PRIVATE BASIN MAINTENANCE PLAN

Hoyland Common



NK020040
HOYLA-RPS-SI-D-RP-DS03
Private Basin
Maintenance Plan
P01
December 2021

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Quality Management

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1 INTRODUCTION

1.1 Objectives

1.1.1 The aim of this document is to set out the maintenance requirements for the upkeep of the Private Attenuation Basin drainage elements included within the surface water drainage network for Hoyland Common which forms part of the S104 adoption agreement with Yorkshire Water.

1.2 Site Location

1.2.1 The proposed development site is located approximately 6.5km to the south of Barnsley city centre in Yorkshire, at National Grid reference 436060, 398760. The proposed development site comprises of an area of approximately 50 hectares. The existing site currently has several points of access, primarily via Tankersley Lane, Black Lane or Sheffield Road (A6135) which all pass-through different segments of the developable land.

Refer to Drawing HOYLA-RPS-SI-XX-DR-D-0396 in Appendix A

1.3 Proposed Surface Water Drainage Network

1.3.1 The strategic drainage for the proposed development site has been designed to convey surface water by use the use of gravity drainage system which outfalls to an existing Environment Agency (EA) managed watercourse to the south of the site. The network discharges to a proposed private attenuation basin with an Althon flow control system then out to the adopted swale for prior to the site outfall into the EA managed watercourse.

Refer to drawings HOYLA-RPS-SI-XX-DR-D-336 for General arrangement details in Appendix B

1.4 Proposed Private Basin Access Plan

1.1 It is proposed that the Private Basin will be accessed by the use of an existing right of way via Black Lane from Tankersley which heads towards Tankersley Old Hall Farm. Direct access to these elements from Black Lane has been included within the design proposals which consist of a maintenance strip and turning head.

Refer to drawings HOYLA-RPS-SI-XX-DR-D-336 & HOYLA RPS-SI-XX-DR-D-379 in Appendix B and Appendix C for further details

1.5 Maintainable Drainage Components

1.5.1 As part of this maintenance plan the following elements are to be maintained in accordance with the proposed specification in chapters 2-5

- Basin
- Flow Control
- Headwall

2 BASIN MAINTENANCE

Regular inspection and maintenance is important for the effective operation of drainage basins as designed. Maintenance responsibility for a basin and its surrounding area should always be placed with a responsible organisation, in this case Yorkshire Water. Litter and debris removal should be undertaken as part of general landscape maintenance for the site and before any other SuDS management task. All litter should be removed from site.

Any invasive maintenance work such as silt or vegetation removal is only required intermittently, but it should be planned to be sympathetic to the requirements of wildlife in a basin. Care should be taken to avoid disturbance to nesting birds during the breeding season and habitats of target species (eg great crested newts) at critical times. The window for carrying out maintenance to achieve this is usually towards the end of the growing season (typically September/October), although this will vary with species). Invasive silt and vegetation removal should only be carried out to limited areas at any one time (25–30%of the basin area on one occasion each year to minimise the impact on biodiversity).

Site vegetation should be trimmed as necessary to keep the basin free of leaves and to maintain the aesthetic appearance of the site. Slope areas that have become bare should be re-vegetated and any eroded areas should be regraded before replanting.

Sediments excavated from basins that receive runoff from residential or standard road and roof areas should be safely disposed of in accordance with current waste management legislation. However, consultation should take place with the environmental regulator to confirm appropriate protocols. Chemical testing of the sediment may be required, before sediment excavation, to determine its classification and appropriate disposal methods. For industrial site runoff, sediment testing will be essential. In the majority of cases on low risk sites with source control and a Management Train, it will be acceptable to distribute the sediment on site, if there is an appropriate safe and acceptable location to do so.

New Basins may become rapidly dominated by invasive native plants, particularly common bulrush (Typha latifolia). As it is not desirable for all new basins to be bulrush dominated, it should be ensured that in the first five years, while vegetation is establishing, certain plant growth is controlled. After this time, baisns can usually be allowed to develop naturally recognising that, unless the margins are occasionally managed, they are likely to become dominated by trees and shrubs.

Refer to the below table 22.1 for the minimum requirement schedule for the timescale that each maintenance activity must be completed by.

TABLE 22.1 Operation and maintenance requirements for detention basins

Maintenance schedule	Required action	Typical frequency
Regular maintenance	Remove litter and debris	Monthly
	Cut grass – for spillways and access routes	Monthly (during growing season), or as required
	Cut grass – meadow grass in and around basin	Half yearly (spring – before nesting season, and autumn)
	Manage other vegetation and remove nuisance plants	Monthly (at start, then as required)
	Inspect inlets, outlets and overflows for blockages, and clear if required.	Monthly
	Inspect banksides, structures, pipework etc for evidence of physical damage	Monthly
	Inspect inlets and facility surface for silt accumulation. Establish appropriate silt removal frequencies.	Monthly (for first year), then annually or as required
	Check any penstocks and other mechanical devices	Annually
	Tidy all dead growth before start of growing season	Annually
	Remove sediment from inlets, outlet and forebay	Annually (or as required)
	Manage wetland plants in outlet pool – where provided	Annually (as set out in Chapter 23)
Occasional maintenance	Reseed areas of poor vegetation growth	As required
	Prune and trim any trees and remove cuttings	Every 2 years, or as required
	Remove sediment from inlets, outlets, forebay and main basin when required	Every 5 years, or as required (likely to be minimal requirements where effective upstream source control is provided)
Remedial actions	Repair erosion or other damage by reseeding or re-turfing	As required
	Realignment of rip-rap	As required
	Repair/rehabilitation of inlets, outlets and overflows	As required
	Relevel uneven surfaces and reinstate design levels	As required

3 HEADWALLS

Maintenance and inspection of headwalls should be undertaken at similar times to the maintenance of the basins and swale as per the manufacturer's operation and maintenance requirements and in accordance with tables 23.1 and 17.1 of the C753 CIREA SUDS Manual.

Refer to tables 23.1 and 17.1 under sections 2 and 3 and Appendix D for the manufacturer installation guide.

