

Revised July 8, 2024

SUBJECT: Village Farms Project: Biological Wetland Avoidance Alternative:  
2-Dimensional Hydraulic Modeling  
(RICK Engineering Company Job Number 19926)

## **1.0 Introduction**

This memorandum presents the results of the initial hydrologic and 2-Dimensional (2D) hydraulic analysis prepared for the proposed Village Farms: Biological Wetland Avoidance (BWLA) alternative project in the City of Davis, County of Yolo, California. The proposed project site is shown on the vicinity map in Figure 1, following, and the general land plan for the alternative is included in Attachment 4. The project consists of approximately 497.6 acres, currently undeveloped, and proposed as a residential development and associated improvements. The project proposes to fill the majority of the site above the floodplain and construct a channel to provide conveyance for flood flows around the site. The project also includes a large soil borrow area to the north to provide fill to the proposed development. The BWLA site plan proposes to exclude the development of an area in the southwest corner of the site, north of the Cannery development to avoid a biological wetland avoidance area. Due to the complexity of the flooding in the project vicinity, a 2D model to analyze the proposed project impacts has been prepared.

The area around the proposed Village Farms project site is subject to flooding from the 100-year storm event in the existing and proposed condition. As shown in the vicinity map, flow from Covell Drain (also known as Channel A) and the H Street pump outlet channel enters the site from the west. The two channels merge on the west project edge and continue east through a culvert under Pole Line Road and through the Wildhorse golf course. Additionally, the North Davis Drain channel flows parallel to the northern site boundary and around the bermed City of Davis site on the north. Flow from the North Davis Drain in excess of the channels capacity spill across the farm field and overflow into the conveyance for Covell Drain. Downstream of the proposed project site, North Davis Drain and Covell Drain combine and flow northeast to a backflow gated structure through the levee to Willow Slough. A series of drainage exhibits prepared by Cunningham Engineering is included in Appendix 4 that shows the overall regional drainage features and summarizes the existing and proposed drainage paths and features in the vicinity of the project site.

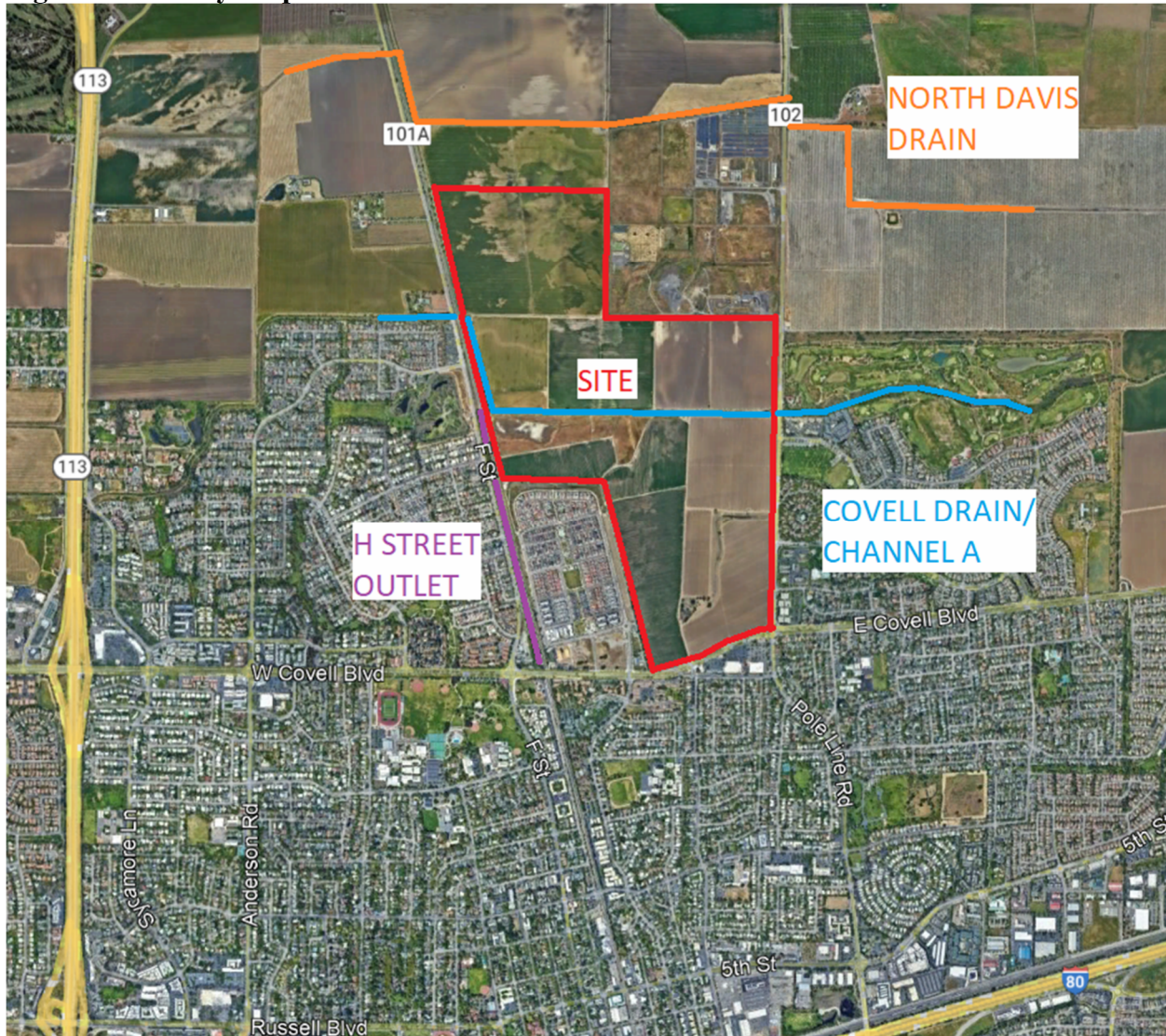
### ***1.1 FEMA Flood Zone***

Portions of the project site are located within Federal Emergency Management Agency (FEMA) Zone A flooding per FEMA Flood Insurance Rate Map (FIRM) numbers 06113C0603G and 06113C0611G, both effective June 18, 2010. Both FIRMs were revised by LOMR 20-09-2115R, effective August 15, 2022. This LOMR revised the mapped flooding adjacent to the proposed project site, but in coordination with the engineers that prepared the LOMR, flow from the study revision does not impact the property site. Proposed structures adjacent to the mapping from the LOMR will be elevated above the inundation consistent with FEMA and City requirements. Annotated copies of the FIRMs and the LOMR are included in Appendix 5. Additional discussion comparing the results of the modeling developed with this report compared to the Zone A approximate flood limits is included in Section 5.1.

### 1.2 Previous Studies

It is our understanding that there have been two studies that have modeled flooding in the vicinity of the project site.

**Figure 1: Vicinity Map**



“Covell Drainage System Comprehensive Drainage Plan” by Borcalli and Associates, dated September 1993.

This analysis (the B&A study) includes a HEC-1 hydrologic model for the watersheds tributary to Davis, an excerpted “Principal Watersheds Map” from the B&A study is included in Appendix 4. The B&A model is strictly a hydrologic model, though many stage-storage analysis points were added to the model to estimate storage and split flows throughout the watershed. The B&A model includes North Davis Drain and Covell Drain watersheds.

The analysis completed for this 2D study includes much more detail in the modeled reach and includes multiple areas where flow from North Davis Drain and Covell Drain split or come together with each other in the vicinity of the project site that is not included in the B&A HEC-1 analysis.

“Flood Control Master Plan for the Cannery” by MacKay and Soms, dated November 2, 2012.

This analysis (the M&S study) made edits to and incorporated the HEC-1 hydrographs from the B&A study into a HEC-RAS 1D unsteady state hydraulic model for the Cannery project. The Cannery project has since been constructed and can be seen in Figure 1, southwest of the Village Farms site, east of F Street, and North of Covell Boulevard. This M&S study appears to be the first to identify the potential for split flow from Covell Drain, through the farm field north of Covell Drain, and across Pole Line Road to the northeast to North Davis Drain.

The M&S study shows the majority of the peak flow in Covell Drain being conveyed through the culvert under Pole Line and remaining within Covell Drain. The current 2D analysis determines that the majority of the flow actually splits from Covell Drain and flows to North Davis Drain. Additionally, the M&S study does not include the North Davis Drain flow in the analysis. The analysis completed for this 2D study found that there is potential for flow to split from North Davis Drain (west of the City site) and flow from the north to come together with Covell Drain.

### ***1.3 Applicable Standards***

The project will comply with the City of Davis “Public Works Revised Design Standards” dated September 1991. The project is also anticipated to comply with the State of California Department of Water Resources “Urban Level of Flood Protection Criteria” dated November 2013.

## **2.0 Hydrology**

### ***2.1 HEC-RAS Model Inflows***

RICK has analyzed four storm events in this analysis: the 200-year, 10-day; the 100-year, 10-day; the 100-year, 24-hour; and the 10-year, 24-hour. The flow information utilized in the 2D HEC-RAS hydraulic analysis was taken from a study prepared for the Cannery project adjacent to the project site and provided to RICK by the City of Davis. The study included both HEC-1 hydrology and a 1D unsteady state HEC-RAS hydraulic analysis. Rough basin maps for the HEC-1 analysis are included in Appendix 4 and the digital files for the HEC-1 and HEC-RAS analyses from the Cannery project are included with the electronic files in Appendix 7 for reference. No edits were made to the basin parameters, routing, or hydraulic analysis from the Cannery models for use in the HEC-RAS analysis prepared for this study. The hydrographs used for inflows in the Village Farms analysis were taken from the DSS files from the models. Please refer to the discussion in Section 4.5.1 for more detail on the source of the specific inflow hydrographs used in the HEC-RAS model.

**2.2 Proposed Condition Volumetric Analysis**

The proposed project includes onsite peak flow attenuation to mitigate the potential for increased peak flows due to the increased imperviousness within the Covell Drain watershed from the development of the Village Farms project. The Covell Drain watershed is shown on the rough watershed exhibits included in Appendix 4. This local analysis has been prepared separately by Cunningham Engineering Company. Per coordination with the City, it was requested that RICK prepare an analysis to compare the volumetric impacts resulting from the proposed project, noting the potential for volumetric impacts downstream of the project.

To analyze the potential impacts, RICK has prepared a revised HEC-1 analysis for the four modeled storms. The HEC-1 models have been modified to reflect the proposed land use of the project. In the effective hydrologic model, the proposed project site consists of three separate basins. The model was revised to combine these basins into one and revises the land use curve number to reflect the developed condition of the project with no revision or addition to the storage in the model to isolate the volumetric change as a result of the project. The edits made are flagged by “RICK EDITS” in the HEC-1 data included with the electronic files in Appendix 7. A text search for the flag will provide the start and end locations for the RICK edits for the models.

**Table 1: Hydrologic Values**

Condition	Basin	Curve Number	Lag (hr)	Area (sqmi)
Pre-Project (Combined Basins)	CDEX1	51	0.41	0.2983
	CDEX2	51	0.31	0.07594
	CDE2	51	0.37	0.217
	Total Area (sqmi)			0.59124
Post-Project	CDE2	92	0.25	0.59124

The curve number utilized for the proposed condition of the site is represented by residential lots with an average lode size of 1/8 acre or less with Type D soils per TR-55 guidance. The lag was assumed to be reduced with the development of the site compared to pre-project and utilizes 15 minutes which is anticipated to be conservative.

**3.0 Hydrologic Results**

The results of the proposed condition volumetric analysis are summarized in Tables 2 and 3 following. Copies of the HEC-1 models are included with the electronic files in Appendix 7.

**Table 2: Volumetric Model Peak Flows**

Model Node	Peak Flow (cfs)							
	200-Yr 10-Dy		100-Yr 10-Dy		100-Yr 24-Hr		10-Yr 24-Hr	
	Existing	Proposed	Existing	Proposed	Existing	Proposed	Existing	Proposed
AW	1339	1344	1291	1297	1048	1050	539	566
EP-C	3392	3399	3328	3334	966	990	238	256

Node AW is on Covell Drain downstream of the proposed project site and node EP-C is the peak flow to the ponding in East Davis. An annotated map is included in Appendix 4 showing the locations of the model nodes listed in Table 2. No storage processes were added to the model to account for the project’s peak flow attenuation. Therefore, Table 2 shows increased peak flows between the existing and proposed condition analyses downstream of the proposed project conservatively neglecting volume attenuation.

**Table 3: East Davis Ponding**

	200-Yr 10-Dy		100-Yr 10-Dy		100-Yr 24-Hr		10-Yr 24-Hr	
	Existing	Proposed	Existing	Proposed	Existing	Proposed	Existing	Proposed
Peak Stage (ft)	27.29	27.34	27.05	27.10	20.78	20.84	17.91	17.98
Volume (acft)	22219	22405	21326	21512	4373	4478	1060	1125
Volume Delta (acft)	186		186		106		65	

Table 3 summarizes the volumetric change analyzed in the HEC-1 model resulting from the proposed Village Farms project. The volume values in Table 3 are interpolated from the stage-storage values in the HEC-1 model for the ponding in east Davis. Figure 2 in Section 4.6 compares the HEC-1 stage-storage relationship for the east Davis pond to the relationship developed in the 2D analysis of this study.

It should be noted that the model does not include any diversion of flow through the levee at Willow Slough that exists in actual conditions. There are flap gates on the structure that allows flow from the Davis side of the levee to flow into Willow Slough, but do not allow flow from Willow Slough to flow out of the levee. The model essentially assumes that the stage in Willow Slough is high enough that the flap gates are closed such that all flow within the City side of the levee will pond at the eastern side of Davis instead of flowing into the slough.

Also, as noted above, no storage processes were added to the model to account for the project’s peak flow attenuation. All runoff from the upstream watershed is routed to the east Davis pond to determine the peak stage listed in Table 3. As shown in Table 3 given these conservative assumptions, the maximum increase in peak stage is 0.07 feet and occurs in the 10-year, 24-hour storm event. Based on the hydraulic analysis discussed below, it is anticipated that the volumetric impact at the east pond may be offset by the additional storage volume provided by the proposed project grading, please also refer to the additional discussion provided in Section 5.2 discussing the net impact of the hydrologic and hydraulic analysis for the proposed project.

**4.0 Hydraulics**

In this study the U.S. Army Corps of Engineers HEC-RAS Water Surface Profiles program version 6.4.1, was utilized to model the existing and proposed conditions of the project in a 2D unsteady state analysis. Maps showing the geometry of the 2D models are included in Appendix 3.

#### ***4.1 Topography***

The topographic information used to develop the terrain for the HEC-RAS model came from two sources. The site topography was provided by Cunningham Engineering and consists of 1ft contours on the NGVD-29 vertical datum. Supplemental topography for outside of the site topographic limits consists of USGS 1-meter resolution data collected from the 3D Elevation Program on the NAVD-88 vertical datum. All model and result data is on the NAD-83 horizontal datum and the NGVD-29 vertical datum. Per coordination with the project's surveyor NAVD-88 elevations are 2.4' above NGVD-29 elevations, a copy of the datum conversion email is included in Appendix 6.

The proposed site grading was utilized for the proposed condition models. Additionally, the existing surface was edited as required to allow the modeling of field measured hydraulic structures.

#### ***4.2 Manning's n Values***

Manning's n-values were assigned to the model based on aerial imagery and a visit to the site on October 4, 2023. The Manning's n-values used in the model were 0.020 for existing roadways and 0.060 for the remainder of the modeled area. RICK compared these values to a Technical Memorandum from West Yost titled "CIP No. 8276: City of Davis – Evaluation of the Potential for the Covell Drain to Flood the H Street Pump Station Watershed" dated December 2019. The values were found to be consistent with the more conservative values in the memorandum. We believe that they are reasonable and conservative for estimating WSELs in the projects vicinity.

Additionally, the Manning's n-values used were consistent between the existing and proposed conditions. This was done to allow a fair comparison between the conditions reflecting a similar level of maintenance as it is not anticipated that the level of vegetation will change materially between the conditions.

#### ***4.3 Breaklines***

Breaklines were added to the 2D mesh at the locations where high ground separated areas of low ground. Examples of this include elevated roadways, berms, and ditches. Breaklines force the 2D mesh to capture areas of high ground so that the program does not allow flow to erroneously travel from one side of the high ground to the other.

#### ***4.4 Internal Connections***

Internal connections were utilized throughout the model to capture the majority of the existing and proposed hydraulic structures within the 2D area. The existing culverts in the models were added based on as-built information, survey, and field measurements. As-built plans are included in Appendix 6.

#### ***4.5 Boundary Conditions***

##### ***4.5.1 Inflow:***

As mentioned in Section 2.1, inflow hydrographs for the 2D analysis were taken from a study prepared for the Cannery project from both HEC-1 hydrology and a 1D unsteady state HEC-RAS hydraulic analysis. The inflow hydrographs were gathered for four storm events: the 200-year,

10-day; the 100-year, 10-day; the 100-year, 24-hour; and the 10-year, 24-hour. The existing condition hydrographs were used for both the existing and proposed condition models as the project will mitigate the potential for increased peak flows due to the increased imperviousness within the site as discussed in Section 2. The bullet points below summarize the sources of the inflow hydrographs used in the models, the HEC-RAS 2D inflow node is listed followed by the source location in the effective model and a brief description of the inflow. An annotated map is included in Appendix 4 showing the locations of the model nodes listed for the HEC-1 model below.

The following hydrographs were extracted from the Cannery HEC-RAS 1D unsteady state, Developed condition models. Plans: City 10yr 24h, City 100yr 24h, Safe Flood 100yr 10d, and Safe Flood 200yr 10d:

- BCLine: Inflow\_CD: “River: Covell; Reach: Below RR; Cross Section: 1508” Flow in Covell Drain at cross section just downstream of the culvert under F Street.
- BCLine: Inflow\_HStOutlet: “River: F Street; Reach: Channel; Cross Section: 21625” Flow in the H Street Channel at cross section just downstream of the railroad bridge that is on the north side of the Cannery development.
- BCLine: Inflow\_Cannery: “Det Basin to CDE” Outflow from the Cannery detention basin outlet weir.

The following hydrographs were extracted from the Cannery HEC-1 hydrology models. File names: D\_CI\_10\_24.DAT, D\_CI\_100\_24.DAT, D\_SF\_100\_10.DAT, and D\_SF\_200\_10.DAT:

- BCLine: Inflow\_NDD: “NDD” Flow from North Davis Drain at F Street and the Railroad crossing.
- 2D: “NDD3” Basin that consists of the generally undeveloped area north of Davis and east of F Street. This area is generally representative of the undeveloped farmland north and east of the City of Davis. This flow has been converted to inches of precipitation using the time step and basin area and is applied as precipitation across the 2D model area.
- BCLine: Inflow\_D5: “D5” Flow from hydrologic basin D5. Flow is from the storm drain system in Pole Line Road that is conveyed north and outlets at the culvert for Covell Drain under Pole Line Road.
- BCLine: D6\_Inflow: “D6” Flow from hydrologic basin D6. Flow is from the storm drain system flowing from south to north under the Wildhorse development and outlets to Covell Drain approximately mid-site in the Wildhorse channel.
- BCLine: Inflow\_WillowSlough: “AZ” Flow from Willow Slough upstream of the confluence with the outlet for the combined North Davis and Covell Drains.
- EastDavisPond: “EP-C” The combined flow from the hydrologic basins that flow to the east of the City of Davis, downstream of the combined North Davis and Covell Drains.

#### 4.5.2 Outflow:

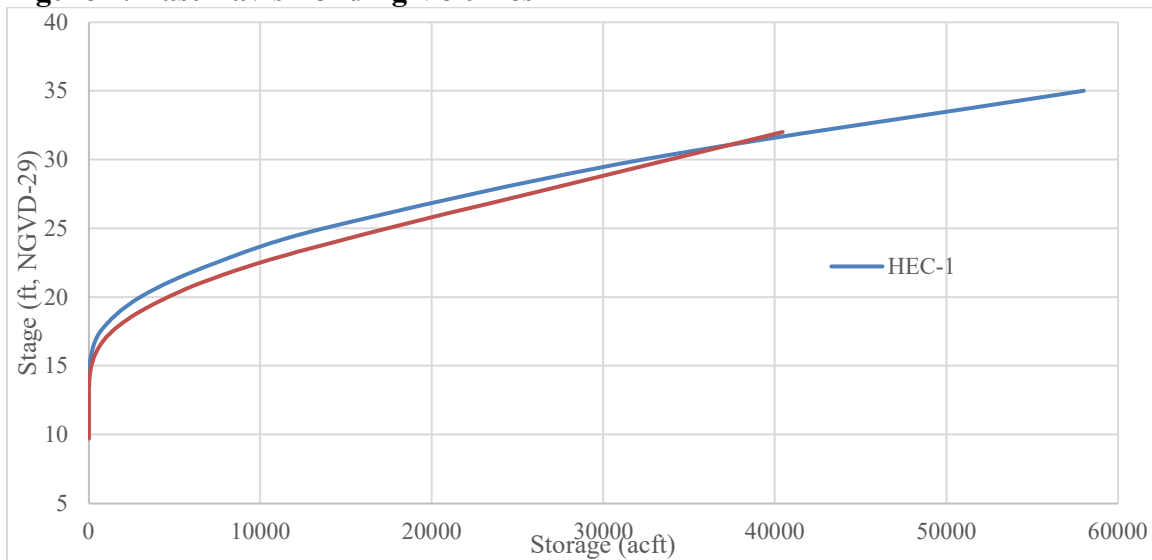
Outflow from the model generally occurs along the east side of the model. Flow from Covell Drain reaches a culvert structure with flap gates to prevent backflow from the levee separating

Davis from Willow Slough. This culvert has been modeled consistent with the previous M&S 1D HEC-RAS model completed for the Cannery project with 3 – 4-foot diameter RCP pipes discharging to Willow Slough. When the tailwater in Willow Slough is too high for flow from Covell Drain to outflow into the slough, the flow in Covell Drain will back up and overflow to the east into the East Davis Ponding area. The boundary condition at the downstream limit of Willow Slough has been modeled as normal depth. The East Davis Ponding is modeled without an outlet consistent with the Cannery HEC-1 and M&S 1D HEC-RAS analyses. The boundary conditions are significantly downstream of the proposed project impacts to ensure that the downstream boundary conditions have a negligible impact on the water surface elevations in the vicinity of the proposed improvements.

#### 4.6 Storage Area

The stage-storage relationship used in the storage area utilized for the East Davis Pond was developed using the “Compute E-V table from Terrain” tool in HEC-RAS. The volumes determined in HEC-RAS were compared to the stage-storage relationship in the HEC-1 model and were found to be generally consistent and generally more conservative than the HEC-1 model, see Figure 2, following.

**Figure 2: East Davis Ponding Volumes**



#### 5.0 Hydraulic Results

Four storm events have been modeled for the existing and proposed condition in a HEC-RAS 2D analysis: the 100-year, 10-day; the 100-year, 24-hour; and the 10-year, 24-hour. The HEC-RAS model is included with the electronic files in Appendix 7. Appendix 1 includes maps for each of the modeled storm events showing the changes in water surface elevations between the existing and proposed condition. Appendix 2 includes maps for the results of the existing and proposed condition 2D model for each storm event. Tables 4 and 5, following, summarize the peak flow and stage at different points in the model; Figures 3 and 4 show the locations in the Tables.

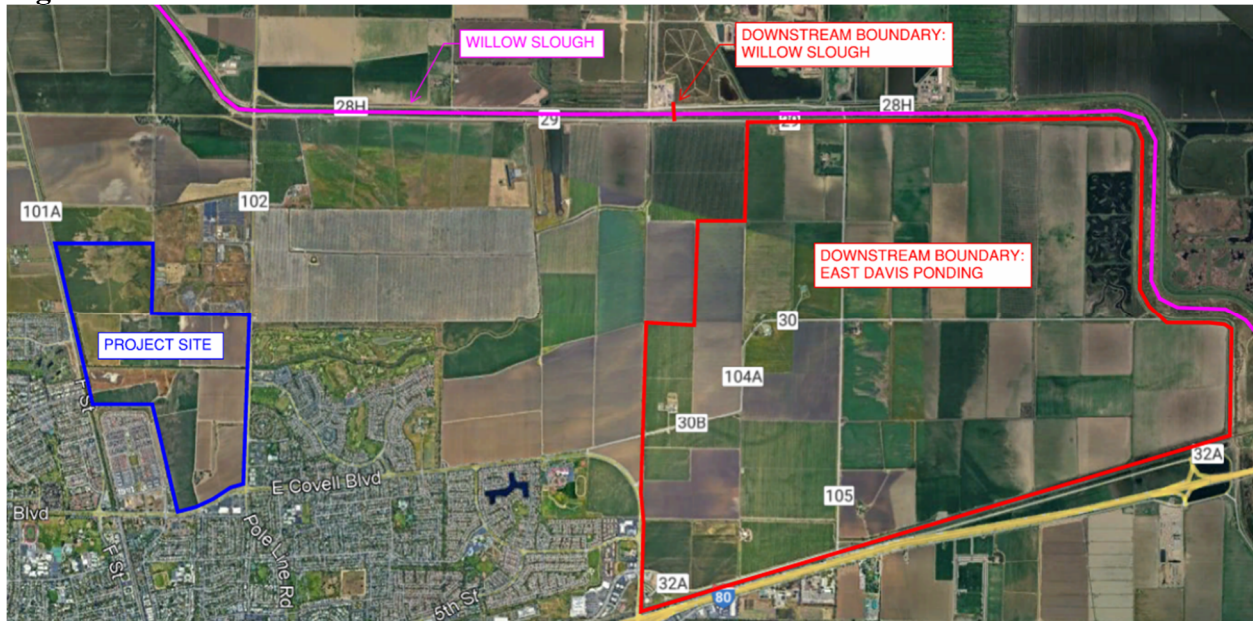
**Table 4: Model Results Summary: Upstream**

Storm Event	Condition	Upstream Boundary Conditions					
		Covell Drain		H Street Channel		North Davis Drain	
		Peak Flow (cfs)	Peak Stage (ft)	Peak Flow (cfs)	Peak Stage (ft)	Peak Flow (cfs)	Peak Stage (ft)
200-yr, 10-dy	Existing	1326.16	43.23	411.27	41.10	1950.28	45.12
	Proposed	1326.16	41.50	411.27	39.03	1950.28	45.11
100-yr, 10-dy	Existing	1317.73	43.21	411.56	41.08	1950.28	45.12
	Proposed	1317.73	41.48	411.56	39.00	1950.28	45.11
100-yr, 24-hr	Existing	780.99	41.02	408.30	40.11	785.03	44.81
	Proposed	780.99	39.20	408.30	37.80	785.03	44.81
10-yr, 24-hr	Existing	220.56	39.42	441.40	39.55	215.60	44.17
	Proposed	220.56	35.95	441.40	37.90	215.60	44.18

**Figure 3: Upstream Boundaries and Internal POIs**



**Figure 4: Downstream Boundaries**



**Table 5: Model Results Summary: Internal and Downstream**

Storm Event	Condition	Internal Points of Interest, Downstream of Proposed Improvements			Downstream Boundary Conditions	
		Pole Line Culvert at Covell Drain	Pole Line Overflow	North Davis Drain	Willow Slough	East Davis Ponding
		Peak Flow (cfs)	Peak Flow (cfs)	Peak Flow (cfs)	Peak Flow (cfs)	Peak Stage (ft)
200-yr, 10-dy	Existing	647.32	1202.16	2759.80	10024.59	25.54
	Proposed	631.95	1091.12	2735.71	10024.59	25.51
100-yr, 10-dy	Existing	641.68	1126.58	2728.97	10024.54	25.31
	Proposed	625.40	1079.67	2699.20	10024.54	25.28
100-yr, 24-hr	Existing	579.05	349.89	726.23	5693.07	19.16
	Proposed	553.69	102.25	623.33	5693.07	18.81
10-yr, 24-hr	Existing	488.89	15.81	206.73	3523.60	18.28
	Proposed	299.49	0.80	177.59	3517.75	17.82

As shown in Tables 4 and 5, it is anticipated that the proposed project will result in peak flows and water surface elevations upstream and downstream of the proposed project that are equal to or reduced in the proposed condition. Downstream of the project it is anticipated that peak flows and water surface elevations will be similar for larger storm events in the existing and proposed condition. However, it is anticipated that the proposed project will result in significantly reduced peak flows and water surface elevations in the smaller, more frequent storm events.

This study and the M&S Cannery study identify the potential for flows to overtop Pole Line Road in the existing condition at the northeast corner of the project site adjacent to Pole Line and the City site. In the 10- and 100-year, 24-hour storm event models, the proposed project is anticipated to result in large reductions downstream of the project, particularly in the flow overtopping Pole Line and the ponding in east Davis. This is likely a result of significant storage provided by the soil borrow area north of the proposed project. Additionally, as shown in Table 4, the proposed project is anticipated to result in large water surface elevation reductions in Covell Drain and the H Street Channel in all modeled conditions. These reductions occur in the channels that the majority of the developed area in Davis drain to. Reducing tailwater along these channels is anticipated to have beneficial impacts on drainage in these developed areas of the City.

In general, the exhibits in Appendix 1 show that the proposed project will result in equal to or reduced water surface elevations outside of the project site in the proposed condition with some areas in the undeveloped farmland showing small increases. Generally, the increases are in the 0.00' to 0.05' range with the majority 0.01' or less. The 100-year, 24-hour storm event does show some isolated areas with larger increases that are occurring within drainage features along Covell Drain in the Wildhorse golf course. The largest increase shown is roughly 0.4' to 0.5' directly over the pond in the northeast corner of the golf course and is not impacting structures.

### ***5.1 Current Modeling vs FEMA Mapping***

It is difficult to evaluate and compare the modeling produced in this report to the FEMA mapped Zone A flooding shown on the maps in Appendix 5. Zone A flooding is generally used for areas where a detailed analysis was not performed to determine the extent of the floodplain and no flood depths or base flood elevations are shown. Additionally, it is unknown to RICK whether the Zone A mapping was estimated based on the levee along Willow Slough being present or not. Figure 5, following includes the FEMA Zone A flood mapping in purple versus the existing condition 100-year, 10-day flooding with depths of 1 foot or more.

**Figure 5: FEMA Zone A vs Model Depths Greater Than 1'**



Everything north of the purple line is mapped as Zone A flooding per FEMA. Through the project site, the Zone A flooding appears to be reasonably representative of the FEMA Zone A mapping with the exception of the generally channelized flow along Covell Drain and through Wildhorse golf course which, to our understanding, was developed after the FEMA mapping was completed.

**5.2 Net Hydrologic and Hydraulic Project Impact**

This study has evaluated the proposed project from hydrologic and hydraulic perspectives separately as discussed in Sections 3 and 5 respectively. It is anticipated that future studies will be prepared as the design of the proposed project moves forward. These future studies are anticipated to provide a combined net impact evaluation. Table 6, following, approximately summarizes the net impact of the proposed project at the East Davis Pond for each storm event analyzed.

**Table 6: Net Impact to East Davis Pond Stage**

Storm Event	East Davis Ponding Peak Stage (ft)						Total Net Impact to East Davis Pond Stage
	HEC-1 Hydrologic Analysis			HEC-RAS Hydraulic Analysis			
	Existing	Proposed	Delta	Existing	Proposed	Delta	
200-yr, 10-dy	27.29	27.34	0.05	25.54	25.51	-0.03	0.02
100-yr, 10-dy	27.05	27.10	0.05	25.31	25.28	-0.03	0.02
100-yr, 24-hr	20.78	20.84	0.06	19.16	18.81	-0.35	-0.29
10-yr, 24-hr	17.91	17.98	0.07	18.28	17.82	-0.46	-0.39

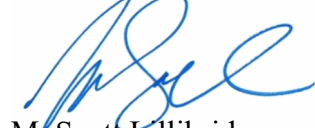
As shown in Table 6, the proposed project is anticipated to result in approximately 0.02 foot of increase to water surface elevations in the 100- and 200-year, 10-day storm event. The increase is based on an analysis that is anticipated to be conservative for the combined hydrologic and hydraulic impacts of the proposed project. It is also anticipated that the proposed project will result in reductions in ponding depths in smaller, more frequent storm events within the watershed as shown with the net reductions in ponding depths for the 10- and 100-year, 24-hour storm events.

**6.0 Appendices**

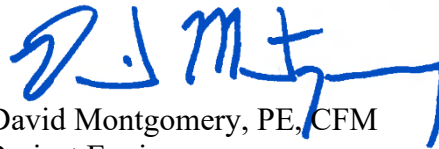
Appendix 1: WSEL Result Comparison Exhibits  
Appendix 2: Model Result Maps  
Appendix 3: Model Geometry Maps  
Appendix 4: Reference Maps  
Appendix 5: FEMA Maps  
Appendix 6: Reference Plans  
Appendix 7: Electronic Files

If you have any questions regarding this memorandum or need any additional information about this project, then please contact David Montgomery or myself at (916) 638-8200 or via email at [dmontgomery@rickengineering.com](mailto:dmontgomery@rickengineering.com) and [slilibridge@rickengineering.com](mailto:slilibridge@rickengineering.com).

Sincerely,  
RICK ENGINEERING COMPANY



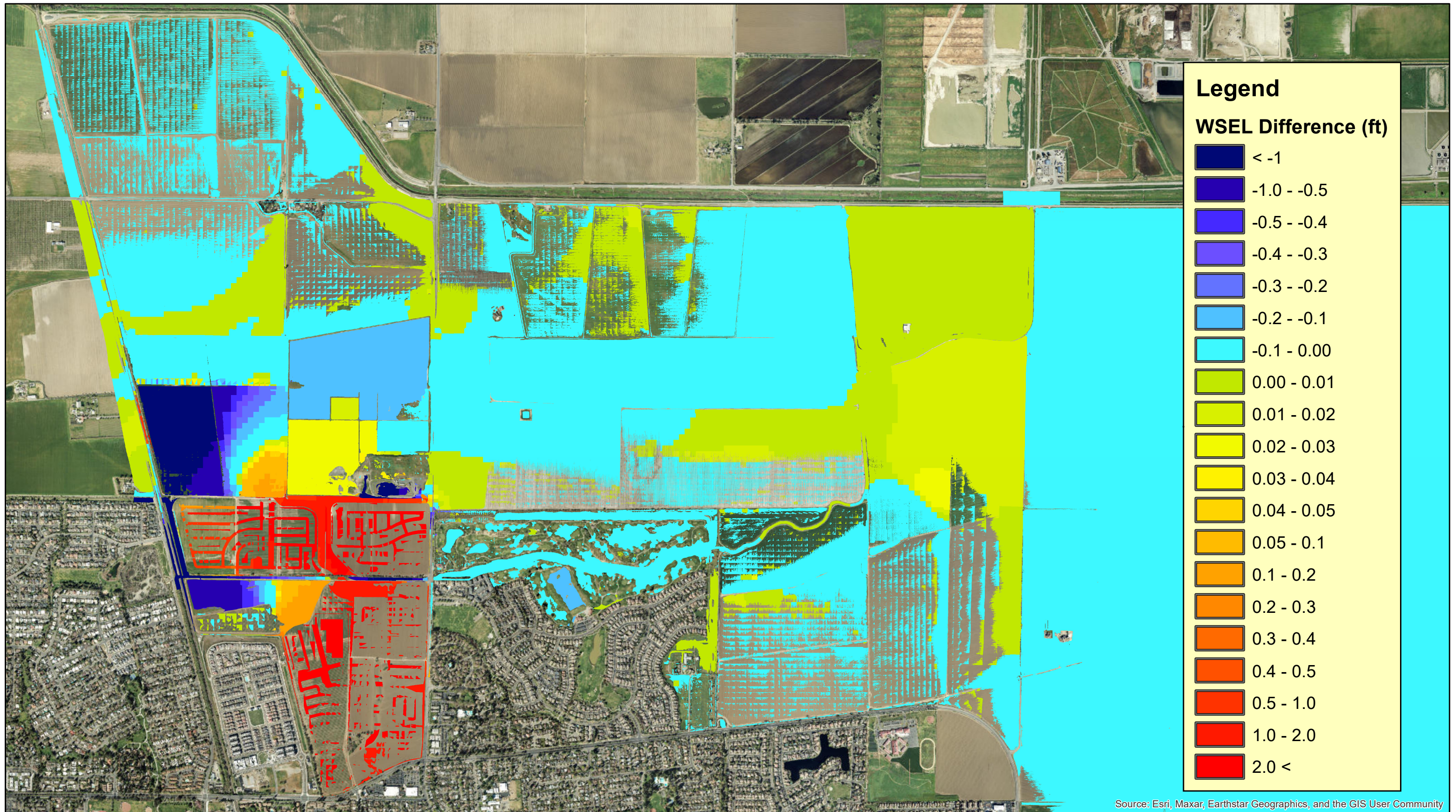
M. Scott Lilibridge  
R.C.E. #52504, Exp. 12/2024  
Region Manager



David Montgomery, PE, CFM  
Project Engineer

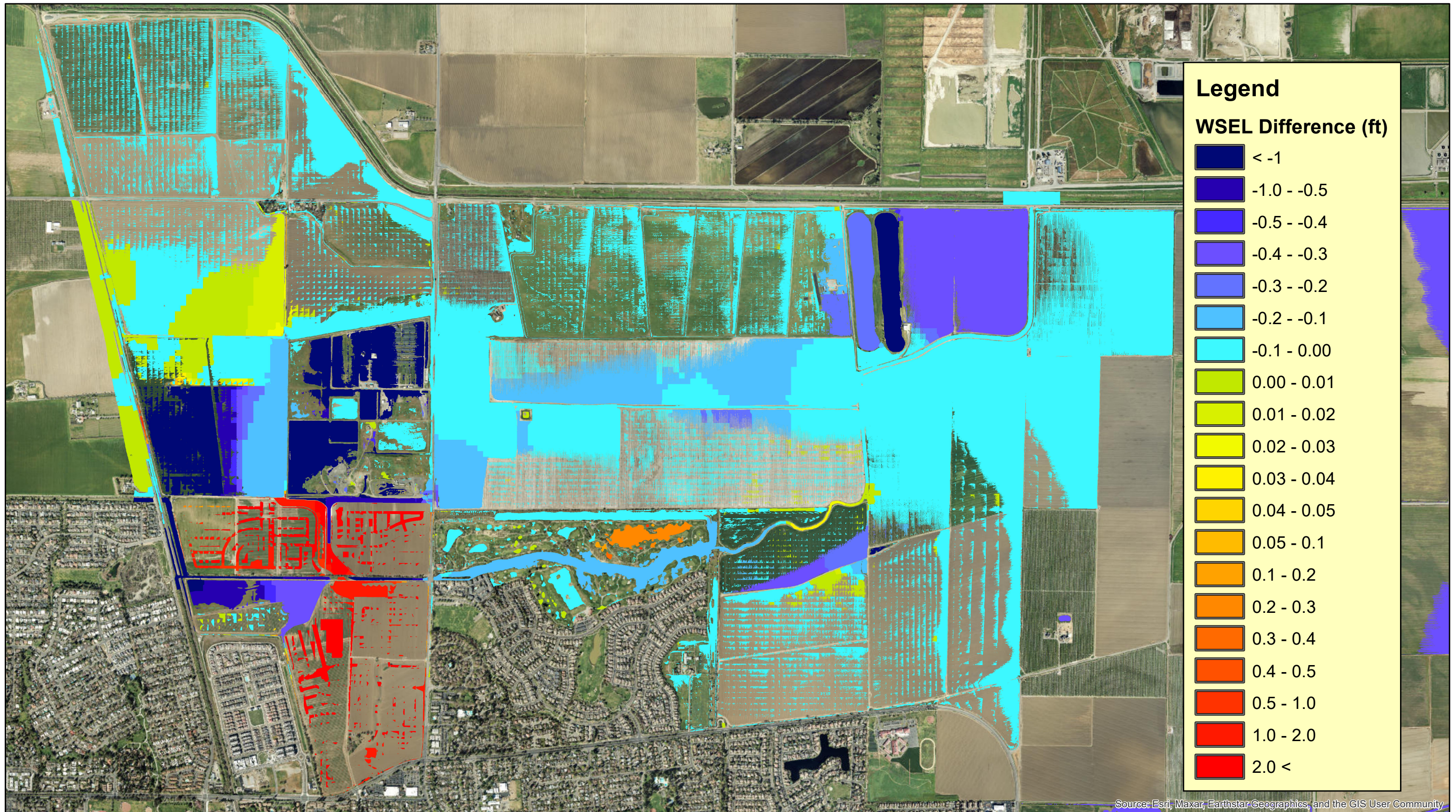
# **Appendix 1**

## WSEL Result Comparison Exhibits



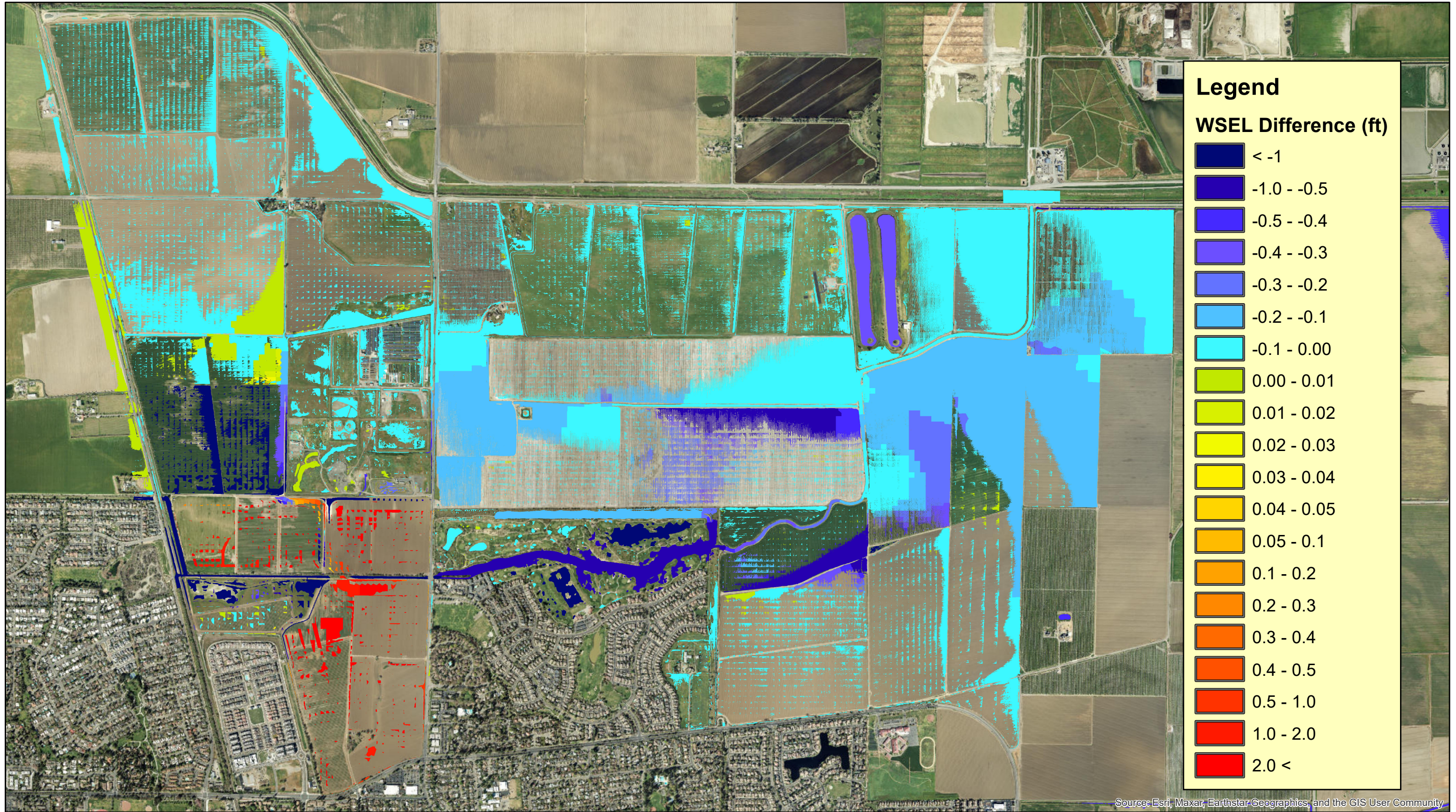
**Village Farms Existing vs Proposed BWLD 100-Year 10-Day Storm Event**





