is developed with the city of Lehi, and the northwest and southeast ends of the alignment are mostly agricultural properties.
- 2006-2020: The UTA Frontrunner line runs along the railroad, and construction was started in 2005 and completed in 2008 (UTA 2017). Additional residential and commercial development is visible in the area.

No additional sites of environmental concern or evidence of adverse conditions associated with land use were identified through the historical aerial photograph review.

Sanborn Maps

Sanborn maps were not available for any period within the project area.

EDR Proprietary Databases

Three sites identified in the EDR Historical Auto database were located within 0.125 mile of or adjacent to the project alignment. All of these sites were either far enough outside the project alignment such that impacts to the project are not expected or associated with sites listed in the regulatory databases and reviewed during that process.

No sites within 0.125 mile of the project alignment were listed in the EDR Historical Cleaners database.

Potential Impacts

Many potential impacts and mitigation measures for hazardous materials are similar for all construction projects. This Project will involve relatively minor amounts of excavation to accommodate grading, utilities, and track construction. Construction impacts are considered short-term in comparison to the lifespan of the completed Project. Such impacts would end upon construction completion. Potential construction and environmental effects related to the Project are discussed below.

Construction Impacts

The hazardous materials analysis considered direct impacts of activities associated with the Project construction. The analysis considered the impacts to human health and the environment as a result of possible release of contaminants or alteration of contaminant migration pathways during construction activities, as well as the effects of existing contaminated sites.

Based on the developed nature of the Project area, there would be a potential for unknown or unidentified contamination in the subsurface (soil or groundwater) to be encountered during Project construction activities. Unanticipated contamination could put workers at risk and could cause delays and costs not accounted for in the Project schedule and budget.

One medium-risk site was identified during the regulatory database review. It would have some potential for impacts on construction depending on the location of excavation associated with grading and utility placement. Excavation in the areas near the contamination of the 600 West 200 South Plume site could potentially encounter hazardous materials (PCE) in soils and groundwater at relatively shallow depths. If groundwater were not present in the shallow excavation expected for this area, there would remain some potential (expected to be low to moderate) for vapors associated with residual hazardous materials (PCE) in groundwater to impact deeper excavations and workers in the vicinity.

Mitigation

Unexpected residual soil and groundwater contamination might be encountered during construction activities in portions of the Project alignment footprint. To mitigate potential impacts from all potential hazardous material sites, UTA would perform a level of environmental due diligence appropriate to the size and presumed past use at any properties in the study area before they were acquired. UTA might seek certain legal protections as part of the real property acquisition process to reduce its legal and financial risk.

If environmental concerns were identified through the initial due diligence process, or if a property being acquired had previously been identified as having releases of hazardous materials or existing contamination, the property might be subject to a subsurface investigation to determine the existence

of and, if present, the nature and extent of contamination at the site. UTA may be responsible for the remediation of any contaminated soil and groundwater on properties that it would acquire, including that which would be previously unknown and found during construction. To the extent practicable, UTA would also limit construction activities that might encounter contaminated groundwater or soil.

Based on the due diligence process, plans for the mitigation, handling, and disposal of contaminated media and hazardous construction debris would be developed on a site-by-site basis in conjunction with the appropriate regulatory agencies if determined to be necessary. A project-wide contaminated media management plan (CMMP) might also be developed and implemented. The CMMP would be expected to cover the majority of minor encounters with contaminated soil or groundwater.

Mitigation related to construction in the area of the 600 West 200 South plume would likely include a CMMP, work area air monitoring in excavations, and collection of groundwater samples if groundwater were encountered in deeper excavations in this area. Air and water results would aid in determining proper personal protective equipment for workers and water disposal options if dewatering were required.

Additionally, hazardous substances and petroleum products used during construction, such as fuels, paints, solvents, and other chemicals, would be managed and stored per the contractor's pollution control plan. Best management practices (BMPs) would be followed to reduce the risk of spills, leaks, or other releases during construction activities. These BMPs could include the following:

- Fueling, maintenance, and cleaning in contained areas (berms, etc.)
- Minimization of the production or generation of hazardous materials
- Appropriate labeling and storage of hazardous waste per federal regulations
- Designated hazardous waste storage away from storm drains or surface water
- Recycling of materials (used oil- and water-based paint) as appropriate
- Handling any potential spills of hazardous materials in conformance with applicable Material Safety Data Sheets.

Conclusions

As described above, sites with confirmed releases of hazardous materials or petroleum hydrocarbons to the subsurface are located near the study area. Based on the regulatory review, one site with a confirmed release of hazardous materials or petroleum hydrocarbons to the subsurface is located near the study area. After evaluation, the site was determined to be of low risk to the Project. The remainder of the sites identified in the Project vicinity were determined to also be of low risk to the Project. Based on the assessment, the likelihood of encountering hazardous materials during construction of the American Fork Double Track Project is low.

The Project would comply with hazardous materials regulatory requirements associated with construction. To the degree possible, the extent of contamination at a site with known contamination should be verified prior to construction to minimize exposure to hazardous materials. Coordination with the site cleanup manager and agencies could help to ensure that the Project would comply with site-specific cleanup and disposal requirements.

References

American Society for Testing and Materials (ASTM). 2021. Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process (E 1527-21). West Conshohocken, PA.

Ellis Environmental 2019. Phase III Environmental Assessment: Nielsen Property Holdings, LLC. January 8, 2019.

Environmental Data Resources (EDR) 2022. EDR Area Corridor Report: FRF American Fork, 6893506.2s. March 16, 2022.

US Department of Agriculture 2022. Web Soil Survey, Davis-Weber Area. Accessed April 7, 2022. Utah Department of Environmental Quality (DEQ) 2022. Interactive Mapping Tool. Accessed March and April, 2022. https://enviro.deq.utah.gov/

Utah Geological Survey (UGS) 2022. Department of Natural Resources: Geological and Topographic Maps. Accessed April 11, 2022. https://geology.utah.gov/map-pub/maps/interactive-maps/

Utah Transit Authority (UTA) 2017. UTA History Fact Sheet. https://rideuta.com. 2017

Attachment 7:
North of American Fork Double Track Project
Aquatic Resources Delineation Report

FrontRunner Forward Program – North of American Fork Double Track Project: Aquatic Resources Delineation Report

Prepared for
Utah Transit Authority

April 2023

Prepared by
Parametrix

FrontRunner Forward Program – North of American Fork Double Track Project: Aquatic Resources Delineation Report

Prepared for

Utah Transit Authority
669 W 200 S, Salt Lake City, UT 84101

Prepared by

Parametrix
4179 Riverboat Road, Suite 130
Salt Lake City, UT 84123
T. 801.307.3400 F. 1.855.542.6353
www.parametrix.com

April 2023 | 344-5120-007

CITATION

Parametrix, 2023. FrontRunner Forward Program – North of American Fork Double Track Project: Aquatic Resources Delineation Report. Prepared by Parametrix, Salt Lake City, Utah. April 2023.

TABLE OF CONTENTS

TABLE OF CONTENTS (CONTINUED)

LIST OF FIGURES

LIST OF TABLES

APPENDICES

ACRONYMS AND ABBREVIATIONS

FAC	facultative
FACW	facultative wetland
GIS	geographic information system
GPS	global positioning system
HGM	hydrogeomorphic
NHD	National Hydrography Dataset
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
OBL	obligate
OHWM	ordinary high water mark
PEM	palustrine emergent
PSS	palustrine scrub-shrub
PWS	Professional Wetland Scientist
UP	Union Pacific
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Survey
UTA	Utah Transit Authority

EXECUTIVE SUMMARY

This aquatic resource delineation for the FrontRunner Forward Program – North of American Fork Double Track Project was conducted in accordance with the 1987 Corps of Engineers *Wetland Delineation Manual* (Environmental Laboratory 1987) and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008). This delineation was also conducted in accordance with the 2008 Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States (Lichvar and McColley 2008).

Two wetlands (totaling 0.91 acre), three streams, and four ditches were identified within the study area for the FrontRunner Forward Program – North of American Fork Double Track Project. The study area is 50 acres in size and 5 miles in length, running along the existing single-track FrontRunner commuter rail from the FrontRunner American Fork Station at the east end of the alignment to the crossing at 2100 North at the west end of the alignment in Utah County, Utah. The entire study was visited, and all aquatic resources were formally delineated in the field using a submeter Trimble DA2 Catalyst Global Navigation Satellite System receiver. Wetland AF-01 is located within a pasture field at the north end of the study area. The wetland has a depressional HGM class (Brinson 1993) and palustrine emergent (PEM) Cowardin class (FGDC 2013; Cowardin et al. 1979). The wetland has no outlet; it ponds and infiltrates locally. Wetland AF-02 is located in the southern end of the study area and receives hydrology from a ditch feature. It has a depressional HGM class (Brinson 1993) and PEM and palustrine scrub-shrub (PSS) Cowardin classes (FGDC 2013; Cowardin et al. 1979). Overall, these wetlands are of moderate functional quality.

1. INTRODUCTION

The Utah Transit Agency (UTA) is proposing to construct a second track along approximately 5 miles of existing single-track FrontRunner commuter rail line from the FrontRunner American Fork Station at the east end of the alignment to the crossing at 2100 North at the west end of the alignment in Utah County, Utah (see Figure 1). The existing Union Pacific (UP) rail corridor is directly to the west. The Project would improve reliability and reduce delays of the FrontRunner service.

The purpose of this report is to identify and describe aquatic resources within the in the study area. The study area includes the UTA owned right-of-way within the alignment section. This report provides the necessary information to obtain a preliminary jurisdictional determination from the U.S. Army Corps of Engineers (USACE) verifying the results of this report.

Janelle Robertson is the project point of contact for UTA.

Janelle Robertson, Project Manager
Utah Transit Authority
669 W 200 S, Salt Lake City, UT 84101

Work phone: 801.237.1951

Email: jarobertson@rideuta.com

2. LOCATION

The project falls within the municipal boundaries of Lehi and American Fork, Utah. It is located approximately 1.5 miles east of Great Salt Lake and approximately 0.5 mile west of I-15. The study area is 50 acres and is located in portions of Sections 6, 7, 8, 17, 16, and 22 in Township 5 South, Range 1 West (USGS 2020). The study area is along existing UTA and UP rail tracks and narrow portions of residential properties, vacant lots, and pastureland. In the northern portion of the study area, the land use is primarily residential. The southern portion of the study area is primarily pasture fields, commercial, and residential land uses.

2.1 Driving Directions

From downtown Salt Lake City, travel 23 miles on I-15 South and take exit 283 South West Frontage Road/South Thanksgiving Road/South Thanksgiving Way in Lehi. Turn right on Triumph Boulevard Street and then turn left on West 2100 North Street to reach the north end of the study area.

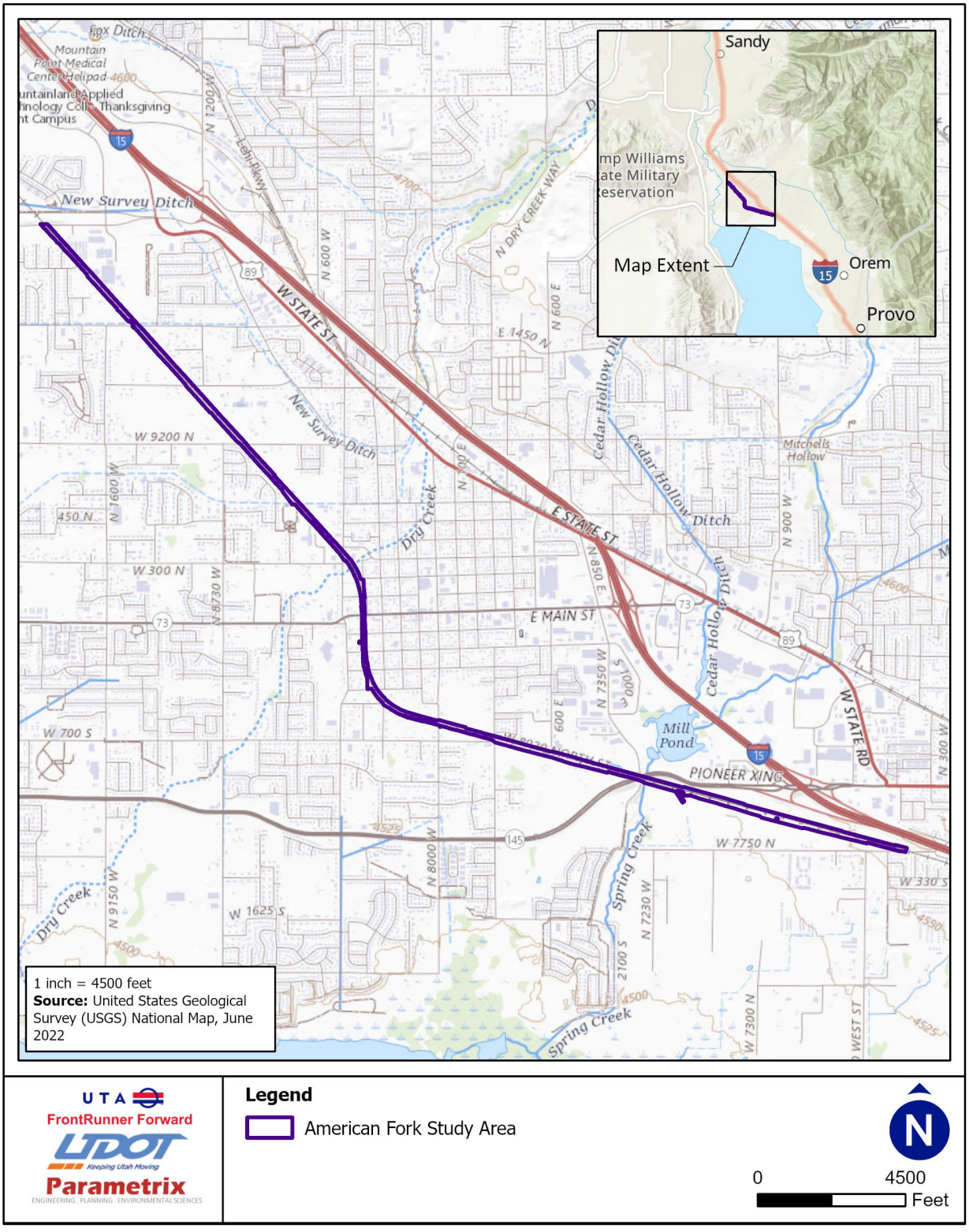


Figure 1. Vicinity Map

3. METHODS

3.1 Review of Existing Information

Prior to conducting field assessments Parametrix wetland biologists reviewed the following existing background information:

- United States Geological Survey (USGS) 7.5-minute quadrangle survey maps for Lehi (USGS 2020)
- USGS National Hydrology Dataset (NHD) (USGS 2022)
- U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) Web Soil Survey (USDA, NRCS 2022a)
- U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) online interactive mapper (USFWS 2022)
- Aerial photography of the Project corridor (Google Earth 2022)
- Final Environmental Impact Assessment and 4(f) Evaluation for Weber County to Salt Lake City Commuter Rail Project (UTA 2005)

Following the review of existing information, Parametrix biologists conducted a field assessment of aquatic resources within the study area. A field reconnaissance assessment was conducted by Kaylee Moser, Professional Wetland Scientist (PWS) from March 13 to 15, 2022. The formal wetland delineations were conducted by two wetland scientists, Kaylee Moser, PWS, and Irina Lapina, PWS, on October 15 and 18, 2022. All boundaries and sample plot locations were recorded using a submeter Trimble DA2 Catalyst Global Navigation Satellite System receiver. Data was collected using this global positioning system (GPS) receiver with the ArcGIS Field Map application containing base condition mapping layers. Collected data was incorporated into a geographic information system (GIS) for analysis.

