

Phase 1f

44.0+
Retaining Wall Type & H
Road 36
(new align 20.6.13)

Road 37 (03.02.10)

TOWN CENTRE OPTION
(SUBJECT TO TOWN CODE & GLANCY NICHOLLS DESIGN)

PRIMARY SCHOOL SITE
GLANCY NICHOLLS INDICATIVE
FOOTPRINT

LANDSCAPING
SCHEME TBC

107-116
APARTMENTS
DESIGN TBC

SCHOOL DROP OFF - SPACES

LANDSCAPED
PUBLIC OPEN SPACE
(0.39Ha)

ROAD 50

ROAD 50

ROAD 50

ROAD 80

ROAD 50

CLIFF BASE

2M CLIFF OFFSET

LEAP

PERSIMMON HOMES

LINK MOVED 2M

ROAD 80

2M CLIFF OFFSET

CLIFF BASE

MAIN STREET

Carriageway

Asphalt

Footway

Asphalt with chippings, or granite aggregate slabs

Crossings

Charcon Jubilee Paviers

Contrasting Carriageway Edge

Charcon Jubilee Paviers

Parking Bay

Charcon Jubilee Paviers

Driveway

Paviers

Front of plot

Hard privacy strip - colour match to pavement
Planting strip - See detailed landscape plan
Front Yard - Hard surface and boundary feature

TERTIARY LANE / MEWS

Delineated Carriageway

Silver grey granite aggregate setts or Asphalt - coloured or with chippings

Parking Square

Silver grey granite aggregate setts

Contrasting shared surface

Silver grey granite aggregate setts or Asphalt with chippings

Parking Bay

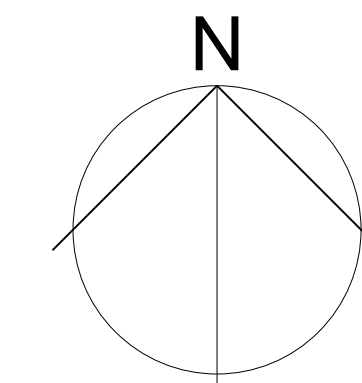
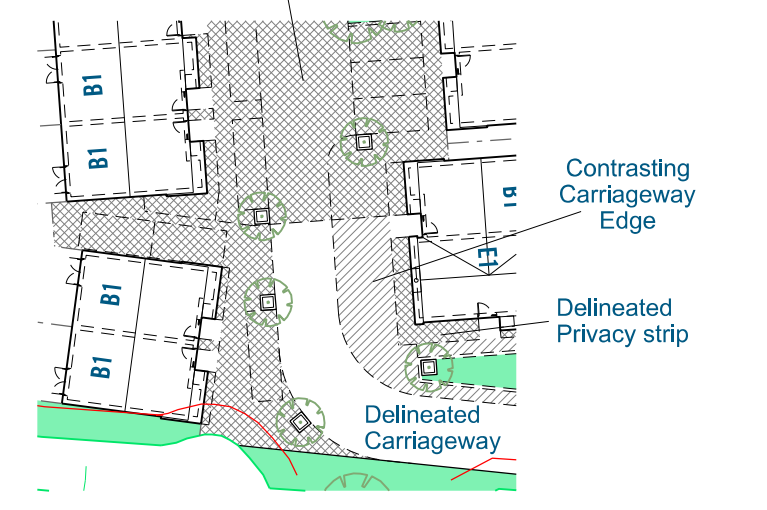
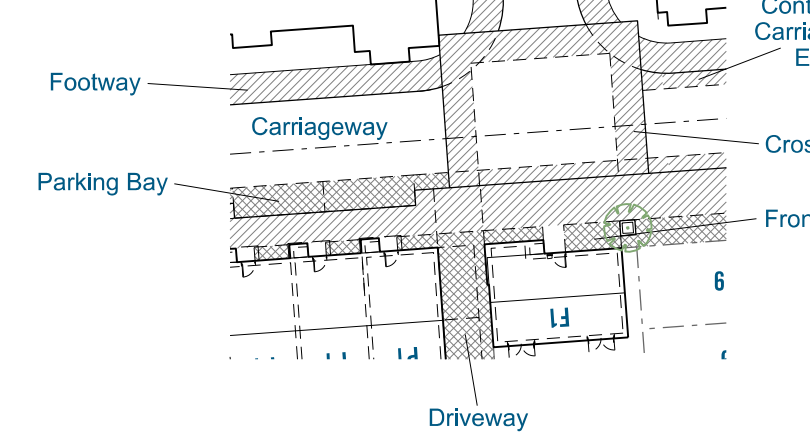
To match shared surface

Delineated Privacy strip

Hard privacy strip - colour match to shared surface
Planting strip - See detailed landscape plan

Parking Square (Shared surface)

See detailed landscaping scheme



PHASE 2a BOUNDARY

OVERALL MASTERPLAN BOUNDARY

COED DARCY RESIDENTIAL PHASE 2

The Carriage Building Bruton Way Gloucester GL1 1DG T: 03333 405 500 E: mail@robertslimbrick.com

PHASE 2A - DEVELOPMENT LAYOUT

Date: SEPT 2013

Scale: 1/500 @ A0

Drawing No: 7389 / SK007A

A E I B SC E LE OF T E SECTION A REE E T

SCHEDULE 8

Redevelopment Remediation Works

Purpose, objectives and requirements of the Redevelopment Remediation Works

Part 1

1. Purpose and objectives of the Redevelopment Remediation Works

- 1.1 The purpose and objectives of the Redevelopment Remediation Works are the carrying out of all such Remedial Action over and above that actually carried out as part of the RAP Works that is necessary in order to make each part of the Property suitable within the meaning of paragraph 1.2 below for its Intended Use or such other use as may be determined from time to time.
- 1.2 A part of the Property will only be suitable for its Intended Use or such other use as may be determined from time to time if and when the Phase Works Completion Date is declared in respect of that part of the Property.

Part 2

2. Developer's obligations regarding Redevelopment Remediation Works

- 2.1 The Developer shall carry out or procure the carrying out of all Remedial Action necessary in order to achieve the purpose and objectives set out in Part 1 of this Schedule.
- 2.2 The design and specification of the Redevelopment Remediation Works shall take appropriate account of the principles and objectives (as set out in sub-paragraph 1.3 (including 1.3.1-1.3.5 thereof) of Schedule 7 hereto) and the design assumptions of the RAP Works and shall not prejudice the achievement and future sustainability of these principles and objectives of the RAP Works or the RAP Works themselves.
- 2.3 The Redevelopment Remediation Works may reduce the reliance on the RAP Works to achieve the principles and objectives of the RAP Works set out in sub-paragraph 1.3 (including 1.3.1-1.3.5 thereof) of Schedule 7 hereto but must not increase that reliance.
- 2.4 The RBSLs set out in Tables 1 and 2 below and the aesthetic criteria, remediation quality and scope (including the depth below Final Finished Level to which quality standards are achieved) as also set out in Part 3 below, as the same may be varied in accordance with this Schedule 8, shall be achieved for each part of the Property at the minimum validation frequencies set out in clause 8 of Part 3 (as applicable depending upon whether such part of the Property is intended for use as residential, commercial or recreational land) as a minimum base level standard.
- 2.5 Without prejudice to the requirement to achieve the RBSLs set out in Tables 1 and 2 as a minimum base level standard, the Developer shall ensure that all necessary remediation targets are developed and used to determine the extent and quality of remediation appropriate to the development design and purpose of the Urban Village and the Pre-Transfer Date Contamination.
- 2.6 The Developer shall promptly notify CDL and the Monitor if at any time it or any person acting on its behalf identifies a substance present at, in, on or under the

