Stáisiún Uí Chonghaile, Baile Átha Cliath 1, D01 V6V6
Connolly Station, Dublin 1, D01 V6V6
T 01 703 nnnn **F** 01 703 nnnn **E** info@irishrail.ie **W** www.irishrail.ie

10th July 2020

[redacted]

Email: [redacted]

Re: FOI request IE_FOI_377

Dear Sir/Madam,

I refer to your request dated 3rd June 2020 made under the Freedom of Information Act 2014, which was received by my office on the 11th June for records held by Iarnród Éireann.

Request:

1. All documentation touching upon the incident which arose on the 28th June 2018 when eight or ten cattle were killed on the railway line at or near Meenaghan ' s Cross Tullamore in Co Offaly.

2. All investigation reports, risk assessments and accident report forms in relation to the cattle deaths on the 28th June 2018.

3. All documentation touching upon the incident which arose in or around July/August 2018 when six dogs were killed on the railway line.

   All investigation reports, risk assessments and accident report forms in relation to the death of the dogs in or around July/August 2018

I, Louise O'Riain, have now made a final decision to part grant your request on 10th July 2020.

You have sought access to the records as listed above and I consider this an appropriate form of access in this case. Accordingly, a copy of the records is now attached.

Rights of appeal

In the event that you are not happy with this decision you can make an appeal in relation to this matter, you can do so by writing to the FOI Unit, Corporate Communications, Iarnród Éireann Irish Rail, Connolly Station, Amiens St, Dublin 1 or by e-mail to foi@irishrail.ie. You should make your appeal within 4 weeks (20 working days) from the date of this notification, where a day is defined as a working day excluding, the weekend and public holidays, however, the making of a late appeal may be permitted in appropriate circumstances.
The appeal will involve a complete reconsideration of the matter by a more senior member of the staff of this body.

Should you have any questions or concerns regarding the above, please contact the FOI Officer on 01, 7034293.

Yours sincerely,

PP

Ms. Louise O'Riain

Decision Maker

Infrastructure Management

Iarnród Éireann

Freedom of Information Request:
Schedule of Records for IE_FOI_377 : Summary for Decision Making

Record No.	Date of Record	Brief Description	No. of Pages	Decision: Grant/Part Grant/Refuse	Section of Act if applicable	Record Edited/Identify Deletions
1	10.07.2020	IE_FOI_377 Response Pack	58	Part Grant	S36 & S37	Commercially Sensitive Information and Personal Infomration relating to others

Signed

Freedom of Information / Data Protection Executive

IE_FOI_377 Response Document

1. All documentation touching upon the incident which arose on the 28th June 2018 when eight or ten cattle were killed on the railway line at or near Meenaghan ' s Cross Tullamore in Co Offaly.- Please see attached

2. All investigation reports, risk assessments and accident report forms in relation to the cattle deaths on the 28th June 2018. – Please see attached

3. All documentation touching upon the incident which arose in or around July/August 2018 when six dogs were killed on the railway line. – Iarnród Éireann has no record of an incident where 6 dogs were killed for the period outlined on its incident database. No remit was issued or no reports exist in relation to this alleged incident.

4. All investigation reports, risk assessments and accident report forms in relation to the death of the dogs in or around July/August 2018. – As we have no record of this incident, no remit was issued or no reports exist in relation to this alleged incident.

SET DEPARTMENT RISK ASSESSMENT

Risk Assessment Form Number(s): RA2803

Reference No.	**RA2803**
Version	1.0
Operative Date	5/12/13
Status	Live
Prepared by	[redacted]
Checked by	
Approved by	

DATE: **18/09/13**

LOCATION: **Projects South & West**

ACTIVITY: **General Risk Assessment**

TASK: **All Hazards involved in conducting S&E Maintenance Activity**

PANEL MEMBERS: [redacted]

Hazard: 1	Risk:	S	L	RR	Risk Controls:	S	L	RR	T?
Trains /OTM's / Road Rail Machinery.	Risk of Death / Injury from Being hit by Trains / OTM's / Road Rail Machinery.	3	5	15	**TSC to brief and record briefing to staff about the protection arrangements.** • Working timetable • Weekly circular • Rule Book Staff must pay particular attention to ensure have all available information for Location. Section B Company Rule Book must adhere to when going on or near the line. Local knowledge essential. Staff must be trained, assessed and competent to carry out safety critical duties Task appropriate PPE to be worn at all times e.g. High Vis P.P.E. to be worn at all times on or near the Railway. If Required use Lookout/ SET Work	3	2	6	YES

					Protector while working as to around Location. Works of a minor nature: you must reach a position of safety at least 10 seconds before a train arrives You have sufficient sighting distances All personnel on site must have completed a P.T.S. and Safe Pass Course and be certified. Care and attention must be observed at all times.				
Hazard: 2	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Access/Egress	Risk of Single fatality / Serious injury	**3**	**5**	**15**	Only Use Official Access Points Ensure that any Access gate used are secured and locked after use. Report to Manager / Supervisor any Issues affecting Access Point in Need of Repair.	**3**	**2**	**6**	**YES**
Hazard: 3	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Parking Van	Risk of Blocking Emergency Exits & Escape Routes	**3**	**5**	**15**	All Staff to Park vans in accordance with the rules of the road & not Block any Emergency Exits, REVERSE into parking position where practicable as per SMS-0010.	**3**	**2**	**6**	**YES**
Hazard: 4	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Accessing Railway from adjacent farmland / Farmyards.	Risk of Fatality / Serious injury using Farmers Crossings / Farmyards. (Farm animals)	**3**	**5**	**15**	Landowners to be contacted if possible. Be aware of possible presence of farm machinery & animals	**3**	**2**	**6**	**YES**

Hazard: 5	Risk:	S	L	RR	Risk Controls:	S	L	RR	T?
Needle-stick injury.	Risk of infection & or Contamination from unknown Substances.(needle Stick Injuries) Contracting disease i.e.: Hepatitis, H.I.V.	3	5	15	PPE to be worn at all times (gloves etc.) on site, Good hygiene to be adhered to at all times. First aid to be available on site. Area to be surveyed before work commences for Needles. All needle or syringes found to be removed by equipment available in each van or at the nearest Railway Station (refer to SET-SSW-0011 - Prevention of Needle Stick Injury) Good housekeeping to be maintained at all times.	3	2	6	YES
Hazard: 6	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Biological Hazards, Weil's disease – Vermin Infestation.	Risk of infection or Contracting disease i.e.: Weils disease, Hepatitis, etc.	3	5	15	Good hygiene to be maintained at all times. Anti-septic wipes to be provided. Wear gloves at all times. Ensure that there is a plentifully supply of disposable gloves available. Where Provided use an Alcohol Based Hand Sanitizer. Do not eat or smoke until your hands area fully washed and cleaned and sterilized. Hepatitis Vaccination Available from C.M.O. upon request to supervisor.	3	2	6	YES

Hazard: 7	Risk:	S	L	RR	Risk Controls:	S	L	RR	T?
Working with Chemicals / poisonous material.	Risk of poisoning from the inhalation of fume Risk of eye damage and risk of skin damage and absorption into the skin	3	5	15	TSC to brief all concerned on work to be carried out. Gloves and appropriate P.P.E. to be worn, wear mask and goggles and if required appropriate respiratory protection to be worn if required. The instructions supplied with the Chemical in the MSDS for the safe use of the chemical must be adhered too. If using a new Chemical the MSDS should be briefed to all staff concerned and displayed on the safety station. All staff to ensure they are up to date on briefings. Good hygiene to be followed at all times. Wash hands after completing work.	3	2	6	YES
Hazard: 8	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Electricity / Electrical Shock.	Risk of Electrocution Working on Electrical Equipment.	3	5	15	Only Trained Staff to Work on this Equipment. Staff is to Follow any Local Instructions / Tech Drawings & All Standards. Staff to use corrects Tools when working on electrical equipment.	3	2	6	YES
Hazard: 9	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Slips, Trips & Falls. Poor housekeeping (Track clearances and cleanliness).	Risk of Personal Injury from Slips, Trips & Falls. Accessing Site & Working on Site.	2	5	10	Good housekeeping to be maintained at all times. Use approved Access points. All staff to be briefed by TSC.	2	2	4	YES

					Correct P.P.E. to be worn at all times safety footwear, gloves, high visibility clothing. Care to be taken & Staff to be vigilant at all times. Check Worksite prior to starting work. Where possible Work on a Level Ground. Do not walk on Rails / timber sleepers (only walk from ballast to ballast). Take extra care after frost, rain, snow or in damp conditions.				
Hazard: 10	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Generators , Petrol Powered Tools , Power Tool & Small, Hands Tools,	Risk of Injury from Cuts & Injury from Hands Tools. Risk of Carbon Monoxide Poisoning from Generator / Petrol Powered Tools	**2**	**4**	**8**	Staff must ensure that tools are fit for purpose before starting work, ensure that tools are correctly used. PPE to be worn when using any Small Plant & Equipment and hand tools & Pre Check All tools before working. Use of Power Tools out doors are to be **110 Volt or less** in accordance with Safety, Health and Welfare at Work Act 2005 All Generator / Petrol Powered Tools to be used in a well-ventilated area.	**2**	**2**	**4**	**YES**
Hazard: 11	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Working Near Open Tranches /	Risk of Serious Injury from Falling into Open Tranches / Excavations	**3**	**5**	**15**	Staff to be vigilant when working in an area around Open Trenches /	**3**	**2**	**6**	**YES**

Excavations					Excavations. If required exclusion zone should be put in place and mentioned in site safety briefing. Trench's where we required, to be fenced off/shuttered as appropriate.				
Hazard: 12	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Noise / Hearing Loss.	Risk of Hearing Loss / Damage – e.g. working in High Noise areas or using Tools that produce High Noise Levels.	**2**	**4**	**8**	Appropriate PPE to be worn, Ear defenders / ear plugs to be worn when working in High Noise areas, or when using High Noise producing Plant or Equipment and are mandatory in levels above 85dB in accordance with Safety, Health and Welfare at Work Act 2005	**2**	**2**	**4**	**YES**
Hazard: 13	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Dust	Risk of Dust inhalation	**2**	**4**	**8**	When working in location where the risk of dust is present , use correct respiratory PPE	**2**	**2**	**4**	**YES**
Hazard: 14	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Eye Damage – e.g. Flying Particles While Strimming / Using Drills etc.	Risk of Eye Loss / Injury.	**2**	**4**	**8**	Appropriate PPE to be worn by staff carrying out the work, Eye Protection, Face Visor or Goggles.	**2**	**2**	**4**	**YES**

Hazard: 15	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Hand / Arm Vibration.	Risk of Personal Injury from Hand, Arm Vibration Syndrome.	2	4	8	Share the Work Load & Take Regular Breaks. Ensure that Plant / Equipment have no damage before starting Work. Job Rotation. Gloves must be worn.	2	2	4	YES
Hazard: 16	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Entrapment / Entanglement in Moving Parts / Rotating Parts.	Risk of Personal Injury.	3	4	12	All plant is to be certified. Ensure all Guards and safety features are in place on Plant / Equipment prior to starting work Report any faults to supervisor. First aid kit to be available.	3	2	6	YES
Hazard: 17	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Exhaust Burns and fume emissions from equipment.	Risk Of Burns and inhalation of fumes From hot Exhaust on Plant / Equipment.	2	4	8	Ensure that all Guards and safety features are in place prior to starting Work & only to be used in a well-ventilated area Report any faults to supervisor. First aid kit to be available.	2	2	4	YES
Hazard: 18	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Working at Height	Risk Of Personal Injury Falling From Height. Risk of Head injury from being Struck from above.	2	4	8	When working on a ladder, staff should maintain a 3 point contact at all times, by using the Work Position Belt – refer to SET-SSofW-0001 Work Position Belt	2	2	4	YES

