900006 Pt3.

CSI Brisbane

Corner Scrub Road & Cribb Road

Lot 1 RP848100

Edwards Property

Hollingsworth Dames & Moore

Queensland Department of Environment and Heritage

RTI DL RELEASE - EHP

DECT

F0031157

Offsite Storage File

Iron Mountain

Return to Recrods Management Services.

For records use

Keywords

Disposal action

Active | S/Storage | Archive | Destroy

FM 191

CSI Brisbane

Corner Scrub Rd & Cribb Rd

Lot 1 RP848100

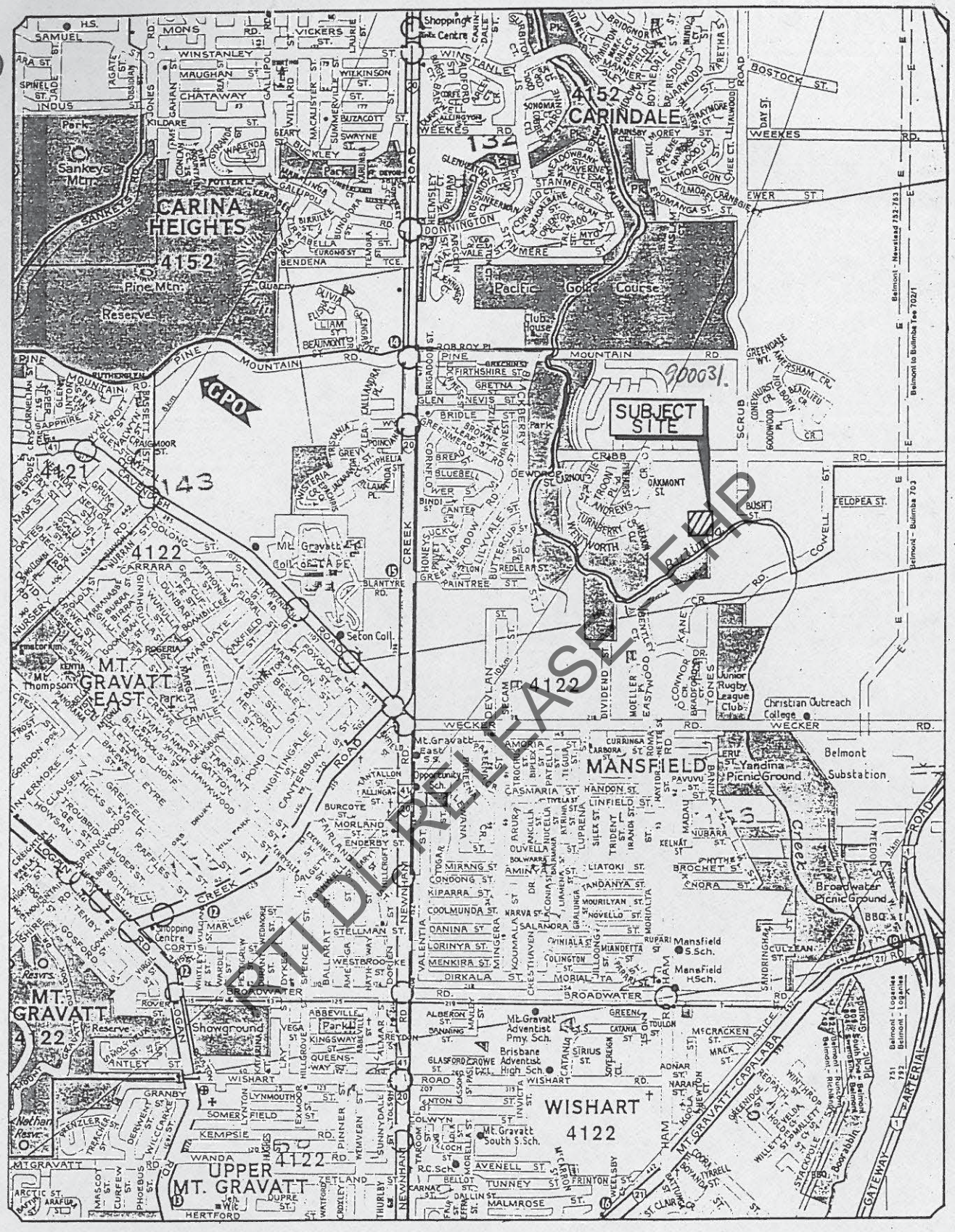
Edwards Property

Hollingsworth Dames & Moore

900006 Pt3

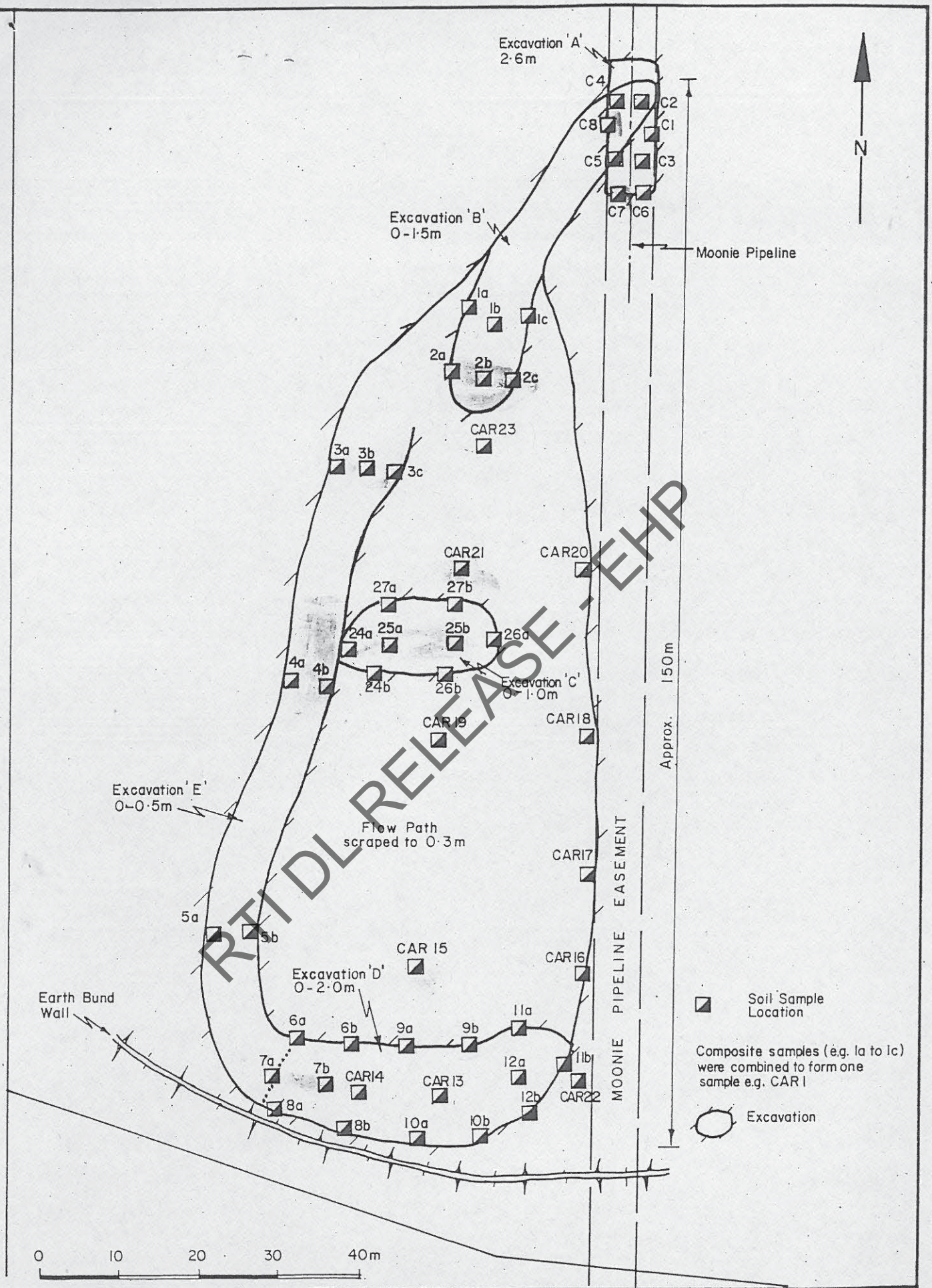
RTI = 13-023

Release



RTI DISCLOSURE

LONDY'S CONSTRUCTIONS CLEAN UP & VALIDATION, CRUDE OIL SPILL, CARINDALE HEIGHTS ESTATE, CARINDALE	LOCATION PLAN
DAMES & MOORE	October 1993 23454-004-366
	FIGURE 1



RTI DL RELEASE - EHP

LONDY'S CONSTRUCTIONS
CLEAN UP & VALIDATION, CRUDE OIL SPILL,
CARINDALE HEIGHTS ESTATE, CARINDALE

SITE LAYOUT & SAMPLING LOCATIONS

DAMES & MOORE

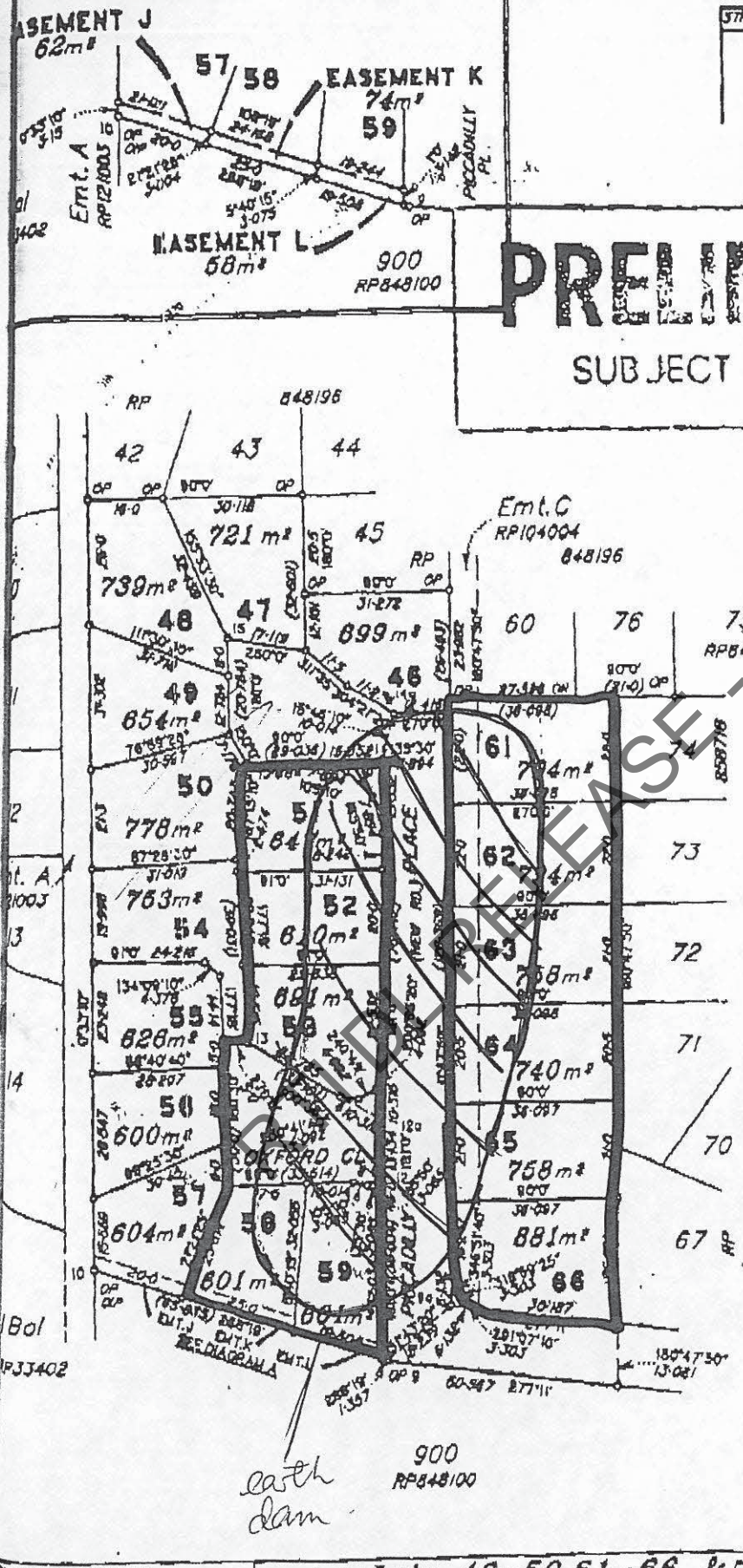
October 1993
23454 -004-366

FIGURE 3

Release

DIAGRAM A
SCALE 1:1000

REFERENCE MARKS				
STN	TO	REMARKS	BEARING	DIST



PRELIMINARY
SUBJECT TO CHANGE

affected lots

approx location of spill

Area of New Road

This plan is one of two plans from the one survey (858717 & 858718)

FOR DATUM SEE PLAN 858718

PEG PLACED AT ALL NEW CORNERS

PLAN MUST BE DRAWN WITHIN BROKEN LINES

PLAN OF Lots 46–59, 61–66 & PROPOSED EASEMENTS J, K & L in Lots 57–59 respectively

Cancelling part of Lot 1 on RP848100

ORIGINAL Portion 297

PARISH TINGALPA
COUNTY Stanley
LOCAL AUTHORITY CITY OF BRISBANE
LAND AGENTS DISTRICT BRISBANE C. C.
LAND HELD BRISBANE

NO SURVEY ACCORDS CANCELLED

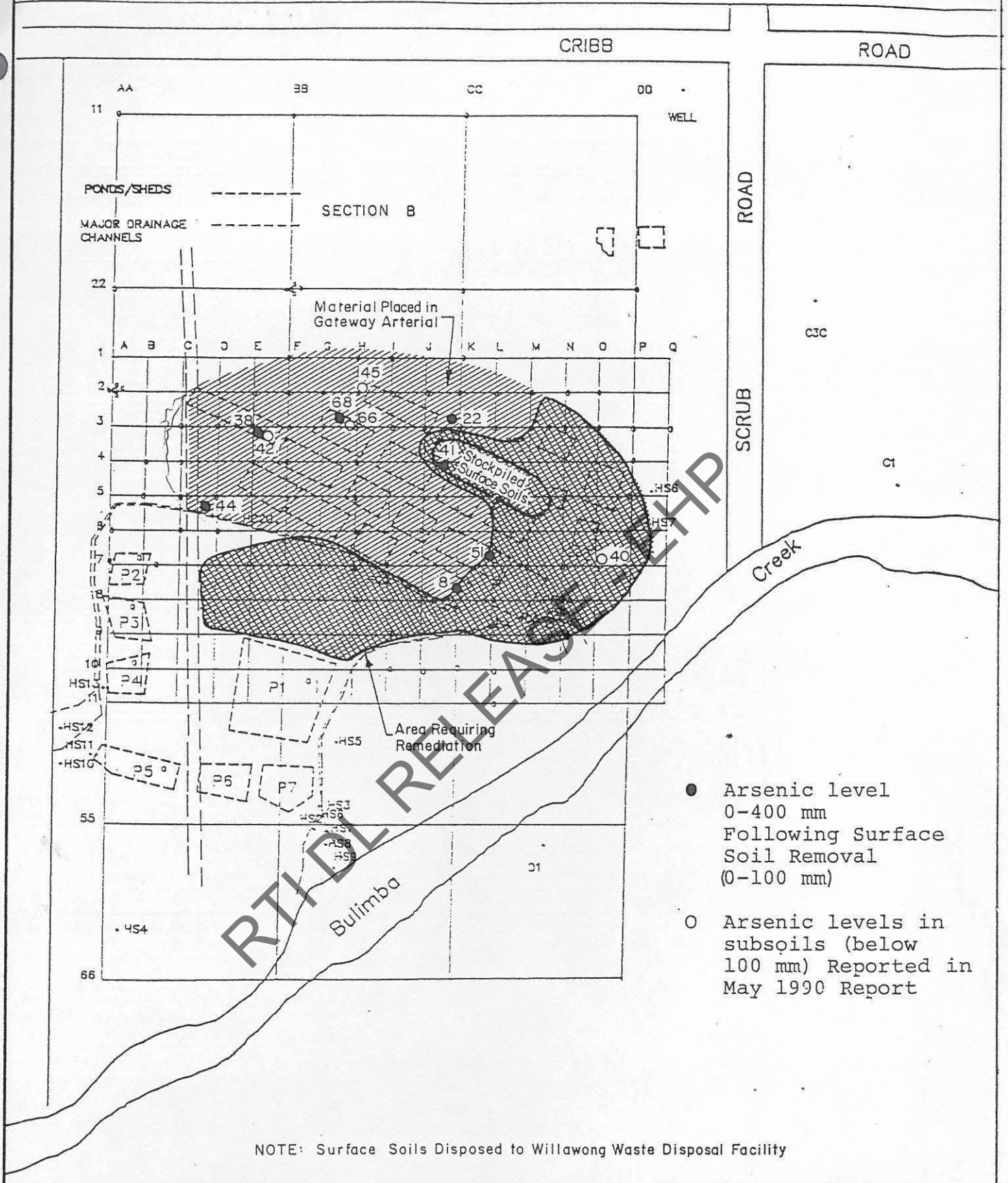
MERIDIAN	MAP REF	SCALE	FILE REF	ENDORSED	REGISTERING DIST
RP848100	CC144	1:1000			BRISBANE

PLAN 858717

EN & BOWERS PTY. LTD.
...ed by the said Company ...ed ...ed by me
...ge BURKE, Surveying Graduate,
...ith ...ing Company ...ed responsibility).
...n is accurate, that the said survey was
...accordance with the Surveyors Act and
...the Regulations and that the said survey
...ed on 24/9/1993
Licensed Surveyor
Director
Director
Date

PUBLIC RELEASE - EHP

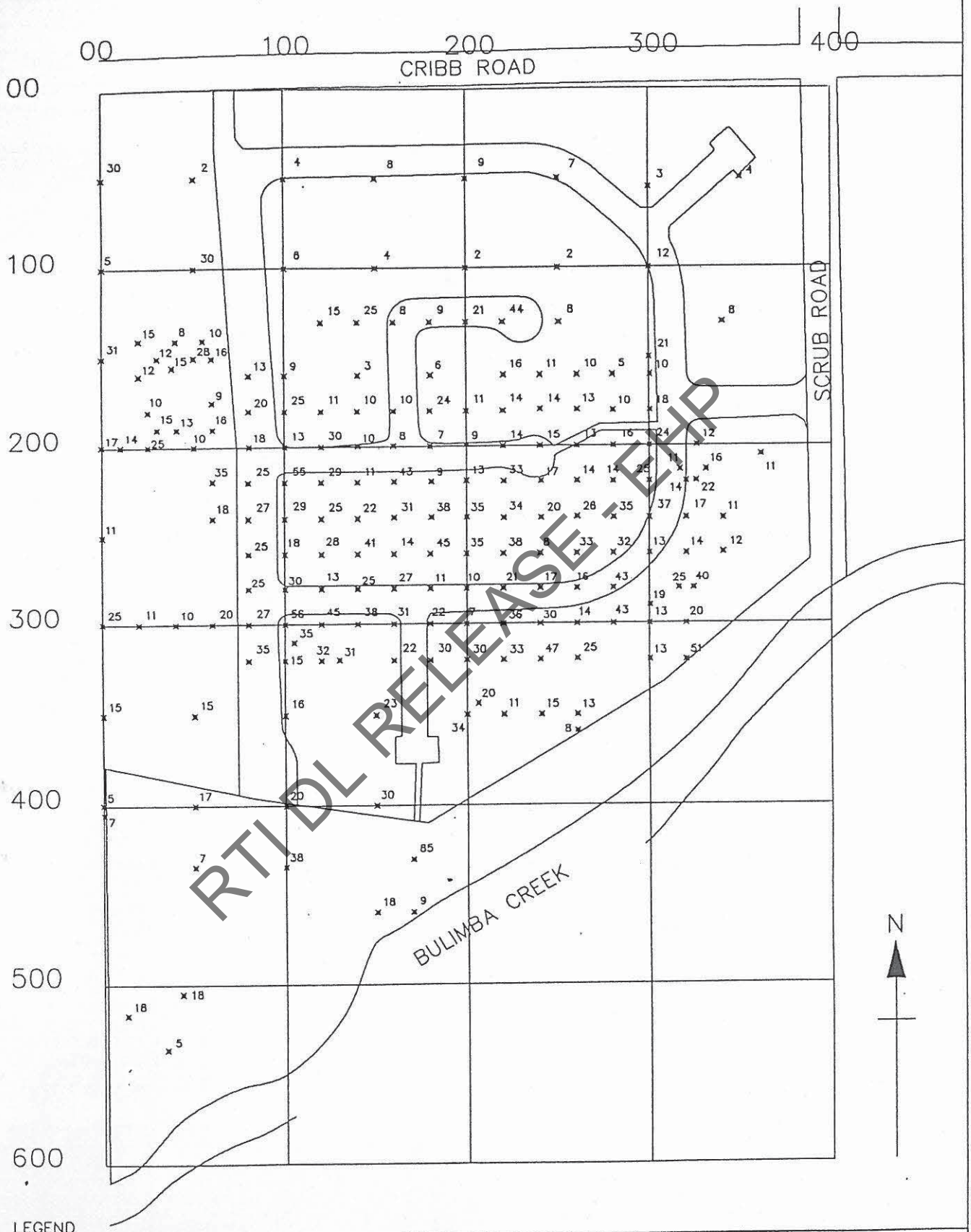
Release



RTI DL RELEASE EHP

NOTE: Surface Soils Disposed to Willawong Waste Disposal Facility

HOLLINGSWORTH DAMES & MOORE Engineers and Planners		
DRAWN RW	DEVINE BELMONT ESTATES	
CHECKED	STAGE II REMEDIATION-EDWARD'S SITE	
DATE Sept. 1990	AREA REQUIRING REMEDIATION	
JOB NUMBER H01011O	SCALE	Figure 2



