

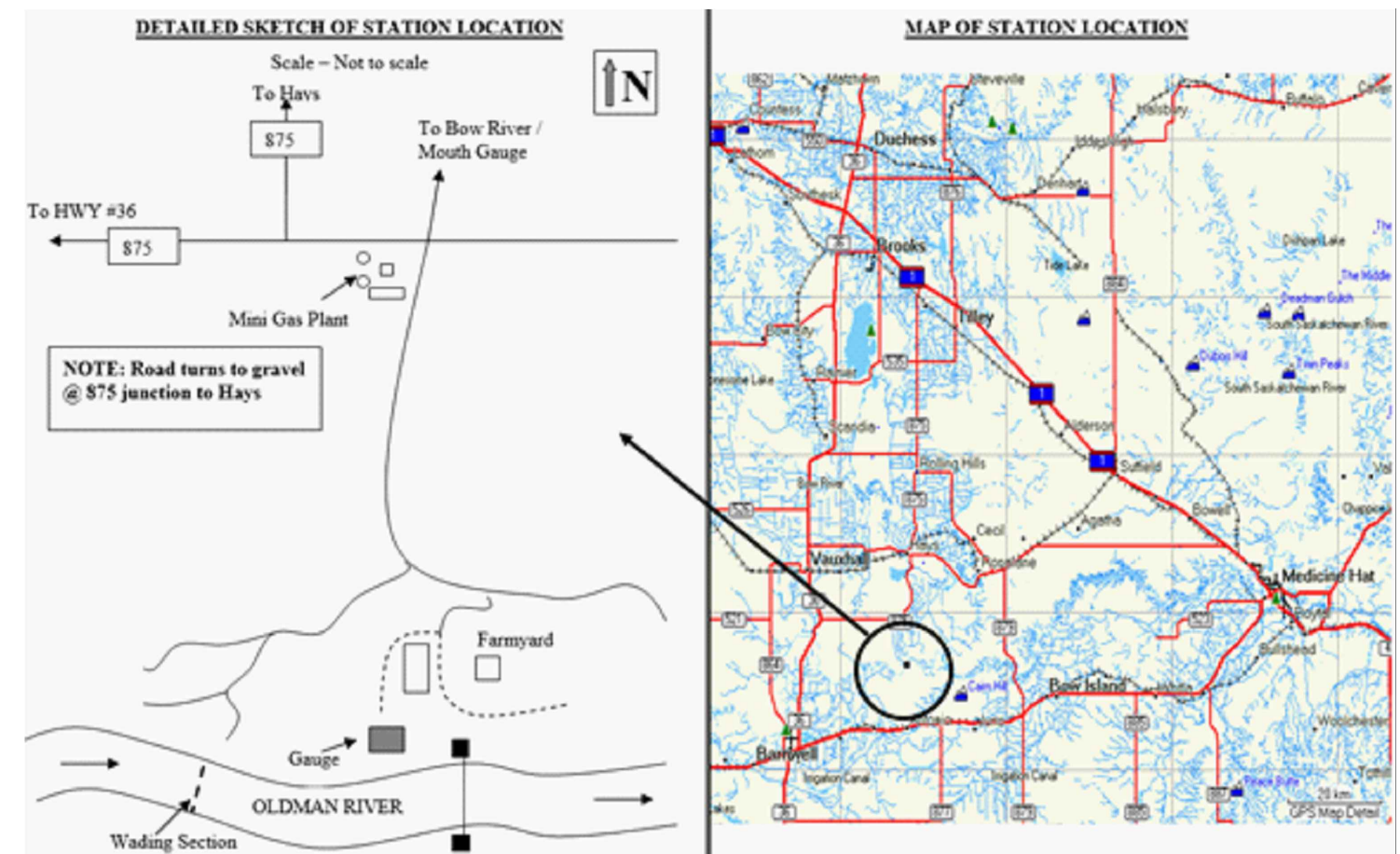


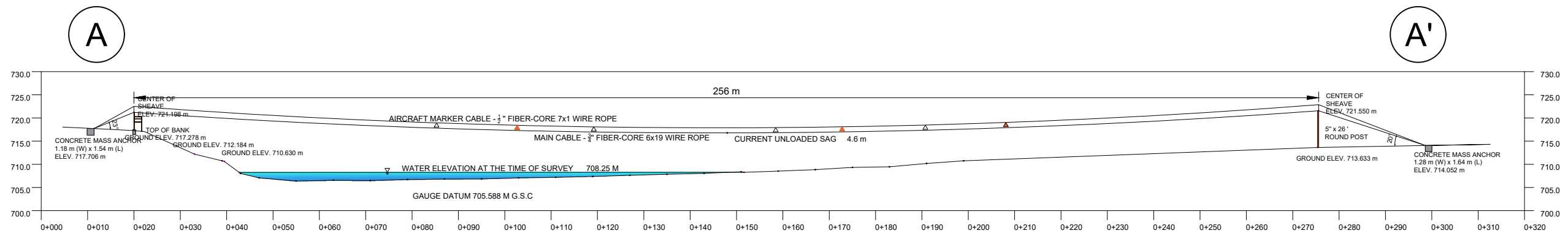
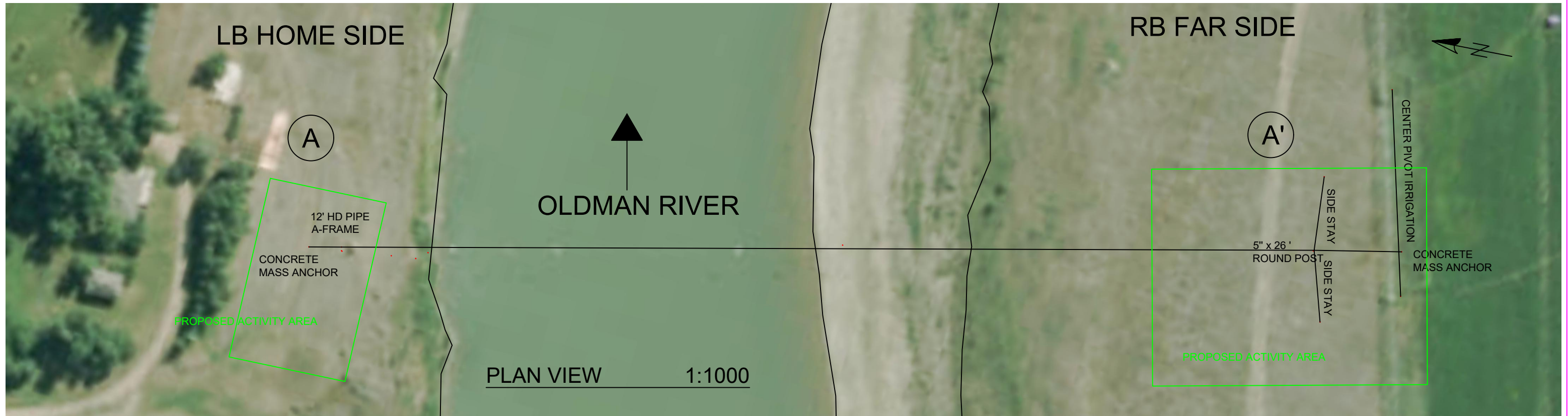
PASSENGER-OPERATED CABLEWAY REBUILD AT HYDROMETRIC MONITORING STATION OLDMAN RIVER NEAR THE MOUTH, ALBERTA (05AG006)

Index

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LOCATED IN	SEC SW 24 - TWP 11 - RG 14 - W4
LATTITUDE, LONGITUDE	49.91889 N, 111.80000 W





NOTES:

- ALL UNITS ARE IN METERS OTHERWISE SPECIFIED.
- DATE OF SURVEY: OCTOBER 28, 2019
- THE TEMPERATURE AT THE TIME OF SURVEY: - 15 °C
- ELEVATION DERIVED FROM LOCAL BENCH MARK S.B.M 93-1 (ELEV. 716.421 m)

- The coordinate of existing LB upstream concrete footing is 49.91973 N, 111.798802 W.
- The coordinate of existing RB concrete anchor is 49.916793 N, 111.797786 W.