Property, or has reasonable cause to suspect such presence, for which no RBSL is specified in Tables 1 or 2 of Part 3 below in which case the following procedure shall apply:

- 2.6.1 As soon as reasonably practicable after serving a notice under paragraph 2.6 above, the Developer shall prepare proposals for soil and groundwater RBSLs for the substance identified that are consistent with the purpose and objectives of the Redevelopment Remediation Works as set out in Part 1 of this Schedule and the standards of prevailing Environmental Law and shall provide a copy of such proposals to CDL the Monitor and the Authority. Any such proposal shall contain a detailed statement of the health risk assessment and general methodology from which the proposed RBSLs have been derived.
 - 2.6.2 Not earlier than 10 Working Days after submitting its proposals to CDL the Monitor and the Authority in accordance with sub-paragraph 2.6.1 above, the Developer shall submit a written request to the appropriate Environmental Authorities, copied at the same time to CDL the Monitor and the Authority, for approval of the use of the proposed RBSLs. The Developer shall provide to the appropriate Environmental Authorities with its request copies of the health risk assessment and general methodology referred to in sub-paragraph 2.6.1 above and a copy of this Agreement clearly drawing attention to the purpose, objectives and requirements of the Redevelopment Remediation Works set out therein and the proposed changes thereto.
 - 2.6.3 Each of the Developer, CDL and the Monitor shall be free at any time to make such submissions to the appropriate Environmental Authorities in relation to the Developer's proposals as they see fit, provided such submissions are made in writing and copied to each other and the Authority at the same time.
 - 2.6.4 The Developer shall ensure that the Redevelopment Remediation Works achieve compliance with any RBSLs approved in writing by the appropriate Environmental Authorities pursuant to this paragraph 2.6, as if they were also set out in Tables 1 and 2 of Part 3 of this Schedule.
- 2.7 The Developer may at any time propose variations to the requirements of clauses 3 to 8 inclusive of this Schedule 8 below to the appropriate Environmental Authorities and to the Authority pursuant and to the extent required to comply with the Planning Permission to take account of changes of circumstances since the date of this Agreement, provided no variation shall be proposed that is in any way prejudicial to the achievement of the purpose and objectives of the Redevelopment Remediation Works as set out in Part 1 above and, in particular, the achievement of the RBSLs set out in Tables 1 and 2 above (as previously amended in accordance with paragraph 2.6 above if applicable) and provided further that
- 2.7.1 Any such proposals shall be submitted in writing to CDL the Monitor and the Authority at least 10 Working Days before they are submitted to any Environmental Authority;
 - 2.7.2 Any such proposal submitted to any Environmental Authority shall be copied to CDL the Monitor and the Authority at the same time;
 - 2.7.3 The Developer shall enclose a copy of this Agreement with any such proposal made to any Environmental Authority clearly drawing attention to the

purpose, objectives and requirements of the Redevelopment Remediation Works set out therein and the proposed changes thereto;

- 2.7.4 Each of the Developer, CDL and the Monitor shall be free to make such submissions to the appropriate Environmental Authorities in relation to the Developer's proposals as they see fit, provided such submissions are made in writing and copied to each other and the Authority at the same time.
 - 2.7.5 Subject to paragraph 2.7.6 no such proposed variation shall be implemented unless, it has been approved in writing by the appropriate Environmental Authorities in accordance with the requirements of this clause 2.7.
 - 2.7.6 If the Developer has only oral approval (or non objection) to a proposed variation from the relevant Environmental Authorities, no such proposed variation shall be implemented unless the Developer notifies the relevant Environmental Authorities in writing (copied at the same time to CDL the Monitor and the Authority) that it proposes to proceed with the implementation of the proposed variation to the Redevelopment Remediation Works 10 Business Days after the date of such notice and no written objections of any relevant Environmental Authority are received within such 10 Business Day period in respect of the same.
 - 2.7.7 Any reference in this Agreement to the Redevelopment Remediation Works shall be to the Redevelopment Remediation Works as varied in accordance with this paragraph 2.
- 2.8 The Developer shall, and shall procure that any person acting on its behalf in relation to any aspect of the Redevelopment Remediation Works required by this Schedule 8 shall, at all times comply with the requirements of Schedule 10 (General Remediation Requirements).

Part 3

Table 1 – Summary of Soil RBSLs

Contaminant	Land-Use Specific Soil RBSL Surface to 1m below FFL (mg/kg) ¹			Land-Use Specific RBSL Soil below 1m depth (mg/kg)		
	Residential	Commercial	Recreational	Residential	Commercial	Recreational
METALS & METALLOIDS						
Arsenic	64	500	64	-	-	-
Cadmium	2.6	1400	2.6	-	-	-
Chromium	130	5000	200	-	-	-
Mercury	1	480	1	-	-	-
Nickel	50	5000	75	-	-	-
Selenium	3	8000	3	-	-	-
Lead	337	750	337	-	-	-
Vanadium	416	16000	640	-	-	-
Copper	478	-	478	-	-	-
Zinc	200	-	200	-	-	-
ORGANIC SPECIES						
Benzene	0.12	5	13	0.4	5	48
Benzo(a)pyrene ²	0.9	29	0.9	none	none	none
Toluene	36	1160	8110	52	389	none
Ethylbenzene	41	122000	4740	140	none	none
Xylenes	32	121000	7940	58	none	none
1,2-Dichloroethane	0.04	2	4.5	0.1	0.65	6
Dichloromethane	5	1650	241	84	665	6220
Tetrachloroethene	11	1050	641	34	368	1780
Trichloroethene	1	84	193	2	28	269
Vinyl Chloride	0.01	4	0.7	0.04	1.6	16
1,2 Dichloroethene	4	273	632	7	91	881
1,1,1-Trichloroethane	154	577000	27900	160	3250	none
TPH Aromatic EC>C7-C8	125	1840	21337	146	617	none
TPH Aromatic EC>C8-C10	94	913	4025	257	547	none
TPH Aromatic EC>C10-C12	118	26515	4589	1394	none	none
TPH Aromatic EC>C12-C16	131	64875	4799	none	none	none
TPH Aromatic EC>C16-C21	82	51449	3639	none	none	none
TPH Aromatic EC>C21-C35	1130	51449	3639	none	none	none

TPH Aliphatic EC>C6-C8	8335	8517587	606191	none	none	none
TPH Aliphatic EC>C8-C10	112	158890	12075	158	none	none
TPH Aliphatic EC>C10-C12	3204	163360	12094	none	none	none
TPH Aliphatic EC>C12-C16	4513	169032	12117	none	none	none
TPH Aliphatic EC>C16-C21	94174	3429944	242573	none	none	none
TPH Aliphatic EC>C21-C35	94820	3429944	242573	none	none	none
Total TPH (Phase 1) ³	1717	81413	9061	9182	81956	none
Total TPH (Process Area) ³	2601	44344	10830	4098	35014	none
Total TPH (North Tank Farm) ³	1104	25875	9419	3802	13974	none
Total TPH (South Tank Farm) ²	1015	37230	6349	2792	34797	none
ASBESTOS						
Sum of all Types of ACM	200	300	200	200 ⁴	-	-

“-“ value not applicable to scenario

“none” RSBL value exceeds soil saturation limits and free phase assessment appropriate

¹ Lower value of human health RBSL or Soil Code value if higher than background LCL value (applicable to metals & metalloids only)

² Benzo(a)pyrene RBSL to be compared against sum of 16 US EPA Priority List PAHs using Toxicity Equivalence approach

³ ‘Total’ TPH RBSL derived for an area of development, based on individual RBSLs provided and available mass fraction TPH data in soil at time of derivation, using the inverse weighted average approach.

