Design Risk Assessment for Wastewater Infrastructure Standard Details

Connections and Developer Services

Design and Construction Requirements for Self-Lay Developments
July 2020 (Revision v4.02)

Document IW-CDS-5030-02

UISCE ÉIREANN : IRISH WATER

Part of ervia group

IW-CDS-5030-02

Background

Technical Documentation has been developed by Irish Water's Connection and Developer Services which outlines the requirements for wastewater services infrastructure within developments.

Standard details have been developed to outline Irish water's requirements to developers in the provision of wastewater infrastructure that is to be installed in developments and that would be connected to Irish Water's networks and subsequently vested in Irish Water.

The aim is to provide details to Developers for wastewater infrastructure, which will outline design and construction requirements to ensure consistency in the provision of materials, equipment and workmanship, etc. The standard details will also provide the basis for developers' detailed design proposals for wastewater infrastructure, leading to the provision of infrastructure that is suitable for connection to Irish Water's networks and easy operation and maintenance of the new infrastructure.

The Standard Details are based on best practice within the water industry. They take account of the experience of Local Authorities in the provision of these services to new developments. They have been successfully used by Irish Water's own internal functions for a variety of projects and they are in line with water utility industry norms.

There are 58 No Standard Details dealing with wastewater infrastructure covering all aspects of such infrastructure. The standard details for wastewater infrastructure are contained in Document Number IW-CDS-5030-01.

Design Risk Assessments (DRA) have been prepared to outline the residual health and safety responsibilities of developers and their designers/contractors in the provision of infrastructure in accordance with the standard details and these are included in Document No IW-CDS-5030-02. The residual risks outlined herein shall be taken into account in the detailed design of wastewater infrastructure.
.

Design Risk Assessment For Wastewater Standard Details

The Standard Details show the acceptable typical details and outline the minimum standards that are required by Irish Water for the provision of wastewater pipes and related infrastructure which are to be connected to the Irish Water Network. The Standard Details shall be used in conjunction with the Design Risk Assessment that has been developed which identifies the risks that designers shall take into account in the detailed design of the wastewater pipes and related infrastructure to be connected to the Irish Water Network. The pipes and related infrastructure to be put in place within developments shall comply fully with these Standard Details. Ultimate responsibility (including, but not limited to, any losses, costs, demands, damages, actions, expenses, negligence and claims) for the detailed design, construction and provision of such pipes and related infrastructure shall rest entirely with the Developer, his/her Designer(s), Contractor(s) or other connected party. Irish Water assumes no responsibility for and gives no guarantees, undertakings or warranties in relation to the pipes and related infrastructure to be provided in accordance with these Standard Details.

This Design Risk Assessment shall apply to the following Drawings:

Detail No.	Detail Title	Rev.
STD-WW-01	Wastewater service connection maintenance responsibility	2
STD-WW-02	Typical layout for sewer within new developments	2
STD-WW-03	Drain & service connection pipework	2
STD-WW-04	Typical sewer / service pipe connection	2
STD-WW-05	Typical service layout indicating separation distances	2
STD-WW-05A	Wastewater service connection vertical separation distances	0
STD-WW-06	Restrictions on wastewater infrastructure works adjacent to trees	2
STD-WW-06A	Restrictions on new trees/shrubs planting adjacent to sewers	1
STD-WW-07	Trench backfill & bedding	2
STD-WW-08	Concrete protection slab, bed, haunch & surround to wastewater pipes	1
STD-WW-09	Blockwork manhole (<450mm dia.)	3
STD-WW-10	Pre-cast concrete manhole with cast in-situ base	3
STD-WW-10A	Pre-cast concrete manhole with pre-cast base	0
STD-WW-10B	Pre-cast concrete pumping station inlet manhole with cast in-situ concrete base	0
STD-WW-10C	Pre-cast concrete pumping station inlet manhole with precast concrete base	0
STD-WW-11	In-situ concrete manhole	3
STD-WW-11A	Cast in-situ concrete pumping station inlet manhole	0
STD-WW-12	Backdrop and cascade manholes	3
STD-WW-13	Private side inspection chamber	3
STD-WW-14	Thrust blocks for rising mains	2
STD-WW-15	Scour valve chamber (foul rising main ≤200mm dia.)	3
STD-WW-16	Sluice valve details for rising mains ductile iron (D.I.) pipe (<200mm dia.) (sheet 1 of 2)	4
STD-WW-17	Sluice valve details for rising mains polyethylene (P.E.) pipe (<200mm dia.) (sheet 2 of 2)	3
STD-WW-18	Air valve chamber (foul rising main ≤200mm dia.)	3
STD-WW-19	Duct chamber	3
STD-WW-20	Emergency overflow structure & emergency overflow to storm sewer	2
STD-WW-21	Typical ditch/stream crossing for gravity sewer (sheet 1 of 2)	2
STD-WW-22	Typical ditch/stream crossing for ductile iron rising main (sheet 2 of 2)	2
STD-WW-22A	Typical ditch/stream crossing for polyethylene rising main	0
STD-WW-23	Typical bridge crossing for rising main (sheet 1 of 2)	2
STD-WW-24	Typical bridge crossing for rising main (sheet 2 of 2)	2
STD-WW-24A	Typical culvert and services crossing details for rising main	0
STD-WW-25	Security gate & fencing palisade option (preferred)	0
STD-WW-25A	Security gate & fencing wire mesh option	3
STD-WW-26	Indicative pumping station site layout – access via lay-by	1
STD-WW-26A	Indicative pumping station site layout – direct access from public road	0
STD-WW-27	Flow meter chamber (foul rising main ≤200mm dia.) cast in-situ concrete option	3
STD-WW-27A	Flow meter & valve chamber (foul rising main ≤200mm dia.) cast In-situ concrete option	0
STD-WW-27B	Flow meter & valve chamber (foul rising main ≤200mm dia.) pre-cast concrete option	0
STD-WW-27C	Flow meter & valve chamber (foul rising main ≤200mm dia.) pre-cast concrete option	0
STD-WW-28	Cast in-situ Indicative submersible pumping station	3
STD-WW-28A	Indicative pre-cast concrete submersible pumping station with cast in-situ valve chamber	2
STD-WW-28B	Indicative pre-cast concrete submersible pumping station and pre-cast valve chamber	0
STD-WW-29	Rising main discharge stand-off manhole	3
STD-WW-30	Type 1 pumping station control kiosk	3
STD-WW-30A	Type 2 and type 3 pumping station control kiosk	0
STD-WW-31	Pumping station wet kiosk	3
STD-WW-31A	Pumping station wet kiosk water service connection arrangement	0
STD-WW-32	Hardstanding area pumping station (permeable & impermeable)	2
STD-WW-33	Lamp bollard & lamp standard	2
STD-WW-34	Vent stack	2
STD-WW-35	Rising main rodding chamber in-situ concrete option	0
STD-WW-35A	Rising main rodding chamber pre-cast concrete option	0
STD-WW-36	Marker posts/plates	0
STD-WW-37	Section showing wastewater services separation details in high density developments 2.5m wide footpaths with 6.0m wide carriageway	0
STD-WW-38	Layout plan showing below ground services separation details in high density developments 2.5m wide footpaths with 6.0m wide carriageway	0
STD-WW-39	Section showing wastewater services separation details in high density developments 1.8m wide footpaths, 2.5m wide parallel parking bays with 6.0m wide carriageway.	0

Revision History

Revision	Reason for Revision	Approved By	Issue Date
v1.01	Minor amendments	T. O'Connor	17/07/2015
v2.01	Format Amended	T. O'Connor	06/04/2016
v3.01	General Amendments	T. O'Connor	11/08/2016
v4.01	General Amendments	T. O'Connor	01/12/2017
v4.02	General Amendments	T. O'Connor	17/07/2020

Design Risk Assessment
Wastewater Standard Details
Revision: v4.02

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Typical Layout for Sewers within New Developments	**STD-WW-02**	The construction, operation and maintenance of sewers within developments	Falling from height.	Construction Personnel / IW Operations	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 1200mm + Pipe DIA. + 200mm = 1400mm + Pipe DIA.). Depth of trenches may be greater than 1400mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	All designs to be carried out by competent designers. Site specific design risks assessments to be prepared for all designs. Design Coordination required by a competent PSDP.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of falling from height shall be prepared by the Developer.		Irish Water Connections and Developer Services team to vet the design submitted by the Developer and may require its amendment if deemed inadequate.
			Burial under earthfalls.	Construction Personnel	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 1200mm + Pipe DIA. + 200mm = 1400mm + Pipe DIA.). Depth of trenches may be greater than 1400mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	Irish Water Connections and Developer Services team will undertake site inspections during the installation.
					The implementation of minimum trench widths as set out in STD-WW-07.		Irish Water Connections and Developer Services team will also Vet the final installed infrastructure.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of burial under earthfalls shall be prepared by the Developer.		The Developer shall prepare site specific Risk Assessments and Method Statements for all risks and detail site specific control measures to be put in place in order to reduce the risks to an acceptable level.
			Engulfment in swampland.	Construction Personnel	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 1200mm + Pipe DIA. + 200mm = 1400mm + Pipe DIA.). Depth of trenches may be greater than 1400mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	For all works involving Temporary Works, a Temporary Works Design shall be developed. The Contractor shall engage a competent Temporary Works Designer who shall take the overall design responsibility for the Temporary Works.
					The implementation of minimum trench widths as set out in STD-WW-07.		
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of engulfment in swampland shall be prepared by the Developer.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Typical Layout for Sewers within New Developments (continued)	**STD-WW-02 (continued)**	The construction, operation and maintenance of sewers within developments (continued)	Contact with chemical or biological substances constituting a particular danger to the safety and health of such persons or involving a statutory requirement for health monitoring.	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and appropriate design mitigation measures to be implemented.	Significant	
			Electrocution due to contact with live power lines	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground live power lines shall be prepared by the Developer.		
		The construction, operation and maintenance of sewers within developments (continued)	Drowning	Construction Personnel / IW Operations / General Public	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 1200mm + Pipe DIA. + 200mm = 1400mm + Pipe DIA.). Depth of trenches may be greater than 1400mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	
					All manholes and chambers shall be set a minimum of 5000mm from the bank of the watercourse.		
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of drowning shall be prepared by the Developer.		
			Assembly or dismantling of heavy prefabricated components.	Construction Personnel	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a method statement detailing safe means of work for tasks which involve assembly or dismantling of heavy prefabricated components.	Significant	

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Typical Layout for Sewers within New Developments (continued)	**STD-WW-02 (continued)**	The construction, operation and maintenance of sewers within developments (continued)	Striking underground / overground services	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground existing services shall be prepared by the Developer.		
			Moving Traffic	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and detailed traffic management plan developed.	Significant	
Drain and Service Connection Pipework	**STD-WW-03**	The construction and operation of a typical drain and service connection.	Falling from height.	Construction Personnel / IW Operations	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 1200mm + Pipe DIA. + 200mm = 1400mm + Pipe DIA.). Depth of trenches may be greater than 1400mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	All designs to be carried out by competent designers. Site specific design risks assessments to be prepared for all designs. Design Coordination required by a competent PSDP.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of falling from height shall be prepared by the Developer.		Irish Water Connections and Developer Services team to vet the design submitted by the Developer and may require its amendment if deemed inadequate.
			Burial under earthfalls.	Construction Personnel	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 1200mm + Pipe DIA. + 200mm = 1400mm + Pipe DIA.). Depth of trenches may be greater than 1400mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	Irish Water Connections and Developer Services team will undertake site inspections during the installation.
					The implementation of minimum trench widths as set out in STD-WW-07.		Irish Water Connections and Developer Services team will also Vet the final installed infrastructure.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of burial under earthfalls shall be prepared by the Developer.		The Developer shall prepare site specific Risk Assessments and Method Statements for all risks and detail site specific control measures to be put in place in order to reduce the risks to an acceptable level.

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Drain and Service Connection Pipework (continued)	**STD-WW-03 (continued)**	The construction and operation of a typical drain and service connection. (continued)	Engulfment in swampland.	Construction Personnel	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 1200mm + Pipe DIA. + 200mm = 1400mm + Pipe DIA.). Depth of trenches may be greater than 1400mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	For all works involving Temporary Works, a Temporary Works Design shall be developed. The Contractor shall engage a competent Temporary Works Designer who shall take the overall design responsibility for the Temporary Works.
					The implementation of minimum trench widths as set out in STD-WW-07.		
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of engulfment in swampland shall be prepared by the Developer.		
			Contact with chemical or biological substances constituting a particular danger to the safety and health of such persons or involving a statutory requirement for health monitoring.	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and appropriate design mitigation measures to be implemented.	Significant	
			Electrocution due to contact with live power lines	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground live power lines shall be prepared by the Developer.		
			Drowning	Construction Personnel / IW Operations / General Public	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 1200mm + Pipe DIA. + 200mm = 1400mm + Pipe DIA.). Depth of trenches may be greater than 1400mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Drain and Service Connection Pipework (continued)	**STD-WW-03 (continued)**	The construction and operation of a typical drain and service connection. (continued)			Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of drowning shall be prepared by the Developer.		
			Assembly or dismantling of heavy prefabricated components.	Construction Personnel	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a method statement detailing safe means of work for tasks which involve assembly or dismantling of heavy prefabricated components.	Minor	
			Defective chambers / pipework	Construction Personnel / IW Operations / General Public	Drain to be installed in accordance with the Building Regulations.	Minor	
			Contact with Asbestos Pipework	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a detailed method statement detailing all mitigation measures to be put in place when working with asbestos pipework.	Significant	
			Striking underground / overground services	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground existing services shall be prepared by the Developer.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Typical Sewer / Service Pipe Connection	**STD-WW-04**	The design, construction and operation of a typical sewer / service pipe connection	Falling from height.	Construction Personnel / IW Operations	Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of falling from height shall be prepared by the Developer.	Significant	All designs to be carried out by competent designers. Site specific design risks assessments to be prepared for all designs. Design Coordination required by a competent PSDP.
			Burial under earthfalls.	Construction Personnel	Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of burial under earthfalls shall be prepared by the Developer.	Significant	Irish Water Connections and Developer Services team to vet the design submitted by the Developer and may require its amendment if deemed inadequate.
			Engulfment in swampland.	Construction Personnel	Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of engulfment in swampland shall be prepared by the Developer.	Significant	Irish Water Connections and Developer Services team will undertake site inspections during the installation.
			Contact with chemical or biological substances constituting a particular danger to the safety and health of such persons or involving a statutory requirement for health monitoring.	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and appropriate design mitigation measures to be implemented.	Significant	Irish Water Connections and Developer Services team will also Vet the final installed infrastructure.

