

APPENDIX A.1

# **Waterbody Crossing Inventory**

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**Appendix A.1, Table 1**  
Location and Design Information (UPRR)

Crossing ID	Waterbody Name	Crossing Type	Figure 5-1 Map and Grid Location	City	County	15% Design Vertical Alignment (elevated, retained fill, at-grade)	Longitudinal Waterbody Crossing? (length in feet or "No")	15% Design Approach (pipe, culvert, single span, multispans, relocated)	15% Design Details (dimension-type, #)	Owner (Public, Water/Irrigation District, Private) <sup>1</sup>
<b>UPRR, BNSF, and Hybrid: Castle Commerce Center HMF (UPRR_BNSF_HYBRID_N_CCC)</b>										
016C-CdLt	Casad Lateral	C	5-1a, A-1	Unincorporated	Merced	At-grade	No	outside limits		MerID
005C		C	5-1a, A-1	Unincorporated	Merced	At-grade	6430			Private
002S		S	5-1a, B-2	Unincorporated	Merced	At-grade	2990			Private <sup>7</sup>
010S-CaCk	Canal Creek	S	5-1a, B-2	Unincorporated	Merced	At-grade	1040	outside limits		Public <sup>2</sup>
008C		C	5-1a, B-2	Unincorporated	Merced	At-grade	1670			Private
700C		C	5-1a, B-2	Unincorporated	Merced	At-grade	No	culvert	Note B	MerID
011C		C	5-1a, B-2	Unincorporated	Merced	Elevated	No	outside limits		MerID
009C		C	5-1a, C-2	Unincorporated	Merced	Elevated	No			MerID
025P-PoLt	Pohlie Lateral	C	5-1a, C-3	Unincorporated	Merced	At-grade	No	outside limits		MerID
020S-BRCK	Black Rascal Creek	S	5-1a, C-4	Unincorporated	Merced	Elevated	No	outside limits		Public
030S-BaCk	Bear Creek	S	5-1a, D-4	Merced	Merced	Retained Fill	No	outside limits		Public <sup>2</sup>
031P		P	5-1a, D-4	Merced	Merced	Retained Fill	No	outside limits		Private
<b>UPRR, BNSF and Hybrid: North of UPRR/BNSF Alignment Split (UPRR_BNSF_HYBRID_N)</b>										
040C-LtD	Lateral D	C	5-1b, A-1	Unincorporated	Merced	At-grade	No	culvert	Note B	MerID
042C-LtD	Lateral D	C	5-1b, A-1	Unincorporated	Merced	At-grade	No	culvert	Note B	MerID
702C-A		C	5-1b, C-2	Unincorporated	Merced	At-grade	No	Relocate	20' beyond ROW	MerID
<b>UPRR and Hybrid: North of UPRR/Hybrid Alignment Split (UPRR_HYBRID_N)</b>										
048D		D	5-1b, B-2	Unincorporated	Merced	At-grade	No	no data		Private
050C-FdLt	Farmdale Lateral	C	5-1b, B-2	Unincorporated	Merced	At-grade	No	culvert	Note B	MerID
701C-FdLt-A	Farmdale Lateral	C	5-1b, B-2	Unincorporated	Merced		No			MerID
055S-MCOF	Miles Creek Overflow No. 1	S	5-1b, B-2	Unincorporated	Merced	At-grade	No	culvert	Note B	Public <sup>2</sup>
060S-MiCk	Miles Creek	S	5-1b, B-2	Unincorporated	Merced	At-grade	No	multispans	PC/PS Box; 2-50' span	Public <sup>2</sup>
080S-OwCk	Owens Creek	S	5-1b, B-3	Unincorporated	Merced	At-grade	580	relocate/multispans	PC/PS Box; 2-50' span	Public <sup>2</sup>
081C-KoLt	Koff Lateral	C	5-1b, B-3	Unincorporated	Merced	At-grade	870	relocated/culvert	Note C	MerID
090D-LtAA	Lateral A-A	D	5-1b, C-3	Unincorporated	Merced	At-grade	No			MerID

Crossing ID	Waterbody Name	Crossing Type	Figure 5-1 Map and Grid Location	City	County	15% Design Vertical Alignment (elevated, retained fill, at-grade)	Longitudinal Waterbody Crossing? (length in feet or "No")	15% Design Approach (pipe, culvert, single span, multispans, relocated)	15% Design Details (dimension-type, #)	Owner (Public, Water/Irrigation District, Private) <sup>1</sup>
100D		D	5-1b, C-3	Unincorporated	Merced	At-grade	No			MerID
112S-DuSl	Duck Slough	S	5-1b, C-3	Unincorporated	Merced	At-grade	No	realign/multispans	Note D	Public <sup>2</sup>
111S-DuSl	Duck Slough	S	5-1b, C-3	Unincorporated	Merced	At-grade	No	realign/multispans	Note D	Public <sup>2</sup>
110S-DuSl	Duck Slough	S	5-1b, C-3	Unincorporated	Merced	At-grade	No	realign/multispans	Note D	Public <sup>2</sup>
113C-GvLt	Givens Lateral	C	5-1b, C-3	Unincorporated	Merced	At-grade	No	relocated/culvert	Note D	MerID
114C		C	5-1b, C-3	Unincorporated	Merced	At-grade	No	culvert	Note B	Private
115C		C	5-1b, C-4	Unincorporated	Merced	At-grade	No	culvert	Note B	MerID
116C-SoSl	South Slough / Lingard Lateral	C	5-1b, C-4	Unincorporated	Merced	At-grade	No	multispans	100' span, 2	MerID
117C-LatB	Lateral B	C	5-1b, D-4	Unincorporated	Merced	At-grade	No	Culvert	12' box culvert, 2	MerID
150C-RuLt	South Slough / Russell Lateral	C	5-1b, D-4	Unincorporated	Merced	At-grade	No	multispans	100' span, 2	MerID
756C-A		C	5-1b, D-4	Unincorporated	Merced		550	culvert		Private
758C-A		C	5-1b, D-5	Unincorporated	Merced		No	culvert	12' box culvert, 2	Private
760C-A		C	5-1b, D-5	Unincorporated	Merced		No	culvert		Private
754C-A		C	5-1b, D-4	Unincorporated	Merced		No	culvert		Private
152C		C	5-1b, E-5	Unincorporated	Merced	At-grade	No	Culvert	12' box culvert, 2	Private <sup>6</sup>
154C		C	5-1b, E-5	Unincorporated	Merced	At-grade	No	Culvert	12' box culvert, 2	Private <sup>6</sup>
200S-DdCk	Deadman Creek	S	5-1e, A-1; 5-1b, E-5	Unincorporated	Merced	At-grade	No	single span	PC/PS Box; 1-40' span	Public
<b>UPRR: East Chowchilla Design Option, main track between Avenue 24 and Avenue 21 wyes (UPRR_NotChowDO)</b>										
210S-DtCk	Dutchman Creek	S	5-1e, B-2	Unincorporated	Merced	Elevated	380	Single Span	150' span	Public <sup>3</sup>
215D-SDtC	South Dutchman Creek	D	5-1e, C-2	Unincorporated	Merced	Elevated	No			Public <sup>3</sup>
220S-ChRi	Chowchilla River	S	5-1e, C-3	Unincorporated	Madera	Elevated	No			Public <sup>3</sup>
221C-Mntr	Minturn	C	5-1e, D-4	Unincorporated	Madera	Elevated	No	elevated		CWD
230S-AsSl	Ash Slough	S	5-1h, B-1; 5-1e, E-4	Unincorporated	Madera	Elevated	No	Multispans	Note A	Public <sup>3</sup>
240C-HtLt	Hartley Lateral	C	5-1h, C-2; 5-1f, A-5	Chowchilla	Madera	Elevated	No	elevated		CWD
250S-BeSl	Berenda Slough	S	5-1h, C-2; 5-1f, A-5	Unincorporated	Madera	Elevated	No	Multispans	Note A	Public <sup>3</sup>
260C-CALA	California Lateral A	C	5-1h, D-2; 5-1f, B-5	Unincorporated	Madera	Elevated	No	elevated		CWD
264C-CaCa	Califa Canal	C	5-1h, D-3	Unincorporated	Madera	Elevated	No	elevated		CWD

Crossing ID	Waterbody Name	Crossing Type	Figure 5-1 Map and Grid Location	City	County	15% Design Vertical Alignment (elevated, retained fill, at-grade)	Longitudinal Waterbody Crossing? (length in feet or "No")	15% Design Approach (pipe, culvert, single span, multispans, relocated)	15% Design Details (dimension-type, #)	Owner (Public, Water/Irrigation District, Private) <sup>1</sup>
<b>UPRR West Chowchilla Design Option and Hybrid (ChowDO_HYBRID)</b>										
209S-DtCk-B	Dutchman Creek	S	5-1e, B-2	Unincorporated	Merced	At-grade	No	multispan	PC/PS Box; 3-40' span	Public <sup>3</sup>
762S-DtCk-A	Dutchman Creek	S	5-1e, A-2	Unincorporated	Merced	At-grade	No	multispan	PC/PS Box; 3-60' span	Public <sup>6</sup>
764C-A		C	5-1e, A-2	Unincorporated	Merced	At-grade	1280	Relocate	20' beyond ROW	Private
507C-B		C	5-1e, B-2	Unincorporated	Merced	At-grade	No	culvert	Note B	CWD
768C-A		C	5-1e, A-2	Unincorporated	Merced	At-grade	No	culvert	12' box culvert, 2	Private
778C-A		C	5-1e, A-3	Unincorporated	Merced	At-grade	250	culvert	12' box culvert, 2	Private
776C-A		C	5-1e, A-3	Unincorporated	Merced	At-grade	No	culvert	12' box culvert, 2	Private
509C-Lat2-B	Lat. 2	C	5-1e, B-3	Unincorporated	Merced	At-grade	No	No Impact		CWD
511C-Lat3-B	Lat. 3	C	5-1e, B-3	Unincorporated	Merced	At-grade	No	culvert	Note B	CWD
784C-Lat4-A	Lat. 4	C	5-1g, D-1; 5-1e, B-4	Unincorporated	Merced	At-grade	No	culvert	14' box culvert, 2	CWD
782C-Lat4-A	Lat. 4	C	5-1g, D-1; 5-1e, B-4	Unincorporated	Merced	At-grade	No	culvert	14' box culvert, 3	CWD
780S-ChRi-A	Chowchilla River	S	5-1g, D-1; 5-1e, B-4	Unincorporated	Madera	Roadway Embankment	No	Multispan	100' span, 4	Public <sup>3</sup>
786C-A		C	5-1g, E-1; 5-1e, C-5	Unincorporated	Madera	At-grade	No	culvert	12' box culvert, 3	Private
788C-A		C	5-1g, E-1; 5-1e, C-5	Unincorporated	Madera		540	No Impact		Private
519C-CRBP	Chowchilla River By-Pass	C	5-1g, D-1; 5-1e, B-5	Unincorporated	Madera	At-grade	No	culvert	Note B	CWD
521C-AMCa-B	Ash Main Canal	C	5-1g, D-1; 5-1e, B-5	Unincorporated	Madera	At-grade	1640	culvert	14' box culvert, 3	CWD
523S-AsSI	Ash Slough	S	5-1g, D-1; 5-1e, B-5	Unincorporated	Madera	At-grade	No	multispan	PC/PS Box; 5-50' span	Public <sup>3</sup>
792S-AsSI-A	Ash Slough	S	5-1g, D-2; 5-1e, B-5	Unincorporated	Madera		No			Public <sup>3</sup>
994C-BtCa-A	Bethel Canal	C	5-1g, E-2; 5-1e, C-5	Unincorporated	Madera	At-grade	No	culvert	12' box culvert, 2	CWD
846C-JuCa-A	Justin Canal	C	5-1g, C-2; 5-1e, A-5	Unincorporated	Madera	At-grade	No	culvert	12' box culvert, 2	CWD
842C-A		C	5-1g, B-2	Unincorporated	Madera	At-grade	No	Relocate	20' beyond ROW	CWD
844C-JuCa-A	Justin Canal	C	5-1g, B-2	Unincorporated	Madera	At-grade	No	Relocate	20' beyond ROW	CWD
848C-AMCa-A	Ash Main Canal	C	5-1g, C-2	Unincorporated	Madera	Roadway Embankment	No	see 850S-AsSI-A	see 850S-AsSI-A	CWD
850S-AsSI-A	Ash Slough	S	5-1g, C-2	Unincorporated	Madera	Roadway Embankment	No	Multispan	100' span, 6	Public <sup>3</sup>
525C		C	5-1g, E-2	Unincorporated	Madera	At-grade	No	culvert	Note B	Private
605C-BtCa-B	Bethel Canal	C	5-1g, E-2	Unincorporated	Madera	At-grade	2660	culvert	Note B	CWD
607C-EmLt-B	Eastman Lateral	C	5-1g, E-2	Unincorporated	Madera	At-grade	4240	culvert	Note B	CWD

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<b>UPRR East Chowchilla Design Option Avenue 24 Wye, West Chowchilla Design Option, and Hybrid (UPRRave24_ChowDO_HYBRID)</b>										
774C-A		C	5-1e, B-3	Unincorporated	Merced	Roadway Embankment	920	culvert	12' box culvert, 3	Private
772C-A		C	5-1e, B-3	Unincorporated	Merced	Roadway Embankment	1230	culvert	12' box culvert, 3	Private
770C-A		C	5-1e, B-3	Unincorporated	Merced		130	No Impact		Private
514C-Lat4	Lat. 4	C	5-1e, B-4	Unincorporated	Merced	At-grade	No	culvert	Note B	CWD
516S-ChRi	Chowchilla River	S	5-1e, B-4	Unincorporated	Madera	At-grade	No	multispans	PC/PS Box; 7-50' span	Public <sup>3</sup>
<b>UPRR West Chowchilla Design Option, BNSF Avenue 24 and Hybrid (ChowDO_BNSFAve24_HYBRID)</b>										
796C-BeCa-A	Berenda Canal	C	5-1h, A-2	Unincorporated	Madera	Roadway Embankment	No	culvert	12' box culvert, 2	CWD
603C-BeCa	Berenda Canal	C	5-1h, B-2	Unincorporated	Madera	At-grade	No	culvert	Note B	CWD
609S-BeSl	Berenda Slough	S	5-1h, B-2	Unincorporated	Madera	At-grade	No	multispans	PC/PS Box; 3-60' span	Public <sup>3</sup>
802S-BeSl-A	Berenda Slough	S	5-1h, B-2	Chowchilla	Madera	At-grade	No	multispans	PC/PS Box; 3-60' span	Public <sup>3</sup>
<b>UPRR West Chowchilla Design Option (ChowDO)</b>										
798S-BeSl-A	Berenda Slough	S	5-1h, B-2	Unincorporated	Madera	At-grade	No	multispans	PC/PS Box; 6-50' span	Public <sup>3</sup>
800S-BeSl-A	Berenda Slough	S	5-1h, B-2	Unincorporated	Madera	At-grade	No	multispans	PC/PS Box; 8-80' span	Public <sup>3</sup>
616D		D	5-1h, C-2; 5-1f, A-5	Unincorporated	Madera	At-grade	No	culvert	12' box culvert, 3	Private
611C-CaLA	Califa Lateral A	C	5-1h, C-2	Unincorporated	Madera	At-grade	No	culvert	Note B	CWD
807C-CaLA-A	Califa Lateral A	C	5-1h, C-2	Unincorporated	Madera	At-grade	No	culvert	12' box culvert, 2	CWD
805C-CaLA-A	Califa Lateral A	C	5-1h, C-2; 5-1f, A-5	Unincorporated	Madera		No	culvert		CWD
809P-A		P	5-1h, D-3	Unincorporated	Madera	At-grade	No	culvert	12' box culvert, 2	CWD
620C		C	5-1h, D-3	Unincorporated	Madera	At-grade	No	culvert	Note B	Private
<b>UPRR: West Chowchilla Design Option South and Main Track South (UPRRS_ChowDOS)</b>										
265C-B		C	5-1i, A-3; 5-1h, E-4	Unincorporated	Madera	Elevated	100	culvert	14' box culvert, 3	MadID
290S-BeCk	Berenda Creek	S	5-1i, B-4	Unincorporated	Madera	Elevated	2760	Multispans	Note A	Public <sup>3</sup>
<b>UPRR: South of Avenue 21 Wye (UPRR_S)</b>										
295C		C	5-1i, C-5	Unincorporated	Madera	Elevated	No	elevated		Private
302S-DrCk	Dry Creek	S	5-1i, C-5	Unincorporated	Madera	Elevated	No	Multispans	Note A	Public <sup>4</sup>
311S-ScCk	Schmidt Creek	S	5-1j, A-2	Madera Acres	Madera	Elevated	No	Multispans	Note A	Public <sup>4</sup>
315C		C	5-1j, B-3	Madera Acres	Madera	Elevated	No	elevated		Private
321C-242L	MID 24.2 Lateral	C	5-1j, B-3	Unincorporated	Madera	Elevated	No	elevated		MadID

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331S-FrRi	Fresno River	S	5-1j, C-4	Madera	Madera	Elevated	No	Multispans	Note A	Public <sup>4</sup>
341C-MaN1	Main No. 1	C	5-1j, C-4	Madera	Madera	Elevated	No	elevated		MadID
345C		C	5-1k, A-2; 5-1j, D-5	Unincorporated	Madera	Elevated	No	elevated		Private
352C		C	5-1k, A-2; 5-1j, D-5	Unincorporated	Madera	Elevated	No	elevated		Private
353C		C	5-1k, A-2; 5-1j, D-5	Unincorporated	Madera	Elevated	No	elevated		Private
354C		C	5-1k, A-3	Unincorporated	Madera	Elevated	No	elevated		Private
360C-MaN2	Main No. 1	C	5-1k, B-3	Unincorporated	Madera	Elevated	No	elevated		MadID
371S-CwCk	Cottonwood Creek	S	5-1k, B-3	Unincorporated	Madera	Elevated	No	Multispans	Note A	Public <sup>4</sup>
379C		C	5-1k, C-5	Unincorporated	Madera	At-grade	No	culvert	Note B	MadID
822C-A		C	5-1k, D-5	Unincorporated	Madera		No	culvert	12' box culvert, 2	MadID
824C-A		C	5-1k, C-5	Unincorporated	Madera		No	culvert		MadID
828C-A		C	5-1k, C-5	Unincorporated	Madera		No	culvert	12' box culvert, 2	MadID
382C-ML2S	Mid Lateral 6.2-9.25	C	5-1l, A-2	Unincorporated	Madera	At-grade	No	culvert	Note B	MadID
396C-6292	6.2-9.2-5.05	C	5-1l, B-3	Unincorporated	Madera	At-grade	No	culvert	Note B	MadID
401S-SJRi	San Joaquin River	S	5-1l, B-3	Fresno	Madera	Elevated	No	Multispans	Note A	Public
<b>UPRR, BNSF, and Hybrid: South of UPRR/BNSF track merge (UPRR_BNSF_HYBRID_S)</b>										
422P		P	5-1m, C-3	Fresno	Fresno	At-grade	No			FID
451C-DCCa	Dry Creek Canal	C	5-1m, D-4	Fresno	Fresno	Retained Fill	No	culvert	Note B	FID
410C-HrCa	Herndon Canal	C	5-1l, D-5	Fresno	Fresno	Elevated	No	elevated		FID
830C-ML2S-A	Mid Lateral 6.2-9.25	C	5-1l, A-2	Unincorporated	Madera	Retained Fill (Roadway Embankment)	2030	Relocated/culvert	12' box culvert, 2, 175' box culvert	MadID
420P-ViCa-B	Victoria Canal	P	5-1m, B-2	Fresno	Fresno	At-grade	1220			FID
832C-WVCa-A	West Branch Victoria Canal	C	5-1m, B-2	Fresno	Fresno		1140	culvert		FID
421P-WVCa-B	West Branch Victoria Canal	P	5-1m, B-3	Fresno	Fresno	At-grade	850			FID
834P-WVC-A	West Branch Victoria Canal	P	5-1m, B-3	Fresno	Fresno		80			FID
<b>Avenue 24 Wye: UPRR East Chowchilla Design Option, UPRR West Chowchilla Design Option, BNSF and Hybrid (UPRRave24_BNSFAve24_ChowDOAve24_HYBRIDAve24)</b>										
840C--JuCa-A	Justin Canal	C	5-1g, B-2	Unincorporated	Madera		No	culvert		CWD

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600S-AsSI	Ash Slough	S	5-1g, C-2	Unincorporated	Madera	At-grade	No	multispans	PC/PS Box; 10-60' span	Public <sup>3</sup>
602C-AMCa	Ash Main Canal	C	5-1g, C-2	Unincorporated	Madera	At-grade	No	culvert	12' box culvert, 2	CWD
604C-BtCa-B	Bethel Canal	C	5-1g, E-2	Unincorporated	Madera	At-grade	3040	culvert	12' box culvert, 2	CWD
<b>Avenue 24 Wye: UPRR East Chowchilla Design Option, UPRR West Chowchilla Design Option, and Hybrid (UPRRave24_ChowDOAve24_HYBRIDAve24)</b>										
528C		C	5-1g, C-2	Unincorporated	Madera	At-grade	No	culvert	Note B	Private
564C-AMCa	Ash Main Canal	C	5-1g, C-2	Unincorporated	Madera	At-grade	No	culvert	Note B	CWD
526S-AsSI	Ash Slough	S	5-1g, C-2	Unincorporated	Madera	At-grade	No	multispans	PC/PS Box; 15-50' span	Public <sup>3</sup>
524C-B		C	5-1g, D-2	Unincorporated	Madera	At-grade	2820	culvert	Note B	Private
522S-AsSI	Ash Slough	S	5-1g, D-1; 5-1e, B-5	Unincorporated	Madera	At-grade	No	multispans	PC/PS Box; 5-50' span	Public <sup>3</sup>
520C-AMCa-B	Ash Main Canal	C	5-1g, D-1; 5-1e, B-5	Unincorporated	Madera	At-grade	2320	culvert	Note B	CWD
518C-CRBP	Chowchilla River By-Pass	C	5-1g, D-1; 5-1e, B-5	Unincorporated	Madera	At-grade	No	culvert	Note B	CWD
<b>Avenue 24 Wye: UPRR East Chowchilla Design Option North (UPRRave24N)</b>										
211S-DtCk	Dutchman Creek	S	5-1e, B-2	Unincorporated	Merced	At-grade	No	multispans	PC/PS Box; 3-40' span	Public <sup>3</sup>
766S-DtCk-A	Dutchman Creek	S	5-1e, B-2	Unincorporated	Merced	At-grade	No	multispans	PC/PS Box; 3-60' span	Public <sup>6</sup>
510C-Lat2-B	Lat. 2	C	5-1e, B-3	Unincorporated	Merced	At-grade	2060	No Impact		CWD
515C-Lat3	Lat. 3	C	5-1e, B-3	Unincorporated	Merced	At-grade	No	culvert	Note B	CWD
790C-CRBP-A	Chowchilla River By-Pass	C	5-1g, D-1; 5-1e, B-5	Unincorporated	Madera	At-grade	1360	culvert	12' box culvert, 2	CWD
<b>Avenue 24 Wye: UPRR East Chowchilla Design Option South (UPRRave24S)</b>										
606C-BeCa-B	Berenda Canal	C	5-1h, B-2	Unincorporated	Madera	At-grade	240	culvert	12' box culvert, 2	CWD
608S-BeSI	Berenda Slough	S	5-1h, B-2	Unincorporated	Madera	At-grade	No	multispans	PC/PS Box; 3-60' span	Public <sup>3</sup>
854S-BeSI-A	Berenda Slough	S	5-1h, B-2	Unincorporated	Madera	At-grade	No	multispans	PC/PS Box; 3-60' span	Public <sup>3</sup>
856S-BeSI-A	Berenda Slough	S	5-1h, B-2	Unincorporated	Madera	At-grade	No	multispans	PC/PS Box; 3-60' span	Public <sup>3</sup>
803C-A		C	5-1h, C-2; 5-1f, A-5	Unincorporated	Madera		1230	culvert		Private
613C-CaLA-B	Califa Lateral A	C	5-1h, C-3	Unincorporated	Madera	At-grade	830	culvert	12' box culvert, 3	CWD
615C-CaLB	Califa Lateral B	C	5-1h, D-3	Unincorporated	Madera	At-grade	No	culvert	Note B	CWD
617C-CaLB	Califa Lateral B	C	5-1h, D-3	Unincorporated	Madera	At-grade	No	culvert	Note B	CWD
268P		P	5-1i, A-3; 5-1h, E-4	Unincorporated	Madera	At-grade	No			Private <sup>8</sup>

Crossing ID	Waterbody Name	Crossing Type	Figure 5-1 Map and Grid Location	City	County	15% Design Vertical Alignment (elevated, retained fill, at-grade)	Longitudinal Waterbody Crossing? (length in feet or "No")	15% Design Approach (pipe, culvert, single span, multispans, relocated)	15% Design Details (dimension-type, #)	Owner (Public, Water/Irrigation District, Private) <sup>1</sup>
<b>Avenue 21 Wye: UPRR and BNSF (UPRRave21_BNSFAve21)</b>										
242C-AvLA	Ashview Lateral A	C	5-1g, B-4	Unincorporated	Madera	At-grade	No	culvert	Note B	CWD
244C-AvCa	Ashview Canal	C	5-1g, B-4	Unincorporated	Madera	At-grade	No	culvert	Note B	CWD
246C-R11C	Road 11 Canal	C	5-1g, C-4	Unincorporated	Madera	At-grade	No	culvert	Note B	CWD
248C-BtCa-B	Bethel Canal	C	5-1g, D-4	Unincorporated	Madera	At-grade	2150	culvert	Note B	CWD
249C-BeCa	Berenda Canal	C	5-1g, D-4	Unincorporated	Madera	At-grade	No	culvert	Note B	CWD
880S-BeSl-A	Berenda Slough	S	5-1h, A-5	Unincorporated	Madera		No			Public <sup>3</sup>
252S-BeSl	Berenda Slough	S	5-1h, A-4	Unincorporated	Madera	At-grade	No	multispans	PC/PS Box; 3-60' span	Public <sup>3</sup>
463C-CLtC	Califa Lateral C	C	5-1h, B-4	Unincorporated	Madera	At-grade	No	See 883C-CLtD		CWD
467C-CSLt-B	Canal Spill Lateral	C	5-1h, B-4	Unincorporated	Madera	At-grade	No	See 883C-CLtD		CWD
462C-CfCa-B	Califa Canal	C	5-1h, C-4	Unincorporated	Madera	At-grade	300	See 465C-CfCa	See 465C-CfCa	CWD
286C-3229-B	32.2 9.9-2.0	C	5-1h, C-4	Unincorporated	Madera	At-grade	4280	culvert	12' box culvert, 3	CWD
287C-3229	32.2-9.9	C	5-1h, D-4	Unincorporated	Madera	At-grade	No	culvert	Note B	CWD
896C-3221-A	32.2-10.2	C	5-1i, A-3; 5-1h, E-4	Unincorporated	Madera	Retained Fill (Roadway Embankment)	1850	relocated	1000', prop toe of slope	CWD
<b>Avenue 21 Wye: UPRR (UPRRave21)</b>										
283C-3229		C	5-1h, D-4	Unincorporated	Madera	At-grade	No	culvert	Note B	CWD
888C-A		C	5-1h, D-4	Unincorporated	Madera		1640	culvert/relocate	12' box culvert, 3	CWD
893P-A		P	5-1h, E-4	Unincorporated	Madera		No			
904C-A		C	5-1i, A-4	Unincorporated	Madera		820	culvert	12' box culvert, 3	CWD
902C-A		C	5-1i, A-4	Unincorporated	Madera		200	culvert	12' box culvert, 3	CWD
280C-3229	32.2 9.9-2.0	C	5-1h, C-4	Unincorporated	Madera	At-grade	No	culvert	Note B	CWD
284C-3221	32.2-10.2	C	5-1i, A-3; 5-1h, E-5	Unincorporated	Madera	At-grade	No	culvert	12' box culvert, 3	CWD
277C-3221	32.2-11.7	C	5-1i, A-3	Unincorporated	Madera	Elevated	No	culvert	12' box culvert, 2	CWD
898C-3221-A	32.2-11.7	C	5-1i, A-3	Unincorporated	Madera		No	culvert		CWD
281C-3229-B	32.2-9.9	C	5-1h, D-4	Unincorporated	Madera	At-grade	3750	culvert	Note B	CWD
890C-3229-A	32.2-9.9	C	5-1h, D-4	Unincorporated	Madera		No	No Impact		CWD
892C-3229-A	32.2-9.9	C	5-1h, D-4	Unincorporated	Madera		No	No Impact		CWD
289C-3229	32.2-9.9-0.1	C	5-1h, E-4	Unincorporated	Madera	At-grade	No	culvert	12' box culvert, 3	CWD

Crossing ID	Waterbody Name	Crossing Type	Figure 5-1 Map and Grid Location	City	County	15% Design Vertical Alignment (elevated, retained fill, at-grade)	Longitudinal Waterbody Crossing? (length in feet or "No")	15% Design Approach (pipe, culvert, single span, multispans, relocated)	15% Design Details (dimension-type, #)	Owner (Public, Water/Irrigation District, Private) <sup>1</sup>
282C-3229-B	32.2-9.9-1.0	C	5-1h, D-4	Unincorporated	Madera	At-grade	1830	culvert	12' box culvert, 3	CWD
288P-3229	32.2-9.9-1.5	P	5-1h, D-4	Unincorporated	Madera	At-grade	No	culvert	12' box culvert, 3	CWD
291S-BeCk	Berenda Creek	S	5-1i, B-4	Unincorporated	Madera	Elevated	No	Multispans	Note A	Public <sup>3</sup>
884C-CaCa-A	Califa Canal	C	5-1h, C-4	Unincorporated	Madera		260	See 465C-CfCa	See 465C-CfCa	CWD
465C-CfCa	Califa Canal	C	5-1h, C-4	Unincorporated	Madera	At-grade	No	culvert	12' box culvert, 3	CWD
461C-CLtB	Califa Lateral B	C	5-1h, D-3	Unincorporated	Madera	At-grade	No	culvert	Note B	CWD
882C-CLtC-A	Califa Lateral C	C	5-1h, B-4	Unincorporated	Madera		No	culvert		CWD
886C-CLtC-A	Califa Lateral C	C	5-1h, D-4	Unincorporated	Madera		No	culvert		CWD
883C-CLtD	Califa Lateral D	C	5-1h, B-4	Unincorporated	Madera	At-grade	No	relocated (b/n Road 17 & Rd 15 1/2)	20' beyond ROW	CWD
261C-CALA	California Lateral A	C	5-1h, D-2; 5-1f, B-5	Unincorporated	Madera	Elevated	No	elevated		CWD
285C-L322	LAT 32.2	C	5-1i, A-4	Unincorporated	Madera	Elevated	No	No Impact		CWD
900C-L322-A	LAT 32.2	C	5-1i, A-4	Unincorporated	Madera		60	culvert		CWD
<b>UPRR, BNSF, and Hybrid: Fagundes HMF</b>										
852C-A		C	5-1g, D-2	Unincorporated	Madera		3380	No Impact		CWD

