SURFACE WATER

SURFACE WATER RUNOFF WILL BE COLLECTED WITHIN A POSITIVE SYSTEM AND DISCHARGED INTO AN EXISTING DCWW ADOPTED SURFACE WATER SEWER LOCATED WITHIN COED Y CRWYS, AT A CONTROLLED RATE OF 5.9L/s. MULTIPLE SuDS FEATURES ARE PROPOSED ACROSS THE SITE, INCLUDING A SOFT LANDSCAPE CONVEYANCE SYSTEM TO COLLECT HIGHWAY RUNOFF, RAINWATER BUTTS AND RAINGARDENS AT EACH PLOT, PERMEABLE DRIVEWAYS AND TWO DETENTION BASINS.

THE NETWORK HAS BEEN DESIGNED FOR POTENTIAL FUTURE CONNECTION OF A FURTHER PHASE 2 DEVELOPMENT. BASED UPON AN ASSUMED 60% HARD PAVED AREA FOR THE PHASE 2 DEVELOPMENT (TOTAL ASSUMED AREA: 0.791Ha, 60% AREA: 0.475Ha), FLOWS ARE TO BE ATTENUATED WITHIN PHASE 2 TO A RATE OF 5L/s, PRIOR TO DISCHARGE INTO THE PHASE 1 NETWORK. THE PROPOSED HYDROBRAKE UNIT SERVING THE WESTERN BASIN WITHIN PHASE 1 IS TO BE UPGRADED TO MAXIMUM DISCHARGE RATE OF 10.5L/s.

IN ACCORDANCE WITH THE SAB STANDARDS

STANDARD 1

- REUSE – SURFACE WATER RUN-OFF TO BE COLLECTED WITHIN SOFT LANDSCAPED AREAS, REUSED BY THE HYDRATION OF PLANTING. WATER BUTTS ARE PROPOSED AT EACH INDIVIDUAL PROPERTY.
- INFILTRATION – INFILTRATION TESTING WAS CARRIED OUT IN MARCH 2022. NEGLIGIBLE DROP IN WATER LEVEL OBSERVED AS SUCH INFILTRATION IS NOT VIABLE FOR THE DEVELOPMENT SITE.
- WATER BODY – NO SUITABLE WATERCOURSES COULD BE IDENTIFIED WITHIN THE DIRECT VICINITY OF THE DEVELOPMENT, HOWEVER IT IS EXPECTED THAT THE NEIGHBORING DCWW SURFACE WATER DISCHARGES TO A LOCAL WATERCOURSE TO THE NORTH-WEST OF THE DEVELOPMENT
- SURFACE WATER SEWER – A CONNECTION IS PROPOSED TO THE EXISTING DCWW SURFACE WATER SEWER LOCTED IN COED Y CRWYS, OPPOSITE THE DEVELOPMENT
- COMBINED SEWER – NOT REQUIRED FOR THIS DEVELOPMENT

STANDARD 2

- FIRST 5mm OF RAINFALL FROM THE IMPERMEABLE AREAS WILL BE INTERCEPTED AND STORED WITHIN A VARIETY OF SuDS FEATURES, INCLUDING BIORETENTION AREAS, RAINGARDENS, POROUS PAVING AND DETENTION BASINS.
- SURFACE WATER SYSTEM TO BE DESIGNED FOR A RETURN PERIOD OF 100YRS + 30% CLIMATE CHANGE, WITH THE CONTRIBUTING AREAS OF ALL RESIDENTIAL UNITS INCRESED BY 10% TO ACCOUNT FOR URBAN CREEP.
- VOLUMETRIC RUNOFF COEFFICIENTS OF 1.0 HAVE BEEN APPLIED FOR BOTH SUMMER AND WINTER RAINFALL EVENTS ON ALL HARD PAVED SURFACES
- GIVEN SITE LEVELS, SHOULD THE FLOW CONTROL DEVICES BLOCK, RUNOFF WILL BE DIRECTED TOWARDS EXISTING HIGHWAY
- GREENFIELD RUNOFF RATES FOR THE SITE HAVE BEEN DETERMINED AS 10.5L/s/Ha, BASED UPON FEH DATA FOR THE LOCALITY. BASED UPON THE PROPOSED HARD PAVED AREA (EXCLUDING URBAN CREEP), THIS RESULTS IN A FINAL PROPOSED DISCHARGE RATE OF 5.9L/s
- UPON THE CONNECTION OF PHASE 2, BASED UPON AN ASSUMED HARD PAVED AREA OF 60% OF THE DEVELOPMENT AREA, A COMBINED DISCHARGE RATE FOR THE TWO DEVELOPMENTS WOULD EQUATE TO 10.9L/s.

STANDARD 3

- WATER QUALITY WILL BE ACHIEVED VIA VARIOUS SUDS TECHNIQUES, INCLUDING CONVEYANCE SOFT LANDSCAPE, RAINGARDENS, PERMEABLE HARD SURFACES & DETENTION BASINS.

