

INTEGRATED WEED MANAGEMENT CAMPAIGN 2026

THE WEEDS ARE THE SYMPTOM. THE DETRITUS IS THE CAUSE.

A practical route from a reactive spraying schedule to a documented Integrated Weed Management programme — built on your statutory duties, your surface condition and your own numbers.

FOR STREETSCENE, HIGHWAYS, PARKS, GROUNDS AND CONTRACT MANAGEMENT TEAMS



We don't only want to help you find the right equipment for weed management — we want to arm you with the knowledge and the best practice to get the most out of it.

We work with a lot of councils, contractors and estates going through the same exercise you are. These four resources have been useful to them, and they are free to use whether you end up buying anything from us or not.

KERSTEN UK

01

KERSTEN GUIDE · WRITTEN FOR COUNCILS

NAP 2025 COUNCIL IMPLEMENTATION GUIDE

What the National Action Plan does and does not require, how it connects to the cleansing duty, a diagnostic framework for surface condition and a twelve-month roadmap. Prepared by Sean Faulkner, a contributor to the Parks for London IWM Reference Guide 2025.

kerstenuk.com/national-action-plan-2025-council-guide

02

FIELD RESEARCH

THE BRACKNELL IWM TRIAL

A controlled multi-site trial with Bracknell Town Council and Complete Weed Control: 502 baseline measurements across six sites, the four-stage framework used in this pack, and first-season results comparing brushing followed by treatment against treatment alone.

kerstenuk.com/integrated-weed-management-trial-bracknell-kersten-uk-complete-weed-control

03

INTERACTIVE TOOL

IWM BUSINESS CASE BUILDER

Compare manual scraping, a chemical programme, an integrated programme and thermal-only treatment using your own route length, labour rates and disposal costs, with downstream gully, claims and carriageway exposure shown separately.

kerstenuk.com/Kersten-Integrated-Weed-Management-Business-Case

04

COMMISSIONED ANALYSIS

A WEED MANAGEMENT AUDIT

Built from your own complaint, repair, claims and budget records plus a physical site survey. It tests the cascade described in Section 03 against your data and returns an action schedule and a first-season measurement framework. Section 16 sets out what it contains; a specimen report is available on request.

kerstenuk.com/Kersten-Case-Studies-and-Customer-Results

WHAT THE REST OF THIS PACK COVERS

The legal framework you work inside, the mechanism that connects weeds to potholes, how to measure and classify a surface before choosing a method, the treatment hierarchy, then a page on each family of equipment — and only after that, the cost model, the capacity arithmetic and how to commission an audit.

Product recommendations come last, and only after a conversation about your surfaces.

FREE DEMONSTRATION

The quickest way to settle an argument about output is a measured trial on your own surface, with your own operators. We are happy to arrange one at no cost.

Weed management is rarely governed by one duty. It sits across cleansing, highway maintenance, pesticide regulation and work equipment law at the same time – which is why a programme built only around a spraying calendar tends to satisfy none of them well.

POLICY DIRECTION

UK PESTICIDES NATIONAL ACTION PLAN 2025

A UK-wide framework promoting Integrated Pest Management, lower dependency and reduced risk from pesticides, while accepting that targeted use may remain justified where alternatives are ineffective or unavailable.

A direction of travel, not an overnight ban – and not, in itself, a universal annual return to Defra for every council.

CLEANSING DUTY · ENGLAND

ENVIRONMENTAL PROTECTION ACT 1990, S.89

Duty bodies must, so far as is practicable, keep relevant land clear of litter and refuse and keep certain highways clean. The Code of Practice on Litter and Refuse confirms that for highway cleanliness this includes removing detritus.

Detritus is the growth medium. Removing it serves the cleansing duty and the weed programme in the same pass.

HIGHWAY CONDITION

HIGHWAYS ACT 1980

The maintenance duty under s.41, together with duties concerning obstruction and the public's right of passage, means vegetation encroaching on the running surface, footway or sightlines is a highway matter, not only an appearance one.

Anchored roots that open joints and lift edges become a defect question long before they become a weed complaint.

IF YOU STILL USE PESTICIDES

PPPR 2011 · SUSTAINABLE USE REGS 2012 · OFFICIAL CONTROLS 2020

Products must be authorised and used to label by competent operators, with use minimised – particularly on hard and sealed surfaces where run-off risk is highest. Professional users and distributors must also register under the 2020 Regulations.

Where use is challenged, an enforcing authority works from the evidence available. Records are the defence.

WHEN YOU SWITCH TO MACHINES

HSWA 1974 · PUWER 1998

Work equipment must be suitable for the task and conditions, maintained in efficient working order, and used only by people given adequate training and information. Moving from a knapsack to a powered brush or a thermal system changes the risk profile, not just the method.

Thermal and electric systems add LPG handling, scalding, fire and electrical exclusion controls to the assessment.

WATER AND ENVIRONMENT

RUN-OFF FROM SEALED SURFACES

Hard surfaces drain quickly to gullies and watercourses, so amenity applications carry a disproportionate risk to raw water quality relative to the area treated. This is a recurring driver behind catchment partnerships and local reduction commitments.

Mechanical extraction and thermal treatment remove that pathway rather than managing it.

TWO THINGS WORTH SEPARATING IN ANY POLICY PAPER

First, the legal duty and the strategic benefit are different arguments and carry different evidential weight. Second, no single intervention proves compliance and no single weed proves a breach – land type, practicability, responsibility and the current statutory code all bear on it. This page is a summary for discussion, not legal advice. Confirm the duties, registrations and record-keeping that apply to your organisation and jurisdiction.

