Appendix F: URS Heath & Safety Documents

ABB Retail Petrol Station Decommissioning

Site Safety Plan - Priory Service Station, Nutgrove Ave., Rathfarnham, Dublin 18

27.09.2007
Final
Issue No 1
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1. INTRODUCTION

1.1. Objective

This purpose of this document is to ensure the safe completion of the environmental investigation and remediation works associated with the decommissioning of retail petrol stations owned or operated by Esso.

This document identifies and assesses the hazards associated with different investigation and remediation tasks and provides mitigation measures to reduce the associated risks. It is intended as a project specific health and safety plan which addresses each of the activities involving URS staff.

This document is designed to supplement the overall site safety plan that has been prepared by the Demolition Contractor/Site Supervisor under CDM regulations.

1.2. Site Location

The site details are:

Site Name: Priory Service Station

Site Address: Nutgrove Ave., Rathfarnham, Dublin 18

The location of the site is shown on Figure 1.

The site is no longer operational, therefore the site contact is Brian Prendergast (087 2520498).

1.3. Site Description

The site is a former retail petrol station.

The general layout of the site is shown on Figure 2.

2. PROJECT SAFETY POLICY

The following is URS Corporate Policy and applies to all projects.

"URS is committed to business practices, operations and projects that protect people and the environment.

The basis for health, safety and environmental programs is that accidents causing injuries or illness to personnel or impacts on the environment are preventable. It is everyone's obligation to prevent accidents and all personnel are expected to conduct business in a manner that actively integrates the elements of the URS Health and Safety Program into applicable aspects of URS operations.

The goal of the URS Health and Safety Program is zero accidents**; therefore, accident prevention continues to be of paramount importance to the firm. To this end, **safety takes precedence over expediency.

URS is committed to compliance with all client health, safety and environmental requirements as well as applicable regulations.

URS has established procedures that provide direction on health and safety matters to all employees. These procedures are periodically evaluated in light of current law, new regulations and emerging industry practices.

Each manager/supervisor has the responsibility through personnel example to create a climate in which everyone shares a concern for their own safety and the safety of their fellow workers."

Martin Koffell, CEO, URS Corporation

3. PROJECT SAFETY FILE

A safety section will be kept in the project file, and will be the permanent record of all safety activities, incidents and related matter, for this project.

The safety section will include the following elements:

- This safety plan with all attachments and figures;
- Record of site safety inductions for all staff;
- Completed pre work safety checklists;
- Completed additional tasks risk assessments;
- Completed accident report forms;
- Any other safety related documentation.

3.1. Induction

All personnel present during environmental site works shall review this site safety plan and shall comply with all requirements.

This review shall include reference to all parts of this plan (including Job Safety Analyses) with emphasis on the task based hazard analysis.

All staff shall sign and date an induction record sheet (see Appendix A).

3.2. Ongoing Compliance

The URS Site Engineer will review the scope of works being undertaken on a daily basis to determine if any revision of this site safety plan is required. This review will include a discussion with the Demolition Contractor Site Supervisor on what other works are being carried out that day

The daily review of works to be completed will be noted on the URS Daily Safety Checklist (see Appendix B).

4. PROJECT STRUCTURE

4.1. Corporate Structure

The following is the structure or chain of command of this project:

- Esso Petroleum Company (Esso) is the Owner of this retail petrol station site and the primary Client.
- ABB Ltd (ABB) has been engaged by Esso to implement and manage the remediation of this retail petrol station site.
- URS Corporation Ltd (URS) is the Environmental Sub-Contractor, engaged by ABB to provide environmental investigation and supervision at the site.
- MSI Ltd (MSI) is the Demolition Contractor engaged by ABB to undertake the physical demolition and remediation of the site.

4.2. Key Personnel

The key project personnel and responsibilities are presented on the matrix below.

4.3. Project Personnel

Personnel	Company	Role	Primary Responsibilities	Contact details
Steve Andrew	ABB	Planning Supervisor Contract Manager	Ensuring works are designed and scheduled in manner to eliminate hazards and minimise risks Ensuring ABB and Exxon requirements are met on site	01642 833 787 (office) 07740 638 740 (mobile)
Brian Prendergast	MSI	Principal Contractor's Site Supervisor	Overall control of all site activities Ensuring safety of staff, visitors and public Communication of hazards to all site staff and visitors	087 2520498 (mobile)
Owen Mills	URS	National Project Manager	Ensuring compliance with URS, ABB and Esso safety standards	00 44 113 242 3779 (office) 00 44 7769 933690 (mob)
Stuart Gray	URS	National Safety Manager	Maintenance of the URS Safety Systems Providing resources, training and systems to allow URS staff to complete all site work safely	01291 621 768 (office) 07778 163 033 (mobile)
Donough O'Keeffe	URS	URS Health & Safety Manager Ireland	Maintenance of the URS Safety Systems in Ireland Providing resources, training and systems to allow URS staff to complete all site work safely	01 4155100 (office) 087 7651652 (mobile)
Edel O'Hannelly	URS	Regional Leader	Ensuring work carried out to the required standard of safety in accordance with the requirements of the URS Safety Management System.	021 450 450 (office) 087 288 7392 (mob)
John Linehan Eilis Finnegan Ryan Rafferty Trent Reed Libby Kiernan	URS	Site Engineer SSO	Implements this site safety plan in conjunction with the site supervisor. Determines that equipment is used properly, calibrated and all results are recorded Provides ongoing review of the protection level needs as project work is performed, and informs the PM or of the need to upgrade/downgrade protection levels as appropriate; Corrects unsafe or potentially unsafe working conditions, or stops work in emergencies until such conditions are correct. Consults with the URS team regarding circumstances.	01 415 5100 (office) 087 288 7395 (mobile) 01 415 5100 (office) 087 939 2074 (mobile) 01 415 5100 (office) 085 705 3786 (mobile) 01 415 5100 (office) 087 687 2690 (mobile) 01 415 5100 (office) 087 338 0041 (mobile)

5. DESCRIPTION OF URS ACTIVITIES

The tasks typically undertaken while URS staff are on site during the demolition and remediation of sites may include the following:

- Mobilisation;
- Pre Work meetings;
- Groundwater sampling
- Observations of UST removal;
- Test Pit Investigations;
- Supervision and Validation of Remedial Excavations.