RTI DL RELEASE - EHP

LEGEND

$\times^{20}$ ARSENIC CONCENTRATION IN mg/kg

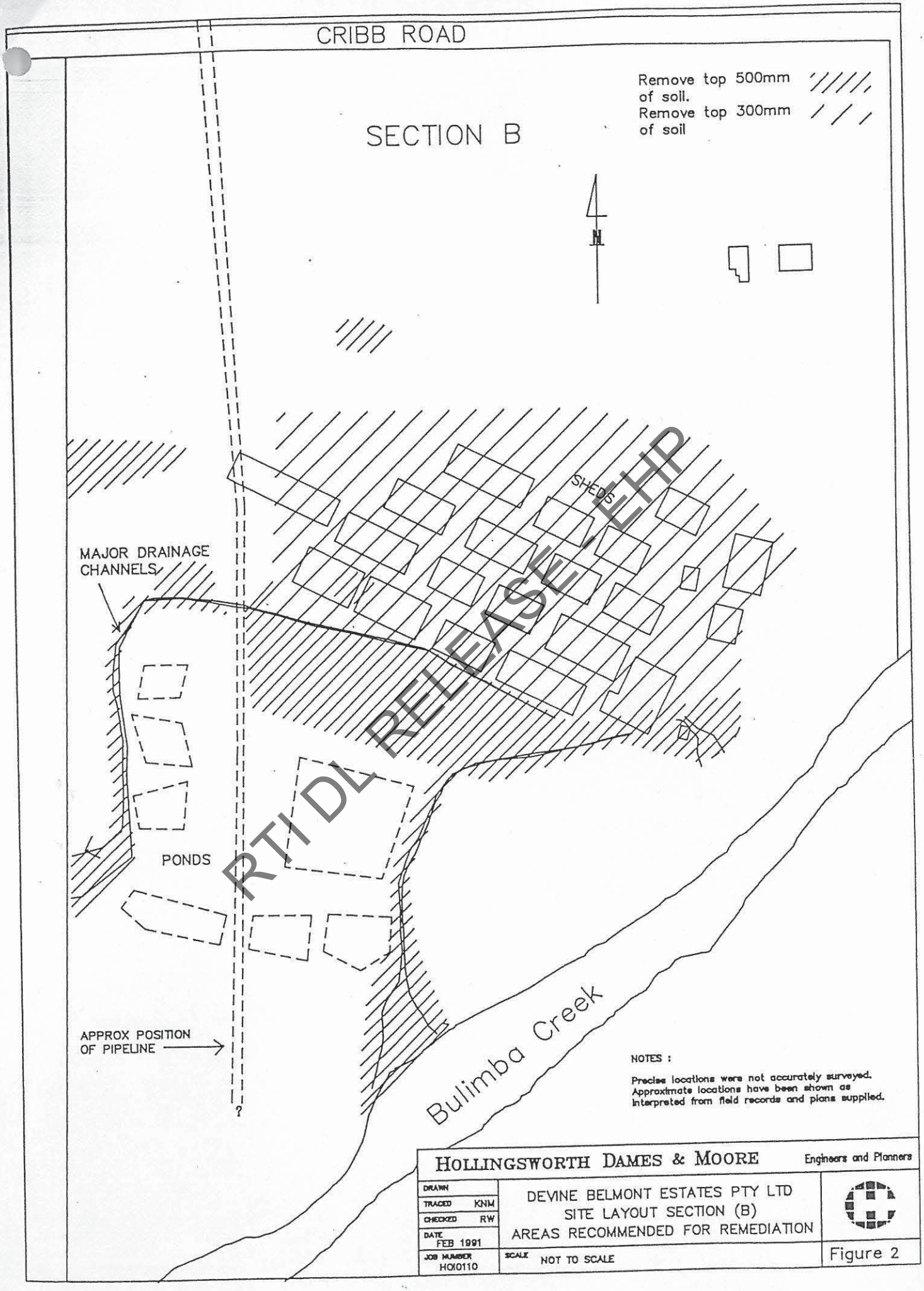
NOTE

SOME TEST RESULTS INCLUDE THOSE FROM ORIGINAL INVESTIGATION IN AREAS OUTSIDE CLEANING ZONES

HOLLINGSWORTH DAMES & MOORE Engineers and Planners

DRAWN BHC	DEVINE BELMONT ESTATES
TRACED	STAGE II – REMEDIATION
CHECKED	VALIDATION TESTING TO 20/2/91
DATE FEBRUARY 1991	
JOB NUMBER HO10110	SCALE

Figure 5



RTI DL RELEASE EHP

Release

FEE PAID	$400 21.10.93 Rec. NO. 2167	CERTIFICATE OF TITLE/RP	25/10/93 C/T 21110	Lot 1 RP 848100 County STANLEY Parish TINGALPA

	NAME	ADDRESS
APPLICANT	C/- LONDY'S CONSTRUCTIONS	C/- DAMES & MOORE 25 SPRING HILL Q 4004
OWNER	VERIGLEN PTY LTD	C/- NEV PASK DEVELOPMENT 94 EUGAREE STREET SOUTHPORT Q 4215

CURRENT ZONING	RESIDENTIAL A.	PROPOSED ZONING	Unchanged.	LOCAL AUTHORITY	BRISBANE CITY.

SCIENTIFIC ADVISOR - Contamination		LOT AND RP	REPORT NO
REGISTRAR - Initial entry to Register			
CONTACT OFFICER	Review Assessment		
STATUS		DATE FINAL SUBMISSION RECEIVED	
STUDIES UNDERTAKEN			

CONTACT OFFICER	Prepare and Check typed draft SCR	
PEER SCIENTIFIC OFFICER	Peer review of draft SCR and submittal of SCR to final	
CONTACT OFFICER	Check FINAL SCR	
REGISTRAR - FINAL ENTRY	Enter relevant details from FINAL SCR to CSR	
MANAGER	Note FINAL SCR	
DIRECTOR/ EXECUTIVE DIRECTOR	Review FINAL SCR and sign	

RTI DL RELEASE - EPR

Release

From 1954 to 1990 the Edwards property, as it is commonly referred to, was the site of a hide curing operation. Part of the day to day operation of the business involved spraying arsenic based insecticides on the property to prevent fly strike.

After closing the hide curing business, a contaminated site investigation was carried out by Hollingsworth Dames and Moore to facilitate an application for residential subdivision of the property. Contamination was found and the site was remediated and placed on the register as former site.

The real property descriptions at this point were:

Lot 2 on RP33402 and Lot 298 on S3124
(Original Portions 297 and 298) Parish of Tingalpa, County of Stanley

Lot 308 on S3124
(Original Portion 308) Parish of Tingalpa, County of Stanley

Lot 2 on RP107694, Lots 6-10, 12, 13 on RP13387 & Lots 511 on M33104 (Original Portions IV and 268) Parish of Bulimba, County of Stanley

The application to subdivide the property was accepted and the property was resubed to give the following real property descriptions:

Lots 1 and 900 on RP848100 cancelling Lot 2 on RP33402 & Lot 298 on plan S3124

During construction on the property the Moonie Oil Pipeline was struck by earth moving equipment resulting in recontamination of the site with a light crude oil. Hollingsworth Dames and Moore were commissioned by the developers, Londys Construction, to remediate the problem. The remediation was carried out to the satisfaction of the Department and a site contamination report was issued for Lot 1 RP848100.

New lots and registered plans are expected to be issued for the property reflecting the new subdivision. The issues of reclassifying, removing, or adding the new lot and registered plan numbers to the contaminated lands register are still being addressed.
The problem will most likely be resolved through amendments to the legislation.

RTI DL RELEASE - EHP

Contaminated Land Section
(07) 227 7370

900806 29 October 1993

SITE CONTAMINATION REPORT

REPORT NUMBER 140-1352

RTI DL RELEASE - EHP

1.0 APPLICANT

Name: Londy's Constructions

Address: C/- Yin Foong
Dames & Moore
PO Box 251
SPRING HILL QLD 4004

2.0 PROPERTY IDENTIFICATION

2.1 Address: Corner Cribb Road and Scrub Road
CARINDALE

2.2 Real Property Description: Lot 1 RP 848100
County of Stanley
Parish of Tingalpa

2.3 Name and Address of Owner/s: Veriglen Pty Ltd
C/- Nev Pask Development
94 Eugaree Street
SOUTHPORT QLD 4215

2.4 Current Zoning: Residential A

2.5 Proposed Zoning: No change

Release

3.0 LOCAL AUTHORITY

Name: Brisbane City Council

4.0 DATE FINAL SUBMISSION RECEIVED BY THE DEPARTMENT OF ENVIRONMENT AND HERITAGE

21 October 1993

5.0 STUDIES UNDERTAKEN BY APPLICANT OR REQUESTED BY DIRECTOR

1. Clean-up and Validation Assessment prepared by Dames and Moore in October 1993 Job No. 23454-004-366

6.0 STATUS ON REGISTER OF CONTAMINATED SITES

Status: Former

File No.: 900806 900006

7.0 STATEMENT OF SUITABILITY

On the basis of information supplied to the Department of Environment and Heritage, the subject property is suitable for any use.

Yours sincerely

sch4p4(6) Personal information

David N Miles
Director, Waste Management Branch
Division of Environment

c:\wp51\doc\reports\140-1352.sk

4.11.93.

RTI DL RELEASE - EHP

Mark Paton
(07) 227 7000

900806

29 October 1993

Mr Y Foong
Dames & Moore
PO Box 251
SPRING HILL QLD 4004

Dear Mr Foong

APPROVAL FOR OFF-SITE DISPOSAL OF CONTAMINATED SOIL OR MATERIALS

RE: CORNER CRIBB AND SCRUB ROADS, CARINDALE (LOT 1 RP 848100)

Under Section 14 of the Contaminated Land Act 1991 approval is given for removal of approximately 1,500 cubic metres of soil contaminated with TPH, as described in correspondence of 11 October 1993 from Steven Rogers, to be disposed of to sanitary landfill under control of the Brisbane City Council.

Yours sincerely

sch4p4(6) Personal information

David N Miles
Director, Waste Management Branch
Division of Environment

c.c. The General Manager
Brisbane City Council
GPO Box 1434
BRISBANE QLD 4001

c:\wp51\doc\off-site\carindal.mp

29/10/93

Oil spill site

Soil removed by
Verbal advice.
Follow up letter
for file ref.

Section 78B(2) RTI Act

RTI DL RELEASE - EHP

Queensland Department of Environment and Heritage

160 Ann Street • Brisbane Queensland • PO Box 155 • BRISBANE ALBERT STREET QLD 4002
Telephone (07) 227 7111 • Facsimile (07) 227 6534

Enquiries to Mark Paton
Telephone (07) 227 7000
Your reference LNG:KMT/0062 1LTR
Our reference 900440PT2

21 october 1993

Mr L Nicholls-Goffey
Senior Pipeline Engineer
Moonie Pipeline Company P/L
G.P.O. Box 1010
Brisbane QLD 4001

Dear Mr Nicholls-Goffey

Contaminated Land: Carindale Heights Clearance Document

Thankyou for your letter dated 12 October 1993 regarding liability due to the crude oil spill at Carindal Heights Estate on 6 october 1993.

We would like to confirm the suggestion that Moonie Pipeline Company PTY LTD approach Londy's Civil Engineering for approval to obtain a copy of the clearance document.

Yours sincerely

sch4p4(6) Personal information

Mark Paton
Chief Scientitic Advisor
Contaminated Lands Section

RTI DL RELEASE - EHP

900440 Pt 2

MOONIE PIPELINE COMPANY PTY LTD

A.C.N. 009 719 484
LEVEL 14, 60 EDWARD STREET, BRISBANE, QUEENSLAND 4000, AUSTRALIA
Postal Address:
G.P.O. BOX 1010, BRISBANE, QUEENSLAND 4001, AUSTRALIA
Telephone: (07) 233 5555 Facsimile: (07) 220 0023

REF: LNG:KMT/00621LTR

Department of Environment
14 OCT 1993
QUEENSLAND

12 October 1993

Mr Mark Paton
Chief Scientific Advisor
Contaminated Lands Section
Department of Environment and Heritage
PO Box 155
BRISBANE QLD 4002

93/1728

Dear Sir,

Contaminated Land - Carindale Heights
Ref: Our Discussion 7 October 1993

RTI DL RELEASE - EHP

Further to our discussions, Moonie Pipeline Company (MPC) wishes to confirm our understanding in respect of any liability due to the crude oil spill at Carindale Heights Estate at 8.00 am Wednesday 6 October 1993.

MPC understands that removal of contaminated soil is the responsibility of the Contractor (Londy's Civil Engineering) to be carried out under the supervision and to the satisfaction of DEH. The subcontractor of Londy's who damaged our crude oil pipeline, allowing the spill to occur, had completed 8 crossings (2 storm water, and 6 sewerage) within 150 metres with this particular damage occurring within 5 to10 metres of our pipeline warning signs.

MPC also understands that any future contamination due to seepage of the crude would legally be the responsibility in the first instance of the contractor, having known of the existence and location of the pipeline, due to the fact that the contractor caused the damage, and in the second instance the present owner of the property. Accordingly MPC understands that its name will not be mentioned on the Contaminated Lands Register.

From DEH's viewpoint MPC could only be implicated, in a situation where the contamination was caused by a failure of the pipeline due to over-stressing, or inappropriate operation.

As per your advice MPC understands that the clearance document is confidential therefore we will approach Londy's Civil Engineering for approval to obtain a copy of this clearance.

Yours faithfully,

sch4p4(6) Personal information

L NICHOLLS-GOFFEY
Senior Pipeline Engineer

HOLLINGSWORTH DAMES & MOORE
A Division of Dames & Moore Pty Ltd (A.C.N. 003-293-696)

FACSIMILE

TO: DEH
FAX NO: 2278341
ATTENTION: Mr Mark Paton
DATE: 11 October 1993
JOB NO: 09366
FROM: Stephen Rogers
NO OF PAGES: 1 (incl this page)

Mark,

Re: Breakage of Moonie Pipeline, Carnadale.

Due to the breakage of the Moonie Pipeline at Carnadale and subsequent spillage of 30000 l of crude oil, we request approval from the DEH to dispose of between 4000 and 5000 m^3 of contaminated soil from this site to the BCC Willawong refuse facility. BCC approval has previously been sent. Property is situated between Cribb Road and Bulimba Creek & is west of Scrub Road. Site is currently described as Lot 1 on RP 848100.

Thank You + Regards

Section 78B(2) RTI Act

RTI DL RELEASE - EHP

DISCLAIMER: This facsimile transmission is intended for the persons named above. If you are not one of those persons we do not waive any privilege attaching to this facsimile transmission, and any disclosure or use of this transmission by you is prohibited. If you receive this transmission in error please notify the sender immediately and return the original transmission by certified mail and cost of postage will be refunded.

135 Wickham Terrace, Brisbane, Qld, Australia.

Postal Address: P.O. Box 251, Spring Hill, Qld. 4004
Phone: (07) 832 3222
Facsimile: (07) 832 1687

Release

PAXED
11:10:93

HOLLINGSWORTH DAMES & MOORE
A Division of Dames & Moore Pty Ltd (A.C.N. 003-293-696)

FACSIMILE

TO: DEH
ATTENTION: Mr Mark Paton
FROM: Stephen Rogers

FAX NO: 2278341
DATE: 11 October 1993
JOB NO: 09366
NO OF PAGES: 1
(incl this page)

Mark,

Re: Breakage of Moonie Pipeline, Carndale.

Due to the breakage of the Moonie Pipeline at Carndale and subsequent spillage of 30000 L of crude oil, we request approval from the DEH to dispose of between 4000 and 5000 m^3 of contaminated soil from this site to the BCC Willawong refuse facility. BCC approval has previously been sent. Property is situated between Cribb Road and Bulimba Creek & is west of Scrub Road. Site is currently described as Lot 1 on RP 848100.

Thank You & Regards

RTI DL RELEASE - EHP

Section 78B(2) RTI Act

DISCLAIMER: This facsimile transmission is intended for the persons named above. If you are not one of those persons we do not waive any privilege attaching to this facsimile transmission, and any disclosure or use of this transmission by you is prohibited. If you receive this transmission in error please notify the sender immediately and return the original transmission by certified mail and cost of postage will be refunded.

135 Wickham Terrace, Brisbane, Qld, Australia.

Postal Address: P.O. Box 251, Spring Hill, Qld. 4004

Phone: (07) 832 3222
Facsimile: (07) 832 1687

Release

DEPARTMENT OF ENVIRONMENT AND HERITAGE

WASTE MANAGEMENT BRANCH

Sender: SONNY KAHUROA

Facsimile no: (07) 227 8341

Telephone no: (07) 227 8143

Address: 12th floor, 160 Ann Street, Brisbane, Queensland

Postal Address: PO Box 155
BRISBANE ALBERT STREET QLD 4002

Receiver: Nick Wellwood.

Facsimile no:

Business/Section: Landy's Constellation's

Date: 4/11/93.

Number of pages: 3. (including cover sheet)

RTI DL RELEASE - EHP

Contaminated Land Section
(07) 227 7370

900806

29 October 1993

SITE CONTAMINATION REPORT

REPORT NUMBER 140-1352

RTI DL RELEASE - EHP

1.0 APPLICANT

Name: Londy's Constructions

Address: C/- Yin Foong
Dames & Moore
PO Box 251
SPRING HILL QLD 4004

2.0 PROPERTY IDENTIFICATION

2.1 Address: Corner Cribb Road and Scrub Road
CARINDALE

2.2 Real Property Description: Lot 1 RP 848100
County of Stanley
Parish of Tingalpa

2.3 Name and Address of Owner/s: Veriglen Pty Ltd
C/- Nev Pask Development
94 Eugaree Street
SOUTHPORT QLD 4215

2.4 Current Zoning: Residential A

2.5 Proposed Zoning: No change

Release

3.0 LOCAL AUTHORITY

Name: Brisbane City Council

4.0 DATE FINAL SUBMISSION RECEIVED BY THE DEPARTMENT OF ENVIRONMENT AND HERITAGE

21 October 1993

5.0 STUDIES UNDERTAKEN BY APPLICANT OR REQUESTED BY DIRECTOR

1. Clean-up and Validation Assessment prepared by Dames and Moore in October 1993 Job No. 23454-004-366

6.0 STATUS ON REGISTER OF CONTAMINATED SITES

Status: Former

File No.: 900806

7.0 STATEMENT OF SUITABILITY

On the basis of information supplied to the Department of Environment and Heritage, the subject property is suitable for any use.

