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PRELIMINARY DRAWING FOR
CONSENTING PURPOSES – NOT
FOR CONSTRUCTION

Project:
Fisherplace Hydro
Catchment Extension

Client:
Hydropol

Drawing Title:
General Layout

File Name:
FPCE-DWG-General Layout-B-160524-ARC

Scale: 1:2500 @ A3	Revision: B	Sheet: 1 OF 2
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Drawn by: DM	Date: 16/05/2024
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Taken from OS Mastermap 1:1250
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NOTES:

LOCATION

Stanah Intake - 333303 518911

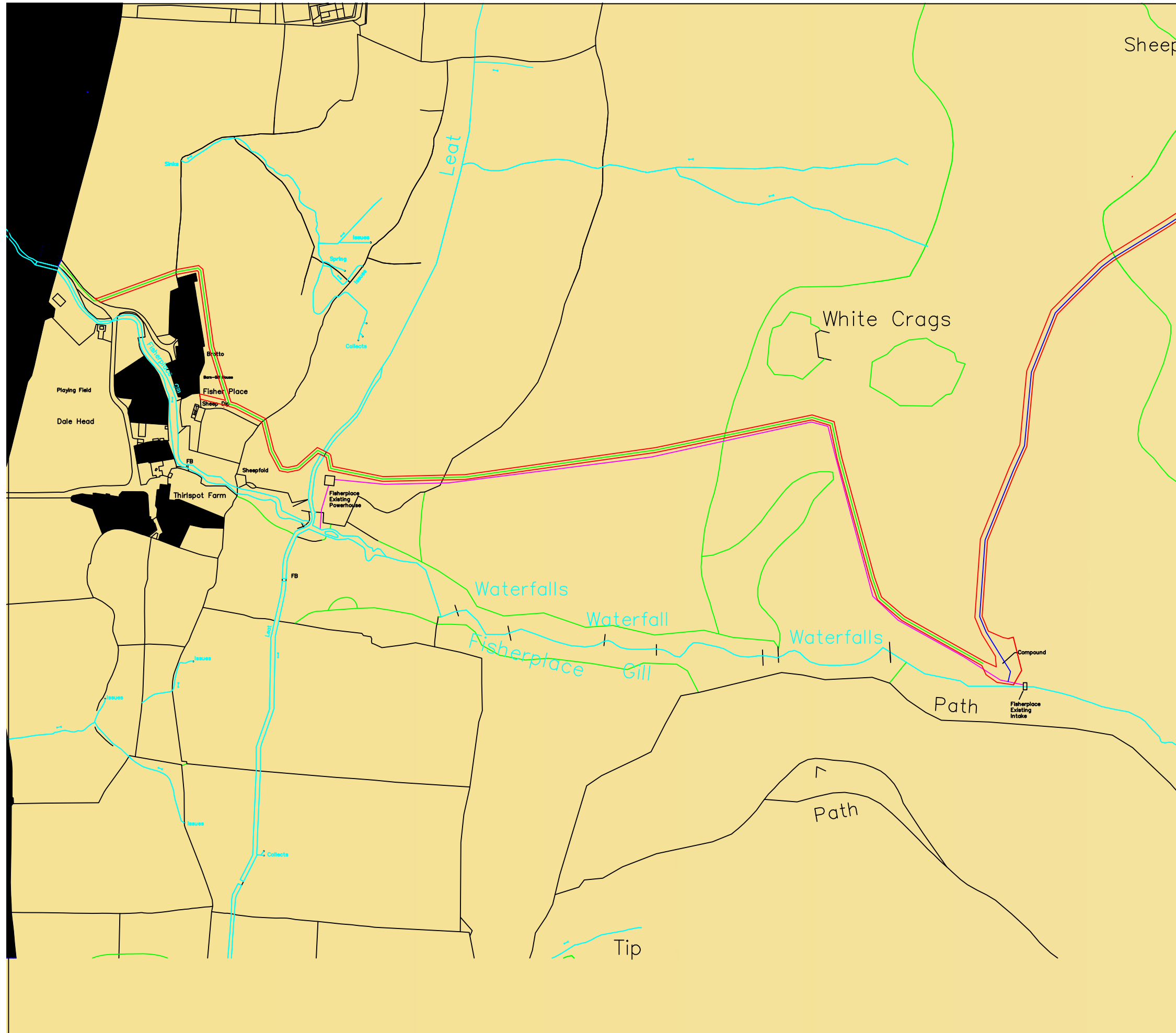
Pipelines joint just
below Fisherplace intake - 332534 518186

Fisherplace Intake (existing) - 332542 518873

TOLERANCES
The final route of the pipeline may vary marginally
as site conditions dictate.

Revisions			
Rev	Description	Approved	Issued
A	Original	ARC	13.03.24

- KEY
- United Utilities Land Ownership
 - Site Boundary
 - Buried Pipeline
 - Access
 - Existing Buried Pipeline
 - Stanah Intake



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Drawn by: ARC	Date: 16/05/2024
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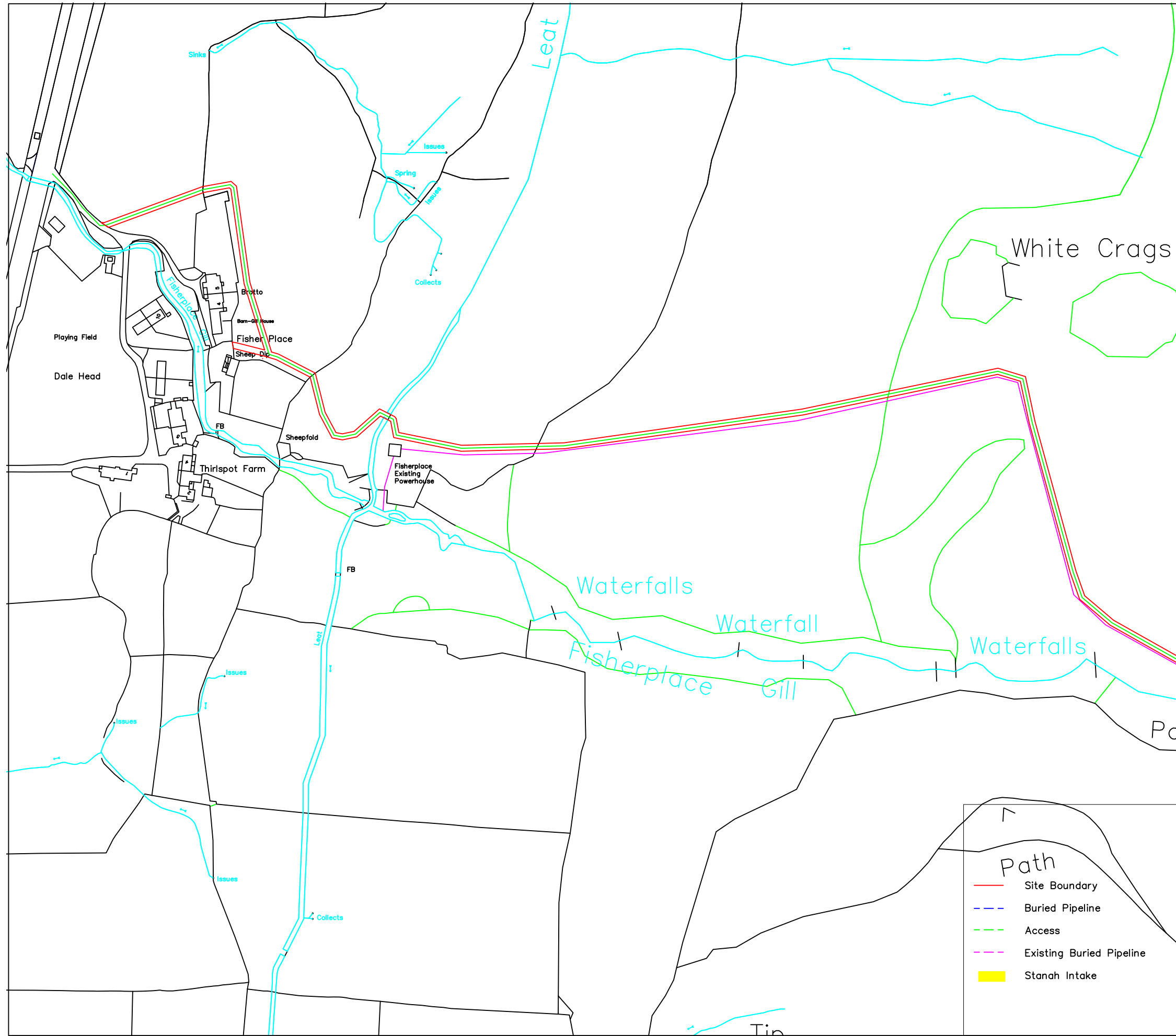
TOLERANCES
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Rev	Description	Approved	Issued
A	Original	ARC	13.03.24