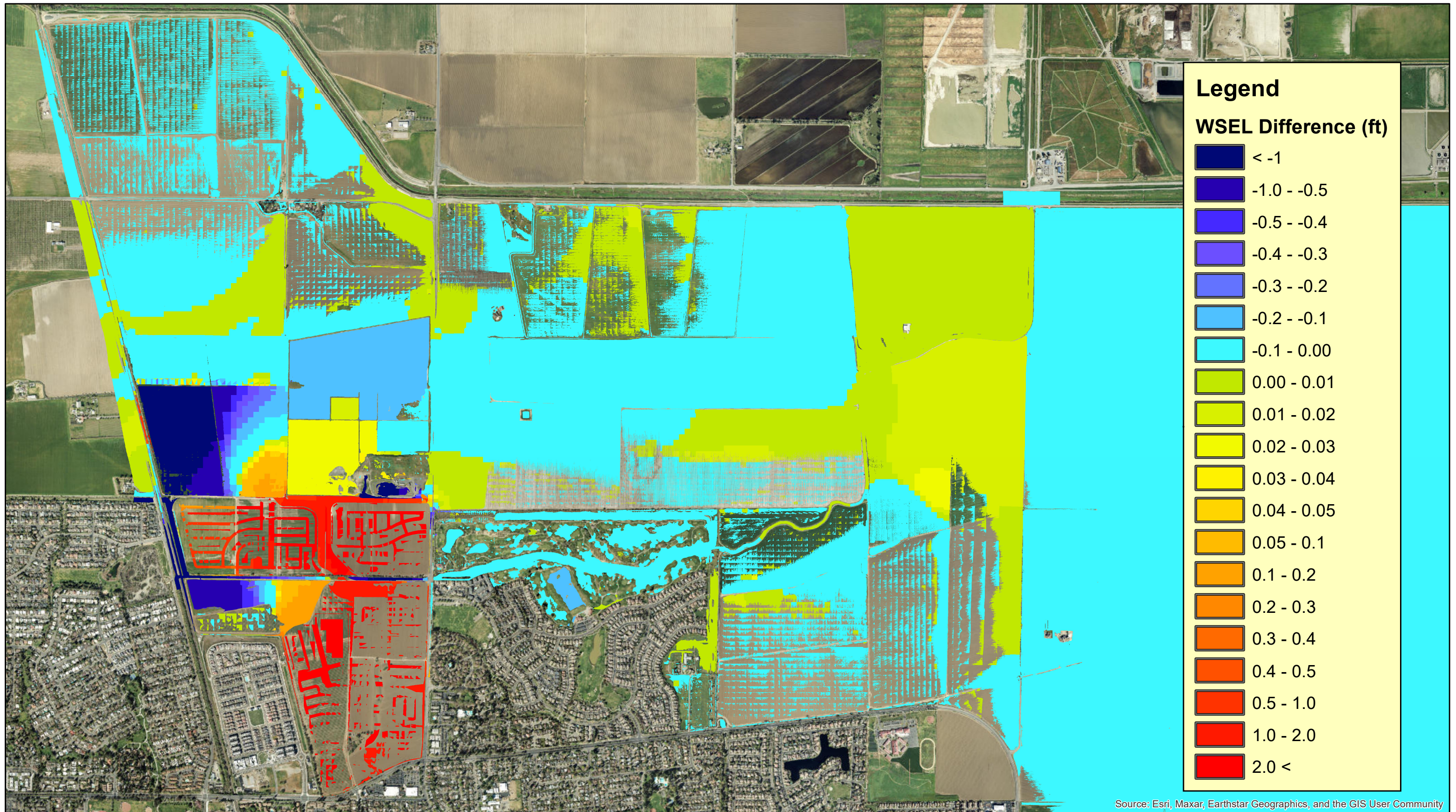
**Village Farms Existing vs Proposed BWLD 100-Year 24-Hour Storm Event**





**Village Farms Existing vs Proposed BWLD 10-Year 24-Hour Storm Event**





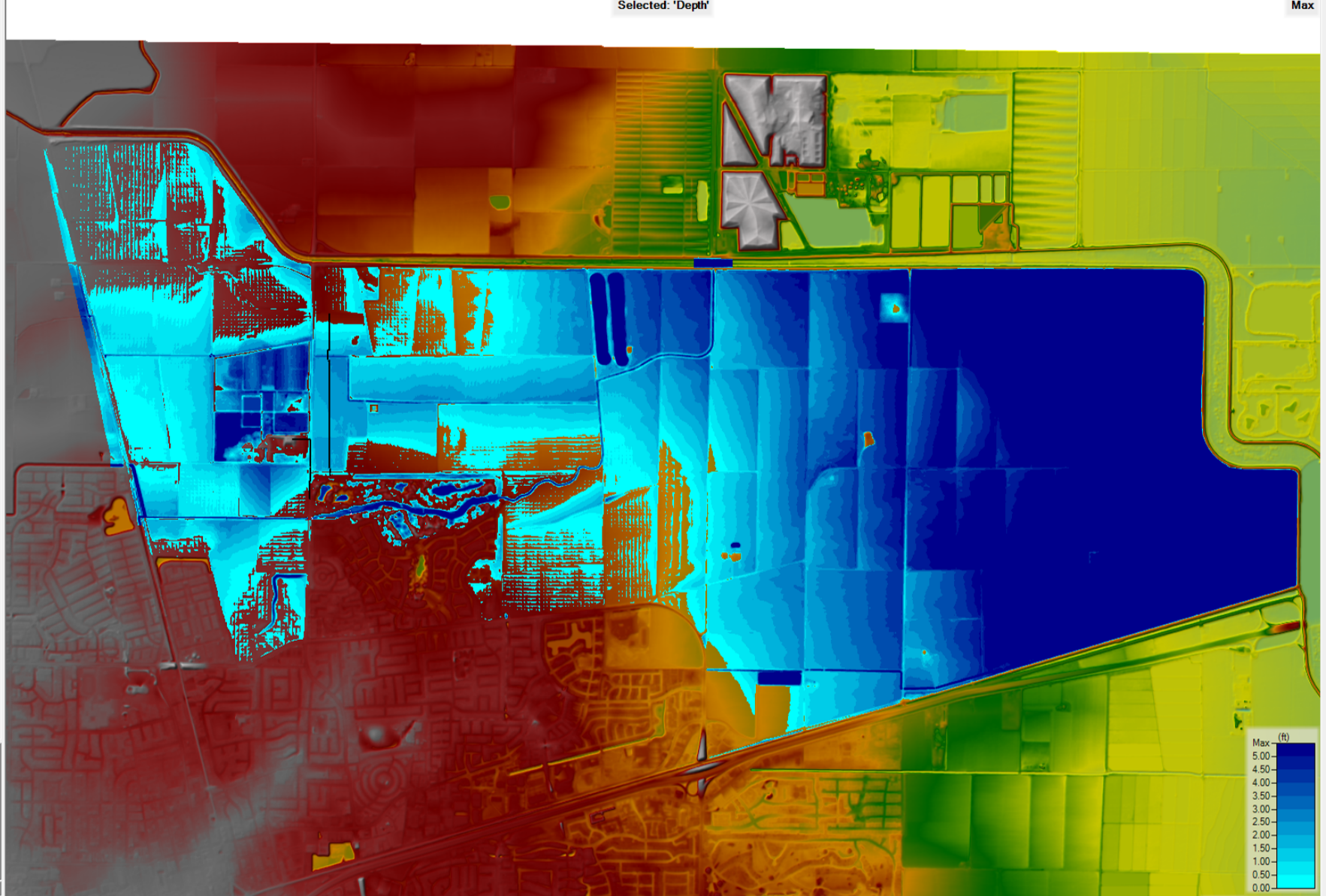
**Village Farms Existing vs Proposed BWLD 200-Year 10-Day Storm Event**



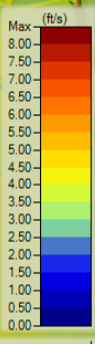
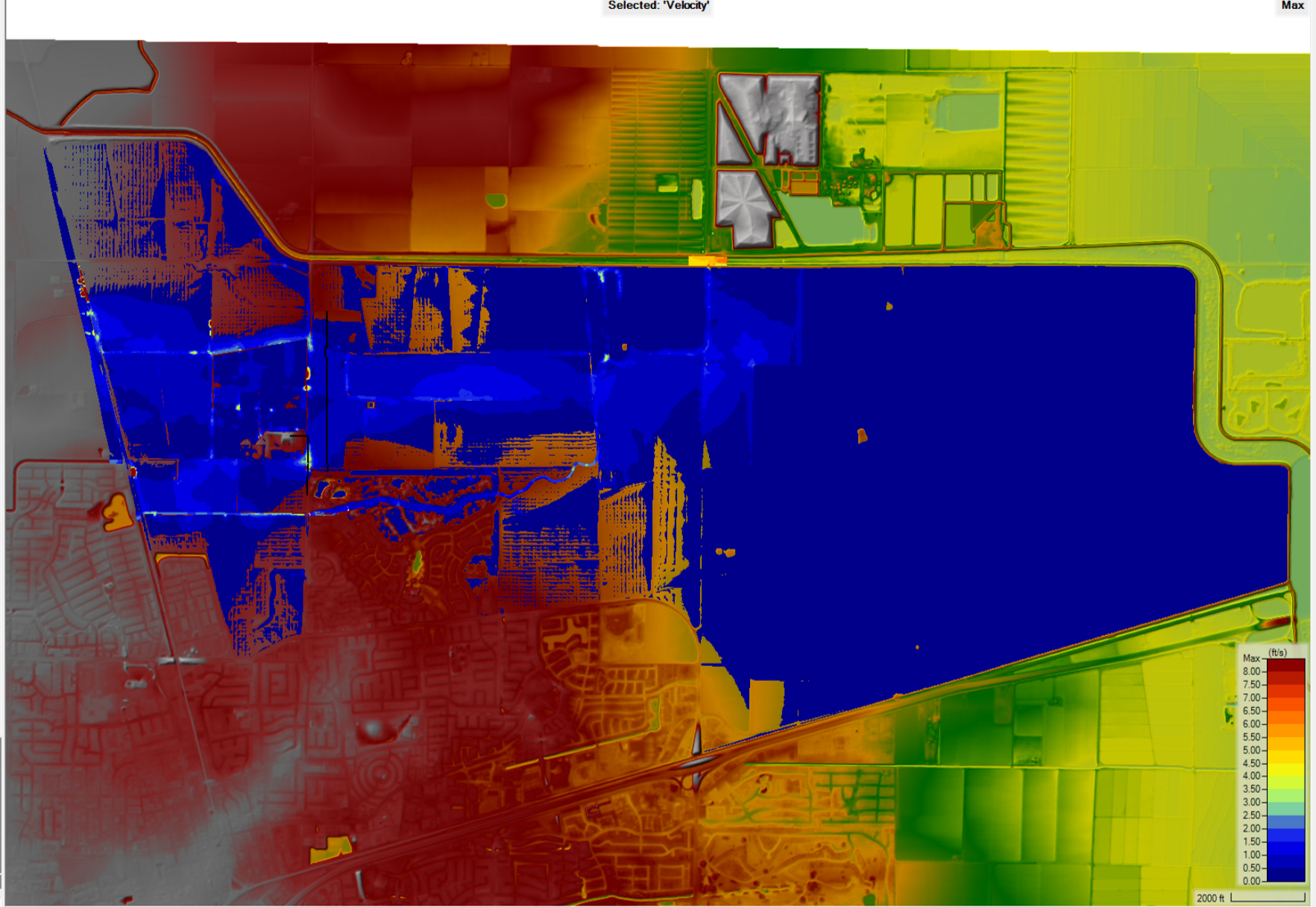
## **Appendix 2**

### Model Result Maps

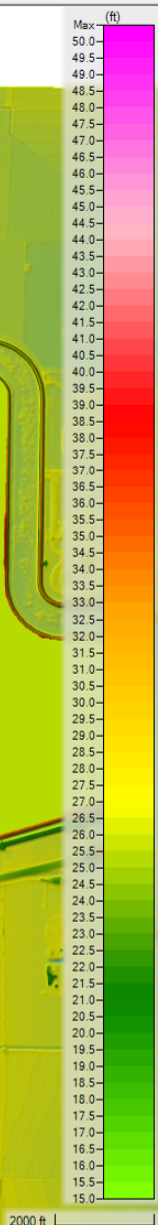
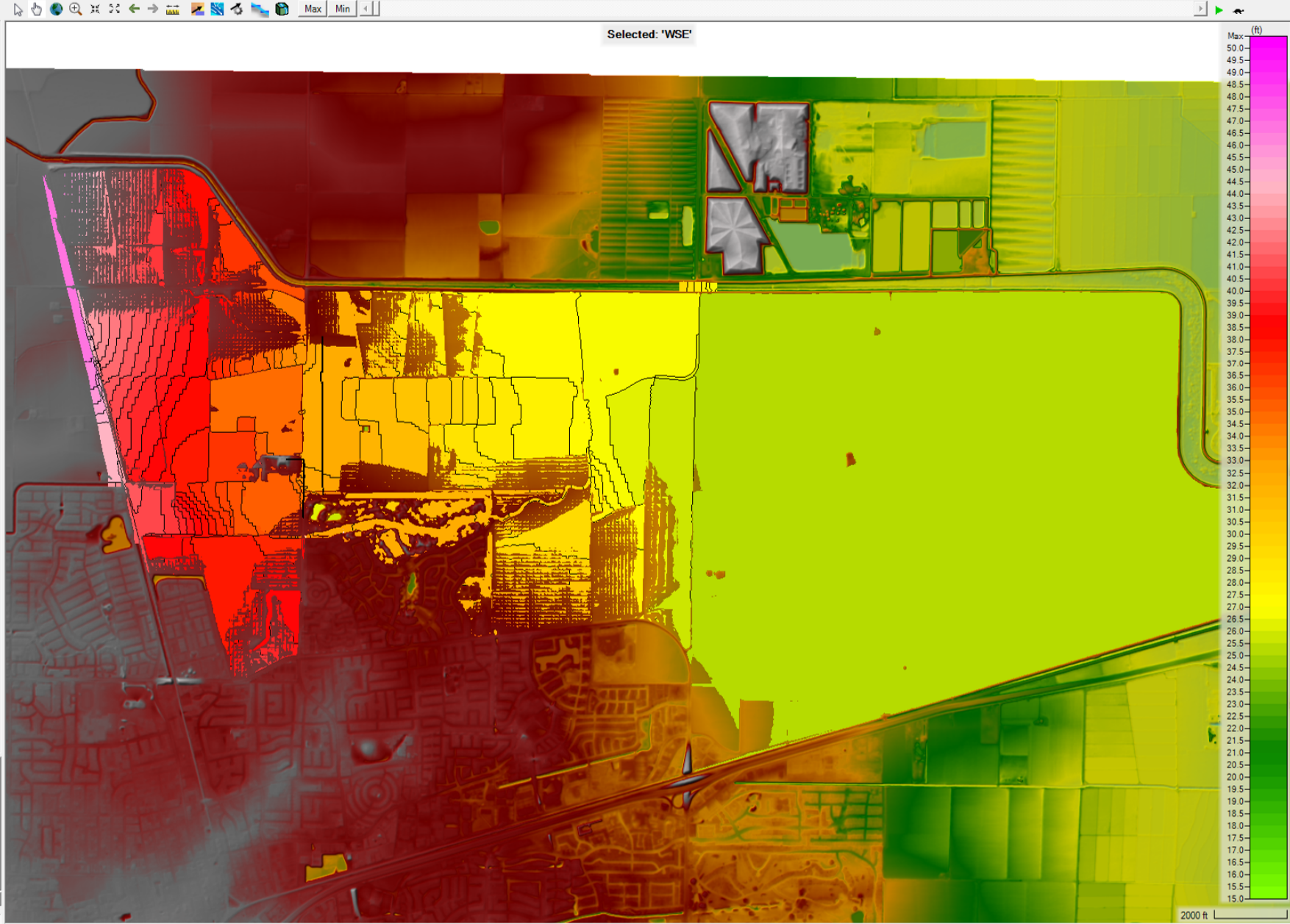
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  - Existing\_100Yr-24Hr
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  - Proposed\_100Yr-10Dy
  - Proposed\_100Yr-24Hr
  - Proposed\_010Yr-24Hr
  - Existing\_200Yr-10Dy
  - Proposed\_200Yr-10Dy
- Event Conditions
- Results
  - Existing\_100Yr-10Dy
    - Event Conditions
    - Geometry
    - Plan
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    - Velocity (Max)
    - WSE (Max)
    - Water Surface Elevation (Max)
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  - Existing\_010Yr-24Hr
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  - Proposed\_100Yr-24Hr
  - Proposed\_010Yr-24Hr
  - Existing\_200Yr-10Dy
  - Proposed\_200Yr-10Dy
- Map Layers
  - 20230922\_ExmannN
  - Google Satellite
- Terrains
  - EXTO\_2023-12-06
  - PRTO\_CEC\_FG5\_DMa\_2024-02-05



- Features
  - Profile Lines
- Geometries
  - Existing
  - Proposed
- Plans
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  - Existing\_100Yr-24Hr
  - Existing\_010Yr-24Hr
  - Proposed\_100Yr-10Dy
  - Proposed\_100Yr-24Hr
  - Proposed\_010Yr-24Hr
  - Existing\_200Yr-10Dy
  - Proposed\_200Yr-10Dy
- Event Conditions
- Results
  - Existing\_100Yr-10Dy
    - Event Conditions
    - Geometry
    - Plan
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    - Velocity (Max)
    - WSE (Max)
    - Water Surface Elevation (Max)
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  - Proposed\_100Yr-24Hr
  - Proposed\_010Yr-24Hr
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- Map Layers
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  - Google Satellite
- Terrains
  - EXTO\_2023-12-06
  - PRTO\_CEC\_FG5\_DMa\_2024-02-05



- Features
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- Geometries
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  - Proposed
- Plans
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  - Existing\_010Yr-24Hr
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  - Proposed\_010Yr-24Hr
  - Existing\_200Yr-10Dy
  - Proposed\_200Yr-10Dy
- Event Conditions
- Results
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    - Event Conditions
    - Geometry
    - Plan
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    - Water Surface Elevation (Max)
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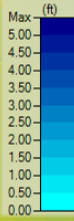
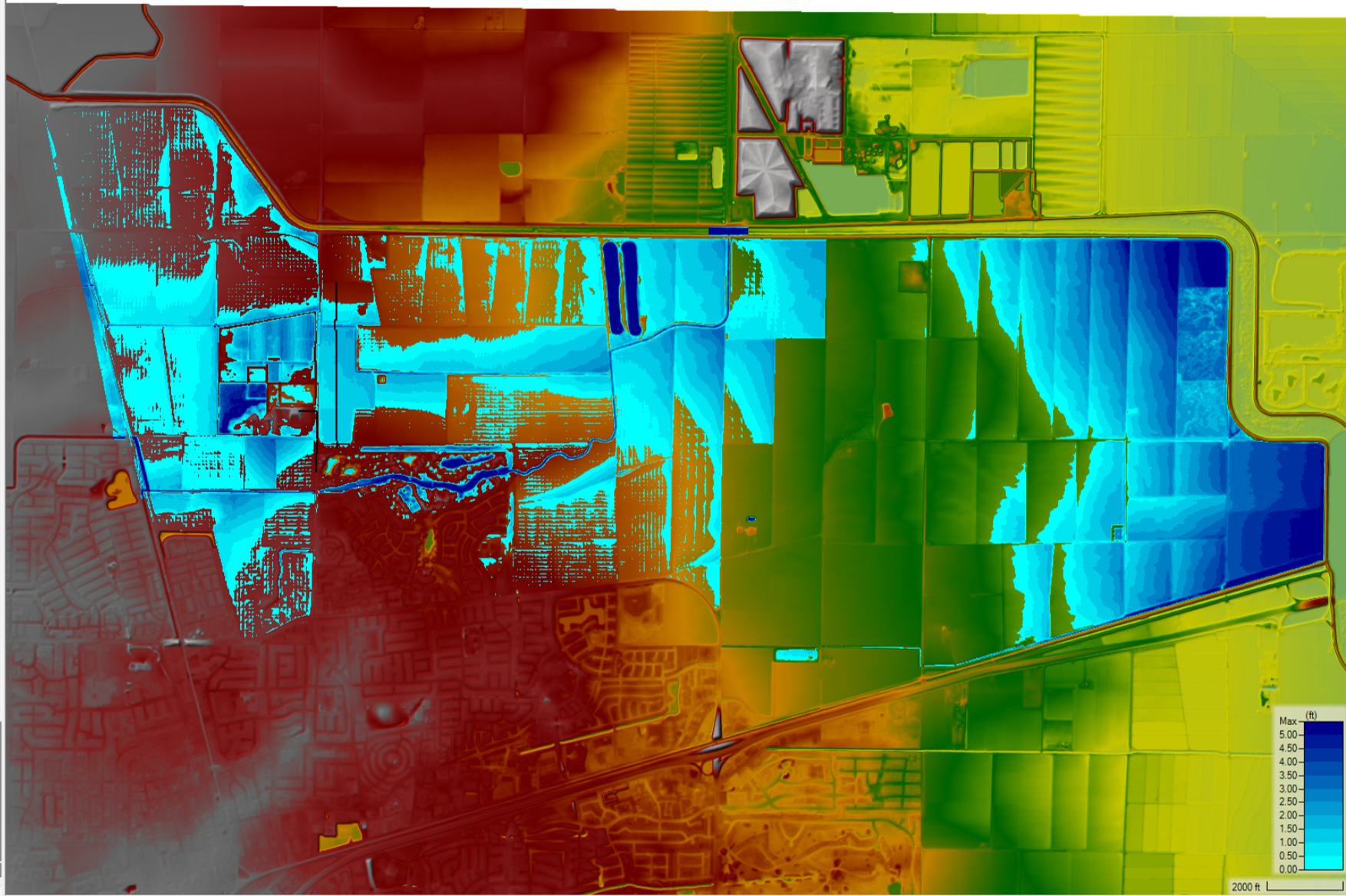


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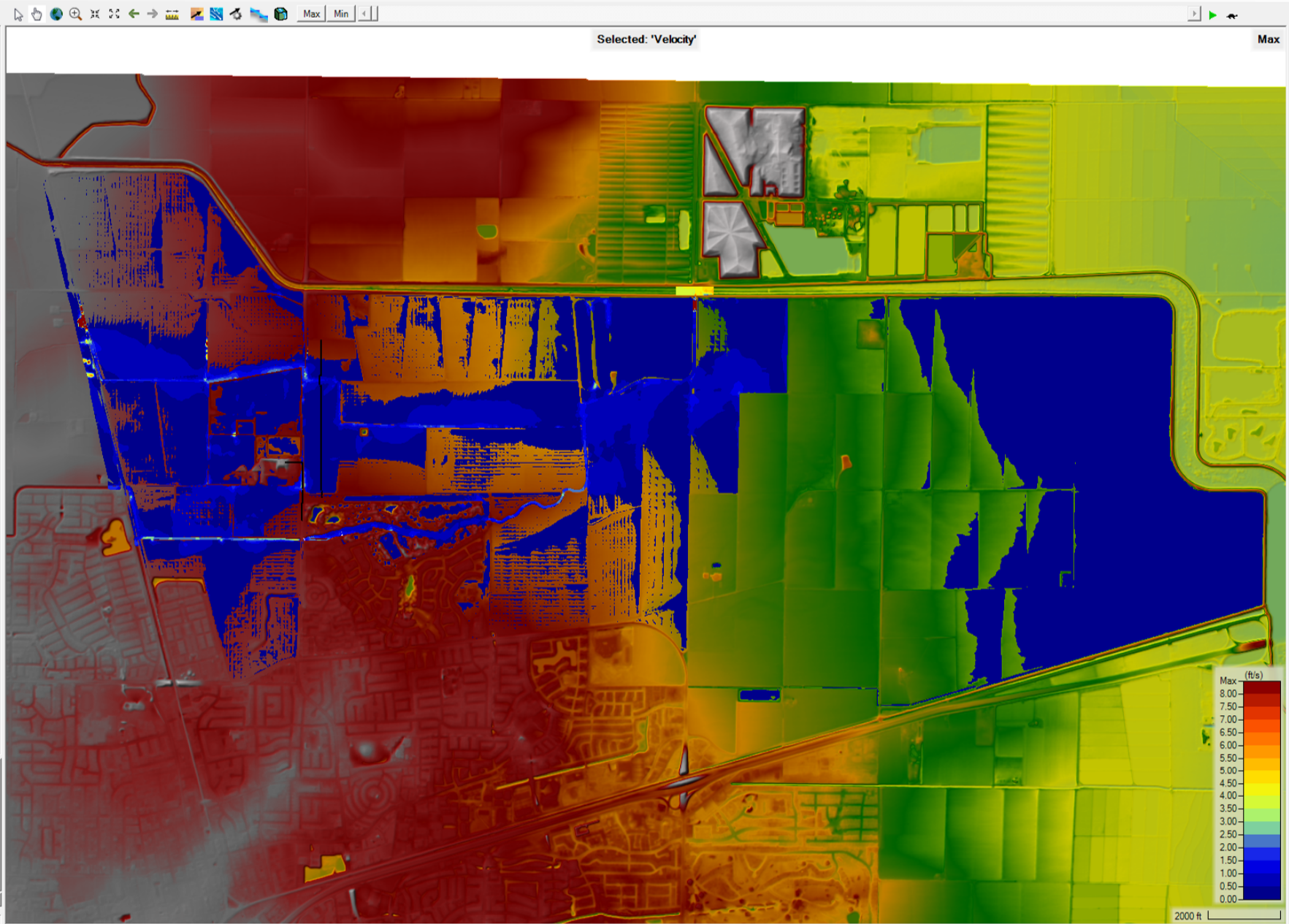
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    - Proposed\_010Yr-24Hr
    - Existing\_200Yr-10Dy
    - Proposed\_200Yr-10Dy
  - Event Conditions
  - Results
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    - Existing\_100Yr-24Hr
    - Event Conditions
      - Geometry
      - Plan
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    - Velocity (Max)
    - WSE (Max)
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  - Existing\_200Yr-10Dy
  - Proposed\_200Yr-10Dy
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- Terrains
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  - PRTO\_CEC\_FG5\_DMa\_2024-02-05

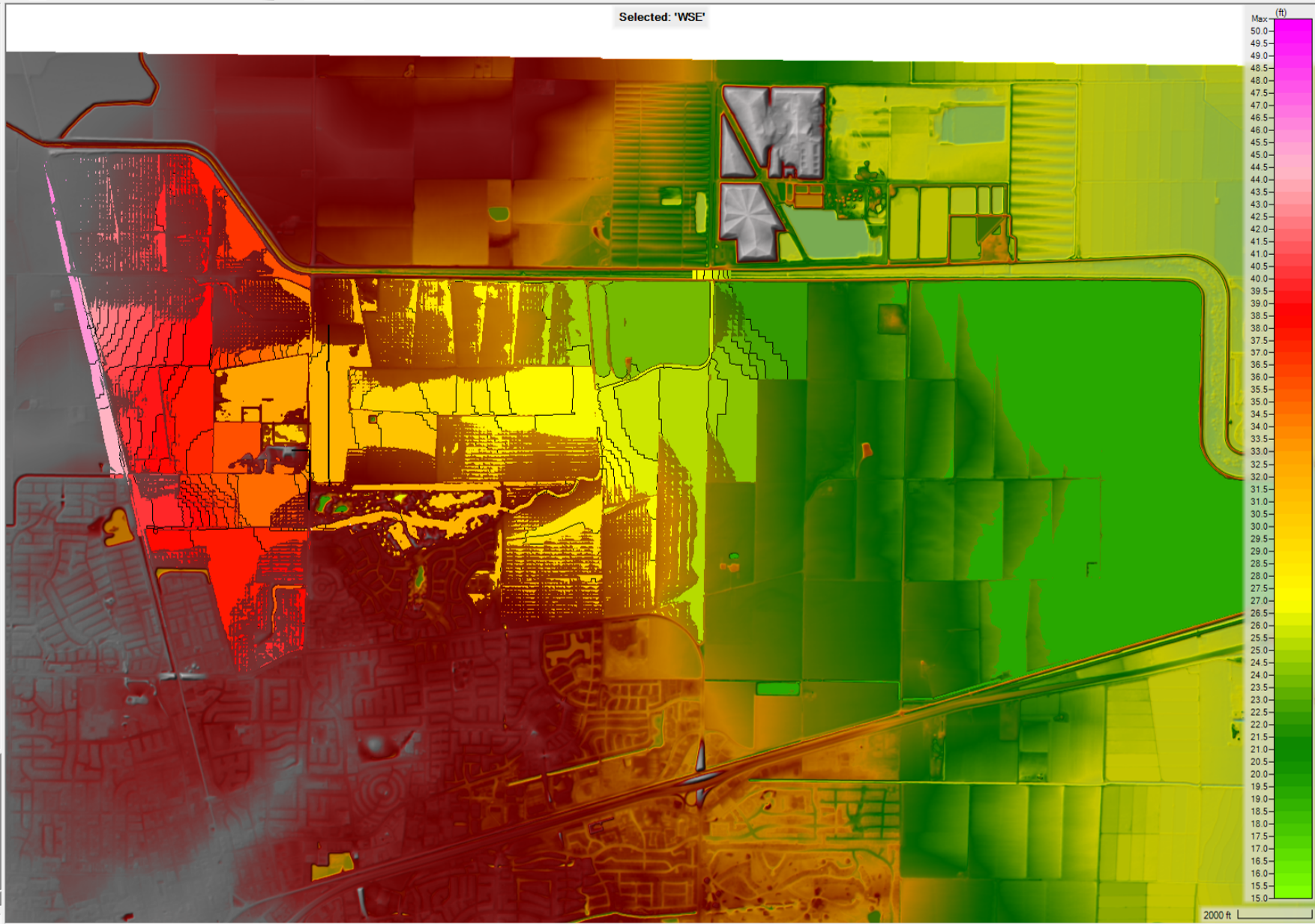




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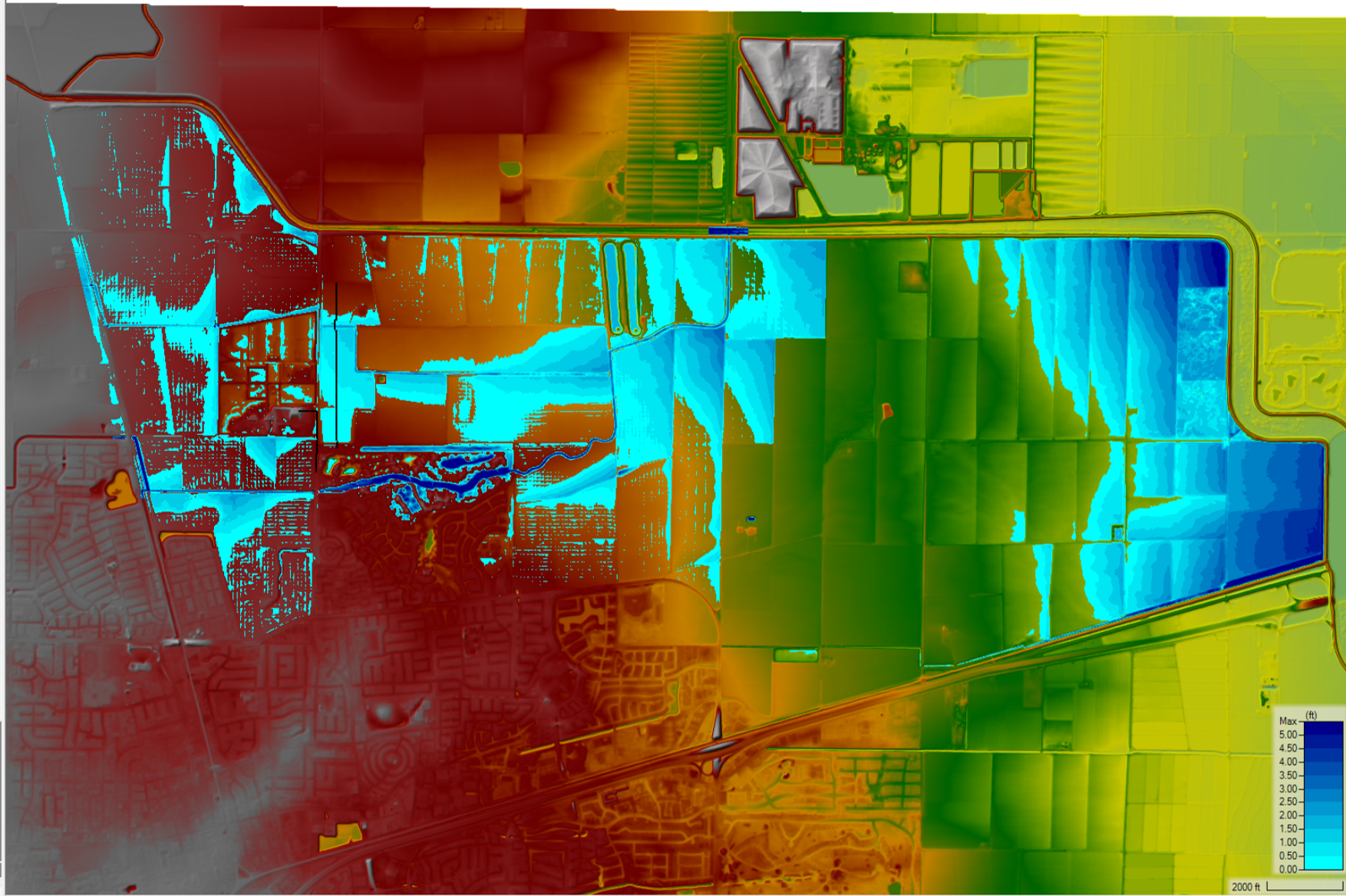
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    - Proposed\_200Yr-10Dy
  - Event Conditions
  - Results
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    - Existing\_100Yr-24Hr
      - Event Conditions
      - Geometry
      - Plan
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      - Velocity (Max)
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  - Map Layers
    - 20230922\_ExmannN
    - Google Satellite
  - Terrains
    - EXTO\_2023-12-06
    - PRTO\_CEC\_FG5\_DMa\_2024-02-05



- Features
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- Geometries
  - Existing
  - Proposed
- Plans
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  - Proposed\_200Yr-10Dy
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- Results
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  - Proposed\_200Yr-10Dy
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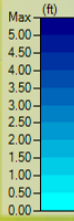


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- Event Conditions
- Results
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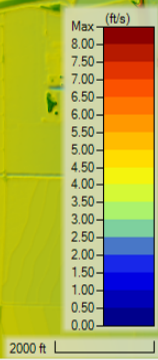
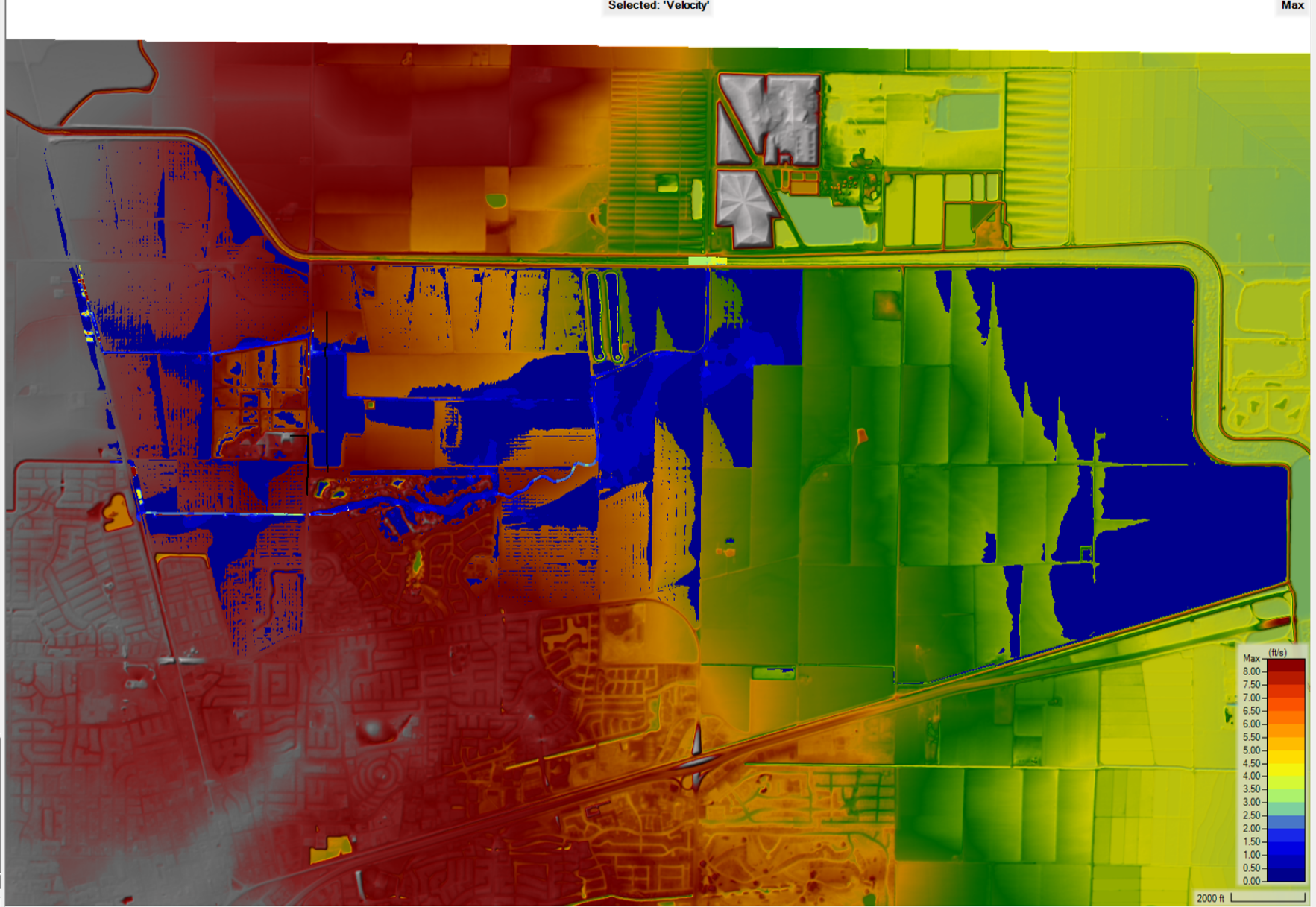
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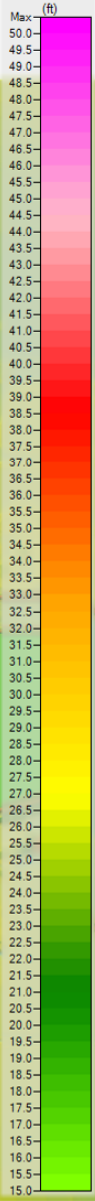
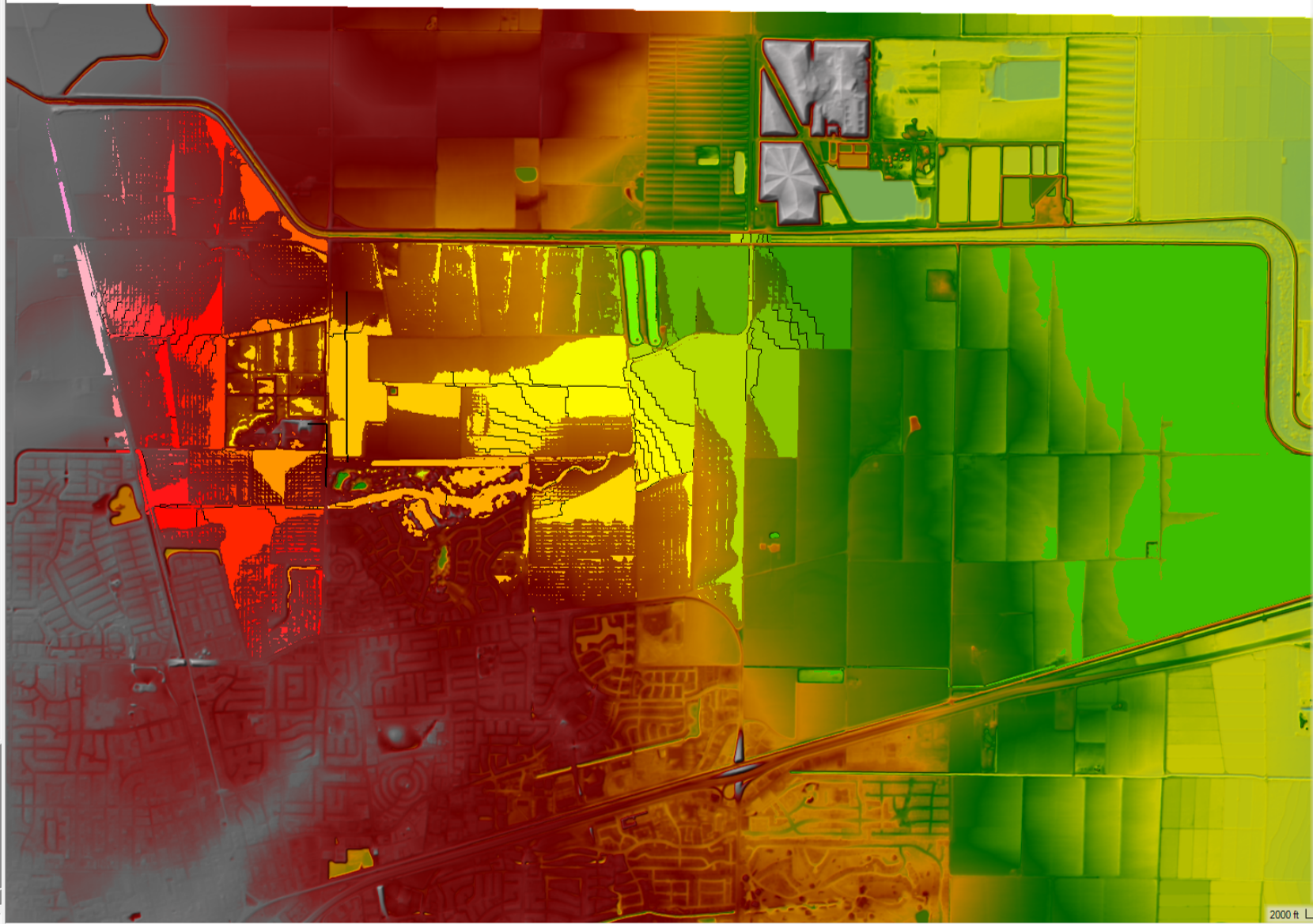
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  - Proposed
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  - Proposed\_100Yr-24Hr
  - Proposed\_010Yr-24Hr
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- Event Conditions
- Results
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    - Velocity (Max)
    - WSE (Max)
    - Water Surface Elevation (Max)
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  - Proposed\_100Yr-24Hr
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- Map Layers
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  - PRTO\_CEC\_FG5\_DMa\_2024-02-05



