



2015-2019 Unalaska Bay Drilling Unit Mooring Project Description

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1.0 Introduction

Shell Exploration & Production Company (Shell) proposes two mooring locations and one contingency mooring location within Unalaska Bay near Dutch Harbor Alaska for the potential temporary anchorage of two drilling units, the *Noble Discoverer (Discoverer)* and the *Transocean Polar Pioneer (Polar Pioneer)*. The three proposed mooring locations are near Wide Bay, Nateekin Bay, and Summer Bay. Anchoring condition surveys were completed to identify sea bottom conditions at each prospective mooring location.

The following text provides more details on the deployment location and methods, as well as information on the drilling unit mooring locations. This document is a supplement to the State of Alaska Department of Natural Resources Land Use (Tidelands) Permit application. The length of the permit will extend from March 2015 to March 2019. The drilling units may require temporary occupations of one or more of these prospective mooring locations during this period; however, it is not the intent of these applications that the drilling units occupy any or all of these mooring locations continuously over the full length of this period.

1.1 Mooring Locations

There are three proposed mooring locations within Unalaska Bay (see Figure 1). The proposed mooring locations would allow enough distance to allow barges/vessels to still anchor to the emergency mooring location near Wide Bay at approximately longitude 166°31'51.6" West and latitude 53°53'00.0" North.

1. The first mooring location is within Wide Bay at approximately longitude 166°36'04.205" West and latitude 53°56'21.226" North.
2. The second mooring location is within Nateekin Bay at approximately longitude 166°35'52.656" West and latitude 53°53'31.377" North.
3. The third mooring location is within Summer Bay at approximately longitude 166°28'09.526" West and latitude 53°55'46.618" North.

The Wide Bay mooring location is approximately 4 miles northwest of Dutch Harbor, and the water depth of the deployment area ranges from 350 feet to 520 feet. There is no known existing debris onsite. There is an emergency mooring with a 4-point anchor system for barges and support vessels near the prospective Wide Bay mooring location.

The Nateekin Bay mooring location is approximately 2.5 miles west of Dutch Harbor, and the water depth of the deployment area ranges from 200 feet to 350 feet. There is no known existing debris onsite. There are no other known mooring locations near this mooring area.

The Summer Bay mooring location is approximately 2.5 miles northeast of Dutch Harbor, and the water depth of the deployment area ranges from 60 feet to 210 feet. There is no known existing debris onsite. There are no other known mooring locations near this mooring area.

1.2 Description of Moored Drilling Units

The drilling units *Polar Pioneer* and *Discoverer* may be moored in Dutch Harbor, AK temporarily on their way to, or from, prospective drilling locations in the Chukchi or Beaufort Seas. The drilling units would preferably sail directly to, or from, the Chukchi Sea if possible, depending on the transit schedule and the weather; however, temporary anchoring in Dutch Harbor may be necessary. Mooring operations may be supported by two support tugs and three anchor handlers.

The primary, prospective mooring location proposed for the *Discoverer* would be in Wide Bay. The primary mooring location proposed for the *Polar Pioneer* would be at the mouth of Nateekin Bay. The mooring location in Summer Bay would be used as a contingency mooring location for either drilling unit or as a mooring location for other support vessels to the drilling units. Each of the three prospective locations is suitable for either drilling unit; however, both units would not occupy any one mooring location simultaneously.

The specifications of the drilling units to be potentially moored are presented in Table 1. The anchoring of each drilling unit would be accomplished using an 8-point anchor system (see Figures 5 & 6). The anchor radius of drilling units may extend up to 900 meters (2,953 feet), encompassing up to 628.5 acres at each site. Total area of the three sites would be up to 1,885.5 acres (see Figure 1).