KEY

- United Utilities Land Ownershop
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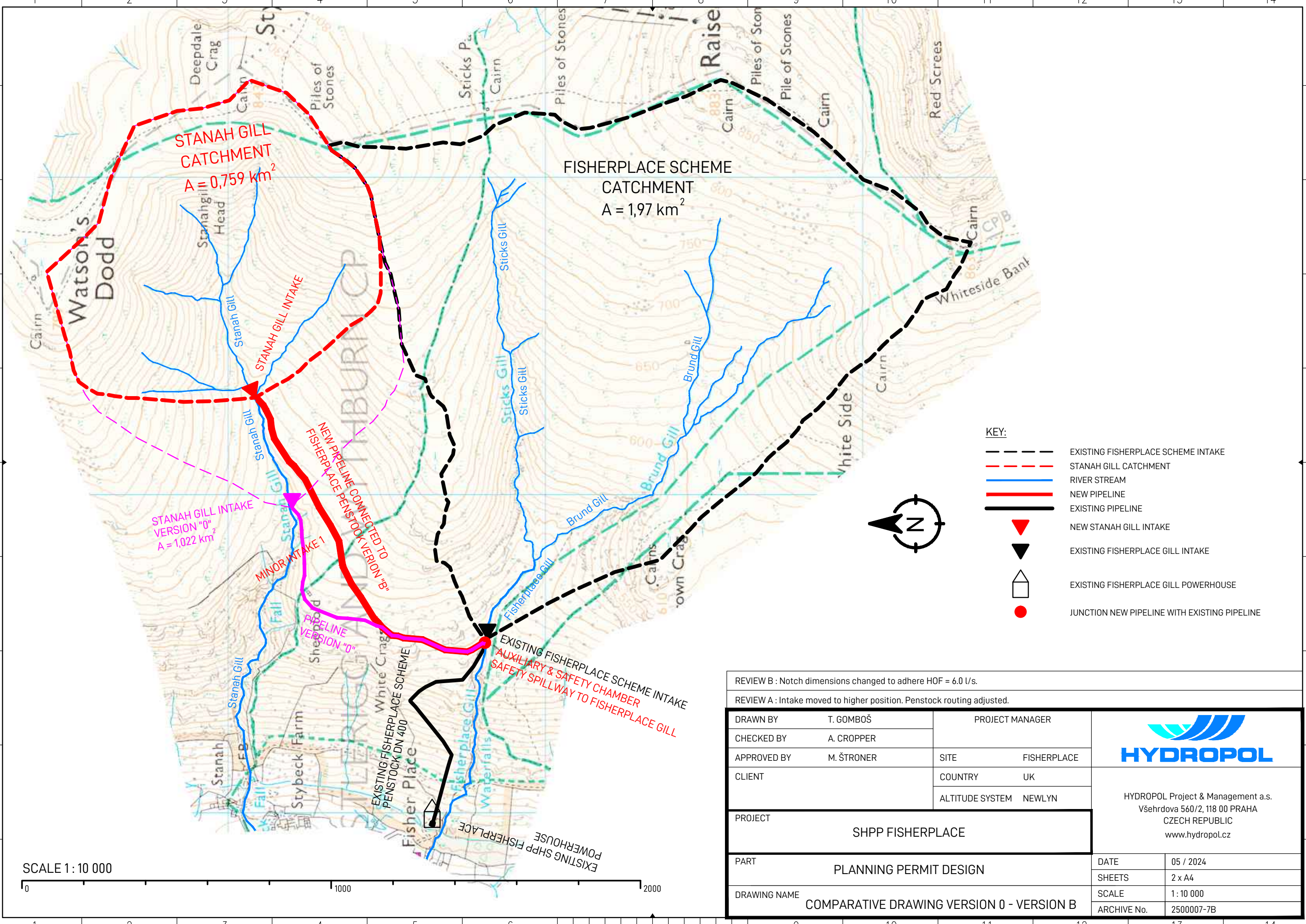
TOLERANCES
The final route of the pipeline may vary marginally
as site conditions dictate.

Revisions

Rev	Description	Approved	Issued
A	Original	ARC	13.03.24

Path

- Site Boundary
- Buried Pipeline
- Access
- Existing Buried Pipeline
- Stanah Intake



STANAH GILL CATCHMENT
A = 0,759 km²

FISHERPLACE SCHEME CATCHMENT
A = 1,97 km²

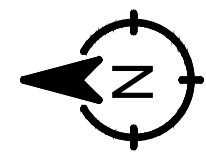
STANAH GILL INTAKE VERSION "0"
A = 1,022 km²

NEW PIPELINE CONNECTED TO FISHERPLACE PENSTOCK VERSION "B"

EXISTING FISHERPLACE SCHEME INTAKE
AUXILIARY & SAFETY CHAMBER
SAFETY SPILLWAY TO FISHERPLACE GILL

KEY:

- EXISTING FISHERPLACE SCHEME INTAKE
- STANAH GILL CATCHMENT
- RIVER STREAM
- NEW PIPELINE
- EXISTING PIPELINE
- NEW STANAH GILL INTAKE
- EXISTING FISHERPLACE GILL INTAKE
- EXISTING FISHERPLACE GILL POWERHOUSE
- JUNCTION NEW PIPELINE WITH EXISTING PIPELINE



REVIEW B : Notch dimensions changed to adhere HOF = 6.0 U/s.

REVIEW A : Intake moved to higher position. Penstock routing adjusted.

DRAWN BY	T. GOMBOŠ	PROJECT MANAGER	
CHECKED BY	A. CROPPER		
APPROVED BY	M. ŠTRONER	SITE	FISHERPLACE
CLIENT		COUNTRY	UK
		ALTITUDE SYSTEM	NEWLYN



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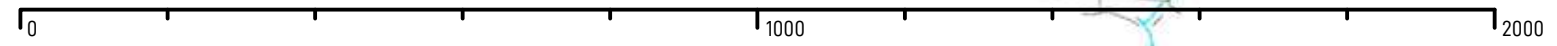
PROJECT	SHPP FISHERPLACE	
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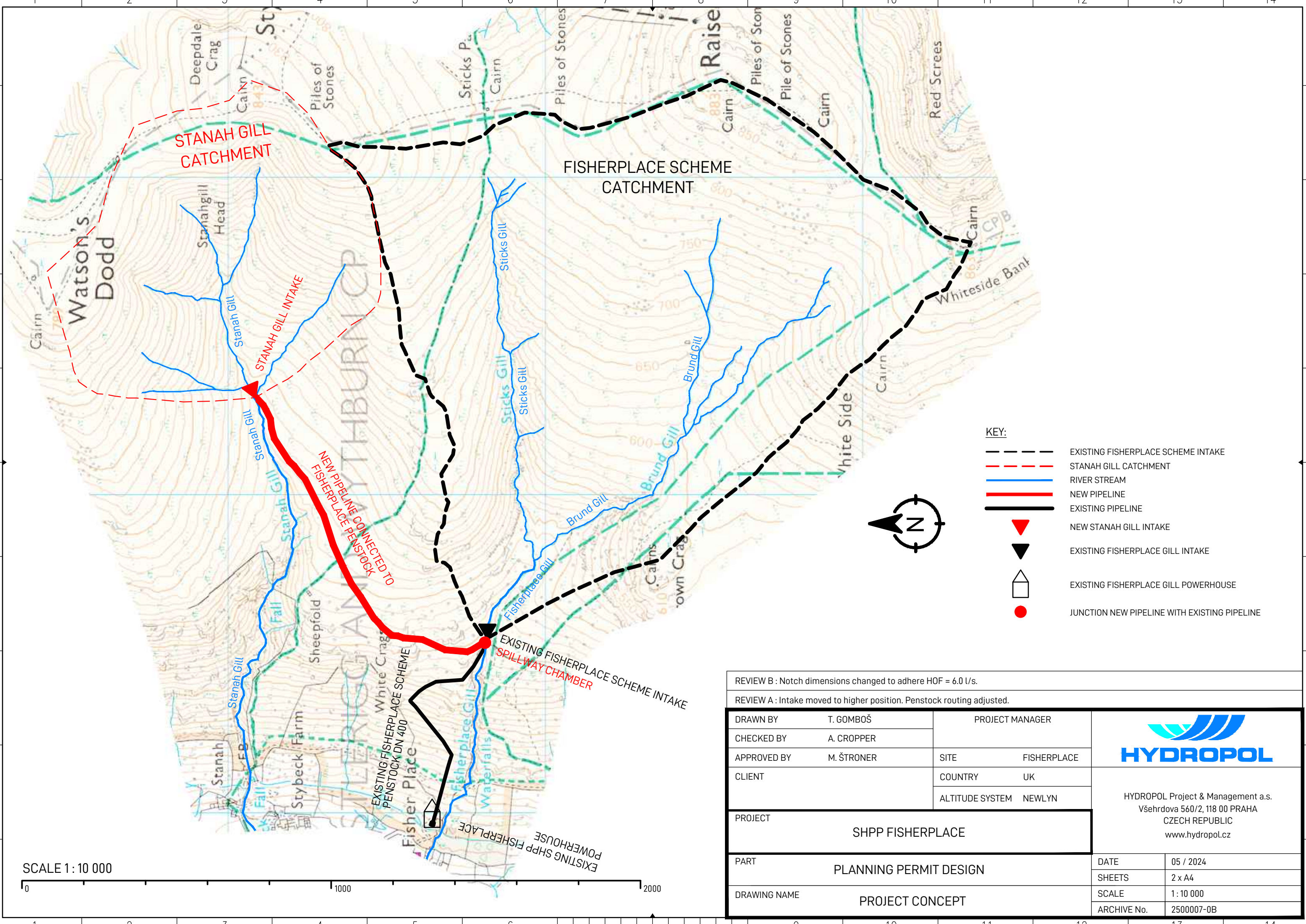
PART	PLANNING PERMIT DESIGN	
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DRAWING NAME	COMPARATIVE DRAWING VERSION 0 - VERSION B	
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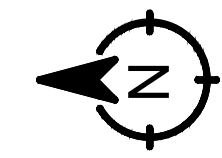
DATE	05 / 2024
SHEETS	2 x A4
SCALE	1: 10 000
ARCHIVE No.	2500007-7B

