



Japanese Knotweed Solutions Ltd

Low Wood Commercial Warehouse, Suites 3, 4 & 5,
574 Manchester Road, Bury, BL9 9SW

Tel: 0161 723 2000 Email: jk@sltd.co.uk Web: www.jksl.com



SAFE SYSTEM OF WORK: Excavation, Transfer and Loading Operations

LAST REVIEW / UPDATE: 04/01/2024 REVIEWED BY: Simon Prato-Scarlett

NEXT REVIEW BEFORE: 01/05/2025

CLIENT: Middleton Sheet Metal Co Ltd

SITE: 1 Hanson Close, Middleton, M24 2HD

INTRODUCTION

Mechanical excavation (and hand digging) are used in remediation, relocation or removal of plant species. Where invasive plants (particularly Japanese knotweed) are present in soils, legal restrictions may apply and a Clean Site Policy should be implemented to reduce the risk of cross-contamination.

Heavy plant including excavators from 0.5-21 tonnes and dumpers from 1-10 tonnes may be used to dig and transfer materials including soils and plant material.

This document does not cover the installation of root barriers, any fencing, decontamination, (hand-)screening or any other operations not explicitly outlined in the "OPERATIONS" sections below and does not cover the use of specialised excavator attachments e.g. a pecker (or flail). JKSL do not operate wagons (for delivery or removal of aggregates or soils) or deliver any plant heavier than a micro-digger carried on a trailer, so these operations must be covered by the supplier's RAMS.

HEALTH AND SAFETY

This document covers the task and should be read with JKSL's Health and Safety manual as well as site-specific Method Statement (SSMS) and relevant Risk Assessments (RAs).

Also see separate risk assessments for vibration, noise and manual handling. Manual handling must be carried out in a planned way, and only as approved by the Site Foreman.

COSHH assessments will be provided for any hazardous substance (including diesel). Fuels will be stored in approved containers only. When refuelling plant (or any equipment), the relevant RAMS will be followed, and plant nappy and spill kits in place.

Only competent, qualified (CPCS or NPORS) operators are permitted to operate plant. All plant must be used in line with operator's training and JKSL's vibration risk assessment. All operators using plant and operatives working near to plant must wear hearing protection if this is required by JKSL's noise risk assessment.

Excavations made by JKSL will be made and maintained by JKSL up until the completion of works, at which point they will be handed back to the control of the client. Unless agreed with JKSL's Project Manager, backfilling will not be carried out and fencing (or other safety measures) will not be left in place. Daily inspections of the excavation(s) will be carried out by a competent member of JKSL staff, using the checklist provided.



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Excavations will always be made in such a way as to avoid the need for sheeting, propping or shoring – excavations will be wide, open and graded or battered to a suitable angle to prevent the possibility of collapse.

Suitable safety measures must be in place at all times when significant excavations are present on site. JKSL Site Foreman must contact JKSL Project Manager if they feel additional measures (e.g. fencing, stop blocks etc.) are required in order for excavations on site to be safe for all groups identified in the RA.

Any specific safety measures required by the client or site owner (including those highlighted in their RA) will only be implemented by JKSL where agreed with JKSL's Project Manager – otherwise, these will be the responsibility of the client.

EQUIPMENT

The following equipment will be used for this task:

- Excavator(s) – as specified in the SSMS
- Dumper(s) – as specified in the SSMS, if required
- CAT scan and generator
- Fuel bowser, diesel and AdBlue may be required for longer projects
- Line marker spray
- Footwash, brushes, shovels and spades may be required for decontamination
- (Fencing materials, root barrier etc. will be specified in separate RAMS)

The site-specific RAMS (and/or client's site rules) will specify what PPE is to be used, but the minimum PPE required for this task is:

- footwear with protective toe and mid-sole [EN ISO:20345],
- high-visibility vest, coat or tabard [EN ISO:20471]
- hard hat [EN397] is mandatory on sites where plant is present – unless you are in the cab of an excavator with FOPS (falling object protection system)
- eye protection [EN166] is mandatory for dumper drivers

The following PPE may be required for this task:

- hearing protection [EN352] may be required for plant operators or operatives
- gloves [EN388] are recommended but optional unless handling soils
- eye protection [EN166] is recommended but optional for general works on site
- high-visibility trousers [EN ISO:20471] are recommended but optional

SITE TRAFFIC

The site-specific RAMS (and client's site induction, where applicable) should address the access routes and parking locations for road vehicles, the approved routes for site plant and the pedestrian routes on site.

