JERSEY FUTURE HOSPITAL

CO004 – SITE OPTION REPORT

APPENDIX 6 Technical Site Appraisal

TN-CIV-001 - TECHNICAL NOTE – CIVIL ENGINEERING

QUALITY ASSURANCE

Sign off: Peter Thomas

Position: Senior Engineer

April 2015

Subject	Jersey Future Hospital – Change Order 4 – Site Validation TN-CIV-001 Technical Note – Civil Engineering Rev P2. Date 02.04.2015. Final Preliminary Issue
Date	2 April 2015
Job No/Ref	237035

1 Introduction

This technical note has been prepared to document the findings associated with the below ground foul and surface water drainage options to support the preparation of the Site Validation Exercise that forms Change Request No 4 as part of the Jersey Future Hospital (JFH) scheme.

The four options being reviewed are:

Option A - Dual Site Options

Option B - Overdale Hospital Site, 100% New Build Option

Option C - Existing General Hospital, 100% New Build Option

Option D - Waterfront Site, 100% New Build Option

Reference has been made to the email dated 11/02/15 from Steve Bohea Transport and Technical Services and drawings which forms Appendix A of this report which includes record drawings and possible drainage solutions for the above options

2 Option A – Dual Site Option

2.1 Foul Drainage

2.1.1 Existing Hospital Site

2.1.1.1 Existing Foul Drainage

The existing site is served by a 530mm sewer in The Parade, a 600mm diameter sewer in Gloucester Street and a 230mm diameter sewer in Newgate Street.

2.1.1.2 Proposed Foul Drainage

Under the dual site option, the Gloucester Street site will be partially developed as a 286 bed hospital. Many of the existing facilities (e.g. out- patients, pharmacy) will be transferred to Overdale. The existing services have capacity to cope with a proposed redevelopment. Existing connections to the main drains may be re-used where possible – subject to modelling and survey.

2.1.2 Overdale Site

2.1.2.1 Existing Drainage

The existing Overdale site is served by a 150mm diameter foul sewer to the south and a 150mm sewer to the north. Both sewers combine to the west into a 230mm diameter sewer to the east of King George V Homes. Some storm water from the existing hospital may be connected to the foul drainage – this will be confirmed by survey at a later date.

2.1.2.2 Proposed Drainage

Transport and Technical Services have confirmed the foul sewer to the east of King George V Homes has capacity to take the proposed development. However it is likely both sewer runs which connect to this will require to be re-routed round the development and upgraded. The existing buildings which it is believed discharges surface water to the foul sewers are to be demolished and hence the surface and foul water will be separated under the proposals.

2.2 Surface Water Drainage

2.2.1 Existing Hospital Site

2.2.1.1 Existing Drainage

The existing hospital is served primarily by a 1525 diameter surface water sewer in Gloucester Street.

2.2.1.2 Proposed Surface Water

There is no increase in surface water run-off as the site is fully developed. Any new buildings on the campus should connect to the existing dedicated sewer in The Parade – via existing on-site drainage if possible. (Subject to survey).

2.2.2 Overdale Site

2.2.2.1 Existing Drainage

The Poplars building and the Rehabilitation Unit at Overdale currently discharge to soakaways. Drawings of the original hospital buildings show the site served by 6" sewers (probably combined) to the north.

There is a public 300mm surface water sewer to the west in Le Val Andre but this connects to a combined sewer La Route de St Aubin.

2.2.2.2 Proposed Drainage

The new hospital will result in an increase in surface water outflow from the site. New soakaways will be used, subject to satisfactory percolation testing and there being sufficient room around the perimeter to locate soakaways away from the buildings.

In addition if new buildings are located close to existing, the soakaways of those buildings may be affected. Consideration will also be given to the use of SUDS in car park areas.

Should soakaways not be viable any surplus surface water could be connected to the 300mm sewer in Le Val Andre, but may require attenuation (subject to town sewer modelling). The surface water will be required to be removed from the combined sewer in La Route de St Aubin and connected to a new outfall through the sea wall via a new main laid across the roads (refer to drawing 12578/D02 in Appendix B which shows a possible route).