SCALE 1 : 10 000

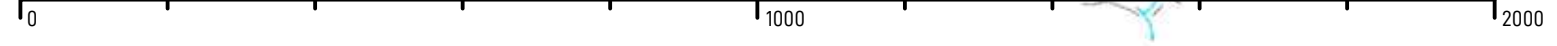




- KEY:**
- EXISTING FISHERPLACE SCHEME INTAKE
 - STANAH GILL CATCHMENT
 - RIVER STREAM
 - NEW PIPELINE
 - EXISTING PIPELINE
 - NEW STANAH GILL INTAKE
 - EXISTING FISHERPLACE GILL INTAKE
 - EXISTING FISHERPLACE GILL POWERHOUSE
 - JUNCTION NEW PIPELINE WITH EXISTING PIPELINE



SCALE 1 : 10 000

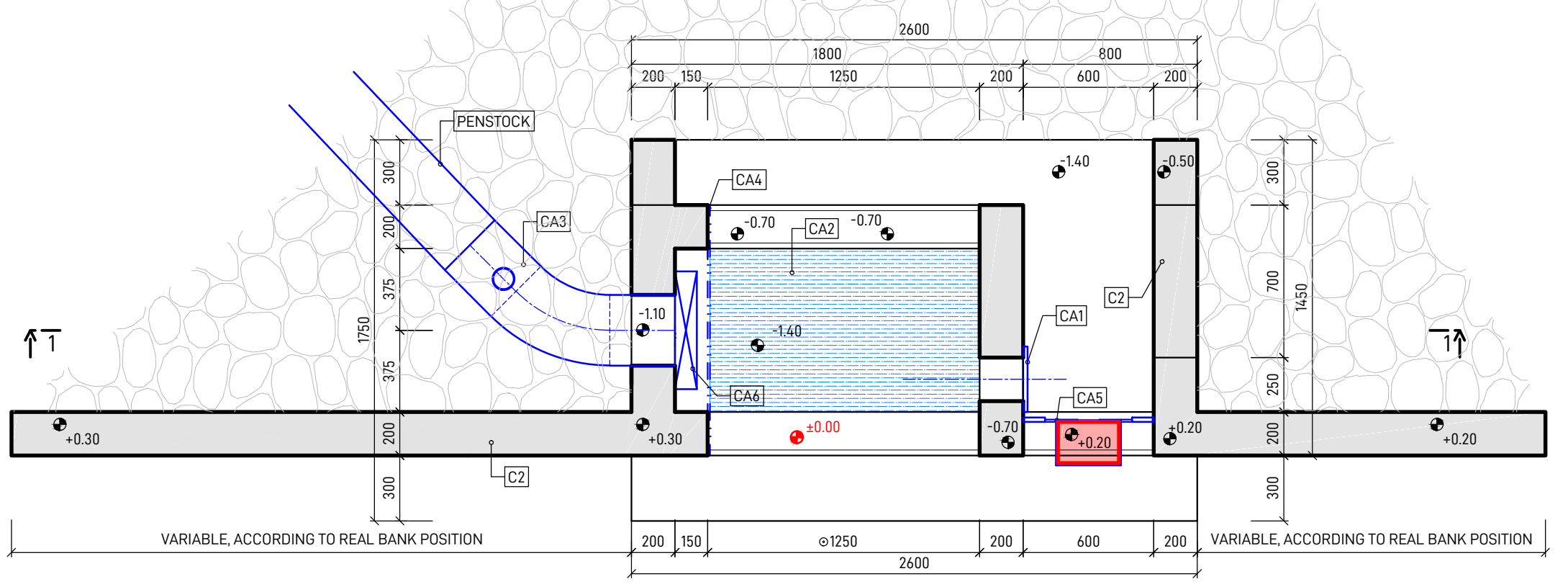


REVIEW B : Notch dimensions changed to adhere HOF = 6.0 l/s.				
REVIEW A : Intake moved to higher position. Penstock routing adjusted.				
DRAWN BY	T. GOMBOŠ	PROJECT MANAGER		
CHECKED BY	A. CROPPER	SITE	FISHERPLACE	
APPROVED BY	M. ŠTRONER	COUNTRY	UK	
CLIENT		ALTITUDE SYSTEM	NEWLYN	
PROJECT	SHPP FISHERPLACE			
PART	PLANNING PERMIT DESIGN		DATE	05 / 2024
DRAWING NAME	PROJECT CONCEPT		SHEETS	2 x A4
			SCALE	1 : 10 000
			ARCHIVE No.	2500007-0B