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Typical Sewer / Service Pipe Connection (continued)	**STD-WW-04 (continued)**	The design, construction and operation of a typical sewer / service pipe connection	Electrocution due to contact with live power lines	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	The Developer shall prepare site specific Risk Assessments and Method Statements for all risks and detail site specific control measures to be put in place in order to reduce the risks to an acceptable level.
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground live power lines shall be prepared by the Developer.		For all works involving Temporary Works, a Temporary Works Design shall be developed. The Contractor shall engage a competent Temporary Works Designer who shall take the overall design responsibility for the Temporary Works.
			Drowning	Construction Personnel / IW Operations / General Public	Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of drowning shall be prepared by the Developer.	Significant	
			Assembly or dismantling of heavy prefabricated components.	Construction Personnel	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a method statement detailing safe means of work for tasks which involve assembly or dismantling of heavy prefabricated components.	Minor	
		The design, construction and operation of a typical sewer / service pipe connection	Striking underground / overground services	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground existing services shall be prepared by the Developer.		
			Defective pipework	Construction Personnel / IW Operations / General Public	Saddle and 45° junction to be installed as outlined in STD-WW-04.	Minor	

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Typical Service Layout Indicating Separation Distances / Wastewater Service Connection vertical separation distances	**STD-WW-05 & STD-WW-05A, STD-WW-37, STD-WW-38, STD-WW-39, & STD-WW-40**	Construction, operation and maintenance of services in new developments	Electrocution due to contact with live power lines	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	All designs to be carried out by competent designers. Site specific design risks assessments to be prepared for all designs. Design Coordination required by a competent PSDP.
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground live power lines shall be prepared by the Developer.		Irish Water Connections and Developer Services team to vet the design submitted by the Developer and may require its amendment if deemed inadequate.
			Striking underground / overground services	Construction Personnel / IW Operations / General Public	The implementation of minimum separation distances from which proposed sewers and rising mains can be installed adjacent to existing services.	Significant	Irish Water Connections and Developer Services team will undertake site inspections during the installation.
					The implementation of minimum separation distances from which proposed services can be installed adjacent to existing sewers and rising mains.		Irish Water Connections and Developer Services team will also Vet the final installed infrastructure.
					The requesting of the Developer to give notification to Irish Water should excavation works be within a specified distance of an existing watermain.		The Developer shall prepare site specific Risk Assessments and Method Statements for all risks and detail site specific control measures to be put in place in order to reduce the risks to an acceptable level.
					It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.		
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground existing services shall be prepared by the Developer.		
			Collapse of existing structures	Construction Personnel / IW Operations / General Public	The implementation of minimum distances sewers and rising mains shall be installed with respect of existing and proposed buildings	Significant	

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Restrictions on wastewater infrastructure adjacent to trees / Restrictions on new trees / shrubs planting adjacent to sewers	**STD-WW-06 / STD-WW-06A**	Design, construction, operation and maintenance of sewers	Damage to sewers due to tree roots.	Construction Personnel / IW Operations / General Public	New trees to be located a distances away from sewers as set out in STD-WW-06. The design of landscaping shall be undertaken in conjunction with the design of sewers and drains so that the impact of tree root on pipework can be considered. A sewer shall not be located closer to the tree/shrub/bush than indicated except where special protection measures are provided. Where there is a risk of tree/shrub/bush root intrusion, the pipework shall be made resistant to root ingress (e.g. by the use of appropriate barriers, high performance joints or by the use of polyethylene pipe with welded joints). A tree shall not be place directly over a sewer/drain where excavation of the pipe would require the removal of the tree. Only shallow rooting shrubs shall be planted close to sewers/drains.	Minor	All designs to be carried out by competent designers. Site specific design risks assessments to be prepared for all designs. Design Coordination required by a competent PSDP. Irish Water Connections and Developer Services team to vet the design submitted by the Developer and may require its amendment if deemed inadequate. Irish Water Connections and Developer Services team will undertake site inspections during the installation. Irish Water Connections and Developer Services team will also Vet the final installed infrastructure. The Developer shall prepare site specific Risk Assessments and Method Statements for all risks and detail site specific control measures to be put in place in order to reduce the risks to an acceptable level.
Trench Backfill and Bedding	**STD-WW-07**	Trench reinstatement including excavation, pipelaying, placing of bedding and backfill material.	Falling from height.	Construction Personnel / IW Operations	The implementation of minimum and maximum depths and minimum trench widths. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 1200mm + Pipe DIA. + 200mm = 1400mm + Pipe DIA.). Depth of trenches may be greater than 1400mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical. Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of falling from height shall be prepared by the Developer.	Significant	All designs to be carried out by competent designers. Site specific design risks assessments to be prepared for all designs. Design Coordination required by a competent PSDP. Irish Water Connections and Developer Services team to vet the design submitted by the Developer and may require its amendment if deemed inadequate.

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Trench Backfill and Bedding (continued)	**STD-WW-07 (continued)**	Trench reinstatement including excavation, pipelaying, placing of bedding and backfill material.	Burial under earthfalls.	Construction Personnel	The implementation of minimum and maximum depths and minimum trench widths. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 1200mm + Pipe DIA. + 200mm = 1400mm + Pipe DIA.). Depth of trenches may be greater than 1400mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	Irish Water Connections and Developer Services team will undertake site inspections during the installation.
					The implementation of minimum trench widths as set out in STD-WW-07.		Irish Water Connections and Developer Services team will also Vet the final installed infrastructure.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of burial under earthfalls shall be prepared by the Developer.		The Developer shall prepare site specific Risk Assessments and Method Statements for all risks and detail site specific control measures to be put in place in order to reduce the risks to an acceptable level.
		Trench reinstatement including excavation, pipelaying, placing of bedding and backfill material.	Engulfment in swampland.	Construction Personnel	The implementation of minimum and maximum depths and minimum trench widths. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 1200mm + Pipe DIA. + 200mm = 1400mm + Pipe DIA.). Depth of trenches may be greater than 1400mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	For all works involving Temporary Works, a Temporary Works Design shall be developed. The Contractor shall engage a competent Temporary Works Designer who shall take the overall design responsibility for the Temporary Works.
					The implementation of minimum trench widths as set out in STD-WW-07.		
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of engulfment in swampland shall be prepared by the Developer.		
			Contact with chemical or biological substances constituting a particular danger to the safety and health of such persons or involving a statutory requirement for health monitoring.	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and appropriate design mitigation measures to be implemented.	Significant	

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Trench Backfill and Bedding (continued)	**STD-WW-07 (continued)**	Trench reinstatement including excavation, pipelaying, placing of bedding and backfill material.	Electrocution due to contact with live power lines	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground live power lines shall be prepared by the Developer.		
			Drowning	Construction Personnel / IW Operations / General Public	The implementation of minimum and maximum depths and minimum trench widths. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 1200mm + Pipe DIA. + 200mm = 1400mm + Pipe DIA.). Depth of trenches may be greater than 1400mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of drowning shall be prepared by the Developer.		
		Trench reinstatement including excavation, pipelaying, placing of bedding and backfill material. (continued)	Assembly or dismantling of heavy prefabricated components.	Construction Personnel	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a method statement detailing safe means of work for tasks which involve assembly or dismantling of heavy prefabricated components.	Significant	
			Striking underground / overground services	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground existing services shall be prepared by the Developer.		
			Settlement of the reinstated trenches	Construction Personnel / IW Operations / General Public	Trench to be reinstated using materials and workmanship as specified in STD-WW-07.	Minor	
					Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a detailed method statement for outlining a method of backfilling, compacting and reinstating trenches.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Concrete Bed, Haunch and Surround and protection slab to Wastewater Pipes	**STD-WW-08**	The construction of concrete bed, haunch and surround to wastewater pipes	Falling from height.	Construction Personnel / IW Operations	The implementation of minimum and maximum depths and minimum trench widths. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 1200mm + Pipe DIA. + 200mm = 1400mm + Pipe DIA.). Depth of trenches may be greater than 1400mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	All designs to be carried out by competent designers. Site specific design risks assessments to be prepared for all designs. Design Coordination required by a competent PSDP.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of falling from height shall be prepared by the Developer.		Irish Water Connections and Developer Services team to vet the design submitted by the Developer and may require its amendment if deemed inadequate.
			Burial under earthfalls.	Construction Personnel	The implementation of minimum and maximum depths and minimum trench widths. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 1200mm + Pipe DIA. + 200mm = 1400mm + Pipe DIA.). Depth of trenches may be greater than 1400mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	Irish Water Connections and Developer Services team will undertake site inspections during the installation.
					The implementation of minimum trench widths as set out in STD-WW-07.		Irish Water Connections and Developer Services team will also Vet the final installed infrastructure.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of burial under earthfalls shall be prepared by the Developer.		The Developer shall prepare site specific Risk Assessments and Method Statements for all risks and detail site specific control measures to be put in place in order to reduce the risks to an acceptable level.

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Concrete Bed, Haunch and Surround and protection slab to Wastewater Pipes (continued)	**STD-WW-08 (continued)**	The construction of concrete bed, haunch and surround to wastewater pipes (continued)	Engulfment in swampland.	Construction Personnel	The implementation of minimum and maximum depths and minimum trench widths. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 1200mm + Pipe DIA. + 200mm = 1400mm + Pipe DIA.). Depth of trenches may be greater than 1400mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	For all works involving Temporary Works, a Temporary Works Design shall be developed. The Contractor shall engage a competent Temporary Works Designer who shall take the overall design responsibility for the Temporary Works.
					The implementation of minimum trench widths as set out in STD-WW-07.		
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of engulfment in swampland shall be prepared by the Developer.		
			Contact with chemical or biological substances constituting a particular danger to the safety and health of such persons or involving a statutory requirement for health monitoring.	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and appropriate design mitigation measures to be implemented.	Significant	
			Electrocution due to contact with live power lines	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground live power lines shall be prepared by the Developer.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Concrete Bed, Haunch and Surround and protection slab to Wastewater Pipes (continued)	**STD-WW-08 (continued)**	The construction of concrete bed, haunch and surround to wastewater pipes (continued)	Drowning	Construction Personnel / IW Operations / General Public	The implementation of minimum and maximum depths and minimum trench widths. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 1200mm + Pipe DIA. + 200mm = 1400mm + Pipe DIA.). Depth of trenches may be greater than 1400mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of drowning shall be prepared by the Developer.		
			Striking underground / overground services	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground existing services shall be prepared by the Developer.		
			Damage to sewers and rising mains due to inadequate protection.	Construction Personnel / IW Operations / General Public	Polyethylene pipes shall be wrapped in plastic sheeting having a composition in accordance with BS 6076 before being cast into concrete.	Significant	
					Concrete to be grade C16 / 20 in accordance with IS EN 206.		
					Concrete pipe beds, haunches and surrounds shall have a minimum thickness of 150mm.		
					Expansion joints in the shall be provided at all pipe joints to allow for pipe flexibility. The compressible filler board to be in accordance with BS EN 622-1 and BS EN 622-4 and shall be 18mm thick.		
					Bituminous material shall not be put in contact with PE or PVC pipes.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Blockwork Manhole, Pre-cast Concrete Manhole, In-situ Concrete Manhole, Inlet Manholes and Discharge Manhole. (continued)	**STD-WW-09, STD-WW-10, STD-WW-10A, STD-WW-10B, STD-WW-10C, STD-WW-11, STD-WW-11A, STD-WW-12, STD-WW-29 (continued)**	The construction and maintenance of a blockwork manhole, precast concrete manholes, in-situ concrete manholes, pumping station inlet manholes and a rising main discharge manhole.	Falling from height.	Construction Personnel / IW Operations	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + the pipe DIA. + thickness of the base + depth of blinding (i.e. 1200mm + Pipe DIA. + 225mm +75mm = 1500mm + Pipe DIA.). Depth of trenches may be greater than 1500mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	All designs to be carried out by competent designers. Site specific design risks assessments to be prepared for all designs. Design Coordination required by a competent PSDP.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of falling from height shall be prepared by the Developer.		Irish Water Connections and Developer Services team to vet the design submitted by the Developer and may require its amendment if deemed inadequate.
			Burial under earthfalls.	Construction Personnel	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + the pipe DIA. + thickness of the base + depth of blinding (i.e. 1200mm + Pipe DIA. + 225mm +75mm = 1500mm + Pipe DIA.). Depth of trenches may be greater than 1500mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	Irish Water Connections and Developer Services team will undertake site inspections during the installation.
					The implementation of minimum trench widths as set out in STD-WW-07.		Irish Water Connections and Developer Services team will also Vet the final installed infrastructure.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of burial under earthfalls shall be prepared by the Developer.		The Developer shall prepare site specific Risk Assessments and Method Statements for all risks and detail site specific control measures to be put in place in order to reduce the risks to an acceptable level.
			Engulfment in swampland.	Construction Personnel	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + the pipe DIA. + thickness of the base + depth of blinding (i.e. 1200mm + Pipe DIA. + 225mm +75mm = 1500mm + Pipe DIA.). Depth of trenches may be greater than 1500mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	Irish Water operations and procedures to be adhered to for confined space entry.