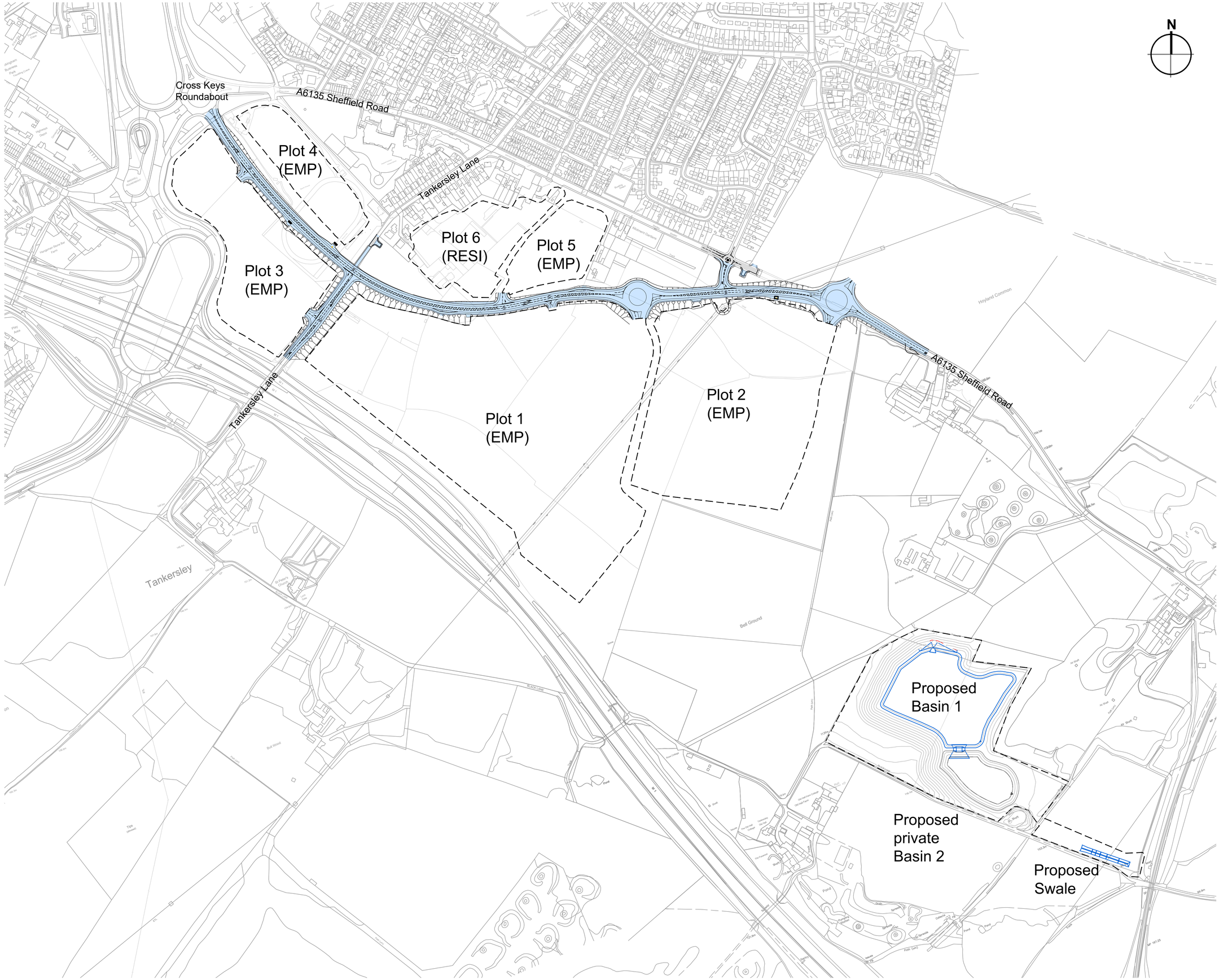
4 FLOW CONTROL

Maintenance and inspection of Flow controls and manholes should be undertaken at similar times to the maintenance of the basins and swale as per the manufacturer's operation and maintenance requirements and in accordance with tables 23.1 and 17.1 of the C753 CIREA SUDS Manual.

The hydro-slide will require maintenance to ensure the moving arm is well greased and free moving on every visit, if the unit requires a full service, a manufacturer approved maintenance company should be appointed to carry out the works under Yorkshire water guidance.

APPENDICES

Appendix A
Site Location Plan



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Notes

1. This drawing has been prepared in accordance with the scope of RPS's appointment with its client and is subject to the terms and conditions of that appointment. RPS accepts no liability for any use of this document other than by its client and only for the purposes for which it was prepared and provided.
2. If received electronically it is the recipients responsibility to print to correct scale. Only written dimensions should be used.
3. This drawing should be read in conjunction with all other relevant drawings and specifications.
4. Masterplan taken from PHP drawing 4400-001 Rev P28, received 15/06/2020.
5. The adopted authority, as refferred to in these notes is Barnsley Metropolitan Borough Council (BMBC).
6. All information shown on this drawing is subject to Technical Approval from BMBC.
7. New highways to be adopted (including roads, footways and cycleways) shall be carried out under the Highways Act 1980, and shall comply with the adopting authority design standards.
8. The contractor is to check all information provided prior to commencing works, and seek clarification from the engineer in respect to any ambiguities found.

Key

- Plot boundaries
- Proposed highways scheme

Rev	Description	By	Ckd	Date
P02	Basin Design Amended	AB	SMC	15.03.21
P01	First Issue	AB	ANT	18.12.20

MAKING COMPLEX EASY

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Client: newlands developments

Project: Hoyland Common

Title: Hoyland West - Site Location

RPS Project Number	Scale @ A1	Date Created
NK020040	NTS	18.12.20
Task Team Manager	**Information Author**	**Task Information Manager**
ANT	AB	ANT

Status: S2 (Suitable for Stage Approval)

Document Number: HOYLA-RPS-SI-XX-DR-D-0396

Revision: P02

Project Code - Originator - Zone - Level - Type - Role - Drawing Number

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Appendix B
General Arrangement Plan

H-3-264-525

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Adoptable Basin 1 (Yorkshire Water)

Proposed Attenuation Basin with a total surface area 24,565m² at the freeboard level, with 1:4 embankments and 1:4 side slopes in the basin area with a 400mm freeboard, designed to store:
:
19,229m³ in a 1:30 storm event, .
22,548m³ in a 1:100+30% storm event,

TB - 102.800/105.00 Inlet
BB - 101.570 falling to Outlet 101.400
TWL - 102.400
Overflow Weir - 102.253

10m of 300mm reno-mattress erosion protection by the inlet

Refer to drawings HOYLA-RPS-SI-XX-DR-D-376 and HOYLA-RPS-SI-XX-DR-D-377 for Basin details.

Headwall 2
Precast Althon SFA10B Headwall
+ SFA Hinged Safety Grille
+ 3 Sided Kee Klamp handrail
CL 102.800
IL 101.400

Overflow Weir
Top of bank 102.800
top of weir 102.253 - 10m wide
5.5m ramps either side - 1:10
Concrete bollards at 2m c/c
170mm reno mattress erosion protection on **Basin 1** side,
300mm reno mattress erosion protection on **Basin 2** side

1.030
SN2 Thermoplastic Pipe
Concrete protected
400mmØ
1 in 260
12.984m
Catchment area: 3.000Ha
IMP area 1.950Ha

S32 2400mm
Hydroslide Mini control Dr300M - 82.4l/s
CL 103.000
IL 101.300

1.031
SN2 Thermoplastic Pipe
400mmØ
1 in 90
22.469m

S33 1350mm
Cl: 102.750
IL: 101.050

1.032
SN2 Thermoplastic Pipe
400mmØ
1 in 77
26.923m

S34 1350mm
Cl: 102.600
IL: 100.700

1.033
SN2 Thermoplastic Pipe
400mmØ
1 in 75
26.133m

S35 1350mm
Cl: 102.550
IL: 100.350

1.034
SN2 Thermoplastic Pipe
400mmØ
1 in 77
53.944m

Proposed private minimum, 4000mm wide, 300mm deep compacted Type 1 Maintenance Track to access the adopted Basin and control chamber. This section will remain private and will not be transferred to Yorkshire Water. The developer (Newland's Development's) will retain thetrack and will be responsible for its maintenance.

Green 1.8m palisade Perimeter fence with 3.8m lockable gate refer to drawing HOYLA-RPS-SI-XX-DR-D-371

Post and Rail Fence

Proposed adopted 4000mm wide, 300mm deep compacted Type 1 Maintenance Track and turning head to access the Basin and Hydrobreak.

Proposed Adopted 3.5m Grass, maintenance Track

1.1m perimeter post and rail fence

Basin 2 (private)
This Basin is to cater for the 100 year+CC Storm events and will remain private and will not be transferred to Yorkshire Water. The developer (Newland's Development's) will retain the basin and will be responsible for its maintenance.

Proposed Attenuation Basin to store a maximum 17047m³ in a 1:100+30% storm event, with 1:4 embankments and 1:4 side slopes in the basin area with a 300mm freeboard.

TB - 102.500
BB - 100.100 falling to Outlet 99.900
TWL - 102.200

2.5m of 300mm reno-mattress erosion protection by the inlet and outlet

Headwall 3
Precast Althon H10CA Headwall
Hinged Close Coupled Grating
3 Sided Kee Klamp with
2m of 170mm Reno mattress
IL 99.900

2.000
SN2 Thermoplastic Pipe
750mmØ
1 in 136
34.000m
Catchment area: 2.500Ha
IMP Area: 1.625Ha

Cut line
Continuation on Viewport J

Black Lane
Existing Right of Way

3m Easement

6m Easement

Viewport Ia
Scale 1:500

- Planning Boundary
- Proposed Highway Gully
- Proposed Kerb Drainage
- Proposed Surface Water Sewer
- Proposed Highway Surface Water Drain
- Proposed Private Surface Water Drain
- Proposed Foul Water Sewer
- Proposed Foul Water Rising Main
- Adoption Easement Areas
- Private 1:100yr+30% Basin Area
- Existing Surface Water Drains
- Adoptable Basin Maintenance Access Track
- Private Pond Maintenance Access Track
- Adoptable Basin High Water Level (1:30Yr TB = 102.70m)
- Base Level of Adoptable Basin (BB - 101.570 falling to Outlet 101.400)
- Pumping Station Compound
- Private Basin High Water Level (TB = 102.70m)
- Base Level of Private Basin (BB - 100.100 falling to Outlet 100.000)
- Safety Bouys
- Private Basin Stock Fencing
- Adopted Basin Palisade Fence
- Grass Swale

