

**Proposed Wind Farm Development
Coole Wind Farm, Co. Westmeath
Planning Permission Application Drawings**



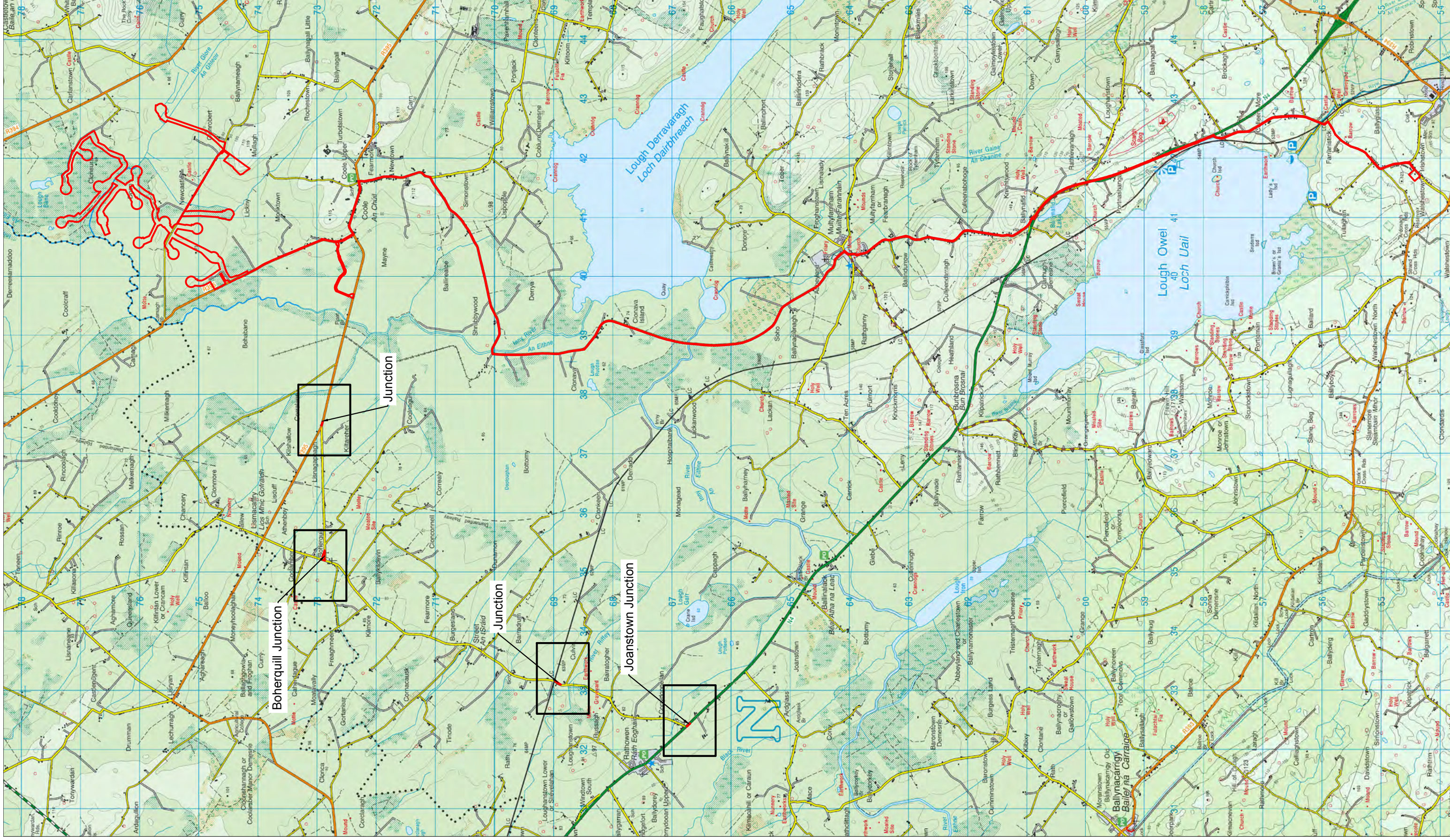


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Drawing Legend

— Planning Application Boundary



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DRAWING TITLE

Location Context Map

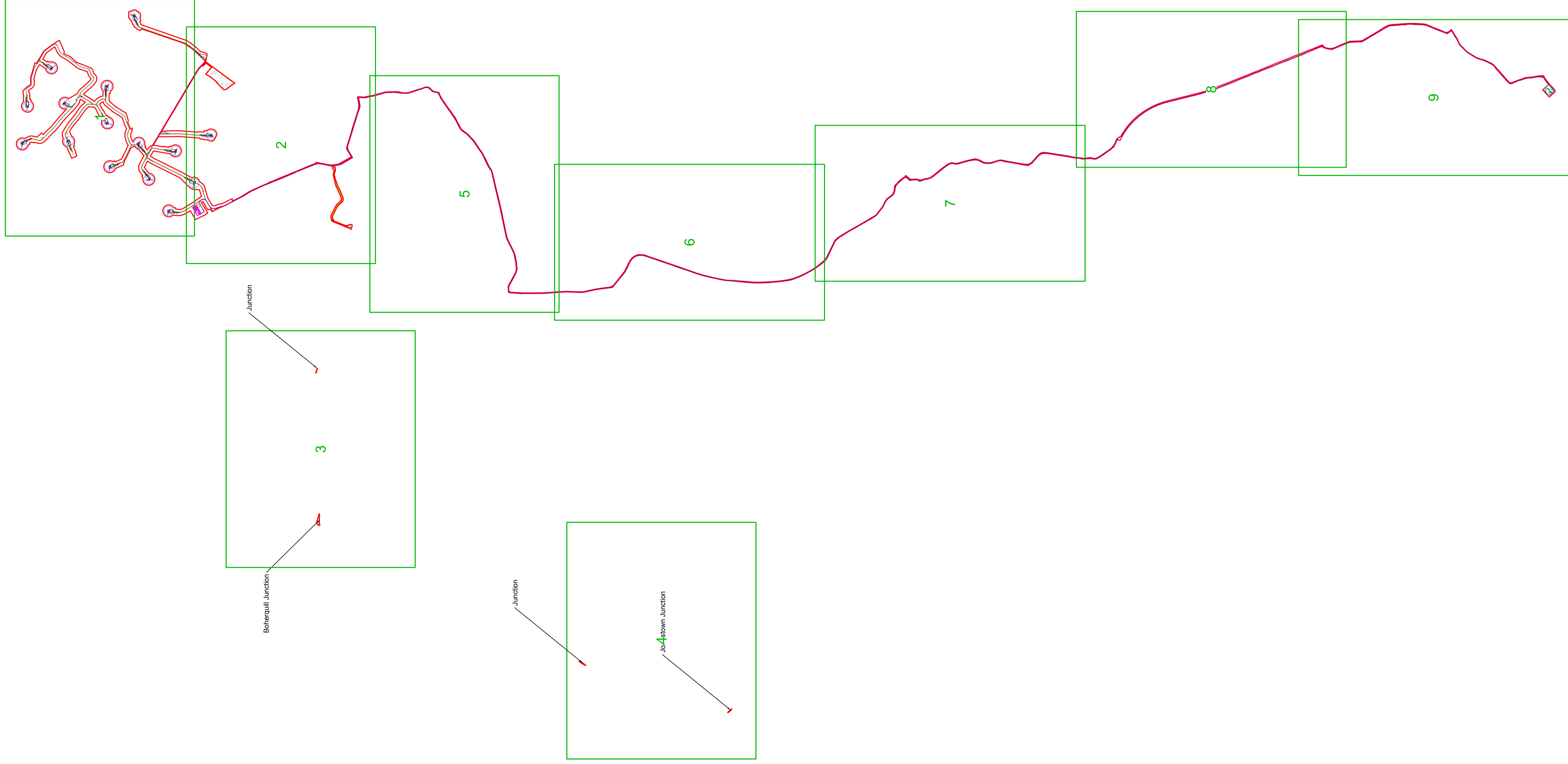
PROJECT TITLE:	Coole Wind Farm, Co. Westmeath		
DRAWING BY:	Joseph O'Brien	CHECKED BY:	Michael Watson
PROJECT NO.:	200445	DRAWING NO.:	200445 - 01
SCALE:	1:60,000 @A3	DATE:	15.03.2021
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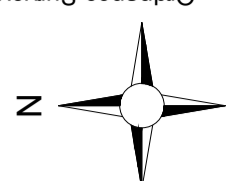
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7. Layout plans show typical Turbine rotor diameter as per turbine drawing.
8. Final levels may vary depending on local ground conditions.
9. Exact location of cable/joint bay in the road corridor to be subject to ESB specifications and agreement with Westmeath County Council



Drawing Legend

- Planning Application Boundary
- Existing Internal Road to be Upgraded
- Existing External Road to be Upgraded
- Proposed Road
- Crane Pad Hardstanding Area
- Turbine Foundation
- Turbine Sweep Area
- Borrow Pit
- Temporary Construction Compound
- Indicative Internal Electrical Cabling
- Indicative Grid Connection Route
- Wind Farm Substation
- Existing Mullingar Substation



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Site Location Key Plan

PROJECT TITLE: Coole Wind Farm, Co. Westmeath	
DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No: 200445	DRAWING No: 200445 - 03
SCALE: 1:30,000 @ A1	DATE: 15.03.2021
OS SHEET No.: 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 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Drawing Legend

- Planning Application Boundary
- Existing Internal Road to be Upgraded
- Existing External Road to be Upgraded
- Proposed Road
- Proposed New Crossing
- Existing Crossing for Upgrade
- Passing Bays
- Unbound Hardcore Surface
- Crane Pad Hardstanding Area
- Turbine Foundation
- Turbine Sweep Area
- Temporary Construction Compound
- Indicative Internal Electrical Cabling
- Wind Farm Substation
- River/Stream
- Lakes

**Site Location Plan
Sheet 1 of 9**

PROJECT TITLE:
Coole Wind Farm, Co. Westmeath

DRAWING BY: **Joseph O Brien** CHECKED BY: **Michael Watson**

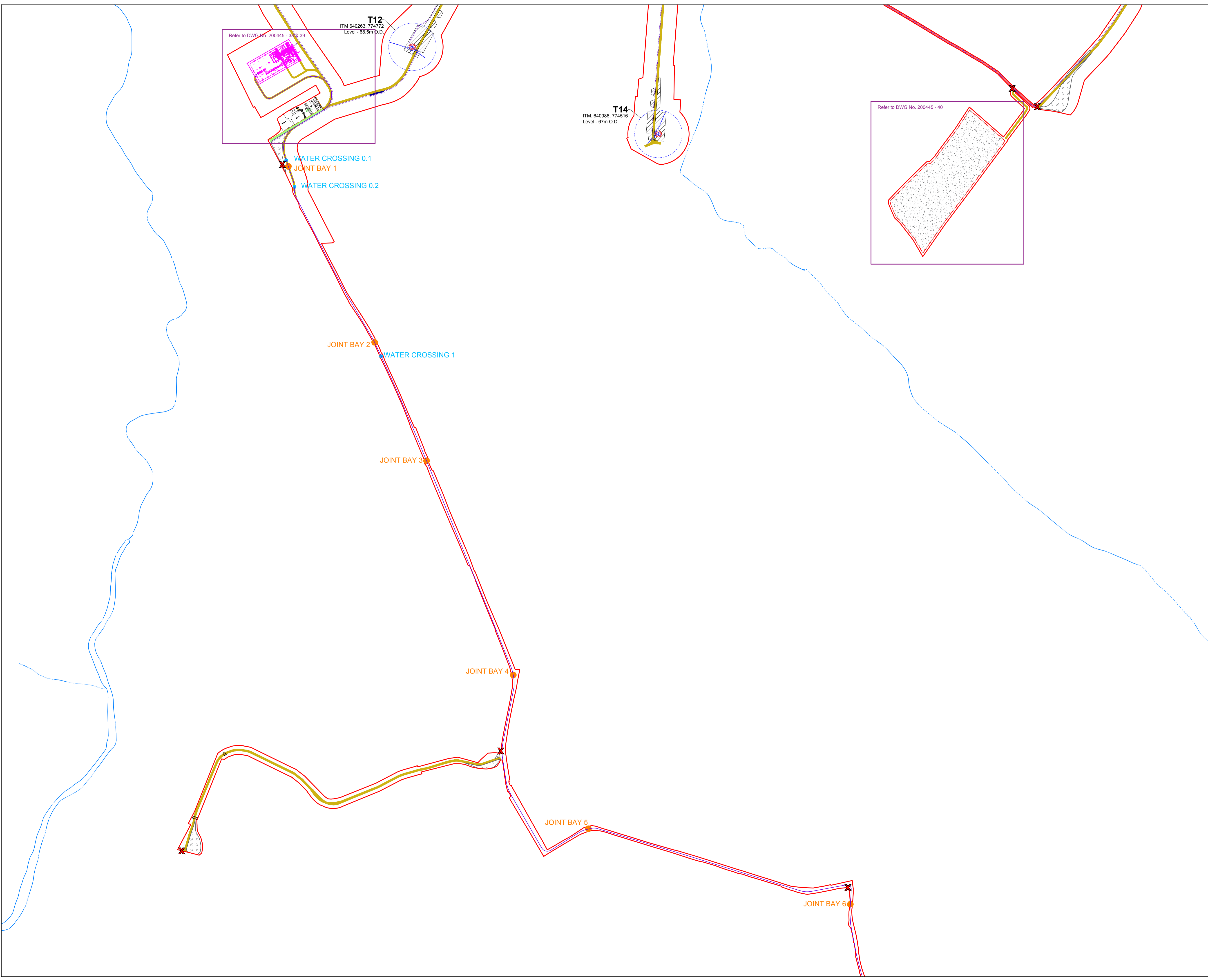
PROJECT No.: **200445** DRAWING No.: **200445 - 04**

SCALE: **1:5,000 @ A1** DATE: **15.03.2021**

OS SHEET No.:
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Drawing Legend

	Planning Application Boundary
	Site Notice
	Existing Internal Road to be Upgraded
	Existing External Road to be Upgraded
	Proposed Road
	Proposed New Crossing
	Passing Bays
	Unbound Hardcore Surface
	Crossing Point for Landowners
	Crane Pad Hardstanding Area
	Turbine Foundation
	Turbine Sweep Area
	Borrow Pit
	Indicative Internal Electrical Cabling
	Indicative Grid Connection Route
	Wind Farm Substation
	Indicative Joint Bay
	Watercrossing
	River/Stream

Site Location Plan
Sheet 2 of 9

PROJECT TITLE:
Coole Wind Farm, Co. Westmeath

DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No.: 200445	DRAWING No.: 200445 - 05
SCALE: 1:5,000 @ A1	DATE: 15.03.2021

OS SHEET No.:
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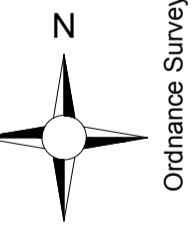
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Drawing Legend

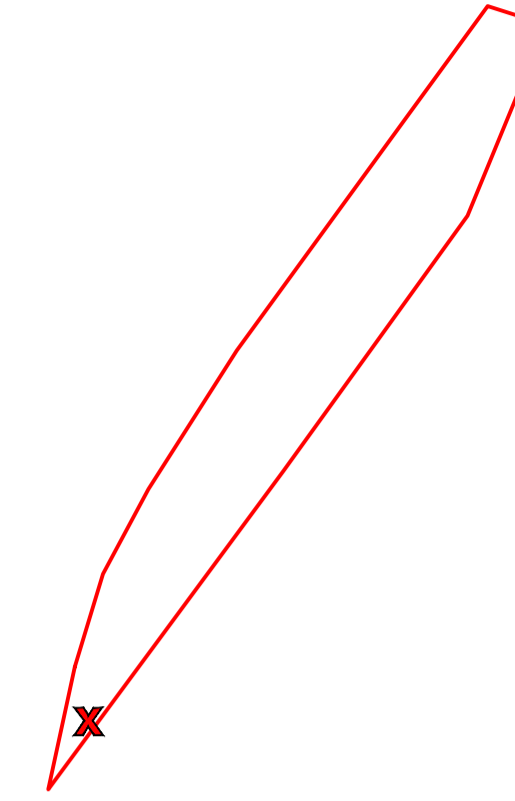
-  Planning Application Boundary
-  Unbound Hardcore Surface
-  Site Notice



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DRAWING TITLE: Site Location Plan Sheet 3 of 9	
PROJECT TITLE: Cooile Wind Farm, Co. Westmeath	
DRAWING BY: Joseph O Brien	CHECKED BY: Michael Watson
PROJECT No.: 200445	DRAWING No.: 200445 - 06
SCALE: 1:5,000 @ A1	DATE: 15.03.2021
OS SHEET No.: 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 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Scale 1:1,000



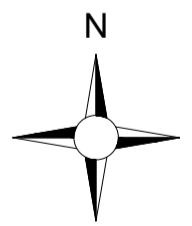
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7. Layout plans show typical Turbine rotor diameter as per turbine drawing.
8. Final levels may vary depending on local ground conditions.
9. Exact location of cable/joint bay in the road corridor to be subject to ESB specifications and agreement with Westmeath County Council

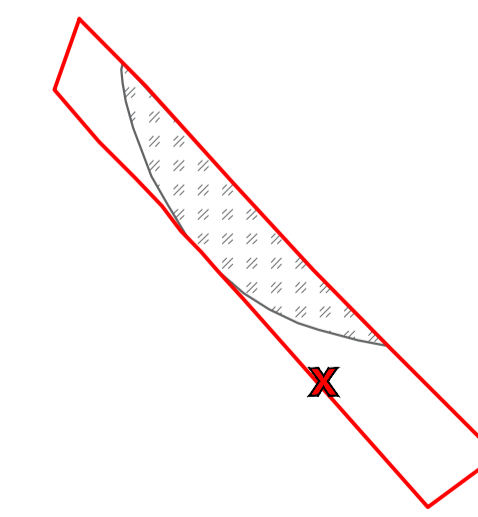
Drawing Legend

-  Planning Application Boundary
-  Unbound Hardcore Surface
-  Site Notice

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Scale 1:1,000



**Site Location Plan
Sheet 4 of 9**

Coole Wind Farm, Co. Westmeath

DRAWING BY: **Joseph O'Brien** CHECKED BY: **Michael Watson**

PROJECT No.: **200445** DRAWING No.: **200445 - 07**

SCALE: **1:5,000 @ A1** DATE: **15.03.2021**

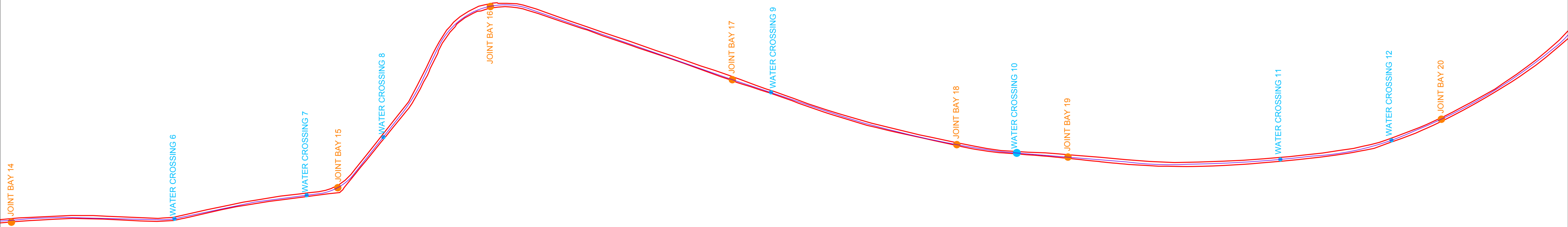
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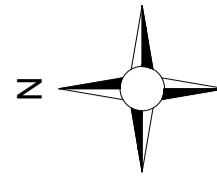
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8. Final levels may vary depending on local ground conditions.
9. Exact location of cable/joint bay in the road corridor to be subject to ESB specifications and agreement with Westmeath County Council



Drawing Legend

- Planning Application Boundary
- Indicative Grid Connection Route
- Indicative Joint Bay
- Watercrossing



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DRAWING TITLE:
**Site Location Plan
Sheet 6 of 9**

PROJECT TITLE:

Coole Wind Farm, Co. Westmeath

DRAWING BY:	Joseph O'Brien	CHECKED BY:	Michael Watson
PROJECT No:	200445	DRAWING No:	200445 - 09
SCALE:	1:5,000 @ A1	DATE:	15.03.2021

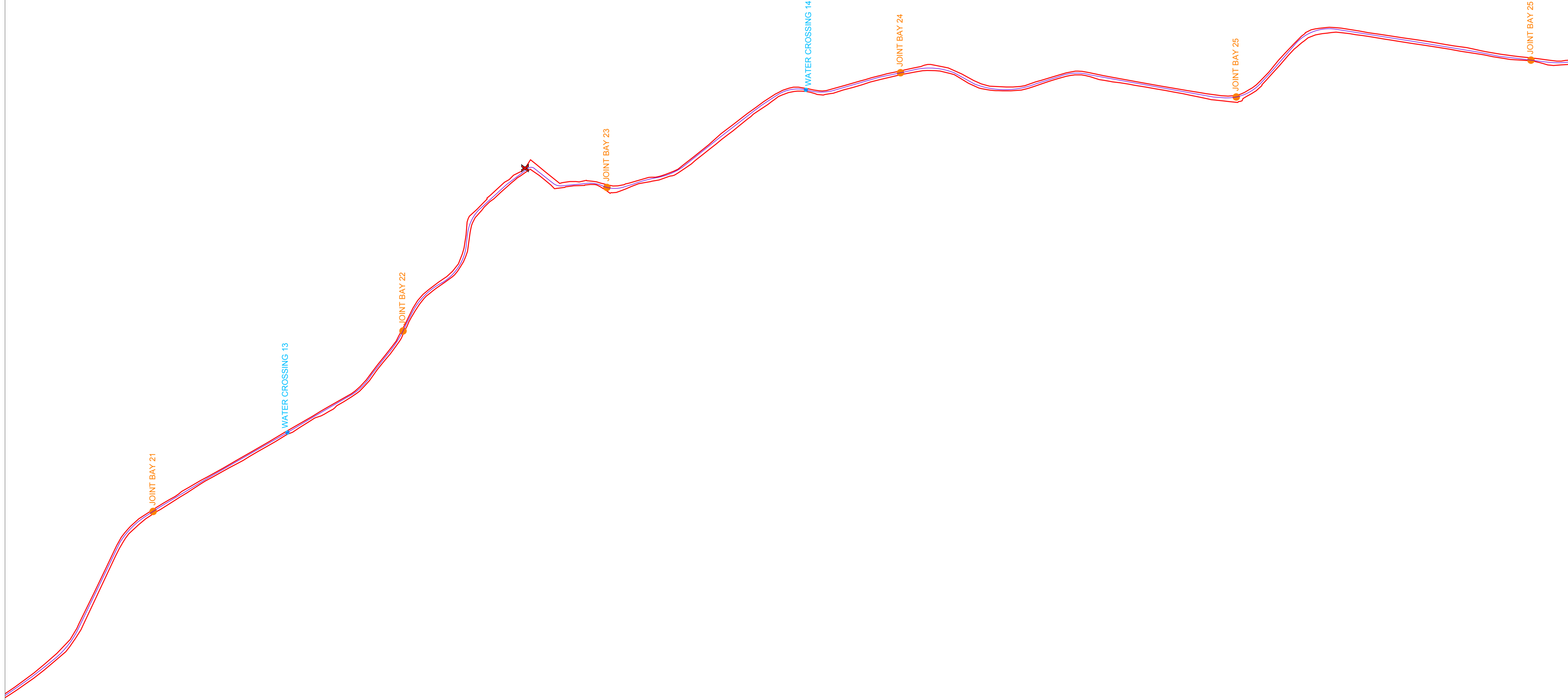
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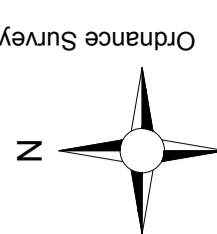
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Drawing Legend

- Planning Application Boundary
- Site Notice
- Indicative Grid Connection Route
- Indicative Joint Bay
- Watercrossing



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**Site Location Plan
Sheet 7 of 9**

DRAWING TITLE:

PROJECT TITLE: **Coole Wind Farm, Co. Westmeath**

DRAWING BY: **Joseph O'Brien**

CHECKED BY: **Michael Watson**

PROJECT No: **200445**

DRAWING No: **200445 - 10**

SCALE: **1:5,000 @ A1**

DATE: **15.03.2021**

OS SHEET No: **200445**

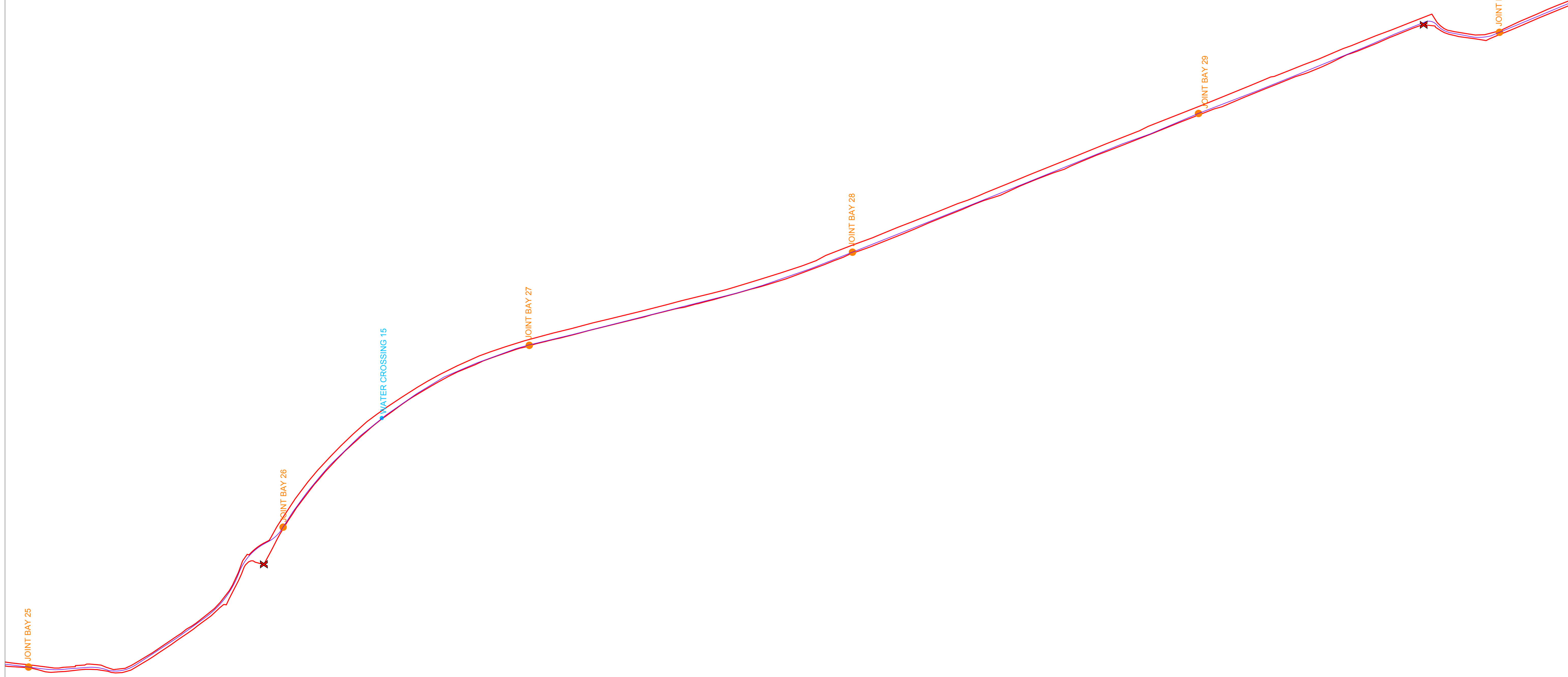
OS SHEET No: **200445**



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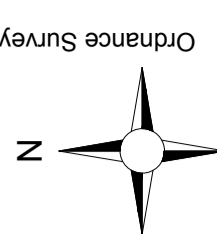
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8. Final levels may vary depending on local ground conditions.
9. Exact location of cable/joint bay in the road corridor to be subject to ESB specifications and agreement with Westmeath County Council



Drawing Legend

- Planning Application Boundary
- Site Notice
- Indicative Grid Connection Route
- Indicative Joint Bay
- Watercrossing



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**Site Location Plan
Sheet 8 of 9**

PROJECT TITLE: Coole Wind Farm, Co. Westmeath	
DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No: 200445	DRAWING No: 200445 - 11
SCALE: 1:5,000 @ A1	DATE: 15.03.2021
OS SHEET No.: 200445, 200446, 200447, 200448, 200449, 200450, 200451, 200452, 200453, 200454, 200455, 200456, 200457, 200458, 200459, 200460, 200461, 200462, 200463, 200464, 200465, 200466, 200467, 200468, 200469, 200470, 200471, 200472, 200473, 200474, 200475, 200476, 200477, 200478, 200479, 200480, 200481, 200482, 200483, 200484, 200485, 200486, 200487, 200488, 200489, 200490, 200491, 200492, 200493, 200494, 200495, 200496, 200497, 200498, 200499, 200500, 200501, 200502, 200503, 200504, 200505, 200506, 200507, 200508, 200509, 200510, 200511, 200512, 200513, 200514, 200515, 200516, 200517, 200518, 200519, 200520, 200521, 200522, 200523, 200524, 200525, 200526, 200527, 200528, 200529, 200530, 200531, 200532, 200533, 200534, 200535, 200536, 200537, 200538, 200539, 200540, 200541, 200542, 200543, 200544, 200545, 200546, 200547, 200548, 200549, 200550, 200551, 200552, 200553, 200554, 200555, 200556, 200557, 200558, 200559, 200560, 200561, 200562, 200563, 200564, 200565, 200566, 200567, 200568, 200569, 200570, 200571, 200572, 200573, 200574, 200575, 200576, 200577, 200578, 200579, 200580, 200581, 200582, 200583, 200584, 200585, 200586, 200587, 200588, 200589, 200590, 200591, 200592, 200593, 200594, 200595, 200596, 200597, 200598, 200599, 200600, 200601, 200602, 200603, 200604, 200605, 200606, 200607, 200608, 200609, 200610, 200611, 200612, 200613, 200614, 200615, 200616, 200617, 200618, 200619, 200620, 200621, 200622, 200623, 200624, 200625, 200626, 200627, 200628, 200629, 200630, 200631, 200632, 200633, 200634, 200635, 200636, 200637, 200638, 200639, 200640, 200641, 200642, 200643, 200644, 200645, 200646, 200647, 200648, 200649, 200650, 200651, 200652, 200653, 200654, 200655, 200656, 200657, 200658, 200659, 200660, 200661, 200662, 200663, 200664, 200665, 200666, 200667, 200668, 200669, 200670, 200671, 200672, 200673, 200674, 200675, 200676, 200677, 200678, 200679, 200680, 200681, 200682, 200683, 200684, 200685, 200686, 200687, 200688, 200689, 200690, 200691, 200692, 200693, 200694, 200695, 200696, 200697, 200698, 200699, 200700, 200701, 200702, 200703, 200704, 200705, 200706, 200707, 200708, 200709, 200710, 200711, 200712, 200713, 200714, 200715, 200716, 200717, 200718, 200719, 200720, 200721, 200722, 200723, 200724, 200725, 200726, 200727, 200728, 200729, 200730, 200731, 200732, 200733, 200734, 200735, 200736, 200737, 200738, 200739, 200740, 200741, 200742, 200743, 200744, 200745, 200746, 200747, 200748, 200749, 200750, 200751, 200752, 200753, 200754, 200755, 200756, 200757, 200758, 200759, 200760, 200761, 200762, 200763, 200764, 200765, 200766, 200767, 200768, 200769, 200770, 200771, 200772, 200773, 200774, 200775, 200776, 200777, 200778, 200779, 200780, 200781, 200782, 200783, 200784, 200785, 200786, 200787, 200788, 200789, 200790, 200791, 200792, 200793, 200794, 200795, 200796, 200797, 200798, 200799, 200800, 200801, 200802, 200803, 200804, 200805, 200806, 200807, 200808, 200809, 200810, 200811, 200812, 200813, 200814, 200815, 200816, 200817, 200818, 200819, 200820, 200821, 200822, 200823, 200824, 200825, 200826, 200827, 200828, 200829, 200830, 200831, 200832, 200833, 200834, 200835, 200836, 200837, 200838, 200839, 200840, 200841, 200842, 200843, 200844, 200845, 200846, 200847, 200848, 200849, 200850, 200851, 200852, 200853, 200854, 200855, 200856, 200857, 200858, 200859, 200860, 200861, 200862, 200863, 200864, 200865, 200866, 200867, 200868, 200869, 200870, 200871, 200872, 200873, 200874, 200875, 200876, 200877, 200878, 200879, 200880, 200881, 200882, 200883, 200884, 200885, 200886, 200887, 200888, 200889, 200890, 200891, 200892, 200893, 200894, 200895, 200896, 200897, 200898, 200899, 200900, 200901, 200902, 200903, 200904, 200905, 200906, 200907, 200908, 200909, 200910, 200911, 200912, 200913, 200914, 200915, 200916, 200917, 200918, 200919, 200920, 200921, 200922, 200923, 200924, 200925, 200926, 200927, 200928, 200929, 200930, 200931, 200932, 200933, 200934, 200935, 200936, 200937, 200938, 200939, 200940, 200941, 200942, 200943, 200944, 200945, 200946, 200947, 200948, 200949, 200950, 200951, 200952, 200953, 200954, 200955, 200956, 200957, 200958, 200959, 200960, 200961, 200962, 200963, 200964, 200965, 200966, 200967, 200968, 200969, 200970, 200971, 200972, 200973, 200974, 200975, 200976, 200977, 200978, 200979, 200980, 200981, 200982, 200983, 200984, 200985, 200986, 200987, 200988, 200989, 200990, 200991, 200992, 200993, 200994, 200995, 200996, 200997, 200998, 200999, 210000	



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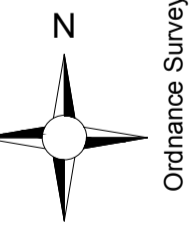
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T01
ITM 640852, 777346
Level - 63.5m O.D.

T07
ITM 640893, 776651
Level - 64.5m O.D.

Drawing Legend

-  Planning Application Boundary
-  Existing Internal Road to be Upgraded
-  Proposed Road
-  Proposed New Crossing
-  Passing Bays
-  Crane Pad Hardstanding Area
-  Turbine Foundation
-  Turbine Sweep Area
-  Indicative Internal Electrical Cabling
-  River/Stream



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**Site Layout Plan
Sheet 1 of 24**

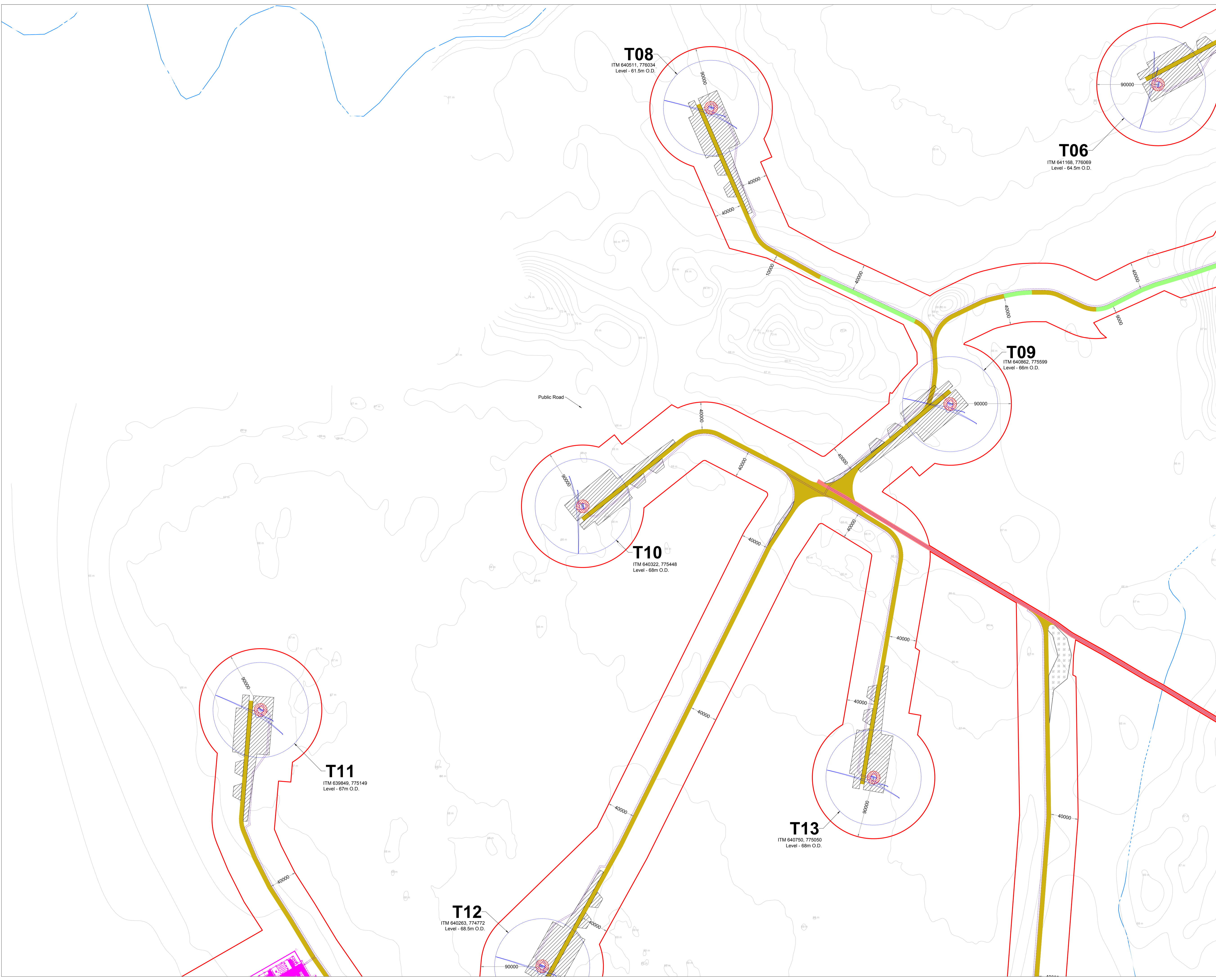
PROJECT TITLE:
Cooile Wind Farm, Co. Westmeath

DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No.: 200445	DRAWING No.: 200445 - 14
SCALE: 1:2,500 @ A1	DATE: 15.03.2021

OS SHEET No.:
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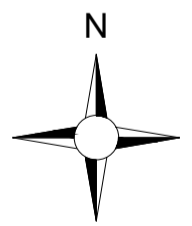


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 7. Layout plans show typical Turbine rotor diameter as per turbine drawing.
 8. Final levels may vary depending on local ground conditions.
 9. Exact location of cable/joint bay in the road corridor to be subject to ESB specifications and agreement with Westmeath County Council

- Drawing Legend**
- Planning Application Boundary
 - Existing Internal Road to be Upgraded
 - Existing External Road to be Upgraded
 - Proposed Road
 - Existing Crossing for Upgrade
 - Unbound Hardcore Surface
 - Crane Pad Hardstanding Area
 - Turbine Foundation
 - Turbine Sweep Area
 - Indicative Internal Electrical Cabling
 - Wind Farm Substation
 - River/Stream



DRAWING TITLE:
**Site Layout Plan
Sheet 3 of 24**

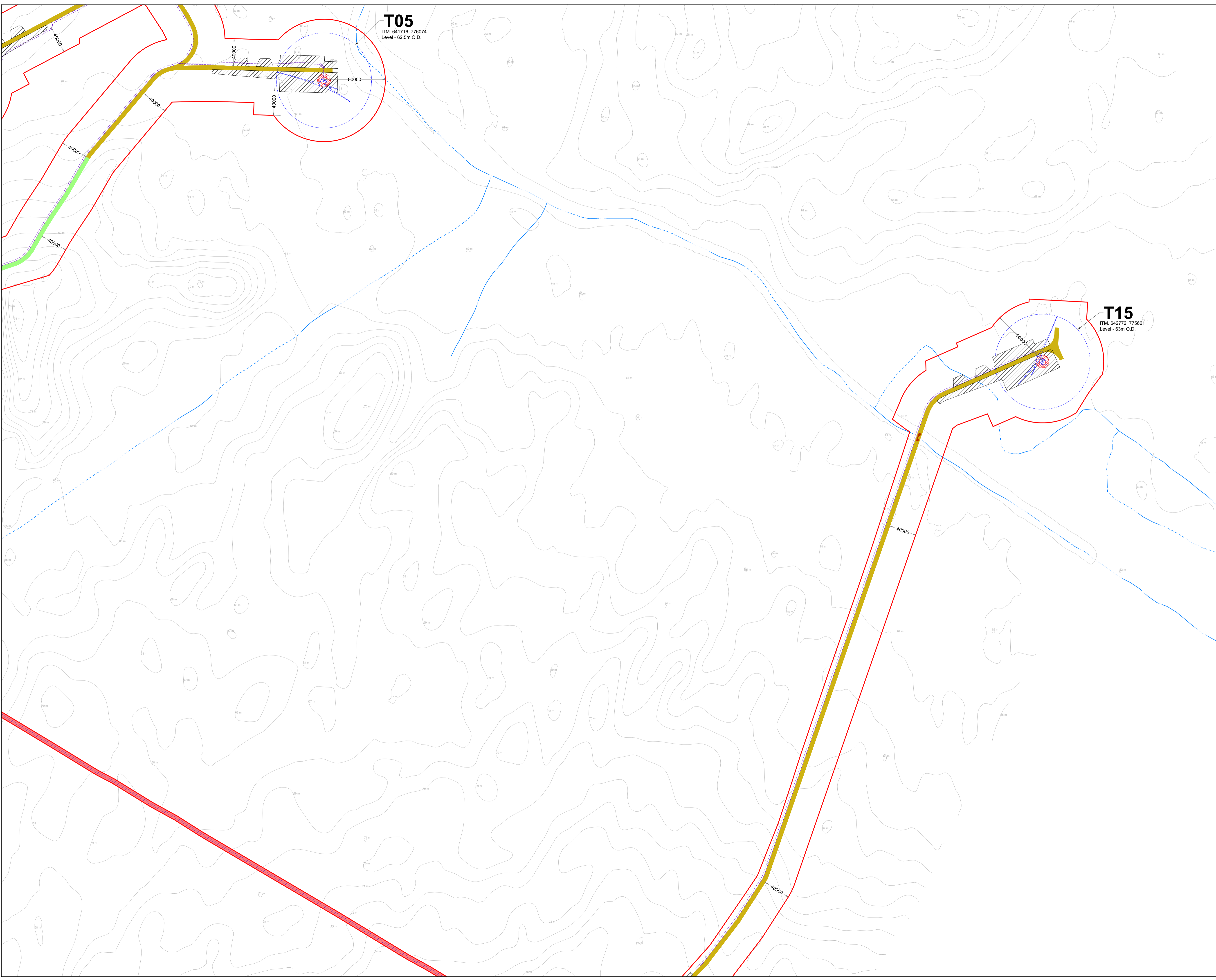
PROJECT TITLE:
Coole Wind Farm, Co. Westmeath

DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No.: 200445	DRAWING No.: 200445 - 16
SCALE: 1:2,500 @ A1	DATE: 15.03.2021

OS SHEET No.:
2106, 2107, 2216, 2219, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2425, 2426, 2427, 2428, 2493, 2494, 2495, 2496, 2562, 2563, 2564, 2565, 2626, 2630, 2631, 2632, 2699, 2700, 2701, 2712, 2765, 2766, 2770, 2771

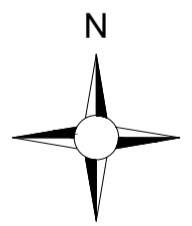
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 7. Layout plans show typical Turbine rotor diameter as per turbine drawing.
 8. Final levels may vary depending on local ground conditions.
 9. Exact location of cable/joint bay in the road corridor to be subject to ESB specifications and agreement with Westmeath County Council

- Drawing Legend**
- Planning Application Boundary
 - Existing Internal Road to be Upgraded
 - Existing External Road to be Upgraded
 - Proposed Road
 - Proposed New Crossing
 - Crane Pad Hardstanding Area
 - Turbine Foundation
 - Turbine Sweep Area
 - Indicative Internal Electrical Cabling
 - Wind Farm Substation
 - River/Stream



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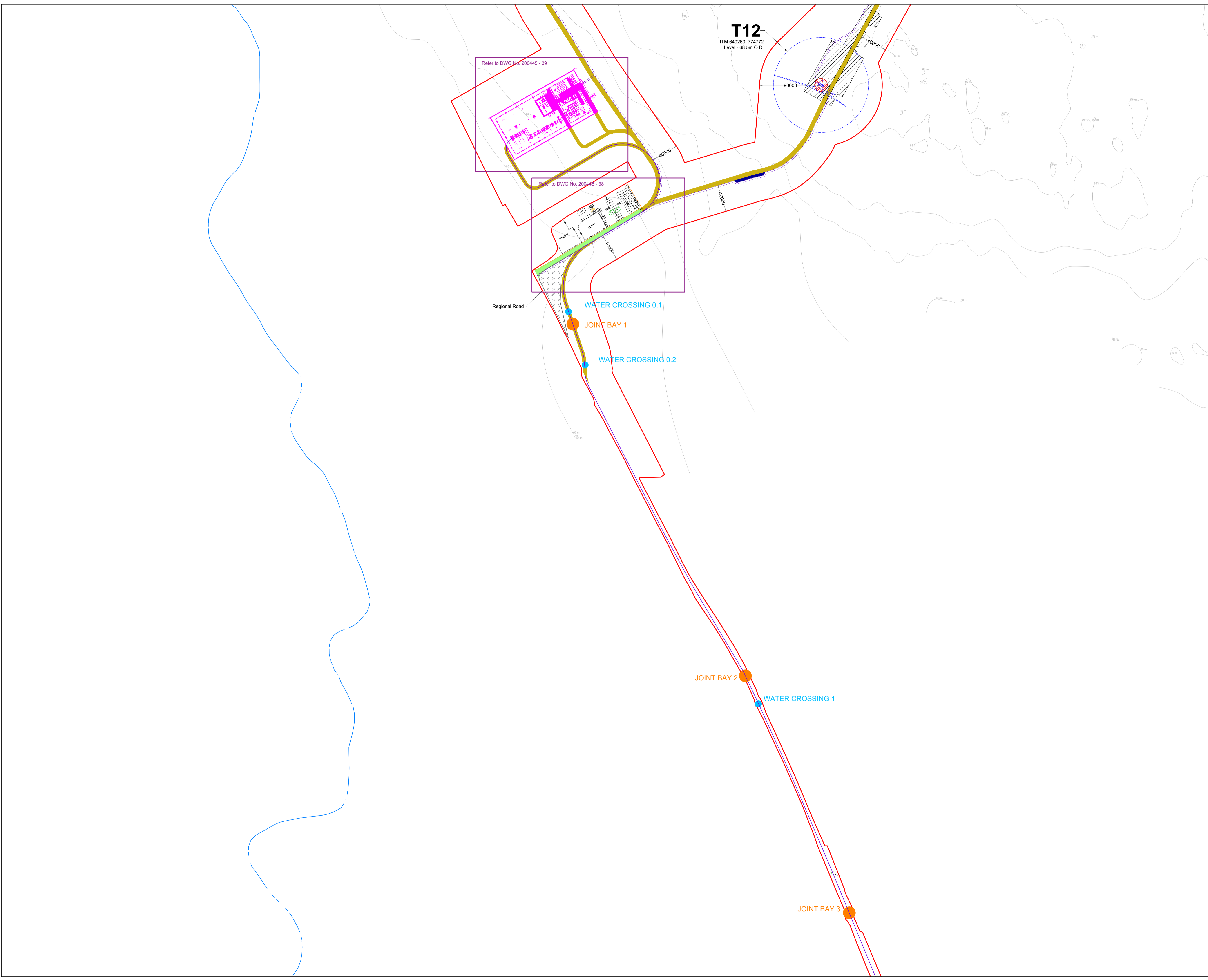
DRAWING TITLE:
Site Layout Plan
Sheet 4 of 24

PROJECT TITLE:
Cooile Wind Farm, Co. Westmeath

DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No.: 200445	DRAWING No.: 200445 - 17
SCALE: 1:2,500 @ A1	DATE: 15.03.2021

OS SHEET No.: 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077

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T12
ITM 640263, 774772
Level - 68.5m O.D.

