

N60 Balla to Claremorris Road Realignment at Heathlawn Scheme	Method Statement: Earthworks	<i>Issue</i> 0	<i>Date</i> 08/5/14
		<i>Ident No.</i> MS-N60-04 Rev 0	

Version Issue.			
Issue	Date	Version Details	Revised by
0	8/5/14	First Issue	

Acceptance / Approvals.			
	Name	Signature	Date
Prepared by:	M Blackweir		8/5/14
Reviewed by:	A McGinley		12/5/14
Accepted by:	D Meade		12/5/14

SAMPLE

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Title: Earthworks

Location: N60 Balla to Claremorris Road Realignment at Heathlawn Scheme

Task at Hand

This method statement outlines the procedure and methodology for earthworks operations including excavation, placement and compaction of materials.

Timing of Task

To be advised subject to Contractor appointment.

Supervision of Task (Typical)

	Name	Contact Number
Contracts Manager:	TBC	
Site Agent:	TBC	
Foreman:	TBC	
Site Engineer:	TBC	
Suitably Qualified Ecologist:	TBC	

Employees Involved (Typical)

- Plant Operators
- Banksman
- Site Supervisor
- General operatives

Equipment to be used (Typical)






- 20 T – 70 T 360⁰ excavators
- A25 – A40 all terrain dumptrucks
- D9 / D8 / D65 dozers
- Vibratory rollers
- Tractor and Fuel/Water Bowser/Road Brush

Specific Training

- All site personnel shall have FAS 'Safe Pass' certification.
- All Excavator & Dumper drivers shall have CSCS certification.
- CSCS certified representative in underground service location

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Personal Protective Equipment

Safety Gloves	Hearing Protection	Eye Protection	Respiratory Protection	Coveralls	Other
 Hand protection must be worn in this area		 Eye protection must be worn		 Protective clothing must be worn at all times	Hi Vis- Vest Hard Hats Boots
Yes	Where required	Yes	NO	No	Yes

Methodology

- All personnel entering the site shall have received a site safety induction and have attended a job toolbox talk.
- Before any excavations shall commence a permit to excavate shall be issued by the site engineer and all persons involved in the task shall be fully briefed
- All setting out works required including level profiles and batter rails shall be set out by the site engineer prior to works commencing.
- Excavation shall be carried out in accordance to line and levels shown on Design Drawings. Excavation shall be carried out by excavator with material being hauled to fill area by dump trucks.
- When formation has been reached the Contractor shall inform Jacob's Employer's Site Representative (ESR). The area shall be jointly inspected by Contractor and ESR. Once the area has been deemed acceptable a sign off sheet shall be completed.
- Should any soft spots be encountered below formation level the area shall be excavated, recorded jointly by Contractor and ESR and replaced with acceptable fill material.
- All fill material (including capping) being used in permanent works shall be classified in accordance with the NRA *Specification for Roadworks*.
- All formation levels shall be recorded by site engineer.
- All works will be executed within the permanent fencing boundary.
- Material testing to demonstrate compliance with NRA Specification for Roadworks & specific contract requirements will be undertaken.

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Compaction

- Formation shall be kept clean and free of any ground water.
- Vibratory roller shall be used for compaction.
- The material shall be graded in to layers by Komatsu D65 Dozer fitted with GPS system.
- In areas where peat has been excavated should ground water be encountered or as deemed necessary Class 6A material shall be placed.

Storage

- All storage of topsoil will be in designated areas
- All storage of unacceptable material will be in designated areas
- All fuel will be stored in bunded containers suitable to contain any spillage.

Protection

- All storage of topsoil will be in designated areas
- All storage of unacceptable material will be in designated areas
- All fuel will be stored in bunded containers suitable to contain any spillage
- During dry periods dust reduction will be provided using water bowsers.

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Potential Ecological / Environmental Impacts, including impacts on Balla Turlough cSAC and/ or other European sites

NIS / EAR: Relevant Extracts:

Potential Impacts (in the absence of below Mitigation):

- Potential Surface & groundwater contamination during construction.
- Potential decrease in groundwater supply to Turlough during construction.
- Potential Increase in run-off volumes to Turlough during construction.
- Pollution from Surface Water run-off during Construction.

