



**THREE OAKS RENEWABLE
ENERGY PARK
EXTENSION**

Highway Design Note

MAY 2026

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Highway Design Note

Client: Ridge Clean Energy Ltd

Project: Three Oaks Renewable Energy Park Extension

Date: 26th March 2026


RIDGE
CLEAN ENERGY



1. Introduction

1.1 Overview

The Transportation Consultancy Ltd ('TTC') has been appointed by Ridge Clean Energy Ltd to assess the traffic and transport aspects of a proposed renewable energy park near Bridlington, East Riding of Yorkshire.

The development description is as follows:

- Six wind turbines (total 25.2MW) with maximum tip height of 149.9m; hub height of 91.4m; blade length of 58.5m; and, max. transport width for tower of 5.5m.
- 90m high anemometer mast.

1.2 Purpose and Scope

This design note has been prepared to outline the highway design principles used for the upgrade works to the unnamed adopted highway which are proposed to accommodate construction traffic and maintenance vehicles associated with the wind farm development. The adopted highway will be upgraded as part of the works and will be subject to temporary closure during the upgrade and throughout the construction of the wind farm. Following completion of construction, access for all users will be reinstated, and once construction activities have ceased the road network will be reopened for public use.

As part of the Highways consultation response received on 22nd August 2025, the following impacts have been identified by East Riding Highway Authority and would need to be assessed and mitigated as part of any future application.

1. Constraints at junction of the unmetalled highway and the A614 including accommodation of the proposed abnormal loads.
2. Two way passing movements for HGV should be demonstrated at any point under 7m of weight bearing carriageway because the impact of gradient and secure surface on laden HGV is a known constraint to safe access.
3. Constraints along the length of the unmetalled highway (gradient/unknown construction and it is likely that the weight bearing surface may be limited to 3m or less and impacted by water erosion).
4. High Voltage equipment most likely under the management of Northern Powergrid.
5. Visibility Constraints (Vegetation and layout) as compliance with the ERLP Design Guide requires the X distance to be taken from 4.5m, however, this could be mitigated with a Temporary Traffic Regulation Order to 30mph.
6. The need for the largest vehicle/load to be able to complete the turning movement in one and pull fully off the highway onto a secure and bonded surface (to aid restarting movement) at the junction with the A614.
7. Opposite Lay-by which also has access to the southwest must be preserved fully functional.
8. Width of highway – likely that turning movements will impact the opposite carriageway the A614 and the unmetalled highway is single track at that point leading to slow turning movements (See swept path analysis presented in 22/02777/STPLF @ 5 mph).

9. Water drainage and pooling, the gradient of the unmetalled highway suggest that any non-permeable surface treatment supporting HGV access may lead to a stream of water/mud affecting safe use of the A614. It is *contrary to section 163 of the Highways Act 1980 for surface water from private development to drain onto the highway or discharge into the highway drainage system. The development shall therefore be so designed and constructed that surface water from the development shall not be permitted to drain onto the highway or into the highway drainage system.*
10. Impacts of turning movements on the A614 due to high usage during good weather/weekends and holidays and the current HGV movements and use for Abnormal Loads (large static caravans and modular prefabrications regularly use this route).
11. Maintaining or diverting practical access for pedestrians, equines, agricultural and cyclists using the unmetalled highway/green lane (as this is not a 'private track' safe access to the public highway for all users should be maintained).
12. As it is likely that temporary access improvements will need to be undertaken, a scheme of reparations would need to be included in any application.
13. Route to site, the future completion of works at Jocks Lodge may open a more practical route to site (there is at constraint at Middleton on the Wolds on the proposed route) – liaison with the Abnormal Loads team should be undertaken prior to any future application.
14. Commitment as to the length of time of highway disruption should be made and a completion date for reparations made.
15. Identified and contactable person to address public reports/concerns/complaints and general communication during the construction phase.

Parking

Compliant and practical turning/maintenance/servicing/parking/pedestrian and storage facilities should be shown on any drawings with details as to schedule and access routes during the operational phase. To comply with the C38 of the ERLP Design Code it is likely that EV charging is required.

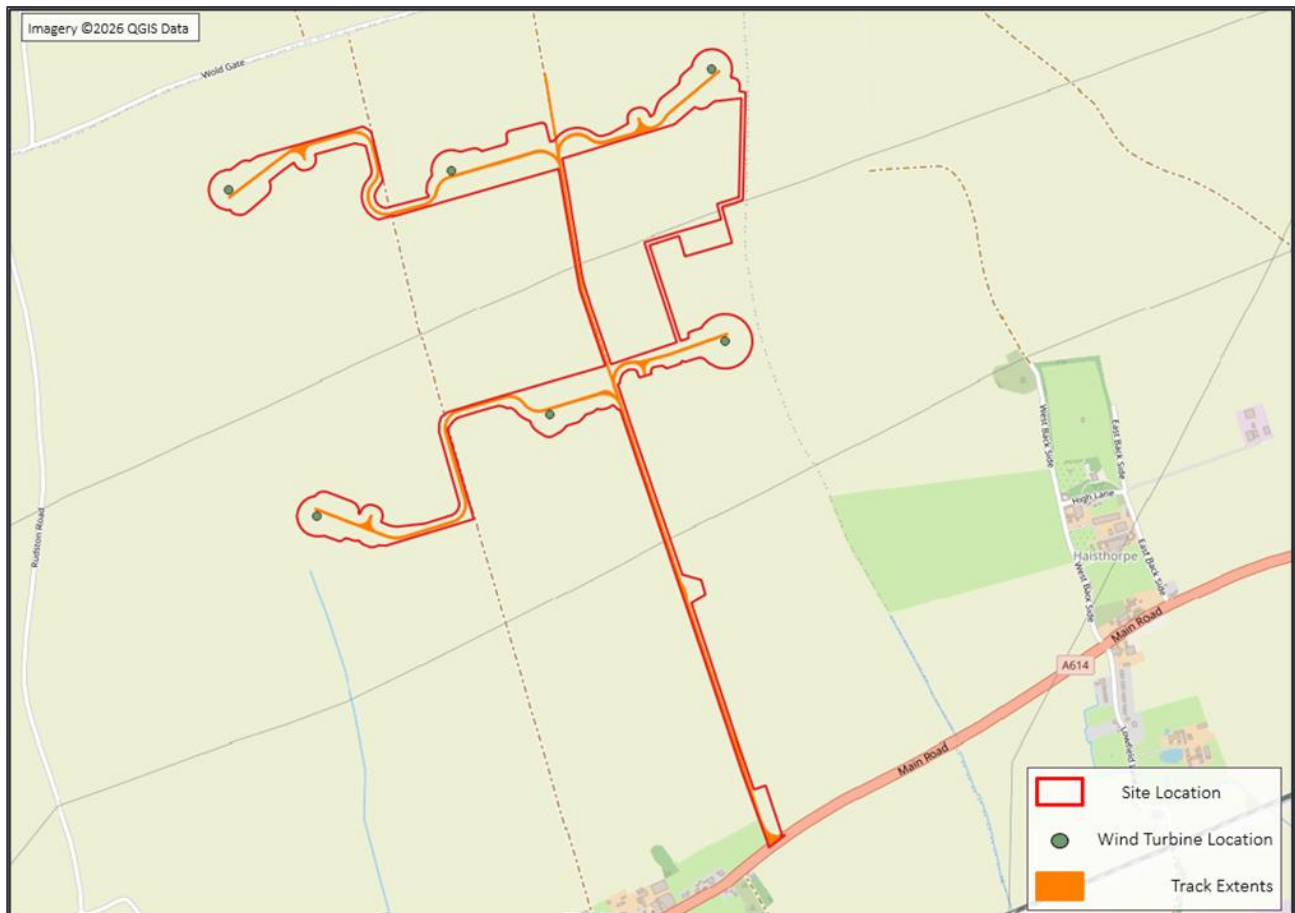
Each of these comments has been assessed and mitigation measures outlined in this design note.