No wastes will be associated with the anchor laying and retrieval activities; though anchors may be temporarily wet-stored, all anchoring materials will be retrieved prior to permit expiration, including anchors and chains. Solid wastes generated while at the prospective mooring locations will either be shipped off location to proper disposal/recycling facilities or may be burned in the onboard incinerator in accordance with the waste plan and State of Alaska regulations. Hazardous and non-hazardous wastes will be shipped to appropriate facilities in the Pacific Northwest for recycle or disposal. Household trash (MSW) will be shipped to Columbia Ridge Landfill in Oregon for disposal.

All gray and black water discharges will be in compliance with the National Pollutant Discharge Eliminations System (NPDES) Vessel General Permit (VGP). Each drilling unit is equipped with a Type II marine sanitation device (MSD) that meets the International Maritime Organization's MEPC 115(51) Guidelines, United States Coast Guard certification. The MSD will be inspected annually by a third party competent person with a valid certificate of inspection available upon request.

The number and quantity of household waste and the wastewater effluent generated, discharged, or potentially discharged at the exploratory facility will be minimized to the extent feasible by managing each waste stream in the most appropriate manner.

Support vessels located in Dutch Harbor will resupply and transport crew to the drilling unit locations. The drilling units and support vessels will be United States Coast Guard certified and waste disposal will comply with NPDES VGP standards while operating under the VGP. A safety zone of 500 meters (1,640 feet) surrounding each drilling unit will be requested from the United States Coast Guard for safety and security concerns.

The support vessels include the support tugs and anchor handling vessels which are equipped to retrieve anchors used during the moorings process, in addition to potential visits by offshore supply vessels (OSVs) and supply tug and barge combinations. Anchors may be temporarily wet-stored, but will be retrieved prior to permit expiration. After the mooring anchors have been retrieved, structural components will be removed. There are no fill materials or pilings required for the drilling unit mooring program.

Table 1 Specifications of the *Discoverer* and the *Polar Pioneer*

Specification	<i>Discoverer</i>	<i>Polar Pioneer</i>
Dimensions		
Hull Length	514 ft. (156.7 m)	279 ft. (85 m)
Hull Width	85 ft. (26.0 m)	233 ft. (71 m)
Height	274 ft. (83.2 m)	319 ft. (97.3 m)
Derrick Height	175 ft. (53.3 m)	170 ft. (51.8 m)
Draft		
Transit Draft	26.9 ft. (8.2 m)	30 ft. (9.15 m)
Operating Draft at Load line	26.9 ft. (8.2 m)	75.4 ft. (23 m)
Berths	124 each	114 each
Storage Capacity		
Potable Water	1,670 bbl. (266 m ³)	4,843 bbl. (770 m ³)
Drill Water	5,798 bbl. (922 m ³)	11,140 bbl. (1,770 m ³)
Liquid Mud	2,400 bbl. (382 m ³)	6,180 bbl. (982 m ³)
Bulk Cement	6,400 ft ³ (180 m ³)	12,678 ft ³ (359 m ³)
Fuel	6,497 bbl. (1,033 m ³)	11,290 bbl. (1,794 m ³)
Propulsion Engines	(1) MAN Diesel B&W 1, 6,480 hp	N/A (non-self-propelled)
Power Plant	(6 each) Caterpillar 3512 1,476 hp	(5 each) Bergen KVG-18 3,890 hp
Mooring		
Anchors	(8 each) 9 – 15 metric ton Stevshark	(8 each) 9 – 15 metric ton Stevshark
Anchor Lines	2.75-in. (7-cm) wire rope	3.3 in (88 mm) K-4 chain
Anchor Line Length	(8 each) 2,750 ft. (838 m) wire + 1,150 ft. (351 m) chain (useable) per anchor	(8 each) 6,458-6,675 ft. (1,969-2,035 m) chain per anchor
Transit Speed	8.0 knots	N/A (non-self-propelled)
Marine Sanitation Device	OMNIPURE Series 55	Piranha WRS-40