Depth to Invert of Sewer m	Sewer Diameter/Size mm	Less Than 150	150-299	300-449	450-600	601-749	750-924	925-1000	1001-1124	1125-1399	1400 or greater
	Less than 3.0	3.0	3.0	3.0	3.5	3.5	4.0	5.0	5.0	5.0	5.0
	3.0 to 4.0	3.0	3.0	3.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0
	4.0 to 5.0	4.0	4.0	4.0	5.0	5.0	5.0	6.0	6.0	6.5	6.5
	5.0 to 6.0	5.0	5.0	5.0	6.0	6.0	6.5	6.5	6.5	6.5	6.5
	6.0 to 7.5	6.0	6.0	6.0	6.0	6.0	6.0	6.5	6.5	6.5	6.5
	7.5 or greater	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0	6.0

Table 1 from the Yorkshire Water Developer Services - Requirements for Easements - Feb.2020

Section 111 of the Water Industry Act 1991

Under the provisions of Section 111 of the Water Industry Act 1991 it is unlawful to pass into any public sewer (or into any drain or private sewer communicating with the public sewer network) any items likely to cause damage to the public sewer network interfere with the free flow of its contents or affect the treatment and disposal of its contents. Amongst other things this includes construction materials. Contravention of the provisions of Section 111 is a criminal offence.

4m Farm Gate.

Proposed 4000mm wide, 300mm deep compacted Type 1 Privately owned Maintenance Track and turning head to access the Basin and Hydrobreak.

Access to the track from the existing field access on Black Lane.

Black Lane
Existing right of way

1.034
SN2 Thermoplastic Pipe
400mmØ
1 in 77
53.944m

2.000
SN2 Thermoplastic Pipe
750mmØ
1 in 136
34.000m
Catchment area: 2.500Ha
IMP Area: 1.625Ha

S36 2700mm
Hydrobrake MH
Restricted to 82.4l/s
MD-SHE-0344-8240-2520-8240
CL102.500
IL 99.600

Cut line
Continuation on Viewport I

Ground to be locally raised to reduce undulations and meet the 0.9m minimum cover over the pipe

S37 1350mm
CL 101.417
IL 99.400

Proposed 4000mm Grass, Privately owned maintenance Track in the Easement area, for accessing the Swale.

1.036
SN2 Thermoplastic Pipe
400mm
1 in 194
67.858m

Existing 300mm culvert location to be confirmed on site

Black Lane
Existing right of way

Gabion Headwall with 4m of erosion protection in the Swale
CL 100.744
IL 99.050

Proposed 4000mm Grass, Privately owned maintenance Track in the Easement area, for accessing the Swale.

Refer to drawings HOYLA-RPS-SI-XX-DR-D-378 and HOYLA-RPS-SI-XX-DR-D-379 for further swale details

Grass Swale with gabion bund's to dissipate flow allowing for further pollution control
1000mm Base, min. 500mm Deep, min 1:4 Side Slopes

Gabion basket Headwall
400mm Swale outfall
IL 93.940

1.043
Concrete Pipe
375mm
1 in 11
6.92m

S38 1350mm Catchpit
D400 Gully cover
CL 94.330m
IL 93.284m

1.044
Concrete Pipe
375mm
1 in 40
11.938m

Placed Stone 400mm outfall headwall with Rip-Rap protection in the stream outlet
IL 92.985

Existing Ordinary Watercourse
Harley Dyke

Outlet to existing south western Brick culvert
IL 92.65

Existing 300mm Outfall

Existing 1.2m Half Barrel culvert under railway

Viewport J
Scale 1:500

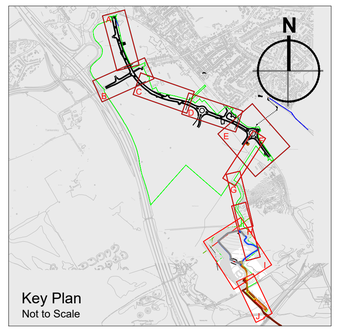
10m SCALE 1:500

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B. If received electronically it is the recipients responsibility to print to correct scale. Only written dimensions should be used.

C. This drawing should be read in conjunction with all other relevant drawings and specifications.

1. All adoptable sewer works and material to be in accordance with "Code for Adoption". The Relevant British/European and Yorkshire Water's Standards/Requirements/Addendum to the Mechanical and Electrical Specification and Kitemarked.
2. Manhole covers shall/must have a clear opening of 600mm and shall be Class D400 to BS EN 124 with 150mm deep frames in highways.
3. Filled ground must be filled and consolidated under the supervision and to the satisfaction of Yorkshire Water before any sewer works are carried out.
4. Yorkshire water is not obliged to accept filter drain/land drainage run-off into the public sewer network or adoptable drainage system (directly or in-directly). An alternative method of disposal of the land drainage run-off will therefore be required and you will have to liaise with the Local Authority, Land drainage Section with regard to the disposal of the filter/land drainage run-off.
5. Cover slabs must carry the BSI Kitemark or will be rejected by Yorkshire Water Inspector. Where the clear opening of the Kitemarked product is different to that of the cover and frame, a loading bearing slab should be fitted above the cover slab to bring the size down to 600mm x 600mm for the Yorkshire Water specified cover size. Please refer to Concrete Pipe Systems Association (CPSA), 'Technical Bulletin' issued 2004 for Kitemarked cover slab opening sizes
6. Sulphate resistant cement (C20-DC2) and precast concrete products must be used, or a laboratory report provided proving tat such precautions are not necessary.
7. The adoptable sewers should be a minimum of 1m and manholes 0.5m from kerb faces and service margins.
8. Sewers must have 5 metres clearance from trees and hedges.
9. Sewers to be laid in class 'S' bedding (150mm Granular bed and surround). Where depth of cover to top of sewer is less then 1.2m in highways and verges (or less than 900mm in none vehicular access areas) then a concrete slab should be provide above granular bed and surround.
10. Bedding and backfill material to conform to the requirement of Water Industry Specification 4-08-02 (Table A2).
11. The chamber size of manholes with more than one connection in them may need to be increased an increment to accommodate the connections and bends.
12. Yorkshire Water policy is that Type "C" brick manholes and 1050mm dia manhole rings are not preferred. Instead it is preferred that you use a type "S" manhole with 1200mm dia or 1500mm dia rings, with the opening sited over the channel where depth of cover to pipe soffit is 1 - 1.5m
13. Adoptable plastic sewer pipes to be BSI Kitemarked (certified to WIS 4-35-01 and BS/EN13476).Adoptable plastic sewer pipes to be laid in maximum 3 metre lengths unless there is a specific operational need to lay longer lengths. Plastic channel sections in manholes are not acceptable and Yorkshire Water would prefer clayware channel in manholes. We have found that plastic channels are difficult to set in concrete because they float and a satisfactory finish cannot be obtained on the benching.
14. The minimum crushing strength for clay pipes should be as follows : 100mm dia. 40KN/m, 150mm dia. 40KN/m, 225mm dia. 45KN/m and 300mm dia. 72KN/m. The minimum crushing strength for concrete pipes should be - (Class 120 to EN 1916/BS5911-1 2002). Plastic pipes should conform to WIS 4-35-01 and BS EN13476
15. Where a B125 cover and frame has been approved, this must not be coated in plastic and must have lifting eyes suitably sized to accommodate standard lifting keys. Screw down covers are not acceptable.
16. Yorkshire Water's Signs will be required once the detention basin is transferred to Yorkshire Water (Yorkshire Water will provide the signs and charge the developer for the signs).



