

1 **Attachment 1 to Appendix D**

2 Geologic Cross-Sections

3 March 24, 2015

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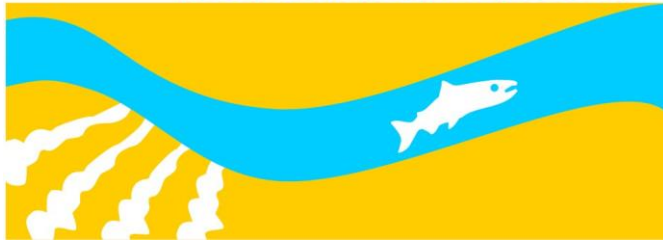
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Geologic Cross-Sections

Draft
March 24, 2015

Subject to Revision

SAN JOAQUIN RIVER
RESTORATION PROGRAM



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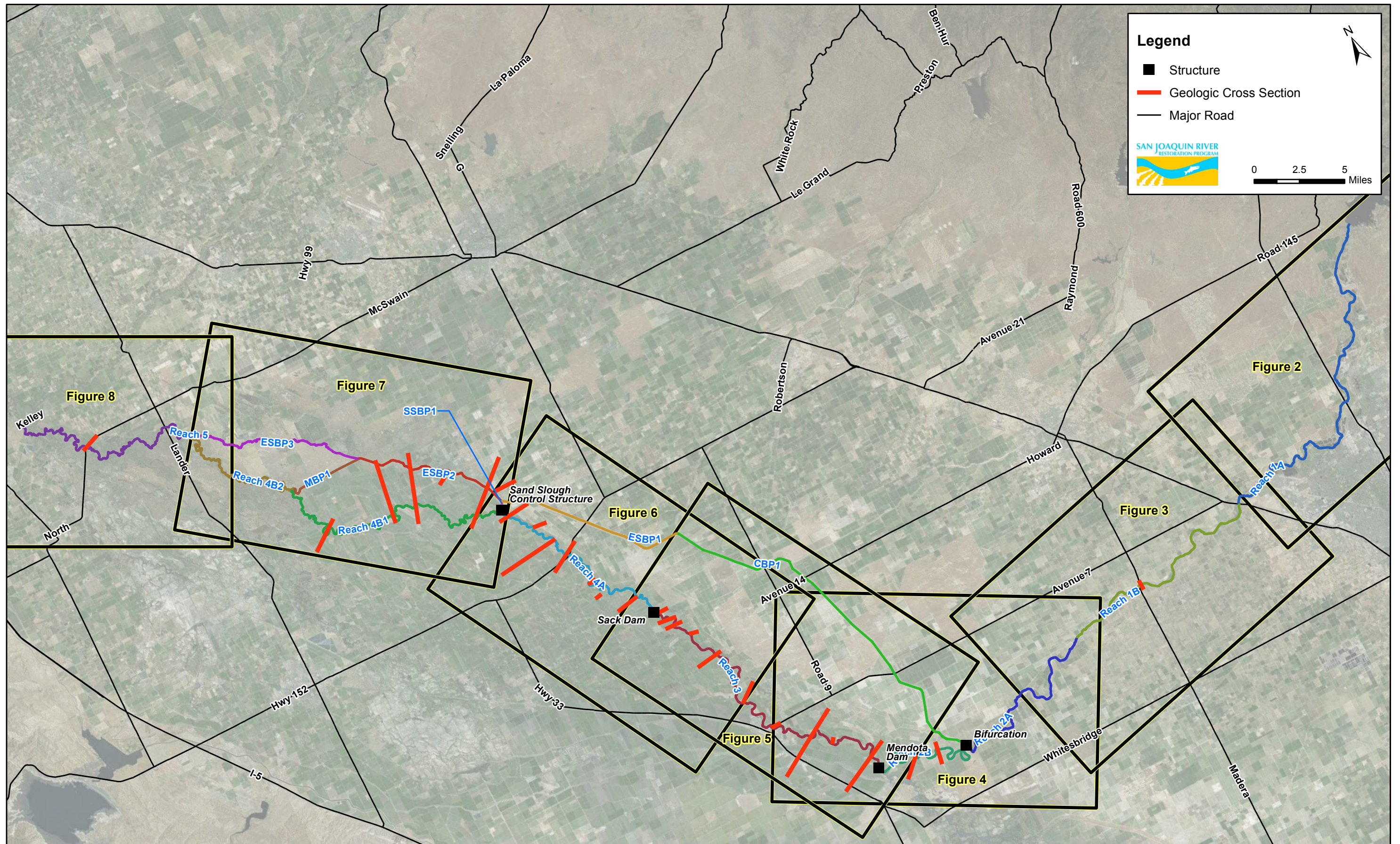