1.3 Site Location

The site falls within the jurisdiction of East Riding of Yorkshire County Council (EYCC) in the northeast of England, situated to the west of Bridlington. The surrounding area consists of agricultural fields with gently rolling terrain, interspersed with hedgerows, trees, and occasional farm buildings. Bordered on all sides by further farmland, the site is traversed by a network of rural tracks that facilitate access to the wider area.

Figure 1.1 illustrates the site location within the local context.

Figure 1.1 Site Location



1.4 Existing Adoptable Road Condition

A site visit was undertaken on 22nd January 2026 to establish further information on the existing road layout, road condition, land levels, any existing drainage features, existing field access points and where there are gaps in the hedgerow. Photographs along the route as shown in the following figures.

Figure 1.2 Junction with A614 (looking north)	Figure 1.3 Junction with A614 (looking south)
	

Figure 1.4 Signs of Previous Pavement



Figure 1.5 Typical Level Differences



Figure 1.6 Typical Field Entrance



Figure 1.7 Field Entrances and Gaps in Hedgerow



2. Highway Alignment

2.1 Design Standards

The following design standards have been used in the design of the proposed adoptable highway:

- Design Manual for Roads and Bridges (DMRB) — provides geometric design and safety standards for higher-speed roads, including CD 109 (Highway link design), CD 123 (Geometric design of at-grade priority and signal-controlled junctions), CD 224 (Traffic Assessment) and CD 226 (Design for New Pavement Construction).
- East Riding Local Plan (ERLP) Design Guide — provides local design and safety standards, including visibility splay requirements. Note: the ERLP Design Guide takes precedence over Manual for Streets (MfS) for local highway matters in East Riding of Yorkshire. In particular, the X distance for visibility splays is required to be taken from 4.5m in accordance with the ERLP Design Guide.
- East Riding Design Code — provides design standards applicable to this development type.

2.2 Design Parameters Used in the Design

As the highway is an existing unmetalled road bounded by hedgerows on both sides, there are spatial and level constraints that influence the proposed design. As this is an adopted highway, it is necessary to follow the National and Local design standards, unless departures can be agreed where required.

Although this unnamed road has an unrestricted speed limit (national speed limit, 60mph), the geometry and locality of this road naturally result in a lower achievable speed. The design speed is therefore taken as 60kph post-construction. During construction, the contractor will impose a 10mph (16kph) speed restriction, as this length of road will be temporarily closed to the public and will operate as a construction site access. Further information on construction operations can be found in the outline Construction Traffic Management Plan (CTMP), Appendix 8.4 of the ES – Volume 4.

It is considered that the proposed upgrade works will provide a significant improvement to the existing situation and will be beneficial to the Highway Authority and local road users.

The design parameters used in the design of the adopted highway are summarised in Table 2.1. The table has been structured to group parameters by topic.

Table 2.1 Design Parameters Used in the Design

Parameter	Value	Notes / Basis
A — General		
Road Classification	Rural single lane	Unclassified adopted highway. Upgrade to adoptable standard required under S38 agreement.
Design Life	40 years	Per CD 226. Pavement construction designed accordingly — refer Section 3.
Design Speed (post-construction)	60kph	Based on road geometry and locality. Although the road has an unrestricted speed limit (60mph national speed limit), the constrained geometry and rural setting yield a natural operating speed in the region of 60kph.

Parameter	Value	Notes / Basis
Design Speed (construction phase)	16kph (10mph) Contractor-imposed	Road temporarily closed to the public during construction. 10 mph limit imposed by contractor throughout site. Refer oCTMP Appendix 8.4 of the ES – Volume 4.
Design Vehicle	STGO Category 3 Max gross: 126,300 kg Max axle: 9,375kg (based on trailer section)	Largest AIL component: lower tower section (126,300 kg). STGO Category 3 (max 150,000 kg). Governs junction geometry, swept path, pavement design and overrun area specification. Refer AIL Assessment ref. 211213-04.
B — Carriageway Geometry		
Carriageway Width	4.0m minimum (with passing places)	Single-lane running width between passing places. Constrained by existing hedgerow boundaries and requirement to accommodate a drainage solution.
Verge Width	1.5m minimum (typical)	Constrained by existing field boundaries and hedgerows. Verge provides drainage channel and maintenance strip.
Crossfall / Superelevation	1:40 (2.5%)	Applied to direct surface water to drainage channels within verge.
Maximum Longitudinal Gradient	1:20 (5%)	Limited by existing topography. Governs laden HGV and AIL performance.
Minimum Longitudinal Gradient	1:100 (1%)	Ensures positive surface water drainage along the carriageway at all times.
Minimum Horizontal Curve Radius	360m	Based on 60 kph design speed. Constrained by existing alignment but all design values above this.
Vertical Curve Provision (Crest / Sag)	$K = 17 / K = 13$	Based on 60 kph design speed and 90 m SSD. To be cross-checked against current DMRB CD 109 at detailed design stage.
Minimum Drainage Gradient	1.0% minimum	Minimum fall required to ensure positive flow to proposed drainage channels. Particularly important at low-lying sections and field access points where water pooling has been observed.
Edge Treatment	Unkerbed — grassed verge with granular Type 1 shoulder	No kerbing proposed. Edge restraint provided by compacted Type 1 granular shoulder within verge. Consistent with rural character of adopted highway.
C — Passing Places		
Passing Place Width (total formation)	7.0m minimum	Minimum combined width to allow two laden OGV2 HGVs to pass simultaneously. Passing bay provides 3.0m additional width alongside the 4.0m running lane.
Passing Place Length	30m minimum	Sufficient to accommodate longest standard HGV (articulated, ~18.75 m) with clearance at each end. AIL vehicles will not pass in bays — separate AIL management protocol applies.
Passing Place Spacing	Confirmed by swept path analysis at detailed design	Spacing to ensure that any approaching vehicles are visible to one another before the last passing place is passed (i.e. within SSD). Interim maximum spacing of 500m proposed pending detailed design confirmation.
Passing Place Surface	Full pavement construction	Passing places to be constructed to the same pavement specification as the main carriageway. Must accommodate laden OGV2 HGV loading.
D — Sight Distances		

Parameter	Value	Notes / Basis
Stopping Sight Distance (SSD)	90m (post-construction)	Based on 60kph design speed. To be maintained clear of vegetation and other obstructions throughout the operational life of the road.
Full Overtaking Sight Distance (FOSD)	Not achievable — departure required at detailed design stage	FOSD at 60kph requires approximately 490m. This is not achievable given the constrained alignment and hedgerow boundaries. Departure from standard to be formally agreed with ERYC. Mitigation: passing places provided at regular intervals so overtaking is not required.
Junction Visibility Splay — X distance	4.5m (per ERLP Design Guide)	Setback distance from the nearside edge of the A614 carriageway. Per ERLP Design Guide requirement. Constrained by existing junction geometry.
Junction Visibility Splay — Y distance	107m (West) 109m (East)	Visibility splays have been derived in accordance with DMRB CD 109, based on design speeds informed by 85th percentile vehicle speeds. Vegetation management commitment required to maintain splay in perpetuity.
E — Non-Motorised Users		
Pedestrian / Equestrian / Cyclist Provision (construction phase)	Signed diversion route — road closed to public	The adopted highway will be temporarily closed during construction. A signed diversion will be agreed with ERYC and in place prior to closure. Diversion route to be confirmed with ERYC as part of TTRO process. Refer CTMP ref. 211213-05.
Pedestrian / Equestrian / Cyclist Provision (permanent, post-construction)	Existing green lane character retained	The unmetalled green lane character of the route beyond the surfaced section will be retained. No formal footway or cycleway is proposed as this is inconsistent with the rural, agricultural setting. The adoptable highway will be accessible to all lawful users upon completion.
F — Junction with A614		
Junction Type	Priority junction (Give Way to A614)	Upgrade of existing access junction. New flexible pavement construction tying into A614 carriageway.
Overrun Area	Grass reinforcement system	Provided to allow STGO Cat 3 AIL vehicles to complete turning movement in a single manoeuvre and clear the A614 fully. Designed for 126,300kg ground-bearing pressure — manufacturer's design certificate required at detailed design stage.
Opposite Lay-by	Preserved fully functional	No works proposed to the opposite lay-by. Swept path analysis confirms AIL vehicles will overhang the lay-by during turning — temporary clearance managed by traffic marshal.
AIL Turning Movement — minimum speed	5mph	Swept path analysis conducted at 5mph for largest AIL vehicle.