⁴ See text below for specification of relevant depth ranges

Table 2 – Summary of RBSLs for Groundwater

Contaminant	Land-Use Specific RBSL (mg/l)		
	Residential	Commercial	Recreational
TPH Aliphatic EC>C6-C8	none	none	none
TPH Aliphatic EC>C8-C10	none	none	none
TPH Aliphatic EC>C10-C12	none	none	none
TPH Aliphatic EC>C12-C16	none	none	none
TPH Aliphatic EC>C16-C21	none	none	none
TPH Aliphatic EC>C21-C35	none	none	none
TPH Aromatic EC>C7-C8	20	97	none
TPH Aromatic EC>C8-C10	22	none	none
TPH Aromatic EC>C10-C12	none	none	none
TPH Aromatic EC>C12-C16	none	none	none
TPH Aromatic EC>C16-C21	none	none	none
TPH Aromatic EC>C21-C35	none	none	none
Benzene	0.7	6	198
Benzo(a)pyrene	none	none	none
Toluene	47	229	none
Ethylbenzene	102	506	none
Xylenes	43	607	none
1,2-Dichloroethane	0.2	0.82	45
Dichloromethane	150	624	none
Tetrachloroethene	22	115	none
Trichloroethene	2.6	13	813
Vinyl Chloride	0.06	0.3	18
1,2-Dichloroethene	15	68	none
1,1,1-Trichloroethane	193	989	none

“none”= theoretical RBSL greater than solubility limit

3. Scale of aesthetic criteria

Table 3 – Scale of aesthetic criteria

Class	Visual	Olfactory
0	No visible staining of soil, no visible suspect ACM	No detectable odour on soil
1	Occasional staining of soil, no visible suspect ACM	Faint odour on soil
2	Frequent staining of soil	Distinct but not strong odour on soil
3	Occasional heavy staining of soil	Strong odour on soil
4	Heavy staining of soil	Strong odour discernable in ambient air
5	Visible hydrocarbon product	Overwhelming Odour

3.1 Visible suspect ACM refers to asbestos containing material visible to the naked eye which a reasonable and prudent person used to managing asbestos may suspect to be asbestos containing.

3.2 All references in Table 1 above to depths to which minimum RBSLs are to be achieved are expressed below, relative to FFL following completion of construction of the intended Urban Village.

4. Residential End-Use where Groundwater is Primarily in Rock

4.1 This remediation scenario is intended to refer to residential end-use in areas where there is limited soil material over bedrock, little perched groundwater is present in that soil, and the water table is normally first encountered in bedrock. Areas of the Property with these characteristics include the more elevated parts of the former process area and of the southern tank farm. The minimum Remedial Action required in this scenario is as follows:

4.2 All oil saturated soil should be removed.

4.3 All soils must be remediated so as to meet the RBSLs for TPH, BTEX and PAHs at the relevant depth relative to FFL and the aesthetic criteria Class 2 or better at greater than 1m below FFL.

4.4 The aesthetic quality of soils shall be Class 1 or better for at least the first metre below FFL.

4.5 Soils where there is visible ash and clinker, or metal concentrations above RBSLs, are to be removed so that none is retained within the first metre below FFL in garden areas.

4.6 Where it is not practicable to address groundwater contamination within bedrock this must be controlled, e.g. where seeps, sheens and iron staining discharge from the bedrock. Acceptable methodologies for remediation may include, but are not limited to, the use of land drainage via interceptors. Control measures should result in no visible discharge at surface and little or no odour observable.

4.7 All soil potentially containing dispersed asbestos fibres or visible ACM must be removed or remediated to meet in bulk, considering both dispersed fibres and pieces

of ACM, the appropriate ACM RBSL, or to meet the requirements of relevant Environmental Authorities, whichever is the more conservative.

5. Residential End-Use where Groundwater is in soil

- 5.1 This remediation scenario is intended to refer to residential end-use in areas where there is sufficient soil material over bedrock to commonly contain perched groundwater such that the water table is normally first encountered in soil. Areas of the Property with these characteristics include the lower parts of the former process area and of the southern tank farm and the north site tank farm. The minimum Remedial Action required in this scenario is as follows.
- 5.2 All oil saturated soils and free product shall be removed.
- 5.3 Soils must be remediated so as to meet the RBSLs for TPH, BTEX and PAHs to a minimum depth of 0.5m below the likely seasonal minimum groundwater depth following development of the intended Urban Village. This depth is to be established by consideration of all available groundwater level monitoring data relevant for each area. All soil must meet aesthetic criteria Class 2 or better to the same depth.
- 5.4 All soil must meet aesthetic criteria Class 1 or better to at least 1m below FFL.
- 5.5 Soils where there is visible ash and clinker or metal concentrations above RBSLs to be replaced to at least 1m below FFL.
- 5.6 All soil potentially containing dispersed asbestos fibres or visible ACM must be removed or remediated to meet in bulk, considering both dispersed fibres and pieces of ACM, the appropriate ACM RBSL, or the requirements of relevant Environmental Authorities, whichever is the more conservative, to a minimum depth of 2m below FFL.
- 5.7 Where there is a risk of the migration in ground of hazardous gas or vapour or contaminated liquid into remediated areas, the Developer shall take all necessary measures appropriate to prevent this occurring, including monitoring whatever measures are put in place after their installation to continue to demonstrate their effectiveness. Such measures could include the installation of interception trenches and management of discharge from these.
- 5.8 Where necessary, seeps, sheens and iron rich discharges from the bedrock must be permanently controlled such that there is no visible discharge at surface and little or no odour detectable. Acceptable methodologies for remediation may include, but are not limited to the use of land drainage via interceptors.

6. Commercial End-Use where Groundwater is in soil

- 6.1 This remediation scenario is intended to refer to commercial end-use in areas where there is sufficient soil material over bedrock to commonly contain perched groundwater such that the water table is normally first encountered in soil. The area identified for commercial development in the Masterplan is the lower part of the former process area, which in general terms has these characteristics. Based on the Masterplan, no commercial developments are currently envisaged where groundwater is primarily encountered only in rock; in the event such development is proposed, Remedial Action consistent with the standards specified below would be required, adapted as necessary to local conditions.

