



APPENDIX 4-4

DRAINAGE DESIGN DRAWINGS

POLLUTION PREVENTION NOTES:

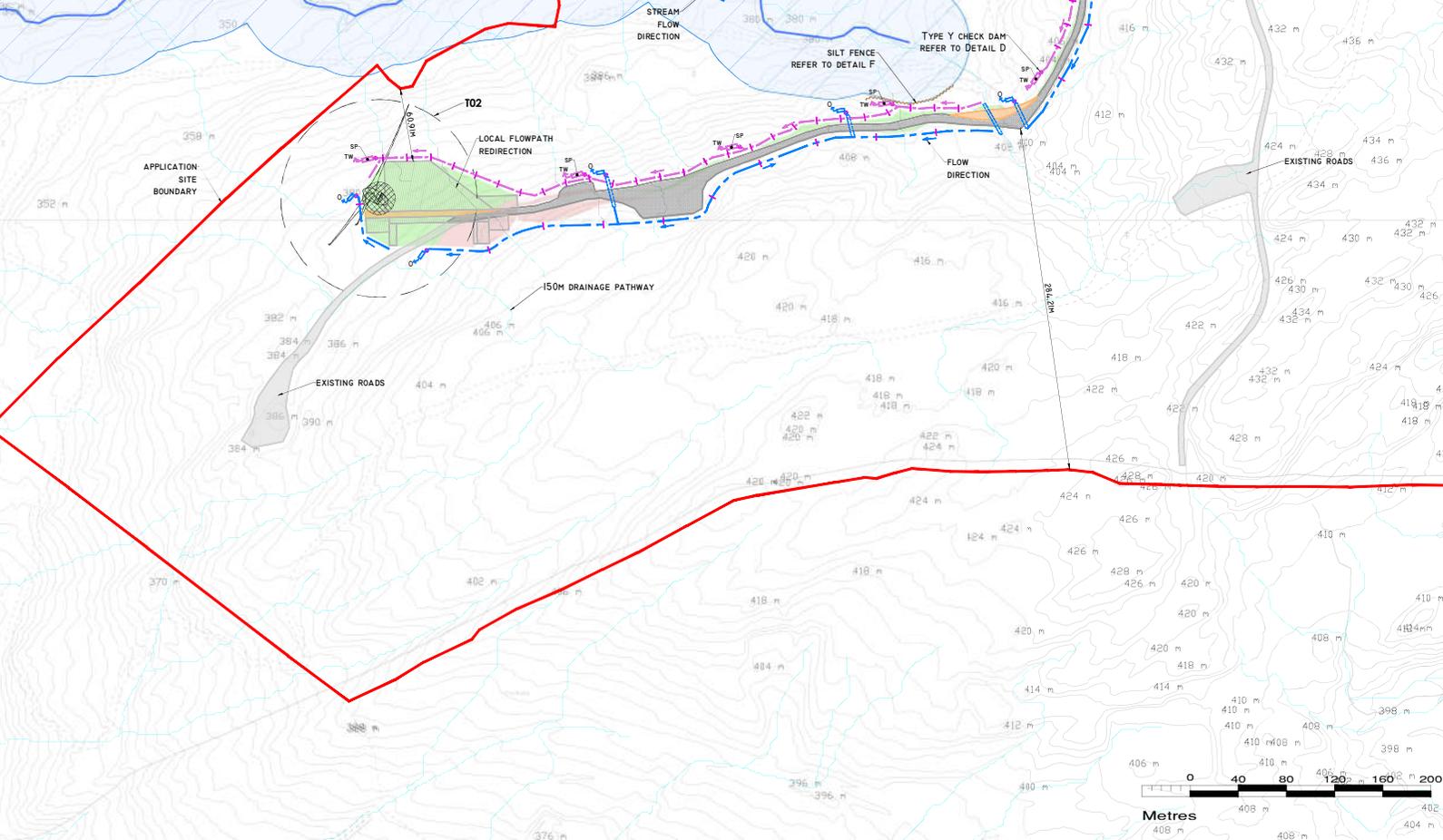
- SITE MANAGEMENT PROPOSALS ARE INTENDED TO ENSURE PROTECTION AGAINST SURFACE WATER AND GROUNDWATER POLLUTION, SILTATION AND EROSION.
 - SUITABLE DRAINAGE CONTROL MEASURES SHOULD BE IN PLACE AT ALL TIMES TO PREVENT CONVEYANCE OF SIGNIFICANT VOLUMES OF SILT TO OFF SITE RECEIVING WATERCOURSES.
 - SILT WATER CAN ARISE FROM DENATURING EXCAVATIONS, EROSION OF EXPOSED/DISTURBED GROUND, TEMPORARY STOCKPILES, PLANT AND WHEEL WASH, SITE ROADS/TRACKS, AND DISTURBANCE OF EXISTING FIELD DRAINS AND DITCHES.
- DISCHARGES:**
- WATER CONTAINING SILT WILL NOT BE PUMPED DIRECTLY TO ANY NATURAL WATERCOURSE. ALL DISCHARGES TO BE MADE OVER OPEN GROUND OR INTO EXISTING FIELD DRAINS WITH SILT TRAP AT A MINIMUM OF 50M FROM NEAREST WATERCOURSE UNLESS OTHERWISE STATED.
 - NO EXCAVATED MATERIAL IS TO BE STORED WITHIN ANY SURFACE WATER BUFFER ZONE.
 - PUMPED WATER WILL BE DIRECTED INTO TRACK SIDE DITCHES AND TREATED IN SETTLEMENT PONDS AND VEGETATION SWALES PRIOR TO OVERLAND DISCHARGE.
 - PURGING OF CLEAN WATER FROM EXCAVATIONS / OR OVER-PUMPING IN DRAINS/DITCHES/STREAMS WILL BE COMPLETED IN A MANNER THAT DOES NOT CAUSE SCOUR OR EROSION AT THE POINT OF RELEASE/DISCHARGE. THIS WILL BE DONE BY REDUCING THE FLOW VELOCITY OR BY USE OF SPLASH PLATES, AND OTHER SIMILAR DISCHARGE CONTROLS.
 - VEGETATION WILL NOT BE STRIPPED FROM EXISTING DRAINS/DITCHES UNLESS ABSOLUTELY NECESSARY.
- EXCAVATION:**
- WHERE DEEP EXCAVATIONS ARE PROPOSED CUT-OFF DRAINS WILL BE USED TO REDUCE THE AMOUNT OF SURFACE WATER ENTERING THE EXCAVATION. THIS WILL BE THE CASE AROUND TURBINE BASE EXCAVATIONS.
- EXPOSED GROUND & STOCKPILES:**
- THE AMOUNT OF EXPOSED GROUND AND TEMPORARY STOCKPILES OPEN AT ANY ONE TIME WILL BE MINIMISED, AS FAR AS PRACTICABLE.
- SITE TRACKS:**
- USE OF TRACK SIDE SWALES WITH CHECK DAMS, AND/OR FILTRATION CHECK DAMS WILL REDUCE SILT IN RUNOFF WATER AS REQUIRED.
 - CHECK DAMS TO BE INSPECTED AND CLEANED REGULARLY.
- REFUELLING:**
- REFUELLING OF MOBILE PLANT WILL BE COMPLETED IN DESIGNATED REFUELLING AREAS ONLY, PREFERABLY ON AN IMPERMEABLE SURFACE AND AWAY FROM FIELD DRAINS / DITCHES AND WATERCOURSES / WATERBODIES.
 - SPLITS MILLS AND DRIP TRAYS WILL BE AVAILABLE ON SITE FOR USE AS REQUIRED.
- CONCRETE:**
- CARE WILL BE TAKEN WHEN COMPLETING CONCRETE WORKS ON SITE TO ENSURE NO DISCHARGES OCCUR.
 - CONCRETE WASH WATER, AND WASTE CONCRETE WILL BE MANAGED APPROPRIATELY ON SITE.
- IF WATER POLLUTION IS IDENTIFIED THE FOLLOWING STEPS WOULD BE ADHERED TO:**
- STOP** - WORK IN THE IMMEDIATE AREA SHOULD BE STOPPED AND THE SOURCE OF THE POLLUTION IDENTIFIED.
- CONTAIN** - THE SOURCE OF THE POLLUTION SHOULD BE BUNDED USING A SUITABLE METHOD. NATURAL WATERCOURSES SHOULD BE TEMPORARILY DIVERTED AROUND THE SOURCE OF POLLUTION.
- NOTIFY** - THE RELEVANT AUTHORITIES (SITE MANAGER / FISHERIES / NPWS / LOCAL AUTHORITY ETC.) SHOULD BE NOTIFIED IMMEDIATELY TO ENSURE THAT MEASURES CAN BE IMPLEMENTED DOWNSTREAM TO PROTECT FISHERIES AND OTHER SENSITIVE AREAS.

DRAINAGE NOTES:

- SITE TRACKS AND ROADWAY SURFACING DESIGN AND CONSTRUCTION TO ENGINEER'S SPECIFICATION (I.E. BY OTHERS).
- STRAW BALE SILT TRAPS OR SIMILAR, TO BE STORED ON SITE. THE LEVEL OF SILT IN RUNOFF DURING CONSTRUCTION IS TO BE MONITORED VISUALLY AND EXCESSIVE SILT LEVELS IN ANY AREA TO BE TEMPORARILY MANAGED BY PLACING SILT FENCES, STRAW BALES / OR SIMILAR OR ADDITIONAL CHECK DAMS AT THE PROBLEM AREAS. MOBILE SILT TRAP SYSTEM TO BE AVAILABLE ON-SITE FOR USE AS REQUIRED ALSO.
- SILTS SYSTEM TO BE CONSTRUCTED PRIOR TO, OR AT THE SAME TIME AS THE ACCESS TRACKS. INTERIM MEASURES SUCH AS THE PLACEMENT OF STRAW BALES/SILT FENCING OR SIMILAR APPROVED METHOD OR ADDITIONAL CHECK DAMS AND SILT FENCES TO BE EMPLOYED IN ALL INSTANCES WHERE WORK CARRIED OUT TO CONSTRUCT THE ACCESS TRACKS IS LIKELY TO CAUSE ADVERSE ENVIRONMENTAL EFFECTS THROUGH INCREASED SILT LOADINGS BEING GENERATED DURING THE CONSTRUCTION PHASE.
- SUITABLE PREVENTION MEASURES SHOULD BE IN PLACE AT ALL TIMES TO PREVENT THE CONVEYANCE OF SIGNIFICANT VOLUMES OF SILT TO RECEIVING WATERCOURSES. SEE NOTES ON POLLUTION PREVENTION.
- INTERCEPTOR SWALES / DITCHES TO BE USED TO COLLECT UPSTREAM SURFACE WATER FLOWS. REGULAR CROSS DRAINS / DISCHARGE TO FIELD DITCHES/DRAINS WILL BE REQUIRED TO TRANSFER / DISCHARGE SURFACE WATER IN INTERCEPTOR DRAINS TO SUITABLE FIELD DRAIN OUTFALL POINTS.
- DRAINAGE SWALES / DITCHES TO BE EXCAVATED ADJACENT TO THE ACCESS TRACKS. REGULAR CROSS DRAINS TO BE LOCATED ALONG ACCESS TRACKS TO PREVENT EXCESSIVE VOLUMES OF WATER COLLECTING IN THE SWALES / DITCHES. LOCATIONS OF CROSS DRAINS TO BE AGREED WITH THE ENGINEER ON SITE. SURFACE WATER WILL NOT BE ALLOWED TO DISCHARGE DIRECTLY INTO EXISTING WATERCOURSES.
- WHERE POSSIBLE, A BUFFER ZONE OF 20M TO ANY EXISTING WATERCOURSE WILL BE REQUIRED WHERE OVER LAND DISCHARGES ARE PROPOSED FROM ACCESS TRACK SWALES / DITCHES.
- BATTERS OF ALL PROPOSED SWALES / DITCHES TO HAVE A SLOPE OF BETWEEN 1 : 1.5 TO 1 : 2 DEPENDING UPON DEPTH OF SWALE/DITCH AND WILL BE LEFT AS CUT TO RE-VEGETATE WITH LOCAL SPECIES.
- TRACK SIDE SWALES / DITCHES TO BE SHALLOW WITH MODERATE GRADIENTS TO PREVENT SCOURING. IN STEEP AREAS CHECK DAMS SHOULD BE INSTALLED TO REDUCE FLOW VELOCITIES AND PROVIDE SOURCE CONTROL OF SILT CONTAMINANT. WHERE NECESSARY THESE HAVE BEEN DESIGNATED IN CONJUNCTION WITH SETTLEMENT PONDS AND SILT TRAPS, PRIOR TO DISCHARGE.
- SETTLEMENT PONDS TO BE CONSTRUCTED FOR SILT REMOVAL AT TURBINE BASES AND HARD STAND AREAS. POND SIZES DEPENDS ON THE CATCHMENT AREA BEING SERVED. SAMPLE POND SIZES FOR VARIOUS CATCHMENT AREAS SHOWN ON DRAWING D501.
- STRAW BALES / OR SIMILAR AND SILT FENCES TO BE USED ALSO AROUND SPILL HEAPS TO MINIMIZE SILT RUNOFF. SILT FENCES MAY BE REMOVED WHEN SUITABLE VEGETATION COVER IS ESTABLISHED.
- SILT FENCES TO BE PROVIDED ALONG EDGE OF EXISTING WATERCOURSE WHERE WORKS COMES WITHIN 15M OF EDGE OF ANY DITCH / DRAIN / EPHEMERAL CHANNELS.
- SLOPES OF THE SWALES / DITCHES TO BE VEGETATED OR PROTECTED FROM IRONON UNTIL VEGETATION HAS BEEN ESTABLISHED. STRIPPED VEGETATIVE LAYER GREAT "SOOT" OR "SOBBY" FROM ROCK SWALINGS TO BE STORED LOCALLY AND USED TO LINE SLOPES AND BASES OF SWALES / DITCHES OR LONGITUDINAL MOUNDS OF VEGETATION SWALES AT FIELD DRAIN DISCHARGE POINTS.
- AREAS STRIPPED OF VEGETATION SHOULD BE KEPT TO A MINIMUM.
- CLEAN STONE FLOW CONTROL CHECK DAMS TO BE MADE UP OF LOCALLY WON / GEOLOGICALLY SIMILAR WELL GRADED STONE. AGGREGATE SIZE FOR STONE CHECK DAMS TO BE TYPICALLY 20-100MM CLEAN STONE. ON SLOPING SECTIONS OF THE ACCESS TRACKS, LOWM CHECK DAMS TO BE PROTECTED FROM WASHING AWAY THROUGH THE PLACEMENT OF 100M STONE ON THE DOWNHILL FACE OF THE CHECK DAM AND BY WRAPPING IN GEOTEXTILE.
- BUILD UP OF SILT LEVELS AT CHECK DAMS TO BE REMOVED AND DISPOSED OF APPROPRIATELY. SILT LEVELS AT CHECK DAMS TO BE VISUALLY INSPECTED AS PART OF AN ONGOING DRAINAGE MAINTENANCE PROGRAMME DURING THE CONSTRUCTION PHASE. WHERE CHECK DAMS BECOME CLOGGED WITH SILT OR VEGETATION, STONE CHECK DAM TO BE REMOVED AND REPLACED SUBSEQUENT TO THE REMOVAL OF SILT.
- SPACING AND FREQUENCY OF CHECK DAMS WILL BE DEPENDENT UPON LONGITUDINAL GRADIENT OF SWALE.
- LOCATION OF FILTRATION CHECK DAMS (IF REQUIRED) TO BE AGREED ON SITE WITH ENGINEER. SETTLEMENT PONDS TO BE CONSTRUCTED IN A MANNER WHERE THEY MAY BE EASILY INFILTRATED AT A LATER DATE (POST COMPLETION OF THE TURBINE BASE AND HARDSTAND CONSTRUCTION). ONLY SUITABLE MATERIALS EXCAVATED FROM THE POND TO BE USED TO FORM PART OF THE INFILTRATION AROUND THE POND.
- OIL FUEL SHOULD BE STORED WITHIN BUNDED CONTAINMENT STRUCTURES.
- SILT BAGS WILL BE USED ON SITE AT FIELD DRAIN DISCHARGE LOCATIONS, AS NECESSARY.

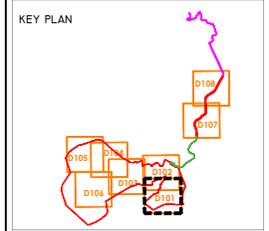
MITIGATION / DRAINAGE CONTROLS AVAILA FOR USE ACROSS THE SITE

MANAGEMENT TYPE	DESCRIPTION OF SILTS DRAINAGE METHODS	THIRL
AVOIDANCE CONTROLS	1) APPLICATION OF 50M BUFFER ZONES TO WATERCOURSES WHERE POSSIBLE	AW
	2) APPLICATION OF 10M BUFFER ZONES TO WHERE POSSIBLE	HWMS
	3) USING SMALL WORKING AREAS	MDMS
	4) WORKING IN APPROPRIATE WEATHER, IN CERTAIN WORK ACTIVITIES IN ADVANCE OF 1 MET. WEATHER.	MDMS
	1) USE OF UPSTREAM INTERCEPTION DRAINS DOWNSTREAM COLLECTOR DRAINS / OVERSILT WEE-DRAINS, DIVERSION DRAINS, FILLES AND PIPES	AW
SOURCE CONTROLS	1) EROSION AND VELOCITY CONTROL MEASURES	AW
	2) SAND BAGS	AW
	3) OYSTER BAGS FILLED WITH GRAVEL	AW
	4) FILTER FABRICS	AW
	5) AND OTHER SIMILAR/EQUIVALENT SYSTEMS	AW
IN-LINE CONTROLS	1) USE OF UPSTREAM INTERCEPTION DRAINS DOWNSTREAM COLLECTOR DRAINS / OVERSILT WEE-DRAINS, DIVERSION DRAINS, FILLES AND PIPES	AW
	2) EROSION AND VELOCITY CONTROL MEASURES	AW
	3) SAND BAGS	AW
	4) OYSTER BAGS FILLED WITH GRAVEL	AW
	5) FILTER FABRICS	AW
WATER TREATMENT CONTROLS	1) TEMPORARY DUMPS	AW
	2) ATTENUATION PONDS	AW
	3) TEMPORARY STORAGE PONDS	AW
	4) SEDIMENT TRAPS, STILLING / SETTLEMENT BASINS	AW
	5) PROPRIETARY SETTLEMENT SYSTEMS SIX SULTBUSTER, AND/OR OTHER SIMILAR/EQUIV. APPROPRIATE SYSTEMS.	AW
OUTFALL CONTROLS	1) LEVELSPREADERS	AW
	2) VEGETATED OUTFALLS	AW
	3) VEGETATION FILTERS	AW
	4) SILT DENATURING BAGS	AW
	5) FLOW LIMITERS AND WEIRS	AW



DRAWING LEGEND:

- RIVERS/STREAMS (INC. WATERCOURSE)
- RIVERS/STREAMS 50M BUFFER
- LAKES
- LAKES 50M BUFFER
- STREAM FLOW DIRECTION
- DRAINAGE FLOW PATHWAYS (10M LINE)
- LOCAL FLOWPATH REDIRECTION
- UPSTREAM INTERCEPTOR DRAIN SWALES/DOWNSTREAM COLLECTOR DRAIN DIRECTION OF FLOW
- SILT FENCES
- DOUBLE/TRIPLE SILT FENCES
- SETTLEMENT POND - LEVEL SPREADER
- CHECK DAM TYPE 'A'
- CHECK DAM TYPE 'B'
- PROPOSED WC CROSSING
- EXISTING WC CROSSING
- INTERCEPTOR DITCH CULVERT
- COLLECTOR DITCH CULVERT
- OVERLAND FLOW DISCHARGE
- OVERLAND FLOW DISCHARGE
- TREATED WATER DISCHARGE
- SETTLEMENT POND
- SEMI-NATURAL VEGETATION SWALE / FILTER BED FACED/DRAIN SP
- TEMPORARY PUMPING SUMP
- USE AT 1:1000 SCALE (SEE CONSTRUCTION PHASE)
- APPLICATION SITE BOUNDARY
- EXISTING LEASE BOUQUETTE BOUNDARY
- EXISTING ROW COLLECTE BOUNDARY
- EXISTING GROUND SURFACE
- MINOR CONTOUR (2 M INTERVAL)
- TURBINE AND SHEEP AREA
- PROPOSED HARBOURED AREAS
- EXISTING ROADS PROPOSED TO BE UPGRADED
- EXISTING ROADS
- HARDSTAND
- SUBSTATION
- CONSTRUCTION COMPOUND
- BORROW PIT
- CUT AREA
- FILL AREA



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- ALL DIMENSIONS ARE IN METRES.