WHAT THE PLAN ACTUALLY ASKS FOR

Three things: uptake of Integrated Pest Management, reduced risk and impact from pesticides, and stronger safe practice through training, equipment checks, storage and competence.

What it does not do is ban amenity pesticide use, or create a blanket national reporting return by itself. That distinction matters. A policy written on the assumption of a ban tends to be abandoned the first time a site genuinely needs a targeted treatment, and a programme built to satisfy an imagined return usually collects the wrong data.

The defensible position is a documented hierarchy – prevention first, non-chemical suppression second, justified targeted use where it remains necessary – with records that explain each decision.



THE CLEANSING CONNECTION · ENGLAND

Because the highway-cleanliness duty includes detritus removal, mechanical detritus management can support both cleanliness outcomes and an IWM strategy at once. The grades below are a simplified planning lens – always work from the current statutory code for the full standard.

A

No litter or refuse visible. The best condition for prevention, and the point at which weeds have nothing to germinate in.

B

Predominantly free, with limited small items. Hold this with planned cleansing cycles and inspection.

C

Widespread distribution with minor accumulations. Investigate detritus depth, drainage, joints and growth medium.

D

Heavily affected by accumulations. Prioritise recovery, asset inspection and follow-up planning.

WHY NON-CHEMICAL METHODS SOMETIMES DISAPPOINT

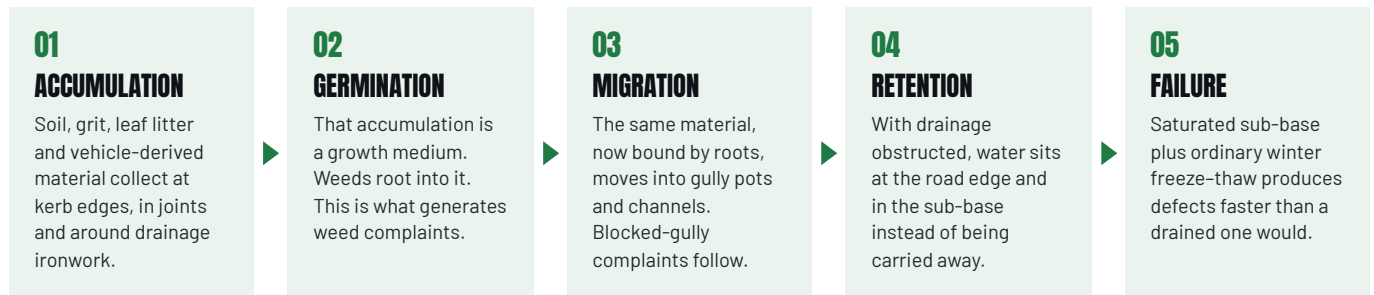
Usually because they were asked to do the wrong job. A surface treatment can suppress visible growth without removing accumulated material or anchored roots, so the site regrows on schedule and the method takes the blame. Review where, when and why it was used before concluding it does not work.

WHERE TO BEGIN

With a representative baseline rather than the whole network. Review policy, treatment records, contracts and surface condition across a manageable sample, then use the results to choose a focused pilot with clear operational and environmental measures.

ONE MECHANISM, FOUR BUDGETS

Weeds are the visible middle stage of a longer chain. Most authorities pay for that chain four times over, through four separate budgets held by teams with no operational connection to each other.



Four service streams. Four teams. Four budgets. One common upstream mechanism.

WHY THE FRAMING CHANGES THE ANSWER

Most weed management reports treat weeds as the problem and ask which treatment kills them most cheaply. That question has no good answer once chemical options are restricted, because every non-chemical treatment is slower and more expensive per weed.

Reframing around the growth medium changes what is being bought: not a weed killer, but a reduction in the rate at which four separate services generate work. That is a maintenance proposition rather than a horticultural one, and it belongs in highway asset management as much as in grounds maintenance.

THE PHYSICAL MECHANISM

Freeze-thaw damage needs two things at once: sub-freezing temperature, and water. The temperature is uncontrollable. The water is not.

Cold does little harm to a dry substrate. Damage occurs once saturation passes the threshold at which ice formation generates destructive internal pressure. Where kerb-line detritus and blocked gullies retain standing water, the same winter that would have done negligible damage instead acts on a substrate primed for it.

WHAT TO LOOK FOR IN YOUR OWN RECORDS

Co-location. Match weed, blocked-gully, gully-vegetation and carriageway repair records by street. Streets carrying records in several categories are the ones to survey first.

Seasonality. Compare the winter to non-winter split of carriageway repairs on streets with drainage complaints against those without. A correlation can always be attacked on the grounds that busy roads generate more of everything — but traffic loading does not vary by season, and water does. That moves the argument from association to mechanism.

WHY MEASUREMENT COMES FIRST

Complaint data tells you where the public has noticed a problem. It cannot tell you whether the material at that location will lift out with a brush or has already bonded into the surface – and those two conditions carry very different costs.

The absence of a complaint is not evidence of good condition; it only shows that nobody reported one. And by the time a weed is visually prominent enough to be reported, the earliest and cheapest intervention opportunity has usually passed.