Figure 1 Vicinity Map

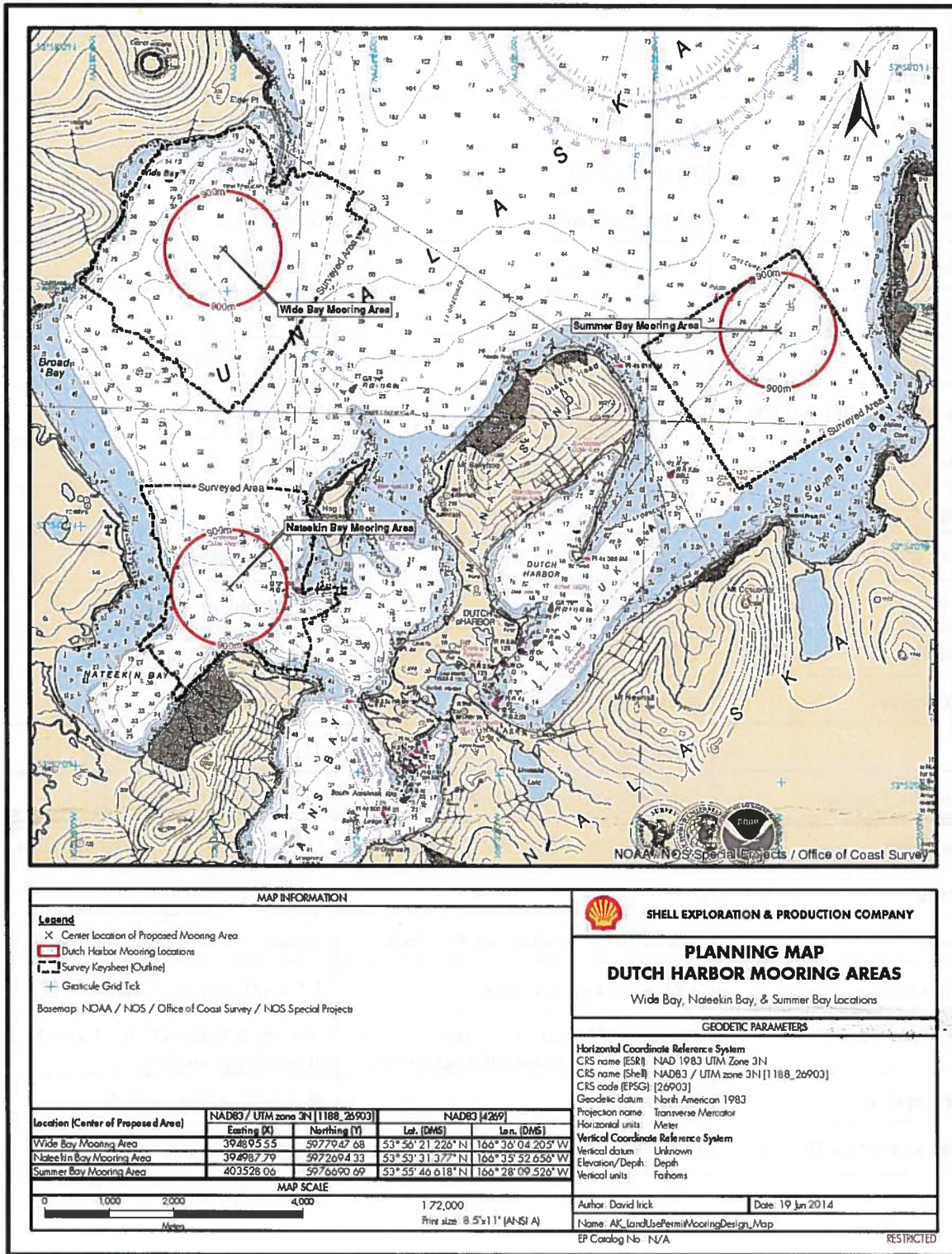


Figure 4 Summer Bay Map

