



Trans Adriatic  
Pipeline

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# **TAP ITALY ESMS ONSHORE EROSION CONTROL AND REINSTATEMENT CCP**



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## 1 Abbreviations and Definitions

The following table provides definitions of acronyms and a glossary of terms used in this document.

**Table 1-1 Abbreviations and Definitions**

ALARP	As Low as Reasonably Practicable
BAP	Biodiversity Action Plan
Biorestitution	The use of biological processes (e.g. replanting) as a means of aiming to restore disturbed land to its previous condition, or as close to this as practicable
BTEX	Benzene, toluene, ethyl benzene and xylene
CCP	Contractor Control Plan
COMPANY	TAP AG
Compensation areas	Areas of land that require development by the Project in order to compensate for the loss of biodiversity caused by Project activities.
CONTRACTOR	Construction contractors for Italy
Cultural heritage impact	A change to cultural heritage (in this context “cultural heritage” refers to any tangible (e.g. objects, artefacts, structures, spaces) or intangible element which is of value or importance to people’s culture, history and/or identity) which has occurred as a result of Project activities. Impacts may be considered to be positive or negative.
EBRD	European Bank for Reconstruction and Development
EHS	Environment, Health and Safety
Environmental impact	A change to the environment (in this context the “environment” refers to any aspect of the natural or semi-natural physical environment (air, water, soil etc.)) which has occurred as a result of Project activities. Impacts may be considered to be positive or negative.
ESIA	Environmental and Social Impact Assessment
ESIP	Environmental and Social Implementation Plan
ESMS	Environmental and Social Management System
EU	European Union
GMO	Genetically Modified Organism

IFC	International Finance Corporation
KP	Kilometre Points relating to the pipeline route as per the base case described in the ESIA (it is possible that KP locations will change because of a re-routing)
LRF	Livelihoods Restoration Framework
MS	Method statement
PAH	Polycyclic aromatic hydrocarbons
Pipeline	Proposed pipeline scheme (TAP) including related facilities such as access roads, etc.
PPS	Permanent Pipeline Protection Strip - permanent strip of 8m width where no deep-rooted plants will be allowed
Project	Proposed pipeline scheme that will bring natural gas from the Caspian region to western and south-eastern Europe (TAP)
PRT	Pipeline receiving terminal
Reinstatement	The process by which disturbed land is restored to its previous condition, or as close to this as practicable
Revegetation	The use of biological processes (e.g. replanting) as a means of restoring disturbed land to its previous condition, or as close to this as practicable
RU	Revegetation Units
Shoofly	Deviations from the working strip in areas where vehicular use of the working strip is not feasible
Socio-economic impact	A change to the existing socio-economic environment (in this context the "socio-economic environment" refers to the combination of any existing social and economic factors) which has occurred as a result of Project activities. Social factors may include aspects such as demographics, health and wellbeing etc. and may refer to individuals, groups or wider communities of people. Economic factors may include aspects such as employment, finances, livelihoods etc. An impact may be considered to be positive or negative.
TAP	Trans Adriatic Pipeline
TAP AG	Trans Adriatic Pipeline joint venture company
TPH	Total Petroleum Hydrocarbons

## 2 Introduction

This Contractor Control Plan (CCP) identifies the commitments made in relation to onshore erosion control, soil handling and topsoil management, reinstatement and revegetation during the construction and commissioning phase of the Project and describes the COMPANY's requirements of the CONTRACTOR in terms of meeting these commitments. Where a specific commitment from the Italy Commitments Register is described in this CCP, it is followed by its reference number as stated on the Project Commitment Register Italy (e.g. IT0012). Additional requirements have been included within this CCP where they are deemed to be internationally accepted or best practice. These additional requirements are not followed by a reference number.

As part of its planning and readiness for construction, CONTRACTOR is required to prepare its own Environmental and Social Implementation Plans (ESIPs) setting out how it intends to meet and comply with specific Project commitments set out in each CCP developed by the COMPANY. This CCP shall act as a reference from which CONTRACTOR shall develop an Onshore Erosion Control and Reinstatement ESIP.

Deviations that involve measures different from those contained in this CCP will only be permitted upon approval of the COMPANY.

The Contractor's ESMS Framework Document (CAL00-RSK-601-Y-TTM-0001) provides an explanation of the linkage between CCPs and ESIPs.

### 2.1 Objectives

This CCP has been prepared to define the mitigation measures necessary to ensure effective erosion control and sediment management so that impacts are prevented or, where this is not possible, are as low as reasonably practicable (ALARP<sup>1</sup>), and to ensure the correct

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<sup>1</sup> For a risk (or impact) to be ALARP it must be possible to demonstrate that the cost involved in reducing the risk/impact further would be grossly disproportionate to the benefit gained. The ALARP principle arises from the fact that infinite time, effort and money could be spent on the attempt of reducing a risk/impact to zero. It should not be understood as simply a quantitative measure of benefit against detriment. It is more a best common practice of judgement of the balance of risk and societal benefit.

implementation of appropriate reinstatement and revegetation of disturbed areas following construction, with the ultimate aim of restoring sites as closely as possible to their former condition following the construction phase of the onshore section of the Project in Italy.

The objective of this CCP is to ensure that any erosion control and reinstatement work undertaken complies with the commitments made in the Project Environmental and Social Impact Assessment (ESIA) Italy and international best practice.

## 2.2 Scope

This CCP defines COMPANY requirements (i.e. the commitments and best practice) relating to erosion control, soil handling and management, and reinstatement/revegetation management that CONTRACTOR shall implement during construction, including hydrotesting and commissioning.

The goal will be to preserve the integrity of the environment (particularly in environmentally sensitive areas) to the greatest extent possible and to maintain existing water quality by implementing the following:

- minimising the extent and duration of disturbance
- protecting exposed soil by diverting runoff to stabilised areas
- ensuring proper sediment management
- installing temporary and permanent erosion control measures
- establishing an effective inspection and maintenance programme.

The scope of this CCP includes:

- procedures for soil management (IT0518), including soil and topography impact prevention, minimisation and mitigation measures
- temporary erosion and sediment control measures
- permanent erosion and sediment control measures
- water body management and protection measures (watercourse crossings are included in the Onshore Watercourse Crossing CCP (IAL00-RSK-601-Y-TTM-0007))
- reinstatement
- revegetation implementation and management



- habitat-specific revegetation measures
- site-specific revegetation measures.

Monitoring and inspection requirements related to this plan are detailed in the Onshore Compliance Monitoring CCP (IAL00-RSK-601-Y-TTM-0006).

This CCP applies to all onshore areas that might be affected by the Project, including but not limited to the right of way, construction sites of the pipeline receiving terminal (PRT), construction site of the block valve station, pipe storage areas, work sites, access roads, quarries, borrow pits and spoil (excess material) disposal sites.

### **2.3 Responsibilities**

The COMPANY's role is that of compliance assurance as described in the Compliance Assurance Plan .

CONTRACTOR shall be responsible for ensuring that the Project (including all site operations, equipment and machinery) will comply with the defined Project Standards which encompass the requirements of Italian legislation, EU Directives, EBRD Environmental and Social Policy, IFC Performance Standards and IFC EHS Guidelines (IT0036). CONTRACTOR will comply with the requirements of the COMPANY Environmental and Social Management System (ESMS) (IT0516) (including this CCP) and the ESIA Italy.

CONTRACTOR will be responsible for any adverse environmental, socio-economic and cultural heritage impacts arising from its activities and operations and for putting in place any necessary measures to avoid or, if not possible, mitigate them. CONTRACTOR will also be responsible for promptly reacting to accidental events and mitigating any resulting adverse environmental, socio-economic and cultural heritage impacts for which CONTRACTOR is responsible as much as possible. Should any such accidental events occur, CONTRACTOR will immediately inform the COMPANY. Should these accidental events be the responsibility of CONTRACTOR (i.e. events resulting from CONTRACTOR's activities, events in areas which CONTRACTOR is responsible for), CONTRACTOR shall consult the COMPANY on the best way to handle and/or mitigate immediate risks to Project stakeholders.

CONTRACTOR shall put these responsibilities into effect by

- writing an Onshore Erosion Control and Reinstatement ESIP that describes how it will implement the requirements described in Section 3 of this CCP and other legal requirements
- implementing the Onshore Erosion Control and Reinstatement ESIP by:
  - communicating the contents of the ESIP to its workers and subcontractors and training them to ensure that they understand their responsibilities with respect to onshore erosion control and reinstatement control and management, incident reporting and response
  - ensuring that adequate resources are mobilised for onshore erosion control and reinstatement management, including input from any specialist resources necessary to ensure effective planning and implementation of measures
  - ensuring compliance by its workers and subcontractors with the procedures established in the ESIP
  - implementing effective monitoring of onshore erosion control and reinstatement measures to ensure that the effectiveness of onshore erosion control and reinstatement management activities are assessed and any issues are promptly detected, in accordance with the Onshore Compliance Monitoring CCP (IAL00-RSK-601-Y-TTM-0006)
  - ensuring that all environmental, socio-economic and cultural heritage incidents are reported and dealt with effectively and that lessons are learned in accordance with the procedures outlined in the Contractor's ESMS Framework Document (CAL00-RSK-601-Y-TTM-0001)
  - keeping the COMPANY fully informed of any site environmental, socio-economic and cultural heritage issues.

CONTRACTOR shall be responsible for compiling the Onshore Erosion Control and Reinstatement ESIP in a timely manner and submitting it to the COMPANY for review and acceptance a maximum of 30 days after Contract award. The ESIP will not be considered 'accepted for construction' until all comments raised by the COMPANY have been addressed by CONTRACTOR to the satisfaction of the COMPANY. Construction will not be allowed to commence before all relevant ESIPs are accepted.

### **3 Impact avoidance and mitigation**

CONTRACTOR shall prevent and avoid or minimise as far as possible the exacerbation of impacts caused by natural hazards, such as landslides or floods that could arise from land use changes due to Project activities.

