

Ecological Data Exchange Specification (working title)

Table of Contents

1. Metadata	1
2. Preamble	2
2.1. Abstract	2
2.2. Normative Status	3
2.3. Standard Parts	3
2.4. Namespaces	3
3. Requirements	3
3.1. Domain Model Conformance	3
3.1.1. Plot Description Module Conformance Class Requirements	4
3.1.1.1. Aspect Observation	4
3.1.1.2. Landform element Observation	7
3.1.1.3. Landform pattern Observation	10
3.1.1.4. Outcrop lithology Observation	14
3.1.1.5. Slope Observation	17
3.1.1.6. Slope type Observation	21
3.1.1.7. Surface strewn lithology Observation	24
3.2. TERN Ontology Conformance	27
4. Editors Notes	28
4.1. Working titles	28
4.2. Placeholders	28
4.2.1. Placeholder text	28
4.2.2. Placeholder IRIs	28



Status: Draft - while the document is in draft, sections of the document may contain placeholders such as **TBA** and **TBD**.

1. Metadata

IRI	https://linked.data.gov.au/def/rlp/spec (TBC)
Title	Ecological Data Exchange Specification (working title)

Definition	This document lists the normative requirements for data aiming to conform to the TERN Ecosystem Surveillance Ecological Monitoring Protocols. It is to be used as the authoritative, human-readable list of individual requirements from which profile artefacts such as validators are derived from.
Created	2022-03-14
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Creator	TERN
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License	Creative Commons Attribution 4.0 International (CC BY 4.0)
Further information	<p>This document is part of the Services Agreement for the provision of standardised ecological monitoring protocols and systems for data collection, storage and management.</p> <p>Procurement Number (PRN): 360 000 5101</p> <p>Commonwealth of Australia as represented by the Department of Agriculture, Water and the Environment ABN 34 190 894 983 (Department)</p> <p>The University of Queensland as represented by TERN ABN 63 942 912 684 (Service Provider)</p>
Alternate document formats	PDF

2. Preamble

2.1. Abstract

TERN Ecosystem Surveillance have developed 19 modules to standardise ecological monitoring protocols for data collection. The working title for the monitoring protocols is *TERN Ecosystem Surveillance Ecological Monitoring Protocols*.

TERN Data Services and Analytics is developing a standardised data exchange specification to support the exchange of data collected using TERN Ecosystem Surveillance Ecological Monitoring Protocols. The working title for the data exchange specification is *Ecological Data Exchange Specification*.

The Ecological Data Exchange Specification is a profile of the ecological data model known as the [TERN Ontology](#). Data that is conformant to the Ecological Data Exchange Specification is also conformant to the TERN Ontology.

2.2. Normative Status

This specification is normative for the exchange of data collected using TERN Ecosystem Surveillance Ecological Monitoring Protocols.

2.3. Standard Parts

This specification document is one of many resources that together form the Ecological Data Exchange Specification Profile.

Other parts of this standard include:

TBA.

2.4. Namespaces

Prefix	Namespace Name	Description
reg:	http://purl.org/linked-data/registry#	Registry Ontology
sosa:	http://www.w3.org/ns/sosa/	SOSA
tern:	https://www.3id.org/tern/ontologies/tern/	TERN Ontology
unit:	http://qudt.org/vocab/unit/	QUDT Units vocabulary

3. Requirements

3.1. Domain Model Conformance

Requirements define the rules and constraints which data must conform to in order to be valid.

A *status* is assigned to each requirement. The *status* code list used in this document is defined by the [Registry ontology](#) and a subset of the status codes are redefined here:

- **submitted** - A proposed entry which is not yet approved for use for use. Corresponds to ISO 19135:(redraft) 'submitted'.

- **invalid** - An entry which has been invalidated due to serious flaws, distinct from retirement. Corresponds to ISO 19135(redraft) 'invalid'.
- **stable** - An entry that is seen as having a reasonable measure of stability, may be used to mark the full adoption of a previously 'experimental' entry.

3.1.1. Plot Description Module Conformance Class Requirements

Requirements that have been accepted and are **stable** are marked with a green check mark.

For example:

Property	Value
Status	stable ✓

3.1.1.1. Aspect Observation

3.1.1.1.1. Feature type

Property	Value
Identifier	urn:shapes:plot-description:aspect:feature-type
Label	Feature type
Definition	The value of tern:featureType <i>MUST</i> be landform .
Comment	TERN's ecologists have determined the feature type is <i>landform</i> , defined by the Australian Soil and Land Survey Field Handbook .
Status	submitted ○
Conformance Classes	TBA
Source	TERN Ecosystem Surveillance Ecological Monitoring Protocols
Validators	/shapes/plot-description/aspect/shapes.ttl
Examples	Valid: /shapes/plot-description/aspect/valid.ttl Invalid: /shapes/plot-description/aspect/invalid.ttl

3.1.1.1.2. Simple result

Property	Value
Identifier	urn:shapes:plot-description:aspect:simple-result
Label	Simple result
Definition	The observation's sosa:hasSimpleResult <i>MUST</i> have a value that is the same as the value in the value node of sosa:hasResult .
Comment	Value of sosa:hasSimpleResult <i>MUST</i> be the same as the value in sosa:hasResult .
Status	submitted ○

Property	Value
Conformance Classes	TBA
Source	TERN Ecosystem Surveillance Ecological Monitoring Protocols
Validators	/shapes/plot-description/aspect/shapes.ttl
Examples	Valid: /shapes/plot-description/aspect/valid.ttl Invalid: /shapes/plot-description/aspect/invalid.ttl

3.1.1.1.3. Site visit

Property	Value
Identifier	urn:shapes:plot-description:aspect:site-visit
Label	Site visit
Definition	Observations <i>MUST</i> have a value for tern:hasSiteVisit .
Comment	Observations following the Plot Description protocol are made in the context of a site visit.
Status	submitted ○
Conformance Classes	TBA
Source	TERN Ecosystem Surveillance Ecological Monitoring Protocols
Validators	/shapes/plot-description/aspect/shapes.ttl
Examples	Valid: /shapes/plot-description/aspect/valid.ttl Invalid: /shapes/plot-description/aspect/invalid.ttl