Figure 1. Overview of Geologic Cross Section Locations

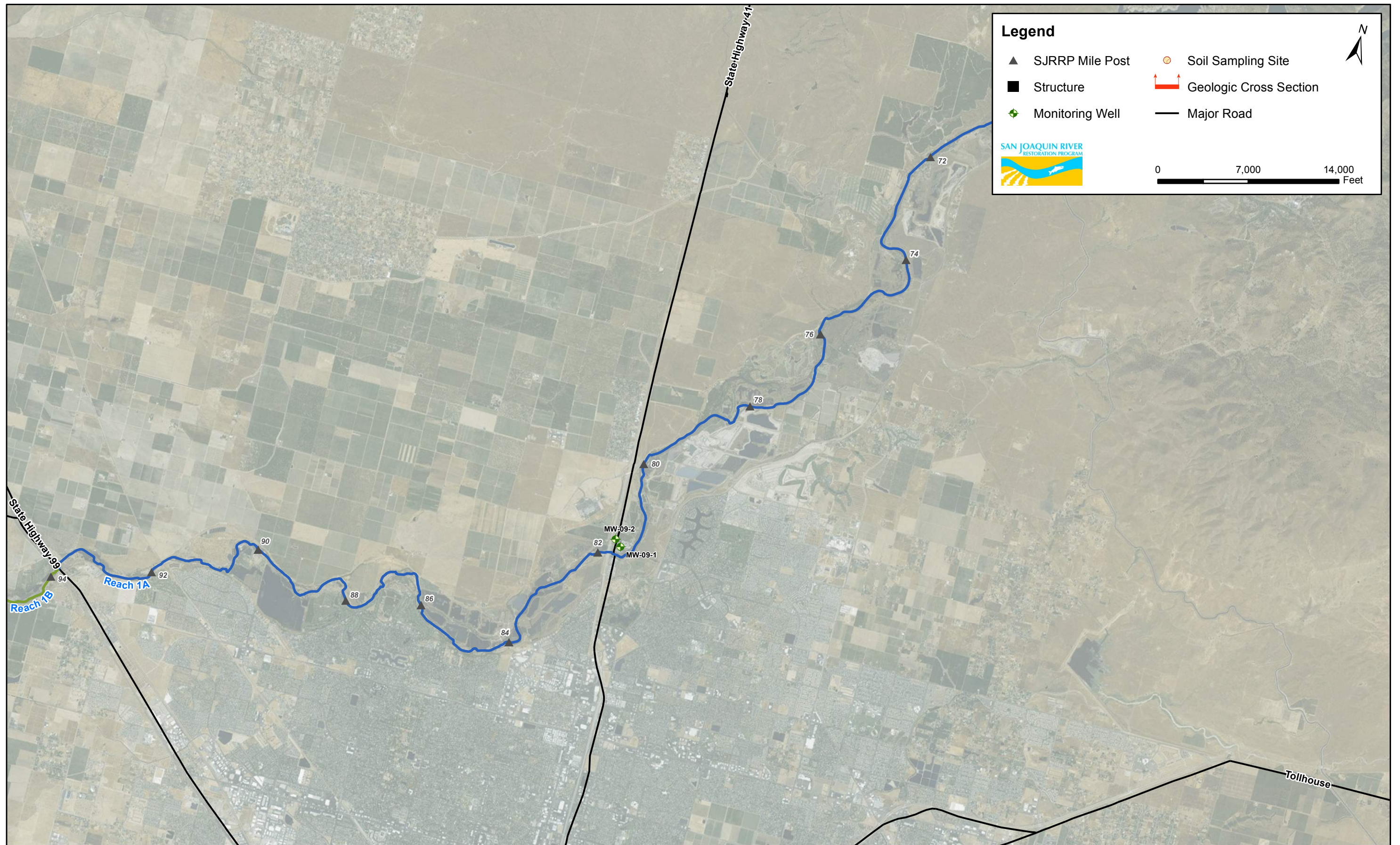


Figure 2. Geologic Cross Section Locations, Reach 1A



Figure 3. Geologic Cross Section Locations, Reach 1B

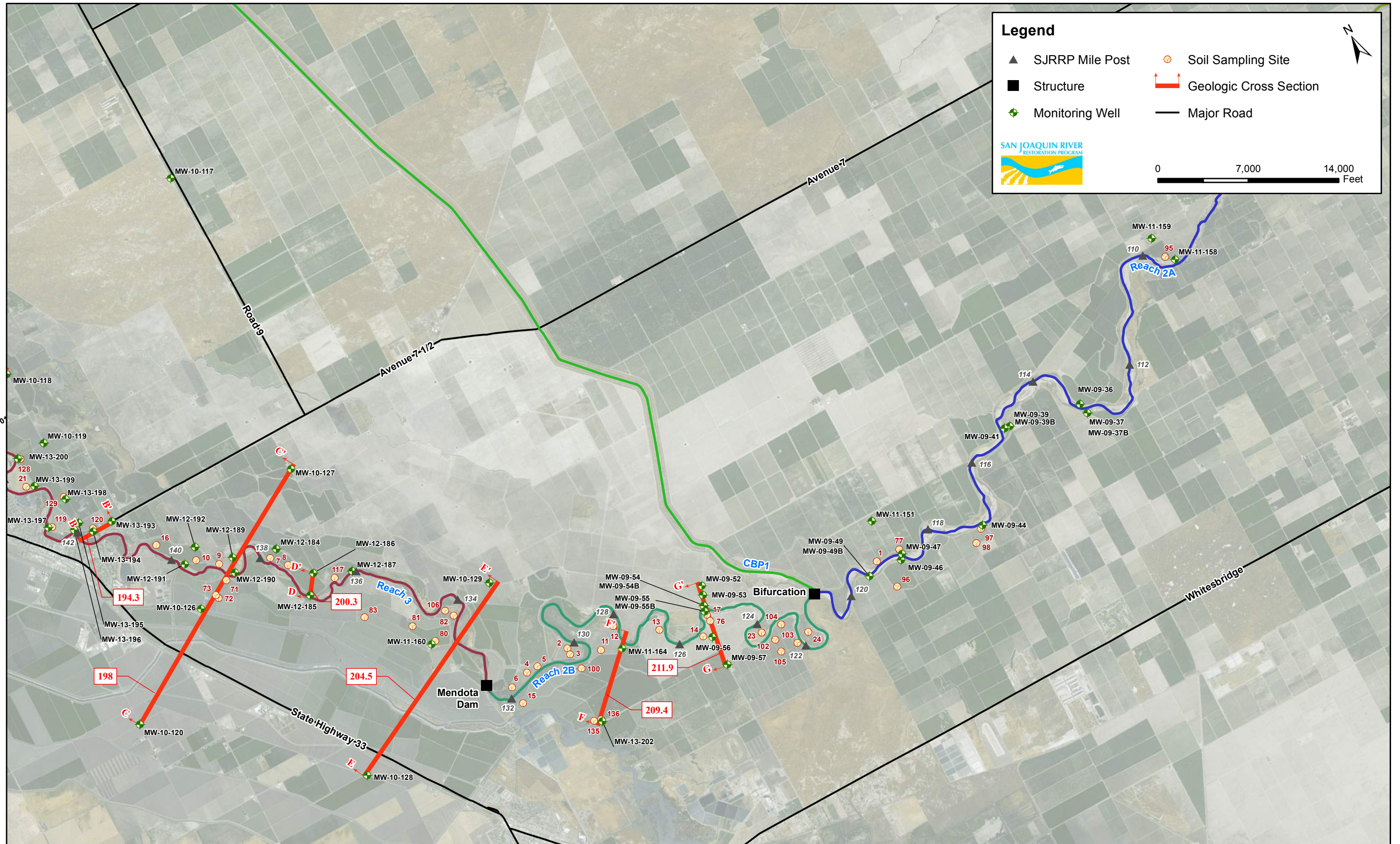


Figure 4. Geologic Cross Section Locations, Reaches 2A and 2B

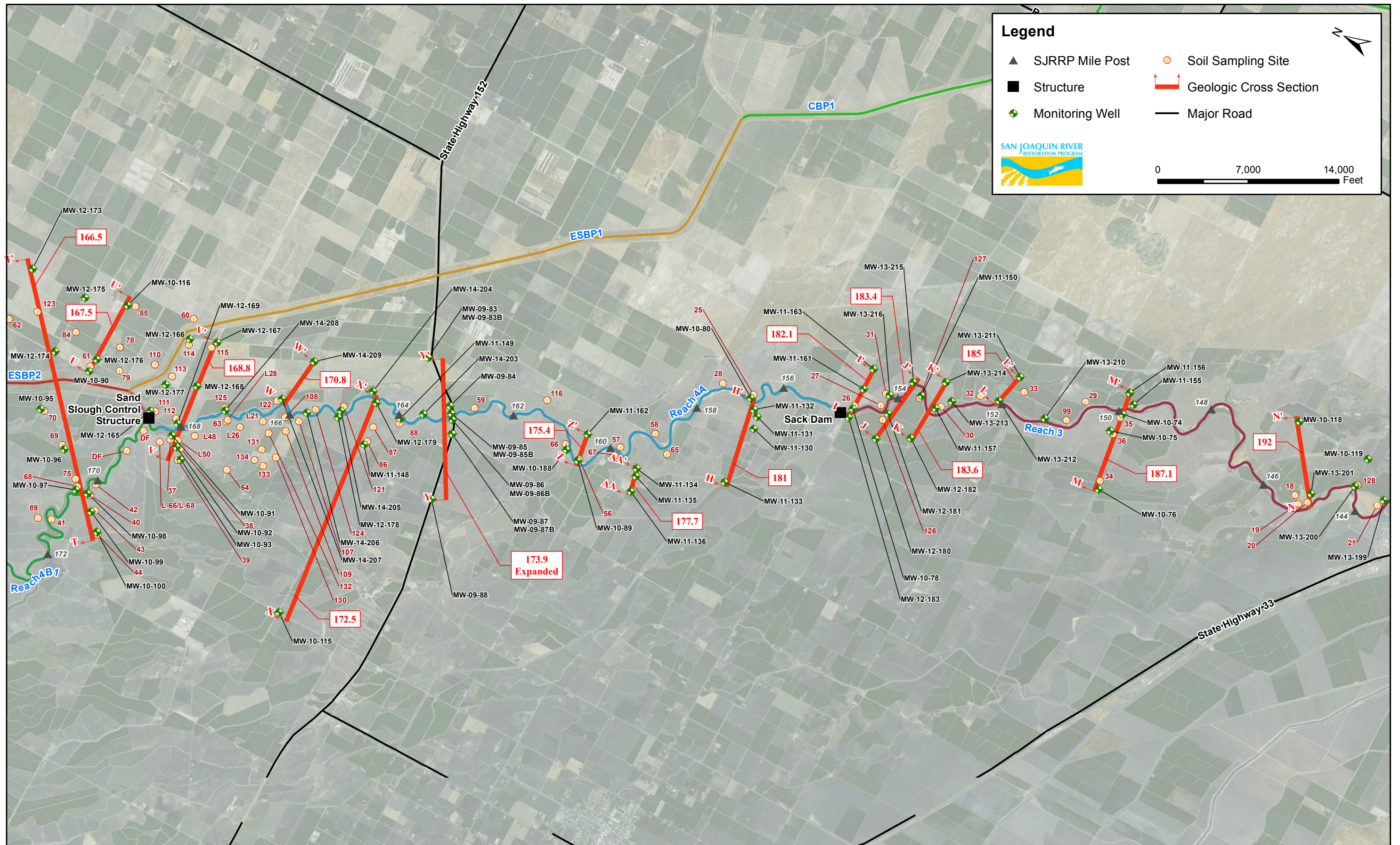


Figure 6. Geologic Cross Section Locations, Reach 4A

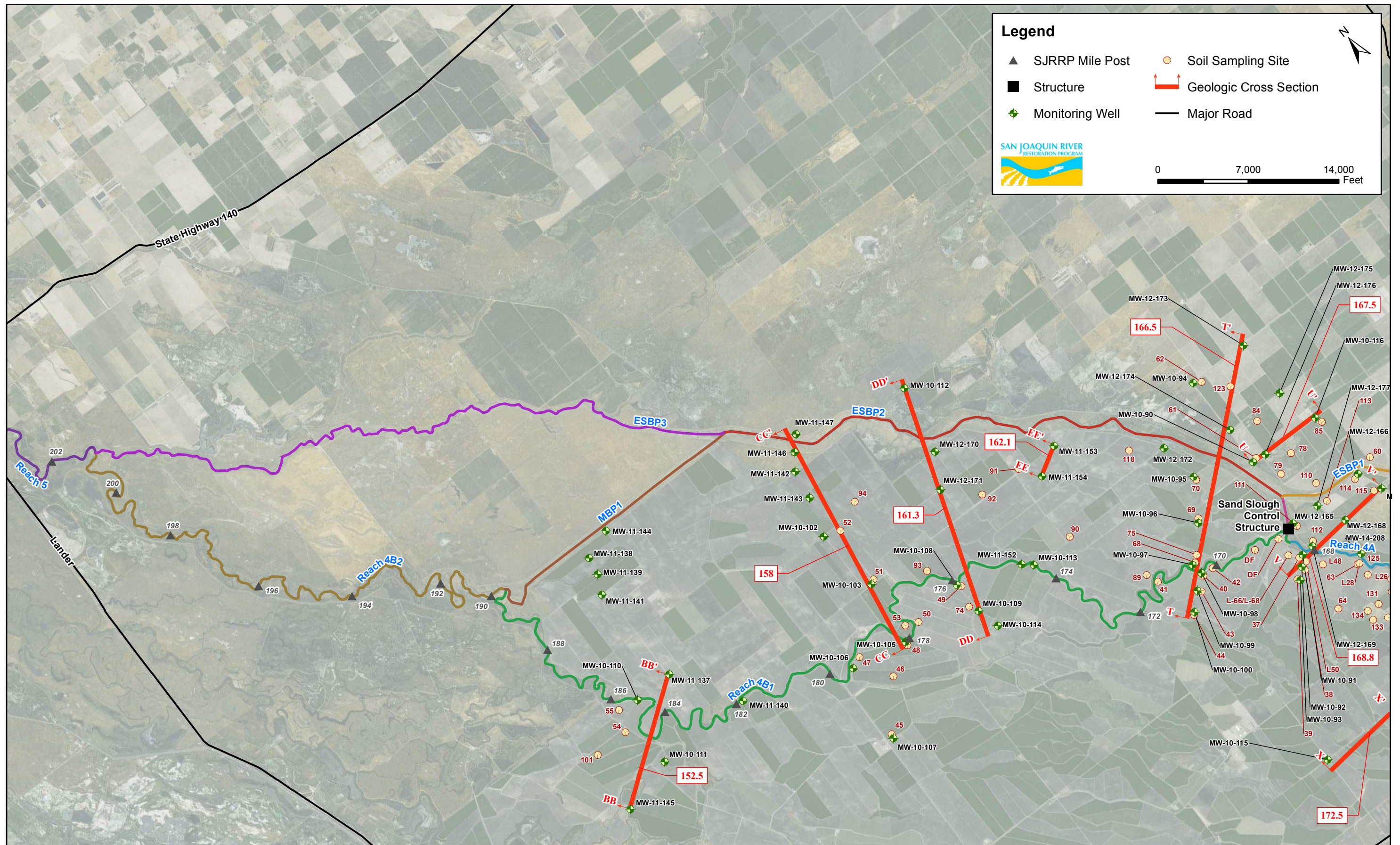


Figure 7. Geologic Cross Section Locations, Reach 4B

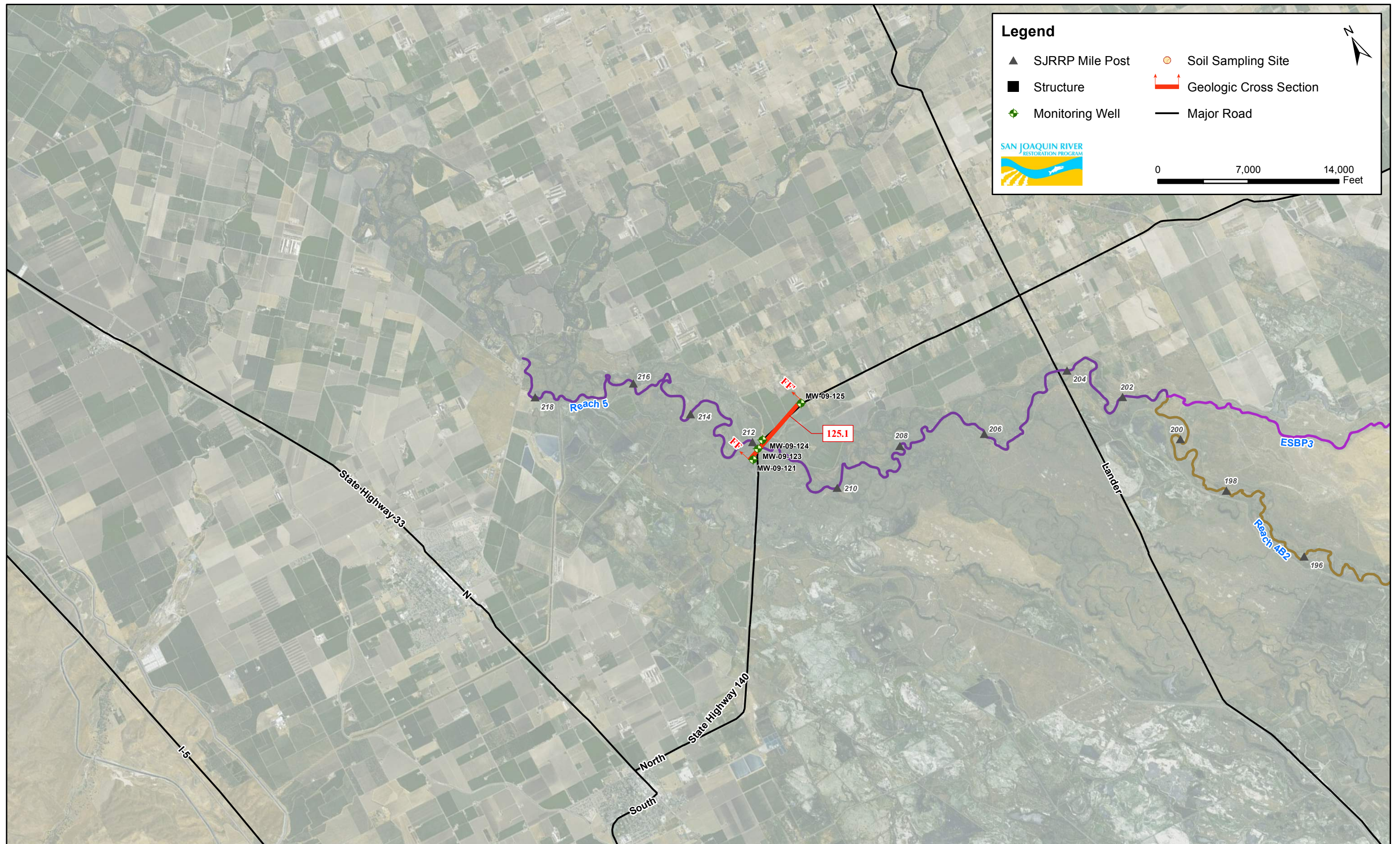
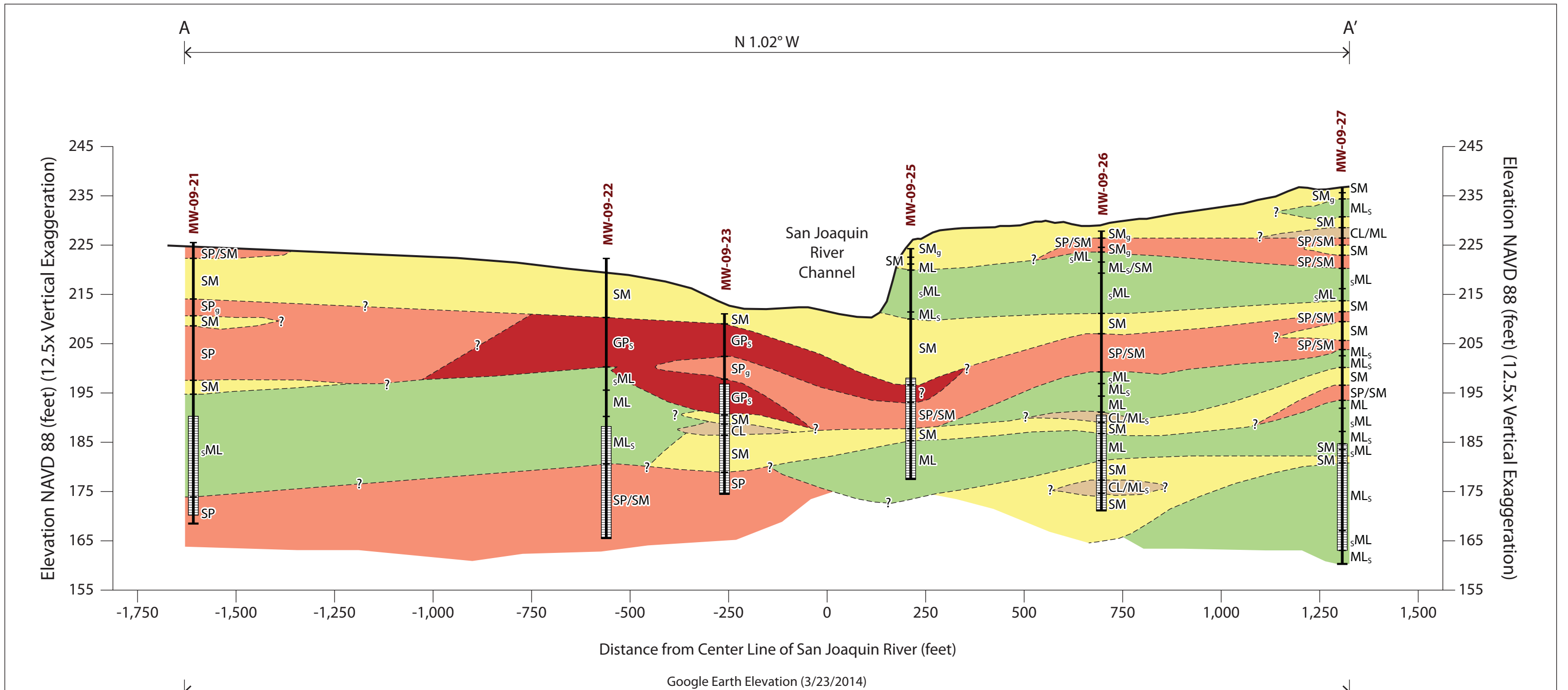


Figure 8. Geologic Cross Section Locations, Reach 5



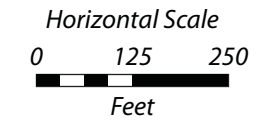
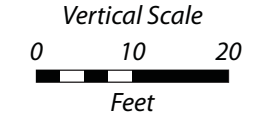
Google Earth Elevation (3/23/2014)

LEGEND

Well Identification Ground Surface Well Casing Well Screen Interval Well Bottom	Silt (ML, sML, MLs) Silty Sand (SM) Lean Clay (CL, sCL, CLs)	Gravel (GP, sGP, GP _s) Sand (SP, SP/SM)	CL Lean Clay sCL Sandy Lean Clay CL _s Lean Clay with Sand CH/SC Fat Clay with Sandy Clay	SC Sandy Clay CL/ML Lean Clay with Silt ML Silt sML Sandy Silt	ML _s Silt with Sand SM Silty Sand SP Poorly Graded Sand SP/SM Poorly Graded Sand with Silt GP _s Poorly Graded Gravel with Sand
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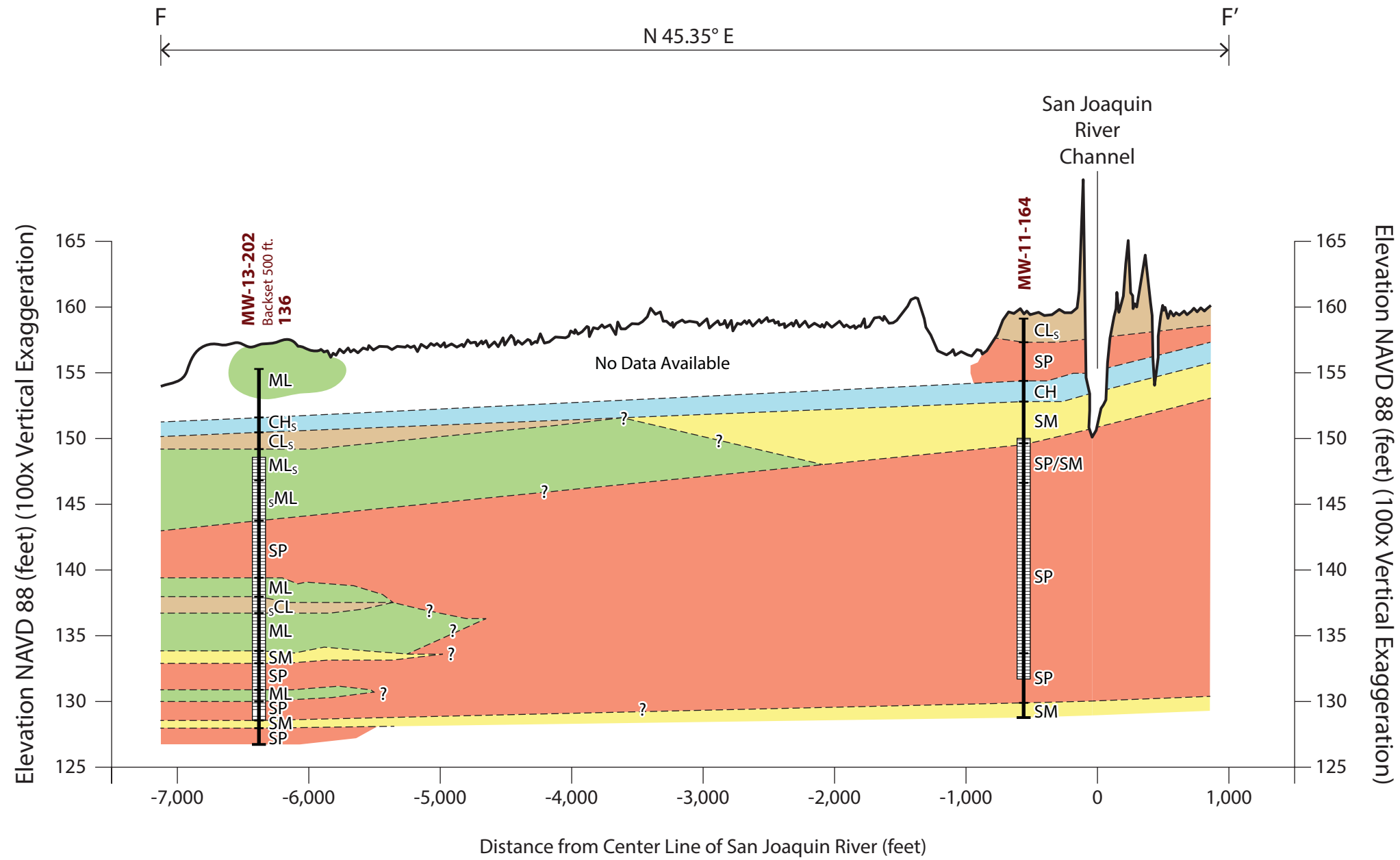
Soil data taken from US Bureau of Reclamation San Joaquin River Restoration Program boring logs (2010-2014).
 Elevation profile taken from LiDAR data where available and from approximations of Google Earth elevations where LiDAR data is not available.

Note: Vertical Scale is Exaggerated 12.5 times



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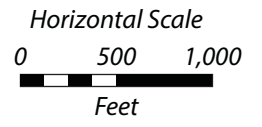
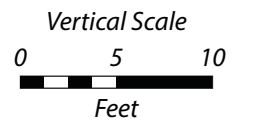


LEGEND

MW-10-93 Ground Surface Well Casing Well Screen Interval Well Bottom	Silt (ML, _s ML, ML _s) Lean Clay (CL, _s CL, CL _s) Sand (SP, SP/SM)	Silty Sand (SM) Fat Clay (CH)	CL Lean Clay _s CL Sandy Lean Clay CL _s Lean Clay with Sand CH/SC Fat Clay with Sandy Clay SC Sandy Clay CL/ML Lean Clay with Silt ML Silt _s ML Sandy Silt	ML _s Silt with Sand SM Silty Sand SP Poorly Graded Sand SP/SM Poorly Graded Sand with Silt
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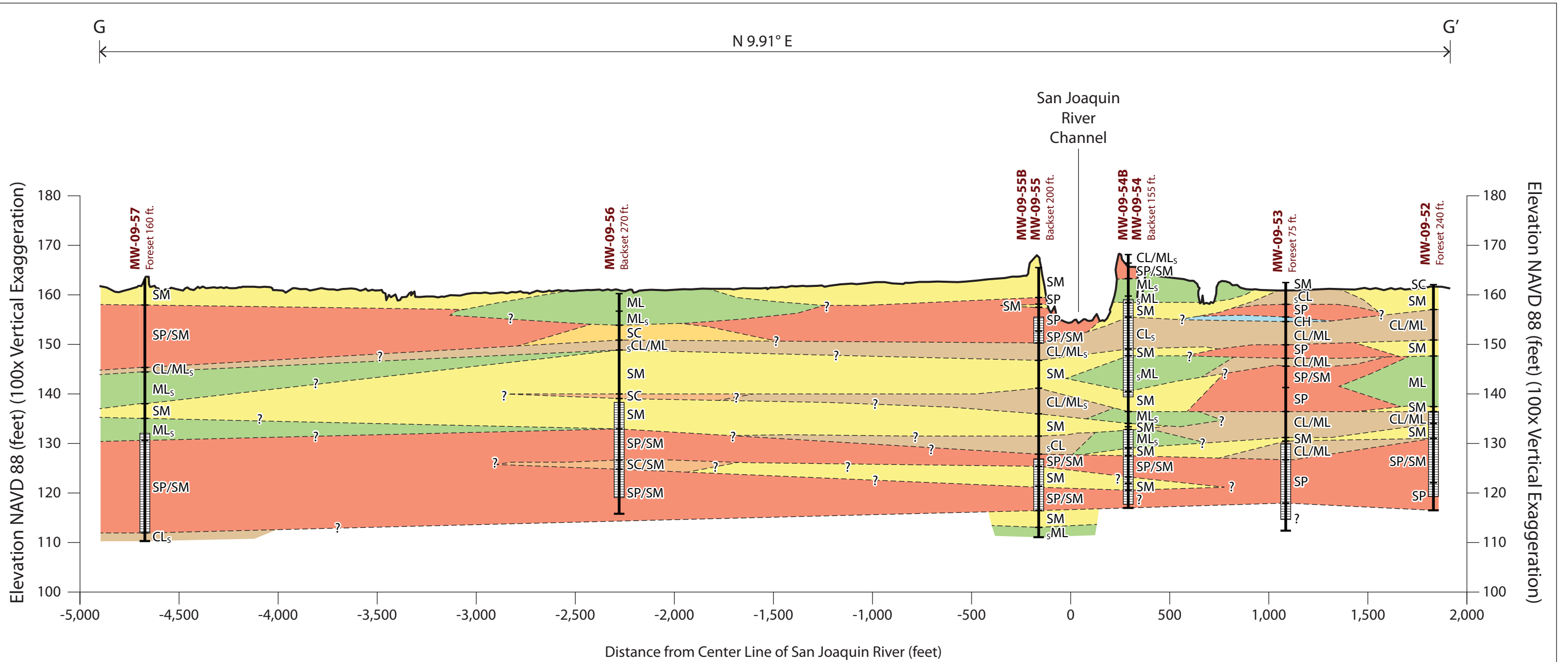
Soil data taken from US Bureau of Reclamation San Joaquin River Restoration Program boring logs (2010-2014).
 Elevation profile taken from LiDAR data where available and from approximations of Google Earth elevations where LiDAR data is not available.