Footnotes:

- <sup>1</sup> Many of the "natural" waterways designated "public" are an integral part of the local irrigation or water district distribution system for conveyance of irrigation water. The footnotes indicate the local district that utilizes the waterway and may have some operational and maintenance authority with respect to the waterway.
- <sup>2</sup> MerID = Merced Irrigation District
- <sup>3</sup> CWD = Chowchilla Water District
- <sup>4</sup> MadID = Madera Irrigation District
- <sup>5</sup> FID = Fresno Irrigation District
- <sup>6</sup> LGAWD = Le Grand-Athlone Water District
- <sup>7</sup> City of Atwater storm water channel
- <sup>8</sup> Cal Trans drainage facility
- <sup>9</sup> Drainage swale between County road and railroad
- <sup>10</sup> County road drainage facility

**Appendix A.1, Table 2**  
Location and Design Information (BNSF)

Crossing ID	Waterbody Name	Crossing Type	Figure 5-1 Map and Grid Location	City	County	15% Design Vertical Alignment (elevated, retained fill, At-grade)	Longitudinal Waterbody Crossing? (length in feet or "No")	15% Design Approach (pipe, culvert, single span, multispans, relocated)	15% Design Details (dimension-type, #)	Owner (Public, Water/ Irrigation District, Private) <sup>1</sup>
<b>UPRR, BNSF, and Hybrid: Castle Commerce Center HMF (UPRR_BNSF_HYBRID_N_CCC)</b>										
016C-CdLt	Casad Lateral	C	5-1a, A-1	Unincorporated	Merced	At-grade	No	outside limits		MerID
005C		C	5-1a, A-1	Unincorporated	Merced	At-grade	6430			Private
002S		S	5-1a, B-2	Unincorporated	Merced	At-grade	2990			Private <sup>7</sup>
010S-CaCk	Canal Creek	S	5-1a, B-2	Unincorporated	Merced	At-grade	1040	outside limits		Public <sup>2</sup>
008C		C	5-1a, B-2	Unincorporated	Merced	At-grade	1670			Private
700C		C	5-1a, B-2	Unincorporated	Merced	At-grade	No	culvert	Note B	MerID
011C		C	5-1a, B-2	Unincorporated	Merced	Elevated	No	outside limits		MerID
009C		C	5-1a, C-2	Unincorporated	Merced	Elevated	No			MerID
025P-PoLt	Pohlie Lateral	C	5-1a, C-3	Unincorporated	Merced	At-grade	No	outside limits		MerID
020S-BRcK	Black Rascal Creek	S	5-1a, C-4	Unincorporated	Merced	Elevated	No	outside limits		Public
030S-BaCk	Bear Creek	S	5-1a, D-4	Merced	Merced	Retained Fill	No	outside limits		Public <sup>2</sup>
031P		P	5-1a, D-4	Merced	Merced	Retained Fill	No	outside limits		Private
<b>UPRR, BNSF and Hybrid: North of UPRR/BNSF Alignment Split (UPRR_BNSF_HYBRID_N)</b>										
040C-LtD	Lateral D	C	5-1b, A-1	Unincorporated	Merced	At-grade	No	culvert	Note B	MerID
042C-LtD	Lateral D	C	5-1b, A-1	Unincorporated	Merced	At-grade	No	culvert	Note B	MerID
702C-A		C	5-1b, C-2	Unincorporated	Merced	At-grade	No	Relocate	20' beyond ROW	MerID
<b>BNSF Mission Design Option North: Avenue 24 and Avenue 21 Wye, includes East of Le Grand Design Option (BNSFMissionN)</b>										
051C		C	5-1b, B-2	Merced	Merced	Elevated	No	no data		Private <sup>8</sup>
053C-FdLt	Farmdale Lateral	C	5-1b, B-2	Unincorporated	Merced	Elevated	No	elevated		MerID
052C		C	5-1b, C-2	Unincorporated	Merced	Elevated	No	no data		MerID
704C-A		C	5-1b, C-2	Unincorporated	Merced		No			MerID
706C-A		C	5-1b, C-2	Unincorporated	Merced		No			MerID
708C-MiCk-A	Miles Creek	C	5-1b, C-2	Unincorporated	Merced		No			Public <sup>2</sup>
084C-FfLt-B	Fairfield Lateral	C	5-1b, D-2	Unincorporated	Merced	At-grade	2330	multispans	PC/PS Box; 3-30' span	Public <sup>3</sup>
710C-MiCk-A	Miles Creek	C	5-1b, D-2	Unincorporated	Merced	Elevated (Roadway)	No	multispans	100' spans, 4	Public <sup>2</sup>

Crossing ID	Waterbody Name	Crossing Type	Figure 5-1 Map and Grid Location	City	County	15% Design Vertical Alignment (elevated, retained fill, At-grade)	Longitudinal Waterbody Crossing? (length in feet or "No")	15% Design Approach (pipe, culvert, single span, multispans, relocated)	15% Design Details (dimension-type, #)	Owner (Public, Water/ Irrigation District, Private) <sup>1</sup>
712C-FfLt-A	Fairfield Lateral	C	5-1b, D-2	Unincorporated	Merced		No			MerID
086C-MiCk	Miles Creek	C	5-1b, D-2	Unincorporated	Merced	At-grade	No			MerID
714S-OwCk-A	Owens Creek	S	5-1b, D-3	Unincorporated	Merced		No			Public <sup>2</sup>
716C-KoLt-A	Koff Lateral	C	5-1b, D-3	Unincorporated	Merced		No			MerID
085C-VgLt	Vaughn Lat.	C	5-1b, D-2	Unincorporated	Merced	At-grade	No	culvert	Note B	MerID
118C-B		C	5-1b, D-2	Unincorporated	Merced	At-grade	2130	culvert	Note B	MerID
718C-MiCk-A	Miles Creek	C	5-1b, D-2	Unincorporated	Merced	At-grade (Roadway)	No	single span	70' span	Public <sup>2</sup>
120C		C	5-1c, A-2	Unincorporated	Merced	At-grade	No			Public <sup>6</sup>
140S-OwCk	Owens Creek	S	5-1c, A-2	Unincorporated	Merced	At-grade	No	multispans	PC/PS Box; 5-50' span	Public <sup>3</sup>
119C		C	5-1c, A-2	Unincorporated	Merced	At-grade	No	culvert	Note B	MerID
<b>BNSF Mariposa Way Design Option: Avenue 24 and Avenue 21 Wye, includes East of Le Grand Design Option (BNSFMariposa)</b>										
049D		D	5-1b, B-2	Unincorporated	Merced	Elevated	No	culvert	Note B	MerID
054C-FdLt	Farmdale Lateral	C	5-1b, B-2	Unincorporated	Merced	Elevated	No	elevated		MerID
056S-MCOF	Miles Creek Overflow No. 1	S	5-1b, B-2	Unincorporated	Merced	Elevated	No	culvert	Note B	MerID
061S-MiCk	Miles Creek	S	5-1b, B-2	Unincorporated	Merced	At-grade	No	elevated		MerID
079S-OwCk	Owens Creek	S	5-1b, C-3	Unincorporated	Merced	At-grade	No	culvert	Note B	MerID
083C-KoLt	Koff Lateral	C	5-1b, C-3	Unincorporated	Merced	At-grade	No	elevated		MerID
089C		C	5-1b, D-3	Unincorporated	Merced	At-grade	No	culvert	Note B	Private
109S-DuSl	Duck Slough	S	5-1b, D-3	Unincorporated	Merced	At-grade	No	culvert	Note B	MerID
091C-HdLt	Hadley Lat	C	5-1b, D-3	Unincorporated	Merced	At-grade	No	culvert	Note B	MerID
092C-HdLt-B	Hadley Lat	C	5-1b, D-3	Unincorporated	Merced	At-grade	2190	culvert	Note B	MerID
720C-HdLt-A	Hadley Lat	C	5-1b, D-3	Unincorporated	Merced	At-grade (Roadway)	No	culvert	130' box culvert	MerID
722S-DuSl-A	Duck Slough	S	5-1b, D-3	Unincorporated	Merced	At-grade (Roadway)	No	single span	100' span	Public <sup>2</sup>
108C-PiLt	Planada Lat	C	5-1c, B-3	Unincorporated	Merced	At-grade	No			Public <sup>6</sup>
<b>BNSF Mission Avenue Design Option: Avenue 24 and Avenue 21 Wye (BNSFMissionLeGrand)</b>										
122C-DbLt-B	Dibblee Lateral	C	5-1c, B-2	Unincorporated	Merced	At-grade	1460			Private
123C		C	5-1c, B-2	Unincorporated	Merced	At-grade	No	relocate pond		Private
124C-DbLt	Dibblee Lateral	C	5-1c, C-2	Unincorporated	Merced	At-grade	No	no data		Private

Crossing ID	Waterbody Name	Crossing Type	Figure 5-1 Map and Grid Location	City	County	15% Design Vertical Alignment (elevated, retained fill, At-grade)	Longitudinal Waterbody Crossing? (length in feet or "No")	15% Design Approach (pipe, culvert, single span, multispans, relocated)	15% Design Details (dimension-type, #)	Owner (Public, Water/ Irrigation District, Private) <sup>1</sup>
125C		C	5-1c, C-3	Unincorporated	Merced	Elevated	No	culvert	Note B	CWD
126C-DiCh	Diversion Channel (U.S.E.D)	C	5-1c, C-3	Unincorporated	Merced	Elevated	No			Private
127C-BuLt	Burchell Lat	C	5-1c, D-3	Unincorporated	Merced	Elevated	No			Public <sup>2</sup>
540S-MaCk	Mariposa Creek	S	5-1c, D-3	Unincorporated	Merced	At-grade	No	multispans	PC/PS Box; 3-30' span	Public <sup>2</sup>
541S-MaCk	Mariposa Creek	S	5-1c, D-3	Unincorporated	Merced	At-grade	No	culvert	Note B	CWD
133P-BNo3	Booster No. 3	P	5-1c, D-3	Unincorporated	Merced	At-grade	No	elevated		Private
728C-BNo3-A	Booster No. 3	C	5-1c, D-3	Unincorporated	Merced		No	culvert		MerID
136S-MaCk	Mariposa Creek	S	5-1c, E-4	Unincorporated	Merced	At-grade	No	culvert	Note B	MerID
732S-MaCk-A	Mariposa Creek	S	5-1c, E-4	Unincorporated	Merced		No			Public <sup>2</sup>
181P-LtN3	No. 3 LAT	P	5-1d, A-4	Unincorporated	Merced	At-grade	No			MerID
191S		S	5-1d, A-4	Unincorporated	Merced	At-grade	No	multispans	PC/PS Box; 3-30' span	Private
201S-DdCk	Deadman Creek	S	5-1d, B-4	Unincorporated	Merced	At-grade	No	multispans	PC/PS Box; 3-30' span	Public <sup>6</sup>
206S-DtCk	Dutchman Creek	S	5-1d, B-4	Unincorporated	Merced	At-grade	No	multispans	PC/PS Box; 3-40' span	Public <sup>6</sup>
208S		S	5-1d, B-4	Unincorporated	Merced	At-grade	No	no data		Public <sup>9</sup>
<b>BNSF Mission Avenue East of Le Grand Design Option: Avenue 24 and Avenue 21 Wye (BNSFMissionEastLeGrand)</b>										
121C-DbLt-B	Dibblee Lateral	C	5-1c, B-2	Unincorporated	Merced	At-grade	610	culvert	Note B	Private
726C-A		C	5-1c, B-2	Unincorporated	Merced	At-grade (Roadway)	No	culvert	130' box culvert	MerID
724S-OwCk-A	Owens Creek	S	5-1c, B-2	Unincorporated	Merced	At-grade (Roadway)	No	culvert	70' box culvert	Public <sup>2</sup>
550C		C	5-1c, B-2	Unincorporated	Merced	At-grade	No	no structure	Note E	Public <sup>2</sup>
153C-DbLt	Dibblee Lateral	C	5-1c, C-2	Unincorporated	Merced	At-grade	No	multispans	PC/PS Box; 5-80' span	Public <sup>2</sup>
155D		D	5-1c, C-2	Unincorporated	Merced	Elevated	No	culvert		Private
156C-DiCh	Diversion Channel (U.S.E.D)	C	5-1c, C-2	Unincorporated	Merced	Elevated	No	culvert	Note B	MerID
158C-BuLt	Burchell Lat	C	5-1c, D-3	Unincorporated	Merced	At-grade	No	culvert	Note B	MerID
164C-LGCa	LeGrand Canal	C	5-1c, D-3	Unincorporated	Merced	At-grade	No			Private <sup>10</sup>
166C-BNo3	Booster No. 3	C	5-1c, E-3	Unincorporated	Merced	At-grade	No	culvert	Note B	Private
730C-BNo3-A	Booster No. 3	C	5-1c, E-3	Unincorporated	Merced		No	culvert		MerID
138S-MaCk-B	Mariposa Creek	S	5-1d, A-3; 5-1c, E-4	Unincorporated	Merced	At-grade	450	culvert	Note B	MadID
139S-MaCk	Mariposa Creek	S	5-1d, A-3	Unincorporated	Merced	At-grade	360	multispans	PC/PS Box; 3-30' span	Public <sup>4</sup>

Crossing ID	Waterbody Name	Crossing Type	Figure 5-1 Map and Grid Location	City	County	15% Design Vertical Alignment (elevated, retained fill, At-grade)	Longitudinal Waterbody Crossing? (length in feet or "No")	15% Design Approach (pipe, culvert, single span, multispans, relocated)	15% Design Details (dimension-type, #)	Owner (Public, Water/ Irrigation District, Private) <sup>1</sup>
182C-LtN3	No. 3 LAT	C	5-1d, A-3	Unincorporated	Merced	At-grade	No	culvert	Note B	MerID
192S		S	5-1d, B-4	Unincorporated	Merced	Elevated	No			Private
207S-DdCk	Deadman Creek	S	5-1d, B-4	Unincorporated	Merced	Elevated	No			Public <sup>6</sup>
560S-DtCk	Dutchman Creek	S	5-1d, B-4	Unincorporated	Merced	Elevated	No	Multispans	Note A	Public <sup>6</sup>
565S		S	5-1d, B-4	Unincorporated	Merced	Elevated	No	Multispans	Note A	Private
<b>BNSF Mariposa Way Design Option: Avenue 24 and Avenue 21 Wye (BNSFMariposaLeGrand)</b>										
106C-PbLt	Plainsburg Lat	C	5-1c, C-3	Unincorporated	Merced	At-grade	No	elevated		MerID
130S-MaCk	Mariposa Creek	S	5-1c, D-3	Unincorporated	Merced	At-grade	No	culvert	Note B	MerID
131C-BNo3	Booster No. 3	C	5-1c, D-4	Unincorporated	Merced	At-grade	No	elevated		CWD
132S-MaCk	Mariposa Creek	S	5-1c, E-4	Unincorporated	Merced	At-grade	No	culvert	Note B	MerID
180C-LtN3	No. 3 LAT	C	5-1d, A-4	Unincorporated	Merced	Elevated	1110	multispans	PC/PS Box; 3-50' span	Public <sup>3</sup>
190S		S	5-1d, A-4	Unincorporated	Merced	Elevated	No	culvert	Note B	MadID
202S-DdCk	Deadman Creek	S	5-1d, B-4	Unincorporated	Merced	Elevated	No	culvert	Note B	CWD
222S-DtCk	Dutchman Creek	S	5-1d, B-4	Unincorporated	Merced	Elevated	No	culvert		Public <sup>6</sup>
212S		S	5-1d, B-4	Unincorporated	Merced	Elevated	No	Culvert	12' box culvert, 2	MerID
744D-A		D	5-1d, B-5	Unincorporated	Merced	At-grade (Roadway)	No	culvert	circular pipe	Private
500D		D	5-1d, B-5	Unincorporated	Merced	Elevated	No			Private
504D		D	5-1d, C-5	Unincorporated	Merced	Elevated	No	multispans	PC/PS Box; 3-50' span	Public <sup>2</sup>
508D		D	5-1f, C-1; 5-1d, C-5	Unincorporated	Merced	Elevated	No			Private <sup>10</sup>
512D		D	5-1f, C-1; 5-1d, C-5	Unincorporated	Merced	At-grade	No			Private <sup>10</sup>
214S		S	5-1f, C-1; 5-1d, C-5	Unincorporated	Merced	At-grade	No	multispans	PC/PS Box; 3-50' span	Public <sup>4</sup>
216S-B		S	5-1f, C-1; 5-1d, C-5	Unincorporated	Merced	At-grade	1020			Private
218S		S	5-1f, C-1	Unincorporated	Merced	At-grade	No	culvert		Private
<b>BNSF Mariposa Way East of Le Grand Design Option: Avenue 24 and Avenue 21 Wye (BNSFMariposaEastLeGrand)</b>										
107C-PbLt	Plainsburg Lat	C	5-1c, C-3	Unincorporated	Merced	At-grade	No	culvert		Private <sup>10</sup>
542S-MaCk	Mariposa Creek	S	5-1c, D-3	Unincorporated	Merced	Elevated	No			Private
134C-LGCa	LeGrand Canal	C	5-1c, D-3	Unincorporated	Merced	Elevated	No		no data to size feature	MerID
141S		S	5-1c, E-3	Unincorporated	Merced	At-grade	190	single span	PC/PS Box; 1-60' span	Public <sup>6</sup>

Crossing ID	Waterbody Name	Crossing Type	Figure 5-1 Map and Grid Location	City	County	15% Design Vertical Alignment (elevated, retained fill, At-grade)	Longitudinal Waterbody Crossing? (length in feet or "No")	15% Design Approach (pipe, culvert, single span, multispans, relocated)	15% Design Details (dimension-type, #)	Owner (Public, Water/ Irrigation District, Private) <sup>1</sup>
135C-BNo3	Booster No. 3	C	5-1c, E-3	Unincorporated	Merced	At-grade	No	multispans	PC/PS Box; 5-80' span	Public <sup>2</sup>
733S-MaCk-A	Mariposa Creek	S	5-1c, E-4	Unincorporated	Merced	At-grade (Roadway)	No	single span	130' span	Public <sup>2</sup>
137S-MaCk	Mariposa Creek	S	5-1d, A-3; 5-1c, E-4	Unincorporated	Merced	At-grade	500	multispans	PC/PS Box; 3-50' span	Public <sup>2</sup>
185C-LtN3	No. 3 LAT	C	5-1d, A-3	Unincorporated	Merced	At-grade	No			Private <sup>10</sup>
195S		S	5-1d, B-4	Unincorporated	Merced	At-grade	No	multispans	PC/PS Box; 5-80' span	Public <sup>2</sup>
205S-DdCk	Deadman Creek	S	5-1d, B-4	Unincorporated	Merced	At-grade	No	realign/multispans	Note F	Public <sup>2</sup>
204C		C	5-1d, B-4	Unincorporated	Merced	At-grade	No	single span	PC/PS Box; 1-40' span	Private
223S-DtCk	Dutchman Creek	S	5-1d, B-4	Unincorporated	Merced	At-grade	No	culvert	Note B	MerID
213S		S	5-1d, C-4	Unincorporated	Merced	At-grade	No	multispans	PC/PS Box; 3-30' span	Public <sup>2</sup>
746D-A		D	5-1d, C-5	Unincorporated	Merced	Retained Fill (Roadway Embankment)	No	culvert	170' box culvert	Private
748D-A		D	5-1d, C-5	Unincorporated	Merced	Retained Fill (Roadway Embankment)	450	culvert	circular pipe	Private
225D		D	5-1d, C-5	Unincorporated	Merced	At-grade	No	multispans	PC/PS Box; 2-50' span	Public <sup>2</sup>
224S		S	5-1f, C-1; 5-1d, C-5	Unincorporated	Merced	Elevated	No	culvert	Note B	MerID
217S		S	5-1f, C-1; 5-1d, C-5	Unincorporated	Merced	Elevated	No	culvert	Note B	MerID
219S-B		S	5-1f, C-1	Unincorporated	Merced	Elevated	230	culvert	Note B	MerID
<b>BNSF Mission Avenue and Mariposa Way Design Options: Avenue 24 and Avenue 21 Wye (BNSFLeGrand)</b>										
736C-LtN3-A	No. 3 LAT	C	5-1d, A-3	Unincorporated	Merced	At-grade (Roadway)	No	culvert	70' box culvert	MerID
735S-A		S	5-1d, A-4	Unincorporated	Merced	At-grade (Roadway)	No	single span	70' span	Private
738S-DdCk-A	Deadman Creek	S	5-1d, B-4	Unincorporated	Merced	At-grade (Roadway)	No	single span	100' span	Public <sup>6</sup>
740S-DtCk-A	Dutchman Creek	S	5-1d, B-4	Unincorporated	Merced	At-grade (Roadway)	No	single span	100' span	Public <sup>6</sup>
742S-A		S	5-1d, B-4	Unincorporated	Merced	At-grade (Roadway)	No	culvert	circular pipe	Private
<b>BNSF East of Le Grand Design Options: Mariposa Way and Mission Avenue, Avenue 24 Wye and Avenue 21 Wye (BNSFEastLeGrand)</b>										
734C-LtN3-A	No. 3 LAT	C	5-1d, A-3	Unincorporated	Merced	Retained Fill (Roadway Embankment)	450	culvert	180' box culvert	MerID
<b>BNSF Mission Ave, Mission Ave East of Le Grand and Mariposa Way Design Options: Avenue 24 and Avenue 21 Wye (BNSFLeGrand_MissionEastLeGrand)</b>										
750S-A		S	5-1f, C-1; 5-1d, C-5	Unincorporated	Merced	At-grade (Roadway)	No	culvert	circular pipe	Public <sup>6</sup>
752S-A		S	5-1f, C-1; 5-1d, C-5	Unincorporated	Merced	At-grade (Roadway)	No	culvert	circular pipe	Private

Crossing ID	Waterbody Name	Crossing Type	Figure 5-1 Map and Grid Location	City	County	15% Design Vertical Alignment (elevated, retained fill, At-grade)	Longitudinal Waterbody Crossing? (length in feet or "No")	15% Design Approach (pipe, culvert, single span, multispans, relocated)	15% Design Details (dimension-type, #)	Owner (Public, Water/ Irrigation District, Private) <sup>1</sup>
<b>BNSF Mission Ave Design Option: Avenue 24 and Avenue 21 Wye, includes East of Le Grand Design Option (BNSFMissionS)</b>										
501D		D	5-1d, B-5	Unincorporated	Merced	At-grade	No			Private <sup>10</sup>
505D		D	5-1d, C-5	Unincorporated	Merced	At-grade	No			Private <sup>10</sup>
506D		D	5-1f, C-1; 5-1d, C-5	Unincorporated	Merced	At-grade	No			Private <sup>10</sup>
513D		D	5-1f, C-1; 5-1d, C-5	Unincorporated	Merced	At-grade	No			Private <sup>10</sup>
517S		S	5-1f, C-1; 5-1d, C-5	Unincorporated	Merced	At-grade	No	culvert		Private <sup>10</sup>
527S		S	5-1f, C-1; 5-1d, C-5	Unincorporated	Merced	At-grade	No	culvert		Public <sup>9</sup>
529S		S	5-1f, C-1	Unincorporated	Merced	At-grade	No	culvert		Private
<b>BNSF, south of Mission Ave and Mariposa Way Design Options (BNSF)</b>										
226S-ChRI	Chowchilla River	S	5-1f, D-2	Unincorporated	Madera	At-grade	No			Private
231S-AsSI	Ash Slough	S	5-1f, D-3	Unincorporated	Madera	At-grade	220			Private
253S-BeSI	Berenda Slough	S	5-1f, D-3	Unincorporated	Madera	At-grade	360			Private
251C-322	LAT 32.2	C	5-1i, C-2	Unincorporated	Madera	At-grade	No	culvert	Note B	CWD
292S-BeCk	Berenda Creek	S	5-1i, D-3	Unincorporated	Madera	At-grade	No	elevated		MerID
300S-DrCk	Dry Creek	S	5-1i, E-4	Unincorporated	Madera	At-grade	No	culvert		Private
305C-242	24.2	C	5-1j, B-1; 5-1i, E-4	Unincorporated	Madera	At-grade	No	culvert	Note B	MadID
<b>BNSF and Hybrid, south of Avenue 24 Wye (BNSF_HYBRID)</b>										
806C-242-A	24.2	C	5-1j, B-1; 5-1i, E-5	Madera Acres	Madera		No	culvert		CWD
310S-ScCr	Schmidt Creek	S	5-1j, C-1; 5-1i, E-5	Madera Acres	Madera	At-grade	No	culvert		Public <sup>4</sup>
808S-ScCr-A	Schmidt Creek	S	5-1j, C-1; 5-1i, E-5	Madera Acres	Madera		No			Public <sup>4</sup>
320S		S	5-1j, C-2	Madera Acres	Madera	At-grade	No	multispans	PC/PS Box; 2-50' span	Public <sup>2</sup>
330S-FrRI	Fresno River	S	5-1j, D-3	Unincorporated	Madera	At-grade	No	multispans	PC/PS Box; 9-50' span	Public <sup>4</sup>
812S-FrRI-A	Fresno River	S	5-1j, D-3	Unincorporated	Madera	N/A	400	N/A	N/A	Public <sup>4</sup>
814C-MaCa-A	Main Canal	C	5-1j, E-3	Unincorporated	Madera	At-grade (Roadway)	No	culvert	100' box culvert	MadID
340C-MaCa	Main Canal	C	5-1j, E-3	Unincorporated	Madera	At-grade	No	culvert	Note B	MadID
370S-CwCk	Cottonwood Creek	S	5-1k, C-2	Unincorporated	Madera	At-grade	No	multispans	PC/PS Box; 5-50' span	Public <sup>4</sup>
375C		C	5-1k, C-2	Unincorporated	Madera	At-grade	No	culvert	Note B	Private

Crossing ID	Waterbody Name	Crossing Type	Figure 5-1 Map and Grid Location	City	County	15% Design Vertical Alignment (elevated, retained fill, At-grade)	Longitudinal Waterbody Crossing? (length in feet or "No")	15% Design Approach (pipe, culvert, single span, multispans, relocated)	15% Design Details (dimension-type, #)	Owner (Public, Water/ Irrigation District, Private) <sup>1</sup>
816C-A		C	5-1k, C-2	Unincorporated	Madera	N/A	540	N/A	N/A	MadID
818P-A		P	5-1k, C-3	Unincorporated	Madera		No			MadID
820C-A		C	5-1k, C-4	Unincorporated	Madera	At-grade (Roadway)	No	culvert	60' box culvert	MadID
278C-6214	6.2-14.0-W	C	5-1k, D-4	Unincorporated	Madera	At-grade	No	culvert	Note B	MadID
279C-6214	6.2-14.0-W	C	5-1k, D-4	Unincorporated	Madera	At-grade	No	multispans	PC/PS Box; 5-80' span	Public <sup>2</sup>
380C		C	5-1l, A-1; 5-1k, D-5	Unincorporated	Madera	At-grade	No	culvert	Note B	MadID
826C-A		C	5-1l, A-1; 5-1k, D-5	Unincorporated	Madera	N/A	No	N/A	N/A	MadID
381C-ML2S	Mid Lateral 6.2-9.25	C	5-1l, A-2	Unincorporated	Madera	At-grade	No	culvert	Note B	MadID
395C-6292	6.2-9.2-5.05	C	5-1l, B-3	Unincorporated	Madera	At-grade	No	culvert	Note B	MadID
400S-SJri	San Joaquin River	S	5-1l, B-3	Fresno	Madera	Elevated	No	Multispans	Note A	Public
<b>UPRR, BNSF, and Hybrid: south of UPRR/BNSF track merge (UPRR_BNSF_HYBRID_S)</b>										
410C-HrCa	Herndon Canal	C	5-1l, D-5	Fresno	Fresno	Elevated	No	elevated		FID
420P-ViCa-B	Victoria Canal	P	5-1m, B-2	Fresno	Fresno	At-grade	1220			FID
832C-WVCa-A	West Branch Victoria Canal	C	5-1m, B-2	Fresno	Fresno		1140	culvert		FID
421P-WVCa-B	West Branch Victoria Canal	P	5-1m, B-3	Fresno	Fresno	At-grade	850			FID
834P-WVC-A	West Branch Victoria Canal	P	5-1m, B-3	Fresno	Fresno		80			FID
422P		P	5-1m, C-3	Fresno	Fresno	At-grade	No			FID
451C-DCCa	Dry Creek Canal	C	5-1m, D-4	Fresno	Fresno	Retained Fill	No	culvert	Note B	FID
830C-ML2S-A	Mid Lateral 6.2-9.25	C	5-1l, A-2	Unincorporated	Madera	Retained Fill (Roadway Embankment)	2030	Relocated/culvert	12' box culvert, 2, 175' box culvert	MadID
<b>Avenue 24 Wye: UPRR East Chowchilla Design Option, UPRR West Chowchilla Design Option, BNSF and Hybrid (UPRRave24_BNSFAve24_ChowDOave24_HYBRIDAve24)</b>										
840C--JuCa-A	Justin Canal	C	5-1g, B-2	Unincorporated	Madera		No	culvert		CWD
600S-AsSI	Ash Slough	S	5-1g, C-2	Unincorporated	Madera	At-grade	No	multispans	PC/PS Box; 10-60' span	Public <sup>3</sup>
602C-AMCa	Ash Main Canal	C	5-1g, C-2	Unincorporated	Madera	At-grade	No	culvert	12' box culvert, 2	CWD
604C-BtCa-B	Bethel Canal	C	5-1g, E-2	Unincorporated	Madera	At-grade	3040	culvert	12' box culvert, 2	CWD
<b>BNSF Avenue 24 Wye, Hybrid and West Chowchilla Design Option (ChowDO_BNSFAve24_HYBRID)</b>										
796C-BeCa-A	Berenda Canal	C	5-1h, A-2	Unincorporated	Madera	Roadway Embankment	No	culvert	12' box culvert, 2	CWD