3.2 Wetland Identification and Delineation

The methods specified in the *Corps of Engineers Wetlands Delineation Manual* (USACE 1987) and indicators specified in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008) were used by Project biologists to delineate onsite wetlands. Delineated wetlands were classified according to the USFWS *Classification of Wetlands and Deepwater Habitats of the United States* (FGDC 2013; Cowardin et al. 1979). Hydrogeomorphic (HGM) classifications were assigned to wetlands using methods established in a Hydrogeomorphic Classification System for Wetlands (Brinson 1993).

Wetlands are defined as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. An area must have at least one positive indicator of wetland vegetation, soils, and hydrology to be considered a wetland. Wetland determination data forms were completed for each wetland (Appendix A).

3.2.1 Vegetation

The dominant plants and their wetland indicator status were evaluated to determine if the vegetation was hydrophytic. Hydrophytic vegetation is generally defined as vegetation adapted to prolonged

saturated soil conditions. To meet the hydrophytic vegetation criterion, more than 50% of the dominant plants must be facultative (FAC), facultative wetland (FACW), or obligate (OBL), based on the plant indicator status.

Scientific and common plant names follow generally accepted nomenclature. Plant names are consistent with the PLANTS Database (USDA, NRCS 2022b), and the National Wetland Plant List (USACE 2020). During the field investigations, dominant plant species were observed and recorded on data forms for each sampling point (Appendix A). The National Wetland Plant List was also used to assign plant indicator status for observed plant species.

3.2.2 Soils

Soils were examined by excavating sample plots to a depth of 16 inches or more to observe soil profiles, colors, and textures. Munsell color charts (Munsell 2015) were used as objective standards to describe soil colors.

3.2.3 Hydrology

The study area was examined for evidence of hydrology. An area is considered to have wetland hydrology when soils are ponded or saturated consecutively for 12.5% of the growing season.

In the study area, the growing season as determined using the Pleasant Grove weather station is generally 202 days long and lasts from April 9 to October 28 (ACIS 2022). Therefore, ponding or saturation must be present for approximately 25 consecutive days at 28°F or warmer within the growing season. This aquatic resource delineation was conducted late in the growing season. According to the Pleasant Grove weather station, precipitation was within the normal range for the 3 months prior to the October field delineation. The study area received 0.12 inches of precipitation in the 2 weeks prior to the field visit, and no precipitation 1 week prior to the visit (ACIS 2022). According to the United States Drought Monitor map, the study area is mapped as experiencing severe drought. The current drought in Utah began in spring 2020; however, overall Utah has been experiencing “megadrought” conditions for the past 20 years (NIDIS 2022). With 99.39% of the Utah experiencing severe drought or worse, Utah Governor Spencer J. Cox issued an Executive Order on April 21, 2022, declaring a state of emergency due to drought (Utah Division of Water Resources 2022). Due to drought conditions, wetlands that periodically lack indicators of wetland hydrology were encountered. In these situations, biologists followed the protocols listed in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008).

3.3 Waters of the U.S. Ordinary High Water Mark Assessment

The study area was examined for evidence of streams using the definitions, methods, and standards established in *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States: A Delineation Manual* (Lichvar and McColley 2008) and the definition of the OHWM in the Clean Water Act in 33 CFR Part 328.3.

3.4 Jurisdictional Assessment

Delineated aquatic resources were evaluated for potential hydrologic or tributary connections between each wetland and traditional navigable waters (TNWs). The final ruling of the “Revised Definition of ‘Waters of the United States’” (EPA and USACE 2022) took effect on March 20, 2023. However, in light of preliminary injunctions as published on April 12, 2023, the Environmental Protection Agency (EPA) and the USACE

are interpreting "waters of the United States consistent with the pre-2015 regulatory regime in 26 States, including Utah, until further notice". Therefore, potential jurisdictional determination of delineated aquatic resources was evaluated against both rules, the Revised Definition of Water of the U.S. (EPA and USACE 2022) and the Waters of the U.S. (2008 Rapanos decision, EPA 2008). Biologists reviewed USGS 7.5-minute topographic quadrangle maps, NWI map data, Google Earth imagery, and the NHD to evaluate potential jurisdiction.

4. EXISTING CONDITIONS

4.1 Landscape Setting

The study area is approximately 50 acres in size and is located within municipal boundaries of the cities of American Fork and Lehi in Utah County, Utah. The entirety of the study area was field verified during the aquatic resources assessment.

The surrounding land use is a mix of single-family residences, commercial, and industrial as well as agricultural and public facilities. The study area is parallel to the I-15 until about West 400 South, where it turns east and the southern portion of the study area almost meets I-15 near American Fork Station. Prior to development, the surrounding land was largely used for agriculture purposes. In the northern portion of the study area, the land use is primarily residential. The southern portion of the study area is primarily pasture fields, commercial, and residential land uses. The local topography of the study area is a flat valley.

The southern portion of the study area is approximately 1.5 miles north of Utah Lake, which is the headwater of the Jordan River. The Jordan River is located to the west of the study area, and a number of the streams and canals that cross the study area drain to the Jordan River and Utah Lake. The Jordan River and Utah Lake are Traditional Navigable Waters (TNWs) under the the 2008 Rapanos decision and "Revised Definition of 'Waters of the United States'"(EPA and USACE 2022). The Jordan River is regulated by pumps at its headwaters at Utah Lake, and the tributaries of the Jordan River originate in the Wasatch Mountains to the east.

Hydrology inputs into the study area include stormwater runoff from the adjacent railroad tracks and roads and surface water from streams, ditches, and canals.

4.2 Mapped Soils

The USDA NRCS Soil Survey data indicate that the study area is underlain by 22 different soil units (Figure within Appendix B). Many of the mapped soil units are small inclusions within the study area. The soil units encompassing the majority of the study area are as follows:

- Map Unit Br – Bramwell silty clay loam (26% of study area)
- Map Unit Ss – Sunset loam, gravelly substratum (16% of study area)
- Map Unit VsA – Vineyard fine sandy loam, moderately saline, 0% to 2% slopes (16% of study area)

The Bramwell silty clay soil series consists of very deep, somewhat poorly drained, slowly permeable soils that were formed in mixed alluvium. These soils are present on floodplains and low terraces with slopes 0% to 4%. In a typical profile, the surface layer (0 to 10 inches) is a dark gray (10YR 4/1) silt loam, underlain with a dark grayish brown (10YR 4/2) silt loam (10 to 19 inches). This soil series has a hydric soil rating of 2%.

The Sunset loam soil series consists of very deep, somewhat poorly drained or moderately well-drained soils that formed in alluvium derived from mixed rocks. These soils are present on floodplains and low

stream terraces with slopes of 0% to 3%. In a typical profile, the surface layer (0 to 18 inches) is a very dark grayish brown (10YR 3/2) loam, underlain with a dark brown (10YR 3/3) loam (18 to 32 inches). It has a hydric soil rating of 0%.

The Vineyard fine sandy loam soil series consists of very deep, somewhat poorly drained or moderately well-drained soils that formed in alluvium derived from mixed rocks. These soils are present on level to strongly sloping lake terraces with slopes of 0% to 3%. In a typical profile, the surface layer (0 to 7 inches) is a very dark grayish brown (10YR 3/2) fine sandy loam, underlain with a brown (10YR 4/3 fine sandy loam. It has a hydric soil rating of 0%.

4.3 Previously Mapped Aquatic Resources

According to the National Wetland Inventory (NWI), there are seven mapped wetlands within the study area (USFWS 2022). These wetlands include five riverine wetlands (Cowardin code R4SBC) and two freshwater emergent wetlands (code PEM1C). The five riverine wetlands and one of the emergent wetlands were excavated channels, and several have since been impacted by development. The NHD maps Dry Creek, Spring Creek, two canal ditches, and two piped waterways within the study area (USGS 2022). Dry Creek is mapped as an intermittently flowing stream and Spring Creek is mapped as a perennially flowing stream. See NWI and NHD figures within Appendix B.

Wetlands within the study were previously delineated and reported in 2007 for the Provo to Salt Lake City Commuter Rail Project. Eight wetlands (W-25 to W-32), two streams (Spring Creek and Dry Creek), and one canal were mapped within the study area and are described in the *Final Environmental Impact Assessment and 4(f) Evaluation for Provo to Salt Lake City Commuter Rail Project*. The wetlands were identified as PSS and PEM wetlands and have been partially or fully impacted by the previous rail project construction. Additionally, significant development has occurred in the surrounding landscape since this 2007 delineation. This previous wetland mapping was used as a planning tool during the field delineation for this project.

4.4 Delineated Aquatic Resources

4.4.1 Overview

A field reconnaissance assessment was conducted by Kaylee Moser, PWS, from March 13 to 15, 2022. The aquatic resources field delineation was conducted by two wetland scientists, Kaylee Moser, PWS, and Irina Lapina, PWS, on October 15 and 18, 2022. Two wetlands, three streams, and four ditches were delineated within the study area. None of the wetlands are utilized for recreational, commercial, or industrial uses. Information on these aquatic resources is presented in Table 1 and the subsequent sections below. Figures 2a to 2h display the aquatic resource locations within the study area. Wetland data forms are available in Appendix A, supporting maps are in Appendix B, photographs are in Appendix C, OHWM data sheets are in Appendix D, and the aquatic resources excel sheet is in Appendix E.

Table 1. Aquatic Resources within Frontrunner American Fork Section Study Area

Aquatic Resource Name	Cowardin Class [a]	HGM Class [b]	Latitude/ Longitude	Aquatic Resource Size (acre)	Aquatic Resource Size (Linear feet of streams)	Anticipated Jurisdictional Determination [c]
Wetland AF-01	PEM	Depressional	40.407219, -111.875946	0.14	--	Jurisdictional; Wetland with significant nexus with TNW (2008) drains into relatively permanent non-navigable tributary (a)(4) (2022))
Wetland AF-02	PSS/PEM	Depressional	40.37359, -111.815507	0.77	--	Jurisdictional; drains into relatively permanent non-navigable tributary (a)(4)
Stream 1	R4SBCx	Riverine	40.394783, -111.860919	0.20	200	Jurisdictional; relatively permanent non-navigable tributary (a)(3)
Dry Creek	R4SBCx	Riverine	40.390677, -111.856354	0.03	100	Jurisdictional; Significant nexus with relatively permanent non-navigable tributary (a)(3)
Spring Creek	R5UBx	Riverine	40.377090, -111.831967	0.06	120	Jurisdictional; relatively permanent non-navigable tributary (a)(3)
Ditch D-1	R4SBCx	Riverine	40.403630, -111.871699	<0.01	40	Jurisdictional; Significant nexus with relatively permanent non-navigable tributary (a)(3)
Ditch D-2	R4x	Riverine	40.391671, -111.857288	0.01	50	Jurisdictional; Significant nexus with relatively permanent non-navigable tributary (a)(3)
Ditch D-3	R5UBx	Riverine	40.376349, -111.828648	0.03	70	Jurisdictional; relatively permanent non-navigable tributary (a)(3)
Ditch D-4	R5UBx	Riverine	40.373584, -111.815276	0.10	175	Jurisdictional; relatively permanent non-navigable tributary (a)(3)

[a] FGDC 2013; Cowardin et al. 1979

[b] Brinson 1993

c Following Rapanos Decision (2008) and "Revised Definition of 'Waters of the United States'(EPA and USACE 2022)