The COMPANY will establish a pre-construction biodiversity baseline for selected areas and this information will be made available to CONTRACTOR upon Contract award.

However, it is CONTRACTOR's responsibility to establish its own pre-construction biodiversity baseline (record of the conditions of the construction areas prior to construction works (e.g. working strip, pipe yards, access roads, etc.)) from which all mitigation, restoration, and loss/degradation can be measured.

#### **3.1 Erosion and sedimentation control**

Erosion and sediment control is best managed if taken into consideration from the beginning of the construction phase, i.e. from site clearance.

CONTRACTOR will manage the visual impact in accordance with the Onshore Pollution Prevention CCP (IAL00-RSK-601-Y-TTM-0002).

##### **3.1.1 Worksite clearance**

The opening up of the working strip and other worksites (e.g. access roads, storage yards) will require vegetation clearance in work areas. Vegetation includes crops, trees, shrubs, bushes, grasses and other minor vegetation. Environmental coordinators employed by CONTRACTOR shall be trained in identifying worksite boundaries (which shall be clearly marked) and the controlled felling of trees to prevent impacts beyond worksites. They shall also be trained on the importance of identification and preservation of wild fauna encountered and disturbed during the stripping operation. For further information on employee training and the role of CONTRACTOR environmental coordinators, refer to the Onshore Employment, Training and Worksite

Management CCP (IAL00-RSK-601-Y-TTM-0012) and the Onshore Ecological Management CCP (IAL00-RSK-601-Y-TTM-0004).

Where it is not possible to restrict the timing of construction practices, vegetation should be removed outside the bird breeding period (before 1 March or after 30 September) so that works can carry on into this period unhindered.

Any leaning trees that may pose a hazard to the safety of the workers and cause other trees to fall, thereby endangering personnel, equipment and material on worksites, shall be cut outside the marked area of the worksite.

If any trees accidentally fall into watercourses during felling and clearance and pose a risk to the natural flow of water in the channel, they will be removed as soon as practicable as long as it is considered safe to do so.

The felling of trees shall be avoided where possible, with tree surgery (i.e. the removal of particular branches rather than the whole tree) being carried out as an alternative where this is appropriate. Felled trees may be used for building gabions if required for land stabilisation (see Section 3.1.7.4). Vegetative material (slash) is not to be used for construction purposes and shall be stockpiled at the edge of worksites. Areas of gathered plant material shall be separated to prevent flames spreading in the event of a fire.

Original vegetation will be retained where possible for reinstatement in the location from which it was removed as part of the revegetation process. This will be undertaken following completion of construction works. Existing vegetation to be retained will be protected where feasible.

At the site of the PRT CONTRACTOR shall minimise the area to be cleared to that strictly necessary for construction and operation. This shall include only removing vegetation from the vent exclusion zone as necessary to construct the vent and any associated structures (e.g. fencing).

In addition, CONTRACTOR shall adhere to the following:

- the collection of wild plants is prohibited
- the burning of cut vegetation of fallen tree material on worksites is prohibited
- lighting fires in work areas is prohibited unless specifically authorised by the COMPANY
- it is prohibited to introduce foreign/non-naturalised vegetation to the worksites
- only bushy vegetation on worksites will be removed. Roots and herbaceous vegetation will be left in the soil to increase stability and be removed with the topsoil during stripping
- removed vegetation will be placed far from surface water. Large woody debris will be stored along the outside edge of worksites in clear areas. Small twigs, branches and pieces of vegetation shall be used for composting along with biodegradable waste generated in the work areas (see the Onshore Waste Management CCP (IAL00-RSK-601-Y-TTM-0008))
- clearing of vegetation shall be limited to that which is strictly necessary
- where possible removal of vegetation on steep hillsides will be minimal
- buffer zones of a minimum width of 2–3 m will be retained along the edges of watercourses (if crossed by the working strip), to prevent soil erosion and sedimentation of downstream watercourses, and will only be cleared as close as reasonably practicable to the time of the watercourse trenching and pipeline installation. For further information, including requirements for if roads cross a watercourse, refer to the Onshore Watercourse Crossing CCP (IAL00-RSK-601-Y-TTM-0007).

The type of equipment used will be appropriate for the soils and the timing of construction. CONTRACTOR shall provide a list of equipment proposed to be used during construction, including information that demonstrates that its environmental impact is ALARP, to the COMPANY for acceptance, prior to the equipment being mobilised for use on the Project.

Further CONTRACTOR requirements concerning clearance of the working strip are detailed in the Specification for Working Strip Preparation and Maintenance (IAL00-SPF-000-C-TRH-0005).

### 3.1.2 Topsoil and subsoil handling

Topsoil is the uppermost and most fertile portion of the soil, containing organic matter, seeds and nutrients that promote vegetation growth. Its presence is a key factor in promoting revegetation

success. Consequently, preserving topsoil is a key component of revegetating worksites and restoring the soil's ability to protect itself against erosion.

In the sections where the work interferes with outcrops of hard rock, special attention must be paid to conserving the topsoil; the top part of rock and soil should be screened and crushed, preserving the fine fraction (humus and gravel), and set aside; at the end of the backfill operation of the pipeline, the part set aside will be replaced as the top layer as a stony matrix with humus (IT0744).

CONTRACTOR shall observe the following basic principles of good topsoil management:

#### 3.1.2.1 Stripping

Topsoil shall be removed from working areas only when absolutely necessary and in accordance with the guidelines specified in this CCP and the Italy Biorestitution Guidance and Preliminary Specification (IAL00-RSK-601-Y-TSP-0001). Areas subject to topsoil stripping will be identified prior to grading activities.

Topsoil and subsoil will be stripped and stored separately.

Stripping shall be in accordance with the requirements outlined below:

- topsoil, which supports plant life and contains seed stock, will be removed from the worksites by suitable earth moving equipment and stockpiled in the form of a continuous ridge along the edge of the strip. The topsoil will be stockpiled no higher than 2 m along one side of the construction corridor (IT0002) to prevent degradation of the soil
- the topsoil and subsoil will be kept free from disturbance to reduce the possibility of physical damage and compaction and will be stored in such a way that they are not mixed with other trench materials and are not driven over by vehicles (IT0004)
- where the depth is equal to or less than 300 mm, the topsoil shall be carefully stripped to its full depth and stored in a dedicated place
- where the depth is equal to or less than 100 mm, additional precautions will be taken when the topsoil is stripped (see paragraph below)

- where the depth of topsoil is greater than 300 mm, only the top 300 mm shall be similarly stripped and stored. Topsoil below 300 mm shall only be removed if this is required for reinstatement; where this is the case, it shall be stored as topsoil provided the stockpiling specification given below can be reasonably met
- any plant, turf layer or root mass will be stripped together with the topsoil, except in wetlands where the turf will be stripped separately from the topsoil layer where practical. In wetlands topsoil will be removed using backhoes only.
- topsoil shall not be stripped from areas that will only be used for storing topsoil
- modification of these requirements may apply subject to COMPANY approval, e.g. for areas where the ground is solid rock.

Additional precautions in areas of thin topsoil (where the depth is equal to or less than 100 mm) that should be implemented by CONTRACTOR (other methods can be proposed for COMPANY approval) include:

- constant supervision during topsoil stripping so that only the agreed topsoil strip depth is implemented
- in areas where machinery is not able to achieve the topsoil strip depth and there is a risk of subsoil mixing, stripping by other means will be implemented
- in areas of narrow erodible ridges where conservation and good handling of topsoil is of paramount importance, removing topsoil by other means if removal by machine risks mixing with subsoil
- storing stripped topsoil in sensitive (thin) topsoil areas at the edge of the working strip
- protecting topsoil piles with a light, waterproof covering (e.g. tarpaulin) where topsoil is very thin and at risk of wind and water erosion
- if significant amounts of topsoil are lost because of poor topsoil handling then CONTRACTOR may be required to replace it with topsoil of similar chemical, biological and physical characteristics. Any use of topsoil, with chemical-physical characteristics different from that affected by the works, must be carefully evaluated and considered in order to preserve the ecological continuity in the surrounding areas (IT0677)
- CONTRACTOR shall provide a method statement on how to deal with sensitive soils.

At worksites outside wetland areas, if the topsoil is considered too wet to be worked during stripping without resulting in harmful effects on its structure such as compaction and shearing

then stripping works will cease until such time that the topsoil is dry enough to handle without causing long-term damage.

Temporary erosion control measures (see Section 3.1.6 for more information) shall be installed at the PRT construction site during topsoil stripping work as required.

Further CONTRACTOR requirements concerning stripping and levelling of the working strip are detailed in the Specification for Working Strip Preparation and Maintenance (IAL00-SPF-000-C-TRH-0005).

#### 3.1.2.2 Stockpiling and maintenance of structure and fertility

Without prejudice to the mitigation measures set out in the Project, the following must occur in the site and deposit areas: all the appropriate measures for the protection of the soil and subsoil must be pre-arranged and, in particular, the surfaces concerned must be made impermeable with suitable tarpaulins, in accordance with the most advanced technology, to be removed at the end of the work so that even the least infiltration into the soil and subsoil is prevented (IT0703).

Topsoil shall be stored in a windrow along the edge of the non-working side of the working strip furthest from the works, but within permitted limits, where it will be least disturbed during the construction phase and until final grading of the particular working segment of the working strip has been completed. Topsoil from worksites other than the working strip shall be stored in a similar manner.

Excavated subsoil will be placed separately from the topsoil pile to prevent mixing during storage (IT0822). Soil will be stored along one edge of the working strip. The topsoil stockpile will be protected by diversion ditches, slope breakers, and silt fences, if needed. The installation of geotextile fences as a separation medium may be especially required where topsoil is stockpiled in very close proximity to trench spoil or other cut subsoil material on segments of the working strip with steep side slopes because of its width constraints and there is a high risk of mixing (i.e. cross contamination) of distinct-type soil materials.

