

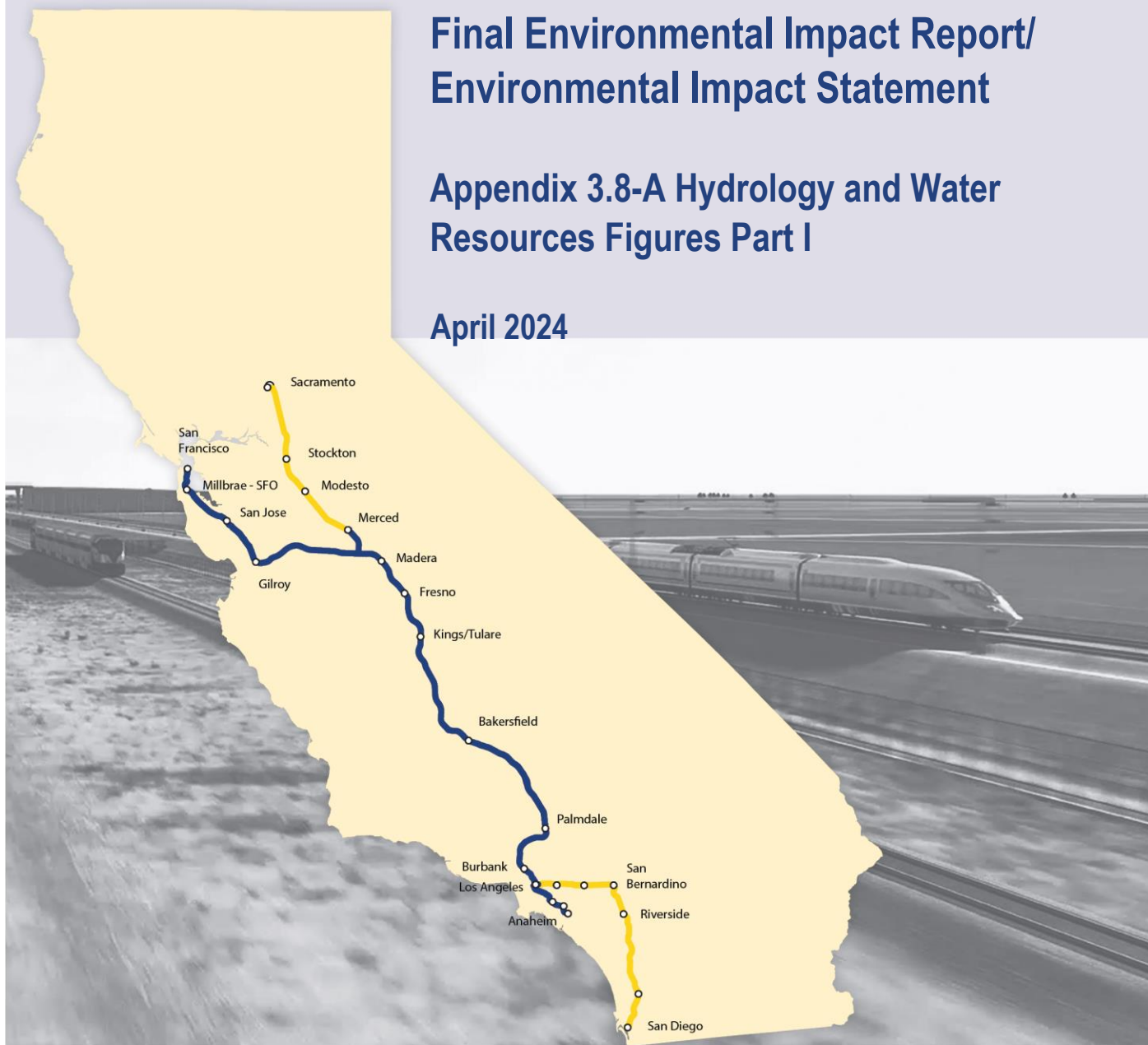
California High-Speed Rail Authority

# *Palmdale to Burbank* *Project Section*

Final Environmental Impact Report/  
Environmental Impact Statement

Appendix 3.8-A Hydrology and Water  
Resources Figures Part I

April 2024



The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being or have been carried out by the State of California pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated July 23, 2019, and executed by the Federal Railroad Administration and the State of California.

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## Appendix 3.8-A Hydrology and Water Resources Figures Part I

Since the publication of the Palmdale to Burbank Project Section Draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS), this appendix has been updated to include the Refined SR14 Build Alternative in Figures 3.8-A-20 through 3.8-A-23. Additionally, the following figures were revised to reflect the Bee Canyon/Pacoima Wash design refinement:

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- Figure 3.8-A-23
- Figure 3.8-A-30
- Figure 3.8-A-32
- Figure 3.8-A-33
- Figure 3.8-A-34
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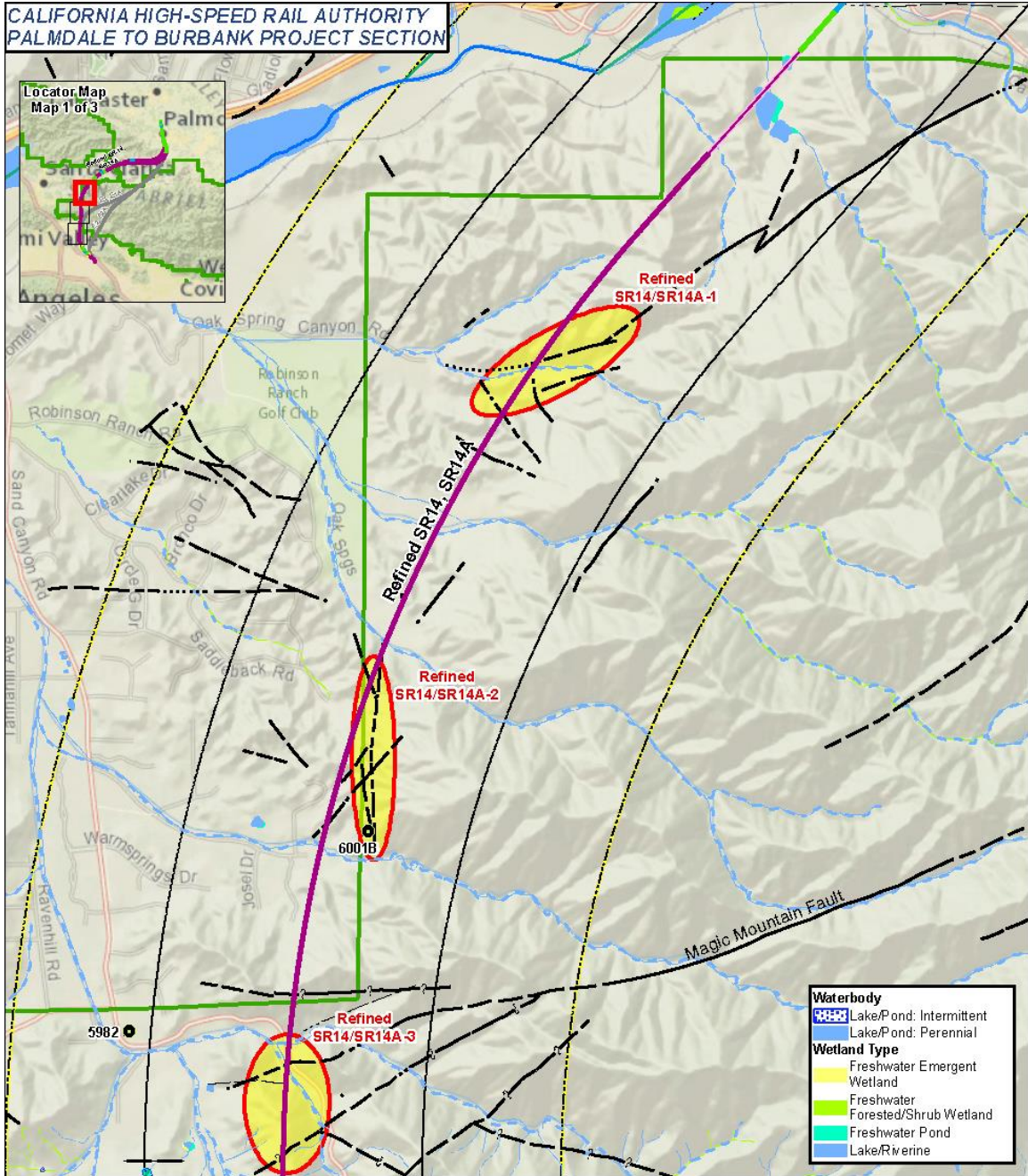
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PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED September 25, 2020

Source: Authority, 2020;  
 Kleinfelder, 2020;  
 USFWS, 2019;  
 USGS, 2011, 2012

Figure 3.8-A-1 Tunnel Construction RSA Detailed Map Refined SR14/SR14A (Map 1 of 3)



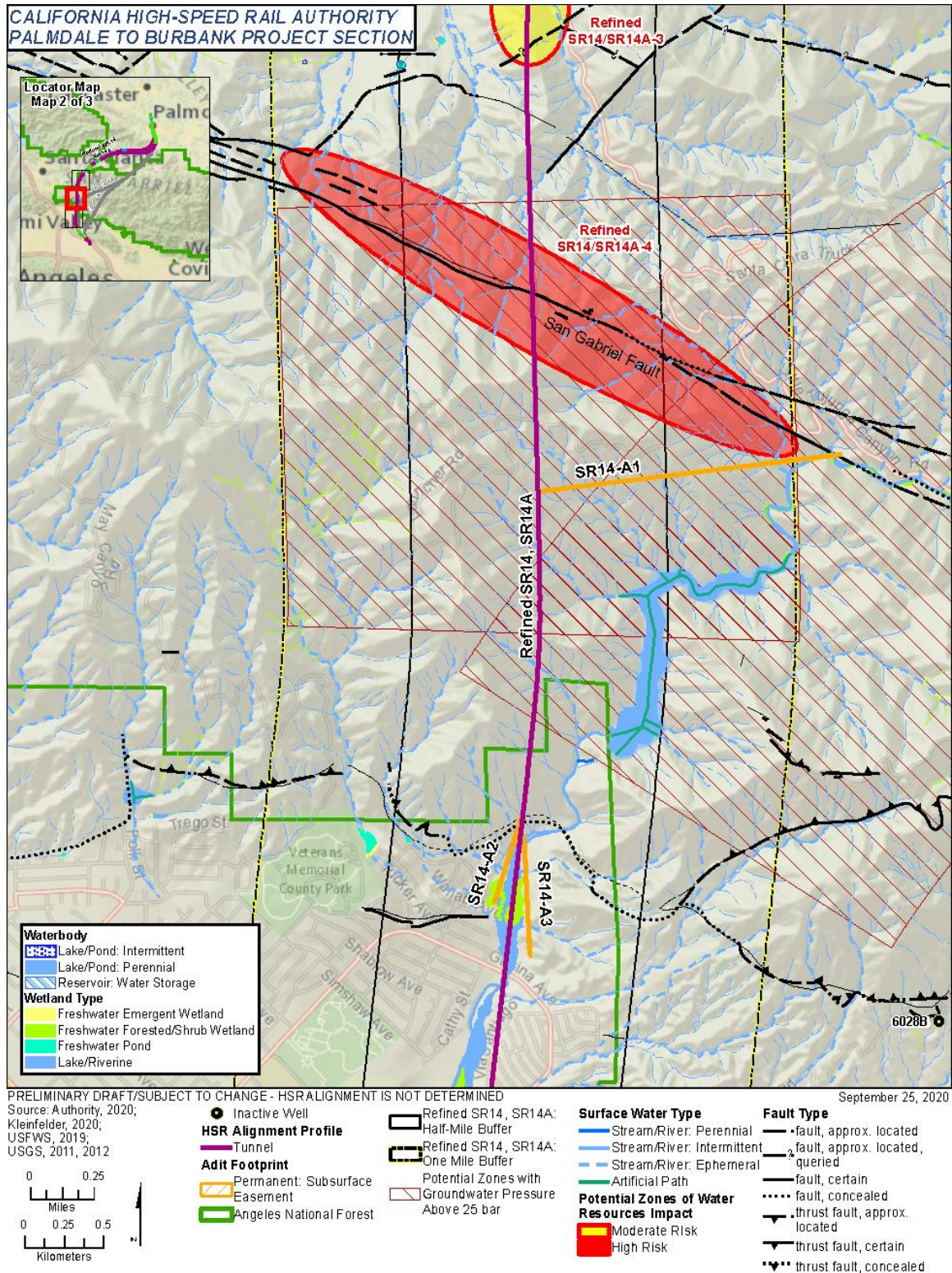


Figure 3.8-A-2 Tunnel Construction RSA Detailed Map Refined SR14/SR14A (Map 2 of 3)



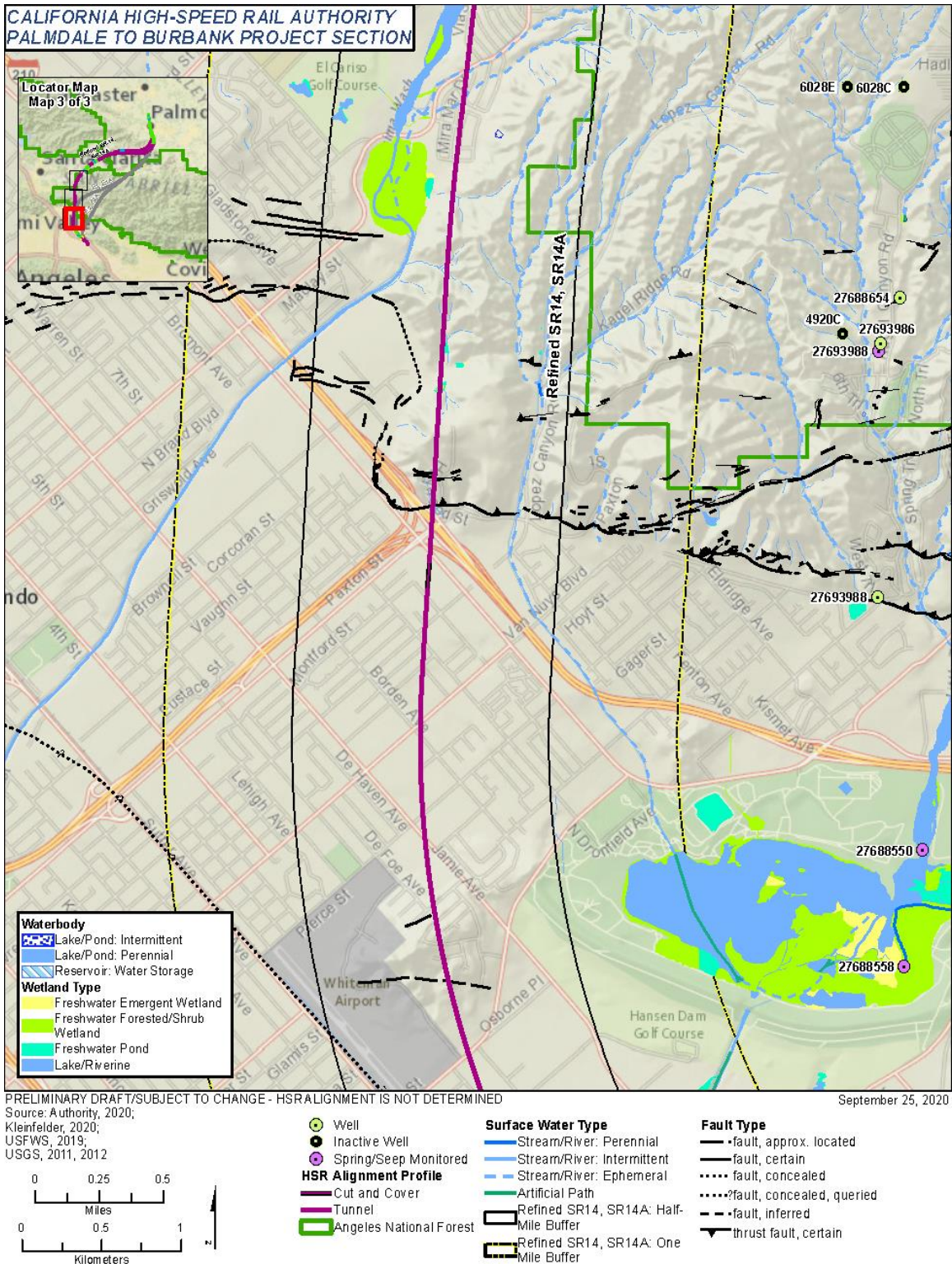
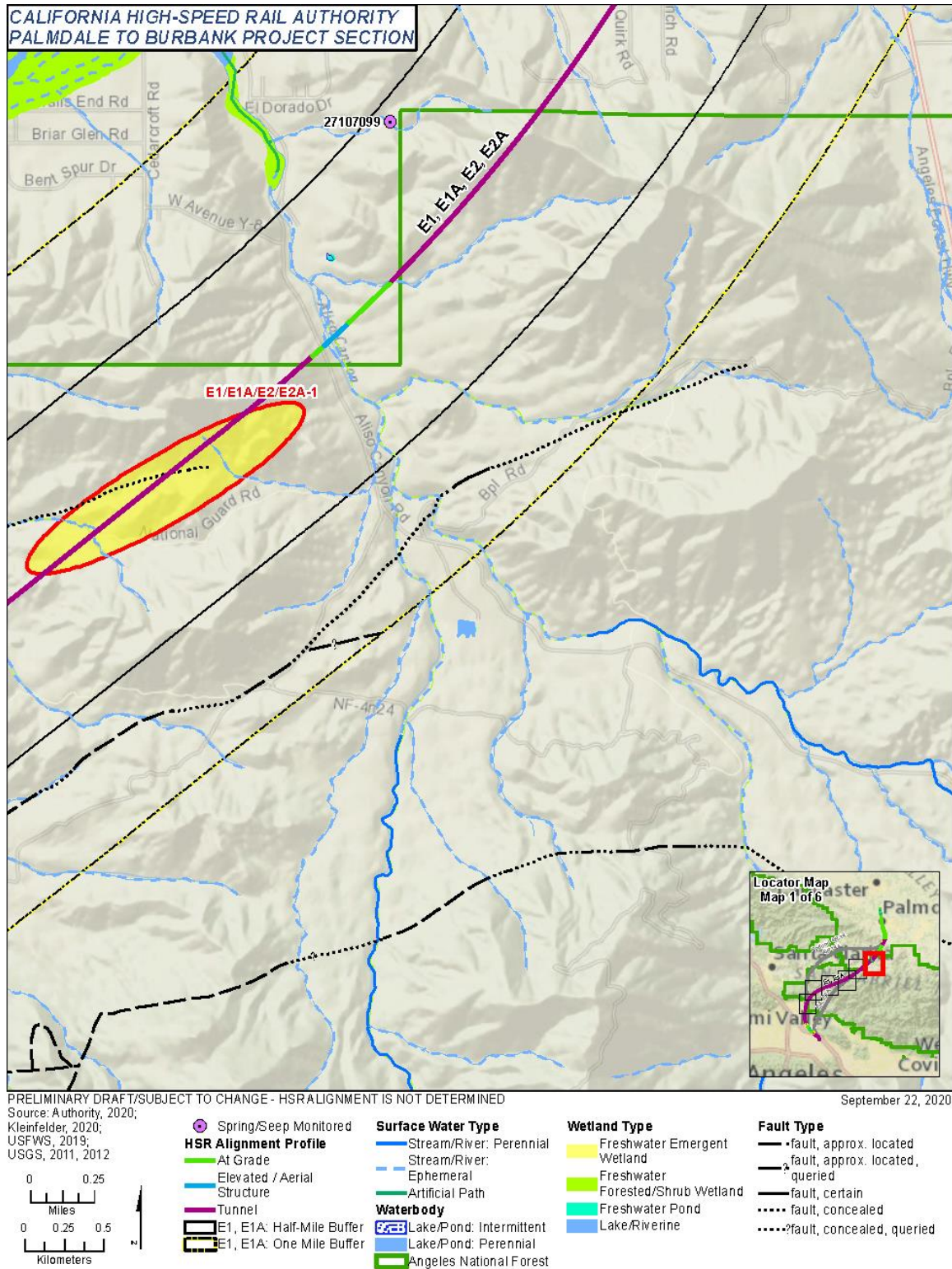
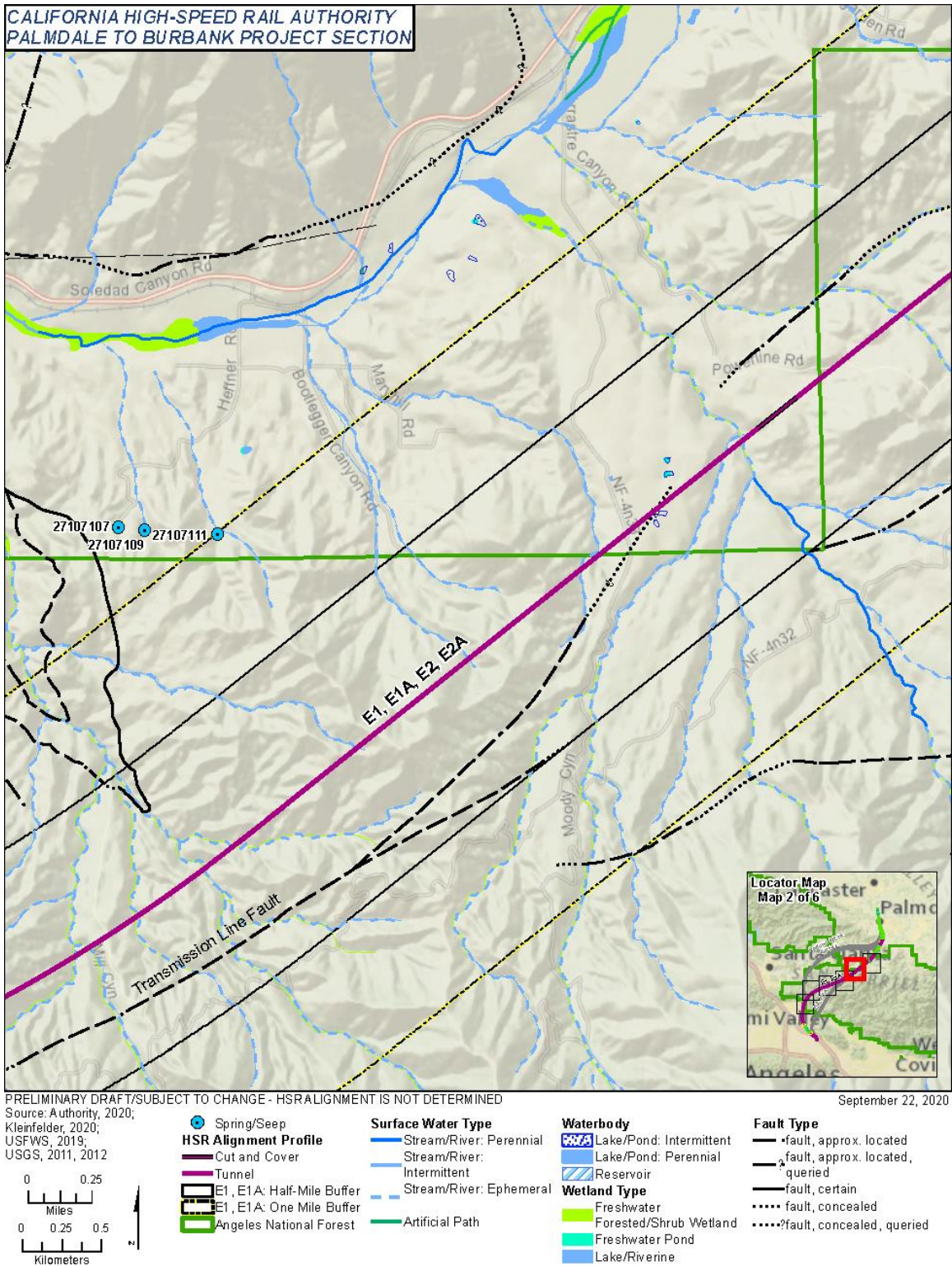


Figure 3.8-A-3 Tunnel Construction RSA Detailed Map Refined SR14/SR14A (Map 3 of 3)



