APPENDIX A16.1

HYDROGEOLOGY

WELL SURVEY

APPENDIX B

GENERAL								USAGE & YIELD				LOCATION			DATE & PERSONNEL			VALUE AS MONITORING POINT				INSTALLATION DATA						WATER		PUMP	WELLHEAD DESIGN & VULNERABILITY					PHOTOGRAPHS TAKEN	COMMENTS
													COORDINATES																								
WELL NUMBER	**MONITORING POINT TYPE** (well, spring, staff gauge, phreatic tube, piezometer, surface water monitoring point)	**OWNER**	**HOUSE NAME / NUMBER**	**TOWNLAND**	**ADDRESS**	**TELEPHONE**	**WEATHER**	**USAGE** (by whom (farm or domestic), number (people and cattle)	**ESTIMATE OF WELL YIELD** (Consumption per day - m^3)	**PLANS TO INCREASE WELL** (plan to have higher pumping rates or drill an additional well)	**TOOLS NEEDED FOR OPENING WELL**	**WATER LEVEL REFERENCE POINT**	EASTING	NORTHING	OPERATIVE FOR SITE VISIT	OPERATIVE ENTERING DATA	DATE AUDITED	**SUITABLE FOR REVISITING** (Monitorable)	**WITHIN 500m OF DEVELOPMENT**	**WITHIN 100m OF DEVELOPMENT**	**UPSLOPE OR DOWNSLOPE OF DEVELOPMENT**	**DATE INSTALLED**	**INSTALLER ID** (eg MEL site operatives, contractor)	**INSTALLATION METHOD** (Shell and Auger, Rotary-percussion, hand-dug, etc)	**INSTALLED DEPTH MEASURED** (meters below reference level (mbRef))	**WELL DIAMETER** (mm)	**WELL COMPLETION** (casing details)	**WATER LEVEL** (metres below reference)	**HEIGHT OF REFERENCE POINT** (meters above ground level negative)	**PUMP TYPE**	**WELLHEAD COMPLETION**	**VUNERABILITY** (1 = extreme, 2 = moderate, 3 = low)	**ENVIRONMENTAL INTEGRITY**	**CONTAMINATION OBSERVED**	**ACCESSIBILITY** (categories = drivable seasonally, drivable all year round)		
1	WELL	COLM MCEVOY	OSBERSTOWN STUD	OSBERSTOWN	-		FINE	8 X 75 GAL. TROUGHS AND HOUSE WITH 7 PEOPLE	UNKNOWN	NO	LEAD CUTTERS	TOP OF CASING	287355	220972	CQN	CQN	24/07/2013	NO	YES	NO	UPSLOPE	2005	-	DRILLED		200	STEEL	UNKNOWN	0.20	SUBMERSIBLE	BEATEN LEAD SHEET OVER WELL CASING	3	GOOD	NO	DRIVABLE ALL YEAR ROUND	1	-
2	WELL	CIARAN O'FLAHERTY	BARRETTSTOWN	BARRETTSTOWN	-	879694059	FINE	APPROX 150 CATTLE AND 9 PEOPLE IN HOUSE	UNKNOWN	NO	LEVERS	GROUND LEVEL	287383	223977	CQN	CQN	24/07/2013	YES	YES	NO	UPSLOPE	UNKNOWN	-	DUG	2.73	1300	CORBELLED	2.44	0.00	SUCTION	CONCRETE COVER	2	GOOD	NO	DRIVABLE ALL YEAR ROUND	1	-
3	WELL	CIARAN O'FLAHERTY	BARRETTSTOWN	BARRETTSTOWN	-	879694059	FINE	APPROX 150 CATTLE AND 9 PEOPLE IN HOUSE	UNKNOWN	NO	LEVERS	GROUND LEVEL	287382	223974	CQN	CQN	24/07/2013	YES	YES	NO	UPSLOPE	UNKNOWN	-	DUG	3.11	900	CONCRETE RINGS	2.66	0.00	SUCTION	CONCRETE COVER	2	GOOD	NO	DRIVABLE ALL YEAR ROUND	1	-
4	WELL	LANDOWNER 118	BODENSTOWN	BODENSTOWJN	-		FINE	2 X TROUGHS	UNKNOWN	UNKNOWN	NONE	GROUND LEVEL	288901	224322	CQN	CQN	24/07/2013	YES	YES	YES	UPSLOPE	UNKNOWN	-	DUG	6.05	1000	CORBELLED	3.95	0.00	SUCTION	CONCRETE COVER	2	GOOD	NO	DRIVABLE ALL YEAR ROUND	1	-
5	WELL	Alan Lloyd	OSBERSTOWN	OSBERSTOWN	-	876486280	FINE	3 PEOPLE IN 2 HOUSES	UNKNOWN	NO	NONE	GROUND LEVEL	288018	222572	CQN	CQN	26/07/2013	YES	YES	YES	DOWNSLOPE	UNKNOWN	-	DUG	3.1	1000	CONCRETE RINGS	1.94	0.00	SUBMERSIBLE	CONCRETE COVER	3	GOOD	NO	DRIVABLE ALL YEAR ROUND	1	Owner has serious concerns about potential contamination resulting from th development and wants hydrochemical testing before, during and after construction. Ideally the Owner would like to be connected to the mains and stop using the well for water supply
6	WELL	PJ GARVEY	OSBERSTOWN	OSBERSTOWN	-	871360139	FINE	3 PEOPLE	UNKNOWN	NO	FLATHEAD SCREWDRIVER	GROUND LEVEL	288027	222585	CQN	CQN	26/07/2013	YES	YES	YES	DOWNSLOPE	UNKNOWN	-	DRILLED	7.28	150	LOCKABLE AND SEALED COVER	1.98	0.00	SUBMERSIBLE	PLASTIC AND METAL LOCKABLE COVER	3	GOOD	NO	DRIVABLE ALL YEAR ROUND	1	Owner has serious concerns about potential contamination resulting from th development and wants hydrochemical testing before, during and after construction. Ideally the owner would like to be connected to the mains and stop using the well for water supply

