

MARTIN O DONOVAN'S PIG FARM
COOLIGBOY, TIMOLEAGUE, BANDON, CO CORK

ATTACHMENT NO. 11

HYDROGEOLOGICAL ASSESSMENT



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Hydrogeological Assessment

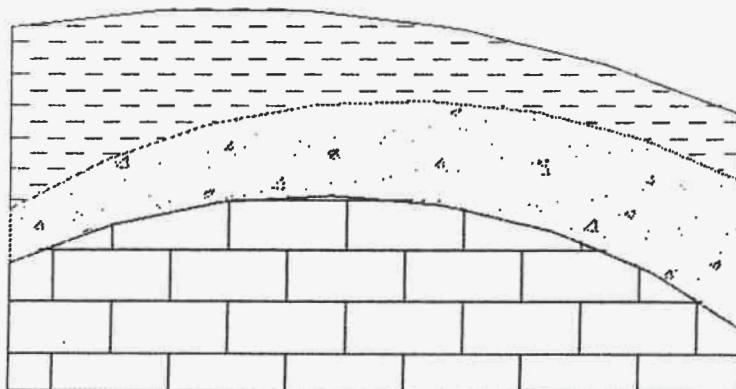
Job No: 01-52

Report No: 01-52-01

Date:

Site: *Martin* ○ Donovan's Pig Farm Landbank, *Spremland*
Timoleague, Co. Cork.

Client: MS Farm Services, Lattin, Co. Tipperary.



1 Introduction

This hydrogeological assessment was undertaken during August 2001. An outlining the geological unit, aquifer classification, presence of outcropping bedrock, site specific groundwater vulnerability classification,

2 The Area of Assessment

Physical Features

It covers an area from around Timoleague in the east to Ballymacowen townlands (approximately 3km north east of Clonakilty) in the west. From north to south, this Plot extends for Kilmaloda, (located close to the confluence of the Argideen and Owenkeagh Rivers) in the north to Aghafore townland in the south.

Examination of the Discovery Series Map (1:50,000 scale) for this area indicates that the topography is undulated to generally hilly. The main topographic features include:

: the ridge which runs generally east-west for Ardmore, just north of Timoleague to Gallanes, north east of Clonakilty

: the valleys of the the Argideen and Owenkeagh Rivers, which are situated north of the ridge described above.

Locally the land slopes towards the main rivers and generally north and south from the ridges.

Most of the land is, at present, set to pasture with some tillage areas also noted.

The main surface water features in this area are the Argideen and Owenkeagh Rivers described above. A number of other smaller streams are noted flowing into these rivers. Few drainage ditches were noted flowing close to or through the farms in this area. The run-off susceptibility in this area is assessed as moderate, although it may be assessed as high where the farm land is situated on a relatively steep slope falling towards a watercourse.

Geology and Hydrogeology

Reference to the relevant geological information indicates that this Plot is underlain by the Head Kinsale, Old, Toe Head and Castlehaven Formations. These rocks occur in relatively wide, WSW-WNE trending bands across this area of the proposed spreadlands. These bands represent anticlinal and synclinal axes, which mark where the rocks in this area have been folded. The band of Kinsale Formation, which runs from Ummera townland in the north east to Clonakilty in the south west marks the centre of a syncline. Anticlines occur on both sides of this band of Kinsale Formation, with the Old Head Formation around Kilmaloda marking the northern anticline and the Castlehaven Formation which runs from Barryshall in the east to Clonakilty Harbour in the west, marking the centre of the southern anticline.

The Kinsale and Old Head Formations are classified as Locally important aquifers, which are moderately productive only in local zones (LI).

The Castlehaven and Toe Head Formations are both classified as Poor Aquifers, which are generally unproductive except for local zones (PI).