CONTRACTOR shall minimise compaction of soft and waterlogged ground to aid subsequent reinstatement and to prevent damage in areas of cultural heritage (for the location of known



cultural heritage sites refer to the Onshore Cultural Heritage CCP (IAL00-RSK-601-Y-TTM-0013)).

CONTRACTOR's Onshore Erosion Control and Reinstatement ESIP shall include details of locations where soil compaction may be a particular issue and shall include provision for:

- preparing a method statement to address construction through soft ground that includes consideration of the use of load-bearing materials (e.g. bog mats, geotextile membranes or other as proposed by CONTRACTOR) to support heavy loads in soft ground
- identifying fragile and sensitive soils in advance of work and implementing the method statement as necessary or as advised by the COMPANY.

Topsoil shall be stockpiled in piles no more than 2 m high and a slope angle equal to its angle of repose to prevent the risks of excessive compaction and anaerobic conditions and possible damage to the natural seed-bank within the topsoil that is essential for reinstatement.

Topsoil shall be provided with a cover, if necessary, to protect it from erosion or from potential mixing with subsoil or rock materials.

In wetlands, the turf layer and topsoil layers will be stored separately if it is practicable to strip them separately. The turf layer will be stored in piles no more than 2 m high and will be covered with geotextiles and dampened periodically to maintain soil humidity and structure.

Vehicles and machinery shall be prohibited from travelling over the topsoil and subsoil stockpiles even if the action is performed as a means to travel up and down the working strip or during occasions when the usual access route along the working strip is muddy or waterlogged impeding conventional access.

Wet subsoil and mud slurry or other subsoil cuttings shall not be placed onto topsoil stockpiles, as this would result in cross-contamination of the materials.

In order to manage sediment run off, spoil and soil materials will not be stored close to water bodies, and diversion drains will be installed to intercept surface run off and divert it away from

the construction area (IT0288). Topsoil shall not be placed where it could be eroded and enter surface water (IT0270), including:

- within 10 m of watercourses
- within 10 m of wetlands.

Topsoil shall not be placed along sides of steep slopes to prevent its loss by gravity sliding or during storm events. If this is not possible, erosion control fencing or similar measures shall be installed to ensure topsoil piles remain in place and no erosion or down slope movement takes place.

In low-lying areas gaps shall be left in the topsoil stockpile to allow drainage of the working strip. These gaps shall be carefully selected to avoid scour and erosion outside the working strip.

Material from the working strip topsoil stockpile shall not be used for bedding, padding or filling backfill material in trenches for supporting pipe sections. Should non-organic material from the subsoil stockpile or the surface of the stripped and graded working strip be unsuitable as support material for the welded pipe string then alternative material meeting the technical specification and sourced from sites approved by the COMPANY shall be sourced by CONTRACTOR (see the Onshore Resource Management CCP (IAL00-RSK-601-Y-TTM-0001) for sourcing specifications).

Topsoil should be stored for a limited time only. If the topsoil requires long-term storage (longer than 6 months), aeration and raking up will be carried out regularly to avoid compaction (IT0007).

### 3.1.2.3 Grading

Worksites shall be levelled using tractors, bulldozers and backhoes to create a reasonably uniform working area allowing the safe transit of equipment and traffic. Excavated material shall be stockpiled in a manner so as not to obstruct transit and construction activities.

To minimise the impacts on the soil and vegetation of the working strip, the following guidelines for grading shall be observed:

- in the event that substantial alterations to the original topography are necessary, topsoil and vegetation intended for reinstatement shall be gathered and stored according to the procedures outlined in Sections 3.1.2.1 and 3.1.2.2
- material shall not be side cast off slopes. Where there is insufficient workspace on the working strip material shall be removed and stored in temporary or permanent disposal sites (for further information refer to the Onshore Additional Land Take CCP (IAL00-RSK-601-Y-TTM-0005)).

To mitigate the potential impact of erosion and earth movement in highly susceptible areas (slopes on friable soil; gorges; ravines), slope stabilisation and erosion control systems shall be implemented (see Sections 3.1.6 and 3.1.7 and 3.2.5).

Reusable material shall be placed in suitable areas preventing its movement outside the working strip.

Areas that have been cleared and graded will be inspected weekly to identify possible erosion, with emphasis placed in advance of predictable major storms where possible. Once identified, areas with the potential to be affected by erosion shall have the appropriate erosion control measures installed or existing measures improved and periodically maintained (see Sections 3.1.5, 3.1.6 and 3.1.7).

#### 3.1.2.4 Trenching

CONTRACTOR shall utilise methods for trenching that minimise excavated material and ensure that trench material is not mixed with topsoil. In areas identified as containing sensitive wildlife, escape ramps shall also be installed (for further information, refer to the Onshore Ecological Management CCP (IAL00-RSK-601-Y-TTM-0004)).

#### 3.1.2.5 Backfilling

Padding for the immediate layer surrounding the pipe will be selected from the trench-excavated soil where possible. There will be a minimum of 1.5 m depth of cover on top of the pipeline (IT0044).

Any contaminated soil will need to be properly disposed of as hazardous waste, and any pumped groundwater, if contaminated, will need to be treated by mobile treatment units before discharge (IT0050) (see the Onshore Waste Management CCP (IAL00-RSK-601-Y-TTM-0008)). Contaminated excavated material will be replaced with the surplus arising from the excavation of other sections of the pipeline (once contamination checks have been completed) (IT0050).

If insufficient quantities of material are available it will be replaced with material from local quarries (IT0050). This additional material shall be required to meet the technical specification, and will be sourced from sites approved by the COMPANY (see the Onshore Resource Management CCP (IAL00-RSK-601-Y-TTM-0001) for sourcing specifications).

In the event that non-contaminated excavated material is not useable or is surplus to requirements for trench backfill or restoration, it shall be managed in accordance with Section 3.1.4. If additional land for excess material management is required, the process in the Onshore Additional Land Take CCP (IAL00-RSK-601-Y-TTM-0005) will be followed.

As the pipe will displace a significant proportion of the material extracted from the pipe trench, the surplus shall be disposed of in accordance with current law (IT0709) at pre-selected and approved disposal sites (for further information refer to the Onshore Waste Management CCP (IAL00-RSK-601-Y-TTM-0008)).

### 3.1.3 Blasting

Blasting shall be avoided where possible and alternative methods of break up and rock removal utilised. In cases where blasting is considered necessary by CONTRACTOR, it shall be subject to approval by COMPANY.

Where blasting is required, the charge used should be the absolute minimum load required to complete the required objective so that excessive fracturing of bedrock does not occur resulting in accelerated infiltration and drainage.

### 3.1.4 Backfilling

Padding for the immediate layer surrounding the pipe will be selected from the trench-excavated soil where possible. There will be a minimum of 1.5 m depth of cover on top of the pipeline (IT0044). About 60% of onshore excavated soil will be reused for backfilling purposes. The remaining portion of the material will be managed as reported at point 3.1.5 (Excess soil and rock).

Any contaminated soil will need to be properly disposed of as hazardous waste, and any pumped groundwater, if contaminated, will need to be treated by mobile treatment units before discharge (IT0050) (see the Onshore Waste Management CCP (IAL00-RSK-601-Y-TTM-0008)). Contaminated excavated material will be replaced with the surplus arising from the excavation of other sections of the pipeline (once contamination checks have been completed) (IT0050).

If insufficient quantities of material are available it will be replaced with material from local quarries (IT0050). This additional material shall be required to meet the technical specification, and will be sourced from sites approved by the COMPANY (see the Onshore Resource Management CCP (IAL00-RSK-601-Y-TTM-0001) for sourcing specifications).

In the event that non-contaminated excavated material is not useable or is surplus to requirements for trench backfill or restoration, it shall be managed in accordance with Section 3.1.4. If additional land for excess material management is required, the process in the Onshore Additional Land Take CCP (IAL00-RSK-601-Y-TTM-0005) will be followed.

As the pipe will displace a significant proportion of the material extracted from the pipe trench, the surplus shall be disposed of in accordance with current law (IT0709) at pre-selected and approved disposal sites (for further information refer to the Onshore Waste Management CCP (IAL00-RSK-601-Y-TTM-0008)).

### 3.1.5 Excess soil and rock

Any excess soil material generated during the construction and commissioning process will be removed and managed in accordance with the Italian Legislative decree 152/06 and its subsequent amendments and supplements (IT0009).

CONTRACTOR shall manage the disposal of excess soil and rock according to the following priorities (IT0011).

**FIRST PRIORITY: REUSE WITHIN THE PROJECT (IT0011)**

Where surplus soil and rock is suitable for use as a construction material it will be first considered for reuse on Project areas, for example Project infrastructure works such as stability, erosion control, and roads.

**SECOND PRIORITY: REUSE BY A THIRD PARTY (IT0011)**

Transfer to third party for re-use purposes as raw or semi- finished materials, for example crushed materials that may be suitable for road construction materials or for rail ballast. CONTRACTOR shall enter into negotiations and agreements with third parties (to be approved by the COMPANY).

**THIRD PRIORITY: DISPOSAL (IT0011)**

A plan for the re-use of suitable excess soil and rock will be prepared by CONTRACTOR, including (IT0644):

- amount to be re-used
- location of any temporary storage area
- location of the area where it will be placed permanently
- the proposed arrangements for disposal of excess material (quantity, collection and disposal arrangements).

The plan will be consistent with the requirements of art. 186 of D.Lgs no. 152/2006 and subsequent amendments; and Italian Legislative Decree 161/2012.

For further information, refer to the Onshore Waste Management CCP (IAL00-RSK-601-Y-TTM-0008).