Mitigation:

- Construction works carried out in the vicinity of the Turloughs will be monitored by a suitably qualified ecologist.
- To reduce potential increases in flows into the drainage system and downstream Turloughs during construction, the period of exposure of bare areas and uncontrolled runoff from new hardstanding areas will be limited. Early covering/seeding/planting of exposed surfaces will be undertaken.
- The grassed surface water channel, interceptor ditch and filter drain with 25m centre outfalls and petrol interceptor (as detailed in 32103901/PDD/Figure 01 & included in Appendix A) between Ch1000 and Ch 1500 on the south western side of the carriageway, will be constructed and operating prior to excavation of Cutting 1 (Ch 1260 to 1340). These drainage features are adjacent to Balla Turlough SAC, to facilitate the controlled discharge of any intercepted groundwater back into the Turlough habitats in the case of the water being intercepted during excavations. The outfalls to the Turlough will be open during construction only, and closed during operation.
- Material stockpiles will be kept to a minimum size, covered and located at least 10m from the drainage system and 100m from Turloughs.
- To prevent contaminated or silt-laden runoff from entering the Turloughs, a range of temporary measures will be implemented, including silt fences, cut-off ditches, silt traps, straw bales, entrapment matting and drainage to vegetated areas.
- Runoff will be controlled and, if required, directed to settlement ponds or sumps. Any temporary attenuation and treatment facilities will be designed and implemented in accordance with CIRIA C697 (2007). All temporary treatment systems will be regularly inspected and maintained.
- The extent of construction activities will be controlled to limit vegetation removal and the exposure and/or compaction of soils. Land surrounding the immediate construction area will be fenced off, or otherwise demarcated, to prevent inadvertent intrusion from construction plant.

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- Construction works will be avoided during prolonged periods of very heavy rainfall adjacent to the Balla Turlough cSAC and Un-named Turlough.
- No construction plant or construction vehicles to enter the Balla Turlough cSAC boundary other than where this boundary has already been generally encroached by the existing road.
- Refueling of machinery shall be carried out off-site, or when on-site not within 100m of Turlough habitat.
- Safe-guards such as drip-trays for refueling of machinery, machine servicing, concrete-mixing, etc. shall be utilised.
- Excavated soils will be re-used to minimise importation of materials.
- Use of geotextile mats or similar to reduce compaction within and adjacent to Balla Turlough cSAC.
- All fuels, oils, greases, hydraulic fluids and chemical storage areas will be stored in bunded compounds/areas on impermeable bases at least 10m from the proposed drainage system and 100m from the cSAC and Un-named Turlough.
- No machinery to enter Turlough habitats, no temporary access or haul routes are located in Turlough habitats and no temporary storage areas, plant or other obstacles are located within Turlough habitats.
- Monitoring of turbidity (suspended solids) levels in Balla Turlough SAC and the Un-named Turlough will be undertaken on a monthly basis for a minimum of 6 months prior to construction and will include monitoring during the winter season when Turlough water levels are most likely to be present. Monitoring will also be undertaken on a weekly basis during construction for turbidity (suspended solids). In the event of suspended solids concentrations that are higher than the 95th %ile of those monitored during the pre-construction monitoring period, a review of the Sediment and Erosion Control measures and plan will be implemented and additional sediment control measures put in place as required. Daily visual inspections of Balla Turlough SAC and the Un-named Turlough will also be undertaken during the construction phase to confirm the absence of sediment from construction works.
- The N60 Balla to Claremorris Erosion and Sediment Control Plan shall be implemented to prevent sediment or pollutants from reaching the Balla or Un-named Turloughs.
- All mitigation contained within the N60 Environmental Assessment Report and NATURA Impact Statement shall be implemented in full.

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Relaying of Information; to each operative:

“I wish to confirm that the information in this method statement has been communicated to me and I have understood it. I shall bring to the attention of the supervisor any issues, which may affect Safety whilst carrying out the task”.