DOMESTIC OR INDUSTRIAL Well Audit Fieldsheet

Client & Project No.:		**Work item & Project description:**			**WELL NUMBER:**
General	**Owner's name**		**Well type (bored/hand dug)**		**Sketch of location / plan**
	Townland		**Date drilled / dug**		
	Address		**Drilled contractor name and their telephone number**		
	Contact number		**Date of site visit by Minerex operative**		
	Usage (amount (m3/day) & for what purpose eg household use or feeding cattle)		**Weather**		
	National grid co-ordinates		**Minerex site operative(s)**		N
	Reduced level (maODMalin) for ground level and ref point for water level monitoring		**Any contamination observed**		
Well Design Criteria	~~**Reference point description** (Use permanent ink) (eg 6" steel casing, ground level)~~		**Grouting details**		**Well design (cross-section)**
	Total depth (as reported by owner / drilling log (m))		**Pump details**		
	~~**Total depth** (as measured using dipper by Minerex site operative (mb Ref point))~~		**Wellhead completion/protection & whether lockable, also recommendations.**		
	Drilling log available (yes or no)		**Tools needed to open well and access water**		
	Well diameter (mm)		**Comment of well protection / vulnerability ranking (1 = extreme, 2 = moderate, 3 = low)**		
	Well completion (casing details)		**Number and ID of photographs**		
Hydrogeology	**Estimate of well yield** (g/d)(l/sec) / consumption per day based on persons in house etc		~~**Overburden or bedrock aquifer**~~		
	Plans to increase output / drill another well and for what reasons		~~**Water table**(phreatic surface) **or piezometric surface**~~		
	~~**Water quality / laboratory results** (yes or no and attached or not)~~		~~**Water level (mbRef)**~~		
Geology	~~**Overburden geology & thickness (m)**~~				
	~~**Bedrock geology**~~				
Additional work items recommended / comments					Minerex Environmental Limited

Client & Project No.:		**Work item & Project description:**			**WELL NUMBER: 6**
General	**Owner's name**	PJ Garvey	**Well type (bored/hand dug)**	Bored	**Sketch of location / plan**
	Townland	Osberstown	**Date drilled / dug**	unknown	
	Address	Osberstown	**Drilled contractor name and their telephone number**	unknown	
	Contact number	871360139	**Date of site visit by Minerex operative**	26/07/2013	
	Usage (amount (m3/day) & for what purpose eg household use or feeding cattle)	3 people domestic	**Weather**	fine	
	National grid co-ordinates	289053, 222354	**Minerex site operative(s)**	Conor Quinlan	N
	Reduced level (maODMalin) for ground level and ref point for water level monitoring	80	**Any contamination observed**	None	
Well Design Criteria	**Reference point description** (Use permanent ink) (eg 6" steel casing, ground level)	Ground Level	**Grouting details**	unknown	**Well design (cross-section)**
	Total depth (as reported by owner / drilling log (m))	7.28	**Pump details**	unknown	
	Total depth (as measured using dipper by Minerex site operative (mb Ref point))	7.28	**Wellhead completion/protection & whether lockable, also recommendations.**	screwed down lid with plastic seal at ground level and a plastic cap over the steel borehole liner	
	Drilling log available (yes or no)	none	**Tools needed to open well and access water**	Large flat head screw driver	
	Well diameter (mm)	150mm ID of steel casing.	**Comment of well protection / vulnerability ranking (1 = extreme, 2 = moderate, 3 = low)**	1	
	Well completion (casing details)	Tarmacadam around well,no cracks. Not sure about grout around casing.	**Number and ID of photographs**		
Hydrogeology	**Estimate of well yield** (g/d)(l/sec) / consumption per day based on persons in house etc	unknown	**Overburden or bedrock aquifer**	Overburden	
	Plans to increase output / drill another well and for what reasons	No, they have adequate amount.	**Water table**(phreatic surface) **or piezometric surface**	Water table	
	Water quality / laboratory results (yes or no and attached or not)	none	**Water level (mbRef)**	1.98	
Geology	**Overburden geology & thickness (m)**	Clayey GRAVEL			
	Bedrock geology	Rickardstown Fm cherty often dolomotised limestone			
Additional work items recommended / comments		Owner has serious concerns about potential contamination resulting from th development and wants hydrochemical testing before, during and after construction. Ideally the owner would like to be connected to the mains and stop using the well for water supply			Minerex Environmental Limited