3. Pavement Design

3.1 Design Traffic

Design traffic has been calculated in accordance with CD 224 Traffic Assessment and is expressed in million standard axles (msa) over a 40-year design life, consistent with the requirements of CD 226 Design for New Pavement Construction.

The traffic using the adoptable highway during its lifetime falls into two phases: a construction phase of approximately 8 months (commencing 2028, per oCTMP Appendix 8.4 of the ES – Volume 4) during which all significant HGV loading will occur, followed by a long-term operational phase generating negligible traffic (maintenance visits only), alongside current users.

Construction Traffic and MSA Calculation

Construction traffic has been assessed using the vehicle schedule set out in oCTMP, reference 211213-05. The principal vehicle types are summarised in Table 3.3, along with their individual equivalent standard axle (ESA) contributions.

The AIL vehicles carry a gross weight of 126,300kg (lower tower section — the heaviest component) distributed across the tractor, trailer and subtrailer, giving the largest per-axle load of approximately 9,375kg (91.9kN) on the trailer. Using the CD 224 fourth power law equivalence factor formula $EF = (\text{axle load in tonnes} / 8.16)$, this yields an equivalence factor of approximately 1.87 per axle. Although this exceeds the unit ESA value for a standard 80kN axle, the overall ESA contribution remains modest due to the low number of AIL movements (54 in total). The three AIL vehicle types (tower sections: 30 movements; nacelles: 6 movements; blades: 18 movements) contribute a combined total of approximately 881 equivalent standard axles (0.000881 msa), which is entirely negligible in design terms. The governing loading is therefore the OGV2 standard HGV construction traffic (concrete trucks, aggregate lorries, and crane mobilisation vehicles).

Applying the CD 224 methodology to the oCTMP vehicle schedule (Appendix 8.4 of the ES – Volume 4, Table 5.2), the total two-way HGV movements across the 8-month construction period are 4,512 (2,256 one-way), equating to approximately 14 one-way HGV movements per working day on average (160 working days at 20 days/month). Applying the OGV2 wear factor of 2.7 to the total one-way HGV movements, the calculated design traffic is approximately 0.006 msa on a total-movements basis. Using the peak month (Month 3) daily rate as a conservative upper bound, this rises to approximately 0.013 msa. In all cases the calculated msa falls substantially below the mandatory minimum of 1 msa specified in CD 226 for new road construction. The pavement has accordingly been designed to 1 msa.

Table 3.1 CD224 Design Traffic Summary

Vehicle Category	Approx. Movements directions)	Total (both	ESA per Movement (CD224 wear factor)	Notes
AIL — Tower components (lower tower governs: 126,300 kg, ~14 axles, 9,375 kg/axle)	30 movements (one-way)	(one-way)	1.87 per axle (EF = $(9.375/8.16)^{4.5}$) Total ESA = 785	STGO Cat 3. Per-axle EF above 1.0 standard axle. ESA contribution negligible due to low frequency and multi-axle load spreading.
AIL — Nacelle units (103,600 kg, est. 14 axles, ~7,400 kg/axle)	6 movements (one-way)	(one-way)	~0.64 per axle Total ESA ≈ 54	STGO Cat 3. Similar per-axle load to tower. Refer to AIL report

Vehicle Category	Approx. Movements (both directions)	Total (both)	ESA per Movement (CD224 wear factor)	Notes
				(211213-04) for confirmed axle schedule.
AIL — Turbine blades (39,700 kg total inc. tractor/trailer, est. 10 axles)	18 movements (one-way)		~0.055 per axle Total ESA ≈ 10	STGO Cat 2. Lightest AIL vehicle type. Low ESA contribution.
OGV2 — concrete trucks, aggregate lorries, reinforcement, general construction materials (governs design)	4,512 two-way (2,256 one-way) over 8 months (from oCTMP Table 5.2)		2.7 (OGV2 standard) Avg. daily = ~7 Peak daily = ~17	Governing vehicle class for msa. Peak month (Month 3): 672 two-way HGV movements. 20 working days/month assumed. OGV2 wear factor per CD224.
Crane and heavy plant mobilisation	12 two-way (craneage on/off site — Months 5+6)		~2.7 (OGV2 proxy, conservative)	Included within oCTMP HGV total above. Wear factor assumed equivalent to OGV2 as conservative proxy pending contractor confirmation.
Light goods vehicles and workers' cars	3,140 two-way (from oCTMP Table 5.2)		0.0002 per vehicle Total ≈ 0.000001 msa (negligible)	No meaningful contribution to pavement msa. Peak month (Month 3/4): 280 two-way car/van movements.

Although the msa-based flexible pavement design methodology adequately captures the structural wear contribution of the AIL vehicles, a supplementary ground-bearing pressure assessment will be undertaken at detailed design stage to verify pavement performance at identified sensitive locations along the route (drainage crossings, areas of suspected soft ground, and field access points). This will be informed by the CBR testing programme described in Section 3.2.

3.2 Subgrade Assessment

In order to assess the existing strength of the subgrade, California Bearing Ratio (CBR) testing will be required along the full length of the route. These tests shall be undertaken by a specialist geotechnical contractor at detailed design stage, with results provided to the engineer so that the depth of pavement construction can be confirmed or revised accordingly. Testing shall be carried out in accordance with BS 1377, under worst anticipated seasonal moisture conditions.

For the purpose of this outline design, a CBR value of 3% has been assumed, consistent with the weak agricultural subgrade conditions observed during the site visit on 22nd January 2026. The equivalent subgrade surface modulus (per CD225) is approximately 43MPa (calculated using $E = 17.6 \times \text{CBR}$).

A sensitivity check has been carried out at CBR 2% (equivalent to approximately 31MPa), representing a scenario where in-situ conditions are found to be worse than assumed. The results are presented in Table 3.2 in Section 3.3.

CD225 identifies a subgrade surface modulus of less than 30MPa (approximately CBR 2.5%) as the lower limit for conventional foundation construction. At CBR 2% (31MPa) the design remains just above this threshold; however, should in-situ CBR testing return values at or below 2.5%, ground stabilisation will be required. The methodology for addressing this shall be submitted to East Riding of Yorkshire Council for approval prior to commencement of works.

3.3 Pavement Construction

The proposed pavement construction has been designed in accordance with CD 226 for a design traffic of 1 msa (the mandatory minimum for adoptable highways) and a subgrade CBR of 3%. The design life is 40 years.

Construction Sequencing — Abnormal Load Vehicles and Surface Course

In order to protect the final wearing surface, it is proposed that all AIL vehicles complete turbine component deliveries prior to the laying of the surface course. The binder course will serve as the running surface during the construction period and will be inspected and remediated as necessary before the surface course is applied. This sequencing shall be reflected in the construction programme and confirmed with East Riding of Yorkshire Council prior to commencement of works.

Table 3.2 Pavement Design (CBR 3%)

Layer	Main Spine Road	Junctions with Spurs
Surface Course	40mm SMA 10 surf PMB (Clause 942)	40mm SMA 10 surf PMB (Clause 942)
Binder Course	80mm AC 20 dense bin 40/60 (Clause 906)	80mm AC 20 dense bin 40/60 (Clause 906)
Base	170mm AC 32 dense base 40/60 (Clause 906)	200mm AC 32 dense base 40/60 (Clause 906)
Sub-base	200mm Type 1 unbound granular (Clause 803)	250mm Type 1 unbound granular (Clause 803)
Capping Layer	250mm Class 6F2/6F5 (Series 600)	300mm Class 6F2/6F5 (Series 600)
Geogrid	Tensor TriAx TX170 or similar	Tensor TriAx TX170 or similar
Geotextile	Non-woven separator (Clause 609)	Non-woven separator (Clause 609)
Total Construction Depth	740mm	870mm

The cross section drawing for the above construction is presented on drawing 211213-TTC-XX-XX-CD-H-0010, found in Appendix A. The geogrid specification (Tensor TriAx TX170 or equivalent) has been selected to provide subgrade restraint at the low CBR value assumed. The design of this is to be reassessed once CBR values are obtained at the detailed design stage.