### 3.1.6 Identification of areas likely to require erosion and sediment control

CONTRACTOR shall prepare an Onshore Construction Erosion and Sediment Control Plan and submit to the COMPANY for acceptance prior to commencing work. The Onshore Construction Erosion and Sediment Control Plan shall:

- identify areas that require temporary erosion and sediment control
- identify areas that are likely to require permanent erosion and sediment control to be applied as defined in Section 3.1.7
- describe on a site-by-site basis the erosion and sedimentation controls to be applied as defined in Sections 3.1.6, 3.1.7 and 3.1.8
- take into account the measures to be applied at specific locations as described in Section 3.1.9
- define erosion control inspection and maintenance requirements.

Following final contouring, CONTRACTOR shall update the Onshore Construction Erosion and Sediment Control Plan to create an Onshore Post-Construction Erosion and Sediment Control Plan. The requirements of the Onshore Post-Construction Erosion and Sediment Control Plan will be essentially the same as for the Onshore Construction Erosion and Sediment Control Plan, except that the areas identified as requiring permanent erosion and sediment control will be definitive.

Following completion of the construction phase and finalization of the Contract by CONTRACTOR, the responsibility for the effective maintenance of all temporary and permanent erosion and sediment control measures during the operational phase will pass to the COMPANY.

### 3.1.7 Temporary erosion and sediment control

Temporary erosion and sediment control measures shall be installed and maintained by CONTRACTOR along the working strip during construction in order to minimise erosion as far as practical. CONTRACTOR shall determine the appropriate locations, quantities and types of these measures, which will be agreed with the COMPANY. CONTRACTOR will install additional measures should the COMPANY require.

Run-off from the working corridor will be intercepted. Surface water run-off will be reduced and will undergo measures to trap and reduce sediment. Measures to be employed to intercept the run-off and reduce the sediment load of the water prior to its discharge into watercourses include sandbags and settlement tanks or lagoons (IT0291). Alternatively, the water may be filtered through a suitable membrane such as a geotextile material to clean the water prior to discharge. Filters such as straw bales or 'sedimats' will be positioned downstream to act as a filter to trap any sediment that is released into the watercourse (IT0291). Cut-off ditches will be employed to prevent water from entering excavations. Access roads located in the proximity of surface water will be paved; in the absence of pavement, they will be dampened periodically.

Temporary erosion and sediment control measures may include but are not limited to erosion matting, silt fences, straw bales, sediment traps and basins, diversion berms and trench breakers. All erosion control measures shall be inspected to ensure effectiveness weekly or immediately after a major storm event.

If CONTRACTOR is required to temporarily demobilise from any section of the working strip because of the onset of poor weather CONTRACTOR shall detail to the COMPANY all temporary erosion and sediment control measures implemented to stabilise the working strip during the entire demobilisation period. CONTRACTOR will install additional measures should the COMPANY require.

#### 3.1.7.1 Silt screens

Appropriate silt screening shall be utilised to minimise sedimentation and erosion during construction and intervention works. Silt screens shall be installed along the working strip, at water bodies, and in other areas as deemed necessary by CONTRACTOR.



### 3.1.7.2 Diversion berms

Diversion berms shall be constructed to provide a drainage system on the working strip that collects and carries surface run-off to natural channels or areas with stable soil and vegetation cover off the working strip. The collected run-off shall be discharged in a manner that does not pose a threat to the integrity of the pipeline, infrastructure, neighbouring properties or the environment.

Silt fences and silt traps should be placed at the end of diversion berms to entrap as much sediment as possible before drainage off the working strip.

The diversion berms should extend far enough to the edge of the working strip so that run-off is unable to drain back onto the working strip. Only subsoil material shall be used for diversion berms and the material should be compacted adequately to minimise erosion. The upslope side of the berm should be grooved, smoothed and cleared of debris to allow free, unobstructed drainage of run-off along the face of the berm towards the edge of the working strip.

Temporary diversion berms should be of minimum height and graded to allow safe crossing by vehicles. They should be angled slightly from perpendicular to the slope to facilitate drainage along the barrier but limit run-off velocity to prevent erosion and scour.

Spacing of the temporary diversion berms will depend on factors such as soil erosion potential, average precipitation in the area and terrain slope. The proposed spacing for the temporary berms will be considerably wider than that for permanent berms so as not to be an impediment or safety hazard to construction traffic. CONTRACTOR is responsible for the spacing and installation, which is to be agreed with the COMPANY.

Silt traps shall be built at drainage discharge points and at the end of diversion berms. Collected sediment in the pits may have to be removed periodically to maintain their effectiveness. Sediments can be placed on subsoil storage areas or spread along the working strip to dry out but should not be placed on the topsoil stockpile or outside the working strip. After they have completed their function these pits can be covered and revegetated.

### 3.1.7.3 Temporary trench breakers

On steep slopes with open trenches, temporary trench breakers consisting of unexcavated material shall be left in the trench line to interrupt surface flow and prevent scouring of the trench bottom. Temporary trench breakers shall be spaced as required and combined with slope plugs where necessary. Temporary trench breakers shall be left in place until actual pipe installation takes place.

### 3.1.7.4 Wooden fences

In certain site-specific locations such as steep slopes or ridges, where no other alternative is available to retain cut material, wooden fences may be temporarily installed during construction of the working strip.

CONTRACTOR shall ensure any such fences are capable of safely supporting the loads imposed. Fences shall be inspected regularly to ensure safe operation and structural integrity and be removed during reinstatement of the working strip.

### 3.1.7.5 Transverse drainage in access/logistics roads and construction areas

During construction access/logistics, roads and shooflies are bare surfaces susceptible to erosion. Vehicles can churn up wet soils and increase sediment loads to water bodies.

In erodible materials where normal roadway drainage considerations are absent or inadequate (side ditches, road crown, cross slope, etc.), transverse drainage systems shall be constructed with spacing and dimensions appropriate to the slope of the road. These drainage systems shall serve to remove water from the road surfaces and discharge it to areas with sufficient vegetation to prevent erosion or energy dissipaters, or other appropriate systems such as silt fences shall be installed.

### 3.1.7.6 Energy dissipater

When ditches and other drainage systems flow directly into natural bodies of water and it is impractical to achieve a low gradient with the drainage system alone, structures should be installed that reduce water velocity thus reducing the possibility of erosion and allowing sediment

to drop out of suspension before reaching the water body. The drainage system should direct water flow by following the gentlest slope towards natural water bodies.

#### 3.1.7.7 Vehicle and machinery restrictions

Vehicles and other machinery may be a significant cause of erosion and compaction of soils, and unwanted increased sediment loads in water bodies. In order to mitigate these impacts in areas not being used directly for construction CONTRACTOR shall ensure that all machinery and vehicles will be restricted to the designated working strip and approved access roads (IT0286).

#### 3.1.8 Permanent erosion and sediment control

Following final contouring of the surface layer, a survey shall be undertaken by CONTRACTOR to define the location, quantity and type of all permanent erosion control measures required. The Onshore Construction Erosion and Sediment Control Plan shall be updated and re-submitted as the Onshore Post-Construction Erosion and Sediment Control Plan to the COMPANY for acceptance.

In wet areas with steep slopes and access difficulties, wooden stakes, blankets and biodegradable sheets may be required to control topsoil erosion on a long term basis.

##### 3.1.8.1 Permanent diversion berms

The spacing of permanent diversion berms shall be defined in accordance with Table 3-1 below. Should CONTRACTOR wish to increase or decrease the spacing based on a site-specific field judgment basis, it shall submit a written request to the COMPANY justifying the proposed change in spacing, and shall not proceed with installing the berms before receiving full approval from the COMPANY. Slope breaker installation is the responsibility of CONTRACTOR.

**Table 3-1 Typical division berm spacing**

<b>TYPICAL DIVERSION BERM SPACING</b>			
<b>Longitudinal Slope</b>	<b>Soil Erosion Potential</b>		
	<b>HIGH</b> Flysch, semi rock soil mantles, clay schist, red soils, clayey and marly materials	<b>MEDIUM</b> Schist, gneiss, granites, sandstones, marls	<b>LOW</b> Conglomerates, carbonaceous rocks
Gentle (<10%)	45 m	60 m	Diversion berms not required

### 3.1.8.2 Erosion matting

Erosion matting may be installed to provide an immediate protection for slopes against erosion, prevent the washing-out of seeds and enhance the micro-climatic conditions in the soil for plant growth. Erosion matting is used to provide temporary protection of the soil surface until sufficient natural vegetation cover has been established.

The erosion matting shall consist of Geojute or similar and be biodegradable, open weave 11 mm x 18 mm mesh size and 2 mm-thick fibres with a mass/area ratio of 500 g/m<sup>2</sup>. The mat shall be capable of absorbing water to 500% of its dry weight on saturation.

The erosion matting shall be unrolled from the top of the slope, allowing it to lay naturally on the soil surface over all the local undulations. The material shall not be taut so that it forms 'bridges'.

The mat shall be secured to the slope using wooden or metal pegs as recommended by the manufacturer, except in cases where metal pegs pose a hazard to animals, in which case wooden pegs shall be used.

Erosion matting, once installed shall be regularly inspected for degradation and installation integrity by CONTRACTOR. CONTRACTOR shall be responsible for:

- defining where erosion matting is required and agreeing those locations with the COMPANY
- maintaining and replacing matting as required throughout the construction period.

### 3.1.8.3 Permanent trench breakers

Temporary trench breakers (Section 3.1.6.3) shall be left in place until pipe installation takes place. Permanent trench breakers (e.g. consisting of sack breakers) shall be installed in the pipeline trench after the pipeline has been installed to interrupt surface flow and prevent scouring of the trench bottom. Permanent trench breaker spacing shall be informed by Table 3-2 below.

**Table 3-2 Permanent trench breaker spacing guidelines**

Degrees (%)	Spacing (range) (m)
< 9	Do not need
13	15–40
18	9–40
23	8–35
27	8–11
>30	6.5–8 (or more regular as required, to be determined by CONTRACTOR)

### 3.1.8.4 Gabions

Gabions and gabion mattresses shall be used where there is a requirement to form flexible, permeable, monolithic structures such as retaining walls, revetments and weirs for earth retention. In some cases, it will be necessary to undertake a geotechnical survey to clarify the necessity of installing a retaining wall.

