

Houlihan & Co. (Excavations) Limited

OHSEQ Management System

HOULIHAN & CO. (EXCAVATIONS) LTD

Civil Engineering Contractors
Specialists in Roads Sewers & Groundworks



Project	Land West of Egley Road, Woking GU22 0NH.		
Activity	The works comprise carrying out cut and fill, substructures, drainage, external works, and service ducting for the above project. There are also adoptable works in connection with roads and sewers. The foundations are in-situ concrete strip footings, taken up to slab level with brick and block substructure walls. The floor slabs are suspended beam and block. Scope of works includes retaining walls. S50 and S278 works. This construction project comprises the construction of 86 residential properties by April 2025. From 12 th of September PC status will be taken over by CALA Homes		
No:	Doc. Ref	M0596-MS-2401 Groundworks Rev 8	Client: CALA Homes

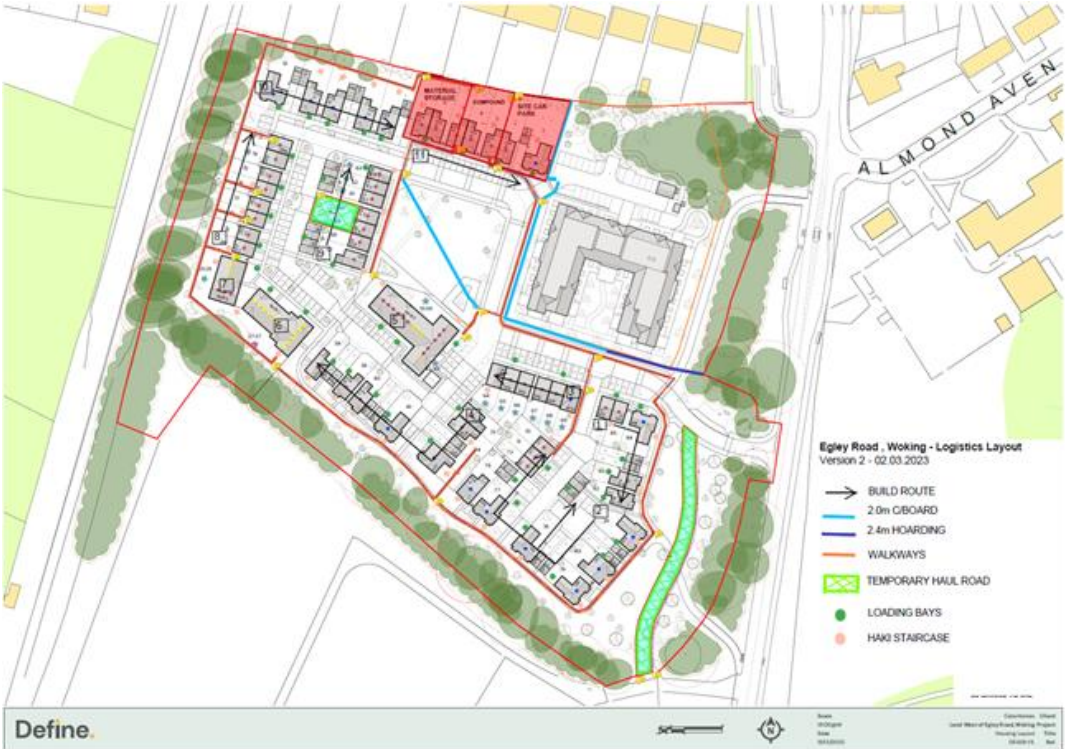
1.0	Project submission information	Document Prepared by:	Jason Meadows	Signature:		Issue Date:	30/06/2023
		Document reviewed by:	Josh Mandair	Signature:	<i>Josh Mandair</i>	Date of review:	03/07/2023
		Document issued to (Client):	CALA Homes	Signature		Date of submission:	

2.0	Document Control	Issue Date:	Amendment Number:	Date Amended:	Person Amending:	Remarks
		04/07/2023	1		Jason Meadows	First Draft for review and approval
		04/10/2023	2	02/10/2023	Jason Meadows	3 monthly review and update
		04/01/2024	3	04/01/2024	Jason Meadows	3 monthly review and update
		04/04/2024	4	04/04/2024	Jason Meadows	3 monthly review and update
		01/07/2024	5	01/07/2024	Jason Meadows	Update CALA Standards Working near live services
		07/08/2024	6	07/08/2024	Jason Meadows	Change of Supervisor
		07/11/2024	7	07/11/2024	Jason Meadows	3 monthly review and update
		06/01/2025	8	06/01/2025	Agron Selita	General Review

3.0	Document Contents	1.0	Project submission information	Page Number:	01
		2.0	Document Control	Page Number:	01
		3.0	Document Contents	Page Number:	01
		4.0	Site Description	Page Number:	02
		5.0	Scope of Works	Page Number:	03
		6.0	Preparation	Page Number:	03
		7.0	Access & Egress	Page Number:	04
		8.0	Supervision, Responsibilities and Site Organisation	Page Number:	04
		9.0	Labour, Management Resources & Training	Page Number:	04
		10.0	Major Plant & Minor Plant/ Equipment (Typical)	Page Number:	05
		11.0	Method of Work: Plant/ Materials and vehicle preparation and delivery	Page Number:	06
		12.0	Method of Work: Topsoil Strip (Cut and Fill) Construction of Haul Road & additional measures for SWMP	Page Number:	06
		13.0	Method of Work: Constructing Piling Mat and Piling Assistance and Vibro piling	Page Number:	08
		14.0	Method of Work: Substructure to Building	Page Number:	08
		15.0	Method of Work: Foul Water Drainage	Page Number:	11
		16.0	Method of Work: Surface Water Drainage	Page Number:	12
		17.0	Method of Work: Adoptable & Private Road / Footpath Construction	Page Number:	16
		18.0	Method of Work: Works on / near Underground Services	Page Number:	19
		19.0	Method of Work: Spoil Heaps	Page Number:	20
		20.0	Method of Work: Lifting with excavators	Page Number:	22
		21.0	Method of Work: Working in confined spaces	Page Number:	23
		22.0	Health and Safety	Page Number:	24
		23.0	Discovery Strategy: Contamination – UXO-s – Waste Disposal	Page Number:	26
		24.0	Silt Management	Page Number:	28
		25.0	Applicable COSHH	Page Number:	29
		26.0	Immediate Emergency Procedures	Page Number:	29
		28.0	Site Specific Risk Assessments	Page Number:	30-40
		29.0	Hand Arm Vibration & Decibel Level Reference Chart	Page Number:	41
		30.0	Communication: Confirmation of Operatives Briefings	Page Number:	44

Prepared by: Jason Meadows	Client: CALA Homes
Page 1 of 44	Doc: M0596-MS-2401 Groundworks Rev 8



4.0	Site Description	<p>The site is located to the west of Egley Road in Woking GU22 0NH, south of Woking town centre, in a mixed residential area. Develop the site to provide 86 residential units comprising low rise detached, semi-detached and terraced housing and 3 storey apartment blocks and ancillary works including access, car parking, cycle parking, landscaping, and associated works, in accordance with planning application. The site is mostly surrounded by residential homes in the north, with NWR to west, school fields to south, and Egley road to east.</p>  <p>Restriction and risks developing this site are:</p> <ul style="list-style-type: none">• West of the site is Network Rail. Every work within 20m of the boundary of Network Rail's, Zone of Influence, will be carried out with the approval of Network Rail as per BAPA – agreement between NwR and CALA Homes.• On the South Hoe Valley School.• A surface water management must be produced by the CALA Homes for the Construction Phase Plan involving protection of surface water/ silt escaping site and contaminating the local amenities.• Barnsbury infant and nursery school is close to the construction traffic route so delivery times will be altered not clash with starting and finishing times. <p>Construction vehicle route to the site is via A3 & A320. Heavy goods vehicles and delivery routes to site are as follows: Exit the A3 at Guildford junction heading north to A320 Woking Road, stay on A320 for approximately 4 miles, Woking Road merges into Guildford Road and then into Egley Road, the site entrance will be located on the right-hand side approx. 100mtrs past Hoe Valley school traffic lights. The site entrance will be identified using signage reading works access. This will only be communicated for all deliveries. Site working hours will be as dictated by the planning conditions. Construction plant will only be allowed to operate between the following hours (provided they comply with the hours permitted, as mentioned above):</p> <ul style="list-style-type: none">• 8am to 6pm Monday to Friday.• 8am to 1pm Saturday (only if required as per the construction programme); and• No work will be permitted on Sundays and Bank Holidays, unless a requirement identified under a statutory i.e., Network Rail, Energy provider & Highways team. <p>Deliveries will, where possible, occur between the hours of 08:00-18:00 weekdays and 08:00-13:00 Saturdays only. Deliveries will wherever possible be scheduled for times outside of peak periods to reduce network impacts. In addition, Condition 18 of the permission specifies that no HGV movements should take place between 08:15-09:15 and 15:00-16:00 to avoid school collection periods (related to the primary school at Almond Avenue and Hoe Valley School).</p> <p>No deliveries are permitted outside working hours unless by prior agreement with site management. Vehicles arriving outside normal hours will be turned away and Houlihan & Co will not be responsible for any costs incurred. The site is surrounded by residential properties and vehicles entering/leaving the site must drive with extreme caution at all times, at a reduced speed. The location of, entrance/exit gates, laydown areas and materials storage are also indicated by PC Site Traffic Management Plan. Vehicles will not be allowed to reverse out of the site access.</p>
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<p>5.0</p>	<p>Scope of Works</p>	<p><u>A Hold point has been introduced to our safe system of works company wide,</u></p> <p>“Any remedial works required due to non-conformity or not to quality assurance and require remedial works that is not part of this approved safe system of works, shall be risk assessed and remedial documentation produced were required”.</p> <p><u>Enabling works</u></p> <p><u>5.1</u> Cut and fill to required levels. <u>5.2</u> Installation of Piling Mat for piling rig. <u>5.3</u> Piling assistance <u>5.4</u> Temporary Compound and welfare facilities <u>5.5</u> Installation of temporary haul road and permanent roads</p> <p><u>Installation of Substructure Foundations</u></p> <p><u>5.6</u> Installation of housing block/plot <u>5.7</u> Installation of steel <u>5.8</u> Installation of concrete <u>5.9</u> Installation of substructure blockwork <u>5.10</u> Installation of plot drainage <u>5.11</u> Installation of beam and block <u>5.12</u> Service trenching from houses extending to line of new pavements.</p> <p><u>Installation of Foul & Surface Water Drainage Inc. soakaways</u></p> <p><u>5.13</u> Foul Water pipes: size 150Ømm. Deepest 2.75m at F1 – FF4 <u>5.14</u> FW Manholes: sizes vary from 1200Ømm to 1350Ømm. Deepest 2.704m. .at F1. <u>5.15</u> SW pipes: sizes vary from 150Ømm to 225Ømm clay, 375Ømm <u>5.16</u> 50Ømm concrete. Deepest 2.5m. <u>5.17</u> SW manholes: size vary from 1200Ømm to 1350Ømm. Deepest 2.5m... <u>5.18</u> Soakaways & 3 x Detention Basins <u>5.19</u> Installation of associated drainage with laterals of the main sewers – laterals to be pulled through clear of footpaths/ service corridors.</p> <p><u>External Works</u></p> <p><u>5.20</u> Tarmac Road. <u>5.21</u> Tarmac footway <u>5.22</u> Private Block Paved Carriageway Construction (Non-Permeable) CBR 3% <u>5.23</u> Private Permeable Block Paved Drive <u>5.24</u> Retaining Wall – <u>5.25</u> Retaining Walls (Block & Brick, Concrete formed, Piled <u>5.26</u> Breedon Gravel Footway. <u>5.27</u> Paving slabs 450 x 450 & 600 x 600 flag Paving's. <u>5.28</u> Excavation of Tree pits <u>5.29</u> Street lighting, feeder pillars excluding connections. <u>5.30</u> Bollard lighting. <u>5.31</u> Street furniture including signs, illuminated signs, benches, bins, tree grills, bike racks, etc. <u>5.32</u> Road markings <u>5.33</u> Site hoarding and access gates (by others) <u>5.34</u> PCC & timber edging/s <u>5.35</u> Shed bases – 2400mm x 1800mm x 150mm mesh reinforced concrete slab. <u>5.36</u> Kerb/s (including radius, dropped and transitions) <u>5.37</u> Concrete Sett Paving to Play Area <u>5.38</u> Resin Bound Footway <u>5.39</u> Grasscrete Maintenance Note: Task specific method statements & associated risk assessments will additionally be drafted at the health and safety representatives, site supervisors or site agent's discretion.</p>
<p>6.0</p>	<p>Preparation</p>	<p><u>Pre-start on site:</u></p> <ul style="list-style-type: none"> • Site perimeter hoarding to be in place by others. • Tree, root and hedgerow protection to be in place by others. • Everyone working on site must be briefed on silt management, pollution prevention. • UXO awareness training will be done for all groundworkers. • All operatives must be inducted and sign to their appropriate RAMS. <p><u>Pre-Start Each day :</u></p> <ul style="list-style-type: none"> • Every morning before each shift no operative / sub-contractor must commence work without attending a daily briefing held by the site work supervisor at the site compound no later than 08.00hrs, where the day's task/s and associated risk/s will be addressed, planned, and possibly



		<p>challenged if operatives have any concern.</p> <ul style="list-style-type: none"> Toolbox talks must be undertaken after the daily briefing with the operatives who are about to engage in high-risk work such as: excavating on/near live services / deep excavation activities / work in the public highway / confined space work etc. Check if there are any changes to the traffic management on site. Carry out CAT scan survey to proposed excavation areas routinely & review existing utility plans. Ensure there are no other trades or public working along the line of the proposed works. Check that all Drawings are up to date and are the latest issue. Cordon off the area of work from other personnel and traffic not involved in the work. Ensure that the area of work is closed and that there is no access permitted by the public. Carry out Topographical Survey: Agree levels with client. A task specific briefing will be carried out and signed off by the team or teams involved. If the work is on or near live services, the prestart procedure will be followed in addition.
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7.0	Access & Egress	<p>Temporary access to the site will be from south entrance to Hoe Valley & sports box sports fields via access gate on right, until such time as the permanent Section 278 access has been constructed to at least base course.</p> <ul style="list-style-type: none"> All Lorries and Traffic Movement will be banked through the gate and around the site to area of discharge /loading via banksman, who will also be responsible for maintaining a mud-free access road. A 'right turn in/left turn out' system will be in place for the temporary access, without the need to extend the existing dropped kerb. For the avoidance of doubt, the size of vehicles using the temporary access will be restricted to ensure that there is no risk to road users by vehicle manoeuvres. The permanent access will be used when S278 are completed. The banksman, traffic & pedestrian marshals will still undertake their roles as necessary. The access will be constructed to at least base course from its initial use, and the tarmac will be laid further into the site, as part of the onsite estate roads construction. This will ensure that no loose material – e.g., gravel – is deposited onto the public highway.
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8.0	Supervision, Responsibilities and Site Organisation	<ul style="list-style-type: none"> Ryan Sullivan – Site supervisor (L3 Occupational Work Supervision; CSCS Gold Card, SMSTS, TW supervisor). Contact no.: 07488 251447 Callan Conway – Site Engineer Contact no.: 07969 274317 Josh Mandair – Contracts Manager: Contact no.: 07800 645273 Richard Carrol- Construction Director Contact no.: 07884 490755 Richard Knight – Managing Director Contact no.: 07775 625421 Agron Selita – H&S advisor Contact no.: 07507430655 Josh Mandair - Temporary Works Co-ordinator Contact no.: 07800 645273 Ryan Sullivan - Temporary Works Supervisor Contact no.: 07488 251447
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9.0	Labour, management resources & training	<ul style="list-style-type: none"> Sufficient time and resources will be made available to undertake the work involved. The works described will be undertaken by 1 gang of 10-15 operatives under the supervision of a competent Supervisor and Site Engineer. The Contracts Manager will visit the site as often as required. The Contracts Manager Josh Mandair will report to our Construction Director, Richard Carroll who will visit site on a regular basis. The Health and Safety Advisor, Jason Meadows, will visit twice monthly to monitor compliance with the Method Statement, Risk assessments, and will produce a monthly safety reports that will be sent to CALA Homes. He will also carry out investigations of all site accidents and near misses. The site supervisor will ensure the perimeter is secure after every shift. They will inspect open excavations before work starts and record results. There is no site security. The site supervisor will carry out a weekly site inspection and arrange for checking the security of the site at the end each shift. All our operatives have undertaken safety training within the last 2 years. Our Managers and Directors have also attended Safety Courses. All personnel have a schedule of health and safety training to undertake over the next 2 years in order to maintain our high standards. Machine operators are all certificated to CITB standards and copies of certification readily available from Head Office. Our entire workforce has presently achieved or is undergoing on-site assessment via the CITB experienced worker route. This leads to National Vocational Qualifications in General Construction and Plant Operations for all relevant categories of plant. Our whole workforce will then be accredited under the Construction Skills Certification Scheme. All plant operators will be either CPCS, NPORS accredited and hold an NVQ in the relevant Plant Operations category with lifting operations endorsement/ NVQ in lifting with an excavator. Please note that the NVQ is the senior qualification and regarded as such by the HSE. The card schemes are regarded as little more than passport schemes, though the underpinning knowledge content is increasing annually. If machines are hired in with drivers, these levels of qualification will be required of the incoming drivers. All banksman will be either NPORS trained on N403 – Vehicle Marshall, or L2 NVQ certified in Plant Operations (Construction) – Movement Guide Marshall A/506/4668 Note- All plant operators regardless of qualification held must be formally authorised as competent by the Houlihan site supervisor, on the H&Co plant operator authorisation register. All personnel on site will have CSCS/ CPCS/ NPORS accreditation as relevant. A site induction will be carried out to include every operative new to the site. Our site induction will include a brief questionnaire re health problems and data which will be held off site securely- NI number and address. This will be separate to new starter employment details and is a first scan for signs of modern slavery.
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10.0	Major Plant &	<u>Major Plant (Typically):</u>
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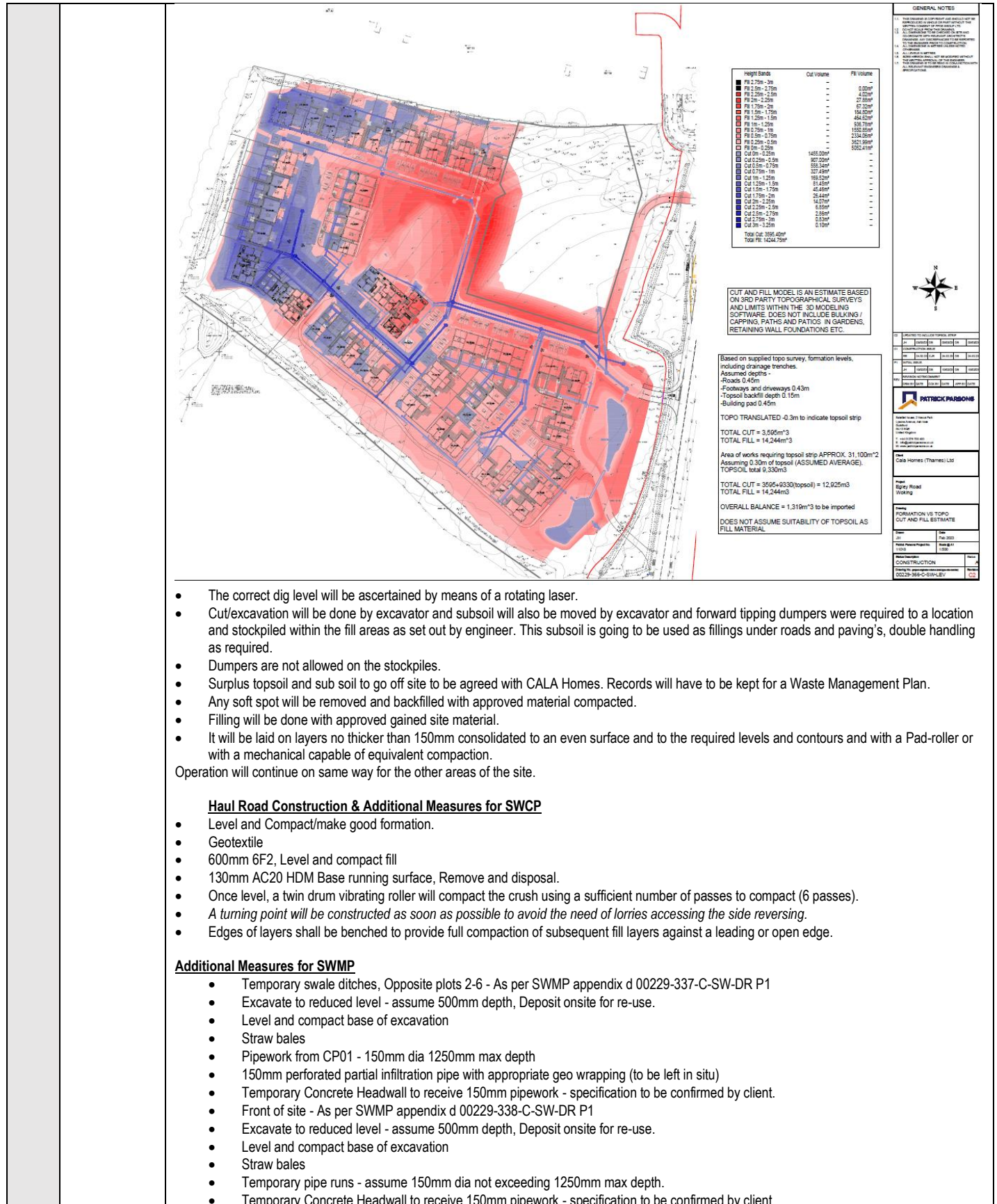
Prepared by: Jason Meadows	Client: CALA Homes
Page 4 of 44	Doc: M0596-MS-2401 Groundworks Rev 8