Existing Condition

**Oldman River near the Mouth - Cableway Rebuild
05AG006**

Existing Plan View and Elevation View

Drawn by
Wenrui Chen

Designed by

Approved by

ECCC Project Manager
Wenrui Chen

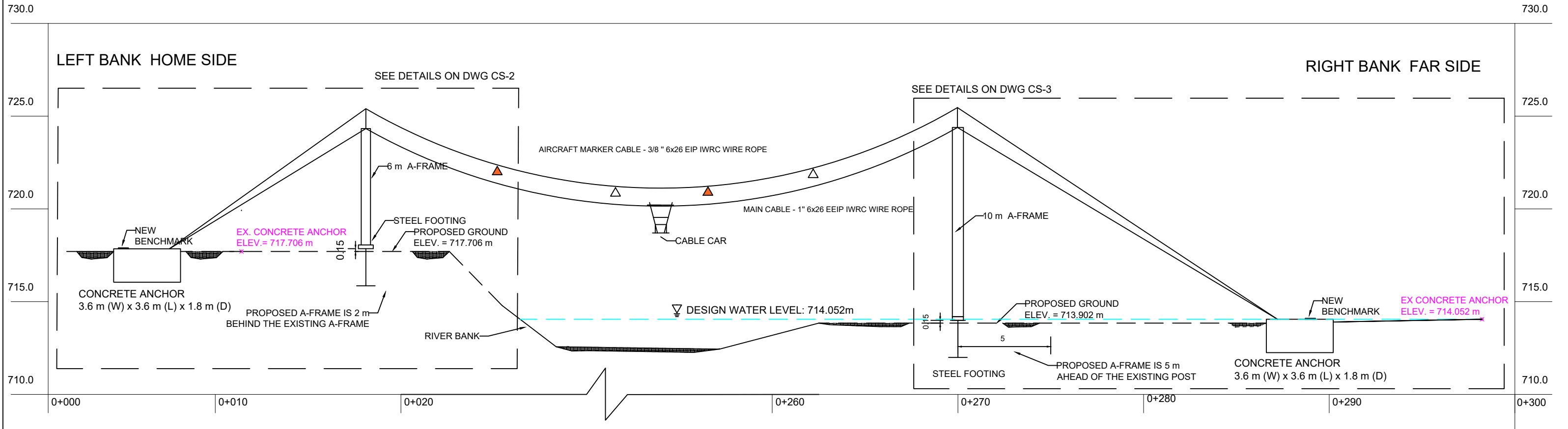
Drawing no.

