



Appendix 2 - Civil & Structural

Tyrrells Lands Stradbally Road, Portlaoise, Co. Laois



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Dwg.Cat: Planning

Signed: _____
 T. Delaney

Sheet: 1 of 1

DRAWING / DOCUMENT REGISTER & ISSUE SHEET - CIVIL

Project: Housing Units at Stradbally, Co. Laois		Issue Date and Revision No.			Sheet: 1 of 1															
Job No. 23KK001		Day	01																	
		Month	03																	
		Year	24																	
Drawing/ Document No.	Drawing / Document title	Scale																		
C-001	Existing Site & Services Layout	A1 1:500	PL1																	
C-002	Proposed Site Layout	A1 1:500	PL1																	
C-003	Proposed Build Ups Layout	A1 1:500	PL1																	
C-004	Proposed Traffic Signs & Road Markings Layout	A1 1:250	PL1																	
C-005	Proposed DMURS Compliance Layout	A1 1:250	PL1																	
C-010	Proposed Watermain Layout	A1 1:500	PL1																	
C-015	Proposed Foul Drainage Layout	A1 1:500	PL1																	
C-020	Proposed Storm Drainage Layout	A1 1:500	PL1																	
C-070	Swept Path Analysis	As Shown	PL1																	

Copies issued to:		Number of Copies :																		
Architect (VDA)	E																			
QS (McGS)	E																			
M&E (HHP)	E																			
Client (LCC)	E																			
File	1A3																			

*, P1, T1, C1 : Designates Drawings and/or Revisions Issued



GENERAL LEGEND

- PROPOSED SITE BOUNDARY
- 6.46 - EXISTING SPOT LEVEL & ELEVATION
- EXISTING BUILDING

QUALITY
ISO 9001:2000
NSAI Certified

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- NOTES:**
- THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS, SERVICE ENGINEERS DRAWINGS & SPECIFICATIONS.
 - ALL LEVELS ARE STRUCTURAL UNLESS NOTED OTHERWISE.
 - ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH THE RELEVANT BUILDING REGULATIONS.
 - DO NOT SCALE - WORK TO FIGURE DIMENSIONS ONLY.

Rev.		Date		Description		Drawn	Checked	Approved
PL1		01.03.24		PLANNING ISSUE		GC	TD	NP

Status: **PLANNING**

Drawing Title: **EXISTING SITE & SERVICES LAYOUT**

Date: **28.02.24** Scale: **1:500 @ A1 / 1:1000 @ A3**

Drawn By: **M.TOLEDO** Checked By: **T.DELANEY** Approved By: **N.PATTERSON**

Client: **LAOIS COUNTY COUNCIL**

Job Description: **PROPOSED HOUSING DEVELOPMENT TYRRELLS LAND, PORTLAOISE, CO. LAOIS**

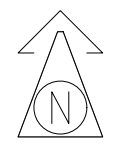
Project No: **23KK001** Drawing Ref: **C-001** Rev: **PL1**

**Hayes Higgins
Partnership**

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EXISTING SITE & SERVICES LAYOUT
SCALE 1:500 @ A1 / 1:1000 @ A3



GENERAL LEGEND

- PROPOSED SITE BOUNDARY
- + 6.46 EXISTING SPOT LEVEL & ELEVATION
- PROPOSED ROAD CENTRELINE
- + +30.800m PROPOSED ROAD CHANGING & LEVEL
- 1:40 PROPOSED ROAD GRADIENT & FALL DIRECTION
- + 00.000m PROPOSED FINISHED FLOOR LEVEL
- + 00.000m EXISTING LEVEL
- + 00.000m PROPOSED SPOT LEVEL
- EXISTING BUILDING
- PROPOSED BUILDING
- 01 PROPOSED UNIT NUMBER
- ▶ PROPOSED ENTRANCE ARROW
- PROPOSED RETAINING WALL H=1.50m
- PROPOSED RETAINING WALL H=1.00m
- PROPOSED RETAINING WALL H=0.50m

QUALITY
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Rev.	Date	Description	Des.	Chkd.	Appr.
PL1	01.03.24	PLANNING ISSUE	GC	TD	NP

Status: **PLANNING**

Drawing Title: **PROPOSED SITE LAYOUT**

Date: **28.02.24** Scale: **1:500 @ A1 / 1:1000 @ A3**

Drawn By: **M.TOLEDO** Checked By: **T.DELANEY** Approved By: **N.PATTERSON**

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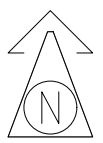
Project No: **23KK001** Drawing Ref: **C-002** Rec: **PL1**

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PROPOSED SITE LAYOUT
SCALE 1:500 @ A1 / 1:1000 @ A3



GENERAL LEGEND

- PROPOSED SITE BOUNDARY
- 6.46 EXISTING SPOT LEVEL & ELEVATION
- PROPOSED BUILDING
- EXISTING BUILDING
- 29 PROPOSED UNIT NUMBER
- PROPOSED ROAD & PARKING FALLS
- PROPOSED ENTRANCE ARROW

BUILD UPS LEGEND:

ROAD SPECIFICATION
 40mm OF PMSMA (10mm) WEARING COURSE ON POLYMER BOND COAT AT A RATE OF 0.5l per m²
 60mm OF PSMA (20mm) BASE COURSE ON 80mm OF ACBC (28mm) BASE COURSE ON 150mm CL 804 SUB-BASE LAYER COMPACTED HARD CORE ON 350mm MINIMUM CLAUSE 6F2 CAPPING LAYER ON THERRACE 40/40 EXTRUDED PPL GEOGRID OR EQUIVALENT APPROVED PLUS ADDITIONAL CAPPING TO MAKE UP LEVELS AS REQUIRED ON TERRAM.

IMPERMEABLE TRAFFICKED PAVING SPECIFICATION
 80mm Thk. PAVING BLOCKS TO ARCH DETAILS ON 50mm SAND/CEMENT TO ARCH DETAIL ON 100mm LEAN MIX BEDDING ON 150mm CL 804 SUB-BASE LAYER COMPACTED HARD CORE ON 350mm MINIMUM CLAUSE 6F2 CAPPING LAYER ON THERRACE 40/40 GEOGRID ON ADDITIONAL CAPPING TO MAKE UP LEVELS AS REQUIRED ON TERRAM

CONCRETE FOOTPATHS (TRAFFICKED)
 150mm THICK CONCRETE PATHS WITH IN ACCORDANCE WITH CL 2.19 AND 2.25 OF THE SITE DEVELOPMENTS WORKS MANUAL, C40 / 50 XF4 EXPOSURE CLASS CONCRETE ON 150mm SUB-BASE CL808 ON 350mm MIN 6F2 CAPPING

CONCRETE FOOTPATHS (NON TRAFFICKED)
 100mm THICK CONCRETE PATHS WITH IN ACCORDANCE WITH CL 2.19 AND 2.25 OF THE SITE DEVELOPMENTS WORKS MANUAL, C40 / 50 XF4 EXPOSURE CLASS CONCRETE ON 150mm SUB-BASE CL808 ON 350mm MIN 6F2 CAPPING

PUMPING STATION
 75mm SINGLE SIZED (10mm) AGGREGATE ON GEOTEXTILE WEED BARRIER ON 500mm CLAUSE 804 STONE ON 350mm MINIMUM CLAUSE 6F2 CAPPING LAYER ON THERRACE 40/40 EXTRUDED PPL GEOGRID OR EQUIVALENT APPROVED PLUS ADDITIONAL CAPPING TO MAKE UP LEVELS AS REQUIRED ON TERRAM.