Competent banksmen must be present to guide vehicles in the following circumstances:

- Any vehicle reversing, except road vehicles under 3.5 tonne GTW
- Any vehicle entering site, except road vehicles under 3.5 tonne GTW
- Any plant, 8-wheeler or grab wagon moving around site
- Any plant or vehicle entering or leaving a loading area
- Any vehicle towing on site (including road vehicles)



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PREPARATION

Before starting work, implement Clean Site Policy, if the works require one. Implement either the client's or JKSL's Permit to Dig system before breaking ground.

Before starting work, JKSL's Site Foreman will walk and inspect the following areas:

- The excavation area(s)
- any haul routes along which materials will be transferred
- loading area(s)
- areas for burial pits, waste management area (WMA) or temporary WMA.

The foreman will check these areas for obstructions, slip/trip/fall hazards, fall-from-height hazards or anything that would interfere with the work; they will also look for overhead services and signs of underground services (manhole covers, lamp posts etc.). On-site risk assessment will be used and additional control measures (such as goalposts) should be put in place if required, JKSL office informed and the RAMS updated accordingly.

Haul routes, loading and/or storage and WMAs will be marked as appropriate, if required. Loading areas must be physically marked (e.g. using cones) where they are to be used by wagons. Marked loading areas are recommended (but not required) for loading dumpers.

JKSL will check that inspection (and LOLER paperwork for excavators) are provided with all plant delivered to site. Plant will be inspected daily by a competent person, using the checklist provided. Plant will be secured when not in use, with the keys removed and must be left (shuttered, if provided) in a suitable location (as agreed) at the end of each day.

JKSL will CAT scan any area where ground is to be broken before starting works – this will be done by a trained, competent operative only. Service drawing(s) and UXO (unexploded ordnance) survey for the site should be requested from the client and checked before CAT scanning. If these are not available, proceed on the basis that there are active services in all excavation areas.

All suspected services will be appropriately marked before digging, and discussed with the machine operator, if this is not the person doing the CAT scanning.

If diesel or petrol are stored on site, an impermeable bund must be in place, measuring at least 110% of the storage capacity of the largest vessel or 25% of the total storage capacity, whichever is the greater. JKSL will put this in place as required.

JKSL's Site Foreman will give a briefing to the team, to include:

- which members of staff will be doing which task(s)
- location of storage area(s) for fuel, plant etc.
- where excavations are to be carried out
- where (temporary) WMA, burial pits and root barriers are to be installed
- routes for moving around site (pedestrian, plant and other vehicles)
- sequence and timings for excavations and loading
- any relevant hazards (asbestos, overhead services, slip/trip/fall and fall-from-height)
- any site-specific information (from RAMS, on-site RA, service drawing etc.)
- areas to avoid, including 500mm radius from any suspected services



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OPERATIONS – EXCAVATION

Within 500mm (laterally in any direction) of any suspected underground services, digging will be carried out by hand using shock shovels. In all other areas, use the mechanical excavator. Exposed solid pipes must not be undermined, and cables should not be left hanging – Adequate means of support should be discussed with the client's site engineer before digging under any services found on site.

JKSL will excavate materials as outlined in the SSMS. Normally, excavations for Japanese knotweed chase the root system to any limit laid out by the client's site engineer – or until it is fully removed. For species where seeds are of greater concern than the root system, the specified radius for the seed bank must be agreed in advance and marked on site.

Excavators will be positioned giving consideration first to safety (including prevention of collapse of the excavation) and then to the prevention of cross contamination. The machine operator will determine the most efficient approach to removing the material – including the sequence of digging, if multiple areas are required to be excavated.