3 Option B – Overdale Hospital Site New Build

3.1 Foul Drainage

3.1.1 Existing Drainage

The existing Overdale site is served by a 150mm diameter foul sewer to the south and a 150mm sewer to the north. Both sewers combine to the west into a 230mm diameter sewer to the east of King George V Homes. Some storm water from the existing hospital may be connected to the foul drainage – this will be confirmed by survey.

3.1.2 Proposed Drainage

Transport and Technical Services have confirmed the foul sewer to the east of King George V Homes has capacity to take the proposed development. However it is likely both sewer runs which connect to this will require to be re-routed round the development and upgraded. The existing building which discharge surface water to the foul sewers are to be demolished and hence the surface and foul water will be separate under the proposals.

The Transport and Technical Services email (Appendix A) refers to possible development in Field 1551 – to the east of Westmount Road. However this site would only be used for car parking and no foul drainage would be required.

3.2 Surface Water

3.2.1 Existing Drainage

The Poplars building and the Rehabilitation Unit currently discharge to soakaways. Drawings of the original hospital buildings show the site served by 6" sewers (probably combined) to the north.

There is a 300mm surface water sewer to the west in Le Val Andre but this connects to a combined sewer La Route de St Aubin.

Field 1551: This site is currently an agricultural field. It is proposed to utilise this for car parking. It is envisaged that drainage of this area would be to soakaways or using SUDS.

3.2.2 Proposed Drainage

The new hospital will result in an increase in surface water outflow from the site. New soakaways will be used, subject to satisfactory percolation testing and there being sufficient room around the perimeter to locate soakaways away from the buildings.

In addition if new buildings are located close to existing, the soakaways of those buildings may be affected. Consideration will also be given to the use of SUDS in car park areas.

Should soakaways not be viable any surplus surface water could be connected to the 300mm sewer in Le Val Andre, but may require attenuation (subject to town sewer modelling). The surface water

will be required to be removed from the combined sewer in La Route de St Aubin and connected to a new outfall through the sea wall via a new main laid across the roads (refer to drawing 12578/D02 in Appendix B which shows a possible route).

4 Option C – Existing General Hospital - New Build

4.1 Foul Drainage

4.1.1 Existing Drainage

The existing site is served by a 530mm sewer in The Parade, a 600mm diameter sewer in Gloucester Street and a 230mm diameter sewer in Newgate Street.

Properties fronting Kensington Place discharge into a (combined) lined brick sewer which runs north to south.

4.1.2 Proposed Foul Drainage

Transport and Technical services have confirmed the foul sewer network has capacity to take the proposed development. Existing connections to the public sewer are to be re-used wherever possible. (Subject to modelling and survey).

4.2 Surface Water Drainage

4.2.1 Existing Drainage

The existing hospital is served primarily by a 1525 diameter surface water sewer in Gloucester Street.

Surface water from the buildings fronting, Kensington Place connect to the combined sewer in Kensington Place.

4.2.2 Proposed Surface Water Drainage

The site is fully developed and hence there will be no net increase in surface water discharge. However the connections to the combined sewer in Kensington Place must be removed and re-routed.

There is likely to be little available space on the site for soakaways or SUDS.

Transport and Technical Services suggest (Appendix A), constructing a new branch sewer to manhole MH1 SW near the junction of The Parade and Saville Street. A possible route is shown on the marked up drawing in Appendix C

5 Option D – Waterfront Site New Build

5.1 Foul Drainage

5.1.1 Existing Foul Drains

There is an existing 300mm foul sewer which crosses the site (at a depth of 4 metres) and connecting to the sewer in the Esplanade.

5.1.2 Proposed Foul Drainage

Transport and Technical Services advise that the existing foul sewer has the capacity to take the proposed development of the site.

