BEFORE THE NORTHLAND REGIONAL COUNCIL HEARINGS COMMISSIONER

IN THE MATTER of an application under section 88 of the Resource Management Act 1991 (Act)

AND an application by Doug's Opua Boatyard for resource consents relating to the redevelopment of the boatyard located at 1 Richardson Street, Opua.

STATEMENT OF EVIDENCE OF JOHN FRANCIS PAPESCH ON BEHALF OF DOUG'S OPUA BOATYARD (DOBY)

Dated this 20th day of July 2020

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Qualifications and Experience

1. My full name is John Francis Papesch. I am a Chartered Professional Engineer, working for Haigh Workman Ltd in Kerikeri. I hold a Bachelor of Engineering (Civil) from the University of Auckland and a NZ Certificate of Engineering (Civil) from the Unitec Institute of Technology. I am a Chartered Member of Engineering NZ and an International Professional Engineer.

2. I have over 20 years of experience as a civil engineer, with the past 17 years of that in the Northland region. My role has typically been as the civil engineering lead on residential, commercial and industrial land and building development projects, from concept development through consenting phases and construction to completion. For a number of years I have also specialised in marina design and construction which has included several projects at Opua and surrounds.

3. I have assisted DOBY with the discharge of treated stormwater to the CMA which is currently before the Environment Court. I have visited the site on several occasions over the past two years together with providing evidence to the Environment Court.

4. I have read the Environment Court's Code of Conduct for Expert Witnesses as specified in the Environment Court's Practice Note 2014 and agree to be bound by its requirements. Any opinions expressed in this evidence are my own and are not influenced by the client or their agents. This evidence is within my area of expertise, except where I state that I am relying on the evidence of another. I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express.

Scope of evidence

5. The scope of my evidence is in relation to Stormwater Discharges. This evidence will cover the following matters:

    - Discharge of treated stormwater to the CMA
    - Stormwater management regime
    - Conditions of consent
    - Conclusions

6. My evidence is in relation to Stormwater Discharges as is generally detailed in report prepared by Vision Consulting Limited entitled 'Stormwater and Wastewater Management Report' dated 7 June 2019 ('the Vision report') . The author of that report is no longer available and due to my previous involvement I was the logical replacement.

Discharge of Treated Stormwater to the CMA

7. The discharge to treated stormwater from the CMA specifically relates to the slipway formation which is marked as containment area C within the Vision report and drawings. I have reviewed the design of the stormwater treatment system by Vision and agree with their concept.

8. The stormwater discharge from the slipway will be managed by way of a new stormwater collection and treatment system before discharge to the CMA. The design of the Stormwater 360 treatment device has been conducted in accordance with the Humes design manual with surface run-off calculations in accordance with clause E1 of the Building Code. This has been based upon a slipway area of 218 m^2 (labelled as containment area C), bounded by block walls to divert surface flows from adjacent land and buildings away from the new slipway formation.

9. The Stormwater 360 device is designed to treat stormwater discharges up to 1.42 litres per second from the slipway. This treatment capacity is more than double the requirements of the advice note contained in proposed consent condition 60[1] which defines 'normal operating conditions' as rainfall intensities up to 10 mm/hr, which equates to a flow rate of 0.55 litres per second from the 218 m^2 slipway area.

10. By analysis of the HIRDS rainfall data contained on page 9 in the Vision report, the Stormwater 360 device can treat flows up to 26 mm per hour from a 218 m^2 slipway, which equates to a 1 % Annual Expected Probability;

[1] Section 42A Report, p 60

$$Q = \frac{C\ I\ A}{360} = \frac{0.9\ x\ (\frac{157}{6})\ x\ 0.0218}{360}\ x\ 1000 = 1.42\ litres/second$$

11. The system comprises a grated channel drain and cesspit at the toe of the slipway (10 m from the mean high water mark), discharging to a demand driven diversion valve. This valve will automatically direct wash down water (trade waste) to the public sanitary sewer system. Stormwater will automatically be directed to a stormwater treatment device (Stormfilter, being the Stormwater360 proprietary treatment device). The recommended position for the Stormfilter in this arrangement is below the grated channel drain, near the bottom of the reserve.

