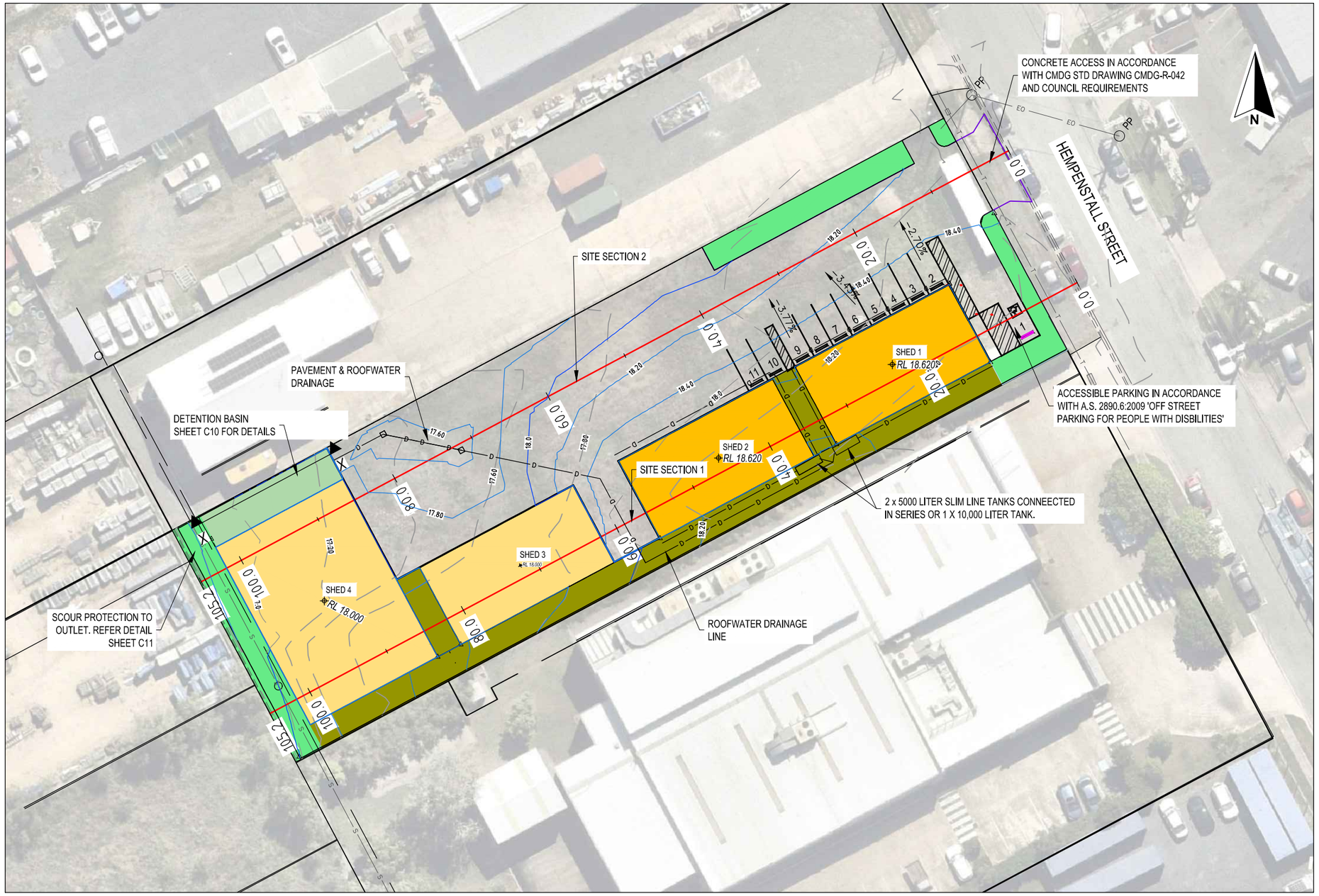
LEGEND

- PROPOSED STORMWATER PIPE AND PIT
- PROPOSED DRAIN LINE
- EXISTING TELSTRA (CABLE & PIT)
- EXISTING OVERHEAD ELECTRICITY & POWER POLE
- EXISTING EASEMENT
- EXISTING ROAD KERB AND CHANNEL
- EXISTING SEWER MAIN
- SECTION XX THROUGH DETENTION BASIN
- PROPOSED BUILDING STAGE 01
- PROPOSED BUILDING STAGE 02
- PROPOSED CONCRETE PAVEMENT
- PROPOSED LANDSCAPING
- 50MM ROCK MULCH
- DETENTION BASIN