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Blockwork Manhole, Pre-cast Concrete Manhole, In-situ Concrete Manhole, Inlet Manholes and Discharge Manhole. (continued)	**STD-WW-09, STD-WW-10, STD-WW-10A, STD-WW-10B, STD-WW-10C, STD-WW-11, STD-WW-11A, STD-WW-12, STD-WW-29 (continued)**	The construction and maintenance of a blockwork manhole, precast concrete manholes, in-situ concrete manholes, pumping station inlet manholes and a rising main discharge manhole.	Engulfment in swampland (continued)	Construction Personnel	The implementation of minimum trench widths as set out in STD-WW-07.		For all works involving Temporary Works, a Temporary Works Design shall be developed. The Contractor shall engage a competent Temporary Works Designer who shall take the overall design responsibility for the Temporary Works. Designer to take account of health and safety in selection, designing, installing manhole covers and frames to address manual handling, access egress, rescue, etc. The Designer must ensure that the general principles of prevention (as well as all relevant Health and Safety legislation) are taken into account when selecting and designing manhole covers and frames. Consideration must be given to the following risks relating to cover design: manual handling - means of safely lifting and moving the cover and eliminating/minimising risk of manual handing injury, ope protection (depending on size) access egress - room to safely access , rescue - room to safely rescue and also room to safely set up rescue equipment etc. Proprietary lifting equipment should be provided to allow for safe lifting of chamber covers and this should be consistent to avoid risk of accidents due to misuse.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of engulfment in swampland shall be prepared by the Developer.		
			Contact with chemical or biological substances constituting a particular danger to the safety and health of such persons or involving a statutory requirement for health monitoring.	Construction Personnel / IW Operations / General Public	Vent duct to be provided from the discharge manhole to a vent stack.	Significant	
					Site specific risks to be assessed and appropriate design mitigation measures to be implemented.		
			Electrocution due to contact with live power lines	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground live power lines shall be prepared by the Developer.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Blockwork Manhole, Pre-cast Concrete Manhole, In-situ Concrete Manhole, Inlet Manholes and Discharge Manhole. (continued)	**STD-WW-09, STD-WW-10, STD-WW-10A, STD-WW-10B, STD-WW-10C, STD-WW-11, STD-WW-11A, STD-WW-12, STD-WW-29 (continued)**	The construction and maintenance of a blockwork manhole, precast concrete manholes, in-situ concrete manholes, pumping station inlet manholes and a rising main discharge manhole.	Drowning	Construction Personnel / IW Operations / General Public	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + the pipe DIA. + thickness of the base + depth of blinding (i.e. 1200mm + Pipe DIA. + 225mm +75mm = 1500mm + Pipe DIA.). Depth of trenches may be greater than 1500mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	
					All manholes shall be set a minimum of 5000mm from the bank of the watercourse.		
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of drowning shall be prepared by the Developer.		
			Assembly or dismantling of heavy prefabricated components.	Construction Personnel	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a method statement detailing safe means of work for tasks which involve assembly or dismantling of heavy prefabricated components.	Significant	
			Collapse of manholes due to inadequate design and materials.	Construction Personnel / IW Operations / General Public	Blockwork manholes to be constructed from 20N/mm^2 blockwork in accordance with IS EN 771-3 and lined internally with engineering bricks in accordance with IS EN 771-1 to a height of 1m above the benching.	Significant	
					Maximum depth of blockwork manholes to be 1.2m. The use of deeper blockwork manholes will be considered and will require a detailed structural design and will be subject to the agreement of Irish Water.		
					Pre-cast concrete manholes to be constructed from pre-cast manhole units in accordance with IS EN 1917 and IS 420 Pre-cast manhole bases may be considered incorporating benching channels etc. and pre-cast roof slabs in accordance with BS 599-4 may be considered subject to the agreement of Irish Water.		
					Thicker bases and full structural design required for manholes greater 3m in depth.		
					In-situ concrete manholes to have a minimum wall thickness of 225mm for manhole depth of up to 3m and 300mm or more when the manhole depth exceeds 3m.		
					Vertical rodding eye to be provided for type 2 backdrop manholes covered with a surface box in accordance with IS 261.		
					Structural design and reinforcement detail to be provided by the developer and submitted to Irish Water for review.		
					Chambers to be checked for uplift by the Developer, based on ground conditions within the site. Should anti-floatation measures be deemed necessary they shall be subject to Irish Water agreement.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Blockwork Manhole, Pre-cast Concrete Manhole, In-situ Concrete Manhole, Inlet Manholes and Discharge Manhole. (continued)	**STD-WW-09, STD-WW-10, STD-WW-10A, STD-WW-10B, STD-WW-10C, STD-WW-11, STD-WW-11A, STD-WW-12, STD-WW-29 (continued)**	The construction and maintenance of a blockwork manhole, precast concrete manholes, in-situ concrete manholes, pumping station inlet manholes and a rising main discharge manhole.			1no. layer minimum or 3no. maximum of engineering bricks in accordance with IS EN 771-1 set in cementitious epoxy resin/polyester mortar to be used in order to provide the Developer tolerance to adjust the level of the surface box to suit the finished roadway / footpath.	Significant	
			Access to and egress from manholes	Construction Personnel / IW Operations / General Public	Access cover shall provide for a minimum of 600x600mm clear opening.	Minor	
					Access covers shall be designed to IS EN 124, of suitable load grade, cover to be selected and designed to prevent cover falling into chamber, cover designed to be safely lifted with minimal risk of manual handling injuriy, suitable for use with lifting equipment and arranged to ensure rescue procedures are not impeded.		
					Cover and frames shall be suitable for road and traffic conditions in accordance with IS EN 124 and in the case of surface boxes IS 261. Cover and frames shall be subject to Irish Water agreement and shall be set as per the manufacturers instructions.		
					Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a detailed method statement for entry procedures to confined spaces during the construction phase and the operation and maintenance phase.		
			Moving traffic	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and detailed traffic management plan developed.	Significant	
			Contact with Asbestos Pipework	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a detailed method statement detailing all mitigation measures to be put in place when working with asbestos pipework.	Significant	
			Confined spaces.	Construction Personnel / IW Operations	All manhole entry and egress to be carried out using safety access plan with safety equipment, tri-pod and winch, ladders/step irons installed in chambers to allow for safe self egress.	Significant	
					Standby tri-pod, winch and lifting equipment shall be readily available during confined space entry.		
					Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a detailed method statement for entry procedures to confined spaces during the construction phase and the operation and maintenance phase.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
			Striking underground / overground services	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground existing services shall be prepared by the Developer.		
Private Side Inspection Chamber	**STD-WW-13**	The construction and maintenance of a private side inspection chamber.	Falling from height.	Construction Personnel / IW Operations	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + the pipe DIA. + thickness of the base + depth of blinding (i.e. 750mm + Pipe DIA. + 225mm +75mm = 1050mm + Pipe DIA.). Depth of trenches may be greater than 1050mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Minor	All designs to be carried out by competent designers. Site specific design risks assessments to be prepared for all designs. Design Coordination required by a competent PSDP.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of falling from height shall be prepared by the Developer.		Irish Water Connections and Developer Services team to vet the design submitted by the Developer and may require its amendment if deemed inadequate.
			Burial under earthfalls.	Construction Personnel	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + the pipe DIA. + thickness of the base + depth of blinding (i.e. 750mm + Pipe DIA. + 225mm +75mm = 1050mm + Pipe DIA.). Depth of trenches may be greater than 1050mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Minor	Irish Water Connections and Developer Services team will undertake site inspections during the installation.
					The implementation of minimum trench widths as set out in STD-WW-07.		Irish Water Connections and Developer Services team will also Vet the final installed infrastructure.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of burial under earthfalls shall be prepared by the Developer.		The Developer shall prepare site specific Risk Assessments and Method Statements for all risks and detail site specific control measures to be put in place in order to reduce the risks to an acceptable level.

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Private Side Inspection Chamber (continued)	**STD-WW-13 (continued)**	The construction and maintenance of a private side inspection chamber. (continued)	Engulfment in swampland.	Construction Personnel	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + the pipe DIA. + thickness of the base + depth of blinding (i.e. 750mm + Pipe DIA. + 225mm +75mm = 1050mm + Pipe DIA.). Depth of trenches may be greater than 1050mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Minor	Irish Water operations and procedures to be adhered to for confined space entry.
					The implementation of minimum trench widths as set out in STD-WW-07.		For all works involving Temporary Works, a Temporary Works Design shall be developed. The Contractor shall engage a competent Temporary Works Designer who shall take the overall design responsibility for the Temporary Works. Designer to take account of health and safety in selection, designing, installing inspection chamber covers and frames to address manual handling, access egress, etc. The Designer must ensure that the general principles of prevention (as well as all relevant Health and Safety legislation) are taken into account when selecting and designing inspection chamber covers and frames. Consideration must be given to the following risks relating to cover design: manual handling - means of safely lifting and moving the cover and eliminating/minimising risk of manual handing injury, ope protection (depending on size) access egress - room to safely access, etc. Proprietary lifting equipment should be provided to allow for safe lifting of chamber covers and this should be consistent to avoid risk of accidents due to misuse.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of engulfment in swampland shall be prepared by the Developer.		
			Contact with chemical or biological substances constituting a particular danger to the safety and health of such persons or involving a statutory requirement for health monitoring.	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and appropriate design mitigation measures to be implemented.	Significant	
			Electrocution due to contact with live power lines	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground live power lines shall be prepared by the Developer.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Private Side Inspection Chamber (continued)	**STD-WW-13 (continued)**	The construction and maintenance of a private side inspection chamber. (continued)	Drowning	Construction Personnel / IW Operations / General Public	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + the pipe DIA. + thickness of the base + depth of blinding (i.e. 750mm + Pipe DIA. + 225mm +75mm = 1050mm + Pipe DIA.). Depth of trenches may be greater than 1050mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Minor	
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of drowning shall be prepared by the Developer.		
			Assembly or dismantling of heavy prefabricated components.	Construction Personnel	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a method statement detailing safe means of work for tasks which involve assembly or dismantling of heavy prefabricated components.	Significant	
			Collapse of valve chambers due to inadequate design and materials.	Construction Personnel / IW Operations / General Public	Chambers to be constructed from pre-cast concrete units with a wall thickness of 100mm. Alternatively chambers may be constructed from 20N/mm^2 concrete blockwork in accordance with IS EN 771-3. Proprietary pre-fabricated chamber units may be used subject to Irish Water agreement.	Minor	
					Precast chamber units, blockwork or proprietary pre fabricated chamber units shall sit on a 225mm thick precast or in-situ concrete base.		
					1no. layer minimum or 3no. maximum of engineering bricks in accordance with IS EN 771-1 set in cementitious epoxy resin/polyester mortar to be used in order to provide the Developer tolerance to adjust the level of the surface box to suit the finished roadway / footpath.		
					Chambers shall be surrounded by a minimum of 150mm compacted clause 804 material.		
			Access to inspection chambers	Construction Personnel / IW Operations / General Public	Access cover shall provide for a minimum of 600x600mm clear opening.	Minor	
					Access covers shall be designed to IS EN 124, of suitable load grade, cover to be selected and designed to prevent cover falling into chamber, cover designed to be safely lifted with minimal risk of manual handling injuriy, suitable for use with lifting equipment. It shall be subject to Irish Water agreement and shall be set as per the manufacturers instructions.		
			Moving traffic	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and detailed traffic management plan developed.	Significant	

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Private Side Inspection Chamber (continued)	**STD-WW-13 (continued)**	The construction and maintenance of a private side inspection chamber. (continued)	Contact with Asbestos Pipework	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a detailed method statement detailing all mitigation measures to be put in place when working with asbestos pipework.	Significant	
			Confined spaces.	Construction Personnel / IW Operations	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a detailed method statement for entry procedures to confined spaces during the construction phase.	Significant	
			Striking underground / overground services	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground existing services shall be prepared by the Developer.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Thrust Blocks for Rising Mains	**STD-WW-14**	**Failure of rising mains to inadequate support at bends, etc.**	Falling from height.	Construction Personnel / IW Operations	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 1200mm + Pipe DIA. + 200mm = 1400mm + Pipe DIA.). Depth of trenches may be greater than 1400mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	All designs to be carried out by competent designers. Site specific design risks assessments to be prepared for all designs. Design Coordination required by a competent PSDP.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of falling from height shall be prepared by the Developer.		Irish Water Connections and Developer Services team to vet the design submitted by the Developer and may require its amendment if deemed inadequate.
			Burial under earthfalls.	Construction Personnel	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 1200mm + Pipe DIA. + 200mm = 1400mm + Pipe DIA.). Depth of trenches may be greater than 1400mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	Irish Water Connections and Developer Services team will undertake site inspections during the installation.
					The implementation of minimum trench widths as set out in STD-WW-07.		Irish Water Connections and Developer Services team will also Vet the final installed infrastructure.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of burial under earthfalls shall be prepared by the Developer.		The Developer shall prepare site specific Risk Assessments and Method Statements for all risks and detail site specific control measures to be put in place in order to reduce the risks to an acceptable level.
			Engulfment in swampland.	Construction Personnel	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 1200mm + Pipe DIA. + 200mm = 1400mm + Pipe DIA.). Depth of trenches may be greater than 1400mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	For all works involving Temporary Works, a Temporary Works Design shall be developed. The Contractor shall engage a competent Temporary Works Designer who shall take the overall design responsibility for the Temporary Works.
					The implementation of minimum trench widths as set out in STD-WW-		
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of engulfment in swampland shall be prepared by the Developer.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Thrust Blocks for Rising Mains (continued)	**STD-WW-14 (continued)**	Failure of rising mains to inadequate support at bends, etc. (continued)	Contact with chemical or biological substances constituting a particular danger to the safety and health of such persons or involving a statutory requirement for health monitoring.	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and appropriate design mitigation measures to be implemented.	Significant	
			Electrocution due to contact with high voltage power lines	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground live power lines shall be prepared by the Developer.		
			Drowning	Construction Personnel / IW Operations / General Public	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 1200mm + Pipe DIA. + 200mm = 1400mm + Pipe DIA.). Depth of trenches may be greater than 1400mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of drowning shall be prepared by the Developer.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Thrust Blocks for Rising Mains (continued)	**STD-WW-14 (continued)**	Failure of rising mains to inadequate support at bends, etc. (continued)	Assembly or dismantling of heavy prefabricated components.	Construction Personnel	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a method statement detailing safe means of work for tasks which involve assembly or dismantling of heavy prefabricated components.	Significant	
			Contact with Asbestos Pipework	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a detailed method statement detailing all mitigation measures to be put in place when working with asbestos pipework.	Significant	
			Striking underground / overground services	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground existing services shall be prepared by the Developer.		
			Inadequate thrust and support blocks	Construction Personnel / IW Operations / General Public	Thrust blocks shall bear on undisturbed soils. If for any reason this cannot be achieved then the Developer shall notify Irish Water immediately with a proposed solution.	Minor	
					Thrust blocks are designed for an average bearing pressure of 100KN/m (Typical for soft clay) for other conditions actual dimensions may be altered on instructions from Irish Water.		
					Concrete in thrust blocks to be of grade C25/30 in accordance with IS EN 206.		
					Compressible filler for concrete protection to be in accordance with BS EN 622-1 and BS EN 622-4. The thickness of compressible filler for watermains ≤ 450mm shall be 18mm.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Thrust Blocks for Rising Mains (continued)	**STD-WW-14 (continued)**	Failure of rising mains to inadequate support at bends, etc. (continued)	Inadequate thrust and support blocks (continued)	Construction Personnel / IW Operations / General Public	Bituminous material shall not be put in contact with plastic pipes. Polyethylene pipes shall be wrapped in plastic sheeting in accordance with BS 6076 before being cast in concrete.	Minor	
					For test pressures ≥ 18 bar thrust block design is to be submitted to Irish Water for agreement.		
			Moving traffic	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and detailed traffic management plan developed.	Significant	
					Where possible watermains are to be located in the grass verge or footpath subject to watermains being located away from the footpath kerb.		
Scour Valve Chamber(Foul Rising Main ≤200mm)	**STD-WW-15**	The construction and operation of scour valve chambers on a foul rising main ≤200mm	Falling from height.	Construction Personnel / IW Operations	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + the pipe DIA. + distance from bottom of pipe to top of base + thickness of the base + depth of blinding (i.e. 1200mm + Pipe DIA. + 200mm + 500mm +75mm = 1975mm + Pipe DIA.). Depth of trenches may be greater than 1975mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	All designs to be carried out by competent designers. Site specific design risks assessments to be prepared for all designs. Design Coordination required by a competent PSDP.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of falling from height shall be prepared by the Developer.		Irish Water Connections and Developer Services team to vet the design submitted by the Developer and may require its amendment if deemed inadequate.
			Burial under earthfalls.	Construction Personnel	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + the pipe DIA. + distance from bottom of pipe to top of base + thickness of the base + depth of blinding (i.e. 1200mm + Pipe DIA. + 200mm + 500mm +75mm = 1975mm + Pipe DIA.). Depth of trenches may be greater than 1975mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	Irish Water Connections and Developer Services team will undertake site inspections during the installation.
					The implementation of minimum trench widths as set out in STD-WW-07.		Irish Water Connections and Developer Services team will also Vet the final installed infrastructure.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of burial under earthfalls shall be prepared by the Developer.		The Developer shall prepare site specific Risk Assessments and Method Statements for all risks and detail site specific control measures to be put in place in order to reduce the risks to an acceptable level.