Refer to DWG No. 200445 - 39

Refer to DWG No. 200445 - 38

Regional Road

WATER CROSSING 0.1

JOINT BAY 1

WATER CROSSING 0.2

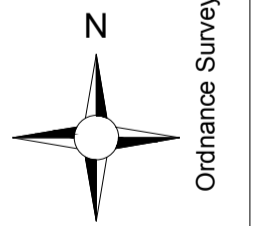
JOINT BAY 2

WATER CROSSING 1

JOINT BAY 3

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 7. Layout plans show typical Turbine rotor diameter as per turbine drawing.
 8. Final levels may vary depending on local ground conditions.
 9. Exact location of cable/joint bay in the road corridor to be subject to ESB specifications and agreement with Westmeath County Council

- Drawing Legend**
- Planning Application Boundary
 - Existing Internal Road to be Upgraded
 - Existing External Road to be Upgraded
 - Proposed Road
 - ▨ Unbound Hardcore Surface
 - ▨ Crane Pad Hardstanding Area
 - ⊙ Turbine Foundation
 - ⊙ Turbine Sweep Area
 - ⊙ Temporary Construction Compound
 - ⊙ Indicative Internal Electrical Cabling
 - Indicative Grid Connection Route
 - Wind Farm Substation
 - ⊗ X Spot Height
 - Indicative Joint Bay
 - Watercrossing
 - River/Stream



DRAWING TITLE:
**Site Layout Plan
Sheet 5 of 24**

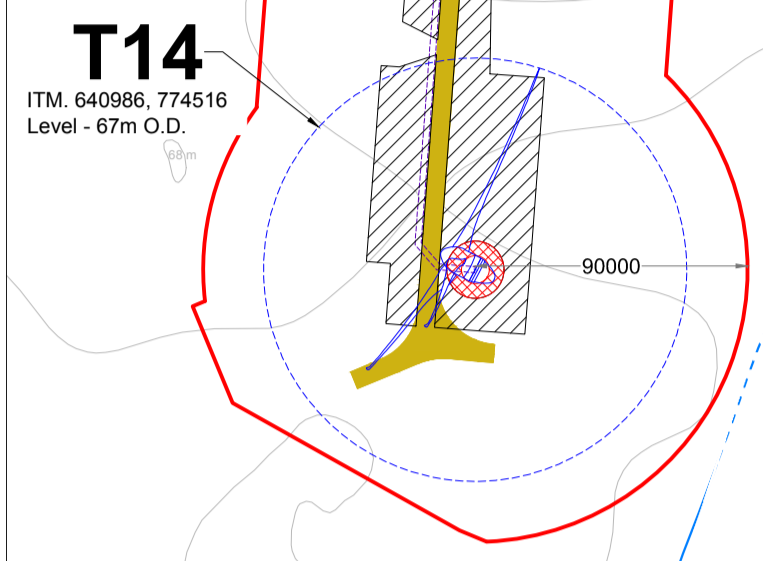
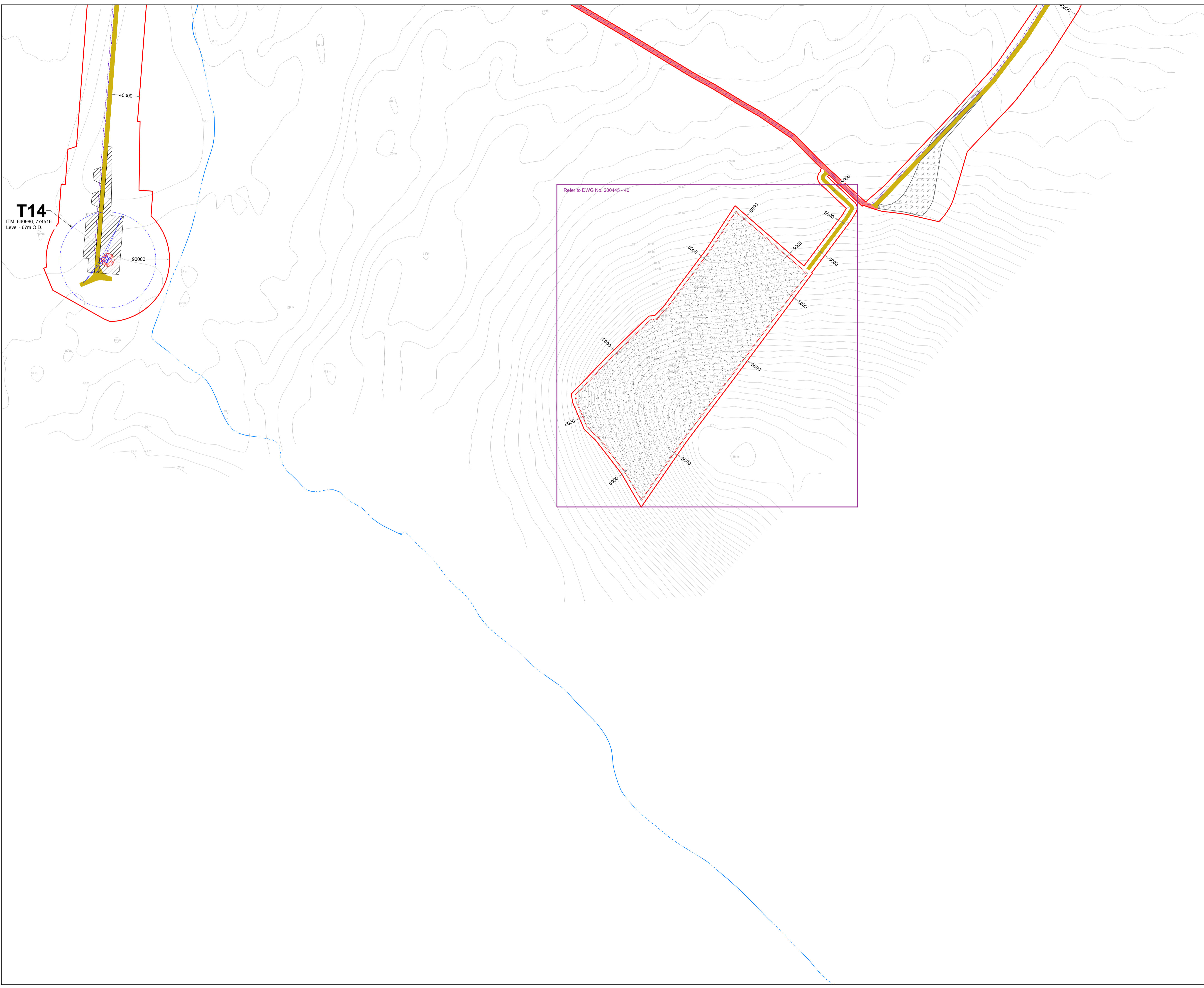
PROJECT TITLE:
Coole Wind Farm, Co. Westmeath

DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No.: 200445	DRAWING No.: 200445 - 18
SCALE: 1:2,500 @ A1	DATE: 15.03.2021

OS SHEET No.:
2106, 2107, 2238, 2239, 2300, 2301, 2302, 2303, 2303, 2304, 2305, 2306, 2425, 2426, 2427, 2428, 2493, 2494, 2495, 2496, 2562, 2563, 2564, 2565, 2629, 2630, 2631, 2632, 2699, 2700, 2701, 2702, 2703, 2704, 2705, 2706, 2707, 2711

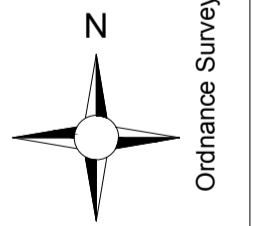
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 7. Layout plans show typical Turbine rotor diameter as per turbine drawing.
 8. Final levels may vary depending on local ground conditions.
 9. Exact location of cable/joint bay in the road corridor to be subject to ESB specifications and agreement with Westmeath County Council

- Drawing Legend**
- Planning Application Boundary
 - Existing External Road to be Upgraded
 - Proposed Road
 - ▨ Unbound Hardcore Surface
 - ▨ Crane Pad Hardstanding Area
 - ⊙ Turbine Foundation
 - ⊙ Turbine Sweep Area
 - ▨ Borrow Pit
 - ⋯ Indicative Internal Electrical Cabling
 - River/Stream



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**Site Layout Plan
Sheet 6 of 24**

PROJECT TITLE:
Coolle Wind Farm, Co. Westmeath

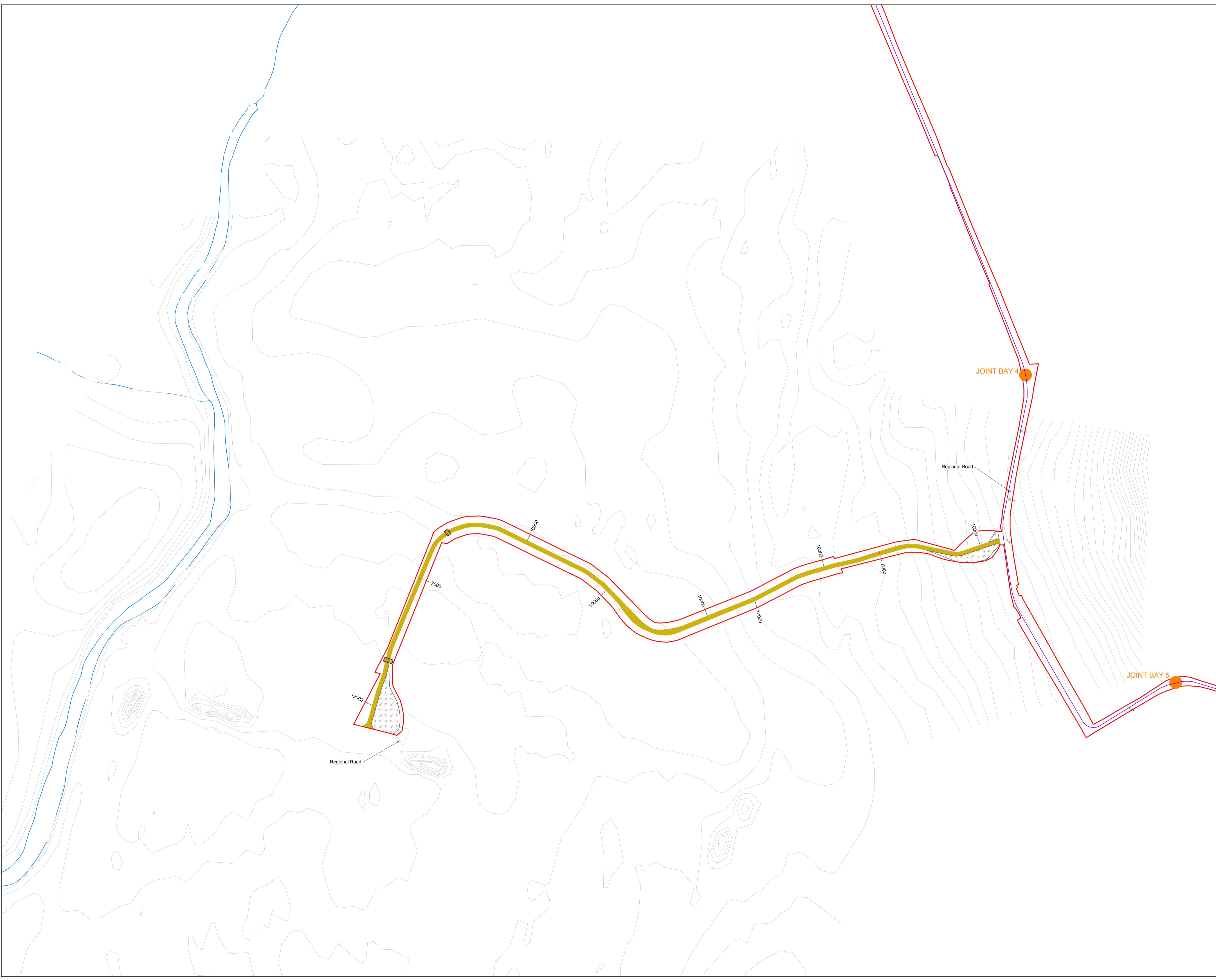
DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No.: 200445	DRAWING No.: 200445 - 19

SCALE: 1:2,500 @ A1	DATE: 15.03.2021
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OS SHEET No.: 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277

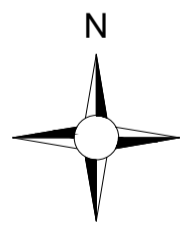


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 6. The use of or reliance upon this drawing shall be deemed to be acceptance of these conditions of use unless otherwise agreed in writing, such written agreement to be sought from and issued by the copyright holder to the use or reliance upon this drawing.
 7. Layout plans show typical Turbine rotor diameter as per turbine drawing.
 8. Final levels may vary depending on local ground conditions.
 9. Exact location of cable/joint bay in the road corridor to be subject to ESB specifications and agreement with Westmeath County Council

- Drawing Legend**
- Planning Application Boundary
 - Proposed Road
 - Unbound Hardcore Surface
 - Crossing Point for Landowners
 - Indicative Grid Connection Route
 - X Spot Height
 - Indicative Joint Bay
 - River/Stream



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DRAWING TITLE:
**Site Layout Plan
 Sheet 7 of 24**

PROJECT TITLE:
Cooile Wind Farm, Co. Westmeath

DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No.: 200445	DRAWING No.: 200445 - 20

SCALE: 1:2,500 @ A1	DATE: 15.03.2021
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OS SHEET No.: 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477

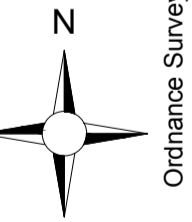
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9. Exact location of cable/joint bay in the road corridor to be subject to ESB specifications and agreement with Westmeath County Council

Drawing Legend

-  Planning Application Boundary
-  Indicative Grid Connection Route
-  Spot Height
-  Indicative Joint Bay



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DRAWING TITLE:
**Site Layout Plan
Sheet 8 of 24**

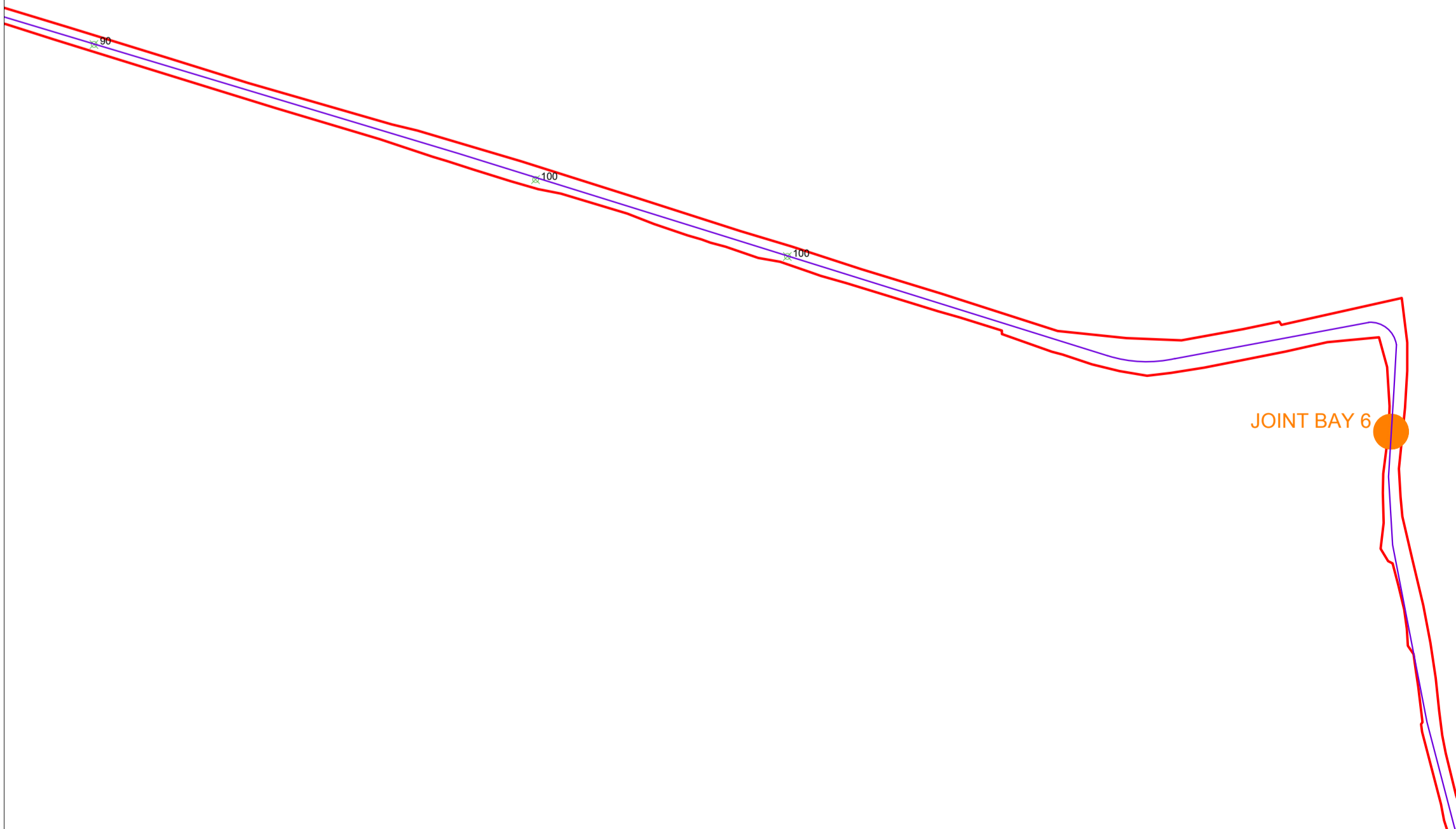
PROJECT TITLE:
Coolle Wind Farm, Co. Westmeath

DRAWING BY: Joseph O Brien	CHECKED BY: Michael Watson
PROJECT No.: 200445	DRAWING No.: 200445 - 21
SCALE: 1:2,500 @ A1	DATE: 15.03.2021

OS SHEET No.:
2016, 2017, 2238, 2239, 2300, 2301, 2302, 2303, 2383, 2384, 2385, 2386, 2425, 2426, 2427, 2428, 2493, 2494,
2495, 2496, 2562, 2563, 2564, 2565, 2629, 2630, 2631, 2632, 2699, 2700, 2701, 2702, 2703, 2704, 2705, 2771

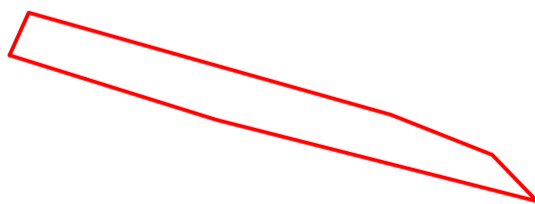


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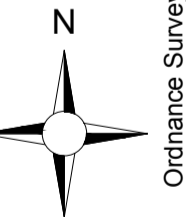


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8. Final levels may vary depending on local ground conditions.
9. Exact location of cable/joint bay in the road corridor to be subject to ESB specifications and agreement with Westmeath County Council



Scale 1:1,000



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**Site Layout Plan
Sheet 9 of 24**

PROJECT TITLE:
Cooline Wind Farm, Co. Westmeath

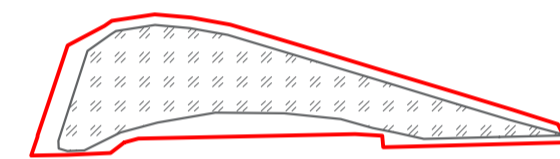
DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No.: 200445	DRAWING No.: 200445 - 22

SCALE: 1:2,500 @ A1	DATE: 15.03.2021
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OS SHEET No.: 2018, 2017, 2238, 2239, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2425, 2426, 2427, 2428, 2493, 2494, 2495, 2496, 2562, 2563, 2564, 2565, 2629, 2630, 2631, 2632, 2699, 2700, 2701, 2702, 2703, 2704, 2705, 2706, 2707, 2708, 2709, 2710, 2711, 2712, 2713, 2714, 2715, 2716, 2717, 2718, 2719, 2720, 2721, 2722, 2723, 2724, 2725, 2726, 2727, 2728, 2729, 2730, 2731, 2732, 2733, 2734, 2735, 2736, 2737, 2738, 2739, 2740, 2741, 2742, 2743, 2744, 2745, 2746, 2747, 2748, 2749, 2750, 2751, 2752, 2753, 2754, 2755, 2756, 2757, 2758, 2759, 2760, 2761, 2762, 2763, 2764, 2765, 2766, 2767, 2768, 2769, 2770, 2771, 2772, 2773, 2774, 2775, 2776, 2777, 2778, 2779, 2780, 2781, 2782, 2783, 2784, 2785, 2786, 2787, 2788, 2789, 2790, 2791, 2792, 2793, 2794, 2795, 2796, 2797, 2798, 2799, 2800, 2801, 2802, 2803, 2804, 2805, 2806, 2807, 2808, 2809, 2810, 2811, 2812, 2813, 2814, 2815, 2816, 2817, 2818, 2819, 2820, 2821, 2822, 2823, 2824, 2825, 2826, 2827, 2828, 2829, 2830, 2831, 2832, 2833, 2834, 2835, 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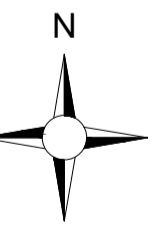
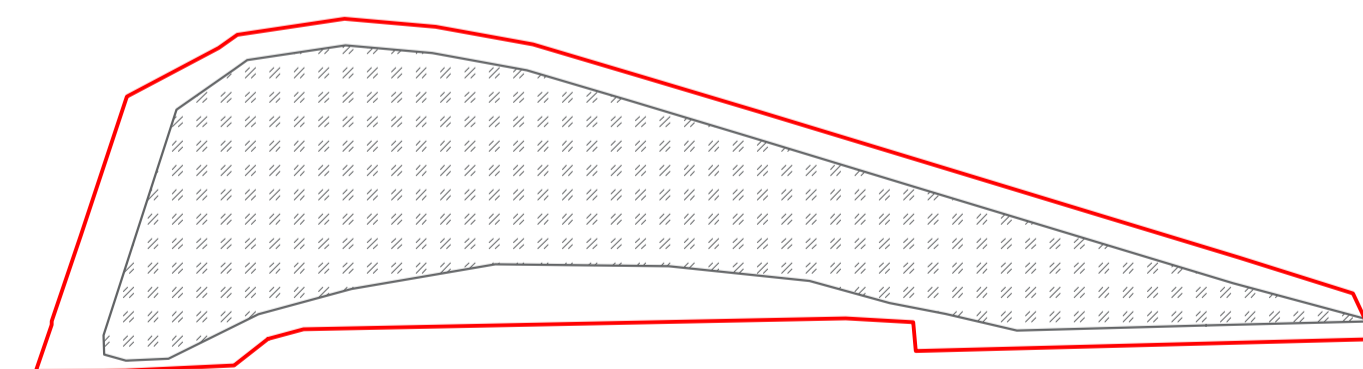
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7. Layout plans show typical Turbine rotor diameter as per turbine drawing.
8. Final levels may vary depending on local ground conditions.
9. Exact location of cable/joint bay in the road corridor to be subject to ESB specifications and agreement with Westmeath County Council



Drawing Legend

-  Planning Application Boundary
-  Unbound Hardcore Surface

Scale 1:1,000



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**Site Layout Plan
Sheet 10 of 24**

Coole Wind Farm, Co. Westmeath

DRAWING BY: **Joseph O'Brien** CHECKED BY: **Michael Watson**
PROJECT No.: **200445** DRAWING No.: **200445 - 23**

SCALE: **1:2,500 @ A1** DATE: **15.03.2021**

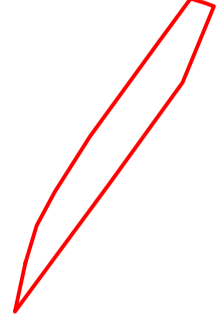
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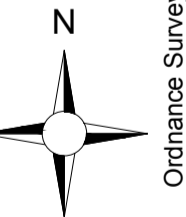
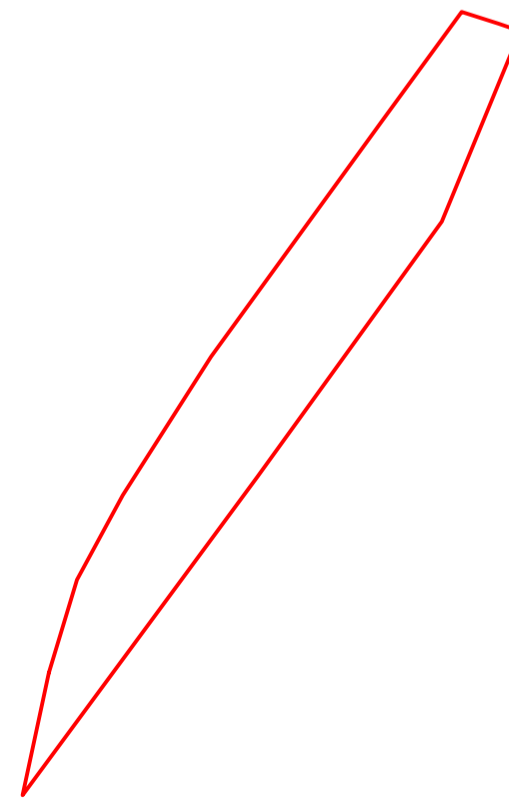
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8. Final levels may vary depending on local ground conditions.
9. Exact location of cable/joint bay in the road corridor to be subject to ESB specifications and agreement with Westmeath County Council



Drawing Legend

— Planning Application Boundary

Scale 1:1,000



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**Site Layout Plan
Sheet 11 of 24**

Project Title:
Coole Wind Farm, Co. Westmeath

Drawing By: Joseph O'Brien	Checked By: Michael Watson
Project No.: 200445	Drawing No.: 200445 - 24

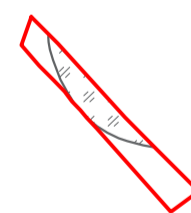
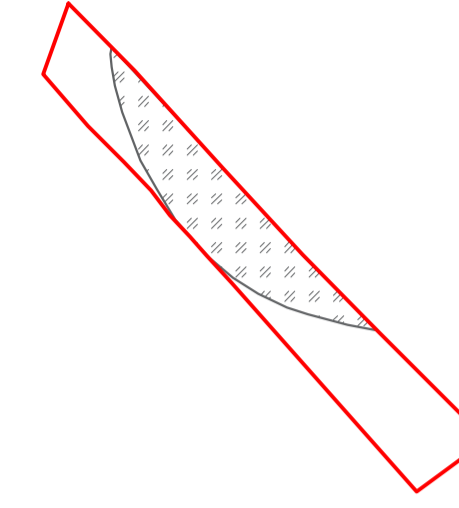
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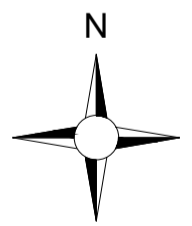


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Drawing Legend

-  Planning Application Boundary
-  Unbound Hardcore Surface



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**Site Layout Plan
Sheet 12 of 24**

Project Title:
Coole Wind Farm, Co. Westmeath

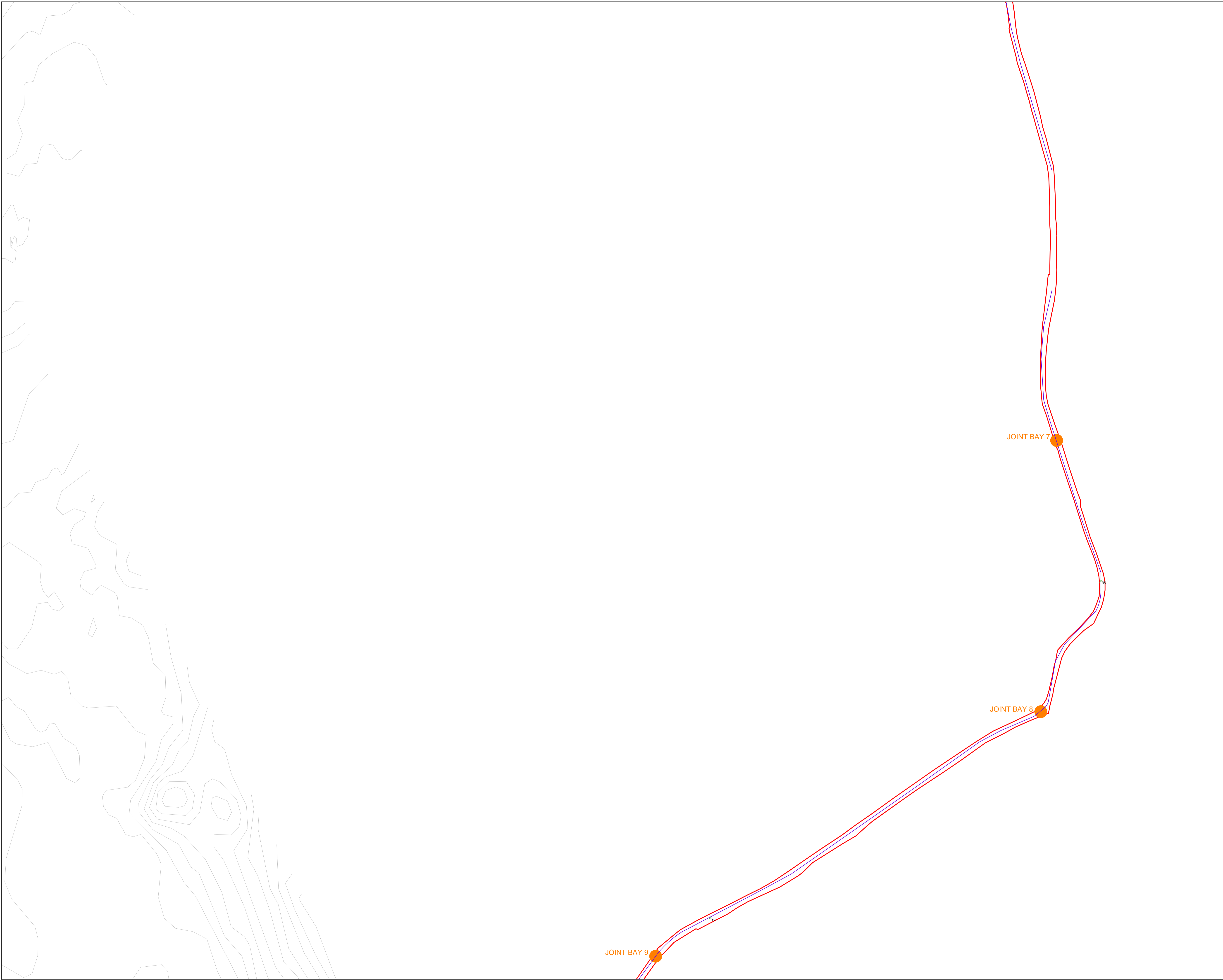
DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No.: 200445	DRAWING No.: 200445 - 25

SCALE: 1:2,500 @ A1	DATE: 15.03.2021
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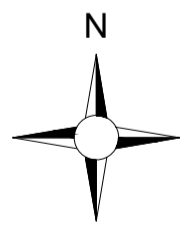


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 9. Exact location of cable/joint bay in the road corridor to be subject to ESB specifications and agreement with Westmeath County Council

- Drawing Legend**
- Planning Application Boundary
 - Indicative Grid Connection Route
 - X Spot Height
 - Indicative Joint Bay



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**Site Layout Plan
Sheet 13 of 24**

Coole Wind Farm, Co. Westmeath

DRAWING BY: **Joseph O'Brien** CHECKED BY: **Michael Watson**

PROJECT No.: **200445** DRAWING No.: **200445 - 26**

SCALE: **1:2,500 @ A1** DATE: **15.03.2021**

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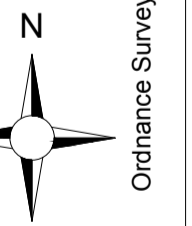


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Drawing Legend

-  Planning Application Boundary
-  Indicative Grid Connection Route
-  X Spot Height
-  Indicative Joint Bay
-  Watercrossing



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**Site Layout Plan
Sheet 14 of 24**

PROJECT TITLE:
Coole Wind Farm, Co. Westmeath

DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No.: 200445	DRAWING No.: 200445 - 27

SCALE: 1:2,500 @ A1	DATE: 15.03.2021
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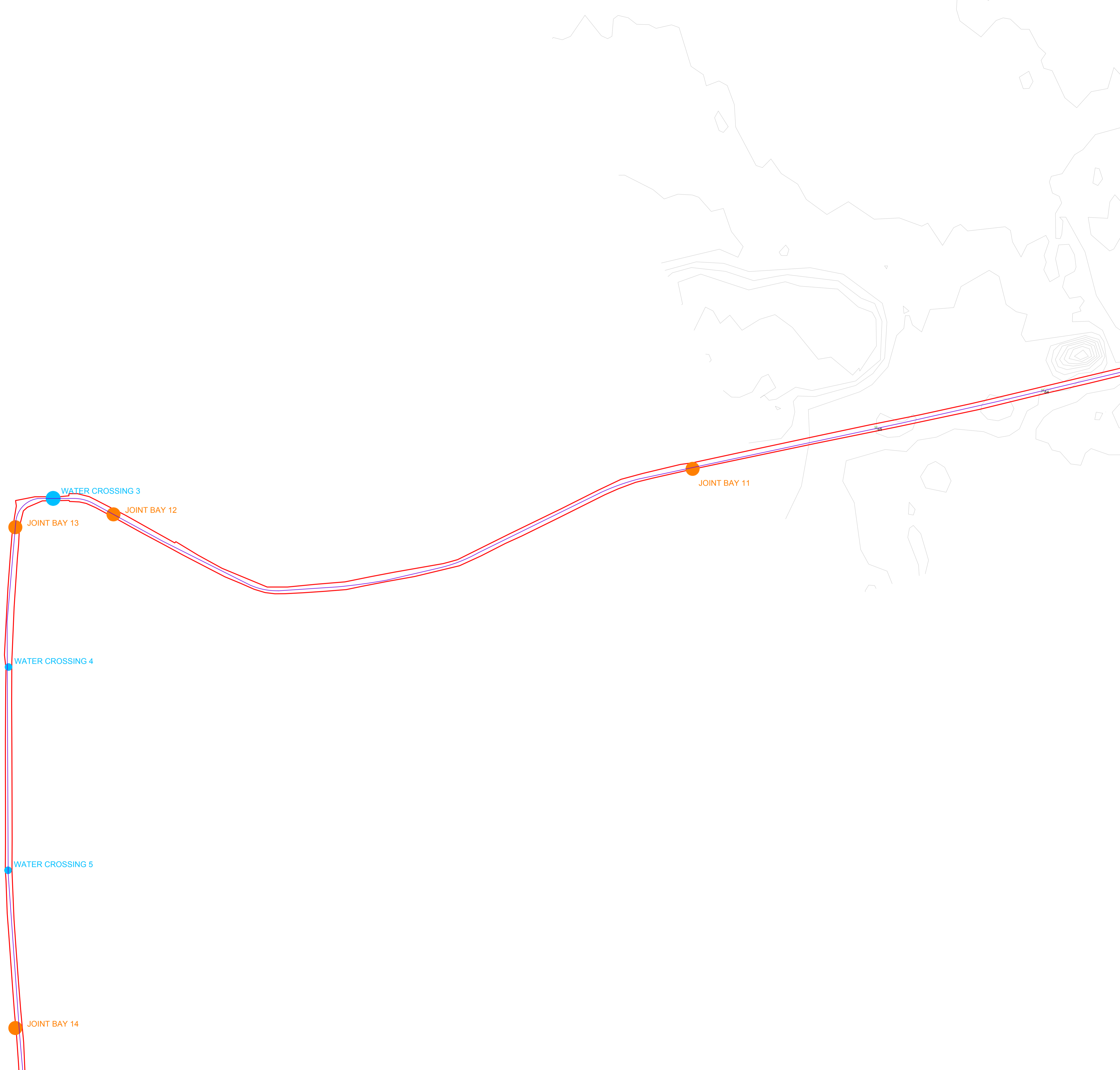
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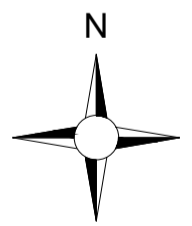
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- Indicative Joint Bay
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**Site Layout Plan
Sheet 15 of 24**

PROJECT TITLE:
Cooile Wind Farm, Co. Westmeath

DRAWING BY: **Joseph O'Brien** CHECKED BY: **Michael Watson**

PROJECT No.: **200445** DRAWING No.: **200445 - 28**

SCALE: **1:2,500 @ A1** DATE: **15.03.2021**

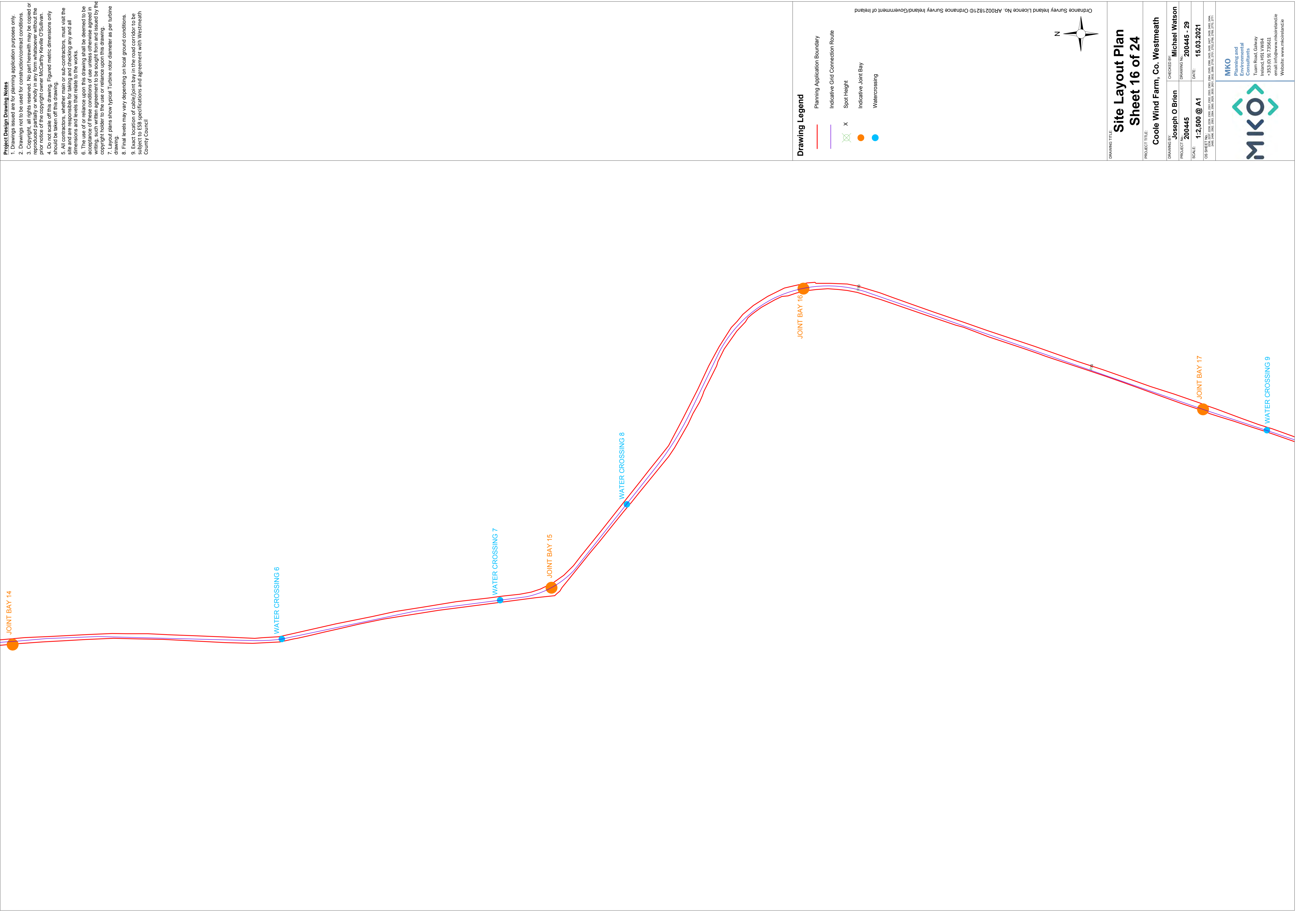
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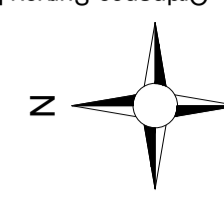
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- Planning Application Boundary
- Indicative Grid Connection Route
- X Spot Height
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**Site Layout Plan
Sheet 16 of 24**

PROJECT TITLE:
Coole Wind Farm, Co. Westmeath

DRAWING BY: **Joseph O'Brien**
CHECKED BY: **Michael Watson**

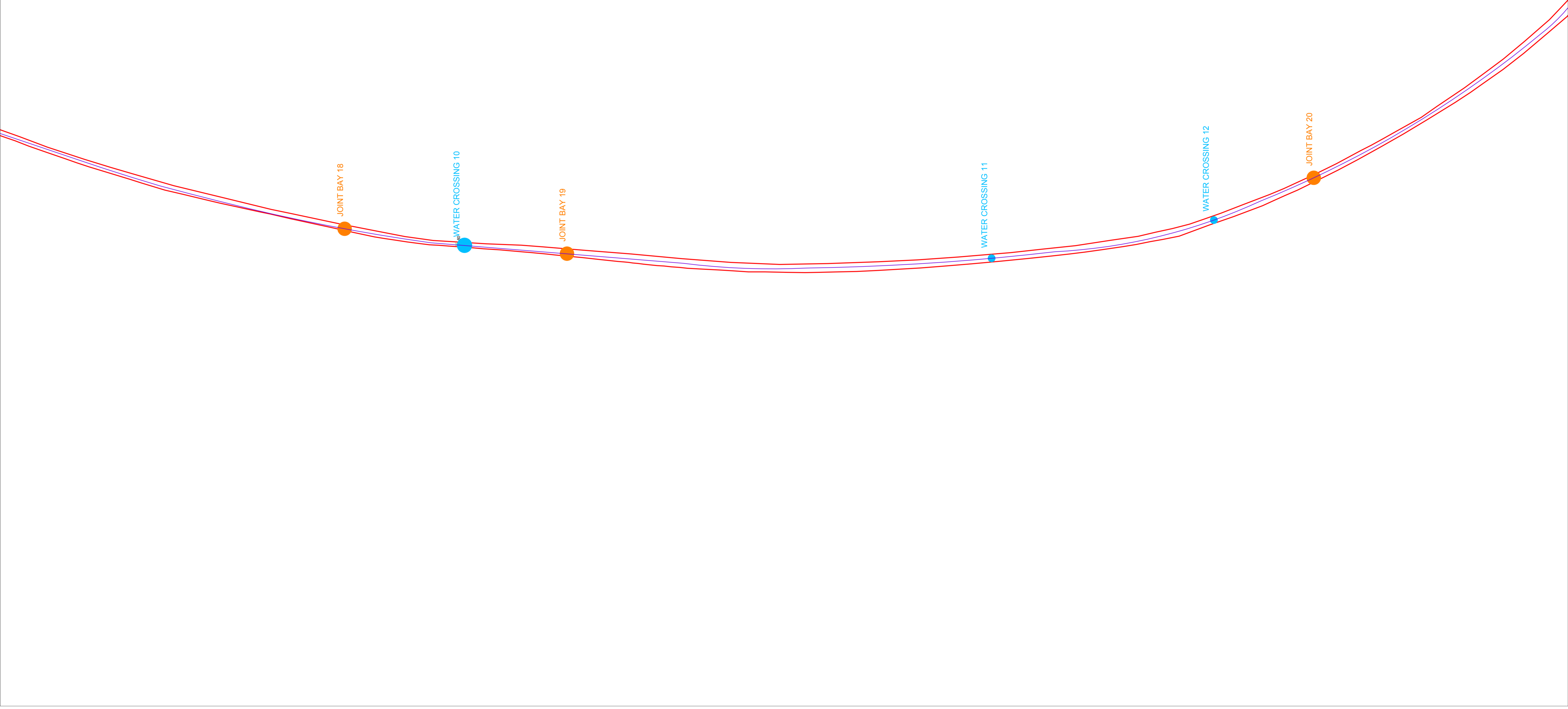
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DATE: **15.03.2021**

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Project Design Drawing Notes

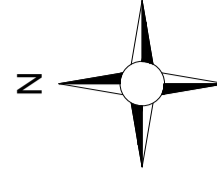
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- Indicative Grid Connection Route
- Indicative Joint Bay
- Watercrossing

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**Site Layout Plan
Sheet 17 of 24**

DRAWING TITLE:

PROJECT TITLE:

Coole Wind Farm, Co. Westmeath

DRAWING BY:	Joseph O'Brien	CHECKED BY:	Michael Watson
PROJECT No:	200445	DRAWING No:	200445 - 30
SCALE:	1:2,500 @ A1	DATE:	15.03.2021

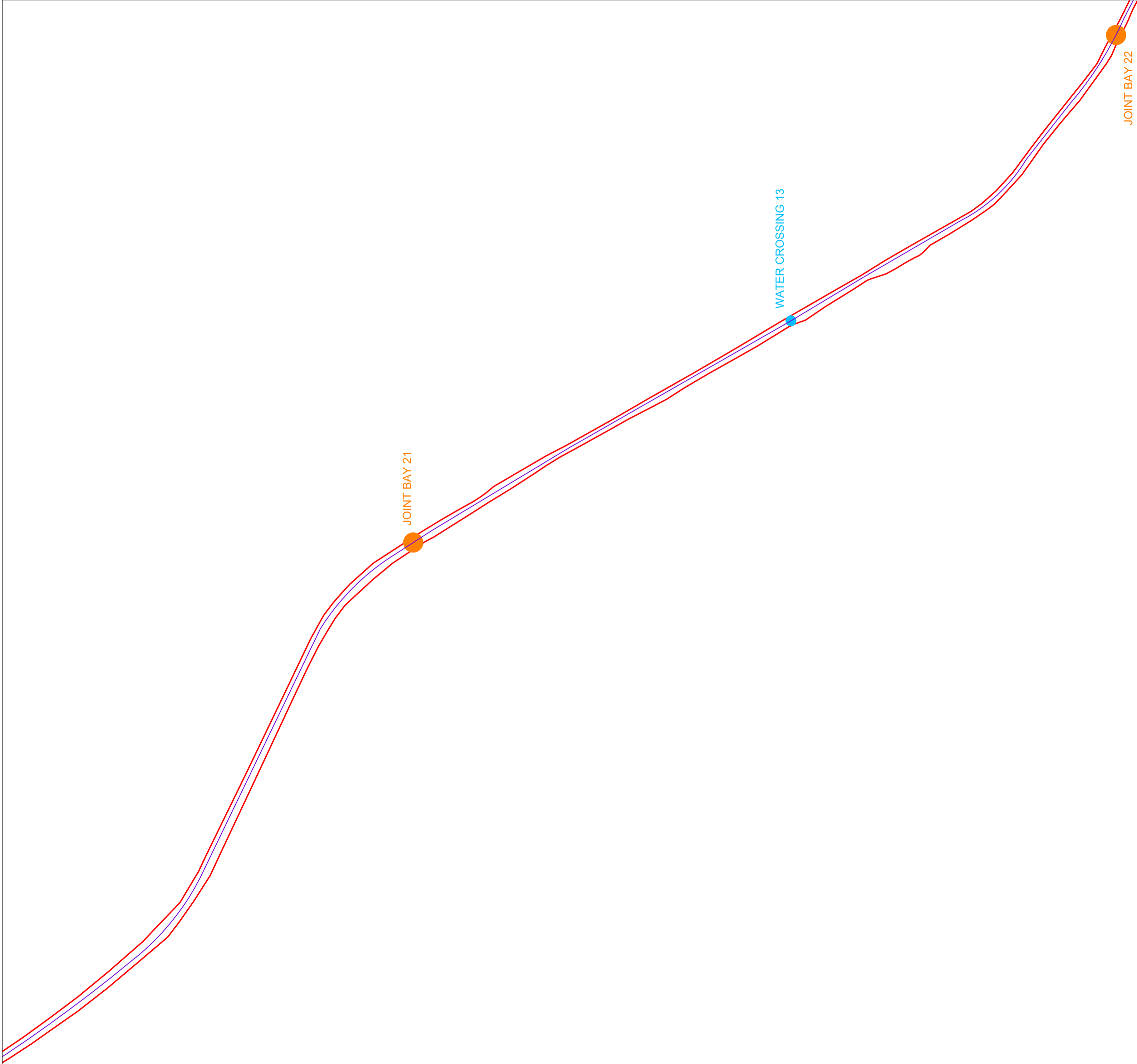
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Project Design Drawing Notes

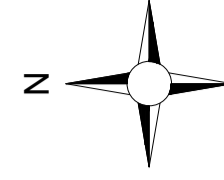
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**Site Layout Plan
Sheet 18 of 24**

DRAWING TITLE:
Coole Wind Farm, Co. Westmeath

PROJECT TITLE:

DRAWING BY:	Joseph O'Brien	CHECKED BY:	Michael Watson
PROJECT No:	200445	DRAWING No:	200445 - 31
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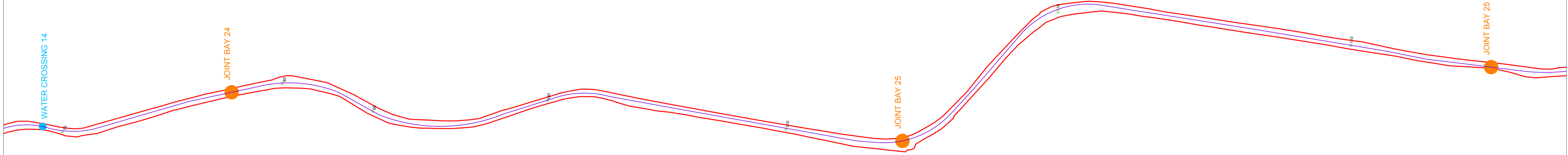
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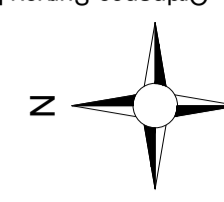
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7. Layout plans show typical Turbine rotor diameter as per turbine drawing.
8. Final levels may vary depending on local ground conditions.
9. Exact location of cable/joint bay in the road corridor to be subject to ESB specifications and agreement with Westmeath County Council



Drawing Legend

- Planning Application Boundary
- Indicative Grid Connection Route
- X Spot Height
- Indicative Joint Bay
- Watercrossing



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**Site Layout Plan
Sheet 20 of 24**

PROJECT TITLE:
Coole Wind Farm, Co. Westmeath

PROJECT NO:
200445

SCALE:
1:2,500 @ A1

DRAWING BY:
Joseph O'Brien

CHECKED BY:
Michael Watson

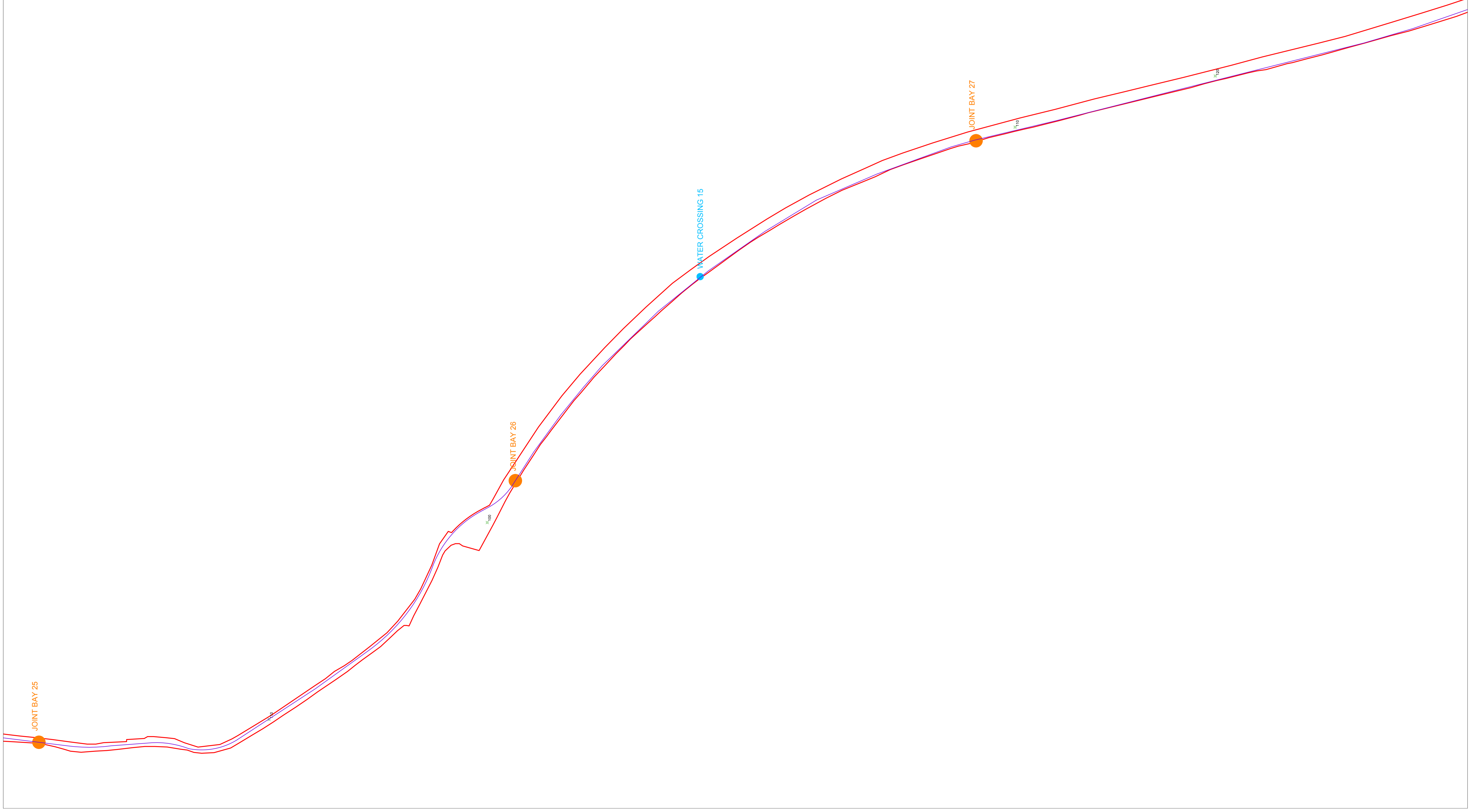
DRAWING NO:
200445 - 33

DATE:
15.03.2021

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Project Design Drawing Notes

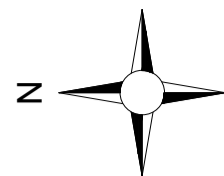
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Drawing Legend

- Planning Application Boundary
- Indicative Grid Connection Route
- X Spot Height
- Indicative Joint Bay
- Watercrossing

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**Site Layout Plan
Sheet 21 of 24**

DRAWING TITLE:

PROJECT TITLE:

Coole Wind Farm, Co. Westmeath

DRAWING BY:	Joseph O'Brien	CHECKED BY:	Michael Watson
PROJECT No:	200445	DRAWING No:	200445 - 34
SCALE:	1:2,500 @ A1	DATE:	15.03.2021

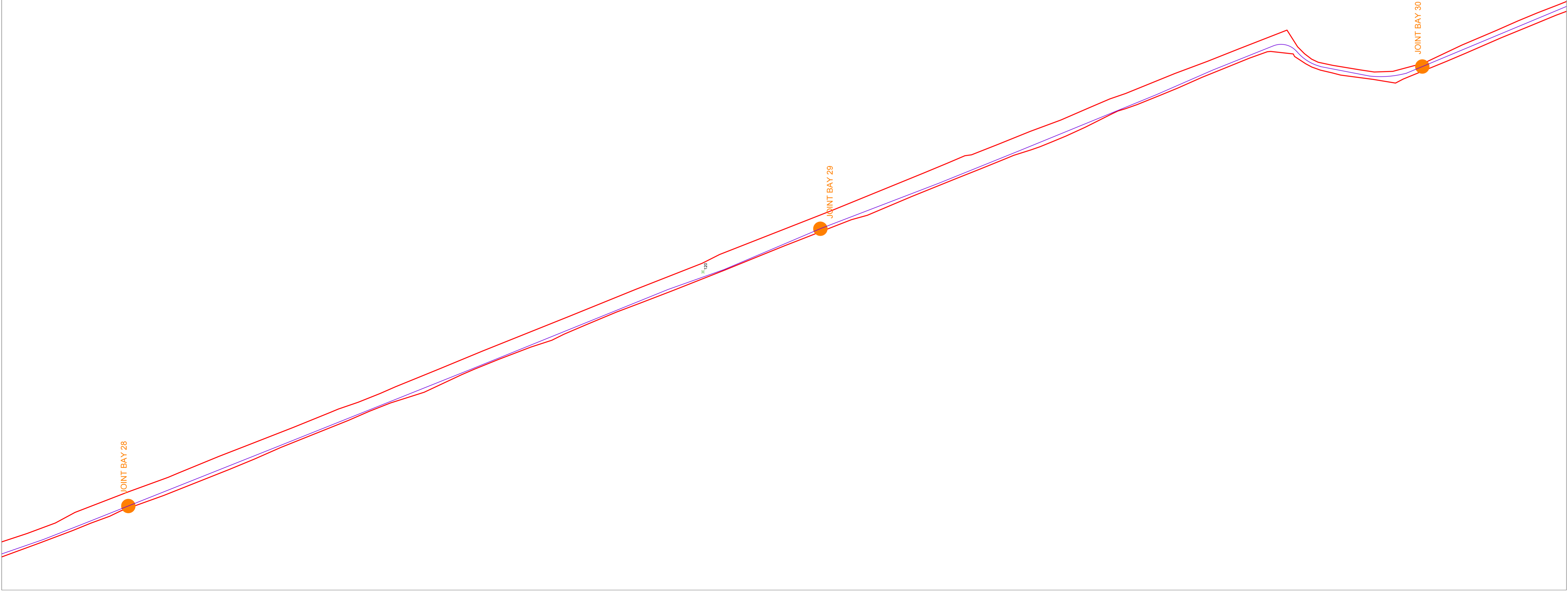
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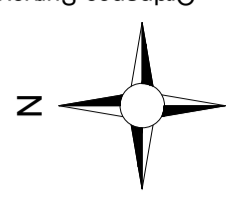
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Drawing Legend

- Planning Application Boundary
- - - Indicative Grid Connection Route
- X Spot Height
- Indicative Joint Bay



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**Site Layout Plan
Sheet 22 of 24**

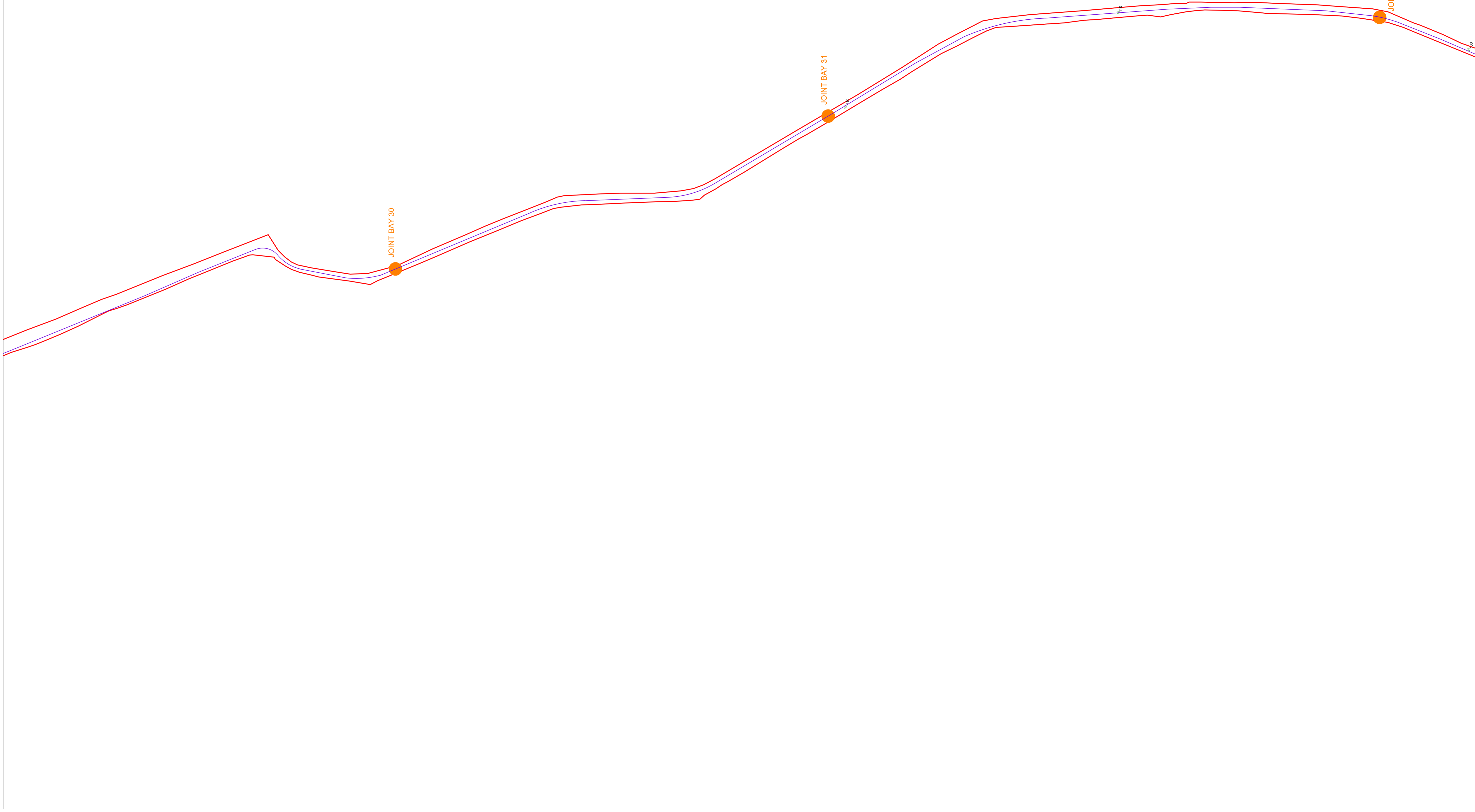
PROJECT TITLE:
Coole Wind Farm, Co. Westmeath