Note: Vertical Scale is Exaggerated 100 times



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LiDAR Elevation (2008, 2010/11) Google Earth Elevation (3/23/2014)

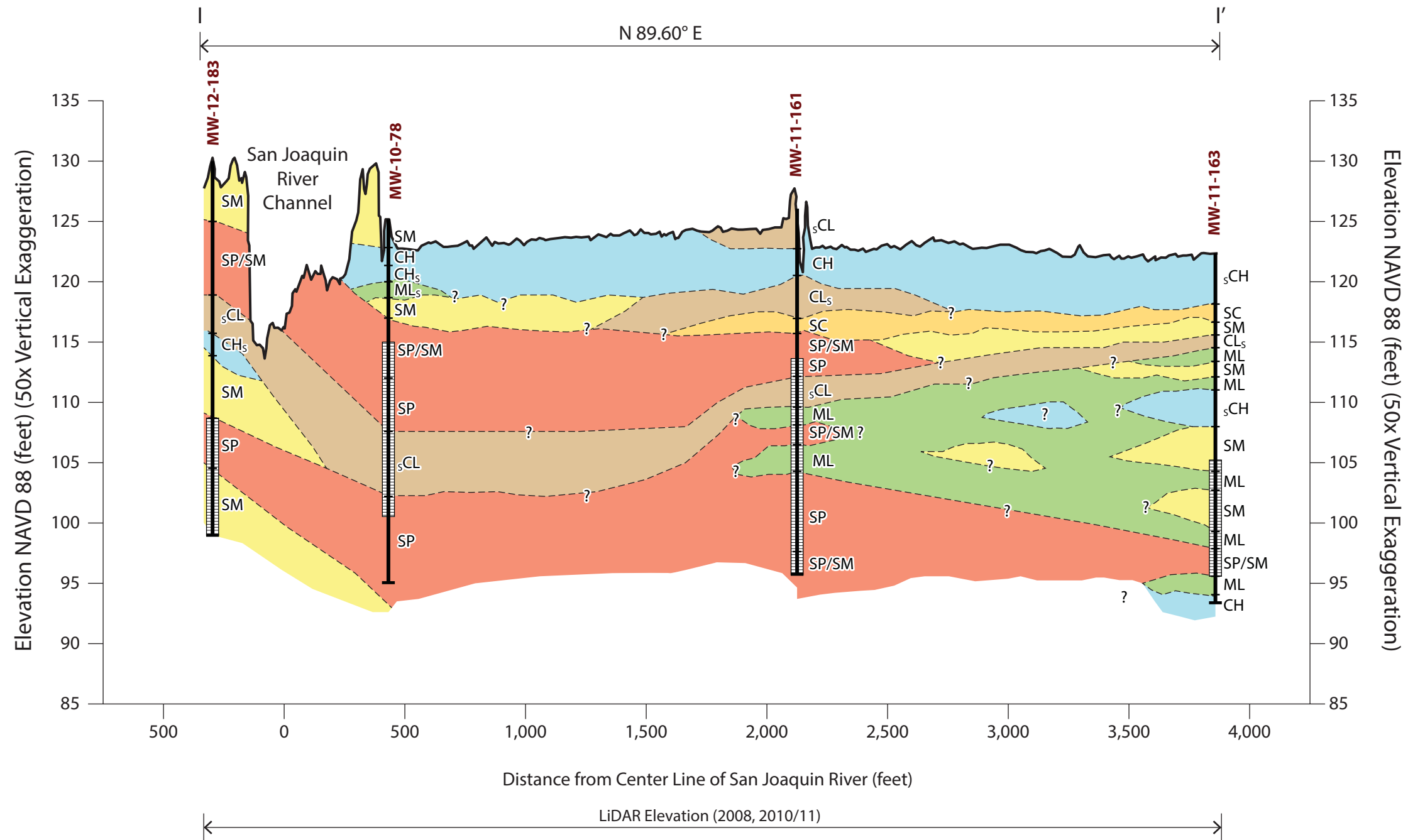
LEGEND

	<ul style="list-style-type: none"> Calcareous Silty Sand (SM) Sandy Clay (SC, SC/SM) Silt (ML, _sML, ML_s) 	<ul style="list-style-type: none"> Lean Clay (CL, _sCL, CL_s) Sand (SP, SP/SM) Silty Sand (SM) Fat Clay (CH) 	<ul style="list-style-type: none"> CL Lean Clay _sCL Sandy Lean Clay CL_s Lean Clay with Sand CH/SC Fat Clay with Sandy Clay 	<ul style="list-style-type: none"> SC Sandy Clay CL/ML Lean Clay with Silt ML Silt _sML Sandy Silt 	<ul style="list-style-type: none"> ML_s Silt with Sand SM Silty Sand SP Poorly Graded Sand SP/SM Poorly Graded Sand with Silt 	<p>Note: Vertical Scale is Exaggerated 100 times</p> <p style="text-align: center;"><i>Vertical Scale</i></p> <p style="text-align: center;">0 5 10 Feet</p> <p style="text-align: center;"><i>Horizontal Scale</i></p> <p style="text-align: center;">0 500 1,000 Feet</p>
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Soil data taken from US Bureau of Reclamation San Joaquin River Restoration Program boring logs (2010-2014).
Elevation profile taken from LiDAR data where available and from approximations of Google Earth elevations where LiDAR data is not available.

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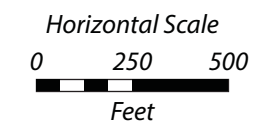
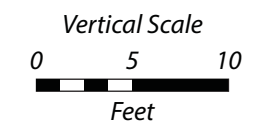


LEGEND

MW-10-93 Ground Surface Well Casing Well Screen Interval Well Bottom	Sandy Clay (SC) Silt (ML, sML, MLs) Lean Clay (CL, sCL, CLs)	Sand (SP, SP/SM) Silty Sand (SM) Fat Clay (CH, sCH, CHs)	CL Lean Clay sCL Sandy Lean Clay CLs Lean Clay with Sand CH Fat Clay CH/SC Fat Clay with Sandy Clay	sCH Sandy Fat Clay CHs Fat Clay with Sand SC Sandy Clay CL/ML Lean Clay with Silt ML Silt	sML Sandy Silt MLs Silt with Sand SM Silty Sand SP Poorly Graded Sand SP/SM Poorly Graded Sand with Silt SW/SM Well Graded Sand with Silt
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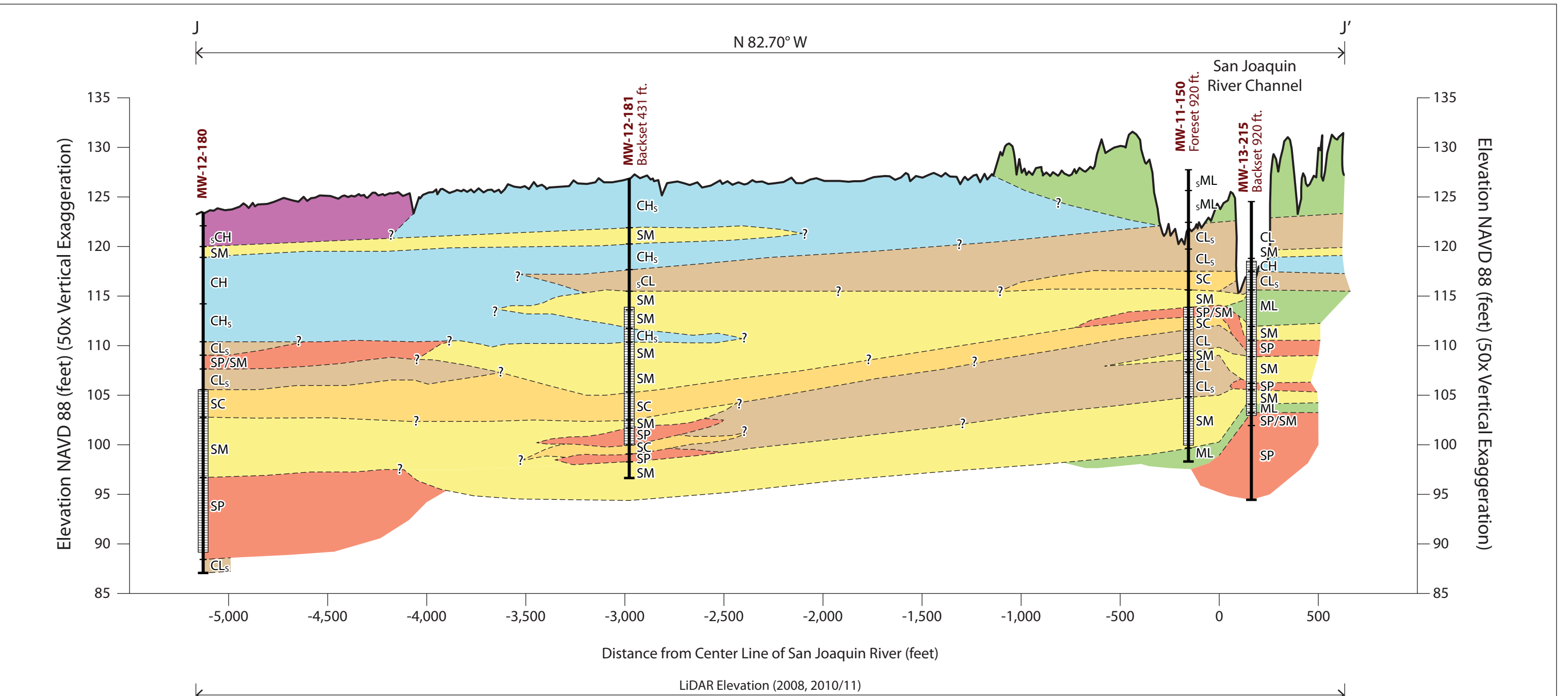
Soil data taken from US Bureau of Reclamation San Joaquin River Restoration Program boring logs (2010-2014).
 Elevation profile taken from LiDAR data where available and from approximations of Google Earth elevations where LiDAR data is not available. View is looking down-river.

Note: Vertical Scale is Exaggerated 50 times



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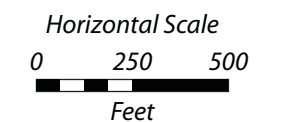
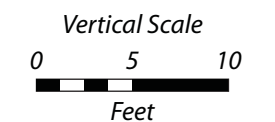


LEGEND

	<p>Well Identification</p> <p>Ground Surface</p> <p>Well Casing</p> <p>Well Screen Interval</p> <p>Well Bottom</p>	<p>Calcareous Fat Clay (CH)</p> <p>Sandy Clay (SC)</p> <p>Silt (ML, _sML, ML_s)</p>	<p>Lean Clay (CL, _sCL, CL_s)</p> <p>Sand (SP, SP/SM)</p> <p>Silty Sand (SM)</p> <p>Fat Clay (CH, _sCH, CH_s)</p>	<p>CL Lean Clay</p> <p>_sCL Sandy Lean Clay</p> <p>CL_s Lean Clay with Sand</p> <p>CH Fat Clay</p> <p>CH/SC Fat Clay with Sandy Clay</p>	<p>_sCH Sandy Fat Clay</p> <p>CH_s Fat Clay with Sand</p> <p>SC Sandy Clay</p> <p>CL/ML Lean Clay with Silt</p> <p>ML Silt</p>	<p>_sML Sandy Silt</p> <p>ML_s Silt with Sand</p> <p>SM Silty Sand</p> <p>SP Poorly Graded Sand</p> <p>SP/SM Poorly Graded Sand with Silt</p>
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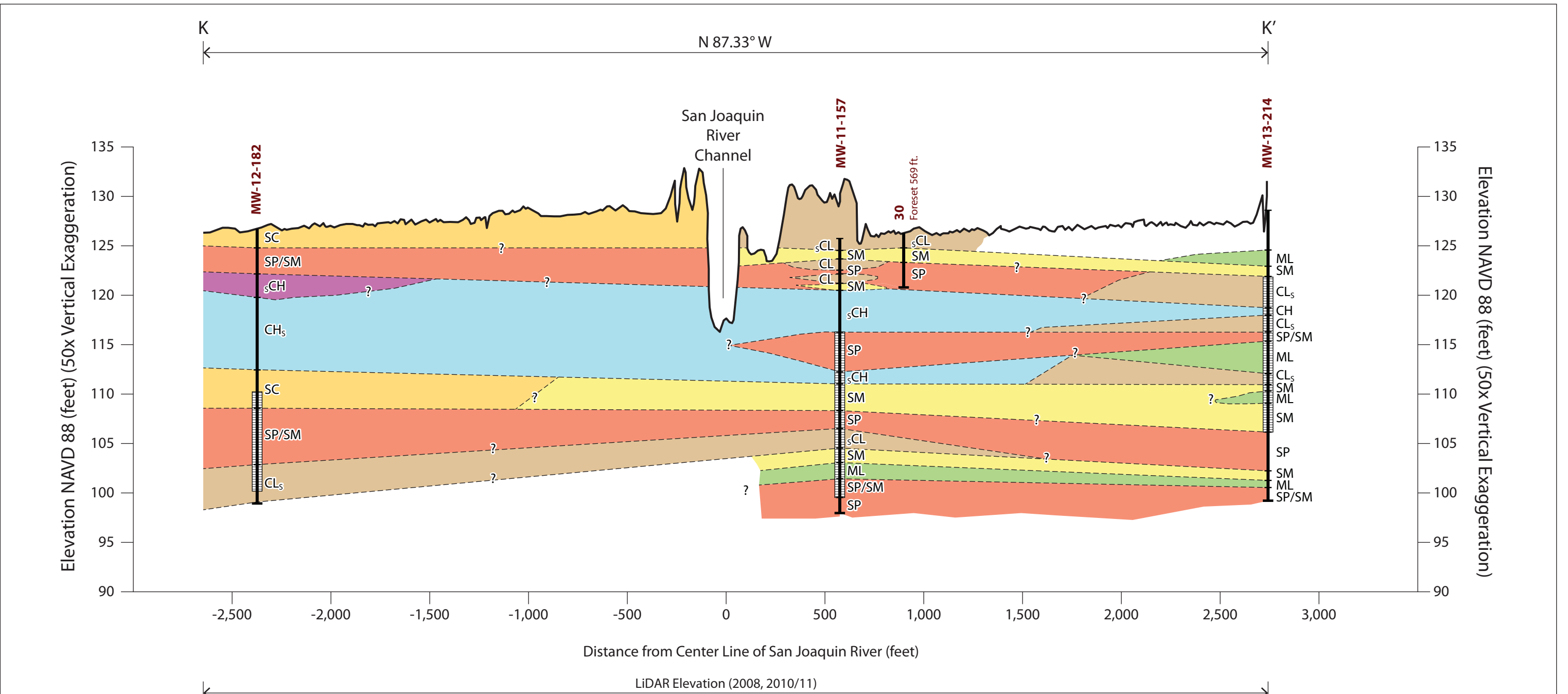
Soil data taken from US Bureau of Reclamation San Joaquin River Restoration Program boring logs (2010-2014).
 Elevation profile taken from LiDAR data where available and from approximations of Google Earth elevations where LiDAR data is not available. View is looking down-river.

Note: Vertical Scale is Exaggerated 50 times



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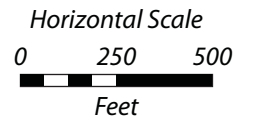
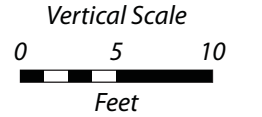


LEGEND

	Well Identification	Calcareous Fat Clay (CH, _s CH, CH _s)	Lean Clay (CL, _s CL, CL _s)	CL	Lean Clay	_s CH	Sandy Fat Clay	_s ML	Sandy Silt
	Ground Surface	Sandy Clay (SC)	Sand (SP, SP/SM)	_s CL	Sandy Lean Clay	CH _s	Fat Clay with Sand	ML _s	Silt with Sand
	Well Casing	Silt (ML, _s ML, ML _s)	Fat Clay (CH, _s CH, CH _s)	CL _s	Lean Clay with Sand	SC	Sandy Clay	SM	Silty Sand
	Well Screen Interval			CH	Fat Clay	CL/ML	Lean Clay with Silt	SP	Poorly Graded Sand
	Well Bottom			CH/SC	Fat Clay with Sandy Clay	ML	Silt	SP/SM	Poorly Graded Sand with Silt
							SW/SM	Well Graded Sand with Silt	

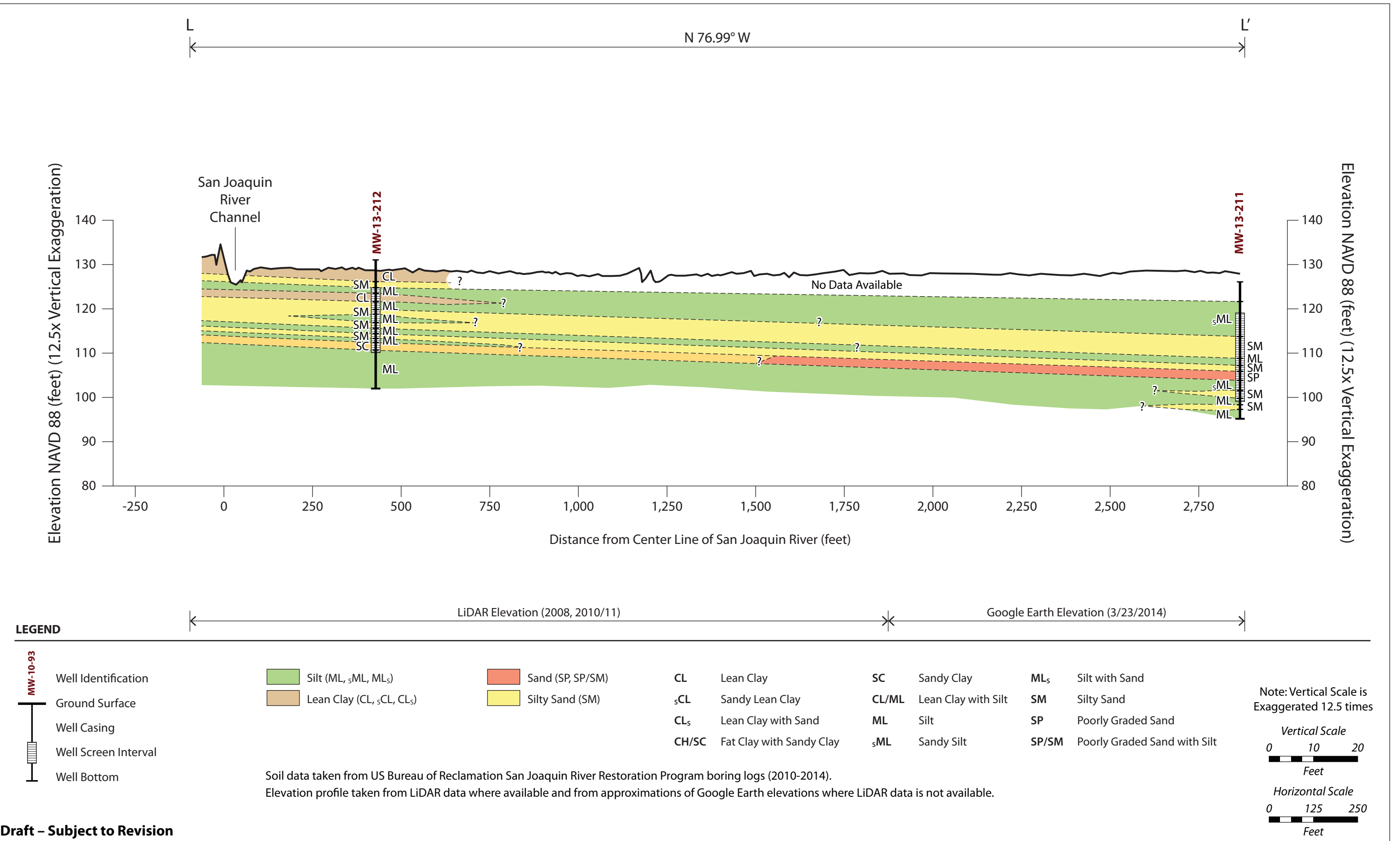
Soil data taken from US Bureau of Reclamation San Joaquin River Restoration Program boring logs (2010-2014).
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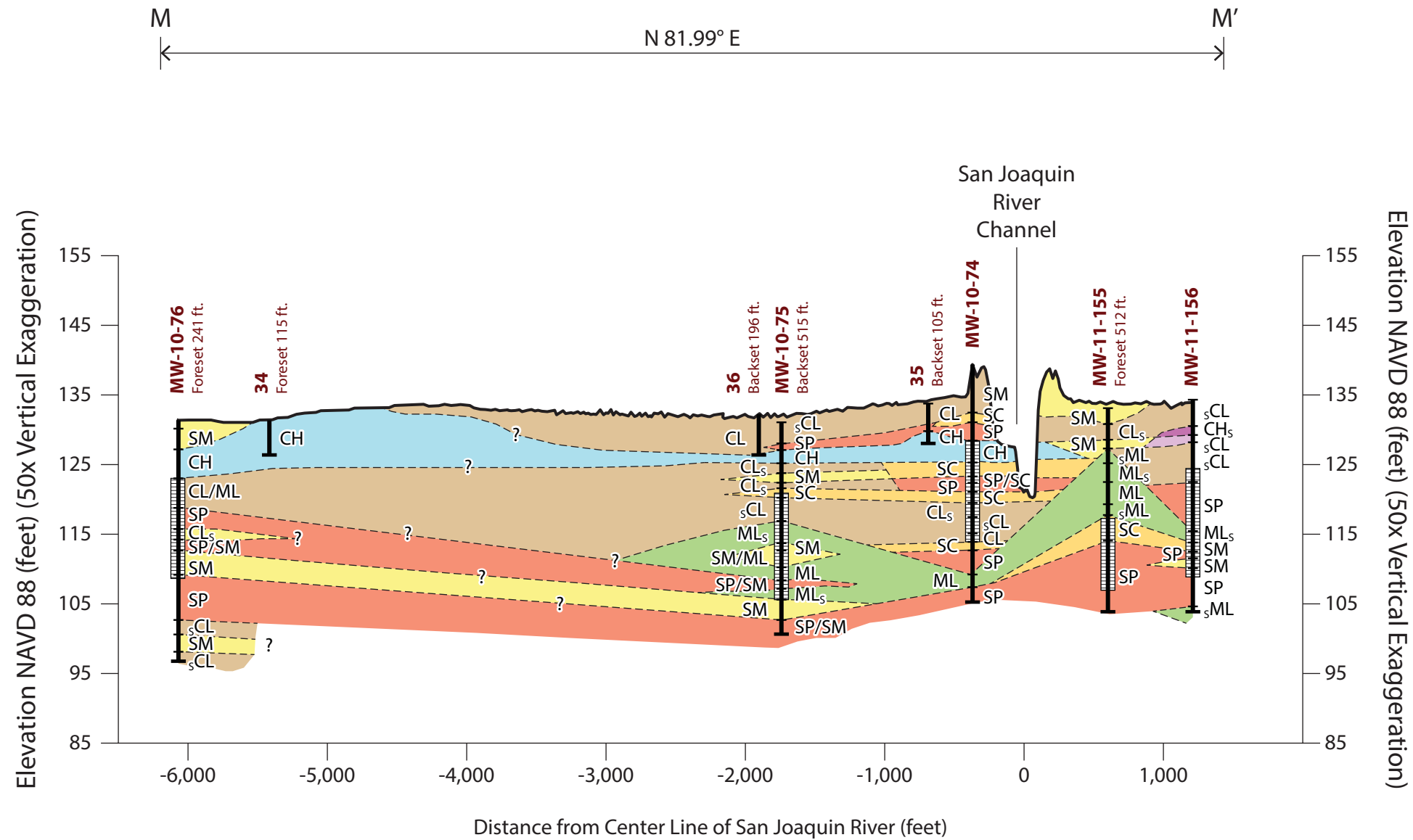
Note: Vertical Scale is Exaggerated 50 times