Crossing ID	Waterbody Name	Crossing Type	Figure 5-1 Map and Grid Location	City	County	15% Design Vertical Alignment (elevated, retained fill, At-grade)	Longitudinal Waterbody Crossing? (length in feet or "No")	15% Design Approach (pipe, culvert, single span, multispans, relocated)	15% Design Details (dimension-type, #)	Owner (Public, Water/ Irrigation District, Private) <sup>1</sup>
603C-BeCa	Berenda Canal	C	5-1h, B-2	Unincorporated	Madera	At-grade	No	culvert	Note B	CWD
609S-BeSI	Berenda Slough	S	5-1h, B-2	Unincorporated	Madera	At-grade	No	multispans	PC/PS Box; 3-60' span	Public <sup>3</sup>
802S-BeSI-A	Berenda Slough	S	5-1h, B-2	Chowchilla	Madera	At-grade	No	multispans	PC/PS Box; 3-60' span	Public <sup>3</sup>
<b>BNSF Avenue 24 Wye and Hybrid (BNSFAve24_HYBRID)</b>										
610D		D	5-1h, C-2; 5-1f, A-5	Unincorporated	Madera	At-grade	No	culvert	Note B	MerID
612C-CaLA	Califa Lateral A	C	5-1h, C-2; 5-1f, A-5	Unincorporated	Madera	At-grade	No	multispans	PC/PS Box; 7-50' span	Public <sup>3</sup>
614P		P	5-1h, D-2; 5-1f, B-5	Unincorporated	Madera	Elevated	No	multispans	PC/PS Box; 8-50' span	Public <sup>3</sup>
464C-CaCa	Califa Canal	C	5-1h, D-2; 5-1f, C-5	Unincorporated	Madera	At-grade	No	elevated		?
257C-322-B	LAT 32.2	C	5-1i, B-2	Unincorporated	Madera	At-grade	1730	culvert	Note B	MerID
294S-BeCk	Berenda Creek	S	5-1i, C-3	Unincorporated	Madera	At-grade	No	culvert		Private
<b>BNSF Avenue 24 Wye South, and Hybrid (BNSFwyeS_HYBRID)</b>										
301S-DrCk	Dry Creek	S	5-1j, B-1; 5-1i, E-4	Unincorporated	Madera	At-grade	No	culvert	Note B	MerID
306C-242	24.2	C	5-1j, B-1; 5-1i, E-5	Unincorporated	Madera	At-grade	No	Multispans	Note A	Public <sup>2</sup>
<b>Avenue 24 Wye: BNSF (BNSFAve24)</b>										
466C-CaCa	Califa Canal	C	5-1h, D-2; 5-1f, C-5	Unincorporated	Madera	Elevated	No	culvert	Note B	Public <sup>2</sup>
<b>Avenue 21 Wye: UPRR and BNSF (UPRRave21_BNSFAve21)</b>										
242C-AvLA	Ashview Lateral A	C	5-1g, B-4	Unincorporated	Madera	At-grade	No	culvert	Note B	CWD
244C-AvCa	Ashview Canal	C	5-1g, B-4	Unincorporated	Madera	At-grade	No	culvert	Note B	CWD
246C-R11C	Road 11 Canal	C	5-1g, C-4	Unincorporated	Madera	At-grade	No	culvert	Note B	CWD
248C-BtCa-B	Bethel Canal	C	5-1g, D-4	Unincorporated	Madera	At-grade	2150	culvert	Note B	CWD
249C-BeCa	Berenda Canal	C	5-1g, D-4	Unincorporated	Madera	At-grade	No	culvert	Note B	CWD
880S-BeSI-A	Berenda Slough	S	5-1h, A-5	Unincorporated	Madera		No			Public <sup>3</sup>
252S-BeSI	Berenda Slough	S	5-1h, A-4	Unincorporated	Madera	At-grade	No	multispans	PC/PS Box; 3-60' span	Public <sup>3</sup>
463C-CLtC	Califa Lateral C	C	5-1h, B-4	Unincorporated	Madera	At-grade	No	See 883C-CLtD		CWD
467C-CSLt-B	Canal Spill Lateral	C	5-1h, B-4	Unincorporated	Madera	At-grade	No	See 883C-CLtD		CWD
462C-CfCa-B	Califa Canal	C	5-1h, C-4	Unincorporated	Madera	At-grade	300	See 465C-CfCa	See 465C-CfCa	CWD
286C-3229-B	32.2 9.9-2.0	C	5-1h, C-4	Unincorporated	Madera	At-grade	4280	culvert	12' box culvert, 3	CWD
287C-3229	32.2-9.9	C	5-1h, D-4	Unincorporated	Madera	At-grade	No	culvert	Note B	CWD

Crossing ID	Waterbody Name	Crossing Type	Figure 5-1 Map and Grid Location	City	County	15% Design Vertical Alignment (elevated, retained fill, At-grade)	Longitudinal Waterbody Crossing? (length in feet or "No")	15% Design Approach (pipe, culvert, single span, multispans, relocated)	15% Design Details (dimension-type, #)	Owner (Public, Water/ Irrigation District, Private) <sup>1</sup>
896C-3221-A	32.2-10.2	C	5-1i, A-3; 5-1h, E-4	Unincorporated	Madera	Retained Fill (Roadway Embankment)	1850	relocated	1000', prop toe of slope	CWD
<b>Avenue 21 Wye: BNSF (BNSFAve21)</b>										
274C-3229-B	32.2-9.9-1.5	C	5-1h, D-4	Unincorporated	Madera	At-grade	2570	culvert	12' box culvert, 3	CWD
276C-3229-B	32.2-9.9-1.0	C	5-1h, D-4	Unincorporated	Madera	At-grade	1430	culvert	Note B	CWD
273C-3229	32.2-9.9-0.1	C	5-1h, E-4	Unincorporated	Madera	At-grade	No	culvert	Note B	CWD
275C-3221-B	32.2-10.2?	C	5-1i, A-3; 5-1h, E-4	Unincorporated	Madera	At-grade	1640	culvert	Note B	CWD
894C-A		C	5-1i, A-3; 5-1h, E-4	Unincorporated	Madera	Elevated (Roadway)	230	multispans	100' spans, 4	CWD
254C-322	LAT 32.2	C	5-1i, C-2	Unincorporated	Madera	At-grade	No	culvert	Note B	CWD
293S-BeCk	Berenda Creek	S	5-1i, C-3	Unincorporated	Madera	At-grade	No	multispans	PC/PS Box; 3-50' span	Public <sup>3</sup>
<b>UPRR, BNSF, and Hybrid: Fagundes HMF</b>										
852C-A		C	5-1g, D-2	Unincorporated	Madera		3380	No Impact		CWD

Footnotes:  
<sup>1</sup> Many of the "natural" waterways designated "public" are an integral part of the local irrigation or water district distribution system for conveyance of irrigation water. The footnotes indicate the local district that utilizes the waterway and may have some operational and maintenance authority with respect to the waterway.  
<sup>2</sup> MerID = Merced Irrigation District  
<sup>3</sup> CWD = Chowchilla Water District  
<sup>4</sup> MadID = Madera Irrigation District  
<sup>5</sup> FID = Fresno Irrigation District  
<sup>6</sup> LGAWD = Le Grand-Athlone Water District  
<sup>7</sup> City of Atwater storm water channel  
<sup>8</sup> Cal Trans drainage facility  
<sup>9</sup> Drainage swale between County road and railroad  
<sup>10</sup> County road drainage facility



**Appendix A.1, Table 3**  
Location and Design Information (Hybrid)

Crossing ID	Waterbody Name	Crossing Type	Figure 5-1 Map and Grid Location	City	County	Track Style (elevated, At-grade, transition)	Longitudinal Waterbody Crossing? (length in feet or "No")	15% Design Approach (pipe, culvert, single span, multispan, relocated)	15% Design Details (dimension-type, #)	Owner (Public, Water/ Irrigation District, Private) <sup>1</sup>
<b>UPRR, BNSF, and Hybrid: Castle Commerce Center HMF (UPRR_BNSF_HYBRID_N_CCC)</b>										
016C-CdLt	Casad Lateral	C	5-1a, A-1	Unincorporated	Merced	At-grade	No	outside limits		MerID
005C		C	5-1a, A-1	Unincorporated	Merced	At-grade	6430			Private
002S		S	5-1a, B-2	Unincorporated	Merced	At-grade	2990			Private7
010S-CaCk	Canal Creek	S	5-1a, B-2	Unincorporated	Merced	At-grade	1040	outside limits		Public2
008C		C	5-1a, B-2	Unincorporated	Merced	At-grade	1670			Private
700C		C	5-1a, B-2	Unincorporated	Merced	At-grade	No	culvert	Note B	MerID
011C		C	5-1a, B-2	Unincorporated	Merced	Elevated	No	outside limits		MerID
009C		C	5-1a, C-2	Unincorporated	Merced	Elevated	No			MerID
025P-PoLt	Pohlle Lateral	C	5-1a, C-3	Unincorporated	Merced	At-grade	No	outside limits		MerID
020S-BRcK	Black Rascal Creek	S	5-1a, C-4	Unincorporated	Merced	Elevated	No	outside limits		Public
030S-BaCk	Bear Creek	S	5-1a, D-4	Merced	Merced	Retained Fill	No	outside limits		Public2
031P		P	5-1a, D-4	Merced	Merced	Retained Fill	No	outside limits		Private
<b>UPRR, BNSF and Hybrid: North of UPRR/BNSF Alignment Split (UPRR_BNSF_HYBRID_N)</b>										
040C-LtD	Lateral D	C	5-1b, A-1	Unincorporated	Merced	At-grade	No	culvert	Note B	MerID
042C-LtD	Lateral D	C	5-1b, A-1	Unincorporated	Merced	At-grade	No	culvert	Note B	MerID
702C-A		C	5-1b, C-2	Unincorporated	Merced	At-grade	No	Relocate	20' beyond ROW	MerID
<b>UPRR and Hybrid: North of UPRR/Hybrid Alignment Split (UPRR_HYBRID_N)</b>										
048D		D	5-1b, B-2	Unincorporated	Merced	At-grade	No	no data		Private
050C-FdLt	Farmdale Lateral	C	5-1b, B-2	Unincorporated	Merced	At-grade	No	culvert	Note B	MerID
701C-FdLt-A	Farmdale Lateral	C	5-1b, B-2	Unincorporated	Merced		No			MerID
055S-MCOF	Miles Creek Overflow No. 1	S	5-1b, B-2	Unincorporated	Merced	At-grade	No	culvert	Note B	Public2
060S-MiCk	Miles Creek	S	5-1b, B-2	Unincorporated	Merced	At-grade	No	multispan	PC/PS Box; 2-50' span	Public2
080S-OwCk	Owens Creek	S	5-1b, B-3	Unincorporated	Merced	At-grade	580	relocate/multispan	PC/PS Box; 2-50' span	Public2
081C-KoLt	Koff Lateral	C	5-1b, B-3	Unincorporated	Merced	At-grade	870	relocated/culvert	Note C	MerID

Crossing ID	Waterbody Name	Crossing Type	Figure 5-1 Map and Grid Location	City	County	Track Style (elevated, At-grade, transition)	Longitudinal Waterbody Crossing? (length in feet or "No")	15% Design Approach (pipe, culvert, single span, multispans, relocated)	15% Design Details (dimension-type, #)	Owner (Public, Water/ Irrigation District, Private) <sup>1</sup>
090D-LtAA	Lateral A-A	D	5-1b, C-3	Unincorporated	Merced	At-grade	No			MerID
100D		D	5-1b, C-3	Unincorporated	Merced	At-grade	No			MerID
112S-DuSI	Duck Slough	S	5-1b, C-3	Unincorporated	Merced	At-grade	No	realign/multispans	Note D	Public2
111S-DuSI	Duck Slough	S	5-1b, C-3	Unincorporated	Merced	At-grade	No	realign/multispans	Note D	Public2
110S-DuSI	Duck Slough	S	5-1b, C-3	Unincorporated	Merced	At-grade	No	realign/multispans	Note D	Public2
113C-GvLt	Givens Lateral	C	5-1b, C-3	Unincorporated	Merced	At-grade	No	relocated/culvert	Note D	MerID
114C		C	5-1b, C-3	Unincorporated	Merced	At-grade	No	culvert	Note B	Private
115C		C	5-1b, C-4	Unincorporated	Merced	At-grade	No	culvert	Note B	MerID
116C-SoSI	South Slough / Lingard Lateral	C	5-1b, C-4	Unincorporated	Merced	At-grade	No	multispans	100' span, 2	MerID
117C-LatB	Lateral B	C	5-1b, D-4	Unincorporated	Merced	At-grade	No	Culvert	12' box culvert, 2	MerID
150C-RuLt	South Slough / Russell Lateral	C	5-1b, D-4	Unincorporated	Merced	At-grade	No	multispans	100' span, 2	MerID
756C-A		C	5-1b, D-4	Unincorporated	Merced		550	culvert		Private
758C-A		C	5-1b, D-5	Unincorporated	Merced		No	culvert	12' box culvert, 2	Private
760C-A		C	5-1b, D-5	Unincorporated	Merced		No	culvert		Private
754C-A		C	5-1b, D-4	Unincorporated	Merced		No	culvert		Private
152C		C	5-1b, E-5	Unincorporated	Merced	At-grade	No	Culvert	12' box culvert, 2	Private6
154C		C	5-1b, E-5	Unincorporated	Merced	At-grade	No	Culvert	12' box culvert, 2	Private6
200S-DdCk	Deadman Creek	S	5-1e, A-1; 5-1b, E-5	Unincorporated	Merced	At-grade	No	single span	PC/PS Box; 1-40' span	Public
<b>UPRR West Chowchilla Design Option and Hybrid Avenue 24 (ChowDO_HYBRID24)</b>										
209S-DtCk-B	Dutchman Creek	S	5-1e, B-2	Unincorporated	Merced	At-grade	No	multispans	PC/PS Box; 3-40' span	Public3
762S-DtCk-A	Dutchman Creek	S	5-1e, A-2	Unincorporated	Merced	At-grade	No	multispans	PC/PS Box; 3-60' span	Public6
764C-A		C	5-1e, A-2	Unincorporated	Merced	At-grade	1280	Relocate	20' beyond ROW	Private
507C-B		C	5-1e, B-2	Unincorporated	Merced	At-grade	No	culvert	Note B	CWD
768C-A		C	5-1e, A-2	Unincorporated	Merced	At-grade	No	culvert	12' box culvert, 2	Private
778C-A		C	5-1e, A-3	Unincorporated	Merced	At-grade	250	culvert	12' box culvert, 2	Private
776C-A		C	5-1e, A-3	Unincorporated	Merced	At-grade	No	culvert	12' box culvert, 2	Private
509C-Lat2-B	Lat. 2	C	5-1e, B-3	Unincorporated	Merced	At-grade	No	No Impact		CWD

Crossing ID	Waterbody Name	Crossing Type	Figure 5-1 Map and Grid Location	City	County	Track Style (elevated, At-grade, transition)	Longitudinal Waterbody Crossing? (length in feet or "No")	15% Design Approach (pipe, culvert, single span, multispan, relocated)	15% Design Details (dimension-type, #)	Owner (Public, Water/ Irrigation District, Private) <sup>1</sup>
511C-Lat3-B	Lat. 3	C	5-1e, B-3	Unincorporated	Merced	At-grade	No	culvert	Note B	CWD
784C-Lat4-A	Lat. 4	C	5-1g, D-1; 5-1e, B-4	Unincorporated	Merced	At-grade	No	culvert	14' box culvert, 2	CWD
782C-Lat4-A	Lat. 4	C	5-1g, D-1; 5-1e, B-4	Unincorporated	Merced	At-grade	No	culvert	14' box culvert, 3	CWD
780S-ChRi-A	Chowchilla River	S	5-1g, D-1; 5-1e, B-4	Unincorporated	Madera	Roadway Embankment	No	Multispan	100' span, 4	Public3
786C-A		C	5-1g, E-1; 5-1e, C-5	Unincorporated	Madera	At-grade	No	culvert	12' box culvert, 3	Private
788C-A		C	5-1g, E-1; 5-1e, C-5	Unincorporated	Madera		540	No Impact		Private
519C-CRBP	Chowchilla River By-Pass	C	5-1g, D-1; 5-1e, B-5	Unincorporated	Madera	At-grade	No	culvert	Note B	CWD
521C-AMCa-B	Ash Main Canal	C	5-1g, D-1; 5-1e, B-5	Unincorporated	Madera	At-grade	1640	culvert	14' box culvert, 3	CWD
523S-AsSI	Ash Slough	S	5-1g, D-1; 5-1e, B-5	Unincorporated	Madera	At-grade	No	multispan	PC/PS Box; 5-50' span	Public3
792S-AsSI-A	Ash Slough	S	5-1g, D-2; 5-1e, B-5	Unincorporated	Madera		No			Public3
994C-BtCa-A	Bethel Canal	C	5-1g, E-2; 5-1e, C-5	Unincorporated	Madera	At-grade	No	culvert	12' box culvert, 2	CWD
846C-JuCa-A	Justin Canal	C	5-1g, C-2; 5-1e, A-5	Unincorporated	Madera	At-grade	No	culvert	12' box culvert, 2	CWD
842C-A		C	5-1g, B-2	Unincorporated	Madera	At-grade	No	Relocate	20' beyond ROW	CWD
844C-JuCa-A	Justin Canal	C	5-1g, B-2	Unincorporated	Madera	At-grade	No	Relocate	20' beyond ROW	CWD
848C-AMCa-A	Ash Main Canal	C	5-1g, C-2	Unincorporated	Madera	Roadway Embankment	No	see 850S-AsSI-A	see 850S-AsSI-A	CWD
850S-AsSI-A	Ash Slough	S	5-1g, C-2	Unincorporated	Madera	Roadway Embankment	No	Multispan	100' span, 6	Public3
525C		C	5-1g, E-2	Unincorporated	Madera	At-grade	No	culvert	Note B	Private
605C-BtCa-B	Bethel Canal	C	5-1g, E-2	Unincorporated	Madera	At-grade	2660	culvert	Note B	CWD
607C-Emlt-B	Eastman Lateral	C	5-1g, E-2	Unincorporated	Madera	At-grade	4240	culvert	Note B	CWD
<b>UPRR East Chowchilla Design Option Avenue 24 Wye, West Chowchilla Design Option, and Hybrid Avenue 24 (UPRRave24_ChowDO_HYBRID24)</b>										
774C-A		C	5-1e, B-3	Unincorporated	Merced	Roadway Embankment	920	culvert	12' box culvert, 3	Private
772C-A		C	5-1e, B-3	Unincorporated	Merced	Roadway Embankment	1230	culvert	12' box culvert, 3	Private
770C-A		C	5-1e, B-3	Unincorporated	Merced		130	No Impact		Private
514C-Lat4	Lat. 4	C	5-1e, B-4	Unincorporated	Merced	At-grade	No	culvert	Note B	CWD
516S-ChRi	Chowchilla River	S	5-1e, B-4	Unincorporated	Madera	At-grade	No	multispan	PC/PS Box; 7-50' span	Public3
<b>UPRR West Chowchilla Design Option, BNSF Avenue 24 and Hybrid Avenue 24 (ChowDO_BNSFAve24_HYBRID24)</b>										
796C-BeCa-A	Berenda Canal	C	5-1h, A-2	Unincorporated	Madera	Roadway Embankment	No	culvert	12' box culvert, 2	CWD
603C-BeCa	Berenda Canal	C	5-1h, B-2	Unincorporated	Madera	At-grade	No	culvert	Note B	CWD

Crossing ID	Waterbody Name	Crossing Type	Figure 5-1 Map and Grid Location	City	County	Track Style (elevated, At-grade, transition)	Longitudinal Waterbody Crossing? (length in feet or "No")	15% Design Approach (pipe, culvert, single span, multispans, relocated)	15% Design Details (dimension-type, #)	Owner (Public, Water/ Irrigation District, Private) <sup>1</sup>
609S-BeSl	Berenda Slough	S	5-1h, B-2	Unincorporated	Madera	At-grade	No	multispans	PC/PS Box; 3-60' span	Public3
802S-BeSl-A	Berenda Slough	S	5-1h, B-2	Chowchilla	Madera	At-grade	No	multispans	PC/PS Box; 3-60' span	Public3
<b>BNSF Avenue 24 Wye and Hybrid Avenue 24 (BNSFAve24_HYBRID24)</b>										
610D		D	5-1h, C-2; 5-1f, A-5	Unincorporated	Madera	At-grade	No	culvert	Note B	MerID
612C-CaLA	Califa Lateral A	C	5-1h, C-2; 5-1f, A-5	Unincorporated	Madera	At-grade	No	multispans	PC/PS Box; 7-50' span	Public3
614P		P	5-1h, D-2; 5-1f, B-5	Unincorporated	Madera	Elevated	No	multispans	PC/PS Box; 8-50' span	Public3
464C-CaCa	Califa Canal	C	5-1h, D-2; 5-1f, C-5	Unincorporated	Madera	At-grade	No	elevated		?
257C-322-B	LAT 32.2	C	5-1i, B-2	Unincorporated	Madera	At-grade	1730	culvert	Note B	MerID
294S-BeCk	Berenda Creek	S	5-1i, C-3	Unincorporated	Madera	At-grade	No	culvert		Private
<b>BNSF Avenue 24 Wye South, and Hybrid (BNSFwyeS_HYBRID)</b>										
301S-DrCk	Dry Creek	S	5-1j, B-1; 5-1i, E-4	Unincorporated	Madera	At-grade	No	culvert	Note B	MerID
306C-242	24.2	C	5-1j, B-1; 5-1i, E-5	Unincorporated	Madera	At-grade	No	Multispans	Note A	Public2
<b>BNSF and Hybrid, south of Avenue 24 Wye (BNSF_HYBRID)</b>										
806C-242-A	24.2	C	5-1j, B-1; 5-1i, E-5	Madera Acres	Madera		No	culvert		CWD
310S-ScCr	Schmidt Creek	S	5-1j, C-1; 5-1i, E-5	Madera Acres	Madera	At-grade	No	culvert		Public4
808S-ScCr-A	Schmidt Creek	S	5-1j, C-1; 5-1i, E-5	Madera Acres	Madera		No			Public4
320S		S	5-1j, C-2	Madera Acres	Madera	At-grade	No	multispans	PC/PS Box; 2-50' span	Public2
330S-FrRi	Fresno River	S	5-1j, D-3	Unincorporated	Madera	At-grade	No	multispans	PC/PS Box; 9-50' span	Public4
812S-FrRi-A	Fresno River	S	5-1j, D-3	Unincorporated	Madera	N/A	400	N/A	N/A	Public4
814C-MaCa-A	Main Canal	C	5-1j, E-3	Unincorporated	Madera	At-grade (Roadway)	No	culvert	100' box culvert	MadID
340C-MaCa	Main Canal	C	5-1j, E-3	Unincorporated	Madera	At-grade	No	culvert	Note B	MadID
370S-CwCk	Cottonwood Creek	S	5-1k, C-2	Unincorporated	Madera	At-grade	No	multispans	PC/PS Box; 5-50' span	Public4
375C		C	5-1k, C-2	Unincorporated	Madera	At-grade	No	culvert	Note B	Private
816C-A		C	5-1k, C-2	Unincorporated	Madera	N/A	540	N/A	N/A	MadID
818P-A		P	5-1k, C-3	Unincorporated	Madera		No			MadID
820C-A		C	5-1k, C-4	Unincorporated	Madera	At-grade (Roadway)	No	culvert	60' box culvert	MadID
278C-6214	6.2-14.0-W	C	5-1k, D-4	Unincorporated	Madera	At-grade	No	culvert	Note B	MadID
279C-6214	6.2-14.0-W	C	5-1k, D-4	Unincorporated	Madera	At-grade	No	multispans	PC/PS Box; 5-80' span	Public2

Crossing ID	Waterbody Name	Crossing Type	Figure 5-1 Map and Grid Location	City	County	Track Style (elevated, At-grade, transition)	Longitudinal Waterbody Crossing? (length in feet or "No")	15% Design Approach (pipe, culvert, single span, multispan, relocated)	15% Design Details (dimension-type, #)	Owner (Public, Water/ Irrigation District, Private) <sup>1</sup>
380C		C	5-1l, A-1; 5-1k, D-5	Unincorporated	Madera	At-grade	No	culvert	Note B	MadID
826C-A		C	5-1l, A-1; 5-1k, D-5	Unincorporated	Madera	N/A	No	N/A	N/A	MadID
381C-ML2S	Mid Lateral 6.2-9.25	C	5-1l, A-2	Unincorporated	Madera	At-grade	No	culvert	Note B	MadID
395C-6292	6.2-9.2-5.05	C	5-1l, B-3	Unincorporated	Madera	At-grade	No	culvert	Note B	MadID
400S-SJRI	San Joaquin River	S	5-1l, B-3	Fresno	Madera	Elevated	No	Multispan	Note A	Public
<b>Hybrid Avenue 21 and UPRR (UPRR_NotChowDO_HybridAve21)</b>										
210S-DtCk	Dutchman Creek	S	5-1e, B-2	Unincorporated	Merced	Elevated	380	Single Span	150' span	Public3
215D-SDtC	South Dutchman Creek	D	5-1e, C-2	Unincorporated	Merced	Elevated	No			Public3
220S-ChRi	Chowchilla River	S	5-1e, C-3	Unincorporated	Madera	Elevated	No			Public3
221C-Mntn	Minturn	C	5-1e, D-4	Unincorporated	Madera	Elevated	No	elevated		CWD
230S-AsSI	Ash Slough	S	5-1h, B-1; 5-1e, E-4	Unincorporated	Madera	Elevated	No	Multispan	Note A	Public3
240C-HtLt	Hartley Lateral	C	5-1h, C-2; 5-1f, A-5	Chowchilla	Madera	Elevated	No	elevated		CWD
250S-BeSI	Berenda Slough	S	5-1h, C-2; 5-1f, A-5	Unincorporated	Madera	Elevated	No	Multispan	Note A	Public3
260C-CALA	California Lateral A	C	5-1h, D-2; 5-1f, B-5	Unincorporated	Madera	Elevated	No	elevated		CWD
264C-CaCa	Califa Canal	C	5-1h, D-3	Unincorporated	Madera	Elevated	No	elevated		CWD
<b>Hybrid Avenue 21 (HybridAve21)</b>										
296S-BeCk	Berenda Creek	S	5-1i, C-3	Unincorporated	Madera		No			
<b>Avenue 21 Wye: Hybrid, UPRR and BNSF (UPRRave21_BNSFAve21_HybridAve21)</b>										
242C-AvLA	Ashview Lateral A	C	5-1g, B-4	Unincorporated	Madera	At-Grade	No	culvert	Note B	CWD
244C-AvCa	Ashview Canal	C	5-1g, B-4	Unincorporated	Madera	At-Grade	No	culvert	Note B	CWD

Crossing ID	Waterbody Name	Crossing Type	Figure 5-1 Map and Grid Location	City	County	Track Style (elevated, At-grade, transition)	Longitudinal Waterbody Crossing? (length in feet or "No")	15% Design Approach (pipe, culvert, single span, multispan, relocated)	15% Design Details (dimension-type, #)	Owner (Public, Water/ Irrigation District, Private) <sup>1</sup>
246C-R11C	Road 11 Canal	C	5-1g, C-4	Unincorporated	Madera	At-Grade	No	culvert	Note B	CWD
248C-BtCa-B	Bethel Canal	C	5-1g, D-4	Unincorporated	Madera	At-Grade	2150	culvert	Note B	CWD
249C-BeCa	Berenda Canal	C	5-1g, D-4	Unincorporated	Madera	At-Grade	No	culvert	Note B	CWD
880S-BeSl-A	Berenda Slough	S	5-1h, A-5	Unincorporated	Madera		No			Public3
252S-BeSl	Berenda Slough	S	5-1h, A-4	Unincorporated	Madera	At-Grade	No	multispan	PC/PS Box; 3-60' span	Public3
463C-CLtC	Califa Lateral C	C	5-1h, B-4	Unincorporated	Madera	At-Grade	No	See 883C-CLtD		CWD
467C-CSLt-B	Canal Spill Lateral	C	5-1h, B-4	Unincorporated	Madera	At-Grade	No	See 883C-CLtD		CWD
462C-CfCa-B	Califa Canal	C	5-1h, C-4	Unincorporated	Madera	At-Grade	300	See 465C-CfCa	See 465C-CfCa	CWD
286C-3229-B	32.2 9.9-2.0	C	5-1h, C-4	Unincorporated	Madera	At-Grade	4280	culvert	12' box culvert, 3	CWD
287C-3229	32.2-9.9	C	5-1h, D-4	Unincorporated	Madera	At-Grade	No	culvert	Note B	CWD
896C-3221-A	32.2-10.2	C	5-1i, A-3; 5-1h, E-4	Unincorporated	Madera	Retained Fill (Roadway Embankment)	1850	relocated	1000', prop toe of slope	CWD
<b>Avenue 21 Wye: Hybrid and UPRR (UPRRave21_HybridAve21)</b>										
882C-CLtC-A	Califa Lateral C	C	5-1h, B-4	Unincorporated	Madera		No	culvert		CWD
883C-CLtD	Califa Lateral D	C	5-1h, B-4	Unincorporated	Madera	At-Grade	No	relocated (b/n Road 17 & Rd 15 1/2)	20' beyond ROW	CWD
884C-CaCa-A	Califa Canal	C	5-1h, C-4	Unincorporated	Madera		260	See 465C-CfCa	See 465C-CfCa	CWD
465C-CfCa	Califa Canal	C	5-1h, C-4	Unincorporated	Madera	At-Grade	No	culvert	12' box culvert, 3	CWD
280C-3229	32.2 9.9-2.0	C	5-1h, C-4	Unincorporated	Madera	At-Grade	No	culvert	Note B	CWD
888C-A		C	5-1h, D-4	Unincorporated	Madera		1640	culvert/relocate	12' box culvert, 3	CWD
283C-3229		C	5-1h, D-4	Unincorporated	Madera	At-Grade	No	culvert	Note B	CWD
892C-3229-A	32.2-9.9	C	5-1h, D-4	Unincorporated	Madera		No	No Impact		CWD
890C-3229-A	32.2-9.9	C	5-1h, D-4	Unincorporated	Madera		No	No Impact		CWD