<p>Minor Plant/ Equipment</p>	<p>JCB JS 135/140/160/220 Kubota/U48//U35//U55 6t/9t/10t forward tipping dumper 80/120/135 Ride on roller</p> <p><u>(Refer to H&Co's site safety OHSEQ notice board for current records & registers)</u></p> <p>Note: All Weekly Check Sheets for 360's is carried out by the machine operator and will always be available within the cab for inspection including the most recent through examination certificate, copies are also kept in H&Co's site office (OHSEQ board).</p> <p>Excavators will have monitoring cameras fixed in the rear of the machine for all round vision. Any machine that is not fixed with a camera and is not carrying out bulk earth works will be accompanied by a Banksman. Major Plant that does not have cameras fitted will achieve all round vision using mirrors. We will continue to promote the "thumbs up" campaign. Green flashing beacons are being progressively fitted across the Company. New plant will come equipped.</p>  <p>Banksman</p> <ul style="list-style-type: none"> The banksman must be situated in a safe position and preferably outside of the operational area of the machine's fully extended boom, dipper, and attachment. The banksman must face the operator when signalling and be clearly visible to them. The banksman must always maintain a clear line of sight with the excavator operator. The banksman must have direct sight of the load and lifting equipment at all times during the lifting operation and have adequate visibility of the load path. The communication between operator and banksman must be continuous throughout the duration of the lifting operation <p>Plant Operator/ 360° Machine Driver</p> <ul style="list-style-type: none"> The operator must not respond to any hand signals (or other communication) that are not clearly understood and should seek additional clarification. Hand signals and any additional voice instructions should only be given by the identified banksman – except for an emergency stop which can be given by any person, at any time, if a perilous circumstance is spotted. If other instructions are required (other than the agreed hand signals), then the operation should be stopped. Where there is any concern about the safety of, or the need to halt, the operation, all movement (and therefore, the lifting and any operation) should be stopped until the issue has been resolved to the mutual satisfaction of both the operator and the banksman. Comprehensive <p><u>Minor Plant & Equipment (Typically):</u></p> <ul style="list-style-type: none"> Block Grab Concrete Skip/Bucket Excavation Support Equipment Setting out Instruments Compressor & associated pneumatic tools. Heras Fence Panels / Avalon barrier Shovels Inc. insulated. Hand Tools Small electrical tools Kerb lifter/ laying dolly Block barrow Pipe Lifter Rammax
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11.0	Plant/ Materials and vehicle preparation and delivery	<p>Unless it is reasonably practicable to do so, the following safe systems of work must be followed at all times.</p> <ul style="list-style-type: none"> • The Low Loader Driver will sign in at the site entrance or Site Office prior to delivering plant. • Plant Deliveries are not to be made outside site working hrs unless previously agreed with the Site Manager. • Lone Working is not permitted, and deliveries are not to be made unless a member of staff is present on site. • Plant deliveries are not to be made in areas where adequate lighting is not present. • The vehicle collecting the plant shall be a vehicle designed for the collection, transportation, and delivery of mobile plant, be it wheeled or tracked. Low Loader. • The vehicle must have a suitable means of getting the plant onto the trailer and will include designed loading ramps. • The Low Loader driver must be a competent person trained in the loading/unloading of all categories of plant from the lorry and for its security during transport. • All loading/unloading operations shall be supervised by a competent person. The Low Loader driver shall act as the competent person. • All plant shall be loaded/unloaded onto the low loader by a competent plant operator only and directed by the lorry driver only. No other person shall undertake these instructions. The low loader driver can unload plant provided he is qualified to do so. • During the plant loading/loading operations all persons other than the plant operator and lorry driver shall stand away out of the loading area. • During access to the lorry platform if there is a risk of personal injury from a fall a means of preventing person falling off needs to be installed or the use of safety harness must be implemented. All such persons shall be trained in the risk of falling off lorry platform and how to control those risks. Where clients provide access platforms/podiums these must be used. • Prior to moving all loaded plant, it shall be adequately secured by the appropriate means such as chains etc. by the low loaded driver only or assisted by others working under his instructions. • The driver shall determine the route and final resting place of all plant to be loaded/off loaded before the activity commences. • The driver shall also ensure the plant/materials loading/unloading route is clear of all hazards, obstructions, restrictions etc. if the operations commence. • All suppliers have been asked to work to industry guidance re work at height on their vehicles- a solution for each load will have been determined before the load is dispatched- loads which cannot be safely unloaded will be turned away. • Loads depending on banding or shrink wrapping must be strapped to include each row and in addition strapped twice perpendicular to straps on each row. <p>Note: no individual must enter the bed of a lorry without edge protection.</p>
12.0	<p><u>Method of work</u></p> <p>Topsoil Strip (Cut and Fill) Construction of Haul Road & additional measures for SWMP</p>	<p>The anticipated main materials that will be encountered at the site:</p> <ul style="list-style-type: none"> • Cut and fill will start from the north of the site near the fence of the Network Rail. • The general site clearance will be done on this section removing bushes, scrubs, undergrowth etc. • The area to be excavated will be CAT & Genny scanned and checked for the presence of existing services and identified services will be clearly marked using spray paint. (There is no record of existing services on site) • Then using an excavator 360° standing on the surface of the topsoil dig the topsoil at average of 300mm thick and loading it into forward tipping dumpers. Excavator will start removing topsoil from the north west of site and be positioned into the central square area marked out by engineer. Forward tipping dumper should run on the subsoil layer to avoid degradation of the topsoil. It will be stockpiled not higher than 2m at designated location. this topsoil will be reused gardens and landscaped areas. • If sustained heavy rainfall (i.e., >10mm in 24 hours) occurs during soil stripping operations, work must be suspended and not restarted until the ground has had at least one full dry day. • Topsoil stripping should be completed as an entirely separate operation to the cutting of any other soils so as to avoid cross contamination of soil types. • The site engineer will set out the area to be excavated in accordance with the issued drawings for cut and fill according to that section.(see below).





		<ul style="list-style-type: none"> Remove temporary headwalls. Re-fill temporary swale ditches using stock piled material. Compact & make good, filled area ready for topsoiling.
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13.0	<p><u>Method of work</u></p> <p>Constructing Piling Mat and Piling Assistance and Vibro piling</p>	<p><u>Constructing Piling Mat</u></p> <ul style="list-style-type: none"> Piling mat will be constructed following provided and approved design from the Pilers. Piling Mat design for the vibro piling of the foundation is awaiting Design. Construction of Piling Mat will start after the Cut and Fill operation has been completed and areas deemed as soft spot have been removed and backfilled will suitable material and compaction. The first piling mat to be installed will be for the area of plots 64 to 86. The piling mat will be 450 mm thick with a Terram 1000 or similar strength geomembrane as first layer. On top of the Terram 1000 geotextile will be placed crushed concrete at layers no thicker than 150mm, levelled and compacted by a Bomag Roller 1 dead pass and 6 compaction passes. This will continue until 450mm of piling mat have reached. The piling mat will be level, firm, well drained and kept in good condition for the duration of the works. Any soft spots will be dug out and replaced with the same material as the piling mat and compacted in a similar manner. Deterioration of the exposed piling mat formation should be prevented by drainage or by minimising exposure to wet and frosty weather. Where deterioration occurs, it should be removed and replaced by suitably compacted material prior to placement of the piling platform. The edge of the piling mat will be clearly identified so that the rig operator can see it and not track onto unprepared surfaces. The working platform must be free draining to prevent the build-up of water and slurry. <p><u>Assisting the Pilers</u></p> <ul style="list-style-type: none"> We will be attending the Piling with an excavator 360° with driver and 9t forward tipping dumper with driver. Excavator will be briefed on all procedures that he will be attending. On lifting procedures, he will be briefed on lifting plan produced by and supervised by lifting supervisor of Piling contractor and banked as well by slinger and signaller appointed by Piling contractor. Excavator will be attending with processes Vibro Compaction is an established ground improvement method for stabilising granular soils such as loose sands, gravels, and some hydraulic fills: Remove the spoil from on top of the pile. And insert the granular stone materials for vibro piling. The arisings will be moved away from the piling operation via 360° excavator and dumper to be stored on designated area for stockpile. <p><u>Piling Mat Maintenance</u></p> <ul style="list-style-type: none"> The piling mat will be maintained on at least a daily basis to ensure that it continues to perform as intended. Any work that causes damage to the piling mat, will be rectified immediately and the piling platform reinstated to its original required standard. Additional maintenance will be required where piling rigs have to sprag frequently or access is difficult. where any excavations are carried out, they must be backfilled in a controlled manner and properly compacted so that they do not create new soft spots. In wet areas, if the subgrade has become softened, it should be dug out and backfilled with suitable granular material in a controlled manner and properly compacted. <p><u>Vibro Piling</u></p> <ul style="list-style-type: none"> Piling mat 450mm deep Level and compact base Geotextile 6f2 material, 450mm thick, Compact fill Excavate and salvage pile mat, for use on site. Plate load CBR testing. Piling Attendance Items - 360 12t excavator and driver,
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14.0	<p><u>Method of work</u></p> <p>Substructure to Building</p>	<p><u>Strip Footings</u></p> <p><u>Setting out / Earthwork preparation & installing proprietary support systems:</u></p> <p>All excavation works will be carried out in accordance with Construction (Design and Management) Regulations 2015 and the Guidance contained in Health and Safety in Excavations HS(G) 185 "Be Safe and Shore" and CIRIA guide to Trenching Practice.</p> <p><u>Foundation Excavations : Strip footings:</u></p> <p>Due to poor ground conditions all units will be bulk dug to keep foundation excavation and concrete to 1000mm, plot will then be formed with additional underbuilds blockwork and backfilled.</p> <ul style="list-style-type: none"> Identify the extent of the individual plots foundation by marking out with spray paint, set out by our engineer. Excavate to void level to
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Prepared by: Jason Meadows	Client: CALA Homes
Page 8 of 44	Doc: M0596-MS-2401 Groundworks Rev 8

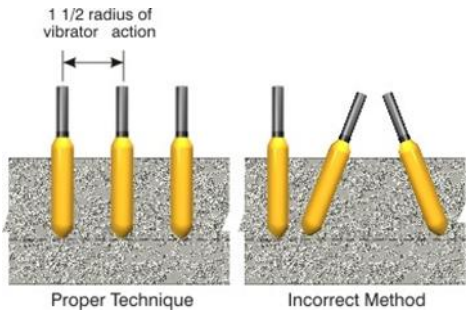


- reduce depth of strip foundation.
- No man entry to the excavation is permitted. While excavating, the groundworker will check the depth of excavation using the staff, receiver, and rotating level to signal the formation depth. The groundworker will set up a suitable movable barrier to prevent access to the excavation. The groundworker will take all dips from behind this barrier. Excavate the foundation to the designed formation level, using a tracked 360 excavator. Ensure the foundations are pulled straight and level. Any cleaning up to formation level, if required, will be carried out by over digging beyond a corner and blowing loose material beyond the required footing line, using an air lance- NOTE not the air pick.
 - Allow inspection by NHBC, prior to pouring mass concrete. Where strip footings are to be left open for any time, MGF Walk safe or similar will be installed and maintained to provide safe access to plots.



Strip footings:
Concreting Foundation

- Bank concrete delivery lorries to a safe distance from the excavation and place concrete, by either discharging directly from the lorry (using 3 chutes) or by discharging into the excavator bucket and placing by machine. The concrete will be poured from the back of the lorry and operatives will wear the appropriate PPE, as specified in RA.
- The strip footings will be backfilled to within 100mm of the top of the beam.
- A vibrating poker will be used to eliminate air bubbles. The vibrators should be completely inserted into the concrete, and sufficient numbers of operatives rotated to the task, to reduce exposure to HAV's. Over vibration should normally be avoided during the compaction of concrete. Do not remove the vibrator head too quickly and do not drag the vibrator head through the concrete, dragging a vibrator through the concrete will form a mortar channel in the concrete, creating a structurally weak area in the finished product. Lower the vibrator vertically into the concrete, allowing the head to descend under its own weight. Internal vibrators should not be forced down into the concrete. The vibrator head should penetrate previously placed lifts of concrete by 6 inches (150 mm). If there is a considerable amount of time lapse between the placements of subsequent lifts, it may be necessary to re-vibrate the previous lift prior to placing additional concrete to minimize the potential for pour lines and cold joints. An insertion time of 5 to 15 seconds will usually provide adequate consolidation. A general rule of thumb is to allow the vibrator to sink under its own weight and then remove the vibrator at a rate of about 3 seconds per vertical 300 mm. Concrete should move to fill the hole left by the vibrator; otherwise briefly reinserting the vibrator nearby should solve the problem. The vibrator should then be reinserted close enough to the last location so that the radius of action overlaps the last one.



- Allow the concrete to cure sufficiently.
- Brickwork and blockwork footings will then be carried out as required to the standards and requirements contained within the contract drawings, specifications, and suppliers' recommendations.
- Ensure all foundations once dug or recently poured are adequately fenced off with suitable signage 'deep excavations'.



Footings deeper than 2.5m

- Designers would normally avoid footings deeper than 2.5m and NHBC inspectors may raise objections. In the event we are faced with the need for deeper footings and that this is approved, an Alsipercha system will be required using 2no. Kentledge and 2 fixing points for any operative approaching the trench edge.
- Reduce ground level to void level, prior to excavating foundations. Where trench crossing is required due to the layout of the foundations, proprietary trench crossing bridges will be deployed.

Piled Foundations

Shuttering to Groundbeams

- The "ground-level DPC" is actually required to be at least 150mm above the ground level.
- The brickies will come to site and be inducted prior to commencing work.
- The bricks will be to the specifications and will be brought to the work area. A hod will lay out the bricks and the spot boards.
- The hod will mix a consistent mortar to specification. The hod will wear a dust mask, to FFP3, and will wear fresh clothing each day. The mixer will be set up on a solid base, next to the sand and cleaned out at the end of each shift. The cement will be delivered in bags and stored off the ground on a wooden pallet and kept covered to protect from the rain and frost. A source of water will be available to the mixing area.

Ground Beams

- Excavate Ground Beam, Earthwork support.
- Excavation and filling of Working space.
- 50 mm Concrete Blinding ST2.
- Formwork to side of RC foundations.
- B785 mesh top & bottom of foundation.
- H10 links, 2300mm girth, @300mm centres.
- Concrete in Foundations RC28/35.
- Steps in foundation top/bottom.
- 75mm clay master 450mm deep

Beam & Block Floors :

Precast Floors and masonry, masonry measured from top of foundation to FFL.

- Once all the services have been installed, the internal course of blockwork will be built to the underside of the beam and block floors.
- 7 N/mm2 Blockwork 100mm Thick
- 7 N/mm2 Blockwork 215mm Thick
- Form 100mm Cavity including Ties, lintels, airbricks, vents, and sundries.
- Cavity Fill.
- Cavity wall insulation 100mm wide 600mm high.
- Clay Master heave guard.
- Level and regrade void following foundations prior to beam and block floor, weedkiller.
- 150mm Jet floor, 150mm top sheet, 70mm screed with macro fibres, 1200g DPM and 500g slip membranes, perimeter insulation.
- Raised DPC - site wide, masonry only measured to FFL, but provision made for lap to bricklayer DPM to 11 courses.
- Exposed brickwork - site wide, masonry only measured to FFL, facings where exposed in lieu of blockwork to 19 courses.
- To make sure that the edge protection is in place during the floor construction and after we have handed over the plot the most effective way will be to install the first fit of scaffolding on the underbuilt site.
- *The beam shall not be worked on site in any way ie, by drilling, notching, and cutting or in any other manner, without the permission of the beam suppliers.*

Screen and Brick Retaining Walls

Screen and Brick retaining walls, drawings 00229-597-S-SW-DET C1 and 598 C1, Brickwork to screen walls to 150mm above ground level and retaining walls to 150mm above lower level in Class B Engineering brickwork, brickwork above that level assumed to be facings supplied by CALA, Brickwork measured to 150mm above retained height stated on drawings.

- Excavate foundation trench.
- Earthwork support.
- Level & compact bottoms of excavations.
- Type One bed 300mm thick.
- Level fill.
- Formwork to concrete bed.
- Concrete in foundations C32/40.