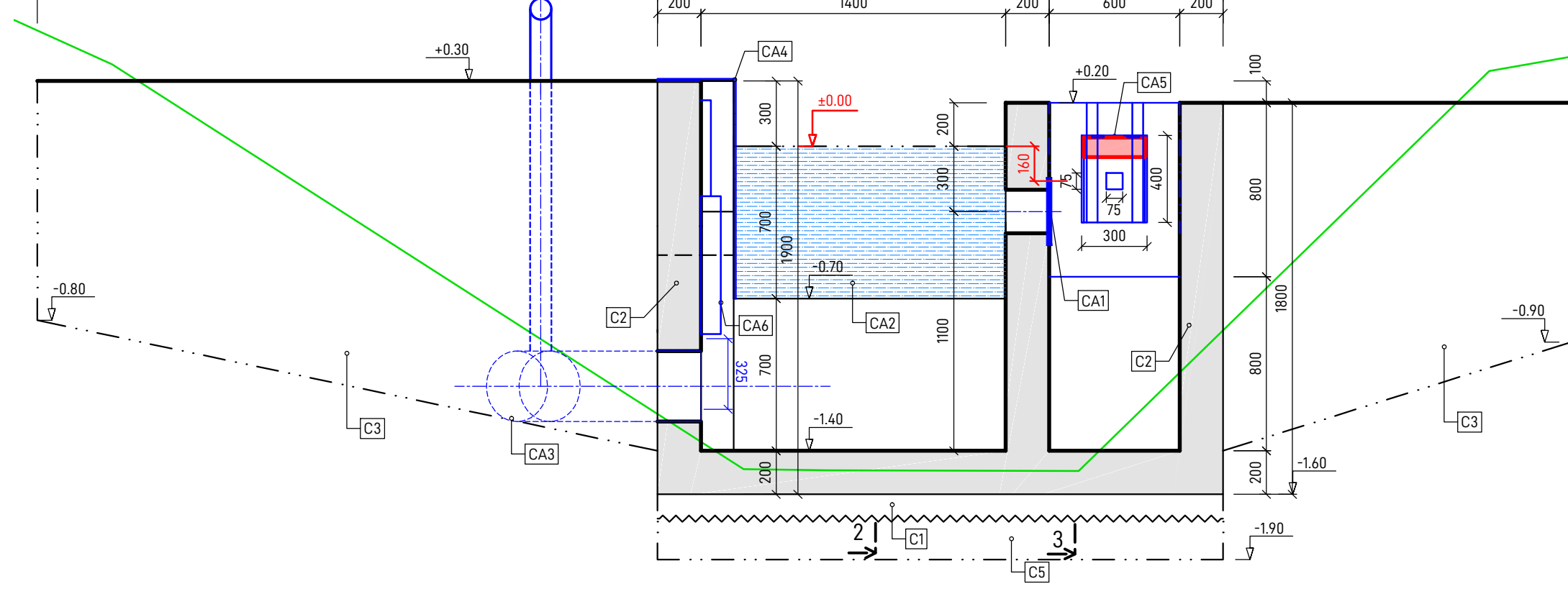


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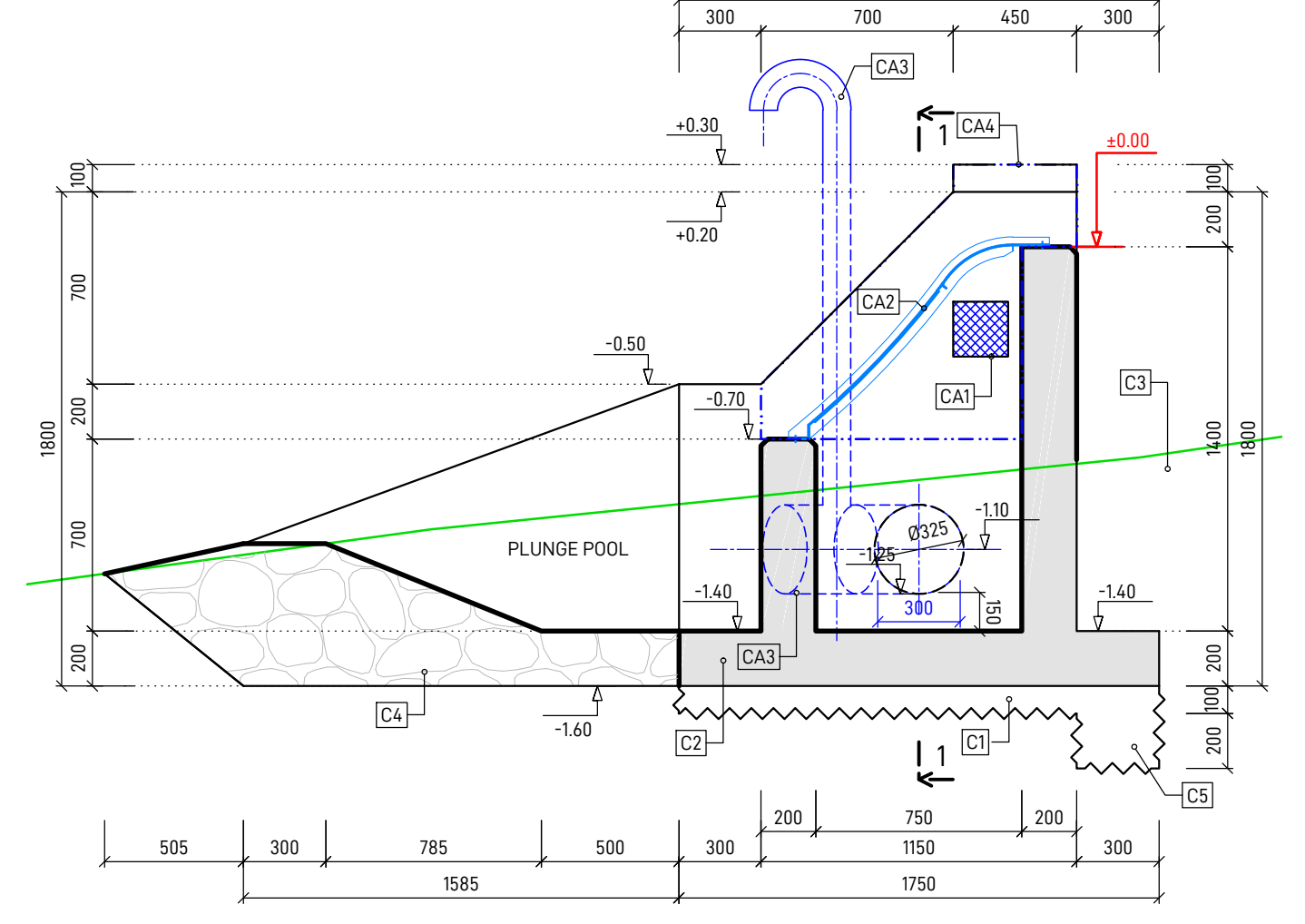
GROUND PLAN



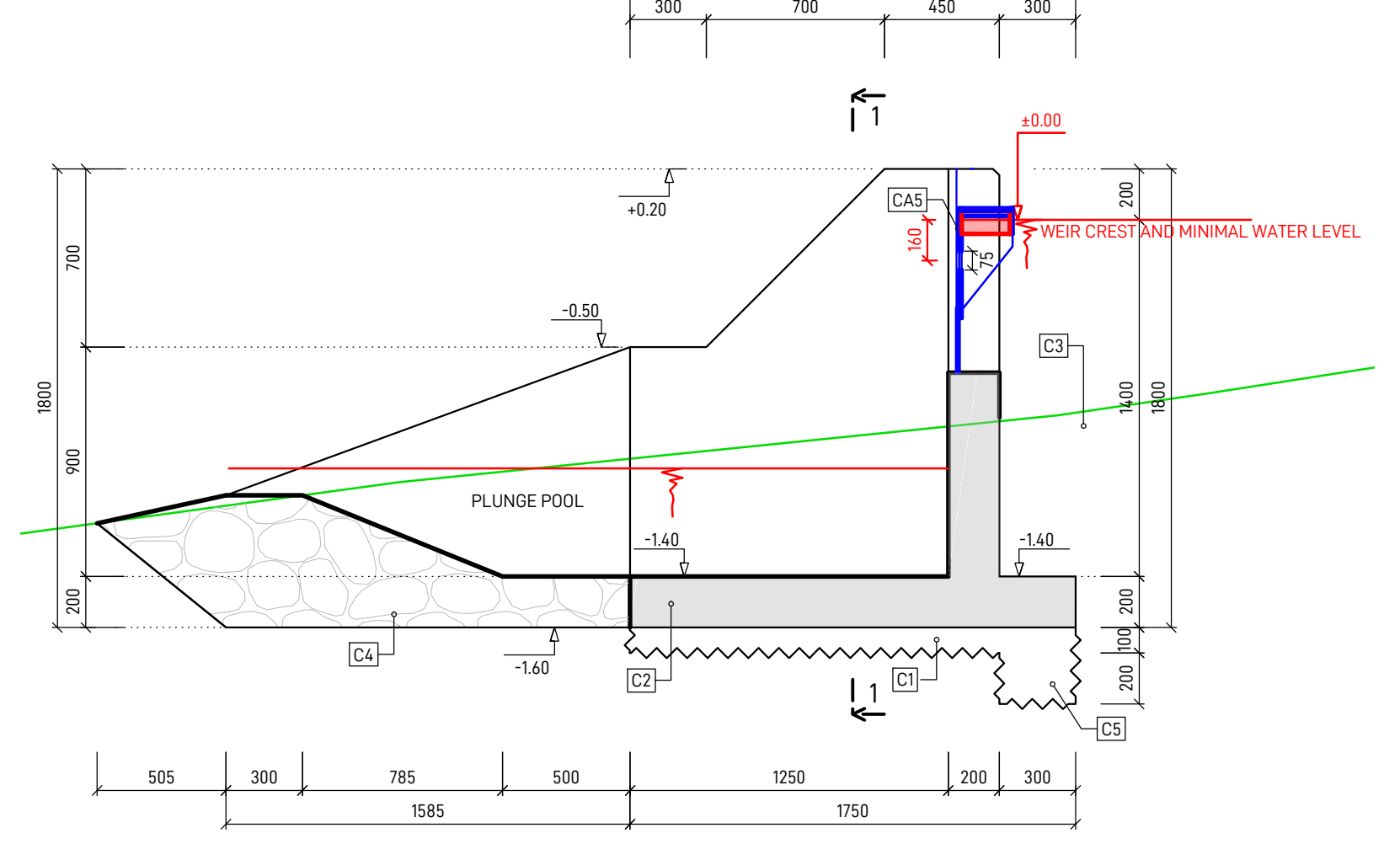
SECTION 1-1



SECTION 2-2



SECTION 3-3



CIVIL CONSTRUCTIONS

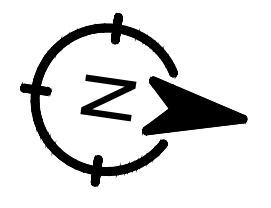
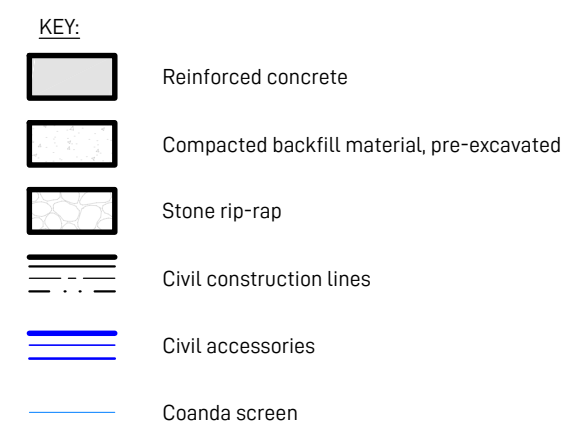
- C1 Blinding & Rock cut irregularities comparison 100 mm
- C2 Reinforcement concrete C30/37, smooth finish
- C3 Earth backfill, compaction to ID=0,80-0,85
- C4 Rocky rip-rap. Connection of plunge pool to the riverbed.
- C5 Stabilization key 300 x 300 mm

