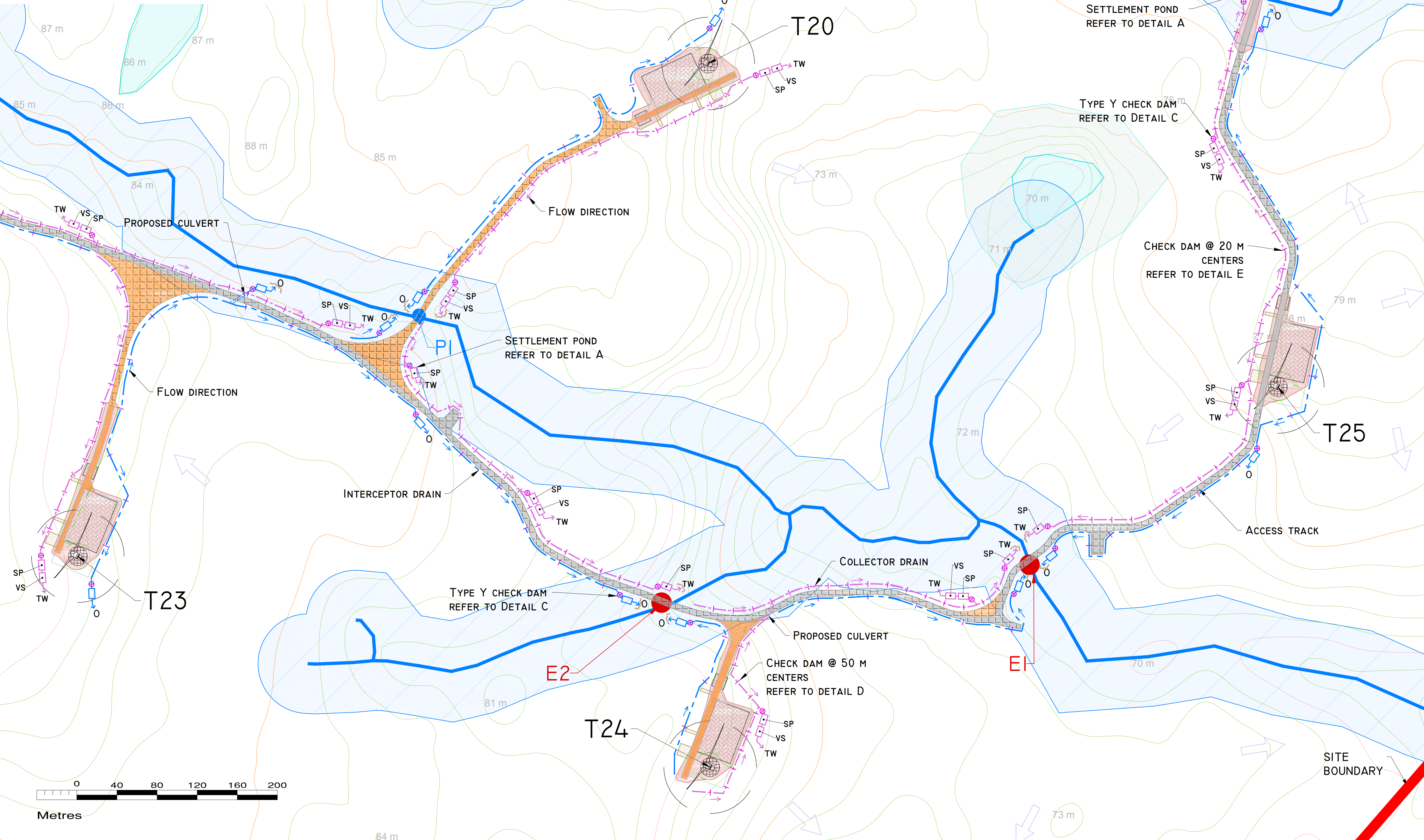
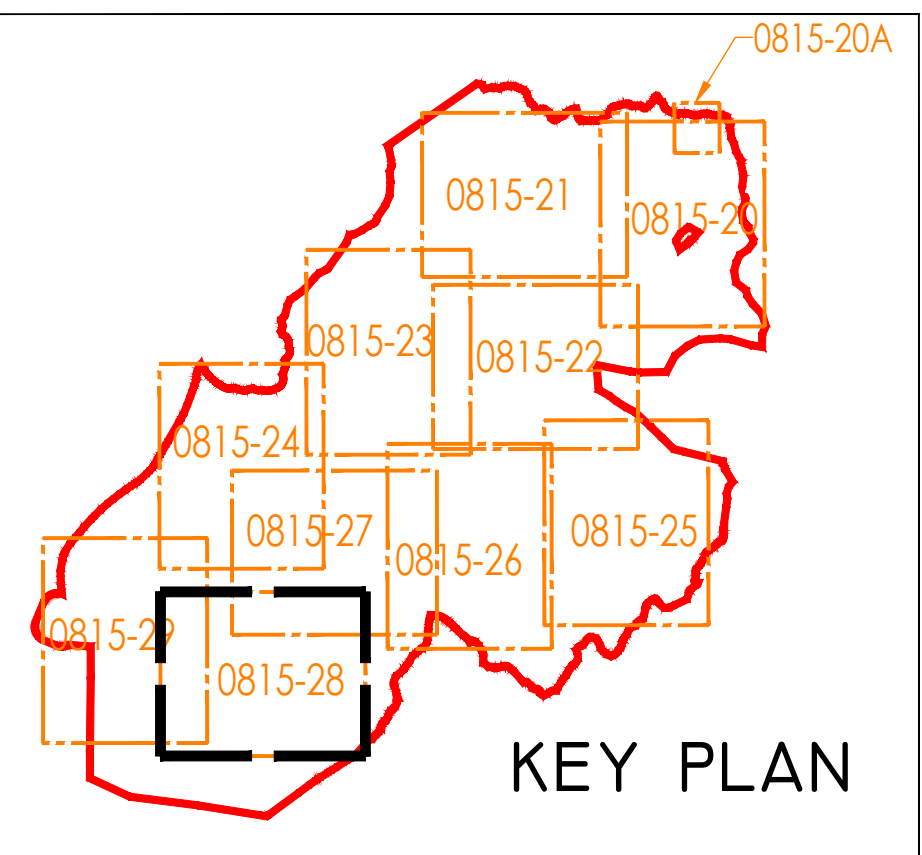