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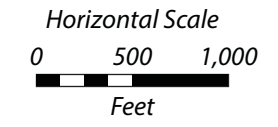
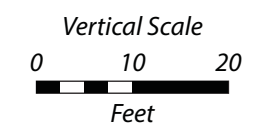


LEGEND

Well Identification Ground Surface Well Casing Well Screen Interval Well Bottom	Calcareous Fat Clay (CH, _s CH, CH _s) Calcareous Lean Clay (CL, _s CL, CL _s) Calcareous Silty Sand (SM) Sandy Clay (SC) Silt (ML, _s ML, ML _s)	Lean Clay (CL, _s CL, CL _s) Sand (SP, SP/SM) Silty Sand (SM) Fat Clay (CH, _s CH, CH _s)	CL Lean Clay _s CL Sandy Lean Clay CL _s Lean Clay with Sand CH Fat Clay CH/SC Fat Clay with Sandy Clay	_s CH Sandy Fat Clay CH _s Fat Clay with Sand SC Sandy Clay ML Silt	_s ML Sandy Silt ML _s Silt with Sand SM Silty Sand SP Poorly Graded Sand SP/SM Poorly Graded Sand with Silt
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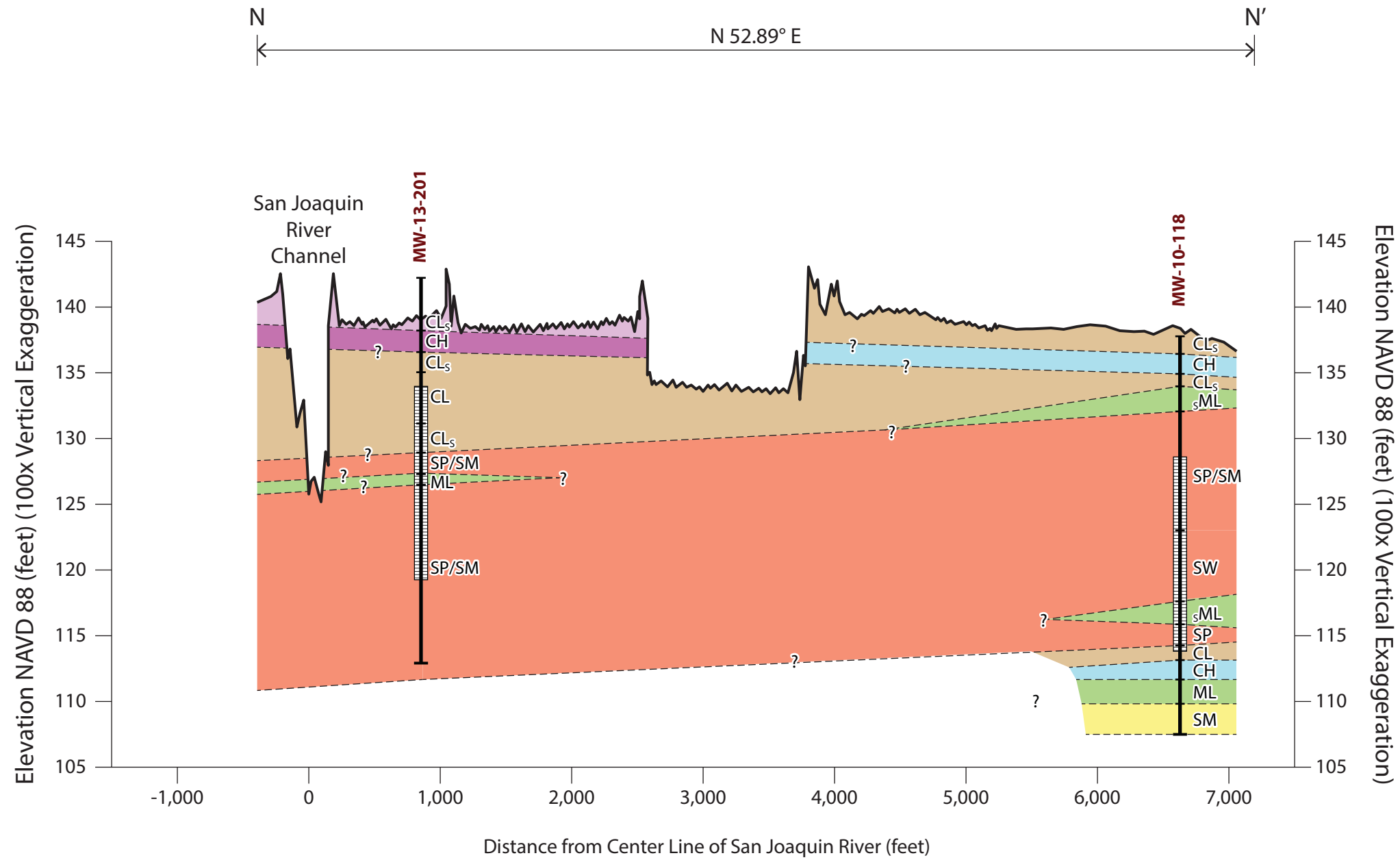
Soil data taken from US Bureau of Reclamation San Joaquin River Restoration Program boring logs (2010-2014).
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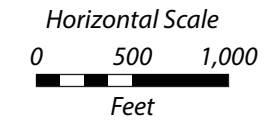
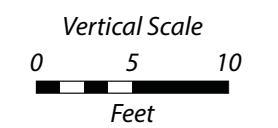
LEGEND

← LiDAR Elevation (2008, 2010/11)
→ Google Earth Elevation (3/23/2014)

Well Identification Ground Surface Well Casing Well Screen Interval Well Bottom	<div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> <p> Calcareous Lean Clay (CL, _sCL, CL_s)</p> <p> Silt (ML, _sML, ML_s)</p> <p> Lean Clay (CL, _sCL, CL_s)</p> </div> <div style="width: 30%;"> <p> Sand (SP, SP/SM)</p> <p> Silty Sand (SM)</p> <p> Fat Clay (CH, CH/SC)</p> <p> Calcareous Fat Clay (CH)</p> </div> <div style="width: 30%;"> <p>CL Lean Clay</p> <p>_sCL Sandy Lean Clay</p> <p>CL_s Lean Clay with Sand</p> <p>CH/SC Fat Clay with Sandy Clay</p> <p>SC Sandy Clay</p> <p>CL/ML Lean Clay with Silt</p> <p>ML Silt</p> <p>_sML Sandy Silt</p> <p>ML_s Silt with Sand</p> <p>SM Silty Sand</p> <p>SP Poorly Graded Sand</p> <p>SP/SM Poorly Graded Sand with Silt</p> </div> </div>
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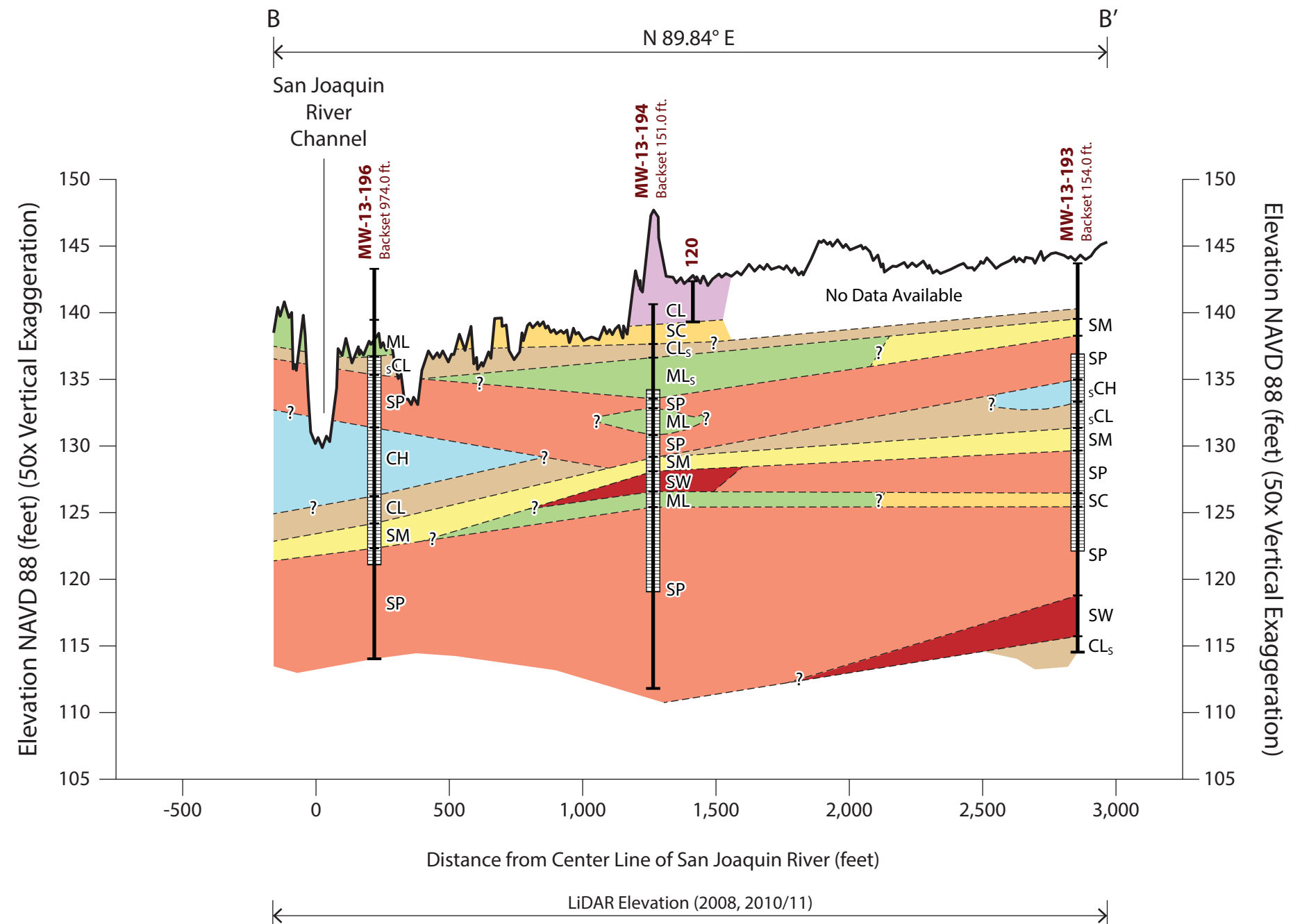
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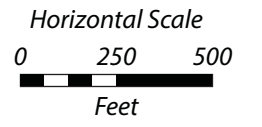
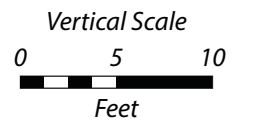


LEGEND

Well Identification Ground Surface Well Casing Well Screen Interval Well Bottom	Sandy Clay (SC) Calcareous Lean Clay (CL) Silt (ML, sML, MLs) Lean Clay (CL, sCL, CLs)	Sand (SW) Sand (SP, SP/SM) Silty Sand (SM) Fat Clay (CH, CH/SC)	CL Lean Clay sCL Sandy Lean Clay CLs Lean Clay with Sand CH/SC Fat Clay with Sandy Clay	SC Sandy Clay CL/ML Lean Clay with Silt ML Silt sML Sandy Silt	MLs Silt with Sand SM Silty Sand SP Poorly Graded Sand SP/SM Poorly Graded Sand with Silt SW Well Graded Sand
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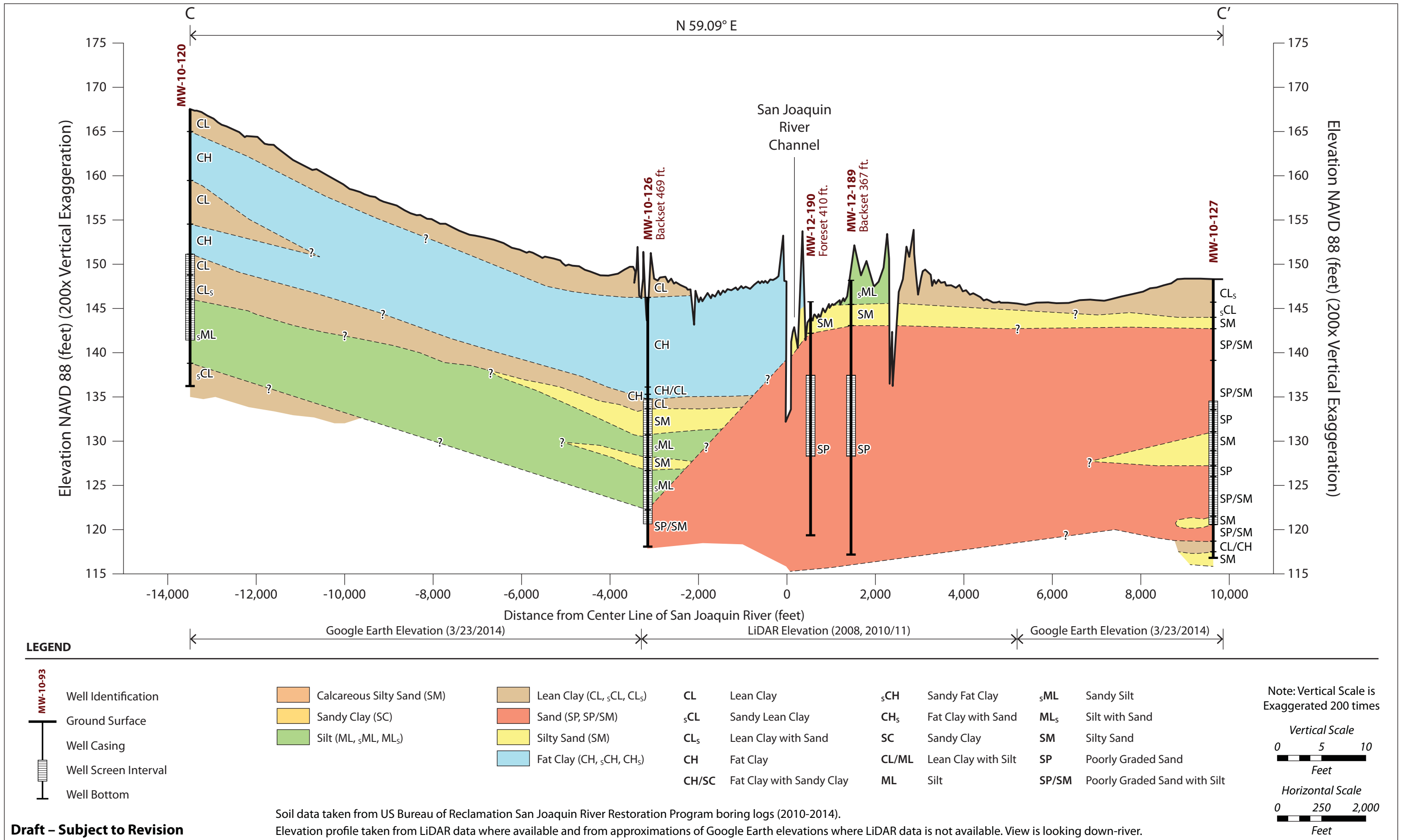
Soil data taken from US Bureau of Reclamation San Joaquin River Restoration Program boring logs (2010-2014).
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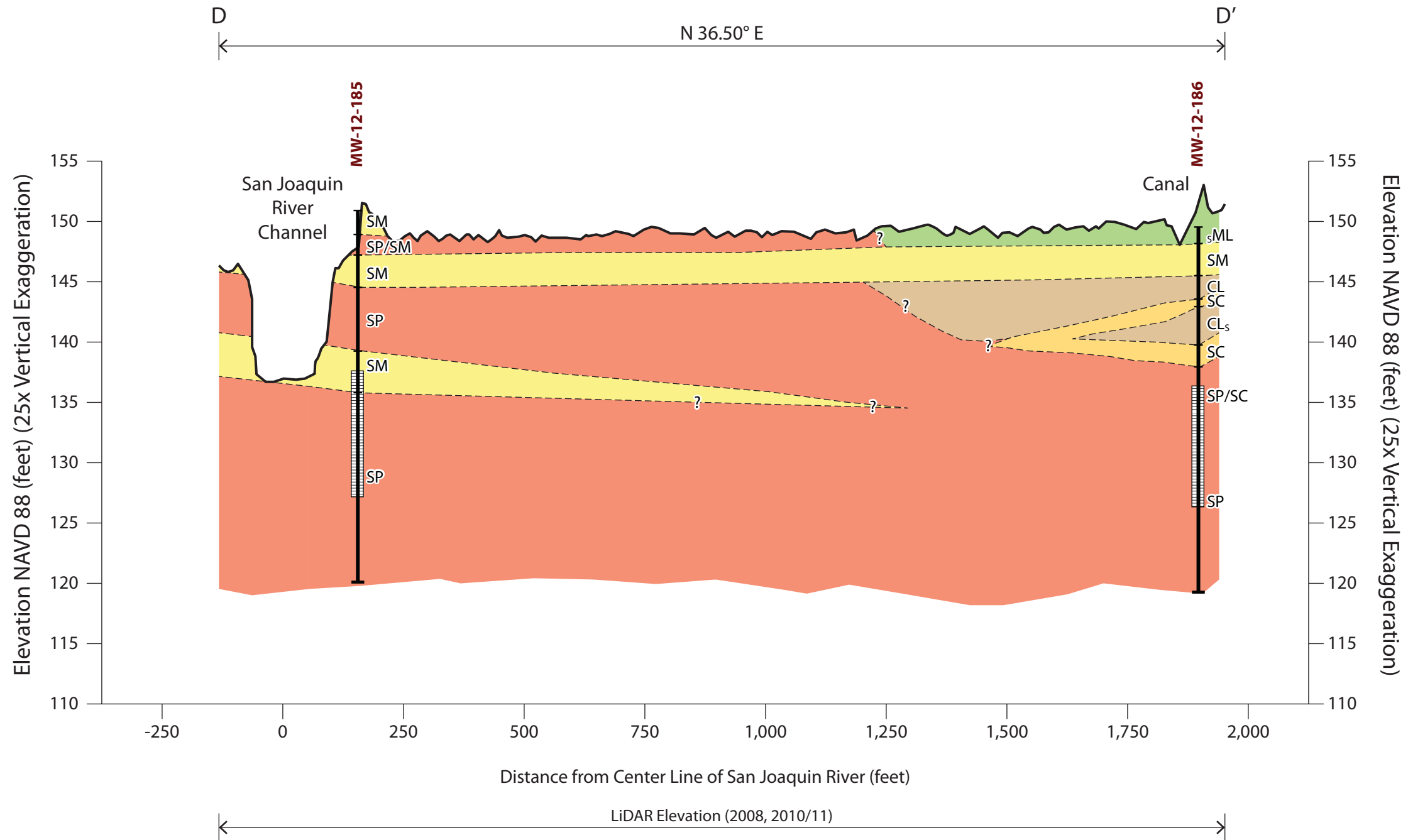
Note: Vertical Scale is Exaggerated 50 times