					(WPB) & SET-SSofW-0002 for use of Ladders. All staff on ground level to wear hard hat at all times. Do not over load the ladder, only one person to work on ladder at a time.				
Hazard: 21	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Manual Handling.	Risk of Back / Muscular Injury from poor Manual Handling Techniques.	**2**	**5**	**15**	Manual Handling tasks to be done as per training instructions and as Per Safe System of Work SET-SSofW-0003 Manual Handling. Sufficient number of staff to carry out lift. Staff to use the correct tools for the task. PPE to be worn at all times Mechanical Assistance to be used where possible to eliminate the requirement for manual handling of material. Staff to take great care and to be vigilant when carrying out this task.	**2**	**2**	**4**	**YES**
Hazard: 22	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Trespassers Anti-social behaviour.	Risk of Fatalities / Serious injury to Third Parties & Staff.	**4**	**5**	**20**	Staff must report all incidents of trespass & anti-social behaviour immediately. Contact CTC, Gardaí when required. Staff must not put themselves in danger when in locations where trespassers or drink/drug users are	**4**	**2**	**8**	**YES**

					present, (refer to Section A 2.9.2 of the IÉ Rule Book).				
Hazard: 23	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Walking in tunnels / bridges/ Limited Clearance Areas	Risk of Fatality & Serious injury	**3**	**4**	**12**	For Tunnels Staff to contact CTC where required prior to entering tunnels Ensure sufficient lighting is provided at all times e.g. Headlamp / headlamp. Staff must be trained, assessed and competent to carry out safety critical duties Refuges in tunnels must be free from obstructions. Safe system of work to be set up by the TSC before any work is carried out.	**3**	**2**	**6**	**YES**
Hazard: 24	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Traffic noise from adjacent roads or motorways.	Inability to hear approaching trains. Risk of Fatality / Serious injury.	**3**	**4**	**12**	TSC must pay particular attention to location & Brief all staff at location on all available information as Per Hazard 1. Local knowledge essential. Beware of train moving slowly and quietly. Worksite Protector/Lookout protection to be provided when & where required Staff must be trained, assessed and competent to carry out safety critical duties.	**3**	**2**	**6**	**YES**

Hazard: 25	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Invasive Species (Hogweed).	Risk of Serious injury / Burns / Long term health issues.	**2**	**4**	**8**	Be aware of areas prone to invasive species. In the event of contact with the Hogweed sap, the skin should be covered to prevent exposure to sunlight and washed immediately with soap and water. Refer to SET SB 001 - Identification and Control of Giant Hogweed.	**2**	**2**	**4**	**YES**
Hazard: 26	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Fire / Line side Fires.	Fatality / Serious injuries / Burns Environmental Damaged.	**3**	**4**	**12**	Safety must be your first concern. Do not endanger yourself or others As far as you can, stop others from endangering themselves. Keep the prevention of accidents or fires in mind at all times. Contact CTC and place an emergency call as per rule book and request Emergency Service assistance as required. Local knowledge essential for access by Emergency Services (Access points detailed are on Safety Stations and IAMS).	**3**	**2**	**6**	**YES**
Hazard: 27	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**

Driving Vehicles while Fatigued.	Risk of serious / fatal injury to driver / others due to fatigue while driving.	**4**	**5**	**20**	Obey rules of road (1961 Road Traffic Act). Do not drive if you feel tired as per road safety guidelines and driver's handbook and SMS-0010. If feeling tired / fatigued pull in and take a break or rest, if possible use replacement driver as per best practise and recommendation by the Road Safety Authority. **Do not continue to drive if feeling tired.**	**4**	**2**	**8**	**YES**
Hazard: 28	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Driving Vehicles Using a Phone and other electrical equipment.	Risk of serious / fatal injury to driver / others due to using mobile phone / equipment while driving Risk of penalty points and fines.	**4**	**5**	**20**	Do not use portable handheld equipment while driving. Use Bluetooth hands free kit for mobile phones where supplied If hands free are not available, do not use your phone until you pull the vehicle into a safe location.	**4**	**2**	**8**	**YES**
Hazard: 29	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Road worthiness of Road Vehicle.	Risk of serious / fatal injury to driver / others due to fatigue while driving an unfit Vehicle.	**4**	**5**	**20**	Insure vehicle is roadworthy as per Standard SET-SMS-010. Staff to follow procedure of pre-checks before starting driving as per Drivers Handbook. All drivers are to carry out basic checks on IR vehicles, (e.g. water, fuel, tyres engine fluids and oils wipers. All defects must be reported to the supervisor as soon as possible, so that they can be repaired. Vehicle	**4**	**2**	**8**	**YES**

					Inspection to be carried out by the driver, as per Standard SET-SMS-010.				
Hazard: 30	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Driving Vehicles in Inclement weather conditions.	Risk of personnel and third party injury from causing an accident while driving in extreme weather conditions such as , rain, wind, frost, snow, ice, fog or sun glare.	**4**	**5**	**20**	Drivers to be extremely vigilant and exercise greater care and driving to be adjusted to suit the weather conditions and drive as conditions allow. Follow instructions in vehicle hand book - SAFE DRIVING. Standard SMS 0010 to be adhered to.	**4**	**2**	**8**	**YES**
Hazard: 31	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Driving Vehicle / Speeding.	Risk of personnel injury and third party injury.	**4**	**5**	**20**	Rules of the Road must be obeyed. Road Traffic Act 1961 to be observed at all times. Only licensed drivers can drive company vehicles. Drivers must take into account the weather condition.	**4**	**2**	**8**	**YES**
Hazard: 32	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Drug, alcohol and prescription drugs.	Risk of serious / fatal injury to driver / others from accident / road collision.	**4**	**5**	**20**	All Staff to adhere to drugs and alcohol policy. Irish Rail operate a ZERO Tolerance Drug and Alcohol policy prescribed medication must be brought to the attention of line manager or CMO (See instructions on prescription medication).	**4**	**2**	**8**	**YES**
Hazard: 33	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Emergency/breakdown / mechanical defects	Risk of serious / fatal Injury to driver / others from accident / road	**4**	**5**	**20**	Get vehicle into a safe location if possible.	**4**	**2**	**8**	**YES**

and break downs/ replacement vehicles.	collision due to roadside break down.				High visibility clothing to be worn at roadside when investigating break down or changing puncture. Safety warning signs / warning triangles, hazard lights to be used where available. Follow instruction as per vehicle handbook for breakdowns. Care and attention must be observed at all times for other road users. Each driver is responsible for ensuring that they notify their supervisor in advance of the vehicle's recommend service interval. All drivers are to carry out basic checks on IR vehicles, (e.g. water, fuel, tyres engine fluids and oils wipers. All defects must be reported to the supervisor as soon as possible, so that they can be repaired. Vehicle Inspection to be carried out by the driver, as per SMS 010.				
Hazard: 34	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Driving - Unsafe/unbalanced load in rear of van.	Risk of personnel injury from flying objects.	**3**	**4**	**12**	Insure bulk head fitted and in good order, secure load in van.	**3**	**2**	**4**	**YES**
Hazard: 35	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Driving - Road worthiness of trailer, load in the trailer.	Risk of serious / fatal injury to driver / others from accident / road collision.	**4**	**5**	**20**	Only staff with appropriate licence to tow trailer. Prior to using trailer make sure it is road worthy i.e. lights, brakes, hitch and tyres. All Side Panels & Tail board	**4**	**2**	**8**	**YES**

					are secured and working Properly. Vehicle must be driven in a proper manner when towing a trailer taking into account the Weather conditions and the road conditions. Load must be Evenly distributed. All loads to be secured. Trailer must not be overloaded. Trailer must not exceed manufactures recommend gross weight. Maximum Weight for vehicle to be adhered to. Load must be Properly secured and checked by Driver before commencing journey.				
Hazard: 39	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Driving - Hooking up trailer to the van.	Risk of crash injury by entrapment between trailer and van.	**2**	**4**	**8**	Driver to remain Vigilant at All times when hooking van up to trailer, all personnel to stand clear of movement while the reversing is taking place All movements are to be carried out on a controlled manner and are not to be rushed. Driver/ all Staff are making sure the tow hitch is securely fastened to van and that the Lights and Emergency Break away is correctly Attached to Van. All Manual Handling to be done as per training.	**2**	**2**	**4**	**YES**

					Make sure good housekeeping is maintained and ensure hand-brake is on when finishing movement.				
Hazard: 40	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Manual Moving Trailer.	Risk of Back Injuries or Muscular Injuries.	**2**	**4**	**8**	All Manual Handling to be done as per Training. Staff to ensure that Good Housekeeping to be maintained and be adhered to at all times at all times in all locations. Staff to extra Vigilant when Manual Handling / moving a trailer. This task is to be carried out on a level surface, not on any incline or uneven surface where the trailer has an increased risk of running away out of control. Ensure the Handbrake is activated when task of moving trailer is complete.	**2**	**2**	**4**	**YES**

SET DEPARTMENT RISK ASSESSMENT

Risk Assessment Form Number(s): RA5937

DATE: 13/05/2015

Location: **Projects South & West**

TASK: Upgrading signal works, Installing Loc's

PANEL MEMBERS: [redacted]

Reference No.	**RA 5937**
Version	1.0
Operative Date	13/05/2015
Status	**Live**
Prepared by	[redacted]
Checked by	
Approved by	

Hazard:1	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Train Movements	Staff being hit causing serious injury/ death	**3**	**4**	**12**	TSC to establish a safe system of work. All personnel must have valid P.T.S. & Safe Pass certificate. Work Protector / Lookout used if required. Set up an exclusion zone.	**3**	**2**	**6**	**Y**
Hazard:2	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Plant and Machinery	Serious Injury/ Death	**2**	**4**	**8**	Certified Plant Certified Operators Exclusion Zone Site Safety Briefing Approved PPE to be worn	**2**	**2**	**4**	**Y**

Hazard:3	Risk:	S	L	RR	Risk Controls:	S	L	RR	T?
Housekeeping / underfoot conditions	Slips trips & falls	2	4	8	Good housekeeping, Site Safety briefing, Dispose of waste correctly. PPE to be worn. Clean as you go. Make sure the site is clear of all debris	2	2	4	Y
Hazard:4	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Manual handling	Bodily Injury , Risk of back or muscular injury from poor manual handling	2	4	8	Staff to be trained in manual handling, PPE to be worn e.g. gloves and boots. Site safety briefing	2	2	4	Y
Hazard:5	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Bio hazards	Serious infections / death	3	4	12	Staff to wear approved Hand protection (EN 386) Ensure that all open wounds cuts and abrasions are covered. Wash hands regularly. Use barrier cream	3	2	6	Y

Hazard:6	Risk:	S	L	RR	Risk Controls:	S	L	RR	T?
Night Work	Slips, Trips and Falls, Bodily Injuries due to bad lighting and poor under foot conditions	3	4	12	Ensure temporary lighting is in place and is adequate for the task. Ensure all staff are using head-lights if applicable Ensure that all plant and equipment are equipped with all relevant work lighting equipment.	3	2	6	Y
Hazard:7	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Excavating trenches for cables	Crush/serious injury	3	5	15	Exclusion Zone to be set. Signs to Signify Trench. Safety Signs. No persons to enter Trench. PPE to be worn	3	2	6	Y
Hazard:8	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Pulling cables	Bodily Injury , Risk of back or muscular injury from poor manual handling / pulling cables	2	3	6	Staff to be trained in manual handling, Access the load, organised pulling of cables. PPE to be worn e.g. gloves and boots	2	1	2	Y
Hazard:9	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Lifting the Location case	Injury or fatality from being struck by swinging load	2	3	6	Exclusion zone to be set up around machine when in operation Machine & Operators certificates to be checked prior to work commencing. Communication between staff working in the vicinity of machine/s and machine Operator to be maintained. Approved high visibility clothing and hard hats (to EN397) to be worn by all staff working in the vicinity of plant/machinery.	2	1	2	Y

Hazard:10	Risk:	S	L	RR	Risk Controls:	S	L	RR	T?
Testing	Wrong routing of trains, electrical shock, damage to line side equipment	**3**	**4**	**12**	Only competent person to test the link between the signalman and the tester. Test according to approved signal standards	**3**	**2**	**6**	**Y**

SET DEPARTMENT RISK ASSESSMENT

Risk Assessment Form Number(s): RA5228

DATE: **14/04/2015**

Location: **Projects South & West**

TASK: **Mixing& Handling Cement**

PANEL MEMBERS: [redacted]

Reference No.	**RA5228**
Version	1.0
Operative Date	10/04/2015
Status	**Live**
Prepared by	[redacted]
Checked by	
Approved by	

Hazard:1	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Awkard Load	Risk of Injury due to incorrect handling of cement bags	**2**	**4**	**8**	Staff to be briefed on SET-SSW-003 and to receive manual handling training,use of mechanical aids where possible,wear appropriate PPE Boots (EN345) Gloves(EN388)	**2**	**2**	**4**	**Y**
Hazard:2	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Incorrect Storage bags of cement	Bodily Injury,Risk of back or muscular injury from poor manual handling.Injury due to falling cement bags,Respiratory injury due to inhalation of cement dust.	**2**	**5**	**10**	Staff to be trained in maual handling. Store cement in a designitated and ventilated area.Maintain good house keeping.PPE,Dust Masks (EN149),Boots (EN345)	**2**	**2**	**4**	**Y**
Hazard:3	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Bio Hazard	Injury due to contact with Cement-Skin\Eye irritation,Blood Infection	**3**	**4**	**12**	Staff to be briefed,Washing facilities\hand wipes to be provided.First Aiderand kit to be on site.Staff to wear appropriate PPE.	**3**	**2**	**6**	**Y**

