



Comhairle Chontae na Gaillimhe
Galway County Council

**Proposed Development of 1 No. Domestic Dwelling
House & Associated Works at Ballyglass East,
Ardrahan, Co. Galway**

EPA Site Suitability Assessment Report

November 2020



Jennings O'Donovan & Partners Ltd.,
Consulting Engineers, Finisklin Business Park, Sligo.
Tel.: 071 916 1416 Fax: 071 916 1080
e mail: info@jodireland.com
Web: www.jodireland.com



JENNINGS O'DONOVAN & PARTNERS LIMITED
 Project, Civil and Structural Consulting Engineers,
 FINISKLIN BUSINESS PARK,
 SLIGO,
 IRELAND.



Telephone (071) 9161416
 Fax (071) 9161080



Email info@jodireland.com
 Web Site www.jodireland.com

DOCUMENT APPROVAL

PROJECT	Proposed Development of 1 No. Domestic Dwelling House & Associated Works	
CLIENT / JOB NO	Galway County Council	6140
DOCUMENT TITLE	Site: Ballyglass East, Ardrahan, Co. Galway EPA Site Suitability Assessment Report	

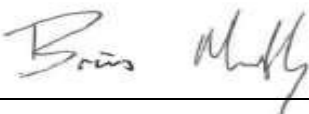

Prepared by

Reviewed/Approved by

Document DRAFT	Name PJ Regan	Name Mark Forbes
Date July 2020	Signature 	Signature 

Prepared by

Reviewed/Approved by

Document FINAL	Name Brian Murphy	Name Mark Forbes
Date 20th Nov 2020	Signature 	Signature 

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Regional Director: A. Phelan
Consultants: C. Birney, M. Gavin, R. Gillan

Senior Associates: R. Davis, S. Gilmartin, J. Healy, J. McElvaney, T. McGloin
Associates: L. Brennan, S. Lee, S. Martyn, L. McCormack, S. Molloy
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Proposed Effluent Treatment System**

1. INTRODUCTION

Jennings O'Donovan & Partners Limited (JOD) have been appointed by Galway County Council to carry out Site Suitability Assessment on 9 no. single rural dwelling sites at various locations in County Galway.

This report relates to Site at Ballyglass East, Ardrahan, Co. Galway.

2. SITE CHARACTERISATION FORM

Please see overleaf completed Site Characterisation Form for Ballyglass, Ardrahan, Co. Galway in accordance with the EPA Code of Practice for Wastewater Treatment and Disposal Systems Serving Single Houses (p.e,<10).

APPENDIX B: SITE CHARACTERISATION FORM

File Reference:

1.0 GENERAL DETAILS (From planning application)

Prefix: First Name: Surname:

Address:

Site Location and Townland:

Telephone No: Fax No:

E-Mail:

Maximum no. of Residents: No. of Double Bedrooms: No. of Single Bedrooms:

Proposed Water Supply: Mains Private Well/Borehole Group Well/Borehole

2.0 GENERAL DETAILS (From planning application)

Soil Type, (Specify Type):

Aquifer Category: Regionally Important Locally Important Poor

Vulnerability: Extreme High Moderate Low High to Low Unknown

Bedrock Type:

Name of Public/Group Scheme Water Supply within 1 km:

Groundwater Protection Scheme (Y/N): Source Protection Area: SI SO

Groundwater Protection Response:

Presence of Significant Sites (Archaeological, Natural & Historical):

Past experience in the area:

Comments:
(Integrate the information above in order to comment on: the potential suitability of the site, potential targets at risk, and/or any potential site restrictions).

SITE SUITABILITY:-
R2-1 ACCEPTABLE SUBJECT TO NORMAL GOOD PRACTICE, PARTICULAR ATTENTION SHOULD BE GIVEN TO THE DEPTH OF SUBSOIL OVER BEDROCK AND ENSURE THAT MINIMUM DEPTH ARE MET IN ACCORDANCE WITH THE EPA C.O.P.

POTENTIAL TARGETS AT RISK:-
SURFACE WATER, GROUND WATER

Note: Only information available at the desk study stage should be used in this section.

3.0 ON-SITE ASSESSMENT

3.1 Visual Assessment

Landscape Position:

Slope: Steep (>1:5) Shallow (1:5-1:20) Relatively Flat (<1:20)

Surface Features within a minimum of 250m (Distance To Features Should Be Noted In Metres)

Houses:

Existing Land Use:

Vegetation Indicators:

Groundwater Flow Direction:

Ground Condition:

Site Boundaries:

Roads:

Outcrops (Bedrock And/Or Subsoil):

Surface Water Ponding: Lakes:

Beaches/Shellfish: Areas/Wetlands:

Karst Features:

Watercourse/Stream*:

Drainage Ditches*:

Springs / Wells*:

Comments:

(Integrate the information above in order to comment on: the potential suitability of the site, potential targets at risk, the suitability of the site to treat the wastewater and the location of the proposed system within the site).

POTENTIAL TARGETS AT RISK:-

GROUND WATER

SITE APPEARS SUITABLE FOR A WASTEWATER TREATMENT AND DISPOSAL SYSTEM PROVIDING FAVOURABLE T / P IS ACHIEVABLE.

*Note and record water level

3.2 Trial Hole (should be a minimum of 2.1m deep (3m for regionally important aquifers))

To avoid any accidental damage, a trial hole assessment or percolation tests should not be undertaken in areas, which are at or adjacent to significant sites (e.g. NHAs, SACs, SPAs, and/or Archaeological etc.), without prior advice from National Parks and Wildlife Service or the Heritage Service.

Depth of trial hole (m):

Depth from ground surface to bedrock (m) (if present):

Depth from ground surface to water table (m) (if present):

Depth of water ingress: Rock type (if present):

Date and time of excavation: Date and time of examination:

Depth of P/T Test*	Soil/Subsoil Texture & Classification**	Plasticity and dilatancy***	Soil Structure	Density/ Compactness	Colour****	Preferential flowpaths
0.1 m <input type="text"/>	medium bedded sandy SILT/CLAY	DILATANCY WITH DIFFICULTY	CRUMB	SOFT	MEDIUM BROWN	GRASS ROOTS TO -0.4m B.G.L.
0.2 m <input type="text"/>						
0.3 m <input type="text"/>						
0.4 m <input type="text" value="P1,2,3"/>						
0.5 m <input type="text"/>	thickly bedded gravelly SAND with medium spaced cobbles and widely spaced boulders	DILATANCY WITH DIFFICULTY	ANGULAR	FIRM	SANDY BROWN	Preferential flow paths:- GRAVELS, COBLES
0.6 m <input type="text"/>						
0.7 m <input type="text"/>						
0.8 m <input type="text"/>						
0.9 m <input type="text" value="T 1,2,3"/>						
1.0 m <input type="text"/>						
1.1 m <input type="text"/>						
1.2 m <input type="text"/>						
1.3 m <input type="text"/>						
1.4 m <input type="text"/>						
1.5 m <input type="text"/>						
1.6 m <input type="text"/>						
1.7 m <input type="text"/>						
1.8 m <input type="text"/>	TRIAL HOLE	TIAL HOLE	TRIAL HOLE	TRIAL HOLE	TRIAL HOLE	TRIAL HOLE
1.9 m <input type="text"/>	TO 1.95m B.G.LEVEL	TO 1.95m B.G.L	1.95m B.G.L	TO 1.95m B.G.L	1.95m B.G.L	TO 1.95m B.G.L
2.0 m <input type="text"/>						
2.1 m <input type="text"/>						
2.2 m <input type="text"/>						
2.3 m <input type="text"/>						
2.4 m <input type="text"/>						
2.5 m <input type="text"/>						
2.6 m <input type="text"/>						
2.7 m <input type="text"/>						
2.8 m <input type="text"/>						
2.9 m <input type="text"/>						
3.0 m <input type="text"/>						

Likely T value:

Note: *Depth of percolation test holes should be indicated on log above. (Enter P or T at depths as appropriate).
 ** See Appendix E for BS 5930 classification.
 *** 3 samples to be tested for each horizon and results should be entered above for each horizon.
 **** All signs of mottling should be recorded.

3.2 Trial Hole (contd.) Evaluation:

The Trial pit shows a 0.4m layer of sandy SILT/CLAY Topsoil and a thickly bedded gravelly SAND subsoil layer directly under the topsoil to 1.95m below ground level with medium spaced cobbles and widely spaced boulders.

The soil and subsoil layers are likely to produce favorable percolation rates for the 'P' & 'T' tests.

The trial pit was excavated to a depth of 1.95m below ground. There were significant boulders noted to the base of the trial pit at time of excavation. There was no water ingress noted and no water table was recorded.

3.3(a) Percolation (“T”) Test for Deep Subsoils and/or Water Table

Step 1: Test Hole Preparation

Percolation Test Hole

	1		2		3	
Depth from ground surface to top of hole (mm) (A)	550		550		550	
Depth from ground surface to base of hole (mm) (B)	950		950		950	
Depth of hole (mm) [B - A]	400		400		400	
Dimensions of hole [length x breadth (mm)]	300	x 300	300	x 300	300	x 300

Step 2: Pre-Soaking Test Holes

Date and Time pre-soaking started	29/06/2020	09:21	29/06/2020	09:24	29/06/2020	09:25
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Each hole should be pre-soaked twice before the test is carried out. Each hole should be empty before refilling.

Step 3: Measuring T_{100}

Percolation Test Hole No.

	1		2		3	
Date of test	30/06/2020		30/06/2020		30/06/2020	
Time filled to 400 mm	09:50		09:47		09:46	
Time water level at 300 mm	09:57		10:01		10:27	
Time to drop 100 mm (T_{100})	7.00		14.00		41.00	
Average T_{100}						20.67

If $T_{100} > 300$ minutes then T-value >90 – site unsuitable for discharge to ground

If $T_{100} \leq 210$ minutes then go to Step 4;

If $T_{100} > 210$ minutes then go to Step 5;

Step 4: Standard Method (where $T_{100} \leq 210$ minutes)

Percolation Test Hole	1			2			3		
Fill no.	Start Time (at 300 mm)	Finish Time (at 200 mm)	Δt (min)	Start Time (at 300 mm)	Finish Time (at 200 mm)	Δt (min)	Start Time (at 300 mm)	Finish Time (at 200 mm)	Δt (min)
1	09:57	10:16	19.00	10:01	10:28	27.00	10:27	11:21	54.00
2	10:16	10:43	27.00	10:28	11:11	43.00	11:21	12:38	77.00
3	10:43	11:15	32.00	11:11	12:13	62.00	12:38	14:31	113.00
Average Δt Value	26.00			44.00			81.33		
	Average $\Delta t/4 =$ [Hole No.1] 6.50 (t_1)			Average $\Delta t/4 =$ [Hole No.2] 11.00 (t_2)			Average $\Delta t/4 =$ [Hole No.3] 20.33 (t_3)		

Result of Test: $T =$ 12.61 (min/25 mm)

Comments:

THE RESULT OF THE 'T' TEST CARRIED OUT ON SITE INDICATE THAT THE SITE IS SUITABLE FOR A SEPTIC TANK SYSTEM OR A SECONDARY TREATMENT SYSTEM WITH A POLISHING FILTER DISCHARGING TO GROUNDWATER.

Step 5: Modified Method (where $T_{100} > 210$ minutes)

Percolation Test Hole No.	1				2				3			
Fall of water in hole (mm)	Time Factor = T_f	Time of fall (mins) = T_m	$K_{fs} = T_f / T_m$	T - Value = $4.45 / K_{fs}$	Time Factor = T_f	Time of fall (mins) = T_m	$K_{fs} = T_f / T_m$	T - Value = $4.45 / K_{fs}$	Time Factor = T_f	Time of fall (mins) = T_m	$K_{fs} = T_f / T_m$	T - Value = $4.45 / K_{fs}$
300 - 250	8.1				8.1				8.1			
250 - 200	9.7				9.7				9.7			
200 - 150	11.9				11.9				11.9			
150 - 100	14.1				14.1				14.1			
Average T- Value	T- Value Hole 1= (t_1) 0.00				T- Value Hole 1= (t_2) 0.00				T- Value Hole 1= (t_3) 0.00			

Result of Test: $T =$ 0.00 (min/25 mm)

Comments:

3.3(b) Percolation (“P”) Test for Shallow Soil / Subsoils and/or Water Table

Step 1: Test Hole Preparation

Percolation Test Hole	1		2		3	
Depth from ground surface to top of hole (mm)	0		0		0	
Depth from ground surface to base of hole (mm)	400		400.00		400	
Depth of hole (mm)	400		400		400	
Dimensions of hole [length x breadth (mm)]	300 x 300		300 x 300		300 x 300	

Step 2: Pre-Soaking Test Holes

Date and Time pre-soaking started	29/06/2020 09:30		29/06/2020 09:33		29/06/2020 09:35	
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Each hole should be pre-soaked twice before the test is carried out. Each hole should be empty before refilling.

Step 3: Measuring P₁₀₀

Percolation Test Hole No.	1		2		3	
Date of test	30/06/2020		30/06/2020		30/06/2020	
Time filled to 400 mm	09:52		09:57		09:45	
Time water level at 300 mm	10:02		10:10		09:53	
Time to drop 100 mm (P ₁₀₀)	10.00		13.00		8.00	
Average P ₁₀₀						10.33

If P₁₀₀ > 300 minutes then P-value >90 – site unsuitable for discharge to ground

If P₁₀₀ ≤ 210 minutes then go to Step 4;

If P₁₀₀ > 210 minutes then go to Step 5;

Step 4: Standard Method (where $P_{100} \leq 210$ minutes)

Percolation Test Hole	1			2			3		
Fill no.	Start Time (at 300 mm)	Finish Time (at 200 mm)	Δp (min)	Start Time (at 300 mm)	Finish Time (at 200 mm)	Δp (min)	Start Time (at 300 mm)	Finish Time (at 200 mm)	Δp (min)
1	10:02	10:30	28.00	10:10	10:43	33.00	09:53	10:13	20.00
2	10:30	11:09	39.00	10:43	11:29	46.00	10:13	10:42	29.00
3	11:09	11:57	48.00	11:29	12:42	73.00	10:42	11:21	39.00
Average Δp Value	38.33			50.67			29.33		
	Average $\Delta p/4 =$ [Hole No.1] 9.58 (p_1)			Average $\Delta p/4 =$ [Hole No.2] 12.67 (p_2)			Average $\Delta p/4 =$ [Hole No.3] 7.33 (p_3)		

Result of Test: $P =$ 9.86 (min/25 mm)

Comments:

THE RESULT OF THE 'P' TEST CARRIED OUT ON SITE INDICATE THE UPPER SOIL LAYER IS SUITABLE FOR A SECONDARY TREATMENT SYSTEM WITH POLISHING FILTER AT GROUND SURFACE OR OVERGROUND.

Step 5: Modified Method (where $P_{100} > 210$ minutes)

Percolation Test Hole No.	1				2				3			
Fall of water in hole (mm)	Time Factor = T_f	Time of fall (mins) = T_m	$K_{fs} = T_f / T_m$	P - Value = $4.45 / K_{fs}$	Time Factor = T_f	Time of fall (mins) = T_m	$K_{fs} = T_f / T_m$	P - Value = $4.45 / K_{fs}$	Time Factor = T_f	Time of fall (mins) = T_m	$K_{fs} = T_f / T_m$	P - Value = $4.45 / K_{fs}$
300 - 250	8.1				8.1				8.1			
250 - 200	9.7				9.7				9.7			
200 - 150	11.9				11.9				11.9			
150 - 100	14.1				14.1				14.1			
Average P- Value	P- Value Hole 1= (p_1) 0.00				P- Value Hole 1= (p_2) 0.00				P- Value Hole 1= (p_3) 0.00			

Result of Test: $P =$ 0.00 (min/25 mm)

Comments:

3.4 The following associated Maps, Drawings and Photographs should be appended to this site characterisation form.

1. Discovery Series 1:50,000 Map indicating overall drainage, groundwater flow direction and housing density in the area.
2. Supporting maps for vulnerability, aquifer classification, soil, bedrock.
3. North point should always be included.
4. (a) Sketch of site showing measurements to Trial Hole location and
 - (b) Percolation Test Hole locations,
 - (c) wells and
 - (d) direction of groundwater flow (if known),
 - (e) proposed house (incl. distances from boundaries)
 - (f) adjacent houses,
 - (g) watercourses,
 - (h) significant sites
 - (i) and other relevant features.
5. Cross sectional drawing of the site and the proposed layout¹ should be submitted.
6. Photographs of the trial hole, test holes and site (date and time referenced).

¹ The calculated percolation area or polishing filter area should be set out accurately on the site layout drawing in accordance with the code of practice's requirements.

4.0 CONCLUSION of SITE CHARACTERISATION

Integrate the information from the desk study and on-site assessment (i.e. visual assessment, trial hole and percolation tests) above and conclude the type of system(s) that is (are) appropriate. This information is also used to choose the optimum final disposal route of the treated wastewater.

Not Suitable for Development

Suitable for ¹

- | | |
|---|----------------------------------|
| 1. Septic tank system (septic tank and percolation area) | <input type="text" value="Yes"/> |
| 2. Secondary Treatment System | |
| a. septic tank and filter system constructed on-site and polishing filter; or | <input type="text" value="Yes"/> |
| b. packaged wastewater treatment system and polishing filter | <input type="text" value="Yes"/> |

Discharge Route

5.0 RECOMMENDATION

Propose to install:

and discharge to:

Trench Invert level (m):

Site Specific Conditions (e.g. special works, site improvement works testing etc.)

DUE TO SITE RESTRICTIONS REGARDING SEPERATION DISTANCE REQUIRMENTS, IT IS RECOMMENDED TO INSTALL A SECONDARY EFFLUENT TREATMENT SYSTEM FOLLOWED BY A POLISHING FILTER - TRENCH INVERT AT -0.7m BELOW GROUND LEVEL (AS PER SITE LAYOUT PLAN & SECTION A-A THROUGH POLISHING FILTER drawing number 6140-JOD-XX-ZZ-DR-B-2062 & 2063 (A3 @ 1:500, 1:100)

SECONDARY TREATMENT SYSTEM:-

THE PACKAGED WASTEWATER TREATMENT SYSTEM SHALL BE IN ACCORDANCE THE REQUIREMENTS OUTLINED IN THE EPA CODE OF PRACTICE - WASTEWATER TREATMENT AND DISPOSAL SYSTEMS SERVING SINGLE HOUSES 2009 AND SHALL BE CERTIFIED IN ACCORDANCE WITH EN12566-3.