**DRAINAGE DESIGN NOTES**

1. ALL DRAINAGE SUBJECT TO MICRO-SITING AND OPTIMISATION ON SITE.
2. THE LOCATIONS OF THE INTERCEPTOR DRAINS, CHECK DAMS, CULVERTS, SWALES, STILLING PONDS AND LEVEL SPREADERS ARE SHOWN AS INDICATIVE, AND MAY BE CHANGED TO SUIT THE REQUIREMENTS OF THE LOCAL TOPOGRAPHY.
3. SUPERVISING HYDROLOGIST OR ENVIRONMENTAL CLERK OF WORKS (ENVIRONMENTAL SCIENTIST) TO OVERSEE INSTALLATION OF DRAINAGE FEATURES FOLLOWING DETAILED DRAINAGE DESIGN.
4. DRAINAGE MEASURES TO BE INSTALLED PRIOR TO, OR AT THE SAME TIME AS THE WORKS AREAS THEY ARE INTENDED TO DRAIN.
5. DESIGN ELEVATION OF THE WATER SURFACE ALONG THE ROUTE OF THE INTERCEPTOR DRAINS OR SWALES WILL NOT BE LOWER THAN THE DESIGN ELEVATION OF THE WATER SURFACE IN THE OUTLET AT THE LEVEL SPREADER OR STILLING POND.
6. THE SPACING AND FREQUENCY OF THE CHECK DAMS WILL BE DEPENDANT ON THE GRADIENT OF THE INTERCEPTOR DRAIN OR SWALE IN WHICH THEY ARE BEING INSTALLED.
7. CHECK DAM DESIGNS TO BE SELECTED BEST TO SUIT PARTICULAR TOPOGRAPHY AND HYDROLOGICAL ENVIRONMENT.
8. DOWN GRADIENT SLOPE BELOW LEVEL SPREADER ONTO WHICH THE WATER WILL DISAPATE TO HAVE A GRADE LESS THAN 6%.
9. NO DIRECT DISCHARGE OR PUMPING TO WATERCOURSES WILL BE PERMITTED. ALL DISCHARGES FROM LEVEL SPREADERS OR STILLING PONDS TO BE VIA VEGETATED FILTERS. SELECTION OR SUITABLE AREAS TO USE AS VEGETATION FILTERS WILL BE DETERMINED BY THE SIZE OF THE CONTRIBUTING CATCHMENT, SLOPE AND GRADING CONDITIONS.
10. STILLING PONDS TO BE SIZED ACCORDING TO THE AREA THEY WILL BE RECEIVING WATER FROM.
11. DIVERSION OF DRAINAGE DITCHES WILL ONLY TAKE PLACE WHEN ALTERNATIVE DRAINAGE DITCH HAS BEEN INSTALLED TO HANDLE THE SAME WATER.
12. EXISTING DRAINS/DITCHES TO BE INCORPORATED OR REMOVED DURING WIND FARM CONSTRUCTION.
13. ALL DRAINAGE SYSTEM FEATURES TO BE SUBJECT OF INSPECTION AND MAINTENANCE PLAN.
14. THE LAYOUT SHOWN IS SLIGHTLY OFFSET FOR SCALE PURPOSES, AND ALL DRAINAGE WOULD BE INSTALLED AS CLOSE TO THE ROAD AS POSSIBLE.
15. DRAINAGE ASSIGNED TO FLOATING ROAD SECTIONS OF THE LAYOUT WILL BE SUBJECT TO FURTHER OPTIMISATION IN PARALLEL WITH DETAILED GEOTECHNICAL DESIGN.