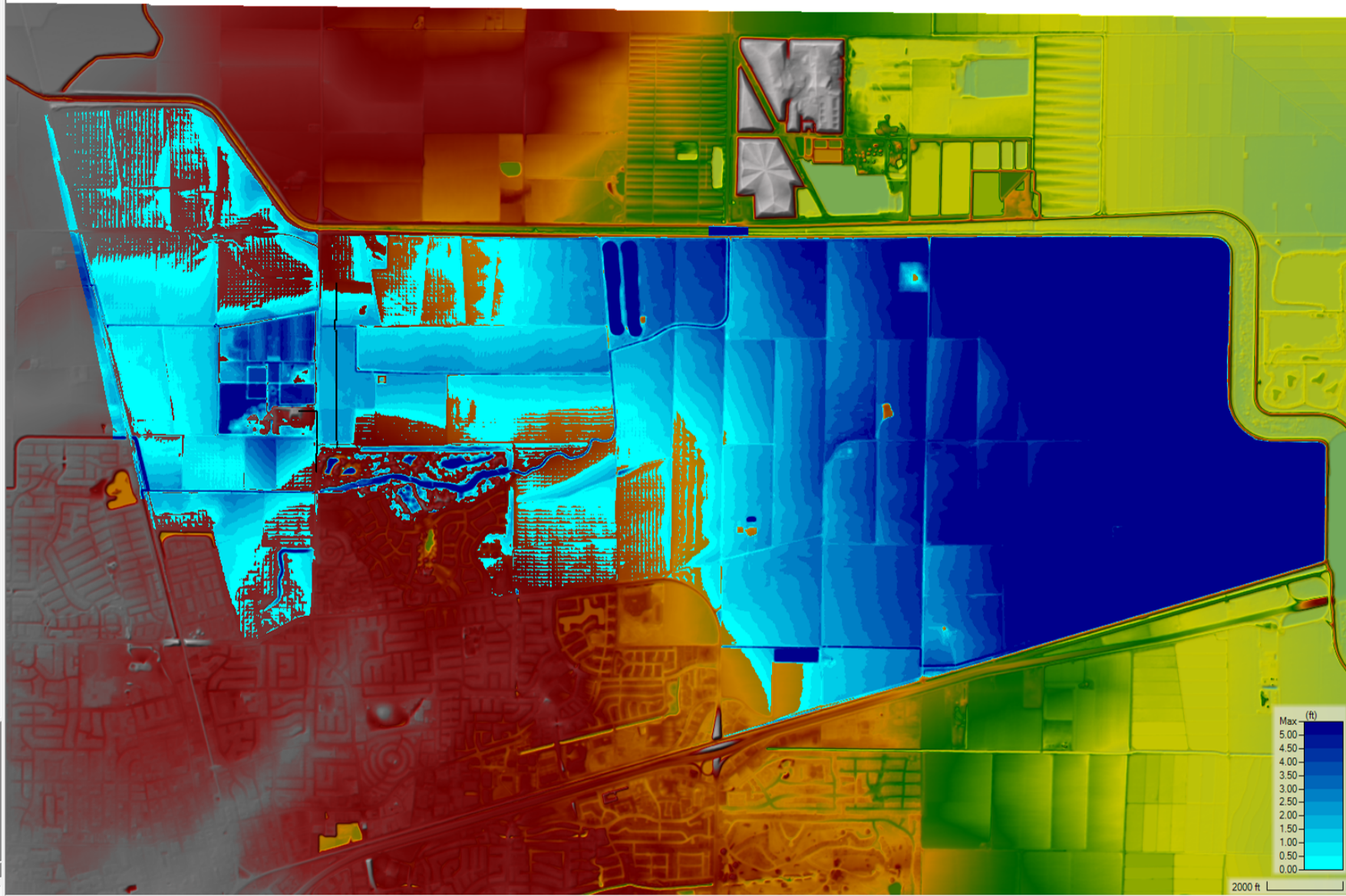
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      - Geometry
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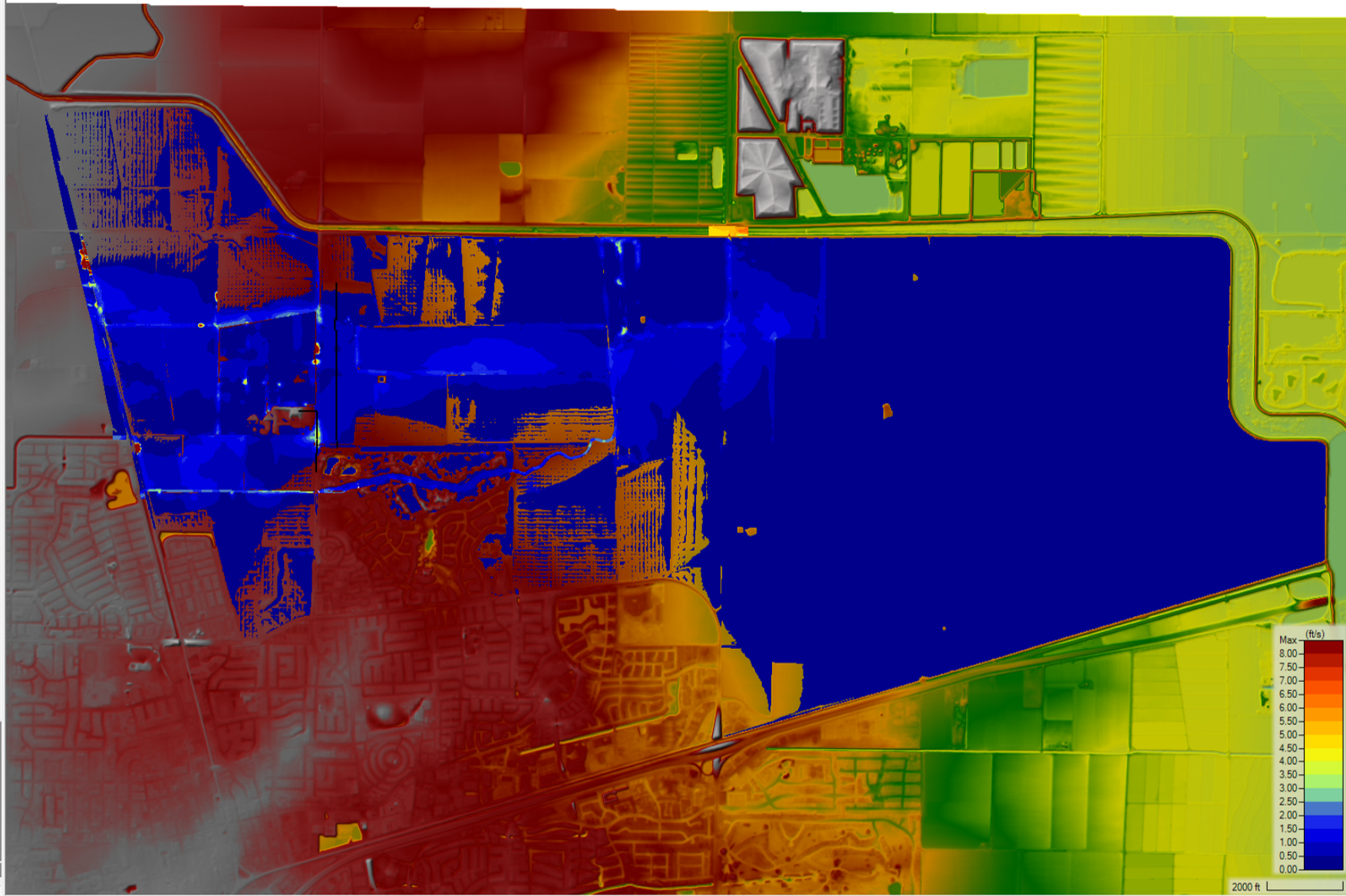


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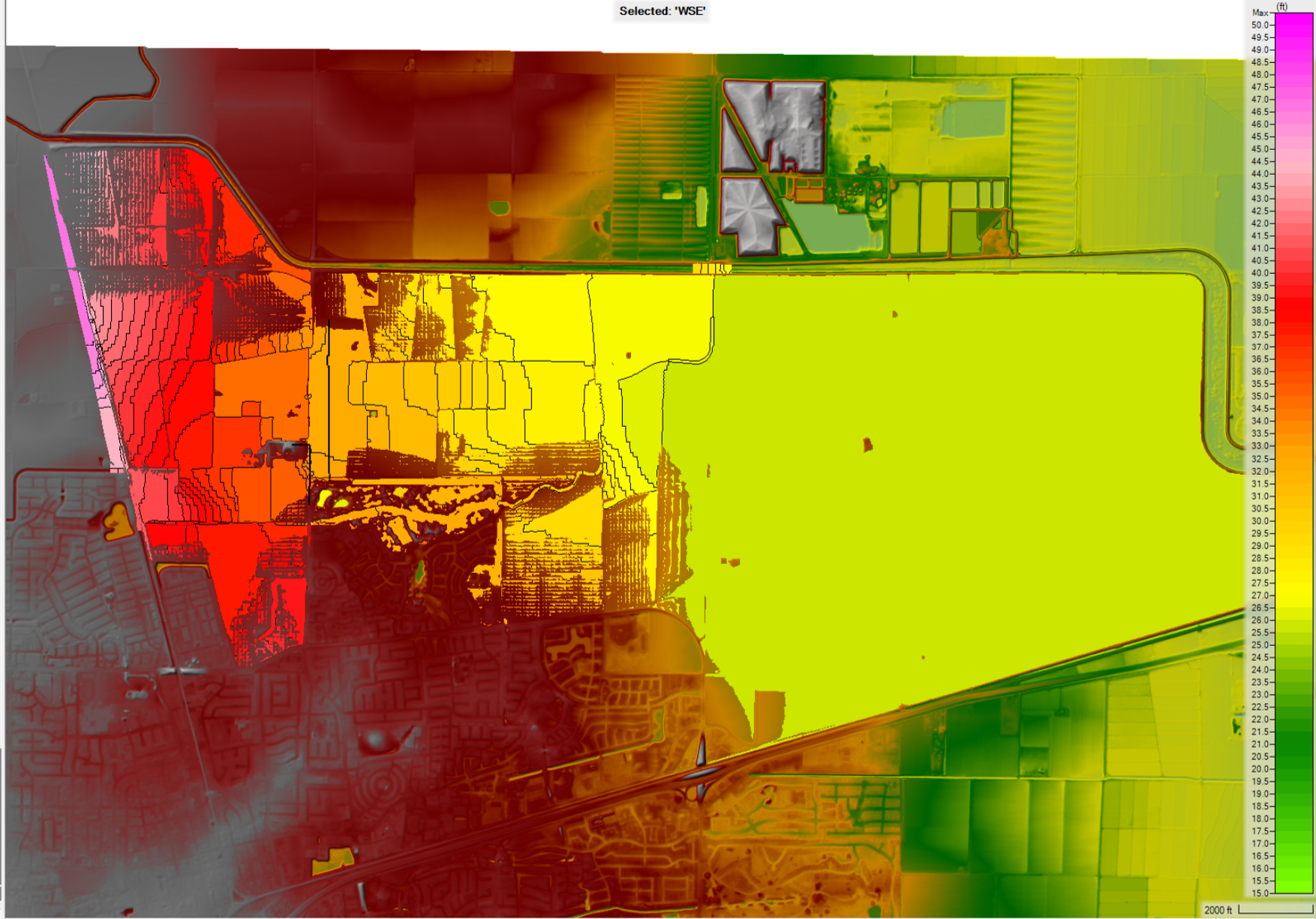
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  - Event Conditions
  - Results
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    - Proposed\_100Yr-24Hr
    - Proposed\_010Yr-24Hr
    - Existing\_200Yr-10Dy
      - Event Conditions
      - Geometry
      - Plan
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      - Velocity (Max)
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- Map Layers
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- Terrains
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  - PRTO\_CEC\_FG5\_DMa\_2024-02-05



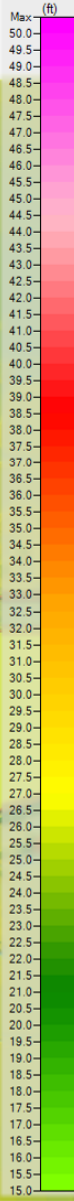
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    - Proposed\_100Yr-24Hr
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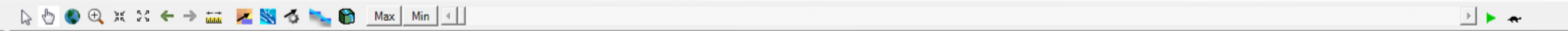


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    - Proposed\_100Yr-24Hr
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      - Geometry
      - Plan
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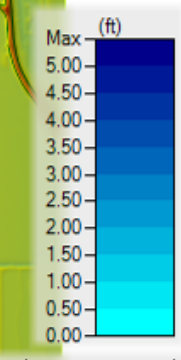
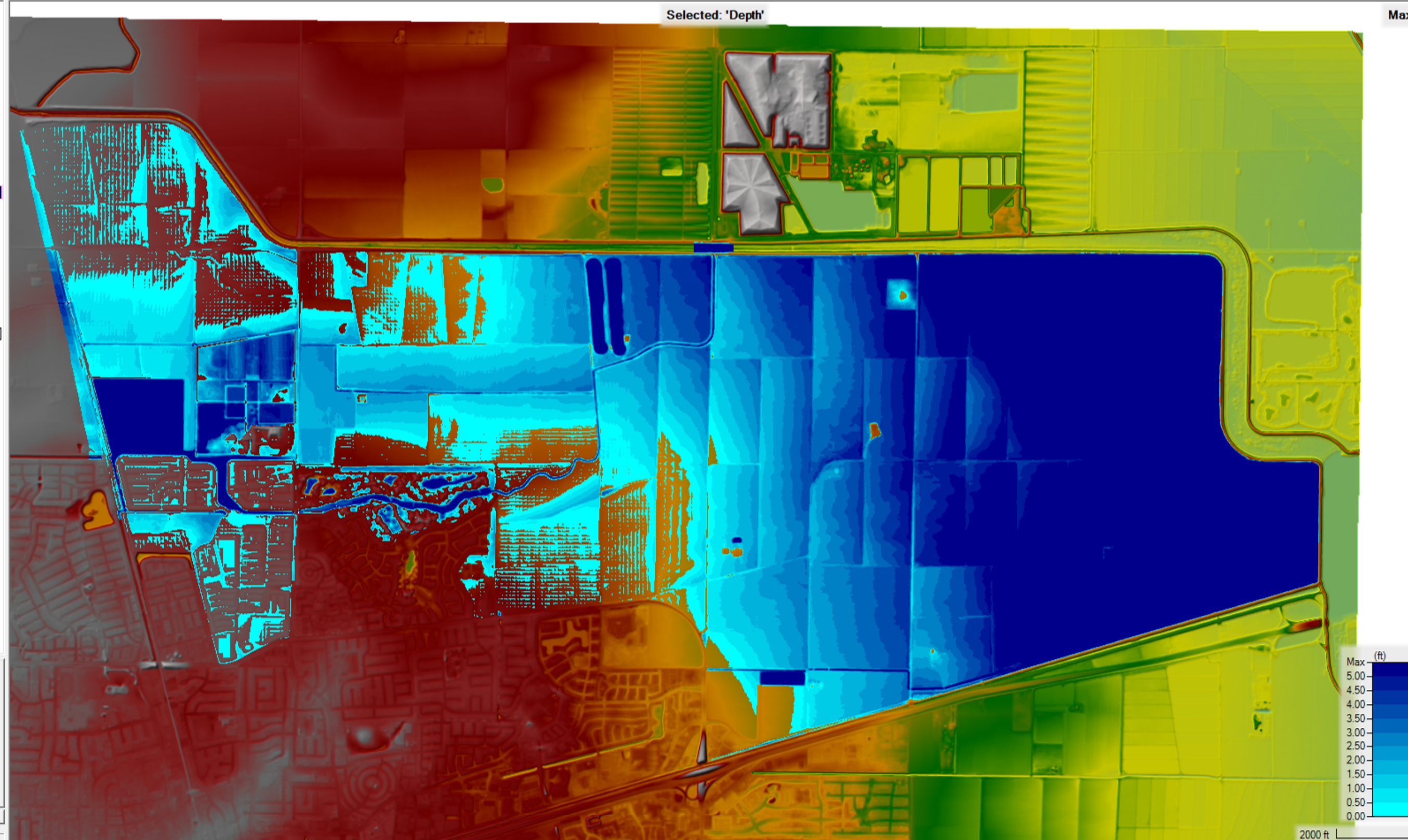


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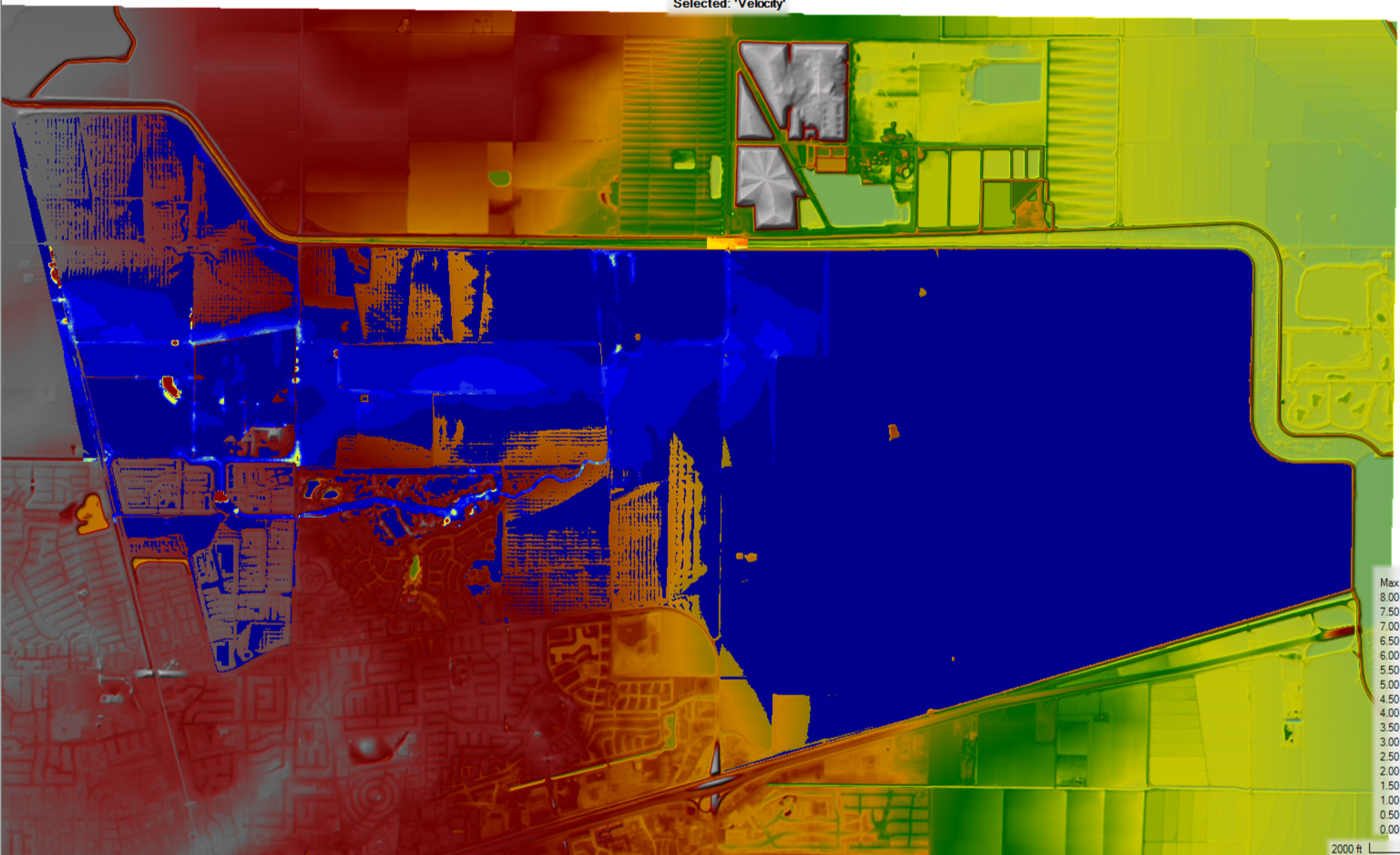
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    - Geometry
    - Plan
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    - Velocity (Max)
    - WSE (Max)
    - Water Surface Elevation (Max)
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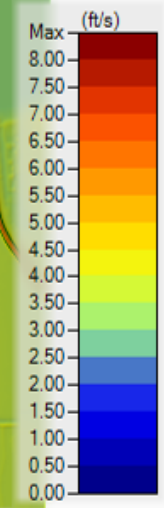


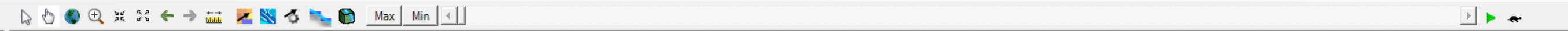
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  - Proposed\_BWLA\_100Yr-10Dy
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    - Geometry
    - Plan
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  - Proposed\_BWLA\_100Yr-24Hr
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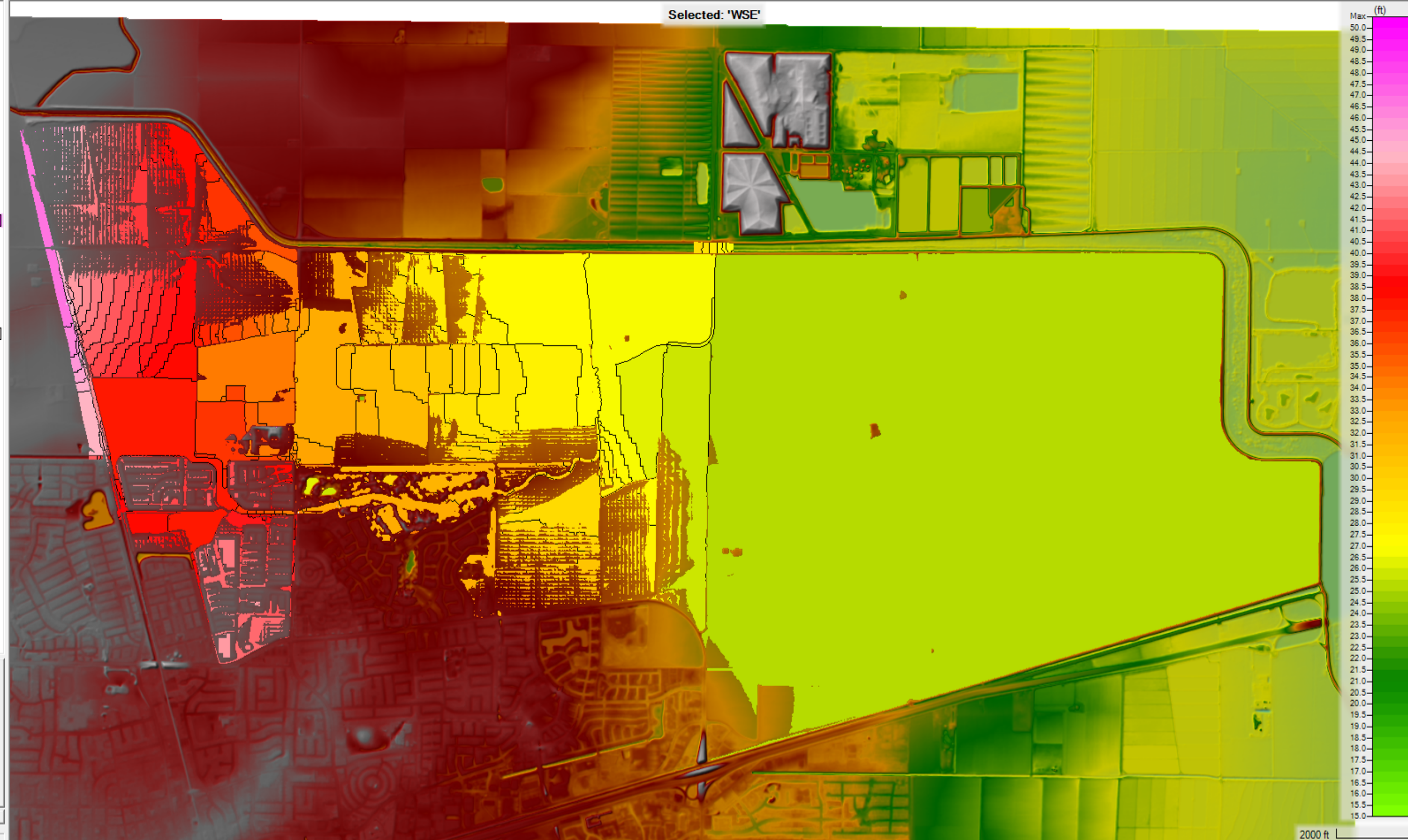
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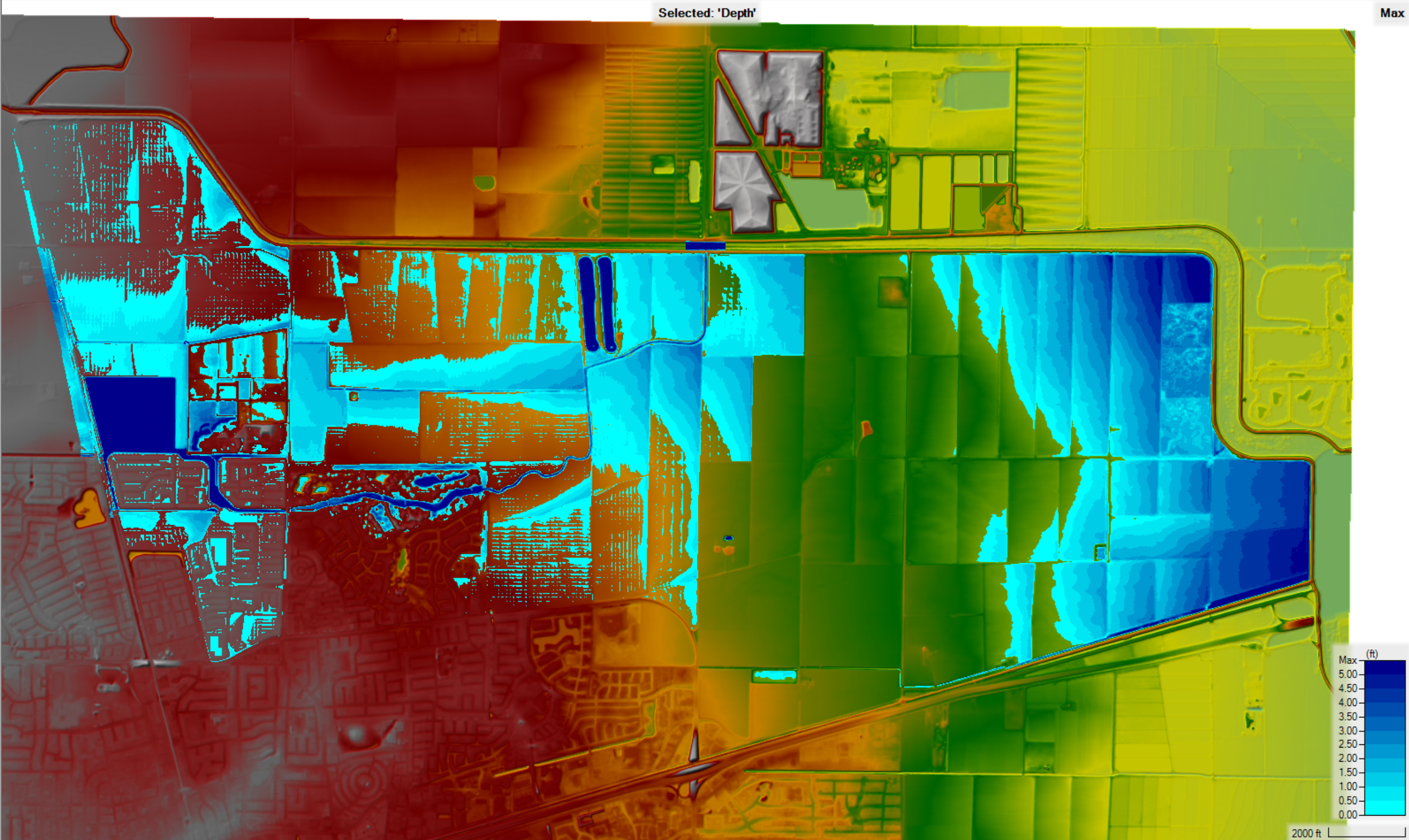
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- Plans
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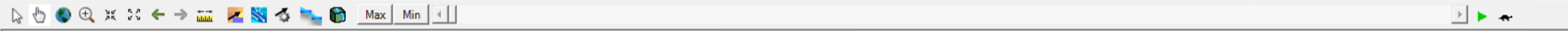
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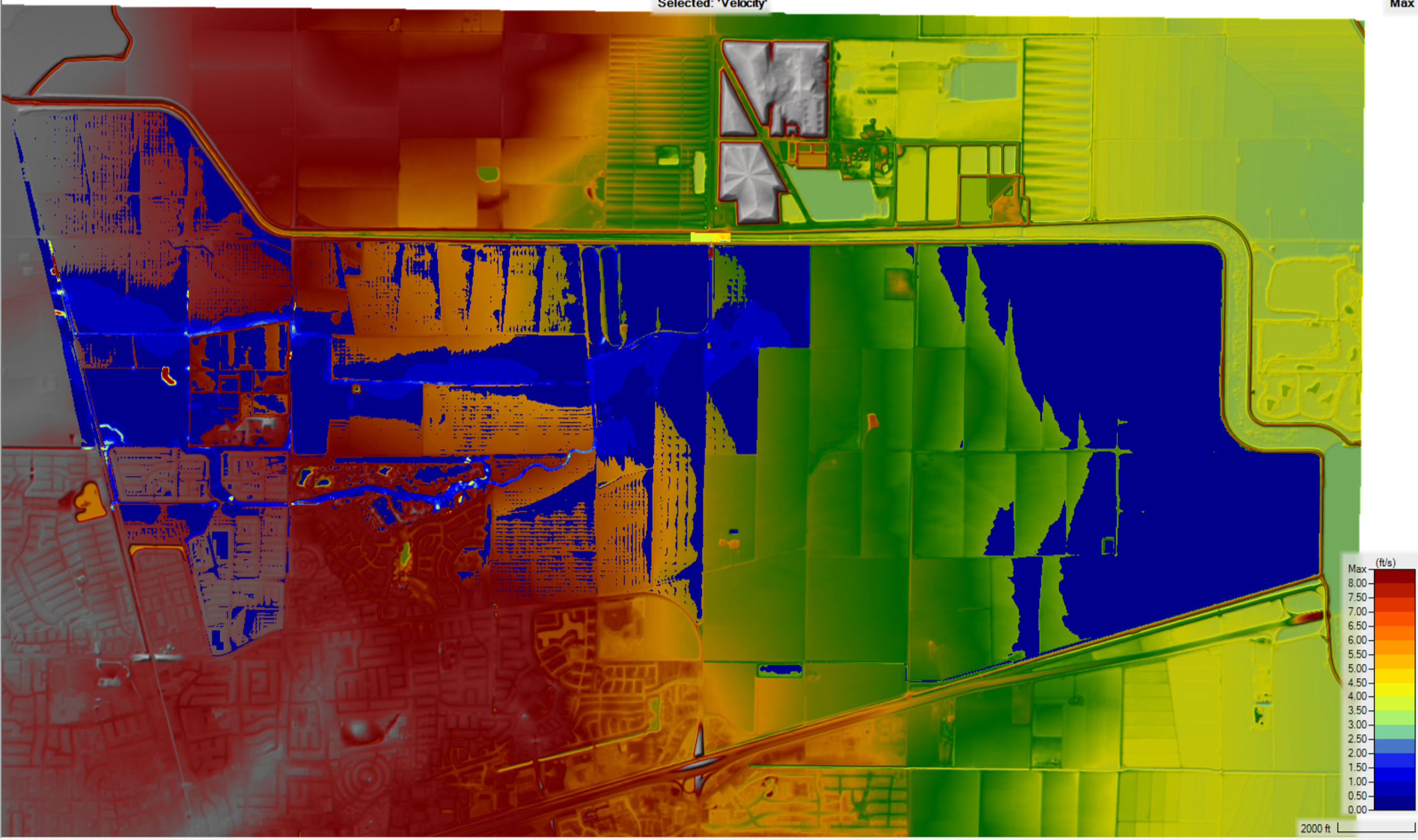
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    - WSE (Max)
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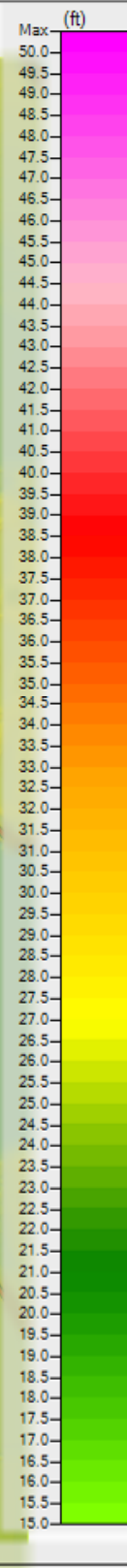
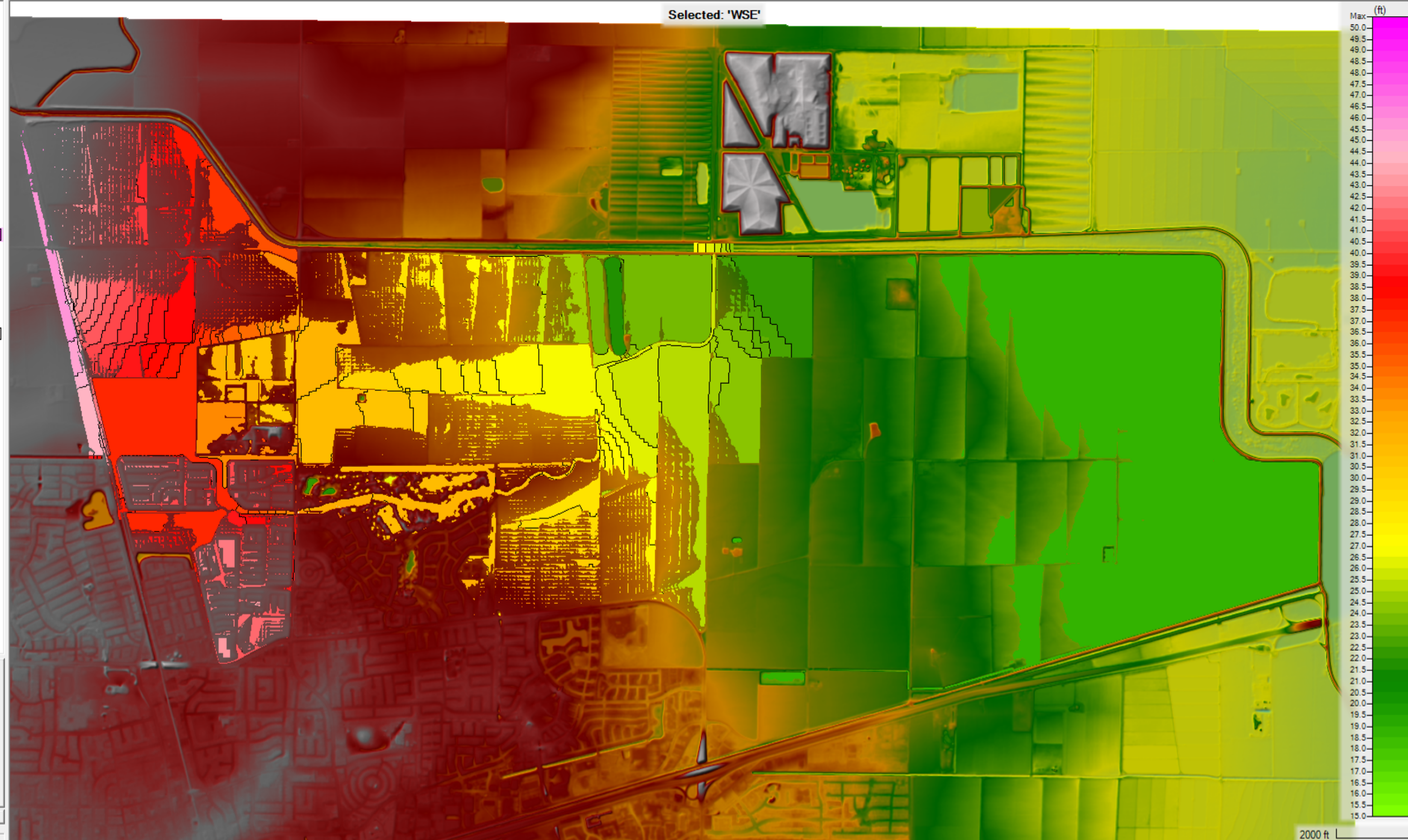


- Features
- Geometries
- Plans
- Event Conditions
- Results
  - Existing\_100Yr-10Dy
  - Existing\_100Yr-24Hr
  - Existing\_010Yr-24Hr
  - Existing\_200Yr-10Dy
  - Proposed\_BWLA\_100Yr-10Dy
  - Proposed\_BWLA\_100Yr-24Hr
    - Event Conditions
    - Geometry
    - Plan
    - Depth (Max)
    - Velocity (Max)
    - WSE (Max)
    - Water Surface Elevation (Max)
  - Proposed\_BWLA\_010Yr-24Hr
  - Proposed\_BWLA\_200Yr-10Dy
- Map Layers
- Terrains
  - EXT0\_2023-12-06
  - PRT0\_CEC\_BWLA2\_Ed1\_2024-07-0





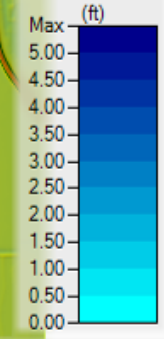
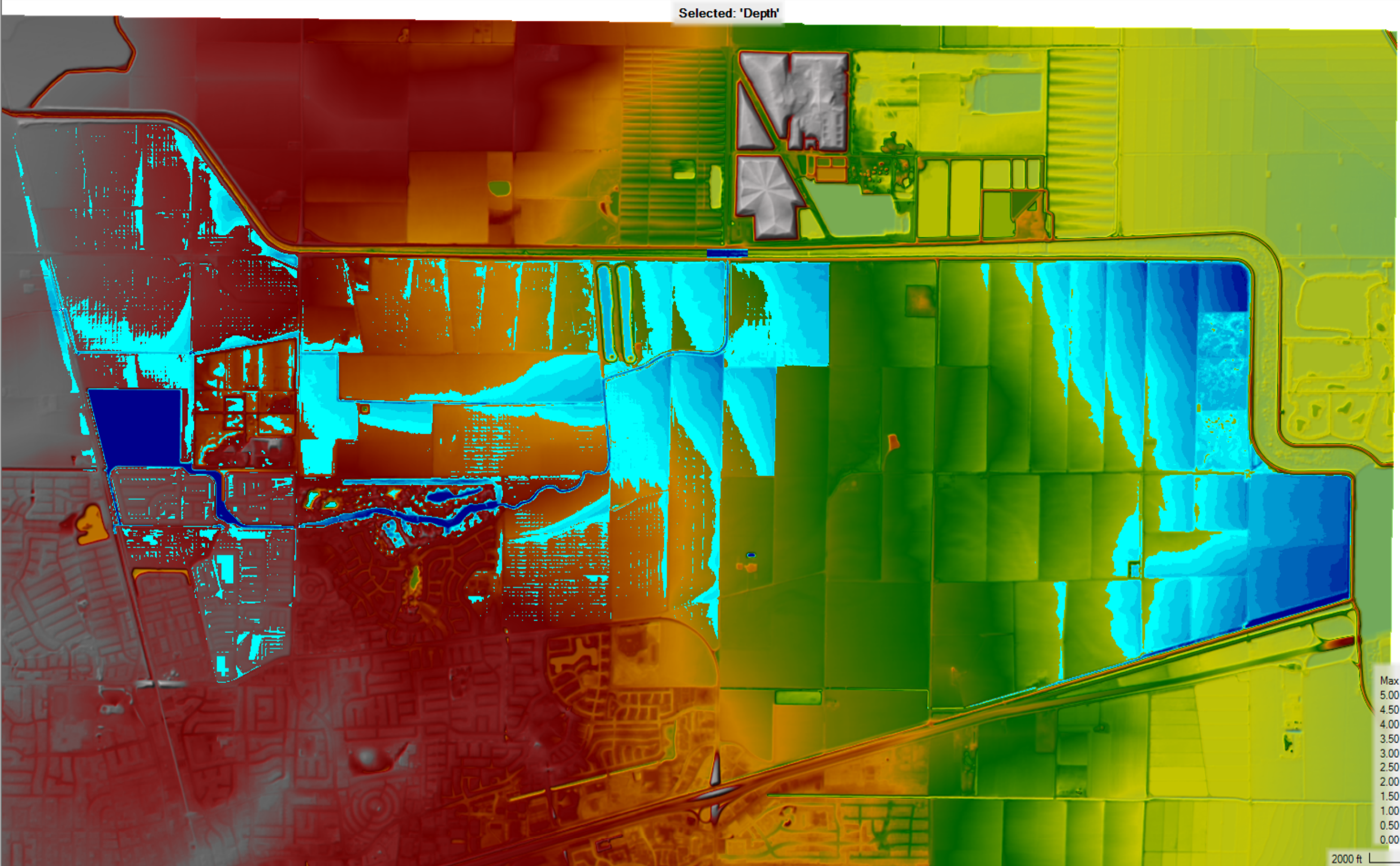
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- Geometries
- Plans
- Event Conditions
- Results
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  - Existing\_100Yr-24Hr
  - Existing\_010Yr-24Hr
  - Existing\_200Yr-10Dy
  - Proposed\_BWLA\_100Yr-10Dy
  - Proposed\_BWLA\_100Yr-24Hr
    - Event Conditions
    - Geometry
    - Plan
    - Depth (Max)
    - Velocity (Max)
    - WSE (Max)
    - Water Surface Elevation (Max)
  - Proposed\_BWLA\_010Yr-24Hr
  - Proposed\_BWLA\_200Yr-10Dy
- Map Layers
- Terrains
  - EXT0\_2023-12-06
  - PRTO\_CEC\_BWLA2\_Ed1\_2024-07-0



Selected Layer: Depth



- Features
- Geometries
- Plans
- Event Conditions
- Results
  - Existing\_100Yr-10Dy
  - Existing\_100Yr-24Hr
  - Existing\_010Yr-24Hr
  - Existing\_200Yr-10Dy
  - Proposed\_BWLA\_100Yr-10Dy
  - Proposed\_BWLA\_100Yr-24Hr
  - Proposed\_BWLA\_010Yr-24Hr
    - Event Conditions
    - Geometry
    - Plan
    - Depth (Max)
    - Velocity (Max)
    - WSE (Max)
    - Water Surface Elevation (Max)
  - Proposed\_BWLA\_200Yr-10Dy
- Map Layers
- Terrains
  - EXT0\_2023-12-06
  - PRT0\_CEC\_BWLA2\_Ed1\_2024-07-0

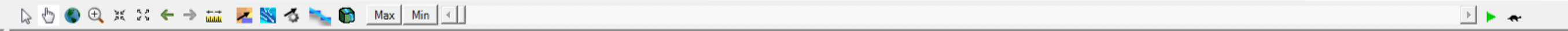


Messages Views Profile Lines Active Features La

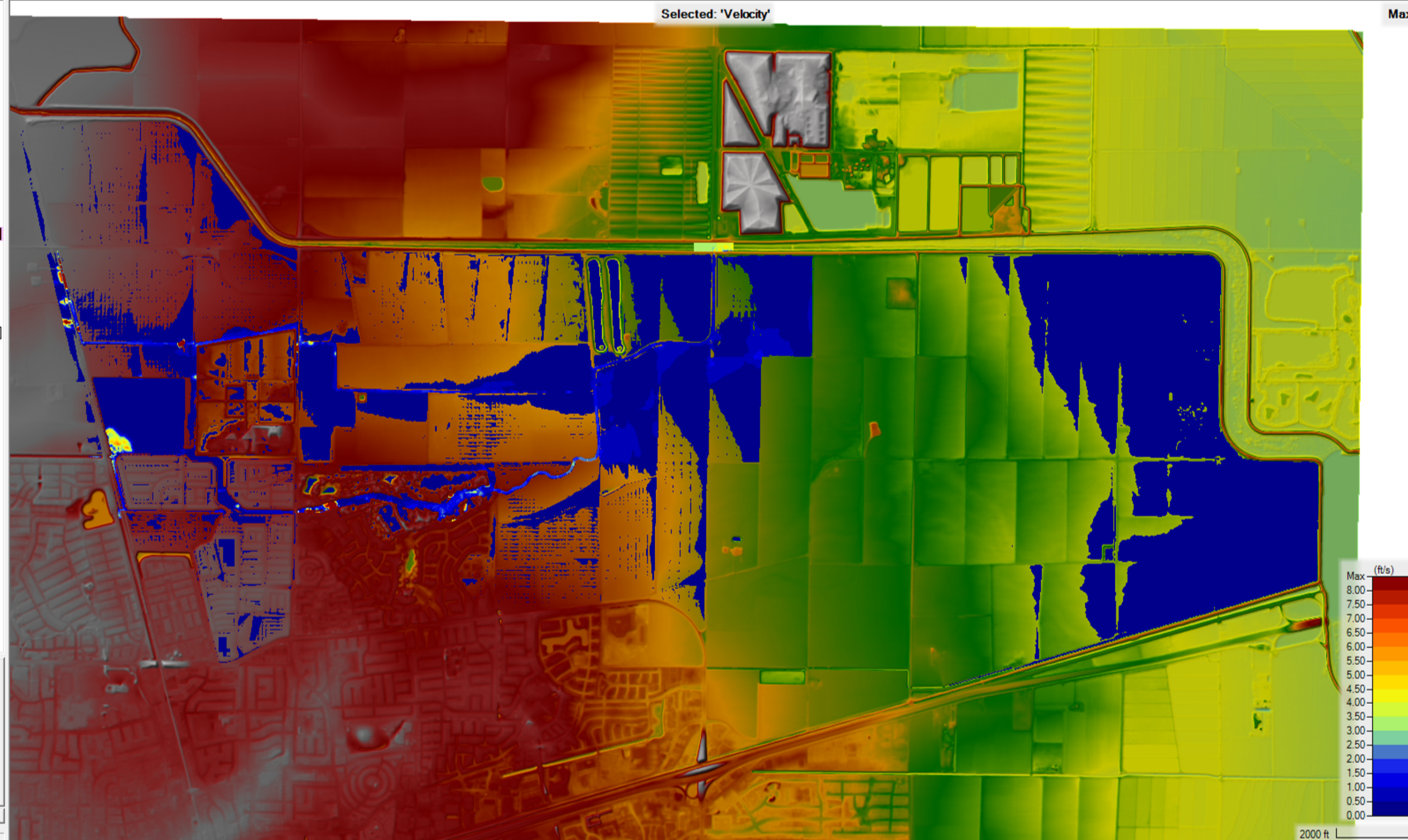
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2000 ft