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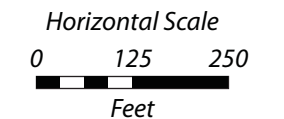
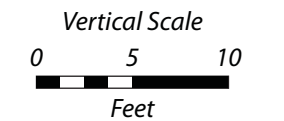


LEGEND

MW-10-93 	Sandy Clay (SC) Silt (ML, sML, MLs)	Lean Clay (CL, sCL, CLs) Sand (SP, SP/SM) Silty Sand (SM)	CL Lean Clay sCL Sandy Lean Clay CLs Lean Clay with Sand CH Fat Clay CH/SC Fat Clay with Sandy Clay	sCH Sandy Fat Clay CHs Fat Clay with Sand SC Sandy Clay CL/ML Lean Clay with Silt ML Silt	sML Sandy Silt MLs Silt with Sand SM Silty Sand SP Poorly Graded Sand SP/SM Poorly Graded Sand with Silt
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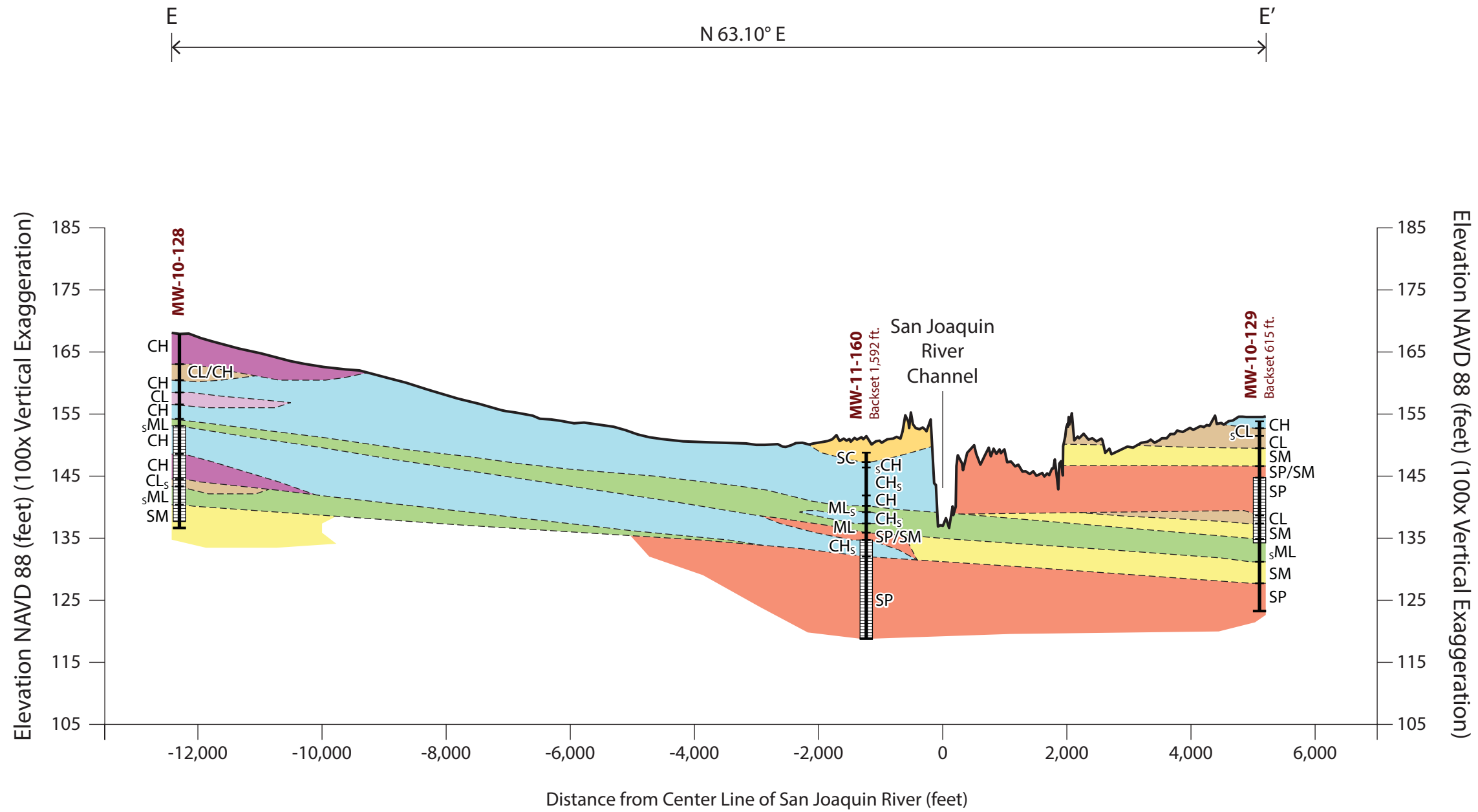
Soil data taken from US Bureau of Reclamation San Joaquin River Restoration Program boring logs (2010-2014).
 Elevation profile taken from LiDAR data where available and from approximations of Google Earth elevations where LiDAR data is not available. View is looking down-river.

Note: Vertical Scale is Exaggerated 25 times



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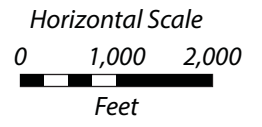
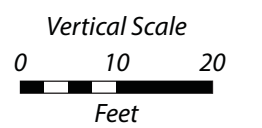


LEGEND

	<p>Soil Data Legend:</p> <ul style="list-style-type: none"> Calcareous Fat Clay (CH) Calcareous Lean Clay (CL, _sCL, CL_s) Silty Sand (SM) Silt (ML, _sML, ML_s) Lean Clay (CL, _sCL, CL_s) Sand (SP, SP/SM) Silty Sand (SM) Fat Clay (CH, _sCH, CH_s) CL _sCL CL_s CH SC _sCH CH_s ML_s ML CH_s SP/SM SP _sCL CH CL SM SP/SM SP CL SM _sML SM SP 	<p>Soil Data Legend (continued):</p> <ul style="list-style-type: none"> ML_s Silt with Sand SM Silty Sand SP Poorly Graded Sand SP/SM Poorly Graded Sand with Silt
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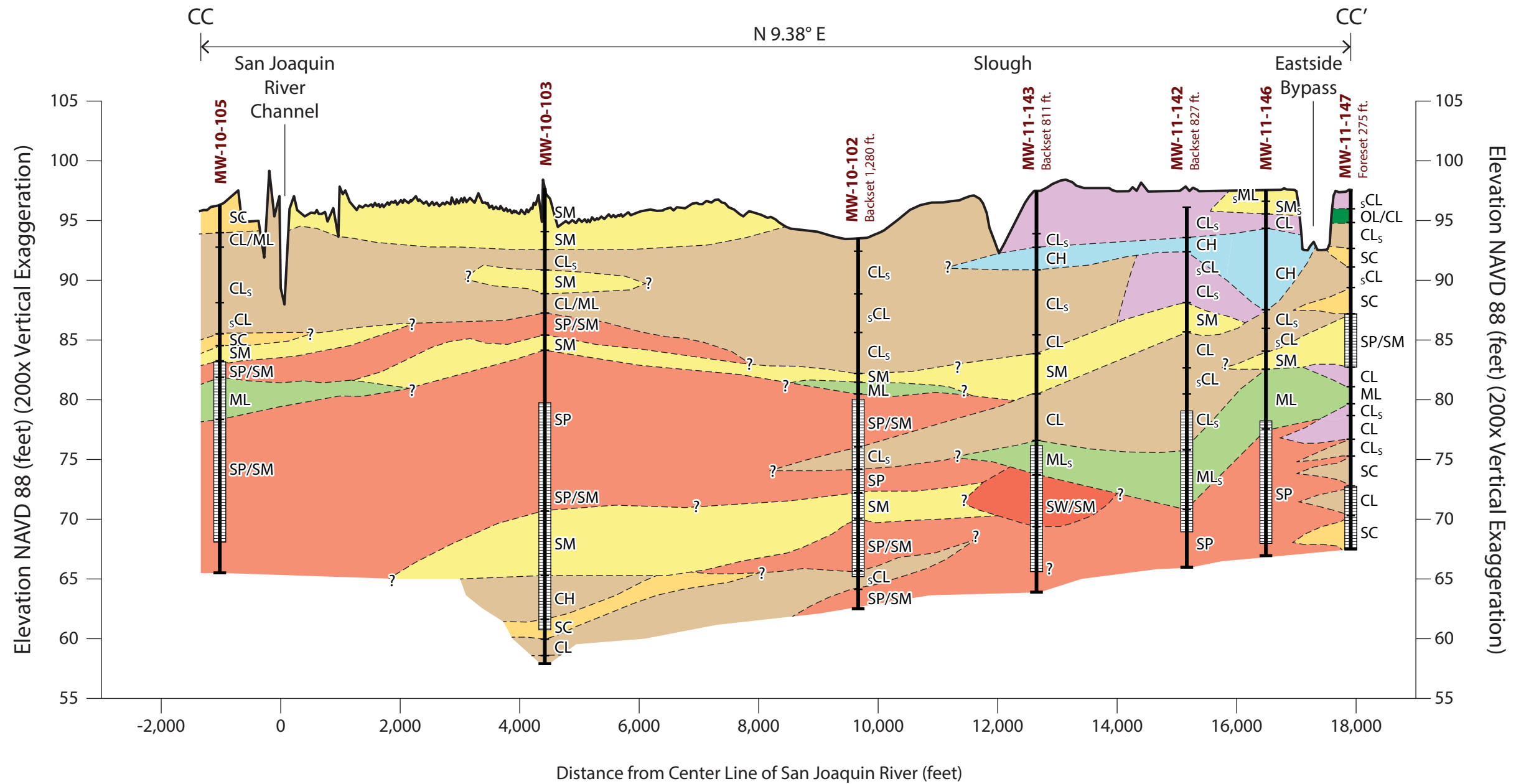
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Note: Vertical Scale is Exaggerated 100 times



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← LiDAR Elevation (2008, 2010/11) * Google Earth Elevation (3/23/2014) →

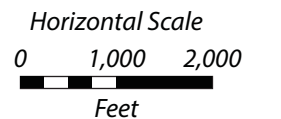
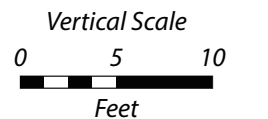
LEGEND

<p>MW-10-93</p> Well Identification Ground Level Well Casing Well Screen Interval Well Bottom	<p> Organic Silt (OL/CL) Calcareous Lean Clay (CL, sCL, CLs) Sandy Clay (SC) Silt (ML, sML, MLs)</p>	<p> Lean Clay (CL, sCL, CLs) Sand (SP, SP/SM) Sand (SW, SW/SM) Silty Sand (SM) Fat Clay (CH, OC/CL)</p>	<p> CL Lean Clay sCL Sandy Lean Clay CLs Lean Clay with Sand CH Fat Clay OL/CL Organic Silt with Lean Clay</p>	<p> sCH Sandy Fat Clay CHs Fat Clay with Sand SC Sandy Clay CL/ML Lean Clay with Silt ML Silt</p>	<p> sML Sandy Silt MLs Silt with Sand SM Silty Sand SP Poorly Graded Sand SP/SM Poorly Graded Sand with Silt SW/SM Well Graded Sand with Silt</p>
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Soil data taken from US Bureau of Reclamation San Joaquin River Restoration Program boring logs (2010-2014).

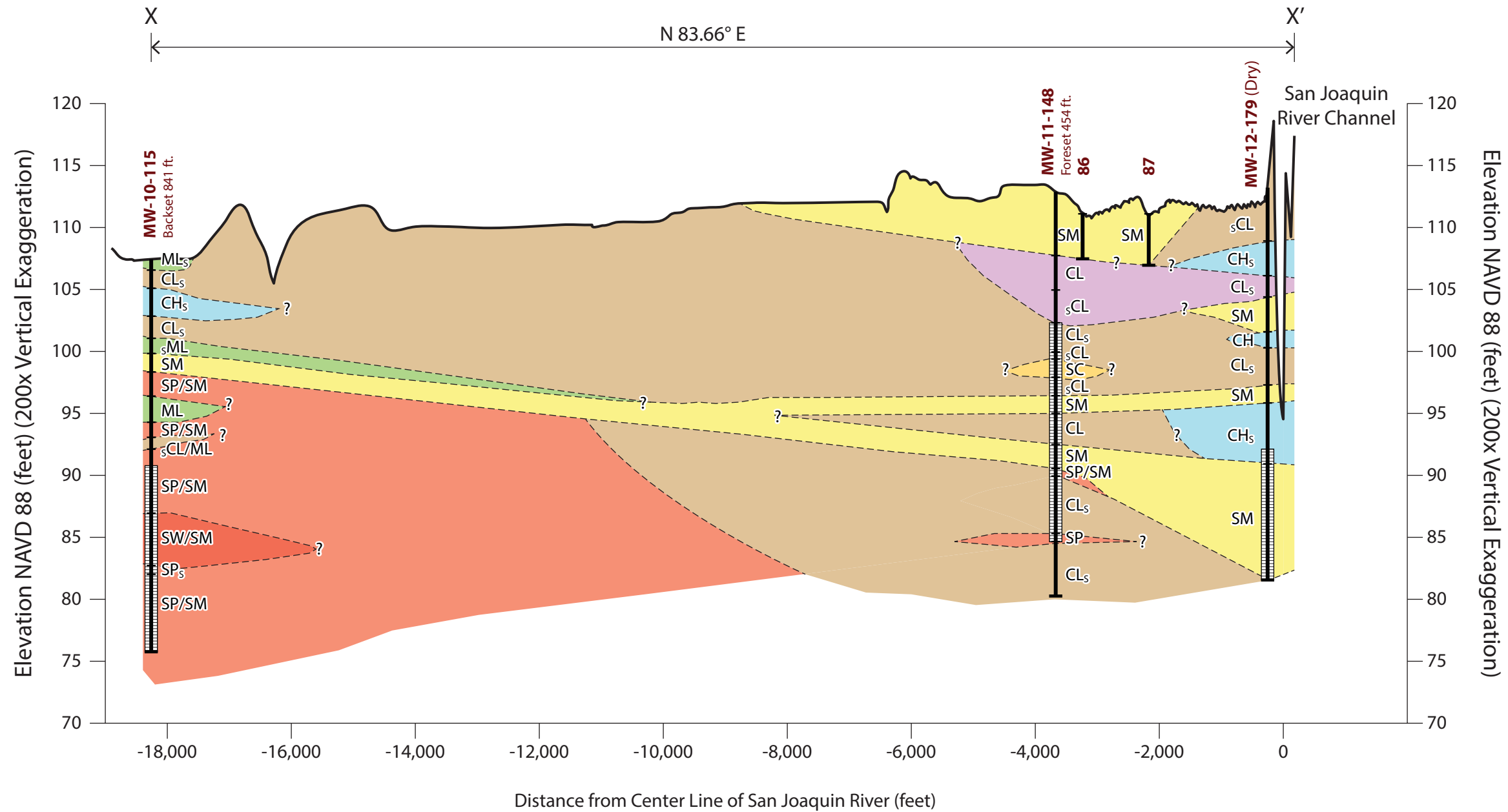
Elevation profile taken from LiDAR data where available and from approximations of Google Earth elevations where LiDAR data is not available. View is looking down-river.

Note: Vertical Scale is Exaggerated 200 times



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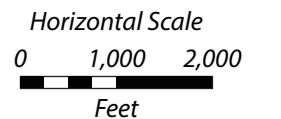
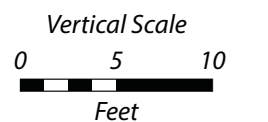
LEGEND

MW-10-93 Ground Level Well Casing Well Screen Interval Well Bottom	Calcareous Lean Clay (CL, sCL, CLs) Sandy Clay (SC) Silt (ML, sML, MLs) Lean Clay (CL, sCL, CLs) Sand (SP, SP/SM) Sand (SW, SW/SM) Silty Sand (SM) Fat Clay (CH, sCH, CHs)	CL Lean Clay sCL Sandy Lean Clay CLs Lean Clay with Sand CH Fat Clay CH/SC Fat Clay with Sandy Clay sCH Sandy Fat Clay CHs Fat Clay with Sand SC Sandy Clay CL/ML Lean Clay with Silt ML Silt sML Sandy Silt MLs Silt with Sand SM Silty Sand SP Poorly Graded Sand SP/SM Poorly Graded Sand with Silt SW/SM Well Graded Sand with Silt
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Soil data taken from US Bureau of Reclamation San Joaquin River Restoration Program boring logs (2010-2014).

Elevation profile taken from LiDAR data where available and from approximations of Google Earth elevations where LiDAR data is not available. View is looking down-river.