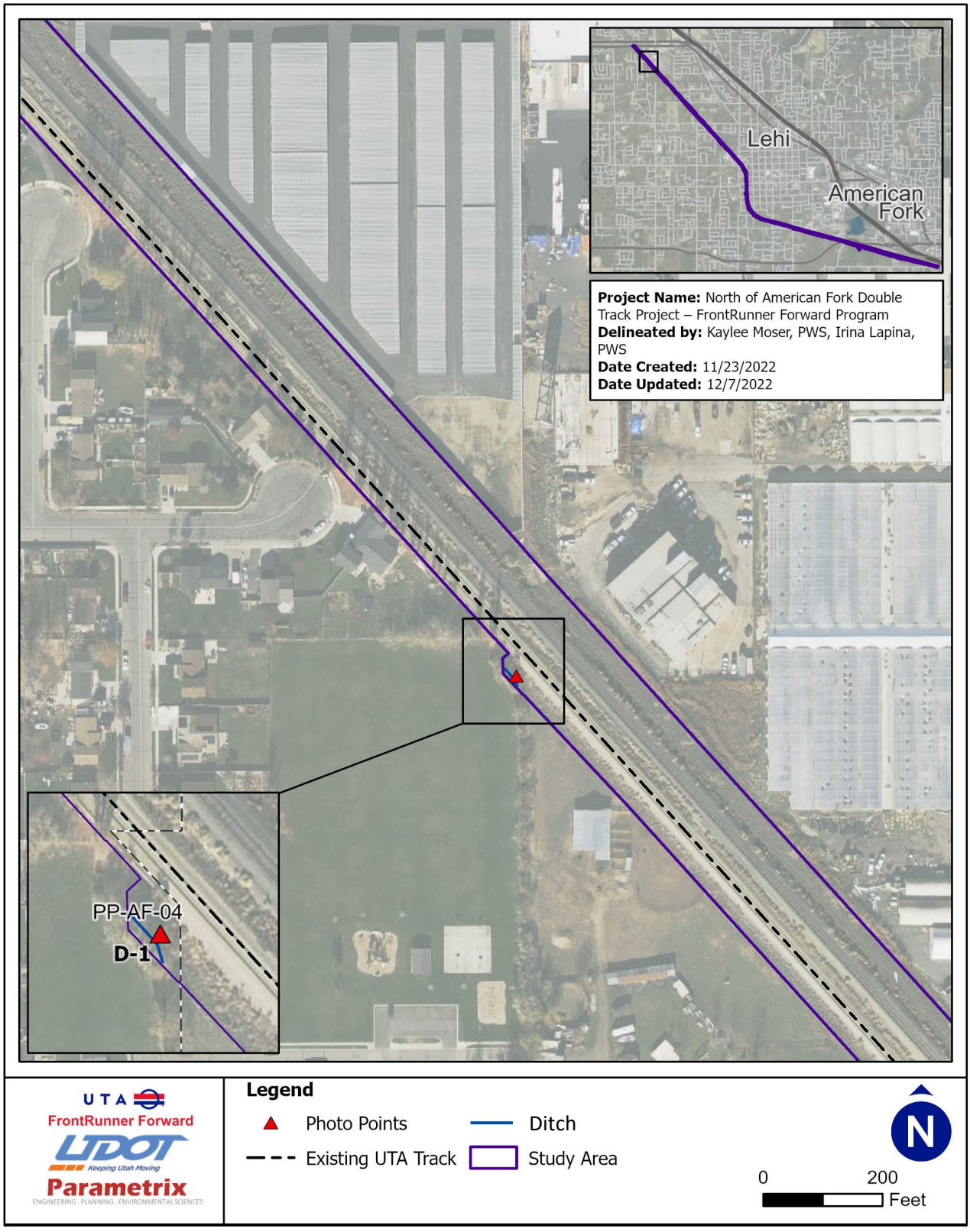


Figure 2a. Wetland Resource Delineation Maps

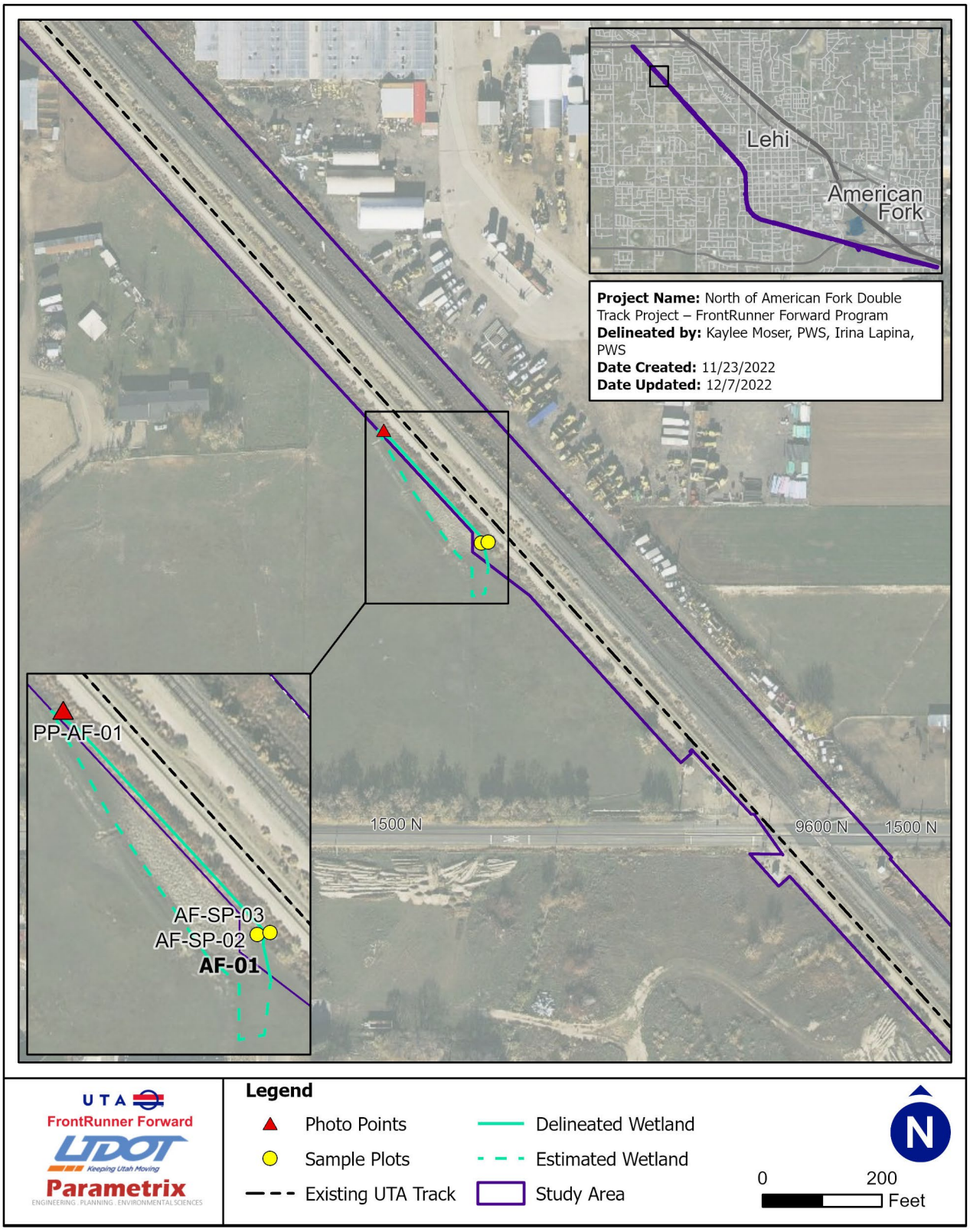


Figure 2b. Wetland Resource Delineation Maps

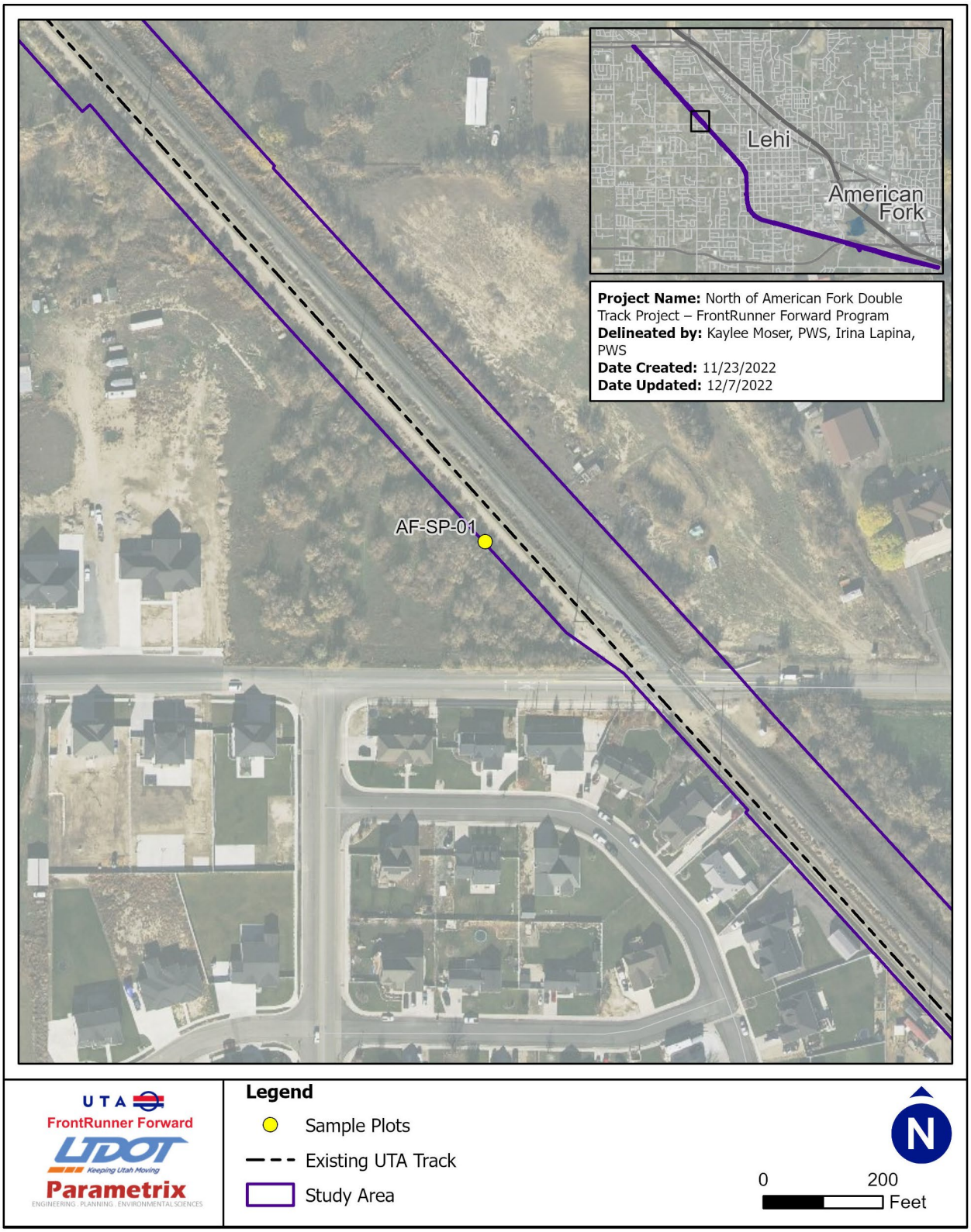


Figure 2c. Wetland Resource Delineation Maps

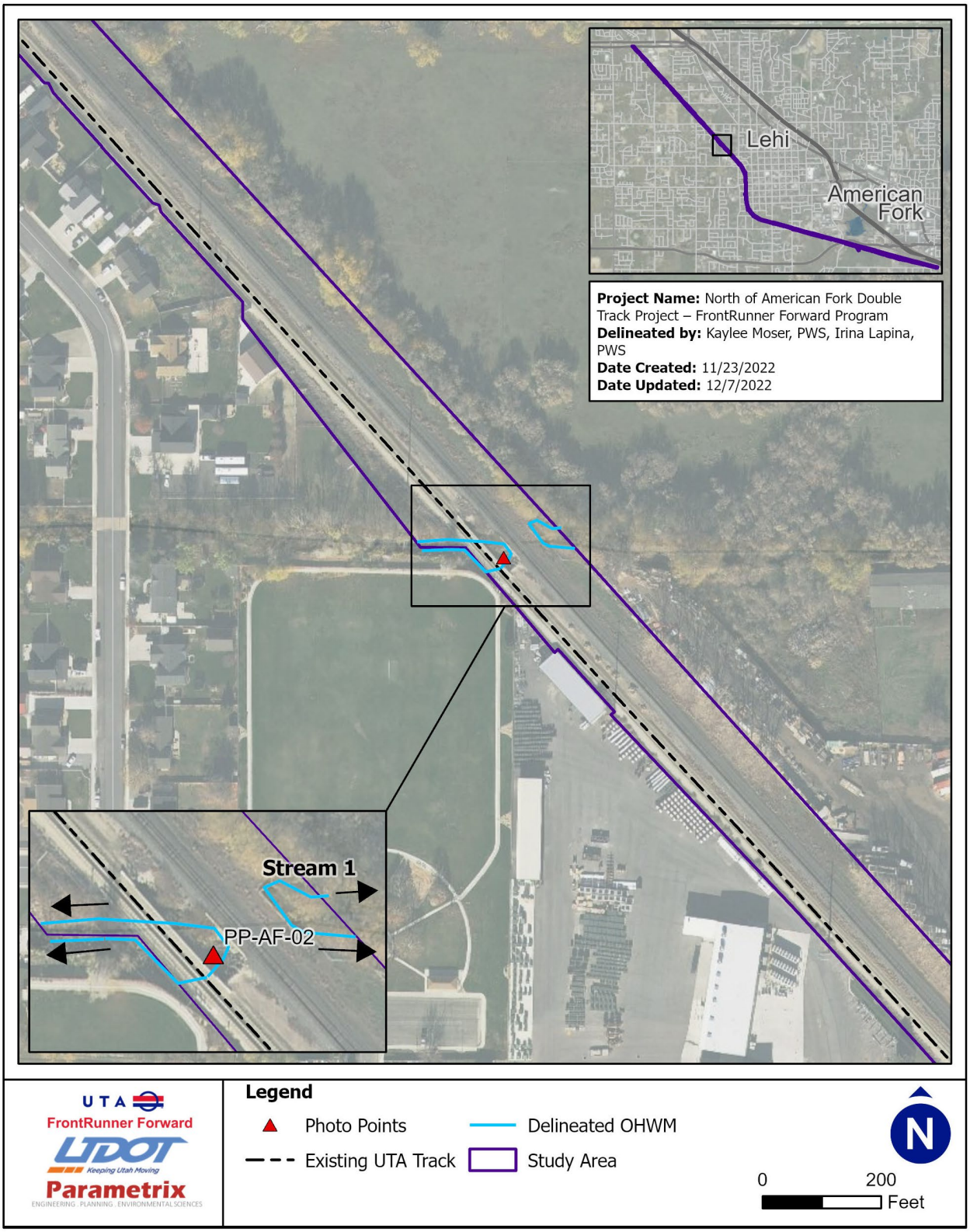


Figure 2d. Wetland Resource Delineation Maps

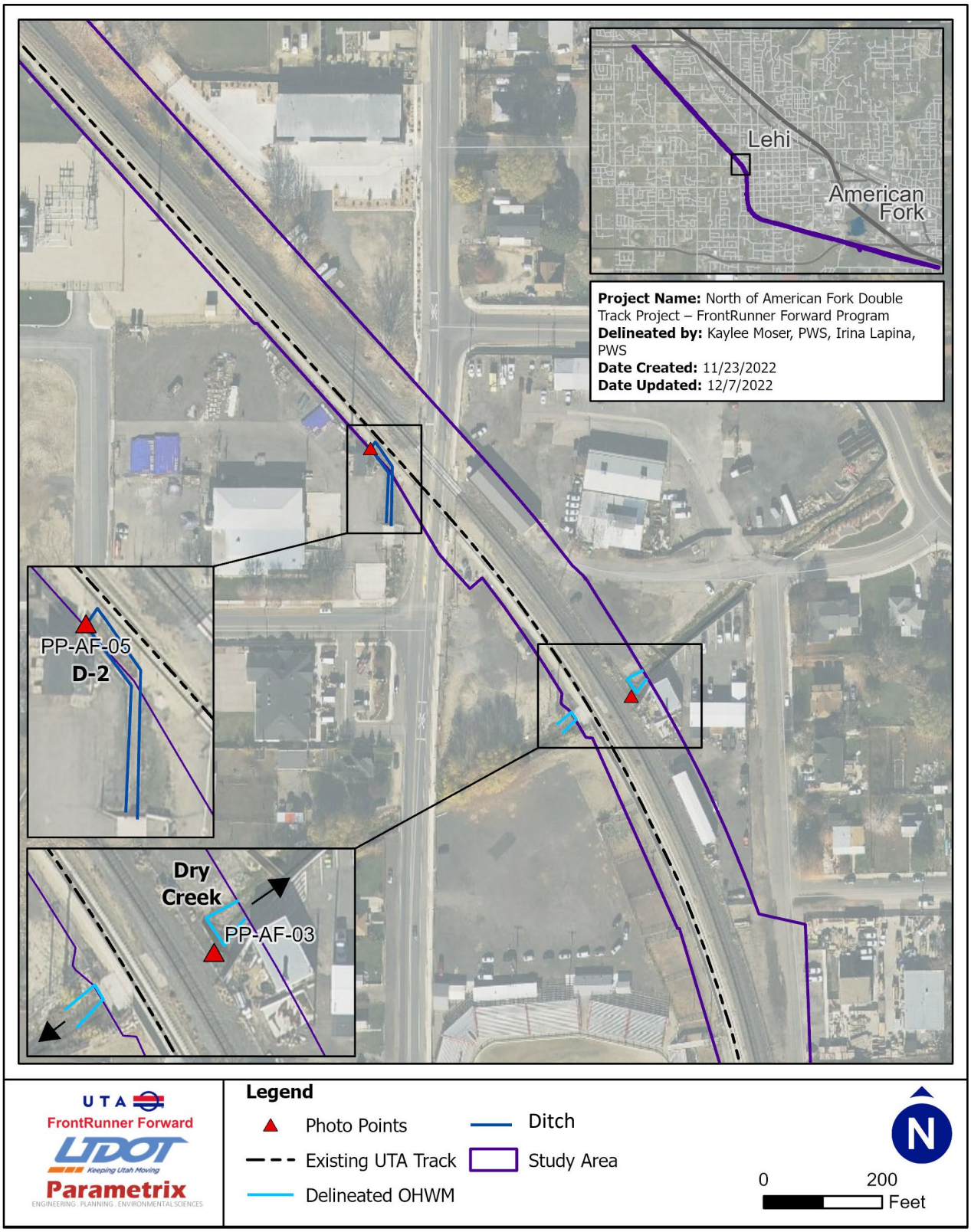


Figure 2e. Wetland Resource Delineation Maps

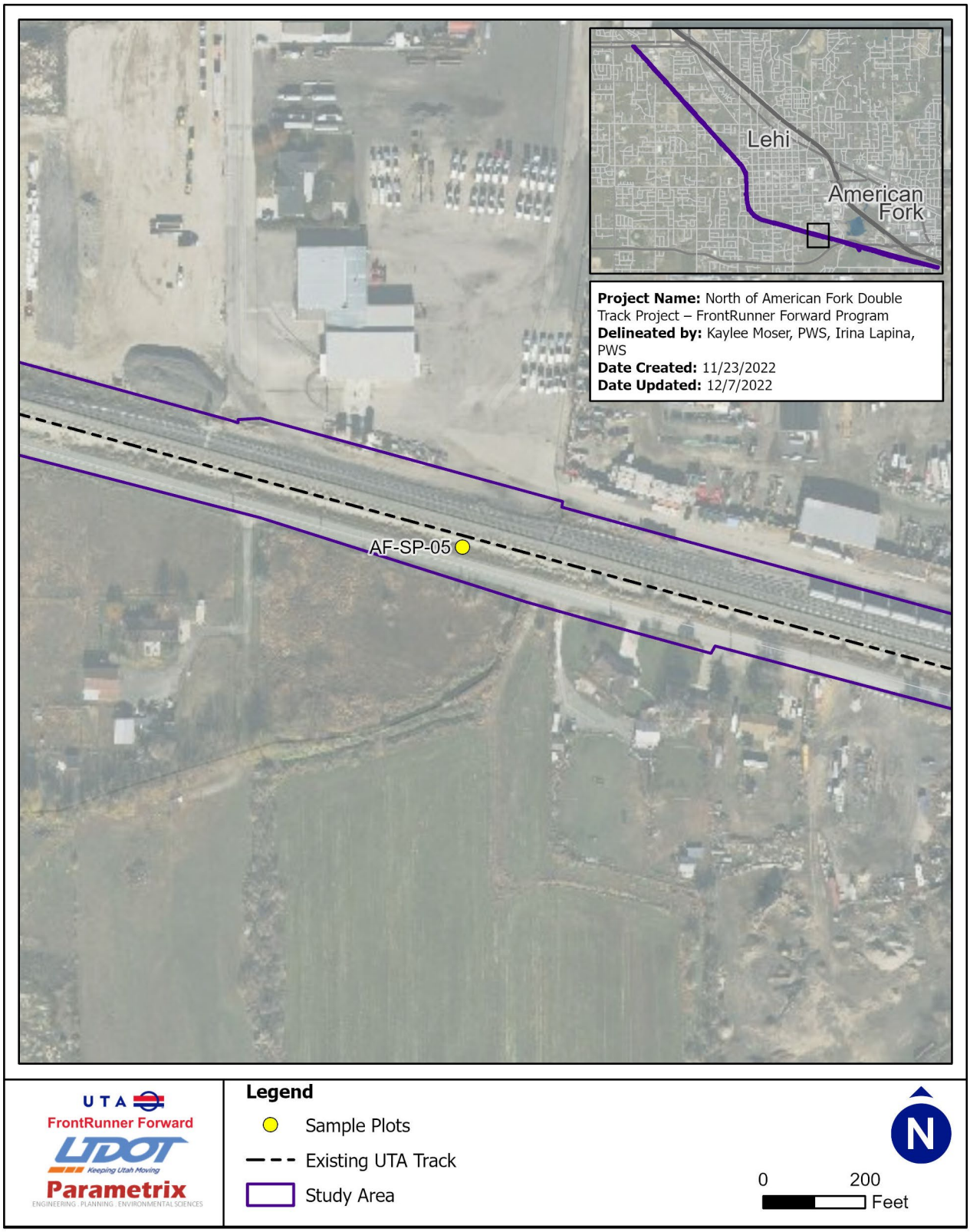


Figure 2f. Wetland Resource Delineation Maps

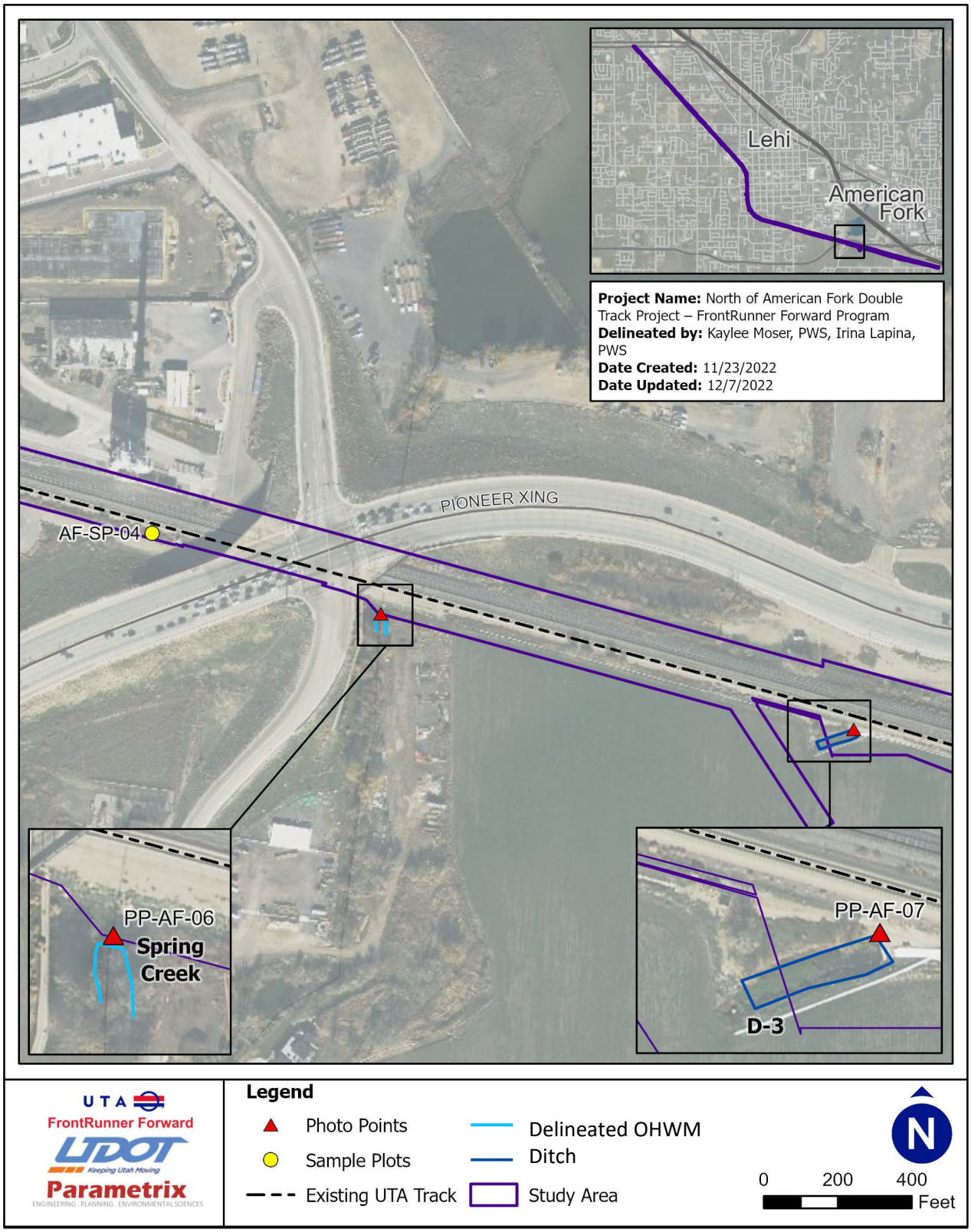


Figure 2g. Wetland Resource Delineation Maps

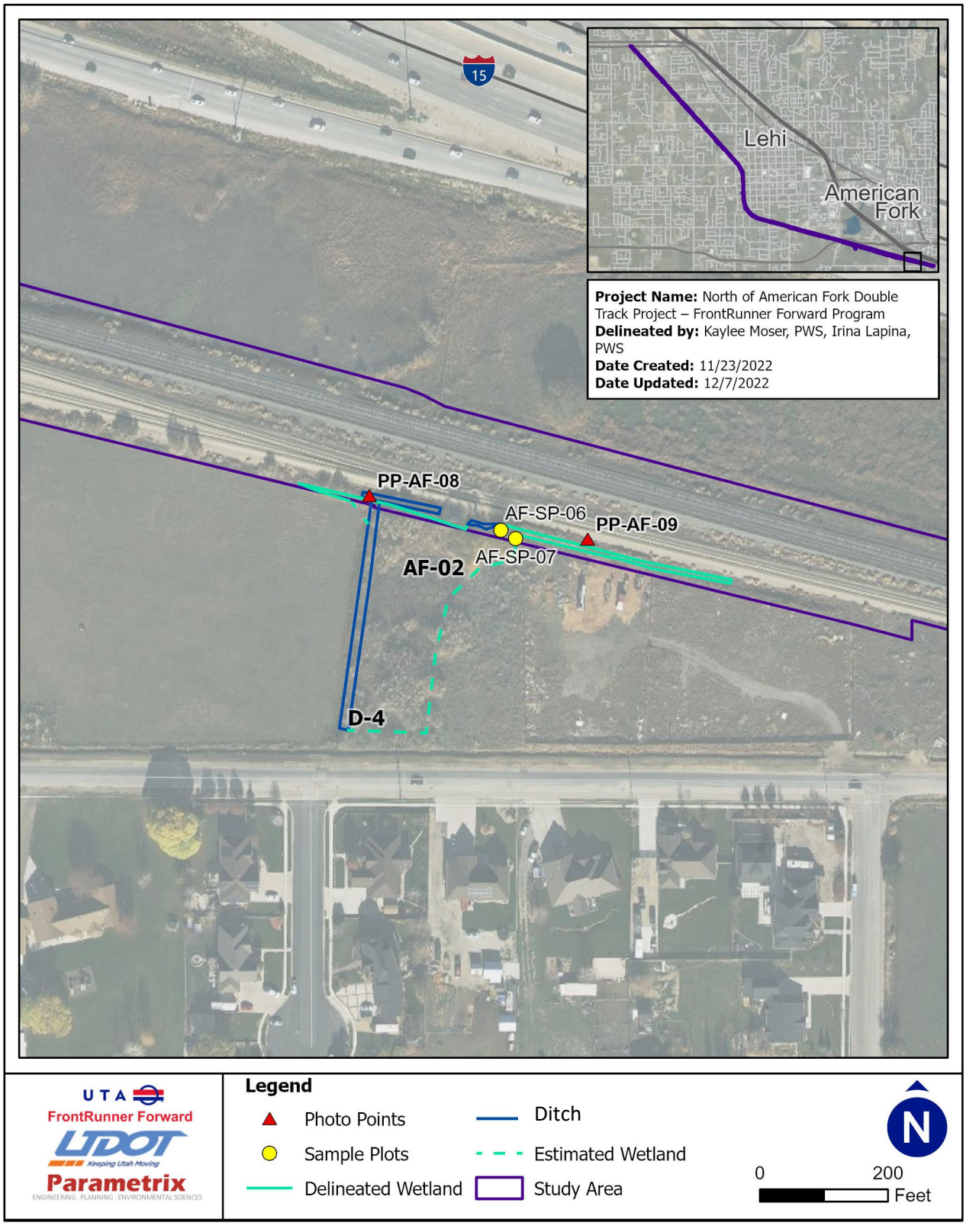


Figure 2h. Wetland Resource Delineation Maps

4.4.2 Wetlands

Wetland boundaries within the study area were delineated based on topography breaks defined by fill prisms, changes in vegetation, and presence/absence of hydric soil indicators.

Wetland AF-01: The biggest portion of this wetland is located within a pasture field directly north of West 9600 North Street outside of the study area. Only a very narrow edge of this wetland is located in the study area. Wetland hydrology is provided by stormwater runoff and irrigation practices. The wetland has a depressional HGM class (Brinson 1993) and appears to outlet into a ditch outside of the study area. Signs of ponding, including slightly vegetated concave surface and surface soil cracks, were observed within the wetland. No surface water, water table, or saturation was observed during the October 2022 delineation. Wetland AF-01 has a PEM Cowardin class (FGDC 2013; Cowardin et al. 1979). Vegetation within the wetland includes soft rush (*Juncus effusus*), common reed (*Phragmites australis*), Mexican fireweed (*Bassia scoparia*), and *Carex* species. Soils within Wetland AF-01 met the hydric soil indicator Depleted Matrix (F3). The soil profile had a sandy loam texture and 2.5Y 5/2 matrix with distinct redoximorphic features. Wetland AF-01 was previously mapped as Wetland W-32 during the 2007 Provo to Salt Lake City Commuter Rail Project.