GENERAL NOTES:

1. 0.5% MINIMUM GRADE, 1% DESIRABLE ON ALL CONCRETE SURFACES.
2. REFER CMDG STANDARD DRAWING CMDG-R-042 FOR CROSSOVER DETAIL
3. REFER DRAWING D24.054 - C04 TO C05 FOR SITE PROFILES & SECTIONS
4. REFER DRAWING D24.054 - C07 FOR EARTHWORKS PLAN
5. REFER DRAWING D24.054 - C08 FOR ACCESS AND PARKING PLAN
6. REFER DRAWING D24.054 - C11 FOR STORM WATER LAYOUT PLAN
7. REFER DRAWING D24.054 - C13&14 FOR EROSION AND SEDIMENT CONTROL PLAN & NOTES



PROPOSED LAYOUT

ROCKHAMPTON REGIONAL COUNCIL

APPROVED PLANS

These plans are approved subject to the current conditions of approval associated with

Development Permit No.: **D/93-2024**

Dated: **29 October 2024**

DATUM: HORIZ. GDA 94 VERT. AHD

0 2.5 5 7.5 10 VERTICAL 1:500

SCALES m FULL SIZE A3

OPERATIONAL WORKS ISSUE

FOR CONSTRUCTION ONLY WITH COUNCIL APPROVAL

REV	REVISION DESCRIPTION	DATE
A	FOR DISCUSSION	03/05/2024
B	FOR APPROVAL	12/06/2024
C	MINOR AMENDMENTS	27/062024
D	PIPE LAYOUT AMENDED	10.09.2024

DILEIGH
CIVIL / STRUCTURAL DESIGN & PROJECT MANAGEMENT
ACN 121 309 171
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Yeppoon, Queensland 4703
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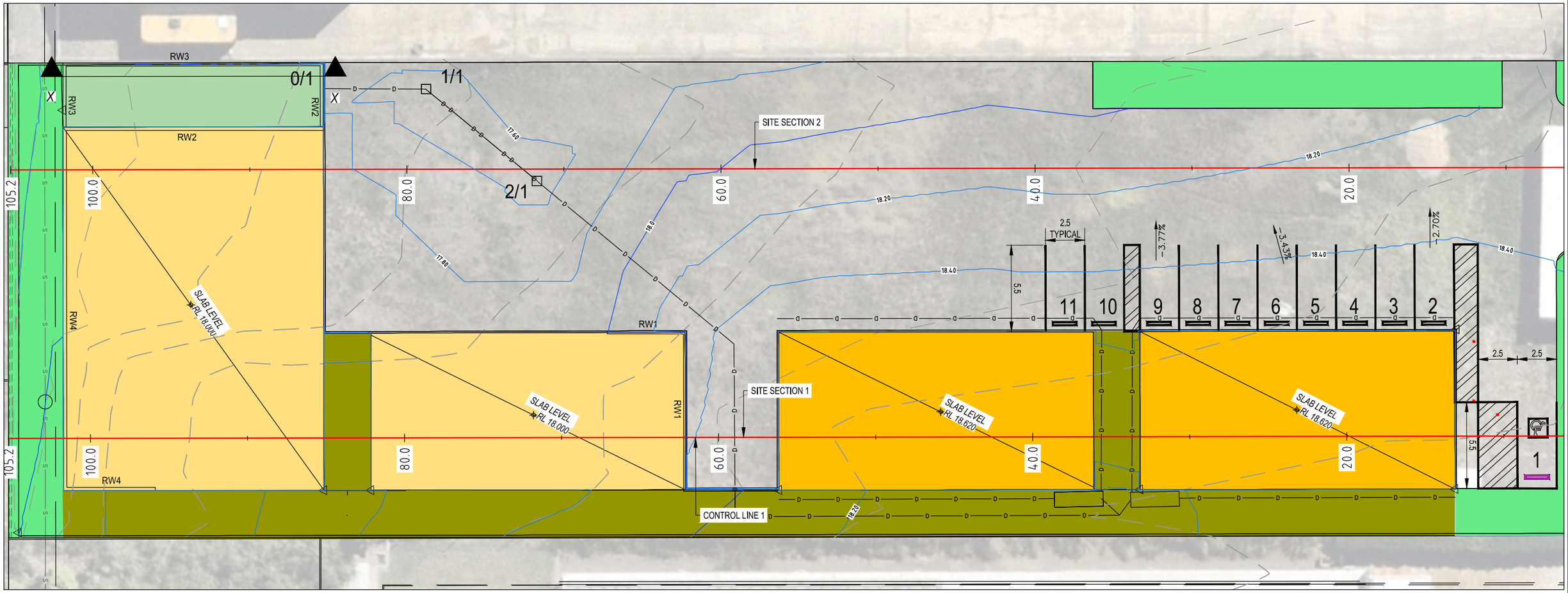
DRAFTED	CWR
DESIGNED	SJG
CHECKED	ACD
APPROVED	G J BROWN
RPEQ 7682	SIGN
11.09.2024	