DRAWING BY:	Joseph O'Brien	CHECKED BY:	Michael Watson
PROJECT No:	200445	DRAWING No:	200445 - 35
SCALE:	1:2,500 @ A1	DATE:	15.03.2021

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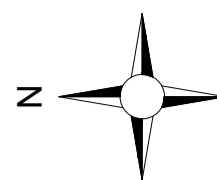
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6. The use of or reliance upon this drawing shall be deemed to be acceptance of these conditions of use unless otherwise agreed in writing, such written agreement to be sought from and issued by the copyright holder to the use or reliance upon this drawing.
7. Layout plans show typical Turbine rotor diameter as per turbine drawing.
8. Final levels may vary depending on local ground conditions.
9. Exact location of cable/joint bay in the road corridor to be subject to ESB specifications and agreement with Westmeath County Council



Drawing Legend

- Planning Application Boundary
- Indicative Grid Connection Route
- X Spot Height
- Indicative Joint Bay



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DRAWING TITLE:

Site Layout Plan Sheet 23 of 24

PROJECT TITLE:

Coole Wind Farm, Co. Westmeath

DRAWING BY:

Joseph O'Brien

CHECKED BY:

Michael Watson

PROJECT No:

200445

DRAWING No:

200445 - 36

SCALE:

1:2,500 @ A1

DATE:

15.03.2021

OS SHEET No:

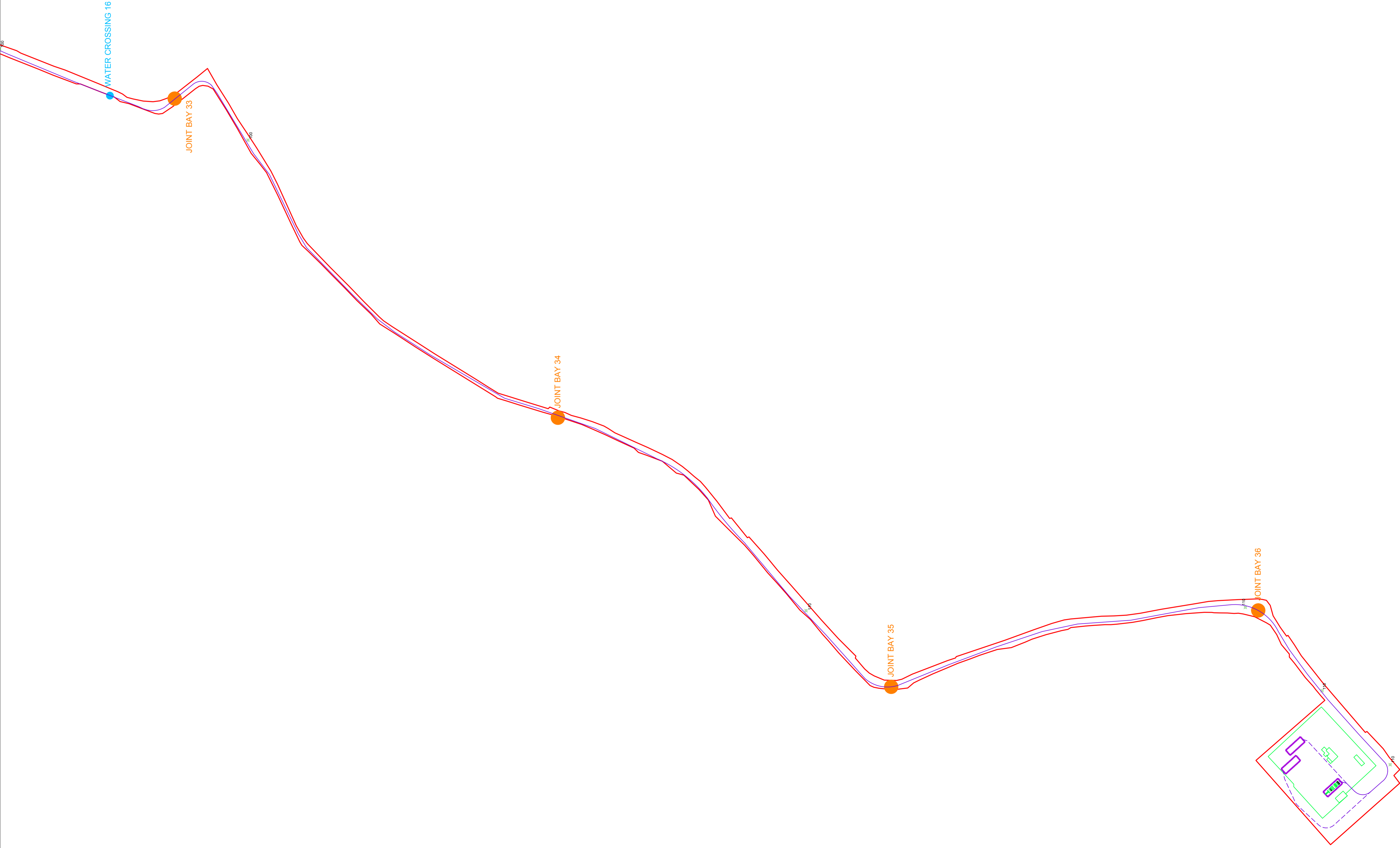
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OS SHEET No:

2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021



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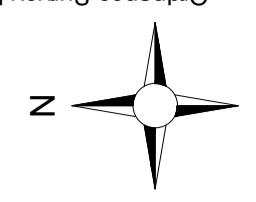


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7. Layout plans show typical Turbine rotor diameter as per turbine drawing.
8. Final levels may vary depending on local ground conditions.
9. Exact location of cable/joint bay in the road corridor to be subject to ESB specifications and agreement with Westmeath County Council

Drawing Legend

- Planning Application Boundary
- Indicative Grid Connection Route
- Existing Mullingar Substation
- X Spot Height
- Indicative Joint Bay
- Watercrossing



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**Site Layout Plan
Sheet 24 of 24**

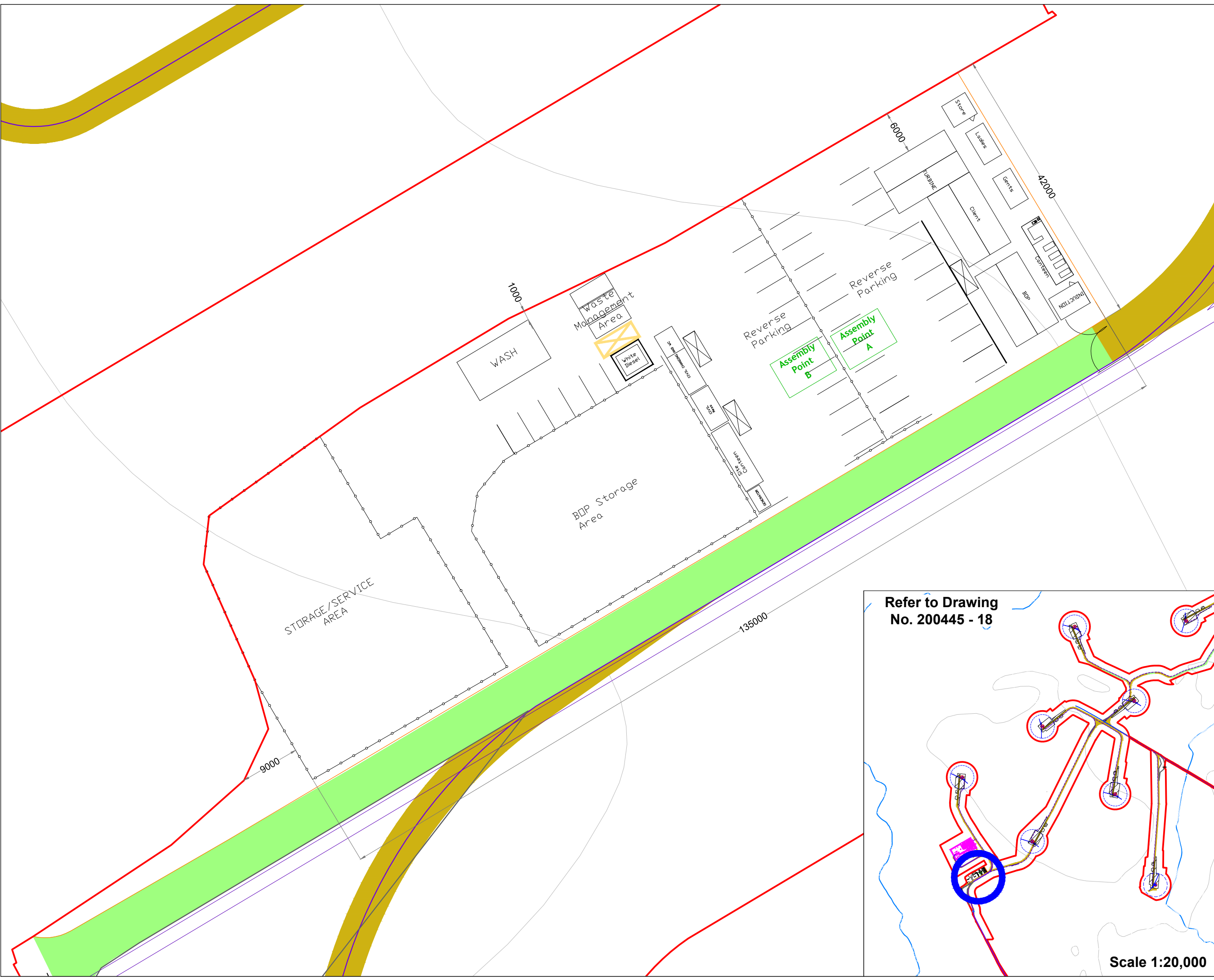
DRAWING TITLE:
Coole Wind Farm, Co. Westmeath

PROJECT TITLE:
Coole Wind Farm, Co. Westmeath

DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No: 200445	DRAWING No: 200445 - 37
SCALE: 1:2,500 @ A1	DATE: 15.03.2021

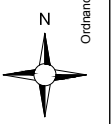
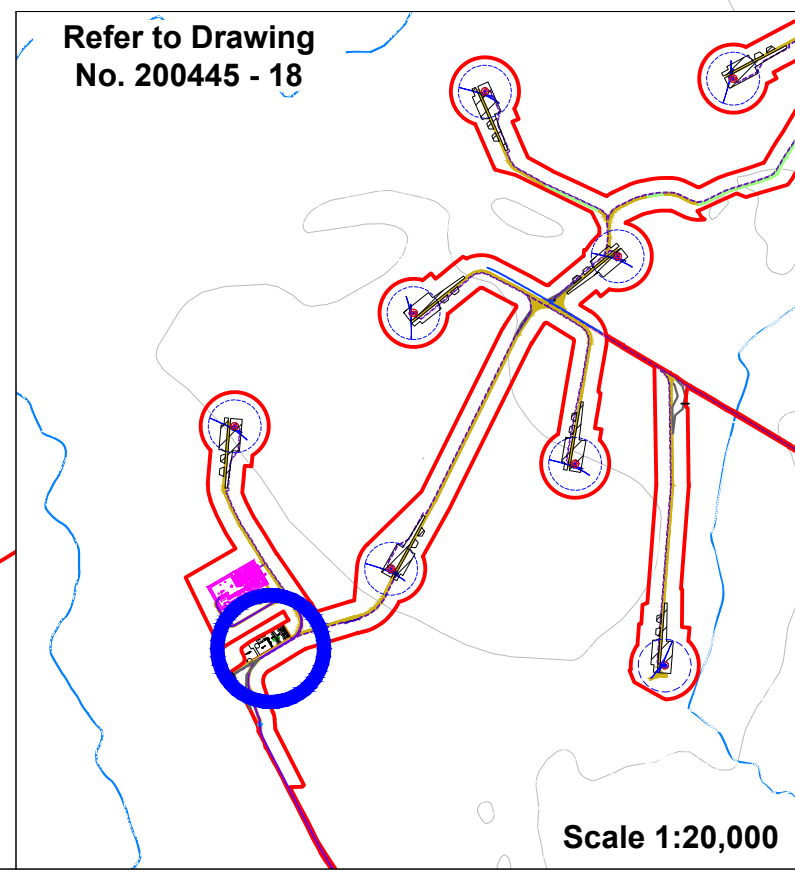
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Drawing Legend

- Planning Application Boundary
- Existing Internal Road to be Upgraded
- Proposed Road
- Indicative Internal Electrical Cabling
- Temporary Construction Compound
- Indicative Grid Connection Route



DRAWING TITLE: Temporary Construction Compound

PROJECT TITLE: Coole Wind Farm, Co. Westmeath

DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No.: 200445	DRAWING No.: 200445 - 38
SCALE: 1:500 @A3	DATE: 15.03.2021

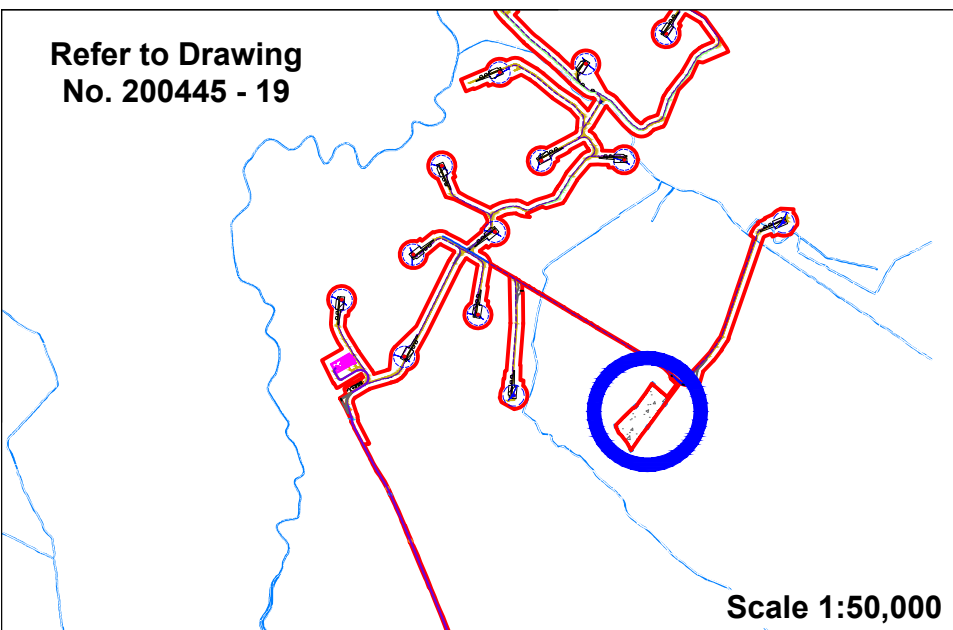
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Refer to Drawing
No. 200445 - 19



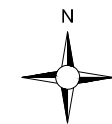
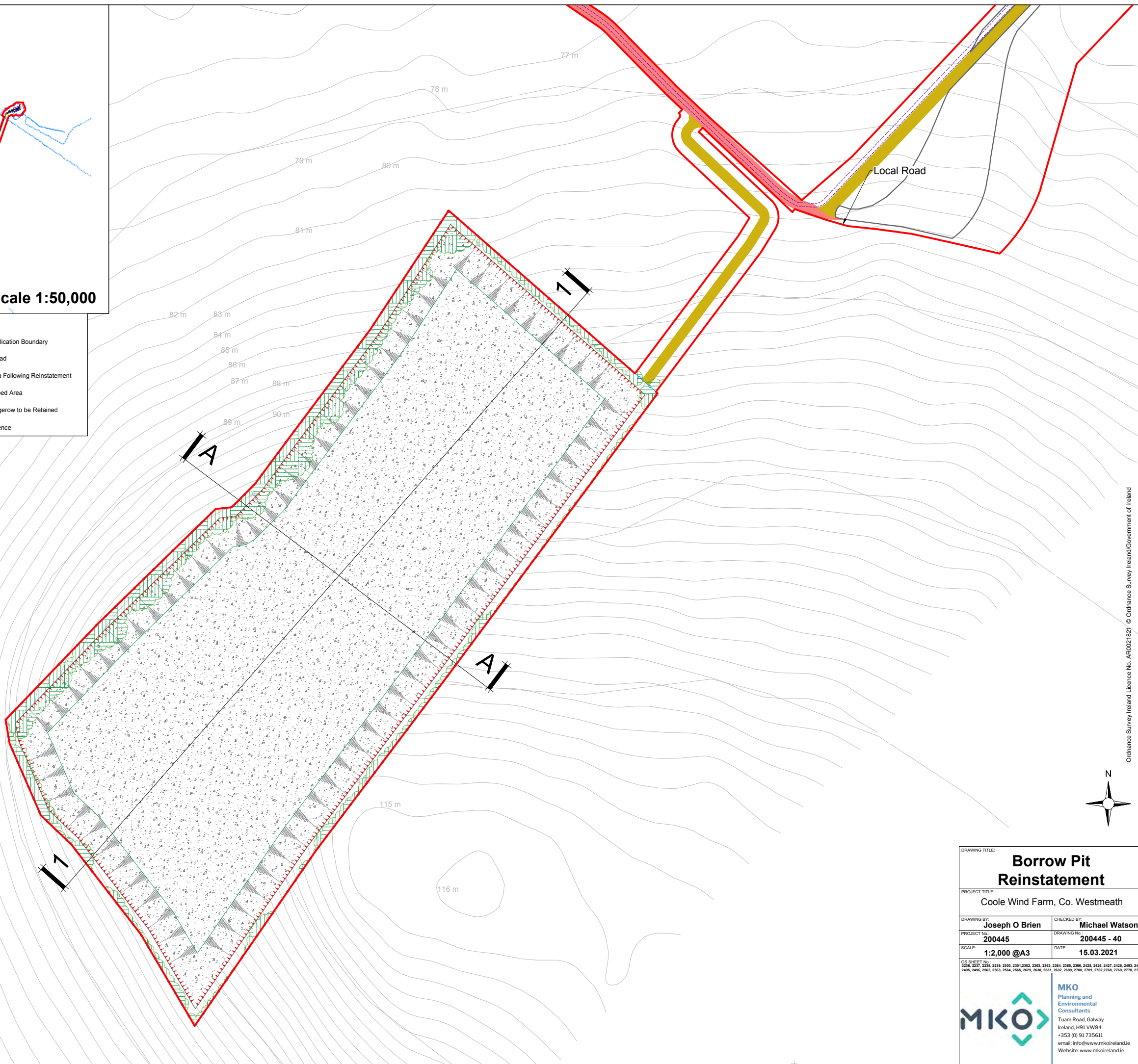
Scale 1:50,000

Notes:

1. 5m buffer to be maintained around borrow pit edge
2. Topsoil and overburden to be used for borrow pit reinstatement following extraction.
3. Borrow pit access location off local road to be gated post - construction.

Drawing Legend

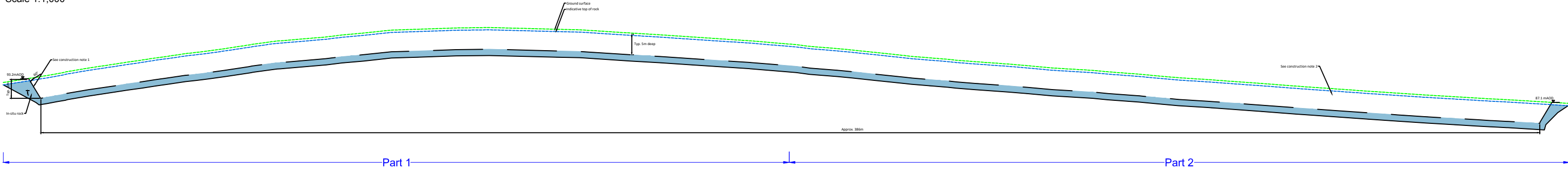
- Planning Application Boundary
- Proposed Road
- Grassed Area Following Reinstatement
- Grassed Sloped Area
- Existing Hedgerow to be Retained
- Borrow Pit Fence



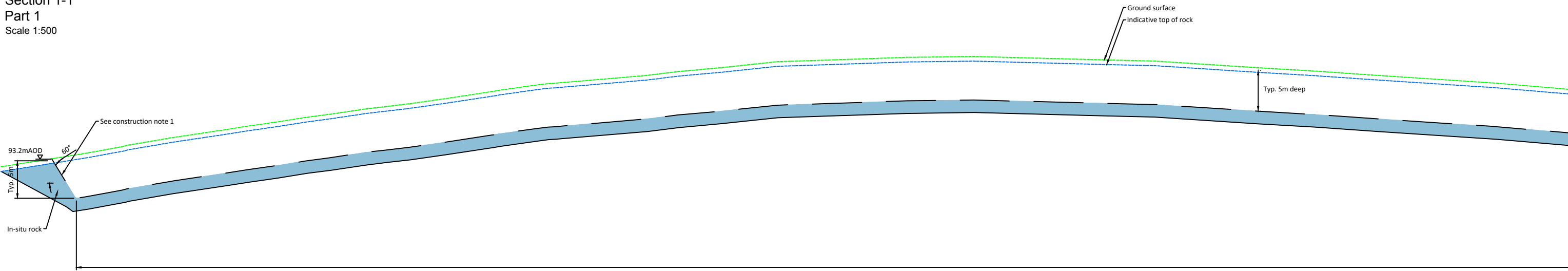
DRAWING TITLE: Borrow Pit Reinstatement	
PROJECT TITLE: Coole Wind Farm, Co. Westmeath	
DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No.: 200445	DRAWING No.: 200445 - 40
SCALE: 1:2,000 @A3	DATE: 15.03.2021
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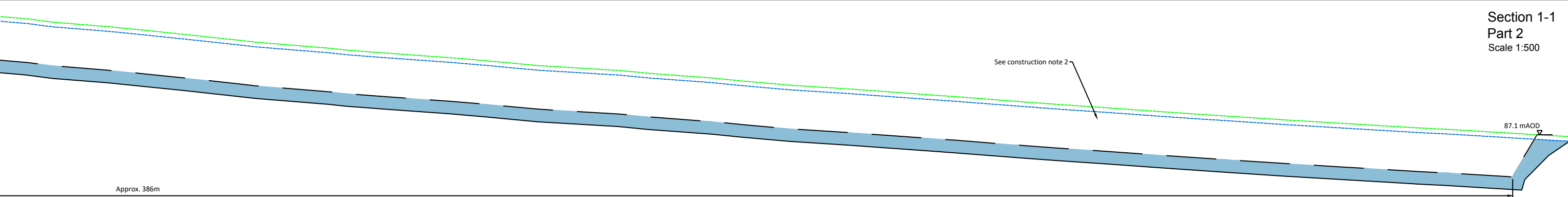
Section 1-1
Scale 1:1,000



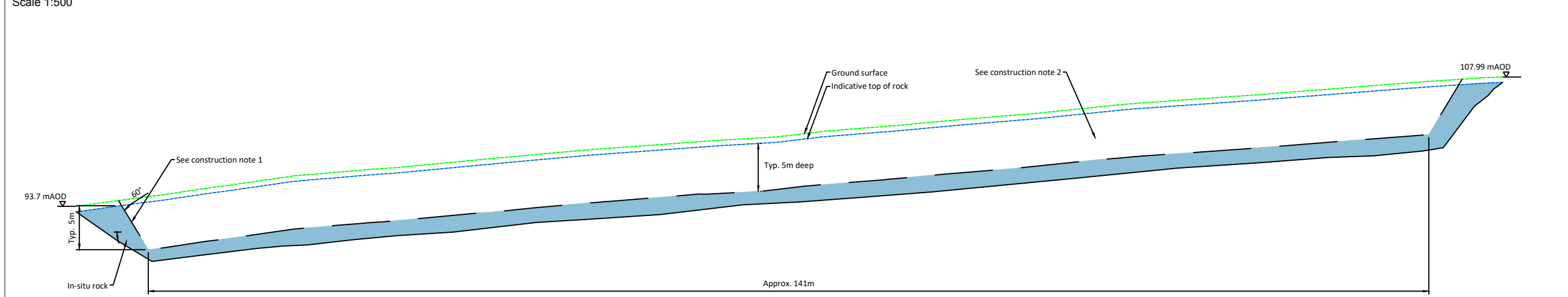
Section 1-1
Part 1
Scale 1:500



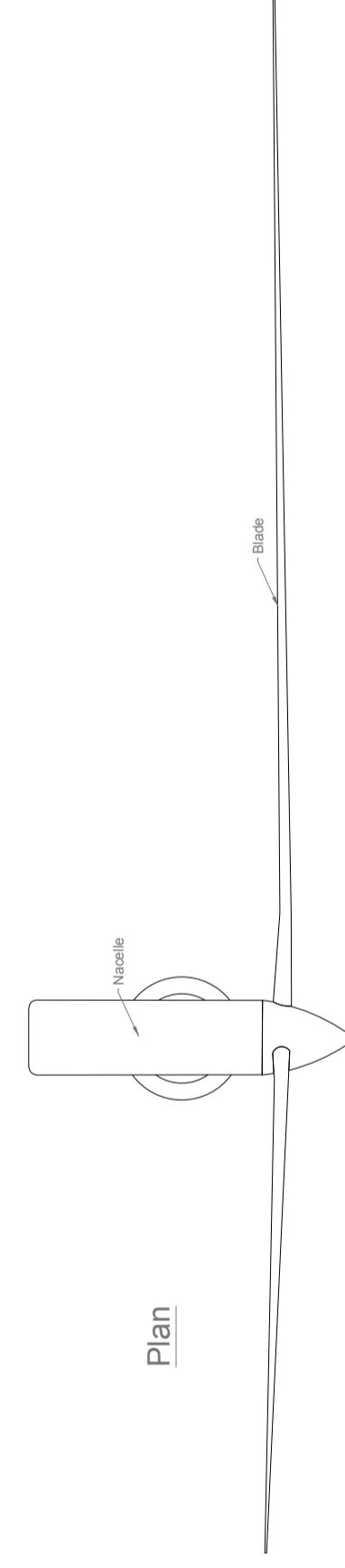
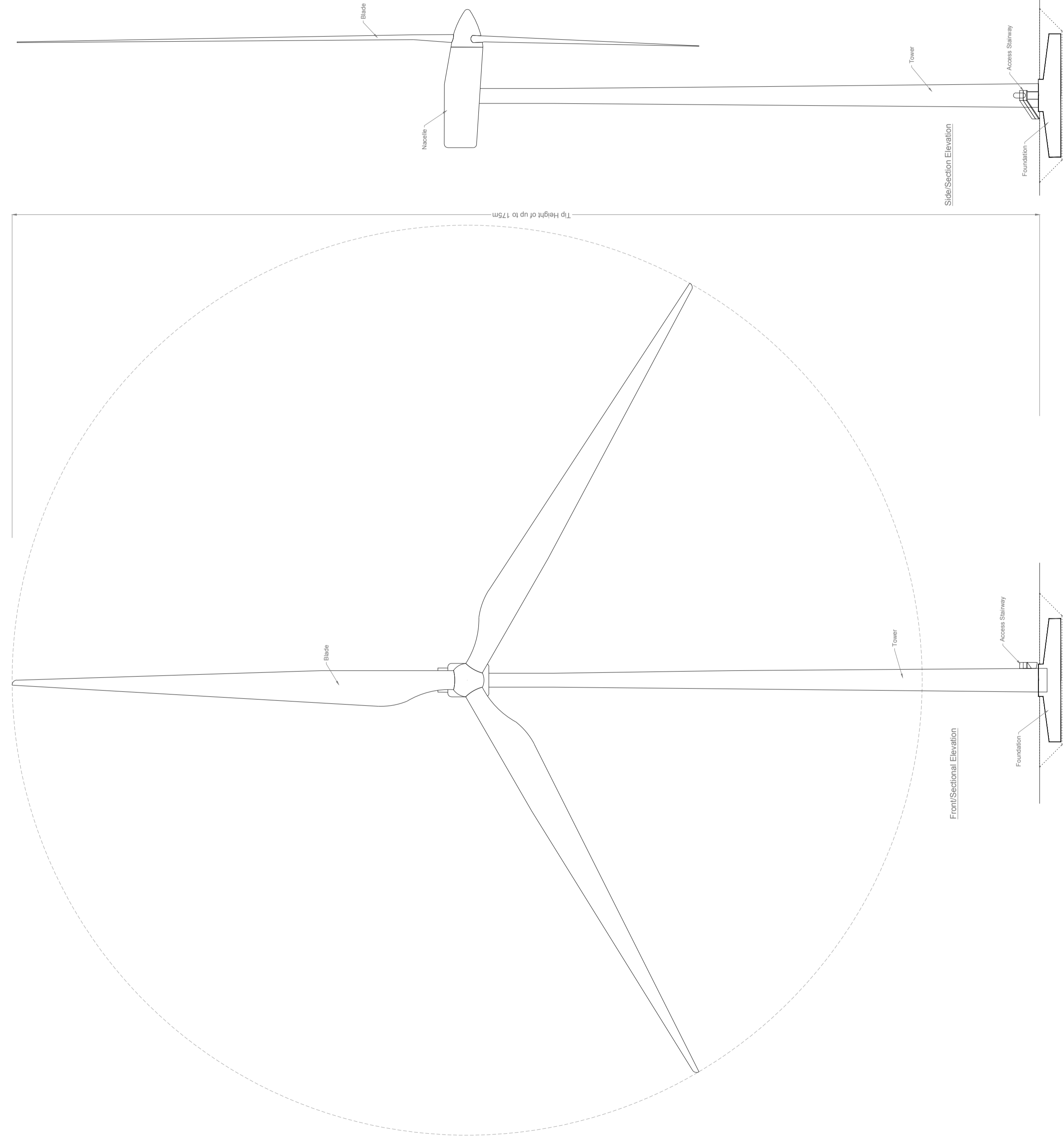
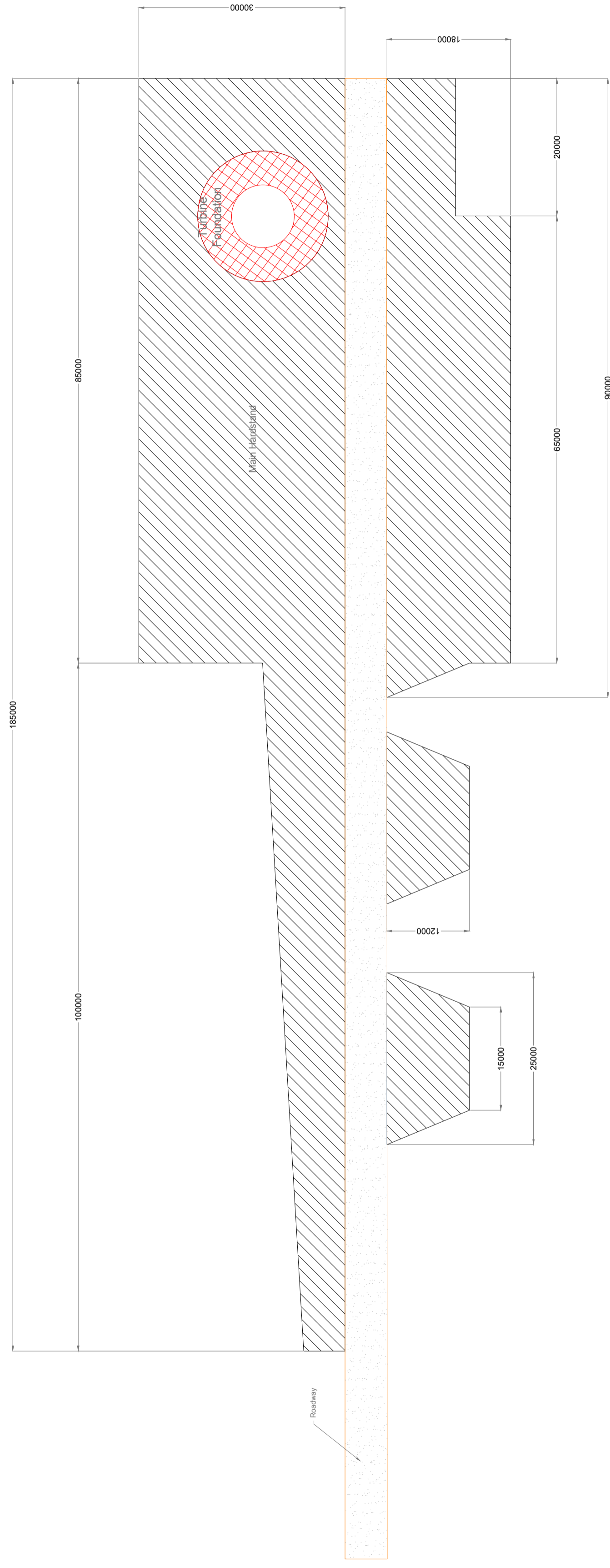
Section 1-1
Part 2
Scale 1:500



Section A-A
Part 1
Scale 1:500



DRAWING TITLE: Borrow Pit Sections	
PROJECT TITLE: Coole Wind Farm, Co. Westmeath	
DRAWING BY: POR	CHECKED BY: IH
PROJECT No.: 200445	DRAWING No.: 200445 - 41
SCALE: As Shown @ A3	DATE: 15.03.2021
OS SHEET No.:	



Plan

Drawing Notes

1. Proposed wind turbines to have a tip height of up to 175m.
2. Exact make and model of the turbine to be dictated by a competitive tender process.
3. Installed wind turbine not to exceed maximum size envelope set out above in any blade length and hub-height configuration.

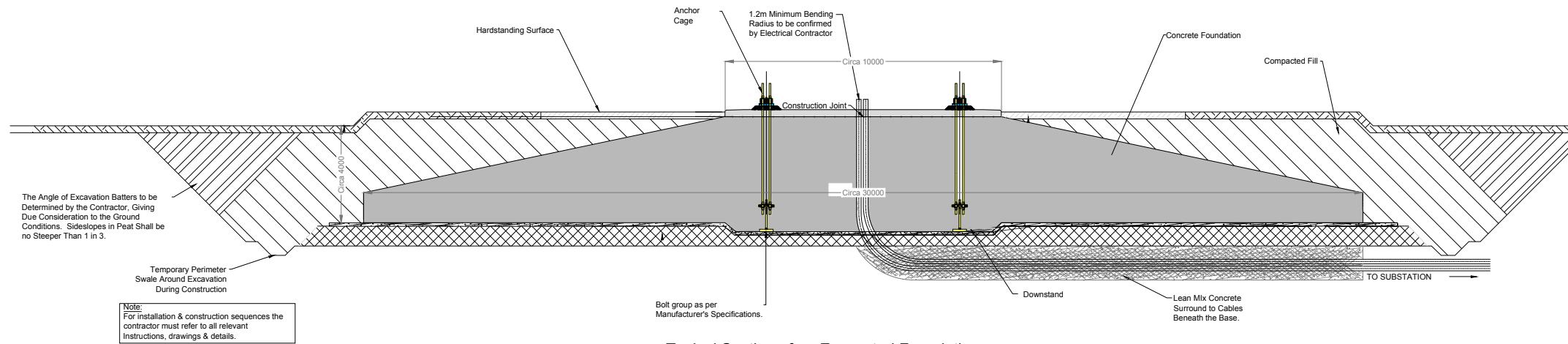
DRAWING TITLE
**Typical Wind Turbine
 Hardstanding & Elevations**

PROJECT TITLE: **Coole Wind Farm, Co. Westmeath**

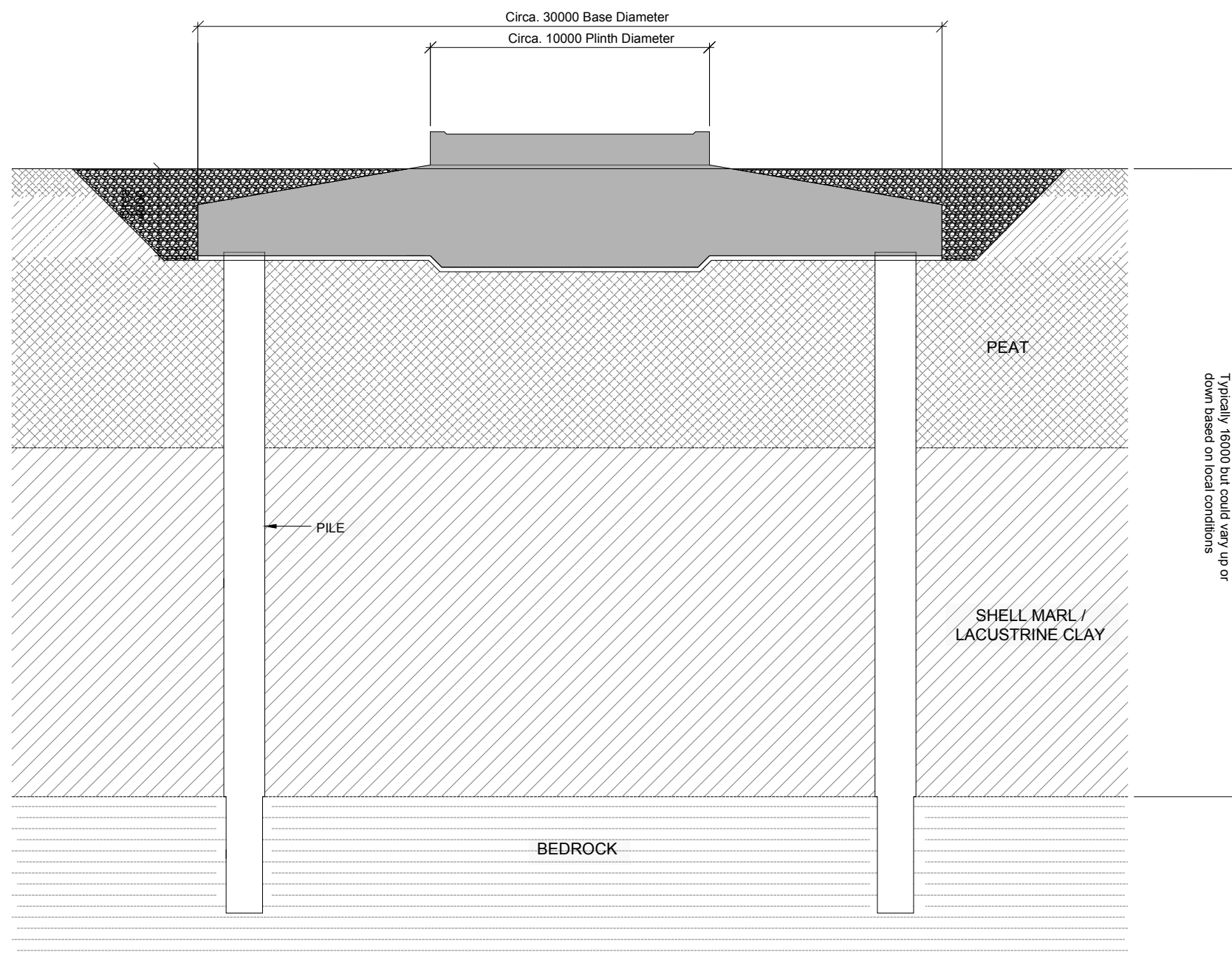
DRAWING BY:	Michael Watson
CHECKED BY:	Joseph O'Brien
PROJECT NO.:	200445
DRAWING NO.:	200445 - 42
SCALE:	1:500 @A1
DATE:	15.03.2021



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Typical Section of an Excavated Foundation
Scale 1:200



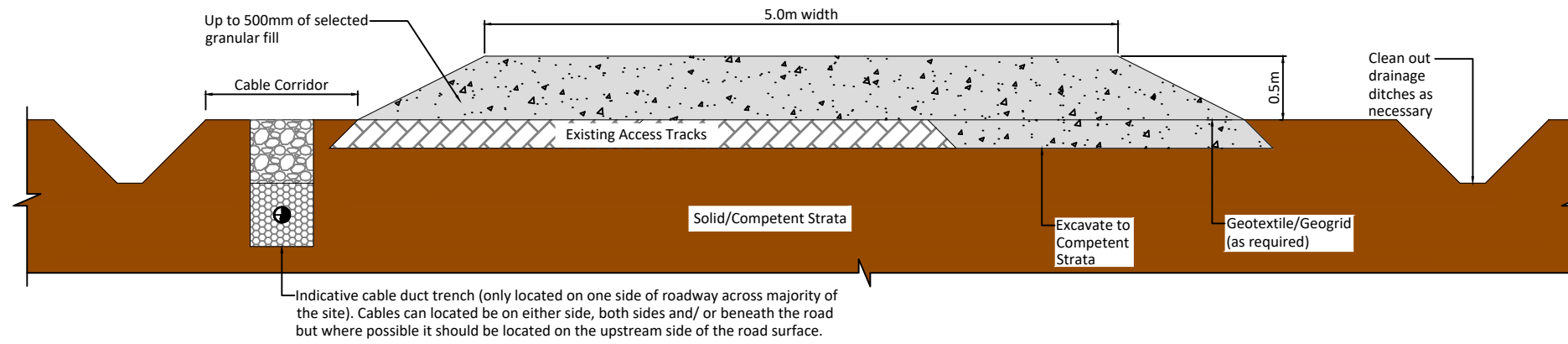
Typical Section of a Piled a Foundation
Scale 1:200

Note
Details/dimensions are provided for indicative purposes and will be subject to detailed design by the appointed contractor

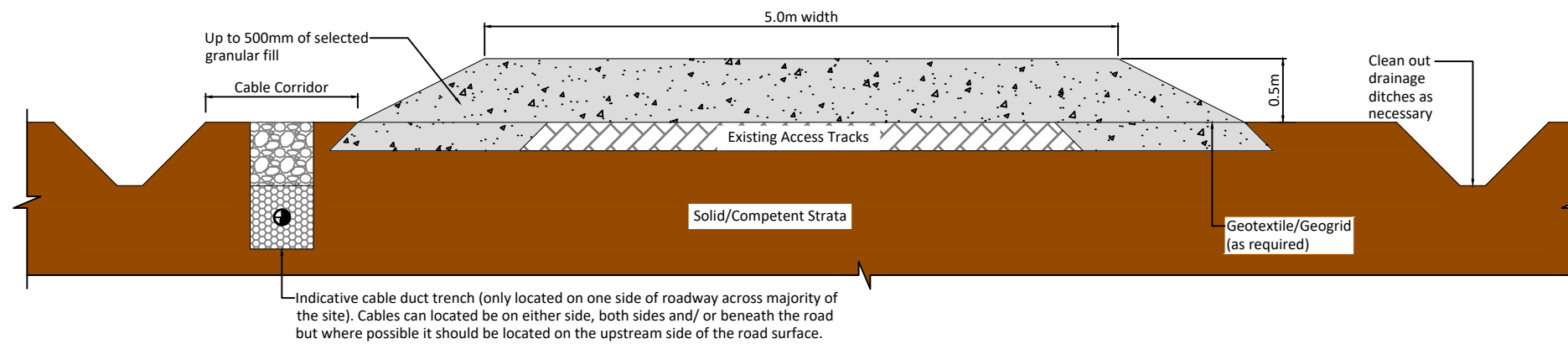
DRAWING TITLE: Indicative Turbine Foundation Standard Detail	
PROJECT TITLE: Coole Wind Farm, Co. Westmeath	
DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No: 200445	DRAWING No: 200445 - 43
SCALE: 1:200@A3	DATE: 15.03.2021

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surface but where possible it should be located on the upstream side of the road surface.



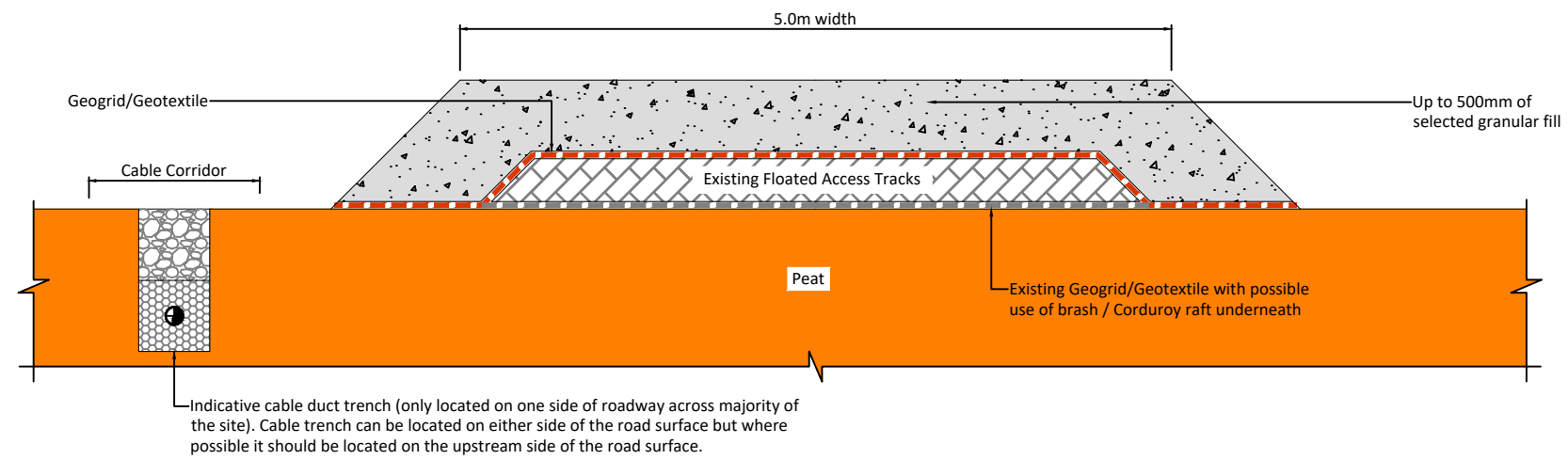
Upgrade of Existing Track on Sidelong Ground



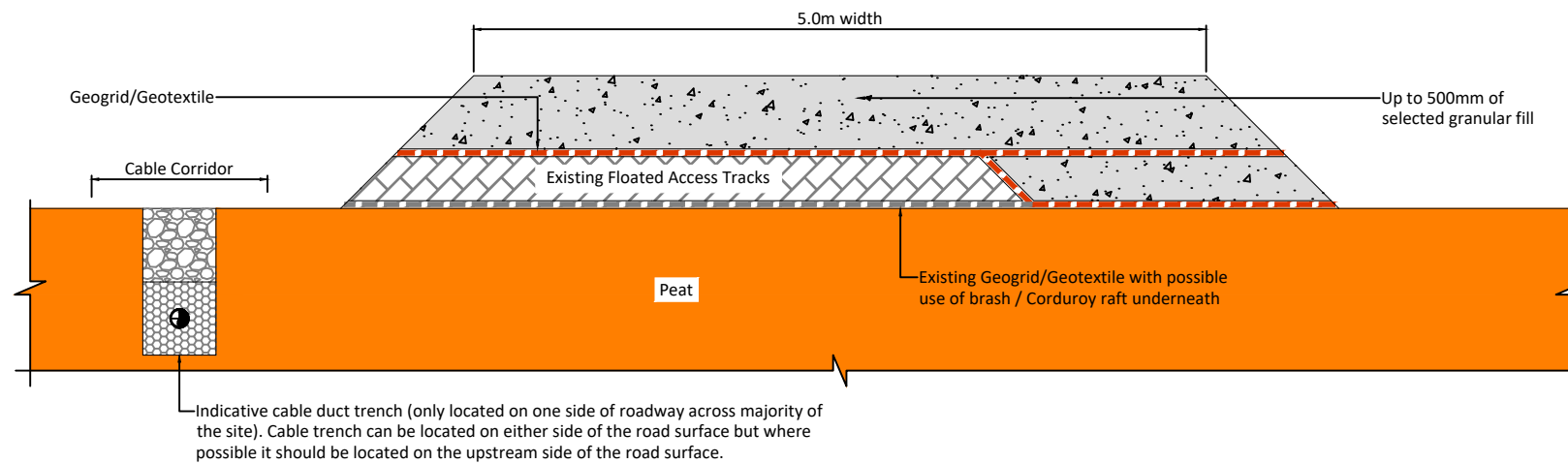
Upgrade of Existing Track on Flat Ground

DRAWING TITLE: Type A Upgrade of Existing Excavated Access Tracks	
PROJECT TITLE: Coole Wind Farm, Co. Westmeath	
DRAWING BY: POR	CHECKED BY: IH
PROJECT No.: 200445	DRAWING No.: 200445 - 44
SCALE: 1:50 @ A3	DATE: 15.03.2021

Upgrade of Existing Track on Flat Ground

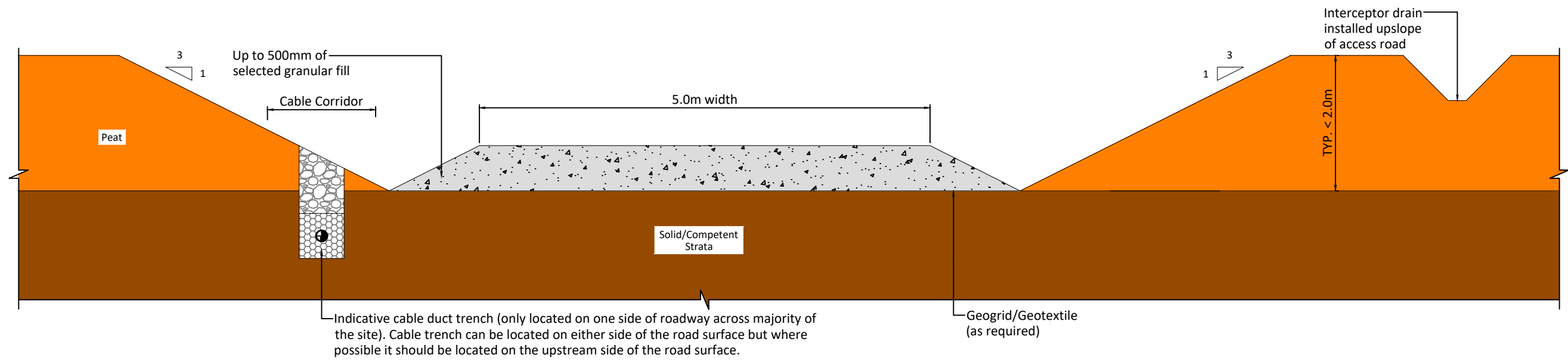


Upgrade of Existing Track on Flat Ground

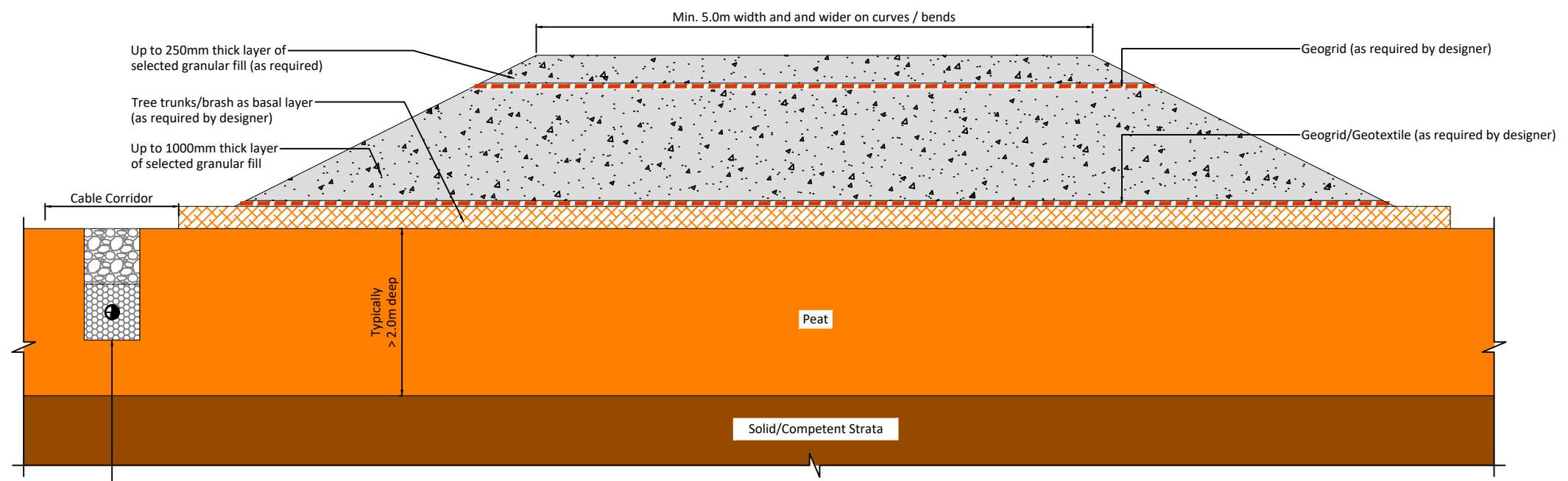


Upgrade of Existing Track on Sidelong Ground

DRAWING TITLE:	
Type B Upgrade of Existing Floated Access Tracks	
PROJECT TITLE:	
Coole Wind Farm, Co. Westmeath	
DRAWING BY:	CHECKED BY:
POR	IH
PROJECT No.:	DRAWING No.:
200445	200445 - 45
SCALE:	DATE:
1:50 @ A3	15.03.2021



DRAWING TITLE: Type C New Excavate and Replace Access Road	
PROJECT TITLE: Coole Wind Farm, Co. Westmeath	
DRAWING BY: POR	CHECKED BY: IH
PROJECT No.: 200445	DRAWING No.: 200445 - 46
SCALE: 1:50 @ A3	DATE: 15.03.2021
DS SHEET No.:	

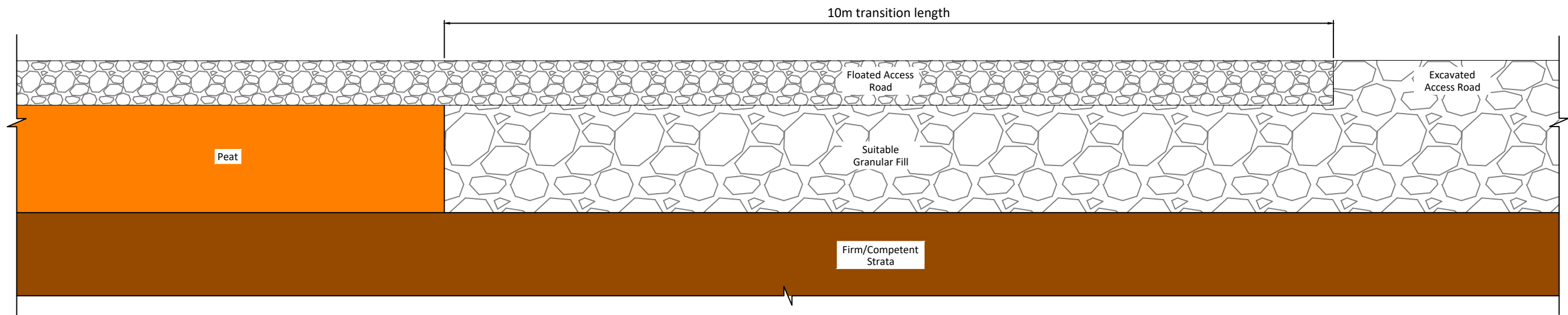


Indicative cable duct trench (only located on one side of roadway across majority of the site). Cable trench can be located on either side of the road surface but where possible it should be located on the upstream side of the road surface.