Wetland AF-02: Wetland AF-02 is located at the southern end of the study area, southeast of the American Fork Frontrunner Station. Wetland hydrology is provided by flows from Ditch 4 and stormwater runoff. The wetland has a depressional HGM class (Brinson 1993). Ditch 4 flows north through the wetland and into a swale paralleling to the UTA track. No surface water, water table, or saturation was observed within the study area portion of the wetland during the October 2022 delineation. Secondary indicators of wetland hydrology, including drainage patterns (B10) and FAC-neutral test (D5), were present. In the portion of the wetland extending west (and outside of the study area), surface water was observed within the wetland near Ditch 4. Wetland AF-02 has PSS and PEM Cowardin classes (FGDC 2013; Cowardin et al. 1979). Vegetation within the wetland includes common reed, scouring rush (*Equisetum hyemale*), and coyote willow (*Salix exigua*). Soils within Wetland AF-02 met the hydric soil indicators Histic Epipedon (A2) and Redox Dark Surface (F6). The soil profile had a 6-inch fill material surface layer with a loam texture and 10YR 3/1 matrix. Below this layer the native wetland soils were present and had a peat texture and 10YR 2/1 matrix color. Wetland AF-02 was previously mapped as Wetland W-25 during the 2007 Provo to Salt Lake City Commuter Rail Project.

4.4.2.1 Plant Species List

In general, wetlands within the study area were predominantly vegetated with coyote willow, common reed, and soft rush. Upland plants species present within the study area were mainly cheatgrass (*Bromus tectorum*), Scotch thistle (*Onopordum acanthium*), Canada thistle (*Cirsium arvense*), and colonial bentgrass (*Agrostis capillaris*).

A list of the wetland and upland plant species observed in the study area and their assigned wetland indicator status is provided in Table 2.

Table 2. Common Plant Species Observed in the Study Area

Wetland Plant Species			
Genus	**Species**	**Common Name**	**USACE Arid West WIS***
Phragmites	*australis*	common reed	FACW
Bassia	*scoparia*	Mexican fireweed	FAC
Salix	*exigua*	coyote willow	FACW
Juncus	*effusus*	soft rush	FACW
Carex	*sp.*	Sedge	FACW
Equisetum	*hyemale*	scouring rush	FACW
Phalaris	*arundinacea*	reed canarygrass	FACW
Upland Plant Species			
Genus	**Species**	**Common Name**	**USACE Arid West WIS***
Bromus	*tectorum*	cheatgrass	UPL
Eurybia	*spectabilis*	showy aster	FAC
Ribes	*aureum*	golden currant	FAC
Onopordum	*acanthium*	Scotch thistle	NOL
Cirsium	*arvense*	Canada thistle	FACU
Elymus trachycaulus	*tectorum*	slender wheatgrass	FACU
Hordeum	*murinum*	wall barley	FACU
Agrostis	*capillaris*	colonial bentgrass	FAC
Arctium	*lappa*	Greater burdock	NI
Asclepias	*syriaca*	common milkweed	FACU

* Wetland Indicator Status (WIS):
OBL = occurs in aquatic resources > 99% of time
FACW = occurs in aquatic resources 67% to 99% of time
FAC = occurs in aquatic resources 34% to 66% of time
FACU = occurs in aquatic resources 1% to 33% of time
UPL = occurs in uplands > 99% of time
NI = indicator status not known in this region

4.4.3 Waters

Stream 1: Stream 1 is a channelized waterbody that flows west through the study area near Allred Park. The stream is labeled as “Waste Ditch” on the NHD and is mapped as a canal ditch (USGS 2022). Flows to the stream originate from Dry Creek near I-15 to the east, and the stream drains into the Jordan River. Within the study area, Stream 1 flows under the UP track through a concrete-lined box culvert and then into a natural stream channel and under a bridge supporting the UTA track. Between the UP and UTA tracks the stream is lined with riprap armoring along the banks, with a narrow fringe of shrub species. There is a small patch of reed canarygrass present within the stream channel. West of the bridge supporting the UTA track, the stream becomes more confined with increased riparian vegetation. During the October delineation, there was no stream flow within the channel, only small pockets of surface water. Flow within the channel picked up west of the bridge. The OHWM was determined by water marks along the riprap, scour, and sediment deposits. See the OHWM data sheet in Appendix D for more information.

Dry Creek: Dry Creek flows southwest within the center of the study area. Dry Creek originates in the Wasatch mountains and drains into Utah Lake. The NHD maps the stream as having intermittent flow (USGS 2022). This matches observations within the field. During the October 2022 delineation, the stream was completely dry and had upland plant species, such as dock (*Rumex crispus*), greater burdock (*Arctium lappa),* and Scotch thistle, within the channel. Dry Creek is conveyed through a concrete box culvert under the UP and UTA tracks within the accessible portion of the study area, the biologists estimated OHWM for the portion of the creek outside of accessible study area.

Spring Creek: Spring Creek flows south through the study area near the American Fork Frontrunner Station. The NHD maps Spring Creek as a perennial stream outflowing from Mill Pond and draining into Utah Lake (USGS 2022). The stream was actively flowing during the October 2022 delineation, with some wetland vegetation (reed canarygrass) present within the channel. Spring Creek is conveyed through a concrete box culvert under the UP and UTA tracks outside of the UTA right-of-way; therefore, the biologists did not delineate the OHWM.

Ditch 1 (D-1): Ditch 1 is at the north end of the study area. This excavated channel is approximately 2 feet wide and flows along a pasture field. It appears to be connected to a relatively permanent tributary of TNW outside of the study area. This feature was dry during the October 2022 delineation and likely has ephemeral flow. It is not mapped on the NHD (USGS 2022).

Ditch 2 (D-2): Ditch 2 is a concrete lined channel directly north of Dry Creek and conveys flows under the UP and UTA tracks. It is approximately 4 feet wide and has some fine sediment buildup with common cattail growth. This feature was dry during the October 2022 delineation and likely has ephemeral flow. It is not mapped on the NHD (USGS 2022).

Ditch 3 (D-3): Ditch 3 is located within a pasture field southeast of Spring Creek. The ditch is conveyed through a box culvert under the UP and UTA tracks. It flows through a channel for approximately 80 feet before flowing into a culvert within the pasture field. The channel is vegetated and had slow flowing surface water during the October 2022 delineation. This feature is mapped as a piped ephemeral waterway on the NHD (USGS 2022).

Ditch 4 (D-4): Ditch 4 is located at the southern end of the study area and provides hydrology to Wetland AF-02. The ditch flows north through shrub-scrub vegetation surrounded by pasture field and then outflows into a swale adjacent to the UTA track. A culvert under the UP and UTA tracks also outflows into the ditch where it parallels the track. There was no flow observed within the swale portion of the ditch during the October 2022 delineation. Surface water ponding within the ditch was observed in the pasture field to the south. Ditch 4 is not mapped on the NHD (USGS 2022).

4.5 Jurisdictional Assessment

Stream 1 and Spring Creek are considered relatively permanent non-navigable tributaries to TNWs (the Jordan River and Utah Lake, respectively) and are therefore anticipated to be jurisdictional as (a)(3) tributaries by USACE as defined under the “Revised Definition of ‘Waters of the United States’” (EPA and USACE 2022). Ditches 3 and 4 also support a relatively permanent flow and drain into a TNW; therefore, they are also anticipated to be jurisdictional as (a)(3) tributaries. Wetland AF-02 abuts Ditch 4 and is anticipated to be jurisdictional as a (a)(4) adjacent wetland. Dry Creek, Ditch 1, and Ditch 2 drain into Waters of the U.S. and are anticipated to be jurisdictional (a)(3) tributaries based on the application of a significant nexus analysis. Wetland AF-01 is jurisdictional as wetland that has a significant nexus with a traditional navigable water under the 2008 Rapanos decision, and as (a)(4) adjacent wetlands (EPA and USACE 2022).

5. REQUIRED DISCLAIMER

This report documents the investigation, best professional judgment, and conclusions of the investigators. It is correct and complete to the best of our knowledge. It should be considered a Preliminary Jurisdictional Determination of wetlands and other waters and used at your own risk unless it has been reviewed and approved through an approved or preliminary jurisdictional determination by USACE.

6. REFERENCES

ACIS (Applied Climate Information System). 2022. Climate Data for Davis County, Utah. Bountiful Bench, UT, Weather Station. Available at: https://agacis.rcc-acis.org.

Brinson, M.M. 1993. A Hydrogeomorphic Classification for Wetlands, Technical Report WRP-DE-4, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

Cowardin, L.M., W. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of Wetland and Deepwater Habitats of the United States. U.S. Fish and Wildlife Service, Office of Biological Service. Washington, D.C. FWS/OBS-79/31.

Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1, Environmental Laboratory, U.S. Army Corps of Engineers, Waterways Experiment Station, Vicksburg, MS.

EPA (Environmental Protection Agency). 2008. Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in Rapanos v. United States & Carabell v. United States. Available at: https://www.epa.gov/sites/default/files/2016-02/documents/cwa_jurisdiction_following_rapanos120208.pdf

EPA (U.S. Environmental Protection Agency) and USACE (U.S. Army Corps of Engineers). 2022. Final Rule Notice: Revised Definition of "Waters of the United States'". Available at https://www.epa.gov/wotus/current-implementation-waters-united-states.

FGDC (Federal Geographic Data Committee). 2013. Classification of Wetlands and Deepwater Habitats of the United States. FGDC-STD-004-2013. Second Edition. Wetlands Subcommittee, Federal Geographic Data Committee and U.S. Fish and Wildlife Service, Washington, D.C.

Google Earth. 2022. Vicinity of West 2300 North and Clearfield Station in Clearfield, Utah. Available at: https://earth.google.com/web. Accessed October 2022.

Lichvar, R.W. and S McColley. 2008. A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States: A Delineation Manual. ERDC/CRREL TR-08-12. Hanover, NH: U.S. Army Engineer.

Munsell Color. 2015. Munsell soil color charts with genuine Munsell color chips. Grand Rapids, MI.

NIDIS (National Integrated Drought Information System). 2022. United States Drought Monitor Conditions Mapper. Available at: https://www.drought.gov/states/utah. Accessed October 2022.

USACE (U.S. Army Corps of Engineers). 2005. Regulatory Guidance Letter 05-05 Ordinary High Water Mark Identification. Available at: https://www.usace.army.mil/Missions/Civil-Works/Regulatory-Program-and-Permits/Guidance-Letters/.

USACE. 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region. U.S. Army Corps of Engineers Engineer Research and Development Center, Vicksburg, MS.

USACE. 2020. National Wetland Plant List. Available at: https://wetland-plants.sec.usace.army.mil/nwpl_static/v34/species/species.html?DET=001100#. Accessed October 2022.

USDA, NRCS (Natural Resources Conservation Service). 2022a. Web soil survey online interactive mapper. Available at: http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx.

USDA (United States Department of Agriculture). 2022b. PLANTS Database. Available at: https://plants.usda.gov/home. Accessed October 2022.

USFWS (U.S. Fish and Wildlife Service). 2022. National Wetlands Inventory (NWI) online interactive mapper. Available at: http://www.fws.gov/wetlands/.

USGS (United States Geological Survey). 2020. USGS National Geospatial Program-Topographic Maps for Lehi. Available at: https://www.usgs.gov/programs/national-geospatial-program/topographic-maps. Accessed October 2022.

USGS. 2022. The National Map National Hydrology Dataset. Available at: https://apps.nationalmap.gov/viewer/. Accessed October 2022.

UTA (Utah Transit Authority). 2005. Final Environmental Impact Assessment and 4(f) Evaluation for Weber County to Salt Lake City Commuter Rail Project. Prepared by UTA, Salt Lake City, UT.

Utah Division of Water Resources. 2022. 2022 Drought Declaration. Available at: https://water.utah.gov/water-data/drought/drought-declaration/. April .

Appendix A

Wetland Data Forms

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Frontrunner / American Fork | City/County: Lehi/Utah County | Sampling Date: 10/14/22

Applicant/Owner: Utah Transit Authority | State: Utah | Sampling Point: **AF-SP-01**

Investigator(s): Kaylee Moser, Irina Lapina | Section, Township, Range: 5S1E8SWNW

Landform (hillslope, terrace, etc.): hillslope | Local relief (concave, convex, none): none | Slope (%): 3-5%

Subregion (LRR): (B) Columbia/Snake River Plateau | Lat: 40.399092 | Long: -111.866279 | Datum: D NAD 1983 2011

Soil Unit (Name-ID-Hydric Rating): Bramwell silty clay loam - Br - No | NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No	
Hydric Soil Present?	Yes		No	X
Wetland Hydrology Present?	Yes		No	X

Is the Sampled Area within a Wetland? Yes ____ No X

Precipitation prior to fieldwork:

According to the Pleasant Grove NOAA weather station, 0.0" of precipitation was received on the day of fieldwork and 0.12" during the two weeks prior. Precipitation was within the normal range for the three months prior to the site visit, however, the general area has been experiencing drought conditions for over 2 years.

Remarks:

AF-SP-01 is located in a phragmites patch north of 900 North Street and did not meet for hydric soils or wetland hydrology.

VEGETATION

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 3x1m)			
1. *none*			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot size: 2x1m)			
1. *none*			
2.			
3.			
4.			
5.			
	0% = Total Cover		
Herb Stratum (Plot size: 1x1m)			
1. *Phragmites australis*	80%	Yes	FACW
2. *Bassia scoparia*	10%	No	FAC
3. *Bromus tectorum*	5%	No	NOL
4. *Atriplex syriaca*	5%	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 2x1m)			
1. *none*			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 0% | % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

____ Prevalence Index is ≤3.0[1]

____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: AF-SP-01

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	[3]Texture	Remarks
0-16	2.5Y 5/4	100					Si	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

[3]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: none

Depth (inches): ___

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Frontrunner / American Fork | City/County: Lehi/Utah County | Sampling Date: 10/14/22

Applicant/Owner: Utah Transit Authority | State: Utah | Sampling Point: **AF-SP-02**

Investigator(s): Kaylee Moser, Irina Lapina | Section, Township, Range: 5S1E6SWSE

Landform (hillslope, terrace, etc.): hillslope | Local relief (concave, convex, none): none | Slope (%): <3%

Subregion (LRR): (B) Columbia/Snake River Plateau | Lat: 40.407139 | Long: -111.875816 | Datum: D NAD 1983 2011

Soil Unit (Name-ID-Hydric Rating): Bramwell silty clay loam - Br - No | NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area within a Wetland?**	**Yes X** **No**
Hydric Soil Present?	Yes X	No		
Wetland Hydrology Present?	Yes X	No		

Precipitation prior to fieldwork:

According to the Pleasant Grove NOAA weather station, 0.0" of precipitation was received on the day of fieldwork and 0.12" during the two weeks prior. Precipitation was within the normal range for the three months prior to the site visit, however, the general area has been experiencing drought conditions for over 2 years.