Crossing ID	Waterbody Name	Crossing Type	Figure 5-1 Map and Grid Location	City	County	Track Style (elevated, At-grade, transition)	Longitudinal Waterbody Crossing? (length in feet or "No")	15% Design Approach (pipe, culvert, single span, multispan, relocated)	15% Design Details (dimension-type, #)	Owner (Public, Water/ Irrigation District, Private) <sup>1</sup>
281C-3229-B	32.2-9.9	C	5-1h, D-4	Unincorporated	Madera	At-Grade	3750	culvert	Note B	CWD
886C-CLtC-A	Califa Lateral C	C	5-1h, D-4	Unincorporated	Madera		No	culvert		CWD
461C-CLtB	Califa Lateral B	C	5-1h, D-3	Unincorporated	Madera	At-Grade	No	culvert	Note B	CWD
261C-CALA	California Lateral A	C	5-1h, D-2; 5-1f, B-5	Unincorporated	Madera	Elevated	No	elevated		CWD
<b>Avenue 21 Wye: Hybrid and BNSF (BNSFAve21_HybridAve21)</b>										
274C-3229-B	32.2-9.9-1.5	C	5-1h, D-4	Unincorporated	Madera	At-Grade	2570	culvert	12' box culvert, 3	CWD
276C-3229-B	32.2-9.9-1.0	C	5-1h, D-4	Unincorporated	Madera	At-Grade	1430	culvert	Note B	CWD
273C-3229	32.2-9.9-0.1	C	5-1h, E-4	Unincorporated	Madera	At-Grade	No	culvert	Note B	CWD
275C-3221-B	32.2-10.2?	C	5-1i, A-3; 5-1h, E-4	Unincorporated	Madera	At-Grade	1640	culvert	Note B	CWD
894C-A		C	5-1i, A-3; 5-1h, E-4	Unincorporated	Madera	Elevated (Roadway)	230	multispan	100' spans, 4	CWD
<b>Hybrid (HYBRID)</b>										
804C-A		C	5-1h, D-2; 5-1f, B-5	Unincorporated	Madera		170	culvert		CWD
810S-A		S	5-1j, C-2	Madera Acres	Madera	N/A	No	N/A	N/A	Private10
<b>UPRR, BNSF, and Hybrid: south of UPRR/BNSF track merge (UPRR_BNSF_HYBRID_S)</b>										
830C-ML2S-A	Mid Lateral 6.2-9.25	C	5-1i, A-2	Unincorporated	Madera	Retained Fill (Roadway Embankment)	2030	Relocated/culvert	12' box culvert, 2, 175' box culvert	MadID
410C-HrCa	Herndon Canal	C	5-1i, D-5	Fresno	Fresno	Elevated	No	elevated		FID
420P-ViCa-B	Victoria Canal	P	5-1m, B-2	Fresno	Fresno	At-grade	1220			FID
832C-WVCa-A	West Branch Victoria Canal	C	5-1m, B-2	Fresno	Fresno		1140	culvert		FID
421P-WVCa-B	West Branch Victoria Canal	P	5-1m, B-3	Fresno	Fresno	At-grade	850			FID
834P-WVC-A	West Branch Victoria Canal	P	5-1m, B-3	Fresno	Fresno		80			FID
422P		P	5-1m, C-3	Fresno	Fresno	At-grade	No			FID
451C-DCCa	Dry Creek Canal	C	5-1m, D-4	Fresno	Fresno	Retained Fill	No	culvert	Note B	FID
<b>Avenue 24 Wye: UPRR East Chowchilla Design Option, UPRR West Chowchilla Design Option, BNSF and Hybrid Avenue 24 (UPRRAve24_BNSFAve24_ChowDOAve24_HYBRIDAve24)</b>										
840C--JuCa-A	Justin Canal	C	5-1g, B-2	Unincorporated	Madera		No	culvert		CWD

Crossing ID	Waterbody Name	Crossing Type	Figure 5-1 Map and Grid Location	City	County	Track Style (elevated, At-grade, transition)	Longitudinal Waterbody Crossing? (length in feet or "No")	15% Design Approach (pipe, culvert, single span, multispan, relocated)	15% Design Details (dimension-type, #)	Owner (Public, Water/ Irrigation District, Private) <sup>1</sup>
600S-AsSI	Ash Slough	S	5-1g, C-2	Unincorporated	Madera	At-grade	No	multispan	PC/PS Box; 10-60' span	Public <sup>3</sup>
602C-AMCa	Ash Main Canal	C	5-1g, C-2	Unincorporated	Madera	At-grade	No	culvert	12' box culvert, 2	CWD
604C-BtCa-B	Bethel Canal	C	5-1g, E-2	Unincorporated	Madera	At-grade	3040	culvert	12' box culvert, 2	CWD
<b>Avenue 24 Wye: UPRR East Chowchilla Design Option, UPRR West Chowchilla Design Option, and Hybrid Avenue 24 (UPRR Ave24_ChowDO Ave24_HYBRID Ave24)</b>										
528C		C	5-1g, C-2	Unincorporated	Madera	At-grade	No	culvert	Note B	Private
564C-AMCa	Ash Main Canal	C	5-1g, C-2	Unincorporated	Madera	At-grade	No	culvert	Note B	CWD
526S-AsSI	Ash Slough	S	5-1g, C-2	Unincorporated	Madera	At-grade	No	multispan	PC/PS Box; 15-50' span	Public <sup>3</sup>
524C-B		C	5-1g, D-2	Unincorporated	Madera	At-grade	2820	culvert	Note B	Private
522S-AsSI	Ash Slough	S	5-1g, D-1; 5-1e, B-5	Unincorporated	Madera	At-grade	No	multispan	PC/PS Box; 5-50' span	Public <sup>3</sup>
520C-AMCa-B	Ash Main Canal	C	5-1g, D-1; 5-1e, B-5	Unincorporated	Madera	At-grade	2320	culvert	Note B	CWD
518C-CRBP	Chowchilla River By-Pass	C	5-1g, D-1; 5-1e, B-5	Unincorporated	Madera	At-grade	No	culvert	Note B	CWD
<b>UPRR, BNSF, and Hybrid: Fagundes HMF</b>										
852C-A		C	5-1g, D-2	Unincorporated	Madera		3380	No Impact		CWD

Footnotes:  
<sup>1</sup> Many of the "natural" waterways designated "public" are an integral part of the local irrigation or water district distribution system for conveyance of irrigation water. The footnotes indicate the local district that utilizes the waterway and may have some operational and maintenance authority with respect to the waterway.  
<sup>2</sup> MerID = Merced Irrigation District  
<sup>3</sup> CWD = Chowchilla Water District  
<sup>4</sup> MadID = Madera Irrigation District  
<sup>5</sup> FID = Fresno Irrigation District  
<sup>6</sup> LGAWD = Le Grand-Athlone Water District  
<sup>7</sup> City of Atwater storm water channel  
<sup>8</sup> Cal Trans drainage facility  
<sup>9</sup> Drainage swale between County road and railroad  
<sup>10</sup> County road drainage facility

APPENDIX A.2

# **Waterbody Crossing Inventory**

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**Appendix A.2, Table 1**  
Hydrologic, Floodplain Information and Notes (UPRR)

Crossing ID	Hydrologic Type	Name and Field Notes	Width of 200-year Floodplain (DWR)	Width of 100-year Floodplain (DWR)	FEMA Flood Zone	Floodway Width (CVFPB)	Floodway Width (FEMA)	Flood Control Project
<b>UPRR, BNSF, and Hybrid: Castle Commerce Center HMF (UPRR_BNSF_HYBRID_N_CCC)</b>								
016C-CdLt		Name from NHDH						
005C								
002S	Intermittent		8,500 ft.		A			
010S-CaCk	Intermittent	Utility Database ID I3	8,500 ft.	7,300 ft.	A			Nonproject Levees
008C			8,500 ft.	7,300 ft.	AO			
700C			8,500 ft.	7,300 ft.	AO			
011C			8,500 ft.	7,300 ft.	AO			
009C								
025P-PoLt		"Pohlie Lateral" Identified on AECOM CAD maps. Utilities Database IDI9	26,000 ft.					
020S-BRCK	Intermittent	Also called "El Capitan Canal" (from 11/15/09 mapbook and biology field visit; Russell Huddleston email 5/5/10). Same as AECOM prelim. profile ID ST20	26,000 ft.	8,800 ft.	AE			Nonproject Levees
030S-BaCk	Perennial	Bear Creek in NHD and AECOM CAD map. Utilities Database ID I10 (named "Merced Lateral" in Utilities DB). Same as AECOM prelim. profile ID ST19	26,000 ft.	10,000 ft.	AE			Nonproject Levees
031P			26,000 ft.	10,000 ft.	AO			
<b>UPRR, BNSF and Hybrid: North of UPRR/BNSF Alignment Split (UPRR_BNSF_HYBRID_N)</b>								
040C-LtD		"Lateral D" in AECOM CAD Map; Utilities Database I12	68,300 ft.	36,000 ft.	AO			
042C-LtD		"Lateral D" in AECOM CAD Map; Utilities Database I12; Does not exist in NHD. Not observed in field.	68,300 ft.	36,000 ft.	AO			
702C-A					AO			
<b>UPRR and Hybrid: North of UPRR/Hybrid Alignment Split (UPRR_HYBRID_N)</b>								
048D		Unknown	22,500 ft.	22,400 ft.	AO			
050C-FdLt		"Farmdale Lateral" in NHD. Exists in AECOM CAD maps; Utilities Database ID I14 (named "Pumping Plant 142" in Utilities DB).	22,500 ft.	22,400 ft.	AO			
701C-FdLt-A			2,000 ft.	2,000 ft.	AO			
055S-MCOF		Miles Creek Overflow No. 1- as observed from highway	22,500 ft.	22,400 ft.	AO			
060S-MiCk		Same as AECOM prelim. profile ID ST18	22,500 ft.	22,400 ft.	AO			
080S-OwCk	Intermittent	Same as AECOM prelim. profile ID ST17	22,500 ft.	22,400 ft.	AO			Nonproject Levees
081C-KoLt		Koff Lateral, according to AECOM; Located in AECOM and Merced ID CAD maps; Utility Database I15. Confirmed (from 11/15/09 mapbook and biology field visit; Russell Huddleston email 5/5/10)	22,500 ft.	22,400 ft.	AO			

Crossing ID	Hydrologic Type	Name and Field Notes	Width of 200-year Floodplain (DWR)	Width of 100-year Floodplain (DWR)	FEMA Flood Zone	Floodway Width (CVFPB)	Floodway Width (FEMA)	Flood Control Project
090D-LtAA		ST 15; Tributary of "Lateral A-A" on AECOM and Merced ID CAD maps; Utilities Database I17ST 15; Tributary of "Lateral A-A" on AECOM and Merced ID CAD maps; Utilities Database I17	22,500 ft.	22,400 ft.	AO			
100D			22,500 ft.	22,400 ft.	AO			
112S-DuSl	Intermittent	Also named "Duck Creek" on AECOM ST13; Also called "Hadley Lateral" (from 11/15/09 mapbook and biology field visit; Russell Huddleston email 5/5/10)	22,500 ft.	22,400 ft.	AO			
111S-DuSl	Intermittent	Also named "Duck Creek" on AECOM ST13; Also called "Hadley Lateral" (from 11/15/09 mapbook and biology field visit; Russell Huddleston email 5/5/10)	22,500 ft.	22,400 ft.	AO			
110S-DuSl	Intermittent	Also named "Duck Creek" on AECOM ST13; Also called "Hadley Lateral" (from 11/15/09 mapbook and biology field visit; Russell Huddleston email 5/5/10)	22,500 ft.	22,400 ft.	AO			
113C-GvLt		Hwy sign says Mariposa Creek (20100420 fld visit, Amy and Duane). NHDH has no name. "Givens Lateral" (from 11/15/09 mapbook & bio field visit; R. Huddleston email 5/5/10; in AECOM and Merced ID CAD map); Util DB ID I19. On AECOM prelim profile ID ST13. Hwy sign says Mariposa Creek (20100420 fld visit, Amy and Duane). NHDH has no name. "Givens Lateral" (from 11/15/09 mapbook & bio field visit; R. Huddleston email 5/5/10; in AECOM and Merced ID CAD map); Util DB ID I19. On AECOM prelim profile ID ST13.	22,500 ft.	22,400 ft.	AO			
114C		Tributary to Givens Lateral. May connect Givens and Lingard Laterals. Identified, but not named, on AECOM and Merced ID CAD maps. Utilities Database ID I21. Tributary to Givens Lateral. May connect Givens and Lingard Laterals. Identified, but not named, on AECOM and Merced ID CAD maps. Utilities Database ID I21.	22,500 ft.	22,400 ft.	AO			
115C		Previously thought to be Mariposa Creek. Highway sign indicates that 2113 is MaCk. Tributary to Lingard Lateral. Previously thought to be Mariposa Creek. Highway sign indicates that 2113 is MaCk. Tributary to Lingard Lateral.						
116C-SoSl		South Slough, per AECOM's ST11; Is also named Lingard Lateral (Lingard Lateral = Utility Database ID I24) [Lingard Lateral (aka MaCk) (from 11/15/09 mapbk and bio. fld visit; Russell Huddleston email 5/5/10)]						
117C-LatB		Unnamed Canal (from 11/15/09 mapbook and biology field visit; Russell Huddleston email 5/5/10)						
150C-RuLt		Russell Lateral and South Slough, per map from Craig. Labeled Russell Lateral in NHDH. Utility Database ID I25. Name confirmed on AECOM CAD map						
756C-A			1,700 ft.	1,700 ft.	AO			
758C-A			1,700 ft.	1,700 ft.	AO			
760C-A			6,300 ft.	6,300 ft.	AO			
754C-A			6,300 ft.	6,300 ft.	AO			
152C		Not present on AECOM CAD map. Not present on AECOM CAD map	23,900 ft.	23,900 ft.	AO			
154C		Not present on AECOM CAD map. Not present on AECOM CAD map	23,900 ft.	23,900 ft.	AO			
200S-DdCk	Intermittent	Not present in Utility Database; Name confirmed on AECOM and CWD CAD maps.	23,900 ft.	23,900 ft.	AO			
<b>UPRR: East Chowchilla Design Option, main track between Avenue 24 and Avenue 21 wyes (UPRR_NotChowDO)</b>								
210S-DtCk	Intermittent	Utility Database ID I26; Name confirmed on AECOM and CWD CAD maps	23,900 ft.	23,900 ft.	A			
215D-SDtC		South Dutchman Creek (according to hwy sign); Not identified on AECOM and CWD CAD maps. South Dutchman Creek (according to hwy sign); Not identified on AECOM and CWD CAD maps.						

Crossing ID	Hydrologic Type	Name and Field Notes	Width of 200-year Floodplain (DWR)	Width of 100-year Floodplain (DWR)	FEMA Flood Zone	Floodway Width (CVFPB)	Floodway Width (FEMA)	Flood Control Project
220S-ChRi	Intermittent	Utility Database ID I27; Name confirmed on AECOM and CWD CAD maps. On AECOM prelim. profile as ST08.	570 ft.	550 ft.	A	430 ft.		
221C-Mntn		Unnamed Canal (from 11/15/09 mapbook and biology field visit; Russell Huddleston email 5/5/10); "Minturn" from CWD CAD maps; Utility Database ID I28.						Nonproject Levees
230S-AsSI	Perennial	Utility Database ID I29; Name confirmed on AECOM and CWD CAD maps. On AECOM prelim. profile ID ST07.	960 ft.	820 ft.	A	380 ft.		Nonproject Levees
240C-HtLt		Hartley Lateral (from 11/15/09 mapbook and biology field visit; Russell Huddleston email 5/5/10); or "Berenda Canal" (from AECOM and CWD CAD maps); Utility Database ID I31	510 ft.		A			
250S-BeSI	Intermittent	Utility Database ID I31. On AECOM prelim. profile ID ST06.	510 ft.	400 ft.	A	340 ft.		
260C-CALA		California Lateral A (from 11/15/09 mapbook and biology field visit; Russell Huddleston email 5/5/10); AECOM and CWD CAD map confirm name; Utility Database ID ID32						
264C-CaCa		Califa Canal (AECOM and CWD CAD maps; Utility Database I33						
<b>UPRR West Chowchilla Design Option and Hybrid (ChowDO_HYBRID)</b>								
209S-DtCk-B	Intermittent		23,900 ft.	23,900 ft.	A			
762S-DtCk-A	Intermittent		8,000 ft.	8,000 ft.	A			
764C-A			8,000 ft.	8,000 ft.	A			
507C-B								
768C-A								
778C-A								
776C-A								
<u>509C-Lat2-B</u>								
511C-Lat3-B								
784C-Lat4-A								
782C-Lat4-A								
780S-ChRi-A	Intermittent		560 ft.	560 ft.	A	250 ft.		
786C-A								
788C-A								
519C-CRBP								
521C-AMCa-B								
523S-AsSI	Perennial		770 ft.	400 ft.	A			Nonproject Levees
<u>792S-AsSI-A</u>	<u>Perennial</u>		<u>650 ft.</u>	<u>460 ft.</u>	<u>A</u>			<u>Nonproject Levees</u>
994C-BtCa-A								
846C-JuCa-A								

Crossing ID	Hydrologic Type	Name and Field Notes	Width of 200-year Floodplain (DWR)	Width of 100-year Floodplain (DWR)	FEMA Flood Zone	Floodway Width (CVFPB)	Floodway Width (FEMA)	Flood Control Project
842C-A								
844C-JuCa-A								
848C-AMCa-A								
850S-AsSI-A	Perennial		990 ft.	700 ft.	A			Nonproject Levees
525C								
605C-BtCa-B								
607C-EmLt-B								
<b>UPRR East Chowchilla Design Option Avenue 24 Wye, West Chowchilla Design Option, and Hybrid (UPRRave24_ChowDO_HYBRID)</b>								
774C-A								
772C-A								
770C-A								
514C-Lat4								
516S-ChRi	Intermittent		780 ft.	760 ft.	A	590 ft.		
<b>UPRR West Chowchilla Design Option, BNSF Avenue 24 and Hybrid (ChowDO_BNSFAve24_HYBRID)</b>								
796C-BeCa-A								
603C-BeCa								
609S-BeSI	Intermittent		610 ft.	300 ft.	A	320 ft.		Nonproject Levees
802S-BeSI-A	Intermittent		440 ft.	280 ft.	A	370 ft.		
<b>UPRR West Chowchilla Design Option (ChowDO)</b>								
798S-BeSI-A	Intermittent		540 ft.	280 ft.	A	220 ft.		Nonproject Levees
800S-BeSI-A	Intermittent		1310 ft.	900 ft.	A	1,100 ft.		Nonproject Levees
616D								
611C-CaLA								
807C-CaLA-A								
805C-CaLA-A								
809P-A								
620C								
<b>UPRR: West Chowchilla Design Option South and Main Track South (UPRRS_ChowDOS)</b>								
265C-B		unnamed canal (Identified on MID CAD map; no Utility Database ID; Q = 185); Not found in on any other data sources.						

Crossing ID	Hydrologic Type	Name and Field Notes	Width of 200-year Floodplain (DWR)	Width of 100-year Floodplain (DWR)	FEMA Flood Zone	Floodway Width (CVFPB)	Floodway Width (FEMA)	Flood Control Project
290S-BeCk	Intermittent		330 ft.	200 ft.	A			
<b>UPRR: South of Avenue 21 Wye (UPRR_S)</b>								
295C			15,400 ft.	15400	AO			
302S-DrCk	Intermittent		15,400 ft.	15400	AH			
311S-ScCk	Intermittent	Utility Database ID I38	15,400 ft.	15400	AO			
315C								
321C-242L		Unnamed Canal (from 11/15/09 mapbook and biology field visit; Russell Huddleston email 5/5/10); MID 24.2 Lateral (from AECOM Utility CAD maps, Utility Crossing Database ID I39; Q = 125 from MID CAD map)						
331S-FrRi	Intermittent	AECOM prelim. profile ID ST03.	500 ft.	500ft.	AE	400 ft.	450 ft.	
341C-MaN1		Main No. 1 MID, from AECOM Utility and Madera ID CAD maps. Utility Crossing Database ID 41. Does not exist in NHD or other sources.						
345C			22,900 ft.	22,600 ft.				
352C			22,900 ft.	22,600 ft.				
353C			22,900 ft.	22,600 ft.	AO			
354C			22,900 ft.	22,600 ft.	AO			
360C-MaN2		Main No. 1 (from 11/15/09 mapbook and biology field visit; Russell Huddleston email 5/5/10); MID Main No. 2 from AECOM Utility and MID CAD Map = Utility Database ID I42	22,900 ft.	22,600 ft.				
371S-CwCk	Intermittent		22,900 ft.	22,600 ft.	AE			
379C		Unnamed Canal (from 11/15/09 mapbook and biology field visit; Russell Huddleston email 5/5/10); not present in MID CAD map.						
822C-A								
824C-A								
828C-A								
382C-ML2S		Unnamed Canal (from 11/15/09 mapbook and biology field visit; Russell Huddleston email 5/5/10); MID Lateral 6.2-9.2S (Utility Database ID I43; from AECOM Utility CAD Map) (Q=30; from MID CAD map).						
396C-6292		MID Lateral 6.2-9.2-5.05; Utility Database ID I45; Q = 45 (From AECOM Utility and MID CAD maps)						
401S-SJRi	Perennial	AECOM preflim. profile ID ST01.	1,100 ft.	900 ft.	AE	850 ft.	600 ft.	
<b>UPRR, BNSF, and Hybrid: South of UPRR/BNSF track merge (UPRR_BNSF_HYBRID_S)</b>								
422P								
451C-DCCa			130 ft.	100 ft.	AE			
410C-HrCa			110 ft.	100 ft.	AE			
830C-ML2S-A								
420P-ViCa-B								

Crossing ID	Hydrologic Type	Name and Field Notes	Width of 200-year Floodplain (DWR)	Width of 100-year Floodplain (DWR)	FEMA Flood Zone	Floodway Width (CVFPB)	Floodway Width (FEMA)	Flood Control Project
832C-WVCa-A								
421P-WVCa-B		West Branch Victoria Canal (no feature, from 11/15/09 mapbook and biology field visit; Russell Huddleston email 5/5/10)						
834P-WVC-A								
<b>Avenue 24 Wye: UPRR East Chowchilla Design Option, UPRR West Chowchilla Design Option, BNSF and Hybrid (UPRRave24_BNSFAve24_ChowDOAve24_HYBRIDAve24)</b>								
840C--JuCa-A								
600S-AsSI	Perennial		410 ft.	400 ft.	A			Nonproject Levees
602C-AMCa								
604C-BtCa-B								
<b>Avenue 24 Wye: UPRR East Chowchilla Design Option, UPRR West Chowchilla Design Option, and Hybrid (UPRRave24_ChowDOAve24_HYBRIDAve24)</b>								
528C								
564C-AMCa	Intermittent	CWD CAD maps			A			
526S-AsSI	Perennial		730 ft.	730 ft.	A			Nonproject Levees
524C-B								
522S-AsSI	Perennial		580 ft.	560 ft.	A			Nonproject Levees
520C-AMCa-B	Intermittent	CWD CAD maps						
518C-CRBP								
<b>Avenue 24 Wye: UPRR East Chowchilla Design Option North (UPRRave24N)</b>								
211S-DtCk	Intermittent	Name confirmed on AECOM and CWD CAD maps	23,900 ft.	23,900 ft.	A			
766S-DtCk-A	Intermittent		4,100 ft.	4,100 ft.	A			
510C-Lat2-B								
515C-Lat3								
790C-CRBP-A								
<b>Avenue 24 Wye: UPRR East Chowchilla Design Option South (UPRRave24S)</b>								
606C-BeCa-B								
608S-BeSI	Intermittent		170 ft.	200 ft.	A	140 ft.		Nonproject Levees
854S-BeSI-A	Intermittent		360 ft.	160 ft.	A	240 ft.		Nonproject Levees
856S-BeSI-A	Intermittent		400 ft.	200 ft.	A	300 ft.		Nonproject Levees
803C-A								

Crossing ID	Hydrologic Type	Name and Field Notes	Width of 200-year Floodplain (DWR)	Width of 100-year Floodplain (DWR)	FEMA Flood Zone	Floodway Width (CVFPB)	Floodway Width (FEMA)	Flood Control Project
613C-CaLA-B								
615C-CaLB								
617C-CaLB								
268P		unnamed canal (Identified on MID CAD map; no Utility Database ID; Q = 185); Not found in on any other data sources.						
<b>Avenue 21 Wye: UPRR and BNSF (UPRRave21_BNSFAve21)</b>								
242C-AvLA								
244C-AvCa								
246C-R11C								
248C-BtCa-B			22,500 ft.					
249C-BeCa			22,500 ft.	14900	A			
880S-BeSl-A			3,800 ft.	3,800 ft.	A			Nonproject Levees
252S-BeSl	Intermittent		22,500 ft.	14900	A			Nonproject Levees
463C-CLtC			22,500 ft.	14900	A			
467C-CSLt-B								
462C-CfCa-B								
286C-3229-B		From Madera ID: "32.2 9.9-2.0" , Q = 15						
287C-3229		From Madera ID: "32.2-9.9"; Q = 60						
896C-3221-A								
<b>Avenue 21 Wye: UPRR (UPRRave21)</b>								
283C-3229								
888C-A								
893P-A								
904C-A								
902C-A								
280C-3229		From Madera ID: "32.2 9.9-2.0" , Q = 15						
284C-3221		From Madera ID: "32.2-10.2"; Q = 30						
277C-3221								
898C-3221-A								
281C-3229-B		From Madera ID CAD map: "32.2-9.9", Q= 100						
890C-3229-A								

Crossing ID	Hydrologic Type	Name and Field Notes	Width of 200-year Floodplain (DWR)	Width of 100-year Floodplain (DWR)	FEMA Flood Zone	Floodway Width (CVFPB)	Floodway Width (FEMA)	Flood Control Project
892C-3229-A								
289C-3229		From Madera ID: "32.2-9.9-0.1"; Q = 15						
282C-3229-B		From Madera ID: "32.2-9.9-1.0"; Q = 15						
288P-3229		From Madera ID: "32.2-9.9-1.5"; Q = 15						
291S-BeCk	Intermittent		420 ft.	200 ft.	A			
884C-CaCa-A								
465C-CfCa								
461C-CLtB		Utility Database ID I32 = "Califa Lateral"						
882C-CLtC-A			3,000 ft.	3,000 ft.	A			
886C-CLtC-A								
883C-CLtD								
261C-CALA		California Lateral A (from 11/15/09 mapbook and biology field visit; Russell Huddleston email 5/5/10); AECOM and CWD CAD map confirm name; Utility Database ID ID32						
285C-L322		From Madera ID: "LAT 32.2"; Q = 75						
900C-L322-A								
<b>UPRR, BNSF, and Hybrid: Fagundes HMF</b>								
852C-A	-	-	-	-	-	-	-	-

**Appendix A.2, Table 2**  
Hydrologic, Floodplain Information and Notes (BNSF)

Crossing ID	Hydrologic Type	Name and Field Notes	Width of 200-year Floodplain (DWR)	Width of 100-year Floodplain (DWR)	FEMA Flood Zone	Floodway Width (CVFPB)	Floodway Width (FEMA)	Flood Control Project
<b>UPRR, BNSF, and Hybrid: Castle Commerce Center HMF (UPRR_BNSF_HYBRID_N_CCC)</b>								
016C-CdLt		Name from NHDH						
005C								
002S	Intermittent		8,500 ft.		A			
010S-CaCk	Intermittent	Utility Database ID I3	8,500 ft.	7,300 ft.	A			Nonproject Levees
008C			8,500 ft.	7,300 ft.	AO			
700C			8,500 ft.	7,300 ft.	AO			
011C			8,500 ft.	7,300 ft.	AO			
009C								
025P-PoLt		"Pohlie Lateral" Identified on AECOM CAD maps. Utilities Database IDI9	26,000 ft.					
020S-BRCK	Intermittent	Also called "El Capitan Canal" (from 11/15/09 mapbook and biology field visit; Russell Huddleston email 5/5/10). Same as AECOM prelim. profile ID ST20	26,000 ft.	8,800 ft.	AE			Nonproject Levees
030S-BaCk	Perennial	Bear Creek in NHD and AECOM CAD map. Utilities Database ID I10 (named "Merced Lateral" in Utilities DB). Same as AECOM prelim. profile ID ST19	26,000 ft.	10,000 ft.	AE			Nonproject Levees
031P			26,000 ft.	10,000 ft.	AO			
<b>UPRR, BNSF and Hybrid: North of UPRR/BNSF Alignment Split (UPRR_BNSF_HYBRID_N)</b>								
040C-LtD		"Lateral D" in AECOM CAD Map; Utilities Database I12	68,300 ft.	36,000 ft	AO			
042C-LtD		"Lateral D" in AECOM CAD Map; Utilities Database I12; Does not exist in NHD. Not observed in field.	68,300 ft.	36,000 ft	AO			
702C-A					AO			
<b>BNSF Mission Design Option North: Avenue 24 and Avenue 21 Wye, includes East of Le Grand Design Option (BNSFMissionN)</b>								
051C			68,300 ft.	36,000 ft	AO			
053C-FdLt			68,300 ft.	36,000 ft	AH			
052C			68,300 ft.	36,000 ft	AO			
704C-A			9,600 ft.	8,100 ft.	AO			
706C-A			1,300 ft.	1,300 ft.	AO			