Care will be taken not to spill excavated materials, particularly where Clean Site Policy is in place. Spillages will be cleaned up as soon as it is safe to do so (once the machine operator has halted operations). This will be carried out by JKSL Operatives using a combination of spades, shovels and brushes, as appropriate.

The excavation should proceed in roughly 300mm layers, with the edges of the excavation being graded or battered where possible to remove any steep drops. The area should be re-CAT-scanned every 300mm (depth) of excavation. The machine driver must switch off the machine before operative CAT scan within the swing of the machine.

The excavated material will be loaded directly from the contaminated area directly into waiting wagons / into waiting dumpers / into (temporary) WMA, as outlined in the SSMS. Dumper drivers must leave their dumper and switch it off until loading is complete.

Once each area has been cleared to the satisfaction of JKSL's Site Foreman, this will be signed off as complete, and the excavation graded (if required) and machines, tools and operatives decontaminated before moving to the next area as per separate RAMS for this process.

OPERATIONS – TRANSFER OF CONTAMINATED MATERIALS

Vehicles will approach the loading area, and stop outside both the swing of the machine and any other exclusion zone (e.g. contaminated area). On flat ground, dumper drivers will drive face-on into the exclusion zone. Wagons will reverse in to the loading area, and must only do this under the guidance of a competent banksman.

Wagons should never enter an excavation. Dumpers will be permitted to enter down a graded slope if the route in to the excavation is in good condition, suitably graded and free from obstructions. When moving down a slope, dumpers should drive directly down the slope (not sideways or at an angle). A forward-tipping dumper should be driven forward down a slope if it is empty, and should be reversed down a slope if it is loaded. When driving up a slope, a forward-tipping dumper should be driven forward if it is loaded, and



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reversed if it is empty. Once safely on flat ground, the dumper should manoeuvre to face the appropriate direction of travel.

During loading, dumper drivers must switch off the vehicle, remove the keys and walk outside of the swing of the excavator before loading starts. A competent banksman (ideally the dumper driver) should signal the excavator driver when to start and stop loading. Dumpers unloading should unload on flat ground only, and will approach the unloading area slowly, and confirm that the area is clear before emptying the bucket. Stop blocks can be put in place to assist with correct positioning, if required.

During loading, tipper wagon drivers should remain in the cab of their vehicle, with the engine turned off. Grab wagon drivers should be on the grab station at all times during loading and in the cab at all other times. The banksman should signal the excavator driver (or grab operator) when they can start loading and when to stop, and the banksman should indicate to the wagon driver when they can cover the wagon, and when it is safe to re-start the engine and move away from the loading area.

Vehicles and skips may be loaded to capacity unless the Clean Site Policy states that part-loading (usually to 75%) is required to avoid any cross-contamination issues.

OPERATIONS – MAKING AND MANAGING STOCKPILES

Excavators may also be used to move and transfer materials deposited by hauliers, dumpers or other excavators and/or to form them into bunds, stockpiles or other formations or to backfill earlier excavations.

When backfilling or loading materials into a borrow-pit (e.g. for burials) the position of the excavator may be included in the SSRA but will often need to be made on site, because of considerations about protecting the root barrier membrane. A machine driver may track over a backfilled excavation in order to compress the materials, but only when it is safe.

Forming stockpiles is normally done from adjacent to a small stockpile but may be done from adjacent to or on top of the stockpile depending on considerations of stability and avoiding collapse or cross-contamination. For very large stockpiles, driving onto the stockpile be required.

Stockpiles will be arranged to minimise the risk of collapse, while also minimising the height. Stockpiles should have a suitable profile – generally at least as wide as they are tall, with an additional fringe, graded to a ratio of 1:1 or similar (depending on the properties of the soils or material used), which should be graded and weathered. Stockpiles should be assessed after heavy rain, snow or other events likely to affect them, in order to ensure that they are still in good condition and risk of collapse is minimised.

Dumpers should not drive on to a stockpile. Excavators should only be on a stockpile in order to load or grade it – they should not be left on a stockpile overnight. Operatives should not stand close to stockpiles (within 5m) and should not enter this area or stand on to the stockpile unless there is no other way to complete the task they are doing.