Sensitivity Check at CBR 2%

Table 3.3 presents a comparison of pavement layer thicknesses between the base case (CBR 3%) and the sensitivity scenario (CBR 2%). The key finding is that the asphalt layers are unchanged between scenarios, as these are governed by the 1 msa design traffic rather than the subgrade CBR. The foundation layers (sub-base and capping) require increases of up to 100 mm at CBR 2%, most significantly in the capping layer.

Table 3.3 Pavement Sensitivity Check: CBR 3% vs CBR 2%

Layer	CBR 3% (Base Case)	CBR 2% (Sensitivity)	Change	Note
Asphalt Layers				
Surface Course	40mm	40mm	—	No change; governed by 1 msa design traffic
Binder Course	80mm	80mm	—	No change; governed by 1 msa design traffic
Base (spine)	170mm	170mm	—	No change; governed by 1 msa design traffic
Base (junctions)	200mm	200mm	—	No change; governed by 1 msa design traffic
Foundation Layers				
Sub-base (Type 1) (spine)	200mm	225mm	+25mm	Increased per CD225 to achieve Foundation Class 2 target at lower subgrade stiffness
Sub-base (Type 1) (junctions)	250mm	275mm	+25mm	Increased per CD225 to achieve Foundation Class 2 target at lower subgrade stiffness
Capping Layer (6F2/6F5) (spine)	250mm	350mm	+100mm	Significant increase required. At CBR 2% (31 MPa), ground is near the CD225 lower limit for foundation construction without stabilisation
Capping Layer (6F2/6F5) (junctions)	300mm	400mm	+100mm	Significant increase required. At CBR 2% (31 MPa), ground is near the CD225 lower limit for foundation construction without stabilisation
Geogrid	TX170	TX170 or TX160A (confirm with mfr.)	TBC	Manufacturer design certificate required at CBR 2% to confirm product selection is adequate
Total Construction Depth (spine)	740mm	865mm	+125mm	CBR testing at detailed design stage will confirm which scenario governs. If in-situ CBR $\leq$ 2.5%, ground stabilisation may be required per CD225.
Total Construction Depth (junctions)	770mm	895mm	+125mm	

If in-situ CBR testing at detailed design stage returns values at or below 2.5%, the design will trigger the CD225 requirement for ground stabilisation. The proposed stabilisation method shall be submitted to East Riding of Yorkshire Council for review and approval prior to commencement of construction. The CBR 2% sensitivity build-up shown in Table 3.2 shall be adopted as the minimum until test results confirm the subgrade condition.

3.4 Overrun Area at A614 Junction

In addition to the main route upgrades, an overrun area is provided at the junction with the A614 to accommodate the swept path requirements of the AIL vehicles. This area will be constructed using a grass

reinforcement system, allowing vegetation to establish through the cells so that the area blends into the natural landscape.

The reinforcement system will be designed to accommodate the ground-bearing pressures associated with the AIL vehicles. The design of this system is summarised in Table 3.4.

Table 3.4 Pavement Design for Overrun Area at A614 Junction

Layer	CBR 3%	CBR 2%
Surface Course	Grasscrete GC2/150mm/A393 or similar	Grasscrete GC2/150mm/A393 or similar
Sub-base	300mm Type 1 unbound granular (Clause 803)	400mm Type 1 unbound granular (Clause 803)
Geotextile	Non-woven separator (Clause 609)	Non-woven separator (Clause 609)
Total Construction Depth	450mm	550mm

Following completion of AIL movements, the area of the AIL bellmouth within the highway boundary will be reinstated as verge, with removed hedgerow replanted accordingly. The AIL bellmouth area outside the highway boundary will remain as Grasscrete.

4. Conclusions

This design note summarises the highway design principles used in relation to the existing public highways within the planning boundary. As part of the pre-application advice, East Riding Highway Authority provided consultee responses. The following impacts have been identified and assessed to establish mitigation methods as part of the planning application.

Table 4.1 East Riding Highway Authority Comments and Designer Responses

Reference	East Riding Highway Authority Comment	Response to Comment	Evidence References
1	Constraints at junction of the unmetalled highway and the A614 including accommodation of the proposed abnormal loads.	The junction is to be upgraded to a flexible road construction and will tie into the existing carriageway of the A614.	Abnormal Load Assessment, report reference 211213-04 Drawings 211213-04 Sheet 1 to 8
2	Two way passing movements for HGV should be demonstrated at any point under 7m of weight bearing carriageway because the impact of gradient and secure surface on laden HGV is a known constraint to safe access.	Two-way passing has been demonstrated to be achievable, with the use of passing bays.	Drawings 211213-04 Sheet 1 to 8
3	Constraints along the length of the unmetalled highway (gradient/unknown construction and it is likely that the weight bearing surface may be limited to 3m or less and impacted by water erosion).	The gradient of the existing road ranges from 1:20 (5%) to 1:100 (1%), which is within adoptable standards for an unrestricted speed limit (60mph) for a rural road. The existing road surface is unmetalled and is in a state of disrepair due to rutting from farm vehicle wheel tracks. The proposed pavement design assumes a CBR value of 3%, and an alternative design has been prepared for a CBR value of 2% to understand the differences.	Drawings 211213-TTC-XX-XX-CD-H-0003 211213-TTC-XX-XX-CD-H-0004 211213-TTC-XX-XX-CD-H-0005 211213-TTC-XX-XX-CD-H-0006 211213-TTC-XX-XX-CD-H-0007 211213-TTC-XX-XX-CD-H-0008 211213-TTC-XX-XX-CD-H-0009 211213-TTC-XX-XX-CD-H-0010
4	High Voltage equipment most likely under the management of Northern Powergrid.	Northern Powergrid (NPG) asset maps have been obtained, which show overhead cables and associated poles in the vicinity of the proposed works. Two overhead 66 kV lines and one 11kV line cross the Site and access route. These lines will be circumnavigated through consultation with Northern Powergrid, who would use their permitted development rights to either prop up the cables or bury them. This work is subject to further consultation and a separate process in the event that planning permission is granted for the Proposed Development.	Drawings 211213-TTC-XX-XX-CD-H-0003 211213-TTC-XX-XX-CD-H-0004 211213-TTC-XX-XX-CD-H-0005 211213-TTC-XX-XX-CD-H-0006
5	Visibility Constraints (Vegetation and layout) as compliance with the ERLP Design Guide requires the X distance to be taken from 4.5m, however, this could be mitigated with a Temporary Traffic Regulation Order to 30mph.	The visibility splays used during the construction stage have been set to X = 4.5m; Y = 107m (west), 109m (East).	Construction Traffic Management Plan, report reference 211213-05. Drawings 211213-04 Sheet 1 to 8

