Ecological Impact Assessment
61 Hampton Downs Road

Prepared for

National Green Steel Limited

May 2025

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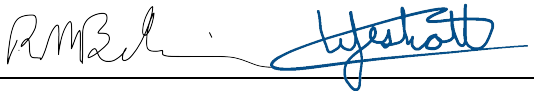
SIGNATURE 

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Limitations:

This report has been prepared by Pattle Delamore Partners Limited (PDP) on the basis of information provided by National Steel Ltd. PDP has not independently verified the provided information and has relied upon it being accurate and sufficient for use by PDP in preparing the report. PDP accepts no responsibility for errors or omissions in, or the currency or sufficiency of, the provided information.

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Executive Summary

National Steel Limited propose to develop a Green Steel Processing Plant on a dry stock farm at 61 Hampton Downs Road in Waikato Region. The client's project has been included as a Listed project under Schedule 2 of the Fast Track Amendment Act. Pattle Delamore Partners (PDP) has been engaged to undertake an Ecological Impact Assessment for the site.

The overall level of ecological effects from the Green Steel Processing Plant using EIANZ's (2018) guidelines are Low for the Terrestrial Ecosystem factors and Low for the Aquatic Ecosystem factors.

The assessed EcIA level of effects (without mitigation) on terrestrial and aquatic values range between (**very low** to low) as a result of the proposed temporary earthworks construction activity and permanent stormwater treatment facility at the northern end of the property, treating stormwater water discharged from buildings and impervious surfaces.

With appropriate mitigation measures the likely ecological impact of the Green Steel Processing Plant at 61 Hampton Downs Road will be **Low**.

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1.0 Introduction

National Green Steel Limited (the client) proposes to develop a Green Steel Processing Plant on a dry stock grazing farm at 61 Hampton Downs Road in Waikato Region. The client has had an application accepted for the proposed development to be assessed as a Listed project under Schedule 2 of the Fast Track Amendment Act. Pattle Delamore Partners (PDP) has been engaged to undertake an Ecological Impact Assessment for the site.

2.0 Site Description

The 53-ha proposed development site at 61 Hampton Downs Road, Waikato District is a dry stock farm on gentle hill country that slopes from the south part of the property down to Hampton Downs Road in the north. The farm is almost entirely covered in pasture grasses with the occasional exotic tree. The lower and northern part of the site has grown maize crops for cattle fodder for at least the past decade. There is a small area of gorse and manuka on the southern part of the property slopes down to the south. See Figure 1 below.

As a dry stock farm, the site has been subject to on-going grazing, resulting in a mosaic of grass and herb species proliferating throughout. The proposed development will infill several shallow agricultural drains on the lower-lying northern part of the property. These drains have no riparian vegetation and are dry most of the year. With on-going herbicide management of weeds where maize crops have been grown, the cover is predominantly pasture plants and exotic weeds[1].

Peat soils were confirmed in the northern section of site, and this is supported by S-Map data that indicates Typic Orthic Gley Soils (Temuka) are present on the project site (Manaaki Whenua, 2019).[2]

[1] Manaaki Whenua (2020). Landcover Database Version 5. Available at: https://lris.scinfo.org.nz/layer/104400-lcdb-v50-land-coverdatabaseversion-50-mainland-new-zealand/. Accessed December 2024

[2] Manaaki Whenua Landcare Research. (2023). New Zealand Soil Classification Scheme. https://soils-maps.landcareresearch.co.nz/