Well Audit Methodology (CS 18/1/10)

1. With landowner:

- State that you are working for an engineering firm with an application to the council about a proposed quarry in the area, and that you are checking / auditing domestic wells to ensure there will be no negative impact to them.
- Ask if the house has a domestic well water supply or if it is on a mains such as a group water scheme or other? Get name, date of connection and happiness with service if on a GWS.
- If have a domestic well - ask if you can access it to take measurements. Ask key questions such as name of owner, townland name, address, contact no., date of well installation / age of well, depth of well (from owner), usage (how many people use the well? for house only or also farm?), happy with well performance? pump details, grouting - if any (cement along side of well wall?)

2. At Wellhead:

- Fill in well audit sheet - critical to measure diameter of well, depth of well, WL from top of wellcover and from ground level etc.
- Note how well protected the top of the well is from contamination, cement grouting, other?
- Take water sample - take HC, note colour, smell, how clear or not it is.
- If it is a drilled well - note available information on depth of subsoils - estimate.
- Diameter of well and depth of well - will tell you if drilled or dug well.
- Sometimes it is not possible to take water at well - take from tap either outside or inside.

#NAME?

3. Thank landowner and be courteous at all times.

DOMESTIC OR INDUSTRIAL Well Audit Fieldsheet

Client & Project No.:	Work item & Project description:			WELL NUMBER:

General	**Owner's name**		**Well type (bored/hand dug)**		**Sketch of location / plan**
	Townland		**Date drilled / dug**		
	Address		**Drilled contractor name and their telephone number**		
	Contact number		**Date of site visit by Minerex operative**		
	Usage (amount (m3/day) & for what purpose eg household use or feeding cattle)		**Weather**		
	National grid co-ordinates		**Minerex site operative(s)**		
	Reduced level (maODMalin) for ground level and ref point for water level monitoring		**Any contamination observed**		
Well Design Criteria	~~**Reference point description** (Use permanent ink) (eg 6" steel casing, ground level)~~		**Grouting details**		**Well design (cross-section)**
	Total depth (as reported by owner / drilling log (m))		**Pump details**		
	~~**Total depth** (as measured using dipper by Minerex site operative (mb Ref point))~~		**Wellhead completion/protection & whether lockable, also recommendations.**		
	Drilling log available (yes or no)		**Tools needed to open well and access water**		
	Well diameter (mm)		**Comment of well protection / vulnerability ranking (1 = extreme, 2 = moderate, 3 = low)**		
	Well completion (casing details)		**Number and ID of photographs**		
Hydrogeology	**Estimate of well yield** (g/d)(l/sec) / consumption per day based on persons in house etc		~~**Overburden or bedrock aquifer**~~		
	Plans to increase output / drill another well and for what reasons		~~**Water table**(phreatic surface) **or piezometric surface**~~		
	~~**Water quality / laboratory results** (yes or no and attached or not)~~		~~**Water level (mbRef)**~~		
Geology	~~**Overburden geology & thickness (m)**~~				
	~~**Bedrock geology**~~				

