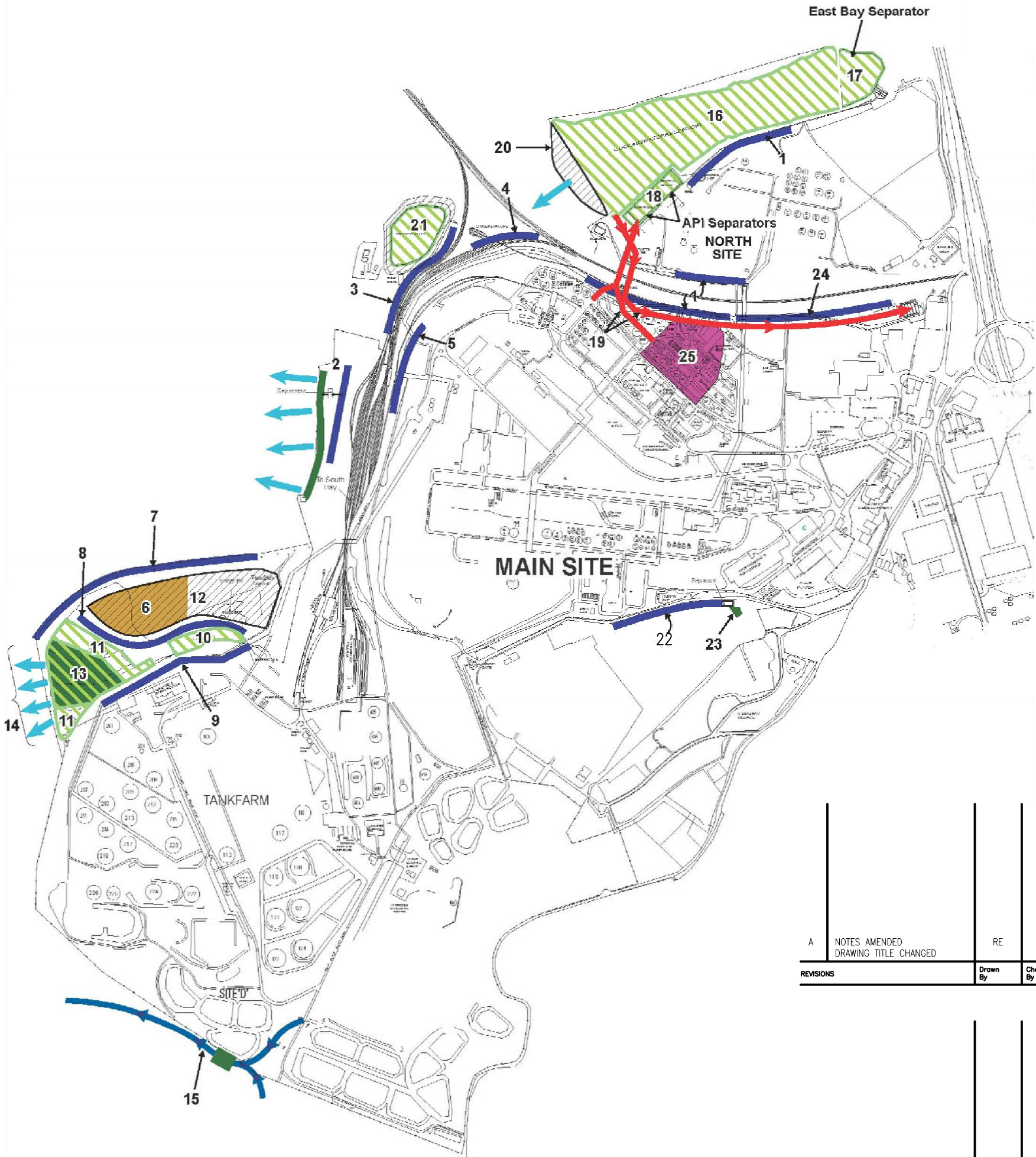
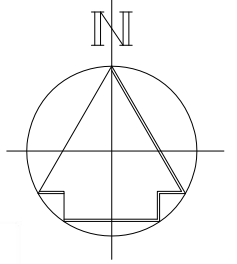




NOTES

1. THE FOLLOWING HAS BEEN AMENDED BY ATKINS – REFERENCE NUMBER 27 HAS BEEN REPLACED BY 22 FROM ORIGINAL DRAWING PROVIDED IN S106.