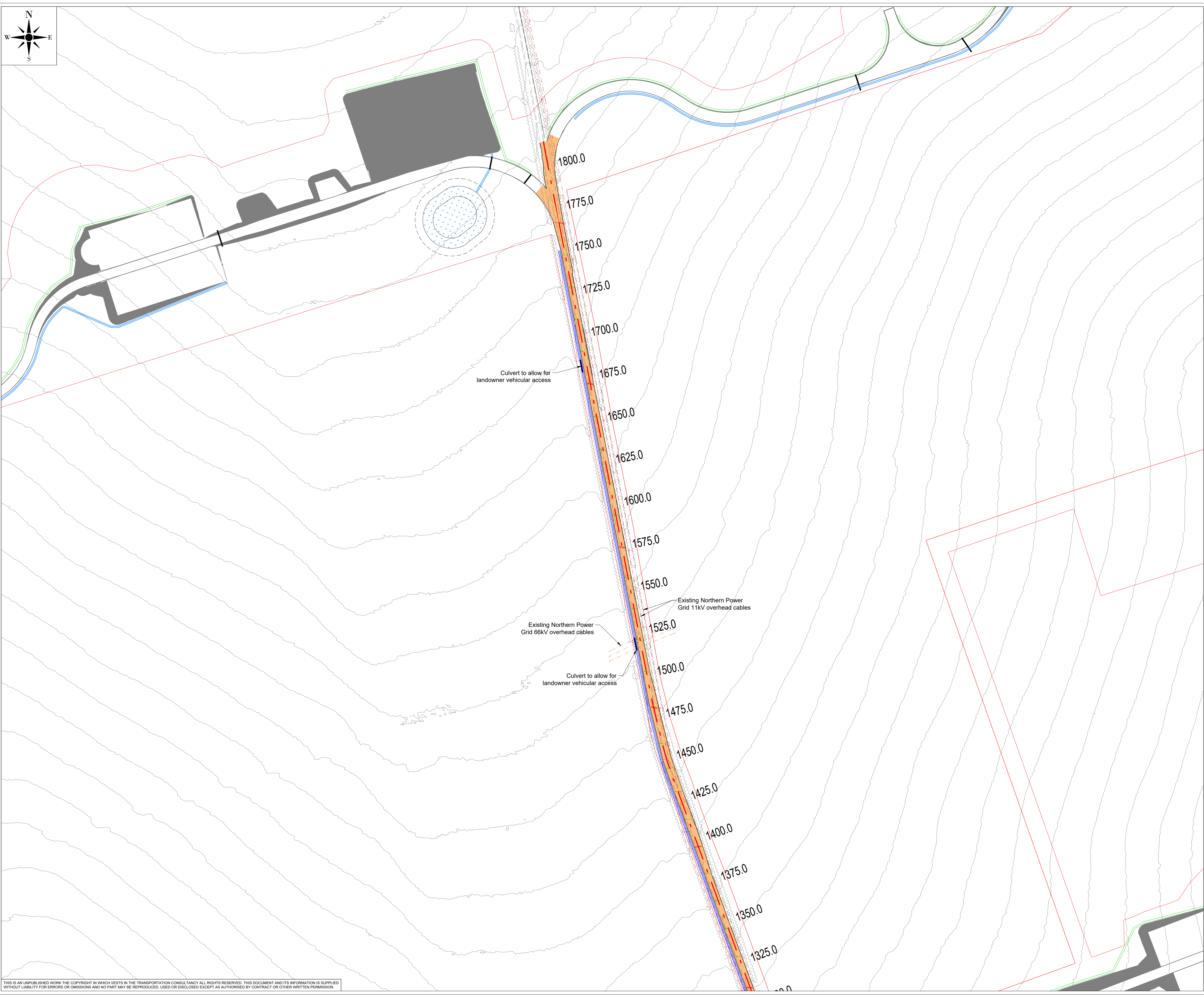
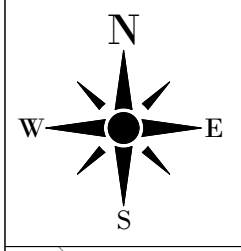
Reference	East Riding Highway Authority Comment	Response to Comment	Evidence References
6	The need for the largest vehicle/load to be able to complete the turning movement in one and pull fully off the highway onto a secure and bonded surface (to aid restarting movement) at the junction with the A614.	The proposed junction upgrade includes for a metalled surface finish within the more frequent vehicle tracks and an overrun area has been provided for the abnormal load vehicles.	Construction Traffic Management Plan, report reference 211213-05. Drawings 211213-04 Sheet 1 to 8
7	Opposite Lay-by which also has access to the southwest must be preserved fully functional.	No works are proposed to the opposite lay-by, although there is a need to enter this area with the abnormal load vehicles, where the blades overhang. This is to be managed by a traffic marshal during these delivery periods.	Construction Traffic Management Plan, report reference 211213-05. Drawings 211213-04 Sheet 1 to 8
8	Width of highway – likely that turning movements will impact the opposite carriageway of the A614 and the unmetalled highway is single track at that point leading to slow turning movements (See swept path analysis presented in 22/02777/STPLF @ 5 mph).	Swept path analysis shows that the turbine blade will overhang part of the existing lay-by. As part of the CTMP, it is proposed that these manoeuvres will be undertaken with management by a traffic marshal during these delivery periods. As such, any vehicles using the lay-by can be temporarily moved to allow for unhindered access.	Construction Traffic Management Plan, report reference 211213-05. Drawings 211213-04 Sheet 1 to 8
9	Water drainage and pooling, the gradient of the unmetalled highway suggest that any non-permeable surface treatment supporting HGV access may lead to a stream of water/mud affecting safe use of the A614. It is contrary to section 163 of the Highways Act 1980 for surface water from private development to drain onto the highway or discharge into the highway drainage system. The development shall therefore be so designed and constructed that surface water from the development shall not be permitted to drain onto the highway or into the highway drainage system.	Mitigation for the known flooding risk has formed part of the proposed design by allowing for a new drainage channel within the highway verge. These channels will collect runoff from the metalled road through use of a crossfall on the proposed road. The channels will lead to infiltration basins, which have been designed to fully infiltrate all storm events up to and including the 1 in 100 year return period, with a 40% allowance for climate change. The overrun area at the junction with the A614 will be constructed using a reinforced grass pavement system, with a crossfall falling towards the proposed infiltration basin to capture any surcharged runoff. The drainage system for the adoptable highway is expected to eliminate the flood risk currently being experienced at the junction, which is providing significant betterment to the existing situation.	Surface Water Drainage Strategy, report reference 211213-06.
10	Impacts of turning movements on the A614 due to high usage during good weather/weekends and holidays and the current HGV movements and use for Abnormal Loads (large static caravans and modular prefabrications regularly use this route).	A pre-construction condition survey is recommended to form part of the planning conditions, so that the condition post-construction can be assessed and any defects rectified.	Construction Traffic Management Plan, report reference 211213-05.

Reference	East Riding Highway Authority Comment	Response to Comment	Evidence References
11	Maintaining or diverting practical access for pedestrians, equines, agricultural and cyclists using the unmetalled highway/green lane (as this is not a 'private track' safe access to the public highway for all users should be maintained).	It is proposed that during construction, the roads being used by construction traffic are temporarily closed to the public and diversion routes are sign posted. Following construction, this road will be re-opened to the public and can be used by all road users.	Construction Traffic Management Plan, report reference 211213-05.
12	As it is likely that temporary access improvements will need to be undertaken, a scheme of reparations would need to be included in any application.	To allow for the abnormal load vehicles, it is proposed that an overrun area is included at the junction. This will consist of a grass reinforcement system which will allow grass through the cells so that the area eventually blends into the natural landscape until the end of the maintenance period. Following this, the grass reinforcement system can be removed with approval from East Riding Highway Authority.	Construction Traffic Management Plan, report reference 211213-05. Drawings 211213-04 Sheet 1 to 8
13	Route to site, the future completion of works at Jocks Lodge may open a more practical route to site (there is at constraint at Middleton on the Wolds on the proposed route) – liaison with the Abnormal Loads team should be undertaken prior to any future application.	The route to site has been assessed as part of the CTMP and abnormal load traffic assessment, which demonstrates that a feasible route can be achieved. If future works to Jocks Lodge does open up a more practical route, then this can be considered and assessed in collaboration with the abnormal loads team.	Abnormal Load Assessment, report reference 211213-04 Drawings 211213-04 Sheet 1 to 8
14	Commitment as to the length of time of highway disruption should be made and a completion date for reparations made.	The duration of the construction works and maintenance period has been considered in the CTMP.	Construction Traffic Management Plan, report reference 211213-05.
15	Identified and contactable person to address public reports/concerns/complaints and general communication during the construction phase.	Ridge Clean Energy Limited will be the point of contact during the construction phase. In addition, once the contractor has been appointed, a site point of contact can be provided.	To be provided following planning.



