1 NOISE & VIBRATION

1.1 My name is Darragh Kingston and I am an experienced professional in Environmental Noise & Vibration Assessment employed as an Associate in the Environment & Waste Section of RPS Group (RPS). I have a Bachelor of Science (Honours) Degree in Environmental Earth Studies, from the University of Wales, Aberystwyth; a Higher Diploma in Environmental Engineering from Trinity College Dublin; and a Diploma in Acoustics and Noise Control from the University of Ulster, Jordanstown.

1.2 I have more than eleven years experience in environmental consultancy and noise monitoring and assessment. During that time I have carried out investigations and assessments of noise for Industry, Government, Local Authorities, Public Licensing Hearings, Quarries, Commercial Facilities, Construction Projects, Entertainment Events, Concert Venues and Residential and Leisure Developments. I have both carried out and project managed the noise assessments for many Environmental Impact Assessments, including those on, port facilities including construction and operation, road projects; road construction, waste management activities, pharmaceutical plants, entertainment events, commercial and industrial manufacturing and processing facilities.

2 ROLE IN THE PROJECT

2.1 I carried out the Environmental Noise and Vibration Impact Assessment for the proposed construction works on land in addition to the operational phase, for the proposed Corrib Onshore Pipeline Environmental Impact Statement (EIS).

2.2 An assessment of potential impacts of noise and vibration from the tunnelling works beneath Sruwaddacon Bay on human beings including predictive modelling of vibration and noise from the tunnelling operation has been undertaken by Mr. Rupert Taylor and Mr. Steve Summers.

2.3 The Noise & Vibration Impact Assessment served to identify potential impacts from the proposed development and to outline mitigation measures to mitigate against those identified impacts.

3 SCOPE OF EVIDENCE

3.1 This statement summarises the key points arising from the Noise and Vibration Impact Assessment associated with the proposed construction works on land and the operation of the pipeline, details of which are provided in full in Chapter 9 and Appendix H1 of the EIS. It focuses on the impacts arising during the construction stage, as there will be no significant noise or vibration impacts as a result of the operation of the proposed development.

3.2 Noise is defined as unwanted sound, (World Health Organisation (WHO) Guidelines for Community Noise, 1999). Sound pressure is a basic measure of the vibrations of air that make up sound. Because the range of sound pressures that human listeners can detect is very wide (levels range from 20Hz – 20 kHz for younger listeners with unimpaired hearing), these levels are measured on a logarithmic scale with units of decibels (dB). Consequently, sound pressure levels (i.e. noise levels) cannot be added or averaged arithmetically. For example if two noise sources producing sound pressure levels of 60dB(A) each are operating together, the resultant combined noise level is not 120dB(A), rather it is 63dB(A), due to the logarithmic scale. The unit of noise (sound) measurement is dB(A), the decibel value on the A-weighting scale (the A-weighting scale approximates to the response of the human ear). Typical noise levels on the dB(A) scale are shown in Figure 1 (**Slide 1**).

4 ASSESSMENT APPROACH

4.1 An assessment of existing ambient noise levels in the surrounding area was undertaken which included carrying out noise monitoring surveys at a number of representative noise sensitive locations. The noise sensitive locations included properties located in the vicinity of the proposed onshore pipeline and along the proposed haul route, to establish the current ambient noise levels in the area (**Slide 2 and Slide 3**). Particular attention was focused on sensitive receptors, such as residential areas in the vicinity of the route and the extent of the exposure of these receptors to noise and vibration generated by the proposed development.

4.2 For baseline monitoring the nearest noise sensitive receptors to the proposed pipeline are residential properties situated in the surrounding areas. In total twenty representative noise monitoring locations were identified in the area (N1 – N20) in the vicinity of the proposed pipeline route (**Slide 2 and Slide 3**). In addition to the proposed pipeline route, nine representative noise sensitive receptors (N2, N7, N20, N21, N22, N23, N24, N25 and N26) were also identified in proximity to the proposed haulage route to be utilised by vehicles during the construction phase of the proposed pipeline (**Slide 2 and Slide 3**). The noise sensitive receptors represent a variety of properties throughout the area, located both in proximity to the proposed pipeline route, the proposed haulage route (**Slide 2 and Slide 3**) and the wider surrounding area. The noise sensitive properties were identified on the basis of representing typical properties in the area, in order to determine the nature of the existing noise environment in the area.

4.3 Noise prediction modelling was carried out to assess potential impacts. The noise and vibration assessment included carrying out a review of the construction methodologies with respect to the location of sensitive receptors. The screening effect of topography was incorporated into the noise prediction models using ground contour data in the noise models. This incorporates the three-dimensional ground profile of the area into the noise predictions.