Manual handling	Bodily Injury , Risk of back or muscular injury from poor manual handling	**2**	**4**	**8**	Staff to be trained in manual handling, PPE to be worn e.g. gloves and boots. Site safety briefing	**2**	**2**	**4**	**Y**
Hazard:5	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Mixing Of Cement	Injury lifting 25kg Bags Skin\Eye Irritation Respiratory Irritation when using raw cement	**2**	**5**	**10**	Staff to be briefed on SET-SSW-003 and to receive manual handling training,use of mechanical aids where possible,wear appropriate PPE Boots (EN345) Gloves(EN388)	**2**	**2**	**4**	**Y**
Hazard:6	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Disposal Of Cement	Injury due to coming into contact with cement Skin\eye\respiratory irritation	**3**	**4**	**12**	Staff to be briefed,appropriate waste management plan, wear appropriate PPE Boots (EN345) Gloves(EN388)	**3**	**2**	**6**	**Y**

SET DEPARTMENT RISK ASSESSMENT

Risk Assessment Form Number(s): RA 5943

DATE: 18/03/2016

LOCATION: Projects South & West

ACTIVITY: Meelegans Level Xing Upgrade

TASK: Instalation of Cable Trench

PANEL MEMBERS: [redacted]

Reference No.	**RA5943**
Version	1.0
Operative Date	18/03/2016
Status	**Live**
Prepared by	[redacted]
Checked by	
Approved by	

Hazard:1	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Train Movements	Serious Injury/Death	**3**	**4**	**12**	Possession arrangements Site Safety Briefing Approved PPE to be Worn,All personel must have vaild P.T.S & safe Pass certification,use of work protor/lookout used as required	**3**	**2**	**6**	**Y**
Hazard:2	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Plant & Machinery	Serious /Injury	**3**	**4**	**12**	Certified Plant Certified Operators Exclusion Zone Site Safety Briefing Approved PPE to be worn	**3**	**2**	**6**	**Y**
Hazard:3	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Manual Handling	Muscular / Skeletal injury	**2**	**3**	**6**	Use Mechanical Aids where possible. Two Man Lift. Staff to Be Trained in Manual Handling. Approved PPE to be worn Safety Boots (EN345) Gloves (EN388)	**2**	**1**	**2**	**Y**

Hazard:4	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Housekeeping/ Underfoot Conditions	Slips, Trips, Falls	2	3	6	Good housekeeping, Site Safe Safety briefing, Dispose of waste correctly. Clean as you go. PPE to be Worn	2	1	2	Y
Hazard:5	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Bio Hazard	Serious injury /death	3	4	12	Staff to be briefed.Approved PPE to be worn gloves(EN 388). Use barrier cream were applicable.Fisrt Aid available	3	2	6	Y
Hazard:6	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Electricity	Electrocution/Burns resulting in injury or death	3	4	12	Site survey to be carried out. Use of correct PPE. Site Briefing	2	1	2	Y
Hazard:7	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Instalation of slit trench at pre determined depth	Slips / trips /Falls	3	4	12	Exclusion zone to be set up,Regular check of depths,.PPE, site briefing prior to commencement of work	3	2	6	Y
Hazard:8	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Dust from work area	Respiratory irritation Eye Irritation Blood infection	2	4	8	Good housekeeping. Create an exclusion zone when filing boxes. Site Safety Briefing. Wear PPE	2	2	4	Y

SET DEPARTMENT RISK ASSESSMENT

Risk Assessment Form Number(s): RA 5229

Reference No.	**RA5943**
Version	1.0
Operative Date	14/04/2015
Status	**Live**
Prepared by	[redacted]
Checked by	
Approved by	

DATE: 14/04/2015

LOCATION: Projects South & West

ACTIVITY: Meelegans Level Xing Upgrade

TASK: Instalation of Kingpost

PANEL MEMBERS [redacted]

Hazard:1	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Train Movements	Serious injury/Death	**3**	**4**	**12**	Possession arrangements Site Safety Briefing Approved PPE to be Worn,All personel must have vaild P.T.S & safe Pass certification,use of work protor/lookout used as required	**3**	**2**	**6**	**Y**
Hazard:2	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Plant & Machinery	Serious /Injury	**3**	**4**	**12**	Certified Plant Certified Operators Exclusion Zone Site Safety Briefing Approved PPE to be worn	**3**	**2**	**6**	**Y**
Hazard:3	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Manual Handling	Muscular / Skeletal injury	**2**	**3**	**6**	Use Mechanical Aids where possible. Two Man Lift. Staff to Be Trained in Manual Handling. Approved PPE to be worn Safety Boots (EN345) Gloves (EN388)	**2**	**1**	**2**	**Y**

Hazard:4	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Housekeeping/ Underfoot Conditions	Slips, Trips, Falls	2	3	6	Good housekeeping, Site Safe Safety briefing, Dispose of waste correctly. Clean as you go. PPE to be Worn	2	1	2	Y
Hazard:5	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Bio Hazard	Serious injury /death	3	4	12	Staff to be briefed.Approved PPE to be worn gloves(EN 388). Use barrier cream were applicable.Fisrt Aid available	3	2	6	Y
Hazard:6	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Electricity	Electrocution/Burns resulting in injury or death	3	4	12	Site survey to be carried out. Use of correct PPE. Site Briefing	2	1	2	Y
Hazard:7	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Instalation of slit trench at pre determined depth	Slips / trips /Falls	3	4	12	Exclusion zone to be set up,Regular check of depths,.PPE, site briefing prior to commencement of work	3	2	6	Y
Hazard:8	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Dust from work area	Respiratory irritation Eye Irritation Blood infection	2	4	8	Good housekeeping. Create an exclusion zone when filing boxes. Site Safety Briefing. Wear PPE	2	2	4	Y

SET DEPARTMENT RISK ASSESSMENT

Risk Assessment Form Number(s): RA 5964

DATE: 19/11/2014

LOCATION: Projects South & West

ACTIVITY: Hand pulling cables through ducting

TASK: Site Refurbishment

PANEL MEMBERS [redacted]

Reference No.	**RA5964**
Version	1.0
Operative Date	19/11/2014
Status	Live
Prepared by	[redacted]
Checked by	
Approved by	

Hazard:1	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Train Movements	Serious injury/Death	**3**	**4**	**12**	Possession arrangements Site Safety Briefing Approved PPE to be Worn	**3**	**2**	**6**	**Y**
Hazard:2	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Plant & Machinery	Serious /Injury	**3**	**4**	**12**	Certified Plant Certified Operators Exclusion Zone Site Safety Briefing Approved PPE to be worn	**3**	**2**	**6**	**Y**
Hazard:3	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Manual Handling	Muscular / Skeletal injury	**2**	**3**	**6**	Use Mechanical Aids where possible. Two Man Lift. Staff to Be Trained in Manual Handling. Approved PPE to be worn Safety Boots (EN345) Gloves (EN388)	**2**	**2**	**4**	**Y**

Hazard:4	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Housekeeping/ Underfoot Conditions	Slips, Trips, Falls	**2**	**4**	**8**	Good housekeeping, Site Safe Safety briefing, Dispose of waste correctly. Clean as you go. PPE to be Worn	**2**	**2**	**4**	**Y**
Hazard:5	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Biological hazards	Weils diease / Infection/Death	**3**	**4**	**12**	Staff to wear approved Hand Protection(EN 386) Ensure that all open wounds,Cuts and abrasions are covered Wash hands regularly Use barrier cream	**3**	**2**	**6**	**Y**
Hazard:6	**Risk:**	**S**	**L**	**RR**	**Risk Controls:**	**S**	**L**	**RR**	**T?**
Electricity	Burns/Death	**3**	**4**	**12**	Only competent and trained electricians to work on all electrical services. Isolate and label off source of supply. Site survey clearly marking Services. Site safety Briefing. Appropriate PPE	**3**	**2**	**6**	**Y**

Report of Investigation:

Train A708 collided with cattle on approach to the 55 MP Portarlington/Tullamore, near Level Crossing XA043, 28th of June 2018

Document Control

Author:	[redacted]
Department:	Infrastructure Manager Safety Department
Status:	Live
Version:	1.0
AIMS Ref:	INC-29363
Report No:	R1302-2018-35
Published:	14th December 2018

Document History

Title	Train A708 collided with cattle on approach to the 55 MP Portarlington/Tullamore, near Level Crossing XA043

Revision	Date	Summary of Changes
Draft 1.0	08/11/18	Circulated for comment to relevant Safety Managers in compliance with IM-SMS-007, s4.5.2.
Draft 1.1	23/11/18	1 - Executive summary added to the report 2 - Minor amendments made post comment phase to the main body of the report (re-phrasing and typos) 3 - Actions taken since the occurrence updated (Sec. 15).
Issue 1	14/12/18	Final report issued

Iarnród Éireann Investigation of Accidents and Incidents

This Investigation is conducted in compliance with IM-SMS-007, *Policy and Principles for Reporting and Investigation of Accidents and Incidents*

Policy
Iarnród Éireann will ensure Accidents and Incidents are reported, recorded and investigated to prevent a recurrence.

Objectives
To ensure that Iarnród Éireann investigates Incidents and Accidents, learns from experience and adopts measures to prevent a recurrence.

Key Elements
Investigations are undertaken to:

- Report and record the Incident/Accident.
- To uncover the underlying causes.
- Making recommendations to prevent or reduce the likelihood or mitigate the consequences of recurrence.
- Implementing actions to deliver adopted recommendations.

IM-SMS-007, 1.1, 1.3 and 1.4

All enquiries regarding this report to:

IM-Accident Investigation Unit
CCE Regional Division Building
Heuston Station
Dublin 8

Tel:01 8584659

Executive Summary

At 16:29 hrs on Thursday 28th of June 2018, ten cattle were struck by a train on approach to the 55 milepost (MP) on the Portarlington to Athlone line. The train involved was the 15:35 hrs passenger service from Heuston to Galway, train ID A708.

The cattle had gained access to the line some time earlier at Level Crossing XA043 (Field type crossing) which was at the 55 miles 0442 yards. The animals then continued along the railway line unnoticed and heading in the direction from where the train approached leading to the subsequent collision.

It was established during the investigation that the gate at Field Crossing XA043 was not properly secured. This initially allowed the cattle to gain access on to the railway line. The evidence also showed that a missing cattle grid in the Down cess side at the crossing allowed the cattle to walk along the railway ballast before eventually being struck by the Heuston to Galway train service.

There were no reported injuries to any persons at the time of the occurrence, but the train sustained extensive damage causing it to be declared a failure at the scene after the collision with the cattle. There was major disruptions to train services on the route as a result of the occurrence.

Immediate Cause

The Cattle gained access to the railway line at User Worked Level Crossing XA043.

Causal Factors

CF 1. The gate to the field on the Down side of Level Crossing XA043 was not secured, allowing the cattle to gain access on to the railway line at the crossing.

CF 2. The cattle grids on the Down side of Level Crossing XA043 where not in place, allowing the cattle to walk along the railway line.

CF 3. The cattle grids were not reinstated after they were temporarily lifted to facilitate the placement of ducting to run cables for the upgrading of XA039 (Meelaghans) over twelve months previous. The grids broke up during the lifting and were unable to be reinstated immediately, nor were they subsequently reinstated after it was reported.

Underlying Causes

UC 1. A notification was created on the Infrastructure Asset Management System for the cattle grids to be replaced. The notification had been set to 'cancelled' status due to human error. As its status was not fully cancelled, the Permanent Way Inspector continued to reference it on the Patrol Ganger's Weekly reports as if it was active.

UC 2. The risk assessment, 'Installation of Cable Trench' (*Reference No. RA5943, version 1, 18/03/2016*), did not identify the Hazards or assess the risks associated with the temporary lifting and reinstating of cattle grids at LC XA043 to facilitate the works for the upgrading of LC XA039.

Safety actions taken since the occurrence

There were five safety actions taken, or in progress, since the occurrence which may have otherwise resulted as recommendations. These are as follows;

Safety Action 1

The Infrastructure Manager sent a letter to the user(s) of Level Crossing XA043 reminding them of their obligations to use the level crossing safely and drawing their attention to the requirement to shut and fasten the gates after use.

This action was taken to address Causal Factor 1 in the occurrence.

Safety Action 2

The CCE Department fitted new cattle grids at Level Crossing XA043 following the occurrence. This work was completed on the 11th of July 2018.