Appendix A

Drawings



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Notes

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2. Design should be considered as provisional outline. Details to be refined at detailed design stage following planning consent.
3. Turbine and spur tracks locations taken from GONDOLIN Land & Water drawing GSL-001 Rev 05.
4. This drawing is to be read in conjunction with the 'TTC' Highway Design Note '211213-07'.
5. Site wide drainage details are shown on drawings 211213-TTC-XX-XX-CD-H-0001 & 211213-TTC-XX-XX-CD-H-0002
6. Junction details and vehicle tracking are shown on drawings 211213-04 Sheet 1-8

General Legend

- Planning Boundary
- Full Road Construction
- Reinforced Grass Overrun Area
- Highway Drainage Channel
- Highway Infiltration Basin
- Private Drainage Channel
- Private Infiltration Basin
- Land Drainage Channel
- Concrete Culvert
- Overhead 66kV Cables
- Overhead 11kV Cables

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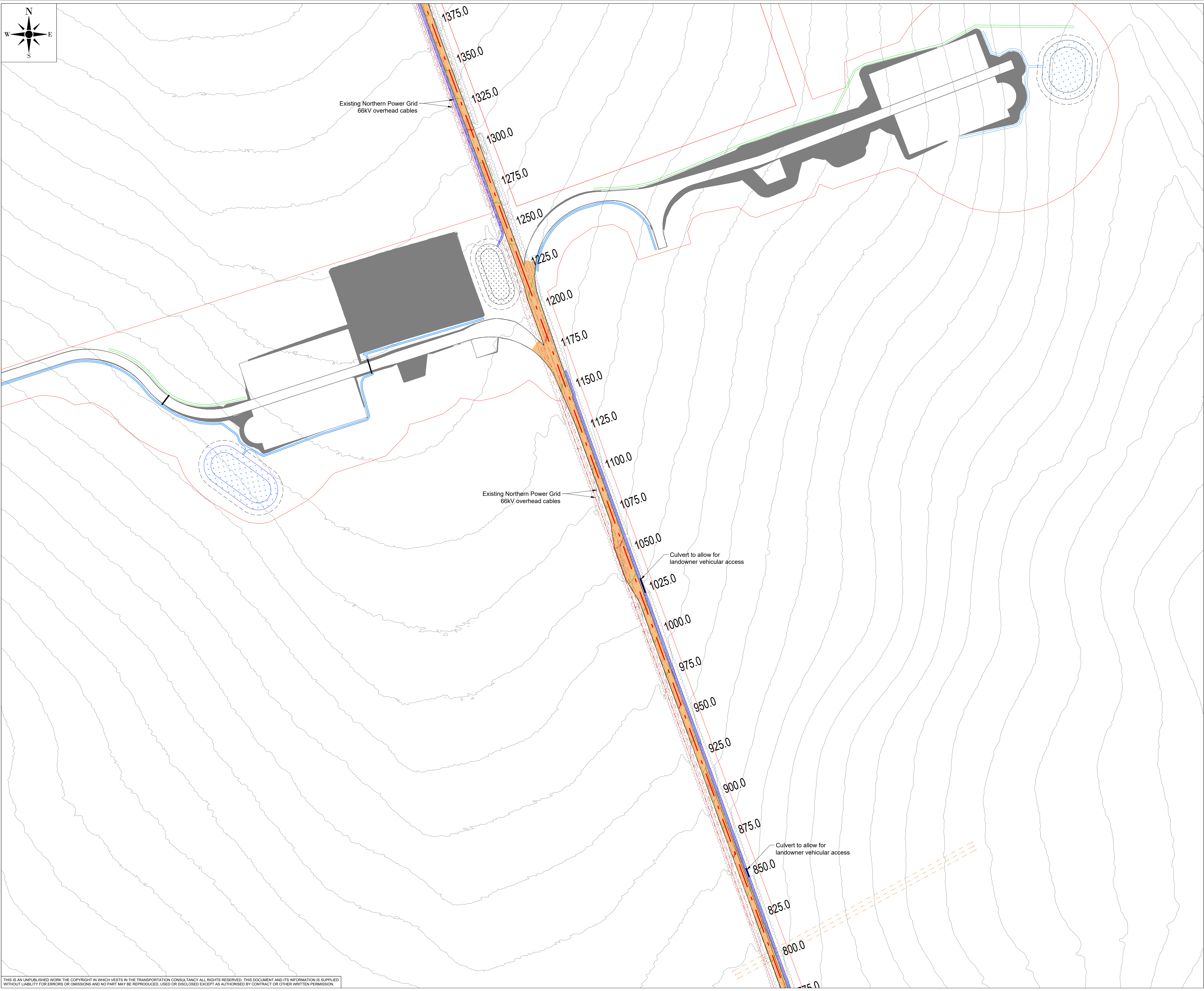
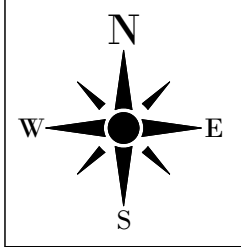
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PROJECT Three Oaks Renewable Energy Park Extension

CLIENT Ridge Clean Energy Ltd

SCHEME TITLE Adoptable Highway Design
General Arrangement
Sheet 1

DATE: 06/03/26	SCALE: 1:1000	DRN: PC	CHKD: PC	APP: JM
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General Legend

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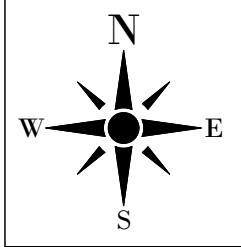
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PROJECT Three Oaks Renewable Energy Park Extension

CLIENT Ridge Clean Energy Ltd

SCHEME TITLE Adoptable Highway Design
General Arrangement
Sheet 2

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General Legend

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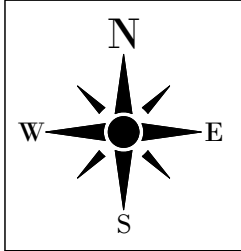
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PROJECT Three Oaks Renewable Energy Park Extension

CLIENT Ridge Clean Energy Ltd

SCHEME TITLE Adoptable Highway Design
General Arrangement
Sheet 3

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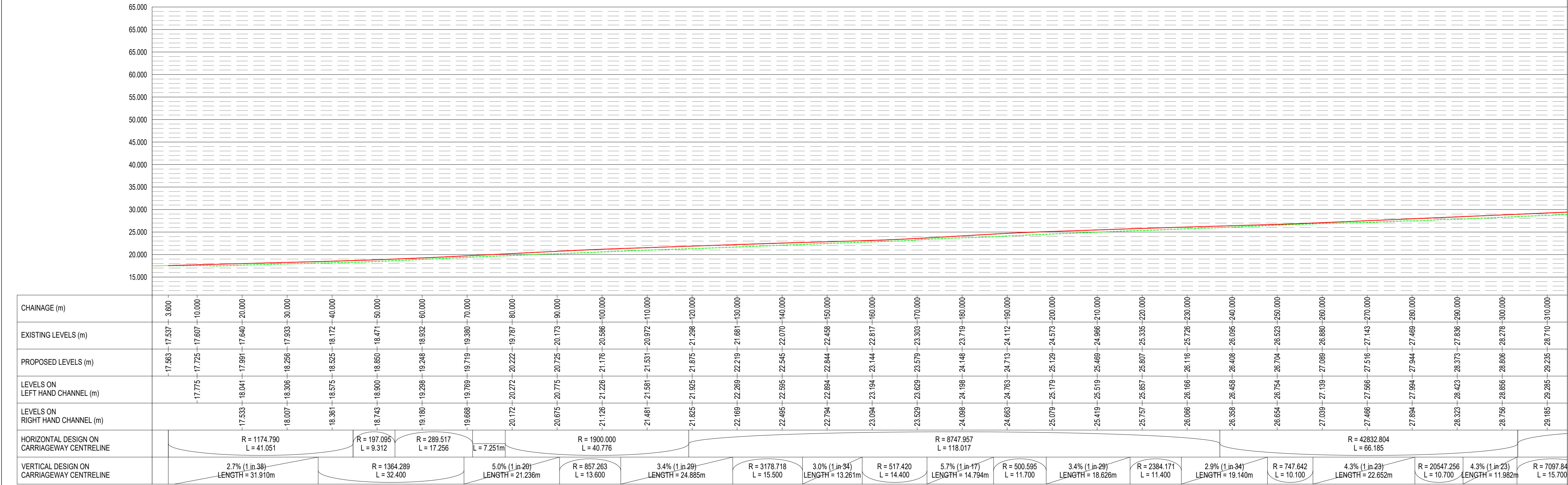