Yours sincerely

sch4p4(6) Personal information

David N Miles
Director, Waste Management Branch
Division of Environment

4.11.93.

RTI DL RELEASE - EHP

DAMES & MOORE
135 WICKHAM TERRACE, SPRING HILL, BRISBANE, QUEENSLAND 4004
IN AUSTRALIA TELEPHONE: 07-832 3222 FACSIMILE: 07-832 1687
INTERNATIONAL TELEPHONE:61-7-321 3222 FACSIMILE:61-7-832-1687

Facsimile Transmission Sheet

To: DEH
Attn: Patricia Long
From: Stephen Rogers
Fax No: 2278341
Job No: 09366
Date: 25/10/93.

Including this cover sheet 2 pages

ENGINEERING EXCELLENCE - ENVIRONMENTAL RESPONSIBILITY

This facsimile transmission is intended for the persons named above. If you are not one of those persons we do not waive any privilege attaching to this facsimile transmission, and any disclosure or use of this transmission by you is prohibited. If you receive this transmission in error please notify the sender immediately and return the original transmission by certified mail.

Subject:

Patricia,

RP for Oil spill Carindale follows.

Please pass copy to Sonny.

Regards

Stephen

sch4p4(6) Personal information

RTI DL RELEASE - EHP

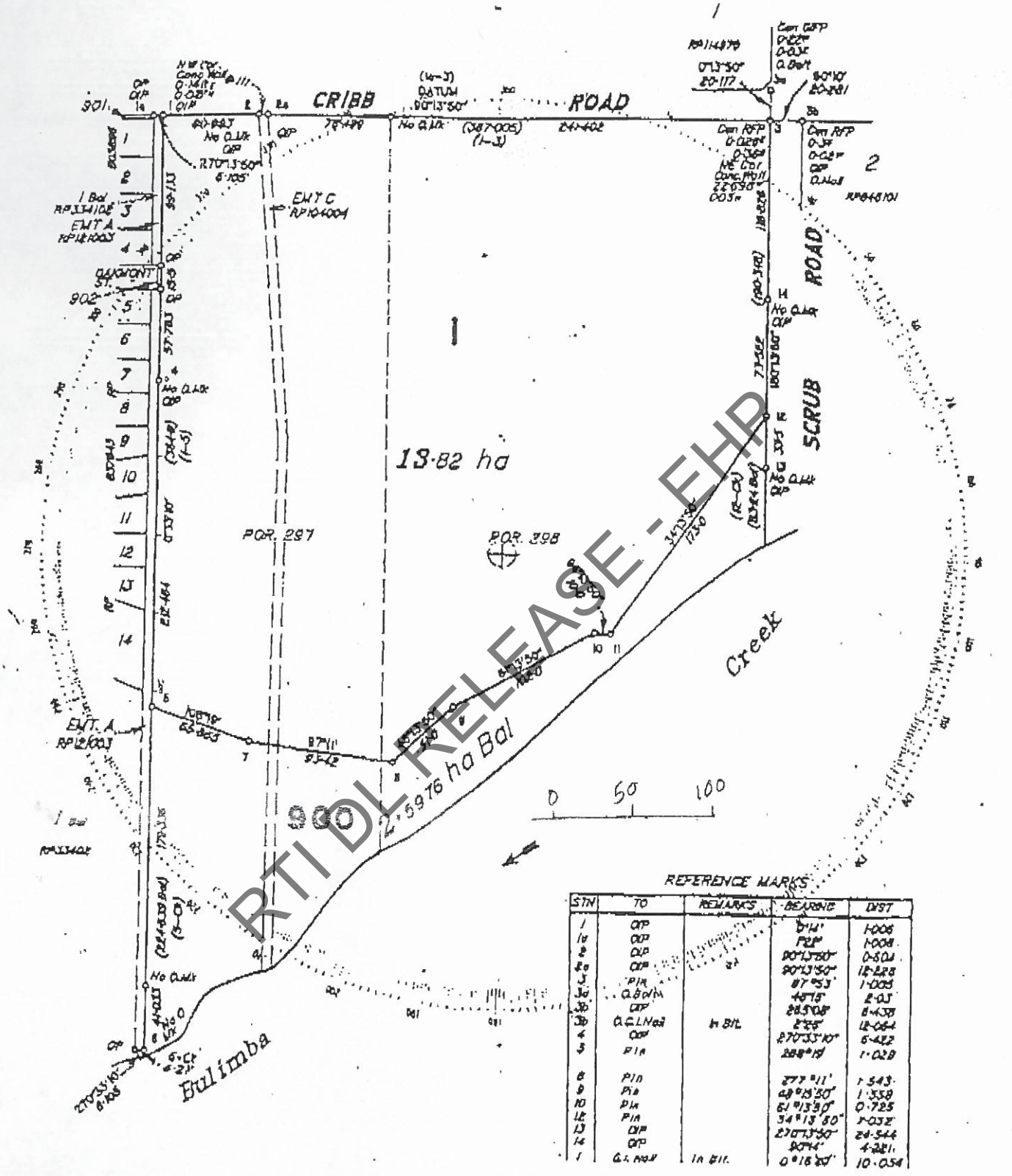
ORIG A4

Original information compiled from S3124, RP33402 in the Department of Lands.

This plan is one of two plans from the one survey (848100 & 848101)

848100

PLAN MUST BE DRAWN WITHIN BLACK LINES



RTI DL RELEASE - EHP

REFERENCE MARKS

STN	TO	REMARKS	BEARING	DIST
1	OIP		0°14'	1·006
1a	OIP		PEG	1·008
2	OIP		90°13'50"	0·601
2a	OIP		90°13'50"	18·228
3	PIN		87°53'	1·005
3a	C.B.O.M.		49°15'	2·03
3b	OIP		285°08'	8·439
3b	C.C.L.N.G.S.	In B/L	2°26'	18·064
4	OIP		270°33'10"	6·482
5	PIN		288°19'	1·028
6	PIN		272°11'	1·543
9	PIN		48°13'50"	1·358
10	PIN		61°13'50"	0·725
11	PIN		34°13'50"	1·032
13	OIP		270°13'50"	24·544
14	OIP		90°14'	4·281
1	C.L.N.G.S.	In B/L	0°16'30"	10·054

T. H. JENSEN & BOWERS PTY. LTD. hereby certify that the Cadastre has been surveyed by me and that the plan accurately represents the said survey.

David George BURKE, Surveying Graduate, for whom THJ&B Company accepts responsibility, certifies that the plan is accurate, that the said survey was performed by me or under my supervision on the 5th day of May 1992 and that the Survey Regulations 1961 and the Survey Directions of the Surveyor-General have been complied with.

Licensed Surveyor

PLAN OF Lots 1 & 900

Cancelling Lot 2 on RP33402 & Lot 298 on plan S3124

ORIGINAL Pors. 297 & 298

PARISH TINGALPA
COUNTY Stanley
TOWN/LOCALITY CITY OF BRISBANE
LOCAL AUTHORITY BRISBANE C. C.
LAND ADMINISTRATION DISTRICT
SURVEY FIELD

MERIDIAN	MAP REF	SCALE	FILE REF	NO SURVEY RECORDS DEPOSITED: ENDORSED P.C. 11-8-1992	REGISTERING DIST
	DC144	1:2500			BRISBANE

REGISTERED PLAN 848100

1 2 3 4 5 6 7 8 9 10 cm CROWN COPYRIGHT RESERVED

THE INSTITUTION OF SURVEYORS AUSTRALIA (QUEENSLAND DIVISION) BY AUTHORITY (EXPIRES 31/12/92)

MOORE

IG HILL, BRISBANE, QUEENSLAND 4004
07-832 3222 FACSIMILE: 07-832 1687
1-7-321 3222 FACSIMILE:61-7-832-1687

ission Sheet

Fax No: 2278341

Job No: 09366

Date: 22/10/93.

ONMENTAL RESPONSIBILITY

f you are not one of those persons we do not waive any or use of this transmission by you is prohibited. If you y and return the original transmission by certified mail.

3/11/93

Peer Review of post oil spills

- RP ✓ OK

- Formers

- Fee paid

- ownership confirmed by Steve Rogers. ✓ OK

sch4p4(6) Personal information

m Carindale

have indicated that oil was accepted for ll of the soil excavated to Willawong alone. tonne / m^3 can be the nature removed from this site. This will give approx 1537 m^3.

Should you have any further queries or requirements please do not hesitate to call.

Regards

Section 78B(2) RTI Act

RTI DL RELEASE - LHP

DAMES & MOORE
135 WICKHAM TERRACE, SPRING HILL, BRISBANE, QUEENSLAND 4004
IN AUSTRALIA TELEPHONE: 07-832 3222 FACSIMILE: 07-832 1687
INTERNATIONAL TELEPHONE:61-7-321 3222 FACSIMILE:61-7-832-1687

Facsimile Transmission Sheet

To: DEH Fax No: 2278341
Attn: Mark Paton Job No: 09366
From: Stephen Rogers Date: 22/10/93.

Including this cover sheet 1 pages

ENGINEERING EXCELLENCE - ENVIRONMENTAL RESPONSIBILITY

This facsimile transmission is intended for the persons named above. If you are not one of those persons we do not waive any privilege attaching to this facsimile transmission, and any disclosure or use of this transmission by you is prohibited. If you receive this transmission in error please notify the sender immediately and return the original transmission by certified mail.

RTI DL RELEASE - EHP

Subject: Disposal of soil from Carindale

Discussions with Willawong have indicated that a total of 2768 tonne of soil was accepted for disposal at the landfill. All of the soil excavated from the site was removed to Willawong alone.

A conversion factor of 1.8 tonne / m^3 can be applied for light clays of the nature removed from this site. This will give approx 1537 m^3.

Should you have any further queries or requirements please do not hesitate to call.

Regards

Section 78B(2) RTI Act

MINING & GEOMECHANICS • MARINE & TERRESTRIAL ENVIRONMENTAL SERVICES
ENVIRONMENTAL ENGINEERING • WATER & WASTE MANAGEMENT

Release

DAMES & MOORE
135 WICKHAM TERRACE, BRISBANE, QUEENSLAND 4000
P.O. BOX 251, SPRING HILL, QUEENSLAND 4004
TELEPHONE: 07-832 3222 FACSIMILE: 07-832 1687

TRANSMITTAL FORM

TO: CLV DEH DATE: 21/10

ADDRESS: 160 ANN ST JOB NO: 23454-004-368

FOR THE ATTENTION OF: MARK PATON

PROJECT: CLEAN-UP & VALIDATION CARINDALE

We advise having forwarded the following material:

Description	Drawing No. or Specification No.	No. of Copies
REPORT + CHEQUE	23454-004.	1

The material has been forwarded:

by ordinary mail [ ] by registered mail [ ]

by our messenger [✓] by your messenger [ ]

by other: _____

The material is being forwarded for the following reasons:

ISSUE OF A SCR.

Did not have report? See Allyson / JILL

Rec. No. 2167 ($400) 21-10-93

RTI DL RELEASE - EHP

HOLLINGSWORTH DAMES & MOORE
A Division of Dames & Moore Pty Ltd (A.C.N. 003-293-696)

FACSIMILE

TO: DEH
ATTENTION: Mark Paton
FROM: Stephen Rogers

FAX NO: 2278341
DATE: 6/10/93
JOB NO: 09366
NO OF PAGES: 2 (incl this page)

Mark,

Approval for disposal of oil contaminated soil from Carindale at Wullawong follows. Request your approval to transport, which is intended for this Friday. Further info can be obtained from Yin today at Earthtech Labs 3433166.

Regards

Section 78B(2) RTI Act

DISCLAIMER: This facsimile transmission is intended for the persons named above. If you are not one of these persons we do [redacted] attaching to this facsimile transmission, and any disclosure or use of this transmission by you is prohibited. If you receive this transmission in error please notify the sender immediately and return the original transmission by certified mail.

135 Wickham Terrace, Brisbane, Qld, Australia.

Postal: P.O. Box 251
Address: Spring Hill, Qld. 4004

Phone: (07) 832 3222
Facsimile: (07) 832 1687

International
Phone: + 61 7 832 3222
Facsimile: + 61 7 832 1687

RTI DL RELEASE - EP

Site Description:

Proposed

Off Scouts Road

Lot 1 RP 848100

Release

BRISBANE CITY COUNCIL – Department of Water Supply & Sewerage

FACSIMILE TRANSMISSION FROM

Scientific Services Branch

FAX NUMBER: (07) 875 8646

PLEASE PHONE 875 8611 IF THERE ARE ANY PROBLEMS WITH THIS TRANSMISSION

TO: HOLLINGSWORTH DAMES & MORE	FAX NO: 832 1687
Attention: MR YIN FOONG	NO OF PAGES (INCLUDING COVER): 1
FROM: KEN GIESS	

DETAIL:

Yin

In relation to the disposal of approx. 1500m³ of petroleum hydrocarbon contaminated soil associated with the spillage of oil from the Moore Pipeline at Cribb Road Carindale, I wish to confirm that the Brisbane City Council will accept this material for disposal at its Willawong Liquid Waste Treatment Plant.

Please contact Mr Jack Lossart 3725074 to make arrangement for the acceptance and disposal of this material at the Willawong LWTP.

Regards Section 78B(2) RTI Act (Senior Chemist)

DATE: 6 – 10 – 93.

RTI DL RELEASE - EHP

HOLLINGSWORTH DAMES & MOORE
A Division of Dames & Moore Pty Ltd (A.C.N. 003-293-696)

FACSIMILE

TO: DEH
ATTENTION: Mark Paton
FROM: Stephen Rogers

FAX NO: 2278341
DATE: 7/10/93
JOB NO: 0936b
NO OF PAGES: 3
(incl this page)

Mark,

Y'n's mud map and proposed subdivision plan follows. See you on site tomorrow.

Rgds

sch4p4(6) Personal information

DISCLAIMER: This facsimile transmission is intended for the persons named above. If you are not one of those persons we do not waive any privilege attaching to this facsimile transmission, and any disclosure or use of this transmission by you is prohibited. If you receive this transmission in error please notify the sender immediately and return the original transmission by certified mail.

135 Wickham Terrace, Brisbane, Qld, Australia

Postal: P.O. Box 251
Address: Spring Hill, Qld. 4004

Phone: (07) 832 3222
Facsimile: (07) 832 1687

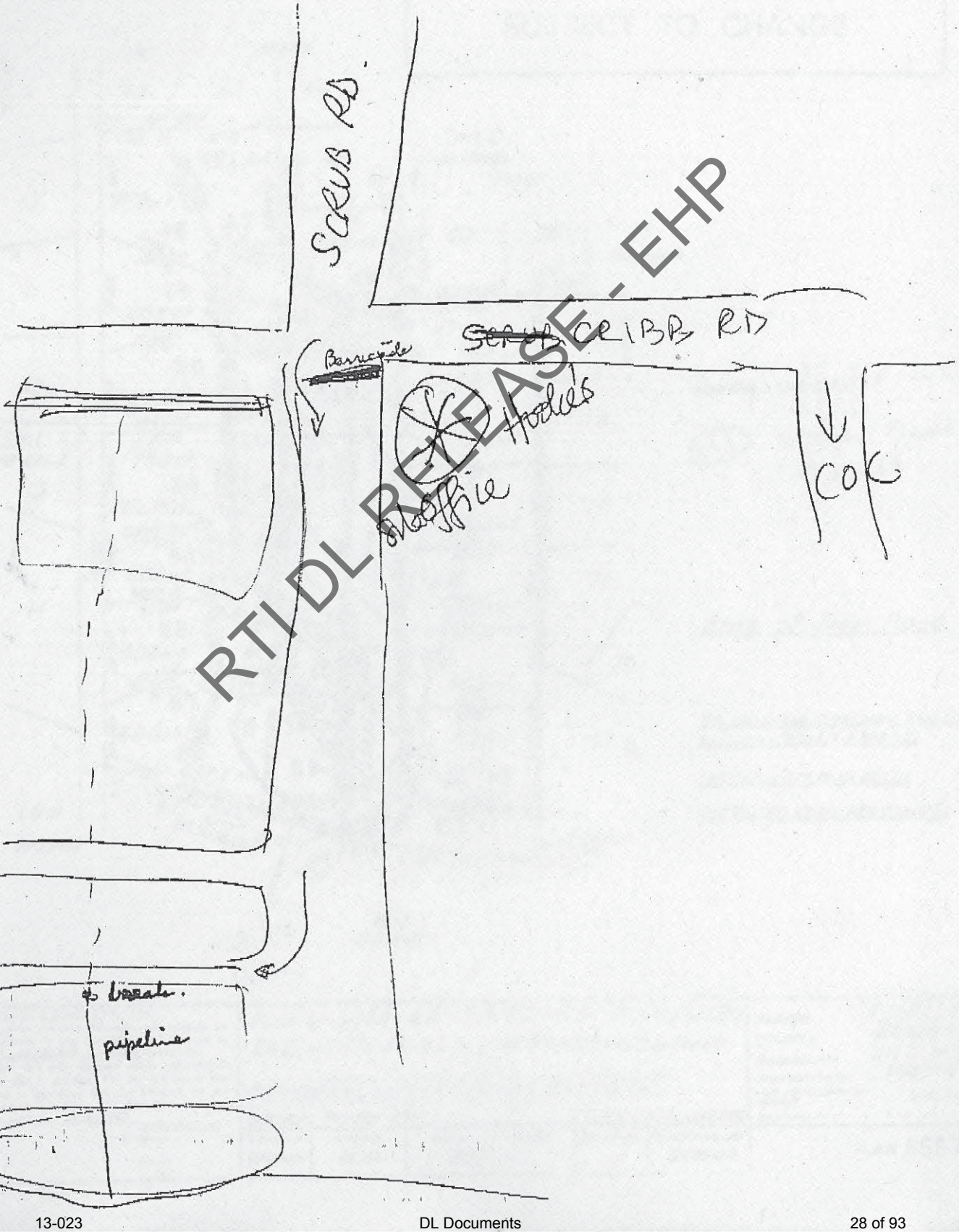
International
Phone: + 61 7 832 3222
Facsimile: + 61 7 832 1687

RTI DL RELEASE - EHP

HOLLINGSWORTH DAMES & MOORE
A Division of Dames & Moore Pty Ltd (A.C.N. 003-293-696)

Prepared by:	Sheet:
Checked by:	Job No.:
Date:	Date:

Title



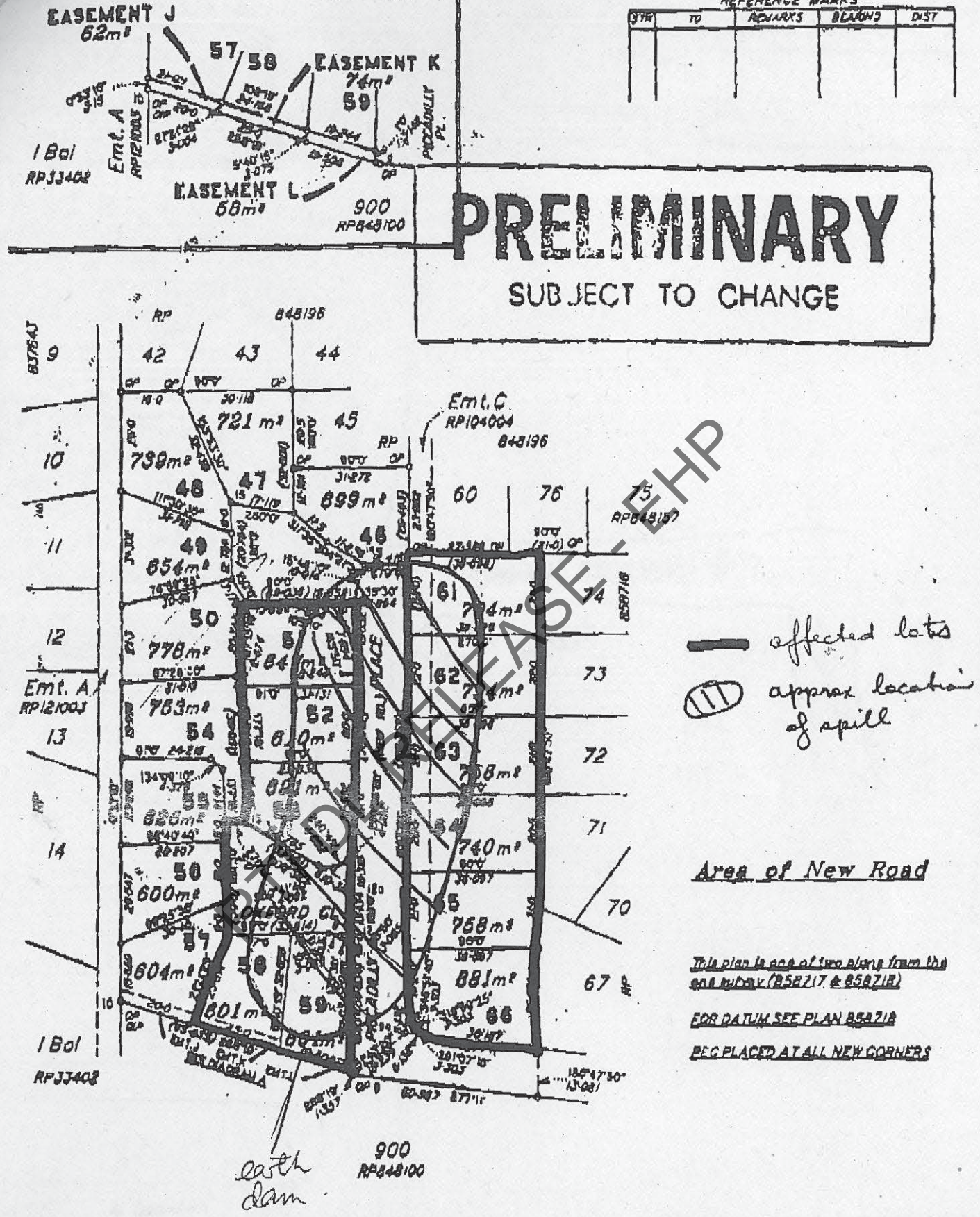
RTI DL RELEASE - EHP

Release

DIAGRAM A
SCALE 1:1000

REFERENCE MARKS

STN	TO	REMARKS	BEARING	DIST



858717

PLAN MUST BE DRAWN WITHIN BLACK LINES

DRAFT RELEASE - EHP

T. H. JENSEN & BOWERS PTY. LTD.
registered surveyors (not being a Company) have surveyed the land comprised in this plan and connected it with
David George BURKE, Surveying Graduate.
For purposes of which Company accept responsibility, and that the plan is correct, that the said survey was performed in accordance with the Surveyors Act and the Surveyors Regulations and that the said survey was completed on 24/9/1993

Licensed Surveyor/Director

Director/Secretary

PLAN OF Lots 46–59, 61–66 & PROPOSED EASEMENTS J, K & L in Lots 57–59 respectively

Cancelling part of Lot 1 on RP848100

ORIGINAL Portion 297

MERIDIAN	MAP REF	SCALE	FILE REF	ENDORSED	REGISTERING DIST
RP848100	CC144	1:1000			BRISBANE

RD SURVEY RECORDS EXAMINED

PARISH TINGALPA
COUNTY Stanley
LOCAL AUTHORITY CITY OF BRISBANE
LAND AGENT'S DISTRICT BRISBANE C. C.
AREA IN FIELD BRISBANE

PLAN 858717

Release

sch4p4(6) Personal information

RTI DL RELEASE - EHP

EOVWHOS SITE
[illegible]/10/80

[illegible] - View to NW

Centre - View to SE

[illegible] - Looking
to
of Cree

Memorandum

To

From

Subject OIL SPILL

File reference

Date

Notes

→ Developer – Landies Construction

→ Site – UBD 36 F 7½

CARINDALE.

* Light crude

* Pipeline – stopped pumping /.

Dowling Downs

Oil trapped behind log ↓ 10 Barrell

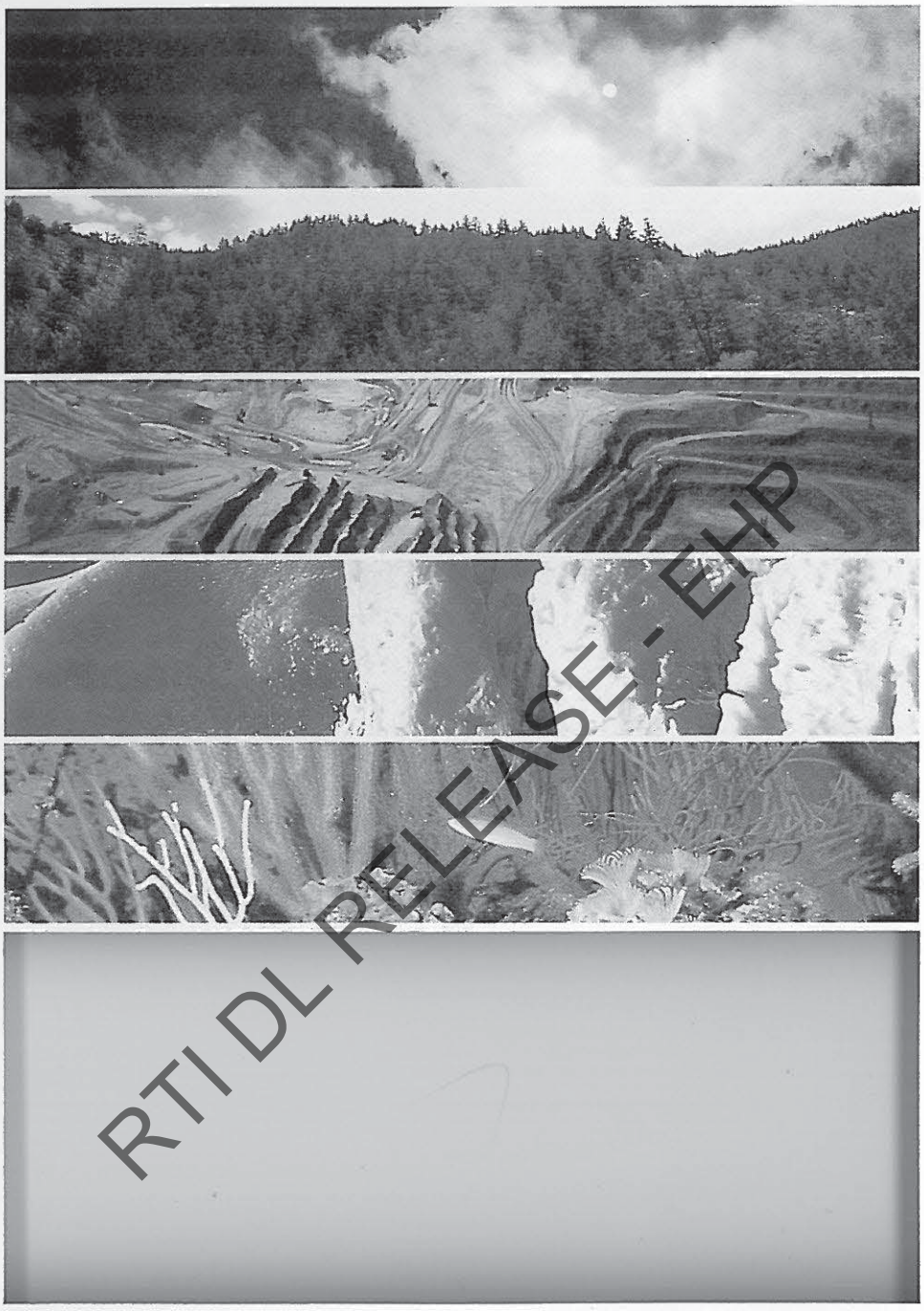
* emergency. dam / recovered by pumped.

HDM – YIN FOONG sch4p4(6) Personal information Nick Well.

Manuelle Handy

[redacted] Doug Lith

RTI DL RELEASE - EHP



DAMES & MOORE

RTI DL RELEASE - EHP

Hand delivered
21/10/93

sch4p4(6) Personal information

RTI DL RELEASE - EHP

CLEAN-UP AND VALIDATION, CRUDE OIL SPILL, LOT 1 ON RP848100 CARINDALE HEIGHTS ESTATE, CARINDALE

for

LONDY'S CONSTRUCTIONS

DAMES & MOORE

Dames & Moore Job No. 23454-004-366
October, 1993

TABLE OF CONTENTS

		Page No.
1.0	INTRODUCTION	1
1.1	LIMITATIONS OF REPORT	1
1.2	TERMS OF REFERENCE	1
2.0	SITE LOCATION AND HISTORY	2
2.1	SITE LOCATION	2
2.2	REAL PROPERTY DESCRIPTION AND OWNERSHIP	2
2.3	ACCIDENT HISTORY	2
2.4	SITE CLEAN-UP	3
3.0	SITE INSPECTION, SAMPLING AND TESTING	6
3.1	WALKOVER INSPECTION	6
3.2	SOIL SAMPLING	7
3.3	LABORATORY TESTING	11
3.4	DISCUSSION OF RESULTS	11
4.0	CONCLUSIONS AND RECOMMENDATIONS	12

RTI DL RELEASE - EHP

LIST OF TABLES

Table No.	Title
1	Soil Analysis Results – Organics, 6 and 8 October 1993
2	Soil Analysis Results – Organics, 12 and 14 october 1993
3	Soil Analysis Results – Organics, 19 October 1993

LIST OF FIGURES

Figure No.	Title
1	Location Plan
2	Location of Oil Spill
3	Site Layout and Sampling Locations
4	Soil Sampling Locations – 12 and 14 October 1993
5	Soil Sampling Locations – 19 October 1993

Release

LIST OF PHOTOGRAPHS

Photograph No.	Title
1	View showing damaged oil pipeline with oil in excavation.
2	View showing oil slick dammed on Bulimba Creek
3	View of Bulimba Creek with a small slick
4	View showing oil flow path and clean up
5	View of clean up
6	General view of oil flow path
7	Excavation around repaired oil pipeline
8	Excavation around stormwater pipeline (Excavation 'B', Figure 2)
9	View of Excavation 'C', Figure 2
10	View of Excavation 'E', Figure 2
11	View of Excavation 'D', Figure 2

LIST OF APPENDICES

Appendix	Title
A	Certificate of Title
B	Certificates of Analysis

RTI DL RELEASE - EHP

CLEAN–UP AND VALIDATION, CRUDE OIL SPILL
LOT 1 ON RP848100
CARINDALE HEIGHTS ESTATE, CARINDALE

1.0 INTRODUCTION

1.1 LIMITATIONS OF REPORT

This report has been prepared in a form suitable for submission to the Client, Londy's Constructions and to the Director, Waste Management Branch, Department of Environment & Heritage. The report relates to land which is subject to development and upon which light crude oil had been spilled and describes the results of the Clean–up and Validation of that land carried out by Dames and Moore at the request of the client.

The report has been prepared with reference to the *Guidelines for the Assessment of Contaminated Land in Queensland* (CHEM Unit, January 1992), and to a standard consistent with generally accepted and current professional consulting practice for a Site Assessment of prescribed land in Queensland. No other warranty, expressed or implied, is made as to the contents of the report.

Use of the land for any purpose whatsoever subsequent to the preparation of the Clean–up and Validation reported herein is beyond the control of Dames & Moore, and as a result may affect or invalidate the conclusions and recommendations presented in Section 4.0 of this Clean–up and Validation report.

RTI DL RELEASE - EHP

1.2 TERMS OF REFERENCE

Earthtech Laboratories Pty Ltd, on behalf of Londy's Constructions, commissioned Dames & Moore Pty Ltd, to provide advice on the Clean–up and Validation of a portion of the property encompassing Lot 1 on RP848100, corner of Scrub Road and Cribb Road, Carindale. The objectives of the Clean–up and Validation are summarised below:–

- provide advice and assistance in the clean–up and removal of crude product and soils contaminated with crude product;
- validate all excavated areas of the site to ensure sufficient clean–up has been undertaken;
- prepare a Clean–up and Validation report suitable for submission to the client and the Director, Waste Management Branch, Department of Environment and Heritage.

2.0 SITE LOCATION AND HISTORY

2.1 SITE LOCATION

The location of the subject site at Carindale is shown on Figures 1 and 2 and recent photographs of the site (Nos. 1 to 11) are presented at the end of the report for reference. The layout plan of the subject site is irregular, exhibits six (6) sides and occupies approximately 13.82 hectares. The site is located on the western side of the Scrub Road and on the southern side of Cribb Road. The northern boundary adjoins Cribb Road, the eastern boundary fronts onto Scrub Road, the western boundary adjoins Carindale Country Club Estate and the southern boundary borders vacant land (Figure 1). The portion of the site under investigation is in the southwestern corner of the property (Figure 2).

2.2 REAL PROPERTY DESCRIPTION AND OWNERSHIP

A title search at the Queensland Registrar of Titles revealed that the subject site is situated in the County of Stanley, Parish of Tingalpa, City of Brisbane, and is currently described as:-

- Lot 1 on Registered Plan No. 848100 (13.82 ha) owned by Veriglen Pty Ltd.

  A copy of the Certificate of Title for the individual allotment, issued by the Registrar of Titles, Queensland is presented as Appendix A.

Current zoning indicates that this land is zoned Residential A.

2.3 ACCIDENT HISTORY

The current site history has been compiled based on discussions with Mr Nick Wellwood, Engineering Manager of Londy's Civil Engineering Pty Ltd. Discussions have indicated the following chronology of events on site:

At approximately 8.45 am on the morning of the 6th October, 1993 the Moonie Oil Pipeline was struck by a subcontractor, Mayama Pty Ltd, when placing a roof water line adjacent to the Moonie Oil Pipeline Reserve. Previously all subcontractors, including Mayama have been instructed, and conformed with the requirement, that a Moonie Oil Pipeline Supervisor must be on site when any excavation was undertaken in the Moonie Oil Pipeline Reserve. At present it appears that this requirement was not met by the subcontractor.

RTI DL RELEASE - EHP

An engineer, Mr Joe Gorman, from the consultants office of W.P. Brown was on site at the time of the break and contacted the Engineering Manager of Londy's Civil Engineering Pty Ltd who immediately informed the Moonie Pipeline Company Pty Ltd of the damage.

At that time Londy's operators, under instruction from Mr Gorman, and verbal instruction from Mr Nick Wellwood, had excavated two bunds to contain the oil coming from the pipeline. Some oil had entered into the stormwater drainage system works and was slowly entering the creek. To prevent further contamination of the creek one of the manholes was filled with sand. Upon Mr Wellwood's arrival on site a second manhole was filled with sand and a sand bund was created at the end of the pipeline. Upon completion of these activities no more oil entered the creek system.

At approximately 10 am staff from the Moonie Pipeline Company Pty Ltd arrived on site and commenced excavating the broken section of the pipeline with an excavator supplied by Mayama Pty Ltd. Londy's Civil Engineering then stockpiled oil contaminated soil prior to disposal in a manner approved by the Brisbane City Council (BCC) and the Department of Environment and Heritage (DEH). At approximately 11:00 am Zappaway commenced the removal of oil contained in the bunds.

Upon removal of the excess oil contained by the bunds, oil contaminated soil could then be excavated and also removed off-site when approved by DEH.

2.4 SITE CLEAN-UP

At approximately 3 pm, 6th October 1993 staff from the Government Chemical Laboratory, the Department of Environment and Heritage (Mr Michael Stark) and the Brisbane City Council's Scientific Services Branch (Mr Ken Giess) arrived on site to discuss the oil spillage. The BCC and the DEH advised Londy's Civil Engineering to appoint an environmental consultant to oversee the clean-up and to ensure permits and approvals were obtained for the removal of the contaminated soil from site and that a professional validation was completed on the clean-up. Mr Doug Ryan of Earthtech recommended that Hollingsworth Dames & Moore be appointed as the Environmental Consultant.

No removal of contaminated soil could take place until approved by the Director of the Waste Management Branch of the Department of Environment and Heritage (DEH). At approximately 4pm on the 6th October, 1993 Mr Mark Paton of the DEH confirmed that he had received approval from the Director and that immediate removal of contaminated soil could be undertaken.

RTI DL RELEASE - EHP

A letter of authorisation to dispose of oil contaminated soil was obtained from the BCC (ref. letter from Ken Giess to Hollingsworth Dames & Moore). Mr Jack Cossart from the Brisbane City Council's Willawong Waste Treatment facility (Willawong) confirmed that the facility would accept the material on the 7th October starting from approximately 7.30 am.

It was estimated that approximately 2000 – 3000 tonnes of material would need to be removed from the site and taken to the BCC facility. The cost estimate was between $30 to $50 per tonne. An authorisation number for the disposal of the material would be provided by Jack Cossart and given to HDM.

Oil in the Bulimba Creek was pumped by Zappaway on 6/10/93 at a dam wall formed by fallen trees (Photograph 2). This operation took approximately 2 hours. For the remaining trace oil in the creek, officers of the Port of Brisbane, the BCC and the DEH advised that no dispersants should be utilised. Consequently cotton absorbing material was placed at the dammed section of the Creek and this soaked up the oil material over night. Operations on 6/10/93 commenced at approximately 11.20 am and terminated at 6.30 pm.

Contaminated soil was removed throughout the day of 7/10/93 from areas identified by engineers of Earthtech Laboratories and Hollingsworth Dames & Moore and taken to Willawong. Contaminated soil was scraped from the overland flow path of the oil spill and heaped into stockpiles and loaded. Material soaked with oil contained in the earthbunds, constructed on 6th October, was also removed. Oil contaminated soil was removed from the bottom of the stormwater and roof water line trench, and also the V drain and drainage system, southeast of where the breakage occurred. This material was also taken to Willawong. Dump truck numbers and times can be confirmed via tonnage dockets at Willawong.

RTI DL RELEASE - EHP

Supervision was undertaken by Earthtech Laboratories (Mr Doug Ryan) and Hollingsworth Dames & Moore (Mr Yin Foong). Samples of the material were taken during the excavation for analysis.

Stormwater drain lines which carried oil material after the accident were cleaned using a High Pressure Water Truck and a suction machine from Zappaway. A tanker truck was used on 6/10/93 and 7/10/93 to transfer the liquid material removed by Zappaway to the Moonie Oil Pipeline storage facilities.

The stormwater and roof water line which pass over the Moonie Oil Pipeline were redesigned and constructed across the pipeline under supervision from the Moonie Pipeline Company Pty Ltd.

The Bulimba Creek was inspected on 7/10/93 and it was found that oil lay on the surface of the water. Mr Nick Wellwood of Londy's Civil Engineering advised Mr Ken Giess of the BCC who in turn phoned the Port of Brisbane Authority Engineer and the Department of Environment and Heritage to confirm whether or not to use dispersants and detergents for the remaining oil.

An inspection of the Bulimba Creek was subsequently made by the Mr Ken Giess at approximately 10.30 am on 7/10/93 and it was confirmed that only a thin layer of oil lay in the section of the creek upstream of the fallen trees but no dispersants would be used. It was agreed that the BCC would remove the oil using a vacuum pump of Zappaway or similar any oil booms would be organised by the BCC.

Staking of the new lots in Carindale Stage 3 was ordered through Surveyors Jensen and Bowers and was undertaken prior to inspection by DEH at 9.30 on 8/10/93.

Soil removal operations again commenced at 7 am on 8/10/93. All excavated holes were left open for DEH inspection on 8/10/83 prior to backfilling and recompaction.

A site meeting with the BCC (Messrs Ken Giess and Jack Cossart) was held in relation to the material taken to Willawong. A revised estimate of the total tonnage of material to be taken from site was 2,800 tonnes.

A site meeting was also held between Mr Mark Paton (DEH), Messrs Yin Foong and Stephen Rogers from Hollingsworth Dames & Moore, Messrs Nick Wellwood and Emmanuel Londy from Londy's Civil Engineering and Mr Wayne Hardwick from Earthtech Laboratories to review the work that was undertaken.

The cleared areas of oil contaminated soil were inspected by Mr Mark Paton together with Mr Yin Foong and Mr Nick Wellwood of Londy's Civil Engineering. Mr Paton was impressed with how quickly the site was cleared up and also the level of site de-contamination of oil.