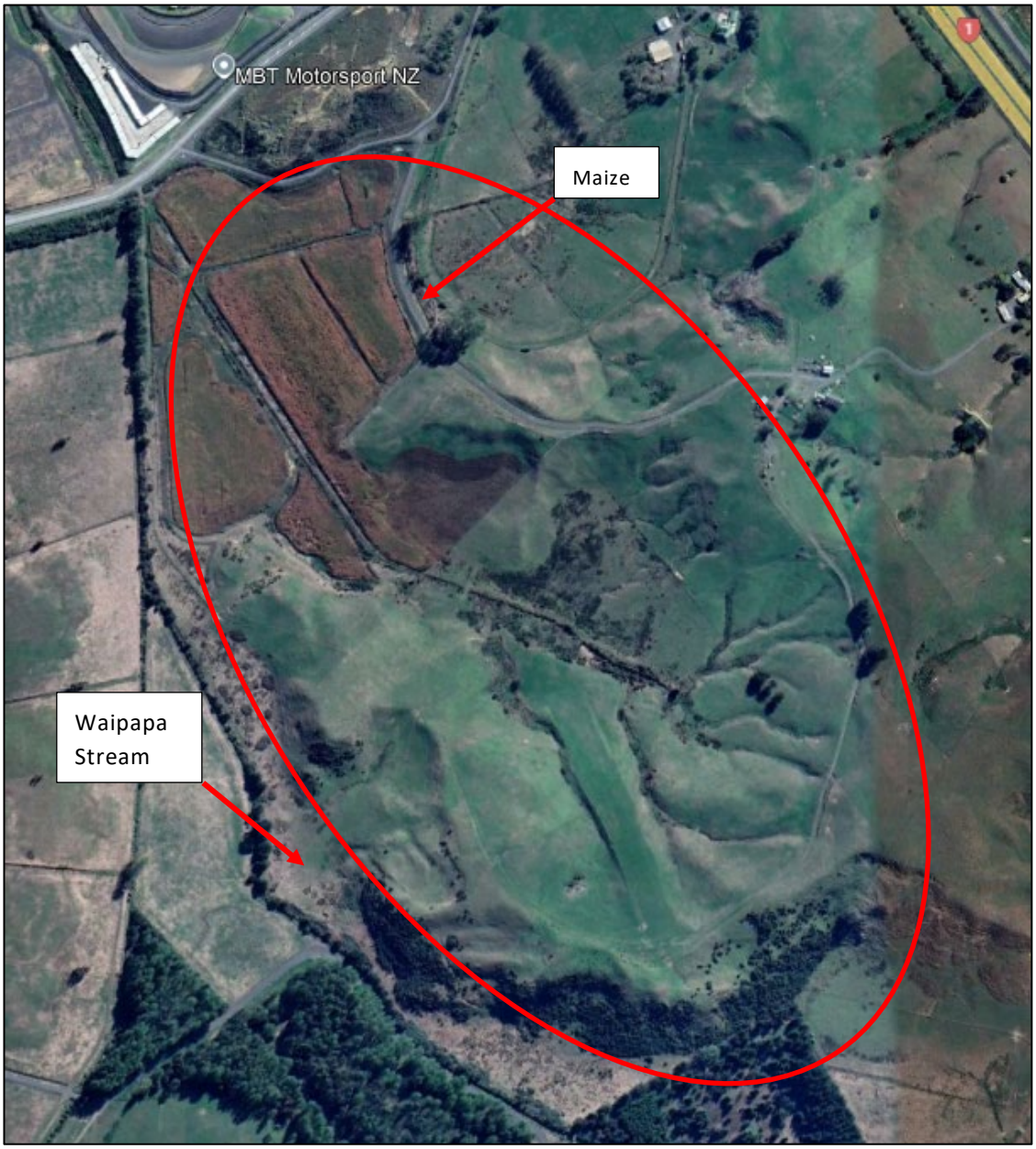


Figure 1: Topography and Site Cover photographs 2025

Figure 2: Green Steel site land cover 2025

3.0 Green Steel Proposal

The proposal is to operate a steel shredding plant using scrap metal, mainly car bodies, and in turn supply this material to a steel manufacturing plant using Electric Arc Furnace technology to annually produce 200,000 tonnes of high-quality steel for the local market (see Figure 3 for Site Plan and overall concept plan of the proposed site development).

In addition, two sites on the property have been identified as being suitable for use as industrial monofills to deposit the material called "automotive shredder residue" ("ASR") that is left over from the shredding and resource recovery process – commonly termed "floc", mainly the remains of upholstery from vehicles.

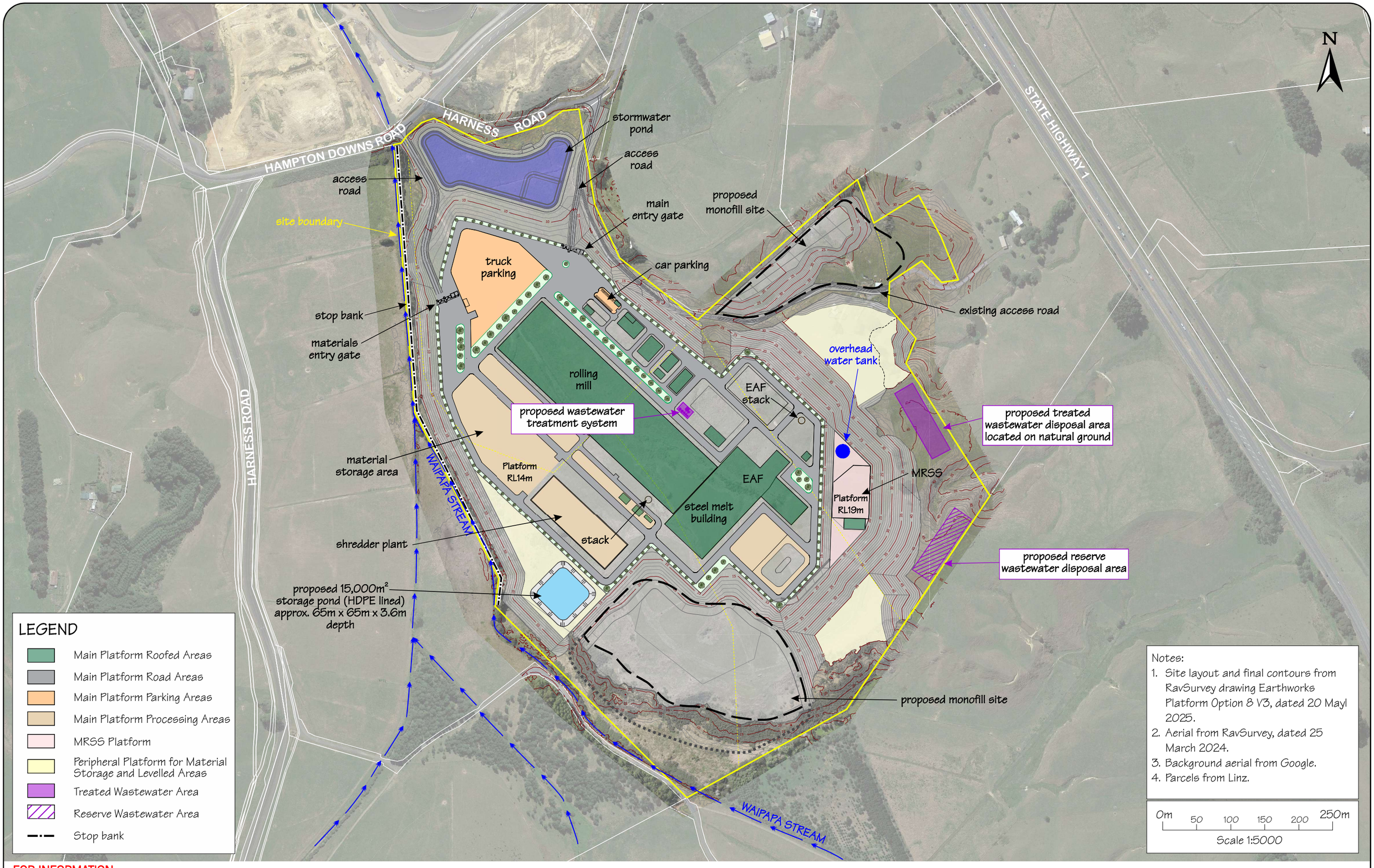
The project aims to create 200 new direct jobs at various skill levels in the Waikato region, boost local economic growth, and reduce New Zealand's dependence on imported steel by making better use of the country's scrap metal resources.