12. In review of the Thomson Survey drawing contained in Appendix A of the Vision report,[2] I noted that the slipway did not clearly demonstrate compliance with easements X and Y DP 487568, being the areas of Section 2 SO 68634 on which boat wash down and repair and maintenance activities are permitted. As such, I have worked with Thomson Survey to update their drawing to demonstrate compliance with the easement instrument. The resultant slipway is 6.7 m wide x 13 m long within Section 2 SO 68634 and 8 m wide x 11 m long within DOBY private property. This area is highlighted in yellow in the Thomson Survey plan 8095 titled "Doug's Opua Boatyard Proposed Containment & Stormwater Management" as amended on 13 July 2020 [**Attachment 1**]. The stormwater containment area remains at 218 m^2 in compliance with the Vision report.

13. The 13 July 2020 Thomson Survey plan also shows the discharge of stormwater from Catchment D to the south via a 300 mm culvert, as discussed in paragraphs 19 and 20 below. It should be numbered 4950A, and replace the plan contained in Appendix A to the Vision Report.

14. The concept plan for the treatment system shown in Appendix D to the Vision Report, includes a 600 mm diameter chamber for sampling to verify that the treatment satisfies the standards

[2] Application, p 487

required by condition 60. The use of a stormwater360 system is a widely accepted practice for treatment prior to discharge to the CMA and, based upon the information presented in the Vision report which I agree with, it will achieve a suitable level of treatment for copper, zinc, lead and total suspended solids.

15. In my opinion, the separation of surface flows from entering the vessel working areas, and location of the Stormfilter near the bottom of the slipway that relies on gravity is the recommended solution. The solution proposed is robust because it relies on gravity for stormwater discharges and removes potential for human error with automatic redirection of trade waste to the sewer system.

Stormwater Management regime

16. The Vision report notes that stormwater generated within Catchments A, B, and D are considered to be natural runoff (clean water) and not affected by the activities within the contained area of the slipway. These flows will discharge directly into the CMA. Catchment A and B will discharge to the north of the slipway via a 450 mm culvert and overland flow path, with the outfall extended some 20m along the wharf to discharge into water at all times.[3]

17. The 450 mm culvert to the north has been designed by Vision to better convey surface water flows from catchment areas A and B through the site. The 450 mm culvert has been calculated by Vision to have adequate capacity for the 10% and 1% Annual Expected Probability events. Whilst this culvert may have capacity for extreme rainfall, provision for blockage should also be made, in which case a secondary flow path has also been accounted for. I note that this 450mm culvert has now been installed as far as the prior outfall.

Catchment D

18. The stormwater management regime to the south, as proposed at the time of lodgement, is shown on the Thomson Survey drawing in Appendix A of the Vision report.[4] This shows parapet walls around the slipway formation, to divert surface flows away from the

[3] Vision Report, Appendix C **[Application pp 492-493]**
[4] Ibid, Appendix A **[Application p 487]**

slipway. To achieve this, catchment Area D is shown to discharge to the south to an overland flow path in the vicinity of the dinghy rack. Subsequently, FNDC has advised DOBY that it will not permit increased overland flow across the reserve, hence DOBY has installed a 300 mm culvert to service area D.

19. Thomson Survey plan 8095 titled "Doug's Opua Boatyard Proposed Containment & Stormwater Management" as amended on 13 July 2020 (my Attachment 1) shows a 300 mm culvert under the reserve (Section 3 SO 68634) to manage primary flows from catchment Area D. While no formal written approval has been given, DOBY has had discussions with FNDC about the culvert. DOBY accepts that it is responsible for obtaining any consents, approvals or easements required for this new culvert. DOBY also understands and accepts that it will be required to revert to the stormwater plan for the management of flows from Catchment D currently before the Environment Court should those necessary approvals not be obtained.

20. The plan currently before the Environment Court is the Thomson Survey plan 8095 titled "Doug's Opua Boatyard Proposed Containment & Stormwater Management" as amended on 26 May 2020 [**Attachment 2**]. That plan directs the discharge from Catchment D under the slipway and to the 450 mm culvert within Section 2 SO 68634. In my opinion, should the required consents, approvals or easements for the 300 mm culvert not be forthcoming, consent could be granted in accordance with the plan currently before the Environment Court.

Conditions of Consent

21. I have reviewed the Councils s42A report with specific regard to stormwater discharges and generally agree with the summary presented in section 7.4 by Mr Hartstone.

Conditions 59 and 60

22. I have reviewed proposed conditions of consent numbered 59 to 60 as contained in AUT.041365.13.01 – Discharge Treated

Stormwater to the Coastal Marine Area. I consider the proposed conditions to be generally appropriate.

Condition 58

23. I have also reviewed proposed condition 58 as contained in AUT.04AUT.041365.13.01, AUT.041365.14.01 and AUT.041365.15.01 – Discharge Stormwater and Discharges to Land and Air. I consider some modification is required in order to reflect the updated Thomson Survey drawings referred to in my evidence, and to correctly identify the position of the stormwater outfall at the wharf.