The foul sewer will need to be diverted around the proposed development but the branch connection from La Frigate Café (which crosses Jardin de La Mer) needs to be accommodated (and possibly re-routed). (See marked up drawing Appendix D)

New buildings should be located away from the diverted sewers to allow for future maintenance and to avoid surcharging. The normal easement width is 3 metres either side of the sewer.

5.2 Surface Water Drainage

5.2.1 Existing Drainage

There is 1.2 x 1.2 concrete box culvert to the north of the site at a depth of 8 metres which crosses between Jardin de La Mer and the new car park. There is also a 450mm surface water sewer at a depth of nearly four metres to the south in La Rue de L'Etau.

Part of the site has recently been resurfaced as a temporary car park and incorporates new surface water drains. These connect via a petrol interceptor to the 450mm public sewer.

5.2.2 Proposed Surface Water Drainage

Consideration may be given to the use of soakaways (subject to percolation tests and review of ground contamination) provided there is a suitable open space. However the ground water level in the area is known to be tidal and this may restrict the performance of the soakaways.

Transport and Technical Services advise that the box culvert has capacity to take run-off from the site. (Subject to modelling).

If the proposed development encompasses the adjacent Les Jardin de La Mer site then the scheme should incorporate an easement (approximately 5 metres either side of the culvert) for future maintenance. (See marked up drawing Appendix D).

5.3 Proposed Site Layout

A proposed site plan for the Waterfront Site has been produced. The building layout will impact on the stipulated exclusion zone for maintenance of the public sewers. Therefore both the foul sewer and surface water culvert will require diverting.

The suggested diversions are to the east and south of the site. The approximate routes are shown on 12578/SK150219 in Appendix E.

The existing foul sewer is approximately 4 metres below the existing ground level and has a fall of about 1 metre across the site. The diversion would be from MHF2 to the south to MH15 opposite Gloucester Street in the Esplanade.

The surface water diversion would be from MH52 in the Esplanade to a new SWMH on the existing culvert to the south and west of the site.

Transport and Technical Services have advised they have no objections to the diversion in principle but, due to the extra length and relatively shallow falls, they have recommended a feasibility study is undertaken at an early stage. This would determine the challenges, and likely associated costs. They have also requested the culvert is up-sized to take into account a future SW separation scheme upstream (Email S Bohea to John Woodward 23/02/2015 refers – also appendix E).

Appendix A – TTS email and Enclosures 11/02/15

Appendix B – Arup Rothwell drawing 12578/D02 of Overdale showing proposed SW outlet

Appendix C – Existing Hospital Drainage showing line of possible new SW

Appendix D – Waterfront site marked up with exclusion zones and redirected foul.

Appendix E – Drawing 12578-SK150219: Waterfront Site marked up with suggested foul and surface water diversions

Appendix A – TTS email and Enclosures 11/02/15

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INFORMATION HAS BEEN PROVIDED FROM DATA CURRENTLY AVAILABLE AND IS THEREFORE NOT NECESSARILY COMPREHENSIVE.

ALL DEVELOPMENTS MUST BE IN COMPLIANCE WITH DRAINAGE (JERSEY) LAW, 2005.

DRAINAGE (JERSEY) LAW, 2005 ARTICLE 17(1)(b) STIPULATES THAT NO NEW CABLE, CONDUIT MAIN OR PIPE SHALL BE CONSTRUCTED WITHIN ONE METRE OF A PUBLIC SEWER OR OUTFALL.

States of Jersey

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DWG TITLE

JERSEY GENERAL HOSPITAL
OVERDALE & FIELD 1551
St HELIER

DRAWN BY	DATE
TTS RECORDS	11/02/2015
SCALE	SHEET SIZE
NTS	A1
DWG NO.	

