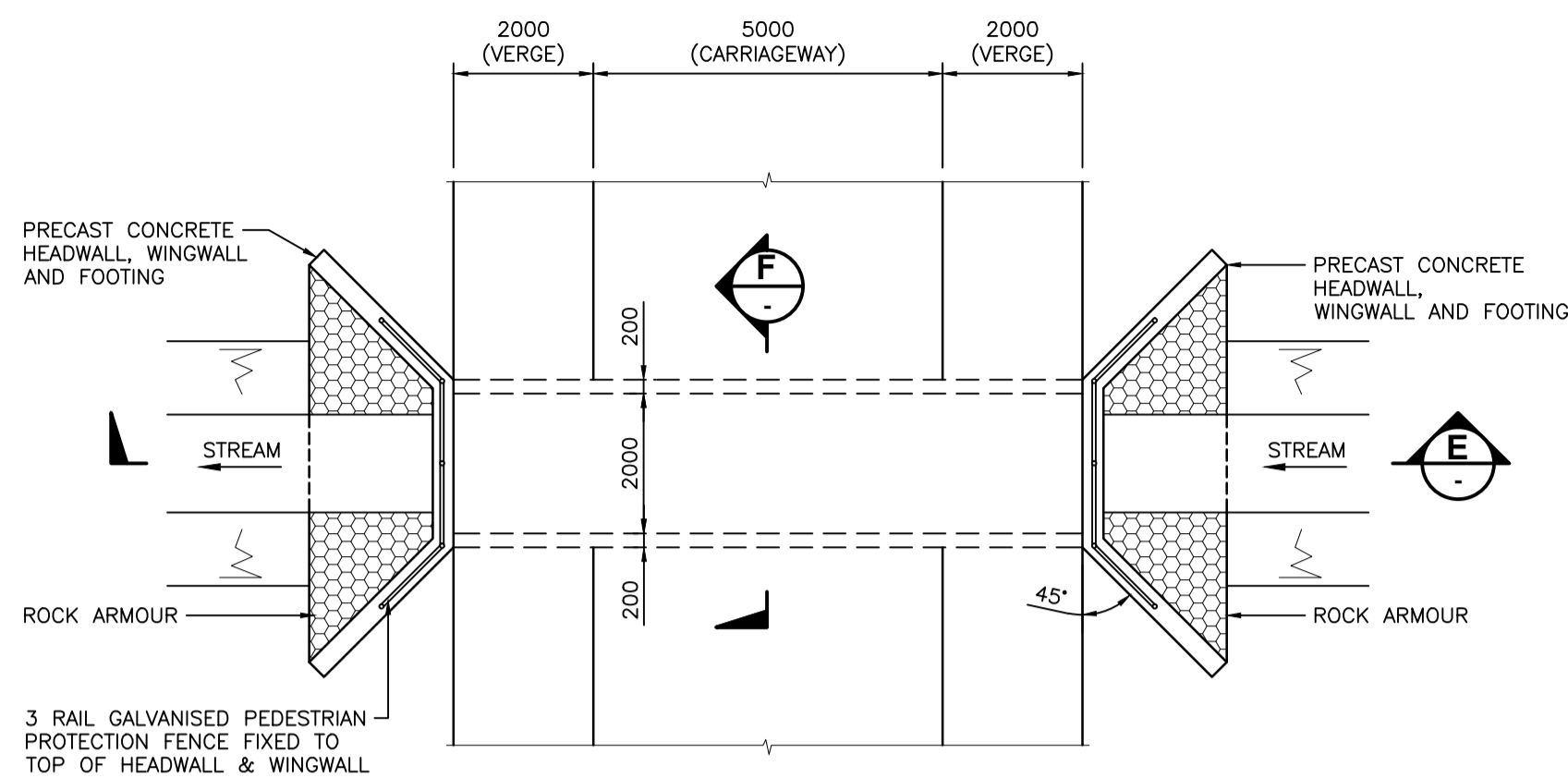
