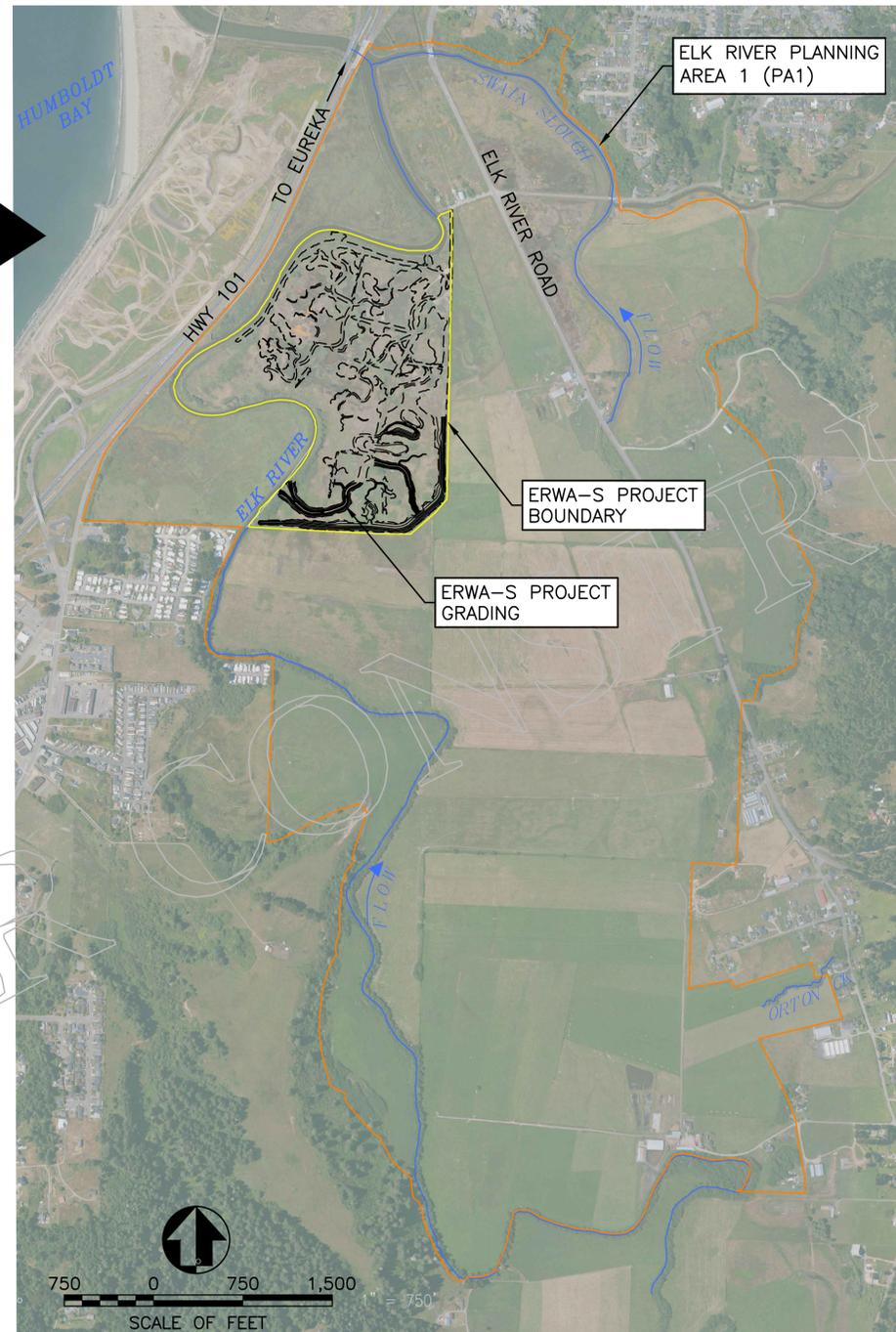


# ELK RIVER PLANNING AREA 1 65% DESIGN: ELK RIVER WILDLIFE AREA—SOUTH PERMIT SET HUMBOLDT COUNTY, CALIFORNIA



## SHEET INDEX

CIVIL SHEETS		
1	G1	COVER
2	G2	EXISTING CONDITIONS OVERVIEW
3	G3	CONTRACTOR USE AREAS & ACCESS
4	C1C	COLOR SITE OVERVIEW
5	C2	PROFILE 1
6	C3	PROFILE 2
7	C4	SECTIONS
8	C5	ISOPACH
9	C6	DETAILS