Crossing ID	Hydrologic Type	Name and Field Notes	Width of 200-year Floodplain (DWR)	Width of 100-year Floodplain (DWR)	FEMA Flood Zone	Floodway Width (CVFPB)	Floodway Width (FEMA)	Flood Control Project
708C-MiCk-A			9,600 ft.	8,100 ft.	AO			Nonproject Levees
084C-FfLt-B		Merced ID CAD/Tiff Map: "Fairfield Lat" Merced ID CAD/Tiff Map: "Fairfield Lat"	68,300 ft.	36,000 ft.	AO			
710C-MiCk-A			2,900 ft.	2,900 ft.	AO			Nonproject Levees
712C-FfLt-A			9,600 ft.	8,100 ft.	AO			
086C-MiCk		Merced ID CAD/Tiff Map: "Miles Creek" Merced ID CAD/Tiff Map: "Miles Creek"	68,300 ft.	36,000 ft.	AO			Nonproject Levees
714S-OwCk-A	Intermittent		9,600 ft.	8,100 ft.	AO			
716C-KoLt-A			9,600 ft.	8,100 ft.	AO			Nonproject Levees
085C-VgLt		Merced ID CAD/Tiff Map: "Vaughn Lat." Merced ID CAD/Tiff Map: "Vaughn Lat" Merced ID CAD/Tiff Map: "Vaughn Lat." Merced ID CAD/Tiff Map: "Vaughn Lat"	68,300 ft.	36,000 ft.	AO			
118C-B			68,300 ft.	36,000 ft.	AO			
718C-MiCk-A			2,900 ft.	2,900 ft.	AO			Nonproject Levees
120C			68,300 ft.	36,000 ft.	AO			Nonproject Levees
140S-OwCk	Intermittent		68,300 ft.	36,000 ft.	AO			
119C			68,300 ft.	36,000 ft.	AO			
<b>BNSF Mariposa Way Design Option: Avenue 24 and Avenue 21 Wye, includes East of Le Grand Design Option (BNSF Mariposa)</b>								
049D			67,600 ft.	19,200 ft.	AO			
054C-FdLt			67,600 ft.	19,200 ft.	AO			
056S-MCOF		Miles Creek Overflow No. 1- as observed from highway	67,600 ft.	19,200 ft.	AO			
061S-MiCk			67,600 ft.	19,200 ft.	AO			Nonproject Levees
079S-OwCk	Intermittent		67,600 ft.	19,200 ft.	AO			Nonproject Levees
083C-KoLt		Koff Lateral, according to AECOM; Located in AECOM and Merced ID CAD maps; Utility Database I15. Confirmed (from 11/15/09 mapbook and biology field visit; Russell Huddleston email 5/5/10)Koff Lateral, according to AECOM; Located in AECOM and Merced ID CAD maps; Utility Database I15. Confirmed (from 11/15/09 mapbook and biology field visit; Russell Huddleston email 5/5/10)	67,600 ft.	19,200 ft.	AO			
089C			67,600 ft.	48700	AO			
109S-DuSl	Intermittent		67,600 ft.	48700	AO			Nonproject Levees

Crossing ID	Hydrologic Type	Name and Field Notes	Width of 200-year Floodplain (DWR)	Width of 100-year Floodplain (DWR)	FEMA Flood Zone	Floodway Width (CVFPB)	Floodway Width (FEMA)	Flood Control Project
091C-HdLt		From Merced ID CAD/Tiff Map: "Hadley Lat."From Merced ID CAD/Tiff Map: "Hadley Lat."	67,600 ft.	48700	AO			
092C-HdLt-B			67,600 ft.	48700	AO			
720C-HdLt-A			3,300 ft.	3,300 ft.	AO			
722S-DuSI-A	Intermittent		3,300 ft.	3,300 ft.	AO			Nonproject Levees
108C-PILt		From Merced ID CAD/Tiff Map: "Planada Lat"	67,600 ft.	48700	AO			Nonproject Levees
<b>BNSF Mission Avenue Design Option: Avenue 24 and Avenue 21 Wye (BNSFMissionLeGrand)</b>								
122C-DbLt-B			68,300 ft.		A			
123C			68,300 ft.	24,000 ft.	AO			
124C-DbLt		Merced ID CAD/Tiff Map: "Dibblee Lat."Merced ID CAD/Tiff Map: "Dibblee Lat."	68,300 ft.	24,000 ft.	AO			Nonproject Levees
125C			68,300 ft.	24,000 ft.	AO			
126C-DiCh		From Merced ID CAD/Tiff Map: "Diversion Channel (U.S.E.D.)From Merced ID CAD/Tiff Map: "Diversion Channel (U.S.E.D.)"	68,300 ft.	24,000 ft.	AH			Project Levees
127C-BuLt		From Merced ID CAD/Tiff map: "Burchell Lat"	68,300 ft.	24,000 ft.	AO			Nonproject Levees
540S-MaCk	Intermittent		68,300 ft.	24,000 ft.	AO			Nonproject Levees
541S-MaCk	Intermittent		68,300 ft.	24,000 ft.	AO			Nonproject Levees
133P-BNo3		From Merced ID CAD/Tiff map: "Booster No. 3" (or, may be "Fancher Lat.")	68,300 ft.	24,000 ft.	AO			Nonproject Levees
728C-BNo3-A			12,100 ft.	12,100 ft.	AO			Nonproject Levees
136S-MaCk	Intermittent		68,300 ft.	24,000 ft.	A			
732S-MaCk-A	Intermittent		12,100 ft.	12,100 ft.	AO			
181P-LtN3		From Merced ID CAD/Tiff Map: "No. 3 LAT"						
191S	Intermittent		300 ft	300 ft	A			
201S-DdCk	Intermittent		4,000 ft.	4,000 ft	A			
206S-DtCk	Intermittent		4,000 ft.	4,000 ft.	A			
208S	Intermittent		4,000 ft.	4,000 ft	A			
<b>BNSF Mission Avenue East of Le Grand Design Option: Avenue 24 and Avenue 21 Wye (BNSFMissionEastLeGrand)</b>								
121C-DbLt-B		Merced ID CAD/Tiff Map: "Dibblee Lat."Merced ID CAD/Tiff Map: "Dibblee Lat."	47,000 ft.		A			
726C-A			3,400 ft.	640 ft.	AO			Nonproject Levees
724S-OwCk-A	Intermittent		3,400 ft.	640 ft.	AO			

Crossing ID	Hydrologic Type	Name and Field Notes	Width of 200-year Floodplain (DWR)	Width of 100-year Floodplain (DWR)	FEMA Flood Zone	Floodway Width (CVFPB)	Floodway Width (FEMA)	Flood Control Project
550C			47,000 ft.		A			
153C-DbLt		Merced ID CAD/Tiff Map: "Dibblee Lat."Merced ID CAD/Tiff Map: "Dibblee Lat."						Nonproject Levees
155D			3,800 ft.	3,900 ft.	A			
156C-DiCh		From Merced ID CAD/Tiff Map: "Diversion Channel (U.S.E.D.)From Merced ID CAD/Tiff Map: "Diversion Channel (U.S.E.D.)"	3,800 ft.	3,900 ft.	A			Project Levees
158C-BuLt		From Merced ID CAD/Tiff map: "Burchell Lat"						
164C-LGCa		From Merced ID CAD/Tiff map: "LeGrand Canal"						Nonproject Levees
166C-BNo3			2,000 ft		A			Nonproject Levees
730C-BNo3-A			340 ft.		A			Nonproject Levees
138S-MaCk-B	Intermittent	Mariposa Creek, from NHD. May be "MITCHELL LAT" from Merced ID CAD/Tiff Map.	2,800 ft.	2,800 ft	A			
139S-MaCk	Intermittent	Mariposa Creek, from NHD. May be "MITCHELL LAT" from Merced ID CAD/Tiff Map.						
182C-LtN3		From Merced ID CAD/Tiff Map: "No. 3 LAT						
192S	Intermittent		490 ft	500 ft	A			
207S-DdCk	Intermittent		2,400 ft.	2,500 ft.	A			
560S-DtCk	Intermittent		2,400 ft.	2,500 ft.	A			
565S	Intermittent		1,400 ft.	1,400 ft.	A			
<b>BNSF Mariposa Way Design Option: Avenue 24 and Avenue 21 Wye (BNSFMariposaLeGrand)</b>								
106C-PbLt		From Merced ID CAD/Tiff Map: "Plainsburg Lat". Not present in NHD.	67,600 ft.	48700	AO			
130S-MaCk	Intermittent		67,600 ft.	48700	AO			
131C-BNo3		From Merced ID CAD/Tiff map: "Booster No. 3" (or, may be "Fancher Lat.")	67,600 ft.	48700	AO			
132S-MaCk	Intermittent		67,600 ft.	48700	AO			
180C-LtN3		From Merced ID CAD/Tiff Map: "No. 3 LAT						
190S	Intermittent		300 ft	300 ft	A			
202S-DdCk	Intermittent		4,000 ft.	4,000 ft	A			
222S-DtCk	Intermittent		4,000 ft.	4,000 ft.	A			

Crossing ID	Hydrologic Type	Name and Field Notes	Width of 200-year Floodplain (DWR)	Width of 100-year Floodplain (DWR)	FEMA Flood Zone	Floodway Width (CVFPB)	Floodway Width (FEMA)	Flood Control Project
212S	Intermittent		4,000 ft.	4,000 ft	A			
744D-A								
500D								
504D								
508D								
512D								
214S	Intermittent							
216S-B	Intermittent							
218S	Intermittent		380 ft.					
<b>BNSF Mariposa Way East of Le Grand Design Option: Avenue 24 and Avenue 21 Wye (BNSFMariposaEastLeGrand)</b>								
107C-PbLt		From Merced ID CAD/Tiff Map: "Plainsburg Lat". Not present in NHD.	60,600 ft.	40000	AO			
542S-MaCk	Intermittent		60,600 ft.	40000	AO			Nonproject Levees
134C-LGCa		From Merced ID CAD/Tiff map: "LeGrand Canal"	1,700 ft.		A			Nonproject Levees
141S					A			
135C-BNo3		From Merced ID CAD/Tiff map: "Booster No. 3" (or, may be "Fancher Lat.")	2,100 ft.		A			Nonproject Levees
733S-MaCk-A	Intermittent		1,400 ft.	1,400 ft.	A			
137S-MaCk	Intermittent	Mariposa Creek, from NHD. May be "MITCHELL LAT" from Merced ID CAD/Tiff Map.	2,800 ft.	2,700 ft.	A			
185C-LtN3		From Merced ID CAD/Tiff Map: "No. 3 LAT						
195S	Intermittent		330 ft.					
205S-DdCk	Intermittent		320 ft.					
204C			320 ft.					
223S-DtCk	Intermittent		320 ft.					
213S	Intermittent							
746D-A								
748D-A								
225D	Intermittent							
224S	Intermittent		310 ft.					
217S	Intermittent		860 ft.					

Crossing ID	Hydrologic Type	Name and Field Notes	Width of 200-year Floodplain (DWR)	Width of 100-year Floodplain (DWR)	FEMA Flood Zone	Floodway Width (CVFPB)	Floodway Width (FEMA)	Flood Control Project
219S-B	Intermittent		230 ft.					
<b>BNSF Mission Avenue and Mariposa Way Design Options: Avenue 24 and Avenue 21 Wye (BNSFLeGrand)</b>								
736C-LtN3-A			270 ft.	270 ft.				
735S-A	Intermittent				A			
738S-DdCk-A	Intermittent		3,800 ft.	3,800 ft.	A			
740S-DtCk-A	Intermittent		3,800 ft.	3,800 ft.	A			
742S-A	Intermittent		3,800 ft.	3,800 ft.	A			
<b>BNSF East of Le Grand Design Options: Mariposa Way and Mission Avenue, Avenue 24 Wye and Avenue 21 Wye (BNSFEastLeGrand)</b>								
734C-LtN3-A								
<b>BNSF Mission Ave, Mission Ave East of Le Grand and Mariposa Way Design Options: Avenue 24 and Avenue 21 Wye (BNSFLeGrand_MissionEastLeGrand)</b>								
750S-A	Intermittent							
752S-A	Intermittent							
<b>BNSF Mission Ave Design Option: Avenue 24 and Avenue 21 Wye, includes East of Le Grand Design Option (BNSFMissions)</b>								
501D								
505D								
506D								
513D								
517S	Intermittent							
527S	Intermittent							
529S	Intermittent		380 ft.					
<b>BNSF, south of Mission Ave and Mariposa Way Design Options (BNSF)</b>								
226S-ChRi	Intermittent		470 ft.	260 ft.	A	620 ft.		
231S-AsSI	Perennial		570 ft.	500 ft.	A	470 ft.		
253S-BeSI	Intermittent		640 ft.	500 ft.	A	420 ft.		
251C-322		From Madera ID: "LAT 32.2"; Q = 185 From Madera ID: "LAT 32.2"; Q = 185						
292S-BeCk	Intermittent		200 ft.	190 ft.	A			
300S-DrCk	Intermittent		480 ft.	200 ft.	AO			
305C-242		From Madera ID: "24.2"; Q = 140 From Madera ID: "24.2"; Q = 140						
<b>BNSF and Hybrid, South of Avenue 24 Wye (BNSF_HYBRID)</b>								
806C-242-A								

Crossing ID	Hydrologic Type	Name and Field Notes	Width of 200-year Floodplain (DWR)	Width of 100-year Floodplain (DWR)	FEMA Flood Zone	Floodway Width (CVFPB)	Floodway Width (FEMA)	Flood Control Project
310S-ScCr	Intermittent		650 ft.	400 ft.	AE		110 ft.	
808S-ScCr-A	Intermittent		290 ft.		AE		100 ft.	
320S	Intermittent		390 ft.	300 ft.	AE		100 ft.	
330S-FrRi	Intermittent		460 ft.	460 ft.	A	380 ft.		
812S-FrRi-A	Intermittent		720 ft.	550 ft.	A	90 ft. crossed (540 ft. total)		
814C-MaCa-A								
340C-MaCa								
370S-CwCk	Intermittent		350 ft.	250ft.	AE			
375C			3,000 ft.	370 ft.				
816C-A								
818P-A			5,300 ft.	5,300 ft.	AO			
820C-A			2,200 ft.	1,900 ft.				
278C-6214		From Madera ID: "6.2-14.0-W"; Q = 10 From Madera ID: "6.2-14.0-W"; Q = 10						
279C-6214		From Madera ID: "6.2-14.0-W"; Q = 10 From Madera ID: "6.2-14.0-W"; Q = 10						
380C								
826C-A								
381C-ML2S		Unnamed Canal (from 11/15/09 mapbook and biology field visit; Russell Huddleston email 5/5/10); MID Lateral 6.2-9.2S (Utility Database ID I43; from AECOM Utility CAD Map) (Q=30; from MID CAD map). Unnamed Canal (from 11/15/09 mapbook and biology field visit; Russell Huddleston email 5/5/10); MID Lateral 6.2-9.2S (Utility Database ID I43; from AECOM Utility CAD Map) (Q=30; from MID CAD map).						
395C-6292		MID Lateral 6.2-9.2-5.05; Utility Database ID I45; Q = 45 (From AECOM Utility and MID CAD maps) MID Lateral 6.2-9.2-5.05; Utility Database ID I45; Q = 45 (From AECOM Utility and MID CAD maps)						
400S-SJRi	Perennial		1,100 ft.	900 ft	AE	850 ft.	600 ft.	
<b>UPRR, BNSF, and Hybrid: South of UPRR/BNSF track merge (UPRR_BNSF_HYBRID_S)</b>								
410C-HrCa			110 ft.	100 ft.	AE			
420P-ViCa-B								

Crossing ID	Hydrologic Type	Name and Field Notes	Width of 200-year Floodplain (DWR)	Width of 100-year Floodplain (DWR)	FEMA Flood Zone	Floodway Width (CVFPB)	Floodway Width (FEMA)	Flood Control Project
832C-WVCa-A								
421P-WVCa-B		West Branch Victoria Canal (no feature, from 11/15/09 mapbook and biology field visit; Russell Huddleston email 5/5/10)						
834P-WVC-A								
422P								
451C-DCCa			130 ft.	100 ft.	AE			
830C-ML2S-A								
<b>Avenue 24 Wye: UPRR East Chowchilla Design Option, UPRR West Chowchilla Design Option, BNSF and Hybrid (UPRRave24_BNSFAve24_ChowDOAve24_HYBRIDAve24)</b>								
840C--JuCa-A								
600S-AsSI	Perennial		410 ft.	400 ft.	A			Nonproject Levees
602C-AMCa								
604C-BtCa-B								
<b>BNSF Avenue 24 Wye, Hybrid and West Chowchilla Design Option (ChowDO_BNSFAve24_HYBRID)</b>								
796C-BeCa-A								
603C-BeCa								
609S-BeSI	Intermittent		610 ft.	300 ft.	A	320 ft.		Nonproject Levees
802S-BeSI-A	Intermittent		440 ft.	280 ft.	A	370 ft.		
<b>BNSF Avenue 24 Wye and Hybrid (BNSFAve24_HYBRID)</b>								
610D								
612C-CaLA								
614P		Confirmed as pipeline on CWD CAD map						
464C-CaCa								
257C-322-B								
294S-BeCk	Intermittent		200 ft.	200 ft.	A			
<b>BNSF Avenue 24 Wye South, and Hybrid (BNSFwyeS_HYBRID)</b>								
301S-DrCk	Intermittent		1,500 ft.	1,100 ft.	AO			
306C-242		From Madera ID: "24.2"; Q = 140 Madera ID: "24.2"; Q = 140						
<b>Avenue 24 Wye: BNSF (BNSFAve24)</b>								
466C-CaCa								
<b>Avenue 21 Wye: UPRR and BNSF (UPRRave21_BNSFAve21)</b>								
242C-AvLA								

Crossing ID	Hydrologic Type	Name and Field Notes	Width of 200-year Floodplain (DWR)	Width of 100-year Floodplain (DWR)	FEMA Flood Zone	Floodway Width (CVFPB)	Floodway Width (FEMA)	Flood Control Project
244C-AvCa								
246C-R11C								
248C-BtCa-B			22,500 ft.					
249C-BeCa			22,500 ft.	14900	A			
880S-BeSl-A			3,800 ft.	3,800 ft.	A			Nonproject Levees
252S-BeSl	Intermittent		22,500 ft.	14900	A			Nonproject Levees
463C-CLtC			22,500 ft.	14900	A			
467C-CSLt-B								
462C-CfCa-B								
286C-3229-B		From Madera ID: "32.2 9.9-2.0" , Q = 15						
287C-3229		From Madera ID: "32.2-9.9"; Q = 60						
896C-3221-A								
<b>Avenue 21 Wye: BNSF (BNSFAve21)</b>								
274C-3229-B		From Madera ID: "32.2-9.9-1.5"; Q = 15 From Madera ID: "32.2-9.9-1.5"; Q = 15						
276C-3229-B		From Madera ID: "32.2-9.9-1.0"; Q = 15 From Madera ID: "32.2-9.9-1.0"; Q = 15						
273C-3229		From Madera ID: "32.2-9.9-0.1"; Q = 15 From Madera ID: "32.2-9.9-0.1"; Q = 15						
275C-3221-B		From Madera ID: "32.2-10.2"?; Q = 85 From Madera ID: "32.2-10.2"?; Q = 85						
894C-A								
254C-322		From Madera ID: "LAT 32.2"; Q = 185 From Madera ID: "LAT 32.2"; Q = 185						
293S-BeCk	Intermittent		370 ft.	370 ft.	A			
<b>UPRR, BNSF, and Hybrid: Fagundes HMF</b>								
852C-A								



**Appendix A.2, Table 3**  
Hydrologic, Floodplain Information and Notes (Hybrid)

Crossing ID	Hydrologic Type	Name and Field Notes	Width of 200-year Floodplain (DWR)	Width of 100-year Floodplain (DWR)	FEMA Flood Zone	Floodway Width (CVFPB)	Floodway Width (FEMA)	Flood Control Project
<b>UPRR, BNSF, and Hybrid: Castle Commerce Center HMF (UPRR_BNSF_HYBRID_N_CCC)</b>								
016C-CdLt		Name from NHDH						
005C								
002S	Intermittent		8,500 ft.		A			
010S-CaCk	Intermittent	Utility Database ID I3	8,500 ft.	7,300 ft.	A			Nonproject Levees
008C			8,500 ft.	7,300 ft.	AO			
700C			8,500 ft.	7,300 ft.	AO			
011C			8,500 ft.	7,300 ft.	AO			
009C								
025P-PoLt		"Pohlie Lateral" Identified on AECOM CAD maps. Utilities Database ID I9	26,000 ft.					
020S-BRCK	Intermittent	Also called "El Capitan Canal" (from 11/15/09 mapbook and biology field visit; Russell Huddleston email 5/5/10). Same as AECOM prelim. profile ID ST20	26,000 ft.	8,800 ft.	AE			Nonproject Levees
030S-BaCk	Perennial	Bear Creek in NHD and AECOM CAD map. Utilities Database ID I10 (named "Merced Lateral" in Utilities DB). Same as AECOM prelim. profile ID ST19	26,000 ft.	10,000 ft.	AE			Nonproject Levees
031P			26,000 ft.	10,000 ft.	AO			
<b>UPRR, BNSF and Hybrid: North of UPRR/BNSF Alignment Split (UPRR_BNSF_HYBRID_N)</b>								
040C-LtD		"Lateral D" in AECOM CAD Map; Utilities Database I12	68,300 ft.	36,000 ft.	AO			
042C-LtD		"Lateral D" in AECOM CAD Map; Utilities Database I12; Does not exist in NHD. Not observed in field.	68,300 ft.	36,000 ft.	AO			
702C-A					AO			
<b>UPRR and Hybrid: North of UPRR/Hybrid Alignment Split (UPRR_HYBRID_N)</b>								
048D		Unknown	22,500 ft.	22,400 ft.	AO			
050C-FdLt		"Farmdale Lateral" in NHD. Exists in AECOM CAD maps; Utilities Database ID I14 (named "Pumping Plant 142" in Utilities DB).	22,500 ft.	22,400 ft.	AO			
701C-FdLt-A			2,000 ft.	2,000 ft.	AO			

Crossing ID	Hydrologic Type	Name and Field Notes	Width of 200-year Floodplain (DWR)	Width of 100-year Floodplain (DWR)	FEMA Flood Zone	Floodway Width (CVFPB)	Floodway Width (FEMA)	Flood Control Project
055S-MCOF		Miles Creek Overflow No. 1- as observed from highway	22,500 ft.	22,400 ft.	AO			
060S-MiCk		Same as AECOM prelim. profile ID ST18	22,500 ft.	22,400 ft.	AO			
080S-OwCk	Intermittent	Same as AECOM prelim. profile ID ST17	22,500 ft.	22,400 ft.	AO			Nonproject Levees
081C-KoLt		Koff Lateral, according to AECOM; Located in AECOM and Merced ID CAD maps; Utility Database I15. Confirmed (from 11/15/09 mapbook and biology field visit; Russell Huddleston email 5/5/10)	22,500 ft.	22,400 ft.	AO			
090D-LtAA		ST 15; Tributary of "Lateral A-A" on AECOM and Merced ID CAD maps; Utilities Database I17ST 15; Tributary of "Lateral A-A" on AECOM and Merced ID CAD maps; Utilities Database I17	22,500 ft.	22,400 ft.	AO			
100D			22,500 ft.	22,400 ft.	AO			
112S-DuSI	Intermittent	Also named "Duck Creek" on AECOM ST13; Also called "Hadley Lateral" (from 11/15/09 mapbook and biology field visit; Russell Huddleston email 5/5/10)	22,500 ft.	22,400 ft.	AO			
111S-DuSI	Intermittent	Also named "Duck Creek" on AECOM ST13; Also called "Hadley Lateral" (from 11/15/09 mapbook and biology field visit; Russell Huddleston email 5/5/10)	22,500 ft.	22,400 ft.	AO			
110S-DuSI	Intermittent	Also named "Duck Creek" on AECOM ST13; Also called "Hadley Lateral" (from 11/15/09 mapbook and biology field visit; Russell Huddleston email 5/5/10)	22,500 ft.	22,400 ft.	AO			
113C-GvLt		Hwy sign says Mariposa Creek (20100420 fld visit, Amy and Duane). NHDH has no name. "Givens Lateral" (from 11/15/09 mapbook & bio field visit; R. Huddleston email 5/5/10; in AECOM and Merced ID CAD map); Util DB ID I19. On AECOM prelim profile ID ST13. Hwy sign says Mariposa Creek (20100420 fld visit, Amy and Duane). NHDH has no name. "Givens Lateral" (from 11/15/09 mapbook & bio field visit; R. Huddleston email 5/5/10; in AECOM and Merced ID CAD map); Util DB ID I19. On AECOM prelim profile ID ST13.	22,500 ft.	22,400 ft.	AO			

Crossing ID	Hydrologic Type	Name and Field Notes	Width of 200-year Floodplain (DWR)	Width of 100-year Floodplain (DWR)	FEMA Flood Zone	Floodway Width (CVFPB)	Floodway Width (FEMA)	Flood Control Project
114C		Tributary to Givens Lateral. May connect Givens and Lingard Laterals. Identified, but not named, on AECOM and Merced ID CAD maps. Utilities Database ID I21. Tributary to Givens Lateral. May connect Givens and Lingard Laterals. Identified, but not named, on AECOM and Merced ID CAD maps. Utilities Database ID I21.	22,500 ft.	22,400 ft.	AO			
115C		Previously thought to be Mariposa Creek. Highway sign indicates that 2113 is MaCk. Tributary to Lingard Lateral. Previously thought to be Mariposa Creek. Highway sign indicates that 2113 is MaCk. Tributary to Lingard Lateral.						
116C-SoSI		South Slough, per AECOM's ST11; Is also named Lingard Lateral (Lingard Lateral = Utility Database ID I24) [Lingard Lateral (aka MaCk) (from 11/15/09 mapbk and bio. fld visit; Russell Huddleston email 5/5/10)]						
117C-LatB		Unnamed Canal (from 11/15/09 mapbook and biology field visit; Russell Huddleston email 5/5/10)						
150C-RuLt		Russell Lateral and South Slough, per map from Craig. Labeled Russell Lateral in NHDH. Utility Database ID I25. Name confirmed on AECOM CAD map						
756C-A			1,700 ft.	1,700 ft.	AO			
758C-A			1,700 ft.	1,700 ft.	AO			
760C-A			6,300 ft.	6,300 ft.	AO			
754C-A			6,300 ft.	6,300 ft.	AO			
152C		Not present on AECOM CAD map	23,900 ft.	23,900 ft.	AO			
154C		Not present on AECOM CAD map	23,900 ft.	23,900 ft.	AO			
200S-DdCk	Intermittent	Not present in Utility Database; Name confirmed on AECOM and CWD CAD maps.	23,900 ft.	23,900 ft.	AO			
<b>UPRR West Chowchilla Design Option and Hybrid Avenue 24 (ChowDO_HYBRID24)</b>								
209S-DtCk-B	Intermittent		23,900 ft.	23,900 ft.	A			
762S-DtCk-A	Intermittent		8,000 ft.	8,000 ft.	A			
764C-A			8,000 ft.	8,000 ft.	A			
507C-B								

Crossing ID	Hydrologic Type	Name and Field Notes	Width of 200-year Floodplain (DWR)	Width of 100-year Floodplain (DWR)	FEMA Flood Zone	Floodway Width (CVFPB)	Floodway Width (FEMA)	Flood Control Project
768C-A								
778C-A								
776C-A								
509C-Lat2-B								
511C-Lat3-B								
784C-Lat4-A								
782C-Lat4-A								
780S-ChRi-A	Intermittent		560 ft.	560 ft.	A	250 ft.		
786C-A								
788C-A								
519C-CRBP								
521C-AMCa-B								
523S-AsSI	Perennial		770 ft.	400 ft.	A			Nonproject Levees
792S-AsSI-A	Perennial		650 ft.	460 ft.	A			Nonproject Levees
994C-BtCa-A								
846C-JuCa-A								
842C-A								
844C-JuCa-A								
848C-AMCa-A								
850S-AsSI-A	Perennial		990 ft.	700 ft.	A			Nonproject Levees
525C								
605C-BtCa-B								
607C-EmLt-B								
<b>UPRR East Chowchilla Design Option Avenue 24 Wye, West Chowchilla Design Option, and Hybrid Avenue 24 (UPRRave24_ChowDO_HYBRID24)</b>								
774C-A								
772C-A								
770C-A								
514C-Lat4								
516S-ChRi	Intermittent		780 ft.	760 ft.	A	590 ft.		
<b>UPRR West Chowchilla Design Option, BNSF Avenue 24 and Hybrid Avenue 24 (ChowDO_BNSFAve24_HYBRID24)</b>								
796C-BeCa-A								

Crossing ID	Hydrologic Type	Name and Field Notes	Width of 200-year Floodplain (DWR)	Width of 100-year Floodplain (DWR)	FEMA Flood Zone	Floodway Width (CVFPB)	Floodway Width (FEMA)	Flood Control Project
603C-BeCa								
609S-BeSl	Intermittent		610 ft.	300 ft.	A	320 ft.		Nonproject Levees
802S-BeSl-A	Intermittent		440 ft.	280 ft.	A	370 ft.		
<b>BNSF Avenue 24 Wye and Hybrid (BNSFAve24_HYBRID)</b>								
610D								
612C-CaLA								
614P		Confirmed as pipeline on CWD CAD map						
464C-CaCa								
257C-322-B								
294S-BeCk	Intermittent		200 ft.	200 ft.	A			
<b>BNSF Avenue 24 Wye South, and Hybrid (BNSFwyeS_HYBRID)</b>								
301S-DrCk	Intermittent		1,500 ft.	1,100 ft.	AO			
306C-242		From Madera ID: "24.2"; Q = 140 From Madera ID: "24.2"; Q = 140						
<b>BNSF and Hybrid, south of Avenue 24 Wye (BNSF_HYBRID)</b>								
806C-242-A								
310S-ScCr	Intermittent		650 ft.	400 ft.	AE		110 ft.	
808S-ScCr-A	Intermittent		290 ft.		AE		100 ft.	
320S	Intermittent		390 ft.	300 ft.	AE		100 ft.	
330S-FrRi	Intermittent		460 ft.	460 ft.	A	380 ft.		
812S-FrRi-A	Intermittent		720 ft.	550 ft.	A	90 ft. crossed (540 ft. total)		
814C-MaCa-A								
340C-MaCa								
370S-CwCk	Intermittent		350 ft.	250 ft.	AE			
375C			3,000 ft.	370 ft.				
816C-A								
818P-A			5,300 ft.	5,300 ft.	AO			
820C-A			2,200 ft.	1,900 ft.				
278C-6214		From Madera ID: "6.2-14.0-W"; Q = 10 From Madera ID: "6.2-14.0-W"; Q = 10						
279C-6214		From Madera ID: "6.2-14.0-W"; Q =						