LANDSCAPING
 LANDSCAPING TO ARCHITECTS DETAILS

QUALITY
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Issue register		Rev.	Date	Description	Drawn	Checked	Approved
PL1	01.03.24			PLANNING ISSUE	GC	TD	NP

PLANNING

DRAWING TITLE:
PROPOSED SITE BUILD UP LAYOUT

Date: **28.02.24** Scale: **1:500 @ A1 / 1:1000 @ A3**

Drawn By: **M.TOLEDO** Checked By: **T.DELANEY** Approved By: **N.PATTERSON**

Client: **LAOIS COUNTY COUNCIL**

Job Description: **PROPOSED HOUSING DEVELOPMENT TYRRELLS LAND, PORTLAOISE, CO. LAOIS**

Project No: **23KK001** Drawing Ref: **C-003** Rec: **PL1**

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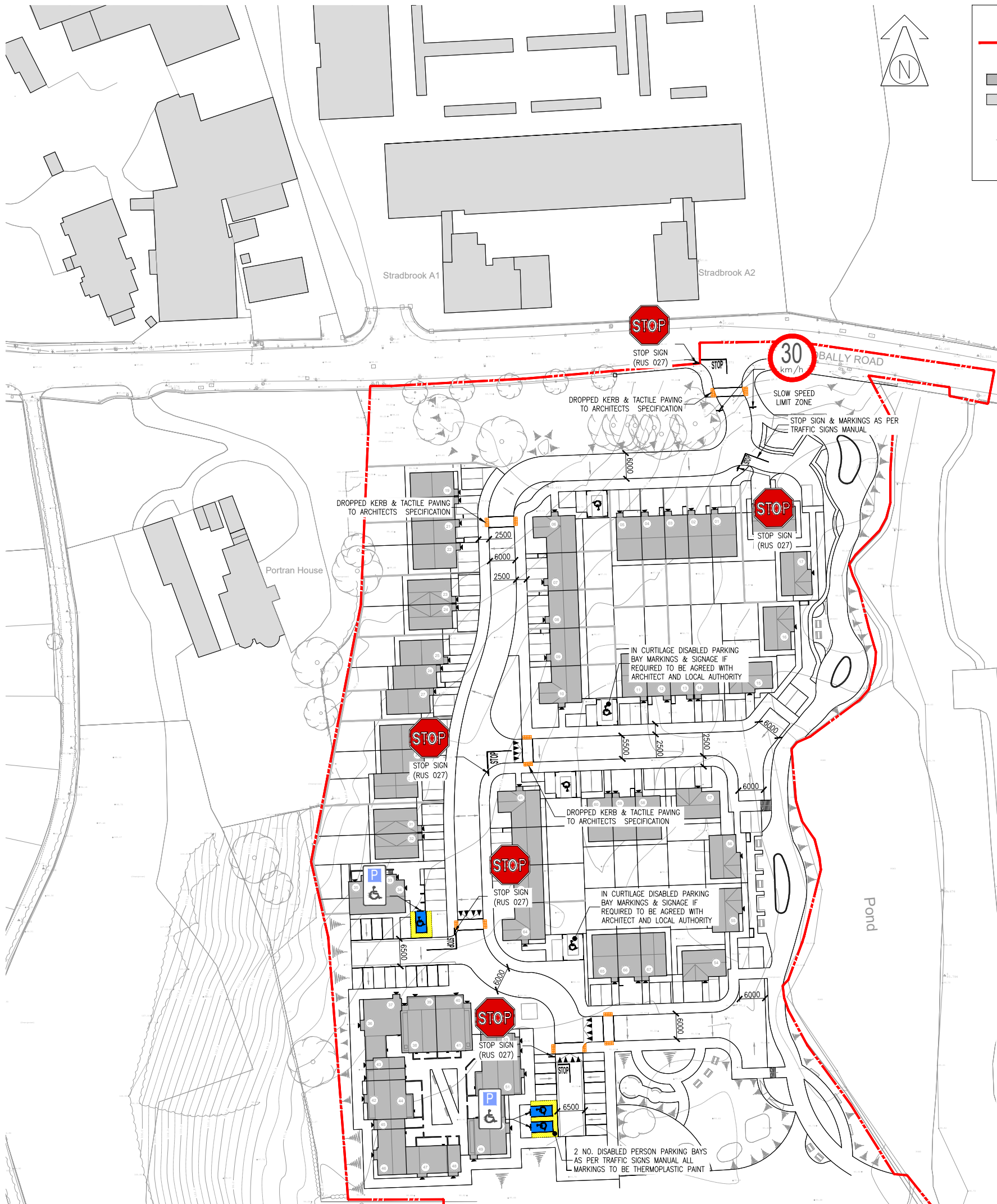
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PROPOSED SITE BUILD UP LAYOUT

SCALE 1:500 @ A1 / 1:1000 @ A3

GENERAL LEGEND

- PROPOSED SITE BOUNDARY
- 6.46 EXISTING SPOT LEVEL & ELEVATION
- PROPOSED BUILDING
- EXISTING BUILDING
- (29) PROPOSED UNIT NUMBER
- PROPOSED ROAD & PARKING FALLS
- PROPOSED ENTRANCE ARROW



QUALITY
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Rev.		Date		Description		Drawn	Checked	Approved
PL1	01.03.24	PLANNING ISSUE		GC	TD	NP		

PLANNING

Drawing Title:
PROPOSED TRAFFIC SIGNS & ROAD MARKINGS LAYOUT

Date: **28.02.24** Scale: **1:500 @ A1 / 1:1000 @ A3**

Drawn By: **M.TOLEDO** Checked By: **T.DELANEY** Approved By: **N.PATTERSON**

Client: **LAOIS COUNTY COUNCIL**

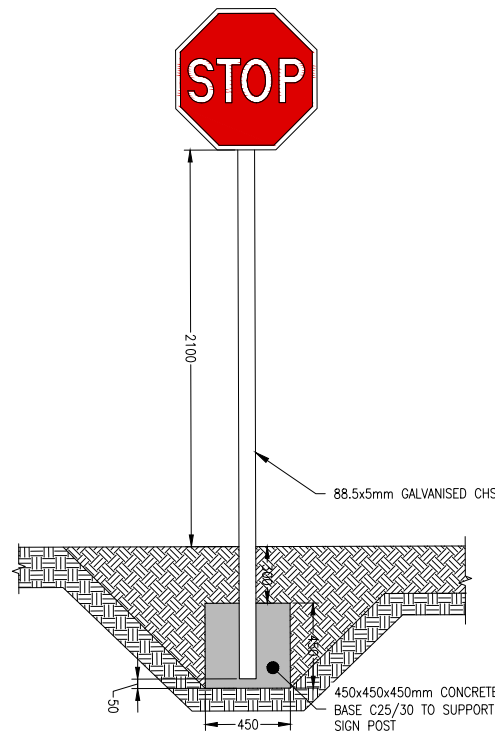
Job Description: **PROPOSED HOUSING DEVELOPMENT TYRRELLS LAND, PORTLAOISE, CO. LAOIS**

Project No: **23KK001** Drawing Ref: **C-004** Rev: **PL1**

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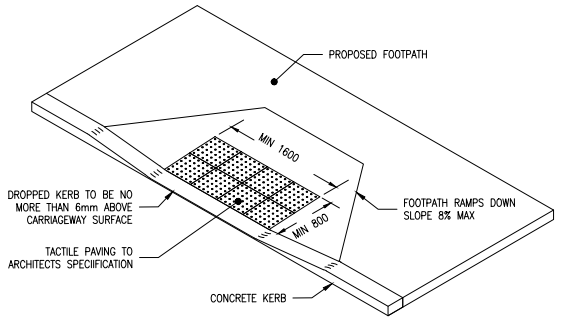
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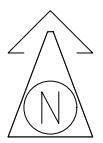