CIVIL ACCESSORIES

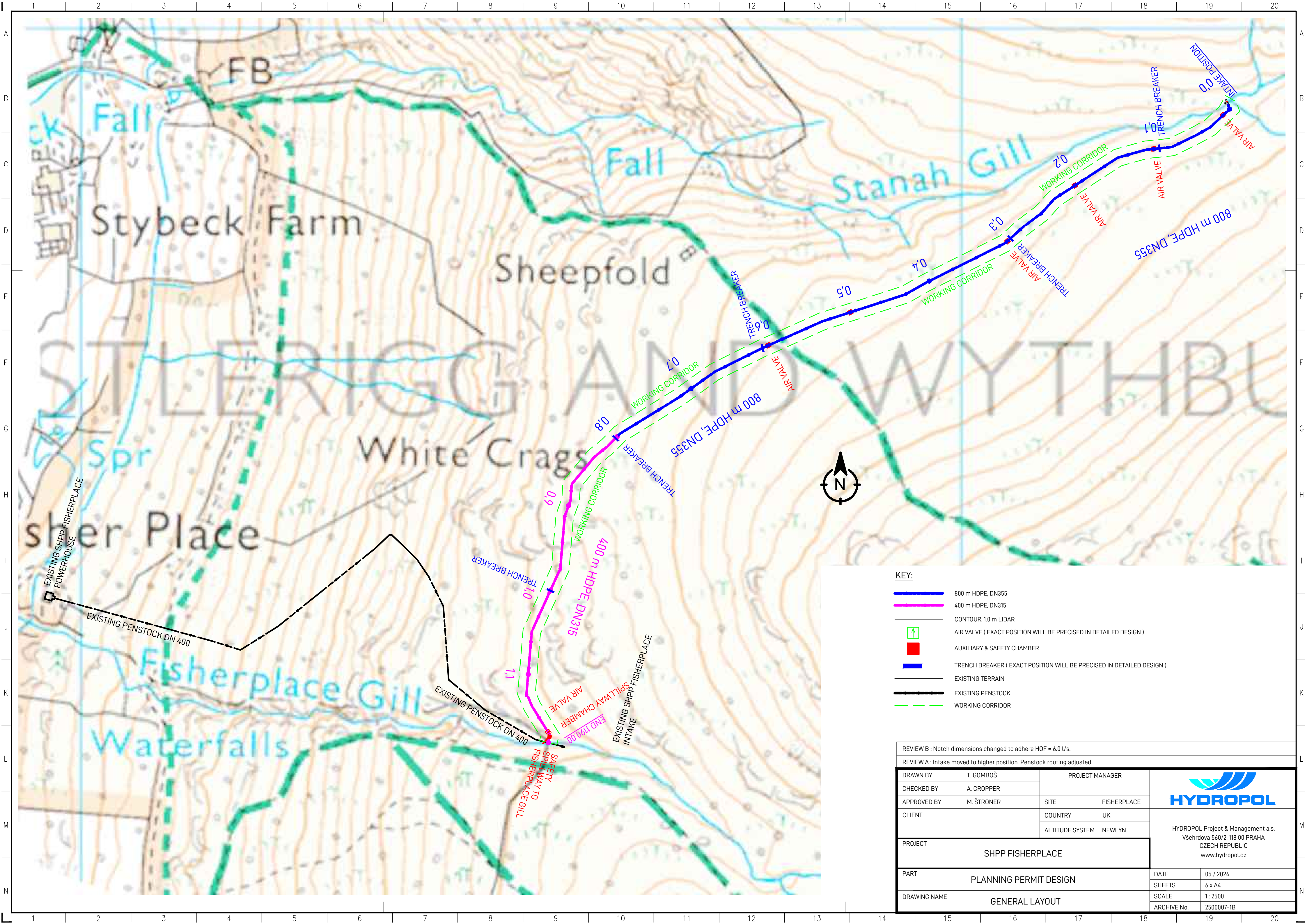
- CA1 Aeration opening 200 x 200 mm + protection screen 300 x 300 mm
- CA2 Coanda screen 1.0 mm, D-1200, AQS026
- CA3 Steel inlet pipe piece
- CA4 Construction steel plate (gate protection)
- CA5 HANDS-OFF FLOW FLOATING ORIFICE
- CA6 Waterfront gate 350x350

REMARKS

- Stabilization key can be reduced to 150 mm in case of solide bed-rock occurrence.
- Intake wing-walls must be founded and connected to solid rock. Shape will be adjusted on site.



REVIEW B : Notch dimensions changed to adhere HOF = 6.0 l/s.		REVIEW A : Intake moved to higher position. Penstock routing adjusted.	
DRAWN BY	T. GOMBOŠ	PROJECT MANAGER	
CHECKED BY	A. CROPPER	SITE	FISHERPLACE
APPROVED BY	M. ŠTRONER	COUNTRY	UK
CLIENT		ALTITUDE SYSTEM	NEWLYN
PROJECT	SHPP FISHERPLACE		
PART	PLANNING PERMIT DESIGN		
DRAWING NAME	INTAKE		
DATE	05 / 2024	 HYDROPOL Project & Management a.s. Všebrdova 560/2, 118 00 PRAHA CZECH REPUBLIC www.hydropol.cz	
SHEETS	2 x A4		
SCALE	1: 1000		
ARCHIVE No.	2500007-3B		



KEY:

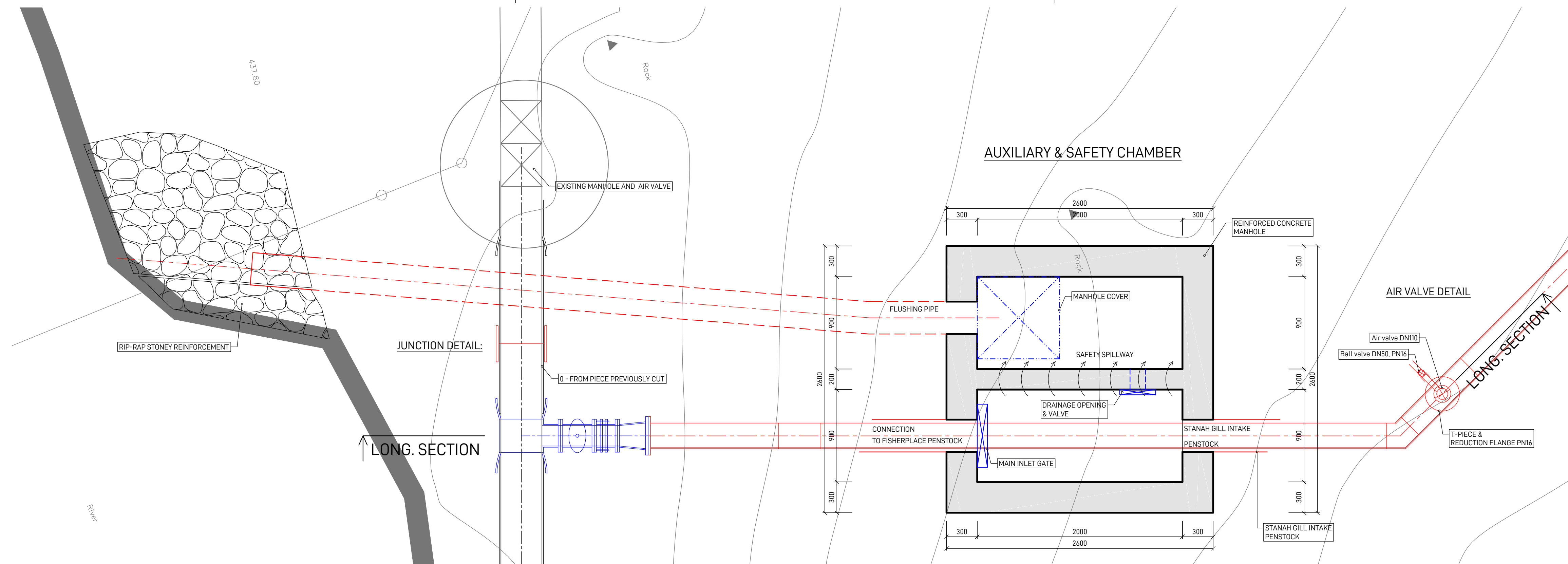
- 800 m HDPE, DN355
- 400 m HDPE, DN315
- CONTOUR, 1.0 m LIDAR
- ↑ AIR VALVE (EXACT POSITION WILL BE PRECISED IN DETAILED DESIGN)
- AUXILIARY & SAFETY CHAMBER
- TRENCH BREAKER (EXACT POSITION WILL BE PRECISED IN DETAILED DESIGN)
- EXISTING TERRAIN
- EXISTING PENSTOCK
- - - WORKING CORRIDOR

REVIEW B : Notch dimensions changed to adhere HOF = 6.0 l/s.
 REVIEW A : Intake moved to higher position. Penstock routing adjusted.