This action addresses Causal Factor 2 in the occurrence.

Safety *Action 3*

The Infrastructure Manager (Athlone) conducted a briefing at the Athlone Division Permanent Way Inspectors meeting on the 12th of September 2018 about the issues of concern regarding the missing cattle grids following the SET/New Works cable works. Additionally, all cattle grids in the Athlone Division were checked and confirmed to be in place by the Chief PWI, Athlone.

This was an additional safety action taken, addressing Underlying Cause 2 in the occurrence, and to ensure grids at other crossings were in order.

Safety *Action 4*

The SET New Works Department carried out a review and updated the relevant risk assessments in its work projects with regard to the installation of cable troughing and cable routing through Level crossings. The assessments now include the risks and control measures associated with the lifting of cattle grids at Level Crossings.

This action addresses Underlying Cause 2 in the occurrence.

Safety *Action 5*

The SET Safety Department have since reviewed and updated a number of their risk assessments relative to lineside cable installation as well as the installation of cable troughing (September 2018). There is also a plan in place to review all SET risk assessments over the next six months when the Risk Assessment Safety Standard is reviewed and introduces a planned updated Risk Matrix.

This action addresses the safety observation made during the occurrence (Observation 1, section 11).

Recommendations

The Investigation makes two safety recommendations as a result of the occurrence.

Note: *In compliance with Section 4.5 of RU/IM-SMS-007, these recommendations are subject to the approval of the RU or IM Safety Review Group and who will make the final determination regarding the recommendations and the allocation of required actions to responsible managers. This information is then recorded on the Accidents / Incidents database.*

Recommendation 1

The Chief Civil Engineer should arrange for Infrastructure Managers to conduct a risk assessment for the lifting of cattle grids at level crossings. The risk assessments should take account of, but not be limited to, the issues of concern highlighted during this investigation and/or in the event that cattle grids are required to be left out for a period of time during maintenance works.

Reason

(Causal Factor 3, & Underlying Cause 2, in part. Ref. Factors for consideration section 10.2)
Cattle grids can be lifted for various track maintenance reasons including tamping and ballasting work resulting in them being left out of the track for periods of time. As the Level Crossing standard requires them to be in place to deter animals their removal should be subject to risk assessment.

Recommendation 2

The Chief Civil Engineer should arrange to review the process for the cancellation of work orders in the IAMS system with the IAMS Manager. The review should look to identify mitigating actions that could be taken to prevent work orders being cancelled inadvertently.

Reason

(Causal Factor 3, in part, & Underlying Cause 1: ref. Factors for Consideration 10.2; 10.2.5, 6, & 7)
The Cattle Grids were not replaced after it was reported and/or after a notification was entered on the Infrastructure Manager Asset System. The job was hidden after it was given a 'cancelled' status on the system due to human error. If a robust system of periodic checks are put in place and an error is made it will not go for a prolonged period without being noticed and corrected.

Contents

1. Description of the occurrence

1.1 At 16:29 hrs on Thursday 28th of June 2018, ten cattle were struck by a train on approach to the 55 milepost (MP) on the Portarlington to Athlone line. The train involved was the 15:35 hrs passenger service from Heuston to Galway, train ID A708.

1.2 The cattle had gained access to the line some time earlier at Level Crossing XA043 (Field type crossing) which was at the 55 miles 0442 yards. The animals then continued along the railway line unnoticed and heading in the direction from where the train approached leading to the subsequent collision.

1.3 There were no reported injuries to any persons on the day, but the train sustained extensive damage causing it to be declared a failure at the scene after colliding with ten of the cattle. There was major disruptions to train services on the route as a result of the occurrence.

2. Terms of reference

2.1 The object of this investigation is to determine not only the immediate cause which led directly to the occurrence, but any underlying technical, ergonomic, organisational or other systemic factors and thereby, prevent a recurrence. To this end, the Head of Health and Safety, Infrastructure Manager, appointed Colin Hedderly, Senior Track & Structures Engineer, CCE Athlone on the 4th of July 2018 to lead the investigation into the occurrence. The Remit is attached as Appendix A.

2.2 Specific Features of this investigation are:

- How the cattle gained access to the railway line
- Measures in place at the crossing that mitigate the risks of animals accessing the line
- History of animal incursions in the area
- The speed and braking performance of the train at the time of the occurrence
- The reporting and response to the occurrence.

3. Investigation Panel

3.1 The Investigation Panel was comprised as follows:

- [redacted], Senior Track & Structures Engineer, Chief Civil Engineer Department (CCE), Athlone (Chairman)
- [redacted], Senior Investigator, Accident Investigation Unit, IM Safety Department.

4. Methodology adopted

4.1 The investigation panel reviewed the following evidence:

- Statements and interview notes from relevant members of staff
- Competency files of relevant staff
- Voice communication downloads at the time of the occurrence
- On-train CCTV footage
- On-train Data Recorder (OTDR) technical analysis
- Technical Management Standard CCE-TMS-380:'*Technical Standard for the Management of User Worked Unattended Level Crossings'*
- XA043 Level Crossing surveys, reports and other associated documentation
- Patrol Ganger reports for the length of line involved
- Level Crossing Risk Ranking
- Health and Safety Plan for previous works at Level Crossing XA039 (Meelaghans)
- Working Timetable (operative from December 10 h 2017)
- Met Éireann weather report for the day and time surrounding the occurrence.

4.2 A site visit to Level Crossing XA043 was conducted by a member of the IM Accident Investigation Unit accompanied by the CCE Regional Manager, East on the 4th of July 2018.

4.3 A post occurrence review was chaired by the Senior Track and Structures Engineer, CCE Athlone on Thursday the 26th of July 2018 to review the evidence and establish the facts. The review was attended by members of the Investigation Panel, members of staff from the CCE Department, Athlone and SET New Works.

4.4 The relevant available members of staff were formally interviewed by the Investigation Panel on the 13th of September 2018 in Dublin, and on the 26th of September in Athlone.

5. Weather

5.1 The incident occurred during daylight hours (16:29 hrs) and the weather at the time was described as very warm and sunny.

5.2 The weather data taken from the nearest Met Éireann weather station for the day of the occurrence (Mullingar – 30 KM North of the site) recorded that there was a maximum temperature of 28.7 degrees Celsius and a minimum temperature of 9.4 degrees Celsius. There was zero mm of rainfall recorded for the day and there was a mean wind speed of 4.7 knots (8.7 Km/h).

5.3 The investigation could not determine if the very warm weather surrounding the time of the collision was a contributing factor in the occurrence. It was observed the following day during a post incident crossing survey that the water trough near the gate of Level Crossing XA043 was empty and it was reasoned that the cattle may have been in search of water, if the trough had been empty surrounding the time of the occurrence. It was observed that the cattle had walked over the railway ballast for almost ½ of a mile prior to being struck by the train.

6. Description of the line, location and Level Crossing XA043

6.1 Description of the line and location

6.1.1 The collision occurred approaching the 55 MP on the line of route from Portarlington (41 ¾ MP) to Athlone (81 MP) which is a single line. Mile posts are measured from Heuston (0 MP).

6.1.2 A train travelling from Portarlington towards Athlone, as was the train involved in the occurrence, is travelling in the Down direction.

6.1.3 The route is fitted with two, three and four aspect colour light signals. The line is operated under track circuit block regulations and is controlled by the Mainline Signalman located at Centralised Traffic Control (CTC) at Connolly Station, Dublin. Train detection along the route is achieved by track circuits.

6.1.4 The maximum permitted line speed from Portarlington to Athlone, as set out in the Working Time Table operative from December 2017, is 100 mph (160 km\h) subject to any lower limit permanent and temporary speed restrictions. The maximum permitted line speed at the location of the collision was 90 mph.

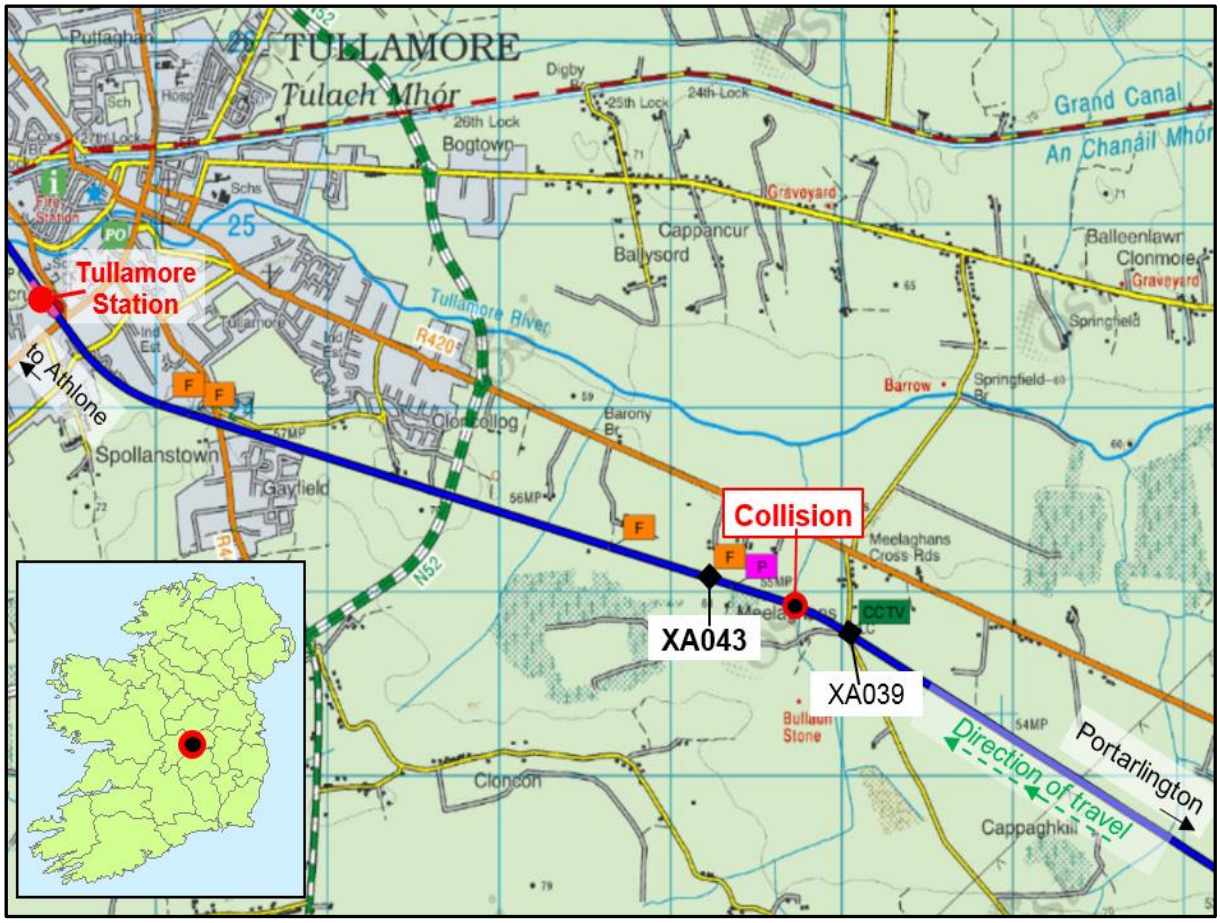


Figure 1: *Map of line and location.*

6.2 Description of the level crossing involved, Level Crossing XA043 (Flemers crossing)

6.2.1 Level Crossing XA043 (known locally as Flemers Crossing) is located at the 55 miles 0442 yards (between Geashill and Tullamore) on the Portarlington to Athlone branch line. It is designated as an 'F' type crossing, which is a user-operated unattended field crossing.

6.2.2 The crossing is in a rural environment and is equipped with standard 12-foot swing type field gates on both sides of the crossing to segregate the railway from farmer's fields. The gates are required to be maintained closed and fastened across the roadway leading to the adjacent field to ensure the safety of the level crossing user(s) as well as railway users. It is a legal responsibility of the user to open and close the gates securely when and after they require to cross the railway line.

6.2.3 The track type through the crossing is ballast with 54Kg rails on concrete sleepers with an unsealed surface on the cess sides and a Strail unit surface in the 5-foot. Timber cattle grids are also in place at the crossing. Grids are normally positioned in the cess on both sides and within the 5-foot of the crossing. However, it was noted during the post incident survey the absence of a cattle grid on the Down cess side of the crossing (*note: the cattle grids at this crossing are discussed further in later sections of the report*).

6.2.4 The boundaries in the lengths on all sides leading up to the crossing are secured with concrete posts and wired boundary fencing preventing animal access to the line from the adjacent farm lands. The boundaries are also covered in foliage along the lineside embankments.