A regional classification of the groundwater vulnerability of this area has not yet been undertaken by the Geological Survey of Ireland. Using information on the presence and distribution of outcropping bedrock gathered during the desk study and information on minimum depths and the nature of the subsoil during the augering programme, site specific vulnerability classifications have been determined for the farm. The groundwater minimum depths and the nature of the subsoil during the augering programme, site specific vulnerability classifications have been determined for the farm. The groundwater vulnerability ranges from Probably Extreme close to outcropping bedrock and shallow subsoils to Probably High to Low in areas where outcrop was not noted and thicker subsoils are found.

When the aquifer classification is considered in association with the groundwater vulnerability rating, a Resource Assessment is made. For this section, the resource assessment is considered to be LI/E, LI/H-L or PI/E and PI/H-L. Reference to the EPA/GSI Groundwater Response Matrix indicates that spreading within the proposed spreadlands is acceptable over locally Important aquifers and Poor Aquifers with a minimum consistent thickness of 1m of soil/subsoil.

The regional groundwater flow is influenced by the two major rivers in the area which drain into the sea at Timoleague. The main groundwater flow directions will be influenced by topography and the proximity of watercourses.

Discussion

Landspreading guidelines recommend that landspreading should not be undertaken within 10m of public roads, 100m of household dwellings, 200m of sensitive buildings (i.e. schools, churches), 50m of groundwater wells. The guidelines also recommend that a cordon of 10m should be maintained adjacent to surface water features. This cordon is a minimum distance to reduce the risk of surface run-off affecting the aquatic environment and should be increased if the slope towards the water course channel is deemed excessive (>18%).

The exact location of all wells should be located prior to spreading to ensure that the correct 50m radial cordon is established. A 100m radial cordon should be maintained around all houses, industrial buildings and commercial buildings adjacent to near the landbank.

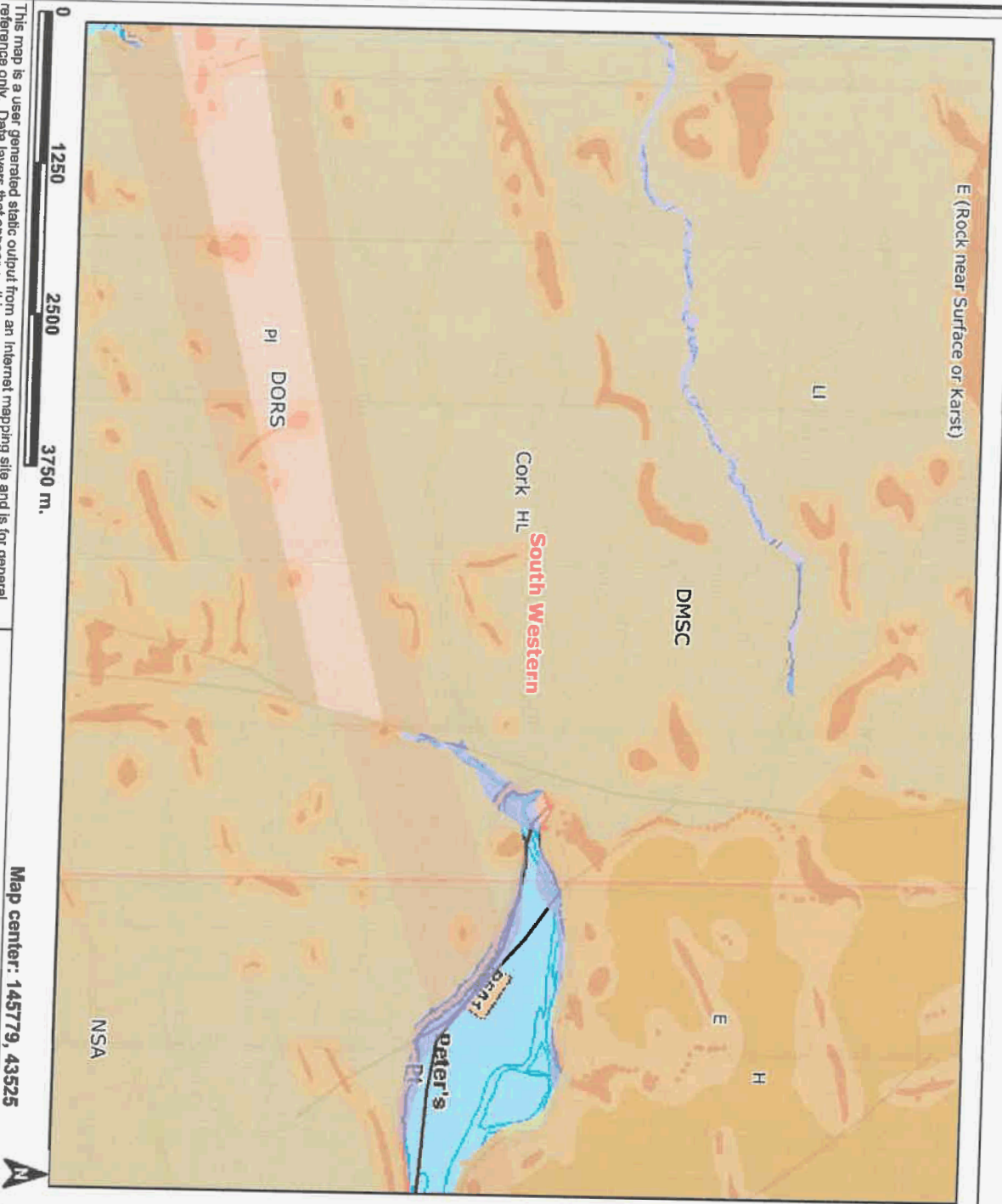
Certain areas of this farm have been eliminated as proposed spreadlands as a result of data collected during the desk duty. Areas of absent subsoil and areas close to outcrop should be eliminated due to insufficient depth of subsoil over the bedrock.