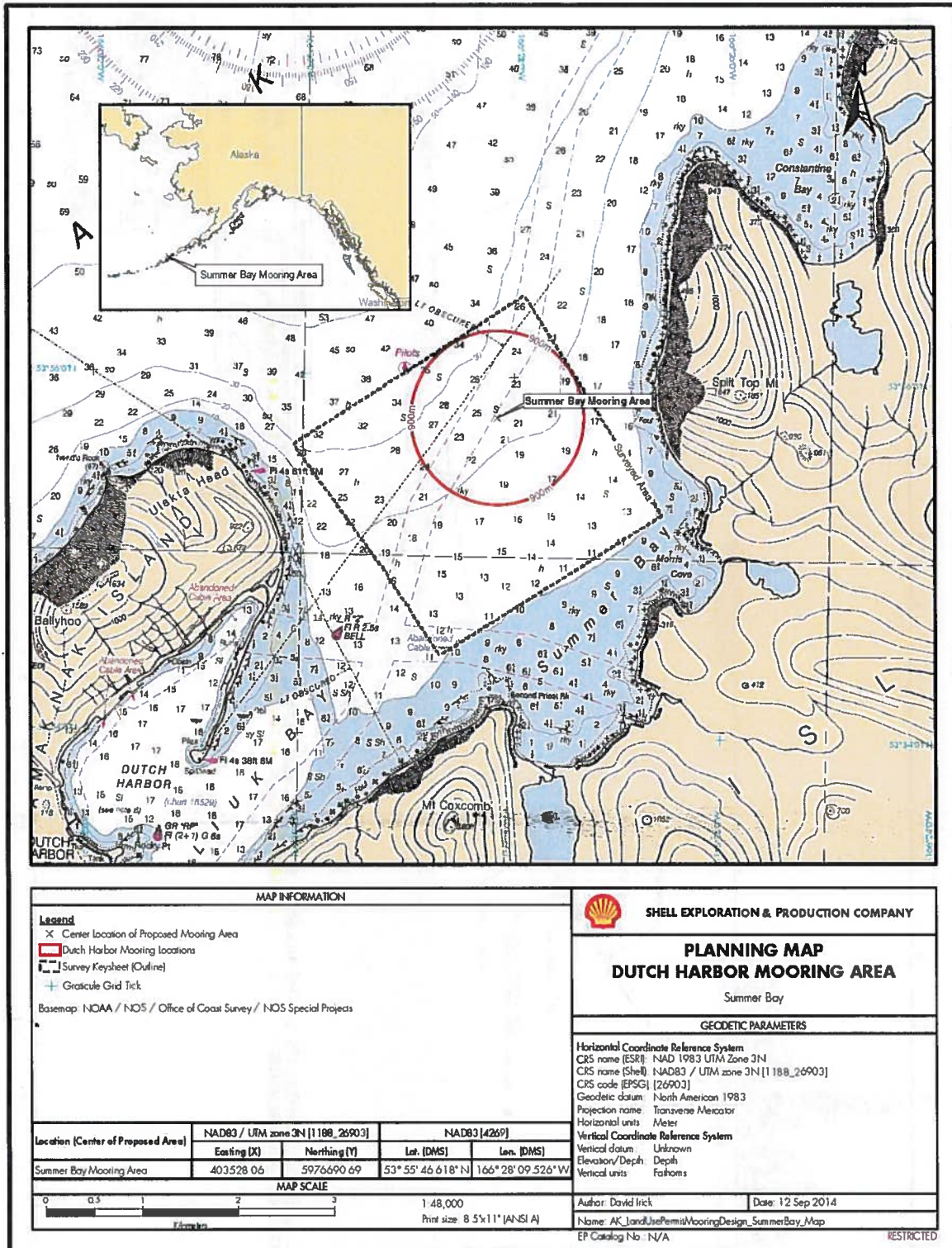


Figure 5 Discoverer Anchoring System