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Scour Valve Chamber(Foul Rising Main ≤200mm)	**STD-WW-15 (continued)**	**The construction and operation of scour valve chambers on a foul rising main ≤200mm (continued)**	Engulfment in swampland.	Construction Personnel	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + the pipe DIA. + distance from bottom of pipe to top of base + thickness of the base + depth of blinding (i.e. 1200mm + Pipe DIA. + 200mm + 500mm +75mm = 1975mm + Pipe DIA.). Depth of trenches may be greater than 1975mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	Irish Water operations and procedures to be adhered to for confined space entry.
					The implementation of minimum trench widths as set out in STD-WW-07.		For all works involving Temporary Works, a Temporary Works Design shall be developed. The Contractor shall engage a competent Temporary Works Designer who shall take the overall design responsibility for the Temporary Works. Designer to take account of health and safety in selection, designing, installing scour chamber covers and frames to address manual handling, access egress, etc. The Designer must ensure that the general principles of prevention (as well as all relevant Health and Safety legislation) are taken into account when selecting and designing scour valve covers and frames. Consideration must be given to the following risks relating to cover design: manual handling - means of safely lifting and moving the cover and eliminating/minimising risk of manual handing injury, ope protection (depending on size) access egress - room to safely access , rescue - room to safely rescue and also room to safely set up rescue equipment etc. Proprietary lifting equipment should be provided to allow for safe lifting of chamber covers and this shouldbe consistent to avoid risk of accidents due to misuse.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of engulfment in swampland shall be prepared by the Developer.		
			Contact with chemical or biological substances constituting a particular danger to the safety and health of such persons or involving a statutory requirement for health monitoring.	Construction Personnel / IW Operations / General Public	Man entry access shall not be required to the scour chamber. The spindle for the scour valve shall be extended to the surface and a separate ope shall be located above the spindle to allow the scour valve be operated without entering the chamber. The scour chamber is to be emptied by vacuum tanker.	Significant	
					Site specific risks to be assessed and appropriate design mitigation measures to be implemented.		
			Electrocution due to contact with live power lines	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground live power lines shall be prepared by the Developer.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Scour Valve Chamber(Foul Rising Main ≤200mm)	**STD-WW-15 (continued)**	The construction and operation of scour valve chambers on a foul rising main ≤200mm (continued)	Drowning	Construction Personnel / IW Operations / General Public	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + the pipe DIA. + distance from bottom of pipe to top of base + thickness of the base + depth of blinding (i.e. 1200mm + Pipe DIA. + 200mm + 500mm +75mm = 1975mm + Pipe DIA.). Depth of trenches may be greater than 1975mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	
					All manholes and chambers shall be set a minimum of 5000mm from the bank of the watercourse.		
					Chamber to be constructed with sump.		
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of drowning shall be prepared by the Developer.		
			Assembly or dismantling of heavy prefabricated components.	Construction Personnel	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a method statement detailing safe means of work for tasks which involve assembly or dismantling of heavy prefabricated components.	Significant	
			Access to and egress from chambers	Construction Personnel / IW Operations	Man entry may be required to carry out maintenance of the chamber and pipework. Access for maintenance purposes to the scour chamber shall be via a 675x675mm square or 675mm diameter clear ope.	Significant	
					Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a detailed method statement for entry procedures to confined spaces during the construction and operation phase.		
			Confined spaces.	Construction Personnel / IW Operations	Man entry access shall not be required to the scour chamber. The spindle for the scour valve shall be extended to the surface and a separate ope shall be located above the spindle to allow the scour valve be operated without entering the chamber. The scour chamber is to be emptied by vacuum tanker.	Significant	
					All chamber entry to be carried out using safety access plan with suitable access equipment, tri-pod and winch, breathing equipment. Step irons to be installed in the scour chamber to allow safe self egress. The chamber is to be designed to allow operation activities to be carried out from ground with minimal requirement to enter the chamber.		
					Standby tri-pod, winch and lifting equipment shall be readily available during confined space entry.		
					Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a detailed method statement for entry procedures to confined spaces during the construction phase and the operational phase.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Scour Valve Chamber(Foul Rising Main ≤200mm)	**STD-WW-15 (continued)**	The construction and operation of scour valve chambers on a foul rising main <200mm (continued)	Collapse of chambers due to inadequate design and materials.	Construction Personnel / IW Operations	Structural design and reinforcement detail to be provided by the Developer and submitted to Irish Water for review.	Minor	
					Chambers to be checked for uplift by the Developer, based on ground conditions within the site. Should anti-floatation measures be deemed necessary they shall be subject to Irish Water agreement.		
					1 No. layer min. or 3 No. layers max. of engineering bricks in accordance with IS EN 771-1 set in cementitious epoxy resin/polyester mortar shown in order to provide the developer tolerance to adjust the level of the surface box and cover to suit the finished roadway / footpath.		
			Collapse of access covers	Construction Personnel / IW Operations	Chambers shall be covered with an approved heavy duty metal cover in accordance with IS EN 124.	Minor	
					Surface boxes to be in accordance with IS 261 and BS 5834		
					Cover and frames shall be suitable for road and traffic conditions and shall be subject to Irish Water agreement and shall be set as per the manufacturers instructions.		
			Defective pipework	Construction Personnel / IW Operations / General Public	Anti-corrosion tape to be provided around all buried flanges.	Minor	
					Dismantling joints specified to be used which will provide sufficient tolerance to facilitate the replacement of defective valves.		
					The Standard Detail refers the Developer to STD-WW-14 which, details thrust block arrangements to be implemented.		
			Moving traffic	Operatives / General Public	Site specific risks to be assessed and detailed traffic management plan developed.	Significant	
			Striking underground / overground services	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground existing services shall be prepared by the Developer.		
			Pollution to the environment	Construction Personnel / IW Operations / General Public	The final design shall be subject to the agreement of Irish Water and the relevant Regulatory Authorities	Significant	
					The reinstatement and the backfill requirements of the river bed and bank shall be subject to Irish Water agreement.		
					The Developer to provide a Waste Management Plan and Method Statement for agreement by Irish Water.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Sluice Valve forDuctile Iron (D.I) & Polyethylene (P.E.) Rising Mains (≤200mm dia.) (continued)	**STD-WW-16, STD-WW-17**	The construction and operation of sluice valves and chambers on Ductile Iron and Polyethylene rising mains ≤200mm diameter.	Falling from height.	Construction Personnel / IW Operations	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 1200mm + Pipe DIA. + 200mm = 1400mm + Pipe DIA.). Depth of trenches may be greater than 1400mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	All designs to be carried out by competent designers. Site specific design risks assessments to be prepared for all designs. Design Coordination required by a competent PSDP.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of falling from height shall be prepared by the Developer.		Irish Water Connections and Developer Services team to vet the design submitted by the Developer and may require its amendment if deemed inadequate.
			Burial under earthfalls.	Construction Personnel	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 1200mm + Pipe DIA. + 200mm = 1400mm + Pipe DIA.). Depth of trenches may be greater than 1400mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	Irish Water Connections and Developer Services team will undertake site inspections during the installation.
					The implementation of minimum trench widths as set out in STD-WW-07.		Irish Water Connections and Developer Services team will also Vet the final installed infrastructure.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of burial under earthfalls shall be prepared by the Developer.		The Developer shall prepare site specific Risk Assessments and Method Statements for all risks and detail site specific control measures to be put in place in order to reduce the risks to an acceptable level.
			Engulfment in swampland.	Construction Personnel	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 1200mm + Pipe DIA. + 200mm = 1400mm + Pipe DIA.). Depth of trenches may be greater than 1400mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	For all works involving Temporary Works, a Temporary Works Design shall be developed. The Contractor shall engage a competent Temporary Works Designer who shall take the overall design responsibility for the Temporary Works.
					The implementation of minimum trench widths as set out in STD-WW-07.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Sluice Valve forDuctile Iron (D.I) & Polyethylene (P.E.) Rising Mains (≤200mm dia.) (continued)	**STD-WW-16, STD-WW-17 (continued)**	The construction and operation of sluice valves and chambers on Ductile Iron and Polyethylene rising mains <200mm diameter. (continued)	Engulfment in swampland (continued)	Construction Personnel	Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of engulfment in swampland shall be prepared by the Developer.	Significant	Designer to take account of health and safety in selection, designing, installing scour chamber covers and frames to address manual handling, access egress, etc. The Designer must ensure that the general principles of prevention (as well as all relevant Health and Safety legislation) are taken into account when selecting and designing scour valve covers and frames. Consideration must be given to the following risks relating to cover design: manual handling - means of safely lifting and moving the cover and eliminating/minimising risk of manual handing injury, ope protection (depending on size) access egress - room to safely access , rescue - room to safely rescue and also room to safely set up rescue equipment etc. Proprietary lifting equipment should be provided to allow for safe lifting of chamber covers and this shouldbe consistent to avoid risk of accidents due to misuse.
			Contact with chemical or biological substances constituting a particular danger to the safety and health of such persons or involving a statutory requirement for health monitoring.	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and appropriate design mitigation measures to be implemented.	Significant	
			Electrocution due to contact with live power lines	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground live power lines shall be prepared by the Developer.		
			Drowning	Construction Personnel / IW Operations / General Public	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 1200mm + Pipe DIA. + 200mm = 1400mm + Pipe DIA.). Depth of trenches may be greater than 1400mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	
					All chambers shall be set a minimum of 5000mm from the bank of the watercourse.		
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of drowning shall be prepared by the Developer.		
			Assembly or dismantling of heavy prefabricated components.	Construction Personnel	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a method statement detailing safe means of work for tasks which involve assembly or dismantling of heavy prefabricated components.	Significant	

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Sluice Valve forDuctile Iron (D.I) & Polyethylene (P.E.) Rising Mains (≤200mm dia.) (continued)	**STD-WW-16, STD-WW-17 (continued)**	The construction and operation of sluice valves and chambers on Ductile Iron and Polyethylene rising mains ≤200mm diameter. (continued)	Collapse of valve chambers due to inadequate design and materials.	Construction Personnel / IW Operations / General Public	Chambers to be constructed from pre-cast concrete units with a wall thickness of 100mm. Alternatively chambers may be constructed from 20N/mm^2 concrete blockwork in accordance with IS EN 771-3. Proprietary pre-fabricated chamber units may be used subject to Irish Water agreement.	Minor	
					Chambers shall have a C30/37 concrete roof slab with a 150mm thickness.		
					Precast chamber units, blockwork or proprietary pre fabricated chamber units shall sit on a 100mm thick C25/30 concrete base. The concrete base shall be located a minimum of 150mm above the external crown of the pipework and shall not come into contact with the valve.		
					1 No. layer min. or 3 No. layers max. of engineering bricks in accordance with IS EN 771-1 set in cementitious epoxy resin/polyester mortar shown in order to provide the developer tolerance to adjust the level of the surface box and cover to suit the finished roadway / footpath.		
					Chambers shall be surrounded by a minimum of 150mm compacted clause 804 material.		
			Collapse of chamber covers	Construction Personnel / IW Operations / General Public	Surface boxes to be in accordance with IS 261 and/or BS 5834	Minor	
					Cover and frames shall be suitable for road and traffic conditions and shall be subject to Irish Water agreement and shall be set as per the manufacturers instructions.		
			Defective valves / pipework	Construction Personnel / IW Operations / General Public	All sluice valves on rising mains specified to be clockwise closing. Irish Water operational procedures and protocols to include for direction of valve closure.	Minor	
					Anti-corrosion tape to be provided around all buried flanges.		
					Dismantling joints specified to be used which will provide sufficient tolerance to facilitate the replacement of defective valves.		
					Details of a concrete support block provided in the Standard Detail.		
					The Standard Detail refers the Developer to STD-WW-14 which, details thrust block arrangements to be implemented.		
			Moving traffic	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and detailed traffic management plan developed.	Significant	
			Access to chambers	Construction Personnel / IW Operations	Surface box with 445x280mm clear ope with spindle centered directly underneath the ope.	Minor	