A Cordon sanitaire of 10m should be maintained adjacent to any drainage ditches.

Landspreading is deemed acceptable in the Response Matrix based on the criteria set down in the Response Matrix for Spreading (DoE-LG/EPA/GSI,1999.) Provided good farm practice is adhered to the environmental impact posed by the landspreading activity should be low.



Geological Survey of Ireland - Groundwater



This map is a user generated static output from an internet mapping site and is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION.

Map center: 145779, 43525



Legend

- National Draft Bedrock Aquifer Map
 - Rf - Regionally Important Aquifer - Fissured bedrock
 - Rk - Regionally Important Aquifer - Karstified
 - Rkd - Regionally Important Aquifer - Karstified (diffuse)
 - Rke - Regionally Important Aquifer - Karstified (conduit)
 - Lm - Locally Important Aquifer - Bedrock which is Generally Moderately Productive
 - Lk - Locally Important Aquifer - Karstified
 - Ll - Locally Important Aquifer - Bedrock which is Moderately Productive only in Local Zones
 - Pl - Poor Aquifer - Bedrock which is Generally Unproductive except for Local Zones
 - Pu - Poor Aquifer - Bedrock which is Generally Unproductive
 - Unclassified
 - National Draft Gravel Aquifer Map
 - Rg - Regionally Important, extensive sand/gravels aquifers
 - Lg - Locally important, sand/gravel aquifers
 - No gravels present
 - Not Mapped
- South Western Interim Vulnerability**
- E (Rock near Surface or Karst)
 - E - Extreme
 - H - High
 - M - Moderate
 - L - Low
 - HL - High to Low. Only an interim study took place.
- Water
- ~ Bedrock Faults 100k
- National Draft Generalised Bedrock Map**
- BV - Basalts and other Volcanic rocks
 - CM - Cambrian Metasediments
 - NN1 - Neoproterozoic Dalriada Group
- Scale: 1:50,000**

Snapshot Date: 13-Jul-2009

MARTIN O DONOVAN'S PIG FARM
COOLIGBOY, TIMOLEAGUE, BANDON, CO CORK

ATTACHMENT NO. 12

TRAFFIC IMPACT REPORT

TRAFFIC IMPACT ASSESEMENT

FOR

MR MARTIN O DONOVAN'S

PIG FARM

AT

COOLIGBOY, TIMOLEAGUE,
BANDON,
CO CORK

JULY 2009

Introduction

Martin O Donovan proposes to increase the size of his pig unit and to build a biogas plant at his farm at Colligboy Timoleague Co Cork. A traffic impact assessment of the proposed development was carried out on the 25/5/09. The development will continue to use its existing entrance. Access to the site is via a local road which runs parallel to the R600 between Timoleague and Clonakilty approximately 850m North of the R600. The road in question is a local road by an 80 Kph speed limit.