Selected Layer: Velocity



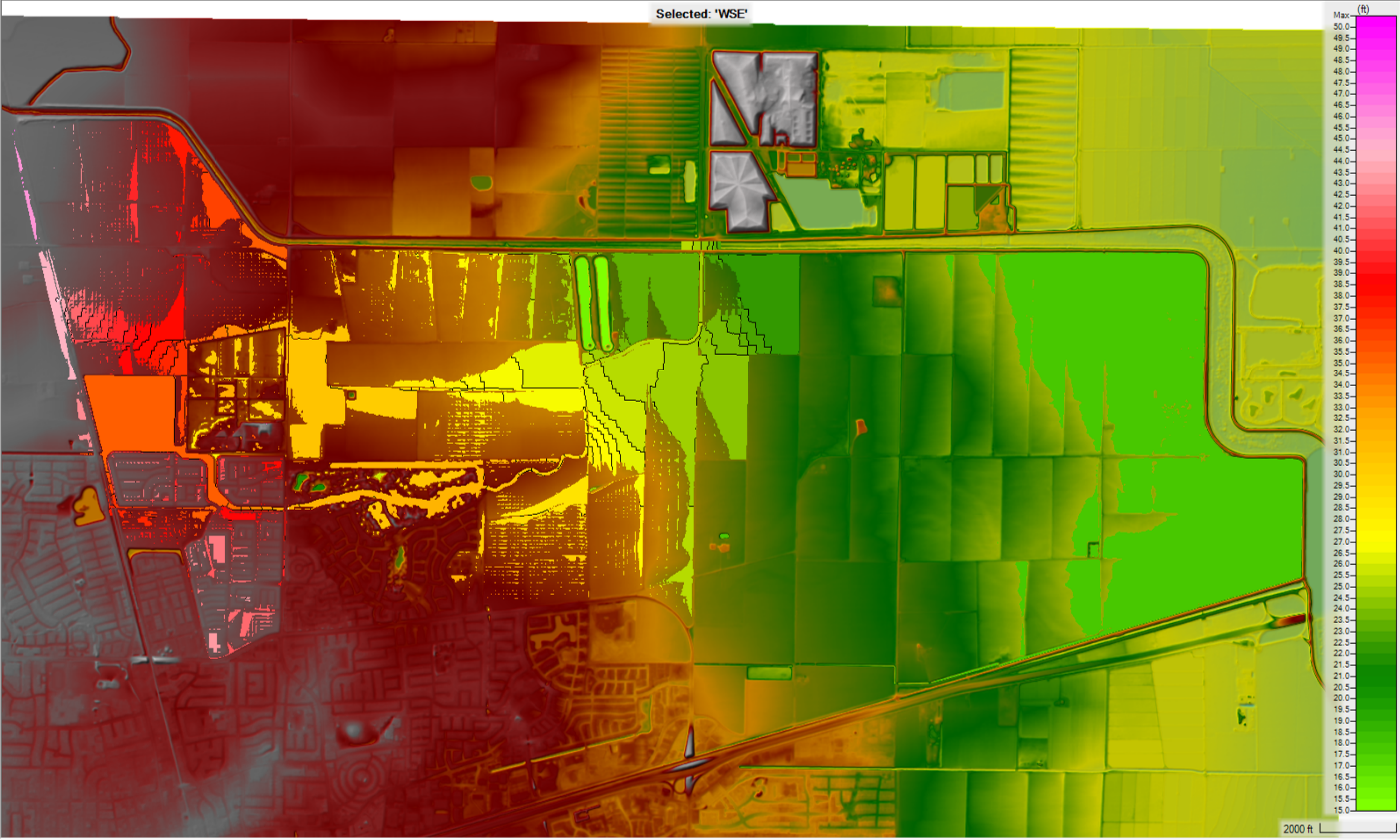
- Features
- Geometries
- Plans
- Event Conditions
- Results
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  - Existing\_100Yr-24Hr
  - Existing\_010Yr-24Hr
  - Existing\_200Yr-10Dy
  - Proposed\_BWLA\_100Yr-10Dy
  - Proposed\_BWLA\_100Yr-24Hr
  - Proposed\_BWLA\_010Yr-24Hr
    - Event Conditions
    - Geometry
    - Plan
    - Depth (Max)
    - Velocity (Max)
    - WSE (Max)
    - Water Surface Elevation (Max)
  - Proposed\_BWLA\_200Yr-10Dy
- Map Layers
- Terrains
  - EXT0\_2023-12-06
  - PRTO\_CEC\_BWLA2\_Ed1\_2024-07-0

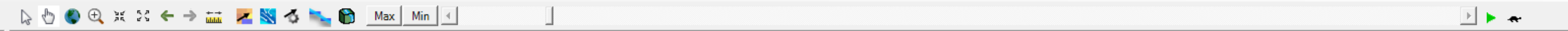


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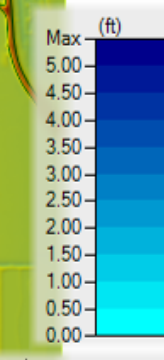
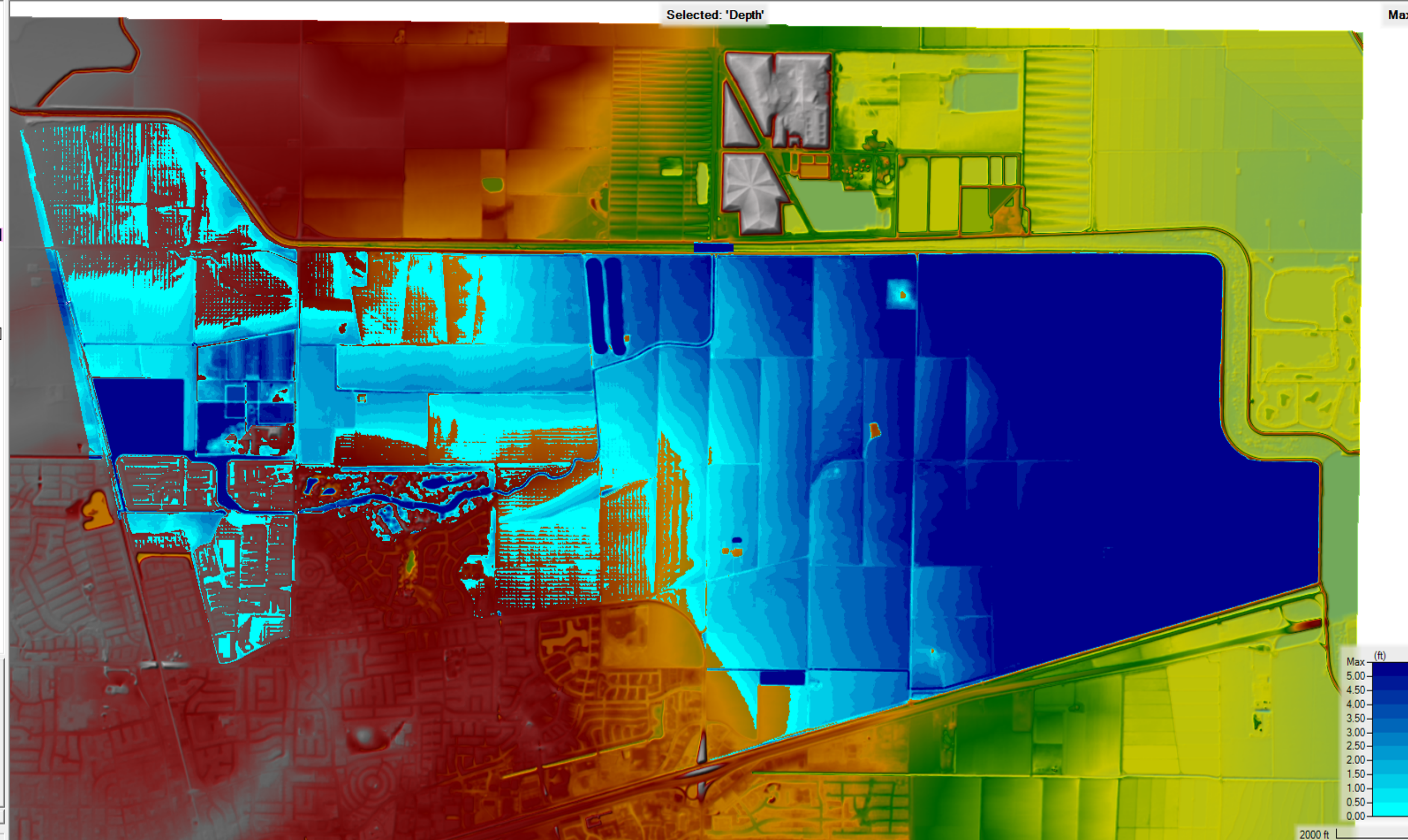


- Features
- Geometries
- Plans
- Event Conditions
- Results
  - Existing\_100Yr-10Dy
  - Existing\_100Yr-24Hr
  - Existing\_010Yr-24Hr
  - Existing\_200Yr-10Dy
  - Proposed\_BWLA\_100Yr-10Dy
  - Proposed\_BWLA\_100Yr-24Hr
  - Proposed\_BWLA\_010Yr-24Hr
    - Event Conditions
    - Geometry
    - Plan
    - Depth (Max)
    - Velocity (Max)
    - WSE (Max)
    - Water Surface Elevation (Max)
  - Proposed\_BWLA\_200Yr-10Dy
- Map Layers
- Terrains
  - EXT0\_2023-12-06
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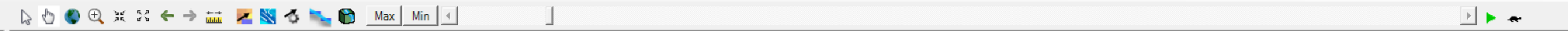




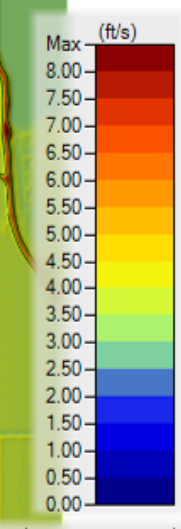
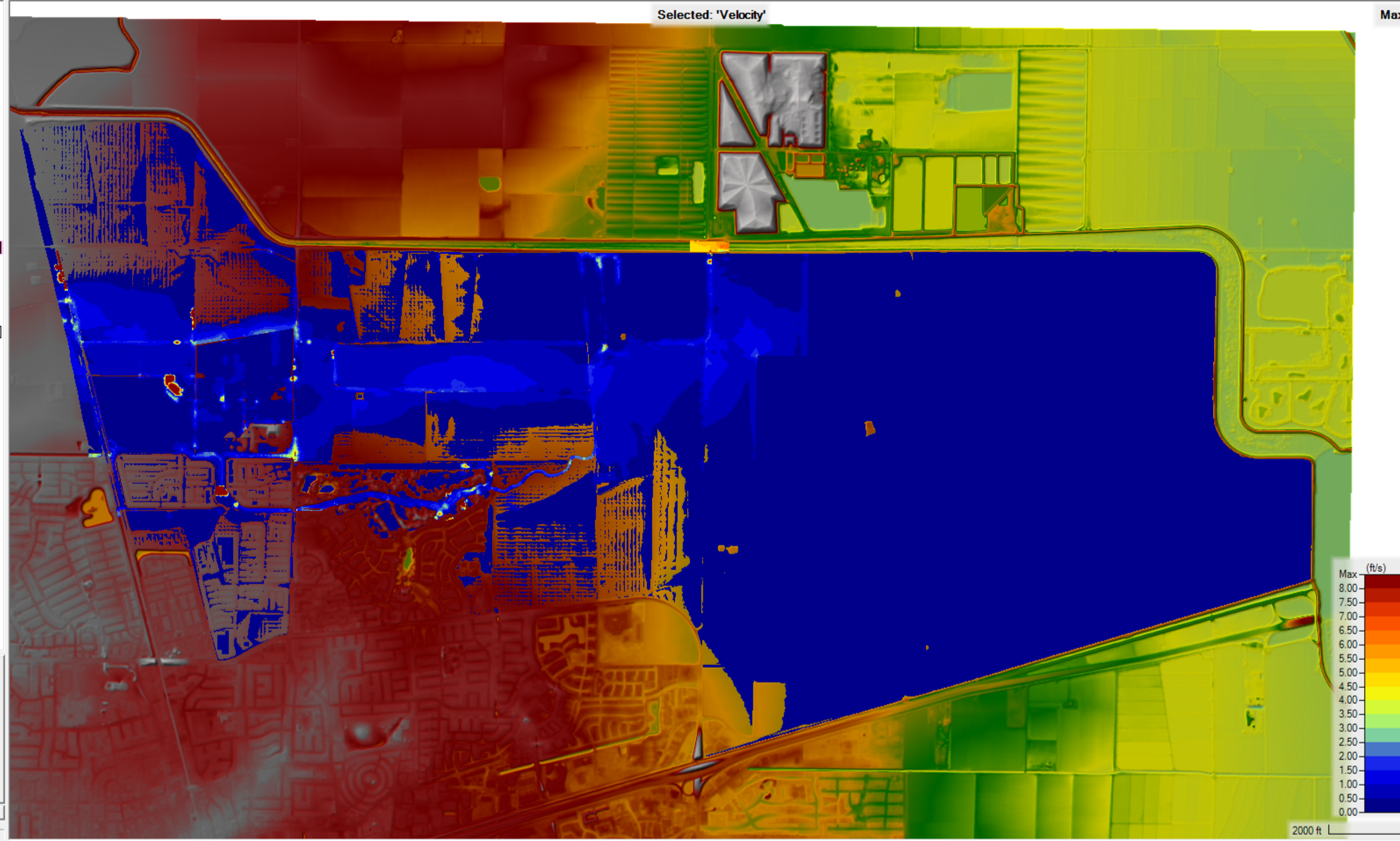
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- Geometries
- Plans
- Event Conditions
- Results
  - Existing\_100Yr-10Dy
  - Existing\_100Yr-24Hr
  - Existing\_010Yr-24Hr
  - Existing\_200Yr-10Dy
  - Proposed\_BWLA\_100Yr-10Dy
  - Proposed\_BWLA\_100Yr-24Hr
  - Proposed\_BWLA\_010Yr-24Hr
  - Proposed\_BWLA\_200Yr-10Dy
    - Event Conditions
    - Geometry
    - Plan
    - Depth (Max)
    - Velocity (Max)
    - WSE (Max)
    - Water Surface Elevation (Max)
- Map Layers
- Terrains
  - EXT0\_2023-12-06
  - PRTO\_CEC\_BWLA2\_Ed1\_2024-07-0

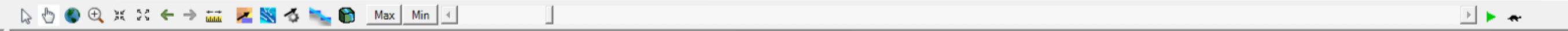


Selected Layer: Velocity

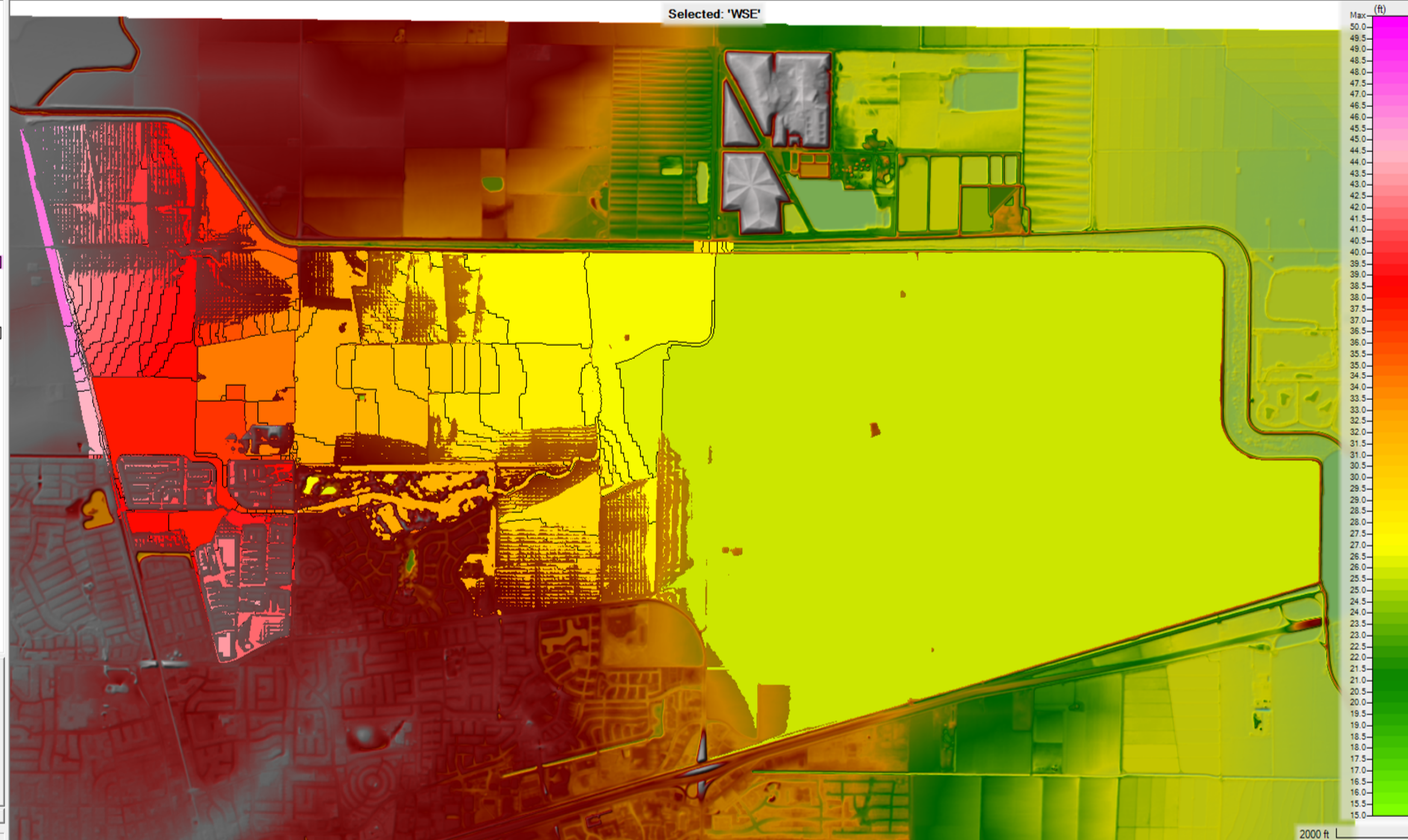


- Features
  - Geometries
  - Plans
  - Event Conditions
  - Results
    - Existing\_100Yr-10Dy
    - Existing\_100Yr-24Hr
    - Existing\_010Yr-24Hr
    - Existing\_200Yr-10Dy
    - Proposed\_BWLA\_100Yr-10Dy
    - Proposed\_BWLA\_100Yr-24Hr
    - Proposed\_BWLA\_010Yr-24Hr
    - Proposed\_BWLA\_200Yr-10Dy
      - Event Conditions
      - Geometry
      - Plan
      - Depth (Max)
      - Velocity (Max)
      - WSE (Max)
      - Water Surface Elevation (Max)
- Map Layers
  - Terrains
    - EXT0\_2023-12-06
    - PRT0\_CEC\_BWLA2\_Ed1\_2024-07-0



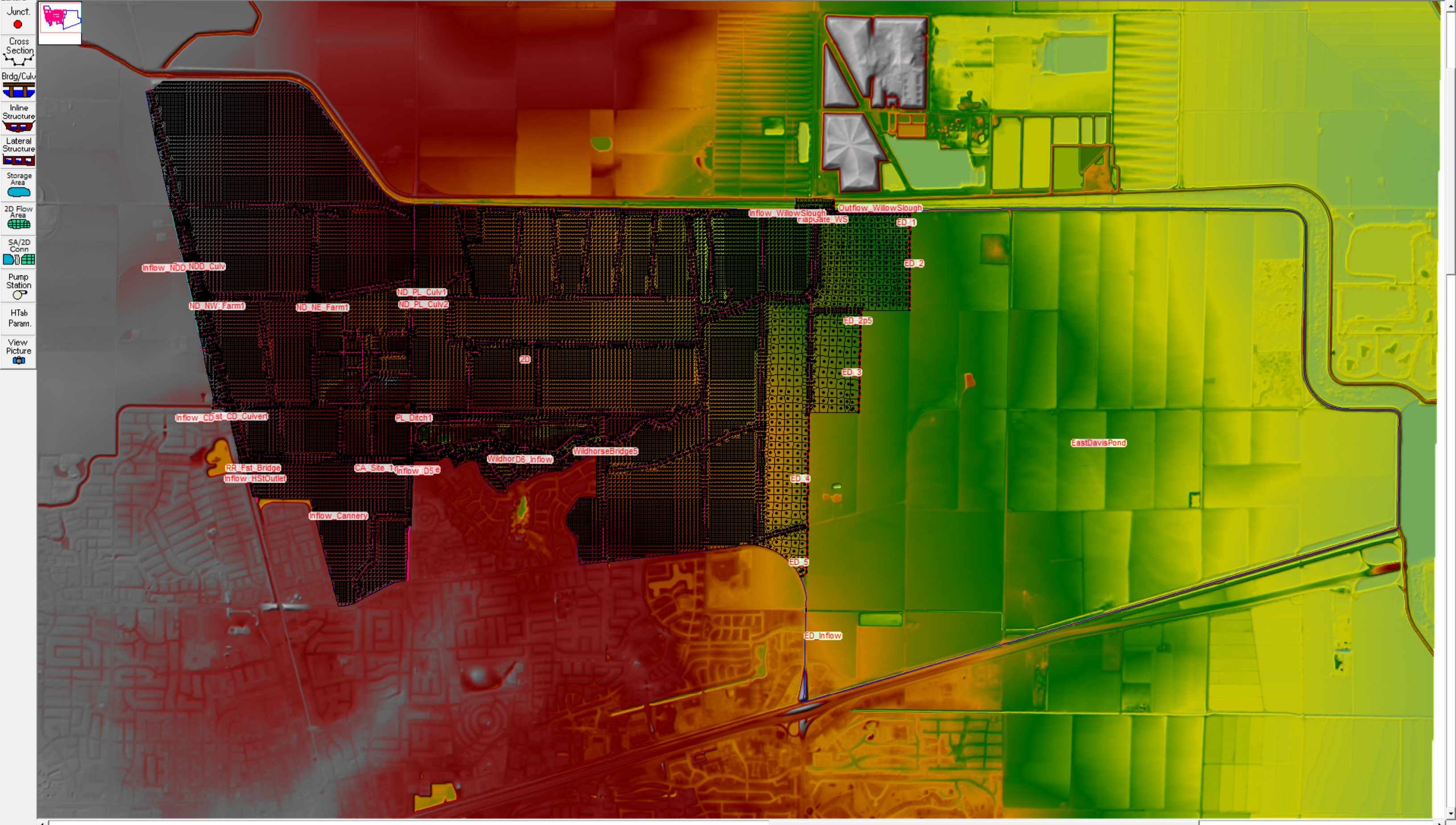


- Features
  - Geometries
  - Plans
  - Event Conditions
  - Results
    - Existing\_100Yr-10Dy
    - Existing\_100Yr-24Hr
    - Existing\_010Yr-24Hr
    - Existing\_200Yr-10Dy
    - Proposed\_BWLA\_100Yr-10Dy
    - Proposed\_BWLA\_100Yr-24Hr
    - Proposed\_BWLA\_010Yr-24Hr
    - Proposed\_BWLA\_200Yr-10Dy
      - Event Conditions
      - Geometry
      - Plan
      - Depth (Max)
      - Velocity (Max)
      - WSE (Max)
      - Water Surface Elevation (Max)
- Map Layers
  - Terrains
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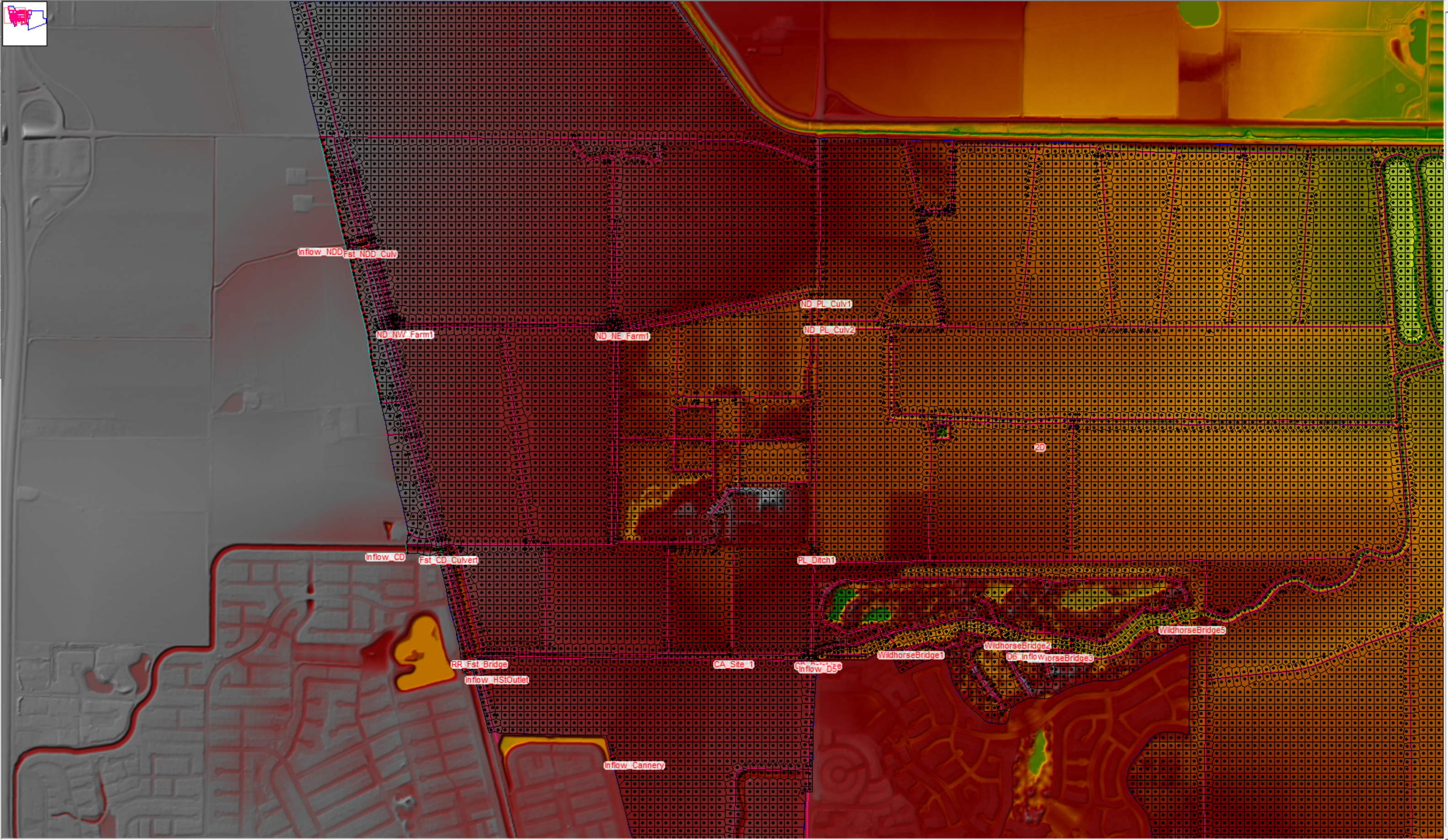
## **Appendix 3**

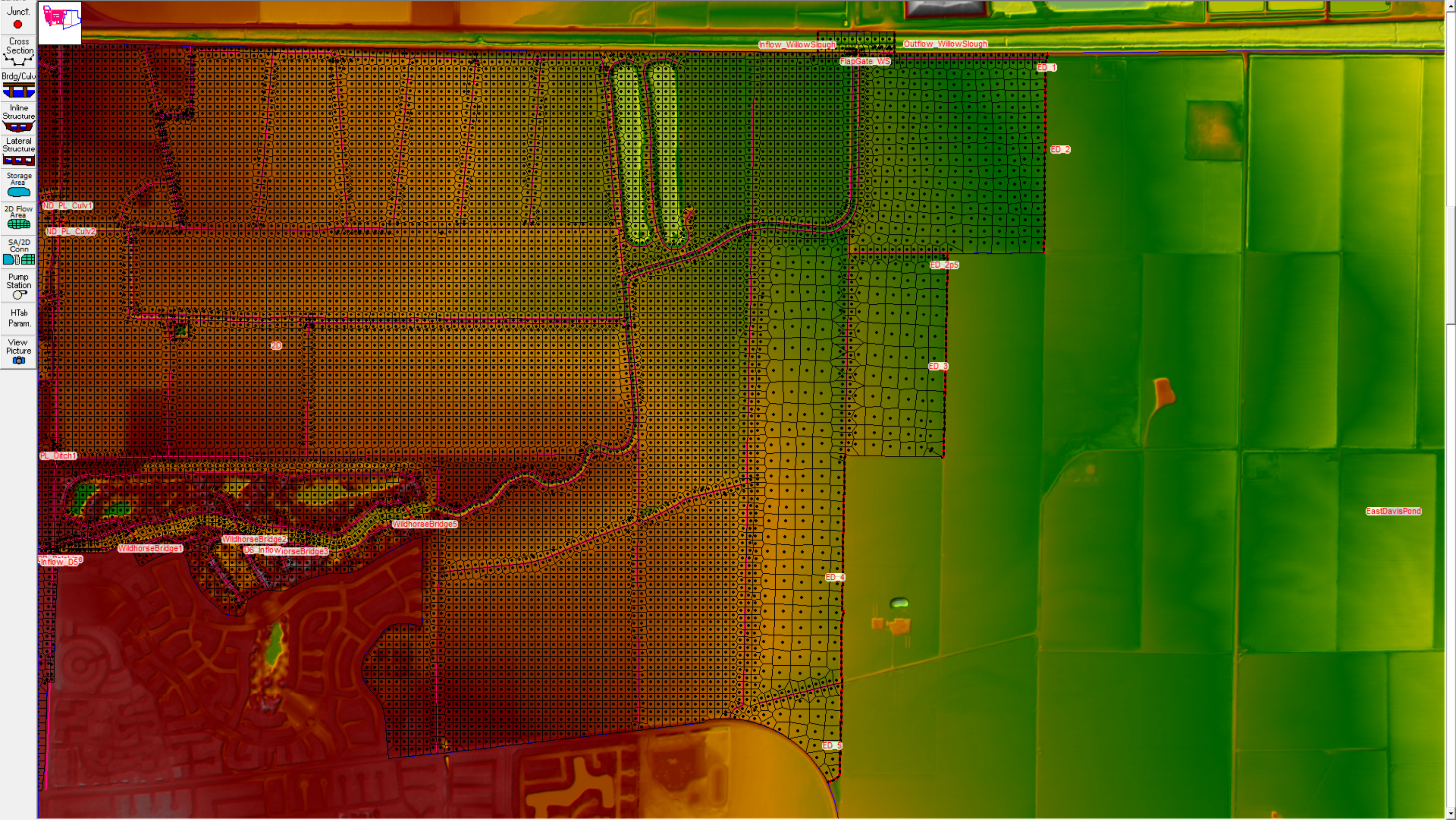
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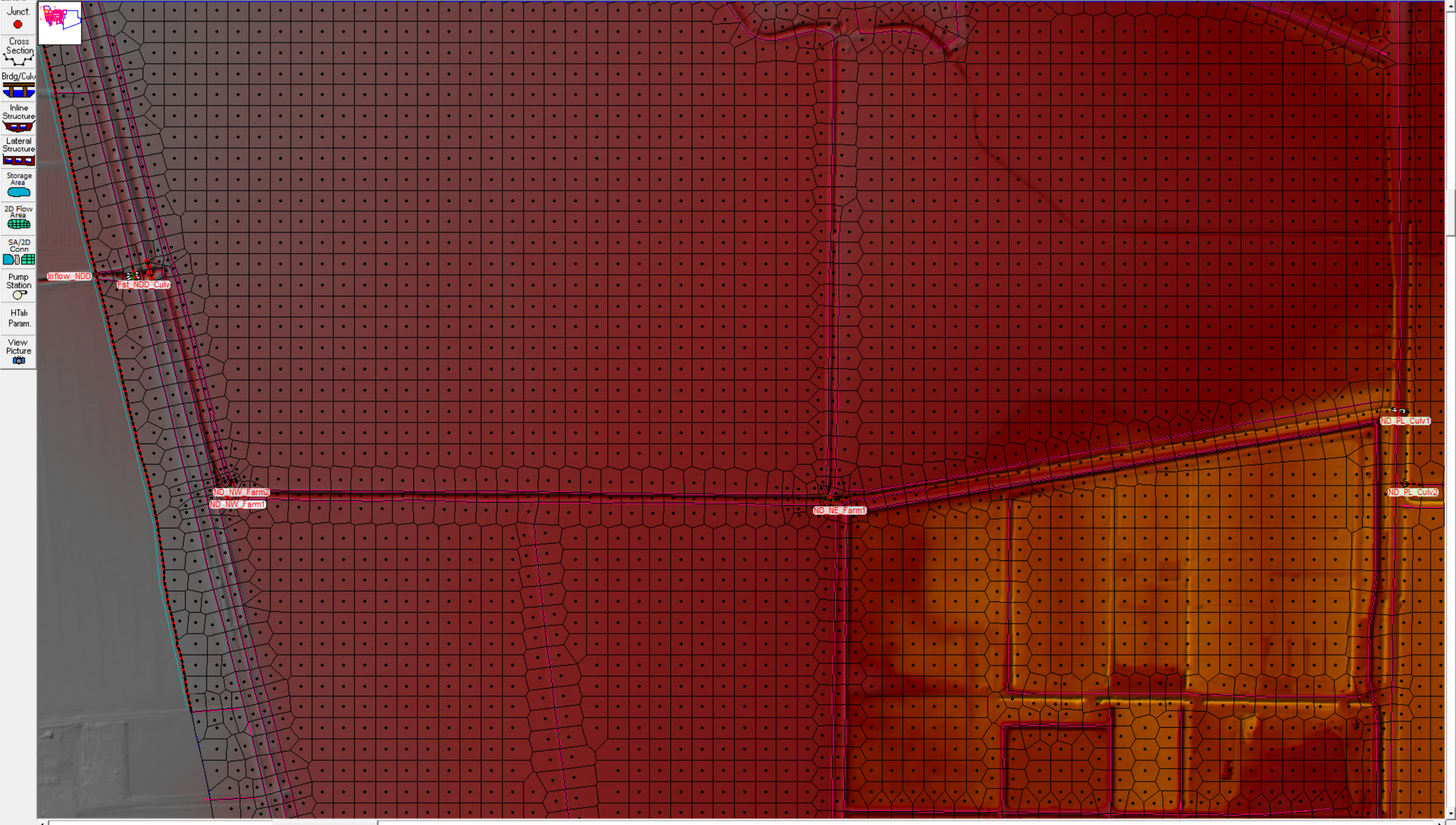


- Junct.
- Cross Section
- Brdg/Culv
- Inline Structure
- Lateral Structure
- Storage Area
- 2D Flow Area
- SA/2D Conn
- Pump Station
- HTab Param.
- View Picture

- Junct.
- Cross Section
- Brdg/Culv
- Inline Structure
- Lateral Structure
- Storage Area
- 2D Flow Area
- SA/2D Conn
- Pump Station
- HTab Param.
- View Picture

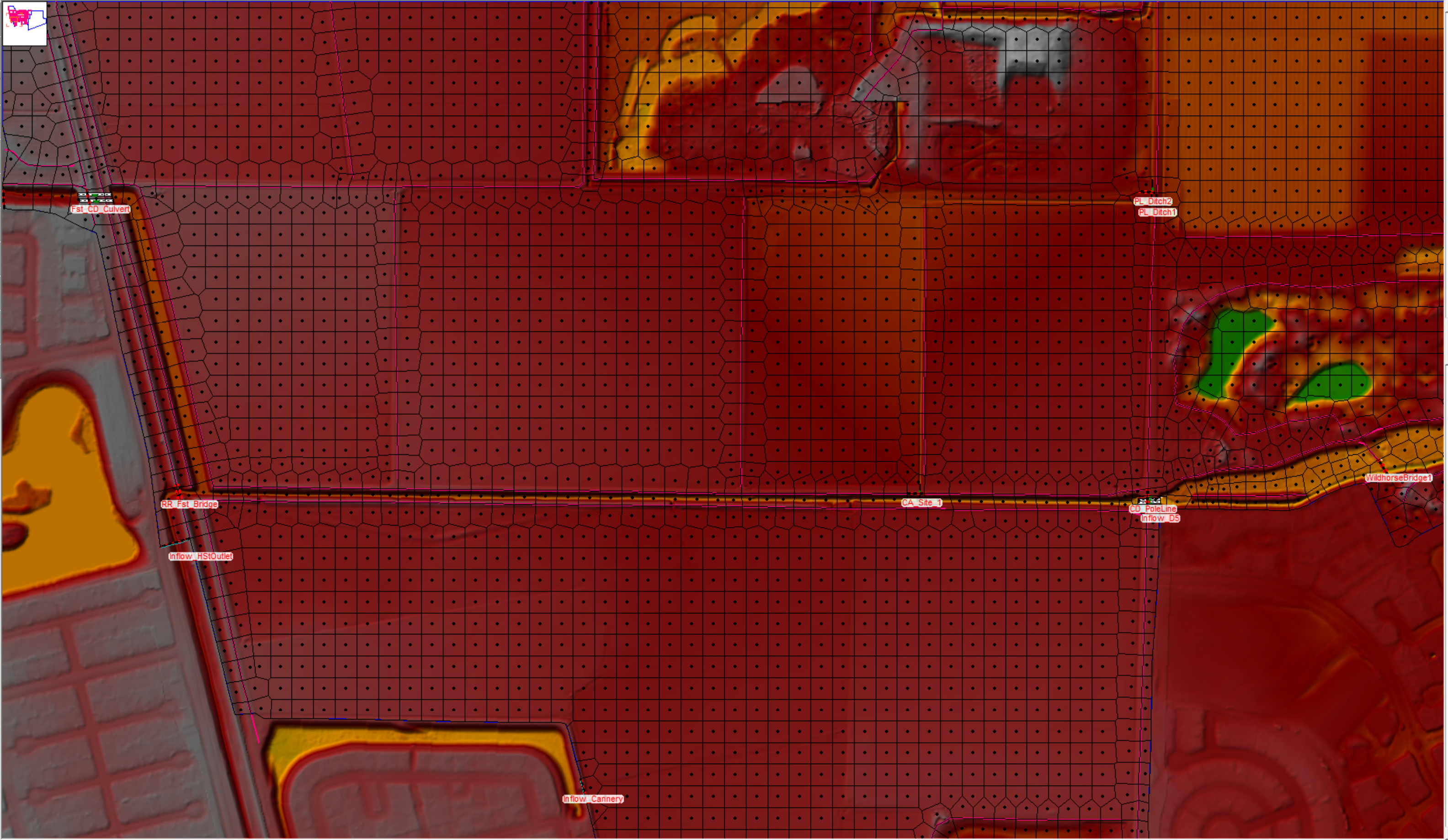


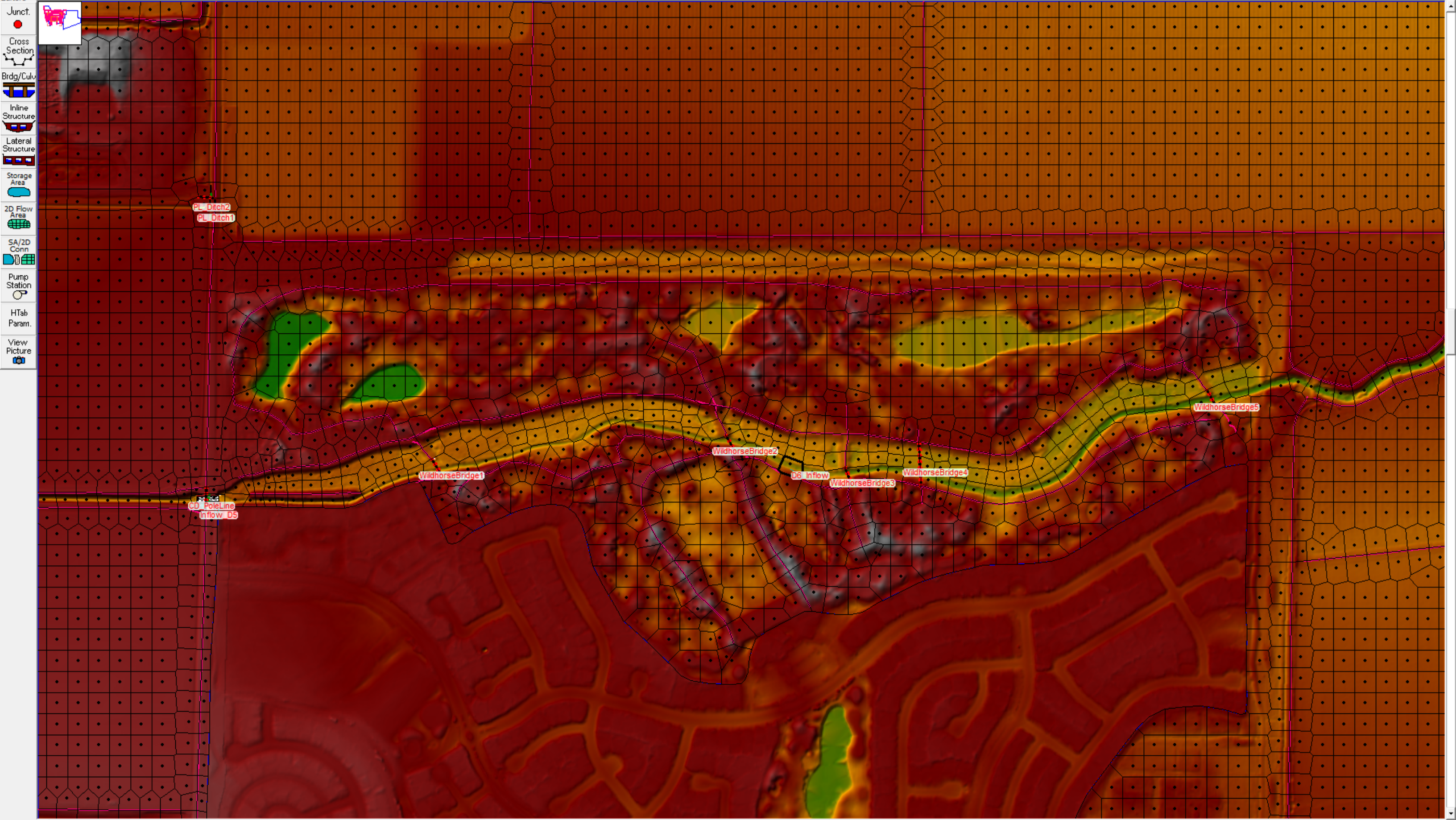




- Junct.
- Cross Section
- Brdg/Culv
- Inline Structure
- Lateral Structure
- Storage Area
- 2D Flow Area
- SA/2D Conn
- Pump Station
- HTab Param.
- View Picture

