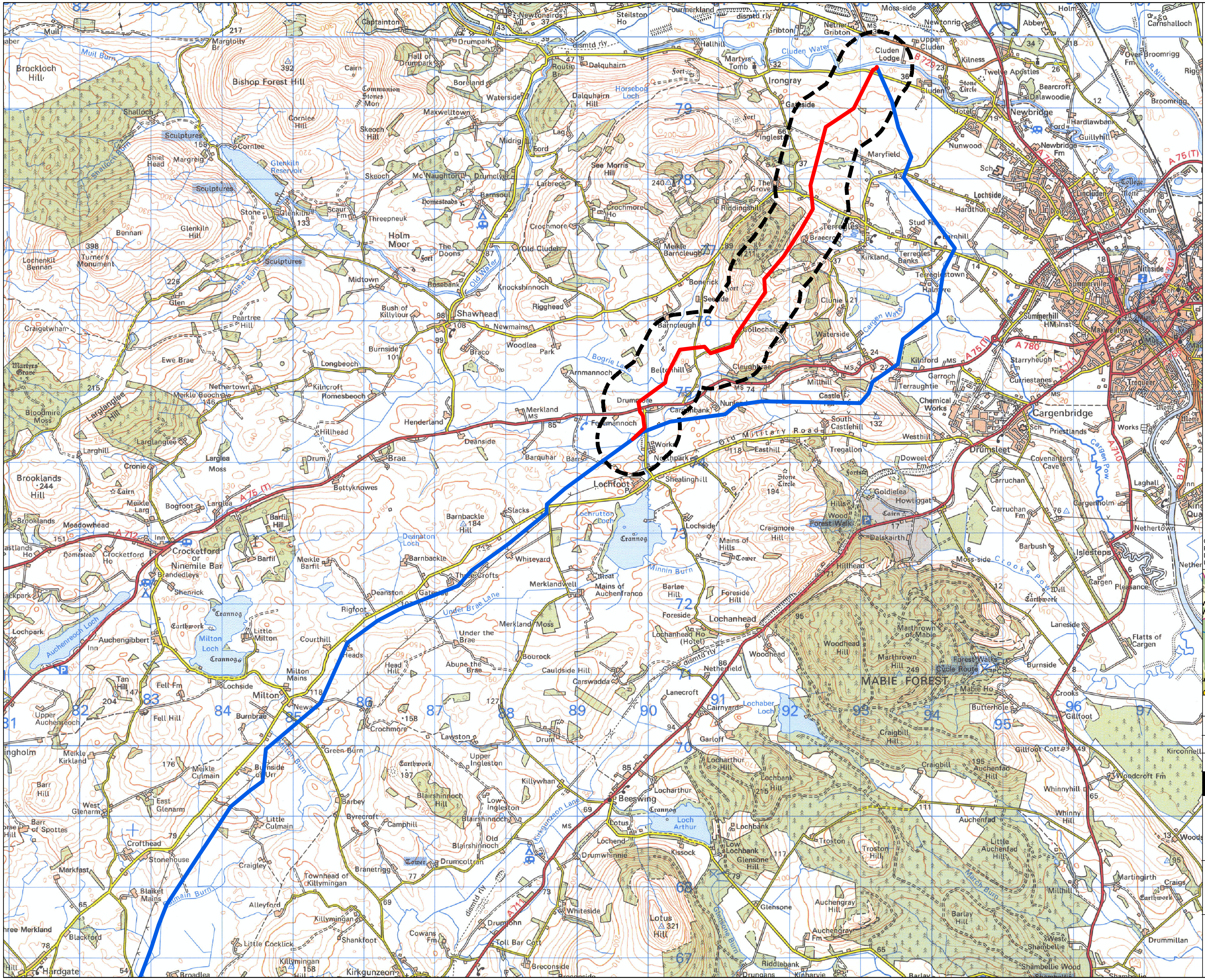
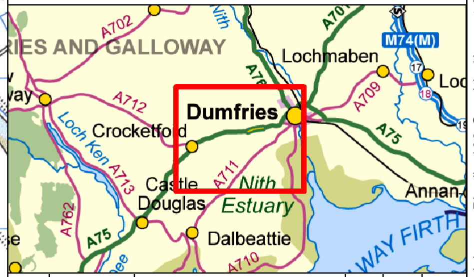


Legend:

- Proposed Pipeline Route
- 1km Area of Search
- Cluden to Brighouse Bay Pipeline

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936
Units: Meter



Rev	Date	Description	Drn	Chk	App
03	06/05/2015	Updated Route	FC	JD	WH
02	14/04/2015	Updated Logo	FC	JD	WH
01	19/03/2015	Updated Layout	FC	JD	WH

Cluden to Lochfoot Pipeline

RSK GNI PENSPEN

TITLE:

Figure 2.1 - Alternatives

0 1 2
Kilometres
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Document Path: P:\ENVIRONMENT\190000 - EIA Glasgow\190418-IC2 Cluden to Brighouse Pipeline\03 Graphics\Layout Alternative Plan Rev00 030315.mxd

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3 Project Description

3.1 Introduction

This section describes the procedures, methods and techniques that will be used in the construction and operation of the pipeline. The methods and procedures used by GNI are well established and based on established best practice, the Institute of Gas Engineer's recommendations, and British and International Standards and Regulations.

3.2 Design

3.2.1 Pipeline Design

The gas pipeline system will be designed, constructed and operated in accordance with the '*Steel Pipelines for High Pressure Gas Transmission IGE/TD/1 Edition 5*' and will comprise a 36-inch (914.4mm) outside diameter buried steel pipeline with an operating gauge of 86 bar g and a design gauge of 91 bar g. The pipeline will have a total length of 7.2km, starting at NX932796 and ending at NX898743, with 200m limits of deviation being 200m either side of the defined pipeline route, making a total of 400m.

The pipeline will comprise an all-welded construction, manufactured in accordance with API Specification 5L. The wall thickness will be selected to take account of internal pressure, external loads and areas where increased safety factors are required. The pipeline design factor for Type R areas (rural areas with a population density not exceeding 2.5 persons per hectare as described in IGE/TD/1) will be 0.72. The pipeline design factor for construction within a Type S area (intermediate areas where the population density exceeds 2.5 persons per hectare and which may be extensively developed with residential properties as described in IGE/TD/1) should not exceed 0.30. However, when this calls for a pipe with a nominal wall thickness greater than 19.1mm, a pipe of 19.1mm wall thickness will suffice, provided that it does not result in the design factor exceeding 0.5. An under tolerance will be specified on the wall thickness dimension as in API 5L allowing a thinner nominal wall thickness, (Table 3-1). No corrosion allowance will be added to the wall thickness.

Table 3-1 Pipe Wall Thickness

Outside Diameter	**Design Factor**	**Grade API 5L**	**Wall Thickness** (mm)	**% Under Tolerance**
36 inch (914.4mm)	0.72	X65	14.3	5%
36 inch (914.4mm)	0.50	X65	19.1	0%

In general, the pipeline will be laid with a minimum depth of cover of 1.2 metres from the underside of topsoil. However, in areas where there is an increased risk of damage or interference by third parties, additional protective measures will be adopted. Protective measures will comprise one or more of the following:

- increased depth of cover;
- heavier pipe wall thickness;

- concrete slabs or mass concrete;
- concrete coating or anchor blocks;
- ground stabilisation; and/or
- pipeline marker tiles or tape.

Heavier wall pipe will be used at road, rail, watercourse, and pipeline crossings. The minimum proximity of the pipeline to normally occupied buildings is defined dependent on pipe size and operating pressure. For The Project, the Building Proximity Distance (BPD) will be up to 91m.

Due to the dry, non-corrosive nature of the natural gas to be transported, no permanent provisions are to be made to protect the pipeline against internal corrosion. External corrosion protection of the pipeline will be provided by fusion-bonded epoxy (FBE) or three layer polyethylene coatings and an impress current cathodic protection system. Cathodic protection groundbeds will be installed at suitable locations along the pipeline route.

3.3 Construction

3.3.1 Construction Strategy

GNI will appoint a project management team to oversee the construction of the gas pipeline and all other facilities. This team will ensure that all works are carried out in a safe, efficient and professional manner.

The design and construction of the pipeline will incorporate the requirements of third parties and the mitigation measures outlined in this ES. An MWC will be commissioned to construct and commission the pipeline. The MWC will be responsible for the production of method statements covering the construction of crossings for watercourses, roads, railways and any archaeologically or ecologically sensitive areas. Method statements will be agreed with the appropriate consenting authorities. An overarching Project Environmental Management Plan (PEMP), Waste and Water Management, and Pollution Prevention and Emergency Response Plans will also be produced to control and monitor environmental performance throughout The Project.

Environmental Advisors and Agricultural Liaison Officers (ALOs) will be employed for the duration of The Project. The workforce will be briefed via inductions about relevant environmental issues, including pollution control, before work begins and at regular intervals throughout construction.

Pipeline construction has been assumed to commence in March 2016 until September 2016, with reinstatement occurring until 2017. Preparatory works would commence before this time including pre-construction surveys, the removal of short sections of hedgerow for pipeline construction access, and installation of pre-construction drainage. Under this scenario, the main pipeline construction activities would be undertaken during the autumn of 2015.

3.3.2 General Pipeline Construction Methodology

3.3.2.1 Introduction

Construction activities will normally be undertaken within a fenced strip of land, known as the working width, which will be approximately 40m wide. A wider working width will be necessary at road, rail, watercourse and service crossings to provide storage for excavated material from pits, temporary off-road parking space, access requirements and equipment such as that needed for the construction of crossings and temporary dewatering.