POLISHING FILTER:-

THE POLISHING FILTER SHALL BE INSTALLED AS PER SITE LAYOUT PLAN, SECTION A-A THROUGH POLISHING FILTER drawing number 6140-JOD-XX-ZZ-DR-B-2062 & 2063 (A3 @ 1:500, 1:100) i.e. INSTALL A DISTRUBTION BOX WITH 4 No. 9m RUNS OF 110mm uPVC PIPEWORK AT GROUND LEVEL, LAID AT A 1:200 GRADIENT, WITH 8mm PERFORATIONS (TYPICALLY AT 4,6,8 o'clock) AT 75mm CENTRES, PIPE WORK TO BE LAID 2.5M CENTER TO CENTER WITHIN A 500mm WIDE TRENCH ON 300mm DEEP 8-32mm WASHED GRAVEL AND 150mm WASHED GRAVEL OVER PIPEWORK WITH GEOTEXTILE MEMBRANE OVER GRAVEL AND 300mm DEEP TOPSOIL COVER OVER GEOTEXTILE.

¹ note: more than one option may be suitable for a site and this should be recorded

² A discharge of sewage effluent to "waters" (definition includes any or any part of any river, stream, lake, canal, reservoir, aquifer, pond, watercourse or other inland waters, whether natural or artificial) will require a licence under the Water Pollution Acts 1977-90. Refer to Section 2.6.2.

6.0 TREATMENT SYSTEM DETAILS

SYSTEM TYPE: Septic Tank System

Tank Capacity (m ³)	<input type="text"/>	Percolation Area		Mounded Percolation Area	
		No. of Trenches	<input type="text"/>	No. of Trenches	<input type="text"/>
		Length of Trenches (m)	<input type="text"/>	Length of Trenches (m)	<input type="text"/>
		Invert Level (m)	<input type="text"/>	Invert Level (m)	<input type="text"/>

SYSTEM TYPE: Secondary Treatment System

Filter Systems

Media Type	Area (m ²)*	Depth of Filter	Invert Level
Sand/Soil	<input type="text"/>	<input type="text"/>	<input type="text"/>
Soil	<input type="text"/>	<input type="text"/>	<input type="text"/>
Constructed Wetland	<input type="text"/>	<input type="text"/>	<input type="text"/>
Other	<input type="text"/>	<input type="text"/>	<input type="text"/>

Package Treatment Systems

Type	<input type="text" value="SOLIDO SMART - S.B.R."/>
Capacity PE	<input type="text" value="6.00"/>
Sizing of Primary Compartment	<input type="text" value="3.00"/> m ³

SYSTEM TYPE: Tertiary Treatment System

Polishing Filter: Surface Area (m ²)*	<input type="text" value="67.50"/>	Package Treatment System: Capacity (pe)	<input type="text"/>
or Gravity Fed:		Constructed Wetland: Surface Area (m ²)*	<input type="text"/>
No. of Trenches	<input type="text" value="4"/>		
Length of Trenches (m)	<input type="text" value="9.00"/>		
Invert Level (m)	<input type="text" value="-0.70"/>		

DISCHARGE ROUTE:

Groundwater	<input checked="" type="checkbox"/>	Hydraulic Loading Rate * (l/m ² .d)	<input type="text"/>
Surface Water **	<input type="checkbox"/>	Discharge Rate (m ³ /hr)	<input type="text"/>

TREATMENT STANDARDS:

Treatment System Performance Standard (mg/l)	BOD	SS	NH ₄ - N	Total N	Total P
EN 12566-3	5.00	13.00	0.70	5.00	2.00

QUALITY ASSURANCE:

Installation & Commissioning

THE PACKAGED SYSTEM AND POLISHING FILTER SHALL BE INSTALLED IN ACCORDANCE THE REQUIREMENTS OUTLINED IN THE EPA CODE OF PRACTICE - WASTEWATER TREATMENT AND DISPOSAL SYSTEMS SERVING SINGLE HOUSES 2009. COMMISSIONING BY MANUFACTURES REPERSENTIVE.

On-going Maintenance

DE-SLUDGING SHALL BE CARRIED OUT A MINIMUM OF ONCE PER YEAR AND IN ACCORDANCE THE REQUIREMENTS OUTLINED IN THE EPA CODE OF PRACTICE - WASTEWATER TREATMENT AND DISPOSAL SYSTEMS SERVING SINGLE HOUSES 2009.

* Hydraulic loading rate is determined by the percolation rate of subsoil

** Water Pollution Act discharge licence required

7.0 SITE ASSESSOR DETAILS

Company: JENNINGS O'DONOVAN & PARTNERS

Prefix: Mr. First Name: PJ Surname: REGAN

Address: FINISKLIN, SLIGO, CO. SLIGO.

Qualifications/Experience: B. Sc. (Bld. Surv), FETAC Site Suitability Assessment

Date of Report: 20/07/2020

Phone: 071 9161416 Fax: e-mail: pjregan@jodireland.com

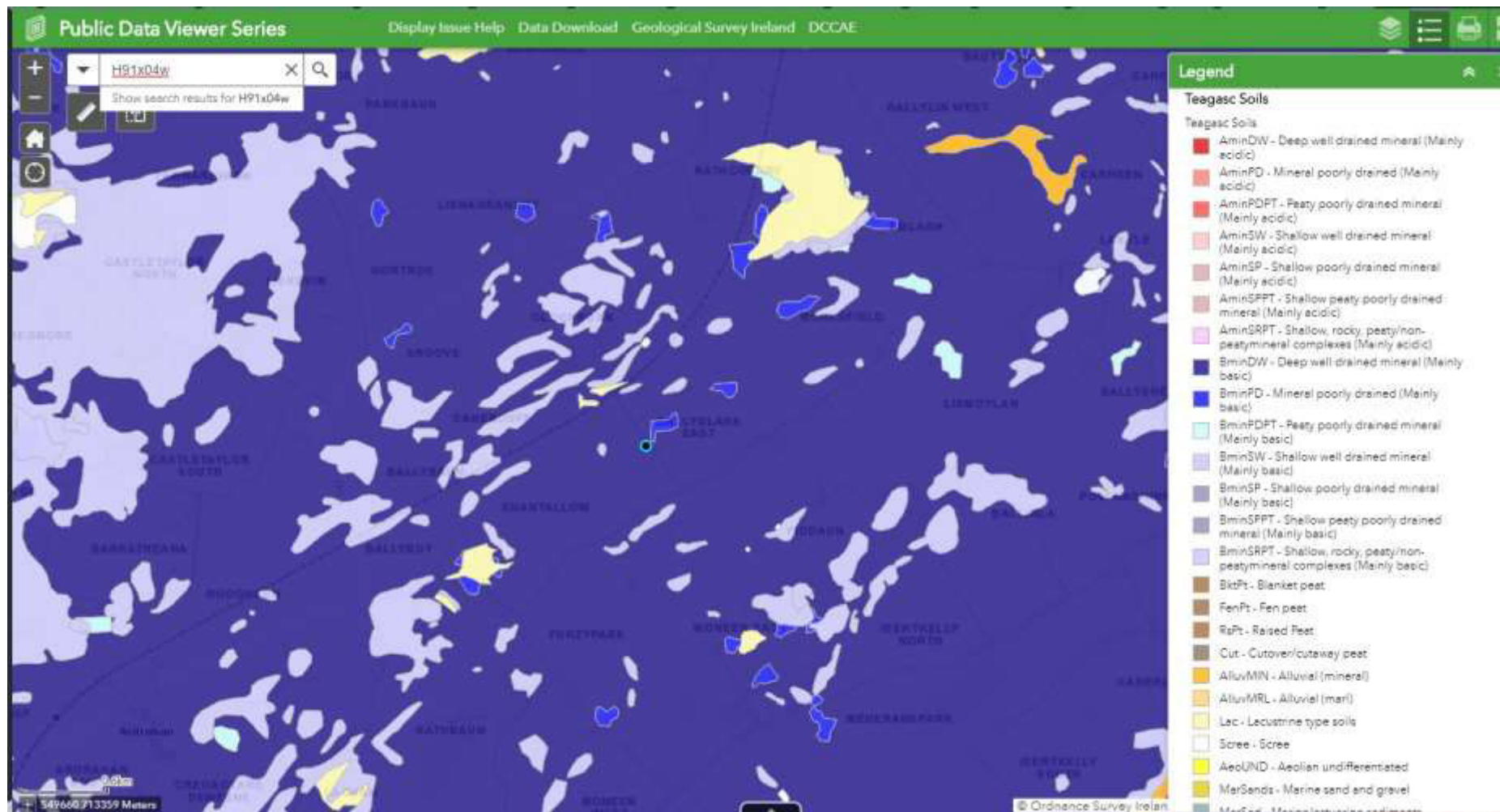
Indemnity Insurance Number:

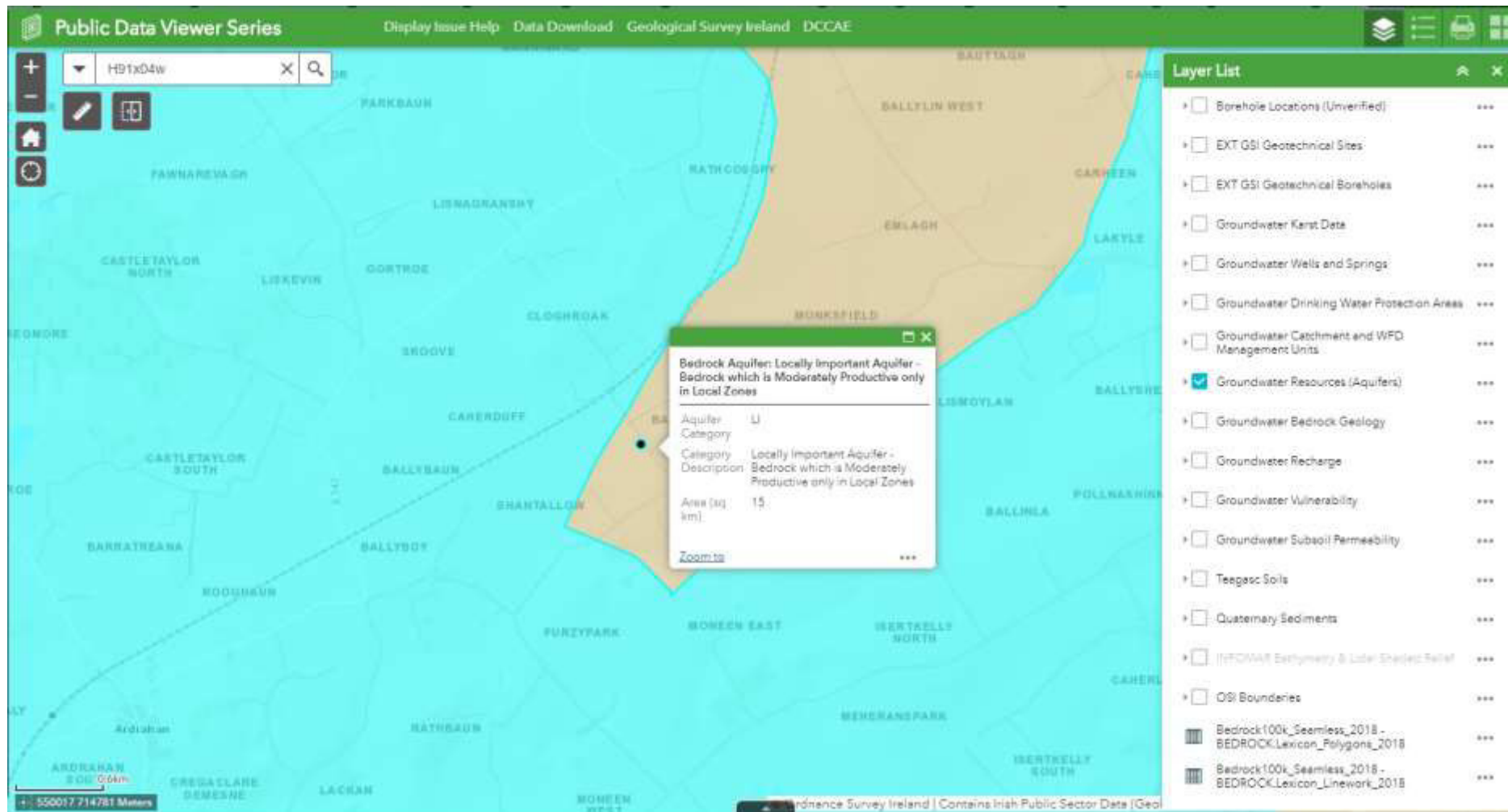
Signature:  _____

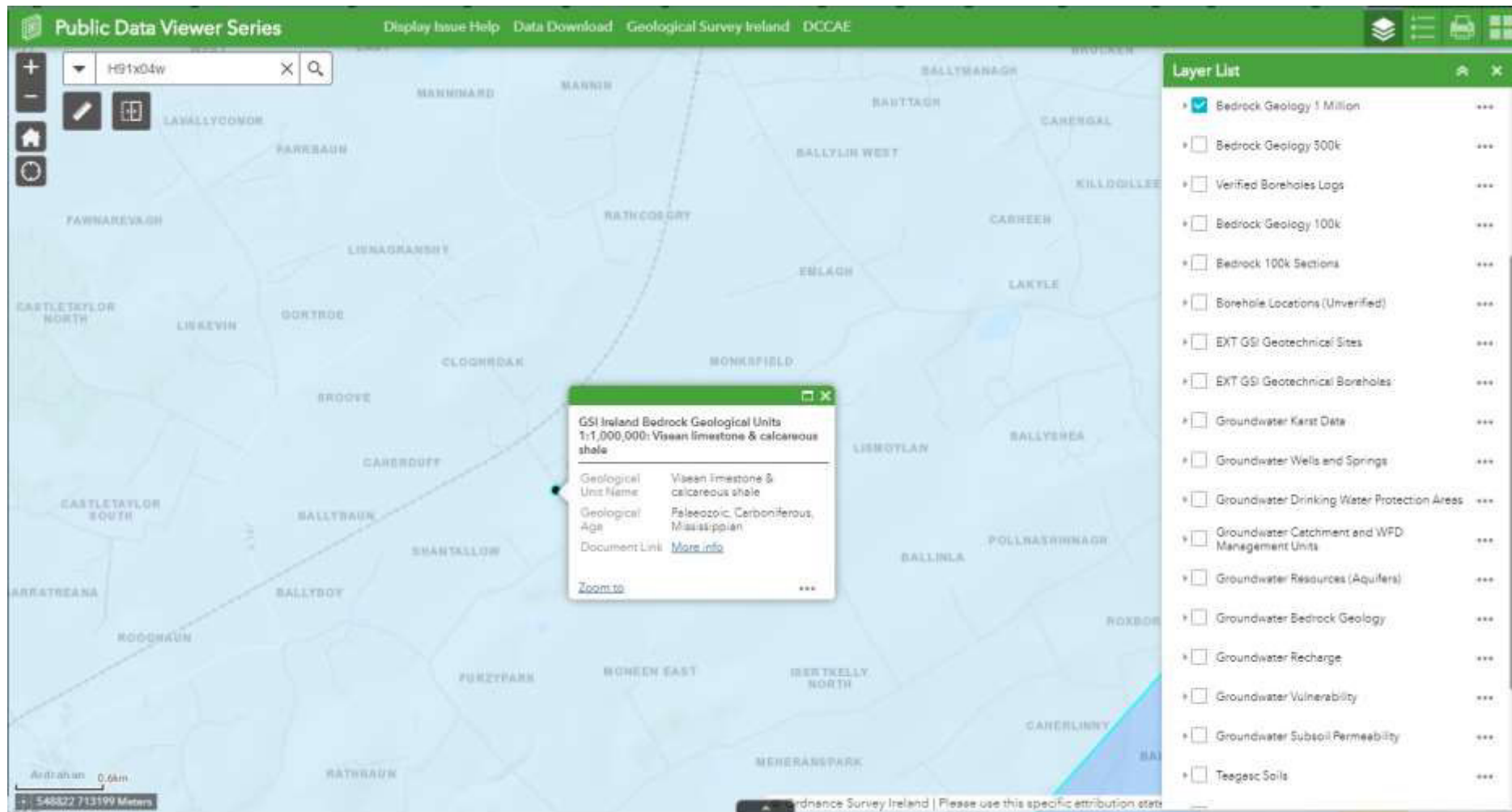
APPENDIX A

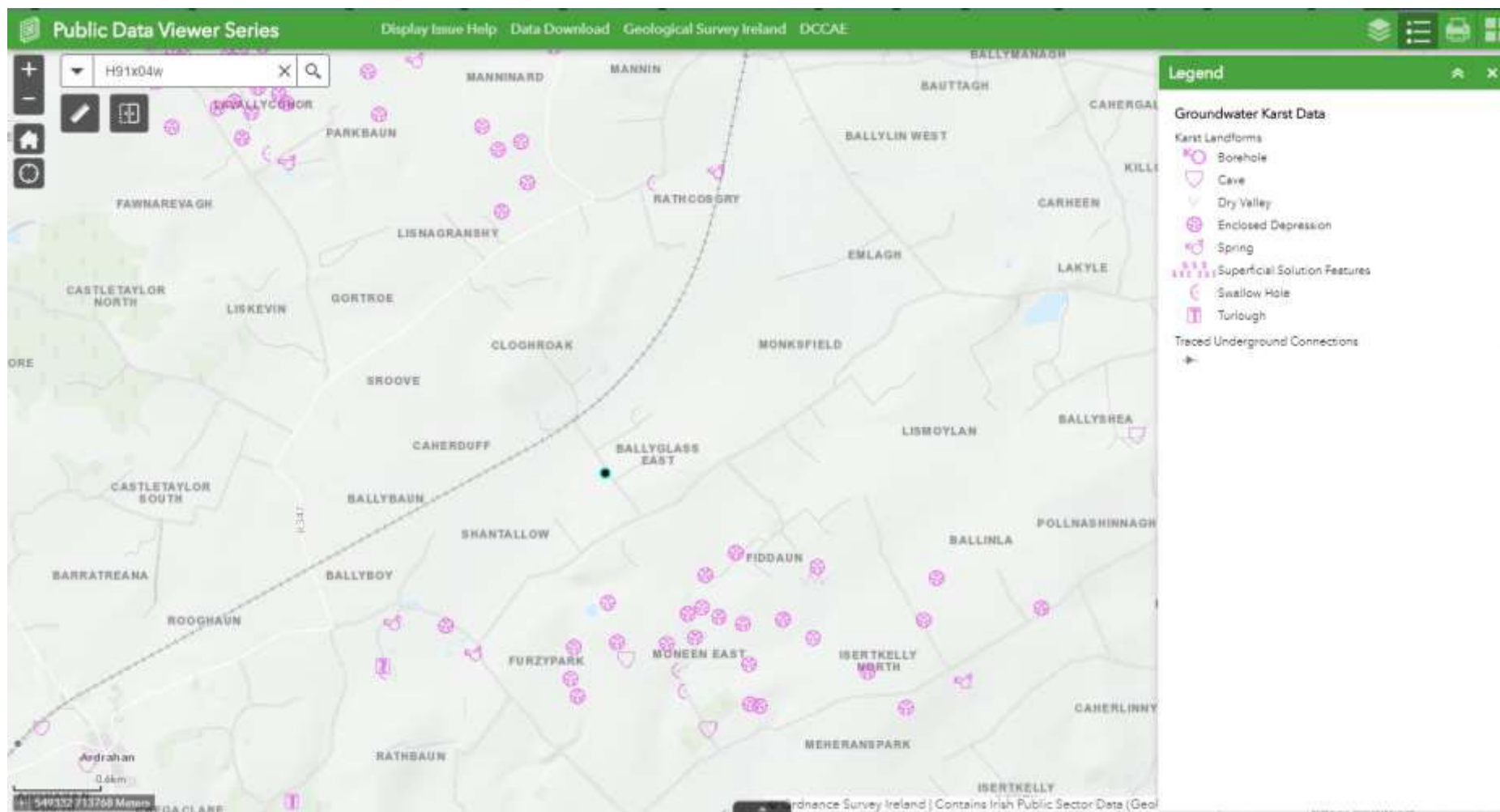
SITE SUITABILITY ASSESSMENT SUPPORTING MAPS