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Sluice Valve forDuctile Iron (D.I) & Polyethylene (P.E.) Rising Mains (≤200mm dia.) (continued)	**STD-WW-16, STD-WW-17 (continued)**	The construction and operation of sluice valves and chambers on Ductile Iron and Polyethylene rising mains ≤200mm diameter. (continued)	Contact with Asbestos Pipework	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a detailed method statement detailing all mitigation measures to be put in place when working with asbestos pipework.	Significant	
			Striking underground / overground services	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground existing services shall be prepared by the Developer.		
Air Valve Chamber, Flow Meter Chamber, and Rising Main Rodding Chamber	**STD-WW-18, STD-WW-27, STD-WW-27A, STD-WW-27B, STD-WW-27C, STD-WW-35, & STD-WW-35A**	The construction and operation of air valve chambers, flow meter chambers, and rodding chambers (for rising main ≤200mm DIA.)	Falling from height.	Construction Personnel / IW Operations	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + the pipe DIA. + distance from bottom of pipe to top of base + thickness of the base + depth of blinding (i.e. 1200mm + Pipe DIA. + 300mm + 500mm +75mm = 2075mm + Pipe DIA.). Depth of trenches may be greater than 2075mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	All designs to be carried out by competent designers. Site specific design risks assessments to be prepared for all designs. Design Coordination required by a competent PSDP.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of falling from height shall be prepared by the Developer.		Irish Water Connections and Developer Services team to vet the design submitted by the Developer and may require its amendment if deemed inadequate.

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Air Valve Chamber, Flow Meter Chamber, and Rising Main Rodding Chamber	**STD-WW-18, STD-WW-27, STD-WW-27A, STD-WW-27B, STD-WW-27C, STD-WW-35, & STD-WW-35A (Continued)**	The construction and operation of air valve chambers, flow meter chambers, and rodding chambers (for rising main ≤200mm DIA.)	Burial under earthfalls.	Construction Personnel	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + the pipe DIA. + distance from bottom of pipe to top of base + thickness of the base + depth of blinding (i.e. 1200mm + Pipe DIA. + 300mm + 500mm +75mm = 2075mm + Pipe DIA.). Depth of trenches may be greater than 2075mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	Irish Water Connections and Developer Services team will undertake site inspections during the installation.
					The implementation of minimum trench widths as set out in STD-WW-07.		Irish Water Connections and Developer Services team will also Vet the final installed infrastructure.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of burial under earthfalls shall be prepared by the Developer.		The Developer shall prepare site specific Risk Assessments and Method Statements for all risks and detail site specific control measures to be put in place in order to reduce the risks to an acceptable level.
			Engulfment in swampland.	Construction Personnel	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + the pipe DIA. + distance from bottom of pipe to top of base + thickness of the base + depth of blinding (i.e. 1200mm + Pipe DIA. + 300mm + 500mm +75mm = 2075mm + Pipe DIA.). Depth of trenches may be greater than 2075mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	Irish Water operations and procedures to be adhered to for confined space entry.
					The implementation of minimum trench widths as set out in STD-WW-07.		For all works involving Temporary Works, a Temporary Works Design shall be developed. The Contractor shall engage a competent Temporary Works Designer who shall take the overall design responsibility for the Temporary Works.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of engulfment in swampland shall be prepared by the Developer.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Air Valve Chamber, Flow Meter Chamber, and Rising Main Rodding Chamber (continued)	**STD-WW-18, STD-WW-27, STD-WW-27A, STD-WW-27B, STD-WW-27C, STD-WW-35, & STD-WW-35A (continued)**	The construction and operation of air valve & flow meter chambers (for rising main ≤200mm DIA.) (continued)	Contact with chemical or biological substances constituting a particular danger to the safety and health of such persons or involving a statutory requirement for health monitoring.	Construction Personnel / IW Operations / General Public	Air valve to be installed with an isolating valve.	Significant	Designer to take account of health and safety in selection, designing, installing air valve covers and frames to address manual handling, access egress, rescue, etc. The Designer must ensure that the general principles of prevention (as well as all relevant Health and Safety legislation) are taken into account when selecting and designing chamber covers and frames. Consideration must be given to the following risks relating to cover design: manual handling - means of safely lifting and moving the cover and eliminating/minimising risk of manual handing injury, ope protection (depending on size) access egress - room to safely access , rescue - room to safely rescue and also room to safely set up rescue equipment etc. Proprietary lifting equipment should be provided to allow for safe lifting of chamber covers and this shouldbe consistent to avoid risk of accidents due to misuse.
					Site specific risks to be assessed and appropriate design mitigation measures to be implemented.		
			Electrocution due to contact with high voltage power lines	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground live power lines shall be prepared by the Developer.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Air Valve Chamber, Flow Meter Chamber, and Rising Main Rodding Chamber (continued)	**STD-WW-18, STD-WW-27, STD-WW-27A, STD-WW-27B, STD-WW-27C, STD-WW-35, & STD-WW-35A (continued)**	The construction and operation of air valve & flow meter chambers (for rising main ≤200mm DIA.) (continued)	Drowning.	Construction Personnel / IW Operations / General Public	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + the pipe DIA. + distance from bottom of pipe to top of base + thickness of the base + depth of blinding (i.e. 1200mm + Pipe DIA. + 300mm + 500mm +75mm = 2075mm + Pipe DIA.). Depth of trenches may be greater than 2075mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	
					Chamber to be constructed with a sump.		
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of drowning shall be prepared by the Developer.		
			Assembly or dismantling of heavy prefabricated components.	Construction Personnel	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a method statement detailing safe means of work for tasks which involve assembly or dismantling of heavy prefabricated components.	Significant	
			Access to and egress from chambers	Operatives	Access covers shall be designed to IS EN 124, of suitable load grade, cover to be selected and designed to prevent cover falling into chamber, cover designed to be safely lifted with minimal risk of manual handling injuriy, suitable for use with lifting equipment and arranged to ensure rescue procedures are not impeded.	Significant	
					Access covers shall be a minimum of 900x900mm to facilitate valves to be lifted vertically from the respective chambers.		
					Cover slabs to be constructed cast-in recessed lifting eyes in order to allow for cover slab removal to facilitate maintenance works within the chamber.		
					Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a detailed method statement for entry procedures to confined spaces during the construction and operation phase.		
			Confined spaces.	Construction Personnel / IW Operations	All chamber entry to be carried out using safe access work plan with safe access equipment, tri-pod and winch, step irons to be installed in chambers that require man entry to allow safe self egress.	Significant	
					Standby tri-pod, winch and lifting equipment shall be readily available during confined space entry.		
					Cover slabs to be constructed cast-in recessed lifting eyes in order to allow for cover slab removal to facilitate maintenance works within the chamber.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Air Valve Chamber, Flow Meter Chamber, and Rising Main Rodding Chamber (continued)	**STD-WW-18, STD-WW-27, STD-WW-27A, STD-WW-27B, STD-WW-27C, STD-WW-35, & STD-WW-35A(continued)**	The construction and operation of air valve & flow meter chambers (for rising main ≤200mm DIA.) (continued)	Confined spaces.	Construction Personnel / IW Operations	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a detailed method statement for entry procedures to confined spaces during the construction phase.		
			Collapse of chambers due to inadequate design and materials.	General Public	Chambers to be constructed from C30/37 in-situ concrete. Alternatively pre-cast chambers may be used subject to the agreement of Irish Water.	Minor	
					Structural design and reinforcement detail to be provided by the developer and submitted to Irish Water for review.		
			Collapse of chambers due to inadequate design and materials (continued)	General Public	Chambers to be checked for uplift by the Developer, based on ground conditions within the site. Should anti-floatation measures be deemed necessary they shall be subject to Irish Water agreement.	Minor	
					1 No. layer min. or 3 No. layers max. of engineering bricks in accordance with IS EN 771-1 set in cementitious epoxy resin/polyester mortar shown in order to provide the developer tolerance to adjust the level of the surface box and cover to suit the finished roadway / footpath.		
			Collapse of access covers	General Public	Chambers shall be covered with an approved heavy duty metal cover in accordance with IS EN 124.	Minor	
					Cover and frames shall be suitable for road and traffic conditions and shall be subject to Irish Water agreement and shall be set as per the manufacturers instructions.		
			Defective valves / pipework	Construction Personnel / IW Operations / General Public	Anti-corrosion tape to be provided around all buried flanges.	Minor	
					Dismantling joints specified to be used which will provide sufficient tolerance to facilitate the replacement of defective valves.		
					The Standard Detail refers the Developer to STD-WW-14 which, details thrust block arrangements to be implemented.		
			Moving traffic	Operatives / General Public	Site specific risks to be assessed and detailed traffic management plan developed.	Significant	
			Contact with Asbestos Pipework	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a detailed method statement detailing all mitigation measures to be put in place when working with asbestos pipework.	Significant	

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Air Valve Chamber, Flow Meter Chamber, and Rising Main Rodding Chamber (continued)	**STD-WW-18, STD-WW-27, STD-WW-27A, STD-WW-27B, STD-WW-27C, STD-WW-35, & STD-WW-35A(continued)**	The construction and operation of air valve & flow meter chambers (for rising main <≤200mm DIA.) (continued)	Striking underground / overground services	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground existing services shall be prepared by the Developer.		
			Discharge of harmful gases and odours	Construction Personnel / IW Operations / General Public	Air Valve chamber to be fitted with a duct to a vent stack. An air tight seal shall be achieved by the Developer at the interface between the duct and the chamber.	Minor	
Duct Chamber	**STD-WW-19**	The construction and operation of duct chambers	Falling from height.	Construction Personnel / IW Operations	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + the pipe DIA. + distance from bottom of duct to top of base + thickness of the base + depth of blinding (i.e. 600mm + duct DIA. + 150mm + 225mm +75mm = 1050mm + Pipe DIA.). Depth of trenches may be greater than 1050mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	All designs to be carried out by competent designers. Site specific design risks assessments to be prepared for all designs. Design Coordination required by a competent PSDP.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of falling from height shall be prepared by the Developer.		Irish Water Connections and Developer Services team to vet the design submitted by the Developer and may require its amendment if deemed inadequate.
			Burial under earthfalls.	Construction Personnel	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + the pipe DIA. + distance from bottom of duct to top of base + thickness of the base + depth of blinding (i.e. 600mm + duct DIA. + 150mm + 225mm +75mm = 1050mm + Pipe DIA.). Depth of trenches may be greater than 1050mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	Irish Water Connections and Developer Services team will undertake site inspections during the installation.
					The implementation of minimum trench widths as set out in STD-WW-19.		Irish Water Connections and Developer Services team will also Vet the final installed infrastructure.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of burial under earthfalls shall be prepared by the Developer.		The Developer shall prepare site specific Risk Assessments and Method Statements for all risks and detail site specific control measures to be put in place in order to reduce the risks to an acceptable level.

