Marsden Point Refinery: A Resource Consent Application to Renew 20 Resource Consents from the Northland Regional Council

Prepared for: ChanceryGreen on behalf of The New Zealand Refining Company Limited, trading as **'Refining NZ'**

Prepared by: Gavin Kemble, *Director*
Bridgette Munro, *Chairperson*
Blair McLean, *Senior Planner*
George Sariak, *Planner*

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Brown NZ Ltd
P O Box 137 067
Parnell
Auckland 1151

MARSDEN POINT REFINERY RE-CONSENTING PROJECT
LANDSCAPE ASSESSMENT

Prepared for
Refining NZ

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1.0 INTRODUCTION

This report addresses the re-consenting of both activities and structures that are currently associated with the Marsden Point Oil Refinery, namely:

- The discharge of smoke from the refinery's stacks, accompanied at times by gas flares atop the hydrocracker unit's flare stack;
- The discharge of stormwater into Whangarei Harbour, including during heavy rainfall events; and
- The existing jetty, berthage dolphins and oil unloading facilities on the jetty.

These activities and structures are evaluated in terms of their visual, landscape, amenity and natural character effects, in the context of the existing environment at Marsden Point and the wider catchment of Whangarei Harbour. The effects identified are also assessed against relevant statutory instruments, including Policies 13 and 15 of the New Zealand Coastal Policy Statement, provisions of the Northland Regional Coastal Plan, the Regional Air Quality Plan and the Proposed Regional Plan for Northland, as well as the Whangarei District Plan.

Those instruments include the Marsden Point Port Zone and areas of High Natural Character (HNC) within the harbour identified in the Proposed Regional Plan for Northland, and Outstanding Natural Landscapes (ONLs) that are identified around the harbour and Whangarei heads in the Northland Regional Policy Statement and Whangarei District Plan. The refinery's stormwater discharges are addressed solely in relation to the Northland Regional Coastal Plan, whereas the air discharges and jetty structures are considered relative to all of the regional and district plans described above.

Of note, even though the discharges from Marsden Point's stacks also affect 'Airsheds' identified in the Proposed Regional Plan for Northland, this report only addresses the smoke and flares discharged by the refinery in terms of their effects on the ONLs found around Whangarei Heads and Harbour, together with both landscape and amenity effects on the wider environment of that area.

Effects in relation to occupation of the Whangarei seabed by the jetty and dolphins pertain solely to those structures and do not extend to the ships that berth and unload oil at Marsden Point.

This report is accompanied by **30 Attachments**, which show the following:

- Smoke discharges and gas flares viewed from a variety of locations around Whangarei Harbour and at Ruakaka Beach, during morning and afternoon (photographed on the 29th May 2019) – during periods of 'moderate' and 'high' smoke discharge from the 'multi flu' stack (which burns fuel oil and asphalt, and is connected to furnaces associated with the hydrocracker operation);
- The same images with the smoke plume and gas flare digitally deleted to act as comparators with the images described above;
- Views from a range of vantage points around Whangarei Harbour (photographed on the 28th June 2019) showing views with the current jetty and berthage dolphins next to the refinery;
- The same viewpoint images with the jetty and dolphins removed; and
- Photos from the vicinity of Taurikura Bay and Urquharts Bay addressing the relationship of the refinery to the ONLs found across the outer harbour.

2.0 LANDSCAPE CONTEXT

The outer reaches of Whangarei Harbour and Marsden Point are framed by the expansive coastal plain around Ruakaka to the south, and the volcanic peaks of Home Point, Mt Lion, Bream Head, then Taurikura, Mt Manaia and Mt Aubrey, to the north. At the junction of these contrasting landforms, the Marsden Point Oil Refinery also sits at the end of a distal spit that marks the very entrance to Whangarei Harbour and a succession of bays – from Little Munroe to Urquharts – that directly frame the northern side of its mouth. West of the oil refinery, Marsden Bay and One Tree Point enclose the shoreline west of Blacksmiths Creek, while a series of headlands and indented bays / coves – including McLeod Bay and Munroe Bay, together with Reserve Point and Manganese Point – line the harbour's northern coastline.

However, the catchment more directly associated with the refinery is effectively framed by the adjoining deep-water port and, across the harbour, by Darch Point – at the western edge of Reotahi below Mt Aubrey. Home Point and Busby Head define the outer limits of the main body of the harbour, whereas its mouth – extending into Bream Bay – is more loosely framed by Bream Head and the dune / sedimentary plain around Ruakaka.

The nature of this landscape is as variable as its topographic underpinnings. The Ruakaka coastline is fronted by a shallow, relatively low lying, dune corridor, behind which various industrial premises, the Ruakaka Sewerage Plant, the local race course and scattered pockets of residential development all face out across Bream Bay. These culminate in the oil refinery at the harbour's edge – clearly defined by its complex array of storage tanks, pipe work, buildings and other infrastructure. A jetty and two unloading gantries are outliers to the main refinery, projecting out into the enclosed harbour. Tankers are often located at these wharves and their 'dolphins'. Immediately west of the refinery, Northport's deep water berths are constantly in motion, with logs being loaded onto freighters, while trucks re-supply the large timber and timber chip stockpiles behind the main wharves. This industrial node, including storage sheds, additional storage tanks and light industrial premises flanking Marsden Point Rd, is separated from Blacksmiths Creek by a planted bund.

Immediately west of the creek, a sequence of residential development – mostly traditional bungalows facing the open waters of the harbour, while more modern, beach houses cluster around the enclosed waterways of the Marsden Bay development – expands the harbour frontage subject to active occupation and use. Although views from this quarter include the margins of the deep water port and vessels berthed at both the port and oil refinery, the main outlook from Marsden Bay and One Tree Point is directly across the harbour, towards Mt Aubrey, Taurikura and the matrix of forested hills filling the northern horizon.

Looking from One Tree Point towards Mt Aubrey, Taurikura, Mt Lion & the Marsden Point Oil Refinery

This sequence of razor-edged, volcanic peaks and its broad expanse of native forest is broken into the series of headlands and bays as the individual hills descend towards the harbour's edge. These bays – sharply defined and framed by both ridges and headland promontories – contain a sequence of coastal settlements and developed areas:

- pockets of rural-residential development amid a 'farm park' at the western end of Parua Bay and across Reserve Point;
- more traditional bach settlements at Reotahi, Little Munroe Bay, McGregors Bay, Taurikura Bay, McKenzie Bay and Urquharts Bay; and
- a small marina next to Solomons Point.

Bush and pockets of residual pasture extend down from the sharply elevated peaks above to wrap around, and separate, these pockets of residential occupation and activity. At the very end of this 'chain', Mt Lion and Home Point decisively mark the outer limits of the harbour, while a broad phalanx of bush extending from Home Point to Busby Head, then from the northern side of Smugglers Bay to Bream Head, helps to further reinforce the more natural qualities of this 'bookend'.

Most of the settlements between Reotahi and Urquharts Bay lie within the visual catchment of the existing refinery and the adjoining Northport facilities. As a result, the refinery acts as the visual centrepiece of most views to, and across, the harbour entrance. However, this is not always the case: descending towards McGregors Bay and Taurikura Bay on Whangarei Heads Rd, the volcanic relief of the surrounding hills, and their interplay with the waters of the northern harbour reaches, is a defining feature of many views. In particular, the distinctive profile and visual presence of Mt Lion and Home Point – joint sentinels at the harbour mouth – are a key facet of the Whangarei Heads landscape. They share the role of being a signature feature within the outer heads landscape, one that is largely divorced from Marsden Point.

Looking from Whangarei Heads Road near Mt Manaia towards Mt Lion and Home Point

In addition to affording a key landmark within this coastline, Mt Lion and Home Point help to imbue the wider harbour setting with a level of naturalness and aesthetic appeal that contrasts with the situation evident directly across the harbour. This, appeal is central to the attraction that the 'Heads' area exerts for locals and visitors alike. It is also why so many small settlements line the northern side of the harbour: nestled into the coastline's amalgam of bush and volcanic landforms.

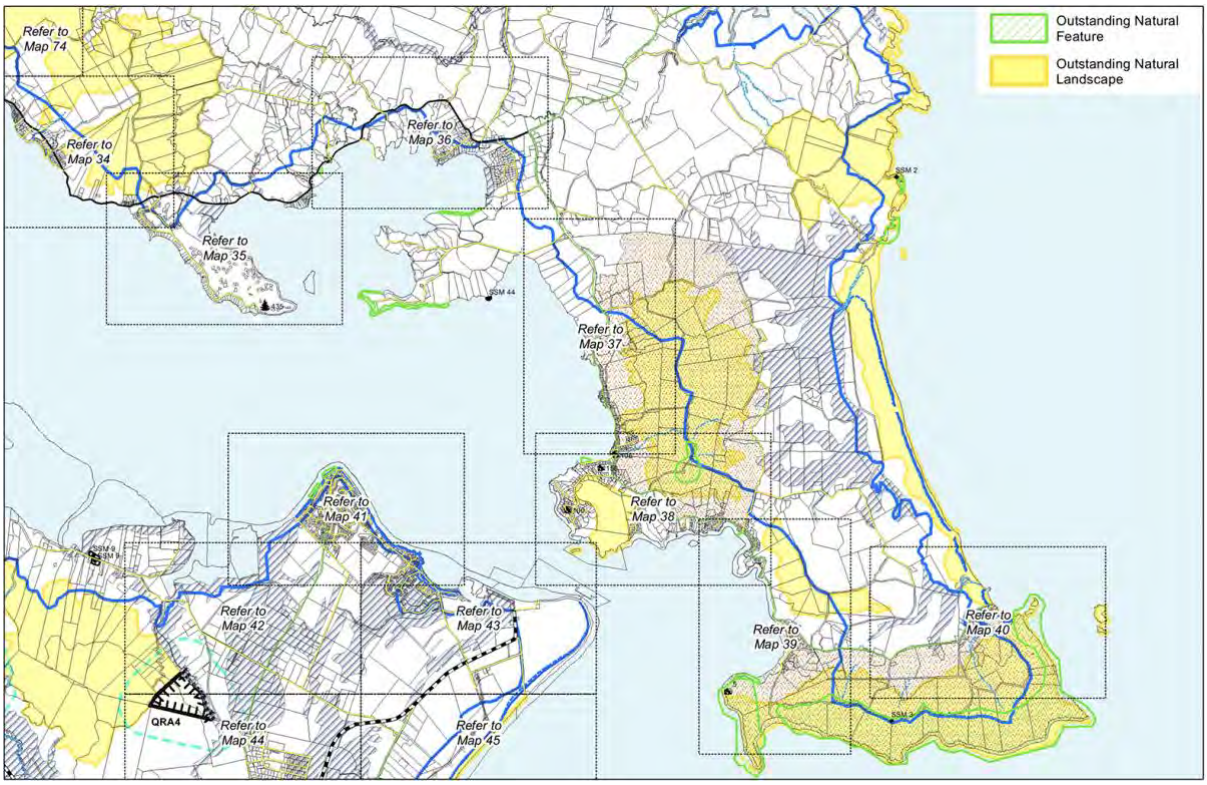
Beyond the sheltered waters and terrestrial confines of the outer harbour, the steep faced peaks and slopes of Busby Head, Mt Lion and Bream Head provide a more wholly natural setting for the outer edge of the harbour and its mouth. Bush dominates the DoC reserve facing out into Bream Bay, contrasting with the band of remnant pasture that extends from Smugglers Bay up and over a low saddle to meet the western end of Urquharts Bay. The waters off Smugglers Bay and Bream Head mark the junction with Bream Bay and its even more open, physically exposed, sea area – with just the distant Hen and Chicken Islands (Taranga island and the Marotere Islands), on the far side of the Parry Channel, providing any degree of protection and containment from the Pacific Ocean's swells. As a result, the waters facing the northern edge of Bream Bay are frequently wind-tossed and flecked with spray. The often wild, but also enduringly scenic qualities of this coastal landscape are therefore often matched by the turmoil of its sea surface. Although lying close to the string of coastal settlements just described, it has a much more remote, elemental, even raw nature, and, unlike the other parts of the Marsden Point's landscape setting, there is little sense of contact with the oil refinery or other areas of more obvious human activity – apart from the ships lined up offshore, waiting to berth.