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Date	Description	Chkd	Signed

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Client: ØRSTED

Job: PROPOSED REPOWERING OF KILGARVAN WIND FARM, CO. KERRY

Title: PROPOSED DRAINAGE LAYOUT

Figure No: D101

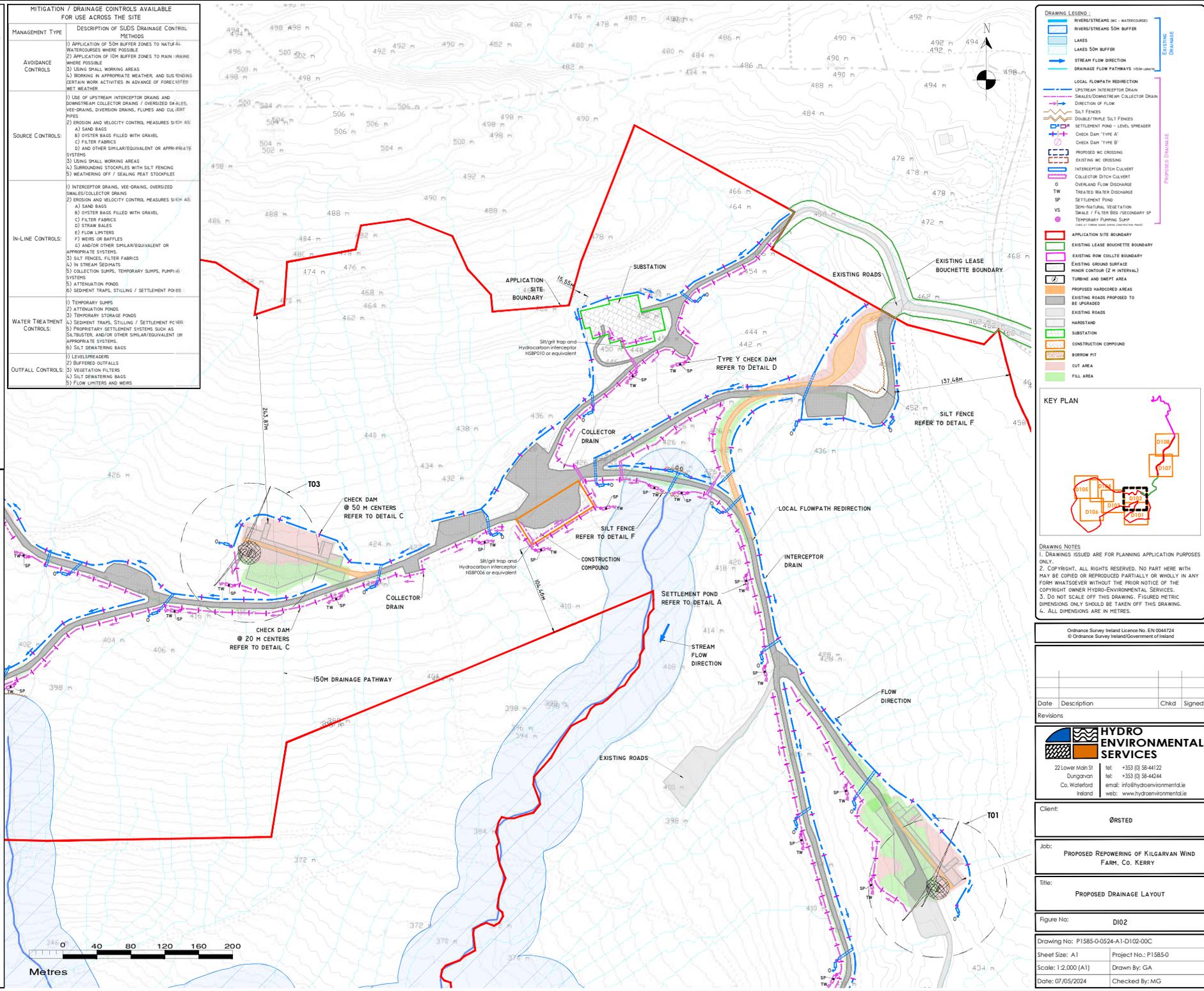
Drawing No: P1585-0-0524-A1-D101-00C
 Sheet Size: A1 | Project No.: P1585-0
 Scale: 1:2,000 (A1) | Drawn By: GA
 Date: 07/05/2024 | Checked By: MG

POLLUTION PREVENTION NOTES:

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 - WHERE POSSIBLE, A BUFFER ZONE OF 320M TO ANY EXISTING WATERCOURSE WILL BE REQUIRED WHERE OVER LAND DISCHARGES ARE PROPOSED FROM ACCESS TRACK SWALES / DITCHES.
 - BATTERS OF ALL PROPOSED SWALES / DITCHES TO HAVE A SLOPE OF BETWEEN 1 : 1.5 TO 1 : 2 DEPENDING UPON DEPTH OF SWALE/DITCH AND WILL BE LEFT AS CUT TO BE VEGETATED WITH LOCAL SPECIES.
 - TRACK SIDE SWALES / DITCHES TO BE SHALLOW WITH MODERATE GRADIENTS TO PREVENT SCOURING. IN STEEP AREAS CHECK DAMS SHOULD BE INSTALLED TO REDUCE FLOW VELOCITIES AND PROVIDE SOURCE CONTROL OF SILT CONTAMINANT. WHERE NECESSARY THESE HAVE BEEN DESIGNATED IN CONJUNCTION WITH SETTLEMENT PONDS AND SILT TRAPS, PRIOR TO DISCHARGE.
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 - STRAW BALES / OR SIMILAR AND SILT FENCES TO BE USED ALSO AROUND SPILL HEAPS TO MITIGATE SILT RUNOFF. SILT FENCES MAY BE REMOVED WHEN SUITABLE VEGETATION COVER IS ESTABLISHED.
 - SILT FENCES TO BE PROVIDED ALONG EDGE OF EXISTING WATERCOURSE WHERE WORKS COMES WITHIN 45M OF EDGE OF ANY DITCH / DRAIN / EPHEMERAL CHANNELS.
 - SLOPES OF THE SWALES / DITCHES TO BE VEGETATED OR PROTECTED FROM EROSION UNTIL VEGETATION HAS BEEN ESTABLISHED. STRIPPED VEGETATIVE LAYER GREAT "500" OR "1000" FROM EXCAVATIONS TO BE STORED LOCALLY AND USED TO LINE SLOPES AND BASE OF SWALES / DITCHES OR LONGITUDINAL MOUNDS OF VEGETATION SWALES AT FIELD DRAIN DISCHARGE POINTS.
 - AREAS STRIPPED OF VEGETATION SHOULD BE KEPT TO A MINIMUM.
 - CLEAN STONE FLOW CONTROL CHECK DAMS TO BE MADE UP OF LOCALLY WON / GEOLOGICALLY SIMILAR WALL GRADED STONE. AGGREGATE SIZE FOR STONE CHECK DAMS TO BE TYPICALLY 20-40MM CLEAN STONE. ON SLOPING SECTIONS OF THE ACCESS TRACKS, STONE CHECK DAMS TO BE PROTECTED FROM WASHING AWAY THROUGH THE PLACEMENT OF 100M STONE ON THE DOWNHILL FACE OF THE CHECK DAM AND BY WRAPPING IN GEOTEXTILE.
 - BUILD UP OF SILT LEVELS AT CHECK DAMS TO BE REMOVED AND DISPOSED OF APPROPRIATELY. SILT LEVELS AT CHECK DAMS TO BE VISUALLY INSPECTED AS PART OF AN ONGOING DRAINAGE MAINTENANCE PROGRAMME DURING THE CONSTRUCTION PHASE. WHERE CHECK DAMS BECOME CLOGGED WITH SILT OR VEGETATION, STONE CHECK DAM TO BE REMOVED AND REPLACED SUBSEQUENT TO THE REMOVAL OF SILT.
 - SPACING AND FREQUENCY OF CHECK DAMS WILL BE DEPENDENT UPON LONGITUDINAL GRADIENT OF SWALE.
 - LOCATION OF FILTRATION CHECK DAMS (IF REQUIRED) TO BE AGREED ON SITE WITH ENGINEER. SETTLEMENT PONDS TO BE CONSTRUCTED IN A MANNER WHERE THEY MAY BE EASILY INFILLED AT A LATER DATE (POST COMPLETION OF THE TURBINE BASE AND HARDSTAND CONSTRUCTION). ONLY SUITABLE MATERIALS EXCAVATED FROM THE POND TO BE USED TO FORM PART OF THE HARDSTAND AROUND THE POND.
 - OIL FUEL SHOULD BE STORED WITHIN BUNDED CONTAINMENT STRUCTURES.
 - SILT BAGS WILL BE USED ON SITE AT FIELD DRAIN DISCHARGE LOCATIONS, AS NECESSARY.

MITIGATION / DRAINAGE CONTROLS AVAILABLE FOR USE ACROSS THE SITE

MANAGEMENT TYPE	DESCRIPTION OF SLODS DRAINAGE CONTROL METHODS
AVOIDANCE CONTROLS	<ol style="list-style-type: none"> APPLICATION OF 50M BUFFER ZONES TO NATURAL WATERCOURSES WHERE POSSIBLE APPLICATION OF 10M BUFFER ZONES TO MAIN RIVERS WHERE POSSIBLE USING SHALLOW WORKING AREAS WORKING IN APPROPRIATE WEATHER, AND SUSPENDING CERTAIN WORK ACTIVITIES IN ADVANCE OF FORECASTED WET WEATHER.
SOURCE CONTROLS	<ol style="list-style-type: none"> USE OF UPSTREAM INTERCEPTOR DRAINS AND DOWNSTREAM COLLECTOR DRAINS / OVERSIZED VEE-DRAINS, DIVERSION DRAINS, FLUMES AND CULVERT PIPES EROSION AND VELOCITY CONTROL MEASURES SUCH AS: <ol style="list-style-type: none"> SAND BAGS OSTER BASS FILLED WITH GRAVEL FILTER FABRICS AND OTHER SIMILAR/EQUIVALENT OR APPROPRIATE SYSTEMS USING SHALLOW WORKING AREAS SURROUNDING STOCKPILES WITH SILT FENCING WEATHERING OFF / SEALING PEAT STOCKPILES
IN-LINE CONTROLS	<ol style="list-style-type: none"> INTERCEPTOR DRAINS, VEE-DRAINS, OVERSIZED SWALES/COLLECTOR DRAINS EROSION AND VELOCITY CONTROL MEASURES SUCH AS: <ol style="list-style-type: none"> SAND BAGS OSTER BASS FILLED WITH GRAVEL FILTER FABRICS STRAW BALES FLOW LIMITERS WEIRS OR BATTERIES AND/OR OTHER SIMILAR/EQUIVALENT OR APPROPRIATE SYSTEMS SILT FENCES, FILTER FABRICS IN STREAM SEDIMENTS COLLECTION Sumps, TEMPORARY Sumps, PUMP/SP SYSTEMS ATTENTION PONDS SEGMENT TRAPS, STILLING / SETTLEMENT POND
WATER TREATMENT CONTROLS	<ol style="list-style-type: none"> TEMPORARY SLODS ATTENTION PONDS TEMPORARY STORAGE PONDS SEGMENT TRAPS, STILLING / SETTLEMENT POND PROPRIETARY SETTLEMENT SYSTEMS SUCH AS SILTTRAPSTER, AND/OR OTHER SIMILAR/EQUIVALENT OR APPROPRIATE SYSTEMS SILT DENATURING BAGS
OUTFALL CONTROLS	<ol style="list-style-type: none"> LEVELSPREADERS BUFFERED OUTFALLS VEGETATION CHECK DAMS SILT DENATURING BAGS FLOW LIMITERS AND WEIRS



DRAWINGS LEGEND:

- RIVERS/STREAMS (INC. WATERCOURSE)
- RIVERS/STREAMS 50M BUFFER
- LAKES
- LAKES 50M BUFFER
- STREAM FLOW DIRECTION
- DRAINAGE FLOW PATHWAYS (10M LINES)

LOCAL FLOWPATH REDIRECTION

- UPSTREAM INTERCEPTOR DRAIN SWALES/DOWNSTREAM COLLECTOR DRAIN
- DIRECTION OF FLOW
- SILT FENCES
- DOUBLE/TRIPLE SILT FENCES
- SETTLEMENT POND - LEVEL SPREADER
- CHECK DAM TYPE 'A'
- CHECK DAM TYPE 'B'
- PROPOSED WC CROSSING
- EXISTING WC CROSSING
- INTERCEPTOR DITCH CULVERT
- COLLECTOR DITCH CULVERT
- OVERLAND FLOW DISCHARGE
- OVERLAND FLOW DISCHARGE
- TW - TREATED WATER DISCHARGE
- SP - SETTLEMENT POND
- VS - SEMI-NATURAL VEGETATION SWALE / FILTER BED FACED/DOY SP
- TEMPORARY PUMPING SUMP
- USE AT TURBINE BASE (SEE CONSTRUCTION PHASE)

APPLICATION SITE BOUNDARY

- EXISTING LEASE BOUCHEUTE BOUNDARY
- EXISTING ROW COLLETTE BOUNDARY
- EXISTING GROUND SURFACE
- NEW CONTOUR (2 m INTERVAL)
- TURBINE AND SHEEP AREA
- PROPOSED HARROURED AREAS
- EXISTING ROADS PROPOSED TO BE UPGRADED
- EXISTING ROADS
- HARDSTAND
- SUBSTATION
- CONSTRUCTION COMPOUND
- BORROW PIT
- CUT AREA
- FILL AREA

KEY PLAN

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Date	Description	Chkd	Signed

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Client: ØRSTED

Job: PROPOSED REPOWERING OF KILGARVAN WIND FARM, CO. KERRY

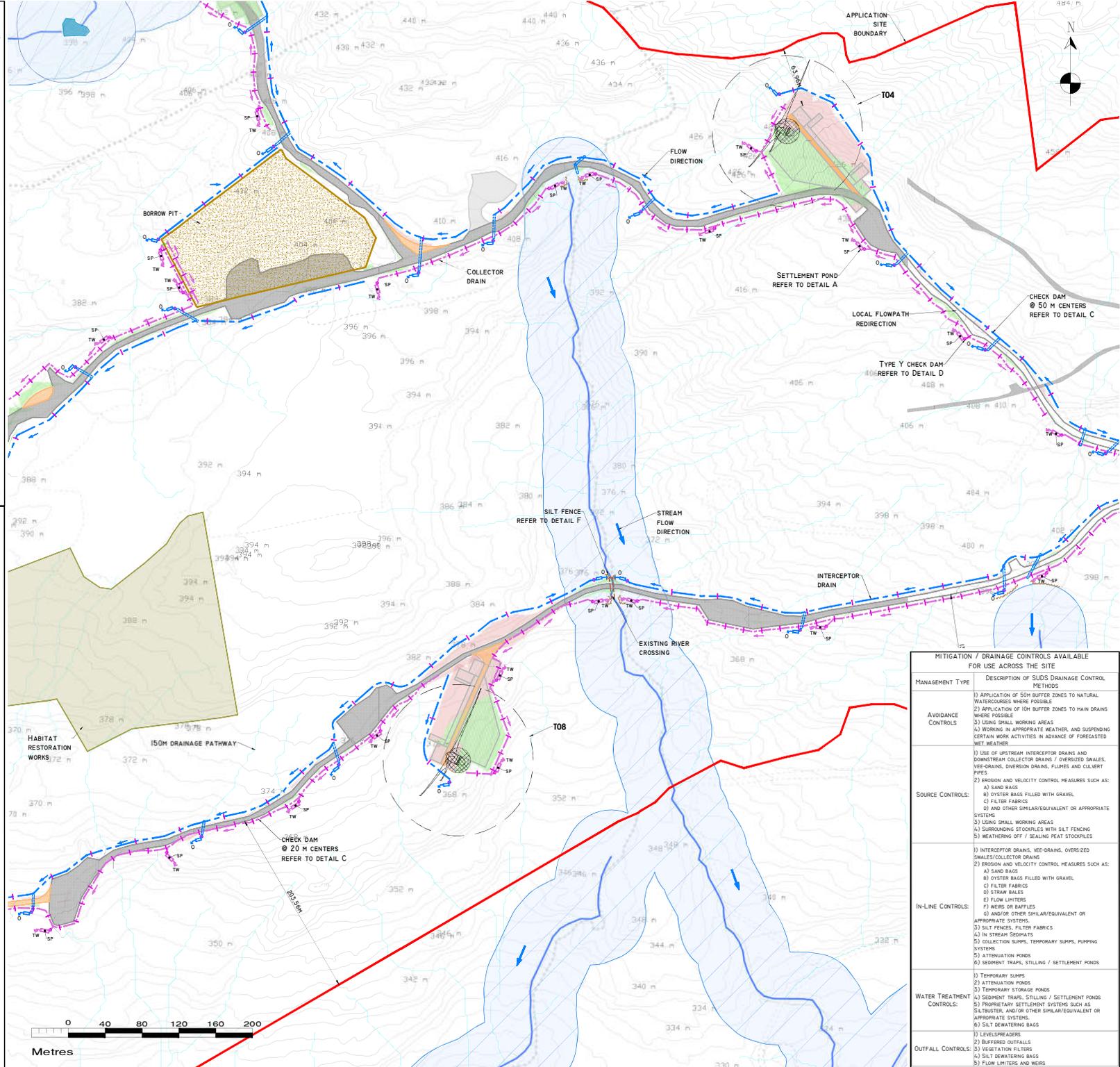
Title: PROPOSED DRAINAGE LAYOUT

Figure No: D102

Drawing No: P1585-0-0524-A1-D102-00C
Sheet Size: A1 Project No.: P1585-0
Scale: 1:2,000 (A1) Drawn By: GA
Date: 07/05/2024 Checked By: MG

POLLUTION PREVENTION NOTES:

1. SITE MANAGEMENT PROPOSALS ARE INTENDED TO ENSURE PROTECTION AGAINST SURFACE WATER AND GROUNDWATER POLLUTION, SILTATION AND EROSION.
 2. SUITABLE DRAINAGE CONTROL MEASURES SHOULD BE IN PLACE AT ALL TIMES TO PREVENT CONVEYANCE OF SIGNIFICANT VOLUMES OF SILT TO OFF SITE RECEIVING WATERCOURSES.
 3. SILTY WATER CAN ARISE FROM DETAIRING EXCAVATIONS, EROSION OF EXPOSED/DISTURBED GROUND, TEMPORARY STOCKPILES, PLANT AND WHEEL WASH, SITE ROADS/TRACKS, AND DISTURBANCE OF EXISTING FIELD DRAINS AND DITCHES.
- DISCHARGES:**
4. WATER CONTAINING SILT WILL NOT BE PUMPED DIRECTLY TO ANY NATURAL WATERCOURSE. ALL DISCHARGES TO BE MADE OVER OPEN GROUND OR INTO EXISTING FIELD DRAIN WITH SILT TRAP AT A MINIMUM OF 20M FROM NEAREST WATERCOURSE UNLESS OTHERWISE STATED.
 5. NO EXCAVATED MATERIAL IS TO BE STORED WITHIN ANY SURFACE WATER BUFFER ZONE.
 6. PUMPED WATER WILL BE DIRECTED INTO TRACK SIDE DITCHES AND TREATED IN SETTLEMENT PONDS AND VEGETATION SWALES PRIOR TO OVERLAND DISCHARGE.
 7. PUMPING OF CLEAN WATER FROM EXCAVATIONS / OR OVER-PUMPING IN DRAINS/DITCHES/STREAMS WILL BE COMPLETED IN A MANNER THAT DOES NOT CAUSE SCOUR OR EROSION AT THE POINT OF RELEASE/DISCHARGE. THIS WILL BE DONE BY REDUCING THE FLOW VELOCITIES OR BY USE OF SPLASH PLATES, AND OTHER SIMILAR DISCHARGE CONTROLS.
 8. VEGETATION WILL NOT BE STRIPPED FROM EXISTING DRAINS/DITCHES UNLESS ABSOLUTELY NECESSARY.
- EXCAVATION:**
9. WHERE DEEP EXCAVATIONS ARE PROPOSED CUT-OFF DRAINS WILL BE USED TO REDUCE THE AMOUNT OF SURFACE WATER ENTERING THE EXCAVATION. THIS WILL BE THE CASE AROUND TURNING BASE EXCAVATIONS.
- EXPOSED GROUND & STOCKPILES:**
10. THE AMOUNT OF EXPOSED GROUND AND TEMPORARY STOCKPILES OPEN AT ANY ONE TIME WILL BE MINIMISED, AS FAR AS PRACTICABLE.
- SITE TRACKS:**
11. USE OF TRACK SIDE SWALES WITH CHECK DAMS, AND/OR FILTRATION CHECK DAMS WILL REDUCE SILT IN RUNOFF WATER AS REQUIRED.
 12. CHECK DAMS TO BE INSPECTED AND CLEANED REGULARLY.
- REFUELLING:**
13. REFUELLING OF MOBILE PLANT WILL BE COMPLETED IN DESIGNATED REFUELLING AREAS ONLY, PREFERABLY ON AN IMPERMEABLE SURFACE AND AWAY FROM FIELD DRAINS / DITCHES AND WATERCOURSES / WATERBODIES.
 14. SPILL KITS AND DRIP TRAYS WILL BE AVAILABLE ON SITE FOR USE AS REQUIRED.
- CONCRETE:**
15. CARE WILL BE TAKEN WHEN COMPLETING CONCRETE WORKS ON SITE TO ENSURE NO DISCHARGES OCCUR.
 16. CONCRETE WASH WATER AND WASTE CEMENT WILL BE MANAGED APPROPRIATELY ON SITE.
- IF WATER POLLUTION IS IDENTIFIED THE FOLLOWING STEPS WOULD BE ADHERED TO:**
- STOP** - WORK IN THE IMMEDIATE AREA SHOULD BE STOPPED AND THE SOURCE OF THE POLLUTION IDENTIFIED.
- CONTAIN** - THE SOURCE OF THE POLLUTION SHOULD BE BUNDED USING A SUITABLE METHOD. NATURAL WATERCOURSES SHOULD BE TEMPORARILY DIVERTED AROUND THE SOURCE OF POLLUTION.
- NOTIFY** - THE RELEVANT AUTHORITIES (SITE MANAGER / FISHERIES / NPWS / LOCAL AUTHORITY ETC.) SHOULD BE NOTIFIED IMMEDIATELY TO ENSURE THAT MEASURES CAN BE IMPLEMENTED DOWNSTREAM TO PROTECT FISHERIES AND OTHER SENSITIVE AREAS.
- DRAINAGE NOTES:**
1. SITE TRACKS AND ROADWAY SURFACING DESIGN AND CONSTRUCTION TO ENGINEER'S SPECIFICATION (I.E. BY OTHERS).
 2. STRAW STRAIN BALES/SILT FENCING/ OR SIMILAR, TO BE STORED ON SITE. THE LEVEL OF SILT IN RUNOFF DURING CONSTRUCTION IS TO BE MONITORED VISUALLY AND EXCESSIVE SILT LEVELS IN ANY AREA TO BE TEMPORARILY MANAGED BY PLACING SILT FENCES, STRAW BALES / OR SIMILAR OR ADDITIONAL CHECK DAMS AT THE PROBLEM AREAS. MOBILE SILT TRAP SYSTEM TO BE AVAILABLE ON-SITE FOR USE AS REQUIRED ALSO.
 3. SILT FENCE SYSTEM TO BE CONSTRUCTED PRIOR TO, OR AT THE SAME TIME AS THE ACCESS TRACKS. INTERIM MEASURES SUCH AS THE PLACEMENT OF STRAW BALES/SILT FENCING/ OR SIMILAR APPROVED METHODS OR ADDITIONAL CHECK DAMS AND SILT FENCES TO BE EMPLOYED IN ALL INSTANCES WHERE WORK GAINED BUT TO CONSTRUCT THE ACCESS TRACKS IS LIKELY TO CAUSE ADVERSE ENVIRONMENTAL EFFECTS THROUGH INCREASED SILT LOADINGS BEING GENERATED DURING THE CONSTRUCTION PHASE.
 4. SUITABLE PREVENTION MEASURES SHOULD BE IN PLACE AT ALL TIMES TO PREVENT THE CONVEYANCE OF SIGNIFICANT VOLUMES OF SILT TO RECEIVING WATERCOURSES. SEE NOTES ON POLLUTION PREVENTION.
 5. INTERCEPTOR SWALES / DITCHES TO BE USED TO COLLECT UPSTREAM SURFACE WATER FLOWS. REGULAR CROSS DRAINS / DISCHARGE TO FIELD DITCHES/DRAINS WILL BE REQUIRED TO TRANSFER / DISCHARGE SURFACE WATER IN INTERCEPTOR DRAINS TO SUITABLE FIELD DRAIN OUTFALL POINTS.
 6. DRAINAGE SWALES / DITCHES TO BE EXCAVATED ADJACENT TO THE ACCESS TRACKS. REGULAR CROSS DRAINING TO BE LOCATED ALONG ACCESS TRACKS TO PREVENT EXCESSIVE VOLUMES OF WATER COLLECTING IN THE SWALES / DITCHES. LOCATIONS OF CROSS DRAINS TO BE AGREED WITH THE ENGINEER ON SITE. SURFACE WATER WILL NOT BE ALLOWED TO DISCHARGE DIRECTLY INTO EXISTING WATERCOURSES.
 7. WHERE POSSIBLE, A BUFFER ZONE OF >20M TO ANY EXISTING WATERCOURSE WILL BE REQUIRED WHERE OVER LAND DISCHARGES ARE PROPOSED FROM ACCESS TRACK SWALES / DITCHES.
 8. SLOPES OF ALL PROPOSED SWALES / DITCHES TO HAVE A SLOPE OF BETWEEN 1 : 1.5 TO 1 : 2 DEPENDING UPON DEPTH OF SWALE/DITCH AND WILL BE LEFT AS CUT TO REVEGETATE WITH LOCAL SPECIES.
 9. TRACK SIDE SWALES / DITCHES TO BE SHALLOW WITH MODERATE GRADIENTS TO PREVENT SCOURING. IN STEEP AREAS CHECK DAMS SHOULD BE INSTALLED TO REDUCE FLOW VELOCITIES AND PROVIDE SOURCE CONTROL OF SILT CONTAMINATION.
 10. SETTLEMENT PONDS TO BE CONSTRUCTED FOR SILT REMOVAL AT TURNING BASES AND HARD STAND AREAS. POND SIZES DEPENDS ON THE CATCHMENT AREA BEING SERVED. SAMPLE POND SIZES VARIOUS CATCHMENT AREAS SHOWN ON DRAWING D501.
 11. STRAW BALES / OR SIMILAR AND SILT FENCES TO BE USED ALSO AROUND SPILL HEAPS TO MITIGATE SILT RUNOFF. SILT FENCES MAY BE REMOVED WHEN SUITABLE VEGETATION COVER IS ESTABLISHED.
 12. SILT FENCES TO BE PROVIDED ALONG EDGE OF EXISTING WATERCOURSE WHERE WORKS COME WITHIN 10M OF EDGE OF ANY DITCH / DRAIN / EPHEMERAL CHANNELS.
 13. SLOPES OF THE SWALES / DITCHES TO BE VEGETATED OR PROTECTED FROM EROSION UNTIL VEGETATION HAS BEEN ESTABLISHED. STRIPPED VEGETATIVE LAYER GREAT '500' OR '1000'MM FROM EXCAVATIONS TO BE STORED LOCALLY AND USED TO LINE SLOPES AND SWALES OF SWALES / DITCHES OR LONGITUDINAL MOUNDS OF VEGETATION SWALES AT FIELD DRAIN DISCHARGE POINTS.
 14. AREAS STRIPPED OF VEGETATION SHOULD BE KEPT TO A MINIMUM.
 15. CLEAN STONE FLOW CONTROL CHECK DAMS TO BE MADE UP LOCALLY W/ OR GEOLOGICALLY SIMILAR WELLS GRADED STONE. AGGREGATE SIZE FOR STONE CHECK DAMS TO BE TYPICALLY 20-100MM CLEAN STONE. ON SLOPING SECTIONS OF THE ACCESS TRACKS, ALIGNED CHECK DAMS TO BE PROTECTED FROM WASHING AWAY THROUGH THE PLACEMENT OF 100M STONE ON THE DOWNHILL FACE OF THE CHECK DAM AND BY WRAPPING IN GEOTEXTILE.
 16. BUILD UP OF SILT LEVELS AT CHECK DAMS TO BE REMOVED AND DISPOSED OF APPROPRIATELY. SILT LEVELS AT CHECK DAMS TO BE VISUALLY INSPECTED AS PART OF AN ONGOING DRAINAGE MAINTENANCE PROGRAMME DURING THE CONSTRUCTION PHASE. WHERE CHECK DAMS BECOME CLOGGED WITH SILT OR VEGETATION, STONE CHECK DAM TO BE REMOVED AND REPLACED SUBSEQUENT TO THE REMOVAL OF SILT.
 17. SPACING AND FREQUENCY OF CHECK DAMS WILL BE DEPENDENT UPON LONGITUDINAL GRADIENT OF SWALE.
 18. LOCATION OF FILTRATION CHECK DAMS (IF REQUIRED) TO BE AGREED ON SITE WITH ENGINEER. SETTLEMENT PONDS TO BE CONSTRUCTED IN A MANNER WHERE THEY MAY BE EASILY INFILLED AT A LATER DATE (POST COMPLETION OF THE TURNING BASE AND HARDSTAND CONSTRUCTION). ONLY SUITABLE MATERIALS EXCAVATED FROM THE POND TO BE USED TO FORM PART OF THE HARDSTAND AROUND THE POND.
 19. OIL FUEL SHOULD BE STORED WITHIN BUNDED CONTAINMENT STRUCTURES.
 20. SILT BAGS WILL BE USED ON SITE AT FIELD DRAIN DISCHARGE LOCATIONS, AS NECESSARY.



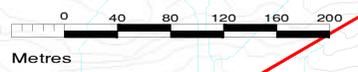
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Date	Description	Chkd	Signed

MITIGATION / DRAINAGE CONTROLS AVAILABLE FOR USE ACROSS THE SITE	
MANAGEMENT TYPE	DESCRIPTION OF SUDS DRAINAGE CONTROL METHODS
AVOIDANCE CONTROLS:	1) APPLICATION OF 50M BUFFER ZONES TO NATURAL WATERCOURSES WHERE POSSIBLE 2) APPLICATION OF 10M BUFFER ZONES TO MAIN DRAINS WHERE POSSIBLE 3) USING SMALL WORKING AREAS 4) WORKING IN APPROPRIATE WEATHER, AND SUSPENDING CERTAIN WORK ACTIVITIES IN ADVANCE OF FORECASTED WET WEATHER.
SOURCE CONTROLS:	1) USE OF UPSTREAM INTERCEPTOR DRAINS AND DOWNSTREAM COLLECTOR DRAINS / OVERSIZED SWALES, VE-GRASSES, OVERFLOW DRAINS, FLUMES 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 SIMILAR/EQUIVALENT OR APPROPRIATE SYSTEMS 3) USING SMALL WORKING AREAS 4) SURROUNDING STOCKPILES WITH SILT FENCING 5) WEATHERING OFF / SEALING PEAT STOCKPILES
IN-LINE CONTROLS:	1) INTERCEPTOR DRAINS, VE-GRASSES, OVERSIZED 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 LIMITERS F) WEIRS OR BAFFLES G) AND/OR OTHER SIMILAR/EQUIVALENT OR APPROPRIATE SYSTEMS 3) SALT FENCES, FILTER FABRICS 4) IN STREAM SEDIMATE 5) COLLECTION SUMPS, TEMPORARY SUMPS, PUMPING SYSTEMS 6) ATTENUATION PONDS 7) SEDIMENT TRAPS, STILLING / SETTLEMENT PONDS
WATER TREATMENT CONTROLS:	1) TEMPORARY SUMPS 2) ATTENUATION PONDS 3) TEMPORARY STORAGE PONDS 4) SEDIMENT TRAPS, STILLING / SETTLEMENT PONDS 5) PROPRIETARY SETTLEMENT SYSTEMS SUCH AS SILT TRAP, AND/OR OTHER SIMILAR/EQUIVALENT OR APPROPRIATE SYSTEMS. 6) SALT DETERGENT BAGS
OUTFALL CONTROLS:	1) LEVELSPREADERS 2) BUFFERED OUTFALLS 3) VEGETATION FILTERS 4) SALT DETERGENT BAGS 5) FLOW LIMITERS AND WEIRS



Client: ØRSTED

Job: PROPOSED REPOWERING OF KILGARVAN WIND FARM, CO. KERRY

Title: PROPOSED DRAINAGE LAYOUT

Figure No: D103

Drawing No: P1585-0-0524-A1-D103-000

Sheet Size: A1 Project No: P1585-0

Scale: 1:2,000 (A1) Drawn By: GA

Date: 07/05/2024 Checked By: MG

POLLUTION PREVENTION NOTES:

1. SITE MANAGEMENT PROPOSALS ARE INTENDED TO ENSURE PROTECTION AGAINST SURFACE WATER AND GROUNDWATER POLLUTION, SILTATION AND EROSION.
 2. SUITABLE DRAINAGE CONTROL MEASURES SHOULD BE IN PLACE AT ALL TIMES TO PREVENT CONVEYANCE OF SIGNIFICANT VOLUMES OF SILT TO OFF SITE RECEIVING WATERCOURSES.
 3. SILTY WATER CAN ARISE FROM DENATURING EXCAVATIONS, EROSION OF EXPOSED/DISTURBED GROUND, TEMPORARY STOCKPILES, PLANT AND WHEEL WASH, SITE ROADS/TRACKS, AND DISTURBANCE OF EXISTING FIELD DRAINS AND DITCHES.
- DISCHARGES:**
4. WATER CONTAINING SILT WILL NOT BE PUMPED DIRECTLY TO ANY NATURAL WATERCOURSE. ALL DISCHARGES TO BE MADE OVER OPEN GROUND OR INTO EXISTING FIELD DRAIN WITH SILT TRAP AT A MINIMUM OF 50M FROM NEAREST WATERCOURSE UNLESS OTHERWISE STATED.
 5. NO UNEXCAVATED MATERIAL IS TO BE STORED WITH ANY SURFACE WATER BUFFER ZONE.
 6. PUMPED WATER WILL BE DIRECTED INTO TRACK SIDE DITCHES AND TREATED IN SETTLEMENT PONDS AND VEGETATION SWALES PRIOR TO OVERLAND DISCHARGE.
 7. PUMPING OF CLEAN WATER FROM EXCAVATIONS / OR OVER-PUMPING IN DRAINAGE DITCHES/STREAMS WILL BE COMPLETED IN A MANNER THAT DOES NOT CAUSE SCOUR OR EROSION AT THE POINT OF RELEASE/DISCHARGE. THIS WILL BE DONE BY REDUCING THE FLOW VELOCITY OR BY USE OF SPLASH PLATES, AND OTHER SIMILAR DISCHARGE CONTROLS.
 8. VEGETATION WILL NOT BE STRIPPED FROM EXISTING DRAINS/DITCHES UNLESS ABSOLUTELY NECESSARY.

- EXCAVATION:**
9. WHERE DEEP EXCAVATIONS ARE PROPOSED CUT-OFF DRAINS WILL BE USED TO REDUCE THE AMOUNT OF SURFACE WATER ENTERING THE EXCAVATION. THIS WILL BE THE CASE AROUND TURNING BASS EXCAVATIONS.

- EXPOSED GROUND & STOCKPILES:**
10. THE AMOUNT OF EXPOSED GROUND AND TEMPORARY STOCKPILES OPEN AT ANY ONE TIME WILL BE MINIMISED, AS FAR AS PRACTICABLE.

- SITE TRACKS:**
11. USE OF TRACK SIDE SWALES WITH CHECK DAMS, AND/OR FILTRATION CHECK DAMS WILL REDUCE SILT IN RUNOFF WATER AS REQUIRED.
 12. CHECK DAMS TO BE INSPECTED AND CLEANED REGULARLY.

- REFUELLING:**
13. REFUELLING OF MOBILE PLANT WILL BE COMPLETED IN DESIGNATED REFUELLING AREAS ONLY, PREFERABLY ON AN IMPERMEABLE SURFACE AND AWAY FROM FIELD DRAINS / DITCHES AND WATERCOURSES / WATERBODIES.
 14. SPILL KITS AND DRIP TRAYS WILL BE AVAILABLE ON SITE FOR USE AS REQUIRED.

- CONCRETE:**
15. CARE WILL BE TAKEN WHEN COMPLETING CONCRETE WORKS ON SITE TO ENSURE NO DISCHARGES OCCUR.
 16. CONCRETE WASH WATER, AND WASTE CONCRETE WILL BE MANAGED APPROPRIATELY ON SITE.

IF WATER POLLUTION IS IDENTIFIED THE FOLLOWING STEPS WOULD BE ADHERED TO:

STOP - WORK IN THE IMMEDIATE AREA SHOULD BE STOPPED AND THE SOURCE OF THE POLLUTION IDENTIFIED.

CONTAIN - THE SOURCE OF THE POLLUTION SHOULD BE BUNDED USING A SUITABLE METHOD. NATURAL WATERCOURSES SHOULD BE TEMPORARILY DIVERTED AROUND THE SOURCE OF POLLUTION.

NOTIFY - THE RELEVANT AUTHORITIES (SITE MANAGER / FISHERIES / NPWS / LOCAL AUTHORITY ETC.) SHOULD BE NOTIFIED IMMEDIATELY TO ENSURE THAT MEASURES CAN BE IMPLEMENTED DOWNSTREAM TO PROTECT FISHERIES AND OTHER SENSITIVE AREAS.

- DRAINAGE NOTES:**
1. SITE TRACKS AND ROADWAY SURFACING DESIGN AND CONSTRUCTION TO ENGINEER'S SPECIFICATION (I.E. BY OTHERS).
 2. STRAW STRAIN BALES/SILT FENCING/ OR SIMILAR, TO BE STORED ON SITE. THE LEVEL OF SILT IN RUNOFF DURING CONSTRUCTION IS TO BE MONITORED VISUALLY AND EXCESSIVE SILT LEVELS IN ANY AREA TO BE TEMPORARILY MANAGED BY PLACING SILT FENCES, STRAW BALES / OR SIMILAR OR ADDITIONAL CHECK DAMS AT THE PROBLEM AREAS. MOBILE SILT TRAP SYSTEM TO BE AVAILABLE ON SITE FOR USE AS REQUIRED ALSO.
 3. SILT SYSTEM TO BE CONSTRUCTED PRIOR TO, OR AT THE SAME TIME AS THE ACCESS TRACKS. INTERIM MEASURES SUCH AS THE PLACEMENT OF STRAW BALES/SILT FENCING/ OR SIMILAR APPROVED METHOD OR ADDITIONAL CHECK DAMS AND SILT FENCES TO BE EMPLOYED IN ALL INSTANCES WHERE WORK GAINED BUT TO CONSTRUCT THE ACCESS TRACKS ARE LIKELY TO CAUSE ADVERSE ENVIRONMENTAL EFFECTS THROUGH INCREASED SILT LOADINGS BEING GENERATED DURING THE CONSTRUCTION PHASE.
 4. SUITABLE PREVENTION MEASURES SHOULD BE IN PLACE AT ALL TIMES TO PREVENT THE CONVEYANCE OF SIGNIFICANT VOLUMES OF SILT TO RECEIVING WATERCOURSES. SEE NOTES ON POLLUTION PREVENTION.
 5. INTERCEPTOR SWALES / DITCHES TO BE USED TO COLLECT UPSTREAM SURFACE WATER FLOWS. REGULAR CROSS DRAINS / DISCHARGE TO FIELD DITCHES/DRAINS WILL BE REQUIRED TO TRANSPORT / DISCHARGE SURFACE WATER IN INTERCEPTOR DRAINS TO SUITABLE FIELD DRAIN OUTLET POINTS.
 6. DRAINAGE SWALES / DITCHES TO BE EXCAVATED ADJACENT TO THE ACCESS TRACKS. REGULAR CROSS DRAIN TO BE LOCATED ALONG ACCESS TRACKS TO PREVENT EXCESSIVE VOLUMES OF WATER COLLECTING IN THE SWALES / DITCHES. LOCATIONS OF CROSS DRAINS TO BE AGREED WITH THE DIRECTOR ON SITE. SURFACE WATER WILL NOT BE ALLOWED TO DISCHARGE DIRECTLY INTO EXISTING WATERCOURSES.
 7. WHERE POSSIBLE, A BUFFER ZONE OF 50M TO ANY EXISTING WATERCOURSE WILL BE REQUIRED WHERE OVER LAND DISCHARGES ARE PROPOSED FROM ACCESS TRACK SWALES / DITCHES.
 8. SLOPES OF ALL PROPOSED SWALES / DITCHES TO HAVE A SLOPE OF BETWEEN 1 : 1.5 TO 1 : 2 DEPENDING UPON DEPTH OF SWALE/DITCH AND WILL BE LEFT AS CUT TO RE-VEGETATE WITH LOCAL SPECIES.
 9. TRACK SIDE SWALES / DITCHES TO BE SHALLOW WITH MODERATE GRADIENTS TO PREVENT SCOURING. IN STEEP AREAS CHECK DAMS SHOULD BE INSTALLED TO REDUCE FLOW VELOCITIES AND PROVIDE SOURCE CONTROL OF SILT CONTAMINANT. WHERE NECESSARY THESE HAVE BEEN DESIGNATED IN CONJUNCTION WITH SETTLEMENT PONDS AND SILT TRAPS, PRIOR TO DISCHARGE.
 10. SETTLEMENT PONDS TO BE CONSTRUCTED FOR SILT REMOVAL AT TURNING BASS AND HARD STAND AREAS. POND SIZES DEPENDS ON THE CATCHMENT AREA BEING SERVED. SAMPLE POND SIZES VARYING TO DISCHARGE CATCHMENT AREAS SHOWN ON DRAWING D501.
 11. STRAW BALES / BALE SIMILAR AND SILT FENCES TO BE USED ALSO AROUND SPILL HEAPS TO MITIGATE SILT RUNOFF. SILT FENCES MAY BE REMOVED WHEN SUITABLE VEGETATION COVER IS ESTABLISHED.
 12. SILT FENCES TO BE PROVIDED ALONG EDGE OF EXISTING WATERCOURSE WHERE WORKS COMES WITHIN 15M OF EDGE OF ANY DITCH / OR EPIPHORAL CHANNELS.
 13. SLOPES OF THE SWALES / DITCHES TO BE VEGETATED OR PROTECTED FROM IRONON UNTIL VEGETATION HAS BEEN ESTABLISHED. STRIPPED VEGETATIVE LAYER GREAT 500M OR 1000M FROM EXCAVATIONS TO BE STORED LOCALLY AND USED TO LINE SLOPES AND BASES OF SWALES / DITCHES OR LONGITUDINAL MOUNDS OF VEGETATION SWALES AT FIELD DRAIN DISCHARGE POINTS.
 14. AREAS STRIPPED OF VEGETATION SHOULD BE KEPT TO A MINIMUM.
 15. CLEAN STONE FLOW CONTROL CHECK DAMS TO BE MADE UP LOCALLY WORK / GEOLOGICALLY SIMILAR WALLS AND STONE. AGRICULTURE SIZE FOR STONE CHECK DAMS TO BE TYPICALLY 20-100MM CLEAN STONE. ON SLOPING SECTIONS OF THE ACCESS TRACKS, LONG CHECK DAMS TO BE PROTECTED FROM WASHING AWAY THROUGH THE PLACEMENT OF 100M STONE ON THE DOWNHILL FACE OF THE CHECK DAM AND BY WRAPPING IN GEOTEXTILE.
 16. BUILD UP OF SILT LEVELS AT CHECK DAMS TO BE REMOVED AND DISPOSED OF APPROPRIATELY. SILT LEVELS AT CHECK DAMS TO BE VISUALLY INSPECTED AS PART OF AN ONGOING DRAINAGE MAINTENANCE PROGRAMME DURING THE CONSTRUCTION PHASE. WHERE CHECK DAMS BECOME CLOGGED WITH SILT OR VEGETATION, STONE CHECK DAM TO BE REMOVED AND REPLACED SUBSEQUENT TO THE REMOVAL OF SILT.
 17. SPACING AND FREQUENCY OF CHECK DAMS WILL BE DEPENDENT UPON LONGITUDINAL GRADIENT OF SWALE.
 18. LOCATION OF FILTRATION CHECK DAMS (IF REQUIRED) TO BE AGREED ON SITE WITH ENGINEER. SETTLEMENT PONDS TO BE CONSTRUCTED IN A MANNER WHERE THEY MAY BE EASILY PASSED AT A LATER DATE (POST COMPLETION OF THE TURBINE BASE AND HANDSTAND CONSTRUCTION). ONLY SUITABLE MATERIALS EXCAVATED FROM THE POND TO BE USED TO FORM PART OF THE EMBANKMENT AROUND THE POND.
 19. OIL FUEL SHOULD BE STORED WITHIN BUNDED CONTAINMENT STRUCTURES.
 20. SILT BAGS WILL BE USED ON SITE AT FIELD DRAIN DISCHARGE LOCATIONS, AS NECESSARY.

- CONCRETE:**
15. CARE WILL BE TAKEN WHEN COMPLETING CONCRETE WORKS ON SITE TO ENSURE NO DISCHARGES OCCUR.
 16. CONCRETE WASH WATER, AND WASTE CONCRETE WILL BE MANAGED APPROPRIATELY ON SITE.