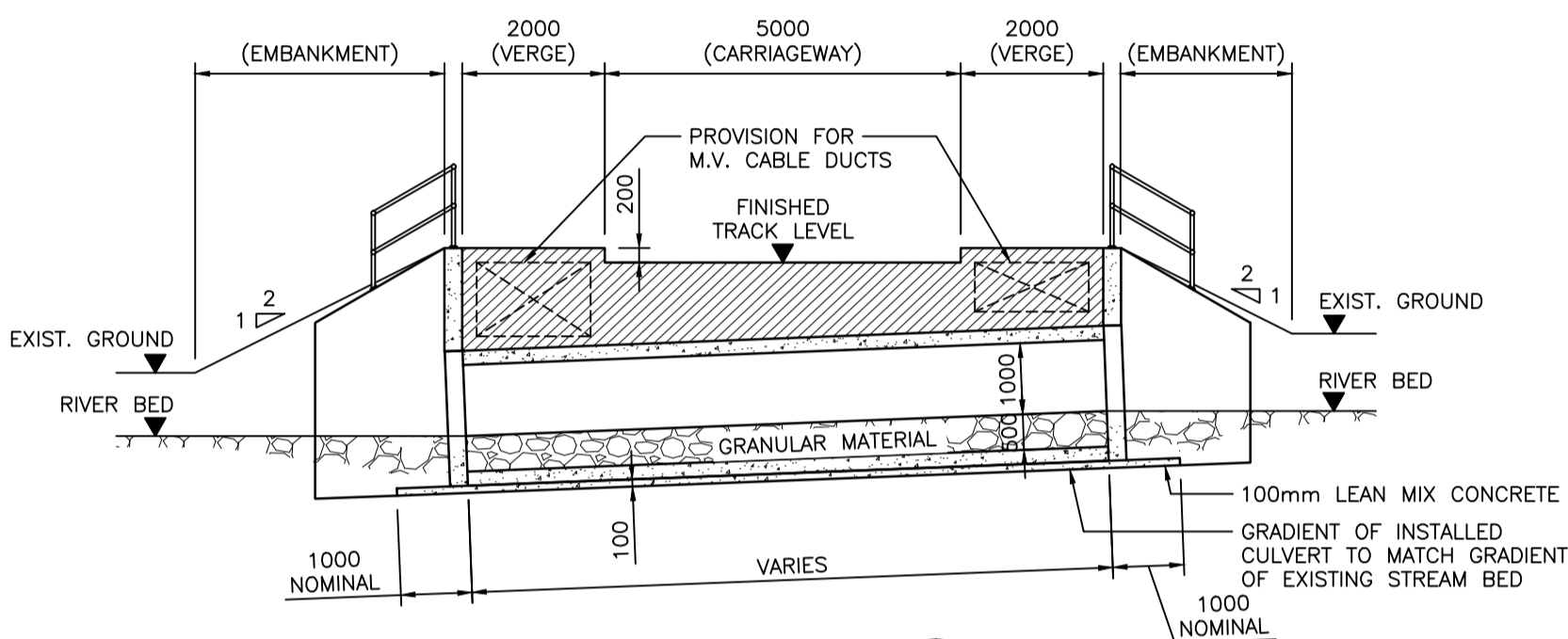