Looking from the base of Busby Head across Smugglers Bay to Mt Lion

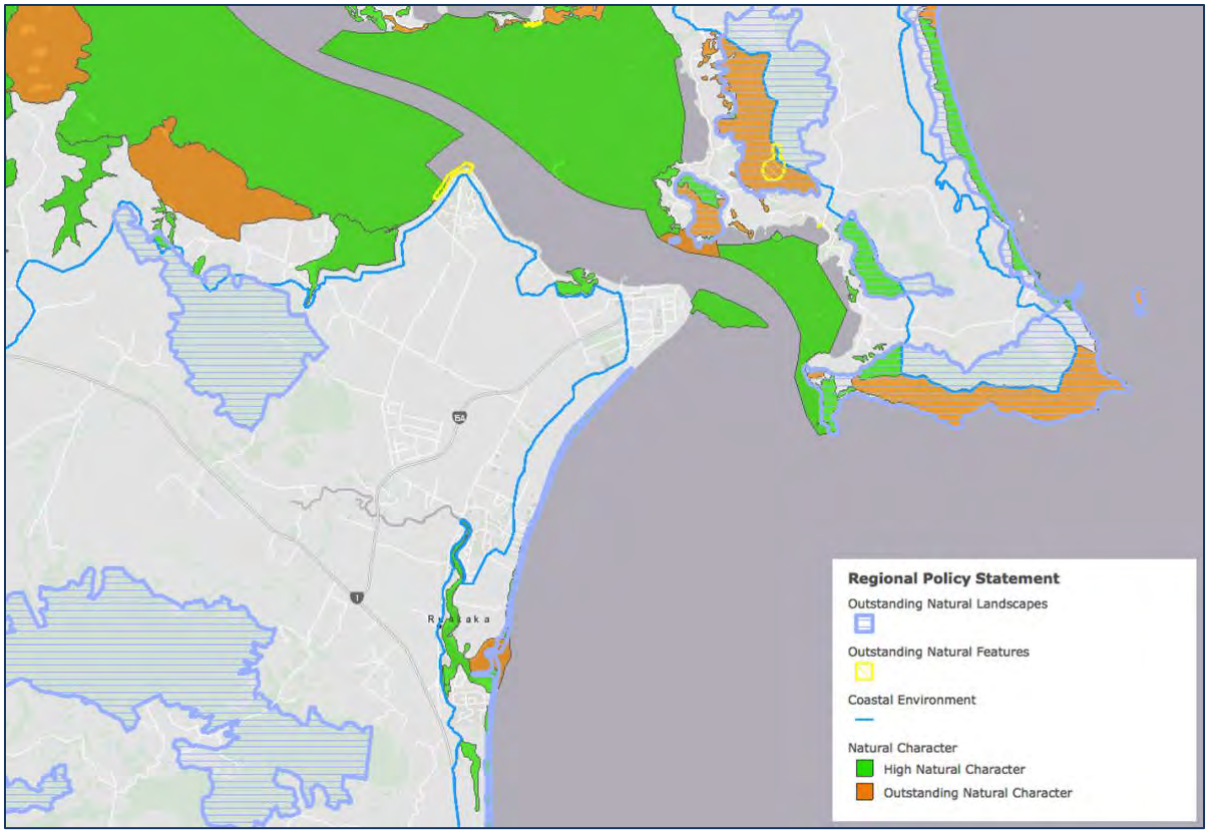
2.1 IDENTIFIED VALUES

The Whangarei District Plan identifies Outstanding Natural Landscapes (ONLs) within Bream Bay and around Whangarei Heads on Map 16 of the Operative District Plan (see overleaf). In addition, the Northland Regional Policy Statement, which became operative on 9 May 2016, identifies both ONLs at the regional scale and areas of High and Outstanding Natural Character. Of most relevance to the current proposals, the Regional Policy Statement's more recent maps identify:

- An area of Outstanding Natural Character covering the seaward slopes and bluffs of Mt Aubrey, next to Reotahi;
- Another area of Outstanding Natural Character addressing the coastline from Smugglers Bay to Bream Head;
- Areas of high Natural Character within the harbour covering the Snake, McDonald and Calliope Banks down the northern side of the harbour next to Munroe, McLeod and Taurikura Bays, and another HNC addressing part of Mair Bank on the southern side of the harbour entry channel;
- An area of high Natural Character flanking Home Point and the series of coastal ridges and promontories around Busby Head;
- An ONL (regional policy statement) running along Bream Bay's beachfront and dune corridor, south of the oil terminal boundary; and
- ONLs (district plan and regional policy statement) covering the broad sweep of hills and coastal ridges that frame Whangarei Heads and Home Point, including Taurikura, Mt Lion, Manaia, Busby Head, and the coastal ridges above Smugglers Bay extending out to Bream Head.



Operative Whangarei District Plan Map 16 Showing ONLs (yellow) & ONFs (Green)



Operative Northland Regional Policy Statement map showing areas of Outstanding Natural Character (orange), High Natural Character (green) & ONLs (horizontal green stripes framed by a mauve border)

To the west, most of Mt Aubrey and part of its apron of CMA either side of Lort Point is also identified as an ONC area, while Mounts Manaia, Aubrey and Taurikura – facing Whangarei Harbour and Marsden Point – are each subject to an ONL overlay. The Operative Northland Regional Policy Statement includes the following summary of key characteristics and qualities associated with the ONLs surrounding Marsden Point and down the Bream Bay coastline:

BREAM HEAD / MANAIA SEQUENCE

Landscape characterisation *(including the identification of any specific characteristics)*

A highly distinctive and 'iconic' landscape sequence that defines the outer harbour and links out across the CMA toward Great Barrier Island. A gateway scene to entering mid Northland when passing over the Brynderwyn ridge. An anchoring element in a sequence of "ecological islands" with similar coastal indigenous forest associations that progress up the eastern coastline to the Bay of Islands and bridging into the mainland from local offshore islands. Collectively provide critical part of the Whangarei Heads area's social identity, providing an enframing/backdrop landform to each bay neighbourhood and a repeating theme that structures the experience of travelling through the broader Heads landscape.

Characteristic features are a very steep landform, rocky pinnacles (and headlands in some instances), high consistency of forest/shrubland cover (but with diversity in its composition) and close association with nearby harbour and open coast seascapes

Part of the distinction and definition of the component parts of this OLA results from the fact that each is typically isolated from the next within a fringe of agricultural grassland in more gentle foothills, further highlighting the rugged terrain and forest cover of the outstanding areas.

Whilst the majority of the identified unit encompasses contiguous areas of forest, scrub or shrubland vegetation, where linking or adjoining landform under pasture is clearly a part of the dominant elevated landscape element, these areas have also been included. Thus, the majority of the Bream Head sequence is within the unit, including:

- *pastured areas at the western and eastern ends;*
- *the forested ridge face of the Mt Lion Range, including the narrow areas of pasture between the forest and ridge crest;*
- *pastured areas linking Mt Aubrey with the harbour, and;*
- *areas of pasture on elevated land contained within the wider forest on the eastern face of the Manaia range.*
- *The unit is closely related to Hen and Chickens Island group (which is identified as a discrete OLA) in terms of landform, ecology, and sequence*.

EVALUATION		
Criteria	**Rank**	***Comment***
Natural Science Factors		
Representativeness	**5**	Heads sequence a signature of the Whangarei district and Northland region. Relates to view from Brynderwyn. Commonly found in photographs and other images that seek to convey an impression of Whangarei and Northland.
Rarity	**5**	High level of rarity at New Zealand level – very distinctive to this local area in terms of visual identity, geology and ecology.
Aesthetic Values		
Coherence	**4**	Strongly unified by rugged landform and contiguity of vegetation cover. Repetition of those key themes, and relationship with adjacent maritime area serves to bring an overarching coherence to the respective discrete areas, despite these being physically separated by lower land and pastoral cover.
Diversity & Complexity	**5**	Detailed and distinctive skyline. Convoluted site slopes with multitude of minor catchments. Diverse ecology.
Vividness	**5**	A bold signature and strong part of Northland's identity. Extremely distinctive and memorable. Commonly referred to at many levels by those living in the Heads area.
Naturalness	**4**	Very high levels of naturalness within unit, but influenced by proximity of settlements, farming and port complex. Proximity in turn allows for weed invasion and abutting uses that diminish naturalness. Indigenous forest cover is largely consistent over the unit, but there are some localized exceptions where elements of pasture are found in elevated locations such as the northern end of the Manaia range, where paddocks have been created near the ridgeline on localized areas that are less severe in their terrain. Closely related to marine waterbody. Small and complex drainage patterns on hill faces, largely ephemeral. Evidence of dramatic drainage and scouring during intense rainfall indicates ongoing formative processes, even in areas where landcover is predominantly natural.

Intactness	**4**	Good level of intactness within unit, although much of the vegetation cover is relatively young. Influence of natural cover along ridges on visual identity.
Experiential Values		
Expressiveness	**5**	Volcanic origins clearly conveyed by both landform and eroded skyline detail.
Sensory Qualities	**5**	Powerful views of unit entering Whangarei District and along harbour and Heads.
Transient Values	**4**	Strongly influenced by light conditions. Ridges create extremely distinctive silhouettes during dawn and dusk. Seasonal influences of rata and pohutukawa bloom.
Remoteness / Wildness	**3**	Proximity of settlements diminished, but strongly experienced to south of Bream Head and within forest.
Shared & Recognised Values	**5**	Landforms definitive in Heads community and physically shape and define where settlement has occurred.
Spiritual, Cultural & Historical Associations	**5**	Consultation was initiated during the mapping process, but has not led to any feedback within the required period. Well recorded and widely known Maori mythology applying to Manaia particularly. This is summarized on a public sign at Manaia's foot. Broad body of historical knowledge relating to early European and Nova Scotian settlement and use of Heads area.

BREAM BAY OCEAN BEACH

Landscape characterisation *(including the identification of any specific characteristics)*

The ocean beach extending between Marsden Point and the Waipu River represents the largest example of this land type on the east coast of the Region. It forms a gentle and graceful curve which, when looking north from locations to the south such as that illustrated on the photograph below, is terminated by the distinctive silhouette of the sequence of landforms making up the Manaia group.

The beach is backed by low dunes which in places forms an extensive dunefield (described above), however only the seaward margin of the foredunes are included within the landscape given the modification and weed infestation associated with the remainder of the area.

The landscape has a powerful simplicity engendered by the limited palette of colours, and the scale and form of the beach.

EVALUATION		
Criteria	**Rank**	***Comment***
Natural Science Factors		
Representativeness	**5**	Whilst not readily seen from the State Highway, Bream Bay the curve of Bream Bay is visible from the crest of the Brynderwyn range in context with Bream Head in the distance. The southern part of the Whangarei District coastline is characterised by the ocean beach that extends for some 20 km between Marsden Point at the mouth of the harbour, and Waipu Cove. The beach has strong endemic associations due to the native spinifex and other dune species present on the foredunes.
Rarity	**5**	The beach is similar in scale and character to a limited number of ocean beaches within the region, but retains its own character due to the beach backdrop dunelands and framing topographical features.
Aesthetic Values		
Coherence	**3**	The beach and its immediate backdrop retain a high level of coherence as a result of the simplicity of the components, and form of the feature. The modified character of the adjoining land to the west tends to detract from the coherence of the feature where built development, such as in the vicinity of the Ruakaka settlement, or Marsden Point, and encroachment by weed species.
Diversity & Complexity	**2**	The beach and its setting display a limited degree of diversity and complexity, although the ocean tends to be a dynamic element which provides its own ever changing complexity to the landscape, against the simple foil of the beach.
Vividness	**5**	The simplicity of form and colour, and the scale of the beach and its interplay with the sky results in the feature being particularly striking and displaying a high level of vividness

Naturalness	**4**	Whilst the backdrop to the beach has undergone a level of modification as a result on weed invasion, and with pockets of development encroaching on the dunefield, the beach and its immediate fore dune retain a high level of naturalness that is devoid of built development, and exotic vegetation, and maintains strong natural and coastal processes, both hydrological, and ecological.
Intactness	**3**	The beach and its immediate backdrop retain a coherence and intactness and does not show signs of modification. The backdrop to the beach does display a greater level of modification and this does, in places detract from the intactness of the landscape.
Experiential Values		
Expressiveness	**5**	The beach clearly displays the coastal processes, which formed it and continue to shape it.
Sensory Qualities	**4**	The experience of arriving at the beach is a gradual one and one that is generally experienced on foot, passing some distance though the dunes. As such, the moment of experiencing the beach is delayed and the impact of the scale of the beach, the smell of the sea and feel of the wind has greater impact than if the visitor were to arrive in a vehicle. The level of weed infestation within the back dunes, and the level of modification in terms of built development in some places tend to detract slightly, in some locations, from the sense of naturalness and therefore the sensory qualities of the beach.
Transient Values	**4**	A number of transient values are evident on the beach, including changes evidenced the tides, by changing weather and the seasons, but also by the arrival and departure of migrating birds.
Remoteness / Wildness	**3**	The beach is accessed from a limited number of locations in its mid and mid southern portion. In this area the visitor is able to experience a greater level of remoteness, which increases as the distance from the access point increases. At the northern end of the beach where greater development has occurred the sense of remoteness and wildness has been diminished.
Shared & Recognised Values	**5**	The Bream bay beach is a widely recognised feature within the Region despite its limited visibility. Its visual relationship with both Bream Head and Bream Tail is striking and an 'iconic' image of the east coast of Northland.
Spiritual, Cultural & Historical Associations	**4**	Consultation was initiated during the mapping process, but has not led to any feedback within the required period. The beach is, however valued by the community for recreational purposes and is heavily used, especially during the summer period when the camp ground at Uretiti is busy.

The various overlays described above highlight Marsden Point's complex environmental context situation, including the dichotomy between contrasting coastlines both sides of the outer harbour. While its outer waters are physically enclosed and overlooked by a sequence of forested, and spectacular volcanic landforms, the margins of the harbour also engage with pockets of settlement, slopes that were once mostly in pasture and still remain so in part, and the southern harbour margins that contain an increasingly solid matrix of houses, industrial development and port related activities. Even though the crescent of Bream Bay, further south again, retains vestiges of natural character and an area of high public appeal down its coastal edge, this façade is soon succeeded by the housing development around Ruakaka, industrial premises lining Marsden Point Rd, the remains of the old Marsden B thermal power station and the local sewerage works.