Plotted: 10/15/2025 10:41 AM - By: LICENSED USER - R17.1 - File: G1-COVER-ERWA-S-65PER-DRAFT-PERMIT

NOT FOR CONSTRUCTION

THESE PLANS WERE PREPARED UNDER THE SUPERVISION OF JEFFREY K. ANDERSON P.E. LICENSE # 50713

ELK PA-1 65% DESIGN: PERMIT SET



**Northern Hydrology & Engineering**

- Engineering
- Hydrology
- Geomorphology
- Water Resources

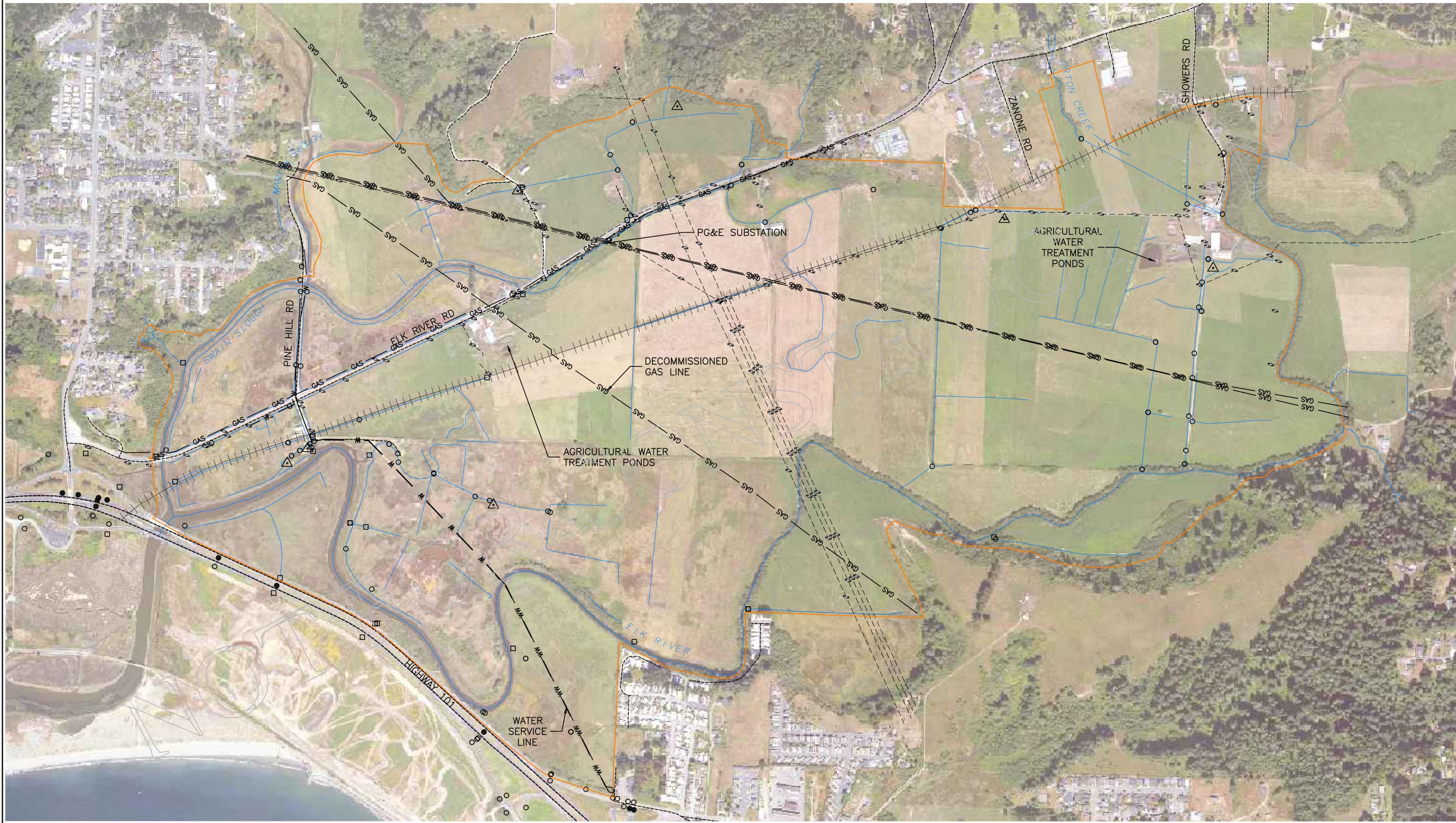
PO BOX 2515, MCKINLEYVILLE, CA 95519 (707) 839-2195

DESIGNED:  
NHE  
TC  
TECH. REVIEW:  
DATE:  
10/15/2025

SUB SHEET NO.  
**G1**

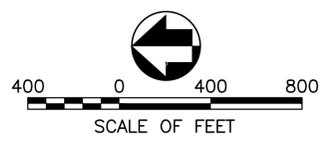
TITLE OF SHEET  
**COVER  
ERWA-S  
PROJECT**  
HUMBOLDT COUNTY, CA

SHEET  
**1**  
OF  
**9**



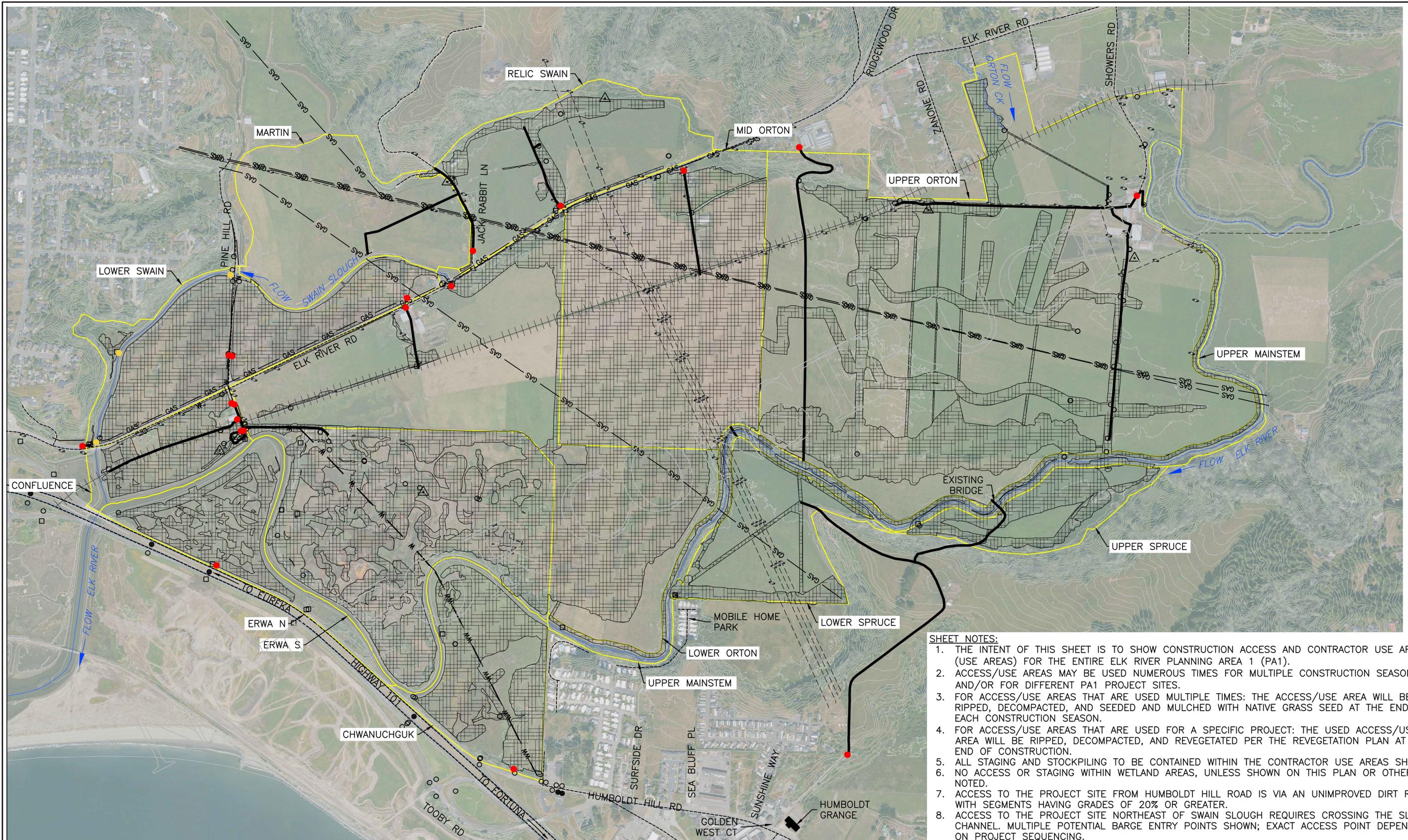
- |  |                    |  |                       |  |               |
|--|--------------------|--|-----------------------|--|---------------|
|  | PLANNING AREA 1    |  | OVERHEAD UTILITY LINE |  | CULVERT       |
|  | HIGHWAY            |  | WATER LINE            |  | DROP INLET    |
|  | MAIN ROAD          |  | RIVER CENTERLINE      |  | TIDE GATE     |
|  | ABANDONED RAILROAD |  | STREAMS               |  | ARTESIAN WELL |
|  | GAS                |  | DRAINAGE CHANNEL      |  | UTILITY POLE  |