		<ul style="list-style-type: none"> A393 mesh, U bar in foundation, L bar in foundation. B503 in stem, wall kicker, formwork to wall. Concrete in wall C32/40 Brickwork to screen walls, 450mm high 225mm Class B engineering bricks, Brickwork to retaining walls, 300mm high 225mm Class B engineering bricks. Half brick ditto to stem walls, 100mm block wall, FIX ONLY One brick facings. The same with Half brick with wall ties to concrete stem. Back fill. Land drain - perforated pipe with porous geotextile. Weepholes @ 1000mm centres. Scaffold Platform, 2m wide, 150mm deep crushed concrete, 150mm Type 1. Unlilog wall 1125mm high. Unlilog wall 1275mm high. Form flights of steps between walls. 8 steps adjacent to Plot 16, 9 steps adjacent to Plot 19. Scaffolding for wall construction. Acoustic fences, Fences, and railings to tops of walls, temporary fall protection. <p>Scaffold Bases</p> <p>Scaffold bases are assumed to be at a thickness of 200mm, should it be necessary to increase this depth due to poor ground conditions etc., this would be deemed as a temporary works design and will need to be designed by clients' engineer. It is not possible to calculate at tender the potential point loads bearing on a given surface and it is not always possible to estimate the storey heights of buildings and hence why we require a design".</p> <ul style="list-style-type: none"> Scaffold Base & Loading Bays - set 1 course below DPC. Scaffold Platform, 2m wide, 100mm deep crushed concrete, 100mm Type 1 Loading Bays, 2m x 4m, Green Ovals on Logistics plan. HAKI Staircase bases, 2m x 4m, Orange Ovals on Logistics plan. Temporary ramp to front door.
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15.0	Method of work	<p>Foul Water Manholes Complete: Excavate pit, earthwork support and any working space, disposal of surplus excavated materials off site, backfilling with site won materials where possible subject to suitability, concrete bed and surround, concrete rings and cover slab, brickwork and manhole cover as specified. Diameter 1200 to 1350, Depth, 1530 to 2704 As per drawing number 00229-331/335-C-SW-DR rev C2 and appropriate manhole schedule.</p> <p>Foul Water Demarcation Chamber Complete: Excavate pit, earthwork support and any working space, disposal of surplus excavated materials off site, backfilling with site won materials where possible subject to suitability, concrete bed and surround, concrete rings and cover slab, brickwork and manhole cover as specified. Depth 350 to 1548, 450mm inspection chamber, cover level to soffit.</p> <p>Foul water Sewer runs: Excavate trench, disposal of surplus excavated materials off site, bed and cover appropriate to depth, backfilling with imported materials as specified, pipework and fittings. Diameter 150 max depth 2000, to 2750.</p> <p>Foul Water Pumping Station: Type 2 foul water sewer pumping station - design to be confirmed by Cala, including the necessity for steel sheet piling and wellpoint dewatering due to high water level, Option 2 Foul Water Rising main- assume 2000mm max depth subject to pump station design and survey on Thames Water sewer manhole. Rising main (size to be confirmed) - assume 1500mm max depth subject to further advice.</p> <ul style="list-style-type: none"> Set out the extent of the run/s, ideally commencing from the terminal connection or lowest point. Conduct existing survey investigations as previously described. Identify access, movement and storage areas and erect safety exclusion fencing to enclose the works. Excavate the trench using a trench box as shoring support or step/ batter back the excavation when possible. Place shingle bedding using the excavator bucket or by a site dumper being banked to the point of discharge. Note that during the placement of any material to trenches that all operatives will evacuate the excavation. Manually place pipes of 150Ø or below and align using either a string line or pipe laser, as appropriate. Pipes will be cut using hand saw. Test the section prior to placing shingle protection as noted above. Backfill in the appropriate layers using excavated material and compacting with a trench or standard vibrating plate compactor. Manhole excavations will be conducted and either supported via a propitiatory manhole box or stepped/battered sufficiently; the non-man entry chamber sections placed by a qualified general construction worker. On completion, the run will be marked on the as-built record drawing together with dates of test & inspections.
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<p>16.0</p>	<p><u>Method of work</u></p> <p>Storm water Drainage</p>	<p>Surface water Sewer runs Excavate trench, disposal of surplus excavated materials off site, bed and cover appropriate to depth, backfilling with excavated materials as specified, pipework and fittings.</p> <ul style="list-style-type: none"> • SS17 - S3 150mm dia 1250mm max depth. • S3 - SS14 150mm dia 1250mm max depth. • Junction - CP01 150mm dia 1000mm max depth. • SS14 - SS11 150mm dia 1500mm max depth. • SS11 - Attenuation tank 150mm dia 1250mm max depth. • SS11 - SS10 450mm dia 1500mm max depth. • SS11 - SS29 450mm dia 1500mm max depth. • SS10 - SS9 450mm dia 1250mm max depth. • SS9 - SS8 450mm dia 1000mm max depth. • SS8 - SS32 300mm dia 1250mm max depth. • SS32 - SS28 300mm dia 2000mm max depth. • SS28 - SS31 375mm dia 2500mm max depth. • SS8 - SS7 450mm dia 1000mm max depth. • SS10 - SS26 450mm dia 1250mm max depth. • SS26 - SS25 450mm dia 1000mm max depth. • SS26 - SS25 450mm dia 1000mm max depth. • SS25 - SS24 450mm dia 1000mm max depth. • SS29 - SS23 450mm dia 1250mm max depth. • SS23 - SS22 300mm dia 1250mm max depth. • SS22 - SS20 300mm dia 1250mm max depth. • SS20 - SS19 300mm dia 1250mm max depth. • SS19 - SS18 300mm dia 1250mm max depth. • S5 - S6 450mm dia 1000mm max depth. • S7 - SS2 450mm dia 1000mm max depth. • SS2 - SS1 450mm dia 1000mm max depth. • SS7 - S4 450mm dia 1000mm max depth. 150mm to terminal points. • Road gully's to S38 standard. <p>Headwalls</p> <ul style="list-style-type: none"> • Headwall Type - concrete to receive 150mm pipe (final specification tbc). • Headwall Type - concrete to receive 450mm pipe (final specification tbc). <p>Attenuation</p> <ul style="list-style-type: none"> • Excavate Attenuation Tanks, Cart Away, Level & compact base of excavation, Earthwork support, Supply & install soakaway/attenuation units (subject to specification), Impermeable membrane, Protective geotextile, backfill with as dug material, Sand bed and surround, access covers, vent pipes. <p><u>Setting out / Earthwork preparation & installing proprietary support systems:</u></p> <p>All excavation works will be carried out in accordance with Construction (Design and Management) Regulations 2015 and the Guidance contained in Health and Safety in Excavations HS(G) 185 "Be Safe and Shore" and CIRIA guide to Trenching Practice.</p> <ul style="list-style-type: none"> • Set out the extent of the run/s, ideally commencing from the terminal connection or lowest point. • The extent of the proposed drainage run must be subject to a reduced level dig, so drainage trenches are dug at reduced levels; ideally below the proposed road formation/level. • Identify and supply appropriate earthwork support – such as proprietary trench and manhole boxes. Note: support systems must be set up in accordance with the installation guidance provided by the preferred supplier. • Conduct existing survey investigations, to include marking on the ground any potential services in close proximity with the use of CAT's, excavating trial holes to ascertain actual line and depth. • Identify access, movement and storage areas and erect safety exclusion fencing to enclose the works. • The perimeter of the proprietary earthwork support systems should be sprayed on the ground of the proposed dig, in-order for the excavator operator to cut the trench/ excavation tight; ultimately to prevent voids around the in-situ boxes. • Commence excavation, initially to a suitable depth to allow installation of the trench box, typically 1.00m below ground level (b.g.l). <p>Please note that in unstable conditions the box would be installed at a higher level and would be adjusted as the excavation proceeds.</p> <ul style="list-style-type: none"> • In excavations 2.4m and below it will be necessary to use an additional base or top box section or to terrace the top of the excavation – ensure handrails and ladder access platform is installed. • Remove all excavated material from the excavation area to prevent imposing an unnecessary load onto the excavation face. – the material should be a kept a minimum of the excavation depth away, and immediately used for backfilling as soon as the earthwork support system has been extracted. • Installation of the box by hooking a suitable set of 4 leg chains to the specified lifting eyes, attached to the designated lifting eye on the 360°
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excavators' quick hitch.

- Continue excavation within the confines of the box to the intended level.
- Where there is doubt, provide gas testing / monitoring equipment and fix at an appropriate position in the excavation to provide sureness.
- Place clean washed shingle/concrete bedding using the excavator bucket. Materials will generally be discharged into a drag skip or alternatively in the skip of a dumper.
- During placement of any material/product into trenches all operatives must evacuate the excavation.
- Dumpers must not directly tip into the trench.

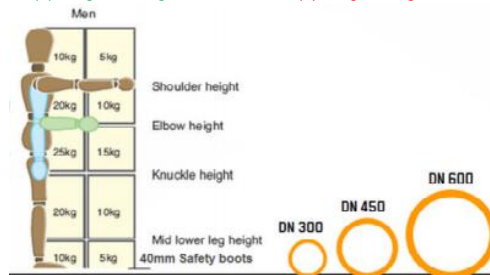
Recommended excavator bucket selection (mm) versus pipe diameter (Ømm):

150Ømm – 450mm / 225Ømm – 600mm / 300Ømm – 600mm / 375Ømm – 750mm / 450Ømm – 750mm / 525Ømm – 750mm / 600Ømm – 900mm / 675Ømm – 900mm / 750Ømm – 900mm / 900Ømm – 1200mm or 1350mm / 1050Ømm - 1200mm or 1350mm / 1200Ømm – 1500mm or 1800mm / 1500Ømm – 2100mm

Pipe laying (clay): Nominally foul sewers

Clay pipe weights: Suitable to manually lift / Unsuitable to manually lift

100Ø x 1.6m (L) weigh 15kgs / 150Ø x 1.00m (L) weigh 18.5 kg / 150Ø x 1.75m (L) weigh 31 kg / 225Ø x 1.75m (L) weigh 61 kg.



- Pipe laying will commence and should (but not always necessary) start at the downstream end, the pipes being usually laid with the sockets upstream.
- Operatives can manually place pipes of 150Ø or below depending on the excavation depth, pipes can be passed down, or lowered manually utilising a web sling. Pipes will be aligned using either a string line or pipe laser, as appropriate.
- Ensure that the inside of the coupling and the exterior of the spigot is clean.
- Spread a layer of lubricant over the pipe end to the required insertion depth and push the coupling home onto the pipe.
- The pipes shall be laid true to the line and level within tolerances specified by the design. Any necessary adjustments to level shall be made by raising or lowering the bedding, always ensuring that the pipes are finally provided with support along their whole length. Adjustment to level and position shall not be made by local packing.
- Lower the next pipe into the trench, inserting the pipe into the coupling of the pipe previously laid.
- All pipe laterals must be capped with suitable plugs/caps – not scrunched up bags/package etc.
- Each run or section will be tested before and after backfilling this will be carried out in accordance with the recommendations set out in BS EN 1610:2015.
- The larger pipes 225Ø+ will be placed by the excavator, pre-slung with 2x choked web-slings by a slinger/signaller and lowered in to position in the excavation. Note – there must be no operative within the proprietary earthwork support system whilst any load is being slung overhead – especially clay pipes due to the vulnerability of them shattering, producing razor sharp fragments.

Pipe cutting (Clay):

- Pipe chain cutter for 100Ø & 150Ø pipes - Cutting shall be performed with the correct tools and as recommended by the pipe manufacturer, cuts shall ensure adequate performance of the ensuing joint.

*This procedure should be followed to ensure a good quality cut with a Lever action pipe chain cutter (100mmØ & 150mmØ clay pipes **MUST** be cut with a pipe chain cutter as follows):*

- Make a clear mark around the circumference of the pipe at the desired length.
- Pass the chain under the pipe, aligning the cutting wheels on the desired mark.
- Hook the chain link onto the jaw of the pipe cutter.
- Tighten the chain upon the pipe by closing the arms of the lever cutter together.
- Make a final check for correct alignment of the chain with the pipe, then continue to increase the chain tension until the pipe cuts.
- After cutting, any sharp edges may require trimming with an emery stone. For both 100mm and 150mm diameter use pipe trimmer.

Powered Masonry Saw:

- A powered masonry saw can be used to cut any diameter of pipe we use. Generally, 100Ø & 150Ø diameter pipes are cut with a pipe chain cutter for speed and efficiency.
- 225 & 300Ømm pipes are generally cut by a powered masonry saw, using a diamond tipped blade.
- When using a powered masonry saw a safe system of work should be followed: Note only appointed and authorised individuals should use an abrasive wheel.
- Before any pipe cutting operation is started, read and adhere to the safety and operating instructions of both the masonry saw and the blade manufacturer.
- Check that the masonry saw is fitted with the correct specification of blade.



- Make a clear mark around the circumference of the pipe at the desired length.
- The pipe being cut should be positioned in a horizontal and stable position.
- Care should be taken to support and secure both halves of the pipe being created by the cut, to avoid the blade being nipped as the pipe separates.
- With the correct personal protective equipment in place commence the cut; the best quality cut is generally achieved by making one continuous cut.
- After cutting, any sharp edges may require trimming with an emery stone.

Note- Short length pipes should be ordered directly from the preferred supplier to minimise cutting operations on site.

Backfilling:

- Withdraw earthwork support when backfill reaches the underside of waling.
- In the first stages of backfill, selected material should be placed uniformly on both sides of the pipe by hand in layers not exceeding 100mm in thickness, each layer being compacted by hand tamping until the pipe has a minimum of 150mm compacted cover.
- Further backfill should be placed in layers not exceeding 300mm, each layer being well compacted. Mechanical compaction equipment should not be used until there is a minimum of 450mm of compacted material above the crown of the pipe.

Pipe laying (PCC): Nominally surface water

PCC pipe weights: Suitable to manually lift / Unsuitable to manually lift.

225Ø x 1.25m (L) weigh 122kg / 300Ø x 1.25m (L) weigh 217kg / 300Ø x 2.05m (L) weigh 420 kg / 375Ø x 2.5m (L) weigh 510 kg / 450Ø x 2.5m (L) weigh 705kg / 525Ø x 2.5m (L) weigh 900kg / 600Ø x 2.5m (L) weigh 1200kg / 675Ø x 2.5m (L) weigh 1275kg / 750Ø x 2.5m (L) weigh 1924kg / 825Ø x 2.5m (L) weigh 1820kg / 900Ø x 2.5m (L) weigh 1920kg / 1050Ø x 2.5m (L) weigh 2590kg / 1200Ø x 2.5m (L) weigh 3550kg.

- Once the trench has been excavated to the specified line and levels and the proprietary earthwork support system adequately installed with handrails and ladder access platform attached.
- Before lowering into the trench, each unit should be inspected carefully for any damage which may have occurred in transit or during handling and storage on site. Pay special attention to jointing surfaces. Units should be lowered carefully into the trench with tackle suitable for their weight and for the depth of the trench.
- Pipe laying will commence and should start at the downstream end, the pipes being usually laid with the sockets upstream.
- Trenches should be kept to the specified width since any increase in trench width will increase the load on the pipe, the quantity of excavation and will also require more bedding material.

Using a proprietary pipe-lifter:

Pipe lifters are specifically designed to allow excavators to quickly and efficiently pick up and place a wide range of concrete pipes without the need for an operative to contact either the pipe or the pipe-lifter.



No operative should be within the excavators fully extended radii in transit.

All users must be familiar with the pipe lifters manufactures 'user guide'.

Prior to delivery of any concrete pipe ensure the correct pipe lifter head is compatible with the appointed excavator/s.

The pipe lifter must have a current thorough examination certificate valid within 6 months – this also must be logged on the OHSEQ site notice board clipboard – lifting accessories register.

The most common pipe lifter we use is from MGF this particular item has been tested to a SWL of 3.7t and designed for use with collared concrete pipes ranging from 300Ømm - 1200Ømm and a maximum length of 2.6m (our max purchased pipe length is 2.5m).

The clamping plate has TWO available settings, an upper hole for clamping 300Ømm - 450Ømm pipes; and a lower hole for use with 525Ømm - 1200Ømm pipes. (see photograph below).

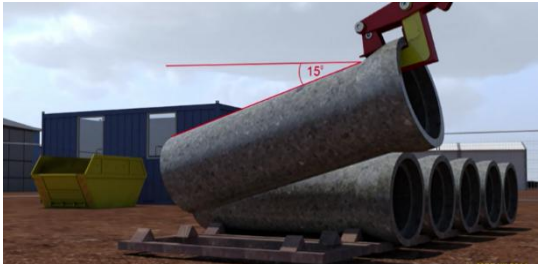


If the adjustment is required to be undertaken on-site ensure this is carried out whilst the lifter is stabilised and contained within its stillage. Two operatives are required to perform the task. Remove securing bolt and collar and carefully take out 40mm diameter pin. Re-position the clamp to the required hole and slide the pin back in place, slip over the collar and tighten M10 bolt.

When the pipe-lifter is not in-use it must be placed in a bucket/attachment area for safe storage and coupling.



When the pipe-lifter has coupled a load and raised 2-foot above ground level the operator must confirm that the load is stable by tilting the pipe + & - 15° from horizontal.



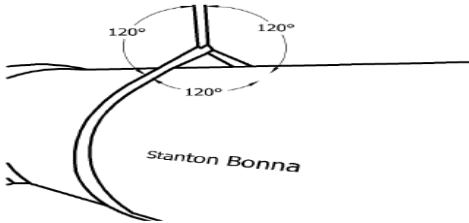
If the pipe is stable and correctly coupled the pipe may be lifter and transferred to a suitable storage location or placed into a prepared trench and jointed following the application of a lubricant to the pipe spigot and visual inspection of the socket profile checking for any fractures or obvious damage. Note- care should be taken to prevent the lubricant coming into contact with the pipe or equipment as this can cause the pipe to slip. Pipes being lifted must be kept as near the ground as is practicable and never lifted over operatives. Upon reaching the trench with the pipe attached and the excavator stabilised it will carefully begin to lower the pipe into the required position.



- The pipe may be tilted up to 30° from horizontal and manoeuvred between the struts of the trench box. During the operation ensure neither the pipe lifter nor the pipe snags other equipment or the ground as this could lead to a dangerous release of the pipe-lifter.
- For all operations ensure that the pipe is being laid on suitable ground/bedding and the pipe is chocked/backfilled to prevent unexpected movement.
- The pipe lifter can be used to push the pipe into position – care must be taken when jointing to ensure even pressure is being applied to the gasket. – No personnel should be in the working area or come into contact with the pipe-lifter/ excavator / any pipe in transit / installation.

Alternatively, if a pipe lifter cannot be used due to size or weight.

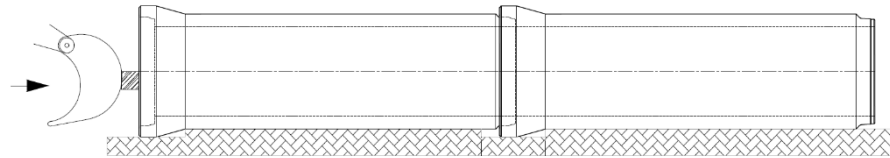
- Jointing chains or appropriate straps can be utilised to carefully lift and guide pipe spigots into the previously laid pipes sockets taking care not to disturb the jointing ring/damage the jointing surfaces.
- The spigot should be offered up to and centred carefully into the receiving socket.
- The pipe can now be allowed to rest on the bedding material (alternatively the pipeline can be back-laid i.e. new pipes laid with the socket offered up to previously laid pipes spigot – special attention should be made to ensuring the socket does not scoop up bedding material and hence contaminating the joint when laid using this method).
- The sling must be wrapped around the barrel of the pipe in a choke at the balance point. Position the bight for the choke lift at 120° (natural angle) – as per the sketch below:



Using the excavator bucket or pulling the pipe home with a strap/jointing chains which are common methods of completing the joint. If using the excavator bucket to push the pipe home, always place a timber between the back of the bucket and the pipes socket (spigot if back-laying). Apply a steady even pressure until the pipe is in its final jointed position with the joint gap being within the recommended limits of between 10-25mm (joint gap measured internally).