SHEET NO.	REVISION
1 of 1	RECORD

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DWG TITLE

JGH - EXISTING SITE
GLOUCESTER ST &THE PARADE
St HELIER

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DWG NO.	
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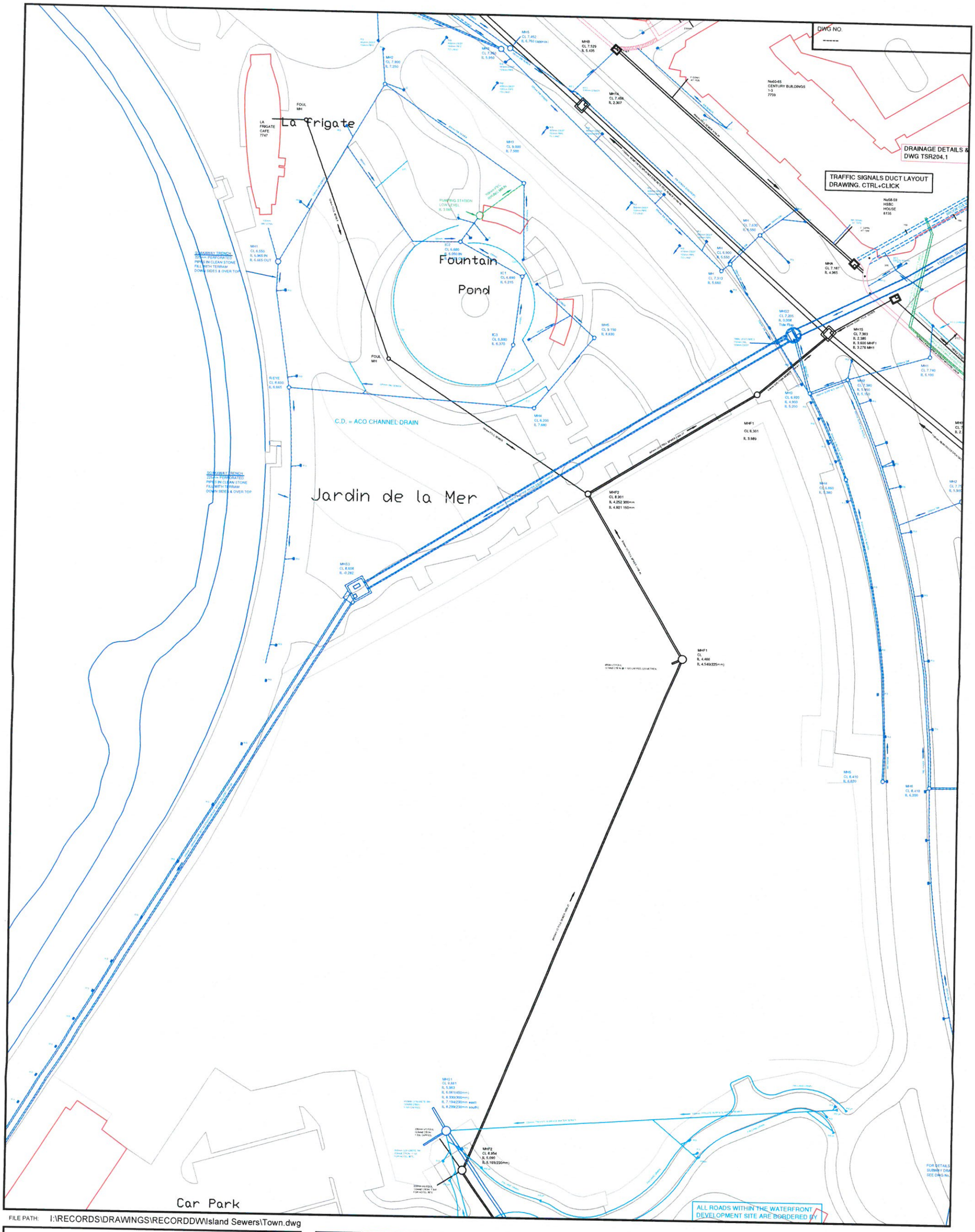
SHEET NO.	REVISION
1 of 1	RECORD