**SHEET NOTES:**  
 1) ALL INFRASTRUCTURE LOCATIONS ARE APPROXIMATE.



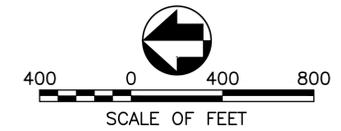
DESIGNED: NHE CV		SUB SHEET NO. <b>G2</b>		DRAFT ELK RIVER PA1		SHEET 2	
TECH. REVIEW: JRP		DATE: 10/01/2025		TITLE OF SHEET <b>EXISTING CONDITIONS OVERVIEW PLANNING AREA 1</b>		OF 9	
				HUMBOLDT COUNTY, CA			

Plotted: 10/15/2025 10:42 AM - By: LICENSED USER - R17.1 - File: G3-CONTRACTOR USE-&-ACCESS-65PER-PERMIT



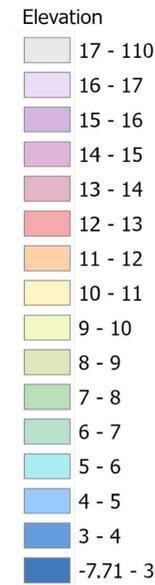
- SHEET NOTES:**
1. THE INTENT OF THIS SHEET IS TO SHOW CONSTRUCTION ACCESS AND CONTRACTOR USE AREAS (USE AREAS) FOR THE ENTIRE ELK RIVER PLANNING AREA 1 (PA1).
  2. ACCESS/USE AREAS MAY BE USED NUMEROUS TIMES FOR MULTIPLE CONSTRUCTION SEASONS AND/OR FOR DIFFERENT PA1 PROJECT SITES.
  3. FOR ACCESS/USE AREAS THAT ARE USED MULTIPLE TIMES: THE ACCESS/USE AREA WILL BE RIPPED, DECOMPACTED, AND SEEDED AND MULCHED WITH NATIVE GRASS SEED AT THE END OF EACH CONSTRUCTION SEASON.
  4. FOR ACCESS/USE AREAS THAT ARE USED FOR A SPECIFIC PROJECT: THE USED ACCESS/USE AREA WILL BE RIPPED, DECOMPACTED, AND REVEGETATED PER THE REVEGETATION PLAN AT THE END OF CONSTRUCTION.
  5. ALL STAGING AND STOCKPILING TO BE CONTAINED WITHIN THE CONTRACTOR USE AREAS SHOWN.
  6. NO ACCESS OR STAGING WITHIN WETLAND AREAS, UNLESS SHOWN ON THIS PLAN OR OTHERWISE NOTED.
  7. ACCESS TO THE PROJECT SITE FROM HUMBOLDT HILL ROAD IS VIA AN UNIMPROVED DIRT ROAD WITH SEGMENTS HAVING GRADES OF 20% OR GREATER.
  8. ACCESS TO THE PROJECT SITE NORTHEAST OF SWAIN SLOUGH REQUIRES CROSSING THE SLOUGH CHANNEL. MULTIPLE POTENTIAL BARGE ENTRY POINTS SHOWN; EXACT ACCESS POINT DEPENDENT ON PROJECT SEQUENCING.