Additional work items recommended / comments

Minerex Environmental Limited

Client & Project No.:	Work item & Project description:			WELL NUMBER: 5

General	**Owner's name**	Alan Lloyd	**Well type (bored/hand dug)**	dug, 1m ID concrete rings liner	**Sketch of location / plan**
	Townland	Osberstown	**Date drilled / dug**	unknown	
	Address	Osberstown	**Drilled contractor name and their telephone number**	unknown	
	Contact number	876486280	**Date of site visit by Minerex operative**	26/07/2013	
	Usage (amount (m3/day) & for what purpose eg household use or feeding cattle)	3 people domestic (in 2 houses)	**Weather**	fine	
	National grid co-ordinates	287959, 222599	**Minerex site operative(s)**	Conor Quinlan	
	Reduced level (maODMalin) for ground level and ref point for water level monitoring	80	**Any contamination observed**	None	
Well Design Criteria	**Reference point description** (Use permanent ink) (eg 6" steel casing, ground level)	Ground Level	**Grouting details**	unknown	**Well design (cross-section)**
	Total depth (as reported by owner / drilling log (m))	3.1	**Pump details**	unknown	
	Total depth (as measured using dipper by Minerex site operative (mb Ref point))	3.1	**Wellhead completion/protection & whether lockable, also recommendations.**	screwed down lid with plastic seal at ground level and a plastic cap over the steel borehole liner	
	Drilling log available (yes or no)	none	**Tools needed to open well and access water**	levelrs to lift concrete cover	
	Well diameter (mm)	1m	**Comment of well protection / vulnerability ranking (1 = extreme, 2 = moderate, 3 = low)**	2	
	Well completion (casing details)	concrete biscuit cover with concrete manhole in centre	**Number and ID of photographs**		
Hydrogeology	**Estimate of well yield** (g/d)(l/sec) / consumption per day based on persons in house etc	unknown	**Overburden or bedrock aquifer**	Overburden	
	Plans to increase output / drill another well and for what reasons	No, they have adequate amount.	**Water table**(phreatic surface) **or piezometric surface**	Water table	
	Water quality / laboratory results (yes or no and attached or not)	none	**Water level (mbRef)**	1.94	
Geology	**Overburden geology & thickness (m)**	Clayey GRAVEL			
	Bedrock geology	Rickardstown Fm cherty often dolomotised limestone			

Additional work items recommended / comments

Owner has serious concerns about potential contamination resulting from th development and wants hydrochemical testing before, during and after construction. Ideally the owner would like to be connected to the mains and stop using the well for water supply

Minerex Environmental Limited

Well Audit Methodology (CS 18/1/10)

1. With landowner:

- State that you are working for an engineering firm with an application to the council about a proposed quarry in the area, and that you are checking / auditing domestic wells to ensure there will be no negative impact to them.
- Ask if the house has a domestic well water supply or if it is on a mains such as a group water scheme or other? Get name, date of connection and happiness with service if on a GWS.
- If have a domestic well - ask if you can access it to take measurements. Ask key questions such as name of owner, townland name, address, contact no., date of well installation / age of well, depth of well (from owner), usage (how many people use the well? for house only or also farm?), happy with well performance? pump details, grouting - if any (cement along side of well wall?)

2. At Wellhead:

- Fill in well audit sheet - critical to measure diameter of well, depth of well, WL from top of wellcover and from ground level etc.
- Note how well protected the top of the well is from contamination, cement grouting, other?
- Take water sample - take HC, note colour, smell, how clear or not it is.
- If it is a drilled well - note available information on depth of subsoils - estimate.
- Diameter of well and depth of well - will tell you if drilled or dug well.
- Sometimes it is not possible to take water at well - take from tap either outside or inside.
  #NAME?

3. Thank landowner and be courteous at all times.

Client & Project No.:	Work item & Project description:		WELL NUMBER:

General	**Owner's name**		**Well type (bored/hand dug)**		**Sketch of location / plan**
	Townland		**Date drilled / dug**		
	Address		**Drilled contractor name and their telephone number**		
	Contact number		**Date of site visit by Minerex operative**		
	Usage (amount (m3/day) & for what purpose eg household use or feeding cattle)		**Weather**		
	National grid co-ordinates		**Minerex site operative(s)**		
	Reduced level (maODMalin) for ground level and ref point for water level monitoring		**Any contamination observed**		
Well Design Criteria	~~**Reference point description** (Use permanent ink) (eg 6" steel casing, ground level)~~		**Grouting details**		**Well design (cross-section)**
	Total depth (as reported by owner / drilling log (m))		**Pump details**		
	~~**Total depth** (as measured using dipper by Minerex site operative (mb Ref point))~~		**Wellhead completion/protection & whether lockable, also recommendations.**		
	Drilling log available (yes or no)		**Tools needed to open well and access water**		
	Well diameter (mm)		**Comment of well protection / vulnerability ranking (1 = extreme, 2 = moderate, 3 = low)**		
	Well completion (casing details)		**Number and ID of photographs**		
Hydrogeology	**Estimate of well yield** (g/d)(l/sec) / consumption per day based on persons in house etc		~~**Overburden or bedrock aquifer**~~		
	Plans to increase output / drill another well and for what reasons		~~**Water table**(phreatic surface) **or piezometric surface**~~		
	~~**Water quality / laboratory results** (yes or no and attached or not)~~		~~**Water level (mbRef)**~~		
Geology	~~**Overburden geology & thickness (m)**~~				
	~~**Bedrock geology**~~				