Date
25/11/2019

EX-1

Sheet

Revision



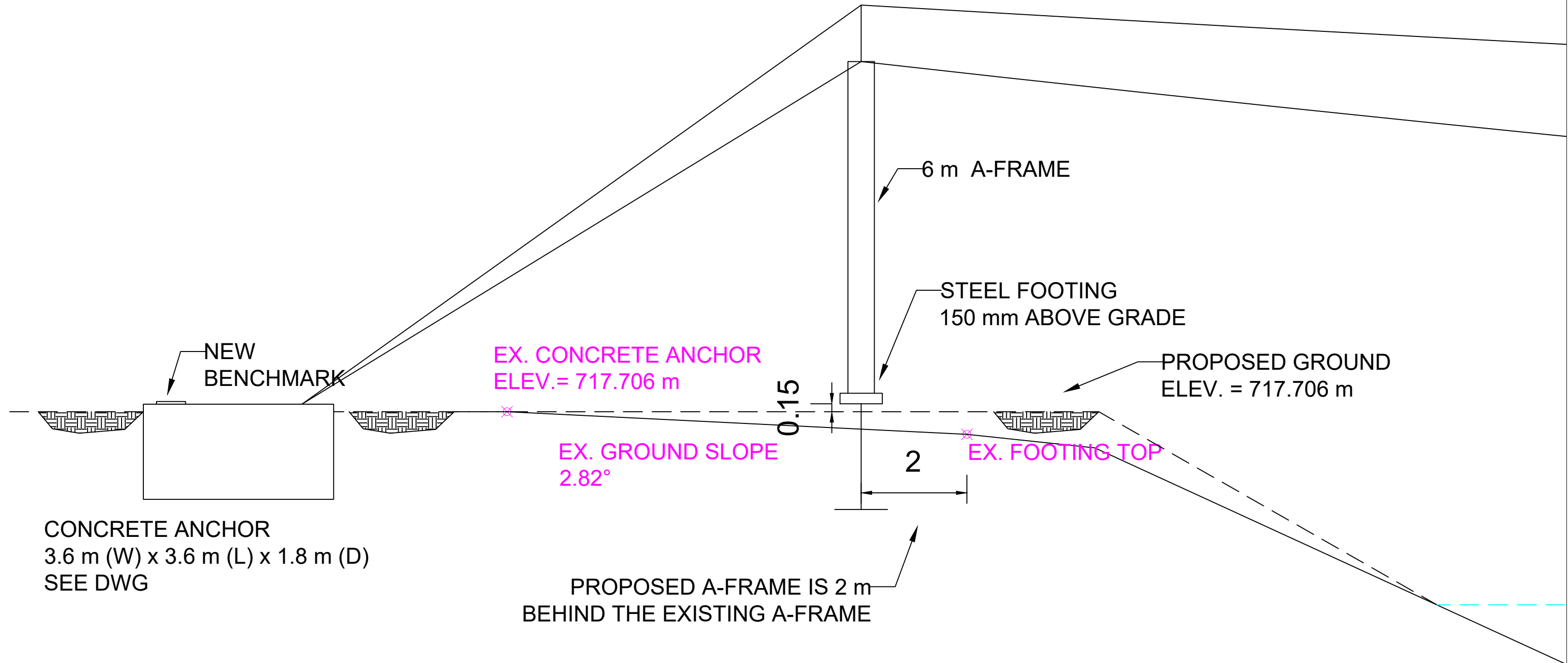
NOTES:

1. CABLEWAY SPAN IS 253 m APPROXIMATELY.
2. AIRCRAFT WARNING MARKERS ARE PLACED AT A SPACING OF 25m APPROXIMATELY.
3. CABLEWAY DESIGN SAG (UNLOADED SAG) IS 3.917 m @ 35°C, WHICH CORRESPONDS TO ELEVATION = 720.037 m APPROXIMATELY.
4. THE COORDINATES FOR NEW INFRASTRUES ARE AS FOLLOWS:
 - LB HS CENTER OF NEW A-FRAME (49.919187 N, 111.798775 W)
 - LB HS NEW CONCRETE ANCHOR UPSTREAM CORNER (49.919301 N, 111.799815 W)
 - RB FS CENTER OF NEW A-FRAME (49.917000 N, 111.797860 W)
 - RB FS NEW CONCRETE ANCHOR FRONT (49.916846 N, 111.797850 W)

PROJECT TITLE OLDMAN RIVER NEAR THE MOUTH (05AG006) - CABLEWAY REBUILD		DRAWING TITLE PROPOSED CABLEWAY CROSS-SECTION PLAN	
DRAWING NO. CS-1	DESIGNED BY W.CHEN	DRAFTED BY W.CHEN	DATE March 24, 2022