3.3.2.2 Pre-construction Work

Ahead of construction, the route will be surveyed and pegged out in consultation with the landowner/occupier.

Where appropriate, pre-construction field drainage will be installed within the working width, to:

- enable the farmer's current drainage system to continue working throughout the period of pipeline construction;
- help prevent damage to the soil structure;
- aid recovery from construction activities; and
- help prevent any future drainage problems.

The design of these drainage schemes will be agreed with the landowners/occupiers. The design of these schemes will pay particular attention to the need to ensure that the drains do not act as pathways for contamination or cause flooding off-site. The design will be undertaken consulting with SEPA wherever necessary. Permanent records of the land drain locations will be made and passed to the landowners/occupiers. At all times the works will be supervised by competent drainage personnel.

A risk assessment of the route of the pipeline will be undertaken to identify areas where measures need to be taken to prevent the risk of pollution of watercourses by dewatering or surface run-off during construction. The results of the risk assessment will be incorporated into a Water Management Plan.

The removal or coppicing of hedgerow sections will take place outside the bird-nesting season wherever possible.

3.3.2.3 Preparation of the Working Width

Where field boundaries and hedges cross the working width at right angles a reduced section will generally be removed to allow safe working. The section will be increased where the hedge is crossed at a shallow angle. However, the pipeline is routed to keep such crossings to a minimum.

At open-cut road and watercourse crossings, hedgerow/field boundaries will be removed taking account of the requirements of the highways authorities to ensure safe access onto public roads and to allow safe working and passage through the watercourse. However, at non-open-cut road and watercourse crossings, where access only is required for plant and machinery, the width will be reduced further. The pipeline will generally cross all roads and watercourses at right angles.

Existing third-party services will be located, marked and protected. Warning posts and bunting will be erected for overhead cables and underground services.

Watercourses will be bridged or flumed (by the installation of temporary pipes) and ramped over to allow uninterrupted flow of water within the watercourse and a continuous running track for construction vehicles. The choice of method will be determined after consultation with, and the consent of, SEPA, and will be designed and constructed to minimise the risk of sediment run-off to watercourses.

The temporary working width will be clearly fenced. The type of fencing will be agreed with the landowner/occupier, and special arrangements, such as stock-proof fencing or horse fencing, will be made following consultation. Stiles, gates or crossing points will be incorporated into the temporary fencing to maintain access to public rights of way. Where necessary, additional access points will be provided to allow landowners/occupiers access across the pipeline and thereby mitigate field severance.

Where field boundaries have been removed, particularly at road crossings, temporary, secure gates will be installed to prevent unauthorised vehicle access to the working width. These gates will be maintained by the MWC throughout the construction period and will be open only for access. Gates will be closed when there is no activity proceeding in that section and outside the normal working hours.

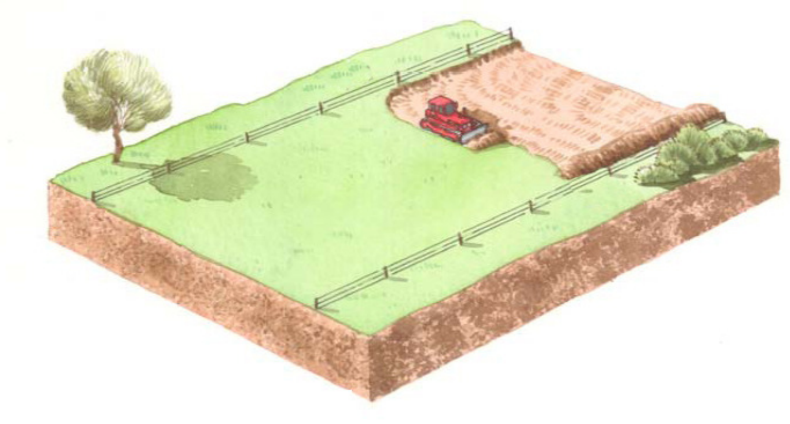
Following discussions with farmers, temporary water supplies and troughs will be provided for livestock as necessary.

3.3.2.4 *Topsoil Stripping*

Before topsoil stripping takes place, crops in arable land will normally be removed.

The topsoil will be stripped on a field-by-field basis across the working width by appropriate earth-moving equipment and stored carefully at one side (Plate 3.1). Most topsoil stripping will be undertaken using excavators, with bulldozers being utilised where soil and ground conditions are suitable.

Plate 3.1 Preparation of the Working Width



The topsoil stack will be typically 7-12m wide at its base (dependant on ground conditions) and will generally not exceed 3m in height. It will be kept free from disturbance to reduce the risk of physical damage and compaction.

The storage of topsoil in the flood plains of the watercourses crossed will be subject to careful planning and detailed agreement with SEPA, to ensure that sufficient gaps are left to allow any floodwater to escape. Topsoil stacks will be set back from watercourses in the floodplain, and measures such as berms and vegetated strips will be used to control sediment run-off to watercourses (see Section 9 for more detail).

Following topsoil stripping, some areas of the working width may be benched or graded to enable safe working where side slopes or other local topographic irregularities occur. Berms, grips and other measures identified in the Water Management Plan to control sediment run-off to watercourses will also be constructed at this time.

In some circumstances, for example to protect archaeological remains, the topsoil may not be stripped, and a running track for vehicles will be formed using timber rafts (called bog mats) or equivalent protective cover put in place.

3.3.2.5 Temporary Access Roads

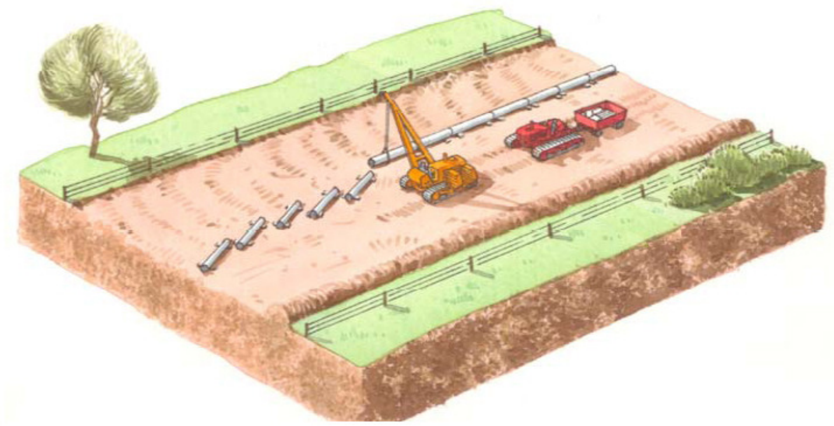
Temporary access roads between public highways and the working width may be required in places along the pipeline route to aid the movement of machinery and materials, particularly where the ground is soft. Typically, a temporary access road consists of a thickness of crushed stone or sand overlaying a geotextile membrane, or bog mats. The location and construction of any access roads will take account of the need to minimise the risk of sediment release to watercourses.

3.3.2.6 Pipe Delivery from the Pipe Storage Areas, Stringing and Bending

Pre-coated pipes will be delivered to temporary pipe storage areas (pipe storage areas) located at strategic locations along the pipeline route. Pipe deliveries will involve significant lorry movements, which will be described in the final Traffic Management Plan.

The pipe will be transported from the temporary storage areas along the working width and laid onto wooden skids adjacent to the trench line; this activity is termed ‘stringing’ (Plate 3.2).

Plate 3.2 Pipe Stringing and Welding



Generally, small changes in pipe direction and changes in level (e.g. contours) will be accommodated by a ‘cold’ bending of the pipe on site using a specialist bending machine. For larger changes in direction, pre-fabricated ‘hot’ bends will be used. These ‘hot’ bends are factory manufactured by forged or induction methods.

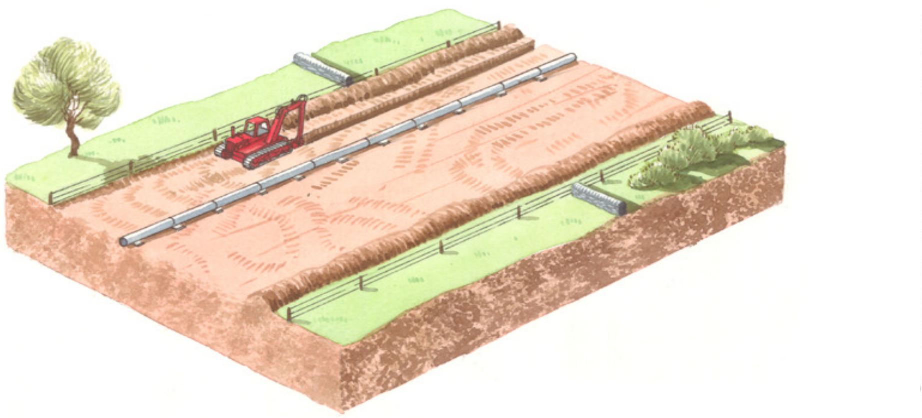
3.3.2.7 Welding, Non-destructive Testing and Coating

Following stringing, the pipeline sections will be welded together above ground into pipe strings, which could be several hundred metres in length. All the welds will be tested and certified before an approved coating is applied on site to protect the welds from corrosion. Welds will generally be tested using an ultrasonic technique however in some cases x-ray of tie-in welds may be required. Welding and testing will only be undertaken by fully qualified and approved staff.

3.3.2.8 Trench Excavation

The pipe trench will be dug either with mechanical excavators straddling or running alongside the pipeline trench or using a specialised trenching machine (Plate 3.3). The depth will be variable but will allow a minimum reinstated cover of 1.2 metres from the underside of topsoil in agricultural land.

