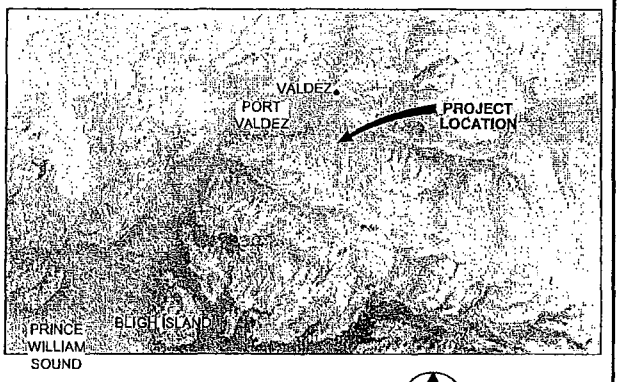
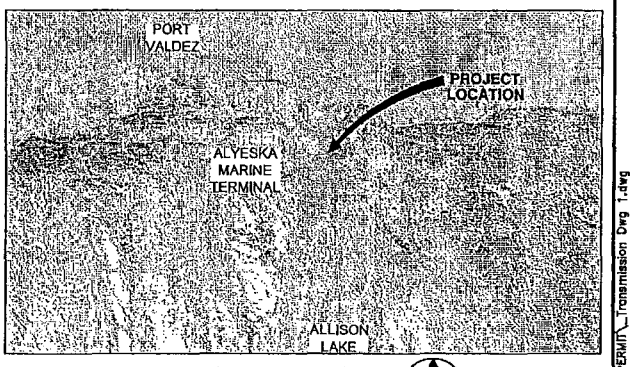
COPPER VALLEY ELECTRIC ASSOCIATION
ALLISON CREEK HYDROELECTRIC PROJECT
FERC NO. 13124 - TRANSMISSION LINE
JOINT APPLICATION FOR PERMITS

LOCATION MAP
NTS



VICINITY MAP
NTS



PROJECT MAP
NTS

LAT: 61.080351°
LONG: -146.353116°
SECTION 19, TOWNSHIP 9 SOUTH, RANGE 6 WEST

Copper Valley Electric
A Touchstone Energy® Cooperative
McMILLEN, LLC
1401 SHORELINE DR.
BOISE, ID 83702
OFFICE: 208.342.4214
FAX: 208.342.4218

TITLE: COPPER VALLEY ELECTRIC ASSOCIATION ALLISON CREEK HYDROELECTRIC PROJECT FERC NO. 13124 - TRANSMISSION LINE LOCATION MAP, VICINITY MAP AND PROJECT MAP VALDEZ-CORDOVA COUNTY, ALASKA	DRAWN: RG CHECKED: GA DATE: 5/3/13	SHEET: 1 1 OF 11

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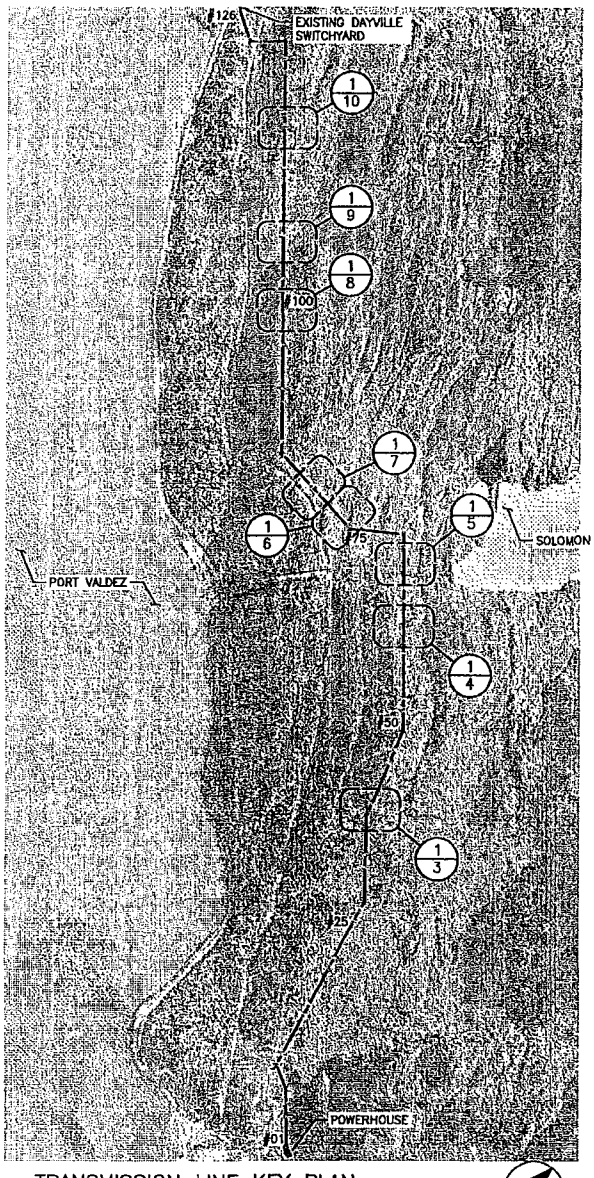

TRANSMISSION LINE KEY PLAN
SCALE: 1"= 2500'
0" 1250' 2500'

Copper Valley Electric
A Touchstone Energy® Cooperative

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FAX: 208.342.4216

TITLE:
COPPER VALLEY ELECTRIC ASSOCIATION
ALLISON CREEK HYDROELECTRIC PROJECT
FERC NO. 13124
TRANSMISSION LINE KEY PLAN

DRAWN:	SHEET:
RG	2
CHECKED: GA	
DATE: 5/3/13	2 OF 11

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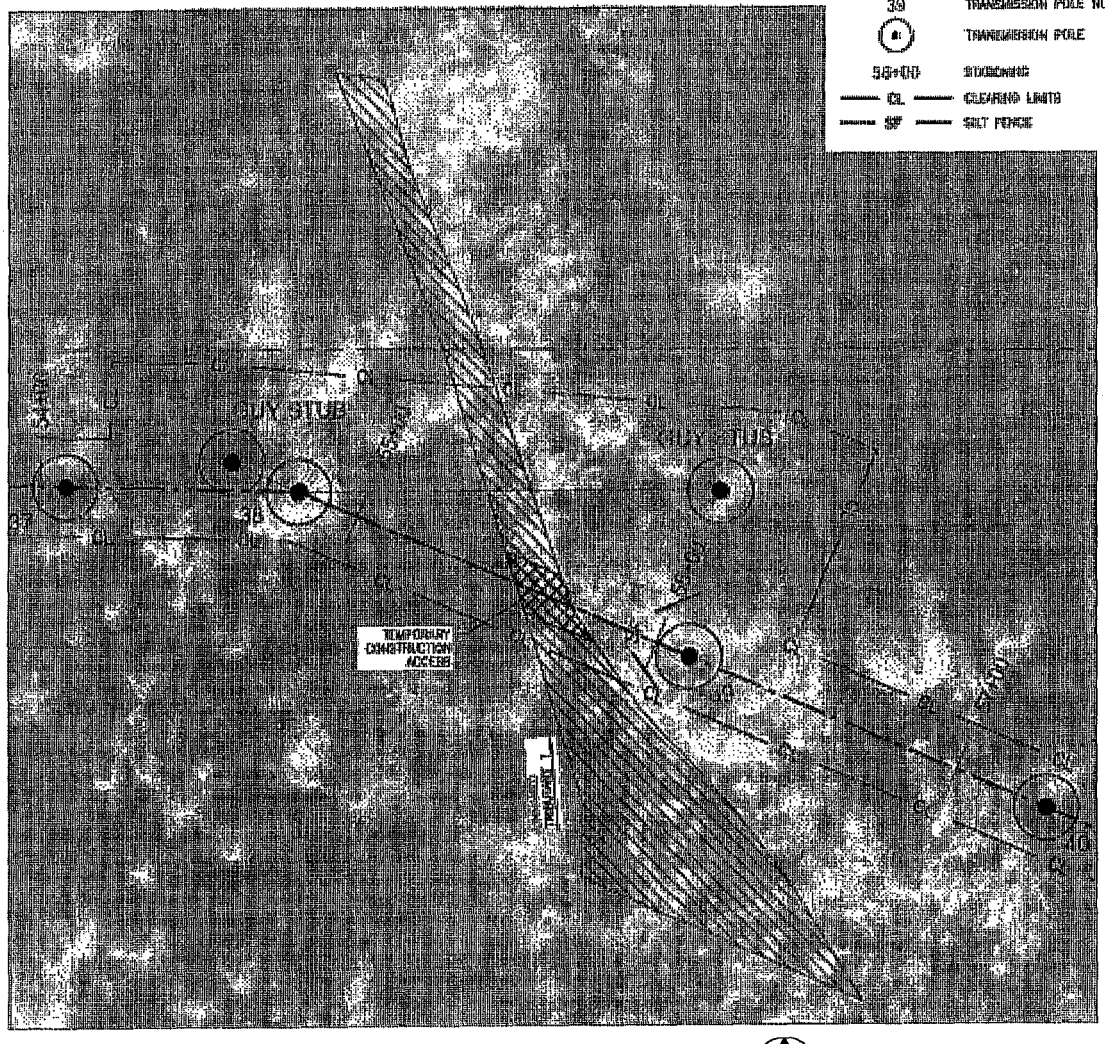
WATERBODY	PERMANENT IMPACT	TEMPORARY IMPACT
UNNAMED TRIBUTARY 1	--	302 SF

LEGEND

STREAM
IMPACT AREA
TRANSMISSION LINE
TRANSMISSION POLE NUMBER
TRANSMISSION POLE
GUYING
CL CLEARING LIMITS
SF SILT FENCE



TRANSMISSION LINE ENLARGED AREA 1
SCALE: 1"= 50'

0' 25' 50'

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A Touchstone Energy® Cooperative

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TITLE:
COPPER VALLEY ELECTRIC ASSOCIATION
ALLISON CREEK HYDROELECTRIC PROJECT
FERC NO. 13124
TRANSMISSION LINE ENLARGED AREA 1

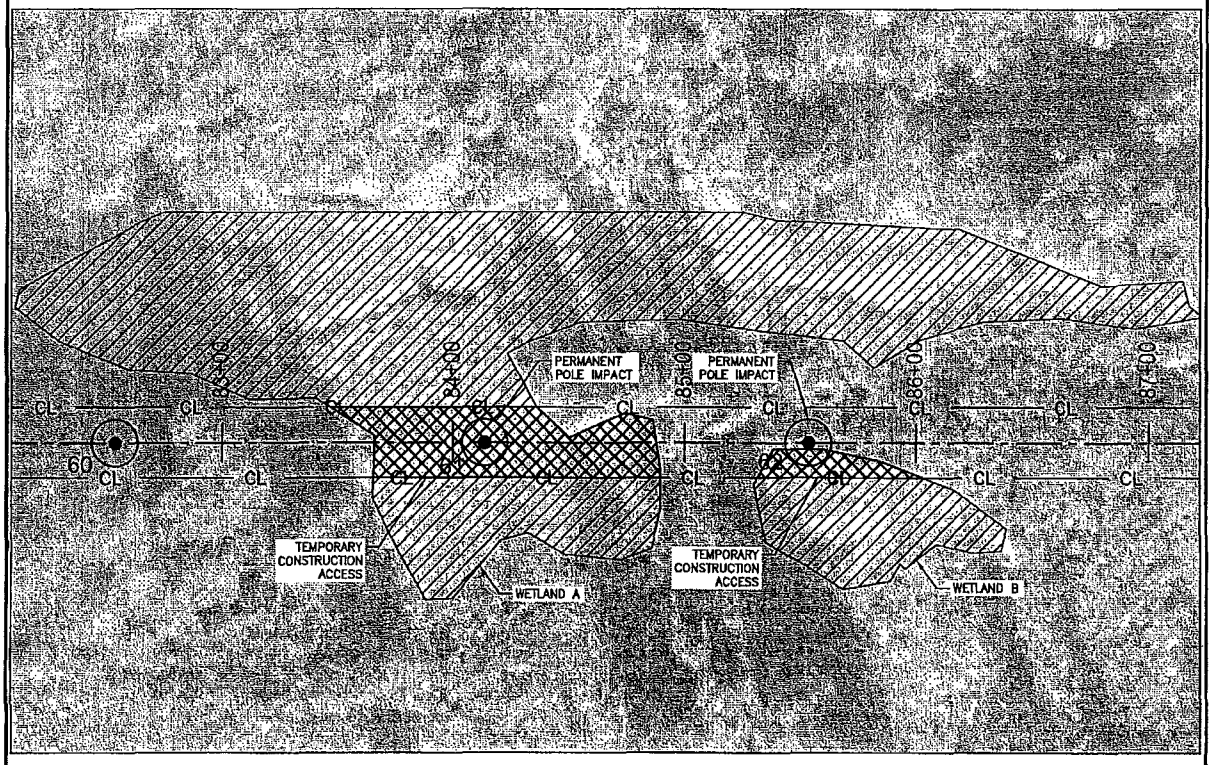
DRAWN:	SHEET:
RG	3
CHECKED: GA	
DATE: 5/3/13	3 OF 11

P:\CVEA\Allison Creek Hydro\6.0 Plans and Specs\6.3 CAD_WETLAND PERMIT_Transmission Dwg 3.dwg

WATERBODY	PERMANENT IMPACT	TEMPORARY IMPACT
WETLAND A	315 SF	3461 SF
WETLAND B	125 SF	612 SF

LEGEND

- WETLAND
- IMPACT AREA
- TRANSMISSION LINE
- 39 TRANSMISSION POLE NUMBER
- TRANSMISSION POLE
- 56+00 STATIONING
- CL CLEARING LIMITS



TRANSMISSION LINE ENLARGED AREA 2
SCALE: 1"= 70'

Copper Valley Electric Association, A Touchstone Energy® Cooperative

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TITLE:
COPPER VALLEY ELECTRIC ASSOCIATION
ALLISON CREEK HYDROELECTRIC PROJECT
FERC NO. 13124
TRANSMISSION LINE ENLARGED AREA 2

DRAWN: RG
CHECKED: GA
DATE: 5/3/13
SHEET: 4
4 OF 11

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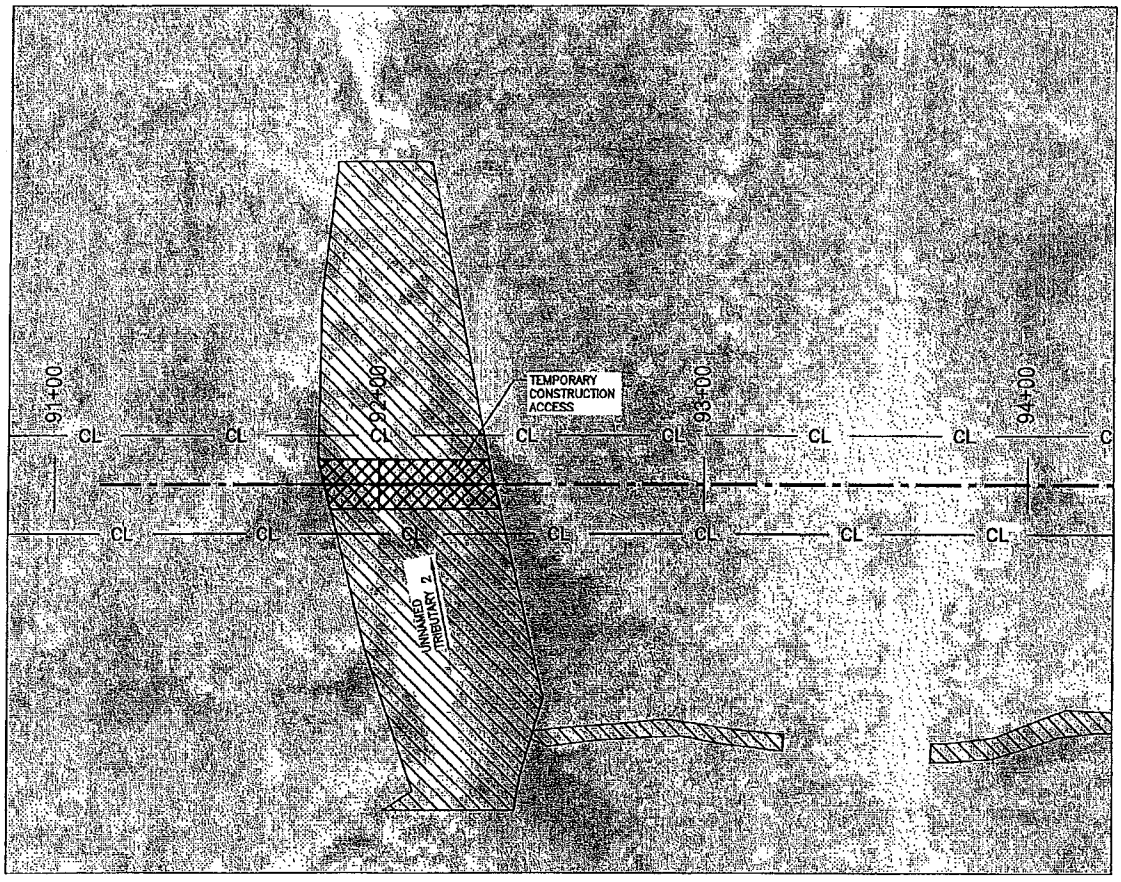
WATERBODY	PERMANENT IMPACT	TEMPORARY IMPACT
UNNAMED TRIBUTARY 2	–	791 SF

LEGEND

- STREAM
- IMPACT AREA
- TRANSMISSION LINE
- 39 TRANSMISSION POLE NUMBER
- TRANSMISSION POLE
- 56+00 STATIONING
- CL CLEARING LIMITS



TRANSMISSION LINE ENLARGED AREA 3
SCALE: 1"= 50'
0' 25' 50'

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TITLE:
COPPER VALLEY ELECTRIC ASSOCIATION
ALLISON CREEK HYDROELECTRIC PROJECT
FERC NO. 13124
TRANSMISSION LINE ENLARGED AREA 3

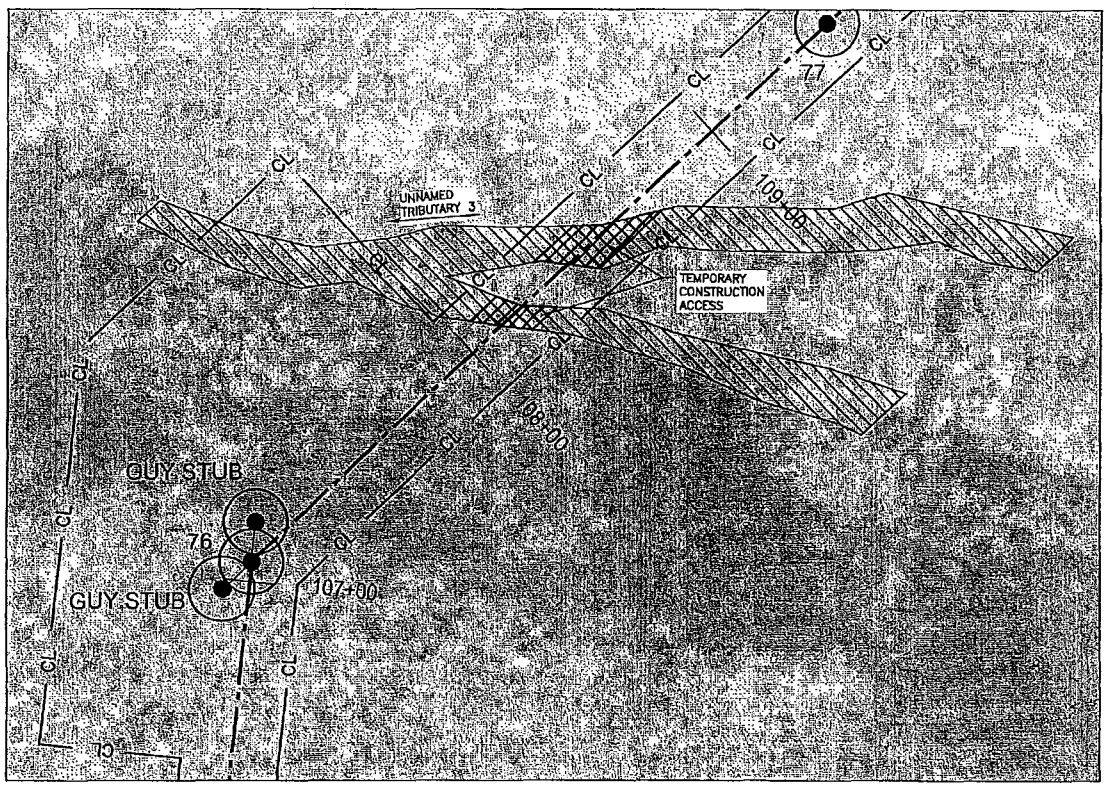
DRAWN:	SHEET:
RG	5
CHECKED: GA	
DATE: 5/3/13	5 OF 11

P:\CVEA\Allison Creek Hydro\6.0 Plans and Specs\6.3 CAD_WETLAND PERMIT_Transmission Dwg 5.dwg

WATERBODY	PERMANENT IMPACT	TEMPORARY IMPACT
UNNAMED TRIBUTARY 3	–	446 SF

LEGEND

- STREAM
- IMPACT AREA
- TRANSMISSION LINE
- 39 TRANSMISSION POLE NUMBER
- TRANSMISSION POLE
- 56+00 STATIONING
- CL CLEARING LIMITS



TRANSMISSION LINE ENLARGED AREA 4
SCALE: 1"= 50'

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BOISE, ID 83702
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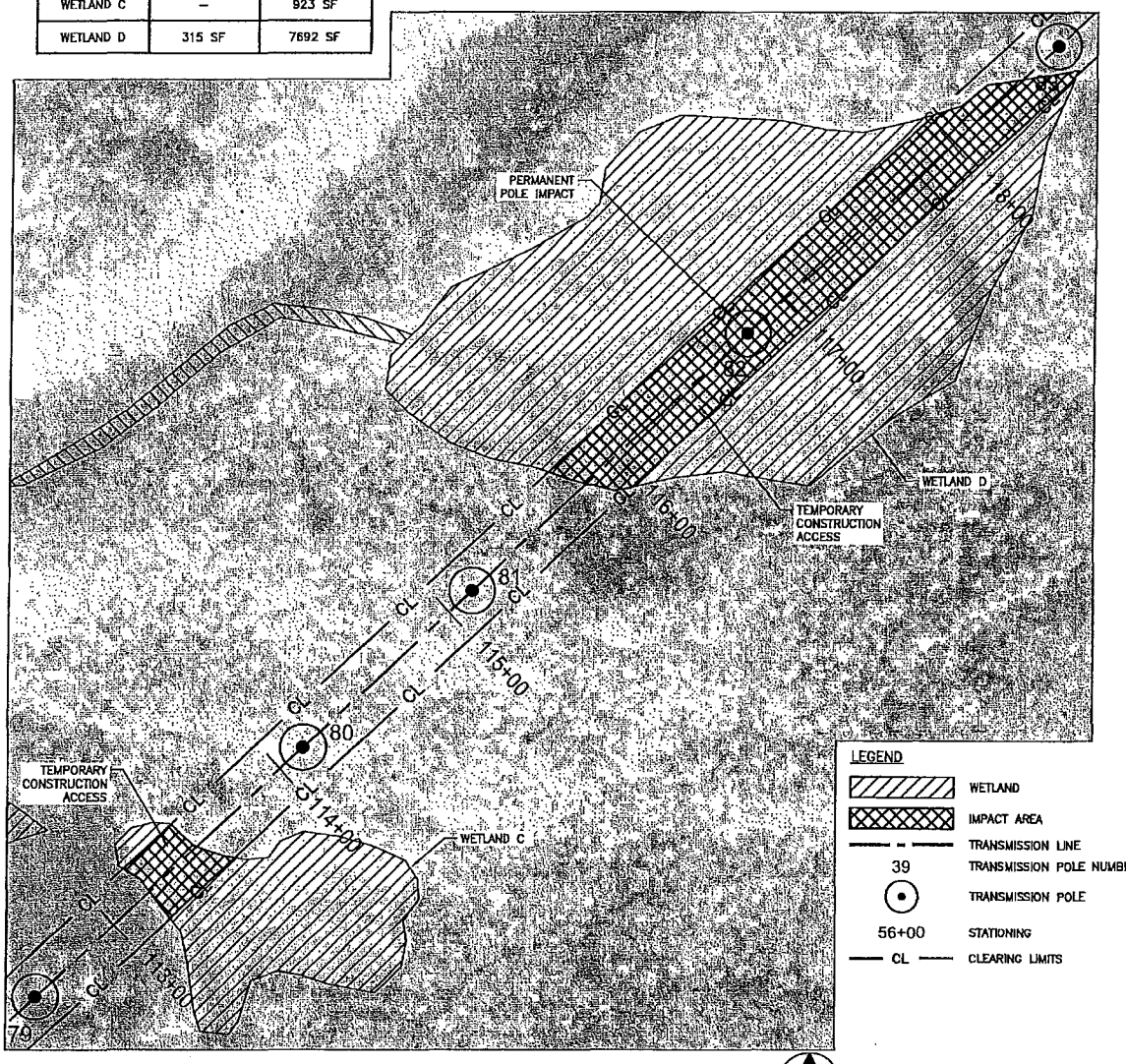
FAX: 208.342.4215

TITLE:
COPPER VALLEY ELECTRIC ASSOCIATION
ALLISON CREEK HYDROELECTRIC PROJECT
FERC NO. 13124
TRANSMISSION LINE ENLARGED AREA 4

DRAWN:	SHEET:
RG	6
CHECKED: GA	
DATE: 5/3/13	6 OF 11

P:\CVEA\Allison Creek Hydro\6.0 Plans and Specs\6.3 CAD_WETLAND PERMIT_Transmission Dwg 5.dwg

WATERBODY	PERMANENT IMPACT	TEMPORARY IMPACT
WETLAND C	–	923 SF
WETLAND D	315 SF	7692 SF



TRANSMISSION LINE ENLARGED AREA 5
SCALE: 1"= 70'

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BOISE, ID 83702
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FAX: 208.342.4218

TITLE:
COPPER VALLEY ELECTRIC ASSOCIATION
ALLISON CREEK HYDROELECTRIC PROJECT
FERC NO. 13124
TRANSMISSION LINE ENLARGED AREA 5