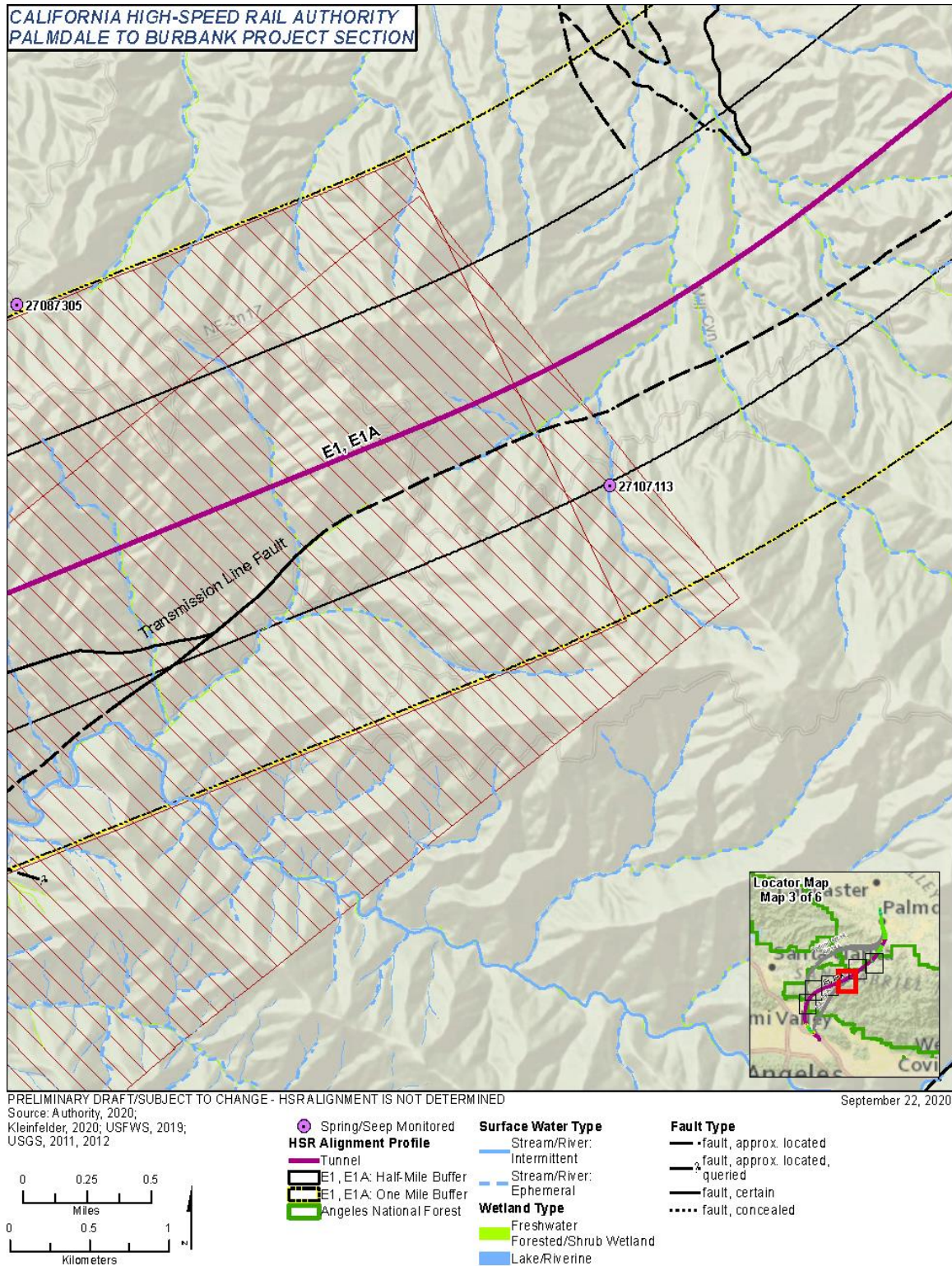


**Figure 3.8-A-4 Tunnel Construction RSA Detailed Map for E1/E1A (Map 1 of 6)**



**Figure 3.8-A-5 Tunnel Construction RSA Detailed Map for E1/E1A (Map 2 of 6)**





**Figure 3.8-A-6 Tunnel Construction RSA Detailed Map for E1/E1A (Map 3 of 6)**



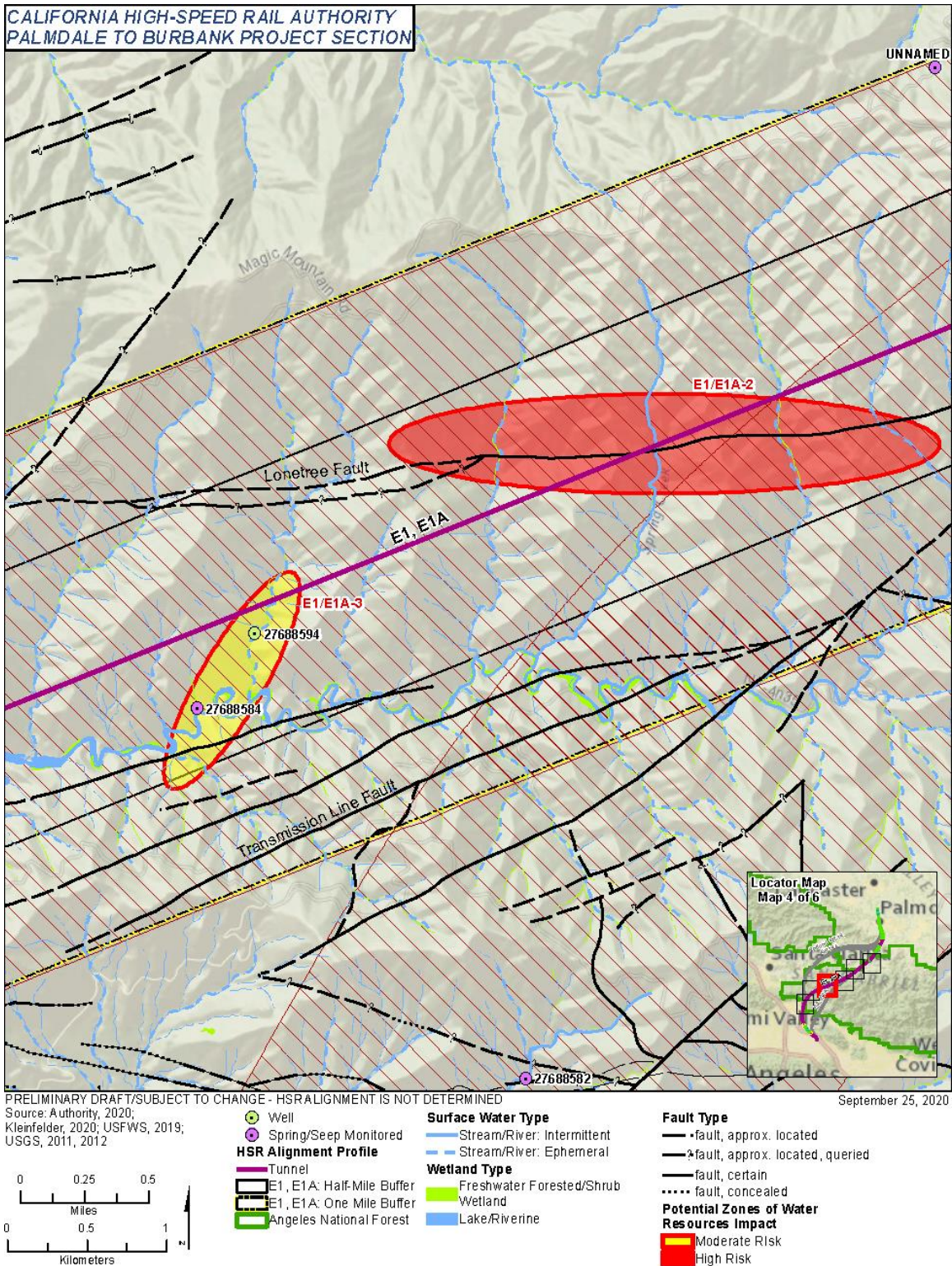


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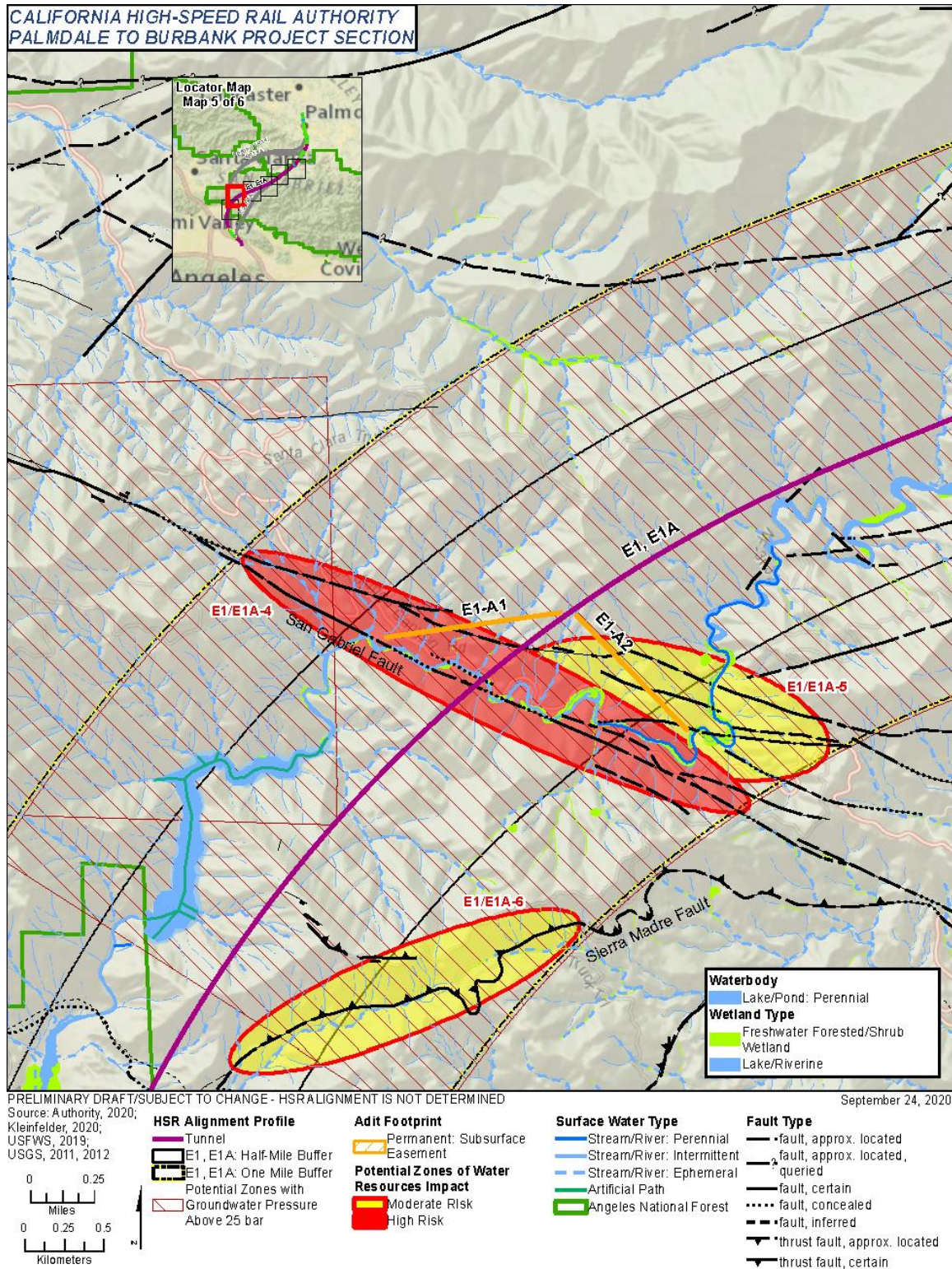


Figure 3.8-A-8 Tunnel Construction RSA Detailed Map for E1/E1A (Map 5 of 6)



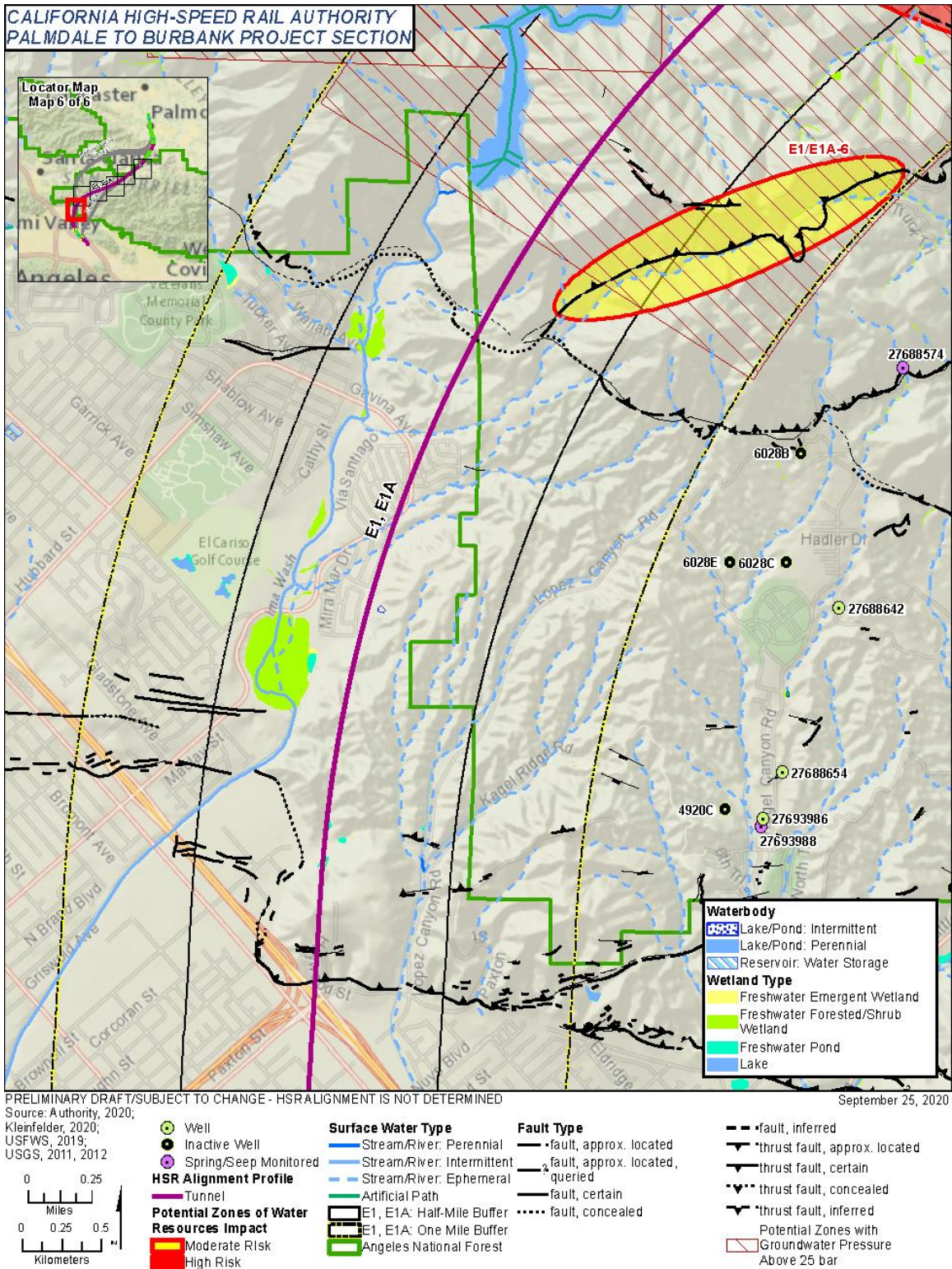
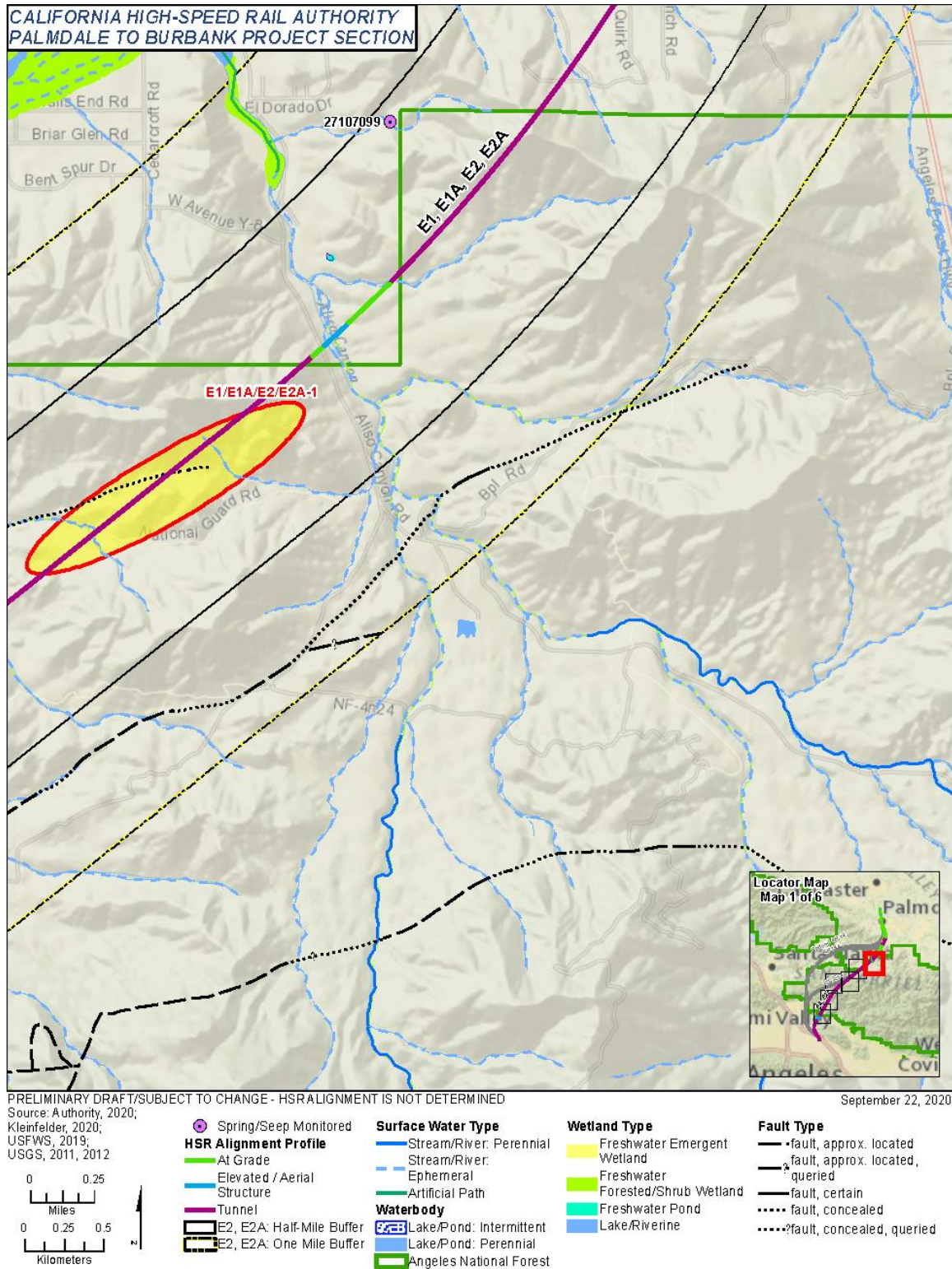


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**Figure 3.8-A-10 Tunnel Construction RSA Detailed Map for E2/E2A (Map 1 of 6)**

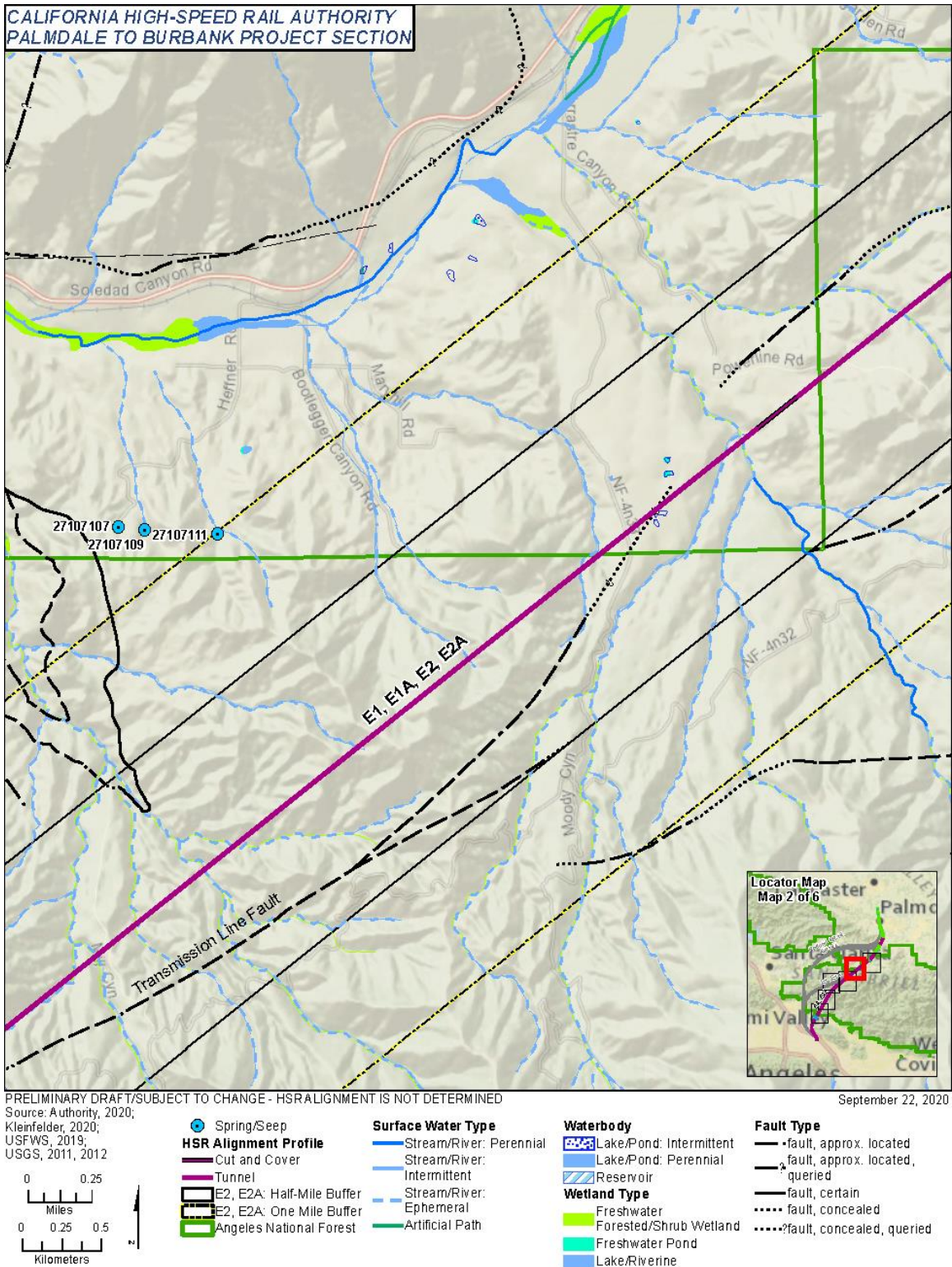


Figure 3.8-A-11 Tunnel Construction RSA Detailed Map for E2/E2A (Map 2 of 6)



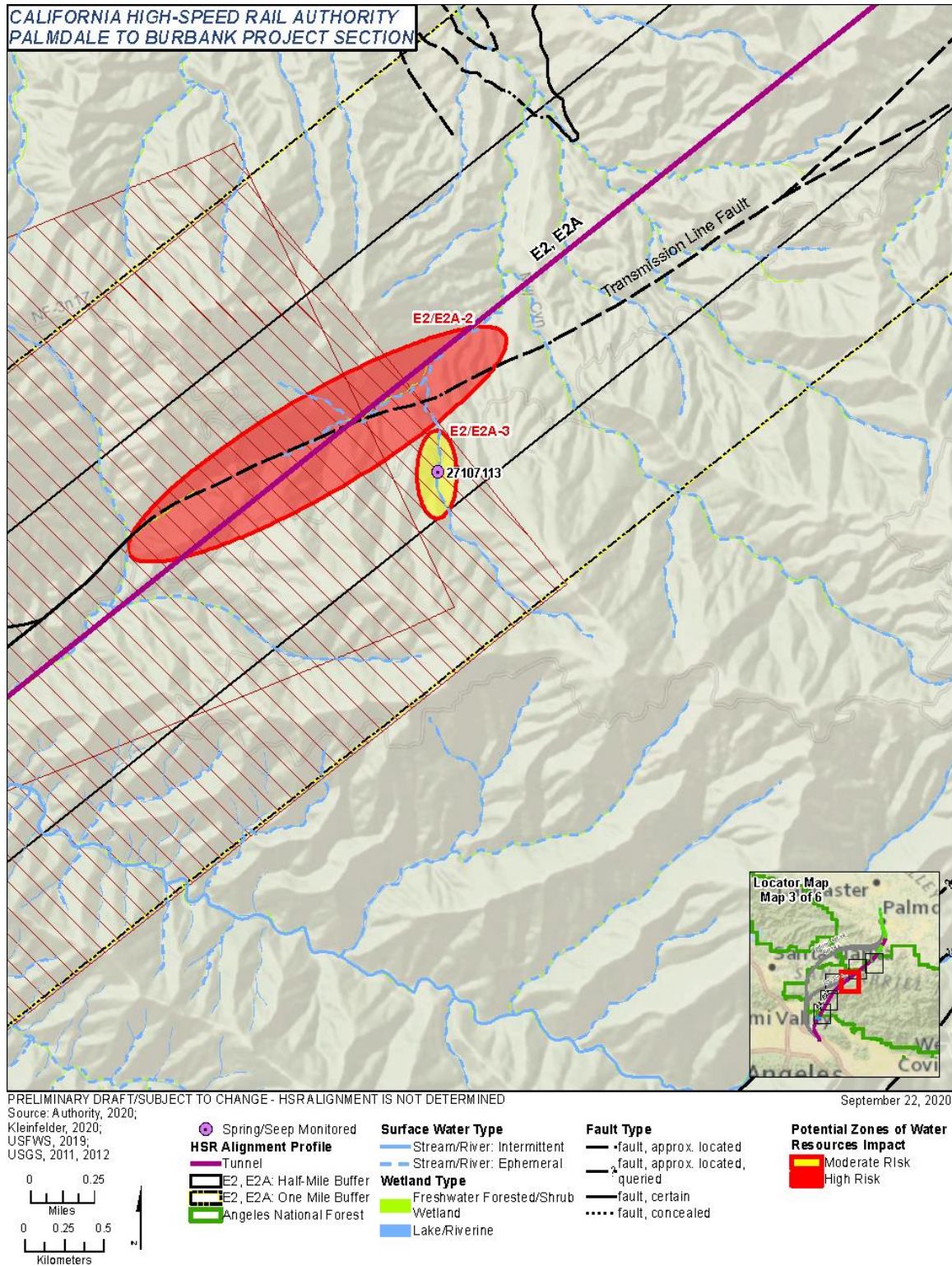


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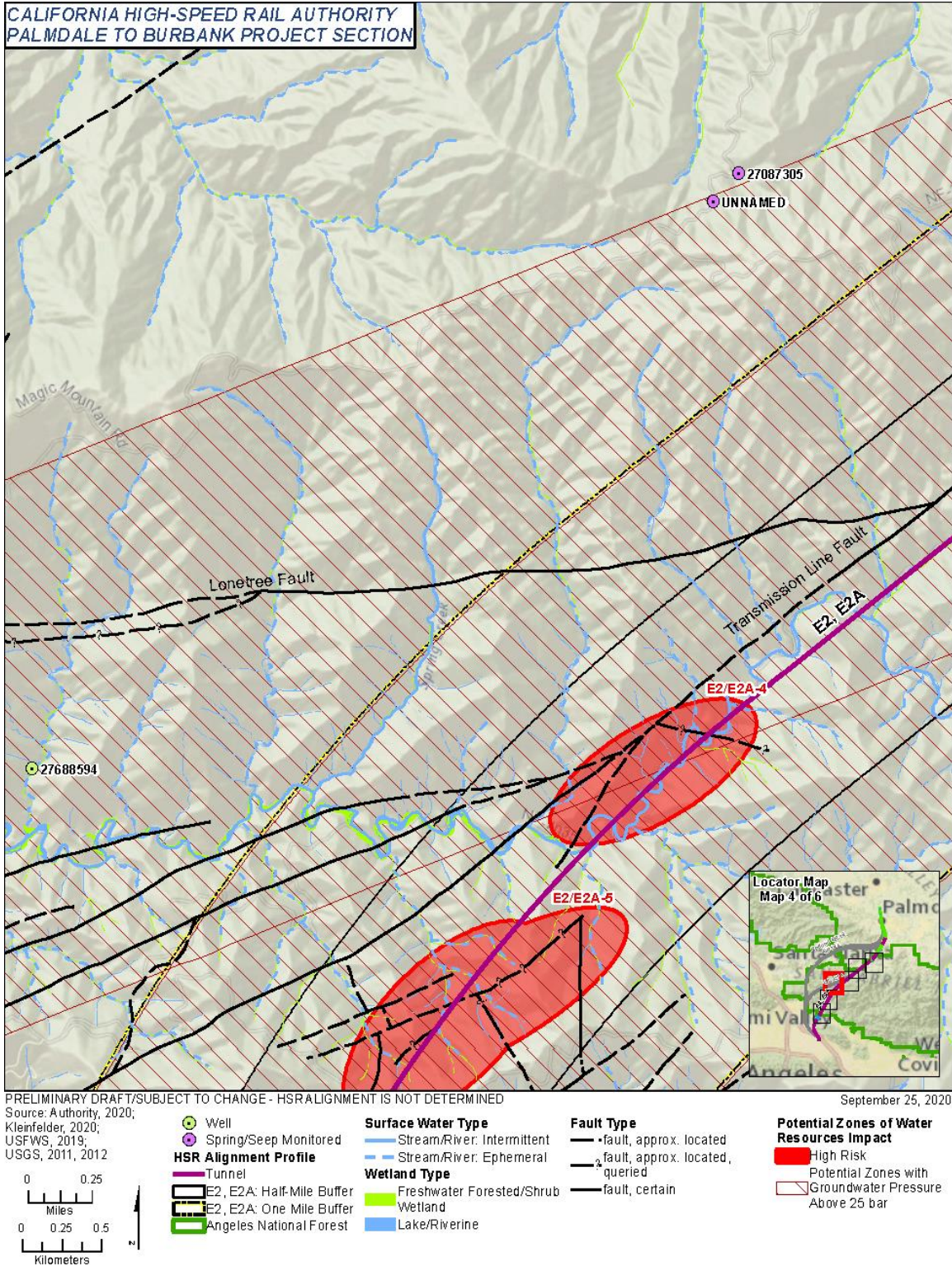


Figure 3.8-A-13 Tunnel Construction RSA Detailed Map for E2/E2A (Map 4 of 6)