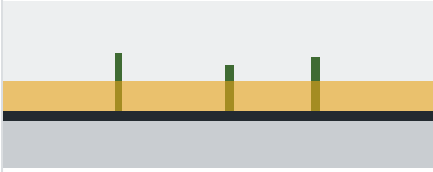
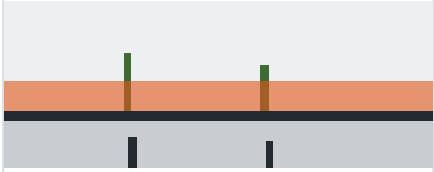
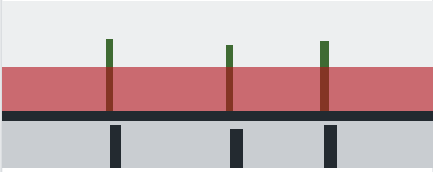
Two measurements settle it, and both can be taken by a supervisor in an afternoon. **Depth**, using a gauge at standardised positions in the kerb channel. And **root anchorage**, using the Kick Test.

WHY DEPTH ALONE IS NOT ENOUGH

Two locations can measure exactly the same depth and need completely different responses. In one, the roots are still floating in the accumulated material and the whole mass lifts out. In the other, roots have found their way into a joint or a crack and bonded into the pavement.

The distinguishing variable is time, not depth. Above-ground weed height is a poor proxy for what is happening inside the surface, which is why the test is a physical one.

THE KICK TEST · APPLY CONTROLLED LATERAL PRESSURE AT THE BASE OF THE GROWTH AND WATCH WHAT HAPPENS

RESULT A	RESULT B	RESULT C
THE WHOLE MASS LIFTS AS ONE UNIT 	GROWTH BREAKS OFF AT THE SURFACE, ROOTS STAY 	THE STEM SNAPS ABOVE THE SURFACE 
WHAT IT MEANS Roots are still floating in the detritus. The window is open.	WHAT IT MEANS Roots have anchored into a joint or crack. The window has closed.	WHAT IT MEANS Woody or lignified roots, usually with deeper accumulation and possible sub-base involvement.
DO THIS Mechanical extraction now – it removes substrate and root system together, at maintenance cost.	DO THIS Treat as an emerging structural defect: extraction removes the material but not the root system.	DO THIS Refer for engineering inspection rather than treating it as a cleansing job.

The distinction is physically observable rather than a matter of judgement: the mass either lifts with the detritus or it breaks. That is what makes it usable by a whole team rather than only by a specialist.

DOING IT PROPERLY

Measure depth at several representative points rather than one. Record whether the surface is already intact or damaged, as a separate field from the depth reading. Apply only controlled pressure, and follow your normal site safety procedures – this is work at ground level, often beside a live carriageway. Escalate any suspected structural defect for competent inspection rather than deciding it on the test alone. And document the procedure so it is applied consistently: paired assessment during the first season is worth doing to align recording between teams and settle how borderline cases are logged.

Put depth and the Kick Test result together and every location falls into one of four stages.

Stages 2 and 3 share the same 11-25mm depth band, and that is exactly the point: they look identical on a gauge and differ by an order of magnitude in cost.

STAGE 1 PREVENTION UP TO 10MM	STAGE 2 WINDOW OPEN 11-25MM	STAGE 3 WINDOW CLOSED 11-25MM	STAGE 4 STRUCTURAL FAILURE OVER 25MM
KICK TEST Pioneer growth, no real anchorage	KICK TEST Result A – the mass lifts as one unit	KICK TEST Result B – breaks at substrate, roots remain	KICK TEST Result C – the stem snaps, the root stays
RESPONSE Routine sweeping at a frequency that prevents Stage 2	RESPONSE Prioritised mechanical extraction, then prevention	RESPONSE Defect management, suppression and repair planning	RESPONSE Engineering inspection and capital repair
INDICATIVE COST Below £10/m²	INDICATIVE COST Below £10/m²	INDICATIVE COST £75-150/m²	INDICATIVE COST £100-150+/m²

Cross-section, left to right: vegetation above the surface, the accumulated detritus it grows in (coloured), the pavement surface (dark rule) and the sub-base beneath. From Stage 3 the roots have crossed the surface into the pavement itself.

INDICATOR SPECIES · A FIRST READ BEFORE YOU MEASURE

STAGE 1-2 INDICATOR MOSS A reliable early-stage signal. Its presence largely rules out the Stage 4 damage zone and supports preventative work.	STRONG STAGE 2 INDICATOR OAKLEAF FLEABANE 85% of trial observations fell in the 11-25mm floating-root band. With a passing Kick Test, the window is probably still open.	STAGE 3-4 WARNING BRAMBLE Never recorded at Stage 1. Woody roots warn that the mechanical intervention window may already have closed.
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Species composition varies with climate, canopy and surface type, so treat indicators as a first read and confirm with depth and the Kick Test. The four-stage model and the indicative cost ranges are Kersten research and planning tools developed from the Bracknell trial – not statutory classifications, engineering specifications or a substitute for competent inspection.

The framework on the previous pages is not an opinion. Kersten UK, Bracknell Town Council and Complete Weed Control are running a controlled multi-site trial to test it with measurements, and the results are published.

6

URBAN SITES: CAR PARKS,
PARK EDGES, KERBS, PATHS
AND A RESIDENTIAL FOOTWAY

502

SPECIES-DEPTH PAIRS
RECORDED AT BASELINE

4

DIAGNOSTIC STAGES FROM
PREVENTION TO STRUCTURAL
FAILURE

49%

LESS ACTIVE SUBSTANCE
WHERE BRUSHING PRECEDED
SPRAYING

BRUSH FIRST, THEN TREAT

Across five comparable sites at the first pesticide application in June 2026, plots that were mechanically brushed beforehand used **1,133ml** of active substance against **2,218ml** on spray-only plots. Removing the detritus cut both the target area and the weed biomass needing treatment.

One site was excluded because baseline surface conditions were not comparable. Mid-season monitoring ran through summer 2026 and the end-of-season report is due October 2026.