Objective

The objective of this report is to examine the traffic implications associated with the proposed development in terms of how it can integrate with existing traffic in the area. The report will determine and quantify the extent of additional trips generated by the development and the impact of such trips on the operational performance of the local road network.

Proposed Development

- The proposed increase in size of the pig unit will see the production of pig manure increase from 14616m³ to 22933m³. The biogas plant will require the importation of 4000 tonnes of organic feed stock. This will require 3 truck loads per week. The extraction of gas will reduce the volume by 8% and the separation of the fibrous material will further reduce the volume by 6%. The resultant liquid digestate volume is 23163m³ approx. This is an increase of 8093m³. This pig manure will be removed by 6000 gallon tanker (27.3m³). This will require an extra 8 lorry loads per week.
- There will be 3780 tonnes of fibrous material produced per annum. This will require 1.6 truck loads per week, on average.

Existing and Predicted Traffic Conditions

Existing Traffic Flows

A manual traffic count was undertaken in the am and pm peak periods on the 25/5/09. The traffic count was taken at the junction of the farm with and the local road parallel to the R600.

The unobstructed views indicated are at a view point of 1.5m above the ground level, however the unobstructed views from a Lorry would be better than these because of the elevated view point from the cab of a lorry or from an agricultural vehicle. The desirable Stopping Distances for a vehicle travelling at 85Km/hr as per Table 3, Design Speed Related Parameters NRA TD 9/00 is 160m this can be achieved at the entrance.

Traffic Generation

The traffic survey carried out at the junction of the Farm Entrance and the local road yielded the following results.

Table 1

Time	private (G.C)	Light commercial	Heavy Commercial	Agri & construction
09:00	5	2	0	1
10:00	3	1	1	2
11:00	5	1	1	17
12:00	2	0	0	13
13:00	4	0	1	5
14:00	3	1	0	3
15:00	2	2	0	4
16:00	1	2	0	3
17:00	6	1	0	3

Clonakilty <----				
Time	private (G.C)	Light Commercial	Heavy Commercial	Agri & Construction
09:00	3	1	0	2
10:00	4	2	1	4
11:00	2	3	0	12
12:00	4	2	1	15
13:00	2	3	0	8
14:00	3	2	2	4
15:00	5	6	1	1
16:00	2	1	2	1
17:00	4	2	1	2

Table 1 is a count of the traffic on the local road. At no time did any of this traffic have to queue behind traffic turning onto the access leading to the pig farm.

The following table 2 depicts the current traffic levels and the expected increase in traffic volume due to the proposed expansion.

The spike in Agricultural activity is accounted for by Forage Harvesting.

Table 2

Current Traffic Volumes generated by the Current Pig Unit

Source	Frequency	Vehicle Type	Vehicular Movements	
			Weekly	Annually
Staff	Daily	Car	24	1248
Deliveries	Weekly	Lorry	8	416
Company Reps	Weekly	Car	4	208
Inspectors	Weekly	Car	2	104
Pig Collections	Weekly	Lorry	1.5	78
Maintenance & misc	Weekly	Car	6	312
Manure Outloading	In accordance with SI 378	Tractor	60	2160