- Soil Classification Map
- Aquifer Classification Map
 - Vulnerability Map
 - Bedrock Map
 - Karst Map
 - Wells & Springs Map
- National Parks & Wildlife Map
- National Monuments Map

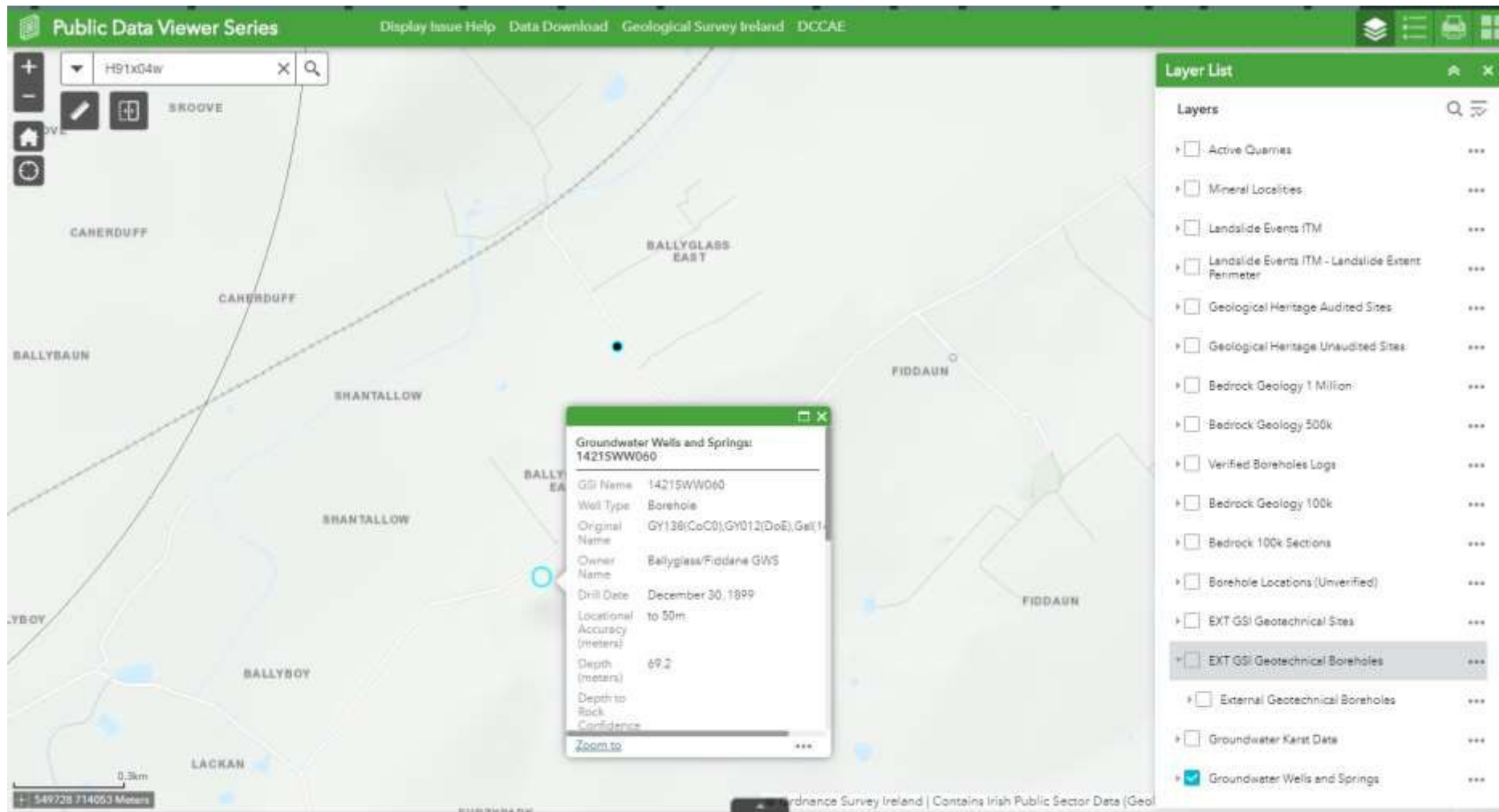




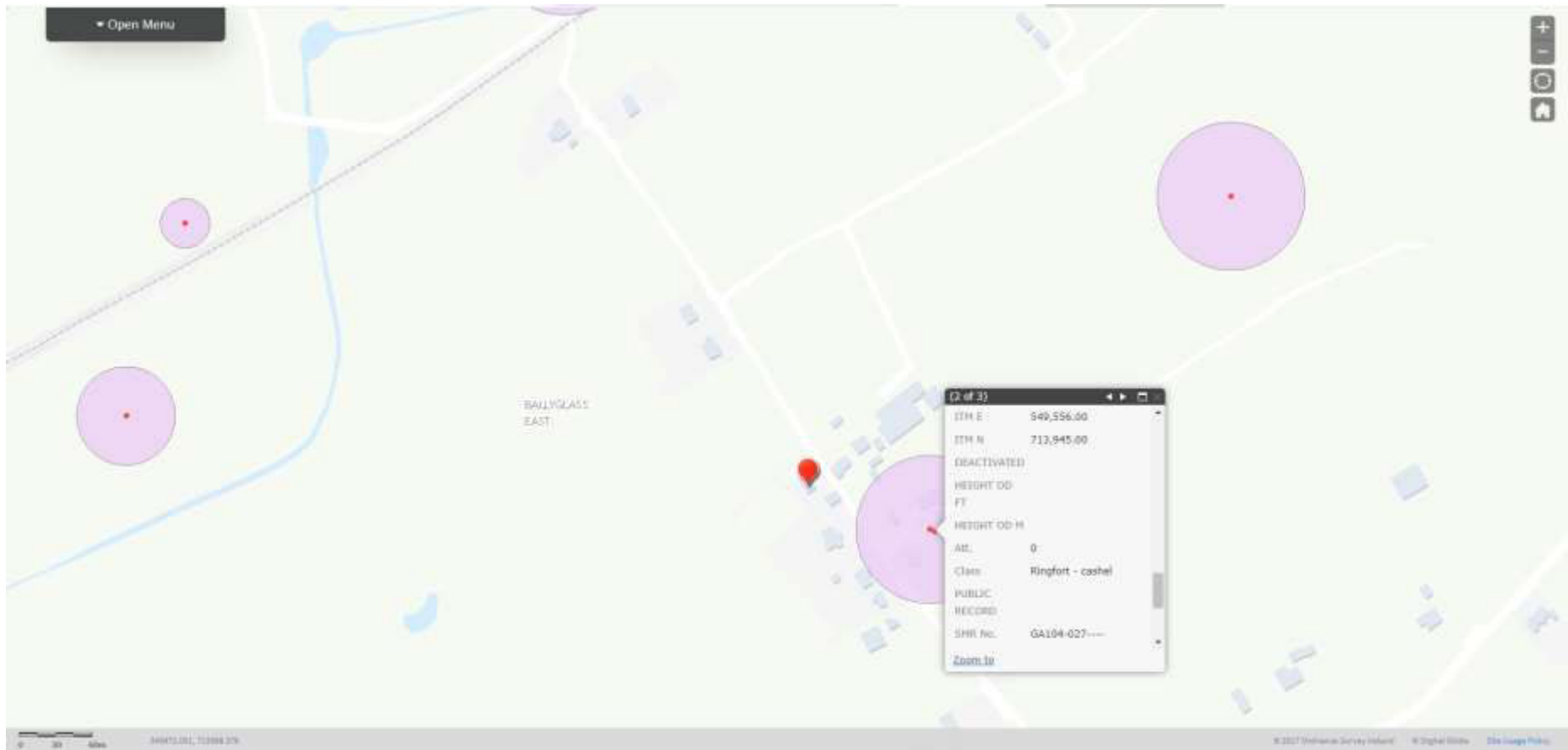




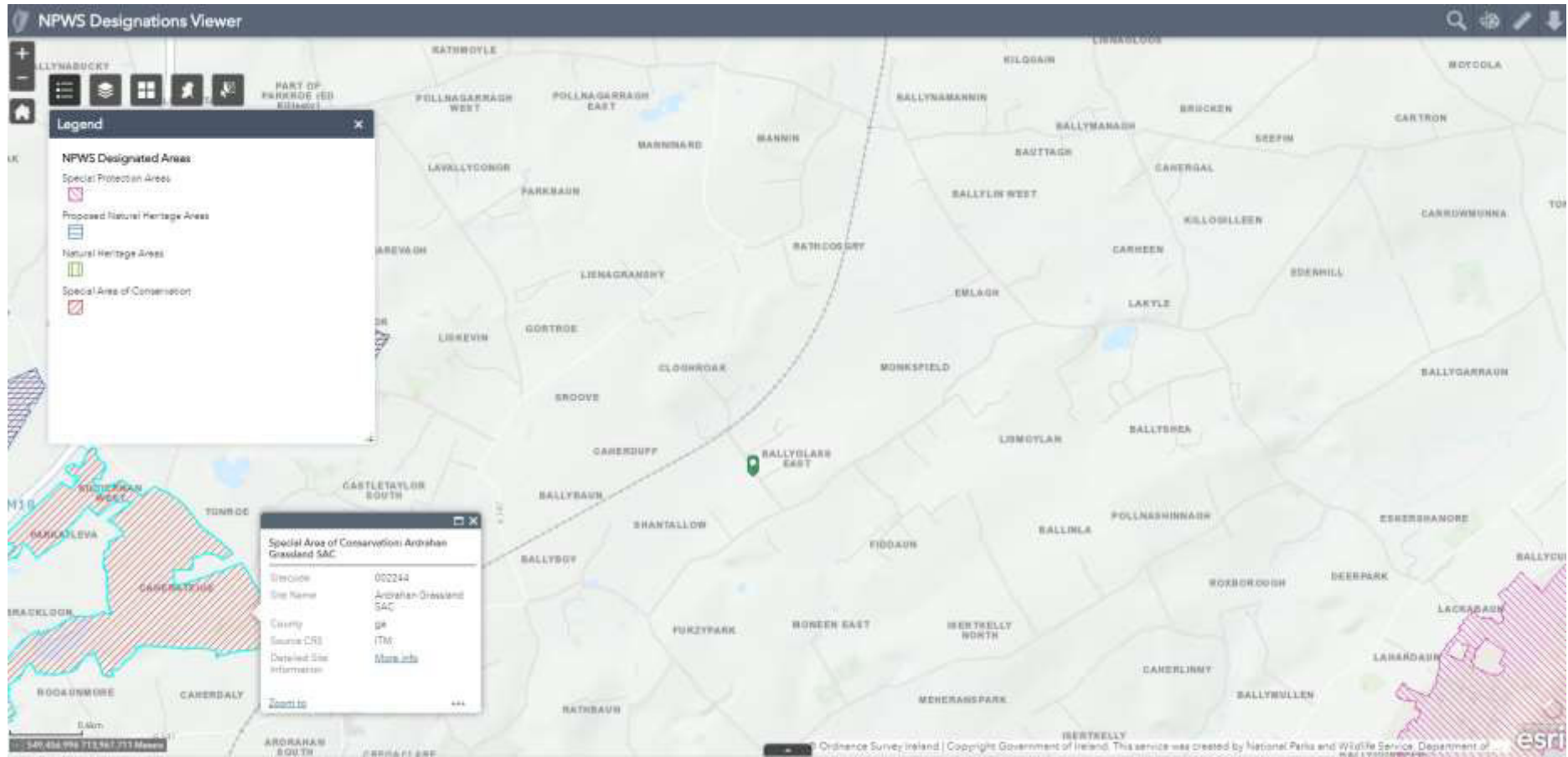
Karst Features Map



Wells & Springs Map



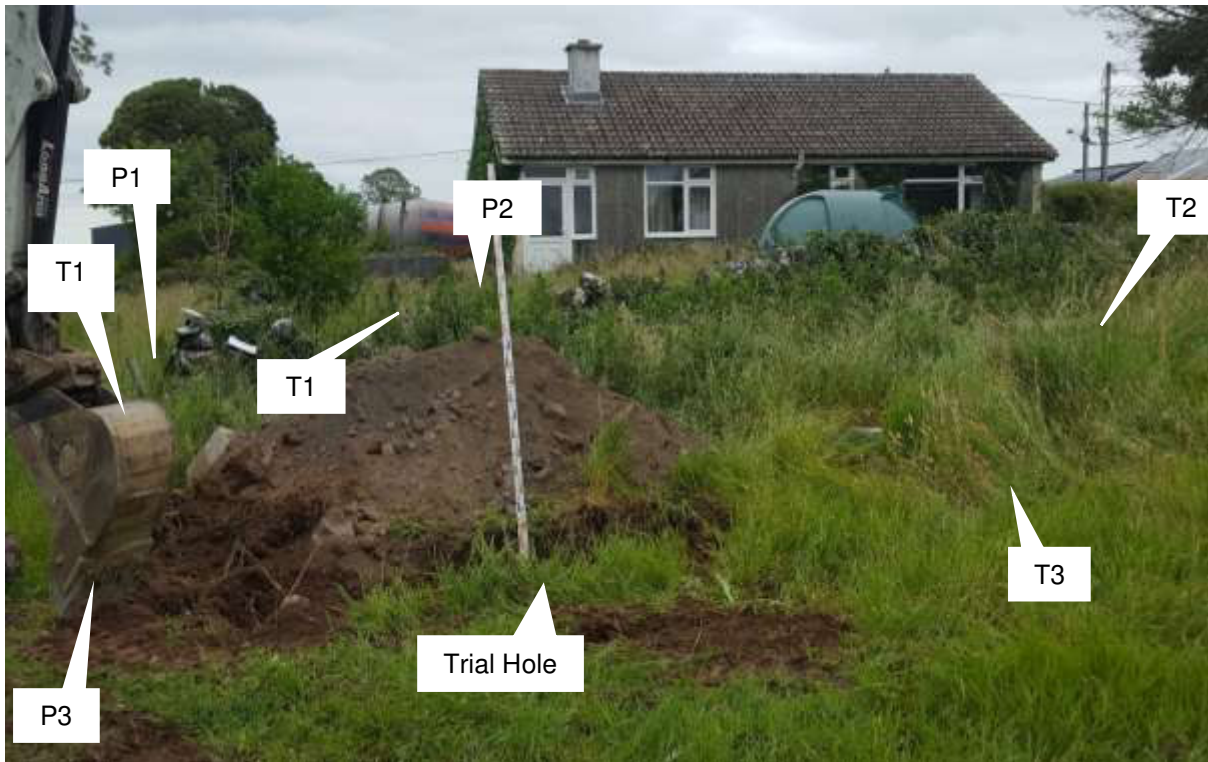
National Monuments Map



APPENDIX B

SITE SUITABILITY ASSESSMENT SUPPORTING PHOTOGRAPHS

- Overview of site
 - Trial Hole
 - P Tests
 - T Tests



Overview of percolation test area, showing Trial Pit, T & P text locations.



Trial Pit dug to 1.95m deep 29-06-2020.



Trial Pit dug to 1.95m deep 29-06-2020.



Trial Pit Spoil, Pit dug to 1.95m deep 29-06-2020.