3.1.1.1.4. Unit of measure

Property	Value
Identifier	urn:shapes:plot-description:aspect:unit-of-measure
Label	Unit of measure
Definition	The result <i>MUST</i> have unit:DEG as the value for tern:unit .
Comment	Result value's unit of measure <i>MUST</i> have the value unit:DEG .
Status	submitted ○
Conformance Classes	TBA
Source	TERN Ecosystem Surveillance Ecological Monitoring Protocols
Validators	/shapes/plot-description/aspect/shapes.ttl

Property	Value
Examples	Valid: /shapes/plot-description/aspect/valid.ttl Invalid: /shapes/plot-description/aspect/invalid.ttl

3.1.1.1.5. Used procedure

Property	Value
Identifier	urn:shapes:plot-description:aspect:used-procedure
Label	Used procedure
Definition	The observation's sosa:usedProcedure <i>MUST</i> have the value https://linked.data.gov.au/def/test/dawe-cv/1ff9e97c-3bdd-44c9-bdd3-401fa31c0b32 .
Comment	IRI of procedure <i>MUST</i> have the value https://linked.data.gov.au/def/test/dawe-cv/1ff9e97c-3bdd-44c9-bdd3-401fa31c0b32 . https://linked.data.gov.au/def/test/dawe-cv/1ff9e97c-3bdd-44c9-bdd3-401fa31c0b32 is the IRI for "Plot Description".
Status	submitted ○
Conformance Classes	TBA
Source	TERN Ecosystem Surveillance Ecological Monitoring Protocols
Validators	/shapes/plot-description/aspect/shapes.ttl
Examples	Valid: /shapes/plot-description/aspect/valid.ttl Invalid: /shapes/plot-description/aspect/invalid.ttl

3.1.1.1.6. Value range

Property	Value
Identifier	urn:shapes:plot-description:aspect:value-range
Label	Value range
Definition	The result <i>MUST</i> have a value between 0 exclusive and 360 inclusive.
Comment	Value <i>MUST</i> be between 0 exclusive and 360 inclusive.
Status	submitted ○
Conformance Classes	TBA
Source	TERN Ecosystem Surveillance Ecological Monitoring Protocols
Validators	/shapes/plot-description/aspect/shapes.ttl

Property	Value
Examples	Valid: <code>/shapes/plot-description/aspect/valid.ttl</code> Invalid: <code>/shapes/plot-description/aspect/invalid.ttl</code>

3.1.1.1.7. Value type

Property	Value
Identifier	<code>urn:shapes:plot-description:aspect:value-type</code>
Label	Value type
Definition	The result <i>MUST</i> be an instance of <code>tern:Float</code> .
Comment	The value of <code>sosa:hasResult</code> <i>MUST</i> be a <code>tern:Float</code> .
Status	submitted ○
Conformance Classes	TBA
Source	TERN Ecosystem Surveillance Ecological Monitoring Protocols
Validators	<code>/shapes/plot-description/aspect/shapes.ttl</code>
Examples	Valid: <code>/shapes/plot-description/aspect/valid.ttl</code> Invalid: <code>/shapes/plot-description/aspect/invalid.ttl</code>

3.1.1.2. Landform element Observation

3.1.1.2.1. Feature type

Property	Value
Identifier	<code>urn:shapes:plot-description:landform-element:feature-type</code>
Label	Feature type
Definition	Instances of <code>tern:Observation</code> with <code>sosa:observedProperty</code> value TBA <i>MUST</i> have a <code>tern:featureType</code> with the value <code>landform</code> .
Comment	TERN's ecologists have determined the feature type is <i>landform</i> , defined by the Australian Soil and Land Survey Field Handbook .
Status	submitted ○
Conformance Classes	TBA
Source	TERN Ecosystem Surveillance Ecological Monitoring Protocols
Validators	<code>/shapes/plot-description/landform-element/shapes.ttl</code>
Examples	Valid: <code>/shapes/plot-description/landform-element/valid.ttl</code> Invalid: <code>/shapes/plot-description/landform-element/invalid.ttl</code>

3.1.1.2.2. Result value

Property	Value
Identifier	<code>urn:shapes:plot-description:landform-element:result-value</code>
Label	Result value
Definition	The value of <code>rdf:value</code> <i>MUST</i> exist in the landform element codes controlled vocabulary.
Comment	The value in <code>sosa:hasResult</code> <i>MUST</i> be a value in <code>sh:in</code> , which is the landform element codes controlled vocabulary.
Status	submitted ○
Conformance Classes	TBA
Source	TERN Ecosystem Surveillance Ecological Monitoring Protocols
Validators	<code>/shapes/plot-description/landform-element/shapes.ttl</code>
Examples	Valid: <code>/shapes/plot-description/landform-element/valid.ttl</code> Invalid: <code>/shapes/plot-description/landform-element/invalid.ttl</code>

3.1.1.2.3. Simple result

Property	Value
Identifier	<code>urn:shapes:plot-description:landform-element:simple-result</code>
Label	Simple result
Definition	Instances of <code>tern:Observation</code> <i>MUST</i> have a <code>sosa:hasSimpleResult</code> where the value is the same as the <code>rdf:value</code> on the value node of <code>sosa:hasResult</code> .
Comment	Value of <code>sosa:hasSimpleResult</code> <i>MUST</i> be the same as the value in <code>sosa:hasResult</code> .
Status	submitted ○
Conformance Classes	TBA
Source	TERN Ecosystem Surveillance Ecological Monitoring Protocols
Validators	<code>/shapes/plot-description/landform-element/shapes.ttl</code>
Examples	Valid: <code>/shapes/plot-description/landform-element/valid.ttl</code> Invalid: <code>/shapes/plot-description/landform-element/invalid.ttl</code>