6.2.5 The following two figures (Figures 2 & 3) provide a general layout of the crossing and the signage in place at the time of the occurrence.

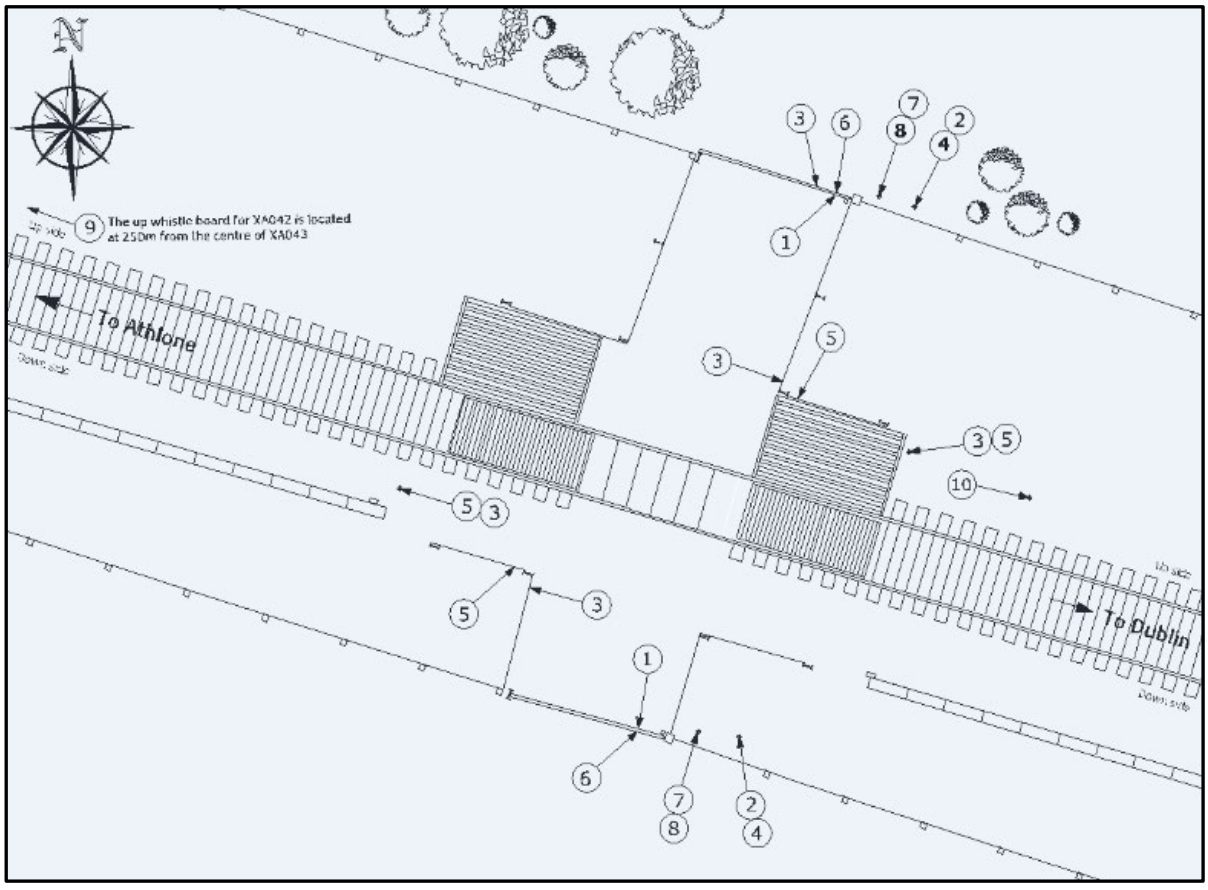


Figure 2: *Key Plan showing locations of signage and the general layout of level crossing XA043.*

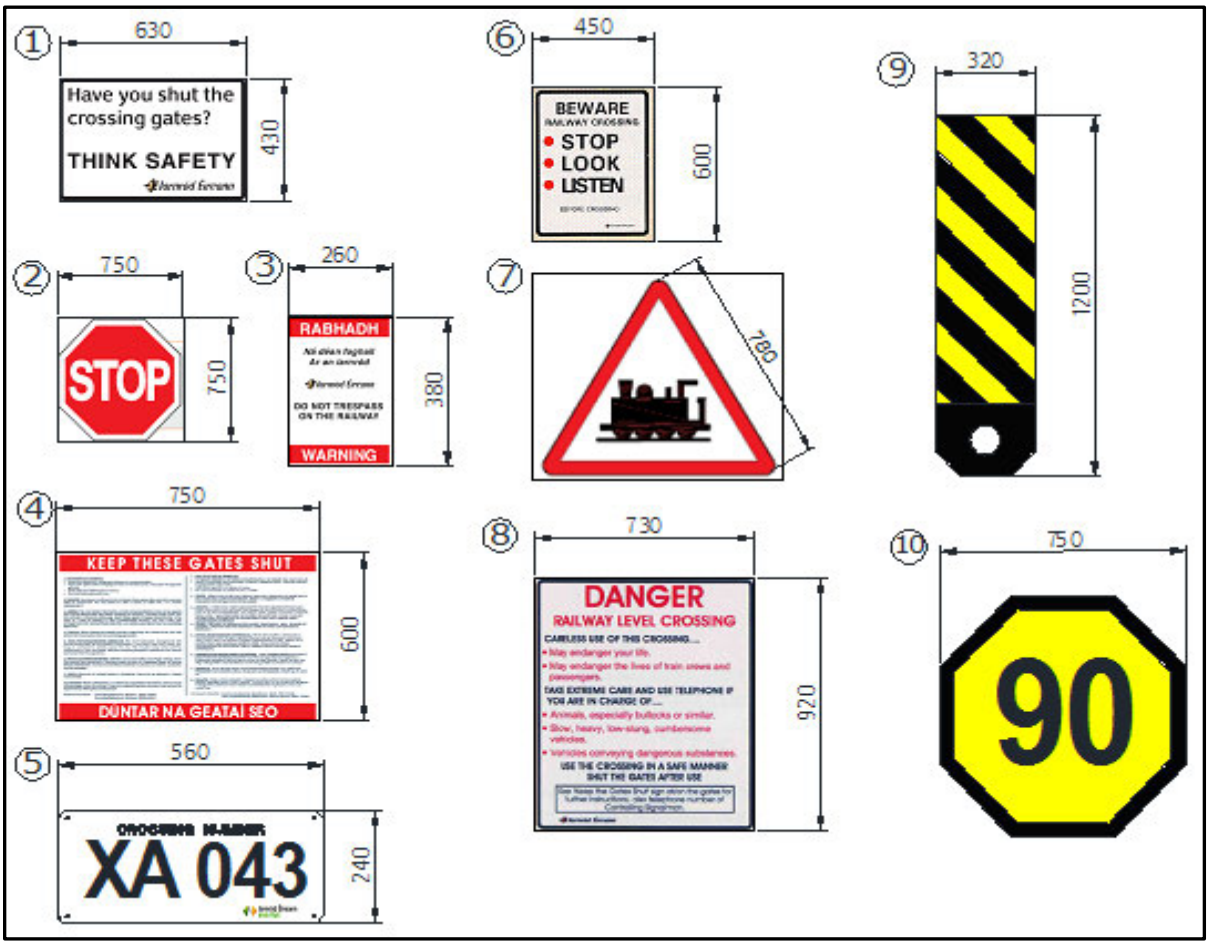


Figure 3: *Passive signage details for level crossing XA043.*

6.2.6 The signage at level crossing XA043 was in compliance with the Technical Management Standard CCE-TMS-380, *'Technical Standard for the Management of User Worked Unattended Level Crossings'.*

7. Description of the train involved

7.1 The train involved in the occurrence was the 15:35 hrs passenger service from Dublin (Heuston) to Galway (Ceannt), train ID A708.

7.2 The service was operated by a four carriage 22000 Class intercity railcar (ICR). The train consist was as follows; 22216 (leading), 22816, 22416 and 22316. A four piece train of this type is 94.8 metres in length and has a weight of 189 tons.

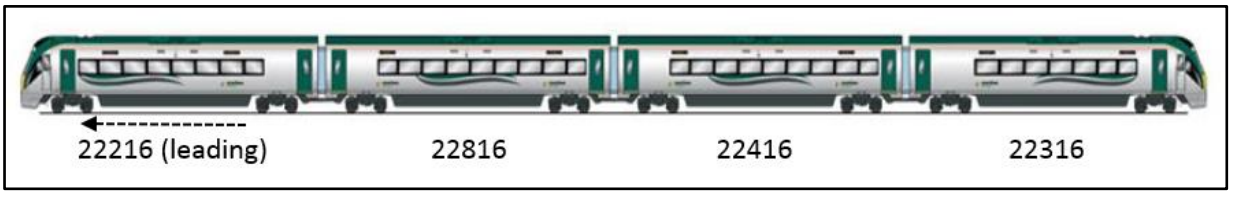


Figure 4: *Consist of the 22000 Class ICR (set 16) involved in the occurrence.*

7.3 There were 185 passengers on board the train at the time of the occurrence. There were no injuries reported. There was extensive damage caused to the front of train and the underframe of the coaches to various electrical components and air systems as a result of the collision.

8. Order of events

8.1 The following timeline provides an order of key events leading up to the occurrence on Thursday the 28 h of June 2018.

Ind.	Time *hrs:min:sec*	Event
1	15:35 hrs	Train A708 (15:35 hrs Heuston to Galway) departed Heuston on time and arrived in to Portarlington at 16:15 hrs without incident.
2	16:16 hrs	Train A708 departed Portarlington, heading for its next scheduled stop at Tullamore.
3	16:25 hrs	Train A708 passed through Geashill.
4	16:28 hrs	Train A708 passed through CCTV level crossing XA39 (Meelaghans) and rounded the curvature on approach to the 55 MP.
5	16:29 hrs	The Driver of train A708 observed numerous cattle scattered on the line ahead in the path of the train and he applied the emergency brakes.
6	16:29 hrs	The train struck numerous cattle approaching the 55 MP before coming to a complete stop a short distance from Level Crossing XA043.

Note: Times are approximate

9. Summary of Evidence

9.1 Synopsis of events leading up to the collision

9.1.1 On Thursday the 28th of June 2018 the 15:35 hrs passenger service from Heuston to Galway, train ID A708, departed Heuston Station on time.

9.1.2 Train A708 arrived in to Portarlington at 16:15 hrs as normal and without incident.

9.1.3 The Driver stated during formal interview that there were no issues with the trains operation on route. The train departed Portarlington at 16:16 hrs heading for the next stop, Tullamore.

9.1.4 The evidence indicated that train A708 passed through Geashill (50 ¾ MP) at 16:25 hrs, approximately 7 ¼ miles from Tullamore.

9.1.5 Approximately three minutes later, train A708 passed through Meelaghans CCTV Level Crossing (XA039) which was at the 54 miles 1216 yards.

9.1.6 Train A708 then rounded the curvature immediately beyond the crossing on the approach to the 55 MP. The evidence taken from the technical analysis of the On-Train Data Recorder (OTDR) indicated that the train was travelling at a speed of 135 km/h (84 mph).

9.1.7 The Driver of train A708 then observed a number of cattle on the line in the path of the train.

Figures 5 & 6: *Images from the front CCTV cameras on train A708 coming to the end of the curvature and moments prior to the collision with the cattle at the 54 miles 1545 yards.*

9.2 Synopsis of events immediately surrounding the collision

9.2.1 The following evidence depicts the events taken from (a) the Drivers statement, (b) the section of the OTDR technical analysis surrounding the time of occurrence, and (c) the forward facing CCTV footage from train A708 surrounding the time of collision.

Ind.	Time	Event
1	*hrs:min:sec* 16:28:59	645 meters before the train came to a stop, the headlights were recorded to be on full beam, the train speed was 135 Km/h (84 mph) and the Driver activated the train horn while applying the brakes.
2	16:29:02	542 meters before the train came to a stop, the brakes were in full emergency position and the speed was at 126 Km/h (78 mph). Train A708 collided with the cattle at this point.
3	16:29:06	416 meters before stopping, train A708 experienced wheel slip protection activity (WSP) due to biological substance between the rail head and wheels as a result of colliding with the animals. The train speed was recorded at 104 km/h (64 mph).
4	16:29:37	The train comes to a complete stop.

9.2.2 CCTV footage from the train showed that, following the collision, the train stopped before reaching level crossing XA043 which was at 55 miles 0442 yards.