5.1. Mobilisation

Upon arrival at the site at the start of each workday, ***URS staff will conduct a daily safety check before they commence site work (see Appendix B).***

Any items in an unsafe condition will be rectified or replaced prior to work commencing with remedial actions noted on the rear of the daily safety checklist.

Site works will not proceed until all necessary equipment has been checked and is available for use.

5.2. Pre Work Meetings

Tasks typically completed by URS staff during Pre Start Meetings may include:

- Review of existing environmental reports;
- Review of site boundary drawings;
- Review of underground services drawings; and
- Site walkover.

5.3. Groundwater Sampling

Tasks typically completed by URS staff during groundwater sampling may include the following:

- Checking all wells for the presence of separate phase hydrocarbons;
- Gauging water levels in wells;

- Purging water from each wells; and
- Collection of groundwater samples.

5.4. Observation of Tank Removals

Tasks typically completed by URS staff during the removal of underground storage tanks by the Demolition Contractor may include the following:

- Visual inspection of UST's as removed by demolition contractor
- Recording evidence of hydrocarbon impacts to soil and groundwater;
- Collection of soil samples for environmental analyses.

5.5. Test Pit Investigations

Tasks typically completed by URS staff during the excavation of test pits by the Demolition Contractor may include the following:

- Completing the relevant elements of the underground services check procedure;
- Observing the excavation of test pits;
- Recording observations of soil and groundwater; and
- Collection of soil samples for environmental analyses.

5.6. Remedial Excavations

Tasks typically completed by URS staff during remedial excavations by the Demolition Contractor may include the following:

- Completing the relevant elements of the underground services check procedure;
- Observation of remedial excavations;
- Recording observations of hydrocarbon impact to soil and groundwater; and
- Collection of soil samples for environmental analyses.

6. SITE HAZARDS

Based on the available site information and the works described in the previous section, the following potential hazards have been identified.

- Chemical Hazards;
- Physical Hazards;
- Human Hazards; and
- Biological Hazards.

The mitigation measures required to reduce the risk associated with each hazard are detailed in the Task Hazard Analysis (see section 7).

6.1. Chemical Hazards

The site was operated as a retail petrol station for several years prior to decommissioning.

The following chemicals are typically encountered on this type of site.

- Petrol;
- Diesel;
- Benzene (and other volatile compounds);
- MTBE; and
- Hydrocarbon oils.

The physical properties and characteristics of each chemical are tabulated below.

Contaminant	OEL[II]	TWA[II]	IDLH[III]	UNIT	Symptoms of exposure[1]	Other Comments
Volatile Compounds[2]						
Petrol			Ca		Headache, nausea, dizziness, blurred vision	
Benzene	5	0.1	500	ppm	Headache, nausea, tremors, fatigue	Known carcinogen
Toluene	50	100	500	ppm	Headache, nausea, dizziness & fatigue	Can penetrate intact skin
Ethylbenzene	100	100	800	ppm		
Xylene	N/A	100	900	ppm	Headache, nausea & fatigue	Can penetrate intact skin
Non Volatile Compounds[3]						
PAH	N/A	N/A	N/A	N/A		Present in diesel
Mineral Oil	N/A	N/A	N/A	N/A		Present in diesel
Diesel	N/A	N/A	N/A	N/A	Headache, nausea, dizziness, uncoordination, vomiting	
Used Motor Oil	N/A	N/A	N/A	N/A	Nausea, vomiting, diarrhoea	

I. NAOSH - national authority for occupational safety and health code of practice (2002)

II. NIOSH - 8 hour time weighted average

III. NIOSH - immediately dangerous to life/health.

The above information indicates that benzene is the critical contaminant of concern.

6.2. Physical Hazards

The following physical hazards may be encountered during the works:

Hazards associated with driving vehicles – Access to the site will require driving where road works, heavy traffic, bad weather and poor visibility may be encountered.

Heavy Equipment Operation - Operation of heavy equipment during excavation and tank removal activities presents a potential "run over" or collision hazard to personnel.

[1] Symptoms from NIOSH Pocket Guide to Chemical Hazards.

Underground Services – Excavations may encounter underground services including site facilities (tanks, supply lines) or off-site utilities (e.g. power, gas).

Fire/Explosion – the hydrocarbon products previously stored on site were flammable and the possibility exists for these compounds to be present in liquid or vapour phases.

Overhead Services - Overhead power lines pose a danger of shock or electrocution if the power line is contacted or severed during site operations.

Overhead Hazards – Demolition activities may be underway involving the pulling down of site canopies and/or buildings. The potential exists for tools, equipment or debris to fall to the ground.

Slips, trips and falls – The works will require the breaking out of site surfaces resulting in open trenches, pits, and holes; muddy, slippery or unstable surfaces; and equipment and debris on the ground.

Excavations/Trenches - Open excavations and trenches will be present during the site activities.

Manual handling – The handling of objects such as manhole covers, pumps and hoses pose the potential for back and soft tissue injuries.

Crush injuries – The handling of objects such as manhole covers, pumps and hoses pose the potential for hand and foot crush injuries.

Noise – Site equipment may generate noise levels.

Confined Spaces – Although there is no requirement to enter manholes or tanks, these features are still classified as Confined Spaces.

Poor Light – Staff may be required to undertake works in poor light or conditions of darkness.

6.3. Human Hazards

The following human hazards may be encountered during the works:

Exposure to Climate – Staff may be required to work outside in cold, wet or hot conditions.

Fatigue – Workers may be subject to fatigue (particularly during emergency responses).

6.4. Biological Hazards

The following biological hazards may be encountered during the works:

Exposure to Pathogens – Pathogens such as Lymes disease or Tetanus may be present in soils or drains at the site.

Needles – Discarded hypodermic syringes and other sharps may be present at the site.

Animals – Animals encountered at the site may carry disease (rabbits) or attack (dogs).

7. TASK HAZARD ANALYSIS

A risk assessment has been undertaken for the proposed environmental works that will directly involve URS staff.

This involved assessment of the hazards associated with individual work tasks and identifying mitigation measures that reduce the risk associated with each hazard.