P1 dug to 400mm 29-06-2020



P1 dug to 400mm 29-06-2020



P2 dug to 400mm 29-06-2020



P2 dug to 400mm 29-06-2020



P3 dug to 400mm 29-06-2020



P3 dug to 400mm 29-06-2020



T1 dug to 400mm 29-06-2020



T1 dug to 400mm 29-06-2020



T2 dug to 400mm 29-06-2020



T2 dug to 400mm 29-06-2020



T3 dug to 400mm 29-06-2020

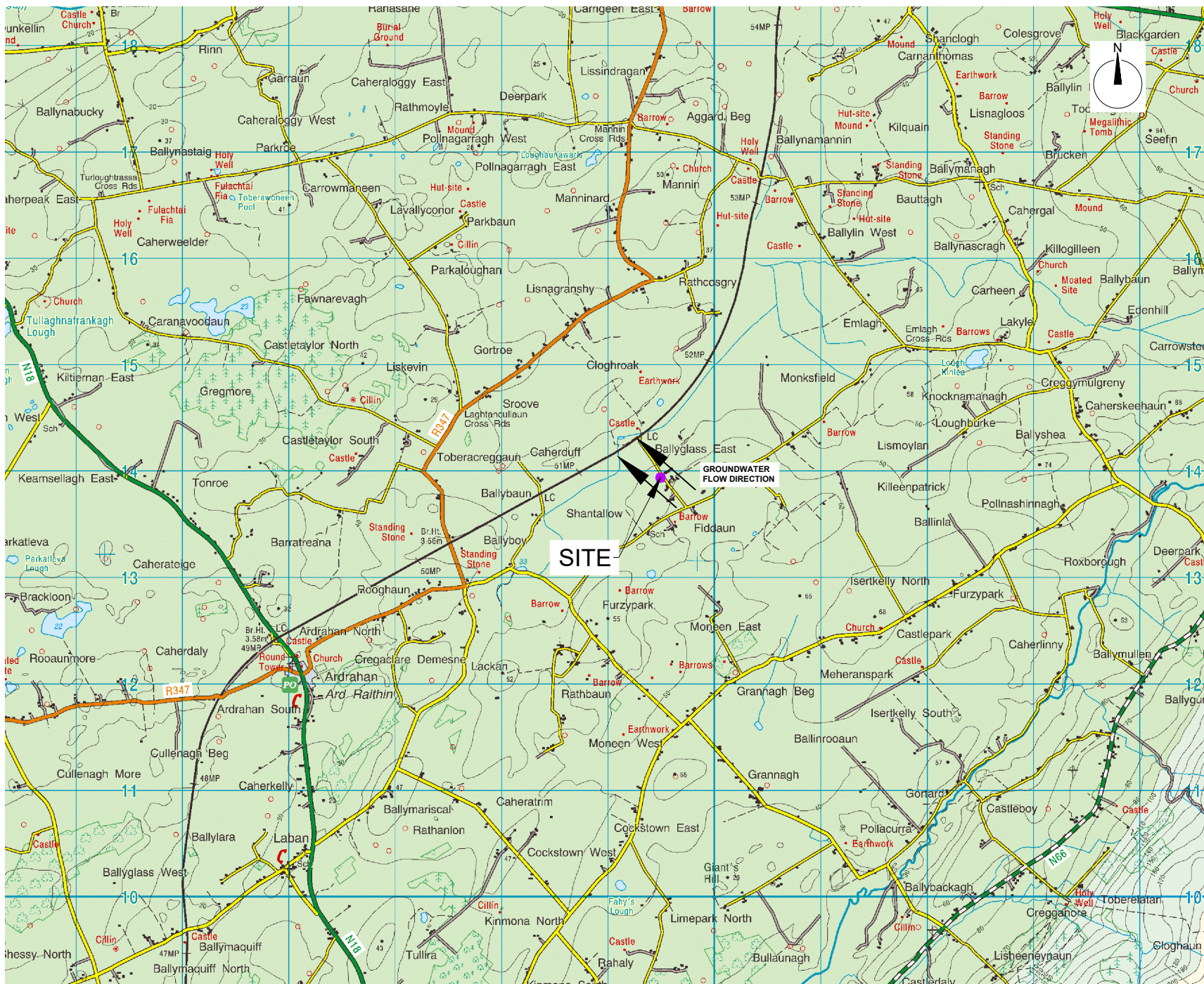


T3 dug to 400mm 29-06-2020

APPENDIX C

SITE SUITABILITY ASSESSMENT SUPPORTING DRAWINGS

- 6140-JOD-XX-ZZ-DR-B-2059 – Site Identification Map, 1:50,000
 - 6140-JOD-XX-ZZ-DR-B-2060 – Site Location Map, 1:2,500.
- 6140-JOD-XX-ZZ-DR-B-2061 – Existing Site Layout Plan, 1:500
- 6140-JOD-XX-ZZ-DR-B-2062 – Proposed Site Layout Plan, 1:500
 - 6140-JOD-XX-ZZ-DR-B-2063 – Polishing Filter Section A-A



SITE IDENTIFICATION MAP Scale 1:50,000

Rebuilding Ireland


NOTES:-

[THIS DRAWING IS NOT TO BE USED FOR CONSTRUCTION]

- 1 FIGURED DIMENSIONS ONLY TO BE TAKEN FROM THIS DRAWING.
- 2 ALL LEVELS REFER TO ORDNANCE DATUM (MALIN HEAD).
- 3 ENGINEER TO BE INFORMED OF ANY DISCREPANCIES BEFORE ANY WORK COMMENCES.
- 4 THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DRAWINGS AND SPECIFICATIONS.

LEGEND:-

-  NORTH SIGN INDICATED THUS
-  **SITE LOCATION**

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 OS Sheet No. 2543


PL.01	issued for PLANNING APPROVAL	BM	MF	20.11.20
rev.	modifications		by	chkd date

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------	--	--	--	--

client  **Comhairle Chontae na Gaillimhe**
Galway County Council

project
PROPOSED DEVELOPMENT OF 1 NO. DOMESTIC DWELLING HOUSE & ASSOCIATED WORKS AT BALLYGLASS EAST, ARDRAHAN, CO. GALWAY.

stage
PLANNING

title
SITE IDENTIFICATION MAP

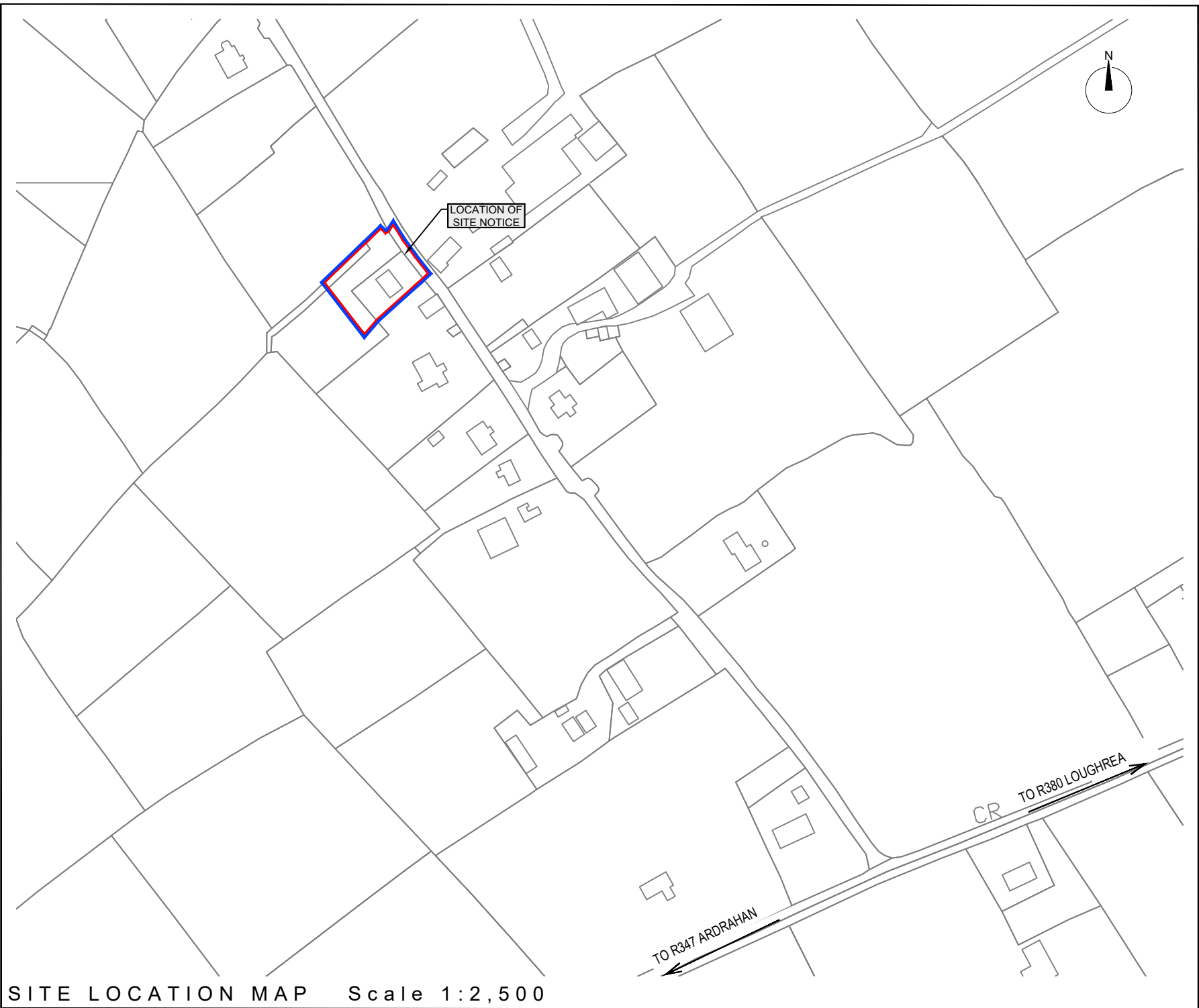
scale
1:50,000 @A4

surveyed	drawn	checked	date
osi	BM	MF	NOV 2020

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drawing no.	revision
6140-JOD-XX-ZZ-DR-B-2059	PL.01



SITE LOCATION MAP Scale 1:2,500



NOTES:-

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 - 4 THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DRAWINGS AND SPECIFICATIONS.

LEGEND:-

- SITE BOUNDARY APPLICABLE TO PLANNING APPLICATION LINED RED
- LAND UNDER CONTROL OF APPLICANT LINED IN BLUE
- NORTH SIGN INDICATED THUS

Site Area:-
1376 m², 0.340 Acres, 0.138 Hectares

ITM Co-Ordinates of site:-
549452, 713985

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QS Sheet No. 2543

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rev.	modifications		by chkd	date

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client **Comhairle Chontae na Gaillimhe**
Galway County Council

project
PROPOSED DEVELOPMENT OF 1 NO. DOMESTIC DWELLING HOUSE & ASSOCIATED WORKS AT BALLYGLASS EAST, ARDRAHAN, CO. GALWAY.

stage
PLANNING

title
SITE LOCATION MAP

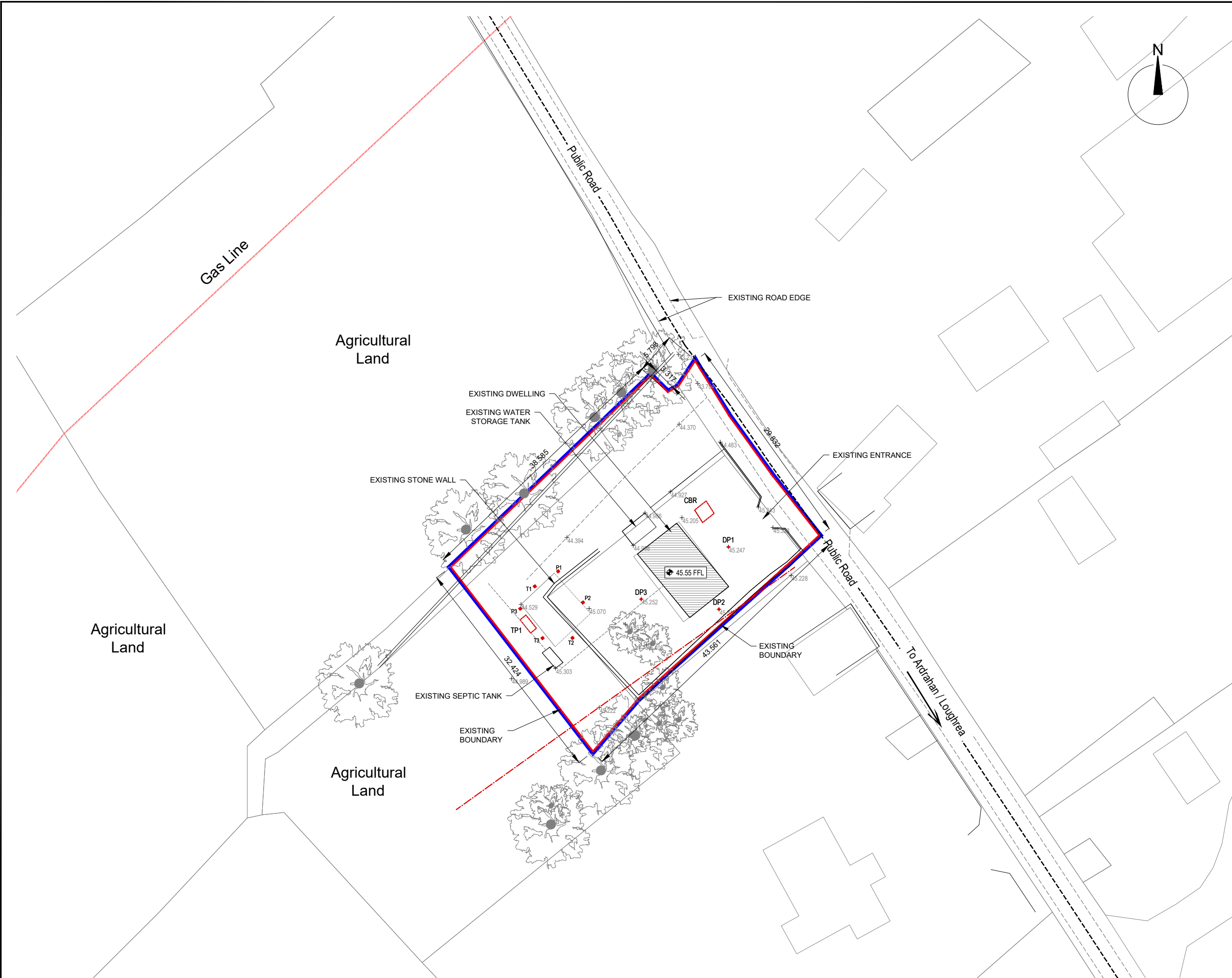
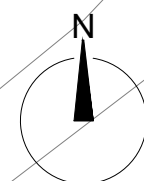
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surveyed	drawn	checked	date
osi	BM	MF	NOV 20

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drawing no.	revision
6140-JOD-XX-ZZ-DR-B-2060	PL.01



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- 4 THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DRAWINGS AND SPECIFICATIONS.

LEGEND:-

- SITE BOUNDARY APPLICABLE TO PLANNING APPLICATION LINED RED
- LAND UNDER CONTROL OF APPLICANT LINED IN BLUE
- NORTH SIGN INDICATED THUS
- EXISTING GROUND LEVELS INDICATED THUS
- EXISTING ESB OVERHEAD POWER LINE INDICATED THUS
- EXISTING TREES/HEDGEROW
- PERCOLATION TEST AREA
- PERCOLATION 'T' & 'P' TEST LOCATIONS P1 P2 T1 T2
- TRAIL PIT No. 1 / 2 TEXT LOCATIONS TP1 TP2

Site Area:-
1376 m², 0.340 Acres, 0.138 Hectares

ITM Co-Ordinates of site:-
549452, 713985

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OS Sheet No. 2678

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rev.	modifications	by	chkd	date

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client **Comhairle Chontae na Gaillimhe Galway County Council**

project
PROPOSED DEVELOPMENT OF 1 NO. DOMESTIC DWELLING HOUSE & ASSOCIATED WORKS AT BALLYGLASS EAST, ARDRAHAN, CO. GALWAY.

stage
PLANNING

title
EXISTING SITE LAYOUT PLAN

scale
1:500 @ A3

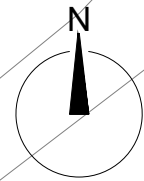
surveyed	drawn	checked	date
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drawing no.	revision
6140-JOD-XX-ZZ-DR-B-2061	PL.01

DEVELOPMENT TO COMPLY WITH COUNTY COUNCIL DEVELOPMENT PLAN

Rebuilding Ireland

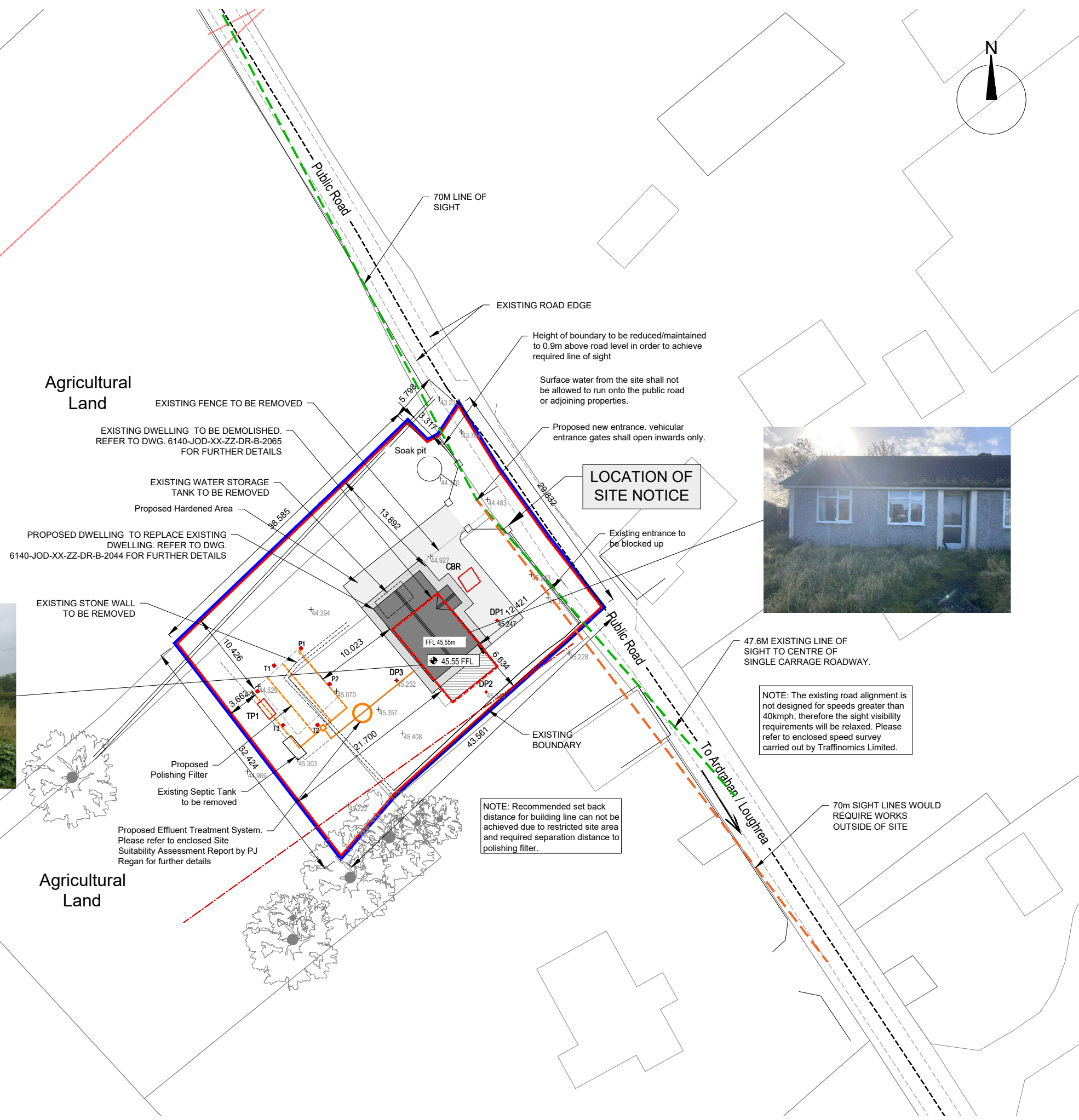


High Pressure Gas Line

Agricultural Land

Agricultural Land

Agricultural Land



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- 2. FIGURED DIMENSIONS ONLY TO BE TAKEN FROM THIS DRAWING.
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- 4. ENGINEER TO BE INFORMED OF ANY DISCREPANCIES BEFORE ANY WORK COMMENCES.
- 5. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DRAWINGS AND SPECIFICATIONS.