4.4 As the area is considered to be relatively quiet, stringent noise and vibration limits were applied for the impact assessment (as outlined in Section 2 of Appendix H1 of the EIS, and Section 9.2 of Volume 1 of the EIS). Predicted noise levels were compared against construction phase and operational phase noise criteria to assess the requirement for noise mitigation at the nearest noise sensitive properties. The predicted noise levels were also compared with the existing ambient and background noise levels in the area to assess the potential impact of the proposed development.

4.5 A dedicated 3m tall noise attenuation barrier will be installed around the perimeter of both the Tunnelling launch pit at Aghoos and the reception pit at Glengad. This noise attenuation barrier has been incorporated into the noise prediction model.

4.6 All plant and machinery that will be used during the construction works, including generators and pumps, will be housed within proprietary acoustic enclosures. Power packs and tunnelling works plant and machinery will also be housed within self-contained acoustic enclosures, designed to reduce noise emissions at source. These mitigation measures will be incorporated into the contract documents for the contractor(s) appointed to undertake the construction works and are in addition to the noise attenuation barriers which will be provided for the tunnelling compounds at Aghoos and Glengad.

4.7 Subsequent to the preparation of the EIS in May 2010, the tunnelling works design team have undertaken a review of the noise emissions data associated with the plant and machinery that will be utilised during the construction phase. This review has identified scope for additional noise abatement both in the form of specification of alternative equipment with lower noise output and the design of additional noise abatement measures that will reduce the level of noise generated at source in the tunnelling compound at Aghoos. Revised noise predictions have been undertaken to take into consideration the revised noise specification for the tunnelling works. The results of the revised noise prediction models are presented in the addendum to the EIS.

4.8 In addition to the modifications to the noise sources associated with the tunnelling works at the Aghoos compound, the original proposal associated with the Glengad compound has also been revised in order to reduce the potential noise impact associated with site preparation works at the tunnel reception compound and at the LVI compound. The noise assessment presented in the EIS prepared in May 2010 considered the noise impact associated with a diesel powered water pump in use during the night-time at Glengad during the temporary construction works. The site design team have revised the assessment regarding the requirement to pump water during the night-time (22:00 – 08:00) and it is now proposed that water will not be pumped during the night-time from the tunnel reception pit or the LVI site at Glengad during the construction works at either of these sites and has also been incorporated into the revised noise predictions as outlined in the addendum to the EIS.

5 ASSESSMENT CRITERIA

5.1 In setting criteria for construction noise, account has to be taken of the technical feasibility of the proposed criterion, and also the trade-off between the noise level, and the duration of the noise exposure. The National Roads Authority (NRA) outlined construction noise limits in its "Guidelines for the Treatment of Noise and Vibration in National Roads Schemes, 2004". These limits outlined in Table 9.1 provided in Section 9.2.1.1 of Volume 1 of the EIS, represent a reasonable compromise between the practical limitations in a construction project, and the need to ensure an acceptable ambient noise level for residents. These guidelines were used in the assessment given that there are no statutory Noise Regulations with regard to control of noise during construction activities in Ireland. These Guidelines are also in accordance with the recommendation of the Health Services Executive (HSE) Environmental Health Service 2009 and 2010 submissions to the Petroleum Affairs Division (PAD) of the Department of Communications, Energy and Natural Resources (DCENR), in respect of the concurrent Section 40 Pipeline Application. The general construction works associated with the on-shore pipeline are similar to earthworks and drainage works associated with road construction activities.

5.2 Considering the relatively quiet nature of the area (as determined by baseline noise monitoring surveys, outlined in Section 3 and Section 4 of Appendix H1 of the EIS, and Section 9.3 of Volume 1 of the EIS), the more stringent limit of 65dB(A) as applied to the construction phase of the Bellanaboy Bridge Terminal was also adopted for the assessment of the proposed on-shore pipeline.

5.3 No night-time limit is specified in the NRA Guidelines. In the absence of night-time construction noise guideline levels in Ireland, the assessment has considered the Environmental Protection Agency (EPA) guideline night-time noise limit for noise emissions from activities licensable by the EPA. The EPA guidance recommends that during the night-time (22:00 – 08:00) noise attributable to on-site activities should not exceed a free-field value of 45 dB L_{Aeq}. It is acknowledged that the construction of the on-shore pipeline in not an EPA licensable activity, however, the night-time noise limit of 45 dB L_{Aeq}, is also a standard noise limit applied for night-time noise controls in Planning Conditions by Local Authorities throughout Ireland.

5.4 The predicted night-time construction works noise levels associated with site works will not exceed the EPA or the WHO assessment criterion of 45dB(A) for night-time noise levels at any of the noise sensitive receptors.

5.5 Best practice guidance documents for vibration were used for the assessment with regard to vibration that would be likely to lead to complaints, and vibration levels that would be likely to lead to structural damage, (as outlined in Section 2 of Appendix H1 of the EIS, and Sections 9.2 and 9.4 of Volume 1 of the EIS). The statement to be presented by my colleague Mr. Rupert Taylor will outline the findings of the groundborne noise and vibration impact assessment.