Crossing ID	Hydrologic Type	Name and Field Notes	Width of 200-year Floodplain (DWR)	Width of 100-year Floodplain (DWR)	FEMA Flood Zone	Floodway Width (CVFPB)	Floodway Width (FEMA)	Flood Control Project
		10From Madera ID: "6.2-14.0-W"; Q = 10						
380C								
826C-A								
381C-ML2S		Unnamed Canal (from 11/15/09 mapbook and biology field visit; Russell Huddleston email 5/5/10); MID Lateral 6.2-9.2S (Utility Database ID I43; from AECOM Utility CAD Map) (Q=30; from MID CAD map).Unnamed Canal (from 11/15/09 mapbook and biology field visit; Russell Huddleston email 5/5/10); MID Lateral 6.2-9.2S (Utility Database ID I43; from AECOM Utility CAD Map) (Q=30; from MID CAD map).						
395C-6292		MID Lateral 6.2-9.2-5.05; Utility Database ID I45; Q = 45 (From AECOM Utility and MID CAD maps)MID Lateral 6.2-9.2-5.05; Utility Database ID I45; Q = 45 (From AECOM Utility and MID CAD maps)						
400S-SJRi	Perennial		1,100 ft.	900 ft	AE	850 ft.	600 ft.	
<b>Hybrid Avenue 21 and UPRR (UPRR_NotChowDO_HybridAve21)</b>								
400S-SJRi	Intermittent	Utility Database ID I26; Name confirmed on AECOM and CWD CAD maps	23,900 ft.	23,900 ft.	A			
215D-SDtC		South Dutchman Creek (according to hwy sign); Not identified on AECOM and CWD CAD maps.						
220S-ChRi	Intermittent	Utility Database ID I27; Name confirmed on AECOM and CWD CAD maps. On AECOM prelim. profile as ST08.	570 ft.	550 ft.	A	430 ft.		
221C-Mntn		Unnamed Canal (from 11/15/09 mapbook and biology field visit; Russell Huddleston email 5/5/10); "Minturn" from CWD CAD maps; Utility Database ID I28.						Nonproject Levees
230S-AsSI	Perennial	Utility Database ID I29; Name confirmed on AECOM and CWD CAD maps. On AECOM prelim. profile ID ST07.	960 ft.	820 ft.	A	380 ft.		Nonproject Levees
240C-HtLt		Hartley Lateral (from 11/15/09 mapbook and biology field visit; Russell Huddleston email 5/5/10); or "Berenda Canal" (from AECOM and CWD CAD maps); Utility Database ID I31	510 ft.		A			

Crossing ID	Hydrologic Type	Name and Field Notes	Width of 200-year Floodplain (DWR)	Width of 100-year Floodplain (DWR)	FEMA Flood Zone	Floodway Width (CVFPB)	Floodway Width (FEMA)	Flood Control Project
250S-BeSI	Intermittent	Utility Database ID I31. On AECOM prelim. profile ID ST06.	510 ft.	400 ft.	A	340 ft.		
260C-CALA		California Lateral A (from 11/15/09 mapbook and biology field visit; Russell Huddleston email 5/5/10); AECOM and CWD CAD map confirm name; Utility Database ID ID32						
264C-CaCa		Califa Canal (AECOM and CWD CAD maps; Utility Database I33						
<b>Hybrid Avenue 21 (HybridAve21)</b>								
296S-BeCk	Intermittent		250 ft.	220 ft.	A			
<b>Avenue 21 Wye: Hybrid, UPRR and BNSF (UPRRave21_BNSFAve21_HybridAve21)</b>								
242C-AvLA								
244C-AvCa								
246C-R11C								
248C-BtCa-B			22,500 ft.					
249C-BeCa			22,500 ft.	14900	A			
880S-BeSI-A			3,800 ft.	3,800 ft.	A			Nonproject Levees
252S-BeSI	Intermittent		22,500 ft.	14900	A			Nonproject Levees
463C-CLtC			22,500 ft.	14900	A			
467C-CSLt-B								
462C-CfCa-B								
286C-3229-B		From Madera ID: "32.2 9.9-2.0" , Q = 15						
287C-3229		From Madera ID: "32.2-9.9"; Q = 60						
896C-3221-A								
<b>Avenue 21 Wye: Hybrid and UPRR (UPRRave21_HybridAve21)</b>								
882C-CLtC-A			3,000 ft.	3,000 ft.	A			
883C-CLtD								
884C-CaCa-A								
465C-CfCa								
280C-3229		From Madera ID: "32.2 9.9-2.0" , Q = 15						
888C-A								
283C-3229								

Crossing ID	Hydrologic Type	Name and Field Notes	Width of 200-year Floodplain (DWR)	Width of 100-year Floodplain (DWR)	FEMA Flood Zone	Floodway Width (CVFPB)	Floodway Width (FEMA)	Flood Control Project
892C-3229-A								
890C-3229-A								
281C-3229-B		From Madera ID CAD map: "32.2-9.9", Q= 100						
886C-CLtC-A								
461C-CLtB		Utility Database ID I32 = "Califa Lateral"						
261C-CALA		California Lateral A (from 11/15/09 mapbook and biology field visit; Russell Huddleston email 5/5/10); AECOM and CWD CAD map confirm name; Utility Database ID ID32						
<b>Avenue 21 Wye: Hybrid and BNSF (BNSFAve21_HybridAve21)</b>								
274C-3229-B		From Madera ID: "32.2-9.9-1.5"; Q = 15 From Madera ID: "32.2-9.9-1.5"; Q = 15						
276C-3229-B		From Madera ID: "32.2-9.9-1.0"; Q = 15 From Madera ID: "32.2-9.9-1.0"; Q = 15						
273C-3229		From Madera ID: "32.2-9.9-0.1"; Q = 15 From Madera ID: "32.2-9.9-0.1"; Q = 15						
275C-3221-B		From Madera ID: "32.2-10.2?"; Q = 85 From Madera ID: "32.2-10.2?"; Q = 85						
894C-A								
<b>Hybrid (HYBRID)</b>								
804C-A								
810S-A	Intermittent		850 ft.	790 ft.	A			
<b>UPRR, BNSF, and Hybrid: south of UPRR/BNSF track merge (UPRR_BNSF_HYBRID_S)</b>								
830C-ML2S-A								
410C-HrCa			110 ft.	100 ft.	AE			
420P-ViCa-B								
832C-WVCa-A								
421P-WVCa-B		West Branch Victoria Canal (no feature, from 11/15/09 mapbook and biology field visit; Russell Huddleston email 5/5/10)						
834P-WVC-A								

Crossing ID	Hydrologic Type	Name and Field Notes	Width of 200-year Floodplain (DWR)	Width of 100-year Floodplain (DWR)	FEMA Flood Zone	Floodway Width (CVFPB)	Floodway Width (FEMA)	Flood Control Project
422P								
451C-DCCa			130 ft.	100 ft.	AE			
<b>Avenue 24 Wye: UPRR East Chowchilla Design Option, UPRR West Chowchilla Design Option, BNSF and Hybrid Avenue 24 (UPRRave24_BNSFAve24_ChowDOAve24_HYBRIDAve24)</b>								
840C--JuCa-A								
600S-AsSI	Perennial		410 ft.	400 ft.	A			Nonproject Levees
602C-AMCa								
604C-BtCa-B								
<b>Avenue 24 Wye: UPRR East Chowchilla Design Option, UPRR West Chowchilla Design Option, and Hybrid Avenue 24 (UPRRave24_ChowDOAve24_HYBRIDAve24)</b>								
528C								
564C-AMCa	Intermittent	CWD CAD maps			A			
526S-AsSI	Perennial		730 ft.	730 ft.	A			Nonproject Levees
524C-B								
522S-AsSI	Perennial		580 ft.	560 ft.	A			Nonproject Levees
520C-AMCa-B	Intermittent	CWD CAD maps						
518C-CRBP								



APPENDIX B

# Fact Sheets for Selected Waterbody Crossings

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## Canal Creek / 010S-CaCk

### Crossing Description

- Natural Watercourse
- MAF: 28.7 cfs, Intermittent
- Drainage: 36.2 mi<sup>2</sup>
- Levee/Berm: Yes
- Description: One inlet, three outlets. All have large amounts of flow.
- Map Location: Figure 5-1a, grid B-2

### 15% Design

- At-Grade

### Hydraulics and Jurisdictions

- Design Frequency: 200 yr
- CVFPB Design Flow: Does not exist
- FEMA 100-yr Flow: Does not exist
- FEMA 500-yr Flow: --
- FEMA 100-yr Elev./Depth: Zone A
- Subjective Channel Width: 100 ft
- FEMA Floodplain: 7,300 ft wide
- FEMA Floodway: Not mapped
- CVFPB Designated Floodway: Not mapped
- Local Jurisdiction: Merced County, Merced Irrigation District
- Flood Control Project: Not applicable

### Modeling Information

- HEC-RAS Available: No
- Bridge As-Built: None
- Upstream Bridge Arrangement: none w/in 1,000 feet
- Downstream Bridge Arrangement: 100 ft (4 lane), 220 ft (RR)



Looking Upstream at UPRR/BNSF/Hybrid Crossing of Canal Creek (4/1/2010)



Looking Downstream at UPRR/BNSF/Hybrid Crossing of Canal Creek (4/1/2010)



Looking Downstream at UPRR/BNSF/Hybrid Crossing of Canal Creek (4/1/2010)

Note: Canal Creek is crossed by the access track to the Castle Commerce Center HMF

Alignment Alternative	Design Option		Design Option by Crossing ID
			010S-CaCk
UPRR	Ave 24		X
	Ave 21		X
	West Chowchilla Design Option- Ave 24		X
BNSF	Ave 24	Mission Ave.	X
		Mission Ave. East of Le Grand	X
		Mariposa Way	X
		Mariposa Way East of Le Grand	X
	Ave 21	Mission Ave.	X
		Mission Ave. East of Le Grand	X
		Mariposa Way	X
		Mariposa Way East of Le Grand	X
Hybrid	Ave 24		X
	Ave 21		X
Attribute Description			Individual Crossing Attributes
FEMA Flood Zone			A
15% Design Vertical Alignment ( <u>E</u> levated, <u>R</u> etained <u>F</u> ill, or <u>A</u> t- <u>G</u> rade)			AG



Aerial View of 010S-CaCk

## Black Rascal Creek / 020S-BRCK

### Crossing Description

- Natural Watercourse
- MAF: 16.4 cfs, Intermittent
- Drainage: 47.3 mi<sup>2</sup>
- Levee/Berm: Yes
- Description: Small flow. Evidence of higher water level. Levees on either side.
- Map Location: Figure 5-1a, grid C-4

### 15% Design

- Elevated

### Hydraulics and Jurisdictions

- Design Frequency: 100 yr
- USACE Design Flow: 3,900 cfs
- FEMA 100-yr Flow: 5,720 cfs
- FEMA 500-yr Flow: 14,700 cfs
- FEMA 100-yr Elev./Depth: Zone AE, BFE 165 ft NAVD88; Map #06047C0409G
- Subjective Channel Width: 95 ft
- FEMA Floodplain: 7,300 ft wide
- FEMA Floodway: Not mapped
- CVFPB Designated Floodway: Not mapped
- Local Jurisdiction: Merced County, Merced Irrigation District
- Flood Control Project: Merced County Stream Group



*Looking Upstream from Frontage Road (4/1/2010)*



*Looking Downstream at Frontage Road Crossing of Black Rascal Creek (4/1/2010)*

### Modeling Information

- HEC-RAS Available: No
- Bridge As-Built: None
- Upstream Bridge Arrangement: 20 ft (RR), 120 ft (Hwy), 200 ft (Hwy), 290 ft (2 lane)
- Downstream Bridge Arrangement: 60 ft (2 lane)

Note: Black Rascal Creek is crossed by the access track to the Castle Commerce Center HMF

Alignment Alternative	Design Option		Design Option by Crossing ID
			020S-BRCK
UPRR	Ave 24		X
	Ave 21		X
	West Chowchilla Design Option- Ave 24		X
BNSF	Ave 24	Mission Ave.	X
		Mission Ave. East of Le Grand	X
		Mariposa Way	X
		Mariposa Way East of Le Grand	X
	Ave 21	Mission Ave.	X
		Mission Ave. East of Le Grand	X
		Mariposa Way	X
		Mariposa Way East of Le Grand	X
Hybrid	Ave 24		X
	Ave 21		X
Attribute Description			Individual Crossing Attributes
FEMA Flood Zone			AE
15% Design Vertical Alignment ( <u>E</u> levated, <u>R</u> etained Fill, or <u>A</u> t-Grade)			EL



Aerial View of 020S-BRCK

## Bear Creek / 030S-BaCk

### Crossing Description

- Natural Watercourse
- MAF: 47.6 cfs, Intermittent
- Drainage: 195.8 mi<sup>2</sup>
- Levee/Berm: Yes
- Description: Medium flow. 3 ft above surrounding ground.
- Map Location: Figure 5-1a, grid D-4

### 15% Design

- Retained Fill

### Hydraulics and Jurisdictions

- Design Frequency: 200 yr
- USACE Design Flow: 7,000 cfs
- FEMA 100-yr Flow: 6,150 cfs
- FEMA 500-yr Flow: 11,000 cfs
- FEMA 100-yr Elev./Depth: Zone AE, BFE 167 ft NAVD88; Map #06047C0420G
- Subjective Channel Width: 210 ft
- FEMA Floodplain: 10,000 ft wide
- FEMA Floodway: Not mapped
- CVFPB Designated Floodway: Not mapped
- Local Jurisdiction: Merced County, Merced Irrigation District, City of Merced
- Flood Control Project: Merced County Stream Group



*Looking Upstream from Hwy 99 Crossing of Bear Creek (4/1/2010); Approx. 1200 feet downstream of 030S-BrCk*



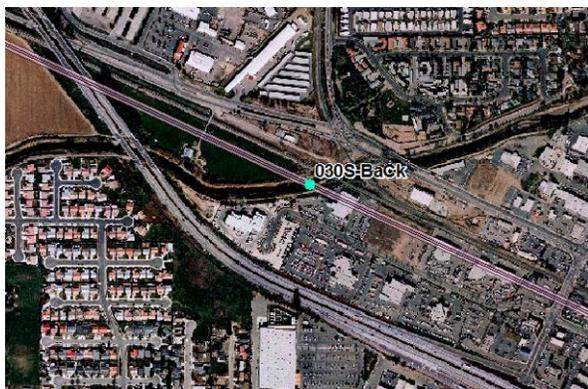
*Looking Left at UPRR Crossing of Bear Creek (4/1/2010)*

### Modeling Information

- HEC-RAS Available: No
- Bridge As-Built: None
- Upstream Bridge Arrangement: 200 ft (RR), 380 ft (RR), 600 ft (Hwy), 720 ft (Hwy)
- Downstream Bridge Arrangement: 1200 ft (Hwy), 1350 ft (Hwy)

Note: Bear Creek is crossed by the access track to the Castle Commerce Center HMF

Alignment Alternative	Design Option		Design Option by Crossing ID
			030S-BaCk
UPRR	Ave 24		X
	Ave 21		X
	West Chowchilla Design Option- Ave 24		X
BNSF	Ave 24	Mission Ave.	X
		Mission Ave. East of Le Grand	X
		Mariposa Way	X
		Mariposa Way East of Le Grand	X
	Ave 21	Mission Ave.	X
		Mission Ave. East of Le Grand	X
		Mariposa Way	X
		Mariposa Way East of Le Grand	X
Hybrid	Ave 24		X
	Ave 21		X
Attribute Description			Individual Crossing Attributes
FEMA Flood Zone			AE
15% Design Vertical Alignment (Elevated, Retained Eill, or At-Grade)			RF



Aerial View of 030S-BaCk

## Miles Creek Overflow No. 1 / 055S-MCOF

Nearby: 056S-MCOF

\*Information with an asterisk applies to the underlined crossing, and may differ for the nearby crossings.

### Crossing Description

- Natural Watercourse
- MAF:
- Drainage:
- Levee/Berm: None known
- Description:
- Map Location: Figure 5-1b, grid B-2



*Miles Creek Overflow No.1 at the UPRR crossing*

### 15% Design

- At-Grade\*

### Hydraulics and Jurisdictions

- Design Frequency:
- USACE Design Flow: N/A
- FEMA 100-yr Flow: Does Not Exist
- FEMA 500-yr Flow: Does Not Exist
- FEMA 100-yr Elev./Depth\*: Zone AO, 2 ft deep
- Subjective Channel Width\*:
- FEMA Floodplain: 22,400 ft wide
- FEMA Floodway: Not mapped
- CVFPB Designated Floodway\*: Not mapped
- Local Jurisdiction: Merced County, Merced Irrigation District
- Flood Control Project:



*Miles Creek Overflow No. 1*

### Modeling Information

- HEC-RAS Available: No
- Bridge As-Built: None
- Upstream Bridge Arrangement\*
- Downstream Bridge Arrangement\*:

Alignment Alternative	Design Option		Design Option by Crossing ID	
			055S-MCOF	056S-MCOF
UPRR	Ave 24		X	
	Ave 21		X	
	West Chowchilla Design Option- Ave 24		X	
BNSF	Ave 24	Mission Ave.		
		Mission Ave. East of Le Grand		
		Mariposa Way		X
		Mariposa Way East of Le Grand		X
	Ave 21	Mission Ave.		
		Mission Ave. East of Le Grand		
		Mariposa Way		X
		Mariposa Way East of Le Grand		X
Hybrid	Ave 24		X	
	Ave 21		X	
Attribute Description			Individual Crossing Attributes	
FEMA Flood Zone			AO	AO
15% Design Vertical Alignment (Elevated, Retained Fill, or At-Grade)			AG	EL



Aerial View of 055S-MCOF and 056S-MCOF

## Miles Creek / 060S-MiCk

Nearby: 061S-MiCk

\*Information with an asterisk applies to the underlined crossing, and may differ for the nearby crossings.

### Crossing Description

- Natural Watercourse
- MAF: 4.4 cfs, Intermittent
- Drainage: 38.6 mi<sup>2</sup>
- Levee/Berm: Upstream and downstream
- Description: Active flow 25 ft wide. Levees on both sides of creek.
- Map Location: Figure 5-1b, grid B-2

### 15% Design

- At-Grade\*

### Hydraulics and Jurisdictions

- Design Frequency: 200 yr
- USACE Design Flow: 1,000 cfs
- FEMA 100-yr Flow: 3,400 cfs
- FEMA 500-yr Flow: Does not exist
- FEMA 100-yr Elev./Depth\*: Zone AO, 2 ft deep
- Subjective Channel Width\*: 90 ft
- FEMA Floodplain: 22,400 ft wide
- FEMA Floodway: Not mapped
- CVFPB Designated Floodway\*: Not mapped
- Local Jurisdiction: Merced County, Merced Irrigation District
- Flood Control Project: Merced County Stream Group



*Looking Upstream from Frontage Road Crossing of Miles Creek (3/30/2010); Approx. 570 feet upstream of 060S-MiCk*



*Looking Upstream under Frontage Road Crossing of Miles Creek (3/30/2010)*

### Modeling Information

- HEC-RAS Available: No
- Bridge As-Built: None
- Upstream Bridge Arrangement\*: 150 ft (RR), 240 ft (Hwy), 330 ft (Hwy), 430 ft (Hwy), 570 ft (2 lane)
- Downstream Bridge Arrangement\*: 1600 ft (2 lane)

Alignment Alternative	Design Option		Design Option by Crossing ID	
			060S-MiCk	061S-MiCk
UPRR	Ave 24		X	
	Ave 21		X	
	West Chowchilla Design Option- Ave 24		X	
BNSF	Ave 24	Mission Ave.		
		Mission Ave. East of Le Grand		
		Mariposa Way		X
		Mariposa Way East of Le Grand		X
	Ave 21	Mission Ave.		
		Mission Ave. East of Le Grand		
		Mariposa Way		X
		Mariposa Way East of Le Grand		X
Hybrid	Ave 24		X	
	Ave 21		X	
Attribute Description			Individual Crossing Attributes	
FEMA Flood Zone			AO	AO
15% Design Vertical Alignment (Elevated, Retained Fill, or At-Grade)			AG	AG



Aerial View of 060S-MiCk and 061S-MiCk

## Owens Creek / 080S-OwCk

Nearby: 079S-OwCk, 714S-OwCk-A

\*Information with an asterisk applies to the underlined crossing, and may differ for the nearby crossings.

### Crossing Description

- Natural Watercourse
- MAF: 9.3 cfs, Intermittent
- Drainage: 41.2 mi<sup>2</sup>
- Levee/Berm: Yes
- Description: Narrow, damp channel. Desiccation cracks.
- Map Location: Figure 5-1b, grid B-3, C-3 and D-3

### 15% Design

- At-Grade\*

### Hydraulics and Jurisdictions

- Design Frequency: 100 yr
- CVFPB Design Flow: Does not exist
- FEMA 100-yr Flow: Does not exist
- FEMA 500-yr Flow: --
- FEMA 100-yr Elev./Depth\*: Zone AO
- Subjective Channel Width\*: 120 ft
- FEMA Floodplain: 22,400 ft wide
- FEMA Floodway: Not mapped
- CVFPB Designated Floodway\*: Not mapped
- Local Jurisdiction: Merced County, Merced Irrigation District
- Flood Control Project: Merced County Stream Group

### Modeling Information

- HEC-RAS Available: No
- Bridge As-Built\*: None
- Upstream Bridge Arrangement\*: 730 ft (RR), 840 ft (Hwy), 940 ft (Hwy), 1100 ft (Hwy), 1200 ft (2 lane)
- Downstream Bridge Arrangement\*: 2200 ft (2 lane)



*Looking Downstream at Frontage Road Crossing of Owens Creek (3/30/2010); Approx. 1200 feet upstream of 080S-OwCk*



*Looking Downstream at SR 99 Crossing of Owens Creek (3/30/2010); Approx. 1200 feet upstream of 080S-OwCk*

Alignment Alternative	Design Option		Design Option by Crossing ID		
			080S-OwCk	079S-OwCk	714S-OwCk-A
UPRR	Ave 24		X		
	Ave 21		X		
	West Chowchilla Design Option- Ave 24		X		
BNSF	Ave 24	Mission Ave.			X
		Mission Ave. East of Le Grand			X
		Mariposa Way		X	
		Mariposa Way East of Le Grand		X	
	Ave 21	Mission Ave.			X
		Mission Ave. East of Le Grand			X
		Mariposa Way		X	
		Mariposa Way East of Le Grand		X	
Hybrid	Ave 24		X		
	Ave 21		X		
<b>Attribute Description</b>					
FEMA Flood Zone			AO	AO	AO
15% Design Vertical Alignment (Elevated, Retained Fill, or At-Grade)			AG	AG	



Aerial View of 080S-OwC, 079S-OwCk, and 714S-OwCk-A

## Owens Creek / 140S-OwCk

Nearby: 724S-OwCk-A

\*Information with an asterisk applies to the underlined crossing, and may differ for the nearby crossings.

### Crossing Description

- Natural Watercourse
- MAF: 9.3 cfs, Intermittent
- Drainage: 41.2 mi<sup>2</sup>
- Levee/Berm: Yes
- Description: Creek full of trees and other vegetation. Irrigation canal parallel to the creek.
- Map Location: Figure 5-1c, grid A-2 and B-2



Looking Downstream at Frontage Road Crossing of Owens Creek (3/30/2010); Approx. 5 miles upstream of 140S-OwCk

### 15% Design

- At-Grade\*

### Hydraulics and Jurisdictions

- Design Frequency: 100 yr
- CVFPB Design Flow: Does not exist
- FEMA 100-yr Flow: Does not exist
- FEMA 500-yr Flow: --
- FEMA 100-yr Elev./Depth\*: Zone AO
- Subjective Channel Width\*:
- FEMA Floodplain\*: 36,000 ft wide
- FEMA Floodway: Not mapped
- CVFPB Designated Floodway\*: Not mapped
- Local Jurisdiction: Merced County, Merced Irrigation District
- Flood Control Project: Merced County Stream Group



Looking Downstream at SR 99 Crossing of Owens Creek (3/30/2010); Approx. 5 miles upstream of 140S-OwCk

### Modeling Information

- HEC-RAS Available: No
- Bridge As-Built\*: None
- Upstream Bridge Arrangement\*:
- Downstream Bridge Arrangement\*:

Alignment Alternative	Design Option		Design Option by Crossing ID	
			140S-OwCk	724S-OwCk-A
UPRR	Ave 24			
	Ave 21			
	West Chowchilla Design Option- Ave 24			
BNSF	Ave 24	Mission Ave.	X	
		Mission Ave. East of Le Grand	X	
		Mariposa Way		X
		Mariposa Way East of Le Grand		X
	Ave 21	Mission Ave.	X	
		Mission Ave. East of Le Grand	X	
		Mariposa Way		X
		Mariposa Way East of Le Grand		X
Hybrid	Ave 24			
	Ave 21			
Attribute Description				
FEMA Flood Zone			AO	AO
15% Design Vertical Alignment (Elevated, Retained Fill, or At-Grade)			AG	AG



Aerial View of 140S-OwCk and 724S-OwCk-A

## Duck Slough / 110S-DuSI

Nearby: 111S-DuSI, 112S-DuSI, 109S-DuSI, 722S-DuSI-A

\*Information with an asterisk applies to the underlined crossing, and may differ for the nearby crossings.

### Crossing Description

- Natural Watercourse
- MAF: 41.6 cfs, Perennial
- Drainage: 137.2 mi<sup>2</sup>
- Levee/Berm: 109S-DuSI and 722S-DuSI-A only
- Description: Full of water. Slack, no-flow conditions.
- Map Location: Figure 5-1b, grid C-3 and D-3

### 15% Design

- At-Grade\*

### Hydraulics and Jurisdictions

- Design Frequency: 200 yr
- USACE Design Flow: 1,250 cfs
- FEMA 100-yr Flow: Does not exist
- FEMA 500-yr Flow: Does not exist
- FEMA 100-yr Elev./Depth\*: Zone AO; 2 ft deep
- Subjective Channel Width\*: 570 ft
- FEMA Floodplain: 22,400 ft wide
- FEMA Floodway: Not mapped
- CVFPB Designated Floodway\*: Not mapped
- Local Jurisdiction: Merced County, Adin Community Service District
- Flood Control Project: Merced County Stream Group

### Modeling Information

- HEC-RAS Available: No
- Bridge As-Built\*: None
- Upstream Bridge Arrangement\*: 170 ft (RR), 260 ft (Hwy)
- Downstream Bridge Arrangement\*: none w/in 1,000 feet



*Looking Upstream from Hwy 99 Crossing of Duck Slough (3/30/2010): Approx. 340 feet upstream of 110S-DuSI*



*Looking Left at UPRR Crossing of Duck Slough (3/30/2010)*

Alignment Alternative	Design Option		Design Option by Crossing ID				
			110S-DuSI	111S-DuSI	112S-DuSI	109S-DuSI	722S-DuSI-A
UPRR	Ave 24		X	X	X		
	Ave 21		X	X	X		
	West Chowchilla Design Option- Ave 24		X	X	X		
BNSF	Ave 24	Mission Ave.					
		Mission Ave. East of Le Grand					
		Mariposa Way				X	X
		Mariposa Way East of Le Grand				X	X
	Ave 21	Mission Ave.					
		Mission Ave. East of Le Grand					
		Mariposa Way				X	X
		Mariposa Way East of Le Grand				X	X
Hybrid	Ave 24		X	X	X		
	Ave 21		X	X	X		
<b>Attribute Description</b>							
FEMA Flood Zone			AO	AO	AO	AO	AO
15% Design Vertical Alignment ( <u>E</u> levated, <u>R</u> etained Fill, or <u>A</u> t-Grade)			AG	AG	AG	AG	AG



Aerial View of Duck Slough

## Mariposa Creek / 130S-MaCk

Nearby: 540S-MaCk, 541S-MaCk, 542S-MaCk, 132S-MaCk, 732S-MaCk-A, 136S-MaCk, 733S-MaCk-A, 137S-MaCk, 138S-MaCk-B, 139S-MaCk

\*Information with an asterisk applies to the underlined crossing, and may differ for the nearby crossings.

### Crossing Description

- Natural Watercourse
- MAF: 40.3 cfs, Perennial
- Drainage: 124 mi<sup>2</sup>
- Levee/Berm: 540S-MaCk, 541S-MaCk, and 542S-MaCk only
- Description: Muddy water with no flow evident. Evidence of higher water.
- Map Location: Figure 5-1c, grid D-3 and E-4; Figure 5-1d, grid A-3



Looking Downstream at South Cunningham Road (4/1/2010)

### 15% Design

- At-Grade\*

### Hydraulics and Jurisdictions

- Design Frequency: 100 yr
- USACE Design Flow: 1,250 cfs
- FEMA 100-yr Flow: Does not exist
- FEMA 500-yr Flow: --
- FEMA 100-yr Elev./Depth\*: Zone AO, 1 ft deep
- Subjective Channel Width\*:
- FEMA Floodplain: 48,700 ft wide
- FEMA Floodway: Not mapped
- CVFPB Designated Floodway\*: Not mapped
- Local Jurisdiction: Merced County, Merced Irrigation District
- Flood Control Project: Merced County Stream Group



Looking Upstream (4/1/2010) at South Cunningham Road

### Modeling Information

- HEC-RAS Available: No
- Bridge As-Built\*: None
- Upstream Bridge Arrangement\*:
- Downstream Bridge Arrangement\*:



Aerial View of Mariposa Creek

Alignment Alternative	Design Option	Design Option by Crossing ID										
		130S-MaCk	540S-MaCk	541S-MaCk	542S-MaCk	132S-MaCk	732S-MaCk-A	136S-MaCk	733S-MaCk-A	137S-MaCk	138S-MaCk-B	139S-MaCk
UPRR	Ave 24											
	Ave 21											
	West Chowchilla Design Option- Ave 24											
BNSF	Ave 24	Mission Ave.		X	X			X	X			
		Mission Ave. East of Le Grand									X	X
		Mariposa Way	X				X					
		Mariposa Way East of Le Grand				X			X	X		
	Ave 21	Mission Ave.		X	X			X	X			
		Mission Ave. East of Le Grand									X	X
		Mariposa Way	X				X					
		Mariposa Way East of Le Grand				X			X	X		
Hybrid	Ave 24											
	Ave 21											
Attribute Description												
FEMA Flood Zone		AO	AO	AO	AO	AO	AO	A	A	A	A	-
15% Design Vertical Alignment (Elevated, Retained Fill, or At-Grade)		AG	AG	AG	EL	AG		AG	AG	AG	AG	AG



Looking Left at Fresno Road Crossing of Mariposa Creek (4/20/2010)

## Deadman Creek / 200S-DdCk

### Crossing Description

- Natural Watercourse
- MAF: 7.4 cfs, Intermittent
- Drainage: 64.8 mi<sup>2</sup>
- Levee/Berm: None known
- Description: Dry creek bed with trees growing in the middle.
- Map Location: Figure 5-1b, grid E-5; Figure 5-1e, grid A-1

### 15% Design

- At-Grade

### Hydraulics and Jurisdictions

- Design Frequency:
- CVFPB Design Flow: N/A
- FEMA 100-yr Flow: Does Not Exist
- FEMA 500-yr Flow: Does Not Exist
- FEMA 100-yr Elev./Depth: Zone AO, 1 ft deep
- Subjective Channel Width:
- FEMA Floodplain: 23,900 ft wide
- FEMA Floodway: Not mapped
- CVFPB Designated Floodway: Not mapped
- Local Jurisdiction: Merced County, Le Grand-Athlone Water District
- Flood Control Project: None

### Modeling Information

- HEC-RAS Available: No
- Bridge As-Built: None
- Upstream Bridge Arrangement:
- Downstream Bridge Arrangement:



*Looking Upstream from Hwy 99 Crossing of Deadman Creek (3/31/2010)*



*Deadman Creek, near Hwy 99 (3/31/2010)*

Alignment Alternative	Design Option		Design Option by Crossing ID
			200S
UPRR	Ave 24		X
	Ave 21		X
	West Chowchilla Design Option- Ave 24		X
BNSF	Ave 24	Mission Ave.	
		Mission Ave. East of Le Grand	
		Mariposa Way	
		Mariposa Way East of Le Grand	
	Ave 21	Mission Ave.	
		Mission Ave. East of Le Grand	
		Mariposa Way	
		Mariposa Way East of Le Grand	
Hybrid	Ave 24		X
	Ave 21		X
Attribute Description			Individual Crossing Attributes
FEMA Flood Zone			AO
15% Design Vertical Alignment ( <u>E</u> levated, <u>R</u> etained Fill, or <u>A</u> t-Grade)			AG



Aerial View of Deadman Creek

## Deadman Creek / 201S-DdCk

Nearby: 738S-DdCk-A, 202S-DdCk, 207S-DdCk, 205S-DdCk

- \*Information with an asterisk applies to the underlined crossing, and may differ for the nearby crossings.