SPRAY ONLY

2,218ML

BRUSH AND SPRAY

1,133ML

First pesticide application, June 2026. Five comparable sites.

WHAT OUTPUT ACTUALLY DEPENDS ON

HEAVY STRUCTURAL RESET

500-1,000 m/day

A realistic range where significant overburden, anchored growth, repeat positioning or slower cleanup limits progress.

FINE-TUNED ONE-PASS SYSTEM

Up to 3,500 m/day

One mechanical pass on path edging and kerb lines followed by a road sweeper, achieved by an operator who had refined the whole system rather than treating the machine as a standalone process.

BEST SEASON

Winter

Accumulated material is most visible, and the work happens before spring germination — which is what suppresses the following year's annuals.

It does what it says on the tin.

NIGEL, FFL SERVICES — ON ACHIEVING UP TO 3,500 METRES OF EDGES IN A DAY

Integrated Weed Management is not swapping one treatment product for another. It is a documented hierarchy that starts by reducing the conditions which let vegetation establish in the first place. The equipment pages that follow are arranged in the same order.

TIER 1

PREVENTION AND EXTRACTION

Manage detritus, edges, joints and drainage before a stable growth medium develops. This is also the tier that discharges the cleansing duty.

- Weed brushes — Section 08
- Sweeping and collection — Section 09
- Gravel renovation and grading — Section 10
- Stage 2 extraction before anchorage

TIER 2

NON-CHEMICAL SUPPRESSION

Thermal, electric and other physical methods, selected around surface, access, scale and objective — after the growth medium has been reduced, not instead of reducing it.

- Hot air — Section 11
- Hot water — Section 12
- Electro-thermal — Section 13
- Always sequenced behind a mechanical reset

TIER 3

TARGETED PESTICIDE USE

Where pesticide use remains necessary, justify the decision, use the least-risk suitable approach and keep records that explain it.

- Targeted rather than routine broadcast use
- Invasive-species plans where required
- Competent operators, lawful products
- Treatment records and review

A TWELVE-MONTH ROADMAP

01

MONTHS 1-2

AUDIT AND BASELINE

Sample representative sites, record current practice, measure detritus and surface condition, and identify where early intervention offers the strongest return.

02

MONTHS 3-4

PROCUREMENT AND TRAINING

Select methods around the audited need, review contract specifications, arrange demonstrations, and make sure operators and supervisors understand the programme.

03

MONTHS 5-6

PILOT

Apply the hierarchy on a controlled set of sites. Monitor condition, treatment frequency, recolonisation, hours and pesticide use against the baseline.

04

MONTHS 7-12

ROLLOUT AND REVIEW

Extend what worked, revise specifications and frequencies, plan capital work for advanced defects, and report through your own governance processes.

RECORD AT SITE LEVEL

Location, surface type and responsible service; detritus depth and surface condition as separate fields; indicative stage and Kick Test result; indicator and invasive species; the intervention, date, labour and equipment; product and quantity where applicable; and follow-up condition.

REPORT AT PROGRAMME LEVEL

Share of sites by stage; sites moving towards prevention against those deteriorating; pesticide use and treatment frequency against baseline; cleansing and extraction coverage; complaints, defects and repeat visits; cost per site or cycle; training and equipment-inspection status.

The brush is the machine the framework points at: it lifts the accumulated material and the root system out of the joint as one mass, while the window is still open. Tool aggressiveness, plate orientation, rotation direction, pressure and edge reach decide the result far more than working width does.



KERB CHANNEL · WHERE THE MATERIAL COMPACTS HARDEST



ENCROACHED EDGES · RECLAIMING THE ORIGINAL WIDTH

RANGE	CARRIER	HEAD	WHERE IT FITS
WEED60	Professional brushcutters	Conversion	Joints, edges, street furniture and places no wheeled machine reaches. Low transport and access requirement; spot work rather than broad-area output.
WEED0 II	Dedicated pedestrian platform	50 cm	Six-tool rotating plate with adjustable tool position and direction, for repeated route work on smaller paved sites, housing land and contractor rounds.
WKB 40 / WKB 60	Kersten pedestrian carriers	40 and 60 cm	Hydraulic or PTO drive routes, Versa and Hausa replacement sections, and an optional edge cutter on suitable WKB 60 configurations.
UB 6080 H / MK / MH	Compact and municipal tractors	60 and 80 cm	Carrier-specific bracket and controller, with MH configurations adding integrated hydraulic movement. High edge reach for overburden and established growth.
UB EASY FL / DS / VB	Larger tractors and loaders	~80 cm radial ~84 cm vertical	Heavy-duty Versa, flat-wire and vertical edging heads for verge encroachment and high-output clearing.

Full range and current prices: kerstenuk.com/Weed-brush-attachment-series

WORKING TOOLS CHANGE THE OUTCOME

Versa combination tools lift and sweep in one action. Hausa twisted wire extracts more aggressively where material is compacted hard against the kerb face. Flat-wire and vertical tools handle specialist edging. Sections are consumables and their wear rate is a real cost line — price them separately.

SPECIFY THESE FOUR THINGS

Integrated collection, so material is not redistributed back into the drainage pathway. Reach into the kerb channel, gully approaches and ironwork surrounds. The ability to lift the full root crown at Stage 2 rather than sever the stem. And declared hand-arm vibration magnitude with permitted daily trigger time.

Sweeping is the cheapest intervention in the programme and the only one that stops the cycle before it starts. It removes soil, leaves, grit and moss fragments before they stabilise into a growth medium, and it is what holds a treated route at Stage 1 once extraction has reset it.