TYPICAL SIGN POST DETAIL
SCALE 1:20 @ A1 / 1:40 @ A3

PROPOSED TRAFFIC SIGNS & ROAD MARKINGS LAYOUT
SCALE 1:500 @ A1 / 1:1000 @ A3



TYPICAL TACTILE PAVING & DROPPED KERB
SCALE 1:50 @ A1 / 1:100 @ A3




GENERAL LEGEND

- PROPOSED SITE BOUNDARY
- 6.46 EXISTING SPOT LEVEL & ELEVATION
- PROPOSED BUILDING
- EXISTING BUILDING
- (29) PROPOSED UNIT NUMBER
- PROPOSED ROAD & PARKING FALLS
- ◀ PROPOSED ENTRANCE ARROW


DMURS LEGEND

- PROPOSED SIGHTLINES & CLEAR ZONE AREA
- PROPOSED VIEWPOINT

DMURS COMPLIANCE LAYOUT
SCALE 1:500 @ A1 / 1:1000 @ A3



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PL1	01.03.24			PLANNING ISSUE	GC	TD	NP

Status: **PLANNING**

Drawing Title: **DMURS COMPLIANCE LAYOUT**

Date: **28.02.24** Scale: **1:500 @ A1 / 1:1000 @ A3**

Drawn By: **G.GOODSON** Checked By: **T.DELANEY** Approved By: **N.PATTERSON**

Client: **LAOIS COUNTY COUNCIL**

Job Description: **PROPOSED HOUSING DEVELOPMENT TYRRELLS LAND, PORTLAOISE, CO. LAOIS**

Project No: **23KK001** Drawing Ref: **C-005** Rev: **PL1**



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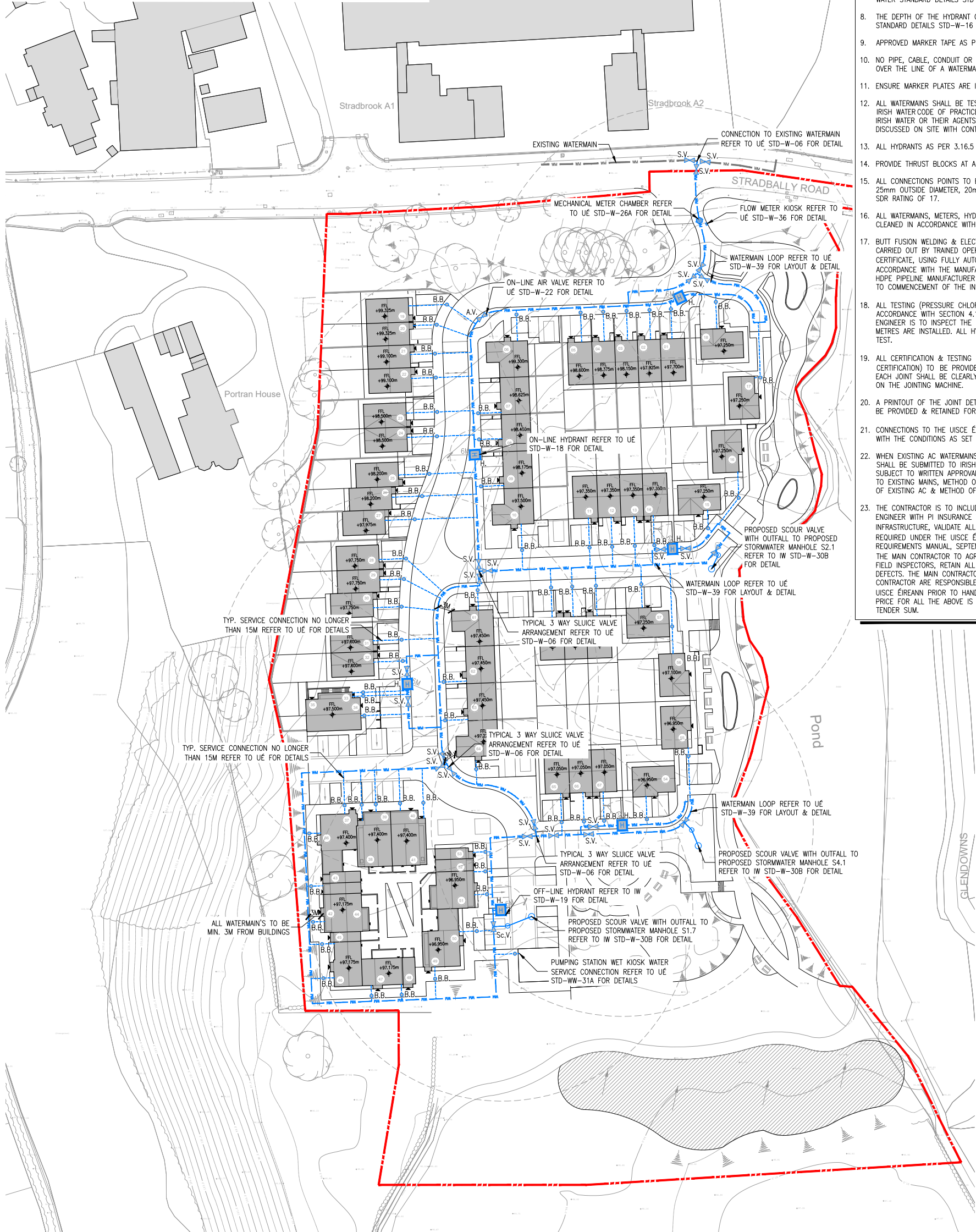
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GENERAL LEGEND

- PROPOSED SITE BOUNDARY
- 6.46 EXISTING SPOT LEVEL & ELEVATION
- PROPOSED BUILDING
- EXISTING BUILDING
- PROPOSED UNIT NUMBER
- PROPOSED ROAD & PARKING FALLS
- PROPOSED ENTRANCE ARROW

WATERMAIN LEGEND

- EXISTING WATERMAIN
- PROPOSED 100mm Ø PE80-SDR17 WATERMAIN
- PROPOSED HYDRANT
- PROPOSED SLUICE VALVE
- PROPOSED AIR VALVE
- PROPOSED SCOUR VALVE
- PROPOSED MECHANICAL METER CHAMBER & KIOSK
- PROPOSED BOUNDARY BOX & SERVICE CONNECTION