5.6 The potential impacts on fauna (avian and non-avian) resulting from increased noise levels during the construction phase will be addressed in the Statement of Evidence on Terrestrial Ecology and Marine Ecology.

6 ASSESSMENT FINDINGS

6.1 The most noticeable noise impact will occur during the construction phase of the proposed development. It is envisaged that the construction phase can be completed within approximately 26 months (as outlined in Section 5 of Appendix H1 of the EIS and Section 9.2 and 9.4 of Volume 1 of the EIS). The construction phase of the project will introduce additional noise sources to the surrounding environment by way of mobile and stationary plant used for site preparation, site clearance, tunnel boring and construction (segment lining method), installation and commissioning of the pipeline and reinstatement of the site. Noise generated during this phase will be temporary to short-term in duration. The predicted noise levels outlined in the following sections of this statement are based on a conservative assessment of the potential noise that may be generated by the proposed construction works, and are representative of the likely significant impacts associated with the proposed onshore pipeline.

6.2 The predicted daytime construction noise levels associated with site works will not exceed the NRA assessment criteria for construction works or the 65dB(A) limit as applied to the terminal construction works at any of the noise sensitive receptors in the area. The construction noise criterion of 65dB(A) is in accordance with the recommendation of the HSE Environmental Health Service 2009 and 2010 submissions to the Petroleum Affairs Division (PAD) of the DCENR.

6.3 The predicted night-time construction noise levels associated with site works will not exceed the EPA or the WHO assessment criterion of 45dB(A) for night-time noise levels at any of the noise sensitive receptors, and will not give rise to any significant noise impacts at sensitive receptors in the area, based on the existing ambient (L_{Aeq}) night-time noise levels in the area. The predicted night-time construction noise levels would not be considered excessive for construction works. Considering the existing ambient night-time noise levels, the perceived impact on sensitive receptors in the area will not be significant.

6.4 The assessment has considered the potential noise impacts associated with the site preparation/enabling works being undertaken at Glengad at the same time as tunnelling work are being undertaken at Aghoos. This scenario is representative of the likely noise impacts associated with a temporary stage of the overall construction programme. The construction works at Glengad reception compound will extend for a period of approximately 3 months (months 16 – 18, as outlined in Figure 5.2, Chapter 5 of the EIS), and the LVI compound for a period of approximately 3 months (months 2 – 4, as outlined in Figure 5.2, Chapter 5 of the EIS), whereas the tunnelling works will extend for a period of approximately 15 months (months 5 – 19, as outlined in Figure 5.2, Chapter 5 of the EIS).

6.5 The predicted daytime construction noise level will range between L_{eq} 29.9dB(A) (N11) and 50.9dB(A) (N2), at sensitive receptors located in the vicinity of the proposed pipeline route, incorporating site development works at Glengad and all construction works including the plant and machinery servicing the tunnel boring machine at Aghoos, giving rise to predicted cumulative noise levels expected to range between L_{eq} 40.1dB(A) (N7) and L_{eq} 58.7dB(A) (N17). It should be noted that whereas the cumulative level of 40.1dB(A) at the sensitive receptor N7 is attributable to the predicted construction noise level (35.9dB(A)) combined with the existing ambient noise level (38.0 dB(A)), the cumulative level at the sensitive receptor N17 of 58.7dB(A) is based on the predicted construction noise level (30.2dB(A)) combined with the existing ambient noise level (58,7dB(A)). The predicted cumulative noise levels at N11 and N2 will be L_{eq} 51.9dB(A) and 53.0dB(A) respectively, (as outlined in Table 6.1 of the Appendix H1 of the Addendum to the EIS and Table 9.8 of the Addendum to Volume 1 of the EIS).

6.6 The predicted daytime construction works noise level will give rise to a minor negative short-term impact at N1. However, N1 represents a monitoring point near the proposed Landfall Valve Installation (LVI) compound at Glengad and there is no property located at this point. In this regard, it is considered that there will be no significant impact on sensitive receptors in the area based on the existing ambient (L_{Aeq}) noise levels.

6.7 The predicted daytime construction works noise levels will have a minor significant negative short-term impact at two locations (N7 and N13), a moderate significant negative temporary to short-term impact at four locations (N1, N3, N4 and N5) based on the existing background (L_{A90}) noise levels in the area. There will be a profound significant negative temporary impact at one property (N2) based on the existing background (L_{A90}) noise levels in the area. These impacts take into consideration the potential noise impacts associated with the site preparation/enabling works being undertaken at Glengad at the same time as tunnelling work being undertaken at Aghoos. This scenario is representative of the likely noise impacts associated with a temporary stage of the overall construction programme only as outlined in paragraph 6.4 of this statement. Elevated noise levels during a construction programme are generally considered less intrusive, i.e. the tolerance is increased if it is known that the works are to be completed within a short-term timeframe. It is noted in this regard that the overlap period between construction works at Glengad (reception pit compound) with tunnelling works at Aghoos will be approximately 3 months (i.e. months 16 – 18), and also 3 months at a different stage of the construction programme for the construction works at the LVI compound (i.e. months 2 – 4). It is reiterated the predicted cumulative noise levels associated with the site works will not exceed the NRA assessment criteria for construction works or the 65dB(A) limit as applied to the terminal construction works at any of the noise sensitive receptors in the area.