Plate 3.3 Trench Excavation



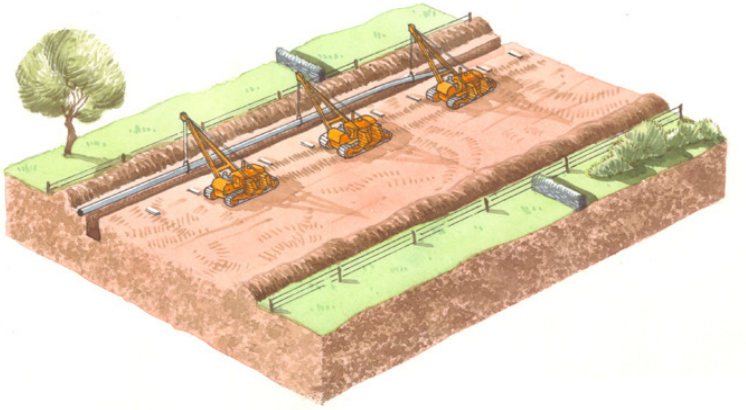
The material excavated from the pipe trench, comprising the subsoil and potentially rock, will be stored on the opposite side of the working width from the topsoil to prevent mixing of subsoil and topsoil. The results of site investigations may indicate that trench excavation by excavator or trenching machine is unsuitable and that additional measures may be required. For instance, controlled blasting may be necessary where hard bedrock exists at shallow depths.

Where necessary, to aid construction and in order to maintain the integrity of the excavated trench, trench supports and close sheet piling may be used. Dewatering of the pipe trench and excavation may be required to stabilise the surrounding ground during construction. Dewatering and discharge of water will be carefully controlled to prevent the risk of sediment laden run-off entering watercourses. All dewatering will be carried out in accordance with the Pollution Prevention and Water Management Plans, which will be agreed with SEPA, and in compliance with statutory regulations.

3.3.2.9 Pipe Lowering and Tie-in

Following trench excavation each welded pipe section will be carefully lowered into the trench (Plate 3.4).

Plate 3.4 Laying the Pipe

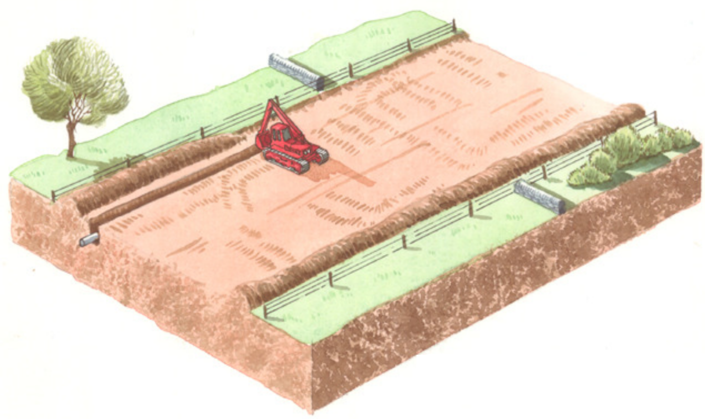


3.3.2.10 Backfilling

The pipe trench will then be backfilled with the material taken from the trench in the reverse order of excavation (Plate 3.5). To prevent coating damage, only soft fill will be used to surround the pipe itself. If the excavated material is unsuitable then screening and crushing machines will be employed and, as a last resort, imported fill will be used. The backfilled materials will be consolidated by tamping or rolling.

Where appropriate, water stops will be installed in the trench to prevent the pipe trench acting as a conduit for groundwater.

Plate 3.5 Reinstatement of the Trench and Working Width



Surplus material from trench excavation may be spread within the working width on a field-by-field basis, subject to there being no conflict with the achievement of restoration objectives, materials being compatible, and the agreement of the landowner/occupier. The landowner/occupier will also be consulted before any off-site disposal is planned. In such instances SEPA will be notified of any necessary waste management licence exemptions.

3.3.2.11 Reinstatement

After re-grading of the working width to reflect the original profile, a replacement drainage scheme will be installed, where appropriate, within the working width following discussions with the appropriate landowner/occupier. The design of these drainage schemes will be agreed with the landowners/occupiers and will pay particular attention to the need to ensure that the drains do not act as pathways for contamination or do not cause flooding off site, consulting with SEPA wherever necessary.

The working width will then be cleared; the subsoil will be loosened (‘ripped’) to a suitable depth to relieve compaction, and stones and debris will be removed before the topsoil is replaced and cultivated.

All reinstatement measures will be discussed and agreed in advance with landowners/occupiers and statutory and non-statutory consultees before being incorporated into a Reinstatement Plan. The Reinstatement Plan will include details of soil handling, seed sources and mixes, plant sources and mixes, and after-care regimes.

Fencing installed along the working width will be retained until the re-seeded sward has sufficiently recovered to withstand grazing pressures. These procedures will be agreed with the landowner/occupier before work begins.

In areas identified as of ecological importance, the temporary fencing will be retained until the re-seeded sward has sufficiently recovered to the satisfaction of the ecologists undertaking post-construction monitoring. These procedures will be agreed with SNH.

All materials, including temporary culverts and the geotextile membrane, will be removed on completion of the work.

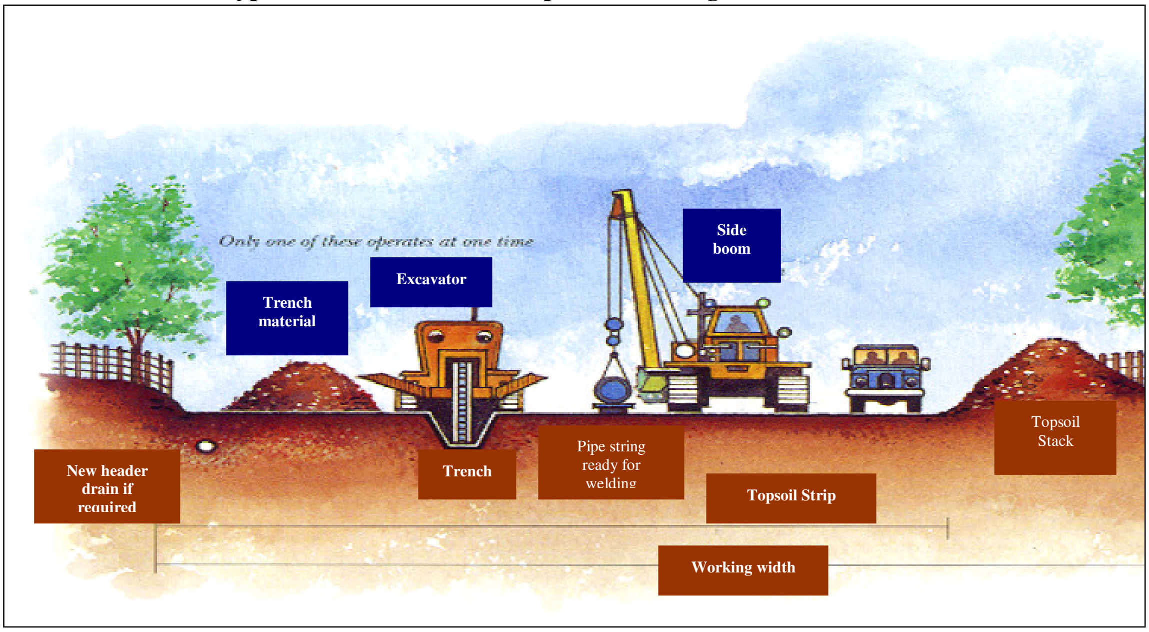
Particular attention will be paid to the careful replacement of field boundaries. Fences and walls will be reinstated to meet the landowner/occupier’s requirements using materials that match the existing fence/wall, as appropriate. Hedgerow sections that were removed will be replanted using a suitable mix of native species of local provenance, where available, to reflect the species removed from the original hedgerow. Replanting will be undertaken using container-grown stock. All plants will be protected with rabbit-proof fencing or guards to protect from damage by grazing domestic animals and wildlife. The hedges will be maintained until they are established successfully. Watercourse bank vegetation will be reinstated according to the requirements of SEPA, SNH and the landowner/occupier.

3.3.2.12 Pipeline Markers

During the reinstatement of boundaries, marker posts, approximately 500mm high, will be installed at field boundaries to indicate the route for future monitoring and line-walking. In addition, to help helicopter surveillance, aerial marker posts (2m high) will be placed at suitable intervals.

A summary cross-section of the working width during construction is shown in Plate 3.6.

Plate 3.6 Typical Cross-section of a Pipeline Working Width



3.3.3 Special Crossings

3.3.3.1 Introduction

The trenching methodology described in Section 3.3.2 will be modified for road, watercourse and service crossings. Typical methods of crossing can be divided into open cut and trenchless.

The adopted methods of construction will depend on the results of a site investigation survey to determine ground conditions and on the requirements of the appropriate consenting authorities. This survey will be undertaken prior to construction and in order to develop the detailed design.

However, in broad terms, it is expected that open-cut and trenchless techniques will be generally used as follows:

- major public roads: trenchless crossing techniques wherever practicable;
- minor roads and private tracks: open-cut techniques, subject to consultations with the landowners/occupiers and the appropriate consenting authorities;
- main rivers: trenchless techniques except where this is not possible due to unsuitable ground conditions; and
- small watercourses: dry open-cut techniques, subject to the agreement of SEPA, and other relevant consultees.

The pipe will be laid at sufficient depths of cover beneath stream/river beds and roads to meet the current GNI standards and the requirements of the relevant authorities. This will ensure safe operation of the pipeline and continued safe use and maintenance by the relevant authorities for the crossing. Method statements for all watercourse crossings, including proposals for any sheet piling and dewatering, will be discussed and agreed in advance with SEPA. Specific methods for trenchless and open-cut crossings are discussed below.