NATURAL CHARACTER

Policy 13 of the new NZ Coastal Policy Statement requires that the following matters be evaluated when exploring the natural character effects of development proposals within the coastal environment:

> *(1) To preserve the natural character of the coastal environment and to protect it from inappropriate subdivision, use, and development:*
>
> *(a) avoid adverse effects of activities on natural character in areas of the coastal environment with outstanding natural character; and*
>
> *(b) avoid significant adverse effects and avoid, remedy or mitigate other adverse effects of activities on natural character in all other areas of the coastal environment; including by:*

(c) *assessing the natural character of the coastal environment of the region or district, by mapping or otherwise identifying at least areas of high natural character; and*

(d) *ensuring that regional policy statements, and plans, identify areas where preserving natural character requires objectives, policies and rules, and include those provisions.*

(2) *Recognise that natural character is not the same as natural features and landscapes or amenity values and may include matters such as:*

(a) *natural elements, processes and patterns;*

(b) *biophysical, ecological, geological and geomorphological aspects;*

(c) *natural landforms such as headlands, peninsulas, cliffs, dunes, wetlands, reefs, freshwater springs and surf breaks;*

(d) *the natural movement of water and sediment;*

(e) *the natural darkness of the night sky;*

(f) *places or areas that are wild or scenic;*

(g) *a range of natural character from pristine to modified; and*

(h) *experiential attributes, including the sounds and smell of the sea; and their context or setting.*

Again, the NRPS has evaluated areas of High and Outstanding Natural Character around Marsden Point with reference to such factors. However, the worksheet descriptions of those areas close to the proposed navigation channel are largely devoid of detail apart from rather generic descriptions of the different Natural Character areas identified within the Coastal Environment and a summary of the referenced ecosystems applicable to each area:

Coastal Area Covered: *North of Uretiti to north of Marsden power station site, including Ruakaka estuary*

Dominant Coastal Criteria Used:

Ridgeline/land contour: Yes

Presence and extent of dunefields: Yes

Presence and extent of coastal lakes, lagoons, tidal estuaries, saltmarshes, or coastal wetlands:

Ruakaka River estuary, Ruakaka Racecourse Dune Lake

Other Relevant Factors:

Defined areas of coastal hazard risk:

Bream Bay/Ruakaka Beach

Presence and extent of coastal vegetation:

See Q07/128 Ruakaka Dunelands; and
Q07/130 Ruakaka River Estuary
Natural Areas of Waipu Ecological District 2007

Presence and extent of habitats of indigenous coastal species including migratory birds:

See Q07/128 Ruakaka Dunelands
Q07/129 Ruakaka Racecourse Dunelake; and
Q07/130 Ruakaka River Estuary ……

Coastal Area Covered: *Whangarei Harbour – Darch Point to Home Point*
Open Coast – Home Point to Ocean Beach including Bream Head

Dominant Coastal Criteria Used:

Ridgeline/land contour: Yes Presence and extent of dunefields:

Ocean Beach

Presence and extent of coastal lakes, lagoons, tidal estuaries, saltmarshes, or coastal wetlands: N/A

Other Relevant Factors:

Defined areas of coastal hazard risk: Ocean Beach

Presence and extent of coastal vegetation:

See Q07/069 Manaia Ridge Scenic Reserve and Surrounds
Q07/070 Mount Aubrey Coastal Forest and Shrubland
Q07/073 Taurikura Ridge Bush
Q07/074 Bream Head Scenic Reserve and Surrounds; and
Q07/075 Ocean Beach Recreation Reserve and Surrounds in Natural Areas of Manaia Ecological District 2010

Presence and extent of habitats of indigenous coastal species including migratory birds: N/A …….

Coastal Area Covered: *Bream Bay – north of Marsden power station site to Marsden Point*

South Whangarei Harbour – Marsden Point to Takahiwai

North Whangarei Harbour – Mount Aubrey

Dominant Coastal Criteria Used:

Ridgeline/land contour: Yes

Presence and extent of dunefields:

North end of Bream Bay beach

Presence and extent of coastal lakes, lagoons, tidal estuaries, saltmarshes, or coastal wetlands:

Blacksmith's Creek, Takahiwai Creek

Other Relevant Factors:

Defined areas of coastal hazard risk:

Bream Bay Beach, Marsden Cove, One Tree Point

Presence and extent of coastal vegetation:

See Q07/128 Ruakaka Dunelands
Q07/144 Blacksmith's Creek Estuary
Q07/143 Takahiwai Creek Estuary; and
Q07/167 Takahiwai Saltmarsh and Shrubland
in Natural Areas of Waipu Ecological District 2007

And Q07/058 Whangarei Harbour
in Natural Areas of Whangarei Ecological District 2001 And
Q07/070 Mount Aubrey Coastal Forest and Shrubland
in Natural Areas of Manaia Ecological District 2010

Presence and extent of habitats of indigenous coastal species including migratory birds:

See Q07/128 Ruakaka Dunelands
Q07/144 Blacksmith's Creek Estuary
Q07/143 Takahiwai Creek Estuary; and
Q07/167 Takahiwai Saltmarsh and Shrubland
in Natural Areas of Waipu Ecological District 2007

And Q07/058 Whangarei Harbour
in Natural Areas of Whangarei Ecological District 2001

These analyses are supported by descriptions of the key attributes associated with the HNC and ONC areas near Marsden Point that are contained in the NRPS maps:

ONC Area: Lort Point

Summary Description	*Intertidal and subtidal area within a marine reserve with no fishing since 2006. Biota is largely indigenous apart from a few pacific oysters on intertidal rock. Recovery of populations of reef fish and invertebrates has commenced but there will be some limitations on the final outcome because of the small size of the reserve.*
Contributing Values	*Biota is largely indigenous (apart from some Pacific oyster on intertidal rock). Highest level of protection from human harvest since 2006 means that the marine ecosystem is more natural than that found in equivalent unprotected areas. Water quality relatively high compared to natural state, because of flushing with oceanic waters.*

ONC Area: Mt Aubrey

Summary Description	*Steep escarpment & rocky faces with volcanic rocky outcrops. Skeletal soils. Mosaic of mixed broadleaved forest & shrubland with emergent pohutukawa & puriri. Some kanuka shrubland & forest patches*
Contributing Values	*Relatively mature indigenous vegetation relative to the site conditions (skeletal soils in places) and natural disturbance history/regime (land slides). Part of a community pest control area. Minimal human-mediated hydrological or landform changes and few obvious human structures*

ONC Area: Busby Head

Summary Description	*Hill slopes with native mixed broadleaved forest remnant with mature pohutukawa & puriri emergent. Rocky outcrops*
Contributing Values	*Mature indigenous forest, with some younger forest and rocky natural surfaces. Part of a DOC pest control area Minimal human-mediated hydrological or landform changes and few obvious human structures.*

HNC Area: Whangarei Harbour (including Snake, McDonald & Calliope Banks)

Summary Description	*Mid-outer harbour intertidal sand banks & flats and undredged subtidal channels. Supratidal sandbanks used as high tide roosts by waders. Sea grass restoration trials. Good flushing by oceanic waters*
Contributing Values	*Water quality now relatively high compared to natural state, as outer harbour recovers. Relatively large area of indigenous benthic biota with relatively few pest species. Few obvious human structures within boundary. Relatively high level of restriction of fishing activity and impacts, but offset in part by accessibility and shelter.*

HNC Area: Mair Bank

Summary Description	*The natural character attributes of the Mair and Marsden Banks have been reassessed following the receipt of new information. There are adverse natural character impacts including non-natural sounds and anthropogenic light effects from the nearby shipping channel and refinery, and the impact of commercial hand-harvest of pipi from the outside of the Mair Bank (as QMA Pipi 1A). While the total allowable commercial harvest (TACC) is 200 tonnes per year it has a calculated annual recruitment biomass in the harvested size range of about 9,000 tonnes per year. The Marsden Bank now has a rahui on the collection of pipi. The area is not subject to dredging and dumping for the channels and is well flushed by oceanic waters.*
Contributing Values	*Water quality relatively high compared to natural state, following improvements to Whangarei Harbour water quality. The relatively high degree of tidal flushing maintains relatively clean intertidal and shallow subtidal sands. Relatively large area of mainly indigenous benthic biota. Relatively high level of restriction of fishing activity through recent establishment of a temporary no-take rahui on the Marsden Bank, and a relatively conservative harvest limit on the Mair Bank.*

The combination of these HNC / ONC overlays, together with the ONLs also described above, provide part of the framework for assessment of development proposals affecting the outer reaches of

Whangarei Harbour and its interface with both the landscape of Whangarei Heads and the open waters of Bream Bay. In particular, any such assessment needs to identity the way in which proposals might affect the characteristics and values of the various ONLs, HNC areas and ONC areas identified in the relevant plans.

AMENITY

Section 7(c) of the Resource Management Act states that those exercising power under the Act shall have regard to (among other matters) "*The maintenance and enhancement of amenity values".* Such values are defined as being "*those natural or physical qualities and characteristics of an area that contribute to people's appreciation of its pleasantness, aesthetic coherence, and cultural and recreational attributes".* Thus, whereas landscape is often associated with the sort of parameters already described, the concept of "amenity" focuses more directly on a certain cohesion of expression and unity of elements that give rise to a locality or landscape being considered 'pleasant', 'aesthetically cohesive' and having cultural or recreational appeal.

Consequently, just as Whangarei Head's volcanic terrain, bush and harbour waters comprise the landscape's basic 'building blocks', local amenity values reside in a wide range of experiences that contribute to the aesthetic value, identity and sense of place associated with the local area – including:

- the myriad views to, and from, the harbour and its varied coastal margins;
- the recreational resources provided by local beaches and beachfronts;
- the spectacle and resource offered by the DoC reserve covering the northern side of the harbour mouth from Home Point to Bream Head, with its trails, beaches, bush and scenic promontories; and
- the waters of the harbour and Bream Bay – catering to fishermen, boaties and visitors alike.

The outlook to Whangarei Harbour and Bream Bay clearly underpins much of the locality's residential appeal, and the interaction between land and sea is unquestionably a key part of the northern coastline's identity and sense of place. Local residents on both sides of the harbour are exposed on a daily basis to the dynamic, at times dramatic, interplay between its expansive sea area with both an array of enclosing volcanic peaks and the dune plain around Ruakaka marching southwards towards the Brynderwyns.

Yet, these experiences don't exist in a vacuum, as if divorced from the very human activities and structures that surround most of the vantage points which afford this engagement and interaction. Just as the sharp faced hills, native forest and harbour waters are key components of the outer harbour's coastal landscape, it also contains a multiplicity of long established cultural / man-made elements – from the many local settlements already described, to the oil refinery, neighbouring deep water port and development around Marsden Cove, One Tree Point and Ruakaka. These are also 'part and parcel' of the present-day Marsden Point / Whangarei Heads experience.

Again, the assessment of development proposals within the outer harbour and its margins needs to address effects on the various, residential communities, as well as visitors to and recreational users of, the area – in terms of alterations to its 'pleasantness', 'aesthetic coherence', sense of place and identity. As there is no assessment of such values in the relevant plans, these must be considered in relation to the various viewpoints, receiving environments and audiences exposed to the 'proposed' refinery activities and structures.

3.0 EFFECTS

Adverse impacts upon landscape, amenity and natural character values typically arise where there is evident discontinuity between the character and values of an existing environment and what is proposed, and where the resultant 'challenge' to the existing landscape 'order' is perceived in a negative light. In this case, however, the focus for assessment falls on three activities and structures that already exist and that are subject to the current re-consenting process:

- Air emissions from the current oil refinery – essentially smoke and gas flares from a visual / landscape standpoint;
- Stormwater discharges from the refinery, again focusing on their visual character and effects; and
- The refinery's jetty, oil unloading gantries and berthage dolphins.

The effects associated with these activities and structures need to be assessed in the context of all other activities and development at Marsden Point and within the surrounding harbour / 'heads' environment. This includes the context afforded by, and the effects associated with, the rest of the refinery, the adjoining Northport berths and related facilities, and all other development and modification within the harbour and its margins.

This means:

i. Assessing discharges as if the currently authorised takes/discharges have been discontinued and the re-consenting proposal is an application for a new activity (i.e. in simplistic terms, the Refinery is "turned off" today, and the effects assessment relates to "turning back on" the Refinery tomorrow); and

ii. Assessing the jetty and dolphins against an environment in which those structures do not exist. In other words, the existing environment is the present environment with the structures (e.g. jetty and dolphins) removed, and the relevant effects assessment is of placing the structures back in their existing location.

Consequently, this section of the report addresses the effects of the 'proposed' air and stormwater discharges, and the refinery's 'new' jetty and dolphins on landscape, natural character and amenity values, taking into account:

Existing Values:

Reflecting the relative extent to which the current landscape / environment is valued in terms of:

- Its Biophysical Components: including landforms, vegetation cover, sea area and key cultural elements / features: buildings, other structures and activities
- Its Perceptual Components: aesthetic value, expressiveness, legibility (focusing on the degree to which landscape elements combine to create an attractive composition, 2D patterns, 3D sense of structure) and ephemeral / transient values

Prominence:

- Visibility / Legibility Of The Proposed Development / Activities: indicating the extent to which the development / activity proposed would be visible and visually prominent in views from around the outer harbour, One Tree Point and Marsden Point itself.

Landscape Effects:

- Impacts On Landscape Elements & Patterns: the extent to which the proposal would adversely affect the structure of the landscape: its layering of elements, the interplay between different types of land use / structures, and the interaction between land and sea / harbour.

- Impacts On Visual Coherence / Unity: the extent to which the proposal would adversely affect the perceived integrity of Whangarei Harbour and its margins by altering the mix of land uses and the balance between natural and man-made elements within the landscape.
- Impacts on Key Features / Landscapes (where applicable): the extent to which the presence of the 'proposed' developments and activities would disrupt or disturb views to, and of, Whangarei Harbour and its margins.

Natural Character Effects:

The degree to which the development proposal would adversely affect perception and appreciation of the following characteristics associated with the existing Coastal Environment:

- Abiotic factors (essentially landform)
- Vegetation Type (native / endemic to exotic)
- Vegetation Cover & Patterns
- Land Uses / Activities: Buildings & Structures (their presence / absence)
- Water Areas
- Natural Processes

Amenity Effects:

- Visual Intrusion & Disruption of Aesthetic Cohesion: the degree to which the proposal's visual 'presence' would impair or disrupt the aesthetic cohesion of the outlook from the viewpoint and specific features / landmarks within that outlook.
- Impacts On Public Amenity: the extent to which the development / activity would adversely affect public perceptions of Whangarei Harbour and its margins, and their related sense of place and identity.
- Impacts on Residential Amenity: the degree to which the proposal would adversely affect residential views to, and of, Whangarei Harbour and its margins, and their related sense of place and identity.