PREVENTION · FREQUENCY BEATS INTENSITY



COLLECTION · THE STEP THAT GETS SKIPPED

FAMILY	CARRIER	ROLLER	NOTES
EFKM, K-SERIES, DE-MOSS	Two-wheel tractors and pedestrian carriers	Typically 90–130 cm width	Mechanical or hydraulic drive by carrier. Standard poly-combi roller, or a de-moss roller where moss dominates.
FKM 37, HKM/FKM 40, KM 45	Ride-on mowers, sub-compact and compact tractors	37–45 cm	Front or rear, mechanical, PTO or hydraulic, with manual or hydraulic angling. Estate routes and block paving.
KM 52, KM/FKM 60, KM 70	Medium and large tractors, loaders, municipal carriers	52–70 cm	Heavy hydraulic or duplex-chain drive with pendulum suspension. For soil, stones, leaves and municipal debris volumes.
COLLECTOR BOXES AND GULLY BRUSHES	Fitted to compatible sweepers	Sized to family	Retain dense soil, moss, grit and sand. A gully brush presents edge material to the main roller.
VACUUM NOZZLES AND MOUNTED COLLECTORS	Tractor mounted	Route dependent	Transfer loosened arisings into a collector or trailer. Best after material is already loosened — not a substitute for extraction.

Roller diameter and working width are separate decisions: width affects route output, diameter affects material capacity and debris size.

WHERE SWEEPING STOPS AND BRUSHING STARTS

Use a sweeper where the problem is loose soil, leaves, moss fragments or detritus sitting on the surface. Use a weed brush where material is rooted or compacted into joints and edges and needs extraction rather than movement. A sweeper run over Stage 2 growth tidies the appearance and leaves the mass in place.

ALWAYS COLLECT

Released soil and roots left in joints or at the edge simply become next season's seedbed — and material brushed off a surface either goes into a collector or into the drainage system.

On an unsealed route the growth medium is inside the surface rather than sitting on it. Heavily used gravel compacts, traps detritus and holds moisture, which creates exactly the damp, nutrient-rich environment weeds and moss need – and impairs the drainage that kept the surface sound.



RENOVATE · CUT BENEATH THE ROOTS



GRADE · REBUILD THE RUNNING SURFACE

MODEL	ROLE	WIDTH	CARRIER AND STARTING POINT
WE 090 M-U 70	Pedestrian renovation	90 cm · 152 kg	Kersten UBS Hydro or Alpin on K70 quick attach. Restricted-access paths in parks, cemeteries and estates.
WE 110 M-DP	Tractor renovation	110 cm · 124 kg	CAT 1 / CAT 1N. Narrow estate routes and compact tractor widths.
WE 150 M-DP	Tractor renovation	150 cm · 156 kg	CAT 1 / CAT 1N. Broad paths, drives and higher-output deep renovation.
PH 100 MINI	Grading and levelling	100 cm	From 30 hp, CAT 1 linkage. Narrow tracks and restricted grading work.
PH 130 MINI	Grading and levelling	130 cm	From 35 hp. General estate, park and countryside routes.
PH 150 MINI	Grading and levelling	150 cm	From 38 hp. Wider tracks and estate roads. Water-fillable roller adds consolidation mass.

A renovator addresses rooted growth and compaction; a grader addresses potholes, levels, camber and material distribution. Full range: kerstenuk.com/gravel-path-renovators-and-graders

MATCH THE TOOL TO THE CONSTRUCTION, NOT THE WEEDS

Angled knives for loose and self-binding gravel: they cut beneath roots and release the upper layer. Carbide chisels where crushed stone or water-bound material is too compacted for knives to open. Thick weed-brush tools for tarmac sub-base and similar firm surfaces where moss must come off without the deeper knife treatment. Test depth on a representative area first.

Usable gravel stays available for redistribution – the objective is to lift weeds, roots and contaminated material, not to remove the stone.

FIVE STEPS, IN ORDER

Survey depth, stone type, drainage, edges and access. **Renovate** at the right tool and depth. **Clear** the arisings – rake, blow or collect. **Grade** to restore levels and camber. **Maintain** with raking and sweeping before compaction rebuilds. Leaving the loosened weeds and soil on the route lets it settle back and rebuild the growing medium, which is the commonest way a renovation wastes its own effort.

The lightest non-chemical route logistically, because it carries propane rather than water. Ripagreen mixes roughly 94% ambient air with 6% gas, so the heat is directed rather than flamed.

A leaf needs only brief exposure at around 76–80°C to sustain terminal damage: the cells burst and the plant can no longer photosynthesise. Charring is not the objective – it means wasted dwell time and slower output. Strongest on young annual growth and moss, and strongest of all once detritus has been removed, because soil and leaf litter shield plant tissue and add fire risk.



VEHICLE-SUPPORTED LANCE WORK

RANGE	FORMAT	KEY FIGURES	WHERE IT FITS
RIPAGREEN MOBILITY	Backpack lance	40 cm diffuser · 45–76 kW · 5–6 kg cylinder	Steps, narrow paths, beds, graves, street corners and uneven ground, where the operator must work independently.
RIPAGREEN EASY / EASY+	Trolley lance	13 kg cylinder · 40 cm width	Longer pedestrian routes, with Easy+ adding a backpack option for mixed-access sites.
RIPAGREEN AUTONOMY	Vehicle supported	15 m hose reel · 1 or 2 lances · 10–15 kg cylinders	Larger routes worked from a support vehicle with automatic hose reels, without losing targeted application.
HOAF THERMHIT	Handheld and wheeled	15, 25, 45 and 75 cm	Infrared radiation combined with hot air, shielded for controlled treatment close to obstacles.
HOAF WEEDAIR	Pedestrian hooded	50–75 cm · Infra Plus	Paths, car parks and public spaces where a contained treatment zone and a consistent working width matter.
HOAF WEEDAIR / TWB	Carrier mounted	75–125 cm	Highways, estates and large hard-surface routes, with access under benches and close to edges.