To accommodate the steel plant and ancillary activities, significant land development activities will need to occur, involving reshaping almost the entire site to provide the platforms needed to accommodate the buildings, structures, access roads, laydown areas, the two monofill areas, and other facilities needed for the operation. The land development will involve major earthworks to prepare the site, potentially up to two earthworks seasons. Erosion and sediment controls will be an integral part of this development. Embankments will be formed between the constructed building platform and higher ground levels to the south and east of the site (see Site Plan).

The monofills will be developed consecutively. Each will require significant earthworks requiring good sediment control practices. The south-western monofill in particular, will be constructed within 70 m from the Waipapa Stream, but not filled for at least eight years, until the north-east monofill is completed.

A feature of the project will be the re-use of as much stormwater as possible. The steel making process uses significant amounts of water for cooling purposes, and the project team has identified stormwater from roofs and roads as a significant source of water. Stormwater will therefore be collected into a large pond at the lower and northern end of the site where it will be treated to remove sediment and other contaminants. Some of the treated water will be stored for reuse. It will be pumped up to near the plant where it will be further cleaned before reuse in the steel plant.

At times, for example when there have been significant quantities of rain, discharges from the pond will occur. It is proposed to discharge this stormwater into the Waipapa Stream at the north—western corner of the site adjacent to the Hampton Downs Road culvert conveying the Stream under the road.



FOR INFORMATION

Note: All drawings are to be approved (initialled) before final issue.

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61 HAMPTON DOWNS ROAD

National Green Steel Limited

Site Plan

REV	DATE	AMENDMENT/ISSUE	DRAWN BY	CHECKED	TRACED BY	APPROVED BY
A	05-12-24	DRAFT FOR DISCUSSION	L.S	A.N	S.SW	
B	18-02-25	UPDATE PLATFORMS AND CONTOURS	L.S	A.N	S.SW	
C	16-04-25	UPDATE STORMWATER POND	L.S	A.N	S.SW	
D	20-05-25	UPDATE WASTEWATER AREA	L.S	A.N	S.SW	

DRAWING NO.: FIG. PD3

REF: 4392

SCALE: 1:5000

CRS: Mt Eden 2000

DATUM: AVD46

4.0 EcIA Methodology

4.1 Impact Assessment

The Environment Institute of Australia and New Zealand's guidelines for undertaking Ecological Impact Assessments (EcIA; EIANZ 2018[3]) were used to assess the impacts of the proposed development. The guidelines provide criteria to assess ecological values using the factors: 'representativeness', 'rarity/distinctiveness', 'diversity and pattern', and 'ecological context.' Based on the designated values for each factor, the ecological aspects of the site are then assessed using the attributes matrix in the EIANZ guidelines. Chapter 6 of the EIANZ guidelines provides criteria for determining the magnitude of effects.

Best practice for Ecological Impact Assessment in New Zealand requires the assessment to be undertaken within the appropriate catchment, Ecological District or Ecological Region (McEwen W.M. 1987) where this data has been compiled by regional and district councils, for aquatic and terrestrial assessments.

The level of effect can then be determined by combining the value of the ecological feature/attribute with the score or rating for the magnitude of effect to create criteria for describing the level of effects. Cells with low or very low levels of effect represent a low risk to ecological values rather than low ecological values. A 'moderate' level of effect requires careful assessment and analysis of the individual case. These effects could be mitigated through avoidance, design, or appropriate mitigation actions.

The catchment level ecological context or scale is predominantly used within this report, after consideration of scale at the site, and the local, regional and national scale matters for the relevant components.

Note that the Meremere Ecological District ("ED") was not considered appropriate for identifying the Zone of Interest for the National Green Steel project. Although the project is within the 57,000 ha Meremere ED, this ED (Waikato Floodplains Ecological Management Zone/ Meremere ED) comprises the Waikato River within a floodplain created by the river, and large indigenous wetlands. This ED has dissimilar characteristic of the Ecological Zone of Interest of the project area which is almost entirely devoid of indigenous vegetation. [4]

[3] Roper-Lindsay, J., Fuller S.A., Hooson, S., Sanders, M.D., Ussher, G.T. 2018. Ecological impact assessment. EIANZ guidelines for use in New Zealand: terrestrial and freshwater ecosystems. 2nd edition.

[4] 2017 Significant natural areas of the Waikato District: terrestrial and wetland ecosystems. Waikato Regional Council Technical Report 2017/36. Wiea van der Zwan & Gerry Kessels (Kessels Ecology)

4.2 Project Scope and Spatial Extent

The scope of PDP's ecological assessment for 61 Hampton Downs Road included the following:

- Defining the spatial scale and extent of the site activities and effects (EcIA 3.2.5 2nd ed.)
- Describing the site, it is helpful to define and map the boundaries of the site, activities and effects.

These vary greatly between projects, activities and ecological components and processes, and relevant spatial extent has to be decided according to the project and ecological features being assessed. The 'zone of influence' (ZOI) refers to all land, water bodies and receiving environments that could be potentially impacted by the project. It includes the Project Site and any environments beyond the Project Site where 'indirect effects' such as discharges may extend (sometimes called the Study Area). The extent of the ZOI depends on- species, communities and ecosystems likely to be affected; and- the temporal and spatial scale of potential effects on them.