- 6.2 All oil saturated soils and soil containing free product other than minor sheens shall be removed to a minimum depth of 2 m FFL or 0.5 m below the likely lowest seasonal groundwater elevation following development of the intended Urban Village, whichever is the deeper. This depth is to be established by consideration of all available groundwater level monitoring data.
- 6.3 All soils must meet the RBSL for TPH to at least 1m below FFL.
- 6.4 All soils must meet in bulk, considering both dispersed fibres and pieces of ACM”, the RBSL for ACM to at least 1m below FFL and any visible ACM encountered during construction in the first 1m below FFL is to be removed.
- 6.5 Where there is a risk of the migration in ground of hazardous gas or contaminated liquid into remediated areas, the Developer shall take all appropriate measures to prevent this occurring. Such measures could include the installation of interception trenches and management of discharge from those. The Developer shall monitor whatever measures are put in place after their installation to continue to demonstrate their effectiveness.
- 6.6 Where necessary, seeps, sheens and iron rich discharges from the bedrock must be controlled such that there is no visible discharge at surface and little or no odour. Acceptable methodologies for remediation may include, but are not limited to the use of land drainage via interceptors.

7. Public Open Space

- 7.1 The Developer shall remediate areas of the Property which will not be developed for residential or commercial end-uses based on those areas falling into one of the following three broad categories of land-use:
- 7.1.1 Well managed parks and public gardens;
- 7.1.2 More lightly managed areas where public access is encouraged;
- 7.1.3 Areas to which access is discouraged but occasional access and/or trespassing is possible.
- 7.2 The degree of protection that will need to be afforded to people will be largely dependent upon how the access to these areas is encouraged/discouraged and managed. For guidance only, access may be discouraged by physical barriers such as fencing, or vegetation, or actively managed by the provision of walkways along which controlled access is encouraged. The topography of the site may encourage children to use bikes, potentially causing rutting of the ground surface and exposing soils at depth. Detailed designs in this regard will be prepared by the Developer approved by CDL and agreed with the Environmental Authorities to (i) protect human health considering the reasonably anticipatable use of the land (ii) achieve the relevant RBSLs (recreational RBSLs being provided in Table 1 above) to an appropriate depth and (iii) include an appropriate scheme of validation testing.

8. Validation

- 8.1 As a minimum validation of RBSL's will be required to include:
- 8.1.1 Determining the necessary extent of remedial excavations: this will be the responsibility of the Developer;

- 8.1.2 Quality assurance of imported materials, including testing of imported materials for contamination if it is intended to use reclaimed aggregates, top soil, etc: this will be the responsibility of the Developer, however, CDL may elect to validate such materials in-situ, once they are finally placed for construction;
- 8.1.3 Quality assurance of soils treated on the site for re-use: this will be the responsibility of the Developer, however, CDL will validate such materials in-situ, once they are finally placed for construction, and;
- 8.1.4 Quality assurance of soils for which no remedial works are identified: this will be the responsibility of the Developer, however, CDL will validate such materials.

8.2 As a minimum, sampling at the following frequencies should be undertaken.

Table 4 - Minimum Validation Testing Frequencies.

Testing for the Validation Suite at the following frequency:	Shallow Soils (Residential <1m FFL)	Deeper Soils (Residential >1m below FFL)	Soils (Commercial all relevant depths)
Imported quarried material	1 per 500m ³ ex situ, composite of 5 regular sub-samples	1 per 1000m ³ ex situ, composite of 5 regular sub-samples	1 per 1000m ³ ex situ, composite of 5 regular sub-samples
Imported soil from verified greenfield site	1 per 250m ³ ex situ, composite of 5 regular sub-samples	1 per 500m ³ ex situ, composite of 5 regular sub-samples	1 per 500m ³ ex situ, composite of 5 regular sub-samples
Imported soil from characterised brownfield site ¹	1 per 25m ³ ex situ, composite of 5 sub-samples	1 per 50m ³ ex situ, composite of 5 sub-samples	1 per 100m ³ ex situ, composite of 5 sub-samples
0.5-1m below FFL in-situ	Regular grid of 1 per 50m ² , sample over 0.5m depth	n/a	Regular grid of 1 per 400m ² , sample over 0.5m depth
>1m below FFL in-situ	n/a	Regular grid of 1 per 100m ² , sample over 1m depth	Regular grid of 1 per 400m ² , sample over 0.5m depth
Stockpiled excavated site materials for re-use	1 per 50m ³ ex situ, composite of 5 sub-samples	1 per 100m ³ ex situ, composite of 5 sub-samples	1 per 400m ³ ex situ, composite of 5 sub-samples
Face of remedial excavations <1m deep	1 per 10m, minimum of 1 per face, worst case VO sample	n/a	1 per 15m, minimum of 1 per face, worst case VO sample
Face of remedial excavations >1m deep	n/a	1 per 10m ² , minimum of 1 per face, worst case VO sample	1 per 15m ² , minimum of 1 per face, worst case VO sample
Along redundant service excavations	1 per 20m of trench, worst case VO sample	1 per 20m of trench, worst case VO sample	1 per 20m of trench, worst case VO sample
Soil treated ex-situ and homogenised	1 per 200m ³ , composite of 5 regular sub-samples	1 per 200m ³ , composite of 5 regular sub-samples	1 per 500m ³ , composite of 5 regular sub-samples

¹ Validation suite to reflect prior use of the originating brownfield site and the design and purpose of the relevant area of Coed Darcy.

VO = visual / olfactory (ie aesthetic) observation

- 8.3 The quality of all material placed as fill and/or remaining in-situ post-construction of the Urban Village must as a minimum meet the relevant RBSLs and aesthetic standards at the frequencies set out above (in either case as the same may be amended in accordance with this Schedule).
- 8.4 In all circumstances, CDL and/or the Monitor may at its discretion take additional samples if it has reason to suspect that material may not meet the relevant RBSLs and

aesthetic standards (in either case as the same may be amended in accordance with this Schedule).

- 8.5 All validation samples obtained by CDL and/or the Monitor whether according to the above frequencies or on a discretionary basis must on analysis be of the same or better quality than the relevant RBSLs and meet or exceed the relevant aesthetic criteria (in either case as the same may be amended in accordance with this Schedule).

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A E I RE ESTS FOR I FOR ATIO RFI



Request for Information

Contract Name: Coed Darcy Monitor RFI No:
Contract Number: GNP/NJR/13773-2 Date Raised: 23 August 2013
Subject: Residential Phase 2 – Review of Atkins' Notes for Monitor Agreement, Engineer's Brief and Remediation Strategy
To: Michelle Lee Atkins
Cc: Mike Poland Atkins
From: Rhys Mander/Joanne Foy URS

Response Required Within:

1 Day		3 Days		5 Days		10 Days	✓
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Comments

This RFI has been prepared following a review of the following Atkins' documents received 24th July 2013:

- Residential Phase 2 - Notes for Monitor Agreement
- Residential Phase 2 - Engineer's Brief - Reclamation/Remediation Works
- Geo-Environmental Assessment and Outline Remediation Strategy – Proposed Residential Phase 2 5041216-PLOTS-RPT-000992 dated July 2013

In general, in the Monitor role, URS agrees with the overall approach to this area, however the following comments and queries are raised:

- The documents imply that the appropriate scenario under the Section 106 is "residential use where groundwater is in bedrock". However, it is possible that the northern area should be considered as "residential use where groundwater is in soil". This is on the basis of groundwater within clay or sand overlying bedrock as shown on the historical logs for WSMW013 and WSMW014 (within Phase 2) and MSMW124 and MSMW098 to the immediate west of Phase 2. It is recommended that the site engineers be made aware of the differences in requirements in the Section 106.
- Drawing 5041216-ENG-DWG-001546 shows two Area 2s. Should the area to the southwest of the Primary School be Area 3? Section 1.1 of the Remediation Strategy states that Area 2 has previously been remediated and is therefore not included within the current remedial strategy.
- The documents state that all soils with a visual/olfactory rating exceeding Class 2 will be removed and are not suitable for re-use. It should be noted that the Section 106 requires material in the top 1m in residential areas to be at least Class 1 or better. Given that the area is to be re-profiled to a level anticipated to be 0.5m below FFL, there will be some soils within this top metre which will need to be Class 1 or better.
- With regard to asbestos detection, the Notes for Monitor Agreement states that "where a significant number of failures of the adopted thresholds are reported, the materials shall be rejected or further quantitative analysis scheduled to improve the dataset". This is not compliant with the Section 106 for residential areas which requires "all soil potentially containing dispersed asbestos fibres or visible ACM must be removed or remediated to meet in bulk, considering both dispersed fibres and pieces of ACM, the appropriate ACM RBSL, or to meet the requirements of relevant Environmental Authorities, whichever is the more conservative."
- The Generic Remediation Requirements in section 7.1 of the Remediation Strategy are based on the Section 106, but excludes the clause on seeps and sheens. How will these be addressed – for example on the exposed rock faces?
- The Remediation Strategy details free product removal and also states that where free product removal is not sufficient to adequately mitigate the risks to controlled waters, groundwater remediation may be required. Please confirm what this groundwater remediation may entail and how the requirement for it would be assessed. It is also noted that the free product removal tasks are not included in the Engineer's Brief.
- Whilst the proposed frequency of sampling with reference to the Section 106 is clearly stated in the Notes for Monitor Agreement, it is not stated in the Engineer's Brief. For example, the Engineer's Brief (paragraph 6, page 3) states that "Stockpiles should be sampled on a regular basis". For the avoidance of confusion and the possibility of collection of too few samples, this should be amended to include the exact frequencies in line with the requirements of the Section 106.
- The Engineer's Brief states that "hotspot excavations relating to the removal of unsuitable materials defined in the remediation strategy should be validated on a visual/photographic basis only" (paragraph 4, page 3).

The Notes for Monitor Agreement document provides further detail on this and includes exceptions where samples are required. To avoid confusion and the potential to miss sampling opportunities/requirements the Engineer's Brief should be amended to include this detail.

- It is noted that where the sides and base of excavations are in bedrock, validation will be undertaken by visual/olfactory observations and PID readings. This approach is acceptable, providing suitable effort is made to obtain the PID readings and those readings are undertaken in a technically defensible manner i.e. they should be taken immediately following exposure of the bedrock (not when it has been left exposed for a substantial period of time) and should be taken using a headspace bag. Please confirm your sampling methodology and include it in Engineer's Brief.
- Please ensure that ground levels at the base of the excavations are surveyed.
- Please ensure that volumes of materials are accurately recorded so that sampling frequencies can be verified. Please record volumes of: i. material excavated and removed as unsuitable; ii. material excavated, stockpiled and re-used as acceptable backfill; and iii. imported fill.

Signed: Rhys Mander

Date: 23 August 2013

Reply

Signed:

Date:

Distribution

To	cc	Name	Company
✓		Michelle Lee	Atkins
	✓	Mike Poland	Atkins

Contract Name:	Coed Darcy Monitor	RFI No:
Contract Number:	GNP/NJR/13773-2	Date Raised: 17 December 2014
Subject:	Review of Atkins' Validation Report for Monitor Phase 31 – St. Modwen Homes Plot	
To:	Michelle Lee	Atkins
Cc:	Mike Poland	Atkins
From:	Rhys Mander	URS

Comments

This RFI has been raised following a review of Atkins' report titled 'St. Modwen Homes (Monitor Phase 31) Validation Report' ref. 5041216-PLOTS-RPT-1284 dated 10 December 2014.

- It is noted that the phase boundary shown on drawing no. 1565 has been revised (now revision C) and differs from the phase boundary that was declared in the letter received from St. Modwen on 12 November 2013. The Redevelopment Remediation Works Completion Certificate (RRWCC) will be prepared on the basis of Drawing No. 1565 Rev C but for completeness it is advised that the Developer should formally re-declare the phase boundary.
- Sections 1.2 and 5.4.2 – It is stated that the placement of soils from 1.0m below FFL to 0.5m below FFL has not been completed in some areas and will be reported separately. Please could you confirm if the Monitor is being asked to prepare a certificate based the current situation or should we await the placement and verification of the remaining soils to 0.5m below FFL?
- Section 3.1 – It is stated that Phase 31 is being considered for a residential end use. However section 5.3.3 states that certain areas are being considered as a commercial end use in order for the specified testing frequencies to be met. However, the residential screening thresholds have been used across the entire phase. Please could you confirm whether or not the entire phase is being declared for residential end use. If not, please provide a drawing indicating which areas are being declared for which end-use, preferably with sample locations overlaid.
- Section 5.2 – The fifth paragraph starts 'Area 1 was similarly monitored...'. Should this refer to Area 4?
- Section 5.3 – It is stated that 27,998m³ of material was moved following treatment and homogenisation. Please could you provide further details of why this material is considered to have been homogenised.
- Section 5.3.1 – It is stated that soils from the stockpile that were within the vicinity of the exceedence were not transferred to Phase 31. Please clarify how this can be assured? Please also confirm that each stockpile sample comprised five sub-samples?
- Section 5.3.2 – It is stated that trial pits P1TP145 and P1TP146 could not be excavated. Please confirm when this will happen and if the Monitor should await these results before preparing the RRWCC?
- Section 5.3.3 – The surface areas quoted (5,000m² and 27,585m²) do not tally with the surface area of Phase 31 of 31,575m² as stated in Section 2.3.
- Section 5.3.3 – It is stated that 51,116m³ of material was placed – however Section 5.3 states that 55,866m³ of material was placed.
- Section 5.3.3 – It is stated that only selected samples were analysed for BTEX and a range of organic compounds. Please clarify how these samples were selected.
- Sections 5.3.1 and 5.3.2 – It is noted that an insufficient number of samples were collected from the stockpile to meet the specified testing frequency. It is also noted that insufficient numbers of in situ samples were collected to meet the specified testing frequency. However, the Monitor is generally satisfied that whilst the specified testing frequencies have not been met for each of the requirements, overall a sufficient amount of testing appears to have been undertaken.
- Section 5.3.4 – It is stated that P1TP97 was at shallow depth, but the exceedence is reported to have been at a depth of 3.8m?
- Section 5.3.4 – The tables provided in Appendix F indicate exceedences against C8-C10 aliphatic for RD103 at various depths. This is not discussed in the report?
- Section 5.3.4 – It is noted that various testing results are awaited. These results will be required before the RRWCC can be issued.
- Section 5.4.1 – It is noted that several exceedences were identified within the red marl when screening against residential shallow soils. However, some of these exceedences appear to fall within the public open

space, so the analysis against residential thresholds may be overly conservative. Nevertheless it is noted that the intention is for the hotspots to be removed. Validation to the standard thresholds and frequencies specified in the s106 will be required before a RRWCC can be issued.