- #### GENERAL WATERMAIN NOTES:
- ALL WATERMANS SHALL BE 100mm Ø PE100 WATERMAIN WITH AN SDR-11 OR SDR-17 RATING & COMPLY WITH SECTION 3.9 OF THE IRISH WATER CODE OF PRACTICE.
 - ALL WATERMANS SHOULD BE LOOPED TO AVOID DEAD ENDS & SHALL BE BLUE IN COLOUR.
 - ONLY USE ALL FLANGED T'S & ALL FLANGED VALVES.
 - USE ANTI-CLOCKWISE (LEFT-HAND CLOSING) SLUICE VALVES.
 - DO NOT USE DUCTILE IRON TAILS - USE FLANGE ADAPTORS WHERE APPLICABLE.
 - ONLY USE SCREW TYPE HYDRANTS.
 - THE DEPTH OF THE SLUICE VALVE SPINDLE CAP TO BE IN ACCORDANCE WITH IRISH WATER STANDARD DETAILS STD-W-14 & STD-W-15.
 - THE DEPTH OF THE HYDRANT OUTLET TO BE IN ACCORDANCE WITH IRISH WATER STANDARD DETAILS STD-W-16 TO STD-W-19.
 - APPROVED MARKER TAPE AS PER IRISH WATER CODE OF PRACTICE.
 - NO PIPE, CABLE, CONDUIT OR OTHER SERVICE SHOULD BE LAID LONGITUDINALLY OVER THE LINE OF A WATERMAIN.
 - ENSURE MARKER PLATES ARE IN PLACE.
 - ALL WATERMANS SHALL BE TESTED IN ACCORDANCE WITH SECTION 4.11 OF THE IRISH WATER CODE OF PRACTICE IN THE PRESENCE OF A MEMBER OF STAFF FROM IRISH WATER OR THEIR AGENTS. DETAILS OF TESTING PROCEDURE TO BE DISCUSSED ON SITE WITH CONTRACTOR.
 - ALL HYDRANTS AS PER 3.16.5 OF THE IRISH WATER CODE OF PRACTICE.
 - PROVIDE THRUST BLOCKS AT ALL CHANGES IN DIRECTION.
 - ALL CONNECTIONS POINTS TO BUILDING TO BE SERVICED WITH A MINIMUM OF 25mm OUTSIDE DIAMETER, 20mm INSIDE DIAMETER PE100 HDPE PIPE WITH AN SDR RATING OF 17.
 - ALL WATERMANS, METERS, HYDRANTS & VALVES TO BE INSTALLED, TESTED & CLEANED IN ACCORDANCE WITH IRISH WATER SPECIFICATIONS.
 - BUTT FUSION WELDING & ELECTRO FUSION JOINTING OF PIPES SHALL ONLY BE CARRIED OUT BY TRAINED OPERATIVES IN POSSESSION OF A CURRENT TRAINING CERTIFICATE, USING FULLY AUTOMATIC APPROVED JOINTING MACHINE/RIGS IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. THE IDENTITY OF THE HDPE PIPELINE MANUFACTURER SHALL BE MADE KNOWN TO IRISH WATER PRIOR TO COMMENCEMENT OF THE INSTALLATION.
 - ALL TESTING (PRESSURE CHLORINATION & BACTERIAL) TESTS TO BE IN ACCORDANCE WITH SECTION 4.10 OF THE IRISH WATER CODE OF PRACTICE. THE ENGINEER IS TO INSPECT THE PRESSURE TEST AFTER THE WATER CONTROL METRES ARE INSTALLED. ALL HYDRANTS & VALVES ARE TO BE INCLUDED IN THE TEST.
 - ALL CERTIFICATION & TESTING (INCLUDING INDEPENDENT THIRD PARTY CERTIFICATION) TO BE PROVIDED TO CONFIRM QUALITY ASSURANCE COMPLIANCE. EACH JOINT SHALL BE CLEARLY MARKED WITH THE JOINT LOGGED AUTOMATICALLY ON THE JOINTING MACHINE.
 - A PRINTOUT OF THE JOINT DETAILS, WITH A GPS LOCATION OF EACH JOINT, SHALL BE PROVIDED & RETAINED FOR QUALITY ASSURANCE PURPOSES.
 - CONNECTIONS TO THE USICE ÉIREANN WATERMANS SHALL BE IN ACCORDANCE WITH THE CONDITIONS AS SET OUT IN THE CONNECTION AGREEMENT.
 - WHEN EXISTING AC WATERMANS ARE PRESENT A SPECIFIC METHOD STATEMENT SHALL BE SUBMITTED TO IRISH WATER PRIOR TO WORKS TAKING PLACE & SUBJECT TO WRITTEN APPROVAL, DETAILING THE PROTECTION TO BE PUT IN PLACE TO EXISTING MAINS, METHOD OF REMOVAL OF EXISTING AC, METHOD OF DISPOSAL OF EXISTING AC & METHOD OF CONNECTION TO EXISTING AC.
 - THE CONTRACTOR IS TO INCLUDE FOR THE EMPLOYMENT OF A CHARTERED ENGINEER WITH PI INSURANCE TO €6.5m TO WITNESS THE INSTALLATION OF ALL INFRASTRUCTURE, VALIDATE ALL TESTING & OTHER USICE ÉIREANN QA AS REQUIRED UNDER THE USICE ÉIREANN QUALITY ASSURANCE (QA) FIELD INSPECTION REQUIREMENTS MANUAL, SEPTEMBER 2017 VERSION 1. IT IS A REQUIREMENT OF THE MAIN CONTRACTOR TO AGREE THE REQUIRED QA WITH THE USICE ÉIREANN FIELD INSPECTORS, RETAIN ALL THE QA DOCUMENTS ON SITE & REPAIR ANY DEFECTS. THE MAIN CONTRACTORS CHARTERED ENGINEERS & THE MAIN CONTRACTOR ARE RESPONSIBLE FOR AGREEING ON SITE CONFORMANCE WITH USICE ÉIREANN PRIOR TO HAND OVER OF THE WORKS TO USICE ÉIREANN. THE PRICE FOR ALL THE ABOVE IS TO BE INCLUDED IN THE MAIN CONTRACTORS TENDER SUM.

PROPOSED WATERMAIN LAYOUT

SCALE 1:500 @ A1 / 1:1000 @ A3

- #### FIRE HYDRANT NOTES:
- FIRE HYDRANTS TO BE POSITIONED A MINIMUM OF 6m FROM PROPOSED BUILDINGS.
 - FIRE HYDRANTS TO BE IN ACCORDANCE WITH THE FIRE OFFICER RECOMMENDATIONS.
 - ALL FIRE HYDRANTS TO BE LOCATED IN ACCORDANCE WITH TECHNICAL GUIDANCE DOCUMENT B OF BUILDING REGULATIONS, 1997 & TECHNICAL GUIDANCE DOCUMENT B OF BUILDING REGULATIONS, 2006 STATUTORY INSTRUMENT 497 OF 1997.
 - FINAL VERIFICATION SHOULD BE SOUGHT FROM THE FIRE AUTHORITY FOR AGREED LAYOUT OF ALL HYDRANTS & THE NUMBER OF WATER SUPPLY CONNECTIONS TO THE FIRE WATER RING MAIN.

- #### NOTES FOR CONNECTION TO USICE ÉIREANN WATER SERVICES
- CONTRACTOR TO Liaise WITH USICE ÉIREANN PRIOR TO MOBILISATION ON SITE TO DETERMINE THE DURATION OF THE APPROVAL PROCESS & WHAT DOCUMENTATION & FEES ARE REQUIRED BY USICE ÉIREANN & THE LOCAL AUTHORITY & PROGRAM THIS INTO THE CONSTRUCTION PROGRAM.
 - USICE ÉIREANN TO BE CONTACTED BY THE CONTRACTOR PRIOR TO COMMENCEMENT OF ANY WASTEWATER SEWER & WATERMAIN WORKS. ALL DETAILS TO BE AGREED WITH USICE ÉIREANN. USICE ÉIREANN TO BE GIVEN ADEQUATE NOTICE FOR ALL WASTEWATER SEWER & WATERMAIN CONNECTION WORKS.
 - EXACT LOCATION & DEPTH OF THE EXISTING WASTEWATER SEWERS, RISING MAINS & WATERMANS SHOULD BE ESTABLISHED BY THE CONTRACTOR IN ADVANCE OF THE MAIN EXCAVATION WORKS FOR THE NEW WASTEWATER SEWER & WATERMAIN SO AS TO AVOID THE POSSIBILITY OF DAMAGE TO THE EXISTING WASTEWATER SEWERS, RISING MAINS & WATERMAIN DURING CONSTRUCTION WORKS. SLIT TRENCHES TO BE UNDERTAKEN.
 - ALL EXISTING WASTEWATER SEWERS, RISING MAINS & WATERMANS TO BE ADEQUATELY PROTECTED. ANY WASTEWATER SEWERS, RISING MAINS & WATERMANS DAMAGED DURING THE COURSE OF CONSTRUCTION WILL BE REPLACED BY THE CONTRACTOR AT THEIR OWN COST.