Table 3

Expected Traffic Volumes Generated by the Proposed Expansion of the Pig Unit

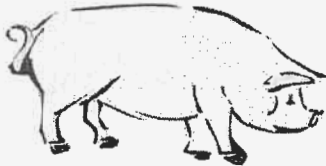
Source	Frequency	Vehicle Type	Vehicular Movements	
			Weekly	Annually
Staff	Daily	Car	55	2860
Deliveries	Weekly	Lorry	14	728
Company Reps	Weekly	Car	4	208
Inspectors	Weekly	Car	2	104
Pig Collections	Weekly	Lorry	3	156
Maintenance & misc	Weekly	Car	6	312
Manure Outloading	In accordance with SI 378	Tractor/Lorry	72	2592

The pig manure is removed from this site using vacuum tanker sizes of 2250 gallon (10.2m³) and 3000 gallon (13.8m³) capacity and 6000gallon(270m³) lorries . The trend is towards larger equipment reducing the number of traffic movements and increasing application efficiency. This work is carried out from January to October accordingly it is assumed that the average size of load from the unit will increase to 20m³ from current 10m³ size.

MARTIN O DONOVAN'S PIG FARM
COOLIGBOY, TIMOLEAGUE, BANDON, CO CORK

ATTACHMENT NO. 13

TANK INTEGRITY PROPOSAL



TANK & PIPELINE
ASSESSMENT PROPOSAL

FOR

MARTIN O DONOVAN'S PIG FARM

AT

COOLIGBOY

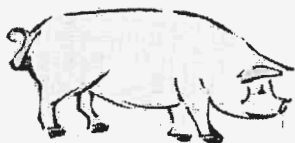
TIMOLEAGUE, BANDON

CO CORK

WHICH OPERATES UNDER THE CONDITIONS

OF

IPC LICENSE REG NO P0621-02



JULY 2009

NRGE LTD, MOORESFORT, LATTIN, CO TIPPERARY
TEL: 062-55385 FAX: 062-55483 EMAIL: info@nrge.ie

INTRODUCTION

This pig farm is owned and operated by Martin O Donovan, at Cooligboy Timoleague Bandon co Cork. This proposed pig farm operates as a breeding unit, supplying weaners for finishing to the existing farm which is adjacent. An IPC license was issued by the EPA for the existing pig farm on 14th November 2003. Condition numbers 7.10, 7.11 and 7.12 are set out hereunder. An application will be submitted shortly to the EPA to review the existing license to incorporate the proposed development.

7.10 Underground, partly underground or over-ground concrete storage facilities shall conform to the Department of Agriculture, Food and Forestry specifications (S108, S123) or equivalent standard.

7.11 New underground tanks or storage basins shall be fitted with leak detection facilities and shall conform to the Department of Agriculture, Food and Forestry specifications (S126) or equivalent standard. Design details shall be submitted and agreed with the Agency prior to installation.

7.12 The licensee shall within six months from the date of grant of this licence submit a programme for agreement with the Agency on the assessment of under and over-ground effluent storage tanks which form part of the six month slurry/digestate storage capacity, pipelines and liquid feed storage tanks to ensure that all storage tanks and pipelines are assessed within twelve months of the date of grant of this licence and at least once every five years thereafter. In the case of new storage facilities installed on site, the assessment shall be undertaken prior to utilisation. A report on such assessment shall be included in the AER, together with proposals for repair of any significant defects found.

Therefore Martin O Donovan is required to prepare a proposal to provide a tank and pipeline integrity testing system to the satisfaction of the EPA. This proposal is based on a desk study and numerous site visits and proposes the use of boreholes to monitor the impact (if any) on the groundwater environment, as well as the inspection and monitoring of the proposed leak detection system which has provided for an independent leak detection system under all structures.

TOPOGRAPHICAL SETTING

The site is located in the town-land of Cooligboy approximately 2km from Timoleague, and is accessed via a rural public roadway.

The topography of site slopes generally from South to North.

GEOLOGICAL and HYDROGEOLOGICAL SETTING

The site is underlain by rocks of Devonian and Carboniferous age known as the Kinsale formation passing to the old head formation to the south. Generically these

formations comprise Mudstones and Sandstones. Reference to the GSI aquifer classification indicates that these rock types are considered to comprise a locally important aquifer LI. Based on the exposure of rock on the site adjacent to the existing unit, the groundwater vulnerability is considered to be extreme.