### Crossing Description

- Natural Watercourse
- MAF: 7.4 cfs, Intermittent
- Drainage: 64.8 mi<sup>2</sup>
- Levee/Berm: None Known
- Description: Lots of vegetation on sides of channel with muddy bottom.
- Map Location: Figure 5-1d, grid B-4

### 15% Design

- At-Grade

### Hydraulics and Jurisdictions

- Design Frequency:
- CVFPB Design Flow: N/A
- FEMA 100-yr Flow: Does Not Exist
- FEMA 500-yr Flow: Does Not Exist
- FEMA 100-yr Elev./Depth: Zone A
- Subjective Channel Width:
- FEMA Floodplain: 4,000 ft wide
- FEMA Floodway: Not mapped
- CVFPB Designated Floodway: Not mapped
- Local Jurisdiction: Merced County, Le Grand-Athlone Water District
- Flood Control Project: None

### Modeling Information

- HEC-RAS Available: No
- Bridge As-Built: None
- Upstream Bridge Arrangement:
- Downstream Bridge Arrangement:



*BNSF Crossing of Deadman Creek (4/20/2010)*



*Deadman Creek Looking Upstream (4/20/2010)*

Alignment Alternative	Design Option	Design Option by Crossing ID				
		201S-DdCk	738S-DdCk-A	202S-DdCk	207S-DdCk	205S-DdCk
UPRR	Ave 24					
	Ave 21					
	West Chowchilla Design Option- Ave 24					
BNSF	Ave 24	Mission Ave.	X	X		
		Mission Ave. East of Le Grand			X	
		Mariposa Way		X	X	
		Mariposa Way East of Le Grand				
	Ave 21	Mission Ave.	X	X		
		Mission Ave. East of Le Grand				X
		Mariposa Way		X	X	
		Mariposa Way East of Le Grand				
Hybrid	Ave 24					
	Ave 21					
Attribute Description		Individual Crossing Attributes				
FEMA Flood Zone		A	A	A	A	
15% Design Vertical Alignment (Elevated, Retained Fill, or At-Grade)		AG	AG	EL	EL	AG



Aerial View of Deadman Creek

## Dutchman Creek / 210S-DtCk

Nearby: 762S-DtCk-B , 209S-DtCk-B, 766S-DtCk-A , 211S-DtCk

- \*Information with an asterisk applies to the underlined crossing, and may differ for the nearby crossings.

### Crossing Description

- Natural Watercourse
- MAF: 6.5 cfs, Intermittent
- Drainage: 62.9 mi<sup>2</sup>
- Levee/Berm: None known
- Description: Creek bed mostly dry with some standing water. Used by vehicles.
- Map Location: Figure 5-1e, grid A-2, B-2

### 15% Design

- Elevated\*

### Hydraulics and Jurisdictions

- Design Frequency:
- CVFPB Design Flow: N/A
- FEMA 100-yr Flow: Does Not Exist
- FEMA 500-yr Flow: Does Not Exist
- FEMA 100-yr Elev./Depth\*: Zone A
- Subjective Channel Width\*:
- FEMA Floodplain: 23,900 ft wide
- FEMA Floodway: Not mapped
- CVFPB Designated Floodway: Not mapped
- Local Jurisdiction: Merced County, Le Grand-Athlone Water District
- Flood Control Project: None

### Modeling Information

- HEC-RAS Available: No
- Bridge As-Built: None
- Upstream Bridge Arrangement:
- Downstream Bridge Arrangement:



*Downstream under UPRR Crossing of Dutchman Creek  
(3/31/2010)*



*Near UPRR Crossing of Dutchman Creek  
(3/31/2010)*

Alignment Alternative	Design Option		Design Option by Crossing ID				
			210S-DtCk	762S-DtCk-B	209S-DtCk-B	766S-DtCk-A	211S-DtCk
UPRR	Ave 24		X			X	X
	Ave 21		X				
	West Chowchilla Design Option- Ave 24			X	X		
BNSF	Ave 24	Mission Ave.					
		Mission Ave. East of Le Grand					
		Mariposa Way					
		Mariposa Way East of Le Grand					
	Ave 21	Mission Ave.					
		Mission Ave. East of Le Grand					
		Mariposa Way					
		Mariposa Way East of Le Grand					
Hybrid	Ave 24			X	X		
	Ave 21		X				
Attribute Description			Individual Crossing Attributes				
FEMA Flood Zone			A	A	A	A	A
15% Design Vertical Alignment ( <u>E</u> levated, <u>R</u> etained Fill, or <u>A</u> t- <u>G</u> rade)			EL	AG	AG	AG	AG



Aerial View of Dutchman Creek

## Dutchman Creek / 222S-DtCk

Nearby: 740S-DtCk-A, 206S-DtCk, 560S-DtCk, 223S-DtCk

- \*Information with an asterisk applies to the underlined crossing, and may differ for the nearby crossings.

### Crossing Description

- Natural Watercourse
- MAF: 6.5 cfs, Intermittent
- Drainage: 62.9 mi<sup>2</sup>
- Levee/Berm: None known
- Description: Deep channel about 30 ft wide with vegetation and sandy bottom.
- Map Location: Figure 5-1d, grid B-4

### 15% Design

- Elevated\*

### Hydraulics and Jurisdictions

- Design Frequency:
- CVFPB Design Flow: N/A
- FEMA 100-yr Flow: Does Not Exist
- FEMA 500-yr Flow: Does Not Exist
- FEMA 100-yr Elev./Depth\*: Zone A
- Subjective Channel Width\*:
- FEMA Floodplain: 23,900 ft wide
- FEMA Floodway: Not mapped
- CVFPB Designated Floodway: Not mapped
- Local Jurisdiction: Merced County, Le Grand-Athlone Water District
- Flood Control Project: None

### Modeling Information

- HEC-RAS Available: No
- Bridge As-Built: None
- Upstream Bridge Arrangement:
- Downstream Bridge Arrangement:

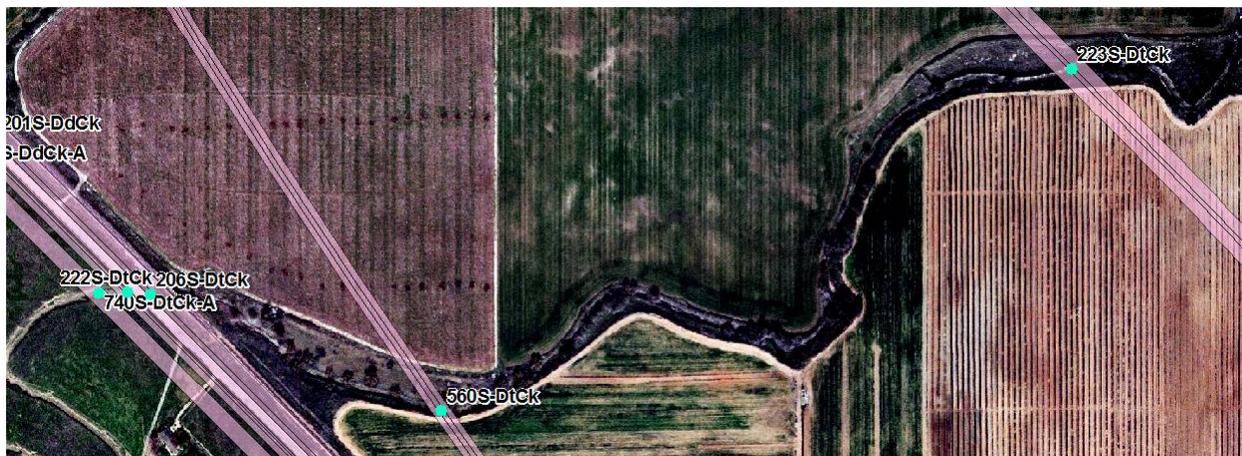


*Looking Downstream at BNSF Crossing of Dutchman Creek (4/1/2010)*



*Dutchman Creek, near BNSF Crossing (4/1/2010)*

Alignment Alternative	Design Option		Design Option by Crossing ID				
			222S-DtCk	740S-DtCk-A	206S-DtCk	560S-DtCk	223S-DtCk
UPRR	Ave 24						
	Ave 21						
	West Chowchilla Design Option- Ave 24						
BNSF	Ave 24	Mission Ave.		X	X		
		Mission Ave. East of Le Grand				X	
		Mariposa Way	X	X			
		Mariposa Way East of Le Grand					X
	Ave 21	Mission Ave.		X	X		
		Mission Ave. East of Le Grand				X	
		Mariposa Way	X	X			
		Mariposa Way East of Le Grand					X
Hybrid	Ave 24						
	Ave 21						
Attribute Description			Individual Crossing Attributes				
FEMA Flood Zone			A	A	A	A	
15% Design Vertical Alignment (Elevated, Retained Fill, or At-Grade)			EL	AG	AG	EL	AG



Aerial View of Dutchman Creek

## Chowchilla River/516S-ChRi Nearby: 780S-ChRi-A

\*Information with an asterisk applies to the underlined crossing, and may differ for the nearby crossings.

### Crossing Description

- Natural Watercourse
- MAF: 130 cfs, Intermittent
- Drainage: 294.9 mi<sup>2</sup>
- Levee/Berm: None known
- Description: Sandy, dry channel. Downstream floodplain widens.
- Map Location: Figure 5-1e, grid B-4; Figure 5-1g, grid D-1

### 15% Design

- At-Grade\*

### Hydraulics and Jurisdictions

- Design Frequency: 100 yr
- CVFPB Design Flow: 500 cfs (changes to 1,000 cfs approximately 1.5 miles upstream of 516S-ChRi)
- FEMA 100-yr Flow: Does not exist
- FEMA 500-yr Flow: --
- FEMA 100-yr Elev./Depth\*: Zone A
- Subjective Channel Width\*: 180 ft
- FEMA Floodplain: 770 ft wide
- FEMA Floodway: Not mapped
- CVFPB Designated Floodway\*: 590 ft wide
- Local Jurisdiction: Madera County, Chowchilla Water District
- Flood Control Project: Buchanan Dam and H.V Eastman Lake

### Modeling Information

- HEC-RAS Available: No
- Bridge As-Built\*: 1956 & 1992
- Upstream Bridge Arrangement\*: 800 ft (may be culvert), 1400 ft (farm road)
- Downstream Bridge Arrangement\*: 870 ft (culvert or farm road crossing)

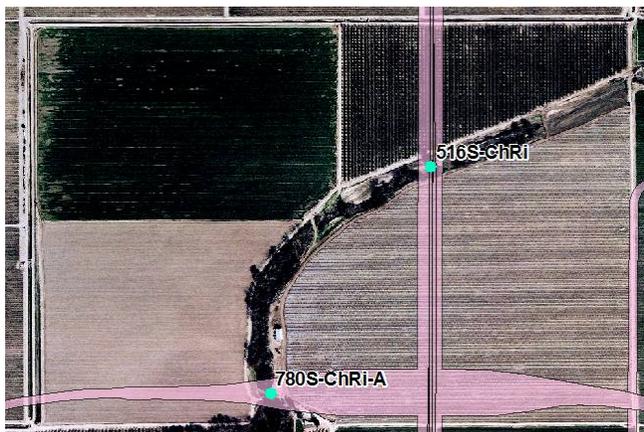


*Looking Downstream under UPRR Crossing of Chowchilla River (3/31/2010);  
 Approx. 2.3 miles upstream of 516S-ChRi*



*Highway 99 Crossing of Chowchilla River (3/31/2010);  
 Approx. 2.3 miles upstream of 516S-ChRi*

Alignment Alternative	Design Option		Design Option by Crossing ID	
			516S-ChRi	780S-ChRi-A
UPRR	Ave 24		X	
	Ave 21			
	West Chowchilla Design Option- Ave 24		X	X
BNSF	Ave 24	Mission Ave.		
		Mission Ave. East of Le Grand		
		Mariposa Way		
		Mariposa Way East of Le Grand		
	Ave 21	Mission Ave.		
		Mission Ave. East of Le Grand		
		Mariposa Way		
		Mariposa Way East of Le Grand		
Hybrid	Ave 24		X	X
	Ave 21			
Attribute Description			Individual Crossing Attributes	
FEMA Flood Zone			A	A
15% Design Vertical Alignment ( <u>E</u> levated, <u>R</u> etained Fill, or <u>A</u> t-Grade)			AG	RF



Aerial View of 516S-ChRi and 780S-ChRi-A

## Chowchilla River/220S-ChRi

### Crossing Description

- Natural Watercourse
- MAF: 130 cfs, Intermittent
- Drainage: 294.9 mi<sup>2</sup>
- Levee/Berm: None known
- Description: Sandy, dry channel. Downstream floodplain widens.
- Map Location: Figure 5-1e, grid C-3

### 15% Design

- Elevated

### Hydraulics and Jurisdictions

- Design Frequency: 100 yr
- CVFPB Design Flow: 1,000 cfs (changes to 500 cfs approximately 1 mile downstream of crossing)
- FEMA 100-yr Flow: Does not exist
- FEMA 500-yr Flow: --
- FEMA 100-yr Elev./Depth: Zone A
- Subjective Channel Width:
- FEMA Floodplain: 550 ft wide
- FEMA Floodway: Not mapped
- CVFPB Designated Floodway: 430 ft wide
- Local Jurisdiction: Madera County, Chowchilla Water District
- Flood Control Project: Buchanan Dam and H.V Eastman Lake

### Modeling Information

- HEC-RAS Available: No
- Bridge As-Built: 1956 & 1992
- Upstream Bridge Arrangement:
- Downstream Bridge Arrangement:



*Looking Downstream under UPRR Crossing of Chowchilla River (3/31/2010);  
Approx. 150 feet upstream of 220S-ChRi*



*Highway 99 Crossing of Chowchilla River (3/31/2010);  
Approx. 250 feet upstream of 220S-ChRi*

Alignment Alternative	Design Option		Design Option by Crossing ID
			220S-ChRi
UPRR	Ave 24		X
	Ave 21		X
	West Chowchilla Design Option- Ave 24		
BNSF	Ave 24	Mission Ave.	
		Mission Ave. East of Le Grand	
		Mariposa Way	
		Mariposa Way East of Le Grand	
	Ave 21	Mission Ave.	
		Mission Ave. East of Le Grand	
		Mariposa Way	
		Mariposa Way East of Le Grand	
Hybrid	Ave 24		
	Ave 21		X
Attribute Description			Individual Crossing Attributes
FEMA Flood Zone			A
15% Design Vertical Alignment ( <u>E</u> levated, <u>R</u> etained Fill, or <u>A</u> t- <u>G</u> rade)			EL



Aerial View of 220S-ChRi

## Chowchilla River/226S-ChRi

### Crossing Description

- Natural Watercourse
- MAF: 128 cfs, Intermittent
- Drainage: 276.5 mi<sup>2</sup>
- Levee/Berm: None known
- Description: Large floodplain with natural occurring banks. Dry sandy river bottom.
- Map Location: Figure 5-1f, grid D-2

### 15% Design

- At-Grade

### Hydraulics and Jurisdictions

- Design Frequency: 100 yr
- CVFPB Design Flow: 1,000 cfs
- FEMA 100-yr Flow: Does not exist
- FEMA 500-yr Flow: --
- FEMA 100-yr Elev./Depth: Zone A
- Subjective Channel Width:
- FEMA Floodplain: 880 ft wide
- FEMA Floodway: Not mapped
- CVFPB Designated Floodway: 620 ft wide
- Local Jurisdiction: Madera County, MCFCWCA
- Flood Control Project: Buchanan Dam and H.V Eastman Lake

### Modeling Information

- HEC-RAS Available: No
- Bridge As-Built: 1956 & 1992
- Upstream Bridge Arrangement:
- Downstream Bridge Arrangement:



Looking at BNSF Crossing



BNSF Crossing of Chowchilla River (4/1/2010)

Alignment Alternative	Design Option		Design Option by Crossing ID
			226S-ChRi
UPRR	Ave 24		
	Ave 21		
	West Chowchilla Design Option- Ave 24		
BNSF	Ave 24	Mission Ave.	X
		Mission Ave. East of Le Grand	X
		Mariposa Way	X
		Mariposa Way East of Le Grand	X
	Ave 21	Mission Ave.	X
		Mission Ave. East of Le Grand	X
		Mariposa Way	X
		Mariposa Way East of Le Grand	X
Hybrid	Ave 24		
	Ave 21		
Attribute Description			Individual Crossing Attributes
FEMA Flood Zone			A
15% Design Vertical Alignment (Elevated, Retained Eill, or At-Grade)			AG



Aerial View of 226S-ChRi

## Ash Slough / 523S-AsSI

Nearby: 600S-AsSI, 526S-AsSL, 850S-AsSI-A, 522S-AsSI, 792S-AsSI-A

\*Information with an asterisk applies to the underlined crossing, and may differ for the nearby crossings.

### Crossing Description

- Natural Watercourse
- MAF: 0.5 cfs, Perennial
- Drainage: 5.6 mi<sup>2</sup>
- Levee/Berm: Yes
- Description: Sandy, wide channel with lots of vegetation. High water marks on piers.
- Map Location: Figure 5-1e, grid B-5; Figure 5-1g, grid D-1, D-2 and C-2

### 15% Design

- At-Grade\*

### Hydraulics and Jurisdictions

- Design Frequency: 100 yr
- CVFPB Design Flow: Does not exist (6,000 cfs upstream)
- FEMA 100-yr Flow: Does not exist
- FEMA 500-yr Flow: --
- FEMA 100-yr Elev./Depth\*: Zone A
- Subjective Channel Width\*: 390 ft
- FEMA Floodplain: 410 ft wide
- FEMA Floodway: Not mapped
- CVFPB Designated Floodway\*: Not mapped this far downstream
- Local Jurisdiction: Madera County, MCFCWCA, Chowchilla WD
- Flood Control Project: Buchanan Dam and H.V Eastman Lake

### Modeling Information

- HEC-RAS Available: No
- Bridge As-Built\*: 1956
- Upstream Bridge Arrangement\*: 420 ft (2 lane)
- Downstream Bridge Arrangement\*: none w/in 1,000 feet



*Looking Upstream under Hwy 99 Crossing of Ash Slough (3/31/2010)  
Approx. 3.8 miles upstream of 523S-AsSI*

Alignment Alternative	Design Option		Design Option by Crossing ID					
			523S-AsSI	600S-AsSI	526S-AsSI	850S-AsSI	522S-AsSI	792S-AsSI-A
UPRR	Ave 24			X	X		X	X
	Ave 21							
	West Chowchilla Design Option- Ave 24		X	X	X	X	X	X
BNSF	Ave 24	Mission Ave.		X				
		Mission Ave. East of Le Grand		X				
		Mariposa Way		X				
		Mariposa Way East of Le Grand		X				
	Ave 21	Mission Ave.						
		Mission Ave. East of Le Grand						
		Mariposa Way						
		Mariposa Way East of Le Grand						
Hybrid	Ave 24		X	X	X	X	X	X
	Ave 21							
Attribute Description			Individual Crossing Attributes					
FEMA Flood Zone			A	A	A	A	A	A
15% Design Vertical Alignment (Elevated, Retained Fill, or At-Grade)			AG	AG	AG	RF	AG	



Aerial View of Ash Slough

## Ash Slough / 230S-AsSI

### Crossing Description

- Natural Watercourse
- MAF: 0.5 cfs, Perennial
- Drainage: 5.6 mi<sup>2</sup>
- Levee/Berm: Yes
- Description: Sandy, wide channel with lots of vegetation. High water marks on piers.
- Map Location: Figure 5-1h, grid B-1; Figure 5-1e, grid E-4

### 15% Design

- Elevated

### Hydraulics and Jurisdictions

- Design Frequency: 100 yr
- CVFPB Design Flow: 5,000 – 6,000 cfs (two rates reported)
- FEMA 100-yr Flow: Does not exist
- FEMA 500-yr Flow: --
- FEMA 100-yr Elev./Depth: Zone A
- Subjective Channel Width: 375 ft
- FEMA Floodplain: 600 ft wide
- FEMA Floodway: Not mapped
- CVFPB Designated Floodway: 380 ft wide
- Local Jurisdiction: Madera County
- Flood Control Project: Buchanan Dam and H.V Eastman Lake

### Modeling Information

- HEC-RAS Available: No
- Bridge As-Built: 1956
- Upstream Bridge Arrangement: 180 ft (Hwy), 260 ft (Hwy)
- Downstream Bridge Arrangement: 1200 ft (2 lane), 1300 ft (RR)



*Looking Upstream under Hwy 99 Crossing (3/31/2010); Approx. 150 feet upstream of 230S-AsSI*

Alignment Alternative	Design Option		Design Option by Crossing ID
			230S-AsSI
UPRR	Ave 24		X
	Ave 21		X
	West Chowchilla Design Option- Ave 24		
BNSF	Ave 24	Mission Ave.	
		Mission Ave. East of Le Grand	
		Mariposa Way	
		Mariposa Way East of Le Grand	
	Ave 21	Mission Ave.	
		Mission Ave. East of Le Grand	
		Mariposa Way	
		Mariposa Way East of Le Grand	
Hybrid	Ave 24		
	Ave 21		X
Attribute Description			Individual Crossing Attributes
FEMA Flood Zone			A
15% Design Vertical Alignment (Elevated, Retained Fill, or At-Grade)			EL



Aerial view of 230S-AsSI

## Ash Slough / 231S-AsSI

### Crossing Description

- Natural Watercourse
- MAF: 0.5 cfs, Perennial
- Drainage: 5.6 mi<sup>2</sup>
- Levee/Berm: No
- Description: Wide, dry channel with some vegetation at bottom.
- Map Location: Figure 5-1f, grid D-3

### 15% Design

- At-Grade

### Hydraulics and Jurisdictions

- Design Frequency: 100 yr
- CVFPB Design Flow: 10,000
- FEMA 100-yr Flow: Does not exist
- FEMA 500-yr Flow: --
- FEMA 100-yr Elev./Depth: Zone A
- Subjective Channel Width:
- FEMA Floodplain: 500 ft wide
- FEMA Floodway: Not mapped
- CVFPB Designated Floodway: 470 ft wide
- Local Jurisdiction: Madera County, MCFCWCA
- Flood Control Project: Buchanan Dam and H.V Eastman Lake

### Modeling Information

- HEC-RAS Available: No
- Bridge As-Built: 1956
- Upstream Bridge Arrangement:
- Downstream Bridge Arrangement:



*Looking South at BNSF Crossing of Ash Slough (4/1/2010)*



*Looking Downstream at BNSF Crossing (4/1/2010)*



*Looking Upstream at Sante Fe Drive. (4/1/2010)*

Alignment Alternative	Design Option		Design Option by Crossing ID
			231S-AsSI
UPRR	Ave 24		
	Ave 21		
	West Chowchilla Design Option- Ave 24		
BNSF	Ave 24	Mission Ave.	X
		Mission Ave. East of Le Grand	X
		Mariposa Way	X
		Mariposa Way East of Le Grand	X
	Ave 21	Mission Ave.	X
		Mission Ave. East of Le Grand	X
		Mariposa Way	X
		Mariposa Way East of Le Grand	X
Hybrid	Ave 24		
	Ave 21		
Attribute Description			Individual Crossing Attributes
FEMA Flood Zone			A
15% Design Vertical Alignment (Elevated, Retained Fill, or At-Grade)			AG



Aerial View of Ash Slough

## Berenda Slough / 252S-BeSI

Nearby: 880S-BeSI-AI

\*Information with an asterisk applies to the underlined crossing, and may differ for the nearby crossings.

### Crossing Description

- Natural Watercourse
- MAF: 6.7 cfs, Intermittent
- Drainage: 25.6 mi<sup>2</sup>
- Levee/Berm: Yes
- Description:
- Map Location: Figure 5-1h, grid A-4 and A-5

### 15% Design

- At-Grade\*

### Hydraulics and Jurisdictions

- Design Frequency: 100 yr
- CVFPB Design Flow: 2,000 cfs
- FEMA 100-yr Flow: Does not exist
- FEMA 500-yr Flow: --
- FEMA 100-yr Elev./Depth\*: Zone A
- Subjective Channel Width\*:
- FEMA Floodplain: 14,900 ft wide
- FEMA Floodway: Not mapped
- CVFPB Designated Floodway\*: Not mapped
- Local Jurisdiction: Madera County, Chowchilla Water District
- Flood Control Project: Buchanan Dam and H.V Eastman Lake

### Modeling Information

- HEC-RAS Available: No
- Bridge As-Built\*: 1956
- Upstream Bridge Arrangement\*:
- Downstream Bridge Arrangement\*:



*Looking Left at Existing Ave 21 Crossing of Berenda Slough (4/20/2010)*



*Looking Downstream at Existing Ave 21 Crossing of Berenda Slough (4/20/2010)*

Alignment Alternative	Design Option		Design Option by Crossing ID	
			252S-BeSI	880S-BeSI-A
UPRR	Ave 24			
	Ave 21		X	X
	West Chowchilla Design Option- Ave 24			
BNSF	Ave 24	Mission Ave.		
		Mission Ave. East of Le Grand		
		Mariposa Way		
		Mariposa Way East of Le Grand		
	Ave 21	Mission Ave.	X	X
		Mission Ave. East of Le Grand	X	X
		Mariposa Way	X	X
		Mariposa Way East of Le Grand	X	X
Hybrid	Ave 24			
	Ave 21		X	X
Attribute Description			Individual Crossing Attributes	
FEMA Flood Zone			A	A
15% Design Vertical Alignment ( <u>E</u> levated, <u>R</u> etained Fill, or <u>A</u> t-Grade)			AG	



Aerial View of Ash Slough

## Berenda Slough / 250S-BeSI

Nearby: 856S-BeSI-A, 608S-BeSI, 854S-BeSI-A, 798S-BeSI-A, 609S-BeSI, 800S-BeSI-A, 802S-BeSI-A

\* Information with an asterisk applies to the underlined crossing, and may differ for the nearby crossings.