Impact ratings for most viewpoints are also inevitably affected by other key factors, including viewing distances to the application site and the elevation of the proposed development / activity relative to both public and private vantage points. Where these factors alter the level of effect identified for specific viewpoints, this is also identified. Taking all of the above into account, each viewpoint analysis concludes with an overall **Impact Rating** for the individual development component. These ratings employ the following impact scale:

Ratings Scale:

	Landscape Effects:	*Natural Character Effects:*	*Amenity Effects:*	*Rating:*	*RMA Rating:*
1	*No appreciable change or very limited change to some landscape elements & character; no change to values*	*No appreciable change or very limited change to some coastal / CMA elements; no change to overall naturalness*	*No appreciable change or very limited change to aesthetic character, qualities & coherence; no change to identity & sense of place*	*No / Very Low Effect*	*De Minimis / Less Than Minor Effect*
2	*Limited change to some landscape elements & character; no change to values*	*Limited change to some coastal / CMA elements; no change to overall naturalness*	*Limited change to aesthetic character, qualities & coherence; no change to identity & sense of place*	*Low Effect*	*Minor Effect*
3	*Increasingly evident change to some landscape elements & character; limited change to values (naturalness, expressiveness, aesthetic value, etc)*	*Increasingly evident change to coastal / CMA elements & patterns; slight reduction in overall naturalness*	*Increasingly evident change to some aesthetic qualities & coherence; limited change to identity & sense of place*	*Low/ Moderate Effect*	
4	*Appreciable change to some landscape elements & character; more obvious impact on some values*	*Appreciable change to some coastal / CMA elements & patterns; more apparent change in overall naturalness*	*Appreciable change to some aesthetic qualities & coherence; more apparent change to identity & sense of place*	*Moderate Effect*	
5	*Marked change to some landscape elements, character and values*	*Marked change to coastal / CMA elements & patterns; evident reduction in overall naturalness*	*Marked changes to aesthetic character, qualities & coherence, as well as to identity & sense of place*	*Moderate / High Effect*	*Significant Effect (or greater)*

	Landscape Effects:	Natural Character Effects:	Amenity Effects:	Rating:	RMA Rating:
6	*Obvious degradation of landscape elements, character and values*	*Obvious degradation of coastal / CMA elements & patterns, and overall naturalness*	*Obvious degradation of aesthetic character, qualities & coherence, as well as to identity & sense of place*	*High Effect*	*Significant Effect (or greater)*
7	*Very serious and obvious degradation of elements, character & values*			*Severe Effect*	

3.1 AIR EMISSIONS – SMOKE & GAS FLARES

My assessment of the effects associated with the air emissions from the refinery has been undertaken employing site visits to, and photos taken from the following locations (**Attachment 0**):

1. The intersection of the Marsden Point Highway with Mair Road (**Attachment 1**)
2. Marsden Point Beach Car Park (**Attachments 2 & 3**)
3. Stace Hopper Drive (**Attachments 4 & 5**)
4. Waitemata Drive (**Attachment 6**)
5. One Tree Point Road Near Mariners Haven (**Attachments 7 & 8**)
6. One Tree Point Road (**Attachments 9 & 10**)
7. Ruakaka Beach (**Attachments 11 & 12**)
8. Tamaterau (**Attachment 13**)
9. Reotahi (**Attachments 14 & 15**)
10. Taurikura (**Attachments 16 & 17**)

In addition, the relationship of Marsden Point and its refinery to the various ONLs, HNC areas and local coastal settlements has been considered, both in relation to the photos found in **Attachments 1-17** and the additional photos in **Attachments 31** and **32**.

The photos found in Attachments 1-17 capture views towards the refinery, both during the morning of the 29th May 2019 and that same afternoon. They show the same images with the smoke and gas flares visible that day and with them digitally removed.

Factors Affecting My Assessment of Effects:

The photos taken that morning showing the smoke visible at that time were taken between 9.15am and 12.30pm. During this period the refinery emitted what was described to me as a "Moderate" level of smoke discharge, much of it accompanied by a gas flare above the flare stack.

The smoke generated is related to the amount of heavier liquid fuels being fired, including fuel oil and, in particular, asphalt. The afternoon photos were taken from 2.45pm through to 4.45pm, when an increased load of "Heavy" asphalt was introduced to generate higher smoke emissions from the flue stacks. This increase in asphalt was balanced by an increase in natural gas and a decrease in fuel oil and vaporised butane, in order to maintain the process heat requirements and remain within consented emission levels. The asphalt load increased from an average of 47 tonnes per day (tpd) in the morning to an average of 87 tpd and a max of 117 tpd in the afternoon. This compares with an historical average asphalt load (May 2017 to May 2019) of 53 tpd, a max of 203 tpd with a 90th percentile of 125 tpd. Fuel oil load changed from an average of 262 tpd in the morning to an average of 187 tpd in the afternoon and was reduced to balance the increase of asphalt liquid fuel. This compares with a historical average fuel oil consumption (May 2017 to May 209) of 43 tpd, a max of 280 tpd and a 90th percentile of 137 tpd.

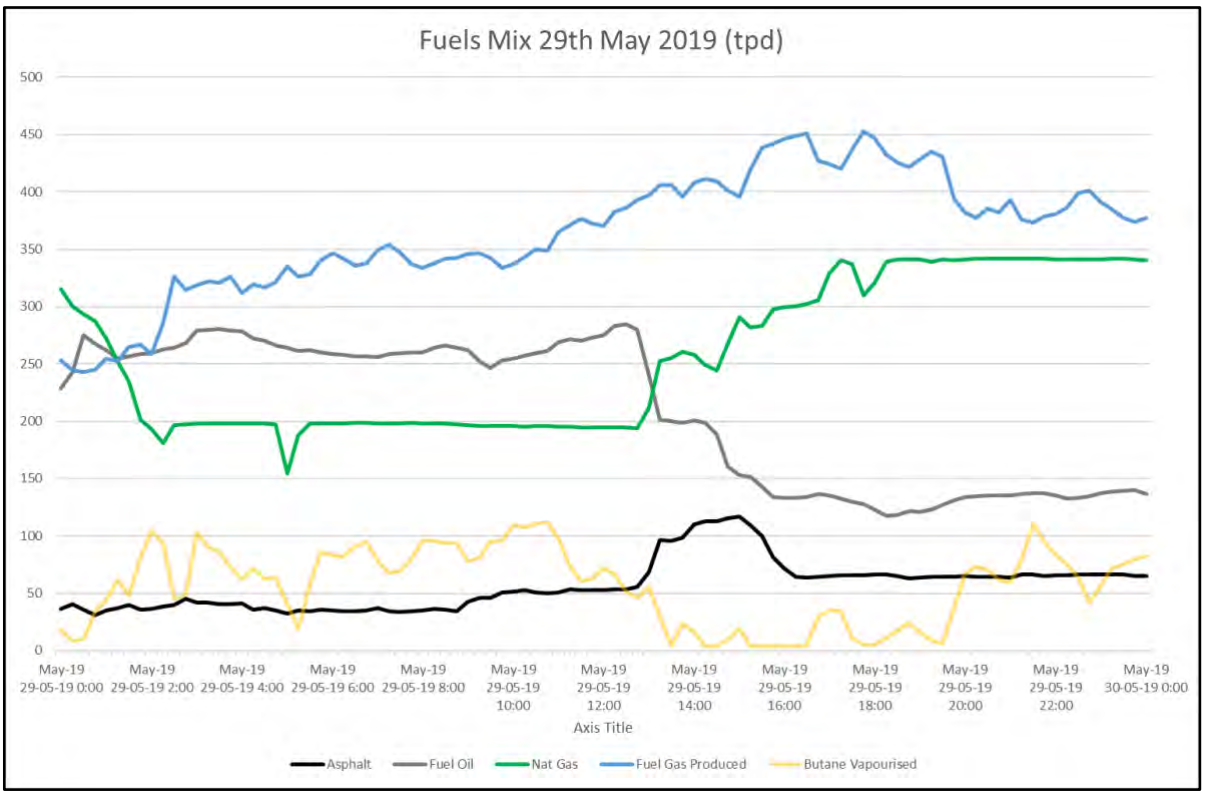


Chart for May 29th 2019 (At the rate of tonnes per day)

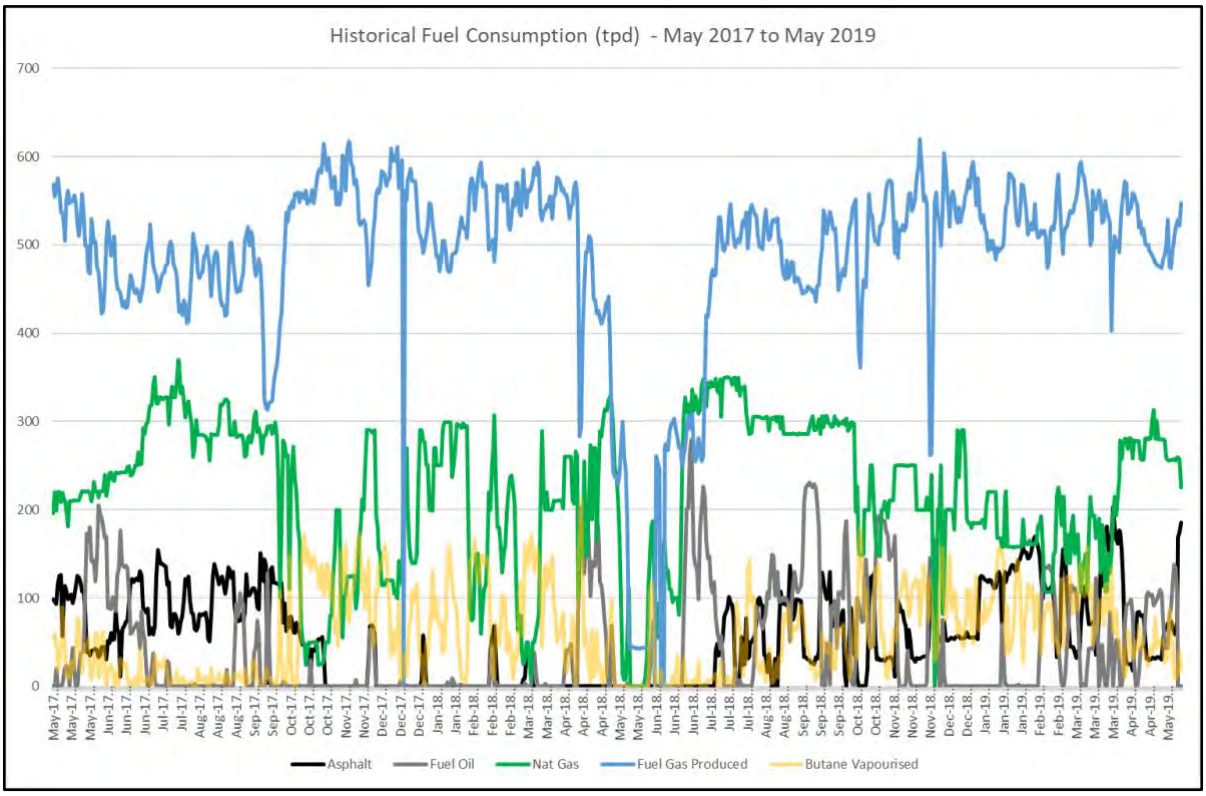


Chart Covering May 2017 to May 2019 (tonnes of fuel per day)

There will always be aberrations in relation to such figures, and the NZ Herald picked up on one such case in March 2016, when it showed a quite heavy column of oily smoke coming off the gas flare on March 13th of that year.

NZ Herald image 30th March 2016

I understand that the March 2016 incident was one of very few abnormal, emergency events, apparently tripped by excessive pressure in the hydrocracker, whereas the fuel consumption figures supplied by Refining NZ confirm typical (total) rates of consumption and discharge typically well below those operative when I undertook my site visit on May the 29th. During that site visit and others around Whangarei Harbour, I have witnessed a gas flare on many occasions, but the only smoke visible has been from the main, 'multi flu' stack, rather than the flare stack.

Indeed, over the near two years covered by Refining NZ's statistics, only three periods display total distillate consumption rates matching those on the afternoon of May 29th – for parts of June and July 2017, and again over part of June and July 2018. It is also important to note that during my site visit the wind was blowing lightly from the south-west: from the refinery towards Home Point and Bream Head. This remained the case through the day of my site visit and is consistent with the wind rose for Whangarei, which shows a predominance of winds from the west-south-west, turning to the west on the leading edge of cold fronts. Skies ranged from clear to partly cloudy throughout the day.

Consequently, the conditions during my site visit are best described as close to average in virtually all respects.

Visibility:

The first point to note in relation to both types of air discharge from the refinery is that the smoke plume from the multi flu stack is often very subtle and hard to clearly see. It frequently merges with passing clouds, although its darker colouring also occasionally 'silhouettes' it against lighter coloured cloud cover – albeit very subtly for the most part. By comparison, the gas flare from the flare stack is more visible and visually dramatic, when viewed from quite close up, but often disappears when viewed over any distance.

On the days of my site visits (covering both air emissions and photography of the jetty and berthage dolphins), neither registered clearly and the difference between periods of 'moderate' and 'high' fuel loadings did not correlate with the visibility and visual 'presence' of the smoke plume. Indeed, the smoke emissions from the multi flu stack typically amounted to little more than a dark, or even light coloured, 'smudge' in the sky, depending on the sun and viewing angle.

Related to viewing distance, the smoke column was visible from close up – around Marsden Point Highway to Marsden Cove and the near end of One Tree Point Road – and much less visible from One Tree Point

Road near the coastal cliff running through to the yacht club. The plume was invisible in views from Tamaterau and Solomons Point across the harbour, barely visible from Reotahi and Taurikura Bay, and invisible, for intents and purposes, from Urquharts Bay.

The refinery's gas flare was clearly visible from many of the same locations as the smoke column, but less apparent from Taurikura and more visible from Reotahi. I can only put this down to variability in the nature and amount of material being fired at any one time.

It is important to note that all of the viewpoints mentioned above have a sufficiently low elevation that both the smoke column and gas flare are viewed against the plane or 'dome' of the open sky – subject to the vagaries of cloud cover and weather, sunlighting angles, and the variable wave lengths of sunlight passing through the atmosphere (which contributes to the variable levels of the sky's 'blueness' and red sunsets). As a result, the column and flare are rarely viewed amid a completely open sky and it is never evenly saturated.

This also helps to explain why views from Ruakaka Beach are the only ones to reveal the fuller extent of the smoke plume, with much of the column partially lit up against the dark shadows of Mt Lion and Bream Head. This is slightly more apparent in the morning photo than that taken later in the day (**Attachments 11** and **12**). The gas flare was not apparent from this viewpoint either in the morning or afternoon.