DRAWN:	SHEET:
RG	7
CHECKED: GA	
DATE: 5/3/13	7 OF 11

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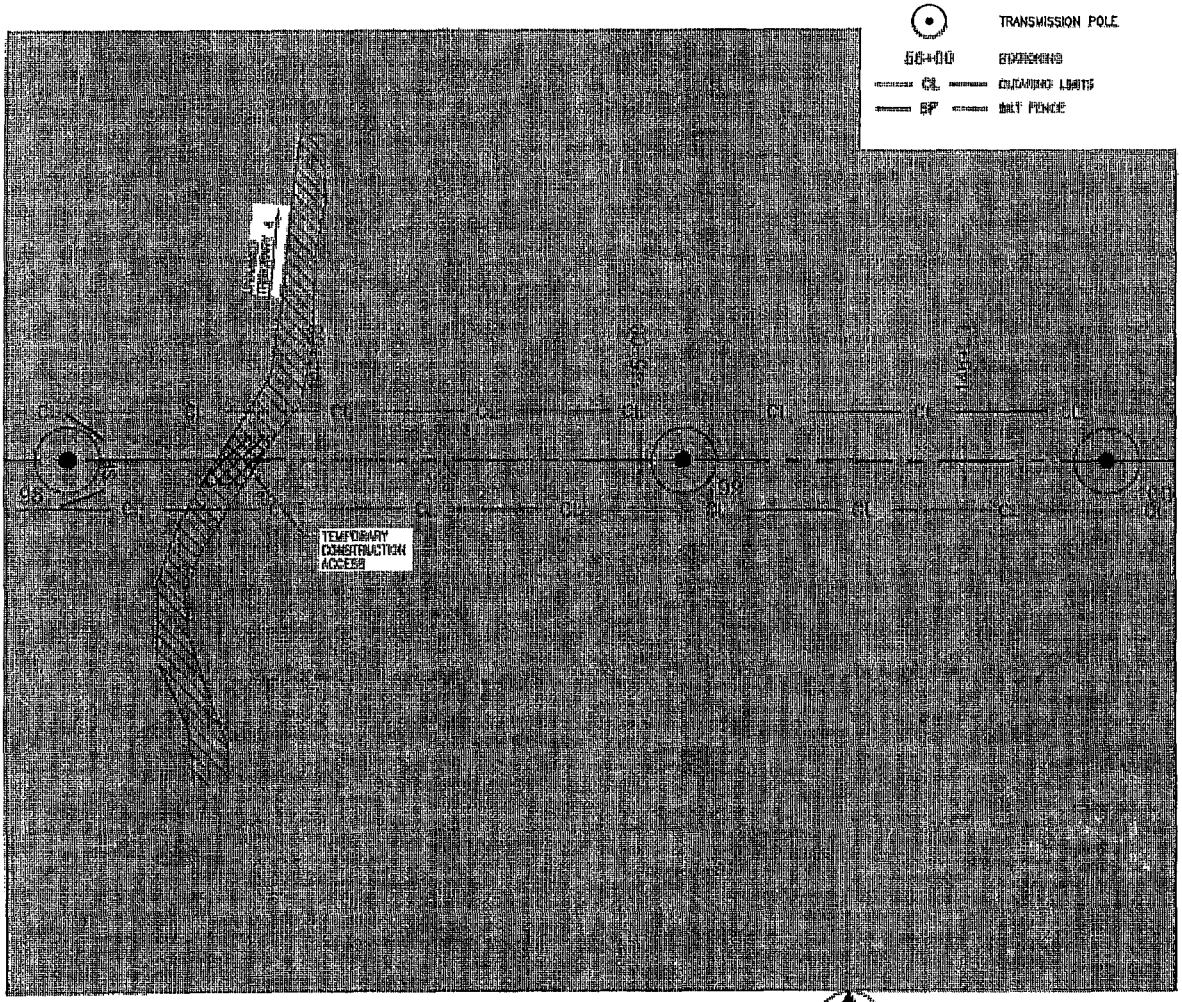
WATERBODY	PERMANENT IMPACT	TEMPORARY IMPACT
UNNAMED TRIBUTARY 4	–	188 SF

LEGEND

- STREAM
- IMPACT AREA
- TRANSMISSION LINE
- 39 TRANSMISSION POLE NUMBER
- TRANSMISSION POLE
- 56+00 STATIONING
- CL CLEARING LIMITS
- SF SILT FENCE



TRANSMISSION LINE ENLARGED AREA 6
SCALE: 1" = 30'

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FAX: 208.342.4215

TITLE:
COPPER VALLEY ELECTRIC ASSOCIATION
ALLISON CREEK HYDROELECTRIC PROJECT
FERC NO. 13124
TRANSMISSION LINE ENLARGED AREA 6

DRAWN:	SHEET:
RG	8
CHECKED: GA	
DATE: 5/3/13	8 OF 11

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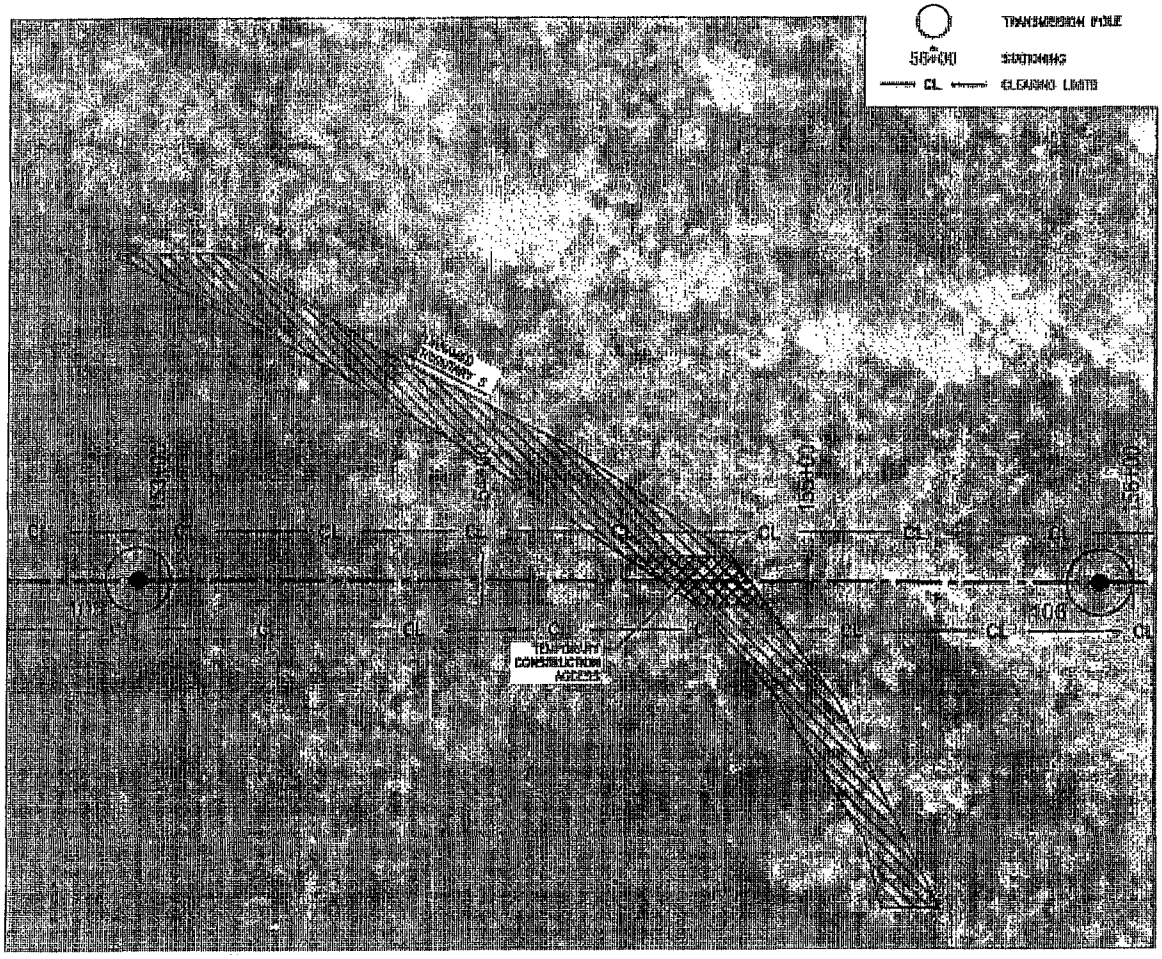
WATERBODY	PERMANENT IMPACT	TEMPORARY IMPACT
UNNAMED TRIBUTARY 5	--	412 SF

LEGEND

STREAM
IMPACT AREA
TRANSMISSION LINE
39 TRANSMISSION POLE NUMBER
TRANSMISSION POLE
58+00 STATIONING
CL CLEARING LIMITS



TRANSMISSION LINE ENLARGED AREA 7
SCALE: 1"= 50'
0' 25' 50'
1 2
N

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TITLE:
COPPER VALLEY ELECTRIC ASSOCIATION
ALLISON CREEK HYDROELECTRIC PROJECT
FERC NO. 13124
TRANSMISSION LINE ENLARGED AREA 7

DRAWN: RG
CHECKED: GA
DATE: 5/3/13
SHEET: 9
9 OF 11

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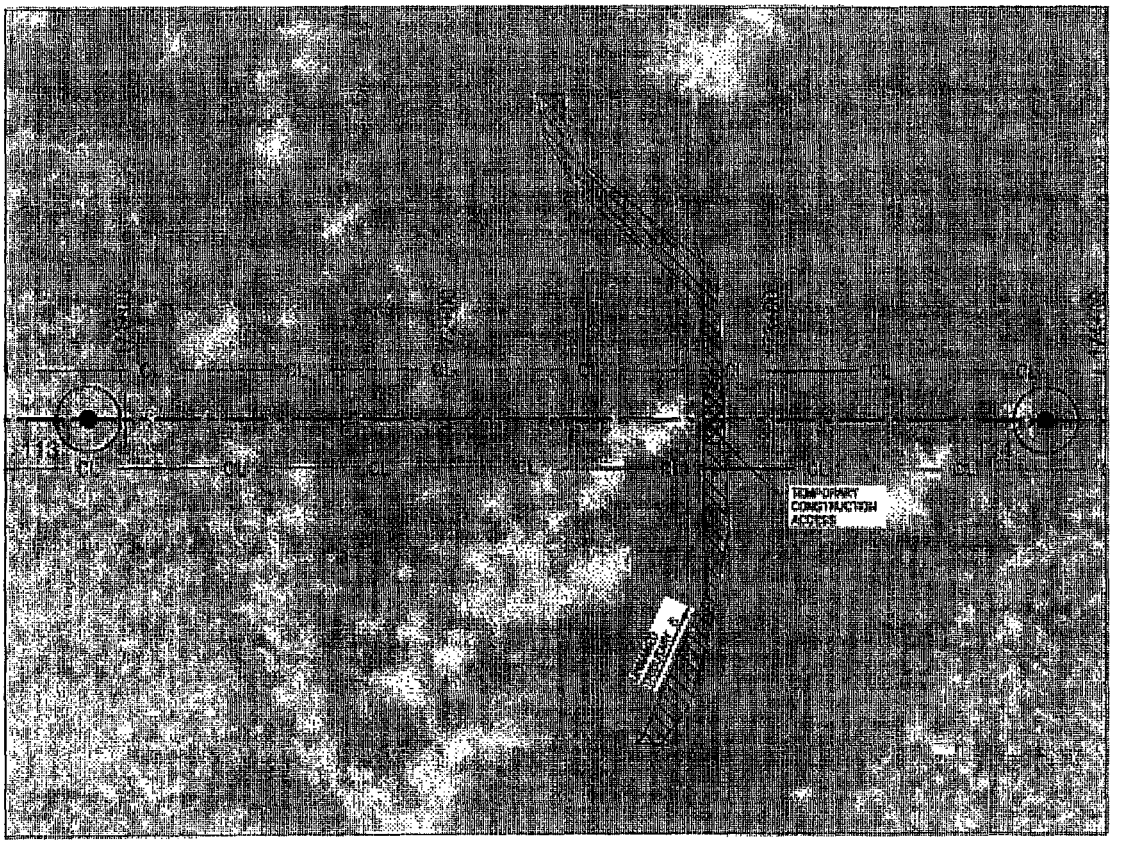
WATERBODY	PERMANENT IMPACT	TEMPORARY IMPACT
UNNAMED TRIBUTARY 6	--	95 SF

LEGEND

- STREAM
- IMPACT AREA
- TRANSMISSION LINE
- 39 TRANSMISSION POLE NUMBER
- TRANSMISSION POLE
- 56+00 STATIONING
- CL CLEARING LIMITS



TRANSMISSION LINE ENLARGED AREA 8
SCALE: 1"= 50'

0" 25' 50'

1/2

N

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FAX: 208.342.4216

TITLE:
COPPER VALLEY ELECTRIC ASSOCIATION
ALLISON CREEK HYDROELECTRIC PROJECT
FERC NO. 13124
TRANSMISSION LINE ENLARGED AREA 8

DRAWN: RG
CHECKED: GA
DATE: 5/3/13

SHEET: 10
10 OF 11

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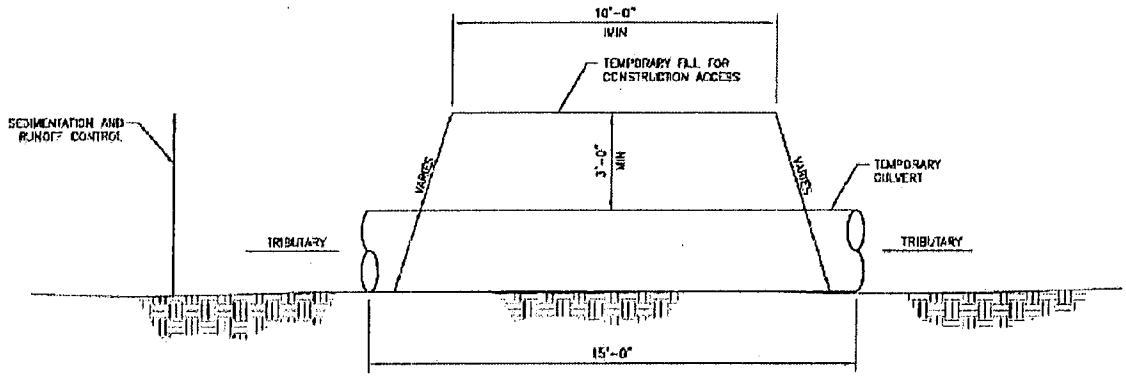
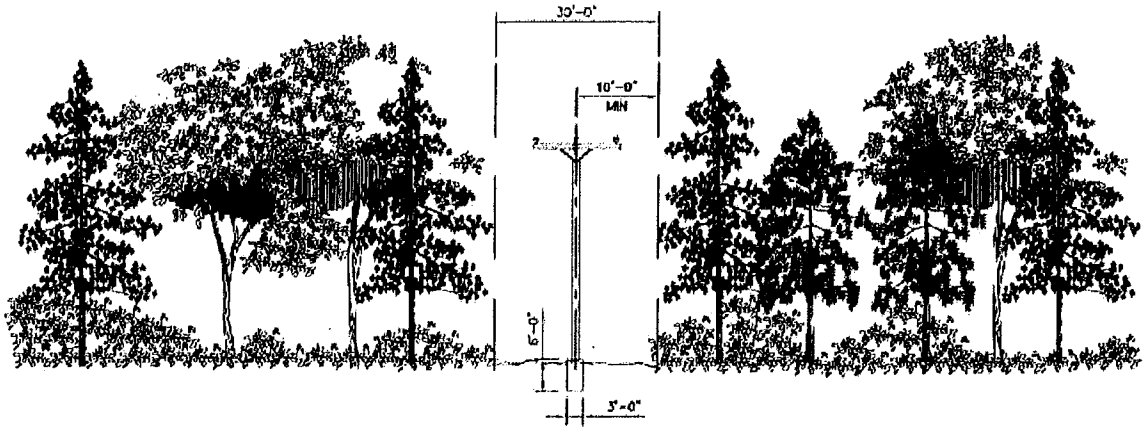


TYPICAL TRIBUTARY – TEMPORARY IMPACT (1)
SCALE: 1"= 5'



TYPICAL TRANSMISSION LINE – PERMANENT IMPACT (2)
SCALE: 1"= 30'

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A Touchstone Energy Cooperative

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OFFICE: 208.342.4314
FAX: 208.342.4210

TITLE:
COPPER VALLEY ELECTRIC ASSOCIATION
ALLISON CREEK HYDROELECTRIC PROJECT
FERC NO. 13124
TRANSMISSION LINE TYPICAL DETAILS

DRAWN: RG
CHECKED: GA
DATE: 5/3/13
SHEET: 11
11 OF 11

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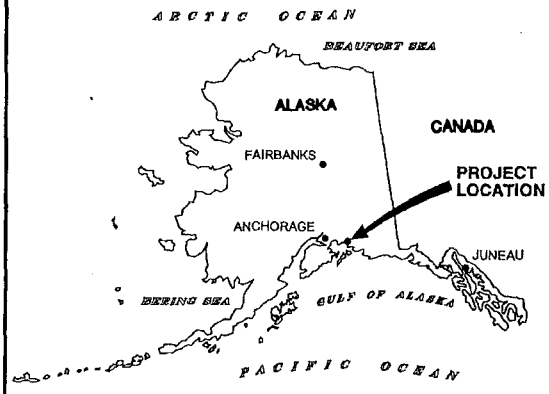
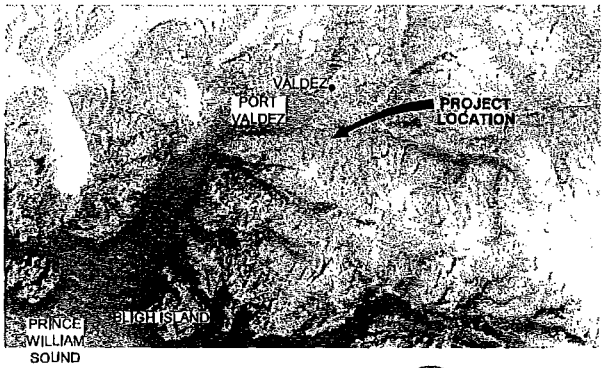
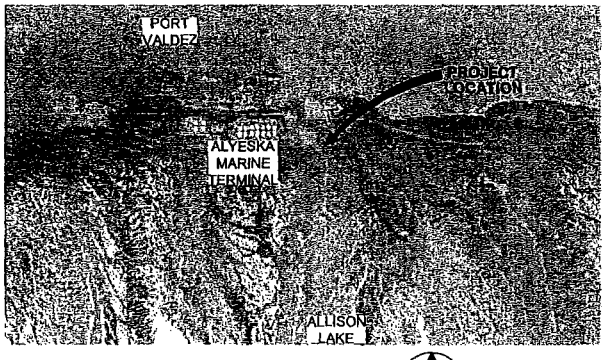
COPPER VALLEY ELECTRIC ASSOCIATION
ALLISON CREEK HYDROELECTRIC PROJECT
FERC NO. 13124 - PENSTOCK
JOINT APPLICATION FOR PERMITS



LOCATION MAP
NTS



VICINITY MAP
NTS



PROJECT MAP
NTS

DIVERSION STRUCTURE:
LAT: 61.065136°
LONG: -146.350213°
SECTION 30, TOWNSHIP 9 SOUTH, RANGE 6 WEST

POWERHOUSE:
LAT: 61.080351°
LONG: -146.353116°
SECTION 19, TOWNSHIP 9 SOUTH, RANGE 6 WEST

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TITLE: COPPER VALLEY ELECTRIC ASSOCIATION ALLISON CREEK HYDROELECTRIC PROJECT FERC NO. 13124 - PENSTOCK LOCATION MAP, VICINITY MAP AND PROJECT MAP VALDEZ-CORDOVA COUNTY, ALASKA	DRAWN: RG CHECKED: GA DATE: 5/3/13	SHEET: 1 1 OF 10

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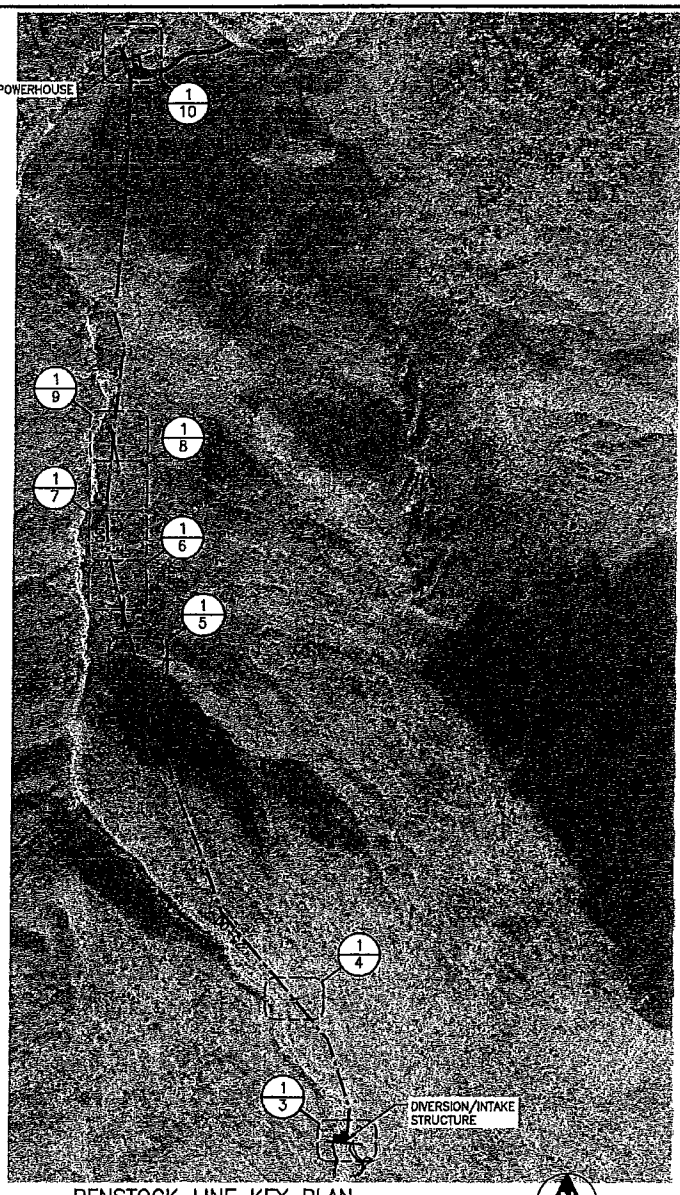

LEGEND

PENSTOCK LINE

XX+00 PENSTOCK STATION (FEET)

PENSTOCK LINE KEY PLAN

SCALE: 1"= 1000'

0' 500' 1000'

N

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COPPER VALLEY ELECTRIC ASSOCIATION
ALLISON CREEK HYDROELECTRIC PROJECT
FERC NO. 13124 - PENSTOCK
PENSTOCK KEY PLAN

DRAWN:	SHEET:
RG	2
CHECKED:	
GA	
DATE:	
5/3/13	2 OF 10

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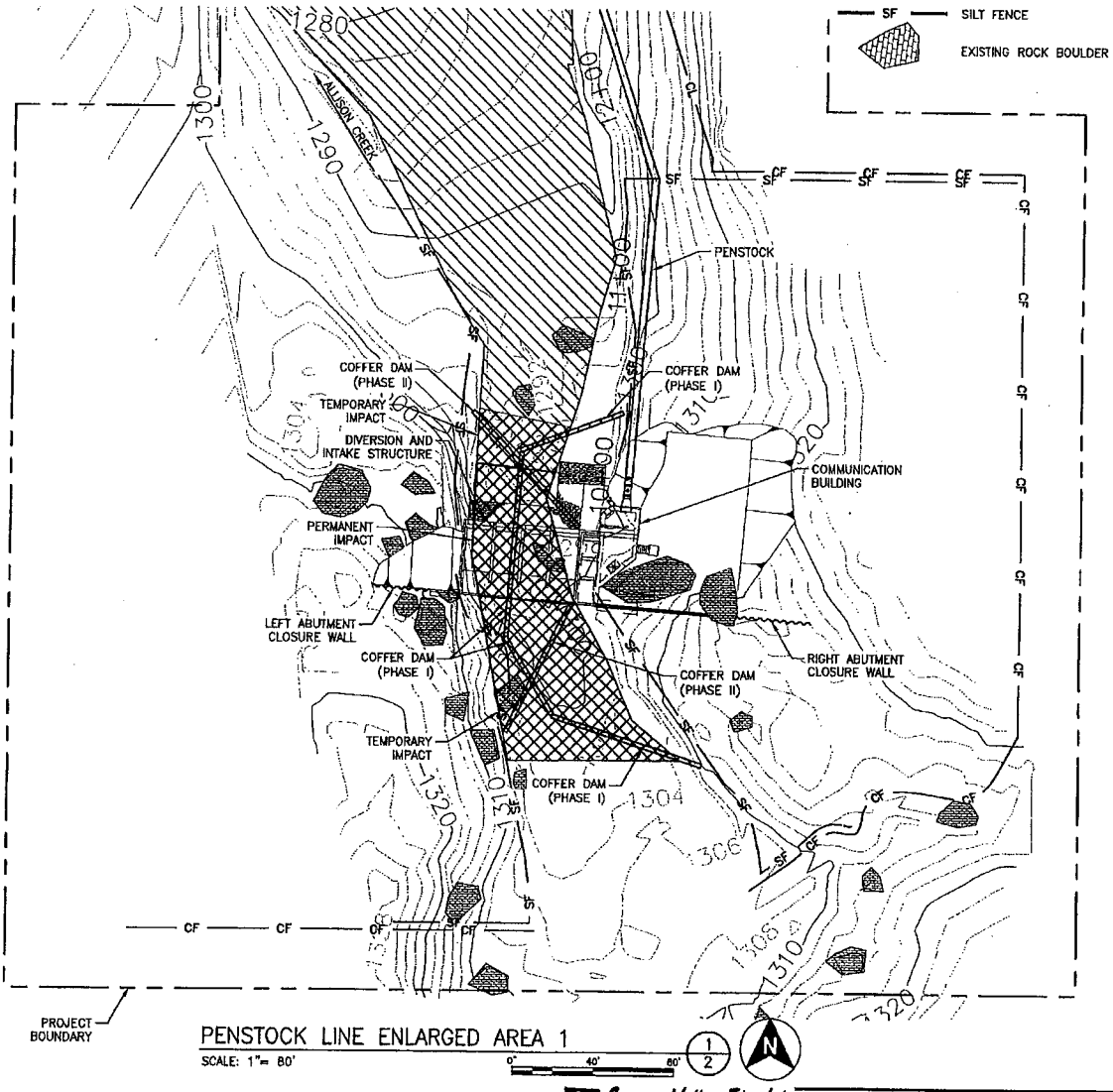
WATERBODY	PERMANENT IMPACT	TEMPORARY IMPACT
ALLISON CREEK	2721 SF	8730 SF



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TITLE:

COPPER VALLEY ELECTRIC ASSOCIATION
ALLISON CREEK HYDROELECTRIC PROJECT
FERC NO. 13124 - PENSTOCK
PENSTOCK LINE ENLARGED AREA 1

DRAWN:	SHEET:
RG	3
CHECKED: GA	
DATE: 5/3/13	3 OF 10

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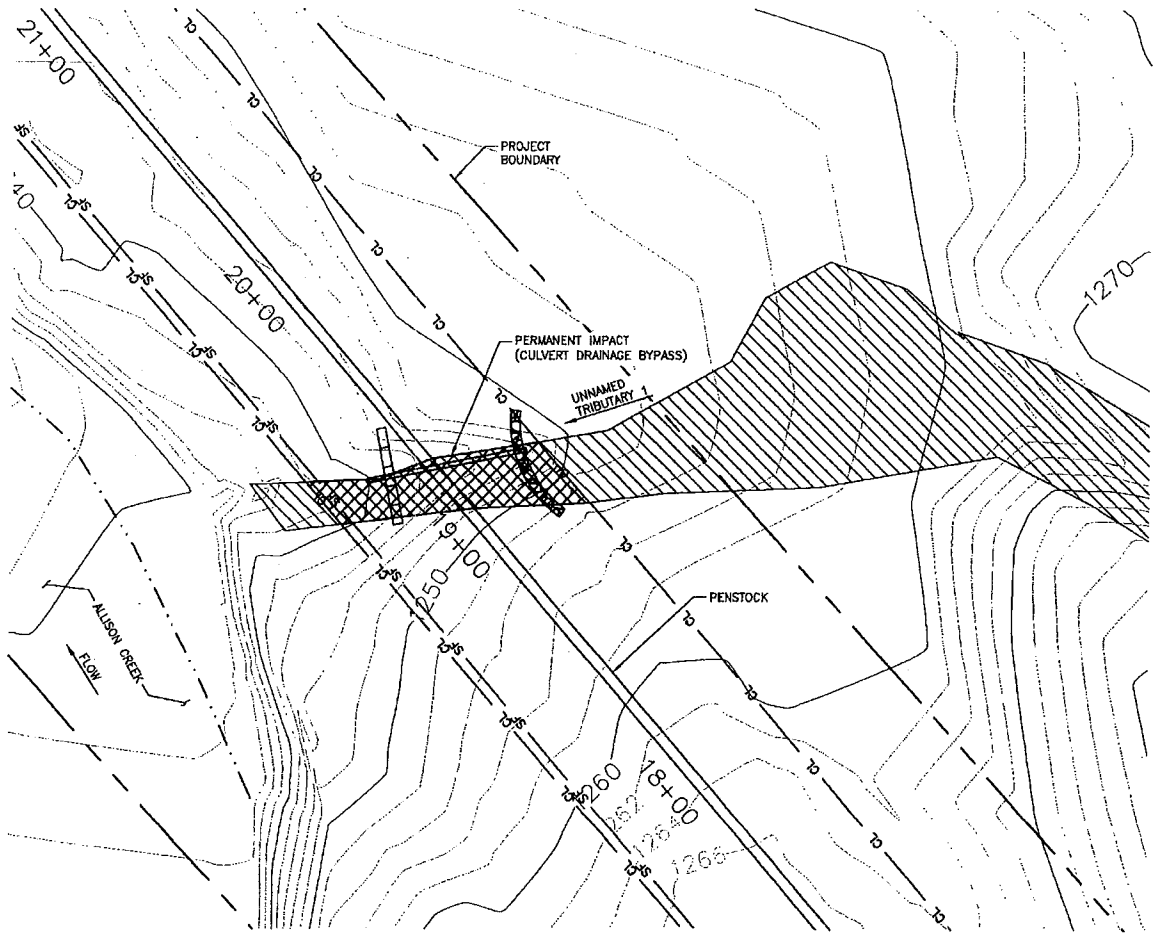
WATERBODY	PERMANENT IMPACT	TEMPORARY IMPACT
UNNAMED TRIBUTARY 1	1221 SF	--