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Duct Chamber	**STD-WW-19**	The construction and operation of duct chambers	Engulfment in swampland.	Construction Personnel	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + the pipe DIA. + distance from bottom of duct to top of base + thickness of the base + depth of blinding (i.e. 600mm + duct DIA. + 150mm + 225mm +75mm = 1050mm + Pipe DIA.). Depth of trenches may be greater than 1050mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	Irish Water operations and procedures to be adhered to for confined space entry.
					The implementation of minimum trench widths as set out in STD-WW-19.		For all works involving Temporary Works, a Temporary Works Design shall be developed. The Contractor shall engage a competent Temporary Works Designer who shall take the overall design responsibility for the Temporary Works.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of engulfment in swampland shall be prepared by the Developer.		
			Contact with chemical or biological substances constituting a particular danger to the safety and health of such persons or involving a statutory requirement for health monitoring.	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and appropriate design mitigation measures to be implemented.	Significant	Designer to take account of health and safety in selection, designing, installing duct chamber covers and frames to address manual handling, access egress, rescue, etc. The Designer must ensure that the general principles of prevention (as well as all relevant Health and Safety legislation) are taken into account when selecting and designing duct chamber covers and frames. Consideration must be given to the following risks relating to cover design: manual handling - means of safely lifting and moving the cover and eliminating/minimising risk of manual handing injury, ope protection (depending on size) access egress - room to safely access , rescue - room to safely rescue and also room to safely set up rescue equipment etc. Proprietary lifting equipment should be provided to allow for safe lifting of chamber covers and this should be consistent to avoid risk of accidents due to misuse.
			Electrocution due to contact with live power lines	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground live power lines shall be prepared by the Developer.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Duct Chamber (continued)	**STD-WW-19 (continued)**	The construction and operation of duct chambers (continued)	Drowning	Construction Personnel / IW Operations / General Public	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + the pipe DIA. + distance from bottom of duct to top of base + thickness of the base + depth of blinding (i.e. 600mm + duct DIA. + 150mm + 225mm +75mm = 1050mm + Pipe DIA.). Depth of trenches may be greater than 1050mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	
					Chamber to be constructed with a 75mm PVC drain to the nearest surface water outlet fitted with a non-return valve.		
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of drowning shall be prepared by the Developer.		
			Assembly or dismantling of heavy prefabricated components.	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a method statement detailing safe means of work for tasks which involve assembly or dismantling of heavy prefabricated components.	Significant	
			Defects in ducting network	Construction Personnel / IW Operations	Cables to be installed with approved marker tape 200mm above the crown of the ducts.	Minor	
					Cable ducts to be in accordance with BS 4460 and BS EN 1401. Electrical ducting to be in accordance with ESB specification.		
					Long radius bends may be used for changes in direction of up to 45°. Duct chambers shall be provided for all changes in direction of greater than 45°.		
					Duct chambers shall be provided at a maximum of 50m intervals.		
					Cable ducting to be installed with draw chords / ropes.		
					Cable duct / chamber interfaces shall be sealed in order to prevent the ingress of ground water.		
			Access to and egress from chambers	Construction Personnel / IW Operations / General Public	Access covers shall be designed to IS EN 124, of suitable load grade, cover to be selected and designed to prevent cover falling into chamber, cover designed to be safely lifted with minimal risk of manual handling injuriy, suitable for use with lifting equipment and arranged to ensure rescue procedures are not impeded.	Minor	
					Ensure that the opening is adequately sized to provide sufficient standing room in the chamber.		
					Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a detailed method statement for entry procedures to confined spaces during the construction and operation phase.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Duct Chamber (continued)	**STD-WW-19 (continued)**	The construction and operation of duct chambers (continued)	Confined spaces.	Construction Personnel / IW Operations	All chamber entry to be carried out using safe access plan with suitable access equipment, tri-pod and winch, no ladders or step irons to be installed in chambers that require man entry.	Minor	
					Standby tri-pod, winch and lifting equipment shall be readily available during confined space entry.		
					Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a detailed method statement for entry procedures to confined spaces during the construction phase and operational phase.		
			Collapse of chambers due to inadequate design and materials.	Construction Personnel / IW Operations / General Public	Chambers to be constructed from C30/37 in-situ concrete. Alternatively pre-cast chambers may be used subject to the agreement of Irish Water.	Minor	
					Structural design and reinforcement detail to be provided by the developer and submitted to Irish Water for review.		
					Chambers to be checked for uplift by the Developer, based on ground conditions within the site. Should anti-floatation measures be deemed necessary they shall be subject to Irish Water agreement.		
			Collapse of access covers	Construction Personnel / IW Operations / General Public	Chambers shall be covered with an approved heavy duty metal cover in accordance with IS EN 124.	Minor	
					Cover and frames shall be suitable for road and traffic conditions and shall be subject to Irish Water agreement and shall be set as per the manufacturers instructions.		
			Moving traffic	Operatives / General Public	Site specific risks to be assessed and detailed traffic management plan developed.	Significant	
			Striking underground / overground services	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground existing services shall be prepared by the Developer.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Emergency Overflow Structure and overflow to storm sewer	**STD-WW-20**	The construction and operation of an emergency overflow structure and overflow to storm sewer	Falling from height.	Construction Personnel / IW Operations	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe DIA. + distance from bottom of pipe to top of base + thickness of the base + depth of blinding (i.e. 1200mm + pipe DIA. + 150mm + 225mm +75mm = 1650mm + Pipe DIA.). Depth of trenches may be greater than 1650mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	All designs to be carried out by competent designers. Site specific design risks assessments to be prepared for all designs. Design Coordination required by a competent PSDP.
					Hand railing may be required at the outfall structure subject to Developers Design Risk Assessment.		Irish Water Connections and Developer Services team to vet the design submitted by the Developer and may require its amendment if deemed inadequate.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of falling from height shall be prepared by the Developer.		Irish Water Connections and Developer Services team will undertake site inspections during the installation.
			Burial under earthfalls.	Construction Personnel	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe DIA. + distance from bottom of pipe to top of base + thickness of the base + depth of blinding (i.e. 1200mm + pipe DIA. + 150mm + 225mm +75mm = 1650mm + Pipe DIA.). Depth of trenches may be greater than 1650mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	Irish Water Connections and Developer Services team will also Vet the final installed infrastructure.
					The implementation of minimum trench widths as set out in STD-WW-07.		The Developer shall prepare site specific Risk Assessments and Method Statements for all risks and detail site specific control measures to be put in place in order to reduce the risks to an acceptable level.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of burial under earthfalls shall be prepared by the Developer.		
			Engulfment in swampland.	Construction Personnel	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe DIA. + distance from bottom of pipe to top of base + thickness of the base + depth of blinding (i.e. 1200mm + pipe DIA. + 150mm + 225mm +75mm = 1650mm + Pipe DIA.). Depth of trenches may be greater than 1650mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	For all works involving Temporary Works, a Temporary Works Design shall be developed. The Contractor shall engage a competent Temporary Works Designer who shall take the overall design responsibility for the Temporary Works.
					The implementation of minimum trench widths as set out in STD-WW-07.		
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of engulfment in swampland shall be prepared by the Developer.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Emergency Overflow Structure and overflow to storm sewer (continued)	**STD-WW-20 (continued)**	The construction and operation of an emergency overflow structure and overflow to storm sewer (continued)	Contact with chemical or biological substances constituting a particular danger to the safety and health of such persons or involving a statutory requirement for health monitoring.	Construction Personnel / IW Operations / General Public	Final design to be approved by Irish Water and the relevant Regulatory Authorities. Site specific risks to be assessed and appropriate design mitigation measures to be implemented.	Significant	
			Electrocution due to contact with live power lines	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage. Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground live power lines shall be prepared by the Developer.	Significant	
			Drowning	Construction Personnel / IW Operations / General Public	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe DIA. + distance from bottom of pipe to top of base + thickness of the base + depth of blinding (i.e. 1200mm + pipe DIA. + 150mm + 225mm +75mm = 1650mm + Pipe DIA.). Depth of trenches may be greater than 1650mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical. Hand railing may be required at the outfall structure subject to Developers Design Risk Assessment. All manholes and chambers shall be set a minimum of 5000mm from the bank of the watercourse. Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of drowning shall be prepared by the Developer.	Significant	
			Assembly or dismantling of heavy prefabricated components.	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a method statement detailing safe means of work for tasks which involve assembly or dismantling of heavy prefabricated components.	Significant	

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Emergency Overflow Structure and overflow to storm sewer (continued)	**STD-WW-20 (continued)**	The construction and operation of an emergency overflow structure and overflow to storm sewer (continued)	Collapse of chambers and outfall structure due to inadequate design and materials.	Construction Personnel / IW Operations / General Public	Structural design and reinforcement detail to be provided by the Developer and submitted to Irish Water for review. Chambers to be checked for uplift by the Developer, based on ground conditions within the site. Should anti-floatation measures be deemed necessary they shall be subject to Irish Water agreement.	Minor	
			Defective pipework	Construction Personnel / IW Operations / General Public	Anti-corrosion tape to be provided around all buried flanges. Dismantling joints specified to be used which will provide sufficient tolerance to facilitate the replacement of defective valves. The Standard Detail refers the developer to STD-WW-14 which, details thrust block arrangements to be implemented.	Minor	
			Striking underground / overground services	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage. Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground existing services shall be prepared by the Developer.	Significant	
			Pollution to the environment	Construction Personnel / IW Operations / General Public	The final design shall be subject to the agreement of Irish Water and the relevant Regulatory Authorities The reinstatement and the backfill requirements of the river bed and bank shall be subject to Irish Water agreement.	Significant	

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Typical Ditch / Stream Crossing for Gravity sewers and RisingMains .	**STD-WW-21, STD-WW-22 and STD-WW-22A**	Crossing of a ditch, stream and river by a gravity sewer and a rising main.	Falling from height.	Construction Personnel / IW Operations	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 1200mm + Pipe DIA. + 200mm = 1400mm + Pipe DIA.). Depth of trenches at ditch and stream crossings may be greater than 1400mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	All designs to be carried out by competent designers. Site specific design risks assessments to be prepared for all designs. Design Coordination required by a competent PSDP.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of falling from height shall be prepared by the Developer.		Irish Water Connections and Developer Services team to vet the design submitted by the Developer and may require its amendment if deemed inadequate.
			Burial under earthfalls.	Construction Personnel	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 1200mm + Pipe DIA. + 200mm = 1400mm + Pipe DIA.). Depth of trenches at ditch and stream crossings may be greater than 1400mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	Irish Water Connections and Developer Services team will undertake site inspections during the installation.
					The implementation of minimum trench widths as set out in STD-WW-07.		Irish Water Connections and Developer Services team will also Vet the final installed infrastructure.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of burial under earthfalls shall be prepared by the Developer.		The Developer shall prepare site specific Risk Assessments and Method Statements for all risks and detail site specific control measures to be put in place in order to reduce the risks to an acceptable level.
			Engulfment in swampland.	Construction Personnel	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 1200mm + Pipe DIA. + 200mm = 1400mm + Pipe DIA.). Depth of trenches at ditch and stream crossings may be greater than 1400mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	For all works involving Temporary Works, a Temporary Works Design shall be developed. The Contractor shall engage a competent Temporary Works Designer who shall take the overall design responsibility for the Temporary Works.
					The implementation of minimum trench widths as set out in STD-WW-07.		
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of engulfment in swampland shall be prepared by the Developer.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Typical Ditch / Stream Crossing for Gravity sewers and RisingMains . (continued)	**STD-WW-21, STD-WW-22 and STD-WW-22A (continued)**	Crossing of a ditch, stream and river by a gravity sewer and a rising main. (continued)	Contact with chemical or biological substances constituting a particular danger to the safety and health of such persons or involving a statutory requirement for health monitoring.	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and appropriate design mitigation measures to be implemented.	Minor	
			Electrocution due to contact with high voltage power lines	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground live power lines shall be prepared by the Developer.		
			Drowning.	Construction Personnel / IW Operations / General Public	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 1200mm + Pipe DIA. + 200mm = 1400mm + Pipe DIA.). Depth of trenches at ditch and stream crossings may be greater than 1400mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	
					All manholes and chambers shall be set a minimum of 5000mm from the bank of the watercourse.		
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of drowning shall be prepared by the Developer.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Typical Ditch / Stream Crossing for Gravity sewers and RisingMains . (continued)	**STD-WW-21, STD-WW-22 and STD-WW-22A (continued)**	Crossing of a ditch, stream and river by a gravity sewer and a rising main. (continued)	Assembly or dismantling of heavy prefabricated components.	Construction Personnel	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a method statement detailing safe means of work for tasks which involve assembly or dismantling of heavy prefabricated components.	Significant	
			Defective valves / pipework	Construction Personnel / IW Operations / General Public	Air valves to be installed at each side of the rising main crossing. (Note: Refer to drawing STD-WW-18 for the Designers Risk Assessment regarding the air valve chamber construction).	Minor	
					A scour valve, chamber and head wall to be installed at the rising main. (Note: Refer to drawing STD-WW-15 for the Designers Risk Assessment regarding the scour valve chamber and head wall construction).		
					The Standard Detail refers the Developer to STD-WW-14 which, details thrust block arrangements to be implemented.		
					Pipework at the crossing point for rising mains shall be polyethylene joined using butt fusion welding, shall be wrapped in plastic sheeting in accordance with BS 6076 and surrounded in concrete as per STD-WW-08.		
					Pipework at the crossing point for gravity sewers shall ductile iron and shall be surrounded in concrete as per STD-WW-08.		
					The Developer shall seek advice from Irish Water as to whether a duplicate main is to be provided at the stream crossing point. If necessary the Developer shall submit a design to Irish Water for agreement.		
			Pollution to the environment	Construction Personnel / IW Operations / General Public	The reinstatement and the backfill requirements of the ditch / stream shall be subject to Irish Water agreement.	Significant	
			Striking underground / overground services	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground existing services shall be prepared by the Developer.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Typical Bridge and Culvert Crossing for Rising Mains.	**STD-WW-23, STD-WW-24 & STD-WW-24A**	**The construction of bridge and culvert crossings by a rising main**	Falling from height.	Construction Personnel / IW Operations	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 1200mm + Pipe DIA. + 200mm = 1400mm + Pipe DIA.). Depth of trenches at bridge crossings may be greater than 1400mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	All designs to be carried out by competent designers. Site specific design risks assessments to be prepared for all designs. Design Coordination required by a competent PSDP.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of falling from height shall be prepared by the Developer.		Irish Water Connections and Developer Services team to vet the design submitted by the Developer and may require its amendment if deemed inadequate.
			Burial under earthfalls.	Construction Personnel	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 1200mm + Pipe DIA. + 200mm = 1400mm + Pipe DIA.). Depth of trenches at bridge crossings may be greater than 1400mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	Irish Water Connections and Developer Services team will undertake site inspections during the installation.
					The implementation of minimum trench widths as set out in STD-WW-07.		Irish Water Connections and Developer Services team will also Vet the final installed infrastructure.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of burial under earthfalls shall be prepared by the Developer.		The Developer shall prepare site specific Risk Assessments and Method Statements for all risks and detail site specific control measures to be put in place in order to reduce the risks to an acceptable level.
			Engulfment in swampland.	Construction Personnel	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 1200mm + Pipe DIA. + 200mm = 1400mm + Pipe DIA.). Depth of trenches at bridge crossings may be greater than 1400mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	For all works involving Temporary Works, a Temporary Works Design shall be developed. The Contractor shall engage a competent Temporary Works Designer who shall take the overall design responsibility for the Temporary Works.
					The implementation of minimum trench widths as set out in STD-WW-07.		
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of engulfment in swampland shall be prepared by the Developer.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Typical Bridge and Culvert Crossing for Rising Mains.	**STD-WW-23, STD-WW-24 & STD-WW-24A(continued)**	The construction of bridge and culvert crossings by a rising main(continued)	Contact with chemical or biological substances constituting a particular danger to the safety and health of such persons or involving a statutory requirement for health monitoring.	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and appropriate design mitigation measures to be implemented.	Minor	
			Electrocution due to contact with live power lines	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground live power lines shall be prepared by the Developer.		
			Drowning.	Construction Personnel / IW Operations / General Public	The implementation of minimum and maximum depths of cover over pipelines. The average depth of trenches shall be min. depth of cover + pipe diameter + depth of bedding (i.e. 1200mm + Pipe DIA. + 200mm = 1400mm + Pipe DIA.). Depth of trenches at bridge crossings may be greater than 1400mm + Pipe DIA.. Pipes are to be installed to minimum cover where practical.	Significant	
					All manholes and chambers shall be set a minimum of 5000mm from the bank of the watercourse.		
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of drowning shall be prepared by the Developer.		
			Assembly or dismantling of heavy prefabricated	Construction Personnel	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a method statement detailing safe means of work for tasks which involve assembly or dismantling of heavy prefabricated components.	Significant	