Gabion walls may be constructed and utilised for permanent recovery of the working strip and stabilisation of watercourse banks and steep slopes. Gabions structures shall be designed and constructed in accordance with the manufacturer's specifications.

### 3.1.9 Water body management and protection

The following types of water bodies and infrastructure are found along the Project working strip: watercourses, wetlands and field drainage/irrigation systems.

### 3.1.9.1 Watercourses

For information on erosion control and reinstatement measures to be performed at watercourses, refer to the Onshore Watercourse Crossing CCP (IAL00-RSK-601-Y-TTM-0007).

### 3.1.9.2 Wetlands

An ecologically sensitive wetland (Palude di Cassano) is located in close proximity to the working strip.

It is not currently anticipated that the working strip will traverse the wetland area. However, in the event that Project construction activities do occur within a wetland area (as the result of a re-routing etc.), or have the potential to affect a wetland area, the following system (or COMPANY approved equivalent) shall be used to minimise erosion, sedimentation and compaction:

#### 3.1.9.2.1 Construction methods

CONTRACTOR shall implement the following construction methods in wetland areas:

- a buffer zone of intact vegetation shall be left between the dry ends and the wetland
- the working strip in the wetland shall be made as narrow as is practical
- sediment traps to be utilised to reduce possibility of sediments entering wetland areas
- bog mats or similar structures shall be laid end to end along the working strip
- should a temporary road method be selected, a roadbed of compactable material shall be laid down on the geotextile that is thick enough to prevent compaction of the underlying soils. The roadbed shall be removed as soon as possible following completion of construction in that area
- bog mats, aggregate and geotextile haul roads installed during construction to facilitate movement of machines and traffic should be removed during clean up and reinstatement
- extra work space will be proposed by CONTRACTOR if considered necessary (refer to the Onshore Additional Land Take CCP (IAL00-RSK-601-Y-TTM-0005))
- no synthetic fertiliser will be used in the wetland during reinstatement.

#### 3.1.9.2.2 Vegetation clearing and topsoil management

Refer to Sections 3.1.1 and 3.1.2 for details on CONTRACTOR's responsibilities for vegetation clearing and topsoil management in wetland areas.

#### 3.1.9.2.3 Sediment and erosion control

CONTRACTOR shall implement the following sediment and erosion control measures in wetland areas:

- silt fences and collector sumps are to be placed along subsoil stockpiles to minimise the risk of erosion and the transportation of sediment off the working strip causing deposition and contamination in other areas of the wetland
- dewatering of the trench should be designed to discharge water outside of wetlands areas wherever practicable and use sediment controls to trap material and minimise the risk of inundation of the surrounding wetland.

#### 3.1.9.2.4 Drainage – overland flow and subsurface drainage

CONTRACTOR shall implement the following overland flow and subsurface drainage control measures in wetland areas:

- where surface or subsurface drainage lines occur across the wetland, adequate temporary drainage lines should be provided (e.g. flume pipes) to ensure the downstream section of the wetland does not suffer from soil moisture stress
- backfilled trench material should be adequately compacted (without comprising the pipe integrity) to ensure that infiltration and downwards drainage in the soil is not increased
- permanent trench plugs shall be placed at intervals inside the trench within the wetland to protect against lateral drainage affecting long-term soil moisture.

#### 3.1.9.2.5 Monitoring

Wetland water quality monitoring requirements are detailed in the Onshore Ecological Management CCP (IAL00-RSK-601-Y-TTM-0004) and the Onshore Compliance Monitoring CCP (IAL00-RSK-601-Y-TTM-0006).

### 3.1.9.3 Field drainage/irrigation systems

The working strip has significant potential to alter the natural and any man-made drainage systems of the land it crosses. CONTRACTOR is responsible for the identification, management and mitigation of any significant impacts to the nearby drainage system as a result of construction activities.

A condition survey will be carried out to assess field drains within the working strip to enable an assessment to be made of any damage created during construction and to allow reinstatement measures to be targeted appropriately.

Where appropriate, prior to construction, header drains will be installed to connect all existing viable field drains on the high side of the working strip. This will ensure continuity of functioning of the existing field drainage.

Full reinstatement of land drainage features will take place if disturbed during construction.

Other requirements relating to field drainage/irrigation systems can be found in the Onshore Infrastructure and Utilities CCP (IAL00-RSK-601-Y-TTM-0011).

### 3.1.10 Erosion and sediment control requirements at specific sites

CONTRACTOR shall conduct geophysical, geotechnical studies and hydrogeological surveys at specific sites where there is considered to be a significant risk of potential collapses prior to the commencement of any excavation activities. The scope and methodology of CONTRACTOR's geophysical geotechnical studies will be included in CONTRACTOR's Onshore Erosion Control and Reinstatement ESIP, for review and acceptance by the COMPANY.

It is the responsibility of the CONTRACTOR to ensure all sites requiring erosion and sediment control measures are identified and adequately managed.



## 3.2 Reinstatement

This Section describes the commitments and best practice that CONTRACTOR is responsible for relating to onshore reinstatement. For economic liability see the Livelihoods Restoration Framework (LRF) (TAP-LEA-PL-0004). CONTRACTOR liability will continue until the end of the defects liability period. Further CONTRACTOR requirements concerning reinstatement are described in the Specification for Reinstatement (IAL00-SPF-000-C-TRH-0004).

In general three main types of areas requiring reinstatement and revegetation have been identified:

- Type 1: Areas with erosion potential that require the stabilisation of slopes and protection against erosion. Reinstatement may include the use of geotextiles, jute matting or similar, and revegetation will consist of local grass species. Type 1 also includes the 8 m wide permanent pipeline protection strip (PPS) where deep-rooted plants are not allowed
- Type 2: Areas of temporarily occupied land (e.g. storage and lay-down areas and the pipeline working strip beyond the PPS) that require reinstatement and revegetation to reach their original pre-construction conditions as far as possible (see Sections 3.2.6.1, 3.2.6.2, 3.2.6.3 and 3.2.6.4)
- Type 3: So-called “compensation areas” that require development by the Project to compensate for the loss of biodiversity caused by Project activities. These areas will be identified by the Biodiversity Action Plan (BAP) and development activities are likely to include the planting of trees, shrubs and other native vegetation, including translocated sensitive species. Development of the compensation areas shall be the responsibility of the COMPANY.

### 3.2.1 CONTRACTOR reinstatement surveys

#### 3.2.1.1 Pre-construction surveys

In order to accurately assess the adequacy of the physical reinstatement, both the COMPANY and CONTRACTOR shall make records of the existing condition of the construction area prior to the commencement of work by CONTRACTOR. As part of this, topographic and photographic records will be realized to characterise the existing condition of the pipeline route and the access roads, to assess the quality of reinstatement following construction (IT0054). These records will

then be used by both parties as the standards against which the quality of the restoration work will be judged when construction work is completed. The COMPANY shall conduct an inspection to determine the adequacy or otherwise of all physical reinstatement undertaken by CONTRACTOR.

### 3.2.2 General requirements

Reinstatement of the ROW and temporary works areas will aim to restore sites to their original condition, to the extent possible (IT0313).

Once construction work is completed and CONTRACTOR is ready to demobilise, CONTRACTOR shall:

- reinstate the land
- following reinstatement, locate all posts and markers in a way to minimise interference with agricultural activities (IT0073)
- ensure that no restrictions on land use remain in place following the return of land to landowners and users, other than those already agreed upon. Such agreements shall be finalised prior to commencement of construction activities, and shall be agreed between CONTRACTOR, appropriate third parties (such as landowners, those with rights of access) and the COMPANY.

CONTRACTOR shall be responsible for completing the physical reinstatement of all Project-disturbed sites to their original condition, as far as possible, upon completion of construction. Before construction personnel and equipment are demobilised, temporary buildings and equipment, tools and any excess material brought onto site or generated during the construction and commissioning programme will be removed (IT0068). In agreement with the relevant land owner, any building demolished on a temporary work site will be reinstated to its pre construction condition (IT0141).

In areas affected by the construction of the pipeline, specialist contractors will be employed to carry out reinstatement following pipeline construction (IT0737). In areas affected by the construction of the PRT, specialist contractors must carry out reinstatement around the PRT immediately after completion of construction (IT0739).

As a minimum, CONTRACTOR shall carry out the following reinstatement activities:

Areas affected by the works will be levelled and covered with the previously removed topsoil and subsoil. Stored topsoil (and the seed bank within it) will be replaced above the subsoil in the pipeline trench in order to maintain the structure and fertility of the soil (IT0750). The soil excavated during topsoil stripping and trenching activities (see Sections 3.1.2.1 and 3.1.2.4) will be replaced in its original location and to a similar depth (IT0872). There will be a minimum of 1.5 m depth of cover on top of the pipeline (IT0044).

Attempts will be made to maintain the same profile and original stratification of horizons of reinstated soil. The soil level will be left a few centimetres above the surrounding terrain in consideration of the natural settling (IT0971). During ground levelling, particular care will be taken to avoid leaving holes or depressions that could create problems for subsequent farming activities (IT0140).

After the trench is backfilled the ground will be contoured to pre-existing conditions as far as is reasonably practical (IT0067). An Onshore Site Restoration and Landscape Management Plan will be developed by CONTRACTOR as part its Onshore Erosion Control and Reinstatement ESIP (IT0534).

In general, soil reinstatement should start as soon as practical after trench backfilling, with bio-restoration continuing until each area is revegetated (IT0042). Biore restoration operations must be carried out in the periods most suitable for establishment of the vegetation (IT0738).