— — — — —	EXISTING CONTOUR (5-FT INTERVAL)	○	CULVERT (E)
— GAS —	GASLINE (E)	⊕	DROP INLET
— — — — —	OVERHEAD UTILITY LINE (E)	△	ARTESIAN WELL
— + + + —	ABANDONED RAILROAD	●	ACCESS POINT (E)
— w —	WATER LINE	●	ACCESS POINT: POTENTIAL BARGE ENTRY LOCATION (SEE NOTE #8)
— — — — —	HIGHWAY	—	ACCESS ROAD (E)
— — — — —	MAIN ROAD	▨	CONTRACTOR USE AREA
○	UTILITY POLE (E)		
□	TIDE GATE (E)		



ELK PA1 65% DESIGN: PERMIT SET		TITLE OF SHEET		SHEET
DESIGNED: NHE	SUB SHEET NO. <b>G3</b>	<b>CONTRACTOR USE AREAS &amp; ACCESS PLANNING AREA 1</b>		3
BD				OF
TECH. REVIEW:				9
DATE: 10/15/2025		HUMBOLDT COUNTY, CA		

Plotted: 10/15/2025 11:20 AM - By: LICENSED USER - R17.1 - File: 05\_ERWA-S-PRELIM-65%-DRAFT-PERMIT-SET

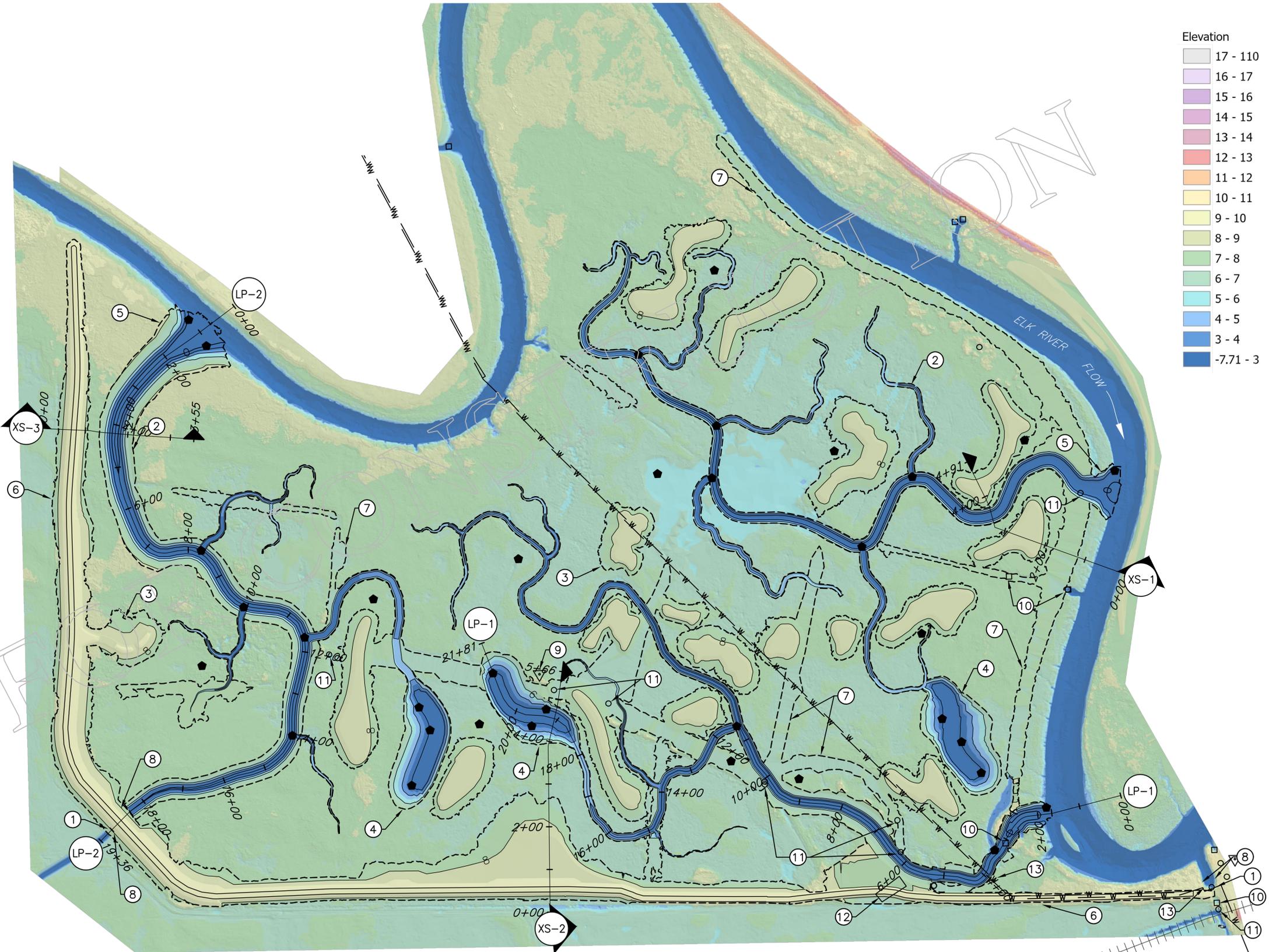


**KEY NOTES:**

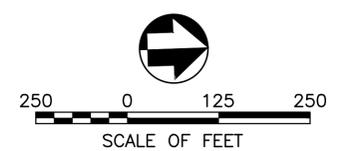
- ① TIDE GATE (D)
- ② CHANNEL (D)
- ③ SEDIMENT REUSE (D)
- ④ POND (D)
- ⑤ ALCOVE (D)
- ⑥ ECO-LEVEE (D)
- ⑦ REMOVE LEVEE, FILL DITCH
- ⑧ ROCK SLOPE PROTECTION (RSP) (D)
- ⑨ REMOVE ARTESIAN WELL
- ⑩ REMOVE TIDE GATE
- ⑪ REMOVE CULVERT
- ⑫ REMOVE STRUCTURE
- ⑬ EXTEND WATERLINE CROSSING (D)

**SHEET NOTES:**

- 1. (XS-1) REFERS TO CROSS-SECTION LOCATION; SEE CROSS SECTION SHEET.
- 2. (LP-1) REFERS TO LONG-PROFILE LOCATION; SEE LONG PROFILE SHEET.
- 3. REMOVE ALL EXISTING CULVERTS WITHIN GRADING BOUNDARY.