24. Condition 58 relates to the installation and configuration of the Stormwater 360 and associated reticulation. As discussed in paragraph 19 above, formal written approval to the installed culvert from Catchment D, as shown in the plan now numbered 4950A [my attachment 1], is not currently held by DOBY. Whilst it is expected that written approval will be forthcoming, I suggest that, to avoid unnecessary administrative processes in the event that formal approval is not obtained, the plan before the Environment Court be given a number (say 4950B, my attachment 2) and condition 58 be written in the alternative, as follows:

"58. Prior to the exercise of these consents, a washwater collection and proprietary stormwater treatment system shall be constructed in accordance with the design identified in the Vision Consulting Limited Report dated 7 June 2019, and shall be configured in accordance with the attached Thomson Survey plan referenced as 4950A (or in the alternative, the Thomson Survey Plan dated 26 May 2020 referenced as 4950B), and Vision Consulting Limited drawing referenced as Northland Regional Council Plan Number 4955."

25. The stormwater outfall at the wharf sought in this consent is to extend the 450 mm culvert a further 20 m east to discharge at the base of the new dredged area. The proposal to extend the stormwater outfall in the CMA is to avoid erosion to the foreshore and the proposed new dredging area. The position of the outfall is shown on Total Marine drawing APP-039650-01-01 Sheet 0002

'General Structural Arrangement' and dated 28 May 2020. I recommend the outlet 20 m to the east is added to the Thomson Survey plans referenced as 4950A and 4950B, alternatively the following could added to consent condition 58;

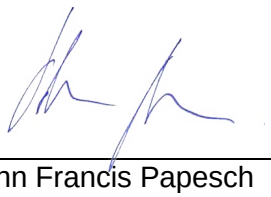
'…and Total Marine Limited drawing referenced as Northland Regional Council Plan Number 4953/2**.'**

Conclusions

26. As a result of the reconstruction works, the slipway will be concreted, and stormwater from the adjacent non working areas, some of which formerly drained to the slipway, will be diverted around the perimeter by vertical block walls. Application for emergency discharges is no longer required, subject to the position of the stormwater quality treatment system being located near the bottom of the slipway on the Reserve. The location of the stormwater quality treatment system is currently before the Environment Court.

27. The reduction in vessel working area contained in this application will reduce the quantity of trade waste discharges and stormwater discharges from working surfaces. The proposed reconstruction coupled with installation of a stormwater quality treatment system located near the bottom of the slipway on the Reserve will provide a robust, modern working boat yard with minimised potential for uncontrolled discharges to the CMA.

28. The proposed new DOBY discharge consent reflects best practice and will undoubtedly result in improvements relative to the existing discharge. The net effects of the stormwater improvements associated with the redevelopment are positive.



John Francis Papesch

Dated this 20th day of July 2020

ATTACHMENT 1 - PROPOSED DRAWING 4950A

SECTION 3
BLK XXXII OPUA
NA21C/265
D C SCHMUCK
C E SCHMUCK

SECTION 1
SO 68634
NA121C/187
FNDC
(ESPLANADE RESERVE)