- Delineating the affected catchment for the project site that may be affected.
- Assessing the ecological value of the ecological components in the catchment.
- Assessing the ecological effects from works involved with the project site, both temporary and permanent effects.
- Assessing the magnitude of the potential effects.

(The approach proposed for New Zealand is that the level of an effect is determined by a combination of the magnitude of the effect and the value of the affected ecological component. Magnitude of effect is a measure of the extent or scale of the impact and the degree of change that it will cause. A typical scale ranges from very high to negligible, depending on the magnitude and nature of the effect and the importance of the affected ecological feature. The scale should be explained for each assessment context. Positive effects should also be assessed. The scale should be explained for each assessment context. Level of effect is determined by the magnitude of effect and the value of the affected biodiversity or ecological component.)

4.3 Ecological Features and Values

The scoping process should identify ecological features and values of the study area or ZOI, including those values recognised through statutory processes and publications. The depth to which this can be done will depend on the scale of the project. For a smaller project, it may not be possible to do a site visit at the scoping stage and this information will have to be gathered at the desktop level only.

A preliminary list of biota should be prepared and used as a basis for later site investigations. Preliminary assessments can be made of:

- Ecological values in the ZOI based on national, regional or local databases or publications.
- Biodiversity quantity and water quality (although this may be only an estimate at the preliminary stage).
- Ecological trends, vegetation/habitat quality and water quality.
- Ecological services provided by the study area.
- Complex areas such as terrestrial/freshwater transitional zones.
- Cultural values associated with species, habitats, or ecosystems.

4.4 Desktop Review

PDP undertook an initial desktop review of publicly available information relating to the current ecological values surrounding the National Green Steel site and the surrounding area. All vegetation across the site was assessed with its associated composition, structure and integrity recorded. A search of national and regional ecosystems databases[5], and threatened species databases[6] were completed to ascertain existing information on ecosystems and threatened flora and fauna.

5.0 Green Steel Project: Ecological Zone of Interest

The EcIA assesses the aquatic and terrestrial ecological values in the Meremere Drainage District/ Waipapa Stream catchment as the Zone of interest for the Green Steel Processing Plant proposal.

Today, land cover within the ZOI is dominated by dry stock grazing, cropping e.g. maize cropping, motor sport activities e.g. racetrack, drag strip, go-kart track, a landfill, a correction facility, and the Waikato Expressway. Indigenous ecosystems within the ZOI are absent or severely depleted (see Figure 4 below).

[5] The Land Environments of New Zealand (LENZ) the land cover database (LCDB4) are available for download from http://lris.scinfo.org.nz/. Regional ecosystem mapping e.g. Waikato Local Maps

[6] NZ Threat Classification System https://www.doc.govt.nz/about-us/science-publications/conservation-publications/nz-threat-classification-system/