LEGEND
- STREAM
- IMPACT AREA
- CF — CONSTRUCTION FENCE
- CL — CLEARING LIMITS
- SF — SILT FENCE
- EXISTING ROCK BOULDER



PENSTOCK LINE ENLARGED AREA 2
SCALE: 1"= 50'

Copper Valley Electric Association — A Touchstone Energy® Cooperative

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COPPER VALLEY ELECTRIC ASSOCIATION
ALLISON CREEK HYDROELECTRIC PROJECT
FERC NO. 13124 - PENSTOCK
PENSTOCK LINE ENLARGED AREA 2

DRAWN:	SHEET:
RG	4
CHECKED: GA	4 OF 10
DATE: 5/3/13	

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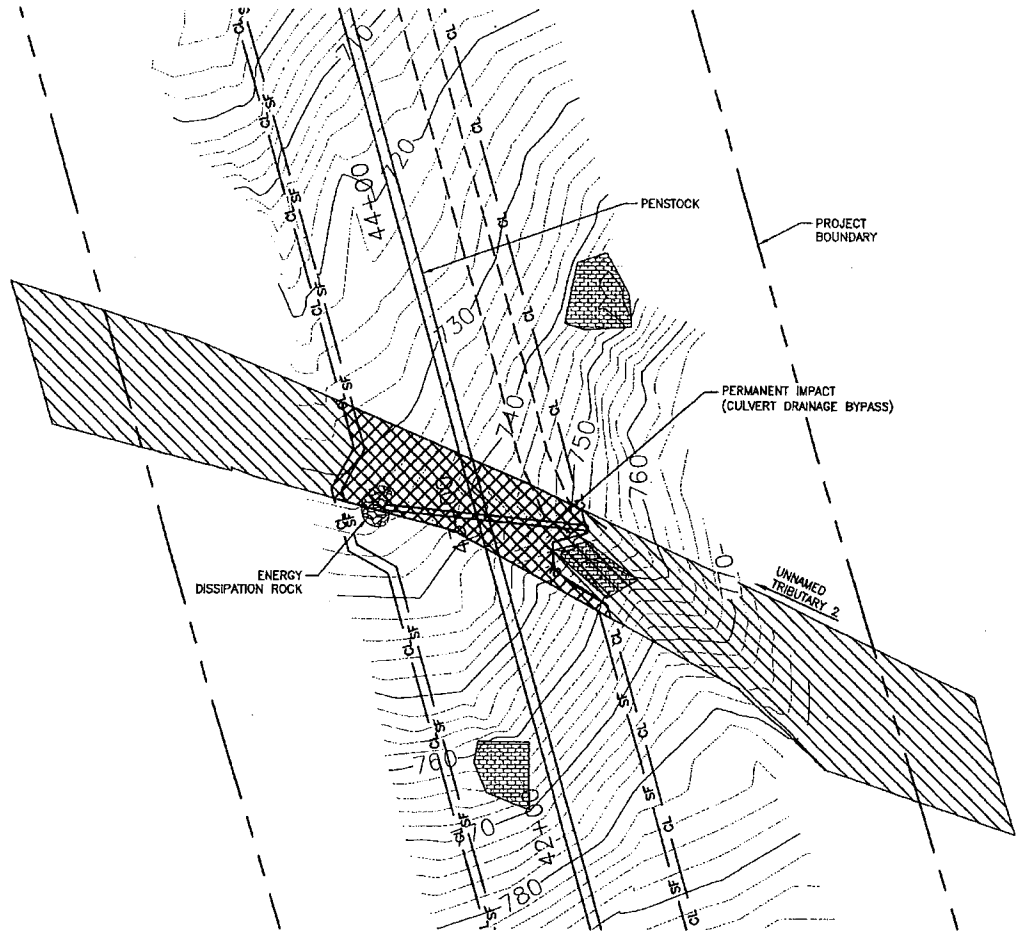
WATERBODY	PERMANENT IMPACT	TEMPORARY IMPACT
UNNAMED TRIBUTARY 2	1912 SF	–

LEGEND
- STREAM
- IMPACT AREA
- CF — CONSTRUCTION FENCE
- CL — CLEARING LIMITS
- SF — SILT FENCE
- EXISTING ROCK BOULDER



PENSTOCK LINE ENLARGED AREA 3
SCALE: 1"= 50'

Copper Valley Electric Association — A Touchstone Energy® Cooperative

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TITLE:
COPPER VALLEY ELECTRIC ASSOCIATION
ALLISON CREEK HYDROELECTRIC PROJECT
FERC NO. 13124 - PENSTOCK
PENSTOCK LINE ENLARGED AREA 3

DRAWN: RG
CHECKED: GA
DATE: 5/3/13
SHEET: 5
5 OF 10

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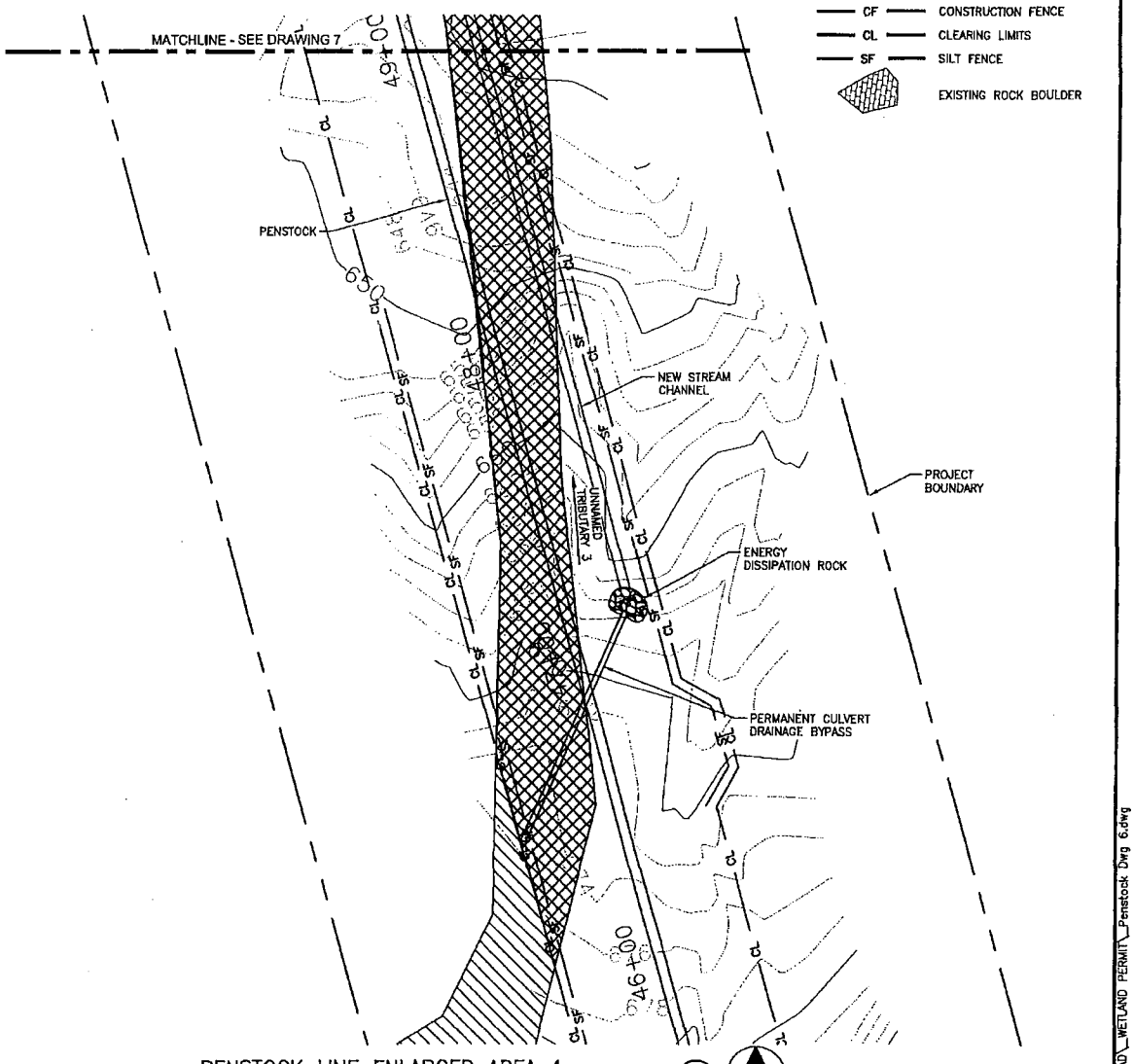
WATERBODY	PERMANENT IMPACT	TEMPORARY IMPACT
UNNAMED TRIBUTARY 3	24926 SF	-



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TITLE:

COPPER VALLEY ELECTRIC ASSOCIATION
ALLISON CREEK HYDROELECTRIC PROJECT
FERC NO. 13124 - PENSTOCK
PENSTOCK LINE ENLARGED AREA 4

DRAWN:	SHEET:
RG	6
CHECKED: GA	
DATE: 5/3/13	6 OF 10

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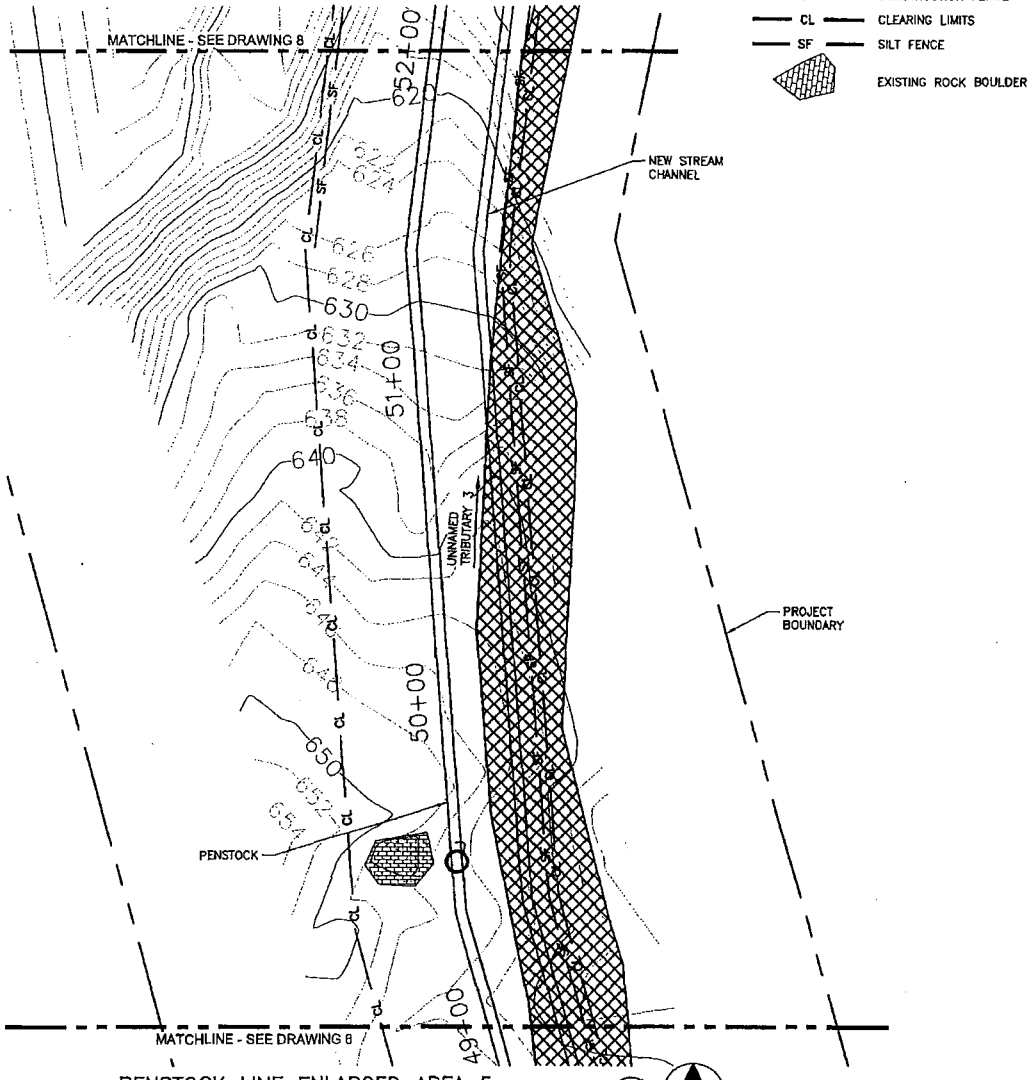
WATERBODY	PERMANENT IMPACT	TEMPORARY IMPACT
UNNAMED TRIBUTARY 3	SEE SHEET 6	–



PENSTOCK LINE ENLARGED AREA 5

SCALE: 1"= 50'

0' 25' 50'

1/2

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TITLE:

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ALLISON CREEK HYDROELECTRIC PROJECT
FERC NO. 13124 - PENSTOCK
PENSTOCK LINE ENLARGED AREA 5

DRAWN:	SHEET:
RG	7
CHECKED: GA	
DATE: 5/3/13	7 OF 10

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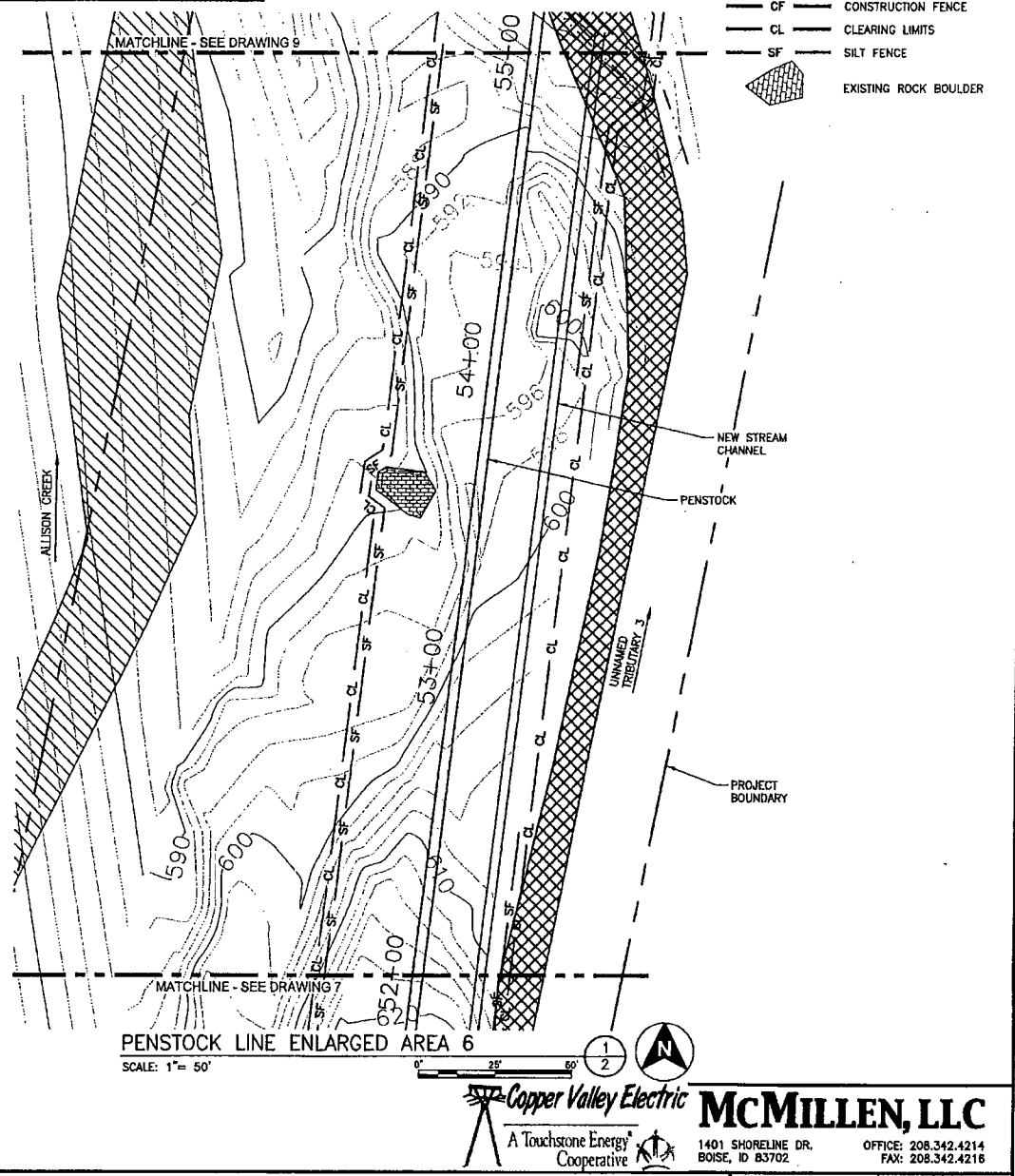
WATERBODY	PERMANENT IMPACT	TEMPORARY IMPACT
UNNAMED TRIBUTARY 3	SEE SHEET 6	-



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1401 SHORELINE DR.
BOISE, ID 83702
OFFICE: 208.342.4214
FAX: 208.342.4216

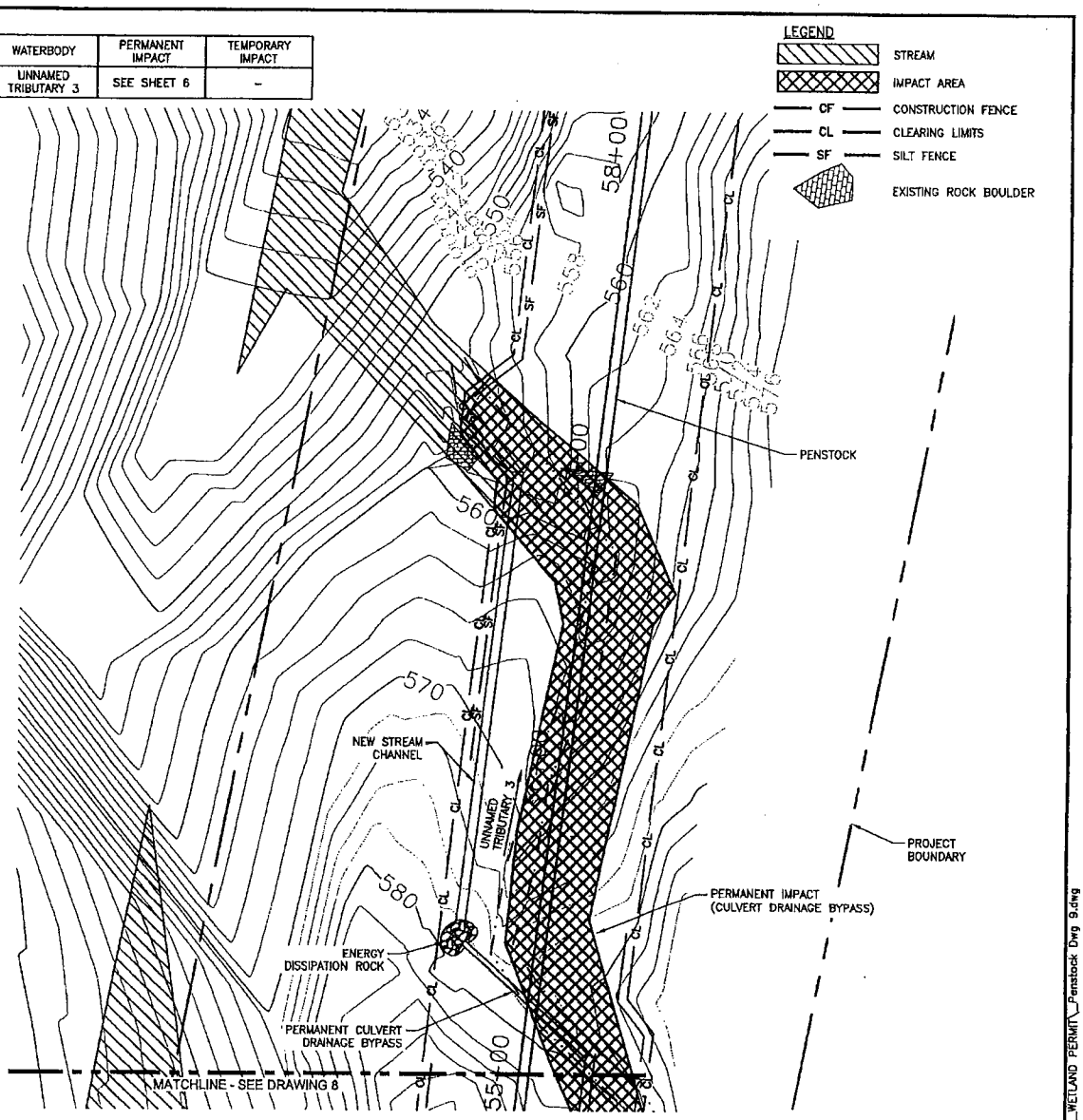
TITLE:

COPPER VALLEY ELECTRIC ASSOCIATION
ALLISON CREEK HYDROELECTRIC PROJECT
FERC NO. 13124 - PENSTOCK
PENSTOCK LINE ENLARGED AREA 6

DRAWN:	SHEET:
RG	8
CHECKED: GA	8 OF 10
DATE: 5/3/13	

P:\CVEA\Allison Creek Hydro\6.0 Plans and Specs\6.3 CAD_WETLAND PERMIT_Penstock Dwg 8.dwg

WATERBODY	PERMANENT IMPACT	TEMPORARY IMPACT
UNNAMED TRIBUTARY 3	SEE SHEET 6	-



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TITLE:

COPPER VALLEY ELECTRIC ASSOCIATION
ALLISON CREEK HYDROELECTRIC PROJECT
FERC NO. 13124 - PENSTOCK
PENSTOCK LINE ENLARGED AREA 7

DRAWN:	SHEET:
RG	9
CHECKED: GA	
DATE: 5/3/13	9 OF 10

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POA-2008-1257, Allison Creek, Hydroelectri Project
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Lat. 61.0555 N., Long. 146.3481 W.
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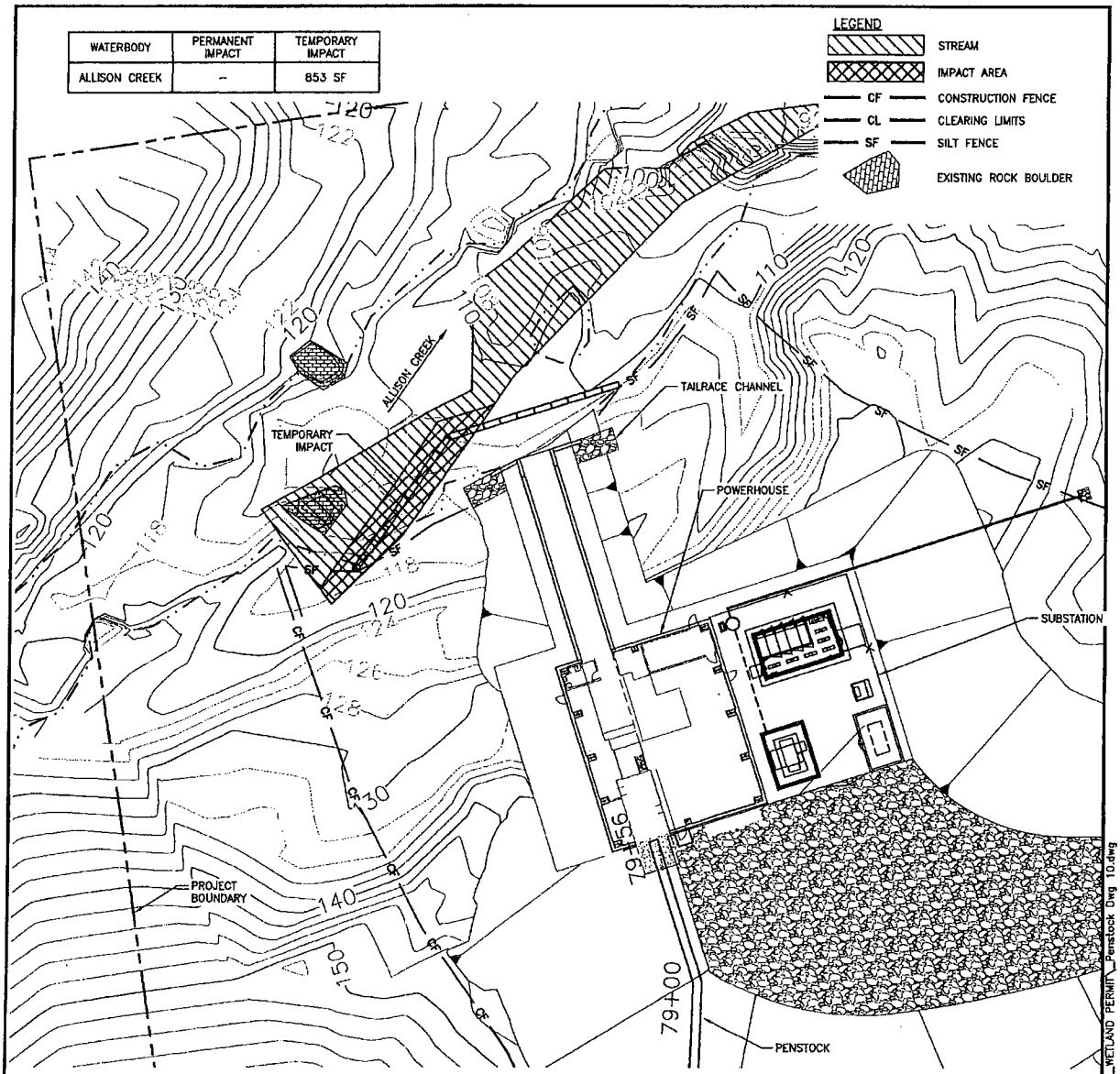
WATERBODY	PERMANENT IMPACT	TEMPORARY IMPACT
ALLISON CREEK	–	853 SF



PENSTOCK LINE ENLARGED AREA 8
SCALE: 1"= 50'