ENSURE NO OPERATIVES ARE WITHIN THE TRENCH WHILST THE BUCKET IS APPLYING PRESSURE AGAINST THE TIMER PUSHING THE PIPE INCASE THE TIMBER BREAKS AND STRIKES AN OPERATIVE IN CLOSE PROXIMITY – NOTE THIS HAS HAPPENED WITHIN THE INDUSTRY BEFORE AND RESULTED IN A FATALITY.

As shown below: (Jointing with the excavator bucket).



Note: Mechanical plant must not be used to press pipes down to their correct level.

Ground water should be kept below the bottom of trench by use of temporary drains and not allowed to rise before backfilling is complete. All pipelines, especially those for foul sewers are tested after each independent pipe is laid, and prior to backfill.

Manhole installation:

Recommended excavation size / manhole box to suit manhole Ømm:

Manhole Ø	Square Manhole box dimensions	Comments
1050Ømm, 1200Ømm, 1350Ømm	2.5m(L) x 2.5m(W)	1350Ømm (tight)
1350Ømm, 1500Ømm, 1800Ømm	3.0m(L) x 3.0m(W)	1800Ømm (tight)
1800Ømm, 2100Ømm	3.5m(L) x 3.5m(W)	2100Ømm (tight)
2100Ømm, 2400Ømm, 2700Ømm	4.0m(L) x 4.0m(W)	2700Ømm (tight)
2700Ømm, 3000Ømm	4.7m(L) x 4.7m(W)	None
3000Ømm, 3660Ømm	5.0m(L) x 5.0m(W)	None

Manhole excavations will be conducted / supported similarly as previously mentioned drain runs and will have PCC chamber sections placed by the attendant excavator.

- Again, operatives will leave the excavation until the PCC chamber ring is near the intended position and is stable.
 - The section will then be manually guided into the final position on the concrete/shingle bed or previous section.
- Note – the second and subsequent PCC rings must not be installed until all benching has been undertaken.
- Once the benching has been undertaken with the additional sections installed, and the manhole is a traditional type (not pre-formed) a concrete manhole surround steel shutter will be lifted into place with the inclusion of the surround safe handrails.
 - Once the concrete has cured the shutter will be removed and cover slab will be lifted into position; there is usually lifting anchors on the face allowing the use of hook and chain.

Backfilling:

- Withdraw earthwork support when backfill reaches the underside of waling.
- In the first stages of backfill, selected material should be placed uniformly on both sides of the pipe by hand in layers not exceeding 100mm in thickness, each layer being compacted by hand tamping until the pipe has a minimum of 150mm compacted cover.
- Further backfill should be placed in layers not exceeding 300mm, each layer being well compacted. Mechanical compaction equipment should not be used until there is a minimum of 450mm of compacted material above the crown of the pipe.

Producing as-built drawings & testing:

On completion, the run will be marked on the as-built record drawing together with dates of test & inspections.

Emergency Plan:

- If there is an emergency at the bottom of an excavation, then initial assessment by first aiders will establish if the IP can be moved or must be stabilised in situ pending arrival of paramedics.
- Until and unless agreed first treatment can be carried out in situ, preparation for paramedic access and subsequent evacuation by stretcher will immediately begin.
- In the event of evacuation being necessary, this will be achieved down to 5.0m. BGL by the excavator pulling a ramp in the direction of the run being pulled to an angle of approximately 20°. The sides of this ramp will then be reduced to allow safe access and egress by paramedics.
- If the ramp cannot be pulled in the direction of the run, the excavator will move round to the opposite end of the boxes, where the pipework has already been installed, and a ramp will be constructed in the opposite direction to the run.
- Below 4.5.0m. A davit arm will be provided and attached to the box side. A rescue stretcher will be available at ground level for deployment as necessary. We will always try to bring the paramedics to the casualty, not evacuate the casualty unless there is danger compromising their staying in situ with first aiders stabilising the situation. The ramp for entry and egress with the casualty is by far the safer method and we will be using it as first choice down to 5.0m. This stems from actual experience of bringing up an injured person from the bottom of a trench at great risk to him and the rescuers.

17.0

Method of work

Adoptable &
Private Road /
Footpath
Construction

Preparation:

- The foreman will consult with the client and agree the areas for the works to commence.
- Signage and barriers will be erected to segregate the works area from other trades and members of the public (if applicable).
- H & Co to commence the work starting with a detailed survey of the area for live cables and services using a Cable Avoidance Tool and hand excavation methods to ascertain actual line and level of underground apparatus that could be encountered, mark and plot all live services encountered on a relevant drawing.

Road Formation

- Excavate the road to formation level using traveler and profile boards, as set-out by the site engineer. If possible, excavations should be dug from



	<p>reduced levels and backfilled in the same day thus avoiding any risks that open excavations would incur.</p> <ul style="list-style-type: none"> The excavated material will be removed from site directly in tipper trucks to avoid double handling. If the material is suitable for reuse stockpiles will be required – All stockpiles must be managed to allow safe access for dumpers with shallow gradient ramps and bunded sides. Layout/area based on General Arrangement drawing 00229-321-C-SW-GA rev C2. Construction based on CBR of 2.5-5% drg 00229-370-C-SW-DET rev C1. Level and compact base. 350mm 6f2 capping layer, Level, and compact fill. 150mm Type 1 sub base stone, Level, and compact fill 100mm AC32 base course 60mm AC20 binder course 30mm AC10 surface course The 360 excavator will spread and level the crush and track it in. Once level, a twin drum vibrating roller will compact the crush using a sufficient number of passes to compact (6 passes). A turning point will be constructed as soon as possible to avoid the need of lorries accessing the side reversing. Edges of layers shall be benched to provide full compaction of subsequent fill layers against a leading or open edge. <p><u>Kerb / Edging Installation</u></p> <p>HB2, CS1 - Channel kerb, CS2 - Channel kerb, EF Edging, Timber edging to Breedon gravel path, E/O for Temporary block work Kerbs- where applicable, White lining, Pathway bollards.</p> <ul style="list-style-type: none"> New kerb and edging lines will be set out using non-penetrating cantilevered 'pin-safe' with "top of kerb/ edging" levels marked. The excavator will then conduct the minor excavations to provide suitable depth for kerb /edging and concrete bedding. <p>There are 2 options relating to initial kerb installation:</p> <p>Option 1 - <u>Sacrificial full height kerbs</u> to retain the edge of the roads.</p> <ul style="list-style-type: none"> Kerbs will be loaded out by the tracked excavator using lifting strops or alternatively forklift attachment and will deposit each stack at a suitable position along the kerb line. Kerbs will then be installed or deposited from the pallet using the Probst kerb laying dolly, as close to the proposed kerb line as possible. The concrete will be distributed, by the excavator bucket, to the line. Concrete will be manually levelled under the string lines and will be left approx. 20mm high to allow for bedding of the kerb. Kerbs that aren't able to be finally placed by the Probst kerb dolly two skilled groundworkers will use the 'bicycle handle type' kerb lifter, and finally lift into its proposed position. <p>Note: under no circumstance should anybody use the 'bicycle type' handle lifter as their primary laying process, it should only be used where the Probst kerb dolly is limited in-use. Once kerbs have been placed on the concrete bed and aligned / levelled they will be levelled using a pick.</p> <p>Option 2 – <u>7N concrete blocks</u> used as templates.</p> <ul style="list-style-type: none"> Blocks will be loaded out by the tracked excavator using lifting strops or alternatively forklift attachment and will deposit each stack at a suitable position along the kerb line. The concrete will be distributed, by the excavator bucket, to the line. Concrete will be manually levelled under the string lines and will be left approx. 20mm high to allow for bedding of the kerb. Blocks will then be manually placed in accordance with the engineer's pins and string line. Bedding and hunching concrete will be delivered to site ready mixed and will be deposited in a stockpile. Following kerb/ block installation all iron works will need to be raised to base course level to avoid subsequent damage or residual trip hazards. Carry out final preparation to sub-base using the excavator and Bomag roller. Base course tarmac will either be installed by us or a specialist contractor dependent on road features and quantity. The base course tarmac if installed by us will typically be levelled off by a 360 excavator and rolled in accordance with the relevant specification. Wearing course application will be delayed until the construction phase is virtually complete to avoid damage and decoration. <p>Note: edgings will be installed in a similar method to the installation of concrete 7N blocks.</p> <p><u>Block Paving</u></p> <ul style="list-style-type: none"> Level and compact base, 350mm 6f2 capping layer, Level, and compact fill, 150mm Type 1 sub base stone, Level, and compact fill, 90mm AC20 binder course, 80mm block paving - silver grey - suggest Marshalls Mistral 80mm Silver grey, Using timber and steel guide rails to the required level. The grit will be compacted using the vibrating plate. The block paving will be delivered to the immediate area mechanically, then using a paving barrow, transported to the paving operative/s. The pavers will be laid by hand to the agreed pattern. Once the area has been paved, it will be settled in using a vibrating plate. Any cutting will be carried out using Block Cutter.
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	<p><u>Breedon Gravel Footway Construction</u></p> <ul style="list-style-type: none"> • Level and compact base, • 100mm Type 1 sub base stone, Level and compact fill, • 50mm Breedon Gravel. <p><u>Asphalt Footway Construction</u></p> <ul style="list-style-type: none"> • Level and compact base, • 100mm Type 1 sub base stone, • Level and compact fill, 50mm AC20 binder course, • 20mm AC6 surface course – BUFF, • Tactile paving. <p><u>Asphalt Crossover Construction</u></p> <ul style="list-style-type: none"> • Level and compact base, • 200mm Type 1 sub base stone, • Level and compact fill, 65mm AC20 binder course, • 25mm AC6 surface course. <p><u>Private tarmac drives</u></p> <ul style="list-style-type: none"> • Level and compact base, • 150mm Type 1 sub base stone, • Level and compact fill, 60mm AC20 binder course, • 25mm AC6 surface course. <p><u>Private Block Paving drives</u></p> <ul style="list-style-type: none"> • Level and compact base, • 150mm Type 1 sub base, • Level and compact fill, 60mm AC20 binder course, • 60mm block paving - silver grey - suggest Marshalls Mistral 60mm Silver grey, <p><u>Private Block Public Footpaths</u></p> <ul style="list-style-type: none"> • Level and compact base, • 150mm Type 1 sub base, • Level and compact fill, 60mm AC20 binder course, • 60mm Key block - cream Colour, Marshalls Key block buff standard colour allowed. <p><u>Private Pathways and Patios</u></p> <ul style="list-style-type: none"> • Level & compact • 100mm Min. Thick Crushed Rock, Hardcore (Max 75mm size) or crushed concrete, • Level & Compact, 450x450mm flag paving's including allowances for gravel margins (where applicable) Marshalls Urbex, • Level & compact, 100mm Min. Thick Crushed Rock, Hardcore (Max 75mm size) or crushed concrete, • Level & Compact, 600x600mm flag paving's including allowances for gravel margins (where applicable) Marshalls Urbex, • Fix only ply protection, <p><u>Form Steps in Private Pathways and Patios</u></p> <ul style="list-style-type: none"> • 450x450mm flag paving's, • 600x600mm flag paving's (possible additions as per drawing info), <p><u>Shed base - design tbc.</u></p> <ul style="list-style-type: none"> • 1500mm x 2100mm concrete base, 100mm thick, A142 mesh on 100mm hardcore, <p><u>Topsoil and landscaping</u></p> <ul style="list-style-type: none"> • Level subsoil and prepare for topsoil filling, lightly decompaction subsoil by ripping to a depth of 150mm with teeth of machine bucket, ripping, 300mm Topsoil from Site spoil Heaps to garden areas, and public open spaces, no allowance for screening or enhancement - allowed at 300mm to align with Stuart Gove earthworks modelling, • Level and machine grade topsoil ready for rotovation by others, • Excavate and form 1m3 tree pit and fill with topsoil from site spoil heaps, trees on planting schedule over 250cm girth only (indicative rate), • Testing and validation of retained topsoil and gardens and public open spaces. <p>Street furnishings, Play Equipment, TBC.</p>
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Raise Ironworks.

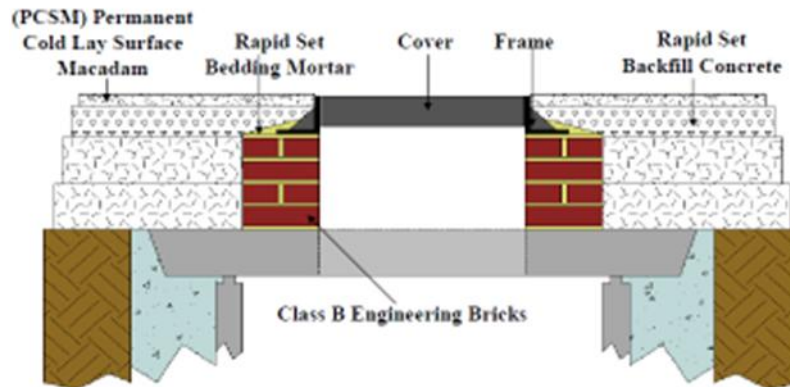
Enclose the work area with half height barriers. Ch 8 signage will be used to direct other on-site trades away from the area of works and the access and egress routes to the area of work.

Using a PDCOS with water suppression the retaining material will be scored, broken, transported to a stockpile for reuse or removal.

The engineer will give the finished road level and camber, operatives will lay the ironworks to these levels.

Engineering brick will be laid on a bed of mortar, minimum of 2 courses and not more than 4 courses.

The cover will be laid to line and level and surrounded by concrete, to the underside of tarmac level. The concrete will be allowed to cure and tarmac will be called to site, laid levelled and compacted.



Final Wearing Course Road Surfacing

- The sacrificial kerbs and existing bedding will be removed; all new kerbs will be bedded on a new bed.
- The road will receive a final clean in preparation for wearing course tarmac.
- An appointed specialist contractor will then undertake the required tarmac resurfacing works.

18.0

Method of work

Works on /
near
Underground
Services

Drawings used for Service Utility measures:

- Electricity - MU2942-E001 rev 00.
- Gas - MU2942-G001 rev 00.
- Water - MU2942-W001 rev 00.
- BT - WLX_01H_BT.PLAN_BT OPENREACH_CONSTRUCTION_1,
- Pre-tender information and Construction Phase Plan will be used and considered in light of additional information from utilities' plan drawings, section drawings from utility companies recording depth of services and commissioned ground probing radar surveys as necessary.
- Any on-site service disconnections should be confirmed by CALA Homes prior to the commencement of construction.
- The assumption that live working can be avoided as the default position is set out above and a full justification of any live working must be set out before this is considered. A method statement for live working will be required as live working is not considered to be properly controlled by any permit to work system. HSG47, rev. Feb.2014, states "Where new services such as electrical or gas supplies are being installed, it may be possible to reduce risks by not installing or commissioning them until other groundworks and work on the installation have been completed. This should be considered early in the design process to allow the works to be sequenced accordingly."
- Permit to Dig will be completed prior to excavating on/near underground services and this will be accompanied with existing and as built services drawing.
- Team working on / near underground services will be trained on "Digging on/ near Underground Services" Houlihan's Procedures and will be briefed on the task, provided with existing or/and as build drawing, and will sign Permit to Dig prior to starting any works.
- A cable avoidance tool in conjunction with a transmitter will be used by a competent person, prior to the commencement and during any work, to identify all services and ducts. The intention will be to bring up to date records of existing services and to supplement these records where they are deficient. Services found will be clearly identified to avoid the risk of damage and where necessary, we will hand dig around them to expose the services prior to full excavation. Hand digging will require the use of air picks to expose services, starting immediately under the hard cover. Record drawings will be red lined to show the most up to date information, held available on site for consultation and details communicated at inductions, tool box talks and in careful briefing on site prior to excavation.
- As each service is exposed, it will be photographed and sketched with off sets noted to inform future re-visits.
- Back fill will be with self-compacting granular material to a level where compaction is acceptable and then in suitable material, including selected as dug, which must be possible to excavate with the air pick in future: i.e., dense cohesive material like clay must NOT be used. If suitable backfill material as described is not available, the excavation should not proceed.
- Warning tape will always be placed, on top of the sand backfill, and if it has not been provided by the utility, we will have rolls to use. If physical protection is specified, then the backfill will not be completed until the protection is in place. A 1 tonne bag of sand will be placed at each planned service connection. Red debris netting will be placed over the sand backfill as an additional warning.
- Great care will be taken to establish what is meant by "terminations" or "diversions" and any assertion that there are "no" services will be treated