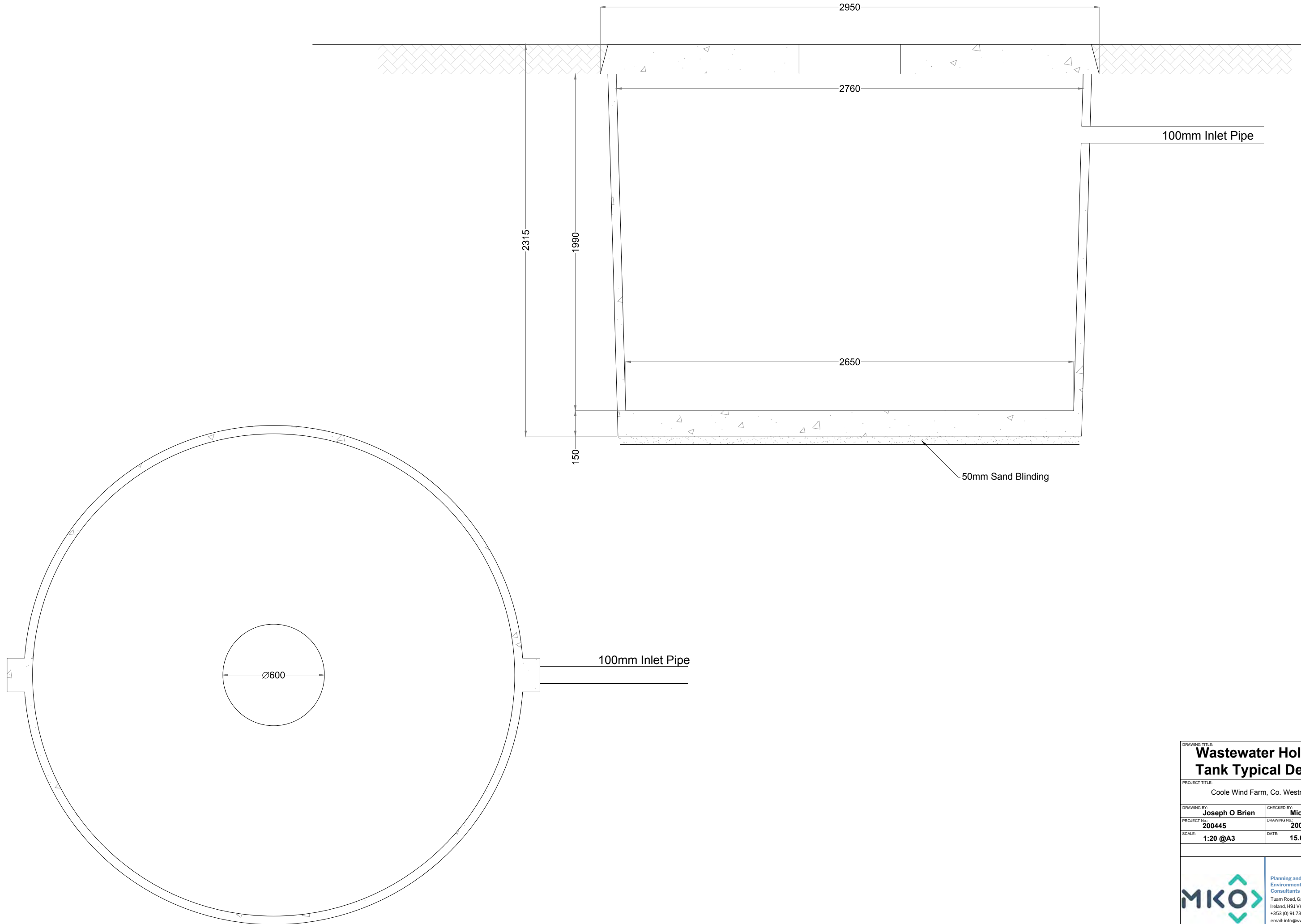
DRAWING TITLE: Type D New Floated Access Road	
PROJECT TITLE: Coole Wind Farm, Co. Westmeath	
DRAWING BY: POR	CHECKED BY: IH
PROJECT No.: 200445	DRAWING No.: 200445 - 47
SCALE: 1:50 @ A3	DATE: 15.03.2021
OS SHEET No.:	

Notes:

- 1) Floated access road detail may comprise 500 to 750mm stone fill, layer of geotextile & 1 to 2 layers of geogrid.
- 2) Excavated access road detail may comprise up to 500mm stone & layer of geotextile (depending on ground conditions encountered).



DRAWING TITLE: Transition Detail for Floated and Excavated Access Road	
PROJECT TITLE: Coole Wind Farm, Co. Westmeath	
DRAWING BY: POR	CHECKED BY: IH
PROJECT No.: 200445	DRAWING No.: 200445 - 48
SCALE: 1:50 @ A3	DATE: 15.03.2021
OS SHEET No.:	








DRAWING TITLE: Wastewater Holding Tank Typical Details	
PROJECT TITLE: Coole Wind Farm, Co. Westmeath	
DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No.: 200445	DRAWING No.: 200445 - 49
SCALE: 1:20 @A3	DATE: 15.03.2021

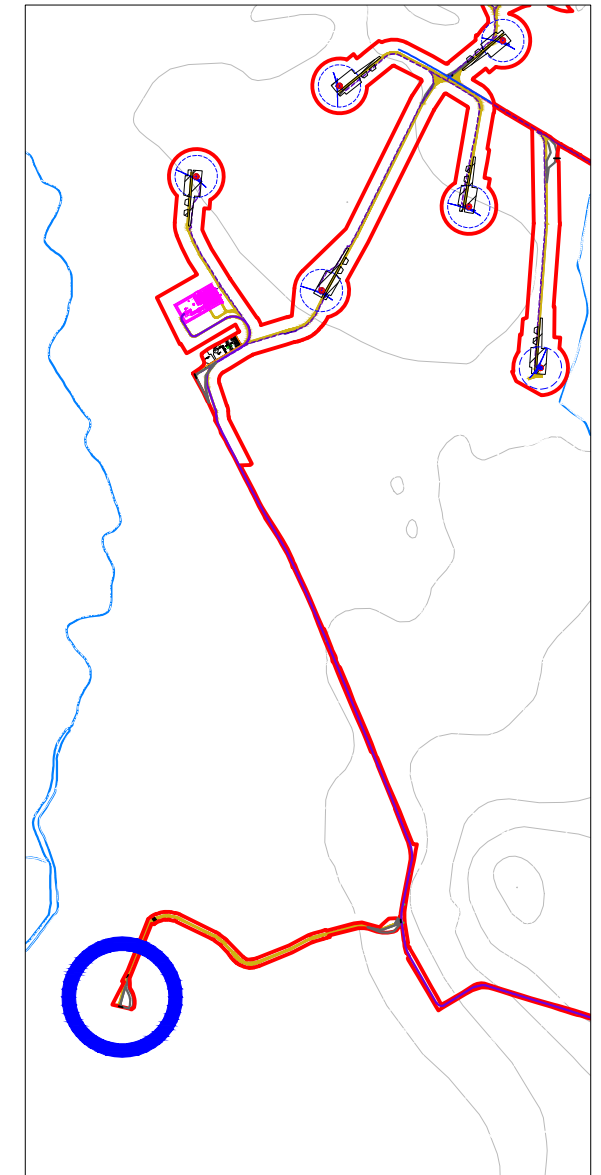



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 Tuam Road, Galway
 Ireland, H91 VW84
 +353 (0) 91 735611
 email: info@www.mkofireland.ie
 Website: www.mkofireland.ie

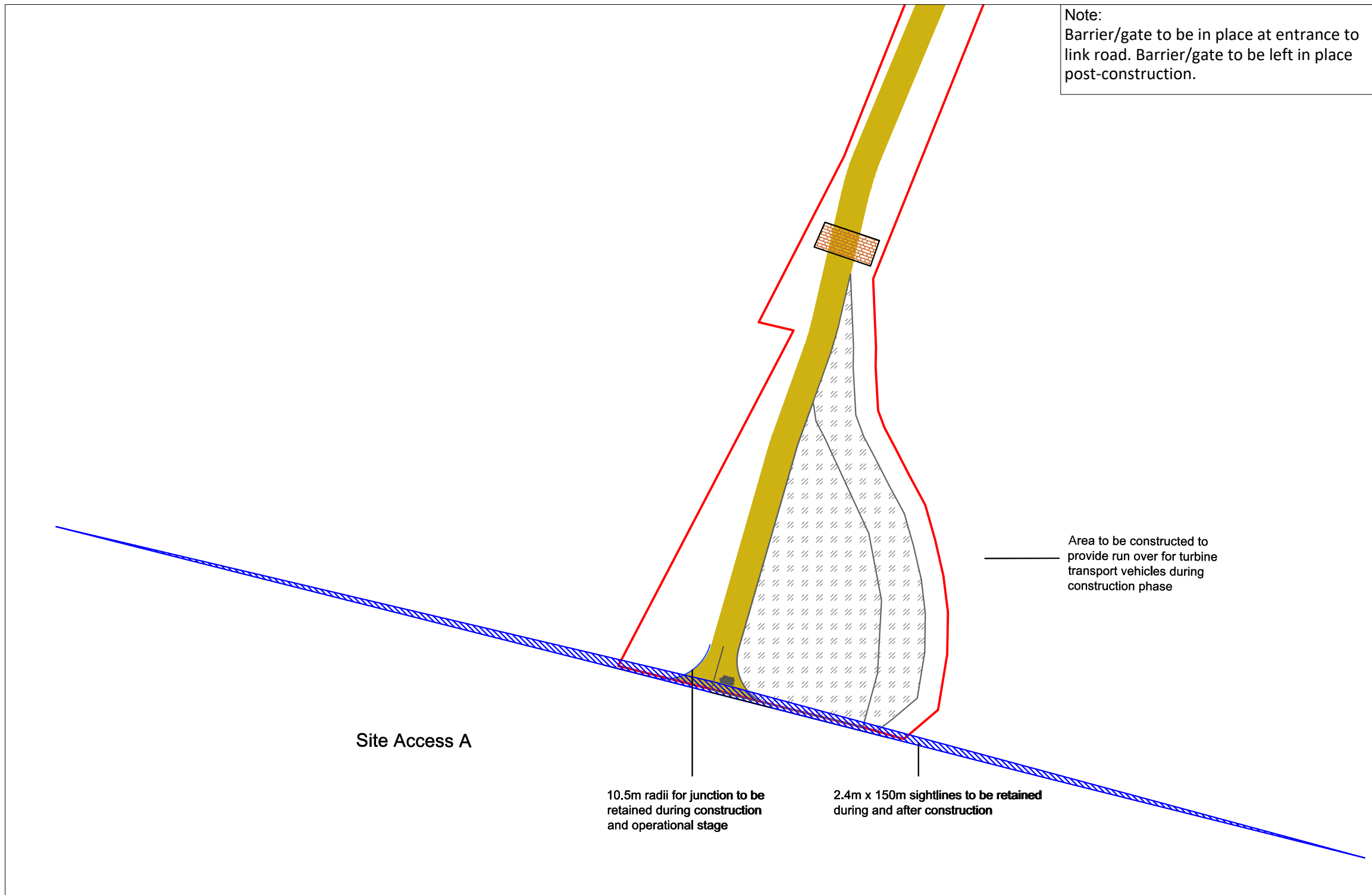
Drawing Legend

	Proposed Road
	Unbound Hardcore Surface
	Crossing Point for Landowners
	Sight Line

1:25,000 Location on Context Map 






1:25,000 Location on Context Map 

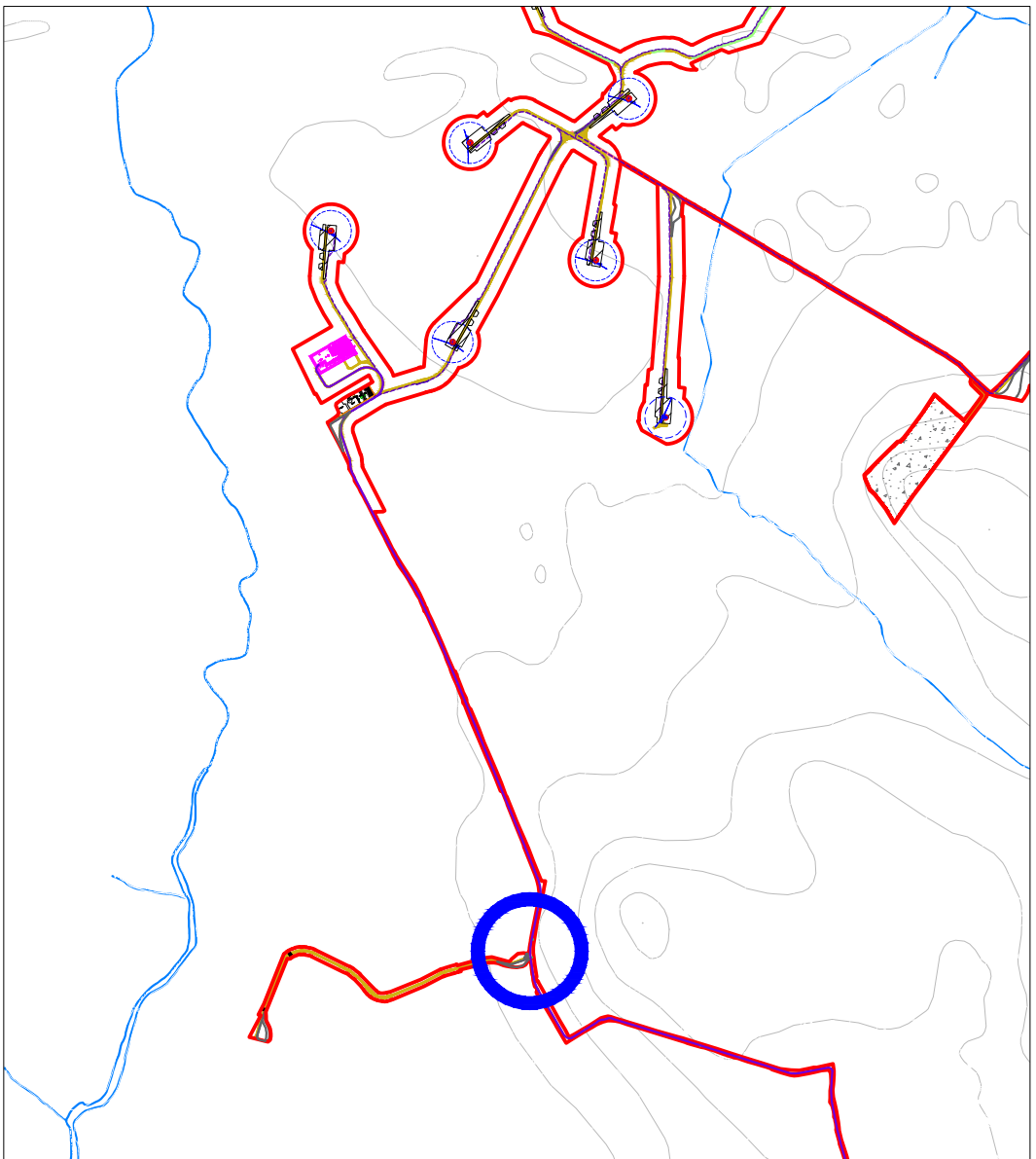
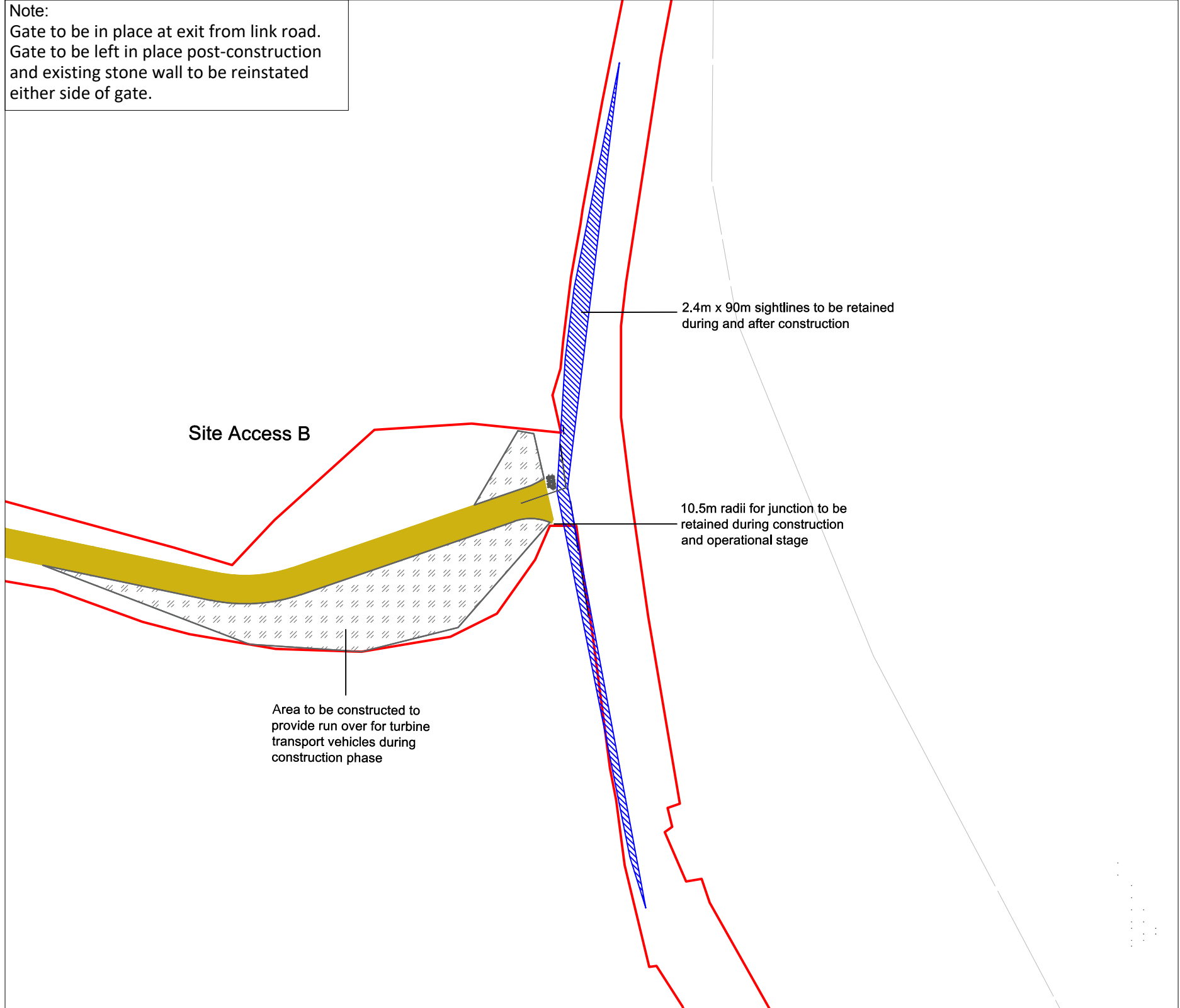



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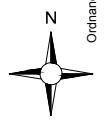
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PROJECT TITLE: Coole Wind Farm, Co. Westmeath	
DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No.: 200445	DRAWING No.: 200445 - 50
SCALE: 1:1,000 @A3	DATE: 15.03.2021
 MKO Planning and Environmental Consultants Tuam Road, Galway Ireland, H91 VW64 +353 (0) 91 735611 email: info@www.mkofireland.ie Website: www.mkofireland.ie	

Drawing Legend	
	Proposed Road
	Unbound Hardcore Surface
	Sight Line

Note:
 Gate to be in place at exit from link road.
 Gate to be left in place post-construction
 and existing stone wall to be reinstated
 either side of gate.

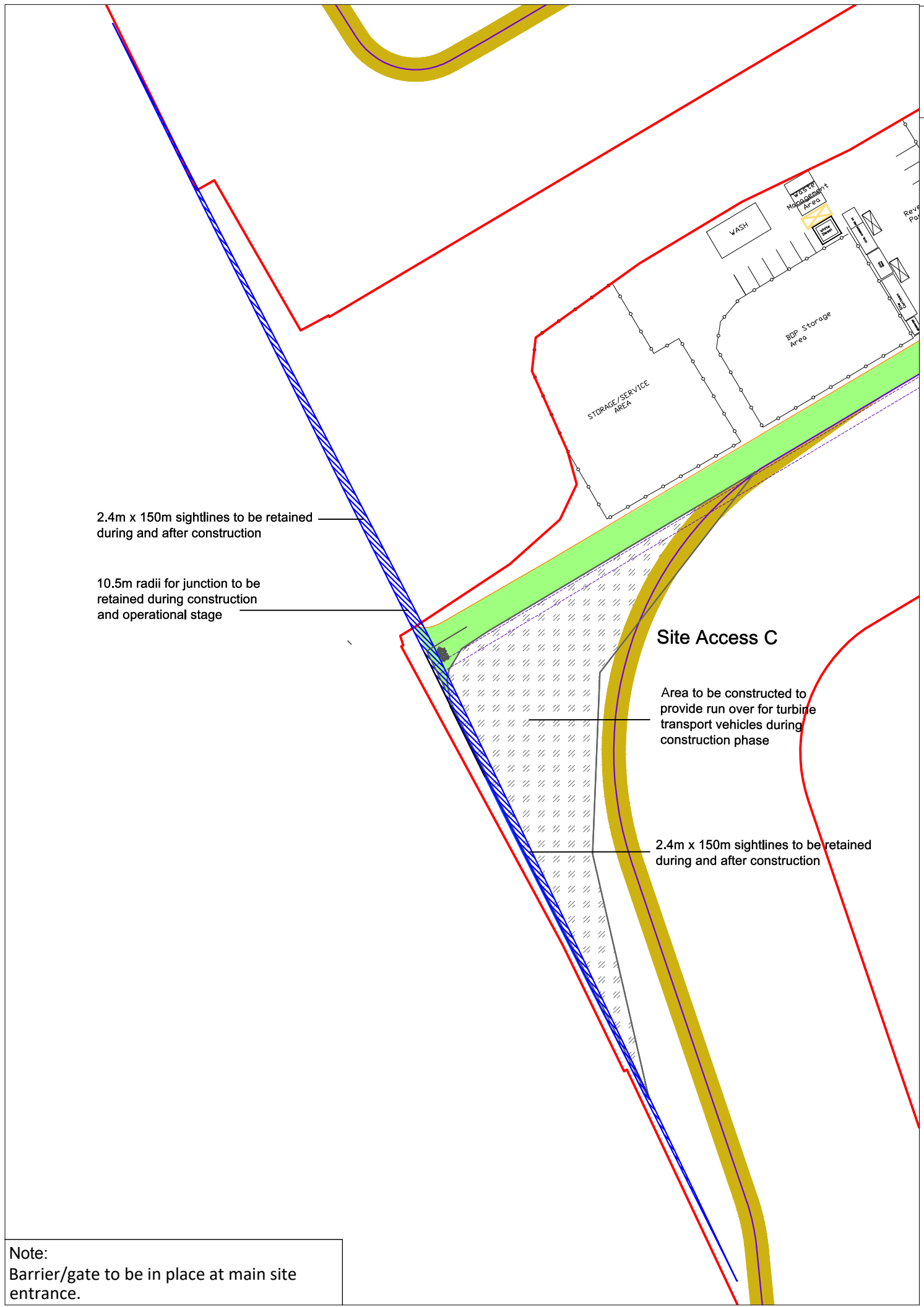


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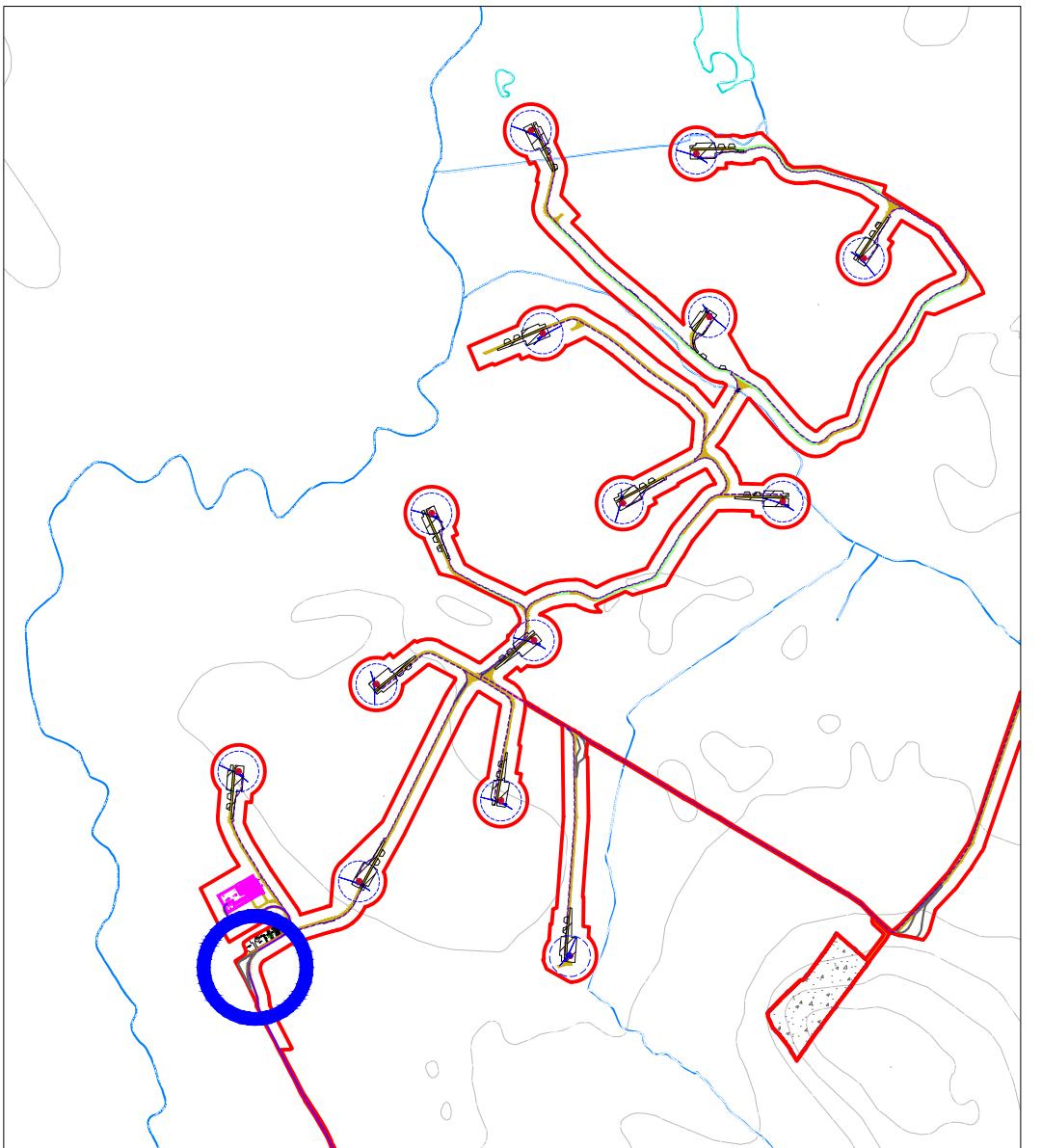
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DRAWING TITLE: Proposed Site Access B	
PROJECT TITLE: Coole Wind Farm, Co. Westmeath	
DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No.: 200445	DRAWING No.: 200445 - 51
SCALE: 1:1,000 @A3	DATE: 15.03.2021
 MKO Planning and Environmental Consultants Tuam Road, Galway Ireland, H91 VW64 +353 (0) 91 735611 email: info@www.mkofireland.ie Website: www.mkofireland.ie	

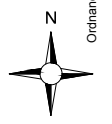


Drawing Legend

	Existing Internal Road to be Upgraded
	Proposed Road
	Unbound Hardcore Surface
	Sight Line



Note:
Barrier/gate to be in place at main site entrance.



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DRAWING TITLE:
Proposed Site Access C

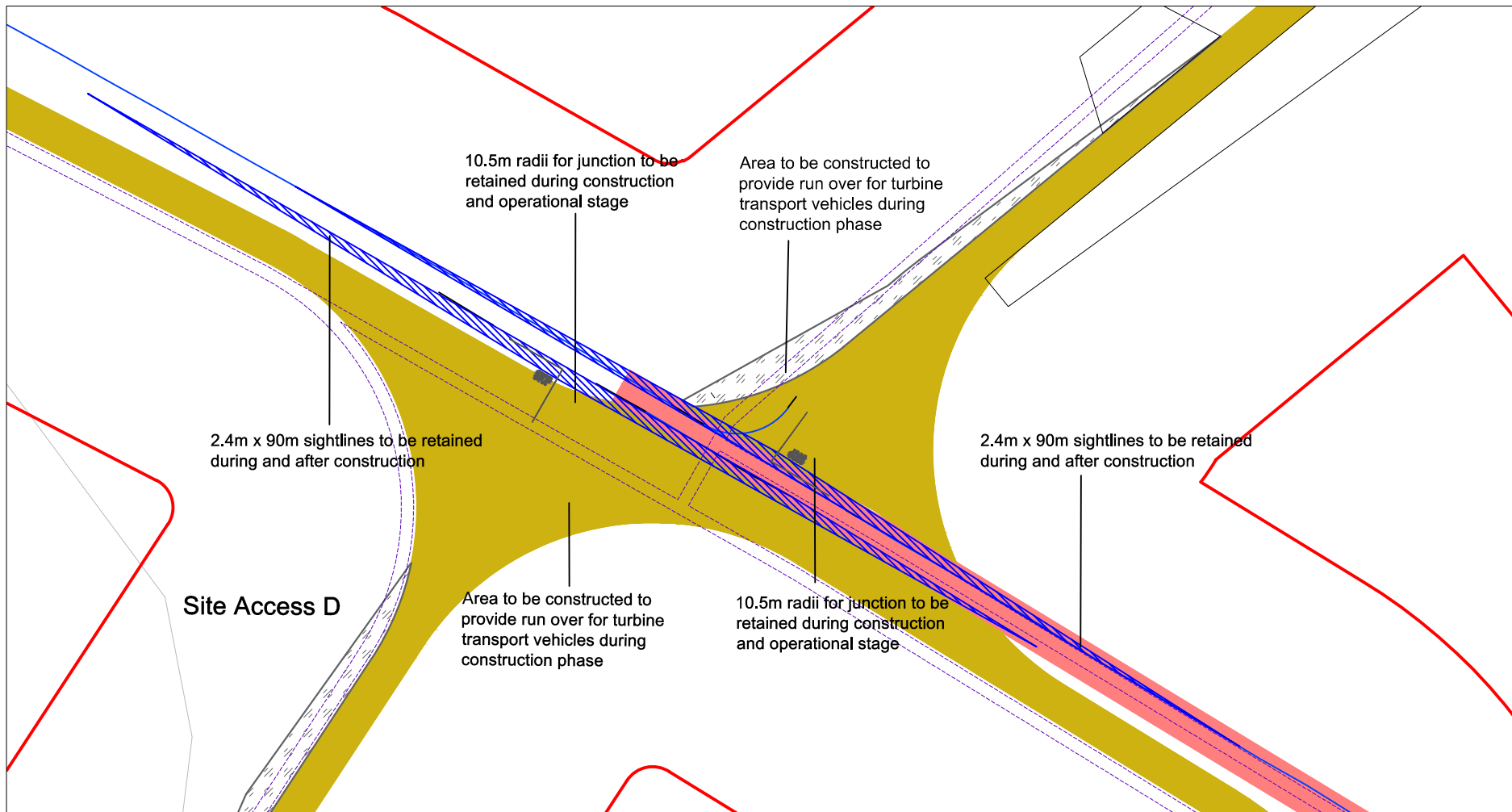
PROJECT TITLE:
Coole Wind Farm, Co. Westmeath

DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No.: 200445	DRAWING No.: 200445 - 52
SCALE: 1:1,000 @A3	DATE: 15.03.2021

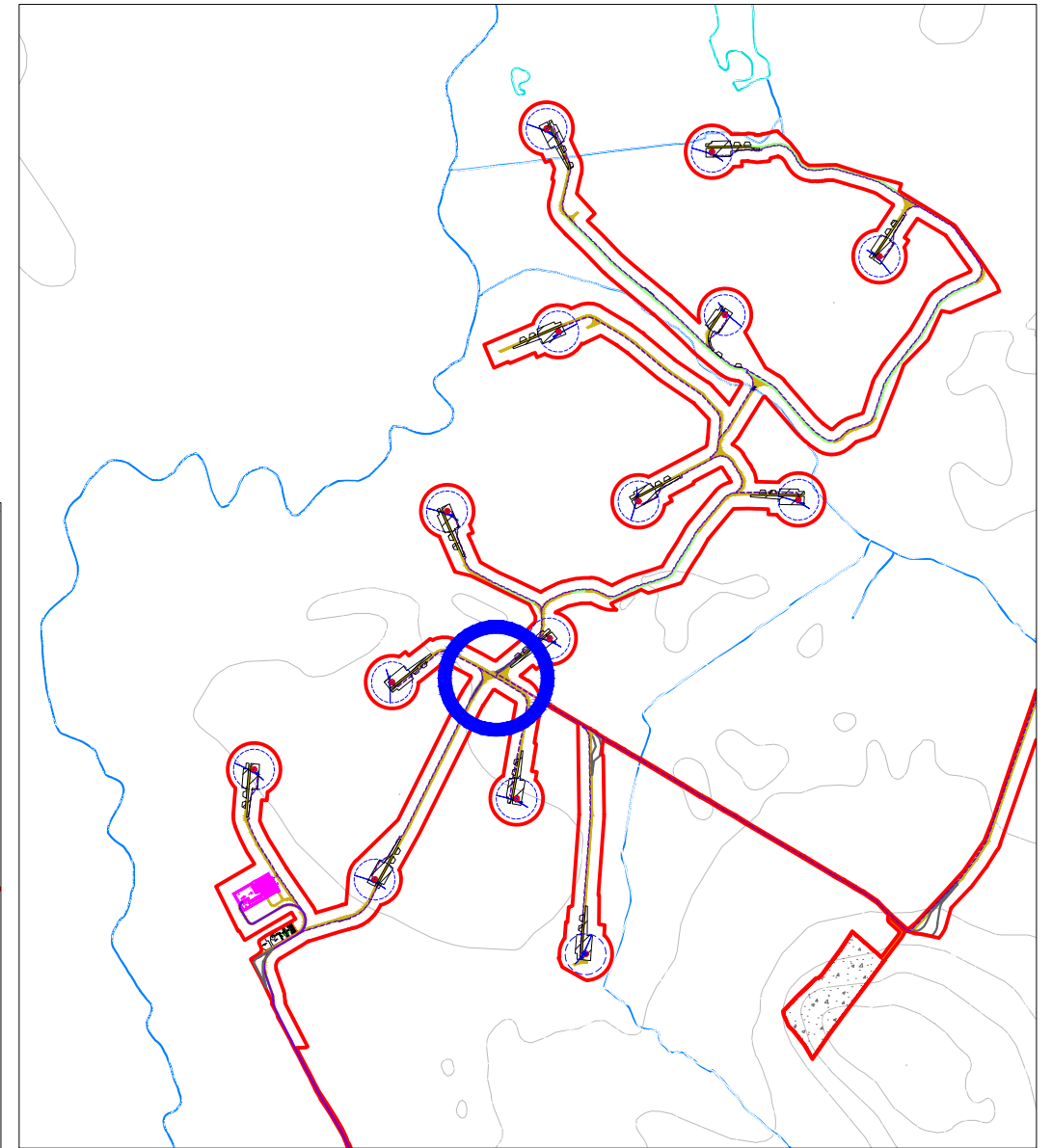
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Ireland, H91 VW84
+353 (0) 91 735611
email: info@www.mkofireland.ie
Website: www.mkofireland.ie

Drawing Legend	
	Proposed Road
	Existing External Road to be Upgraded
	Unbound Hardcore Surface
	Sight Line







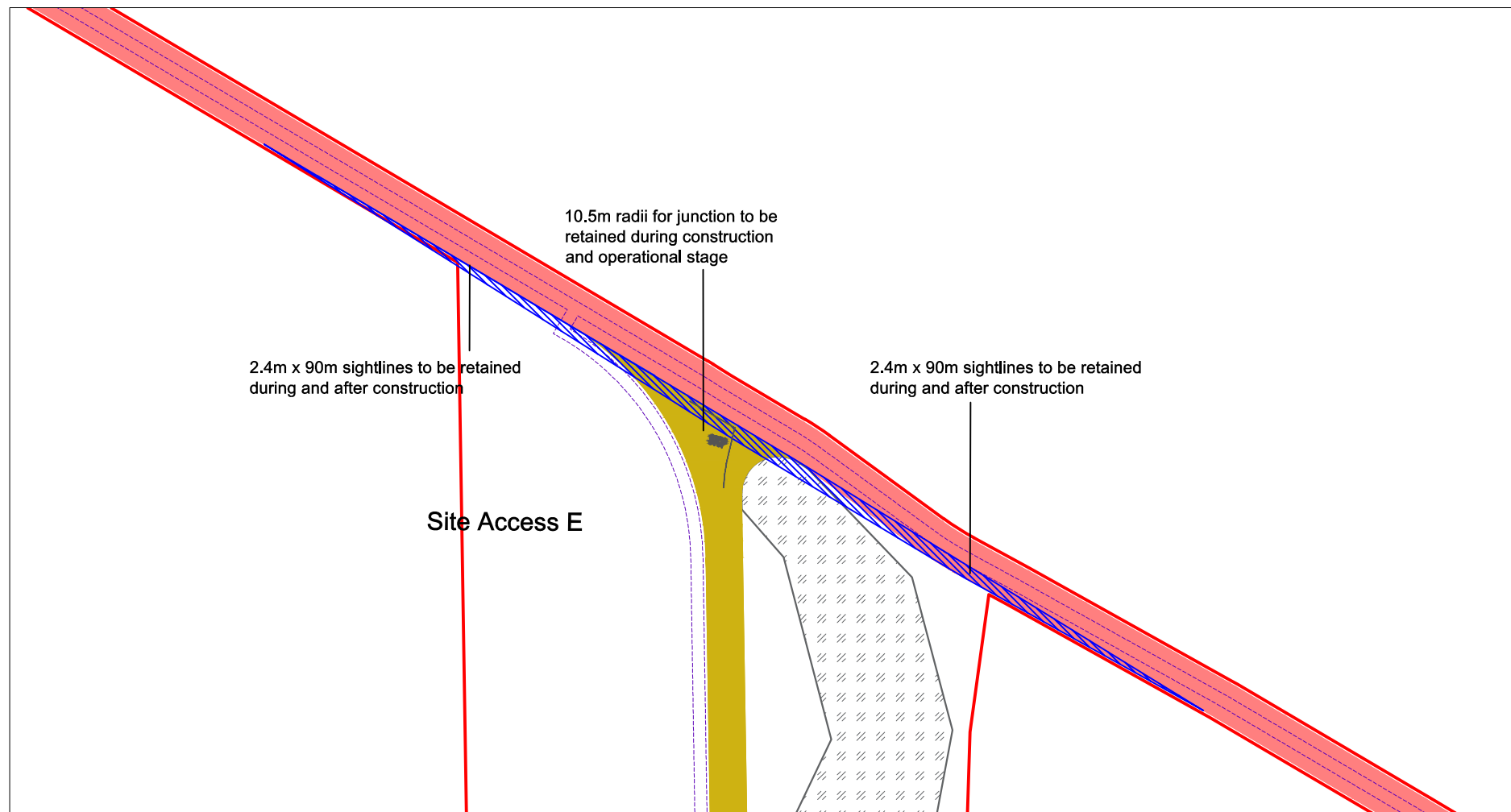
Note:
Barrier/gate to be in place at site access/egress points off local road.



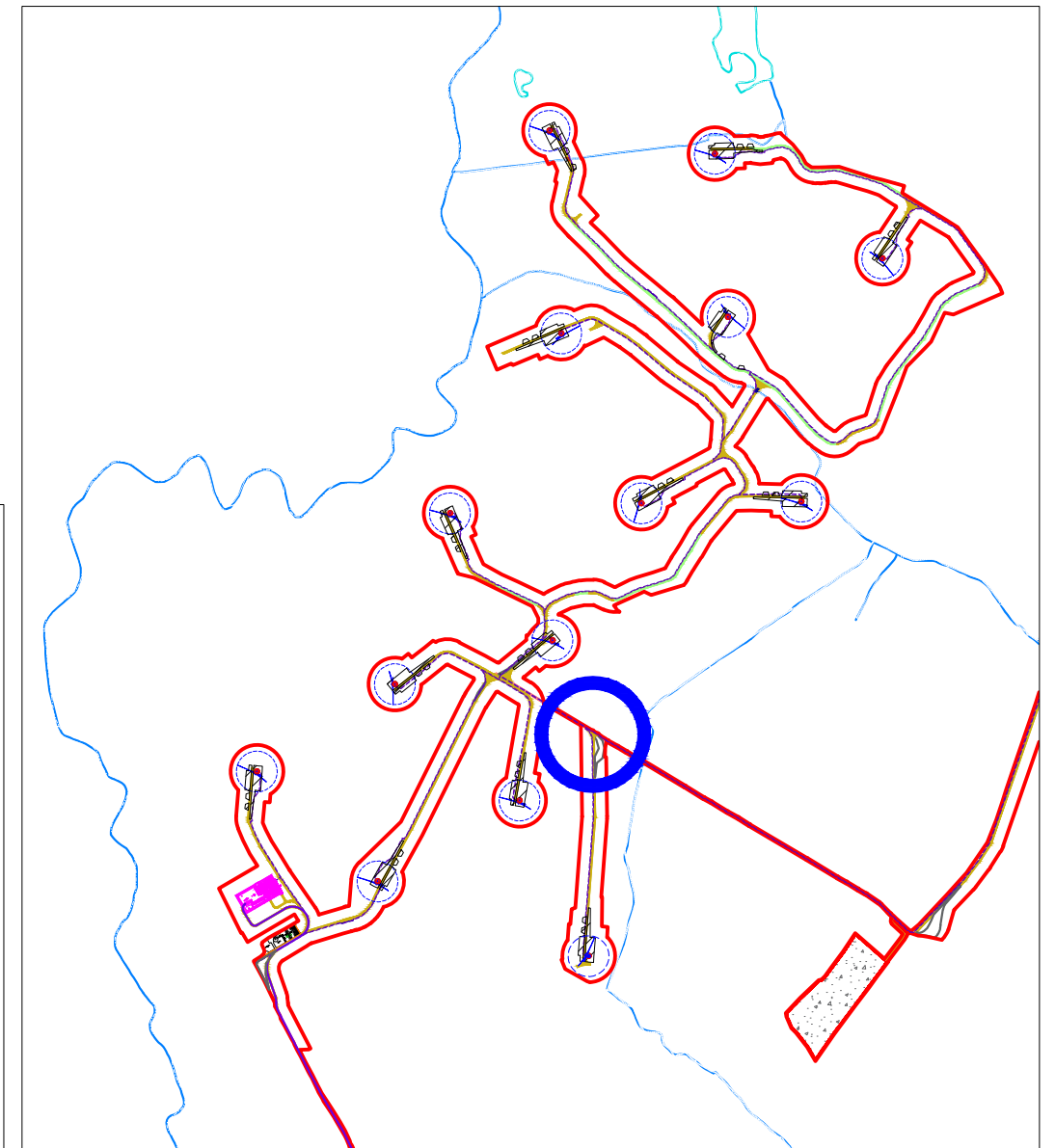
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DRAWING TITLE: Proposed Site Access D	
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 MKO Planning and Environmental Consultants Tuam Road, Galway Ireland, H91 VW64 +353 (0) 91 735611 email: info@www.mkofireland.ie Website: www.mkofireland.ie	

Drawing Legend	
	Proposed Road
	Existing External Road to be Upgraded
	Unbound Hardcore Surface
	Sight Line



Note:
Barrier/gate to be in place at site access/egress points off local road.



1:25,000 Location on Context Map 

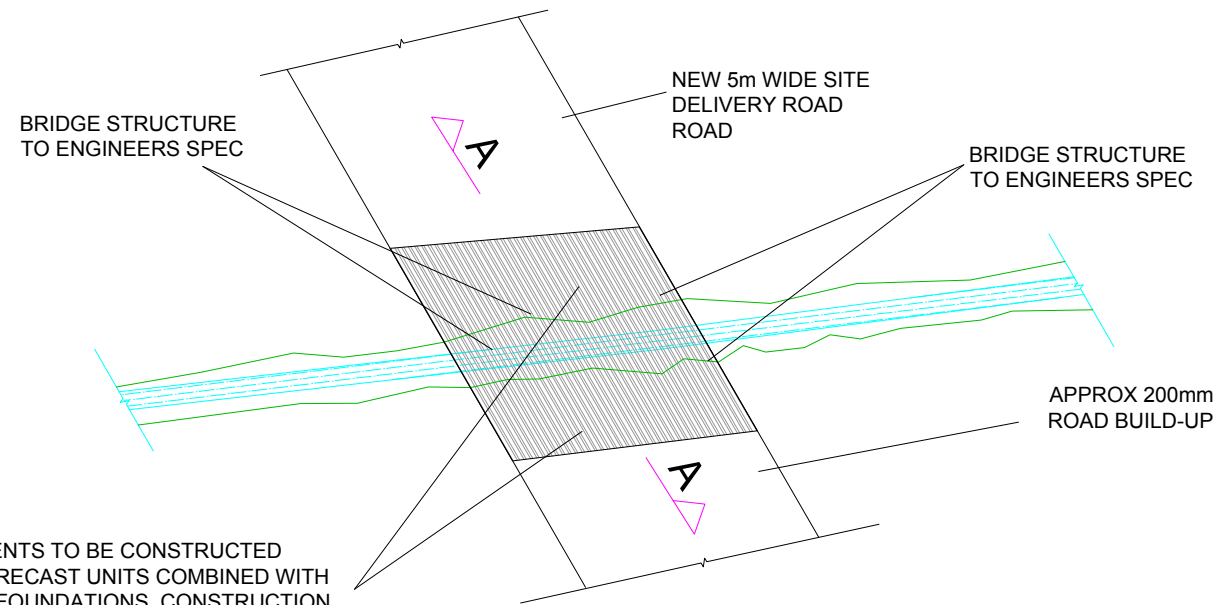


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DRAWING TITLE: Proposed Site Access E	
PROJECT TITLE: Coole Wind Farm, Co. Westmeath	
DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No.: 200445	DRAWING No.: 200445 - 54
SCALE: 1:1,000 @A3	DATE: 15.03.2021
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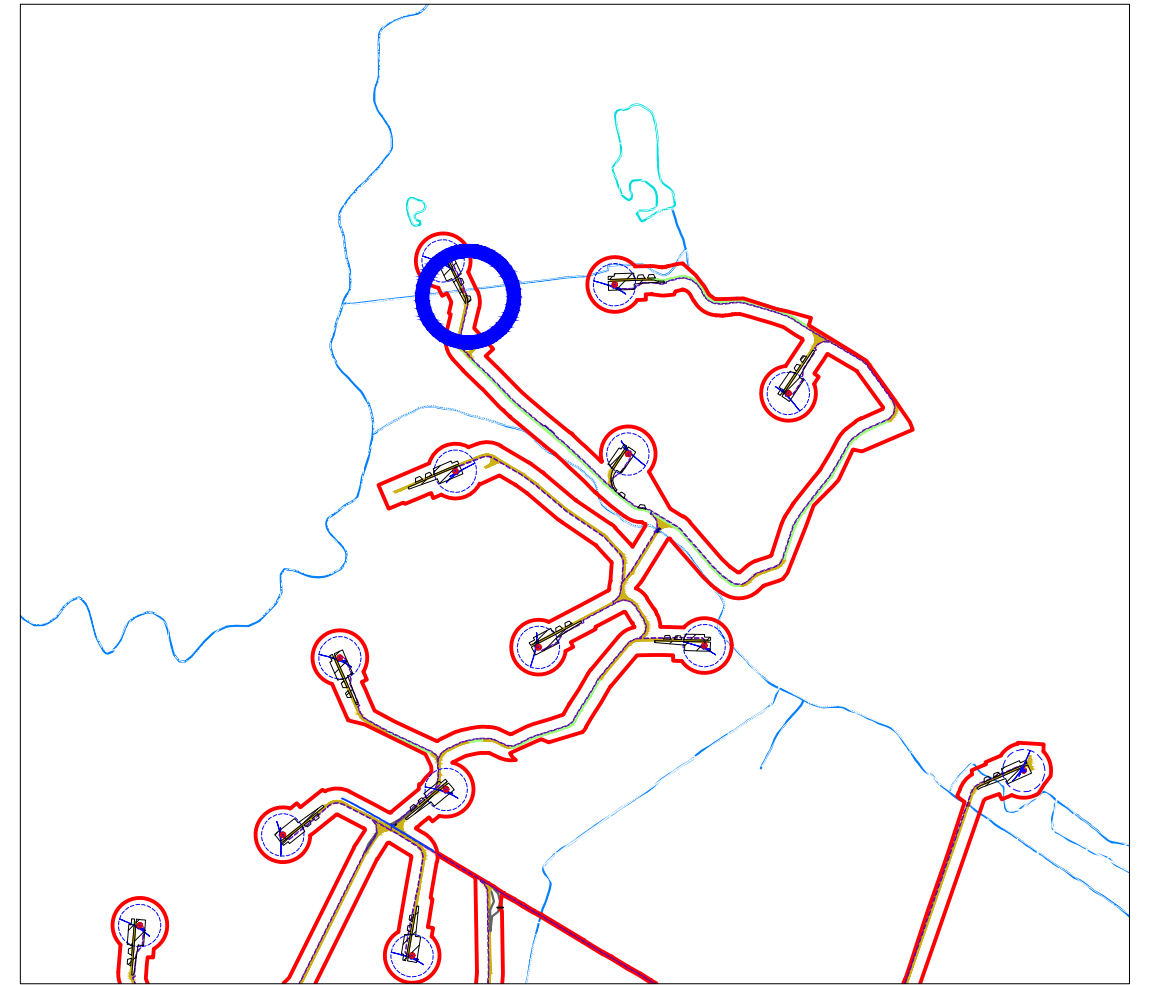
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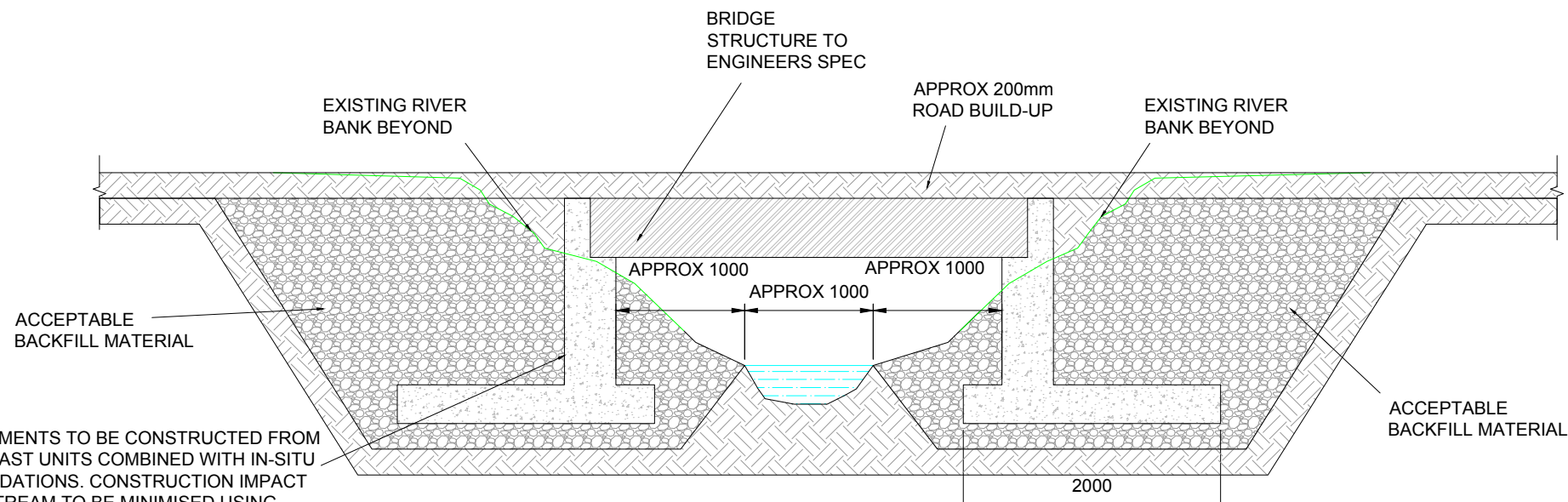
ABUTMENTS TO BE CONSTRUCTED FROM PRECAST UNITS COMBINED WITH IN-SITU FOUNDATIONS. CONSTRUCTION IMPACT ON STREAM TO BE MINIMISED USING MITIGATION MEASURES AGREED WITH IFI & NPWS

CLEAR SPAN BRIDGE CROSSING PLAN

Scale 1:200

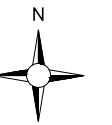


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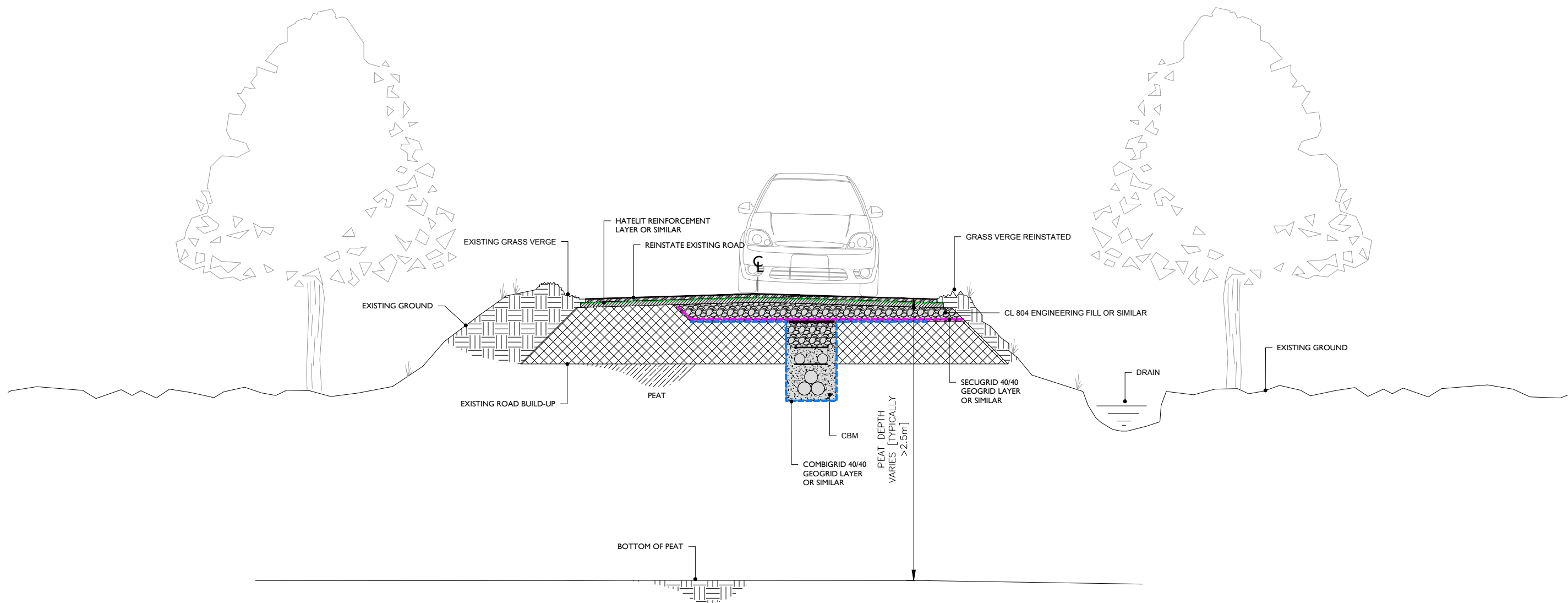