Open-cut Crossings

For open-cut crossings of tracks and roads the pipeline trench is excavated as described in Section 3.3.2 to allow the pipe to be lowered into the trench. Open-cut crossings are usually completed in one day.

For crossings of watercourses two open-cut methods are available and the final decision will be made following consultations with SEPA. All construction activities will be carefully planned and controlled in accordance with Water and Pollution Prevention Plans to be agreed with SEPA, in particular, to prevent sediment-laden run-off from entering watercourses during construction.

<u>Method 1 (Dry Open-cut Using Flume Pipes)</u>

In this method, water flow is maintained using temporary 'flume' pipes (normally sections of steel pipe) installed in the bed of the watercourse:

- if required by SEPA or other licensed body, both upstream and downstream of the work, fish rescues will be undertaken prior to any works in the water and nets erected to prevent ingress of fish to the works;
- the site is prepared by stripping the topsoil from the areas adjacent to the watercourse banks and grading the banks down to bed level. The stripped topsoil is stacked separately from the agricultural topsoil and subsoil within the working area;
- suitably sized flume pipes, which have been selected in consultation with SEPA on the basis of flood flow volume, are installed over the point of the crossing, ensuring that they extend over the area of the proposed trench and the running track. The flume pipes are surrounded with soil-filled sand bags to create a seal. Straw bales and/or sedimats are placed downstream of the crossing to capture sediment and are replaced as required until reinstatement is complete;
- the pipe trench is then excavated below the flume pipes. The existing substrata within the channel is stored separately from the bank materials and clearly identified to enable its replacement when the pipeline has been lowered into the trench. Under no circumstances is soil from the surrounding land used to backfill the excavated channel of the watercourse. Dewatering, using appropriate sediment-control techniques (see Section 6), and/or trench supports may be used to facilitate safe excavation. If pumps are used, the discharge hose will be directed through a filtering medium to remove silt, before the pumped water is allowed to percolate back into the watercourse;
- the pipeline is installed in the trench and is suitably protected, where necessary. The trench is backfilled first with subsoil and secondly with the stored watercourse materials such that it is level with the rest of the bed of the watercourse; and
- the watercourse banks are then reformed to their original profile to the satisfaction of the landowner/occupier and SEPA. Hessian netting and/or geotextile is used to stabilise the banks. Where this is not practical, blockstone or riprap is used, subject to SEPA approval. The reinstated watercourse is checked over the winter months to ensure that flood flows have not caused damage.

Method 2 (Dry Open-cut Using Temporary Dam and Pump Over)

In this method a temporary dam is constructed and the water pumped around the trench:

- if required by SEPA or other licenced body, both upstream and downstream of the work, fish rescues will be undertaken prior to any works in the water and nets erected to prevent ingress of fish to the works;
- the site is prepared as for Method 1 and a dam constructed immediately upstream of the proposed site of the pipe trench using clay-filled bags or sand bags faced with a layer of clay-filled bags. If this is not possible, sheet piles are driven into the bed to form a barrier, subject to the SEPA's prior consent. Proposals for temporary dams are subject to prior assessment of hydrological conditions;
- pipework and pumps are installed to pump the water around to the downstream side of the pipe crossing. Standby pumps are also provided where the pumps will be operated continuously. Where relevant, pumps will extract water downstream of the nets erected upstream of the works to avoid impacts upon fish. The pumped water is filtered, where practical, to remove sediment before it is discharged back into the watercourse, and straw bales and/or sedimats are used to catch sediment as for Method 1. Sedimats, break tanks or similar are also used, where necessary, to break the fall of the released water in order to minimise scouring or sediment generation;
- then the trench is dug in the dry bed of the stream, with bank topsoil and subsoil and bed materials being stored separately; and
- the pipe is installed and protected, and the works are reinstated as for Method 1.

3.3.3.2 *Trenchless Crossings*

A choice of auger boring, pipe jacking, microtunnelling techniques and Horizontal Directional Drilling (HDD) for trenchless crossings will be made, as appropriate. Where such techniques are considered, the choice will be finalised during the detailed design stage and will be subject to the results of a borehole survey of ground conditions and detailed discussions with the relevant consenting authorities.

The above methods may, on occasion, require deep excavations on either side of the crossing to aid the installation of the pipeline. Dewatering, sheet piling, safety barriers and other techniques may be required to enable excavations and construction techniques to be carried out in accordance with Health and Safety Regulations. All excavations will be inspected prior to entry to ensure the safety of personnel. The safety of the public will be a paramount consideration, and a physical barrier will be erected where required.

All the techniques require additional land to be taken (during the construction period only) on both sides of the crossing. The additional land is to accommodate the additional excavated material from the pits and necessary plant and equipment, including dewatering and associated sediment-removal plant.

Auger Boring

The basic method for carrying out an auger-bored crossing is outlined below:

A 'thrust' or 'sending' pit is excavated on one side of the crossing large enough to take the auger head and a length of welded pipe for the crossing. A smaller receiving pit is excavated on the opposite side of the crossing. A ‘cutting head’ is fixed to the auger drill at the front of the pipe. Power is transmitted to the auger drill via a power unit, which is temporarily fastened to the top and rear of the pipe. This assembly is then lowered into the sending pit and is supported by crane-type side booms. Engineers then line and level the pipe to ensure it is installed in the correct location and at the correct depth.

A combination of rotation of the auger drill within the pipe and a winch located on the front of the power unit installs the first pipe section with the excavated material being drawn from the cutting head, along the auger drill flutes exiting from the rear of the pipe. Additional lengths are added to the installed pipe and the process is repeated until the crossing is completed.

Pipe Jacking (Sleeved Method)

This construction method is generally used on large diameter pipes and involves a concrete sleeve being installed behind a protective shield using normal mining techniques, with the excavated material being removed via the exposed end of the sleeve. Once the sleeve is installed, the pipe is inserted into the sleeve. As each pipe length progresses forward another is welded on; by repeating this cycle the pipe is installed. The annular space between the pipe and the sleeve is usually filled with a concrete grout after installation.

Microtunnelling

Microtunnelling has been used on many pipelines to cross beneath difficult areas for construction. This method involves placing pre-cast concrete jacking pipes behind a microtunnelling machine with the excavated material being removed mechanically via the tunnel entrance. The cutting head is lubricated with water, and bentonite (a natural, inert, non-toxic clay) may also be used to reduce friction. The drill fluid is returned to the surface where it is filtered to remove the cuttings and returned to temporary mud storage tanks for re-use.

Equipment associated with microtunnelling will include a power unit, one or two storage tanks for cuttings, separation plant and an operation board. Used drilling fluids will be sampled, analysed and recycled or disposed of offsite to a licensed waste-disposal facility in accordance with Duty of Care requirements (see Section 11).

Horizontal Directional Drilling

The HDD drill (or ‘launch’) site is set up on one side of the crossing and contains the plant associated with directional drilling, comprising: two power units mounted on skids, bentonite storage tanks and mixing tanks, a filter for separating cuttings from the used drilling mud, and a control cab.

The first stage of the HDD is to drill a pilot hole using a drilling rod under the crossing to the end point where it will emerge in the area known as the ‘receive’ pit. As the drilling proceeds, the drilling fluid, comprising water and bentonite, is pumped down the centre of the hollow drill rods to the drilling face. This lubricates the drilling rods and picks up outings before returning to the surface via the drill hole. The drilling fluid is then filtered to remove the cuttings and returned to temporary storage tanks for re use. The position and progress of the drill head is monitored and controlled from the surface using electromagnetic detection equipment.

The drill may encounter groundwater as it progresses. If this occurs the pressure under which the drilling fluid or mud is pumped down the borehole will be controlled to prevent migration into the groundwater and vice versa. Drill fluid usage will be monitored at the surface to confirm that no significant losses are occurring. As it is non toxic, bentonite mud is normally recommended for drilling in areas where groundwater is likely to be encountered. The composition of the bentonite and the use of any additives will be agreed with SEPA prior to construction.

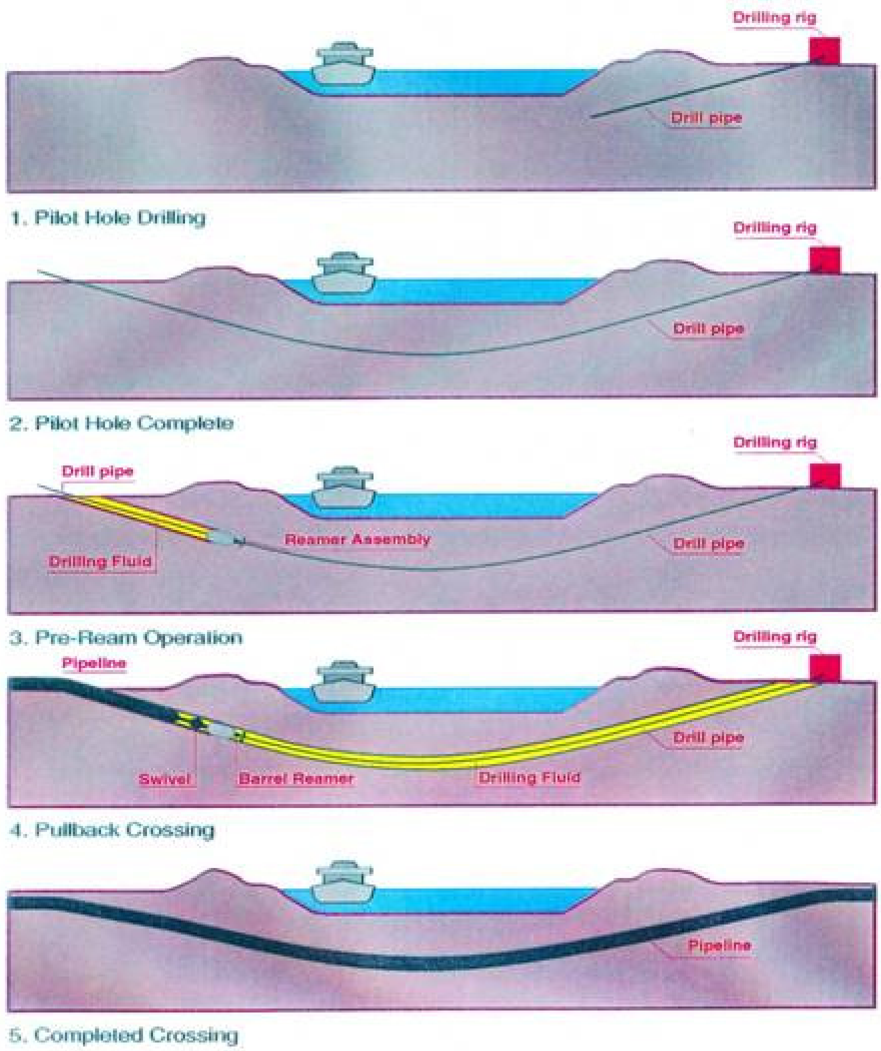
After the pilot hole is drilled, reaming devices will be attached and pulled back through the borehole to enlarge it to the required diameter.