Information provided by Supervisor; _____

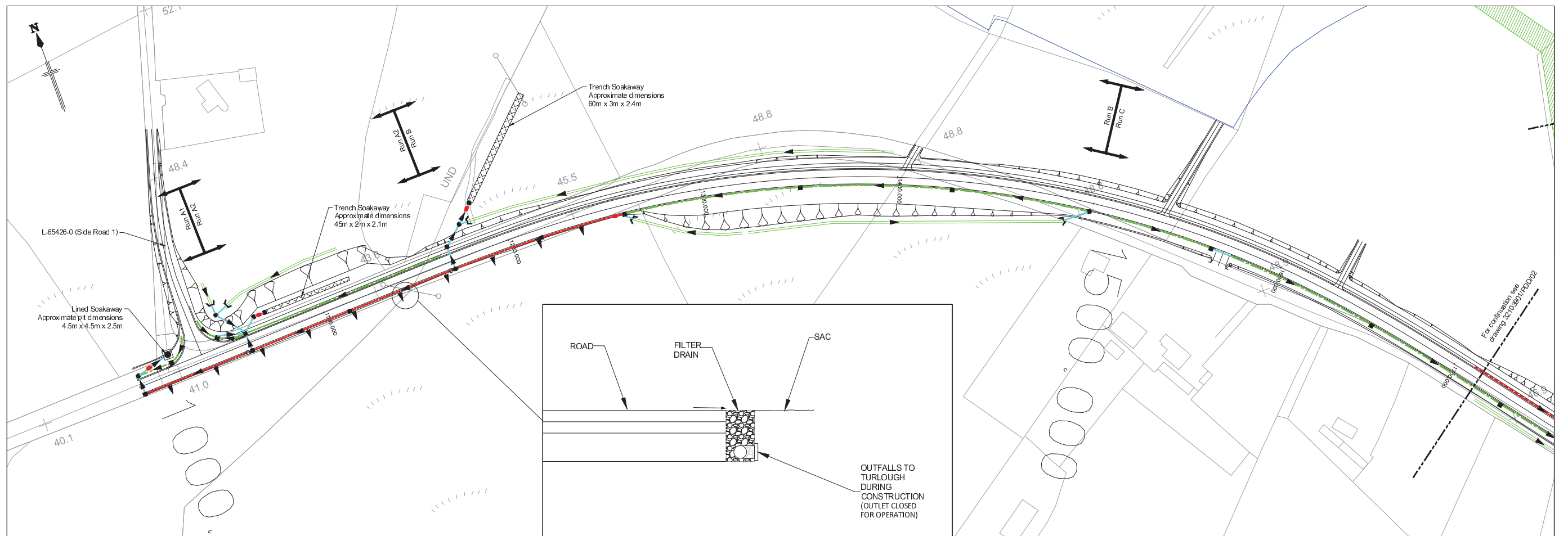
NAME (BLOCK)	Signature	DATE

In the event of the need for a deviation from the Method Statement, no further work will be done until agreement has been reached and recorded in writing between the client & the contractor on the method of work to be followed in the new circumstances.