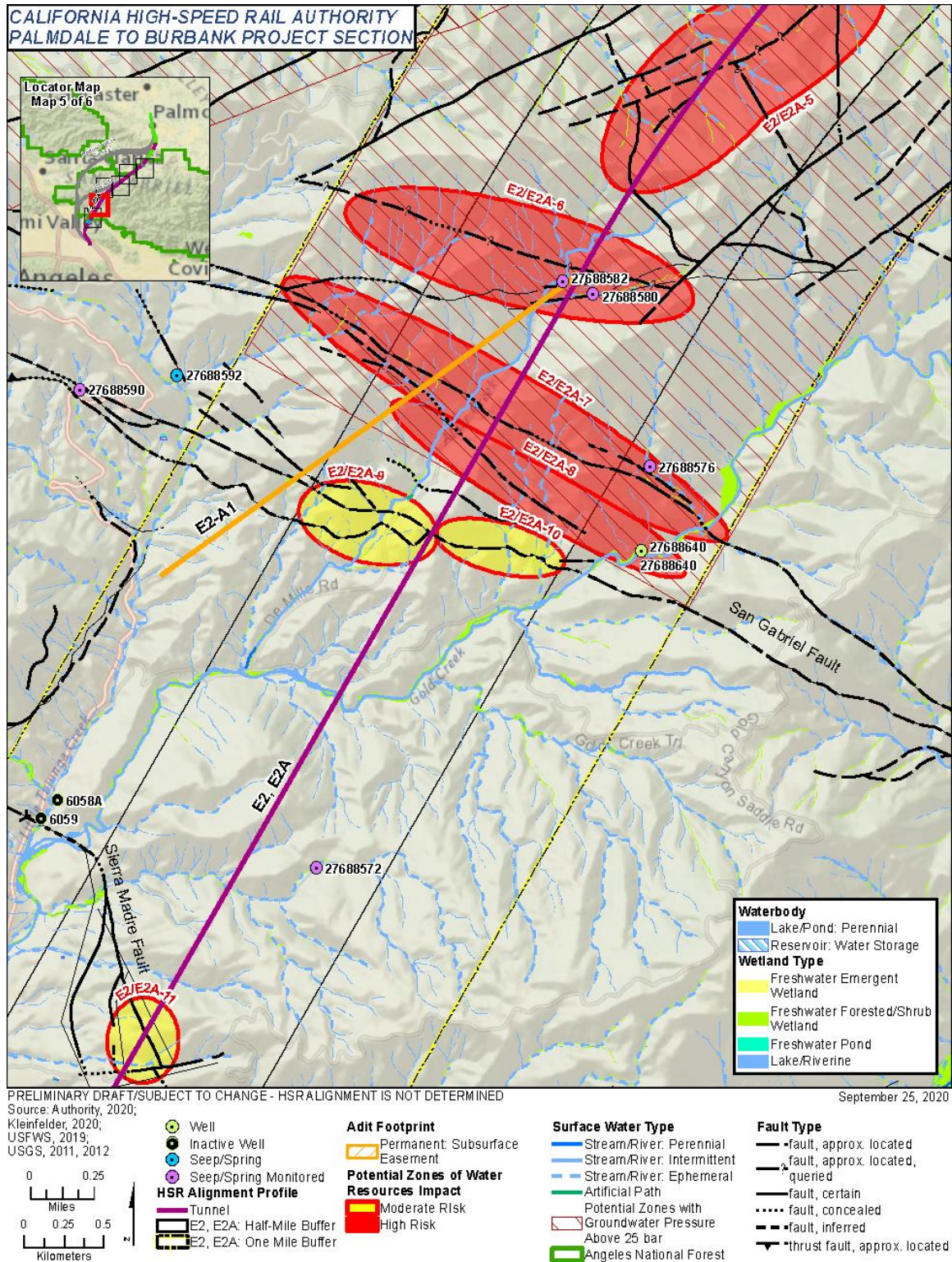


Figure 3.8-A-14 Tunnel Construction RSA Detailed Map for E2/E2A (Map 5 of 6)



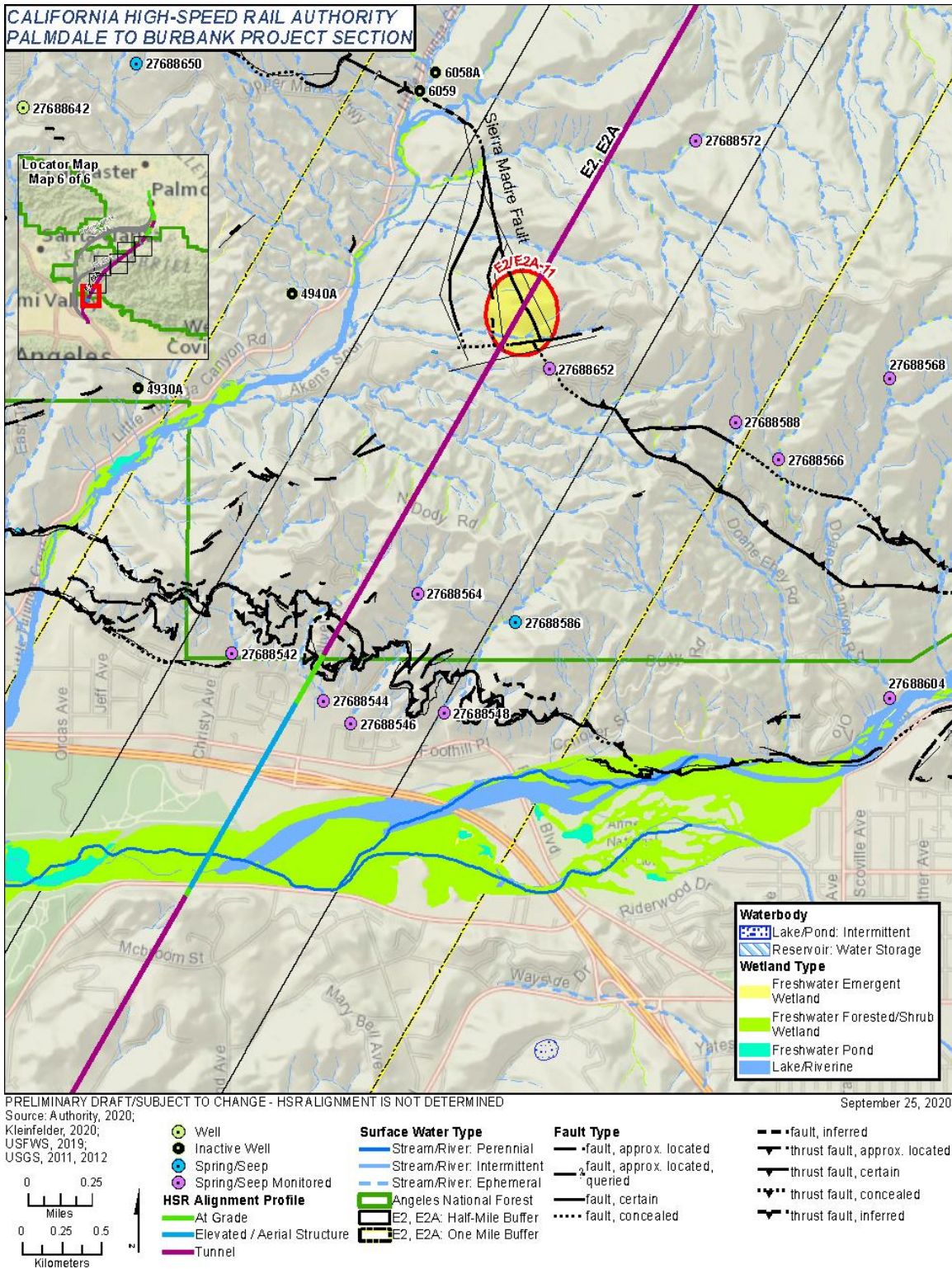
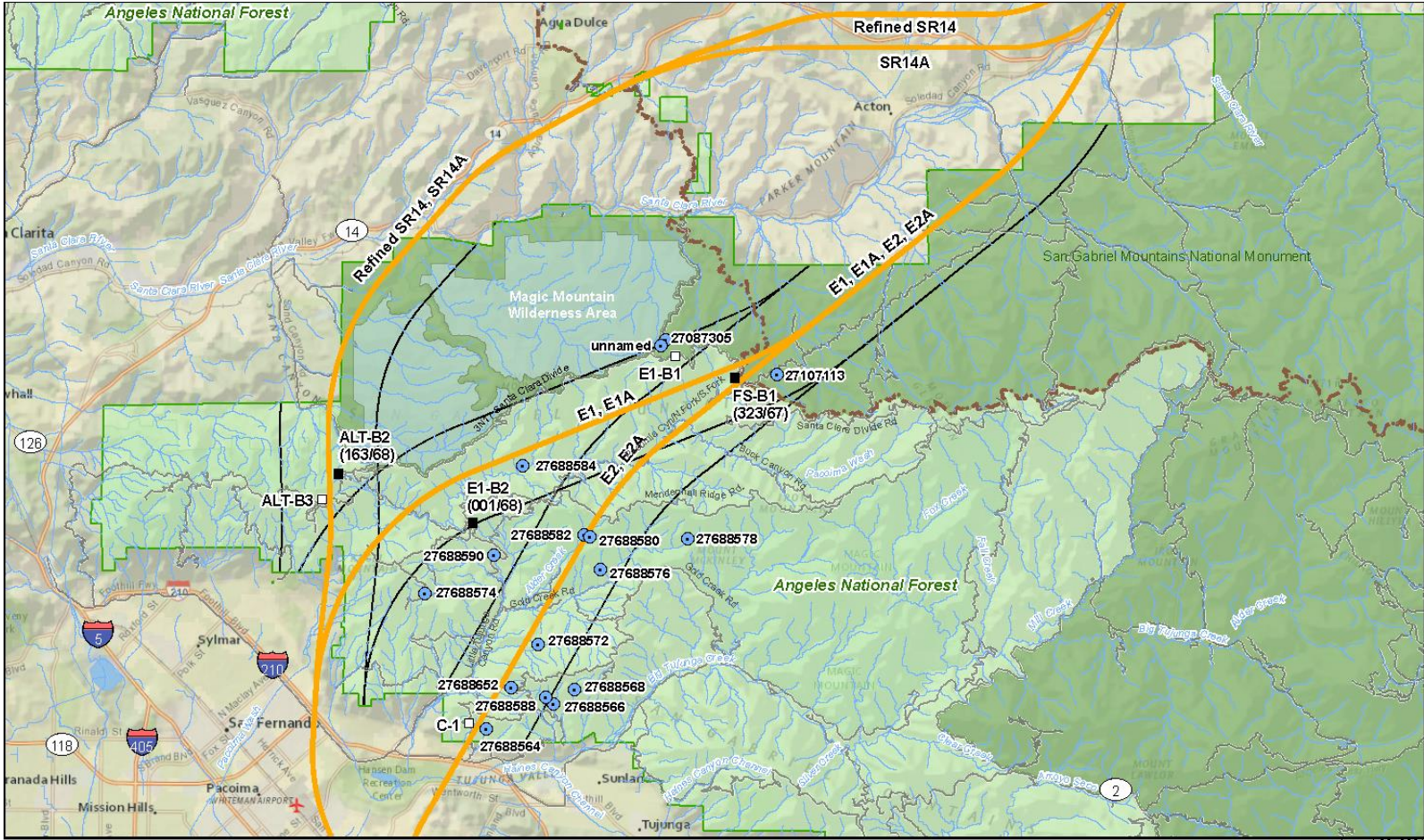


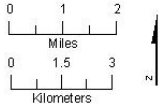
Figure 3.8-A-15 Tunnel Construction RSA Detailed Map for E2/E2A (Map 6 of 6)





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Source: Authority, 2020, Kleinfelder, 2020

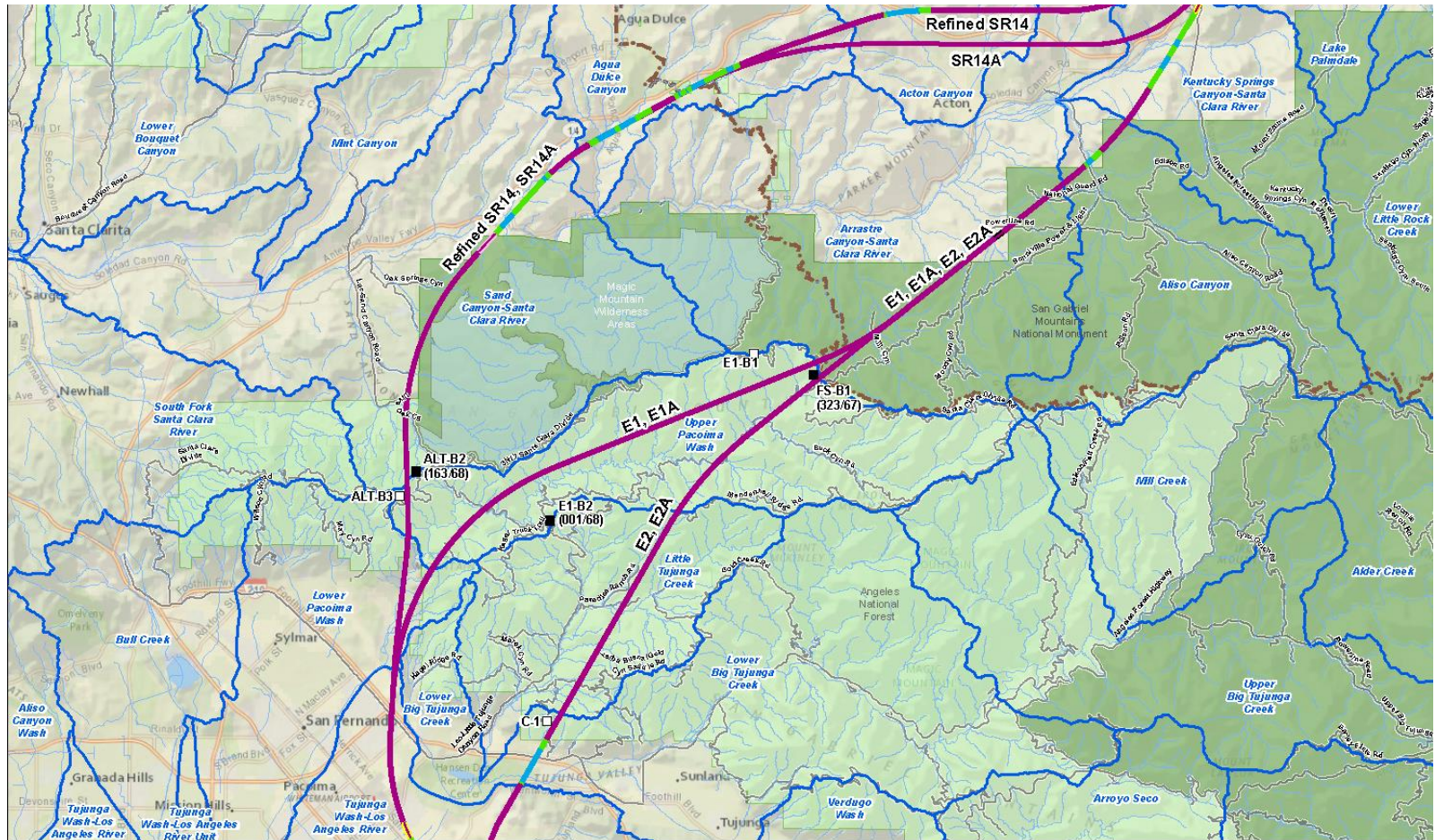
August 26, 2021



- HSR Alignment
- One Mile Buffer inside Angeles National Forest
- Vertical Core
- Inclined Core (trend/plunge)
- Spring/Seep
- Stream
- USFS Road
- Pacific Crest Trail
- Angeles National Forest
- San Gabriel Mountains National Monument
- Magic Mountain Wilderness Area

Figure 3.8-A-16 Monitoring Map of Springs and Seeps





PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED  
 Source: Authority, 2020; Kleinfelder, 2020

August 26, 2021

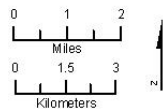


Figure 3.8-A-17 Hydrology Map



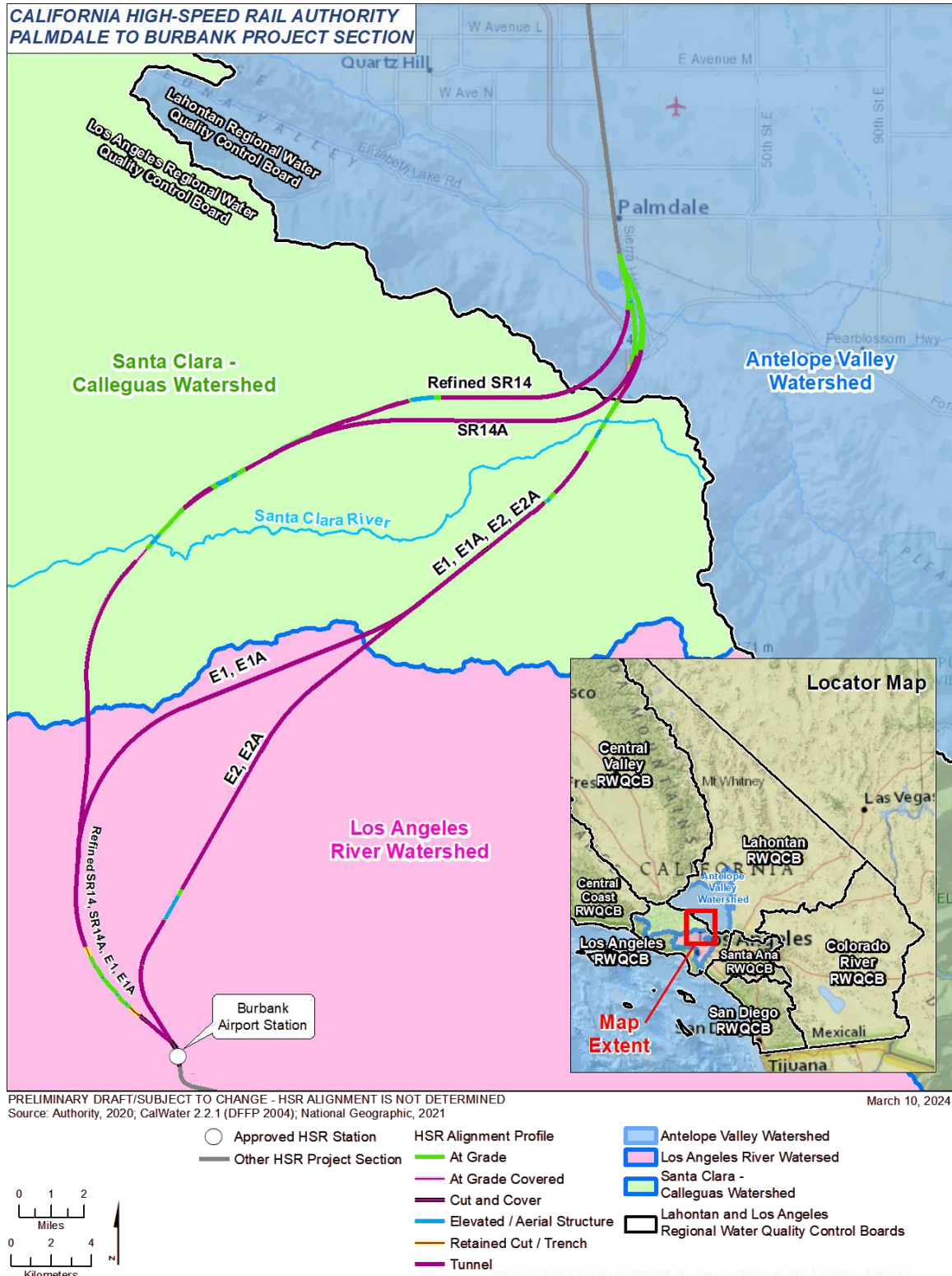
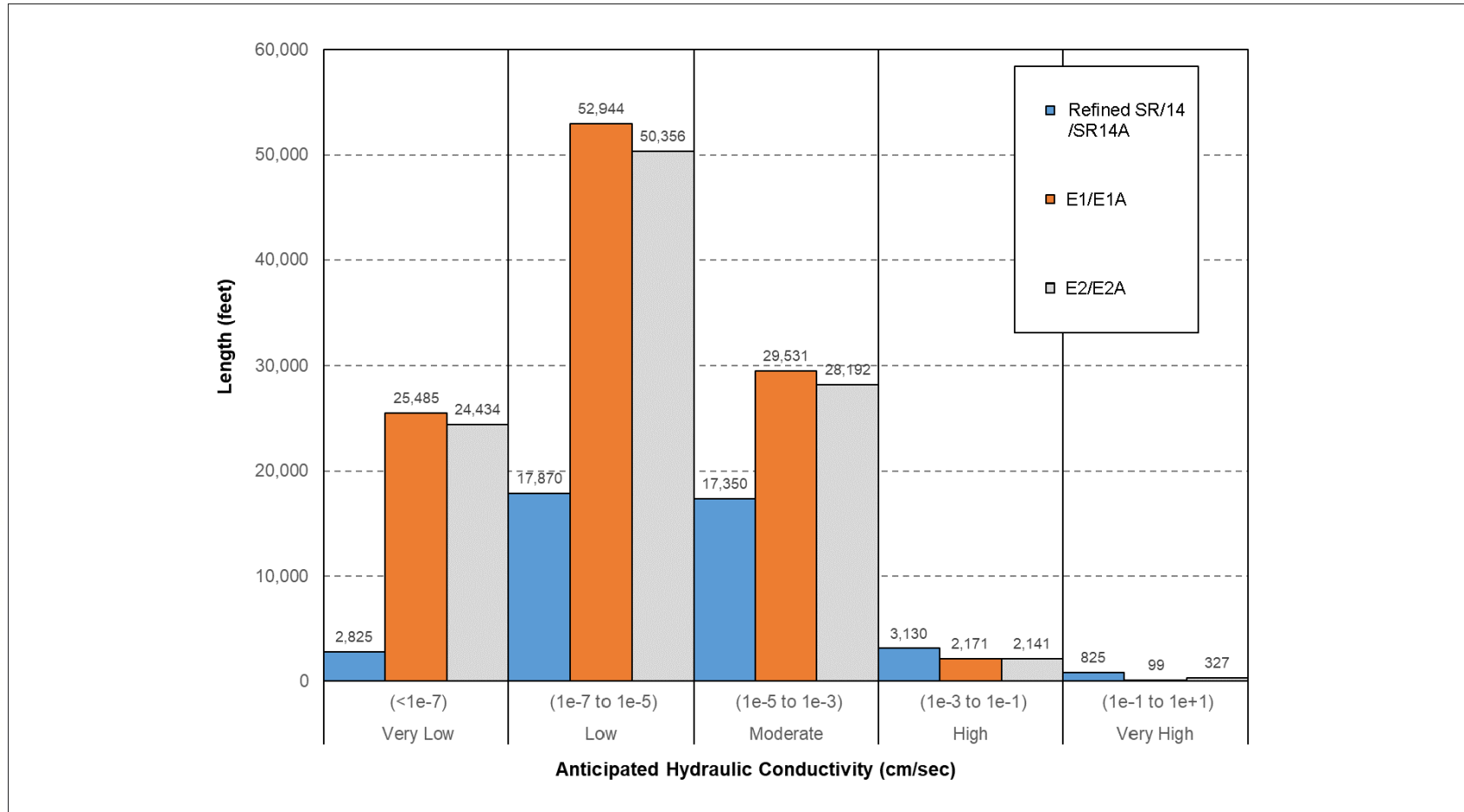


Figure 3.8-A -18 Watersheds

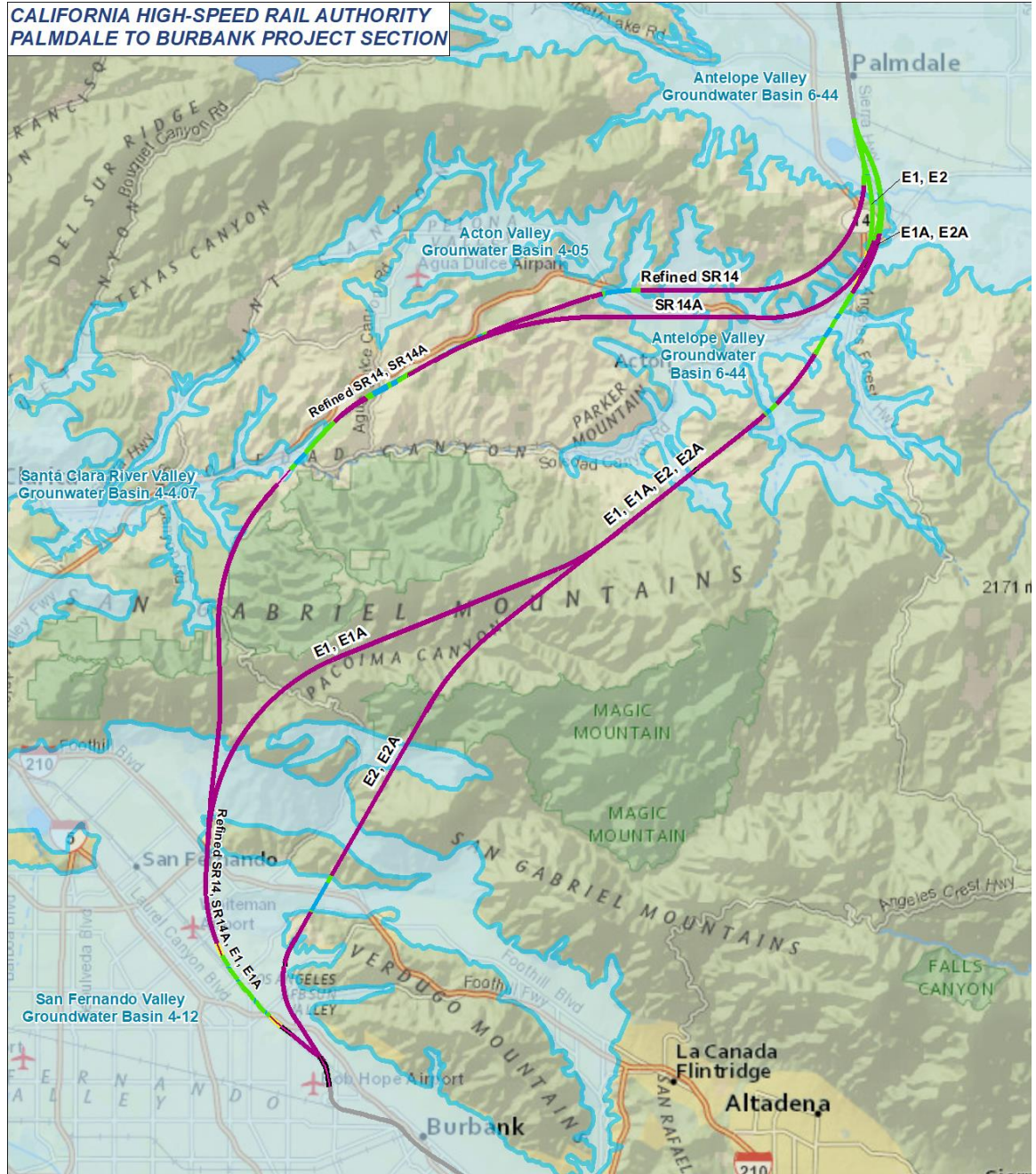


September 2020

Tunnel Alignment	Stationing	Very Low					Low		Moderate		High		Very High	
		Length feet	Length feet	Length %	Length feet	Length %	Length feet	Length %	Length feet	Length %	Length feet	Length %		
Refined SR14/SR14A	1330+00 1750+00	42,000	2,825	6.7	17,870	42.5	17,350	41.3	3,130	7.5	825	2.0		
E1/E1A	638+80 1750+00	110,230	25,485	23.1	52,944	48.0	29,531	26.8	2,171	2.0	99	0.1		
E2/E2A	638+80 1750+00	105,450	24,434	23.2	50,356	47.8	28,192	26.7	2,141	2.0	327	0.3		