In the absence of any reduced water level measurement, it is reasonable to expect that groundwater flow will mirror the topography and flow to the north.

EXISTING GROUNDWATER INFRASTRUCTURE

There are currently two operational boreholes upgradient and downgradient of the existing farm. These are used as a farm and domestic supply. These boreholes are located adjacent to the existing dwelling house, and the pig farm respectively.

PROPOSED AUGMENTATION OF THE GROUNDWATER INFRASTRUCTURE

In order to complete the monitoring network and provide for up-gradient and downgradient boreholes it is proposed to construct two additional monitoring wells to the south and north of this proposed unit at an agreed location.

The boreholes will be drilled into rock, grouted through the top 2m of rock to prevent any ingress of surface water and secured on a raised mound with an appropriate standpipe arrangement for security.

Upon completion of the installation of these wells it will be necessary to have a short duration test done on the new wells and it may also be necessary to pump test the existing wells at the same time to establish recharge rates

It will also be possible to estimate zones of contribution based on these tests.

An additional assessment will need to be made on site during a short site visit probably after the wells are drilled to examine the catchments and other potential sources of pollution.

PROPOSED MONITORING OF THESE GROUNDWATER WELLS

When the installation of these wells has been completed it is proposed to undertake analyses of baseline samples to be taken simultaneously from all wells for the following parameters

pH

Conductivity

Ammonia

Nitrate

Chloride

Total & Faecal Coliform

Potassium

Sodium

It is then proposed to undertake this sampling regime on a quarterly basis for year 1, and to prepare a report with recommendations based upon a review of their results.

PROPOSED MONITORING OF THE LEAK DETECTION SYSTEM OF THE PROPOSED NEW SOW HOUSE AND WEANER HOUSES

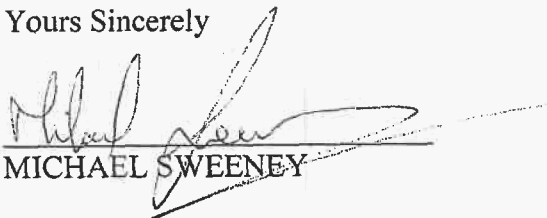
The new weaner and sow houses have not yet been constructed. Upon completion of these proposed structures, the leak detection monitoring chamber will be inspected weekly, and a record will be maintained of these inspections on site. In addition, a sample of any liquid within this monitoring chamber will be taken quarterly, and tested for the same parameters as set out for L1 above

In conclusion we propose that the combined approach set out herein, of monitoring the groundwater wells, as well as the leak detection systems for the new weaner houses and new sow houses will be sufficient to assess the integrity of the pig manure storage tanks on site.

A site layout plan of the proposed development is attached clearly showing the location of the individual house leak detection systems, the individual monitoring points and the unit monitoring points.