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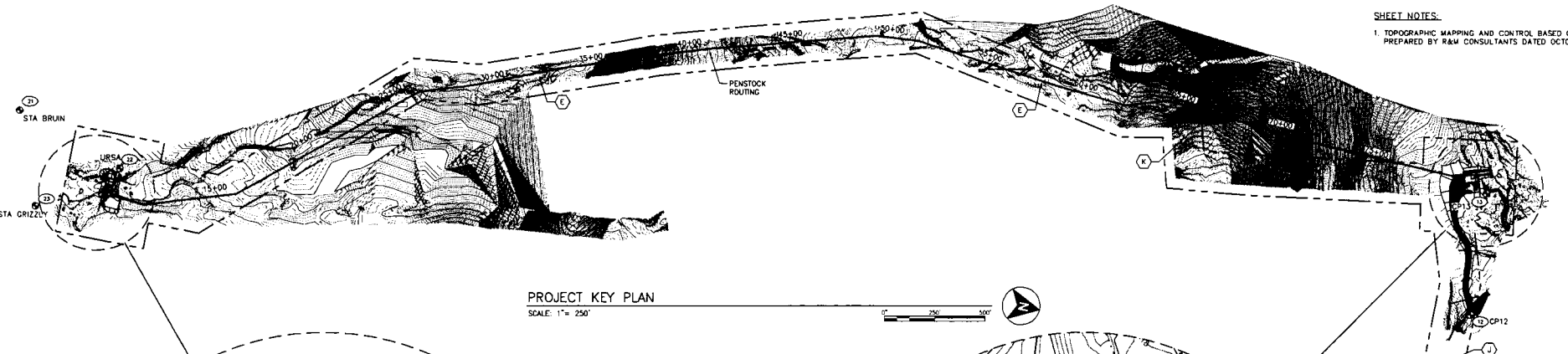
P:\CVEA\Allison Creek Hydro\6.0 Plans and Specs\6.3 CAD_WETLAND PERMIT_Penstock Dwg 10.dwg

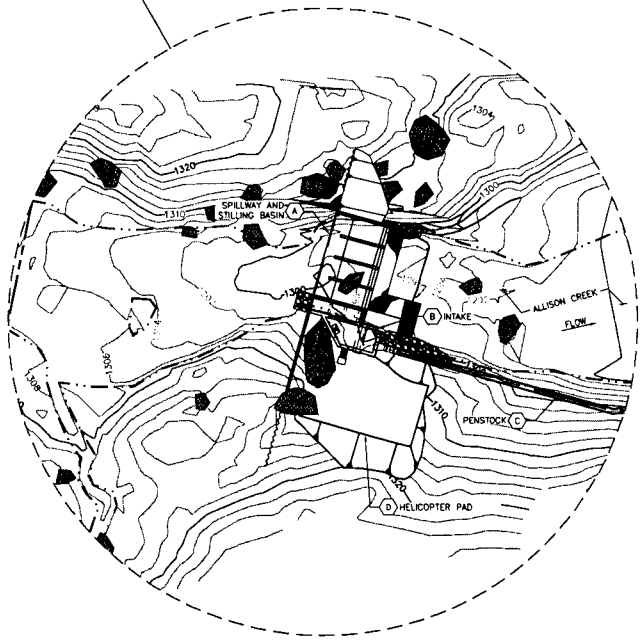
TITLE:
COPPER VALLEY ELECTRIC ASSOCIATION
ALLISON CREEK HYDROELECTRIC PROJECT
FERC NO. 13124 - PENSTOCK
PENSTOCK LINE ENLARGED AREA 8

DRAWN:	SHEET:
RG	10
CHECKED: GA	10 OF 10
DATE: 5/3/13	



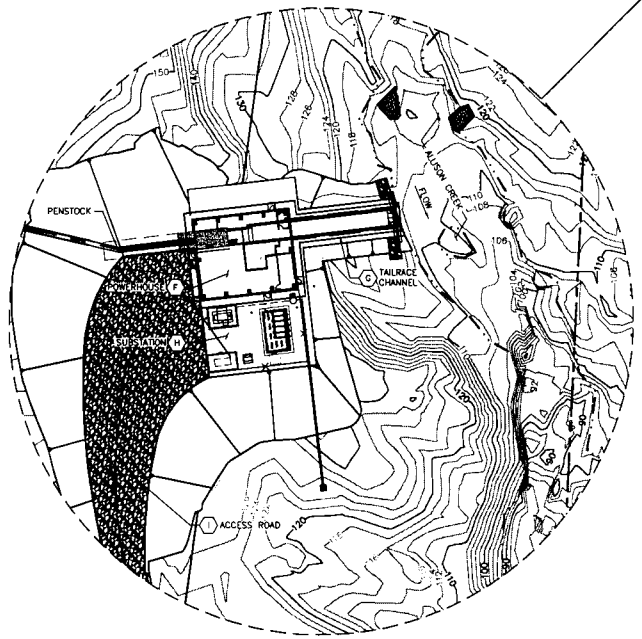
PROJECT KEY PLAN

SCALE: 1" = 250'



ENLARGED PLAN AT DIVERSION AND INTAKE

SCALE: 1" = 40'



ENLARGED PLAN AT POWERHOUSE

SCALE: 1" = 40'

SHEET NOTES:

1. TOPOGRAPHIC MAPPING AND CONTROL BASED ON SURVEY PREPARED BY R&M CONSULTANTS DATED OCTOBER 2012.

MAJOR WORK ELEMENTS:

- A CONSTRUCT NEW REINFORCED CONCRETE DIVERSION STRUCTURE, OGEE CREST SPILLWAY, STILLING BASIN, AND SLUICE WAY WITH SLUICE GATE.
- B CONSTRUCT NEW INTAKE STRUCTURE WITH TWO 8'Wx5'H TRASHRACKS, SLUICING 2'x4' GATE, FABRICATED PENSTOCK INTAKE, AND ISOLATION GATE ALONG WITH NEW COMMUNICATIONS BUILDING ON INTAKE STRUCTURE.
- C INSTALL NEW 40" DIA PENSTOCK WITH VENT PIPE AND ISOLATION SLUICE GATE.
- D CONSTRUCT NEW GRAVEL HELICOPTER LANDING PAD.
- E CONSTRUCT 7200 LF OF STEEL PENSTOCK RANGING IN SIZE FROM 38" DIA TO 40" DIA.
- F CONSTRUCT NEW POWERHOUSE APPROXIMATELY 55'x66' WITH NEW 6.5 MW PELTON TURBINE/GENERATOR, BRIDGE CRANE, BUILDING MECHANICAL AND ELECTRICAL EQUIPMENT, STANDBY GENERATOR AND ISOLATION VALVE.
- G CONSTRUCT NEW CONCRETE TAILRACE CHANNEL.
- H CONSTRUCT NEW SUBSTATION.
- I DEVELOP PROJECT SITE AND CONSTRUCT NEW ACCESS ROAD.
- J CONSTRUCT A NEW 25kV TRANSMISSION LINE FROM ALLISON CREEK HYDRO SUBSTATION TO DAYVILLE SUBSTATION.
- K CONSTRUCT NEW 16'x16' TUNNEL FOR CONSTRUCTION ACCESS AND PENSTOCK.

CONTROL COORDINATES (NAD83 ASP ZONE 3 SFT)			
PT.	NORTHING	EASTING	NAME
12	2587043.4720	1578310.2970	CP12
13	2587003.2140	1577705.3900	CP13
21	2579783.8699	1578724.3009	BRUIN
22	2580322.0225	1578910.1790	URSA
23	2579952.2268	1579172.6501	GRIZZLY

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REV:	DATE:	DESCRIPTION:	DWN:	CKD:	APP:
		REVISIONS			
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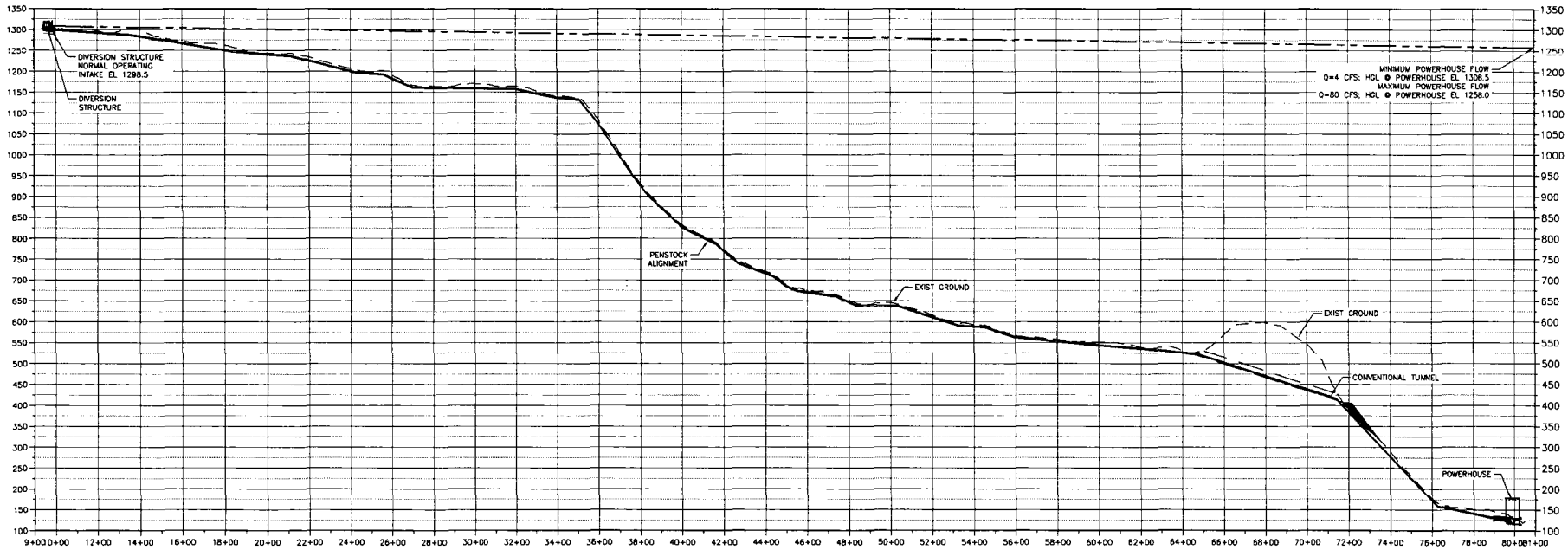
Copper Valley Electric Assn.
P.O. Box 45
Glennallen, AK 99588

ALLISON CREEK HYDROELECTRIC PROJECT,
FERC NO. 13124

PROJECT KEY PLAN

DWN: RLG	APP: MDM	DWG. No.	REV:
CKD: SS	APP:	H02-D-10-V0007-R0	0
DATE: 5/3/13	SCALE: AS NOTED	SHEET 7 of 175	

PROJECT DESIGN CRITERIA					
CRITERIA	VALUE	CRITERIA	VALUE	CRITERIA	VALUE
DRAINAGE BASIN		HYDROLOGY – (@ POWERHOUSE STRUCTURE)		POWERHOUSE TURBINE UNIT	
WATERSHED AT DIVERSION STRUCTURE	6.75 SQUARE MILES	2-YEAR		NO. OF TURBINES	1
TOTAL WATERSHED	7.53 SQUARE MILES	A. DISCHARGE	294 CFS	TURBINE TYPE	PELTON
ALLISON LAKE ELEVATION	1,360 FT MSL	B. 5% CONFIDENCE INTERVAL	156 CFS	MINIMUM FLOW	4 CFS
HYDROLOGY – (@ DIVERSION STRUCTURE)		C. 95% CONFIDENCE INTERVAL	552 CFS	MAXIMUM FLOW	80 CFS
2-YEAR		100-YEAR		RATING	6.5 MW
A. DISCHARGE	259 CFS	A. DISCHARGE	756 CFS	PLANT FACTOR	0.9 KV
B. 5% CONFIDENCE INTERVAL	137 CFS	B. 5% CONFIDENCE INTERVAL	378 CFS	SPEED	514 RPM
C. 95% CONFIDENCE INTERVAL	488 CFS	C. 95% CONFIDENCE INTERVAL	1510 CFS	STATIC HEAD PRESSURE	510 FT
100-YEAR		MINIMUM FLOW	8 TO 10 CFS	PENSTOCK PIPELINE	
A. DISCHARGE	667 CFS			SEE PENSTOCK SUMMARY TABLE ON SHEET H02-D-31-V0001-R0	
B. 5% CONFIDENCE INTERVAL	333 CFS				
C. 95% CONFIDENCE INTERVAL	1340 CFS				
MINIMUM FLOW	2 CFS				



HYDRAULIC PROFILE @ 80 CFS

SCALE: NTS

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Lat. 61.0555 N., Long. 146.3481 W.
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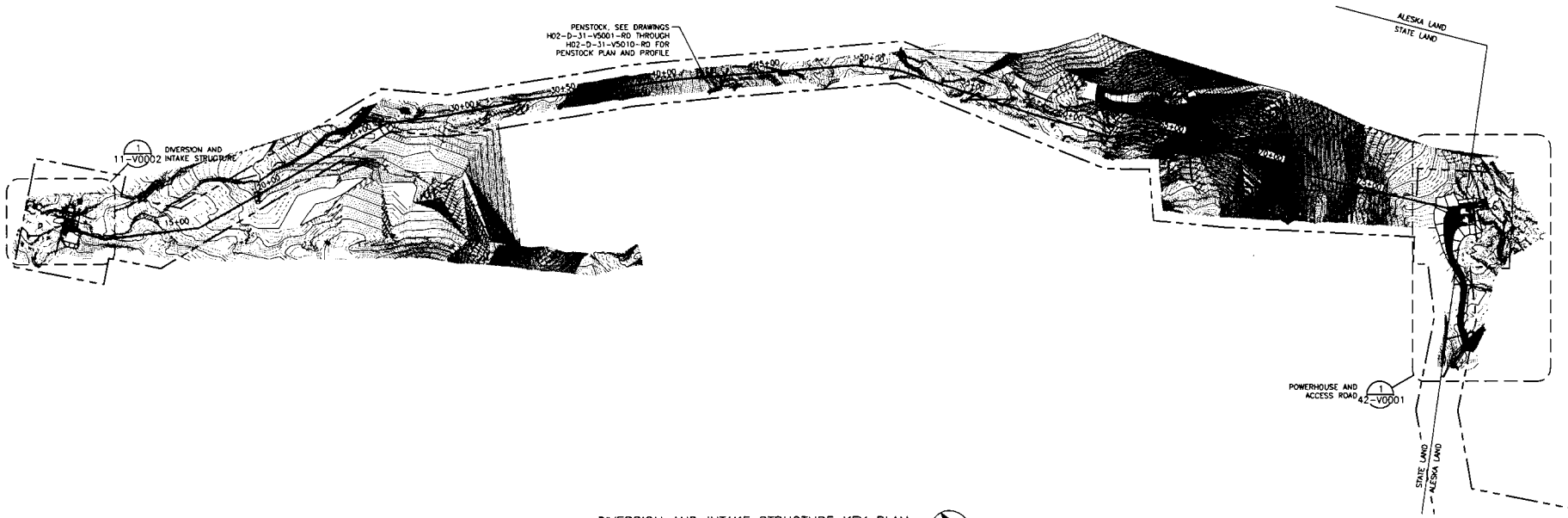
ALLISON CREEK HYDROELECTRIC PROJECT,
FERC NO. 13124

HYDRAULIC PROFILE
AND DESIGN CRITERIA

DWN: RLG	APP: MDM	DWG. No.	REV:
CKD: JJS	APP:	H02-D-10-V0009-R0	0
DATE: 5/3/13		SCALE: AS NOTED	SHEET 9 of 175

SHEET NOTES:

1. CONTRACTOR SHALL INSTALL ALL ESC MEASURES PRIOR TO INITIATING FIELD CONSTRUCTION ACTIVITIES.
2. PROJECT IS COMPOSED OF THREE MAJOR WORK AREAS:
   A. DIVERSION STRUCTURE AND INTAKE INCLUDING CONCRETE SPILLWAY AND STILLING BASIN, SLUICE CHANNEL, AND PENSTOCK INTAKE.
   B. 7200 FEET OF STEEL PENSTOCK.
   C. POWERHOUSE AND SUBSTATION.
   THE WORK SHALL BE EXECUTED WITHIN THE GUIDELINES AND SCHEDULE OUTLINED WITHIN HE CONTRACT SPECIFICATIONS.
3. ACCESS TO THE PENSTOCK AND DIVERSION AND INTAKE STRUCTURE. THE CONTRACTOR SHALL DEVELOP A DETAILED ACCESS PLAN IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS AND SUBMIT FOR REVIEW AND APPROVAL BY THE ENGINEER PRIOR TO INITIATING CONSTRUCTION ACTIVITIES.
4. THE PROJECT SITE HAS SENSITIVE LAND AREAS LOCATED OUTSIDE THE PROJECT CONSTRUCTION BOUNDARIES. THE CONTRACTOR SHALL MAINTAIN ALL CONSTRUCTION ACTIVITIES WITHIN THE PROJECT CONSTRUCTION BOUNDARIES AND MEET ALL PERMIT CONDITIONS AND DO NOT DISTURB SENSITIVE AREAS OUTSIDE OF THE PROJECT CONSTRUCTION BOUNDARIES.



DIVERSION AND INTAKE STRUCTURE KEY PLAN

SCALE: 1"= 250'

0" 250' 500'

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ALLISON CREEK HYDROELECTRIC PROJECT, FERC NO. 13124

DIVERSION AND INTAKE STRUCTURE KEY PLAN

DWN: RLG | APP: MDM | DWG. No. H02-D-11-V0001-R0 | REV: 0
CKD: SS | APP:
DATE: 5/3/13 | SCALE: AS NOTED | SHEET 25 of 175

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Lat. 61.0555 N., Long. 146.3481 W.
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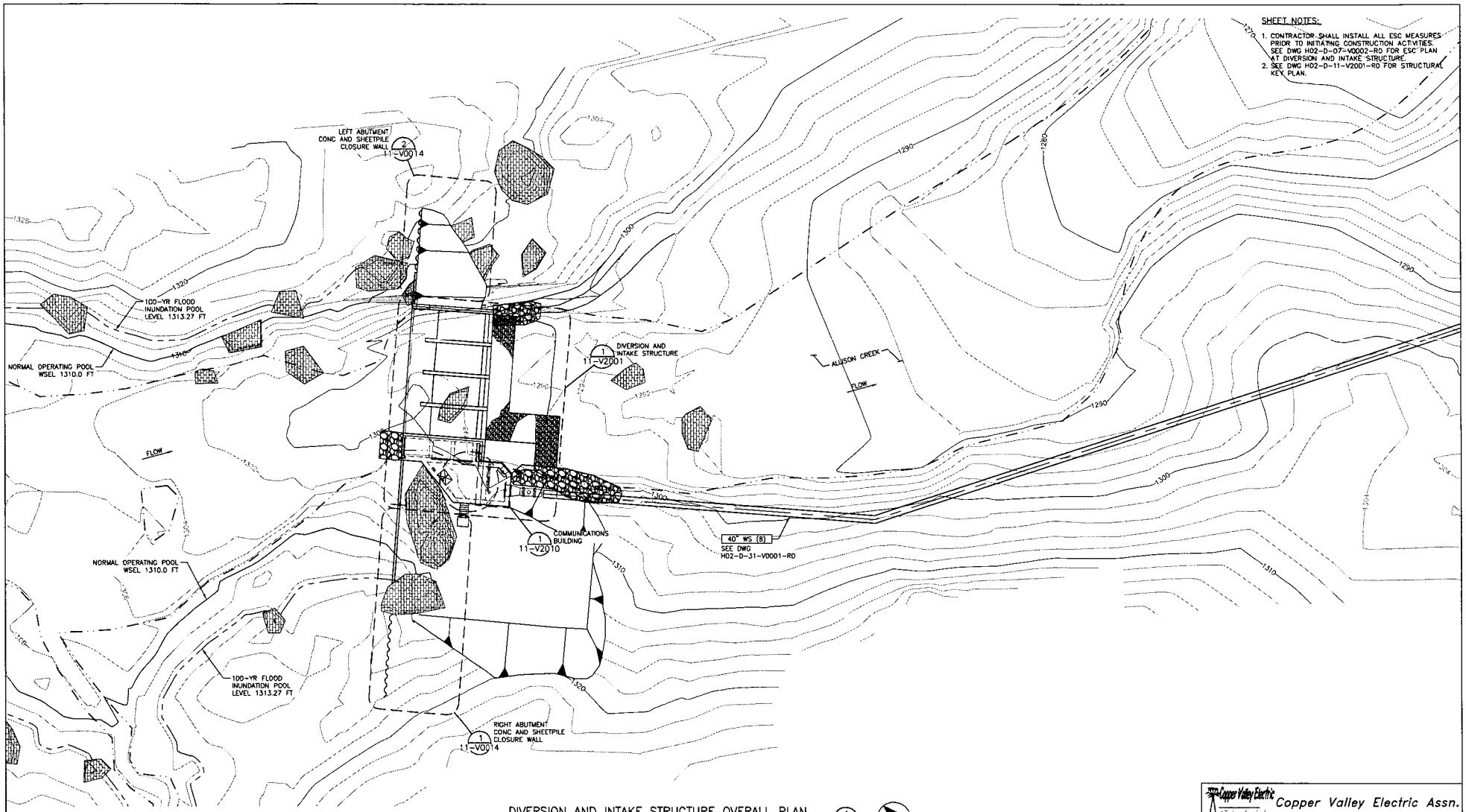

DIVERSION AND INTAKE STRUCTURE OVERALL PLAN (1 / 11-V0001)

SCALE: 1" = 20'

0" 20' 40'

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Copper Valley Electric Association, Inc.
Lat. 61.0555 N., Long. 146.3481 W.
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ALLISON CREEK HYDROELECTRIC PROJECT, FERC NO. 13124

DIVERSION AND INTAKE STRUCTURE OVERALL PLAN

DWN: RLG | APP: MDM
CKD: SS | APP:
DATE: 5/3/13

DWG. No. H02-D-11-V0002-R0

REV: 0

SCALE: AS NOTED

SHEET 26 of 175

DIVERSION AND INTAKE STRUCTURE COFFERDAM PLAN PHASE I

SCALE: 1"= 10'

SHEET NOTES:

1. CONTRACTOR SHALL INSTALL ALL ESC MEASURES PRIOR TO INITIATING CONSTRUCTION ACTIVITIES. SEE DWG H02-D-07-V0002 FOR ESC PLAN AT DIVERSION AND INTAKE STRUCTURE.
2. SEE DWG H02-D-11-V2001 FOR STRUCTURAL KEY PLAN.
3. DAM CENTERLINE IS BASED ON THE CENTER OF THE OGEE SPILL CREST. THE MAIN DIVERSION STRUCTURE EXTENDS FROM STATION 0+98 TO STATION 1+68. THE LEFT AND RIGHT ABUTMENT CONSISTS OF CLOSURE WALL SECTIONS BETWEEN THE BOULDERS TO PROVIDE A POSITIVE CLOSURE AND SEEPAGE BARRIER AT THE NORMAL OPERATING LEVEL.
4. THE COFFERDAM ARRANGEMENT SHOWN IS INTENDED TO ILLUSTRATE THE GENERAL APPROACH TO THE COFFERDAM CONSTRUCTION AND SEQUENCE. THE CONTRACTOR SHALL DEVELOP A DETAILED COFFERDAM AND DEWATERING PLAN AND SUBMIT TO THE ENGINEER FOR APPROVAL PRIOR TO STARTING FIELD CONSTRUCTION ACTIVITIES.
5. THE CONTRACTOR SHALL DETERMINE THE DESIGN STREAM FLOW FLOOD EVENT FOR THE COFFERDAM SYSTEM. ANY DAMAGE WHICH OCCURS TO THE CONTRACTOR'S COFFERDAM SYSTEM DUE TO HIGH WATER EVENTS SHALL BE BORNE BY THE CONTRACTOR.

SHEET KEY NOTES:

A CONTRACTOR SHALL REMOVE BOULDERS AND EXISTING CHANNEL BANK AS REQUIRED TO CONSTRUCT BYPASS CHANNEL. THE BYPASS CHANNEL SHALL BE SIZED TO WITHSTAND THE ANTICIPATED FLOWS WHICH ARE EXPECTED TO OCCUR DURING CONSTRUCTION TO PREVENT UNDERMINING THE COFFERDAM SYSTEM. ALTERNATELY, THE CONTRACTOR MAY USE PIPES TO CONVEY FLOW FROM UPSTREAM TO DOWNSTREAM OF THE WORK AREA.

B CONSTRUCT COFFERDAM SYSTEM CONSISTING OF SUPER-SACK/RIP-RAP WALLS OR ECOLOGY BLOCK WALLS. PROVIDE IMPERMEABLE LINER ALONG THE OUTSIDE FACE OF THE COFFERDAM TO PROVIDE A SUFFICIENT SEAL AGAINST SEEPAGE. ALTERNATE COFFERDAM SYSTEMS SUCH AS PORTADAMS MAY ALSO BE CONSIDERED. THE LOCATION OF THE COFFERDAM WITHIN THE STREAM WIDTH SHALL BE DETERMINED BY THE CONTRACTOR AND IS SHOWN FOR GENERAL ILLUSTRATION PURPOSES ONLY.

C CONTRACTOR SHALL DESIGN AND INSTALL A DEWATERING SYSTEM CAPABLE OF HANDLING ALL SEEPAGE INTO THE CONSTRUCTION WORK AREA. THE DEWATERING SYSTEM SHALL BE CAPABLE OF MAINTAINING THE GROUNDWATER LEVEL A MINIMUM OF 1.0 FT BELOW THE SUBGRADE ELEVATION THROUGHOUT CONSTRUCTION IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS. THE DISCHARGE FROM THE DEWATERING SYSTEM SHALL BE DISCHARGED AT AN UPLAND LOCATION FITTED WITH A FILTRATION SYSTEM TO ALLOW REMOVAL OF SUSPENDED MATERIAL PRIOR TO ENTERING ALLISON CREEK.

D DIVERSION AND INTAKE STRUCTURE OUTLINE SHOWN FOR ILLUSTRATION PURPOSES. LOCATION OF PHASE I COFFERDAM ALONG THE LENGTH OF THE DIVERSION STRUCTURE TO BE DETERMINED BY THE CONTRACTOR AS PART OF THEIR PROPOSED COFFERDAM AND DEWATERING PLAN.

COFFERDAM SEQUENCE:

A. PHASE I - CONSTRUCT PHASE I COFFERDAM AND DIVERT ALLISON CREEK TO WEST BANK WHILE CONSTRUCTING THE PENSTOCK, INTAKE, SLUICE CHANNEL, AND A PORTION OF THE DIVERSION STRUCTURE SPILLWAY.
B. PHASE II - DIVERT ALLISON CREEK TO EAST BANK THROUGH THE SLUICING CHANNEL, CONSTRUCT COFFERDAM, AND CONSTRUCT REMAINING SPILLWAY AND LEFT ABUTMENT FACILITIES.