RTI DL RELEASE - EHP

The degree of validation testing was discussed with Mr Yin Foong and Mr Mark Paton and it was agreed that several tests were to be undertaken in the ponded dam areas as well as the V drains and a scatter of tests to be undertaken in the blocks where overland flow of oil had occurred.

Hollingsworth Dames & Moore was to compile a report for submission to the DEH which will be completed in one to two weeks including all testing undertaken by Australian Laboratory Services and Earthtech. Mr Mark Paton agreed that the DEH could provide the clearance approvals within a few days upon submission of the report since the DEH had been informed of this event from the start and also had been on site during the remediation process.

Mr Ken Giess again inspected the creek contamination on 8/10/83 and reported there was sufficient build up behind the bunded trees areas to pump excess oil off the water. This was undertaken by Zappaway which took approximately 1½ hours using their small pump truck (not suction truck). The creek would be inspected over the weekend by Mr Jack Cossart of the BCC and if any pumping is required the BCC will contact Zappaway directly.

RTI DL RELEASE - EHP

3.0 SITE INSPECTION, SAMPLING AND TESTING

3.1 WALKOVER INSPECTION

The portion of the subject site under investigation consists of an area of approximately 4,000 m^2 situated on the southern side of a small hill. The land has a slope of approximately 8° near the top of the hill and gently flattens off towards Bulimba Creek. All of the area has been cleared for residential development and the proposed allotments have been surveyed.

A walkover inspection of the subject site was carried out and completed on 8 October 1993. The site inspection was undertaken by Messrs Yin Foong and Stephen Rogers of Dames & Moore, Mr Mark Paton of the Contaminated Land Unit of the Department of Environment and Heritage and Messrs Nick Wellwood and Emmanuel Londy of Londy's Constructions Pty Ltd.

The area involving the oil spill had been excavated to various depths (Photographs 8 to 11, Figure 3). No visible sign of the oil spill remained.

13-023 DL Documents 41 of 93 Release

3.2 SOIL SAMPLING

6 and 8 October 1993

From the walkover inspection of the site, oil spill spread information and discussions with Mr Mark Paton, thirty-five (35) locations (Figure 3) were chosen to conduct surface soil sampling.

Soil samples were collected in the adjacent natural ground, from the surface of the scraped areas and from the floors and side walls of each excavation. The bulk samples were blended and sub portions placed into disposable glass bottles, covered with aluminium foil and sealed with a plastic screw lid. All samples were placed in a cooled esky (Samples C1 – C8 and CAR1 – CAR27). The results are shown in Table 1.

RTI DL RELEASE - EHP

Table 1

Soil Analysis Results – Organics
6 and 8 October 1993

Sample No.	Depth Interval (m)	Moisture Content (%)	$C_6 - C_9$	$C_{10} - C_{14}$	$C_{15} - C_{28}$	$C_{29} - C_{36}$	Benzene	Toluene	Chloro Benzene	Xylene	Ethyl-Benzene
C1	0.6–2.0	16.8	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
C2	2.7	22.3	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
C3	2.7	23.5	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
C4	2.7	17.3	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
C5	2.7	12.5	<LOR	<LOR	150	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
C6	0.6–2.0	13.6	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
C7	0.6–2.0	13.8	100	660	1700	190	<LOR	<LOR	<LOR	0.55	<LOR
C8	0.6–2.0	13.6	65	650	1800	210	<LOR	<LOR	<LOR	0.44	<LOR
CAR1	0.5–1.5	18.4	2.2	89	350	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
CAR2	0.5–1.5	1919	<LOR	140	420	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
CAR3	0.5	8.1	<LOR	310	1400	210	<LOR	<LOR	<LOR	<LOR	<LOR
CAR4	0.5	8.7	840	3100	8200	1200	<LOR	0.60	<LOR	7.3	0.73
Detection Limits (ALS)		0.1	2	50	100	100	0.2	0.2	0.2	0.4	0.2
"Investigation Threshold" Draft Guidelines for Assessment of Contaminated Land in Queensland (March 1991)			$C_5 - C_{10}$ 100	$C_{10} - C_{16}$ 100	$C_{17} >$ 1000		7				
Investigation Level Dutch B			100		1000		0.5	3	2	5	5
Clean-up Level Dutch C			800		5000		5	30	20	50	50

Sample No.	Depth Interval (m)	Moisture Content (%)	$C_6 - C_9$	$C_{10} - C_{14}$	$C_{15} - C_{28}$	$C_{29} - C_{36}$	Benzene	Toluene	Chloro Benzene	Xylene	Ethyl-Benzene
CAR5	0.5	6.3	12	<LOR	160	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
CAR6	0.3–0.6	16.2	14	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
CAR7	0.3–0.6	5.7	20	220	1400	200	<LOR	<LOR	<LOR	<LOR	<LOR
CAR8	0.4–0.7	12.6	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
CAR9	0.5–1.2	9.3	14	280	910	130	<LOR	<LOR	<LOR	<LOR	<LOR
CAR10	0.5–1.5	5.0	<LOR	96	580	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
CAR11	0.5–1.5	4.6	29	660	2000	280	<LOR	<LOR	<LOR	<LOR	<LOR
CAR12	0.5–2.0	19.1	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
CAR13	2.0	17.6	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
CAR14	2.0	12.8	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
CAR15	0–0.1	3.9	28	950	4100	590	<LOR	<LOR	<LOR	<LOR	<LOR
CAR16	0–0.1	9.7	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
CAR17	0–0.1	15.3	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
CAR18	0–0.1	16.2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
CAR19	0–0.1	7.3	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
CAR20	0–0.1	22.3	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
CAR21	0–0.1	13.9	220	1000	3000	440	<LOR	<LOR	<LOR	2.24	0.24
CAR22	0–0.1	6.0	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
CAR23	0–0.1	9.3	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
CAR24	0.3–0.7	13.6	<LOR	<LOR	<LOR	190	<LOR	<LOR	<LOR	<LOR	<LOR
CAR25	1.0	15.1	130	410	1200	200	<LOR	<LOR	<LOR	0.49	<LOR
CAR26	0.3–0.7	18.3	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
CAR27	0.3–0.7	15.9	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
Detection Limits (ALS)		0.1	2	50	100	100	0.2	0.2	0.2	0.4	0.2
"Investigation Threshold" Draft Guidelines for Assessment of Contaminated Land in Queensland (March 1991)			$C_5 - C_{10}$ 100	$C_{10} - C_{16}$ 100	C_{17} > 1000		7				
Investigation Level Dutch B			100		1000		0.5	3	2	5	5
Clean-up Level Dutch C			800		5000		5	30	20	50	50

Note: All results in mg/kg, as received unless otherwise specified.
<LOR = less than Level of Reporting.
Shaded areas indicate values which exceed CHEM Unit Investigation Thresholds.

RTI DL RELEASE - EHP

12 and 14 October 1993

The analytical results from the sampling were compared with the "Investigation Levels" as published in the "Draft Guidelines for the Investigation of Contaminated Sites in Queensland" CHEM Unit, January 1991.

The analytical results of the soil samples collected on 6 and 8 October 1993 indicated areas of high concentrations of hydrocarbon fractions exceeding the Queensland Government guidelines. These areas were further excavated, in order to remove this contamination. These additional excavations are described below and are indicated on Figure 4.

The southwestern wall and western wall of excavation 'A' were excavated a further 1 m and 2 m respectively. Excavation 'E' was excavated a further 0.3 m in depth. The side walls of the southern corner of excavation 'B' were excavated an extra 0.5 m, as was the northern wall of excavation 'D'. The floor of excavation 'D' to the west and the floor of excavation 'C' were both excavated a further 0.3 m in depth. The surface area in the vicinity of sample locations CAR15 and CAR21 were excavated an extra 0.3 m in depth.

Soil samples were again taken from these areas for validation purposes (CAR28 – CAR39). The results are shown in Table 2.

RTI DL RELEASE - EHP

Table 2

Soil Analysis Results – Organics
12 and 14 october 1993

Sample No.	Depth Interval (m)	Moisture Content (%)	$C_6 - C_9$	$C_{10} - C_{14}$	$C_{15} - C_{28}$	$C_{29} - C_{36}$	Benzene	Toluene	Chloro Benzene	Xylene	Ethyl-Benzene
CAR28	0.8–1.7	18.3	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
CAR29	0.8–1.7	17.5	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
CAR30	1.3	9.9	<LOR	410	640	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
CAR31	0.3	8.0	<LOR	<LOR	120	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
CAR32	0.6–0.9	8.1	<LOR	88	540	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
CAR33	0.8	10.2	<LOR	<LOR	630	240	<LOR	<LOR	<LOR	<LOR	<LOR
CAR34	0.3	17.9	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
CAR35	0.5–1.2	14.7	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
CAR36	0.8	12.9	<LOR	<LOR	250	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
CAR37	0.8	9.4	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
CAR38	0.5–1.5	6.5	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
CAR39	0.5–1.5	7.0	<LOR	<LOR	260	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
Detection Limits (ALS)		0.1	2	50	100	100	0.2	0.2	0.2	0.4	0.2
"Investigation Threshold" Draft Guidelines for Assessment of Contaminated Land in Queensland (March 1991)			$C_5 - C_{10}$ 100	$C_{10} - C_{16}$ 100	$C_{17} >$ 1000		7				
Investigation Level Dutch B			100		1000		0.5	3	2	5	5
Clean-up Level Dutch C			800		5000		5	30	20	50	50

RTI DL RELEASE - EHP

Note: All results in mg/kg, as received unless otherwise specified.
<LOR = less than Level of Reporting.
Shaded areas indicate values which exceed CHEM Unit Investigation Thresholds.

19 October 1993

The analytical results of the soil samples collected on 12 and 14 October indicated one hydrocarbon value (CAR30) with a value of 110 mg/kg for $C_{10} - C_{14}$ fractions. This high result is in the former excavation C area. This result slightly exceeds the "Investigation Threshold" of 100 mg/kg. Although this value may represent soil with levels below the "Investigation Threshold" (ie. a laboratory result of 110 mg/kg may represent 100 mg/kg with the limits of accuracy available in sampling and testing) it was decided to remove a further 0.3 metres of soil to ensure that hydrocarbon contamination in the actual soil was less than 100 mg/kg. It should also be noted that reported results are on an as received basis and not dry weight. In total a further 28 cubic meters of soil was removed.

Table 3

Soil Analysis Results – Organics
19 October 1993

Sample No.	Depth Interval (m)	Moisture Content (%)	$C_6 - C_9$	$C_{10} - C_{14}$	$C_{15} - C_{28}$	$C_{29} - C_{36}$	Benzene	Toluene	Chloro Benzene	Xylene	Ethyl-Benzene
CAR40	1.9	17.4	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
CAR41	1.9	15.2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
CAR42	1.9	15.3	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
Detection Limits (ALS)		0.1	2	50	100	100	0.2	0.2	0.2	0.4	0.2
"Investigation Threshold" Draft Guidelines for Assessment of Contaminated Land in Queensland (March 1991)			$C_5 - C_{10}$ 100	$C_{10} - C_{16}$ 100	$C_{17} >$ 1000		7				
Investigation Level Dutch B			100		1000		0.5	3	2	5	5
Clean-up Level Dutch C			800		5000		5	30	20	50	50

Note: All results in mg/kg, as received unless otherwise specified.
<LOR = less than Level of Reporting.
Shaded areas indicate values which exceed CHEM Unit Investigation Thresholds.

RTI DL RELEASE - EHP

3.3 LABORATORY TESTING

All soil samples were despatched by courier on 7, 8, 12, 14 and 19 October 1993 to NATA registered Australian Laboratory Services (ALS), Stafford together with a completed sample analysis request and chain of custody forms. ALS was requested to prepare the samples for environmental analysis, and then to carry out appropriate chemical analyses to detect the presence of a specified range Total Petroleum Hydrocarbons (TPH) and Monocyclic Aromatic Hydrocarbons (PAH's). The results of the chemical analyses are presented in Appendix B and are summarised in Table 1, 2 and 3.

3.4 DISCUSSION OF RESULTS

The analytical results of the final soil samples indicate that sufficient remediation of the site has been undertaken; all organic analytes were detected in concentrations below the "Investigation Threshold" in the *Draft Guidelines for the Assessment of Contaminated Land in Queensland* (March 1991).

4.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the site inspection and the analytical results, the soil previously contaminated with light crude oil has been successfully removed. Remaining concentrations of hydrocarbon fractions are below the Queensland Government guidelines.

It is recommended that no further work be undertaken on site and that this report be submitted to the Contaminated Land Unit, Department of Environment and Heritage for review and issuance of a Site Contamination Report, classifying the site as "former".

for DAMES & MOORE

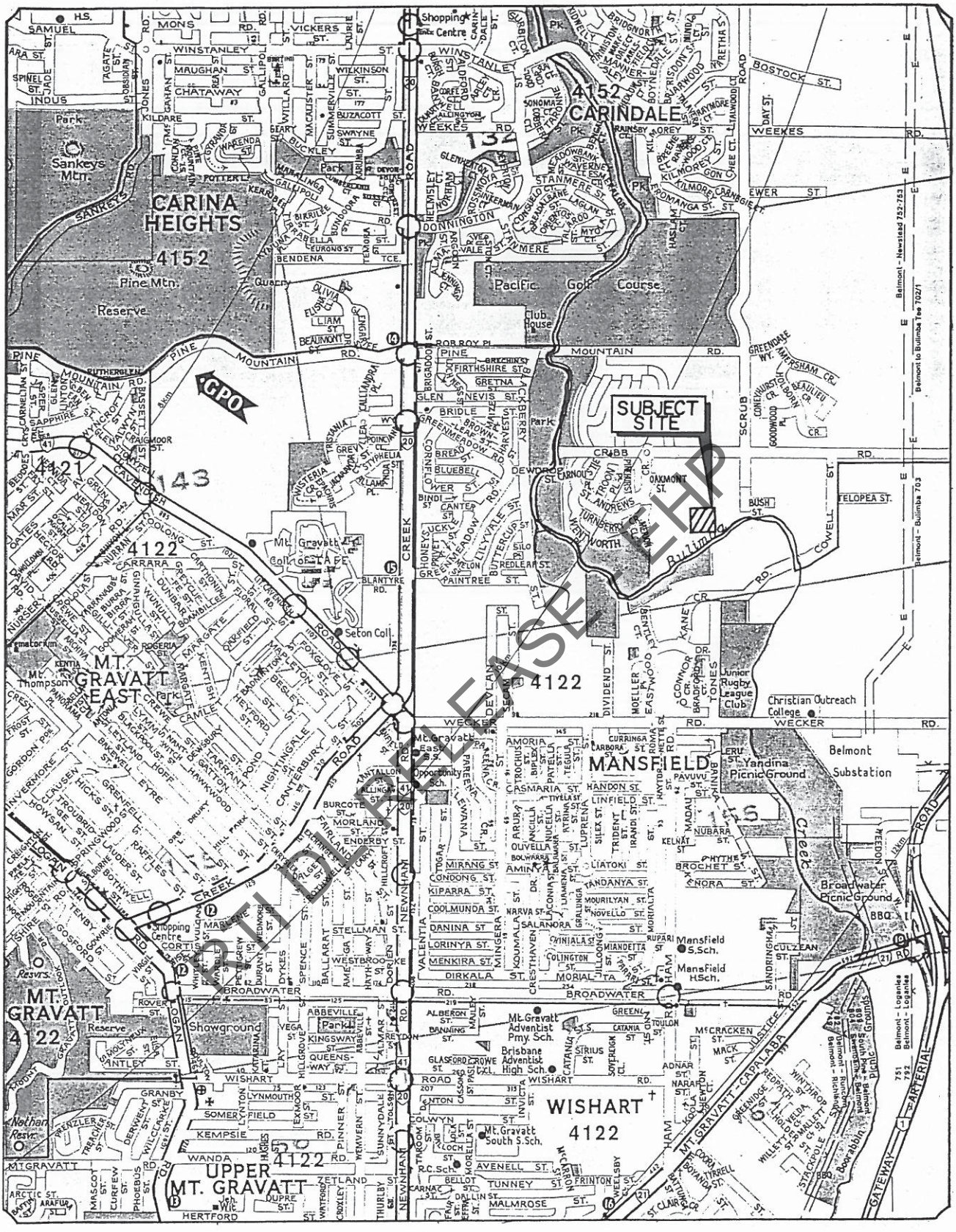
sch4p4(6) Personal information

YIN FOONG
Consultant–in–Charge – Water & Waste Services, Brisbane

RTI DL RELEASE - EHP

FIGURES

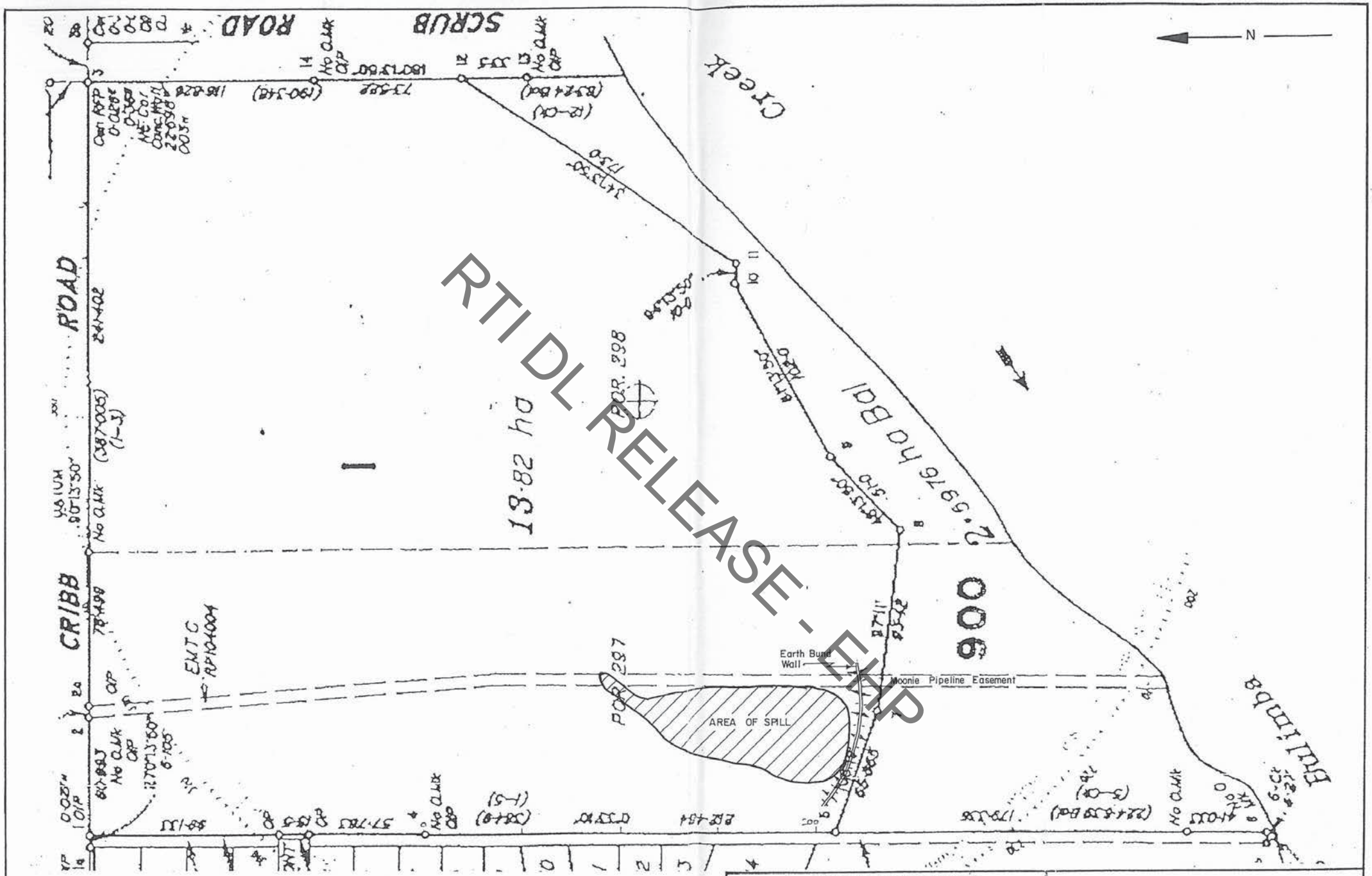
RTI DL RELEASE - EHP



RELEASED UNDER EPHP

LONDY'S CONSTRUCTIONS CLEAN UP & VALIDATION, CRUDE OIL SPILL, CARINDALE HEIGHTS ESTATE, CARINDALE	LOCATION PLAN
DAMES & MOORE	October 1993 23454 -004-366
	FIGURE 1