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Typical Bridge and Culvert Crossing for Rising Mains.	**STD-WW-23, STD-WW-24 & STD-WW-24A (continued)**	The construction of bridge and culvert crossings by a rising main (continued)	Defective valves / pipework	Construction Personnel / IW Operations / General Public	A single air valve to be installed at the highest point of the crossing shown on STD-WW-23. The air valve is to be located in a kiosk off the footpath so as not to impede pedestrians.	Minor	
					Pipework to the air valve shall be via a 32mm O.D. polyethylene pipe. The pipe shall be connected to the main via a 35mm saddle.		
					The kiosk shall be constructed from hot dipped thermostetting UV and weather resistant plastic powder coated galvanised mild steel plate (min. 4mm thickness) to BS EN 1461, Colour to be holly green 14 C 39 in accordance with BS 4800. The kiosk shall be fitted with a hinged lockable access door (hinges and locks to be stainless steel).		
					Exposed pipework within the kiosk to be insulated with pipe lagging.		
					A scour valve, chamber and head wall to be installed for the crossing shown on STD-WW-24. (Note: Refer to drawing STD-WW-15 for the Designers Risk Assessment regarding the scour valve chamber and head wall construction).		
					The Standard Detail refers the Developer to STD-WW-14 which, details thrust block arrangements to be implemented.		
					Pipework at the crossing point shown on STD-WW-24 shall be polyethylene joined using butt fusion welding, shall be wrapped in plastic sheeting in accordance with BS 6076 and surrounded in concrete.		
					Pipework at the crossing point shown on STD-WW-23 over the bridge deck shall be ductile iron and shall be wrapped in plastic sheeting in accordance with BS 6076 and surrounded in concrete.		
					The Developer shall seek advice from Irish Water as to whether a duplicate main is to be provided at the bridge crossing. If necessary the Developer shall submit a design to Irish Water for agreement.		
			Pollution to the environment	Construction Personnel / IW Operations / General Public	The reinstatement and the backfill requirements of the river bed and bank shall be subject to Irish Water agreement.	Significant	
			Striking underground / overground services	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground existing services shall be prepared by the Developer.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Security Gate and Fence	**STD-WW-25 & STD-WW-25A**	The construction of the security gate and fencing	Falling from height.	Construction Personnel / IW Operations	Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of falling from height shall be prepared by the Developer.	Significant	All designs to be carried out by competent designers. Site specific design risks assessments to be prepared for all designs. Design Coordination required by a competent PSDP.
			Contact with chemical or biological substances constituting a particular danger to the safety and health of such persons or involving a statutory requirement for health monitoring.	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and appropriate design mitigation measures to be implemented.	Significant	Irish Water Connections and Developer Services team to vet the design submitted by the Developer and may require its amendment if deemed inadequate.
			Electrocution due to contact with high voltage power lines	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Minor	Irish Water Connections and Developer Services team will undertake site inspections during the installation.
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground live power lines shall be prepared by the Developer.		Irish Water Connections and Developer Services team will also Vet the final installed infrastructure.
			Assembly or dismantling of heavy prefabricated components.	Construction Personnel	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a method statement detailing safe means of work for tasks which involve assembly or dismantling of heavy prefabricated components.	Significant	The Developer shall prepare site specific Risk Assessments and Method Statements for all risks and detail site specific control measures to be put in place in order to reduce the risks to an acceptable level.

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Security Gate and Fence (continued)	**STD-WW-25 & STD-WW-25A (continued)**	The construction of the security gate and fencing (continued)	Striking underground / overground services	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground existing services shall be prepared by the Developer.		
			Level of security provided by the installed security gate and fencing	Construction Personnel / IW Operations / General Public	Concrete sill to be provided underneath the security gate in order provide for security against burrowing underneath the fence.	Minor	
				General Public	Fence / Gate design and details to be provided to Irish Water for Review / vetting prior to manufacture.		
Indicative Submersible Pumping Station Site Layout	**STD-WW-26 & STD-WW-26A**	The construction and maintenance of pumping station.	Falling from height.	Construction Personnel / IW Operations	Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of falling from height shall be prepared by the Developer.	Significant	All designs to be carried out by competent designers. Site specific design risks assessments to be prepared for all designs. Design Coordination required by a competent PSDP.
			Burial under earthfalls.	Construction Personnel	Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of burial under earthfalls shall be prepared by the Developer.	Significant	Irish Water Connections and Developer Services team to vet the design submitted by the Developer and may require its amendment if deemed inadequate.
			Engulfment in swampland.	Construction Personnel	Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of engulfment in swampland shall be prepared by the Developer.	Significant	Irish Water Connections and Developer Services team will undertake site inspections during the installation.
			Contact with chemical or biological substances constituting a particular danger to the safety and health of such persons or involving a statutory requirement for health monitoring.	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and appropriate design mitigation measures to be implemented.	Significant	Irish Water Connections and Developer Services team will also Vet the final installed infrastructure.

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Indicative Submersible Pumping Station Site Layout (Continued)	**STD-WW-26 & STD-WW-26A (continued)**	The construction and maintenance of pumping station. (continued)	Electrocution due to contact with live power lines	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage. Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground live power lines shall be prepared by the Developer.	Significant	The Developer shall prepare site specific Risk Assessments and Method Statements for all risks and detail site specific control measures to be put in place in order to reduce the risks to an acceptable level.
			Drowning	Construction Personnel / IW Operations / General Public	Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of drowning shall be prepared by the Developer.	Significant	
			Assembly or dismantling of heavy prefabricated components.	Construction Personnel	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a method statement detailing safe means of work for tasks which involve assembly or dismantling of heavy prefabricated components.	Minor	
			Moving traffic	Construction Personnel / IW Operations / General Public	Lay-by system designed to eliminate the need for reversing traffic. Mitigation measures to be implemented to reduce risk to pedestrian at footways.	Significant	
			Striking underground / overground services	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage. Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground existing services shall be prepared by the Developer.	Significant	

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Indicative Submersible Pumping Station and Valve Chamber(Cast in Situ Concreteand Precast Concrete	**STD-WW-28, STD-WW-28A & STD-WW-28B**	The construction of an indicative layout of a waste water pumping station.	Falling from height.	Construction Personnel / IW Operations	Safety grids to be installed under large openings. Lift assist access covers to be used on the valve chamber, wet well and emergency overflow chamber where provided.	Significant	All designs to be carried out by competent designers. Site specific design risks assessments to be prepared for all designs. Design Coordination required by a competent PSDP.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of falling from height shall be prepared by the Developer. Depth of the excavation shall be limited to the minimum practicable depth.		Irish Water Connections and Developer Services team to vet the design submitted by the Developer and may require its amendment if deemed inadequate.
			Burial under earthfalls.	Construction Personnel	Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of burial under earthfalls shall be prepared by the Developer. Depth of the excavation shall be limited to the minimum practicable depth.	Significant	Irish Water Connections and Developer Services team will undertake site inspections during the installation.
			Engulfment in swampland.	Construction Personnel	Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of engulfment in swampland shall be prepared by the Developer. Depth of the excavation shall be limited to the minimum practicable depth.	Significant	Irish Water Connections and Developer Services team will also Vet the final installed infrastructure.
			Contact with chemical or biological substances constituting a particular danger to the safety and health of such persons or involving a statutory requirement for health monitoring.	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and appropriate design mitigation measures to be implemented.	Significant	The Developer shall prepare site specific Risk Assessments and Method Statements for all risks and detail site specific control measures to be put in place in order to reduce the risks to an acceptable level.
					Bauer fitting to be installed on the rising main bypass.		
					The provision of high and low level vents to be installed in the wet well		
					Valve installed in the valve chamber on the drain to the wet well in order to stop sewerage entering the wet well through the drain while works are being carried out in the valve chamber and wet well.		Irish Water operations and procedures to be adhered to for confined space entry.

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Indicative Submersible Pumping Station and Valve Chamber(Cast in Situ Concreteand Precast Concrete)(continued)	**STD-WW-28, STD-WW-28A & STD-WW-28B (continued)**	The construction of an indicative layout of a waste water pumping station. (continued)	Electrocution due to contact with high voltage power lines	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	For all works involving Temporary Works, a Temporary Works Design shall be developed. The Contractor shall engage a competent Temporary Works Designer who shall take the overall design responsibility for the Temporary Works.
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground live power lines shall be prepared by the Developer.		
			Drowning	Construction Personnel / IW Operations / General Public	Safety grids to be installed under large openings. Lift assist access covers to be used on the valve chamber, wet well and emergency overflow chamber where provided.	Significant	Designer to take account of health and safety in selection, designing, installing covers and frames to address manual handling, access egress, rescue, etc. The Designer must ensure that the general principles of prevention (as well as all relevant Health and Safety legislation) are taken into account when selecting and designing covers and frames. Consideration must be given to the following risks relating to cover design: manual handling - means of safely lifting and moving the cover and eliminating/minimising risk of manual handing injury, ope protection (depending on size) access egress - room to safely access , rescue - room to safely rescue and also room to safely set up rescue equipment etc. Proprietary lifting equipment should be provided to allow for safe lifting of chamber covers and this should be consistent to avoid risk of accidents due to misuse.
					The inclusion of isolation and non-return valves in the valve chamber to stop sewage from flowing back through the rising main and filling the wet well.		
					Drain installed from the meter chamber to the valve chamber and from the valve chamber to the wet well.		
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of drowning shall be prepared by the Developer. Depth of the excavation shall be limited to the minimum practicable depth.		
			Assembly or dismantling of heavy prefabricated components.	Construction Personnel	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a method statement detailing safe means of work for tasks which involve assembly or dismantling of heavy prefabricated components.	Significant	
			Moving traffic	Construction Personnel / IW Operations / General Public	Pumping stations including the inlet manhole and meter chamber are to be located in an off road lay-by site.	Significant	
			Collapse of chambers due to inadequate design and materials.	General Public	Structural design and reinforcement detail to be provided by the developer and submitted to Irish Water for review.	Minor	
					Wet well to be constructed in accordance with BS EN 1992-3.		
					Chambers to be checked for uplift by the Developer, based on ground conditions within the site. Should anti-floatation measures be deemed necessary they shall be subject to Irish Water agreement.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Indicative Submersible Pumping Station and Valve Chamber(Cast in Situ Concreteand Precast Concrete) (continued)	**STD-WW-28, STD-WW-28A & STD-WW-28B (continued)**	The construction of an indicative layout of a waste water pumping station. (continued)	Defective chambers / pipework	Construction Personnel / IW Operations / General Public	Anti-corrosion tape to be provided around all buried flanges.	Minor	
					Dismantling joints specified to be used which will provide sufficient tolerance to facilitate the replacement of defective valves.		
					The Standard Detail refers the developer to STD-WW-14 which, details thrust block arrangements to be implemented.		
			Defective lifting equipment	Construction Personnel / IW Operations	Lifting plant and equipment (I.e. guide rails, lifting davit & socket, etc.) shall adequately tested by the Developer.	Significant	
			Striking underground / overground services	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground existing services shall be prepared by the Developer.		
			Pollution to the environment	Construction Personnel / IW Operations / General Public	Emergency storage capacity based on dry weather flow and size of development shall be provided at the pumping station.	Significant	
					In exceptional circumstances, emergency overflow may be provided subject to the agreement of Irish Water and the relevant Regulatory		
			Access and egress from the valve chamber and wet well	Construction Personnel / IW Operations /	Access opes to be suitable sized to facilitate the removal of pumps and other equipment. The minimum access cover size to be used is 1400x800mm.	Minor	
					Chamber access covers with a clear opening exceeding 1m shall conform with BS 9124.		
			Confined spaces.	Construction Personnel / IW Operations	All chamber entry to be carried out using safe access plan, suitable safe access equipment, tri-pod and winch, no ladders to be installed in the wet well chamber. Step irons to be provided in the valve chamber that require man entry.	Significant	
					Standby tri-pod, winch and lifting equipment shall be readily available during confined space entry.		
					Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a detailed method statement for entry procedures to confined spaces during the construction phase.		
			Flooding	Construction Personnel / IW Operations / General Public	The pumping station shall not be located in areas that are susceptible to flooding at frequency of more than a 1:30 year recurrence and shall be designed for inundation.	Minor	
					The finished slab level shall be positioned above the 1:100 year flood level.		
					All electrical control equipment shall be water resistant and positioned above the 1:200 year flood level.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Indicative Submersible Pumping Station and Valve Chamber(Cast in Situ Concreteand Precast Concrete) (continued)	**STD-WW-28, STD-WW-28A & STD-WW-28B (continued)**	**The construction of an indicative layout of a waste water pumping station. (continued)**	Release of gases and odours	Construction Personnel / IW Operations / General Public	The provision of high and low level vents to be installed in the wet well. Vents to be linked to ducts and to vent stack which may be fitted with either passive or mechanically assisted scrubbing units.	Significant	
					All chamber entry to be carried out using tri-pod and winch, no ladders to be installed in chambers that require man entry.		
					Standby tri-pod, winch and lifting equipment shall be readily available during confined space entry.		
					Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a detailed method statement for entry procedures to confined spaces during the construction phase.		
Kiosk for a Type 1 Pumping Station and Wet Kiosk Details	**STD-WW-30, STD-WW-31, & STD-WW-31A**	The construction and maintenance of a kiosk for a type 1 pumping station	Electrocution due to contact with high voltage power lines	Construction Personnel / IW Operations / General Public	All electrical and wet installations to be housed in separate kiosks.	Significant	All designs to be carried out by competent designers. Site specific design risks assessments to be prepared for all designs. Design Coordination required by a competent PSDP.
					It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.		Irish Water Connections and Developer Services team to vet the design submitted by the Developer and may require its amendment if deemed inadequate.
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground live power lines shall be prepared by the Developer.		Irish Water Connections and Developer Services team will undertake site inspections during the installation.
			Electrocution due to water coming into contact with electrical equipment	Construction Personnel / IW Operations / General Public	Provision for the installation of both wet and telemetry kiosks as per STD-WW-30	Minor	Irish Water Connections and Developer Services team will also Vet the final installed infrastructure.
					All electrical installation to have an IP rating of IP 65		The Developer shall prepare site specific Risk Assessments and Method Statements for all risks and detail site specific control measures to be put in place in order to reduce the risks to an acceptable level.
			Assembly or dismantling of heavy prefabricated components	Construction Personnel	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a method statement detailing safe means of work for tasks which involve assembly or dismantling of heavy prefabricated components.	Significant	