Full range: kerstenuk.com/thermal-hot-air-weed-removers

WHERE IT WINS

No water to carry, no tank to refill and no charging supply, so one operator can cover dispersed small sites that would defeat a water-based route. It is unaffected by spray drift, which widens the usable working window across a season.

WHAT TO CONTROL

Dry combustible material is the main hazard – another reason to sweep or brush first. LPG handling, public access, thin plastics, reflected heat and proximity to street furniture all belong in the site assessment, with the controls it identifies written into the method statement.

A contact treatment that conducts heat into plant tissue and the upper soil profile, which gives it more effect below the surface than hot air. The trade is logistics: water has to be carried, heated and replaced.

Two architectures. Stored-energy systems pre-heat the water and treat almost silently, which suits stop-start routes and noise-sensitive sites. On-demand systems heat continuously for long shifts, multiple operators, rapid refilling and combined cleaning work. Plan around 2 to 2.5 litres per square metre at full vegetation cover, estimating the actively vegetated area rather than the whole route.



ON-DEMAND SYSTEM, VEHICLE MOUNTED

RANGE	TYPE	KEY FIGURES	WHERE IT FITS
ECO WEEDKILLER GARDEN	Compact stored	25 L · 2 kW on 13 A or 3 kW on 16 A · 3 m hose	Gardens, courtyards, small landscapes and localised treatment. Around 8–10 m ² per fill.
PRO SP MINI / 3 / 6	Professional stored	150–600 L · about 6 L/min · 20 m reel	Nearly silent in use. Roughly 60–75, 100–150 and 240–300 m ² respectively. For quiet routes and sites where combustion at the treatment point is undesirable.
PRO 10 / PRO 20 DUAL / PRO 30H	On demand	99–101°C · up to 80 m hoses · 1 or 2 operators	Long routes with continuous refilling, and combined weed control, pressure washing and cleaning. The Pro 30H is a hydraulic vehicle system.

The Pro 20 offers selectable 10 or 20 L/min output, reaching the higher figure with two users, with published fuel consumption of 11 litres per hour on one user and 20 on two. Full range: kerstenuk.com/Eco-Weedkiller-Hot-Water-Weed-Management

REFILLING DECIDES THE DAY, NOT THE MACHINE

Water supply is usually the limiting factor rather than fuel range. If a bowser travels far between fills, refill time can dominate the shift and make an output figure quoted in metres per hour meaningless.

Record treatment time, refill time and travel time separately from the first day of any pilot. It is the cheapest data collection in the programme, and it tells you whether the answer is a bigger tank, a second bowser or a different route order.

TREAT EARLY, TREAT LESS

Young, fleshy plants hold less stored energy and need less heat, so the same tank covers more ground. That efficiency is only available on a network already reset. A programme that waits until growth is visually prominent operates at a materially higher cost per metre — the intervention window argument, expressed in litres.

Electrical current is the delivery mechanism; heat is the mode of action. Current passes through the plant and generates resistive heat inside the tissue, damaging chlorophyll and vascular structure from within and acting toward the root zone rather than heating only the exposed surface.

That makes it the method with the most effect on species that regrow from below, and the only one of the three with neither a flame, a plume nor a water tank at the treatment point. It is also the one with the highest competence requirement, and it should be specified as such.



SURFACE-CONTACT WALK-BEHIND TREATMENT

RANGE	FORMAT	KEY FIGURES	WHERE IT FITS
ZASSO ZAP WEEDER	Walk-behind, surface contact	60 cm · 1.5–3 km/h · up to 4 hours	Paving joints, paths and kerbs where a consistent treatment width is wanted. Close electrode spacing suits shallow-rooted hard-surface growth.
KERSTEN ELECTRIC LANCE	Handheld, targeted	3, 4 or 5 kV · 170 cm lance · 20 m cable	Isolated plants, beds, fence lines, awkward corners and species needing precise contact rather than a full-width electrode array.
ZASSO CITYZAS	Compact tractor mounted	1.2 m · 18 kW · 65 hp+ · up to 4 km/h	Repeatable full-width treatment on paths, verges and municipal routes from a smaller carrier, with a front module and generator package.
ZASSO URBAN XPA	Reach arm, tractor mounted	7.2 m reach · up to 36 kW · 8 kV · 200 hp+	Verges, barriers, banks and roadside furniture that cannot be treated directly in front of the carrier. High-output professional route work.

Full range: kerstenuk.com/electric-weeding-equipment

CHOOSING BETWEEN THE THREE NON-CHEMICAL METHODS

All three produce thermal damage, but the route planning, training and safety controls differ substantially. **Hot air** is lightest logistically and strongest on young annuals and moss. **Hot water** reaches furthest into the upper soil profile and suits noise-sensitive and stop-start work, at the cost of water logistics. **Electric** acts through the plant structure toward the root and avoids both flame and water, at the cost of generator capacity, trained operators and controlled exclusion zones. None of them is a substitute for removing the growth medium first: sequenced behind extraction, all three work on a smaller area, on younger growth, at a lower cost per metre.

Most of this hangs off machines an authority or contractor already runs. A single pedestrian power unit or compact tractor can carry a sweeper, a weed brush, a renovator and a collector across the year, which changes the capital conversation considerably.