- Appendix D – Only 121 trial pit logs have been provided whereas 208 trial pits are reported to have been excavated. Please could the balance of trial pit logs be provided.
- Appendix F – A large number of samples where asbestos was detected were not scheduled for asbestos quantification. Please clarify how it was determined which samples would be scheduled for asbestos quantification.



Signed: Rhys Mander

Date: 17 December 2014

Reply

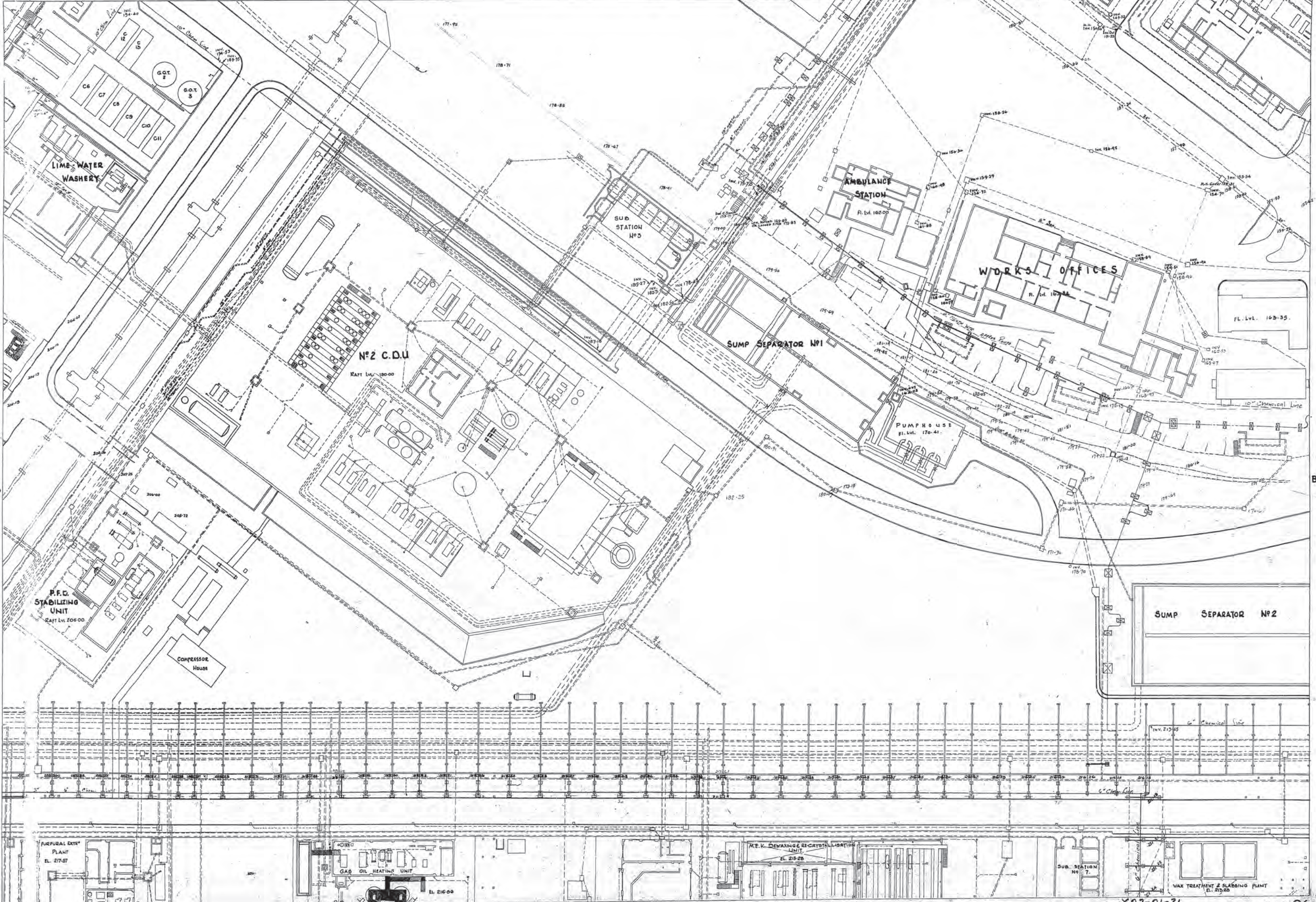
Signed:

Date:

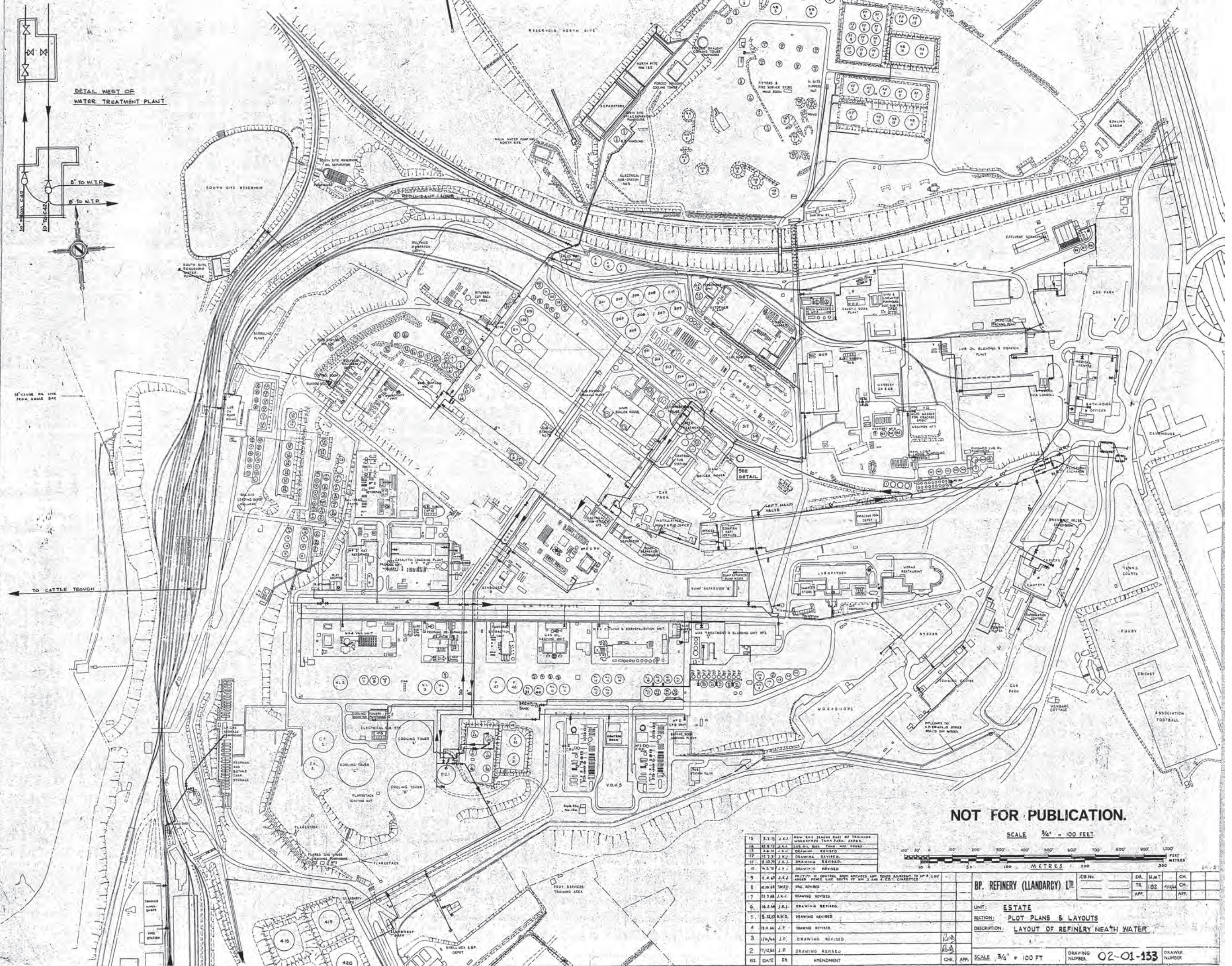
istribution

To	cc	ame	Company
✓		Michelle Lee	Atkins
✓		Mike Poland	Atkins

A E I E HISTORICAL A S

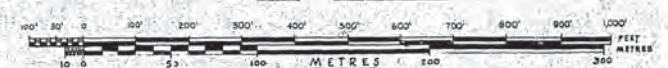




DETAIL WEST OF
WATER TREATMENT PLANT

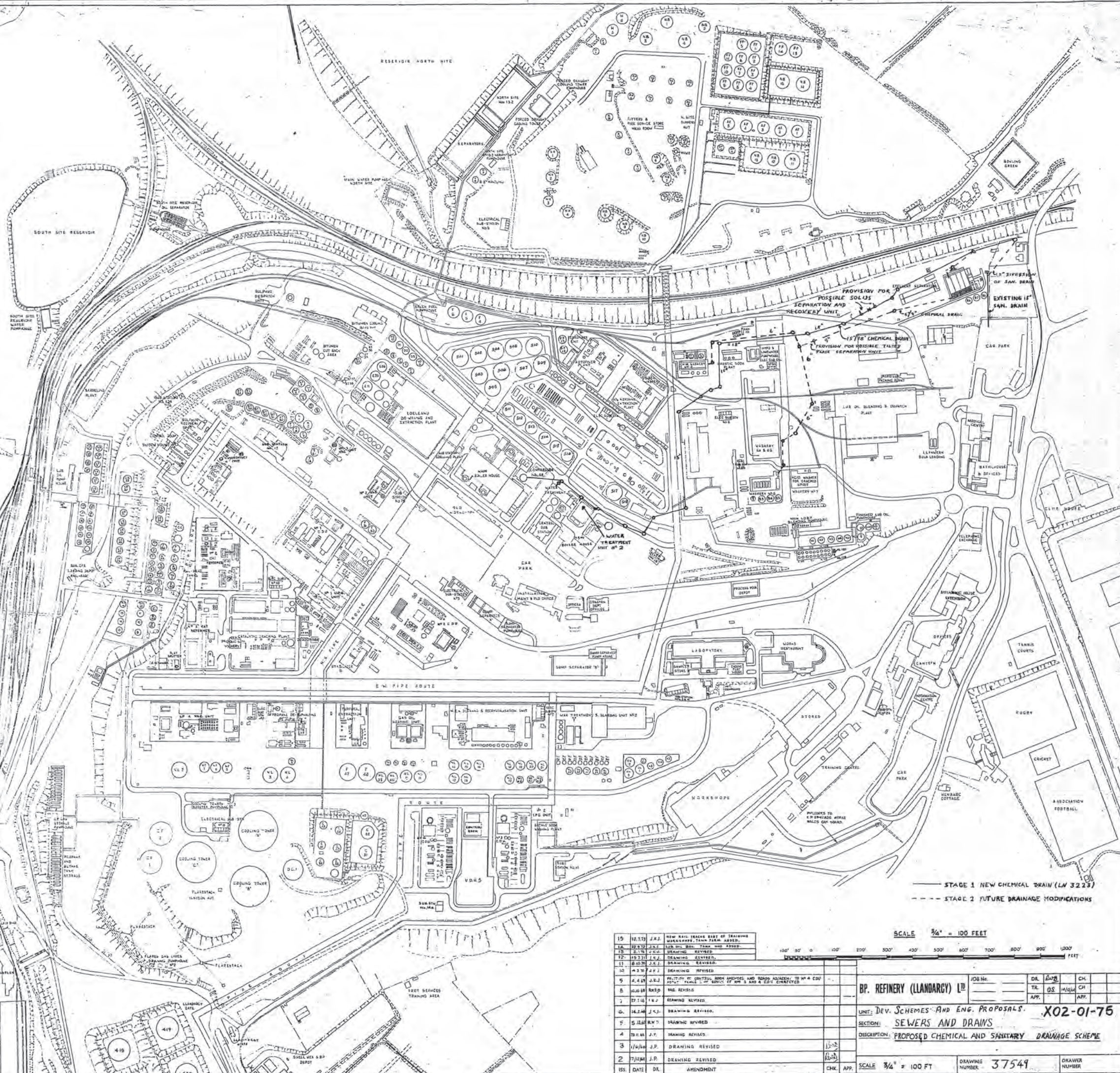
NOT FOR PUBLICATION.

SCALE 3/4" = 100 FEET



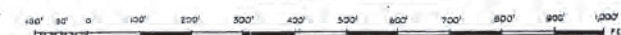
15	3.7.75	J.R.	NEW RAIL TRACKS EAST OF TRAINING WALKWAYS TANK FARM. ADDED.
14	10.3.75	J.R.	ADD. DET. MAIN TANK AREA. ADDED.
13	3.4.75	J.R.	DRAWING REVISED.
12	12.7.74	J.R.	DRAWING REVISED.
11	8.10.74	J.R.	DRAWING REVISED.
10	4.5.74	J.R.	DRAWING REVISED.
9	1.4.74	J.R.	REVISION TO CONTROL ROOM SKETCHES AND ROAD ADJACENT TO W.P. 4. COR. ADDED. PUMP LINE SOUTH OF W.P. 3 AND 4 COR. CORRECTED.
8	10.10.73	J.R.	DWG. REVISED.
7	23.3.68	J.R.	DRAWING REVISED.
6	14.2.64	J.R.	DRAWING REVISED.
5	8.12.63	J.R.	DRAWING REVISED.
4	12.11.63	J.R.	DRAWING REVISED.
3	1/10/64	J.R.	DRAWING REVISED.
2	7/12/64	J.R.	DRAWING REVISED.
1	15.12.64	J.R.	DATE

BP. REFINERY (LANDARCY) LTD		JOB No.	DR.	H.M.T.	CH.
			TR.	OS.	CH.
			APP.		APP.
UNIT: ESTATE					
SECTION: PLOT PLANS & LAYOUTS					
DESCRIPTION: LAYOUT OF REFINERY NEAR WATER					
SCALE 3/4" = 100 FT					
DRAWING NUMBER 02-01-133					
DRAWER NUMBER					