### Crossing Description

- Natural Watercourse
- MAF: 6.7 cfs, Perennial
- Drainage: 25.6 mi<sup>2</sup>
- Levee/Berm: Yes, except for 250S-BeSI and 802S-BeSI
- Description: Wide, dry channel with trees in floodplain.
- Map Location: Figure 5-1f, grid A-5; Figure 5-1h, grid B-2 and C-2

### 15% Design

- Elevated\*

### Hydraulics and Jurisdictions

- Design Frequency: 100 yr
- USACE Design Flow: 2,000 cfs
- FEMA 100-yr Flow: Does not exist
- FEMA 500-yr Flow: --
- FEMA 100-yr Elev./Depth\*: Zone A
- Subjective Channel Width\*: 300 ft
- FEMA Floodplain: 400 ft wide
- FEMA Floodway: Not mapped
- CVFPB Designated Floodway\*: 340 ft
- Local Jurisdiction: Madera County, MCFCWCA, Chowchilla WD
- Flood Control Project: Buchanan Dam and H.V Eastman Lake
- **Modeling Information**
- HEC-RAS Available: No
- Bridge As-Built\*: 1956
- Upstream Bridge Arrangement\*: none w/in 1,000 feet
- Downstream Bridge Arrangement\*: none w/in 1,000 feet



*Looking Left at Hwy 99 Crossing of Berenda Slough (3/31/2010)  
 Approx. 450 feet upstream of 250S-BeSI*



*Berenda Slough crossing under Hwy 99 (3/31/2010)  
 Approx. 450 feet upstream of 250S-BeSI*

Alignment Alternative	Design Option		Design Option by Crossing ID							
			250S-BeSI	856S-BeSI-A	608S-BeSI	854S-BeSI-A	798S-BeSI-A	609S-BeSI	800S-BeSI-A	802S-BeSI-A
UPRR	Ave 24		X	X	X	X				
	Ave 21		X							
	West Chowchilla Design Option- Ave 24						X	X	X	X
BNSF	Ave 24	Mission Ave.						X		X
		Mission Ave. East of Le Grand						X		X
		Mariposa Way						X		X
		Mariposa Way East of Le Grand						X		X
	Ave 21	Mission Ave.								
		Mission Ave. East of Le Grand								
		Mariposa Way								
		Mariposa Way East of Le Grand								
Hybrid	Ave 24							X		
	Ave 21		X							
<b>Attribute Description</b>										
FEMA Flood Zone			A	A	A	A	A	A	A	A
15% Design Vertical Alignment ( <u>E</u> levated, <u>R</u> etained <u>F</u> ill, or <u>A</u> t- <u>G</u> rade)			EL	AG	AG	AG	AG	AG	AG	AG



Aerial View of Berenda Slough

## Berenda Slough / 253S-BeSI

### Crossing Description

- Natural Watercourse
- MAF: 0.5 cfs, Perennial
- Drainage: 4.3 mi<sup>2</sup>
- Levee/Berm: No
- Description: Wide, sandy channel. No vegetation at bottom.
- Map Location: Figure 5-1f, grid D-3

### 15% Design

- At-Grade

### Hydraulics and Jurisdictions

- Design Frequency: 100 yr
- CVFPB Design Flow: 2,000
- FEMA 100-yr Flow: Does not exist
- FEMA 500-yr Flow: --
- FEMA 100-yr Elev./Depth: Zone A
- Subjective Channel Width:
- FEMA Floodplain: 500 ft wide
- FEMA Floodway: Not mapped
- CVFPB Designated Floodway: 420 ft wide
- Local Jurisdiction: Madera County, MCFCWCA
- Flood Control Project: Buchanan Dam and H.V Eastman Lake

### Modeling Information

- HEC-RAS Available: No
- Bridge As-Built: 1956
- Upstream Bridge Arrangement:
- Downstream Bridge Arrangement:



*Looking Upstream under BNSF Crossing of Berenda Slough (4/1/2010)*



*Looking Right at the BNSF Crossing of the Berenda Slough (4/1/2010)*

Alignment Alternative	Design Option		Design Option by Crossing ID
			231S-AsSI
UPRR	Ave 24		
	Ave 21		
	West Chowchilla Design Option- Ave 24		
BNSF	Ave 24	Mission Ave.	X
		Mission Ave. East of Le Grand	X
		Mariposa Way	X
		Mariposa Way East of Le Grand	X
	Ave 21	Mission Ave.	X
		Mission Ave. East of Le Grand	X
		Mariposa Way	X
		Mariposa Way East of Le Grand	X
Hybrid	Ave 24		
	Ave 21		
Attribute Description			Individual Crossing Attributes
FEMA Flood Zone			A
15% Design Vertical Alignment (Elevated, Retained Fill, or At-Grade)			AG



Aerial View of Ash Slough

## Berenda Creek / 290S-BeCk

Nearby: 291S-BeCk

\*Information with an asterisk applies to the underlined crossing, and may differ for the nearby crossings.

### Crossing Description

- Natural Watercourse
- MAF: 4.3 cfs, Intermittent
- Drainage: 37.7 mi<sup>2</sup>
- Levee/Berm: Yes
- Description:
- Map Location: Figure 5-1i, grid B-4

### 15% Design

- Elevated\*

### Hydraulics and Jurisdictions

- Design Frequency:
- CVFPB Design Flow: N/A
- FEMA 100-yr Flow: Does Not Exist
- FEMA 500-yr Flow: Does Not Exist
- FEMA 100-yr Elev./Depth\*: Zone A
- Subjective Channel Width\*:
- FEMA Floodplain: 200 ft wide
- FEMA Floodway: Not mapped
- CVFPB Designated Floodway\*: Not mapped
- Local Jurisdiction: Madera County
- Flood Control Project:

### Modeling Information

- HEC-RAS Available: No
- Bridge As-Built\*: None
- Upstream Bridge Arrangement\*:
- Downstream Bridge Arrangement\*:



*Berenda Creek crossing beneath Hwy 99 (4/1/2010)  
Approx. 250 feet downstream of 290S-Ck*



*Berenda Creek crossing beneath UPRR (4/1/2010)  
Approx. 140 feet downstream of 290S-BeCk.*

Alignment Alternative	Design Option		Design Option by Crossing ID	
			290S-BeCk	291S-BeCk
UPRR	Ave 24		X	
	Ave 21		X	X
	West Chowchilla Design Option- Ave 24		X	
BNSF	Ave 24	Mission Ave.		
		Mission Ave. East of Le Grand		
		Mariposa Way		
		Mariposa Way East of Le Grand		
	Ave 21	Mission Ave.		
		Mission Ave. East of Le Grand		
		Mariposa Way		
		Mariposa Way East of Le Grand		
Hybrid	Ave 24			
	Ave 21			
Attribute Description			Individual Crossing Attributes	
FEMA Flood Zone			A	A
15% Design Vertical Alignment (Elevated, Retained Fill, or At-Grade)			EL	EL



Aerial View of Berenda Creek

## Berenda Creek / 292S-BeCk

Nearby: 293S-BeCk, 294S-BeCk

\*Information with an asterisk applies to the underlined crossing, and may differ for the nearby crossings.

### Crossing Description

- Natural Watercourse
- MAF: 4.3 cfs, Intermittent
- Drainage: 37.7 mi<sup>2</sup>
- Levee/Berm: Yes
- Description:
- Map Location: Figure 5-1i, grid C-3 and D-3

### 15% Design

- At-Grade\*

### Hydraulics and Jurisdictions

- Design Frequency:
- CVFPB Design Flow: N/A
- FEMA 100-yr Flow: Does Not Exist
- FEMA 500-yr Flow: Does Not Exist
- FEMA 100-yr Elev./Depth\*: Zone A
- Subjective Channel Width\*:
- FEMA Floodplain: 190 ft wide
- FEMA Floodway: Not mapped
- CVFPB Designated Floodway\*: Not mapped
- Local Jurisdiction: Madera County
- Flood Control Project:

### Modeling Information

- HEC-RAS Available: No
- Bridge As-Built\*: None
- Upstream Bridge Arrangement\*:
- Downstream Bridge Arrangement\*:



*Berenda Creek crossing near BNSF (4/1/2010)*



*Berenda Creek crossing near BNSF (4/1/2010)*

Alignment Alternative	Design Option		Design Option by Crossing ID			
			292S-BeCk	293S-BeCk	296S-BeCk	294S-BeCk
UPRR	Ave 24					
	Ave 21					
	West Chowchilla Design Option- Ave 24					
BNSF	Ave 24	Mission Ave.	X			X
		Mission Ave. East of Le Grand	X			X
		Mariposa Way	X			X
		Mariposa Way East of Le Grand	X			X
	Ave 21	Mission Ave.	X	X		
		Mission Ave. East of Le Grand	X	X		
		Mariposa Way	X	X		
		Mariposa Way East of Le Grand	X	X		
Hybrid	Ave 24					X
	Ave 21				X	
Attribute Description			Individual Crossing Attributes			
FEMA Flood Zone			A	A	A	A
15% Design Vertical Alignment (Elevated, Retained Fill, or At-Grade)			AG	AG	AG	AG



Aerial View of Berenda Creek

## Dry Creek / 302S-DrCk

### Crossing Description

- Natural Watercourse
- MAF: 8 cfs, Intermittent
- Drainage: 51.1 mi<sup>2</sup>
- Levee/Berm: Yes
- Description: Levees on both sides. High water marks 2 feet (0.6 m) high.
- Map Location: Figure 5-1i, grid C-5

### 15% Design

- Elevated

### Hydraulics and Jurisdictions

- Design Frequency: 100 yr
- CVFPB Design Flow: None
- FEMA 100-yr Flow: 2,830 cfs
- FEMA 500-yr Flow: 3,950 cfs
- FEMA 100-yr Elev./Depth: Zone AH, 1 ft deep
- Subjective Channel Width:
- FEMA Floodplain: 1,100 ft wide
- FEMA Floodway: Not mapped
- CVFPB Designated Floodway: Not mapped
- Local Jurisdiction: Madera County, Madera Irrigation. Dist.
- Flood Control Project: None

### Modeling Information

- HEC-RAS Available: No
- Bridge As-Built: 1947
- Upstream Bridge Arrangement:
- Downstream Bridge Arrangement:



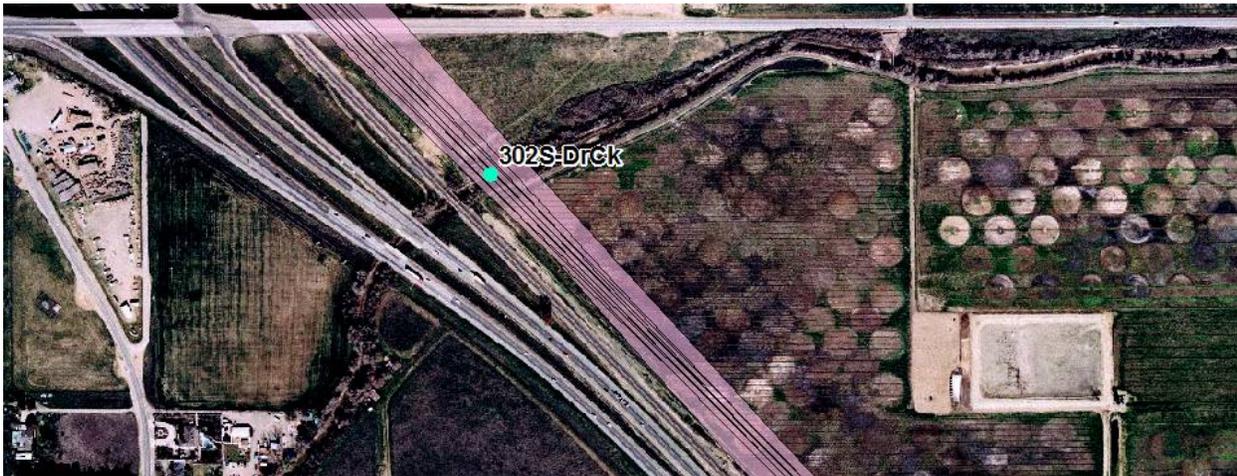
*Looking Upstream from Hwy 99 Crossing of Dry Creek (3/30/2010)*



*UPRR Crossing of Dry Creek (3/30/2010)  
Approx 160 feet downstream of 302S-DrCk*

Alignment Alternative	Design Option		Design Option by Crossing ID
			302S-DrCk
UPRR	Ave 24		X
	Ave 21		X
	West Chowchilla Design Option- Ave 24		X
BNSF	Ave 24	Mission Ave.	

		Mission Ave. East of Le Grand	
		Mariposa Way	
		Mariposa Way East of Le Grand	
	Ave 21	Mission Ave.	
		Mission Ave. East of Le Grand	
		Mariposa Way	
		Mariposa Way East of Le Grand	
	Hybrid	Ave 24	
Ave 21			
Attribute Description		Individual Crossing Attributes	
FEMA Flood Zone		AH	
15% Design Vertical Alignment ( <u>E</u> levated, <u>R</u> etained Fill, or <u>A</u> t- <u>G</u> rade)		EL	



Aerial View of Dry Creek

## Dry Creek / 300S-DrCk

Nearby: 301S-DrCk

\*Information with an asterisk applies to the underlined crossing, and may differ for the nearby crossings.

### Crossing Description

- Natural Watercourse
- MAF: 8 cfs, Intermittent
- Drainage: 51.1 mi<sup>2</sup>
- Levee/Berm: No
- Description: Lots of vegetation, steady flow.
- Map Location: Figure 5-1i, grid E-4; Figure 5-1j, grid B-1

### 15% Design

- At-Grade\*

### Hydraulics and Jurisdictions

- Design Frequency: 100 yr
- CVFPB Design Flow: None
- FEMA 100-yr Flow: 2,830 cfs
- FEMA 500-yr Flow: 3,950 cfs
- FEMA 100-yr Elev./Depth\*: Zone AO, 1 ft deep
- Subjective Channel Width\*: 90 ft
- FEMA Floodplain\*: 200 ft wide
- FEMA Floodway: Not mapped
- CVFPB Designated Floodway\*: Not mapped
- Local Jurisdiction: Madera County, Madera Irrigation. Dist.
- Flood Control Project: None

### Modeling Information

- HEC-RAS Available: No
- Bridge As-Built: 1947
- Upstream Bridge Arrangement\*: 180 ft (RR)
- Downstream Bridge Arrangement\*: none w/in 1,000 feet



*Looking Downstream towards Dry Creek (4/20/2010); approx. 2.8 mi. downstream of 300S-DrCk*



*Looking Upstream towards Dry Creek (4/20/2010); approx. 2.8 mi. downstream of 300S-DrCk*

Alignment Alternative	Design Option		Design Option by Crossing ID	
			300S-DrCk	301S-DrCk
UPRR	Ave 24			
	Ave 21			
	West Chowchilla Design Option- Ave 24			
BNSF	Ave 24	Mission Ave.	X	X
		Mission Ave. East of Le Grand	X	X
		Mariposa Way	X	X
		Mariposa Way East of Le Grand	X	X
	Ave 21	Mission Ave.	X	X
		Mission Ave. East of Le Grand	X	X
		Mariposa Way	X	X
		Mariposa Way East of Le Grand	X	X
Hybrid	Ave 24		X	
	Ave 21			X
Attribute Description			Individual Crossing Attributes	
FEMA Flood Zone			AO	AO
15% Design Vertical Alignment (Elevated, Retained Fill, or At-Grade)			AG	AG



Aerial View of Dry Creek

## Schmidt Creek / 311S-ScCk

### Crossing Description

- Natural Watercourse
- MAF: Intermittent
- Drainage:
- Levee/Berm: No
- Description: Large floodplains that drain into a small choke area.
- Map Location: Figure 5-1j, grid A-2

### 15% Design

- Elevated

### Hydraulics and Jurisdictions

- Design Frequency: 200 yr
- CVFPB Design Flow: None
- FEMA 100-yr Flow: 1,270 cfs
- FEMA 500-yr Flow: 1,760 cfs
- FEMA 100-yr Elev./Depth: Zone AO, 1 ft deep
- Subjective Channel Width:
- FEMA Floodplain: 15,400 ft wide
- FEMA Floodway: Not mapped
- CVFPB Designated Floodway: Not mapped
- Local Jurisdiction: Madera Acres, Madera County, Madera Irrigation. Dist.
- Flood Control Project: None

### Modeling Information

- HEC-RAS Available: No
- Bridge As-Built: 1973
- Upstream Bridge Arrangement:
- Downstream Bridge Arrangement:



*Looking Downstream at Hwy 99 Crossing of Schmidt Creek (4/1/2010)*



*Looking Upstream at Hwy 99 Crossing of Schmidt Creek (4/1/2010)*

Alignment Alternative	Design Option		Design Option by Crossing ID
			311S-ScCk
UPRR	Ave 24		X
	Ave 21		X
	West Chowchilla Design Option- Ave 24		X
BNSF	Ave 24	Mission Ave.	
		Mission Ave. East of Le Grand	
		Mariposa Way	
		Mariposa Way East of Le Grand	
	Ave 21	Mission Ave.	
		Mission Ave. East of Le Grand	
		Mariposa Way	
		Mariposa Way East of Le Grand	
Hybrid	Ave 24		
	Ave 21		
Attribute Description			Individual Crossing Attributes
FEMA Flood Zone			AO
15% Design Vertical Alignment (Elevated, Retained Fill, or At-Grade)			EL



Aerial View of Schmidt Creek

## Schmidt Creek / 310S-ScCr

Nearby: 808S-ScCr-A

\*Information with an asterisk applies to the underlined crossing, and may differ for the nearby crossings.

### Crossing Description

- Natural Watercourse
- MAF: Intermittent
- Drainage:
- Levee/Berm: No
- Description: Small creek running through residential area. Crosses under BNSF in a culvert.
- Map Location: Figure 5-1i, grid E-5; Figure 5-1j, grid C-1

### 15% Design

- At-Grade\*

### Hydraulics and Jurisdictions

- Design Frequency: 200 yr
- CVFPB Design Flow: None
- FEMA 100-yr Flow: 1,270 cfs
- FEMA 500-yr Flow: 1,760 cfs
- FEMA 100-yr Elev./Depth\*: Zone AE; BFE 262 ft NAVD88; Map# 06039C0915E
- Subjective Channel Width\*:
- FEMA Floodplain: 400 ft wide
- FEMA Floodway: Not mapped
- CVFPB Designated Floodway\*: Not mapped
- Local Jurisdiction: Madera Acres, Madera County, Madera Irrigation. Dist.
- Flood Control Project: None

### Modeling Information

- HEC-RAS Available: No
- Bridge As-Built: 1973
- Upstream Bridge Arrangement\*:
- Downstream Bridge Arrangement\*:

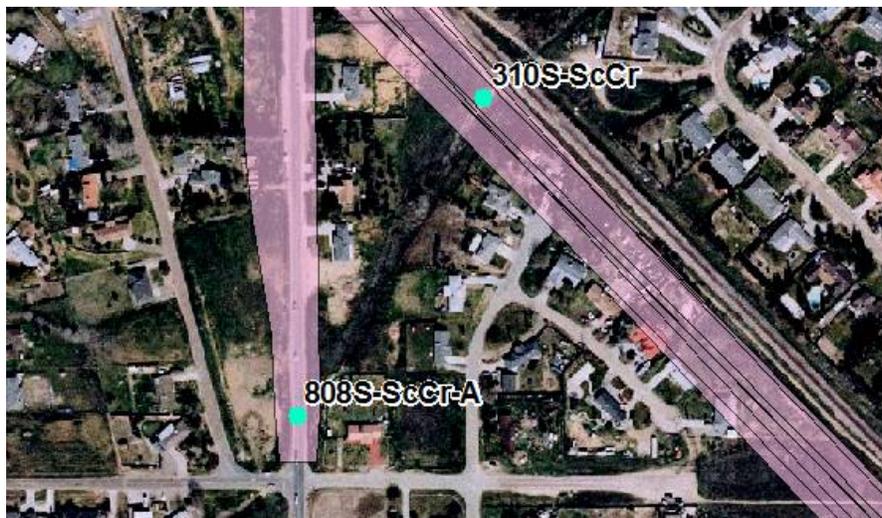


*Looking Downstream from the BNSF Crossing of Schmidt Creek (4/20/2010)  
Approx. 80 feet upstream from 310S-ScCr*



*Looking Downstream from Road 26 crossing of Schmidt Creek  
(4/20/2010). Approx location of 808S-ScCr-A*

Alignment Alternative	Design Option		Design Option by Crossing ID	
			310S-ScCr	808S-ScCr-A
UPRR	Ave 24			
	Ave 21			
	West Chowchilla Design Option- Ave 24			
BNSF	Ave 24	Mission Ave.	X	X
		Mission Ave. East of Le Grand	X	X
		Mariposa Way	X	X
		Mariposa Way East of Le Grand	X	X
	Ave 21	Mission Ave.	X	X
		Mission Ave. East of Le Grand	X	X
		Mariposa Way	X	X
		Mariposa Way East of Le Grand	X	X
Hybrid	Ave 24		X	X
	Ave 21		X	X
Attribute Description			Individual Crossing Attributes	
FEMA Flood Zone			AE	AE
15% Design Vertical Alignment (Elevated, Retained Fill, or At-Grade)			AG	



Aerial View of Schmidt Creek

## Fresno River / 331S-FrRi

### Crossing Description

- Natural Watercourse
- MAF: 190 cfs, Intermittent
- Drainage: 306.3 mi<sup>2</sup>
- Levee/Berm: No
- Description: Confined channel built up on either side with vegetation.
- Map Location: Figure 5-1j, grid C-4

### 15% Design

- Elevated

### Hydraulics and Jurisdictions

- Design Frequency: 200 yr
- CVFPB Design Flow: 5,000 cfs
- FEMA 100-yr Flow: 5,800 cfs
- FEMA 500-yr Flow: 12,500 cfs
- FEMA 100-yr Elev./Depth: Zone AE; BFE 267 ft NAVD88; Map# 06039C1155E
- Subjective Channel Width:
- FEMA Floodplain: 500 ft wide
- FEMA Floodway: 450 ft wide
- CVFPB Designated Floodway: 400 ft wide
- Local Jurisdiction: City of Madera, Madera County, Madera Irrigation. Dist.
- Flood Control Project: Hidden Dam and Hensley Lake

### Modeling Information

- HEC-RAS Available: Yes, 2006 Westberry Drive Bridge Hydraulic Study, Madera County
- Bridge As-Built: 1957
- Upstream Bridge Arrangement:
- Downstream Bridge Arrangement:



*Looking at UPRR Crossing of Fresno River (3/31/2010)*



*Looking Right at UPRR Crossing of Fresno River (3/30/2010)*

Alignment Alternative	Design Option		Design Option by Crossing ID
			331S-FrRi
UPRR	Ave 24		X
	Ave 21		X
	West Chowchilla Design Option- Ave 24		X
BNSF	Ave 24	Mission Ave.	
		Mission Ave. East of Le Grand	
		Mariposa Way	
		Mariposa Way East of Le Grand	
	Ave 21	Mission Ave.	
		Mission Ave. East of Le Grand	
		Mariposa Way	
		Mariposa Way East of Le Grand	
Hybrid	Ave 24		
	Ave 21		
Attribute Description			Individual Crossing Attributes
FEMA Flood Zone			AE
15% Design Vertical Alignment (Elevated, Retained Fill, or At-Grade)			EL



Aerial View of Fresno River

## Fresno River / 330S-FrRi

Nearby: 812S-FrRi-A

\*Information with an asterisk applies to the underlined crossing, and may differ for the nearby crossings.

### Crossing Description

- Natural Watercourse
- MAF: 190 cfs, Intermittent
- Drainage: 306.3 mi<sup>2</sup>
- Levee/Berm: No
- Description: Some flow in river. Crossing wider than 100 ft
- Map Location: Figure 5-1j, grid D-3

### 15% Design

- At-Grade\*

### Hydraulics and Jurisdictions

- Design Frequency: 200 yr
- CVFPB Design Flow: 8,000 cfs
- FEMA 100-yr Flow: 5,800 cfs
- FEMA 500-yr Flow: 29,000 cfs
- FEMA 100-yr Elev./Depth: Zone A
- Subjective Channel Width: 475 ft
- FEMA Floodplain: 460 ft wide
- FEMA Floodway: Not mapped
- CVFPB Designated Floodway: 380 ft wide
- Local Jurisdiction: Madera County, Madera Irrigation. Dist., MCFCWCA
- Flood Control Project: Hidden Dam and Hensley Lake

### Modeling Information

- HEC-RAS Available: Yes, 2006 Westberry Drive Bridge Hydraulic Study, Madera County
- Bridge As-Built: 1957
- Upstream Bridge Arrangement: 160 ft (RR), 1800 ft (1 lane)
- Downstream Bridge Arrangement: none w/in 1,000 feet



*Looking across the BNSF Crossing of the Fresno River (4/1/2010)  
Approx. 120 feet upstream of 330S-FrRi*



*Looking at Hwy 145 Crossing of the Fresno River (4/1/2010)*

Alignment Alternative	Design Option		Design Option by Crossing ID	
			330S-FrRi	812S-FrRi-A
UPRR	Ave 24			
	Ave 21			
	West Chowchilla Design Option- Ave 24			
BNSF	Ave 24	Mission Ave.	X	X
		Mission Ave. East of Le Grand	X	X
		Mariposa Way	X	X
		Mariposa Way East of Le Grand	X	X
	Ave 21	Mission Ave.	X	X
		Mission Ave. East of Le Grand	X	X
		Mariposa Way	X	X
		Mariposa Way East of Le Grand	X	X
Hybrid	Ave 24		X	X
	Ave 21		X	X
Attribute Description			Individual Crossing Attributes	
FEMA Flood Zone			A	A
15% Design Vertical Alignment (Elevated, Retained Fill, or At-Grade)			AG	



Aerial View of Fresno River

## Cottonwood Creek / 371S-CwCk

### Crossing Description

- Natural Watercourse
- MAF: 10.2 cfs, Intermittent
- Drainage: 89.6 mi<sup>2</sup>
- Levee/Berm: No
- Description: Wide channel, flow about 40 ft wide. Lots of vegetation.
- Map Location: Figure 5-1k, grid B-3

### 15% Design

- Elevated

### Hydraulics and Jurisdictions

- Design Frequency: 200 yr
- CVFPB Design Flow: None
- FEMA 100-yr Flow: 4,810 cfs
- FEMA 500-yr Flow: 6,670 cfs
- FEMA 100-yr Elev./Depth: Zone AE; BFE 271 ft NAVD88; Map# 06039C1170E
- Subjective Channel Width:
- FEMA Floodplain: 22,600 ft wide
- FEMA Floodway: Not mapped
- CVFPB Designated Floodway: Not mapped
- Local Jurisdiction: Madera County, Madera Irrigation. Dist.
- Flood Control Project: None

### Modeling Information

- HEC-RAS Available: Yes, 2010 Southeast Madera Development Project, City of Madera
- Bridge As-Built: 1967
- Upstream Bridge Arrangement:
- Downstream Bridge Arrangement:



*Looking at Frontage Road Crossing of Cottonwood Creek (4/1/2010)*



*Looking at Avenue 12 Crossing of Cottonwood Creek (4/1/2010)*

Alignment Alternative	Design Option		Design Option by Crossing ID
			371S-CwCk
UPRR	Ave 24		X
	Ave 21		X
	West Chowchilla Design Option- Ave 24		X
BNSF	Ave 24	Mission Ave.	
		Mission Ave. East of Le Grand	
		Mariposa Way	
		Mariposa Way East of Le Grand	
	Ave 21	Mission Ave.	
		Mission Ave. East of Le Grand	
		Mariposa Way	
		Mariposa Way East of Le Grand	
Hybrid	Ave 24		
	Ave 21		
Attribute Description			Individual Crossing Attributes
FEMA Flood Zone			AE
15% Design Vertical Alignment (Elevated, Retained Fill, or At-Grade)			EL



Aerial View of Cottonwood Creek

## Cottonwood Creek / 370S-CwCk

### Crossing Description

- Natural Watercourse
- MAF: 10.2 cfs, Intermittent
- Drainage: 89.6 mi<sup>2</sup>
- Levee/Berm: No
- Description: Wide floodplain, gets narrower upstream.
- Map Location: Figure 5-1k, grid C-2

### 15% Design

- At-Grade

### Hydraulics and Jurisdictions

- Design Frequency: 200 yr
- CVFPB Design Flow: None
- FEMA 100-yr Flow: 4,810 cfs
- FEMA 500-yr Flow: 6,670 cfs
- FEMA 100-yr Elev./Depth: Zone AE; BFE 283 ft NAVD88; Map# 06039C1180E
- Subjective Channel Width:
- FEMA Floodplain: 250 ft wide
- FEMA Floodway: Not mapped
- CVFPB Designated Floodway: Not mapped
- Local Jurisdiction: Madera County, Madera Irrigation. Dist.
- Flood Control Project: None

### Modeling Information

- HEC-RAS Available: Yes, 2010 Southeast Madera Development Project, City of Madera
- Bridge As-Built: 1967
- Upstream Bridge Arrangement:
- Downstream Bridge Arrangement:



*Looking Downstream from the Santa Fe Drive Crossing of Cottonwood Creek (4/20/2010)*



*Looking Right at UPRR Crossing of Fresno River (3/30/2010)*

Alignment Alternative	Design Option		Design Option by Crossing ID
			370S-CwCk
UPRR	Ave 24		
	Ave 21		
	West Chowchilla Design Option- Ave 24		
BNSF	Ave 24	Mission Ave.	X
		Mission Ave. East of Le Grand	X
		Mariposa Way	X
		Mariposa Way East of Le Grand	X
	Ave 21	Mission Ave.	X
		Mission Ave. East of Le Grand	X
		Mariposa Way	X
		Mariposa Way East of Le Grand	X
Hybrid	Ave 24		X
	Ave 21		X
Attribute Description			Individual Crossing Attributes
FEMA Flood Zone			AE
15% Design Vertical Alignment (Elevated, Retained Fill, or At-Grade)			AG



Aerial View of Cottonwood Creek

## San Joaquin River / 400S-SJRI

Nearby: 401S-SJRI

\*Information with an asterisk applies to the underlined crossing, and may differ for the nearby crossings.

### Crossing Description

- Natural Watercourse
- MAF: 2600 cfs, Perennial
- Drainage: 1785 mi<sup>2</sup>
- Levee/Berm: Downstream
- Description: Wide, multi-tier floodplain.
- Map Location: Figure 5-11, grid B-3

### 15% Design

- Elevated\*

### Hydraulics and Jurisdictions

- Design Frequency: 200 yr
- CVFPB Design Flow: 18,000 – 20,000 cfs
- FEMA 100-yr Flow: 74,300 cfs
- FEMA 500-yr Flow: 151,000 cfs
- FEMA 100-yr Elev./Depth: AE; BFE 247 ft NAVD88; Map# 06019C1535H
- Subjective Channel Width: 880 ft
- FEMA Floodplain: 900 ft wide
- FEMA Floodway: 620 ft
- CVFPB Designated Floodway: 850 ft wide
- Local Jurisdiction: City of Fresno, Madera and Fresno Counties, MCFCWCA
- Flood Control Project: Unavailable

### Modeling Information

- HEC-RAS Available: Yes, 1999 Fresno County FIS
- Bridge As-Built: 1958 & 2006
- Upstream Bridge Arrangement: none w/in 1,000 feet
- Downstream Bridge Arrangement: 490 ft (RR), 620 ft (Hwy)



*Looking Upstream at the BNSF Crossing of the San Joaquin River (3/30/2010); Approx. 490 feet downstream of 400S-SJRI*



*Looking at the Hwy 99 Crossing of the San Joaquin River (3/30/2010); Approx. 620 feet downstream of 400S-SJRI*

Alignment Alternative	Design Option		Design Option by Crossing ID	
			400S-SJRi	401S-SJRi
UPRR	Ave 24			X
	Ave 21			X
	West Chowchilla Design Option- Ave 24			X
BNSF	Ave 24	Mission Ave.	X	
		Mission Ave. East of Le Grand	X	
		Mariposa Way	X	
		Mariposa Way East of Le Grand	X	
	Ave 21	Mission Ave.	X	
		Mission Ave. East of Le Grand	X	
		Mariposa Way	X	
		Mariposa Way East of Le Grand	X	
Hybrid	Ave 24		X	
	Ave 21		X	
Attribute Description			Individual Crossing Attributes	
FEMA Flood Zone			AE	AE
15% Design Vertical Alignment (Elevated, Retained Fill, or At-Grade)			EL	EL



Aerial View of San Joaquin River