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General Legend	
	Planning Boundary
	Full Road Construction
	Reinforced Grass Overrun Area
	Highway Drainage Channel
	Highway Infiltration Basin
	Private Drainage Channel
	Private Infiltration Basin
	Land Drainage Channel
	Concrete Culvert
	Overhead 66kV Cables
	Overhead 11kV Cables

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PROJECT		Three Oaks Renewable Energy Park Extension		
CLIENT		Ridge Clean Energy Ltd		
SCHEME TITLE		Adoptable Highway Design General Arrangement Sheet 4		
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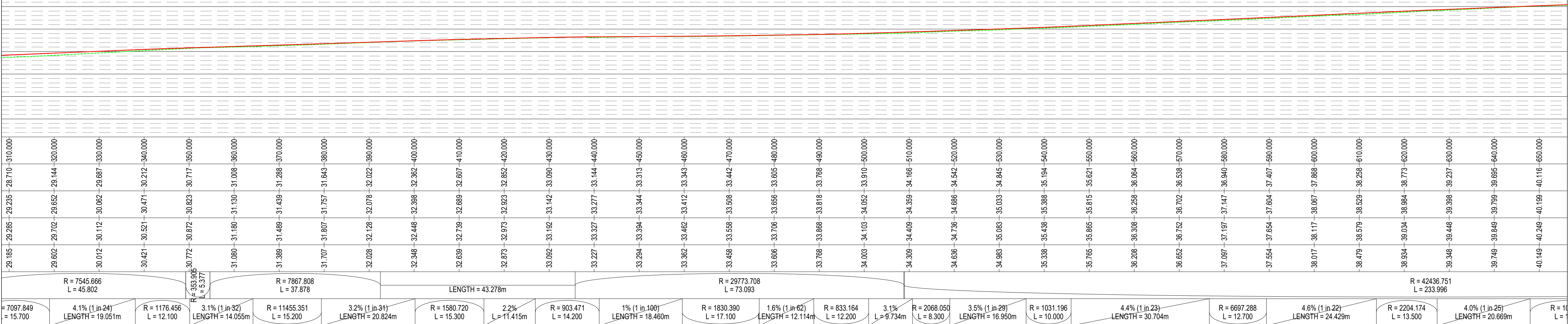


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- This drawing is to be read in conjunction with the 'TTC' Highway Design Note '211213-07'.

General Legend

- Existing Ground Level
- Proposed Finished Road Level



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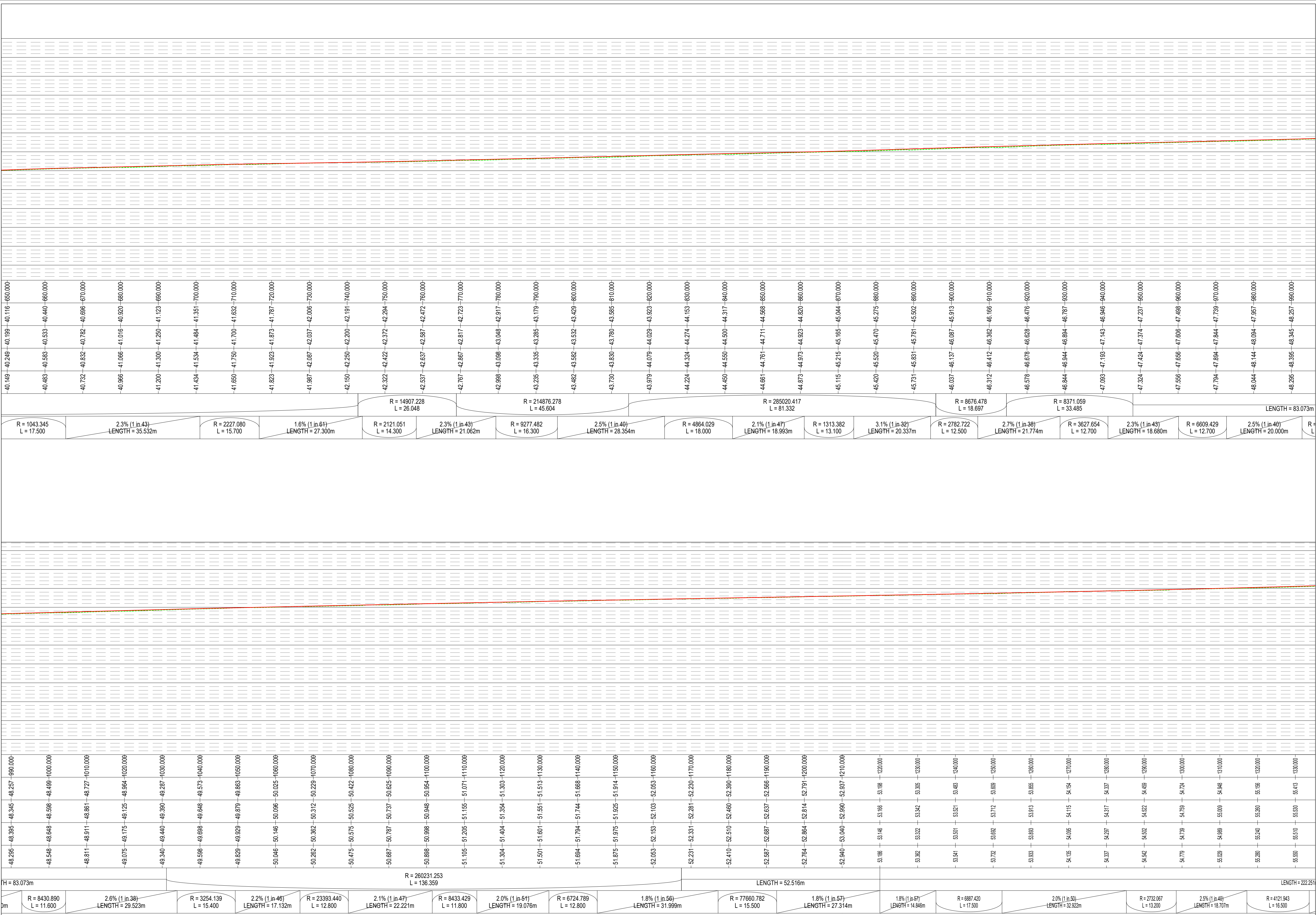
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PROJECT
Three Oaks Renewable Energy Park Extension

CLIENT
Ridge Clean Energy Ltd

SCHEME TITLE
Adoptable Highway Design
Longitudinal Sections
Sheet 1

DATE: 06/03/26	SCALE: 1:500	DRN: BM	CHKD: PC	APP: JM
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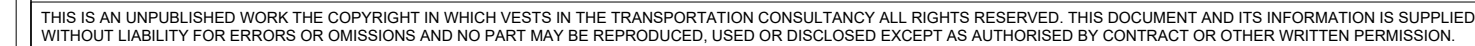
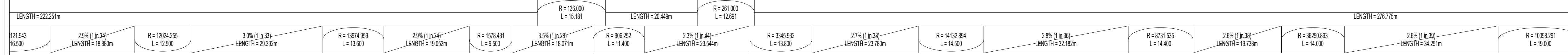
General Legend