LEGEND:-

SITE BOUNDARY APPLICABLE TO PLANNING APPLICATION LINED RED

LAND UNDER CONTROL OF APPLICANT LINED IN BLUE

NORTH SIGN INDICATED THUS

EXISTING GROUND LEVELS INDICATED THUS

EXISTING ESB OVERHEAD POWER LINE INDICATED THUS

EXISTING SIGHT LINE DISTANCE AS SHOWN INDICATED THUS

REQUIRED SIGHT LINE DISTANCE AS SHOWN INDICATED THUS

EXISTING DWELLING TO BE DEMOLISHED INDICATED THUS

PERCOLATION TEST AREA

PERCOLATION 'T' & 'P' TEST LOCATIONS P1 T1

TRAIL PIT No. 1 / 2 TEXT LOCATIONS TP1 TP2

Site Area:-
1376 m², 0.340 Acres, 0.138 Hectares

ITM Co-Ordinates of site:-
549452, 713985

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rev.	modifications	by	chkd	date
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client **Comhairle Chontae na Gaillimhe Galway County Council**

project
PROPOSED DEVELOPMENT OF 1 NO. DOMESTIC DWELLING HOUSE & ASSOCIATED WORKS AT BALLYGLASS EAST, ARDRAHAN, CO. GALWAY.

stage
PLANNING

title
PROPOSED SITE LAYOUT PLAN

scale
1:500 @ A3

surveyed	drawn	checked	date
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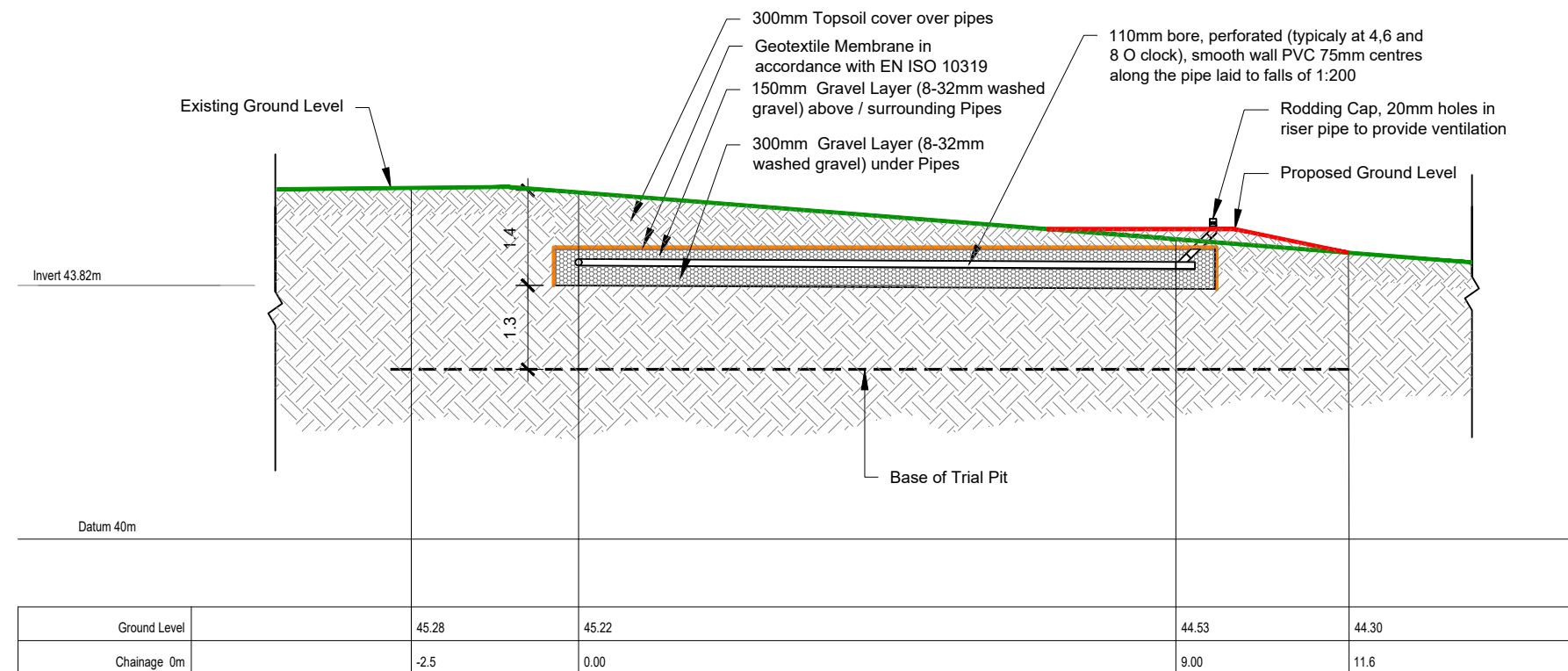
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PROPOSED SITE LAYOUT PLAN Scale 1:500

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LEGEND:-



POLISHING FILTER LONGITUDINAL SECTION A-A THROUGH TRENCH
Scale 1:100

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rev.	modifications	by	chkd	date
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client  Comhairle Chontae na Gaillimhe
Galway County Council

project
PROPOSED DEVELOPMENT OF 1 NO.
DOMESTIC DWELLING HOUSE & ASSOCIATED
WORKS AT BALLYGLASS EAST, ARDRAHAN,
CO. GALWAY.

stage
PLANNING

title
POLISHING FILTER SECTION A-A

scale
1:100 @ A3

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drawing no.	revision
6140-JOD-XX-ZZ-DR-B-2063	PL.01

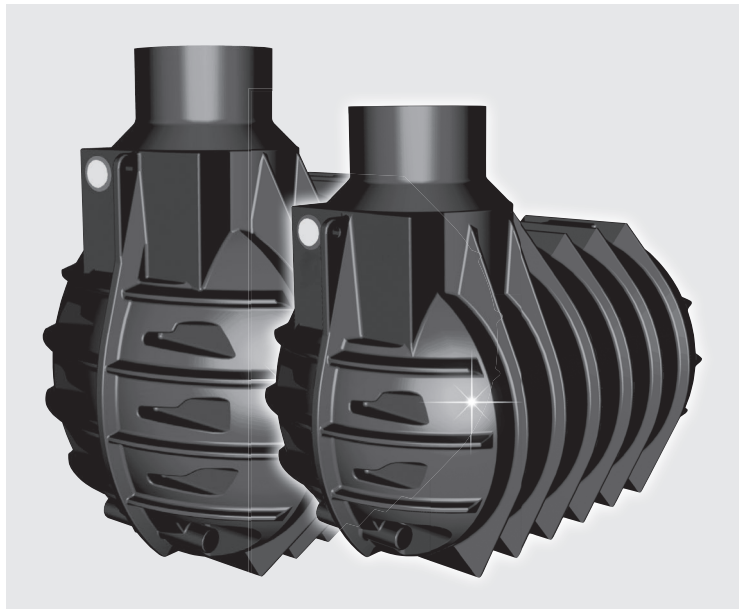
APPENDIX D

SUPPORTING DOCUMENTS
RELATING TO
PROPOSED EFFLUENT TREATMENT SYSTEM

Proposed Secondary Treatment System
– Solido SMART (6PE)

- Solido SMART (S.B.R.) Brochure
- Solido SMART (S.B.R.) PIA Certification

The new generation in Decentralised Wastewater Treatment



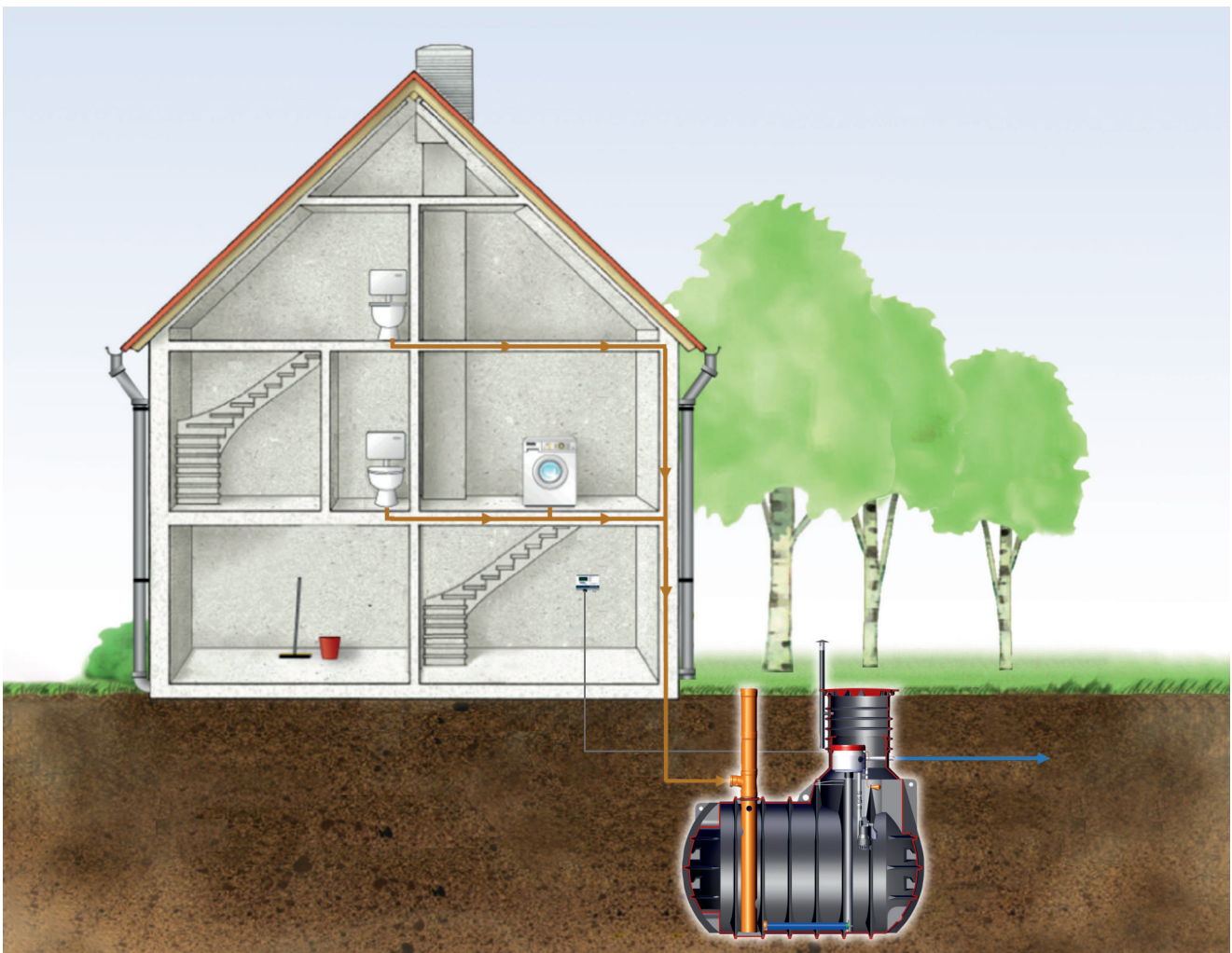
The new generation in Decentralised Wastewater Treatment

The Solido SMART from Premier Tech, is a decentralised wastewater treatment plant and the perfect solution for residential and commercial projects where mains drainage is unavailable.

Serving a population of up to 9 PE and fast becoming the industry's system of choice; this low-profile unit offers a reliable design and low installation costs. Available in gravity and integrated pumped outlet versions. Installed to treat wastewater with minimal impact on the environment, typical applications include single dwellings, small communities.

Superior Technical Performance

The highly successful Solido SMART is designed and tested in accordance with EN12566-3, in compliance with S.R 66:2015. This plant is able to produce a final effluent quality better than 10:20:5 (BOD:SS:NH₃). Removal of total nitrogen and total phosphorus (TN and TP) is expected to reach 83% and 68% respectively.



Solido SMART

State of the art SBR Treatment

Advanced Technical Qualities

The Solido SMART solution makes decentralised wastewater treatment easier and more efficient than ever. Trust its high-quality design and durable components to provide long-term performances and peace of mind.

- Low operational cost, offering long term savings.
- Discrete and silent treatment plant.
- Reduced installation and maintenance costs, Solido SMART tanks are lightweight, compact and have low installation depth requirements.
- Fully CE marked. Designed and tested in accordance with EN 12566-3.
- Polyethylene material - durable, recyclable and impact resistant.

! How it works

Solido SMART combines the benefits of an ultra-compact solution with the trusted performance of Solido technology. Integrating with SBR technology comparable to large municipal applications, the proven technology operates with direct aeration of the wastewater and without the need for primary treatment. This simple principle provides efficient wastewater treatment results without the emission of any odours.

1. Technology Capsule

Safely housed in the capsule, the compressor requires only 0.80 - 1.04 kWh/d for 6 - 9 PE plants respectively - providing an efficient and quiet treatment without disturbance to the homeowner.

2. Tube Diffuser

The incoming wastewater is immediately supplied with oxygen to ensure a very efficient and odourless treatment.

3. The SMART Pipe

Slows down the incoming influent and simplifies inspections. Makes part desludging safe and easy.

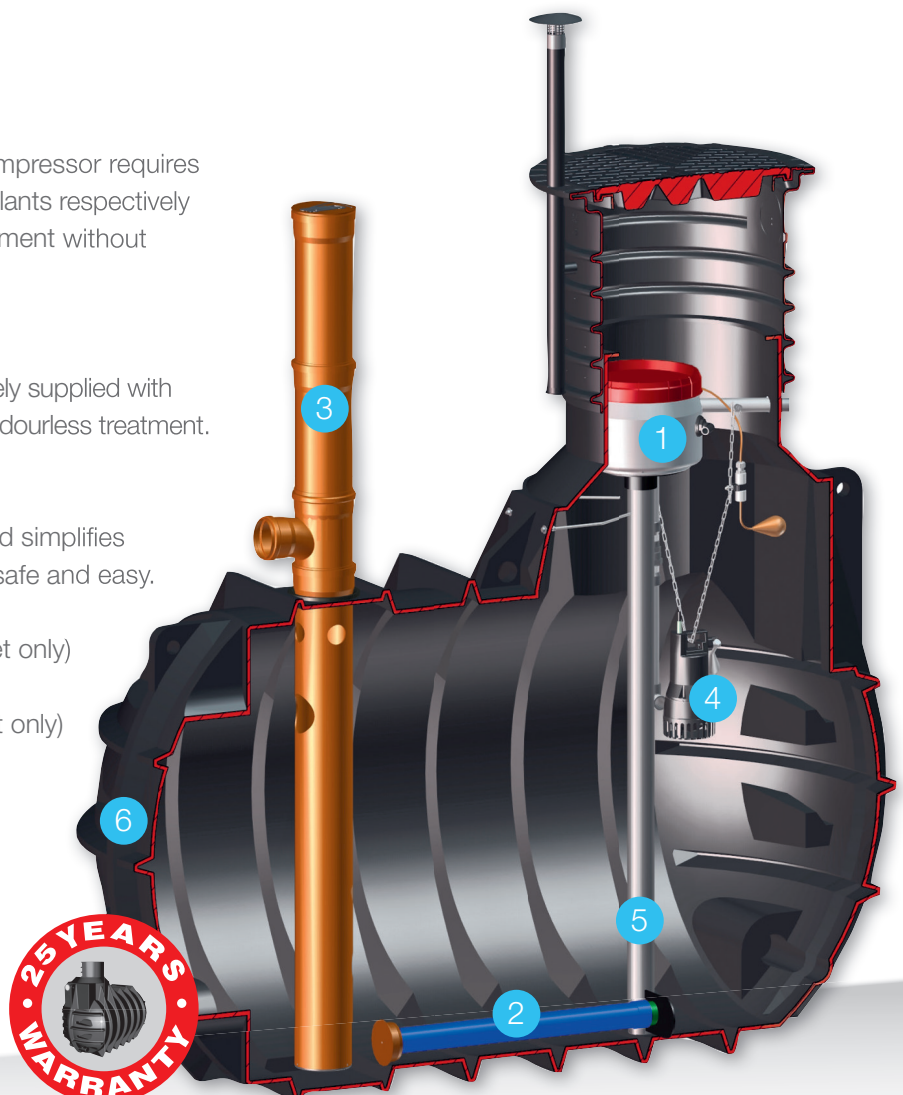
4. Clearwater Pump (Pumped outlet only)

5. Clearwater Air Lift (Gravity outlet only)

The patented self-flushing airlift prevents sludge loss and ensures high performances.