6.8 The predicted night-time construction noise levels, including the plant and machinery servicing the tunnel boring machine will range between L_{eq} 7.4dB(A) at N1, L_{eq} 30.8dB(A) at N19 and L_{eq} 34.8dB(A) at N20, representative of sensitive receptors located in the vicinity of the proposed pipeline route. The predicted cumulative noise levels will range between L_{eq} 34.1dB(A) at N19 and 47.3dB(A) at N7 based on the measured ambient levels in the area (as outlined in Table 6.2 of the Appendix H1 of the Addendum to the EIS and Table 9.9 of the Addendum to Volume 1 of the EIS). The predicted cumulative noise levels at N1 and N20 will be L_{eq} 39.5dB(A) and 38.3dB(A) respectively. The predicted cumulative noise levels have been calculated by combining the baseline night-time noise levels with the predicted night-time construction noise levels. It is noteworthy that the predicted cumulative noise levels of 47.3dB(A) and 43.0dB(A) at N7 are primarily attributable to the existing ambient night-time noise levels recorded at N7. The ambient levels of 47.3dB(A) and 43.0dB(A) respectively were recorded at this location during baseline noise surveys, whereas the predicted night-time construction noise level at N7 is 12.8dB(A).

6.9 The predicted night-time construction noise levels will generally not give rise to any significant noise impacts at sensitive receptors in the area, based on the existing background (L_{A90}) night-time noise levels in the area, with the exception of one property, N19 where it is predicted that there will be a moderate to major significant negative short-term impact based on noise surveys carried out in the area in March 2010 and September 2007 respectively. The predicted night-time construction noise levels are representative of the likely noise impacts associated with the short-term construction programme, whereby night-time construction activities will only be undertaken at the Aghoos tunnelling compound. It is noted that both the predicted construction noise level (L_{eq} 30.8 dB(A)) and the predicted cumulative construction noise levels (L_{eq} 38.7 dB(A)) and (L_{eq} 34.1dB(A)) during the construction phase will be within the EPA and WHO guidelines criterion of 45 dB(A) for night-time noise levels.

6.10 Commercial vehicles will deliver materials and equipment and will be involved in the haulage of materials away from the site during daytime hours only. This additional traffic will cause a temporary localised increase in noise in the vicinity of the local road network. Considering the temporary time frame for the peak traffic volumes, which will be dispersed at different stages of the anticipated overall 26-month construction programme, the impact will be on a temporary basis

6.11 The predicted construction traffic noise level on its own will not exceed the NRA assessment criteria for construction works or the 65dB(A) limit as applied to the Terminal construction works. The predicted cumulative noise level incorporating the construction traffic noise levels and the baseline ambient noise levels indicate that the NRA criterion of 65dB(A) $L_{eq,\ 1hour}$, will be exceeded slightly (0.9 dB) at one property, N22, situated in close proximity to the junction of the R313 and the L1204. The predicted construction noise level at this property, which is attributable to construction traffic, is 63.0dB(A) and is therefore within the NRA assessment criterion of 65dB(A). The existing ambient noise level at this property was measured at a level of 62.8dB(A) L_{eq} and it is as a result of this baseline noise level that the cumulative noise level (65.9 dB(A))during the construction phase will be raised slightly above 65dB(A) during the temporary stages of peak traffic associated with the construction programme. The predicted construction traffic noise levels have been predicted using the heaviest volume of traffic, which is expected to occur during Month 2 of the overall 26-month construction programme; therefore, construction traffic levels during the remainder of the construction period would be expected to be lower at this receptor.

6.12 The predicted construction traffic noise levels will have a minor significant negative temporary impact at eight properties (N2, N7, N9, N12, N15, N18, N21 and N23); a moderate significant negative temporary impact at three properties (N5, N13 and N17); and a major significant negative temporary impact at two properties (N3 and N19) based on the existing ambient (L_{Aeq}) noise levels in the area. The predicted construction traffic noise levels and indeed the predicted total cumulative construction noise levels, which incorporate the existing ambient noise with both the predicted site works and construction traffic noise levels, are within the NRA assessment criteria of 65dB(A) at all of the noise sensitive receptors, with the exception of N22 as described.

6.13 It is predicted that properties located along the haul routes will experience an increase in traffic noise levels ranging from a minimum of less than 1 dB (i.e. 0.2 dB at N22) which would be considered as an imperceptible impact; to a maximum of 15 dB (i.e. 15.1 dB at N19) which would be considered as a significant negative temporary impact. These impacts are associated with construction traffic during the busiest stages of the construction programme, which is expected to be Months 1- 3, Months 13 – 15, and also during Months 23 – 24, in terms of traffic movements.