Key

- Diffuse Discharge
- Free product monitoring/interception
- Free product source reduction
- Oily sludge removal & treatment
- Constructed wetland
- Earthwork/ capping/ landscaping
- Remove/reconfigure drainage
- Source reduction/containment

A	NOTES AMENDED DRAWING TITLE CHANGED	RE	ML	10/03/10
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REVISIONS	Drawn By	Checked By	Date
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LLANDARCY BOG RAP REPORT	–	MP	02/09/09
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PURPOSE OF ISSUE	Rev.	Authorised for issue	Date
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Atkins Ltd
Consulting Engineers
The Axis, 10 Holliday Street
Birmingham West Midlands B1 1TF

Tel 0121 483 5000
Fax 0121 483 5252

THIS DRAWING IS NOT TO BE SCALED

CLIENT
ST.MODWEN

PROJECT
COED DARCY URBAN VILLAGE

DRAWING TITLE
RAP FEATURES PLAN

SCALES	DRAWN	CHECKED	CO-ORD CHECK
1:10,000	AJ	SB	
DATE	DATE	DATE	DATE
02/09/09	02/09/09		

0	SHEET	PLOT DATE
	A3	10/03/10
DRAWING NO	REV	
5041216-RAP-DWG-538	A	

Appendix A Water Monitoring Results

NSR water samples

Exceedances of the guideline value

Waters
TPH

[illegible]

NSR water samples

Exceedances of the guideline value

Waters PAHs , VOCs and BTEX

[illegible]

Appendix B Exploratory Hole Logs

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: MSMW81		PAGE 1 of 2		
	NUMBER	TYPE					START DATE: 26/06/98	DRILLING METHOD: Cable Percussion/Rotary	FINISH DATE: 29/06/98	BOREHOLE DIAMETER: 200/165/115mm	DRILLER: CP3/R2
							DESCRIPTION	COMMENTS			
						0	Loose brown sandy silty CLAY with rootlets (TOPSOIL)	No odour or staining			
						1.0	Firm silty brown CLAY with medium angular sandstone GRAVEL				
						2.0	Stiff silty brown CLAY with angular sandstone COBBLES with boulders				
						3.0	Rotary drilling from 2.1 mbgl				
						4.0	Firm to stiff light brown very gravelly CLAY with cobbles (BOULDER CLAY)	No water encountered above bedrock			
						5.0	ROCKHEAD: Hard blue-grey medium grained SANDSTONE (BEDROCK)				
						6.0					
						7.0					
						8.0					
						9.0					
						10					

LOCATION / NOTES:		LEGEND		BOREHOLE LOG	
1. All measurements in m below ground level (mbgl)		Disturbed Sample Undisturbed Sample Headspace Analysis Down Borehole Analysis Groundwater Table Perched Water Table		Job Title SOIL & GROUNDWATER INVESTIGATION Location LLANDARCY REFINERY Client BP LLANDARCY App'd DRAFT Ref. MC/CR/BR5 Date JUL 98 Job No. 39991-001-401	
2. Cable Percussion to 2.1 mbgl, Rotary to 15.5 mbgl with odex to 4 mbgl				DAMES & MOORE GROUP	

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: MSMW81		PAGE 2 of 2		
	NUMBER	TYPE					START DATE: 26/06/98	DRILLING METHOD: Cable Percussion/Rotary	FINISH DATE: 29/06/98	BOREHOLE DIAMETER: 200/165/115mm	DRILLER: CP3/R2
							DESCRIPTION	COMMENTS			
						10	Hard blue-grey medium grained SANDSTONE		10		
						11			11		
						12			12		
						13			13		
						14			14		
						15			15		
						16	Borehole terminated at 15.5 mbgl		16		
						17			17		
						18			18		
						19			19		
						20			20		

LOCATION / NOTES:		LEGEND		BOREHOLE LOG	
1. All measurements in m below ground level (mbgl)		☒ Disturbed Sample ☐ Undisturbed Sample		Job Title SOIL & GROUNDWATER INVESTIGATION	
2. Cable Percussion to 2.1 mbgl, Rotary to 15.5 mbgl with odex to 4 mbgl		* Headspace Analysis † Down Borehole Analysis ▼ Groundwater Table ▽ Perched Water Table		Location LLANDARCY REFINERY	
				Client BP LLANDARCY	
				App'd DRAFT	
				Ref. MC/CR/BRS	
				Date JUL 98	
				Job No. 39991-001-401	
				 DAMES & MOORE	

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: MSMW72		PAGE 1 of 1		
	NUMBER	TYPE					START DATE: 10/06/98		DRILLING METHOD: Cable Percussion/Rotary		
							FINISH DATE: 11/06/98		BOREHOLE DIAMETER: 200/165/115mm		
							DRILLER: CP3/R3		SCREEN TYPE & DIAMETER: UPVC 50mm		
LOGGED BY: ED		APPR'D BY:		SCREEN SLOT SIZE: 0.5mm							
							DESCRIPTION	COMMENTS			
							Ashy GRAVEL with black staining and rootlets (MADE GROUND)	No staining or odour	0		
							Stiff grey to brown SILT with some iron staining	Dry	1.0		
							Rotary drilling from 1.5 mbgl				
							Fine grained sandstone COBBLES with some iron staining		2.0		
							Fine sandy GRAVEL with grey silt		3.0		
									4.0		
									5.0		
									6.0		
							ROCKHEAD: Competent fine to medium grained SANDSTONE (BEDROCK) intercalated with SILTSTONE		7.0		
									8.0		
									9.0		
									10		
							Borehole terminated at 10.2 mbgl				