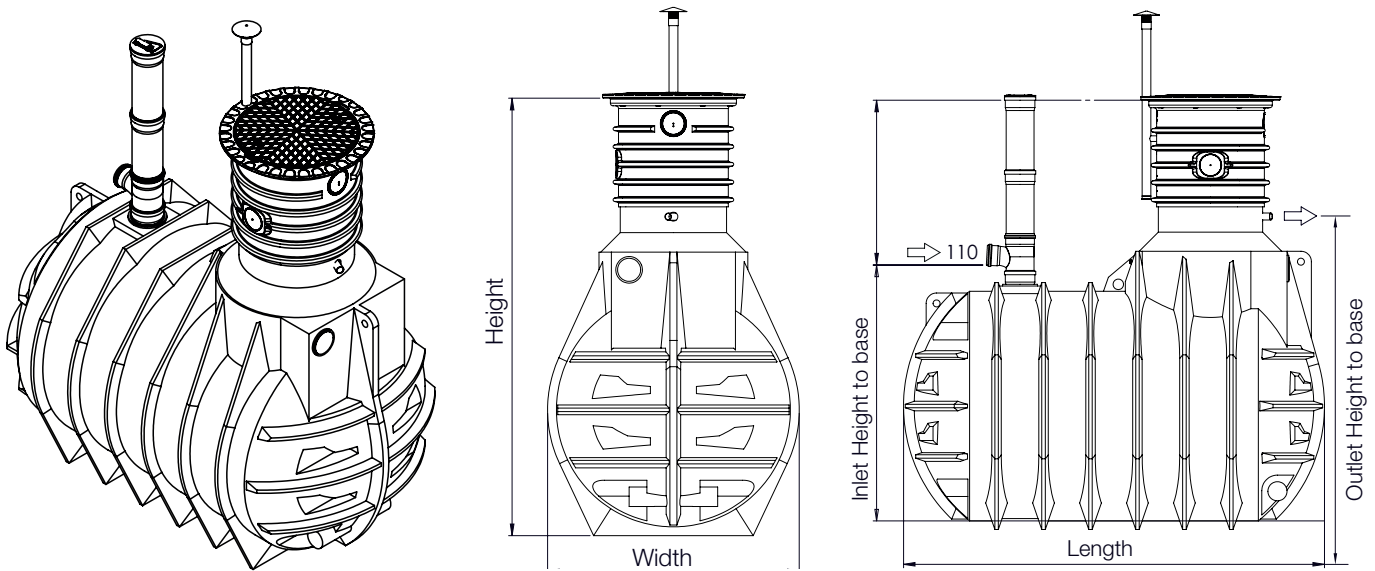
6. Solido-Tank

Manufactured seamlessly as one-piece from eco-friendly PE, with 25 years warranty.



Solido SMART Plant Size

Plant Size (PE)	discharge	Tank Type	Length (m)	Width (m)	Height (m)	INLET Height to base (m)	OUTLET Height to base (m)	Pipe Diameter (mm)	reference code
6 (max. 0.9 m ³ /d)	pumped	3000	2.42	1.42	2.06 – 2.47	1.47	1.73	110	KEBL3026
9 (max. 1.35 m ³ /d)	pumped	4500	2.42	1.79	2.34 – 2.75	1.74	2.06	110	KEBL4526
6 (max. 0.9 m ³ /d)	gravity	3000	2.42	1.42	2.06 – 2.47	1.47	1.40	110	KCBL3020
9 (max. 1.35 m ³ /d)	gravity	4500	2.42	1.79	2.34 – 2.75	1.74	1.73	110	KCBL4520



Installation

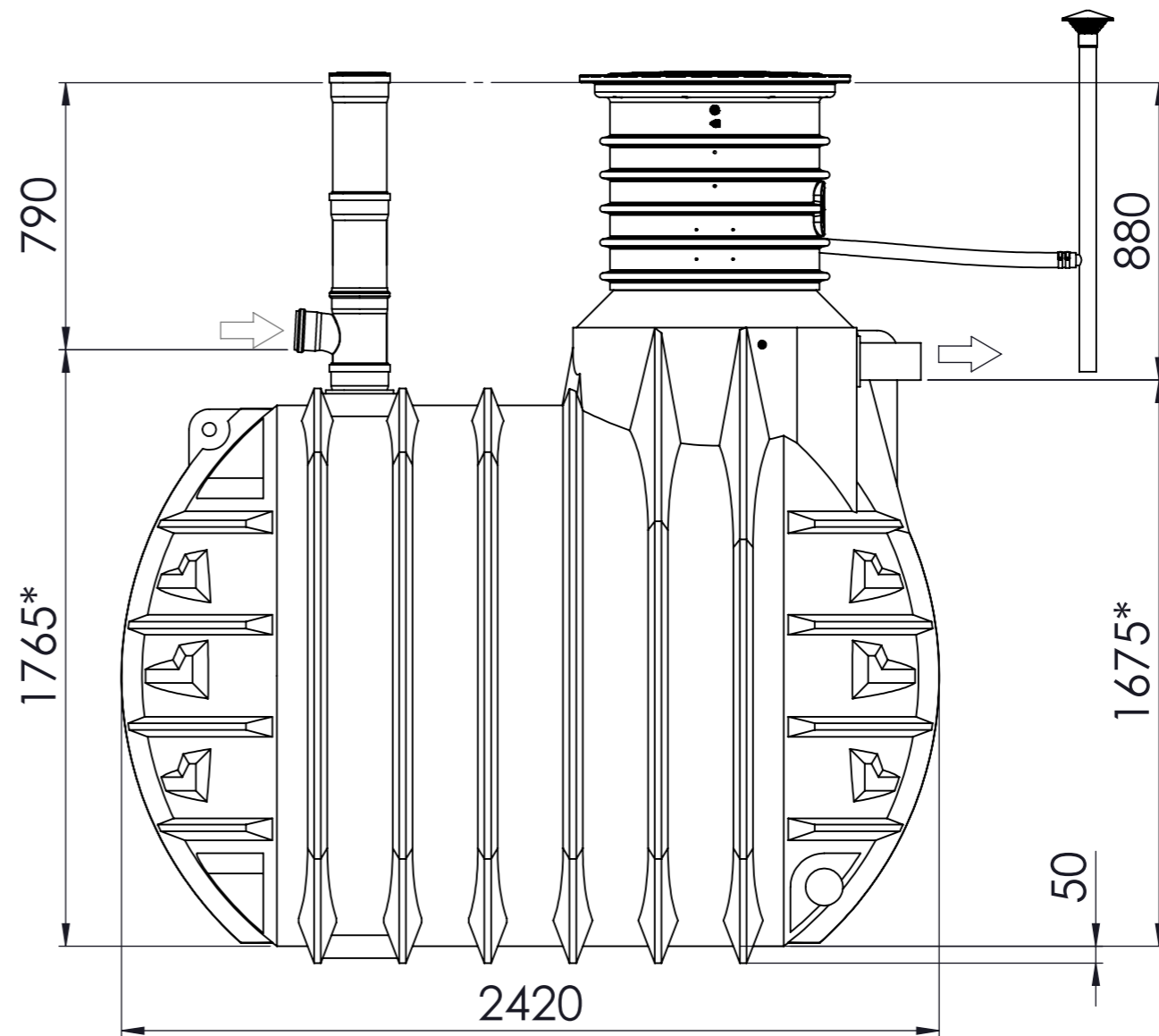
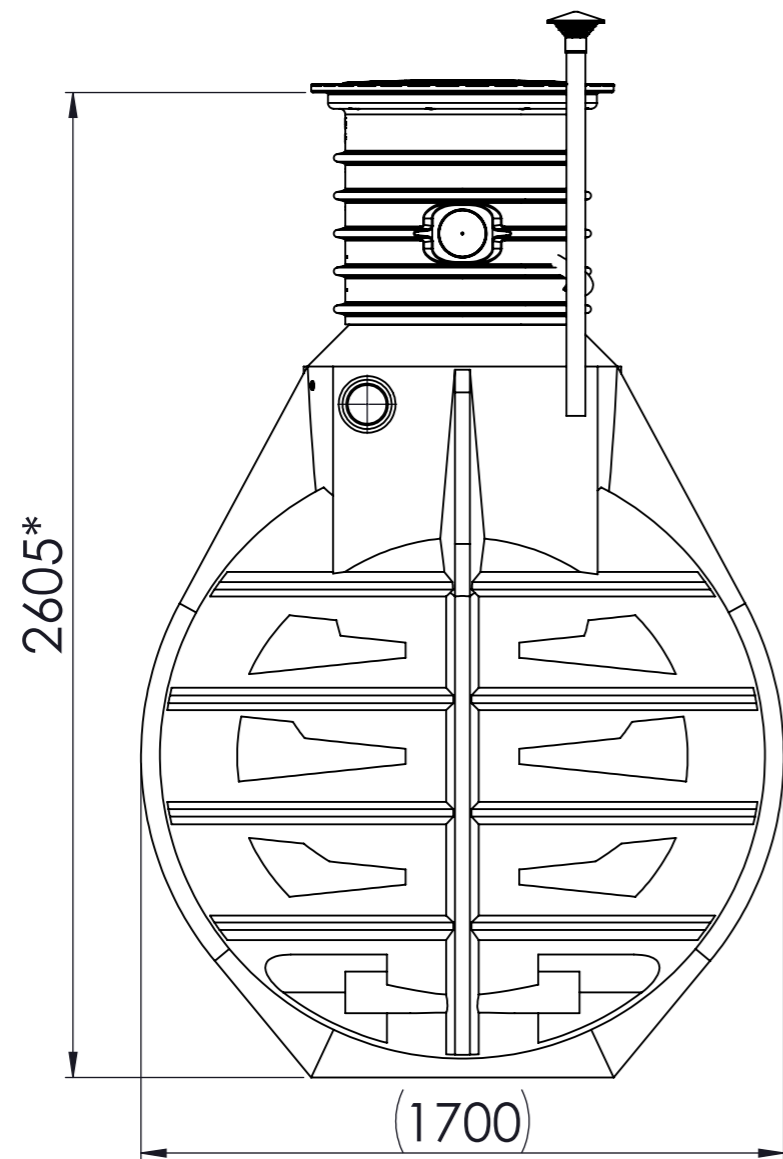
The Solido SMART Sewage Treatment Plant requires a relatively low cost and easy installation process. As the tank is super reinforced, concrete is not needed and the tank can be fully installed in free flowing granular backfill.

Warranty

All Premier Tech PE tanks come with a 25 year warranty as standard. Individual product and part warranties are available upon request.

Premier Tech work closely with a nationwide network of installation partners and detailed installation guidelines are provided with each product.

All electric work should be carried out in accordance with current regulations.

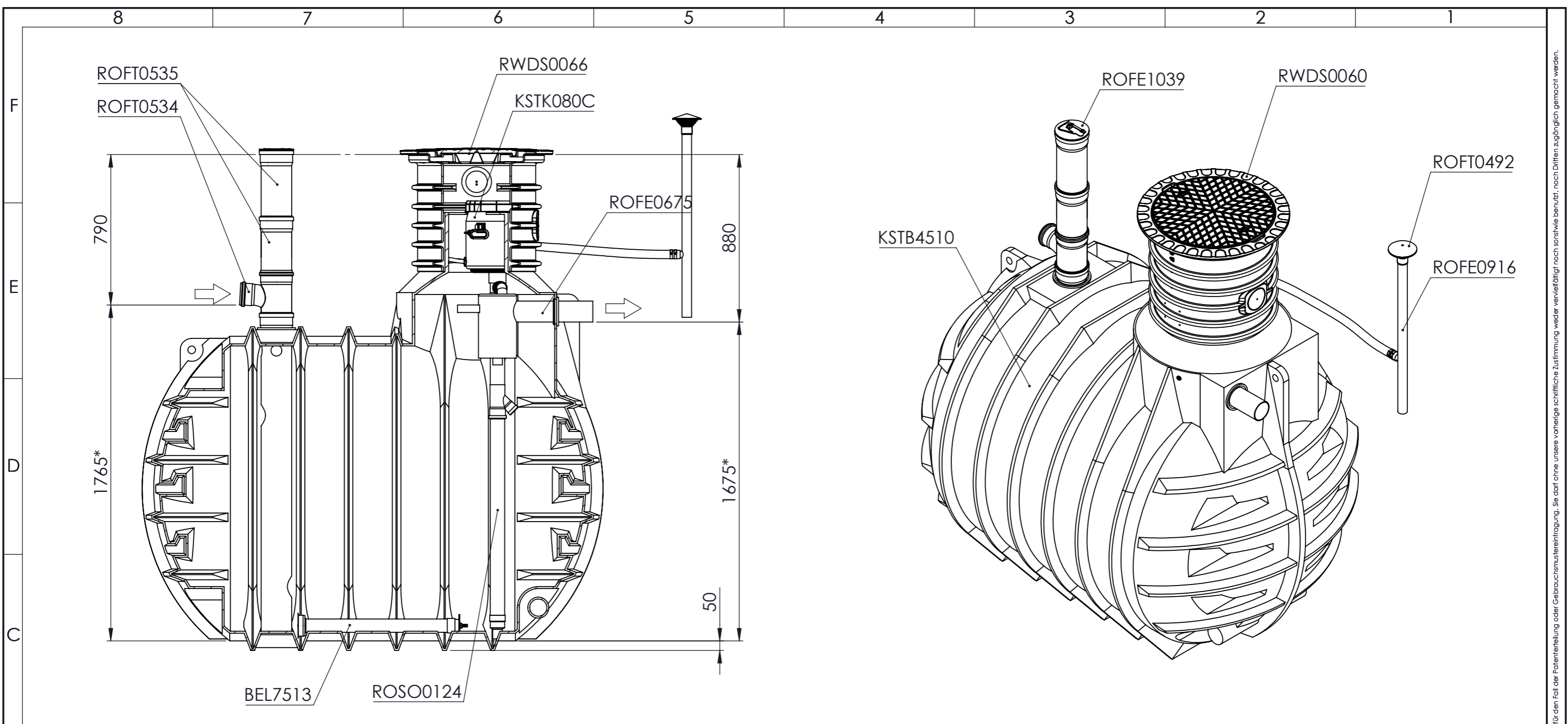


* tolerance -40/+10mm

Rev	Name	Datum	Änderung		gepr.
Erstellt	HOF52	06.04.2018	Allgemeintoleranz: DIN 16742 TG9 / DIN ISO 2768 - mK		Gewicht: kg
Gepr.			DIN 6 T1 Projektions- methode 1	Kantenbruch nach ISO 13715	Wanddicke: mm
CAD-System: SolidWorks2018					Werkstoff: PE-LLD
PREMIER TECH Am Gammgraben 2 19258 Boizenburg Germany Fon+49 38847 6239 0			Benennung		Farbe: schwarz
			Solido SMART Compact CBL-45 gravity (9 PE) small SBR WWTP compliant with EN 12566-3 / SR66		Zchng.-Nr.: 314_03539
					Art.-Nr.: KCBL4520
			Hauptabmessungen		Maßstab: 1:20
					A3 Blatt 1 von 2

Letzte Speicherung: Donnerstag, 28. Mai 2020 10:53:04

Für diese Unterlagen behalten wir uns alle Rechte vor, auch für den Fall der Patenterteilung oder Gebrauchsmustererteilung. Sie darf ohne unsere vorherige schriftliche Zustimmung weder vervielfältigt noch sonstwie benutzt, noch Dritten zugänglich gemacht werden.



* tolerance -40/+10mm

Rev	Name	Datum	Änderung		gepr.
Erstellt	HOF52	06.04.2018	Allgemeintoleranz: DIN 16742 TG9 / DIN ISO 2768 - mK		Gewicht: kg
Gepr.			DIN 6 T1 Projektions- methode 1	Kantenbruch nach ISO 13715	Wanddicke: mm
CAD-System: SolidWorks2018					Werkstoff: PE-LLD
PREMIER TECH Am Gammgraben 2 19258 Boizenburg Germany Fon+49 38847 6239 0			Benennung		Farbe: schwarz
			Solido SMART Compact CBL-45 gravity (9 PE) small SBR WWTP compliant with EN 12566-3 / SR66		Zchng.-Nr.: 314_03539
					Art.-Nr.: KCBL4520
Hauptabmessungen			Maßstab: 1:20		A3 Blatt 2 von 2

Letzte Speicherung: Donnerstag, 28. Mai 2020 10:53:04

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Certificate

TREATMENT PERFORMANCE RESULTS

Premier Tech Aqua GmbH
Bei der neuen Münze 11, 22145 Hamburg, Germany

EN 12566-3

Results corresponding to EN 12566-3 and S.R. 66

PIA-SR66-1604-1055.02

SOLIDO smart

One-chamber SBR system in one PE tank

Nominal organic daily load	0.30 kg/d															
Nominal hydraulic daily load	0.90 m ³ /d															
Material	Polyethylene															
Watertightness	Pass															
Structural behaviour (Pit Test)	Pass (also wet conditions)															
Durability	Pass															
Treatment efficiency (nominal sequences)	<table><thead><tr><th></th><th>Efficiency</th><th>Effluent</th></tr></thead><tbody><tr><td>COD</td><td>95.1 %</td><td>39 mg/l</td></tr><tr><td>BOD5</td><td>98.5 %</td><td>5 mg/l</td></tr><tr><td>NH4-N</td><td>98.0 %</td><td>0.7 mg/l</td></tr><tr><td>SS</td><td>97.1 %</td><td>13 mg/l</td></tr></tbody></table>		Efficiency	Effluent	COD	95.1 %	39 mg/l	BOD5	98.5 %	5 mg/l	NH4-N	98.0 %	0.7 mg/l	SS	97.1 %	13 mg/l
	Efficiency	Effluent														
COD	95.1 %	39 mg/l														
BOD5	98.5 %	5 mg/l														
NH4-N	98.0 %	0.7 mg/l														
SS	97.1 %	13 mg/l														
Number of desludging	Not more than once															
Electrical consumption	0.81 kWh/d															

Performance tested by:

PIA - Prüfinstitut für Abwassertechnik GmbH
Hergenrather Weg 30
52074 Aachen
Germany

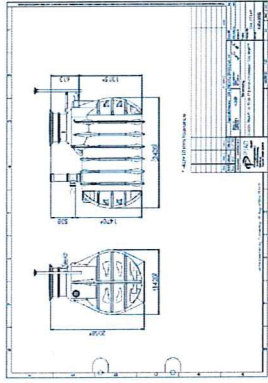
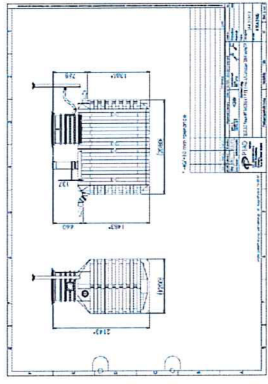
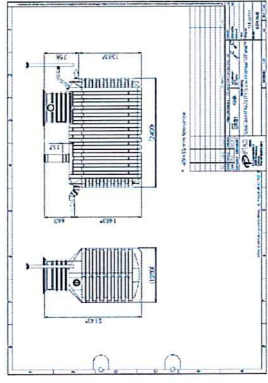
This document replaces neither the declaration of performance nor the CE marking.