Project personnel should be aware of these general hazards involved with each task and should implement the relevant mitigation measures whenever required.

It is noted that the Demolition Contractor may implement some risk mitigation measures while they occupy demolition sites. For example, the Demolition Contractor typically supplies fencing and barriers, welfare facilities, fire extinguishers, etc.

Other activities shall be undertaken on the site that will not involve URS staff (e.g. demolition). A hazard analysis has not been completed for these tasks as such assessment is the responsibility of the Principal Contractor.

7.1. Risk Assessment Table

The risk assessment completed for the proposed works is tabulated below.

This table identifies hazards associated with particular tasks, the risk level and the relevant risk mitigation measures to be carried out to reduce the risk to a low level.

Hazard	Work Activities where Hazard present	Risk Level	Risk Mitigation Measures
Contact with Buried Services	• Tank Removal • Test Pitting • Remedial Excavation	• High	• Follow excavation procedure (see section 12) • Check with utility companies for underground service plans • Scanning subcontractor to complete full scan for underground services. The lines of services will be marked using paint, etc. The plans arising from this scan shall be reviewed prior to any excavation. This drawing should be minimum A2 size and colour. • All services shall be assumed alive unless proven otherwise • All staff, machine operators and sub-contractors will be fully briefed before they begin work. • Inspect site for evidence of services (e.g. manholes, surface scars) • All sampling locations to be checked by CAT scan in all modes. • If excavation required near services, hand or vacuum excavation to 1.2m depth should be carried out.
Contact with Overhead Services	• Tank Removal • Test Pitting • Remedial Excavation	• High	• Work that will require plant to be in the vicinity of overhead services is to be identified during pre start work meeting • Maintain minimum 7m clearance from any overhead electrical services when lifting or excavating (remember to consider swing arc of boom). • If machinery must be closer than 7m, site supervisor to arrange isolation, goalposts or similar protective measures. • Movements of visiting vehicles and plant are to be controlled. Barriers and warning signs will be continuously monitored to ensure that they remain intact and in place. • If an excavator or other equipment is required to pass beneath protected overhead cables, the driver must get out, look up to assess the power lines and then proceed with care.

Hazard	Work Activities where Hazard present	Risk Level	Risk Mitigation Measures
Contact with Plant	• All tasks	• High	• Ensure site is securely fenced and gates are closed • Use barriers and cones to clearly mark out work areas where machinery working • Unload/back machinery under supervision of banksman • Brief operator/supervisor on environmental requirements before commencing work • Personnel shall remain in the field of vision of machine operators while machinery is moving. • Only approach machinery when operator gives signal. • High visibility vest to be worn. • Maintain safe distance from all plant (check swing arc).
Collapse of Excavation	• Tank Removal • Test Pitting • Remedial Excavation	• High	• Excavations to be located/orientated to minimise undermining of structures. • Evaluate ground conditions from existing reports before excavation commences. • Limit the dimensions of excavations to minimum required to meet project objectives (e.g. test pits 1m x 2.5m) • During excavation of test pits, barriers to be used on at least 2 sides (i.e. barricade sides away from excavator and spoil heap). • All staff to stand outside barriers and spoil heap • No sampling from excavation, sample from spoil heap or bucket instead. • Be aware of any evidence of collapse (i.e. tension cracks) • Spoil and materials will be stacked back from the edges of excavations • Backfill excavations as work progresses (do not leave open unless absolutely necessary) • All excavations left open to be fully enclosed by site fencing • Backfill and compact all excavations to leave a level and firm surface.

Hazard	Work Activities where Hazard present	Risk Level	Risk Mitigation Measures
Contact with Contaminated Materials (Liquid and Solid Phase)	• All site activities	• Medium	• Minimise contact with contaminated materials through the use of tools and equipment (e.g. bailers). • Wear appropriate PPE (see section 10). • All solid waste arising from works (including disposable PPE) will be disposed appropriately (this may require waste classification to be completed if potential exists for haz waste). • Staff shall follow personal decontamination procedures prior to leaving site (see section 13). • No drinking, eating or smoking within the work area. Drinking, eating and smoking shall only be allowed after the removal of PPE and personal decontamination. • In the event that the presence of unknown substances is suspected or observed, unknown odours are experienced, or unusual symptoms are experienced (such as headache or nausea), work should be suspended, the work area evacuated immediately and the project team notified.
Contact with Contaminated Materials (Vapour Phase)	• All site activities	• Medium	• Wear appropriate PPE (see section 10). • Conduct ongoing monitoring for presence of vapours using calibrated PID • If PID reading exceed action levels, stop work and retire to allow vapours to dissipate, review work methods • If possible, stand upwind of potential sources, test pits, etc • Breathing zone of staff to be kept away from potential sources (i.e. don't bend down and place head in or near tank opening, do not sniff soil). • In the event that the presence of unknown substances is suspected or observed, unknown odours are experienced, or unusual symptoms are experienced (such as headache or nausea), work should be suspended, the work area evacuated immediately and the SSO notified

Hazard	Work Activities where Hazard present	Risk Level	Risk Mitigation Measures
Fire/ Explosion	• All times	• Medium	• Diesel powered equipment should be used in preference to petrol driven machinery. Petrol driven equipment has more potential to act as an ignition source. Petrol driven machinery that is required on-site should be fitted with spark arresters. • Ignition sources of any kind (including non-intrinsically safe electrical equipment and mobile phones) shall not be permitted on site. • No smoking or naked lights on the site. • Keep Fire Extinguishers (Type B (E) Dry Chemical) on site. • Confirm location of emergency stop / power mains supply switch if available
Slips, Trips & Falls	• All site activities	• Medium	• Be aware of condition of site, scan for trip hazards before entry • Don personal safety boots before entering site • Limit hoses, tools and other trip hazards to minimum required. • Equipment not in use should be stowed on vehicles. • Be aware of kerbs and debris, step over or walk around • Be aware of slippery conditions when if wet. • All equipment will be placed in vehicle or treatment plant when not in use. • Staff shall ensure that site is in safe condition, including: o All manholes and hatches securely in place. o All excavations backfilled or fenced. o No sediments or wastes are present at the surface.
High Noise	• Breaking out concrete • When heavy equipment in use	• Medium	• Be aware that site equipment or site activities may produce elevated noise levels under certain conditions (e.g. breaking out concrete). • Foam earplugs or defenders are to be available on site.
Manual handling issues (e.g. back injury)	• All site activities	• Medium	• Be aware of potential back injuries; use correct procedures for lifting, bending and handling equipment. • Lifting irons and bars are to be used for lifting manhole covers x. • If difficulty arises in opening a jammed manhole, assistance will be sought from the second person on site to loosen and lift the cover.
Biological Hazards	• All site activities	• Medium	• Ensure all cuts, abrasions, etc are treated as soon as they occur, are kept covered and kept clean. • Wash hands before eating, drinking or leaving site.