ABUTMENTS TO BE CONSTRUCTED FROM PRECAST UNITS COMBINED WITH IN-SITU FOUNDATIONS. CONSTRUCTION IMPACT ON STREAM TO BE MINIMISED USING MITIGATION MEASURES AGREED WITH IFI & NPWS

SECTION A-A Scale 1:50




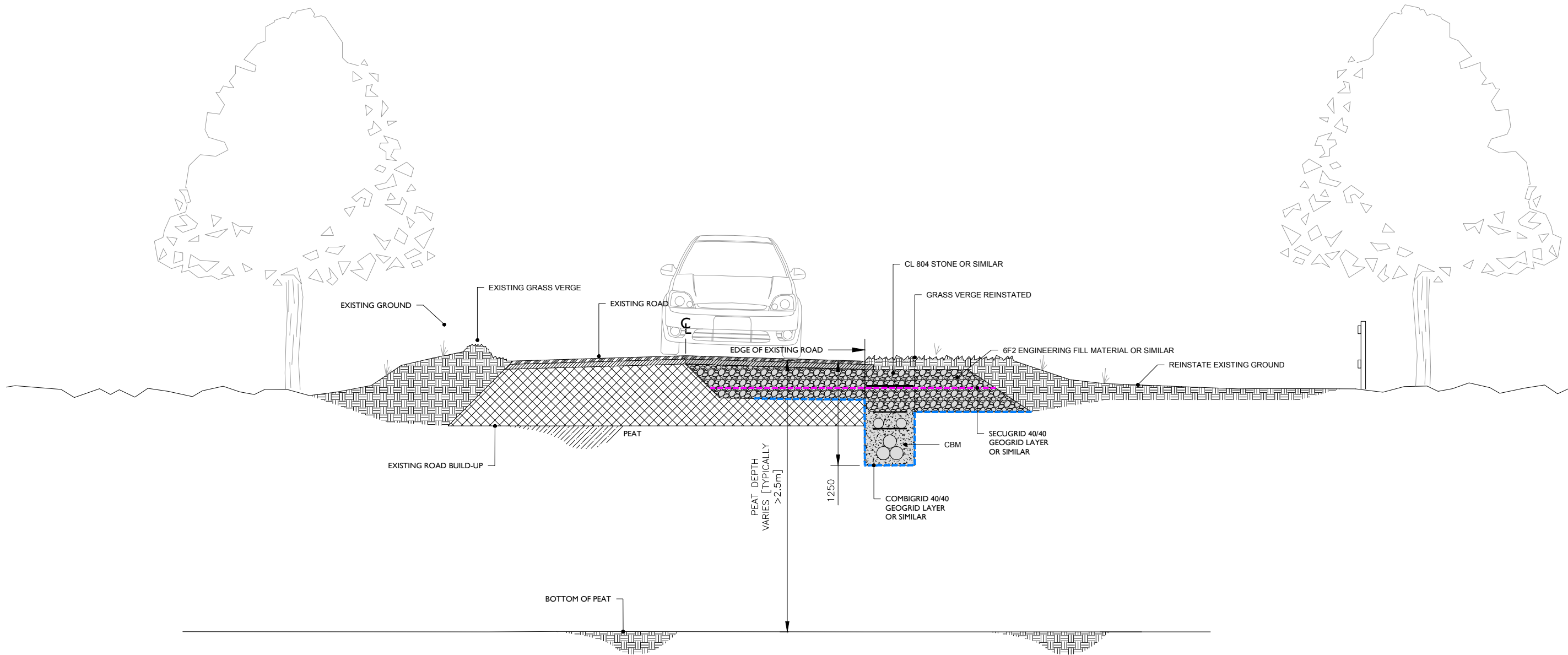
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Coole Wind Farm, Co. Westmeath	
DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No.: 200445	DRAWING No.: 200445 - 57
SCALE: As Shown @A3	DATE: 15.03.2021
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TYPICAL SECTION THROUGH FLOATING ROAD
[>2.5M TO BASE OF PEAT]
 SCALE 1:50


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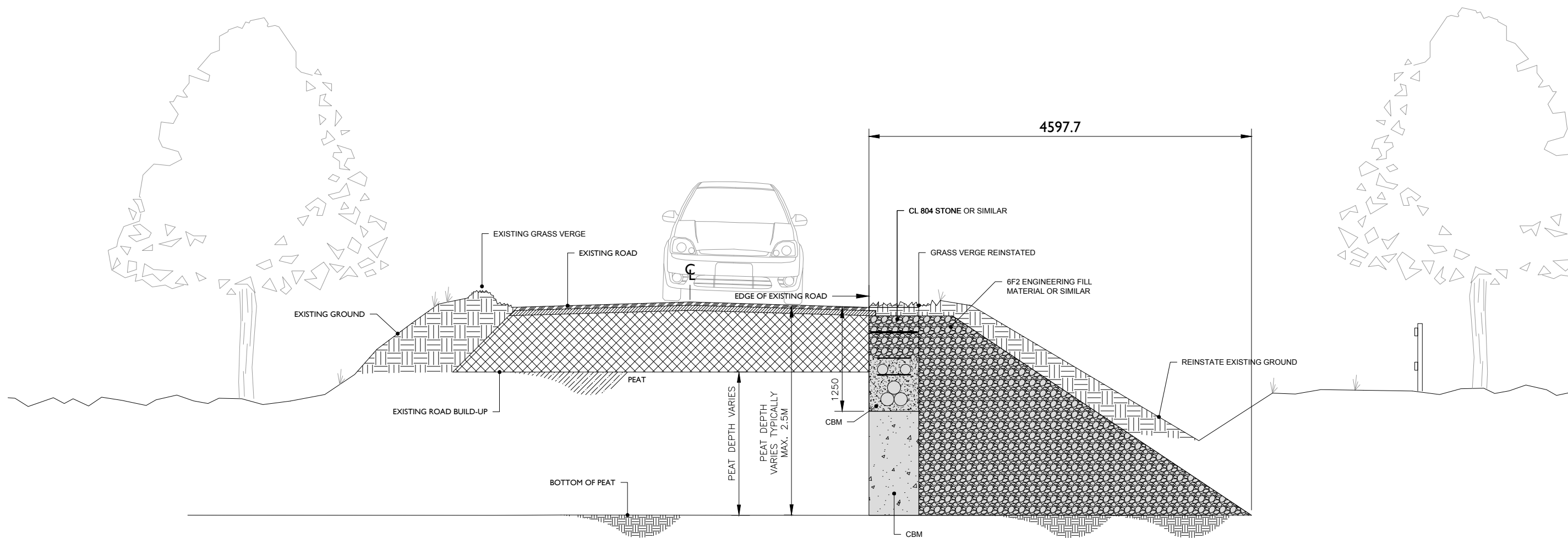
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<table border="1"> <tr> <td>REV</td> <td>DATE</td> <td>DRAWN BY</td> <td>CHECKED BY</td> <td>DETAILS</td> </tr> <tr> <td>B</td> <td>24.01.2020</td> <td>MB</td> <td>JS</td> <td>NOTES UPDATED</td> </tr> <tr> <td>A</td> <td>10.12.2019</td> <td>M.B.</td> <td>J.S.</td> <td>FIRST ISSUE</td> </tr> </table>					REV	DATE	DRAWN BY	CHECKED BY	DETAILS	B	24.01.2020	MB	JS	NOTES UPDATED	A	10.12.2019	M.B.	J.S.	FIRST ISSUE	DRAWN BY		DATE	PAPER SIZE	SCALE	REVISION
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CHECKED AND APPROVED		DATE	STATUS	DRAWING NUMBER																					
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**TYPICAL SECTION THROUGH FLOATING ROAD
TRENCH IN VERGE [TYPICALLY >2.5M TO BASE OF PEAT]**
SCALE 1:50


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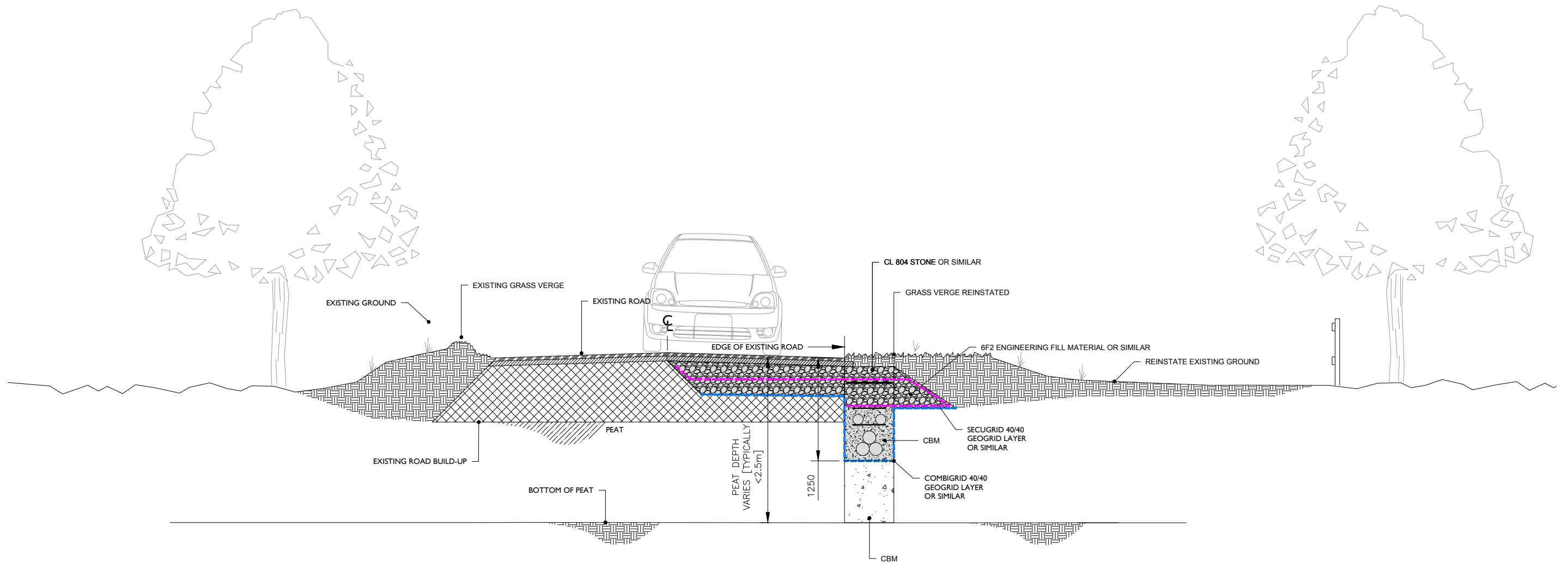


**TYPICAL SECTION THROUGH FLOATING ROAD
TRENCH IN VERGE [$<2.5\text{M}$ TO BASE OF PEAT]**
SCALE 1:50

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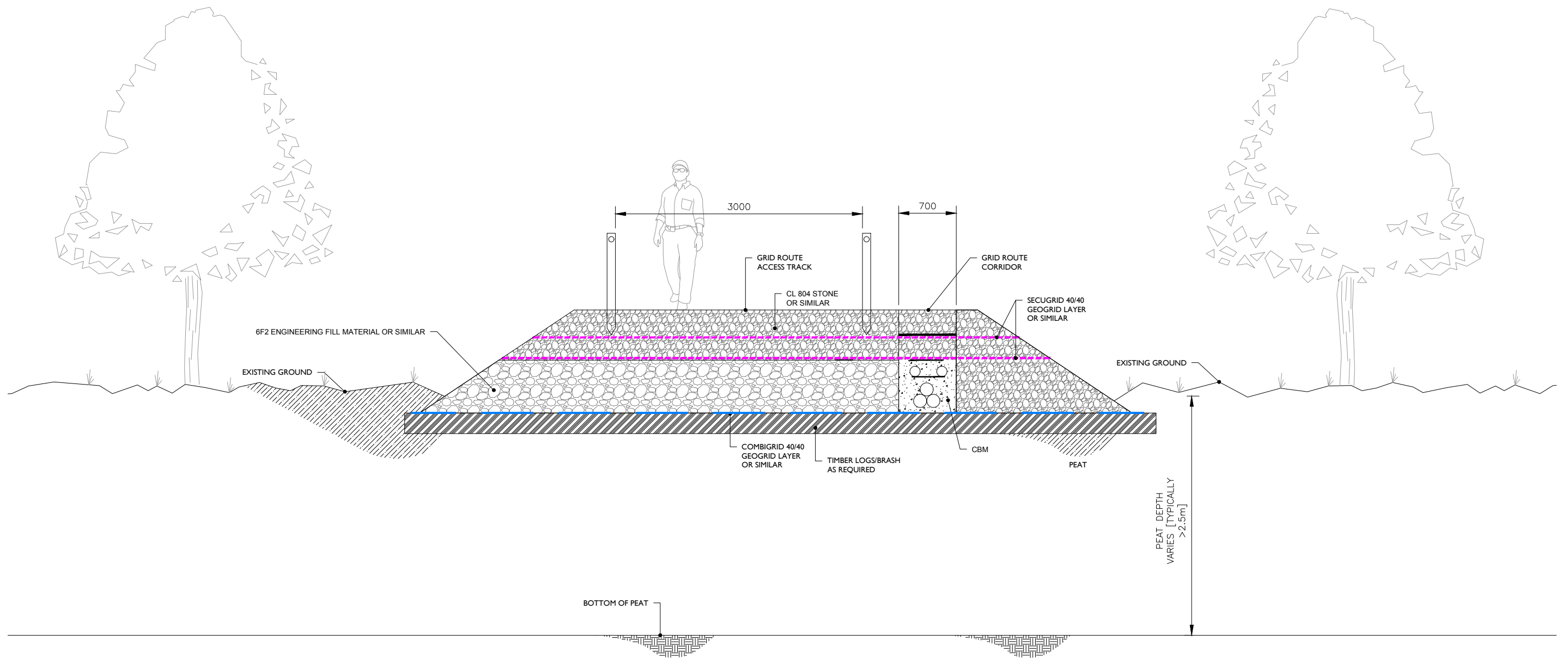


**TYPICAL SECTION THROUGH FLOATING ROAD
TRENCH IN VERGE [$<2.5\text{M}$ TO BASE OF PEAT]**
SCALE 1:50

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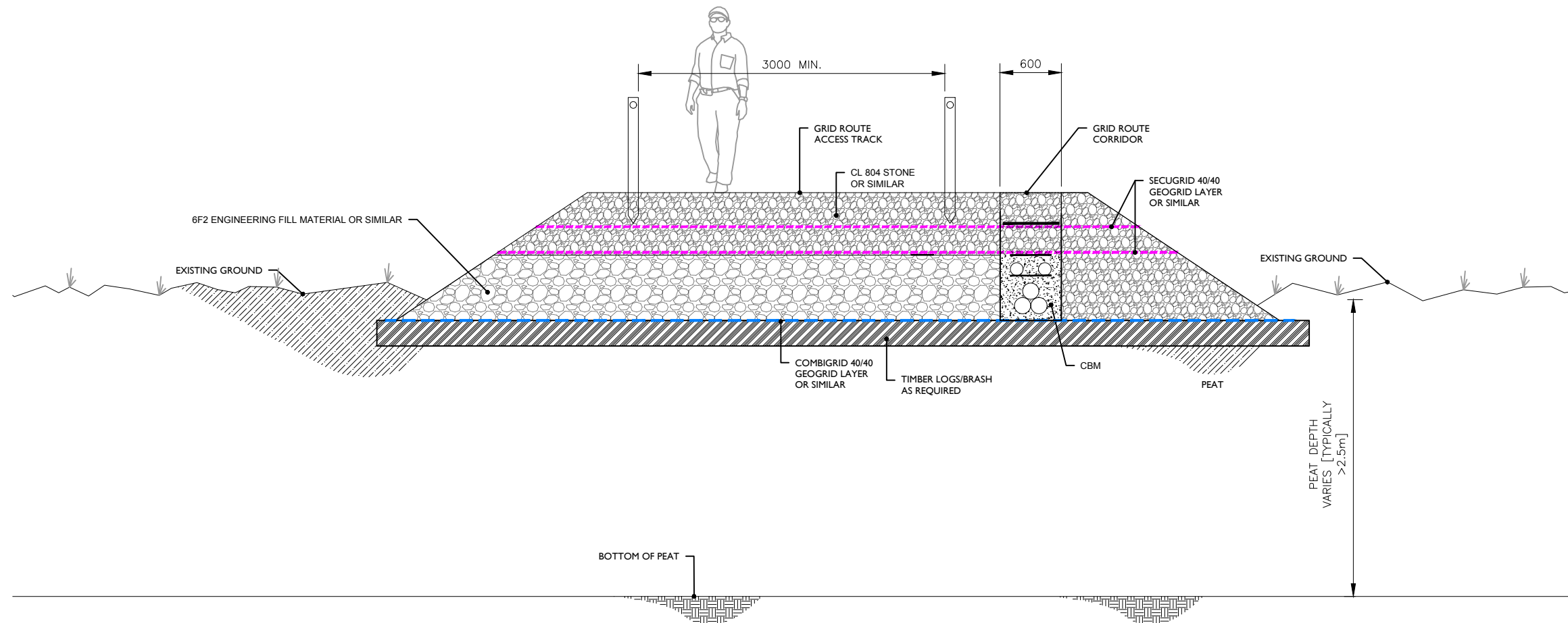


TYPICAL SECTION THROUGH FLOATING GRID ROUTE TRACK
Scale 1:50

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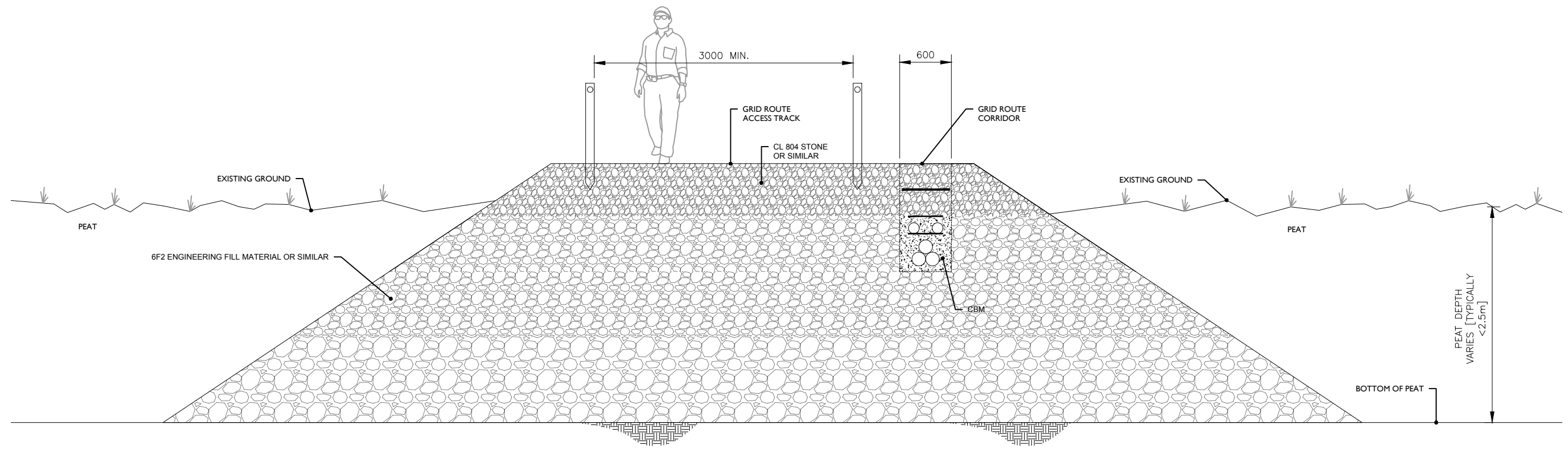
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TYPICAL SECTION THROUGH FLOATING GRID ROUTE TRACK
Scale 1:50

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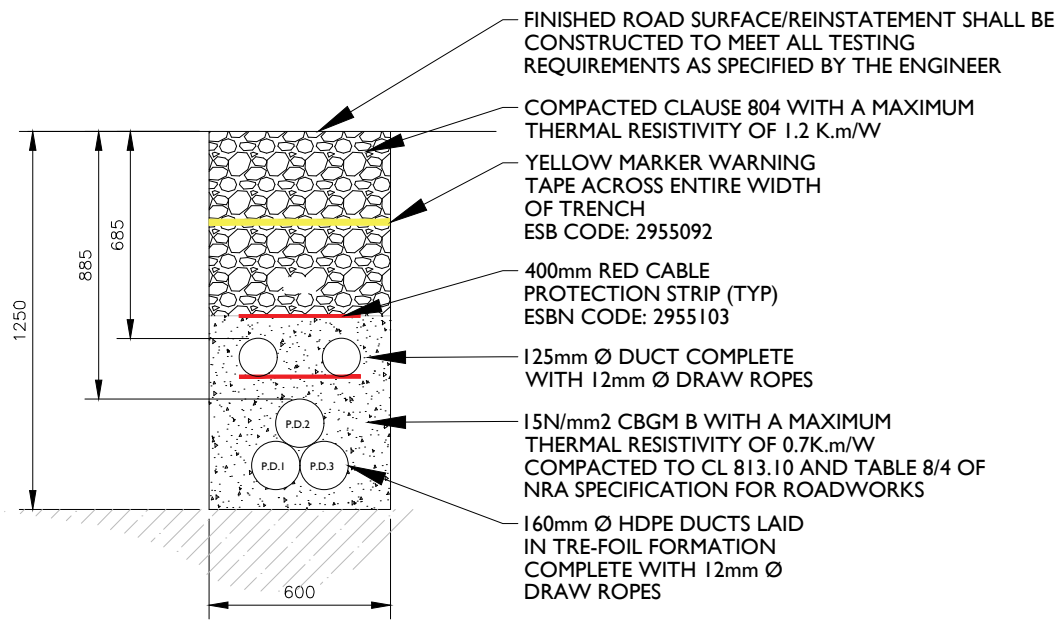
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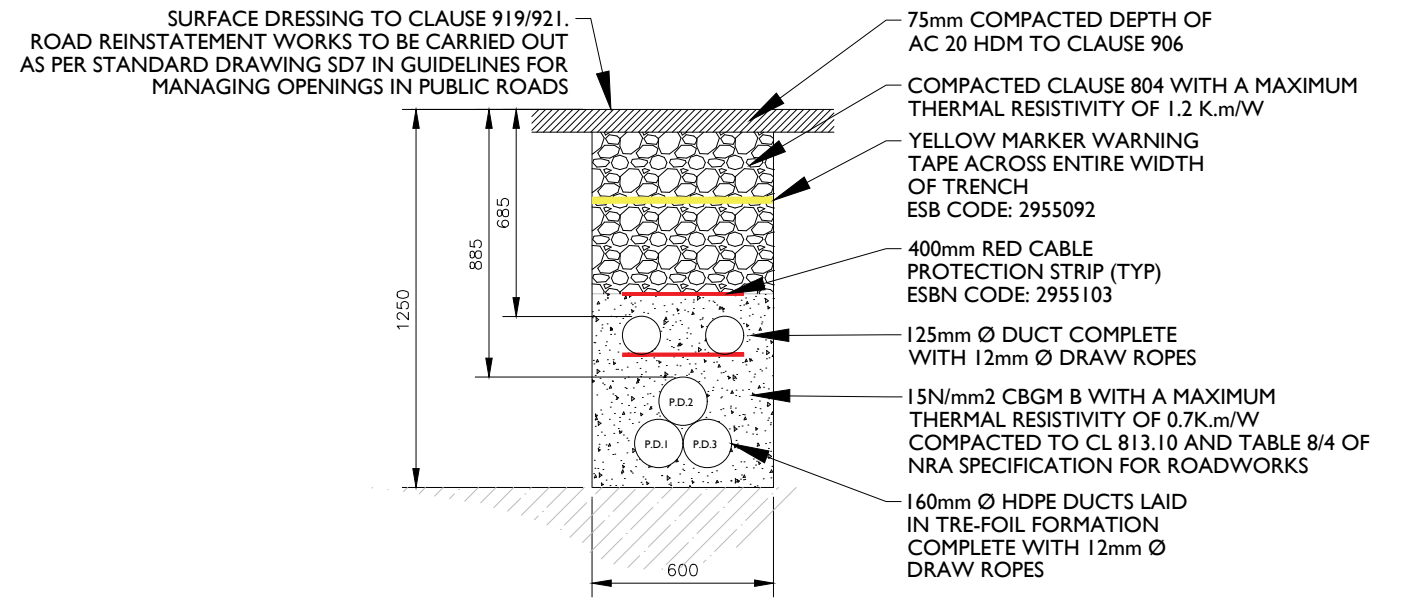
TYPICAL SECTION THROUGH SOLID GRID ROUTE TRACK
Scale 1:50

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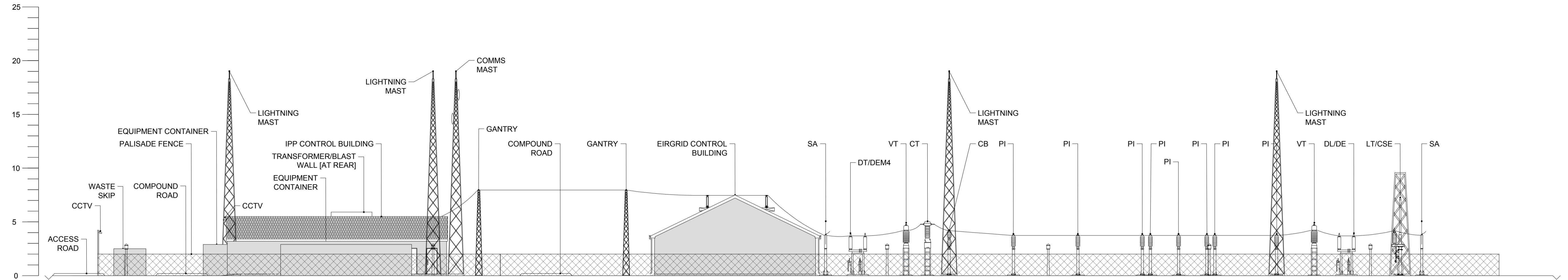
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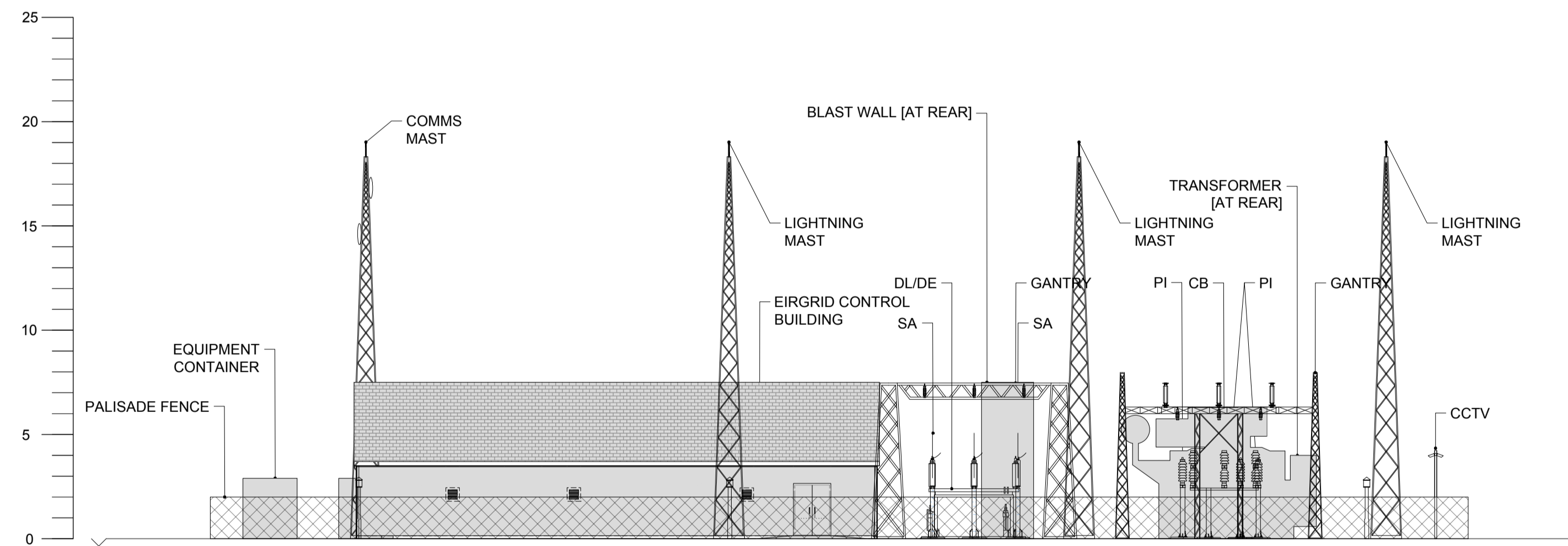
TYPICAL TRENCH DETAIL - PUBLIC ROAD

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									GRID ROUTE TRENCH TYPICAL DETAILS		
REV	DATE	DRAWN BY	CHECKED BY	DETAILS	DRAWN BY	DATE	PAPER SIZE	SCALE	DRAWING NUMBER		
A	19.01.2020	M.B.	J.S.	FIRST ISSUE	M. BROWNE	19/01/2020	A3	1:50	COLE d005.4.2		
					J. SHANAHAN	19/01/2020		DRAFT			



SIDE ELEVATION



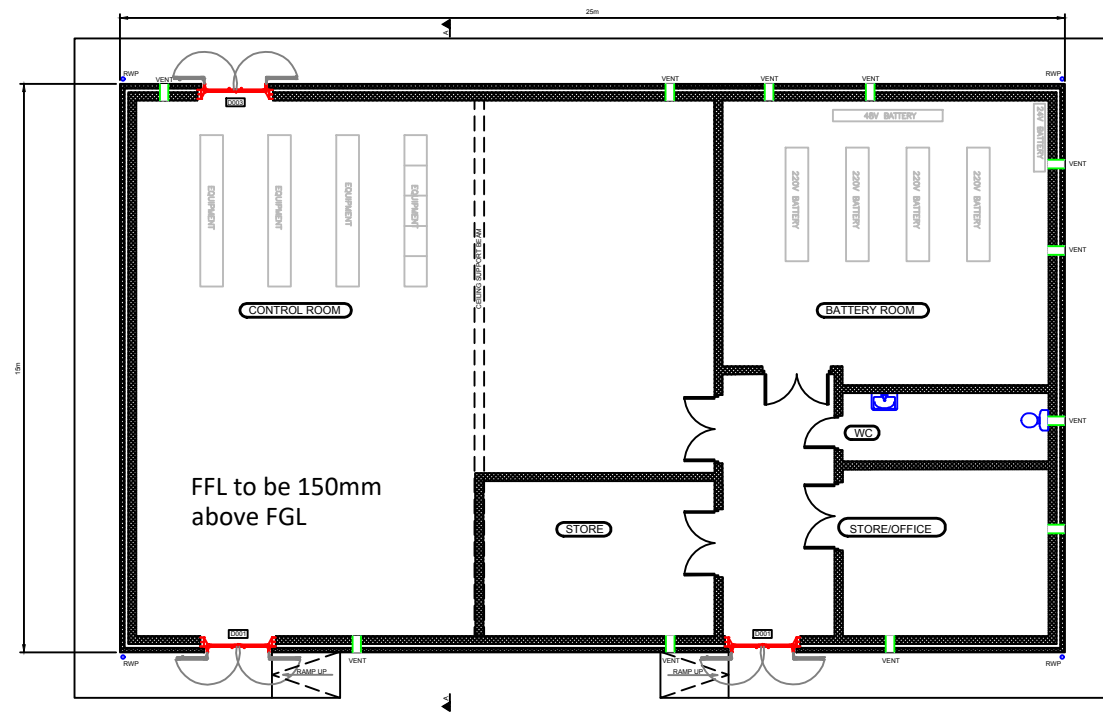
END ELEVATION

NOTES
 1. LAYOUT AND ARRANGEMENT OF SUBSTATION CONTROL BUILDING AND ELECTRICAL EQUIPMENT WITHIN COMPOUND IS SHOWN INDICATIVELY AND FOR ILLUSTRATION PURPOSES ONLY. DETAILS ARE BASED ON CURRENTLY ANTICIPATED EIRGRID/ESBN SPECIFICATIONS. FINAL LAYOUT AND ELECTRICAL EQUIPMENT DETAILS WILL BE CONFIRMED DURING DETAILED DESIGN WHEN EIRGRID/ESBN FINAL SPECIFICATIONS ARE CONFIRMED.
 2. FINAL SPECIFICATIONS OF BUILDINGS AND ELECTRICAL EQUIPMENT WILL BE AS PER EIRGRID AND ESB SPECIFICATIONS.
 3. POSITION AND NUMBER OF LIGHTNING MASTS TO BE CONFIRMED IN FINAL DESIGN.
 4. INTERNAL SUBSTATION DUCTING OMITTED FOR CLARITY.

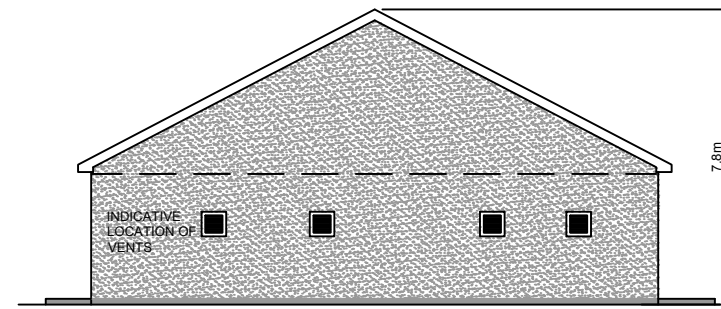
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A	16/01/2020	JS	PK	FIRST ISSUE

ENGINEER		CLIENT	
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		COOLE WIND FARM	
DRAWN BY		PAPER SIZE	
J. SHANAHAN		A1	
DATE		SCALE	
16/01/2020		1:200	
CHECKED AND APPROVED		STATUS	
P. KING		DRAFT	

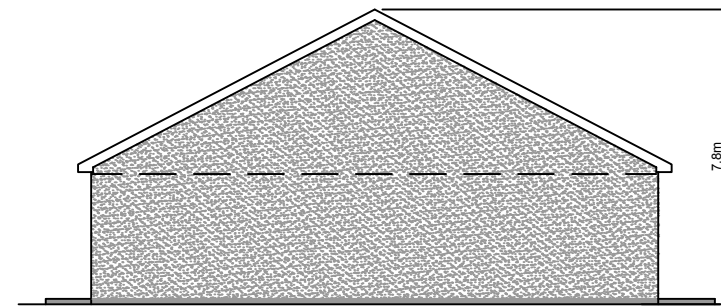
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DRAWING NUMBER		PROJECT	
COLE d007.2		COOLE WIND FARM	



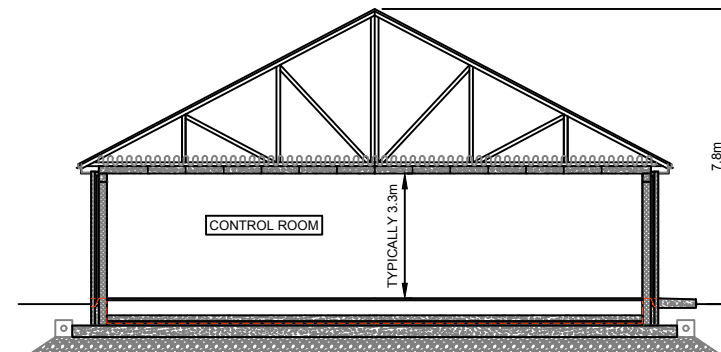
PLAN ON CONTROL BUILDING



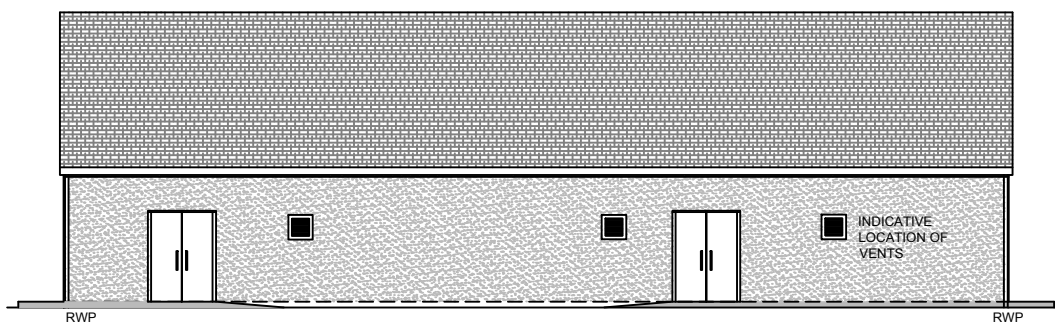
ELEVATION ON SIDE FACE



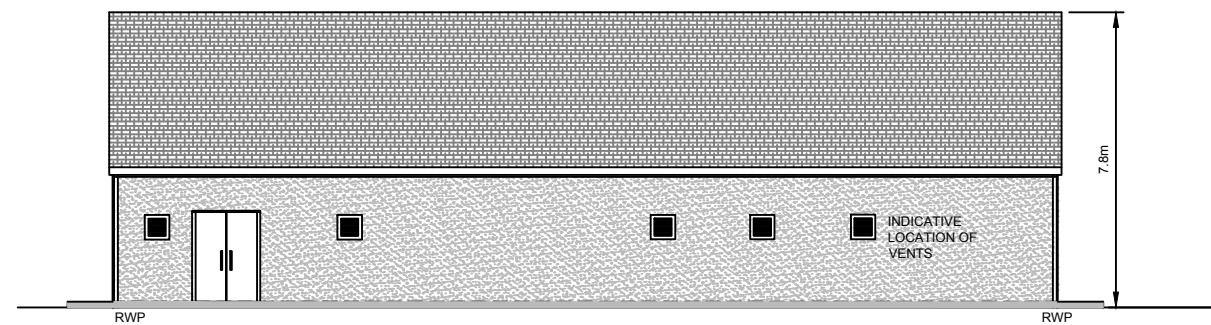
ELEVATION ON SIDE FACE



SECTION A-A



ELEVATION ON FRONT FACE



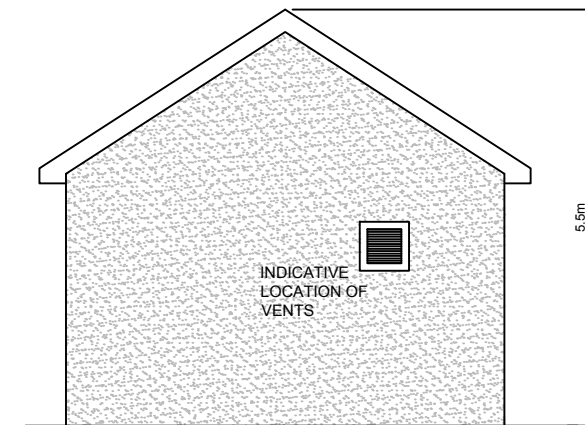
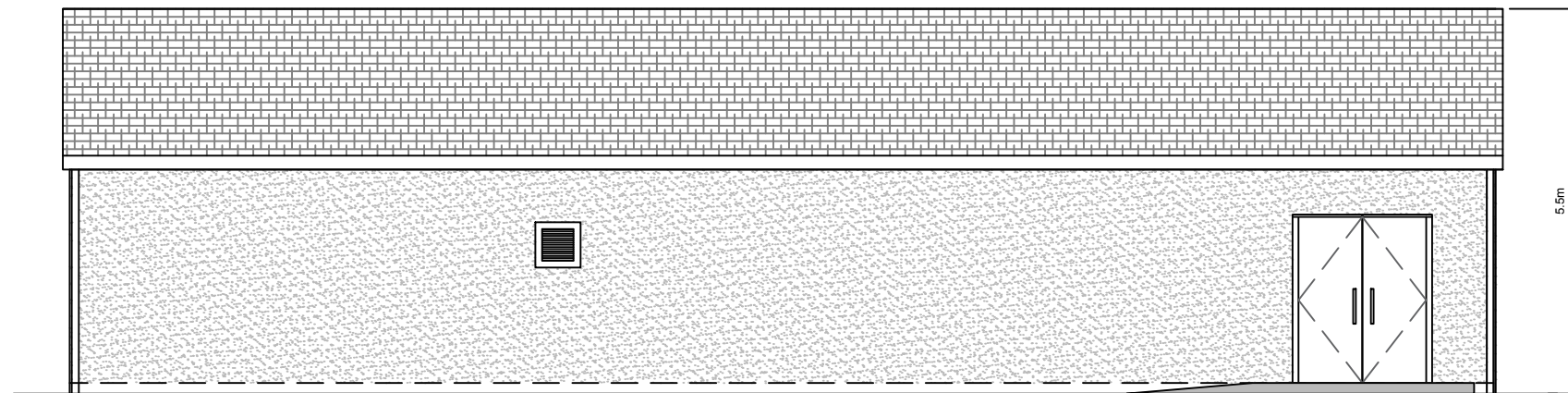
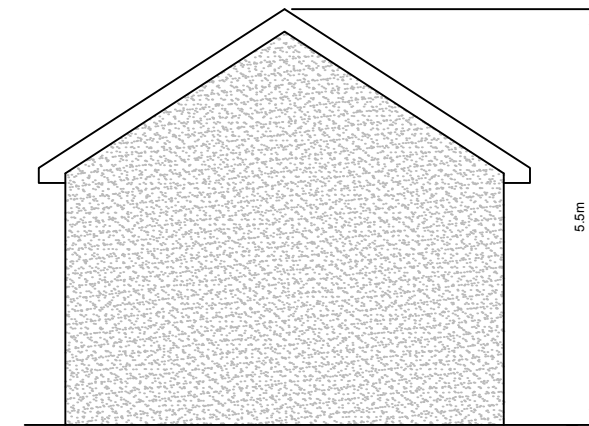
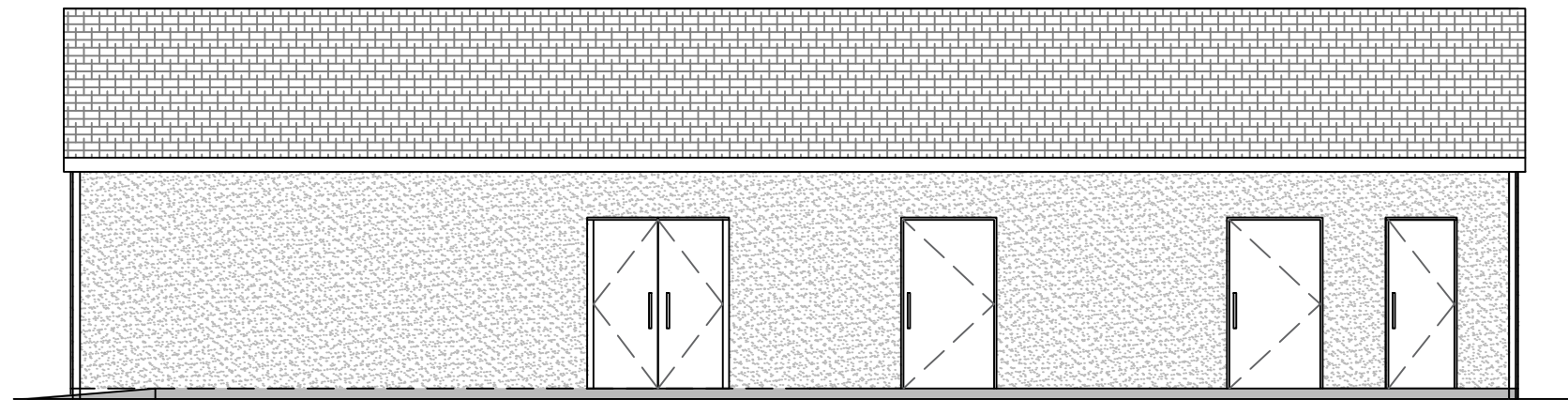
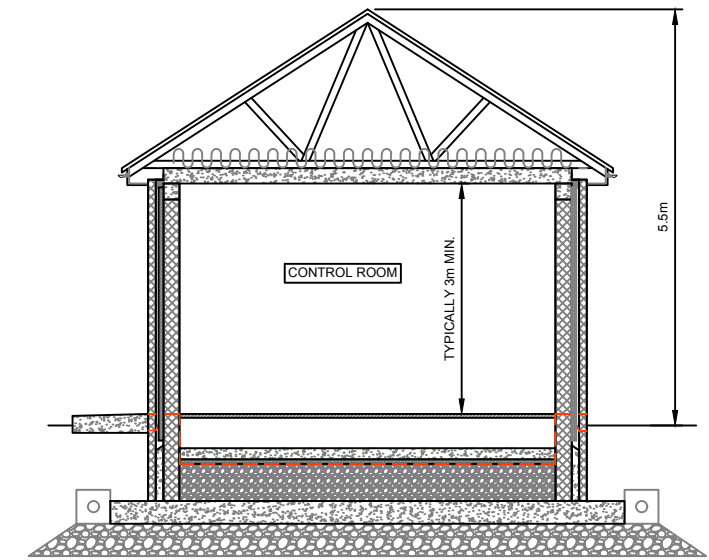
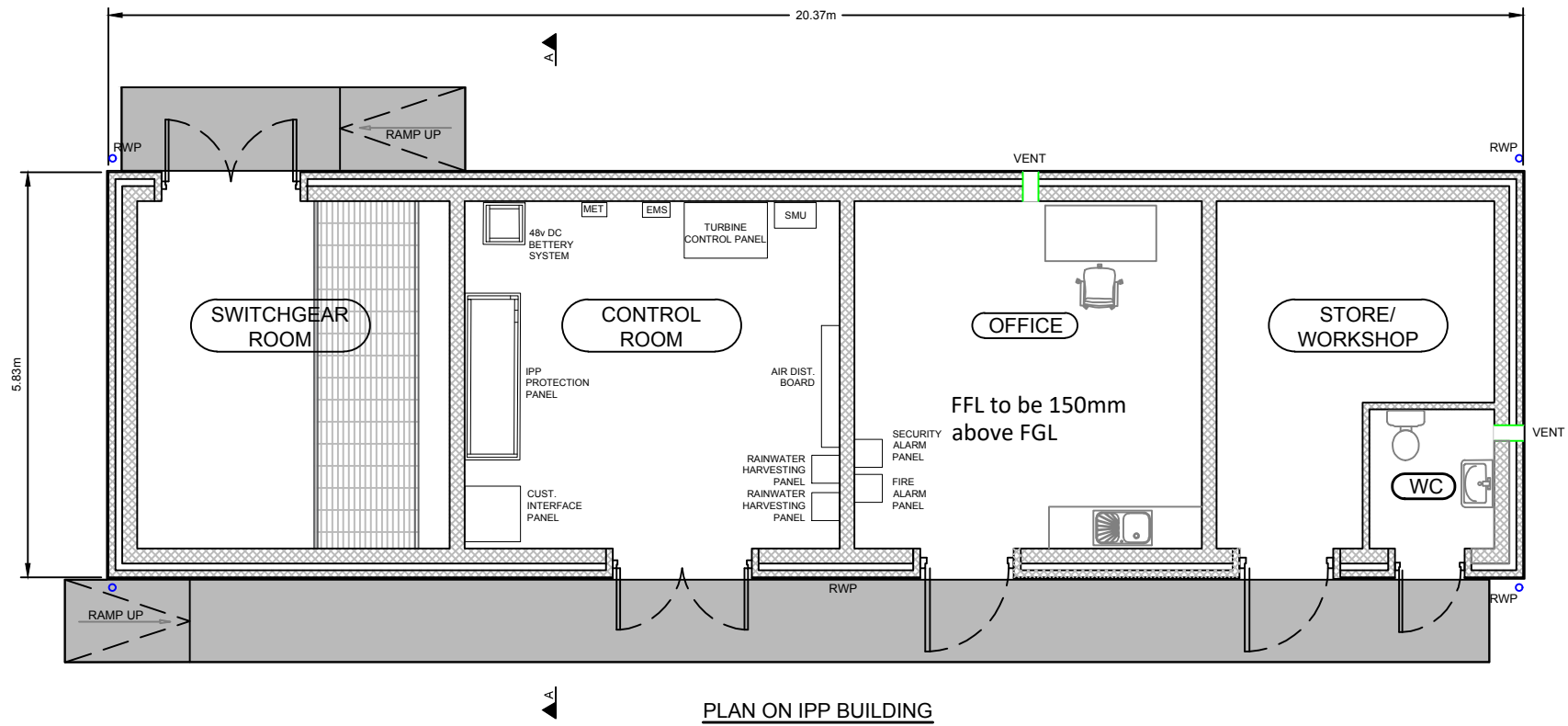
ELEVATION ON REAR FACE

NOTES

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DRAWN BY	M STUART	DATE	09/05/2020	PAPER SIZE	A3	SCALE	1:200
CHECKED AND APPROVED	J SHANAHAN	DATE	09/05/2020	STATUS			

CLIENT			PROJECT		
			COOLE WIND FARM		
TITLE			REVISION		
CONTROL BUILDING: TYPICAL PLAN AND ELEVATIONS			A		
DRAWING NUMBER			DRAFTING NUMBER		
COLE d007.3					



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A 11/05/2020	MJS	JS	FIRST ISSUE

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DRAWN BY: M STUART
 CHECKED AND APPROVED: J SHANAHAN

DATE: 09/05/2020

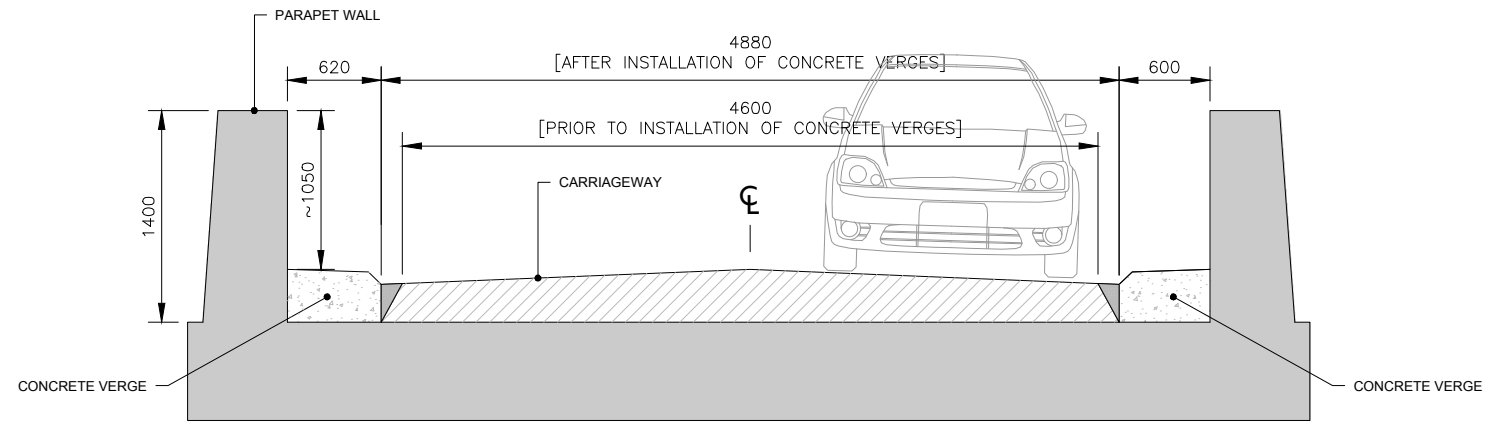
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STATUS	DRAWING NUMBER

COOLE WIND FARM

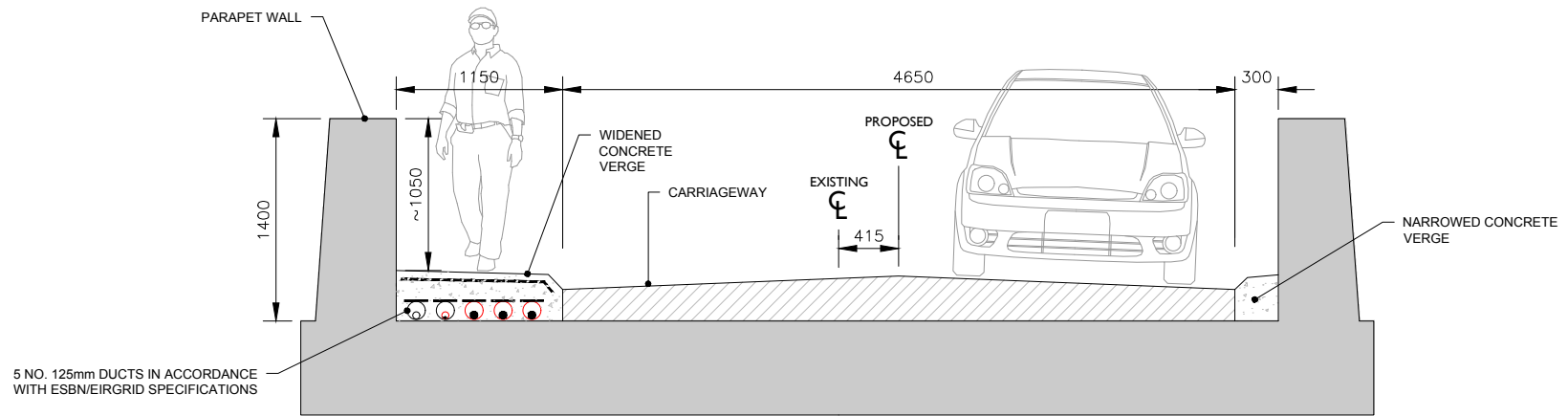
IPP BUILDING:
TYPICAL PLAN AND ELEVATIONS

REVISION: A

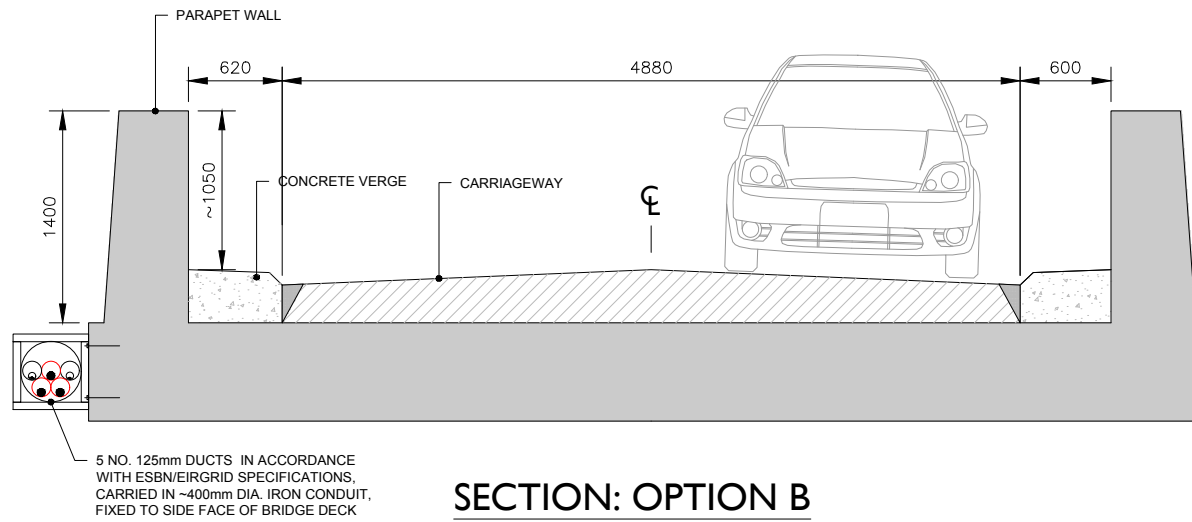
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SECTION: EXISTING BRIDGE
SCALE 1:50