Release



LONDY'S CONSTRUCTIONS
CLEAN UP & VALIDATION, CRUDE OIL SPILL,
CARINDALE HEIGHTS ESTATE, CARINDALE

LOCATION OF OIL SPILL

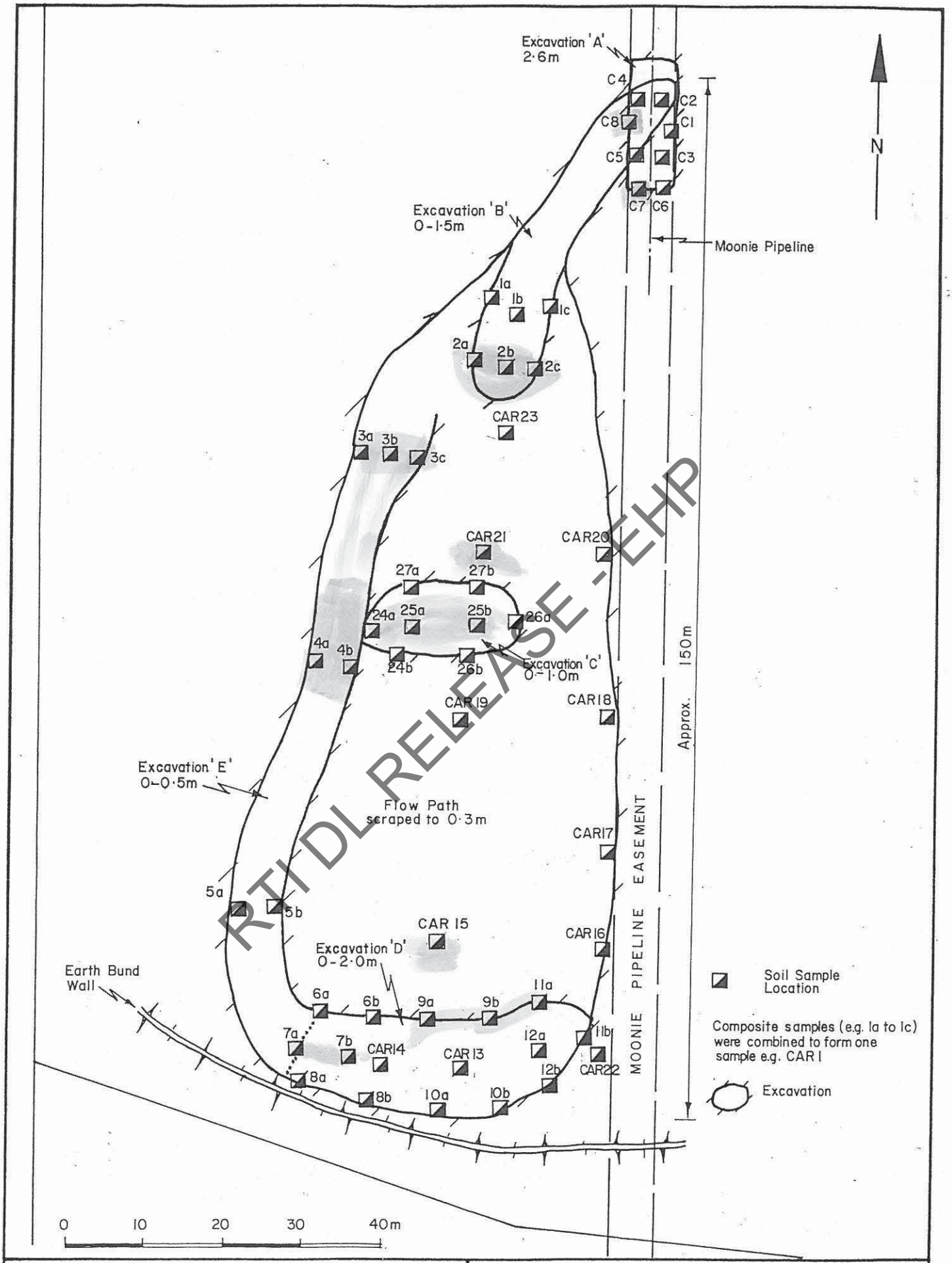
DAMES & MOORE

October 1993
23454-004-366

FIGURE 2

RTI DL RELEASE - EHP

13-023
DL Documents
50 of 93
Release



RTI DL RELEASE - EHP

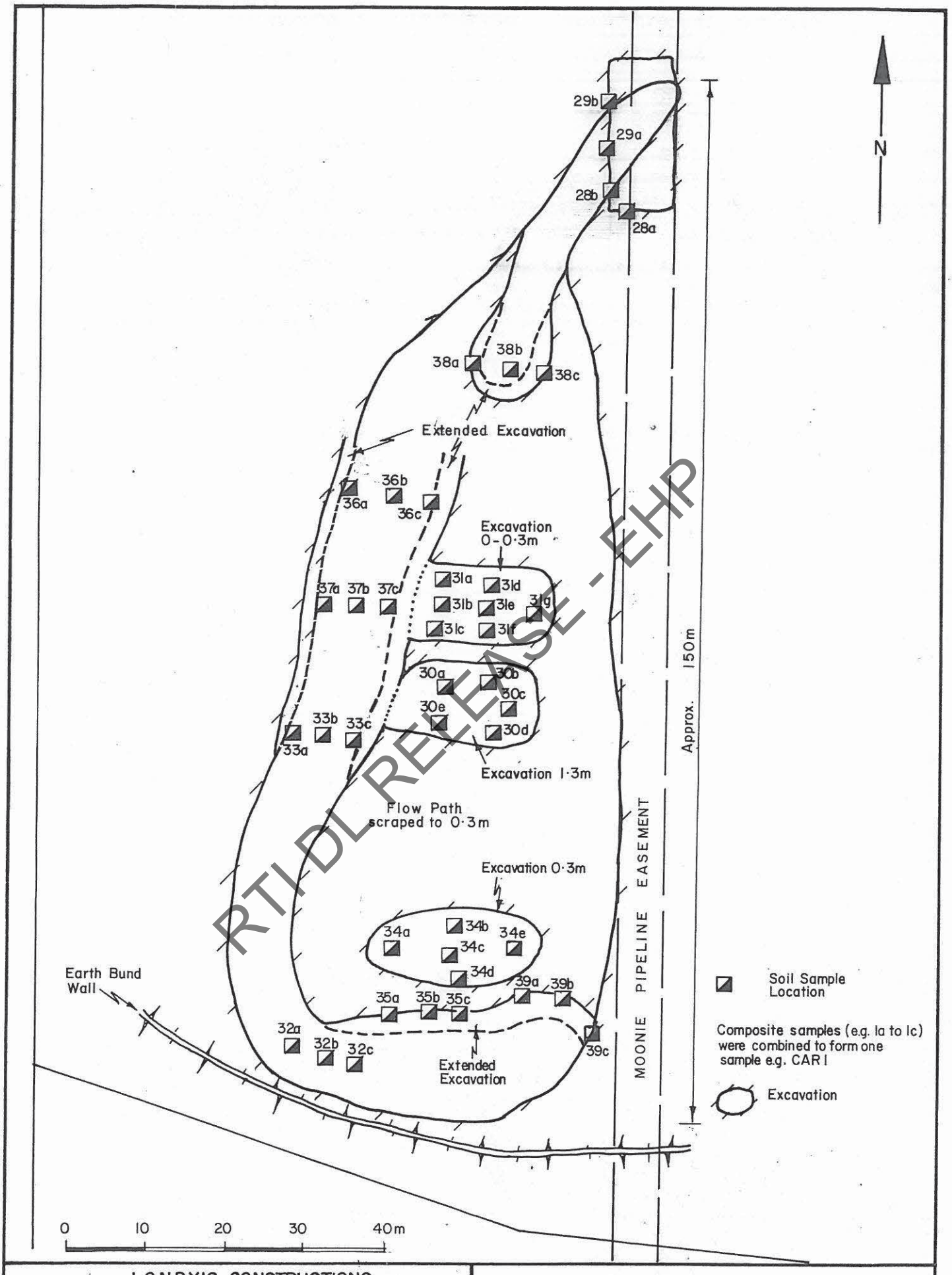
LONDY'S CONSTRUCTIONS
CLEAN UP & VALIDATION, CRUDE OIL SPILL,
CARINDALE HEIGHTS ESTATE, CARINDALE

SITE LAYOUT & SAMPLING LOCATIONS

DAMES & MOORE

October 1993
23454-004-366

FIGURE 3



RTI DL RELEASE - EHP

LONDY'S CONSTRUCTIONS
CLEAN UP & VALIDATION, CRUDE OIL SPILL,
CARINDALE HEIGHTS ESTATE, CARINDALE

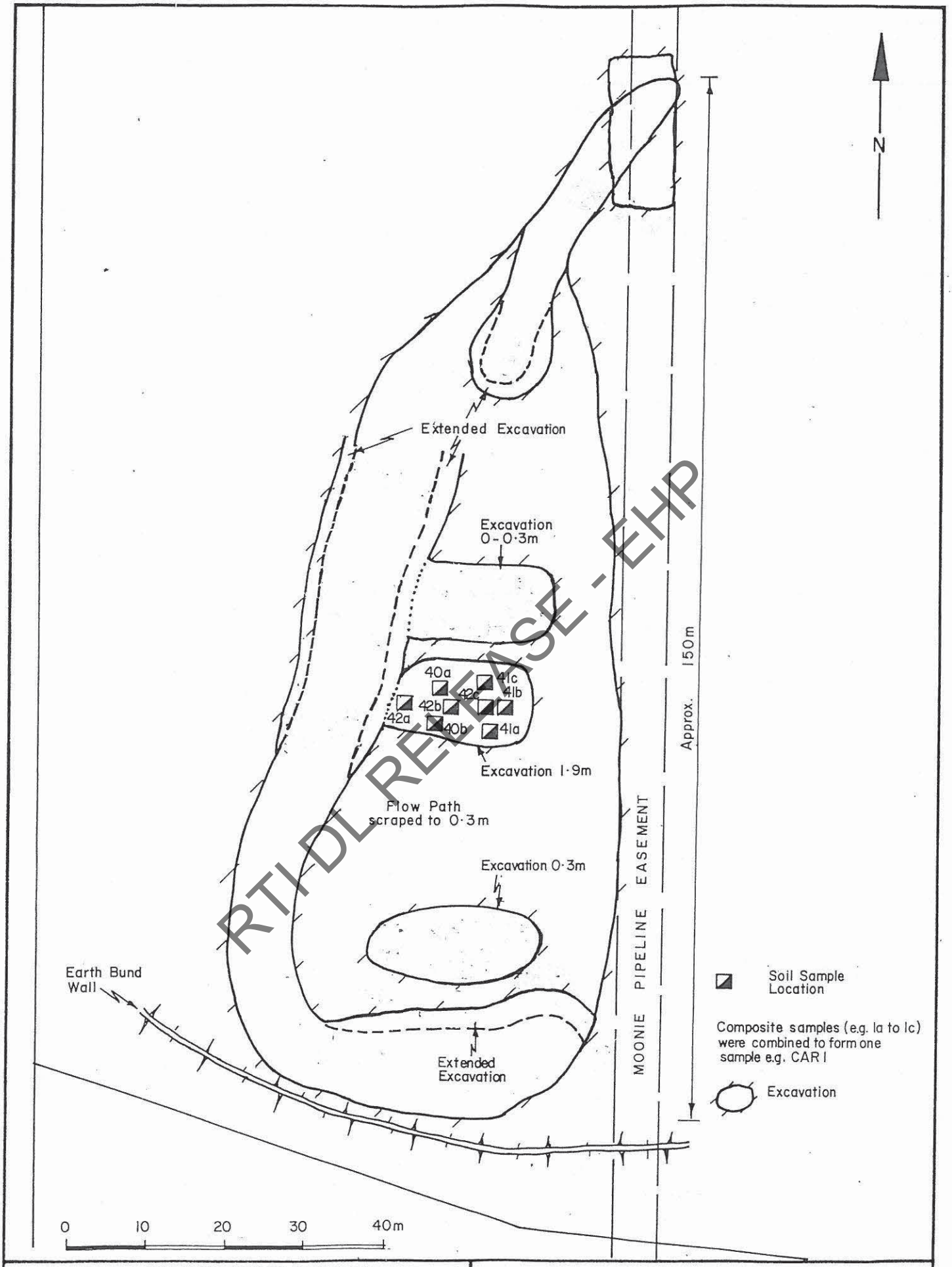
SOIL SAMPLE LOCATIONS -
11 & 14 OCTOBER 1993

DAMES & MOORE

October 1993
23454 -004-366

FIGURE 4

Release



RTI-DL RELEASE - EHP

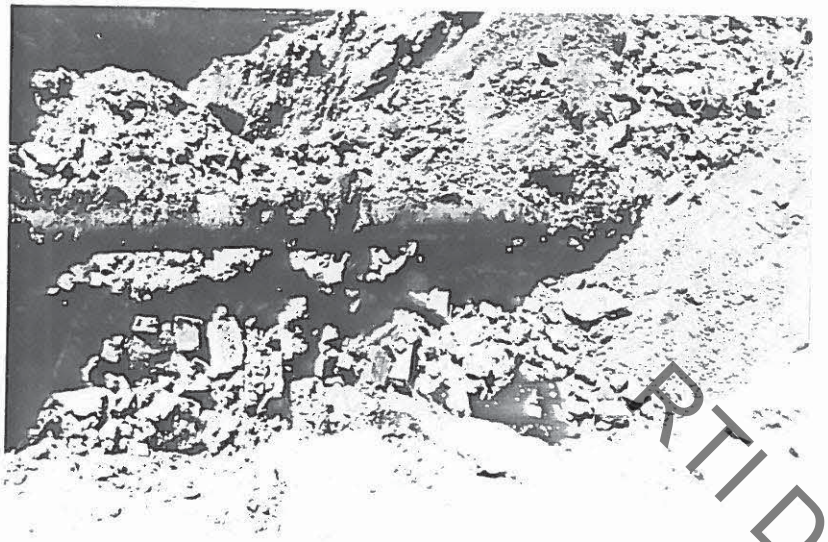
LONDY'S CONSTRUCTIONS CLEAN UP & VALIDATION, CRUDE OIL SPILL, CARINDALE HEIGHTS ESTATE, CARINDALE	SOIL SAMPLE LOCATIONS - 19 OCTOBER 1993
DAMES & MOORE	October 1993 23454-004-366
	FIGURE 5

PHOTOGRAPHS

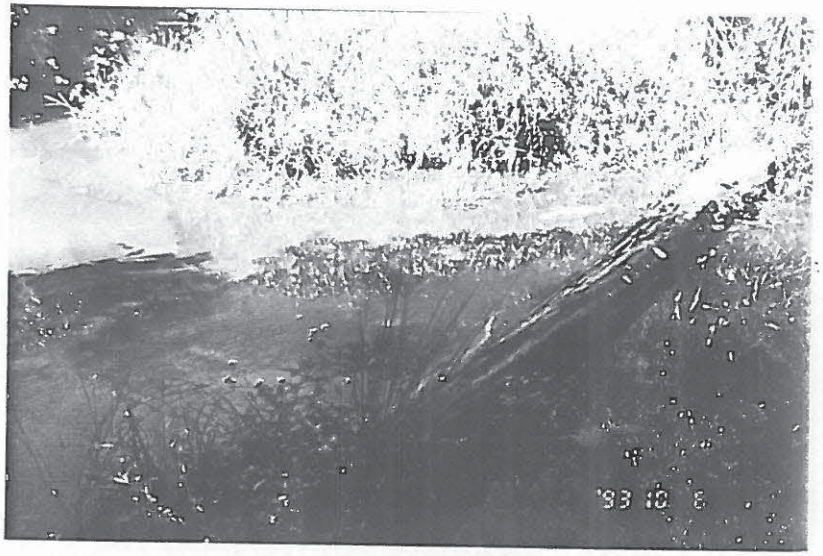
RTI DL RELEASE - EHP

Release

13-023



Photograph 1 View showing damaged oil pipeline with oil in excavation.



Photograph 2 View showing oil slick dammed on Bulimba Creek

Photograph 3 View of Bulimba Creek with a small slick

Photograph 4 View showing oil flow path and clean up

RTI DL RELEASE - EHP

DL Documents

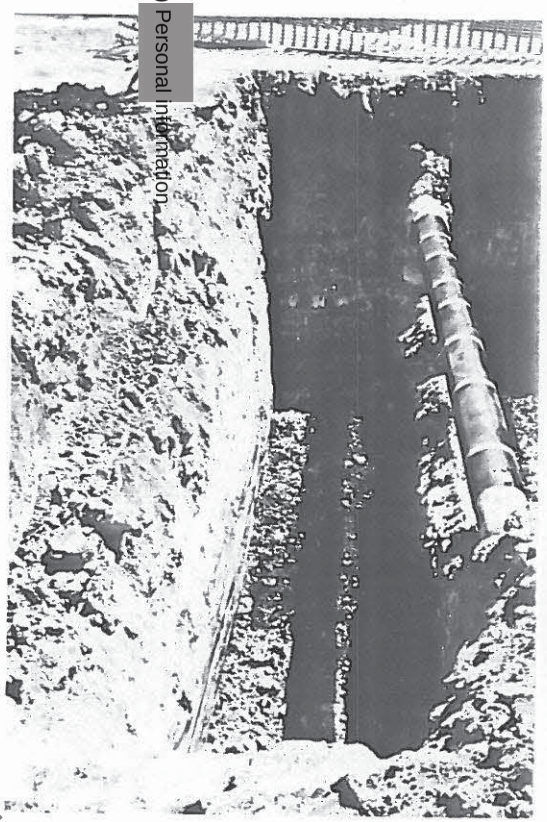
Release

13-023

Photograph 5 View of clean up

Photograph 6 General view of oil flow path

sch4p4(6) Personal information



Photograph 7 Excavation around repaired oil pipeline

RTI DL RELEASE - EHP

DL Documents

13-023

Photograph 8 Excavation around stormwater pipeline (Excavation 'B', Figure 2)

Photograph 9 View of Excavation 'C', Figure 2

Photograph 10 View of Excavation 'E', Figure 2

Photograph 11 View of Excavation 'D', Figure 2

DTI DL RELEASE - EIB

DL Documents

Release

RTI DL RELEASE - EHP

APPENDIX A

Certificate of Title

Release

DEPARTMENT OF LANDS

TITLE

CHECK SEARCH STATEMENT

BRISBANE 13/10/1993 13:26

SOUTHERN REGISTRY PAID
VOLUME: 8411 FOLIO: 4

DEALING NUMBER	DEALING TYPE	LODGMENT DATE	CURRENT STATUS	
L537215V	PLAN NO. RP848190	23/06/1993	REGISTERED	20/08/1993
L537225D	EASEMENT	23/06/1993	REGISTERED	20/08/1993
L537285B	PLAN NO. RP848196	23/06/1993	REGISTERED	20/08/1993
L537293D	NOM TRUST	23/06/1993	REGISTERED	20/08/1993
L611000R	P/SURR EASE NO. D132999	19/08/1993	DEL DOC ERR	24/09/1993
L611005F	PLAN NO. RP848199	19/08/1993	REGISTERED	28/09/1993
L611007K	PLAN NO. RP858701	19/08/1993	REGISTERED	28/09/1993
L611010B	NOM TRUST	19/08/1993	REGISTERED	28/09/1993
L611014K	EASEMENT	19/08/1993	DEL-N/T ISSUED	1/10/1993
L611018W	EASEMENT	19/08/1993	REGISTERED	28/09/1993

-- END OF CHECK SEARCH STATEMENT --

RTI DL RELEASE - EHP

NOTE

Computerised Check Searches do not provide any evidence of Dealings lodged prior to the introduction of the Unregistered Dealings System.
The above information should be used only in conjunction with a search of the Register and is current only to the date and hour shown hereon.
Recorded Dealings are listed on Check Searches for 90 days after registration/cancellation.
This Statement is subject to Crown copyright and should not be photocopied or reproduced.

