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21 Oct 2021

Ref: 170095 -CV-LE01-1

Matthew Giddy
GIDDIS Project Management
via Email mattgiddy@giddis.com.au

Dear Matthew ,

Re: – 17-23 Talavera Road Macquarie Park - Realignment of Drainage Easement

Further to our meeting with City of Ryde, held on-line on 21 October 2021 at 2pm we have summarised the options presented to Council regarding realignment of the 3.5m wide easement for drainage currently traversing the site. Three (3) alternate alignments were presented, all of which were located outside of the proposed building's footprint. The attached diagram SK100 Rev 4 details possible alternate alignments.

Option 1 which follows the alignment of an easement for drainage, benefiting Council, created in response to a development consent condition for LDA/2018/0322, will fall within the undercroft area of the proposed building. Council have stated they are not supportive of this outcome, leaving Options 2, 3, 4A and 4B as alternative alignments.

Council requested a modification to the Option 2 alignment which accommodates future works within upstream sites. Option 2 as described on the attached drawing presents the alignment meeting Council's request. Feasibility, of this alignment is still subject to review of impacts caused by existing in ground services.

Northrop has undertaken a preliminary hydraulic analysis of each option to assess viability. A summary of analysis is presented below.

Design Storm - 1%AEP 2 Hour Duration Storm (peak flow)

Design Flow - 6.1 m^3 / s (within pipe) - taken from flood report.

Tail Water - Downstream controlled, Tail water assumed to be 1% AEP flood level in Talavera Road.

Velocity in Pipe - 1.76 m / s

Flow in Ø1800 - 5.7 m^3 / s - noted for comparison

Our analysis showed a similar flow capacity (or hydraulic performance) was achieved in all realignment options to that of the existing Ø1800 and caused no changed to flood behavior.

The following benefits and constraints of each option were reviewed during the meeting.

Alignment Option	Benefit	Constraint
1	• Shortest alignment path. • Avoids realignment of Sydney Water Sewer. • No disturbance to existing trees in northwest corner. • Provides equivalent hydraulic performance when compared to Ø1800 pipeline.	• Alignment reliant on easements in private land. • Part of alignment located in building under croft. • Trench depths of up to 6m.
2	• Provides equivalent hydraulic performance when compared to Ø1800 pipeline. • Pipeline located outside of building footprint.	• Requires removal of approx. 14 mature high value trees in northwest corner of site. • Adjustment of Sydney Water Sewer likely to be required. • Trench depths of up to 6m. • Alignment reliant on easements / access in private land. •
3	• Allows a portion of the pipeline to be located within public roadways. • Provides equivalent hydraulic performance when compared to Ø1800 pipeline. • Pipeline located outside of building footprint.	• Requires removal of approx. 14 mature high value trees in northwest corner of site. • Trench depths of up to 6m. • Reliant on Road 1 being activated. • Adjustment of Sydney Water Sewer required.
4A	• Allows a portion of the pipeline to be located within public roadways. • Provides equivalent hydraulic performance when compared to Ø1800 pipeline. • Pipeline located outside of building footprint. • No disturbance to 14 existing trees in northwest corner.	• Trench depths of up to 6m. • Reliant on Road 22 being activated. • Adjustment of Sydney Water Sewer required.
4B	• Entire pipeline located within public roadways. (i.e., avoids easements in private land) • Provides equivalent hydraulic performance when compared to Ø1800 pipeline. • Pipeline located outside of building footprint. • No disturbance to 14 existing trees in northwest corner.	• Trench depths of up to 6m. • Reliant on Road 1 & 22 being activated. • Adjustment of Sydney Water Sewer required.

Council were generally in agreeance that each of the options were feasible form a hydraulic and flooding viewpoint. However, Option 3, 4A and 4B options are reliant on the future road network being dedicated to Council subject to coordination with existing services, in particular the Sydney Water sewer.

The future roadways offer a desirable outcome for Council as it allows Council infrastructure to be located wholly outside of private land.

Further consultation with Council is required as both planning and commercial matters in addition to engineering matters need to be considered before final agreement can be reached.

I trust you find this satisfactory at this stage. Feel free to discuss any aspect with me.