Additional work items recommended / comments

Minerex Environmental Limited

Client & Project No.:	Work item & Project description:		WELL NUMBER: 4

General	**Owner's name**	Landowner 118	**Well type (bored/hand dug)**	dug, 1m ID approx, corbelled with concrete slab cover	**Sketch of location / plan**
	Townland	Bodenstown	**Date drilled / dug**	unknown	
	Address	Bodenstown	**Drilled contractor name and their telephone number**	unknown	
	Contact number	none	**Date of site visit by Minerex operative**	26/07/2013	
	Usage (amount (m3/day) & for what purpose eg household use or feeding cattle)	two troughs	**Weather**	fine	
	National grid co-ordinates	287959, 222599	**Minerex site operative(s)**	Conor Quinlan	
	Reduced level (maODMalin) for ground level and ref point for water level monitoring	85	**Any contamination observed**	None	
Well Design Criteria	**Reference point description** (Use permanent ink) (eg 6" steel casing, ground level)	Ground Level	**Grouting details**	unknown	**Well design (cross-section)**
	Total depth (as reported by owner / drilling log (m))	6.05	**Pump details**	unknown	
	Total depth (as measured using dipper by Minerex site operative (mb Ref point))	6.05	**Wellhead completion/protection & whether lockable, also recommendations.**	concrete cover with opening approx 20cms wide	
	Drilling log available (yes or no)	none	**Tools needed to open well and access water**	none	
	Well diameter (mm)	1m approx.	**Comment of well protection / vulnerability ranking (1 = extreme, 2 = moderate, 3 = low)**	2	
	Well completion (casing details)	concrete cover over dug and corbelled well	**Number and ID of photographs**		
Hydrogeology	**Estimate of well yield** (g/d)(l/sec) / consumption per day based on persons in house etc	unknown	**Overburden or bedrock aquifer**	Overburden	
	Plans to increase output / drill another well and for what reasons	unknown	**Water table**(phreatic surface) **or piezometric surface**	Water table	
	Water quality / laboratory results (yes or no and attached or not)	none	**Water level (mbRef)**	3.95	
Geology	**Overburden geology & thickness (m)**	Clayey GRAVEL			
	Bedrock geology	Rickardstown Fm cherty often dolomotised limestone			

Additional work items recommended / comments

Minerex Environmental Limited

Well Audit Methodology (CS 18/1/10)

1. With landowner:

- State that you are working for an engineering firm with an application to the council about a proposed quarry in the area, and that you are checking / auditing domestic wells to ensure there will be no negative impact to them.
- Ask if the house has a domestic well water supply or if it is on a mains such as a group water scheme or other? Get name, date of connection and happiness with service if on a GWS.
- If have a domestic well - ask if you can access it to take measurements. Ask key questions such as name of owner, townland name, address, contact no., date of well installation / age of well, depth of well (from owner), usage (how many people use the well? for house only or also farm?), happy with well performance? pump details, grouting - if any (cement along side of well wall?)

2. At Wellhead:

- Fill in well audit sheet - critical to measure diameter of well, depth of well, WL from top of wellcover and from ground level etc.
- Note how well protected the top of the well is from contamination, cement grouting, other?
- Take water sample - take HC, note colour, smell, how clear or not it is.
- If it is a drilled well - note available information on depth of subsoils - estimate.
- Diameter of well and depth of well - will tell you if drilled or dug well.
- Sometimes it is not possible to take water at well - take from tap either outside or inside.
  #NAME?

3. Thank landowner and be courteous at all times.

Client & Project No.:	Work item & Project description:		WELL NUMBER:

General	**Owner's name**		**Well type (bored/hand dug)**		**Sketch of location / plan**
	Townland		**Date drilled / dug**		
	Address		**Drilled contractor name and their telephone number**		
	Contact number		**Date of site visit by Minerex operative**		
	Usage (amount (m3/day) & for what purpose eg household use or feeding cattle)		**Weather**		
	National grid co-ordinates		**Minerex site operative(s)**		
	Reduced level (maODMalin) for ground level and ref point for water level monitoring		**Any contamination observed**		
Well Design Criteria	~~**Reference point description** (Use permanent ink) (eg 6" steel casing, ground level)~~		**Grouting details**		**Well design (cross-section)**
	Total depth (as reported by owner / drilling log (m))		**Pump details**		
	~~**Total depth** (as measured using dipper by Minerex site operative (mb Ref point))~~		**Wellhead completion/protection & whether lockable, also recommendations.**		
	Drilling log available (yes or no)		**Tools needed to open well and access water**		
	Well diameter (mm)		**Comment of well protection / vulnerability ranking (1 = extreme, 2 = moderate, 3 = low)**		
	Well completion (casing details)		**Number and ID of photographs**		
Hydrogeology	**Estimate of well yield** (g/d)(l/sec) / consumption per day based on persons in house etc		~~**Overburden or bedrock aquifer**~~		
	Plans to increase output / drill another well and for what reasons		~~**Water table**(phreatic surface) **or piezometric surface**~~		
	~~**Water quality / laboratory results** (yes or no and attached or not)~~		~~**Water level (mbRef)**~~		
Geology	~~**Overburden geology & thickness (m)**~~				
	~~**Bedrock geology**~~				

Additional work items recommended / comments

Minerex Environmental Limited

Client & Project No.:	Work item & Project description:		WELL NUMBER: 3

General	**Owner's name**	Ciaran O'Flaherty	**Well type (bored/hand dug)**	dug, 0.9m ID , concrete rings concrete slab cover	**Sketch of location / plan**
	Townland	Barrettstown	**Date drilled / dug**	unknown	
	Address	Barrettstown	**Drilled contractor name and their telephone number**	unknown	
	Contact number	879694059	**Date of site visit by Minerex operative**	26/07/2013	
	Usage (amount (m3/day) & for what purpose eg household use or feeding cattle)	domestic & Agri, 150 cattle approx and 9 people	**Weather**	fine	
	National grid co-ordinates	287382, 223974	**Minerex site operative(s)**	Conor Quinlan	
	Reduced level (maODMalin) for ground level and ref point for water level monitoring	85	**Any contamination observed**	None	
Well Design Criteria	**Reference point description** (Use permanent ink) (eg 6" steel casing, ground level)	Ground Level	**Grouting details**	unknown	**Well design (cross-section)**
	Total depth (as reported by owner / drilling log (m))	3.11	**Pump details**	unknown	
	Total depth (as measured using dipper by Minerex site operative (mb Ref point))	3.11	**Wellhead completion/protection & whether lockable, also recommendations.**	concrete cover with opening approx 0.9cms wide	
	Drilling log available (yes or no)	none	**Tools needed to open well and access water**	levers and brush to clean edges	
	Well diameter (mm)	0.9 ID concrete ring	**Comment of well protection / vulnerability ranking (1 = extreme, 2 = moderate, 3 = low)**	2	
	Well completion (casing details)	concrete cover over dug well	**Number and ID of photographs**		
Hydrogeology	**Estimate of well yield** (g/d)(l/sec) / consumption per day based on persons in house etc	unknown	**Overburden or bedrock aquifer**	Overburden	
	Plans to increase output / drill another well and for what reasons	none	**Water table**(phreatic surface) **or piezometric surface**	Water table	
	Water quality / laboratory results (yes or no and attached or not)	none	**Water level (mbRef)**	2.66	
Geology	**Overburden geology & thickness (m)**	Clayey GRAVEL			
	Bedrock geology	Waulsortian limestones			

Additional work items recommended / comments

Minerex Environmental Limited

Well Audit Methodology (CS 18/1/10)

1. With landowner:

- State that you are working for an engineering firm with an application to the council about a proposed quarry in the area, and that you are checking / auditing domestic wells to ensure there will be no negative impact to them.
- Ask if the house has a domestic well water supply or if it is on a mains such as a group water scheme or other? Get name, date of connection and happiness with service if on a GWS.
- If have a domestic well - ask if you can access it to take measurements. Ask key questions such as name of owner, townland name, address, contact no., date of well installation / age of well, depth of well (from owner), usage (how many people use the well? for house only or also farm?), happy with well performance? pump details, grouting - if any (cement along side of well wall?)

2. At Wellhead:

- Fill in well audit sheet - critical to measure diameter of well, depth of well, WL from top of wellcover and from ground level etc.
- Note how well protected the top of the well is from contamination, cement grouting, other?
- Take water sample - take HC, note colour, smell, how clear or not it is.
- If it is a drilled well - note available information on depth of subsoils - estimate.
- Diameter of well and depth of well - will tell you if drilled or dug well.
- Sometimes it is not possible to take water at well - take from tap either outside or inside.
  #NAME?