Rev	Description	By	Ckd	Date
P09	Basin 2 fencing changed to Post and rail	SMC	SH	26.10.21

MAKING COMPLEX EASY

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Client: newlands developments

Project: Hoyland Common

Title: Proposed Drainage GA
S104 Approval
(Sheet 6 of 6)

RPS Project Number	Scale @ A1	Date Created
NK020040	1:500	15.03.2021
Task Team Manager	**Information Author**	**Task Information Manager**
SG	MF	SMC

Status: S4 (Suitable for Stage Approval)

Document Number: HOYLA-RPS-SI-XX-DR-D-336

Revision: P09

Project Code - Originator - Zone - Level - Type - Role - Drawing Number

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Appendix C
Basin Detail Drawings

H-3-264-525

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Adoptable Basin 1 (Yorkshire Water)

Proposed Attenuation Basin with a total surface area 24,565m² at the freeboard level, with 1:4 embankments and 1:4 side slopes in the basin area with a 400mm freeboard, designed to store:
:
19,229m³ in a 1:30 storm event, .
22,548m³ in a 1:100+30% storm event,

TB - 102.800/105.00 Inlet
BB - 101.570 falling to Outlet 101.400
TWL - 102.400
Overflow Weir - 102.253

10m of 300mm reno-mattress erosion protection by the inlet

Refer to drawings HOYLA-RPS-SI-XX-DR-D-376 and HOYLA-RPS-SI-XX-DR-D-377 for Basin details.

Headwall 2
Precast Althon SFA10B Headwall
+ SFA Hinged Safety Grille
+ 3 Sided Kee Klamp handrail
CL 102.800
IL 101.400

Overflow Weir
Top of bank 102.800
top of weir 102.253 - 10m wide
5.5m ramps either side - 1:10
Concrete bollards at 2m c/c
170mm reno mattress erosion protection on **Basin 1** side,
300mm reno mattress erosion protection on **Basin 2** side

1.030
SN2 Thermoplastic Pipe
Concrete protected
400mmØ
1 in 260
12.984m
Catchment area: 3.000Ha
IMP area 1.950Ha

S32 2400mm
Hydroslide Mini control Dr300M - 82.4l/s
CL 103.000
IL 101.300

1.031
SN2 Thermoplastic Pipe
400mmØ
1 in 90
22.469m

S33 1350mm
Cl: 102.750
IL: 101.050

1.032
SN2 Thermoplastic Pipe
400mmØ
1 in 77
26.923m

S34 1350mm
Cl: 102.600
IL: 100.700

1.033
SN2 Thermoplastic Pipe
400mmØ
1 in 75
26.133m

S35 1350mm
Cl: 102.550
IL: 100.350

1.034
SN2 Thermoplastic Pipe
400mmØ
1 in 77
53.944m

Proposed private minimum, 4000mm wide, 300mm deep compacted Type 1 Maintenance Track to access the adopted Basin and control chamber. This section will remain private and will not be transferred to Yorkshire Water. The developer (Newland's Development's) will retain thetrack and will be responsible for its maintenance.

Green 1.8m palisade Perimeter fence with 3.8m lockable gate refer to drawing HOYLA-RPS-SI-XX-DR-D-371

Post and Rail Fence

Proposed adopted 4000mm wide, 300mm deep compacted Type 1 Maintenance Track and turning head to access the Basin and Hydrobreak.

Proposed Adopted 3.5m Grass, maintenance Track

1.1m perimeter post and rail fence

Basin 2 (private)
This Basin is to cater for the 100 year+CC Storm events and will remain private and will not be transferred to Yorkshire Water. The developer (Newland's Development's) will retain the basin and will be responsible for its maintenance.

Proposed Attenuation Basin to store a maximum 17047m³ in a 1:100+30% storm event, with 1:4 embankments and 1:4 side slopes in the basin area with a 300mm freeboard.

TB - 102.500
BB - 100.100 falling to Outlet 99.900
TWL - 102.200

2.5m of 300mm reno-mattress erosion protection by the inlet and outlet

Headwall 3
Precast Althon H10CA Headwall
Hinged Close Coupled Grating
3 Sided Kee Klamp with
2m of 170mm Reno mattress
IL 99.900

2.000
SN2 Thermoplastic Pipe
750mmØ
1 in 136
34.000m
Catchment area: 2.500Ha
IMP Area: 1.625Ha

Cut line
Continuation on Viewport J

Black Lane
Existing Right of Way

3m Easement

6m Easement

Viewport Ia
Scale 1:500

- Planning Boundary
- Proposed Highway Gully
- Proposed Kerb Drainage
- Proposed Surface Water Sewer
- Proposed Highway Surface Water Drain
- Proposed Private Surface Water Drain
- Proposed Foul Water Sewer
- Proposed Foul Water Rising Main
- Adoption Easement Areas
- Private 1:100yr+30% Basin Area
- Existing Surface Water Drains
- Adoptable Basin Maintenance Access Track
- Private Pond Maintenance Access Track
- Adoptable Basin High Water Level (1:30Yr TB = 102.70m)
- Base Level of Adoptable Basin (BB - 101.570 falling to Outlet 101.400)
- Pumping Station Compound
- Private Basin High Water Level (TB = 102.70m)
- Base Level of Private Basin (BB - 100.100 falling to Outlet 100.000)
- Safety Bouys
- Private Basin Stock Fencing
- Adopted Basin Palisade Fence
- Grass Swale

Depth to Invert of Sewer m	Sewer Diameter/Size mm	Less Than 150	150-299	300-449	450-600	601-749	750-924	925-1000	1001-1124	1125-1399	1400 or greater
	Less than 3.0	3.0	3.0	3.0	3.5	3.5	4.0	5.0	5.0	5.0	5.0
	3.0 to 4.0	3.0	3.0	3.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0
	4.0 to 5.0	4.0	4.0	4.0	5.0	5.0	5.0	6.0	6.0	6.5	6.5
	5.0 to 6.0	5.0	5.0	5.0	6.0	6.0	6.5	6.5	6.5	6.5	6.5
	6.0 to 7.5	6.0	6.0	6.0	6.0	6.0	6.0	6.5	6.5	6.5	6.5
	7.5 or greater	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0	6.0

Table 1 from the Yorkshire Water Developer Services - Requirements for Easements - Feb.2020

Section 111 of the Water Industry Act 1991

Under the provisions of Section 111 of the Water Industry Act 1991 it is unlawful to pass into any public sewer (or into any drain or private sewer communicating with the public sewer network) any items likely to cause damage to the public sewer network interfere with the free flow of its contents or affect the treatment and disposal of its contents. Amongst other things this includes construction materials. Contravention of the provisions of Section 111 is a criminal offence.

4m Farm Gate.

Proposed 4000mm wide, 300mm deep compacted Type 1 Privately owned Maintenance Track and turning head to access the Basin and Hydrobreak.

Access to the track from the existing field access on Black Lane.

Black Lane
Existing right of way

1.034
SN2 Thermoplastic Pipe
400mmØ
1 in 77
53.944m

2.000
SN2 Thermoplastic Pipe
750mmØ
1 in 136
34.000m
Catchment area: 2.500Ha
IMP Area: 1.625Ha

S36 2700mm
Hydrobrake MH
Restricted to 82.4l/s
MD-SHE-0344-8240-2520-8240
CL102.500
IL 99.600

Cut line
Continuation on Viewport I

Ground to be locally raised to reduce undulations and meet the 0.9m minimum cover over the pipe

S37 1350mm
CL 101.417
IL 99.400

Proposed 4000mm Grass, Privately owned maintenance Track in the Easement area, for accessing the Swale.

1.036
SN2 Thermoplastic Pipe
400mm
1 in 194
67.858m

Existing 300mm culvert location to be confirmed on site

Black Lane
Existing right of way

Gabion Headwall with 4m of erosion protection in the Swale
CL 100.744
IL 99.050

Proposed 4000mm Grass, Privately owned maintenance Track in the Easement area, for accessing the Swale.

Refer to drawings HOYLA-RPS-SI-XX-DR-D-378 and HOYLA-RPS-SI-XX-DR-D-379 for further swale details

Grass Swale with gabion bund's to dissipate flow allowing for further pollution control
1000mm Base, min. 500mm Deep, min 1:4 Side Slopes

Gabion basket Headwall
400mm Swale outfall
IL 93.940

1.043
Concrete Pipe
375mm
1 in 11
6.92m

S38 1350mm Catchpit
D400 Gully cover
CL 94.330m
IL 93.284m

1.044
Concrete Pipe
375mm
1 in 40
11.938m

Placed Stone 400mm outfall headwall with Rip-Rap protection in the stream outlet
IL 92.985

Existing Ordinary Watercourse
Harley Dyke

Outlet to existing south western Brick culvert
IL 92.65

Existing 300mm Outfall

Existing 1.2m Half Barrel culvert under railway

Viewport J
Scale 1:500

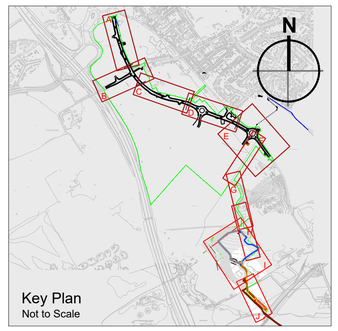
10m SCALE 1:500

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C. This drawing should be read in conjunction with all other relevant drawings and specifications.