6.14 The predicted construction traffic noise levels and the predicted total cumulative construction noise levels, which incorporate the existing ambient noise with both the predicted site based construction works and construction traffic noise levels, are within the NRA assessment criteria of 65dB(A) at all of the noise sensitive receptors, with the exception of N22 as described above in paragraph 6.11 of this statement.

6.15 Once the development is operational there will be no significant residual noise or vibration impacts. The only residual noise generated will be from weekly visits to the LVI, and any maintenance works. Any additional traffic generated by this activity will be negligible. There will be no noise or vibration impact at sensitive receptors associated with gas flowing through the LVI and on-shore pipeline.

6.16 In the unlikely occurrence of a shutdown of the LVI system, the re-starting (as outlined in Chapter 4 of the EIS) would generate noise within the pipe work/valves at the LVI compound, for an estimated maximum period of 36 hours. It should be noted that the pipe work and valves of the LVI will be buried approximately 1.2m below ground level within the LVI compound.

6.17 Potential sources of vibration during construction include rock-breaking equipment, sheet piling machinery, excavators, dump trucks and HCVs. During trenching where rock occurs and ground conditions are not suitable for normal excavation it may be necessary to break the rock mechanically (details are provided in Chapter 5 of the EIS). Blasting is not proposed during construction works associated with the proposed development. There will be no significant sources of vibration during reinstatement. It is anticipated that the levels of vibration generated by construction activities will be below the criteria specified in the relevant standards, outlined in Section 2 of Appendix H1 of the EIS.

7 MITIGATION MEASURES

7.1 Mitigation measures, as outlined in BS5228 “Noise and Vibration Control on Construction and Open Sites” will be employed on-site during construction, details of which are provided in Section 7 of Appendix H1 of the EIS and Section 9.5 of Volume 1 of the EIS.

7.2 Apart from the tunnel boring construction activities, which it is proposed will be undertaken on a 24-hour, 7-day basis, normal working hours will be 0700-1900 hours Monday to Friday and 0700-1600 hours on Saturdays, with the exception that HCV haulage will be restricted to the hours of 0800-1600 on Saturdays. Some additional work may be required outside these hours, e.g. inspection, testing and commissioning activities. Night-time security will patrol the temporary compounds and working areas. With the exception of the tunnelling activities, Sunday working will be avoided, but may be necessary on some occasions. Aside from the tunnelling works, construction activities outside of normal hours will only take place after prior consultation with Mayo County Council and notification of the local community.

7.3 As outlined previously, a dedicated 3m tall noise attenuation barrier will be installed around the perimeter of both the Tunnelling launch pit at Aghoos and the reception pit at Glengad. This noise attenuation barrier has been incorporated into the noise prediction models

7.4 Additional noise abatement has also been incorporated into the design of plant and machinery that will be used in association with the tunnelling works during the construction phase. The tunnelling works design team carried out a review of the noise emissions data associated with the plant and machinery to be used during the tunnelling works in an effort to determine additional measures that will be implemented in order to further reduce the level of noise associated with the tunnelling works, particularly during the night-time due to the requirement that tunnelling works are proposed to be undertaken on a 24-hour basis for the short-term duration of the proposed works.

7.5 It is also proposed to modify the original proposals associated with the Glengad compound in order to reduce the potential noise impact associated with site preparation works at the tunnel reception compound and at the LVI compound. The site design team have revised the assessment regarding the requirement to pump water during the night-time (22:00 – 08:00) and it is now proposed that water will not be pumped from the tunnel reception pit or the LVI site at Glengad during the construction works at either of these sites. This has also been incorporated into the revised noise prediction models.

7.6 It is reiterated that plant and machinery that will be used during the construction works, including generators etc., will be housed within proprietary acoustic enclosures. Power packs and tunnelling works plant and machinery will also be housed within self-contained acoustic enclosures, designed to reduce noise emissions at source. These mitigation measures will be incorporated into the contract documents for the contractor(s) appointed to undertake the construction works and are in addition to the noise attenuation barriers which will be provided for the tunnelling compounds at Aghoos and Glengad

7.7 A programme of noise and vibration monitoring at sensitive receptors will be detailed prior to works beginning and will be implemented as part of the Environmental Management Plan for the construction phase. This will allow for a constant review of noise and vibration levels generated by the construction works, and will highlight the need for further mitigation measures should they be required.

7.8 Details of the Environmental Management Plan will be agreed with the Local Authority and in accordance with An Bord Pleanála's requirements, prior to any works commencing on-site, should permission be granted for the proposed on-shore pipeline and LVI.