3.1.1.2.4. Site visit

Property	Value
Identifier	<code>urn:shapes:plot-description:landform-element:site-visit</code>
Label	Site visit

Property	Value
Definition	Instances of <code>tern:Observation</code> with <code>sosa:observedProperty</code> value <i>TBA</i> <i>MUST</i> have a value for <code>tern:hasSiteVisit</code> .
Comment	Observations following the Plot Description protocol are made in the context of a site visit.
Status	submitted ○
Conformance Classes	<i>TBA</i>
Source	TERN Ecosystem Surveillance Ecological Monitoring Protocols
Validators	<code>/shapes/plot-description/landform-element/shapes.ttl</code>
Examples	Valid: <code>/shapes/plot-description/landform-element/valid.ttl</code> Invalid: <code>/shapes/plot-description/landform-element/invalid.ttl</code>

3.1.1.2.5. Used procedure

Property	Value
Identifier	<code>urn:shapes:plot-description:landform-element:used-procedure</code>
Label	Used procedure
Definition	Instances of <code>tern:Observation</code> with <code>sosa:observedProperty</code> value <i>TBA</i> <i>MUST</i> have a <code>sosa:usedProcedure</code> where the value is https://linked.data.gov.au/def/test/dawe-cv/1ff9e97c-3bdd-44c9-bdd3-401fa31c0b32 .
Comment	IRI of procedure <i>MUST</i> have the value https://linked.data.gov.au/def/test/dawe-cv/1ff9e97c-3bdd-44c9-bdd3-401fa31c0b32 . https://linked.data.gov.au/def/test/dawe-cv/1ff9e97c-3bdd-44c9-bdd3-401fa31c0b32 is the IRI for "Plot Description".
Status	submitted ○
Conformance Classes	<i>TBA</i>
Source	TERN Ecosystem Surveillance Ecological Monitoring Protocols
Validators	<code>/shapes/plot-description/landform-element/shapes.ttl</code>
Examples	Valid: <code>/shapes/plot-description/landform-element/valid.ttl</code> Invalid: <code>/shapes/plot-description/landform-element/invalid.ttl</code>

3.1.1.2.6. Value type

Property	Value
Identifier	<code>urn:shapes:plot-description:landform-element:value-type</code>
Label	Value type

Property	Value
Definition	Instances of <code>tern:Observation</code> with <code>sosa:observedProperty</code> value <i>TBA</i> <i>MUST</i> have a <code>sosa:hasResult</code> where the value node is an instance of <code>tern:IRI</code> .
Comment	The value in <code>sosa:hasResult</code> <i>MUST</i> be a <code>tern:IRI</code> .
Status	submitted ○
Conformance Classes	<i>TBA</i>
Source	TERN Ecosystem Surveillance Ecological Monitoring Protocols
Validators	<code>/shapes/plot-description/landform-element/shapes.ttl</code>
Examples	Valid: <code>/shapes/plot-description/landform-element/valid.ttl</code> Invalid: <code>/shapes/plot-description/landform-element/invalid.ttl</code>

3.1.1.2.7. Vocabulary

Property	Value
Identifier	<code>urn:shapes:plot-description:landform-element:vocabulary</code>
Label	Vocabulary
Definition	The value of <code>tern:vocabulary</code> <i>MUST</i> match the pattern <code>c1a58967-cb12-4c2c-a7ca-9cee2589919c\$</code> .
Comment	IRI of <code>tern:vocabulary</code> in <code>sosa:hasResult</code> <i>MUST</i> have the value https://linked.data.gov.au/def/test/dawe-cv/c1a58967-cb12-4c2c-a7ca-9cee2589919c . https://linked.data.gov.au/def/test/dawe-cv/c1a58967-cb12-4c2c-a7ca-9cee2589919c is the IRI for "Landform element codes".
Status	submitted ○
Conformance Classes	<i>TBA</i>
Source	TERN Ecosystem Surveillance Ecological Monitoring Protocols
Validators	<code>/shapes/plot-description/landform-element/shapes.ttl</code>
Examples	Valid: <code>/shapes/plot-description/landform-element/valid.ttl</code> Invalid: <code>/shapes/plot-description/landform-element/invalid.ttl</code>

3.1.1.3. Landform pattern Observation

3.1.1.3.1. Feature type

Property	Value
Identifier	<code>urn:shapes:plot-description:landform-pattern:feature-type</code>

Property	Value
Label	Feature type
Definition	Instances of tern:Observation with sosa:observedProperty value TBA <i>MUST</i> have a tern:featureType with the value landform .
Comment	TERN's ecologists have determined the feature type is <i>landform</i> , defined by the Australian Soil and Land Survey Field Handbook .
Status	submitted ○
Conformance Classes	TBA
Source	TERN Ecosystem Surveillance Ecological Monitoring Protocols
Validators	/shapes/plot-description/landform-pattern/shapes.ttl
Examples	Valid: /shapes/plot-description/landform-pattern/valid.ttl Invalid: /shapes/plot-description/landform-pattern/invalid.ttl

3.1.1.3.2. Result value

Property	Value
Identifier	urn:shapes:plot-description:landform-pattern:result-value
Label	Result value
Definition	The value of rdf:value <i>MUST</i> exist in the landform pattern codes controlled vocabulary.
Comment	The value in sosa:hasResult <i>MUST</i> be a value in sh:in , which is the landform pattern codes controlled vocabulary.
Status	submitted ○
Conformance Classes	TBA
Source	TERN Ecosystem Surveillance Ecological Monitoring Protocols
Validators	/shapes/plot-description/landform-pattern/shapes.ttl
Examples	Valid: /shapes/plot-description/landform-pattern/valid.ttl Invalid: /shapes/plot-description/landform-pattern/invalid.ttl

3.1.1.3.3. Simple result

Property	Value
Identifier	urn:shapes:plot-description:landform-pattern:simple-result
Label	Simple result
Definition	Instances of tern:Observation <i>MUST</i> have a sosa:hasSimpleResult where the value is the same as the rdf:value on the value node of sosa:hasResult .