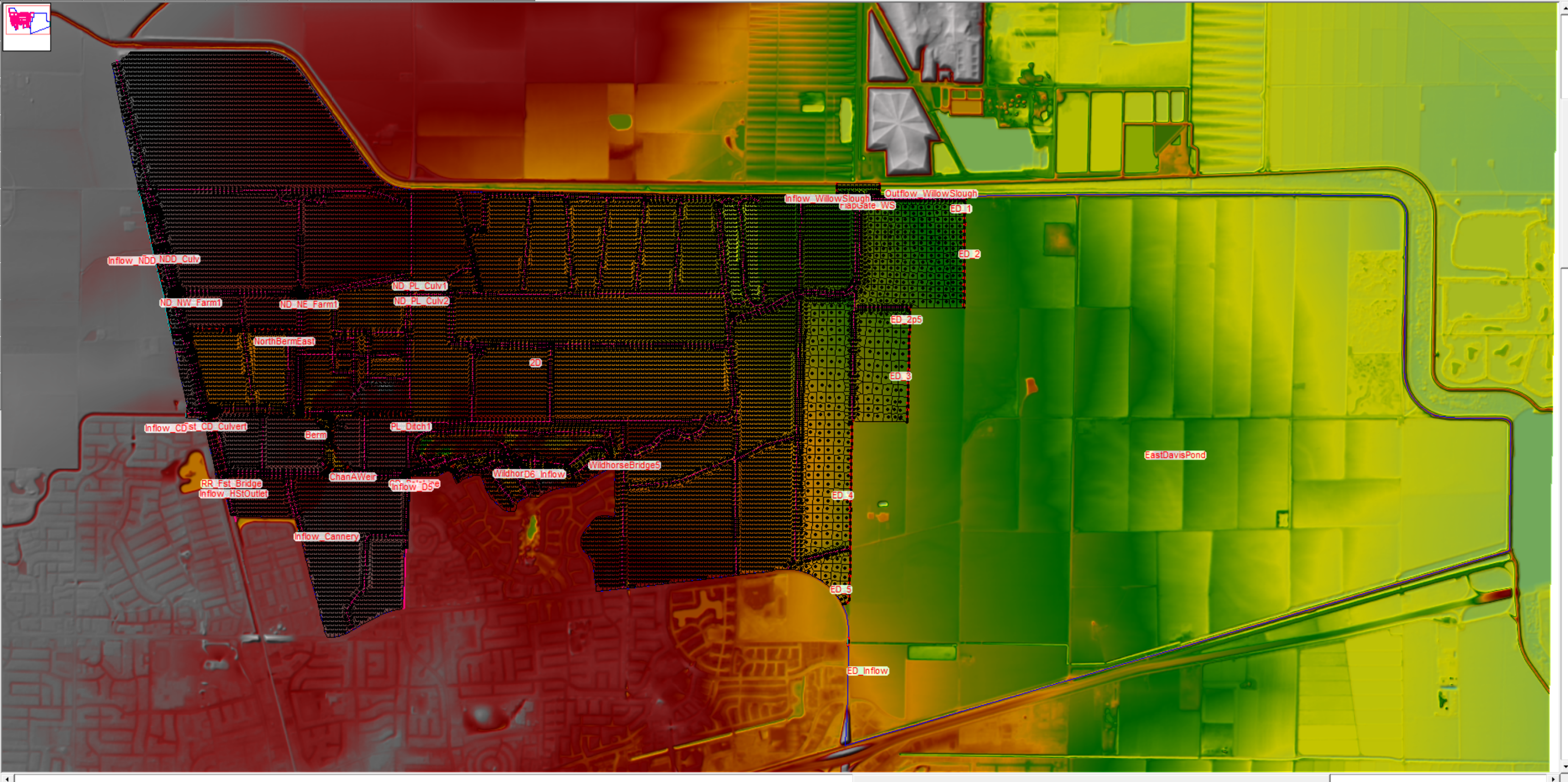
- Junct.
- Cross Section
- Brdg/Culv
- Inline Structure
- Lateral Structure
- Storage Area
- 2D Flow Area
- SA/2D Conn
- Pump Station
- HTab Param.
- View Picture



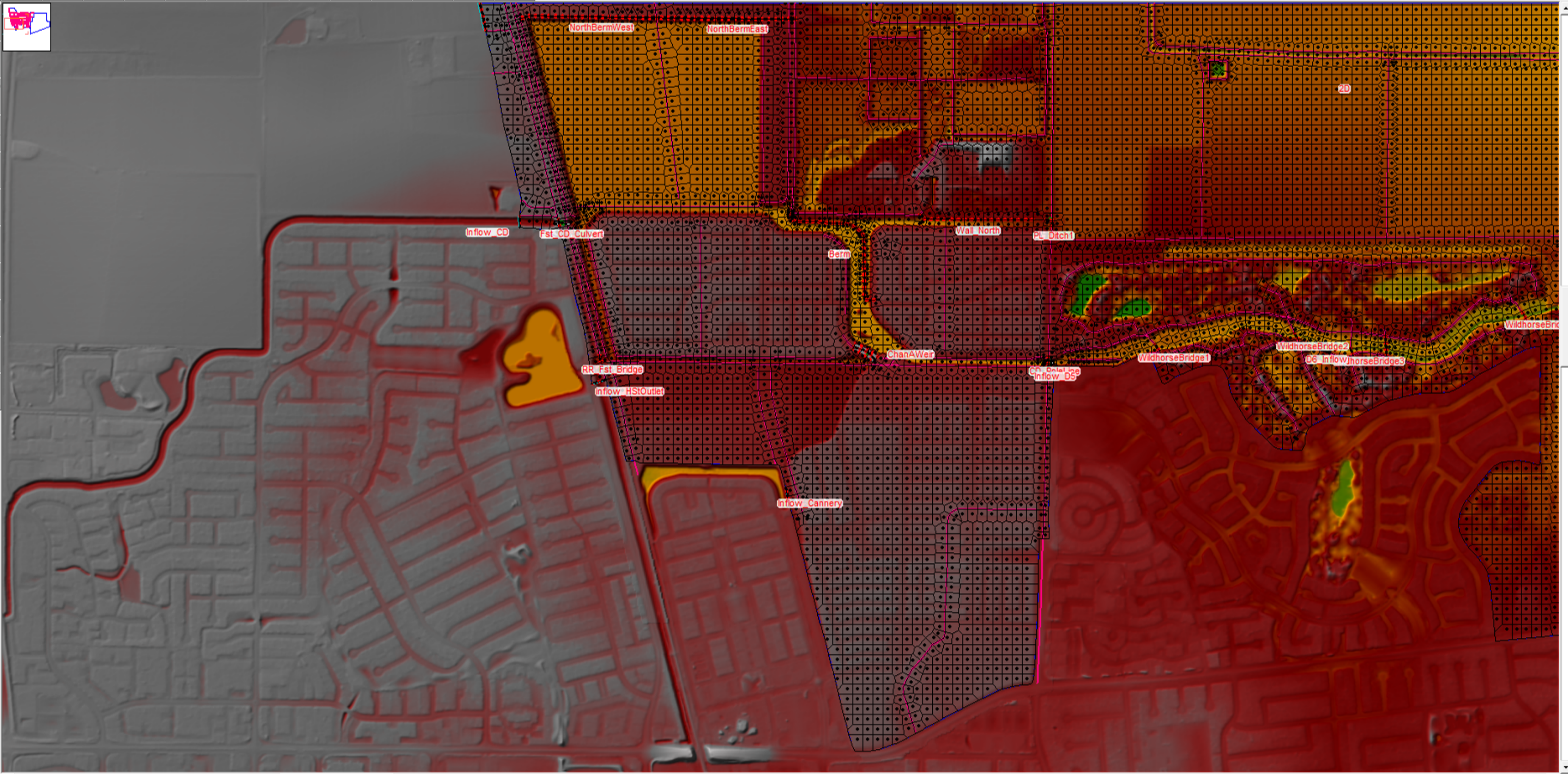


- Junct.
- Cross Section
- Brdg/Culv
- Inline Structure
- Lateral Structure
- Storage Area
- 2D Flow Area
- SA/2D Conn
- Pump Station
- HTab Param.
- View Picture

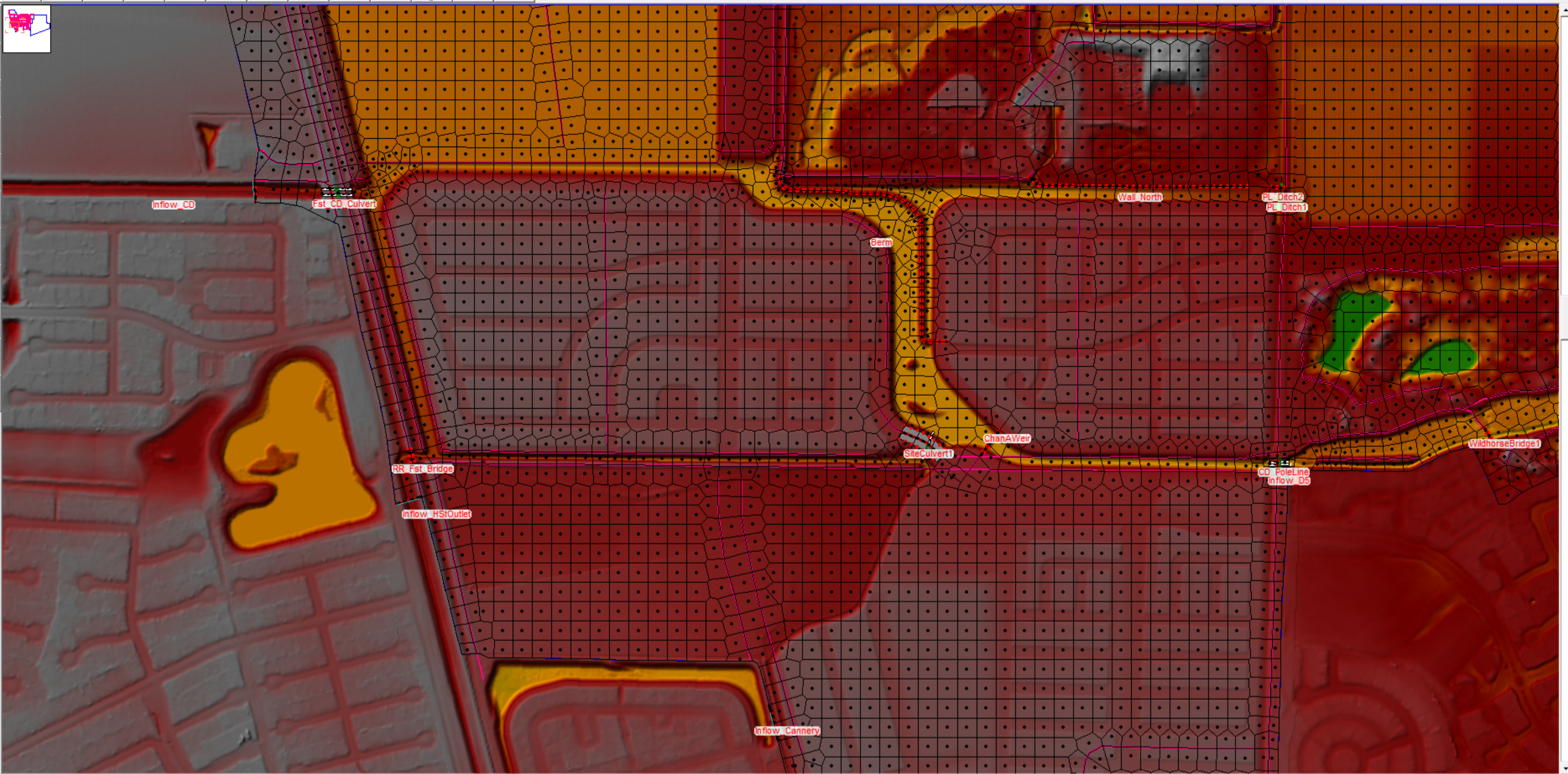
- Junct.
- Cross Section
- Brdg/Culv
- Inline Structure
- Lateral Structure
- Storage Area
- 2D Flow Area
- SA/2D Conn
- Pump Station
- HTab Param.
- View Picture



- Junct.
- Cross Section
- Brdg/Culv
- Inline Structure
- Lateral Structure
- Storage Area
- 2D Flow Area
- SA/2D Conn
- Pump Station
- HTab Param.
- View Picture

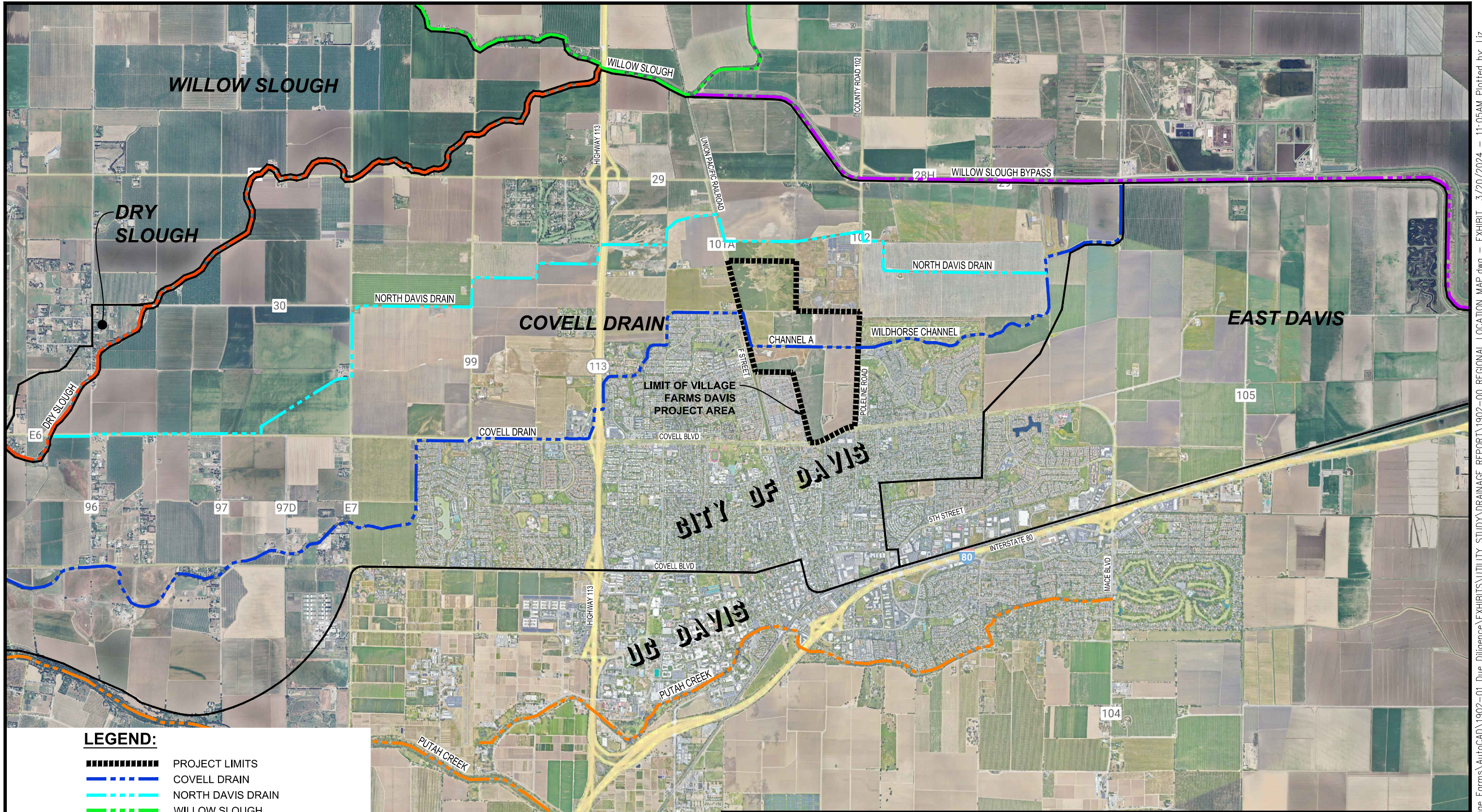


- Junct.
- Cross Section
- Brdg/Culv
- Inline Structure
- Lateral Structure
- Storage Area
- 2D Flow Area
- SA/2D Conn
- Pump Station
- HTab Param.
- View Picture



## **Appendix 4**

### Reference Maps



**LEGEND:**

- PROJECT LIMITS
- — — — — COVELL DRAIN
- — — — — NORTH DAVIS DRAIN
- — — — — WILLOW SLOUGH
- — — — — DRY SLOUGH
- — — — — WILLOW SLOUGH BYPASS
- — — — — PUTAH CREEK
- PRINCIPAL WATERSHED BOUNDARY\*
- PRINCIPAL WATERSHED NAME

**COVELL DRAIN**

\*SOURCE: COVELL DRAINAGE SYSTEM COMPREHENSIVE DRAINAGE PLAN WMP-93-01-3, SEPTEMBER 1993 BY BORCALLI & ASSOCIATES INC.

NOT TO SCALE



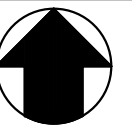
CECWEST.COM  
 Project Planning ■ Civil Engineering ■ Landscape Architecture  
 ■ Sacramento Office 2120 20th Street, Suite Three Sacramento, CA 95818 (916) 455-2026  
 ■ Davis Office 2940 Spafford Street, Suite 200 Davis, CA 95618 (530) 758-2026

PROJECT: VILLAGE FARMS DAVIS

**PROJECT AREA**







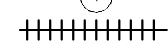
DATE:	03/22/2024
BY:	BF
JOB NO:	1902.01

**FIGURE 1**









NORTH

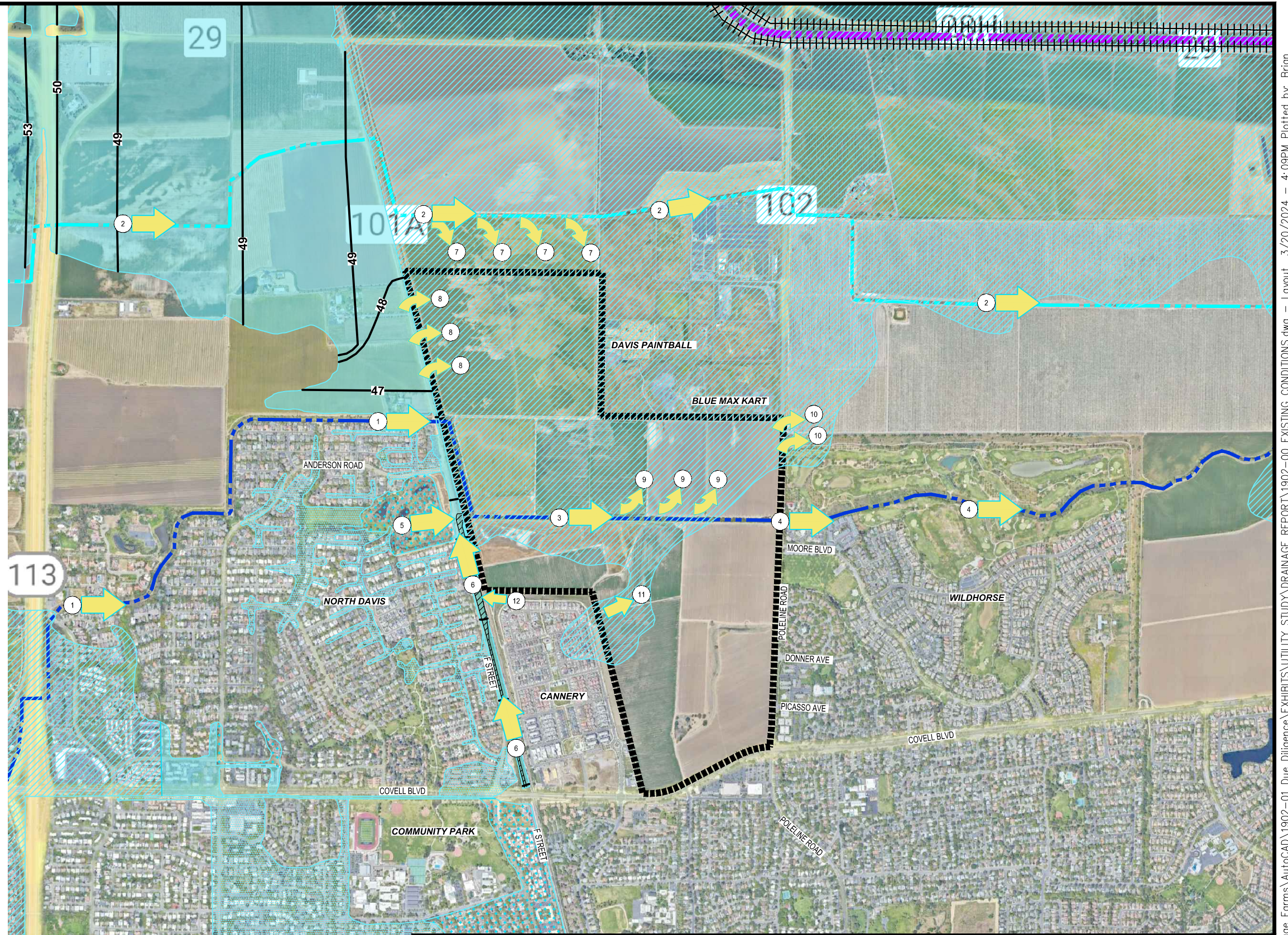
**LEGEND:**

-  PROJECT LIMITS
-  COVELL DRAIN
-  NORTH DAVIS DRAIN
-  CHANNELIZED FLOW
-  OVERLAND/SPILL FLOW
-  EXISTING FLOW SOURCE/NAME
-  LEVEE

**FEMA FLOOD ZONES\***

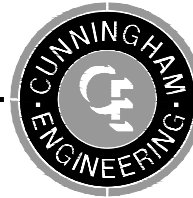
-  ZONE A
-  ZONE AE
-  ZONE AH
-  ZONE X (PROTECTED BY LEVEE)
-  FLOODWAY
-  —47— BASE FLOOD ELEVATION LINE AND VALUE

FLOW SOURCE/NAME	
①	COVELL DRAIN CHANNEL
②	NORTH DAVIS DRAIN CHANNEL
③	CHANNEL A
④	WILDHORSE CHANNEL
⑤	NORTHSTAR CHANNEL
⑥	F STREET CHANNEL
⑦	NORTH DAVIS DRAIN OVERFLOW SPILL
⑧	F STREET/RAILROAD OVERFLOW SPILL
⑨	CHANNEL A OVERFLOW SPILL
⑩	POLELINE ROAD OVERFLOW SPILL
⑪	CANNERY BASIN OVERFLOW
⑫	CANNERY BASIN PUMP DISCHARGE



\*SOURCE: NATIONAL FLOOD INSURANCE PROGRAM - FIRM PANELS 6113C0584G; 06113C0592G; 06113C0603G; 06113C0611G

NOT TO SCALE



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PROJECT: VILLAGE FARMS DAVIS

**EXISTING CONDITIONS**














DATE:	03/22/2024
BY:	BF
JOB NO:	1902.01

**FIGURE 2**

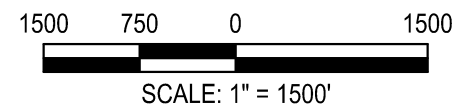
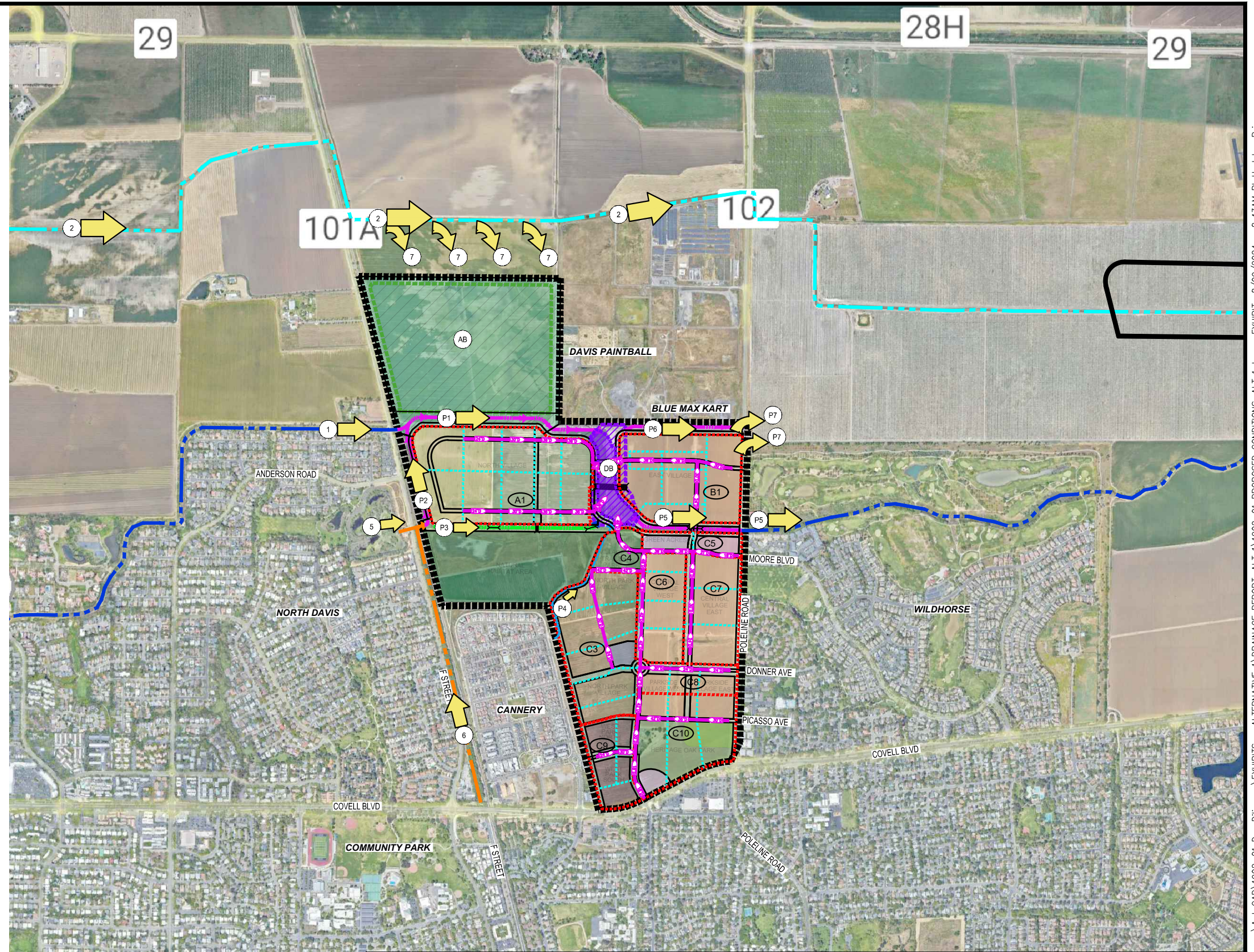


NORTH

**LEGEND:**

-  PROJECT LIMITS
-  COVELL DRAIN
-  F STREET CHANNEL
-  CHANNEL A (TO REMAIN)
-  VILLAGE FARMS DAVIS PROPOSED CHANNEL
-  CANNERY OVERFLOW CHANNEL
-  DEPRESSED AGRICULTURAL BUFFER
-  DETENTION BASIN
-  BACKBONE STORM DRAIN PIPE (REFER TO FIGURE 4)
-  PROPOSED MAJOR SHED BOUNDARIES
-  CHANNELIZED FLOW
-  OVERLAND/SPILL FLOW
-  PROPOSED FLOW SOURCE/NAME

FLOW SOURCE/NAME	
1	COVELL DRAIN CHANNEL
2	NORTH DAVIS DRAIN CHANNEL
5	NORTHSTAR CHANNEL
7	NORTH DAVIS DRAIN OVERFLOW SPILL
6	F STREET CHANNEL
P1	VFD NORTH CHANNEL
P2	VFD WEST CHANNEL
P3	CHANNEL A TO REMAIN
P4	CANNERY BASIN OVERFLOW
P5	VFD CHANNEL A RECONSTRUCTION
P6	POLELINE ROAD OVERFLOW CHANNEL
P7	POLELINE ROAD OVRFLOW SPILL
DB	VFD DETENTION BASIN
AB	DEPRESSED AG BUFFER





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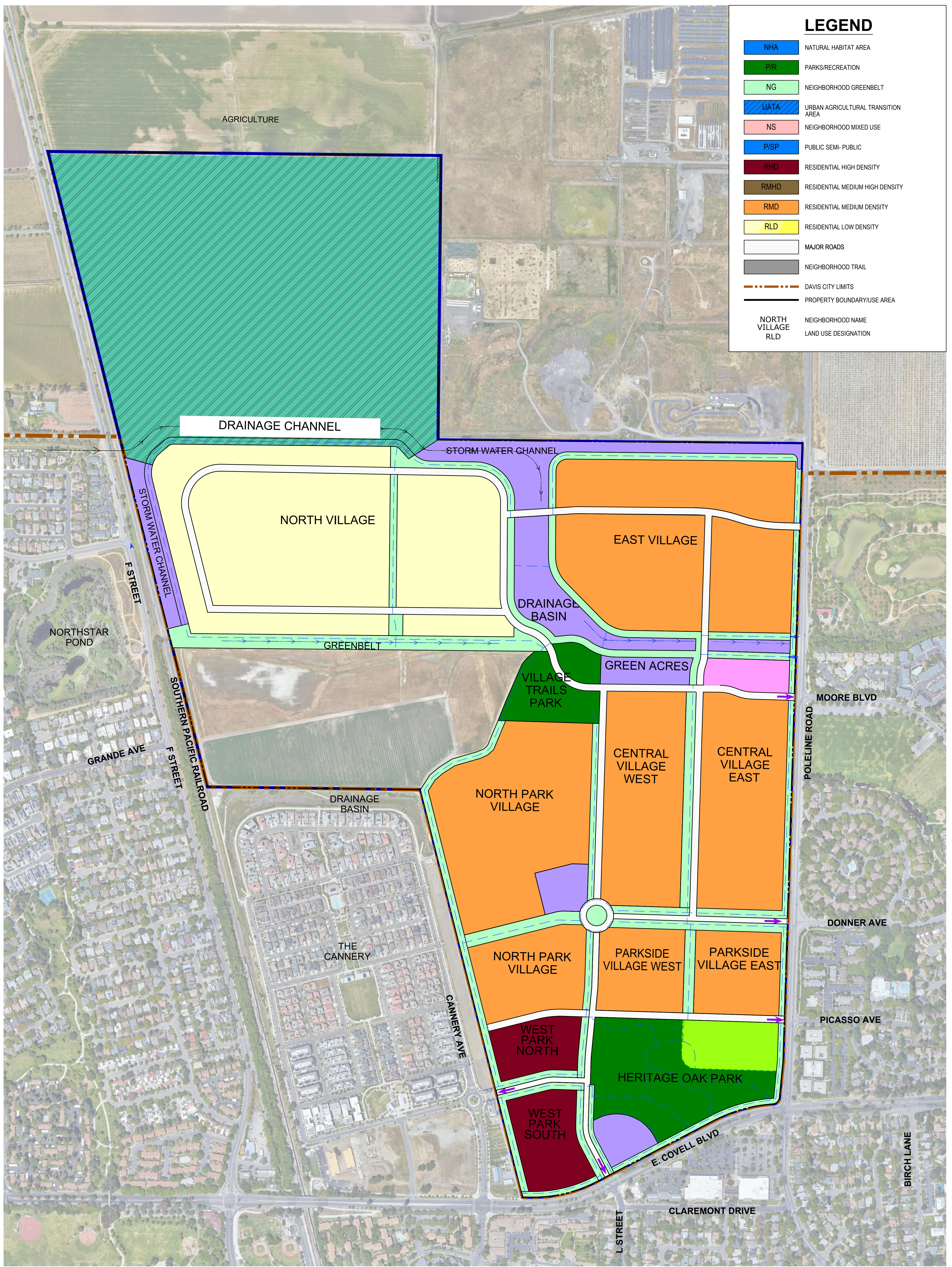
■ Davis Office

2940 Spafford Street, Suite 200

Davis, CA 95618

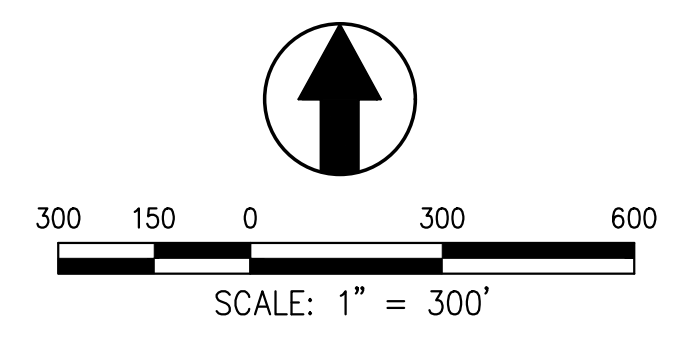
(530) 758-2026

PROJECT: VILLAGE FARMS DAVIS - BRPA		<b>FIGURE 3</b>	 NORTH
<b>PROPOSED CONDITIONS</b>			
DATE:	08/08/2024		
BY:	BF		
JOB NO:	1902.01		



### LEGEND

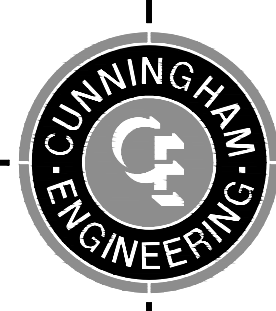
	NHA	NATURAL HABITAT AREA
	PR	PARKS/RECREATION
	NG	NEIGHBORHOOD GREENBELT
	UATA	URBAN AGRICULTURAL TRANSITION AREA
	NS	NEIGHBORHOOD MIXED USE
	P/SP	PUBLIC SEMI-PUBLIC
	RHD	RESIDENTIAL HIGH DENSITY
	RMHD	RESIDENTIAL MEDIUM HIGH DENSITY
	RMD	RESIDENTIAL MEDIUM DENSITY
	RLD	RESIDENTIAL LOW DENSITY
		MAJOR ROADS
		NEIGHBORHOOD TRAIL
		DAVIS CITY LIMITS
		PROPERTY BOUNDARY/USE AREA
	NORTH VILLAGE	NEIGHBORHOOD NAME
	RLD	LAND USE DESIGNATION



DESIGNED BY: BF  
 DRAWN BY: NC  
 CHECKED BY: BF  
 SCALE  
 AS SHOWN

## VILLAGE FARMS DAVIS LAND USE PLAN BIOLOGICAL WETLAND AVOIDANCE

CITY OF DAVIS CALIFORNIA

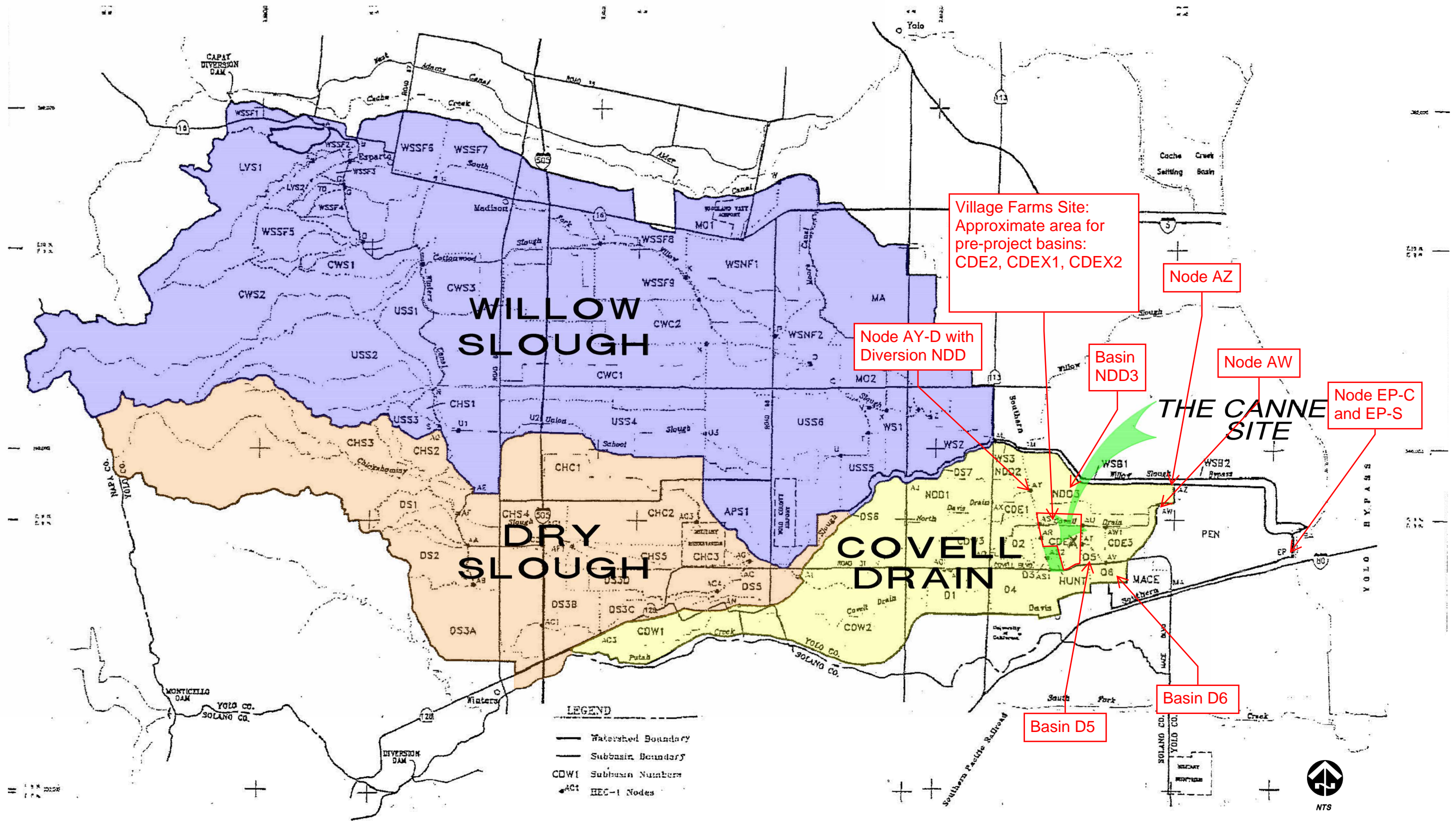


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 ■ Davis Office 2940 Spafford Street, Suite 200 Davis, CA 95618 (530) 758-2026

NO.	DATE	REVISIONS	BY	APPD.

SHEET  
**1**  
 OF  
**1**  
 DATE: 5/17/2024  
 PROJECT NO: 1902.01.00

11-30-2011 09:24:14 edentz  
There are no references in this drawing.



SHEET 1 OF 1

**FIGURE 4**  
HEC-1 SUBBASINS & MODEL NODES  
THE CANNERY  
FLOOD CONTROL MASTER PLAN  
CITY OF DAVIS CALIFORNIA

SOURCE:  
COVELL DRAINAGE SYSTEM / COMPREHENSIVE  
DRAINAGE PLAN / BORCALLI & ASSOC. SEPT. 1993

**MACKAY & SOMPS**  
ENGINEERS PLANNERS SURVEYORS  
1552 Eureka Road, Suite 100, Roseville, CA 95661 (916) 773-1189

SCHEMATIC DIAGRAM OF STREAM NETWORK

INPUT LINE	(V) ROUTING	(--->) DIVERSION OR PUMP FLOW
NO.	(.) CONNECTOR	(<---) RETURN OF DIVERTED OR PUMPED FLOW
38	WSSF1	
	V	
	V	
46	ATOB	
	.	
52	.	WSSF2
	.	.
	.	.
60	B.....	
	V	
	V	
63	BTOC	
	.	
69	.	WSSF3
	.	.
	.	.
77	C.....	
	V	
	V	
80	CTOD	
	.	
86	.	WSSF4
	.	.
	.	.
94	.	WSSF5
	.	.
	.	.
102	D.....	
	V	
	V	
105	DTOH	
	.	
111	.	LVS1
	.	V
	.	V
119	.	ETOF
	.	.
	.	.
125	.	LVS2
	.	.
	.	.
133	.	F.....
	.	V
	.	V
136	.	FTOH
	.	.
	.	.
142	.	TDR
	.	V
	.	V
150	.	GTOH
	.	.
	.	.
156	.	WSSF6
	.	.
	.	.
164	H.....	
	V	
	V	
167	HTOH1	
	.	
173	.	WSSF7B
	.	.
	.	.
181	H1.....	
	V	
	V	
184	H1TOH2	
	.	
190	.	WSSF7
	.	.
	.	.
198	H2.....	
	.	
201	.	CWS1
	.	.
	.	.
209	.	CWS2
	.	.
	.	.
217	.	I.....
	.	V
	.	V
220	.	ITOI2
	.	.
	.	.
226	.	CWS3
	.	.



```

407 . . . . . USS2
. . . . .
. . . . .
415 . . . . . R.....
. . . . . V
. . . . . V
418 . . . . . RTOU1
. . . . .
. . . . .
424 . . . . . USS3
. . . . . V
. . . . . V
432 . . . . . STOU1
. . . . .
. . . . .
438 . . . . . U1.....
. . . . . V
. . . . . V
441 . . . . . U1TOU2
. . . . .
. . . . .
449 . . . . . -----> UNION
447 . . . . . U2
. . . . . V
. . . . . V
452 . . . . . U2TOU3
. . . . .
. . . . .
458 . . . . . USS4
. . . . .
. . . . .
466 . . . . . U3.....
. . . . . V
. . . . . V
469 . . . . . U3TOU
. . . . .
. . . . .
475 . . . . . APS1
. . . . .
. . . . .
483 . . . . . APS2
. . . . .
. . . . .
489 . . . . . COM1.....
. . . . .
. . . . .
494 . . . . . -----> DIVTOX
492 . . . . . COM1
. . . . . V
. . . . . V
497 . . . . . RR1
. . . . .
. . . . .
503 . . . . . APS3
. . . . .
. . . . .
508 . . . . . COM2.....
. . . . .
. . . . .
511 . . . . . U.....
. . . . . V
. . . . . V
514 . . . . . UTOT
. . . . . V
. . . . . V
520 . . . . . TTOV
. . . . .
. . . . .
526 . . . . . USS6
. . . . .
. . . . .
534 . . . . . V.....
. . . . .
. . . . .
537 . . . . . V.....
. . . . . V
. . . . . V
540 . . . . . VTOX
. . . . .
. . . . .
547 . . . . . <----- DIVTOX
545 . . . . . T3
. . . . .
. . . . .
550 . . . . . -----> DIVTOY
548 . . . . . T2
. . . . . V
. . . . . V
553 . . . . . RR2
. . . . .
. . . . .
559 . . . . . USS5
. . . . .
. . . . .
567 . . . . . MO1
. . . . . V
. . . . . V
575 . . . . . WTOX
. . . . .
. . . . .
581 . . . . . MO2

```



```

759 . . . . . <----- UNION
757 . . . . . U2
. . . . . V
. . . . . V
760 . . . . . U2TOAG2
. . . . . V
. . . . . V
766 . . . . . AG2TOAG3
. . . . .
. . . . .
772 . . . . . CHC1
. . . . .
. . . . .
780 . . . . . AG3.....
. . . . .
. . . . .
783 . . . . . CHC2
. . . . .
. . . . .
791 . . . . . AG3.....
. . . . . V
. . . . . V
794 . . . . . AG3TOAG
. . . . .
. . . . .
800 . . . . . CHC3
. . . . .
. . . . .
808 . . . . . AG.....
. . . . .
. . . . .
811 . . . . . SUB10
. . . . .
. . . . .
819 . . . . . <----- DIV11
818 . . . . . DIV11
. . . . .
. . . . .
820 . . . . . COMB10.....
. . . . . V
. . . . . V
822 . . . . . RC1016
. . . . .
. . . . .
827 . . . . . SUB16
. . . . .
. . . . .
835 . . . . . <----- DIVAG1
834 . . . . . DIVAG1
. . . . .
. . . . .
836 . . . . . COMB16.....
. . . . . V
. . . . . V
838 . . . . . RES16
. . . . .
. . . . .
845 . . . . . -----> DIV16
844 . . . . . OV16
. . . . .
. . . . .
848 . . . . . SUB17
. . . . .
. . . . .
855 . . . . . CO17.....
. . . . . V
. . . . . V
857 . . . . . RES17
. . . . .
. . . . .
864 . . . . . -----> DIV17
863 . . . . . OV17
. . . . . V
. . . . . V
867 . . . . . R1718
. . . . .
. . . . .
872 . . . . . DS1
. . . . . V
. . . . . V
880 . . . . . AATOAB
. . . . .
. . . . .
886 . . . . . DS2
. . . . .
. . . . .
894 . . . . . AB.....
. . . . . V
. . . . . V
897 . . . . . RESAB
. . . . . V
. . . . . V
902 . . . . . RCHAB20
. . . . .
. . . . .
907 . . . . . SUB8
. . . . . V
. . . . . V
914 . . . . . RES8
. . . . .
. . . . .

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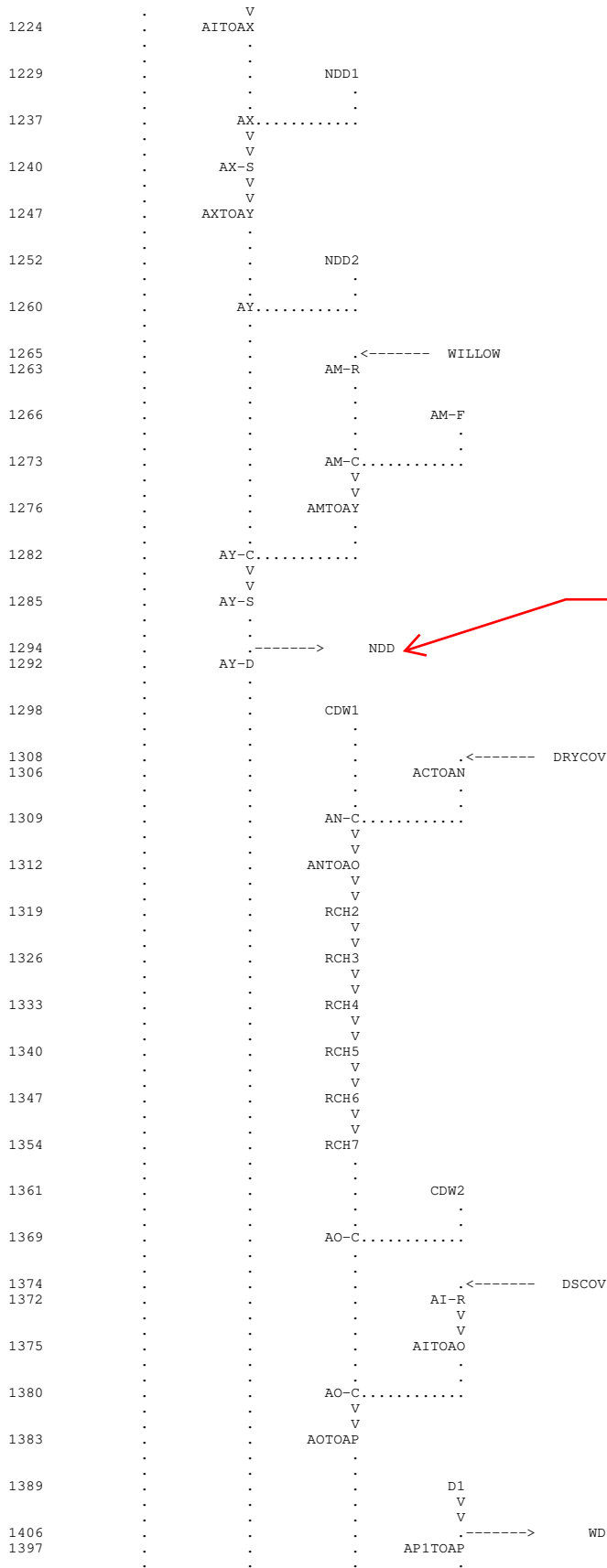
920 . . . . . SUB7
     . . . . . V
927 . . . . . RES7
     . . . . .
933 . . . . . CO78.....
     . . . . .
935 . . . . . SUB20
     . . . . .
942 . . . . . CO20.....
     . . . . . V
944 . . . . . RES20
     . . . . .
951 . . . . . -----> DIV20
950 . . . . . OV20
     . . . . .
954 . . . . . COAB20.....
     . . . . . V
956 . . . . . RCH18
     . . . . .
961 . . . . . SUB9
     . . . . . V
968 . . . . . RES9
     . . . . .
974 . . . . . SUB18
     . . . . .
981 . . . . . CO18.....
     . . . . . V
983 . . . . . RES18
     . . . . .
992 . . . . . -----> DIVMOO
991 . . . . . OV18
     . . . . .
995 . . . . . SUB21
     . . . . .
1003 . . . . . .<----- DIV20
1002 . . . . . RC20
     . . . . .
1004 . . . . . CO21.....
     . . . . . V
1006 . . . . . RES21
     . . . . .
1013 . . . . . -----> DIV21
1012 . . . . . OV21
     . . . . .
1016 . . . . . SUB19
     . . . . .
1023 . . . . . C18921.....
     . . . . . V
1025 . . . . . RES19
     . . . . .
1032 . . . . . .<----- DIVMOO
1031 . . . . . RCMOO
     . . . . .
1033 . . . . . COAC1.....
     . . . . . V
1035 . . . . . AC1TOAC3
     . . . . .
1043 . . . . . .<----- DIV16
1041 . . . . . RC16
     . . . . .
1045 . . . . . .<----- DIV17
1044 . . . . . RC17
     . . . . .
1046 . . . . . COAC2.....
     . . . . . V
1048 . . . . . AC2TOAC3
     . . . . .
1051 . . . . . DS3B
     . . . . .
1059 . . . . . AC3.....