While the above work is proceeding, the pipe sections are laid out in a straight line ‘strung’ away from the receiving pit. The pipe is then welded together.

When the drilled hole has reached the required diameter, the pipe will be attached to the reaming device and pulled through the borehole in one continuous length. This minimises the risk of it becoming stuck during the pull. Bentonite is injected around the reamer to coat the borehole. It is a thixotropic material and will support the sides of the hole as the pipe is pulled through.

Drilling and pull back operations are usually continuous, 24hours operations and, once the pipe has been installed, the drilling rig and associated plant are removed. The drilling mud will be sampled, analysed and disposed of offsite to a licensed waste disposal facility in accordance with Duty of Care requirements. Plate 3.7 summaries the key stages of a HDD.

Plate 3.7 Stages of a Typical HDD



3.3.4 *Testing and Commissioning*

On completion of the construction of the pipeline, a hydrostatic test will be carried out to demonstrate fitness for purpose in compliance with the Institute of Gas Engineers Standard IGE/TD/1: Edition 5. This involves completely filling the pipeline test section with water, raising the pressure to a predetermined test pressure which is higher than the operating pressure, and holding at that pressure for a pre-set length of time.

The pipeline will be tested in separate sections that will be determined by the topography of the pipeline route and the sources of water for the hydrostatic test. SEPA will be consulted in detail with regards to agreeing abstraction and discharge rates and locations, and the necessary abstraction and discharge consents will be obtained.

Hydrostatic test water will be analysed to check quality before and after use. Filters and break tanks will be used to control the rate of discharge, and to remove any solids. Before hydrostatic testing, the pipeline will be cleaned and internally checked using air or water-driven cleaning and pipeline integrity gauges (PIGs).

On completion of hydrostatic testing and the discharge of test water, the test sections will be swabbed to remove residual water by passing through specially designed PIGs propelled by dry, compressed air. The separate test sections will then be welded together to form the complete pipeline.

It is important at this stage to remove all traces of water to ensure dry gas is transported on commissioning and subsequent operation. This is achieved by using super dry air.

3.3.5 *Safety During Construction*

The MWC will construct the pipeline in accordance with health and safety legislation, applicable standards and design codes. The requirements of the *Management of Health and Safety at Work Regulations, 1999*, the *Construction (Design and Management) Regulations, 2015*, the *Construction (Health, Safety and Welfare) Regulations, 1996*, as amended, the *Ionising Radiation Regulations, 1999* and accompanying Code of Practice and other relevant regulations will be adhered to. Thus, regard will be paid to the features listed below to ensure no compromises are made, which might jeopardise the safety of employees, contractors, or the public:

- the type of construction work being undertaken on site;
- the presence of hazards such as slopes or mine workings;
- hazardous materials and chemicals;
- operating procedures;
- work permits; and
- emergency response.

Method statements, accompanied by safety risk assessments will be produced to cover all construction activities. These may be for specific operations, for example auger boring, or they may cover issues of relevance throughout the working width such as refuelling. Where appropriate, method statements will be discussed and agreed with statutory and non-statutory consultees prior to construction commencing. There will be a project Health and Safety Plan, which will ensure that standards relating to health and safety are addressed. The requirements of the Health and Safety Plan will be incorporated into all method statements.

The health and safety performance of the MWC will be audited by GNI.

3.3.6 Site Establishment Areas and Pipe Storage Areas

Suitable areas for temporary Site Establishment Areas and Pipe Storage Areas will be identified during the detailed design. The Site Establishment Area will comprise temporary offices and storerooms, storage areas, workshops and/or designated areas for welding, waste storage areas and oil storage facilities. The temporary Site Establishment Areas and Pipe Storage Areas will be selected on the basis of efficiently servicing the whole of the Cluden to Brighouse Bay Pipeline PCA consented route to Brighouse Bay Compressor Station, taking account of the specific requirements of The Project.

The precise location of the Site Establishment Areas and Pipe Storage Areas and access arrangements will be discussed and agreed with the local planning authority and SEPA, and will avoid floodplains and groundwater protection zones, where possible.

Two potential TSEA's have been identified at:

- the old airfield at Heath Hall Business Park; and
- Coulthards Yard at Twynholm.

Once sites have been agreed, if they do not lie adjacent to the pipeline route, any necessary temporary planning consents will be obtained.

In addition to the above, temporary facilities for welfare and materials' storage will be set up at specific locations for the duration of work in that vicinity.

3.3.6.1 Construction of Site Establishment Areas and Pipe Storage Areas

Topsoil will be stripped and stored during the construction of the sites and reinstated once construction operations are completed. The Site Establishment Areas will be established either on hard standing or stoned ground over a geotextile membrane. The access to the temporary Pipe Storage areas from roads may need to be stoned, or bog mats laid, to allow safe movement of vehicles.

Sites will be laid out and constructed to minimise the risk of sediment run-off to watercourses, and sediment control measures will be installed, as appropriate.

3.3.6.2 Environmental Controls

Oil storage facilities will be in accordance with best practice, Pollution Prevention Guidelines and *The Water Environment (Oil Storage) (Scotland) Regulations 2006*. Fully bunded oil stores will be used and they will be located at least 10m from any watercourse and 50m from any borehole or well.

Waste storage areas will be situated on hard standing and waste oil/waste chemical storage areas will be bunded. Foul and surface-water disposal facilities will be designed in accordance with SEPA requirements.

3.3.7 Construction Machinery and Vehicles

3.3.7.1 Construction Traffic

Construction traffic generated by the pipeline can be divided into two types: Heavy Goods Vehicles (HGVs) and smaller vehicles (such as vans and 4 x 4 vehicles). HGVs are used to deliver plant, pipe and materials to the Site Establishment Areas, Pipe Storage Areas and/or working width. Pipe will be transported on 44-tonne maximum gross weight (mgw) HGVs, with large plant transported on 80-tonne HGVs. Details of construction traffic are provided in Section 3.3.7.2. The figures quoted in Table 3-2 below are those which are likely to be required to construct the PCA consented route. Whilst it is not anticipated that all the vehicles and plant listed in Table 3-2 will necessarily be required for The Project – as it will be constructed contiguously with the PCA consented pipeline – it is possible that The Project will contribute significantly to the movement of these vehicles and plant.

Section 10 deals with the impacts arising from construction traffic.

3.3.7.2 Construction Staff, Plant and Machinery

Detailed resource programmes will be developed during the detailed design phase of the entire Cluden to Brighouse Bay Pipeline, including the proposed re-route from Cluden to Lochfoot (The Project); as such requirements will depend upon the finalised design. It is anticipated that a labour peak of up to 350 personnel on site (including all contractors and sub-contractors) will occur during the busiest period. The peak plant usage is estimated to be approximately 184 plant items, these are detailed in Table 3-2.

As the construction process involves several activities, the workforce will be spread out along the pipeline route, with around 10 to 20 operatives required for each activity at intervals of a few days. These comprise: fencing and topsoil strip, pre-construction drainage, pipe delivery and stringing, welding and radiographic inspection, joint coating, ditch excavation, lowering in and backfilling, post-construction land drainage, and reinstatement. Therefore approximately one hundred operatives may pass along the pipeline in 2 to 3 weeks, with the final stages occurring several weeks later. The rest of the workforce would be based at yards and offices, valve and connection sites, and road and water course crossings.