Property	Value
Comment	Value of <code>sosa:hasSimpleResult</code> <i>MUST</i> be the same as the value in <code>sosa:hasResult</code> .
Status	submitted ○
Conformance Classes	TBA
Source	TERN Ecosystem Surveillance Ecological Monitoring Protocols
Validators	/shapes/plot-description/landform-pattern/shapes.ttl
Examples	Valid: /shapes/plot-description/landform-pattern/valid.ttl Invalid: /shapes/plot-description/landform-pattern/invalid.ttl

3.1.1.3.4. Site visit

Property	Value
Identifier	<code>urn:shapes:plot-description:landform-pattern:site-visit</code>
Label	Site visit
Definition	Instances of <code>tern:Observation</code> with <code>sosa:observedProperty</code> value TBA <i>MUST</i> have a value for <code>tern:hasSiteVisit</code> .
Comment	Observations following the Plot Description protocol are made in the context of a site visit.
Status	submitted ○
Conformance Classes	TBA
Source	TERN Ecosystem Surveillance Ecological Monitoring Protocols
Validators	/shapes/plot-description/landform-pattern/shapes.ttl
Examples	Valid: /shapes/plot-description/landform-pattern/valid.ttl Invalid: /shapes/plot-description/landform-pattern/invalid.ttl

3.1.1.3.5. Used procedure

Property	Value
Identifier	<code>urn:shapes:plot-description:landform-pattern:used-procedure</code>
Label	Used procedure
Definition	Instances of <code>tern:Observation</code> with <code>sosa:observedProperty</code> value TBA <i>MUST</i> have a <code>sosa:usedProcedure</code> where the value is https://linked.data.gov.au/def/test/dawe-cv/1ff9e97c-3bdd-44c9-bdd3-401fa31c0b32 .

Property	Value
Comment	IRI of procedure <i>MUST</i> have the value https://linked.data.gov.au/def/test/dawe-cv/1ff9e97c-3bdd-44c9-bdd3-401fa31c0b32 . https://linked.data.gov.au/def/test/dawe-cv/1ff9e97c-3bdd-44c9-bdd3-401fa31c0b32 is the IRI for "Plot Description".
Status	submitted ○
Conformance Classes	TBA
Source	TERN Ecosystem Surveillance Ecological Monitoring Protocols
Validators	/shapes/plot-description/landform-pattern/shapes.ttl
Examples	Valid: /shapes/plot-description/landform-pattern/valid.ttl Invalid: /shapes/plot-description/landform-pattern/invalid.ttl

3.1.1.3.6. Value type

Property	Value
Identifier	urn:shapes:plot-description:landform-pattern:value-type
Label	Value type
Definition	Instances of tern:Observation with sosa:observedProperty value TBA <i>MUST</i> have a sosa:hasResult where the value node is an instance of tern:IRI .
Comment	The value in sosa:hasResult <i>MUST</i> be a tern:IRI .
Status	submitted ○
Conformance Classes	TBA
Source	TERN Ecosystem Surveillance Ecological Monitoring Protocols
Validators	/shapes/plot-description/landform-pattern/shapes.ttl
Examples	Valid: /shapes/plot-description/landform-pattern/valid.ttl Invalid: /shapes/plot-description/landform-pattern/invalid.ttl

3.1.1.3.7. Vocabulary

Property	Value
Identifier	urn:shapes:plot-description:landform-pattern:vocabulary
Label	Vocabulary
Definition	The value of tern:vocabulary <i>MUST</i> match the pattern 19d91a7a-2733-4b84-9d2b-4bda4808c003\$.

Property	Value
Comment	IRI of tern:vocabulary in sosa:hasResult <i>MUST</i> have the value https://linked.data.gov.au/def/test/dawe-cv/19d91a7a-2733-4b84-9d2b-4bda4808c003 . https://linked.data.gov.au/def/test/dawe-cv/19d91a7a-2733-4b84-9d2b-4bda4808c003 is the IRI for "Plot slope codes".
Status	submitted ○
Conformance Classes	TBA
Source	TERN Ecosystem Surveillance Ecological Monitoring Protocols
Validators	/shapes/plot-description/landform-pattern/shapes.ttl
Examples	Valid: /shapes/plot-description/landform-pattern/valid.ttl Invalid: /shapes/plot-description/landform-pattern/invalid.ttl

3.1.1.4. Outcrop lithology Observation

3.1.1.4.1. Feature type

Property	Value
Identifier	urn:shapes:plot-description:outcrop-lithology:feature-type
Label	Feature type
Definition	Instances of tern:Observation with sosa:observedProperty value TBA <i>MUST</i> have a tern:featureType with the value land surface .
Comment	TERN's ecologists have determined the feature type is <i>land-surface</i> , defined by the Australian Soil and Land Survey Field Handbook .
Status	submitted ○
Conformance Classes	TBA
Source	TERN Ecosystem Surveillance Ecological Monitoring Protocols
Validators	/shapes/plot-description/outcrop-lithology/shapes.ttl
Examples	Valid: /shapes/plot-description/outcrop-lithology/valid.ttl Invalid: /shapes/plot-description/outcrop-lithology/invalid.ttl

3.1.1.4.2. Result value

Property	Value
Identifier	urn:shapes:plot-description:outcrop-lithology:result-value
Label	Result value

Property	Value
Definition	The value of <code>rdf:value</code> <i>MUST</i> exist in the soil lithology codes controlled vocabulary.
Comment	The value in <code>sosa:hasResult</code> <i>MUST</i> be a value in <code>sh:in</code> , which is the soil lithology codes controlled vocabulary.
Status	submitted ○
Conformance Classes	TBA
Source	TERN Ecosystem Surveillance Ecological Monitoring Protocols
Validators	<code>/shapes/plot-description/outcrop-lithology/shapes.ttl</code>
Examples	Valid: <code>/shapes/plot-description/outcrop-lithology/valid.ttl</code> Invalid: <code>/shapes/plot-description/outcrop-lithology/invalid.ttl</code>