LEFT BANK
HOME SIDE

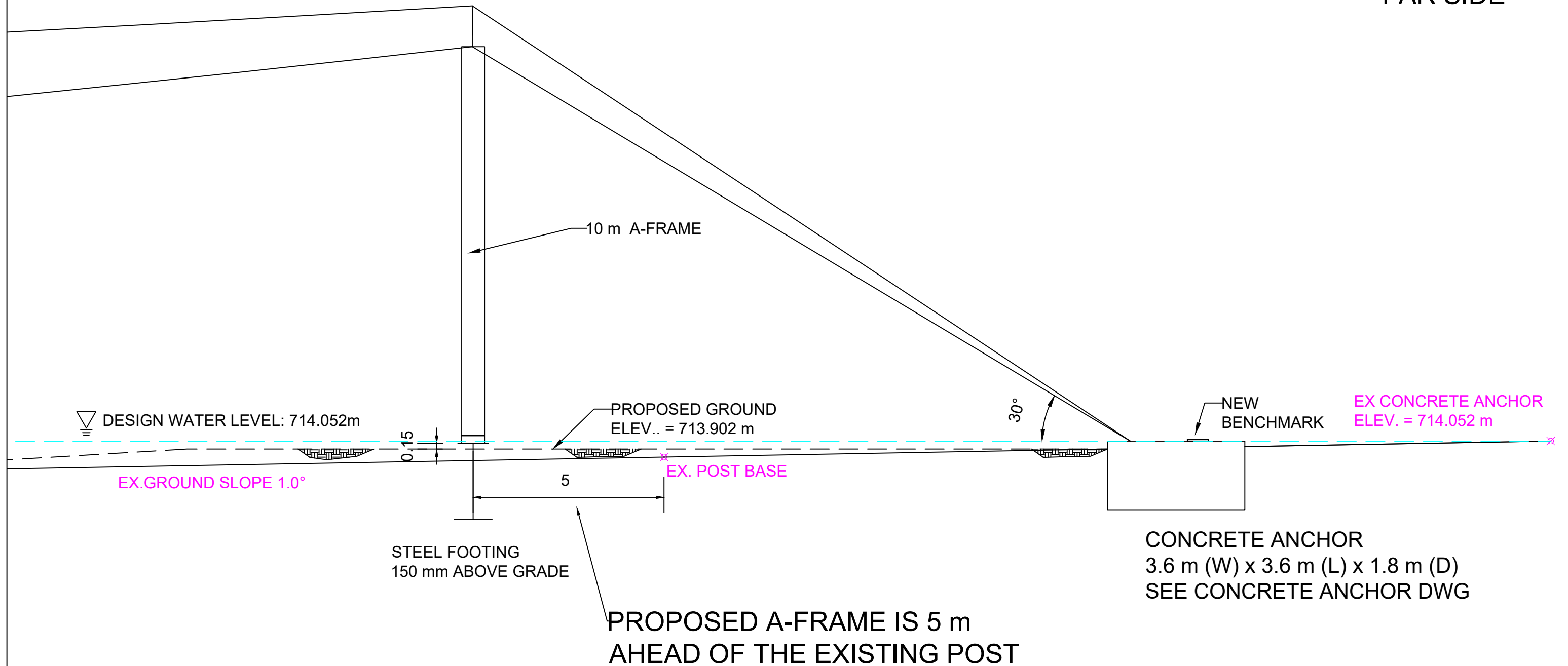
TO RIVER
→



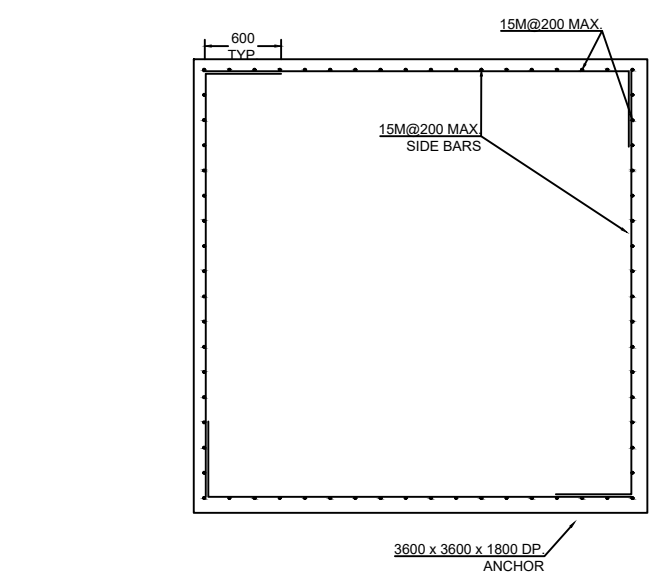
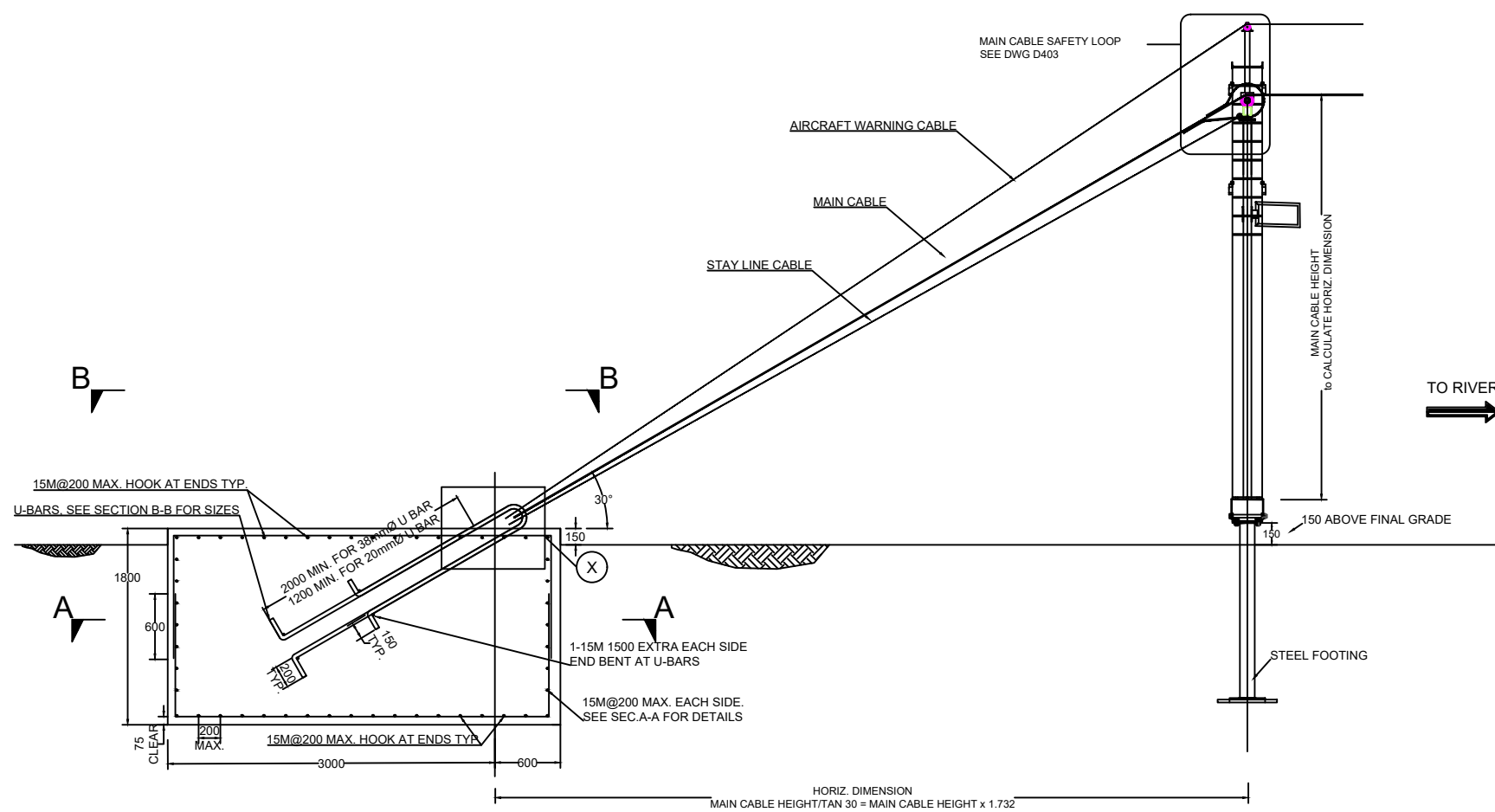
PROJECT TITLE OLDMAN RIVER NEAR THE MOUTH (05AG006) - CABLEWAY REBUILD		DRAWING TITLE PROPOSED CABLEWAY CROSS-SECTION - LEFT BANK DETAILS	
DRAWING NO. CS-2	DESIGNED BY W.CHEN	DRAFTED BY W.CHEN	DATE March 24, 2022