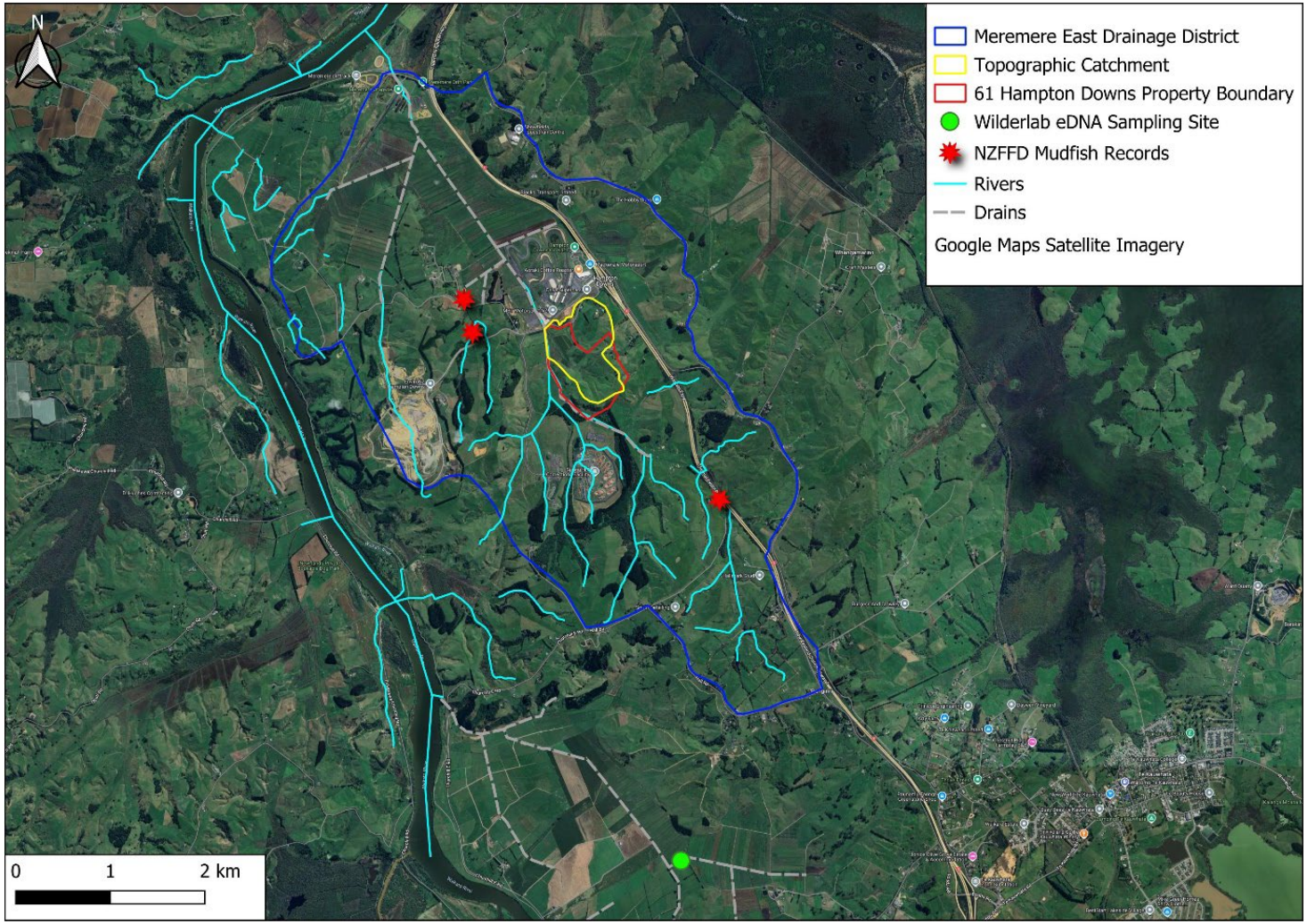

Figure 4: Map of the Zone of Influence of the Green Steel project site

6.0 Ecological Values

6.1 Freshwater Values

A high-level assessment of potential wetlands and streams on the site was undertaken on 23 April 2024 (PDP, 2024). A network of agricultural drains is present on the site and flow into the Waipapa Stream drain that travels along the site's western boundary and north into Waikato River. The Waipapa Stream drain exhibited permanent flow based on on-site observation, satellite imagery, topographic catchment size and river line data.

Significantly the Waipapa Stream is fully fenced within the Green Steel property with permanent fencing to exclude stock, and the riparian edge is planted (see photo below). A low stopbank runs adjacent to the Stream on the lower section of the property for several hundred metres (see site plan). Most of the Green Steel site drains north through a network of drains and ultimately into the Stream below the Green Steel property.

On the ZOI plan (Figure 3) for the project – the Waipapa Stream sub-catchment, the map shows the project locality (in yellow) and the Meremere East Drainage District into which the Waipapa Stream drains. The Waipapa Stream catchment area above and below the project site is almost entirely grazed pasture and periodically in maize crops for cattle grazing fodder and generally devoid of any tree cover. The exception is the riparian vegetation planted alongside the Waipapa Stream on the western boundary of the applicant's property – see Figure 5 below.

Figure 5: Waipapa Stream riparian planting and stopbank

7.0 Ecological Context

7.1 Landcover and Land Use

The current land use is a recent dry stock grazing farm that has been subject to on-going grazing, resulting in a mosaic of grass and herb species proliferating throughout. The proposed development will infill several shallow (<1 m water depth) agricultural drains. These drains have limited riparian margin vegetation, aside from rank grass and associated herbs, and moderate in-stream vegetation.[7]

7.2 Geology and Soils

Peat soils were confirmed in the northern section of site, and this is supported by S-Map data that indicates Typic Orthic Gley Soils (Temuka) are present on the project site (Manaaki Whenua, 2019). [8]

7.3 Catchment

Local council geomaps were accessed to determine the appropriate catchment for the EcIA, the local drain/stream network and where they joined the nearby Waikato River and their general path from the site (see Figure 3).

7.4 Ecological Context

In pre-European times the ZOI was covered in a mix of jointed rush/restaid wetlands (Ecosystems WL2, 3 &10) and Kahikatea/Pukatea wetland forest (WF60) (Singers et al. 2017). All of the restaid wetlands and wetland forests in this catchment have been cleared for agricultural land use and it is now transitioning to commercial and industrial activities, with dry stock grazing and cropping occupying land beyond the setbacks for the commercial and industrial activities.

7.5 Field Assessments

The assessments were undertaken on an overcast day with minimal wind. Avifauna was observed within the Waipapa Stream sub-catchment, and recorded while on-site, and suitable fauna habitat availability was assessed. Opportunistic non-destructive manual habitat searches were carried out for ground-dwelling lizard species, and habitat assessments were carried out for bats.

[7] Manaaki Whenua (2020). Landcover Database Version 5. Available at: https://lris.scinfo.org.nz/layer/104400-lcdb-v50-land-coverdatabaseversion-50-mainland-new-zealand/

[8] Manaaki Whenua Landcare Research. (2023). New Zealand Soil Classification Scheme. https://soils-maps.landcareresearch.co.nz/

8.0 Aquatic Assessment

Freshwater ecosystems were assessed on-site, and national and regional ecosystem databases reviewed, and threatened species databases were assessed to ascertain existing information on ecosystems and threatened flora and fauna.

The site was assessed against the national wetland delineation protocols[9] and the Waikato Regional Council watercourse assessment guidelines, to determine if there were any wetlands.

8.1 Aquatic Habitat Assessment

The Waipapa Stream watercourse was assessed on site based on the Cawthron Institute watercourse assessment guideline[10] with emphasis placed on channel morphology, shading, instream habitat provision and anthropogenic alteration. Table 1 below sets out the results of the assessment.

Table 1: Rapid Habitat Assessment of the Waipapa Stream/drain

Habitat Parameter	Condition Score/10
Deposited sediment	1
Invertebrate habitat diversity	1
Invertebrate habitat abundance	1
Fish cover diversity	2
Fish cover abundance	1
Hydraulic Heterogeneity	1
Bank Erosion	6
Bank vegetation	3
Riparian width	3
Riparian shade	1
Total	**20/100**

Notes:

1. *All categories are scored out of 10, the total score is out of 100.*
2. *Cawthron Institute, 2015. Rapid Habitat Assessment.*

[10] Cawthron Institute. Rapid Habitat Assessment https://www.cawthron.org.nz/research/our-projects/rapid-habitat-assessment-protocol/

The stream has a permanent 7 wire fence over its length throughout the Green Steel property. The riparian vegetation is comprised of a mix of trees and shrubs, including flax, manuka, and eucalyptus, as well as a mix of exotic grasses and herbs.