Figure 3.8-A-19 Hydraulic Conductivity



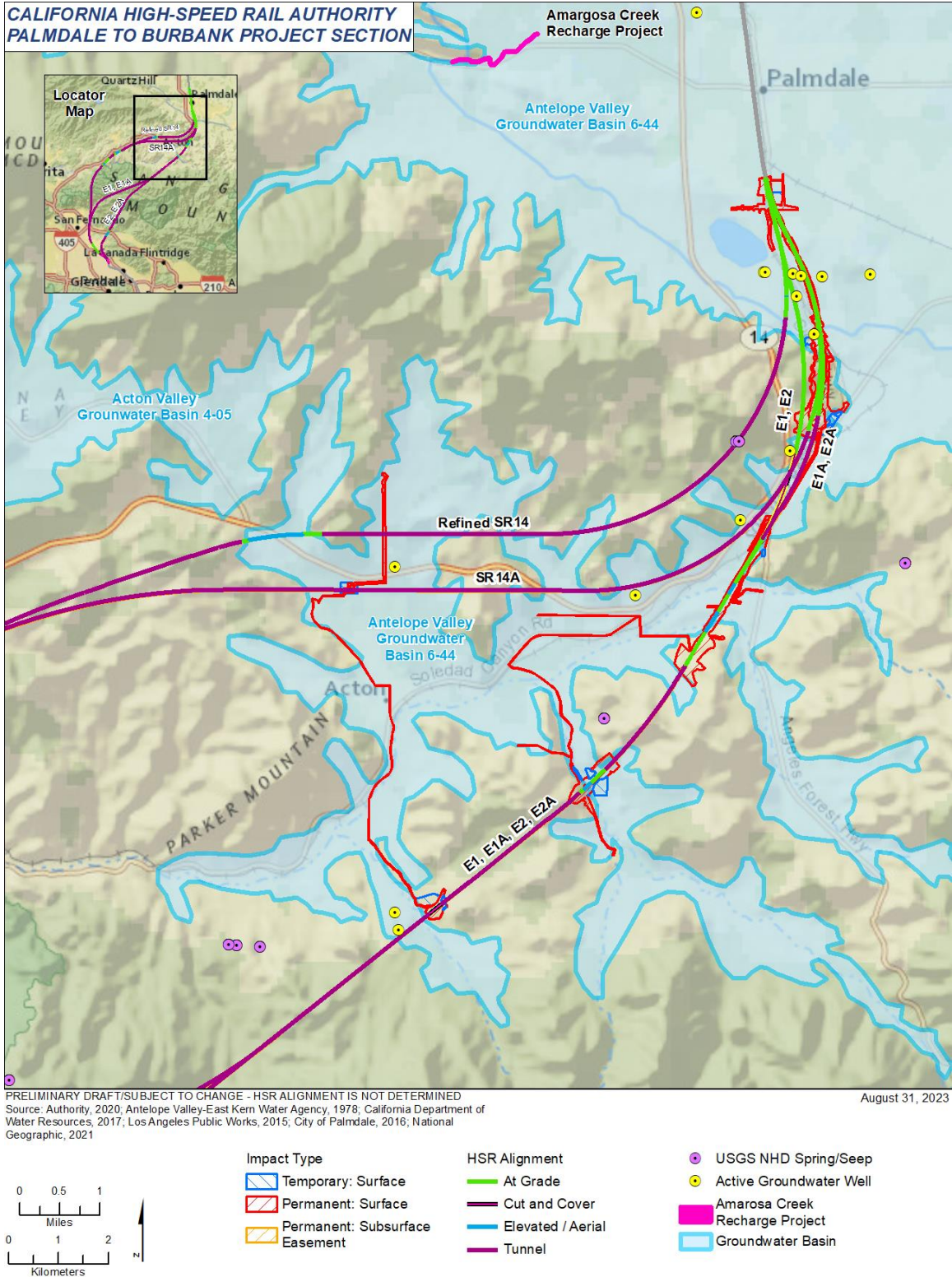


PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED  
 Source: Authority, 2020; National Geographic, 2021  
 August 31, 2023

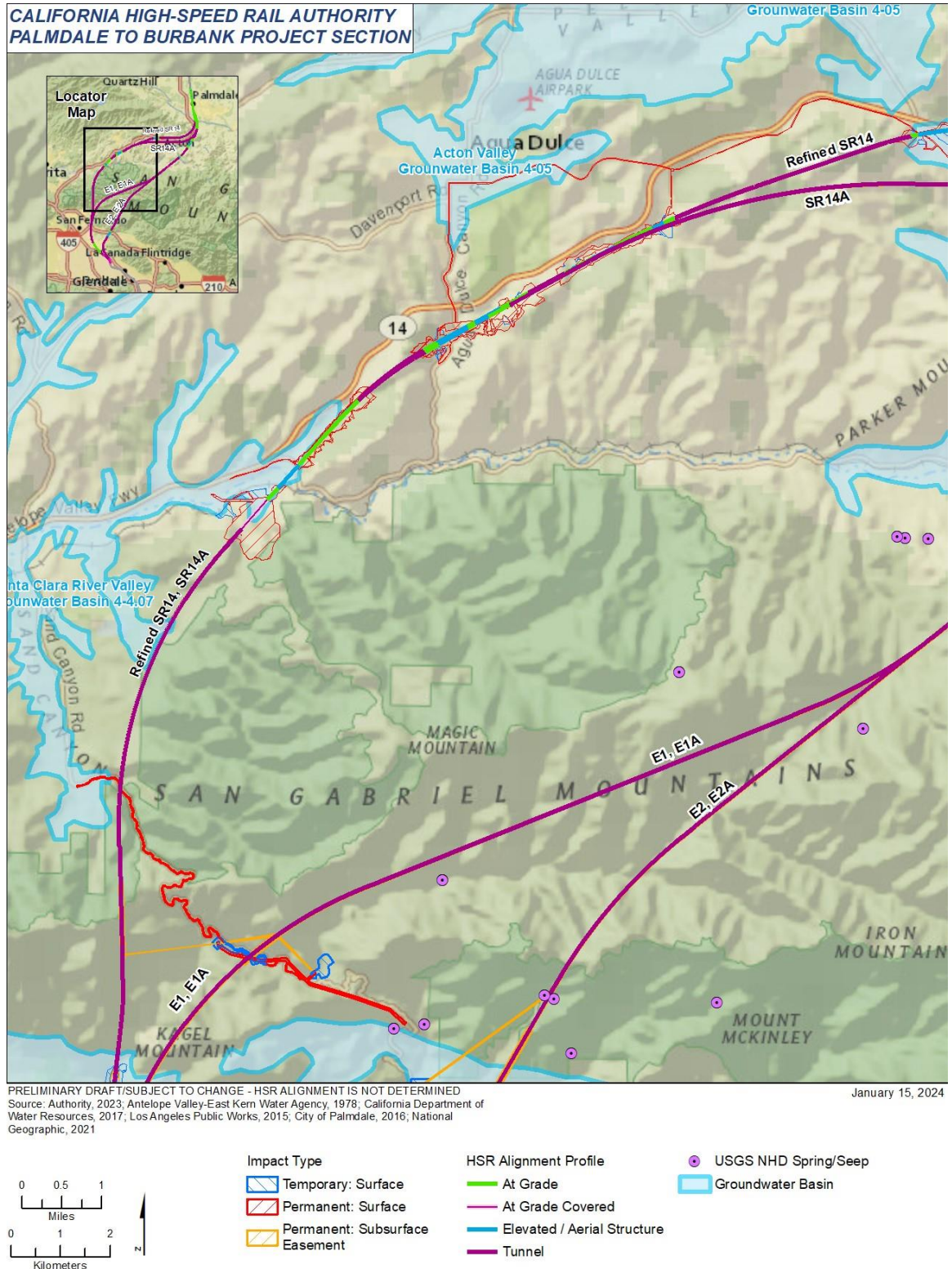


**Figure 3.8-A-20 Groundwater Basins**





**Figure 3.8-A-21 Groundwater Basins, Wells, and Springs (Map 1 of 3)**



**Figure 3.8-A-22 Groundwater Basins, Wells, and Springs (Map 2 of 3)**



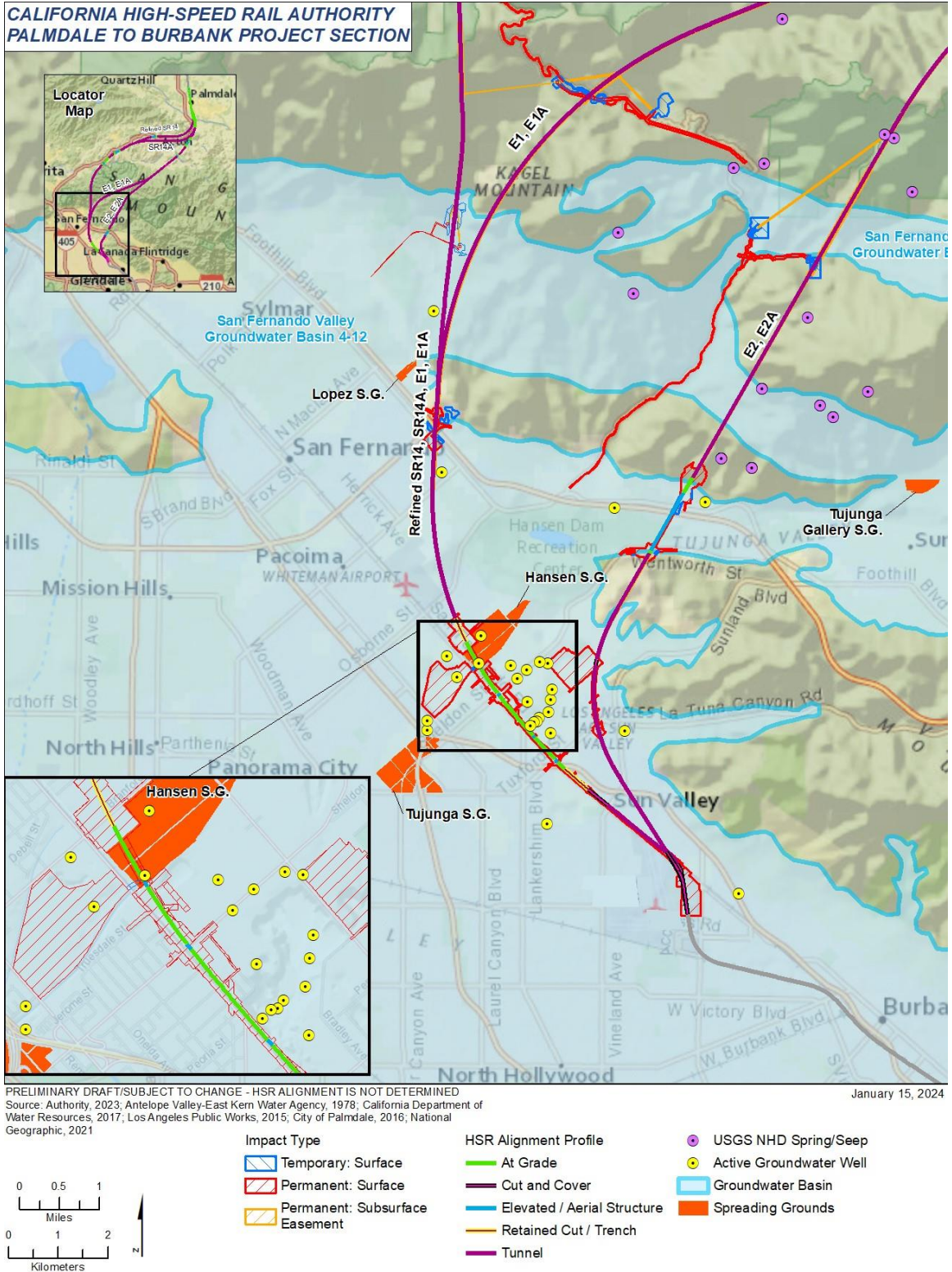
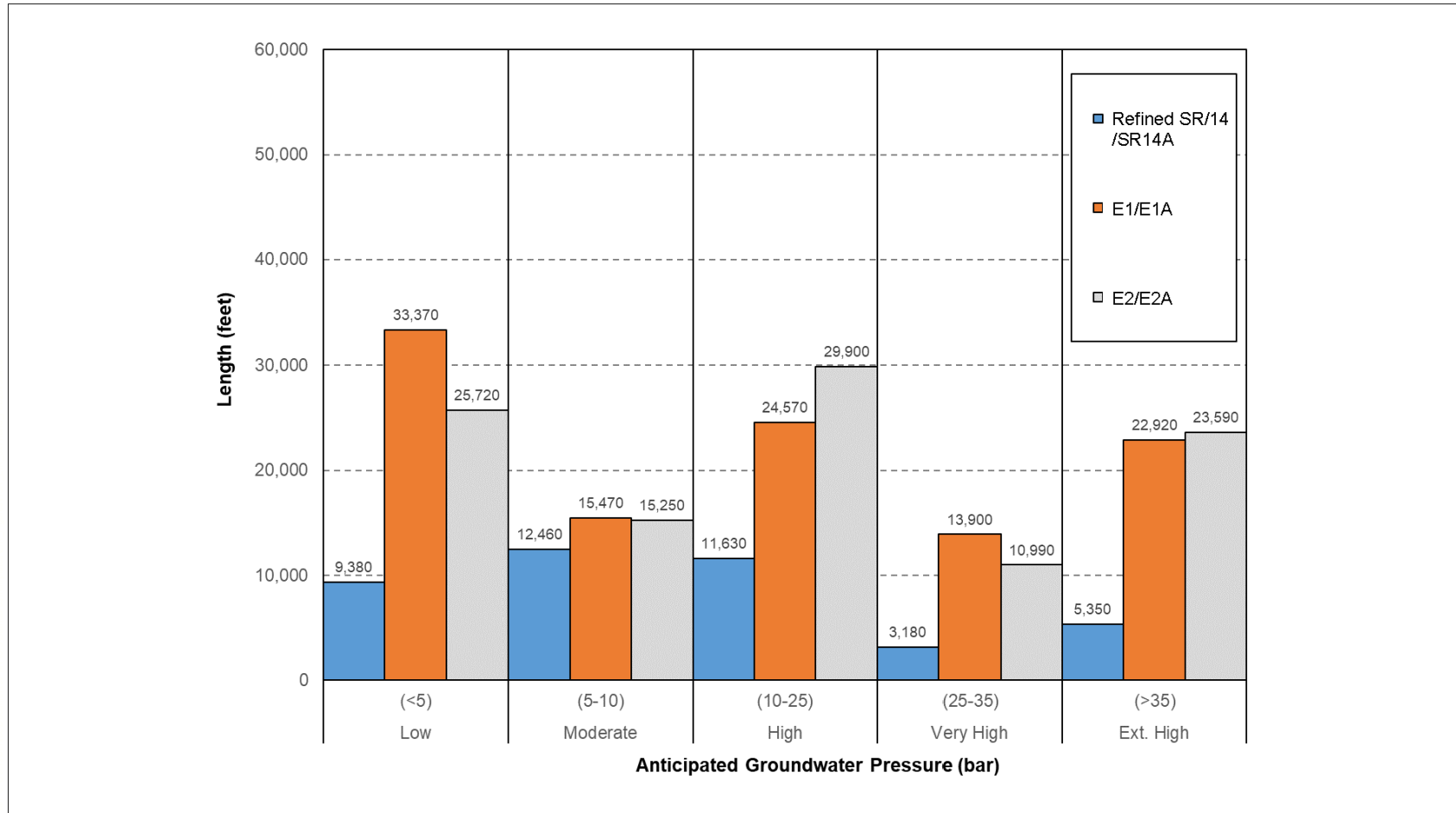


Figure 3.8-A-23 Groundwater Basins, Wells, and Springs (Map 3 of 3)

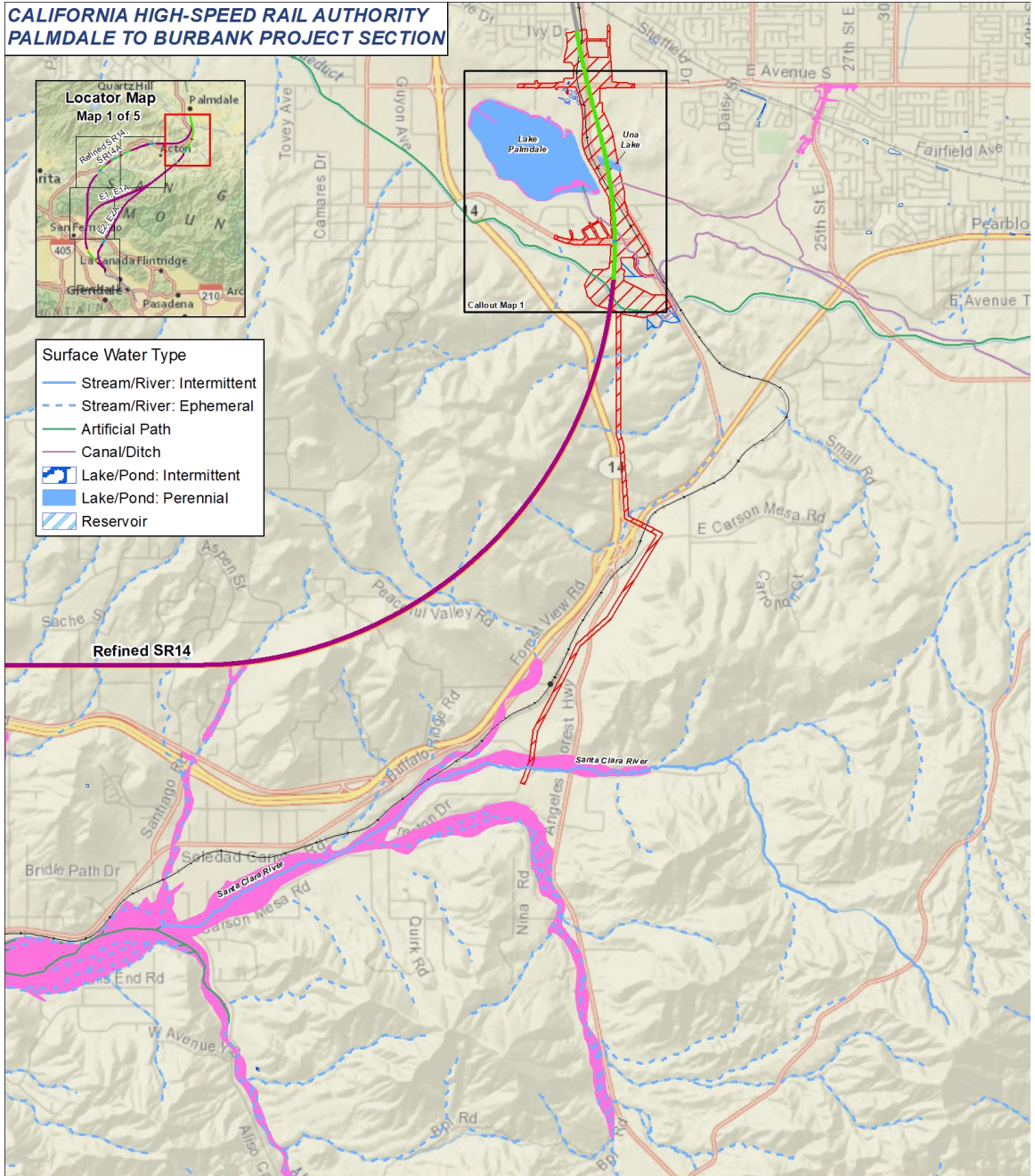


September 2020

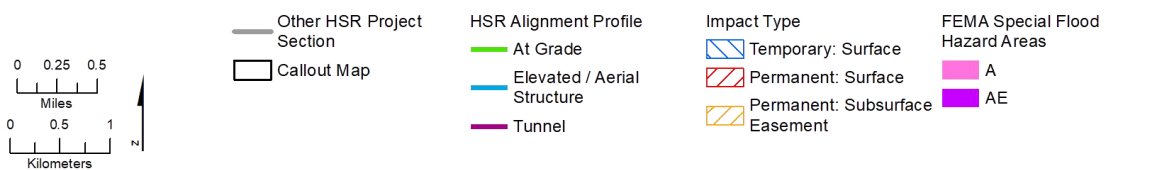
Tunnel Alignment	Stationing	Low					Moderate		High		Very High		Ext. High	
		Length feet	Length feet	%	Length feet	%	Length feet	%	Length feet	%	Length feet	%		
Refined SR14/SR14A	1330+00 1750+00	42,000	9,380	22.3	12,460	29.7	11,630	27.7	3,180	7.6	5,350	12.7		
E1/E1A	638+80 1750+00	110,230	33,370	30.3	15,470	14.0	24,570	22.3	13,900	12.6	22,920	20.8		
E2/E2A	638+80 1750+00	105,450	25,720	24.4	15,250	14.5	29,900	28.4	10,990	10.4	23,590	22.4		

Figure 3.8-A-24 Groundwater Pressure

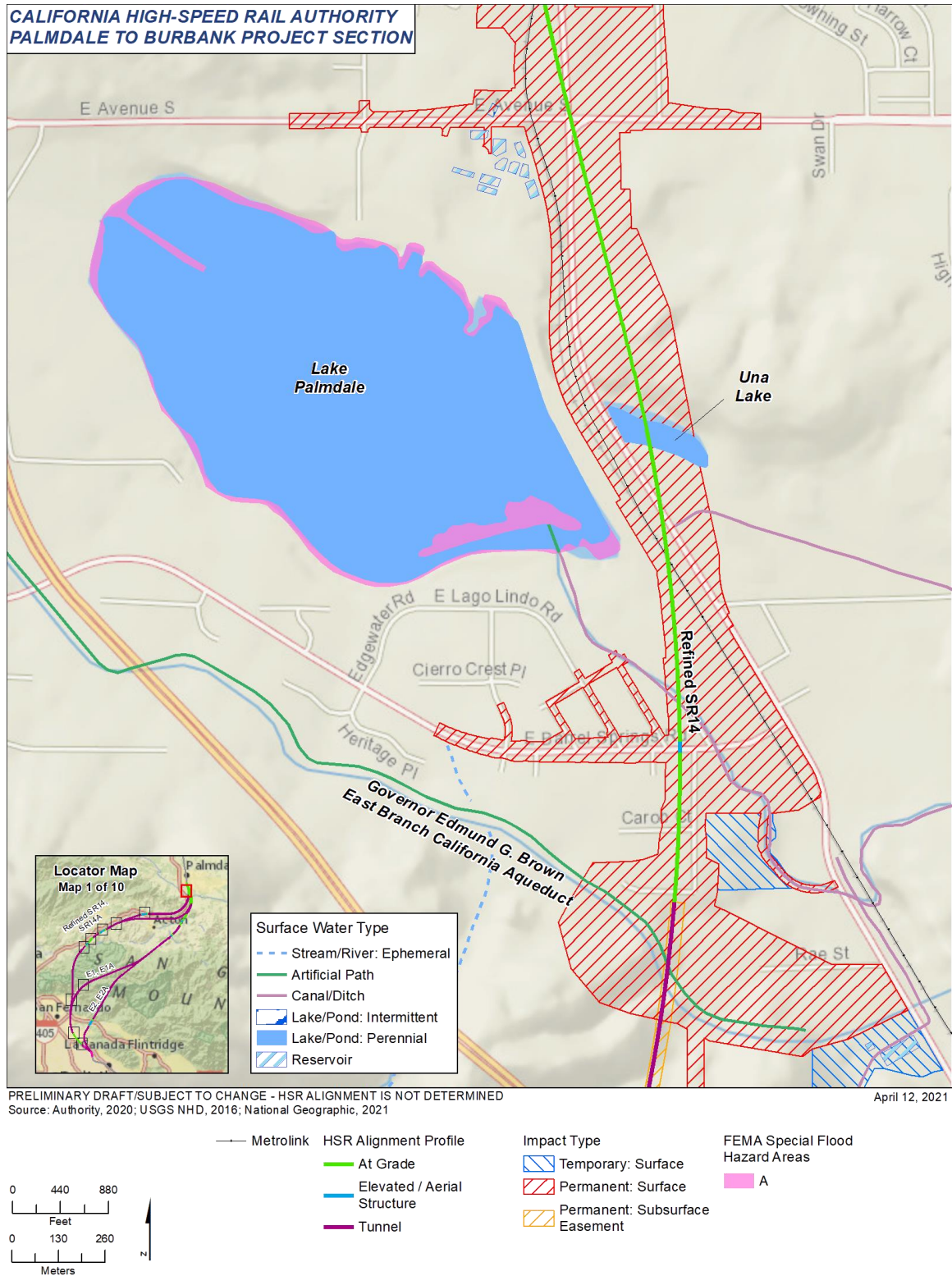




PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED  
 Source: Authority, 2020; USGS NHD, 2016; National Geographic, 2021  
 April 12, 2021

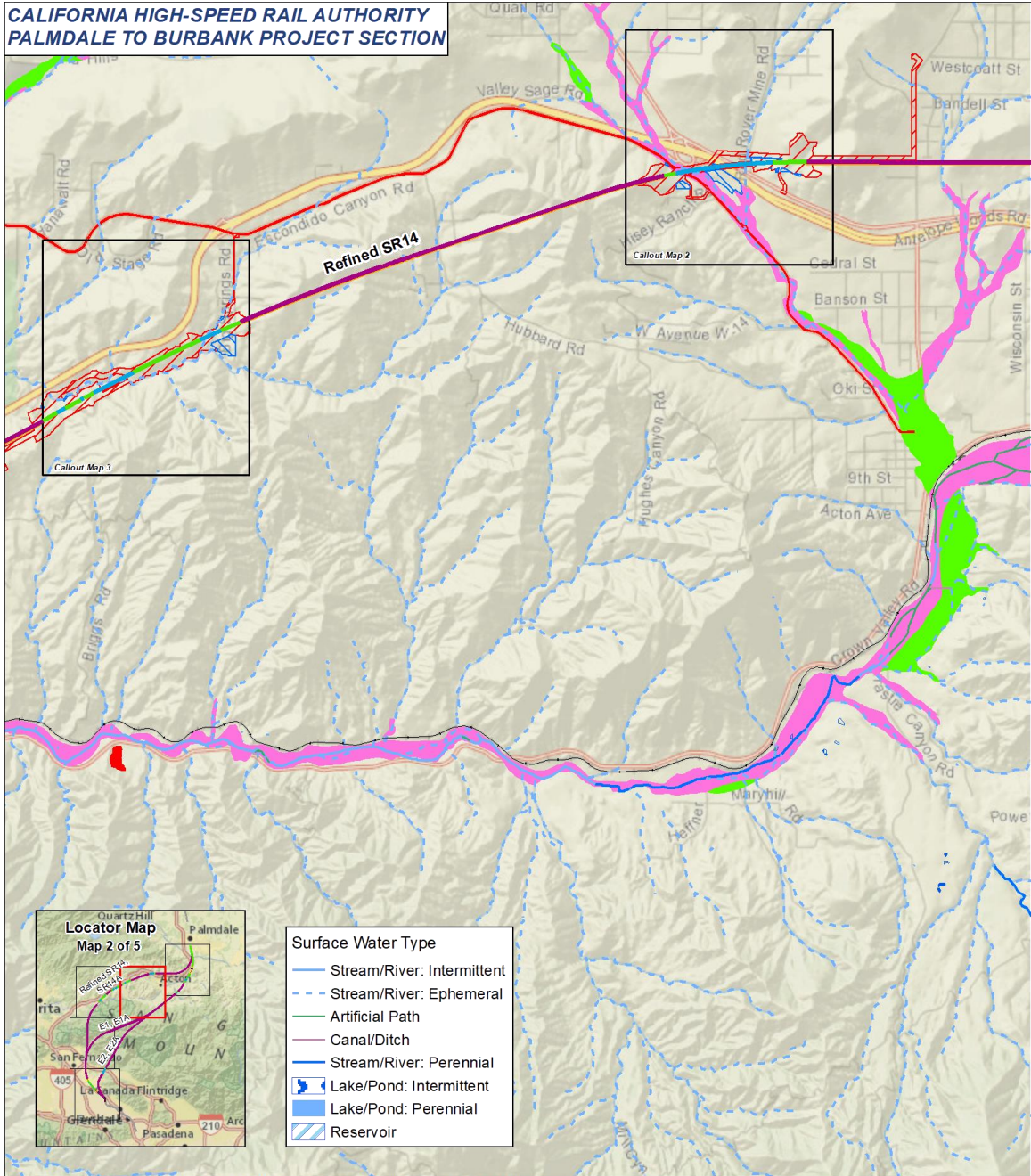


**Figure 3.8-A-25 Refined SR14 Palmdale/Central Subsections Surface Waters Overview (Map 1 of 2)**



**Figure 3.8-A-26 Refined SR14 Palmdale/Central Subsections Surface Waters Callout (Map 2 of 2)**

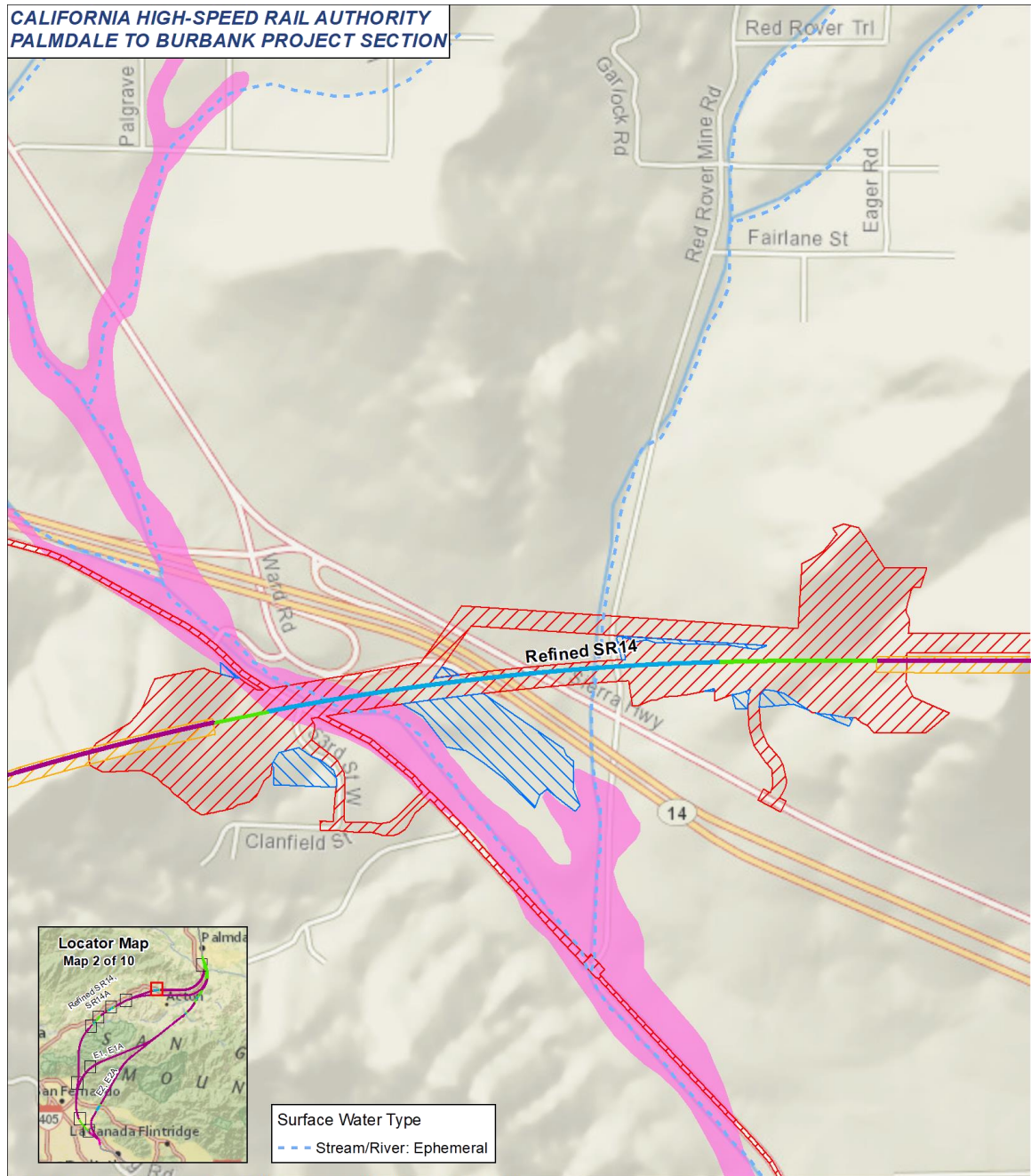




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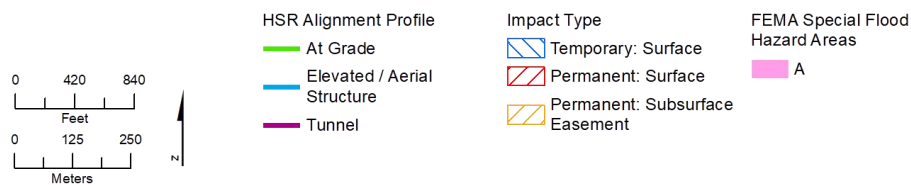
	Callout Map	HSR Alignment Profile <ul style="list-style-type: none"> <li> At Grade</li> <li> Elevated / Aerial Structure</li> <li> Tunnel</li> </ul>	Impact Type <ul style="list-style-type: none"> <li> Temporary: Surface</li> <li> Permanent: Surface</li> <li> Permanent: Subsurface Easement</li> </ul>	FEMA Special Flood Hazard Areas <ul style="list-style-type: none"> <li> A</li> <li> AH</li> <li> AO</li> </ul>