IF WATER POLLUTION IS IDENTIFIED THE FOLLOWING STEPS WOULD BE ADHERED TO:

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IF WATER POLLUTION IS IDENTIFIED THE FOLLOWING STEPS WOULD BE ADHERED TO:

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NOTIFY - THE RELEVANT AUTHORITIES (SITE MANAGER / FISHERIES / NPWS / LOCAL AUTHORITY ETC.) SHOULD BE NOTIFIED IMMEDIATELY TO ENSURE THAT MEASURES CAN BE IMPLEMENTED DOWNSTREAM TO PROTECT FISHERIES AND OTHER SENSITIVE AREAS.

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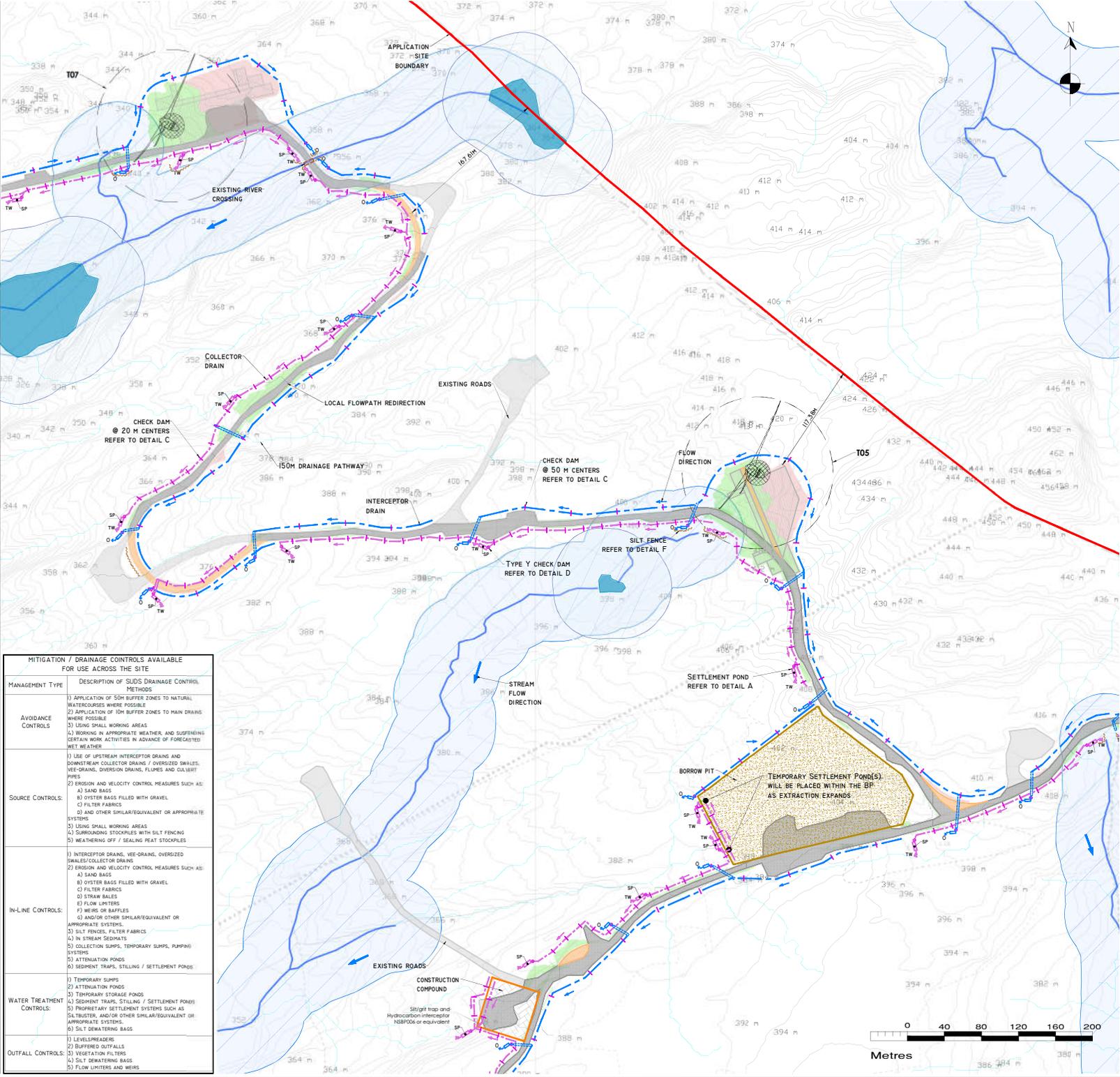
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MITIGATION / DRAINAGE CONTROLS AVAILABLE FOR USE ACROSS THE SITE	
MANAGEMENT TYPE	DESCRIPTION OF SUDS DRAINAGE CONTROL METHODS
AVOIDANCE CONTROLS	<ol style="list-style-type: none"> 1) APPLICATION OF 50M BUFFER ZONES TO NATURAL WATERCOURSES WHERE POSSIBLE. 2) APPLICATION OF 10M BUFFER ZONES TO MAIN DRAINS WHERE POSSIBLE. 3) USING SMALL WORKING AREAS 4) WORKING IN APPROPRIATE WEATHER, AND SUSPENDING CERTAIN WORK ACTIVITIES IN ADVANCE OF FORECASTED WET WEATHER. 5) USE OF UPSTREAM INTERCEPTOR DRAINS AND DOWNSTREAM COLLECTOR DRAINS / OVERSIZED SWALES, VEGETATION, CORRUGATION DRAINS, FLUMES AND CULVERT PIPES 6) EROSION AND VELOCITY CONTROL MEASURES SUCH AS: <ol style="list-style-type: none"> A) SAND BAGS B) OYSTER BAGS FILLED WITH GRAVEL C) FILTER FABRICS D) STRAW BALES E) FLOW LIMITERS F) WEIRS OR BAFFLES G) AND/OR OTHER SIMILAR/EQUIVALENT OR APPROPRIATE SYSTEMS. 7) USING SMALL WORKING AREAS 8) SURROUNDING STOCKPILES WITH SILT FENCING 9) WEATHERING OFF / SEALING PEAT STOCKPILES
SOURCE CONTROLS	<ol style="list-style-type: none"> 1) INTERCEPTOR DRAINS, VEGETATION, OVERSIZED SWALES/COLLECTOR DRAINS 2) EROSION AND VELOCITY CONTROL MEASURES SUCH AS: <ol style="list-style-type: none"> A) SAND BAGS B) OYSTER BAGS FILLED WITH GRAVEL C) FILTER FABRICS D) STRAW BALES E) FLOW LIMITERS F) WEIRS OR BAFFLES G) AND/OR OTHER SIMILAR/EQUIVALENT OR APPROPRIATE SYSTEMS. 3) SILT FENCES, FILTER FABRICS 4) IN STREAM SEDIMENTS 5) COLLECTION PONDS, TEMPORARY DUMPS, PUMPING SYSTEMS 6) ATTENUATION PONDS 7) SEDIMENT TRAPS, STALLING / SETTLEMENT PONDS 8) TEMPORARY DUMPS 9) TEMPORARY STORAGE PONDS 10) SEDIMENT TRAPS, STALLING / SETTLEMENT PONDS 11) PROPRIETARY TREATMENT SYSTEMS SUCH AS SALT TREATMENT, AND/OR OTHER SIMILAR/EQUIVALENT OR APPROPRIATE SYSTEMS. 12) SILT DETERMINING BAGS
IN-LINE CONTROLS	<ol style="list-style-type: none"> 1) LEVELHEADERS 2) BUFFERED OUTFALLS 3) VEGETATION FILTERS 4) SILT DETERMINING BAGS 5) FLOW LIMITERS AND WEIRS
WATER TREATMENT CONTROLS	<ol style="list-style-type: none"> 1) Silt trap and Hydrocarbon Hydrophobic NS89006 or equivalent
OUTFALL CONTROLS	<ol style="list-style-type: none"> 1) LEVELHEADERS 2) BUFFERED OUTFALLS 3) VEGETATION FILTERS 4) SILT DETERMINING BAGS 5) FLOW LIMITERS AND WEIRS

DRAWINGS LEGEND:

- RIVERS/STREAMS (INC. WATERCOURSE)
- RIVERS/STREAMS 50M BUFFER
- LAKES
- LAKES 50M BUFFER
- STREAM FLOW DIRECTION
- DRAINAGE FLOW PATHWAYS (10M MIN)
- LOCAL FLOWPATH REDIRECTION
- UPSTREAM INTERCEPTOR DRAIN SWALES/DRAINAGE/VEGETATION COLLECTOR DRAIN DIRECTION OF FLOW
- SILT FENCES
- DOUBLE/TWICE SILT FENCES
- SETTLEMENT POND - LEVEL SPREADER
- CHECK DAM 'TYPE A'
- CHECK DAM 'TYPE B'
- PROPOSED WC CROSSING
- EXISTING WC CROSSING
- INTERCEPTOR DITCH CULVERT
- COLLECTOR DITCH CULVERT
- OVERLAND FLOW DISCHARGE
- SETTLEMENT POND
- TREATED WATER DISCHARGE
- SETTLEMENT POND
- SEMI-NATURAL VEGETATION SWALE / FILTER BED FACED/DRAIN
- TEMPORARY PUMPING SUMP
- USE AT TURNING BASS (SEE DRAINAGE PLAN)

KEY PLAN:

The key plan shows the site's location relative to surrounding areas, with various zones and boundaries highlighted in different colors to match the main drawing's legend.

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1. DRAWINGS ISSUED ARE FOR PLANNING APPLICATION PURPOSES ONLY.
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4. ALL DIMENSIONS ARE IN METRES.

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Date	Description	Chkd	Signed

HYDRO ENVIRONMENTAL SERVICES

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Dungannon | tel: +353 (0) 58-44244
Co. Waterford | email: info@hydroenvironmental.ie
Ireland | web: www.hydroenvironmental.ie

Client: ØRSTED

Job: PROPOSED REMEDIATION OF KILGARVAN WIND FARM, CO. KERRY

Title: PROPOSED DRAINAGE LAYOUT

Figure No: D104

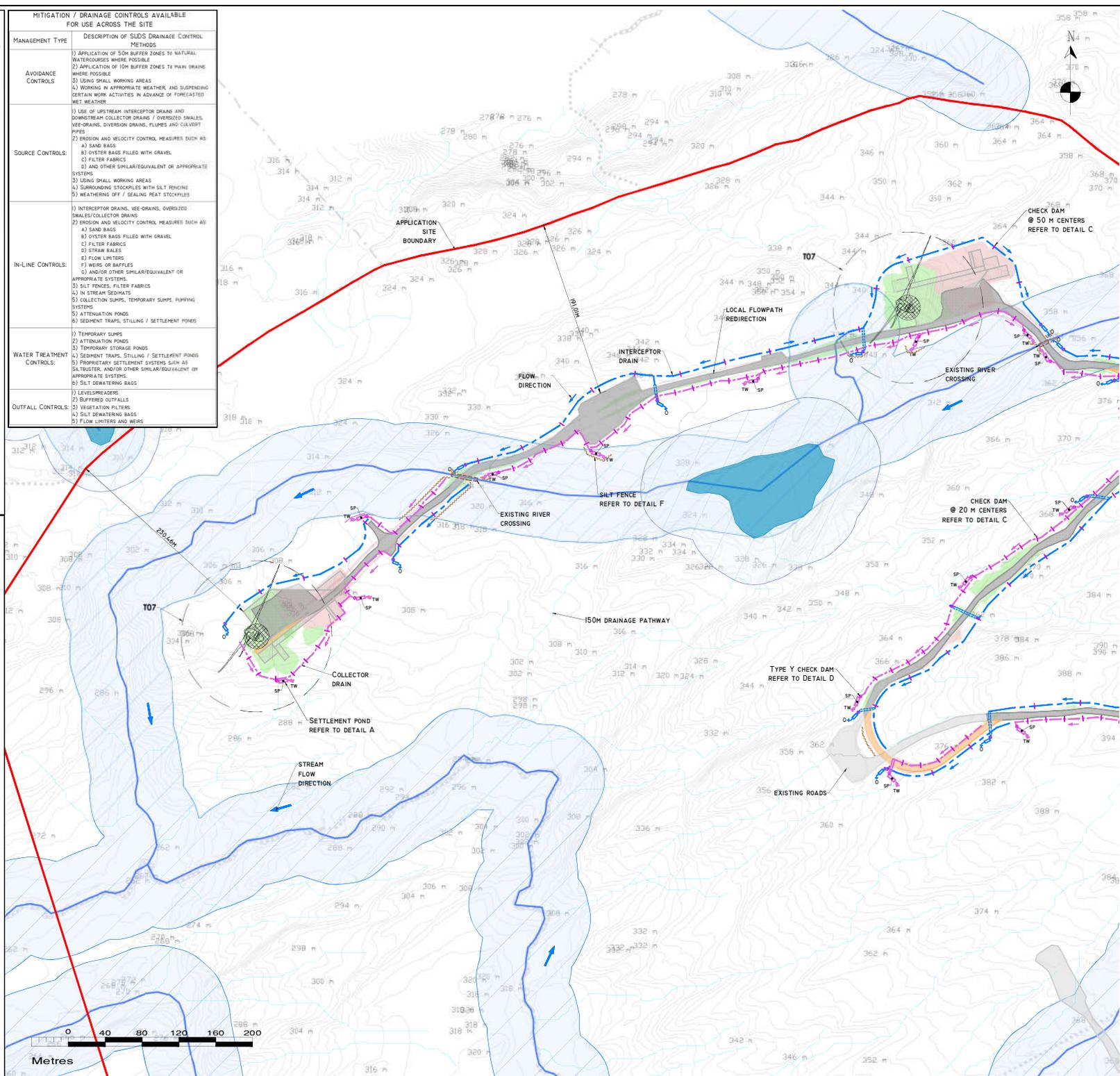
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Sheet Size: A1 | Project No.: P1585-0
Scale: 1:2,000 (A1) | Drawn By: GA
Date: 07/05/2024 | Checked By: MG



POLLUTION PREVENTION NOTES:

- SITE MANAGEMENT PROPOSALS ARE INTENDED TO ENSURE PROTECTION AGAINST SURFACE WATER AND GROUNDWATER POLLUTION, SILTATION AND EROSION.
 - SUITABLE DRAINAGE CONTROL MEASURES SHOULD BE IN PLACE AT ALL TIMES TO PREVENT CONVEYANCE OF SIGNIFICANT VOLUMES OF SILT TO OFF SITE RECEIVING WATERCOURSES.
 - SILT WATER CAN ARISE FROM DENATURING EXCAVATIONS, EROSION OF EXPOSED/DISTURBED GROUND, TEMPORARY STOCKPILES, PLANT AND WHEEL WASH, SITE ROADS/TRACKS, AND DISTURBANCE OF EXISTING FIELD DRAINS AND DITCHES.
 - WATER CONTAINING SILT WILL NOT BE PUMPED DIRECTLY TO ANY NATURAL WATERCOURSE. ALL DISCHARGES TO BE MADE OVER OPEN GROUND OR INTO EXISTING FIELD DRAIN WITH SILT TRAP AT A MINIMUM OF 50M FROM NEAREST WATERCOURSE UNLESS OTHERWISE STATED.
 - NO EXCAVATED MATERIAL IS TO BE STORED WITHIN ANY SURFACE WATER BUFFER ZONE.
 - PUMPED WATER WILL BE DIRECTED INTO TRACK SIDE DITCHES AND TREATED IN SETTLEMENT PONDS AND VEGETATION SWALES PRIOR TO OVERLAND DISCHARGE.
 - PURGING OF CLEAN WATER FROM EXCAVATIONS / OR OVER-PUMPING IN DRAINAGE DITCHES/STREAMS WILL BE COMPLETED IN A MANNER THAT DOES NOT CAUSE SCOUR OR EROSION AT THE POINT OF RELEASE/DISCHARGE. THIS WILL BE DONE BY REDUCING THE FLOW VELOCITY BY THE USE OF SPLASH PLATES, AND OTHER SIMILAR DISCHARGE CONTROLS.
 - VEGETATION WILL NOT BE STRIPPED FROM EXISTING DRAINS/DITCHES UNLESS ABSOLUTELY NECESSARY.
- EXCAVATION:**
- WHERE DEEP EXCAVATIONS ARE PROPOSED CUT-OFF DRAINS WILL BE USED TO REDUCE THE AMOUNT OF SURFACE WATER ENTERING THE EXCAVATION. THIS WILL BE THE CASE AROUND TURBINE BASE EXCAVATIONS.
- EXPOSED GROUND & STOCKPILES**
- THE AMOUNT OF EXPOSED GROUND AND TEMPORARY STOCKPILES OPEN AT ANY ONE TIME WILL BE MINIMISED, AS FAR AS PRACTICABLE.
- SITE TRACKS**
- USE OF TRACK SIDE SWALES WITH CHECK DAMS, AND/OR FILTRATION CHECK DAMS WILL REDUCE SILT IN RUNOFF WATER AS REQUIRED.
 - CHECK DAMS TO BE INSPECTED AND CLEANED REGULARLY.
- REFUELLING**
- REFUELLING OF MOBILE PLANT WILL BE COMPLETED IN DESIGNATED REFUELLING AREAS ONLY, PREVIOUSLY AS AN IMPROVED SURFACE AND AWAY FROM FIELD DRAINS / DITCHES AND WATERCOURSES / WATERBODIES.
 - SPLIT TRAYS AND DRIP TRAYS WILL BE AVAILABLE ON SITE FOR USE AS REQUIRED.
- CONCRETE**
- CARE WILL BE TAKEN WHEN COMPLETING CONCRETE WORKS ON SITE TO ENSURE NO DISCHARGES OCCUR.
 - CONCRETE WASH WATER, AND WASTE CONCRETE WILL BE MANAGED APPROPRIATELY ON SITE.
- IF WATER POLLUTION IS IDENTIFIED THE FOLLOWING STEPS WOULD BE ADHERED TO:**
- STOP** - WORK IN THE IMMEDIATE AREA SHOULD BE STOPPED AND THE SOURCE OF THE POLLUTION IDENTIFIED.
- CONTAIN** - THE SOURCE OF THE POLLUTION SHOULD BE BUNDED USING A SUITABLE METHOD. NATURAL WATERCOURSES SHOULD BE TEMPORARILY DIVERTED AROUND THE SOURCE OF POLLUTION.
- NOTIFY** - THE RELEVANT AUTHORITIES (SITE MANAGER / FISHERIES / NPWS / LOCAL AUTHORITY ETC.) SHOULD BE NOTIFIED IMMEDIATELY TO ENSURE THAT MEASURES CAN BE IMPLEMENTED DOWNSTREAM TO PROTECT FISHERIES AND OTHER SENSITIVE AREAS.
- DRAINAGE NOTES:**
- SITE TRACKS AND ROADWAY SURFACING DESIGN AND CONSTRUCTION TO ENGINEER'S SPECIFICATION (I.E. BY OTHERS).
 - STRAW STRAW BALE/SILT FENCING/ OR SIMILAR TO BE STORED ON SITE. THE LEVEL OF SILT IN RUNOFF DURING CONSTRUCTION IS TO BE MONITORED VISUALLY AND EXCESSIVE SILT LEVELS IN ANY AREA TO BE TEMPORARILY MANAGED BY PLACING SILT FENCES, STRAW BALES / OR SIMILAR OR ADDITIONAL CHECK DAMS AT THE PROBLEM AREAS. MOBILE SILT TRAP SYSTEMS ARE AVAILABLE ON-SITE FOR USE AS REQUIRED ALSO.
 - SILTS SYSTEM TO BE CONSTRUCTED PRIOR TO, OR AT THE SAME TIME AS THE ACCESS TRACKS. INTERIM MEASURES SUCH AS THE PLACEMENT OF STRAW BALES/SILT FENCING/SIMILAR APPROVED METHOD OR ADDITIONAL CHECK DAMS AND SILT FENCES TO BE EMPLOYED IN ALL INSTANCES WHERE EROSION LAMNED SO TO CONSTRUCT THE ACCESS TRACKS IS LIKELY TO CAUSE ADVERSE ENVIRONMENTAL EFFECTS THROUGH INCREASED SILT LOADINGS BEING GENERATED DURING THE CONSTRUCTION PHASE.
 - SUITABLE PREVENTION MEASURES SHOULD BE IN PLACE AT ALL TIMES TO PREVENT THE CONVEYANCE OF SIGNIFICANT VOLUMES OF SILT TO RECEIVING WATERCOURSES. SEE NOTES ON POLLUTION PREVENTION.
 - INTERCEPTOR SWALES / DITCHES TO BE USED TO COLLECT UPSTREAM SURFACE WATER FLOWS. REGULAR CROSS DRAINS / DISCHARGE TO FIELD DITCHES/DRAINS WILL BE REQUIRED TO TRANSPORT / DISCHARGE SURFACE WATER IN INTERCEPTOR DRAINS TO SUITABLE FIELD DRAIN OUTFALL POINTS.
 - DRAINAGE SWALES / DITCHES TO BE EXCAVATED ADJACENT TO THE ACCESS TRACKS. REGULAR CROSS DRAINS TO BE LOCATED ALONG ACCESS TRACKS TO PREVENT EXCESSIVE VOLUMES OF WATER COLLECTING IN THE SWALES / DITCHES. LOCATIONS OF REGULAR CROSS DRAINS TO BE AGREED WITH THE ENGINEER ON SITE. SURFACE WATER WILL NOT BE ALLOWED TO DISCHARGE DIRECTLY INTO EXISTING WATERCOURSES.
 - WHERE POSSIBLE, A BUFFER ZONE OF >20M TO ANY EXISTING WATERCOURSE WILL BE REQUIRED WHERE OVER LAND DISCHARGES ARE PROPOSED FROM ACCESS TRACK SWALES / DITCHES.
 - BATTERS OF ALL PROPOSED SWALES / DITCHES TO HAVE A SLOPE OF BETWEEN 1 : 1.5 TO 1 : 2 DEPENDING UPON DEPTH OF SWALE/DITCH AND WILL BE LEFT AS CUT TO RE-VEGETATE WITH LOCAL SPECIES.
 - TRACK SIDE SWALES / DITCHES TO BE SHALLOW WITH MODERATE GRADIENTS TO PREVENT SCOURING. IN STEEP AREAS CHECK DAMS SHOULD BE INSTALLED TO REDUCE FLOW VELOCITIES AND PROVIDE SOURCE CONTROL OF SILT CONTAMINANT. WHERE NECESSARY THESE HAVE BEEN DESIGNATED IN CONSULTATION WITH SETTLEMENT PONDERS AND SILT TRAPS, PRIOR TO DISCHARGE.
 - SETTLEMENT PONDS TO BE CONSTRUCTED FOR SILT REMOVAL AT TURBINE BASES AND HARD STAND AREAS. POND SIZES DEFENDS ON THE CATCHMENT AREA BEING SERVED. SAMPLE POND SIZES FOR VARIOUS CATCHMENT AREAS SHOWN ON DRAWING D501.
 - STRAW BALES / OR SIMILAR AND SILT FENCES TO BE USED ALSO AROUND SPILL HEAPS TO MITIGATE SILT RUNOFF. SILT FENCES MAY BE REMOVED WHEN SUITABLE VEGETATION COVER IS ESTABLISHED.
 - SILT FENCES TO BE PROVIDED ALONG EDGE OF EXISTING WATERCOURSE WHERE WORKS COMES WITHIN KISH OF EDGE OF ANY DITCH / DRAIN / EPHEMERAL CHANNELS.
 - SLOPES OF THE SWALES / DITCHES TO BE VEGETATED OR PROTECTED FROM IRONON UNTIL VEGETATION HAS BEEN ESTABLISHED. STRIPPED VEGETATIVE LAYER GREAT "500" OR "1000MM" FROM EXCAVATIONS TO BE STORED LOCALLY AND USED TO LINE SLOPES AND BASES OF SWALES / DITCHES OR LONGITUDINAL MOUNDS OF VEGETATION SWALES AT FIELD DRAIN DISCHARGE POINTS.
 - AREAS STRIPPED OF VEGETATION SHOULD BE KEPT TO A MINIMUM.
 - CLEAN STONE FLOW CONTROL CHECK DAMS TO BE MADE UP OF LOCALLY WON / GEOLOGICALLY SIMILAR WASH GRADED STONE. AGGREGATE SIZE FOR STONE CHECK DAMS TO BE TYPICALLY 20-100MM CLEAN STONE. ON SLOPING SECTIONS OF THE ACCESS TRACKS, 100MM CHECK DAMS SHOULD BE PROTECTED FROM WASHING AWAY THROUGH THE PLACEMENT OF 100MM STONE ON THE DOWNHILL FACE OF THE CHECK DAM AND BY WRAPPING IN GEOTEXTILE.
 - BUILD UP OF SILT LEVELS AT CHECK DAMS TO BE REMOVED AND DISPOSED OF APPROPRIATELY. SILT LEVELS AT CHECK DAMS TO BE VISUALLY INSPECTED AS PART OF AN ONGOING DRAINAGE MAINTENANCE PROGRAMME DURING THE CONSTRUCTION PHASE. WHERE CHECK DAMS BECAME CLOGGED WITH SILT OR VEGETATION, STONE CHECK DAM TO BE REMOVED AND REPLACED SUBSEQUENT TO THE REMOVAL OF SILT.
 - SPACING AND FREQUENCY OF CHECK DAMS WILL BE DEPENDENT UPON LONGITUDINAL GRADIENT OF SWALE.
 - LOCATION OF FILTRATION CHECK DAMS (IF REQUIRED) TO BE AGREED ON SITE WITH ENGINEER. SETTLEMENT PONDS TO BE CONSTRUCTED IN A MANNER WHERE THEY MAY BE EASILY INFILLED AT A LATER DATE (POST COMPLETION OF THE TURBINE BASE AND HARDSTAND CONSTRUCTION). ONLY SUITABLE MATERIALS EXCAVATED FROM THE POND TO BE USED TO FORM PART OF THE HARDSTAND AROUND THE POND.
 - OIL FUEL SHOULD BE STORED WITHIN BUNDED CONTAINMENT STRUCTURES.
 - SILT BAGS WILL BE USED ON SITE AT FIELD DRAIN DISCHARGE LOCATIONS, AS NECESSARY.