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Copper Valley Electric Association, Inc.
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ALLISON CREEK HYDROELECTRIC PROJECT, FERC NO. 13124

DIVERSION AND INTAKE STRUCTURE COFFERDAM PLAN PHASE I

DWN: RLG	APP: MDM	DWG. No.	REV:
CKD: SS	APP:	H02-D-11-V0003-R0	0
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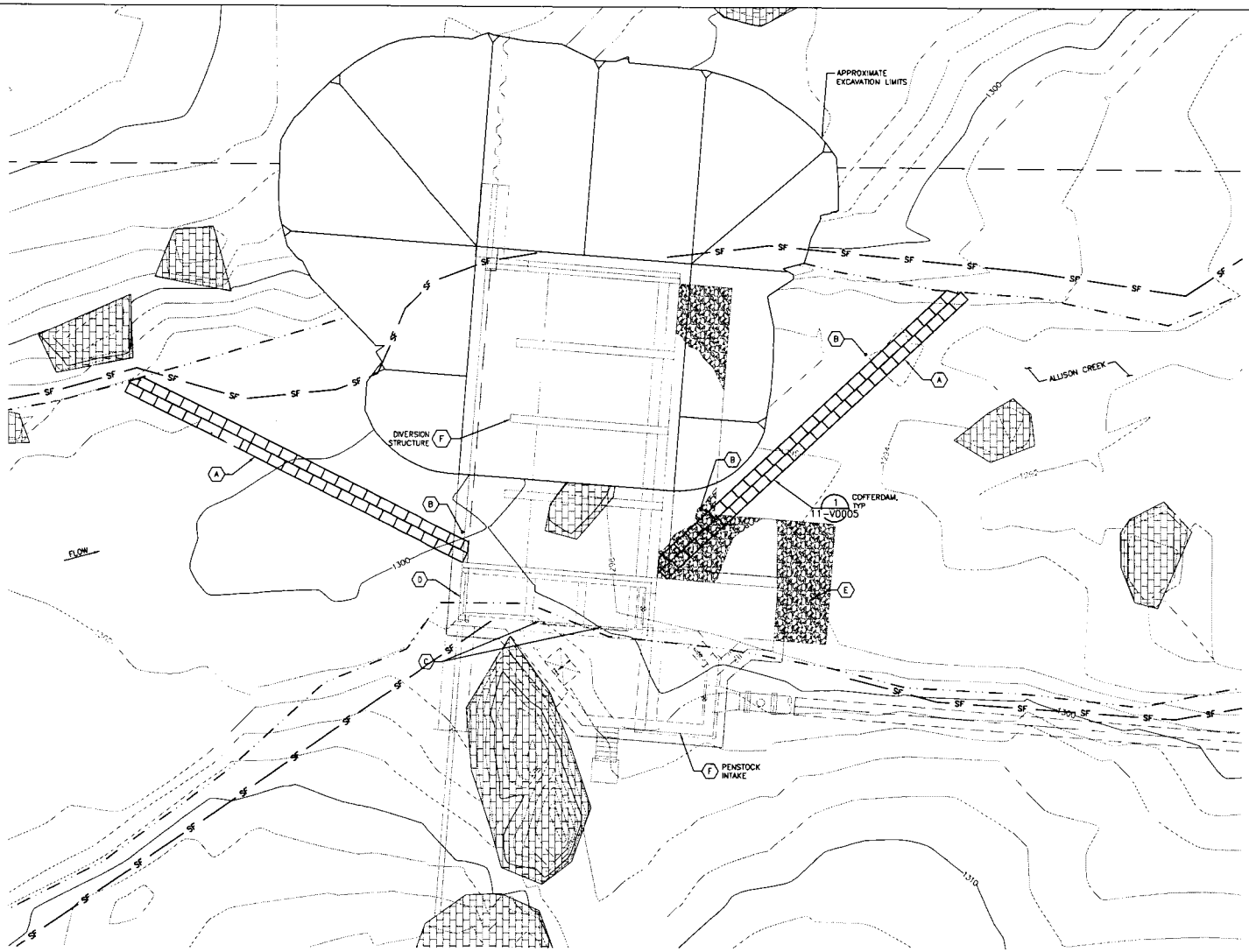

DIVERSION AND INTAKE STRUCTURE COFFERDAM PLAN PHASE II

SCALE: 1"= 10'

SHEET NOTES:

1. CONTRACTOR SHALL INSTALL ALL ESC MEASURES PRIOR TO INITIATING CONSTRUCTION ACTIVITIES. SEE DWG H02-D-07-V0002 FOR ESC PLAN AT DIVERSION AND INTAKE STRUCTURE.
2. SEE DWG H02-D-11-V2001 FOR STRUCTURAL KEY PLAN.
3. DAM CENTERLINE IS BASED ON THE CENTER OF THE OGEE SPILL CREST. THE MAIN DIVERSION STRUCTURE EXTENDS FROM STATION 0+98 TO STATION 1+58. THE LEFT AND RIGHT ABUTMENT CONSISTS OF CLOSURE WALL SECTIONS BETWEEN THE BOULDERS TO PROVIDE A POSITIVE CLOSURE AND SEEPAGE BARRIER AT THE NORMAL OPERATING LEVEL.
4. THE COFFERDAM ARRANGEMENT SHOWN IS INTENDED TO ILLUSTRATE THE GENERAL APPROACH TO THE COFFERDAM CONSTRUCTION AND SEQUENCE. THE CONTRACTOR SHALL DEVELOP A DETAILED COFFERDAM AND DEWATERING PLAN AND SUBMIT TO THE ENGINEER FOR APPROVAL PRIOR TO STARTING FIELD CONSTRUCTION ACTIVITIES.
5. THE CONTRACTOR SHALL DETERMINE THE DESIGN STREAM FLOW FLOOD EVENT FOR THE COFFERDAM SYSTEM. ANY DAMAGE WHICH OCCURS TO THE CONTRACTOR'S COFFERDAM SYSTEM DUE TO HIGH WATER EVENTS SHALL BE BORNE BY THE CONTRACTOR.

SHEET KEY NOTES:

A CONTRACTOR SHALL CONSTRUCT PHASE II COFFERDAM AND DIVERT ALLISON CREEK THROUGH THE NEW SLUICE CHANNEL LOCATED ON THE EAST BANK OF THE NEW STRUCTURE. THE COFFERDAM SYSTEM SHALL CONSIST OF SUPER-SACK/RIP-RAP WALLS OR ECOLOGY BLOCK WALLS. PROVIDE AN IMPERMEABLE LINER ALONG THE OUTSIDE FACE OF THE COFFERDAM TO PROVIDE A SUFFICIENT SEAL AGAINST SEEPAGE. ALTERNATIVE COFFERDAM SYSTEMS SUCH AS PORTADAMS MAY ALSO BE CONSIDERED. THE LOCATION OF THE COFFERDAM WITHIN THE STREAM WIDTH SHALL BE DETERMINED BY THE CONTRACTOR AND IS SHOWN FOR GENERAL ILLUSTRATION PURPOSES ONLY

B CONTRACTOR SHALL DESIGN AND INSTALL A DEWATERING SYSTEM CAPABLE OF HANDLING ALL SEEPAGE INTO THE CONSTRUCTION WORK AREA. THE DEWATERING SYSTEM SHALL BE CAPABLE OF MAINTAINING THE GROUNDWATER LEVEL A MINIMUM OF 1.0 FT BELOW THE SUBGRADE ELEVATION THROUGHOUT CONSTRUCTION IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS. THE DISCHARGE FROM THE DEWATERING SYSTEM SHALL BE DISCHARGED AT AN UPLAND LOCATION FITTED WITH A FILTRATION SYSTEM TO ALLOW REMOVAL OF SUSPENDED MATERIAL PRIOR TO DISCHARGING BACK INTO ALLISON CREEK.

C CONTRACTOR SHALL INSTALL TEMPORARY BULKHEADS IN THE TRASHRACK SLOTS TO PREVENT WATER FROM ENTERING THE PENSTOCK INTAKE CHAMBER DURING THE PHASE II FLOW DIVERSION.

D CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REPAIRS REQUIRED TO ADDRESS DAMAGE TO THE NEWLY CONSTRUCTED DIVERSION STRUCTURE AND INTAKE STRUCTURE DURING HIGH FLOW CONDITIONS WHICH MAY OCCUR DURING THE PHASE II FLOW DIVERSION.

E CONTRACTOR SHALL PROVIDE SUFFICIENT RIPRAP PROTECTION DOWNSTREAM FROM THE SLUICE CHANNEL TO PREVENT CHANNEL AND BANK DEGRADATION DOWNSTREAM FROM THE NEW STRUCTURE DURING THE PHASE II FLOW DIVERSION.

F DIVERSION AND INTAKE STRUCTURE OUTLINE SHOWN FOR ILLUSTRATION PURPOSES. LOCATION OF PHASE II COFFERDAM ALONG THE LENGTH OF THE DIVERSION STRUCTURE TO BE DETERMINED BY THE CONTRACTOR AS PART OF THEIR PROPOSED COFFERDAM AND DEWATERING PLAN.

COFFERDAM SEQUENCE:

A. PHASE I – CONSTRUCT PHASE I COFFERDAM AND DIVERT ALLISON CREEK TO WEST BANK WHILE CONSTRUCTING THE PENSTOCK, INTAKE, SLUICE CHANNEL, AND A PORTION OF THE DIVERSION STRUCTURE SPILLWAY.
B. PHASE II – DIVERT ALLISON CREEK TO EAST BANK THROUGH THE SLUICING CHANNEL, CONSTRUCT COFFERDAM, AND CONSTRUCT REMAINING SPILLWAY AND LEFT ABUTMENT FACILITIES.

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Copper Valley Electric Association, Inc.
Lat. 61.0555 N., Long. 146.3481 W.
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ALLISON CREEK HYDROELECTRIC PROJECT,
FERC NO. 13124

DIVERSION AND INTAKE STRUCTURE
COFFERDAM PLAN PHASE II

DWN: RLG	APP: MDM	DWG. No.	REV:
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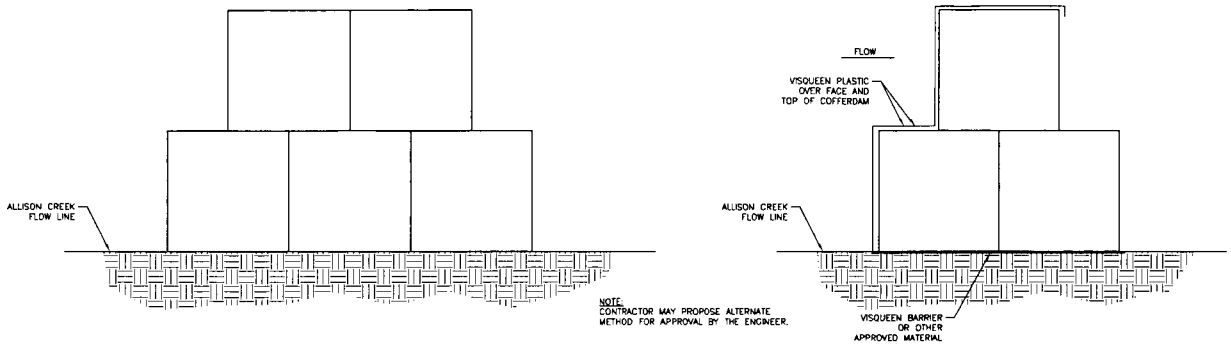

SUPER SACK COFFERDAM

SCALE: NTS

1
11-V0003

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Copper Valley Electric Association, Inc.
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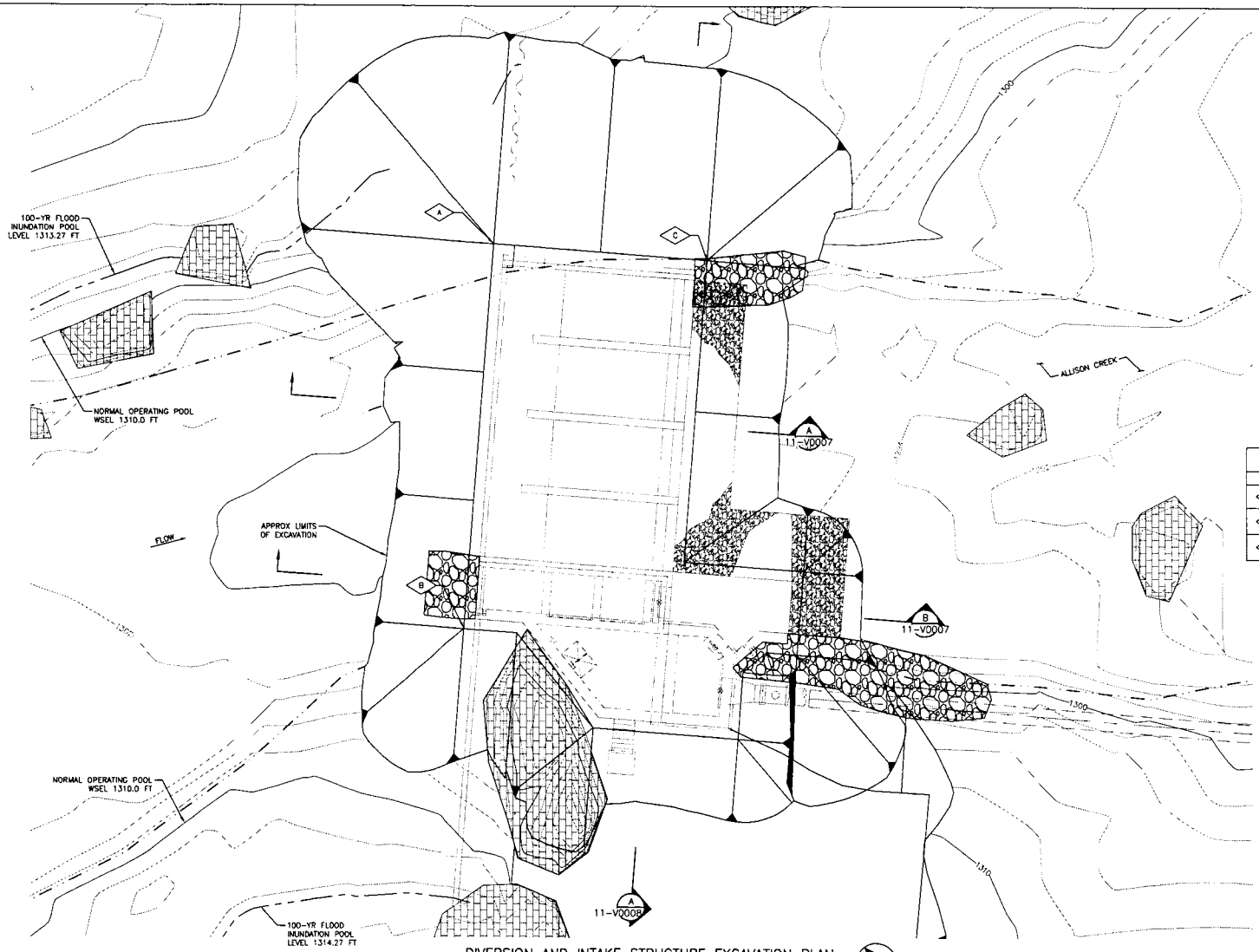
ALLISON CREEK HYDROELECTRIC PROJECT,
FERC NO. 13124

DIVERSION AND INTAKE STRUCTURE
COFFERDAM SECTIONS AND DETAILS

DWN: RLG	APP: MDM	DWG. No.	REV:
CKD: SS	APP:	H02-D-11-V0005-R0	0
DATE: 5/3/13	SCALE: AS NOTED	SHEET 29 of 175	



DIVERSION AND INTAKE STRUCTURE EXCAVATION PLAN

SCALE: 1"= 10'

SHEET NOTES:

1. TOPOGRAPHIC MAPPING PREPARED BY R&M CONSULTANTS, OCTOBER 2012. SEE DRAWING H02-D-11-V0001-RA FOR SURVEY CONTROL.
2. COMPACT NATIVE MATERIAL TO MINIMUM OF 92% PRIOR TO PLACING CONCRETE OR GRANULAR STRUCTURAL FILL.
3. COMPACT GRANULAR STRUCTURAL FILL TO MINIMUM 95%.
4. PLACE BACKFILL IN MAXIMUM OF 8" UN-COMPACTED DEPTH AND COMPACT TO MINIMUM 95% DENSITY WITHIN 18" OF STRUCTURE SUBGRADE. COMPACT BACKFILL TO MINIMUM 92% DENSITY GREATER THAN 18" BELOW STRUCTURE SUBGRADE.
5. CONTRACTOR MAY USE EXCAVATED MATERIAL SCREENED TO 4" MINUS FOR BACKFILL OF EXCAVATED AREAS UP TO GRANULAR STRUCTURAL GRAVEL GRADE BELOW STRUCTURES.
6. CONTRACTOR SHALL REMOVE OR TRIM EXISTING ROCK AS NECESSARY TO COMPLETE REQUIRED EXCAVATION.
7. THE EXCAVATION PLAN SHOWN ILLUSTRATES THE GENERAL APPROACH TO EXCAVATING THE DIVERSION AND INTAKE STRUCTURE. THE CONTRACTOR SHALL DEVELOP AN EXCAVATION PLAN IN CONJUNCTION WITH A COFFERDAM AND DEWATERING PLAN ILLUSTRATING THEIR APPROACH AND SUBMIT TO THE ENGINEER FOR APPROVAL.
8. LARGE BOULDERS AND COBBLES ARE EXPECTED THROUGHOUT THE DIVERSION AND INTAKE CONSTRUCTION SITE. THE CONTRACTOR SHALL REMOVE THE BOULDERS AND COBBLES AS REQUIRED TO SUPPORT CONSTRUCTION OF THE DIVERSION AND INTAKE STRUCTURE. CONTRACTOR SHALL COORDINATE WITH THE ENGINEER TO INSPECT AND APPROVE BOULDER REMOVAL. UPON REACHING THE SUBGRADE ELEVATION, THE ENGINEER SHALL INSPECT AND APPROVE THE FOUNDATION CONDITIONS PRIOR TO THE CONTRACTOR INITIATING CONSTRUCTION OF THE STRUCTURE.

SURVEY LOCATION INFORMATION

PT	DESCRIPTION	NORTHING	EASTING	ELEV
A	SW CORNER INTAKE STRUCTURE	2580288.79	1578963.46	1316.0
B	SE CORNER INTAKE STRUCTURE	2580283.08	1579037.24	1316.0
C	NW CORNER INTAKE STRUCTURE	2580309.67	1578966.62	1302.9±

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POA-2008-1257, Allison Creek, Hydroelectri Project
Copper Valley Electric Association, Inc.
Lat. 61.0555 N., Long. 146.3481 W.
Sheet 29 of 45, May 3, 2013

REV:	DATE:	DESCRIPTION:	DWN:	CKD:	APP:
		REVISIONS			
0	5/3/13	ISSUED FOR CONSTRUCTION	RLG	SS	MDM

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P.O. Box 45
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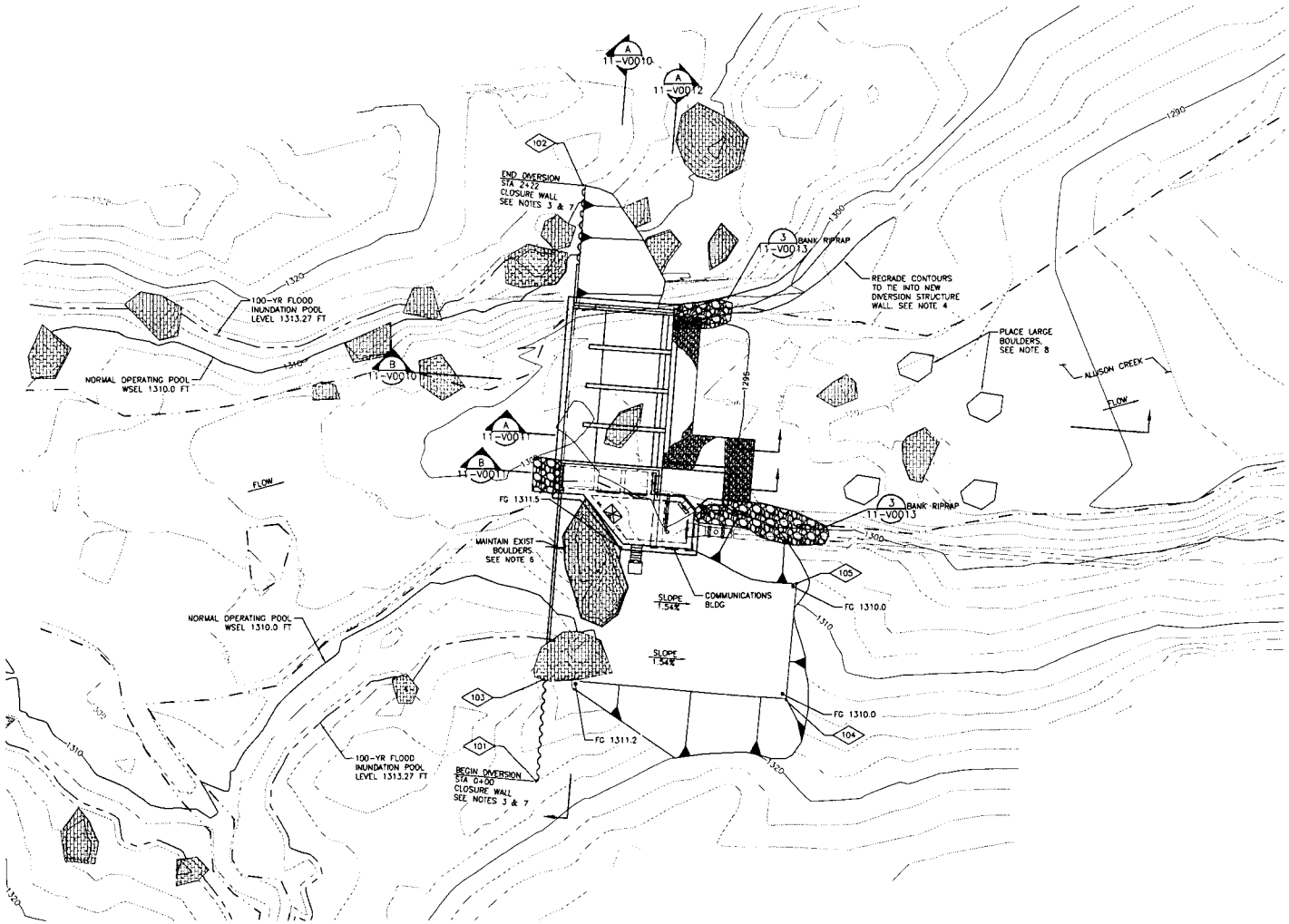
ALLISON CREEK HYDROELECTRIC PROJECT, FERC NO. 13124

DIVERSION AND INTAKE STRUCTURE EXCAVATION PLAN

DWN: RLG	APP: MDM	DWG. No.	REV:
CKD: SS	APP:	H02-D-11-V0006-R0	0
DATE: 5/3/13	SCALE: AS NOTED	SHEET 30 of 175	



DIVERSION AND INTAKE STRUCTURE GRADING PLAN

SCALE: 1" = 20'

SHEET NOTES:

1. CONTRACTOR SHALL INSTALL ALL ESC MEASURES PRIOR TO INITIATING CONSTRUCTION ACTIVITIES. SEE DWG H02-D-07-V0002-R0 FOR ESC PLAN AT DIVERSION AND INTAKE STRUCTURE.
2. SEE DWG H02-D-11-V2001-R0 FOR STRUCTURAL KEY PLAN.
3. DAM CENTERLINE IS BASED ON THE CENTER OF THE OGEE SPILL CREST. THE MAIN DIVERSION STRUCTURE EXTENDS FROM STATION 0+98 TO STATION 1+68. THE LEFT AND RIGHT ABUTMENT CONSISTS OF CLOSURE WALL SECTIONS BETWEEN THE BOULDERS TO PROVIDE A POSITIVE CLOSURE AND SEEPAGE BARRIER AT THE NORMAL OPERATING LEVEL.
4. FOLLOWING CONSTRUCTION OF THE DIVERSION STRUCTURE, REGRADE THE EXISTING BANK CONTOURS TO TIE TO NEW SPILLWAY RETAINING WALL. THE EXPOSED SOIL SHALL BE SEEDED WITH A NATIVE VEGETATIVE MIX AND COVERED WITH PERMANENT ESC COVERAGE MEASURES.
5. CONSTRUCT A LEVEL BUILDING AND ACCESS PAD FOR COMMUNICATIONS BUILDING AND MAINTENANCE STAGING. THE PAD SHALL BE CONSTRUCTED WITH NATIVE FILL GRADED ON SITE TO MEET THE REQUIREMENTS OF THE CONTRACT SPECIFICATIONS. PAD SHALL BE SLOPED TO DRAIN AWAY FROM THE STRUCTURE. THE EXPOSED SOIL SLOPES SHALL BE SEEDED AND PERMANENT ESC MEASURE INSTALLED.
6. CONTRACTOR SHALL MAINTAIN THE EXISTING BOULDERS ON BOTH ABUTMENTS. FINAL GRADING FILL SHALL TIE INTO THE EXISTING BOULDERS.
7. DEPTH OF CLOSURE WALL MAY BE FIELD ADJUSTED BY THE ENGINEER IF BELOW GRADE OBSTRUCTIONS ARE ENCOUNTERED.
8. PLACE LARGE BOULDERS IN TAILRACE CHANNEL DOWNSTREAM OF STILLING BASIN. BOULDER SIZE, NUMBER AND LOCATION TO BE DETERMINED BY ENGINEER.

SITE COORDINATES			
COORD#	NORTHING	EASTING	LOCATION
101	2580257.05	1579141.13	SE CORNER OF CLOSURE WALL
102	2580273.94	1578922.78	SW CORNER OF CLOSURE WALL
103	2580259.95	1579103.75	CORNER OF CLOSURE WALL AT BOULDER (APPROX)
104	2580348.54	1579110.72	NE CORNER OF HELICOPTER LANDING PAD
105	2580352.30	1579058.79	NW CORNER OF HELICOPTER LANDING PAD

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Copper Valley Electric Association, Inc.
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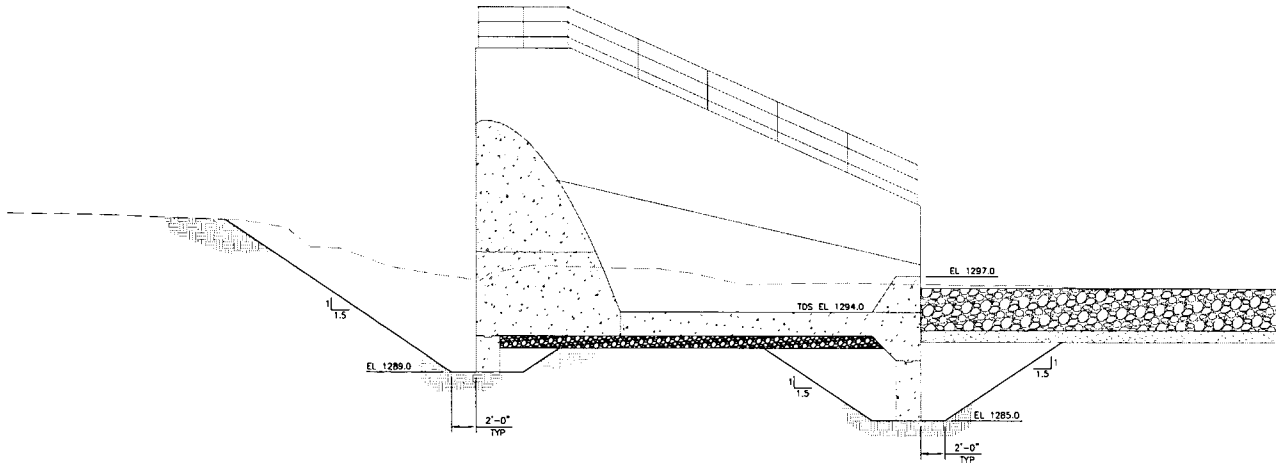
ALLISON CREEK HYDROELECTRIC PROJECT,
FERC NO. 13124

DIVERSION AND INTAKE STRUCTURE
GRADING PLAN

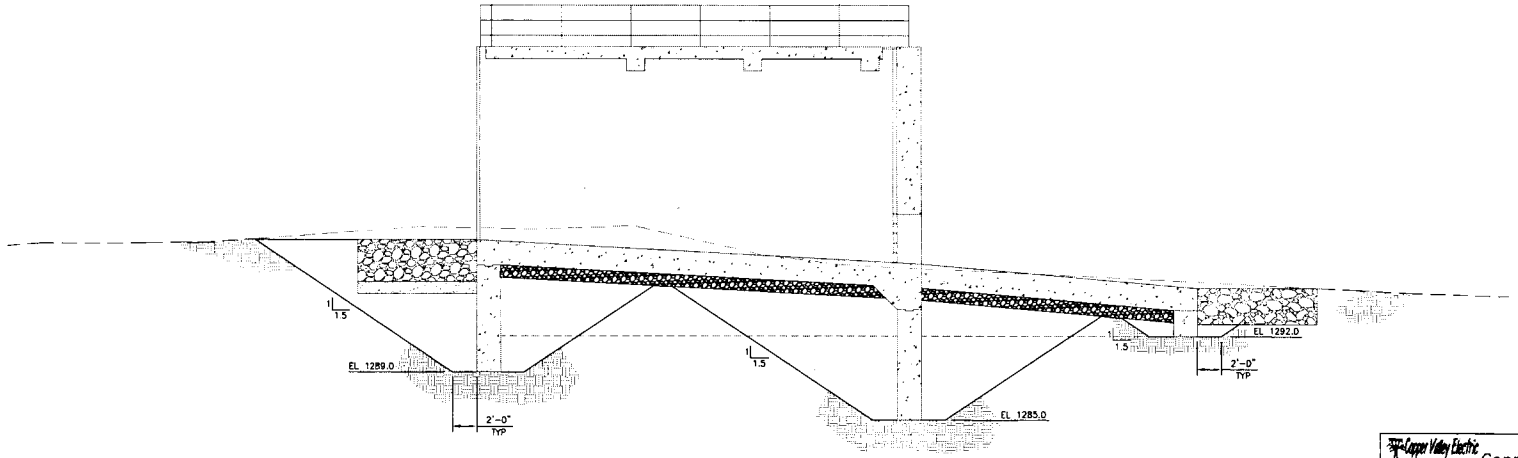
DWN: RLG	APP: MDM	DWG. No.	REV:
CKD: SS	APP:	H02-D-11-V0009-R0	0
DATE: 5/3/13		SCALE: AS NOTED	SHEET 33 of 175

SHEET NOTE:

1. EXCAVATION SLOPES MAY BE MODIFIED BASED ON SOIL AND GROUNDWATER CONDITIONS ENCOUNTERED IN THE FIELD AND REVIEW BY ENGINEER.
2. THE EXCAVATION PLAN SHOWN ILLUSTRATES THE GENERAL APPROACH TO EXCAVATING THE DIVERSION AND INTAKE STRUCTURE. THE CONTRACTOR SHALL DEVELOP AN EXCAVATION PLAN IN CONJUNCTION WITH A COFFERDAM AND DEWATERING PLAN ILLUSTRATING THEIR APPROACH AND SUBMIT TO THE ENGINEER FOR APPROVAL.
3. LARGE BOULDERS AND COBBLES ARE EXPECTED THROUGHOUT THE DIVERSION AND INTAKE CONSTRUCTION SITE. THE CONTRACTOR SHALL REMOVE THE BOULDERS AND COBBLES AS REQUIRED TO SUPPORT CONSTRUCTION OF THE DIVERSION AND INTAKE STRUCTURE. CONTRACTOR SHALL COORDINATE WITH THE ENGINEER TO INSPECT AND APPROVE BOULDER REMOVAL. UPON REACHING THE SUBGRADE ELEVATION, THE ENGINEER SHALL INSPECT AND APPROVE THE FOUNDATION CONDITIONS PRIOR TO THE CONTRACTOR INITIATING CONSTRUCTION OF THE STRUCTURE.