Hazard	Work Activities where Hazard present	Risk Level	Risk Mitigation Measures
			• If staff should fall ill during or after the Site work period, the nature of the work undertaken will be brought to the attention of their GP.
Proximity to confined space	• All site activities	• Low	• Excavations, manholes, tanks and chambers should be regarded as confined spaces. • Do not enter any confined space • Do any inspection or work from outside of manholes or chambers (i.e. reach in with tools). Reaching into these spaces is allowed, as there is no risk of entanglement, collapse or entrapment. However, the personal breathing zone of staff to be kept away from hatch of collection vessels
Crush Injuries	• All site activities	• Low	• When opening manholes, use appropriate lifters or similar tools • Body parts (including hands and feet) should never be placed between under manholes or similar heavy items. • Care to be taken when opening and closing manholes to ensure body and tools are clear of pinch points.
Overhead Hazards	• During demolition	• Low	• While work is being carried out on canopy and similar high structures, URS staff shall stand well clear • When tanks and other equipment is being lifted by mobile plant, URS staff shall stand well clear. • During test pitting and excavation, staff shall remain outside the swing arc of mobile plant. • All staff shall wear hard hats.
Unauthorised people entering site (Security)	• All site activities	• Low	• Staff shall ensure that gates are closed and locked (unless gates are under fulltime supervision). • Be aware of higher level of personal security during darkness. • Lock gates when working to prevent unauthorised entry. • Contact Security Company or local Police in event of security issue arising.

Hazard	Work Activities where Hazard present	Risk Level	Risk Mitigation Measures
Vehicle Accident	• Driving to site • At site	• Medium • Low	• Complete daily safety checklist. • Vehicles shall be roadworthy and in good mechanical order. • Vehicles shall will be taxed and insured in accordance with legislation. • Seat belts shall be worn at all times. • Driver shall be fully licensed and comply with all relevant driving and safety regulations. • Driver shall not operate vehicle when fatigued or under the influence of alcohol or medication. • Driver to ensure that all equipment is securely stowed before travel. • Road rules to be obeyed at all times; do not speed or drive overloaded vehicle. • Individuals operating a vehicle will not be permitted to use mobile phones while vehicle is moving. • Vehicle to be parked outside of the site well clear of site gates.
Exposure to Climate	• All site activities	• Low	• Ensure dressed appropriately for prevailing conditions • Adequate food and drink to be available following personal decontamination (see Section 13)
Fatigue	• All site activities	• Low	• Special attention should be paid to fatigue. • Take adequate rest and meal breaks. • Do not drive or operate machinery when fatigued.
Poor Light	• All site activities	• Low	• Work at night is not to be undertaken unless authorised by Project Manager. • Ensure all site compound lighting is functioning. • Additional temporary lighting should also be available (e.g. torches).

7.2. Risk Assessment of Additional Tasks

URS may be requested to carry out occasional tasks that fall outside the scope of work and risk assessments described above.

If activities not addressed by this document are required, there shall be prior consultation with the URS Project Manager and Safety Manager and a revised risk assessment for the additional tasks can be completed.

For one-off minor tasks (e.g. less than 1 day), this risk assessment may be documented in an Additional Task Risk Assessment Form.

These Additional Task Risk Assessment forms ***(see Appendix D)*** may be used to assess risks associated with one-off additional tasks and describe the relevant risk mitigation measures

8. IMPLEMENTATION OF LOSS PREVENTION SYSTEM

URS is implementing the Esso Loss Prevention System (LPS) on this project.

LPS training is being gradually rolled out to URS project staff and selected subcontractors.

Two key elements of the LPS system that will be completed as part of the requirements of this site safety plan are the Job Safety Analysis and the Self Performance Self Assessment.

8.1. Job Safety Analysis

A Job Safety Analysis (JSA) shall be completed for each major task undertaken by URS or our subcontractors.

The format of the JSA shall be in accordance with templates supplied by ABB.

URS staff and subcontractors shall review and update (if required) relevant JSA's as part of the site induction recorded in **Appendix I**.

JSA's shall be documented and included in the project safety file.

8.2. Self Performance Self Assessment

URS staff and subcontractors shall complete a Self Performance Self Assessment (SPSA) prior to starting each work tasks.

The SPSA is a form of last minute risk assessment to assess risks associated with the task to be completed, analysing how o reduce the risk and acting to ensure that the work is to be completed safely.

The process of completing an SPSA is recorded on a prompt card that is issued to all LPS trained staff and should be held on site (***See Appendix H***).

Completion of a SPSA is not documented.

9. GENERAL SITE RULES

- The Demolition Site Supervisor shall induct all URS staff and sub-contractor at the start of their first visit.
- The Demolition Site Supervisor must be present during all works.
- The site gates or similar access shall be kept shut and locked unless under direct supervision.
- No mobile phones are permitted in work areas. Mobile phones may only be stored and used in the site office.
- Eating, drinking and chewing gum are prohibited in the contaminated or potentially contaminated area. These activities are only permitted in the site office.
- Personnel will wash their hands and faces thoroughly with soap and water prior to eating, drinking, or smoking.
- Smoking is prohibited in all areas of the site. No matches or lighters are permitted on the site.
- Alcohol consumption is prohibited during work hours. Excessive drinking is strongly discouraged at all times while the team is in the field. Use of prescription medications that impair judgement or affect motor skill and all illegal drugs are also prohibited.
- Personnel will avoid contact with potentially contaminated substances. Do not walk through puddles, pools, mud, etc. Avoid, whenever possible, kneeling, leaning, or sitting on contaminated surfaces. Do not place monitoring equipment on potentially contaminated surfaces (i.e., the ground, etc.)
- All field staff should remain alert to potentially dangerous situations in which they should not become involved (i.e., note the presence of strong, irritating, or nauseating odours, etc.).
- Only those vehicles and the equipment required to complete work tasks should be permitted within the site (e.g. excavators). URS staff should only drive onto site to deliver and/or pick up equipment and shall do so only with the permission of the Demolition Site Supervisor. All non-essential vehicles should remain off-site
- Contaminated protective equipment, such as respirators, hoses, boots, and disposable protective clothing, will not be removed from the site or decontamination area until it has been cleaned or packaged for disposal.
- Splashing of contaminated materials should be prevented.