NOVUS LOGISTICS
NEW WAREHOUSE AND OFFICE
11-13 HEMPENSTALL STREET, KAWANA QLD 4701
OPERATIONAL WORKS
PROPOSED LAYOUT

DWG No. D24.054-C02

CIVIL

REVISION D



SITE SET OUT PLAN

LEGEND

- PROPOSED STORMWATER PIPE AND PIT
- PROPOSED DRAIN LINE
- EXISTING TELSTRA (CABLE & PIT)
- EXISTING OVERHEAD ELECTRICITY & POWER POLE
- EXISTING EASEMENT
- EXISTING ROAD KERB AND CHANNEL
- EXISTING SEWER MAIN
- 12.0 PROPOSED CONTOUR
- 60.00 PROPOSED DESIGN ELEVATION SPOT LEVELS
- SECTION XX THROUGH DETENTION BASIN

- EXISTING BUILDING
- PROPOSED BUILDING STAGE 01
- PROPOSED BUILDING STAGE 02
- PROPOSED CONCRETE PAVEMENT
- PROPOSED LANDSCAPING
- 50MM ROCK MULCH
- DETENTION BASIN

NOTES:

1. ALL LEVELS SHOWN TO FINISHED SURFACE LEVEL.
2. REFER ARCHITECTS PLANS FOR BUILDING SET OUT.
3. REFER TO D24.054-10 FOR MASONRY DETAILS INCLUDING SECTION X-X THROUGH DETENTION BASIN
4. REFER DRAWING D24.054 - C04 TO C05 FOR SITE PROFILES & SECTIONS

Point Table		
Description	Easting	Northing
2/1	245430.660	7416905.412
1/1	245421.644	7416907.280
1/1	245415.890	7416904.201

ROCKHAMPTON REGIONAL COUNCIL

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0 1.25 2.5 3.75 5 HORIZONTAL 1:250

SCALES m FULL SIZE A3

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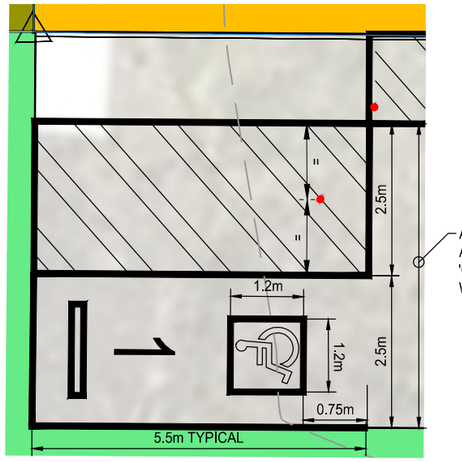
RPEQ 7682	SIGN
11.09.2024	