3. Thank landowner and be courteous at all times.

Client & Project No.:	Work item & Project description:		WELL NUMBER:

General	**Owner's name**		**Well type (bored/hand dug)**		**Sketch of location / plan**
	Townland		**Date drilled / dug**		
	Address		**Drilled contractor name and their telephone number**		
	Contact number		**Date of site visit by Minerex operative**		
	Usage (amount (m3/day) & for what purpose eg household use or feeding cattle)		**Weather**		
	National grid co-ordinates		**Minerex site operative(s)**		
	Reduced level (maODMalin) for ground level and ref point for water level monitoring		**Any contamination observed**		
Well Design Criteria	~~**Reference point description** (Use permanent ink) (eg 6" steel casing, ground level)~~		**Grouting details**		**Well design (cross-section)**
	Total depth (as reported by owner / drilling log (m))		**Pump details**		
	~~**Total depth** (as measured using dipper by Minerex site operative (mb Ref point))~~		**Wellhead completion/protection & whether lockable, also recommendations.**		
	Drilling log available (yes or no)		**Tools needed to open well and access water**		
	Well diameter (mm)		**Comment of well protection / vulnerability ranking (1 = extreme, 2 = moderate, 3 = low)**		
	Well completion (casing details)		**Number and ID of photographs**		
Hydrogeology	**Estimate of well yield** (g/d)(l/sec) / consumption per day based on persons in house etc		~~**Overburden or bedrock aquifer**~~		
	Plans to increase output / drill another well and for what reasons		~~**Water table**(phreatic surface) **or piezometric surface**~~		
	~~**Water quality / laboratory results** (yes or no and attached or not)~~		~~**Water level (mbRef)**~~		
Geology	~~**Overburden geology & thickness (m)**~~				
	~~**Bedrock geology**~~				

Additional work items recommended / comments

Minerex Environmental Limited

Client & Project No.:	Work item & Project description:		WELL NUMBER: 2

General	**Owner's name**	Ciaran O'Flaherty	**Well type (bored/hand dug)**	corbelled dug well with gravel base	**Sketch of location / plan**
	Townland	Barrettstown	**Date drilled / dug**	unknown	
	Address	Barrettstown	**Drilled contractor name and their telephone number**	unknown	
	Contact number	879694059	**Date of site visit by Minerex operative**	26/07/2013	
	Usage (amount (m3/day) & for what purpose eg household use or feeding cattle)	unused	**Weather**	fine	
	National grid co-ordinates	287383, 223977	**Minerex site operative(s)**	Conor Quinlan	
	Reduced level (maODMalin) for ground level and ref point for water level monitoring	85	**Any contamination observed**	None	
Well Design Criteria	**Reference point description** (Use permanent ink) (eg 6" steel casing, ground level)	Ground Level	**Grouting details**	unknown	**Well design (cross-section)**
	Total depth (as reported by owner / drilling log (m))	2.73	**Pump details**	unknown	
	Total depth (as measured using dipper by Minerex site operative (mb Ref point))	2.73	**Wellhead completion/protection & whether lockable, also recommendations.**	concrete cover with opening approx 0.5cms wide	
	Drilling log available (yes or no)	none	**Tools needed to open well and access water**	levers and brush to clean edges	
	Well diameter (mm)	1.3m approx	**Comment of well protection / vulnerability ranking (1 = extreme, 2 = moderate, 3 = low)**	2	
	Well completion (casing details)	concrete cover over dug and corbelled well	**Number and ID of photographs**		
Hydrogeology	**Estimate of well yield** (g/d)(l/sec) / consumption per day based on persons in house etc	unknown	**Overburden or bedrock aquifer**	Overburden	
	Plans to increase output / drill another well and for what reasons	none	**Water table**(phreatic surface) **or piezometric surface**	Water table	
	Water quality / laboratory results (yes or no and attached or not)	none	**Water level (mbRef)**	2.44	
Geology	**Overburden geology & thickness (m)**	Clayey GRAVEL			
	Bedrock geology	Waulsortian limestones			

Additional work items recommended / comments

Minerex Environmental Limited

Well Audit Methodology (CS 18/1/10)

1. With landowner:

- State that you are working for an engineering firm with an application to the council about a proposed quarry in the area, and that you are checking / auditing domestic wells to ensure there will be no negative impact to them.
- Ask if the house has a domestic well water supply or if it is on a mains such as a group water scheme or other? Get name, date of connection and happiness with service if on a GWS.
- If have a domestic well - ask if you can access it to take measurements. Ask key questions such as name of owner, townland name, address, contact no., date of well installation / age of well, depth of well (from owner), usage (how many people use the well? for house only or also farm?), happy with well performance? pump details, grouting - if any (cement along side of well wall?)