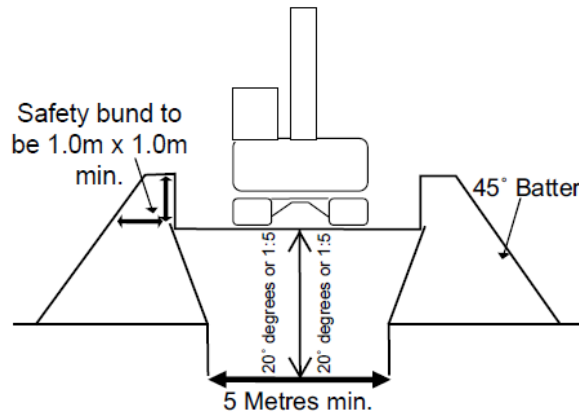


	<p>with caution.</p> <ul style="list-style-type: none"> Techniques using ground penetrating radar will be considered where information is clearly deficient, and services are congested. We will comply with the Principal Contractor's Permit to Dig system. We will additionally follow HSE advice that work on or near live services cannot be adequately controlled by a permit to work system and will provide a full method statement for the work and brief it to our competent team. <p><u>Incoming HV</u></p> <ul style="list-style-type: none"> Substation design to be provided by CALA Homes. <p><u>Telecommunications</u></p> <ul style="list-style-type: none"> Trench for BT duct, deposit surplus excavated materials off site, backfill in imported materials, appropriate/design depth from formation, D54 90mm duct, D54 90mm duct (two colour), Joint boxes, <p><u>Water Ducts</u></p> <ul style="list-style-type: none"> Trench for Water, deposit surplus excavated materials off site, backfill in imported materials, appropriate/design depth from formation, 150mm duct; under road, <p><u>Gas Trenches</u></p> <ul style="list-style-type: none"> Trench for Gas, deposit surplus excavated materials off site, backfill in imported materials, appropriate/design depth from formation, 200mm duct; under road, <p><u>LV Ducts</u></p> <ul style="list-style-type: none"> Trench for LV, deposit surplus excavated materials off site, backfill in imported materials, appropriate/design depth from formation, 100mm duct; under road, <p><u>EVCP ducts and charging point bases with feeder pillar bases.</u></p> <ul style="list-style-type: none"> Trench for LV, deposit surplus excavated materials off site, backfill in imported materials, appropriate/design depth from formation, 100mm duct; under road, POD point base, <p><u>Streetlight ducts</u></p> <ul style="list-style-type: none"> 100mm duct - see above, <p><u>Street Lighting</u></p> <ul style="list-style-type: none"> Italo 1 STE-M-1 module 525mA, Italo 1 S05-1 Module 700mA, Street light cabling and connections <p><u>Domestic supplies</u></p> <ul style="list-style-type: none"> Trenching, backfill, disposal, bed and cover, water supply pipe, lay only BT main and attend on gas main and LV main laying from communal service strip to property, Housing unit, Flat Block, Water meter point with chamber and badged cover, Set up electric entry point, excludes supply of hockey stick, meter box supplied and fitted by others, Set gas meter box at ground level- box supplied by others, Duct to detached garage, <p><u>Excavating Round Live Services.</u></p> <ul style="list-style-type: none"> Accidents may occur if care and attention are not exercised when excavating to locate underground cables. Hand-held power tools and mechanical excavators are the main causes of accidents, so they shall not be used in close proximity to underground cables, specifically 500mm. The first option to excavate around live services will be the VacEx. When unable to use the VacEx for reasons, restricted access or ground conditions, an air-pick will be the next choice. <p><u>Before Starting work.</u></p> <ul style="list-style-type: none"> Complete the appropriate Houlihan Site Procedure, "When Requested To Work On Near Live Services", paperwork. Make sure the operatives have received Houlihan's "Digging on/or round live services" and they have signed to the Designated RAMS for this procedure. The site supervisor must appoint a competent "Dig Supervisor" to supervise the dig team. The dig supervisor must never leave the dig area. If he is not present, the operation must stop. The site and dig team supervisors must have received the Cala Homes "Breaking Ground" training. The team must receive the briefing for the task before the start of the work. Complete an appropriate Risk Assessment safety check. Wear the appropriate Arc Flash Protective Suit that has been issued, as well as the protective face shield and gauntlets. Specifications of the
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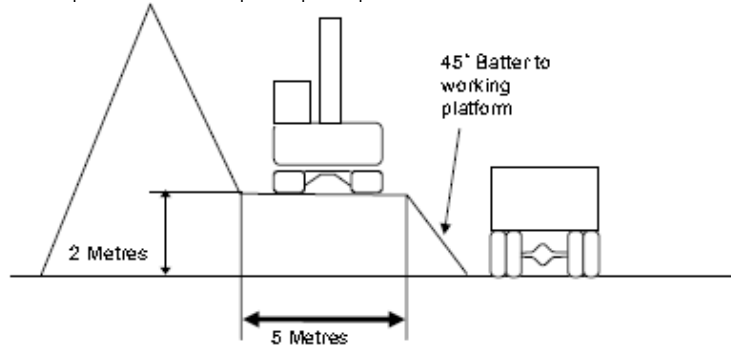
		<p>protective clothing are available in the Houlihans site office.</p> <ul style="list-style-type: none"> Check the service drawings to determine the number of cables, voltage rating, and physical dimensions of the cable(s). When Houlihan arrived on site, CAT and Genny sweeps of the perimeter boundary must have been carried out. Any services identified, tracked, traced, and marked with service indicators must have been recorded in the existing services drawing. Use a cable avoidance tool (C.A.T. & Transmitter) to trace the cables' line and mark their route on the ground. The supervisor or Engineer must carry out this task only. The EZiCAT i750, with depth locator, memory, GPS, and Bluetooth, will be used at minimum. Complete the appropriate CALA permit to dig, ensuring the service drawings are issued. Take a copy of the permit and armband issued by Cala Homes with you to the dig area. <p>On commencement of work:</p> <ul style="list-style-type: none"> Set up a mechanical excavation exclusion zone (e.g., using yellow barriers and signage) where vac-ex or hand dig activities are taking place around service/plot connections. Do not use a hand-held power tool or mechanical excavator within 500mm of a known cable or other utility. Use a mechanical excavator or a power tool only to break the top surface of the footpath or carriageway. First, using the air pick, dig a trial hole, normally covering the full width and depth of the trench that will be dug, to physically locate the services. An air pick is to be used with care to displace porous and semi-porous soils. Hand dig using certified insulated spades that have been issued to the site. Under no circumstances shall uninsulated equipment be used. Forks handheld picks, or other pointed instruments shall never be used. During excavation make repeat checks with the CAT to determine more precisely the position of any cable(s). Treat all cables found as live until proven otherwise. Any duct exposed during excavations must not be cut under any circumstances. Once a duct is installed it can only be exposed using safe practices at the request of the PC but must be treated as live and never be cut by Houlihan's operatives. Secure the excavation that will be left overnight by tying up the fencing with zip ties or clips. Excavation must be checked every day and record must be kept for excavation that exceeds 7 days. <p>Backfilling:</p> <p>Once the service connections have been made and the utility company indicates that the trench can be backfilled,</p> <ul style="list-style-type: none"> Photo(s) of installed services must be taken by the site manager before the trench is backfilled. Backfill around cables with a fine material/ building sand, and do not use hardcore as this is likely to cause damage to protective sheath or pipework. Replace any warning tiles or tape that may have been disturbed. In the first stages of backfill, selected material should be placed uniformly on both sides of the service by hand in layers not exceeding 100mm in thickness, each layer being compacted by hand tamping until the pipe has a minimum of 150mm compacted cover. Further backfill with sand must be done to reach 250-300mm over top service then use the marker tape provided by utilities. Cover the width of the trench using orange debris netting following Houlihan backfilling procedures. The other backfilling material should be placed in layers not exceeding 300mm, each layer being well compacted. <p>Once the backfill is completed, the Permit to Dig must be closed</p>
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19.0	<u>Method of work</u> Spoil Heaps	<p><u>There will be a need to stockpile separately different categories of material whether it eventually goes to landfill or can be recycled or re-used.</u></p> <ul style="list-style-type: none"> Stockpiles will be constructed by the dumper tipping material at ground level for an excavator to place as a graded pile. The excavator is required to grade off the sides to a compacted batter throwing off rainwater and dressing the top likewise. Dumpers must not tip on uneven ground: all tipping operations must be undertaken on level firm ground. The sides and end of the spoil heap must be banded (at least 1.0m(H)1.0m(W)) The stockpile will be monitored for slippage and damped down if any dust becomes airborne. The angle of repose will be estimated for different materials, with 45° an accepted average unless there is evidence of slippage. Stockpiles of topsoil will be no higher than 2.0m as this would prevent aerobic action in the heap and render the topsoil sterile. Notify the H&S department to arrange inspection within 24 hours of the formed spoil heap. We will include spoil heaps in our temporary works register, but the detailed construction of the spoil heap will be determined from the material it consists of. Note: any characterisation of material site won is an approximation or average, and a 45° batter has been a proven average, approximate solution. There is no way of removing uncertainty completely in creating spoil heaps, but the experience of our site supervisors practically succeeds. We will provide details in our temporary works register, with risk and category before creating a stockpile. If there is a need to place contaminated material in a spoil heap, awaiting the results of tests or grading for example, it will be placed on thick polythene on hard standing while it remains available. The heap will be graded, sealed and polythene placed over and weighted down. The Company procedure for forming stockpiles will accompany this MS. <p>Standard detail below:</p>
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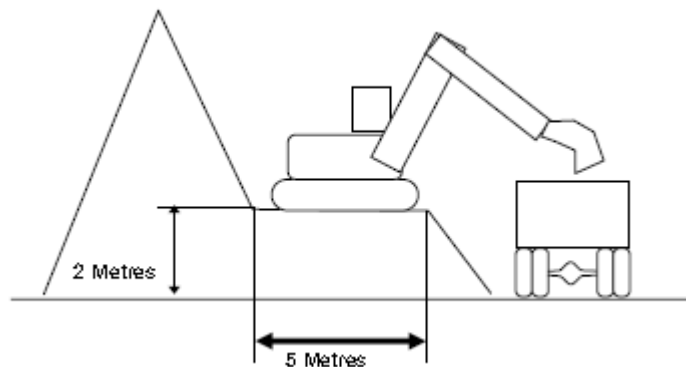


Spoil Heap Removal

- A single excavator will be used for the spoil heap removal.
- The excavator will be used to remove spoil from the heap, dragging it down from higher levels to the loading area.
- The excavator will work from a platform cut into the spoil heap as depicted in the sketch below.



- The working platform must be cut from the spoil heap above and compacted down with the back of the bucket to form a secure and stable working area.
- The platform must not be higher than two metres and must be a minimum of 5 metres wide.
- The machine must not work closer than a metre from the edge of the platform.
- The front of the platform must be battered back at a 45-degree angle at all times.
- The working platform must extend the length of the spoil heap face that is being cut away with an access ramp onto the platform at both ends.
- When tracking the excavator, the operator must always face the direction of travel. When slewing around to face the direction of travel he must be mindful of any lorries in close proximity to his position.
- The loading area will be restricted area with no pedestrians allowed into this area. All drivers are to stay in their vehicles at all times while waiting to be loaded.
- While loading the vehicles the excavator will face the vehicles with the tracks pointing towards the vehicles. This will increase the stability and the driver will have better visibility while loading the vehicles.



- This process will continue until the spoil heaps are removed down to existing ground levels.
- All vehicular movements are to be monitored and supervised by the machine driver. He will signal when the next lorry is to come forward into the loading area. The loading area is large enough for the lorries to turn and reverse into position if necessary.



		<ul style="list-style-type: none"> There are no areas with a restricted view and as only one lorry will be reversing at a time a banksman is not required at this point. Where required and as necessary, continual watering down procedures will be maintained throughout the progress of the work contributing to the suppression of dust migration.
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20.0

Method of work

Lifting with excavators

All lifting operations on site should be planned to ensure that they can be carried out safely and that all foreseeable risks have been considered. Poor planning is one of the major causes of accidents arising from the use of excavators for lifting operations.

LOLER requires that the siting, setting up and use of an excavator for lifting operations are carefully planned so that these activities can be carried out safely and efficiently. The responsibility for planning lifting operations lies with the employer who is undertaking the task. The employer should ensure that they identify one person with sufficient training, practical and theoretical knowledge and experience should be appointed to be responsible for planning and supervising the tasks. This person is known as the “Appointed Person” to BS 7121. – Alban Shehu 07584 809221.

To enable lifts to be planned, supervised, and carried out effectively, three categories of lift are detailed below. The category into which a particular lift will fall depends on the assessment of the hazards associated with both the environment in which the lift is to be carried out and those associated with the load and lifting equipment. As can be seen from the table below, increases in either or both environmental or load complexity (the “Complexity Index”) will lead to the lift being allocated a higher category. Having identified the hazards associated with a particular lift, a hierarchy of control measures should be applied to eliminate or control those hazards.

Lift categories (Basic / Intermediate / Complex).

Environmental complexity (E)	Lift category		
	Basic	Intermediate	Complex
3	Complex	Complex	Complex
2	Intermediate	Intermediate	Complex
1	Basic	Intermediate	Complex
	1	2	3

Load complexity (L)

** Only basic lifts can be undertaken in absence of a formal lift plan produced by the Company’s appointed person, providing the criteria below is met.*

Planning, Supervisory and Operating Personnel

The Lifting Team

All lifting operations should be carried out by the lifting team. The team will consist of persons carrying out the following roles:

- Appointed Person
- Lift Supervisor
- Excavator operator
- Slinger/Signaller

The complexity and size of the job will determine the exact team structure, but all roles must be allocated, and the duties discharged.

Roles and Responsibilities

Appointed Person

- Planning the lifting operation for Intermediate & complex tasks; selection of the lifting equipment and lifting accessories, instruction and supervision, and consultation with other responsible bodies to ensure effective collaboration as is necessary for the work to be undertaken safely.
- Ensuring that the outcomes of the planning process are recorded in a lift plan.
- Ensuring that adequate pre-operational checks, intermediate inspections, maintenance, and thorough examination of the equipment have been carried out.
- Ensuring that there is an effective procedure for reporting defects and incidents and for taking any necessary corrective action.
- Taking responsibility for the organisation and control of the lifting operation.
- Ensuring that the Lift Supervisor and other members of the lifting team are competent to carry out their roles and are fully briefed on the contents, scope, and limits of the lift plan.
- Being familiar with the relevant parts of the project health and safety plan where the lifting operation is being carried out on a site where the Construction (Design and Management) Regulations 2015 apply.
- Liaising effectively with the site temporary works coordinator regarding relevant issues such as ground stability.

NOTE: The Appointed Person should have the required understanding and experience of planning lifting operations with excavators.

Lift Supervisor

- All lifting operations should be supervised by a Lift Supervisor. For basic lifts this role may be combined with that of slinger signaller, whilst for more complex lifts a separate person will be required.

NOTE: The degree of supervision required will depend on the category of lift and the outcomes of the risk assessment

- The Lift Supervisor should direct and supervise the lifting operation, ensuring that it is carried out in accordance with the lift plan. The Lift



		<p>Supervisor should be competent and suitably trained and should have sufficient experience to carry out all relevant duties.</p> <p>NOTE: Competence requirements for self-supervision might differ from those for supervising others.</p> <ul style="list-style-type: none"> The Lift Supervisor should also have sufficient authority to stop the lifting operation if they consider it dangerous to proceed. <p>NOTE: The Appointed Person may decide to undertake the duties of the Lift Supervisor or to delegate these to another person with appropriate expertise for the lifting operation.</p> <p><u>Excavator Operator</u></p> <ul style="list-style-type: none"> The excavator operator should be responsible for the correct operation of the excavator in accordance with the manufacturer's instructions and within the safe system of work, as detailed in the lift plan. The excavator operator should respond only to the signals from the slinger/ signaller, who should be clearly identified. The excavator operator should: <ul style="list-style-type: none"> Have the necessary competence (skills, knowledge, and experience) to carry out lifting operations. Be familiar with the excavator to be operated, check that it is in good condition and that it has sufficient capacity to carry out the lift safely. Ensure that they do not wear loose clothing, which could snag on the controls and lead to unintended movement. Ensure, before the lifting operation starts, that the bucket is removed from the machine if the lifting attachment (hook) is fitted to the quick hitch or dipper end. Ensure that lifting operations are only carried out with the excavator in lifting mode and the overload warning device or rated capacity indicator/limiter selected. Ensure that they have been briefed on and understand the lift plan; (for Intermediate & Complex lifts). Identify the other members of the lifting team and ensure that they are clear of the excavator's arc before operating the machine. Check that the area where the excavator is to be positioned for the lifting operation is suitable for the task, the landing area is suitable to take the load, the area is segregated from the rest of the site and that only those personnel directly involved in the lift are within the segregated area. Ensure that the pre-use checks of the lifting accessories to be used have been carried out and that the lifting accessories have been correctly attached to the excavator's lifting attachment. Ensure that the excavator's control isolator (dead man) is selected when the lifting accessories and load are being attached to avoid unintended movement. Only follow signals from the designated slinger-signaller during the lifting operation, using the pre-arranged system of signals. <p>NOTE: It is essential that the excavator operator responds immediately to an emergency stop signal from any person.</p> <p><u>Slinger-signaller</u></p> <p>The slinger-signaller should be properly trained in all aspects of slinging loads and signalling and be authorised by the Appointed Person – for intermediate and complex tasks.</p> <p>The slinger-signaller should be responsible for:</p> <ul style="list-style-type: none"> Carrying out pre-use and post-use checks of lifting accessories. Attaching and detaching the load to and from the excavator load-lifting attachment. Using the correct lifting accessories and other equipment in accordance with the lift plan (for intermediate & complex tasks). Initiating and directing the safe movement of the excavator using a pre-arranged system of signals. If there is more than one slinger-signaller, only one of them should have this responsibility at any one time, depending on their positions relative to the excavator. Guiding movements of the excavator during pick and carry lifting operations. Ensuring that they are readily identifiable as the designated Slinger/Signaller by the excavator operator. Movement of the excavator includes pick and carry duties. All pick and carry duties will be continuously controlled by a banksman. <p>NOTE: Where continuity of signalling is required and this slinger-signaller is not visible to the excavator operator, another slinger-signaller or signaller will be necessary to relay signals to the excavator operator. Alternatively, other audio or visual methods may be used. A typical examples of audio methods used are where a Slinger/Signaller using a radio continuously instructs the operator to lower a load, e.g., by saying "Lower...lower...lower...", and failure of this continuous instruction from the slinger-signaller indicates that the operator needs to halt all excavator movements.</p> <p>Lift plans will be in the excavator cabs.</p>
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21.0	<u>Method of work</u>	<p>We will avoid the creation of confined spaces where possible: for example, benching will be done when the first manhole ring is placed.</p> <ul style="list-style-type: none"> A confined space is defined by the presence or absence of prescribed risks. It is possible but unusual for these risks to be present at excavations for foundations or drainage, or for these risks to be reasonably foreseeable. The most common confined space encountered is a manhole connected to a live sewer. All such manholes encountered on this site will be treated as confined spaces. Prior to entering any existing manhole, gas monitoring equipment (which will be kept on site at all times) will be used to determine that it is safe to enter the manhole. The gas monitor will be in use all the time operatives are inside any existing manholes or excavations where it is reasonably foreseeable that the confined space procedures may be necessary. This can be determined by site investigation reports or olfactory smell or visual contaminants or recommended as a precautionary measure by geotechnical consultants. NOTE: This will be a specific requirement to address a foreseen risk, for example the presence of PAHs. In that case, a gas monitor would have to be specifically calibrated to detect a marker for PAHs, benzo-A- pyrene. The gas monitors used on site will be calibrated to methane/ carbon monoxide and hydrogen sulphide (dual toxic)/ oxygen 19%-23%/ /hydrogen sulphide and carbon dioxide. TPHs/ PAHs can be discovered by sight and smell. If there is a hostile environment in the confined space no entry will be attempted. If it is essential to enter, entry will be made by specialist contractor, using self-contained breathing apparatus or air lines. The contractor we use for specialist entry and accompaniment is ESS Safe force.
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		<ul style="list-style-type: none"> Safety harnesses and a tripod will be on site and will be used by the surface rescue trained operatives where a confined space is to be entered vertically. If the confined space involves working away from a vertical access point, a harness is not acceptable, and the operative would have to be accompanied by a specialist team or a rescue entry to bring a rescue stretcher into use would be required. Escape B.A. good for 10 minutes will be held at the workface and operatives will be harnessed while in the confined space. Extraction will be by the topman operating the overhead winch attached to the harness. Should entry to the confined space be necessary, only the trained topman will enter using 30-minute rescue B.A. The tripod is suitable for manhole entry. The gantry will span excavations up to 5.0m. in width. Davit arms are suitable to fix on shoring apparatus. Where working away from vertically under the rescue apparatus, rescue will be by rescue stretcher which requires entry by trained rescue operative/s. If a problem should arise the emergency services are to be summoned immediately on a 999 call. If anyone has been trapped for more than 5 minutes, they will not be released until paramedics are present to deal with possible toxic shock. Under no circumstances is anyone else to enter a manhole where an incident has occurred other than the competent person/s who has been trained to use the rescue equipment and has completed his training to work in confined spaces. Any operative who engages in works within deep excavations or confined space entry works must be trained and certificated for work in Confined Spaces including rescue. A confined space entry permit will be issued confirming control measures are in place, for each day maximum or for each configuration of work. Any changes in support, rescue arrangements will require a new permit. This will be controlled by the foreman issuing, discharging, and revising and ensuring the procedure applies. There will be some confined space entry required though most is avoidable.
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22.0	Health & Safety	<ul style="list-style-type: none"> All operators and personnel shall be trained and certified in the functions and role suitable to their responsibility on the site. Approved method statements are to be used together with site rules and restrictions to inform and advise the workforce of the manner in which the operations will be conducted. Asbestos Awareness briefing will be held with all operatives that expected to carry out excavations on site. PPE appropriate to the scheme will be issued on commencement and the operatives and site management are to ensure the correct and continued use of such whilst on site. All items of plant, access and lifting equipment are to have been inspected prior to delivery and be accompanied by the required documentation. Site checks will be performed to the manufacturer's / supplier's recommendations. Where appropriate, Operatives will be trained for Confined Space Work. Works contained in or about live sewers are to be tested for the presence of gas and are to employ additional PPE of gauntlets, enclosure suits / overalls, breathing equipment and tripod / harness / winch. Gas monitoring equipment is to be used throughout such operations. If it is not possible to Step or batter the Excavations Earthwork support is to be used in all excavations over 1.2m deep and at any other time as is deemed necessary. Manual handling to be kept to a minimum, with nothing larger than 25 Kg without a suitable risk assessment. Banksman are to attend all machine excavations, lifting operations, especially all pick and carry duties, and direct site traffic as required. Eye and ear protection is required when using powered tools. All users of abrasive wheels must be abrasive wheel awareness trained & face-fit tested. Site dump trucks etc. are to be fitted with ROPS, seat belts & reversing warning indicators. Existing site services are to be identified located [using scanners] and protected throughout the works and shall only be exposed by means of hand excavations to determine depths etc. Main traffic routes are to be established for bulk removal or transportation of materials. Small tools will be kept in the storage container when not in use. Plant is to be left in-situ on site but will be secured and immobilised. All small drum oils to be kept in COSHH store. <p><u>Welfare Arrangements</u></p> <p>Contracts Manager and Site Foreman will check and decide for the use by all operatives of adequate welfare facilities as laid down in the Construction (Design and Management) Regulations 2015.</p> <p>Contract Manager will make sure there is sufficient provision in place for canteen, drying/changing room, offices, and toilets.</p> <p>There is no TBS on site. Power will be supplied by generator. Water will be using metered standpipe installed and approved on site. South-eastern Water will be contacted, and an engineer will be visiting site and advise on which convenient hydrant we will be drawing water from.</p> <p><u>Personal Protective Equipment</u></p> <ul style="list-style-type: none"> Basic PPE for our groundworkers has been assessed to be boots, hi-vis jackets, helmets at all times. Gloves, helmet mounted ear defenders, wellington boots and eye protection are available on site depending on the task in hand. We have a mandatory glove policy, following a glove selection procedure, based on risk assessment. Glove selection policy attached. - Safety helmets EN 397 - High visibility vest / jacket EN 471 Class 2 - Safety Gloves EN 388 and see full glove selection policy. - Hearing protection EN 352-1/EN 352-2 mandatory when using breakers or working in areas where noise levels rise above 85 dB(A). - Safety glasses to EN 166-F when placing concrete. - Safety goggles to EN 166 B when cutting concrete products or steel products. - Safety boots to EN 345: S1-P - Suitable footwear when standing in concrete wellingtons to EN 345 S4 - Face shield when using air pick.
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- Vibration procedure attached which includes assessment nomograms for all hand-held vibration emitting plant.
- Noise assessments attached for all noise emitting plant.
- More specialised equipment for confined spaces, asbestos, contaminated land will be issued as required by risk assessments from time to time and signed for in a Construction Confederation register compliant with the Construction (Design and Management) Regulations 2015.
- PPE must still be worn in hot weather: Breaks from work and drinking water are essential but where risk assessments show the need for PPE it must be worn, or work halted.
- Sun block is available on all sites.
- Sunglasses will be issued on site where glare is a problem, and on all site where there is chalk.
- Personal protective equipment is provided free of charge to our employees and will be replaced when required.