```

```

.      .      .      V
.      .      .      V
1062   .      .      .      AC3TOAC4
.      .      .      .
.      .      .      .      DS3C
1068   .      .      .      .      .
.      .      .      .      .
1076   .      .      .      AC4.....
.      .      .      V
.      .      .      V
1079   .      .      .      AC4TOAC
.      .      .      .
.      .      .      .      DS3D
1084   .      .      .      .      .
.      .      .      .      .
1092   .      .      .      AC.....
.      .      .      .
.      .      .      .      DRYCOV
1097   .      .      .      .----->
1095   .      .      .      AC-D
.      .      .      V
.      .      .      V
1100   .      .      .      ACTOAG
.      .      .      .
1106   .      .      .      AG.....
.      .      .      .
.      .      .      .      DIVN
1111   .      .      .      .----->
1109   .      .      .      AG-D
.      .      .      V
.      .      .      V
1114   .      .      .      AGTOAI
.      .      .      .
.      .      .      .      DS5
1120   .      .      .      .      .
.      .      .      .      .
1128   .      .      .      AI.....
.      .      .      .
.      .      .      .      DRY
1133   .      .      .      .----->
1131   .      .      .      AI-D
.      .      .      V
.      .      .      V
1136   .      .      .      AITOAJ
.      .      .      .
.      .      .      .      DS6
1142   .      .      .      .      .
.      .      .      .      .
1150   .      .      .      AJ.....
.      .      .      .
.      .      .      .      TO113
1155   .      .      .      .----->
1153   .      .      .      AJ
.      .      .      V
.      .      .      V
1158   .      .      .      AJTOAL
.      .      .      .
.      .      .      .      DS7
1164   .      .      .      .      .
.      .      .      .      .
1172   .      .      .      AL.....
.      .      .      .
1175   .      .      .      AL.....
.      .      .      V
.      .      .      V
1178   .      .      .      ALTOAM
.      .      .      .
.      .      .      .      WS3
1183   .      .      .      .      .
.      .      .      .      .
1191   .      .      .      AM.....
.      .      .      .
.      .      .      .      WILLOW
1196   .      .      .      .----->
1194   .      .      .      AM
.      .      .      V
.      .      .      V
1199   .      .      .      AMTOAZ
.      .      .      .
.      .      .      .      WSB1
1205   .      .      .      .      .
.      .      .      .      .
1213   .      .      .      AZ.....
.      .      .      .
.      .      .      .      DRY
1218   .      .      .      .-----<
1216   .      .      .      AI
.      .      .      .
.      .      .      .      DSCOV
1221   .      .      .      .----->
1219   .      .      .      AI-D
.      .      .      V

```

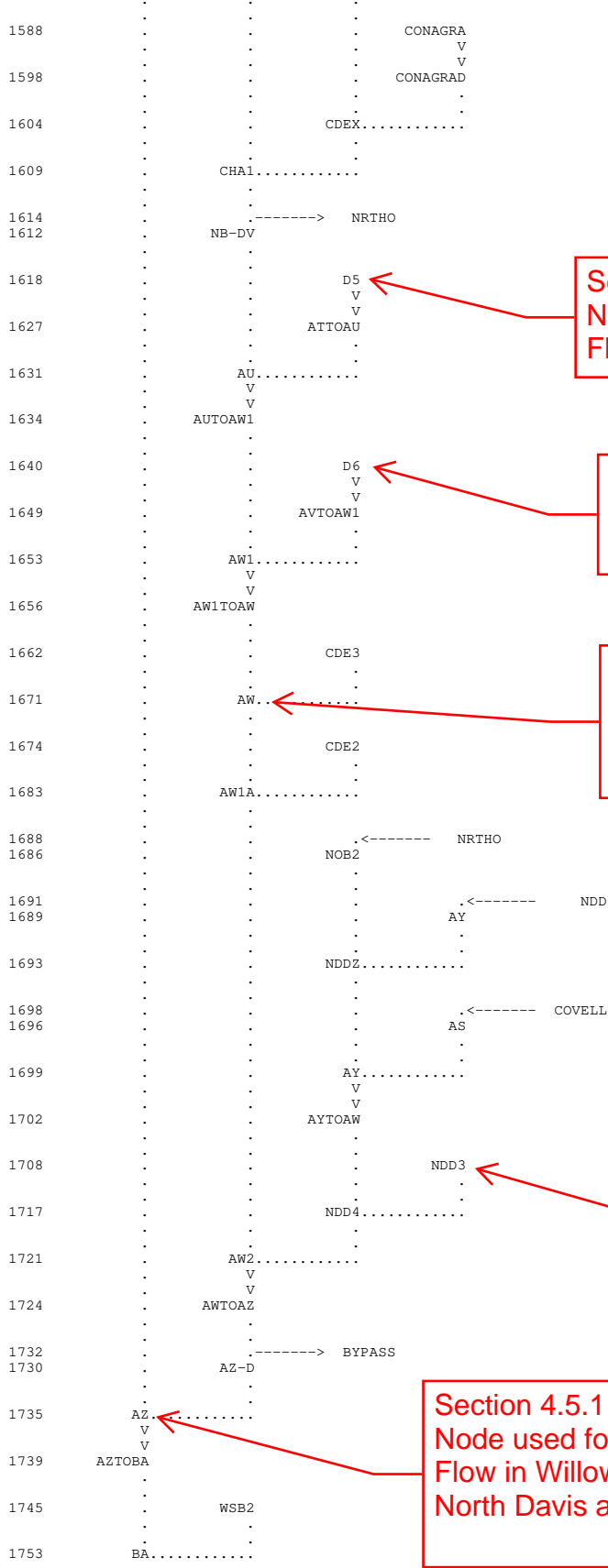


Section 4.5.1  
Node used for "Inflow\_NDD"  
Flow from North Davis Drain  
at F Street

```

1409 . . . . . <----- WD
1407 . . . . . AP
. . . . .
1410 . . . . . AP.....
. . . . . V
. . . . . V
1413 . . . . . APTOAO
. . . . .
1419 . . . . . CDW3
. . . . .
1427 . . . . . AQ-C.....
. . . . . V
. . . . . V
1430 . . . . . AQ-S
. . . . .
1441 . . . . . -----> HW
1439 . . . . . AQ-D
. . . . .
1446 . . . . . <----- HW
1444 . . . . . AQ-R
. . . . . V
. . . . . V
1447 . . . . . AQ-S
. . . . .
1458 . . . . . -----> PUTAH
1456 . . . . . AQ-D
. . . . .
1461 . . . . . AQ-C.....
. . . . . V
. . . . . V
1464 . . . . . AQTOAS
. . . . .
1470 . . . . . D2
. . . . .
1478 . . . . . D3
. . . . .
1486 . . . . . AR-C.....
. . . . . V
. . . . . V
1498 . . . . . -----> ND
1489 . . . . . AR-S
. . . . .
1501 . . . . . <----- ND
1499 . . . . . ARTOAS
. . . . .
1503 . . . . . AS-C.....
. . . . .
1506 . . . . . CDE1
. . . . .
1514 . . . . . AS-C.....
. . . . .
1518 . . . . . AS-C.....
. . . . . V
. . . . . V
1521 . . . . . AS-S
. . . . .
1532 . . . . . -----> COVELL
1530 . . . . . AS-D
. . . . .
1536 . . . . . D4
. . . . . V
. . . . . V
1554 . . . . . -----> CD
1545 . . . . . AS1
. . . . .
1560 . . . . . <----- CD
1558 . . . . . AS1
. . . . .
1561 . . . . . AS1TOAS2.....
. . . . .
1565 . . . . . AS.....
. . . . .
1568 . . . . . CDEX1
. . . . .
1576 . . . . . CDEX2
. . . . .
1584 . . . . . CDEX3.....

```



Section 4.5.1  
 Node used for "Inflow\_D5"  
 Flow from hydrologic basin D5

Section 4.5.1  
 Node used for "D6\_Inflow"  
 Flow from hydrologic basin D6

Covell Drain  
 Downstream of  
 Proposed Project Site  
 Flows used in Table 2

Section 4.5.1  
 Node used for "2D"  
 Precipitation

Section 4.5.1  
 Node used for "Inflow\_Willow Slough"  
 Flow in Willow Slough at outlet from  
 North Davis and Covell Drains

1756 . . . MACE  
V  
V  
1764 MATOEP  
.  
.  
1770 . . . PEN  
.  
1778 EP-C  
.  
1784 . . . <----- BYPASS  
1782 . . . AZ-R  
.  
1787 . . . -----> BPRIN  
1785 . . . AZ-D  
V  
V  
1790 . . . AZTOEP  
.  
1796 EP-C  
V  
V  
1799 EP-S

Section 4.5.1  
Node used for "EastDavisPond"  
Flow from hydrologic basins  
tributary to the East Davis Pond

East Davis Pond  
Flows used in Table 2

East Davis Pond  
Stage used in Table 3

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**YOLO COUNTY FLOOD CONTROL &  
WATER CONSERVATION DISTRICT**

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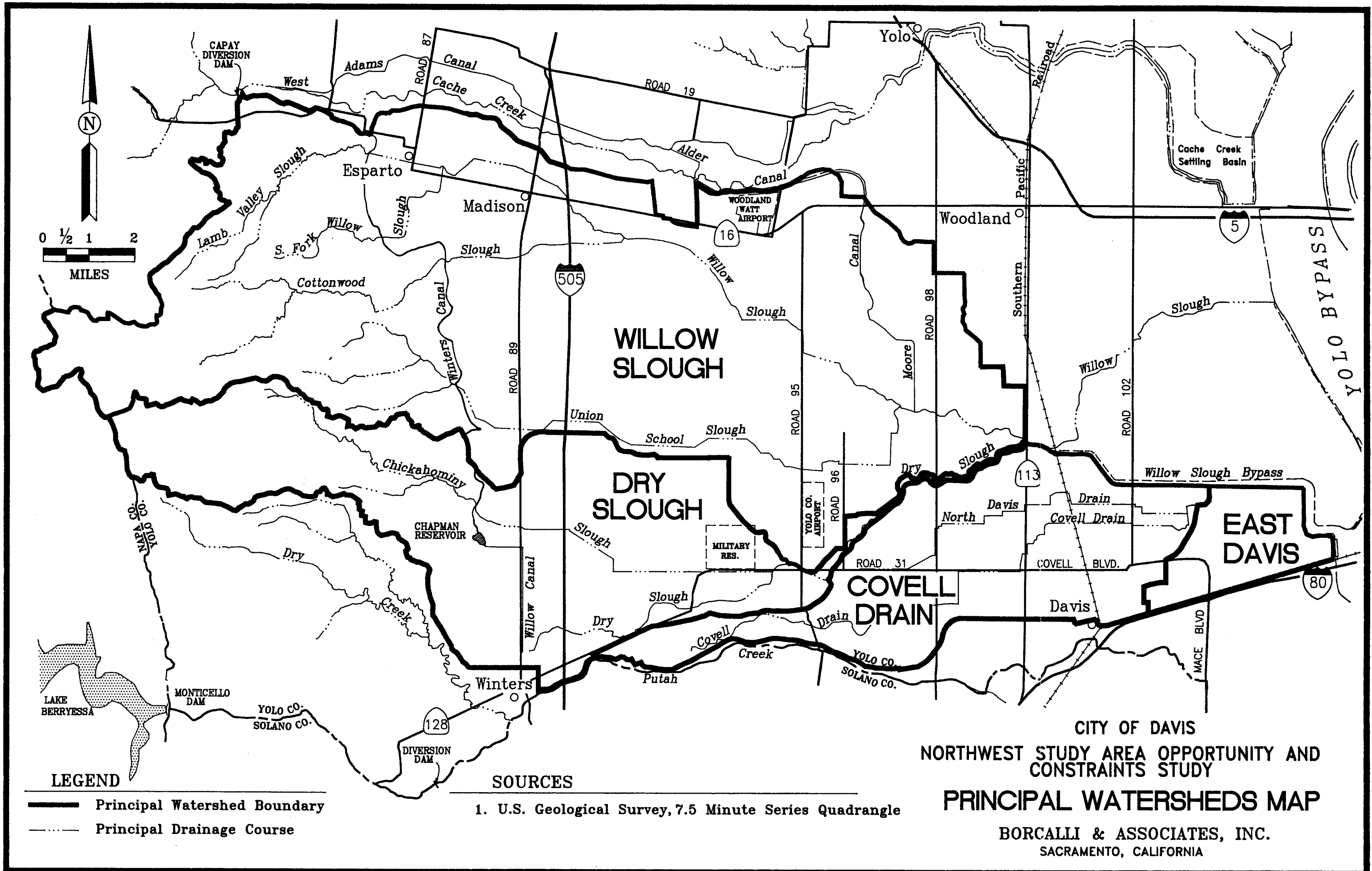
**COVELL DRAINAGE SYSTEM  
COMPREHENSIVE DRAINAGE PLAN  
WMP-93-01-3**

---

**SEPTEMBER 1993**



**BORCALLI**  
&  
**ASSOCIATES**  
CONSULTING ENGINEERS



**LEGEND**

- Principal Watershed Boundary
- - -** Principal Drainage Course

**SOURCES**

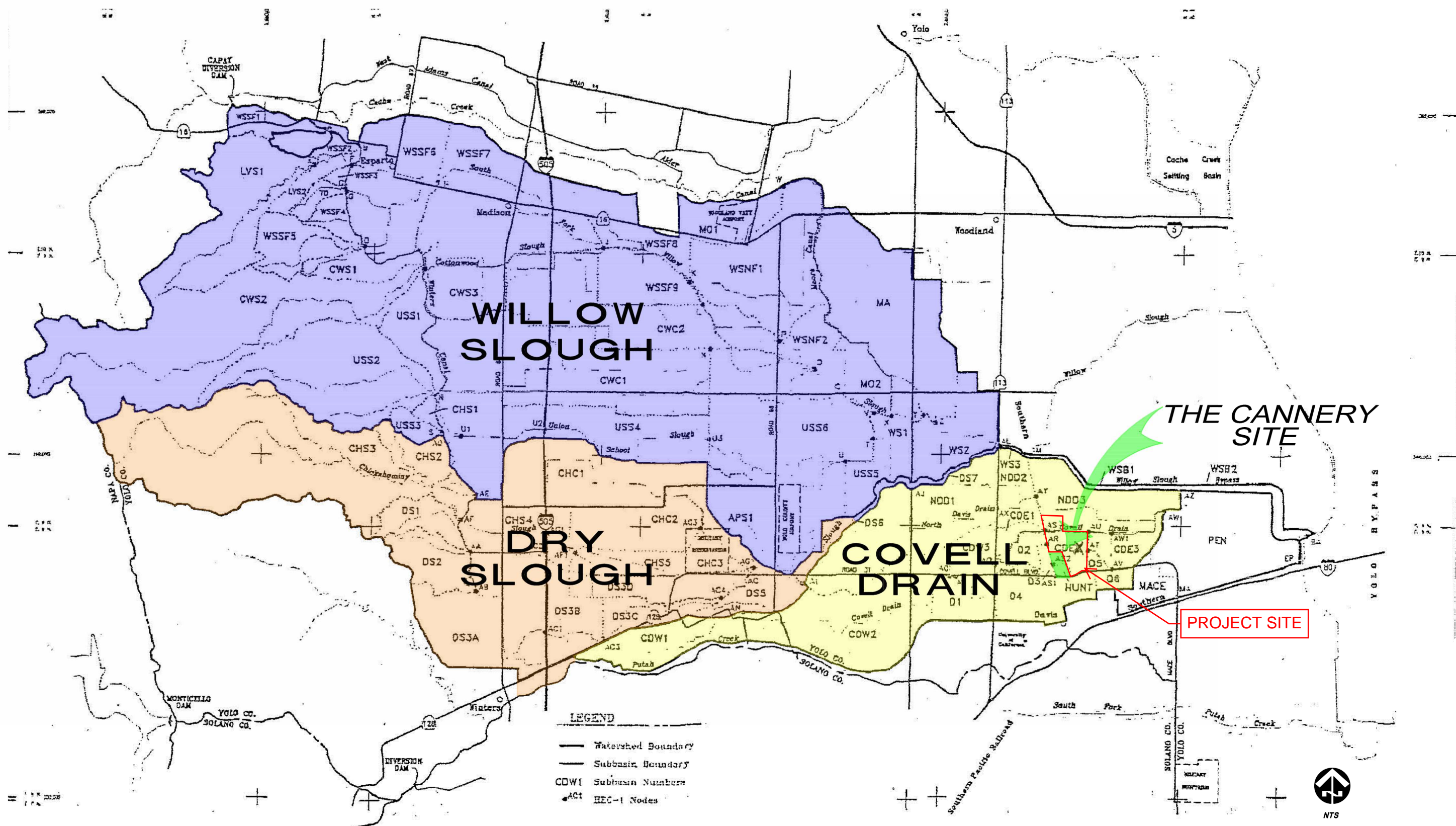
1. U.S. Geological Survey, 7.5 Minute Series Quadrangle

**CITY OF DAVIS  
NORTHWEST STUDY AREA OPPORTUNITY AND  
CONSTRAINTS STUDY**

**PRINCIPAL WATERSHEDS MAP**

**BORCALLI & ASSOCIATES, INC.  
SACRAMENTO, CALIFORNIA**

ACAL 1000-14 10/17/93 10/17/93 RED 07/07/93



**FIGURE 4**  
**HEC-1 SUBBASINS & MODEL NODES**  
**THE CANNERY**  
**FLOOD CONTROL MASTER PLAN**  
 CITY OF DAVIS CALIFORNIA

SOURCE:  
 COVELL DRAINAGE SYSTEM / COMPREHENSIVE  
 DRAINAGE PLAN / BORCALLI & ASSOC. SEPT. 1993

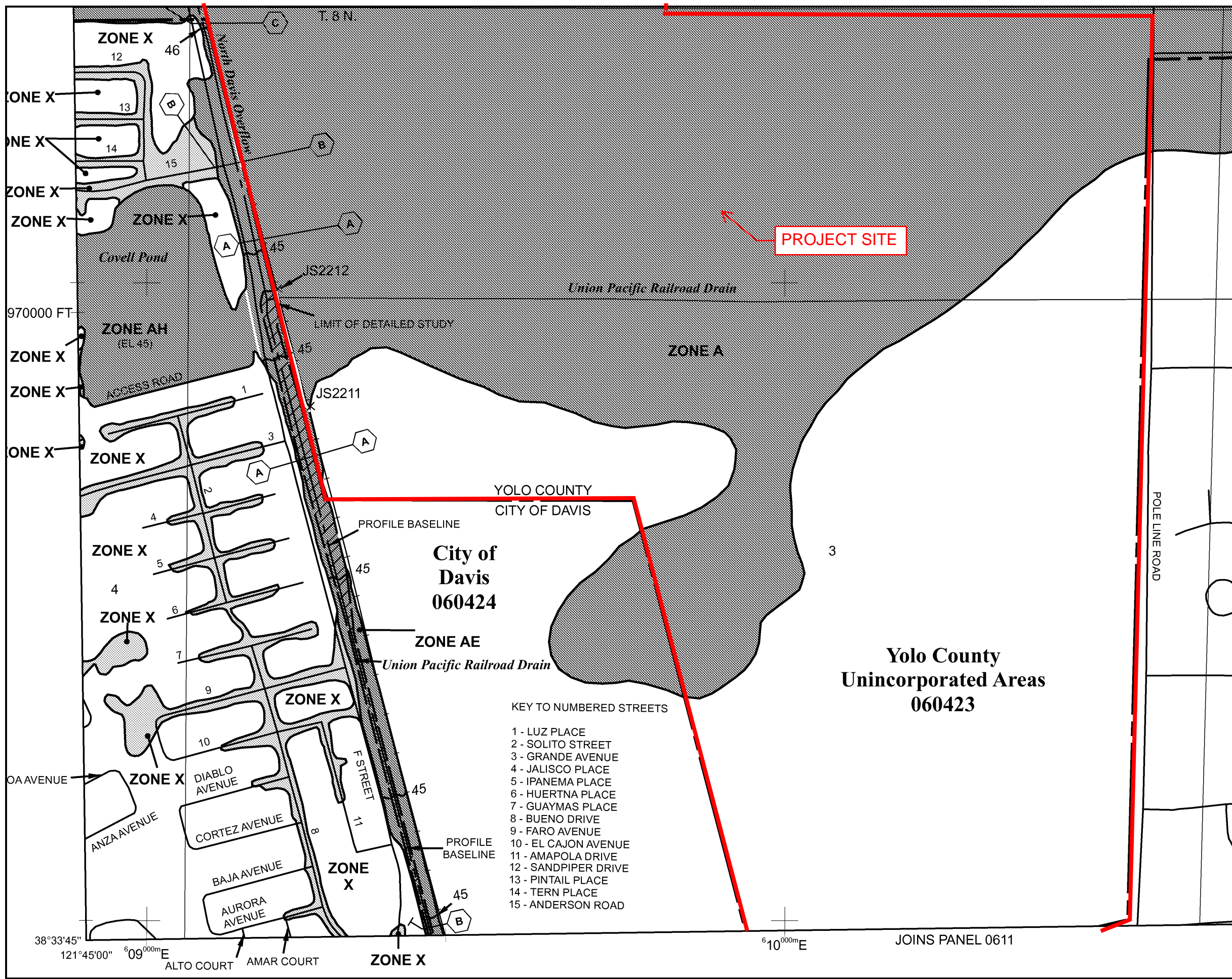
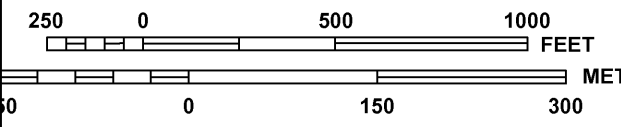
**MACKAY & SOMPS**  
 ENGINEERS PLANNERS SURVEYORS  
 1552 Eureka Road, Suite 100, Roseville, CA 95661 (916) 773-1189

## **Appendix 5**

### FEMA Maps



MAP SCALE 1" = 500'



PROJECT SITE

PANEL 0603G

FIRM FLOOD INSURANCE RATE MAP

YOLO COUNTY, CALIFORNIA AND INCORPORATED AREAS

PANEL 603 OF 785

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
DAVIS, CITY OF	060424	0603	G
YOLO COUNTY	060423	0603	G

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.



MAP NUMBER 06113C0603G

EFFECTIVE DATE JUNE 18, 2010

Federal Emergency Management Agency

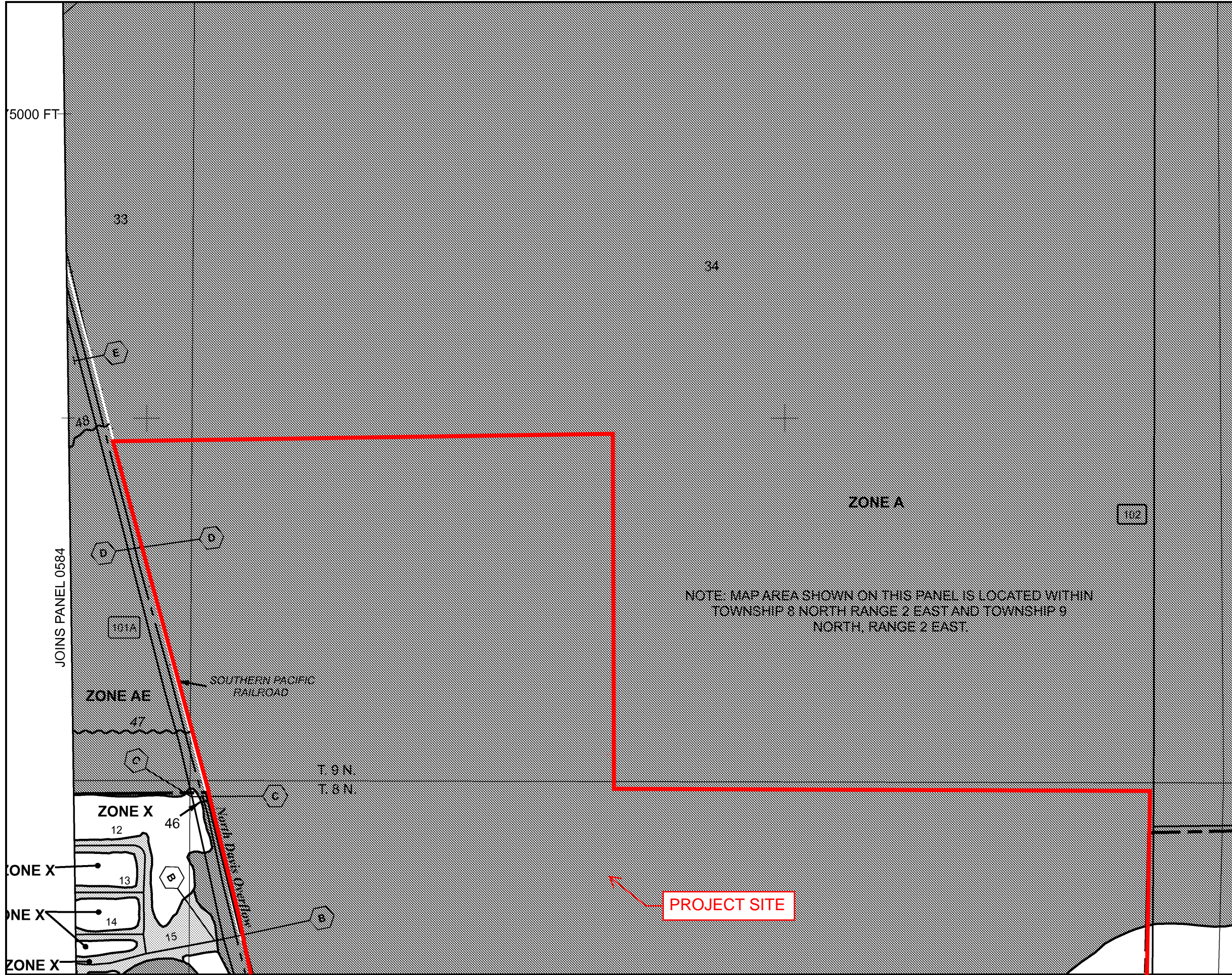
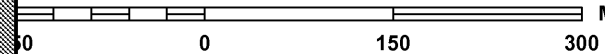
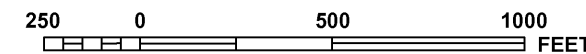
KEY TO NUMBERED STREETS

- 1 - LUZ PLACE
- 2 - SOLITO STREET
- 3 - GRANDE AVENUE
- 4 - JALISCO PLACE
- 5 - IPANEMA PLACE
- 6 - HUERTNA PLACE
- 7 - GUAYMAS PLACE
- 8 - BUENO DRIVE
- 9 - FARO AVENUE
- 10 - EL CAJON AVENUE
- 11 - AMAPOLA DRIVE
- 12 - SANDPIPER DRIVE
- 13 - PINTAIL PLACE
- 14 - TERN PLACE
- 15 - ANDERSON ROAD

This is an official FIRMette showing a portion of the above-referenced flood map created from the MSC FIRMette Web tool. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For additional information about how to make sure the map is current, please see the Flood Hazard Mapping Updates Overview Fact Sheet available on the FEMA Flood Map Service Center home page at https://msc.fema.gov.



MAP SCALE 1" = 500'



PANEL 0603G

**FIRM**  
FLOOD INSURANCE RATE MAP

YOLO COUNTY,  
CALIFORNIA  
AND INCORPORATED AREAS

PANEL 603 OF 785

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
DAVIS, CITY OF	060424	0603	G
YOLO COUNTY	060423	0603	G

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

**MAP NUMBER**  
06113C0603G

**EFFECTIVE DATE**  
JUNE 18, 2010

Federal Emergency Management Agency

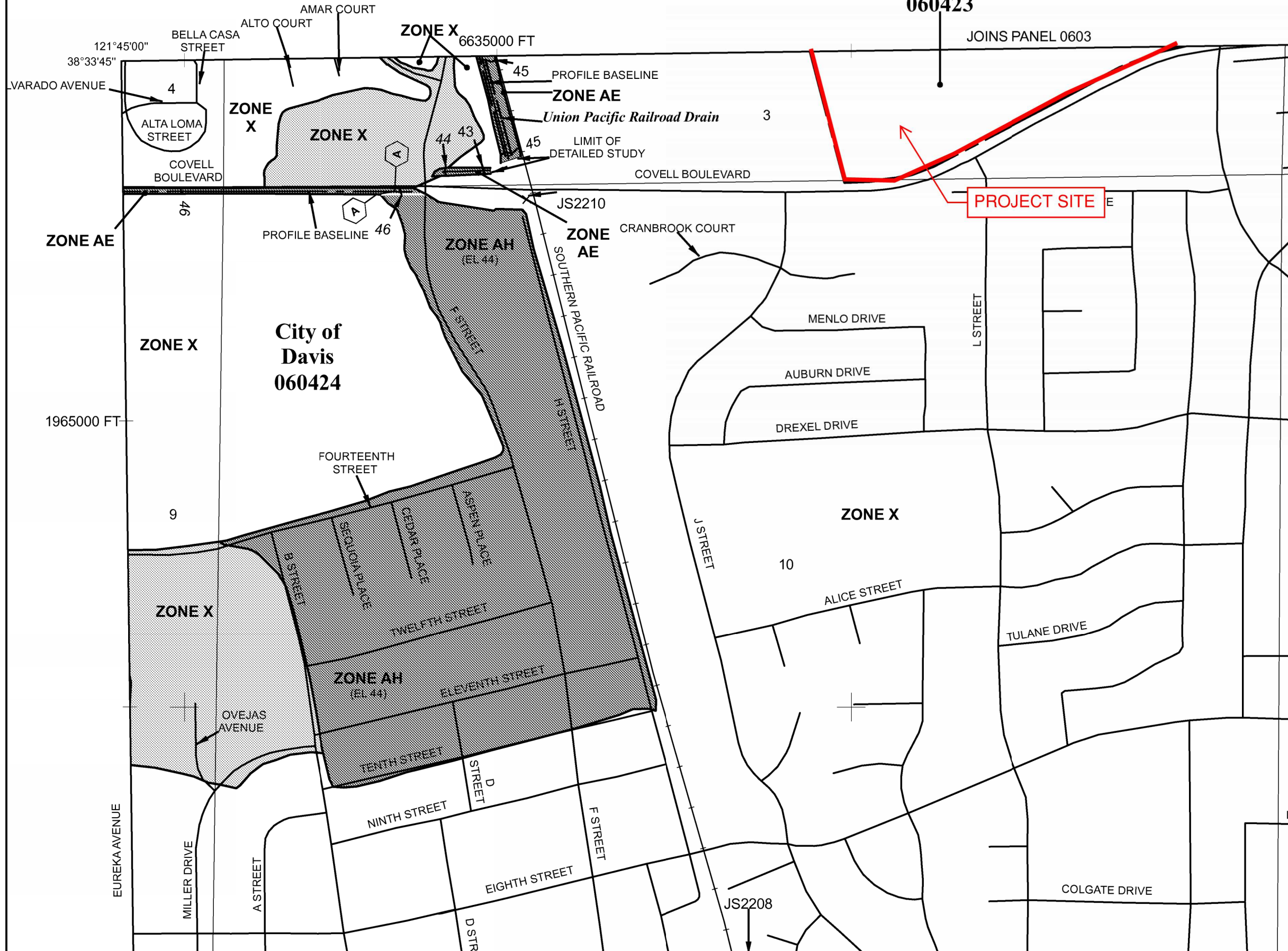
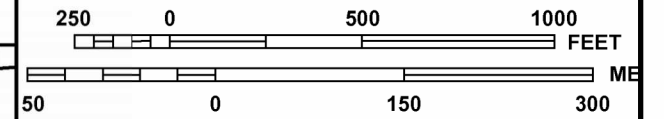
This is an official FIRMette showing a portion of the above-referenced flood map created from the MSC FIRMette Web tool. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For additional information about how to make sure the map is current, please see the Flood Hazard Mapping Updates Overview Fact Sheet available on the FEMA Flood Map Service Center home page at <https://msc.fema.gov>.

**Yolo County  
Unincorporated Areas  
060423**

National Flood Insurance Program at 1-800-638-6620.



**MAP SCALE 1" = 500'**



PANEL 0611G

**FIRM**  
FLOOD INSURANCE RATE MAP

YOLO COUNTY,  
CALIFORNIA  
AND INCORPORATED AREAS

PANEL 611 OF 785  
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
DAVIS, CITY OF	060424	0611	G
YOLO COUNTY	060423	0611	G

Notice to User: The Map Number shown below should be used when placing map orders, the Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER  
06113C0611G

EFFECTIVE DATE  
JUNE 18, 2010

Federal Emergency Management Agency

This is an official FIRMette showing a portion of the above-referenced flood map created from the MSC FIRMette Web tool. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For additional information about how to make sure the map is current, please see the Flood Hazard Mapping Updates Overview Fact Sheet available on the FEMA Flood Map Service Center home page at <https://msc.fema.gov>.



# Federal Emergency Management Agency

Washington, D.C. 20472

## LETTER OF MAP REVISION DETERMINATION DOCUMENT

COMMUNITY AND REVISION INFORMATION		PROJECT DESCRIPTION	BASIS OF REQUEST
COMMUNITY	City of Davis Yolo County California	CULVERT FILL	BASE MAP CHANGES 2D HYDRAULIC ANALYSIS HYDROLOGIC ANALYSIS UPDATED TOPOGRAPHIC DATA
	COMMUNITY NO.: 060424		
IDENTIFIER	H Street Stormwater Pump Station Watershed	APPROXIMATE LATITUDE & LONGITUDE: 38.561, -121.757 SOURCE: USGS QUADRANGLE      DATUM: NAD 83	
ANNOTATED MAPPING ENCLOSURES		ANNOTATED STUDY ENCLOSURES	
TYPE: FIRM*	NO.: 06113C0584G      DATE: June 18, 2010	DATE OF EFFECTIVE FLOOD INSURANCE STUDY:      May 16, 2012	
TYPE: FIRM	NO.: 06113C0592G      DATE: June 18, 2010	SUMMARY OF DISCHARGES TABLE: 4	
TYPE: FIRM	NO.: 06113C0603G      DATE: June 18, 2010	PROFILE(S): 13P	
TYPE: FIRM	NO.: 06113C0611G      DATE: June 18, 2010		

Enclosures reflect changes to flooding sources affected by this revision.

\* FIRM - Flood Insurance Rate Map

### FLOODING SOURCE(S) & REVISED REACH(ES)

See Page 2 for Additional Flooding Sources

Covell Drain - From approximately 2,525 feet downstream to approximately 1,725 feet upstream of Oak Avenue.

### SUMMARY OF REVISIONS

Flooding Source	Effective Flooding	Revised Flooding	Increases	Decreases
Covell Drain	BFEs*	Contained	NONE	YES
	BFEs	No BFEs	NONE	YES
	Zone AE	Contained	NONE	YES
	Zone AE	Zone X (unshaded)	YES	NONE
	Zone X (shaded)	Zone X (unshaded)	YES	NONE

\* BFEs - Base Flood Elevations

### DETERMINATION

This document provides the determination from the Department of Homeland Security's Federal Emergency Management Agency (FEMA) regarding a request for a Letter of Map Revision (LOMR) for the area described above. Using the information submitted, we have determined that a revision to the flood hazards depicted in the Flood Insurance Study (FIS) report and/or National Flood Insurance Program (NFIP) map is warranted. This document revises the effective NFIP map, as indicated in the attached documentation. Please use the enclosed annotated map panels revised by this LOMR for floodplain management purposes and for all flood insurance policies and renewals in your community.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Mapping and Insurance eXchange (FMIX), toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 3601 Eisenhower Avenue, Suite 500, Alexandria, VA 22304-6426. Additional Information about the NFIP is available on our website at <https://www.fema.gov/flood-insurance>.

Patrick "Rick" F. Sacbibit, P.E., Branch Chief  
Engineering Services Branch  
Federal Insurance and Mitigation Administration

**Yolo County  
Unincorporated Areas  
060423**

**City of Davis  
060424**

NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 8 NORTH, RANGE 2 EAST AND TOWNSHIP 9 NORTH, RANGE 2 EAST.

JOINS PANEL 0604

**PROJECT SITE**

**REVISED AREA**

JOINS PANEL 0592







611000mN

POLE LINE RD

MOORE BLVD

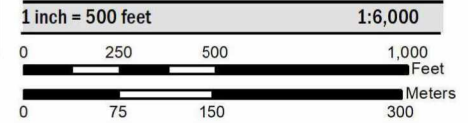
COVELL BLVD

DENISON DR

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) <i>Zone A, V, A99</i>
		With BFE or Depth <i>Zone AE, AO, AH, VE, AR</i>
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile <i>Zone X</i>
		Future Conditions 1% Annual Chance Flood Hazard <i>Zone X</i>
		Area with Reduced Flood Risk due to Levee See Notes. <i>Zone X</i>
		Area of Undetermined Flood Hazard <i>Zone D</i>
OTHER AREAS		

**SCALE**

Map Projection:  
NAD 1983 UTM Zone 10N;  
Western Hemisphere; Vertical Datum: NAVD 88



**NATIONAL FLOOD INSURANCE PROGRAM  
FLOOD INSURANCE RATE MAP**

**YOLO COUNTY, CALIFORNIA**  
and Incorporated Areas

**PANEL 0603 OF 785**

Panel Contains:

COMMUNITY	NUMBER	PANEL	SUFFIX
DAVIS, CITY OF	060424	0603	G
YOLO COUNTY	060423	0603	G



FEMA

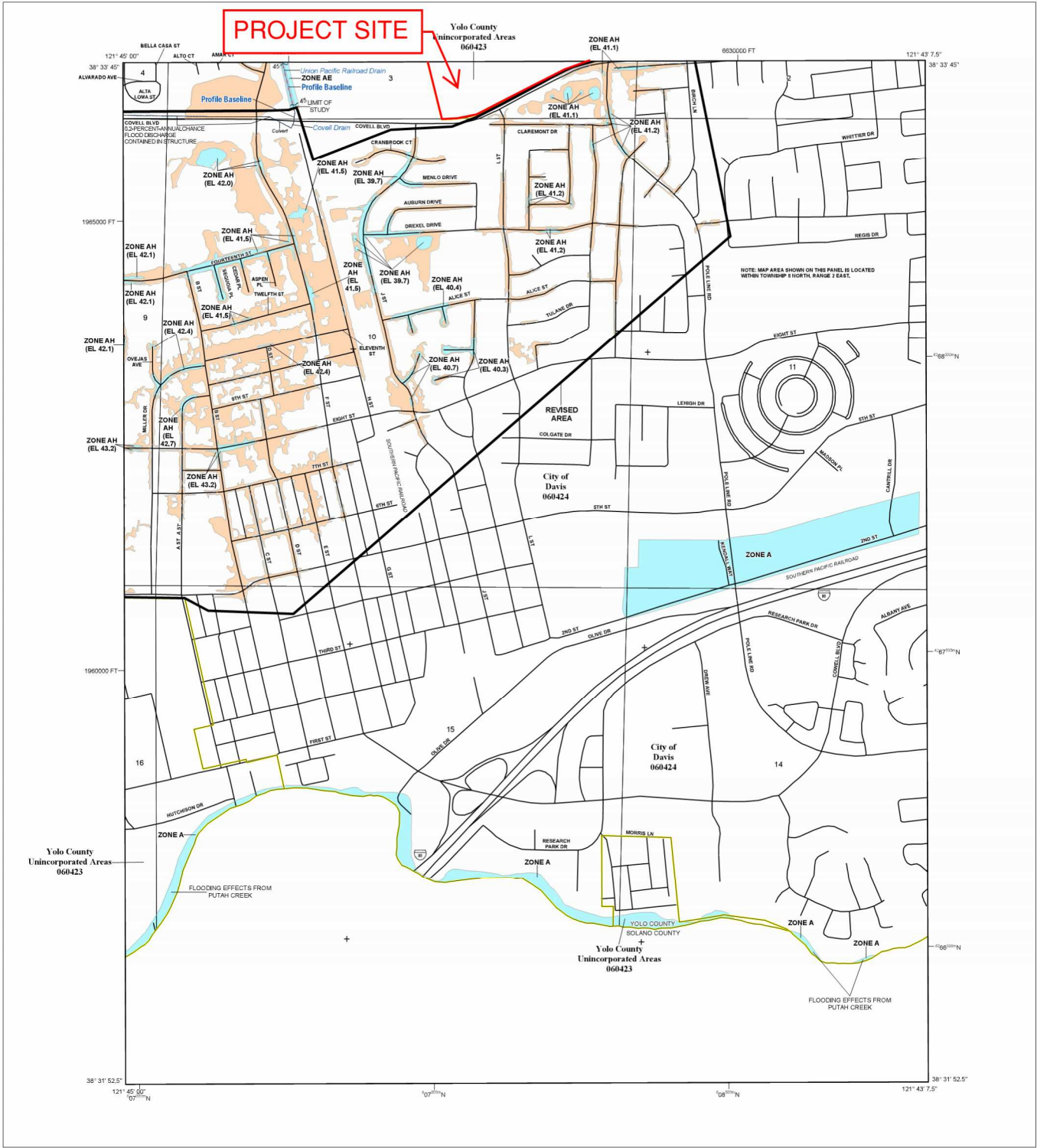
**REVISED TO  
REFLECT LOMR  
EFFECTIVE: August 15, 2022**

VERSION NUMBER  
2.1.3.0

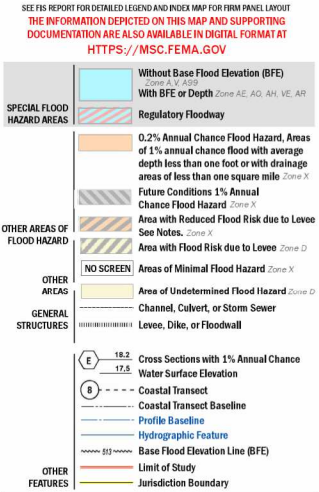
MAP NUMBER  
06113C0603G

EFFECTIVE DATE  
JUNE 18, 2010

# PROJECT SITE



### FLOOD HAZARD INFORMATION



### NOTES TO USERS

For information and questions about this Flood Insurance Rate Map (FIRM), available products associated with this FIRM including historic elements, the current map date for each FIRM panel, how to order products, or the National Flood Insurance Program (NFIP) in general, please call the FEMA Map Information Hotline at 1-877-FEMA-MAP (1-877-369-6271) or visit the FEMA Flood Map Service Center website at <https://fisma.fema.gov>. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website.