STANDARD 4

- DETENTION BASINS, RAINGARDENS AND SOFT LANDSCAPE AREAS ARE AN IMPORTANT PART OF THE LANDSCAPE DESIGN. THESE FEATURES WILL BE PLANTED AS PER THE LANDSCAPE ARCHITECTS SPECIFICATION AND WILL PROVIDE AMENITY CONTRIBUTION.

STANDARD 5

- RAINGARDENS, DETENTION BASINS AND SOFT LANDSCAPE AREAS WILL BE PLANTED WITH NATIVE PLANT SPECIES TO PROVIDE DENSE AND DURABLE COVER OF VEGETATION THAT CREATES APPROPRIATE HABITAT FOR INDIGENOUS SPECIES.

STANDARD 6

- THE SuDS FEATURES SERVING THE PROPOSED ADOPTABLE ACCESS ROAD, AND SHARED DRIVEWAYS WILL BE PROPOSED FOR ADOPTION BY THE LOCAL AUTHORITY INCLUDING THE 2 DETENTION BASINS.

FOUL WATER

- A GRAVITY FOUL SYSTEM IS PROPOSED FOR THE DEVELOPMENT SITE DISCHARGING INTO THE EXISTING DCWW FOUL WATER LINE IN GOWERTON ROAD

PROPOSED GRAVITY CONNECTION TO EXISTING DCWW SURFACE WATER SEWER.
CL: 137.47
IL: 135.77

COED Y CRWYS

GOWERTON ROAD

PROPOSED BIO-RETENTION AREAS TO CAPTURE AND CONVEY HIGHWAY FLOWS

PROPOSED FUTURE CONNECTION TO PHASE 2 DEVELOPMENT. FLOWS TO BE RESTRICTED WITHIN PHASE 2 WITH A MAXIMUM DISCHARGE RATE INTO THE PHASE 1 NETWORK OF 5L/s, BASED UPON A GREENFIELD RATE OF 5.9L/s/Ha AND EXPECTED DEVELOPMENT PHASE 2 DEVELOPMENT AREA OF 0.475Ha

PROPOSED FUTURE CONNECTION TO PHASE 2 DEVELOPMENT. PHASE 1 PIPE NETWORK TO BE DESIGNED TO ACCOMMODATE FUTURE ADDITIONAL FLOWS

HIGHWAY GULLIES TO COLLECT FLOWS FROM PROPOSED TURNING HEAD

PLOT 22 BOUNDARY WIDENED TO 3m TO ALLOW ACCESS FOR FOUL DRAINAGE

PROPOSED WIDENED POROUS SUBBASE TO PROVIDE ADDITIONAL STORAGE CAPACITY.

EXISTING SURVEYED SURFACE WATER SEWER, EXPECTED TO FORM PART OF THE LOCAL AUTHORITY HIGHWAY NETWORK

PROPOSED GRAVITY CONNECTION TO EXISTING DCWW FOUL WATER SEWER.
CL: 138.28
IL: 136.64

EXISTING DCWW MAINS WATER PUMPING STATION TO BE RELOCATED WITHIN SITE; LOCATION TO BE AGREED BY OTHERS.

PROPOSED HYDROBRAK UNIT DISCHARGING AT 0.4L/s

AREA OF VERGE NOT REQUIRED FOR DRAINAGE STRATEGY. VERGE TO BE MAINTAINED AND GRASSED FOR FOUL ACCESS

PROPOSED HYDROBRAKE UNIT DISCHARGING AT 5.5L/s
HEAD: 2.1m
UPON THE CONNECTION OF FUTURE PHASE 2 DRAINAGE, HYDROBRAKE UNIT TO BE REPLACED TO SUPPORT A DISCHARGE RATE OF 10.5L/s.

DETENTION BASIN – 900mm DEEP
TOP OF BASIN: 139.30
MAX WL: 139.00
BASE OF BASIN: 138.40
ATTENUATION TANK BELOW FOR ADDITIONAL STORAGE
TANK VOLUME: 120.65m³
HEIGHT: 1.0m
TANK INVERT LEVEL: 136.9

PROPOSED HYDROBRAKE UNIT DISCHARGING AT 0.9L/s
HEAD: 2.0m

DETENTION BASIN – 900mm DEEP
TOP OF BASIN: 141.35
MAX WL: 141.05
BASE OF BASIN: 140.45
ATTENUATION TANK BELOW FOR ADDITIONAL STORAGE
TANK VOLUME: 279.775m³
HEIGHT: 1.0m
TANK INVERT LEVEL: 139.05

GENERAL NOTES

1. DO NOT SCALE THIS DRAWING.
2. CONTRACTOR TO CHECK ALL DIMENSIONS AND REPORT ALL ERRORS AND OMISSIONS TO THE ENGINEER.
3. ANY DISCREPANCY TO BE REPORTED IMMEDIATELY TO THE ENGINEER.
4. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS, SUBCONTRACTORS AND SPECIALISTS DRAWINGS AND SPECIFICATIONS.