CARRIER YOU MAY ALREADY RUN	SWEeper	WEED BRUSH	GRAVEL	COLLECTION
PROFESSIONAL BRUSHCUTTER Compatible models	—	WeedGo conversion	—	—
DEDICATED PEDESTRIAN UNIT Weedo II	—	50 cm six-tool plate	—	—
PEDESTRIAN POWER UNIT Kersten UBS, K-series	EFKM, De-Moss	WKB 40 / WKB 60	WE 090 quick-attach	Collector box
RIDE-ON MOWER With FKDR linkage	FKM 37, HKM/FKM 40	Selected WKB routes	—	Collector box
COMPACT TRACTOR With front linkage	FKM 40, KM 45	UB 6080 H / MK / MH	WE 110, WE 150, PH Mini	Vacuum nozzle
TRACTOR, LOADER OR MUNICIPAL Highways duty	KM 52, KM/FKM 60, KM 70	UB EASY FL / DS / VB	WE 150, PH 150	Mounted collector

Indicative only. A mounted attachment is a complete system — mounting interface, PTO, hydraulic flow and pressure, lift capacity, axle load, visibility and working width all have to be confirmed against your exact carrier. Send us the machine details and we will check it.

THREE CHECKS BEFORE ORDERING ANYTHING

Define the material. Depth, anchorage, moisture, compaction and debris size, measured rather than described. **Confirm the carrier.** Mounting interface, PTO, hydraulic flow and pressure, lift capacity, axle load, visibility and required working width.

Specify the complete pass. Working tool, pressure or depth, dust control, collection arrangement, discharge route and replacement consumables. A machine bought without the collection arrangement is only half a system.



ONE CARRIER, A WHOLE YEAR OF WORK

The same power unit that brushes weeds in winter sweeps leaves in autumn, clears light snow and spreads salt in the cold months, and maintains artificial surfaces through the summer. Utilisation across seasons is usually what turns a marginal business case into an obvious one — and it is the argument that gets a machine past a capital panel.

A cheap pass can be an expensive programme. The distinction is not that a manual programme removes nothing – it removes less, and cannot reach material compacted hardest against the kerb face, in gully approaches and around ironwork. That fraction sits exactly where drainage loading and anchorage risk are highest.

UNIT COST MODEL, PER LINEAR METRE OF KERB LINE

COMPONENT	CURRENT MANUAL	YEAR 1 MECHANISED	YEAR 2+ MAINTENANCE
OPERATIVE OR MACHINE COST	£0.332	£0.231	£0.231
DETRITUS EXTRACTED	About 75% of available	100%	50% of Year 1 mass
DISPOSAL COST	£0.426	£0.568	£0.284
TRUE TOTAL PER LINEAR METRE	£0.758	£0.799	£0.515
PROBLEM RESOLVED?	No – residual accumulates	Yes – initial reset	Yes – condition maintained

Machine rate from a contractor case study; manual rate from an anonymised contractor benchmark; accumulation modelled at 5.68 kg per linear metre from trial measurement, with disposal at £100 per tonne as a market-rate assumption. Replace every one of these with your own measured figures at the first season.

GULLY CLEANSING: THE REACTIVE PREMIUM

BASIS	COST PER GULLY
Cyclic cleaning, classified road	£6.48
Cyclic cleaning, unclassified road	£7.19
Planned proactive cleaning	£9.31
Reactive, complaint-triggered	£43.17
Reactive, complaint-triggered	£140.00

From Freedom of Information disclosures and published committee reports. Authorities publishing both figures show reactive cleansing costing six to fifteen times the planned rate.

HOW MUCH OF IT IS DETRITUS?

CIRIA guidance puts sediment and organic material at 55% to 75% of urban gully blockage, with structural failure, tree roots and construction damage accounting for the rest. Applying the lower bound to reactive attendance cost gives a conservative floor.

Where a council records gully vegetation as a category distinct from general blockage, that is its own drainage team recording plant material rather than silt as the obstruction.

TWO NUMBERS TO ASK ANY SUPPLIER FOR

The Year 2 arithmetic, not an efficiency claim. Year 1 lifts the whole accumulated deposit, however many seasons it represents. Year 2 lifts only what was deposited in the intervening season onto a cleared surface. If a location carries N years of accumulation, the reduction between the two is roughly $1 - (1 \div N)$. A 50% assumption therefore equates to assuming your kerb lines hold two years of soil – cautious on any network that has never had a systematic extraction programme.

The break-even threshold, not the headline saving. Any supplier can produce a large savings figure by choosing generous assumptions. A threshold does the opposite: it states what share of the modelled benefit the programme must realise to be worth doing, and it can be measured at the end of the first season.

A financial model can price treating a whole network without asking whether the machines exist to do it. Programme scope is limited by machine capacity before it is limited by budget, and councils have committed to programmes on the wrong basis and then found the scope was never achievable.

SEASONAL CAPACITY = UNITS * OUTPUT PER UNIT PER DAY * PRODUCTIVE FIELD DAYS

Field days allow for weather, access, parking suppression, the seasonal window and machine availability, so they are materially lower than the calendar season. Output per day is the figure most likely to be wrong, and the one a first season should establish first, because everything else follows from it.