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DWG TITLE

JERSEY GENERAL HOSPITAL
WATERFRONT & JARDIN DE LA MER
St HELIER

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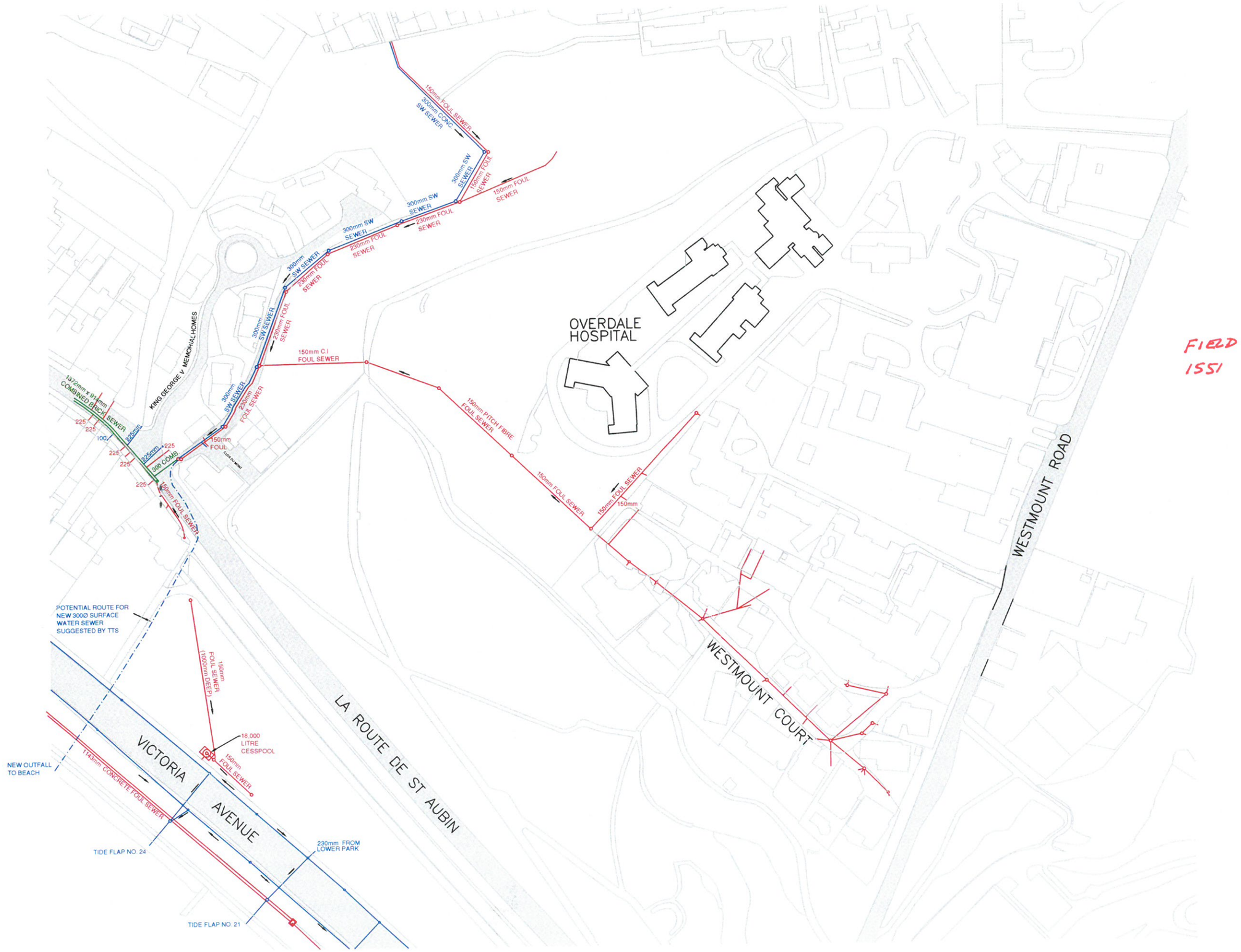
TTS RECORDS	NTS	A3
DWG NO.		

DATE	SHEET NO.	REVISION
11/02/2015	1 of 1	RECORD

Appendix B – Arup Rothwell drawing 12578/D02 of Overdale showing proposed SW outlet

A1



NOTES:

THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT ENGINEERS & OTHER CONSULTANTS DRAWINGS.