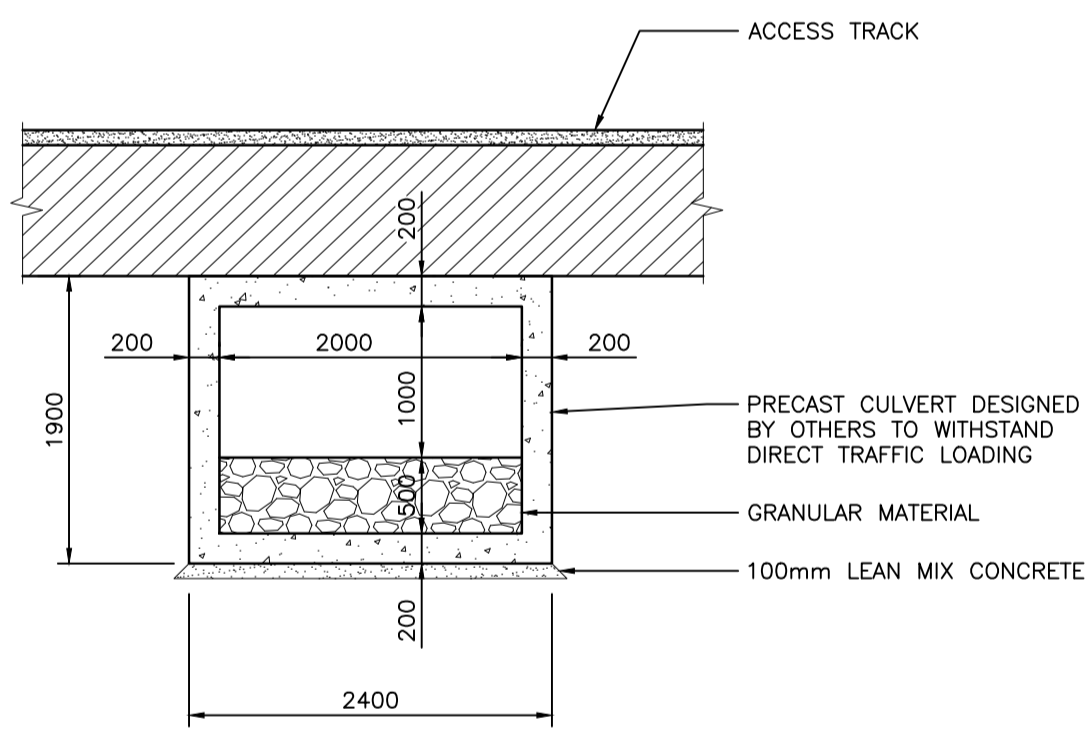
CROSSING TYPE 1



PLAN
SCALE 1:100

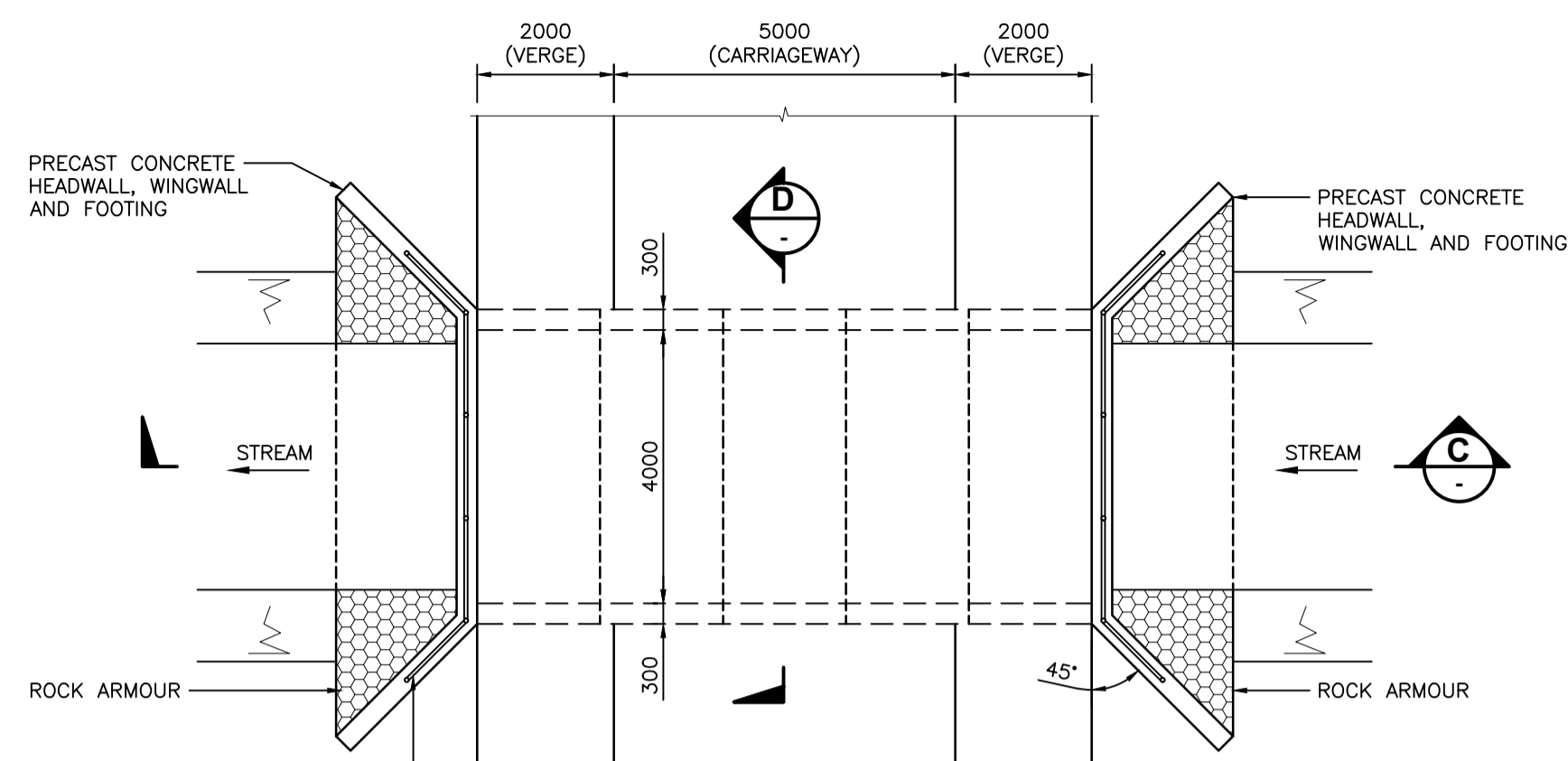


SECTION E
Scale 1:100

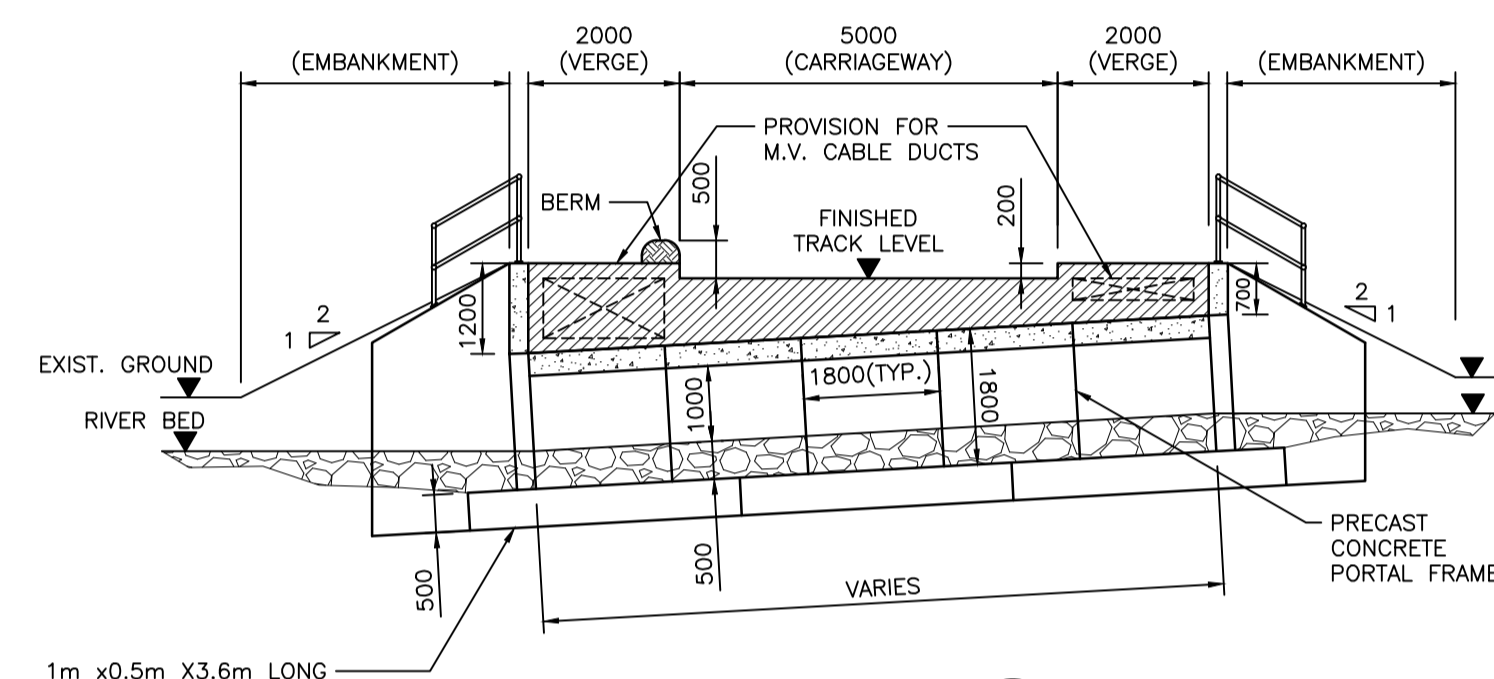


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Scale 1:50

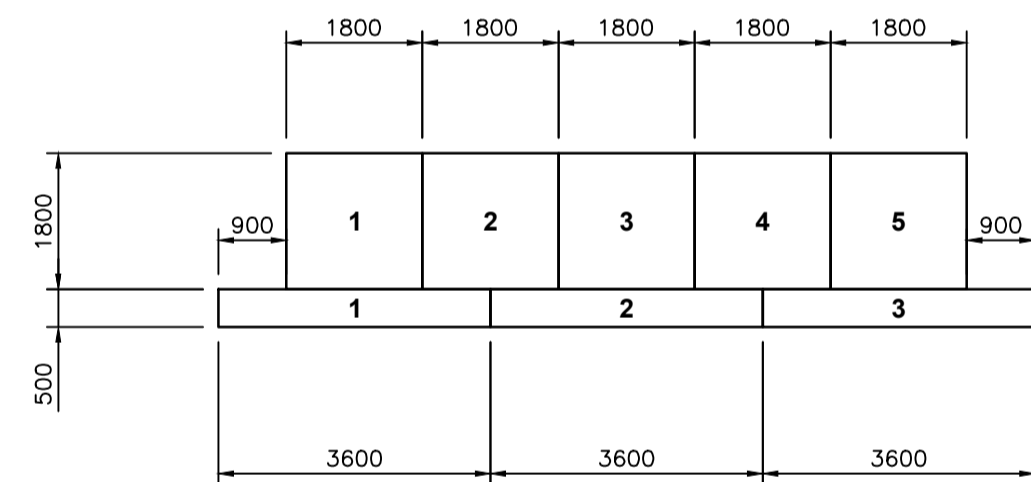
CROSSING TYPE 2