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Rev.	Date	Description	Des.	Chkd.	Appr.
PL1	01.03.24	PLANNING ISSUE	GG	TD	NP

PLANNING

PROPOSED WATERMAIN LAYOUT

Date: 28.02.24 Scale: 1:500 @ A1 / 1:1000 @ A3

Drawn By: M.TOLEDO Checked By: T.DELANEY Approved By: N.PATTERSON

Client: LAOIS COUNTY COUNCIL

Job Description: PROPOSED PORTLAND DEVELOPMENT TYRELLS LAND, PORTLOAISE, CO. LAOIS

Project No: 23KK001 Drawing Ref: C-010 Rev: PL1

GENERAL DRAINAGE NOTES:

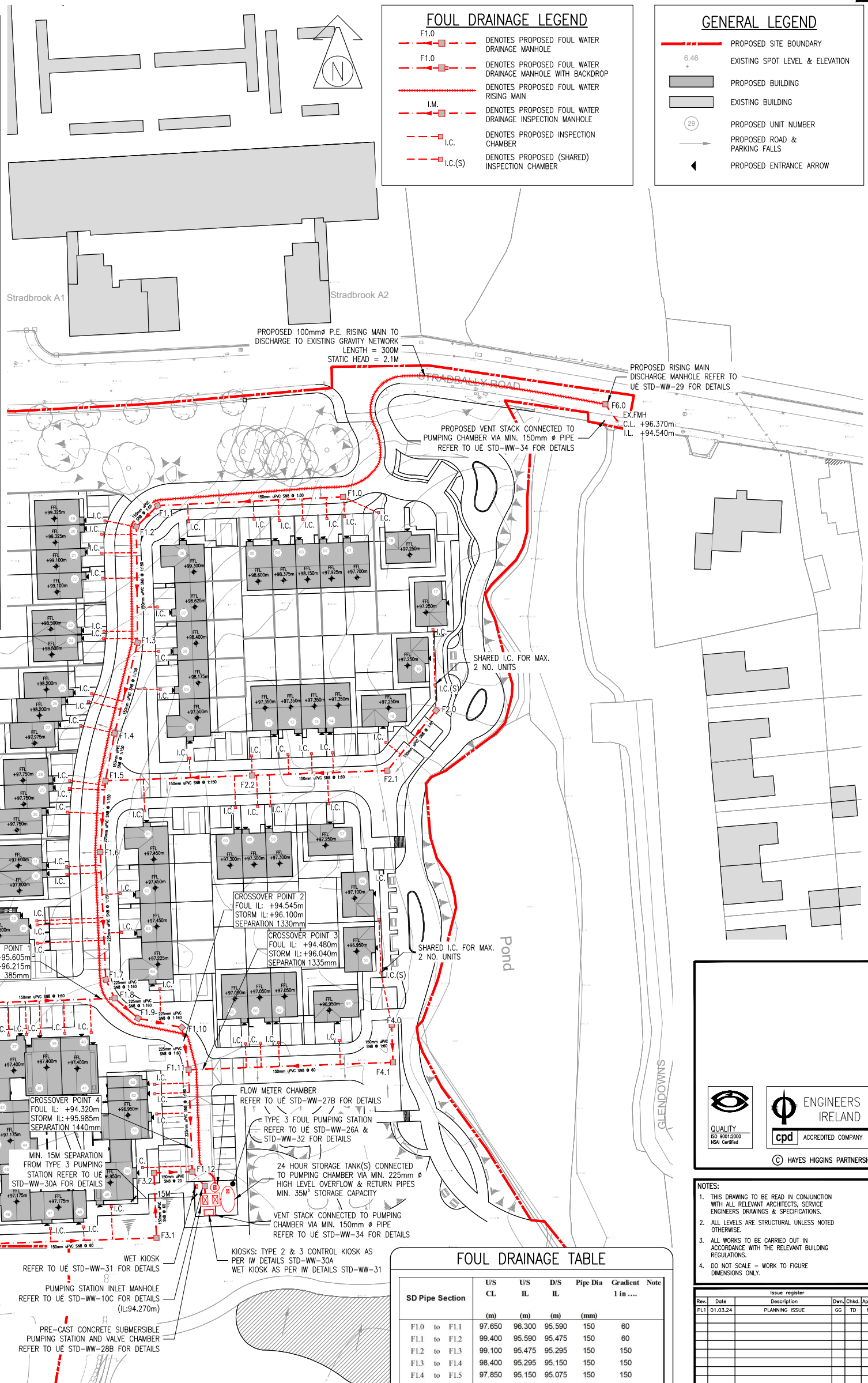
1. ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE NOTED.
2. ALL LEVELS ARE IN METRES ABOVE DATUM UNLESS OTHERWISE NOTED.
3. THE CONTRACTOR MUST CONTACT THE RELEVANT AUTHORITIES PRIOR TO CONSTRUCTION WORK, & SATISFY HIMSELF IN RESPECT TO THE LOCATION OF ALL EXISTING SERVICES.
4. ALL SEWER & DRAIN PIPES ARE CLASS 'C' uPVC UNLESS OTHERWISE STATED.
5. ALL BEDDING TO SEWERS IS CLASS 'B' UNLESS OTHERWISE NOTED.
6. ALL MANHOLES CAN BE EITHER PRECAST CONCRETE RING MANHOLES OR BLOCKWORK UNLESS OTHERWISE STATED.
7. 600mm MAX. LENGTH ROCKER PIPES ARE TO BE PROVIDED ON SEWER WHERE:
 - (A) A PIPE ENTERS A MANHOLE OR PUMPING STATION.
 - (B) A PIPE LEAVES A MANHOLE.
 - (C) A PIPE ENTERS CONCRETE ENCASUREMENT.
 - (D) A PIPE LEAVES CONCRETE ENCASUREMENT.
 - (E) ANY OTHER LOCATION AS DIRECTED BY THE ENGINEER.
8. ALL SEWER ROCKER PIPES ARE TO BE FORMED BY CUTTING & TRIMMING A LENGTH OF SPIGOT & SOCKET PIPE TO FORM A SPIGOT AT THE CUT END, THEREBY FORMING SPIGOT & SOCKET JOINTS AT BOTH ENDS OF THE ROCKER PIPE.
9. WHERE SEWER PIPES OR RISING MAINS CONNECT TO EXISTING MANHOLES, THE CONTRACTOR IS REQUIRED TO:
 - (A) CONTACT THE RELEVANT AUTHORITIES PRIOR TO COMMENCING WORK.
 - (B) MAKE GOOD THE EXISTING CHAMBER WALL AT THE PROPOSED POINT OF PENETRATION & ADJUST THE EXISTING BENCHING TO THE SATISFACTION OF THE ENGINEER.
10. WHERE SEWER PIPES, RISING MAINS OR ROAD GULLY DRAINS CROSS EXISTING ROADS, THE CONTRACTOR IS REQUIRED TO:
 - (A) CONTACT THE RELEVANT AUTHORITIES PRIOR TO COMMENCING WORK.
 - (B) MAKE GOOD THE EXISTING ROAD TO ITS ORIGINAL SPECIFICATION AS APPROVED BY THE ENGINEER.
11. MINIMUM FALLS INDICATED ON DRAINAGE PIPES, LEVELS TO BE REVISED IF MANHOLE LOCATIONS ARE MODIFIED BY CONTRACTOR.
12. CONCRETE PROTECTION TO BE PROVIDED AROUND ALL PIPES UNO.
13. ALL BRANCH & PERIMETER DRAINAGE ARE TO BE DETAILED BY ARCHITECT.
14. PROPRIETARY ACCESS JUNCTIONS TO BE USED TO DEPTHS OF 600mm OR LESS.
15. 450x450mm INSPECTION CHAMBERS TO BE USED AT DEPTHS OF 600-1000mm.
16. MANHOLES TO DETAILS TO BE USED AT DEPTHS OVER 1000mm.
17. ROAD GULLIES TO BE PROVIDED SO THAT MAX AREA CONTRIBUTING TO A SINGLE GULLY IS 180m².
18. ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH 'RECOMMENDATIONS FOR SITE DEVELOPMENT WORKS FOR HOUSING AREAS', DEPARTMENT OF THE ENVIRONMENT.
19. ALL STORM MANHOLE BASES TO BE PRECAST CONCRETE PRE-BENCHED OFF SITE.