SECTION
SCALE: 1"= 5'
A
11-V0006



SECTION
SCALE: 1"= 5'
B
11-V0006

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Copper Valley Electric Association, Inc.
Lat. 61.0555 N., Long. 146.3481 W.
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REV:	DATE:	DESCRIPTION:	DWN:	CKD:	APP:
		REVISIONS			
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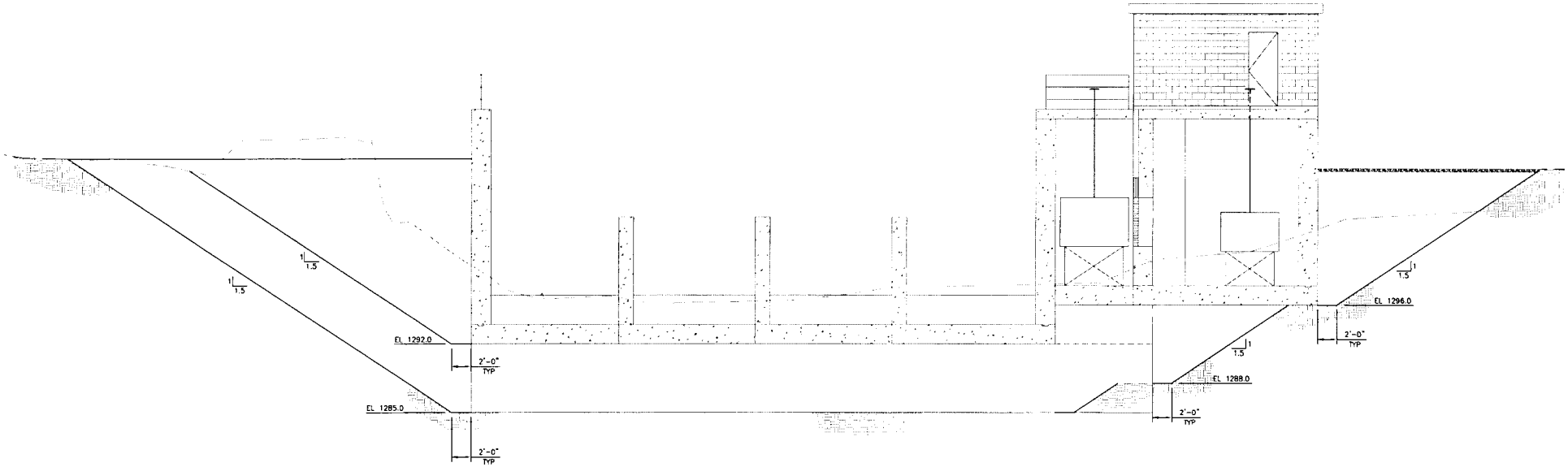
ALLISON CREEK HYDROELECTRIC PROJECT,
FERC NO. 13124

DIVERSION AND INTAKE STRUCTURE
EXCAVATION SECTIONS 1

DWN: RLG	APP: MDM	DWG. No.	REV:
CKD: SS	APP:	H02-D-11-V0007-R0	0
DATE: 5/3/13		SCALE: AS NOTED	SHEET 31 of 175



SECTION
SCALE: 1"= 5'
0' 5' 10'
A
11-V0006

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POA-2008-1257, Allison Creek, Hydroelectri Project
Copper Valley Electric Association, Inc.
Lat. 61.0555 N., Long. 146.3481 W.
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ALLISON CREEK HYDROELECTRIC PROJECT,
FERC NO. 13124

DIVERSION AND INTAKE STRUCTURE
EXCAVATION SECTIONS 2

DWN: RLG | APP: MDM
CKD: SS | APP:
DATE: 5/3/13

DWG. No. H02-D-11-V0008-R0

REV: 0

SCALE: AS NOTED

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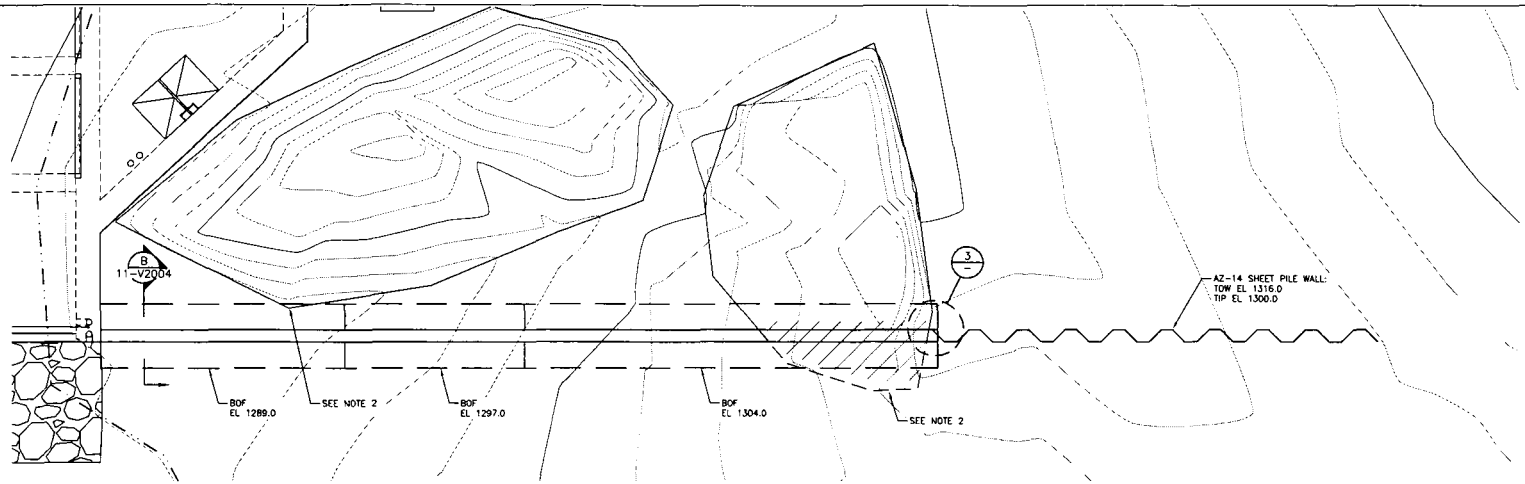
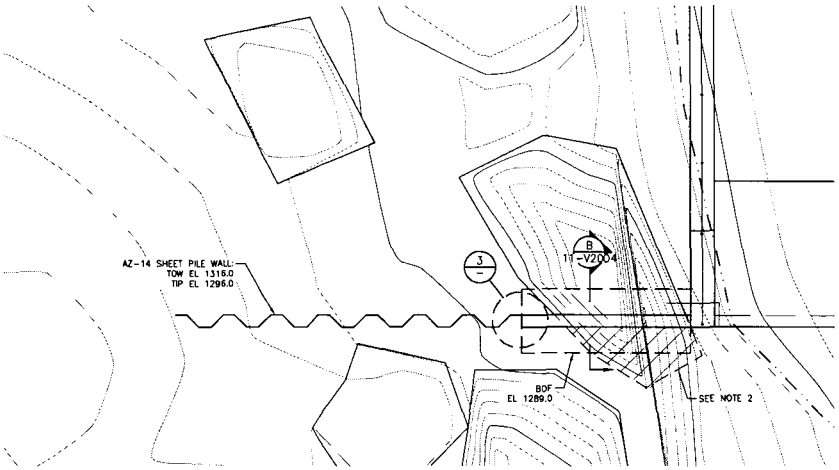


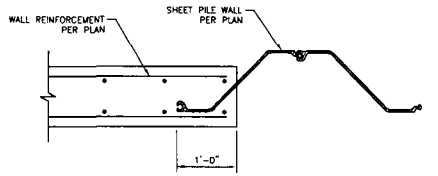
RIGHT ABUTMENT PARTIAL PLAN
SCALE: 1"= 5'
1 11-V0002

SHEET NOTES:

1. SEE DWG H02-D-11-V0002-R0 FOR OVERALL PLAN.
2. REMOVE BOULDER AS REQUIRED FOR CLOSURE WALL. CONCRETE WALL MAY BE CAST DIRECTLY AGAINST ROCK.
3. EXCAVATE FOR CONCRETE AND SHEETPILE WALL INSTALLATION. REMOVE COBBLES AND BOULDERS AS REQUIRED TO PROVIDE AN UNOBSTRUCTED TRENCH FOR WALL CONSTRUCTION. BACKFILL WITH GRADED MATERIAL PER THE CONTRACT SPECIFICATIONS TO PROVIDE AN IMPERMEABLE BARRIER ALONG UPSTREAM SHEETPILE WALL FACE.



LEFT ABUTMENT PARTIAL PLAN
SCALE: 1"= 5'
2 11-V0002



DETAIL
SCALE: NTS
3

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Copper Valley Electric Association, Inc.
Lat. 61.0555 N., Long. 146.3481 W.
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		REVISIONS			
0	5/3/13	ISSUED FOR CONSTRUCTION	RLG	SS	MDM

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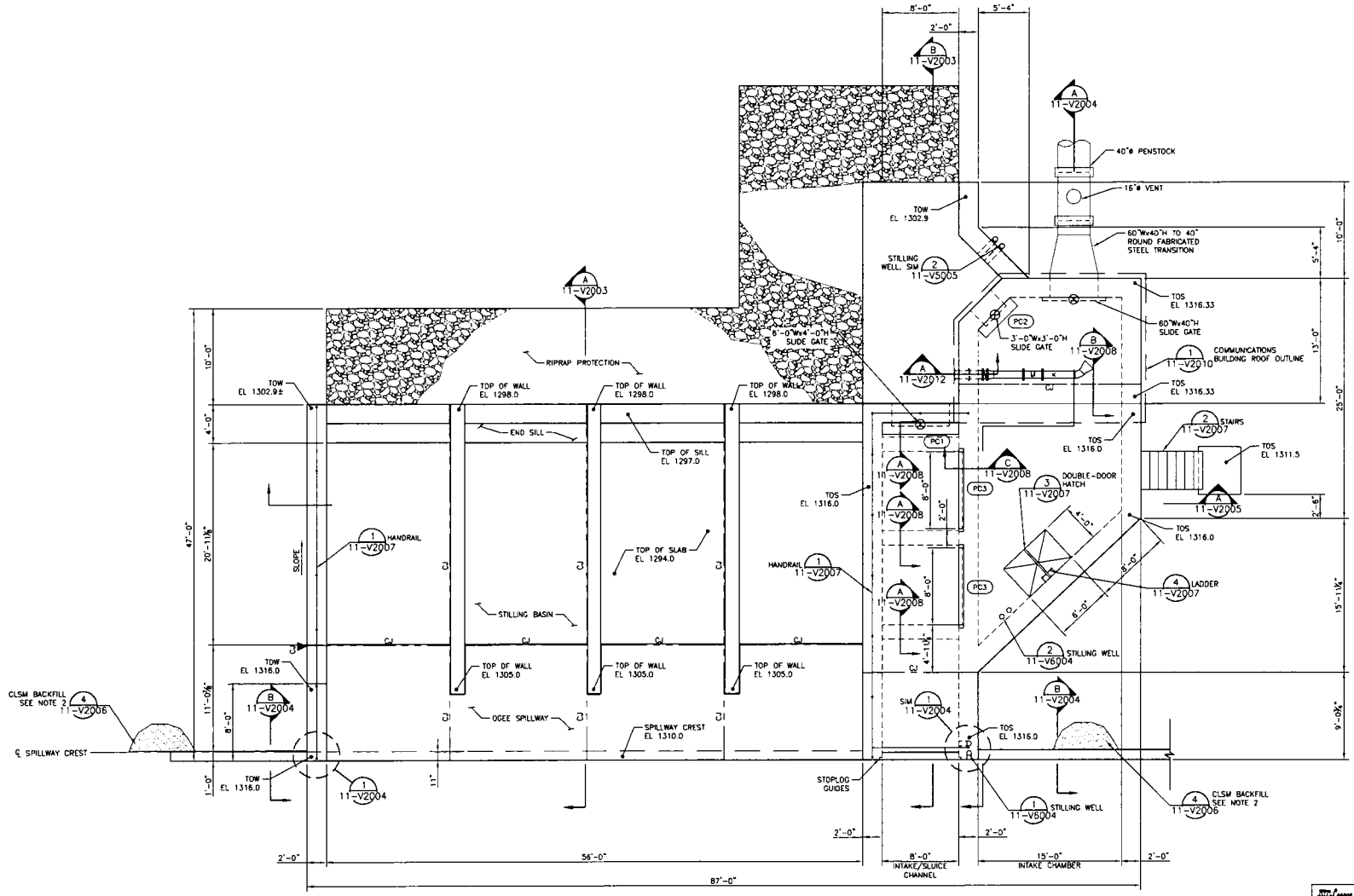
ALLISON CREEK HYDROELECTRIC PROJECT,
FERC NO. 13124

DIVERSION AND INTAKE STRUCTURE
ABUTMENT PLANS AND DETAILS

DWN: RLG	APP: MDM	DWG. No.	REV:
CKD: SS	APP:	H02-D-11-V0014-R0	0
DATE: 5/3/13	SCALE: AS NOTED	SHEET 38 of 175	

SHEET NOTES:

1. (PCX) DENOTES PLATE COVER PIECE SEE DETAIL 1/11-V2008.



TOP PLAN

SCALE: 3/16"= 1'-0"

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Copper Valley Electric Association, Inc.
Lat. 61.0555 N., Long. 146.3481 W.
Sheet 34 of 45, May 3, 2013

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0	5/3/13	ISSUED FOR CONSTRUCTION	RLG	ME	MDM

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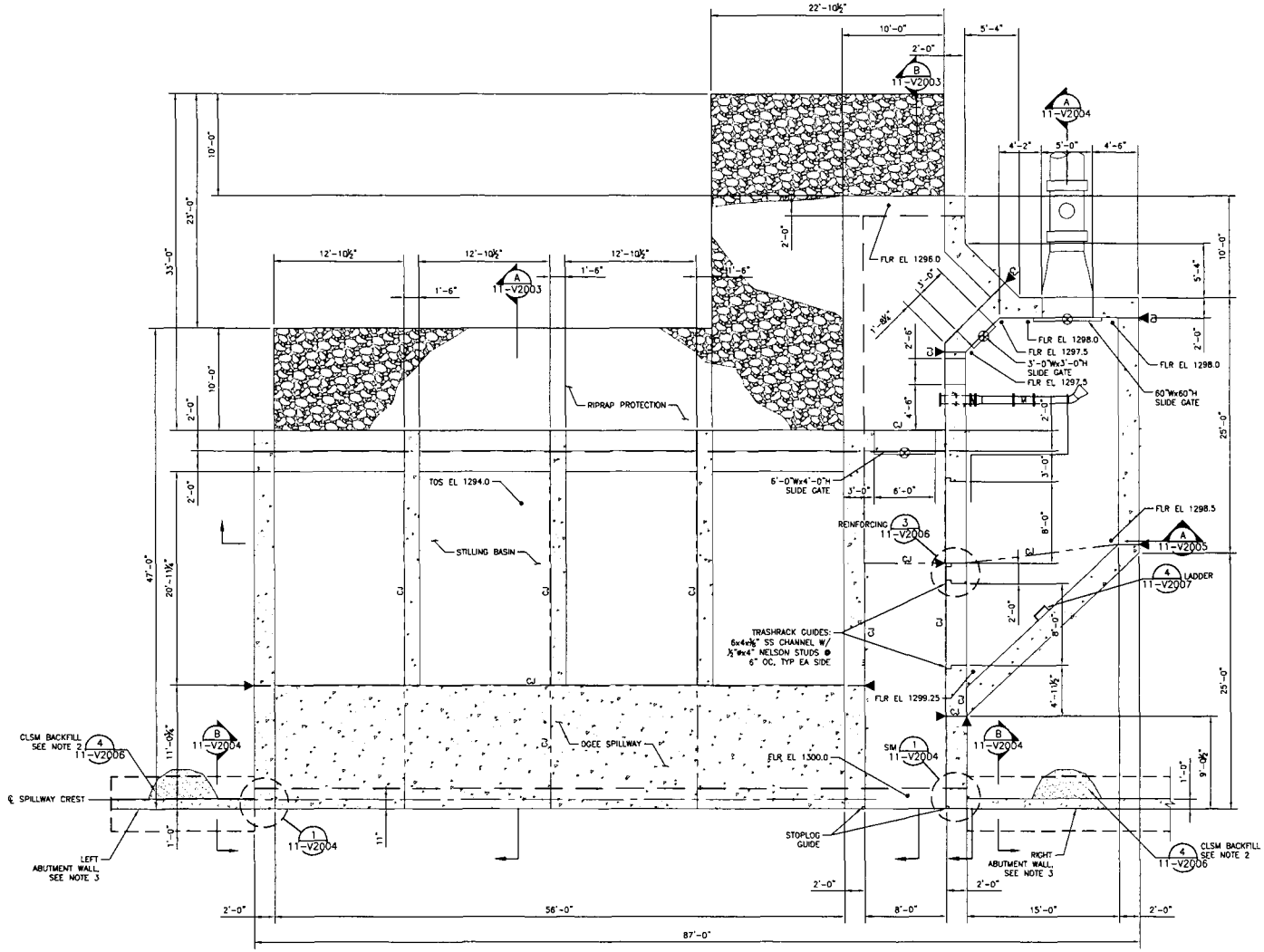
ALLISON CREEK HYDROELECTRIC PROJECT, FERC NO. 13124

DIVERSION AND INTAKE STRUCTURE TOP PLAN

DWN: RLG	APP: MDM	DWG. No.	REV:
CKD: ME	APP:	H02-D-11-V2002-R0	0
DATE: 5/3/13		SCALE: AS NOTED	SHEET 40 of 175

SHEET NOTES:

1. SEE DRAWING H02-D-11-V0002-R0 FOR DIVERSION STRUCTURE OVERALL PLAN AND CLOSURE WALLS.
2. EXTEND CLSM BACKFILL TO BOULDER-CLOSURE WALL INTERSECTION.
3. SEE H02-D-11-V0014-R0 FOR FURTHER INFORMATION AT ABUTMENTS.



FOUNDATION PLAN

SCALE: 3/16"= 1'-0"

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Lat. 61.0555 N., Long. 146.3481 W.
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REV:	DATE:	DESCRIPTION:	DWN:	CKD:	APP:
0	5/3/13	ISSUED FOR CONSTRUCTION	RLG	ME	MDM

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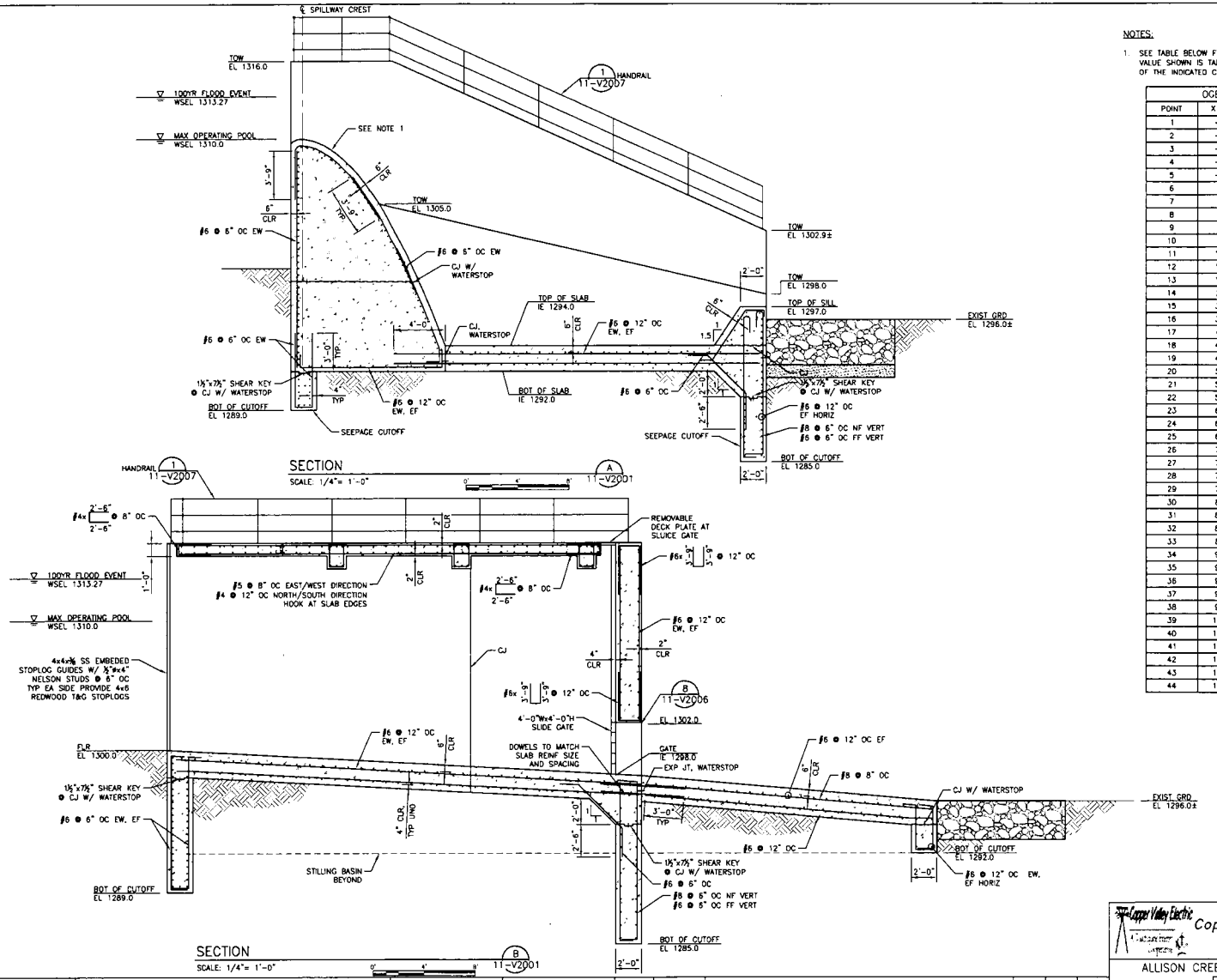
ALLISON CREEK HYDROELECTRIC PROJECT, FERC NO. 13124

DIVERSION AND INTAKE STRUCTURE FOUNDATION PLAN

DWN: RLG	APP: MDM	DWG. No.	REV:
CKD: ME	APP:	H02-D-11-V2001-R0	0
DATE: 5/3/13		SCALE: AS NOTED	SHEET 39 of 175



NOTES:

1. SEE TABLE BELOW FOR SPILLWAY CREST CURVE LAYOUT. THE "X" VALUE SHOWN IS TAKEN AS (-)UPSTREAM OR (+)DOWNSTREAM OF THE INDICATED CREST ℄. SMOOTH BETWEEN POINTS.