WORKING PLANNING VALUES

PLANNING INPUT	WORKING VALUE	WHAT IT PRODUCES
MECHANICAL EXTRACTION OUTPUT	2,200 lm/day	About 264 km per unit per season
MECHANICAL PRODUCTIVE FIELD DAYS	120 per year	
THERMAL OUTPUT, SOIL STILL IN PLACE	4,500 lm/day	Thermal capacity sequenced behind extraction exceeds mechanical capacity
THERMAL OUTPUT, AFTER MECHANICAL RESET	9,000 lm/day	
THERMAL PRODUCTIVE FIELD DAYS	100 per year	

THE SEQUENCING DIVIDEND

Thermal output roughly doubles when deployed behind extraction rather than on surfaces still carrying their soil layer. Deploying it ahead of extraction halves its effective output. The operational rule is simple: **extract first, then treat**.

Mechanical extraction is therefore the binding constraint on the whole programme. The size of the extraction fleet determines how much of the network can be reset in a year, and the route list should be set to the capacity you hold rather than to the planning envelope.

SENSITIVITY TO REAL OUTPUT

ACTUAL OUTPUT PER UNIT	SEASON, 2 UNITS
1,200 lm/day	288 km
1,600 lm/day	384 km
2,200 lm/day (working figure)	528 km
3,500 lm/day	840 km

A targeted programme delivered in full on a smaller area beats a network-wide programme that under-delivers.

PHASE THE CAPITAL COMMITMENT

The fleet assumptions above rest on productivity figures you have not yet measured. Hire, or a short initial period, generates exactly the same evidence at a much lower commitment — and a measured pilot on high-risk routes with matched comparators replaces the model's largest assumptions with your own numbers before anything is bought at scale.

A WEED MANAGEMENT AUDIT

The two tests in Section 03 are the ones an audit runs. It is built from the commissioning authority's own operational records, supported by a physical site survey, and it is the sensible first step before changing method at scale.

WHAT YOU SUPPLY

Weed, blocked-gully and gully-vegetation complaints with dates and locations. Highways repair job records. Public liability claims history. Budget allocations for cleansing, weed management and reactive carriageway repair. Network length by asset type. Access for a site survey.

Most councils hold all of it already. It typically sits in four systems owned by three teams, which is part of what the audit addresses.

WHAT YOU RECEIVE

A full written audit, with the underlying analysis and figure source data available for independent review. An action schedule that lifts into a service plan or committee paper. A measurement framework for the first operating season, and predefined criteria for a Year 2 decision to scale, narrow or stop.

THE THREE ASSESSMENT STRANDS

STRAND	WHAT IT DOES
DESKTOP REVIEW	Published policy, capital and revenue allocations, gully attendance records and claims history, to quantify current financial and administrative exposure.
OPERATIONAL DATA ANALYSIS	The four datasets cross-referenced by location, with road hierarchy and ward controls applied, and the seasonal interaction tested separately because it is independent of street matching.
PHYSICAL FIELD AUDIT	Depth gauge measurement at standardised kerb positions, and the Kick Test at fixed points, producing both the targeting information and the baseline against which the following year is measured.

HOW FINDINGS ARE RATED

CONTROLLED

Green

Stage 1 detritus. Asset clean, drainage unobstructed, preventive maintenance costs contained.

WINDOW OF OPPORTUNITY

Amber

Stage 2, roots still floating. Operational expenditure escalating; physical extraction not yet routine.

REPAIR PATHWAY

Red

Stage 3 anchored roots or Stage 4 advanced accumulation. The preventive window has closed.

WHAT AN AUDIT DOES NOT DO

It does not determine legal liability, certify compliance, or guarantee a saving, and it cannot establish a causal share of carriageway spend from observational data alone — which is why attribution is presented as scenarios and first-season measurement comes before scaling. Where the data does not support a finding, the audit says so, and some audits find the problem concentrated in a small part of the network. Those are useful findings too.

Declaration of interest. The audit is authored by a Kersten UK employee. Findings derive from your own datasets and published benchmarks, with methods stated in full so results can be reproduced from data you already hold.

01

STRATEGY REVIEW

Current policy and treatment records reviewed against a representative sample of your surfaces, rather than an attempt to inspect the whole network at once.

02

BASELINE SURVEY

Depth and Kick Test results recorded at fixed points, so sites can be sorted by stage and the early-return work identified first.

03

FREE DEMONSTRATION

Method and machine tested on your own surface, with your own operators, on a measured area. No charge and no obligation.

04

PILOT AND SPECIFICATION

A controlled pilot with monitoring designed in, then the contract wording that makes the approach repeatable.

WHERE TO READ MORE

1

NAP 2025 COUNCIL GUIDE

kerstenuk.com/national-action-plan-2025-council-guide

2

BRACKNELL IWM TRIAL

kerstenuk.com/integrated-weed-management-trial-bracknell-kersten-uk-complete-weed-control

3

IWM BUSINESS CASE BUILDER

kerstenuk.com/Kersten-Integrated-Weed-Management-Business-Case

4

CASE STUDIES AND CUSTOMER RESULTS

kerstenuk.com/Kersten-Case-Studies-and-Customer-Results

5

WEED BRUSH RANGE

kerstenuk.com/Weed-brush-attachment-series

6

GRAVEL RENOVATORS AND GRADERS

kerstenuk.com/gravel-path-renovators-and-graders

7

HOT AIR AND HOT WATER RANGES

kerstenuk.com/thermal-hot-air-weed-removers

8

ELECTRIC WEEDING EQUIPMENT

kerstenuk.com/electric-weeding-equipment

We wish you every success, and hope these resources help you achieve what you are aiming for – whether you choose to buy from us or not.

YOUR LOCAL KERSTEN DEALER

Supply, fitting, demonstration and servicing are arranged through your local dealer.

DEALER STAMP OR CONTACT DETAILS



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