3.1.1.4.3. Simple result

Property	Value
Identifier	<code>urn:shapes:plot-description:outcrop-lithology:simple-result</code>
Label	Simple result
Definition	Instances of <code>tern:Observation</code> <i>MUST</i> have a <code>sosa:hasSimpleResult</code> where the value is the same as the <code>rdf:value</code> on the value node of <code>sosa:hasResult</code> .
Comment	Value of <code>sosa:hasSimpleResult</code> <i>MUST</i> be the same as the value in <code>sosa:hasResult</code> .
Status	submitted ○
Conformance Classes	TBA
Source	TERN Ecosystem Surveillance Ecological Monitoring Protocols
Validators	<code>/shapes/plot-description/outcrop-lithology/shapes.ttl</code>
Examples	Valid: <code>/shapes/plot-description/outcrop-lithology/valid.ttl</code> Invalid: <code>/shapes/plot-description/outcrop-lithology/invalid.ttl</code>

3.1.1.4.4. Site visit

Property	Value
Identifier	<code>urn:shapes:plot-description:outcrop-lithology:site-visit</code>
Label	Site visit
Definition	Instances of <code>tern:Observation</code> with <code>sosa:observedProperty</code> value TBA <i>MUST</i> have a value for <code>tern:hasSiteVisit</code> .
Comment	Observations following the Plot Description protocol are made in the context of a site visit.

Property	Value
Status	submitted ○
Conformance Classes	TBA
Source	TERN Ecosystem Surveillance Ecological Monitoring Protocols
Validators	/shapes/plot-description/outcrop-lithology/shapes.ttl
Examples	Valid: /shapes/plot-description/outcrop-lithology/valid.ttl Invalid: /shapes/plot-description/outcrop-lithology/invalid.ttl

3.1.1.4.5. Used procedure

Property	Value
Identifier	urn:shapes:plot-description:outcrop-lithology:used-procedure
Label	Used procedure
Definition	Instances of tern:Observation with sosa:observedProperty value TBA <i>MUST</i> have a sosa:usedProcedure where the value is https://linked.data.gov.au/def/test/dawe-cv/1ff9e97c-3bdd-44c9-bdd3-401fa31c0b32 .
Comment	IRI of procedure <i>MUST</i> have the value https://linked.data.gov.au/def/test/dawe-cv/1ff9e97c-3bdd-44c9-bdd3-401fa31c0b32 . https://linked.data.gov.au/def/test/dawe-cv/1ff9e97c-3bdd-44c9-bdd3-401fa31c0b32 is the IRI for "Plot Description".
Status	submitted ○
Conformance Classes	TBA
Source	TERN Ecosystem Surveillance Ecological Monitoring Protocols
Validators	/shapes/plot-description/outcrop-lithology/shapes.ttl
Examples	Valid: /shapes/plot-description/outcrop-lithology/valid.ttl Invalid: /shapes/plot-description/outcrop-lithology/invalid.ttl

3.1.1.4.6. Value type

Property	Value
Identifier	urn:shapes:plot-description:outcrop-lithology:value-type
Label	Value type
Definition	Instances of tern:Observation with sosa:observedProperty value TBA <i>MUST</i> have a sosa:hasResult where the value node is an instance of tern:IRI .
Comment	The value in sosa:hasResult <i>MUST</i> be a tern:IRI .

Property	Value
Status	submitted ○
Conformance Classes	TBA
Source	TERN Ecosystem Surveillance Ecological Monitoring Protocols
Validators	/shapes/plot-description/outcrop-lithology/shapes.ttl
Examples	Valid: /shapes/plot-description/outcrop-lithology/valid.ttl Invalid: /shapes/plot-description/outcrop-lithology/invalid.ttl

3.1.1.4.7. Vocabulary

Property	Value
Identifier	urn:shapes:plot-description:outcrop-lithology:vocabulary
Label	Vocabulary
Definition	The value of tern:vocabulary <i>MUST</i> match the pattern 1d50eb79-685f-45ea-84b4-627154eddede\$.
Comment	IRI of tern:vocabulary in sosa:hasResult <i>MUST</i> have the value https://linked.data.gov.au/def/test/dawe-cv/1d50eb79-685f-45ea-84b4-627154eddede . https://linked.data.gov.au/def/test/dawe-cv/1d50eb79-685f-45ea-84b4-627154eddede is the IRI for "Soil lithology codes".
Status	submitted ○
Conformance Classes	TBA
Source	TERN Ecosystem Surveillance Ecological Monitoring Protocols
Validators	/shapes/plot-description/outcrop-lithology/shapes.ttl
Examples	Valid: /shapes/plot-description/outcrop-lithology/valid.ttl Invalid: /shapes/plot-description/outcrop-lithology/invalid.ttl

3.1.1.5. Slope Observation

3.1.1.5.1. Feature type

Property	Value
Identifier	urn:shapes:plot-description:slope:feature-type
Label	Feature type
Definition	The value of tern:featureType <i>MUST</i> be landform .