Bucket changing areas.

- Suitable fencing & signage will be erected in close proximity to excavator working areas where buckets will require changing. The designated areas will move to minimise transit but will remain of the same standard even for short duration work.
- The smallest changing area must consist of 3 heras fencing panels and a half-height barrier along the face so all 4 sides are enclosed; the requirement for the half-height barrier is to prevent 10t & below excavators from damaging any hydraulic hoses on the underside the boom or the fencing panel.
- NOTE: all our quick hitches are fully automatic.

Noise Monitoring

The following working practices will be employed to reduce noise throughout construction activity on site:

- Where practicable, position plant away from site boundaries, particularly on sites with neighbours within close vicinity.
- Make use of stockpiles as noise shields
- Arrange delivery times on site to suit the area.
- Use all silencing equipment available and keep panels closed on all generators and compressors.
- Switch off noisy equipment when not needed.
- Arrange traffic routes for mobile plant so the amount of reversing required is minimised, reducing the use of reverse warning beepers.
- If there is doubt as to noise levels or complaints, we will deploy a Class 1 noise level meter for operations. Environmental noise measurement has been by a specialist. There is no Sec.60/61 in place.
- Observe restrictions on working hours: No plant operating before 8:00 am
- We have assessed the noise levels for all our plant- see attached.

Dust Monitoring

- Routine visual monitoring will be undertaken for dust at all operational areas at the site. In the event that significant visual dust is observed at the boundaries of the operational areas, action will be taken to suppress the dust. We won't wait for the dust but will also respond if it is seen in between regular preventive road cleaning and dust suppression by water from a bowser. The most useful stipulation if we have bulk shifting of waste over haul roads is that the exhausts vent upwards and not down at the road. If haul roads were tarmacked this would massively reduce the problem.

This action would comprise application of water to waste stockpiles, roads, and waste treatment activities as appropriate. Inspections will be carried out by site operatives throughout the day and by the Site Manager on a daily basis.

Refuelling Area

- During the fuelling process a drip tray will be positioned under the connection point to ensure that any drips of diesel are caught in the tray, the same process applies to filling petrol tools/cans etc. If the hose has been contained within the secondary bund and submersed in diesel the hose itself must be located within the drip tray, take the lid of if necessary.

- A fire point with 2no. CO2 extinguishers will be placed close to the refuelling area, appropriately signed.

Storage of tools & materials

- Small tools will be kept in the storage container when not in use. Plant is to be left in-situ on site but will be secured and immobilised. All small drum oils to be kept in CoSHH store.
- Materials that are on pallets will not be stacked more than two pallets high.
- Lightweight materials such as Cellcore, cordek, and polystyrene panels used for floors will be weighted down.

Interface with other trades

- Co-ordinating work with other trades.
- From the arrival of other trades on site, work will be co-ordinated by our Site foreman.
- Our works will be segregated from other trades.
- Excavations will be guarded to prevent unauthorised access. We will not undermine scaffolding at later stages of the job and will not work underneath scaffolding. Our machinery has flashed hazard lights and all reversing will be kept to a minimum.
- Note that flashing lights interfere with laser levels. Manufacturers have found no way round this problem. And so lights should be switched off when the laser level is in use, but only in the area our site engineer defines as where interference could occur. This is not a blanket excuse for the whole site.

Housekeeping

- Materials will only be stored in designated areas. Work areas will be cleared of waste as soon as practical, including materials surplus to a task. If this does not happen in a timely fashion, the working area will become constricted, and separation will become difficult. If we leave behind waste or surplus materials, this makes distancing difficult for others. We should require this of other trades before we enter a new work area.
- Any waste materials to be disposed of in the appropriate skip.
- Waste from disposal bins around site including in offices must be removed on regular basis during the day.
- Clear access at all times must be maintained should the emergency services be required.

Reporting of Accidents



	<ul style="list-style-type: none"> Any accidents whatsoever arising out of or in connection with the site works on or off Site which cause personal injury, property damage shall be reported to the OHSEQ department immediately, in writing giving full details and statements of witnesses. In the event of a reportable accident the Health & Safety Executive shall be informed and an F2508 submitted. All accidents to be recorded in the Accident Book and reported to the Client. All near misses will be reported to the Client. If CPR is required, then the following guidelines have been extracted from the latest Resuscitation Council UK Statement on COVID-19 in relation to CPR and resuscitation: Recognise cardiac arrest by looking for the absence of signs of life and the absence of normal breathing. Do not listen or feel for breathing by placing your ear and cheek close to the patient's mouth. If you are in any doubt about confirming cardiac arrest, the default position is to start chest compressions until help arrives. Make sure an ambulance is on its way. If there is a perceived risk of infection, rescuers should place a cloth/towel over the victim's mouth and nose and attempt compression only CPR and early defibrillation until the ambulance (or advanced care team) arrives. Put hands together in the middle of the chest and push hard and fast. Early use of a defibrillator significantly increases the person's chances of survival and does not increase risk of infection. If the rescuer has access to personal protective equipment (PPE) (e.g., face mask, disposable gloves, eye protection), these should be worn. After performing compression-only CPR, all rescuers should wash their hands thoroughly with soap and water; alcohol-based hand gel is a convenient alternative. They should also seek advice from the NHS 111 coronavirus advice service or medical adviser. <div style="text-align: center;"> <p>How to do CPR on an adult COVID-19 update</p> <ol style="list-style-type: none"> 1. If someone is unconscious and not breathing normally, do not put your face near to theirs 2. Call for an ambulance 3. Use a towel or piece of clothing and lay it over the mouth and nose 4. Do not do mouth to mouth 5. Start chest compressions to the tempo of "Staying Alive" 6. Use a Public Access Defibrillator if available. <p>Find out how St John are supporting the NHS with the COVID-19 outbreak at sja.org.uk/COVID-19</p> <p>Source: Resuscitation Council UK</p> <p>St John Ambulance Resuscitation Council UK</p> </div> <ul style="list-style-type: none"> Any accidents whatsoever arising out of or in connection with the site works on or off Site which cause personal injury, property damage shall be reported to the OHSEQ department immediately, in writing giving full details and statements of witnesses. In the event of a reportable accident the Health & Safety Executive shall be informed and an F2508 submitted. All accidents to be recorded in the Accident Book and reported to the Client. All near misses will be reported to the Client /Principal Contractor. Trained First Aiders, Xhevahir Sulaj, will be responsible for all treatment to operatives on site. First Aid equipment and facilities shall be available in the Houlihan & Co site office. <p>H&Co First Aider will make entries in the Accident Book if the IP does not want to and agrees to the entry.</p>
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23.0	<p>Discovery Strategy</p> <p><u>Contamination</u></p>	<p>It remains possible that unexpected soil conditions may be encountered during the process of construction.</p> <p>Examples may include oily pockets within the soil, pockets of cement boarding or fibrous materials within the soil, black ashy materials, soils exhibiting strong odours, brightly coloured materials and former structures or brickwork. Should previously undiscovered contamination be encountered during construction, this should be reported to the Site Manager immediately in order that any necessary inspection may be made. A watching brief approach</p>
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Prepared by: Jason Meadows	Client: CALA Homes
Page 27 of 44	Doc: M0596-MS-2401 Groundworks Rev 8



		<p>is to be adopted during the various phases of the site's development such that in the event of suspicious conditions or materials being encountered, the Environmental Consultant can attend site to inspect the 'discovery'. Records should be kept, and samples submitted for analysis where conditions encountered are not as anticipated. The results of any such testing should be sent to the Local Authority for consultation. Depending on the type, nature, and extent of any such 'discovery', it may be necessary to halt works in that location until such time as the assessment has been completed. This should be reviewed on a 'discovery' specific basis and in conjunction with regulatory consultation.</p> <p>As a general guide, where such unexpected conditions are encountered the following approach is recommended:</p> <ul style="list-style-type: none"> • All discoveries are to be reported to the Site Manager immediately and works at that location are to halt until further notice. • The area should be cordoned off using an appropriate barrier system. • The Site Manager is to report any such discoveries to the Client and the Environmental Consultant: - LEAP • Following notification from the Site Manager, the Environmental Consultant shall discuss the discovery with the Local Authority and if considered necessary, arrange to meet an Officer on site to view the discovery. • The Environmental Consultant shall attend the site to record the location, extent and nature of the discovery and implement an appropriate sampling and analysis regime, taking due account of the type and nature of the discovery, known and probable land uses in that area of the site. • Where remedial action is required, regulatory consultation and approval will be sought. • A record will be produced by the Environmental Consultant and held on site (with copies held by the Environmental Consultant, Client, and Local Authority), detailing the discovery, assessment works undertaken, findings thereof, confirmation either of no action required or detailing the remedial action taken and validation thereof. <p>The process is shown below.</p> <pre> graph TD Discovery[Discovery] --> Reported[Reported to Site Manager] Reported --> ECNotified[Environmental Consultant notified] ECNotified --> RegNotified[Regulators notified] ECNotified --> ECAttends[Environmental Consultant attends site to assess and investigate] RegNotified --> ECAttends ECAttends --> SafeContinue{Safe to continue?} SafeContinue -- Y --> ContinueWorks[Continue works] SafeContinue -- N --> DetermineRemedial[Determine remedial action] DetermineRemedial --> RegulatoryApproved[Regulatory approved] RegulatoryApproved --> Remediate[Remediate] Remediate --> ContinueWorks </pre> <p>UXO's</p> <p>UXO</p> <p>Awaiting UXO report from Client.</p> <p>UXO desktop survey report states that there is a moderate risk of presence of UXO-s. Given the nature of our works an UXO awareness briefing will be held with operatives first day on site and we will be vigilant as to unexpected colour in the ground and evidence of potential ordnance.</p> <ul style="list-style-type: none"> • If anything is identified, it will be left in situ or where it has been displaced to, all machines will be turned off, the position of the suspected ordnance will be marked lightly with warning tape kept available at the excavators, personnel nearby will be warned to retreat to a safe distance and the site management will be informed. • The police will be informed by immediately calling 999 by the emergency co-ordinator Richard Hume and they in turn will contact the bomb squad. All personnel and the public will be kept away to 100.0m. radius. <p>Waste Disposal</p> <p>Duty of Care</p> <p>As the persons undertaking construction work and specifying a particular waste disposal carrier and receiver, Houlihan & Co. have a duty of care under the Environmental Protection Act 1990. We must and will take all reasonable measures:</p> <ul style="list-style-type: none"> • To prevent any contravention by another person of the legal requirements associated with depositing, treating, or keeping of controlled waste or its transport. • To prevent the escape of waste from our control or that of any other person.
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		<p>On the transfer of waste to ensure that the transfer is only to an authorised person and that there is transferred a written description of the controlled waste which will enable other persons to clearly understand the nature of the waste and comply with the duty to prevent its escape. (An authorised person is a waste collection authority or the holder of a waste management licence.)</p> <p>Keeping Waste Safely</p> <p>To comply with our duty of care, we must ensure that the waste is not affected by:</p> <ul style="list-style-type: none"> Corrosion or wear of waste containers. Accidental spillage or leakage. Accidents or weather breaking contained waste open and allowing its escape. Waste blowing away or falling whilst stored or transported. Scavenging of waste by vandals, thieves, children, trespassers, or animals. <p>The site perimeter will be secured and signed. Stockpile areas will be clearly delineated and set on an impervious membrane. Dust will be controlled by damping down or covering.</p> <p>Transferring Waste</p> <p>Waste can only be transferred to an authorised person. The Waste (England and Wales) Regulations 2011 detail the transfer note arrangements. The note must be completed by a responsible person from the company producing the waste, not by the carrier. The responsible person will consider whether the waste will require a special container to prevent its escape (e.g., a closed skip for asbestos) or if the waste can be mixed safely with other waste.</p> <p>Part of the duty of care obligation is that checks are carried out before waste is transferred. Tip licences in particular must be carefully checked to ensure that the tip can receive the type of material being sent. Carriers' original registration certificates, not photocopies, must be carefully inspected. A Waste Transfer Note (WTN) must be completed and signed by both the person handing over the waste and the person receiving it. It must contain enough information about the waste for it to be handled safely and either recovered or disposed of legally.</p> <p>The WTN must include:</p> <ul style="list-style-type: none"> a description of the waste any processes the waste has been through. how the waste is contained or packaged the quantity of the waste the place, date, and time of transfer the name and address of both parties details of the permit, licence or exemption of the person receiving the waste the appropriate European Waste Catalogue (EWC) code for the waste a declaration that you have applied the waste management hierarchy has been applied. the 2007 Standard Industrial Classification (SIC) code of the person transferring the waste. the producer is most able to describe their waste accurately. It is not acceptable to use non-specific terms such as 'general waste'. separate paperwork must be completed for hazardous waste.
24.0	Silt Management	<p>Measures on Enabling phase and Preparatory Earthworks.</p> <ul style="list-style-type: none"> Stripping topsoil must be done in stages to maintain as much vegetation cover across site as possible. Retention of vegetation as far as reasonably practicable along south-western boundaries to promote infiltration of any surface water and silt run-off. Haul road preferably be topped with tarmac easy to be clean with road sweeper. Jet wash and cattle grid will be installed in the exit of the site to clean the wheels of any vehicle leaving the site, this is the responsibility of the Gateman supplied by CALA Homes, the maintenance and environmental control is with Houlihan's as PC. Designated car park will be topped with stone and be maintained mud free. <p>Additional Measures during Construction Phase</p> <ul style="list-style-type: none"> The placement of gulley protection (specially designed gulley guards, or standard protection - straw and terram) in all gullies during construction which are to be inspected and replaced/cleaned when necessary. Minimising the movement of plant on and off roads to prevent the tracking of excess soil onto roads and highways. The installation of hardstanding areas to the front of all plots to enable 'clean' forklift access. The placement of hardstanding or topsoil at the earliest opportunity to control surface runoff from completed areas. Avoidance of tracking on areas of permeable paving once installed and otherwise maintaining paving areas. <p>Monitoring Procedures and Records</p> <ul style="list-style-type: none"> Inspection of all silt fencing, silt traps and manholes to monitor the discharge entering the drainage system and the sensitive receptors around all site boundaries. Maintenance, cleaning and replacement of silt fences, silt traps, silt matting, and Terram as required. The completion of the Environment Checklist (Site Audit form) on a weekly basis which will assist in documenting any changes on site and identify any changes needed to the protection systems as the development progresses. The Site-Specific Environmental Action Plan (SSEAP) will be reviewed by use of the Environmental Checklist and updated when required to reflect changes to site conditions and operations. All records will be reviewed on a monthly basis. Cala Environmental Department must be contacted apart from Health and Safety department of Houlihan & Co in the event of heavy rainfall breaching protective measures.