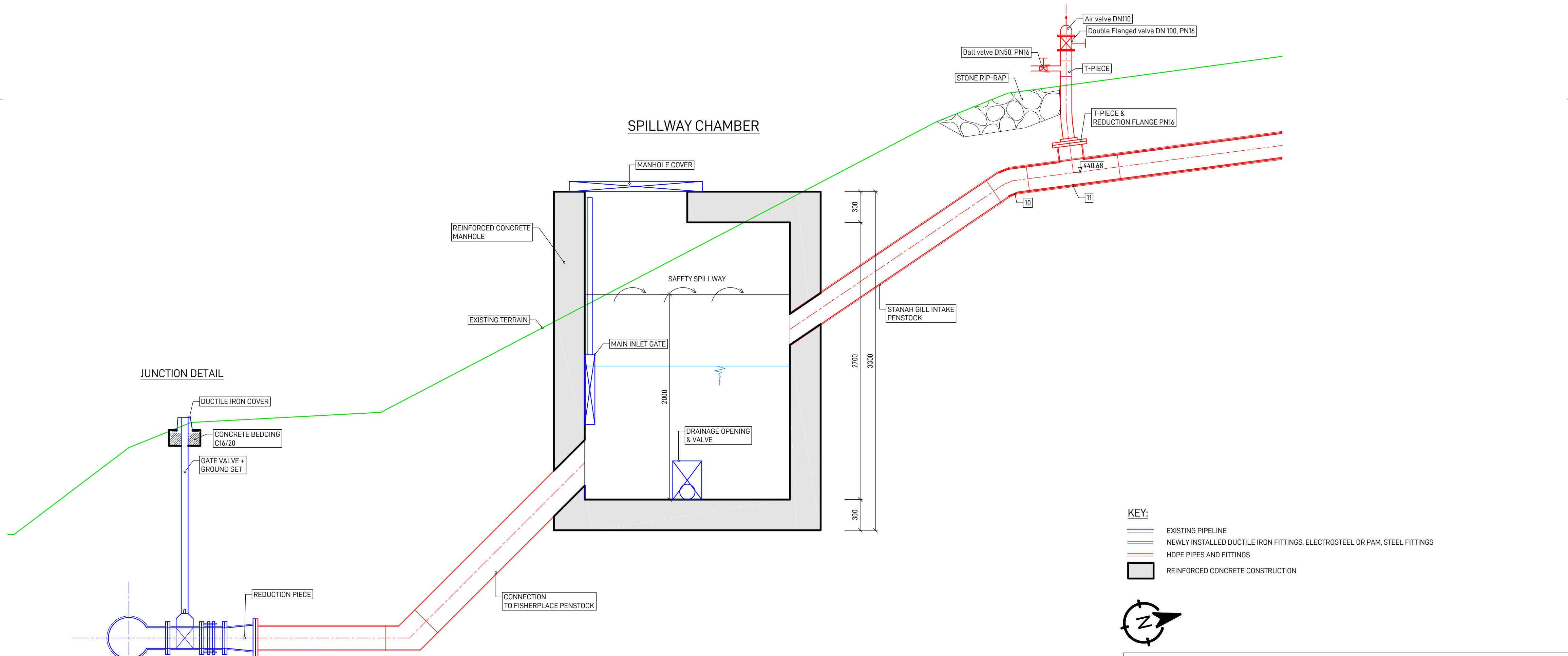
DRAWN BY	T. GOMBOŠ	PROJECT MANAGER		
CHECKED BY	A. CROPPER	SITE	FISHERPLACE	
APPROVED BY	M. ŠTRÖNER	COUNTRY	UK	
CLIENT		ALTITUDE SYSTEM	NEWLYN	
PROJECT	SHPP FISHERPLACE			
PART	PLANNING PERMIT DESIGN		DATE	05 / 2024
DRAWING NAME	GENERAL LAYOUT		SHEETS	6 x A4
			SCALE	1 : 2500
			ARCHIVE No.	2500007-1B

HYDROPOL

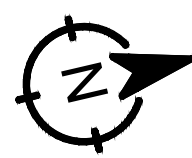
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LONGITUDINAL SECTION

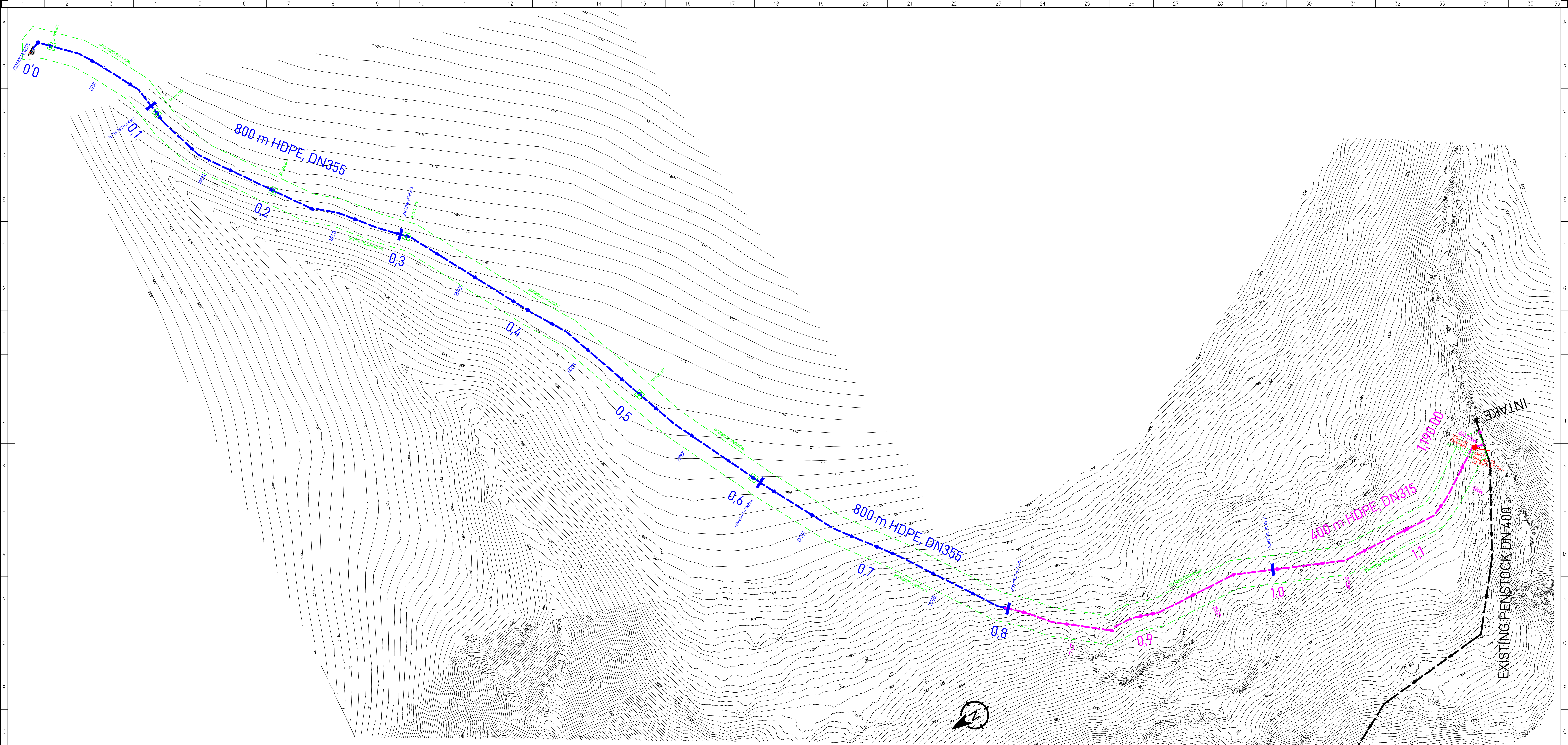


- KEY:**
- EXISTING PIPELINE
 - NEWLY INSTALLED DUCTILE IRON FITTINGS, ELECTROSTEEL OR PAM, STEEL FITTINGS
 - HDPE PIPES AND FITTINGS
 - REINFORCED CONCRETE CONSTRUCTION



REVIEW B : Notch dimensions changed to adhere HOF = 6.0 U/s.
 REVIEW A : Intake moved to higher position. Penstock routing adjusted.

DRAWN BY T. GOMBOŠ		PROJECT MANAGER		 HYDROPOL Project & Management a.s. Všehrdova 560/2, 118 00 PRAHA CZECH REPUBLIC www.hydropol.cz
CHECKED BY A. CROPPER		SITE FISHERPLACE		
APPROVED BY M. ŠTRONER		COUNTRY UK		
CLIENT		ALTITUDE SYSTEM NEWLYN		
PROJECT SHPP FISHERPLACE CATCHMENT EXTENSION				DATE 05 / 2024
PART PLANNING PERMIT DESIGN				SHEETS 6 x A4
DRAWING NAME JUNCTION, SPILLWAY CHAMBER, AIR VALVE				SCALE 1:25
				ARCHIVE No. 2500007-4B



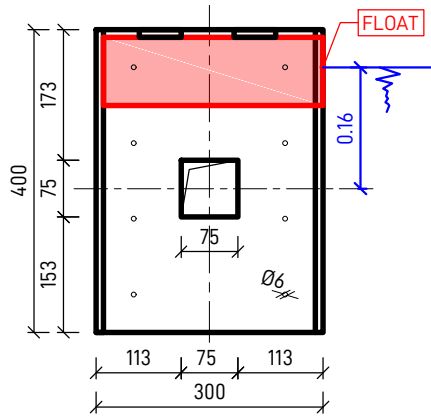
KEY:

- 800 m HDPE DN355
- 400 m HDPE DN315
- CONTOUR 1.0 m LIDAR
- ⬆ AIR VALVE (EXACT POSITION WILL BE PRECISED IN DETAILED DESIGN)
- AUXILIARY & SAFETY CHAMBER
- |— TRENCH BREAKER (EXACT POSITION WILL BE PRECISED IN DETAILED DESIGN)
- EXISTING TERRAIN
- - - EXISTING PENSTOCK
- WORKING CORRIDOR

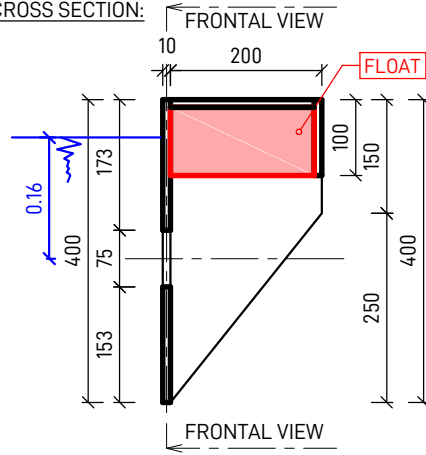
REVIEW B : Notch dimensions changed to adhere HOF = 6.0 U/s.
 REVIEW A : Intake moved to higher position. Penstock routing adjusted.