KEY

- SAB ADOPTABLE STORM DRAINAGE
- SAB ADOPTABLE PERFORATED PIPE
- PRIVATE STORM DRAINAGE
- PRIVATE PERFORATED PIPE (TO BE WRAPPED IN A PERMEABLE GEO-TEXTILE)
- DCWW ADOPTABLE FOUL NETWORK
- EXISTING FOUL SEWER
- EXISTING SURFACE WATER SEWER
- ADOPTABLE CELLULAR STORAGE TANK
- ADOPTABLE DETENTION BASIN
- ADOPTABLE BIO-RETENTION AREAS
- PRIVATELY MAINTAINABLE RAIN GARDENS
- PRIVATELY MAINTAINABLE POROUS SURFACE DRIVEWAYS
- LOCAL AUTHORITY ADOPTABLE POROUS SURFACING

DRAINAGE NOTES

1. THE DEVELOPER MUST SELF-VET AND CERTIFY THAT THE DESIGN CRITERIA, MATERIAL STANDARDS AND WORKMANSHIP SPECIFICATIONS FOR THE PROPOSED ADOPTABLE SEWERS ARE IN ACCORDANCE WITH THOSE SET OUT IN SEWERS FOR ADOPTION 7TH EDITION AND THE WELSH MINISTERS STANDARDS.
2. CONTRACTOR TO ALLOW FOR ALL NECESSARY STREET WORKS LICENSES ASSOCIATED WITH DRAINAGE SERVICE INSTALLATION IN EXISTING PUBLIC HIGHWAY.
3. ALL WORK TO BE CARRIED OUT IN CONNECTION WITH SEWERS AND MANHOLES TO BE IN ACCORDANCE WITH THE HEALTH AND SAFETY GUIDELINE NO. 2 'SAFE WORKING IN SEWERS AND SEWAGE WORKS'.
4. THE COVER AND INVERT LEVELS OF ANY EXISTING MANHOLES ARE TO BE VERIFIED ON SITE PRIOR TO THE COMMENCEMENT OF THE WORKS. ALSO TO INCLUDE VERIFICATION OF MANHOLE AND PIPE DIAMETERS.
5. ALL ADOPTABLE SEWERS OR LATERAL DRAINS ARE TO BE LAID AT A MINIMUM GRADIENT OF 1:80 FOR 100mmDIA PIPES, 1:150 FOR 150mmDIA PIPES AND A MAXIMUM GRADIENT OF 1:5. WHERE SITE LAYOUT DICTATES A RAMPED BACKDROP MAY BE UTILISED, ALTHOUGH STEEPER GRADIENTS ARE PREFERRED, AND SHOULD BE PROVIDED WHERE PRACTICABLE
6. LATERAL PIPEWORK WITHIN 1.2m TO THE FACE OF PROPOSED BUILDING TO COMPLY WITH THE REQUIREMENT OF CLAUSE B3.1.4 AND FIGURE B.1
7. MINIMUM CLEAR OPENING OF MANHOLE COVERS TO BE 600 X 600MM FOR FOUL WATER AND 675 X 675MM FOR SURFACE WATER.
8. PRIOR TO LAYING ANY MATERIAL THE SUBGRADE MUST BE INSPECTED AND ANY SOFT SPOTS REMOVED AND FILLED WITH TYPE 1 MATERIAL TO SHW CLAUSE 803-14.
9. RAINWATER BUTTS REQUIRED AT SELECTED RAINWATER DOWN PIPES TO EACH INDIVIDUAL PLOT. ARCHITECT TO CONFIRM PREFERRED LOCATIONS.

Rev.	Detail	By	Date
D	UPDATED TO SHOW LATEST SITE LAYOUT	TE	11.06.24
C	DRAINAGE PROPOSALS UPDATED, REFLECTING LATEST LAYOUT PROPOSALS. MINOR AMENDMENTS MADE AS PER INFORMAL DISCUSSIONS WITH SAB	TE	07.06.24
B	PROPOSALS REVISED TO SUIT LATEST ARCHITECTURAL LAYOUT; BASINS REVISED TO AVOID CONFLICT WITH ROOT PROTECTION ZONES; RAIN GARDENS ADDED PER PLOT	TE	26.03.24
A	DRAWING REVISED TO CATER FOR LAYOUT CHANGES AND POTENTIAL FUTURE PHASE 2 DEVELOPMENT	TE	13.09.23

Revisions

Reinforcement schedules nos.

CB3 CONSULT
Structural & Civil Engineering Consultants
First Floor
7 St James Crescent
Swansea
SA16DP
Telephone +44 1792 473 182
e-mail admin@cb3consult.co.uk
web www.cb3consult.co.uk

Client
MORGANSTONE LTD

Project
DEVELOPMENT
CRWYS FARM
THREE CROSSES

Drawing Title
PROPOSED
DRAINAGE STRATEGY

PRELIMINARY

Project No.	Drawing No.
C2107	C-SK01

Scales	Date	Revision
1:250	18/08/23	D

Drawn	Checked	Sheet Size
TE	DH	A1