MITIGATION / DRAINAGE CONTROLS AVAILABLE FOR USE ACROSS THE SITE	
MANAGEMENT TYPE	DESCRIPTION OF SLODS DRAINAGE CONTROL METHODS
AVOIDANCE CONTROLS	<ol style="list-style-type: none"> APPLICATION OF 50M BUFFER ZONES TO NATURAL WATERCOURSES WHERE POSSIBLE APPLICATION OF 10M BUFFER ZONES TO MAIN DRAINS WHERE POSSIBLE USING SMALL WORKING AREAS WORKING IN APPROPRIATE WEATHER, AND SUSPENDING CERTAIN WORK ACTIVITIES IN ADVANCE OF FORECASTED WET WEATHER.
SOURCE CONTROLS	<ol style="list-style-type: none"> USE OF UPSTREAM INTERCEPTOR DRAINS AND DOWNSTREAM COLLECTOR DRAINS / OVERSIZED SWALES, VEE-DRAIN, DIVERSION DRAINS, FILMS AND CALVERT PIPES EROSION AND VELOCITY CONTROL MEASURES SUCH AS: <ol style="list-style-type: none"> SAND BAGS OSTER BAGS FILLED WITH GRAVEL FILTER FABRICS AND OTHER SIMILAR/EQUIVALENT OR APPROPRIATE SYSTEMS USING SMALL WORKING AREAS SURROUNDING STOCKPILES WITH SILT FENCING WEATHERING OFF / SEALING PEAT STOCKPILES
IN-LINE CONTROLS	<ol style="list-style-type: none"> INTERCEPTOR DRAINS, VEE-DRAINS, OVERSIZED SWALES/COLLECTOR DRAINS EROSION AND VELOCITY CONTROL MEASURES SUCH AS: <ol style="list-style-type: none"> SAND BAGS OSTER BAGS FILLED WITH GRAVEL FILTER FABRICS STRAW BALES FLOW LIMITERS WEIRS OR BAYLETS AND/OR OTHER SIMILAR/EQUIVALENT OR APPROPRIATE SYSTEMS SILT FENCES, FILTER FABRICS SILT FENCES, TEMPORARY SUMPS, PUMPS, RIPPING SYSTEMS ATTENUATION PONDS SEGMENT TRAPS, STILLING / SETTLEMENT PONDS
WATER TREATMENT CONTROLS	<ol style="list-style-type: none"> TEMPORARY PONDS ATTENUATION PONDS TEMPORARY STORAGE PONDS SEGMENT TRAPS, STILLING / SETTLEMENT PONDS PROPRIETARY SETTLEMENT SYSTEMS SUCH AS: <ol style="list-style-type: none"> SILT TRAP, AND/OR OTHER SIMILAR/EQUIVALENT OR APPROPRIATE SYSTEMS SILT DENATURING BAGS LEVELHEADERS SUPERFLOUTFALLS VEGETATION FILTERS SILT DENATURING BAGS FLOW LIMITERS AND WEIRS
OUTFALL CONTROLS	<ol style="list-style-type: none"> LEVELHEADERS SUPERFLOUTFALLS VEGETATION FILTERS SILT DENATURING BAGS FLOW LIMITERS AND WEIRS



DRAWINGS LEGEND:

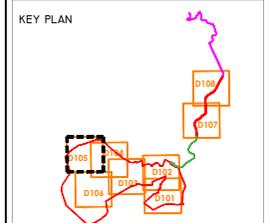
- RIVERS/STREAMS (INC. WATERCOURSE)
- RIVERS/STREAMS 50M BUFFER
- LAKES
- LAKES 50M BUFFER
- STREAM FLOW DIRECTION
- STREAM FLOW DIRECTION
- DRAINAGE FLOW PATHWAYS (10M LINE)

LOCAL FLOWPATH REDIRECTION

- UPSTREAM INTERCEPTOR DRAIN SWALES/DOWNSTREAM COLLECTOR DRAIN
- DIRECTION OF FLOW
- SILT FENCES
- DOUBLE/TRIPLE SILT FENCES
- SETTLEMENT POND - LEVEL SPREADER
- CHECK DAM TYPE 'A'
- CHECK DAM TYPE 'B'
- PROPOSED WC CROSSING
- EXISTING WC CROSSING
- INTERCEPTOR DITCH CALVERT
- COLLECTOR DITCH CALVERT
- OVERLAND FLOW DISCHARGE
- TW TREATED WATER TREATMENT
- SP SETTLEMENT POND
- VS SEMI-NATURAL VEGETATION SWALE / FILTER BED FACED/DRAIN SP
- TEMPORARY PUMPING SUMP
- USE AT TURBINE BASE (SEE CONSTRUCTION PLAN)

APPLICATION SITE BOUNDARY

- EXISTING LEASE BOUNDARY
- EXISTING ROW COLLECT BOUNDARY
- EXISTING GROUND SURFACE (MINOR CONTOUR (2 M INTERVAL))
- TURBINE AND SHEEP AREA
- PROPOSED HARBOURED AREAS
- EXISTING ROADS PROPOSED TO BE UPGRADED
- EXISTING ROADS
- HARDSTAND
- SUBSTATION
- CONSTRUCTION COMPOUND
- BORROW PIT
- CUT AREA
- FILL AREA



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Client: **ØRSTED**

Job: **PROPOSED REPOWERING OF KILGARVAN WIND FARM, CO. KERRY**

Title: **PROPOSED DRAINAGE LAYOUT**

Figure No: **D105**

Drawing No: P1585-0-0524-A1-D105-00C
 Sheet Size: A1 | Project No.: P1585-0
 Scale: 1:2,000 (A1) | Drawn By: GA
 Date: 07/05/2024 | Checked By: MG



POLLUTION PREVENTION NOTES:

- SITE MANAGEMENT PROPOSALS ARE INTENDED TO ENSURE PROTECTION AGAINST SURFACE WATER AND GROUNDWATER POLLUTION, SILTATION AND EROSION.
 - SUITABLE DRAINAGE CONTROL MEASURES SHOULD BE IN PLACE AT ALL TIMES TO PREVENT CONVEYANCE OF SIGNIFICANT VOLUMES OF SILT TO OFF SITE RECEIVING WATERCOURSES.
 - SILT WATER CAN ARISE FROM DENATURING EXCAVATIONS, EROSION OF EXPOSED/DISTURBED GROUND, TEMPORARY STOCKPILES, PLANT AND WHEEL WASH, SITE ROADS/TRACKS, AND DISTURBANCE OF EXISTING FIELD DRAINS AND DITCHES.
- DISCHARGES:**
- WATER CONTAINING SILT WILL NOT BE PUMPED DIRECTLY TO ANY NATURAL WATERCOURSE. ALL DISCHARGES TO BE MADE OVER OPEN GROUND OR INTO EXISTING FIELD DRAIN WITH SILT TRAP AT A MINIMUM OF 50M FROM NEAREST WATERCOURSE UNLESS OTHERWISE STATED.
 - NO EXCAVATED MATERIAL IS TO BE STORED WITHIN ANY SURFACE WATER BUFFER ZONE.
 - PUMPED WATER WILL BE DIRECTED INTO TRACK SIDE DITCHES AND TREATED IN SETTLEMENT PONDS AND VEGETATION SWALES PRIOR TO OVERLAND DISCHARGE.
 - PUMPING OF CLEAN WATER FROM EXCAVATIONS / OR OVER-PUMPING IN DRAINAGE DITCHES/STREAMS WILL BE COMPLETED IN A MANNER THAT DOES NOT CAUSE SCOUR OR EROSION AT THE POINT OF RELEASE/DISCHARGE. THIS WILL BE DONE BY REDUCING THE FLOW VELOCITIES OR BY USE OF SPLASH PLATES, AND OTHER SIMILAR DISCHARGE CONTROLS.
 - VEGETATION WILL NOT BE STRIPPED FROM EXISTING DRAINS/DITCHES UNLESS ABSOLUTELY NECESSARY.
- EXCAVATION:**
- WHERE DEEP EXCAVATIONS ARE PROPOSED CUT-OFF DRAINS WILL BE USED TO REDUCE THE AMOUNT OF SURFACE WATER ENTERING THE EXCAVATION. THIS WILL BE THE CASE AROUND TURNING BASE EXCAVATIONS.

- EXPOSED GROUND & STOCKPILES**
- THE AMOUNT OF EXPOSED GROUND AND TEMPORARY STOCKPILES OPEN AT ANY ONE TIME WILL BE MINIMISED, AS FAR AS PRACTICABLE.

- SITE TRACKS**
- USE OF TRACK SIDE SWALES WITH CHECK DAMS, AND/OR FILTRATION CHECK DAMS WILL REDUCE SILT IN RUNOFF WATER AS REQUIRED.
 - CHECK DAMS TO BE INSPECTED AND CLEANED REGULARLY.

- REFUELLING**
- REFUELLING OF MOBILE PLANT WILL BE COMPLETED IN DESIGNATED REFUELLING AREAS ONLY, PREFERABLY ON AN IMPERMEABLE SURFACE AND AWAY FROM FIELD DRAINS / DITCHES AND WATERCOURSES / WATERBODIES.
 - SPILL KITS AND DRIP TRAYS WILL BE AVAILABLE ON SITE FOR USE AS REQUIRED.

- CONCRETE**
- CARE WILL BE TAKEN WHEN COMPLETING CONCRETE WORKS ON SITE TO ENSURE NO DISCHARGES OCCUR.
 - CONCRETE WASH WATER, AND WASTE CONCRETE WILL BE MANAGED APPROPRIATELY ON SITE.

IF WATER POLLUTION IS IDENTIFIED THE FOLLOWING STEPS WOULD BE ADHERED TO:

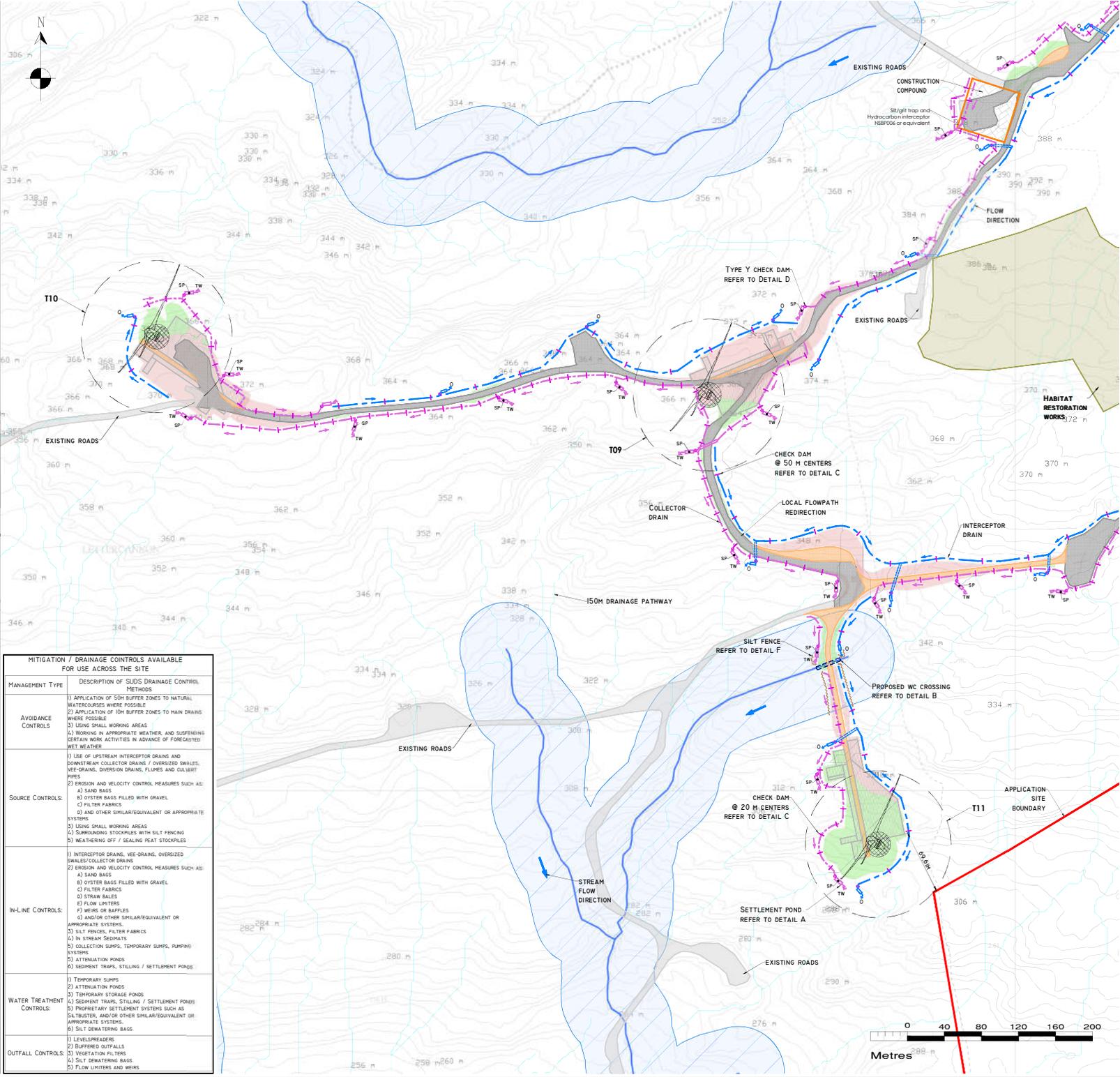
STOP - WORK IN THE IMMEDIATE AREA SHOULD BE STOPPED AND THE SOURCE OF THE POLLUTION IDENTIFIED.

CONTAIN - THE SOURCE OF THE POLLUTION SHOULD BE BUNDLED USING A SUITABLE METHOD. NATURAL WATERCOURSES SHOULD BE TEMPORARILY DIVERTED AROUND THE SOURCE OF POLLUTION.

NOTIFY - THE RELEVANT AUTHORITIES (SITE MANAGER / FISHERIES / NPWS / LOCAL AUTHORITY ETC.) SHOULD BE NOTIFIED IMMEDIATELY TO ENSURE THAT MEASURES CAN BE IMPLEMENTED DOWNSTREAM TO PROTECT FISHERIES AND OTHER SENSITIVE AREAS.

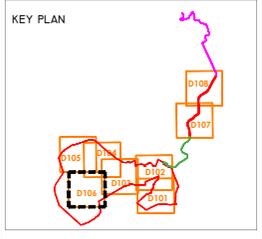
DRAINAGE NOTES:

- SITE TRACKS AND ROADWAY SURFACING DESIGN AND CONSTRUCTION TO ENGINEER'S SPECIFICATION (I.E. BY OTHERS).
- STRAW BALE/SILT FENCE/NET OR SIMILAR, TO BE STORED ON SITE. THE LEVEL OF SILT IN RUNOFF DURING CONSTRUCTION IS TO BE MONITORED VISUALLY AND EXCESSIVE SILT LEVELS IN ANY AREA TO BE TEMPORARILY MANAGED BY PLACING SILT FENCES, STRAW BALES / OR SIMILAR OR ADDITIONAL CHECK DAMS AT THE PROBLEM AREAS. MOBILE SILT TRAP SYSTEM TO BE AVAILABLE ON-SITE FOR USE AS REQUIRED ALSO.
- SUDS SYSTEM TO BE CONSTRUCTED PRIOR TO, OR AT THE SAME TIME AS THE ACCESS TRACKS. INTERIM MEASURES SUCH AS THE PLACEMENT OF STRAW BALES/SILT FENCES/NET OR SIMILAR APPROVED METHOD OR ADDITIONAL CHECK DAMS AND SILT FENCES TO BE EMPLOYED IN ALL INSTANCES WHERE WORK LARNSD SUIT TO CONSTRUCT THE ACCESS TRACKS IS LIKELY TO CAUSE ADVERSE ENVIRONMENTAL EFFECTS THROUGH INCREASED SILT LOADINGS BEING GENERATED DURING THE CONSTRUCTION PHASE.
- SUITABLE PREVENTION MEASURES SHOULD BE IN PLACE AT ALL TIMES TO PREVENT THE CONVEYANCE OF SIGNIFICANT VOLUMES OF SILT TO RECEIVING WATERCOURSES. SEE NOTES ON POLLUTION PREVENTION.
- INTERCEPTOR SWALES / DITCHES TO BE USED TO COLLECT UPSTREAM SURFACE WATER FLOWS. REGULAR CROSS DRAINS / DISCHARGE TO FIELD DRAINS/DITCHES WILL BE REQUIRED TO TRANSFER / DISCHARGE SURFACE WATER IN INTERCEPTOR DRAINS TO SUITABLE FIELD DRAIN OUTFALL POINTS.
- DRAINAGE SWALES / DITCHES TO BE EXCAVATED ADJACENT TO THE ACCESS TRACKS. REGULAR CROSS DRAINS TO BE LOCATED ALONG ACCESS TRACKS TO PREVENT EXCESSIVE VOLUMES OF WATER COLLECTING IN THE SWALES / DITCHES. LOCATIONS TO BE AGREED WITH THE ENGINEER ON SITE. SURFACE WATER WILL NOT BE ALLOWED TO DISCHARGE DIRECTLY INTO EXISTING WATERCOURSES.
- WHERE POSSIBLE, A BUFFER ZONE OF >20M TO ANY EXISTING WATERCOURSE WILL BE REQUIRED WHERE OVER LAND DISCHARGES ARE PROPOSED FROM ACCESS TRACK SWALES / DITCHES.
- BATTERS OF ALL PROPOSED SWALES / DITCHES TO HAVE A SLOPE OF BETWEEN 1 : 1.5 TO 1 : 2 DEPENDING UPON DEPTH OF SWALE/DITCH AND WILL BE LEFT AS CUT TO RE-VEGETATE WITH LOCAL SPECIES.
- TRACK SIDE SWALES / DITCHES TO BE SHALLOW WITH MODERATE GRADIENTS TO PREVENT SCOURING. IN STEEP AREAS CHECK DAMS SHOULD BE INSTALLED TO REDUCE FLOW VELOCITIES AND PROVIDE SOURCE CONTROL OF SILT CONTAMINANT. WHERE NECESSARY THESE HAVE BEEN DESIGNATED IN CONJUNCTION WITH SETTLEMENT PONDS AND SILT TRAPS PRIOR TO DISCHARGE.
- SETTLEMENT PONDS TO BE CONSTRUCTED FOR SILT REMOVAL AT TURNING BASES AND HARD STAND AREAS. POND SIZES DEPENDS ON THE CATCHMENT AREA BEING SERVED. SAMPLE SIZES FOR VARIOUS CATCHMENT AREAS SHOWN ON DRAWING D501.
- STRAW BALES / NET SIMILAR AND SILT FENCES TO BE USED ALSO AROUND SPILL HEAPS TO MITIGATE SILT RUNOFF. SILT FENCES MAY BE REMOVED WHEN SUITABLE VEGETATION COVER IS ESTABLISHED.
- SILT FENCES TO BE PROVIDED ALONGSIDE OF EXISTING WATERCOURSE WHERE WORKS COME WITHIN 15M OF EDGE OF ANY DITCH / DRAIN / EPHEMERAL CHANNELS.
- SLOPES OF THE SWALES / DITCHES TO BE VEGETATED OR PROTECTED FROM EROSION UNTIL VEGETATION HAS BEEN ESTABLISHED. STRIPPED VEGETATIVE LAYER GREAT "SOOT" OR "SOAWY" FROM DISCARTING TO BE STORED LOCALLY AND USED TO LINE SLOPES AND BASES OF SWALES / DITCHES OR LONGITUDINAL MOUNDS OF VEGETATION SWALES AT FIELD DRAIN DISCHARGE POINTS.
- AREAS STRIPPED OF VEGETATION SHOULD BE KEPT TO A MINIMUM.
- CLEAN STONE FLOW CONTROL CHECK DAMS TO BE MADE UP LOCALLY WORK / GEOLOGICALLY SIMILAR WELL GRADED STONE. AGGREGATE SIZE FOR STONE CHECK DAMS TO BE TYPICALLY 20-100MM CLEAN STONE. ON SLOPING SITES, THE ACCESS TRACKS, 150M CHECK DAMS TO BE PROTECTED FROM WASHING AWAY THROUGH THE PLACEMENT OF 100M STONE ON THE DOWNHILL FACE OF THE CHECK DAM AND BY WRAPPING IN GEOTEXTILE.
- BUILD UP OF SILT LEVELS AT CHECK DAMS TO BE REMOVED AND DISPOSED OF APPROPRIATELY. SILT LEVELS AT CHECK DAMS TO BE VISUALLY INSPECTED AS PART OF AN ONGOING DRAINAGE MAINTENANCE PROGRAMME DURING THE CONSTRUCTION PHASE. WHERE CHECK DAMS BECOME CLOGGED WITH SILT OR VEGETATION, STONE CHECK DAM TO BE REMOVED AND REPLACED SUBSEQUENT TO THE REMOVAL OF SILT.
- SPACING AND FREQUENCY OF CHECK DAMS WILL BE DEPENDENT UPON LONGITUDINAL GRADIENT OF SWALE.
- LOCATION OF FILTRATION CHECK DAMS (IF REQUIRED) TO BE AGREED ON SITE WITH ENGINEER. SETTLEMENT POND TO BE CONSTRUCTED IN A MANNER WHERE THEY MAY BE EASILY INSPECTED AT A LATER DATE POST COMPLETION OF THE TURBINE BASE AND HARDSTAND CONSTRUCTION). ONLY SUITABLE MATERIALS EXCAVATED FROM THE POND TO BE USED TO FORM PART OF THE EMBANKMENT AROUND THE POND.
- OIL FUEL SHOULD BE STORED WITHIN BUNDED CONTAINMENT STRUCTURES.
- SILT BAGS WILL BE USED ON SITE AT FIELD DRAIN DISCHARGE LOCATIONS, AS NECESSARY.



DRAWING LEGEND :

- RIVERS/STREAMS (INC. WATERCOURSE)
- RIVERS/STREAMS 50M BUFFER
- LAKES
- LAKES 50M BUFFER
- STREAM FLOW DIRECTION
- DRAINAGE FLOW PATHWAYS (50m MIN)
- LOCAL FLOWPATH REDIRECTION
- UPSTREAM INTERCEPTOR DRAIN
- SWALES/DOWNSTREAM COLLECTOR DRAIN
- DIRECTION OF FLOW
- SILT FENCES
- DOUBLE/TRENCH SILT FENCES
- SETTLEMENT POND - LEVEL SPREADER
- CHECK DAM 'TYPE A'
- CHECK DAM 'TYPE B'
- PROPOSED WC CROSSING
- EXISTING WC CROSSING
- INTERCEPTOR DITCH/CULVERT
- COLLECTOR DITCH/CULVERT
- OVERLAND FLOW DISCHARGE
- TREATED WATER DISCHARGE
- SETTLEMENT POND
- VS SEMI-NATURAL VEGETATION SWALE / FILTER BED (DISCRETIONARY SP)
- TEMPORARY PUMPING SUMP
- TEMPORARY STORAGE POND
- APPLICATION SITE BOUNDARY
- EXISTING LEASE ROUETTE BOUNDARY
- EXISTING ROW COLLIDE BOUNDARY
- EXISTING GROUND SURFACE
- MINOR CONTOUR (2 M INTERVAL)
- TURBINE AND SWEEP AREA
- PROPOSED HARDCORED AREAS
- EXISTING ROADS PROPOSED TO BE UPGRADED
- EXISTING ROADS
- HARDSTAND
- SUBSTATION
- CONSTRUCTION COMPOUND
- BORROW PIT
- CUT AREA
- FILL AREA
- HABITAT RESTORATION WORKS



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Client: **ØRSTED**

Job: **PROPOSED REPOWERING OF KILGARVAN WIND FARM, CO. KERRY**

Title: **PROPOSED DRAINAGE LAYOUT**

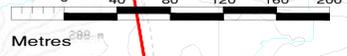
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Drawing No: P1585-0-0524-A1-D106-00D
Sheet Size: A1
Scale: 1:2,000 (A1)
Date: 07/05/2024

Project No.: P1585-0
Drawn By: GA
Checked By: MG

MITIGATION / DRAINAGE CONTROLS AVAILABLE FOR USE ACROSS THE SITE

MANAGEMENT TYPE	DESCRIPTION OF SUDS DRAINAGE CONTROL METHODS
AVOIDANCE CONTROLS	<ol style="list-style-type: none"> APPLICATION OF 50M BUFFER ZONES TO NATURAL WATERCOURSES WHERE POSSIBLE. APPLICATION OF 10M BUFFER ZONES TO MAIN DRAINS WHERE POSSIBLE. USING SMALL WORKING AREAS WORKING IN APPROPRIATE WEATHER, AND SUSPENDING CERTAIN WORK ACTIVITIES IN ADVANCE OF FORECASTED 'WET' WEATHER.
SOURCE CONTROLS:	<ol style="list-style-type: none"> EROSION AND VELOCITY CONTROL MEASURES SUCH AS: <ul style="list-style-type: none"> A) SAND BAGS B) OYSTER BAGS FILLED WITH GRAVEL C) FILTER FABRICS D) AND OTHER SIMILAR/EQUIVALENT OR APPROPRIATE SYSTEMS USING SMALL WORKING AREAS SURROUNDING STOCKPILES WITH SILT FENCING WEATHERING OFF / SEALING PEAT STOCKPILES
IN-LINE CONTROLS:	<ol style="list-style-type: none"> INTERCEPTOR DRAINS, VEE-DRAINS, OVERSIZED SWALES/COLLECTOR DRAIN EROSION AND VELOCITY CONTROL MEASURES SUCH AS: <ul style="list-style-type: none"> A) SAND BAGS B) OYSTER BAGS FILLED WITH GRAVEL C) FILTER FABRICS D) STRAW BALES E) FLOW LIMITERS F) WEIRS OR BAFFLES G) AND/OR OTHER SIMILAR/EQUIVALENT OR APPROPRIATE SYSTEMS SILT FENCES, FILTER FABRICS IN STREAM SEDIMENTS COLLECTION SUMPS, TEMPORARY SUMPS, PUMPING SYSTEMS ATTENUATION PONDS SEDIMENT TRAPS, STALLING / SETTLEMENT PONDS TEMPORARY SUMPS ATTENUATION PONDS TEMPORARY STORAGE PONDS SEDIMENT TRAPS, STALLING / SETTLEMENT PONDS PROPRIETARY SETTLEMENT SYSTEMS SUCH AS SILT TRAPERS, AND/OR OTHER SIMILAR/EQUIVALENT OR APPROPRIATE SYSTEMS. SILT DETERGENT BAGS
WATER TREATMENT CONTROLS:	<ol style="list-style-type: none"> LEVELHEADERS BUFFERED OUTFALLS VEGETATION FILTERS SILT DETERGENT BAGS FLOW LIMITERS AND WEIRS
OUTFALL CONTROLS:	<ol style="list-style-type: none"> LEVELHEADERS BUFFERED OUTFALLS VEGETATION FILTERS SILT DETERGENT BAGS FLOW LIMITERS AND WEIRS



POLLUTION PREVENTION NOTES:

1. SITE MANAGEMENT PROPOSALS ARE INTENDED TO ENSURE PROTECTION AGAINST SURFACE WATER AND GROUNDWATER POLLUTION, SILTATION AND EROSION.
 2. SUITABLE DRAINAGE CONTROL MEASURES SHOULD BE IN PLACE AT ALL TIMES TO PREVENT CONVEYANCE OF SIGNIFICANT VOLUMES OF SILT TO OFF SITE RECEIVING WATERCOURSES.
 3. SILTY WATER CAN ARISE FROM DENATURING EXCAVATIONS, EROSION OF EXPOSED/DISTURBED GROUND, TEMPORARY STOCKPILES, PLANT AND WHEEL WASH, SITE ROADS/TRACKS, AND DISTURBANCE OF EXISTING FIELD DRAINS AND DITCHES.
- DISCHARGES:**
4. WATER CONTAINING SILT WILL NOT BE PUMPED DIRECTLY TO ANY NATURAL WATERCOURSE. ALL DISCHARGES TO BE MADE OVER OPEN GROUND OR INTO EXISTING FIELD DRAIN WITH SILT TRAP AT A MINIMUM OF 20M FROM NEAREST WATERCOURSE UNLESS OTHERWISE STATED.
 5. NO EXCAVATED MATERIAL IS TO BE STORED WITHIN ANY SURFACE WATER BUFFER ZONE.
 6. PUMPED WATER WILL BE DIRECTED INTO TRACK SIDE DITCHES AND TREATED IN SETTLEMENT PONDS AND VEGETATION SWALES PRIOR TO OVERLAND DISCHARGE.
 7. PUMPING OF CLEAN WATER FROM EXCAVATIONS / OR OVER-PUMPING IN DRAINS/DITCHES/STREAMS WILL BE COMPLETED IN A MANNER THAT DOES NOT CAUSE SCOUR OR EROSION AT THE POINT OF RELEASE/DISCHARGE. THIS WILL BE DONE BY REDUCING THE FLOW VELOCITIES OR BY USE OF SPLASH PLATES, AND OTHER SIMILAR DISCHARGE CONTROLS.
 8. VEGETATION WILL NOT BE STRIPPED FROM EXISTING DRAINS/DITCHES UNLESS ABSOLUTELY NECESSARY.

- EXCAVATION:**
9. WHERE DEEP EXCAVATIONS ARE PROPOSED CUT-OFF DRAINS WILL BE USED TO REDUCE THE AMOUNT OF SURFACE WATER ENTERING THE EXCAVATION. THIS WILL BE THE CASE AROUND TURBINE BASE EXCAVATIONS.

- EXPOSED GROUND & STOCKPILES**
10. THE AMOUNT OF EXPOSED GROUND AND TEMPORARY STOCKPILES OPEN AT ANY ONE TIME WILL BE MINIMISED, AS FAR AS PRACTICABLE.

- SITE TRACKS**
11. USE OF TRACK SIDE SWALES WITH CHECK DAMS, AND/OR FILTRATION CHECK DAMS WILL REDUCE SILT IN RUNOFF WATER AS REQUIRED.
 12. CHECK DAMS TO BE INSPECTED AND CLEANED REGULARLY.

- REFUELLING**
13. REFUELLING OF MOBILE PLANT WILL BE COMPLETED IN DESIGNATED REFUELLING AREAS ONLY, PREFERABLY ON AN IMPERMEABLE SURFACE AND AWAY FROM FIELD DRAINS / DITCHES AND WATERCOURSES / WATERBODIES.
 14. SPILL KITS AND DRIP TRAYS WILL BE AVAILABLE ON SITE FOR USE AS REQUIRED.

- CONCRETE**
15. CARE WILL BE TAKEN WHEN COMPLETING CONCRETE WORKS ON SITE TO ENSURE NO DISCHARGES OCCUR.
 16. CONCRETE WASH WATER AND WASTE CONCRETE WILL BE MANAGED APPROPRIATELY ON SITE.

IF WATER POLLUTION IS IDENTIFIED THE FOLLOWING STEPS WOULD BE ADHERED TO:

STOP - WORK IN THE IMMEDIATE AREA SHOULD BE STOPPED AND THE SOURCE OF THE POLLUTION IDENTIFIED.

CONTAIN - THE SOURCE OF THE POLLUTION SHOULD BE BUNDED USING A SUITABLE METHOD. NATURAL WATERCOURSES SHOULD BE TEMPORARILY DIVERTED AROUND THE SOURCE OF POLLUTION.

NOTIFY - THE RELEVANT AUTHORITIES (SITE MANAGER / FISHERIES / NPWS / LOCAL AUTHORITY ETC.) SHOULD BE NOTIFIED IMMEDIATELY TO ENSURE THAT MEASURES CAN BE IMPLEMENTED DOWNSTREAM TO PROTECT FISHERIES AND OTHER SENSITIVE AREAS.

- DRAINAGE NOTES:**
1. SITE TRACKS AND ROADWAY SURFACING DESIGN AND CONSTRUCTION TO ENGINEER'S SPECIFICATION (I.E. BY OTHERS).
 2. GRADE STRAIN SWALES/SILT FENCING/ OR SIMILAR, TO BE STORED ON SITE. THE LEVEL OF SILT IN RUNOFF DURING CONSTRUCTION IS TO BE MONITORED VISUALLY AND EXCESSIVE SILT LEVELS IN WATER TO BE TEMPORARILY MANAGED BY PLACING SILT FENCES, STRAW BALES / OR SIMILAR OR ADDITIONAL CHECK DAMS AT THE PROBLEM AREAS. MOBILE SILT TRAP SYSTEM TO BE AVAILABLE ON-SITE FOR USE AS REQUIRED ALSO.
 3. SUDS SYSTEM TO BE CONSTRUCTED PRIOR TO, OR AT THE SAME TIME AS THE ACCESS TRACKS. INTERIM MEASURES SUCH AS THE PLACEMENT OF STRAW BALES/SILT FENCING/ OR SIMILAR TO BE EMPLOYED IN ALL INSTANCES WHERE WORK LARNS BUT TO CONSTRUCT THE ACCESS TRACKS IS LIKELY TO CAUSE ADVERSE ENVIRONMENTAL EFFECTS THROUGH INCREASED SILT LOADINGS BEING GENERATED DURING THE CONSTRUCTION PHASE.
 4. SUITABLE PREVENTION MEASURES SHOULD BE IN PLACE AT ALL TIMES TO PREVENT THE CONVEYANCE OF SIGNIFICANT VOLUMES OF SILT TO RECEIVING WATERCOURSES. SEE NOTES ON POLLUTION PREVENTION.
 5. INTERCEPTOR SWALES / DITCHES TO BE USED TO COLLECT UPSTREAM SURFACE WATER FLOWS. REGULAR CROSS DRAINS / DISCHARGE TO FIELD DITCHES/DRAINS WILL BE REQUIRED TO TRANSFER / DISCHARGE SURFACE WATER IN INTERCEPTOR DRAINS TO SUITABLE FIELD DRAIN OUTFALL POINTS.
 6. DRAINAGE SWALES / DITCHES TO BE EXCAVATED ADJACENT TO THE ACCESS TRACKS. REGULAR CROSS DRAINS TO BE LOCATED ALONG ACCESS TRACKS TO PREVENT EXCESSIVE VOLUMES OF WATER COLLECTING IN THE SWALES / DITCHES. LOCATIONS OF CROSS DRAINS TO BE AGREED WITH THE ENGINEER ON SITE. SURFACE WATER WILL NOT BE ALLOWED TO DISCHARGE DIRECTLY INTO EXISTING WATERCOURSES.
 7. WHERE POSSIBLE, A BUFFER ZONE OF >20M TO ANY EXISTING WATERCOURSE WILL BE REQUIRED WHERE OVER LAND DISCHARGES ARE PROPOSED FROM ACCESS TRACK SWALES / DITCHES.
 8. BATTERS OF ALL PROPOSED SWALES / DITCHES TO HAVE A SLOPE OF BETWEEN 1 : 1.5 TO 1 : 2 DEPENDING UPON DEPTH OF SWALE/DITCH AND WILL BE LEFT AS CUT TO RE-VEGETATE WITH LOCAL SPECIES.
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 10. SETTLEMENT PONDS TO BE CONSTRUCTED FOR SILT REMOVAL AT TURBINE BASES AND HARD STAND AREAS. POND SIZES DEPENDS ON THE CATCHMENT AREA BEING SERVED. SAMPLE POND SIZES FOR VARIOUS CATCHMENT AREAS SHOWN ON DRAWING D501.
 11. STRAW BALES / OR SIMILAR AND SILT FENCES TO BE USED ALSO AROUND SPILL HEAPS TO MITIGATE SILT RUNOFF. SILT FENCES MAY BE REMOVED WHEN SUITABLE VEGETATION COVER IS ESTABLISHED.
 12. SILT FENCES TO BE PROVIDED ALONG EDGE OF EXISTING WATERCOURSE WHERE WORKS COMES WITHIN 15M OF EDGE OF ANY DITCH / DRAIN / EPIPHORAL CHANNELS.
 13. SLOPES OF THE SWALES / DITCHES TO BE VEGETATED OR PROTECTED FROM EROSION UNTIL VEGETATION HAS BEEN ESTABLISHED. STRIPPED VEGETATIVE LAYER GREAT "SOO" OR "SOBAY" FROM EXCAVATIONS TO BE STORED LOCALLY AND USED TO LINE SLOPES AND BASES OF SWALES / DITCHES OR LONGITUDINAL MOUNDS OF VEGETATION SWALES AT FIELD DRAIN DISCHARGE POINTS.
 14. AREAS STRIPPED OF VEGETATION SHOULD BE KEPT TO A MINIMUM.
 15. CLEAN STONE FLOW CONTROL CHECK DAMS TO BE MADE OF LOCALLY WORK / GEOLOGICALLY SIMILAR WELL GRADED STONE. AGGREGATE SIZE FOR STONE CHECK DAMS TO BE TYPICALLY 20-100MM CLEAN STONE. ON SLOPING SECTIONS OF THE ACCESS TRACKS, LONG CHECK DAMS TO BE PROTECTED FROM WASHING AWAY THROUGH THE PLACEMENT OF 100M STONE ON THE DOWNHILL FACE OF THE CHECK DAM AND BY WRAPPING IN GEOTEXTILE.
 16. BUILD UP OF SILT LEVELS AT CHECK DAMS TO BE REMOVED AND DISPOSED OF APPROPRIATELY. SILT LEVELS AT CHECK DAMS TO BE VISUALLY INSPECTED AS PART OF AN ONGOING DRAINAGE MAINTENANCE PROGRAMME DURING THE CONSTRUCTION PHASE. WHERE CHECK DAMS BECOME CLOGGED WITH SILT OR VEGETATION, STONE CHECK DAM TO BE REMOVED AND REPLACED SUBSEQUENT TO THE REMOVAL OF SILT.
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 19. OIL FUEL SHOULD BE STORED WITHIN BUNDED CONTAINMENT STRUCTURES.
 20. SILT BAGS WILL BE USED ON SITE AT FIELD DRAIN DISCHARGE LOCATIONS, AS NECESSARY.