**MITIGATION / DRAINAGE CONTROLS AVAILABLE FOR USE ACROSS THE SITE**

Management Type	Description of SUDS Drainage Control Methods
AVANCE CONTROL	1) APPLICATION OF 50M BUFFER ZONES TO NATURAL WATERCOURSES WHERE POSSIBLE 2) APPLICATION OF 25M BUFFER ZONES TO ARTIFICIAL DRAINAGE FEATURES WHERE POSSIBLE 3) USING SMALL WORKING AREAS 4) WORKING IN APPROPRIATE WEATHER AND SUSPENDING CERTAIN WORK ACTIVITIES IN ADVANCE OF FORECASTED MET WEATHER
SOURCE CONTROL	1) USE OF UPSTREAM INTERCEPTOR DRAINS AND DIAMETERED COLLECTOR DRAINS / OVERHEAD SWALES, VEE-DRAINS, DIVERSION DRAINS, FLORES AND CULVERT PIPES 2) EROSION AND VELOCITY CONTROL MEASURES SUCH AS: a) SAND BAGS b) OYSTER BAGS FILLED WITH GRAVEL c) FILTER FABRICS d) AND OTHER SPLAIN/VALVE OR APPROPRIATE SYSTEMS 3) USING SMALL WORKING AREAS 4) COVERING STOODPLES 5) WEATHERING OFF / SEALING PEAT STOODPLES
IN-LINE CONTROL	1) INTERCEPTOR DRAINS, VEE-DRAINS, OVERHEAD SWALES/COLLECTOR DRAINS 2) EROSION AND VELOCITY CONTROL MEASURES SUCH AS: a) SAND BAGS b) OYSTER BAGS FILLED WITH GRAVEL c) FILTER FABRICS d) STRAW BALES e) FLOW LAYERS f) WEIRS OR BARRIERS g) AND/OR OTHER SPLAIN/VALVE OR APPROPRIATE SYSTEMS 3) SILT FENCES, FILTER FABRICS 4) IN STREAM SEDIMATE 5) COLLECTION SUMPS, TEMPORARY SUMPS, PUMPING SYSTEMS 6) ATTENUATION LAGOONS 7) SEPERENT TRAPS, STILLING / SETTLEMENT PONDS
WATER TREATMENT CONTROL	1) TEMPORARY SUMPS 2) ATTENUATION PONDS 3) TEMPORARY STORAGE LAGOONS 4) SEPERENT TRAPS, STILLING / SETTLEMENT PONDS 5) PROPERLY SIZED SETTLEMENT SYSTEMS SUCH AS SILTTRAPERS, AND/OR OTHER SPLAIN/VALVE OR APPROPRIATE SYSTEMS 6) SILT DENATURING BAGS
OUTFALL CONTROL	1) LEVEL SPREADERS 2) BUFFERED OUTFALLS 3) VEGETATION FILTERS 4) SILT DENATURING BAGS 5) FLOW LAYERS AND WEIRS



**DRAWING LEGEND :**

- RIVERS/STREAMS
- LAKES
- RIVERS/STREAMS 50M BUFFER
- LAKES 50M BUFFER
- EXISTING CULVERTS/BRIDGES
- UPSTREAM INTERCEPTOR DRAIN
- SWALES/DOWNSTREAM COLLECTOR DRAIN
- DIRECTION OF FLOW
- SILT FENCES
- DOUBLE/TRIPLE SILT FENCES
- SETTLEMENT POND - LEVEL SPREADER
- SETTLEMENT POND - VEGETATION FILTER - LEVEL SPREADER
- CHECK DAM 'TYPE A'
- CHECK DAM 'TYPE B'
- PROPOSED CULVERTS/BRIDGES
- INTERCEPTOR DITCH CULVERT
- COLLECTOR DITCH CULVERT
- OVERLAND FLOW DISCHARGE
- TREATED WATER DISCHARGE
- SETTLEMENT POND
- SEMI-NATURAL VEGETATION SWALE / FILTER BED /SECONDARY SP
- PUMPING SUMP

**EXISTING DRAINAGE**

- SITE BOUNDARY
- EXISTING GROUND SURFACE MAJOR CONTOUR (10 M INTERVAL)
- EXISTING GROUND SURFACE INTERMEDIATE CONTOUR (5 M INTERVAL)
- EXISTING GROUND SURFACE MINOR CONTOUR (1 M INTERVAL)
- TURBINE AND SWEEP AREA
- TURBINE FOUNDATION
- EXISTING ROAD
- EXISTING ROAD TO BE UPGRADED
- PROPOSED ROAD
- FLOATING ROAD
- CRANE PLATFORM
- BORROW PIT
- PROPOSED CUT AREA
- PROPOSED FILL AREA

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7. LAYOUT PLANS SHOW TYPICAL TURBINE ROTOR DIAMETER AS PER TURBINE DRAWING.

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Date	Description	Chkd	Signed
Revisions			

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Job: **ARDDERROO WF, Co. GALWAY**

Title: **Drainage Layout Sheet 9 of 10**

Figure No: **0815-28**

Drawing No: **P1227-8-1118-A1-0815-28-00A**

Sheet Size: **A1** Project No.: **P1227-8**

Scale: **1:2,000 (A1)** Drawn By: **GD**  
Date: **21/11/2018** Checked By: **MG**