7.9 It is proposed that the Project Monitoring Committee currently engaged in monitoring the construction phase of the Bellanaboy Bridge Gas Terminal site would be extended to include provision to monitor and oversee the construction phase of the proposed onshore pipeline. The Project Monitoring Committee currently includes representatives from the following bodies and it is proposed those bodies would continue for the Project Monitoring Committee for the construction of the onshore pipeline:

- Shell E&P Ireland Ltd.
- Community Representatives
- Mayo County Council
- Environmental Protection Agency
- North Western Regional Fisheries Board
- Bord na Mona
- An Garda Siochana
- Department of Environment, Heritage and Local Government (National Parks and Wildlife Service)
- Department of Environment, Heritage and Local Government (Foreshore Section)

8 CONCLUSION

8.1 Elevated noise levels raised above the existing baseline levels will arise from construction activities and construction related traffic, associated with the proposed on-shore pipeline, but these will be temporary to short-term in duration.

8.2 The predicted daytime construction noise levels associated with the proposed development will not exceed the NRA assessment criteria for construction works or the 65dB(A) limit as applied to the terminal construction works at any of the noise sensitive receptors in the area. The construction noise criterion of 65dB(A) is in accordance with the recommendation of the HSE Environmental Health Service 2009 and 2010 submissions to the Petroleum Affairs Division (PAD) of the DCENR.

8.3 The predicted night-time construction noise levels associated with the proposed development will be well within the EPA and WHO assessment criterion of 45dB(A) for night-time noise levels at all of the noise sensitive receptors, and will not give rise to any significant noise impacts at sensitive receptors in the area, based on the existing ambient (L_{Aeq}) night-time noise levels in the area. The predicted night-time construction noise levels would not be considered excessive for construction works. Considering the existing ambient night-time noise levels, the perceived impact on sensitive receptors in the area will not be significant.

8.4 It is anticipated that construction works will take approximately 26 months to complete. The impact on individual receptors will therefore be temporary to short-term in duration, given the proposed construction schedule for different aspects of the construction programme. Strict adherence to mitigation measures and best practice will ensure that potential negative noise and vibration impacts are kept to a minimum.

8.5 As is outlined in the Submission from Mayo County Council to An Bord Pleanála dated 28th July 2010, the impact of the development on residential amenity in terms of noise will be during the construction phase and as such will be temporary and of short duration.

8.6 There will be no significant residual noise and vibration impacts as a result of the operation of the proposed on-shore pipeline development.