THIS DRAWING TO BE READ IN CONJUNCTION WITH ROTHWELL & PARTNERS GENERAL NOTES DRAWING (STRUCTURAL) 500.

ALL TEMPORARY WORKS TO BE THE RESPONSIBILITY OF THE MAIN CONTRACTOR.

LINTELS TO BE BY STRESSLINE (OR SIMILAR APPROVED). ALL LINTELS TO HAVE MIN. 150 END BEARING.

SETTING OUT DIMENSIONS TO BE VERIFIED ON SITE. DEVIATIONS FROM THE SHOWN DIMENSIONS TO BE CONFIRMED WITH ENGINEER

DPC, DPM, INSULATION, FIRE PROTECTION ETC. TO ARCHITECT'S DETAILS

IF IN DOUBT ASK

DO NOT SCALE

ALL BOLTS TO BE GRADE 8.8 UNLESS NOTED OTHERWISE.

ALL WELDS TO BE OF CONTINUOUS 6mm FILLET WELD UNLESS NOTED OTHERWISE.

FILED 1551

Rev.	Date	By	Description

Drawing Status
PRELIMINARY

APPENDIX B

Job Title
JGH
MASTERPLAN

Drawing Title
OVERDALE
DRAINAGE SITE PLAN
SHOWING LINE OF NEW S.W. OUTFALL

Rothwell & Partners Ltd.
17 La Motte Street, St. Helier, Jersey, JE2 4SY
Tel: (01534) 734585
Fax: (01534) 768609

Scales 1:400 @ A1 | Originator NN
Checked | Approved | Date SEPT 2014

Job No.	Drawing No.	Rev.
12578	D02	–

Appendix C – Existing Hospital Drainage showing line of possible new SW

DWG NO.
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SHOWING LINE OF NEW S.W. SEWER

NEW S.W. DRAIN

NEW S.W. DRAIN

MH1SW

APPENDIX C

States of Jersey

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ARUP ROTHWELL COMMENTS FEB 2015

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GLOUCESTER ST &THE PARADE
St HELIER

DRAWN BY	DATE
TTS RECORDS	11/02/2015
SCALE	SHEET SIZE
1:250	A1
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Appendix D – Waterfront site marked up with exclusion zones and redirected foul.

DWG NO.

DRAINAGE DETAILS & DWG TSR204.1

TRAFFIC SIGNALS DUCT LAYOUT DRAWING. CTRL+CLICK

La Frigate

Fountain Pond

RE ROUTE FOUL

Jardin de la Mer

300 DIA FOUL (Rerouted)

300dia Foul Sewer redirected around development

EXCLUSION ZONE TO ALLOW FOR REPAIR/REPLACENT OF DEEP SEWERS (5m either side of sewer)