Changes to Character & Values:

Importantly, however, none of the views mentioned, reveal the smoke plume and gas flare divorced from the wider array of stacks, tanks and other structures that comprise the highly distinctive, industrial complex of the Marsden Point Refinery. These are, in effect, the signature features of the refinery, remaining apparent in views from as close as Marsden Cove and One Tree Point, and as far away as Ruakaka Beach, Tamaterau, Solomons Point and Urquharts Bay.

The plume and flare (when visible) are almost entirely ancillary to the visual statement that the refinery makes in its own right, regardless of the viewpoint involved. Northport's presence immediately west of the refinery and its berthage area, compounds this pre-existing awareness of the industrial complex that Marsden Point has become. Indeed, as implied above, the gas flare adds a dynamic quality and touch of drama to the refinery, perhaps enhancing its identity as one of New Zealand's few major industrial complexes.

Overall, however, the gas flare and adjacent stack plume add relatively little to the landscape of Marsden Point: the visual juxtaposition of Marsden Point's industrial skyline with the sharply etched, volcanic landforms of Whangarei Heads is already marked, as is the refinery's interplay with the enclosed waters of Whangarei Harbour and – in views from Ruakaka – the broad expanse of Bream Bay. The typically quite faint, trail of smoke from the multi flu stack and – in more close up views – the intermittent flames of the flare stack add to this visual interplay in an incremental fashion, subtly reinforcing the contrast between natural and man-made / industrial landscapes. However, they don't create that juxtaposition.

Landscape Effects:

The majority of views towards the refinery and its air discharges are from across the harbour, with the ONLs of Manaia / Mt Aubrey / Taurikura and Home Point / Mt Lion / Bream Head lined up behind these vantage points. Although the pine covered, flanks of the distant Brynderwyns are also visible, this means that the areas of highest landscape value near Marsden Point are largely dissociated from the smoke plume and gas flare atop the refinery. Both are firmly linked to the area of greatest modification and development within the Whangarei Harbour / Marsden Point environment.

This situation changes somewhat in the general vicinity of One Tree Point and Marsden Cove. In views from much of One Tree Point Road, the expanse of the harbour – backed by Manaia, Mt Aubrey, Taurikura and Mt Lion – dominates the main area of outlook, with both the refinery and air emissions from it quite peripheral to that main area of viewing. In views from around the Marsden Coves canals and marina, such views are more truncated, with less of the harbour area and its 'Heads' backdrop visible: the multi flu stack

and smoke from it, is often set against, or close to, the profile of Mt Lion. Yet, such views are also dominated by man-made structures and activity, both in the immediate foreground and the crucial middle distance – including boats, masts, bridges, houses, sheds / stores and the stacks that define the refinery's skyline. Amid all of this, the smoke and flares emanating from the refinery stacks emerge as truly minor elements that simply affirm the already highly developed and modified, nature of such views.

Similarly, even though views from Ruakaka are defined and framed to a much greater degree by the natural sweep of the beachfront and its sand dune margin – culminating in the serrated profile of Mt Lion and Bream Head – the profile and silhouette of the oil refinery remains clearly apparent. The tail of smoke shown in my Attachments 11 and 12 would very subtly exacerbate the 'industrial' nature of part of this landscape, and the related interplay of natural features with man-made elements, but would not greatly alter or change this relationship.

The proposed emissions' effects in relation to landscape values are therefore considered to be of a **Very Low** order for most vantage points around Marsden Point and Whangarei Harbour, rising to a **Low** or, at times, **Low-Moderate** level in relation to views from Ruakaka Beach.

I have also considered the effects of gas flares from the flare stack at night-time. These are intermittent, but can – even in the context of a well-lit refinery and adjoining port facility – draw attention. Such flares can be both dramatic and, in extreme cases, disturbing. However, their landscape effects would be quite limited: at night-time the landscape is affectively lost behind the curtain of darkness. As a result, most night-time effects typically relate to perception of the night sky, to feelings of relative isolation and remoteness, and to a certain enjoyment of darkness *per se*. Yet, as I have just indicated, both the refinery and Northport are lit at night-time, with this lighting frequently exacerbated by the lighting on berthed vessels. In addition, lighting amid the residential areas of Marsden Cove, One Tree Point, the various Whangarei Heads settlements, as well as within the industrial margins of Ruakaka, also affects current perceptions of the current night sky and 'landscape'.

Given this context, any effects on landscape character and values are, in my opinion, of a **Very Low** or less than minor, level overall. Any disturbance associated with the night-time flares is more appropriately addressed as an Amenity Effect.

Natural Character Effects:

The areas of High and Outstanding Natural Character identified from Home Point Ocean Beach, within Taurikura and Urquharts Bays, and off Marsden Point's distal spit, relate to the underwater sand banks within the harbour – notably the Mair and Calliope Banks – and the rocky, then dune land, coastlines east of Home Point – outside the harbour mouth. The volcanic shoreline margins and 'plug' of Mt Aubrey are also identified as being an ONC area. However, all of this area reveals an existing intermixing of settlements and mooring areas with more natural coastal margins and parts of the CMA. Moreover, all of the Whangarei Heads coastline faces towards both the existing refinery and Northport, while both sand banks are more notable for their geomorphic qualities than for their visual or aesthetic appeal. Again, they are contextualised by pockets of settlement, moored boats and the industrial complexes that dominate the Marsden Point shoreline and its hinterland.

Within this setting, the smoke and gas flare would be 'additive' elements that reinforce this interaction, and the related engagement between the more natural, and more developed, parts of the Coastal Environment. However, as I have described in relation to Landscape Effects, virtually all views from both sides of the harbour already reveal this dichotomy, which is reinforced by the open, large scale, 'divide' of the harbour's entry channel, and their impact on perception of the harbour's natural character values would be minor relative to that of the existing elements and structures (described above) which already define the coastal edge and skyline of Marsden Point. Although both sand banks lie closer to the refinery and its stacks than the HNC and ONC coastlines behind them, the smoke plume and gas flares from the refinery wouldn't appreciably alter either the interplay between and man-made structures in the Coastal Environment or the overall level of naturalness associated with Marsden Point and its coastal surrounds. These are already substantially dictated by the existing refinery, Northport and other development fringing the harbour.

As a result, it is considered that the Natural Character effects generated by the refinery's smoke plume and gas flare would be of **Low** order.

Amenity Effects:

As is indicated above, the landscape of Marsden Point, the outer Whangarei Harbour and Whangarei Heads is already characterised by a range of contrasting elements and values. Inevitably, this creates a degree of tension between the more natural qualities of Whangarei Heads, and its appeal to a sizeable residential population and the industrialised area of Marsden Point. The adjacent Northport facilities both reinforce this demarcation and provide a sizeable buffer between the refinery and the residential community of Marsden Cove merging with One Tree Point.

Given this existing landscape 'framework', it is considered that the additional effects associated with plumes from the multi flu stack and more intermittent, gas flares would have little effect on the overall character, coherence and values of the landscape surrounding Marsden Point. In particular, the smoke discharges and flares from the refinery would tend to further cement the existing qualities associated with Marsden Point, and the visual juxtaposition of its large industrial complex with both the adjoining harbour and volcanic Whangarei Heads landscape. The identity, or sense of place, associated with these quite different areas is already substantially 'fixed' by the various elements and interplay of values that I have described above. Again, therefore, I consider than any effects in relation to Amenity Values would typically be of a **Very Low** order.

However, there are two potential situations where this would not be the case: when situations arise similar to that showcased in The NZ Herald's March 2016 article, and at night-time. When issues arise within the refinery that generate larger flares and smoke emissions, similar to those described in 2016, it is likely that such effects would be of concern to some for the period of their duration. Such situations lie well outside the 'business as usual' scenarios addressed in this assessment and would – on an intermittent basis – adversely affect both the pleasantness and 'aesthetic coherence' of areas surrounding Marsden Point. Although relatively rare, it is therefore only fair to acknowledge that such situations do periodically arise.

In relation to the issue of night-time effects, I have already indicated both the context for such effects and their likely nature in my assessment of Landscape Effects. They primarily relate to appreciation of the night sky and a harbour landscape (what can be seen of it), together with appreciation of solitude, remoteness and darkness. At times, the flares would draw attention to the refinery from more distant locations like Urquharts Bay, Solomons Point, Parua Bay, Tamaterau and Ruakaka, whereas when viewed from Marsden Bay / Cove, One Tree Point, Reotahi and Taurikura, it would amplify the focus on an already extensively lit refinery complex. On such occasions, the flare would be sufficiently prominent that it could be regarded as a nuisance by some. Others, however, might well see it as simply one of many features associated with the refinery, perhaps even one of its more dramatic and dynamic attributes – in a positive sense.

The variability of both the gas flares and people's reactions to them makes it impossible to be definitive about the degree of such effects. Even so, based on the levels of lighting already associated with both the Marsden Port Refinery and Northport, and other contextual matters already described, it is my assessment that the night-time flares would typically generate a **Low-Moderate** level of effect: adversely affecting some qualities of the night-time environment, but not appreciably altering the identity or sense of place associated with Marsden Point and its harbour setting.

3.2 STORMWATER DISCHARGES

Stormwater is captured and discharged into the harbour from multiple drains and channels throughout the refinery, then drained into a retention basin. Within this basin, it is mixed with 'de-ballast water' and water used to clean out ship tanks, which is filtered and treated in the Water Effluent Treatment Unit, then transferred to the Stormwater Storage Basin before – subject to monitoring – being discharged via a submarine diffuser near the refinery jetty. During exceptionally heavy rainfall sequences, some treated

water is also discharged from the Stormwater Storage Basin via 'stormwater basin diffuser bypass' and a stormwater basin overflow spillway' (noting the latter has only been used only twice since its installation in 2015).

Discharges occur regularly and the discharged water mixes with the harbour's waters via the diffuser, so that it rapidly spreads out and melds with the harbour's water column. Stormwater discharges accelerate during periods of rainfall, when the merger of stormwater with the sea is further masked by the way in which the harbour's waters are dappled by rainfall, overhead cloud cover and other colloidal material released from the margins of the wider harbour.

To try and gain some appreciation of what this means in visual / landscape terms, I have examined photos taken in the course of dredging within the harbour channel that extends into Marsden Point's berthage areas (see below / overleaf and **Attachment 18**). However, those photos – taken from Mt Aubrey, above Reotahi – as well as from the harbour edge within Taurikura Bay, show a dredging plume that is strictly confined to the immediate margins of the dredge. It appears likely that this would also be the case in relation to most stormwater discharges, although some of the material carried in such discharges might well be more fine-grained than the medium-grained sands located within most of Marsden Point's shipping channel. It is therefore assumed that boaties might be able to see a change in colour near the refinery diffuser, although it would be all but impossible to differentiate the refinery's stormwater plume from the more widespread coastal 'churn' near the harbour edge.

Photo of a dredge operating off Marsden Point taken from Mt Aubrey (March 2017)

Photo of the harbour waters taken near the distal end of Marsden Point during a period of heavy rain

This is an extremely complex situation that involves nuances of colour, water clarity and turbidity during periods when none of these qualities are easy to isolate and assess. In particular, they would be difficult to see over any distance, with the flat viewing plane from locations like One Tree Point, Taurikura, Urquharts Bay and even the seaward edge of Reotahi adding to the difficulties of trying to distinguish stormwater plumes from the rest of the harbour waters. In reality, I consider that such discharges would only be visible at very close range – within 20m to 30m, at most – and would have no effect on most of the harbour's coastal edge.

Furthermore, even at such distances it would remain impossible to realistically gauge the effect that stormwater discharges from the refinery are having – in isolation – on the turbidity and other perceived qualities of the harbour's waters. Any such effects are likely to be subordinated by:

- the effects associated with rainfall on the harbour and its margins as a whole, including the direct effects that rainfall and cloud cover have on perception of the harbour's surface colour and texture;
- the movement of other colloidal material triggered by rainfall in other parts of the harbour catchment; and
- tidal flows through an extremely active part of the outer harbour.

Consequently, stormwater discharges would be effectively 'lost' amid the general turmoil and change generated by heavy rainfall sequences. Based on this, it is my assessment that any effects in relation to Landscape, Natural Character and Amenity values would typically be of a **Very Low** order.

3.3 THE REFINERY JETTY & DOLPHINS

My assessment of effects for the refinery jetty and dolphins has utilised photos taken from a range of vantage points around Whangarei Harbour:

1. Marsden Point Beach (**Attachments 19 & 20**)
2. Marsden Point Beach Lookout (**Attachments 21 & 22**)
3. One Tree Point Road (**Attachments 23 & 24**)
4. Solomons Point (**Attachments 25 & 26**)
5. Reotahi Bay (**Attachment 27**)
6. Reotahi Track (**Attachments 28 & 29**)
7. Taurikura (**Attachments 30 & 31**)

The photo from each vantage point (except for **Attachments 27** and **30**) is accompanied by a matching image from which the existing jetty and dolphins have been digitally removed to assist with my comparative assessment of the 'with' and 'without' scenarios.

The photos showing the current (2019) situation tend to highlight the berthage jetty because of the white plastic 'wrapping' around the two unloading gantries. This 'wrap' will remain in place until maintenance and repainting of both structures is completed, with completion currently anticipated in mid 2021. However, the photos in **Attachments 32** and **33** show the jetty and unloading infrastructure in their more normal configuration – without the white 'wrap' – viewed from Marsden Beach, One Tree Point, Taurikura Bay and Urquharts Bay.

Again, most of the contextual matters identified in relation to air emissions would affect perception of the jetty and berthage dolphins, including:

- The physical isolation and buffering of the existing refinery, relative to most residential areas in its vicinity, by both the harbour and Northport facilities;
- The visual dominance of the refinery – notably its storage tanks, stacks and other industrial paraphernalia – both on the skyline of Marsden Point and along its harbour edge;
- The amplification of this industrial message by Northport's berths, shipping, log and chip stacks, main conveyor, lighting and security lighting;
- The clear division of the landscape around Marsden Point and the outer reaches of Whangarei Harbour into parts that are either predominantly natural or very substantially developed / modified;
- The manner in which most views from Whangarei Heads and its settlements towards Marsden Point are framed and backed by the ONLs of Manaia, Mt Aubrey, Taurikura, Mt Lion and Home Point, but effectively isolated from those same ONLs (**Attachments 34** and **35**).