OGEE CREST CURVE		
POINT	X (FT)	ELEVATION (FT)
1	-.92	1309.59
2	-.73	1309.79
3	-.49	1309.91
4	-.25	1309.96
5	-.02	1309.98
6	.19	1309.97
7	.36	1309.95
8	.49	1309.93
9	.71	1309.88
10	.89	1309.83
11	1.04	1309.78
12	1.18	1309.73
13	1.72	1309.48
14	2.31	1308.98
15	3.12	1308.48
16	3.64	1307.98
17	4.11	1307.48
18	4.53	1306.98
19	4.92	1306.48
20	5.29	1305.98
21	5.64	1305.48
22	5.97	1304.98
23	6.28	1304.48
24	6.58	1303.98
25	6.87	1303.48
26	7.15	1302.98
27	7.42	1302.48
28	7.68	1301.98
29	7.94	1301.48
30	8.19	1300.98
31	8.43	1300.48
32	8.66	1299.98
33	8.89	1299.48
34	9.12	1298.98
35	9.34	1298.48
36	9.56	1297.98
37	9.77	1297.48
38	9.98	1296.98
39	10.18	1296.48
40	10.38	1295.98
41	10.58	1295.48
42	10.77	1294.98
43	10.97	1294.48
44	11.16	1294.00

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Copper Valley Electric Association, Inc.
Lat. 61.0555 N., Long. 146.3481 W.
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REV:	DATE:	DESCRIPTION:	DWN:	CKD:	APP:
		REVISIONS			
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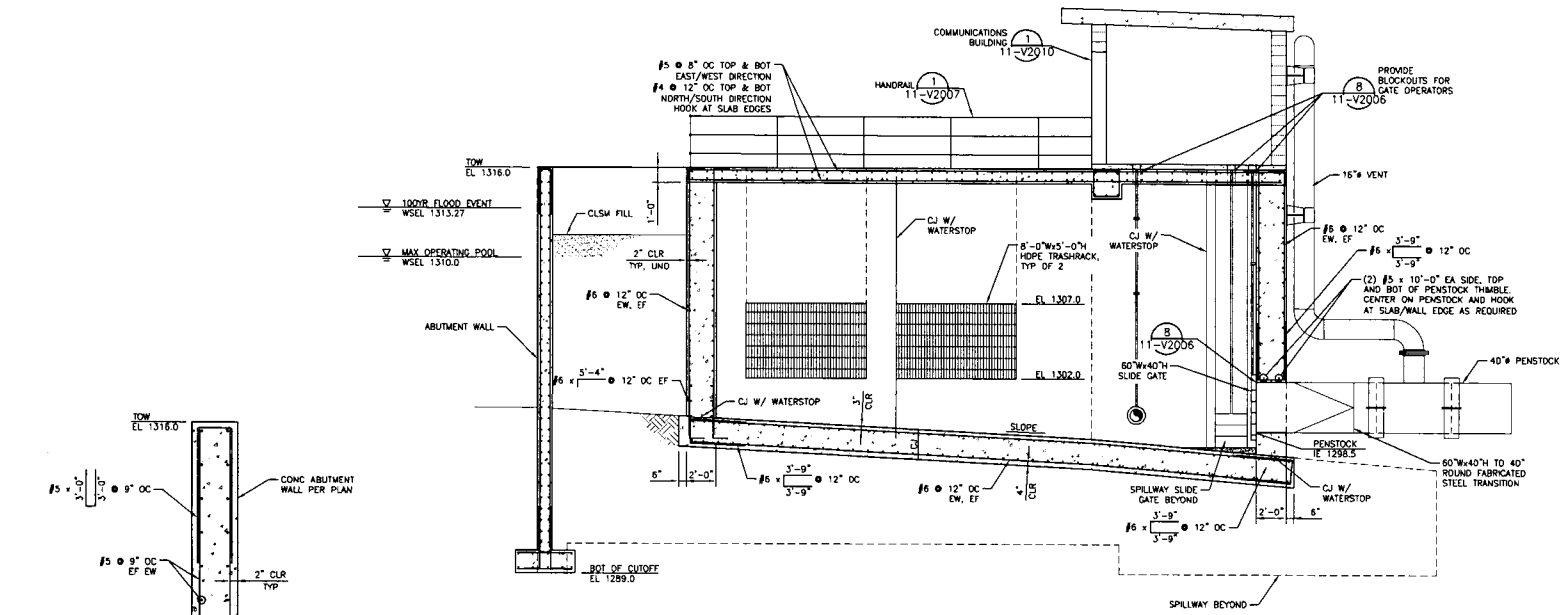
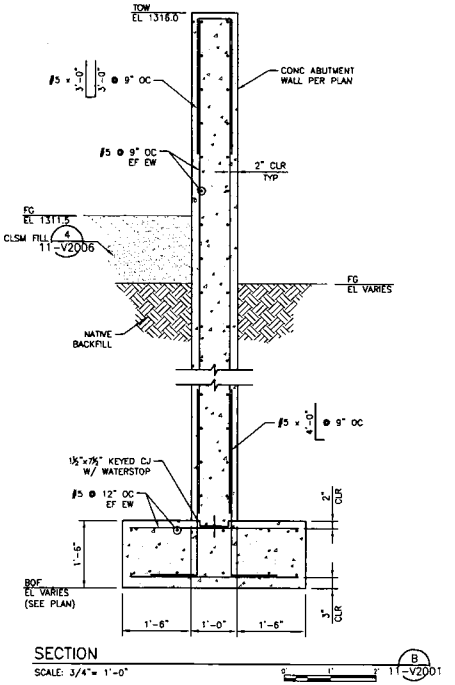
ALLISON CREEK HYDROELECTRIC PROJECT, FERC NO. 13124

DIVERSION AND INTAKE STRUCTURE SECTIONS 1

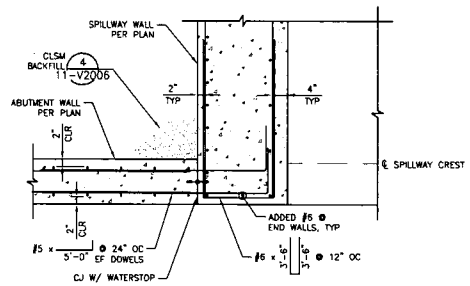
DWN: RLG	APP: MDM	DWG. No.	REV:
CKD: ME	APP:	H02-D-11-V2003-R0	0
DATE: 5/3/13		SCALE: AS NOTED	SHEET 41 of 175



SECTION
SCALE: 1/4"= 1'-0" A 11-V2001



SECTION
SCALE: 3/4"= 1'-0" B 11-V2001



ABUTMENT WALL INTERSECTION DETAIL – PLAN
SCALE: 3/4"= 1'-0" 1 11-V2001

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POA-2008-1257, Allison Creek, Hydroelectri Project
Copper Valley Electric Association, Inc.
Lat. 61.0555 N., Long. 146.3481 W.
Sheet 37 of 45, May 3, 2013

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		REVISIONS			
0	5/3/13	ISSUED FOR CONSTRUCTION	RLG	ME	MDM

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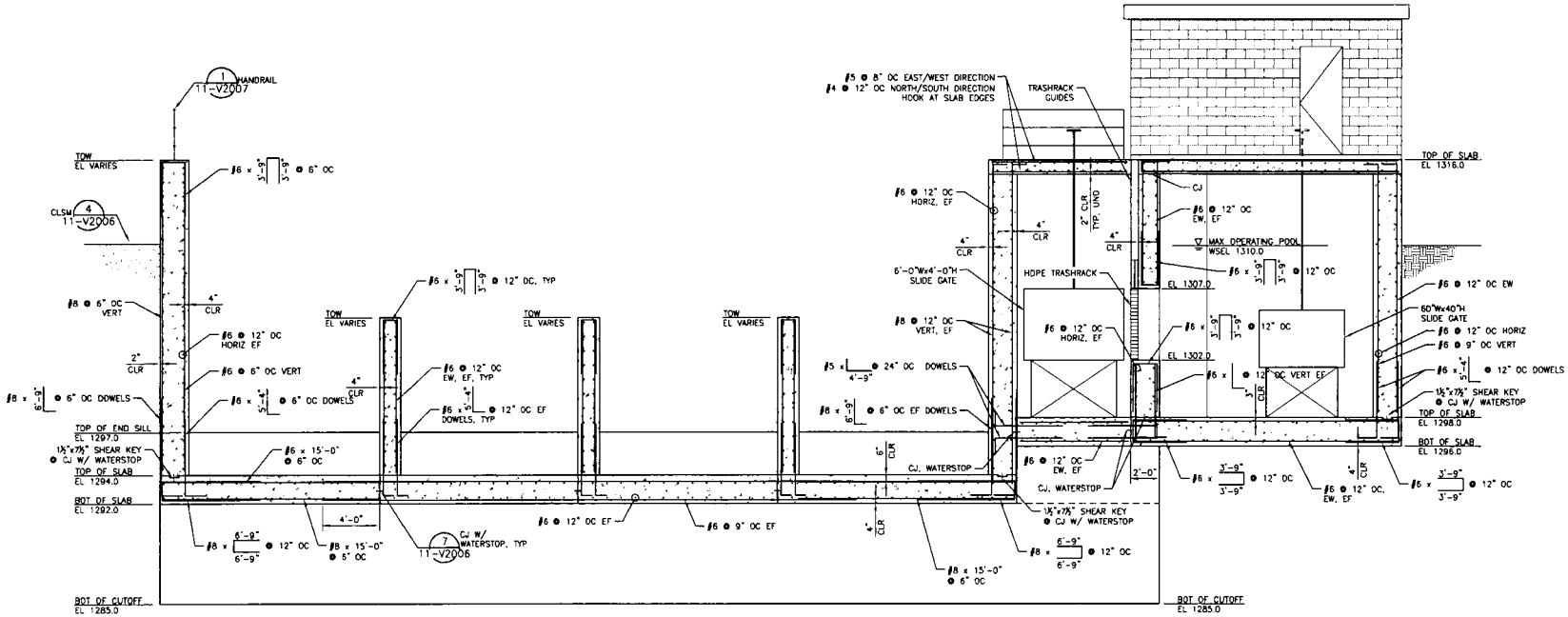
ALLISON CREEK HYDROELECTRIC PROJECT, FERC NO. 13124
DIVERSION AND INTAKE STRUCTURE SECTIONS 2

DWN: RLG	APP: MDM	DWG. No.	REV:
CKD: ME	APP:	H02-D-11-V2004-R0	0
DATE: 5/3/13		SCALE: AS NOTED	SHEET 42 of 175



SECTION
SCALE: 1/4"= 1'-0"

A 11-V2001

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Copper Valley Electric Association, Inc.
Lat. 61.0555 N., Long. 146.3481 W.
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REV:	DATE:	DESCRIPTION:	DWN:	CKD:	APP:
0	5/3/13	ISSUED FOR CONSTRUCTION	RLG	ME	MDM

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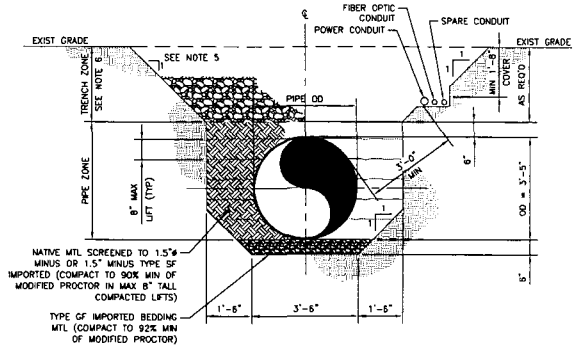
ALLISON CREEK HYDROELECTRIC PROJECT, FERC NO. 13124

DIVERSION AND INTAKE STRUCTURE SECTIONS 3

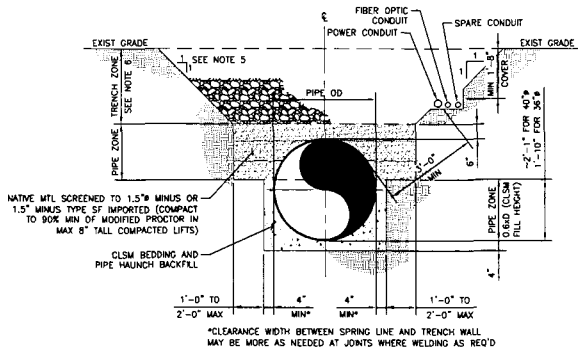
DWN: RLG	APP: MDM	DWG. No.	REV:
CKD: ME	APP:	H02-D-11-V2005-R0	0
DATE: 5/3/13		SCALE: AS NOTED	SHEET 43 of 175



PENSTOCK TRENCH SECTION (NATIVE MTL PIPE ZONE BACKFILL) OPTION 1

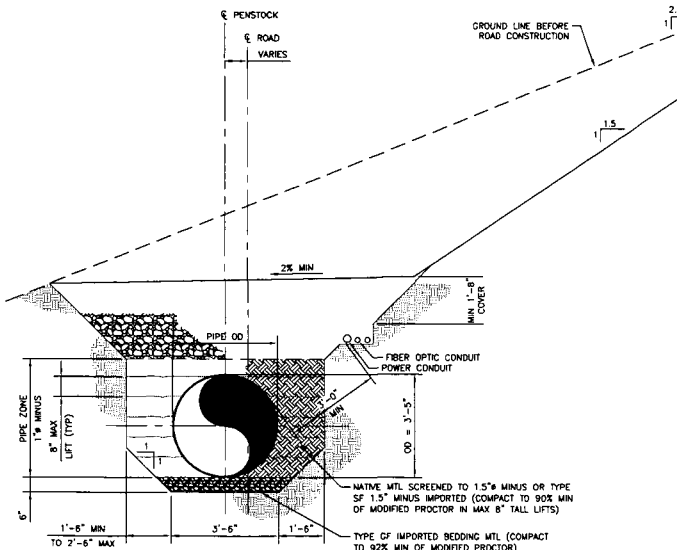
NOTES:

1. FLEXIBLE PIPE REFERS TO ALL STEEL, DUCTILE-IRON, AND PLASTIC PIPES.
2. TYPICAL TRENCH SECTIONS ARE TO BE USED ONLY WHERE STABLE, COMPACT SOIL CONDITIONS EXIST. IF BOULDERS OR LARGE OBSTRUCTIONS ARE ENCOUNTERED, TRENCH SECTIONS MAY BE DEEPER OR WIDER THAN SHOWN. THE ENGINEER SHALL BE ADVISED SHOULD THIS OCCUR.
3. THE NEED FOR PROTECTIVE SYSTEMS AND EXCAVATION SLOPES SHALL BE DETERMINED BY CONTRACTOR CONSIDERING APPLICABLE LOCAL, STATE AND FEDERAL (OSHA) SAFETY STANDARDS AND REGULATIONS, AND GEOTECHNICAL CONSULTANTS' RECOMMENDATIONS. PROTECTIVE SYSTEMS SHALL BE DESIGNED AND BUILT IN ACCORDANCE WITH THE APPLICABLE LOCAL, STATE AND FEDERAL (OSHA) SAFETY STANDARDS AND REGULATIONS.
4. CONTRACTOR SHALL SUBMIT SUPPORTING DOCUMENTATION REGARDING PIPE TRENCH DESIGN AND COMPLIANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL (OSHA) SAFETY STANDARDS.
5. UNSUPPORTED VERTICAL AND/OR SLOPING TRENCH WALL SLOPES SHALL NOT BE STEEPER THAN ALLOWED BY APPLICABLE LOCAL, STATE AND FEDERAL (OSHA) SAFETY STANDARDS AND REGULATIONS, UNLESS SUPPORTING DOCUMENTATION IS SUBMITTED, ACCORDING TO AFOREMENTIONED SAFETY STANDARDS.
6. NATIVE MATERIAL SCREENED TO 5"ø MINUS, COMPACT IN MAX 12" TALL LIFTS TO MIN 85% OF MODIFIED PROCTOR. FINISH BACKFILL BY MOUNDING MATERIAL APPROX 6" TO 12" ABOVE NATURAL EXISTING GRADES.
7. TRENCH SECTIONS OTHER THAN THE TYPICAL SECTIONS SHOWN MAY BE UTILIZED PROVIDED THEY COMPLY WITH APPLICABLE LOCAL, STATE AND FEDERAL (OSHA) SAFETY STANDARDS AND REGULATIONS. DOCUMENTATION SUPPORTING THIS COMPLIANCE SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
8. IF DURING CONSTRUCTION, THE WATER TABLE IS DISCOVERED TO BE ABOVE THE TRENCH BOTTOM, THE ENGINEER SHALL BE NOTIFIED, AND APPROPRIATE DEWATERING SHALL BE IMPLEMENTED TO LOWER THE WATER LEVEL BELOW THE TRENCH BOTTOM. THE BACKFILL MATERIAL SHALL BE ACCORDING TO THE EARTHWORK SECTIONS OF THE SPECIFICATIONS, OR AS ORDERED BY THE ENGINEER.
9. SEE PART 3.8K OF SECTION 31 00 00 – EARTHWORK FOR PIPE ZONE AND TRENCH ZONE EXCAVATION AND COMPACTION REQUIREMENTS.

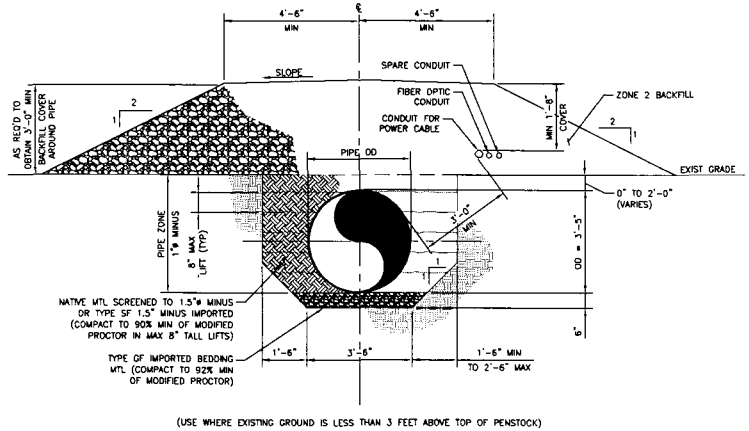


PENSTOCK TRENCH SECTION (CLSM PIPE ZONE BACKFILL) OPTION 2

TYPICAL TRENCH SECTION FLEXIBLE PIPE
SCALE: 1/2" = 1'-0"
C601

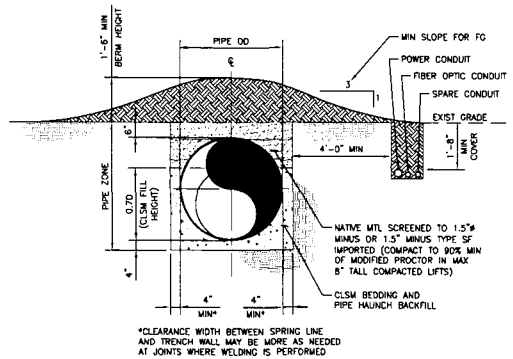


PENSTOCK TRENCH SECTION
(FOR PENSTOCK INSTALLED ON SIDE HILL AND BELOW TEMP ACCESS ROAD)
SCALE: 1/2" = 1'-0"
C604



(USE WHERE EXISTING GROUND IS LESS THAN 3 FEET ABOVE TOP OF PENSTOCK)

PENSTOCK TRENCH SECTION
(FOR PENSTOCK INSTALLED IN SHALLOW BURIAL AREAS)
SCALE: 1/2" = 1'-0"
C605



PENSTOCK TRENCH SECTION
(FOR SLOPES GREATER THAN 55%)
SCALE: NTS
C606

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POA-2008-1257, Allison Creek, Hydroelectri Project
Copper Valley Electric Association, Inc.
Lat. 61.0555 N., Long. 146.3481 W.
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ALLISON CREEK HYDROELECTRIC PROJECT, FERC NO. 13124

PENSTOCK TRENCH SECTIONS AND DETAILS

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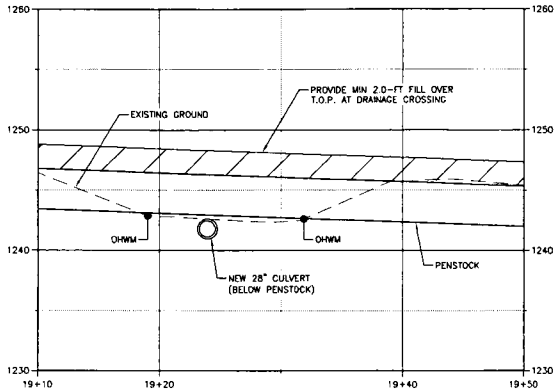
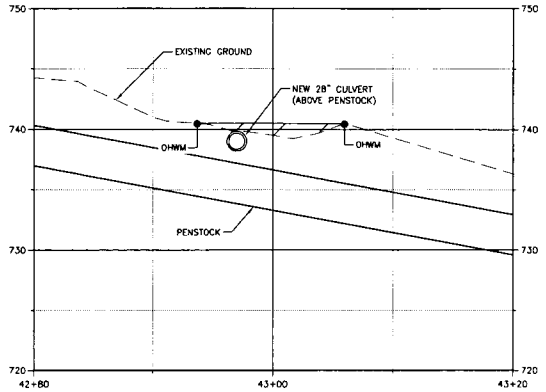


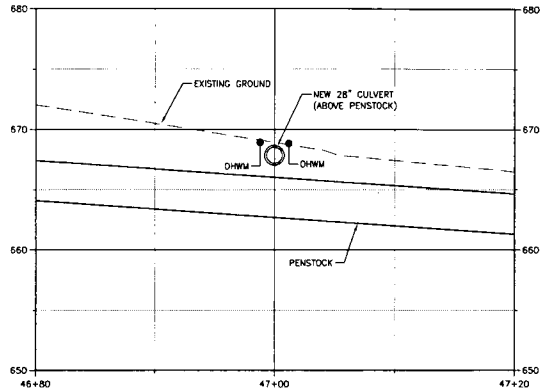
UNNAMED TRIBUTARY 1 STA. 19+25

SCALE: 1"= 5' HORIZ
1"= 5' VERT



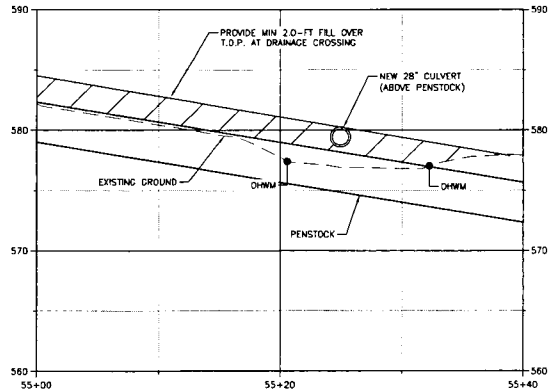
UNNAMED TRIBUTARY 2 STA. 43+00

SCALE: 1"= 5' HORIZ
1"= 5' VERT



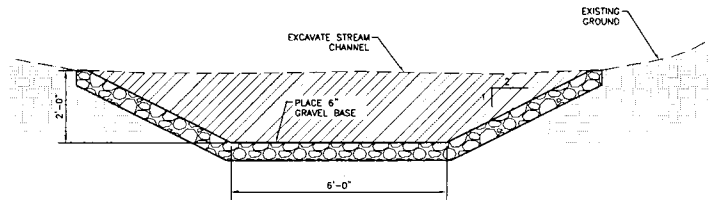
UNNAMED TRIBUTARY 3 STA. 47+00

SCALE: 1"= 5' HORIZ
1"= 5' VERT



UNNAMED TRIBUTARY 3 STA. 55+25

SCALE: 1"= 5' HORIZ
1"= 5' VERT



UNNAMED TRIBUTARY 3
NEW STREAM CHANNEL - TYPICAL (1)

SCALE: NTS

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Copper Valley Electric Association, Inc.
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ALLISON CREEK HYDROELECTRIC PROJECT, FERC NO. 13124

PENSTOCK STREAM CHANNEL SECTIONS

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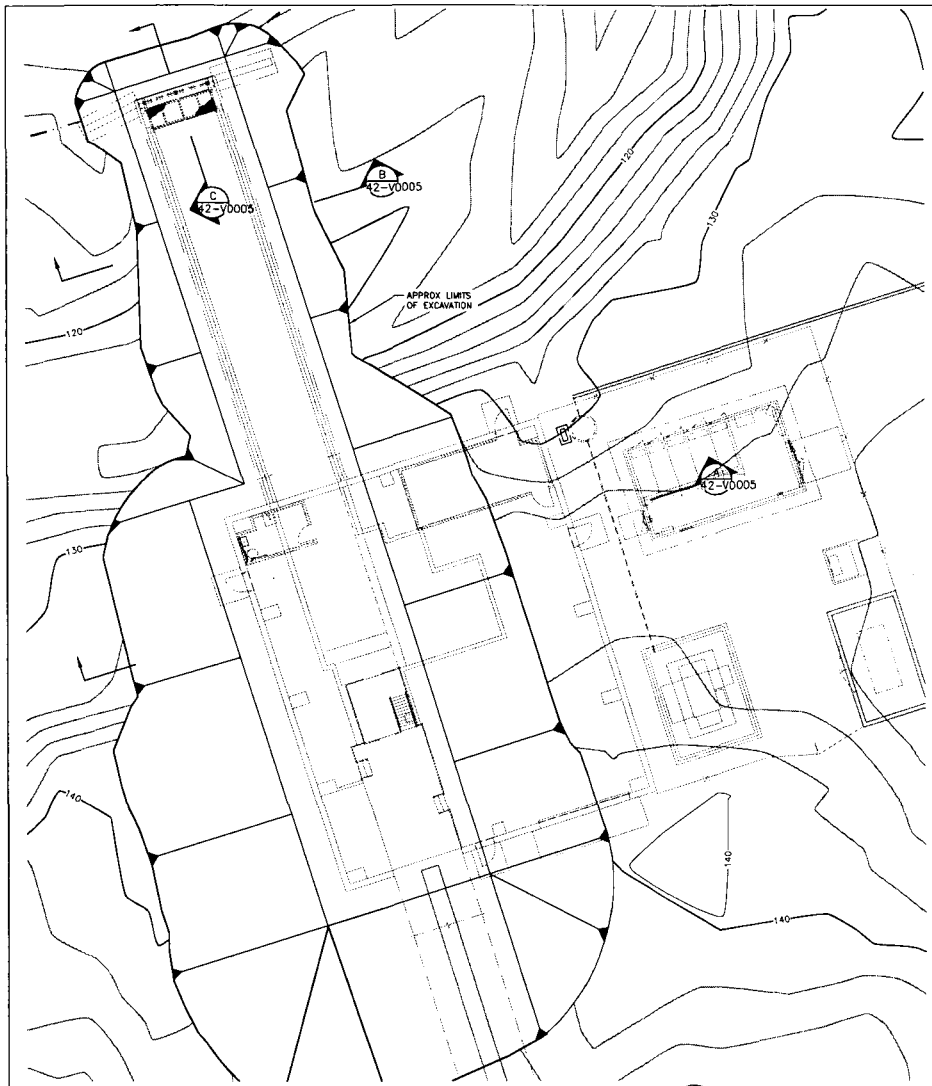
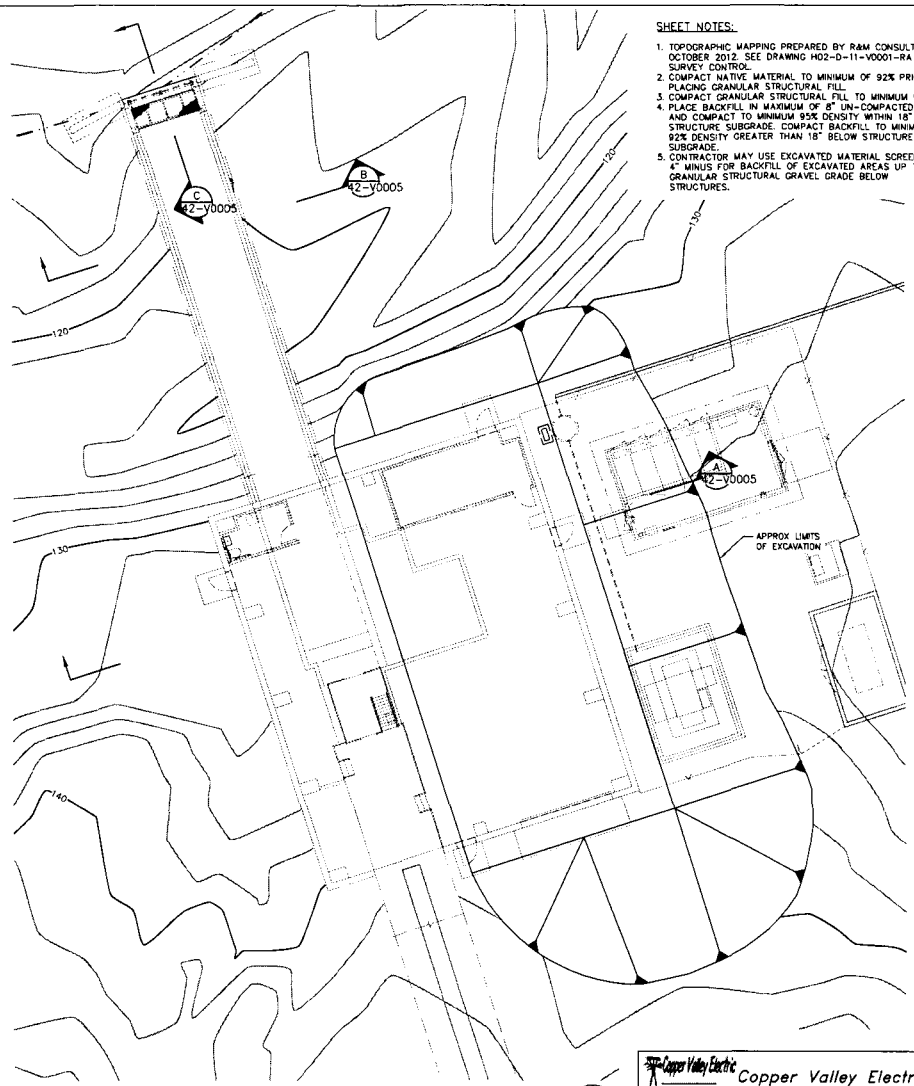


POWERHOUSE TAILRACE EXCAVATION PLAN 1

SCALE: 1"= 10'



POWERHOUSE EXCAVATION PLAN 2

SCALE: 1"= 10'

SHEET NOTES:

1. TOPOGRAPHIC MAPPING PREPARED BY R&M CONSULTANTS, OCTOBER 2012. SEE DRAWING H02-D-11-V0001-RA FOR SURVEY CONTROL.
2. COMPACT NATIVE MATERIAL TO MINIMUM OF 92% PRIOR TO PLACING GRANULAR STRUCTURAL FILL.
3. COMPACT GRANULAR STRUCTURAL FILL TO MINIMUM 95%.
4. PLACE BACKFILL IN MAXIMUM OF 8" UN-COMPACTED DEPTH AND COMPACT TO MINIMUM 95% DENSITY WITHIN 18" OF STRUCTURE SUBGRADE. COMPACT BACKFILL TO MINIMUM 92% DENSITY GREATER THAN 18" BELOW STRUCTURE SUBGRADE.
5. CONTRACTOR MAY USE EXCAVATED MATERIAL SCREENED TO 4" MINUS FOR BACKFILL OF EXCAVATED AREAS UP TO GRANULAR STRUCTURAL GRAVEL GRADE BELOW STRUCTURES.