EXCLUSION ZONE TO ALLOW FOR WORKS TO DEEP SEWERS

APPENDIX D

ARUP ROTHWELL FEB 2015 WATERFRONT DRAINS SHOWING FOUL REROUTE & EXCLUSION ZONES

C.D. = ACO CHANNEL DRAIN

Car Park

ALL ROADS WITHIN THE WATERFRONT DEVELOPMENT SITE ARE BORDERED BY

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DWG NO. ---

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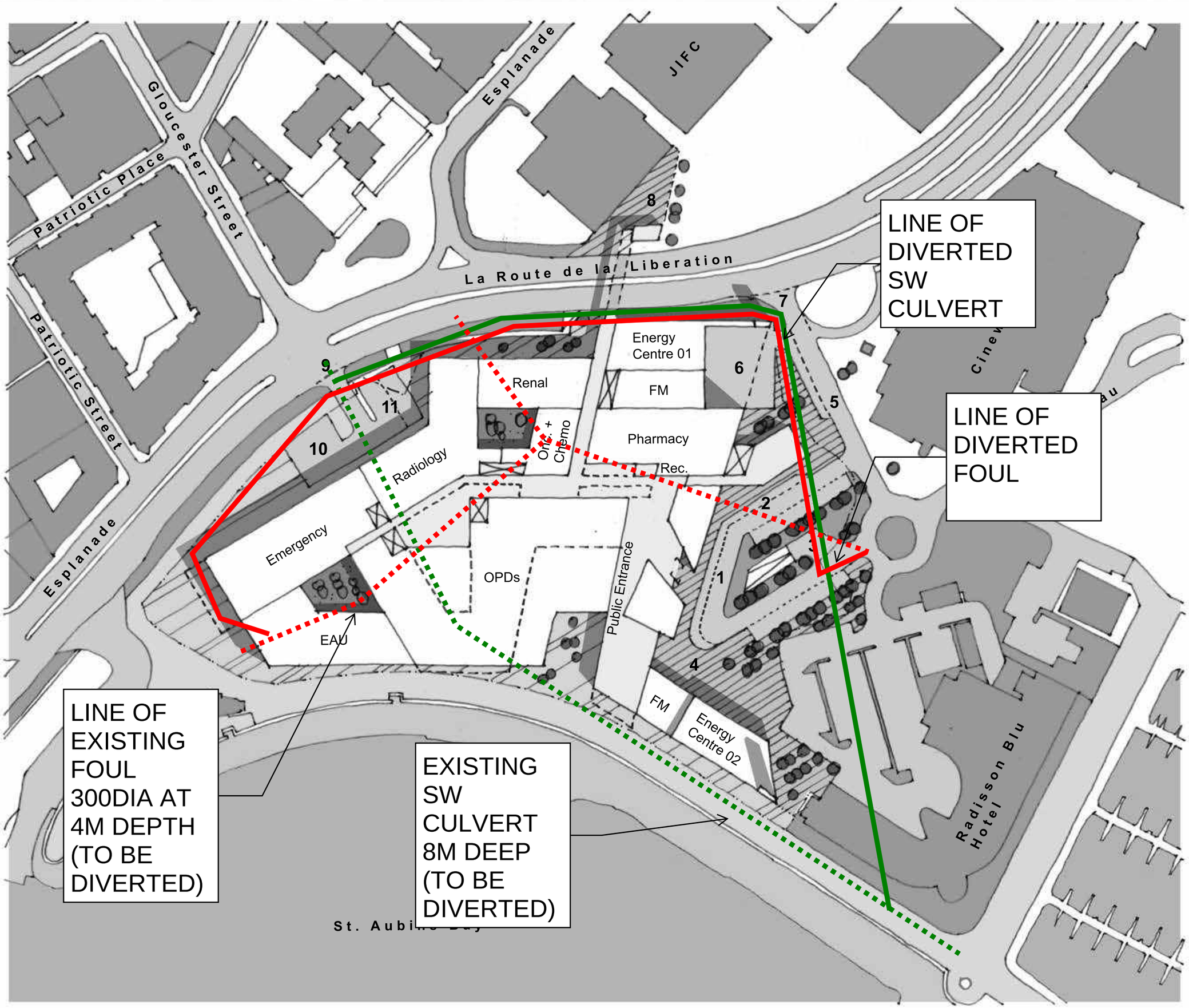
11/02/2015	1 of 1	RECORD

Appendix E– Drawing 12578-SK150219: Waterfront Site marked up with suggested foul and surface water diversions

Future Hospital
New hospital services for a healthier Jersey



1. Main public entrance and drop-off
2. Women's and Children's Entrance and drop-off
3. Ramp down to basement car park (optional)
4. Landscaped forecourt
5. Existing road re-aligned and widened
6. Service / delivery yard
7. Improved junction to Rue de la Liberation
8. Suggested pedestrian bridge link (with lifts and stair) across Ru de de la Liberation
9. Managed traffic control access for emergency
10. Ambulance drop-off
11. Short stay parking for emergency only

OPTION D

WATERFRONT SITE

100% SINGLE SITE OPTION

PROPOSED SITE PLAN

HASSELL