NOT FOR CONSTRUCTION

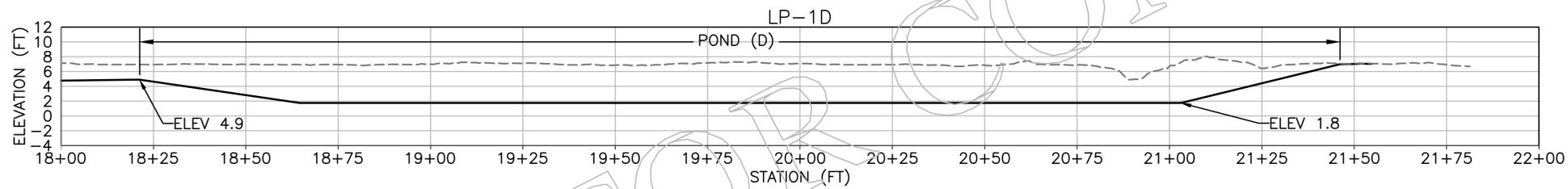
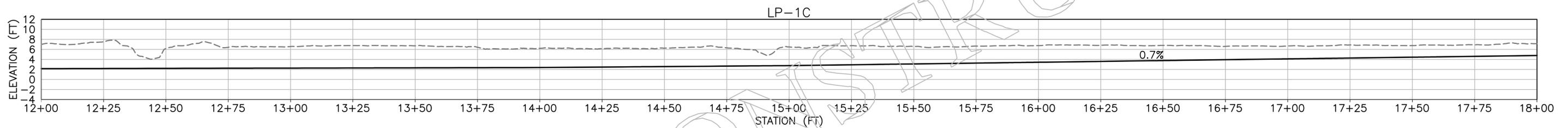
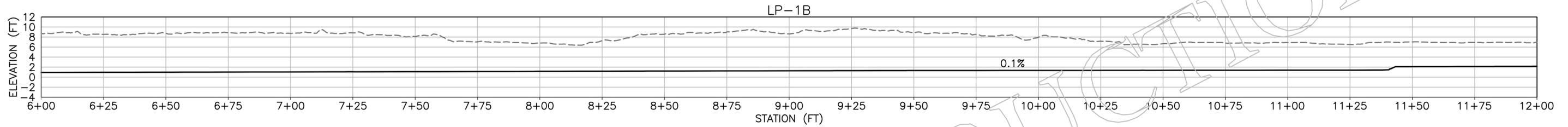
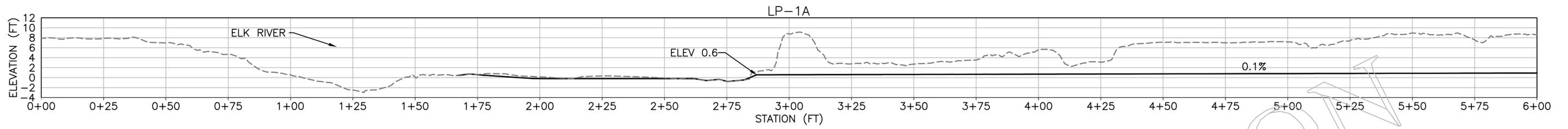


- DESIGN CONTOUR (2-FT INTERVAL)
- DESIGN CONTOUR (10-FT INTERVAL)
- - - - GRADING BOUNDARY
- w - WATERLINE
- ||||| ABANDONED RAILROAD
- ▲ ARTESIAN WELL (E)
- CULVERT (E)
- TIDE GATE (E)
- WOOD STRUCTURE (D)



ELK PA1 65% DESIGN: PERMIT SET		<b>C1C</b>	<b>COLOR SITE OVERVIEW ERWA-S PROJECT</b>	SHEET
DESIGNED: NHE TC TECH. REVIEW: JRP, JKA DATE: 10/15/2025	SUB SHEET NO.			TITLE OF SHEET
			HUMBOLDT COUNTY, CA	4 OF 9