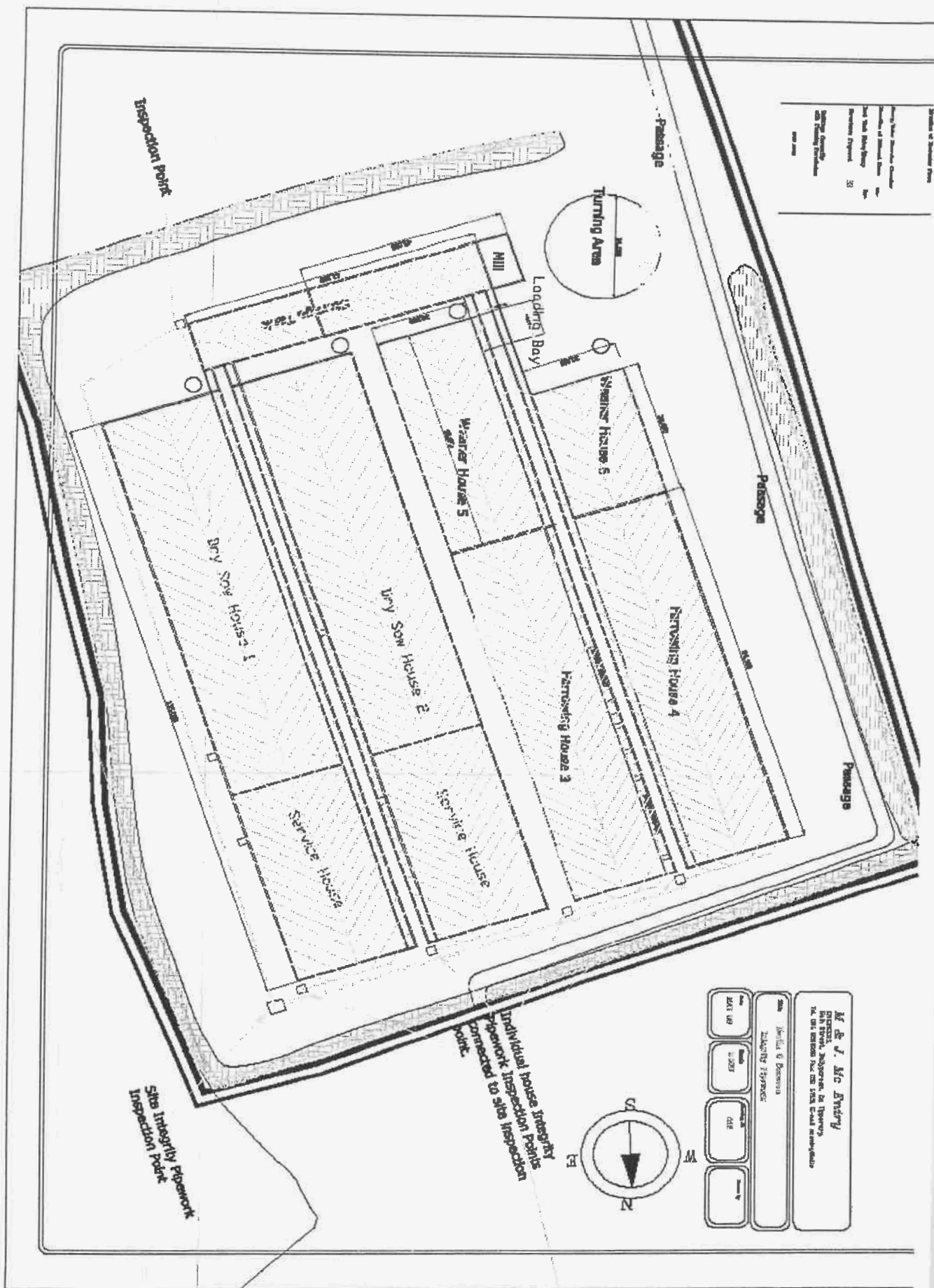
This proposal has been compiled in association with Mr Jer Keohane of G.E.S. Ltd, and Mr Michael McEniry NRG E Ltd.

Yours Sincerely


MICHAEL SWEENEY

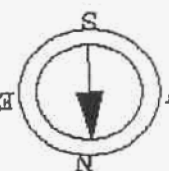
N.R.G.E. Ltd.
Nutrient Recovery to Generate Electricity Ltd.
Mooresfort, Lattin, Co. Tipperary.
Tel: 062 55385
VAT. No: 6412619V

Project Name: [Blank]
 Location: [Blank]
 Date: [Blank]
 Drawing No.: [Blank]



M. J. Mc Evoy
 District Engineer in Charge
 The District Office for the [Blank] District

Scale	1:1000
Date	1.10.53
Drawn	[Blank]
Checked	[Blank]



Individual house integrity
 dependent to site inspection
 report

Site Inspection Report
 Inspection Point

MARTIN O DONOVAN'S PIG FARM
COOLIGBOY, TIMOLEAGUE, BANDON, CO CORK

ATTACHMENT NO. 14

LETTER FROM STAUNTONS



Timoleague
West Cork
Ireland

Tel: 023 46128
Fax: 023 46066

5th June 2009

To whom it may concern

Dear Sir/Madam

I am writing this to state that I support Martin o Donovan in his current planning application for additional housing to support his proposed sow numbers. Over the last 10 years the national pig herd has been declining and the supply of pigs from Martin is critical to the survival of Staunton's in the long term and the maintaining of employment in the area.