Note: Vertical Scale is Exaggerated 200 times

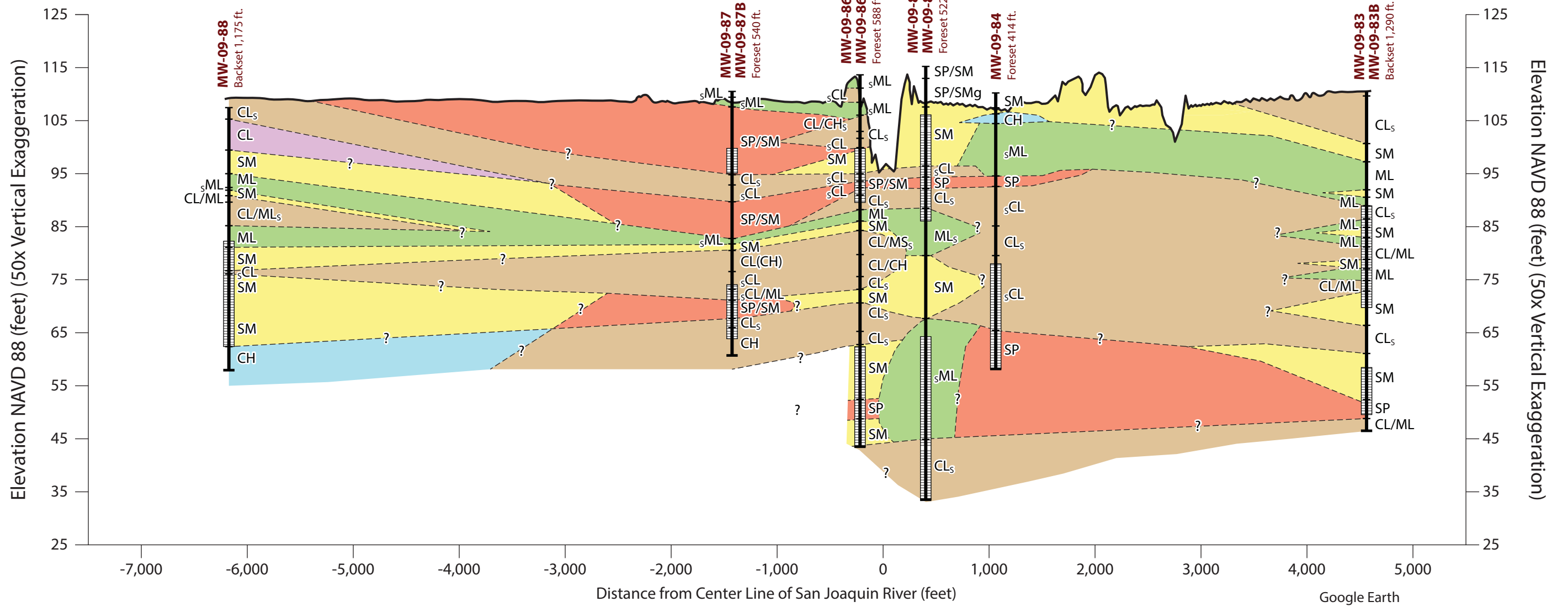


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N 60.46° E

San Joaquin River Channel

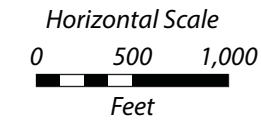
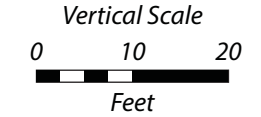


LEGEND

<p>MW-10-93</p> <p>Well Identification</p> <p>Ground Level</p> <p>Well Casing</p> <p>Well Screen Interval</p> <p>Well Bottom</p>	<p>Calcareous Lean Clay (CL, _sCL, CL_s)</p> <p>Sandy Clay (SC)</p> <p>Silt (ML, _sML, ML_s)</p>	<p>Lean Clay (CL, _sCL, CL_s)</p> <p>Sand (SP, SP/SM)</p> <p>Silty Sand (SM)</p> <p>Fat Clay (CH, _sCH, CH_s)</p>	<p>CL Lean Clay</p> <p>_sCL Sandy Lean Clay</p> <p>CL_s Lean Clay with Sand</p> <p>CH Fat Clay</p> <p>CH/SC Fat Clay with Sandy Clay</p>	<p>_sCH Sandy Fat Clay</p> <p>CH_s Fat Clay with Sand</p> <p>SC Sandy Clay</p> <p>CL/ML Lean Clay with Silt</p> <p>ML Silt</p>	<p>_sML Sandy Silt</p> <p>ML_s Silt with Sand</p> <p>SM Silty Sand</p> <p>SP Poorly Graded Sand</p> <p>SP/SM Poorly Graded Sand with Silt</p>
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Soil data taken from US Bureau of Reclamation San Joaquin River Restoration Program boring logs (2010-2014).
 Elevation profile taken from LiDAR data where available and from approximations of Google Earth elevations where LiDAR data is not available. View is looking down-river.

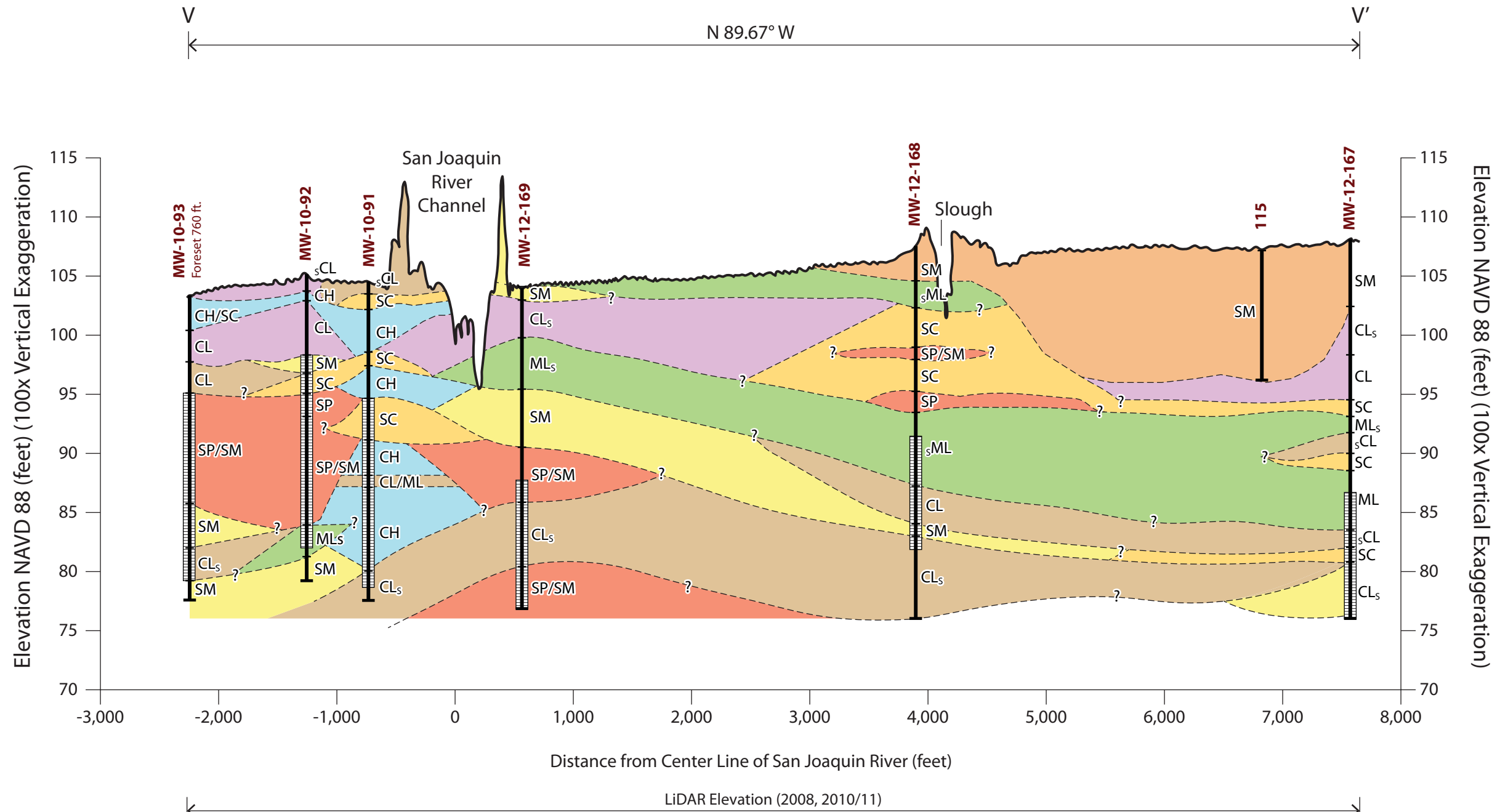
Note: Vertical Scale is Exaggerated 50 times



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W:\REPORTS\USBOR\San Joaquin River Restoration Program\Geologic Transects\Reach 4A_ESBP SJRRP Transect 173_9 - Geological Cross-Section.ai 04/29/15 JJT



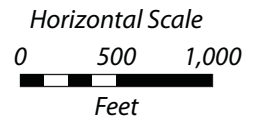
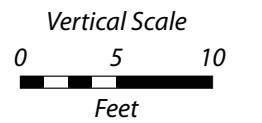


LEGEND

- | | | | | | |
|--|--|---|---|---|--|
| <p>MW-10-93</p> Well Identification
Ground Level
Well Casing
Well Screen Interval
Well Bottom | <p> Calcareous Lean Clay (CL, _sCL, CL_s)</p> <p> Lean Clay (CL, _sCL, CL_s)</p> <p> Sand (SP, SP/SM)</p> <p> Silty Sand (SM)</p> <p> Fat Clay (CH, CH/SC)</p> | <p> Sandy Clay (SC)</p> <p> Silt with Sand (ML_s)</p> <p> Lean Clay with Sand (CL_s)</p> <p> Fat Clay with Sandy Clay (CH/SC)</p> | <p> CL Lean Clay</p> <p> _sCL Sandy Lean Clay</p> <p> CL_s Lean Clay with Sand</p> <p> CH/SC Fat Clay with Sandy Clay</p> | <p> SC Sandy Clay</p> <p> CL/ML Lean Clay with Silt</p> <p> _sML Sandy Silt</p> | <p> ML_s Silt with Sand</p> <p> SM Silty Sand</p> <p> SP Poorly Graded Sand</p> <p> SP/SM Poorly Graded Sand with Silt</p> |
|--|--|---|---|---|--|

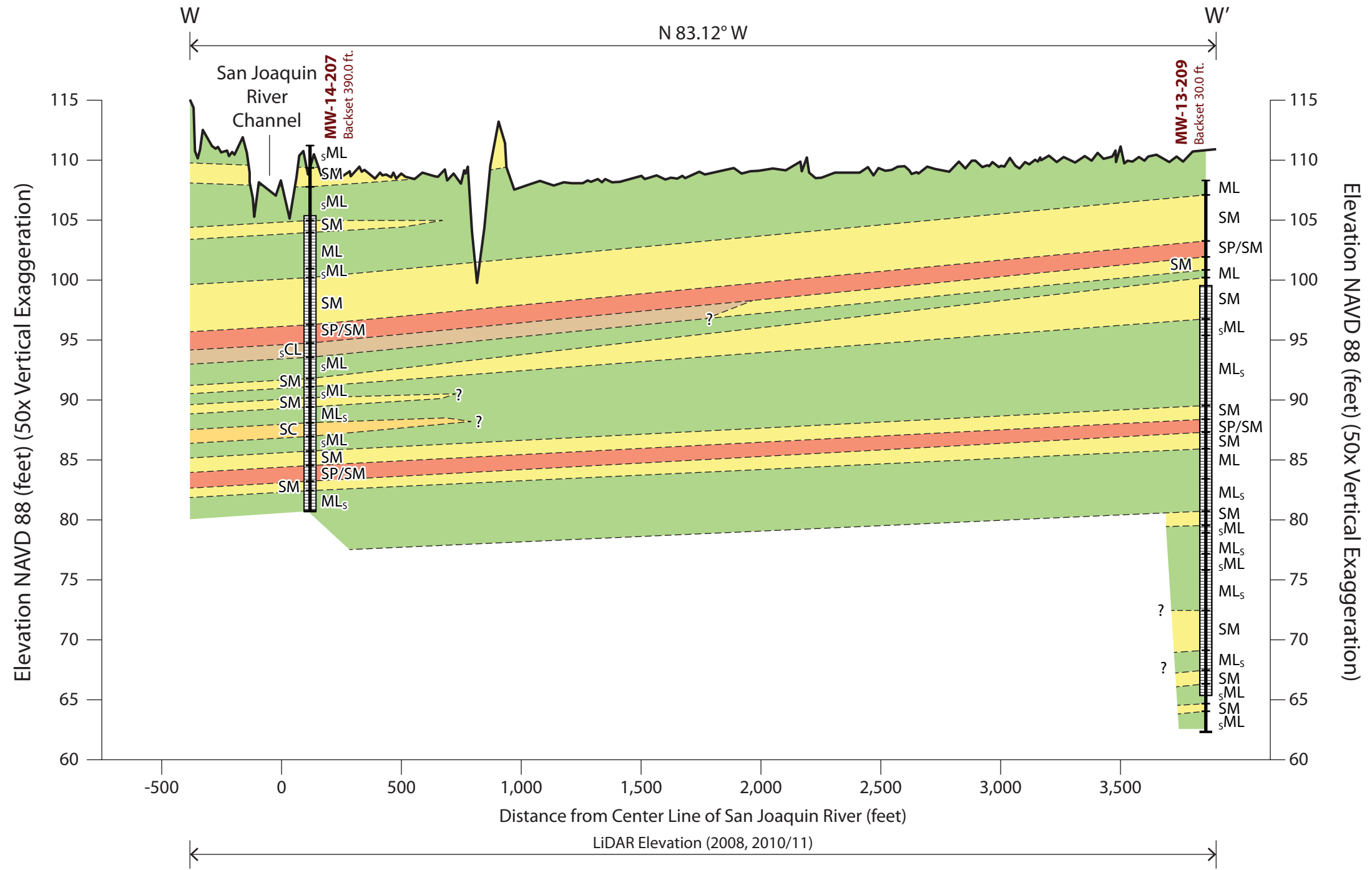
Soil data taken from US Bureau of Reclamation San Joaquin River Restoration Program boring logs (2010-2014).
 Elevation profile taken from LiDAR data where available and from approximations of Google Earth elevations where LiDAR data is not available.

Note: Vertical Scale is Exaggerated 100 times



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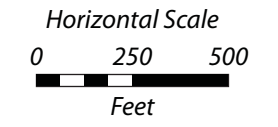
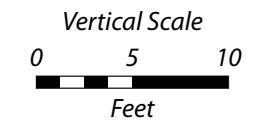




LEGEND

<p>MW-10-93</p> <p>Well Identification</p> <p>Ground Level</p> <p>Well Casing</p> <p>Well Screen Interval</p> <p>Well Bottom</p>	<p>Sandy Clay (SC)</p> <p>Silt (ML, sML, ML_s)</p>	<p>Lean Clay (CL, sCL, CL_s)</p> <p>Sand (SP, SP/SM)</p> <p>Silty Sand (SM)</p>	<p>CL Lean Clay</p> <p>sCL Sandy Lean Clay</p> <p>CL_s Lean Clay with Sand</p> <p>CH/SC Fat Clay with Sandy Clay</p>	<p>SC Sandy Clay</p> <p>CL/ML Lean Clay with Silt</p> <p>ML Silt</p> <p>sML Sandy Silt</p>	<p>ML_s Silt with Sand</p> <p>SM Silty Sand</p> <p>SP Poorly Graded Sand</p> <p>SP/SM Poorly Graded Sand with Silt</p>
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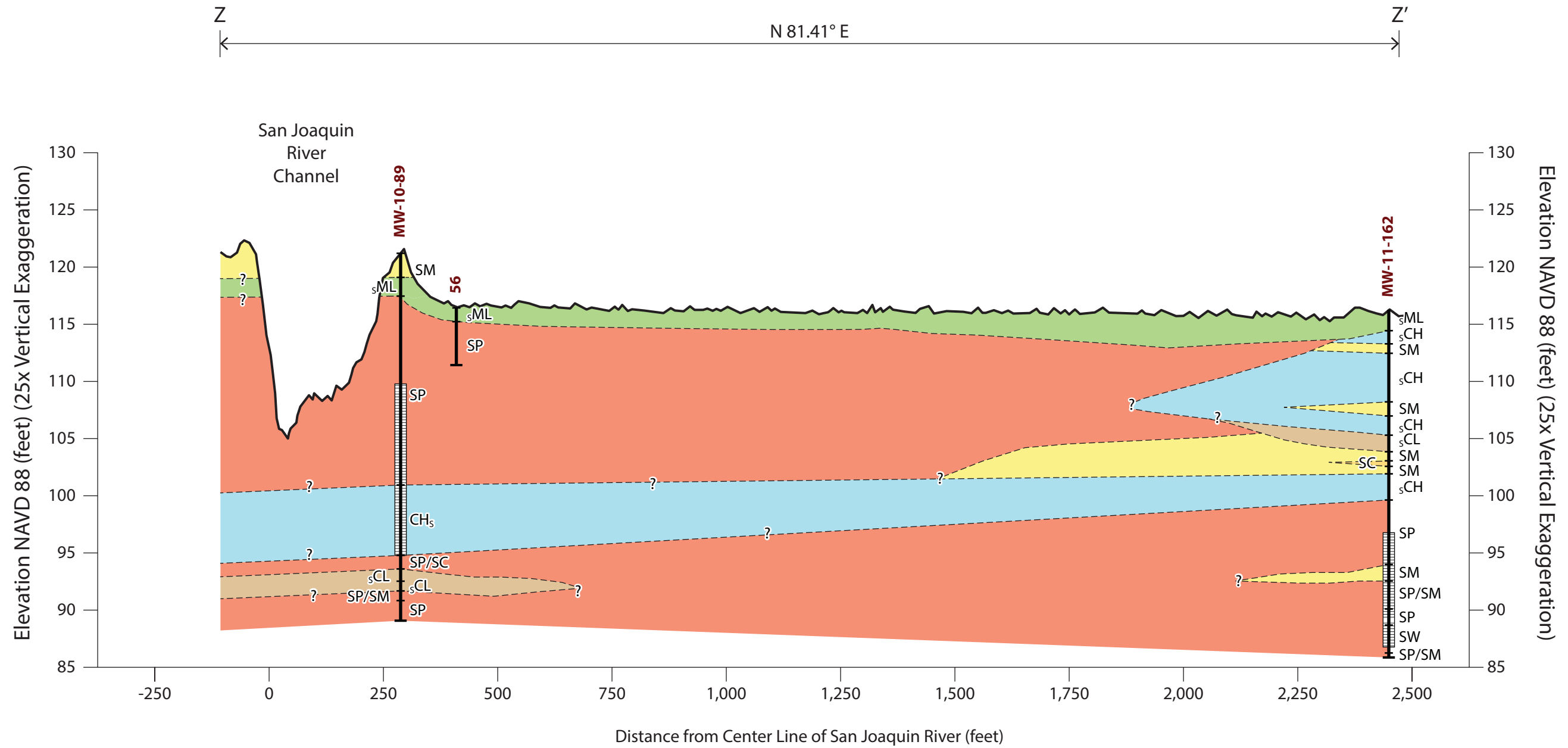
Note: Vertical Scale is Exaggerated 50 times



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Soil data taken from US Bureau of Reclamation San Joaquin River Restoration Program boring logs (2010-2014).
 Elevation profile taken from LiDAR data where available and from approximations of Google Earth elevations where LiDAR data is not available.