SECTION: OPTION A
SCALE 1:50

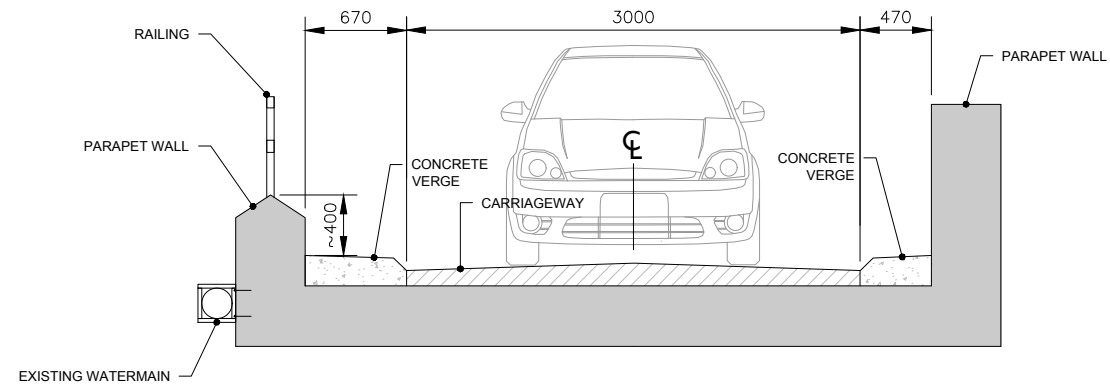


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SCALE 1:50

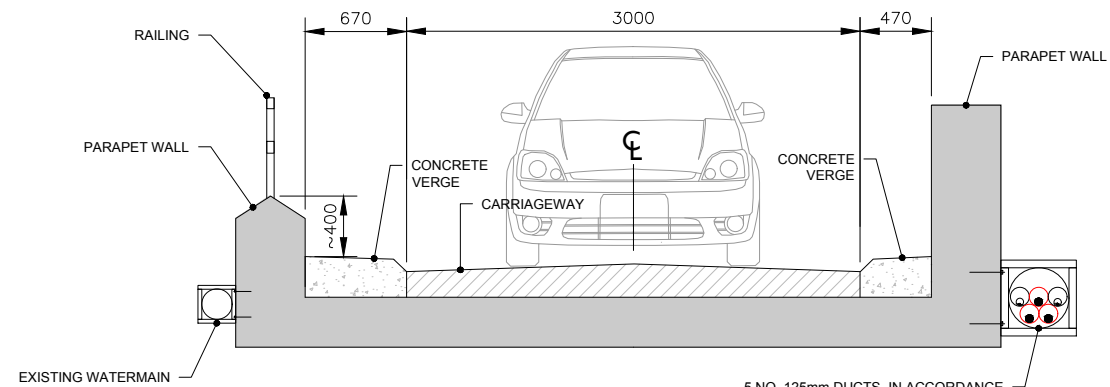
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B	17.01.2020	M.B.	J.S.	DUCT NOTE & PLAN UPDATED	DRAWN BY	DATE	PAPER SIZE	SCALE	<p>DRAWING NUMBER COLE d005.3.1</p>	
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REV	DATE	DRAWN BY	CHECKED BY	DETAILS	CHECKED AND APPROVED	DATE	STATUS			
					J. SHANAHAN	09/12/2019	DRAFT			

Printed: 24/01/2020 14:14:08
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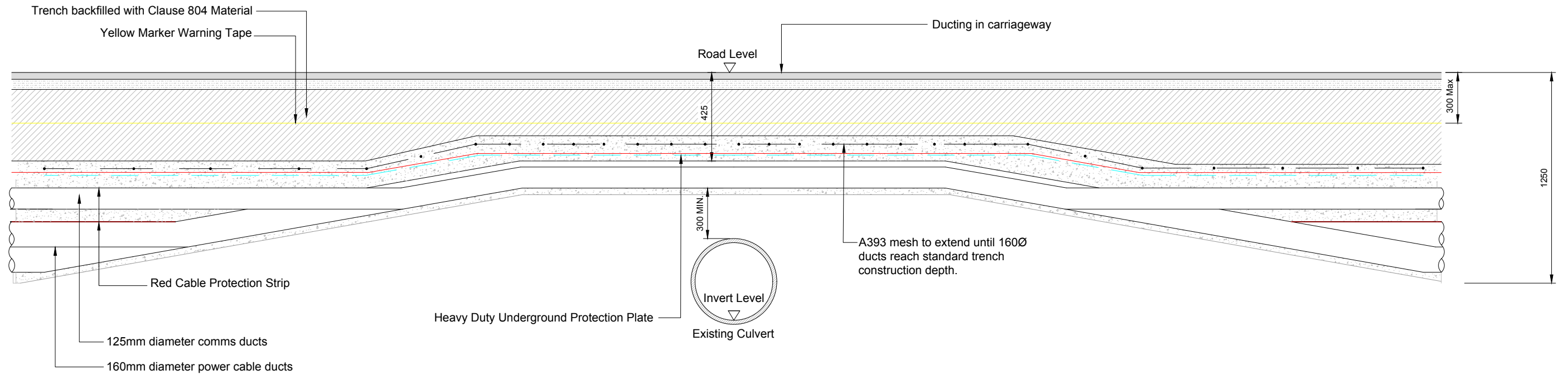
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SCALE 1:50



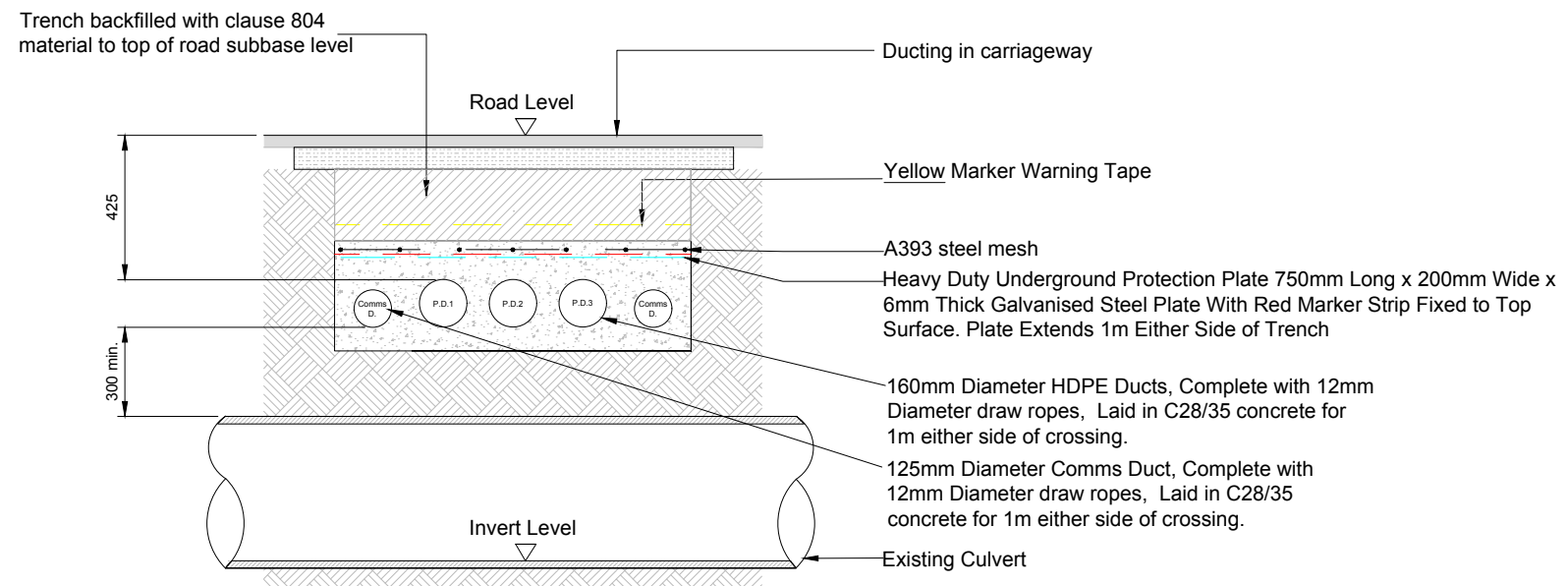
5 NO. 125mm DUCTS IN ACCORDANCE WITH ESBN/EIRGRID SPECIFICATIONS, CARRIED IN ~400mm DIA. IRON CONDUIT, FIXED TO SIDE FACE OF BRIDGE DECK

SECTION: OPTION A
SCALE 1:50

REV	DATE	DRAWN BY	CHECKED BY	DETAILS	ENGINEER	CLIENT	PROJECT	REVISION	
B	24.01.2020	M.B.	J.S.	DUCT NOTE & PLAN UPDATED	 The Hyde Building, The Park, Carrickmines, Dublin 18, D18VC44, Ireland E: hello@ionicconsulting.ie T: +353 (0) 1 845 9931 W: www.ionicconsulting.ie Formerly known as WIND PROSPECT IRELAND	A3	SCALE 1:50	B	
A	19.12.2019	M.B.	J.S.	FIRST ISSUE					
					DRAWN BY M. BROWNE	DATE 09/12/2019	PAPER SIZE A3	SCALE 1:50	COOLE WIND FARM GRID ROUTE BRIDGE CROSSINGS WH-L1825-002.00
					CHECKED AND APPROVED J. SHANAHAN	DATE 09/12/2019	STATUS DRAFT	DRAWING NUMBER COLE d005.3.2	



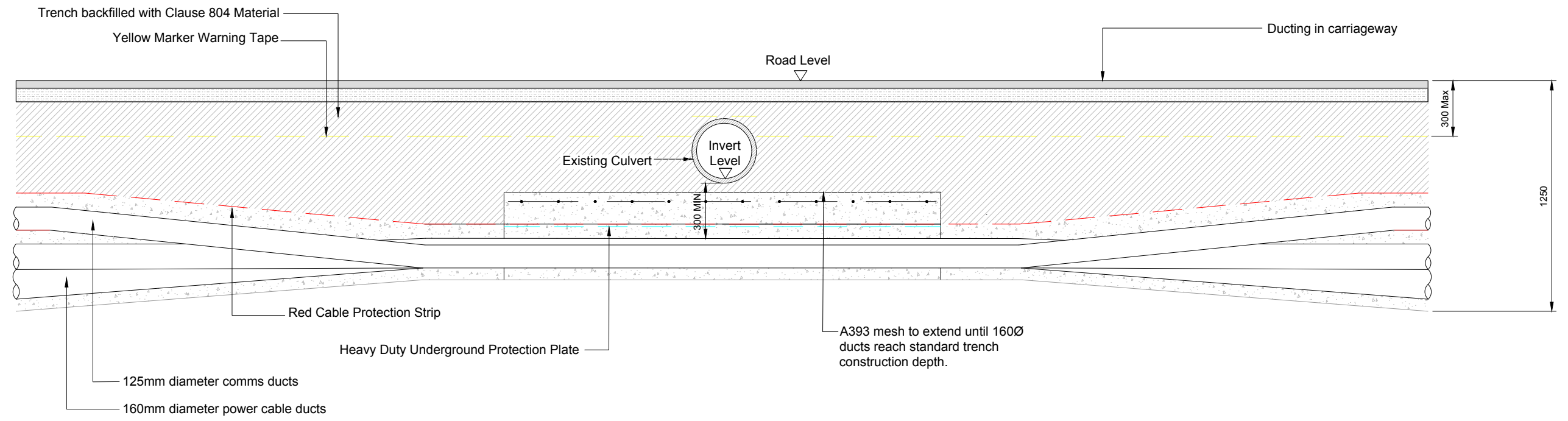
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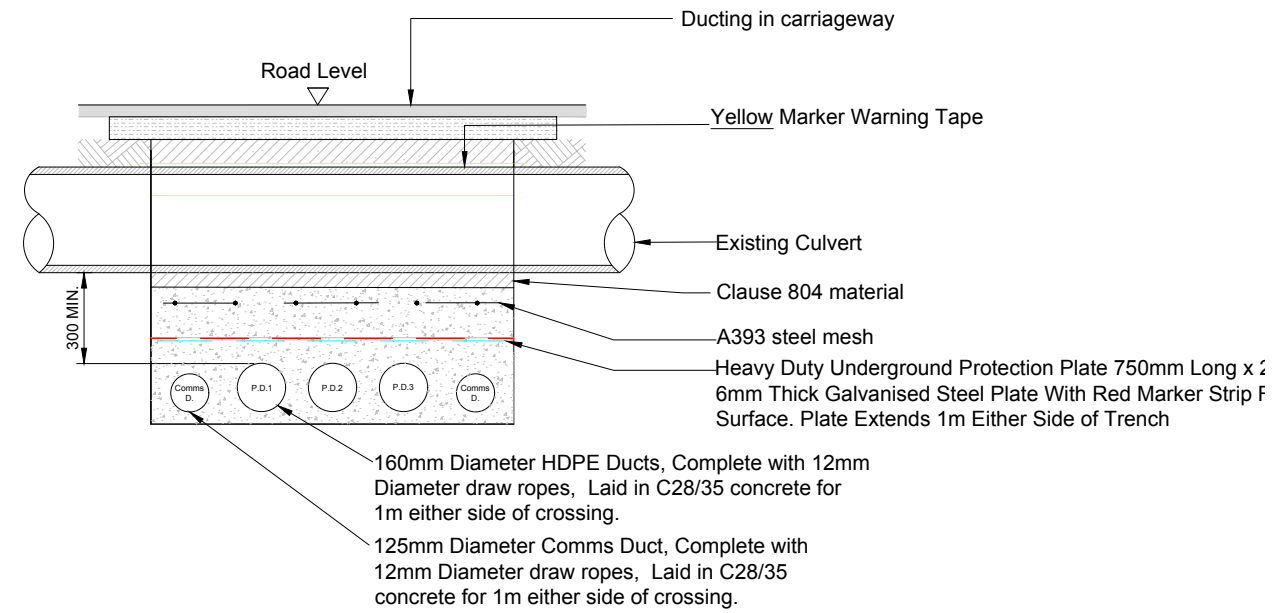
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						<p>DRAWN BY M. BROWNE</p>	<p>DATE 19/01/2020</p>	<p>PAPER SIZE A3</p>	<p>SCALE 1:50</p>	<p>TITLE WATER CROSSINGS TYPICAL DETAIL - OVER</p>
					<p>CHECKED AND APPROVED J. SHANAHAN</p>	<p>DATE 19/01/2020</p>	<p>STATUS DRAFT</p>	<p>DRAWING NUMBER COLE d005.4.3</p>	<p>FORM NO: 1/03/2020 (14/03) Z:\Projects\Wind\Coole_COLE\Drawings\005_Grid Route\COLE_005_1_GA_Plan.dwg</p>	
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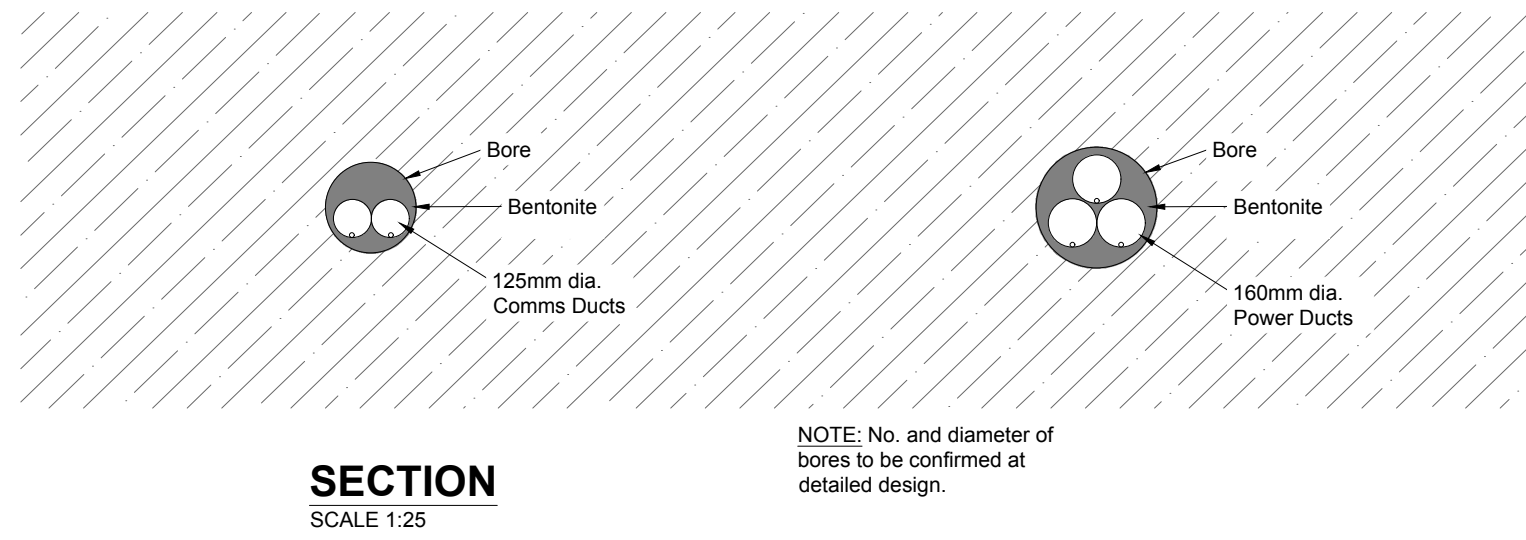
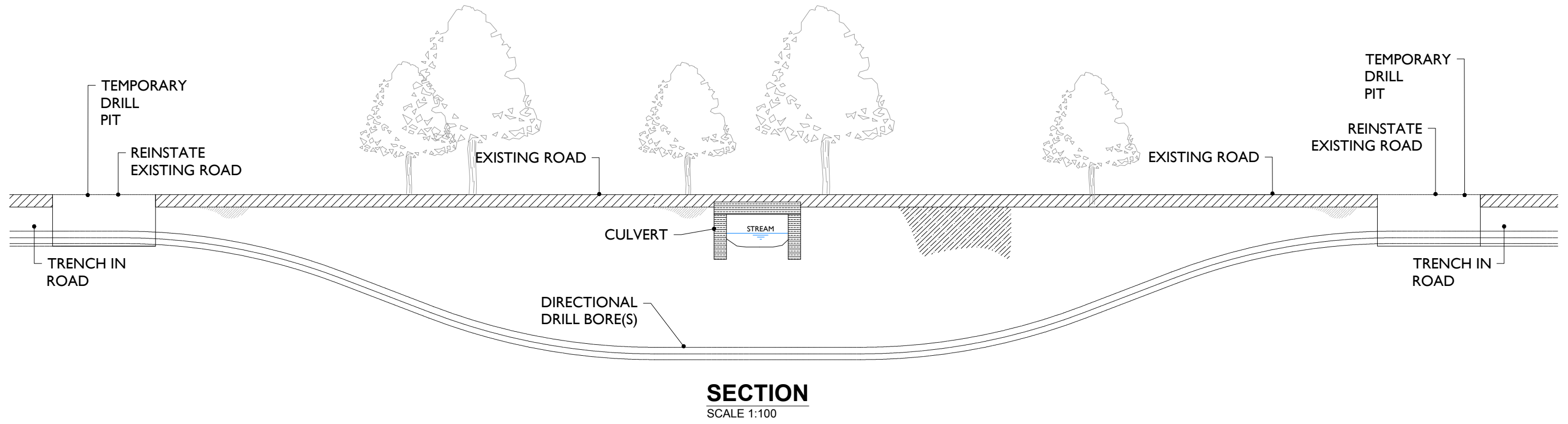
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SECTION
SCALE 1:25

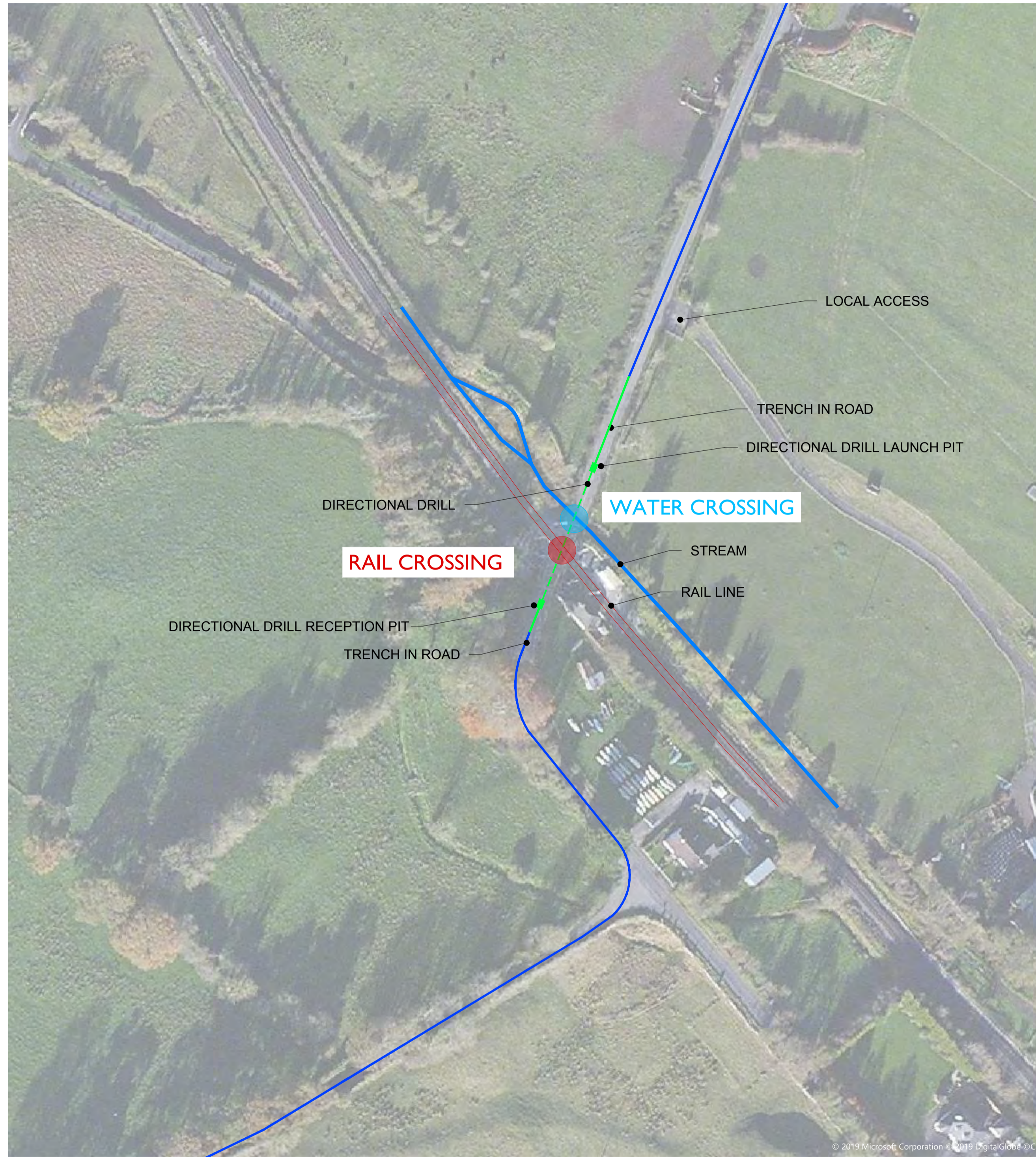
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					DRAWN BY M. BROWNE		PAPER SIZE A3		SCALE 1:50	
					CHECKED AND APPROVED J. SHANAHAN		STATUS DRAFT		TITLE WATER CROSSINGS TYPICAL DETAIL - UNDER CULVERT	
					DATE 19/01/2020		DRAWING NUMBER COLE d005.4.4		REVISION A	
REV	DATE	DRAWN BY	CHECKED BY	DETAILS	FIRST ISSUE A 19.01.2020 M.B. J.S. FIRST ISSUE					

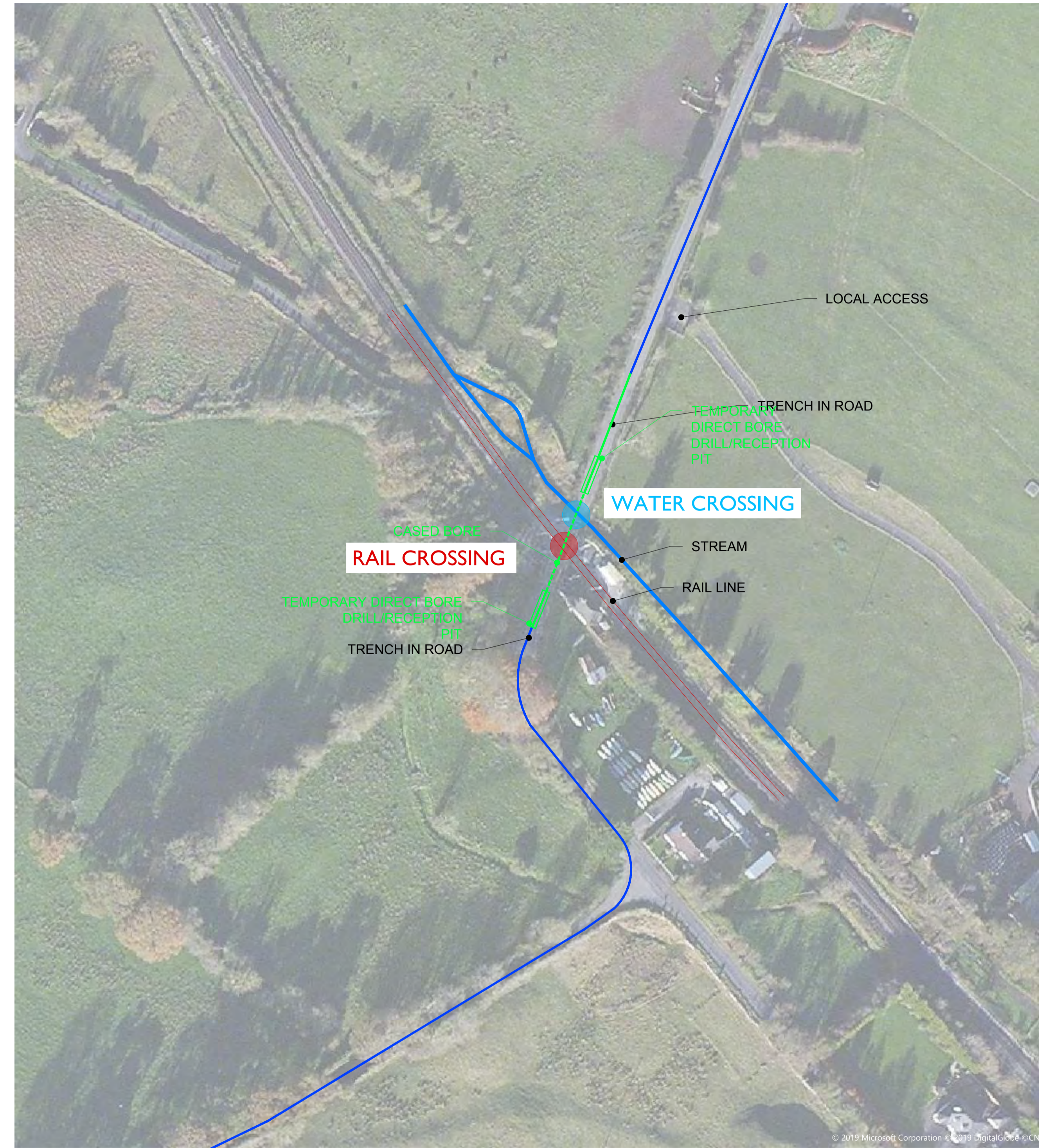


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					CHECKED AND APPROVED J. SHANAHAN		DATE 20/01/2020	STATUS DRAFT		DRAWING NUMBER COLE d005.4.5		
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OPTION 1 DIRECTIONAL DRILL - ILLUSTRATIVE PLAN AT RAIL CROSSING
Scale 1:50



OPTION 2 CASED BORE - ILLUSTRATIVE PLAN AT RAIL CROSSING
Scale 1:50

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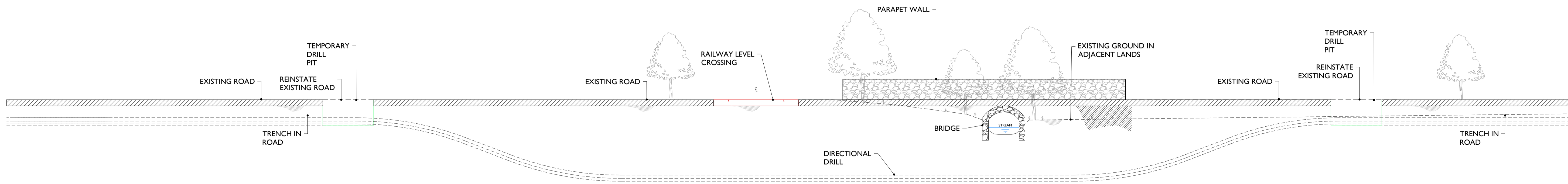
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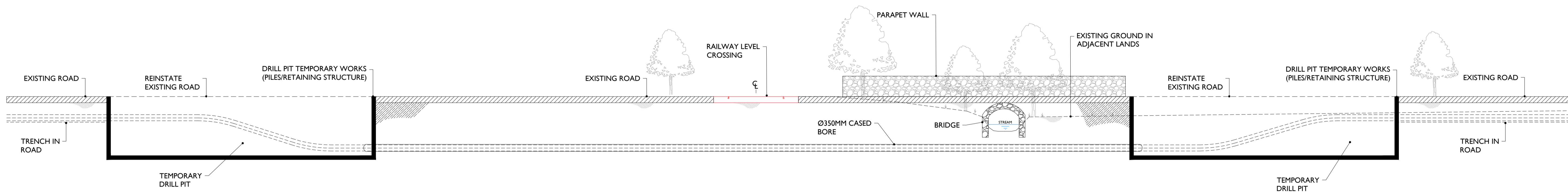
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PAPER SIZE A1	SCALE 1:100
STATUS DRAFT	

PROJECT COOLE WIND FARM GRID ROUTE		REVISION A
TITLE RAILWAY CROSSING ILLUSTRATIVE OPTIONS		
DRAWING NUMBER COLE d005.5.1		<small>Project: 16012020110408 Z:\Projects\WindFarm\COLE\Drawings\GridRoute\COLE_005.5.1.dwg</small>



OPTION 1 DIRECTIONAL DRILL - ILLUSTRATIVE SECTION THROUGH RAIL CROSSING
Scale 1:50



OPTION 2 CASED BORE - ILLUSTRATIVE SECTION THROUGH RAIL CROSSING
Scale 1:100

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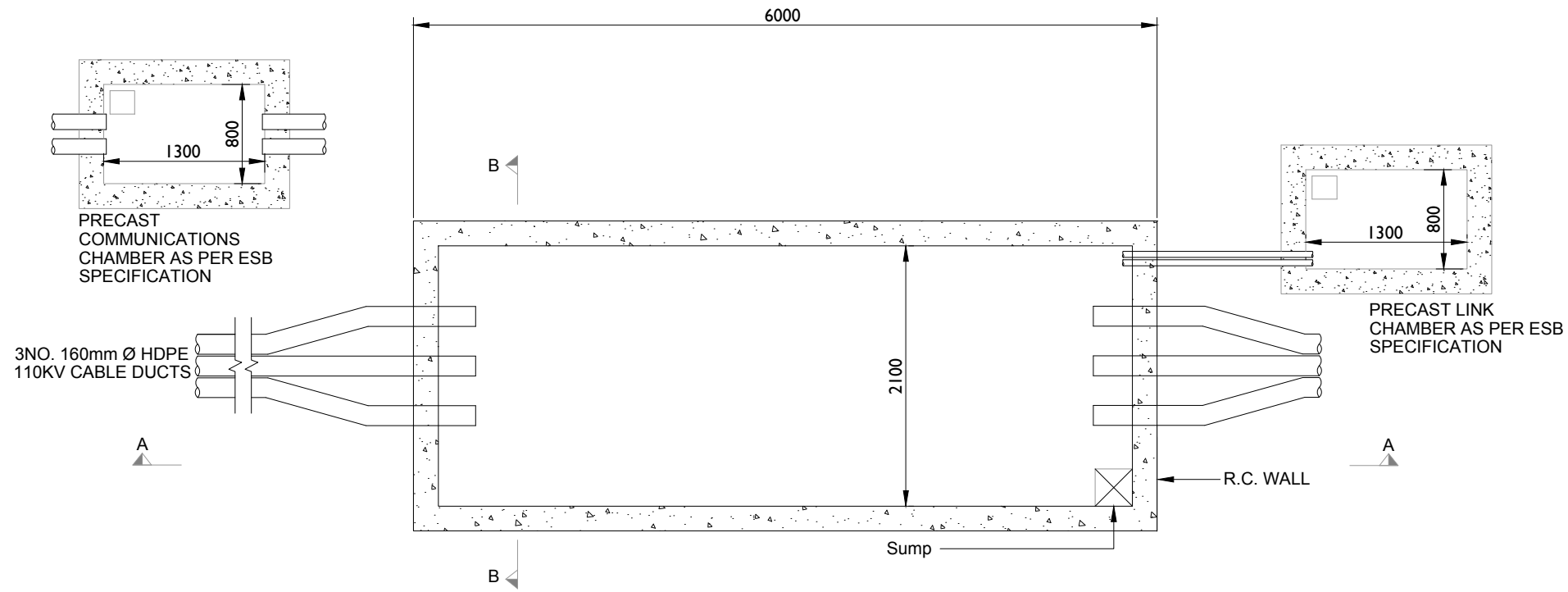
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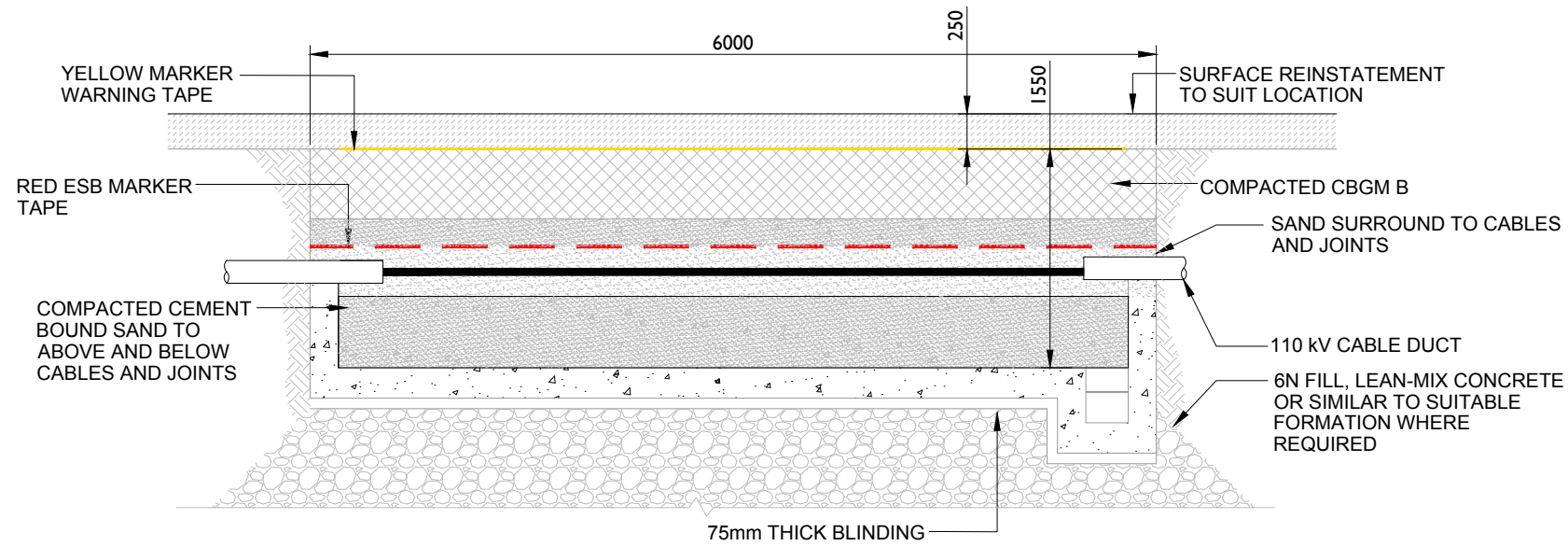
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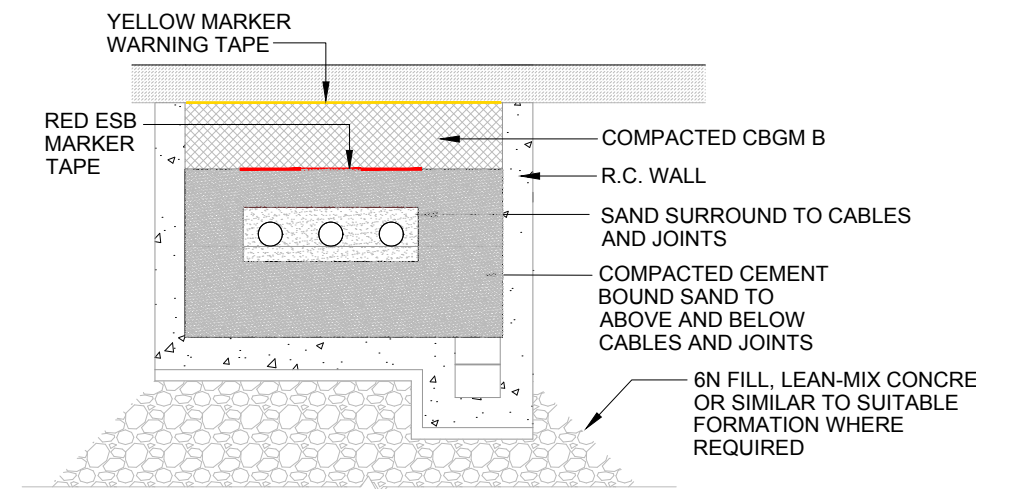
PLAN OF TYPICAL JOINT BAY WITH LINK & COMMUNICATIONS CHAMBERS

SCALE 1:50



TYPICAL SECTION A-A: PERMANENT REINSTATEMENT WORKS

SCALE 1:50



TYPICAL SECTION B-B: PERMANENT REINSTATEMENT WORKS

SCALE 1:50

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CHECKED AND APPROVED: J. SHANAHAN

DATE: 19/01/2020
DATE: 19/01/2020

CLIENT	PROJECT
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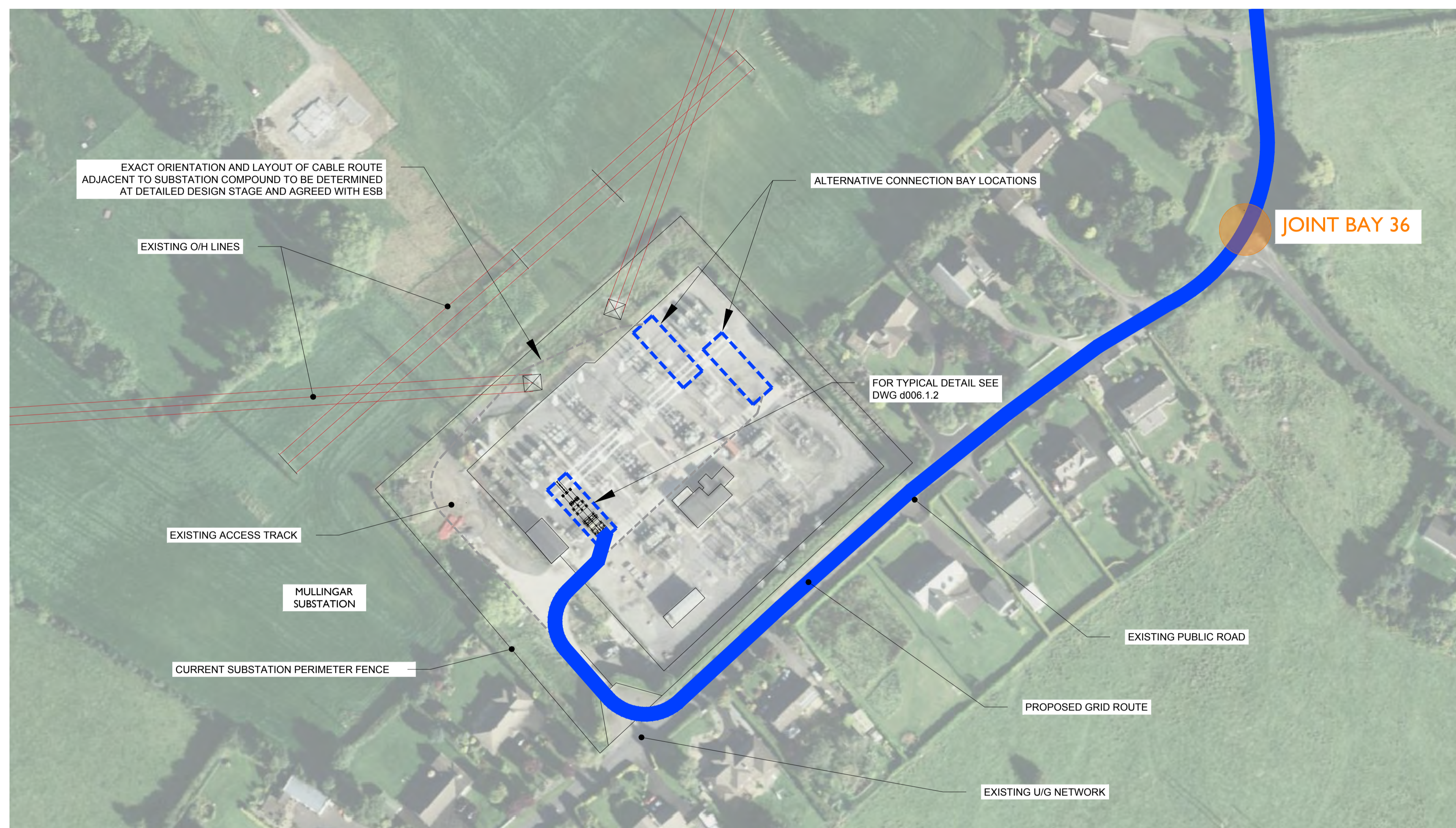
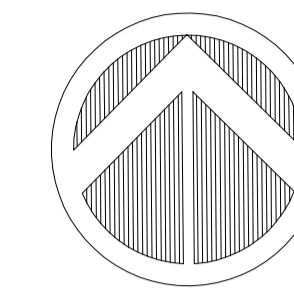
PROJECT: **COOLE WIND FARM GRID ROUTE**

TITLE: **JOINT BAY TYPICAL DETAILS**

REVISION: **A**

DRAWING NUMBER: **COLE d005.4.1**

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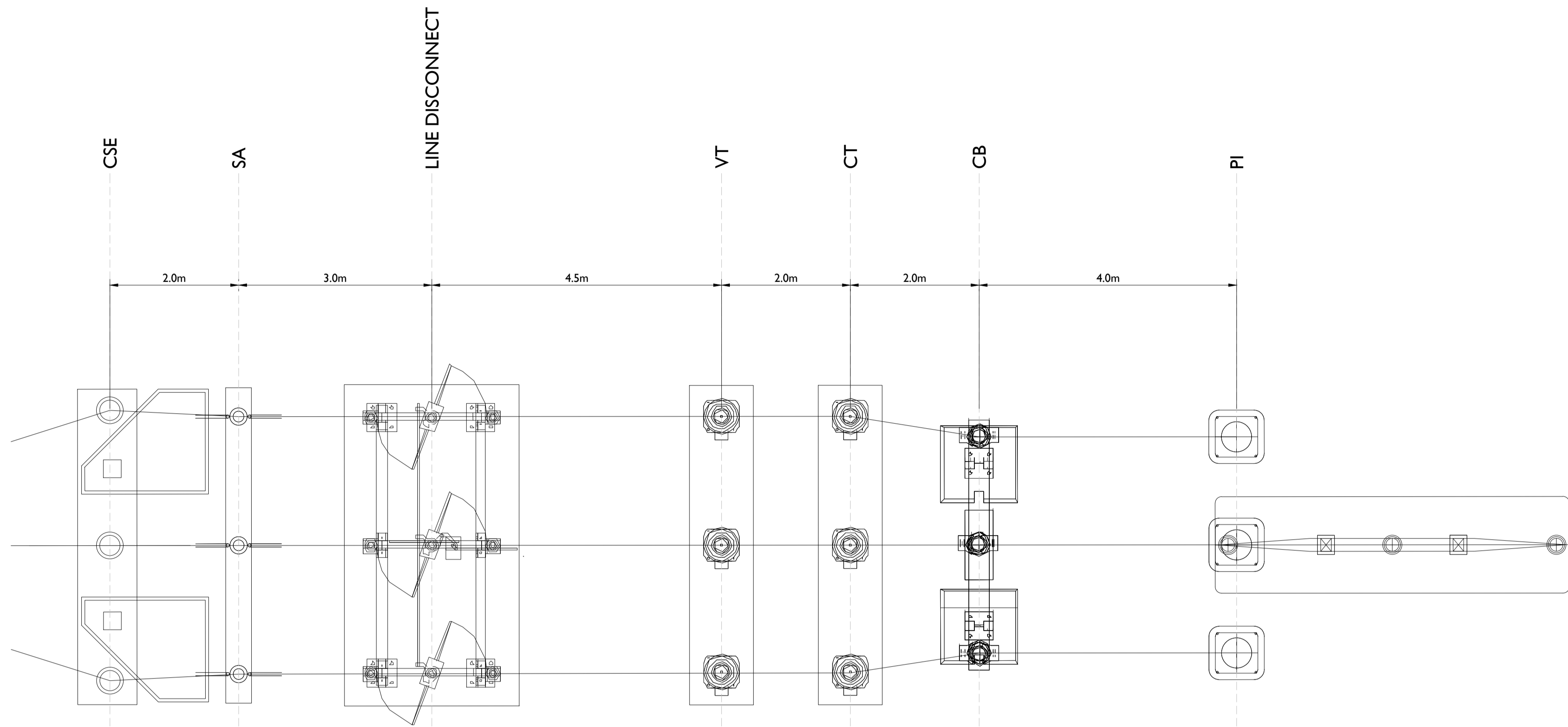


MULLINGAR SUBSTATION - ILLUSTRATIVE PLAN
Scale 1:50

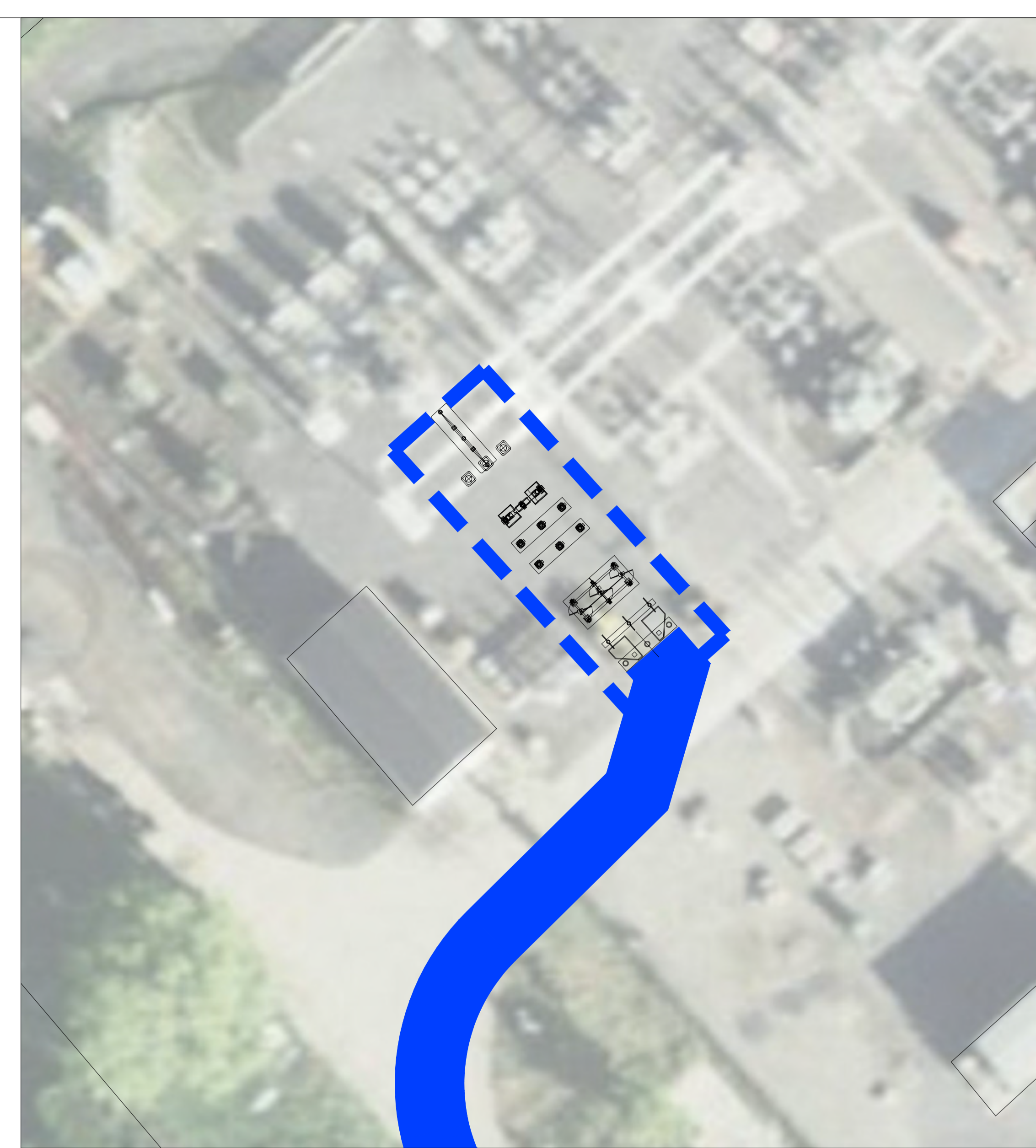
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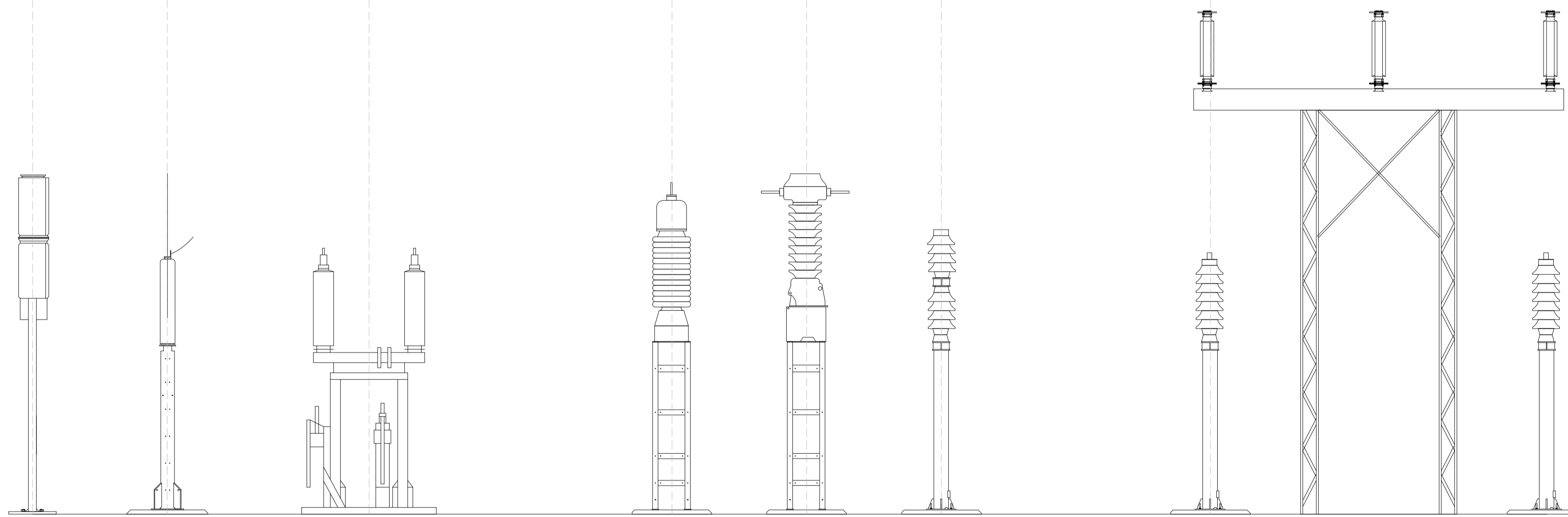
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REV	DATE	DRAWN BY	CHECKED BY	DETAILS																				
B	20.03.2020	MS	JS	BAY LOCATIONS MOVED																				
A	16.01.2020	M.B.	JS	FIRST ISSUE																				
<p>DRAWN BY</p> <p>M. BROWNE</p>				<p>DATE</p> <p>16/01/2020</p>		<p>PAPER SIZE</p> <p>A1</p>		<p>SCALE</p> <p>1:100</p>																
<p>CHECKED AND APPROVED</p> <p>J. SHANAHAN</p>				<p>DATE</p> <p>16/01/2020</p>		<p>STATUS</p> <p>DRAFT</p>		<p>TITLE</p> <p>MULLINGAR SUBSTATION ILLUSTRATIVE PLAN</p>																
				<p>DRAWING NUMBER</p> <p>COLE d006.1.1</p>		<p>REVISION</p> <p>B</p>		<p>Project: 08022001-01-042 E:\Projects\WindFarm\COLE\COLE.dwg\img\006_Substation\COLE d006.1.1.dwg</p>																



MULLINGAR SUBSTATION - EXTENSION EQUIPMENT PLAN
SCALE 1:50



MULLINGAR SUBSTATION - EXTENSION EQUIPMENT LOCATION
SCALE 1:250



MULLINGAR SUBSTATION - EXTENSION EQUIPMENT ELEVATIONS
SCALE 1:50

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NOTES

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B	20.03.2020	MS	JS	PLAN UPDATED
A	16.01.2020	MB	JS	FIRST ISSUE