Plotted: 10/15/2025 11:20 AM - By: LICENSED USER - R17.1 - File: 05\_ERWA-S-PRELIM-65%-DRAFT-PERMIT-SET



**SHEET NOTES:**

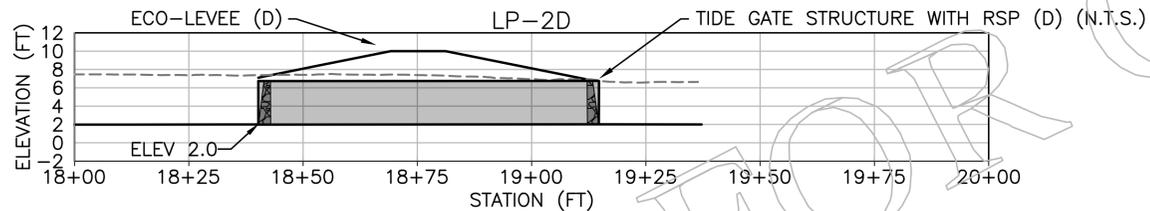
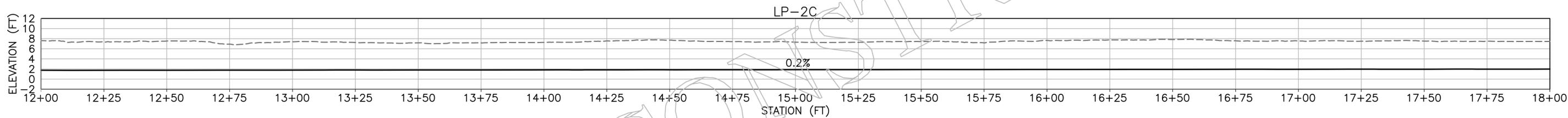
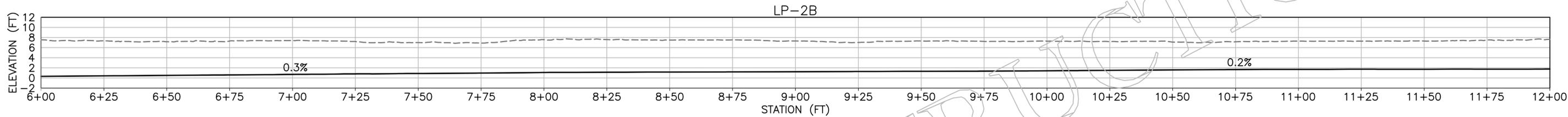
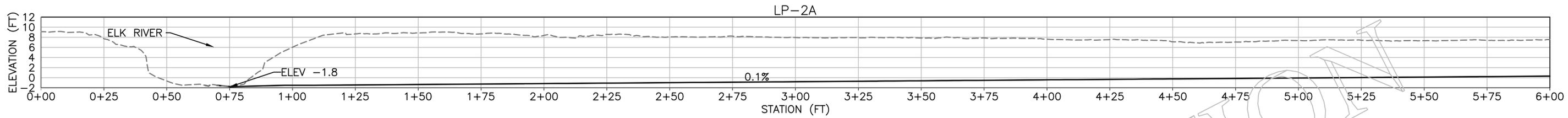
1. SEE SITE OVERVIEW SHEET FOR PROFILE ALIGNMENT LOCATION.
2. VERTICAL EXAGGERATION OF 2 FOR ALL PROFILE VIEWS ON THIS SHEET.
3. THIS SHEET SHOWS EXISTING AND DESIGN GRADES, AND APPROXIMATE LOCATION OF DESIGN ELEMENTS.
4. DESIGN MHHW = ~7 FT

--- EXISTING GRADE PROFILE  
 ——— DESIGN GRADE PROFILE



ELK PA1 65% DESIGN: PERMIT SET		
DESIGNED: NHE TC	SUB SHEET NO. <b>C2</b>	TITLE OF SHEET <b>PROFILE 1 ERWA-S PROJECT</b>
TECH. REVIEW: JRP, JKA	DATE: 10/15/2025	SHEET <b>5</b> OF <b>9</b>
HUMBOLDT COUNTY, CA		

Plotted: 10/15/2025 11:20 AM - By: LICENSED USER - R17.1 - File: 05\_ERWA-S-PRELIM-65%-DRAFT-PERMIT-SET



**SHEET NOTES:**

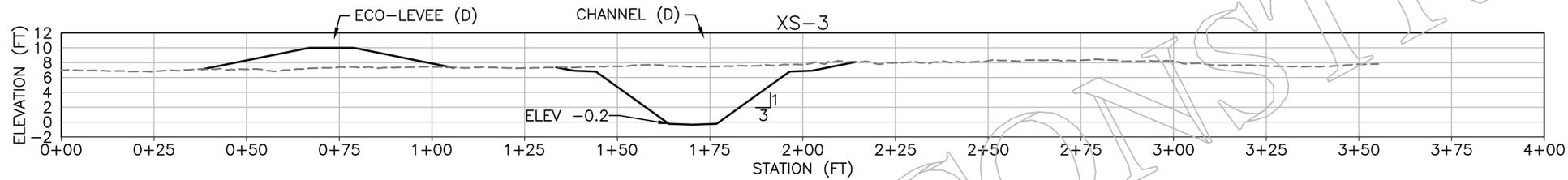
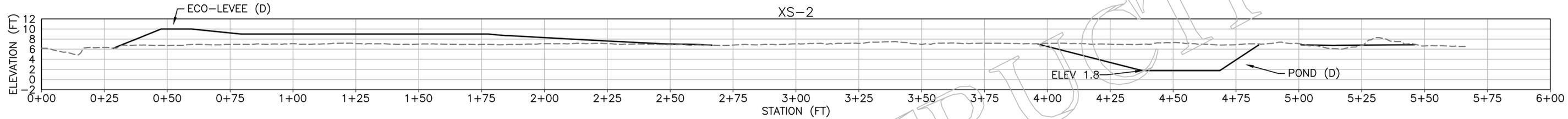
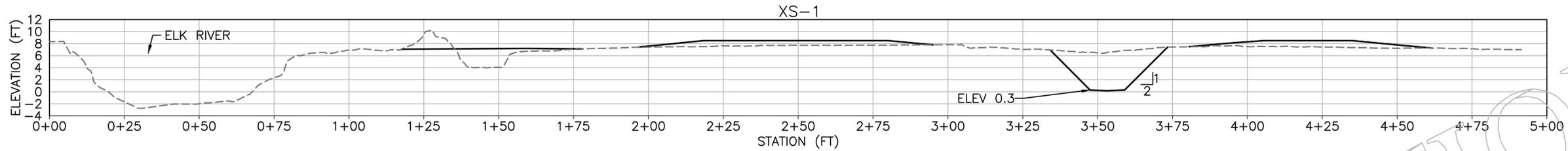
1. SEE SITE OVERVIEW SHEET FOR PROFILE ALIGNMENT LOCATION.
2. VERTICAL EXAGGERATION OF 2 FOR ALL PROFILE VIEWS ON THIS SHEET.
3. THIS SHEET SHOWS EXISTING AND DESIGN GRADES, AND APPROXIMATE LOCATION OF DESIGN ELEMENTS.
4. DESIGN MHHW = ~7 FT.