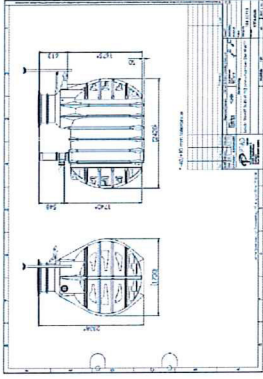
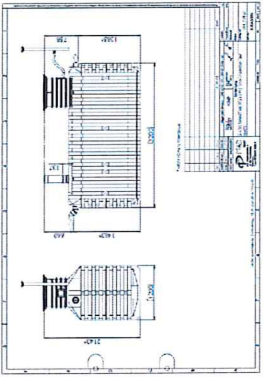
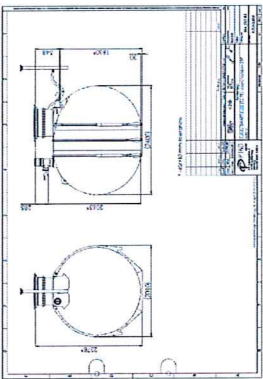


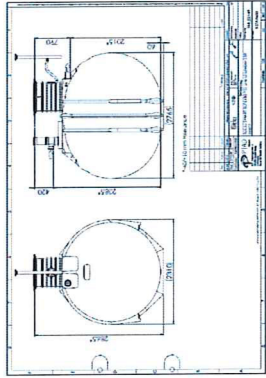
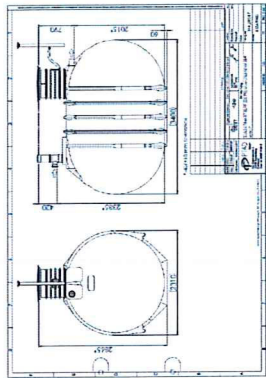
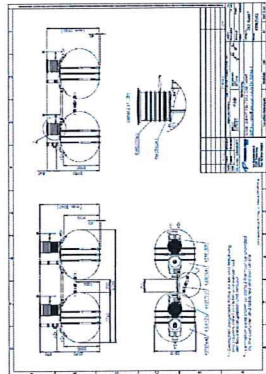
PIA - Sustainable Certification
Oliver Völkner
J. Wenter
geprüft - tested - testé

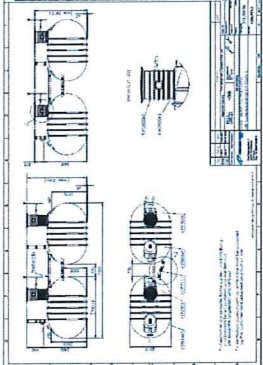
Verschitz / Wermter September 2019

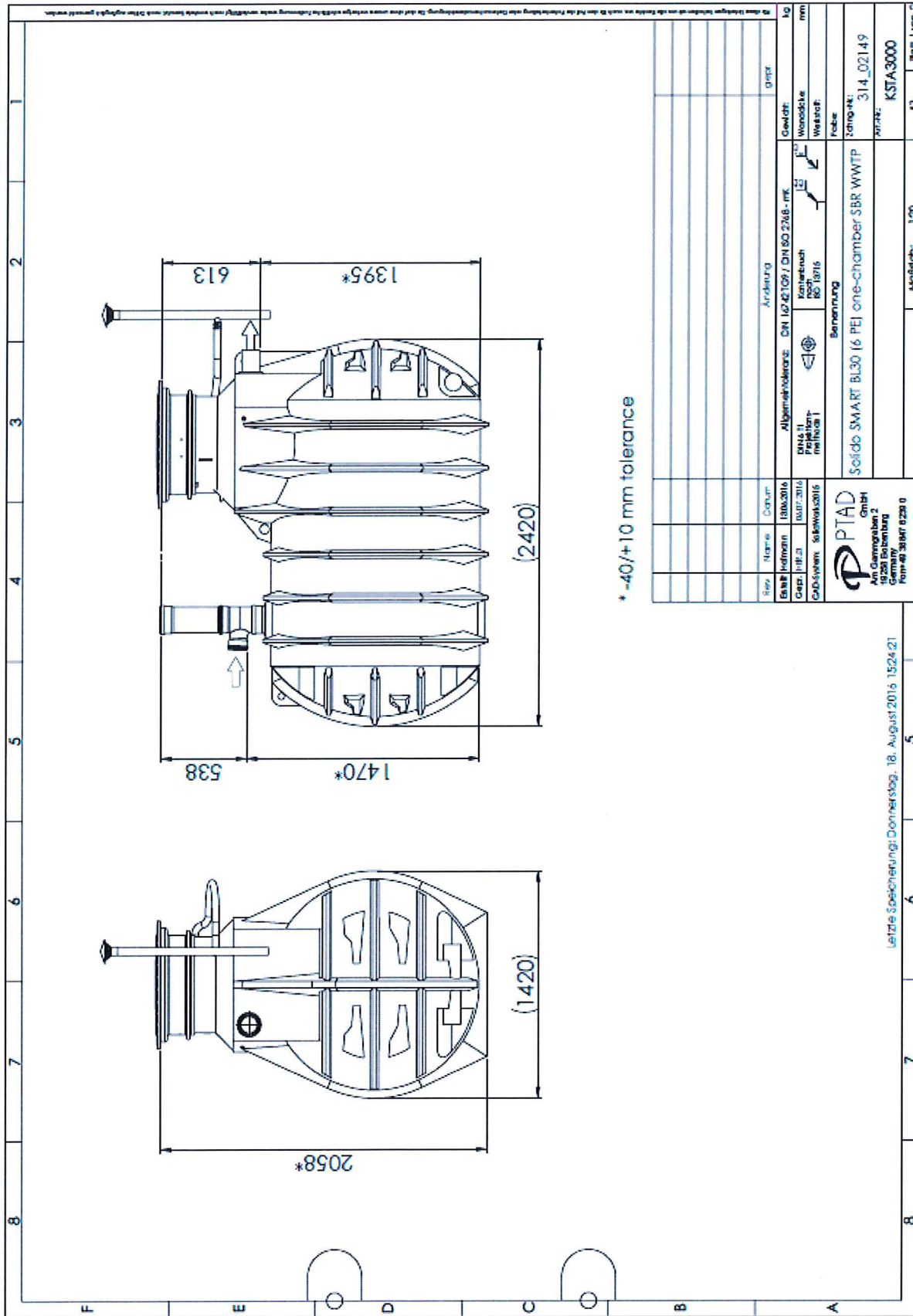
SOLIDO smart range and its referring test reports:

Population equivalent (PE)	Drawing of model of the range	Watertightness (EN 12566-3 Annex A)	Treatment Efficiency (EN 12566-3 Annex B)	Structural Behaviour (EN 12566-3 Annex C)	Durability
Initial Type Test (ITT) 6 900 l/d		Pass PIA2007-WD-003	Pass PIA2015-239B22.e	Pass For wet ground conditions also, 0.95 m installation depth from inlet invert	Pass PIA2016-DH-1510-1052.01
6 900 l/d		Pass PIA2007-WD-003	Pass Range conformity according to S.R. 66:2015	Pass For wet ground conditions, For wet ground conditions also, 1.00 m installation depth from inlet invert	Pass PIA2016-DH-1510-1052.01
7 1050 l/d		Pass PIA2007-WD-003	Pass Range conformity according to S.R. 66:2015	Pass For wet ground conditions, For wet ground conditions also, 1.00 m installation depth from inlet invert	Pass PIA2016-DH-1510-1052.01

Population equivalent (PE)	Drawing of model of the range	Watertightness (EN 12566-3 Annex A)	Treatment Efficiency (EN 12566-3 Annex B)	Structural Behaviour (EN 12566-3 Annex C)	Durability
9 1350 l/d		Pass PIA2007-WD-003	Pass Range conformity according to S.R. 66:2015	Pass For wet ground conditions also, 0.95 m installation depth from inlet invert	Pass PIA2016-DH-1510-1052.01
10 1500 l/d		Pass PIA2007-WD-003	Pass Range conformity according to S.R. 66:2015	Pass PIA2006-BT-004 PIA2011-ST-PIT-1105-1032 For wet ground conditions also, 1.00 m installation depth from inlet invert	Pass PIA2016-DH-1510-1052.01
12 1800 l/d		Pass PIA2007-WD-003	Pass Range conformity according to S.R. 66:2015	Pass For wet ground conditions also, 0.95 m installation depth from inlet invert	Pass PIA2016-DH-1510-1052.01

Population equivalent (PE)	Drawing of model of the range	Watertightness (EN 12566-3 Annex A)	Treatment Efficiency (EN 12566-3 Annex B)	Structural Behaviour (EN 12566-3 Annex C)	Durability
18 2700 l/d		Pass PIA2007-WD-003	Range conformity according to S.R. 66:2015	Pass For wet ground conditions also, 0.95 m installation depth from inlet invert	PIA2016-DH-1510-1052.01 pass
25 3750 l/d		Pass PIA2007-WD-003	Range conformity according to S.R. 66:2015	PIA2015-ST-PIT-1406-1043.01 Pass For wet ground conditions also, 0.95 m installation depth from inlet invert	PIA2016-DH-1510-1052.01 pass
40 6,000 l/d		Pass PIA2007-WD-003	Range conformity according to S.R. 66:2015	Pass For wet ground conditions also, 0.95 m installation depth from inlet invert	PIA2016-DH-1510-1052.01 pass

Population equivalent (PE)	Drawing of model of the range	Watertightness (EN 12566-3 Annex A)	Treatment Efficiency (EN 12566-3 Annex B)	Structural Behaviour (EN 12566-3 Annex C)	Durability
50 7,500 l/d		Pass PIA2007-WD-003	Range conformity according to S.R. 66:2015	Pass For wet ground conditions also, 0.95 m installation depth from inlet invert	PIA2016-DH-1510-1052.01 pass



In allen Zeichnungen sind die Maße in mm anzugeben. Die Angabe von Maßen in mm ist die Norm. Die Angabe von Maßen in mm ist die Norm. Die Angabe von Maßen in mm ist die Norm.

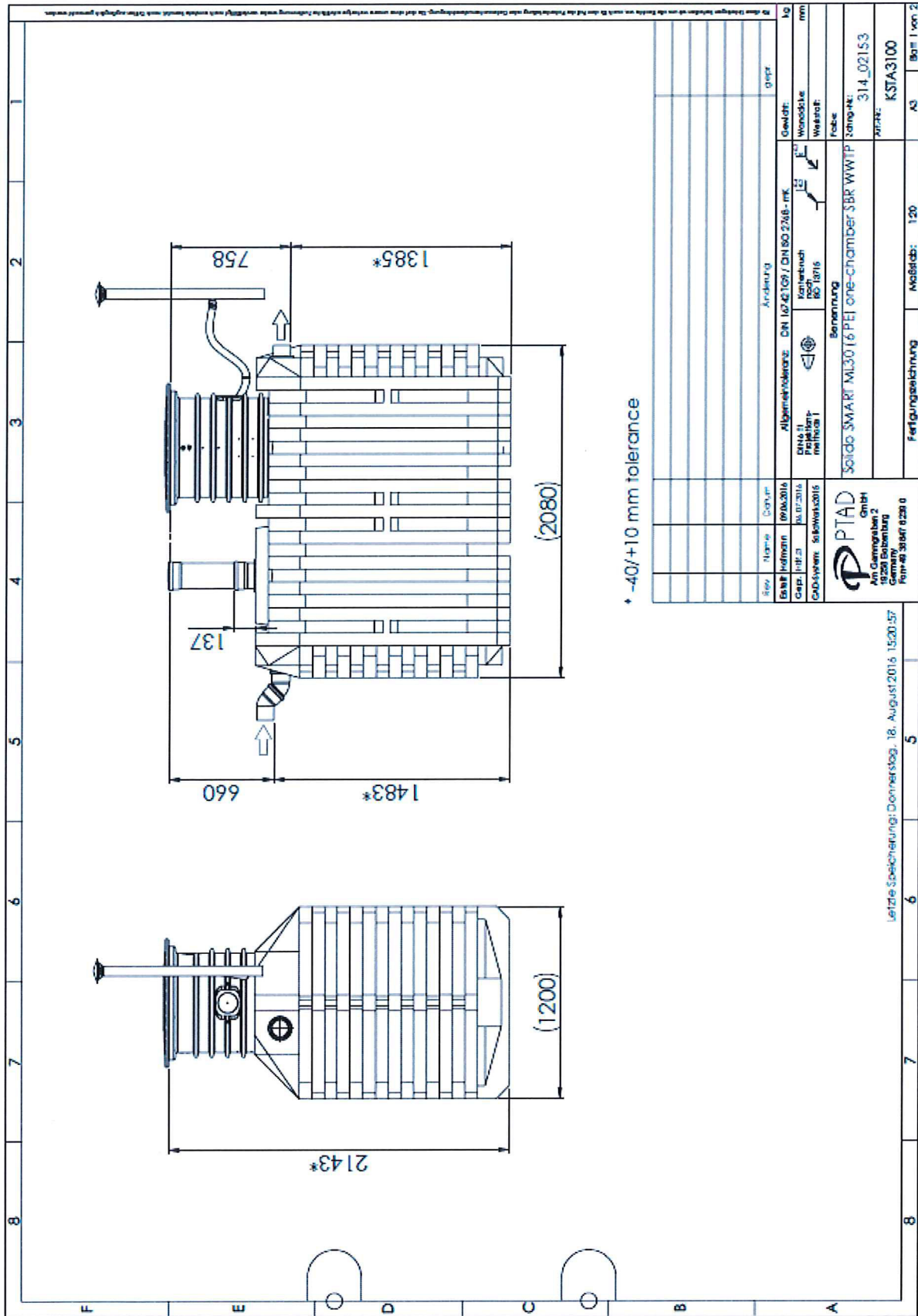
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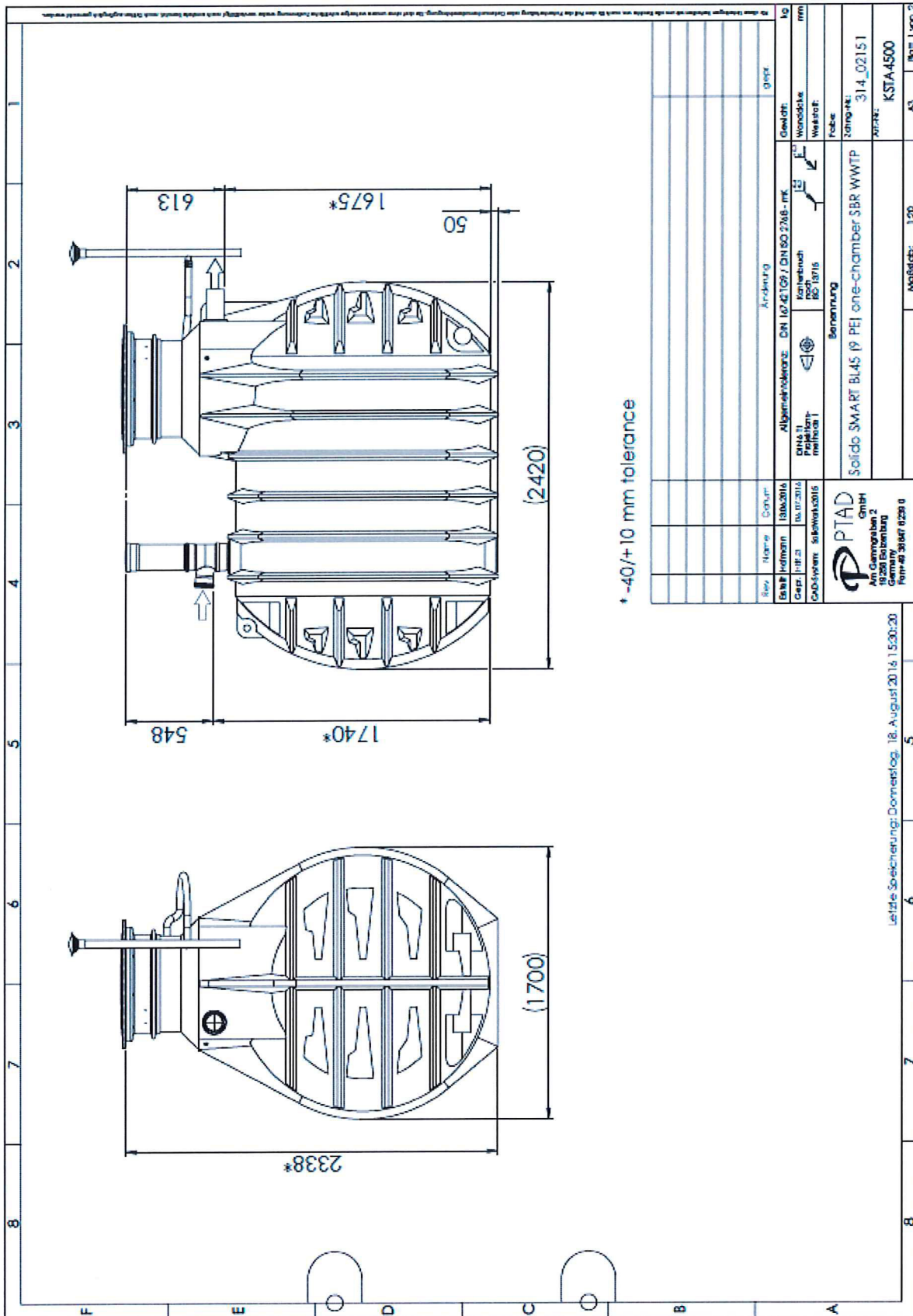
PTAD
 An der Universität
 Chemnitz
 19200 Bismarck
 Germany
 Phone: +49 3081 9228 0