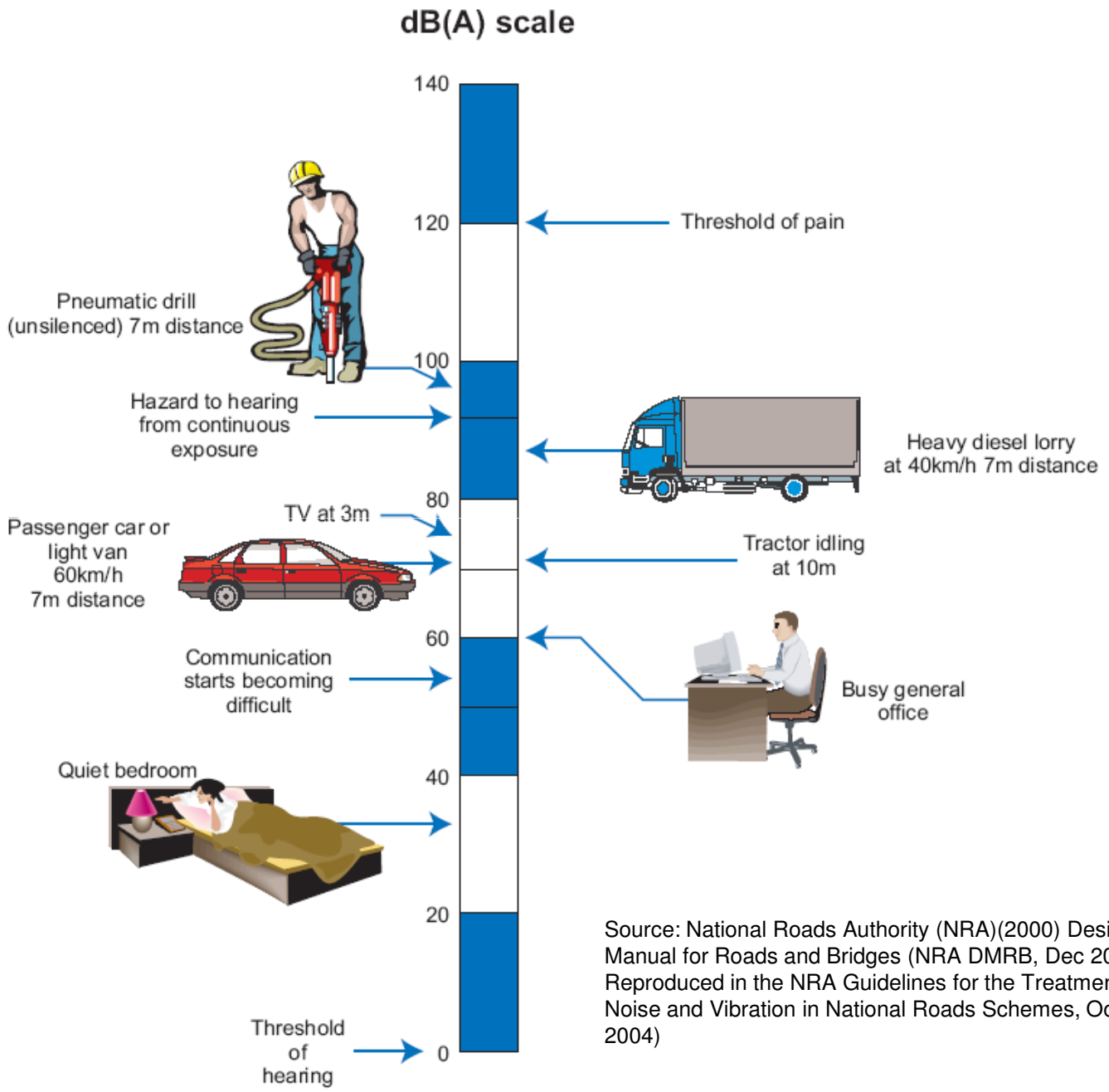
Corrib Onshore Pipeline

Noise and Vibration Impact Assessment (associated with works on land)

Darragh Kingston

(An Bord Pleanála Application Reference No.: PL16.GA0004)

Typical levels of noise from varying noise sources and within various noise environments on dB(A) scale



Source: National Roads Authority (NRA)(2000) Design Manual for Roads and Bridges (NRA DMRB, Dec 2000. Reproduced in the NRA Guidelines for the Treatment of Noise and Vibration in National Roads Schemes, October, 2004)