Any disposal will be carried out on stable ground, then compacted and covered with local topsoil to aid the growth of vegetation to avoid any later landslides or excessive erosion of the deposit. Further information regarding waste disposal is provided in the Onshore Waste Management CCP (IAL00-RSK-601-Y-TTM-0008).

Landscape restoration processes (including pipeline burial and topsoil reinstatement) will commence at the end of the construction phase soon after the trench is backfilled and will continue until the area is revegetated. This is of particular importance in steep areas.

After backfill activities, tillage of the soil will be realised through mechanical agitation with the aim of aerating the top layer of soil compacted by machinery (IT0287), and to optimise soil humidity prior to placement of topsoil or other imported material serving as a topsoil replacement. Tillage will be up to a depth of 60 cm. Particular attention shall be given to this method on route sections running through agricultural land (including olive groves) and permanently cultivated fields.

Once the topsoil has been replaced any large stones that are not in keeping with the surrounding soil texture will be removed (IT0081). Rocks may be returned to the surface of the working strip where they are characteristic of the preconstruction landscape on or off the working strip. Rock morphology, size and distribution should reflect the pre-construction character and that of the surrounding, undisturbed landscape.

Broken bedrock displaced during trenching and pipe-laying activities shall not be left haphazardly dumped on the surface of the working strip where it is incongruous with the surrounding landscape and shall not be left in stockpiles or cairns along the working strip.

Where broken rock and stones remain on the ground surface or within the topsoil layer in greater quantities than its pre-construction condition CONTRACTOR will undertake stone picking to return the soil to its original form. Particular attention shall be given to this method on route sections running through agricultural land (including olive groves and permanently cultivated fields).

Excess rock that cannot be integrated reasonably into the finished working strip surface in harmony with the surrounding environment must be disposed of. CONTRACTOR shall develop an Onshore Excess Rock Management Plan that shall describe how the rock will be managed (with reference to the Onshore Waste Management CCP (IAL00-RSK-601-Y-TTM-0008)) and submit it to the COMPANY for acceptance.

CONTRACTOR shall inspect the excavated material to ensure that all waste, debris and other foreign objects (such as sections of cable, debris of anti-corrosive coatings etc.) are not incorporated into subsoil placement, re-contouring works or topsoil re-spreading (including backfilling and pipe bedding). The foreign bodies must be removed, collected and disposed of in

accordance with current law (IT0709) (see also the Onshore Waste Management CCP (IAL00-RSK-601-Y-TTM-0008)).

No contaminated material will be used for reinstatement purposes (IT0035). Any contaminated soils shall be removed and disposed of in accordance with the Onshore Waste Management CCP (IAL00-RSK-601-Y-TTM-0008).

All slash not usable as timber or in erosion control structures shall be re-spread along the working strip once grading and topsoil reinstatement is complete. Slash shall not be mixed in with subsoil and fill materials during levelling and re-contouring works.

### 3.2.3 Hydrogeological reinstatement

The hydrogeological balance will be restored by CONTRACTOR using appropriate techniques such as (IT0839):

- backfilling the excavation trench with granular material
- execution of waterproof partitions made of clay for the entire excavation section
- prompt confinement of the open fractures and construction of waterproof constraints.

### 3.2.4 Landscape and visual amenity

CONTRACTOR shall implement the mitigation measures concerning potential impacts to landscape and visual amenity, as included in Table 3-3.

**Table 3-3 Landscape and visual mitigation measures (amended from the ESIA Italy – Section 8, Table 8-120)**

Impacts	Mitigation Commitments to Reduce the Impact
Physical changes to landscape features	<p>Careful planning of the construction period to avoid interfering with the summer season.</p> <p>Restore the original conditions of the structures interfered with (dry stone walls, wells etc.) by the Project.</p> <p>Restore the sites to their condition before the construction work by replanting the olive trees. If requested by the owners, in agreement with competent authorities, an alternative form of compensation may be offered (see Section 3.2.4.2 for more information).</p>
Visual impact	Construction works will be carried out taking into account the importance of the summer season.

	The work site equipment that will be installed during the construction phase, due to their moderate height, will not significantly alter the characteristics of the landscape – no associated mitigation measures required.
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CONTRACTOR will check in with relevant stakeholders following re-construction of physical structures to make sure these structures are built to expectations (IT0368).

#### 3.2.4.1 Dry stone wall reinstatement

See the Onshore Cultural Heritage CCP (IAL00-RSK-601-Y-TTM-0013) for information on reinstatement of dry stone walling affected by the Project activities.

#### 3.2.4.2 Olive tree reinstatement

Although construction activities do not interfere with any tree included in the regional list of “monumental olive trees” (approved by the Regional Council with resolution n. 357 of 7 March 2013), there are olive trees of significant age and size along the working strip. Any olive trees impacted by the Project will be reinstated by CONTRACTOR to pre-construction conditions in accordance with the report “Olive Tree Management During Construction” (Ofride srl. 2014), unless alternative compensation measures are requested by the landowner and agreed with the local authorities (IT0060).

The following reinstatement requirements will need to be complied with, to be undertaken by CONTRACTOR:

- an agronomics plan will be prepared by an agronomist (employed by the CONTRACTOR) in order to ensure the successful reinstatement of the transplanted olive trees (IT0087)
- tables comparing the pre-construction location and post reinstated position of any transplanted olive trees will be prepared (IT0735)
- when removing and replanting olive trees the requirements of Attachment A of L.R. 4/06/2007 no. 14 will be followed (IT0663)
- olive trees will be suitably prepared for temporary removal in accordance with the report “Olive Tree Management During Construction” (Ofride srl. 2014) (IT0061)
- for the olive trees that will be transplanted the following actions will be taken, with the agreement of the owners (IT0142):

- pruning (reduction of approximately 50% of the foliage)
  - disinfection of cut areas with fungicides
  - wrapping of trunks, if necessary with burlap or other similar material
  - finish the surface with grass turf installed with a digging machine; the grass turf will be held in place with a wire net and anti-algae tarp
- olive trees to transplant must be taken out of the ground between December and February with an appropriate amount of soil and not with bare roots. They will be directly planted out or put in special plastic tubs while awaiting replanting (IT0848)
- any olive trees located exactly on the centreline will be relocated a short distance from their original position in accordance with the report “Olive Tree Management During Construction” (Ofride srl. 2014) (IT0062)
- large olive trees with extensive root systems will not be relocated over the underground pipeline. They will be relocated nearby, while younger specimens can be replanted on top of the pipeline (IT0991)
- any new olive groves that are planted during reinstatement will be planted with an irregular layout and at a density between 110 to 120 trees per hectare (IT0160)
- as far as practicable, all olive trees (estimated at no. 86) removed from the PRT site prior to construction will be replanted at that site. For any trees that cannot be relocated in the PRT, a new location in another site must be agreed with the relevant authorities (IT0662) and the COMPANY
- olive trees within the block valve station area will be removed and plausibly relocated to the borders of the surrounding plantations or used to thicken the olive crops in the area (IT0992)
- the olive trees removed along a worksite must be replanted there, even if in a different position from the original (IT0661)
- following reinstatement, olive trees will be periodically examined to assess their condition and identify water and fertilizer needs (IT0089) (see the Onshore Compliance Monitoring Plan (IAL00-RSK-601-Y-TTM-0006))
- transplanted olive trees will be assisted with emergency irrigation during the summer season (IT0847)
- olive trees with a trunk diameter greater than 70 cm (and therefore potentially Monumental Olive trees) will be considered by CONTRACTOR on a case-by case basis and the need

for and nature of their reinstatement agreed with the relevant authorities/landowners (IT1006) and the COMPANY.

### 3.2.5 Slope stabilisation

The construction may cross areas where slope stability poses either an existing hazard or a hazard created as a result of construction activities. It is the responsibility of CONTRACTOR to identify and apply appropriate mitigation measures to all sites where slope stability poses a hazard.

#### 3.2.5.1 Geophysical investigations

As reinstatement is being completed, geotechnical investigations will be completed by CONTRACTOR's geotechnical specialists on potentially unstable areas and site-specific mitigation measures will be developed for these areas if required see Section 3.2.5.2).

CONTRACTOR shall ensure that all geophysical surveys are conducted by competent persons to a high standard using appropriate technology, and will provide sufficient and adequately detailed information to make an accurate assessment of the area being investigated. The scope of CONTRACTOR's geophysical surveys will be included in CONTRACTOR's Onshore Erosion Control and Reinstatement ESIP for review by the COMPANY.

#### 3.2.5.2 Slope stabilisation mitigation measures

Where hazard sites are identified CONTRACTOR shall determine the actions to be implemented in order to reduce the risk of pipeline failures and ground disturbance during and after construction.

Actions to be implemented may include but are not limited to

- working strip reduction
- special working strip grading (benching, cut designs, etc.)
- surface drainage works before opening and grading the working strip (channels)
- trench drainage works (pipe drain, French filters, etc.)
- watercourse banks bed protection (gabions, rip rap, etc.)



- horizontal drains
- earth retention structures (reinforced earth, gabions wall, sheet piles, etc.)
- erosion control measures (jute matting, slope breakers, channels etc.)
- strain gauges.

Watercourse bank slope-stabilisation measures should be selected according to the expected flood run-off. Natural measures shall be given preference.

Site specific mitigation measures may include measures such as retaining walls, gabions, sheet piling, rock anchors, mooring, and stabilising materials such as soil cement, to be installed by CONTRACTOR. Completed reinstatement will be monitored regularly to check its effectiveness (see the Onshore Compliance Monitoring CCP (IAL00-RSK-601-Y-TTM-0006)). Should the monitoring results indicate a reduction in effectiveness, CONTRACTOR shall take appropriate action to rectify this.

### 3.2.6 Reinstatement: requirements for specific locations

#### 3.2.6.1 Storage areas

Reinstatement of storage facilities shall be carried out according to the requirements of this CCP. Improvements/infrastructure may only be left on site by mutual consent between the landowner(s), CONTRACTOR and the COMPANY (see Section 3.2.2 for requirements on agreements between landowners, CONTRACTOR and the COMPANY).