FOUL DRAINAGE LEGEND

- F1.0 DENOTES PROPOSED FOUL WATER DRAINAGE MANHOLE
- F1.0 DENOTES PROPOSED FOUL WATER DRAINAGE MANHOLE WITH BACKDROP
- I.M. DENOTES PROPOSED FOUL WATER RISING MAIN
- I.C. DENOTES PROPOSED FOUL WATER DRAINAGE INSPECTION MANHOLE
- I.C. DENOTES PROPOSED INSPECTION CHAMBER
- I.C.(S) DENOTES PROPOSED (SHARED) INSPECTION CHAMBER

GENERAL LEGEND

- PROPOSED SITE BOUNDARY
- 6.46 EXISTING SPOT LEVEL & ELEVATION
- PROPOSED BUILDING
- EXISTING BUILDING
- PROPOSED UNIT NUMBER
- PROPOSED ROAD & PARKING FALLS
- PROPOSED ENTRANCE ARROW



PROPOSED FOUL DRAINAGE LAYOUT
SCALE 1:500 @ A1 / 1:1000 @ A3

FOUL DRAINAGE TABLE

SD Pipe Section	U/S CL (m)	U/S IL (m)	D/S IL (m)	Pipe Dia (mm)	Gradient	Note
F1.0 to F1.1	97.650	96.300	95.590	150	60	
F1.1 to F1.2	99.400	95.590	95.475	150	60	
F1.2 to F1.3	99.100	95.475	95.295	150	150	
F1.3 to F1.4	98.400	95.295	95.150	150	150	
F1.4 to F1.5	97.850	95.150	95.075	150	150	
F1.5 to F1.6	97.500	95.075	94.965	225	150	
F1.6 to F1.7	97.330	94.965	94.740	225	150	
F1.7 to F1.8	97.100	94.740	94.710	225	160	
F1.8 to F1.9	97.050	94.710	94.665	225	180	
F1.9 to F1.10	97.000	94.665	94.600	225	160	
F1.10 to F1.11	97.000	94.600	94.425	225	60	
F1.11 to F1.12	97.100	94.425	94.295	225	180	
F1.12 to PS	96.700	94.295	94.270	225	200	
F2.0 to F2.1	97.200	96.115	95.820	150	60	
F2.1 to F2.2	97.100	95.820	95.300	150	60	
F2.2 to F1.5	97.250	95.300	95.075	150	150	
F3.0 to F3.1	97.000	95.650	94.990	150	60	
F3.1 to F3.2	96.700	94.990	94.740	150	60	
F3.2 to F1.12	96.800	94.740	94.295	150	20	
F4.0 to F4.1	96.700	95.350	95.205	150	60	
F4.1 to F1.11	96.750	95.205	94.425	150	60	
F5.0 to F1.8	97.400	96.050	95.550	150	60	
F6.0 to EXT	96.400	94.870	94.765	225	45	

NOTE
 * = CONCRETE PROTECTION WILL BE PROVIDED OVER PII
 uPVC PIPES ASSUMED AS THE DRAINAGE MATERIAL, PLEASE NOTIFY ENGINEER IF DIFFERENT.
 BD DENOTES BACKDROP MANHOLE

TESTING OF SEWERS:

1. FOUL & SURFACE WATER SEWERS TO BE TESTED EITHER BY WATER OR AIR TEST. IF THE AIR TEST IS CARRIED OUT & THE RESULTS SHOW A FAILURE THEN A WATER TEST SHALL BE SUBSEQUENTLY CARRIED OUT TO DETERMINE ACCEPTANCE OR REJECTION.
2. WATER TESTS CARRIED OUT SHALL BE TESTED IN UNDER A HEAD OF WATER IN ACCORDANCE WITH BS 8301 1995, & CARRIED OUT FOR A MINIMUM OF 30 MINUTES.
3. THE CONTRACTOR IS TO ENGAGE AN ENGINEER WITH PROFESSIONAL INDEMNITY INSURANCE TO SUPERVISE ALL AIR/WATER TESTS ON MAINS BEFORE BACKFILLING.
4. ON COMPLETION OF ALL SEWERS DRAINS & GULLIES, ALL SEWERS SHALL BE FLUSHED OUT & LEFT FREE FROM DEFECT & OBSTRUCTION & SUBSEQUENTLY A CCTV SURVEY SHALL BE CARRIED OUT BY AN INDEPENDENT CONTRACTOR OF THE AS BUILT DRAINAGE. THE CCTV SURVEY SHALL INCLUDE A REPORT & DVD & SHALL BE SUBMITTED TO THE ENGINEER & ARCHITECT PRIOR TO PRACTICAL COMPLETION.
5. ON COMPLETION OF ALL SEWERS, DRAINS & GULLIES AN AS-BUILT SURVEY MUST BE SUBMITTED INCLUDING LOCATION OF MANHOLES RELATIVE TO THE BUILDING OUTLINE, COVER, INVERT LEVELS & PIPE DIAMETERS TO THE ENGINEER & ARCHITECT FOR THEIR REVIEW PRIOR TO PRACTICAL COMPLETION.

- NOTES:**
1. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS, SERVICE ENGINEERS DRAWINGS & SPECIFICATIONS.
 2. ALL LEVELS ARE STRUCTURAL UNLESS NOTED OTHERWISE.
 3. ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH THE RELEVANT BUILDING REGULATIONS.
 4. DO NOT SCALE - WORK TO FIGURE DIMENSIONS ONLY.