Table 3-2 Preliminary List of Pipeline Construction Vehicles and Plant

Plant/Vehicle	Approx Number	Type	Use
Agricultural tractor/trailer	16	HGV	Fencing, general haulage along the working width, and reinstatement
Bulldozer * (D6)	5	HGV	Top-soil stripping, and reinstatement
Rock drills	4		
Pipe-bending machine	1	HGV	Bending of line-pipe
Tracked excavator * (Cat 350)	40	HGV	Trench digging, backfill, and general use
Fuel bowser	3	HGV	Fuel filling of site vehicles

Plant/Vehicle	Approx Number	Type	Use
Land drainage unit *	2	HGV	Laying land drainage pipes
Articulated flat-bed lorry	4	HGV	Delivery of pipe to storage, and then to the working width
Articulated low-loader	2	HGV	Delivery of heavy plant* to the working width
Side-boom tractor *	14	HGV	Lowering-in of pipe
Welding sets * (inc. D4 Tour Tug)	8	HGV	Pipeline welding
8-wheel wagon	4	HGV	Delivery of gravel for drainage purposes and sand for pipe trench packing
4 x 4 vehicles (Pick-up trucks/Landrover or similar)	60	LV	General haulage use/personnel carriers
Minibus	20	LV	Personnel transport
HGV Truck	5	HGV	Transport of equipm,ent from yard site (incl. Hiab trucks)

* Items of heavy plant will be delivered to the working width by articulated HGV low-loader and shall be moved by public road only when movement along the working width is not possible.
HGV = Heavy goods' vehicle; LV = Light vehicle

3.3.8 Resource Use

3.3.8.1 General Use of Natural Resources

The pipeline will use a number of natural resources during construction and operation. The principal natural resources are detailed in Section 3.3.8.3 and include those used in pipeline manufacture and distribution.

3.3.8.2 Manufacture of Gas Pipelines

The *Pipeline Safety Regulations, 1996* and established Institute of Gas Engineers Recommendations (particularly IGE/TD1, Edition 5) and related Codes of Practice stipulate the use of steel pipelines for transporting gas, as this is the most suitable material to withstand the long-term stresses of high-pressure gas transport and to resist corrosion and external damage.

Information on the manufacture of steel pipe has been gathered based upon the Life Cycle Analysis of ten world sites undertaken by the International Iron and Steel Institute. The manufacture of pipe sections involves considerable use of resources, both in the form of energy and in the materials used. Pipe sections are formed from steel plate, which is manufactured principally from iron ore, coal, dolomite and ferrous scraps with natural gas and oil used as fuels and water for process purposes.

As steel is the most suitable material for high-pressure gas transportation, impacts from its manufacturing are unavoidable. However, the total amount of energy used in the manufacture and construction of the pipeline reduces (in lifecycle terms) when the pipeline design life is considered (a minimum of 40 years).

3.3.8.3 Construction of Gas Pipelines

Soil

A large amount of topsoil and subsoil will be excavated during pipeline construction. Care will be taken to ensure that the methods of excavation and reinstatement do not damage the soil unduly; soil will be returned to the same area on re-instatement, and topsoil and subsoil will not be mixed.

Selective Backfill

Where the pipeline is to run through an area of unsuitable subsoil, it is usually bedded in a layer of a selected ‘soft’ backfill material to protect the pipe coating from possible damage (which could lead to enhanced rates of corrosion). However, the MWC will minimise the use of imported backfill material by, wherever suitable, using subsoil for padding the pipeline and employing on-site screening and crushing machinery, as necessary, to enable the excavated material to be used as fill.

Timber and Temporary Gates

Timber is used for temporary fencing, skids (pipe supports) and bog mats (sections of sleeper-type timbers joined together). Bog mats are used to minimise compaction, for example, in areas of soft ground or over tree roots. Bog mats will be re-used on future projects, if practical, or sent for recycling to a licensed waste treatment facility if damaged or worn beyond re-use. Temporary fences and gates may be offered to landowners/occupiers for re-use on their landholding on completion of construction. If they are not re-used they will be recycled or disposed of at licensed waste treatment/disposal sites, in accordance with the Waste Management Plan.

Stone and Hardcore

The need for stone and hardcore to surface the Site Establishment Areas and any access roads required to the working width will be minimised by using existing metalled roads and hard surfaced areas as far as possible. Where access roads are required, secondary aggregates will be used in preference to primary materials, where they meet the relevant specifications. Any such materials would be tested, including for leachability, to ensure that they present a minimal risk of contamination to soil or groundwater. Any stone and hardcore used may be offered to landowners or to other construction sites in the area for re-use, subject to the provisions of the relevant planning and waste-management licensing legislation. If they are not re-used they will be taken to a licensed waste disposal site, in accordance with the Waste Management Plan.

Cement, Sand, Aggregates and Water

A mixture of cement, sand, aggregates and water may be used to produce concrete for the purpose of pipeline protection, support slabs and temporary access ramps. SEPA will be consulted in any case where the use of concrete may affect the flow of groundwater.

Generally, concrete used for protection purposes will be left in situ as part of the pipeline installation. Concrete used for temporary purposes will be re-used where possible, subject to the provisions of the relevant planning and waste management licensing legislation, or taken to a licensed waste disposal site, in accordance with the Waste Management Plan.

Drainage Gravel

Pre- and post-construction drainage will be required. Construction drainage requires drainage gravel, which will be sourced locally, using secondary materials in preference to primary materials where it meets the relevant specifications.

Energy Use

In addition to the manufacture of the pipe sections, energy will be used during pipeline construction for:

- fuel for vehicles/machinery used on the site;
- transport of materials to the site; and
- electricity for lighting and heating during site works.

A variety of items of machinery are needed during the construction phase to ensure that the pipeline is laid safely and efficiently. However, only when detailed design work is complete will precise requirements be known. All plant will be serviced regularly to minimise emissions, inspected before being allowed on site, and turned off when not in use.

Pipe manufacture is a highly specialised task and there are very few manufacturers worldwide. As they are geographically remote from where the pipeline is to be built, it is difficult to reduce the energy consumption used in transport of the pipe. Use will be made as far as possible of local suppliers of other materials such as selective backfill, aggregates and fencing, to minimise transport requirements.

Electricity usage (for lighting and heating of the Site Establishment Areas and working width) is expected to be minimal as most work will be carried out in daylight hours. Power for the welding sets is normally generated on site from a mobile generator.

Water Use

Water is used in small quantities for domestic cleaning and toilet facilities. The major use of water is in hydrotesting the pipeline; this water is usually returned to its source following consultation with SEPA.

3.4 Operation and Maintenance

3.4.1 Operating Procedures

After the pipeline system is fully commissioned it will be operated and maintained in such a manner as to keep it safe and in good condition. Protective measures, inherent in the pipeline design, together with regular monitoring will ensure that uncontrolled third-party activities, which represent the major risk to pipelines, are minimised and so are unlikely to cause damage.

Monitoring is normally carried out in the following ways:

- Periodic Visual Monitoring – A 'care and maintenance' team will carry out visual monitoring. Its duties will include regular surveillance. Its observations will provide a record of changing ground conditions and third-party activity along the pipeline including the detection of unauthorised third party activities.

- Pigging – At regular intervals, special on-line equipment called 'intelligent PIGs' will be passed through the pipeline as an inspection exercise to check on the condition of the pipeline and detect any evidence of corrosion or damage.

- Cathodic Protection System – Monitoring will consist of monthly checks of the Cathodic Protection (CP) station power unit and/or through the electronic monitoring system, and twice-a-year soil potential measurements will be taken at the CP test posts. For ease of access these posts are normally sited adjacent to road crossings.

Operation and Maintenance Procedures will be implemented. As part of these procedures an Emergency Plan will be prepared to cover contingency plans and remedial measures. The emergency services and the local authorities will be consulted and provided with full details.

3.4.2 Consumption of Resources

Minimal resources are used in the maintenance and operation of gas pipelines.

3.4.3 Pipeline Integrity

GNI has a Major Accident Prevention Document (MAPD) in place in accordance with the *Pipeline Safety Regulations, 1996*. This describes the management systems in place to prevent a major accident occurring on any of GNI'S major pipelines.

3.4.3.1 Risk Assessment

Quantified Risk Assessments (QRA) will be undertaken where necessary in order to assess the risk at both individual and society level. The QRA will quantify the risk based upon the following:

- the predicted potential modes of failure of the pipeline;

- the likelihood of failure modes occurring; and

- the predicted hazard ranges for each failure.

Various modelling programmes will be used to assess the probability of failure and the consequences of that failure. From the assessment, potential risks will be identified and the pipeline designed accordingly.

3.4.3.2 Emergency Plan

GNI will develop emergency arrangements to deal with gas releases or other incidents associated with the pipeline. The plans cover the arrangements from identification of the original incident, through mitigation actions to final rectification or repair. The emergency services and the local authorities are consulted and are provided with full details.

3.5 Decommissioning

At the end of its useful life, the pipeline and associated facilities will be decommissioned safely, with due regard for the environment. The pipeline will be decommissioned, emptied of natural gas, purged (usually with nitrogen) and left capped and cathodically protected. Where the need arises, sections will be solidly grouted using a suitable material or removed, and the ground fully reinstated.

Tables

Figures

4 PLANNING

4.1 Introduction

An application to construct a 'cross country pipeline' in Scotland, under the1962 Act, is the direct responsibility of the Scottish Government's Energy Consents and Deployment Unit (ECDU). In determining this application, the Scottish Government has power to grant deemed planning permission. Despite local planning authorities not being empowered to approve such a pipeline proposal, their consultative views play a vital part in the Scottish Executive decision of whether or not to award Pipeline Construction Authorisation (PCA), and so their development plan policies remain a relevant consideration with respect to The Project.

The purpose of this section is to summarise those policies in the development plan that are relevant to The Project. This will draw on the Dumfries and Galloway Council Local Development Plan.

This section will also draw on those non-statutory planning policy documents that constitute material considerations. For The Project, this consists of:

- Scottish Planning Policy (2014); and
- National Planning Framework 3 (2014).

4.2 Consultation

Table 4-1 summarises the consultation responses that have been received to date in relation to planning presented in this section.