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POA-2008-1257, Allison Creek, Hydroelectri Project
Copper Valley Electric Association, Inc.
Lat. 61.0555 N., Long. 146.3481 W.
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ALLISON CREEK HYDROELECTRIC PROJECT,
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POWERHOUSE
EXCAVATION PLAN

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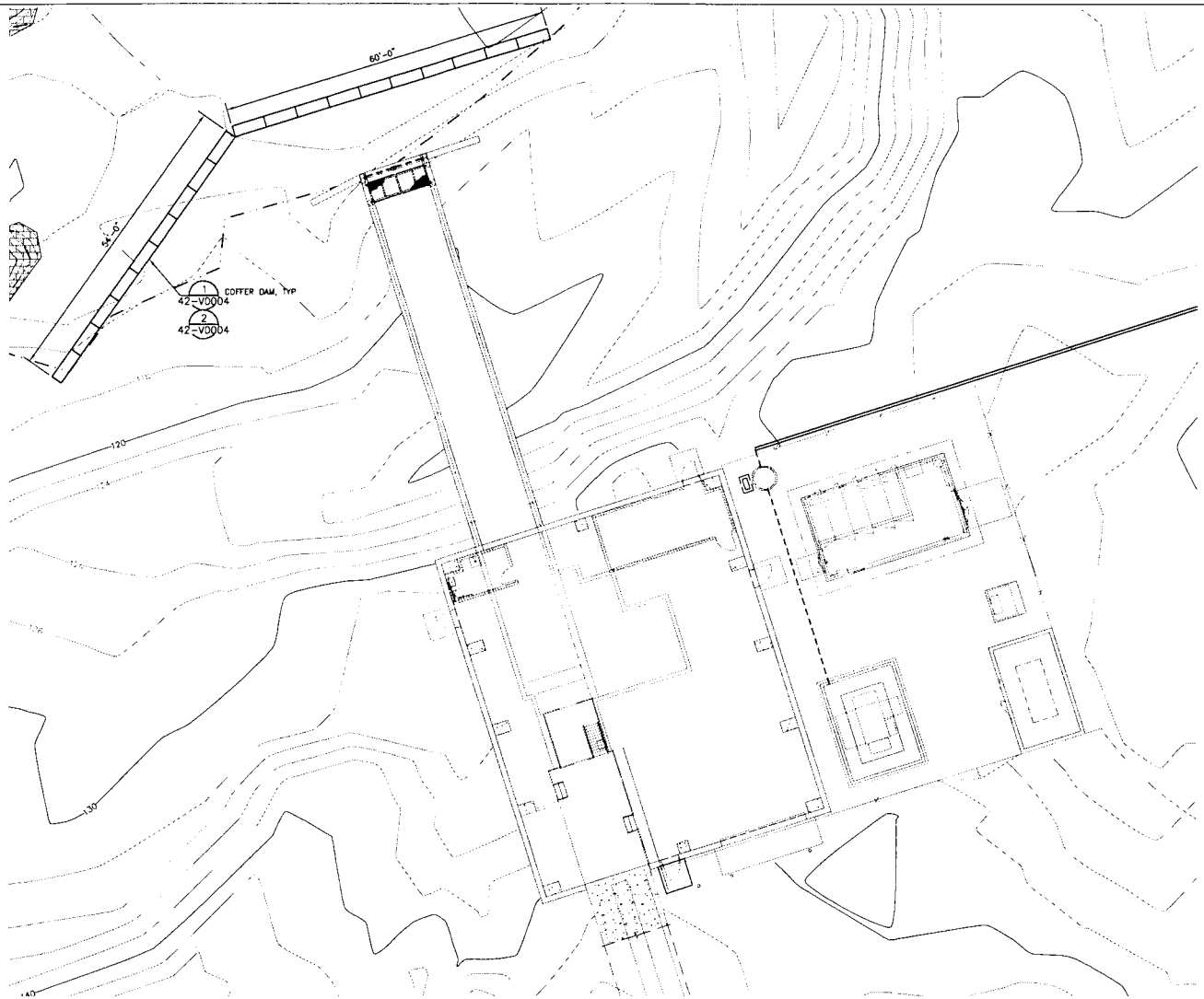

POWERHOUSE COFFERDAM PLAN

SCALE: 1" = 10'

SHEET NOTES:

1. INSTALL ECOLOGY BLOCK COFFERDAM OR SUPER SACK OR APPROVED EQUAL.
2. MINIMUM HEIGHT OF COFFERDAM 4'.
3. SET UPSTREAM END OF COFFERDAM INTO EXISTING CREEK BANK.
4. INSTALL MASTIC JOINT SEALANT BETWEEN BLOCKS.
5. INSTALL WELL POINT AND PUMP AS REQUIRED TO MAINTAIN WORKABLE AREA.

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POA-2008-1257, Allison Creek, Hydroelectri Project
Copper Valley Electric Association, Inc.
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ALLISON CREEK HYDROELECTRIC PROJECT,
FERC NO. 13124

POWERHOUSE
COFFERDAM PLAN

DWN: RLG	APP: MDM	DWG. No.	REV:
CKD: SS	APP:	H02-D-42-V0003-R0	0
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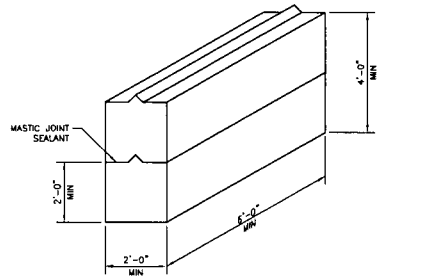
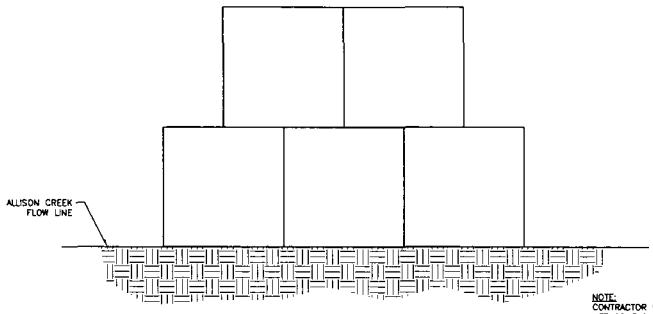
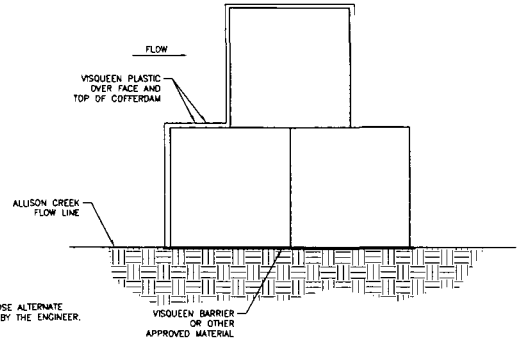


ECOLOGY BLOCK
SCALE: NTS
1
42-V0003





SUPER SACK COFFERDAM
SCALE: NTS
2
42-V0003

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Copper Valley Electric Association, Inc.
Lat. 61.0555 N., Long. 146.3481 W.
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ALLISON CREEK HYDROELECTRIC PROJECT,
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POWERHOUSE COFFERDAM
SECTIONS AND DETAILS

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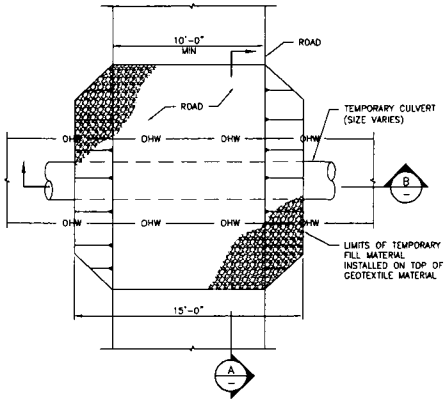
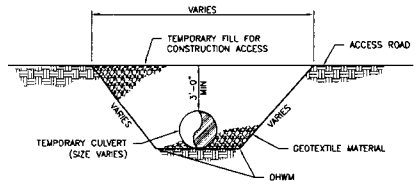


TEMPORARY STREAM CROSSING

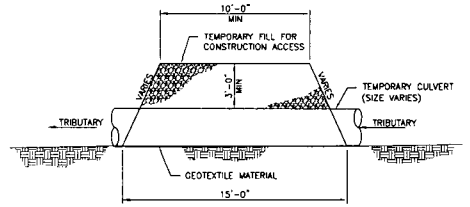
SCALE: 1/4"= 1'-0"



CULVERT SECTION

SCALE: 1/4"= 1'-0"

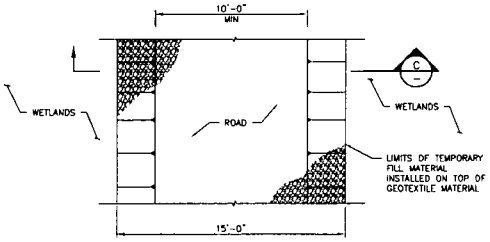
A



CULVERT SECTION

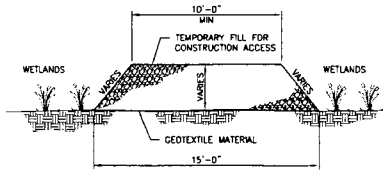
SCALE: 1/4"= 1'-0"

B



TEMPORARY WETLAND ACCESS ROAD

SCALE: 1/4"= 1'-0"



ROAD SECTION

SCALE: 1/4"= 1'-0"

C

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POA-2008-1257, Allison Creek, Hydroelectri Project
Copper Valley Electric Association, Inc.
Lat. 61.0555 N., Long. 146.3481 W.
Sheet 44 of 45, May 3, 2013

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ALLISON CREEK HYDROELECTRIC PROJECT, FERC NO. 13124

TRANSMISSION LINE TEMPORARY STREAM CROSSING AND WETLAND ACCESS

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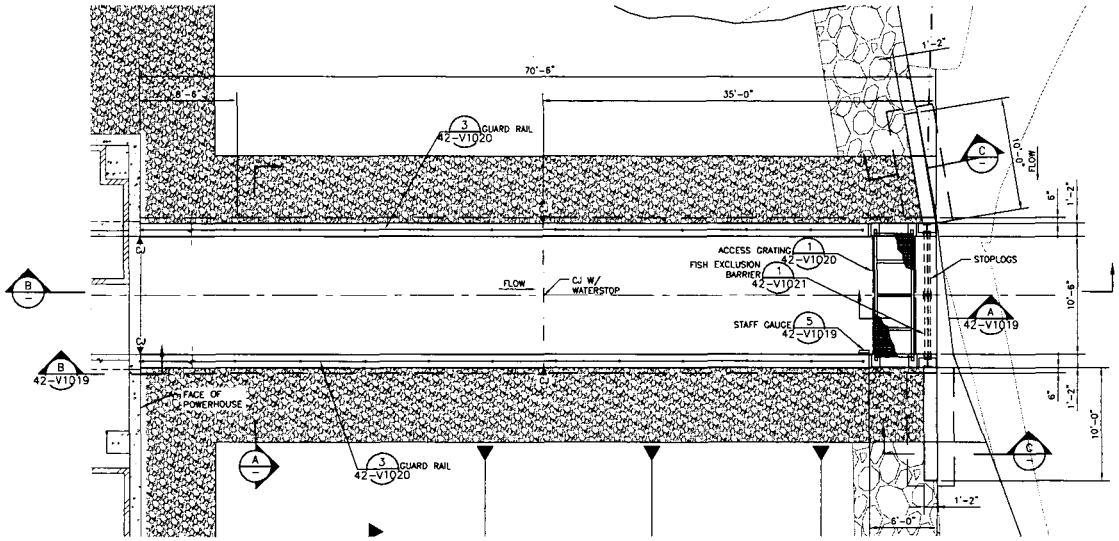
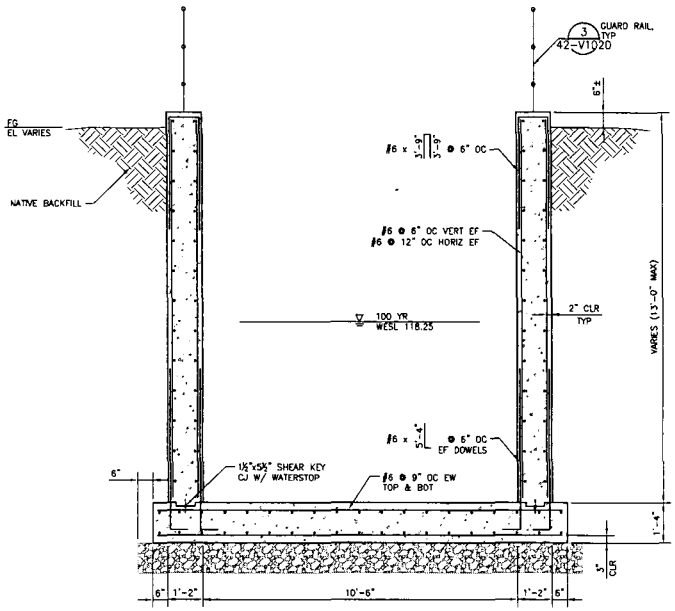
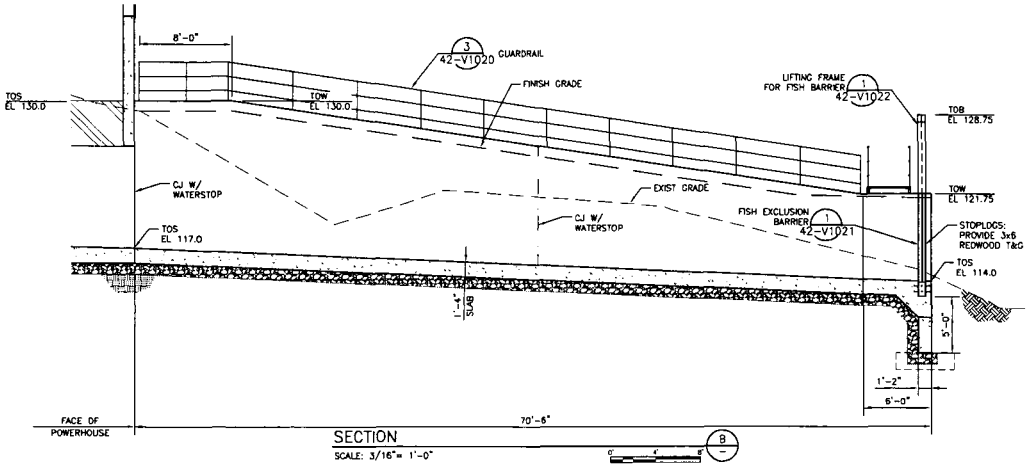


TAILRACE CHANNEL PLAN
SCALE: 3/16"= 1'-0"



SECTION
SCALE: 1/2"= 1'-0"



SECTION
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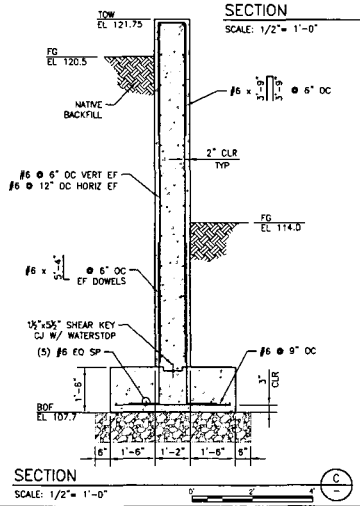

SECTION
SCALE: 1/2"= 1'-0"

McMillen, LLC

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POA-2008-1257, Allison Creek, Hydroelectri Project
Copper Valley Electric Association, Inc.
Lat. 61.0555 N., Long. 146.3481 W.
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ALLISON CREEK HYDROELECTRIC PROJECT.
FERC NO. 13124

POWERHOUSE TAILRACE CHANNEL
PLAN AND SECTIONS

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Allison Creek Hydroelectric Project
Supplemental Permit Application Information

Applicant Proposed Mitigation Statement

Copper Valley Electric Association, Inc. (CVEA) is a rural electric cooperative serving Valdez, Glennallen, and the Copper Valley basin. The objective for pursuing the potential development of Allison Creek is to displace fossil fuel generation with additional hydropower generation. CVEA operates an isolated electric system, and the only other electric energy alternative available is from CVEA's existing Solomon Gulch Hydroelectric Project or diesel. Typically, the 12-MW Solomon Gulch project provides about 50% of CVEA's generation. The remaining 50% is generated with fossil fuel from a cogeneration facility or diesel plants in Glennallen and Valdez. The 6.5-MW Allison Creek Project could off-set 11% of generation needed from diesel.

I. Avoidance of Impacts to Waters of the U.S., Including Wetlands

The diversion structure, penstock and powerhouse have been designed to avoid wetlands and streams and remain cost beneficial to the project to the greatest extent practical. The design engineer concluded that there are no other practicable alternatives or arrangements available that have less impact on wetlands and streams. Due to the steep nature of the penstock alignment, there were limited options for the alignment of the penstock and access for construction.

In order to access the intake/diversion location, a temporary construction access is required to accommodate heavy machinery. The design engineer selected a tunnel alternative through the steep bedrock hillside (between stations 65+00 and 76+00) rather than cutting an access road into the hillside. By using the tunnel, potential impacts to streams and wetlands from the construction and constant maintenance of the switch-back road are eliminated. The tunnel provides for access during construction and for project maintenance and inspection while also accommodating the penstock which is routed through the tunnel.

The transmission line route was selected to reduce visual impacts to area recreationalists, limit impacts to birds traversing between upland nesting areas and the shoreline, utilize a state-designated utility corridor, and avoid the Trans-Alaska Pipeline that is buried in the vicinity of the transmission line route. Once the general route was selected, the pole locations were established in coordination with the transmission design engineer who modified pole locations and spacing to limit impacts by selecting locations that were outside of wetlands and streams to the greatest extent practicable. This re-route helped to avoid and minimize impacts to wetlands and streams along the alignment as is presented in the permit application.

II. Minimization of Unavoidable Impacts to Waters of the U.S., Including Wetlands

CVEA believes the Allison Creek Hydroelectric Project, as designed, includes all practicable measures to minimize harm to wetlands. Six wetland avoidance and minimization procedures are incorporated in the project design and construction:

- Project design has minimized the fill footprint to the extent practicable in order to construct components of the project,

- Facilities would be consolidated to the smallest extent practical and still provide the intended function and purpose,
- Slopes subject to erosion and disturbed surfaces would be stabilized using Best Management Practices and re-vegetated to minimize stormwater pollution,
- Sedimentation prevention measures would be placed and maintained along the toe of all fill areas adjacent to wetlands or streams to prevent the introduction of sediments. These measures would remain in place until the fill and exposed earthwork are stabilized and revegetated,
- Only clean sand and gravel would be used for fills, and
- Material would be stockpiled primarily in developed areas and/or uplands outside of wetlands or streams.

III. Compensation for Unavoidable Impacts to Waters of the U.S., Including Wetlands

CVEA has designed and licensed a project that not only minimizes potential impacts to waters of the U.S., including wetlands, but also displaces fossil fuel generation with clean, renewable, hydropower generation. For the reasons presented in this Applicant Proposed Mitigation Statement, CVEA is not proposing any compensatory mitigation for project impacts (permanent 0.74 acres/temporary 0.58 acres) to wetlands and streams.

IV. Alternatives Considered

As part of the Federal Energy Regulatory Commission (FERC) licensing process and in accordance with the FERC's National Environmental Protection Act (NEPA) requirements, CVEA developed and considered reasonable alternatives in the siting, layout and design of the hydropower project. The selected run-of-river design alternative is described in the accompanying permit application.

Engineering Alternatives

CVEA considered a total of six alternatives and each of these envisioned the use of Allison Lake as a storage reservoir to achieve a better balance of energy availability during the winter season. The consideration of these alternatives is documented in CVEA's Application for Original License (August 2011) and two related technical reports contained therein: the Allison Lake Hydroelectric Project Final Feasibility Report (May 2010) and Addendum (January 2011). The six alternatives are summarized below.

- Alternative 1: This alternative would have included the creation of an earth embankment at the outlet of Allison Creek to store water, an intake and a diversion tunnel to convey water from Allison Lake to the Solomon Gulch Reservoir to enhance generation at the existing Solomon Gulch powerhouse during low lake conditions. Alternative 1 was removed from further study due to high cost of the proposed tunnel and uncertainty regarding pathogens transferred to Solomon Gulch Reservoir from Allison Lake and the potential cost of treatment to continue to provide water to the Solomon Gulch Hatchery.
- Alternative 2: This alternative would have included an independent development of Allison Lake consisting of an earth embankment at the outlet of Allison Creek to store water, an intake, tunnel, power conduit, and a new powerhouse near tidewater on Allison Creek. Alternative 2 was removed from further study due to high cost of the proposed tunnel.
- Alternative 3: This alternative was considered to convey water to an independent 4 MW powerhouse near tidewater on Allison Creek by means of an earth embankment at the outlet of

Allison Creek to store water, a surface/buried penstock. Four configurations within this alternative were investigated:

- Alternative 3a – siphon, submerged intake and 2,200 foot long buried penstock.
- Alternative 3b – a 3,000 foot long micro-tunnel with submerged intake and 30-foot high rock fill dam.
- Alternative 3c – a 70-ft high rock fill dam at the outlet of Allison Lake and 2,200 foot long buried penstock.
- Alternative 3d – a 30-foot high rock fill dam at the outlet of Allison Lake and 2,200 foot long buried penstock with a 6 MW powerhouse.

Of the four arrangements for Alternative 3, CVEA initially concluded that Alternative 3c provided the lowest cost of power. However, by 2010 all Alternative 3 considerations, including Alternative 3c were removed from further consideration due to concerns regarding embankment cost, high potential for cost overruns during construction, foundation conditions for the embankment dam with regard to seepage and liquefaction, avalanche hazard, and project reliability during winter season due to a lack of access capability to major features at Allison Lake.

Project studies and analyses, as presented in the Final Feasibility Study Report (2010) and Addendum (2011), demonstrated that each of the alternatives were technically and environmentally feasible. However, the studies also revealed that each alternative included significant challenges potentially affecting long term economics and/or operational reliability. Based on design and economic considerations and findings, CVEA removed the reservoir storage alternatives from further consideration and adopted the run-of-river hydroelectric generation project utilizing a diversion structure and intake in Allison Creek, instead of an embankment and intake at Allison Lake. This run-of-river arrangement as described in the permit application was determined to be the preferred alternative to develop the hydropower potential of the Allison Creek drainage basin. It also proved to have least amount of environmental impacts to the environment and water resources since a large dam and reservoir would not be constructed.

Environmental Alternatives

Upon selection of the run-of-river configuration for the proposed project, CVEA initiated a rigorous study program to assess environmental impacts. The resulting Application for Original License (August 2011) details the results of those studies and the additional environmental protection, mitigation and enhancement (PM&E) measures CVEA proposed to accompany the design of the hydroelectric project.

FERC's NEPA process evaluated the run-of-river project and proposed PM&E measures. The Final Environmental Assessment (EA) was issued by FERC on June 21, 2013 presenting FERC's environmental analysis of the alternatives considered: the applicant-proposed alternative, the staff-recommended alternative, and the no-action alternative. These alternatives are summarized below and presented in greater detail in the June 2013 Final EA.

- No Action Alternative: The no-action alternative is license denial. Under the no-action alternative, the project would not be built and environmental resources in the project area would not be affected. Economic and environmental benefits associated with the reduction of fossil generation would not be realized. Environmental consequences would include continuing use of diesel fuel to provide

an equal amount of electric power to CVEA's members with the ensuing environmental impacts associated with storage and handling of liquid fuel; contribution to climate change due to greenhouse gas emissions and related adverse effects on public health; and contribution to ocean acidification. Continued use of diesel generation also includes increased future energy generation costs associated with direct costs of monitoring and compliance, the fluctuation in the cost of diesel fuel, and indirect costs to public health.

- Applicant-Proposed Alternative: CVEA proposed the Allison Creek Hydroelectric Project as described in the permit application accompanied by a number of measures to minimize potential impacts on the aquatic ecosystem, including:
    - Operate the project in run-of-river mode
    - Release a minimum flow of 2 cubic feet per second (cfs) at the diversion structure into the bypassed reach of Allison Creek at all times when the project is operating
    - Maintain a minimum flow of 10 cfs in Reach 3 of the bypassed reach (6,500 feet downstream from the diversion) from June 16 through October 31, and 8 cfs from November 1 through June 15 if the project is operating
    - Provide a ramping rate of 20 cfs per hour in Reach 3 during project startup and shutdown
    - Minimize the footprint of the area to be used to place fill material
    - Consolidate project facilities to a small area of impact
    - Implement an Erosion and Sediment Control Plan (ESCP) to protect water quality by using best management practices (BMPs) for controlling erosion; and develop and include in the ESCP: a Storm Water Pollution Prevention Plan, a Construction Water Quality Monitoring Plan, and a Blasting Plan
    - Develop and implement Phase 1 of a Biotic Monitoring Plan that includes an Environmental Compliance Monitoring Plan (Environmental Monitoring Plan) and provides for the presence of a qualified Environmental Compliance Monitor (ECM) on-site during all construction phases to monitor turbidity upstream and downstream of the construction during instream work
    - Implement measures to protect wetlands including: revegetating slopes and disturbed surfaces to minimize stormwater pollution, planning and maintaining sediment prevention measures along the toe of all fill areas adjacent to wetlands or waters, preventing sediments from entering fill areas adjacent to wetlands or waters, using only clean sand and gravel for fill, and stockpiling material in developed areas and/or uplands (see also Section II above)
    - Install and maintain stream gages below the diversion and in Reach 3, and collect and analyze data from these gages to document compliance with minimum flow releases
    - Develop and implement Phase 2 of the Biotic Monitoring Plan to monitor water temperature alterations, fish stranding, and habitat connectivity in the bypassed reach of Allison Creek

- Staff-Recommended Alternative: Under the staff alternative, the project would include Copper Valley's proposed measures, as outlined above. In addition, staff recommends the following modifications and additional measures to minimize potential impacts on the aquatic ecosystem:
    - Develop an Operation Compliance Monitoring Plan

- Provide failsafe provisions to ensure that continuous instream flows are provided to Allison Creek in the bypassed reach
- Develop a final tailrace design in consultation with the agencies to reduce or eliminate fish attraction to the project tailrace
- Notify the Commission, ADFG, and FWS within 10 days of an event not in compliance with any license that may be issued that would affect fish and/or wildlife
- Develop a plan to discourage fishing, hunting, and trapping in the project area by project personnel