----- EXISTING GRADE PROFILE  
 \_\_\_\_\_ DESIGN GRADE PROFILE



ELK PA1 65% DESIGN: PERMIT SET		
DESIGNED: NHE	SUB SHEET NO. <b>C3</b>	TITLE OF SHEET <b>PROFILE 2 ERWA-S PROJECT</b>
TC		SHEET <b>6</b>
TECH. REVIEW: JRP, JKA		OF <b>9</b>
DATE: 10/15/2025		HUMBOLDT COUNTY, CA

Plotted: 10/15/2025 11:21 AM - By: LICENSED USER - R17.1 - File: 05\_ERWA-S-PRELIM-65%-DRAFT-PERMIT-SET



NOT FOR CONSTRUCTION

**SHEET NOTES:**

1. SEE SITE OVERVIEW SHEET FOR SECTION ALIGNMENT LOCATION.
2. VERTICAL EXAGGERATION OF 2 FOR ALL SECTION VIEWS ON THIS SHEET.
3. THIS SHEET SHOWS EXISTING AND DESIGN GRADES, AND APPROXIMATE LOCATION OF DESIGN ELEMENTS.
4. DESIGN MHHW = ~7 FT.

----- EXISTING GRADE PROFILE  
 \_\_\_\_\_ DESIGN GRADE PROFILE

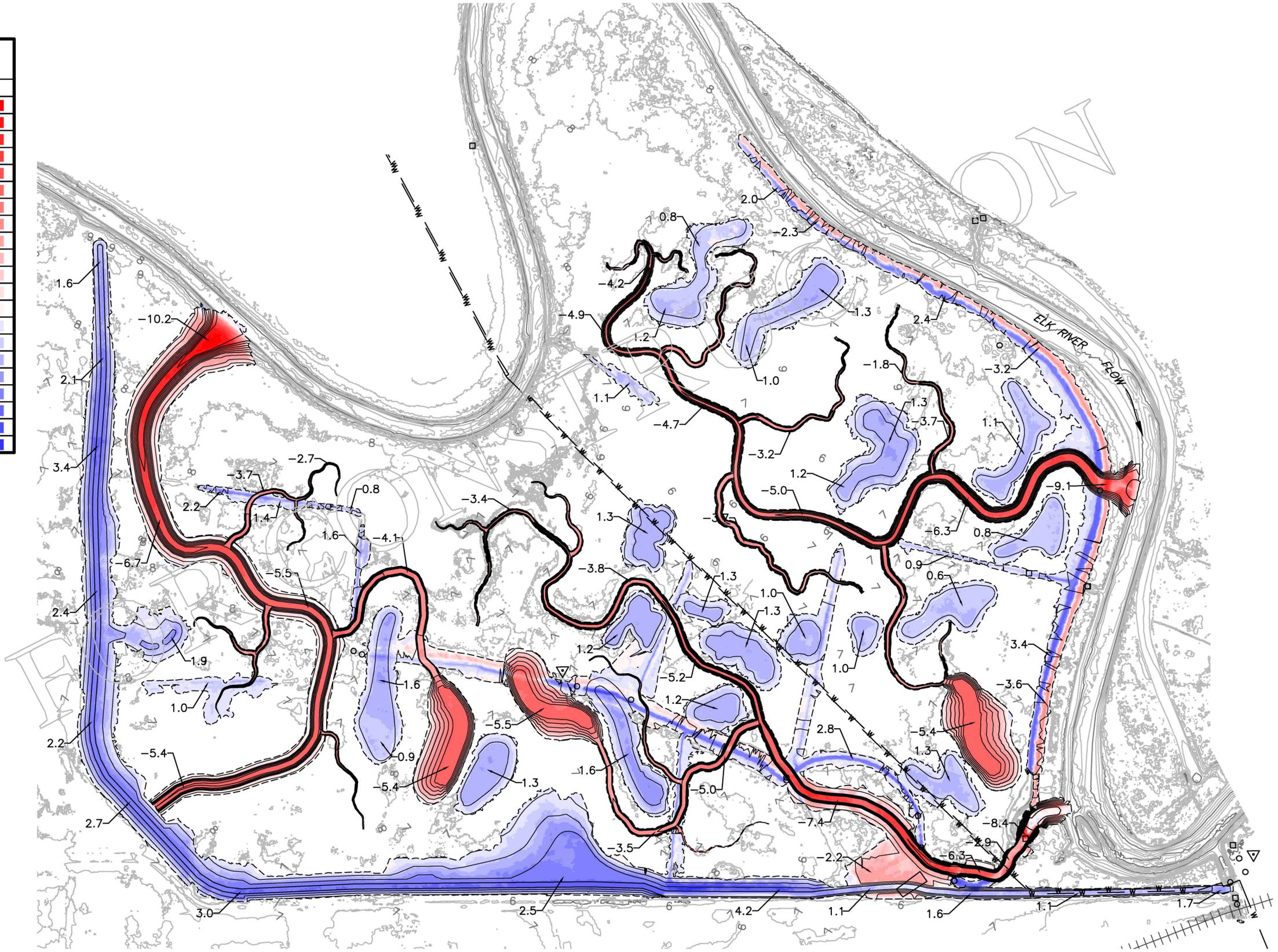


ELK PA1 65% DESIGN: PERMIT SET			
DESIGNED: NHE	SUB SHEET NO. <b>C4</b>	TITLE OF SHEET <b>SECTIONS ERWA-S PROJECT</b>	SHEET <b>7</b>
TC			OF
TECH. REVIEW: JRP, JKA			<b>9</b>
DATE: 10/15/2025		HUMBOLDT COUNTY, CA	

Plotted: 10/15/2025 11:44 AM - By: LICENSED USER - R17.1 - File: 05\_ERWA-S-PRELIM-65%-DRAFT-ISOPACH

### ELEVATIONS TABLE

NUMBER	MINIMUM ELEVATION	MAXIMUM ELEVATION	AREA	COLOR
1	-10.49	-10.00	1148.58	Red
2	-10.00	-9.00	3027.30	Red
3	-9.00	-8.00	4374.54	Red
4	-8.00	-7.00	10376.92	Red
5	-7.00	-6.00	19257.43	Red
6	-6.00	-5.00	56214.73	Red
7	-5.00	-4.00	44471.92	Red
8	-4.00	-3.00	56371.34	Red
9	-3.00	-2.00	74039.78	Red
10	-2.00	-1.50	43878.74	Red
11	-1.50	-1.00	45891.40	Red
12	-1.00	-0.50	54846.00	Red
13	-0.50	0.00	86730.60	Red
14	0.00	0.50	222498.35	Light Blue
15	0.50	1.00	183970.92	Light Blue
16	1.00	1.50	149263.89	Light Blue
17	1.50	2.00	58638.90	Light Blue
18	2.00	3.00	79357.62	Light Blue
19	3.00	4.00	19851.63	Light Blue
20	4.00	5.00	2104.82	Light Blue
21	5.00	5.51	266.56	Light Blue