1. All adoptable sewer works and material to be in accordance with "Code for Adoption". The Relevant British/European and Yorkshire Water's Standards/Requirements/Addendum to the Mechanical and Electrical Specification and Kitemarked.
2. Manhole covers shall/must have a clear opening of 600mm and shall be Class D400 to BS EN 124 with 150mm deep frames in highways.
3. Filled ground must be filled and consolidated under the supervision and to the satisfaction of Yorkshire Water before any sewer works are carried out.
4. Yorkshire water is not obliged to accept filter drain/land drainage run-off into the public sewer network or adoptable drainage system (directly or in-directly). An alternative method of disposal of the land drainage run-off will therefore be required and you will have to liaise with the Local Authority, Land drainage Section with regard to the disposal of the filter/land drainage run-off.
5. Cover slabs must carry the BSI Kitemark or will be rejected by Yorkshire Water Inspector. Where the clear opening of the Kitemarked product is different to that of the cover and frame, a loading bearing slab should be fitted above the cover slab to bring the size down to 600mm x 600mm for the Yorkshire Water specified cover size. Please refer to Concrete Pipe Systems Association (CPSA), 'Technical Bulletin' issued 2004 for Kitemarked cover slab opening sizes
6. Sulphate resistant cement (C20-DC2) and precast concrete products must be used, or a laboratory report provided proving tat such precautions are not necessary.
7. The adoptable sewers should be a minimum of 1m and manholes 0.5m from kerb faces and service margins.
8. Sewers must have 5 metres clearance from trees and hedges.
9. Sewers to be laid in class 'S' bedding (150mm Granular bed and surround). Where depth of cover to top of sewer is less then 1.2m in highways and verges (or less than 900mm in none vehicular access areas) then a concrete slab should be provide above granular bed and surround.
10. Bedding and backfill material to conform to the requirement of Water Industry Specification 4-08-02 (Table A2).
11. The chamber size of manholes with more than one connection in them may need to be increased an increment to accommodate the connections and bends.
12. Yorkshire Water policy is that Type "C" brick manholes and 1050mm dia manhole rings are not preferred. Instead it is preferred that you use a type "S" manhole with 1200mm dia or 1500mm dia rings, with the opening sited over the channel where depth of cover to pipe soffit is 1 - 1.5m
13. Adoptable plastic sewer pipes to be BSI Kitemarked (certified to WIS 4-35-01 and BS/EN13476).Adoptable plastic sewer pipes to be laid in maximum 3 metre lengths unless there is a specific operational need to lay longer lengths. Plastic channel sections in manholes are not acceptable and Yorkshire Water would prefer clayware channel in manholes. We have found that plastic channels are difficult to set in concrete because they float and a satisfactory finish cannot be obtained on the benching.
14. The minimum crushing strength for clay pipes should be as follows : 100mm dia. 40KN/m, 150mm dia. 40KN/m, 225mm dia. 45KN/m and 300mm dia. 72KN/m. The minimum crushing strength for concrete pipes should be - (Class 120 to EN 1916/BS5911-1 2002). Plastic pipes should conform to WIS 4-35-01 and BS EN13476
15. Where a B125 cover and frame has been approved, this must not be coated in plastic and must have lifting eyes suitably sized to accommodate standard lifting keys. Screw down covers are not acceptable.
16. Yorkshire Water's Signs will be required once the detention basin is transferred to Yorkshire Water (Yorkshire Water will provide the signs and charge the developer for the signs).



Rev	Description	By	Ckd	Date
P09	Basin 2 fencing changed to Post and rail	SMC	SH	26.10.21

MAKING COMPLEX EASY

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Client: newlands developments

Project: Hoyland Common

Title: Proposed Drainage GA
S104 Approval
(Sheet 6 of 6)

RPS Project Number	Scale @ A1	Date Created
NK020040	1:500	15.03.2021
Task Team Manager	**Information Author**	**Task Information Manager**
SG	MF	SMC

Status: S4 (Suitable for Stage Approval)

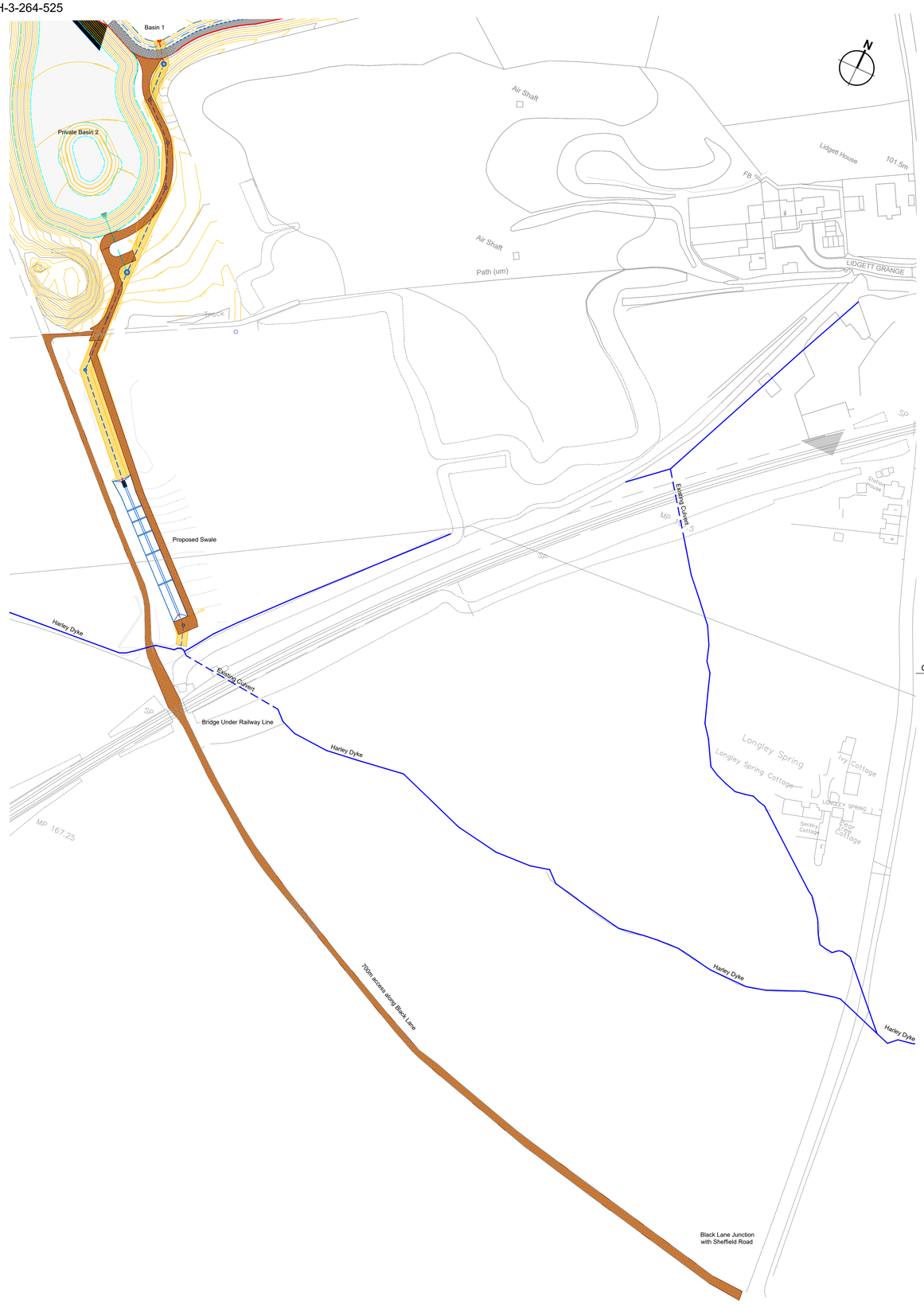
Document Number: HOYLA-RPS-SI-XX-DR-D-336