DRAWN BY T. GOMBOS	PROJECT MANAGER		 HYDROPOL HYDROPOL Project & Management a.s. Všeňdova 360/2, 118 00 PRAHA CZECH REPUBLIC www.hydropol.cz
CHECKED BY A. CROPPER	SITE FISHERPLACE	COUNTRY UK	
APPROVED BY M. ŠTRONER	ALTIMITUDE SYSTEM NEWLYN		
CLIENT			
PROJECT SHPF FISHERPLACE			
PART PLANNING PERMIT DESIGN	DATE 05 / 2024		
DRAWING NAME GROUND PLAN	SHEETS 10 x A4		
	SCALE 1 : 1000		
	ARCHIVE No. 2500007-2B		

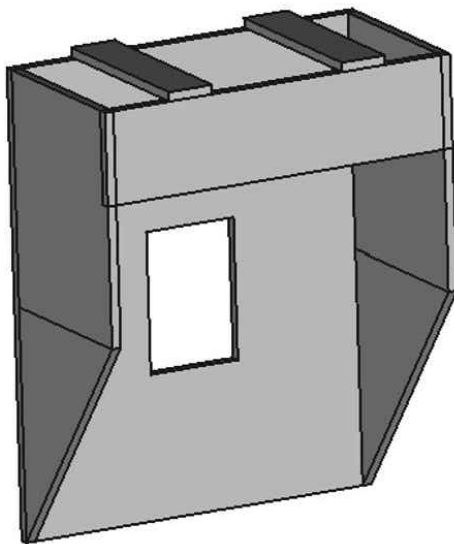
FRONTAL VIEW:



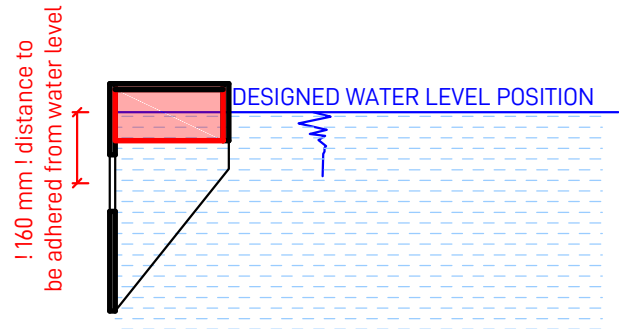
CROSS SECTION:



SCHEMATIC AXONOMETRY



CROSS SECTION



FLOATING ORIFICE HYDRAULIC CALCULATION

notch width $b = 0.075 \text{ m}$

notch height $a = 0.075 \text{ m}$

distance to notch axis $z_t = 0.16 \text{ m}$

$$Q = \mu \times a \times b \times \sqrt{2g \times z_t}$$


$$Q = 0.6 \times 0.075 \text{ m} \times 0.075 \text{ m} \times \sqrt{2g \times 0.16 \text{ m}} = 0.0060 \text{ m}^3 \cdot \text{s}^{-1} = \underline{6.0 \text{ l} \cdot \text{s}^{-1}}$$

NOTE:

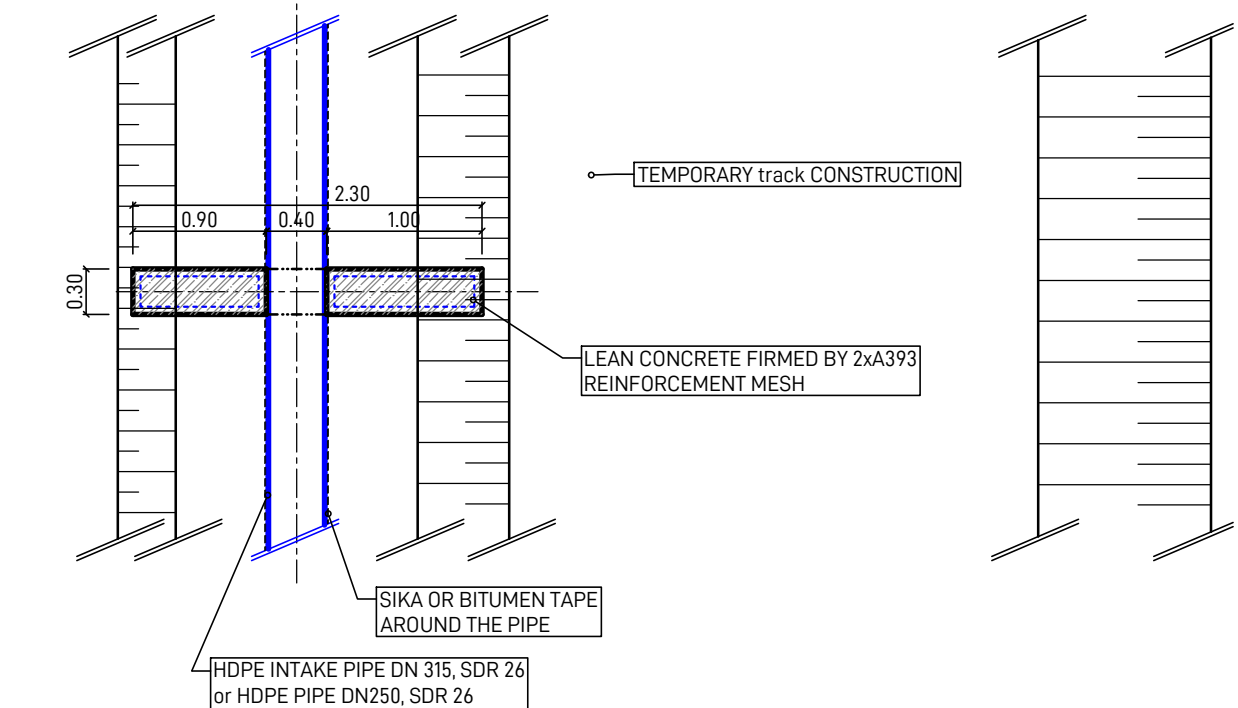
6mm holes are for fitting the slides and therefore the two rows need to be exactly parallel with each other.

REVIEW B : Notch dimensions changed to adhere HOF = 6.0 l/s.