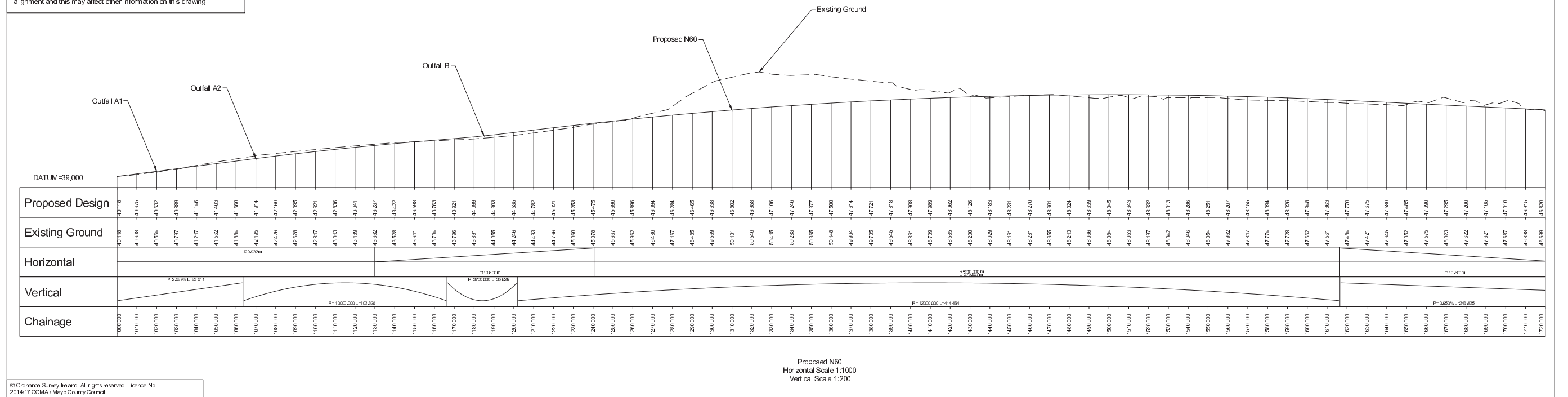
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Appendix A

SAMPLE



Whilst this proposed improvement has been designed sufficiently to be shown as a practical scheme, the design will be further refined during the detailed design process which may result in changes to parts of the alignment and this may affect other information on this drawing.



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MAYO COUNTY COUNCIL
 Áras an Chontae,
 The Mall,
 Castlebar,
 Tel: +353 94 9024444
 www.mayococo.ie

JACOBS
 Merrion House
 Merrion Road
 Dublin 4
 Tel: +353 1 2695666
 Fax: +353 1 2695706
 www.jacobs.com

- Key:**
- Filter Drain
 - Grassed Surface Water Channels (GSWC)
 - Carrier Pipe
 - Interceptor Ditch
 - Trench Soakaway
 - Lined Soakaway
 - Catchpit
 - Rodding Eye
 - GSWC Outlet
 - Headwall
 - Oil / Petrol Interceptor

Rev	By	Date	Description
0	MW	JAN 14	For Publication

Project:	N60 BALLA TO CLAREMORRIS ROAD PROJECT AT HEATHLAWN
Component:	ENVIRONMENTAL ASSESSMENT REPORT
Title:	DRAINAGE DESIGN SHEET 1 OF 5
Designed: MW	File Name:
Drawn: MM	Originals: 1:1000 @ A1, 1:2000 @ A3
Checked: CP	Drawn: 07/12/13
	Drawing No: 32103901/PDD/01

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RITCHIESpecs *Everything about Equipment*

VIBROMAX VM186D VIBRATORY SMOOTH DRUM ROLLER

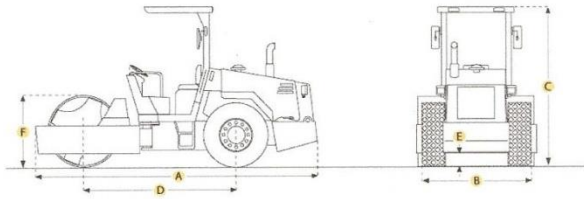
Specification

Engine		
MAKE	Cummins	
MODEL	B 5.9-173 C	
GROSS POWER	173 hp	129 kw
POWER MEASURED @	2200 rpm	
DISPLACEMENT	359 cu in	5.9 L
ASPIRATION	turbocharged	
NUMBER OF CYLINDERS	6	
Operational		
OPERATING WEIGHT	43431.1 lb	19700 kg
FUEL CAPACITY	84.5 gal	320 L
COOLING SYSTEM FLUID CAPACITY	5 gal	19 L
ENGINE OIL CAPACITY	3.8 gal	14.5 L
HYDRAULIC SYSTEM FLUID CAPACITY	21.1 gal	80 L
MAX SPEED	7.3 mph	11.8 km/h
TIRES *IF APPLICABLE	23.1-26/8PR AWT	
OPERATING VOLTAGE	12 V	
ALTERNATOR SUPPLIED AMPERAGE	95 amps	
Drum		
DRUM WIDTH	82.7 in	2100 mm
DRUM DIAMETER	63 in	1600 mm
STATIC LINEAR LOAD	315 lb/in	56.3 kg/cm
VIBRATION FREQUENCY 1	29 Hz	
NOMINAL AMPLITUDE - MED	0.08 in	2 mm
CENTRIFUGAL FORCE - MED	83179.3 lb	370 kN
VIBRATION FREQUENCY 2	35 Hz	
NOMINAL AMPLITUDE - MED	0.03 in	0.75 mm
CENTRIFUGAL FORCE - MED	46085.8 lb	205 kN
Dimensions		
OVERALL LENGTH	19.7 ft in	5996 mm
HEIGHT TO TOP OF CAB	9.8 ft in	2985 mm
WHEELBASE	10.1 ft in	3076 mm
GROUND CLEARANCE	19.6 in	497 mm