As a result, many of the comments about the incremental or additive nature of the air emission effects also apply to the wharf and jetty. Looked at in more detail, I have assessed those effects as follows.

<u>Visibility</u>:

The area from within which the jetty and its dolphins would be visible is largely confined to the waters and coastal margins of the outer harbour, from the vicinity of Parua Bay through to Home Point – even though the refinery remains legible as far west as Onerahi. The jetty would also be visible from the northern end of Bream Bay, albeit not from its shoreline. In views from most of these harbour margins, the feature that stands out in relation to the 'proposed' jetty is its temporary white sheeting – wrapped around both unloading gantries (**Attachments 18** and **20, 22, 24, 26, 29** and **31**).

Yet as the images in **Attachments 32** and **33** show, this is not the typical situation. In those images the jetty and its unloading facilities are much more recessive, appearing almost entirely subordinate to the broader backdrop of fuel and oil storage tanks, stacks and even the ribbon of coastal vegetation extending from Marsden Point's distal spit towards Mair Road. In effect, the white cladding is the one component of the 'proposed' jetty structures and dolphins that draws attention to them: without that cladding, the jetty is almost 'lost' amid the backdrop of refinery structures and adjoining Northport berths. Even when

viewed from the close-up vantage point of the lookout at Marsden Point Beach, the jetty remains visually subordinate to the fuel tanks and stacks to the right and the saw-toothed profile of volcanic peaks on the far side of the harbour (**Attachment 32**).

Overall, therefore the jetty has a much more recessive profile than **Attachments 18** and **20, 22, 24, 26, 29** and **31** appear to suggest. In the majority of cross-harbour views, the jetty and dolphins are therefore largely absorbed, visually, by the much greater mass and structural complexity of the refinery, whereas in views down the harbour – from One Tree Point – it is screened by the Northport berths and hard standing. Only in views from Marsden Point Beach, does the jetty have any real legibility and visual presence in its own right.

Changes to Character & Values:

Given this situation, it is clear that the refinery and Northport – often viewed together – leave an indelible mark on the harbour landscape. As with the smoke plume and gas flare discussed previously, the jetty and dolphins add little to the landscape of Marsden Point. Views towards and across the outer harbour would remain dominated by the sharply etched profile of the existing refinery, while the visual juxtaposition of Marsden Point's industrial skyline volcanic landforms would remain intact. The jetty would not, in its own right (and excluding the shipping using it), appreciably change the nature of such views or the harbour landscape as a whole.

Landscape Effects:

Again, therefore, the Landscape Effects generated by the jetty and its dolphins would be incremental, building subtly on those of the rest of the refinery. Looking from down-harbour locations, like One Tree Point and Tamaterau, together with other, relatively remote, Whangarei Heads vantage points, like Urquharts Bay and Solomons Point, the presence or absence of the jetty would have no effect at all. When looking from slightly closer locations – such as Taurikura and the elevated, Reotahi Bay Track (but not from within Reotahi Bay, which is screened from the jetty: **Attachment 27**) – the jetty and dolphins would change the nature of some of the harbour shoreline, but otherwise would be largely absorbed by the refinery and Northport berths behind it. Again, therefore, the refinery and current port facilities would still dominate that part of the coastline in closest association with the jetty.

The only vantage points that would show the refinery jetty extending out into Whangarei Harbour are those within Marsden Point Bay – wedged between the eastern end of Northport's berths and log storage area, and the refinery (**Attachment 20**). Although such views would reveal the jetty jutting out into the harbour, they are contextualised by the various structures and activities associated with both industrial complexes. The oil storage tanks alone down the southern edge of the beach are much more prominent than the non-'wrapped' jetty, while the various stacks within the refinery, the security fencing next to Northport's chip storage area, and operations with that part of the port, all colour perceptions of the immediate environment. It is a landscape full of contradictions, not least of these being a large water body set against both volcanic peaks and storage tanks, and a relatively natural beachfront and coastal shrubland backed by a skyline of stacks and other industrial structures.

Taking all of these factors into account, it is considered that the jetty (post maintenance) and its dolphins would have a **Very Low** level of effect on views from all of the vantage points employed in this assessment, together with adjoining parts of the harbour coastline. This includes vantage points at Marsden Point Beach.

At night-time, lighting on the jetty could marginally exacerbate the effects of lighting within, and around, the refinery; however, any such effects would be of a **Very Low** order.

Natural Character Effects:

My commentary in relation to the effects of the refinery's smoke plume and gas flares is also largely applicable to the proposed jetty and dolphins: although these structures would project out into the harbour they would, conversely, would be screened from locations like Marsden Bay / Cove and Ruakaka.

Regardless, they would be confined to part of the Whangarei Harbour coastline that is already very appreciably defined by the presence of the refinery and Northport berths. This situation would not noticeably change, irrespective of the presence of the jetty and berthage dolphins, or otherwise.

As a result, it is considered that the Natural Character effects generated by the refinery's jetty and dolphins would be of **Very Low** order.

Amenity Effects:

In a similar vein, the jetty would not appreciably alter the nature or values of the outlook currently experienced by residents up and down the harbour, or across it. The aesthetic character and values of the harbour landscape would remain intact, without any appreciable reduction in their coherence. As in relation to other values addressed in this report, the overwhelming predominance of the current refinery and its Northport 'neighbour' in most views both across and down Whangarei Harbour means that the effects of the jetty would be truly incremental and minor – in a comparative sense. Consequently, the identity and sense of place associated with the outer harbour and its margins would also be little changed by the jetty and its berthage dolphins.

Moreover, the jetty would not generate any appreciable nuisance effects, such as excessive lighting, and at night-time it would also be largely absorbed by the wealth of lighting within the existing refinery and port compounds. Any effects on Amenity Values are therefore anticipated as being of a **Very Low** order.

3.4 EFFECTS SUMMARY

The following table summarises the various rating derived from the assessment of Landscape, Natural Character and Amenity Effects, culminating in an evaluation in terms of section 104 of the Resource Management Act:

	LEGIBILITY / PRESENCE	LANDSCAPE EFFECTS	NATURAL CHARACTER EFFECTS	AMENITY EFFECTS	EFFECTS RATING:
SMOKE PLUME & GAS FLARE	**Low**	**Low** (Daytime) **Low** (Night-time)	**Low**	**Very Low** (Daytime) **Low to Low - Moderate** (Night-time)	**LESS THAN Minor**
STORMWATER DISCHARGES	**Very Low**	**Very Low**	**Very Low**	**Very Low**	**LESS THAN MINOR**
JETTY & BERTHAGE DOLPHINS	**Low**	**Very Low** (Daytime) **Very Low** (Night-time)	**Very Low**	**Very Low** (Daytime) **Very Low** (Night-time)	**LESS THAN MINOR**

4.0 STATUTORY CONSIDERATIONS

The **Northland Regional Coastal Plan** directly addresses the management of activities and structures within the CMA via its six Marine Management Areas (**Attachment 36**). Such activities include the existing jetty and dolphins, and also stormwater discharges into the harbour, As such, relevant provisions include the following:

> ***7.3 OBJECTIVE***
>
> ***The preservation of the natural character of Northland's coastal marine area, and the protection of it from inappropriate subdivision, use and development.***
>
> ***7.4 POLICIES***
>
> 1. *In assessing the actual and potential effects of an activity to recognise that all parts of Northland's coastal marine area have some degree of natural character which requires protection from inappropriate subdivision, use and development.*
> 2. *As far as reasonably practicable to avoid the adverse environmental effects including cumulative effects of subdivision, use and development on those qualities which collectively make up the natural character of the coastal marine area including:*
>
> *(a) natural water and sediment movement patterns;*
>
> *(b) landscapes and associated natural features;*
>
> *(c) indigenous vegetation and the habitats of indigenous fauna;*
>
> *(d) water quality;*
>
> *(e) cultural heritage values, including historic places and sites of special significance to Maori; ……*
>
> *and where avoidance is not practicable, to mitigate adverse effects and provide for remedying those effects to the extent practicable.*
>
> 3. *Within Marine 1 and Marine 2 Management Areas and the rules that apply to each of those, identify what subdivision, uses and developments may be appropriate taking into consideration the actual or potential effects on natural character as required by, amongst others, Policy 1.1.1 of the New Zealand Coastal Policy Statement.*
> 4. *Subject to Policies 1 and 2 above, through the use of rules in this Plan, to provide for appropriate subdivision, use and development in areas where natural character has already been compromised, including within Marine 3, Marine 4, Marine 5, and Marine 6 Management Areas. ……..*
> 7. *To promote, where appropriate, the restoration and rehabilitation of the natural character of the coastal marine area where it has been significantly degraded.*

It also contains the following objectives and policies addressing the identification of outstanding natural features and landscapes and the management of effects on them:

> ***8.3 OBJECTIVE***
>
> ***The identification, and protection from inappropriate subdivision, use and development of outstanding natural features and landscapes which are wholly or partially within Northland's coastal marine area.***
>
> ***8.4 POLICIES***
>
> 1. *To recognise and provide for the protection from inappropriate subdivision, use and development of outstanding landscape values, such as those identified in the landscape assessment studies that have been commissioned by district councils of the Northland region of the following areas:*
>
> - *Cape Maria van Diemen/Cape Reinga/North Cape*
> - *Kokota sandspit, Parengarenga Harbour entrance*
> - *Matai Bay, Cape Karikari*
> - *Whangaroa Harbour entrance including Pekapeka Bay*

- *The Cavalli Islands*
- *The islands of the outer Bay of Islands*
- *The Cape Brett peninsula including Motukokako (Piercy) Island*
- *Bream Head and Mount Manaia*
- *The Poor Knights Islands*
- *Ngunguru Sandspit*
- *The Hen and Chickens Islands*
- *Mangawhai sandspit*
- *Whangape Harbour entrance*
- *Hokianga Heads*
- *Maunganui Bluff*
- *North Head, Kaipara Harbour entrance*

Explanation. *To effectively protect outstanding landscapes, these need to be individually identified. The landscape values of the listed areas are considered outstanding.*

2. *To recognise and provide for the protection from inappropriate subdivision, use and development of landforms and/or geological features of international, national or regional importance which are wholly or partially within Northland's coastal marine area.*

Explanation. *As with landscapes, to effectively protect outstanding natural features these need to be individually identified. The New Zealand Geological Society has identified features within Northland which are of international, national or regional significance. For the purposes of this Plan, features within these categories are considered outstanding.*

The **Northland Regional Policy Statement**, which became operative on 9th May 2016, is also relevant to the aerial emissions from the refinery's stacks. As a result, the following landscape and natural character provisions are relevant to the current proposals:

3.14 Natural character, outstanding natural features, outstanding natural landscapes and historic heritage

Identify and protect from inappropriate subdivision, use and development;

(a) The qualities and characteristics that make up the natural character of the coastal environment, and the natural character of freshwater bodies and their margins;

(b) The qualities and characteristics that make up the outstanding natural features and outstanding natural landscapes; …..

4.6.1 Policy – Managing effects on the characteristics and qualities natural character, natural features and landscapes

(1) In the coastal environment:

a) Avoid adverse effects of subdivision use, and development on the characteristics and qualities which make up the outstanding values of areas of outstanding natural character, outstanding natural features and outstanding natural landscapes.

b) Where (a) does not apply, avoid significant adverse effects and avoid, remedy or mitigate other adverse effects of subdivision, use and development on natural character, natural features and natural landscapes. Methods which may achieve this include:

(i) Ensuring the location, intensity, scale and form of subdivision and built development is appropriate having regard to natural elements, landforms and processes, including vegetation patterns, ridgelines, headlands, peninsulas, dune systems, reefs and freshwater bodies and their margins; and

(ii) In areas of high natural character, minimising to the extent practicable indigenous vegetation clearance and modification (including earthworks / disturbance, structures, discharges and extraction of water) to natural wetlands, the beds of lakes, rivers and the coastal marine area and their margins; and

(iii) Encouraging any new subdivision and built development to consolidate within and around existing settlements or where natural character and landscape has already been compromised.

(2) Outside the coastal environment avoid significant adverse effects and avoid, remedy or mitigate other adverse effects (including cumulative adverse effects) of subdivision, use and development on the characteristics and qualities of outstanding natural features and outstanding natural landscapes and the natural character of freshwater bodies. Methods which may achieve this include:

a) In outstanding natural landscapes, requiring that the location and intensity of subdivision, use and built development is appropriate having regard to, natural elements, landforms and processes, including vegetation patterns, ridgelines and freshwater bodies and their margins;

b) In outstanding natural features, requiring that the scale and intensity of earthworks and built development is appropriate taking into account the scale, form and vulnerability to modification of the feature;

c) Minimising, indigenous vegetation clearance and modification (including earthworks / disturbance and structures) to natural wetlands, the beds of lakes, rivers and their margins.

(3) When considering whether there are any adverse effects on the characteristics and qualities of the natural character, natural features and landscape values in terms of (1)(a), whether there are any significant adverse effects and the scale of any adverse effects in terms of (1)(b) and (2), and in determining the character, intensity and scale of the adverse effects:

a) Recognise that a minor or transitory effect may not be an adverse effect;

b) Recognise that many areas contain ongoing use and development that:

(i) Were present when the area was identified as high or outstanding or have subsequently been lawfully established

(ii) May be dynamic, diverse or seasonal;

c) Recognise that there may be more than minor cumulative adverse effects from minor or transitory adverse effects; and

d) Have regard to any restoration and enhancement on the characteristics and qualities of that area of natural character, natural features and/or natural landscape.

Finally, Section 10 ('The Coast') of the operative **Whangarei District Plan** contains objectives and policies that largely echo those outlined above:

10.3 Objectives 10.3.1

Preservation and protection of the natural character of the coastal environment from inappropriate subdivision, use or development.