**Figure 3.8-A-27 Refined SR14 Central Subsection (North) Surface Waters Overview (Map 1 of 3)**



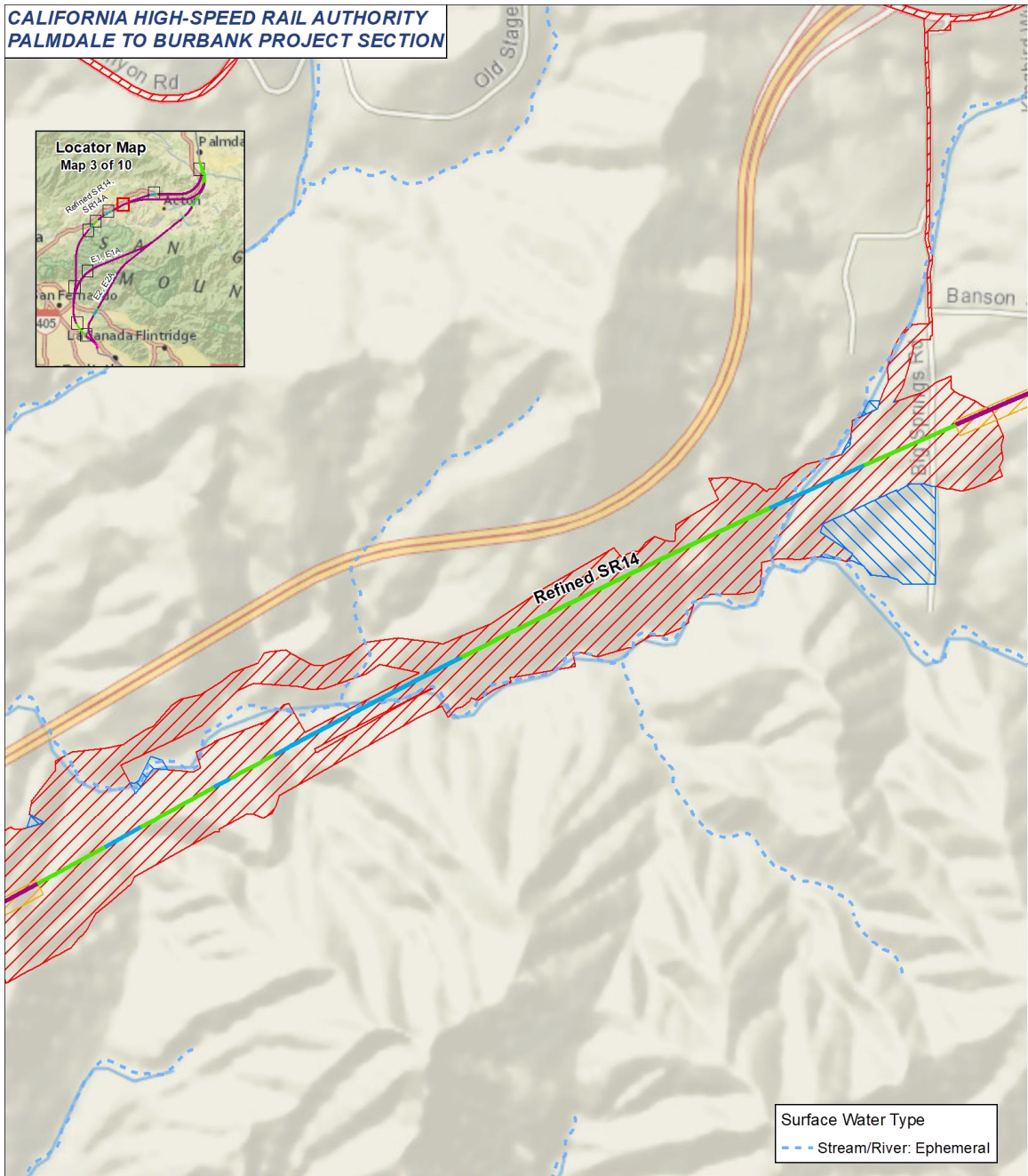
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 Source: Authority, 2020; USGS NHD, 2016; National Geographic, 2021

April 12, 2021

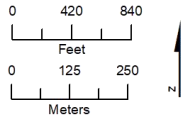
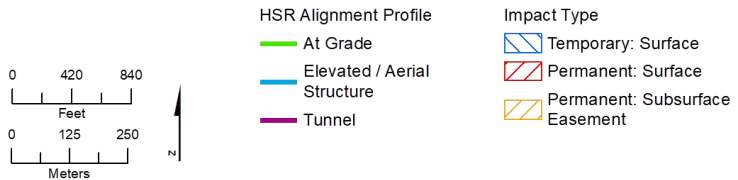


**Figure 3.8-A-28 Refined SR14 Central Subsection (North) Surface Waters Callout (Map 2 of 3)**

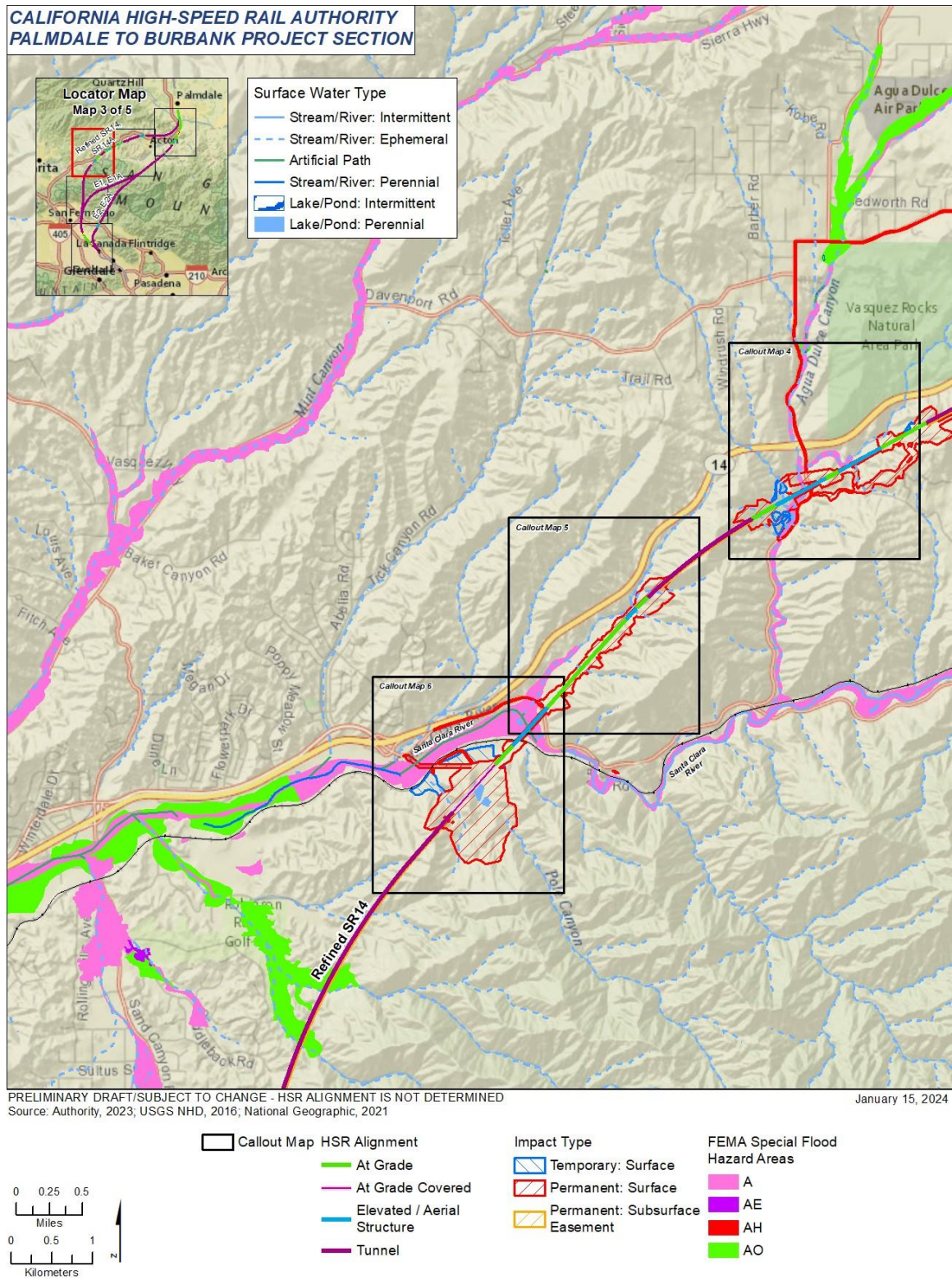




PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED  
 Source: Authority, 2020; USGS NHD, 2016; National Geographic, 2021  
 April 12, 2021

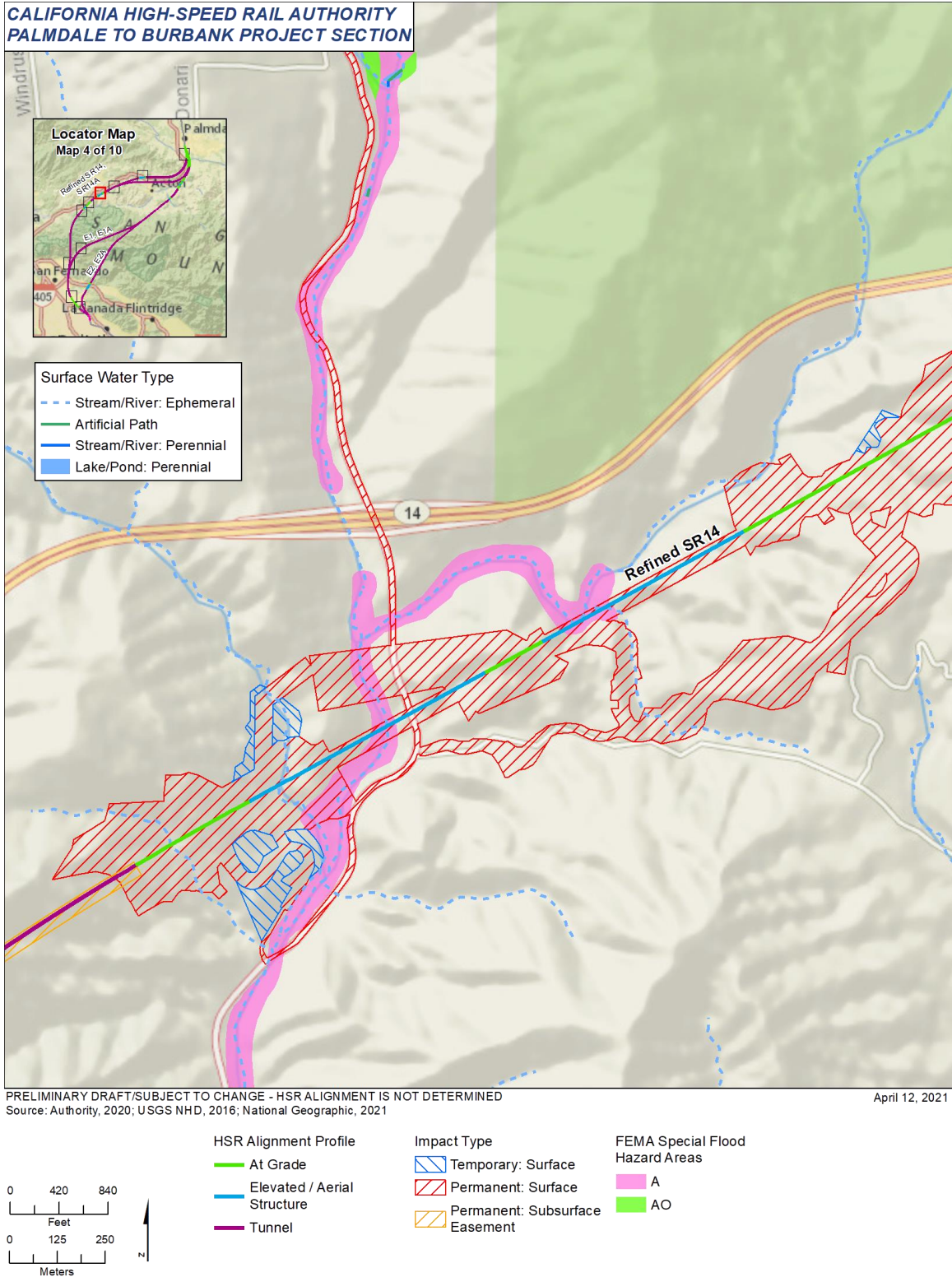


**Figure 3.8-A-29 Refined SR14 Central Subsection (North) Surface Waters Callout (Map 3 of 3)**

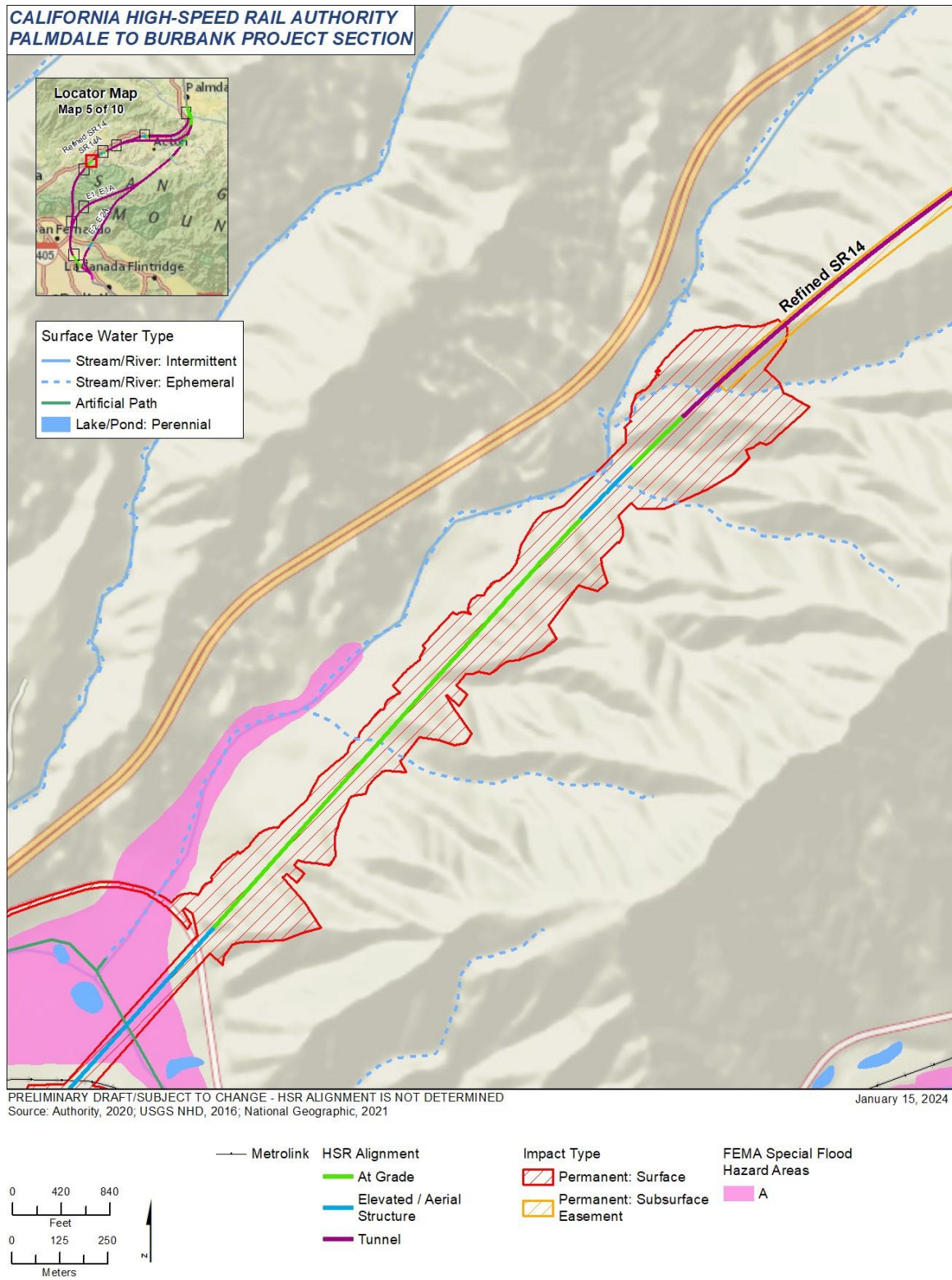


**Figure 3.8-A-30 Refined SR14 Central Subsection (Center) Surface Waters Overview (Map 1 of 4)**



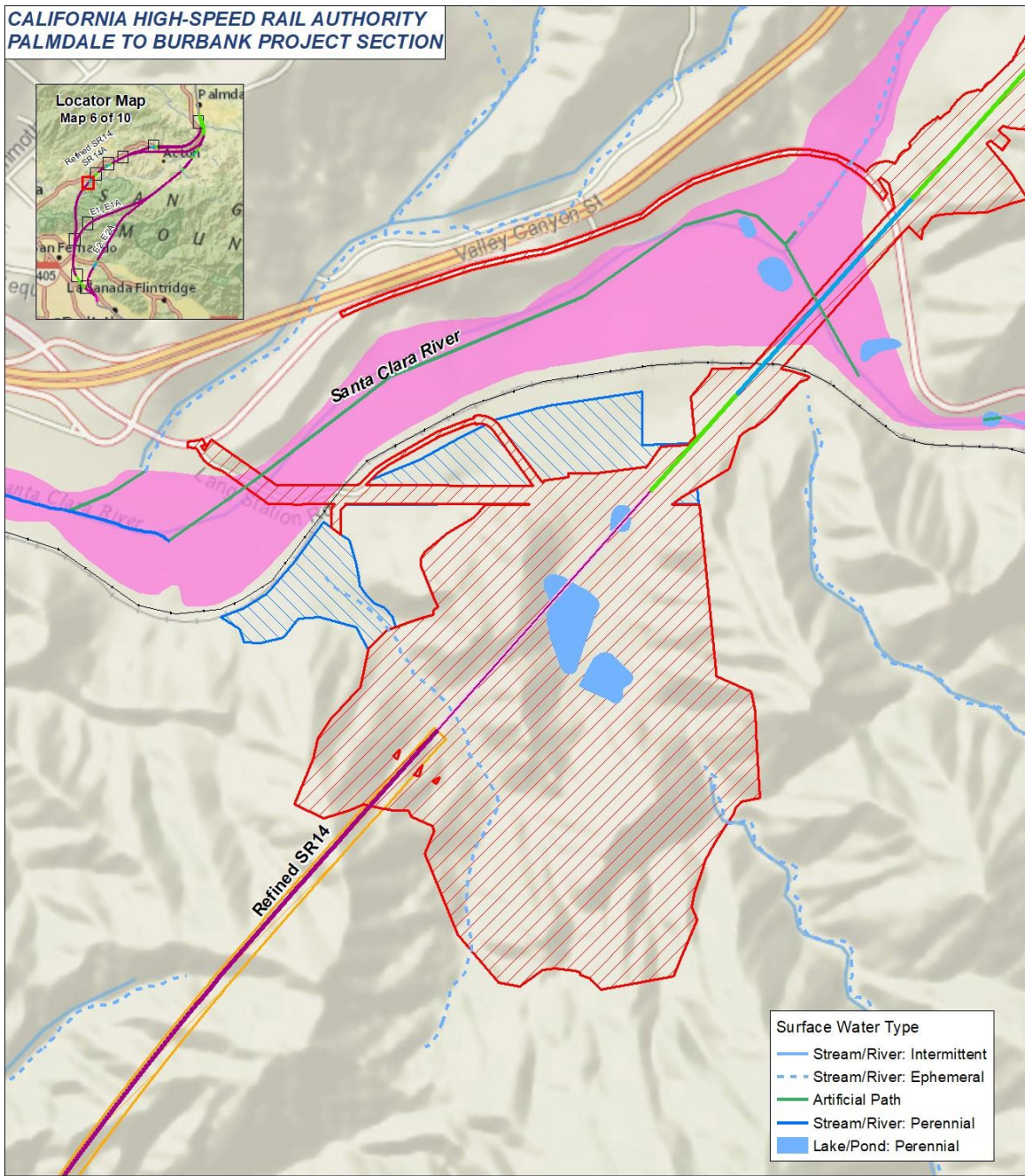


**Figure 3.8-A-31 Refined SR14 Central Subsection (Center) Surface Waters Callout (Map 2 of 4)**



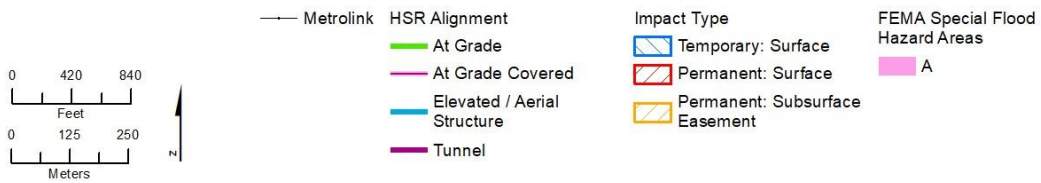
**Figure 3.8-A-32 Refined SR14 Central Subsection (Center) Surface Waters Callout (Map 3 of 4)**





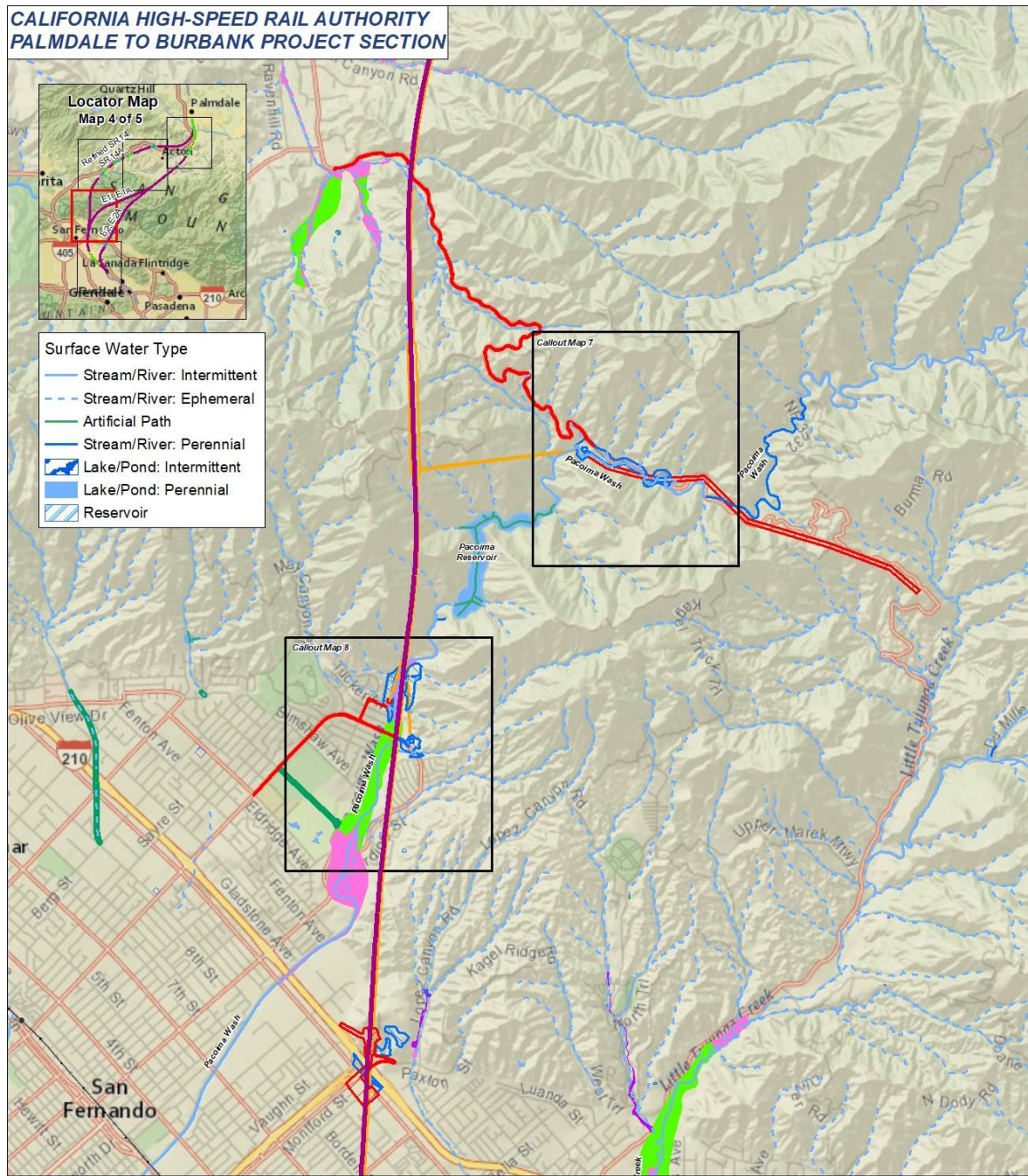
PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED  
 Source: Authority, 2020; USGS NHD, 2016; National Geographic, 2021