Property	Value
Comment	TERN's ecologists have determined the feature type is <i>landform</i> , defined by the Australian Soil and Land Survey Field Handbook .
Status	submitted ○
Conformance Classes	TBA
Source	TERN Ecosystem Surveillance Ecological Monitoring Protocols
Validators	/shapes/plot-description/slope/shapes.ttl
Examples	Valid: /shapes/plot-description/slope/valid.ttl Invalid: /shapes/plot-description/slope/invalid.ttl

3.1.1.5.2. Simple result

Property	Value
Identifier	urn:shapes:plot-description:slope:simple-result
Label	Simple result
Definition	The observation's sosa:hasSimpleResult <i>MUST</i> have a value that is the same as the value in the value node of sosa:hasResult .
Comment	Value of sosa:hasSimpleResult <i>MUST</i> be the same as the value in sosa:hasResult .
Status	submitted ○
Conformance Classes	TBA
Source	TERN Ecosystem Surveillance Ecological Monitoring Protocols
Validators	/shapes/plot-description/slope/shapes.ttl
Examples	Valid: /shapes/plot-description/slope/valid.ttl Invalid: /shapes/plot-description/slope/invalid.ttl

3.1.1.5.3. Site visit

Property	Value
Identifier	urn:shapes:plot-description:slope:site-visit
Label	Site visit
Definition	Observations <i>MUST</i> have a value for tern:hasSiteVisit .
Comment	Observations following the Plot Description protocol are made in the context of a site visit.
Status	submitted ○

Property	Value
Conformance Classes	TBA
Source	TERN Ecosystem Surveillance Ecological Monitoring Protocols
Validators	/shapes/plot-description/slope/shapes.ttl
Examples	Valid: /shapes/plot-description/slope/valid.ttl Invalid: /shapes/plot-description/slope/invalid.ttl

3.1.1.5.4. Unit of measure

Property	Value
Identifier	urn:shapes:plot-description:slope:unit-of-measure
Label	Unit of measure
Definition	The result <i>MUST</i> have unit:DEG as the value for tern:unit .
Comment	Result value's unit of measure <i>MUST</i> have the value unit:DEG .
Status	submitted ○
Conformance Classes	TBA
Source	TERN Ecosystem Surveillance Ecological Monitoring Protocols
Validators	/shapes/plot-description/slope/shapes.ttl
Examples	Valid: /shapes/plot-description/slope/valid.ttl Invalid: /shapes/plot-description/slope/invalid.ttl

3.1.1.5.5. Used procedure

Property	Value
Identifier	urn:shapes:plot-description:slope:used-procedure
Label	Used procedure
Definition	The observation's sosa:usedProcedure <i>MUST</i> have the value https://linked.data.gov.au/def/test/dawe-cv/1ff9e97c-3bdd-44c9-bdd3-401fa31c0b32 .
Comment	IRI of procedure <i>MUST</i> have the value https://linked.data.gov.au/def/test/dawe-cv/1ff9e97c-3bdd-44c9-bdd3-401fa31c0b32 . https://linked.data.gov.au/def/test/dawe-cv/1ff9e97c-3bdd-44c9-bdd3-401fa31c0b32 is the IRI for "Plot Description".
Status	submitted ○

Property	Value
Conformance Classes	TBA
Source	TERN Ecosystem Surveillance Ecological Monitoring Protocols
Validators	/shapes/plot-description/slope/shapes.ttl
Examples	Valid: /shapes/plot-description/slope/valid.ttl Invalid: /shapes/plot-description/slope/invalid.ttl

3.1.1.5.6. Value range

Property	Value
Identifier	urn:shapes:plot-description:slope:value-range
Label	Value range
Definition	The result <i>MUST</i> have a value between 0 and 90 inclusively.
Comment	Value <i>MUST</i> be between 0 and 90 inclusive.
Status	submitted ○
Conformance Classes	TBA
Source	TERN Ecosystem Surveillance Ecological Monitoring Protocols
Validators	/shapes/plot-description/slope/shapes.ttl
Examples	Valid: /shapes/plot-description/slope/valid.ttl Invalid: /shapes/plot-description/slope/invalid.ttl

3.1.1.5.7. Value type

Property	Value
Identifier	urn:shapes:plot-description:slope:value-type
Label	Value type
Definition	The result <i>MUST</i> be an instance of tern:Float .
Comment	The value of sosa:hasResult <i>MUST</i> be a tern:Float .
Status	submitted ○
Conformance Classes	TBA
Source	TERN Ecosystem Surveillance Ecological Monitoring Protocols
Validators	/shapes/plot-description/slope/shapes.ttl

Property	Value
Examples	Valid: /shapes/plot-description/slope/valid.ttl Invalid: /shapes/plot-description/slope/invalid.ttl

3.1.1.6. Slope type Observation

3.1.1.6.1. Feature type

Property	Value
Identifier	urn:shapes:plot-description:slope-type:feature-type
Label	Feature type
Definition	Instances of tern:Observation with sosa:observedProperty value <i>TBA</i> <i>MUST</i> have a tern:featureType with the value <i>landform</i> .
Comment	TERN's ecologists have determined the feature type is <i>landform</i> , defined by the Australian Soil and Land Survey Field Handbook .
Status	submitted ○
Conformance Classes	<i>TBA</i>
Source	TERN Ecosystem Surveillance Ecological Monitoring Protocols
Validators	/shapes/plot-description/slope-type/shapes.ttl
Examples	Valid: /shapes/plot-description/slope-type/valid.ttl Invalid: /shapes/plot-description/slope-type/invalid.ttl

3.1.1.6.2. Result value

Property	Value
Identifier	urn:shapes:plot-description:slope-type:result-value
Label	Result value
Definition	The value of rdf:value <i>MUST</i> exist in the Plot slope codes controlled vocabulary.
Comment	The value in sosa:hasResult <i>MUST</i> be a value in sh:in , which is the Plot slope codes controlled vocabulary.
Status	submitted ○
Conformance Classes	<i>TBA</i>
Source	TERN Ecosystem Surveillance Ecological Monitoring Protocols
Validators	/shapes/plot-description/slope-type/shapes.ttl

Property	Value
Examples	Valid: /shapes/plot-description/slope-type/valid.ttl Invalid: /shapes/plot-description/slope-type/invalid.ttl

3.1.1.6.3. Simple result

Property	Value
Identifier	urn:shapes:plot-description:slope-type:simple-result
Label	Simple result
Definition	Instances of tern:Observation <i>MUST</i> have a sosa:hasSimpleResult where the value is the same as the rdf:value on the value node of sosa:hasResult .
Comment	Value of sosa:hasSimpleResult <i>MUST</i> be the same as the value in sosa:hasResult .
Status	submitted ○
Conformance Classes	TBA
Source	TERN Ecosystem Surveillance Ecological Monitoring Protocols
Validators	/shapes/plot-description/slope-type/shapes.ttl
Examples	Valid: /shapes/plot-description/slope-type/valid.ttl Invalid: /shapes/plot-description/slope-type/invalid.ttl