10.3.2

The maintenance or, where appropriate, enhancement of the amenity, landscape, cultural, intrinsic and ecological values of the coastal environment by taking account of the cumulative effects of subdivision development.

10.3.3

Maintain and enhance public access, where appropriate, to and along coastal areas.

10.3.4

Recognise those activities which have locational requirements and/or effects on both sides of the Coastal Marine Area boundary.

10.4 Policies

10.4.1 Natural Character

To ensure that subdivision, use and development is managed in a manner that seeks to preserve, enhance and restore (where appropriate) the natural character of the coastal environment. Particular consideration should be given to:

- *Landscapes, seascapes and landforms;*
- *Significant indigenous vegetation and significant habitats of indigenous fauna;*
- *Intrinsic values of ecosystems;*
- *Sites of Significance to Maori;*
- *Significant places or areas of historic or cultural significance;*
- *Heritage values, including cultural, historical, spiritual and intrinsic values;*
- *Amenity values.*

10.4.2 Natural Character

To recognise, in assessing the actual and potential effects of an activity, that most parts of Whangarei District's coastal environment have some degree of character which requires protection from inappropriate subdivision, use and development.

10.4.3 Location of Activities

To ensure that, as far as practicable, subdivision, use and development is located in areas where the natural character has already been substantially modified.

10.4.4 Services and Infrastructure

To avoid adverse effects on the natural character, amenity, landscape, cultural, intrinsic and ecological values and functioning of an area by ensuring that subdivision, use and development occur where there is adequate infrastructure, services and on-site mitigation measures.

10.4.7 Future Development

To ensure that subdivision, use and development in the coastal environment for business and residential use is located within existing coastal settlements. Subdivision, use or development should only occur in other areas where there will be no more than minor adverse effects, taking into account:

- *The objectives and policies in this chapter (Chapter 10);*
- *Landscape values, landform and scenic values;*
- *Indigenous flora and habitats of indigenous fauna;*
- *Heritage values including archaeological sites and sites of significance to Maori;*
- *Amenity values;*
- *The degree of modification from the natural state; …….*

10.6 Anticipated Environmental Results

The following results are expected to be achieved by the foregoing Objectives, Policies and Methods. The means of monitoring whether the Plan achieves the expected outcomes are set out in the Whangarei District Council Monitoring Strategy.

- *The preservation and/or enhancement of the natural character of the coastal environment, and its protection from inappropriate subdivision, inappropriate use and inappropriate development. Included here are landscapes, seascapes and landforms; significant indigenous vegetation and significant habitats of indigenous fauna; air, water and soil quality; the intrinsic values of ecosystems, including biodiversity along with other ecological values.*

- *The maintenance and/or enhancement of the historic and cultural heritage of the coastal environment, and the protection of it from inappropriate subdivision, use and development. Included here are cultural, historic and spiritual values; amenity values; places and areas of historic or cultural significance; and sites of significance to Maori.*

- *A settlement and development pattern in the coastal environment that does not adversely affect natural and cultural/historic heritage values, is able to be serviced efficiently, and does not result in sporadic, sprawling or ribbon development. Future intensive development is largely confined to existing settlements where the above values are already compromised.*

- *The maintenance and/or enhancement of public access, to and along the coastal marine area, except where it is desirable to restrict public access to protect areas*

of significant indigenous vegetation and significant habitats of indigenous fauna, Maori cultural values, public health and safety; to ensure a level of security consistent with the purpose of a resource consent or a permitted activity; or in other exceptional circumstances.

Assessed in relation to these provisions, it is my opinion that:

- The 'proposed' activities / discharges and structures have no impact on the identification of outstanding natural features and landscapes within Northland, other than to contribute – along with the rest of the refinery, the Northport facilities and the residential development within Marsden Cove and at One Tree Point – to the non-delineation of Marsden Point as an ONF or ONL. In reality, the stack / flu and stormwater discharges and refinery jetty are relatively minor components of a much bigger 'picture' that reveals clear differences between the landscape character and values found both sides of the outer harbour.

- The air emissions, stormwater discharges and jetty 'proposals' would not have a direct impact on the characteristics and values of the higher order landscapes and areas of High or Outstanding Natural Character near Marsden Point.

- The effects identified in this assessment would be largely confined to areas outside the ONLs and HNC / ONC areas within and flanking Whangarei Harbour, with only the smoke plume and – more intermittently – the refinery's gas flares occasionally affecting views towards Home Point, Mt Lion and Bream Head in views from the general vicinity of Ruakaka.

- However, such views, together with those across Whangarei Harbour, are already substantially defined by the presence of both the existing refinery and Northport facilities. They dominate the skyline and distal end of Marsden Point's spit landform. The smoke column, gas flares, stormwater discharges and jetty would not appreciably change the nature or values of such views or the wider landscape that they embrace.

- As a result, the 'proposed' developments would not affect the intactness or integrity of the key landscapes that surround the outer harbour and Marsden Point.

- Any effects generated in relation to the wider landscape, including areas not subject to ONL, HNC and ONC 'overlays', would typically be of a low order and would maintain the balance or interplay between those parts of the coastal environment and landscape around Marsden Point that are both predominantly natural and highly modified / developed.

- Any amenity effects generated by the 'proposals' would also generate effects that are typically of a low order. They would not result in any significant reduction in the local landscape's pleasantness, aesthetic coherence, or appreciable alteration of its character and identity.

As a result, the current 'proposals' are, in my opinion, consistent with those provisions addressing the landscape, natural character and amenity values of those areas surrounding Marsden Point.

5.0 CULTURAL EFFECTS ASSESSMENT

Since completion of Sections 1-4 of this report, the Patuharakeke Te Iwi Trust Board has prepared a Cultural Effects Assessment (commissioner by Refining NZ Ltd), which addresses the 'landscape' effects of the re-consenting application at pages 29 and 30, as well as on pages 11 and 12 of an associated table that addresses the various re-consenting effects from a cultural perspective. In brief, the Trust Board's report raises concerns about the application's effects in relation to three 'landscape' matters:

- The sort of excessive / anomalous flaring shown on page 17 of this report, which the Trust Board indicates has happened on a more regular basis than has been indicated by Refining NZ Ltd;

- The effects of the refinery jetty and associate structures on the beach on Marsden Point, including in relation to its recreational use and amenity values, and more ceremonial use of the beach to access to *Poupouwhenua Mataitai* at the distal end of the Marsden Point spit; and, in a related vein

- The incorporation of a Maori perspective on landscape.

In response to these matters:

Excessive Flaring:

Section 3.1 of this report addresses the normal, or typical, smoke discharge and gas flare situations associated with operation of the refinery. However, as page 17 of this report indicates, emergency and plant shut-down procedures occasionally result in the sort of flaring and smoke discharges captured by the NZ Herald on March 30th, 2016. I had discussed this situation with Refining NZ Ltd and was assured that such situations were abnormal, even quite rare, while section 3.2 of Richard Chilton's Air Quality Assessment provides more detail in this regard. He points out that from the beginning of 2017 through to the end of 2019 there were 5 occasions on which emergency discharges occurred – an average of 2 or 3 'events' per year of the kind captured in The Herald's photo. I accept this as being more representative of the situation in relation to such discharges than I had originally presupposed.

In light of this, I agree that there will be times when the refinery does generate 'nuisance' effects and perhaps even cause alarm for those living nearby or visiting Marsden Point – although such events are perhaps not entirely unexpected given the dynamic, heavily industrialised, nature of the refinery. On the other hand, I also agree with refinery staff that this is not the typical situation, and the refinery's visual effects in relation to smoke and flare discharges are normally much more subdued – in accordance with my section 3.1 analysis. Excessive discharges, of the kind photographed by The Herald remain exceptional: they are, in effect low probability, high impact, incidents.

On balance, I consider that my assessment in section 3.1 remains valid. It shows that throughout most of each year the refinery's smoke discharges and flaring would have very little impact on the landscape and amenity values of Marsden Point and the outer harbour area. On occasion, this situation changes, but not with sufficient regularity for me to reconsider the findings already outlined, other than to add the rider that this situation can, and occasionally does, change when emergencies arise. Overall, however, such exceptional discharges have a limited impact on perception of Marsden Point, the adjoining harbour or Whangarei Heads: they remain an 'adjunct' to the industrial profile of the refinery and the industrial activities that occur within it.

Marsden Beach:

It is clear that the refinery jetty and its gantries have a significant visual 'presence' at the edge of the harbour. However, this is reduced by their physical connection to, and visual association with, the refinery, including the storage tanks that line its seaward edge. Marsden Point Beach is also enclosed by the Northport wharves adjoining the refinery, together with the car park, toilet block and tug berth cum lookout at the western end of the beach. Consequently, it remains my view that, with or without the jetty, the beach area will remain directly framed by both the refinery and Northport facilities. The jetty adds incrementally to this 'imposition' on the beach, including its relative naturalness and amenity / recreation values, but no more than that. Having said this, I accept that the beach may well have cultural values – outlined above – that I could not appropriately comment on.

A Maori Perspective on Landscape:

Both the *Modified Pigeon Bay* and *Wakatipu Environmental Society (Inc)* decisions have the laid the foundation for general acceptance of Tangata Whenua Values as a key component of landscape under the umbrella of 'Associative Values" – ie. connections to, and associations with, landscapes and natural features that need to be recognised. However, research undertaken by Lincoln University at the district level into responses to different types of landscape has not revealed a perspective that is unique or particular to Maori[1], except in relation to 'food gathering landscapes'. Consequently, Maori in general appear to have much the same response to generic landscapes as the wider community.

Where differences are more readily apparent, however, is in relation to physically specific, landscapes and features that are known, appreciated, valued and treasured by iwi and hapu. These are usually either taonga in their own right, landscapes or features that contain taonga and / or which are the subject of historic tales – both real and mythic / legendary. They are often associated with ceremonial occasions and activities, but may equally be 'hidden', with knowledge of them confined to the individual iwi or hapu.

As a result, it is extremely difficult to develop a district-wide map or other reference material that can readily be employed to modify or influence the more generic landscape values discussed in this review. Indeed, in 2005 an attempt was made to develop such a map for the Whangarei District, as part of the district wide landscape assessment then being undertaken. Yet, to my knowledge, no progress has been made on its preparation. Moreover, concern arose – both in relation to that study and others being undertaken at much the same time – about the marriage of strategic landscape management with values and issues focused on individual, often small scale, 'sites'. In turn, this raised the prospect of such sites (and their related cultural connections) being devalued within district-wide assessments and 'overlooked' in subsequent planning provisions. As a result, there is no district-wide, or even sub-district, information base available to assist with interpreting and describing the

1

Public Perceptions of Outstanding natural Landscapes In The Auckland Region, Research Report No. 273, John R Fairweather, Simon R Swaffield, David G Simmons. 2004.

Understanding Visitors' Experiences In Kaikoura Using Photographs Of Landscapes & Q Sort. Report No. 5. John R Fairweather, Simon R Swaffield, David G Simmons. 1998.

Understanding Visitors' And Locals' Experiences Of Rotorua Using Photographs Of Landscapes & Q Sort. Report No. 13. John R Fairweather, Simon R Swaffield, David G Simmons. 2000.

Visitors' And Locals' Experiences Of Westland, New Zealand. Report No.23. John Fairweather, Bronwyn Newton, Simon R Swaffield, David G Simmons. 2001.

Public Perceptions Of Natural And Modified Landscapes Of The Coromandel Peninsula, New Zealand. Research Report No. 241. John R Fairweather, Simon R Swaffield. October 1999.

landscapes and sites of importance to local iwi and hapu around Marsden Point and Whangarei Harbour.

Returning, therefore, to the landscape issues raised in the Marsden Point Refinery CEA, it is agreed that specific iwi values associated with both the land in general and specific sites need to be addressed. However, those issues, particularly in relation to the Marsden Point Beach area and access to the distal end of the Marsden Point spit, go well beyond the more generic, landscape and amenity considerations addressed in this report. The matters identified within the CEA – such as passage to and from *Poupouwhenua Mataitai* – are appropriately addressed in that report, and any response to them should focus on the specific values and concerns identified. In my opinion, this simply reflects the reality that 'landscape' is a very broad umbrella that has many layers. Sometimes those layers need to be explored from different starting points. I consider that to be the case in this instance, and the fact that the CEA has raised some quite specific 'landscape' issues is entirely appropriate.

Acknowledging the concerns raised, I consider that this report appropriately addresses the landscape effects that re-consenting would generate in relation to the broad spectrum of receiving environments and audiences that the refinery and its activities are exposed to. The effects in relation to Marsden Point Beach identified in the CEA are, for the most part, very specific, both culturally and spatially. They add another dimension to the overall evaluation that needs to be recognised and taken into account, but it does not nullify or compromise my preceding findings, which remain focused on a wider area and range of audiences.

6.0 CONCLUSIONS

On the basis of this assessment, including evaluation of the proposal against relevant statutory provisions, it is considered that the proposed air emissions, stormwater discharges and jetty would typically have a very low level of effect (*less than minor*) on the landscape, natural character and amenity values of Whangarei Harbour, Whangarei Heads and Bream Bay.

The 'proposals' would adhere to the maxim of concentrating new development and related effects within parts of the CMA and Coastal Environment that are already significantly modified, and would avoid having a direct adverse effect on those parts of Whangarei Heads, Marsden Point and Bream Bay that are identified as having outstanding landscape or natural character values. They would also avoid having a significant effect in relation to the rest of the coastal environment and surrounding landscapes. Most components and activities associated with the project would have a quite limited impact on perceptions of the area's character, identity or sense of place.

Returning briefly to the issue of cultural landscape values and effects, I acknowledge that the 'proposed' jetty would affect Marsden Point Beach from a cultural perspective. However, rather than undermining these findings and conclusions – which focus on the harbour environs and general public at large – the more focused concerns raised by the Patuharakeke Te Iwi Trust Board add another dimension to the range of effects already addressed. These need to be considered in relation to Refining NZ Ltd's application as a whole.