NOVUS LOGISTICS
NEW WAREHOUSE AND OFFICE
11-13 HEMPENSTALL STREET, KAWANA QLD 4701
OPERATIONAL WORKS
SETOUT PLAN

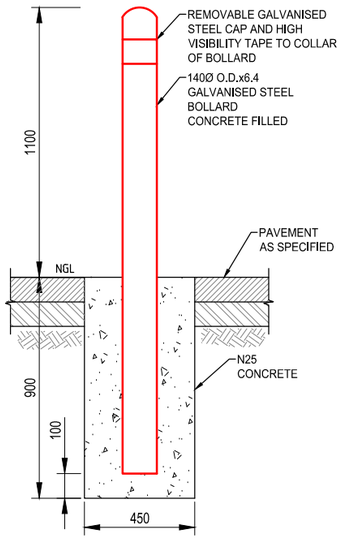
DWG No. D24.054-C03
CIVIL
REVISION D



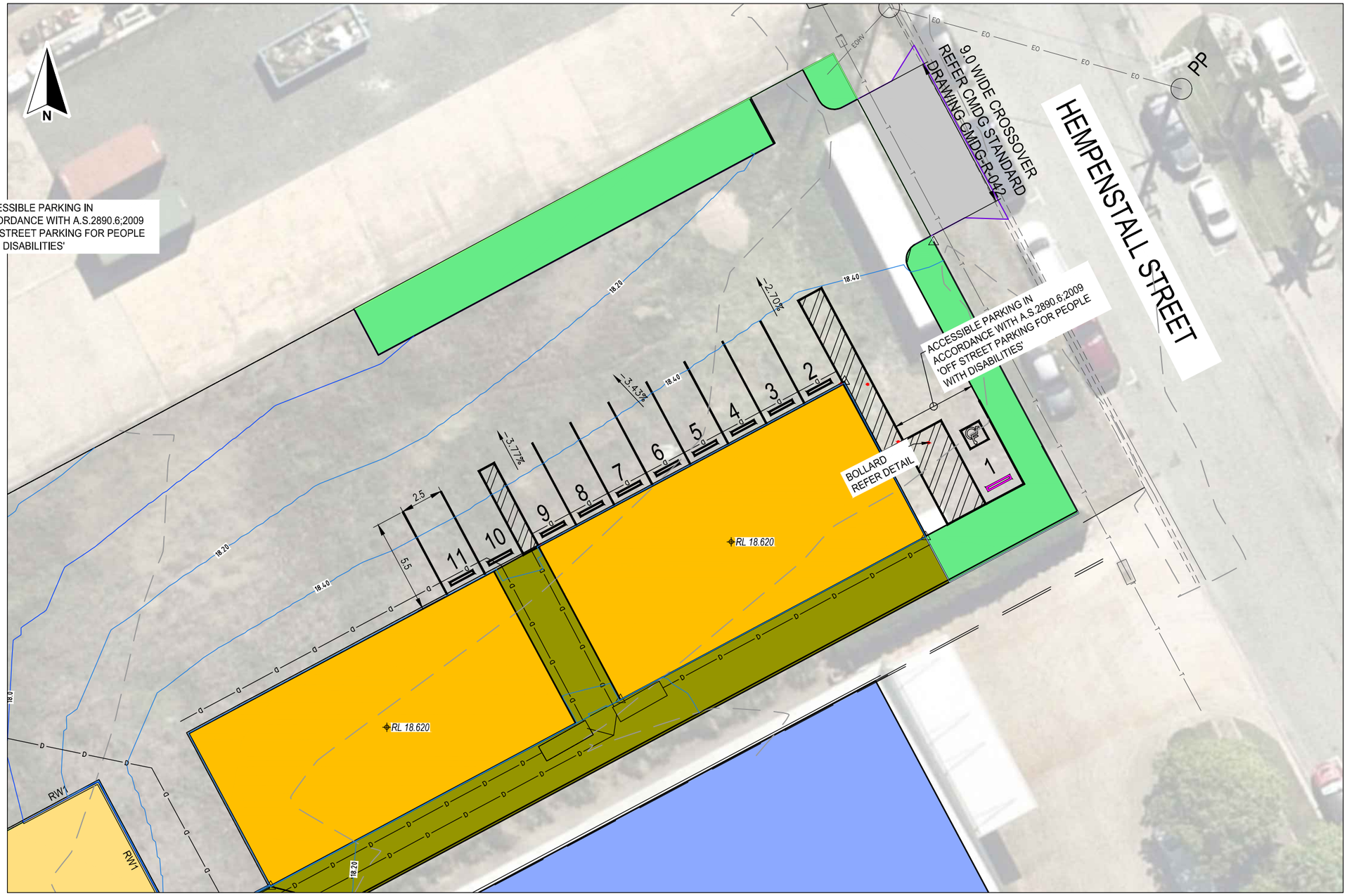
ACCESSIBLE PARKING IN ACCORDANCE WITH A.S.2890.6;2009 'OFF STREET PARKING FOR PEOPLE WITH DISABILITIES'

ACCESSIBLE PARKING AND PARKING BAY LAYOUT

SCALE 1:100



BOLLARD DETAIL



ACCESS & PARKING PLAN

LEGEND

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- PROPOSED DRAIN LINE
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ROCKHAMPTON REGIONAL COUNCIL