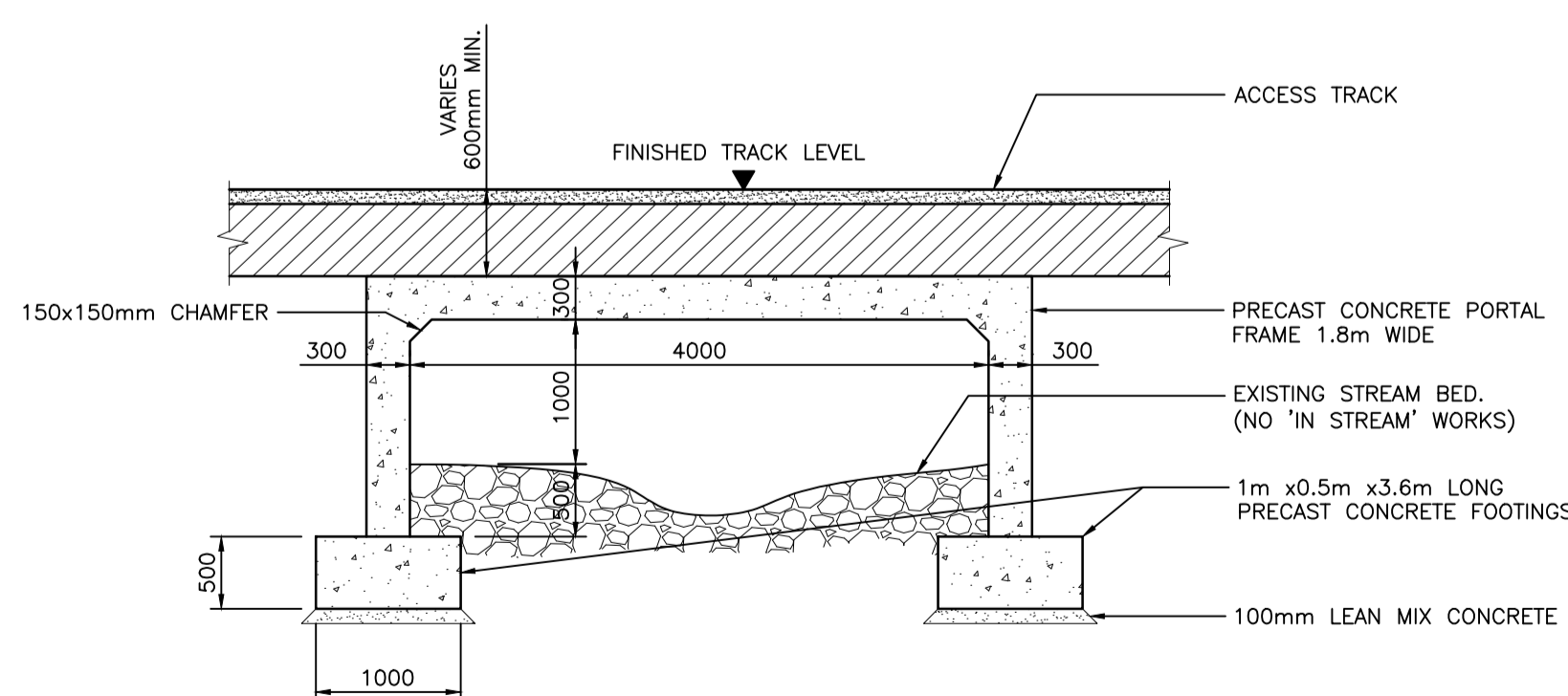
PLAN
SCALE 1:100



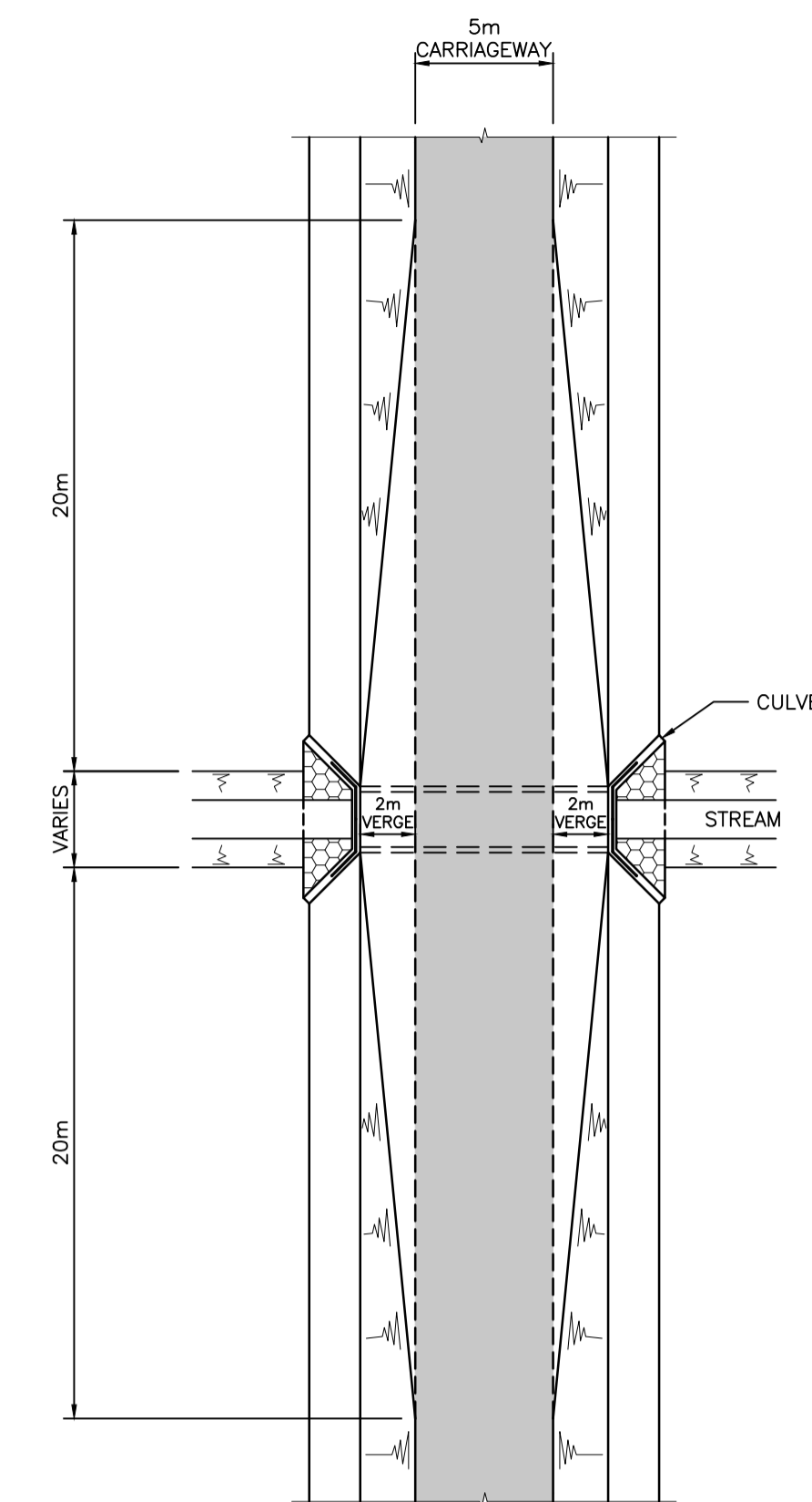
SECTION C
Scale 1:100



ELEVATION: PRECAST PORTAL FRAME & FOOTING ARRANGEMENT (TYP.)
SCALE 1:100



SECTION D
Scale 1:50



TYPICAL TRACK LAYOUT AT RIVER CROSSINGS.
SCALE 1:250

M.V. CABLE DUCTS AT RIVER CROSSINGS

- OPTION 1:**