January 15, 2024

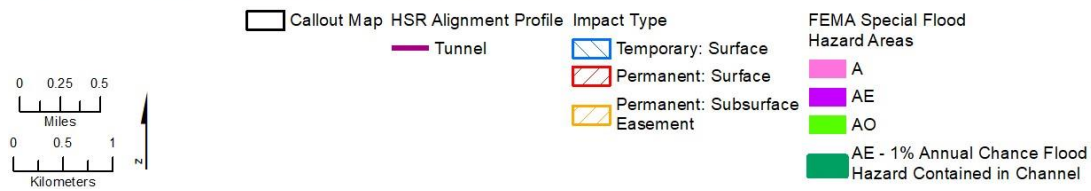


**Figure 3.8-A-33 Refined SR14 Central Subsection (Center) Surface Waters Callout (Map 4 of 4)**



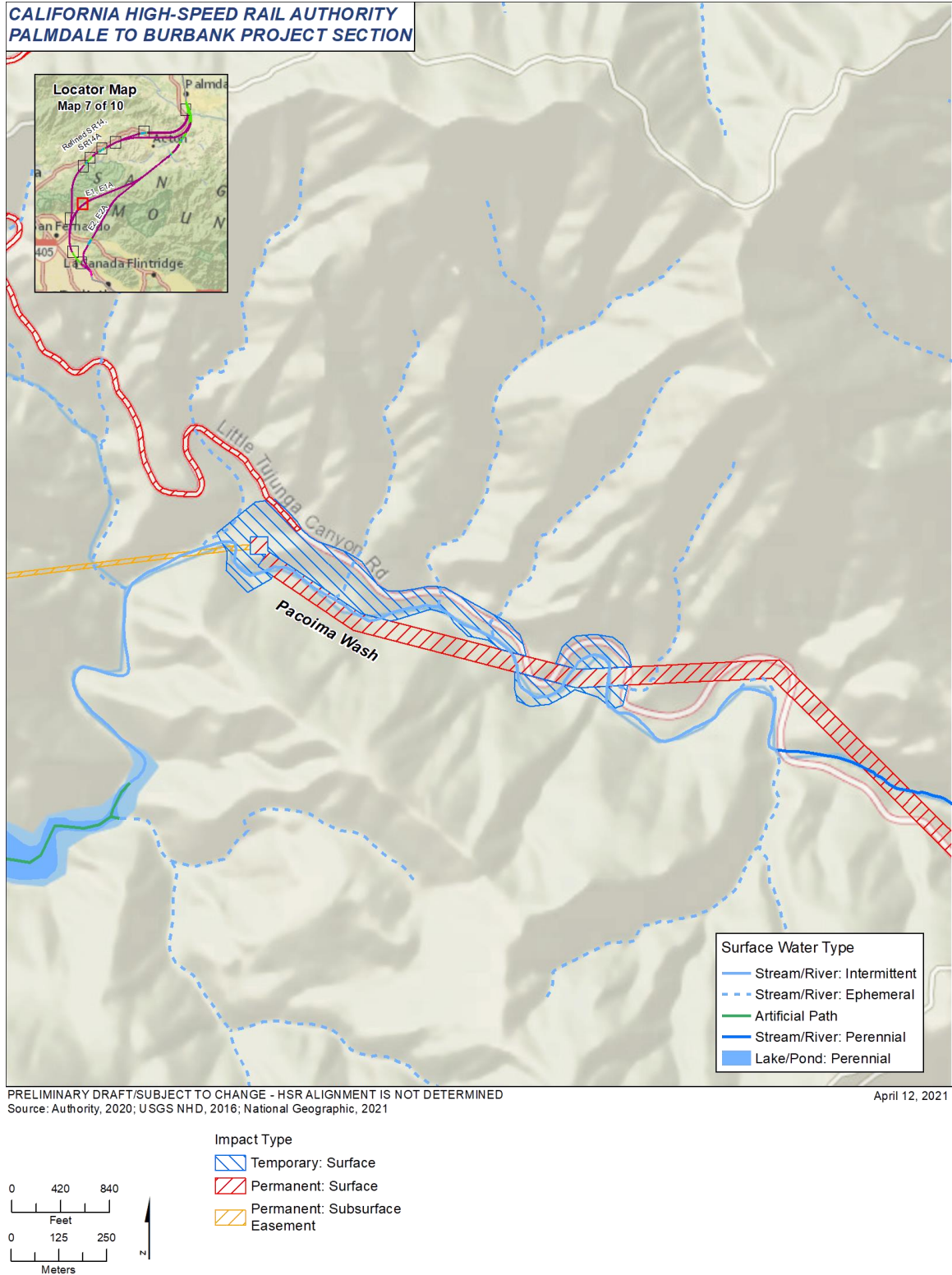


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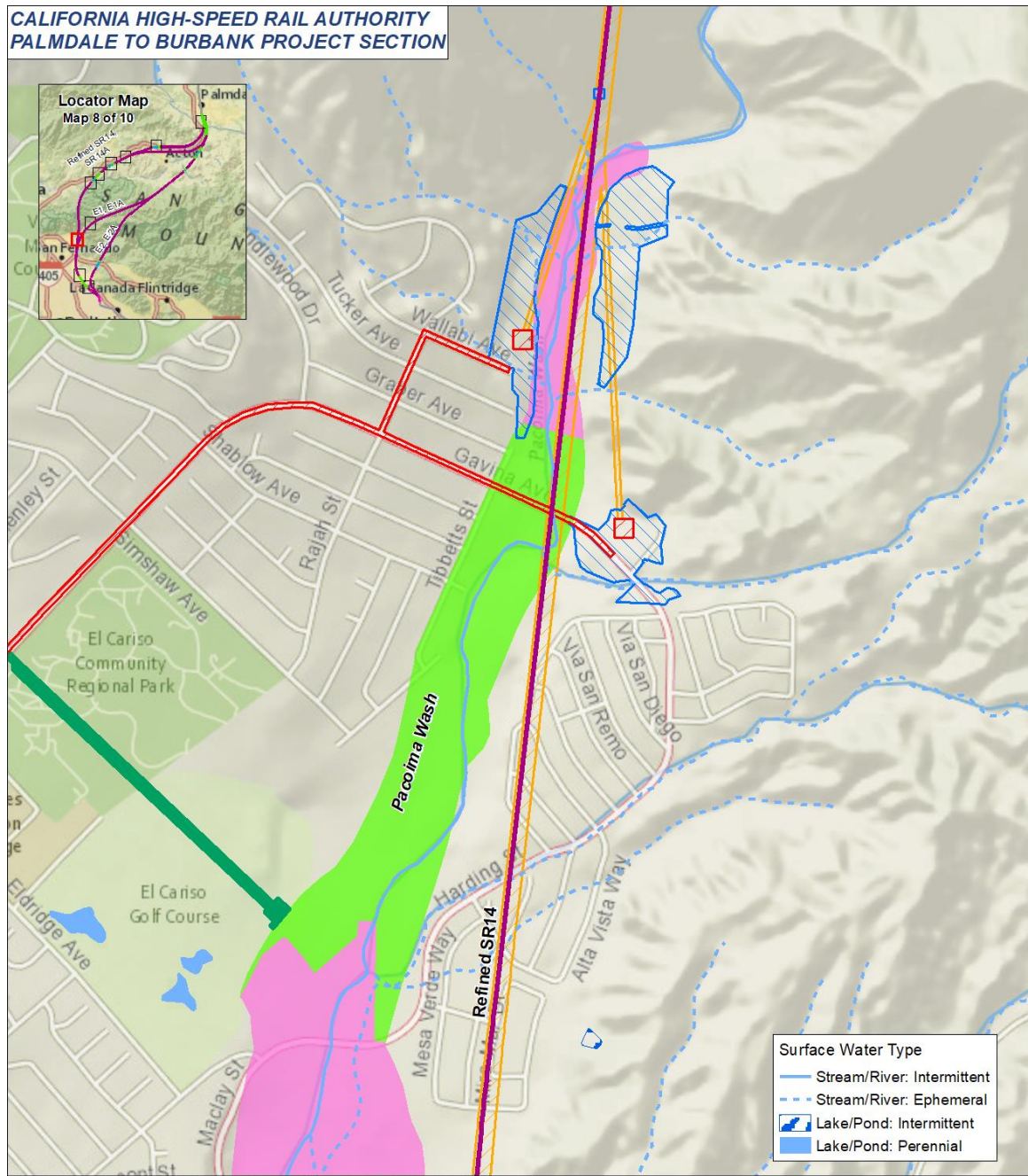


**Figure 3.8-A-34 Refined SR14 Central Subsection (South) Surface Waters Overview (Map 1 of 3)**

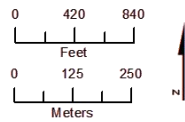
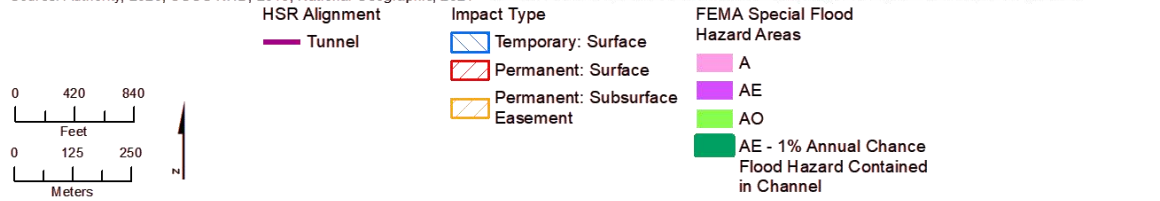




**Figure 3.8-A-35 Refined SR14 Central Subsection (South) Surface Waters Callout (Map 2 of 3)**

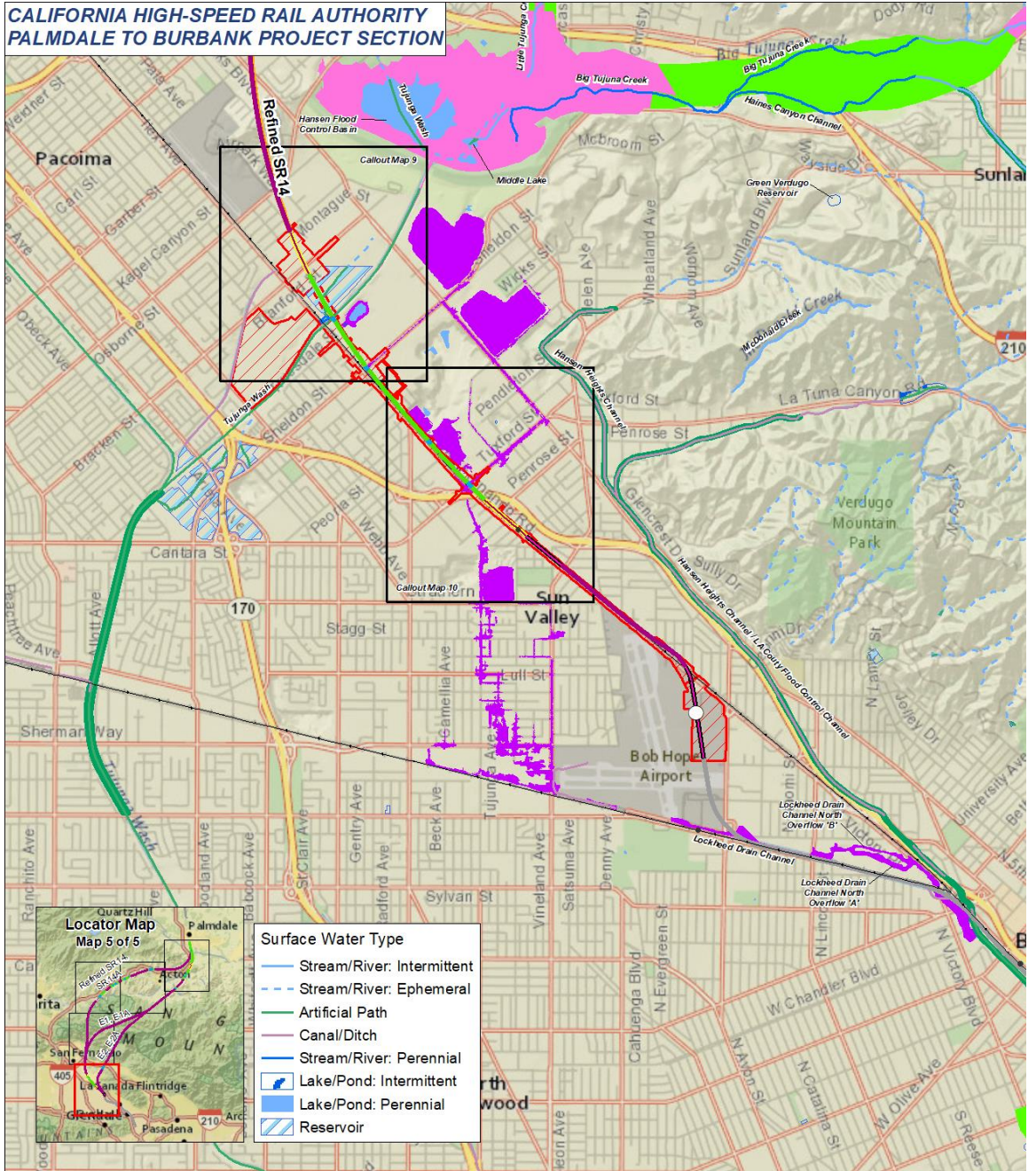


PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED  
 Source: Authority, 2020; USGS NHD, 2016; National Geographic, 2021  
 March 25, 2024

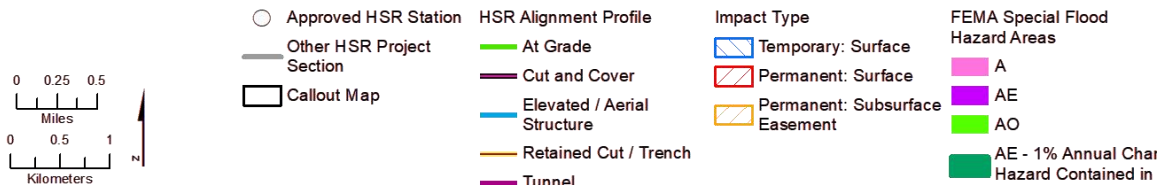


**Figure 3.8-A-36 Refined SR14 Central Subsection (South) Surface Waters Callout (Map 3 of 3)**



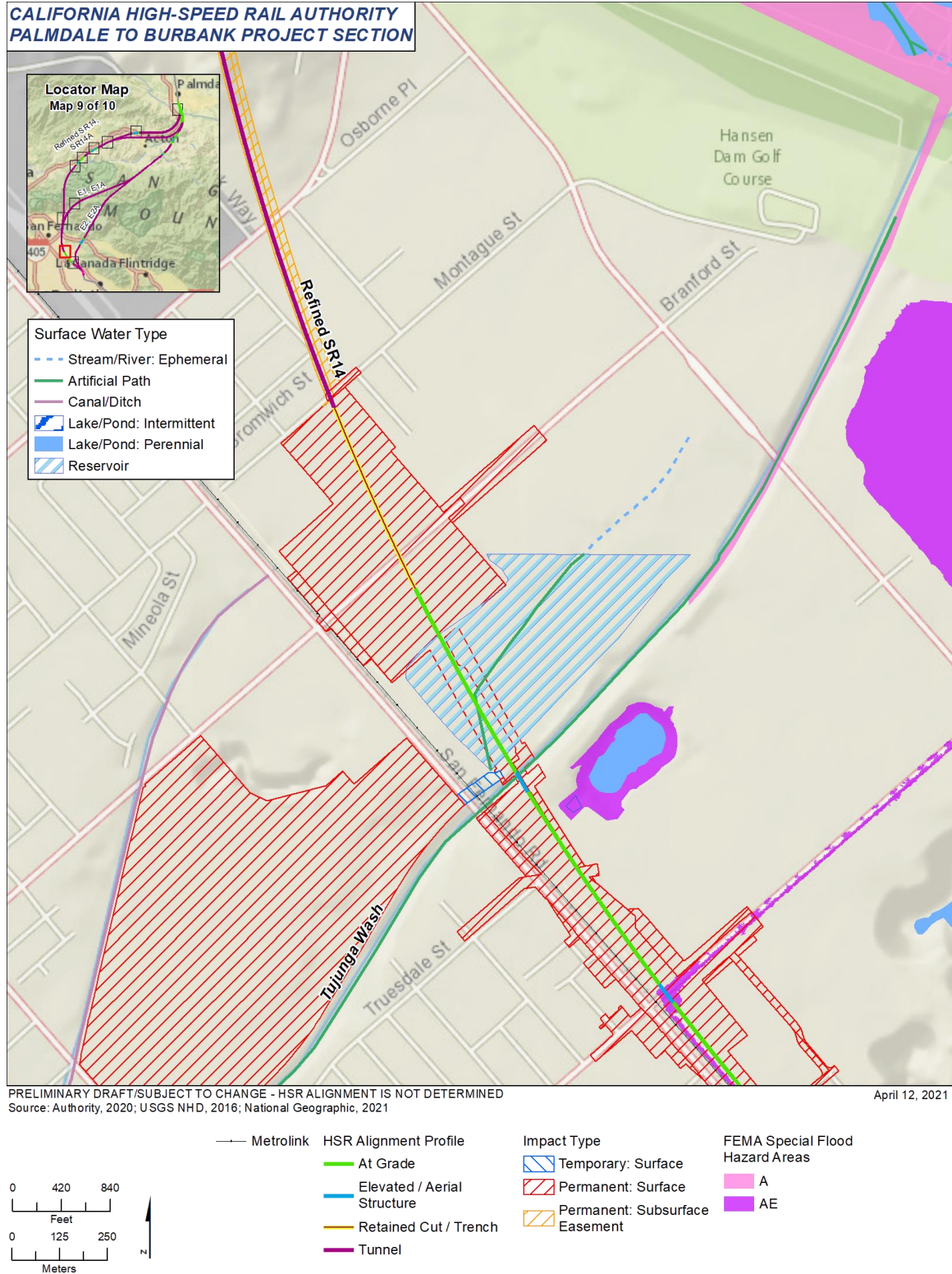


PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED  
 Source: Authority, 2023; USGS NHD, 2016; National Geographic, 2021  
 March 10, 2024



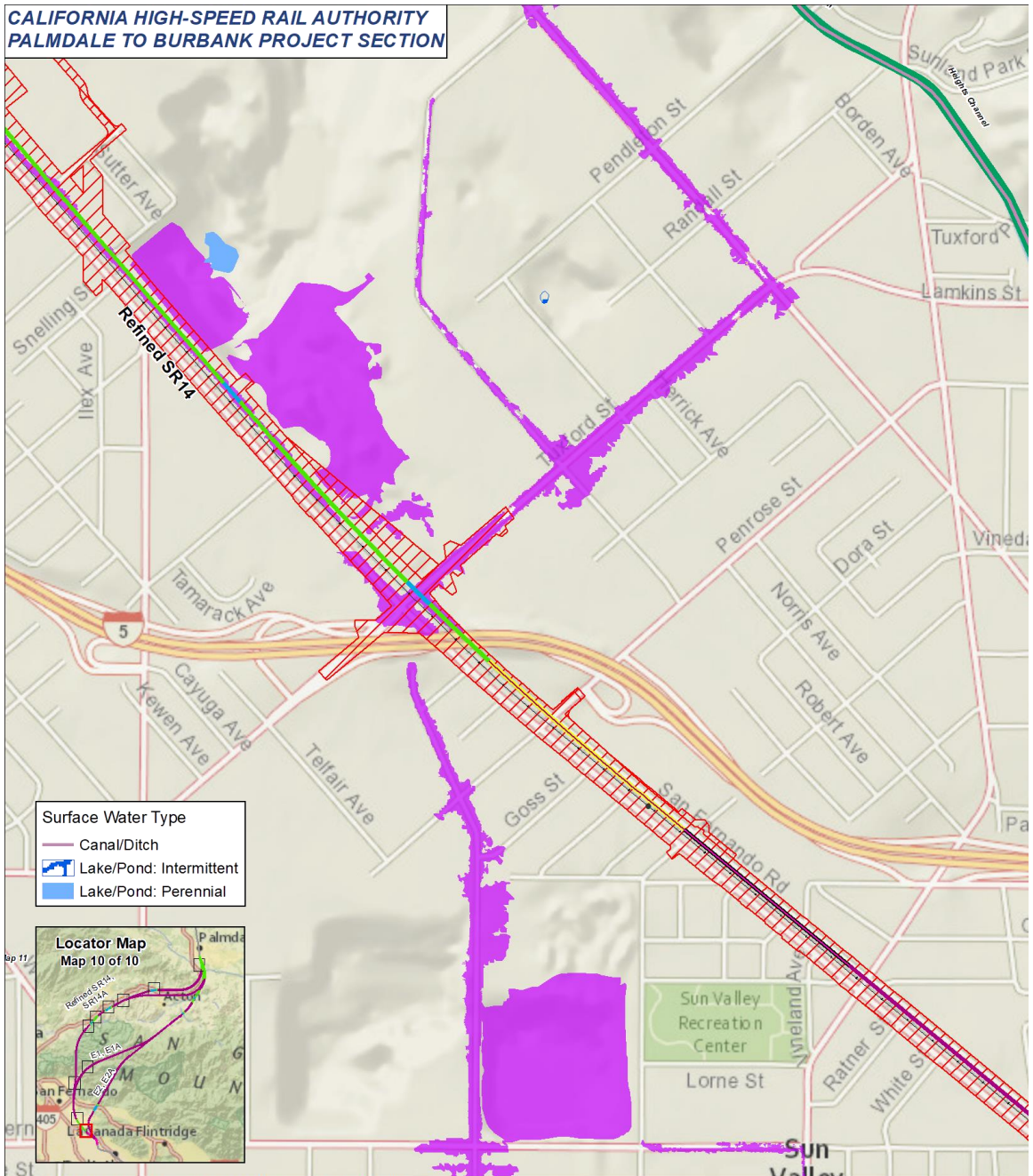
**Figure 3.8-A-37 Refined SR14 Central/Burbank Subsections Surface Waters Overview (Map 1 of 3)**



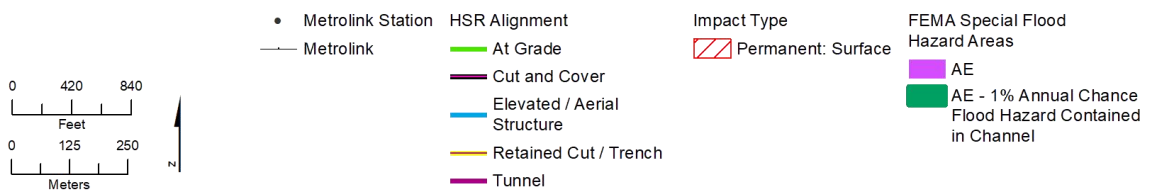


**Figure 3.8-A-38 Refined SR14 Central/Burbank Subsections Surface Waters Callout (Map 2 of 3)**

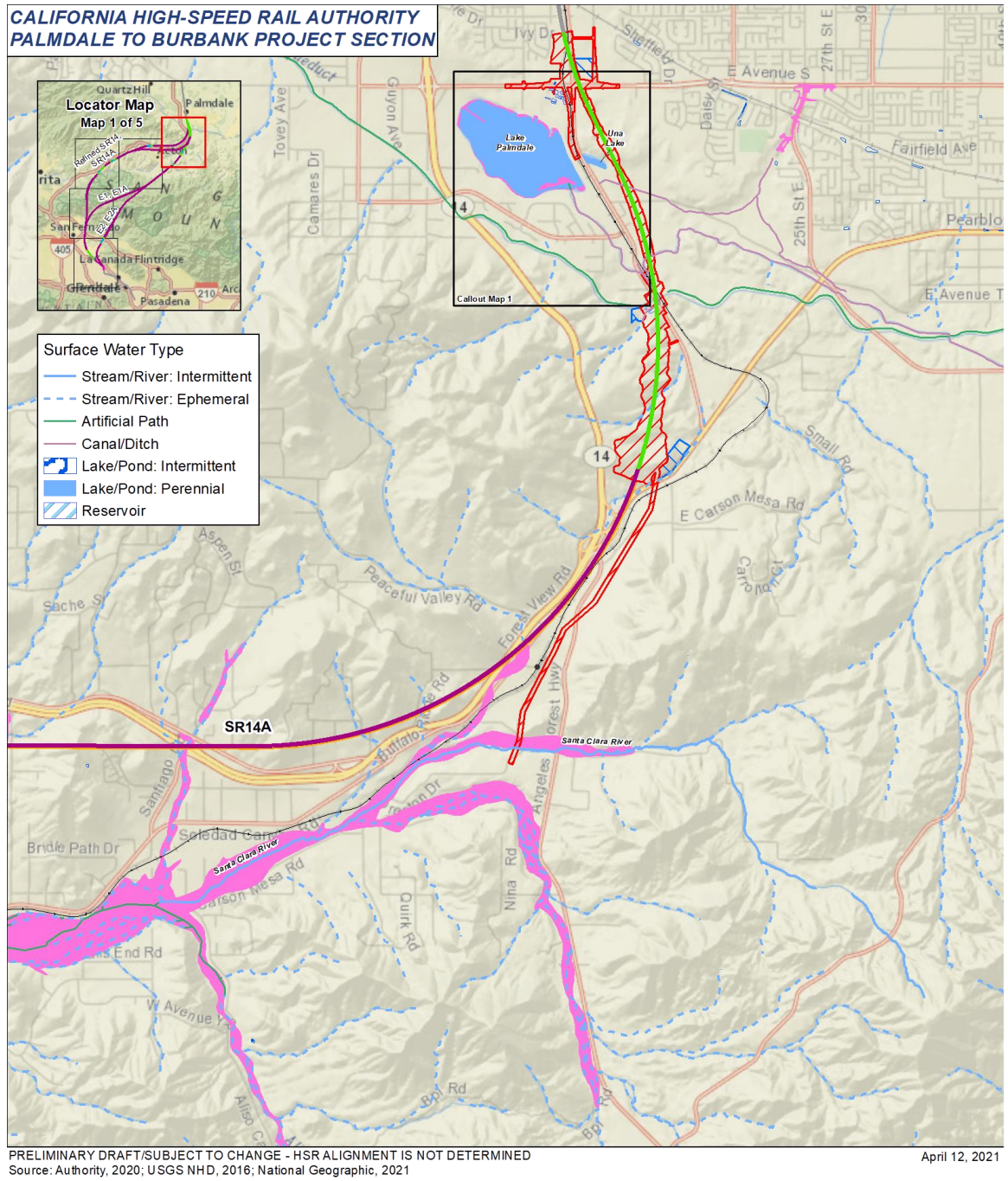




PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED  
 Source: Authority, 2020; USGS NHD, 2016; National Geographic, 2021