CONCRETE

IF WATER POLLUTION IS IDENTIFIED THE FOLLOWING STEPS WOULD BE ADHERED TO:

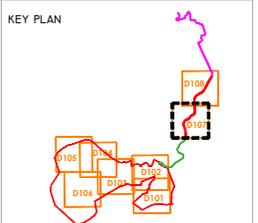
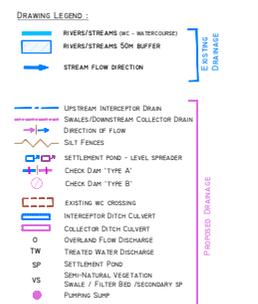
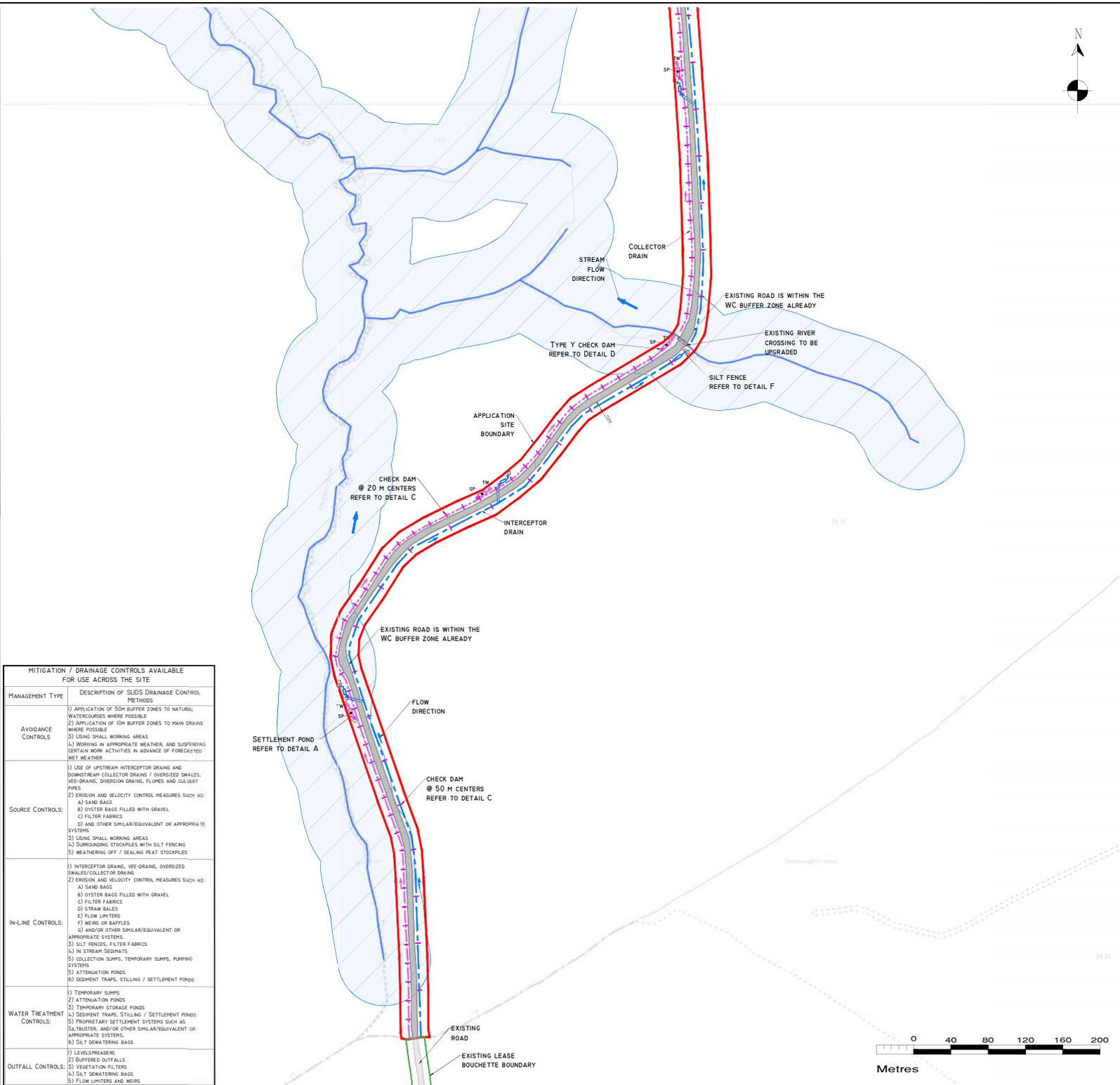
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NOTIFY - THE RELEVANT AUTHORITIES (SITE MANAGER / FISHERIES / NPWS / LOCAL AUTHORITY ETC.) SHOULD BE NOTIFIED IMMEDIATELY TO ENSURE THAT MEASURES CAN BE IMPLEMENTED DOWNSTREAM TO PROTECT FISHERIES AND OTHER SENSITIVE AREAS.

- DRAINAGE NOTES:**

1. SITE TRACKS AND ROADWAY SURFACING DESIGN AND CONSTRUCTION TO ENGINEER'S SPECIFICATION (I.E. BY OTHERS).
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3. SUDS SYSTEM TO BE CONSTRUCTED PRIOR TO, OR AT THE SAME TIME AS THE ACCESS TRACKS. INTERIM MEASURES SUCH AS THE PLACEMENT OF STRAW BALES/SILT FENCING/ OR SIMILAR TO BE EMPLOYED IN ALL INSTANCES WHERE WORK LARNS BUT TO CONSTRUCT THE ACCESS TRACKS IS LIKELY TO CAUSE ADVERSE ENVIRONMENTAL EFFECTS THROUGH INCREASED SILT LOADINGS BEING GENERATED DURING THE CONSTRUCTION PHASE.
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8. BATTERS OF ALL PROPOSED SWALES / DITCHES TO HAVE A SLOPE OF BETWEEN 1 : 1.5 TO 1 : 2 DEPENDING UPON DEPTH OF SWALE/DITCH AND WILL BE LEFT AS CUT TO RE-VEGETATE WITH LOCAL SPECIES.
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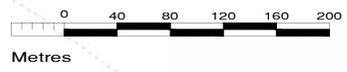


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MITIGATION / DRAINAGE CONTROLS AVAILABLE FOR USE ACROSS THE SITE	
MANAGEMENT TYPE	DESCRIPTION OF SUDS DRAINAGE CONTROL METHODS
AVOIDANCE CONTROLS	<ol style="list-style-type: none"> 1) APPLICATION OF 50M BUFFER ZONES TO NATURAL WATERCOURSES WHERE POSSIBLE. 2) APPLICATION OF 10M BUFFER ZONES TO MAIN DRAINS WHERE POSSIBLE. 3) USING SMALL WORKING AREAS 4) WORKING IN APPROPRIATE WEATHER, AND SUSPENDING CERTAIN WORK ACTIVITIES IN ADVANCE OF FORECASTED 'WET' WEATHER.
SOURCE CONTROLS	<ol style="list-style-type: none"> 1) USE OF UPSTREAM INTERCEPTOR DRAINS AND DOWNSTREAM COLLECTOR DRAINS / OVERSIZED SWALES. VEE-DRAINS, GROUNDROCK DRAINS, FLUMES AND CULVERT PIPES 2) EROSION AND VELOCITY CONTROL MEASURES SUCH AS: <ul style="list-style-type: none"> A) SAND BAGS B) OYSTER BAGS FILLED WITH GRAVEL C) FILTER FABRICS D) AND OTHER SIMILAR/EQUIVALENT OR APPROPRIATE SYSTEMS 3) USING SMALL WORKING AREAS 4) SURROUNDING STOCKPILES WITH SILT FENCING 5) WEATHERING OFF / SEALING PEAT STOCKPILES
IN-LINE CONTROLS	<ol style="list-style-type: none"> 1) INTERCEPTOR DRAINS, VEE-DRAINS, OVERSIZED SWALES/COLLECTOR DRAIN 2) EROSION AND VELOCITY CONTROL MEASURES SUCH AS: <ul style="list-style-type: none"> A) SAND BAGS B) OYSTER BAGS FILLED WITH GRAVEL C) FILTER FABRICS D) STRAW BALES E) FLOW LIMITERS F) WEIRS OR RAFFLES G) AND/OR OTHER SIMILAR/EQUIVALENT OR APPROPRIATE SYSTEMS. 3) SILT FENCES, FILTER FABRICS 4) IN STREAM SEDIMENTS 5) COLLECTION SUMPS, TEMPORARY SUMPS, PUMPING SYSTEMS 6) ATTENUATION PONDS 7) SEDIMENT TRAPS, STALLING / SETTLEMENT PONDS
WATER TREATMENT CONTROLS	<ol style="list-style-type: none"> 1) TEMPORARY SUMPS 2) ATTENUATION PONDS 3) TEMPORARY STORAGE PONDS 4) SEDIMENT TRAPS, STALLING / SETTLEMENT PONDS 5) PROPRIETARY SETTLEMENT SYSTEMS SUCH AS SILT TRAPPER, AND/OR OTHER SIMILAR/EQUIVALENT OR APPROPRIATE SYSTEMS. 6) SILT DENATURING BAGS
OUTFALL CONTROLS	<ol style="list-style-type: none"> 1) LEVELHEADERS 2) BUFFERED OUTFALLS 3) VEGETATION FILTERS 4) SILT DENATURING BAGS 5) FLOW LIMITERS AND WEIRS



Date	Description	Chkd	Signed

HYDRO ENVIRONMENTAL SERVICES

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 Co. Waterford | email: info@hydroenvironmental.ie
 Ireland | web: www.hydroenvironmental.ie

Client: ØRSTED

Job: PROPOSED REPOWERING OF KILGARVAN WIND FARM, CO. KERRY

Title: PROPOSED DRAINAGE LAYOUT

Figure No: D107

Drawing No: P1585-0-0524-A1-D107-00C
 Sheet Size: A1 | Project No.: P1585-0
 Scale: 1:2,000 (A1) | Drawn By: GA
 Date: 07/05/2024 | Checked By: MG

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 3. SILTY WATER CAN ARISE FROM Dewatering excavations, erosion of exposed/disturbed ground, temporary stockpiles, plant and wheel wash, site roads/tracks, and disturbance of existing field drains and ditches.
- DISCHARGES:**
4. WATER CONTAINING SILT WILL NOT BE PUMPED DIRECTLY TO ANY NATURAL WATERCOURSE. ALL DISCHARGES TO BE MADE OVER OPEN GROUND OR INTO EXISTING FIELD DRAIN WITH SILT TRAP AT A MINIMUM OF 20M FROM NEAREST WATERCOURSE UNLESS OTHERWISE STATED.
 5. NO EXCAVATED MATERIAL IS TO BE STORED WITHIN ANY SURFACE WATER BUFFER ZONE.
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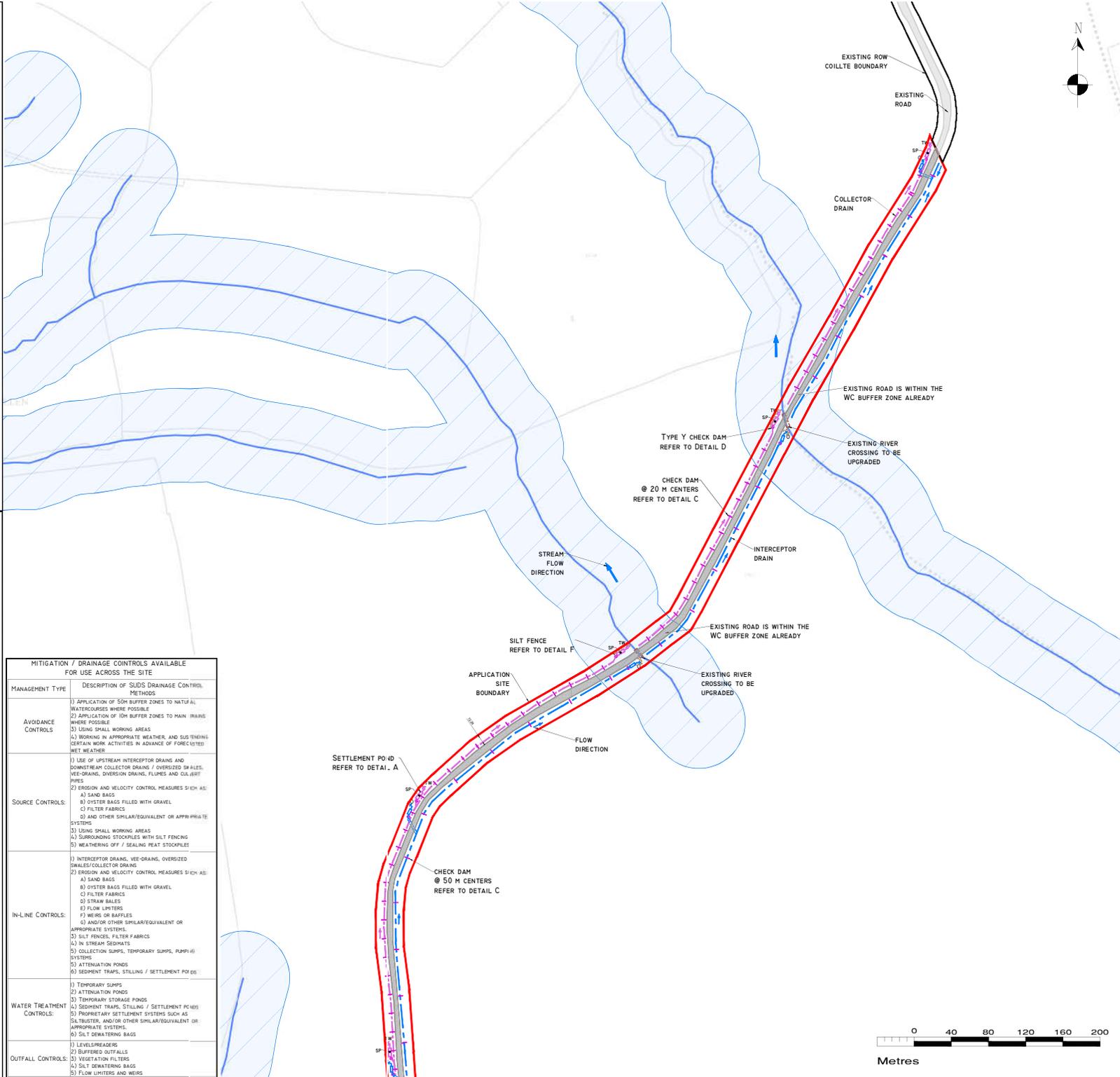
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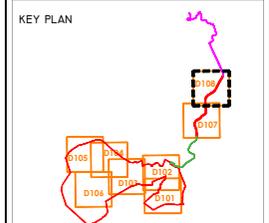
- DRAINAGE NOTES:**
1. SITE TRACKS AND ROADWAY SURFACING DESIGN AND CONSTRUCTION TO ENGINEER'S SPECIFICATION (I.E. BY OTHERS).
 2. GRADE STRAIN BALES/SILT FENCING OR SIMILAR, TO BE STORED ON SITE. THE LEVEL OF SILT IN RUNOFF DURING CONSTRUCTION IS TO BE MONITORED VISUALLY AND EXCESSIVE SILT LEVELS IN ANY AREA TO BE TEMPORARILY MANAGED BY PLACING SILT FENCES, STRAW BALES / OR SIMILAR OR ADDITIONAL CHECK DAMS AT THE PROBLEM AREAS. MOBILE SILTBUSTER SYSTEM TO BE AVAILABLE ON-SITE FOR USE AS REQUIRED ALSO.
 3. SUDS SYSTEM TO BE CONSTRUCTED PRIOR TO, OR AT THE SAME TIME AS THE ACCESS TRACKS. INTERIM MEASURES SUCH AS THE PLACEMENT OF STRAW BALES/SILT FENCING OR SIMILAR APPROVED METHOD OR ADDITIONAL CHECK DAMS AND SILT FENCES TO BE EMPLOYED IN ALL INSTANCES WHERE WORK LARND NOT TO CONSTRUCT THE ACCESS TRACKS IS LIKELY TO CAUSE ADVERSE ENVIRONMENTAL EFFECTS THROUGH INCREASED SILT LOADINGS BEING GENERATED DURING THE CONSTRUCTION PHASE.
 4. SUITABLE PREVENTION MEASURES SHOULD BE IN PLACE AT ALL TIMES TO PREVENT THE CONVEYANCE OF SIGNIFICANT VOLUMES OF SILT TO RECEIVING WATERCOURSES. SEE NOTES ON POLLUTION PREVENTION.
 5. INTERCEPTOR SWALES / DITCHES TO BE USED TO COLLECT UPSTREAM SURFACE WATER FLOWS. REGULAR CROSS DRAINS / DISCHARGE TO FIELD DITCHES/DRAINS WILL BE REQUIRED TO TRANSFER / DISCHARGE SURFACE WATER IN INTERCEPTOR DRAINS TO SUITABLE FIELD DRAIN OUTFALL POINTS.
 6. DRAINAGE SWALES / DITCHES TO BE EXCAVATED ADJACENT TO THE ACCESS TRACKS. REGULAR CROSS DRAINING TO BE LOCATED ALONG ACCESS TRACKS TO PREVENT EXCESSIVE VOLUMES OF WATER COLLECTING IN THE SWALES / DITCHES. LOCATIONS OF CROSS DRAINS TO BE AGREED WITH THE ENGINEER ON SITE. SURFACE WATER WILL NOT BE ALLOWED TO DISCHARGE DIRECTLY INTO EXISTING WATERCOURSES.
 7. WHERE POSSIBLE, A BUFFER ZONE OF >20M TO ANY EXISTING WATERCOURSE WILL BE REQUIRED WHERE OVER LAND DISCHARGES ARE PROPOSED FROM ACCESS TRACK SWALES / DITCHES.
 8. SLOPES OF ALL PROPOSED SWALES / DITCHES TO HAVE A SLOPE OF BETWEEN 1 : 1.5 TO 1 : 2 DEPENDING UPON DEPTH OF SWALE/DITCH AND WILL BE LEFT AS CUT TO RE-VEGETATE WITH LOCAL SPECIES.
 9. TRACK SIDE SWALES / DITCHES TO BE SHALLOW WITH MODERATE GRADIENTS TO PREVENT SCOURING. IN STEEP AREAS CHECK DAMS SHOULD BE INSTALLED TO REDUCE FLOW VELOCITIES AND PROVIDE SOURCE CONTROL OF SILT CONTAMINANT, WHERE NECESSARY THESE HAVE BEEN DESIGNATED IN CONJUNCTION WITH SETTLEMENT PONDS AND SILT TRAPS, PRIOR TO DISCHARGE.
 10. SETTLEMENT PONDS TO BE CONSTRUCTED FOR SILT REMOVAL AT TURBINE BASES AND HARD STAND AREAS. POND SIZES DEPENDS ON THE CATCHMENT AREA BEING SERVED. SAMPLE POND SIZES FOR VARIOUS CATCHMENT AREAS SHOWN ON DRAWING D501.
 11. STRAW BALES / OR SIMILAR AND SILT FENCES TO BE USED ALSO AROUND SPILL HEAPS TO MITIGATE SILT RUNOFF. SILT FENCES MAY BE REMOVED WHEN SUITABLE VEGETATION COVER IS ESTABLISHED.
 12. SILT FENCES TO BE PROVIDED ALONG EDGE OF EXISTING WATERCOURSE WHERE WORKS COMES WITHIN 15M OF EDGE OF ANY DITCH / DRAIN / EPIPHREAL CHANNELS.
 13. SLOPES OF THE SWALES / DITCHES TO BE VEGETATED OR PROTECTED FROM EROSION UNTIL VEGETATION HAS BEEN ESTABLISHED. STRIPPED VEGETATIVE LAYER GREAT 'SOO' OR 'SOBAY' FROM EXCAVATIONS TO BE STORED LOCALLY AND USED TO LINE SLOPES AND BASES OF SWALES / DITCHES OR LONGITUDINAL MOUNDS OF VEGETATION SWALES AT FIELD DRAIN DISCHARGE POINTS.
 14. AREAS STRIPPED OF VEGETATION SHOULD BE KEPT TO A MINIMUM.
 15. CLEAN STONE FLOW CONTROL CHECK DAMS TO BE MADE UP OF LOCALLY WORK / GEOLOGICALLY SIMILAR WELL GRADED STONE. AGGREGATE SIZE FOR STONE CHECK DAMS TO BE TYPICALLY 20-100MM CLEAN STONE. ON SLOPING SIDES OF THE ACCESS TRACKS, LONG CHECK DAMS TO BE PROTECTED FROM WASHING AWAY THROUGH THE PLACEMENT OF 100M STONE ON THE DOWNHILL FACE OF THE CHECK DAM AND BY WRAPPING IN GEOTEXTILE.
 16. BUILD UP OF SILT LEVELS AT CHECK DAMS TO BE REMOVED AND DISPOSED OF APPROPRIATELY. SILT LEVELS AT CHECK DAMS TO BE VISUALLY INSPECTED AS PART OF AN ONGOING DRAINAGE MAINTENANCE PROGRAMME DURING THE CONSTRUCTION PHASE. WHERE CHECK DAMS BECOME CLOGGED WITH SILT OR VEGETATION, STONE CHECK DAMS TO BE REMOVED AND REPLACED SUBSEQUENT TO THE REMOVAL OF SILT.
 17. SPACING AND FREQUENCY OF CHECK DAMS WILL BE DEPENDENT UPON LONGITUDINAL GRADIENT OF SWALE.
 18. LOCATION OF FILTRATION CHECK DAMS (IF REQUIRED) TO BE AGREED ON SITE WITH ENGINEER. SETTLEMENT PONDS TO BE CONSTRUCTED IN A MANNER WHERE THEY MAY BE EASILY INFILTRATED AT A LATER DATE (POST COMPLETION OF THE TURBINE BASE AND HARDSTAND CONSTRUCTION). ONLY SUITABLE MATERIALS EXCAVATED FROM THE POND TO BE USED TO FORM PART OF THE EMBANKMENT AROUND THE POND.
 19. OIL FUEL SHOULD BE STORED WITHIN BUNDED CONTAINMENT STRUCTURES.
 20. SILT BAGS WILL BE USED ON SITE AT FIELD DRAIN DISCHARGE LOCATIONS, AS NECESSARY.