<u>25.0</u>	COSHH	<p>COSHH Register: refer to OHSEQ notice board in site office:</p> <ul style="list-style-type: none"> • AdBlue • Asphalt Materials • Bituthene Primer • Bituthene Adhesive Primer • Butane - Calor • Cement – packaged. • Cement colouring – Sealotone • Diesel • JCB Grease • JCB Hydraulic Fluid • Engine Oil • Marking Paint – Powerline • Mortar Plasticiser – Sealocrete • Petrol • Pipe Joint Lubricant – Hepworth/ Osma • Sika block paving seal • Silica • Weedkiller Doff • Wet Concrete • White spirit
<u>26.0</u>	Immediate Emergency Procedures	<ol style="list-style-type: none"> 1. In case of an accident Phone 999 and ask for the Emergency Services. 2. Shut Down all Plant and Cordon off the Area. 3. Inform Main Contractor Site Manager. 4. Contact Alban Shehu 07584 809221 5. In case of Fire, follow Signage and meet at Assembly point near front gate:
<u>Author:</u>		Jason Meadows

Houlihan & Co. (Excavations) Limited

OHSEQ Management System

HOULIHAN & CO. (EXCAVATIONS) LTD

Civil Engineering Contractors
Specialists in Roads Sewers & Groundworks



Contract: Cala Homes, Egly Road, Woking				OPERATION: (Site Specific) Groundworks										
ORIGINATED BY: Agron Selita				DATE: 05/01/2025			APPROVED BY: Josh Mandair				RE-ASSESS: At least every 3mths or following an incident or change in working equipment or processes			
Risk Rating: Severity (S) & Likelihood (L) as 1 (low) 2 or 3 (high) , multiply to give Overall Rating (R) 1 (low) to 9 (high) for priority actions														
A=Operative: B=Others on Site including client's staff: C=Public														
Hazard	People at Risk			Risk Rating			Control Measures STANDARD PPE TO BE WORN ON SITE, (HI-VIZ,SAFETY FOOTWEAR,HEAD PROTECTION) ADDITIONAL/ALTERNATIVE PPE TO BE WORN WHEN REQUIRED BY RISK ASSESSMENT	Residual Risk Rating						
	A	B	C	S 1,2,3	L 1,2,3	R 1 - 9		S 1,2,3	L 1,2,3	R 1 - 9				
All works Leptospirosis	Y	Y	N	2	3	6	<ul style="list-style-type: none">• The likelihood of rats and hence leptospirosis has been made clear to all operatives at their company induction.• The main defence against the disease is personal hygiene, including not smoking on site.• The HSE information leaflet has been used in toolbox talks and is issued to operatives.• Prevent / discourage rats from coming on to site.• Ensure adequate pest control provisions are in place around site and welfare facilities.• Do not leave scraps of food lying around to attract them.• Ensure cuts, grazes and open wounds are covered with a waterproof plaster.• Wear water proof gloves and clothing when working in wet conditions.• Wash your hands and arms thoroughly before eating, drinking, and smoking.• Report any ill health to your supervisor or Manager.• If you start to suffer from what seems like flu but have reason to believe that it may be leptospirosis see your doctor as a matter of urgency. Inform your GP of your occupation.• The internal/external refuse storage area is regularly cleaned and monitored.• All waste bins were kept in a clean condition and emptied on a frequent basis.• Non-toxic monitoring bait devices are used for pest control within the food preparation and food storage areas.• Visual checks carried out by employees and detailed records are maintained when evidence of pest activity has been found initiating any follow-up action.	2	1	2				
Delivering, unloading, reloading vehicle on site Mechanical failure; road traffic incident; contact with pedestrian's others.	Y	Y	N	3	3	6	<ul style="list-style-type: none">• Only trained and competent site staff to complete tasks.• <u>Staff to follow prescribed safe systems of work detailed under sub-heading “Plant and vehicle preparation and delivery” of this document.</u>• If at any point, the safe systems of work detailed in this document are deemed insufficient, work is to stop a risk assessment shall be completed and new safe systems of work developed and implemented.• All deliveries to be undertaken on-site; within a controlled offloading pre-planned area, not in the public domain.	3	1	3				
Vehicle movements Vehicles, including mobile plant, , coming into contact with workers, other plant/vehicles or property resulting in potential serious injury to persons and/or damage to plant/property.	Y	Y	N	3	3	9	<ul style="list-style-type: none">• All site personnel will be made aware of the requirements of the Principal Contractor's traffic management arrangements at the site induction and updated whenever necessary.• Vehicle banksman are to be suitably trained.• Suitable safety signs will be displayed on site instructing drivers not to use mobile phones, not to reverse without a banksman and to stop if they cannot see the banksman.• The use of mobile phones is not permitted within the processing area.• All persons on site, including lorry drivers outside of their cabs are to wear the PPE required by site rules including high visibility vest / coat.	3	1	3				

Prepared by: Jason Meadows	Client: CALA Homes
Page 31 of 44	Doc: M0596-MS-2401 Groundworks Rev 8

Houlihan & Co. (Excavations) Limited

OHSEQ Management System

HOULIHAN & CO. (EXCAVATIONS) LTD

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							<ul style="list-style-type: none">• All vehicles must travel at a safe speed for the conditions below the site speed limit which is displayed on site – within the processing area the speed limit is 5mph.• Access routes on site will be formed with a safe incline and bunds or barriers will be provided to prevent vehicles falling into excavations or off ramps.			
Operating Plant and Equipment Contact between plant and operatives resulting in possible serious injury. Plant overturning resulting in injury to the operator or other persons. Failure of lifting equipment resulting in persons being struck by falling loads/equipment.	Y	Y	N	3	3	9	<ul style="list-style-type: none">• Establish clear work area, cordon off if necessary to prevent pedestrian / unauthorised access. Site management to determine the need for fencing/barriers to ensure operatives not involved in the task do not enter the works area.• Operatives must never stand under an excavator bucket or a suspended load.• Only authorised competent people to operate plant.• All plant operators to hold valid qualifications for the category of plant they operate.• All machinery to be inspected before use and where required to have valid thorough examinations certificates.• Operators are required to complete and record daily pre-use inspections. The operator must ensure that any defects / damage is reported to H&Co's Site Manager before operating plant.• All mobile plant to have flashing beacons and 360-degree vision ability. Loading shoves to have reversing audible warning system.• Plant to travel at a safe speed for the conditions and always within the site speed limit.• Keys are to be removed from plant not in use and safely secured at the end of shift.• Plant is only to be used for the purpose that it is intended and in conditions it is intended for.• Plant must be banked in areas when pedestrians are present.• Access routes on site will be formed with a safe incline and bunds or barriers will be provided to prevent mobile plant falling into excavations or off ramps.	3	1	3
Lifting with site excavators Failing Loads, trapping fingers, Load swing causing injury, falls from height, Crushing	Y	Y	N	3	3	9	<ul style="list-style-type: none">• <u>Staff to follow prescribed safe systems of work detailed under sub-heading “Lifting with excavator’s” of this document.</u>• Loads to be slung by competent operatives.• Banksman to ensure that no lifts are taken over adjacent work area and that all loads are correctly slung.• Basic task lifts only to be undertaken without the approval of the companies appointed person.• Intermediate & complex tasks requires a specific lift plan.• No lifting over populated areas.• No lifting with bucket attached.• Prior to the instruction to lift slinger signaller to stand clear of load• Keep load as low as possible and use guide ropes on 2 corners where necessary.• All delivery vehicles to have edge protection fitted. If delivery vehicles have no edge protection - TURN THE LORRY AWAY.• All excavator drivers to hold current CPCS cards. being operated• Excavators to be thoroughly examined at 12 monthly intervals.• All excavators to have daily inspection (F91) to be carried out and recorded by machine operator.• All accessories to be checked prior to use by slinger signaller. All accessories to have 6 monthly thorough inspection. Slinger signaller to ensure lifting accessories have sufficient SWL.• IF IN DOUBT CONSULT H&Cos APPOINTED PERSON – ALBAN SHEHU : 07584 809221	3	1	3
Quick Hitch devices on excavators Operatives being crushed by falling buckets, possible fatal or very serious injury.	Y	Y	N	3	2	6	<ul style="list-style-type: none">• Identify the type of quick hitch on each excavator and ensure you know if it requires pins to be fitted. Test that the bucket is correctly attached. (IE Shake, rattle, and roll)• Regular checks to be made on the machine. Faults to be reported to the site manager immediately machines to be stood down until repaired.• Where required pins must be fitted after changing the buckets, this is the driver's responsibility not the nearest operative. Operatives are <u>not</u> to stand underneath buckets at any time.	3	1	3

Prepared by: Jason Meadows

Client: CALA Homes

Page 32 of 44

Doc: M0596-MS-2401 Groundworks Rev 8

Houlihan & Co. (Excavations) Limited

OHSEQ Management System

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Work potentially generating dust-vehicle movements on site. Inhalation of silica, asbestos, other respirable airborne contaminants, environmental nuisance	Y	Y	Y	3	2	6	<ul style="list-style-type: none"> Speed restricted to 5mph. Lorries to be specified on hire as having upward directed exhausts. PC to control forklift movements. Hard top to roads, haul roads where practicable. Road cleaning. Drop distances from bucket into lorry or dumper skip to be minimised. Traffic marshal to explain routes on site. Any concrete and tarmac cutting will be carried out using water suppression. Water bowser will be used when it is required (specially on summertime) 	3	1	3
Work potentially generating dust-bulk movement of materials. Inhalation of silica, environmental nuisance	Y	Y	Y	3	2	6	<ul style="list-style-type: none"> Scrape by blade instead of digging and dumper transfer. Avoid double handling whenever possible. Cover loads in motion & static spoils on site. Limit drop distances to minimum. Continuous micro spray as new surfaces exposed on spoil heaps in dry weather. Use larger plant to minimise number of movements. Retain vegetation until removed just in time. Road cleaning on and off site. 	3	1	3
Machine operations Maintenance work on plant- greasing, hydraulic oil leaks, pressurising tracks Oil, and fuel spills.	Y	Y	N	3	2	6	<ul style="list-style-type: none"> Re-fuelling area. Environmental procedure for spills and hydraulic hose burst. Fluids under pressure, whether toxic or not, carry risk of serious harm if injected. Minor entry wound belies harm caused as fluid blocks veins or arteries. No fault should be traced without Kevlar gloves; only Houlihan issue grease guns should be used. Fitters to adjust excavator tracks unless driver has had training. Preventive maintenance of machines. Daily pre-operation inspection checks carried out & recorded weekly as a minimum. 	3	1	3
Compressor operations Oil, fuel spills.	Y	Y	N	2	2	4	<ul style="list-style-type: none"> Re-fuelling area. Environmental procedure for spills and hydraulic hose burst. Preventive maintenance of machines. Daily pre-operation inspection checks carried out & recorded weekly as a minimum. Check lifting eye prior to lifting. Whip check fitting attached at hose inlet. Lifting eye to have compatible shackle. Plant "nappy" under compressor. Newest compressors are internally banded. 	2	1	2
Use of vibrating plant Hand Arm Vibration	Y	N	N	3	2	6	<ul style="list-style-type: none"> Plant is selected for low vibration characteristics and a full assessment has been carried out for tasks where vibration exposure is expected. The intention is not to expose any operative to even the lower action value. Drilling and vibrating concrete works of short duration. Tools should be used for their designated purpose. All operations have been timed for trigger times and manufacturers' information re vibration checked to OPERC emission test results. 	3	1	3

Prepared by: Jason Meadows	Client: CALA Homes
Page 33 of 44	Doc: M0596-MS-2401 Groundworks Rev 8

Houlihan & Co. (Excavations) Limited

OHSEQ Management System

HOULIHAN & CO. (EXCAVATIONS) LTD

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							<ul style="list-style-type: none"> As the trigger time is critical, this will be periodically checked by timing actual operations- monitoring sheets for site supervisor in vibration pack. HSE nomogram for each item of plant. Equipment will in addition be tested by accelerometer monitoring vibration levels and trigger time (exposure) by process: results will inform purchasing policy and decision re continuous safe use. Plant department to maintain contact with supplier to ensure that they're aware of any engineering control measures that can be installed to minimise vibration levels. Any damaged equipment must be taken out of use and reported. All work equipment must have appropriate guards in place. If guards are missing, the item may not be used. Our vibration assessments will be on site. We do not keep registers, because it involves recording trigger time and is usually not done properly. Our assessments are based on operations which have been timed- as trigger times- by observing operations and collecting the seconds of use as against the ancillary work where there is no vibration. We do not accept it is a good idea to record harm rather than avoiding it. 			
Use of plant emitting noise Noise Induced Hearing Loss	Y	Y	N	3	2	6	<ul style="list-style-type: none"> Plant has been selected for low noise rating. Ear defenders and ear plugs are available to the workforce. Where the noise at the workplace reaches 80dBA ear protection will be worn as company policy. It is not expected that anyone will be exposed to noise of 90dBA or over, but where the level exceeds 85dBA ear protection must be worn and we will try to reduce the noise dose by reduction at source. All noisy areas display mandatory 'Ear Protection' signs. Site monitoring by process and site-specific operations if necessary. Acoustic blankets deployed at site boundary and/ or locally to source depending on ongoing monitoring and site-specific requirements. Plant department to maintain contact with supplier to ensure that they're aware of any engineering control measures that can be installed to minimise noise levels. Any damaged equipment must be taken out of use and reported. All work equipment must have appropriate guards in place. If guards are missing, the item may not be used. Wherever possible noise is combated at source by enclosures and engineering controls. Acoustic enclosures and engineering controls are regularly inspected to ensure they achieve the designed noise reduction. Access to noisy areas is restricted to only those persons having to enter the zone, thereby reducing the number of persons exposed by distance. 	3	1	3
Cutting concrete – Kerbs, slabs, and other PCC items. Inhalation of respirable silica, strike by flying fragments. Vibration.	Y	Y	N	3	3	9	<ul style="list-style-type: none"> Kerbs cut in area excluding public, other operatives. physical screening positioned to protect other workers and passers-by. Battery operated water dust suppression unit on disc cutters must be used (on diamond tipped blades only). Correct blade used on disc cutters. Filter masks to P3 standard worn (personal issue, disposable, fit-tested). Stihl disc cutters selected for low vibration. Task will not require trigger time over lower action level. Nomogram for specific work equipment on site. COSHH assessment in place. Abrasive wheel training must be provided to all abrasive wheel users. Eye protection to BS EN166:1995 1.B will be worn 	3	1	3
Cutting Steel Strike by flying fragments, Vibration	Y	Y	N	3	2	6	<ul style="list-style-type: none"> Steel will be cut on site in a cordoned off section on site clear of any fire hazards, with the correct PPE being worn. Ensure refuelling areas containing flammable substances are at least 20.0m away. Task will not require trigger time over lower action level. 	3	1	3

Prepared by: Jason Meadows	Client: CALA Homes
Page 34 of 44	Doc: M0596-MS-2401 Groundworks Rev 8

Houlihan & Co. (Excavations) Limited

OHSEQ Management System

HOULIHAN & CO. (EXCAVATIONS) LTD

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							<ul style="list-style-type: none"> Nomogram for specific work equipment on site. Hot works permit to be in place. Fire extinguishers to be at the work face. Operatives to wear safety goggles. Operatives to wear ear defenders. Fire watchman to be present at all times when cutting 			
Placing concrete -backing kerbs, slabs, strip footings Contact with wet concrete causing chemical burns, irritant or contact dermatitis	Y	N	N	2	2	4	<ul style="list-style-type: none"> Concrete delivered ready mixed to avoid site mixing where practicable. The chutes from RM lorries will be opened out and directed by the driver ONLY. Mix for backing kerbs will be dry to prevent slump and this will minimise possibility of splash. Placing by hand from dumper skip. PPE will include nitrile gloves and clothing to cover up arms and legs. Standing in concrete to be avoided if possible. Use of vibrating poker limited where possible and selected for low vibration. COSHH assessment in place 	2	1	2
Lifting and placing kerbs/slabs Injury to back from manual handling of standard HB2 pre-cast concrete kerbs	Y	N	N	3	3	9	<ul style="list-style-type: none"> HB2 kerbs weigh 67kg: substitution of lighter kerbs only possible if permitted in specification. Kerb lifting wheelbarrow will be used: push force only 5kg after kerb is levered off ground by pressing down on handle. Easy lifter replaces need to use machine in constricted space and with passing traffic. Transit carried out safely by Probst kerb Caddy. Refer to full Houlihan & Co slab/kerb laying manual handling assessment 	3	1	3
Confined spaces in manholes Asphyxiation, poisoning from toxic gases, Injuries from exploding or igniting gases, Infection from contaminated water, e.g., Weils disease, Drowning, Back injuries from falls or collisions with structures/ fittings in the working area.	Y	N	N	3	3	9	<ul style="list-style-type: none"> Wherever possible consider doing the work from outside the space. A Permit to Work system should be in operation. A detailed assessment of the task has been carried out: <ul style="list-style-type: none"> Available ventilation The potential for hazardous gases/atmosphere being present Hygiene/welfare requirements. The local rescue services have been informed of the work and where necessary, advice or inspection has been sought. (High risk operations). Suitable detection equipment is on site and used prior to each entry and continually during the presence of people in confined spaces. Emergency breathing apparatus and harnesses are readily available on site. Precautions for the use of plant and equipment or heavier-than-air gases are established. Flood potential and isolation has been checked. Emergency procedures are fully developed and have been adequately rehearsed. Workers must be physically fit and competent to enter and undertake work in confined spaces. Effective communication should be established between workers in the confined space and those outside the area. The atmosphere of the confined space should be monitored for the presence of and levels of gases and must always be tested before entry. If dangerous fumes are present suitable breathing apparatus should be worn and the person entering the confined space should wear a safety rope, one of each end is held by the person keeping watch outside. Equipment which may release excess oxygen, or engines which omit carbon monoxide gas should not be used in confined spaces. Smoking, naked lights, sparking tools and ant nylon material should be prohibited. If working in contact with contaminated water, e.g., in sewers, workers must be inoculated against serious disease. Any skin cuts should be covered. Washing facilities should be available to encourage good hygiene. 	3	1	3

Prepared by: Jason Meadows

Client: CALA Homes

Page 35 of 44

Doc: M0596-MS-2401 Groundworks Rev 8

Houlihan & Co. (Excavations) Limited

OHSEQ Management System

HOULIHAN & CO. (EXCAVATIONS) LTD

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							<ul style="list-style-type: none"> Trenches deeper than 4.5m should be treated as confined spaces. Manholes to be vented for 30 minutes before entering. Gas monitor to be placed in manhole 30 minutes before entering. Confined space work permit to be obtained before entering. Operatives to be briefed on escape plan. Operatives to be trained for confined space working. Top man to be present at all times. Rescue harness and tripod to be used. Escape kit to be used where necessary. Benching should be carried out with the cover slab removed to allow air entry. 			
Working with live sewers/Sewer diversions Gastroenteritis, Weils disease, Infection of the skin or eyes ; and/or occupational asthma, resulting in attacks of breathlessness, chest tightness and wheezing produced by the inhalation of living or dead organisms	Y	N	N	3	3	9	All the above items covered in Confined spaces in manholes. <ul style="list-style-type: none"> Over pumping to be carried out where operatives need to enter a live sewer. Ensure that employees and line management understand the risks through proper instruction, training and supervision. Water proof gloves and overalls to be worn at all times. Gas monitors to be in place. Good personal hygiene Flow to be diverted where possible. Management to ensure a good standard of welfare is kept on site prior to any live sewerage works taking place. 	3	1	3
All work in area- live services Contact with live service resulting in burns from flashover or electric shock. Toxic or flammable gases from damaged sewer pipe. Damaged or severed pipes leading to leakage of substances, resulting in potential flood, gas leak, explosion, or fire Contact with severed fibre optic cables.	Y	Y	N	3	3	9	<ul style="list-style-type: none"> A Permit to dig will be completed and authorised from client site team. Works must be undertaken as per H&Co safe digging procedure “works on/near underground services”. Operatives to receive full TBT relating to site services provided by the services coordinator prior to starting works. Cable and metal location equipment must be duly calibrated and in good working order, operatives appointed will be trained on how to locate services using the EziSystem & safe digging techniques as set out in the H&Co works/on near underground services procedure. (Note: Lighting columns may be dormant during the day so the generator should be used to trace cables). Utility plans from network operators must be reviewed in conjunction with a visual survey to be carried out for any service covers nearby that may indicate buried services in trench line. Located services will be identified, i.e., gas, electricity, etc, and indicated clearly by the survey operative using marker paint on the ground, with depth estimations if possible. Operatives will now wear flame resistant clothing (a Nomex material by J.Ross) for all close proximity work to any exposed cable. (Note: The clothing can be used in layers to reduce the heat burden of wearing it, but as UKPN have not provided an arc flash risk assessment giving us a calorific value to inform clothing selection, we will assume worst case scenario and wear the highest level of protection). An air-pick must accompany every excavation on/near underground services to loosen up fill material & insulated tools to remove loose material only – forced digging must be avoided if ground conditions permit. No mechanical digging within 1m of a known service. Safe digging practice will be practised by all workers when hand digging in the proximity of an underground service, i.e. air-pick must always be the first tool of choice used to loosen up backfill material, spades/shovels should be used, not picks or power tools, and horizontal digging should be used to locate the exact position of a cable to avoid fracturing it. All exposed services must be supported. It should be assumed that all services are “Live” until proved otherwise. 	3	1	3