The stream bottom and water column appear to have significant fine muddy sediment and algae. This is likely due to the stream upstream of the property having minimal vegetation cover. Downstream of 61 Hampton Downs Road, the stream is unprotected and open, with cattle grazing to within 1 m of the stream.

The overall value of the Waipapa Stream is **very low**.

		
Waipapa Stream flowing under Hampton Downs Road below the stream from 61 Hampton Downs Rd	Waipapa Stream below 61 Hampton Downs Rd	Lower reach of Waipapa Stream flowing into Waikato River

Figure 6: Waipapa Stream below Hampton Downs Rd

8.2 Aquatic Vegetation

The lower (northern) part of the site, close to Hampton Downs Road, was assessed to determine if there was any natural inland wetland present. No natural inland wetlands were discovered during the investigation. Scattered areas of pasture grasses, exotic weeds and water pepper (*Persicaria hydropiper*) covered an area of peat soils that had been cropped with maize until recently (see Figure 1 above and Figure 7 below).

Following the MfE wetland delineation protocols PDP assessed the area as **Not Wetland** as defined by the National Policy Statement for Freshwater Management (NPS-FM) 2020 which defines natural inland wetland in section 3.21 as follows:

"natural inland wetland means a wetland (as defined in the Act) that is not:

a) a wetland that:

(i) is within an area of pasture used for grazing; and

(ii) has vegetation cover comprising more than 50% exotic pasture species (as identified in the *National List of Exotic Pasture Species* using the *Pasture Exclusion Assessment Methodology (see clause 1.8));"*

The area was dominated by land used for pasture grazing with 80% pasture ground species and a 20% cover of exotic water pepper (*Persicaria hydropiper*). It contained peat soils 35 cm below ground level. Water pepper appears in summer and dies back in autumn.

This assessment is reinforced by the land having been in maize crops for a decade (see Figure 1) and regularly sprayed with herbicide prior to spring-summer cropping to supress ono-pasture weeds on the site.

Most of this area is damp and will be included in a proposed larger new pond or constructed wetland at the northern end of the site, as part of the site development. A draft Native Planting Plan (NPP) for the area has been prepared by PDP (2025). Additionally, a planting plan for the wider site has been prepared by Peers Brown Miller. Also, Airey Consultants are assessing the stormwater discharges and the appropriate method of treatment needed, including the characteristics of the treatment.

The value of the damp areas on the lower (northern) part of the Green Steel processing plant site 61 Hampton Downs Road for aquatic vegetation is **very low**.

Figure 7: General site condition on northern part of the site, Hampton Downs Rd (22 November 2024).

8.3 Fish Community

Freshwater Fish records were drawn from Wilderlab public eDNA database. No eDNA records are available in the Meremere East drainage area or proposed development topographic catchment. The closest eDNA record within the Lower Waikato catchment management zone is approximately 4.7 km south of the project site (Figure 4) (Wilderlab, 2025). This sampling site[11], at decimal coordinates 175.091912, -37.410081, is on a drain flowing through similar agricultural farmlands and into Waikato River.

[11] Wilderlab job number 607096: https://s3.ap-southeast-2.amazonaws.com/wilderlab.openwaters/reports/69bb6830ff001463.html

Table 2: Freshwater Fish Records from Wilderlab eDNA

Scientific Name	Common Name	NZTCS Status[1]	Regional Status[2]
Ameiurus nebulosus	Brown Bullhead	Introduced	
Anguilla australis	Short-finned Eel	Not threatened	
Anguilla dieffenbachii	Longfin Eel	At risk declining, only occasional records	At risk declining Last recorded in 2017
Carassius auratus	Goldfish	Introduced	
Cyprinus rubrofuscus	Amur Carp	Introduced	
Gambusia affinis	Mosquito fish	Introduced	
Mugil cephalus	Sea Mullet	Not threatened	
Neochanna diversus	Black mudfish	At risk declining	At risk declining Last recorded in 2017

Note:

1. *NZTCS; New Zealand Threat Classification System, https://nztcs.org.nz/*

8.3.1 NZ Freshwater Fish Database Records

A total of 98 fish records were sourced from NZFFD and reviewed for the Waipapa Stream and associated tributaries in and around the project site.

Records 1 to 3 were collected from a separate agricultural drainage network to the project site, with records 2 and 3 sampled from the same site in 2013 (Retrolens, 2025; Google Earth Pro, September 2013). These waterways have no connectivity to the drains observed on the project site. Records 4 and 5 were collected from the same sampling site on Waipapa Stream upstream of the project site in 2017. The sampling site was approximately 1.599 km north of the project site, and Waipapa Stream flows along the western boundary of the project site sampling site.

8.3.2 New Zealand Mudfish

The Waikato Regional Council suggested we investigate the possibility of mudfish living on the project site. There have been black mudfish recorded at three sites on five occasions between 1997 and 2017 (Table 3) in the wider catchment of around the project site. Although subsequent surveys were conducted on the Waipapa Stream and associated tributaries in 2019, no mudfish were recorded.

Table 3: NZFFD black mudfish records associated with the Waipapa Stream and tributaries

NZFFD Record No.[1]	Date	Waterbody	Total Count	Decimal Longitude	Decimal Latitude	Distance from Project Site (direction)
14820	22/09/1997	Waipapa Stream Tributary	-	175.066003	-37.356739	922 m (NW)[2]
100808	12/04/2013	Waipapa Stream Tributary	12	175.06697	-37.359895	767 m (NW)[2]
100810	12/04/2013	Waipapa Stream Tributary	2	175.06697	-37.359895	767 m (NW)[2]
115305	25/05/2017	Waipapa Stream	1	175.09651	-37.375778	1,599 m (SE)
115305	25/05/2017	Waipapa Stream	1	175.09651	-37.375778	1,599 m (SE)

Notes:

1. *As presented within the NZFFD database accessed from https://nzffdms.niwa.co.nz/download on 24/01/2025.*
2. *Situated in a different topographic catchment from, and downstream of, the project site.*

'–' denotes 'not counted but present' as per NZFFD records.