Rev.	Date	Description	Drawn	Checked	Approved
PL1	01.03.24	PLANNING ISSUE	GC	TD	NP

Status: **PLANNING**

PROPOSED FOUL DRAINAGE LAYOUT

Date: **28.02.24** Scale: **1:500 @ A1 / 1:1000 @ A3**

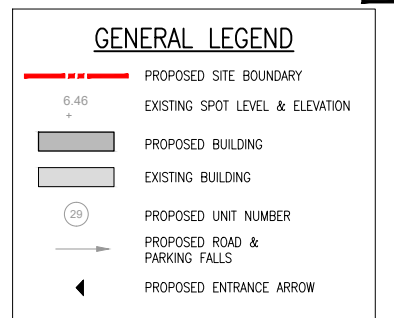
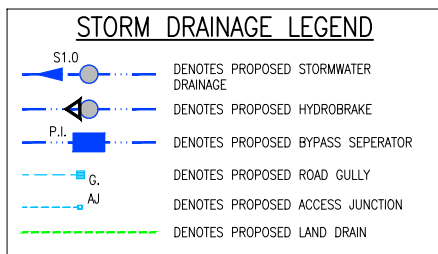
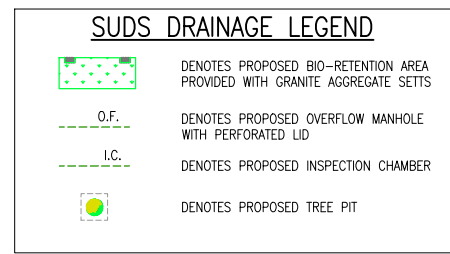
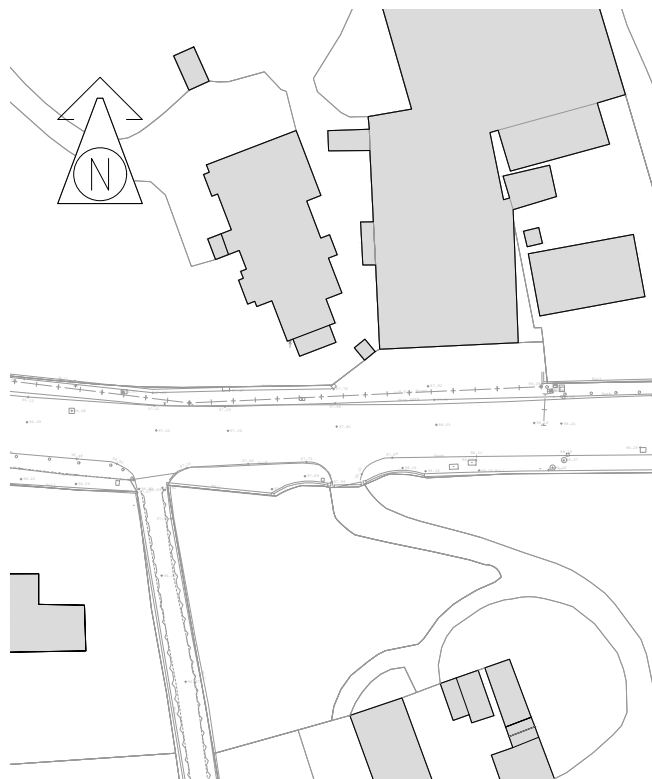
Drawn By: **M.TOLED0** Checked By: **T.DELANEY** Approved By: **N.PATTERSON**

Client: **LAOIS COUNTY COUNCIL**

Job Description: **PROPOSED HOUSING DEVELOPMENT TYRRELLS LAND, PORTLAIOISE, CO. LAOIS**

Project No: **23KK001** Drawing Ref: **C-015** Rev: **PL1**

Hayes Higgins Partnership
 Gas House Lane, Kilkenny.



STORM DRAINAGE TABLE

SD Pipe Section	US MH CL	US MH IL	DS MH IL	Pipe Diameter	Gradient	Notes:
	[mod]	[mod]	[mod]	[mm]	[1 in...]	
S1.0 to S1.1	99.100	97.600	96.850	225	40	
S1.1 to S1.2	98.350	96.850	96.455	225	90	
S1.2 to S1.3	97.500	96.455	96.235	300	200	
S1.3 to S1.4	97.100	96.235	96.175	300	200	
S1.4 to S1.5	97.000	96.175	96.085	300	200	
S1.5 to S1.6	97.000	96.085	96.040	300	200	
S1.6 to S1.7	97.100	96.040	95.965	300	200	
S1.7 to S1.8	96.800	95.965	95.910	300	200	
S1.8 to S1.9	96.800	95.910	95.760	300	200	Sump
S1.9 to PI	96.800	95.760	95.720	225	200	
PI to S1.10	96.800	95.620	95.530	225	200	
S1.10 to OUT	96.300	95.530	95.500	225	200	
S2.0 to S2.1	97.400	95.975	95.730	225	200	
S2.1 to S1.2	97.100	95.730	95.645	225	200	
S2.2 to OUT	97.200	95.545	95.500	225	200	Sump
S3.0 to S3.1	97.200	96.205	96.155	225	200	
S3.1 to S3.2	97.100	96.155	96.100	225	200	
S3.2 to S1.7	96.800	96.100	95.965	225	200	
S4.0 to S4.1	96.750	95.925	95.870	225	200	
S4.1 to S1.9	96.700	95.870	95.760	225	200	
S5.0 to S4.1	97.000	96.050	95.870	225	200	
S6.0 to S1.3	97.400	96.385	96.235	225	200	
S7.0 to S7.1	99.150	97.450	96.050	225	30	
S7.1 to S7.2	97.600	96.050	95.790	225	30	
S7.2 to S7.3	97.500	95.790	95.750	225	200	
S7.3 to S7.4	97.200	95.750	95.655	225	200	
S7.4 to OUT	97.100	95.555	95.500	225	150	Sump
S8.0 to S1.2	97.100	95.880	95.820	225	200	
S8.1 to S7.2	97.250	95.820	95.790	225	200	
S9.0 to S7.2	97.700	96.275	95.790	225	30	
S10.0 to S10.1	97.150	96.230	96.165	225	200	
S10.1 to S10.2	97.050	96.165	96.125	225	200	
S10.2 to S3.2	96.800	96.125	96.100	225	200	

NOTES:
 * uPVC PIPES ASSUMED AS THE DRAINAGE MATERIAL, PLEASE NOTIFY ENGINEER IF DIFFERENT
 * CONCRETE PROTECTION WILL BE PROVIDED OVER PIPES
 BD = DENOTES BACKDROP MANHOLE
 Sump = DENOTES 0.5m DEEP SUMP BELOW PIPE INVERT