Remarks:

AF-SP-02 is located within Wetland AF-01 along fringe of irrigated field. Wetland extends slightly west beyond UTA fenceline.

VEGETATION

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 3x1m)			
1. *none*			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot size: 2x1m)			
1. *none*			
2.			
3.			
4.			
5.			
	0% = Total Cover		
Herb Stratum (Plot size: 1x1m)			
1. *Phragmites australis*	65%	Yes	FACW
2. *Cirsium arvense*	5%	No	FACU
3. *Carex species*	10%	No	FAC*
4. *Bassia scoparia*	5%	No	FAC
5. *Agrostis capillaris*	5%	No	FAC
6. *Juncus effusus*	5%	No	FACW
7. *Hordeum murinum*	3%	No	FACU
8. *Silybum marianum*	2%	No	NOL
9.			
10.			
11.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 2x1m)			
1. *none*			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 0% | % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: 0 (A)		0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

_____ Prevalence Index is ≤3.0[1]

_____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

_____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes X** **No** _____

Remarks:

SOIL

Sampling Point: AF-SP-02

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	[3]Texture	Remarks
0-16	2.5Y 5/2	85	10YR 4/4	5	C	M	SaL	
	10YR 3/1	10						mixed matrix

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

[3]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: none

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- X Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Water marks/surface soil cracks indicative of ponding in pasture field adjacent to sample point location.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Frontrunner / American Fork | City/County: Lehi/Utah County | Sampling Date: 10/14/22

Applicant/Owner: Utah Transit Authority | State: Utah | Sampling Point: **AF-SP-03**

Investigator(s): Kaylee Moser, Irina Lapina | Section, Township, Range: 5S1E6SWSE

Landform (hillslope, terrace, etc.): hillslope | Local relief (concave, convex, none): none | Slope (%): >10%

Subregion (LRR): (B) Columbia/Snake River Plateau | Lat: 40.407143 | Long: -111.875786 | Datum: D NAD 1983 2011

Soil Unit (Name-ID-Hydric Rating): Bramwell silty clay loam - Br - No | NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes **X**	No	**Is the Sampled Area within a Wetland?** Yes _____ No **X**
Hydric Soil Present?	Yes	No **X**	
Wetland Hydrology Present?	Yes	No **X**	

Precipitation prior to fieldwork:

According to the Pleasant Grove NOAA weather station, 0.0" of precipitation was received on the day of fieldwork and 0.12" during the two weeks prior. Precipitation was within the normal range for the three months prior to the site visit, however, the general area has been experiencing drought conditions for over 2 years.

Remarks:

AF-SP-03 located upslope of Wetland AF-01.

VEGETATION

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 3x1m)			
1. *none*			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot size: 2x1m)			
1. *none*			
2.			
3.			
4.			
5.			
	0% = Total Cover		
Herb Stratum (Plot size: 1x1m)			
1. *Phragmites australis*	70%	Yes	FACW
2. *Silybum marianum*	10%	No	NOL
3. *Atriplex sp.*	10%	No	FAC*
4. *Eurybia spectabilis*	10%	No	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 2x1m)			
1. *none*			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 0% | % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

_____ Prevalence Index is ≤3.0[1]

_____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

_____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes **X** No _____

Remarks:

SOIL

Sampling Point: AF-SP-03

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	[3]Texture	Remarks
0-11	10YR 5/3	100					SaL	
11-16	10YR 5/3	99	10YR 4/6	1	C	M	SaL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

[3]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: none

Depth (inches): ___

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___	
Water Table Present?	Yes ___	No X	Depth (inches): ___	**Wetland Hydrology Present?**
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___	**Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Frontrunner / American Fork | City/County: Lehi/Utah County | Sampling Date: 10/14/22
Applicant/Owner: Utah Transit Authority | State: Utah | Sampling Point: **AF-SP-04**
Investigator(s): Kaylee Moser, Irina Lapina | Section, Township, Range: 5S1E16SESE
Landform (hillslope, terrace, etc.): railroad swale | Local relief (concave, convex, none): concave | Slope (%): <3%
Subregion (LRR): (B) Columbia/Snake River Plateau | Lat: 40.377510 | Long: -111.833628 | Datum: D NAD 1983 2011
Soil Unit (Name-ID-Hydric Rating): Holdaway silt loam - Hr - Yes | NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No	
Hydric Soil Present?	Yes		No	X
Wetland Hydrology Present?	Yes		No	X

Is the Sampled Area within a Wetland? Yes ____ No X

Precipitation prior to fieldwork:
According to the Pleasant Grove NOAA weather station, 0.0" of precipitation was received on the day of fieldwork and 0.12" during the two weeks prior. Precipitation was within the normal range for the three months prior to the site visit, however, the general area has been experiencing drought conditions for over 2 years.

Remarks:
AF-SP-04 is located in a railroad swale north of overpass near American Fork station and did not meet for hydric soils or wetland hydrology.

VEGETATION

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 3x1m)			
1. *none*			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot size: 2x1m)			
1. *none*			
2.			
3.			
4.			
5.			
	0% = Total Cover		
Herb Stratum (Plot size: 1x1m)			
1. *Phragmites australis*	90%	Yes	FACW
2. *Bassia scoparia*	10%	No	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 2x1m)			
1. *none*			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 0% | % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
____ Prevalence Index is ≤3.0[1]
____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: AF-SP-04

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	[3]Texture	Remarks
0-5	10YR 3/2	70					Si	
	10YR 4/4	30					Si	mixed matrix
5-16	10YR 3/2	50					Si	
	10YR 4/4	50					Si	mixed matrix

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

[3]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- _____ 1 cm Muck (A9) (**LRR C**)
- _____ 2 cm Muck (A10) (**LRR B**)
- _____ Reduced Vertic (F18)
- _____ Red Parent Material (TF2)
- _____ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: none

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- _____ Water Marks (B1) (**Riverine**)
- _____ Sediment Deposits (B2) (**Riverine**)
- _____ Drift Deposits (B3) (**Riverine**)
- _____ Drainage Patterns (B10)
- _____ Dry-Season Water Table (C2)
- _____ Crayfish Burrows (C8)
- _____ Saturation Visible on Aerial Imagery (C9)
- _____ Shallow Aquitard (D3)
- _____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches):	_____
Water Table Present?	Yes _____	No X	Depth (inches):	_____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches):	_____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Frontrunner / American Fork | City/County: Lehi/Utah County | Sampling Date: 10/14/22

Applicant/Owner: Utah Transit Authority | State: Utah | Sampling Point: **AF-SP-05**

Investigator(s): Kaylee Moser, Irina Lapina | Section, Township, Range: 5S1E16SWSE

Landform (hillslope, terrace, etc.): railroad swale | Local relief (concave, convex, none): concave | Slope (%): <3%

Subregion (LRR): (B) Columbia/Snake River Plateau | Lat: 40.378537 | Long: -111.838525 | Datum: D NAD 1983 2011

Soil Unit (Name-ID-Hydric Rating): Bramwell silty clay loam - Br - No | NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Precipitation prior to fieldwork:

According to the Pleasant Grove NOAA weather station, 0.0" of precipitation was received on the day of fieldwork and 0.12" during the two weeks prior. Precipitation was within the normal range for the three months prior to the site visit, however, the general area has been experiencing drought conditions for over 2 years.

Remarks:

AF-SP-05 is located in a narrow common reed patch across the road from wetland but did not meet for hydric soils or wetland hydrology.

VEGETATION

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 3x1m)			
1. *none*			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot size: 2x1m)			
1. *none*			
2.			
3.			
4.			
5.			
	0% = Total Cover		
Herb Stratum (Plot size: 1x1m)			
1. *Phragmites australis*	100%	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 2x1m)			
1. *none*			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 0% | % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: 0 (A)		0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

_____ Prevalence Index is ≤3.0[1]

_____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

_____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

SOIL

Sampling Point: **AF-SP-05**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	[3]Texture	Remarks
0-9	10YR 3/1	80					SaL	mixed matrix
	10YR 4/4	20						
9-16	10YR 3/1	60					SaL	mixed matrix
	10YR 4/4	40						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

[3]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- _____ 1 cm Muck (A9) (**LRR C**)
- _____ 2 cm Muck (A10) (**LRR B**)
- _____ Reduced Vertic (F18)
- _____ Red Parent Material (TF2)
- _____ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: none

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** **X**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- _____ Water Marks (B1) (**Riverine**)
- _____ Sediment Deposits (B2) (**Riverine**)
- _____ Drift Deposits (B3) (**Riverine**)
- _____ Drainage Patterns (B10)
- _____ Dry-Season Water Table (C2)
- _____ Crayfish Burrows (C8)
- _____ Saturation Visible on Aerial Imagery (C9)
- _____ Shallow Aquitard (D3)
- _____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches):	_____
Water Table Present?	Yes _____	No X	Depth (inches):	_____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches):	_____

Wetland Hydrology Present? **Yes** _____ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Frontrunner / American Fork | City/County: Lehi/Utah County | Sampling Date: 10/14/22

Applicant/Owner: Utah Transit Authority | State: Utah | Sampling Point: **AF-SP-06**

Investigator(s): Kaylee Moser, Irina Lapina | Section, Township, Range: 5S1E22NENE

Landform (hillslope, terrace, etc.): railroad swale | Local relief (concave, convex, none): concave | Slope (%): <3%

Subregion (LRR): (B) Columbia/Snake River Plateau | Lat: 40.373555 | Long: -111.815130 | Datum: D NAD 1983 2011

Soil Unit (Name-ID-Hydric Rating): Chipman silty clay loam - Ck - No | NWI classification: PEM1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area within a Wetland?**	**Yes X** **No**
Hydric Soil Present?	Yes X	No		
Wetland Hydrology Present?	Yes X	No		

Precipitation prior to fieldwork:

According to the Pleasant Grove NOAA weather station, 0.0" of precipitation was received on the day of fieldwork and 0.12" during the two weeks prior. Precipitation was within the normal range for the three months prior to the site visit, however, the general area has been experiencing drought conditions for over 2 years.

Remarks:

AF-SP-06 is located in the railroad swale, Wetland AF-02. An unvegetated, cobble lined channel extends further north and south.

VEGETATION

		Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 3x1m)				
1.	*none*			
2.				
3.				
4.				
		0% = Total Cover		
Sapling/Shrub Stratum (Plot size: 2x1m)				
1.	*Salix exigua*	20%	Yes	FACW
2.				
3.				
4.				
5.				
		20% = Total Cover		
Herb Stratum (Plot size: 1x1m)				
1.	*Phragmites australis*	80%	Yes	FACW
2.	*Equisetum hyemale*	20%	Yes	FACW
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
		100% = Total Cover		
Woody Vine Stratum (Plot size: 2x1m)				
1.	*none*			
2.				
		0% = Total Cover		

% Bare Ground in Herb Stratum 0% | % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

_____ Prevalence Index is ≤3.0[1]

_____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

_____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes X** **No** _____

Remarks:

SOIL

Sampling Point: AF-SP-06

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	[3]Texture	Remarks
0-3	10YR 3/1	80					L	mixed matrix
	10YR 4/4	18	7.5YR 5/8	2				
3-9	10YR 2/1	85	7.5YR 5/8	15	C	M/PL	L	
	10YR 2/1	95	7.5YR 3/4	5			peat	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

[3]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- X Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: none

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

Wetland native soils are present at 9 inches and below, fill material above.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Recent drought has led to very dry conditions.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Frontrunner / American Fork | City/County: Lehi/Utah County | Sampling Date: 10/14/22

Applicant/Owner: Utah Transit Authority | State: Utah | Sampling Point: **AF-SP-07**

Investigator(s): Kaylee Moser, Irina Lapina | Section, Township, Range: 5S1E22NENE

Landform (hillslope, terrace, etc.): hillslope | Local relief (concave, convex, none): none | Slope (%): 3-5%

Subregion (LRR): (B) Columbia/Snake River Plateau | Lat: 40.373528 | Long: -111.815065 | Datum: D NAD 1983 2011

Soil Unit (Name-ID-Hydric Rating): Chipman silty clay loam - Ck - No | NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Precipitation prior to fieldwork:

According to the Pleasant Grove NOAA weather station, 0.0" of precipitation was received on the day of fieldwork and 0.12" during the two weeks prior. Precipitation was within the normal range for the three months prior to the site visit, however, the general area has been experiencing drought conditions for over 2 years.

Remarks:

AF-SP-07 is located on an upland berm feature adjacent to Wetland AF-02.

VEGETATION

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 3x1m)			
1. *none*			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot size: 2x1m)			
1. *none*			
2.			
3.			
4.			
5.			
	0% = Total Cover		
Herb Stratum (Plot size: 1x1m)			
1. *Onopordum acanthium*	50%	Yes	NOL
2. *Atriplex sp.*	10%	N	FAC*
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	50% = Total Cover		
Woody Vine Stratum (Plot size: 2x1m)			
1. *none*			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 50% | % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: 0 (A)		0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

____ Dominance Test is >50%

____ Prevalence Index is ≤3.0[1]

____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ____ **No X**

Remarks:

SOIL

Sampling Point: AF-SP-07

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	[3]Texture	Remarks
0-16	10YR 4/3	99	2.5Y 5/6	1	C	M	Gr SaL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

[3]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: compacted soils

Depth (inches): 8

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

Soil matrix consists of imported fill material creating upland berm.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Frontrunner / American Fork City/County: Lehi/Utah County Sampling Date: 10/14/22
Applicant/Owner: Utah Transit Authority State: Utah Sampling Point:
Investigator(s): Kaylee Moser, Irina Lapina Section, Township, Range:
Landform (hillslope, terrace, etc.): 0 Local relief (concave, convex, none): Slope (%):
Subregion (LRR): (B) Columbia/Snake River Plateau Lat: Long: Datum:
Soil Unit (Name-ID-Hydric Rating): - - NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No	**Is the Sampled Area within a Wetland?**	**Yes** **No**
Hydric Soil Present?	Yes	No		
Wetland Hydrology Present?	Yes	No		

Precipitation prior to fieldwork:
According to the Pleasant Grove NOAA weather station, 0.0" of precipitation was received on the day of fieldwork and 0.12" during the two weeks prior. Precipitation was within the normal range for the three months prior to the site visit, however, the general area has been experiencing drought conditions for over 2 years.