<http://www.ritchiespecs.com/specification?type=&category=Vibratory+Smooth+Dru...> 03/07/2012

RITCHIE Specs *Everything about Equipment*

VIBROMAX VM186D VIBRATORY SMOOTH DRUM ROLLER



Dimensions

A. OVERALL LENGTH	19.7 ft in	5996 mm
C. HEIGHT TO TOP OF CAB	9.8 ft in	2985 mm
D. WHEELBASE	10.1 ft in	3076 mm
E. GROUND CLEARANCE	19.6 in	497 mm

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Risk Assessments

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Underground Services

Contract title: N60 Balla to Claremorris Road Realignment at Heathlawn Scheme		
Document ref no:		Date: 8 May 14
Task/operation and location [including any tools/equipment in use] Earthworks		
Hazards Underground services Gas Electricity Water Sewer Comms	Risk ratings	
	Without controls	With controls
	Med	Low
Harm <ul style="list-style-type: none"> • Fire • Explosion • Burns • Electrocution • Serier injury/death 		
Persons in danger <ul style="list-style-type: none"> • Ground workers • Plant operators • Others in the vicinity of the works Control measures <ul style="list-style-type: none"> • Consult existing service drawings to locate existing services • Look out for signs of existing services such as man holes, valve covers, lights etc. • Consult with engineers /service fitters etc. 		

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<ul style="list-style-type: none"> • In some circumstances underground services may need to be located using a detector; operator to be CSCS trained. • Once these services are located, trial holes will be dug by hand to verify their exact location • Hand digging only within 0.5 metres of any service. • When possible keep excavations away from existing services • Treat all pipes and cables as live unless it is known 100% otherwise • Support services once they have been exposed to prevent them from damage • Report any suspected damage • Update drawings if services are diverted or new services are put in place
<p>Personal protective equipment</p> <ul style="list-style-type: none"> • Safety helmets • Safety boots/shoes • High Visibility vests • Hearing protection (if required) • Protective gloves • Safety glasses
<p>Additional assessments required? Yes</p>
<p>Method statement required? Various as works progress</p>
<p>Information, instruction and training</p> <ul style="list-style-type: none"> • All persons carrying out or likely to be affected by the work informed of the potential hazards • All personnel involved in the work trained to perform their duties with due regard to the health and safety of themselves and anyone else who could be affected • All plant operators in possession of a CSCS certificate or other appropriate proof of training • Anyone carrying out inspections of the works area trained to recognise potential hazards
<p>Emergency procedures</p> <ul style="list-style-type: none"> • First aid kits in site office and in engineers and foremans vehicle • Emergency arrangements formulated in accordance with foreseeable hazards • Emergency arrangements/assembly point communicated to all
<p>Monitoring procedures</p> <ul style="list-style-type: none"> • Reviews of the method statement and the risk assessment carried out regularly.