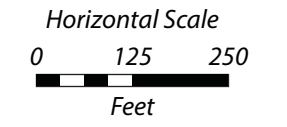
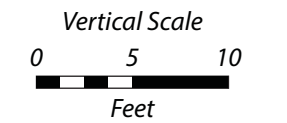


LEGEND

Well Identification Ground Level Well Casing Well Screen Interval Well Bottom	Sandy Clay (SC, SC/CL _s) Silt (ML, sML, ML _s) Lean Clay (CL, sCL, CL _s)	Sand (SP, SP/SM) Silty Sand (SM) Fat Clay (CH, sCH, CH _s)	CL Lean Clay sCL Sandy Lean Clay CL _s Lean Clay with Sand CH Fat Clay	SC Sandy Clay CL/ML Lean Clay with Silt ML Silt sML Sandy Silt	ML _s Silt with Sand SM Silty Sand SP Poorly Graded Sand SP/SM Poorly Graded Sand with Silt
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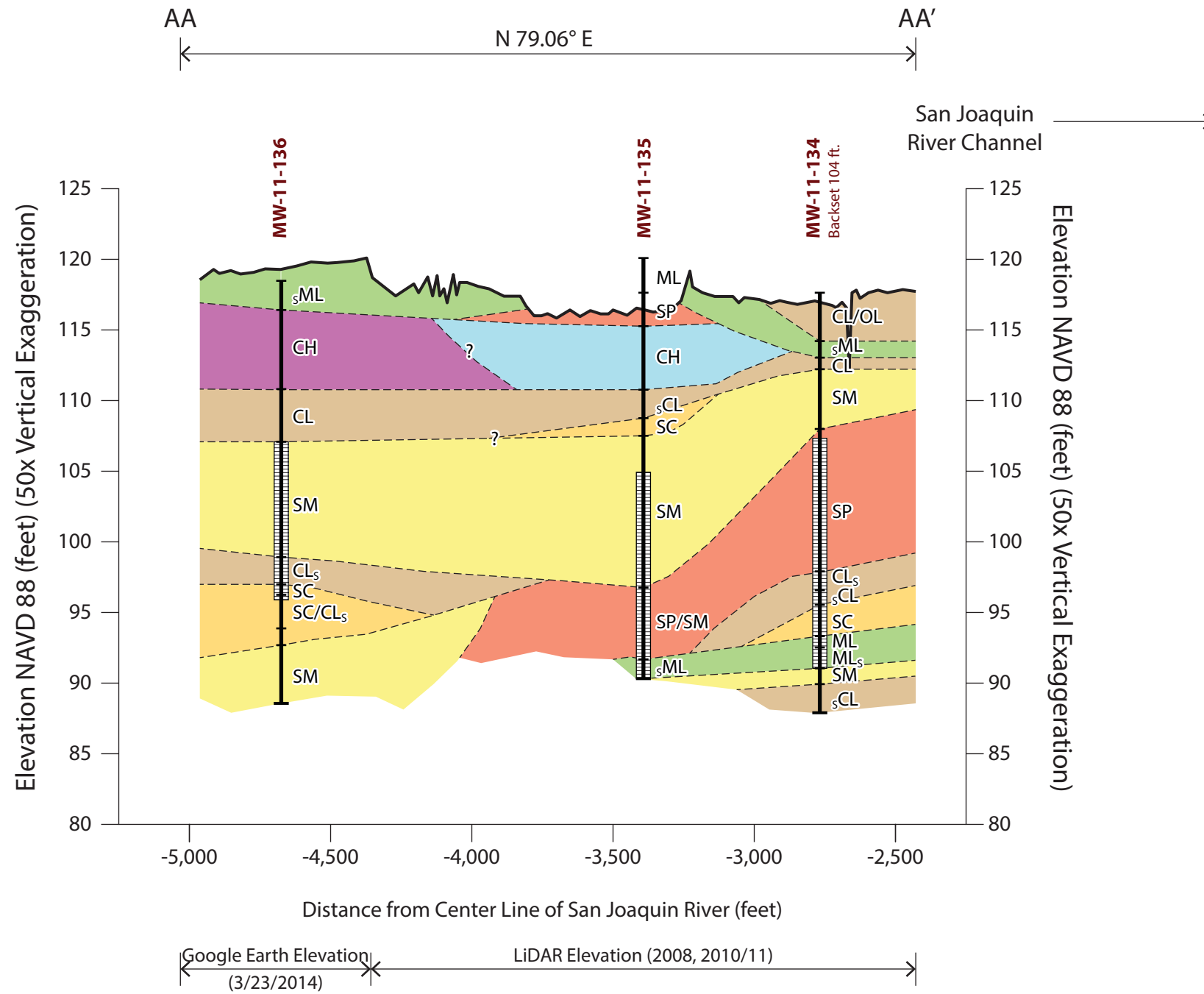
Soil data taken from US Bureau of Reclamation San Joaquin River Restoration Program boring logs (2010-2014).
 Elevation profile taken from LiDAR data where available and from approximations of Google Earth elevations where LiDAR data is not available.

Note: Vertical Scale is Exaggerated 25 times



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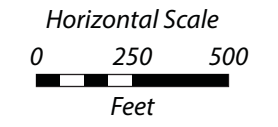
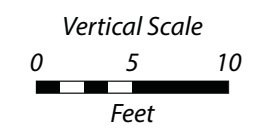


LEGEND

Well Identification Ground Level Well Casing Well Screen Interval Well Bottom	Calcareous Fat Clay (CH) Sandy Clay (SC, SC/CL _s) Silt (ML, sML, ML _s)	Lean Clay (CL, sCL, CL _s , CL/OL) Sand (SP, SP/SM) Silty Sand (SM) Fat Clay (CH)	CL Lean Clay sCL Sandy Lean Clay CL _s Lean Clay with Sand CH/SC Fat Clay with Sandy Clay	SC Sandy Clay CL/ML Lean Clay with Silt ML Silt sML Sandy Silt	ML _s Silt with Sand SM Silty Sand SP Poorly Graded Sand SP/SM Poorly Graded Sand with Silt CL/OL Lean Clay with Organics
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Soil data taken from US Bureau of Reclamation San Joaquin River Restoration Program boring logs (2010-2014).
 Elevation profile taken from LiDAR data where available and from approximations of Google Earth elevations where LiDAR data is not available.

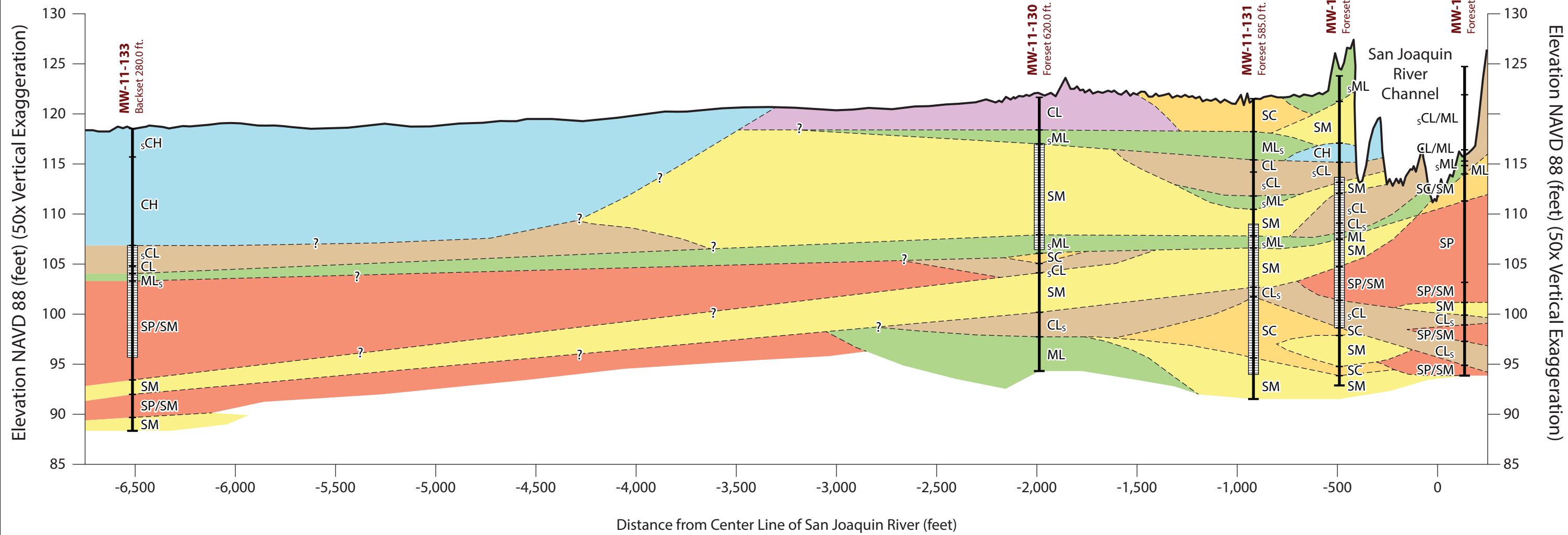
Note: Vertical Scale is Exaggerated 50 times



Draft – Subject to Revision



N 81.27° E



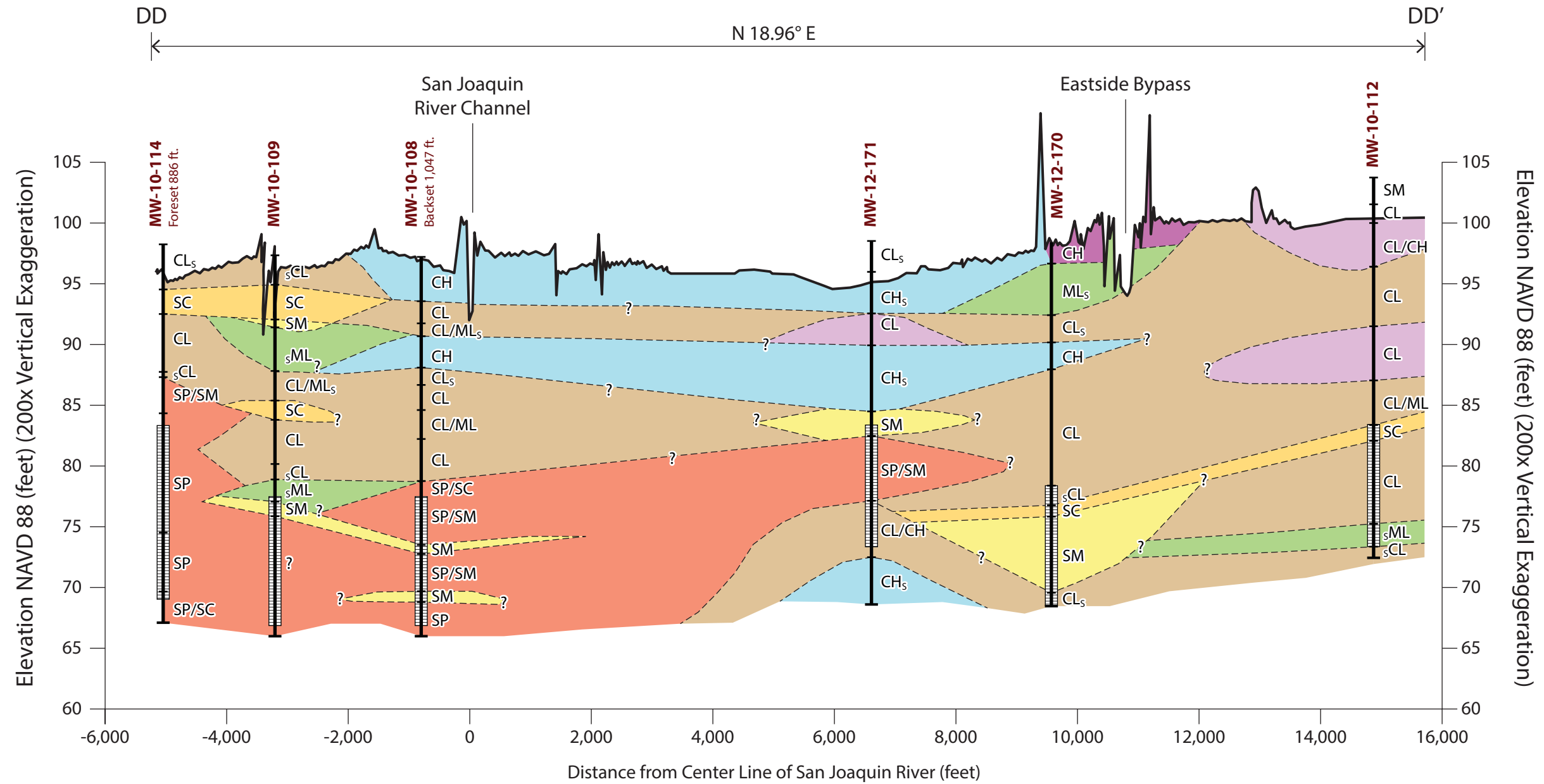
LEGEND

<p>MW-10-93</p> <ul style="list-style-type: none"> Well Identification Ground Level Well Casing Well Screen Interval Well Bottom 	<ul style="list-style-type: none"> Sandy Clay (SC, SC/SM) Calcareous Lean Clay (CL, _sCL, CL_s) Sandy Clay (SC) Silt (ML, _sML, ML_s) 	<ul style="list-style-type: none"> Lean Clay (CL, _sCL, CL_s) Sand (SP, SP/SM) Silty Sand (SM) Fat Clay (CH, _sCH, CH_s) 	<ul style="list-style-type: none"> CL Lean Clay _sCL Sandy Lean Clay CL_s Lean Clay with Sand CH/SC Fat Clay with Sandy Clay 	<ul style="list-style-type: none"> SC Sandy Clay CL/ML Lean Clay with Silt ML Silt _sML Sandy Silt 	<ul style="list-style-type: none"> ML_s Silt with Sand SM Silty Sand SP Poorly Graded Sand SP/SM Poorly Graded Sand with Silt SC/SM Sandy Clay with Silty Sand 	<p>Note: Vertical Scale is Exaggerated 50 times</p> <p><i>Vertical Scale</i></p> <p>0 5 10 Feet</p> <p><i>Horizontal Scale</i></p> <p>0 250 500 Feet</p>
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Soil data taken from US Bureau of Reclamation San Joaquin River Restoration Program boring logs (2010-2014).
Elevation profile taken from LiDAR data where available and from approximations of Google Earth elevations where LiDAR data is not available.

Draft – Subject to Revision



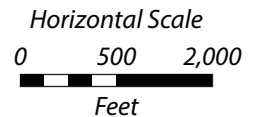
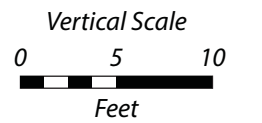


LEGEND

Well Identification Ground Level Well Casing Well Screen Interval Well Bottom	Calcareous Fat Clay (CH) Calcareous Lean Clay (CL, sCL, CLs, CL/CH) Calcareous Silty Sand (SM) Sandy Clay (SC) Silt (ML, sML, MLs)	Lean Clay (CL, sCL, CLs) Sand (SP, SP/SM) Silty Sand (SM) Fat Clay (CH, CH/SC)	Lean Clay (CL) Sandy Lean Clay (sCL) Lean Clay with Sand (CLs) Fat Clay (CH)	Sandy Clay (SC) Lean Clay with Silt (CL/ML) Silt (ML) Sandy Silt (sML)	Silt with Sand (MLs) Silty Sand (SM) Poorly Graded Sand (SP) Poorly Graded Sand with Silt (SP/SM)
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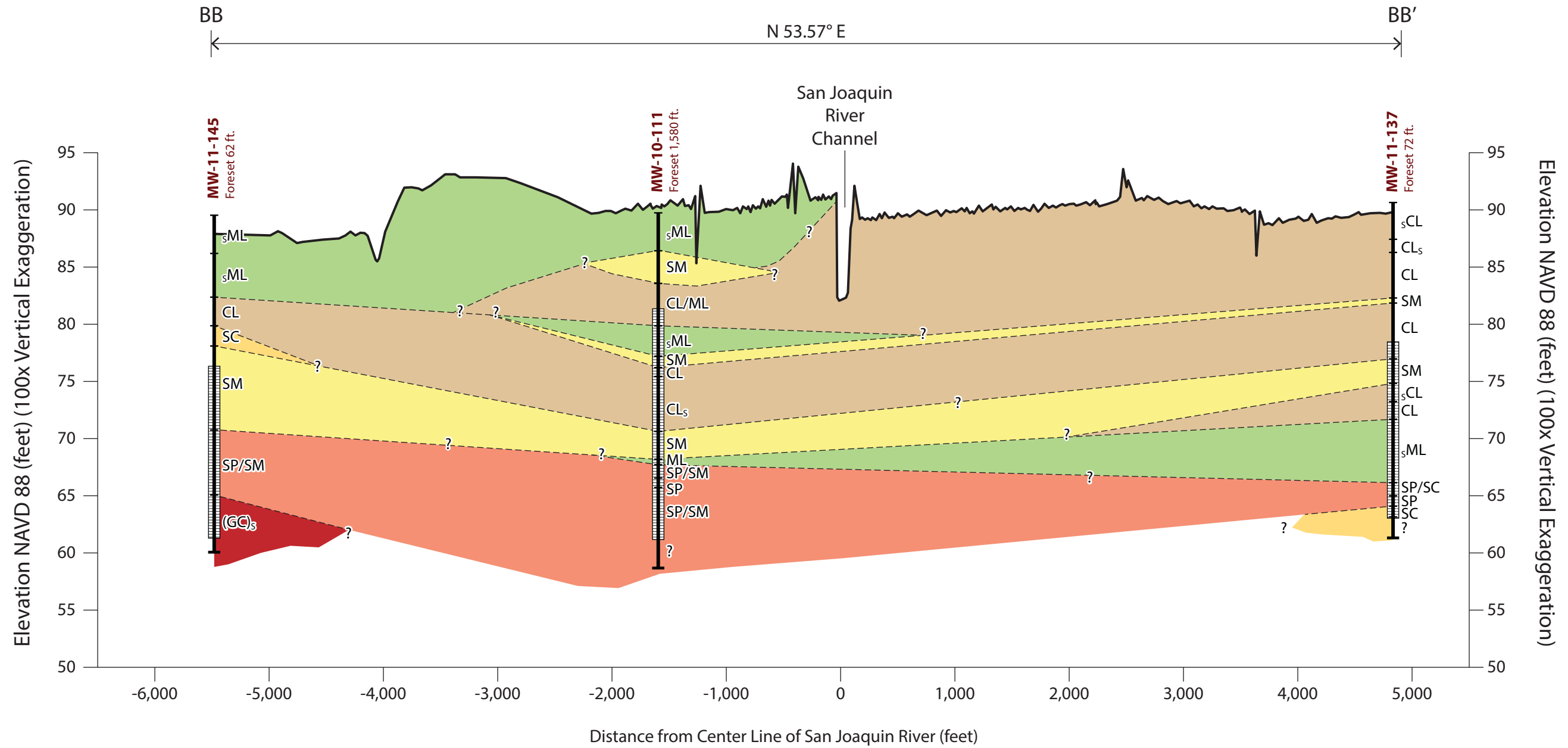
Soil data taken from US Bureau of Reclamation San Joaquin River Restoration Program boring logs (2010-2014).
 Elevation profile taken from LiDAR data where available and from approximations of Google Earth elevations where LiDAR data is not available.

Note: Vertical Scale is Exaggerated 200 times



Draft – Subject to Revision





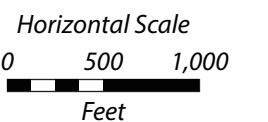
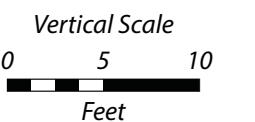
LEGEND

Well Identification Ground Level Well Casing Well Screen Interval Well Bottom	Sandy Clay (SC) Silt (ML, sML, MLs) Lean Clay (CL, sCL, CLs)	Sand (SP, SP/SM) Clayey Gravel (GCs) Silty Sand (SM)	CL Lean Clay sCL Sandy Lean Clay CLs Lean Clay with Sand CH Fat Clay GCs Clayey Gravel with Sand	sCH Sandy Fat Clay CHs Fat Clay with Sand SC Sandy Clay CL/ML Lean Clay with Silt ML Silt	sML Sandy Silt MLs Silt with Sand SM Silty Sand SP Poorly Graded Sand SP/SM Poorly Graded Sand with Silt SW/SM Well Graded Sand with Silt
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Soil data taken from US Bureau of Reclamation San Joaquin River Restoration Program boring logs (2010-2014).