PROPOSED STORM DRAINAGE LAYOUT
 SCALE 1:500 @ A1 / 1:1000 @ A3

- ### GENERAL DRAINAGE NOTES:
- ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE NOTED.
 - ALL LEVELS ARE IN METRES ABOVE DATUM UNLESS OTHERWISE NOTED.
 - ALL PIPE DIAMETERS ARE NORMAL.
 - THE CONTRACTOR MUST CONTACT THE RELEVANT AUTHORITIES PRIOR TO CONSTRUCTION WORK, & SATISFY HIMSELF IN RESPECT TO THE LOCATION OF ALL EXISTING SERVICES.
 - ALL SEWER & DRAIN PIPES ARE CLASS 'C' uPVC UNLESS OTHERWISE STATED.
 - ALL BEDDING TO SEWERS IS CLASS 'B' UNLESS OTHERWISE NOTED.
 - ALL MANHOLES CAN BE EITHER PRECAST CONCRETE RING MANHOLES OR BLOCKWORK UNLESS OTHERWISE STATED.
 - 600mm MAX. LENGTH ROCKER PIPES ARE TO BE PROVIDED ON SEWER WHERE:
 - (A) A PIPE ENTERS A MANHOLE OR PUMPING STATION.
 - (B) A PIPE LEAVES A MANHOLE.
 - (C) A PIPE ENTERS CONCRETE ENCASUREMENT.
 - (D) A PIPE LEAVES CONCRETE ENCASUREMENT.
 - (E) ANY OTHER LOCATION AS DIRECTED BY THE ENGINEER.
 - ALL SEWER ROCKER PIPES ARE TO BE FORMED BY CUTTING & TRIMMING A LENGTH OF SPIGOT & SOCKET PIPE TO FORM A SPIGOT AT THE CUT END, THEREBY FORMING SPIGOT & SOCKET JOINTS AT BOTH ENDS OF THE ROCKER PIPE.
 - WHERE SEWER PIPES OR RISING MAINS CONNECT TO EXISTING MANHOLES, THE CONTRACTOR IS REQUIRED TO:
 - (A) CONTACT THE RELEVANT AUTHORITIES PRIOR TO COMMENCING WORK.
 - (B) MAKE GOOD THE EXISTING CHAMBER WALL AT THE PROPOSED POINT OF PENETRATION & ADJUST THE EXISTING BENCHING TO THE SATISFACTION OF THE ENGINEER.
 - WHERE SEWER PIPES, RISING MAINS OR ROAD GULLY DRAINS CROSS EXISTING ROADS, THE CONTRACTOR IS REQUIRED TO:
 - (A) CONTACT THE RELEVANT AUTHORITIES PRIOR TO COMMENCING WORK.
 - (B) MAKE GOOD THE EXISTING ROAD TO ITS ORIGINAL SPECIFICATION AS APPROVED BY THE ENGINEER.
 - MINIMUM FALLS INDICATED ON DRAINAGE PIPES, LEVELS TO BE REVISED IF MANHOLE LOCATIONS ARE MODIFIED BY CONTRACTOR.
 - CONCRETE PROTECTION TO BE PROVIDED AROUND ALL PIPES UNO.
 - ALL BRANCH & PERIMETER DRAINAGE ARE TO BE DETAILED BY ARCHITECT.
 - PROPRIETARY ACCESS JUNCTIONS TO BE USED TO DEPTHS OF 600mm OR LESS.
 - 450x450mm INSPECTION CHAMBERS TO BE USED AT DEPTHS OF 600-1000mm.
 - MANHOLES TO DETAILS TO BE USED AT DEPTHS OVER 1000mm.
 - ROAD GULLIES TO BE PROVIDED SO THAT MAX AREA CONTRIBUTING TO A SINGLE GULLY IS 180m².
 - ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH 'RECOMMENDATIONS FOR SITE DEVELOPMENT WORKS FOR HOUSING AREAS', DEPARTMENT OF THE ENVIRONMENT.
 - ALL STORM MANHOLE BASES TO BE PRECAST CONCRETE PRE-BENCHED OFF SITE.

- ### TESTING OF SEWERS:
- FOUL & SURFACE WATER SEWERS TO BE TESTED EITHER BY WATER OR AIR TEST. IF THE AIR TEST IS CARRIED OUT & THE RESULTS SHOW A FAILURE THEN A WATER TEST SHALL BE SUBSEQUENTLY CARRIED OUT TO DETERMINE ACCEPTANCE OR REJECTION.
 - WATER TESTS CARRIED OUT SHALL BE TESTED IN UNDER A HEAD OF WATER IN ACCORDANCE WITH BS 8301 1995, & CARRIED OUT FOR A MINIMUM OF 30 MINUTES.
 - THE CONTRACTOR IS TO ENGAGE AN ENGINEER WITH PROFESSIONAL INDEMNITY INSURANCE TO SUPERVISE ALL AIR/WATER TESTS ON MAINS BEFORE BACKFILLING.
 - ON COMPLETION OF ALL SEWERS DRAINS & GULLIES, ALL SEWERS SHALL BE FLUSHED OUT & LEFT FREE FROM DEFECT & OBSTRUCTION & SUBSEQUENTLY A CCTV SURVEY SHALL BE CARRIED OUT BY AN INDEPENDENT CONTRACTOR OF THE AS BUILT DRAINAGE. THE CCTV SURVEY SHALL INCLUDE A REPORT & VIDEO & SHALL BE SUBMITTED TO THE ENGINEER & ARCHITECT PRIOR TO PRACTICAL COMPLETION.
 - ON COMPLETION OF ALL SEWERS, DRAINS, GULLIES & A CONDITION SURVEY OF ALL MANHOLES AN AS-BUILT SURVEY MUST BE SUBMITTED INCLUDING LOCATION OF MANHOLES RELATIVE TO THE BUILDING OUTLINE, COVER, INVERT LEVELS & PIPE DIAMETERS TO THE ENGINEER & ARCHITECT FOR THEIR REVIEW PRIOR TO PRACTICAL COMPLETION.

QUALITY
 ISO 9001:2000
 NSAI Certified

ENGINEERS IRELAND
 cpd ACCREDITED COMPANY

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NOTES:

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Rev.	Date	Description	Drawn	Checked	Approved
PL1	01.03.24	PLANNING ISSUE	GC	TD	NP

PLANNING

PROPOSED STORM DRAINAGE LAYOUT

Date: **28.02.24** Scale: **1:500 @ A1 / 1:1000 @ A3**

Drawn By: **M.TOLED0** Checked By: **T.DELANEY** Approved By: **N.PATTERSON**

Client: **LAOIS COUNTY COUNCIL**

Job Description: **PROPOSED HOUSING DEVELOPMENT TYRRELLS LAND, PORTLAOISE, CO. LAOIS**

Project No: **23KK001** Drawing Ref: **C-020** Rev: **PL1**

Hayes Higgins Partnership
 Gas House Lane, Kilkenny.



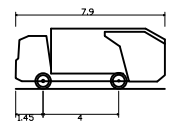
REFUSE VEHICLE
SCALE 1:500 @ A1 / 1:1000 @ A3



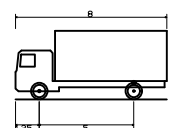
MEDIUM RIGID TRUCK
SCALE 1:500 @ A1 / 1:1000 @ A3



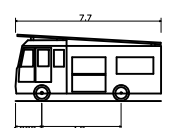
FIRE TENDER
SCALE 1:500 @ A1 / 1:1000 @ A3



DB32 Refuse Vehicle
Overall Length 7.900m
Overall Width 2.400m
Overall Body Height 3.183m
Min Body Ground Clearance 0.389m
Max Track Width 2.400m
Lock-to-lock time 6.00s
Curb to Curb Turning Radius 9.625m



Medium Rigid Truck
Overall Length 8.000m
Overall Width 2.500m
Overall Body Height 3.632m
Min Body Ground Clearance 0.427m
Track Width 2.500m
Lock-to-lock time 6.00s
Wall to Wall Turning Radius 10.000m



Dennis Sabre Fire Tender (LWB)
Overall Length 7.700m
Overall Width 2.430m
Overall Body Height 3.512m
Min Body Ground Clearance 0.397m
Track Width 2.380m
Lock-to-lock time 5.00s
Curb to Curb Turning Radius 7.400m

GENERAL LEGEND

- PROPOSED SITE BOUNDARY
- 6.46 + EXISTING SPOT LEVEL & ELEVATION
- PROPOSED BUILDING
- EXISTING BUILDING
- (29) PROPOSED UNIT NUMBER
- PROPOSED ROAD & PARKING FALLS
- PROPOSED ENTRANCE ARROW

QUALITY
ISO 9001:2000
NSA Certified

ENGINEERS IRELAND

ACCREDITED COMPANY

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Issue register		Rev.	Date	Description	Drawn	Checked	Approved
PL1	01.03.24			PLANNING ISSUE	GC	TD	NP

Status: **PLANNING**

Drawing Title: **SWEPT PATH ANALYSIS**

Date: **28.02.24** Scale: **1:500 @ A1 / 1:1000 @ A3**

Drawn By: **M.TOLEDO** Checked By: **T.DELANEY** Approved By: **N.PATTERSON**

Client: **LAOIS COUNTY COUNCIL**

Job Description: **PROPOSED HOUSING DEVELOPMENT TYRRELLS LAND, PORTLAOISE, CO. LAOIS**

Project No: **23KK001** Drawing Ref: **C-070** Rev: **PL1**

Hayes Higgins Partnership

Gas House Lane, Kilkenny.

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