Black mudfish were recorded in 2017 on the Waipapa Stream 2.2 km upstream of the project site, however the species was absent during monitoring of the same sampling site in 2019. The drainage network where the mudfish were recorded in 2017 is no longer connected to the Waipapa Stream, albeit only during heavy rainfall events due to difference in drainage depths. The eDNA sample site within the Lower Waikato catchment management zone (in section 6.3 in this report, approximately 4.7 km south of the project site (Figure 4) (Wilderlab, 2025) appeared to have some eDNA of common bully and a number of pest fish species that prey upon black mudfish.

The value of the Waipapa Stream for freshwater fish is **low**.

8.4 Aquatic Invertebrates

There are no Threatened or At-risk indigenous invertebrate records from research grade iNaturalist observations from the ZOI of the project site.

The value of the Waipapa Stream for aquatic invertebrates is **very low**.

Terrestrial Fauna on the Zone of Interest

8.5 Birds

PDP ecologists observed the bird fauna around the Green Steel site and in the ZOI in January and February 2025. This was supplemented by bird species records of a research grade from iNaturalist observations and New Zealand Bird Atlas data from the ZOI of the project site, in Table 4 below.

The combined records show that twenty-seven bird species were observed in the ZOI within which the Green Steel project site is located. Of these, 16 were introduced pasture species, and 9 were native birds but not threatened. There was 1 record of the vagrant Asian Cattle Egret (which is known to roost on damp pasture in the wider locality and one native At-risk declining species, the red billed gull. Both of these species occasionally roost on damp pasture in winter in this locality when ploughing in cropping fields disturbs soil insects.

The value of the Waipapa Stream bird community is **low**.

Table 4: Bird observations and records within 5km of the ZOI			
Name	**Species**	**NZTCS Status[1]**	**Regional Status[2]**
Lesser Redpoll	Acanthis flammea cabaret	Introduced	Introduced
Common Myna	Acridotheres tristis	Introduced	Introduced
Mallard	Anas platyrhynchos	Introduced	Introduced
Asian Cattle Egret	Ardea coromanda	Vagrant	Vagrant
European Goldfinch	Carduelis carduelis	Introduced	Introduced
Red-billed Gull	Chroicocephalus novaehollandiae scopulinus	At risk declining	At risk declining
Feral Pigeon	Columba livia domestica	Introduced	Introduced
Black Swan	Cygnus atratus	Introduced	Introduced
Yellowhammer	Emberiza citrinella	Introduced	Introduced
Chaffinch	Fringilla coelebs gengleri	Introduced	Introduced
Australian Magpie	Gymnorhina tibicen	Introduced	Introduced
Warou (Welcome Swallow)	Hirundo neoxena neoxena	Not threatened	Not threatened
Caspian Tern	Hydroprogne caspia	Not threatened	Introduced
Southern Black-backed Gull	Larus dominicanus dominicanus	Not threatened	Introduced
House Sparrow	Passer domesticus	Introduced	Introduced
Pukeko	Porphyrio melanotus melanotus	Not threatened	Introduced
Common Starling	Sturnus vulgaris vulgaris	Introduced	Introduced

Table 4: Bird observations and records within 5km of the ZOI			
Name	**Species**	**NZTCS Status[1]**	**Regional Status[2]**
Paradise Shelduck	Tadorna variegata	Not threatened	Not threatened
Masked Lapwing	Vanellus miles	Not threatened	Introduced

Notes:

1. *NZTCS; New Zealand Threat Classification System, https://nztcs.org.nz/*
2. *Nationally threatened and regionally uncommon species of the Waikato Region TR 2019/28*

8.6 Reptiles

The vegetation on site provides minimal habitat for indigenous skinks. Table 5 contains indigenous reptile species records from research grade iNaturalist observations of indigenous reptiles from the ZOI of the project site.

Two native species of lizards have been recorded in the ZOI of the project and the introduced plague skinks. It is unclear whether there is sufficient habitat in the ZOI to support a local population of gecko.

The indigenous and exotic vegetation along the Waipapa Stream which is unsuitable for indigenous skinks, whose habitat in this locality are generally rank grass and low shrubbery. Gecko habitat is in dense shrubbery and medium height trees. Intensive stock grazing and maize cropping has eliminated reptile habitat in the ZOI.

Table 5: Reptile records within the ZOI of the project site

Species	Name	NZTCS Status
Pacific Gecko	Dactylocnemis pacificus	Not threatened
Plague skink	Lampropholis delicata	Introduced
Copper Skink	Oligosoma aeneum	Not threatened

The value of the Waipapa Stream reptile community is **low**.

8.7 Bats

The ZOI has no bat records on the DOC database and no available roosting habitat. There is minimal feeding habitat of very low quality.

The value of the Waipapa Stream for bat habitat is **negligible**.

8.8 Summary

Aquatic ecology is dominated by low water quality, with a Habitat Assessment score of 15/100. Some of the Waipapa Stream below the site is piped and appears to have access for grazing cattle. However, the Stream running alongside the Green Steel site is fenced and riparian planted.

The fish fauna is dominated by introduced fish species, many of which are classified as pest fish in the Waikato Regional Pest Management Plan 2022-2032. The indigenous fish diversity is very low, with short fin eel present although not threatened, and the At-Risk Declining long-finned eel only being recorded occasionally.

In summary, the Waipapa Stream sub-catchment has **very low** water quality and **low** fish fauna values and is unlikely to still be habitat for black mudfish.