- EXISTING CONTOUR (1-FT INTERVAL)
- EXISTING CONTOUR (5-FT INTERVAL)
- DESIGN CONTOUR (1-FT INTERVAL)
- DESIGN CONTOUR (5-FT INTERVAL)
- - - GRADING BOUNDARY
- w - WATERLINE
- + + + + ABANDONED RAILROAD
- △ ARTESIAN WELL (E)
- CULVERT (E)
- TIDE GATE (E)

**SHEET NOTES:**

- 1) THE INTENT OF THIS DRAWING IS TO SHOW FINISHED GRADE CUT/FILL DEPTHS RELATIVE TO EXISTING GRADE (EG).
- 2) ISOPACH LABELS REPRESENT CUT/FILL DEPTHS IN FEET (RELATIVE TO EG).
- 3) SEE SHEETS C1C-C4 FOR ADDITIONAL GRADING DETAILS.



ELK PA1 65% DESIGN: PERMIT SET		TITLE OF SHEET		SHEET
DESIGNED: NHE	SUB SHEET NO.	<b>ISOPACH: CUT-FILL ERWA-S PROJECT</b>		8 OF 9
TC	<b>C5</b>			
TECH. REVIEW: JRP, JKA		HUMBOLDT COUNTY, CA		
DATE: 10/15/2025				



DETAIL 1: LWS INSTALLATION AND INTEGRATION ALONG STREAM BANK. PHOTO OF LWS INSTALLED AT PRAIRIE CREEK, HUMBOLDT COUNTY.



DETAIL 3: LWS INSTALLATION WITHIN FLOODPLAIN. PHOTO OF LWS INSTALLED AT PRAIRIE CREEK, HUMBOLDT COUNTY.



DETAIL 2: LWS INSTALLATION AND INTEGRATION ALONG STREAM BANK. PHOTO OF LWS INSTALLED AT PRAIRIE CREEK, HUMBOLDT COUNTY.



DETAIL 4: SIDE HINGED TIDE GATE (OPEN TIDE GATE IN LEFT PHOTO) CONTROLLED BY UPSTREAM SELF-REGULATING FLOAT VALVE MECHANISM (RIGHT PHOTO). SIDE HINGED TIDE GATE STAYS OPEN ON FLOOD TIDE UNTIL UPSTREAM WATER LEVEL REACHES PREDETERMINED ELEVATION, THEN FLOAT MECHANISM CLOSES TIDE GATE. THIS TIDE GATE STRUCTURE WILL BE USED TO CONNECT ORTON CREEK INTO ERWA-S THROUGH ECO-LEVEE. NOTE THAT SIDE HINGED TIDE GATE AND SELF-REGULATING FLOAT VALVE MECHANISM WILL BE CONNECTED TO ROUND PLASTIC PIPE, NOT CONCRETE CULVERT AND HEADWALL AS SHOWN IN ABOVE PHOTOS. A SECOND SIDE HINGED TIDE GATE SIMILAR TO DETAIL 5 WILL ALSO BE USED AT THIS LOCATION. PHOTOS OF SIDE HINGED TIDE GATE STRUCTURES AND SELF-REGULATING FLOAT VALVE MECHANISM INSTALLED AT GANNON SLOUGH, HUMBOLDT COUNTY.



DETAIL 5: SIDE HINGED TIDE GATE (LEFT PHOTO), AND SIDE HINGED TIDE GATE DURING OUTFLOW CONDITIONS ON EBB TIDE (RIGHT PHOTO). TWO SIDE HINGED TIDE GATE STRUCTURES TO REPLACE EXISTING TOP HINGED TIDE GATE STRUCTURES DRAINING INTO ELK RIVER THROUGH ACCESS ROAD TO ERWA-S. LEFT PHOTO FROM NEHALAM MARINE MANUFACTURING. RIGHT PHOTO OF SIDE HINGED TIDE GATE INSTALLED AT GANNON SLOUGH, HUMBOLDT COUNTY.

**SHEET NOTES:**

1. THE INTENT OF THIS SHEET IS TO SHOW GENERAL EXAMPLES OF THE TYPES OF LARGE WOOD STRUCTURES TO BE INSTALLED.
2. THIS SHEET SHOWS APPROXIMATE LARGE WOOD STRUCTURE CONFIGURATIONS AND INSTALLATION TECHNIQUES USING LOG PILES AS PINNING LOG ANCHORS. ACTUAL LOG STRUCTURES WILL VARY DEPENDING ON VARIABLE FIELD CONDITIONS, LOG VARIABILITY, AND OTHER UNFORESEEN CONDITIONS.
3. THIS SHEET SHOWS GENERAL TIDE GATE STRUCTURE TYPES AND FUNCTIONALITY. ACTUAL TIDE GATE SHAPE, SUCH AS ROUND OR RECTANGULAR, MAY VARY.



ELK PA1 65% DESIGN: PERMIT SET			
DESIGNED: NHE	SUB SHEET NO. <b>C6</b>	TITLE OF SHEET <b>DETAILS ERWA-S PROJECT</b>	SHEET <b>9</b>
TECH. REVIEW: BD			OF <b>9</b>
DATE: 10/15/2025		HUMBOLDT COUNTY, CA	