Prepared by: Jason Meadows	Client: CALA Homes
Page 36 of 44	Doc: M0596-MS-2401 Groundworks Rev 8

Houlihan & Co. (Excavations) Limited

OHSEQ Management System

HOULIHAN & CO. (EXCAVATIONS) LTD

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							<ul style="list-style-type: none"> If a service is struck cease work immediately and report to site management. The quality of backfill is important for future site users and also if a main has to be exposed for service connections- only granular material should be used, no cohesive soil, and marker tape is essential. Engineers should record sufficient data before backfilling for the PAS256 recording. 			
Presence of contaminated ground Chemical injury, skin irritants, burns, blindness, death	Y	N	N	2	2	4	<ul style="list-style-type: none"> Ground conditions must be established by a survey to identify the type of ground in which the excavation is to be carried out. Contaminants will be removed by a remediation contractor and validation/clearance report must be issued to us from the client. Discovery procedure in place for reporting unusual conditions not previously discovered in surveys, e.g., unusual smells, bright coloured layers in the ground 	2	1	2
Constructing walls from foundation level using bricks or blocks & raising brickwork on manholes leading to Manual handling issues, Slip and trip hazards from an untidy working area. Repeated contact with mortar, Collapse of brickwork/blockwork Contact with sharp edges. Concrete mixers with faulty or missing guards, Silicosis.	Y	N	N	2	2	4	<ul style="list-style-type: none"> Small bags of cement (25kg) should be used to minimise the risk of back injuries, etc. Management should arrange for the safe delivery of materials to the work area. As a result of the COSHH assessment, all operatives should be informed of the hazards of dermatitis and the control measures required to avoid contact with mortar, and good personal hygiene. The operative knocking-up mortar MUST wear a P3 mask and eye protection when using the mixer. Washing facilities should be available on site to ensure good personal hygiene. Mechanical or electrical cement mixers should be inspected for faults before use. Safe working platforms should not be required for substructure blockwork, if required consult with H&S department. Foundations must always be stripped to TOC level prior to bricklayers' arrival. Where practicable, lifting aids are provided to reduce/remove the need for manual handling. Lightweight blocks are specified where possible. COSHH data sheets are readily available on site displayed on OHSEQ site notice board. Manual handling assessments are readily available on site. Work is halted / curtailed in inclement weather. Suitable and sufficient dust control measures are provided and used. Bricklayers' foreman should ensure bricks/blocks stacked close to working area are on a level base and stacked to a safe working height where they cannot topple over – this should minimise bending, carrying, stretching, and twisting activities, all of which can generate back injuries. Concrete blocks to be cut with a block splitter or hammer and bolster, to minimise the use of airborne dusts. Eye protection must be worn when cutting/breaking blocks manually. 	2	1	2
Excavations Noise / Vibration Weakening of adjacent structures Ingress of water Falls of persons Falling materials or plant Underground services – gas, electricity, or water Toxic or flammable gas	Y	Y	N	3	3	9	<ul style="list-style-type: none"> Permit to Excavate will be completed and authorised by the Contractors Management. Ground conditions must be established by a survey to identify the type of ground in which the excavation is to be carried out. Prior to commencement of excavation, the need for and method of support should be determined. Support materials will be on site before excavation starts. If there is a possibility of underground services being present, the area will be surveyed using a suitable detection instrument. Inspections of excavations will be carried out prior to each shift, after any event likely to affect strength or stability, and after any accidental fall of material. A logged report must be carried out every 7 days. No heavy plant within 2m of an unsupported excavation. Excavations should be assessed by a competent individual nominally the site supervisor. Where necessary the sides of the excavation will be 	3	1	3

Prepared by: Jason Meadows	Client: CALA Homes
Page 37 of 44	Doc: M0596-MS-2401 Groundworks Rev 8

Houlihan & Co. (Excavations) Limited

OHSEQ Management System

HOULIHAN & CO. (EXCAVATIONS) LTD

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Oxygen deficiency "Boiling". Collapse of excavation Presence of contaminated ground							<ul style="list-style-type: none"> battered to the angle of repose or stepped making sure the step is equal to the depth of the excavation. Where an assessment establishes possible ventilation problems, a gas monitor will be utilised to monitor atmosphere before entry. Plant and materials will be kept away from the side of excavations to prevent undue pressure or ingress of exhaust fumes. Excavations must be suitably illuminated. To keep the atmosphere healthy, ventilating equipment should be used in confined areas. If the depth of the excavation is two metres or more, or if the depth is less but there is a particular risk of anybody falling, suitable guard-rails will be placed and suitable access arrangements, such as ladders or ramps, should be provided. If there is a risk of water ingress, suitable methods and/or equipment should be provided to either prevent the entry of water or to remove water, e.g., water pumps. If plant could fall into the excavation, timber baulks should be provided. Inspections of excavations will be carried out prior to each shift, after any event likely to affect strength or stability, and after any accidental fall of material. Suitable gloves must be worn at all times when working in/around excavations. All excavations must be fenced off with suitable fencing and signage, pins and bunting/barriers may be suitable for shallow trenches. Heras Fencing should be used for deep trenches. 			
Working from height with loose materials / plant Falling material , debris striking operatives / visitors	Y	Y	N	2	2	4	<ul style="list-style-type: none"> Plant and materials will be kept away from the side of excavations to prevent undue pressure or ingress of exhaust fumes. If plant could fall into the excavation, timber baulks should be provided. All loose material to be cleared at the end of every shift. No loose material to be left in close proximity to excavation where there could be risk of material falling. All excavations must be fenced off with suitable fencing and signage. 	2	1	2
General - Manual Handling Strained/pulled muscles, abrasions, cuts, foot injuries, back strain, Slip / trips / falls	Y	Y	N	3	2	6	<ul style="list-style-type: none"> Assess the task; use appropriate lifting equipment / lifting accessories for the activity. Always use mechanical lifting aids where necessary. Assess the weight of the load; avoid lifting heavy loads of more than 20kg. Break the load down into smaller lighter parts. Plan the work to avoid excessive carrying. Change the layout of the work if possible. Ensure work areas are clean and tidy, free from tripping and slipping hazards. Check individual capabilities of those carrying out manual handling operations. The weight of the load is checked before any lifting commences. The use of mechanical equipment such as fork lift trucks, pallet trucks, trolleys and sack barrows are used to reduce handling injuries of employees. Ensure a clear working area for general distribution and installation. Environmental conditions including unobstructed walkways, no trip-ping hazards, adequate lighting etc. 	3	1	3
Concrete operations. Vibration, Concrete penetration of eyes, nose, or ears due to an uncontrolled surge during cleaning operations or clearing of blockages, Exposure burns to skin	Y	N	N	2	2	4	<ul style="list-style-type: none"> PPE & washing facilities should be provided. Regular tool box talk training must be provided RE PPE, burn injuries, dermatitis etc. Appropriate personal protective equipment (PPE) should be worn. Coveralls to be worn whilst concreting – there should be no exposed skin. The accumulation of concrete spillage should be prevented. Glasses to be worn whilst concreting. Walking boards are to be in place prior to slab/beams/ crane base pour commencing for safe passage of concrete workers. Concrete Poker can be used no more than 3hr that is the Daily Exposure Action Value (EAV). (Daily Exposure Limit Value ELV is reached 	2	1	2

Prepared by: Jason Meadows

Client: CALA Homes

Page 38 of 44

Doc: M0596-MS-2401 Groundworks Rev 8

Houlihan & Co. (Excavations) Limited

OHSEQ Management System

HOULIHAN & CO. (EXCAVATIONS) LTD

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						over 12 hours)				
Steel fixing, shuttering & general site duties. Stepping on tied-steel wire, Cuts to hands from Stanley knife & various site materials, Trapping fingers, Sprained ankles,	Y	N	N	2	2	4	<ul style="list-style-type: none">Exclusion zones to be erected by physical barriers prior to works commencing. Banks man to enforce exclusion zones.Steel toe cap boots to have mid sole protection.NO loose correx to be left 'laying' and especially unweighted.All loose tie wire to be cleaned & collected by the site fixers as they progress to new work fronts.Automatic retractable blades only to be used for cutting materials IE correx for shuttering.Suitable gloves MUST be worn however - Gloves will not completely protect your hands, but if you do receive a cut, it may not be quite so bad.NO walking on ground beams or any other RC cages without walking boards.Glasses high impact goggles to be worn at all times whilst cutting site materials. Task specific.Minimum FFP3 dust masks to be worn whilst cutting site timber / ply.Minimum FFP3 dust masks to be worn whilst cutting any concrete objects including kerbs & slabs.Electronic water attachment to be in place on cut of saws whilst cutting concrete surfaces including kerbs & slabs.Cutting station to be fenced off and ear protection to be worn at all times.Hot Permit must be obtained prior to any cutting taking place.	2	1	2
Setting out with instrument's / surveying with cobras/rods Slips / trips / falls, Service strikes, cobra/rod striking operative.	Y	Y	N	2	2	4	<ul style="list-style-type: none">Read and understand setting out and service drawings prior to setting out.Pins and stakes only to be installed when no services are present, site engineer must review stat plans & CAT survey the area, if services are remotely likely PinSafe setting out instruments MUST be used.Cat scanning of the area to take place prior to excavation.Line marker paint to be stored in the COSHH storage area.Empty line marker paints to be disposed of in the empty line marker paint can in general waste bin – ONLY IF EMPTY.Do not enter the swing radius of an excavator, adhere to exclusion zones.Operatives using the cobra reel / rods must wear eye protection & gloves at all times whilst undertaking the operation.Flashing safety lights on site can interfere with levels, necessitating removal of machinery or turning off rotating orange lights while plant is in vicinity. Risk migrates to plant/ pedestrian interface: engineer/ site foreman must authorise lights off, arrange work to minimise time this is necessary and arrange banking vehicles if required.	2	1	2
COSHH Chemical injury, skin irritants, burns, blindness, death	Y	Y	N	3	2	6	<ul style="list-style-type: none">Refer to COSHH Assessment for all hazardous substances to be used and briefed to all operatives prior to commencing work.COSHH data sheets provided when COSHH product issued from stores.Full PPE to be worn in conjunction with COSHH assessments.All hazardous substances must be stored on the COSHH storage cage provided.	3	1	3
Work near asbestos inhalation of respirable fibres leading to mesothelioma, lung cancer	Y	Y	N	3	3	9	NOTE: there is no known safe level of exposure to asbestos. <ul style="list-style-type: none">Additional MS from specialist licensed contractor who will be in attendance for monitoring and for emergency if bulk asbestos uncovered.Background air monitoring must have taken place to give baseline, which must be a measured figure below clearance level or undetectable.Continuous monitoring during operations with analysis continuous from on-site facility. Personal dosimeters for all personnel involved. Again, with analysis in real time.Prevention of dust raised by damping down, minimising drop distances, avoiding double handling, prompt removal from site, stockpiles only if absolutely necessary and covered, on impervious membrane.Licensed contractor operative I place in case of bulk asbestos found- then stop work, re-assess and treat as licensed work, with full facility for this already on site.	3	1	3

Prepared by: Jason Meadows	Client: CALA Homes
Page 39 of 44	Doc: M0596-MS-2401 Groundworks Rev 8

Houlihan & Co. (Excavations) Limited

OHSEQ Management System

HOULIHAN & CO. (EXCAVATIONS) LTD

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Hand laying tarmac Burns from contact with hot tarmac- delivered at 170°. Irritant or contact dermatitis	Y	N	N	3	2	6	<ul style="list-style-type: none"> Heat resistant gauntlets to be worn. Body covered up against splash. Placing at minimal drop distance from dumper skip. Tools kept clean- Farvis tool heater used- no open fire or use of diesel. COSHH assessment in place 	3	1	3
Fire	Y	Y	Y	3	3	9	<ul style="list-style-type: none"> All fuels must be kept in the correct type of container that is clearly identified and labelled. No refuelling to take place in the vicinity of forms of ignition. Engines must be switched off. Do not improvise for containers or funnels. Check you are using the correct fuel. . No smoking/no naked flames. Signs to display. All Hazardous Substances must be stored on the COSHH storage. Any cutting metal, welding involving sparks or naked flame must be controlled with Hot Work Permit 	3	1	3
Silt Management. Silt getting into the water courses and contaminating water system, damaging environmental on the water ways/ risk to aquatic life.	N	N	Y	2	3	6	<ul style="list-style-type: none"> The placement of gully protection (specially designed gully guards, or standard protection - straw and terram) in all gullies during construction which are to be inspected and replaced/cleaned when necessary. The placement of a terram layer within all manholes during construction and to be inspected and replaced when necessary. Minimising the movement of plant on and off roads to prevent the tracking of excess soil onto roads and highways. The installation of hardstanding areas to the front of all plots to enable 'clean' forklift access. The placement of hardstanding or topsoil at the earliest opportunity to control surface runoff from completed areas. Avoidance of tracking on areas of permeable paving once installed and otherwise maintaining paving areas. Stripping topsoil must be done in stages to maintain as much vegetation cover across site as possible. Retention of vegetation as far as reasonably practicable along western and south-western boundaries to promote infiltration of any surface water and silt run-off. Haul road preferably be topped with tarmac easy to be clean with road sweeper. Jet wash will be installed in the exit of the site to clean the wheels of any vehicle leaving the site. Designated car park will be topped with stone and be maintained mud free. Silt traps and silt fencing will be strategically constructed along the sites western and south-western boundaries to reduce runoff. These will be formed to a depth in the region of 400mm with excavated arisings placed on the downgradient side of the slope to aid the retention of silt and excessive surface water run-off to the detention basins. A series of Sady Matts will be place along the watercourse to prevent any silt going to the main water system should the silt traps placed on western and south-western boundaries alone not be sufficient to prevent run-off of surface water/silt. 	2	1	2
















Prepared by: Jason Meadows	Client: CALA Homes
Page 40 of 44	Doc: M0596-MS-2401 Groundworks Rev 8

Houlihan & Co. (Excavations) Limited
OHSEQ Management System



H&Co's Contracts Manager and Site Manager to ensure suitable first aid arrangements are available on site at all times & compliance with the above document.										



HAND ARM VIBRATION & DECIBEL LEVEL REFERENCE CHART						
29.0	Equipment/Plant	m/s ²	Time to reach EAV 2.5m/s ² (Daily Exposure Action Value)	Time to reach EVL 5m/s ² (Daily Exposure Limit Value)	Sound levels	HSE Points (per 15/60 mins)
	Hilti DD130	2.2m/s ²	10hr 20mins	24hr mins	80dB(A)	2.2/10
	Hilti TE 1000	6.5m/s ²	1hr 11mins	4hr 44mins	87dB(A)	21 / 85
	Hilti TE 700 AVR	6.6m/s ²	1hr 09mins	4hr 35mins	86dB(A)	22 / 87
	Hilti AG230-S	8.7m/s ²	3hr 08mins	12hr 34mins	89dB(A)	8 / 32
	Atlas Copco 09 PE (Ver)	3.8ms ²	3hr 28mins	13hr 51mins		7 / 29
	SK12 Med Breaker	4.2m/s ²	2hr 55mins	10hr mins	108dB(A)	25/100
	Atlas Copco 230 PE	4.2m/s ²	2hr 50mins	11hr 20mins		9 / 35
	Tex 150PE Breaker	4.5m/s ²	2hr 28mins	9hr 53mins	90dB(A)	10 / 41
	Atlas Copco LT5005	6.4m/s	1hr 13mins	4hr 53mins	106dB(A)	20 / 82
	Vibrating Poker	4m/s ²	3hr 08mins	12hr 30mins	85dB(A)	8 / 32
	Wacker Plate Belle 320-574mmx320mm	2.42m/s	8hr 32 mins	>24hr	101dB(A)	3 / 12
	Wacker Plate13/40Belle 720mmx400mm	3.20m/s	4hr 53 mins	19hr 32 mins	105dB(a)	5 / 20
	Wacker Plate Belle 320-720mmx320mm	4.43m/s	2hr 33 mins	10hr 11 mins	105dB(A)	10 / 39
	MBW Plate Compactor GBX Series 3550	4.5m/s	2hr 28mins	9hr 53mins		
	Plate compactor	5.18m/s ²	1hr 52mins	7hr 27mins	93dB(A)	13.4/54




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	LF75 Vibration Plate	6m/s ²	1hr 23mins	5hr 33mins		18/72
	Wacker Plate Bomag/1845	7.3m/s	0hr 56min	3hr 45mins	89dB(A)	27 / 107
	Skill saw 5903R	3.0m/s ²	5hr 33mins	22hr 13mins	95dB(A)	4.5/18
	Airsaw Toku 9"	3.6m/s	3hr 51min	15hr 26 min	82Db(A)	35
	Petrol Saw Stihl/TS410	3.9m/s	3hr 17 mins	13hr 9 mins	98dB(A)	8 / 30
	Petrol Saw Stihl/TS420	3.9m/s	3hr 17 mins	13hr 9mins	98Db(A)	8 / 30
	Petrol Saw Stihl/TS800	Left/6.5 Right3.9m/s			116dB(A)	
	Cut-off Saw Stihls	3.90m/s ²	3hr 17mins	13hr 09mins	98dB(A)	7.5/30
	Bosch Angle Grinder GWS 7-115	6.5m/s	1hr 11 mins	4hr 44 mins	91dB(A)	
	Hilti DD130	2.2m/s ²	10hr 20mins	24hr mins	80dB(A)	2.2/10
	Hilti TE 800 AVR	9m/s ²	3hr 0mins	12hr 0mins	87dB(A)	8/32
	Stirrer Drill / Paddle Mixer	3.5m/s ²	4hr 5mins	16hr 20min	87dB(A)	6 / 25
	Ausa 3t Dumper	m/s ²	hr mins	hr mins	101dB(A)	
	Thwaites 9t FTD	m/s ²	hr mins	hr mins	103dB(A)	
	Takeuchi 1.5t	m/s ²	hr mins	hr mins	93dB(A)	
	JCB 4.5t	m/s ²	hr mins	hr mins	94dB(A)	70(dBA) cab
	JCB 13t	m/s ²	hr mins	hr mins	101dB(A)	70(dBA) cab
	Doosan 14t	m/s ²	hr mins	hr mins	101dB(A)	70(dBA) cab
	Doosan 22.5t	m/s ²	hr mins	hr mins	105dB(A)	70(dBA) cab







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	JCB 22t	m/s ²	hr mins	hr mins	105dB(A)	70(dBA) cab
	Bomag 135 AD	2.5m/s	8hr	>24hr	106dB(A)	
	Rammax	Remote control	hr mins	hr mins	109dB(A)	
	Bosch Angle Grinder GWS 7-115	6.5m/s	1hr 11 mins	4hr 44 mins	91dB(A)	
	Pramac 10KVA	m/s ²	hr mins	hr mins	70dB(A)	@ 7 mts
	Soil-Mech 4 piling rig	m/s ²	hr mins	hr mins	103dB(A)	
	SP11 screed pump	m/s ²	hr mins	hr mins	79dB(A)	

[illegible]