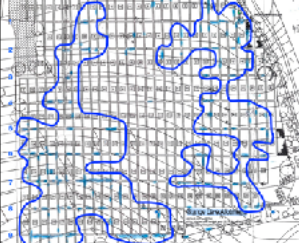





















PLOT'S PERIMETER CHANNELS
&
COMMUNAL PATHS BURIED DRAINAGE PIPES
GUIDANCE



No.	Illustration	Instruction
1		Please read all 21 steps before beginning. Excluding the preparatory plot's perimeter drainage channels, the laying of a drainage pipe may take some 90-120 minutes in total. A full list of the tools required include; a pair of gloves, measuring tape, felt-tip marker, string & pins, a large bucket or wheelbarrow, edging iron or and spade, trowel or and 3 pronged cultivator, spirit level or and water, hammer and a philips screwdriver.
2		With the, <i>Rainfall Mapping Survey 2023</i> , plotholders and site managers will together identify and prioritise, which buried communal paths drainage pipes will be laid and where. Permission needs to be received from GLAC site managers before the works may commence and materials provided. It is for the uphill plotholder to liaise and agree with the downhill plotholder on the exact location of the pipe run.
3		The preferable season to carry out the works is when the ground is neither too soft nor too hard (late March - mid May). Before the drainage pipe is laid a full width drainage channel across the bottom end of the plot should be dug, to a sufficient depth to contain the ground and surface run-off stormwater.
4		The plot's location and evidence of the record volume of water run-off will determine whether the $\varnothing 63\text{mm}$ or $\varnothing 90\text{mm}$ pipe is used. Generally the large pipe will be more suited to plots nearer the bottom of the Allotments.
5		The pipe run should be from the lowest point at the bottom of the uphill plot to the nearest point on the directly adjacent downhill plot, unless ponding and water-logging suggest otherwise. Measure the distance along the intended pipe run across the communal path between the two plots and add some 50-75mm overlap to both the top and bottom ends, +100 - 150mm tolerance in total.
6		Where the pipe projects into the upper plot's full width channel, further excavate it some 75mm deeper than the intended invert (bottom) level of the pipe to an approximately area of 20 x 20cm. This sump can be filled with small stones to allow fine granules and silt to settle in it below the invert level of the pipe, thereby reducing the potential for it to become blocked over time.
7		At the hut where the pipes are stored, lay down some cloth or plastic to catch and collect the swarf, measure the required length of pipe before hand cutting it with a saw and thereafter remove the swarf from the cut end. Return any unused sections of pipe to storage before bringing the pipe length to the plot before cordoning off the work area.

8		<p>As a digging guide lay a setting out line with string and pins. Cut along this line with an edging iron or spade in stages, cutting through the grass and roots on the first cuts to a depth of no greater than 50 - 75mm. If no buried pipes are encountered continue. If suspected or encountered dig carefully and gradually around the obstruction. Once the full length between the plots is cut, re-cut deeper up to 125mm. Use the spade to ease the cut line open, lifting slightly the grass to be removed.</p>
9		<p>Remove the string and pins and set them out again on the other side of the intended trench, parallel to the first cut line at a width just wider than the width of the spade. Repeat the step as previously carried out. At the uphill end of the channel across its full width use the spade to loosen the grass and soil to a depth of around 100mm so a sufficient depth of the grass is removed with its roots intact.</p>
10		<p>Cut across the channel as before to a distance equal to the depth of the spade face. Once all four edges are suitably loose carefully remove the clod and place it to one side of the channel. Continue removing clods until the whole length of the trench is dug out. Lay the pipe in it to check its length, width, depth and fall (slope). It is likely it will need to be dug deeper to give a minimum cover of 100 - 125mm above the crown (top) of the laid pipe to just below the adjoining ground levels.</p>
11		<p>The depth of the trench will ultimately be determined by the levels of the adjacent plots, the fall and whether any obstructions such as pipes are present. Although the approximate runs of the water pipes are known other unrecorded pipes may well be unearthed. Place the surplus spoil in the bucket or wheelbarrow, having decided beforehand where on the plot it will be deposited and spread.</p>
12		<p>If buried pipes are uncovered hand tools must be used, preferably a trowel until they are fully uncovered within the trench.</p>
13		<p>When the required depth of the trench is achieved ensure the bottom of it is compacted and smooth. If preferred pea shingles or other small (<10mm) granular material can be laid as a bed to achieve this though more soil will need to be excavated to retain the pipe at the same depth.</p>
14		<p>Lay the pipe in the trench and check its fall (slope) with either a spirit level or otherwise by pouring a little water into its highest end to test for a reasonable flow speed. A steeper slope over a shallower slope is recommended for higher flow rates and to reduce the chances of the pipe silting up and becoming blocked over time. Place the pipe in its intended final position and ensure it lies fully supported along its entire length.</p>

14		<p>Turn over the clods of grass and with a trowel or 3 pronged cultivator loosen and remove soil from around its grass roots, carefully depositing it in the bucket or wheelbarrow. The amount of soil excavated can be equal to a full level load of a medium wheelbarrow (100 lit).</p>
15		<p>Take the piece of mesh and one of the two matching sized double wire screw hose clamps provide by the site managers. Remove the pipe from the trench and wearing gloves carefully and gradually shape the mesh around the top end of the pipe. A hammer or mallet can be further used to compress the folds of mesh around the pipe. When suitably tight slide the clamp over the end of the pipe and mesh easing it down some 5cm from the top. With a screwdriver tighten it so the mesh is secure.</p>
16		<p>Lay the pipe back in the trench with the mesh end facing uphill and the clamps nut and bolt turned uppermost for ease of future access. Before covering, test the water flow through the pipe with a small amount of water and take a wide angled photograph of the pipe in the trench. Refill the trench with sieved soil in layers of 5cm, lightly compressing it by hand or with the back of a trowel. Back fill it up to the thickness of the clods and lay the downhill clod back in place for fit.</p>
17		<p>If more soil is required add a thin layer or scrap away a thin later if the clod sits higher than the surrounding grass. As required re-fit the clod snugly against one side of the trench and place the remaining clods next to each other fitting them snugly together.</p>
18		<p>If there are any gaps greater than 2.5cm between clods or between the edges of the trench and the clods these can be filled with neatly cut strips of clod if there are any spare ones remaining. Otherwise place any rooted blades of grass and or sprinkle clay into the gaps. Test for fit and levels and if acceptable compress the clods lightly at first with foot or spade before doing so again more firmly.</p>
19		<p>Thereafter tidy up the work area, ensure the string and pins have been removed. If there remain open drainage channels to the sides of the plots mark them with short lengths of cane capped and protected with yoghurt bottles to indicate the change in levels and trip hazards. Finally cover around the mesh to the top end of the pipe with small peddles and stones to further protect if from becoming blocked with fallen leaves over time.</p>
20		<p>Where perimeter channels are regularly traversed, such as to the sides rather than the bottom of plots these can be backfilled with wood chip. In order to keep the wood chip from being carried away downhill the ends of the channels can be secured with small hole chicken wire or damed with perforated bricks.</p>
21	<p>On finishing please inform the site managers exactly where the drainage channel has been laid for their records. Periodically inspect the ends of the pipe, cleaning the mesh with a brush and having your lower neighbour check the end of the pipe protruding into their plot. Feedback on plots water-logging prior and subsequent to the works remains welcome, thank you.</p>	