TO RIVER
←

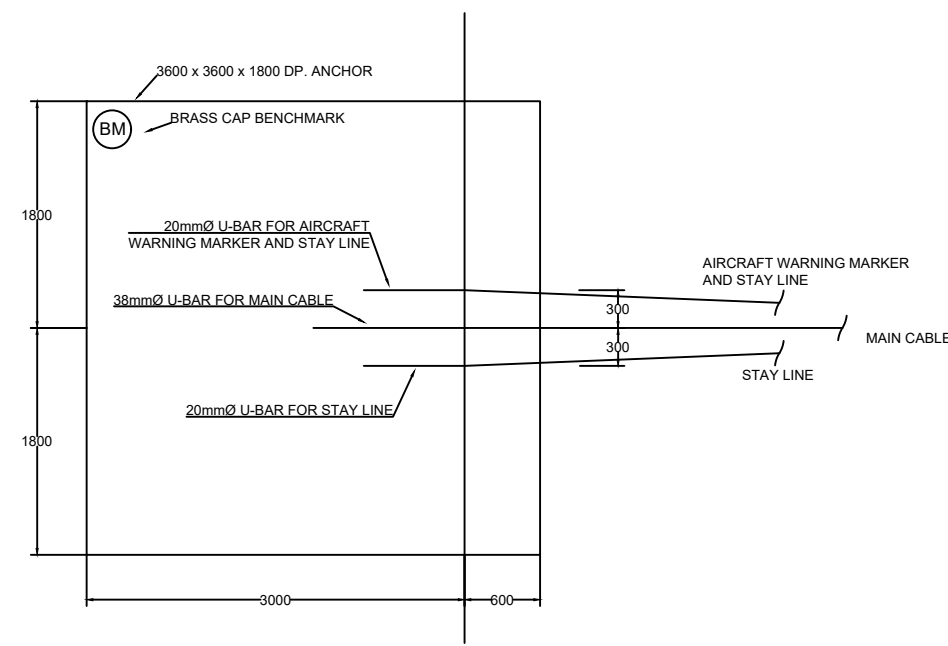
RIGHT BANK
FAR SIDE



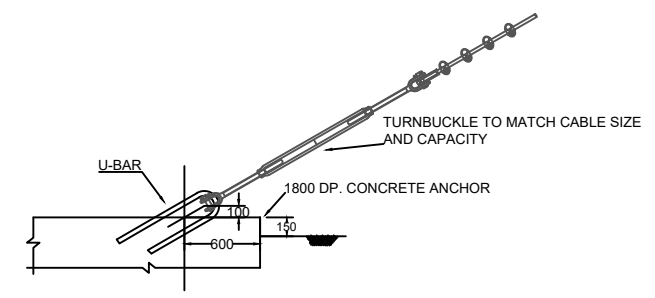
PROJECT TITLE OLDMAN RIVER NEAR THE MOUTH (05AG006) - CABLEWAY REBUILD		DRAWING TITLE PROPOSED CABLEWAY CROSS-SECTION - RIGHT BANK DETAILS	
DRAWING NO. CS-3	DESIGNED BY W.CHEN	DRAFTED BY W.CHEN	DATE March 24, 2022



SECTION A-A



SECTION B-B



DETAIL X

NOTES:

- ALL UNITS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.
- THIS SET OF DRAWINGS SHALL BE READ IN CONJUNCTION WITH THE STRUCTURAL SPECIFICATIONS AND WITH THE DRAWINGS AND SPECIFICATIONS FROM ALL OTHER CONSULTANTS. ANY DISCREPANCIES NOTED SHALL BE REPORTED IMMEDIATELY FOR CLARIFICATION.
- THE BASES OF ANCHORS SHALL BE PROTECTED FROM RAIN, SNOW AND ANY WATER INFILTRATION. PROVIDE CONCRETING PROTECTION AND PRECAUTIONS AS REQUIRED BY SPECIFICATION.
- THE CONCRETE ANCHORS SHALL BE FOUNDED ON NATURAL SAND AND/OR GRAVEL SOIL APPROVED BY DEPARTMENTAL REPRESENTATIVE.
- NO ANCHORS SHALL BE POURED BEFORE THE BEARING MATERIAL HAS BEEN INSPECTED BY DEPARTMENTAL REPRESENTATIVE. NOTIFY DEPARTMENTAL REPRESENTATIVE MINIMUM 24 HOURS BEFORE INSTALLATION OF REINFORCEMENT.
- THE BACKFILL SHALL BE SAND AND GRAVEL COMPACTED TO A MINIMUM OF 95% (STANDARD PROCTOR MAXIMUM DRY DENSITY) COMPACTION. BACKFILL MATERIAL SHALL BE PLACED IN LIFTS NOT EXCEEDING 150mm. COMPACT SUBGRADE PRIOR TO PLACEMENT OF BACKFILL MATERIAL.
- EXISTING CONCRETE WORKS SHALL BE REMOVED FROM SITE BY CONTRACTOR AND DISPOSED OF IN ACCORDANCE WITH ENVIRONMENTAL AND DISPOSAL REQUIREMENTS.
- ALL ANCHOR BOLTS & U-BARS SHALL BE HOT-DIP GALVANIZED.
- MAIN CABLE SHALL BE TIGHTENED UNTIL MID-SPAN SAG MATCHES THE SPECIFIED SAG. DO NOT OVER-STRETCH MAIN CABLE. FINAL SAG REQUIREMENTS SHALL BE CONFIRMED WITH DEPARTMENTAL REPRESENTATIVE.
- DO NOT STRETCH MAIN CABLE, I.E. DO NOT LOAD CONCRETE ANCHORS BEFORE ANCHORS WERE PROPERLY CURED FOR 7 DAYS AND REACH 70% OF THEIR 28 DAYS SPECIFIED COMPRESSIVE STRENGTH.
- INSTALL A BENCHMARK (BM) IN EACH CONCRETE ANCHOR. BRASS CAP BENCHMARKS WILL BE SUPPLIED BY WATER SURVEY OF CANADA.

SOIL PARAMETERS:

SOIL ANGLE OF INTERNAL FRICTION	30
SOIL FRICTION COEFFICIENT	0.4
COEFFICIENT OF ACTIVE EARTH PRESSURE	0.33
COEFFICIENT OF PASSIVE EARTH PRESSURE	3.00
ALLOWABLE BEARING PRESSURE	75 kPa

CONCRETE:

CONCRETE AND CONCRETE ACCESSORIES SHALL BE AS PER CSA A23.1/A23.2 AND SHALL BE IN ACCORDANCE WITH THE FOLLOWING PROPERTIES UNLESS NOTED OTHERWISE:

MIN. 28-DAYS COMPRESSIVE STRENGTH	30 MPa
MAX. AGGREGATE SIZE	25 mm
SLUMP	90 ± 20 mm
EXPOSURE CLASS	C-1
AIR CONTENT	5 - 8%
MIN. CLEAR COVER: CAST AGAINST EARTH	75mm
OTHER CONDITIONS	50mm

U-BAR:

- TO ASTM A307 Grade 36

REINFORCEMENT:

- STEEL REINFORCING SHALL CONFORM TO CSA STANDARD G30.18 400R
- Fy = 400 MPa
- MINIMUM LAP LENGTH: 15M 600 mm

PROJECT TITLE	OLDMAN RIVER NEAR THE MOUTH 05AG006	DRAWING TITLE	CONCRETE ANCHOR FOR 1" EEIP WIRE ROPE UNDER SUBMERGED CONDITIONS		
CLEINT	ENVIRONMENT CANADA WATER SURVEY DIVISION CALGARY AB	DRAWING NO.	CS-4	DESIGNED BY	W.CHEN
				DRAWN BY	W.CHEN
				DATE	March 23, 2022