Existing Ground Level

Proposed Finished Road Level

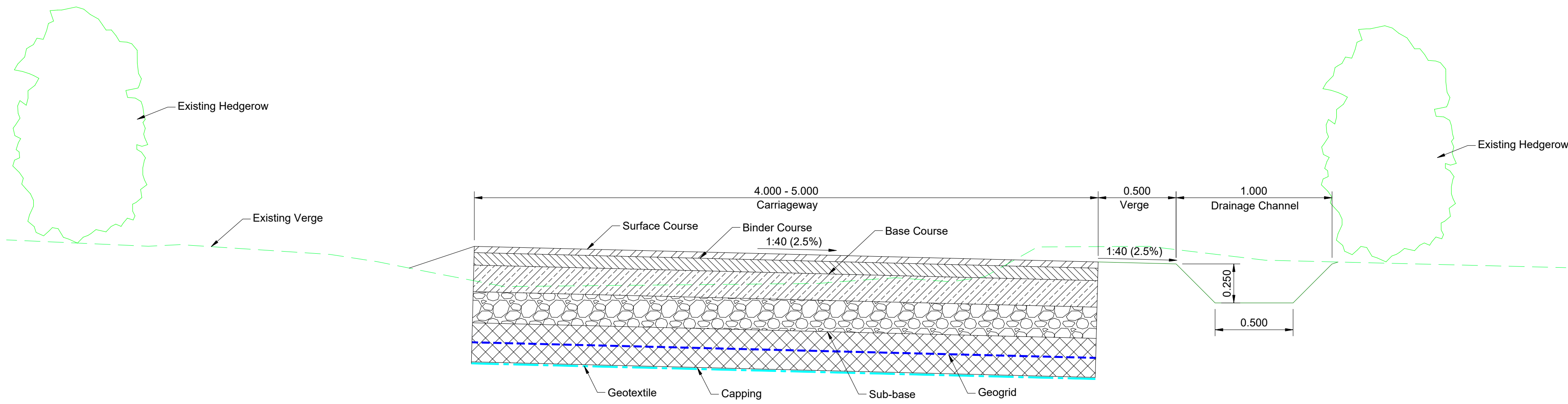
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PROJECT		Three Oaks Renewable Energy Park Extension		
CLIENT		Ridge Clean Energy Ltd		
SCHEME TITLE		Adopted Highway Design Longitudinal Sections Sheet 2		
DATE: 06/03/26	SCALE: 1:500	DRN: PC	CHKD: PC	APP: JM
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- General Legend**
- | | |
|---|------------------------------|
|  | Existing Ground Level |
|  | Proposed Finished Road Level |

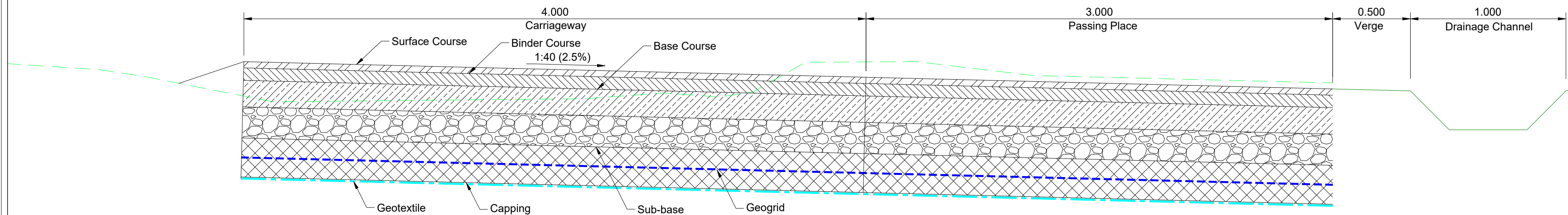
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PROJECT Three Oaks Renewable Energy Park Extension						
CLIENT Ridge Clean Energy Ltd						
SCHEME TITLE Adopted Highway Design Longitudinal Sections Sheet 3						
DATE: 06/03/26	SCALE: 1:500	DRN: BM	CHKD: PC	APP: JM		
DRAWING N°:			Status	Rev.		
211213-TTC-XX-XX-CD-H-0009			S1	P01		



Typical Section Through Main Spine Road

		Carriageway	Junctions with Spurs
Layer	Specification	Thickness (mm)	Thickness (mm)
* Subgrade CBR %		3-5%	3-5%
Surface course	SMA 10 surf PMB, in accordance with Clause 942	40	40
Binder course	AC 20 dense bin 40/60, in accordance with Clause 906	80	80
Base	AC 32 dense base 40/60, in accordance with Clause 906	170 (max) (Laid in 2 layers)	200 (max) (Laid in 2 layers)
Sub-base	Type 1 unbound granular material, in accordance with Clause 803	200	250
Geogrid	Stabilisation geogrd, Tensar TriAx TX170 or similar	-	-
Capping	Class 6F2/6F5 selected granular fill, in accordance with Series 600	250	300
Geotextile	Non-woven geotextile separator, in accordance with Clause 609	-	-
Total minimum thickness		740	870

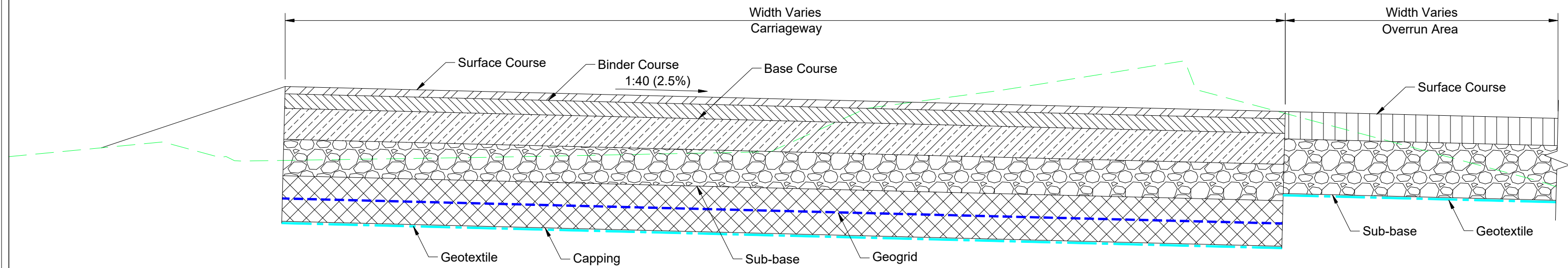
* Subgrade CBR % to be established prior to construction



Typical Section Through Main Spine Road with Passing Place

		Carriageway	Passing Place
Layer	Specification	Thickness (mm)	Thickness (mm)
* Subgrade CBR %		3-5%	3-5%
Surface course	SMA 10 surf PMB, in accordance with Clause 942	40	40
Binder course	AC 20 dense bin 40/60, in accordance with Clause 906	80	80
Base	AC 32 dense base 40/60, in accordance with Clause 906	170 (max) (Laid in 2 layers)	200 (max) (Laid in 2 layers)
Sub-base	Type 1 unbound granular material, in accordance with Clause 803	200	250
Geogrid	Stabilisation geogrd, Tensar TriAx TX170 or similar	-	-
Capping	Class 6F2/6F5 selected granular fill, in accordance with Series 600	250	300
Geotextile	Non-woven geotextile separator, in accordance with Clause 609	-	-
Total minimum thickness		740	870

* Subgrade CBR % to be established prior to construction



Typical Section Through Junction with Overrun Area

		Carriageway	Overrun Area
Layer	Specification	Thickness (mm)	Thickness (mm)
* Subgrade CBR %		3-5%	3-5%
Surface course	SMA 10 surf PMB, in accordance with Clause 942	40	150 Grasscrete or Similar
Binder course	AC 20 dense bin 40/60, in accordance with Clause 906	80	n/a
Base	AC 32 dense base 40/60, in accordance with Clause 906	170 (max) (Laid in 2 layers)	n/a
Sub-base	Type 1 unbound granular material, in accordance with Clause 803	200	300
Geogrid	Stabilisation geogrd, Tensar TriAx TX170 or similar	-	-
Capping	Class 6F2/6F5 selected granular fill, in accordance with Series 600	250	
Geotextile	Non-woven geotextile separator, in accordance with Clause 609	-	-
Total minimum thickness		740	450

* Subgrade CBR % to be established prior to construction

Notes

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- This drawing is to be read in conjunction with the 'TTC' Highway Design Note '211213-07.

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PROJECT Three Oaks Renewable Energy Park Extension

CLIENT Ridge Clean Energy Ltd

SCHEME TITLE Adopted Highway Design
Typical Cross Sections

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