The value of the Waipapa Stream aquatic and terrestrial plants and animals is **low**.

9.0 Ecological Impact Assessment

The current physical and ecological characteristics of the identified aquatic and terrestrial habitats within the survey area were assessed against the matters and attributes outlined in the EIANZ EcIA guidelines (Roper-Lindsey et al. 2nd ed. 2018).

The nature and level of actual or potential effects of activities for which consent is being sought are addressed. Positive and adverse effects, cumulative effects and residual effects are considered, and the assessment informs the nature and scale of impact management required. The estimated magnitude and level of effects associated with the proposed works is summarised for each ecological feature.

9.1 Ecological Effects

The potential effects on terrestrial and aquatic ecology from the proposed works are:

- Temporary sediment discharge from large-scale earthworks.
- Permanent stormwater quality and quantity treatment for stormwater coming from buildings and impermeable surfaces.

9.2 Overall Effects

The assessed EcIA level of effects (without mitigation) on terrestrial and aquatic values has been assessed as ranging between **very low** to **low.**

Large scale earthworks will occur to develop the wider site for the proposed steel plant and ancillary facilities and activities. An earthworks plan and erosion and sediment control plan has been prepared aimed at implementing measures to avoid sediment being discharged from the site during the development phase.

No earthworks are planned on the stream side of the stopbank alongside the Waipapa Stream. Further upstream where there is no stopbank, earthworks will be kept a minimum of 10 m from the fence which protects the riparian planting along the Stream. Along with sediment control measures, this will avoid any ecological effects upon the stream.

All stormwater from the site once all development has been completed will be channelled down towards the northern end of the site, where it will be discharged into a large treatment pond. Much of this water will be pumped back up to the steel plant to be used as process water in the steel making process (mainly cooling

steel). Any stormwater discharged will be treated through the pond system and discharged into the Waipapa Stream near Hampton Downs Road. Although the values of the Stream are low, the discharges of stormwater will be treated to a high standard to ensure any adverse effects are avoided.

As a result of the proposed permanent stormwater treatment with a constructed treatment system set to the standards required by Waikato Regional Council's guidelines, the discharge of treated stormwater to the Waipapa Stream could have a positive effect on the stream's water quality downstream from 61 Hampton Downs Road.

The following management measures should ensure a high quality of site management during site development:

- The existing stopbank, fenced and riparian areas along the Waipapa Stream will remain and be further protected by keeping all development well away from these areas.
- The implementation of the proposed Erosion and Sediment Control Plan will ensure the quality of water being discharged into the remnant Waipapa Stream during the development phase of the project will be maintained and contain sediment that could otherwise discharge into the Waipapa Stream.
- Additionally, a permanent constructed stormwater device/pond system is proposed to treat all stormwater discharges from the developed site to ensure water quality originating from buildings and impervious surfaces on the site will be to a high-quality standard.
- The proposed monofills have been designed with Class 1 landfill liners, to ensure leachate does not leak into the ground or any stormwater system on the site.

The following tables aggregates the terrestrial and aquatic ecology values of the Green Steel site and the Zone of Interest:

Table 6: Terrestrial Attributes Matrix (Waipapa Stream catchment)				
Birds	**Reptiles**	**Site Vegetation**	**Catchment Vegetation**	**Score Band**
Low	Low	Low	Very low	Low (Lower)
60% introduced pasture birds, 33% not threatened native birds and only occasional winter records of red-billed gull		No indigenous wetland, shrub, tree or forest vegetation in the ZOI catchment	Almost entirely pasture	

Table 7: Aquatic Attributes Matrix (Waipapa Stream catchment)				
Water Quality	**eDNA (fish)**	**Aquatic Vegetation**	**Riparian Vegetation**	**Score Band**
Very Low	Low	Low	Low	Low
(Channelised watercourse and piped sections)	(Dominance of pest fish)	Minimal, except for the upper reach on 61 Hampton Downs Rd, where there is shading vegetation		

10.0 Conclusion

This Ecological Impact Assessment has assessed the overall level of effects as **Low – Very Low** without mitigation, from the development of the Green Steel Processing Plant on a historic dry stock farm at 61 Hampton Downs Road in Waikato Region.

The Zone of Interest for the Green Steel Processing Plant at 61 Hampton Downs Road is the Meremere Drainage District/Waipapa Stream Catchment. At present the Waipapa Stream has riparian shading and a fenced a riparian strip on the east bank of the stream on the applicant's property, 2-5 metres wide, but downstream of the Green Steel site the Stream is unfenced and has no riparian planting. Water quality currently discharging from the development site is of a moderate quality and significantly higher than the water in the Waipapa Stream downstream to where it discharges into the Waikato River.

Overall, with the avoidance and mitigation proposed, this Ecological Impact Assessment considers the effects of the proposed Green Steel Processing Plant on a dry stock farm at 61 Hampton Downs Road, Waikato Region is currently **low-negligible.**

With appropriate Erosion and Sediment Control and a permanent constructed stormwater device/pond system to treat sediment and recover water for reuse in the processing plant, the Ecological Impact of the Green Steel Processing Plant and ancillary structures and activities is likely to have **negligible to positive** Ecological Impacts.

11.0 Recommended Conditions

No earthworks be undertaken closer to the Waipapa Stream than the eastern side of the existing stopbank. In all areas where there is no stopbank, earthworks undertaken shall be no closer than 10 m from the riparian fenced areas of the Waipapa Stream.

Erosion and Sediment Control Plan and measures will be in place over two earthworks seasons. It is essential that this is sized so that it focuses on sediment control to minimise additional sediment discharging into Waipapa Stream.

A class one landfill liner shall be placed under each of the monofills to ensure leachate and does not discharge into stormwater or groundwater systems or the Waipapa Stream.

12.0 References

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