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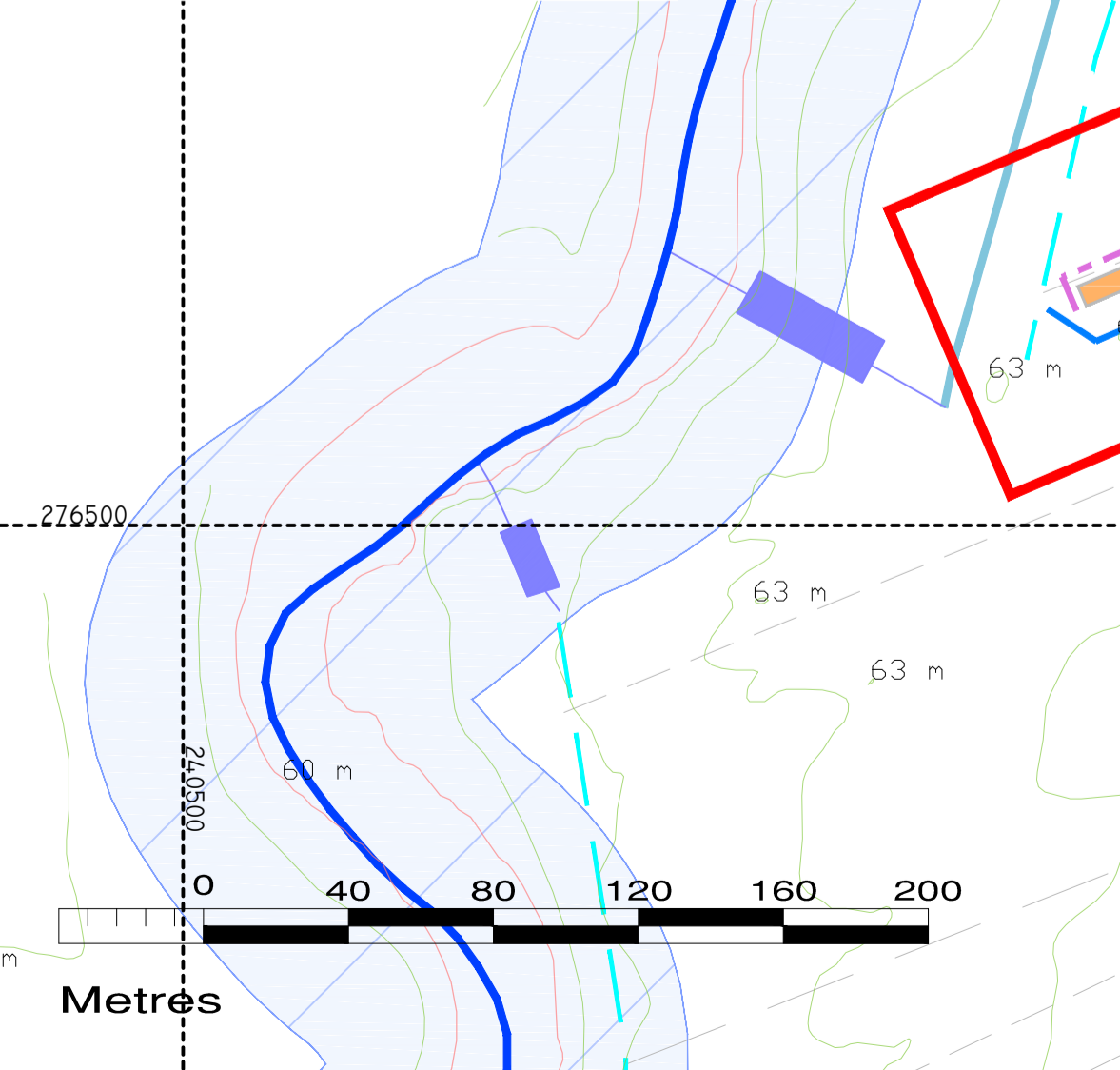
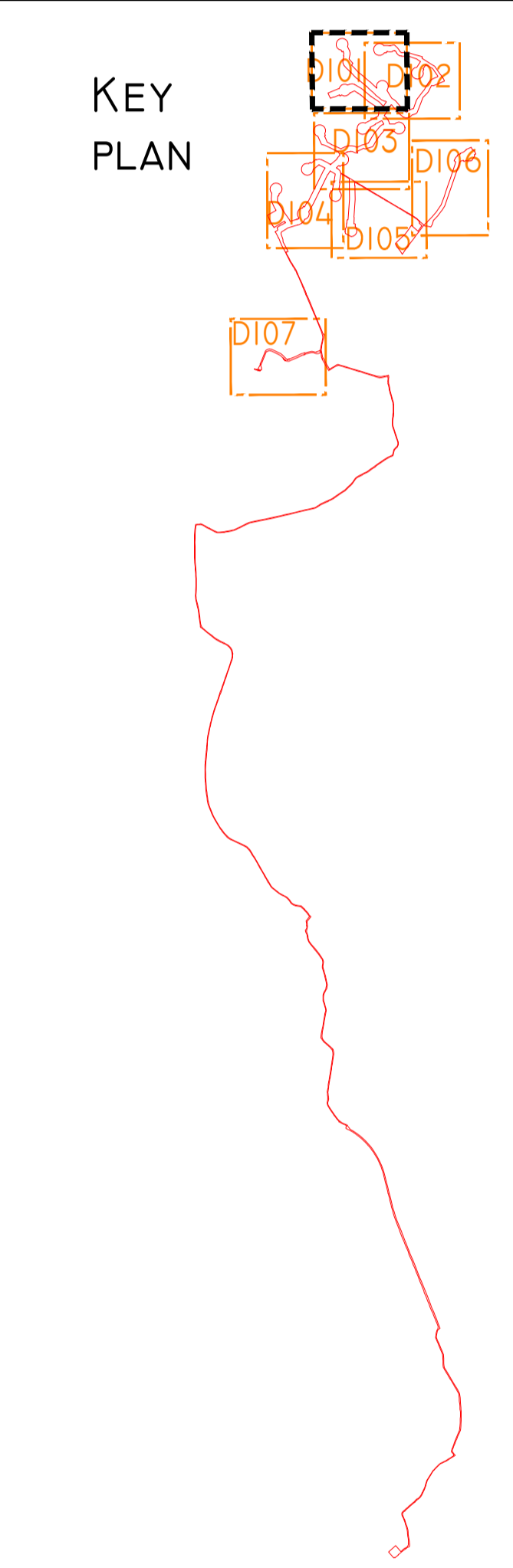
DRAWN BY	DATE
M. BROWNE	16/01/2020
CHECKED AND APPROVED	DATE
J. SHANAHAN	16/01/2020

CLIENT	PAPER SIZE	SCALE
	A1	1:100
STATUS	DRAFT	

PROJECT	COOLE WIND FARM GRID ROUTE
TITLE	MULLINGAR SUBSTATION EXTENSION EQUIPMENT DETAILS
DRAWING NUMBER	COLE d006.1.2
REVISION	B

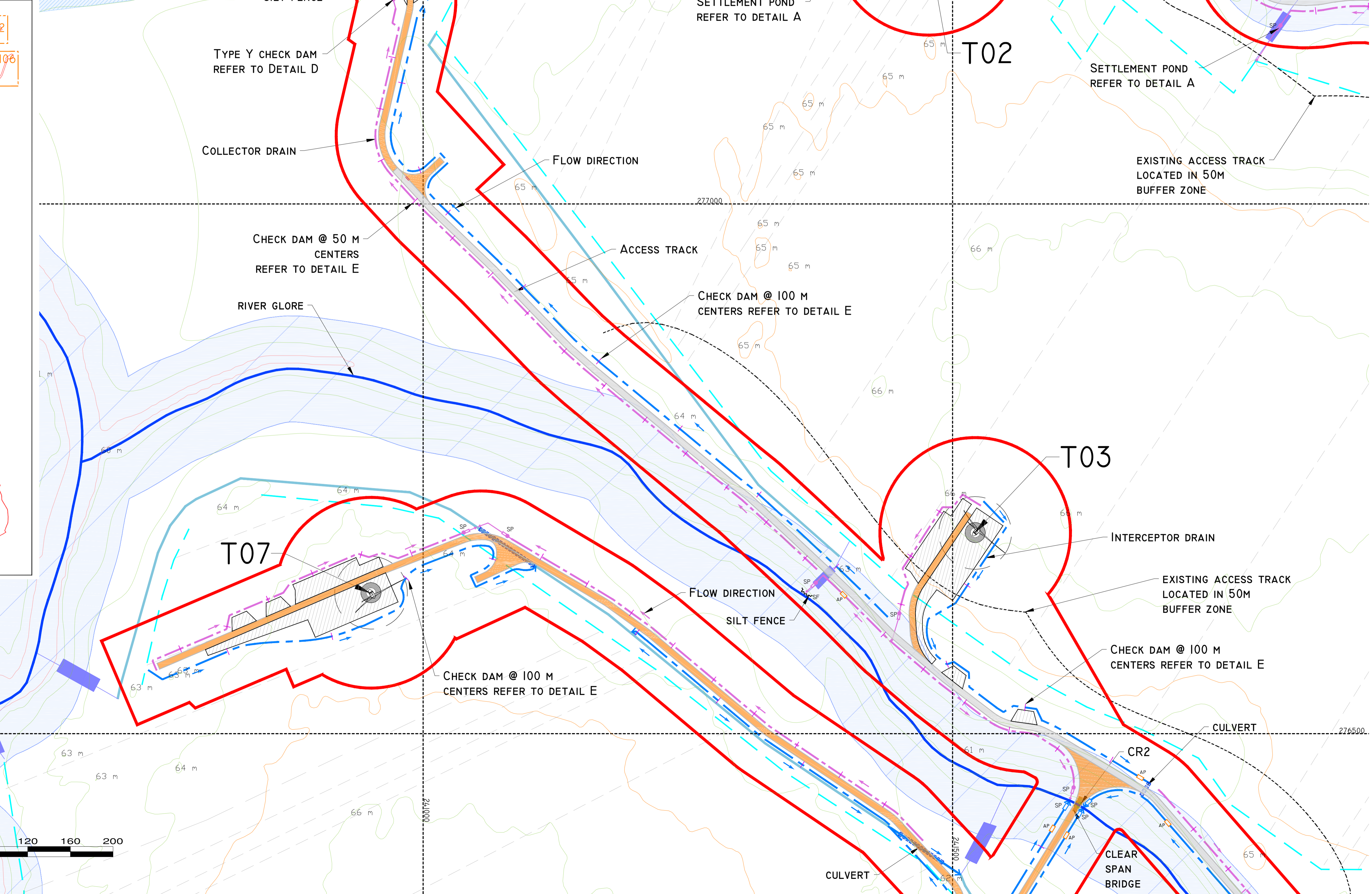
DRAINAGE DESIGN NOTES

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



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 rain 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, veed-drains, diversion drains, flumes and culvert 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) covering stockpiles 5) wetting off / sealing peat stockpiles
In-Line Controls	<ol style="list-style-type: none"> 1) Interceptor drains, veed-drains, 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 (in emergencies) e) flow limiters f) weirs or baffles g) and/or other similar/equivalent or appropriate systems 3) silt fences, filter fabrics 4) In stream Sednets 5) collection sumps, temporary sumps, pumping systems 6) attenuation lagoons 7) sediment traps, siltling / settlement ponds
Water Treatment Controls	<ol style="list-style-type: none"> 1) Temporary sumps 2) Temporary storage lagoons 3) Sediment traps, siltling / Settlement ponds 4) Proprietary settlement systems such as Siltbuster, and/or other similar/equivalent or appropriate systems 5) silt fences, filter fabrics 6) Silt de-watering bags
Outfall Controls	<ol style="list-style-type: none"> 1) Level spreaders 2) Buffered outfalls 3) Vegetation filters 4) Silt de-watering bags 5) Flow limiters and weirs



DRAWING LEGEND :

- UPSTREAM INTERCEPTOR DITCHES
- DIRECTION OF FLOW
- DOWNSTREAM COLLECTOR DITCHES
- SETTLEMENT POND (SP)
- ATTENUATION POND (AP)
- CULVERT
- SILT FENCE (SF)
- HEADLAND DRAIN
- FIELD DRAIN
- CR - NEW STREAM/RIVER CROSSING LOCATION
- CLEAR SPAN BRIDGE
- EXISTING SETTLEMENT POND

- APPLICATION BOUNDARY
- EXISTING GROUND SURFACE MAJOR CONTOUR (5 M INTERVAL)
- EXISTING GROUND SURFACE MINOR CONTOUR (1 M INTERVAL)
- RIVERS/STREAMS
- LAKES
- NATURAL RIVERS/STREAMS 50M BUFFER
- DRAIN 10M BUFFER
- LAKE 50M BUFFER
- TURBINE AND SWEEP AREA
- TURBINE FOUNDATION
- REGIONAL ROAD
- LOCAL ROAD
- PROPOSED ROAD
- EXISTING ROAD TO BE UPGRADED
- PASSING BAY
- CRANE PLATFORM
- BORROW PIT

PROJECT DESIGN DRAWING NOTES

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

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Date	Description	Chkd	Signed

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Client: **MKO**

Job: **COOLE WF, CO. WESTMEATH**

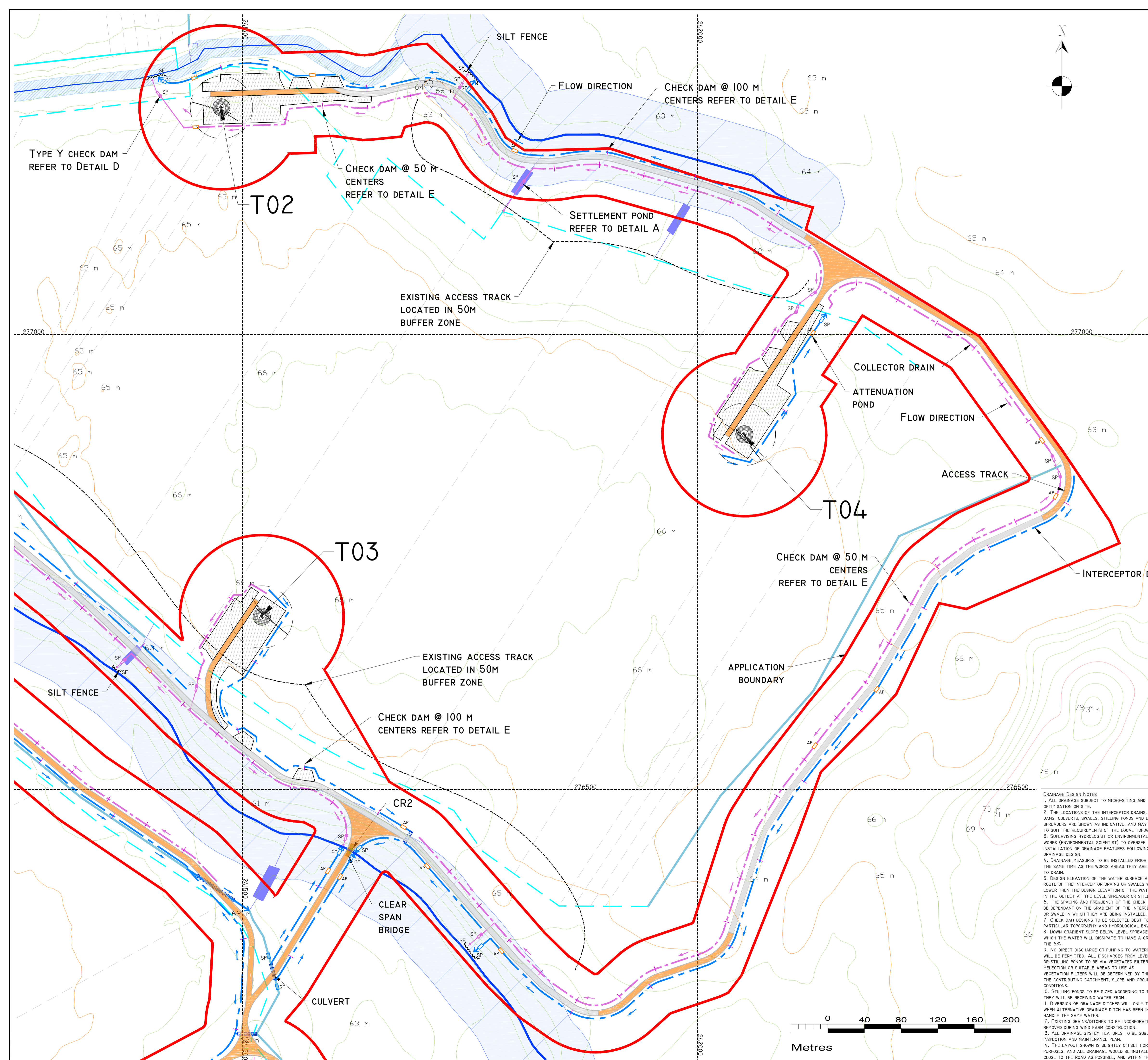
Title: **DRAINAGE LAYOUT SHEET 1 OF 7**

Figure No: **D101**

Drawing No: P1320-2-0221-A1-D101-00A

Sheet Size: A1 Project No.: P1320-2

Scale: 1:2,000 (A1) Drawn By: MG/GD
Date: 17/02/2021 Checked By: MG



DRAWING LEGEND :

- UPSTREAM INTERCEPTOR DITCHES
- DIRECTION OF FLOW
- DOWNSTREAM COLLECTOR DITCHES
- SETTLEMENT POND (SP)
- ATTENUATION POND (AP)
- CULVERT
- SILT FENCE (SF)
- HEADLAND DRAIN
- FIELD DRAIN
- CR - NEW STREAM/RIVER
- CROSSING LOCATION
- CLEAR SPAN BRIDGE
- EXISTING SETTLEMENT POND

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

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Date	Description	Chkd	Signed
Revisions			

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web: www.hydroenvironmental.ie

Client: **MKO**

Job: **COOLE WF, CO. WESTMEATH**

Title: **DRAINAGE LAYOUT SHEET 2 OF 7**

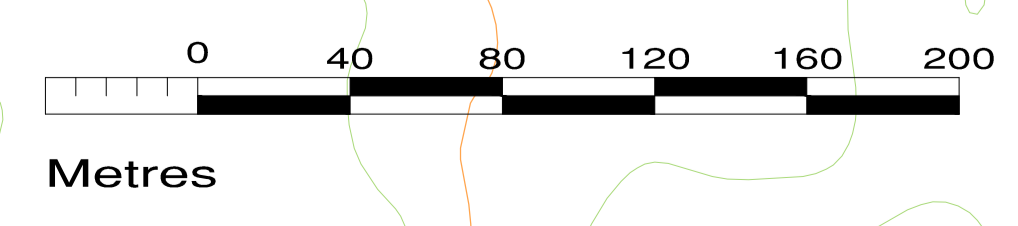
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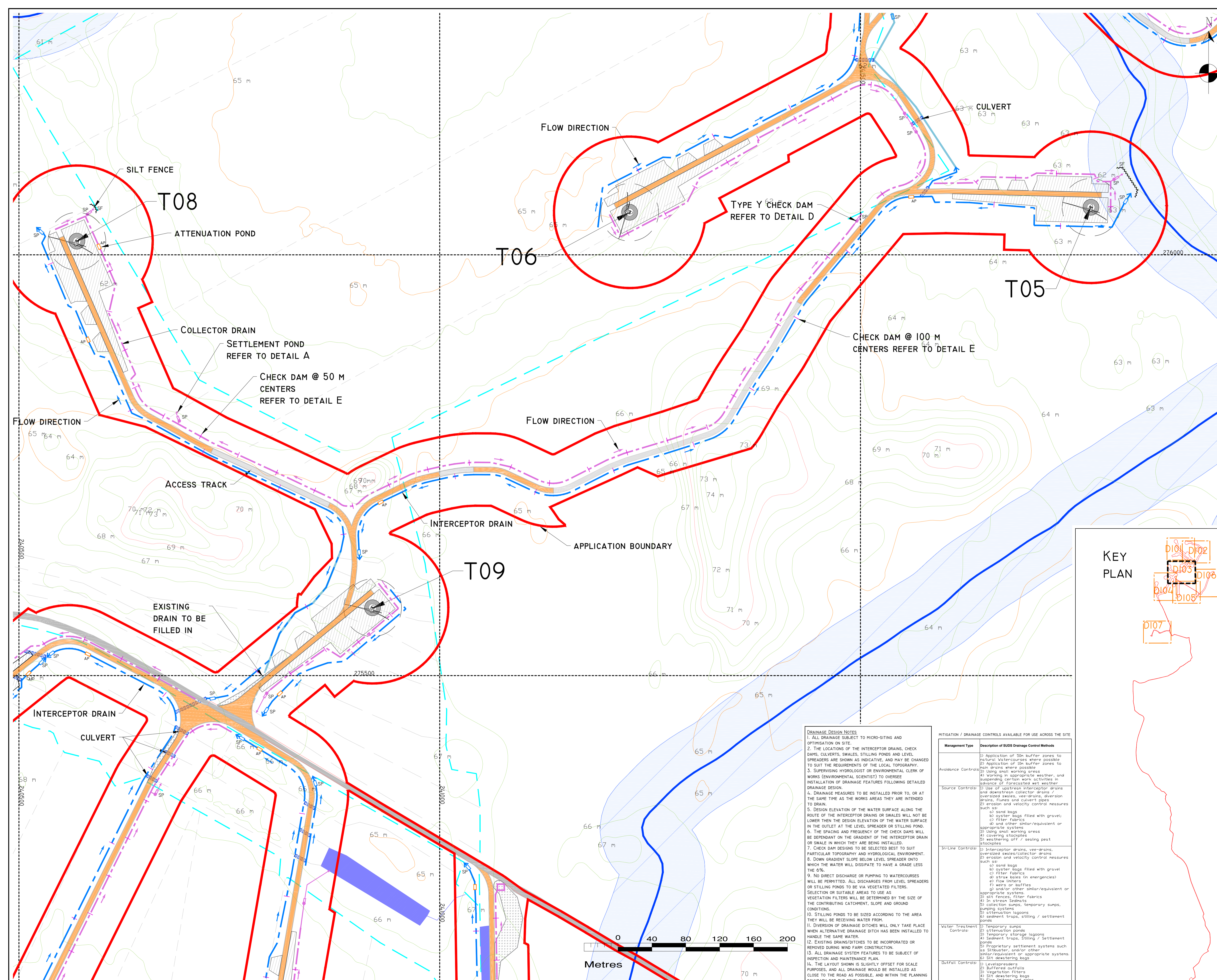
Drawing No: P1320-2-0221-A1-D102-00A

Sheet Size: A1 Project No.: P1320-2

Scale: 1:2,000 (A1) Drawn By: MG/GD

Date: 17/02/2021 Checked By: MG



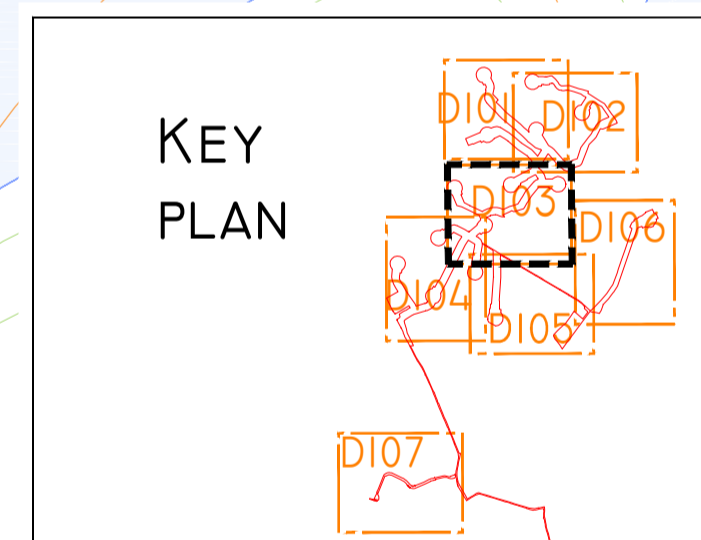


- DRAWING LEGEND :**
- UPSTREAM INTERCEPTOR DITCHES
 - DIRECTION OF FLOW
 - DOWNSTREAM COLLECTOR DITCHES
 - SETTLEMENT POND (SP)
 - ATTENUATION POND (AP)
 - CULVERT
 - SILT FENCE (SF)
 - HEADLAND DRAIN
 - FIELD DRAIN
 - CR - NEW STREAM/RIVER
 - CLEAR SPAN BRIDGE
 - EXISTING SETTLEMENT POND

- APPLICATION BOUNDARY
- EXISTING GROUND SURFACE MAJOR CONTOUR (5 M INTERVAL)
- EXISTING GROUND SURFACE MINOR CONTOUR (1 M INTERVAL)
- RIVERS/STREAMS
- LAKES
- NATURAL RIVERS/STREAMS 50M BUFFER
- DRAIN 10M BUFFER
- LAKE 50M BUFFER
- TURBINE AND SWEEP AREA
- TURBINE FOUNDATION
- REGIONAL ROAD
- LOCAL ROAD
- PROPOSED ROAD
- EXISTING ROAD TO BE UPGRADED
- PASSING BAY
- CRANE PLATFORM
- BORROW PIT

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



DRAINAGE DESIGN NOTES

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

MITIGATION / DRAINAGE CONTROLS AVAILABLE FOR USE ACROSS THE SITE

Management Type	Description of SUDS Drainage Control Methods
Avoidance Controls	<ul 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	<ul style="list-style-type: none"> 1) Use of upstream interceptor drains and downstream collector drains 2) oversized silters, veer-drains, diversion drains, flumes and culvert pipes 3) erosion and velocity control measures such as: <ul style="list-style-type: none"> a) sand bags b) silt bags filled with gravel c) filter fabrics d) other similar/equivalent or appropriate systems 4) using small working areas 5) covering stockpiles 6) weathering off / sealing peat stockpiles
In-Line Controls	<ul style="list-style-type: none"> 1) Interceptor drains, veer-drains, oversized silters/collector drains 2) erosion and velocity control measures such as: <ul style="list-style-type: none"> a) sand bags b) silt bags filled with gravel c) filter fabrics d) straw bales (in emergencies) e) flow diverters f) weirs or half-weirs g) and/or other similar/equivalent or appropriate systems 3) silt fences, filter fabrics 4) in stream silttraps 5) collection sumps, temporary sumps, pumping systems 6) attenuation lagoons 7) sediment traps, stiling / settlement ponds
Water Treatment Controls	<ul style="list-style-type: none"> 1) Temporary sumps 2) Temporary storage lagoons 3) Sediment traps, stiling / settlement ponds 4) Proprietary settlement systems such as siltmaster, and/or other similar/equivalent or appropriate systems 5) Silt deswelling lagoons
Outfall Controls	<ul style="list-style-type: none"> 1) Level spreaders 2) Buffered outfalls 3) Vegetation filters 4) Silt diverting logs 5) Flow diverters and weirs

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Date	Description	Chkd	Signed

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Client: **MKO**

Job: **COOLE WF, CO. WESTMEATH**

Title: **DRAINAGE LAYOUT SHEET 3 OF 7**

Figure No: **D103**

Drawing No: **P1320-2-0221-A1-D103-00A**

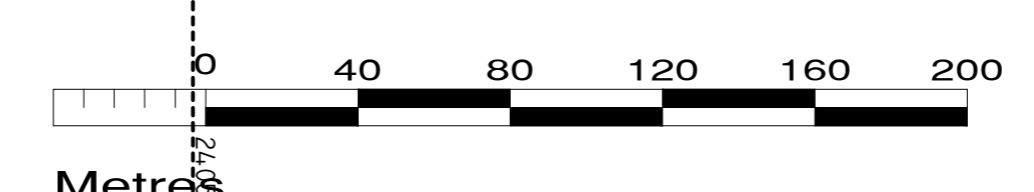
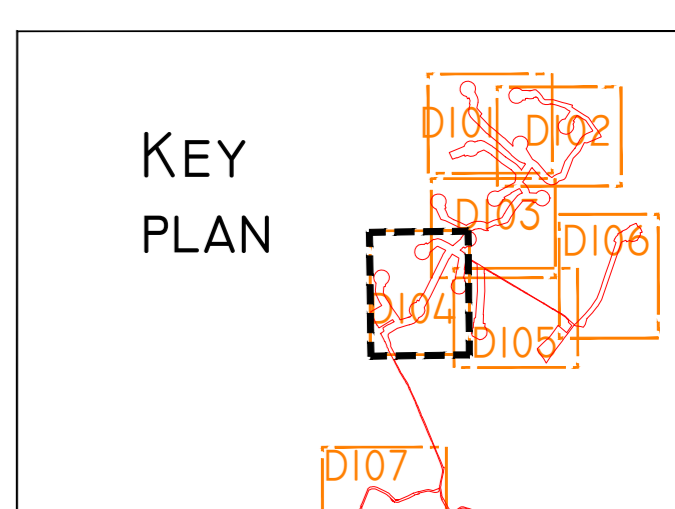
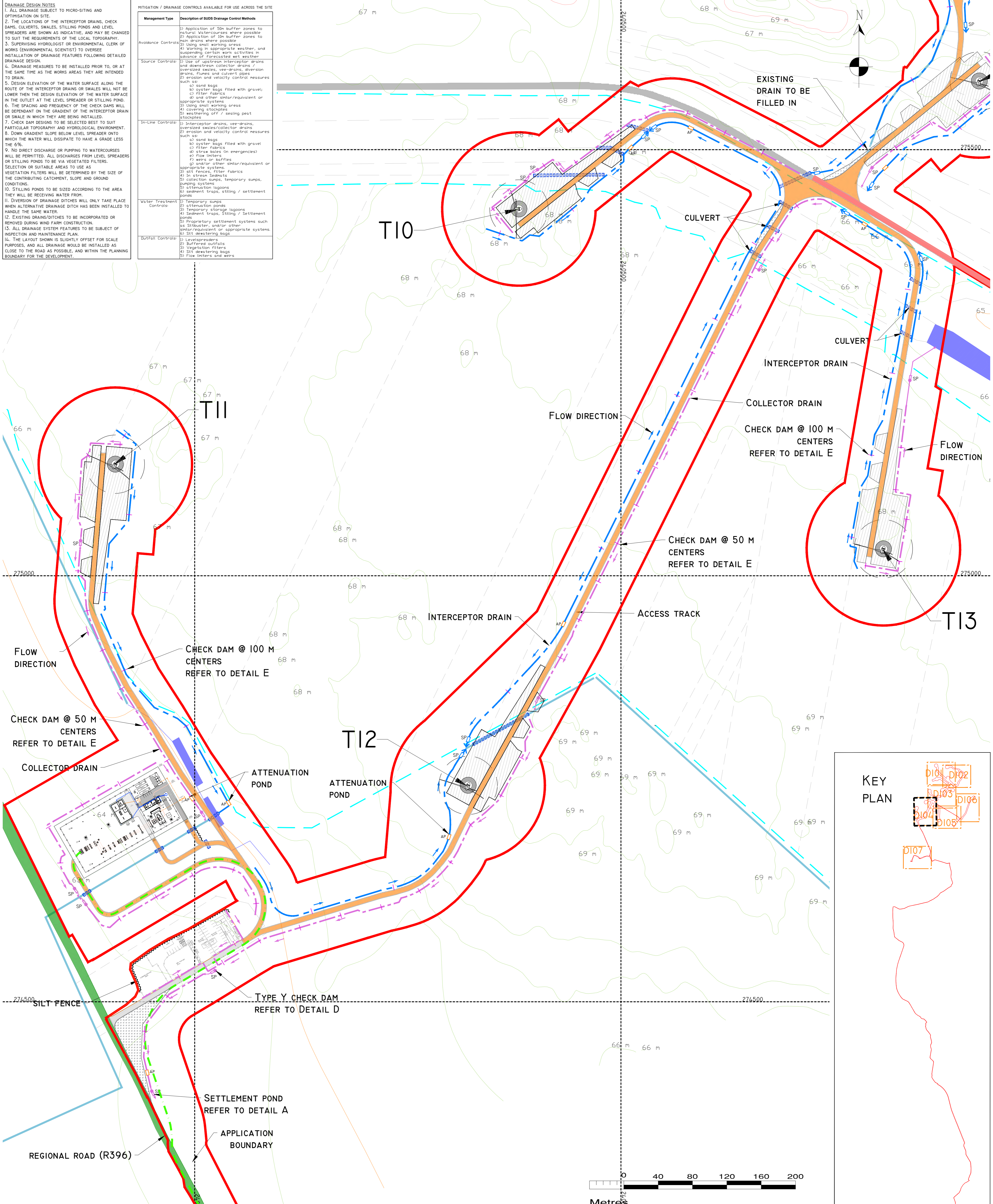
Sheet Size: **A1** Project No.: **P1320-2**

Scale: **1:2,000 (A1)** Drawn By: **MG/GD**
 Date: **17/02/2021** Checked By: **MG**

DRAINAGE DESIGN NOTES

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

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 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, weirs, diversion drains, flumes and culvert pipes 2) erosion and velocity control measures such as: a) sand bags b) syster bags filled with gravel c) filter fabrics d) and other similar/equivalent or appropriate systems 3) Using small working areas 4) covering stockpiles 5) weathering off / sealing peat stockpiles
In-Line Controls	1) Interceptor drains, weirs, drains, oversized swales/collector drains 2) erosion and velocity control measures such as: a) sand bags b) syster bags filled with gravel c) filter fabrics d) straw bales (in emergencies) e) weirs or baffles f) and/or other similar/equivalent or appropriate systems 3) collection sumps, temporary sumps, pumping systems 4) retention lagoons 5) sediment traps, stiling / settlement ponds
Water Treatment Controls	1) Temporary sumps 2) retention ponds 3) Temporary storage lagoons 4) Sediment traps, Stiling / Settlement ponds 5) Proprietary settlement systems such as Settlers, and/or other similar/equivalent or appropriate systems 6) Silt settling bags
Outfall Controls	1) Level spreaders 2) Buffered outfalls 3) Vegetation filters 4) Silt settling bags 5) Flow limiters and weirs



DRAWING LEGEND	
	UPSTREAM INTERCEPTOR DITCHES
	DIRECTION OF FLOW
	DOWNSTREAM COLLECTOR DITCHES
	SETTLEMENT POND (SP)
	ATTENUATION POND (AP)
	CULVERT
	SILT FENCE (SF)
	HEADLAND DRAIN
	FIELD DRAIN
	CR - NEW STREAM/RIVER CROSSING LOCATION
	CLEAR SPAN BRIDGE
	EXISTING SETTLEMENT POND
	APPLICATION BOUNDARY
	EXISTING GROUND SURFACE MAJOR CONTOUR (5 M INTERVAL)
	EXISTING GROUND SURFACE MINOR CONTOUR (1 M INTERVAL)
	RIVERS/STREAMS
	LAKES
	NATURAL RIVERS/STREAMS 50M BUFFER
	DRAIN 10M BUFFER
	LAKE 50M BUFFER
	TURBINE AND SWEEP AREA
	TURBINE FOUNDATION
	REGIONAL ROAD
	LOCAL ROAD
	PROPOSED ROAD
	INTERNAL EXISTING ROAD TO BE UPGRADED
	EXTERNAL EXISTING ROAD TO BE UPGRADED
	PASSING BAY
	CRANE PLATFORM
	BORROW PIT

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4. ALL DIMENSIONS ARE IN METRES.

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Revisions

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Client: **MKO**

Job: **COOLE WF, CO. WESTMEATH**

Title: **DRAINAGE LAYOUT SHEET 4 OF 7**

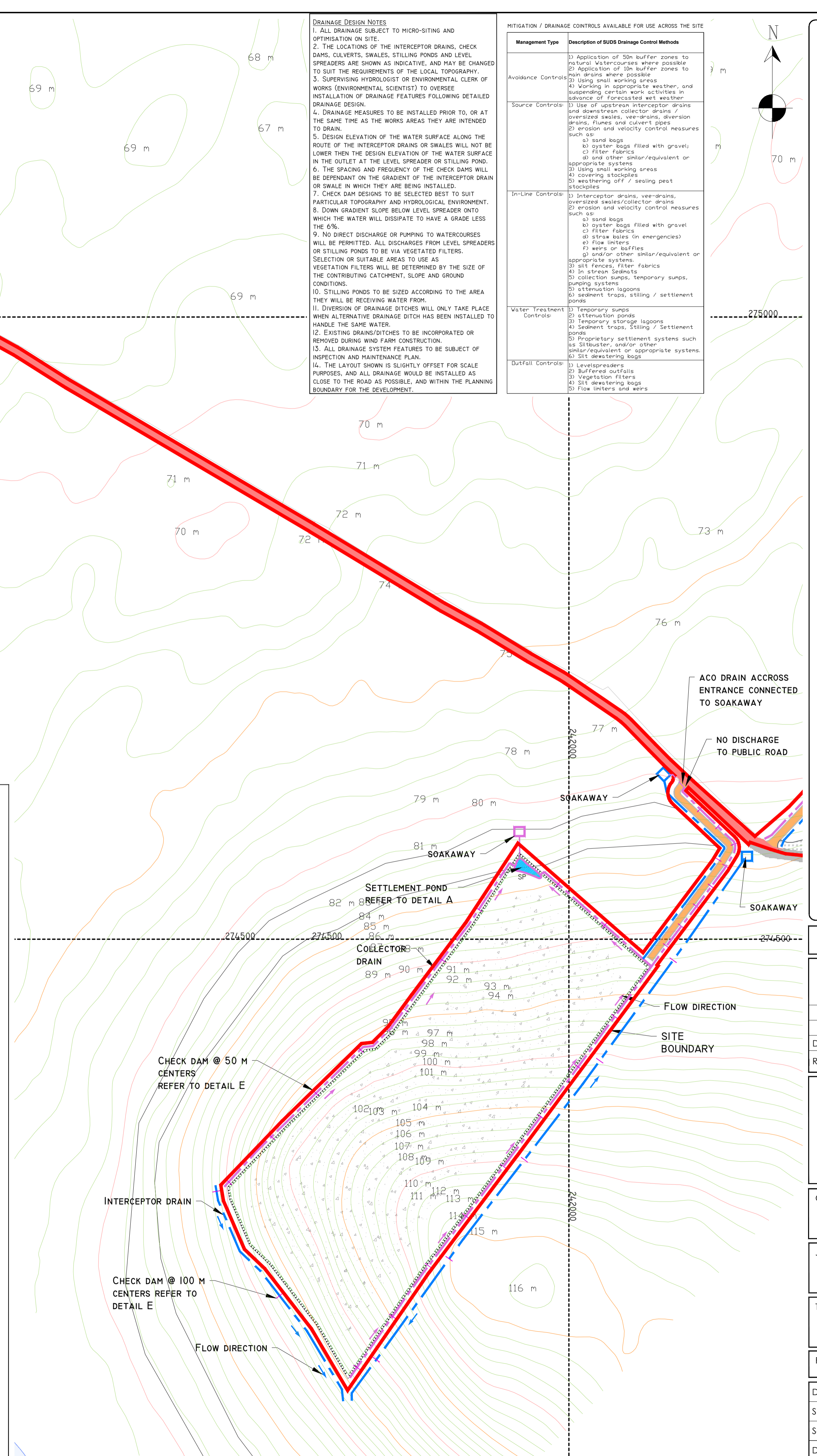
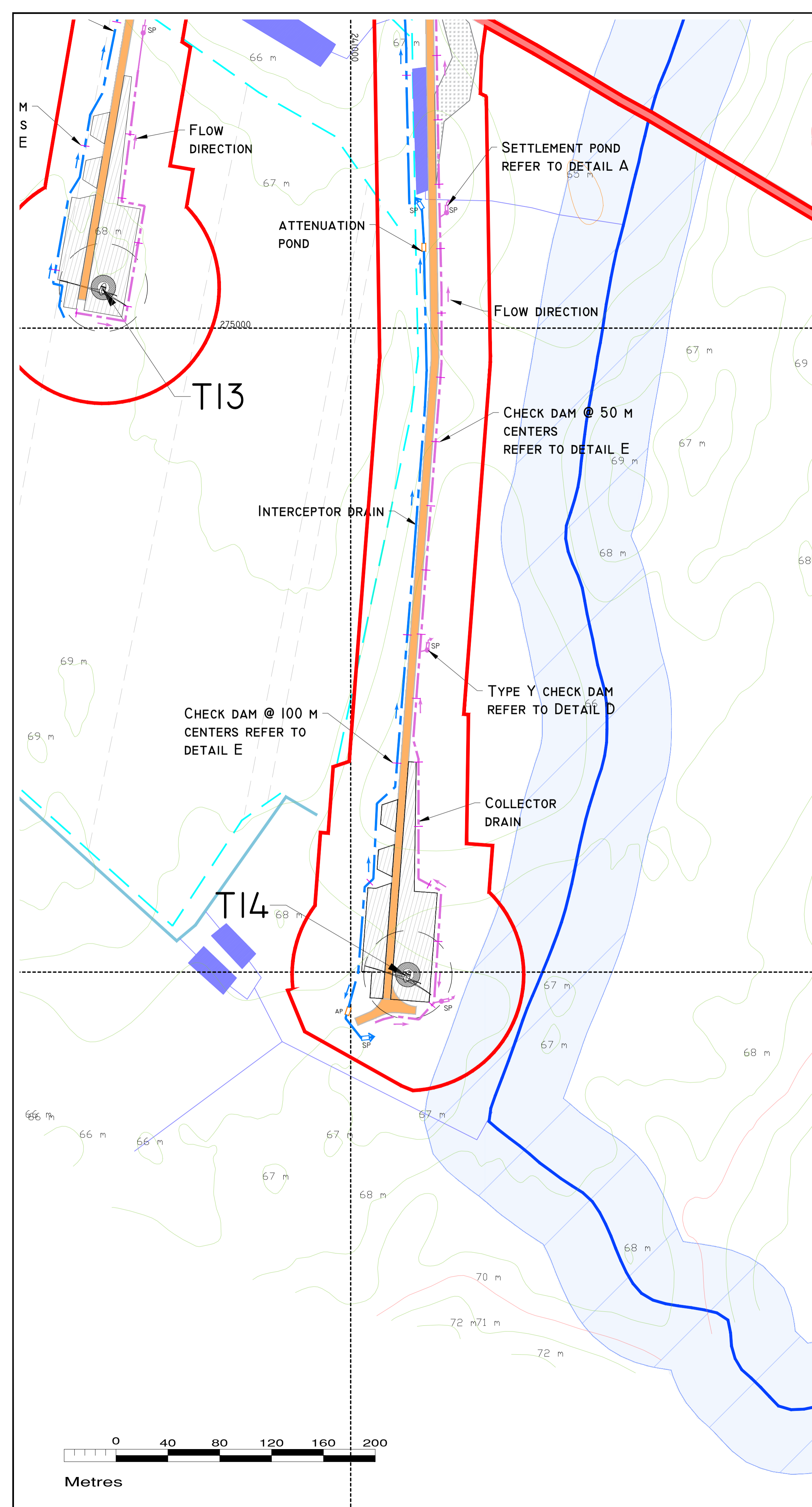
Figure No: **D104**

Drawing No: P1320-2-0221-A1-D104-00A

Sheet Size: A1 Project No.: P1320-2

Scale: 1:2,000 (A1) Drawn By: MG/GD

Date: 17/02/2021 Checked By: MG



DRAWING LEGEND :

- UPSTREAM INTERCEPTOR DITCHES
- DIRECTION OF FLOW
- DOWNSTREAM COLLECTOR DITCHES
- SETTLEMENT POND (SP)
- ATTENUATION POND (AP)
- CULVERT
- SILT FENCE (SF)
- HEADLAND DRAIN
- FIELD DRAIN
- CR - NEW STREAM/RIVER
- CROSSING LOCATION
- CLEAR SPAN BRIDGE
- EXISTING SETTLEMENT POND
- APPLICATION BOUNDARY
- EXISTING GROUND SURFACE MAJOR CONTOUR (5 M INTERVAL)
- EXISTING GROUND SURFACE MINOR CONTOUR (1 M INTERVAL)
- RIVERS/STREAMS
- LAKES
- NATURAL RIVERS/STREAMS 50M BUFFER
- DRAIN 10M BUFFER
- LAKE 50M BUFFER
- TURBINE AND SWEEP AREA
- TURBINE FOUNDATION
- REGIONAL ROAD
- LOCAL ROAD
- PROPOSED ROAD
- INTERNAL EXISTING ROAD TO BE UPGRADED
- EXTERNAL EXISTING ROAD TO BE UPGRADED
- PASSING BAY
- CRANE PLATFORM
- BORROW PIT

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Date	Description	Chkd	Signed

Revisions

HYDRO ENVIRONMENTAL SERVICES

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Client: **MKO**

Job: **COOLE WF, CO. WESTMEATH**

Title: **DRAINAGE LAYOUT SHEET 5 OF 7**

Figure No: **D105**

Drawing No: P1320-2-0221-A1-D105-00A

Sheet Size: A1 Project No.: P1320-2

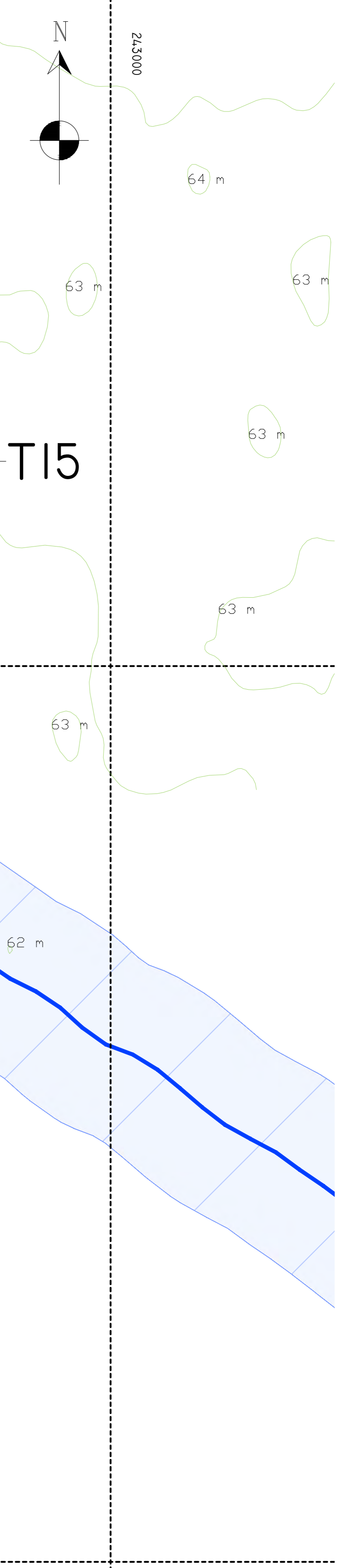
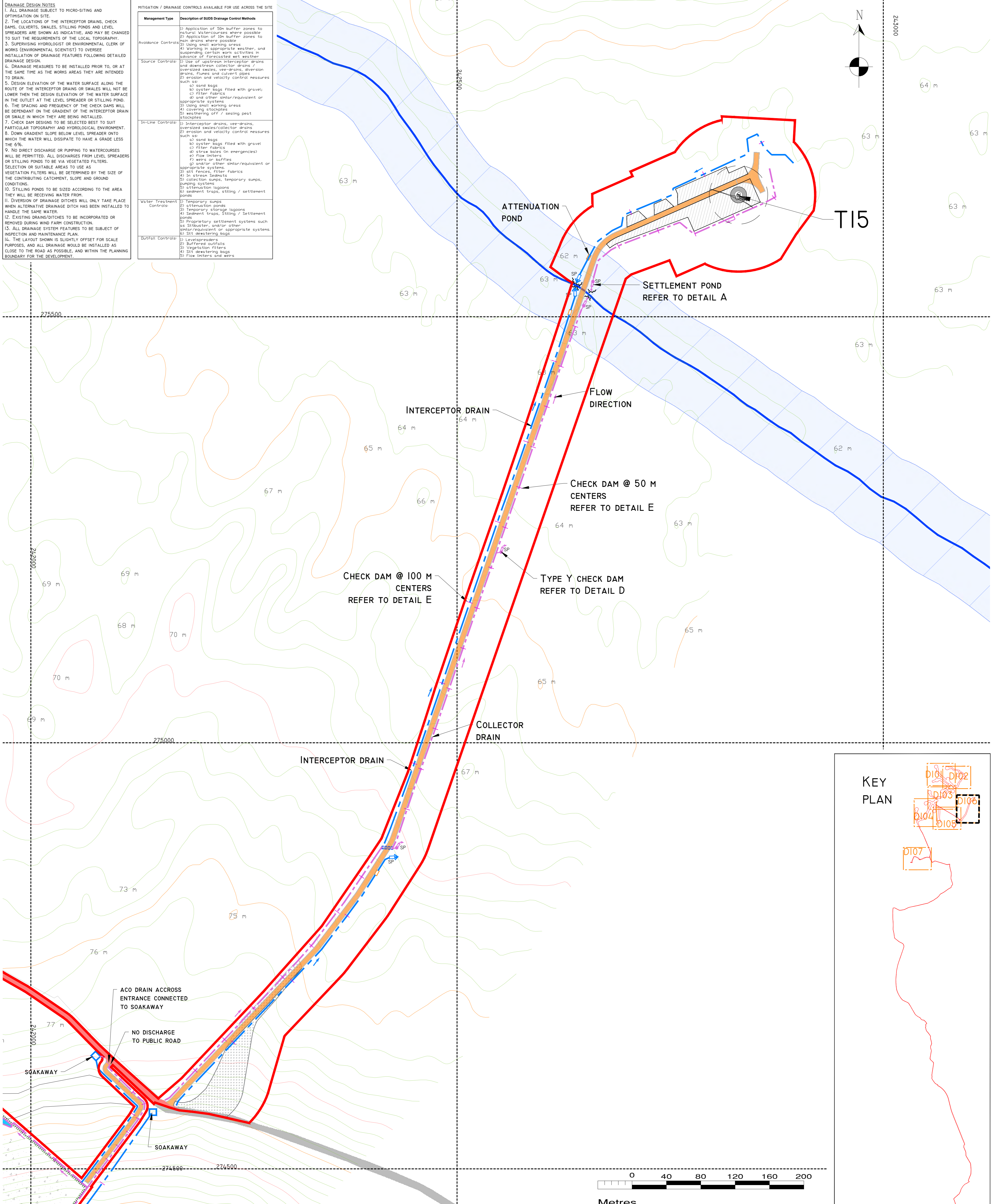
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Date: 17/02/2021 Checked By: MG

DRAINAGE DESIGN NOTES

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

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 sun 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, vee-drains, diversion drains, flumes and culvert pipes 2) erosion and velocity control measures such as: a) sand bags b) syster bags filled with gravel c) filter fabrics d) and other similar/equivalent or appropriate systems 3) Using small working areas 4) covering stockpiles 5) weathering off / sealing peat stockpiles
In-Line Controls	1) Interceptor drains, vee-drains, oversized swales/collector drains 2) erosion and velocity control measures such as: a) sand bags b) syster bags filled with gravel c) filter fabrics d) straw bales (in emergencies) e) flow limiters f) weirs or baffles g) and/or other similar/equivalent or appropriate systems 3) silt fences, filter fabrics 4) In stream Sednats 5) collection sumps, temporary sumps, pumping systems 6) attenuation lagoons 7) sediment traps, settling / settlement ponds
Water Treatment Controls	1) Temporary sumps 2) attenuation ponds 3) Temporary storage lagoons 4) Sediment traps, Stilling / Settlement ponds 5) Proprietary settlement systems such as Siltstrainers, and/or other similar/equivalent or appropriate systems 6) Silt de-watering bags
Outfall Controls	1) Level spreaders 2) Buffered outfalls 3) Vegetation filters 4) Silt de-watering bags 5) Flow limiters and weirs



DRAWING LEGEND	
	UPSTREAM INTERCEPTOR DITCHES
	DIRECTION OF FLOW
	DOWNSTREAM COLLECTOR DITCHES
	SETTLEMENT POND (SP)
	ATTENUATION POND (AP)
	CULVERT
	SILT FENCE (SF)
	HEADLAND DRAIN
	FIELD DRAIN
	CR - NEW STREAM/RIVER CROSSING LOCATION
	CLEAR SPAN BRIDGE
	EXISTING SETTLEMENT POND
	APPLICATION BOUNDARY
	EXISTING GROUND SURFACE MAJOR CONTOUR (5 M INTERVAL)
	EXISTING GROUND SURFACE MINOR CONTOUR (1 M INTERVAL)
	RIVERS/STREAMS
	LAKES
	NATURAL RIVERS/STREAMS 50M BUFFER
	DRAIN 10M BUFFER
	LAKE 50M BUFFER
	TURBINE AND SWEEP AREA
	TURBINE FOUNDATION
	REGIONAL ROAD
	LOCAL ROAD
	PROPOSED ROAD
	INTERNAL EXISTING ROAD TO BE UPGRADED
	EXTERNAL EXISTING ROAD TO BE UPGRADED
	PASSING BAY
	CRANE PLATFORM
	BORROW PIT

DRAWING NOTES

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3. DO NOT SCALE OFF THIS DRAWING. FIGURED METRIC DIMENSIONS ONLY SHOULD BE TAKEN OFF THIS DRAWING.
4. ALL DIMENSIONS ARE IN METRES.