Figure 7: *Image from the front CCTV camera after train A708 had stopped, with XA043 in the foreground.*

9.3 Synopsis of events after the collision

9.3.1 When the train came to a stop the Driver contacted the controlling Signalman at CTC and advised him of the events.

9.3.2 He also advised of extensive damage to the train and he was put through to a member of the CME Fleet Technical Support who was able to remotely access the train's diagnostics. Due to the confirmed damage caused, the disabled train was declared a failure.

9.3.3 All relevant departments were alerted of the occurrence and had members of staff dispatched to the site as it was anticipated that the response and recovery operation would be difficult and lengthy due to the damage to the train and the circumstances that existed.

9.3.4 The Railway Accident Investigation Unit (RAIU) and the Commission for Railway Regulation (CRR) were also notified in the immediate aftermath of the occurrence in accordance with the required reporting procedures.

9.3.5 Due to the circumstances that prevailed, a decision was made to bring an empty train in from the front (Tullamore side) to safely transfer the 185 passengers from the disabled train to the rescue train, as attaching and hauling the train at that time was not possible.

9.3.6 The safe transferring of the passengers to the empty train commenced at 18:20 hrs and took approximately 50 minutes. This train then formed the continuation of the service to Galway.

9.3.7 Once the line was cleared of carcasses and inspected, an assisting train was brought in from the rear at 19:46 hrs as it was then possible to attach from this side to haul the train back.

9.3.8 Following examination by members of the CME technical support, the train was given permission to move under caution at reduced speed to Geashill at 20:30 hrs.

9.3.9 Subsequently, the line was reopened for normal operation at 21:07 hrs.

9.4 Additional post occurrence evidence of relevance

9.4.1 Following the collision the forward facing CCTV camera of train A708 showed one cow running towards Level Crossing XA043 as the train came to a complete stop at 16:29:37. The train's engines shut down at 16:30:50 causing the CCTV camera to stop recording. After approximately 2 minutes and 21 seconds the engines were restarted, the CCTV recording resumed at 16:33:11 and the cow was no longer visible.

9.4.2 At 16:49:08, almost 20 minutes after the train stopped, the forward facing CCTV camera of train A708 showed a number of cattle enter onto Level Crossing XA043 from the Down Side. The cattle remained on the crossing for a further few minutes. This evidence indicated that the Down side gate of Level Crossing XA043 was not secured and cattle could access the level crossing. The cattle remained on the crossing facing the (opposite) Up side gate, indicating the Upside gate was closed as the cattle did not continue over the crossing.

Figure 8: *Image from the forward facing CCTV camera after train A708 had stopped. At 16:49:50 it shows cattle have entered level crossing XA043 from the Down side and are held at the crossing by the Up side gate.*

9.4.3 At 16:51:28 the CCTV camera of train A708 showed a person wearing shorts arriving at Level Crossing XA043 from the Up side. This person herded the cattle off the crossing and back to the field on the Down side. The person then walked along the line towards the train.

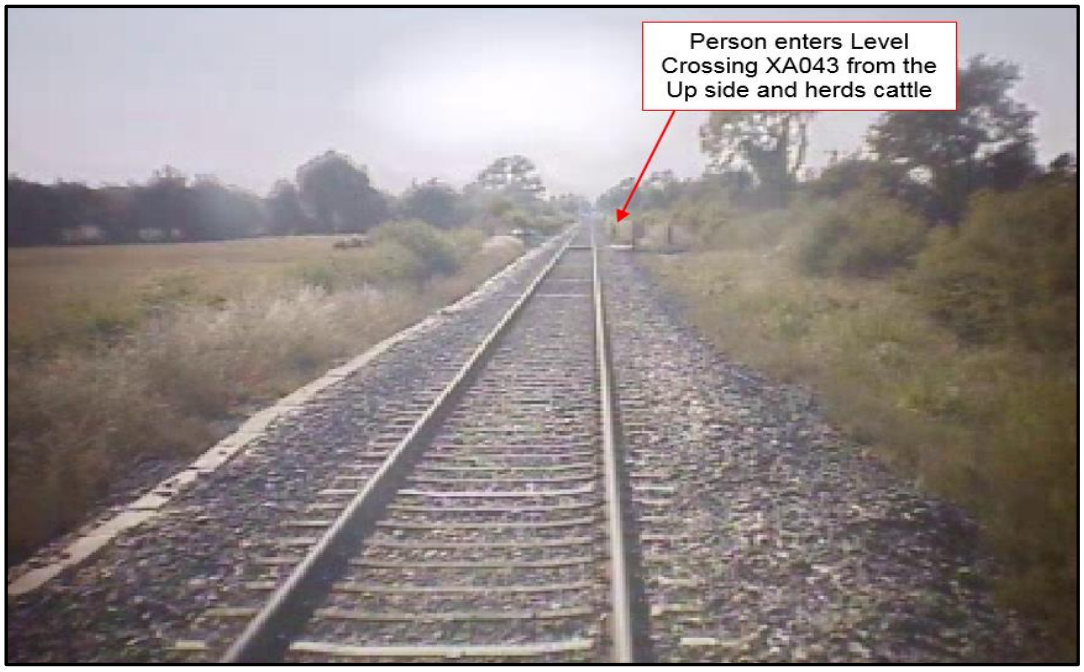


Figure 9: *Image from the front CCTV camera after train A708 had stopped. At 16:51:28 it shows a person enter level crossing XA043 from the Up side and herd the cattle off the crossing through the Down side gate.*

9.4.4 The Driver stated during formal interview that he saw the cattle standing on crossing XA043 after the occurrence and the person putting them back into the field on the Down side.

9.4.5 A CCE member of staff (Mobile Ganger) who attended at the scene stated, during the post incident review, that the person in shorts (the person in figure 9 above) told him the cattle got out at the gate of crossing XA043.

9.4.6 It was also observed by the CCE member of staff that the cattle grids on the Down side cess of XA043 were missing at the time of the occurrence.

Figure 10: *Post-incident image of LC XA043 showing missing Down side cess cattle grid. This view is looking towards Portarlington. Note; the newly installed cable ducting.*

10. Factors for Consideration

10.1 How the cattle gained access to the railway line.

10.1.1 During the investigation the evidence indicated that the cattle gained access to the crossing from the Down side gate of XA043. There was no evidence to suggest the cattle gained access anywhere else. The Mobile Ganger who attended at the scene identified the person in shorts (the person seen in figure 9 above) as confirming to him on-site that the cattle got out at the gate. There were no fencing issues along the line and this had been ruled out as an access point by the investigation.

10.1.2 The post-incident inspection of the Down side gate found it to be in good working order, with no movement of either the hanging or slapping posts.

10.1.3 The post-incident inspection of the sliding bolt and hasp fastening arrangement of the Down side gate found there was no damage to the hasp or to the chained 'S' securing hook. The end of the sliding steel bolt slotted 70mm into the concrete slapping post which provided good engagement.

Figure 11: *Post-incident images of the sliding bolt and hasp fastening arrangement of Down side gate at XA043.*

10.1.4 There have been no changes or adjustments made to this fastening arrangement since the occurrence and it continues to provide a secure fastened gate when used correctly. When the hasp is closed and the 'S' hook is inserted through the hole, the gate is secure and cannot be opened by cattle either scratching or pushing against it.

10.1.5 There were no defects with the gate or the crossing reported by the user to Iarnród Éireann either prior to or since the occurrence.

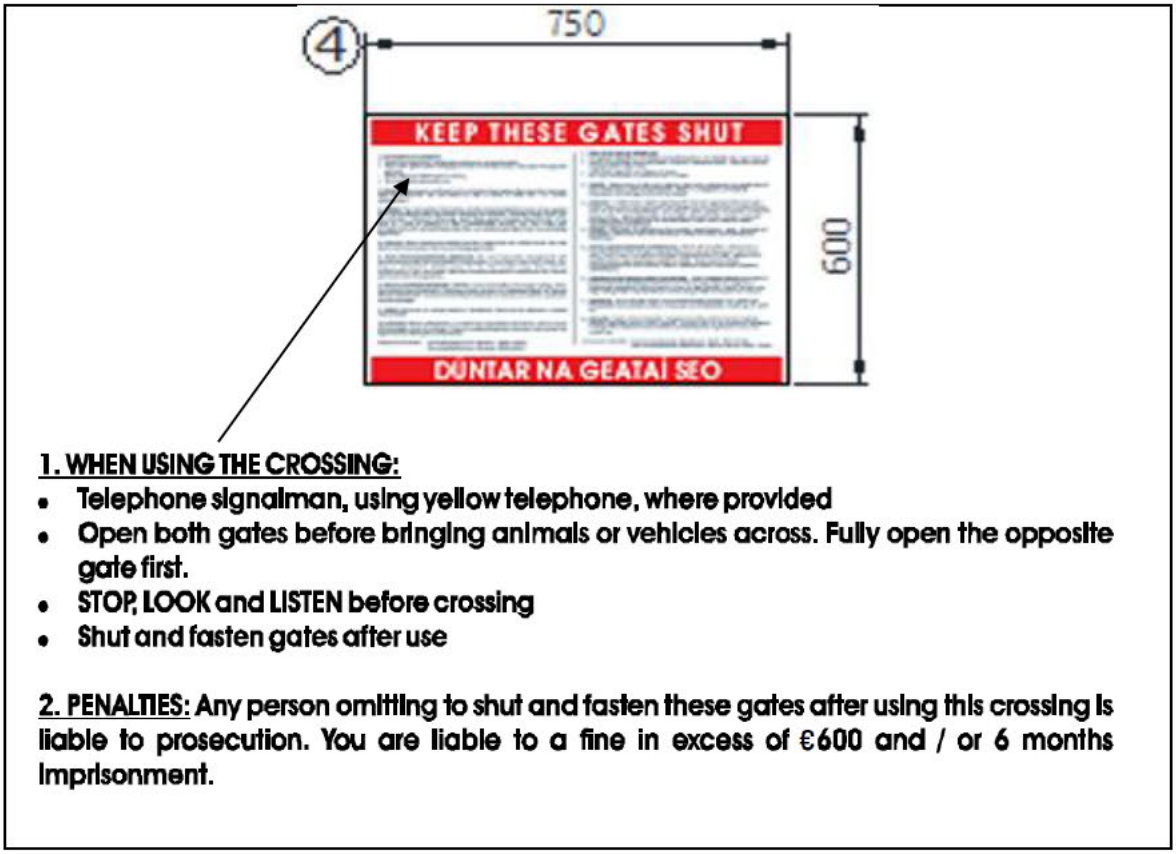
10.1.6 The conclusion drawn by the Investigation Panel was that the cattle got through the gate and onto Level Crossing XA043 because gate on the Down side was not properly secured.

10.1.7 It was also observed that the gate stop post, which is an independent post fitted to block the gate from opening towards the railway, was found to be loose in the post-incident inspection. This allowed the gate open towards the railway once it was unfastened. The records showed that the stop post was fitted in October 2015. The investigation was unable to determine if the stop post was damaged on the day of the occurrence or before it. However, its purpose is not to secure the gate, but to prevent the user from opening the gate towards the railway line during the opening process.

Figure 12: *Post-incident images of the loose gate stop post on the Down side gate at XA043. This allowed the unfastened gate to open towards the railway.*

10.2 The measures in place at Level Crossing XA43 to mitigate the risk of animals accessing the line.

10.2.1 The user is responsible for using the level crossing safely, which includes securing the gate properly after use. Signage is the primary means of communication between IÉ and the user. The signage displayed at XA043 was compliant with Technical Management Standard, *CCE-TMS-380 'Technical Standard for the Management of User Worked Unattended Level Crossings'*. The signs (numbered in figure 13 below) include statutory signage to remind the user of their responsibility to keep the gates shut (No. 4 below) as well as warning signage about safety (No. 1 and 8 below).