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Kiosk for a Type 1 Pumping Station and Wet Kiosk Details (continued)	**STD-WW-30, STD-WW-31, & STD-WW-31A (continued)**	The construction and maintenance of a kiosk for a type 1 pumping station	Degradation of the kiosk	Construction Personnel / IW Operations / General Public	Kiosks to be position on a 150mm high concrete plinth in order to mitigate the risk of water ingress into the kiosks. The finished slab level shall be positioned above the 1:100 year flood level.	Minor	
					The bottom flange of the kiosk for a type 1 pumping station shall be seated on a neoprene gasket and sealed with mastic and bolted to the concrete plinth through a bottom flange with galvanised mild steel or stainless steel anchor bolts.		
					The kiosk for a type 1 pumping station and wet kiosk shall be constructed from hot dipped thermostetting UV and weather resistant plastic powder coated galvanised mild steel plate (min. 3mm thickness) to BS EN 1461, Colour to be holly green 14 C 39 in accordance with BS 4800. The kiosk shall be fitted with a hinged lockable access door (hinges and locks to be stainless steel). Stainless steel may be used as an alternative kiosk material, particularly in severe environments, subject to agreement with Irish Water		
					The rear wall of the kiosk shall be reinforced with stainless steel sections to which an 18mm thick marine plywood board is fixed.		
					The kiosk roof shall be removable to allow for backboard removal.		
					All ducting entering the kiosk shall be sealed using a water tight cap. Cable duct / kiosk interfaces shall be sealed in order to prevent the ingress of ground water.		
			Flooding	Construction Personnel / IW Operations / General Public	The kiosk shall not be located in areas that are susceptible to flooding at frequency of more than a 1:30 year recurrence.	Minor	
					All electrical control equipment shall be water resistant and positioned above the 1:200 year flood level.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Kiosk for a Type 1 Pumping Station and Wet Kiosk Details(continued)	**STD-WW-30, STD-WW-31, & STD-WW-31A (continued)**	The construction and maintenance of a kiosk for a type 1 pumping station	Striking underground / overground services	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground existing services shall be prepared by the Developer.		
			Impeding pedestrian routes	General Public	Kiosks shall be located off the footpath so as not to impede pedestrians.	Minor	
Types 2 & 3 Pumping Stations Control Kiosk	**STD-WW-30A**	The construction and maintenance of kiosks for type 2 & 3 pumping stations (continued)	Electrocution due to contact with high voltage power lines	Construction Personnel / IW Operations / General Public	All electrical and wet installations to be housed in separate kiosks.	Significant	All designs to be carried out by competent designers. Site specific design risks assessments to be prepared for all designs. Design Coordination required by a competent PSDP.
			Electrocution due to contact with high voltage power lines (continued)	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	Irish Water Connections and Developer Services team to vet the design submitted by the Developer and may require its amendment if deemed inadequate.
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground live power lines shall be prepared by the Developer.		Irish Water Connections and Developer Services team will undertake site inspections during the installation.
			Electrocution due to water coming into contact with electrical	Construction Personnel / IW Operations / General Public	Provision for the installation of both wet and telemetry kiosks as per STD-WW-31	Minor	Irish Water Connections and Developer Services team will also Vet the final installed infrastructure.
					All electrical installation to have an IP rating of IP 65		The Developer shall prepare site specific Risk Assessments and Method Statements for all risks and detail site specific control measures to be put in place in order to reduce the risks to an acceptable level.
			Assembly or dismantling of heavy prefabricated components.	Construction Personnel	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a method statement detailing safe means of work for tasks which involve assembly or dismantling of heavy prefabricated components.	Significant	

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Types 2 & 3 Pumping Stations Control Kiosk (continued)	**STD-WW-30A (continued)**	The construction and maintenance of kiosks for type 2 & 3 pumping stations (continued)	Degradation of the kiosk	Construction Personnel / IW Operations / General Public	Kiosks to be position on a 150mm high concrete plinth in order to mitigate the risk of water ingress into the kiosks. The finished slab level shall be positioned above the 1:100 year flood level.	Minor	
					The kiosk shall be constructed for blockwork in accordance with IS EN 771-3. The kiosk shall have a one piece reinforced concrete roof slab with a weather resistant asphalt finish.		
					The wet kiosk shall be constructed from hot dipped thermostetting UV and weather resistant plastic powder coated galvanised mild steel plate (min. 4mm thickness) to BS EN 1461, Colour to be holly green 14 C 39 in accordance with BS 4800. The kiosk shall be fitted with a hinged lockable access door (hinges and locks to be stainless steel). Stainless steel may be used as an alternative kiosk material, particularly in severe environments, subject to agreement with Irish Water.		
					All ducting entering the kiosk shall be sealed using a water tight cap. Cable duct / kiosk interfaces shall be sealed in order to prevent the ingress of ground water.		
			Flooding	Construction Personnel / IW Operations / General Public	The kiosk shall not be located in areas that are susceptible to flooding at frequency of more than a 1:30 year recurrence.	Minor	
					All electrical control equipment shall be water resistant and positioned above the 1:200 year flood level.		
			Striking underground / overground services	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground existing services shall be prepared by the Developer.		
			Impeding pedestrian routes	General Public	Kiosks shall be located off the footpath so as not to impede pedestrians.	Minor	

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Hardstanding Area Pumping Station (Permeable & Impermeable)	**STD-WW-32**	The design, construction and maintenance of hardstanding permeable and Impermeable areas to be used in pumping station sites.	Falling from height.	Construction Personnel / IW Operations	Maximum depth of excavation to be (depth of concrete slab + depth of compacted Clause 804 (i.e. 200mm + 500mm = 700mm). Depth of trenches may be greater than 700mm. Trenches greater than 700mm are to be excavated to the minimum practicable depth.	Minor	All designs to be carried out by competent designers. Site specific design risks assessments to be prepared for all designs. Design Coordination required by a competent PSDP.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of falling from height shall be prepared by the Developer.		Irish Water Connections and Developer Services team to vet the design submitted by the Developer and may require its amendment if deemed inadequate.
			Burial under earthfalls.	Construction Personnel	Maximum depth of excavation to be (depth of concrete slab + depth of compacted Clause 804 (i.e. 200mm + 500mm = 700mm). Depth of trenches may be greater than 700mm. Trenches greater than 700mm are to be excavated to the minimum practicable depth.	Minor	Irish Water Connections and Developer Services team will undertake site inspections during the installation.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of burial under earthfalls shall be prepared by the Developer.		Irish Water Connections and Developer Services team will also Vet the final installed infrastructure.
			Engulfment in swampland.	Construction Personnel	Maximum depth of excavation to be (depth of concrete slab + depth of compacted Clause 804 (i.e. 200mm + 500mm = 700mm). Depth of trenches may be greater than 700mm. Trenches greater than 700mm are to be excavated to the minimum practicable depth.	Significant	The Developer shall prepare site specific Risk Assessments and Method Statements for all risks and detail site specific control measures to be put in place in order to reduce the risks to an acceptable level.
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of engulfment in swampland shall be prepared by the Developer.		
			Contact with chemical or biological substances constituting a particular danger to the safety and health of such persons or involving a statutory requirement for health monitoring.	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and appropriate design mitigation measures to be implemented.	Minor	

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Hardstanding Area Pumping Station (Permeable & Impermeable)	**STD-WW-32 (Continued)**	The design, construction and maintenance of hardstanding permeable and Impermeable areas to be used in pumping station sites.	Electrocution due to contact with high voltage power lines	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground live power lines shall be prepared by the Developer.		
			Drowning	Construction Personnel / IW Operations / General Public	Maximum depth of excavation to be (depth of concrete slab + depth of compacted Clause 804 (i.e. 200mm + 500mm = 700mm). Depth of trenches may be greater than 700mm. Trenches greater than 700mm are to be excavated to the minimum practicable depth.	Minor	
					Site specific method statements and risk assessments detailing safe means of work for tasks which put persons at risk of drowning shall be prepared by the Developer.		
			Assembly or dismantling of heavy prefabricated components.	Construction Personnel	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a method statement detailing safe means of work for tasks which involve assembly or dismantling of heavy prefabricated components.	Significant	
			Moving traffic	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and detailed traffic management plan developed.	Significant	
			Settlement and degradation of the finished areas and inadequate material	General Public	Structural design and reinforcement detail to be provided by the developer and submitted to Irish Water for review.	Minor	
					Concrete shall be grade C35 / 45 in accordance with IS EN 206.		
					Regulating course to be subject to Irish Water agreement.		
					Clause 804 material to be used as described in STD-WW-07.		
					Precast kerbs to be in accordance with IS EN 1340		
					Geotextile weed barrier to be used at permeable areas.		
			Striking underground / overground services	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground existing services shall be prepared by the Developer.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Lamp Bollard and Lamp Standard	**STD-WW-33**	The construction and maintenance of a Lamp Bollard and Lamp Standard	Electrocution due to contact with high voltage power lines	Construction Personnel / IW Operations / General Public	All electrical installations to be in accordance with ESB specifications.	Significant	All designs to be carried out by competent designers. Site specific design risks assessments to be prepared for all designs. Design Coordination required by a competent PSDP.
					It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.		Irish Water Connections and Developer Services team to vet the design submitted by the Developer and may require its amendment if deemed inadequate.
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground live power lines shall be prepared by the Developer.		Irish Water Connections and Developer Services team will undertake site inspections during the installation.
			Assembly or dismantling of heavy prefabricated components.	Construction Personnel	Site specific risks to be assessed and appropriate design mitigation measures to be implemented. The Developer shall provide a method statement detailing safe means of work for tasks which involve assembly or dismantling of heavy prefabricated components.	Significant	Irish Water Connections and Developer Services team will also Vet the final installed infrastructure.
			Striking underground / overground services	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	The Developer shall prepare site specific Risk Assessments and Method Statements for all risks and detail site specific control measures to be put in place in order to reduce the risks to an acceptable level.
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground existing services shall be prepared by the Developer.		
			Inadequate lighting.	Construction Personnel / IW Operations / General Public	Lamp bollard to be an approved Irish Water Lamp bollard	Minor	
					Lamp standard to be an approved Irish Water lamp standard		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Vent Stack	**STD-WW-34**	The design, construction and maintenance of a Vent Stack	Electrocution due to contact with live power lines	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	All designs to be carried out by competent designers. Site specific design risks assessments to be prepared for all designs. Design Coordination required by a competent PSDP.
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground live power lines shall be prepared by the Developer.		Irish Water Connections and Developer Services team to vet the design submitted by the Developer and may require its amendment if deemed inadequate.
			Contact with chemical or biological substances constituting a particular danger to the safety and health of such persons or involving a statutory requirement for health monitoring.	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and appropriate design mitigation measures to be implemented.	Significant	Irish Water Connections and Developer Services team will undertake site inspections during the installation.
			Foul odour being released in public areas.	Construction Personnel / IW Operations / General Public	Vent stack to be an approved Irish Water vent stack.	Minor	Irish Water Connections and Developer Services team will also Vet the final installed infrastructure.
			Striking underground / overground services	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	The Developer shall prepare site specific Risk Assessments and Method Statements for all risks and detail site specific control measures to be put in place in order to reduce the risks to an acceptable level.
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground existing services shall be prepared by the Developer.		

Drawing Title	Drawing No.	Activity	Related Hazard	Who is at Risk	Designer Decisions / Actions	Residual Risk (Design Stage)	Additional Control Measures
Marker Post / Plates	**STD-WW-36**	The construction of marker posts and plates.	Electrocution due to contact with high voltage power lines.	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	All designs to be carried out by competent designers. Site specific design risks assessments to be prepared for all designs. Design Coordination required by a competent PSDP.
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground live power lines shall be prepared by the Developer.		Irish Water Connections & Developer Services Team to vet the design submitted by the Developer and may require its amendment if deemed inadequate.
			Mis-information	Construction Personnel / IW Operations / General Public	Marker plates shall inform of valve type, location and diameter of the watermain (Note: pipe diameter on hydrant plate to refer to the watermain not the branch).	Minor	Irish Water Connections & Developer Services Team will undertake site inspections during the installation.
					Marker plates to be manufactured in accordance with BS 3251		Irish Water Connections & Developer Services Team will also Vet the final installed infrastructure.
			Moving Traffic	Construction Personnel / IW Operations / General Public	Site specific risks to be assessed and detailed traffic management plan developed.	Significant	The Developer shall prepare site specific Risk Assessments and Method Statements for all risks and detail site specific control measures to be put in place in order to reduce the risks to an acceptable level.
					Where possible marker plates are to be fixed to adjacent walls.		
			Striking underground / overground services	Construction Personnel / IW Operations / General Public	It is the responsibility of the Developer to contact the relevant utility providers in order to establish their respective requirements. Evidence of consultation with relevant utility providers shall be provided to Irish Water at Design Stage.	Significant	
					Site specific method statements and risk assessments detailing safe means of works for working in close proximity to existing underground and overground existing services shall be prepared by the Developer.		

Residual Risk Rating:	
Significant	A significant risk to the health and safety of personnel/surrounding environment still exists after the design process which is required to be considered by the detailed designer at detailed design stage and the contractor during the construction stage
Minor	A minor risk to the health and safety of personnel/surrounding environment still exists after the design process which is required to be considered by the detailed designer at detailed design stage and the contractor during the construction stage
Eliminated	Hazard has been eliminated during the design process