Revision: P09

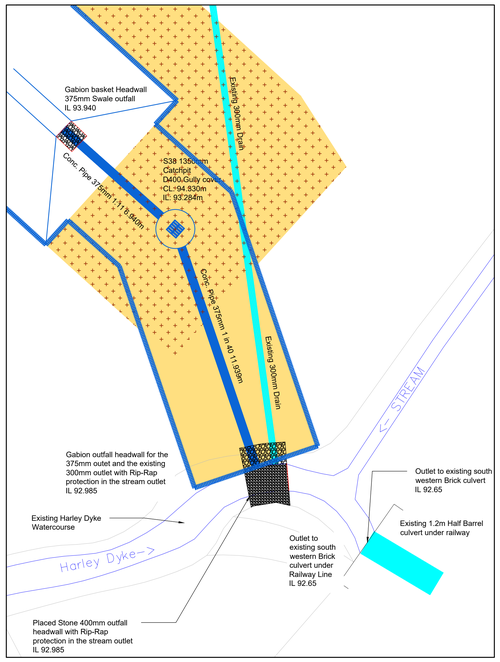
Project Code - Originator - Zone - Level - Type - Role - Drawing Number

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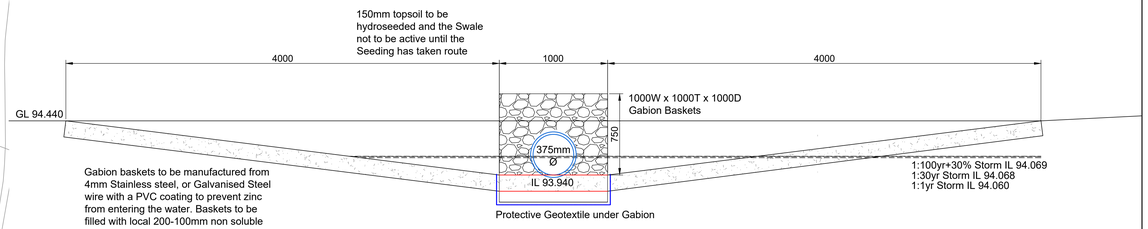
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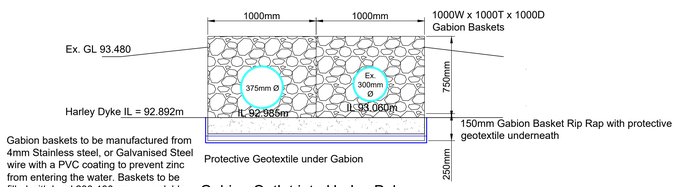
Site Access Route
Scale 1:500



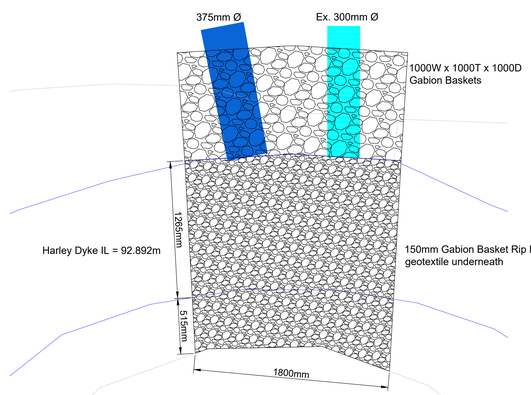
Outlet to Harley Dyke
Scale 1:200



Section of the Swale at the Outlet
Scale 1:25



Gabion Outlet into Harley Dyke
Scale 1:10



Plan - Gabion Outlet into Harley Dyke
Scale 1:10

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7. The adoptable sewers should be a minimum of 1m and manholes 0.5m from kerb faces and service margins.
8. Sewers must have 5 metres clearance from trees and hedges.
9. Sewers to be laid in class 'D' bedding (150mm Granular bed and surround). Where depth of cover to top of sewer is less than 1.2m in highways and verges (or less than 900mm in none vehicular access areas) then a concrete slab should be provide above granular bed and surround.
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14. The minimum crushing strength for clay pipes should be as follows. 100mm dia. 40KN/m, 150mm dia. 40KN/m, 225mm dia. 49KN/m and 300mm dia. 72KN/m. The minimum crushing strength for concrete pipes should be - (Class 120 to BS 5911/BS5911-1-2002). Plastic pipes should conform to WIS 4-35-01 and BS EN13476
15. Where a B125 cover and frame has been approved, this must not be coated in plastic and must have lifting eyes suitably sized to accommodate standard lifting keys. Screw down covers are not acceptable.
16. Yorkshire Water's Signs will be required once the detention basin is transferred to Yorkshire Water (Yorkshire Water will provide the signs and charge the developer for the signs).

Planning Boundary
Proposed Surface Water Sewer
Adoption Easement Areas
Existing Surface Water Drains

Rev	Description	By	Ckd	Date
P08	Storm water levels updated to suit model	SMC	SH	14.05.21
P07	Storm water levels updated to suit model	SMC	SH	10.05.21
P06	Updated to suit Ground profile	SMC	SH	26.04.21
P05	Notes amended	SH	AE	09.04.21
P04	Updated to Include Harley Dyke Discharge Point	ANT	SH	07.04.21
P03	Updated to suit Basin Design	KA	SMC	15.03.21
P02	Updated to suit comments	KA	SMC	01.02.21
P01	Issued for S104 Approval	KA	SMC	13.12.20

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Client: newlands developments

Project: Hoyland Common

Title: Swale details and Sections
Sheet 2 of 2

RPS Project Number	Scale @ A0	Date Created
NK020040	As Shown	11.11.2020
Task Team Manager	**Information Author**	**Task Information Manager**
SG	KA	SMC

Status: S4 (Suitable for Approval)
Document Number: HOYLA-RPS-SI-XX-DR-D-0379
Revision: P08
Project Code - Originator - Zone - Level - Type - Role - Drawing Number

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Appendix D
Headwall Maintenance and Installation Guide

SFA27 Headwall Range

Up to 1800mm Pipework
1300mm - 2350mm Backwall Height

300 and 500mm Thick Toe

Althon Sewers for Adoption precast headwalls should be used when a concrete headwall is part of a Section 104 Agreement and the sewers are to be adopted once completed by the local Water Company. The materials used and installation must comply with the 'Sewers for Adoption' guidelines. Althon SFA precast concrete headwalls offer a cost effective alternative to in-situ structures for connecting pipework discharging into open watercourses.

There are four sizes of Sewers for Adoption concrete headwalls available catering for pipe sizes up to and including 1500mm. Each size of SFA precast concrete headwall comes with three depths of toe and four back wall heights offering wing wall profiles to suit most applications.

Althon Sewers for Adoption precast concrete headwalls are cast to suit the diameter and type of pipe being used and can be provided with fixings cast in at the time of manufacture to accommodate gratings, trash screens, flap valves, penstocks, ladders, Kee Klamp® handrails and flow and depth monitoring equipment.

Our Sewers for Adoption compliant precast headwalls are available with toe extensions either 300 or 500mm thick with depths ranging from 450 to 1000mm. We also manufacture Sewers for Adoption compliant outfall safety grilles to suit our concrete headwalls.