Table 4-1 Planning Consultation Responses

Consultee	Previous Consultation	Comment	Response to Consultation
Dumfries and Galloway Council	Meetings held on: 15.03.2007 03.07.2007 20.11.2007 24.11.2014 27.02.2015	Minimise impact on other planned developments.	Consultation with the planning office to identify any planning applications within last 5 years
		Need for temporary planning permission for any pipe yards or temporary construction areas not contiguous with the pipeline easement.	Temporary planning permission will be sought where required

4.3 Planning Policy

4.3.1 Policy Guidance in Scotland

4.3.1.1 Legislation

The *Town and Country Planning (Scotland) Act 1997*, as amended by the *Planning etc. (Scotland) Act 2006* requires decisions on planning applications to be determined in accordance with the development plan unless material considerations indicate otherwise. It aims to bring in a much more inclusive and efficient planning system to improve community involvement, support the economy, and help it to grow in a sustainable way.

The Scottish Government is responsible for maintaining and developing the law on planning; developing policy guidance and advice; approving structure plans and making decisions on major planning applications and all appeals. To this end the Energy Consents and Deployment Unit (ECDU) of the Scottish Government is the consenting authority for the PCA for The Project. However, Dumfries & Galloway Council is a statutory consultee.

4.3.1.2 National Planning Policy

4.3.1.2.1 Scottish Planning Policy

The revised Scottish Planning Policy (SPP) was published in June 2014 and sets out national planning policies which reflect Scottish Ministers' priorities for the operation of the planning system and for the development and use of land.

SPP recognises that the planning system has a vital role to play in delivering high quality places for Scotland. In particular, planning should take a positive approach to enabling high quality development and making efficient use of land to deliver long-term benefits for the public while protecting and enhancing natural and cultural resources. The document states that for planning to make a positive difference, development plans and new development need to contribute to achieving the following outcomes:

- a successful, sustainable place – supporting sustainable economic growth and regeneration, and the creation of well-designed, sustainable places;
- a low carbon place – reducing carbon emissions and adapting to climate change;
- a natural, resilient place – helping to protect and enhance natural and cultural assets and facilitating their sustainable use; and
- a more connected place – supporting better transport and digital connectivity.

SPP introduces a presumption in favour of development that contributes to sustainable development. In particular, the document highlights that the planning system should support economically, environmentally and socially sustainable places by enabling development that balances the costs and benefits of a proposal over the longer term. The aim is to achieve the right development in the right place and proposals that accord with up-to-date plans should be considered acceptable in principle and consideration should focus on the detailed matters arising.

4.3.1.2.2 National Planning Framework 3

National Planning Framework 3 (NPF3) was published in June 2014 and sets the context for development planning in Scotland and provides a framework for the spatial development of Scotland as a whole. It sets out the Government's development priorities over the next 20-30 years and identifies national developments which support the development strategy.

NPF3 indicates that the Scottish Government's Central purpose is to create a more successful country, with opportunities for all of Scotland to flourish, through increasing sustainable economic growth. NPF3 identifies a vision for Scotland which is:

- a successful sustainable place;
- a low carbon place;
- a natural resilient place; and
- a connected place.

NPF3 recognises that there are further opportunities for the oil and gas sector. The industry was worth around £27.3 billion in 2011 and is one of Scotland's most important sources of exports (The Scottish Government 2014b).

4.3.1.3 Local Planning Framework

Development Plans are the basis on which decisions on planning applications in Scotland are made and are drafted within the framework of Scottish Planning Policies, National Planning Policy Guidelines and Planning Advice Notes issued by the Scottish Executive.

A Local Development Plan is specific to each council area in Scotland. It allocates sites, either for new development, or sites to be protected. It also includes policies that guide decisions on all planning applications.

4.3.2 The Planning System

4.3.2.1 Local Development Plan Policies

The pipeline route corridor lies wholly within Dumfries & Galloway Council. The Dumfries and Galloway Council Local Development Plan (2014a) replaces the following plans:

- Dumfries and Galloway Structure Plan (1999);
- Nithsdale Local Plan (2006);
- Stewarty Local Plan (2006);
- Annandale and Eskdale Local Plan (2006); and
- Wigtown Local Plan (2006).

The relevant policy areas are shown on Figure 4.1. Table 4-2 details the Dumfries and Galloway Local Development Plan, for policies that are pertinent to the construction of

The Project. In addition, the extent to which The Project complies with these policies is summarised in the tables.

Table 4-2 Local Development Plan Policies

Policy Number	**Title**	**Aims/Details of Policy**	**Project compliance**
0P1	Development Considerations	Development proposals should be compatible with the character and amenity of the area and should not conflict with nearby land uses.	EIA covers all relevant aspects of this policy.
ED14	Mineral Safeguarding	Permanent development that would result in the sterilisation of mineral resources that is viable or could be extracted.	No mineral resources have been identified along the pipeline route
ED16	Protection and Restoration of Peat Deposits as carbon sinks	Safeguarding and protecting those peat deposits not already designated for habitat conservation.	The Project crosses a small area of peat which is known to support semi-improved marshy grassland. Appropriate mitigation will be agreed with the relevant Statutory Consultees prior to construction.
HE 1	Listed Buildings	Effective, efficient and sustainable use of listed buildings. Criteria to be met for any proposals involving the demolition of a listed building	The Project will not affect any listed buildings (see Section 8: Archaeology).
HE3	Archaeology	Protection of significant archaeological and historic assets, and the wider historic environment.	The pipeline route passes close to a number of identified archaeological sites and features. Suitable mitigation has been proposed to ensure no significant impacts are incurred (see Section 8: Archaeology).
HE4	Archaeologically Sensitive Areas	Support development that safeguards archaeological interest and setting of Archaeologically Sensitive Areas (ASAs).	There are no Archaeologically Sensitive Areas within the Area of Search for The Project (see Section 8: Archaeology)
HE6	Gardens and Designed Landscapes	Proposals should protect or enhance inventory and non-inventory gardens	There are no Inventory Gardens or Designed Landscapes within the Area of Search for The Project; no non-inventory gardens and

Policy Number	Title	Aims/Details of Policy	Project compliance
		and designed landscapes	designed landscapes are crossed by the pipeline (see Section 8: Archaeology)
NE1	National Scenic Areas	The Planning Authority will assess developments within or that would have an effect on NSAs.	There are no NSAs within or adjacent to the area of the pipeline (see Section 9: Landscape and Visual Impact).
NE2	Regional Scenic Areas	The siting and design of development within a Regional Scenic Area should respect the special qualities of the area.	The proposed pipeline route passes through an RSA (Figure 4.1), however, the impacts are considered likely to be short term and not significant following reinstatement (avoidance of the RSA would not be practical) (see Section 9: Landscape and Visual Impact).
NE3	Sites of International Importance for Biodiversity	Proposals will only be permitted where the development does not adversely affect the integrity of the site or there are no alternative solutions and there are imperative reasons of overriding public interest including those of a socio-economic nature.	There are no Sites of International Importance for Biodiversity within 4km of the proposed route. (see Section 7: Ecology)
NE4	Species of International Importance	Development proposals that would be likely to have an adverse effect on a European Protected Species will not normally be permitted.	With the adoption of the mitigation measures no significant impacts are anticipated (see Section 7: Ecology).
NE5	Sites of National Importance for Biodiversity and Geodiversity	Development that affects Sites of Special Scientific Interest, not designated as International Sites, and other national nature conservation designations will only be permitted where it does not affect the integrity of	There are no Sites of National Importance for Biodiversity and Geodiversity within 4km of the proposed route (see Section 7: Ecology).

Policy Number	Title	Aims/Details of Policy	Project compliance
		the area or any such adverse effects are clearly outweighed by social, environmental or economic benefits of national importance.	
NE6	Forestry and Woodland	Support the creation and protection of sensitively designed and managed forests and woodlands.	The Project does not cross any areas of forest or woodland (see Section 7: Ecology).
NE8	Tree Preservation Orders	Protection of trees or groups of trees which are considered to be of value to the amenity of an area; trees are protected where it is considered necessary.	It is not anticipated that any trees protected by a Tree Preservation Order (TPO) will be affected by The Project (see Section 7: Ecology).
NE11	Supporting the water environment	The Planning Authority will not permit development which would result in deterioration in the status of a waterbody or which would likely impede the improvements in waterbody status.	With the adoption of the mitigation measures no deterioration in the status of a waterbody is anticipated. (see Section 6: Physical Environment)
NE12	Protection of waterbodies	Where new development is proposed adjacent to or in the vicinity of waterbodies, the water margins will, subject to Policy NE11 and Section 18 of the Flood Risk Management (Scotland) Act 2009.	The Project is designed with prevent and mitigate effects to the environment. These will include pollution control and surface water runoff control measures. Appropriate methods of working and pollution control will be employed on site in consultation with SEPA. (See Sections 6: Physical Environment and 11: Emissions).
NE13	Agricultural Soil	Developments located on areas of good quality agricultural soils will only be supported where they conform to the Spatial Strategy of the Plan and there is no alternative on less	The Project crosses areas of agricultural land of varying quality. However, agricultural activities will not be affected following reinstatement of the pipeline route following construction (see Section 5: Land Use).