- Field crew members should be familiar with the physical characteristics of the site operations including:
  - Accessibility to equipment and vehicles;
  - Wind direction in relation to the contaminated area;
  - Areas of known or suspected contamination;
  - Site access; and
  - Nearest water sources.
- All wastes generated by URS activities at the site will be placed in skips, bags or bins for appropriate off-site disposal.

10. PERSONAL PROTECTIVE EQUIPMENT (PPE)

The following personal protective equipment (PPE) shall be worn during site activities:

At all times

- Hard hat;
- Safety shoes or boots (protective cap and midsole to BS EN 345 or international equivalent);
- Work garments with long sleeves and long pants (i.e. arms and legs covered); and
- High visibility jackets or vest.
- Safety Goggles

When opening hatches and manholes

- As above; plus
- Heavy-duty rubber or similar gloves.

When exposed to potentially contaminated water (e.g. gauging water levels)

- As above; plus
- Heavy-duty rubber or similar gloves.

When supervising the breaking out of sealed surfaces (e.g. breaking out concrete)

- As above; plus
- Hearing Protection; and
- Safety glasses (to BS EN 166 or international equivalent).

The above items of PPE are standard equipment issued to all staff.

All PPE shall be marked with the CE European standard mark.

The standard PPE shall be donned prior to the activities described above and prior to entering the work zone if works have commenced.

Hearing protection will be available when working in high noise environment (for example during pump operation). As a general rule, if normal conversation can't be heard 500mm away due to high noise, hearing protection should be worn.

11. CONTROLLING EXPOSURES TO CHEMICALS

11.1. General

Engineering controls and safe work practices (e.g. elimination of the source of contamination, ventilation equipment, working upwind, limiting exposure time) must be the primary control for air contaminants.

On this project, exposure to chemical in solid, liquid and vapour phase may be expected.

The following measures help minimise the inhalation (breathing), ingestion (through the mouth), skin absorption or injection (breaking through the skin) of chemical compounds.

- Minimise contact with contaminated materials (e.g. use PID to screen rather than "sniff" samples);
- Uses appropriate PPE to prevent contact with contaminated materials; and
- No drinking or eating within the work area (drinking and eating shall only be allowed in the mess area after the removal of PPE and personal decontamination).

The potential for exposure to chemical vapours is greatest in excavations, vessels and similar unventilated spaces. Under no circumstances should any excavation, manhole, vessel or other confined space be entered during these works.

All staff should ensure that their personal breathing zones are kept away from manholes or vessel openings (i.e. keep head well clear of these openings).

In the event that the presence of unknown substances is suspected or observed, unknown odours are experienced, or unusual symptoms are experienced (such as headache or nausea), work should be suspended and the emergency procedures followed (see Section 16).

Be aware of dust levels. If excessive dust is generated during the works, staff may wear a dust mask.

Be aware for potential asbestos hazard (e.g. fibrous materials). If encountered stop work and notify site supervisor and URS project manager

11.2. Monitoring For Vapours

URS staff will undertake occasional monitoring for volatile organic vapours in the breathing space of site staff. These monitoring results will be used to evaluate any recommended changes to work practices.

The monitoring equipment must be calibrated in accordance with the manufacturer's instructions and noted in the field book or on the Pre work checklist. Action levels and response criteria are presented below. Initial monitoring is conducted on a regular basis in the work area. All readings are to be recorded in the field book.

ACTION LEVEL	TIME PERIOD	ACTION
1 ppm 15 ppm	15 minutes 1 minute	Stop work; retire from source area to allow vapours to dissipate. If vapours do not dissipate, contact project manager to review field procedures and health and safety plan.

12. EXCAVATION SAFETY

The following procedure shall apply for the excavation of test pits and remedial excavations.

12.1. Underground Services

Prior to commencement

- The site supervisor and URS staff shall review the all available information sources concerning underground services. These sources shall include utility company drawings and the scanning company service drawing.
- The scanning company drawing should be at least A2 size and in colour.
- All services shown on drawings should be treated as live until confirmed otherwise.
- The site supervisor will scan the entire site with a CAT using all three modes if possible. Any discrepancy with available drawings will be noted and excavation will not commence until discrepancy is rectified.
- All service location should be marked with paint.

Prior to excavation at a given location

- The footprint of the excavation shall be CAT scanned
- Concrete or other surface shall be broken out
- The footprint of the excavation will be CAT scanned again. Any suspect signals should be investigated by hand digging
- All staff shall be aware for evidence of underground services. This evidence may include presence of backfill, bedding materials or warning tapes.

12.2. Excavation Safety

Prior to excavation, the Site supervisor shall barricade the working area and erect safety signs.

Most excavations will be carried out using mechanical tracked excavators; any breaking of concrete or similar surfaces will be carried out using machine mounted hydraulic breakers

The excavator will set spoil to one side of the excavations to allow access around the excavation and to minimise potential for collapsing the excavation

The following guidelines will apply to limit the potential for collapse of excavations:

- Excavations will be located/orientated to minimise undermining of adjacent structures.
- Ground conditions and potential stability issues will be assessed from existing reports before excavation commences.
- Limit the dimensions of excavations to minimum required to meet project objectives (e.g. test pits 1m x 2.5m)
- During excavation of test pits, barriers should be used on at least 2 sides (i.e. barricade sides away from excavator and spoil heap).
- All staff should stand outside barriers and spoil heap
- Staff shall not enter any excavations. Samples shall not be collected directly from the excavations, sample from spoil heap or bucket instead.
- Be aware of any evidence of collapse (i.e. tension cracks)
- Backfill excavations as work progresses (do not leave open unless absolutely necessary)
- All excavations left open to be fully enclosed by site fencing
- Backfill and compact all excavations to leave a level and firm surface.