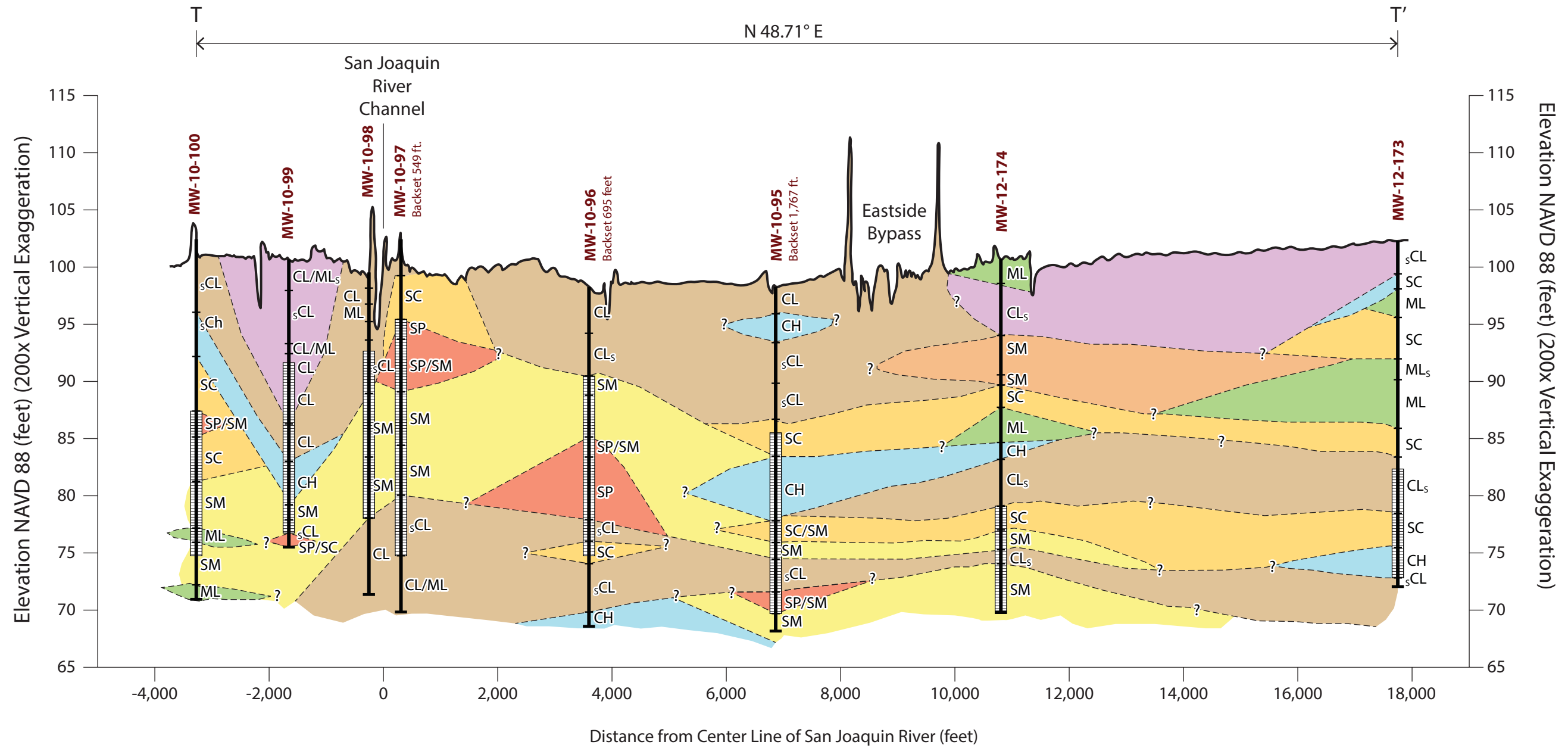
Elevation profile taken from LiDAR data where available and from approximations of Google Earth elevations where LiDAR data is not available. View is looking down-river.

Note: Vertical Scale is Exaggerated 100 times



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N 48.71° E

San Joaquin River Channel

Eastside Bypass

Elevation NAVD 88 (feet) (200x Vertical Exaggeration)

Elevation NAVD 88 (feet) (200x Vertical Exaggeration)

Distance from Center Line of San Joaquin River (feet)

LiDAR Elevation (2008, 2010/11)

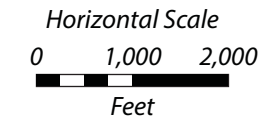
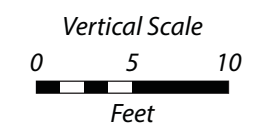
Google Earth Elevation (3/23/2014)

LEGEND

<p>MW-10-93</p> <p>Well Identification</p> <p>Ground Level</p> <p>Well Casing</p> <p>Well Screen Interval</p> <p>Well Bottom</p>	<p>Calcareous Lean Clay (CL, _sCL, CL_s)</p> <p>Calcareous Silty Sand (SM)</p> <p>Sandy Clay (SC)</p> <p>Silt (ML, _sML, ML_s)</p>	<p>Lean Clay (CL, _sCL, CL_s)</p> <p>Sand (SP, SP/SM)</p> <p>Silty Sand (SM)</p> <p>Fat Clay (CH, _sCH, CH_s)</p>	<p>CL Lean Clay</p> <p>_sCL Sandy Lean Clay</p> <p>CL_s Lean Clay with Sand</p> <p>CH/SC Fat Clay with Sandy Clay</p>	<p>SC Sandy Clay</p> <p>CL/ML Lean Clay with Silt</p> <p>ML Silt</p> <p>_sML Sandy Silt</p>	<p>ML_s Silt with Sand</p> <p>SM Silty Sand</p> <p>SP Poorly Graded Sand</p> <p>SP/SM Poorly Graded Sand with Silt</p>
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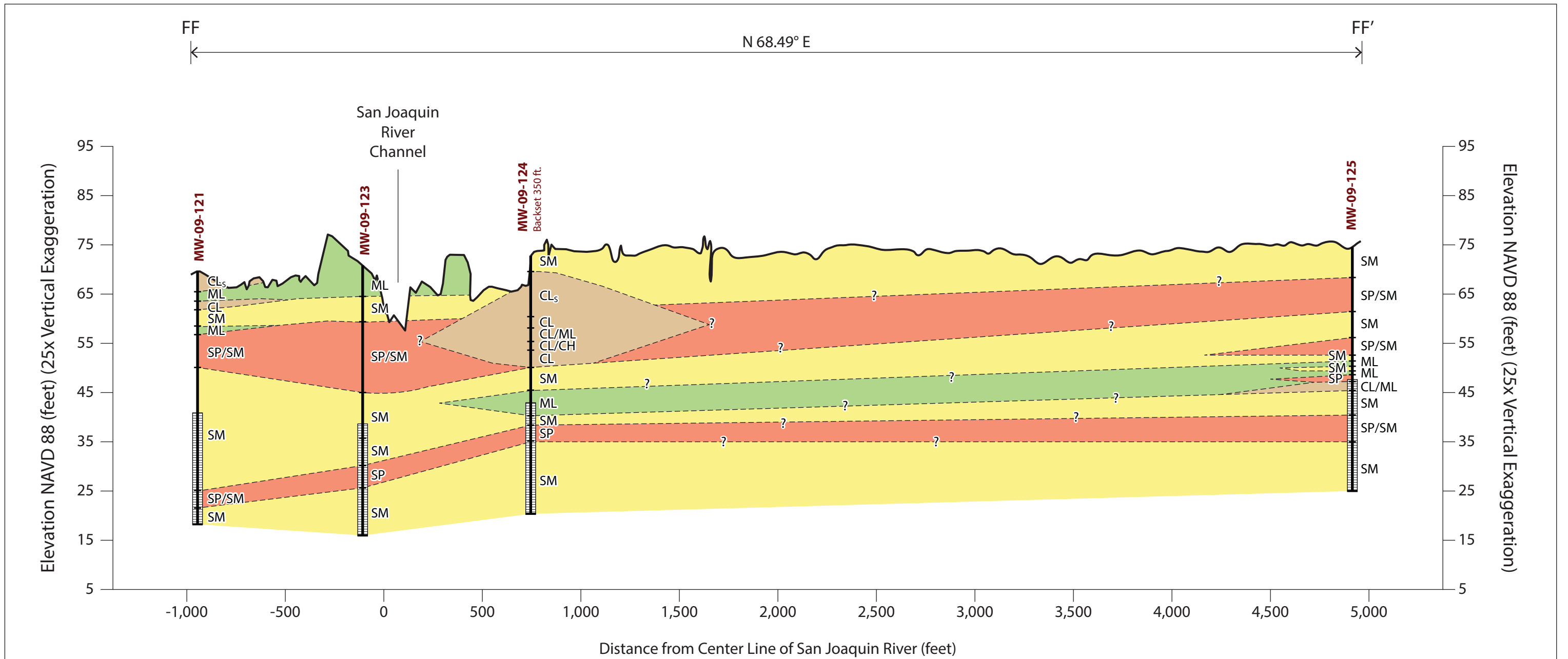
Soil data taken from US Bureau of Reclamation San Joaquin River Restoration Program boring logs (2010-2014).
 Elevation profile taken from LiDAR data where available and from approximations of Google Earth elevations where LiDAR data is not available. View is looking down-river.

Note: Vertical Scale is Exaggerated 200 times



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Distance from Center Line of San Joaquin River (feet)

LiDAR Elevation (2008, 2010/11) * Google Earth Elevation (3/23/2014)

LEGEND

MW-10-93	Well Identification	Silt (ML, _s ML, ML _s)	Lean Clay (CL, _s CL, CL _s)	CL	Lean Clay	SC	Sandy Clay	ML _s	Silt with Sand
	Ground Surface	Silty Sand (SM)	Sand (SP, SP/SM)	_s CL	Sandy Lean Clay	CL/ML	Lean Clay with Silt	SM	Silty Sand
	Well Casing			CL _s	Lean Clay with Sand	ML	Silt	SP	Poorly Graded Sand
	Well Screen Interval			CH/SC	Fat Clay with Sandy Clay	_s ML	Sandy Silt	SP/SM	Poorly Graded Sand with Silt
	Well Bottom							GP _s	Poorly Graded Gravel with Sand

Soil data taken from US Bureau of Reclamation San Joaquin River Restoration Program boring logs (2010-2014).
Elevation profile taken from LiDAR data where available and from approximations of Google Earth elevations where LiDAR data is not available.

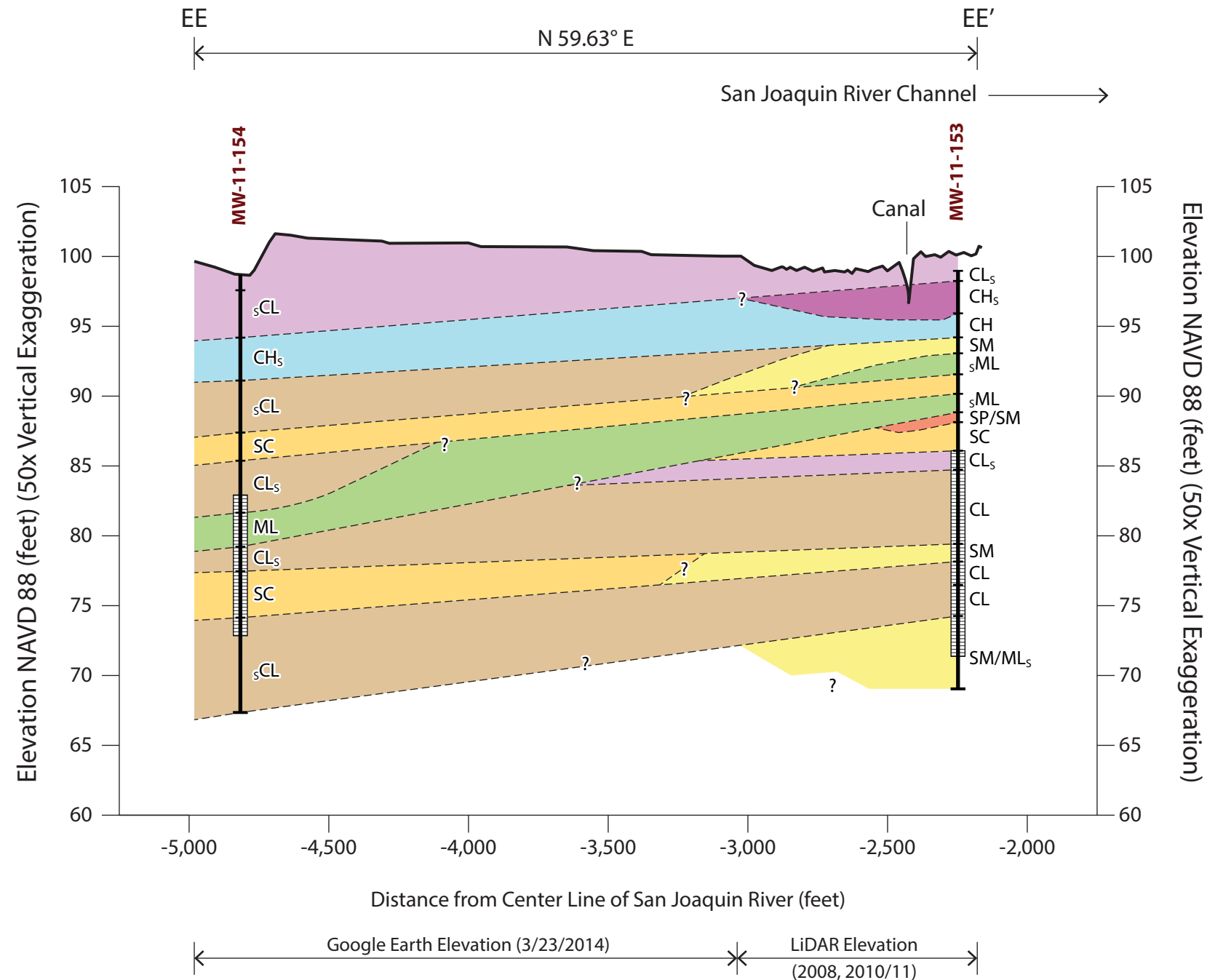
Note: Vertical Scale is Exaggerated 25 times

Vertical Scale
0 10 20
Feet

Horizontal Scale
0 500 500
Feet



W:\REPORTS\USBOR\San Joaquin River Restoration Program\Geologic Transects\Reach 5_SJRRP Transect 125.1 - Geological Cross-Section.ai 02/17/15 JJT

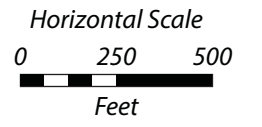
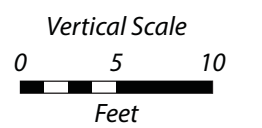


LEGEND

Well Identification Ground Level Well Casing Well Screen Interval Well Bottom	Calcareous Fat Clay (CH _s) Calcareous Lean Clay (CL, sCL, CL _s) Sandy Clay (SC) Silt (ML, sML, ML _s)	Lean Clay (CL, sCL, CL _s) Sand (SP, SP/SM) Silty Sand (SM, SM/ML) Fat Clay (CH, CH/SC)	CL Lean Clay sCL Sandy Lean Clay CL _s Lean Clay with Sand CH/SC Fat Clay with Sandy Clay	SC Sandy Clay CL/ML Lean Clay with Silt ML Silt sML Sandy Silt	ML _s Silt with Sand SM Silty Sand SP Poorly Graded Sand SP/SM Poorly Graded Sand with Silt
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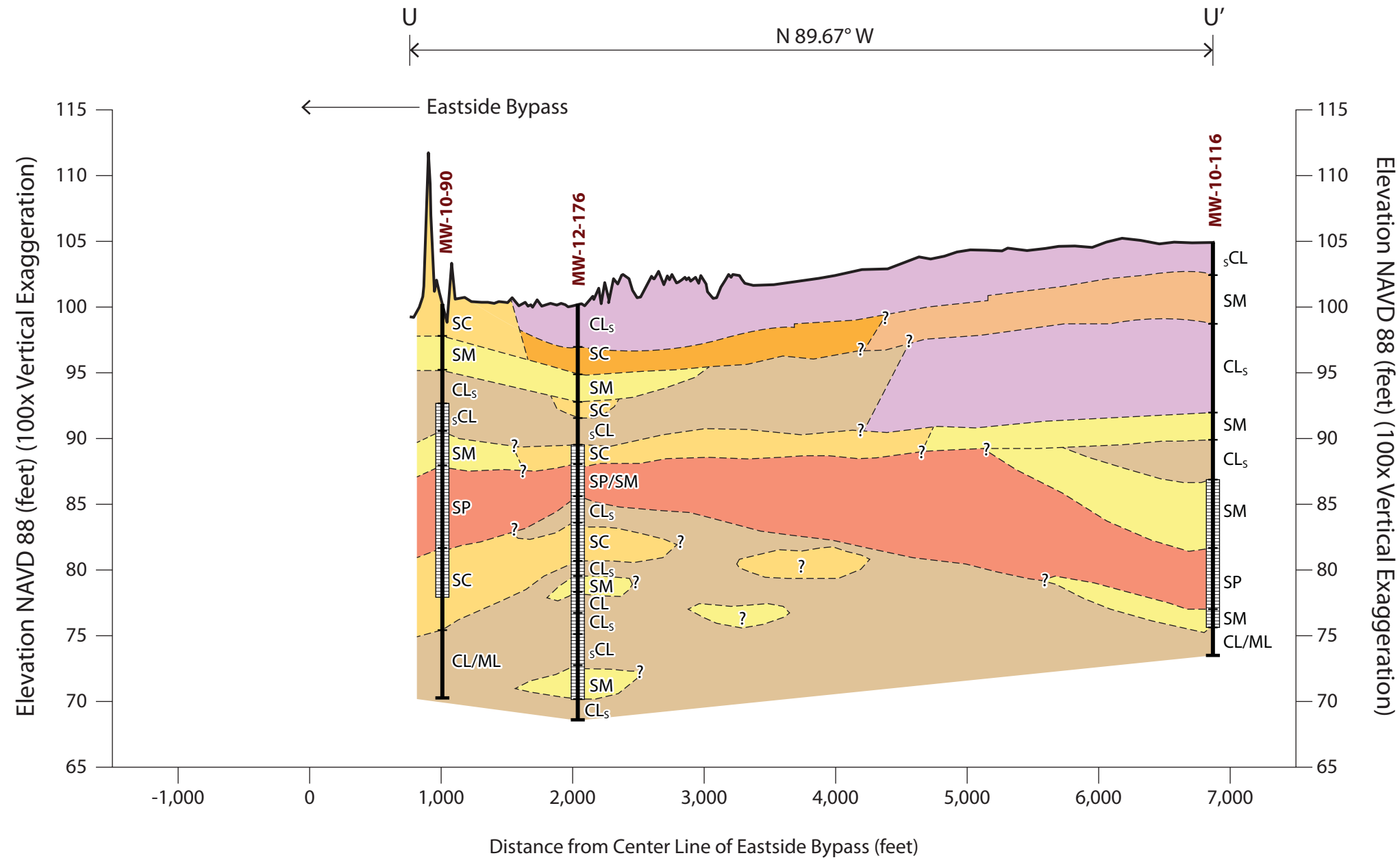
Soil data taken from US Bureau of Reclamation San Joaquin River Restoration Program boring logs (2010-2014).
 Elevation profile taken from LiDAR data where available and from approximations of Google Earth elevations where LiDAR data is not available.

Note: Vertical Scale is Exaggerated 50 times



Draft – Subject to Revision



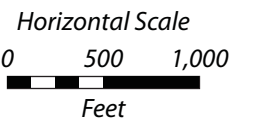
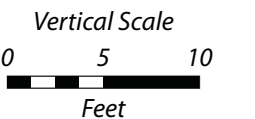


LEGEND

Well Identification Ground Level Well Casing Well Screen Interval Well Bottom	Calcareous Lean Clay (CL, sCL, CLs) Calcareous Silty Sand (SM) Sandy Clay (SC) Calcareous Sandy Clay (SC) Silt (ML, sML, MLs)	Lean Clay (CL, sCL, CLs) Sand (SP, SP/SM) Silty Sand (SM) Fat Clay (CH, CH/SC)	CL Lean Clay sCL Sandy Lean Clay CLs Lean Clay with Sand CH Fat Clay CH/SC Fat Clay with Sandy Clay	sCH Sandy Fat Clay CHs Fat Clay with Sand SC Sandy Clay CL/ML Lean Clay with Silt ML Silt	sML Sandy Silt MLs Silt with Sand SM Silty Sand SP Poorly Graded Sand SP/SM Poorly Graded Sand with Silt
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Soil data taken from US Bureau of Reclamation San Joaquin River Restoration Program boring logs (2010-2014).
 Elevation profile taken from LiDAR data where available and from approximations of Google Earth elevations where LiDAR data is not available. View is looking down-river.

Note: Vertical Scale is Exaggerated 100 times



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