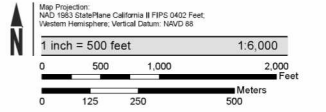
Communities annexing land in adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM Index. These may be ordered directly from the Flood Map Service Center at the number listed above.

For community and countywide map data refer to the Flood Insurance Study Report for this jurisdiction.

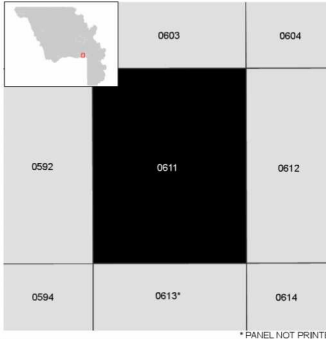
To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-358-6232.

Base map transportation information shown on this FIRM was provided in digital format from Sacramento Area Council of Governments (SACOGS). These data were developed in cooperation with the base map's panel base map and published by SACOGS in June 2005. The road centerlines follow the computed centers of the parcel right-of-ways.

### SCALE



### PANEL LOCATOR



**NATIONAL FLOOD INSURANCE PROGRAM**  
 FLOOD INSURANCE RATE MAP

YOLO COUNTY, CALIFORNIA  
 and Incorporated Areas

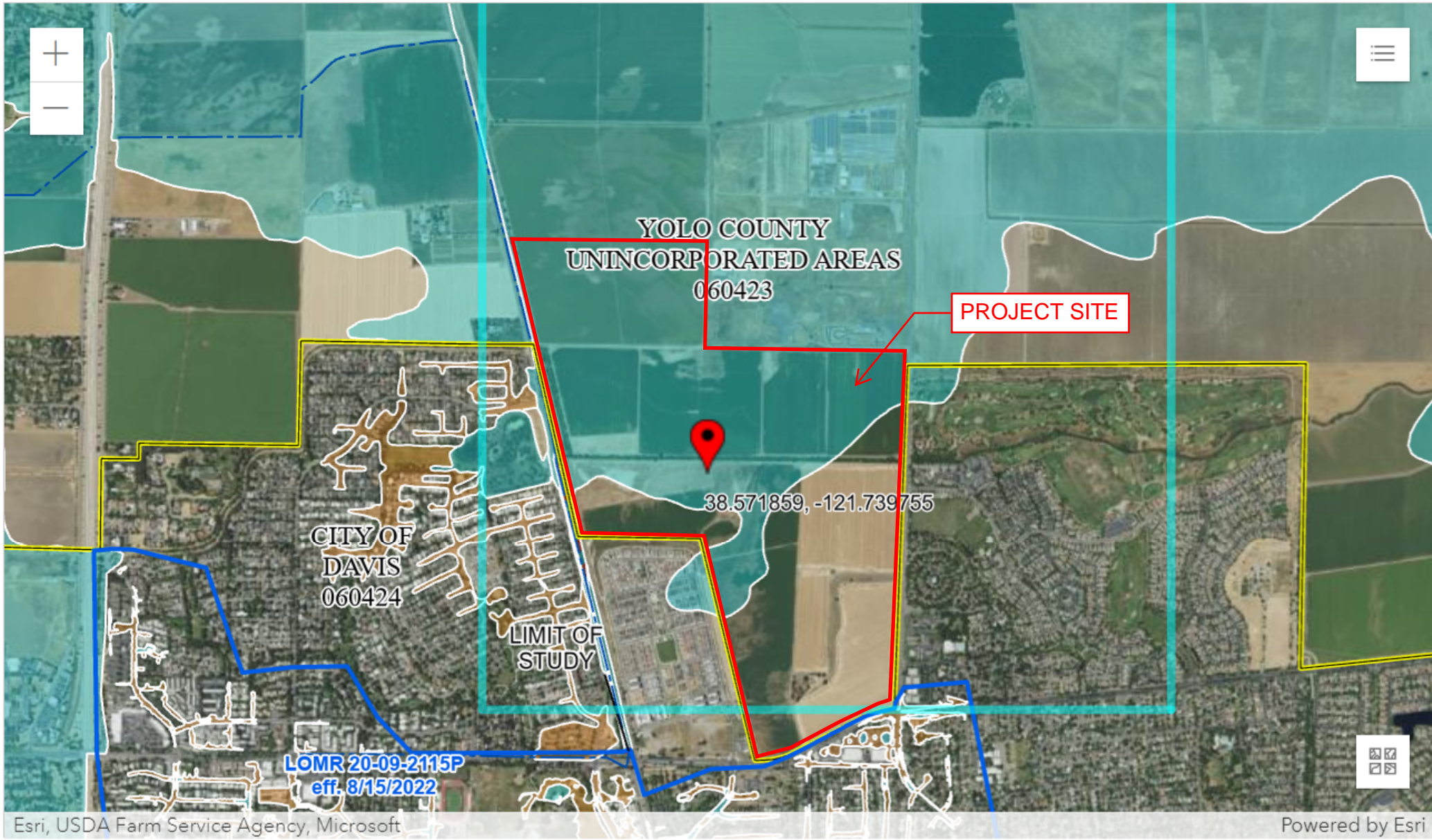
PANEL 611 of 785

COMMUNITY	NUMBER	PANEL	SUFFIX
DAVIS, CITY OF YOLO COUNTY	060424	0611	G
	060423	0611	G

Panel Contains:

**REVISED TO REFLECT LOMR EFFECTIVE: August 15, 2022**

VERSION NUMBER 2.1.3.0  
 MAP NUMBER 0611300611G  
 EFFECTIVE DATE JUNE 18, 2010



## **Appendix 6**

### Reference Plans

## David Montgomery

---

**From:** Brian Foster <Brian@cecwest.com>  
**Sent:** Monday, September 25, 2023 10:13 AM  
**To:** David Montgomery  
**Subject:** FW: 1100-597 Village Farms Davis

**CAUTION: This email originated outside of Rick Engineering Company. Do not answer, select anything nor open attachments unless you are sure the contents are safe!**

David,

Please see below for the approximate conversion to NAVD 88. I also just uploaded the topo file from Morrow to sharepoint. We are updating the EG SURFACE file now and will upload when ready.

Thanks,

**Brian Foster, P.E.** | Associate Principal/Engineering Department Manager  
**Cunningham Engineering Corporation**  
O: (916) 455-2026 ext. 125  
C: (530) 263-7639  
[www.cecwest.com](http://www.cecwest.com) | cecfile:

---

**From:** James Houston <james@morrowsurveying.com>  
**Sent:** Monday, September 25, 2023 9:07 AM  
**To:** Brian Foster <Brian@cecwest.com>  
**Cc:** Matt Morrow <matt@morrowsurveying.com>  
**Subject:** RE: 1100-597 Village Farms Davis

Morning Brian,

Approximately +2.4' to NAVD88. I averaged the adjustment of the site across the southern portion to match the previous topo to the south. I also just replaced the CAD file in the dropbox link a minute ago so that the flight control matches the surface.



**James Houston**  
**Morrow Surveying, Inc.**  
Phone 916-372-8124 ext. 205  
Web <https://morrowsurveying.com/>  
Email [james@morrowsurveying.com](mailto:james@morrowsurveying.com)  
1255 Starboard Drive  
West Sacramento, CA 95691

---

**From:** Brian Foster <[Brian@cecwest.com](mailto:Brian@cecwest.com)>  
**Sent:** Monday, September 25, 2023 8:54 AM  
**To:** Matt Morrow <[matt@morrowsurveying.com](mailto:matt@morrowsurveying.com)>  
**Cc:** James Houston <[james@morrowsurveying.com](mailto:james@morrowsurveying.com)>  
**Subject:** RE: 1100-597 Village Farms Davis

Thanks Matt and James. Do you know the conversion from the vertical datum in the topo files and NAVD-88?

**Brian Foster, P.E.** | Associate Principal/Engineering Department Manager

**Cunningham Engineering Corporation**

O: (916) 455-2026 ext. 125

C: (530) 263-7639

[www.cecwest.com](http://www.cecwest.com) | cecfile:

---

**From:** Matt Morrow <[matt@morrrowsurveying.com](mailto:matt@morrrowsurveying.com)>

**Sent:** Monday, September 25, 2023 8:47 AM

**To:** Brian Foster <[Brian@cecwest.com](mailto:Brian@cecwest.com)>

**Cc:** James Houston <[james@morrrowsurveying.com](mailto:james@morrrowsurveying.com)>

**Subject:** FW: 1100-597 Village Farms Davis

Good morning, Brian.

See below link and notes from James.

Let us know if any questions.



**Matt Morrow**

**Morrow Surveying, Inc.**

**Phone** 916-372-8124 ext. 206

**Web** <https://morrrowsurveying.com/>

**Email** [matt@morrrowsurveying.com](mailto:matt@morrrowsurveying.com)

1255 Starboard Drive

West Sacramento, CA 95691

---

**From:** James Houston <[james@morrrowsurveying.com](mailto:james@morrrowsurveying.com)>

**Sent:** Monday, September 25, 2023 8:24 AM

**To:** Matt Morrow <[matt@morrrowsurveying.com](mailto:matt@morrrowsurveying.com)>

**Subject:** 1100-597 Village Farms Davis

I drafted the RR rails, EP and striping on the road, ditch wall, and the joint poles I could see. Surface is adjusted to the previous topo to the south, should be within +/- 0.2'. Let me know if any questions.

<https://www.dropbox.com/scl/fo/uh37ys3m9kkpbuucq9fa/h?rlkey=alcpash7aso9ytlsxm46y4e59&dl=0>



**James Houston**

**Morrow Surveying, Inc.**

**Phone** 916-372-8124 ext. 205

**Web** <https://morrrowsurveying.com/>

**Email** [james@morrrowsurveying.com](mailto:james@morrrowsurveying.com)

1255 Starboard Drive

West Sacramento, CA 95691

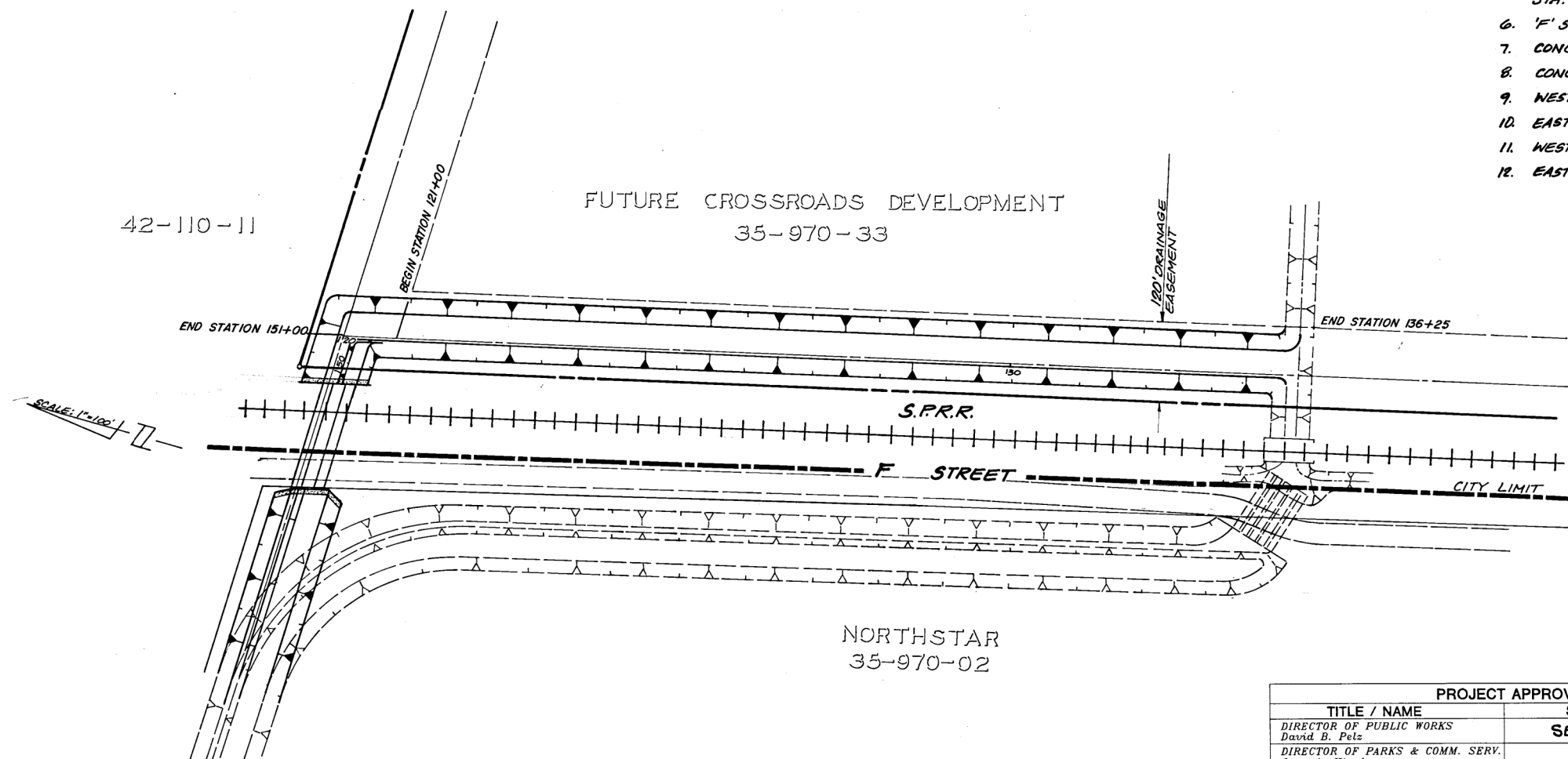
# IMPROVEMENT PLANS FOR COVELL DRAIN REALIGNMENT

## PHASE I

C.I.P. #8617

### SHEET INDEX

1. TITLE SHEET
2. GENERAL NOTES & TYPICAL CROSS-SECTIONS
3. COVELL DRAIN REALIGNMENT - STA. 144+00 TO STA. 151+00
4. 'H' STREET PUMP STATION OUTFALL CHANNEL STA. 120+00 TO STA. 130+00
5. 'H' STREET PUMP STATION OUTFALL CHANNEL STA. 130+00 TO STA. 136+25
6. 'F' STREET R/R CROSSING
7. CONCRETE HEADWALL GENERAL NOTES
8. CONCRETE HEADWALL TYPICAL DETAILS
9. WEST CONCRETE HEADWALL PLAN & ELEVATION
10. EAST CONCRETE HEADWALL PLAN & ELEVATION
11. WEST CONCRETE HEADWALL SECTIONS & DETAILS
12. EAST CONCRETE HEADWALL SECTIONS & DETAILS



**RECORD DRAWING**  
BY BM DATE 7-12-95

THE SPINK CORP.

DATE: 7-28-92

PROJECT APPROVALS		
TITLE / NAME	SIGNATURE	DATE
DIRECTOR OF PUBLIC WORKS David B. Pelz	SEE BELOW	---
DIRECTOR OF PARKS & COMM. SERV. Jeannie Hippler	---	---
PARKS SUPERINTENDENT Robert Cordrey	---	---
CITY COUNCIL APPROVAL DATE		<b>5 MAY 93</b>

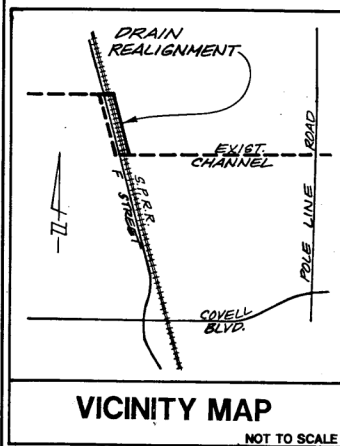
### LEGEND

- CHANNEL EASEMENT LINE
- EXISTING GROUND ELEVATION
- FINISH GRADE
- FLOW LINE LOW FLOW CHANNEL
- EXISTING CHANNEL SIDE SLOPE
- CHANNEL SIDE SLOPE
- EXISTING S.P.R.R.

BENCHMARK: N 128 ELEVATION: 37.48  
DATE: U.S.C. & G.S.

DESCRIPTION: AT DAVIS, 0.05 MILE SOUTHEAST OF THE JUNCTION OF FIRST STREET AND E STREET, 0.05 MILE NORTHWEST OF THE JUNCTION OF AN ACCESS ROAD AND OLIVE DRIVE, AT THE SOUTHERN PACIFIC COMPANY RAILROAD OVERPASS OVER THE ROAD, IN THE TOP OF THE WEST CONCRETE RETAINING WALL, 13 FEET SOUTHWEST OF THE CENTERLINE OF THE ROAD, 4.0 FEET NORTHWEST OF THE NORTHWEST END OF THE SOUTHWEST ABUTMENT, AND ABOUT 2-1/2 FEET HIGHER THAN THE ROAD.

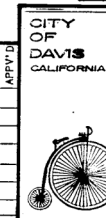
UTILITY REPRESENTATIVES		
UTILITY	REPRESENTATIVE	PHONE
P.G. & E. ( GAS )	BRIAN SWEENEY	661-5651
SOILS ENGINEER RANEY GEOTECHNICAL	BILL BOLLI	371-0434
PAC. BELL ( TELEPHONE )	MARTIN HEYNEN	972-2147
SOUTHERN PACIFIC FIBER OPTICS		(800) 283-4237
YOLO COUNTY TELECOMMUNICATIONS	CINDY BERG	666-8095
FIRE DISTRICT	TOM BURTON	756-3743
CABLE T.V.: UNITED ARTIST	DEAN DARLIN	757-2220
U.S.A.		(800) 642-2444



**OWNER:**  
CITY OF DAVIS  
23 RUSSELL BLVD.  
DAVIS, CA. 95616

**The Spink Corporation**  
2590 VENTURE OAKS WAY  
SACRAMENTO, CALIFORNIA 95833  
TEL: (916) 925-5550 FAX: (916) 921-9274

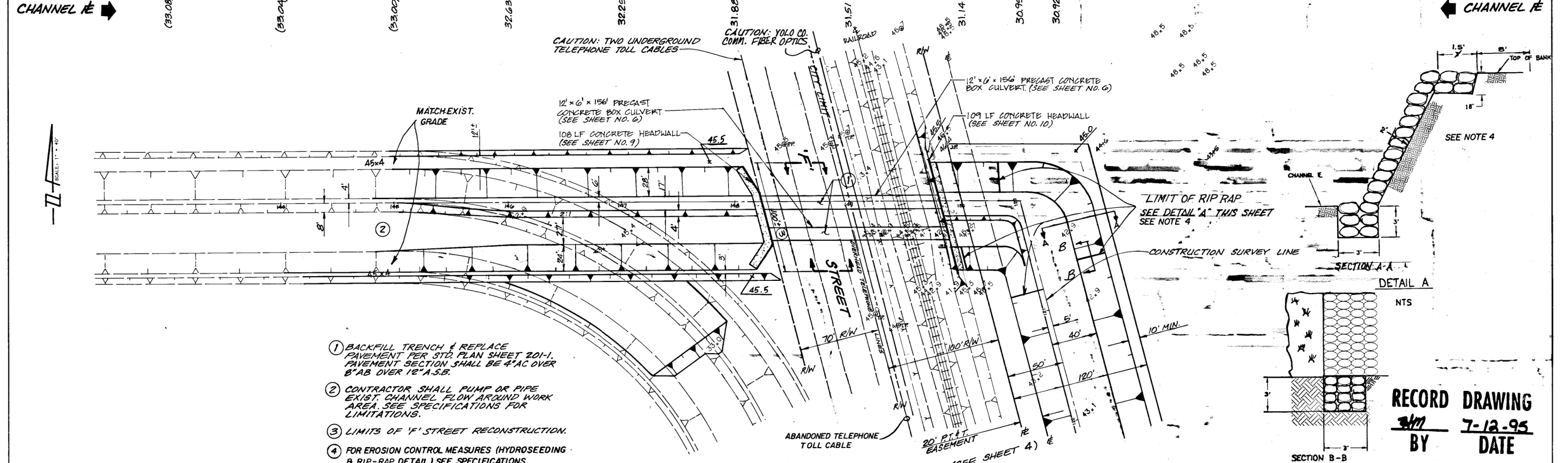
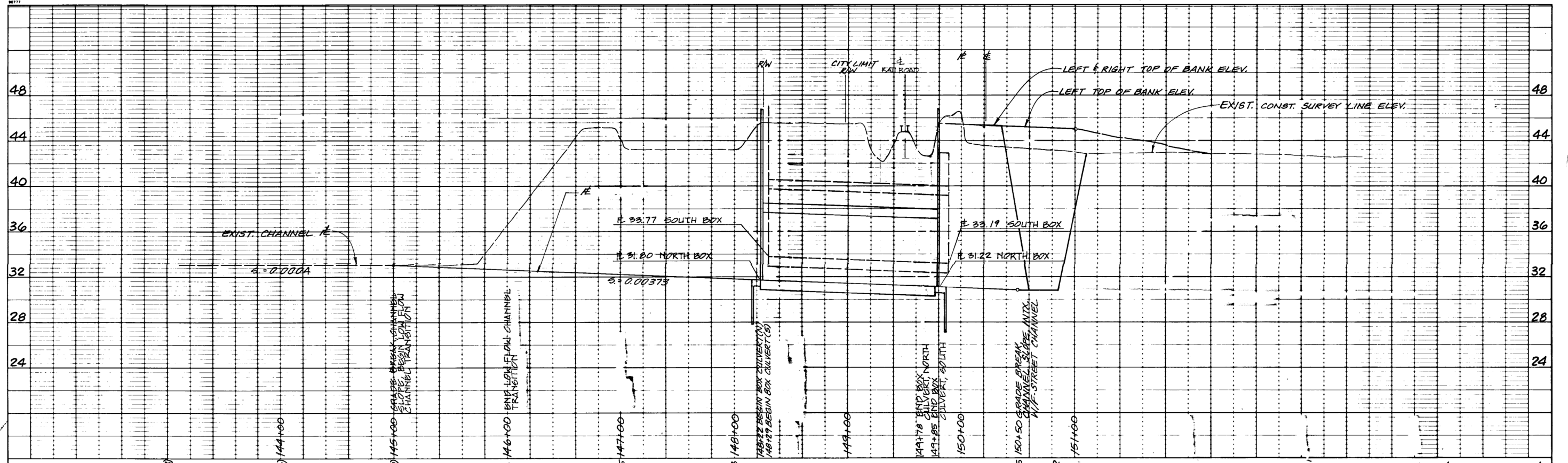
NO.	REVISIONS DESCRIPTION	BY	DATE	APPV'D



**COVELL DRAIN REALIGNMENT**  
C.I.P. #8617 (TYP.)  
TITLE SHEET

DRAWN BY <b>C. ZOLLER</b>	CHECKED BY <b>AS SHOWN</b>	APPROVED BY <b>[Signature]</b>
DATE <b>7-92</b>	FIELD BOOK	NO. OF SHEETS <b>12</b>
DRAWN BY <b>B.L. MOORE</b>	DATE	NO. OF SHEETS

SHEET 1 OF 12 SHEETS



- ① BACKFILL TRENCH & REPLACE PAVEMENT PER STD. PLAN SHEET 201-1. PAVEMENT SECTION SHALL BE 4" AC OVER 8" AB OVER 12" A.S.B.
- ② CONTRACTOR SHALL PUMP OR PIPE EXIST. CHANNEL FLOW AROUND WORK AREA. SEE SPECIFICATIONS FOR LIMITATIONS.
- ③ LIMITS OF 'F' STREET RECONSTRUCTION.
- ④ FOR EROSION CONTROL MEASURES (HYDROSEEDING & RIP-RAP DETAIL) SEE SPECIFICATIONS.



**The Spink Corporation**  
 2580 VENTURE OAKS WAY  
 SACRAMENTO, CALIFORNIA 95833  
 TEL: (916) 925-5550 FAX: (916) 921-9274

NO.	REVISIONS DESCRIPTION	BY	DATE	APP'D

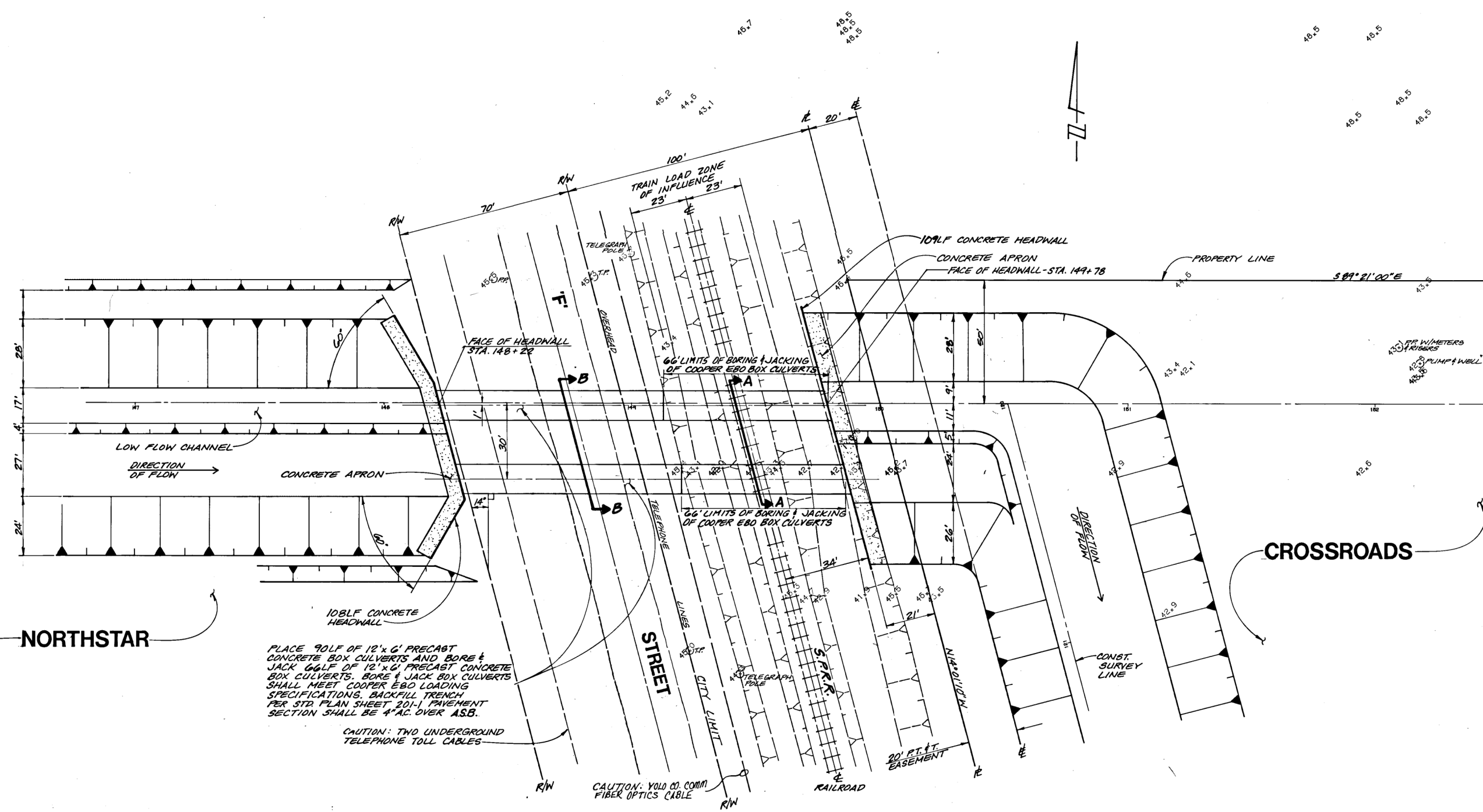
CITY OF DAVIS CALIFORNIA

**COVELL DRAIN REALIGNMENT**  
 STA. 144 + 00 TO STA. 151 + 00

APPROVED: *[Signature]* DATE: 7-12-95  
 CHECKED: *[Signature]* DATE: 7-12-95  
 DRAWN: T. DEE  
 CHECKED: B.L. MOORE

SHEET 3 OF 12 SHEETS

**RECORD DRAWING**  
 BY *[Signature]* DATE 7-12-95



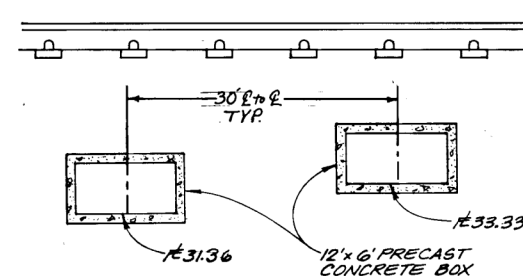
**NORTHSTAR**

**CROSSROADS**

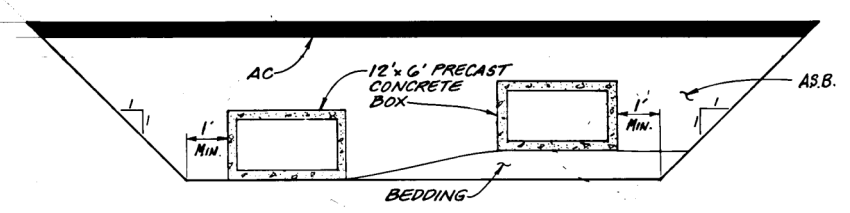
PLACE 90LF OF 12'x6' PRECAST CONCRETE BOX CULVERTS AND BORE & JACK 66LF OF 12'x6' PRECAST CONCRETE BOX CULVERTS. BORE & JACK BOX CULVERTS SHALL MEET COOPER EBO LOADING SPECIFICATIONS. BACKFILL TRENCH PER STD PLAN SHEET 201-1 PAVEMENT SECTION SHALL BE 4" AC OVER ASB.

CAUTION: TWO UNDERGROUND TELEPHONE TOLL CABLES

CAUTION: YOLO CO. COMM FIBER OPTICS CABLE



**R. R. CROSS SECTION SECTION A-A**  
N.T.S.

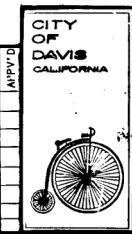


**'F' STREET CROSS-SECTION SECTION B-B**  
N.T.S.

**RECORD DRAWING**  
BY SM DATE 7-12-95

**The Spink Corporation**  
2590 VENTURE OAKS WAY  
SACRAMENTO, CALIFORNIA 95833  
TEL: (916) 925-5550 FAX: (916) 321-9274

NO.	REVISIONS DESCRIPTION	BY	DATE	APPROVED



**COVELL DRAIN REALIGNMENT**  
**'F' STREET / R. R. CROSSING DETAIL**

DESIGNED BY: C. ZOLLER SCALE: 1" = 20' APPROVED: [Signature] DATE: 6-9 95  
 DRAWN BY: SKR FIELD BOOK:    
 CHECKED BY: B.L. MOORE PROJECT NO.:    
 SHEET 6 OF 12 SHEETS DRAWING NO.: 404-39

# Covell Drain Channel Widening WILDHORSE SUBDIVISION



## Covell Drain

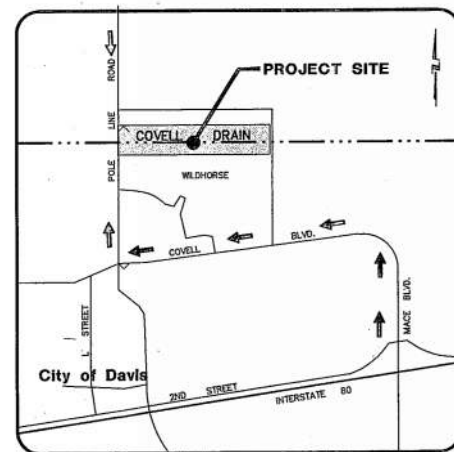
SCALE: 1"=200'

### NOTES:

- ALL GRADING SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF THE CITY OF DAVIS MUNICIPAL CODE AND IN ACCORDANCE WITH THESE PLANS.
- BASIS OF ELEVATIONS: CITY OF DAVIS BENCHMARK No. 17 - ELEVATION=42.37 TOP OF MONUMENT IN ENCASED MONUMENT BOX AT INTERSECTION OF DENISON DRIVE AND BIRCH LANE.
- THE CONTRACTOR, AND ANY SUB-CONTRACTOR, SHALL TAKE APPROPRIATE MEASURES TO PREVENT THE TRANSPORT OFFSITE OF ANY AIRBORNE NUISANCE, IN ACCORDANCE WITH CITY REQUIREMENTS. THE CONTRACTOR WILL CONDUCT THEIR OPERATIONS SUCH THAT ALL DUST PARTICLES WILL BE CONFINED TO THE IMMEDIATE SURFACE OF THE WORK. THIS REQUIREMENT SHALL APPLY AT ALL TIMES OF DAY OR NIGHT WHETHER OF NOT THE CONTRACTOR, AND ANY SUB-CONTRACTOR, IS CONDUCTING OPERATIONS. THE CONTRACTOR, AND ANY SUB-CONTRACTOR, SHALL BE RESPONSIBLE FOR ANY CITATIONS, FINES OR OTHER COSTS RESULTING FROM A DUST NUISANCE ORIGINATING FROM THIS SITE.
- THE CONTRACTOR, AND ANY SUB-CONTRACTOR, SHALL CONDUCT THEIR OPERATIONS IN ACCORDANCE WITH CITY REQUIREMENTS IN REGARD TO NOISE CONTROL AND HOURS OF OPERATIONS.
- THE CONTRACTOR SHALL NOTIFY THE FOLLOWING PARTIES BY THE SPECIFIED TIME PRIOR TO BEGINNING WORK:
  - CONSULTING ENGINEER FOR CONSTRUCTION STAKING - 5 WORKING DAYS.
  - CITY OF DAVIS - 48 HOURS.
- ALL GRADING ACTIVITIES, INCLUDING EXCAVATION, SCARIFYING, MOISTURIZING, FILL PLACEMENT, COMPACTION, ETC., SHALL BE PERFORMED IN ACCORDANCE WITH THE RECOMMENDATIONS CONTAINED IN THE PROJECT GEOTECHNICAL ENGINEERING REPORT PREPARED BY RANEY GEOTECHNICAL, JOB No. 1393-001, DATED MAY 20, 1997. THE GEOTECHNICAL ENGINEER WILL OBSERVE THE GRADING ACTIVITIES AND PERFORM COMPACTION TESTING FOR THIS PROJECT. THE CONTRACTOR SHALL PROVIDE AT LEAST 24 HOURS NOTICE TO GEOTECHNICAL ENGINEER OF THE NEED FOR OBSERVATION AND TESTING SERVICES. THE PROJECT OWNER/DEVELOPER WILL PAY FOR THE COST OF PROVIDING THESE SERVICES.
- UNLESS OTHERWISE PROVIDED, ALL CLEARING AND GRUBBING ACTIVITIES SHALL CONFORM TO THE PROVISIONS OF SECTION 300, "REMOVALS, EXCAVATION, AND EARTHWORK", OF THE CITY OF DAVIS PUBLIC WORKS DEPARTMENT STANDARD SPECIFICATIONS. THE MAXIMUM SLOPE FOR ANY CUT OR FILL SHALL NOT EXCEED A RATIO OF 2 (HORIZONTAL) TO 1 (VERTICAL), UNLESS OTHERWISE APPROVED BY THE GEOTECHNICAL ENGINEER.
- ALL CUT SLOPES SHALL BE ROUNDED AT THE "BREAK" SO THAT THEY BLEND WITH THE NATURAL GROUND CONTOUR.
- ALL UNDERGROUND PIPELINES, DISCOVERED DURING GRADING OPERATIONS AND DETERMINED TO HAVE BEEN ABANDONED IN PLACE, SHALL BE REMOVED AND/OR PLUGGED AS DIRECTED BY THE CITY ENGINEER.
- THE CONTRACTOR SHALL REFER TO THE MOST RECENT EDITION OF THE CITY OF DAVIS STANDARD SPECIFICATIONS FOR STANDARD DETAILS REFERENCED ON THESE PLANS.
- THE CITY OF DAVIS IS A MEMBER OF THE UNDERGROUND SERVICE ALERT (USA) ONE CALL PROGRAM. THE CONTRACTOR OR ANY SUBCONTRACTOR FOR THIS CONTRACT SHALL NOTIFY MEMBERS OF U.S.A. 48 HOURS IN ADVANCE OF PERFORMING EXCAVATION WORK BY CALLING THE TOLL FREE NUMBER 1-800-227-2600. EXCAVATION IS DEFINED BEING 18" OR MORE IN DEPTH BELOW THE EXISTING SURFACE.
- CONSTRUCTION VEHICLE ACCESS TO THE SITE SHALL BE RESTRICTED TO DESIGNATED TRUCK ROUTES. TRUCK ROUTES, SHALL BE SUBJECT TO THE REVIEW AND APPROVAL OF THE CITY ENGINEER.
- DESIGNATED TRUCK ROUTES PROVIDING CONSTRUCTION ACCESS TO THE PROJECT SITE INCLUDE:
  - POLE LINE ROAD NORTH OF COVELL BOULEVARD
  - COVELL BOULEVARD EAST OF POLE LINE ROAD
  - MACE BOULEVARD
- PRIOR TO PERFORMING ANY WORK WITHIN THE EXISTING CHANNEL, ALL REQUIRED PERMITS MUST BE SECURED FROM THE CALIFORNIA DEPT. OF FISH AND GAME, ARMY CORP OF ENGINEERS AND ALL OTHER PERMITTING AGENCIES WITH JURISDICTION OVER THIS PROJECT. CONTACT JONES AND STOKES ASSOCIATES, 737-3000 FOR MITIGATION AND MONITORING MEASURES ASSOCIATED WITH THESE PERMITS.  
THE FOLLOWING AGENCIES HAVE ISSUED PERMITS FOR THIS PROJECT.  
U.S. ARMY CORP OF ENGINEERS.  
CALIFORNIA DEPT. OF FISH AND GAME

### SHEET INDEX

- SHEET NO. TITLE
- COVER SHEET
  - CHANNEL IMPROVEMENTS STA. 62+00 TO 73+00
  - CHANNEL IMPROVEMENTS STA. 73+00 TO 84+00
  - CHANNEL IMPROVEMENTS STA. 84+00 TO 95+00
  - CHANNEL IMPROVEMENTS STA. 95+00 TO 106+00
  - CHANNEL IMPROVEMENTS STA. 106+00 TO END
  - CHANNEL SECTIONS STA. 62+00 TO 74+00
  - CHANNEL SECTIONS STA. 75+00 TO 87+50
  - CHANNEL SECTIONS STA. 88+50 TO 98+90
  - CHANNEL SECTIONS STA. 100+50 TO END
  - POLE LINE ROAD CULVERT CROSSING
  - CULVERT CROSSING DETAILS
  - EROSION CONTROL



VICINITY MAP  
NO SCALE

REV	DATE	DESCRIPTION	BY	APPD

**PSOMAS**

Psomas and Associates  
2295 Gateway Oaks Drive Suite 250  
Sacramento California 95833  
(916)929-7100

Engineers  
Surveyors  
Planners



### BASIS OF ELEVATIONS

CITY OF DAVIS BENCHMARK NO. 17  
ELEVATION = 42.37  
TOP OF MONUMENT IN ENCASED MONUMENT BOX AT  
INTERSECTION OF DENISON DRIVE AND BIRCH LANE.