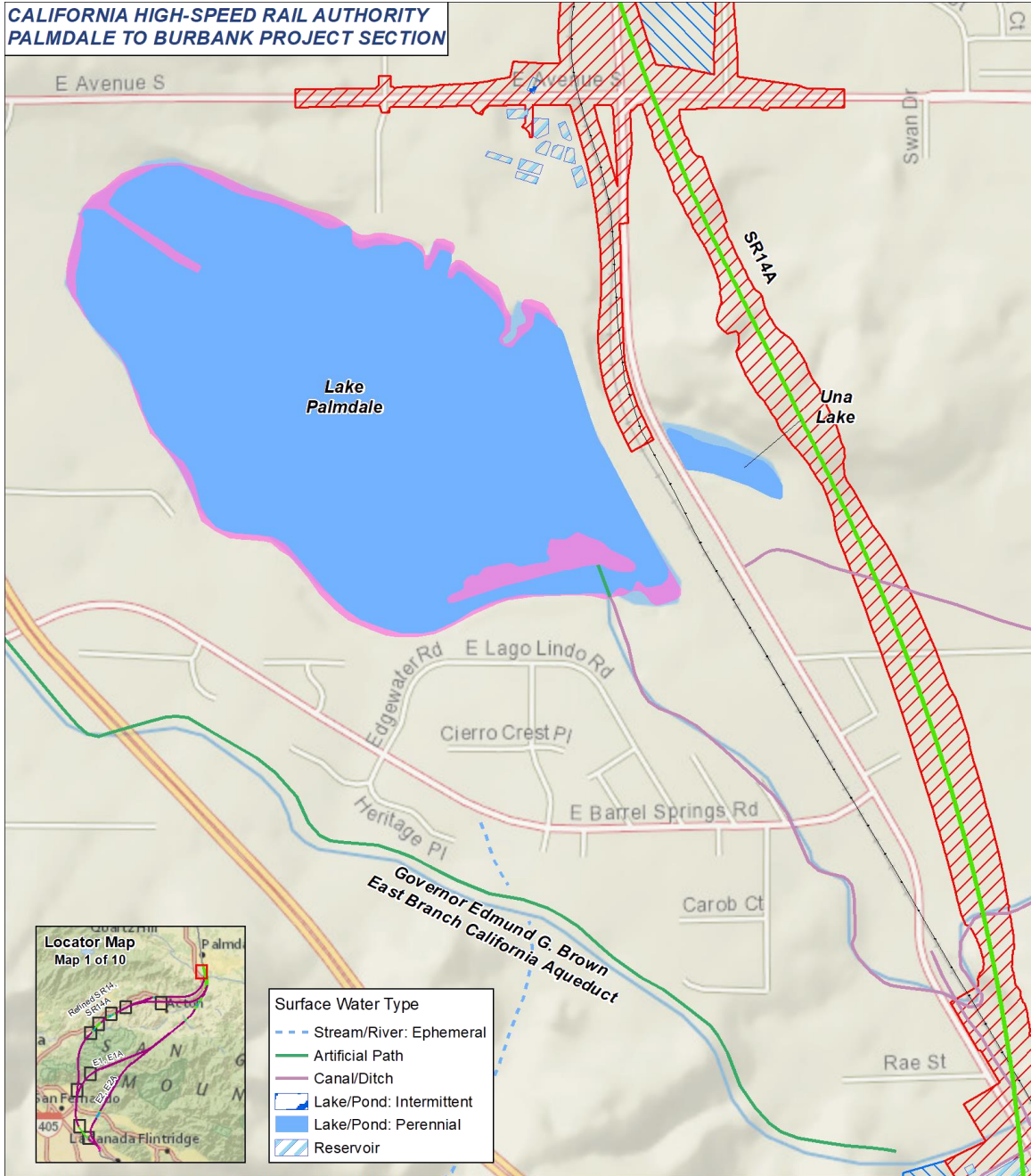


**Figure 3.8-A-39 Refined SR14 Central/Burbank Subsections Surface Waters Callout (Map 3 of 3)**



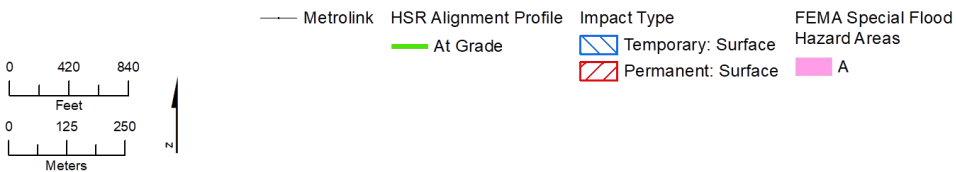
**Figure 3.8-A-40 SR14A Palmdale/Central Subsections Surface Waters Overview (Map 1 of 2)**



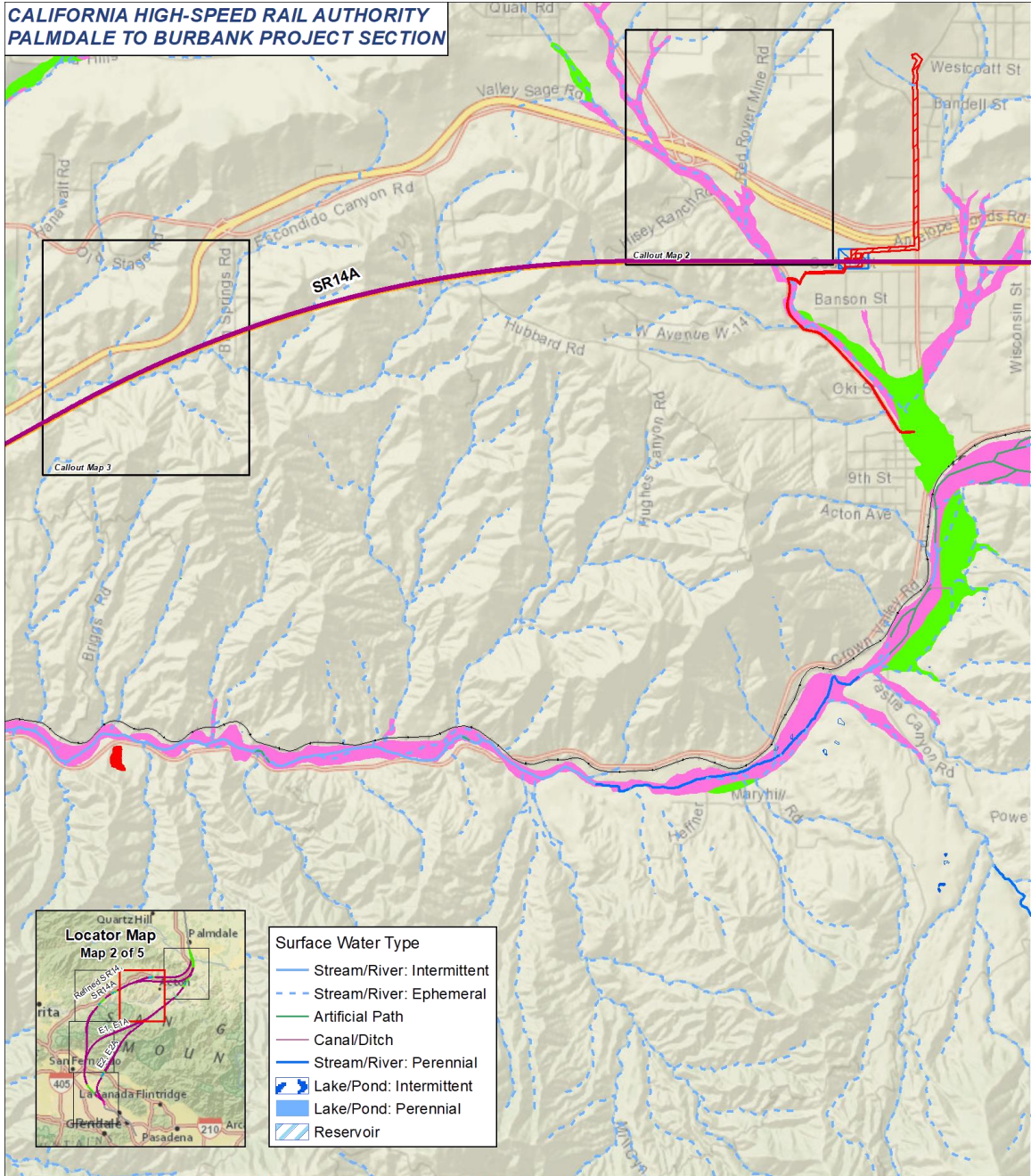


PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED  
 Source: Authority, 2020; USGS NHD, 2016; National Geographic, 2021

April 12, 2021



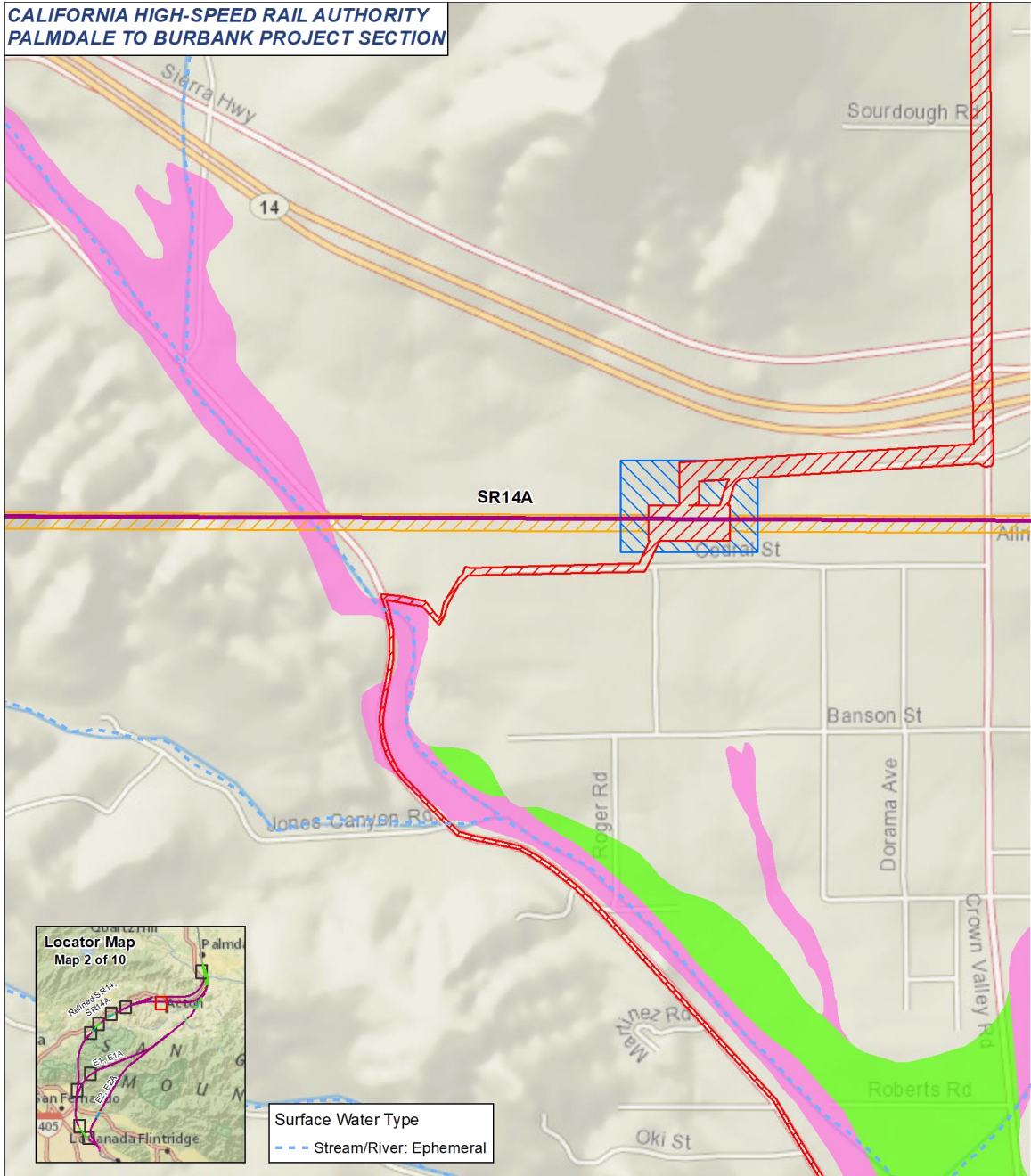
**Figure 3.8-A-41 SR14A Palmdale/Central Subsections Surface Waters Callout (Map 2 of 2)**



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED  
 Source: Authority, 2020; USGS NHD, 2016; National Geographic, 2021  
 April 12, 2021

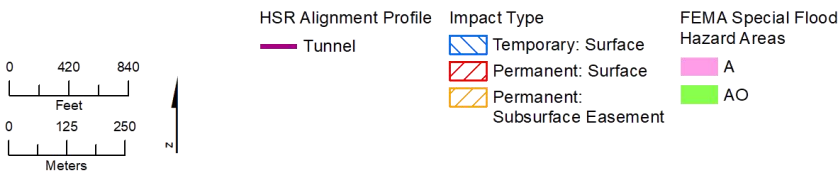
**Figure 3.8-A-42 SR14A Central Subsection (North) Surface Waters Overview (Map 1 of 3)**



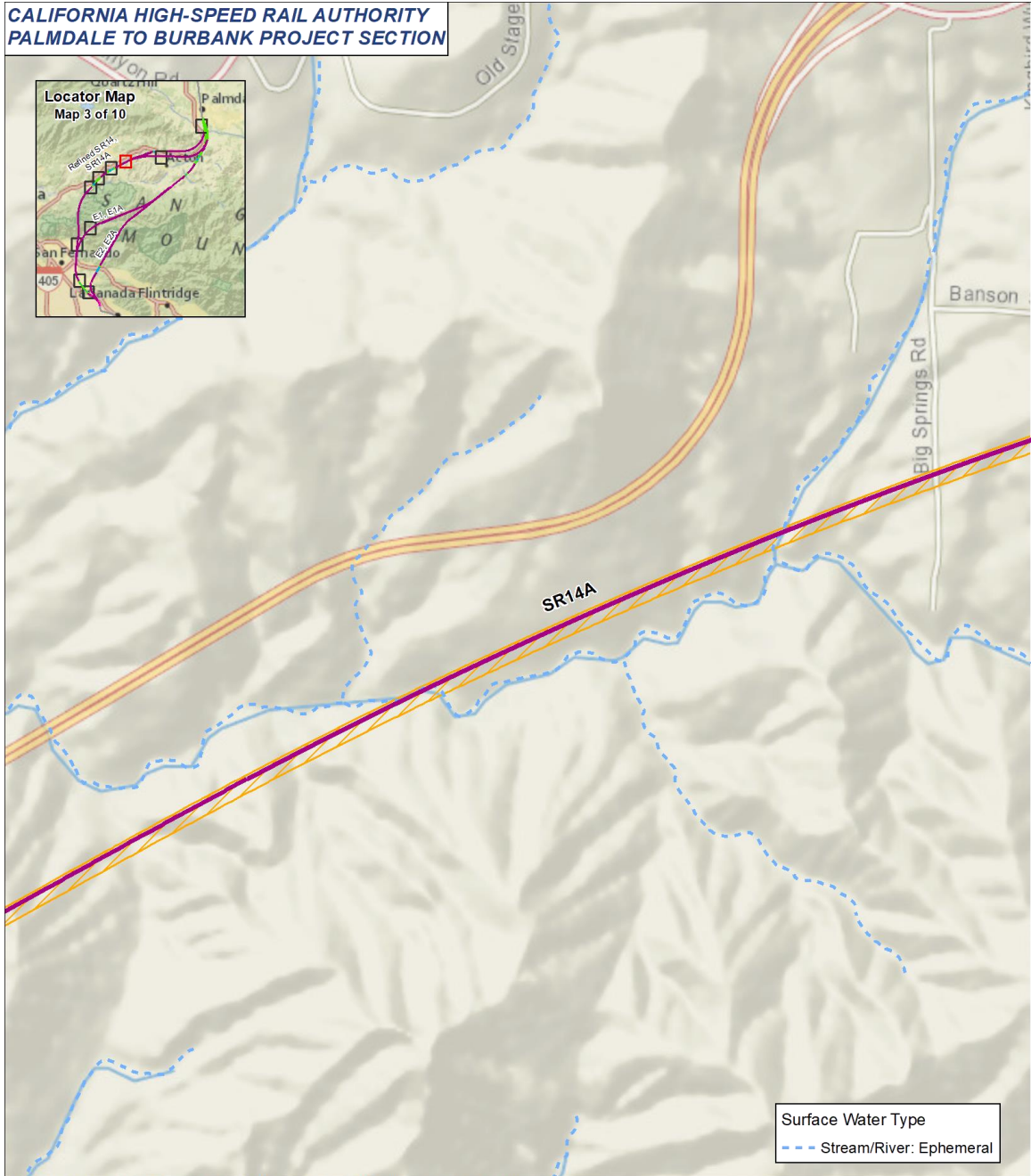


PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED  
 Source: Authority, 2020; USGS NHD, 2016; National Geographic, 2021

April 12, 2021

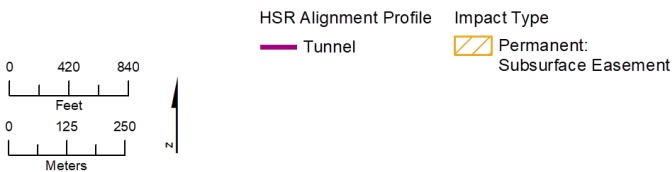


**Figure 3.8-A-43 SR14A Central Subsection (North) Surface Waters Callout (Map 2 of 3)**



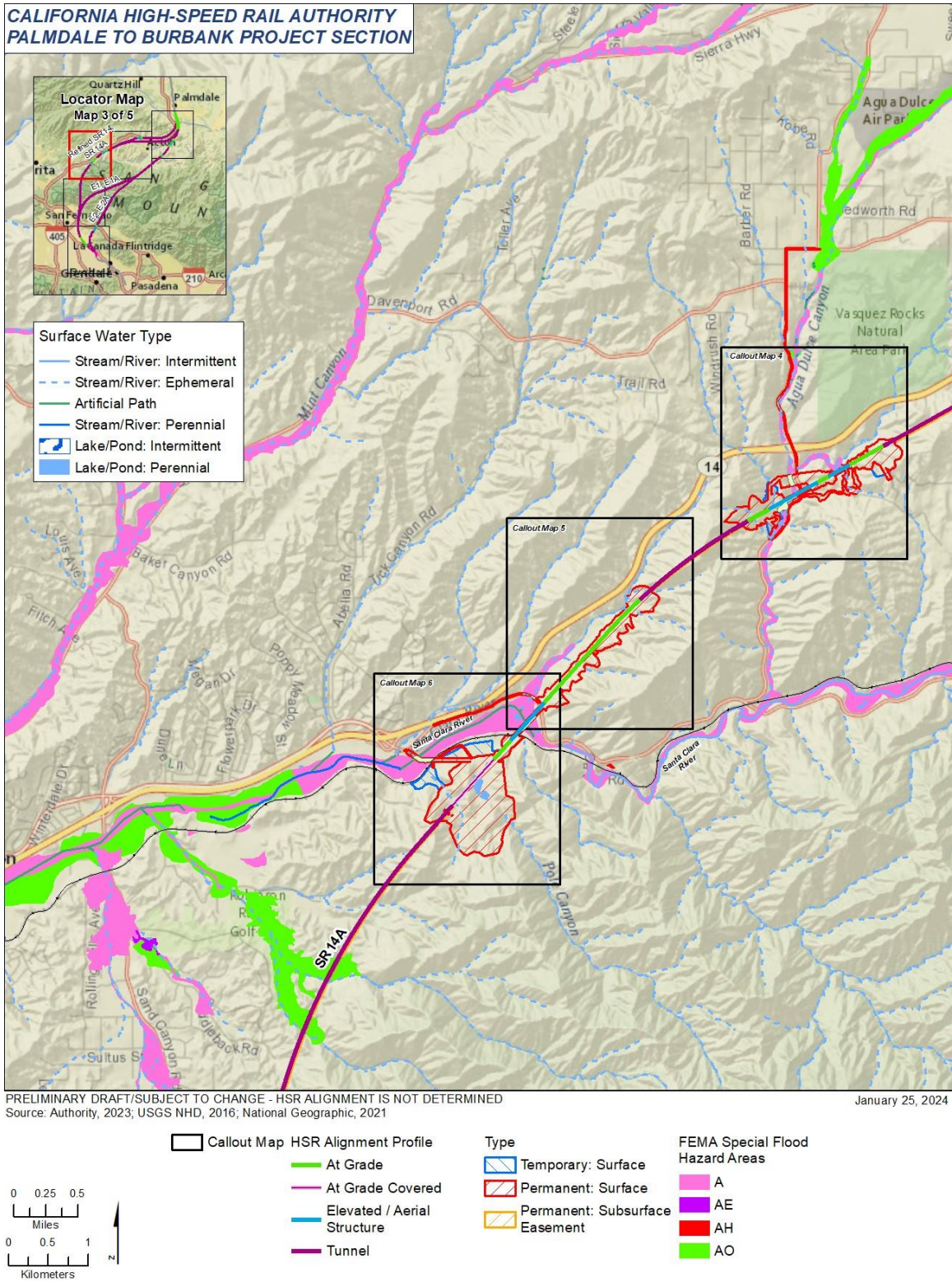
PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED  
 Source: Authority, 2020; USGS NHD, 2016; National Geographic, 2021

April 12, 2021

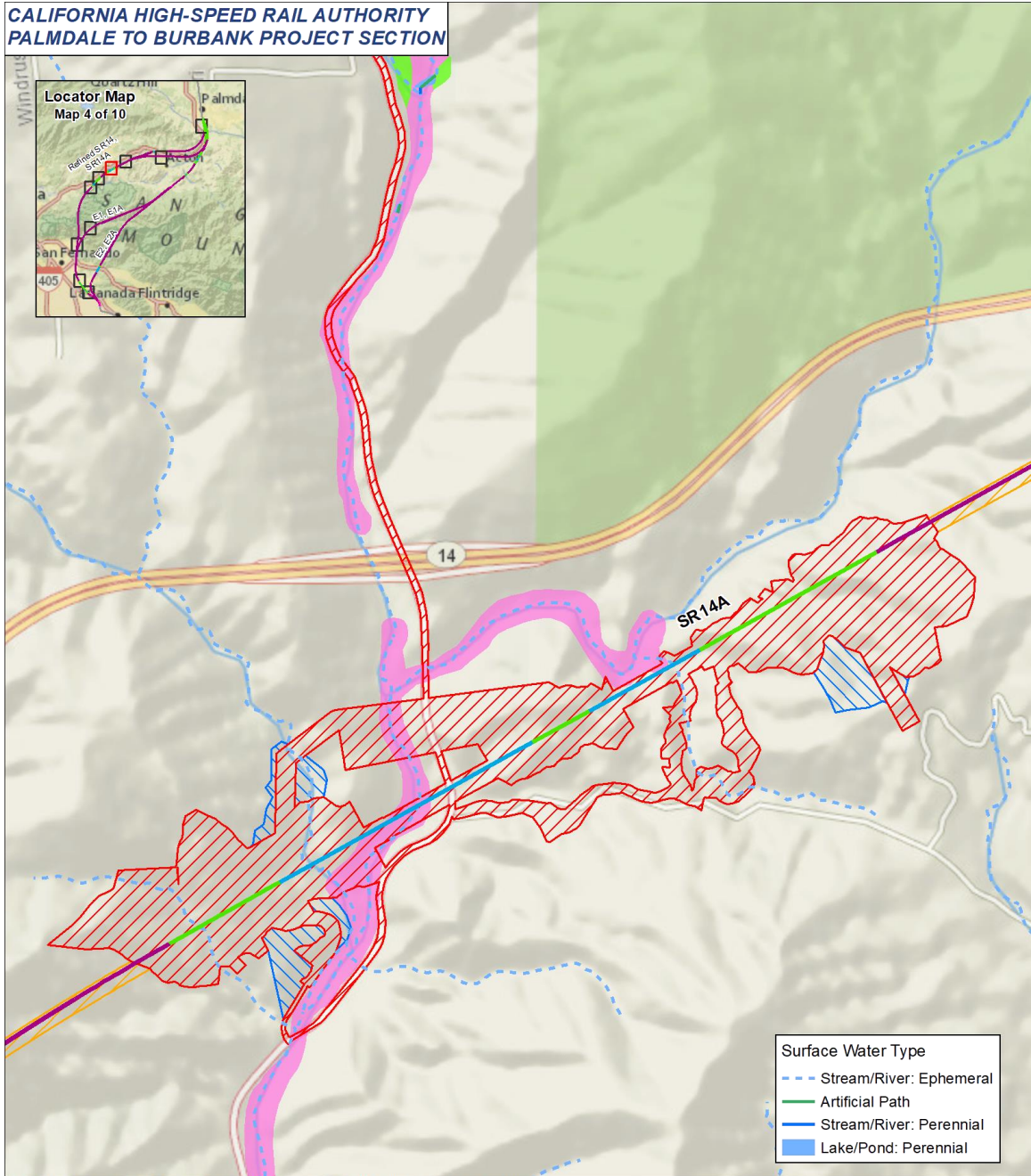


**Figure 3.8-A-44 SR14A Central Subsection (North) Surface Waters Callout (Map 3 of 3)**





**Figure 3.8-A-45 SR14A Central Subsection (Center) Overview Surface Waters (Map 1 of 4)**



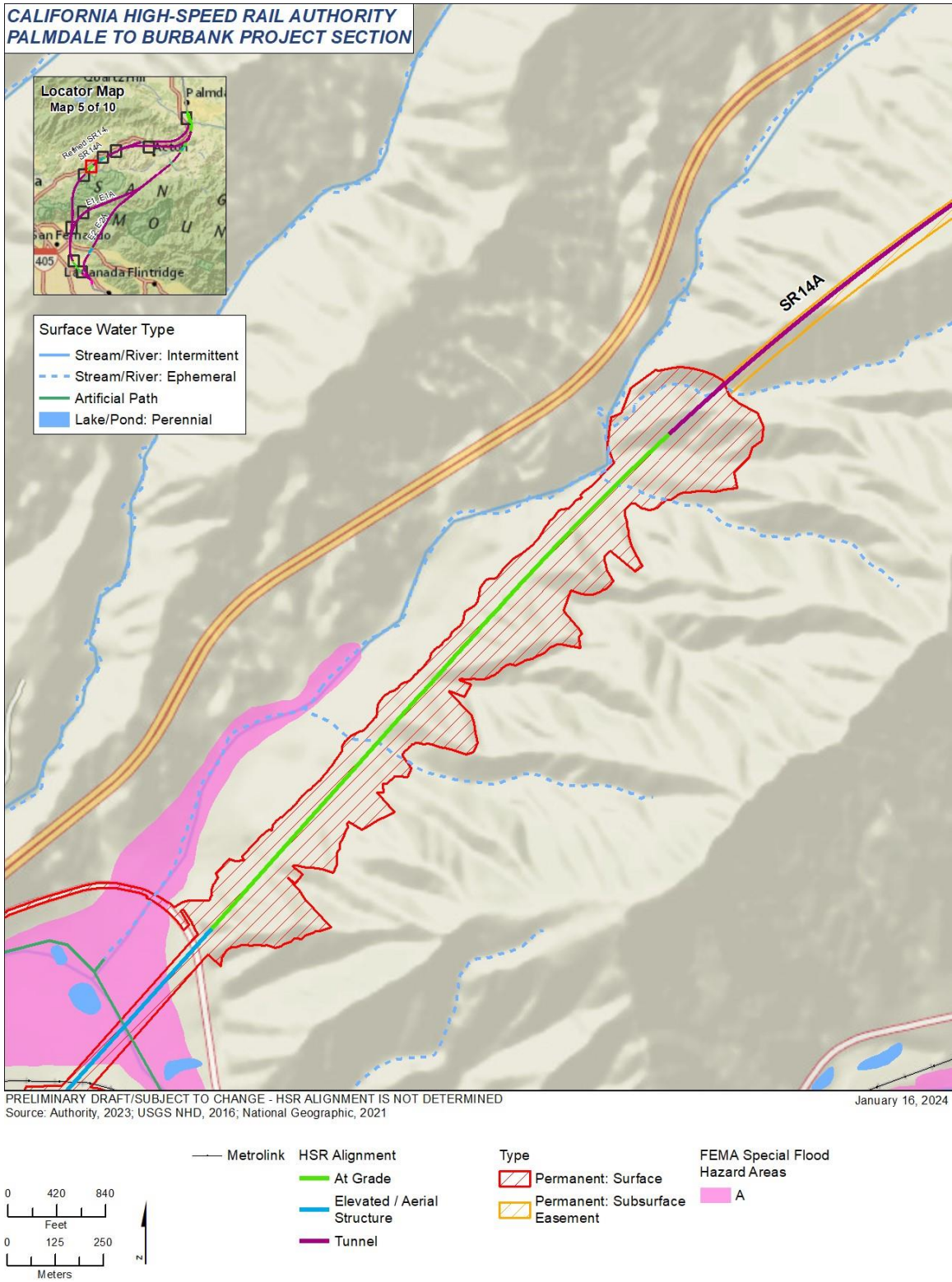
PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED  
 Source: Authority, 2020; USGS NHD, 2016; National Geographic, 2021