SECONDARY FLOW PATH

WASTEWATER ATTENUATION TANKS

ROAD CULVERT 375 DISCHARGE INTO PROPERTY

EXISTING DRAIN

EXISTING CULVERT 400

EXISTING CATCHPIT

150 OUTLET

100DIA

EXISTING BOAT SHED

MANHOLE TO BE INSTALLED WITH GRATED CATCHING LID

CTS

CATCH PIT

NEW 450 CULVERT

PROPOSED UNDERGROUND STORMWATER 360 TREATMENT & CONTROL

MHWS

EXISTING DISCHARGE POINT

10m FROM MHWM

SECTION 2
SO 68634

6.7m

300 dia

CATCHMENT GRATES

CATCH PIT

150dia SW

CATCH PIT

150dia SW

CATCH PIT

300dia SW

SECTION 2
BLK XXXII OPUA
NA21C/265
D C SCHMUCK
C E SCHMUCK

EXISTING BLOCK WALL

PROPOSED SW DEFLECTION WALL 0.5m HIGH CONCRETE

FILL AREA

GABION

PROPOSED SW DEFLECTION WALL 0.5m HIGH CONCRETE

SECONDARY FLOW PATH

EXISTING OVERLAND FLOW PATH

CTS & CSW COMBINED CONTAINMENT STRUCTURE

SECTION 3
SO 68634

EXISTING PEDESTRIAN PATH

EXISTING MARINE DISCHARGE POINT

EXISTING BLOCK WALL

RICHARDSON STREET

10.0

LEGEND

- PROPOSED 1050 dia MANHOLE
- PROPOSED CATCHPIT
- PROPOSED STORMWATER PIPE
- PROPOSED CONTAINMENT & RETAINING WALL
- EXISTING CULVERT
- UNACCUMUALTED STORMWATER RUNOFF
- ACCUMULATED STORMWATER RUNOFF DIRECTION / SECONDARY FLOW PATH
- CONTAMINATED WATER RUNOFF DIRECTION
- VESSEL WORKING AREA
- CONTAINMENT AREA

CSW = CONTAINMENT OF STORM WATER

CTS = CONTAINMENT TREATMENT SYSTEM

This drawing has been prepared solely for the use intended by the client stated on the plan, and must not be used for any other purpose. Thomson Survey Ltd accepts no responsibility for this plan, or any data contained on this plan, to be used for any other purpose.

LEVEL DATUM: MEAN SEA LEVEL (ONE TREE POINT)
LEVEL ORIGIN: BM DB 84 SO 49470 (A1E9) RL 3.41m
(ADD 1.4m TO EQUAL CHART DATUM)
OPUA RECORD MHWS LEVEL 1.1m (2.5m CHART DATUM)

PROPOSED SITE CONTOURS SHOWN
CONTOUR INTERVAL 0.5m MINOR, 2.5m MAJOR

DOUGS OPUA BOAT YARD, OPUA

0 . 5 10 20 25 m
Bar Scale

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Registered Land Surveyors, Planners & Land Development Consultants

DOUGS OPUA BOAT YARD PROPOSED CONTAINMENT & STORMWATER MANAGEMENT

	Name	Date
Survey	SH	2017
Design		
Drawn	SL	17.12.18
Approved		
Rev	SL	13.07.2020

ORIGINAL
SCALE 1:250
SHEET SIZE A3

Surveyors Ref. No: 8095

8095/ENGINEERING/D9/SW PLAN 26.05.2020.lcd

ATTACHMENT 2 - PROPOSED DRAWING 4950B
[CURRENTLY BEFORE THE ENVIRONMENT COURT]

SECTION 3
BLK XXXII OPUA
NA21C/265
D C SCHMUCK
C E SCHMUCK

SECTION 1
SO 68634
NA121C/187
FNDC
(ESPLANADE RESERVE)

SECTION 2
SO 68634

SECTION 3
SO 68634

SECTION 2
BLK XXXII OPUA
NA21C/265
D C SCHMUCK
C E SCHMUCK

10.0

7.5

SECONDARY FLOW PATH

WASTEWATER ATTENUATION TANKS

MANHOLE TO BE INSTALLED WITH GRATED CATCHING LID

CTS

NEW 450 CULVERT

PROPOSED UNDERGROUND STORMWATER 360 TREATMENT & CONTROL

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ROAD CULVERT 375 DISCHARGE INTO PROPERTY

EXISTING DRAIN

EXISTING CULVERT 400

100DIA

150 OUTLET

EXISTING BOAT SHED

6.7m

300 dia

CATCHMENT GRATES

EXISTING DISCHARGE POINT

10m FROM MHWS

CATCH PIT

150dia SW

INSPECTION CHAMBER

EXISTING BLOCK WALL

PROPOSED SW DEFLECTION WALL 0.5m HIGH CONCRETE

FILL AREA

GABION

CTS & CSW COMBINED CONTAINMENT STRUCTURES

EXISTING PEDESTRIAN PATH

EXISTING MARINE DISCHARGE POINT

EXISTING OVERLAND FLOW PATH

RICHARDSON STREET

LEGEND

- PROPOSED 1050 dia MANHOLE
- PROPOSED CATCHPIT
- PROPOSED STORMWATER PIPE
- PROPOSED CONTAINMENT & RETAINING WALL
- EXISTING CULVERT
- UNACCUMUALTED STORMWATER RUNOFF
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0 5 10 20 25 m
Bar Scale

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DOUGS OPUA BOAT YARD PROPOSED CONTAINMENT & STORMWATER MANAGEMENT

	Name	Date
Survey	SH	2017
Design		
Drawn	SL	17.12.18
Approved		
Rev	SL	26.05.20

ORIGINAL
SCALE 1:250
SHEET SIZE A3

Surveyors Ref. No: 8095

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