2. At Wellhead:

- Fill in well audit sheet - critical to measure diameter of well, depth of well, WL from top of wellcover and from ground level etc.
- Note how well protected the top of the well is from contamination, cement grouting, other?
- Take water sample - take HC, note colour, smell, how clear or not it is.
- If it is a drilled well - note available information on depth of subsoils - estimate.
- Diameter of well and depth of well - will tell you if drilled or dug well.
- Sometimes it is not possible to take water at well - take from tap either outside or inside.
  #NAME?

3. Thank landowner and be courteous at all times.

Client & Project No.:	Work item & Project description:		WELL NUMBER:

General	**Owner's name**		**Well type (bored/hand dug)**		**Sketch of location / plan**
	Townland		**Date drilled / dug**		
	Address		**Drilled contractor name and their telephone number**		
	Contact number		**Date of site visit by Minerex operative**		
	Usage (amount (m3/day) & for what purpose eg household use or feeding cattle)		**Weather**		
	National grid co-ordinates		**Minerex site operative(s)**		
	Reduced level (maODMalin) for ground level and ref point for water level monitoring		**Any contamination observed**		
Well Design Criteria	~~**Reference point description** (Use permanent ink) (eg 6" steel casing, ground level)~~		**Grouting details**		**Well design (cross-section)**
	Total depth (as reported by owner / drilling log (m))		**Pump details**		
	~~**Total depth** (as measured using dipper by Minerex site operative (mb Ref point))~~		**Wellhead completion/protection & whether lockable, also recommendations.**		
	Drilling log available (yes or no)		**Tools needed to open well and access water**		
	Well diameter (mm)		**Comment of well protection / vulnerability ranking (1 = extreme, 2 = moderate, 3 = low)**		
	Well completion (casing details)		**Number and ID of photographs**		
Hydrogeology	**Estimate of well yield** (g/d)(l/sec) / consumption per day based on persons in house etc		~~**Overburden or bedrock aquifer**~~		
	Plans to increase output / drill another well and for what reasons		~~**Water table**(phreatic surface) **or piezometric surface**~~		
	~~**Water quality / laboratory results** (yes or no and attached or not)~~		~~**Water level (mbRef)**~~		
Geology	~~**Overburden geology & thickness (m)**~~				
	~~**Bedrock geology**~~				

Additional work items recommended / comments

Minerex Environmental Limited

Client & Project No.:	Work item & Project description:		WELL NUMBER: 1

General	**Owner's name**	Colm McEvoy	**Well type (bored/hand dug)**	bored	**Sketch of location / plan**
	Townland	Osberstown	**Date drilled / dug**	approx 8 years ago	
	Address	Osberstown	**Drilled contractor name and their telephone number**	unknown but was reportedly from Co. Kerry	
	Contact number	none	**Date of site visit by Minerex operative**	26/07/2013	
	Usage (amount (m3/day) & for what purpose eg household use or feeding cattle)	domestic and agri. 8 x 75 gallon troughts and 7 people	**Weather**	fine	
	National grid co-ordinates	287355, 2220972	**Minerex site operative(s)**	Conor Quinlan	
	Reduced level (maODMalin) for ground level and ref point for water level monitoring	78	**Any contamination observed**	None	
Well Design Criteria	**Reference point description** (Use permanent ink) (eg 6" steel casing, ground level)	toc	**Grouting details**	unknown	**Well design (cross-section)**
	Total depth (as reported by owner / drilling log (m))	200ft or 140ft	**Pump details**	unknown	
	Total depth (as measured using dipper by Minerex site operative (mb Ref point))	unknown	**Wellhead completion/protection & whether lockable, also recommendations.**	well is inside pumphouse and the top of the steel casing is covered with a beaten lead cover, thus the borehole itself is inaccessible	
	Drilling log available (yes or no)	none	**Tools needed to open well and access water**	lead cutters	
	Well diameter (mm)	200mm	**Comment of well protection / vulnerability ranking (1 = extreme, 2 = moderate, 3 = low)**	1	
	Well completion (casing details)	200mm casing capped with beaten lead cover	**Number and ID of photographs**		
Hydrogeology	**Estimate of well yield** (g/d)(l/sec) / consumption per day based on persons in house etc	unknown	**Overburden or bedrock aquifer**	bedrock	
	Plans to increase output / drill another well and for what reasons	none	**Water table**(phreatic surface) **or piezometric surface**	Water table	
	Water quality / laboratory results (yes or no and attached or not)	none	**Water level (mbRef)**	unknown	
Geology	**Overburden geology & thickness (m)**	Clayey GRAVEL			
	Bedrock geology	Rickardstown Fm cherty often dolomotised limestone			

Additional work items recommended / comments

Minerex Environmental Limited

Well Audit Methodology (CS 18/1/10)

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