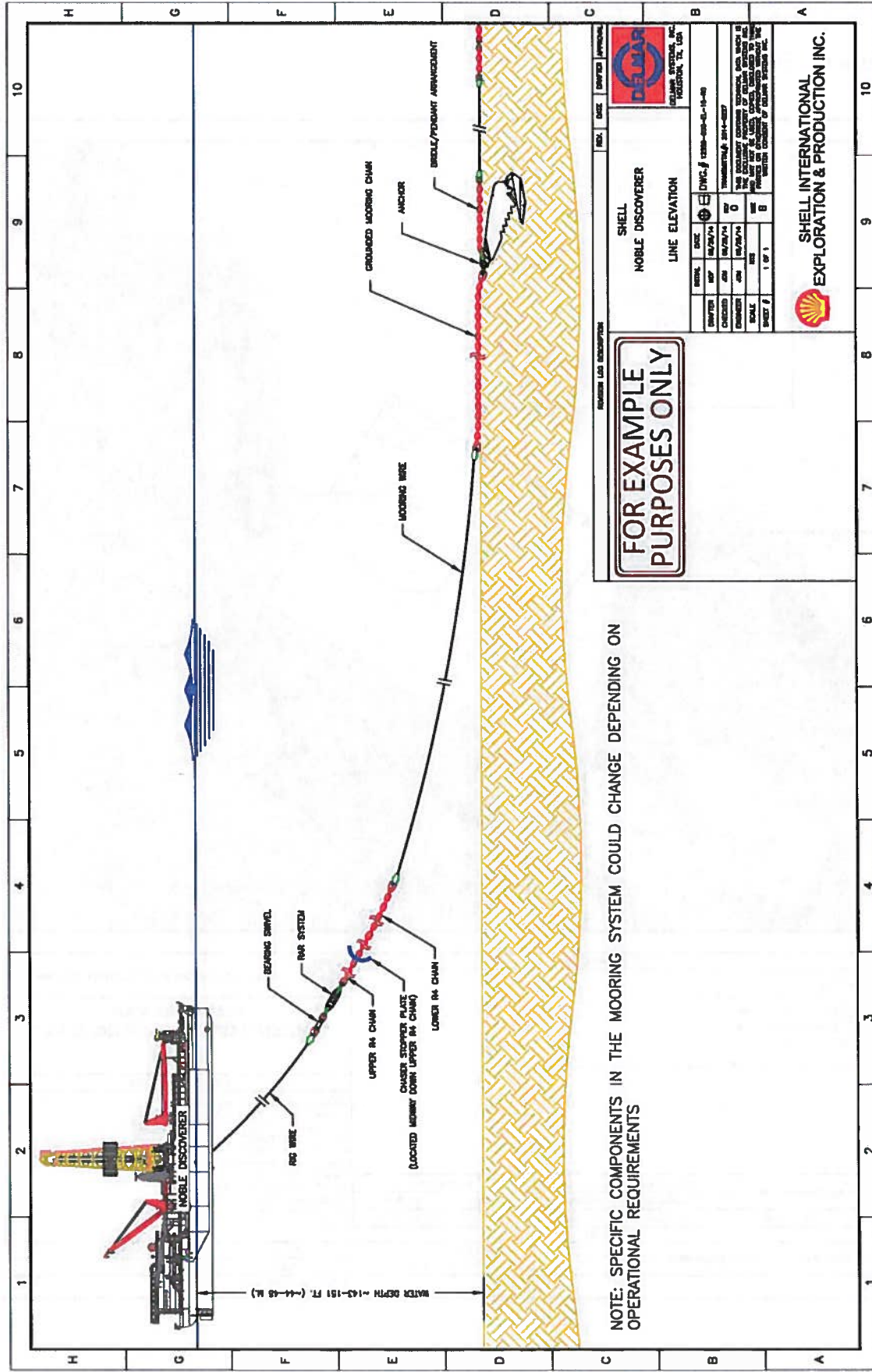


Figure 6 Polar Pioneer Anchoring System