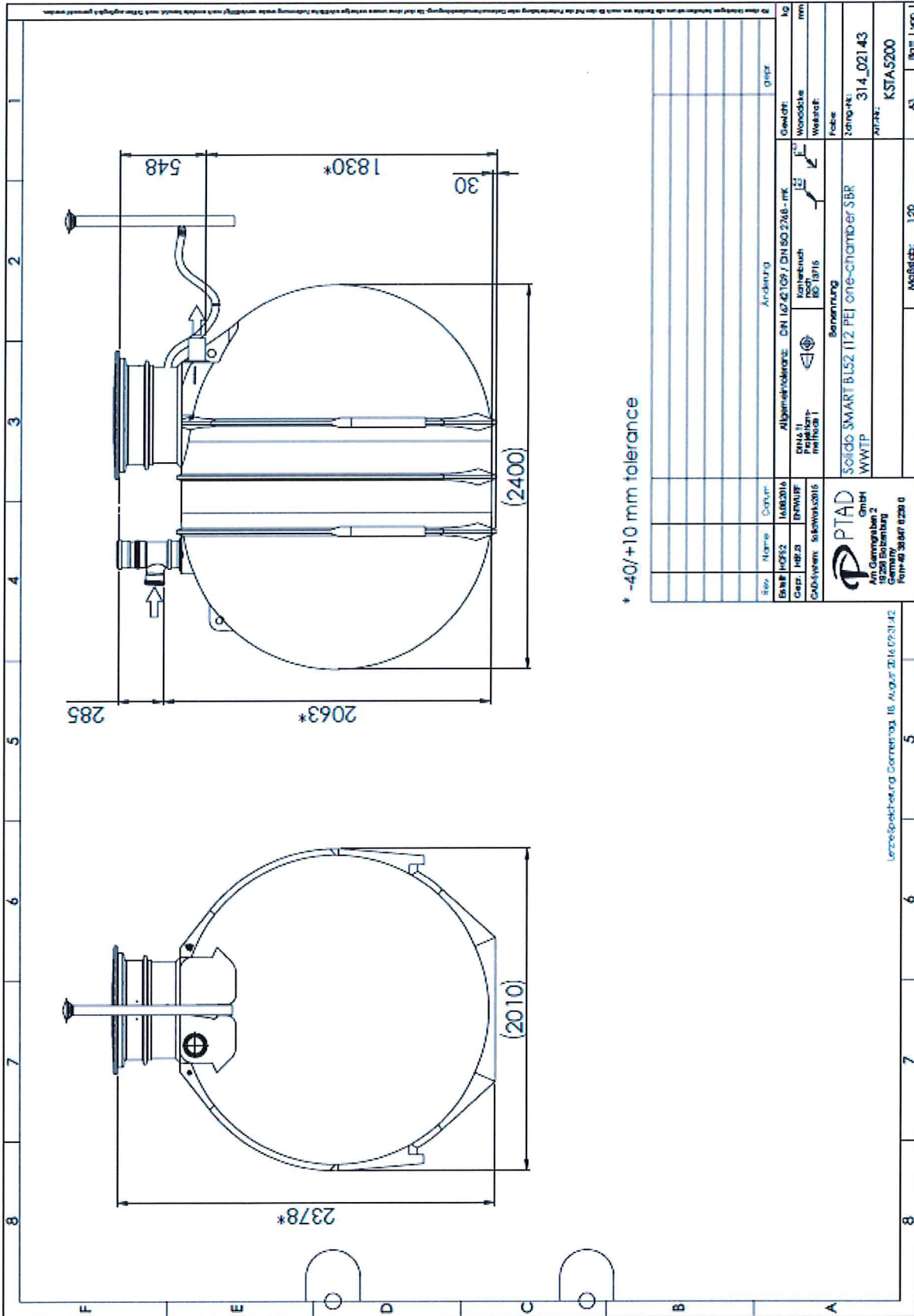
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 Part-Nr.: KSTA3000

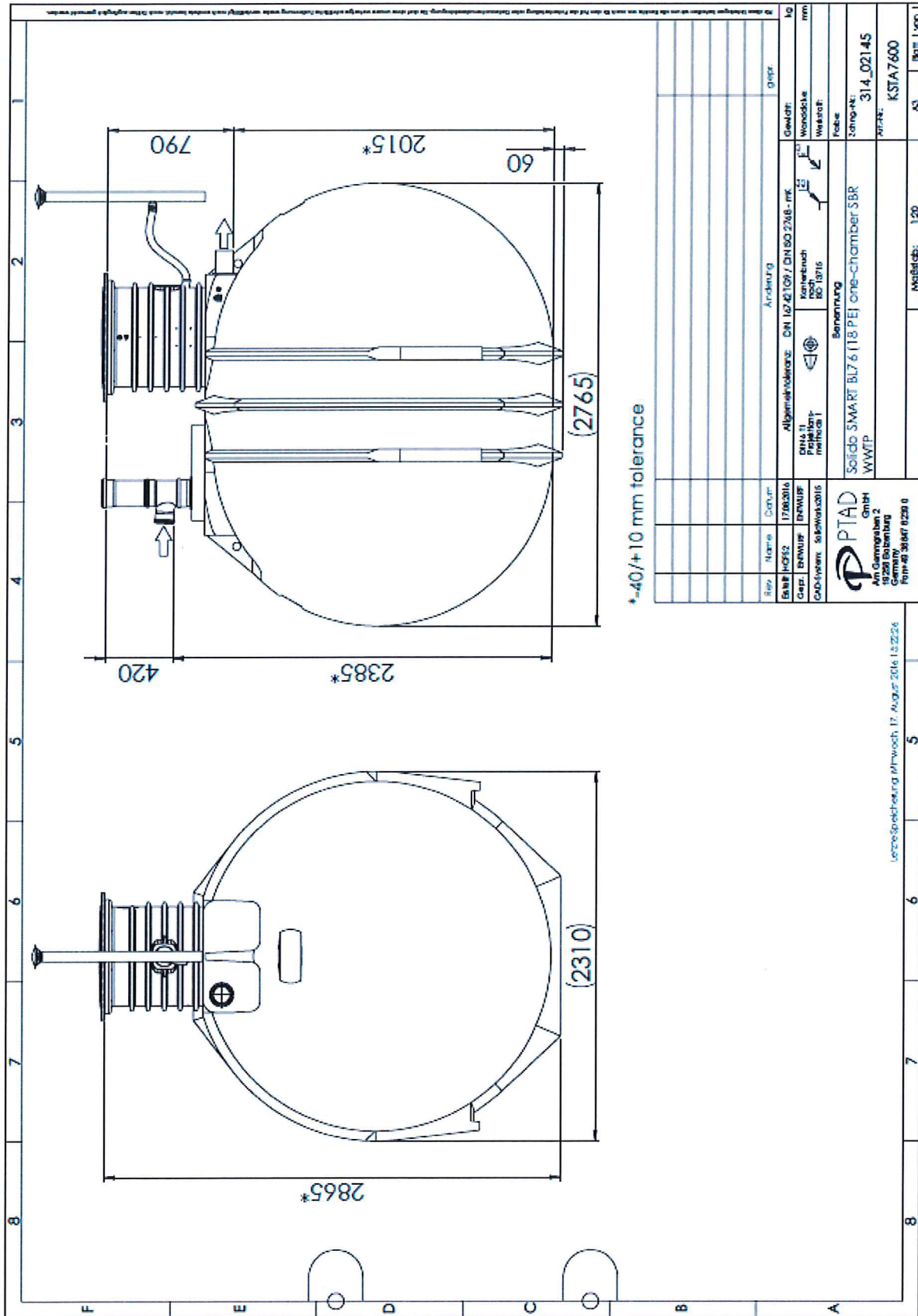
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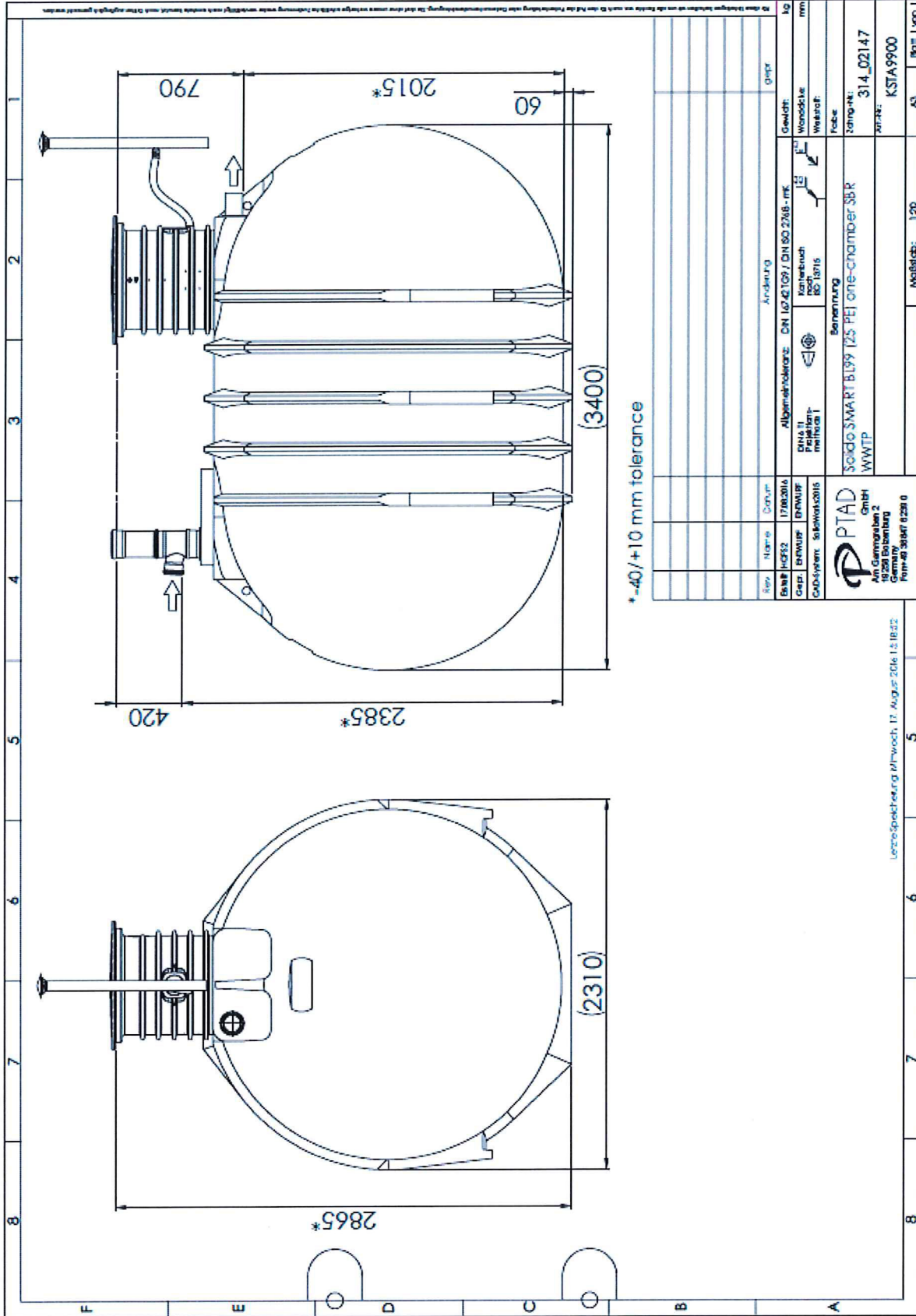




*-40/+10 mm tolerance

Rev.	Name	Content	Änderung	Größe
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4	ENWUP	ENWUP		
5	ENWUP	ENWUP		
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7	ENWUP	ENWUP		
8	ENWUP	ENWUP		
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CAD-System: SolidWorks Benennung: Solido SMART BL7 6 (18 PE) one-chamber SBR WWTP				Farbe: Samt-Nr.: 314_02145 Zeichn.-Nr.: KSTA 7600
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Letzte Speicherversion: 17. August 2016 15:22:26



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Maßstab: 1:20 Blatt 1 von 1

Zeichnungsnummer: 314_02147

Zeichnung: KSTA 9900

Blatt: 1 von 1

Maßstab: 1:20

Zeichnungsnummer: 314_02147

Zeichnung: KSTA 9900

Blatt: 1 von 1

Maßstab: 1:20

Zeichnungsnummer: 314_02147

Zeichnung: KSTA 9900

Blatt: 1 von 1

Maßstab: 1:20

Zeichnungsnummer: 314_02147

Zeichnung: KSTA 9900

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Maßstab: 1:20

Zeichnungsnummer: 314_02147

Zeichnung: KSTA 9900

Blatt: 1 von 1

Maßstab: 1:20

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Zeichnung: KSTA 9900

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Maßstab: 1:20

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Blatt: 1 von 1

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Blatt: 1 von 1

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Blatt: 1 von 1

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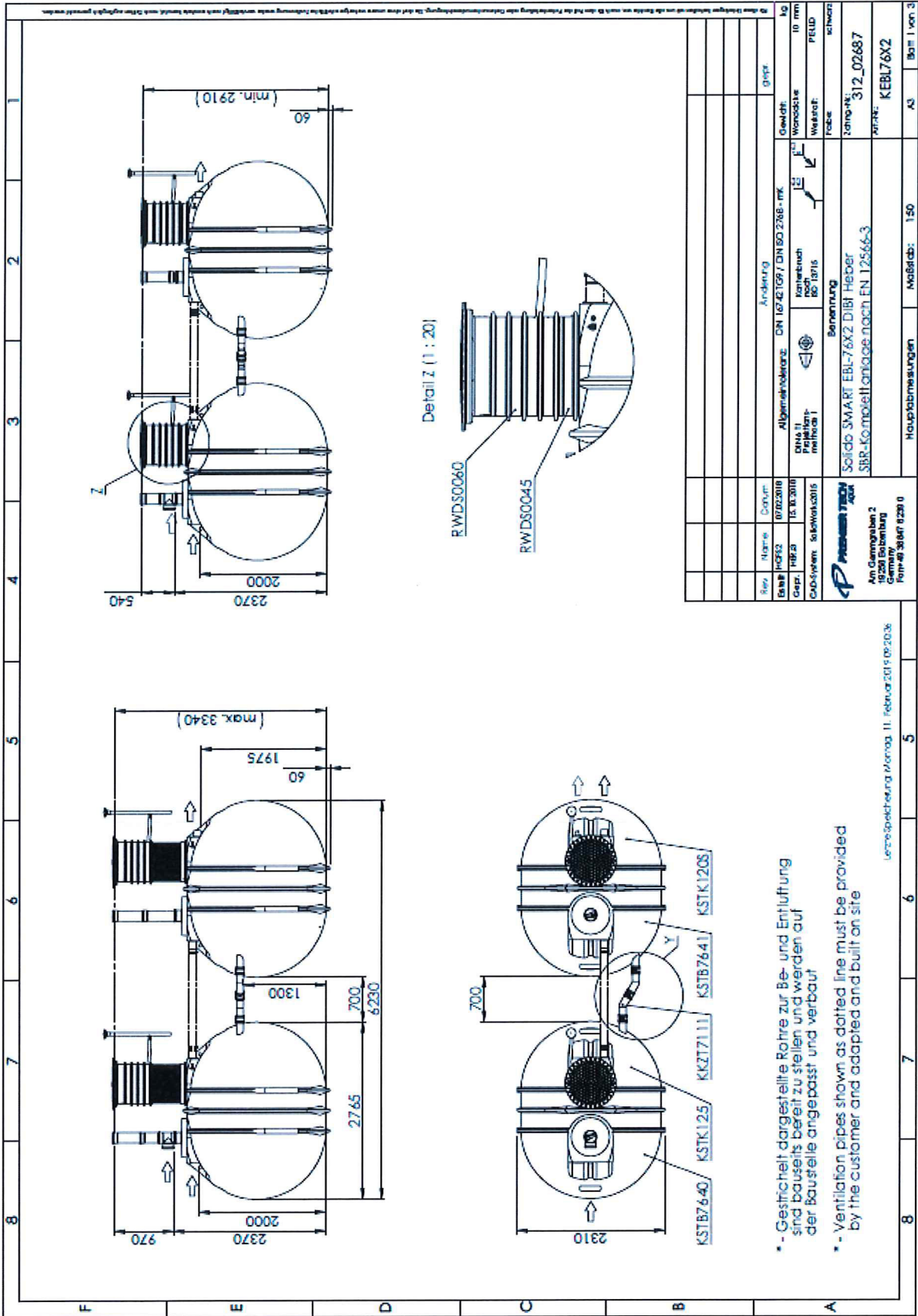
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Blatt: 1 von 1

Maßstab: 1:20

Zeichnungsnummer: 314_02147

Zeichnung: KSTA 9900



* - Gestrichelte dargestellte Rohre zur Be- und Entlüftung sind bereits bereit zu stellen und werden auf der Baustelle angepasst und verbaut

* - Ventilation pipes shown as dotted line must be provided by the customer and adapted and built on site

Letzte Speicherung: Montag, 11. Februar 2019 09:20:38