3.1.1.6.4. Site visit

Property	Value
Identifier	urn:shapes:plot-description:slope-type:site-visit
Label	Site visit
Definition	Instances of tern:Observation with sosa:observedProperty value TBA <i>MUST</i> have a value for tern:hasSiteVisit .
Comment	Observations following the Plot Description protocol are made in the context of a site visit.
Status	submitted ○
Conformance Classes	TBA
Source	TERN Ecosystem Surveillance Ecological Monitoring Protocols
Validators	/shapes/plot-description/slope-type/shapes.ttl
Examples	Valid: /shapes/plot-description/slope-type/valid.ttl Invalid: /shapes/plot-description/slope-type/invalid.ttl

3.1.1.6.5. Used procedure

Property	Value
Identifier	<code>urn:shapes:plot-description:slope-type:used-procedure</code>
Label	Used procedure
Definition	Instances of <code>tern:Observation</code> with <code>sosa:observedProperty</code> value <i>TBA</i> <i>MUST</i> have a <code>sosa:usedProcedure</code> where the value is https://linked.data.gov.au/def/test/dawe-cv/1ff9e97c-3bdd-44c9-bdd3-401fa31c0b32 .
Comment	IRI of procedure <i>MUST</i> have the value https://linked.data.gov.au/def/test/dawe-cv/1ff9e97c-3bdd-44c9-bdd3-401fa31c0b32 . https://linked.data.gov.au/def/test/dawe-cv/1ff9e97c-3bdd-44c9-bdd3-401fa31c0b32 is the IRI for "Plot Description".
Status	submitted ○
Conformance Classes	<i>TBA</i>
Source	TERN Ecosystem Surveillance Ecological Monitoring Protocols
Validators	<code>/shapes/plot-description/slope-type/shapes.ttl</code>
Examples	Valid: <code>/shapes/plot-description/slope-type/valid.ttl</code> Invalid: <code>/shapes/plot-description/slope-type/invalid.ttl</code>

3.1.1.6.6. Value type

Property	Value
Identifier	<code>urn:shapes:plot-description:slope-type:value-type</code>
Label	Value type
Definition	Instances of <code>tern:Observation</code> with <code>sosa:observedProperty</code> value <i>TBA</i> <i>MUST</i> have a <code>sosa:hasResult</code> where the value node is an instance of <code>tern:IRI</code> .
Comment	The value in <code>sosa:hasResult</code> <i>MUST</i> be a <code>tern:IRI</code> .
Status	submitted ○
Conformance Classes	<i>TBA</i>
Source	TERN Ecosystem Surveillance Ecological Monitoring Protocols
Validators	<code>/shapes/plot-description/slope-type/shapes.ttl</code>
Examples	Valid: <code>/shapes/plot-description/slope-type/valid.ttl</code> Invalid: <code>/shapes/plot-description/slope-type/invalid.ttl</code>

3.1.1.6.7. Vocabulary

Property	Value
Identifier	<code>urn:shapes:plot-description:slope-type:vocabulary</code>
Label	Vocabulary
Definition	The value of <code>tern:vocabulary</code> <i>MUST</i> match the pattern <code>d893e669-c530-4bc3-a057-a5799ffcb5db\$</code> .
Comment	IRI of <code>tern:vocabulary</code> in <code>sosa:hasResult</code> <i>MUST</i> have the value https://linked.data.gov.au/def/test/dawe-cv/d893e669-c530-4bc3-a057-a5799ffcb5db . https://linked.data.gov.au/def/test/dawe-cv/d893e669-c530-4bc3-a057-a5799ffcb5db is the IRI for "Plot slope codes".
Status	submitted ○
Conformance Classes	TBA
Source	TERN Ecosystem Surveillance Ecological Monitoring Protocols
Validators	<code>/shapes/plot-description/slope-type/shapes.ttl</code>
Examples	Valid: <code>/shapes/plot-description/slope-type/valid.ttl</code> Invalid: <code>/shapes/plot-description/slope-type/invalid.ttl</code>

3.1.1.7. Surface strew lithology Observation

3.1.1.7.1. Feature type

Property	Value
Identifier	<code>urn:shapes:plot-description:surface-strew-lithology:feature-type</code>
Label	Feature type
Definition	Instances of <code>tern:Observation</code> with <code>sosa:observedProperty</code> value TBA <i>MUST</i> have a <code>tern:featureType</code> with the value <code>land surface</code> .
Comment	TERN's ecologists have determined the feature type is <i>land-surface</i> , defined by the Australian Soil and Land Survey Field Handbook .
Status	submitted ○
Conformance Classes	TBA
Source	TERN Ecosystem Surveillance Ecological Monitoring Protocols
Validators	<code>/shapes/plot-description/surface-strew-lithology/shapes.ttl</code>
Examples	Valid: <code>/shapes/plot-description/surface-strew-lithology/valid.ttl</code> Invalid: <code>/shapes/plot-description/surface-strew-lithology/invalid.ttl</code>

3.1.1.7.2. Result value

Property	Value
Identifier	<code>urn:shapes:plot-description:surface-strew-lithology:result-value</code>
Label	Result value
Definition	The value of <code>rdf:value</code> <i>MUST</i> exist in the soil lithology codes controlled vocabulary.
Comment	The value in <code>sosa:hasResult</code> <i>MUST</i> be a value in <code>sh:in</code> , which is the soil lithology codes controlled vocabulary.
Status	submitted ○
Conformance Classes	TBA
Source	TERN Ecosystem Surveillance Ecological Monitoring Protocols
Validators	<code>/shapes/plot-description/surface-strew-lithology/shapes.ttl</code>
Examples	Valid: <code>/shapes/plot-description/surface-strew-lithology/valid.ttl</code> Invalid: <code>/shapes/plot-description/surface-strew-lithology/invalid.ttl</code>