Remarks:

VEGETATION

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot size: 10')			
1.			
2.			
3.			
4.			
5.			
	0% = Total Cover		
Herb Stratum (Plot size: 5')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	0% = Total Cover		
Woody Vine Stratum (Plot size: 10')			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 100% % Cover of Biotic Crust

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 0 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	#DIV/0!	x 1 =	#DIV/0!
FACW species	#DIV/0!	x 2 =	#DIV/0!
FAC species	#DIV/0!	x 3 =	#DIV/0!
FACU species	#DIV/0!	x 4 =	#DIV/0!
UPL species	#DIV/0!	x 5 =	#DIV/0!
Column Totals:	#DIV/0! (A)		#DIV/0! (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
Dominance Test is >50%
Prevalence Index is ≤3.0[1]
Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Sampling Point:

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	[3]Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

[3]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No ___	Depth (inches):	___
Water Table Present?	Yes ___	No ___	Depth (inches):	___
Saturation Present? (includes capillary fringe)	Yes ___	No ___	Depth (inches):	___

Wetland Hydrology Present? **Yes** ___ **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Frontrunner / American Fork City/County: Lehi/Utah County Sampling Date: 10/14/22
Applicant/Owner: Utah Transit Authority State: Utah Sampling Point:
Investigator(s): Kaylee Moser, Irina Lapina Section, Township, Range:
Landform (hillslope, terrace, etc.): 0 Local relief (concave, convex, none): Slope (%):
Subregion (LRR): (B) Columbia/Snake River Plateau Lat: Long: Datum:
Soil Unit (Name-ID-Hydric Rating): - - NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No	**Is the Sampled Area within a Wetland?**	**Yes** **No**
Hydric Soil Present?	Yes	No		
Wetland Hydrology Present?	Yes	No		

Precipitation prior to fieldwork:
According to the Pleasant Grove NOAA weather station, 0.0" of precipitation was received on the day of fieldwork and 0.12" during the two weeks prior. Precipitation was within the normal range for the three months prior to the site visit, however, the general area has been experiencing drought conditions for over 2 years.

Remarks:

VEGETATION

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot size: 10')			
1.			
2.			
3.			
4.			
5.			
	0% = Total Cover		
Herb Stratum (Plot size: 5')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	0% = Total Cover		
Woody Vine Stratum (Plot size: 10')			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 100% % Cover of Biotic Crust

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 0 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	#DIV/0!	x 1 =	#DIV/0!
FACW species	#DIV/0!	x 2 =	#DIV/0!
FAC species	#DIV/0!	x 3 =	#DIV/0!
FACU species	#DIV/0!	x 4 =	#DIV/0!
UPL species	#DIV/0!	x 5 =	#DIV/0!
Column Totals:	#DIV/0! (A)		#DIV/0! (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
Dominance Test is >50%
Prevalence Index is ≤3.0[1]
Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Sampling Point:

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	[3]Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

[3]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No ___	Depth (inches):	___
Water Table Present?	Yes ___	No ___	Depth (inches):	___
Saturation Present? (includes capillary fringe)	Yes ___	No ___	Depth (inches):	___

Wetland Hydrology Present? **Yes** ___ **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Frontrunner / American Fork City/County: Lehi/Utah County Sampling Date: 10/14/22
Applicant/Owner: Utah Transit Authority State: Utah Sampling Point:
Investigator(s): Kaylee Moser, Irina Lapina Section, Township, Range:
Landform (hillslope, terrace, etc.): 0 Local relief (concave, convex, none): Slope (%):
Subregion (LRR): (B) Columbia/Snake River Plateau Lat: Long: Datum:
Soil Unit (Name-ID-Hydric Rating): - - NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No	**Is the Sampled Area within a Wetland?**	**Yes** **No**
Hydric Soil Present?	Yes	No		
Wetland Hydrology Present?	Yes	No		

Precipitation prior to fieldwork:
According to the Pleasant Grove NOAA weather station, 0.0" of precipitation was received on the day of fieldwork and 0.12" during the two weeks prior. Precipitation was within the normal range for the three months prior to the site visit, however, the general area has been experiencing drought conditions for over 2 years.

Remarks:

VEGETATION

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot size: 10')			
1.			
2.			
3.			
4.			
5.			
	0% = Total Cover		
Herb Stratum (Plot size: 5')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	0% = Total Cover		
Woody Vine Stratum (Plot size: 10')			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 100% % Cover of Biotic Crust

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 0 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	#DIV/0!	x 1 =	#DIV/0!
FACW species	#DIV/0!	x 2 =	#DIV/0!
FAC species	#DIV/0!	x 3 =	#DIV/0!
FACU species	#DIV/0!	x 4 =	#DIV/0!
UPL species	#DIV/0!	x 5 =	#DIV/0!
Column Totals:	#DIV/0! (A)		#DIV/0! (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
Dominance Test is >50%
Prevalence Index is ≤3.0[1]
Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Sampling Point:

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	[3]Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

[3]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No ___	Depth (inches): ___
Water Table Present?	Yes ___	No ___	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No ___	Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Appendix B

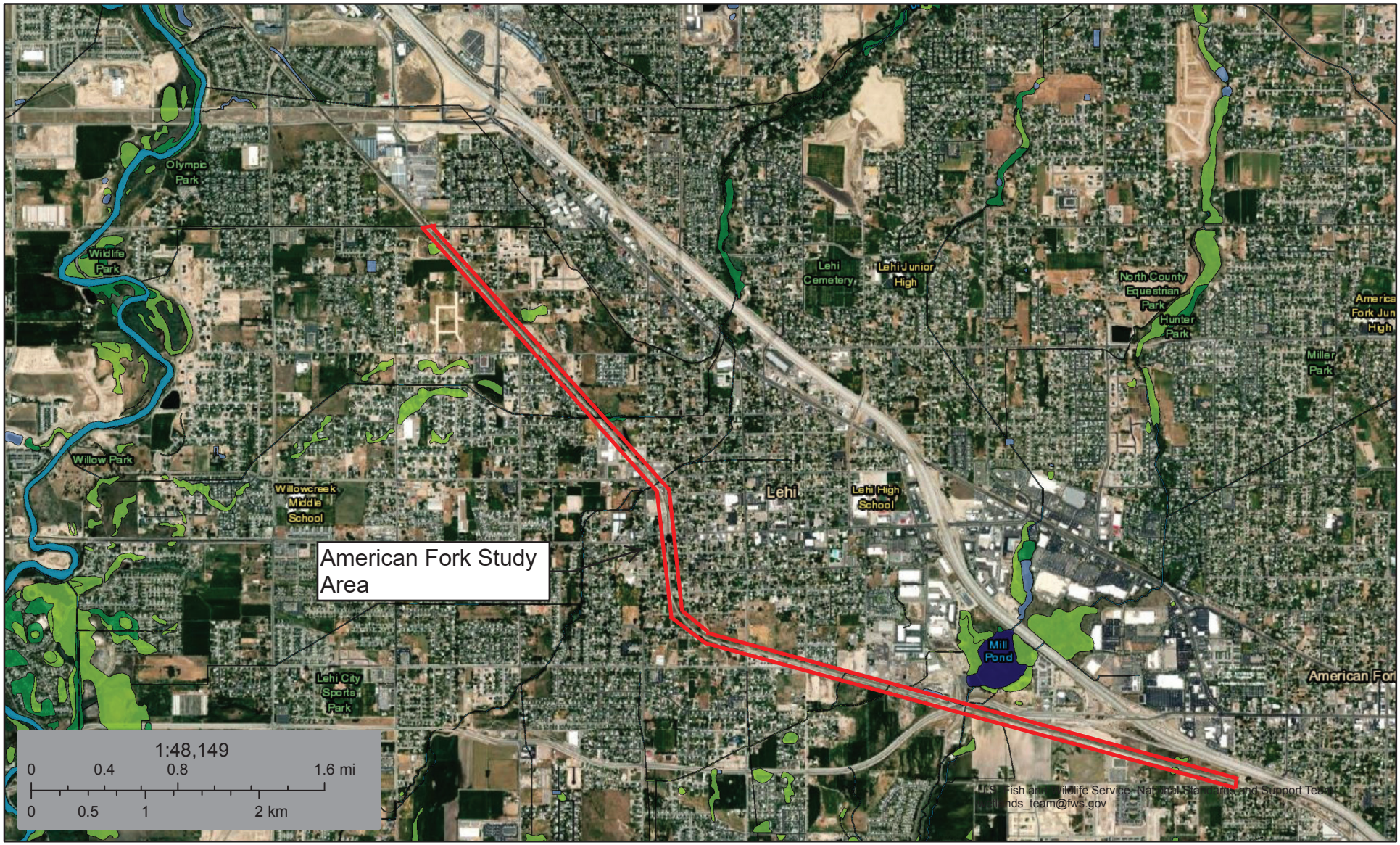
Supporting Documents

USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line data; USFS Road Data; Natural Earth Data; U.S. Department of State Humanitarian Information Unit; and NOAA National Centers for Environmental Information, U.S. Coastal Relief Model. Data refreshed June, 2022., USGS TNM – National Hydrography Dataset. Data Refreshed October, 2022.

U.S. Fish and Wildlife Service

National Wetlands Inventory

American Fork Study Area



December 3, 2022

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

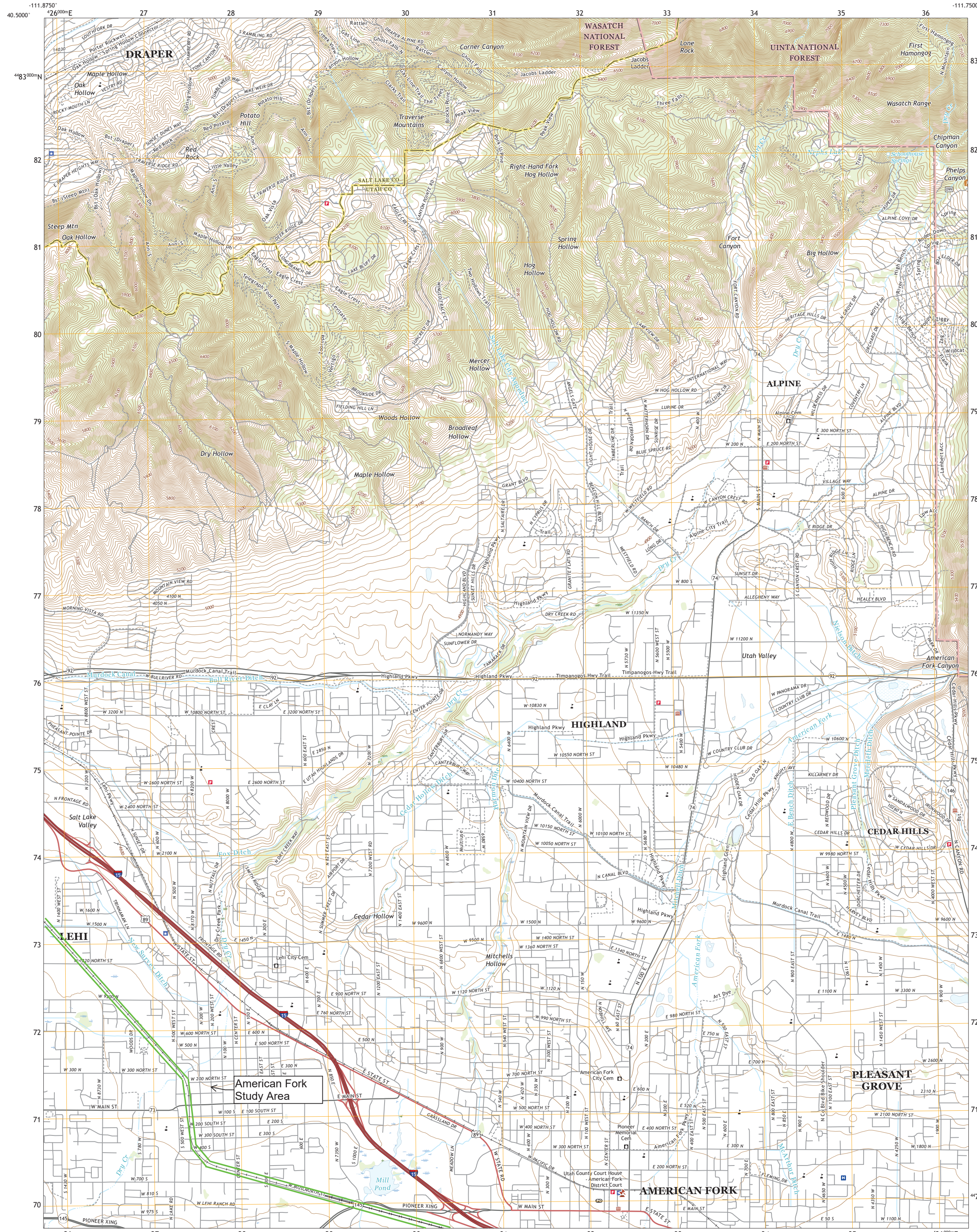
This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

The National Map
US Topo

LEHI QUADRANGLE
UTAH
7.5-MINUTE SERIES



Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and 1 000-meter grid: Universal Transverse Mercator, Zone 12T
This map is not a legal document. Boundaries may be generalized for this map scale. Private lands within government reservations may not be shown. Obtain permission before entering private lands.

Imagery....................NAIP, June 2016 - October 2016
Roads....................U.S. Census Bureau, 2016
Roads within US Forest Service Lands..........FSTopo Data with limited Forest Service updates, 2013 - 2016
Names....................GNIS, 1979 - 2020
Hydrography....................National Hydrography Dataset, 2002 - 2019
Contours....................National Elevation Dataset, 2001 - 2016
Boundaries....................Multiple sources; see metadata file 2019
Public Land Survey System....................BLM, 2019
Wetlands....................FWS National Wetlands Inventory 1981 - 1998

UTM GRID AND 2019 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

U.S. National Grid
100,000 - m Square ID
VK
Grid Zone Designation
12T

SCALE 1:24 000

CONTOUR INTERVAL 20 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

This map was produced to conform with the National Geospatial Program US Topo Product Standard, 2011.
A metadata file associated with this product is draft version 0.6.18

QUADRANGLE LOCATION

1 Midvale
2 Draper
3 Dromedary Peak
4 Jordan Narrows
5 Timpanogos Cave
6 Saratoga Springs
7 Pelican Point
8 Orem

ADJOINING QUADRANGLES

ROAD CLASSIFICATION
Expressway
Secondary Hwy
Ramp
Local Connector
Local Road
4WD
Interstate Route
US Route
State Route
FS Primary Route
FS Passenger Route
FS High Clearance Route

Check with local Forest Service unit for current travel conditions and restrictions.