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Plant and Equipment

Contract title: N60 Balla to Claremorris Road Realignment at Heathlawn Scheme		
Document ref no:		Date: 5 May 14
Task/operation and location [including any tools/equipment in use] Use and movement of heavy site plant, equipment and vehicles,		
Hazards <ul style="list-style-type: none"> • Contact with pedestrians/operatives • Contact with other plant/vehicles • Contact with existing structures • Contact with existing services • Open excavations 	Risk ratings	
	Without controls	With controls
	High High Med Low Med	Low Low Low Low Low
Harm <ul style="list-style-type: none"> • Damage to plant • Damage to existing structures • Damage to existing services • Serious injury or death 		
<p style="text-align: center;">Persons in danger</p> <ul style="list-style-type: none"> • Ground workers/operatives <ul style="list-style-type: none"> • Plant operators • Others in the vicinity of the works <p style="text-align: center;">Control measures</p> <ul style="list-style-type: none"> • Vehicles shall be maintained in good condition and in accordance with the manufacturer's instructions. • All drivers should undertake daily inspections of their vehicle prior to commencing 		

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- works.
- All items of driver operated plant shall be fitted with rotating amber beacon / hazard warning lights.
 - All articulated dumpers, excavators, dozers and rollers shall be fitted with reversing/movement alarms to provide adequate warning. Adequate mirrors and visual aids (i.e. reversing camera) will be fitted to all plant to comply with Schedule 6 of the Construction Regs.
 - Drivers shall make themselves fully aware of all site access routes and road/site access restrictions.
 - Drivers should be fully aware of all other works in progress adjacent their haul route or works area.
 - Plant operators should keep windows and all visual aids clean at all times
 - Drivers should be made fully aware of all overhead and underground power lines, cables and services by advance signage.
 - The size of excavator should be chosen correctly to suit the works in-hand.
 - Where an excavator is being used as a lifting device, it should have a current SWL indicator visibly displayed.
 - All excavators shall have check valves installed on the hydraulic rams.
 - Dumpers should not be overloaded, or loaded above their designed capacity.
 - Loads should be distributed evenly so as not to overturn vehicles.
 - Drivers should remain within vehicles whilst being loaded (*this rule only applies to vehicles with crew cab protection.*)
 - Drivers of site dumpers (*6 tonne etc*) should not remain on vehicle whilst being loaded, as there is no cab protection.
 - Personnel are only permitted to travel on/within a site vehicle if there is manufacturer's seat provided.
 - All personnel shall wear a seat belt whilst operating machinery where there is a seat belt provided.
 - All Drivers to adhere to site speed limits. Dumpers and site vehicles should not be permitted to travel close to open excavations or edges of pits/shear faces.
 - Dumpers should not be overloaded which may cause material shedding whilst in transit.
 - All haul routes and access roads should be maintained level and debris free to eliminate swerving to avoid obstructions or potholes.
 - Where works are to be undertaken in a high risk area; a banks man will be provided to co-ordinate activities.
 - All plant operators shall wear the appropriate PPE whilst on site, whatever item of plant they operate.
 - All delivery drivers should wear the minimum PPE whilst on site i.e.:- *Hi-viz vest, hard hat, Safety glasses, gloves and boots.*
 - When any routine maintenance is being undertaken on plant and equipment, the manufacturer's instructions should be strictly followed to ensure the machinery is in a secure position prior to maintenance works.
 - When any item of plant or equipment is not in use it should be switched off and start key

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removed.
<ul style="list-style-type: none"> • All plant when parked should be secured by means of brakes or chocks (<i>where required</i>); and left in a manner which does not cause obstruction to other works, vehicles or access routes. <ul style="list-style-type: none"> • All plant operators must fill out inspection forms on a weekly basis. • All plant operators are to hold a valid CSCS card or a recognised equivalent.
<p>Personal protective equipment</p> <ul style="list-style-type: none"> • Safety helmets • Safety boots/shoes • High Visibility vests (double reflective band) • Eye protection • Hearing protection(if required) • Gloves
<p>Additional assessments required? Yes</p>
<p>Method statement required? Various as works progress</p>
<p>Information, instruction and training</p> <ul style="list-style-type: none"> • All persons carrying out or likely to be affected by the work informed of the potential hazards • All personnel involved in the work trained to perform their duties with due regard to the health and safety of themselves and anyone else who could be affected • All plant operators in possession of a CSCS certificate or other appropriate proof of training • Anyone carrying out inspections of the works area trained to recognise potential hazards
<p>Emergency procedures</p> <ul style="list-style-type: none"> • First aid kits in site office and in engineers and foremans vehicle • Emergency arrangements formulated in accordance with foreseeable hazards • Emergency arrangements/assembly point communicated to all
<p>Monitoring procedures</p> <ul style="list-style-type: none"> • Reviews of the method statement and the risk assessment carried out regularly.