COVELL DRAIN  
Cover Sheet  
WILDHORSE SUBDIVISION

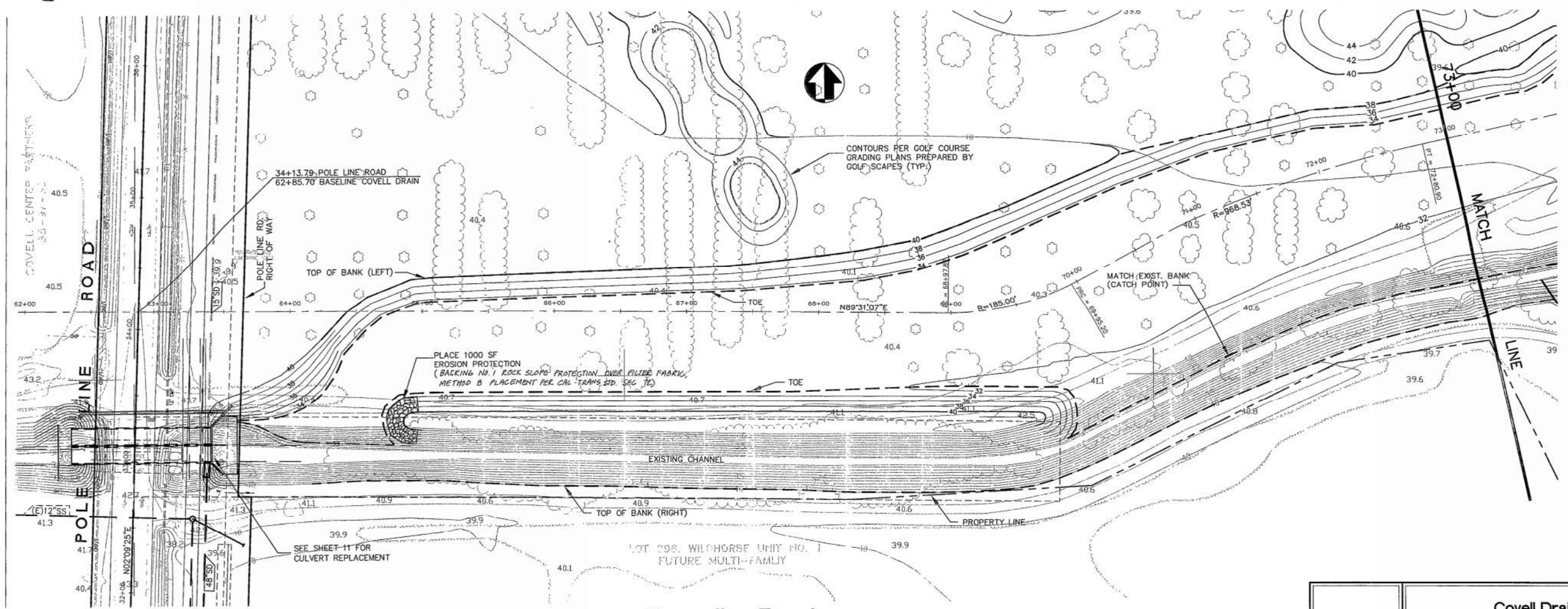
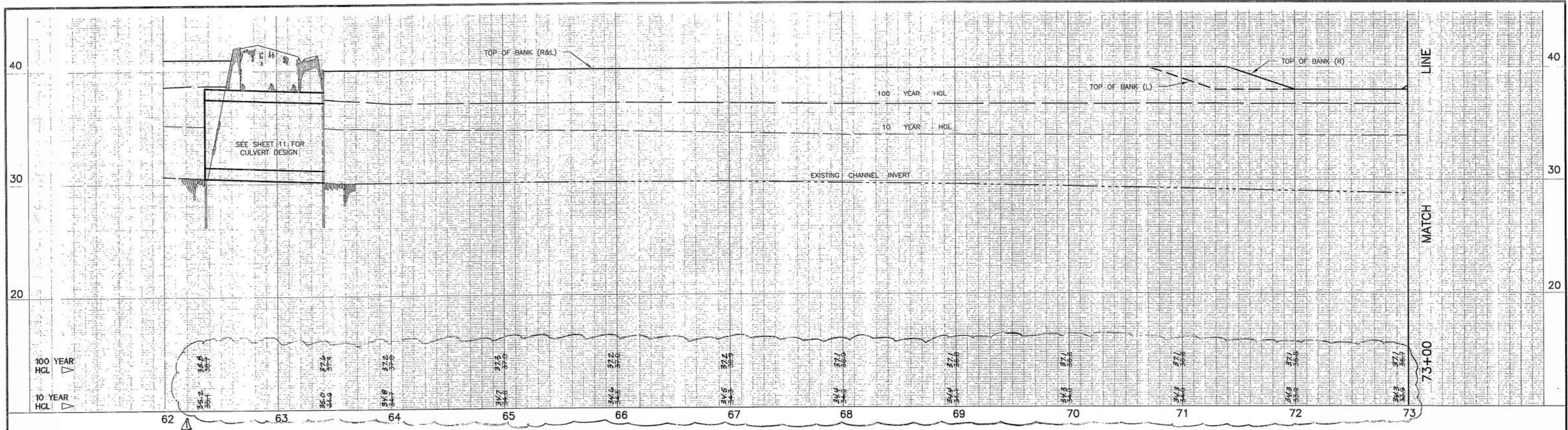
DESIGNED: K. KANE	SCALE: AS SHOWN	APPROVED: 4/22/98 by [Signature] DIRECTOR OF PUBLIC WORKS C-0010
DRAWN: R.S.L.	DATE: APR 1998	REG. ENGR. LIC. NO.:
CHECKED: D. CLIFT	PAGE:	DWG. NO.:

CITY OF DAVIS

SHEET 1 OF 13 SHEETS

RECORD DRAWING 6-26-00

404-055



Covell Drain

REV	DATE	DESCRIPTION	BY	APPD
1	9-30-19	CART PATH CORRECTIONS	KK	

**PSOMAS**  
 Psomas and Associates  
 2295 Gateway Oaks Drive Suite 250  
 Sacramento California 95833  
 (916)929-7100

Engineers  
 Surveyors  
 Planners



**Davis California**

**Covell Drain**  
 Sta 62+00 to 73+00  
 WILDHORSE SUBDIVISION

DESIGNED: K. KANE  
 DRAWN: R.S.L.  
 CHECKED: D. CLIFT

DATE: APR 1998

SCALE: HOR 1"=40'  
 VER 1"=4'

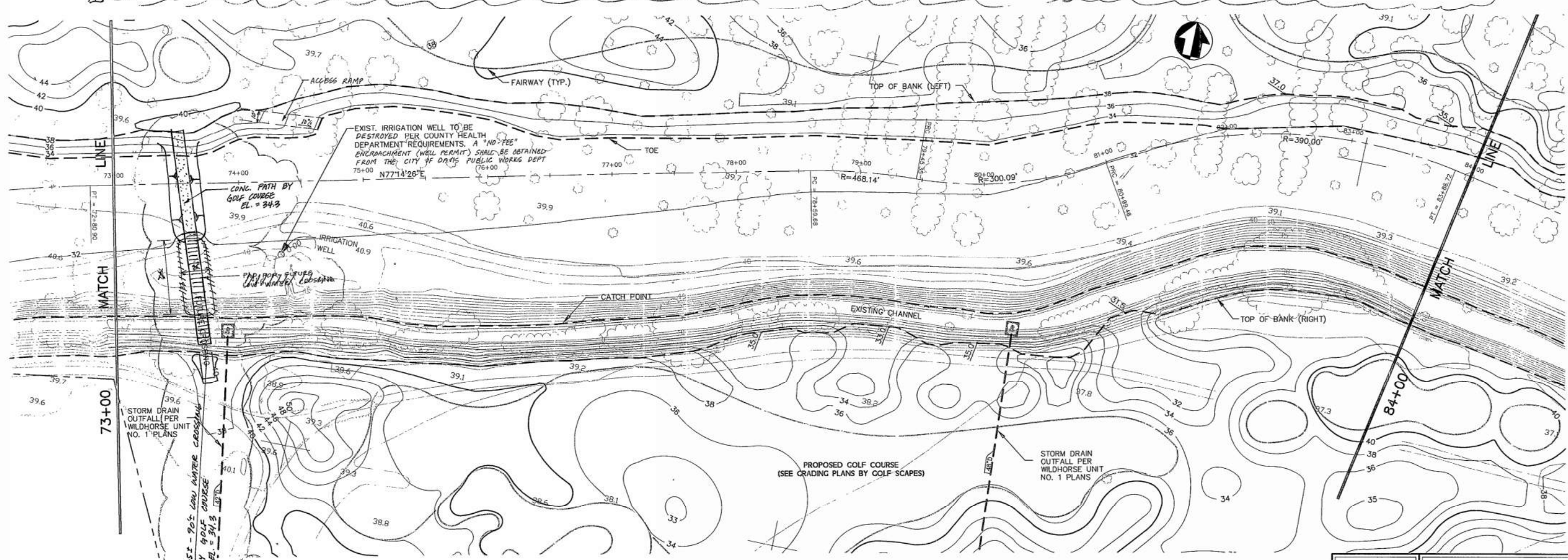
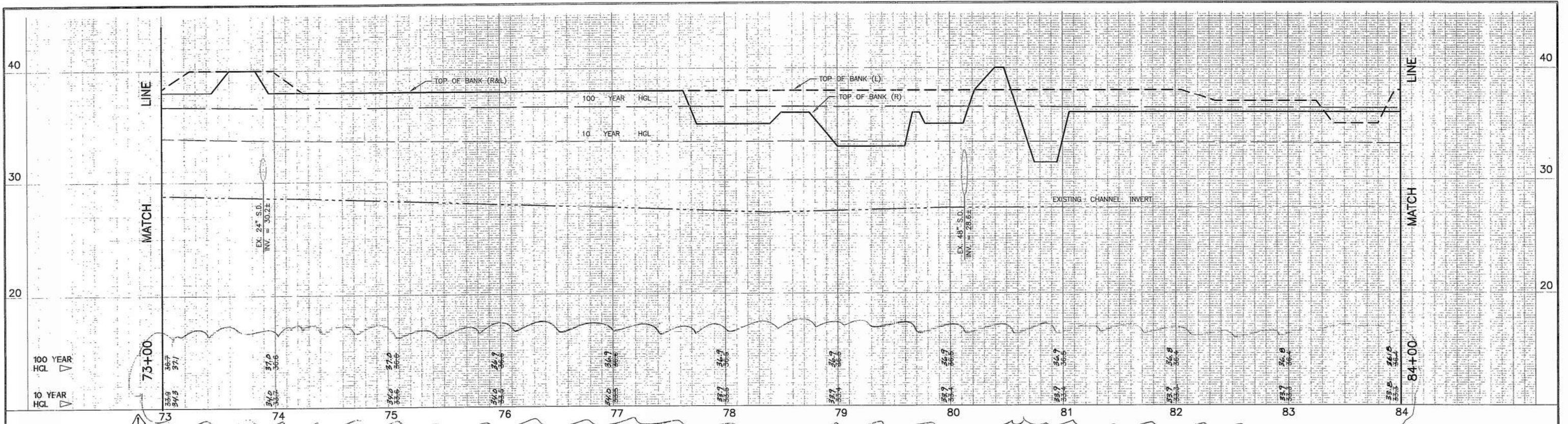
FIELD BOOK: \_\_\_\_\_  
 PAGE: \_\_\_\_\_

APPROVED: *[Signature]*  
 DIRECTOR OF PUBLIC WORKS

CITY OF DAVIS

SHEET 2 OF 13 SHEETS

RECORD DRAWINGS 6-26-08

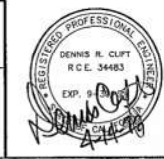


# Covell Drain

REV	DATE	DESCRIPTION	BY	APPD
1	9-20-98	CART PATH CROSSING	KK	

**PSOMAS**  
 Psomas and Associates  
 2295 Gateway Oaks Drive Suite 250  
 Sacramento California 95833  
 (916)929-7100

Engineers  
 Surveyors  
 Planners



**Davis** California

**Covell Drain**  
 Sta 73+00 to 84+00  
 WILDHORSE SUBDIVISION

DESIGNED: K. KANE  
 DRAWN: R.S.L.  
 CHECKED: D. CLIFT

SCALE: HOR. 1"=40'  
 VER. 1"=4'

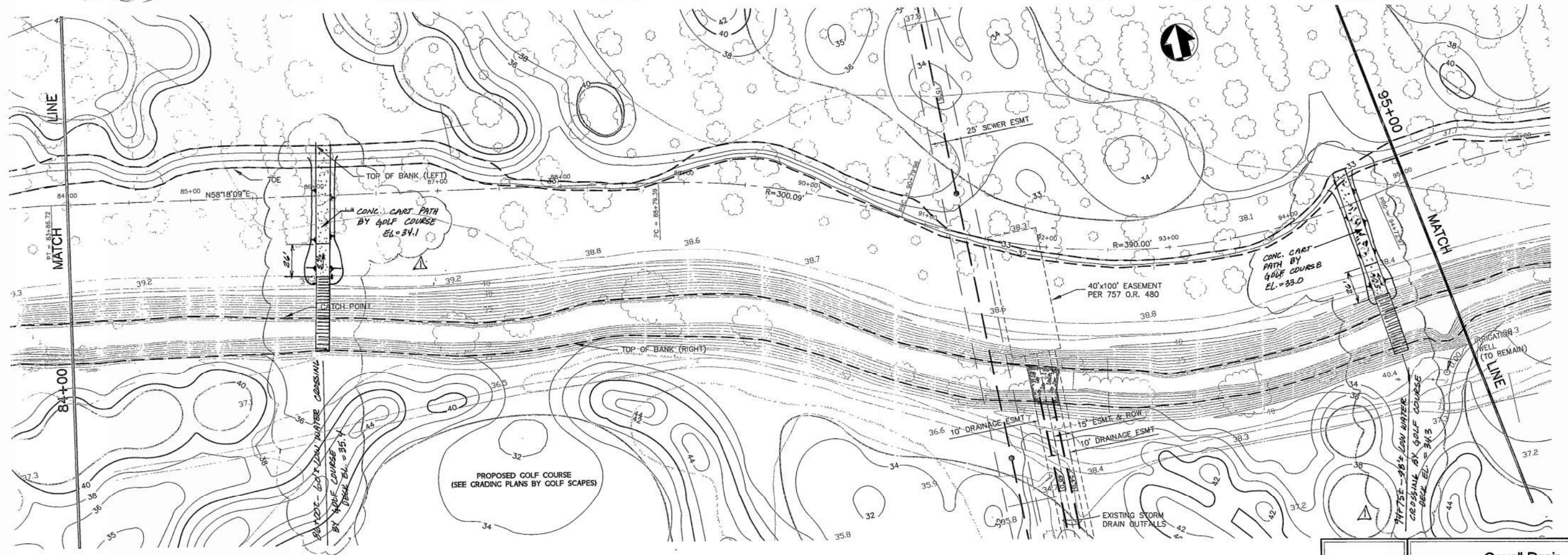
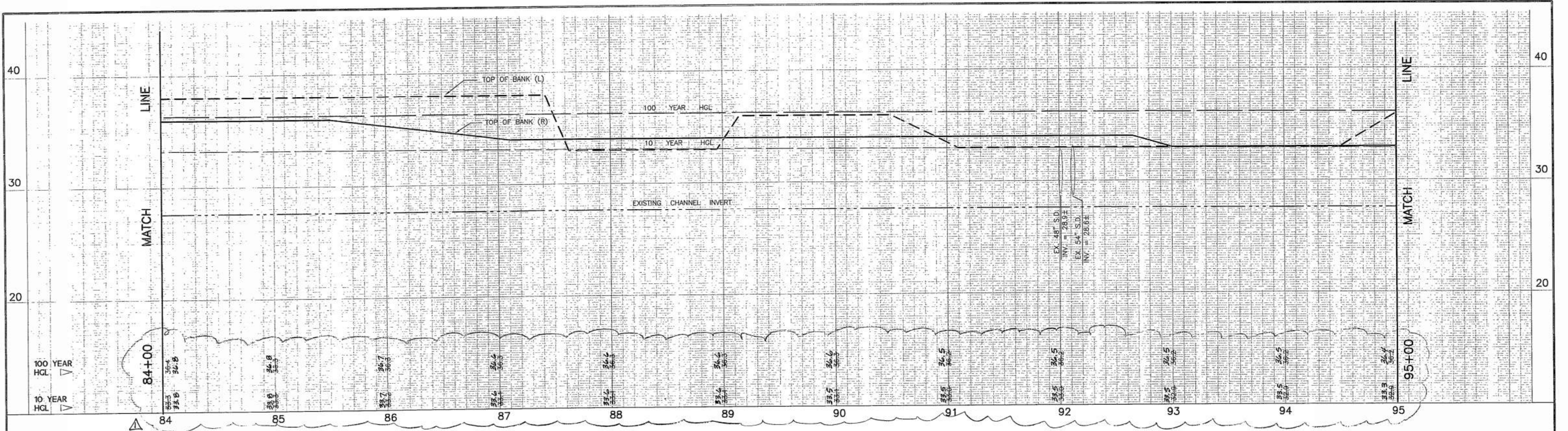
DATE: APR 1998  
 FIELD BOOK

APPROVED: 4/24/98  
 by [Signature]  
 DIRECTOR OF PUBLIC WORKS

CITY OF DAVIS  
 SHEET 3 OF 13 SHEETS

RECORD DRAWINGS 6-26-08

404-055

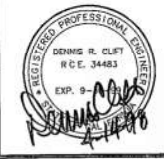


# Covell Drain

REV	DATE	DESCRIPTION	BY	APP'D
Δ	9-30-16	CART PATH CROSSING	KK	

**PSOMAS**  
 Peasoms and Associates  
 2295 Gateway Oaks Drive Suite 250  
 Sacramento California 95833  
 (916)929-7100

Engineers  
 Surveyors  
 Planners



**Davis**  
 California

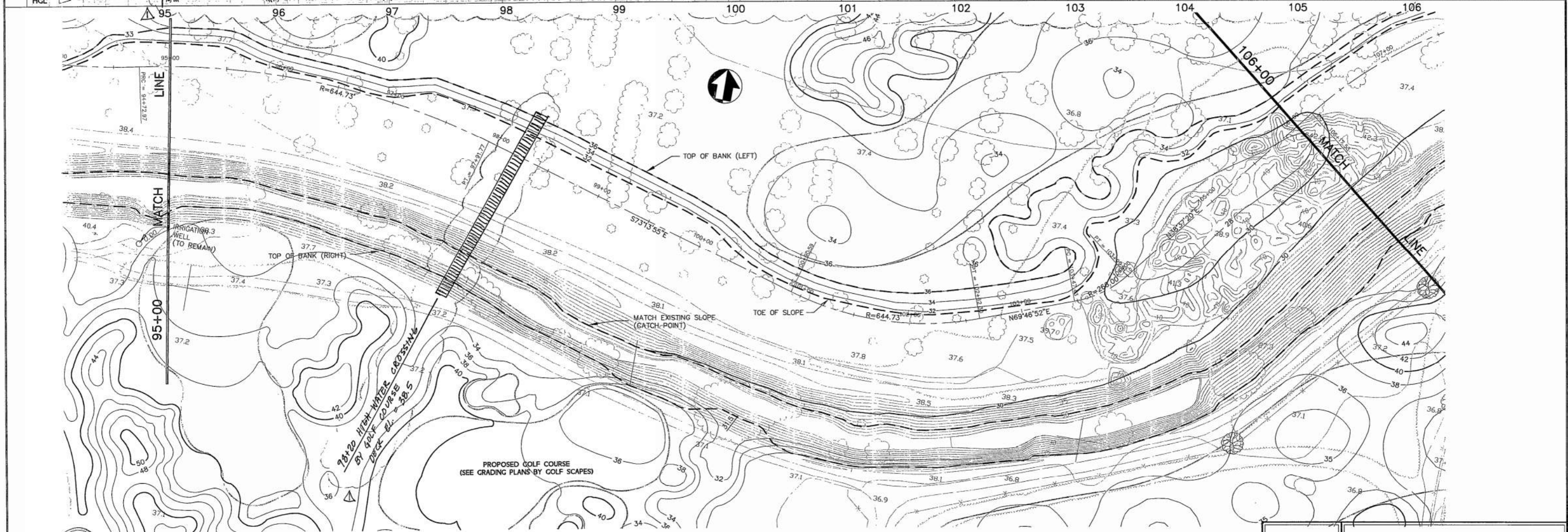
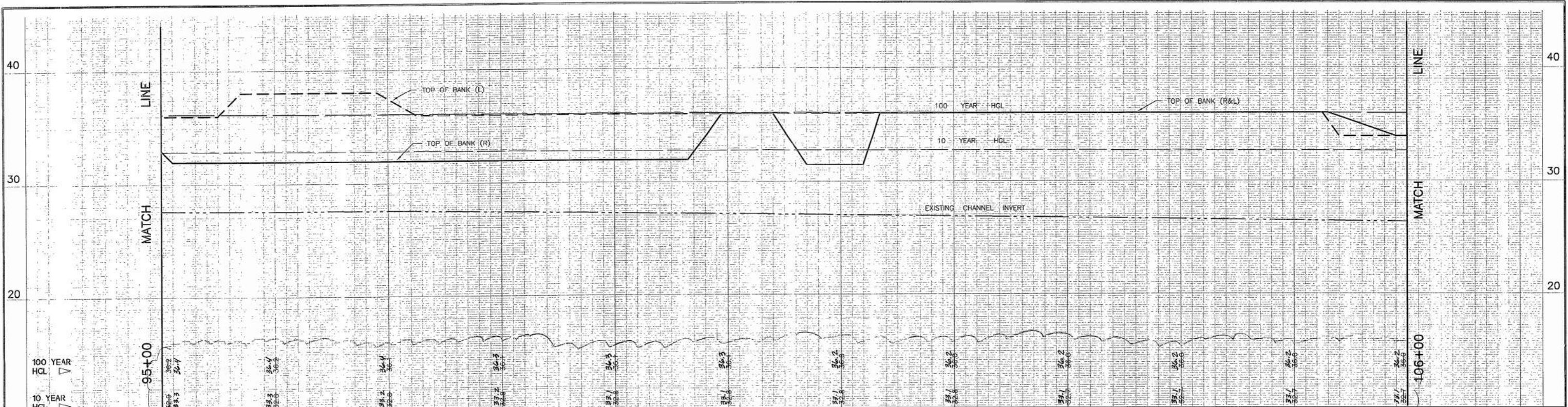
**Covell Drain**  
 Sta 84+00 to 95+00  
 WILDHORSE SUBDIVISION

DESIGNED: K. KANE  
 DRAWN: DATE: FIELD BOOK:  
 R.S.L. APR 1998  
 CHECKED: D. CLIFT  
 SCALE: HOR. 1"=40'  
 VER. 1"=4'

APPROVED: [Signature]  
 DIRECTOR OF PUBLIC WORKS  
 REG. ENGR. LIC. 622082  
 DWG. NO.

CITY OF DAVIS  
 SHEET 4 OF 13 SHEETS

RECORD DRAWING 6-26-00



Covell Drain

REV	DATE	DESCRIPTION	BY	APPD
1	7-30-06	CART PATH CROSSING	KK	

**PSOMAS**  
 Psomas and Associates  
 2295 Gateway Oaks Drive Suite 250  
 Sacramento California 95833  
 (916)929-7100

Engineers  
 Surveyors  
 Planners



Covell Drain  
 Sta 95+00 to 106+00  
 WILDHORSE SUBDIVISION

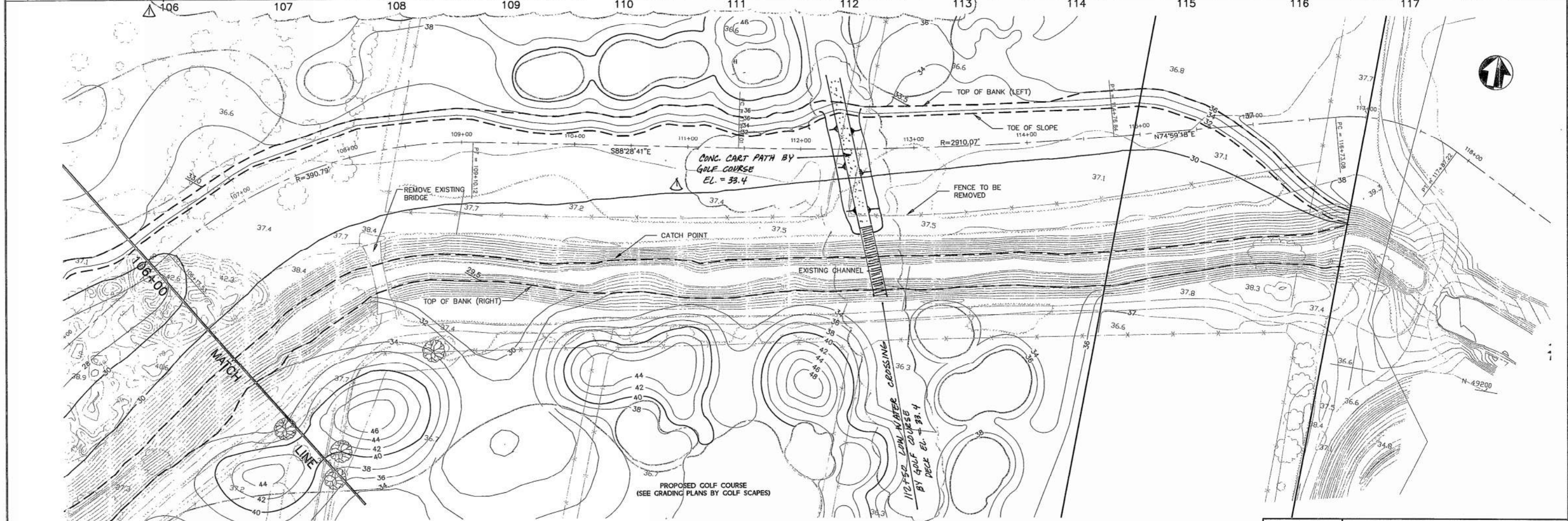
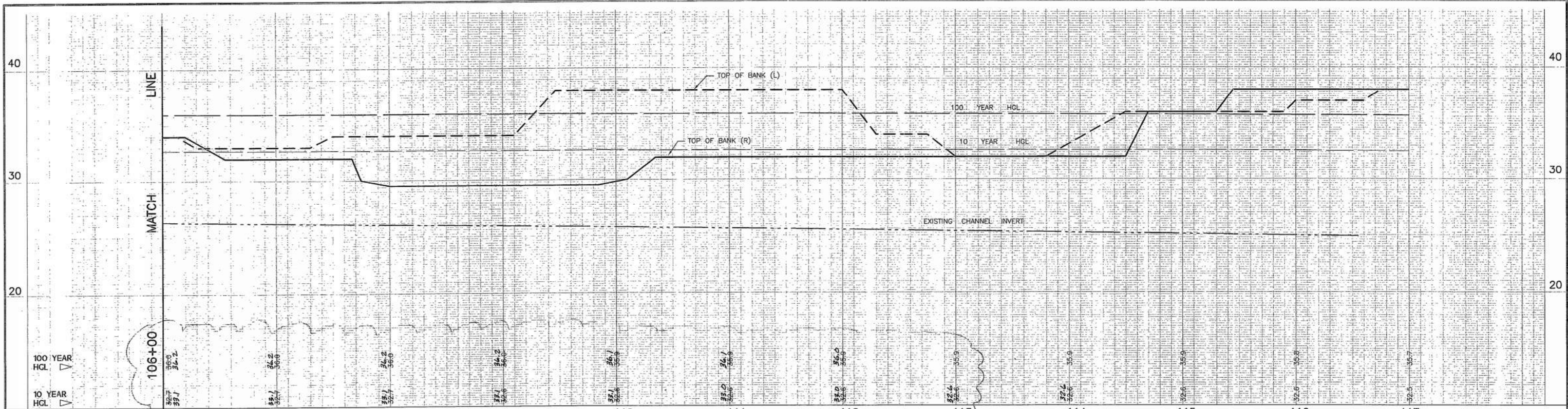
DESIGNED K. KANE	SCALE HOR 1"=40' VER. 1"=4'	APPROVED <i>[Signature]</i>
DRAWN R.S.L.	DATE APR 1998	FIELD BOOK
CHECKED D. CLIFT	PAGE	DIRECTOR OF PUBLIC WORKS <i>[Signature]</i>
		REG. ENGR. LIC. NO. 21082

CITY OF DAVIS

SHEET 5 OF 13 SHEETS

RECORD DRAWING 6-26-00

404-055



### Covell Drain

REV	DATE	DESCRIPTION	BY	APPD
1	9-30-98	CART PATH CROSSING	KR	

**PSOMAS**  
 Psomas and Associates  
 2295 Gateway Oaks Drive Suite 250  
 Sacramento California 95833  
 (916)929-7100

Engineers  
 Surveyors  
 Planners



**Davis California**

**Covell Drain**  
 Sta 106+00 to End  
 WILDHORSE SUBDIVISION

DESIGNED: K. KANE  
 DRAWN: R.S.L.  
 CHECKED: D. CLIFT

SCALE: HOR 1"=40'  
 VERT 1"=4'

APPROVED: 4/24/98  
 R. J. Johnson  
 SUPERVISOR OF PUBLIC WORKS

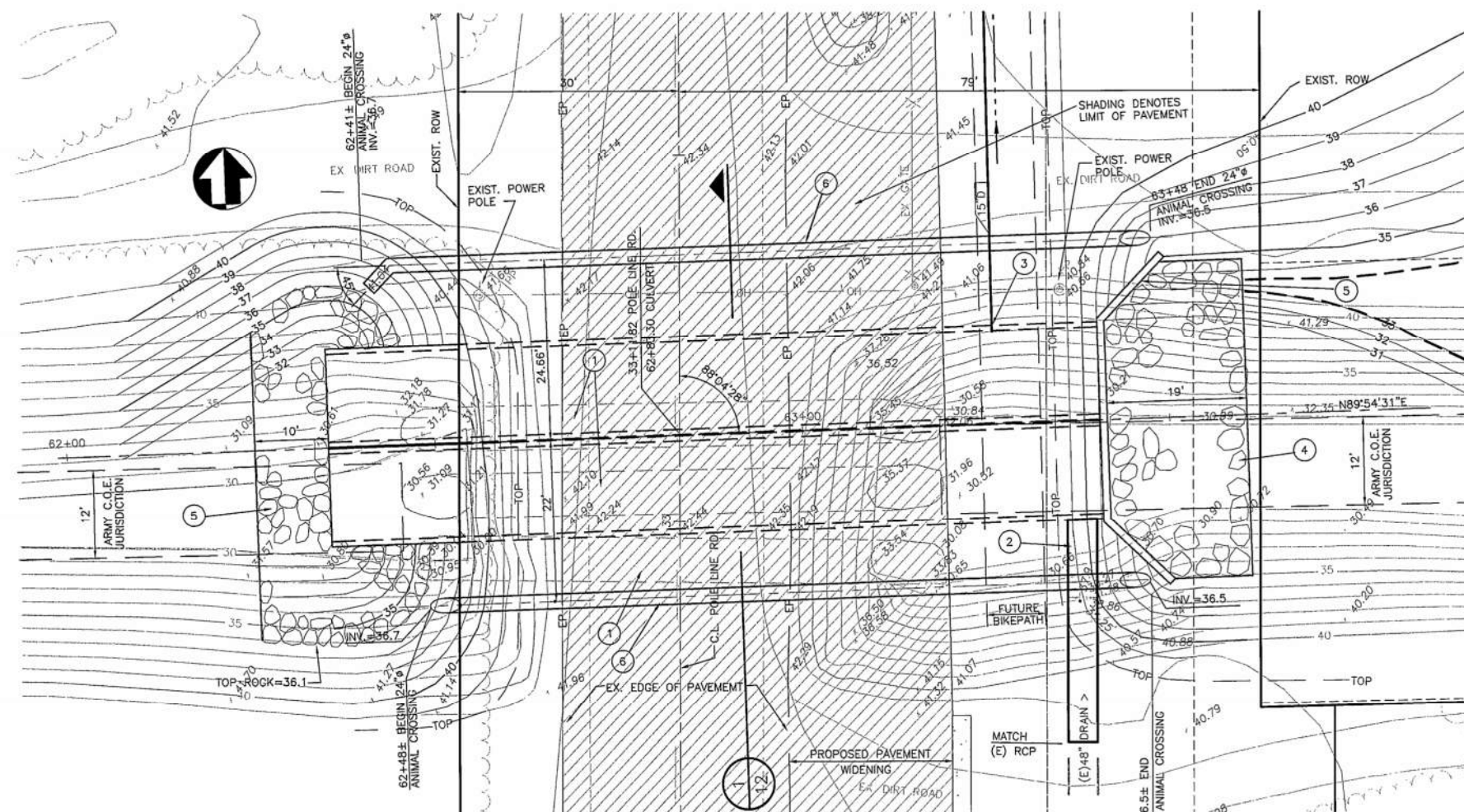
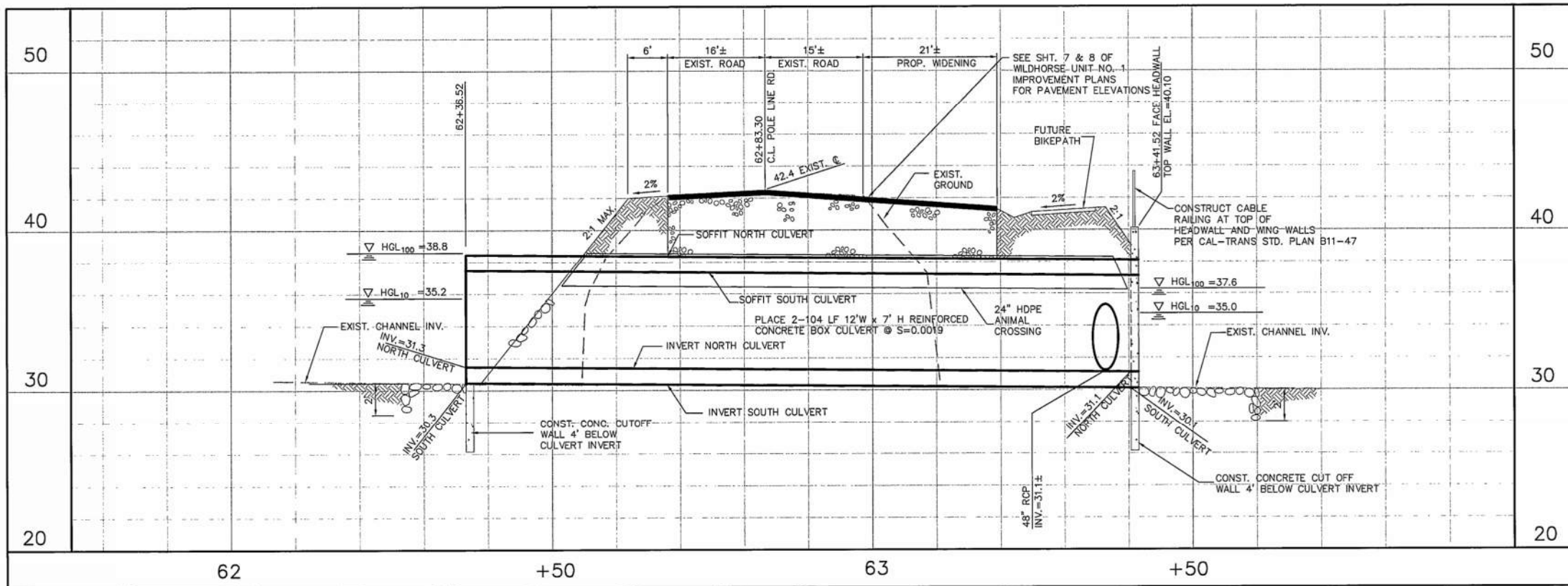
CITY OF DAVIS

SHEET 6 OF 13 SHEETS

RECORD DRAWING 6-26-00

404-055

Apr 13, 1998 - 16:08:02 DWG Name: R:\dev\02\nat0701\low\chri-pp5.dwg Updated By: K Kane



SCALE:  
1"=10' HORIZONTAL  
1"=4' VERTICAL

**CONSTRUCTION NOTES:**

- ① REMOVE 6"  $\phi$  CMP CULVERT
- ② REMOVE EXIST. 48" CMP CULVERT & FLAP GATE TO EXIST. 48" RCP. PLACE 31 $\pm$  LF 48" RCP CL III EXTEND TO SOUTH BOX CULVERT. RETURN FLAP GATE TO CITY CORP. YARD.
- ③ CONNECT 15" RCP CL III FROM NORTH INTO BOX CULVERT
- ④ PLACE BACKING NO. 1 ROCK SLOPE PROTECTION OVER FILTER FABRIC. METHOD B PLACEMENT PER CAL-TRANS STD. SECTION 72.
- ⑤ SEE SHEET 12 FOR HEADWALL/WINGWALL DETAILS
- ⑥ PLACE 24"  $\phi$  HDPE ANIMAL CROSSING. TRIM ENDS TO MATCH SLOPE.

**TRAFFIC CONTROL NOTE:**

CONTRACTOR TO SUBMIT TRAFFIC CONTROL AND DETOUR PLAN TO CITY OF DAVIS PUBLIC WORKS DEPARTMENT FOR APPROVAL PRIOR TO CONSTRUCTION OF CULVERT CROSSING.

**NOTE:**

THIS SHEET REPLACES SHEET 11 APPROVED 4-24-98.

REV	DATE	DESCRIPTION	BY	APPD
1	10/8/98	ADD ANIMAL CROSSING, CREATE SHT. 11A	KK	

**PSOMAS**

Psomas and Associates  
2295 Gateway Oaks Drive, Suite 250  
Sacramento California 95833  
(916)929-7100

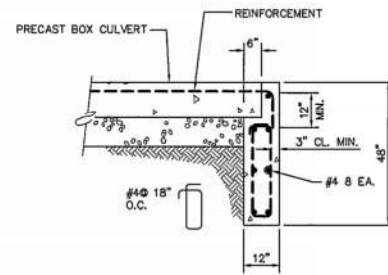
Engineers  
Surveyors  
Planners



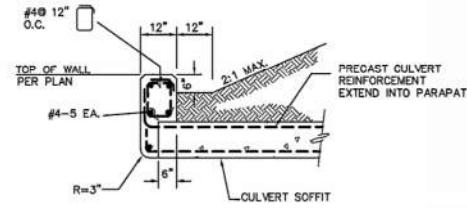
**POLE LINE ROAD  
CULVERT CROSSING  
WILDHORSE SUBDIVISION**

DESIGNED: K. KANE	SCALE: 1"=10' HORIZ. 1"=4' VERT.	APPROVED: 10-9-98
DRAWN: R.S.L.	DATE: 10/8/98	FIELD BOOK:
CHECKED: D. CLIFT	PAGE:	DIRECTOR OF PUBLIC WORKS
SHEET 11A OF 13 SHEETS		REG. ENGR. LIC. NO. C14208

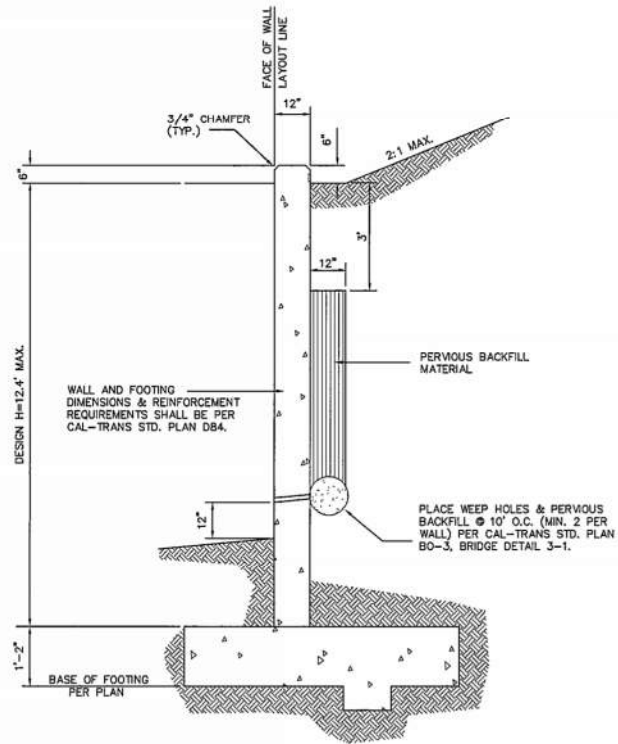
104-055



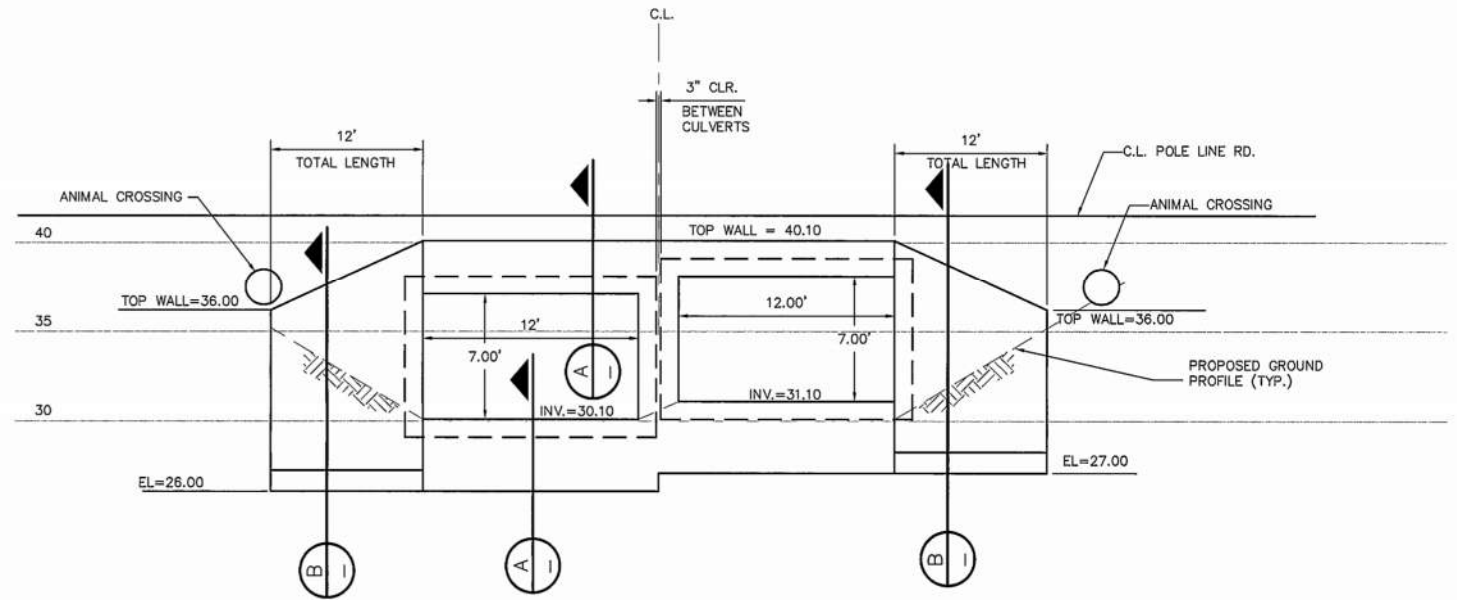
SECTION A  
SCALE: 1"=2'



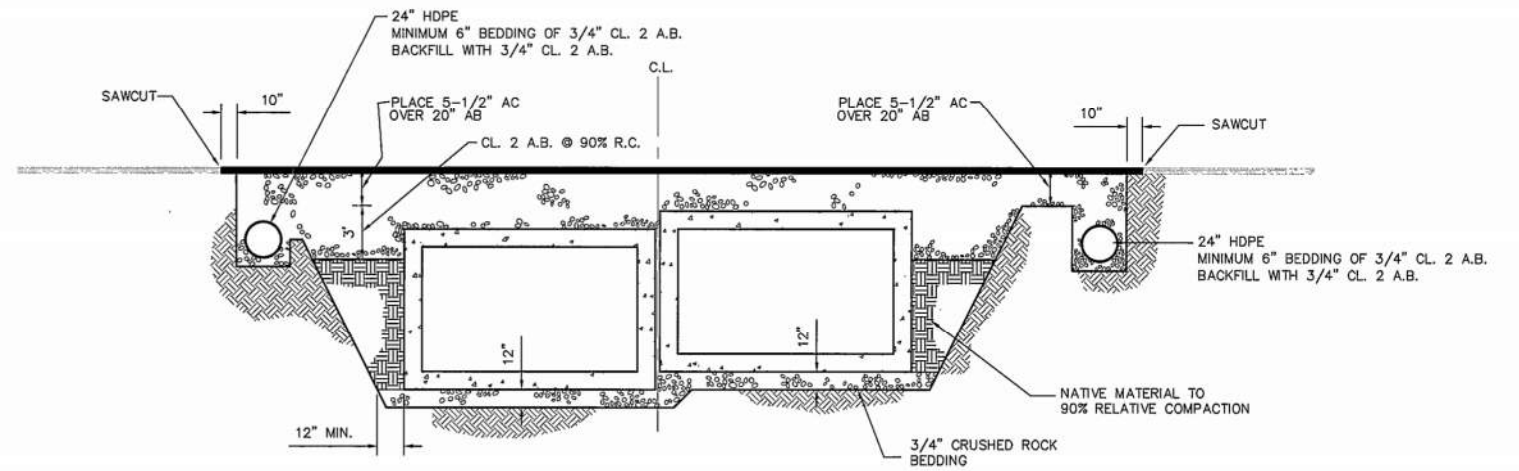
SECTION B  
SCALE: 1"=2'



SECTION C WINGWALL  
SCALE: 1"=2'



EAST HEADWALL  
SCALE: 1"=5'



TYPICAL SECTION  
SCALE: 1"=5'

NOTE:  
THIS SHEET REPLACES SHEET 12 APPROVED  
4-24-98.

REV	DATE	DESCRIPTION	BY	APP'D
1	10-8-98	ADD ANIMAL CROSSINGS, CREATE SHIT, 12A	KJK	

**PSOMAS**

Psomas and Associates  
2295 Gateway Oaks Drive Suite 250  
Sacramento California 95833  
(916)929-7100

Engineers  
Surveyors  
Planners



**POLE LINE ROAD CULVERT CROSSING  
DETAILS**

WILDHORSE SUBDIVISION

DESIGNED: K. KANE	SCALE: AS SHOWN	APPROVED: 10-9-98
DRAWN: R.S.L.	DATE: 10/8/98	FIELD BOOK:
CHECKED: D. CLIFT	PAGE:	DIRECTOR OF PUBLIC WORKS
CITY OF DAVIS		REG. ENGR. LIC. NO. 619208

## **Appendix 7**

### Electronic Files