CONTRACTOR shall restore the site as closely as possible to its initial state. Any features affected by the Project (wiring, gates, service roads, drainage ditches, fences, etc.) shall be restored.

The surface preparation process of affected areas will include the remediation of contaminating substances (e.g. hydrocarbons) in the soil. As necessary, soils will be excavated and mixed with organic material in order to restore their original physical and mechanical characteristics. Landowners will be consulted beforehand to identify future land use.

Once the site is abandoned, samples of the soil will be obtained and analysed for pollutants, including but not limited to Total Petroleum Hydrocarbons (TPH), benzene, toluene, ethyl benzene and xylene (BTEX), polycyclic aromatic hydrocarbons (PAH), lubricants, any other chemicals used during the constructions phase and heavy metals from those areas where fuel was stored and any machinery yard/maintenance area were located. Where contamination is observed the clean-up limits as required by the Onshore Spill Prevention and Response CCP (IAL00-RSK-601-Y-TTM-0010) and the Environmental Project Standards Italy will be achieved.

#### 3.2.6.2 Borrow pits and quarry reinstatement

Before any borrow pit or quarry is opened, an environmental, socio-economic and cultural heritage assessment shall be carried out identifying the mitigation measures for its operation and reinstatement (for further information, refer to the Onshore Additional Land Take CCP (IAL00-RSK-601-Y-TTM-0005)).

Temporary quarries used for extracting materials shall be shut down following completion of construction. The land surface shall be levelled out using leftover waste rock that has accumulated in the periphery of the quarry areas. Access roads shall be closed and reinstated to prevent erosion. Soil removed during initial access road construction shall be spread out to encourage natural revegetation.

Quarry re-contouring work shall result in stable slopes; if necessary, terraces shall be built to reduce the slope length and angle. Drainage systems shall be implemented in areas of high rainfall. Finally, the topsoil shall be replaced to expedite revegetation.

No quarrying activities will be allowed in or around riverbeds or streambeds.

#### 3.2.6.3 Irrigation infrastructure

Where construction works may affect land drainage and/or irrigation systems along the route, CONTRACTOR will agree with each land owner the measures to be adopted to avoid such interference and any compensatory work. The functionality of pre-existing land drainage/irrigation features will be restored by CONTRACTOR following construction (IT0069).

Irrigation channel crossing procedures shall be the same as the crossing of minor watercourses (see the Onshore Watercourse Crossing CCP (IAL00-RSK-601-Y-TTM-0007)). Reinstatement should achieve original conditions or better, and should take into account all Project-disturbed irrigation structures, including but not limited to channels, wheels, pipes etc.

Following the pipeline backfilling operation, prior to the completion of the restoration works, the reactivation of pre-existing flow lines will be carried out (IT0078).

Construction shall preferably be carried out during the time when channels are not being used. Where this is not practical, provisions shall be made to maintain water flow during pipeline installation; and coordination with the landowner and users shall be carried out through the COMPANY to minimise the impact on the use of irrigation infrastructure (see the (LRF) (TAP-LEA-PL-0004)).

#### 3.2.6.4 Roads

CONTRACTOR will finance and will be responsible for the repair/upgrade work on roads required prior to heavy transportation; the maintenance of access roads during construction; and the reinstatement works after completion of the pipeline construction (IT0392).

For road crossings, the trench will be refilled and compacted in layers, according to current specifications provisioned by relevant regulations. The road surface will then be restored over the compacted trench (IT0875).

##### 3.2.6.4.1 Abandonment of logistics/access and shoofly roads

As determined by the COMPANY, newly built access roads developed for use during the construction phase of the Project may later be converted into service roads for pipeline maintenance or for long-term community use during the operations phase. Upgraded existing roads will also be required for use by the community and/or Project use. Consequently, CONTRACTOR shall restore the sides of roads that have been disturbed or that require erosion protection works. It may be desirable to establish living barriers of trees or bushes, especially on slopes.

In the case of shooflies, areas will be restored by decompacting and ensuring the re-conformation of slopes to a state as close to the original as possible and incorporating disturbed topsoil in an effort to return original physical and mechanical characteristics. Shooflies shall be revegetated completely once they are no longer in use.

#### 3.2.6.5 Areas of identified contaminated soil

CONTRACTOR will sample and analyse any areas where polluted soil is identified on finalisation of construction works. For further information refer to the Onshore Compliance Monitoring CCP (IAL00-RSK-601-Y-TTM-0006).

Further CONTRACTOR requirements concerning reinstatement are described in the Specification for Reinstatement (IAL00-SPF-000-C-TRH-0004).

### 3.3 Revegetation

This Section described the commitments and best practice that CONTRACTOR is responsible for relating to onshore revegetation. Further CONTRACTOR commitments and best practice concerning revegetation are described in the Italy Biorestoration Guidance and Preliminary Specification (IAL00-RSK-601-Y-TSP-0001).

#### 3.3.1 Overview

The restoration/compensation operation will be carried out using good international practice for natural restoration and bioengineering (IT0851).

The vegetation on the working strip and other disturbed work areas will be fully restored and returned to their original (pre-construction) state by CONTRACTOR (IT1003). Reseeding of pasture, semi-natural and natural habitat will take place at the end of the construction phase and will be the responsibility of CONTRACTOR. Reseeding of cropland will be the responsibility of the landowner. Revegetation shall result in enhanced ground stability, erosion and sediment control and the highest potential for reestablishment of the original habitat and biodiversity. Prompt revegetation (i.e. sowing native herbaceous species and/or planting native shrubs/trees) on bare

soil with natural or semi-natural vegetation will be undertaken to reduce the spreading of alien species (IT1005).

Revegetation of the working strip shall comprise natural revegetation and regeneration based on the seed-bank preserved within the topsoil stockpile prepared during the preliminary clearing and grading activities of construction; it shall also comprise assisted revegetation using a combination of naturalised and native species. Assisted revegetation will aim to be representative of the natural and original biodiversity of the area prior to construction. CONTRACTOR shall determine areas where assisted vegetation is required and submit them to the COMPANY for acceptance.

CONTRACTOR shall define, source and obtain the seed supply for distribution, which will be approved by the COMPANY. The seeding schedule will be defined by the vegetative condition of natural habitats as they exist prior to construction. CONTRACTOR shall be responsible for storage of seed in the correct temperature and humidity controlled environment prior to seeding. Where revegetation involves the re-introduction of shrubs by planting in addition to seeding, CONTRACTOR shall arrange to procure existing or propagate new shrubs from seeds or cuttings before works begin on the working strip.

CONTRACTOR shall apply jute matting, mulch (straw), fertiliser and hydro-seeding in compliance with requirements of this CCP and as deemed necessary by CONTRACTOR following inspection of the disturbed areas. These areas shall be defined by CONTRACTOR and agreed with the COMPANY.

During the hiring of local labour when executing its revegetation programme, CONTRACTOR shall give preference to labourers with ecological or agricultural experience.

### 3.3.2 Revegetation strategy

All affected areas will be classified into Revegetation Units (RUs) (sites that have equivalent ecological conditions and objectives). These units shall be defined by CONTRACTOR based on the ecological context, Project needs and short/long term restoration objectives in consultation with the COMPANY.

In order to precisely establish objectives for each RU, CONTRACTOR shall select a number of reference sites (in consultation with the COMPANY). The sites will cover the whole range of environments/communities (i.e. several sites will be selected for each type of RU). These reference sites will constitute the ultimate goals for those areas that are intended to be restored to pre-construction conditions.

In the early phases of the revegetation strategy CONTRACTOR shall plan the plant material stocking (i.e. determining suitable plant material for each RU).

Therefore the CONTRACTOR shall:

- analyse the plant material availability in the areas being crossed
- analyse the options for stocking (e.g. seedling procurement, commercial providers etc). In all cases, a careful evaluation on the procedure for wild seed collection shall be performed to identify sources for seeds for starting nursery grown plants and nursery grown seeds.

For each RU the following should be defined:

- stocking needs for all plant species (e.g. grasses, shrubs, trees)
- appropriate plant material types for revegetation (e.g. seeds, cuttings, wild plants, container/liner)
- size of plants
- potential needs for on-site or off-site plant nursery.

### 3.3.3 Species used

The preferred use of native species and vegetation varieties already existing in the area for all seeding, hydro-seeding and any other revegetation techniques is a principal objective of the revegetation programme. Species mix selection by area along the Pipeline will consider vegetation data from the ESIA Italy environmental baseline as an indicator of naturally occurring species in the area and habitat type.

Native plants grown from seed, and cuttings and temporary transplants obtained during the preconstruction phase will be used in the revegetation activities and planted in their source areas (IT0307). Where possible, procurement should be from local nurseries dealing with certified

native trees and shrubs of local origin (IT0746). If local provenance trees and shrubs are not available in the region, CONTRACTOR shall establish a suitable nursery to propagate local provenance material (IT0747). Bio-restoration of herbaceous vegetation shall be with species that grow naturally in the Project area. In semi-natural habitats preference should be given to the use of seeds of local provenance rather than commercial seed mixes (IT0743).

Where the use of native species is not possible, the use of naturalised species is an acceptable alternative. Naturalised species constitute those species that have been introduced by human activity or have moved naturally into new habitats. CONTRACTOR will ensure that seed mixtures will only comprise those naturalised species that occur along the working strip and within the surrounding areas and are not considered invasive or to the long-term detriment of native species and natural biodiversity. It is the aim that over a long-term period the more rapidly colonising naturalised species will be replaced progressively by slower establishing native species as part of the natural plant succession process.

Attributes to be considered when selecting species (other than natural occurrence in the area) include dominance, importance within a habitat, sourcing and availability.

Requirements relating to the use of Genetically Modified Organisms (GMOs) can be found in the Onshore Ecological Management CCP (IAL00-RSK-601-Y-TTM-0004).