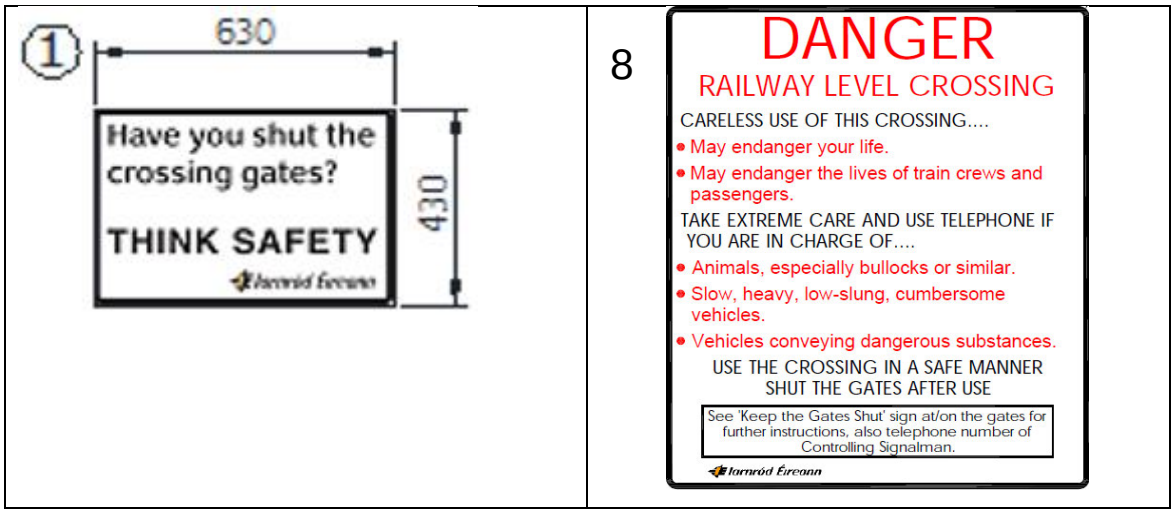


Figure 13: *Statutory signage and warning signage to remind users of their responsibility to keep gates shut.*

10.2.2 Iarnród Éireann is required to provide a Level Crossing gate in good order which is sufficiently high and robust to prevent the incursions of animals onto the railway line. The gate provided at LC XA043 was 12-foot wide and made of heavy duty galvanised steel. The investigation found that it was compliant with IÉ standards and maintained in good order showing no signs of having been forced open, nor did the gate have any bent bars or damage, etc.

10.2.3 It is also a requirement to provide cattle grids at level crossings where animals are brought across the railway. Cattle grids are a device provided to deter animals from straying onto the railway. At Level Crossing XA043 the cattle grids on the Down side cess were missing at the time of the occurrence.

10.2.4 The investigation found that the cattle grids had been lifted temporarily on the 18th of May 2017 to facilitate the installation of ducting to provide a new cable route (highlighted in figure 10), under a project by the SET New Works Department to convert Level Crossing XA039 (Meelaghans) to a CCTV type crossing. However, the grids had fallen apart while being lifted and could not be reinstated immediately, nor were they subsequently reinstated.

10.2.5 The investigation found that the local Permanent Way Inspector (PWI) had created a notification on the Infrastructure Asset Management System (IAMS) for the replacement of the Down side cess cattle grids at XA043 and XA045. However, at the time of the occurrence, this notification had been set to the status of cancelled.

10.2.6 Following a request by the Investigation Panel, a member of the IAMS support team examined the action log for this notification. It was determined that it was set to cancelled status due to human error as the notification had not been properly cancelled and the PWI continued to reference it on the Patrol Ganger's Weekly reports as if it was active.

10.2.7 Due to the error, the notification did not appear in the active notifications list when a query was run in IAMS. The active list is used as a bank of jobs when planning works, and hence, the notification to replace the cattle grids was hidden during works planning.

10.2.8 On the day of the occurrence, once the cattle were on the line at the Level Crossing they were able to walk down the line because the cattle grid, that would have been a preventative measure, was missing from the Down cess. The cattle then walked almost ½ a mile from Level Crossing XA043 along the railway line, in the Portarlington direction, where the train was involved in the collision with them.

10.2.9 The investigation found that a comprehensive Health and Safety Plan was prepared and approved during February 2017 for the upgrading works associated with Level Crossing XA039 (Meelaghans), over 12 months prior to the occurrence. As part of these works, the temporary lifting of cattle grids at Level Crossing XA043 and other crossings was required to facilitate new SET ducting for the running of cables for the LC XA039 upgrading.

10.2.10 It was advised to the Investigation Panel, during formal interview, that a site walkabout was conducted as part of the planning, which would have included the identification of location specific hazards. However, it was noted that the risk assessment, *'Installation of Cable Trench'* (Reference No. RA5943, version 1, 18/03/2016), did not identify the hazards or assess the risks associated with the temporary lifting (and reinstatement) of cattle grids to facilitate the works.

10.3 The monitoring and inspection process for Level Crossing XA043

10.3.1 Level Crossing XA043 is situated within the Patrol Length AD2102 from the 49 MP to 56 MP. The length is inspected by a Patrol Ganger once a week in accordance with the Technical Standard, *CCE-TMS-361; Technical Standard for Track Patrolling*. All inspections were up-to-date and the Patrol Ganger had reported missing cattle grids at XA043 and XA045.

10.3.2 The Permanent Way Inspector (PWI) is required to carry out a joint inspection with each Patrol Ganger every 4 months in accordance with the Standard, *CCE-TMS-360; Track and Structures Inspection Requirements*. Prior to the occurrence the last joint inspection of AD2102 was carried out on 20th of March 2018. This was in accordance with the standards.

10.3.3 Prior to the occurrence the last Technical Survey of Level Crossing XA043 was undertaken on 22nd of May 2015. A technical survey is undertaken every 3 years at this type of crossing in accordance with CCE-TMS-380; *Technical Standard for the Management of User Worked Unattended Level Crossings*. At the time of the occurrence the survey had just become due. The survey can be carried out within 8 weeks of it becoming due. The post-incident survey that was undertaken on 2nd of July 2018 was also utilised as the Technical Survey.

10.3.4 Route Inspections utilising the inspection car are required to be carried out every 3 months by the PWI, RM and STSE, and every 6 months by the IM and Chief PWI in line with *CCE-TMS-360; Track and Structures Inspection Requirements*. The records showed that the last inspection car run was undertaken on 15th of June 2018. This was in accordance with the standard. On this run it was noted that the cattle grids were missing and required reinstatement at XA043.

10.4 The history of animal incursions in the area.

10.4.1 From the evidence provided by the CCE Department during the post incident occurrence review, as well as the formal investigation interviews, it was found that there was no records or history of any incidents or animal incursions on the line in this area.

10.4.2 The boundary fencing along the route was also found to be well maintained and secure.

10.5 The train speed and braking performance at the time of the occurrence

10.5.1 The CME technical analysis of the OTDR indicated that moments before the collision the train speed was recorded at 84 mph (134 km/h). This was within the maximum permitted line speed at the location of the occurrence, which was 90 mph (145 km/h).

10.5.2 The deceleration rate of the train, from the time the emergency brakes were applied, was just outside the nominal brake rate. However, it was indicated that the train experienced a significant amount of WSP (Wheel Slip Protection) activity upon collision with the cattle. This was due to the biological substance between the wheels and the rails, and hence, was attributed to the lower than expected deceleration rate.

10.5.3 The CME OTDR technical analysis concluded that the performance of the train was not a contributing factor in the occurrence. There was nothing the Driver could do to prevent the collision. Relevant excerpts of the analysis are included as Appendix B at the rear of this investigation report.

10.6 The reporting and response to the occurrence

10.6.1 When the train came to a stop the Driver immediately contacted the controlling Signalman in CTC and advised him of the occurrence.

10.6.2 All relevant departments were advised timely and had members of staff dispatched to the site as it was anticipated that the response and recovery operation would be difficult and lengthy due to the damage to the train and the circumstances that existed.

10.6.3 The RAIU and the CRR were also notified in the immediate aftermath of the occurrence in accordance with the required reporting procedures.

10.6.4 An Iarnród Éireann Incident Officer (IÉIO) was appointed on arrival at the site and a safe and coordinated recovery followed for over four and a half hours to get the line and train services back to normal operation.

10.6.5 The investigation found no safety issues with the reporting and response to the occurrence in that the management and coordination between the various departments, both on and off site, was effective and the overall recovery of operations went as well as could be expected under the circumstances.

11. Observations and other factors

11.1 The following is a safety observation made by the Investigation Panel over the course of the Investigation. While it was not considered to be a direct cause in the occurrence, it deserved scrutiny as it could have a future impact on safety.

Observation 1

11.2 During the investigation it was noted that some of the risk assessments within the SET New Works Health and Safety Plan for the upgrading of LC XA039 (Meelagans) were dated over three years previous to the works commencing (Feb 2017). Although a site walkout to identify the hazards was conducted for the work planning of LC XA039, there was no reference or record on any of the risk assessments within the Health and Safety Plan that they had been reviewed and updated for the specific works at LC XA039 during 2017. This is an area that should be reviewed. *(The investigation notes that the SET Safety Department has put an action in place to review and address this issue - see section 15 - actions taken).*

12. Competencies of IÉ Staff involved

12.1 **Train Driver**

12.1.1 The Driver involved in the occurrence had over nine years' experience in the train driving grade. His competency records showed that his previous two year assessment cycle commenced on the 29 h of October 2017. He had his previous safety briefing update day on the 2nd of August 2017.

12.1.2 He was last monitored, prior to the occurrence, on the 24th of February 2018 and there were no issues for attention recorded during that time. The Driver was certified as competent at the time of the occurrence.

13. Financial impact as a result of the occurrence

13.1 There were a total of 15 train service delays as a result of the occurrence. This amounted to a total of 893 lost minutes.

13.2 Some passenger trains were either terminated before reaching their destination, or cancelled, and replaced with bus transfers by road. Taxi hire was also required for passengers. Additionally, there was a requirement for staff overtime associated with customer services due to the delays. The costs attributed to this was estimated and broken down as follows;

- Bus hire = [redacted]
- Taxi hire = [redacted]
- Staff O/T = [redacted]

13.3 The financial impact associated with the above was estimated to be = [redacted]

13.4 The CCE Department acquired the services of a contractor to remove the animal carcases from the line. There was also CCE members of staff required on-site for the duration of this and other duties. The direct costs attributed to this were as follows;

- Contractor machinery hire = [redacted]
- Overtime/labour = [redacted]

13.5 The CCE costs associated with the above was estimated to be = [redacted]

13.6 Train A708 (ICR Set 16) was taken out of service and transferred to Laois Traincare Depot for extensive repairs. The CME Department carried out repairs (or replacement parts) to various electrical components and air systems on the ICR, as well as repairs to external panels and body parts on the train set. The reported costs attributed to this were estimated as follows;

- Parts = [redacted]
- Labour = [redacted]

13.7 The CME cost associated with the above was estimated to be = [redacted]

13.8 Based on the above details, the overall direct financial impact as a result of the occurrence totalled = [redacted]

14. Conclusions

The occurrence

At 16:29 hrs on Thursday 28th of June 2018, ten cattle were struck by a train near the 55 milepost (MP) on the Portarlington to Athlone line. The train involved was the 15:35 hrs passenger service from Heuston to Galway, train ID A708.

14.1 Immediate Cause

14.1.1 The Cattle gained access to the railway line at User Worked Level Crossing XA043.

14.2 Causal Factors

14.2.1 The gate to the field on the Down side of Level Crossing XA043 was not secured, allowing the cattle to gain access on to the railway line at the crossing.

14.2.2 The cattle grids on the Down side of Level Crossing XA043 where not in place, allowing the cattle to walk along the railway line.

14.2.3 The cattle grids were not reinstated after they were temporarily lifted to facilitate the placement of ducting to run cables for the upgrading of XA039 (Meelaghans) over twelve months previous. The grids broke up during the lifting and were unable to be reinstated immediately, nor were they subsequently reinstated after it was reported.

14.3 Underlying Causes

14.3.1 A notification was created on the Infrastructure Asset Management System for the cattle grids to be replaced. The notification had been set to 'cancelled' status due to human error. As its status was not fully cancelled, the Permanent Way Inspector continued to reference it on the Patrol Ganger's Weekly reports as if it was active.

14.3.2 The risk assessment, 'Installation of Cable Trench' (*Reference No. RA5943, version 1, 18/03/2016*), did not identify the Hazards or assess the risks associated with the temporary lifting and reinstating of cattle grids at LC XA043 to facilitate the works for the upgrading of LC XA039.

15. Actions taken or in progress since the Occurrence

15.1 The investigation found that there have been five safety actions taken, or in progress, since the occurrence which may have otherwise resulted as recommendations. These are as follows;

Safety Action 1

15.2 The Infrastructure Manager sent a letter to the user(s) of Level Crossing XA043 reminding them of their obligations to use the level crossing safely and drawing their attention to the requirement to shut and fasten the gates after use.

15.3 This action was taken to address Causal Factor 1 in the occurrence.

Safety Action 2

15.4 The CCE Department fitted new cattle grids at Level Crossing XA043 following the occurrence. This work was completed on the 11th of July 2018.