12.3. Safety around Heavy Plant

Operation of heavy equipment during excavation activities presents a potential "run over" or collision hazard to personnel. The hazards associated with heavy equipment can be effectively eliminated if personnel maintain a constant visual or verbal contact with the equipment operator.

Never assume that the equipment operator sees you; make eye contact and use hand signals to inform the operator of your intent.

Never walk directly in back of, or to the side of, heavy equipment without the operator's knowledge.

On the site, other plant and motor vehicles may be a hazard. Be aware of the movements of vehicles onto and off the site.

13. DECONTAMINATION

13.1. Personal Hygiene

The Demolition Contractor will provide a site compound that includes office/mess room, wash facilities and toilet.

Potable water is available on site from the source indicated by the Demolition Contractor.

Soap and disposable towels are kept in the site compound.

Only water supplies and toilets provided as part of site compound shall be used, do not use facilities inside station buildings.

13.2. Personal Decontamination

The following steps will be followed before site staff eat, drink or leave the site.

- Wash or remove boots. Scrub boots with a stiff bristle brush and water if required.
- Remove gloves.
- Remove coveralls if worn.
- Remove hardhat and eye protection.
- Wash hands, wash face if required.

13.3. Equipment Decontamination

When all work activities have been completed, any tools or equipment that may have been in contact with contaminated materials will be appropriately decontaminated or properly disposed of.

It is expected that all tools will be constructed of non-porous, non-absorbent materials. This will aid the decontamination process. Any tool or part of a tool that is made of a porous/absorbent material will be discarded and disposed of as a waste if it cannot be properly decontaminated.

14. MANUAL HANDLING

Care will be taken at all times during lifting operations including the opening of manhole covers and access hatches.

All site staff shall be trained in these safe lifting procedures.

The procedures include the following.

- Get help when lifting heavy loads. Lift items of more than 20kg using a two-person lift.
- When moving heavy objects, such as manhole covers, use a mechanical means of assistance such a manhole lifter.
- Plan the lift. If lifting a heavy object, plan the route and where to place the object. In addition, plan communication signals to be used (i.e., "1,2,3, lift," etc.)
- Wear safety shoes or boots that are in good condition and supply traction when performing lifts.
- Keep your back straight and head aligned during the lift, and use your legs to lift the load – do not twist or bend from the waist. Keep the load in front of you – do not lift or carry objects from the side.
- Keep the heavy part of the load close to your body to help maintain your balance.

15. TRAINING

As the works on the site may continue over a period of several weeks, the possibility exists that a number of different site staff will work at the site.

The Site Supervisor must induct all URS staff on their first visit to the site.

URS staff undertaking site works should be trained as follows:

- URS 24 hour Hazardous Site (or equivalent);
- URS 8 hour Hazardous Waste Refresher (completed within the previous year);
- Induction to this Site Safety Plan;
- Loss Prevention Systems Induction;
- Manual Handling Procedures;
- CAT scanning;
- Safe Pass or UK equivelant.

The URS Regional Leader shall be responsible for ensuring all site staff have completed this training prior to undertaking work at the site.

16. EMERGENCY PROCEDURES

16.1. Emergency Equipment

The following emergency equipment is available at the site. The location of this equipment shall be pointed out to all staff during initial site induction.

Fire Extinguisher

A fire extinguisher will be located inside the Demolition Contractors site compound.

Only attempt to fight fire if safe to do so and an escape route is available.

In event of any fire, notify local fire brigade.

Eye Wash

A bottle-type eyewash or potable water supply is located in the site compound.

In the event of a contaminated water or foreign object entering a workers eye, they will use the bottle wash or potable water to rinse the eye thoroughly.

Medial advice should be sought immediately if eye irritation persists following rinse.

First Aid Kit

First aid kit is located inside the site compound.

This kit should be used to ensure all cuts and abrasions are cleaned and covered immediately.

Medical advice should be sought following initial first aid if the injury is more serious than a simple cut abrasion or similar superficial injury.

16.2. Emergency Procedures

An emergency is defined as an unexpected or uncontrolled event that causes personal injury and/or damage to the facility.

Emergencies may include personal injury, car accident, fire, explosion or an uncontrolled chemical emission.

The following procedure should be followed in the event of an emergency:

- All work shall cease immediately and the site supervisor informed.
- Other occupants of the site shall be informed of the nature of the emergency (due to the small size of the site this can be done verbally).

- In the event of fire, extinguishers may be used only if safe to do so and only if a clear escape route is available.
- If an immediate danger to personnel exists, the site shall be evacuated to the nominated assembly point.
- If an injured person can be removed from immediate danger without risk of further injury to the injured person and other personnel, then this should be done.
- The Site Supervisor shall ensure that the appropriate emergency services are contacted immediately.
- The Site Supervisor shall arrange the transport of any injured persons to the nearest hospital.
- When all emergency actions have been taken and it is safe to do so, the site staff shall notify the URS and ABB project contacts (see section 16.3).

The emergency assembly point shall be outside the main gate of the site. This location shall be pointed out to staff during induction.

Following an emergency situation, works will not recommence until authorised by Site Supervisor.

16.3. Emergency Contacts

In emergency, contact Fire Service/Police/Ambulance by dialling 999

Agency	Contact	City	Telephone Number(s)
Fire Brigade	Emergency Services	Dublin	999 or 112
Petroleum Officer	Dun-Laoghaire-Rathdown County Council	Level 3, County Hall, Marine Road, Dun Laoghaire	01 205 4700
Police	Emergency Services	Dublin	999 or 112
Ambulance	Emergency Services	Dublin	999 or 112
Hospital	St. Vincent's University Hospital	Elm Park, Dublin 4	01 2774000

The Project Team contacts are listed in Section 3.5 of this site safety plan.

16.4. Nearest Emergency Hospital

The nearest hospital with an emergency department is St. Vincent's University Hospital, Elm Park, Dublin 4.