SFA27 A
1300mm Backwall
2 Piece Headwall



SFA27 B
1650mm Backwall
2 Piece Headwall

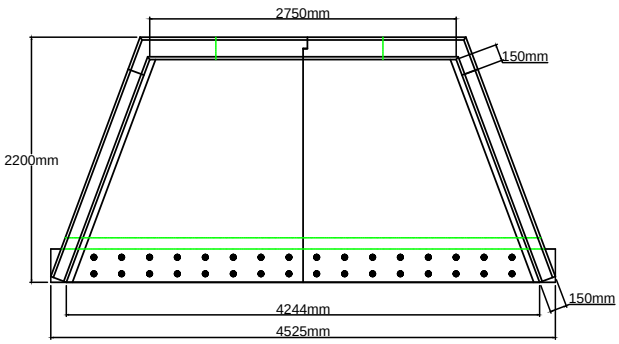


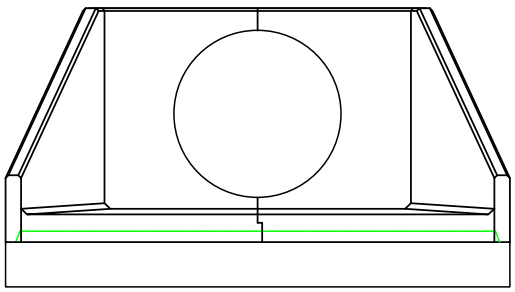
SFA27 C
2000mm Backwall
2 Piece Headwall

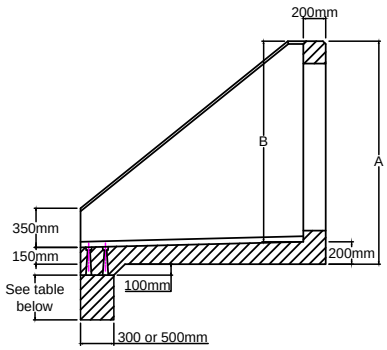


SFA27 D
2350mm Backwall
2 Piece Headwall

Optional Kee Klamp handrail

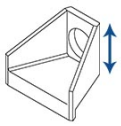




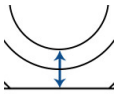




Maximum pipe size 1800mm



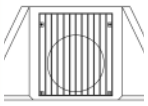
Backwall heights 1300mm - 2350mm



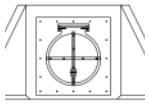
Specifiable pipe invert levels



Single or multiple pipe openings



Optional pre-fitted grating



Optional pre-fitted flap valve

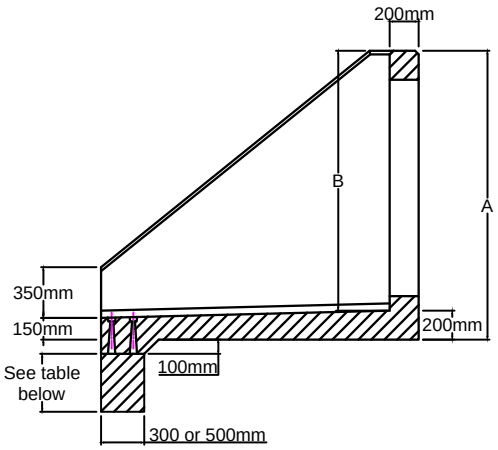


Optional pre-fitted penstock

sales@althon.co.uk | www.althon.co.uk | Tel: 01603 488700

SFA27 Headwall Range

Up to 1800mm Pipework
1300mm - 2350mm Backwall Height



300mm Thick Toe

Headwall Ref	Back Wall Height A	Back Wall Height B	Wing Wall Profile	Weight	Weight with Toe			Max Pipe Opening	Max Pipe Opening	Max Pipe Opening	Max Pipe Opening	Max Pipe Opening	Max Pipe Opening
					400mm	650mm	950mm	Invert Level with Apron		100mm Invert Level		225mm Invert Level	
								TW / Clay	Concrete	TW / Clay	Concrete	TW / Clay	Concrete
	mm	mm		kg	kg	kg	kg	mm	mm	mm	mm	mm	mm
SFA27A	1300	1100	1:2.3	6720	8030	8850	9835	750	825	750	675	600	600
SFA27B	1650	1450	1:1.6	7345	8655	9475	10460	1200	1050	1050	1050	900	900
SFA27C	2000	1800	1:1.24	8120	9430	10250	11235	1500	1350	1200	1350	1200	1200
SFA27D	2350	2150	1:1	8900	10210	11030	12015	1800	1600	1800	1600	1650	1500

500mm Thick Toe

Headwall Ref	Back Wall Height A	Back Wall Height B	Wing Wall Profile	Weight	Weight with Toe			Max Pipe Opening	Max Pipe Opening	Max Pipe Opening	Max Pipe Opening	Max Pipe Opening	Max Pipe Opening
					500mm	750mm	1000mm	Invert Level with Apron		100mm Invert Level		225mm Invert Level	
								TW / Clay	Concrete	TW / Clay	Concrete	TW / Clay	Concrete
	mm	mm		kg	kg	kg	kg	mm	mm	mm	mm	mm	mm
SFA27A	1300	1100	1:2.3	6720	9070	10435	11800	750	825	750	675	600	600
SFA27B	1650	1450	1:1.6	7345	9695	11062	12425	1200	1050	1050	1050	900	900
SFA27C	2000	1800	1:1.24	8120	10470	11835	13200	1500	1350	1200	1350	1200	1200
SFA27D	2350	2150	1:1	8900	11250	12615	13980	1800	1600	1800	1600	1650	1500

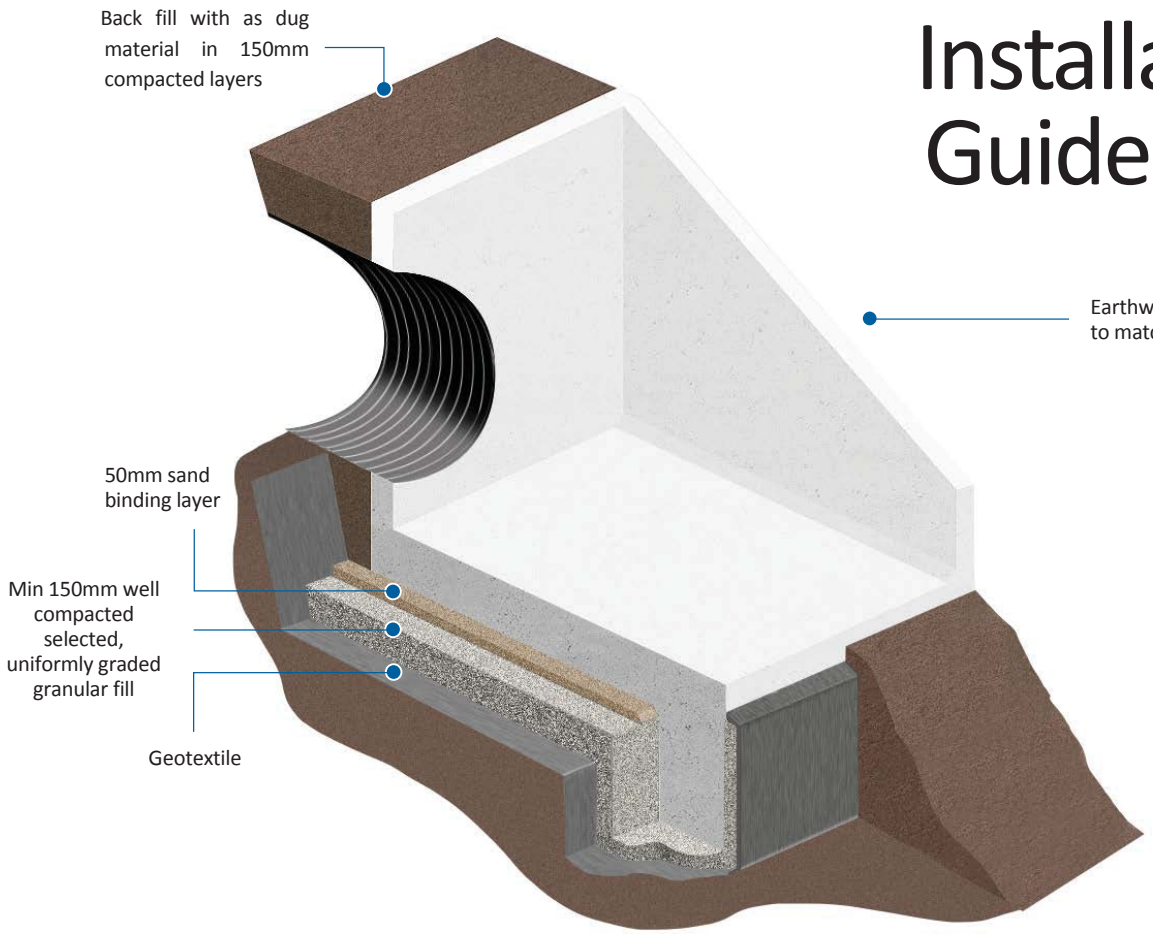
Note - Approximate headwall weights are based on a headwall with no hole cast in