Stephen Brown
BTP, DIP LA, Fellow NZILA

b r o w n

tamaterau

parua bay

munro bay

WHANGAREI HARBOUR

mcleod bay

one tree point

reotahi

marsden cove

taurikura bay

urquharts bay

ruakaka

12 assessment viewpoints: viewpoint numbers correlate with attachment numbering (1-35)

Attachment 0.

MARSDEN POINT REFINERY RE-CONSENTING STUDY

Viewpoints for assessment of the effects of the refinery's smoke / gasflares & jetty

Brown NZ Ltd
March 2020

(Photos taken with 35mm equivalent lens)

Attachment 1.

MARSDEN POINT REFINERY RE-CONSENTING STUDY - STACK EMISSIONS & FLARES

View From The Intersection of The Marsden Point Highway & Mair Road: Morning, above (Normal Fuel Load & Composition) & Afternoon, below (Heavier Fuel Load & Composition)

Brown NZ Ltd
July 2019

(Photos taken with 35mm equivalent lens)

Attachment 2.

MARSDEN POINT REFINERY RE-CONSENTING STUDY - STACK EMISSIONS & FLARES

View From The Marsden Point Beach Car Park in the Morning: No Emissions (left) & With a Normal Fuel Load & Composition (right)

Brown NZ Ltd
July 2019

(Photos taken with 35mm equivalent lens)

Attachment 3.

MARSDEN POINT REFINERY RE-CONSENTING STUDY - STACK EMISSIONS & FLARES

View From The Marsden Point Beach Car Park in the Afternoon: No Emissions (left) & With a Heavier Than Average Fuel Load & Composition (right)

Brown NZ Ltd
July 2019

(Photos taken with 35mm equivalent lens)

Attachment 4.

MARSDEN POINT REFINERY RE-CONSENTING STUDY - STACK EMISSIONS & FLARES

View From Stace Hopper Drive in the Morning: No Emissions (left) & With a Normal Fuel Load & Composition (right)

Brown NZ Ltd
July 2019

(Photos taken with 35mm equivalent lens)

MARSDEN POINT REFINERY RE-CONSENTING STUDY - STACK EMISSIONS & FLARES

View From Stace Hopper Drive in the Afternoon: No Emissions (left) & With a Heavier Than Average Fuel Load & Composition (right)

Brown NZ Ltd
July 2019

(Photos taken with 35mm equivalent lens)

MARSDEN POINT REFINERY RE-CONSENTING STUDY - STACK EMISSIONS & FLARES

View From Waitamata Drive: Morning, above (Normal Fuel Load & Composition) & Afternoon, below (Heavier Fuel Load & Composition)

Brown NZ Ltd
July 2019

(Photos taken with 35mm equivalent lens)

MARSDEN POINT REFINERY RE-CONSENTING STUDY - STACK EMISSIONS & FLARES

View From One Tree Point Road Near Mariners Haven in the Morning: No Emissions (left) & With a Normal Fuel Load & Composition (right)

Brown NZ Ltd
July 2019

(Photos taken with 35mm equivalent lens)

MARSDEN POINT REFINERY RE-CONSENTING STUDY - STACK EMISSIONS & FLARES

View From One Tree Point Road Near Mariners Haven in the Afternoon: No Emissions (left) & With a Heavier Than Average Fuel Load & Composition (right)

Brown NZ Ltd
July 2019

(Photos taken with 35mm equivalent lens)

MARSDEN POINT REFINERY RE-CONSENTING STUDY - STACK EMISSIONS & FLARES

View From One Tree Point Road in the Morning: No Emissions (left) & With a Normal Fuel Load & Composition (right)

Brown NZ Ltd
July 2019

(Photos taken with 35mm equivalent lens)

MARSDEN POINT REFINERY RE-CONSENTING STUDY - STACK EMISSIONS & FLARES

View From One Tree Point Road in the Afternoon: No Emissions (left) & With a Heavier Than Average Fuel Load & Composition (right)

Brown NZ Ltd
July 2019

(Photos taken with 35mm equivalent lens)

Attachment 11.

MARSDEN POINT REFINERY RE-CONSENTING STUDY - STACK EMISSIONS & FLARES

View From Ruakaka Beach in the Morning: No Emissions (left) & With a Normal Fuel Load & Composition (right)

Brown NZ Ltd
July 2019

(Photos taken with 35mm equivalent lens)

MARSDEN POINT REFINERY RE-CONSENTING STUDY - STACK EMISSIONS & FLARES

View From Ruakaka Beach in the Afternoon: No Emissions (left) & With a Heavier Than Average Fuel Load & Composition (right)

Brown NZ Ltd
July 2019

(Photos taken with 35mm equivalent lens)

MARSDEN POINT REFINERY RE-CONSENTING STUDY - STACK EMISSIONS & FLARES

View From Tamaterau: Morning, left (Normal Fuel Load & Composition) & Afternoon, right (Heavier Fuel Load & Composition)

Brown NZ Ltd
July 2019

(Photos taken with 35mm equivalent lens)

MARSDEN POINT REFINERY RE-CONSENTING STUDY - STACK EMISSIONS & FLARES

View From Reotahi in the Morning: No Emissions (left) & With a Normal Fuel Load & Composition (right)

Brown NZ Ltd
July 2019

(Photos taken with 35mm equivalent lens)

MARSDEN POINT REFINERY RE-CONSENTING STUDY - STACK EMISSIONS & FLARES

View From Reotahi in the Afternoon: No Emissions (left) & With a Heavier Than Average Fuel Load & Composition (right)

Brown NZ Ltd
July 2019

(Photos taken with 35mm equivalent lens)

Attachment 16.

MARSDEN POINT REFINERY RE-CONSENTING STUDY - STACK EMISSIONS & FLARES

View From Taurikura in the Morning: No Emissions (left) & With a Normal Fuel Load & Composition(right)

Brown NZ Ltd
July 2019

(Photos taken with 35mm equivalent lens)

MARSDEN POINT REFINERY RE-CONSENTING STUDY - STACK EMISSIONS & FLARES

View From Taurikura in the Afternoon: No Emissions (left) & With a Heavier Than Average Fuel Load & Composition (right)

Brown NZ Ltd
July 2019

MARSDEN POINT REFINERY RE-CONSENTING STUDY - REFINERY JETTY & DOLPHINS

Dredging Operations At the Marsden Point Berthage Channel (March 2017) & The Outer Hrabour During Heavy Rainfall

Brown NZ Ltd
July 2019

(Photos taken with 35mm equivalent lens)

MARSDEN POINT REFINERY RE-CONSENTING STUDY - REFINERY JETTY & DOLPHINS

View From Marsden Point Beach: Without the Refinery Jetty & Dolphins (above) & With The Jetty & Dolphins (below)

Brown NZ Ltd
July 2019

(Photos taken with 35mm equivalent lens)

Attachment 20.

MARSDEN POINT REFINERY RE-CONSENTING STUDY - REFINERY JETTY & DOLPHINS

View From The Marsden Point Beach Walkway Addressing the Wider Context of Views Across the Beachfront

Brown NZ Ltd
July 2019

(Photos taken with 35mm equivalent lens)

Attachment 21.

MARSDEN POINT REFINERY RE-CONSENTING STUDY - REFINERY JETTY & DOLPHINS

View From The Marsden Point Beach Walkway: Without the Refinery Jetty & Dolphins

Brown NZ Ltd
July 2019

(Photos taken with 35mm equivalent lens)

Attachment 22.

MARSDEN POINT REFINERY RE-CONSENTING STUDY - REFINERY JETTY & DOLPHINS

View From The Marsden Point Beach Walkway: With the Refinery Jetty & Dolphins

Brown NZ Ltd
July 2019

(Photo taken with 35mm equivalent lens)

MARSDEN POINT REFINERY RE-CONSENTING STUDY - REFINERY JETTY & DOLPHINS

View From One Tree Point Rd: Without the Refinery Jetty & Dolphins

Brown NZ Ltd
July 2019

(Photo taken with 35mm equivalent lens)

MARSDEN POINT REFINERY RE-CONSENTING STUDY - REFINERY JETTY & DOLPHINS

View From One Tree Point Rd: With the Refinery Jetty & Dolphins

Brown NZ Ltd
July 2019

(Photo taken with 35mm equivalent lens)

MARSDEN POINT REFINERY RE-CONSENTING STUDY - REFINERY JETTY & DOLPHINS

View From Solomons Point: Without the Refinery Jetty & Dolphins

Brown NZ Ltd
July 2019

(Photo taken with 35mm equivalent lens)

MARSDEN POINT REFINERY RE-CONSENTING STUDY - REFINERY JETTY & DOLPHINS

View From Solomons Point: With the Refinery Jetty & Dolphins

Brown NZ Ltd
July 2019

(Photos taken with 35mm equivalent lens)

Attachment 27.

MARSDEN POINT REFINERY RE-CONSENTING STUDY - REFINERY JETTY & DOLPHINS

View From Reotahi Bay: With the Refinery Jetty & Dolphins Screened From View

Brown NZ Ltd
July 2019

(Photos taken with 35mm equivalent lens)

Attachment 28.

MARSDEN POINT REFINERY RE-CONSENTING STUDY - REFINERY JETTY & DOLPHINS

View From the Reotahi Bay Track: Without the Refinery Jetty & Dolphins

Brown NZ Ltd
July 2019

(Photos taken with 35mm equivalent lens)

MARSDEN POINT REFINERY RE-CONSENTING STUDY - REFINERY JETTY & DOLPHINS

View From the Reotahi Bay Track: With the Refinery Jetty & Dolphins

Brown NZ Ltd
July 2019

(Photo taken with 35mm equivalent lens)

MARSDEN POINT REFINERY RE-CONSENTING STUDY - REFINERY JETTY & DOLPHINS

View From Taurikura Bay: Without the Refinery Jetty & Dolphins

Brown NZ Ltd
July 2019

(Photo taken with 35mm equivalent lens)

MARSDEN POINT REFINERY RE-CONSENTING STUDY - REFINERY JETTY & DOLPHINS

View From Taurikura Bay: With the Refinery Jetty & Dolphins

Brown NZ Ltd
July 2019

MARSDEN POINT REFINERY RE-CONSENTING STUDY - REFINERY JETTY & DOLPHINS

2016 Photos of the Refinery, Jetty & Dolphins Without the White Protective Screening Required for Jetty Maintenance - Viewed From Mardsen Point Beach (above) & One Tree Point (below)

Brown NZ Ltd
July 2019

MARSDEN POINT REFINERY RE-CONSENTING STUDY - REFINERY JETTY & DOLPHINS

2016 Photos of the Refinery, Jetty & Dolphins Without the White Protective Screening Required for Jetty Maintenance - Viewed From Taurikura Bay (above) & Urquharts Bay (below)

Brown NZ Ltd
July 2019

b r o w n

Attachment 34.

MARSDEN POINT REFINERY RE-CONSENTING STUDY - REFINERY JETTY & DOLPHINS

Views Across & From Taurikura Bay to The ONLs of Taurikura, Mt Lion & Home Point

Brown NZ Ltd
July 2019

b r o w n

MARSDEN POINT REFINERY RE-CONSENTING STUDY - REFINERY JETTY & DOLPHINS

Views Across Urquharts Bay To Home Point & The ONLs Extending Across Manaia & Reotahi

Brown NZ Ltd
July 2019

Map C13

Whangarei Harbour
Marsden Point

N

Map Scale
1:25,000

LEGEND LOCATED AT BACK OF MAP FOLDER

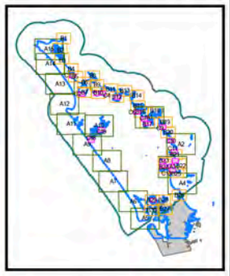
Map grid values are shown in NZTM coordinates NZGD 2000

These maps are an indicative representation, for more specific information contact the NRC.

The RCP for Northland covers the coastal marine area which extends from the landward extent of Mean High Water Springs and the negotiated cross river mouth boundary to the 12 Nautical Mile limit.

Caution: This map should not be used for navigational purposes.

Locality Map:



NORTHLAND REGIONAL COUNCIL

SNAKE BANK
McLeod Bay
McLeod Bay
Whangarei Heads
One Tree Point
Darch Point
Manaia
Early Settlers Memorial
WHANGAREI HEADS ROAD
Mount Aubrey
Reotahi Bay
Reotahi Bay
Taurikura
McGregors Bay
Little Munroe Bay
High Island
Taurikura Bay
Motukaroro Island
Castle Rock
Lort Point
Marsden Bay
ONE TREE POINT ROAD
Marsden Bay
CALLIOPE BANK
McKenzie Bay
Marsden Point
Urquharts Bay
Calliope Island
Urquharts Bay
MAIR BANK
Home Point
Smugglers Bay
Frenchman Island
Busby Head
UINT ROAD

Northland Regional Coastal Plan Map Legend

- Regional Boundary Line
- TLA Boundary
- State Highway
- Road
- Aircraft Beacon
- Boat Ramp
- Jetty/Wharf
- Pontoon
- Grid Point
- Slip
- Protected Anchorage

Beacon
- lit
- unlit

Buoy
- lit
- unlit

Bridge
- Foot Traffic
- Train
- Vehicle
- Powerline
- Underwater Cable
- Underwater Pipe

- Cliff Edge
- Track & Walkway
- River
- Coastal Marine Area Boundary
- Surfing Area
- Land outside NRC Region
- Prohibited Anchorage Area
- Skilane
- Marine 1 (Protection) Management Area
- Marine 2 (Conservation) Management Area
- Marine 3 (Marine Farms) Management Area
- Coastal Permitted Marine Farms (Post 20 December 1994)
- Marine 4 (Controlled Mooring) Management Area
- Marine 4 (Discretionary Mooring) Management Area
- Marine 5 (Port Facilities) Management Area
- Marine 6 (Wharves) Management Area
- Cultural Water Quality

Water Quality
- CA
- CB
- CN
- Mixing Zones For Major Dishcarge

MARSDEN POINT REFINERY RE-CONSENTING STUDY
Northland Regional Coastal Plan Marine Managment Areas: Marsden Point

Brown NZ Ltd
March 2020