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Date	Description	Chkd	Signed

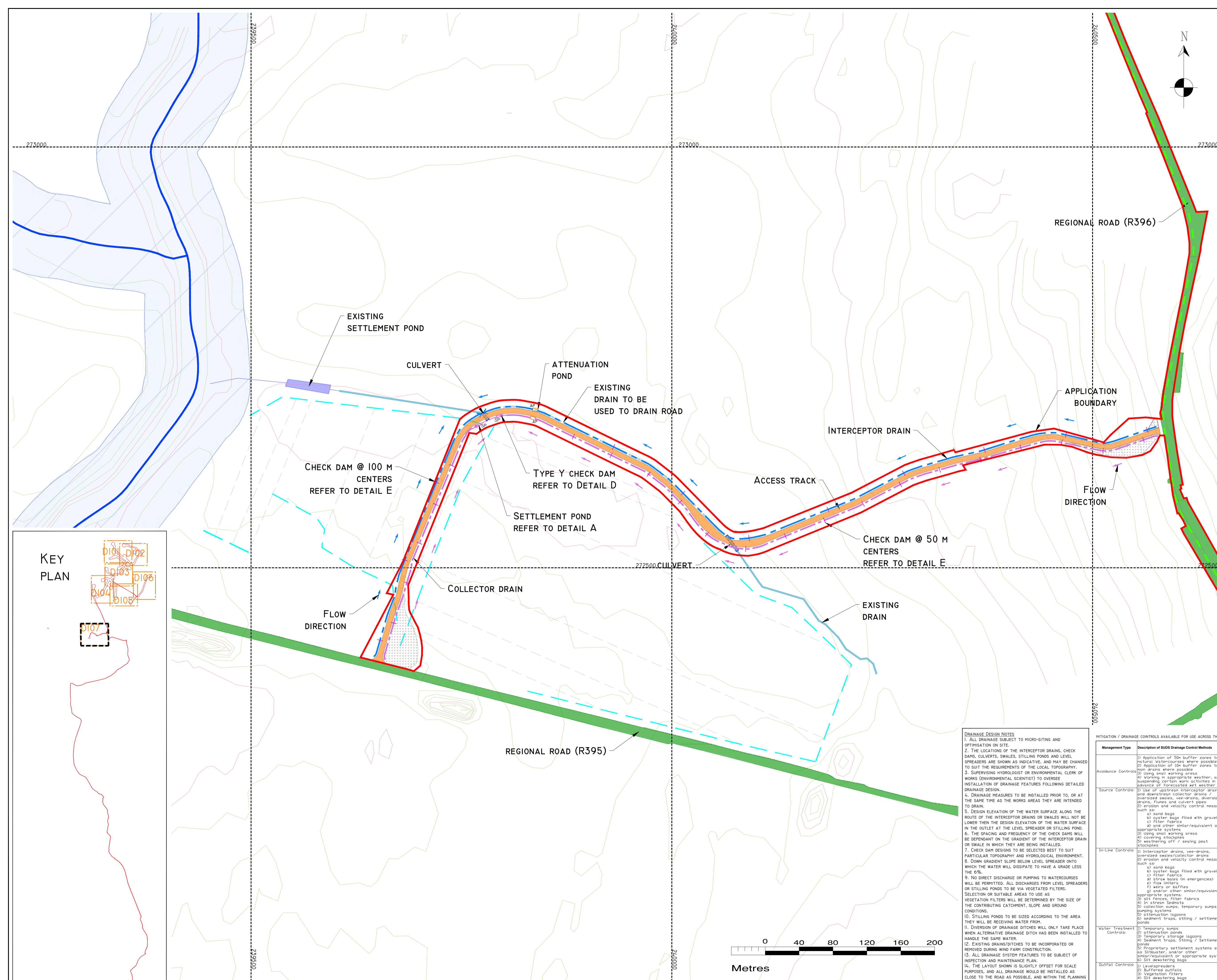
Revisions

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Client:	MKO
Job:	COOLE WF, CO. WESTMEATH
Title:	DRAINAGE LAYOUT SHEET 6 OF 7
Figure No:	D106
Drawing No:	P1320-2-0221-A1-D106-00A
Sheet Size:	A1
Project No.:	P1320-2
Scale:	1:2,000 (A1)
Drawn By:	MG/GD
Date:	17/02/2021
Checked By:	MG

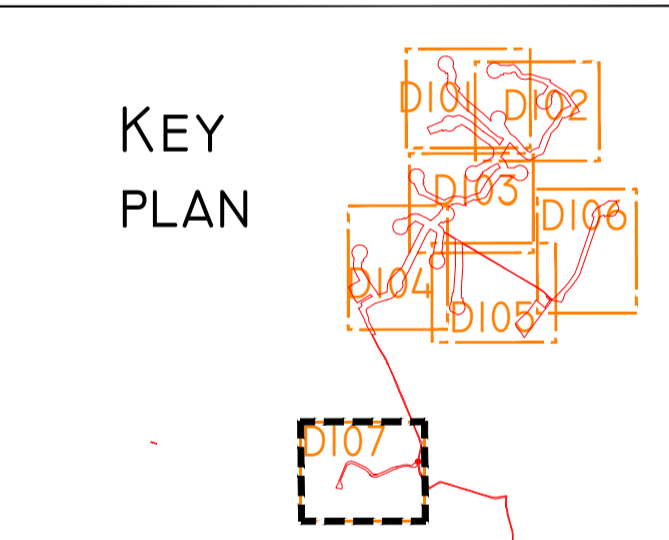


- DRAWING LEGEND :**
- UPSTREAM INTERCEPTOR DITCHES
 - DIRECTION OF FLOW
 - DOWNSTREAM COLLECTOR DITCHES
 - SETTLEMENT POND (SP)
 - ATTENUATION POND (AP)
 - CULVERT
 - SILT FENCE (SF)
 - HEADLAND DRAIN
 - FIELD DRAIN
 - CR - NEW STREAM/RIVER
 - CROSSING LOCATION
 - CLEAR SPAN BRIDGE
 - EXISTING SETTLEMENT POND

- APPLICATION BOUNDARY
- EXISTING GROUND SURFACE MAJOUR CONTOUR (5 M INTERVAL)
- EXISTING GROUND SURFACE MINOR CONTOUR (1 M INTERVAL)
- RIVERS/STREAMS
- LAKES
- NATURAL RIVERS/STREAMS 50M BUFFER
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PROJECT DESIGN DRAWING NOTES

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- THE USE OF OR RELIANCE UPON THIS DRAWING SHALL BE DEEMED TO BE ACCEPTANCE OF THESE CONDITIONS OF USE UNLESS OTHERWISE AGREED IN WRITING, SUCH WRITTEN AGREEMENT TO BE SOUGHT FROM AND ISSUED BY THE COPYRIGHT HOLDER TO THE USE OR RELIANCE UPON THIS DRAWING.
- LAYOUT PLANS SHOW TYPICAL TURBINE ROTOR DIAMETER AS PER TURBINE DRAWING.



DRAINAGE DESIGN NOTES

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

MITIGATION / DRAINAGE CONTROLS AVAILABLE FOR USE ACROSS THE SITE

Management Type	Description of SUDS Drainage Control Methods
Avoidance Controls	<ul 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	<ul style="list-style-type: none"> 1) Use of upstream interceptor drains and downstream collector drains / oversized swales, vee-drains, diversion drains, flumes and culvert pipes 2) erosion and velocity control measures such as: <ul style="list-style-type: none"> a) sand bags b) silt fences filled with gravel c) filter fabrics d) and other similar/equivalent or appropriate systems 3) Using small working areas 4) covering stockpiles 5) weathering off / sealing pest stockpiles
In-Line Controls	<ul style="list-style-type: none"> 1) Interceptor drains, vee-drains, oversized swales/collector drains 2) erosion and velocity control measures such as: <ul style="list-style-type: none"> a) sand bags b) silt fences filled with gravel c) filter fabrics d) straw rolls (in emergencies) e) flow limiters f) weirs or baffles g) and/or other similar/equivalent or appropriate systems 3) silt fences, filter fabrics 4) in stream Sedmots 5) collection sumps, temporary sumps, pumping systems 6) attenuation lagoons 7) sediment traps, stilling / settlement ponds
Water Treatment Controls	<ul style="list-style-type: none"> 1) Temporary sumps 2) attenuation ponds 3) temporary storage lagoons 4) Sediment traps, Stilling / Settlement ponds 5) Proprietary settlement systems such as: 30/60/90 and/or other similar/equivalent or appropriate systems. 6) Silt de-watering bags
Diffuse Controls	<ul style="list-style-type: none"> 1) Levelspreaders 2) Bufferbed outfalls 3) Vegetation filters 4) Silt de-watering bags 5) Flow limiters and weirs

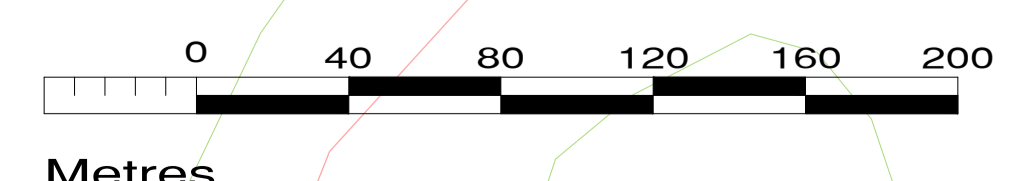
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Date	Description	Chkd	Signed
Revisions			

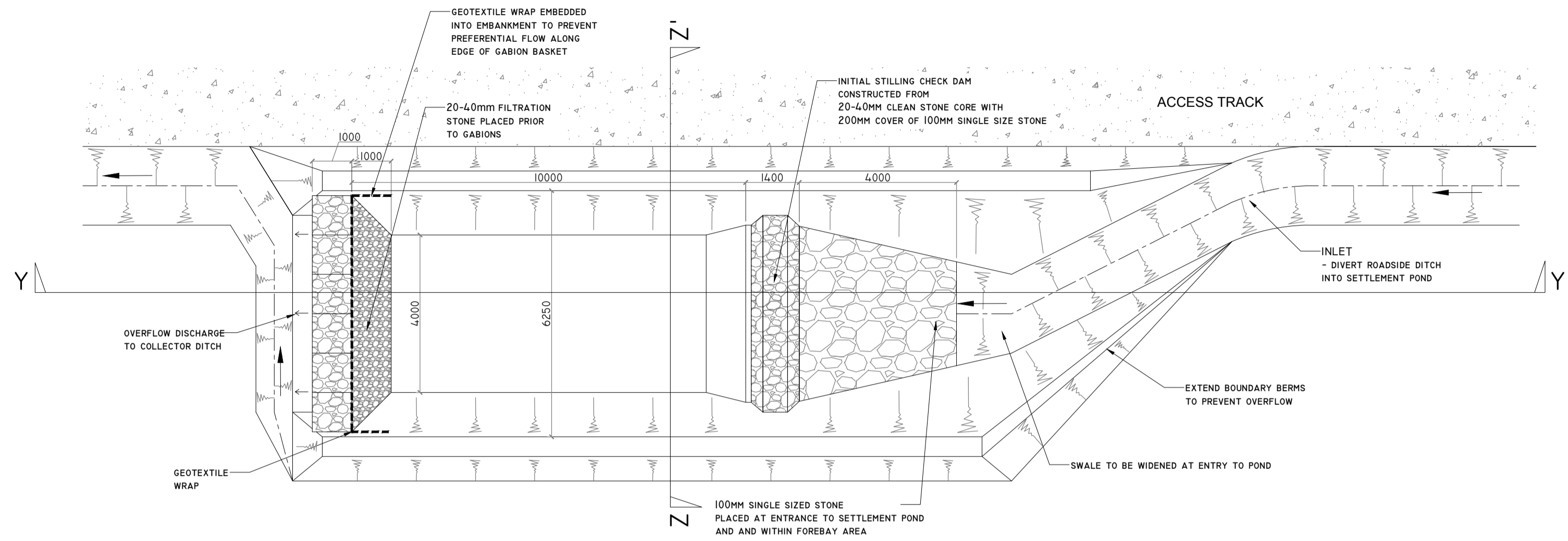
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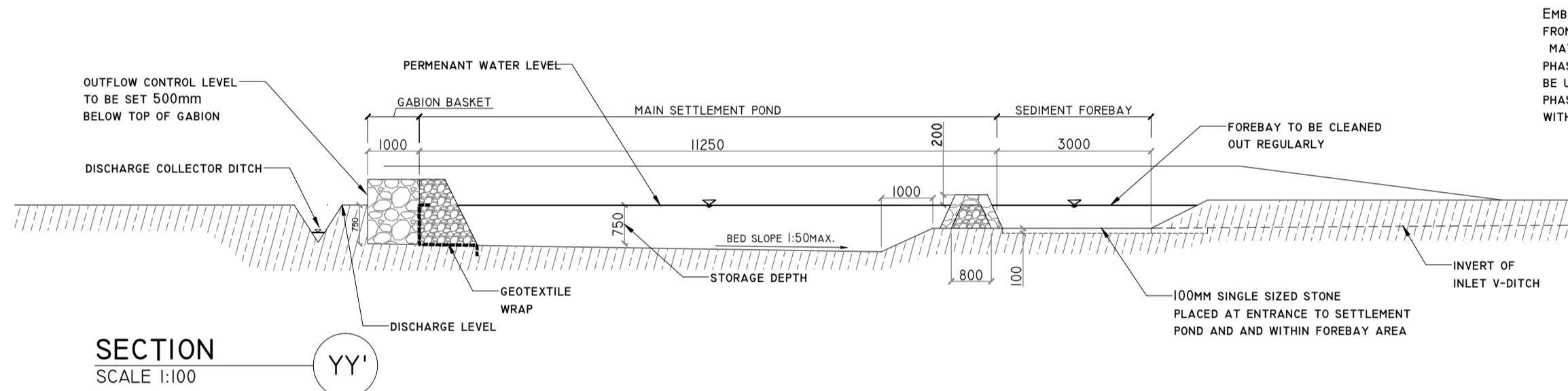
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Job:	COOLE WF, CO. WESTMEATH
Title:	DRAINAGE LAYOUT SHEET 7 OF 7
Figure No:	D107
Drawing No:	P1320-2-0221-A1-D107-00A
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Drawn By:	MG/GD
Date:	17/02/2021
Checked By:	MG



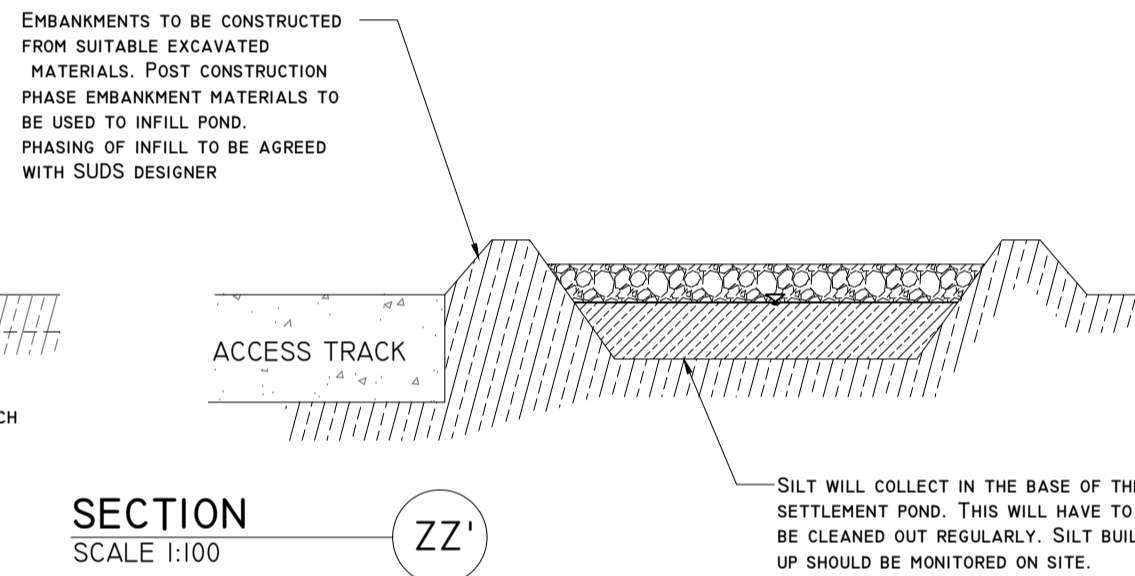
DETAIL A



TYPICAL ROAD SIDE SETTLEMENT POND DETAIL
SCALE 1:200 (NOTE DIMENSIONS VARY DEPENDING ON CATCHMENT SIZE)



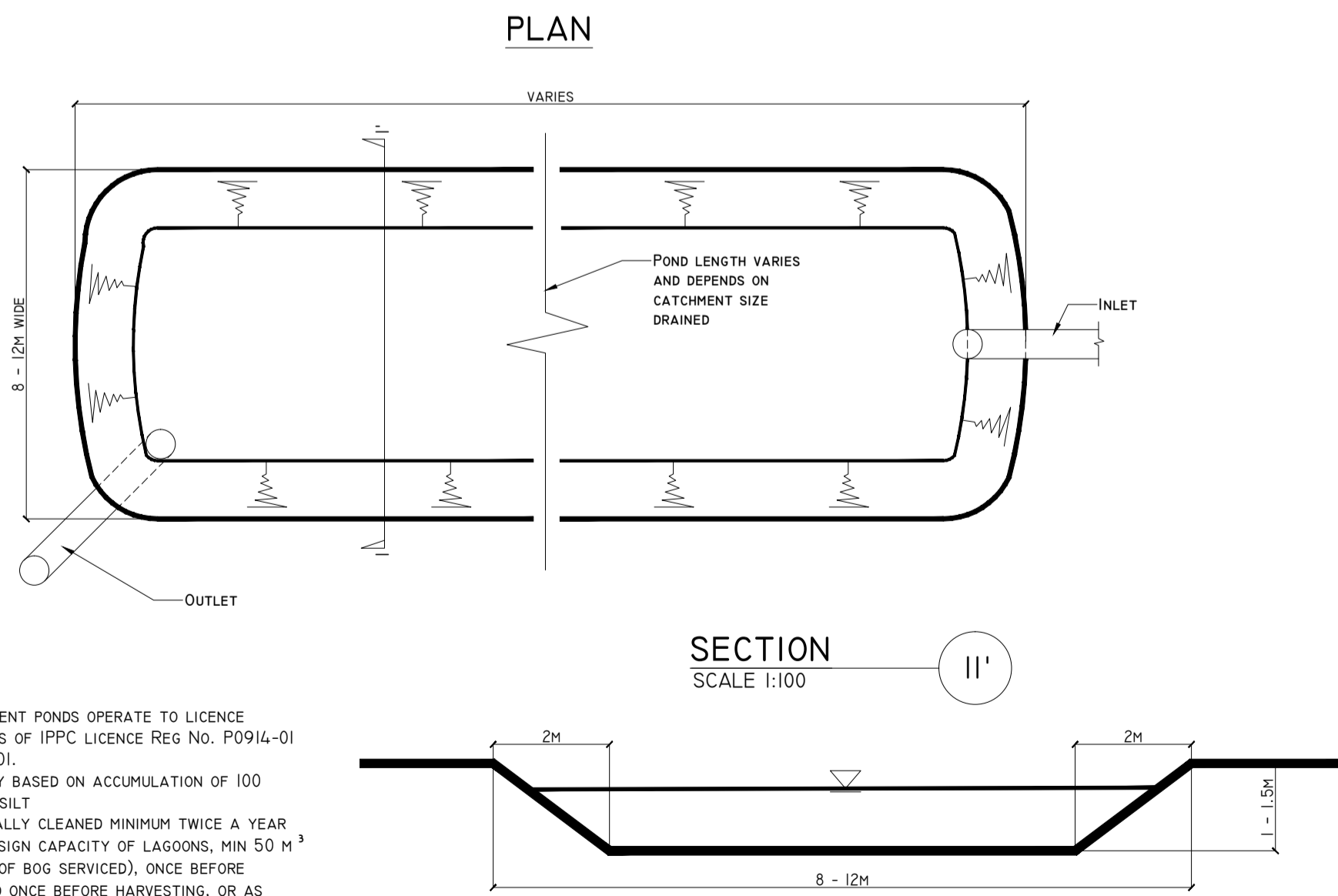
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SCALE 1:100



SECTION ZZ'
SCALE 1:100

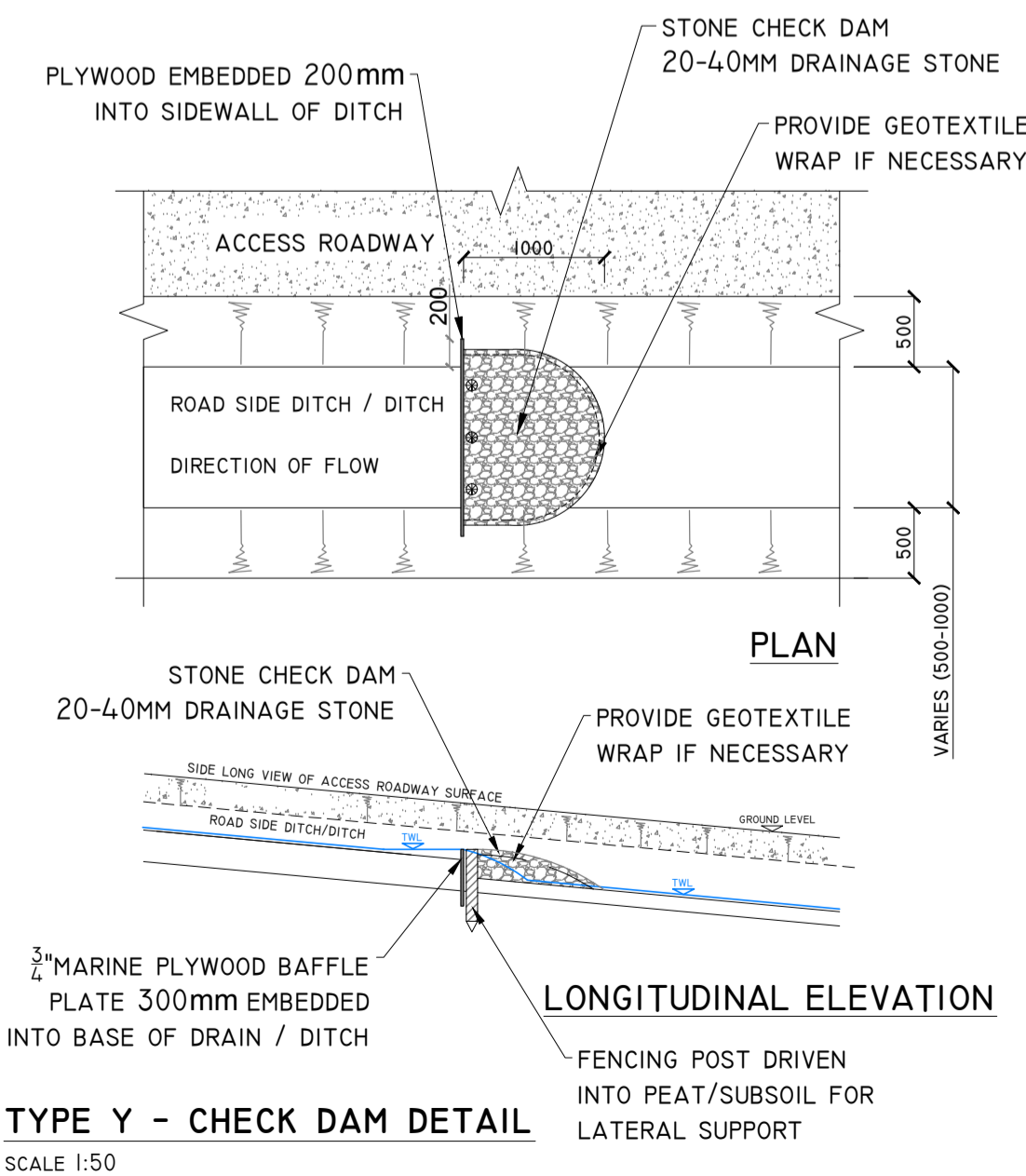
DETAIL C

TYPICAL PEATLAND SITE SETTLEMENT POND DETAIL
SCALE 1:200



- NOTES-**
- ALL SETTLEMENT PONDS OPERATE TO LICENCE REQUIREMENTS OF IPPC LICENCE REG NO. P0914-01 AND P0974-01.
 - SIZING LIKELY BASED ON ACCUMULATION OF 100 M³/HA/YEAR SILT
 - PONDS TYPICALLY CLEANED MINIMUM TWICE A YEAR (I.E. SILT DESIGN CAPACITY OF LAGOONS, MIN 50 M³ PER NET HA OF BOG SERVICED), ONCE BEFORE DITCHING AND ONCE BEFORE HARVESTING, OR AS INSPECTIONS MAY DICTATE
 - GENERALLY - 8 - 12 M WIDE, AND 1 - 1.5 M DEEP
 - LIKELY VELOCITY THRESHOLD OF 0.1 M/SEC

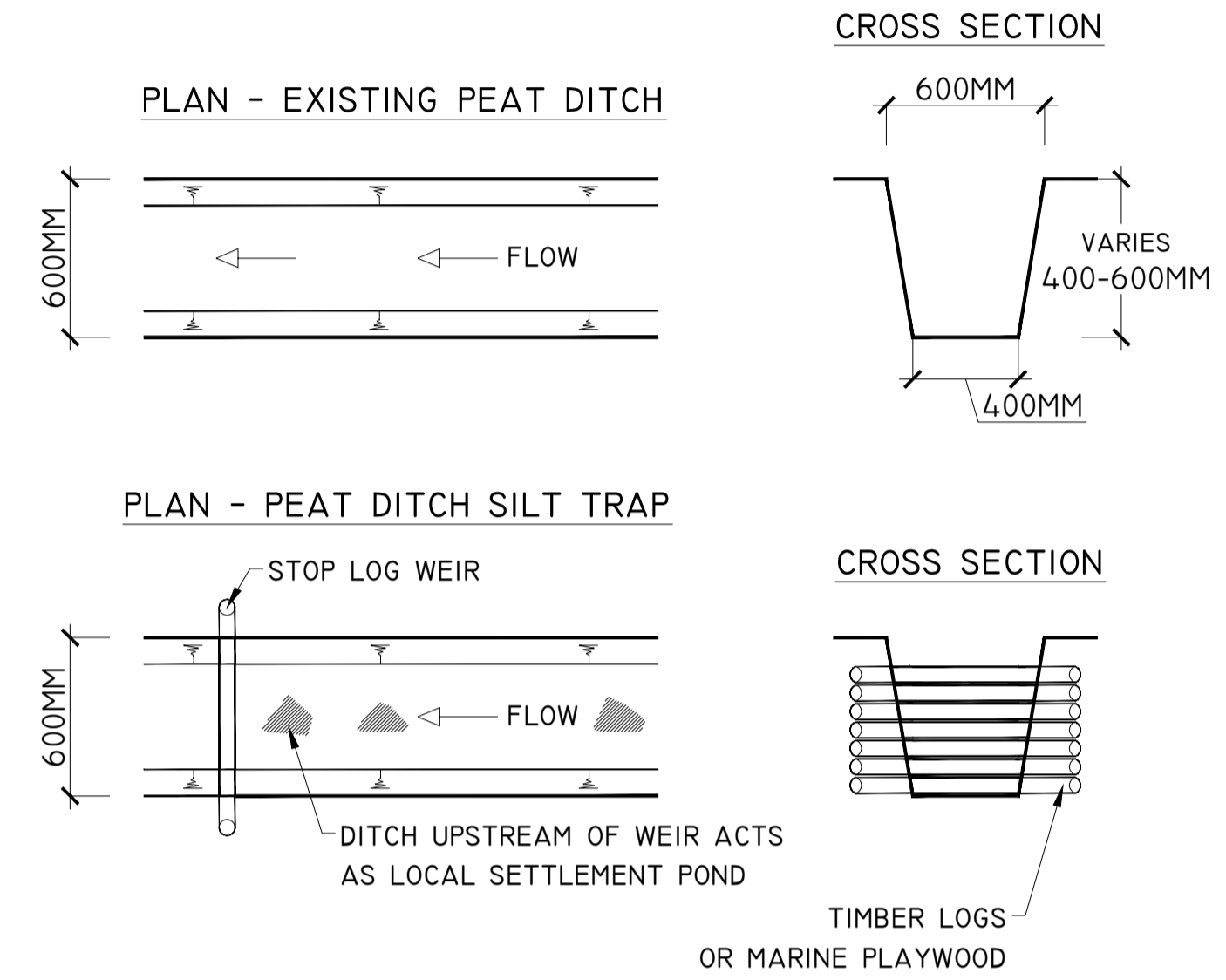
DETAIL D



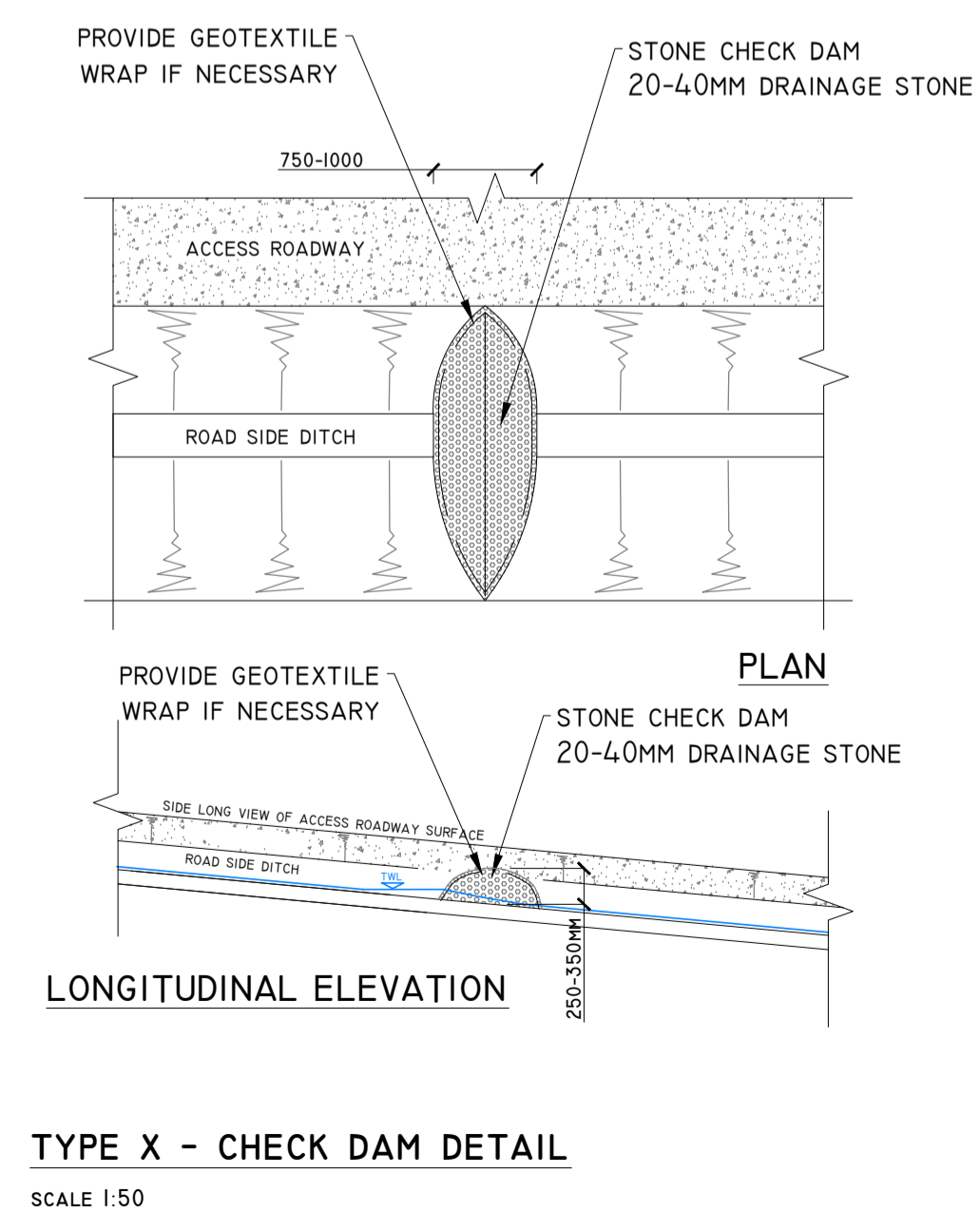
TYPE Y - CHECK DAM DETAIL
SCALE 1:50

DETAIL B

PEAT DITCH SILT TRAP
SCALE 1:25



DETAIL E



TYPE X - CHECK DAM DETAIL
SCALE 1:50

PROJECT DESIGN DRAWING NOTES

1. DRAWINGS ISSUED ARE FOR PLANNING APPLICATION PURPOSES ONLY. PLEASE NOTE THIS DRAWING IS FOR PLANNING PURPOSES ONLY, AND FURTHER DETAILED SPECIFICATION WILL BE REQUIRED FOR THE COMPLETION OF THE WORKS TO ENSURE THEY MEET REQUIRED DESIGN STANDARDS, AND PLANNING CONDITIONS.
2. DRAWINGS NOT TO BE USED FOR CONSTRUCTION CONTRACT CONDITIONS.
3. COPYRIGHT, ALL RIGHTS RESERVED. NO PART HERE WITH MAY BE COPIED OR REPRODUCED PARTIALLY OR WHOLLY IN ANY FORM WHATSOEVER WITHOUT THE PRIOR NOTICE OF THE COPYRIGHT OWNER HYDRO-ENVIRONMENTAL SERVICES.
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6. THE USE OF OR RELIANCE UPON THIS DRAWING SHALL BE DEEMED TO BE ACCEPTANCE OF THESE CONDITIONS OF USE UNLESS OTHERWISE AGREED IN WRITING. SUCH WRITTEN AGREEMENT TO BE SOUGHT FROM AND ISSUED BY THE COPYRIGHT HOLDER TO THE USER OR RELIANCE UPON THIS DRAWING.
7. DRAINAGE SYSTEMS ARE OFFSET AT A DISTANCE APPROPRIATE TO THE SCALE OF THIS DRAWING. ALL DRAINAGE WILL BE LOCATED ADJACENT TO INFRASTRUCTURE, AS APPROPRIATE ACROSS THE SITE.

DRAINAGE DESIGN NOTES

1. ALL DRAINAGE SUBJECT TO MICRO-SITING AND OPTIMISATION ON SITE.
2. THE LOCATIONS OF THE INTERCEPTOR DRAINS, CHECK DAMS, CULVERTS, SWALES, SETTLEMENT PONDS AND LEVEL SPREADERS ARE SHOWN AS INDICATIVE, AND MAY BE CHANGED TO SUIT THE REQUIREMENTS OF THE LOCAL TOPOGRAPHY.
3. SUPERVISING HYDROLOGIST OR ENVIRONMENTAL CLERK OF WORKS (ENVIRONMENTAL SCIENTIST) TO OVERSEE INSTALLATION OF DRAINAGE FEATURES FOLLOWING DETAILED DRAINAGE DESIGN.
4. DRAINAGE MEASURES TO BE INSTALLED PRIOR TO, OR AT THE SAME TIME AS THE WORKS AREAS THEY ARE INTENDED TO DRAIN.
5. DESIGN ELEVATION OF THE WATER SURFACE ALONG THE ROUTE OF THE INTERCEPTOR DRAINS OR SWALES WILL NOT BE LOWER THAN THE DESIGN ELEVATION OF THE WATER SURFACE IN THE OUTLET AT THE LEVEL SPREADER OR SETTLEMENT POND.
6. THE SPACING AND FREQUENCY OF THE CHECK DAMS WILL BE DEPENDANT ON THE GRADIENT OF THE INTERCEPTOR DRAIN OR SWALE IN WHICH THEY ARE BEING INSTALLED.
7. CHECK DAM DESIGNS TO BE SELECTED BEST TO SUIT PARTICULAR TOPOGRAPHY AND HYDROLOGICAL ENVIRONMENT.
8. DOWN GRADIENT SLOPE BELOW LEVEL SPREADER ONTO WHICH THE WATER WILL DISAPPEAR TO HAVE A GRADE 0.5%.
9. NO DIRECT DISCHARGE OR PUMPING TO WATERCOURSES WILL BE PERMITTED. ALL DISCHARGES FROM LEVEL SPREADERS OR STILLING PONDS TO BE VIA VEGETATED FILTERS. SELECTION OF SUITABLE AREAS TO USE AS VEGETATION FILTERS WILL BE DETERMINED BY THE SIZE OF THE CONTRIBUTING CATCHMENT, SLOPE AND GROUND CONDITIONS.
10. SETTLEMENT PONDS TO BE SIZED ACCORDING TO THE CATCHMENT AREA THEY WILL BE RECEIVING WATER FROM.
11. DIVERSION OF DRAINAGE DITCHES WILL ONLY TAKE PLACE WHEN ALTERNATIVE DRAINAGE DITCH HAS BEEN INSTALLED TO HANDLE THE SAME WATER.
12. EXISTING DRAINS/DITCHES TO BE INCORPORATED OR REMOVED DURING WIND FARM CONSTRUCTION.
13. ALL DRAINAGE SYSTEM FEATURES TO BE SUBJECT OF INSPECTION AND MAINTENANCE PLAN.
14. THE LAYOUT SHOWN IS SLIGHTLY OFFSET FOR SCALE PURPOSES, AND ALL DRAINAGE WILL BE INSTALLED AS CLOSE TO ACCESS TRACKS/ROADS AS POSSIBLE.

08.02.21	Planning - Rev A	M.G.	M.Gill
Date	Description	Chkd	Signed

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tel: +353 (0) 58-44244
email: info@hydroenvironmental.ie
web: www.hydroenvironmental.ie

Client: **MKO**

Job: **COOLE WF, CO. WESTMEATH**

Title: **DRAINAGE DETAILS I**

Figure No: **501**

Drawing No: **P1320-2-0221-A1-501-00A**

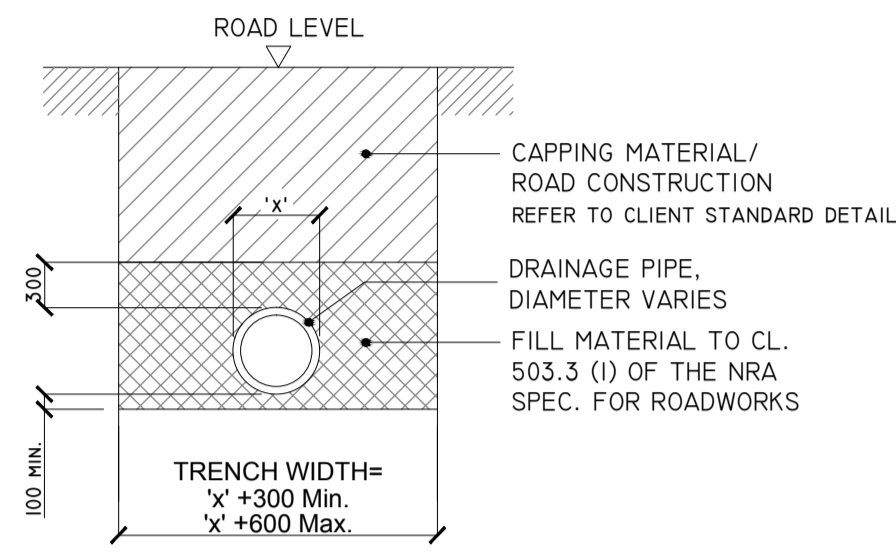
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Scale: **as shown (A1)** Drawn By: **M.Gill**

Date: **17/02/2021** Checked By: **M.G.**

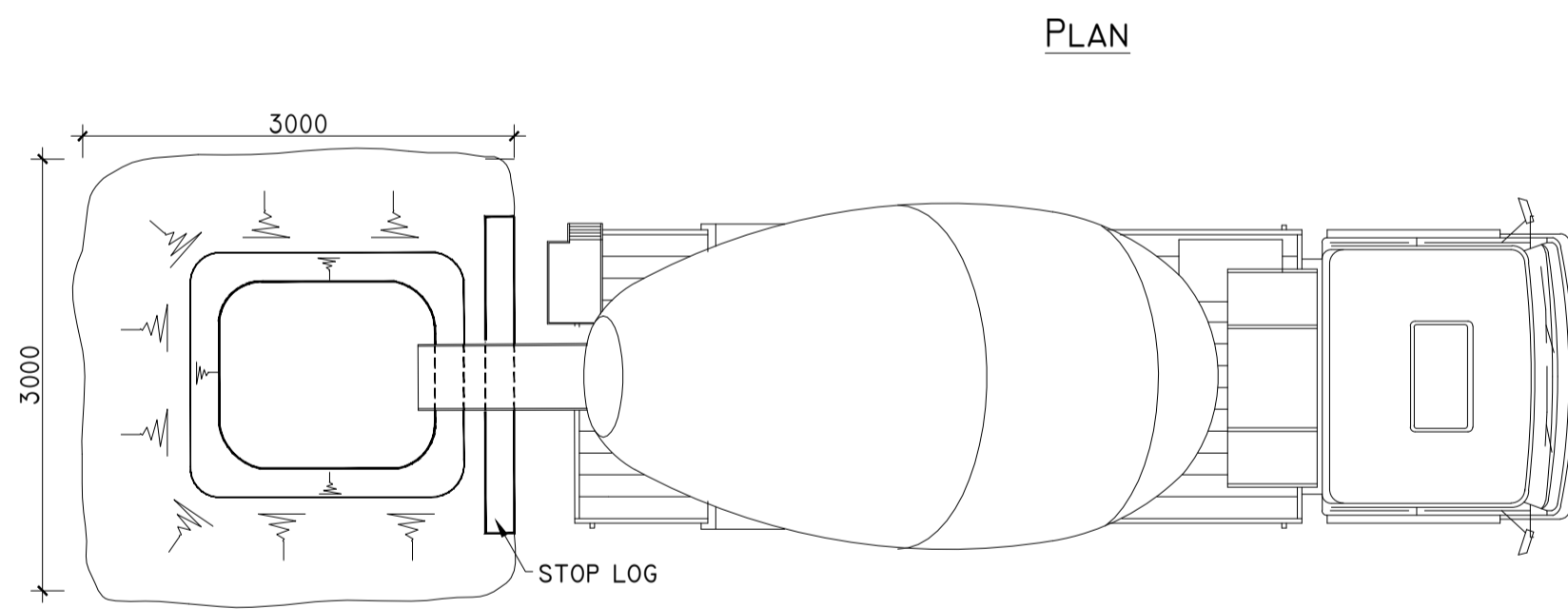
DETAIL F

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

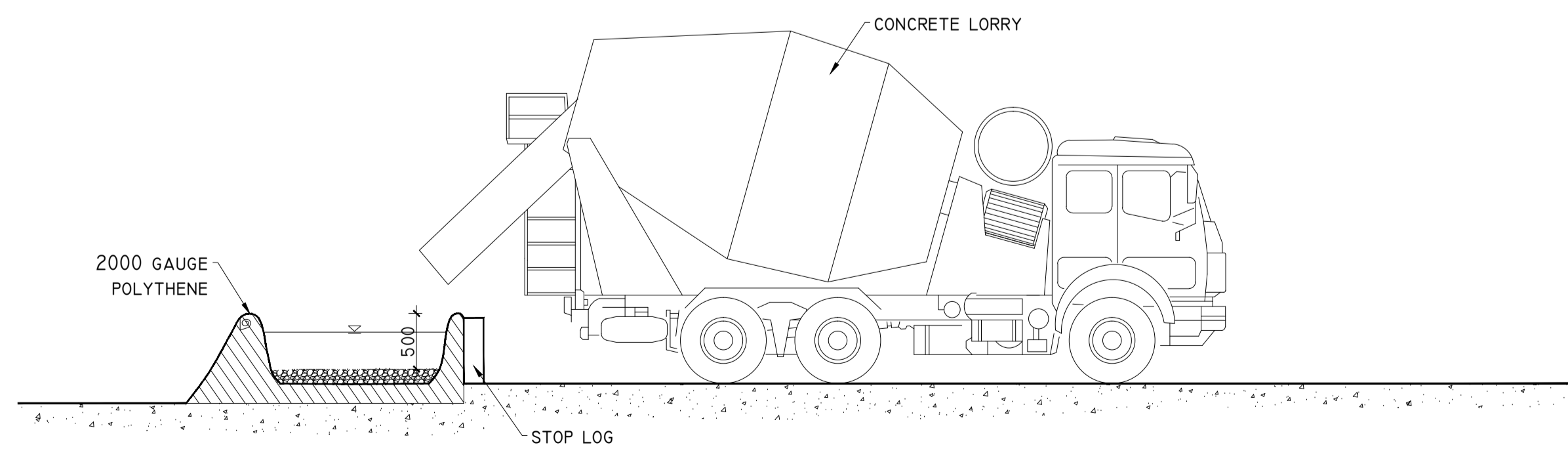


DETAIL I

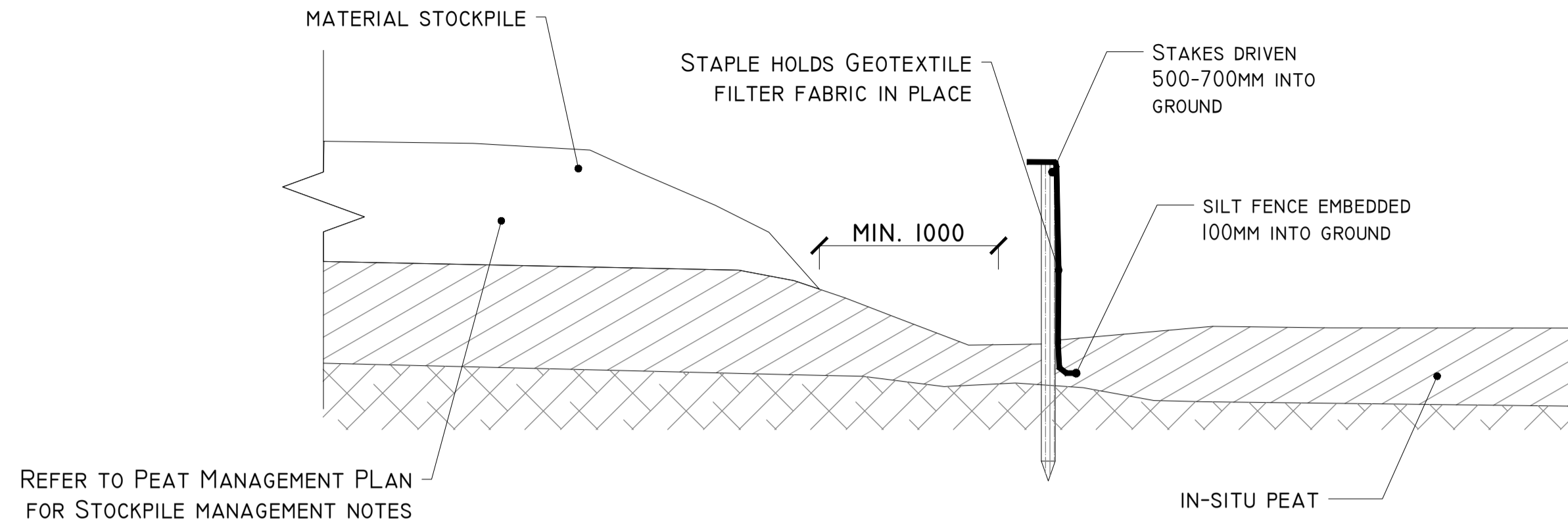
TEMPORARY CONCRETE WASH OUT PIT
SCALE 1:25



ELEVATION



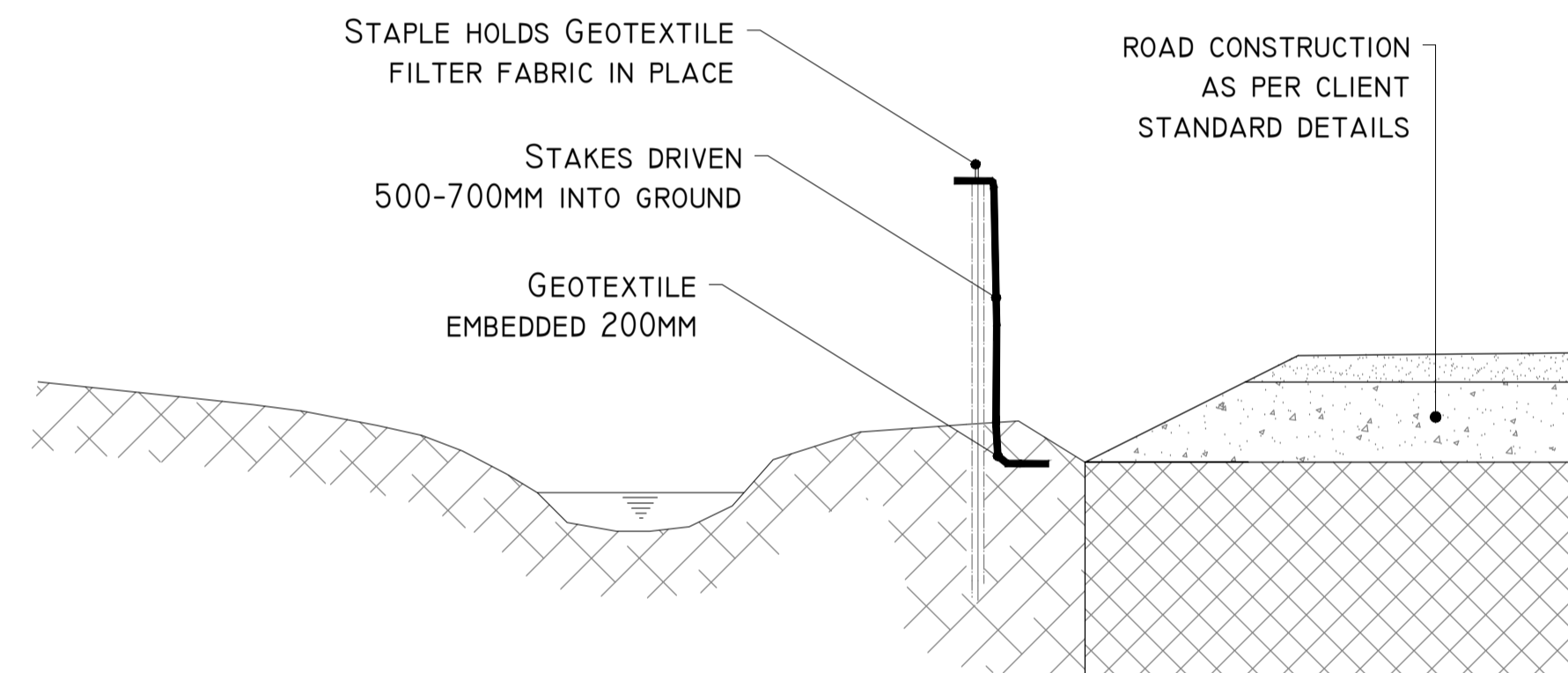
DETAIL G-I



REFER TO PEAT MANAGEMENT PLAN FOR STOCKPILE MANAGEMENT NOTES

SILT FENCE
SCALE 1:25

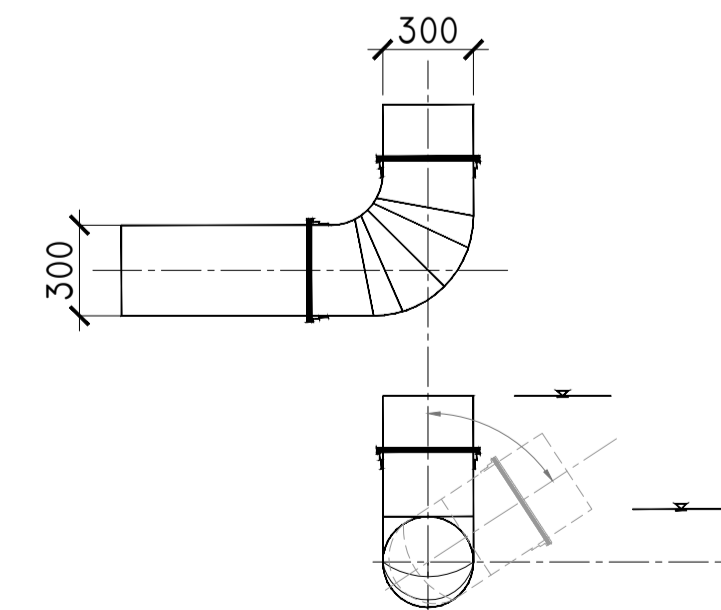
DETAIL G-II



SILT FENCE FOR WATERCOURSE PROTECTION
SCALE 1:25

DETAIL H

90° U BEND AND WATER LEVEL CONTROL MECHANISM
SCALE 1:25



PROJECT DESIGN DRAWING NOTES.
1. DRAWINGS ISSUED ARE FOR PLANNING APPLICATION PURPOSES ONLY. PLEASE NOTE THIS DRAWING IS FOR PLANNING PURPOSES ONLY, AND FURTHER DETAILED SPECIFICATION WILL BE REQUIRED FOR THE COMPLETION OF THE WORKS TO ENSURE THEY MEET REQUIRED DESIGN STANDARDS, AND PLANNING CONDITIONS.
2. DRAWINGS NOT TO BE USED FOR CONSTRUCTION /CONTRACT CONDITIONS.
3. COPYRIGHT, ALL RIGHTS RESERVED. NO PART HERE WITH MAY BE COPIED OR REPRODUCED PARTIALLY OR WHOLLY IN ANY FORM WHATSOEVER WITHOUT THE PRIOR NOTICE OF THE COPYRIGHT OWNER HYDRO-ENVIRONMENTAL SERVICES.
4. DO NOT SCALE OFF THIS DRAWING. FIGURED METRIC DIMENSIONS ONLY SHOULD BE TAKEN OFF THIS DRAWING.
5. ALL CONTRACTORS, WHETHER MAIN OR SUB-CONTRACTORS, MUST VISIT THE SITE AND ARE RESPONSIBLE FOR TAKING AND CHECKING ANY AND ALL DIMENSIONS AND LEVELS THAT RELATE TO THE WORKS.
6. THE USE OF OR RELIANCE UPON THIS DRAWING SHALL BE DEEMED TO BE ACCEPTANCE OF THESE CONDITIONS OF USE UNLESS OTHERWISE AGREED IN WRITING, SUCH WRITTEN AGREEMENT TO BE SOUGHT FROM AND ISSUED BY THE COPYRIGHT HOLDER TO THE USER OR RELIANCE UPON THIS DRAWING.
7. DRAINAGE SYSTEMS ARE OFFSET AT A DISTANCE APPROPRIATE TO THE SCALE OF THIS DRAWING. ALL DRAINAGE WILL BE LOCATED ADJACENT TO INFRASTRUCTURE, AS APPROPRIATE ACROSS THE SITE.

DRAINAGE DESIGN NOTES
1. ALL DRAINAGE SUBJECT TO MICRO-SITING AND OPTIMISATION ON SITE.
2. THE LOCATIONS OF THE INTERCEPTOR DRAINS, CHECK DAMS, CULVERTS, SWALES, SETTLEMENT PONDS AND LEVEL SPREADERS ARE SHOWN AS INDICATIVE, AND MAY BE CHANGED TO SUIT THE REQUIREMENTS OF THE LOCAL TOPOGRAPHY.
3. SUPERVISING HYDROLOGIST OR ENVIRONMENTAL CLERK OF WORKS (ENVIRONMENTAL SCIENTIST) TO OVERSEE INSTALLATION OF DRAINAGE FEATURES FOLLOWING DETAILED DRAINAGE DESIGN.
4. DRAINAGE MEASURES TO BE INSTALLED PRIOR TO, OR AT THE SAME TIME AS THE WORKS ARE INTENDED TO BE INSTALLED.
5. DESIGN ELEVATION OF THE WATER SURFACE ALONG THE ROUTE OF THE INTERCEPTOR DRAINS OR SWALES WILL NOT BE LOWER THAN THE DESIGN ELEVATION OF THE WATER SURFACE IN THE OUTLET AT THE LEVEL SPREADER OR SETTLEMENT POND.
6. THE SPACING AND FREQUENCY OF THE CHECK DAMS WILL BE DEPENDANT ON THE GRADIENT OF THE INTERCEPTOR DRAIN OR SWALE IN WHICH THEY ARE BEING INSTALLED.
7. CHECK DAM DESIGNS TO BE SELECTED BEST TO SUIT PARTICULAR TOPOGRAPHY AND HYDROLOGICAL ENVIRONMENT.
8. DOWN GRADIENT SLOPE BELOW LEVEL SPREADER ONTO WHICH THE WATER WILL DISPERSE TO HAVE A GRADE 45%.
9. NO DIRECT DISCHARGE OR PUMPING TO WATERCOURSES WILL BE PERMITTED. ALL DISCHARGES FROM LEVEL SPREADERS OR STILING PONDS TO BE VIA VEGETATED FILTERS. SELECTION OF SUITABLE AREAS TO USE AS VEGETATION FILTERS WILL BE DETERMINED BY THE SIZE OF THE CONTRIBUTING CATCHMENT, SLOPE AND GROUND CONDITIONS.
10. SETTLEMENT PONDS TO BE SIZED ACCORDING TO THE CATCHMENT AREA THEY WILL BE RECEIVING WATER FROM.
11. DIVERSION OF DRAINAGE DITCHES WILL ONLY TAKE PLACE WHEN ALTERNATIVE DRAINAGE DITCH HAS BEEN INSTALLED TO HANDLE THE SAME WATER.
12. EXISTING DRAINS/DITCHES TO BE INCORPORATED OR REMOVED DURING WIND FARM CONSTRUCTION.
13. ALL DRAINAGE SYSTEM FEATURES TO BE SUBJECT OF INSPECTION AND MAINTENANCE PLAN.
14. THE LAYOUT SHOWN IS SLIGHTLY OFFSET FOR SCALE PURPOSES, AND ALL DRAINAGE WILL BE INSTALLED AS CLOSE TO ACCESS TRACKS/ROADS AS POSSIBLE.

08.02.21	Planning - Rev A	M.G.	M.Gill
Date	Description	Chkd	Signed
Revisions			

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Job: **COLLE WF, CO. WESTMEATH**

Title: **DRAINAGE DETAILS 2**

Figure No: **502**

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Date: 17/02/21

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Checked By: M.G.