Management of potential ecological impacts associated with the supply chain and use of living resources (e.g. trees and vegetation) is described in the Onshore Resource Management CCP (IAL00-RSK-601-Y-TTM-0001).

The COMPANY shall approve the final selection of species for revegetation as chosen by CONTRACTOR.

### **3.4 Revegetation management**

#### **3.4.1 Grass/plants**

Revegetation with native species will be carried out on grassland and fallow land where natural herbaceous communities have to be reformed (IT0972).

Grass seeding shall not be applied in areas where the pre-existing native vegetation cover does not include a significant herbaceous layer.

Estimates of areas to be subject to seeding and turfing, particularly areas prone to erosion that may require rapid stabilisation following reinstatement, shall be defined by CONTRACTOR and be subject to approval by the COMPANY.

#### 3.4.1.1 Native seed/bulb collection

Seeds of non-domesticated native plant species may not be commercially available. CONTRACTOR shall plan and coordinate the production or collection of native grass seeds, preferably with the involvement of local communities in order to have seed material available in the appropriate time.

Wherever practicable, native seed applied to disturbed areas will be sourced from the same habitat type as the surrounding area.

#### 3.4.1.2 Broadcast seeding

In most areas requiring grass seeding, broadcast seeding will be performed by CONTRACTOR using standard low-impact mechanical or manual methods directly upon restored and graded topsoil. The seed shall be covered by raking the soil. Seed sprinkling machines may also be used to carry out the task much more efficiently.

#### 3.4.1.3 Hydro-seeding

Hydro-seeding may be required to achieve a more rapid and dense vegetative cover in sensitive areas of thin, infertile erodible soils, on steep slopes and in areas where seasonal rainfall presents a high risk of erosion or instability.

Hydro-seeding will be undertaken by CONTRACTOR. It will be based on the established method of spraying from a tank or truck a water-based substance typically composed of seeds, water, fertiliser, cellulose fibres and a tackifier adhesive that allows the seeds to stick to the application



surface. The tank has an evacuation mechanism operating by pressure using a connected hose that allows controlled dispersion onto ground surfaces.

To avoid moisture stress and poor establishment, hydro-seeding should not be undertaken just before a predicted long period of dry weather unless irrigation is used. It is therefore recommended that hydro-seeding is undertaken in the autumn or winter seasons.

Revegetation should be undertaken by CONTRACTOR immediately after the working strip has been morphologically restored and reprofiled. Where practical, revegetation will be undertaken by hydroseeding (IT0973).

CONTRACTOR shall prepare a method statement (MS) for hydro-seeding that identifies proposed hydro-seeding locations, species mix and quantities, equipment, spray mixes (water, fertiliser, cellulose fibres, tackifier etc.), operating pressure and aftercare.

#### 3.4.2 Trees and shrubs

Shrub and tree coverage will be re-established in any areas affected by the works where natural or semi-natural plant communities are found as soon as the seeding is completed (IT0974). Where practicable, trees and/or shrubs damaged during construction will be “repaired” (e.g. damaged branches pruned cleanly) or replaced by those of a similar structure, physiognomy and age (IT0745).

Native tree species will be planted on sites selected for compensation planting to off-set the loss of vegetation during the construction phase (IT0318).

CONTRACTOR shall obtain seeds, cuttings or transplants of all native/naturalised shrubs and trees, preferably in coordination with local communities, prior to commencing clearing activities. All transplant operations will be performed during the periods of the year best suited to this type of operation (IT0853).

The quantity of seedlings acquired from communities will be based on an evaluation of the quantity they can realistically provide.

Plants shall not be taken from the wild except as authorised by the Italian authorities and in agreement with the local communities. Native plants grown from seed, cuttings and temporary transplants obtained during the preconstruction phase will be used in the revegetation activities and planted in their source areas.

CONTRACTOR shall adhere to the following guidelines:

- the planting of tree and shrub species with deep roots that may compromise the integrity of the buried pipe will not be allowed within 4 m of each side of the pipe alignment
- CONTRACTOR should water trees and shrubs immediately after planting to facilitate establishment (unless planted during periods of frequent rainfall)
- to the extent possible, planting should be performed on cloudy, cool, humid days to avoid exposure of plants and roots to harsh micro-climatic conditions such as excessive heat and drought
- unhealthy plants should be discarded and the material used as mulch
- spacing and arrangement of plants should provide a natural appearance (i.e. not uniform) and provide the required planting density of each species as indicated by prevailing conditions in the surrounding natural habitat
- planting holes backfill must be compacted adequately to remove voids and allow good root contact with soil
- any waste associated with planting will be collected and removed by CONTRACTOR as per the requirements of the Onshore Waste Management CCP (IAL00-RSK-601-Y-TTM-0008).

### 3.4.3 Fertiliser and pesticide use and management

Fertiliser application shall be limited to areas where it is necessary to establish a rapid vegetative cover for erosion control purposes in areas of high risk. Any fertilizer applications must be formulated and performed so that natural nutrient balances in adjacent ecosystems are not altered, particularly where there are nearby water bodies.

Pesticide use and management shall be consistent with International Finance Corporation Pesticide Handling and Application Guidelines (IFC, 2007). Any pesticide application by CONTRACTOR shall require approval by the COMPANY. Further requirements relating to

pesticide use can be found in the Onshore Pollution Prevention CCP (IAL00-RSK-601-Y-TTM-0002).

#### 3.4.4 Maintenance

CONTRACTOR shall perform routine maintenance of revegetated areas until such time that land is officially handed back to the COMPANY or third parties. Special post-intervention techniques will be used (periodic crop treatments, use of mulching discs, summer emergency irrigation, replacement of the failed areas, etc.) in order to aid restoration of the existing natural vegetation and to increase the ecological function of the area (IT0852).

CONTRACTOR shall control noxious weeds and invasive species within revegetated areas. These activities shall be scheduled and performed in consideration of prevailing weather conditions and seasonality of plant development.

### 3.5 Revegetation: location-specific requirements

#### 3.5.1 Wetlands

It is not currently anticipated that the working strip will traverse the wetland area. However, in the event that Project construction activities do occur within a wetland area (as the result of a re-routing etc.), or have the potential to affect a wetland area, CONTRACTOR shall undertake the following revegetation best practice.

Sod, turf cuttings and other plant materials comprising the surface vegetative and root layer of the soil within the wetland habitat will be removed and stored by CONTRACTOR in accordance with Section 3.1.8.2.

During topsoil reinstatement the turf cap will again be removed and separated from the rest of the topsoil stockpile. The topsoil will be re-spread across the working strip surface and the turf cap re-spread on the surface to enhance the likelihood of re-establishment. Where it was not previously practicable to separate the turf layer readily from the topsoil during site clearing and stripping then all the material will be re-spread together across the working strip surface.

Turf revegetation will be supplemented by seeds sourced from the wetland prior to construction, or by planting of native species propagated from seeds or cuttings. Non-wetland species shall not be introduced into wetland areas.

### 3.5.2 Roads

The recovery of vegetation along roadsides that has been impacted by construction activities will be enhanced through the planting of hedges, trees and interlayer shrubs, consisting of native species (IT0317).

### 3.5.3 Watercourses

Revegetation of watercourse banks will include the installation of geotextiles and stones in addition to vegetation. The stones will be covered in humus to facilitate the establishment of a natural vegetation cover.

### 3.5.4 Slopes

Shrub planting is deemed necessary on sections with high precipitation and moderate slopes in order to prevent erosion and landslides.

## 4 Training

The training requirements relating to onshore erosion control and reinstatement can be found in the Onshore Employment, Training and Worksite Management CCP (IAL00-RSK-601-Y-TTM-0012).

## 5 Monitoring and inspection

The monitoring and inspection requirements relating to onshore erosion control and reinstatement can be found in the Onshore Compliance Monitoring CCP (IAL00-RSK-601-Y-TTM-0006).

## 6 Related documents

The following is a list of documents that, amongst others, have content relevant to this CCP:

- Contractor's ESMS Framework Document (CAL00-RSK-601-Y-TTM-0001)
- Onshore Pollution Prevention CCP (IAL00-RSK-601-Y-TTM-0002)
- Onshore Ecological Management CCP (IAL00-RSK-601-Y-TTM-0004)
- Onshore Additional Land Take CCP (IAL00-RSK-601-Y-TTM-0005)
- Onshore Compliance Monitoring CCP (IAL00-RSK-601-Y-TTM-0006)
- Onshore Watercourse Crossing CCP (IAL00-RSK-601-Y-TTM-0007)
- Onshore Waste Management CCP (IAL00-RSK-601-Y-TTM-0008)
- Onshore Spill Prevention and Response CCP (IAL00-RSK-601-Y-TTM-0010)
- Onshore Infrastructure and Utilities CCP (IAL00-RSK-601-Y-TTM-0011)
- Onshore Employment, Training and Worksite Management CCP (IAL00-RSK-601-Y-TTM-0012)
- Onshore Cultural Heritage CCP (IAL00-RSK-601-Y-TTM-0013)
- Compliance Assurance Plan
- Biodiversity Action Plan
- Livelihoods Restoration Framework (TAP-LEA-PL-0004)
- Italy Environmental Project Standards
- Specification for Reinstatement (IAL00-SPF-000-C-TRH-0004)
- Italy Biorestitution Guidance and Preliminary Specification (IAL00-RSK-601-Y-TSP-0001)
- Specification for Working Strip Preparation and Maintenance (IAL00-SPF-000-C-TRH-0005)
- Soil Management Plan (Annex 6 of ESIA Italy Integrations)
- International Finance Corporation (IFC) 2007. Pesticide Handling and Application. Website. <http://www.ifc.org/ifcext/enviro.nsf/Content/EnvironmentalGuidelines>
- Legislative Decree No. 152. 2006. Approving the Code on the Environment
- Ofride srl. 2014. Olive Tree Management During Construction.