Release

M2—Govt. Printer, Qld

CERTIFICATE OF TITLE

Vol. 8411 Fol. 4

74806
Dealing No.: L203686N

QUEENSLAND

Previous Title:
Vol. 1427 Fol. 173

Issued: 6 November, 1992

I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such easements encumbrances and interests as are shown in the Second Schedule.

Witness:

[redacted]

sch4p4(6) Personal information

[redacted]

Registrar of Titles.

ESTATE AND LAND

Estate in Fee Simple in Lot 1 on RP848100 County of Stanley Parish of Tingalpa Containing 13.82 hectares

FIRST SCHEDULE

~~Ruby Doris EDWARDS, Colin Frederick William EDWARDS and Frederick Herbert EDWARDS as devisees in trust~~

SECOND SCHEDULE

1. Rights and interests reserved to the Crown by Deeds of Grant Nos. 10391 (Por 297) and 10392 (Por 298).
2. Easement by Resumption No. ~~E848484~~ over Resub C on RP104004 is taken by Moonie Pipeline Company Pty. Ltd. Produced 23 Jul 1964 Recorded 6 Feb 1968
3. ~~Caveat No. K112355P by Devine Belmont Estates Pty Ltd Consent of Registered Proprietors Produced 29 Nov 1989 Recorded 4 Jan 1990~~ WITHDRAWN VIDE L277962K 28 JAN 1993 [redacted]
4. ~~Caveat No. L147938C by Brisbane City Council Produced 11 Aug 1992 Recorded 30 Oct 1992~~

D132999 Corrected 12-2-93

WITHDRAWN VIDE No. L277962K

28 JAN 1993 [redacted]

FOR DETAILS OF DESCRIPTION, DIMENSIONS AND MARKING OF BOUNDARIES REFER TO SURVEY PLAN REFERRED TO ABOVE.

OTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR OF TITLES ARE CANCELLED
ERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON

RTI DL RELEASE - EHP

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT			RECORDED
	NATURE	NUMBER	PRODUCED	
By Plan Cat No. 848199 part of the within land is subdivided into Lots 132 to 150, 303 and proposed Easement A in Lot 148 and an area has been dedicated for road purposes. Cancelled except Lot 303 vide Vol. 8615 Fol. 108 to 126	Plan	L611005F	19AUG1993	28 SEP 1993
By Plan Cat No. 858701 part of the within land is subdivided into Lots 95 to 112, 127 to 131 and 151 and an area has been dedicated for road purposes. Cancelled vide Vol. 8615 Fol. 127 to 150	Plan	L611007K	19AUG1993	28 SEP 1993
Lot 303 on RP 848199 to Brisbane City Council as trustee Cancelled vide Vol. 8615 Fol. 107	Nom/T'tees	L611010B	19AUG1993	28 SEP 1993

sch4p4(6) Personal information

RTI DL RELEASE - EHP

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR OF TITLES ARE CANCELLED.

APPENDIX B

Certificates of Analysis

RTI DL RELEASE - EHP

Release

Australian Laboratory Services
32 Shand Street
Stafford Q 4053
Ph: (07) 352 5577
Fax: (07) 352 5109
A.C.N. 009936029

RECEIVED
13 OCT 1993

ANALYTICAL REPORT

BATCH NUMBER:	EN6495
CLIENT:	Hollingworth Dames and Moore
ADDRESS:	P.O. Box 251 SPRING HILL QLD 4004
CONTACT:	Stephen Rogers
CLIENT JOB No.:	23454-003-336
CLIENT ORDER No.:	7828
DATE RECEIVED:	7/10/93
DATE COMPLETED:	11/10/93
SAMPLE TYPE:	Soil
ANALYSIS REQUESTED:	Aromatics (BTEX) - 8 Total Petroleum Hydrocarbons (TPH) by Fractions - 8 Moistures - 8
METHOD OF ANALYSIS:	
BTEX in Solids	**ALS Method Code:** EP-080 Extraction: Purge & Trap Analysis: GC/MS
TPH	**ALS Method Code:** EP-071 Extraction: Volatiles - Purge & Trap Semivolatiles Solids - Tumbler Liquids - Separatory Funnel Analysis: Volatiles - GCMS Semivolatiles - GCFID
Moistures	**ALS Method Code:** EP-055

RTI DL RELEASE - EHP

sch4p4(6) Personal information

Signed.....

Joanne Boden
Manager - Organic Laboratory

No. 825

This Laboratory is registered by the National Association of Testing Authorities, Australia. The test(s) reported herein have been performed in accordance with its terms of registration. This document shall not be reproduced except in full.

ANALYTICAL RESULTS SHEET

ALS EA-055 : MOISTURE CONTENT

BATCH No: EN6495
ANALYST: A. Wong

MATRIX: Soil
UNITS: %

Lab I.D.	-1	-2	-3	-4	-5	-6
Client I.D.	C1 7/10/93	C2 7/10/93	C3 7/10/93	C4 7/10/93	C5 7/10/93	C6 7/10/93
Moisture %	16.8	22.3	23.5	17.3	12.5	13.6

Lab I.D.	-7	-8				
Client I.D.	C7 7/10/93	C8 7/10/93				
Moisture %	13.8	13.6				

RTI DL RELEASE - EHP

Release

ANALYTICAL RESULTS SHEET

ALS EP-080 : BTEX IN SOIL

QC Lot No. : VOCS213
Batch No. : EN6495
Analyst :G. Morey

Matrix : Soil
Units: mg/kg

Target Compounds	Lab I.D.	-1	-2	-3	-4	-5
	Client I.D.	C 1 7/10/93	C 2 7/10/93	C 3 7/10/93	C 4 7/10/93	C 5 7/10/93
	LOR					
Benzene	0.20	< LOR	< LOR	< LOR	< LOR	< LOR
Toluene	0.20	< LOR	< LOR	< LOR	< LOR	< LOR
Chlorobenzene	0.20	< LOR	< LOR	< LOR	< LOR	< LOR
Ethylbenzene	0.20	< LOR	< LOR	< LOR	< LOR	< LOR
m- & p-Xylene	0.40	< LOR	< LOR	< LOR	< LOR	< LOR
o-Xylene	0.20	< LOR	< LOR	< LOR	< LOR	< LOR

Target Compounds	Lab I.D.	-6	-7	-8		
	Client I.D.	C 6 7/10/93	C 7 7/10/93	C 8 7/10/93		
	LOR					
Benzene	0.20	< LOR	< LOR	< LOR		
Toluene	0.20	< LOR	< LOR	< LOR		
Chlorobenzene	0.20	< LOR	< LOR	< LOR		
Ethylbenzene	0.20	< LOR	< LOR	< LOR		
m- & p-Xylene	0.40	< LOR	0.55	0.44		
o-Xylene	0.20	< LOR	< LOR	< LOR		

RTI DL RELEASE - EHP

COMMENTS:

1. LOR: Level Of Reporting.
2. Surrogate standards are added to every sample to monitor the method performance.
3. Results are reported on an as received basis.

Release

BATCH QUALITY CONTROL

ALS EP-080 : BTEX IN SOIL

Matrix : Soil
QC Lot No.: VOCS213

Analyst :G. Morey
Spiked Aliquot : Reagent Grade Water

BTEX COMPOUNDS	Level Of Reporting (LOR)	Blank Conc	QC SPIKE RESULTS					Control Limits		
			Spike Conc	SCS	DCS	Average Recovery	RPD	Recovery		RPD
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%	%	Low	High	%
Benzene	0.20	ND	1.00	1.11	1.01	106	10	88	110	20
Toluene	0.20	ND	1.00	1.05	0.97	101	8	82	122	20
Chlorobenzene	0.20	ND	1.00	0.99	0.98	99	2	88	109	20
Ethylbenzene	0.20	ND	1.00	1.00	0.99	100	2	87	111	20
m- & p-Xylene	0.40	ND	2.00	2.07	1.99	102	4	87	110	20
o-Xylene	0.20	ND	1.00	1.13	1.10	111	3	86	112	20

ND: Compound not detected

COMMENTS:
1. Surrogate standards are added to every QC sample to monitor method performance.

RTI DL RELEASE - EHP

ANALYTICAL RESULTS SHEET

ALS EP-071 : Total Petroleum Hydrocarbons by Fractions

BATCH No.: EN6495
ANALYST:L. Sharp

MATRIX: Soil
UNITS: mg/kg

COMPOUND	Lab I.D.	-1	-2	-3	-4	-5
	Client I.D.	C1 7/10/93	C2 7/10/93	C3 7/10/93	C4 7/10/93	C5 7/10/93
	LOR					
C5 - C9	2	<LOR	<LOR	<LOR	<LOR	<LOR
C10 - C14	50	<LOR	<LOR	<LOR	<LOR	<LOR
C15 - C28	100	<LOR	<LOR	<LOR	<LOR	150
C29 - C36	100	<LOR	<LOR	<LOR	<LOR	<LOR

COMPOUND	Lab I.D.	-6	-7	-8		
	Client I.D.	C6 7/10/93	C7 7/10/93	C8 7/10/93		
	LOR					
C5 - C9	2	<LOR	100	65		
C10 - C14	50	<LOR	660	650		
C15 - C28	100	<LOR	1700	1800		
C29 - C36	100	<LOR	190	210		

RTI DL RELEASE - EHP

COMMENTS:
1. Results are reported on an as received basis
2. LOR : Level Of Reporting

Release

BATCH QUALITY CONTROL - TPH

ALS EP-071 : Total Petroleum Hydrocarbons by Fractions

MATRIX: Soil

ANALYST: J. Boden
SPIKING STD: n-Alkane

Volatile Components *

COMPOUND	Level Of Reporting (LOR)	Blank conc	SOIL SPIKE RESULTS					CONTROL LIMITS		
			Spike Conc.	SCS conc	DCS conc	Av. Rec.	RPD	Recovery (%)		RPD
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%	%	Low	High	%
QC Lot No.: VOCS213 Applicable to Samples EN6495										
C6-C9	2	<LOR	45.00	51.59	48.67	111	6	70	130	20
C10	10	<LOR	5.00	5.88	6.00	119	2	70	130	20

Semivolatile Components

COMPOUND	Level Of Reporting (LOR)	Blank conc	SOIL SPIKE RESULTS					CONTROL LIMITS		
			Spike Conc.	SCS conc	DCS conc	Av. Rec.	RPD	Recovery (%)		RPD
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%	%	Low	High	%
QC Lot No.: TPHT167 Applicable to Samples EN6495										
C11-C14	50	<LOR	450	265	291	62	9	70	130	20
C15-C28	100	<LOR	230	183	191	81	4	70	130	20
C29-C36	100	<LOR	N/A	N/A	N/A	N/A	N/A	70	130	20

RTI DL RELEASE - EHP

* Surrogate standards are added to every QC spike and sample to monitor method performance.

Australian Laboratory Services
32 Shand Street
Stafford Q 4053
Ph: (07) 352 5577
Fax: (07) 352 5109
A.C.N. 009936029

RECEIVED
18 OCT 1993

ANALYTICAL REPORT

BATCH NUMBER:	EN6513
CLIENT:	Hollingsworth Dames and Moore
ADDRESS:	P.O. Box 251 SPRING HILL QLD 4004
CONTACT:	Stephen Rogers
CLIENT JOB No.:	23454-004-362
CLIENT ORDER No.:	N/A
DATE RECEIVED:	8/10/93
DATE COMPLETED:	13/10/93
SAMPLE TYPE:	Soils
ANALYSIS REQUESTED:	Aromatics (BTEX) - 27 Total Petroleum Hydrocarbons (TPH) by Fractions - 27 Moistures - 27
METHOD OF ANALYSIS:	
BTEX in Solids	**ALS Method Code:** EP-080 Extraction: Purge & Trap Analysis: GC/MS
TPH	**ALS Method Code:** EP-071 Extraction: Volatiles - Purge & Trap Semivolatiles Solids - Tumbler Liquids - Separatory Funnel Analysis: Volatiles - GCMS Semivolatiles - GCFID
Moistures	**ALS Method Code:** EP-055

RTI DL RELEASE - EHP

sch4p4(6) Personal information

Signed.....

Joanne Boden
Manager - Organic Laboratory

No. 825

This Laboratory is registered by the National Association of Testing Authorities, Australia. The test(s) reported herein have been performed in accordance with its terms of registration. This document shall not be reproduced except in full.

ANALYTICAL RESULTS SHEET

ALS EA-055 : MOISTURE CONTENT

BATCH No: EN6513
ANALYST: T. Devantier

MATRIX: Soil
UNITS: %

Lab I.D.	-1	-2	-3	-4	-5	-6
Client I.D.	CAR-1	CAR-2	CAR-3	CAR-4	CAR-5	CAR-6
Moisture %	18.4	19.9	8.1	8.7	6.3	16.2

Lab I.D.	-7	-8	-9	-10	-11	-12
Client I.D.	CAR-7	CAR-8	CAR-9	CAR-10	CAR-11	CAR-12
Moisture %	5.7	12.6	9.3	5.0	4.6	19.1

Lab I.D.	-13	-14	-15	-16	-17	-18
Client I.D.	CAR-13	CAR-14	CAR-15	CAR-16	CAR-17	CAR-18
Moisture %	17.6	12.8	3.9	9.7	15.3	16.2

RTI DL RELEASE - EHP

Release

ALS EA-055 : MOISTURE CONTENT

BATCH No: EN6513
ANALYST: T. Devantier

MATRIX: Soil
UNITS: %

Lab I.D.	-19	-20	-21	-22	-23	-24
Client I.D.	CAR-19	CAR-20	CAR-21	CAR-22	CAR-23	CAR-24
Moisture %	7.3	22.3	13.9	6.0	9.3	13.6

Lab I.D.	-25	-26	-27			
Client I.D.	CAR-25	CAR-26	CAR-27			
Moisture %	15.1	18.3	15.9			

RTI DL RELEASE - EHP

Release

ANALYTICAL RESULTS SHEET

ALS EP-080 : BTEX IN SOIL

QC Lot No. : VOCS215
Batch No. : EN6513
Analyst :G. Morey

Matrix : Soil
Units: mg/kg

Target Compounds	Lab I.D.	-1	-2	-3	-4	-5
	Client I.D.	CAR - 1	CAR - 2	CAR - 3	CAR - 4	CAR - 5
	LOR					
Benzene	0.20	< LOR	< LOR	< LOR	< LOR	< LOR
Toluene	0.20	< LOR	< LOR	< LOR	0.60	< LOR
Chlorobenzene	0.20	< LOR	< LOR	< LOR	< LOR	< LOR
Ethylbenzene	0.20	< LOR	< LOR	< LOR	0.73	< LOR
m- & p-Xylene	0.40	< LOR	< LOR	< LOR	6.2	< LOR
o-Xylene	0.20	< LOR	< LOR	< LOR	1.1	< LOR

Target Compounds	Lab I.D.	-6	-7	-8	-9	-10
	Client I.D.	CAR - 6	CAR - 7	CAR - 8	CAR - 9	CAR - 10
	LOR					
Benzene	0.20	< LOR	< LOR	< LOR	< LOR	< LOR
Toluene	0.20	< LOR	< LOR	< LOR	< LOR	< LOR
Chlorobenzene	0.20	< LOR	< LOR	< LOR	< LOR	< LOR
Ethylbenzene	0.20	< LOR	< LOR	< LOR	< LOR	< LOR
m- & p-Xylene	0.40	< LOR	< LOR	< LOR	< LOR	< LOR
o-Xylene	0.20	< LOR	< LOR	< LOR	< LOR	< LOR

RTI DL RELEASE - EHP

COMMENTS:

1. LOR: Level Of Reporting.
2. Surrogate standards are added to every sample to monitor the method performance.
3. Results are reported on an as received basis.

ALS EP-080 : BTEX IN SOIL

QC Lot No. : VOCS215
Batch No. : EN6513
Analyst : G. Morey

Matrix : Soil
Units: mg/kg

Target Compounds	Lab I.D.	-11	-12	-13	-14	-15
	Client I.D.	CAR - 11	CAR - 12	CAR - 13	CAR - 14	CAR - 15
	LOR					
Benzene	0.20	< LOR	< LOR	< LOR	< LOR	< LOR
Toluene	0.20	< LOR	< LOR	< LOR	< LOR	< LOR
Chlorobenzene	0.20	< LOR	< LOR	< LOR	< LOR	< LOR
Ethylbenzene	0.20	< LOR	< LOR	< LOR	< LOR	< LOR
m- & p-Xylene	0.40	< LOR	< LOR	< LOR	< LOR	< LOR
o-Xylene	0.20	< LOR	< LOR	< LOR	< LOR	< LOR

Target Compounds	Lab I.D.	-16	-17	-18	-19	-20
	Client I.D.	CAR - 16	CAR - 17	CAR - 18	CAR - 19	CAR - 20
	LOR					
Benzene	0.20	< LOR	< LOR	< LOR	< LOR	< LOR
Toluene	0.20	< LOR	< LOR	< LOR	< LOR	< LOR
Chlorobenzene	0.20	< LOR	< LOR	< LOR	< LOR	< LOR
Ethylbenzene	0.20	< LOR	< LOR	< LOR	< LOR	< LOR
m- & p-Xylene	0.40	< LOR	< LOR	< LOR	< LOR	< LOR
o-Xylene	0.20	< LOR	< LOR	< LOR	< LOR	< LOR

RTI DL RELEASE - EHP

Release

ALS EP-080 : BTEX IN SOIL

QC Lot No. : VOCS214
Batch No. : EN6513
Analyst : G. Morey

Matrix : Soil
Units: mg/kg

Target Compounds	Lab I.D.	-21	-22	-23	-24	-25
	Client I.D.	CAR - 21	CAR - 22	CAR - 23	CAR - 24	CAR - 25
	LOR					
Benzene	0.20	< LOR	< LOR	< LOR	< LOR	< LOR
Toluene	0.20	< LOR	< LOR	< LOR	< LOR	< LOR
Chlorobenzene	0.20	< LOR	< LOR	< LOR	< LOR	< LOR
Ethylbenzene	0.20	**0.24**	< LOR	< LOR	< LOR	< LOR
m- & p-Xylene	0.40	**2.0**	< LOR	< LOR	< LOR	**0.49**
o-Xylene	0.20	**0.42**	< LOR	< LOR	< LOR	< LOR

Target Compounds	Lab I.D.	-26	-27			
	Client I.D.	CAR - 26	CAR - 27			
	LOR					
Benzene	0.20	< LOR	< LOR			
Toluene	0.20	< LOR	< LOR			
Chlorobenzene	0.20	< LOR	< LOR			
Ethylbenzene	0.20	< LOR	< LOR			
m- & p-Xylene	0.40	< LOR	< LOR			
o-Xylene	0.20	< LOR	< LOR			

RTI DL RELEASE - EHP

Release

BATCH QUALITY CONTROL

ALS EP-080 : BTEX IN SOIL

Matrix : Soil
QC Lot No.: VOCS214

Analyst :G. Morey
Spiked Aliquot : Reagent Grade Water

BTEX COMPOUNDS	Level Of Reporting (LOR)	Blank Conc	QC SPIKE RESULTS					Control Limits		
			Spike Conc	SCS	DCS	Average Recovery	RPD	Recovery		RPD
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%	%	Low	High	%
Benzene	0.20	ND	1.00	1.08	1.10	109	1	88	110	20
Toluene	0.20	ND	1.00	1.17	1.11	114	5	82	122	20
Chlorobenzene	0.20	ND	1.00	0.99	1.02	100	3	88	109	20
Ethylbenzene	0.20	ND	1.00	1.01	1.01	101	0	87	111	20
m- & p-Xylene	0.40	ND	2.00	2.08	2.12	105	2	87	110	20
o-Xylene	0.20	ND	1.00	1.05	0.98	101	7	86	112	20

ND: Compound not detected

COMMENTS:
1. Surrogate standards are added to every QC sample to monitor method performance.