Map and directions held in site office.

The route to the hospital is shown on Figure 3.

The telephone number for the hospital is +353 1 2774000.

16.5. Reporting of Accidents and Emergencies

All accidents, emergencies, dangerous occurrences and near misses shall be reported, in the first instance, to the URS Project Manager by the URS Site engineer.

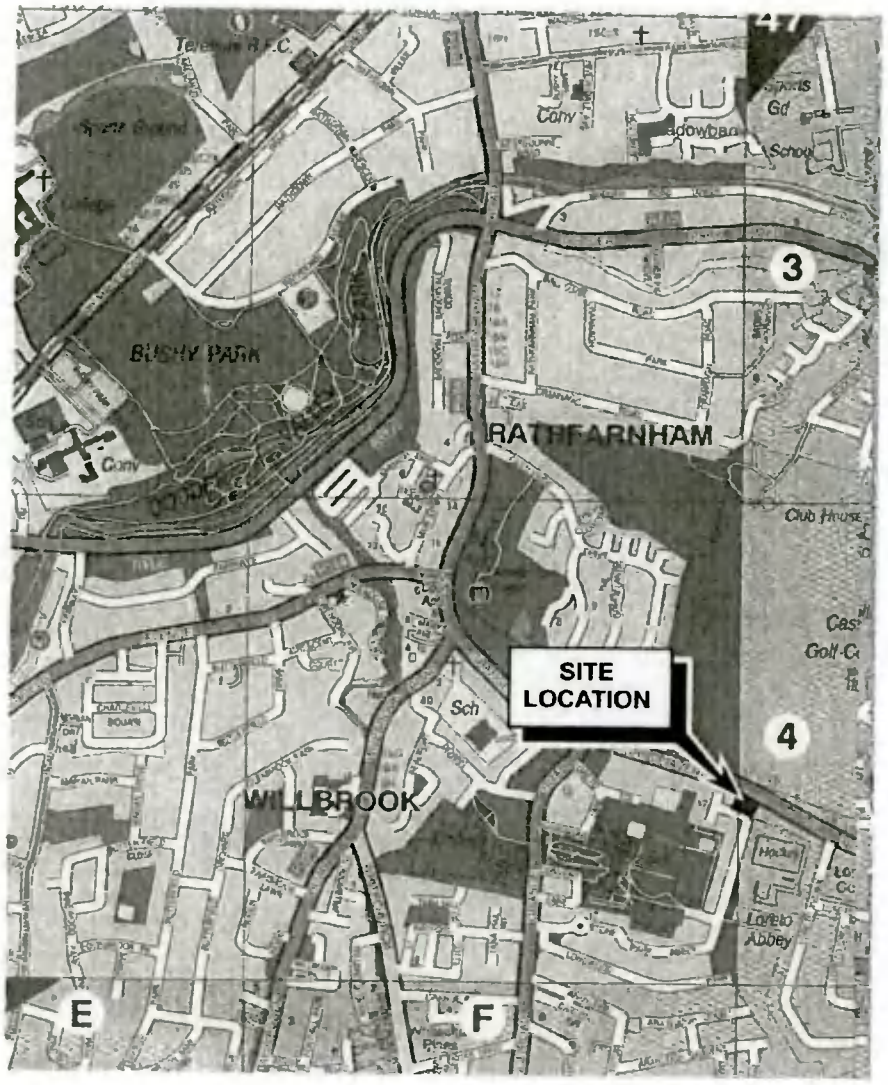
The URS Site Engineer shall be responsible for completing and submitting URS and Esso accident report forms (see Appendix F), which will then be forwarded to the Project Manager for review.

The Project Manager shall also be responsible for passing all relevant information to the URS Regional Health and Safety Manager in the event that the Regional Health and Safety Manager has to report an incident to the Health and Safety Executive.

Figure 1 - Site Location

North

N
W
E
S



0 m — 750 m

CLIENT
ABB LTD.

PROJECT LOCATION
ENVIRONMENTAL SITE ASSESSMENT
PRIORY SERVICE STATION
NUTGROVE AVENUE, RATHFARNHAM, DUBLIN

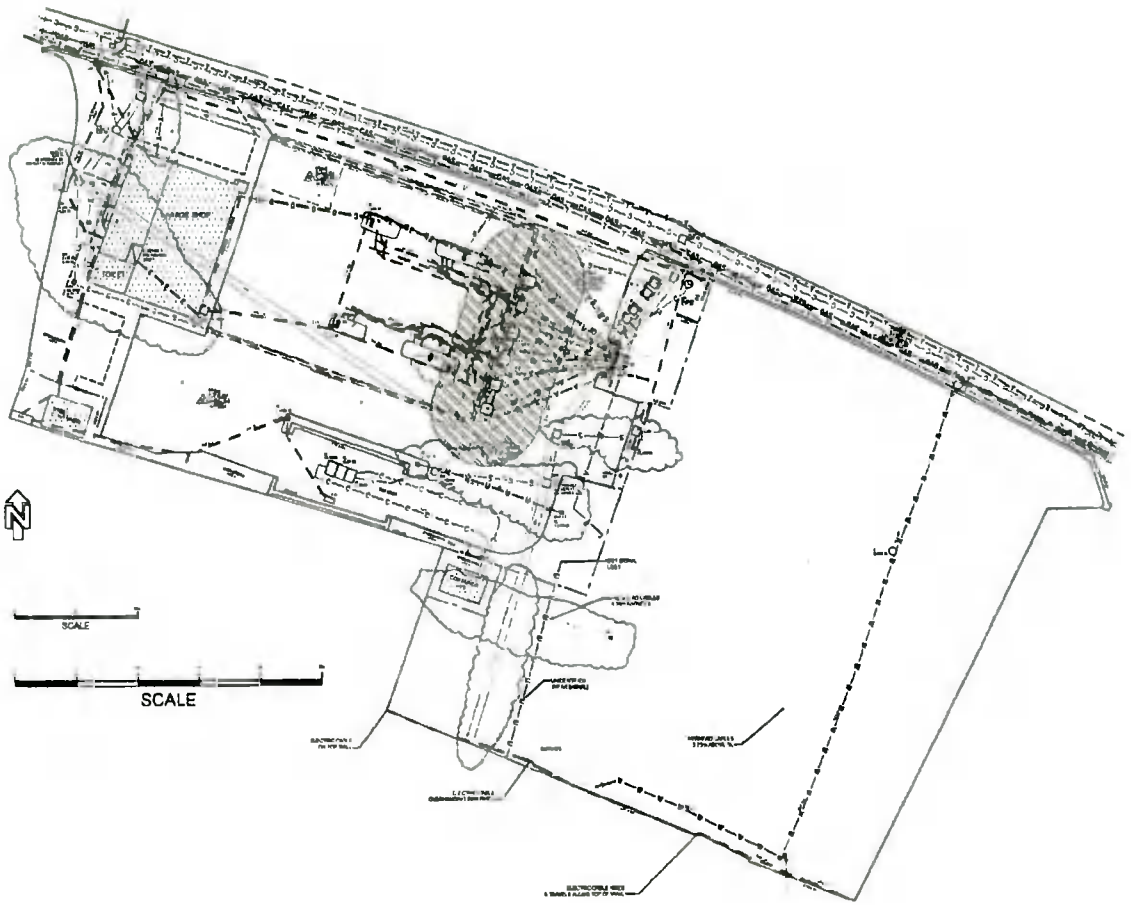
DRAWING TITLE
FIGURE 1 - SITE LOCATION PLAN