April 12, 2021

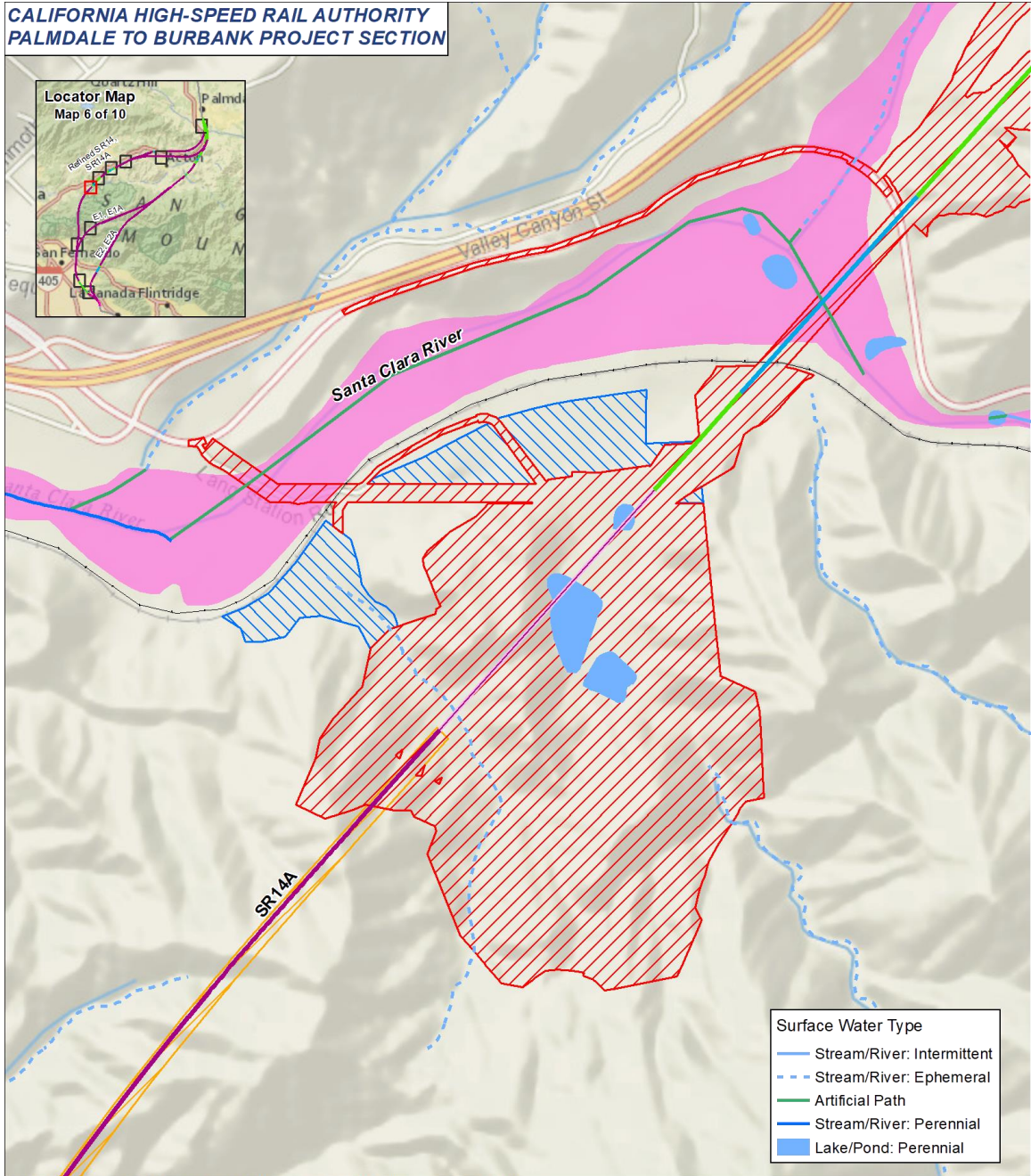


**Figure 3.8-A-46 SR14A Central Subsection (Center) Surface Waters Callout (Map 2 of 4)**



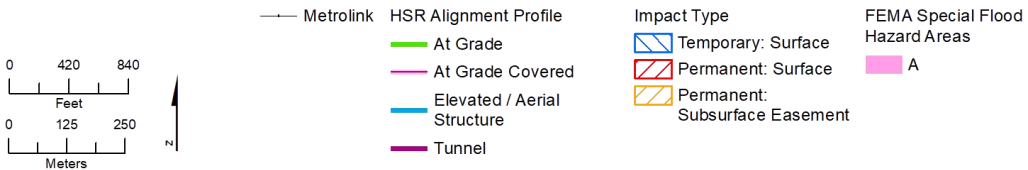


**Figure 3.8-A-47 SR14A Central Subsection (Center) Surface Waters Callout (Map 3 of 4)**



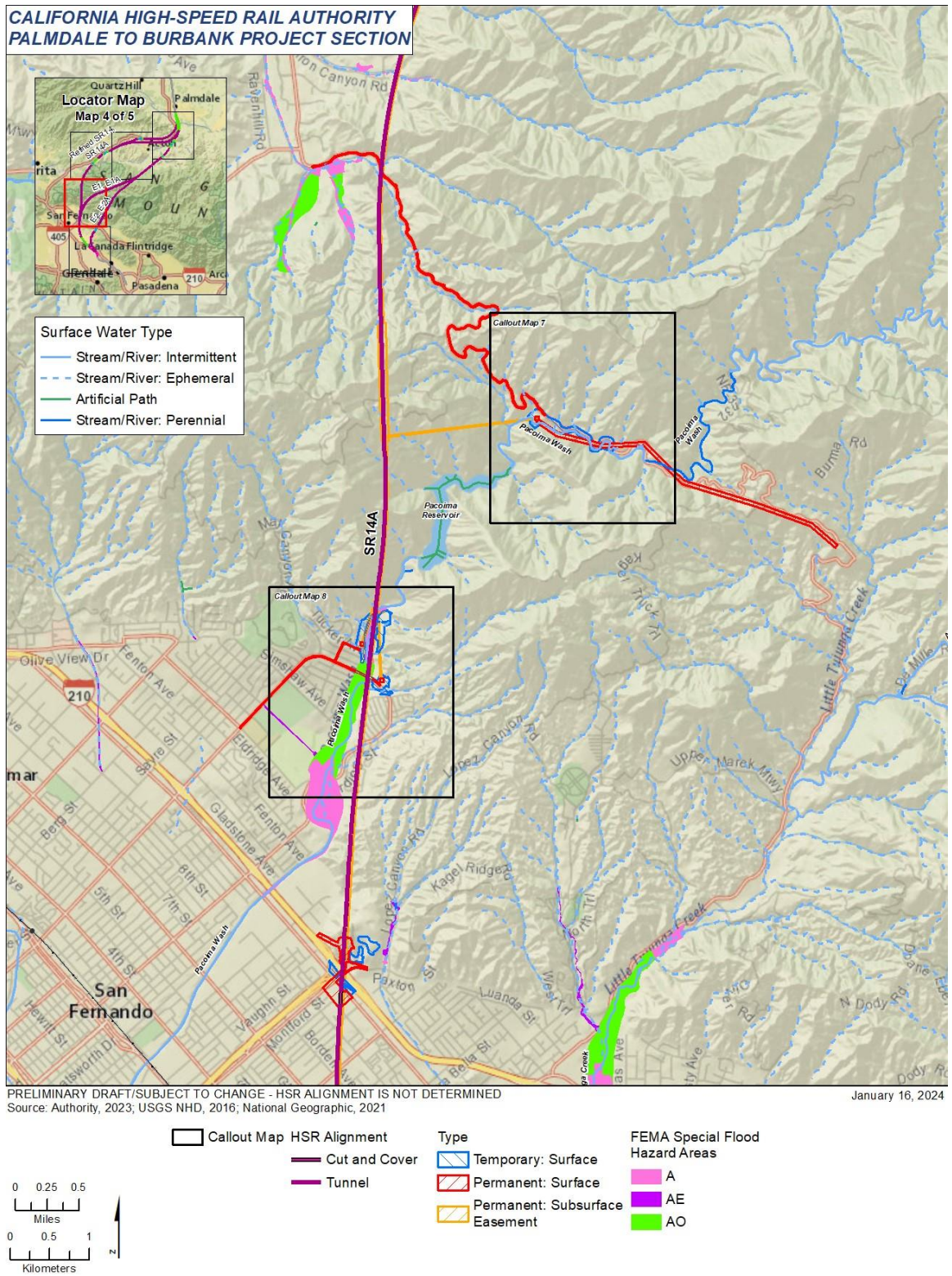
PRELIMINARY DRAFT/SUBJECT TO CHANGE - HSR ALIGNMENT IS NOT DETERMINED  
 Source: Authority, 2020; USGS NHD, 2016; National Geographic, 2021

April 12, 2021

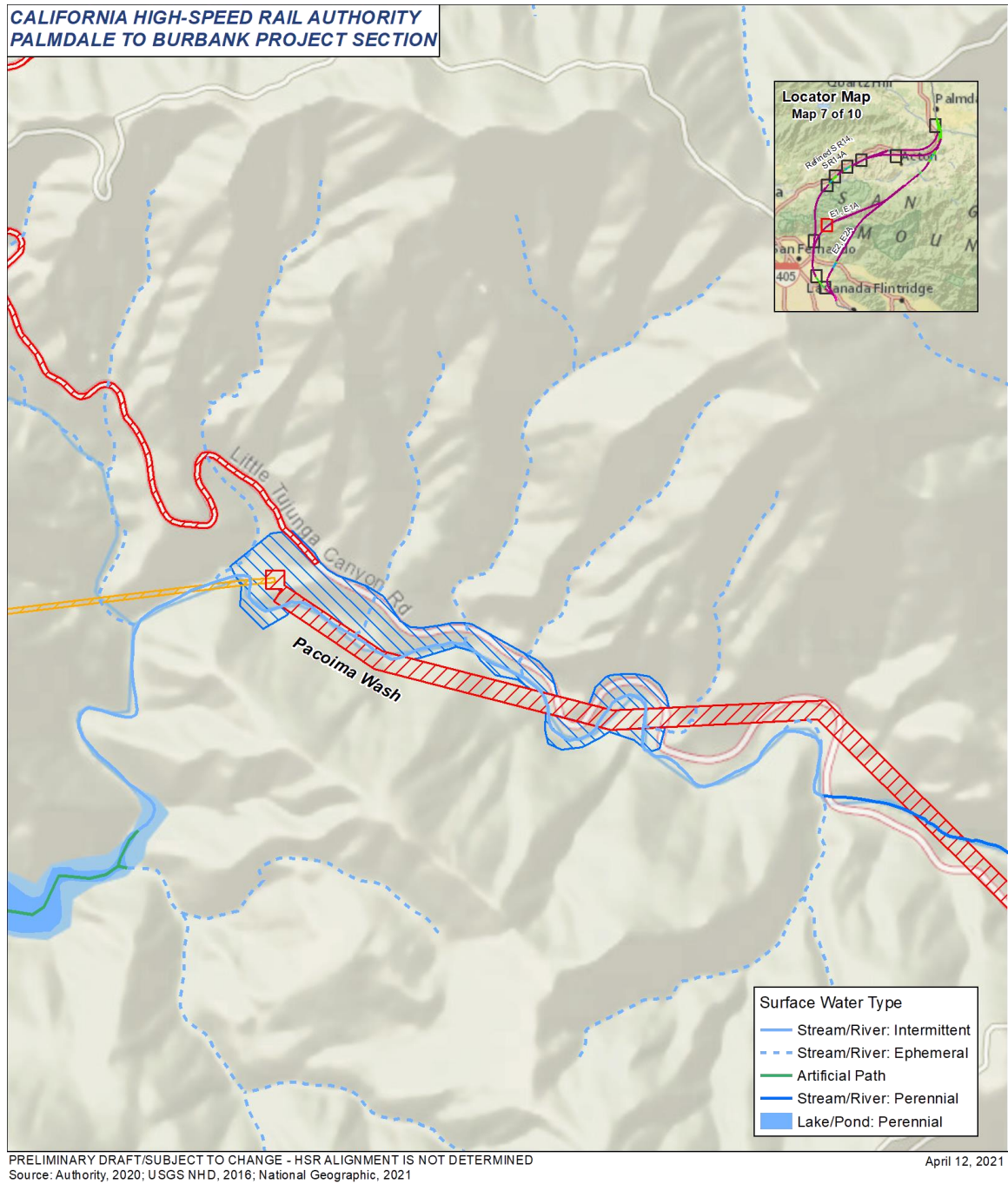


**Figure 3.8-A-48 SR14A Central Subsection (Center) Surface Waters Callout (Map 4 of 4)**



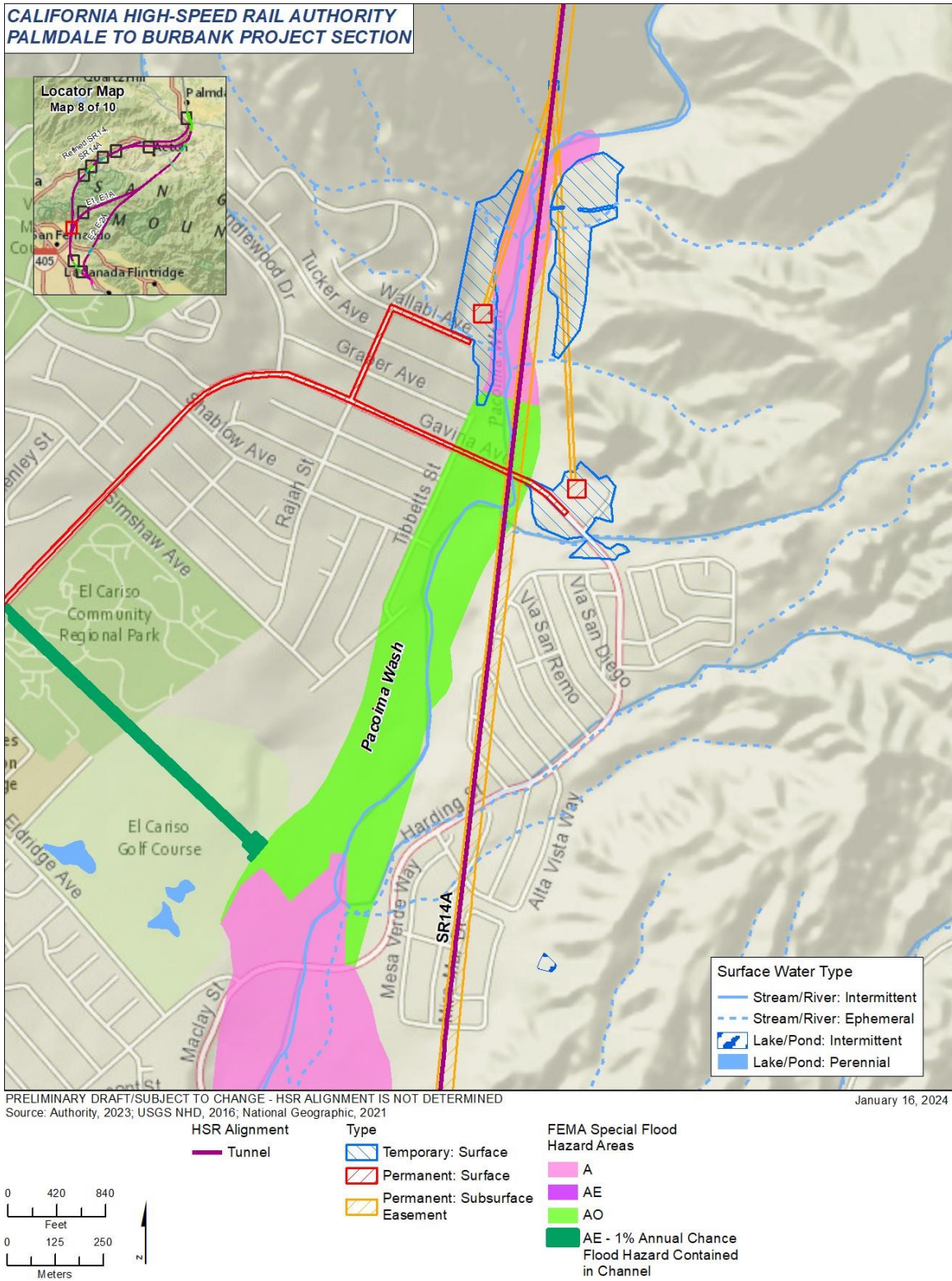


**Figure 3.8-A-49 SR14A Central Subsection (South) Surface Waters Overview (Map 1 of 3)**



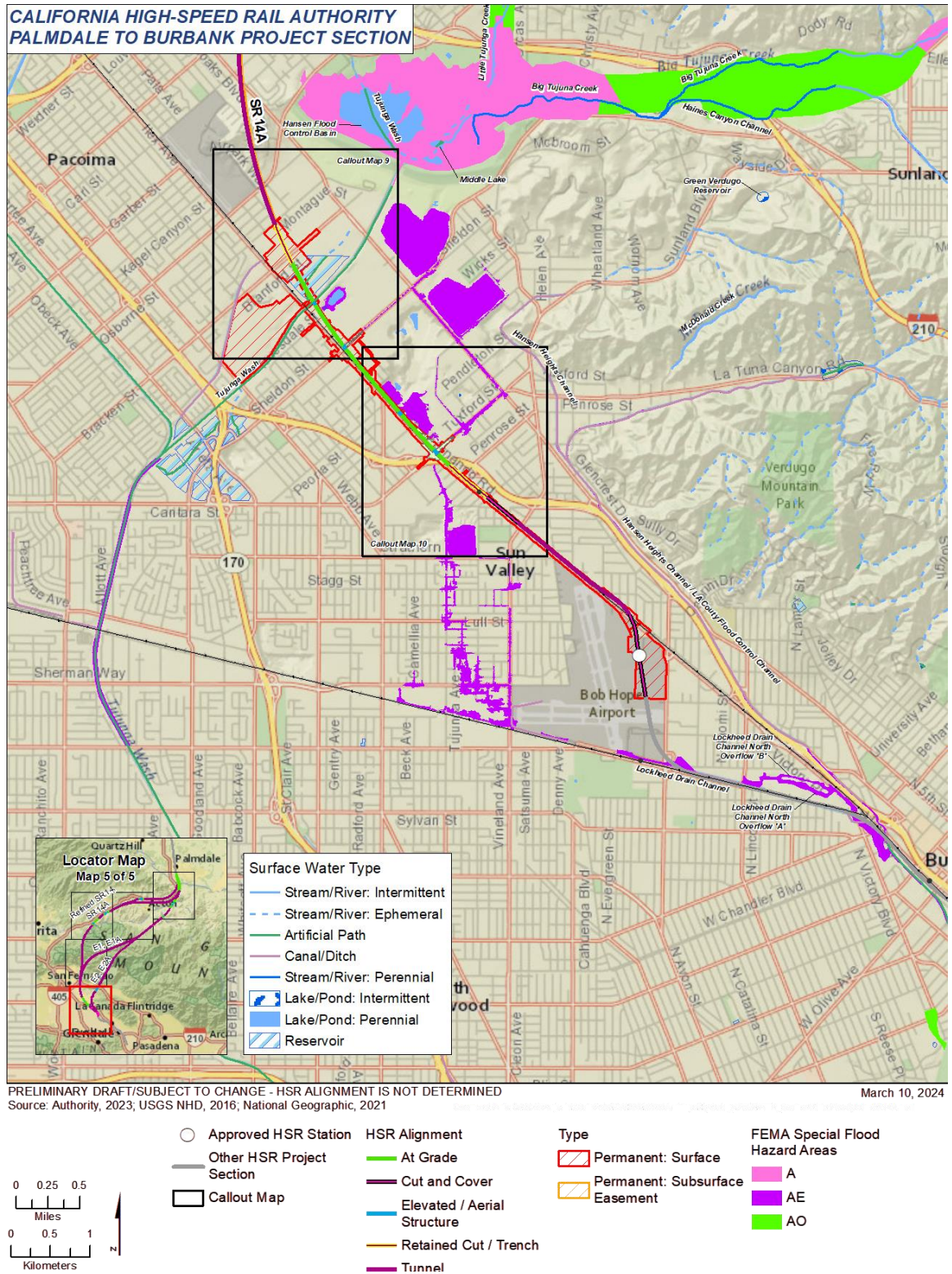
**Figure 3.8-A-50 SR14A Central Subsection (South) Surface Waters Callout (Map 2 of 3)**





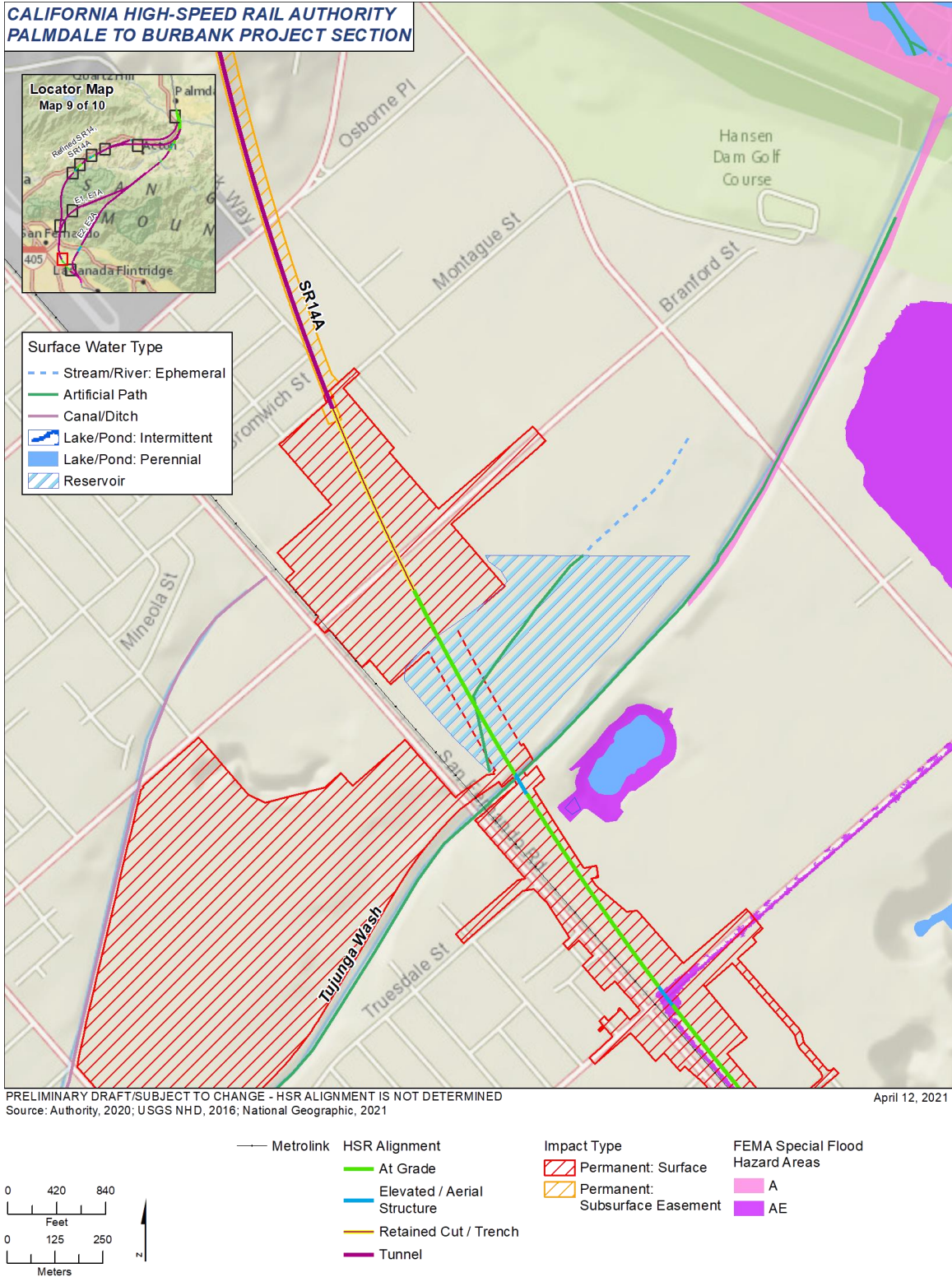
**Figure 3.8-A-51 SR14A Central Subsection (South) Surface Waters Callout (Map 3 of 3)**



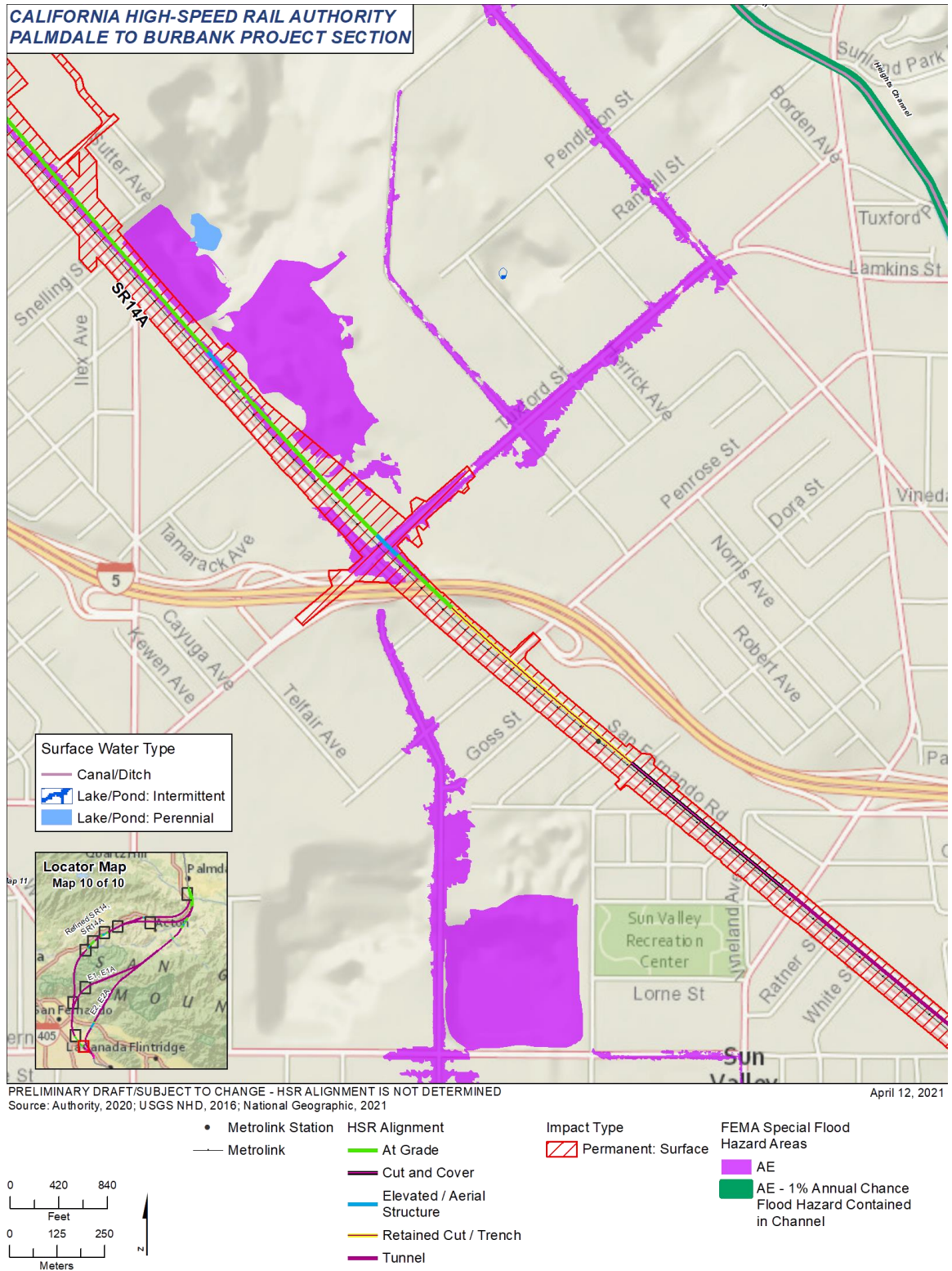


**Figure 3.8-A-52 SR14A Central/Burbank Subsections Surface Waters Callout (Map 1 of 3)**





**Figure 3.8-A-53 SR14A Central/Burbank Subsections Surface Waters Callout (Map 2 of 3)**



**Figure 3.8-A-54 SR14A Central/Burbank Subsections Surface Waters Callout (Map 3 of 3)**