It is essential in the future that all pigs meet the new animal welfare regulations and Martin's application will ensure that he is fully compliant with this new legislation. Due to customer requirements in the near future Staunton's will only be able to purchase pigs from producers that are compliant.

Due to his location and close proximity to the factory it is critical to the future development of Staunton's with its guaranteed supply of stock from an efficiently managed unit which is fully compliant with planning and environmental regulations.

I hope you look favourably on his application

Your Sincerely


Peadar Murphy
General Manager

From Timoleague West Cork

MARTIN O DONOVAN'S PIG FARM
COOLIGBOY, TIMOLEAGUE, BANDON, CO CORK

ATTACHMENT NO. 15

FARM STRUCTURES TABLE

FARM STRUCTURES TABLE

Martin O Donavan

*Covered Structures to Stormwater System
 ~Paved Areas to Stormwater System only
 # Paved Areas to Foul/Stormwater System #REF!
 Paved Areas to Foulwater System Only 0
 Unpaved Areas 1770

11844.8

TITLE	STATUS	CLASS	STRUCTURE		AREA		TOTAL AREA B/F	TANK			CAPACITY CUBIC MTS	TOTAL CAPACITY	EFFECTIVE CAPACITY WITH 100 FREE BOARD	TOTAL EFFECTIVE CAPACITY	
			LGT (M)	WTH (M)	SQ MTS	WIDTH		LENGTH	DEPTH						
							0								
Dry Sow House 1	Proposed	7	135	24	3240	3240.0	*	24	135.0	1	3240.0	3240.0			
Slurry Channel	Proposed	7			0	3240.0		1.5	140.0	1.3	273.0	3513.0	2916.0		2916.0
Dry Sow Hse 2	Proposed	7	135	24	3240	6480.0		24	135.0	1	3240.0	6753.0	252.0		3168.0
Slurry Channel	Proposed	6	0.0	0.0	0	6480.0	*	1.5	140.0	1.3	273.0	7026.0	2916.0		6084.0
													252.0		6336.0
Farrowing Hse No3	Proposed	6	84.5	20.3	1715.35	8195.4	*	20.3	84.5	1.2	2058.4	9084.4	1886.9		8222.9
Slurry Channel	Proposed	6	0.0	0.0	0	8195.4	*	1.5	84.5	1.5	190.1	9274.5	177.5		8400.3
Farrowing Hse No4	Proposed	6	84.5	20.3	1715.35	9910.7		20.3	84.5	1.2	2058.4	11333.0	1886.9		10287.2
Slurry Channel	Proposed	6	0.0	0.0	0	9910.7		1.5	84.5	1.5	190.1	11523.1	177.5		10464.7
Weaner Hse No 5	Proposed	6	50.6	20.3	1027.18	10937.9		20.3	50.6	1	1027.2	12550.3	924.5		11389.1
Slurry Channel	Proposed	6	0.0	0.0	0	10937.9	*	1.5	50.6	1.3	98.7	12648.9	91.1		11480.2
Weaner Hse No 6	Proposed	6	29.9	20.3	605.955	11543.8	*	20.3	29.9	1	607.0	13255.9	546.3		12026.5
Slurry Channel	Proposed	6	0.0	0.0	0	11543.8		1.5	29.9	1.3	58.3	13314.2	53.8		12080.3
Mill House 7	Proposed	6	43.0	7.0	301	11844.8									
Reception Pit 1	Proposed	8	0	0	0	0.0	*	11.6	62.3	3.2	2312.6	15626.8	1951.2		14031.5