LEHI, UT
2020

NSN. 7643016399745
NGA REF NO. USGSX24K25360

Rainfall Documentation

Date: 10/10/2022

Weather station: Pleasant Grove UT

Period of Record.: 1992-2022

County: Utah

State: UT

Growing season: 4/9-10/28 (202 days)

		Long-term rainfall records							
	Month	3 yrs. in 10 less than	Normal	3 yrs. in 10 more than	Rain fall	Condition dry, wet, normal	Condition value	Month weight value	Product of previous two columns
1st prior month*	Sept	0.68	1.36	1.64	1.52	normal	2	3	6
2nd prior month*	Aug	0.30	0.82	0.99	1.87	wet	3	2	6
3rd prior month*	July	0.27	0.57	0.67	0.12	dry	1	1	1
								Sum	**13**

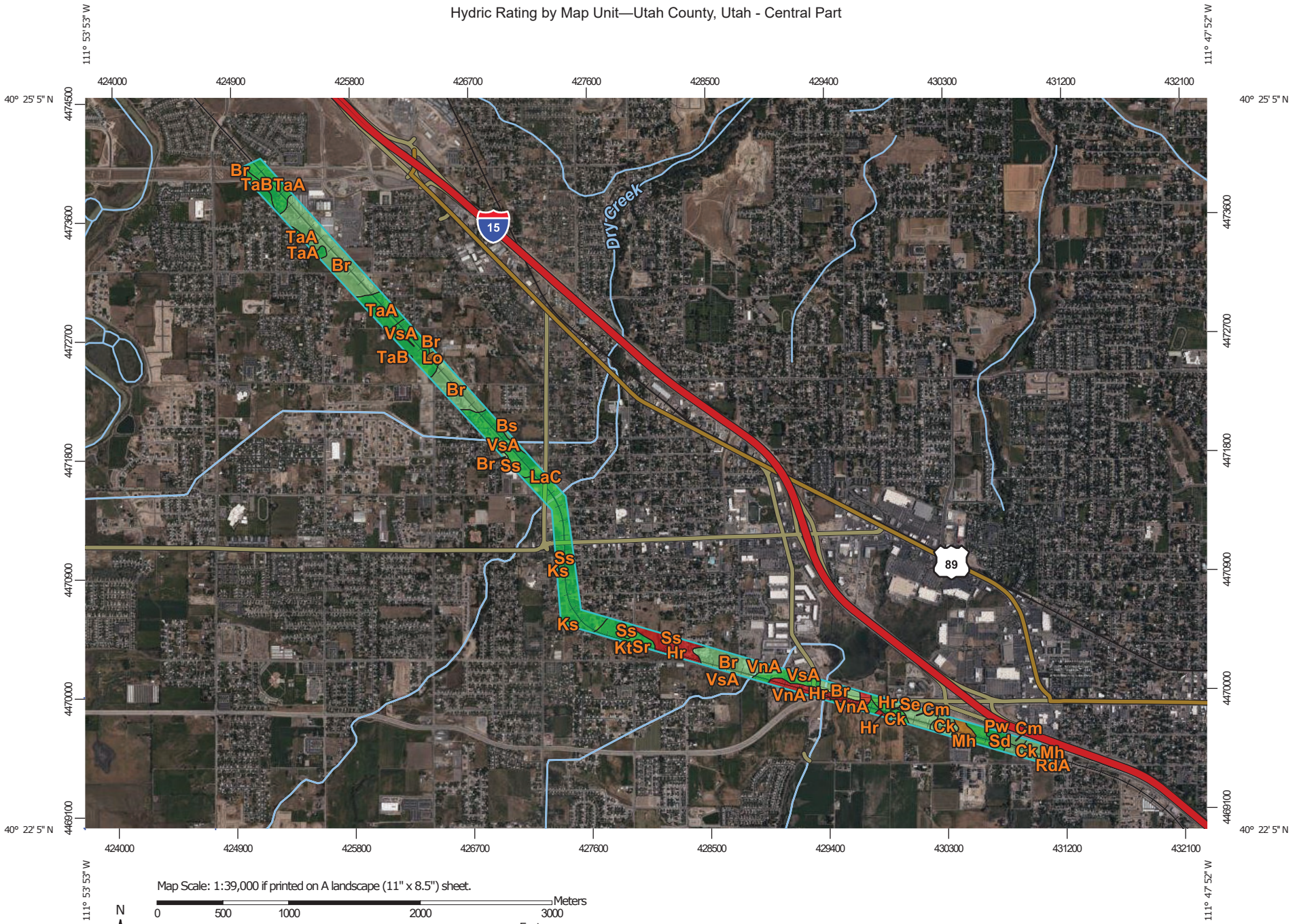
Note: If sum is

6 - 9	then prior period has been drier than normal
10 - 14	then prior period has been normal
15 - 18	then prior period has been wetter than normal

Condition value:

Dry	=1
Normal	=2
Wet	=3

Conclusions: The period prior to oct 2022 has been normal.
No precip oct 1-3 (no data beyond)
Sept 23-sept 30 = 0.12 in precip


111° 53' 53" W
111° 47' 52" W
424000
424900
425800
426700
427600
428500
429400
430300
431200
432100
40° 25' 5" N
40° 22' 5" N
4474500
4473600
4472700
4471800
4470900
4470000
4469100
Dry Creek
15
89
Br
TaB
TaA
VsA
Lo
Bs
LaC
Ss
Ks
KtSr
Hr
VnA
Se
Cm
Ck
Mh
Pw
Sd
RdA
Map Scale: 1:39,000 if printed on A landscape (11" x 8.5") sheet.
N
Meters
0
500
1000
2000
3000
Feet
0
1500
3000
6000
9000
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 12N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Soil Rating Lines
- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Soil Rating Points
- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Utah County, Utah - Central Part
Survey Area Data: Version 15, Aug 29, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 30, 2018—Aug 29, 2018

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydric Rating by Map Unit

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
1000	Parleys loam, 0 to 4 percent slopes	0	0.4	0.1%
Br	Bramwell silty clay loam	2	78.2	25.7%
Bs	Bramwell silty clay loam, drained	3	1.8	0.6%
Ck	Chipman silty clay loam	10	13.7	4.5%
Cm	Chipman silty clay loam, moderately deep water table	5	11.4	3.7%
Hr	Holdaway silt loam	100	27.2	9.0%
Ks	Kirkham silty clay loam	0	1.2	0.4%
Kt	Kirkham silty clay loam, moderately saline-alkali	0	10.1	3.3%
LaC	Lakewin gravelly fine sandy loam, 1 to 6 percent slopes	0	0.2	0.1%
Lo	Logan silty clay loam	95	1.4	0.5%
Mh	McBeth silt loam	95	5.7	1.9%
MU	Mixed alluvial land	100	0.3	0.1%
Pw	Provo gravelly fine sandy loam	0	2.4	0.8%
RdA	Redola loam, 0 to 3 percent slopes	0	0.0	0.0%
Sd	Steed sandy loam	0	6.8	2.2%
Se	Steed gravelly sandy loam	0	5.0	1.7%
Sr	Sunset loam	0	0.1	0.0%
Ss	Sunset loam, gravelly substratum	0	49.4	16.3%
TaA	Taylorsville silty clay loam, 0 to 1 percent slopes	0	29.0	9.5%
TaB	Taylorsville silty clay loam, 1 to 3 percent slopes	0	5.0	1.7%
VnA	Vineyard fine sandy loam, 0 to 2 percent slopes	0	3.6	1.2%
VsA	Vineyard fine sandy loam, moderately saline, 0 to 2 percent slopes	0	50.9	16.8%

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Totals for Area of Interest			**303.9**	**100.0%**

Description

This rating indicates the percentage of map units that meets the criteria for hydric soils. Map units are composed of one or more map unit components or soil types, each of which is rated as hydric soil or not hydric. Map units that are made up dominantly of hydric soils may have small areas of minor nonhydric components in the higher positions on the landform, and map units that are made up dominantly of nonhydric soils may have small areas of minor hydric components in the lower positions on the landform. Each map unit is rated based on its respective components and the percentage of each component within the map unit.

The thematic map is color coded based on the composition of hydric components. The five color classes are separated as 100 percent hydric components, 66 to 99 percent hydric components, 33 to 65 percent hydric components, 1 to 32 percent hydric components, and less than one percent hydric components.

In Web Soil Survey, the Summary by Map Unit table that is displayed below the map pane contains a column named 'Rating'. In this column the percentage of each map unit that is classified as hydric is displayed.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2006) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and Vasilas, 2006).

References:

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 436.

Soil Survey Staff. 2006. Keys to soil taxonomy. 10th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.

Rating Options

Aggregation Method: Percent Present

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

Appendix C

Photographs

PP-AF-01 within Wetland AF-01, looking west

PP-AF-02, within Stream 1, looking north.

PP-AF-03 within Dry Creek, looking northeast

PP-AF-04 within Ditch 1, looking southwest

PP-AF-05 within Ditch 2, looking south

PP-AF-06 within Spring Creek, looking south

PP-AF-07 within Ditch 3, looking south

PP-AF-08 within Ditch 4, looking south

PP-AF-09 within Wetland AF-02, looking north

PP number	Wetland ID	Lat/Long
PP-AF-01	AF-01	40° 24' 25.6788" 111° 52' 32.8512"
PP-AF-02	Stream 1	40° 23' 40.9704" 111° 51' 39.5856"
PP-AF-03	Dry Creek	40° 23' 26.7786" 111° 51' 22.0572"
PP-AF-04	Ditch 1	40° 24' 33.2388" 111° 52' 41.8218"
PP-AF-05	Ditch 2	40° 23' 29.9214" 111° 51' 26.3946"
PP-AF-06	Spring Creek	40° 22' 37.4124" 111° 49' 54.9726"
PP-AF-07	Ditch 3	40° 22' 35.0682" 111° 49' 42.387"
PP-AF-08	Ditch 4	40° 22' 25.2186" 111° 48' 56.4906"
PP-AF-09	AF-02	40° 22' 24.8088" 111° 48' 54.5322"

Appendix D

OHWM Data Sheets

OHWM Delineation Cover Sheet

Project: Frontrunner Double Track American Fork Section

Date: 10/20/22

Location: Lehi, UT

Investigator(s): Kaylee Moser/Irina Lapina

Project Description:

Proposed construction of double track of Frontrunner commuter rail lane adjacent to existing UTA commuter line.

Describe the river or stream's condition (disturbances, in-stream structures, etc.):

Stream 1 is a referred to as "Waste Ditch" in the National Hydrologic dataset. It is a channelized stream diverted from Dry Creek. Within the study area Stream 1 flows under the UP track through a concrete lined box culvert, and then into a natural stream channel and under a bridge at the adjacent UTA track crossing.

Off-site Information

Remotely sensed image(s) acquired? ☐ **Yes** ☒ **No** [If yes, attach image(s) to datasheet(s) and indicate approx. locations of transects, OHWM, and any other features of interest on the image(s); describe below] Description:

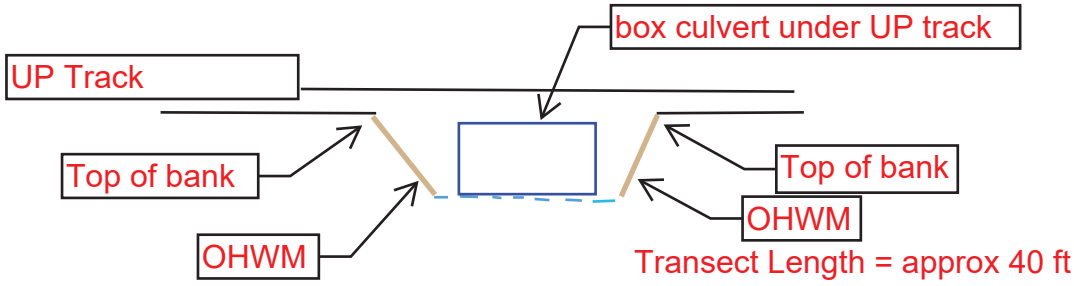
Hydrologic/hydraulic information acquired? ☐ **Yes** ☒ **No** [If yes, attach information to datasheet(s) and describe below.] Description:

List and describe any other supporting information received/acquired:

2007 Provo to Salt Lake City Frontrunner Final Environmental Study Report

Instructions: Complete one cover sheet and one or more datasheets for each project site. Each datasheet should capture the dominant characteristics of the OHWM along some length of a given stream. Complete enough datasheets to adequately document up- and/or downstream variability in OHWM indicators, stream conditions, etc. Transect locations can be marked on a recent aerial image or their GPS coordinates noted on the datasheet.

Transect (cross-section) drawing: (choose a location that is representative of the dominant stream characteristics over some distance; label the OHWM and other features of interest along the transect; include an estimate of transect length)



Break in Slope at OHWM: [x] Sharp (> 60°) | [ ] Moderate (30–60°) | [ ] Gentle (< 30°) | [ ] None

Notes/Description:

Bank steeply cut along RR fill prism @ OHWM and approx. 24 inches above the stream bed.

Sediment Texture: Estimate percentages to describe the general sediment texture above and below the OHWM

	Clay/Silt <0.05mm	Sand 0.05 – 2mm	Gravel 2mm – 1cm	Cobbles 1 – 10cm	Boulders >10cm	Developed Soil Horizons (Y/N)
Above OHWM	0%	10%	10%	20%	60%	N
Below OHWM	0%	30%	30%	10%	30%	N

Notes/Description:

Wider stream width between the UP and UTA tracks after stream flows out of box culvert, lots of boulders and large substrate with sand. The stream narrows downstream of the bridge.

Vegetation: Estimate absolute percent cover to describe general vegetation characteristics above and below the OHWM

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM	30%	30%	10%	30%
Below OHWM	5%	5%	20%	70%

Notes/Description: Trees,shrubs, line the channel with some reed canarygrass present within the channel.

Other Evidence: List/describe any additional field evidence and/or lines of reasoning used to support your delineation

Distinct water marks,scour, and sediment deposit.

Appendix E

Aquatic Resource Excel Sheet

Waters_Name	State	Cowardin_Code	HGM_Code	Meas_Type	Amount	Units	Waters_Type	Latitude	Longitude	Local_Waterway
Wetland AF-01	UTAH	PEM	DEPRESS	Area	0.14	ACRE	DELINEATE	40.40722	-111.87595	
Wetland AF-02	UTAH	PSS	DEPRESS	Area	0.77	ACRE	DELINEATE	40.37359	-111.81551	
Stream 1	UTAH	R4SB	RIVERINE	Linear	200	FOOT	DELINEATE	40.39478	-111.86092	
Dry Creek	UTAH	R4SB	RIVERINE	Linear	100	FOOT	DELINEATE	40.39068	-111.85635	
Spring Creek	UTAH	R5UB	RIVERINE	Linear	120	FOOT	DELINEATE	40.37709	-111.83197	
Ditch D-1	UTAH	R4SB	RIVERINE	Linear	40	FOOT	DELINEATE	40.40363000	-111.87169900	
Ditch D-2	UTAH	R4	RIVERINE	Linear	50	FOOT	DELINEATE	40.39160000	-111.85728800	
Ditch D-3	UTAH	R5UB	RIVERINE	Linear	70	FOOT	DELINEATE	40.37634900	-111.82864800	
Ditch D-4	UTAH	R5UB	RIVERINE	Linear	175	FOOT	DELINEATE	40.37358400	-111.81527600	