SFA Grate, Ladder and Steps

Headwall Ref	Max Pipe Opening	Max Pipe Opening	Max Pipe Opening	Max Pipe Opening	Max Pipe Opening	Max Pipe Opening
	With SFA Grate		With SFA Grate & Ladder		With SFA Grate & Steps	
	TW / Clay	Concrete	TW / Clay	Concrete	TW / Clay	Concrete
	mm	mm	mm	mm	mm	mm
SFA27A	600	600	600	600	600	525
SFA27B	900	900	900	900	750	750
SFA27C	1200	1200	1050	1050	N/A	N/A
SFA27D	1500	1500	1050	1050	N/A	N/A

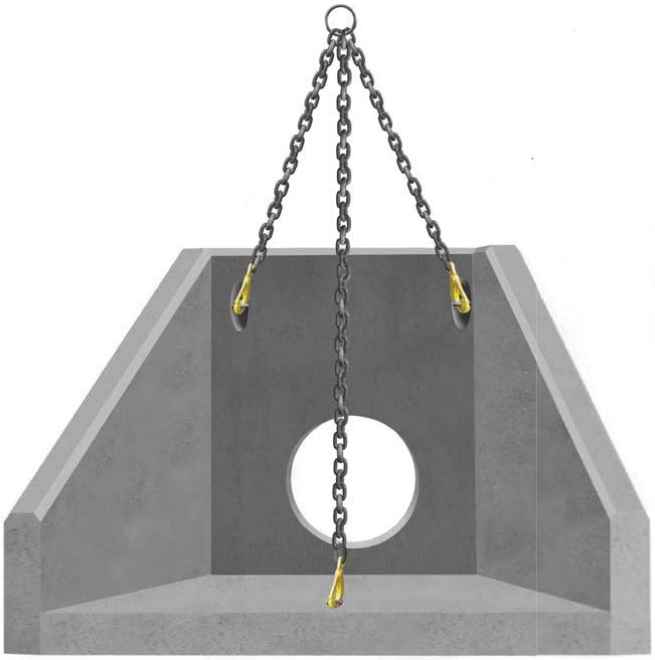
sales@althon.co.uk | www.althon.co.uk | Tel: 01603 488700

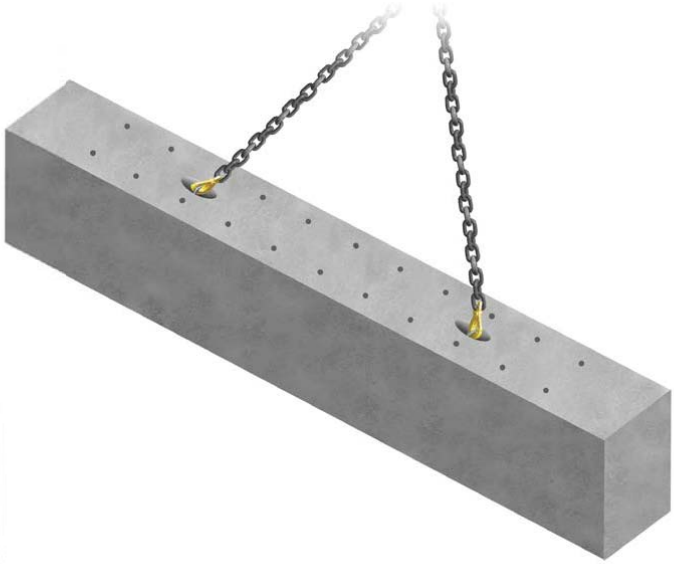
Installation Guidelines



1. Ensure that first or last spigot/butt or socket/butt pipe that is to be fitted to the Headwall is in position and free from backfill.
2. Dig out the bank of the watercourse to take the size of the headwall making sure that the Headwall will not protrude into the path of the water flow. The angle of the excavation to the rear of the Headwall should be roughly the same as the existing bank profile.
3. Dig out sufficient size trench to take the toe along the front of the foundation.
4. Line toe foundation with Geotextile then place selected, uniformly graded granular fill in the base and compact well. Lift Toe into position and level then fill around the toe with selected, uniformly graded granular fill and compact well. Insert supplied threaded rod into the sockets cast into the top of the toe.
5. Line the base of the rest of excavation with Geotextile then place a minimum bed of 150mm Class 6A or 6K* Selected Well Graded Granular Material on the base & compact well, especially around the back of the toe, then a 50mm topping of fine material (CLass 6L*) to ensure units are level and stable. Lift Headwall into position, over the end of the pipe & locate over threaded rod protruding from the toe and level. Place washer over threaded rod (SFA10 8 No) in recess in Headwall apron and tighten nut. Fill recess with high strength non-shrink grout.
6. The pipe should be flush with the front of the back wall if fitting grating or flap valve, or protruding by 50mm if not.
7. Shim the pipe until it is central within the opening then fill void with sand cement mortar or high strength non-shrink grout.
8. If flap valve or grating is supplied, this will need to be removed before the pipe is inserted and sealed into place. Then reinstall using stainless steel fixing bolts into cast in sockets. (When bolting flap valves against headwall, use a good quality sealant but do not over tighten bolts or distortion may occur resulting in the valve not seating correctly.
9. Backfill pipe section first then backfill all around Headwall with as dug material. Make good at front of toe with as dug material ensuring river bank is returned to its original profile. It may be necessary to provide protection in front of the toe, please refer to engineers' recommendation.

*Manual of Contract Documents for Highway Works: Volume 1 (MCHW1), Specification for Highway Works, Series 600 (Nov 09)





Rapid-Lift Lifting Anchors

All Althon SFA Headwalls and Toes are fitted with Rapid-Lift lifting anchors. The Althon Rapid-Lift system allows the SFA Headwalls & Toes to be offloaded, transported and located in their final position without the need for any specialised lifting equipment. Standard lifting hooks and chains can be used with the three lifting points (two lifting points on Toes). The minimum chain leg length for all units is 1500mm.

Althon Precast Concrete SFA Headwall Safety Sheet

Althon Limited manufacture pre-cast concrete SFA Headwalls using :-

6 - 14mm aggregate · 0/4mm Sharp sand · Portland cement BS EN 197-1- Cem 1 52.5 · Cryso Fluid Premia 205 Varit Superplasticiser

When units have been manufactured and cured they are in a chemically inert state. But the following information should be considered.

- It is advisable to wear toe cap safety footwear when handling any concrete products. Please refer to your company Safety Policy for specific details on manual handling.
- When cutting with masonry grinding discs or drilling with masonry drill bits it is necessary to wear eye protection and a dust mask. It is also recommended to wear ear protection during either of these two processes.
- Due to some units having sharp edges it is advisable to wear protective gloves when handling Althon products.
- When fitting or removing some of the larger accessories it is necessary to use a mechanical system to prevent risk of back injury.

Maintenance of SFA Headwalls

With respect to the maintenance of any exposed surfaces of concrete components, only routine (Annual) cleaning may be necessary with a Power Washer and possibly some mild detergent to any exposed surfaces to maintain appearance; however all sites are unique and environmental impact of cleaning should be taken into account. Where cleaning is required and environmental conditions prevent mild detergent, using clean water and a power washer/stiff brush should suffice. Concrete units are often expected to "weather" and some coverage will help them to blend into their environment.

If damage to the structure of any pre-cast concrete components occurs we recommend their replacement not repair. If there is minor damage to corners during their normal life by grass cutting equipment etc. then repair with an epoxy compound such as 'Mason Mate 0868PR380 Polyester Resin'.

To dispose of any Pre-Cast concrete components the preferred method is to recycle the material by crushing and grading, but if the quantity is too small to be cost effective then disposal in conventional landfill is acceptable as all the concrete components are inert with regard to having any environmental impact.

Maintenance of Galvanised Grates & Handrails.

Annual/bi-annual visual checks are basic recommendations. If gratings are in a water course subject to a higher level of debris/weed, then more regular checks may be required. Clearing of debris/weeds from the grate will ensure no disruption to the flow, or backing up of the water course. Handrails should also only require a visual inspection – annually or at the same time as the headwall & grates.