M.V. CABLE DUCTS CAN BE DIRECT BURIED IN THE VERGES OF THE ACCESS TRACKS ABOVE THE RIVER CULVERTS AT ANY TIME OF THE YEAR.
- OPTION 2:**
M.V. CABLE DUCTS CAN BE DIRECT BURIED UNDER RIVERS / STREAMS IN THE MONTHS MAY TO SEPTEMBER IN ACCORDANCE WITH INLAND FISHERIES REQUIREMENTS.

NOTES APPLICABLE TO ALL WORKS

- ALL STREAM WORKS TO BE CARRIED OUT BY SUITABLY TRAINED AND BRIEFED PERSONNEL IN PERIOD OF DRY WEATHER.
- NO PLANT REFUELLING TO TAKE PLACE IN THE VICINITY OF ANY STREAM OR CROSSING POINT
- NO PLANT, MACHINERY OR OPERATIVES TO ENTER THE STREAMS UNLESS ABSOLUTELY NECESSARY AND SAFE TO DO SO.
- DOWNSTREAM SEDIMENT CONTROL MEASURES SUCH AS SEDIMATS WILL BE INSTALLED AT EACH LOCATION PRIOR TO ANY WORKS TAKING PLACE.
- IN THE EVENT THAT FISH ARE ENCOUNTERED DURING THE CONSTRUCTION WORKS A DEEP POOL IS TO BE CREATED UPSTREAM. THE FISH THAT GATHER IN THIS POOL WILL BE COLLECTED AND MOVED DOWNSTREAM OF THE WORKS WHERE THEY WILL BE RELEASED BACK INTO THE STREAM.