Policy Number	Title	Aims/Details of Policy	Project compliance
		good quality land.	
CF4	Access Routes	Provision and protection of access routes, in particular Core Paths.	Core paths crossed by the pipeline will be closed for a short period while the right of way for The Project is established. Warning signs will be put in place during the construction phase (see Section 12: Socio-Economics)
IN6	Waste management requirements for new developments	Any planning application which in the view of the Council requires to address the issue of waste must be supported by a Site Waste Management Plan.	A Site Waste Management Plan will be developed for The Project prior to construction.
IN7	Flooding and development	Act on the avoidance principal, where possible.	The precise location of the Site Establishment Areas and Pipe Storage Areas and access arrangements will be discussed and agreed with the local planning authority and SEPA, and will avoid floodplains and groundwater protection zones, where possible. (see Section 3: Project Description)
IN8	Surface water drainage and Sustainable Drainage Systems (SuDs)	SuDS will be a required part of all proposed development as a means of treating the surface water and managing flow rates.	Rainwater and surface water may accumulate in a number of locations on site. Adoption of best practice mitigation measures will ensure that residual impacts are minimised. (see Sections 6: Physical Environment)
IN10	Contaminated or unstable land	If the site has the potential to be unstable or contaminated, developers will be required to undertake investigation and, where applicable, remediation measures.	The potential for encountering existing ground contamination is considered low. The mitigation measures proposed will minimise potential risks. (See Section 6: Physical Environment).
T4	Freight transport	Development which generates significant volumes of haulage traffic will be encouraged to utilise facilities for the transfer of freight from road to rail and	There will be a short term increase in haulage traffic during the construction of the pipeline as described in the EIA. The use of freight is not practical due to the rural nature of the work. Impacts from transportation requirements are considered unlikely to be

Policy Number	Title	Aims/Details of Policy	Project compliance
		to locate the transfer close to main transport routes.	significant. (See Section 10: Traffic and Transportation).
T5	Former transportation routes	Presumption against any development on or adjacent to former railway routes.	No former railway routes have been identified within the Area of Search for The Project.

4.4 Planned Developments

4.4.1 Areas Designated for Housing Development

The Local Development Plan (Dumfries and Galloway Council 2014a) does not currently identify any areas designated for housing development. The consultation draft supplementary guidance (Dumfries and Galloway Council 2014b) *Housing in the Countryside* identifies "small building groups", which are defined in the draft guidance as three or more separate habitable or occupied houses which are well related to one another.

It should be noted that inclusion of a small building group does not mean that proposals for additional residential development will be considered acceptable. Such proposals would still need to meet the criteria set out in the draft guidance (Dumfries and Galloway Council 2014b).

There are no small building groups included in the draft supplementary guidance within the Area of Search. Three small building groups located close to the Area of Search are identified in Figure 4.1.

4.4.2 Areas Designated for Industrial or Retail Development

The contents of the Dumfries and Galloway Local Development Plan (Dumfries and Galloway Council 2014a) has been informed through consultation in order to determine any areas designated for future industrial or retail development.

The Local Development Plan does not currently identify any areas designated for industrial or retail development within the Area of Search.

4.4.3 *Existing Planning Applications and Consents*

Dumfries & Galloway Council Planning Department has been consulted to determine the location of active planning applications and extant planning consents for future developments that may affect the pipeline. The precise stage of construction of the consented developments is unknown. However, the majority of active planning applications and consents fall within designated housing areas, or are for improvements to existing residential or farm buildings, none of which will be affected by the pipeline route.

Applications and consents that could be affected by the pipeline are listed in Table 4-3. None are anticipated to be impacted on directly or significantly by the pipeline.

Table 4-3 Active Planning Applications and Consents within the Area of Search

Application Number	Address of Application	Details of Application	Status of Application	OS Grid Reference	Comments
12/P/3/0329	Akie Bush, Terregles, Dumfries	Change of use, alterations and extension to farm building to form dwelling house	Withdrawn by applicant 05/09/2012	292129 577719	Comments on withdrawal notice indicate the applicant intends to resubmit. No impact expected.
08/P/3/0269	Collochan, Terregles, Dumfries	Erection of dwelling house	Granted conditionally	291926 575952	No impact expected.
12/P/2/0085	Former water treatment works, Lochfoot, Dumfries	Change of use from former water treatment works to dwelling house	Granted conditionally	290053 574224	No impact expected.
15/P/2/0072	Land to east of old water station, Lochfoot, Dumfries	Erection of 6 dwelling houses and installation of bio-disc system and soakaway	Requested screening opinion (ref: 15/E/E/0002) 10/03/15	290053 574224	No impact expected

4.5 References

Dumfries & Galloway Council, 2014a, Local Development Plan

Dumfries and Galloway Council, 2014b, Local Development Plan Consultation Draft Supplementary Guidance: Housing in the Countryside

Pipelines Act 1962

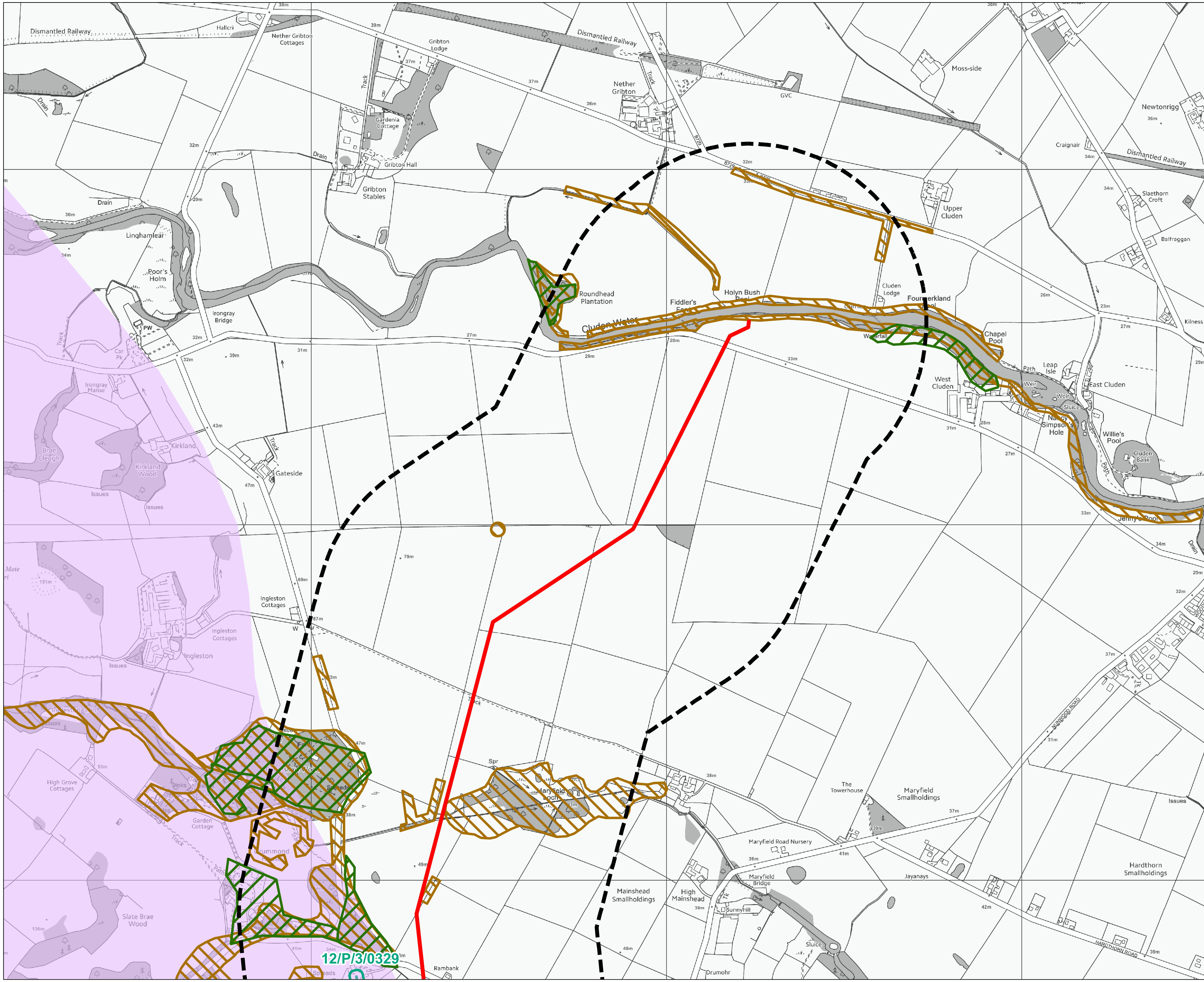
Planning etc. (Scotland) Act 2006

The Construction (Design and Management) Regulations 2015

Town and Country Planning (Scotland) Act 1997

Scottish Government 2014a Scottish Planning Policy

Scottish Government 2014b National Planning Framework 3



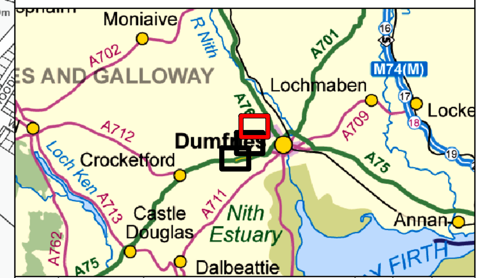
Legend:

- Proposed Pipeline Route
- 1km Area of Search
- Regional Scenic Area
- Ancient Woodland
- Semi Natural Ancient Woodland
- Planning Application Boundary
- 15m Planning Application

This map contains data from the following sources:-

Scottish Natural Heritage
Dumfries and Galloway Council Local Development Plan

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936
Units: Meter



Rev	Date	Description	Drn	Chk	App
03	06/05/2015	Updated Route	FC	DJ	WH
03	14/04/2015	Updated Logo	FC	DJ	WH
02	18/03/2015	Updated Planning Apps	FC	DJ	WH

Cluden to Lochfoot Pipeline

RSK GNI PENSPEN

TITLE:
Figure 4.1:
Planning Constraints
Map 1 of 3

0 200 400
Meters
SCALE: 1:10,000 @ A3

REV 04

Document Path: P:\ENVIRONMENT\190000 - EIA Glasgow\190418-IC2 Cluden to Brighouse Pipeline\03 Graphics\Planning Policy Constraints Plan Rev00 250215.mxd