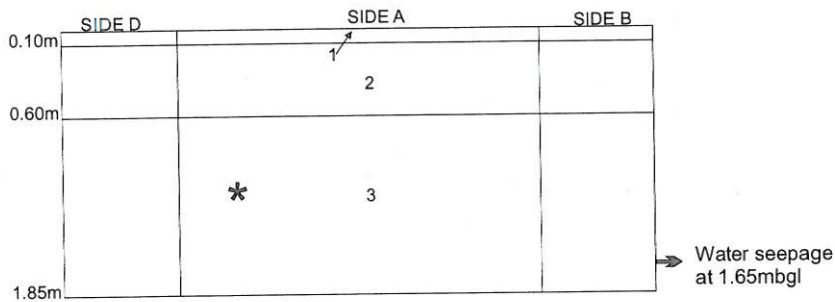
LOCATION / NOTES:		LEGEND		BOREHOLE LOG	
1. All measurements in m below ground level (mbgl)		Disturbed Sample Undisturbed Sample Headspace Analysis Down Borehole Analysis Groundwater Table Perched Water Table		Job Title SOIL & GROUNDWATER INVESTIGATION Location LLANDARCY REFINERY Client BP LLANDARCY App'd DRAFT Ref. MC/CR/BRs Date JUL 98 Job No. 39991-001-401	
2. Cable Percussion to 1.5 mbgl, Rotary to 10.2 mbgl with odex to 7 mbgl				DAMES & MOORE GROUP	

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: MSTP247		PAGE 1 of 1	
	NUMBER	TYPE					START DATE: 22/2/99		DRILLING METHOD: Window Sampling	
							FINISH DATE: 22/2/99		BOREHOLE DIAMETER: 100 mm	
							DRILLER: GEOTECHNICAL		SCREEN TYPE & DIAMETER: UPVC 50 mm	
				LOGGED BY: SG APPR'D BY:		SCREEN SLOT SIZE: 1 mm				
						DESCRIPTION		COMMENTS		
						0	Loose black to brown slightly silty fine SAND.	No hydrocarbon odour.	0	
						0.5	Firm greyish brown silty CLAY with occasional fine gravel.		0.5	
						1.0	Loose grey-black-brown mottled silty and sandy coarse sub-angular GRAVEL.		1.0	
						1.5	Firm orange-brown gravelly SILT with some clay and occasional sandstone cobbles.		1.5	
						2.0	Sandy lens at 1.5m	Moderate hydrocarbon odour.	2.0	
						2.5			2.5	
						3.0	Medium dense grey very silty medium to coarse sub-angular GRAVEL.	Wet from 2- 3m moderate hydrocarbon odour	3.0	
						3.5			3.5	
						4.0	Firm to stiff brown/orangey brown very gravelly CLAY with desiccation cracks.	Dry No odour.	4.0	
						4.5			4.5	
						5.0	Borehole terminated at 4.0 mbgl		5.0	

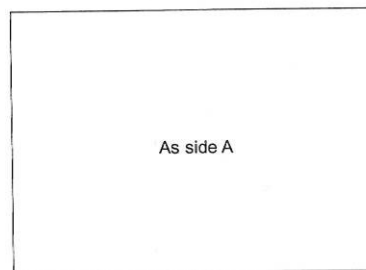
LOCATION / NOTES:	LEGEND	BOREHOLE LOG	
1. All measurements in m below ground level (mbgl)	Disturbed Sample Undisturbed Sample Headspace Analysis Down Borehole Analysis Groundwater Table Perched Water Table	Job Title	SOIL & GROUNDWATER INVESTIGATION
		Location	LLANDARCY REFINERY
		Client	BP LLANDARCY LTD
		App'd	DRAFT
		Ref.	CR/DS/BIR/LON
		Date	APRIL 99
		Job No.	39991-004-401
		DAMES & MOORE	

TRIAL PIT NUMBER: MSTP234
GROUND ELEVATION: -
DATE OF EXCAVATION: 9/6/98
WATER LEVEL: 1.65 mbgl
LOGGED BY: RF
APPROVED BY:

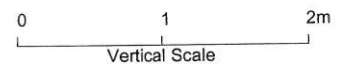
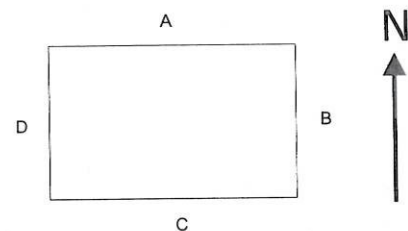
SIDE ELEVATIONS



SIDE C



PLAN



Key:

- * Soil Sample location
- WA Water Sample
- HS Headspace Analysis
- Water Ingress

STRATA DESCRIPTIONS	COMMENTS	SAMPLES
1. Brown silty sandy CLAY with rootlets (TOPSOIL) 2. Firm brown CLAY 3. Stiff bright orange-brown CLAY Trial pit terminated at 1.85 mbgl	a. No hydrocarbon odour or staining evident	<u>PID RESULTS</u> 0.5m - 0 ppm 1.0m - 0 ppm 1.5m - 0 ppm <u>SOIL SAMPLES</u> MSTP234-1.15m

Job Title: **SOIL & GROUNDWATER INVESTIGATION**

Location: **LLANDARCY REFINERY**

Client: **BP LLANDARCY**

Job No: **39991-001-401**

DRAFT



DAMES & MOORE