RTI DL RELEASE - EHP

Release

BATCH QUALITY CONTROL

ALS EP-080 : BTEX IN SOIL

Matrix : Soil
QC Lot No.: VOCS215

Analyst :G. Morey
Spiked Aliquot : Reagent Grade Water

BTEX COMPOUNDS	Level Of Reporting (LOR)	Blank Conc	QC SPIKE RESULTS					Control Limits		
			Spike Conc	SCS	DCS	Average Recovery	RPD	Recovery		RPD
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%	%	Low	High	%
Benzene	0.20	ND	1.00	0.99	0.95	97	4	88	110	20
Toluene	0.20	ND	1.00	1.00	1.12	106	11	82	122	20
Chlorobenzene	0.20	ND	1.00	0.97	0.94	95	3	88	109	20
Ethylbenzene	0.20	ND	1.00	1.02	0.99	101	2	87	111	20
m- & p-Xylene	0.40	ND	2.00	2.22	2.03	106	9	87	110	20
o-Xylene	0.20	ND	1.00	1.08	0.99	103	8	86	112	20

ND: Compound not detected

COMMENTS:

1. Surrogate standards are added to every QC sample to monitor method performance.

RTI DL RELEASE - EHP

Release

ANALYTICAL RESULTS SHEET

ALS EP-071 : Total Petroleum Hydrocarbons by Fractions

BATCH No.: EN6513
ANALYST:L. Sharp

MATRIX: Soil
UNITS: mg/kg

COMPOUND	Lab I.D.	-1	-2	-3	-4	-5
	Client I.D.	CAR -1	CAR-2	CAR-3	CAR-4	CAR-5
	LOR					
C5 - C9	2	2.2	<LOR	<LOR	840	12
C10 - C14	50	89	140	310	3100	<LOR
C15 - C28	100	350	420	1400	8200	160
C29 - C36	100	<LOR	<LOR	210	1200	<LOR

COMPOUND	Lab I.D.	-6	-7	-8	-9	-10
	Client I.D.	CAR-6	CAR-7	CAR-8	CAR-9	CAR-10
	LOR					
C5 - C9	2	14	20	<LOR	14	<LOR
C10 - C14	50	<LOR	220	<LOR	280	96
C15 - C28	100	<LOR	1400	<LOR	910	580
C29 - C36	100	<LOR	200	<LOR	130	<LOR

RTI DL RELEASE - EHP

COMMENTS:
1. Results are reported on an as received basis
2. LOR : Level Of Reporting

Release

ANALYTICAL RESULTS CONTINUED

ALS EP-071 : Total Petroleum Hydrocarbons by Fractions

BATCH No.: EN6513
ANALYST:L. Sharp

MATRIX: Soil
UNITS: mg/kg

COMPOUND	Lab I.D.	-11	-12	-13	-14	-15
	Client I.D.	CAR-11	CAR-12	CAR-13	CAR-14	CAR-15
	LOR					
C5 - C9	2	29	<LOR	<LOR	<LOR	28
C10 - C14	50	660	<LOR	<LOR	<LOR	950
C15 - C28	100	2000	<LOR	<LOR	<LOR	4100
C29 - C36	100	280	<LOR	<LOR	<LOR	590

COMPOUND	Lab I.D.	-16	-17	-18	-19	-20
	Client I.D.	CAR-16	CAR-17	CAR-18	CAR-19	CAR-20
	LOR					
C5 - C9	2	<LOR	<LOR	<LOR	<LOR	<LOR
C10 - C14	50	<LOR	<LOR	<LOR	<LOR	<LOR
C15 - C28	100	<LOR	<LOR	<LOR	<LOR	<LOR
C29 - C36	100	<LOR	<LOR	<LOR	<LOR	<LOR

RTI DL RELEASE - EHP

Release

ANALYTICAL RESULTS SHEET

ALS EP-071 : Total Petroleum Hydrocarbons by Fractions

BATCH No.: EN6513
ANALYST:L. Sharp

MATRIX: Soil
UNITS: mg/kg

COMPOUND	Lab I.D.	-21	-22	-23	-24	-25
	Client I.D.	CAR-21	CAR-22	CAR-23	CAR-24	CAR-25
	LOR					
C5 - C9	2	220	<LOR	<LOR	<LOR	130
C10 - C14	50	1000	<LOR	<LOR	<LOR	410
C15 - C28	100	3000	<LOR	<LOR	<LOR	1200
C29 - C36	100	440	<LOR	<LOR	190	200

COMPOUND	Lab I.D.	-26	-27			
	Client I.D.	CAR-26	CAR-27			
	LOR					
C5 - C9	2	<LOR	<LOR			
C10 - C14	50	<LOR	<LOR			
C15 - C28	100	<LOR	<LOR			
C29 - C36	100	<LOR	<LOR			

RTI DL RELEASE - EHP

COMMENTS:
1. Results are reported on an as received basis
2. LOR : Level Of Reporting

Release

BATCH QUALITY CONTROL - TPH

ALS EP-071 : Total Petroleum Hydrocarbons by Fractions

MATRIX: Soil

ANALYST: J. Boden
SPIKING STD: n-Alkane

Volatile Components *

COMPOUND	Level Of Reporting (LOR)	Blank conc	SOIL SPIKE RESULTS					CONTROL LIMITS		
			Spike Conc.	SCS conc	DCS conc	Av. Rec.	RPD	Recovery (%)		RPD
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%	%	Low	High	%
QC Lot No.: VOCS214										
Applicable to Samples EN6513 -21 to -27										
C6-C9	2	<LOR	45.00	43.24	43.01	96	1	70	130	20
C10	10	<LOR	5.00	5.73	4.93	107	15	70	130	20

Semivolatile Components

COMPOUND	Level Of Reporting (LOR)	Blank conc	SOIL SPIKE RESULTS					CONTROL LIMITS		
			Spike Conc.	SCS conc	DCS conc	Av. Rec.	RPD	Recovery (%)		RPD
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%	%	Low	High	%
QC Lot No.: TPHT168										
Applicable to Samples EN6513 -21 to -27										
C11-C14	50	<LOR	450	351	360	79	3	70	130	20
C15-C28	100	<LOR	230	188	191	82	2	70	130	20
C29-C36	100	<LOR	N/A	N/A	N/A	N/A	N/A	70	130	20

* Surrogate standards are added to every QC spike and sample to monitor method performance.

RTI DL RELEASE - EHP

Release

Australian Laboratory Services
32 Shand Street
Stafford Q 4053
Ph: (07) 352 3577
Fax: (07) 352 5109
A.C.N. 009936029

ENVIRONMENTAL
GUARANTEED TESTING

ANALYTICAL REPORT

BATCH NUMBER:	EN6548
CLIENT:	Hollingsworth Dames and Moore
ADDRESS:	P.O. Box 251 SPRING HILL QLD 4004
CONTACT:	Stephen Rogers
CLIENT JOB No.:	23454-004-366
CLIENT ORDER No.:	7848
DATE RECEIVED:	13/10/93
DATE COMPLETED:	15/10/93
SAMPLE TYPE:	Soil
ANALYSIS REQUESTED:	Aromatics (BTEX) - 2 Total Petroleum Hydrocarbons (TPH) by Fractions - 2 Moistures - 2

METHOD OF ANALYSIS:

BTEX in Solids

ALS Method Code: EP-080
Extraction: Purge & Trap
Analysis: GC/MS

TPH

ALS Method Code: EP-071

Extraction:	Volatiles	- Purge & Trap
	Semivolatiles	
	Solids	- Tumbler
	Liquids	- Separatory Funnel
Analysis:	Volatiles	- GCMS
	Semivolatiles	- GCFID

Moistures

ALS Method Code: EP-055

RTI DL RELEASE - EHP

Signed.. sch4p4(6) Personal information .....
Joanne Boden
Manager - Organic Laboratory

ANALYTICAL RESULTS SHEET

ALS EA-055 : MOISTURE CONTENT

BATCH No: EN6548
ANALYST: C. Maxim

MATRIX: Soil
UNITS: %

Lab I.D.	-1	-2				
Client I.D.	CAR 28 12/10/93	CAR 29 12/10/93				
Moisture %	18.3	17.6				

RTI DL RELEASE - EHP

Release

ANALYTICAL RESULTS SHEET

ALS EP-080 : BTEX IN SOIL

QC Lot No. : VOCS217
Batch No. : EN6548
Analyst :G. Morey

Matrix : Soil
Units: mg/kg

Target Compounds	Lab I.D.	-1	-2			
	Client I.D.	CAR 28 12/10/93	CAR 28 12/10/93			
	LOR					
Benzene	0.20	< LOR	< LOR			
Toluene	0.20	< LOR	< LOR			
Chlorobenzene	0.20	< LOR	< LOR			
Ethylbenzene	0.20	< LOR	< LOR			
m- & p-Xylene	0.40	< LOR	< LOR			
o-Xylene	0.20	< LOR	< LOR			

RTI DL RELEASE - EHP

COMMENTS:

1. LOR: Level Of Reporting.
2. Surrogate standards are added to every sample to monitor the method performance.
3. Results are reported on an as received basis.

BATCH : QUALITY CONTROL

ALS EP-080 : BTEX IN SOIL

Matrix : Soil
QC Lot No.: VOCS217

Analyst :G. Morey
Spiked Aliquot : Reagent Grade Water

BTEX COMPOUNDS	Level Of Reporting (LOR)	Blank Conc	QC SPIKE RESULTS					Control Limits		
			Spike Conc	SCS	DCS	Average Recovery	RPD	Recovery		RPD
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%	%	Low	High	%
Benzene	0.20	ND	1.00	0.97	0.96	97	0	88	110	20
Toluene	0.20	ND	1.00	0.98	0.99	98	1	82	122	20
Chlorobenzene	0.20	ND	1.00	1.01	1.02	102	0	88	109	20
Ethylbenzene	0.20	ND	1.00	1.02	1.01	102	2	87	111	20
m- & p-Xylene	0.40	ND	2.00	2.03	1.96	100	4	87	110	20
o-Xylene	0.20	ND	1.00	0.96	0.94	95	2	86	112	20

ND: Compound not detected

COMMENTS:
1. Surrogate standards are added to every QC sample to monitor method performance.

RTI DL RELEASE - EHP

Release

ANALYTICAL RESULTS SHEET

ALS EP-071 : Total Petroleum Hydrocarbons by Fractions

BATCH No.: EN6548
ANALYST: L. Sharp

MATRIX: Soil
UNITS: mg/kg

COMPOUND	Lab I.D.	-1	-2			
	Client I.D.	CAR 28	CAR 29			
	LOR	12/10/93	12/10/93			
C6 - C9	2	<LOR	<LOR			
C10 - C14	50	<LOR	<LOR			
C15 - C28	100	<LOR	<LOR			
C29 - C36	100	<LOR	<LOR			

COMMENTS:
1. Results are reported on an as received basis
2. LOR : Level Of Reporting

RTI DL RELEASE - EHP

Release

BATCH QUALITY CONTROL - TPH

ALS EP-071 : Total Petroleum Hydrocarbons by Fractions

MATRIX: Soil

ANALYST: J. Boden
SPIKING STD: n-Alkane

Volatile Components *

COMPOUND	Level Of Reporting (LOR)	Blank conc	SOIL SPIKE RESULTS					CONTROL LIMITS		
			Spike Conc.	SCS conc	DCS conc	Av. Rec.	RPD	Recovery (%)		RPD
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%	%	Low	High	%
QC Lot No.: VOCS217 Applicable to Samples EN6548										
C6-C9	2	<LOR	45.00	46.33	47.15	104	2	70	130	20
C10	10	<LOR	5.00	4.03	4.42	85	9	70	130	20

Semivolatile Components

COMPOUND	Level Of Reporting (LOR)	Blank conc	SOIL SPIKE RESULTS					CONTROL LIMITS		
			Spike Conc.	SCS conc	DCS conc	Av. Rec.	RPD	Recovery (%)		RPD
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%	%	Low	High	%
QC Lot No.: TPHT168 Applicable to Samples EN6548										
C11-C14	50	<LOR	450	351	360	79	3	70	130	20
C15-C28	100	<LOR	230	188	191	82	2	70	130	20
C29-C36	100	<LOR	N/A	N/A	N/A	N/A	N/A	70	130	20

* Surrogate standards are added to every QC spike and sample to monitor method performance.

RTI DL RELEASE - EHP

Australian Laboratory Services
32 Shand Street
Stafford Q 4053
Ph: (07) 352 5577
Fax: (07) 352 5109
A.C.N. 009936029

ANALYTICAL REPORT

BATCH NUMBER:	EN6573
CLIENT:	Hollingsworht Dames and Moore
ADDRESS:	P.O. Box 251 SPRING HILL QLD 4004
CONTACT:	Stephen Rogers
CLIENT JOB No.:	23454-004-366
CLIENT ORDER No.:	7858
DATE RECEIVED:	14/10/93
DATE COMPLETED:	18/10/93
SAMPLE TYPE:	Soil
ANALYSIS REQUESTED:	Aromatics (BTEX) - 10 Total Petroleum Hydrocarbons (TPH) by Fractions - 10 Moistures - 10
METHOD OF ANALYSIS:	
BTEX in Solids	ALS Method Code: EP-080 Extraction: Purge & Trap Analysis: GC/MS
TPH	ALS Method Code: EP-071 Extraction: Volatiles - Purge & Trap Semivolatiles Solids - Tumbler Liquids - Separatory Funnel Analysis: Volatiles - GCMS Semivolatiles - GCFID
Moistures	ALS Method Code: EP-055

Preliminary Report

Signed.....
Joanne Boden
Manager - Organic Laboratory

RTIDL RELEASE - EHP

Release

ANALYTICAL RESULTS SHEET

ALS EA-055 : MOISTURE CONTENT

BATCH No: EN6573
ANALYST: L. Corrado

MATRIX: Soil
UNITS: %

Lab I.D.	-1	-2	-3	-4	-5	-6
Client I.D.	CAR 30 14/10/93	CAR 31 14/10/93	CAR 32 14/10/93	CAR 33 14/10/93	CAR 34 14/10/93	CAR 35 14/10/93
Moisture %	9.9	8.0	8.1	10.2	17.8	14.7

Lab I.D.	-7	-8	-9	-10		
Client I.D.	CAR 36 14/10/93	CAR 37 14/10/93	CAR 38 14/10/93	CAR 39 14/10/93		
Moisture %	12.9	9.4	6.6	7.0		

RTI DL RELEASE - EHP

Release

ANALYTICAL RESULTS SHEET

ALS EP-071 : Total Petroleum Hydrocarbons by Fractions

BATCH No.: EN6573
ANALYST:L. Sharp

MATRIX: Soil
UNITS: mg/kg

COMPOUND	Lab I.D.	-1	-2	-3	-4	-5
	Client I.D.	CAR 30	CAR 31	CAR 32	CAR 33	CAR 34
	LOR	14/10/93	14/10/93	14/10/93	14/10/93	14/10/93
C6 - C9	2	<LOR*	<LOR*	<LOR*	<LOR*	<LOR*
C10 - C14	50	110*	<LOR*	98*	<LOR*	<LOR*
C15 - C28	100	640	120	540	630	<LOR
C29 - C36	100	<LOR	<LOR	<LOR	240	<LOR

COMPOUND	Lab I.D.	-6	-7	-8	-9	-10
	Client I.D.	CAR 35	CAR 36	CAR 37	CAR 38	CAR 39
	LOR	14/10/93	14/10/93	14/10/93	14/10/93	14/10/93
C6 - C9	2	<LOR*	<LOR*	<LOR*	<LOR*	<LOR*
C10 - C14	50	<LOR*	<LOR*	<LOR*	<LOR*	<LOR*
C15 - C28	100	<LOR	260	<LOR	<LOR	260
C29 - C36	100	<LOR	<LOR	<LOR	<LOR	<LOR

RTI DL RELEASE - EHP

COMMENTS:
1. Results are reported on an as received basis
2. LOR : Level Of Reporting
3. * Volatile fraction (C6-C10) to follow
4. Quality Control Report to follow

Release

Australian Laboratory Services
32 Shand Street
Stafford Q 4053
Ph: (07) 352 5577
Fax: (07) 352 5109
A.C.N. 009936029

ANALYTICAL REPORT

BATCH NUMBER:	EN6617
CLIENT:	Hollingsworth Dames and Moore
ADDRESS:	P.O. Box 251 SPRING HILL QLD 4004
CONTACT:	Rod Williams
CLIENT JOB No.:	23454-004-362
CLIENT ORDER No.:	6655
DATE RECEIVED:	19/10/93
DATE COMPLETED:	20/10/93
SAMPLE TYPE:	Soil
ANALYSIS REQUESTED:	Total Petroleum Hydrocarbons (TPH) by Fractions - 3 Moistures - 3

METHOD OF ANALYSIS:

TPH

ALS Method Code: EP-071

Extraction:	Volatiles	- Purge & Trap
	Semivolatiles	
	Solids	- Tumbler
	Liquids	- Separatory Funnel
Analysis:	Volatiles	- GCMS
	Semivolatiles	- GCFID

Moistures

ALS Method Code: EP-055

PRELIMINARY REPORT - VOLATILE FRACTION OF TPH ANALYSIS BEING REPEATED FOR SAMPLES 1&2.

Signed.....
Joanne Boden
Manager - Organic Laboratory

RTI DL RELEASE - EHP

Release

ANALYTICAL RESULTS SHEET

ALS EA-055 : MOISTURE CONTENT

BATCH No: EN6617
ANALYST: C. Maxim

MATRIX: Soil
UNITS: %

Lab I.D.	-1	-2	-3			
Client I.D.	#40 19/10/93	#41 19/10/93	#42 19/10/93			
Moisture %	17.4	15.2	15.3			

RTI DL RELEASE - EHP

Release

ANALYTICAL RESULTS SHEET

ALS EP-071 : Total Petroleum Hydrocarbons by Fractions

BATCH No.: EN6617
ANALYST:L. Sharp

MATRIX: Soil
UNITS: mg/kg

COMPOUND	Lab I.D.	-1	-2	-3		
	Client I.D.	#40 19/10/93	#41 19/10/93	#42 19/10/93		
	LOR					
C6 - C9	2	<LOR*	<LOR*	<LOR*		
C10 - C14	50	<LOR*	<LOR*	<LOR*		
C15 - C28	100	<LOR	<LOR	<LOR		
C29 - C36	100	<LOR	<LOR	<LOR		

COMMENTS:
1. Results are reported on an as received basis
2. LOR : Level Of Reporting
3. * The results for the volatile fraction (C6-C10) to follow

RTI DL RELEASE - EHP

Release

BATCH QUALITY CONTROL - TPH

ALS EP-071 : Total Petroleum Hydrocarbons by Fractions

MATRIX: Soil

ANALYST: J. Boden
SPIKING STD: n-Alkane

Volatile Components *

COMPOUND	Level Of Reporting (LOR)	Blank conc	SOIL SPIKE RESULTS					CONTROL LIMITS		
			Spike Conc.	SCS conc	DCS conc	Av. Rec.	RPD	Recovery (%)		RPD
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%	%	Low	High	%
QC Lot No.: VOCS218 Applicable to Samples EN6617										
C6-C9	2	<LOR	45.00	45.89	46.20	102	1	70	130	20
C10	10	<LOR	5.00	5.77	4.72	105	20	70	130	20

Semivolatile Components

COMPOUND	Level Of Reporting (LOR)	Blank conc	SOIL SPIKE RESULTS					CONTROL LIMITS		
			Spike Conc.	SCS conc	DCS conc	Av. Rec.	RPD	Recovery (%)		RPD
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%	%	Low	High	%
QC Lot No.: TPHT171 Applicable to Samples EN6617										
C11-C14	50	<LOR	450	344	384	81	11	70	130	20
C15-C28	100	<LOR	230	182	205	84	12	70	130	20
C29-C36	100	<LOR	N/A	N/A	N/A	N/A	N/A	70	130	20

RTI DL RELEASE - EHP

* Surrogate standards are added to every QC spike and sample to monitor method performance.