MITIGATION / DRAINAGE CONTROLS AVAILABLE FOR USE ACROSS THE SITE	
MANAGEMENT TYPE	DESCRIPTION OF SUDS DRAINAGE CONTROL METHODS
AVOIDANCE CONTROLS	<ol style="list-style-type: none"> 1) APPLICATION OF 50M BUFFER ZONES TO NATURAL WATERCOURSES WHERE POSSIBLE. 2) APPLICATION OF 10M BUFFER ZONES TO MAIN IRANS WHERE POSSIBLE. 3) USING SMALL WORKING AREAS 4) WORKING IN APPROPRIATE WEATHER, AND SUS'AINING CERTAIN WORK ACTIVITIES IN ADVANCE OF FORECASTED 'WET WEATHER'
SOURCE CONTROLS	<ol style="list-style-type: none"> 1) USE OF UPSTREAM INTERCEPTOR DRAINS AND DOWNSTREAM COLLECTOR DRAINS / OVERSIZED SWALES, VEE-DRAINS, OVERSIZED DRAINS, FLUMES AND COLLARIT PIPES 2) EROSION AND VELOCITY CONTROL MEASURES SUCH AS: <ol style="list-style-type: none"> A) SAND BAGS B) OYSTER BAGS FILLED WITH GRAVEL C) FILTER FABRICS D) AND OTHER SIMILAR/EQUIVALENT OR APPROPRIATE SYSTEMS 3) USING SMALL WORKING AREAS 4) SURROUNDING STOCKPILES WITH SILT FENCING 5) WEATHERING OFF / SEALING PEAT STOCKPILES
IN-LINE CONTROLS	<ol style="list-style-type: none"> 1) INTERCEPTOR DRAINS, VEE-DRAINS, OVERSIZED SWALES/COLLECTOR DRAIN 2) EROSION AND VELOCITY CONTROL MEASURES SUCH AS: <ol style="list-style-type: none"> A) SAND BAGS B) OYSTER BAGS FILLED WITH GRAVEL C) FILTER FABRICS D) STRAW BALES E) FLOW LIMITERS F) WEIRS OR BAFFLES G) AND/OR OTHER SIMILAR/EQUIVALENT OR APPROPRIATE SYSTEMS 3) SILT FENCES, FILTER FABRICS 4) IN STREAM SEDIMENTS 5) COLLECTION SUDS, TEMPORARY SUDS, PUMP-OUT SYSTEMS 6) ATTENUATION PONDS 7) SEDIMENT TRAPS, STILLING / SETTLEMENT POND 8) TEMPORARY SUDS 9) ATTENUATION PONDS 10) TEMPORARY STORAGE PONDS 11) SEDIMENT TRAPS, STILLING / SETTLEMENT POND 12) PROPRIETARY SETTLEMENT SYSTEMS SUCH AS SILTBUSTERS, AND/OR OTHER SIMILAR/EQUIVALENT OR APPROPRIATE SYSTEMS. 13) SILT Dewatering BAGS
WATER TREATMENT CONTROLS	<ol style="list-style-type: none"> 1) LEVELHEADERS 2) BUFFERED OUTFALLS 3) VEGETATION FILTERS 4) SILT Dewatering BAGS 5) FLOW LIMITERS AND WEIRS
OUTFALL CONTROLS	<ol style="list-style-type: none"> 1) LEVELHEADERS 2) BUFFERED OUTFALLS 3) VEGETATION FILTERS 4) SILT Dewatering BAGS 5) FLOW LIMITERS AND WEIRS



DRAWING LEGEND:

- RIVERS/STREAMS (INC - WATERCOURSES)
- RIVERS/STREAMS 50M BUFFER
- STREAM FLOW DIRECTION
- UPSTREAM INTERCEPTOR DRAIN
- SWALE/DOWNSTREAM COLLECTOR DRAIN
- DIRECTION OF FLOW
- SILT FENCES
- SETTLEMENT POND - LEVEL SPREADER
- CHECK DAM 'TYPE A'
- CHECK DAM 'TYPE B'
- EXISTING WC CROSSING
- INTERCEPTOR DITCH COLLARIT
- COLLECTOR DITCH COLLARIT
- OVERLAND FLOW DISCHARGE
- TREATED WATER DISCHARGE
- SP SETTLEMENT POND
- SEM-NATURAL VEGETATION SWALE / FILTER BED /SECONDARY SP
- PUMPING SUMP
- APPLICATION SITE BOUNDARY
- EXISTING LEASE BOUQUETTE BOUNDARY
- EXISTING ROW COLLTE BOUNDARY
- EXISTING ROADS
- EXISTING ROADS PROPOSED TO BE UPGRADED



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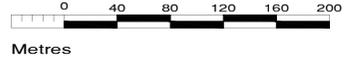
Client: **ØRSTED**

Job: **PROPOSED REPOWERING OF KILGARVAN WIND FARM, CO. KERRY**

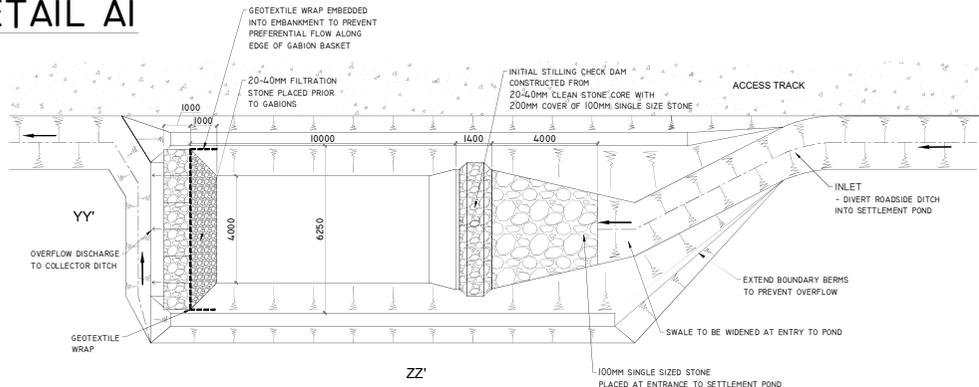
Title: **PROPOSED DRAINAGE LAYOUT**

Figure No: **D108**

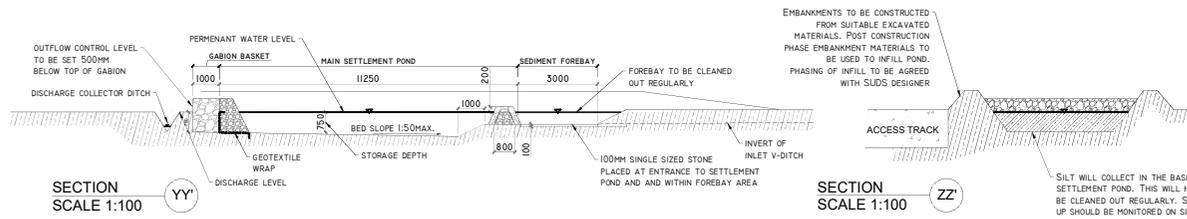
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Scale: 1:2,000 (A1) | Drawn By: GA
Date: 07/05/2024 | Checked By: MG



DETAIL A1



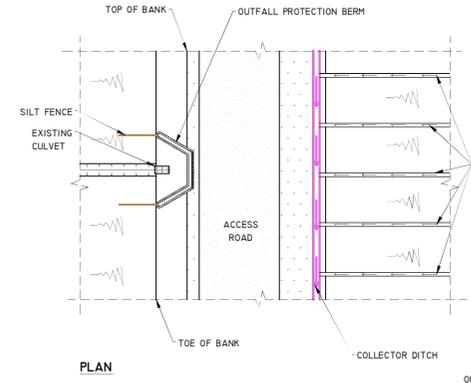
TYPE A - TYPICAL ROAD SIDE SETTLEMENT POND DETAIL
SCALE 1:200 (NOTE DIMENSIONS VARY DEPENDING ON CATCHMENT SIZE - SEE ATTACHED TABLE)



SECTION YY'
SCALE 1:100

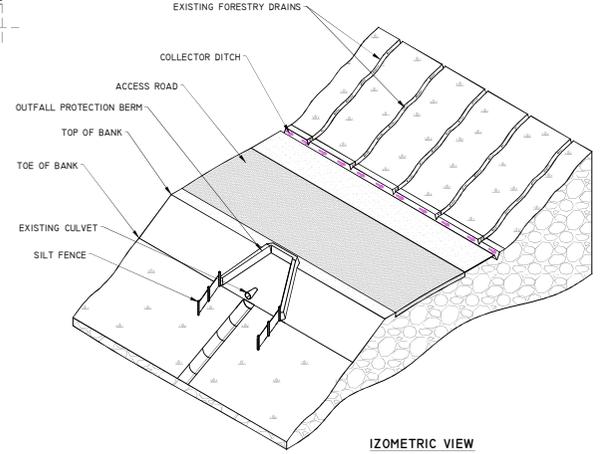
SECTION ZZ'
SCALE 1:100

DETAIL B1



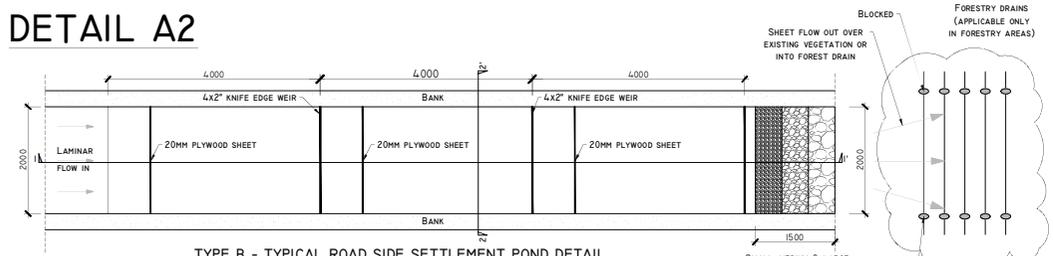
PLAN

CULVERT - OUTFALL PROTECTION DETAIL

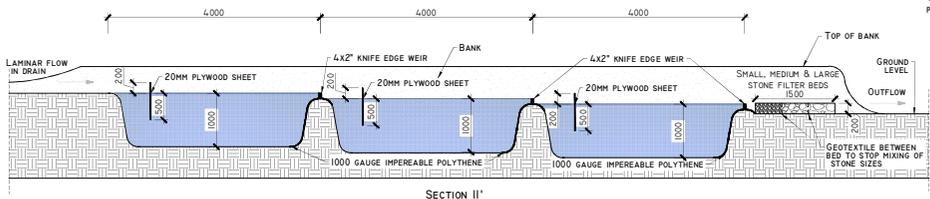


ISOMETRIC VIEW

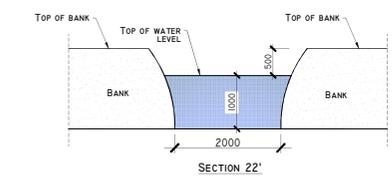
DETAIL A2



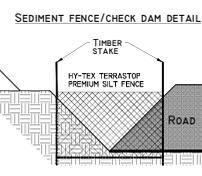
TYPE B - TYPICAL ROAD SIDE SETTLEMENT POND DETAIL
SCALE 1:200 (NOTE DIMENSIONS VARY DEPENDING ON CATCHMENT SIZE - SEE ATTACHED TABLE)



SECTION II'



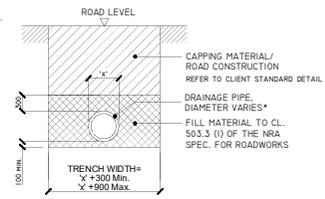
SECTION 22'



SEDIMENT FENCE/CHECK DAM DETAIL

SCHEMATIC - NOT TO SCALE

DETAIL B



'TYPE B' CULVERT - DRAINAGE CROSSING BENEATH EXCAVATED ROAD
SCALE 1:50

*WHERE SECTION 50 APPLIES, MINIMUM PIPE DIA WILL BE 900MM, WITH MIN 300MM PIPE EMBEDMENT

POND SIZE W [m] x L [m] x D [m]	TRACK/HARDSTAND CATCHMENT SIZE (m²)			BORROW PIT (m³)*		
	10 YRS	1000	2000			
RETURN PERIOD	10 YRS	STORM DURATION	500	1000	2000	22609
6HR RETENTION FOR COARSE SILT	6 HRS	3.8 x 12.0 x 1 M	5.5 x 16.5 x 1 M	7.5 x 24.5 x 1 M	N/A	N/A
12HR RETENTION FOR MEDIUM SILT	12 HRS	4.5 x 14.0 x 1 M	6.5 x 19.2 x 1 M	8.5 x 29.5 x 1 M	N/A	N/A
24HR RETENTION FOR FINE SILT	24 HRS	5.2 x 16.5 x 1 M	7.5 x 23 x 1 M	10 x 34.5 x 1 M	50 x 175 x 1 M**	

*INCLUDES 50% INFLOW
**COMBINATIONS OF 2 OR 3 SMALLER PONDS MAY BE USED

37/02/24 Planning	MG	MG
Date	Description	Chkd
Revisions		

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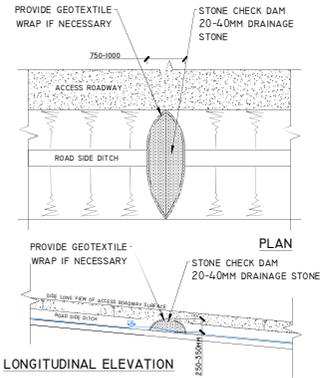
Job: PROPOSED REPOWERING OF KILGARVAN WIND FARM, CO. KERRY

Title: DRAINAGE DETAILS I

Figure No: D501

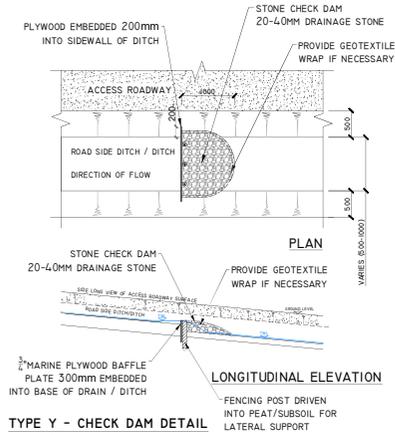
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Sheet Size: A1 Project No.: P1585-0
Scale: as shown [A1] Drawn By: MG/GA
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DETAIL C

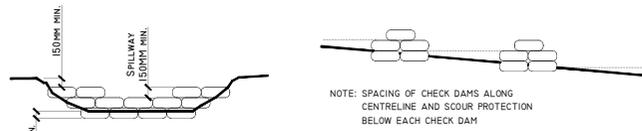


TYPE X - CHECK DAM DETAIL
SCALE 1:50

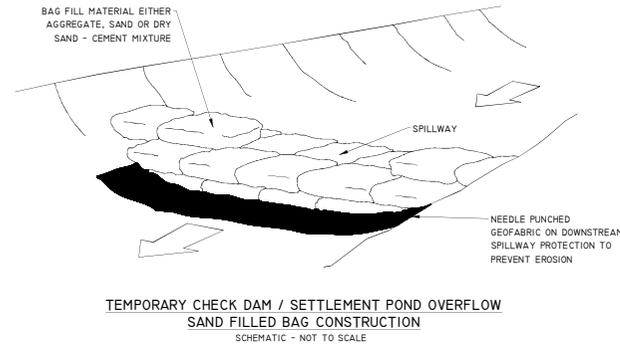
DETAIL D



TYPE Y - CHECK DAM DETAIL
SCALE 1:100



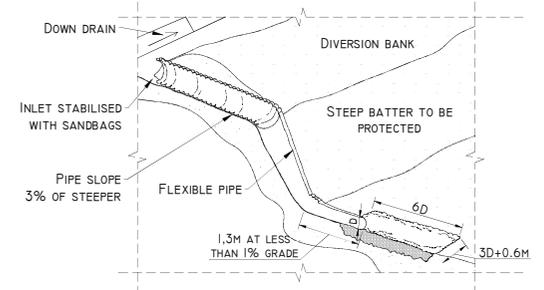
DETAIL CI



TEMPORARY CHECK DAM / SETTLEMENT POND OVERFLOW
SAND FILLED BAG CONSTRUCTION
SCHEMATIC - NOT TO SCALE

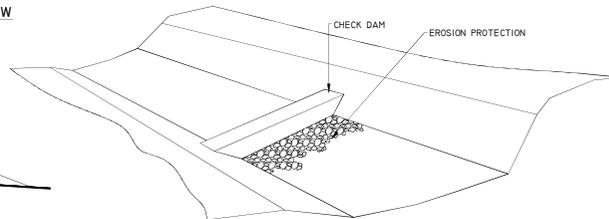
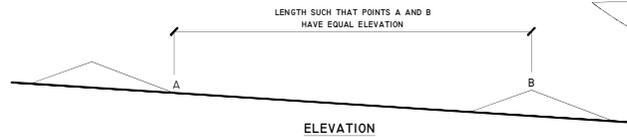
DETAIL G

TYPICAL PIPE SPILLWAY DETAIL
SCHEMATIC - NOT TO SCALE

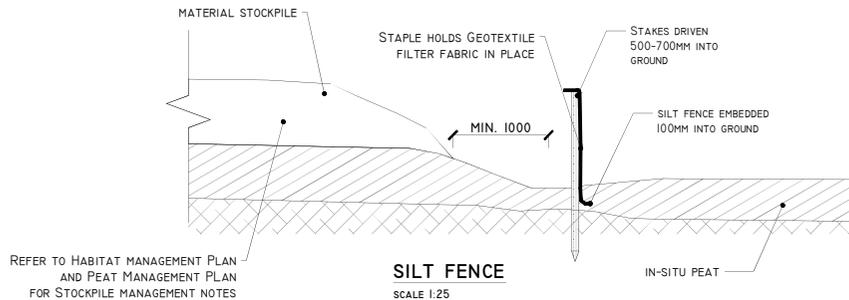


DETAIL C2

TEMPORARY CHECK DAM / SETTLEMENT POND OVERFLOW
SCHEMATIC - NOT TO SCALE

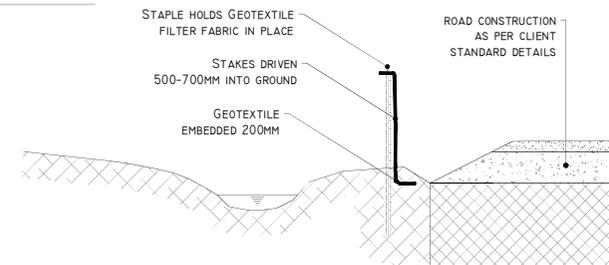


DETAIL F-I



SILT FENCE
SCALE 1:25

DETAIL F-II



SILT FENCE FOR WATERCOURSE PROTECTION
SCALE 1:25

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Job: PROPOSED REPOWERING OF KILGARVAN WIND FARM, CO. KERRY

Title: DRAINAGE DETAILS 2

Figure No: D502

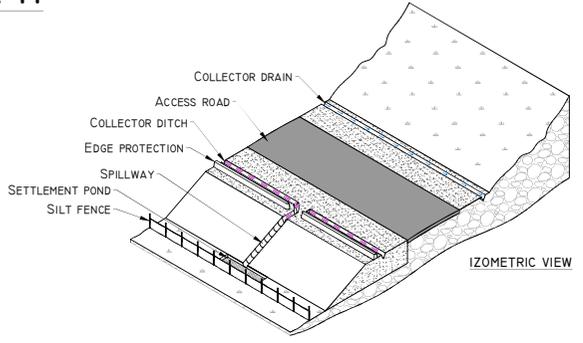
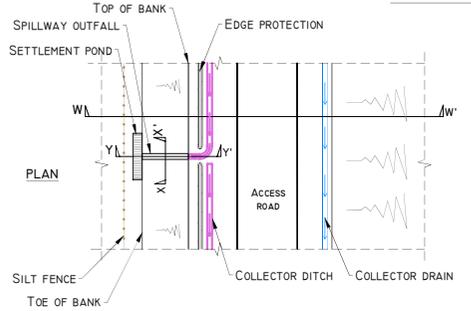
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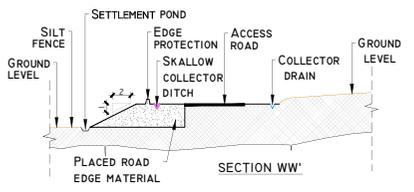
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Date: 07/02/2024 Checked By: MG

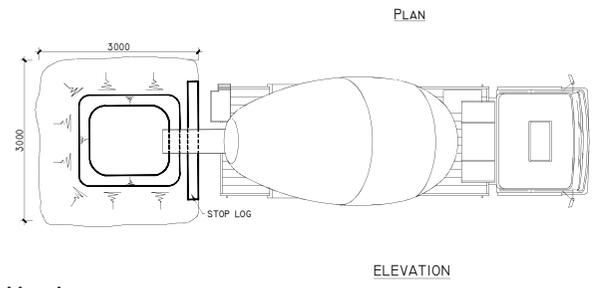
DETAIL H



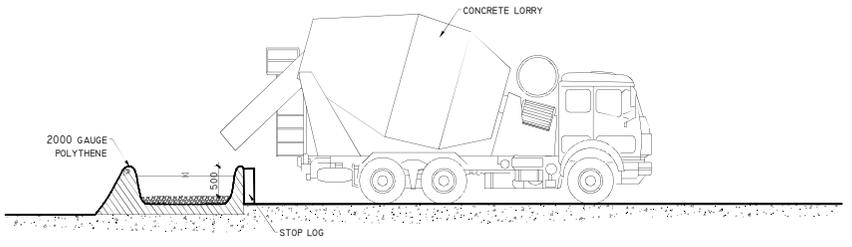
SPILLWAY OUTFALL PLAN
SCHEMATIC - NOT TO SCALE



TEMPORARY CONCRETE WASH OUT PIT
SCALE 1:50

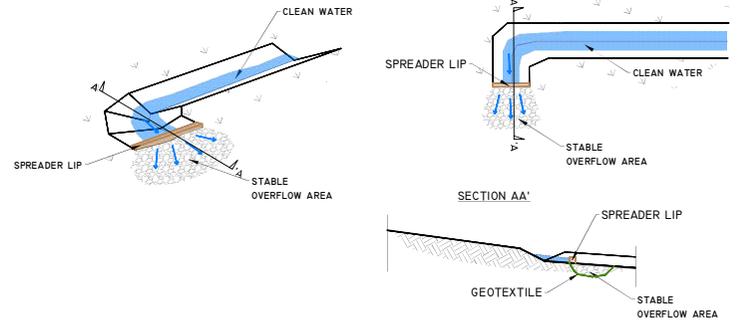


DETAIL I



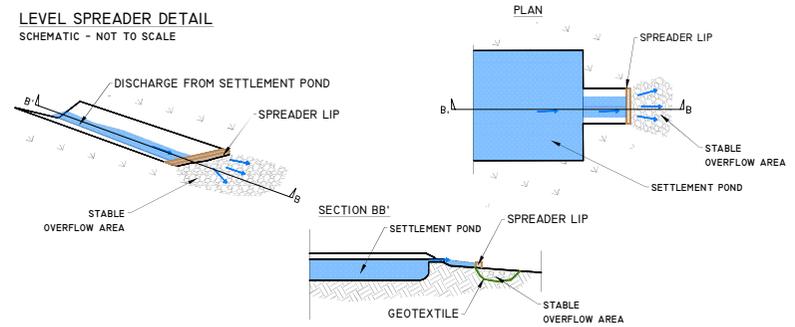
DETAIL J-1

LEVEL SPREADER DETAIL
SCHEMATIC - NOT TO SCALE



DETAIL J-2

LEVEL SPREADER DETAIL
SCHEMATIC - NOT TO SCALE



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Title: DRAINAGE DETAILS 3

Figure No: D503

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