3.1.1.7.3. Simple result

Property	Value
Identifier	<code>urn:shapes:plot-description:surface-strew-lithology:simple-result</code>
Label	Simple result
Definition	Instances of <code>tern:Observation</code> <i>MUST</i> have a <code>sosa:hasSimpleResult</code> where the value is the same as the <code>rdf:value</code> on the value node of <code>sosa:hasResult</code> .
Comment	Value of <code>sosa:hasSimpleResult</code> <i>MUST</i> be the same as the value in <code>sosa:hasResult</code> .
Status	submitted ○
Conformance Classes	TBA
Source	TERN Ecosystem Surveillance Ecological Monitoring Protocols
Validators	<code>/shapes/plot-description/surface-strew-lithology/shapes.ttl</code>
Examples	Valid: <code>/shapes/plot-description/surface-strew-lithology/valid.ttl</code> Invalid: <code>/shapes/plot-description/surface-strew-lithology/invalid.ttl</code>

3.1.1.7.4. Site visit

Property	Value
Identifier	<code>urn:shapes:plot-description:surface-strew-lithology:site-visit</code>
Label	Site visit

Property	Value
Definition	Instances of <code>tern:Observation</code> with <code>sosa:observedProperty</code> value <i>TBA</i> <i>MUST</i> have a value for <code>tern:hasSiteVisit</code> .
Comment	Observations following the Plot Description protocol are made in the context of a site visit.
Status	submitted ○
Conformance Classes	<i>TBA</i>
Source	TERN Ecosystem Surveillance Ecological Monitoring Protocols
Validators	/shapes/plot-description/surface-strew-lithology/shapes.ttl
Examples	Valid: /shapes/plot-description/surface-strew-lithology/valid.ttl Invalid: /shapes/plot-description/surface-strew-lithology/invalid.ttl

3.1.1.7.5. Used procedure

Property	Value
Identifier	<code>urn:shapes:plot-description:surface-strew-lithology:used-procedure</code>
Label	Used procedure
Definition	Instances of <code>tern:Observation</code> with <code>sosa:observedProperty</code> value <i>TBA</i> <i>MUST</i> have a <code>sosa:usedProcedure</code> where the value is https://linked.data.gov.au/def/test/dawe-cv/1ff9e97c-3bdd-44c9-bdd3-401fa31c0b32 .
Comment	IRI of procedure <i>MUST</i> have the value https://linked.data.gov.au/def/test/dawe-cv/1ff9e97c-3bdd-44c9-bdd3-401fa31c0b32 . https://linked.data.gov.au/def/test/dawe-cv/1ff9e97c-3bdd-44c9-bdd3-401fa31c0b32 is the IRI for "Plot Description".
Status	submitted ○
Conformance Classes	<i>TBA</i>
Source	TERN Ecosystem Surveillance Ecological Monitoring Protocols
Validators	/shapes/plot-description/surface-strew-lithology/shapes.ttl
Examples	Valid: /shapes/plot-description/surface-strew-lithology/valid.ttl Invalid: /shapes/plot-description/surface-strew-lithology/invalid.ttl

3.1.1.7.6. Value type

Property	Value
Identifier	<code>urn:shapes:plot-description:surface-strew-lithology:value-type</code>
Label	Value type

Property	Value
Definition	Instances of <code>tern:Observation</code> with <code>sosa:observedProperty</code> value <i>TBA</i> <i>MUST</i> have a <code>sosa:hasResult</code> where the value node is an instance of <code>tern:IRI</code> .
Comment	The value in <code>sosa:hasResult</code> <i>MUST</i> be a <code>tern:IRI</code> .
Status	submitted ○
Conformance Classes	<i>TBA</i>
Source	TERN Ecosystem Surveillance Ecological Monitoring Protocols
Validators	/shapes/plot-description/surface-strew-lithology/shapes.ttl
Examples	Valid: /shapes/plot-description/surface-strew-lithology/valid.ttl Invalid: /shapes/plot-description/surface-strew-lithology/invalid.ttl

3.1.1.7.7. Vocabulary

Property	Value
Identifier	<code>urn:shapes:plot-description:surface-strew-lithology:vocabulary</code>
Label	Vocabulary
Definition	The value of <code>tern:vocabulary</code> <i>MUST</i> match the pattern <code>1d50eb79-685f-45ea-84b4-627154eddede\$</code> .
Comment	IRI of <code>tern:vocabulary</code> in <code>sosa:hasResult</code> <i>MUST</i> have the value https://linked.data.gov.au/def/test/dawe-cv/1d50eb79-685f-45ea-84b4-627154eddede . https://linked.data.gov.au/def/test/dawe-cv/1d50eb79-685f-45ea-84b4-627154eddede is the IRI for "Soil lithology codes".
Status	submitted ○
Conformance Classes	<i>TBA</i>
Source	TERN Ecosystem Surveillance Ecological Monitoring Protocols
Validators	/shapes/plot-description/surface-strew-lithology/shapes.ttl
Examples	Valid: /shapes/plot-description/surface-strew-lithology/valid.ttl Invalid: /shapes/plot-description/surface-strew-lithology/invalid.ttl

3.2. TERN Ontology Conformance

TBD.

4. Editors Notes

4.1. Working titles

Both this specification and the ecological field collection protocol do not have canonical names yet. The below will be changed and updated once formal names are provided by DAWE.

- Ecological Data Exchange Specification (this document)
- TERN Ecosystem Surveillance Ecological Monitoring Protocols

4.2. Placeholders

4.2.1. Placeholder text

Placeholder values **TBA**, **TBD** and **TBC** must be replaced with actual values.

4.2.2. Placeholder IRIs

IRIs of controlled vocabularies are currently placeholders with the namespace <https://linked.data.gov.au/def/test/dawe-cv/>. These IRIs must be replaced once the authoritative IRI is known.