ENVIRONMENTAL CONSULTANTS
URS
Iveagh Court, 6–8 Harcourt Road, Dublin2
TEL +353 1 4155100 FAX +353 1 4155101

DRAWN	TRACED	CHECKED	APPROVED	DATE
HG		CG	CGDUB	10.05.06
SCALE	Job No.			REV.
1:15,000	45078281			A

Figure 2 - General Site Layout

NOTES:
All pumps removed
Strong sense of petrol fumes
from tanks 3, 4 & all culvert MH's
Water plastic UTT
Read in conjunction with
Esso Drawing PRI-10
PHASE 2:
Read in conjunction with existing records.
All fuel pipes have been capped.
No evidence of culvert in manhole to the West of the garage/shop and culvert in manhole to the east of fuel tank 1.
PHASE 3:
Additional subscan of central location south of the site (south of container UTS)
Subscan completed on 15.01.08, by Geomatic Solutions



KEY

- FUEL LINE - PETROL
- FUEL LINE - DIESEL, KERO OR PARAFFIN
- ELECTRICITY CABLE
- HIGH VOLTAGE ELECTRICITY CABLE
- TANK GAUGE LINE OR COMMS CABLE
- OFF-SET FILL
- VENT PIPE
- OIL PIPE
- TELECOM CABLE
- BT CABLE
- CABLE TELEVISION
- GAS
- WATER SUPPLY PIPE
- FOUL WATER DRAIN
- SURFACE WATER DRAIN
- COMBINED DRAIN
- UNIDENTIFIED - SEE NOTES
- OVERHEAD SERVICE
- END OF TRACE
- BUILDING
- CANOPY OUTLINE
- MANHOLE
- PILLAR
- DO NOT DRILL
- CRITICAL AREA
- SCAN OUTLINE
- TANK * - W=WATER F=FOAM P=PRODUCT U=UNKNOWN C=CONCRETE
- BOREHOLE LOCATION
- TRIAL PIT LOCATION

TRACE CODES

TPS	Trace Is From Source to destination with visual evidence to confirm
SDC	Sources and/or Destination are Concealed
WS	Weak Signal / high interference
VA	Visual Assessment (line of site perhaps scarring)
LA	Logical Assumed (source & destination exist, line added without trace)
TFR	Taken From Records
AEE	Anything Else Encountered

ABBREVIATIONS

EC	Electricity Cover	VP	Vent Pipe
EOT	End of Trace	FH	Fire Hydrant
G	Gully	WSV	Stutzo Valve
IC	Inspection Cover	WM	Water Meter
LC	Lighting Column	UTT	Unable To Trace
MH	Manhole Cover	EP	Electric Pole
OSA	Off Survey Area	TP	Telegraph Pole
RE	Rodding Eye	CP	Catch Pit
UTS	Unable To Survey	P	Post
SP	Sign Post	ACU	Air Conditioning Unit

INTERCEPTOR DETAILS

Type	Condition	Size	Material	Depth
3 Stage	Good			2.65m

TANK DETAILS

Tank No.	Fuel Type	Capacity	Feed To Pumps
1	LRP / UL	20,000 Litre	3 4 7 & 8
2	UL	20,000 Litre	1, 5 & 6
3	UL	20,000 Litre	3 4 7 & 8
4	UL	20,000 Litre	1,2,5 & 6
5	UL	20,000 Litre	1,2,3,4,5,6,7 & 8
6	Diesel	20,000 Litre	9,10,11 & 12

CLIENT:
URS Ireland Ltd
Euro Business Park
Little Island
Cork

Robust Phase 2

SITE:
Priory Service Station
Mulgrave Avenue
Rathfarnham, Dublin

DISCLAIMER: This drawing has been produced by 40Seven primarily for the safe location of exploratory ground investigation holes. The location of underground services shown on this drawing has been determined using electro-magnetic techniques and visual observations. The limitations of this drawing should be realised and no guarantee can be given that all services have been identified. This drawing does not include the location of all public services that may cross the site and the relevant service drawings should be obtained from the appropriate utility company and used in connection with this drawing. Additional services, structures or other below ground obstructions not indicated on this drawing may be present on site. Reference should be made to historical plans and as built drawings.

40SEVEN

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SURVEY DATE:	02.10.2007
DRAWN BY:	TR
APPROVED BY:	PT

Figure 3 - Route to Hospital


DUBLIN HARBOUR
Ringsend
Irishtown
Sandymount
Ballsbridge
Donnybrook
Clonskeagh
Merrion
Booterstown
Blackrock
Windy Arbour
Ballinteer
Churchtown
Willbrook
Dundrum
Ballybodden
Ballintoch
Clarkstown
Kilmacud
Stillorgan
Deansgrange
Rathmines
Rathgar
Terenure
Kimmage
Harolds Cross