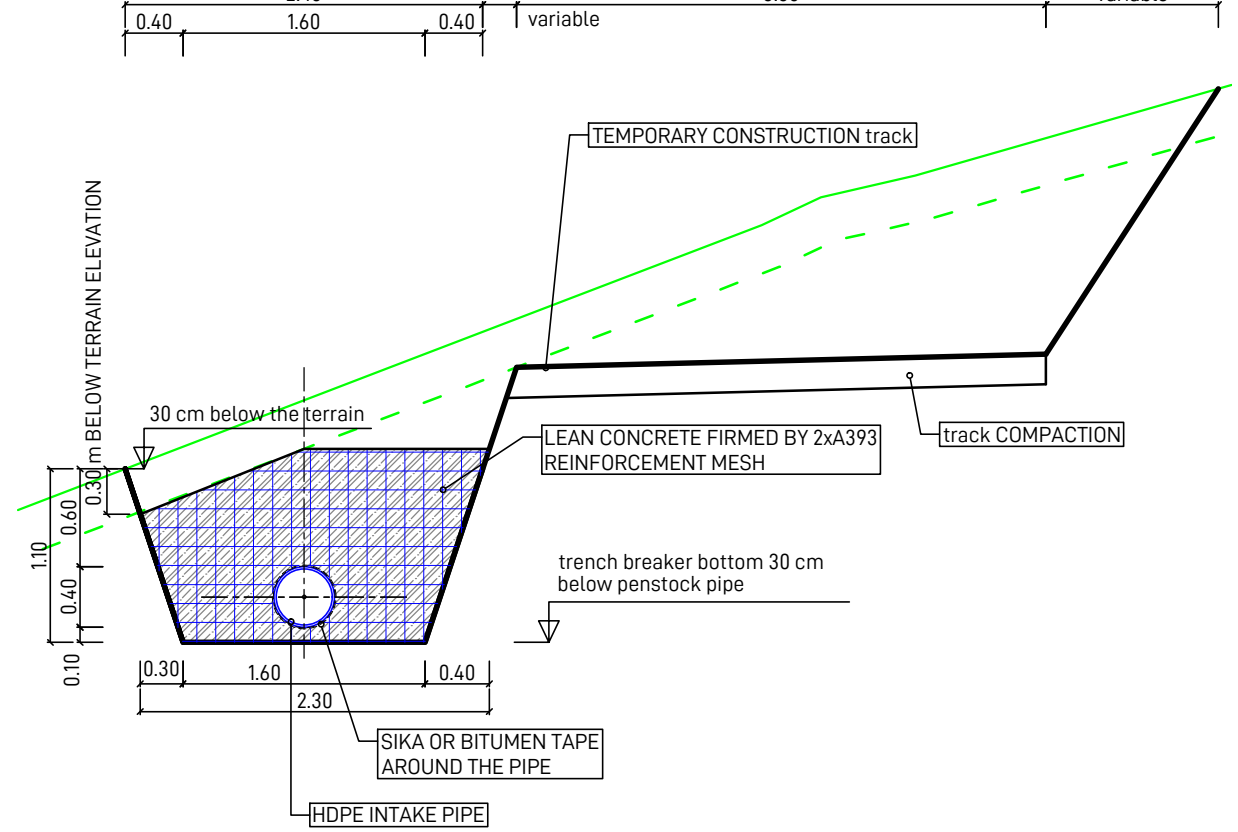
REVIEW A : Intake moved to higher position. Penstock routing adjusted.

DRAWN BY	T. GOMBOŠ	PROJECT MANAGER		 <p>HYDROPOL Project & Management a.s. Všehrdova 560/2, 118 00 PRAHA CZECH REPUBLIC www.hydropol.cz</p>	
CHECKED BY	A. CROPPER	SITE	FISHERPLACE		
APPROVED BY	M. ŠTRONER	COUNTRY	UK		
CLIENT		ALTITUDE SYSTEM	NEWLYN		
PROJECT	SHPP FISHERPLACE				
PART	PLANNING PERMIT DESIGN			DATE	05 / 2024
DRAWING NAME	HANDS OFF FLOW FLOATING ORIFICE			SHEETS	1 x A4
				SCALE	1 : 10
				ARCHIVE No.	2500007-6B

**GROUND PLAN
TRENCH BREAKER**

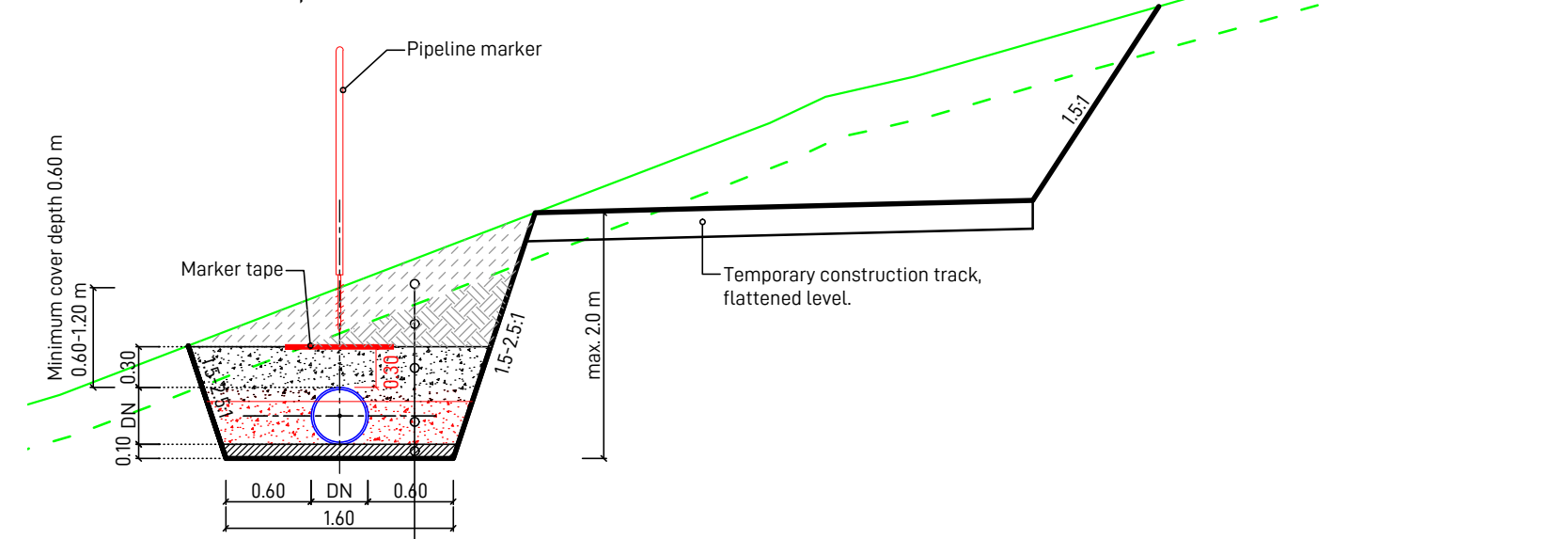


**TYPICAL CROSS SECTION
TRENCH BREAKER**



- REMARK:**
- Exact position of temporary construction track vary according to routing.
 - Backfill material must be properly compacted.
 - Lean concrete can be changed to trenchbreaker foam.
 - Minimum lean concrete class is C16/20.
 - Trench breaker must be constructed trough all width of excavated trench of rock stratum.
 - 2 pcs of sika tape must be placed to the contact between pipe and the concrete wall.

**TYPICAL CROSS SECTION
STANDARD SECTION, BURRIED PIPELINE**



- BACKFILLING ZONES:**
- TOPSOIL BACKFILL ZONE:**
Carefull emplacment of pre-excavated humous and peat layers together with grass. Thickness according to original topsoil thickness.
 - TRENCH BACKFILL ZONE:**
Compaction by vibration mechanism in 0.30 m thick layers. Compaction degree $I_d=0.70$, $PS=0.85$. Any kind of material is permitted for the backfill including clay, stone, rock or silt.
 - SECONDARY BACKFILL ZONE COMPACTION:**
NEXT TO THE PIPE - Compaction by vibration mechanism in 0.30 m thick layers. Compaction degree $I_d=0.85-0.90$ $E_{def,2}=12-15$ MPa). ABOVE THE PIPE - No compaction less than 0.30 m above the pipe. Light compaction mechanisms 0.30 - 1.20 m above the pipe.
 - ACTIVE BACKFILL ZONE COMPACTION:**
Compaction by vibration mechanism in 0.20-0.30 m thick layers. Compaction degree $I_d=0.85-0.90$ (min. $E_{def,2}=12-15$ MPa). Thickness of active backfill zone = $2/3 \times DN$. No humous, peat, clay or fine soil types. Sorted back-fill material, no stones. Maximum grain size of backfill material 25 mm.
 - BEDDING**
Sorted material grain size 0-25 mm. Straight firmed layer without rocks. No humous layer, no peat, no clay.

- LEGEND:**
- EXISTING TERRAIN
 - SUBGRADE LAYER
 - CIVIL EXCAVATION CONSTRUCTION LINES
 - PENSTOCK PIPE & AXIS
 - ACTIVE BACKFILL ZONE
 - SECONDARY BACKFILL ZONE
 - TRENCH BACKFILL ZONE
 - TOPSOIL BACKFILL ZONE

- REMARKS:**
- SLOPES:**
- Trench slope can be enlarged in firmed rock-cut to 5:1.
 - Trench slope of 1,5-2,5:1 will be used in gravel and sandy soil types.
 - Trench slope of 1,5:1 - 2,0:1 will be use in clay-e soils.
 - Max. trench depth without enclosed sheeting or excavated bench is 2,0 m.

- COVER DEPTH:**
- Minimal cover depth on the pipe route is 0,60 m and must be adhered in order to secure the load stability.

- OTHER:**
- Heavy machinery cannot ride over the pipe unless the cover depth of 1.0 m is reached!
 - Pipeline marker every 100 m.
 - Marker tape 300-500 mm above the pipe.

REVIEW B : Notch dimensions changed to adhere HOF = 6.0 l/s.			
REVIEW A : Intake moved to higher position. Penstock routing adjusted.			
DRAWN BY	T. GOMBOŠ	PROJECT MANAGER	
CHECKED BY	A. CROPPER	SITE	FISHERPLACE
APPROVED BY	M. ŠTRONER	COUNTRY	UK
CLIENT		ALTITUDE SYSTEM	NEWLYN
PROJECT		SHPP FISHERPLACE	
PART	PLANNING PERMIT DESIGN		DATE
DRAWING NAME	TYPICAL SECTIONS		SHEETS
			SCALE
			ARCHIVE No.
			05 / 2024
			2 x A4
			1 : 50
			2500007-5B



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