Yours faithfully,

Stephen Fryer
Parramatta Office Leader / Principal / Civil Engineer
BE(Civil) MIEAust CPEng NER

Attachment: Drawing SK100 Rev 4 Ø1800 Stormwater Trunk Main Realignment Options

OPTION	PIT ALIGNMENT (U/S TO D/S)
1	A, B, C, D
2	O, E, F, G
3	H, I, J, G
4A	A, I, M, N
4B	H, K, L, N

PIPE DESIGN FLOW (1% AEP) = 6.1m3/s

EXISTING BUILDING

PROPOSED BUILDING OVER

FUTURE ROAD 22 (14m WIDE)

FUTURE ROAD 1 (20m WIDE)

TALAVERA ROAD

SITE BOUNDARY - MAINTAIN EXISTING RAILINGS/ FENCE

PROPOSED FENCE TO MATCH EXISTING

5000

BUILDING SETBACK

FUTURE EAST LOADING DOCK AWNING

CAR PARK ZONE

NEW DOCK HOIST

FIRE TANK 124 m²

MAINTAIN EXISTING RAILINGS + FENCE

EXISTING DATA CENTRE IC2

ELECT PLANT 68 m²

WATER TANK ZONE 384 m²

WASTE BIN ZONE

EXTENT OF LEVEL 1 PLANT AREA ABOVE

WESTERN ENTRY

PROPOSED GATE LINE

EXISTING CENTRAL CONCRETE WALL TO BE REMOVED

NEW HMC + MDC 103 m²

STORAGE 45 m²

LIFT 16 m²

LOBBY 85 m²

RL +51.888

EXTENT OF BUILDING ABOVE

WHEELCHAIR CAR SPACE

STAIR 27 m²

LOADING DOCK EXIT

BIKE ST + CHARGING STATION

TX ROOM 78 m²

TX ROOM 60 m²

TX ROOM 75 m²

TX ROOM 94 m²

FIRE MISTING AND CONTROL VALVE ROOM 63 m²

BIKE ST

EXISTING 2 x Ø 1200

EXISTING PIT SL 47.173 IL 45.050

10000

SL 47.650 IL 45.172

PIT N

PIT G

SL 47.173 IL 44.975

EXISTING STAND OF MATURE TREES

EXISTING Ø1800 STORMWATER TRUNK MAIN

Ø225 VC SEWER

SL 52.40 IL 48.250

SL 52.30 IL 48.150

PIT O

PIT H

PIT A

SL 53.40 IL 48.315

OPTION 1
Ø2100 IN EXISTING 4.5 m WIDE EASEMENT

PIT B

Ø2100 RCP @ 1.28%

Ø225 VC SEWER

OPTION 3
Ø2100 DIVERSION IN ROAD 1 AND 4.5m WIDE EASEMENT

EASEMENT FOR DRAINAGE 4.5m WIDE CREATED UNDER LDA LDA2018/322

Ø300 VC SEWER

PIT C

PIT D

SL 52.50 IL 47.373

PIT E

SL 53.75 IL 47.567

PIT I

OPTION 2
Ø2100 DIVERSION IN 4.5m WIDE EASEMENT

OPTION 4A
Ø2100 EXTENSION FROM OPTION 2

OPTION 4B
Ø2100 DIVERSION IN ROAD 1 AND ROAD 3

SL 52.50 IL 47.194

PIT F

Ø2100 RCP @ 1.5%

Ø2100 RCP @ 1.28%

PIT J

PIT K

Ø2100 RCP @ 1.28%

2100 x 1500 RBC @ 1.2%

OPTION 4A
2100 X 1500 BOX CULVERT TO PROVIDE ADEQUATE COVER AT CONNECTION POINT IN TALAVERA ROAD

PIT M

OPTION 4B
2100 X 1500 BOX CULVERT TO PROVIDE ADEQUATE COVER AT CONNECTION POINT IN TALAVERA ROAD

PIT L

SL 54.16 IL 47.339

VERIFIER:

JOB MANAGER: SRF

DESIGNED: JG & SRF

DRAWN: JG

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1	xx	xx	xx	xx	xx

CLIENT: **MAQUARIE DATA**

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ARCHITECT: **HDR**

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PROJECT: **IC3 SUPER WEST**

DRAWING TITLE: **Ø1800 STORMWATER TRUNK MAIN REALIGNMENT OPTIONS**

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DRAWING NUMBER: **SK-100**

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