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Excavations

Contract title: N60 Balla to Claremorris Road Realignment at Heathlawn Scheme		
Document ref no		Date 8 May 14
Task/operation and location [including any tools/equipment in use] Digging, lifting and removing earth, fill or other materials from the ground.		
Hazards	Risk ratings	
	Without controls	With controls
<ul style="list-style-type: none"> • Underground services - gas, electricity or water • Falling materials or plant • Falls of persons • Ingress of water • Weakening of adjacent structures • Noise • Soft / unstable ground • Collapse of excavation sides 	Med High High Med Low Med Low Low	Low Low Low Low Low Low Low Low
Harm <ul style="list-style-type: none"> • Asphyxiation • Broken limbs / fatality from being struck by falling materials or persons falling into excavation • Electrocutation • Explosion of gases • Engulfment / crush injuries 		
Persons in danger <ul style="list-style-type: none"> • Excavation workers • Other persons in the vicinity 		

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- Local Authority personnel

Control measures

- Ensure a permit to dig system for all excavations is obtained.
- Prior to the commencement of any works, ensure that the works area is adequately lit with mobile lighting towers.
- Ground conditions 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 determined
- Support materials to be on site before excavation starts if required
- As there is a possibility of underground services being present, the area surveyed using a suitable detection instrument. Electrical and comms lines identified by trial holes and marked over ground. All services locations are to be communicated to the plant operatives
- Hand digging only within 0.5 metres of any service. Cables / pipes properly supported in excavation.
- Where a risk assessment establishes possible ventilation problems, a gas monitor must be used to monitor the atmosphere before entry
- Plant and materials kept away from the side of excavations to prevent undue pressure or ingress of exhaust fumes. Rule of thumb is that materials are kept back the same distance as the depth.
- Any materials that could roll must be chocked or placed at right angles to the excavation.
- Excavations suitably illuminated and warning signs posted.
- If the depth of excavation is over 1.25 metres it must be sloped or battered to a safe angle with suitable guard-rails placed and suitable access arrangements, such as ladders or ramps provided.
- Pumps to be used to keep water out of the excavations if necessary.
- If there is a risk of water ingress, suitable methods and/or equipment provided to either prevent the entry of water or to remove water, eg water pumps
- If plant could fall into the excavation, timber baulks provided
- Where excavations are dug next to structures, suitable preventative measures established in case of collapse, subsidence or damage
- Inspections of excavations carried out prior to each shift, after any event likely to affect strength or stability, and after any accidental fall of material. Record made in CR 9 Excavation Register
- Suitable personal protective equipment (PPE)

Personal protective equipment

- Safety helmets
- Safety boots/shoes

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<ul style="list-style-type: none"> • High Visibility vests • Hearing protection • Protective gloves • Safety glasses
Additional assessments required
Method statement required? Additional method statements/task sheets to be produced as the works progress
Information, instruction and training <ul style="list-style-type: none"> • All persons carrying out or likely to be affected by the work informed of the potential hazards • All personnel involved in the work trained to perform their duties with due regard to the health and safety of themselves and anyone else who could be affected • All plant operators in possession of a CSCS certificate or other appropriate proof of training • All supervisors responsible for the placing of support materials trained in the principles involved • Anyone carrying out inspections of the excavation trained to recognise potential hazards
Emergency procedures <ul style="list-style-type: none"> • First aid kits in site office and in escort vehicle • Emergency arrangements formulated in accordance with foreseeable hazards, eg collapse, flooding, Emergency arrangements communicated to anyone who could be affected
Monitoring procedures <ul style="list-style-type: none"> • A written report of inspection prepared by a competent person at least once every seven days, and also after any event affecting strength or stability of the excavation, and after any accidental fall of materials • Reviews of the method statement and the risk assessment carried out regularly.