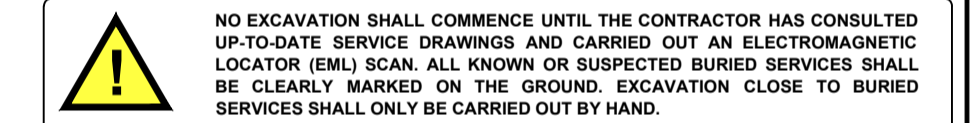
BOX CULVERTS CONSTRUCTION METHODOLOGY

- THE EXISTING STREAM WILL BE DAMMED UPSTREAM & DOWNSTREAM OF THE CULVERT LOCATION AND PUMPS USED TO PUMP THE STREAM FROM ONE SIDE TO THE OTHER. THE PUMP WILL BE PLACED ON A DRIP TRAY TO ENSURE NO LEAKAGE FROM THE PUMP CAN ENTER THE STREAM.
- ONCE THE STREAM HAS BEEN TEMPORARILY DIVERTED THE FORMATION LEVEL WILL BE PREPARED TO RECEIVE THE PRECAST BOX CULVERTS AND HEADWALLS. THESE WILL BE LIFTED INTO PLACE USING CERTIFIED LIFTING EQUIPMENT.
- THE BOX CULVERT WILL BE INSTALLED BELOW THE FINISHED INVERT OF THE STREAM WITH THE ORIGINAL STREAM GRAVEL RE-USED AND PLACED IN THE BOX CULVERT TO CREATE A NEW CHANNEL WITHIN THE BOX CULVERT.
- HANDRAILS WILL BE ERECTED ON BOTH HEADWALLS TO PROTECT PEDESTRIANS AND WORKERS.
- FOLLOWING THE COMPLETION OF ALL WORKS THE SANDBAGS WILL BE REMOVED AND THE STREAM ALLOWED TO CONTINUE ALONG THE ORIGINAL ROUTE THROUGH THE NEW CULVERT.
- CULVERTS TO BE EMBEDDED A MINIMUM OF 500mm BELOW BED LEVEL.
- CULVERTS TO MATCH EXISTING GROUND LEVEL GRADIENT WHERE POSSIBLE.
- DROP OFF FROM OUTLET TO BE KEPT TO A MINIMUM.

EXPOSURE CLASS	CONCRETE SPECIFICATION	
	BLINDING, MASS CONCRETE	EXTERNAL SLABS & CULVERTS
MIN. CEMENT	-	280 kg/m ³
MAX. WATER / CEMENT RATIO	0.65	0.6
CHLORIDE CONTENT CLASS	CL. 1.0	CL. 0.2
MAX. AGGREGATE (mm)	10	20
MIN. COVER (mm)	-	40
COMPRESSIVE STRENGTH	C16/20	C30/37

NOTES:

- CROSSING TYPE 1: SPAN STRUCTURE OR FAUNA PASSABLE CULVERT.
- CROSSING TYPE 2: SPAN STRUCTURE WHICH DOES NOT INTERFERE WITH THE BED OR IMMEDIATE BANK OF THE RIVER / STREAM.
- DIMENSIONS ARE MILLIMETRES UNLESS NOTED OTHERWISE.



REV	DATE	REVISION DESCRIPTION	DRN	PRO	VER	APP
0	19.08.15	ISSUED FOR PLANNING	SB	DS	SS	FQ

PURPOSE OF ISSUE - PRELIMINARY UNLESS INDICATED

TENDER CLIENT APPROVAL CONSTRUCTION AS-BUILT REVISED

Client: **ESB WIND DEVELOPMENT LTD.**

Project: **GROUSEMOUNT WIND FARM**

Contract: **PLANNING APPLICATION**

Drawing Title: **RIVER CULVERT DETAILS**

Production Unit: **WIND DEVELOPMENT**

ESB Energy for generations
 ESB Wind Development Ltd., Stephen Court, 18-21 St. Stephen's Green, Dublin 2, Ireland Tel: +353 (0) 703800
 Web: www.esb.ie
 Registered Office: as above Registered in Ireland No. 471139

DRAWN	PRODUCED	VERIFIED	APPROVED	APPRO DATE
S. Bolton	D. Shiels	S. Shanley	F. Quigley	19.08.2015

CLIENT REF: No. of Sheets: 1, SIZE: A1, REV: 0, SCALE: As Shown

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