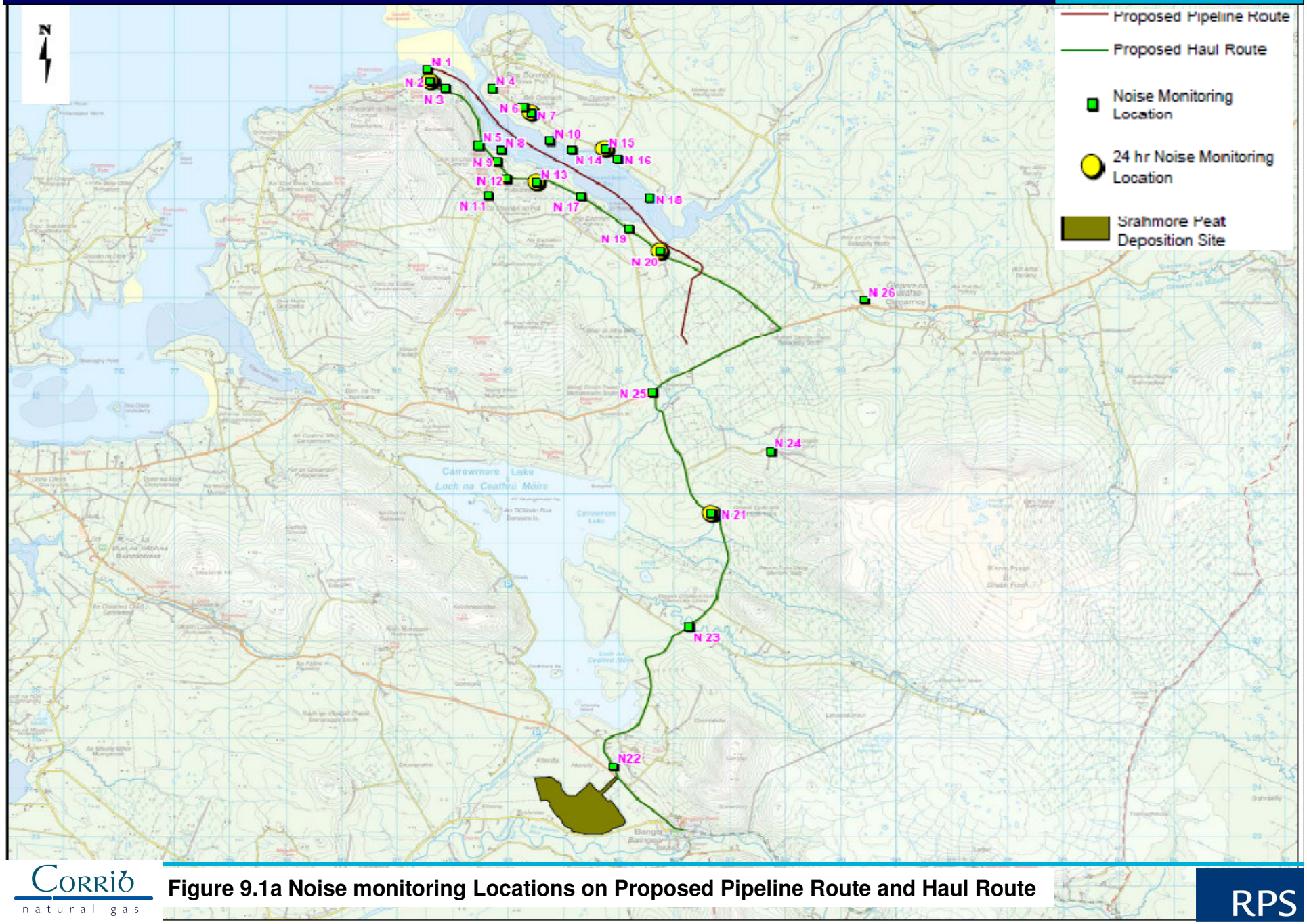


Figure 9.1a Noise monitoring Locations on Proposed Pipeline Route and Haul Route

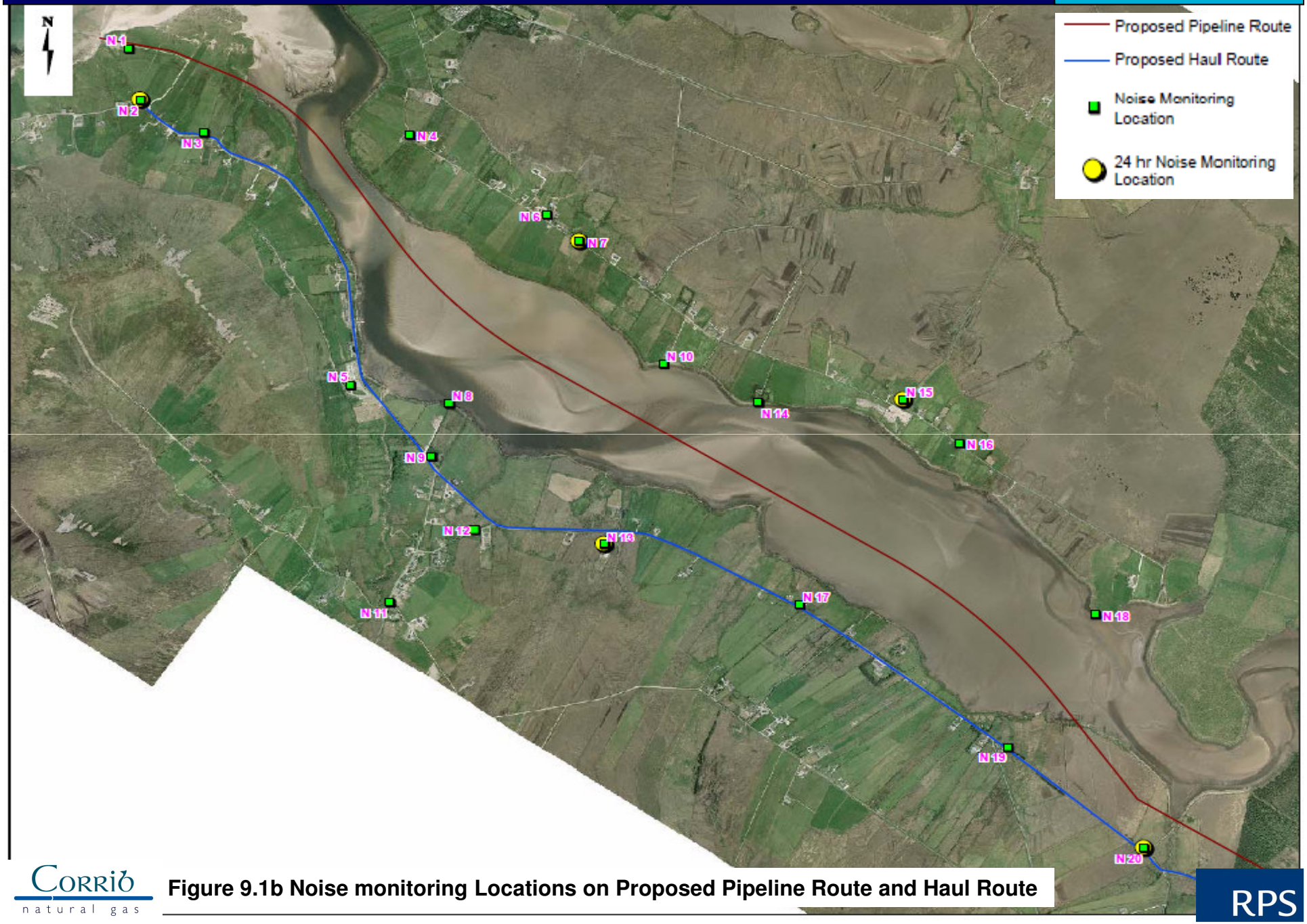


Figure 9.1b Noise monitoring Locations on Proposed Pipeline Route and Haul Route