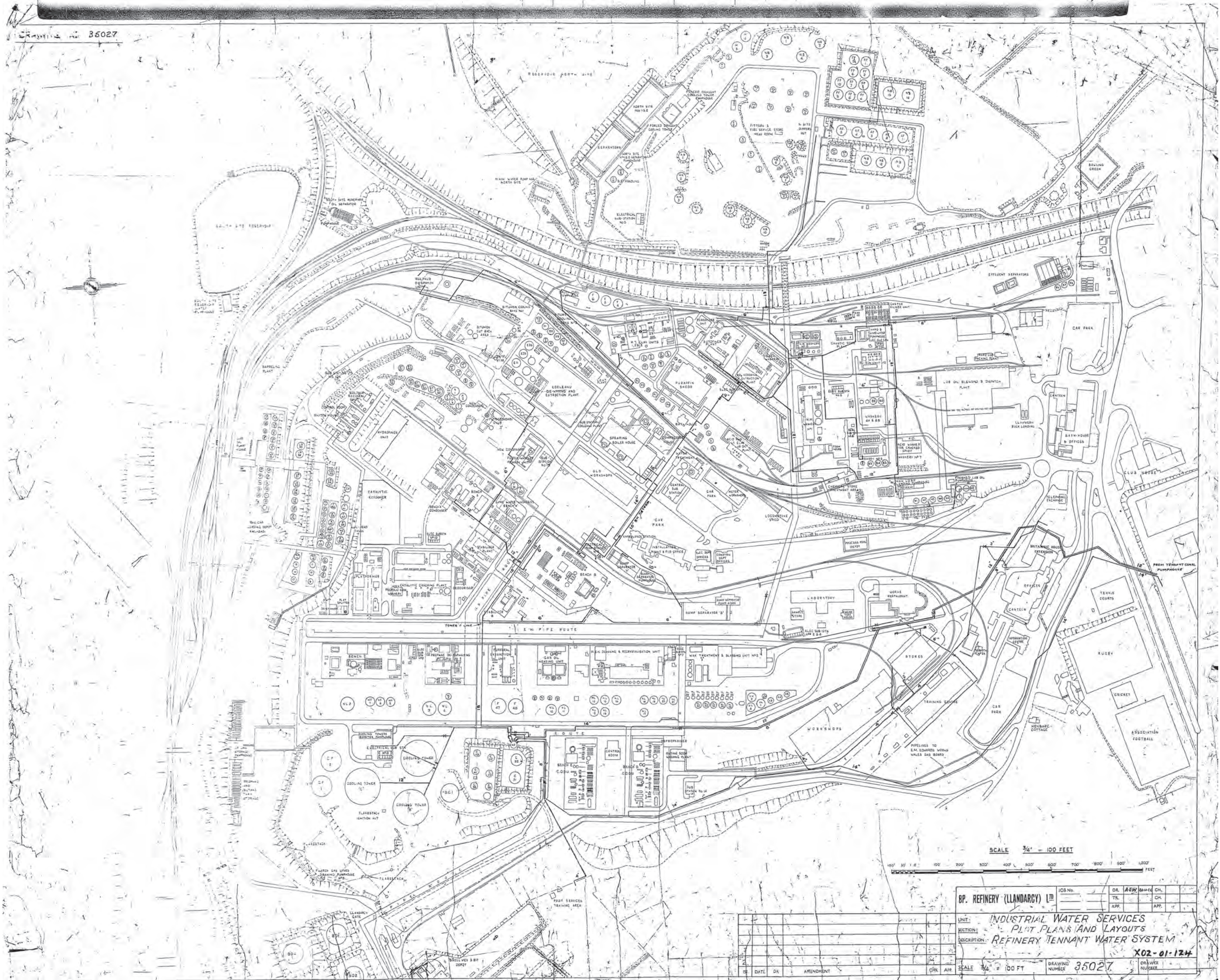
— STAGE 1 NEW CHEMICAL DRAIN (LN 3223)
 - - - STAGE 2 FUTURE DRAINAGE MODIFICATIONS

SCALE 3/4" = 100 FEET



15	12/79	J.R.	NEW RAIL TRACKS EAST OF TRAINING WORKSHOPS, TANK FARM AREA.
14	8/79	J.C.	REVISED.
13	5/79	J.C.	DRAWING REVISED.
12	12/78	J.R.	DRAWING REVISED.
11	8/78	J.R.	DRAWING REVISED.
10	4/78	J.R.	DRAWING REVISED.
9	4/78	J.R.	PLANTING OF TREES, BUSHES AND GRASS ALONGSIDE OF NEW RAIL TRACKS.
8	4/78	J.R.	REVISED.
7	7/77	J.R.	DRAWING REVISED.
6	12/76	J.C.	DRAWING REVISED.
5	5/76	J.R.	DRAWING REVISED.
4	3/76	J.R.	DRAWING REVISED.
3	1/76	J.R.	DRAWING REVISED.
2	7/75	J.R.	DRAWING REVISED.
1	DATE	DR.	AMENDMENT

BP. REFINERY (LLANDARCY) LTD		JOB NO.	DR.	CHK.
UNIT: DEV. SCHEMES AND ENG. PROPOSALS.		TR.	OS.	CH.
SECTION: SEWERS AND DRAINS		APP.	OS.	APP.
DESCRIPTION: PROPOSED CHEMICAL AND SANITARY DRAINAGE SCHEME				
SCALE 3/4" = 100 FT		DRAWING NUMBER	DRAWER	
		37549		



0 100' 200' 300' 400' 500' 600' 700' 800' 900' 1000'

A blank sheet of graph paper with a grid pattern. The grid consists of small squares formed by horizontal and vertical lines. There are no markings or text on the page.



1/4" = 100' HORIZ. SCALE
1/8" = 10' VERT. SCALE

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PROPOSALS CONTAINED
IN CAPITAL CASE REQUEST
N° L 71/655 SHOWN IN RED.

INDICATES CHEMICAL DRAINS.
INDICATES SANITARY DRAINS.
INDICATES MANHOLES.

SCALE 1/4" = 100 FEET

0 100 200 300 400 500 600 700 800 900 1000 FEET

BP. REFINERY (LLANDARFY) LTD		JOB No.	DA	TA	AP	CH
UNIT: REFINERY GENERAL		X02-01-76				
SECTION: SEWERS & DRAINS						
DESCRIPTION: LAYOUT OF REFINERY - SANITARY & CHEMICAL DRAINAGE.						
DATE	AMENDMENT	CHK.	APP.	SCALE	DRAWING NUMBER	DRAWER NUMBER
18.11.64	SAC. CHEMICAL DRAINS ADDED.			1/4" = 100 FT.	36622/	

A E I F OTO RA S



Photograph No 1 24 July 2013



Photograph No 2 24 July 2013



Photograph No 3 8 August 2013



Photograph No 4 8 August 2013



Photograph No 5 8 August 2013



Photograph No 6 28 August 2013



Photograph No 7 25 September 2013



Photograph No 8 25 September 2013



Photograph No 9 15 October 2013



Photograph No 10 15 October 2013