15.5 This action addresses Causal Factor 2 in the occurrence.

Safety *Action 3*

15.6 The Infrastructure Manager (Athlone) conducted a briefing at the Athlone Division Permanent Way Inspectors meeting on the 12 h of September 2018 about the issues of concern regarding the missing cattle grids following the SET/New Works cable works. Additionally, all cattle grids in the Athlone Division were checked and confirmed to be in place by the Chief PWI, Athlone.

15.7 This was an additional safety action taken, addressing Underlying Cause 2 in the occurrence, and to ensure grids at other crossings were in order.

Safety *Action 4*

15.8 The SET New Works Department carried out a review and updated the relevant risk assessments in its work projects with regard to the installation of cable troughing and cable routing through Level crossings. The assessments now include the risks and control measures associated with the lifting of cattle grids at Level Crossings.

15.9 This action addresses Underlying Cause 2 in the occurrence.

Safety *Action 5*

15.10 The SET Safety Department have since reviewed and updated a number of their risk assessments relative to lineside cable installation as well as the installation of cable troughing (September 2018). There is also a plan in place to review all SET risk assessments over the next six months when the Risk Assessment Safety Standard is reviewed and introduces a planned updated Risk Matrix.

15.11 This action addresses the safety observation made during the occurrence (Observation 1, section 11).

16. Recommendations

Note: *In compliance with Section 4.5 of RU/IM-SMS-007, these recommendations are subject to the approval of the RU or IM Safety Review Group and who will make the final determination regarding the recommendations and the allocation of required actions to responsible managers. This information is then recorded on the Accidents / Incidents database.*

The Investigation makes two safety recommendations as a result of the occurrence.

Recommendation 1

The Chief Civil Engineer should arrange for Infrastructure Managers to conduct a risk assessment for the lifting of cattle grids at level crossings. The risk assessments should take account of, but not be limited to, the issues of concern highlighted during this investigation and/or in the event that cattle grids are required to be left out for a period of time during maintenance works.

Reason

(Causal Factor 3, & Underlying Cause 2, in part. Ref. Factors for consideration section 10.2)
Cattle grids can be lifted for various track maintenance reasons including tamping and ballasting work resulting in them being left out of the track for periods of time. As the Level Crossing standard requires them to be in place to deter animals their removal should be subject to risk assessment.

Recommendation 2

The Chief Civil Engineer should arrange to review the process for the cancellation of work orders in the IAMS system with the IAMS Manager. The review should look to identify mitigating actions that could be taken to prevent work orders being cancelled inadvertently.

Reason

(Causal Factor 3, in part, & Underlying Cause 1: ref. Factors for Consideration 10.2; 10.2.5, 6, & 7)
The Cattle Grids were not replaced after it was reported and/or after a notification was entered on the Infrastructure Manager Asset System. The job was hidden after it was given a 'cancelled' status on the system due to human error. If a robust system of periodic checks are put in place and an error is made it will not go for a prolonged period without being noticed and corrected.

17. Signatures

17.1 The Investigation Panel members agree with the body of the report, the conclusions and the recommendations.

Name: [redacted]
Title: Senior Track & Structures Engineer.
Department: CCE, Athlone.

Signature: [redacted]

Date: 28/11/2018

Name [redacted]
Title: Senior Investigator.
Department: AIU, IM Safety.

Signature: [redacted]

Date: 28/11/18

17.2 The remit Issuing Officer accepts the final report and confirms that the remit has been discharged satisfactorily.

[redacted]
Head of Health & Safety - IM

Signature: [redacted]

Date: 30/11/18

Appendix A – Remit

Iarnród Éireann Infrastructure

IM Safety Department
Investigation Remit- Specific
(Issue 1- 12/08/2013)

Occurrence Date	Category	Safety Office Ref	Remit Number	AIMS Reference
28/06/18	B	180628-01	RM-IM-B-18-22	INC-29363
Departments Involved	Infrastructure CCE			
Occurrence	Train collision with cattle at 55 ¼ MP Portarlington/Tullamore near farmer's crossing XA043			

I have appointed [redacted] **Senior Track & Structures Engineer, CCE, Athlone** to lead the investigation into the occurrence described above and to report the findings and recommendations in writing. He will be assisted by;

[redacted] **enior Investigator, IM Safety**

They are empowered to collate all the necessary evidence to establish both immediate and underlying causes, including the interviewing of participants, witnesses, specialists and any other persons who can contribute to the investigation.

The object of this investigation is to determine, not only the immediate causes which led directly to the occurrence, but any underlying technical, ergonomic, organisational or other systemic factors and, thereby, prevent a recurrence. Responses to the occurrence should also be considered, those taken to avoid or mitigate the unfolding events as well as the actions of persons involved in reacting to the outcome and in providing recovery.

If, in the course of this investigation, an unforeseen dimension not covered by this remit emerges, then it must be drawn to the attention of the Issuing Officer, who may decide to revise the scope of this remit.

Issuing Officer	[redacted]
Title	Head of Health & Safety, IM
Signature	[redacted]
Date	4/7/18
Issue	1

IM Safety_Remit_IM18-23_Train collision with cattle at 55 ¼ MP Portarlington/Tullamore Page 1 of 2

Iarnród Éireann Infrastructure

IM Safety Department
Investigation Remit- Specific
(Issue 1- 12/08/2013)

The investigation will: -

1. Establish and record the facts;
2. Obtain evidence from participants and witnesses;
3. Consider factors affecting the;
   - Task being done,
   - People doing it,
   - Equipment being used,
   - Information, Competence, Training, Certification, Experience & Refresher training of the staff involved
   - Other internal and external circumstances,
   - The suitability of the rules and procedures in use;

The specific features of this investigation are;

- How the cattle gained access to the railway line
- Measures in place at the crossing that mitigate the risks of animals accessing the line
- The speed & braking performance of the train at the time of the occurrence
- History of animal incursions in the area
- The reporting and the response to the occurrence

4. Determine the Immediate Cause;
5. Determine the Underlying Causes;
6. Ascertain or, if not possible, estimate the financial impact on the organisation;
7. Recommend actions to prevent a recurrence;
8. Complete fully the relevant investigation forms;
9. Result in a comprehensive written report.

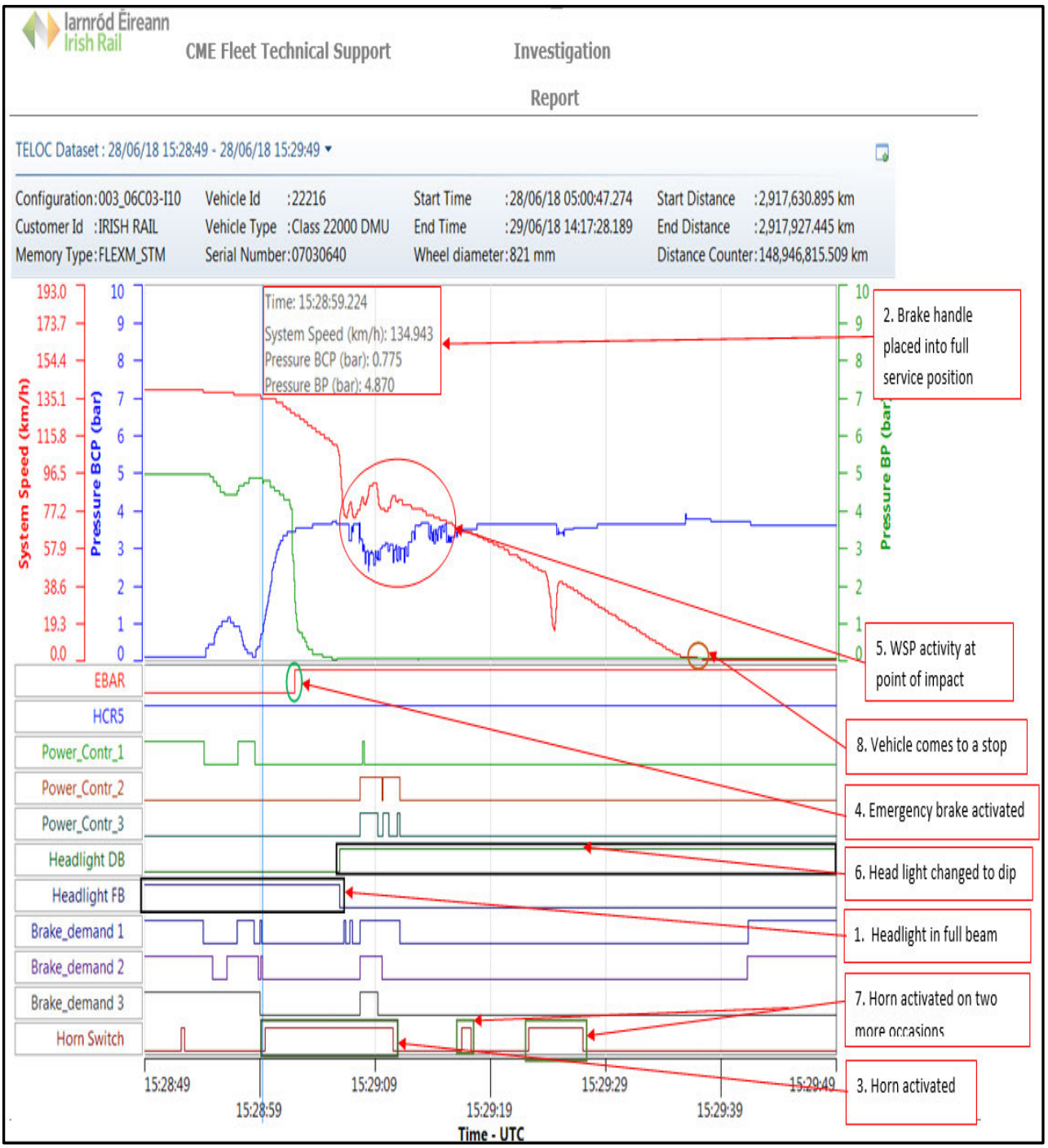
The investigation process must

- Complete interviews with all personnel directly involved within 4 weeks.
- Complete all technical reports and any further evidence within 6 weeks, at which point an interim report should be sent to the issuing officer.
- Issue a final report for acceptance by the issuing officer within 16 weeks.

I accept the final report and consider that this Remit has been discharged to my satisfaction:	
Issuing Officer	[redacted]
Title	Head of Health & Safety, IM
Signature	[redacted]
Date	30/11/18

Appendix B – Excerpts from the CME OTDR analysis

Note: *This section is from 15:28:49 to 15:29:49 and covers the occurrence. The hour difference in time is due to the event recorder time being set to winter time i.e. GMT. During summer time the event recorder time is 1 hour subtracted from normal time.*



The detailed graph above can be read in conjuntion with the following pages explanitory analysis.

6. Analysis

6.1 The information in the factors for consideration shows an overview which can be summarised as follows.

1. The Headlights were in Full Beam at the time of incident.
2. **15:28:59**- 645 meters before the vehicle stops travelling at a speed of 135Km/h the driver places the brake notch controller into the full service position
3. **15:28:59- 15:29:10** – 637 meters before the vehicle comes to a stop travelling at a speed of 135Km/h the driver activates the horn.
4. **15:29:02** - 542 meters before the vehicle comes to a stop travelling at a speed of 126Km/h the emergency brake is applied.
5. **15:29:06**- Deemed the initial point of impact due to the WSP activity (Biological substance between the wheels and the rail).
6. **15:29:06** – 416 meters before the vehicle comes to a stop travelling at a speed of 104Km/h the headlights change from Full beam to dipped beam.
7. The horn is activated again on two occasions
8. **15:29:37**- The train comes to a stop

6.2 The deceleration rate for the train during braking has been calculated at -.99 m/s² see the below calculation.

The calculation is based on a 35.3 second time frame from 16:29:02 to 16:29:37 (time of emergency brake application to when the vehicle comes to a stop).

Using the converter below it can be seen that 126.38 Km/h is equal to 35.1 m/s²

Speed

126.384	=	35.10666667
Kilometre per hour		Metre per second

Calculation:

$$a = \frac{(v - u)}{t}$$

a= Acceleration (m/s²)
v= Starting Velocity (m/s)
u= End Velocity (m/s)
t= Time (seconds)

a= (35.1-0/ 35.3)

a= .99 m/s²

CME-FTS-EDL-036

7. Conclusions

7.1 The deceleration rate of the unit was just outside the nominal brake rate for the units of 1m/s². From the event recorder data graph it can be seen that the vehicle experienced a lot of WSP (Wheel Slip Protection) activity upon collision with the cattle due to the biological substance between the wheels and the rail which would have attributed to the lower than normal deceleration rates.

7.2 The horn was sounded on approach to the incident.

7.3 The headlights were in full beam at the time of the occurrence.

7.4 The performance of the train was not a factor in the occurrence