APPROVED PLANS

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0 1.25 2.5 3.75 5 HORIZONTAL 1:250

SCALES @ FULL SIZE A3

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NOVUS LOGISTICS
NEW WAREHOUSE AND OFFICE
11-13 HEMPENSTALL STREET, KAWANA QLD 4701
OPERATIONAL WORKS
ACCESS AND PARKING

DWG No. D24.054-C08

CIVIL

REVISION C

2024

DILEIGH
CIVIL / STRUCTURAL DESIGN & PROJECT MANAGEMENT

Adam Doherty

ROCKHAMPTON REGIONAL COUNCIL

APPROVED PLANS

These plans are approved subject to the current conditions of approval associated with

Development Permit No.: D/93-2024

Dated: 29 October 2024

PROPOSED WAREHOUSE AND OFFICE, 11-13 HEMPENSTALL STREET, KAWANA

STORMWATER MANAGEMENT REPORT

FOR NOVUS LOGISTICS

D24.045-RP01

NOVUS LOGISTICS

STORMWATER MANAGEMENT PLAN

PROPOSED WAREHOUSE AND OFFICE, 11-13 HEMPENSTALL STREET, KAWANA

Document History & Status

REVISION	DATE	ISSUED TO	DESCRIPTION	BY	APPROVED
A	12/06/2024	Designtek / Novus Logistics	For Comment / Coordination	AD	GB
B	10/09/2024	Rockhampton Regional Council	Information Request response	AD	GB

Prepared By

Adam Doherty
Engineer

Reviewed By

Glenn Brown
Engineering Director
RPEQ 7682

Dileigh Consulting Engineers Pty Ltd
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Australia

Telephone: +61 7 4911 2553
Email: reception@dileigh.com.au

Date: 10/09/2024
Reference: D24.054-RP01

TABLE OF CONTENTS

1. Introduction

This report was prepared for Novus Logistics in support of a proposed development to the subject site at 11-13 Hempenstall Street, Kawana QLD 4703. This report should be read in conjunction with the overall application relating to this project. The proponent is seeking approval to develop the lot with a proposed Warehouse and Office operation.

2. Existing Stormwater Conditions

2.1 Internal and Local Government Catchments

2.1.1 Development Site Catchment

The subject area is currently undeveloped and consists of light grass cover with patches of bare earth. The site is practically flat, with average falls of approximately 0.5 to 1% toward the Western boundary to a drainage and services easement where flows are captured in an overland channel which is formed by a concrete barrier kerb and channel. The easement drains to the North towards Frenchman's Creek.

Based on the average flow path slope and assumed fraction impervious of the site, an overall time of concentration (Tc) of 19 minutes has been adopted.

Friends Equation (Eq 4.5) - Shallow overland sheet flow				
L	Surface	n	S	tc
m		Mannings	%	minutes
142	Poorly Grassed	0.035	1.1	19

Table 1

The existing area has a fraction impervious of 0 (zero) in accordance with QUDM Table 4.5.1 and a corresponding C10 value of 0.70 in accordance with QUDM Table 4.5.4 - C10 values for zero fraction impervious.

Utilising a Tc of 19 minutes and the relevant rainfall intensities, the following discharges for a range of events were calculated using the C10 value of 0.70 where Qy=C*I*A/360 for the existing site.

PRE-DEVELOPMENT SITE CONDITIONS

Development Area **0.3039** ha

AEP	C	I	A	Q
%	coefficient	mm/hr	ha	m^3/s
63.2	0.560	73.6	0.304	0.035
50	0.595	81.8	0.304	0.041
20	0.665	108.0	0.304	0.061
10	0.700	127.0	0.304	0.075
5	0.735	146.0	0.304	0.091
2	0.805	173.0	0.304	0.118
1	0.840	193.0	0.304	0.137

In accordance with QUDM Eqn. 4.3

Fi	0.000
$^1I_{10}$ (mm/hr)	65.1
TC (minutes)	19
C_{10}	0.700

From QUDM Table 4.5.4

Table 2

Refer drawings in Appendix A for Stormwater Management Strategy Drawings.

2.2 External Catchments

2.2.1 Existing External Catchment

The existing drainage easement commands flows from two properties to the South, being Lot 57 and Lot 2. It is assumed that the existing easement is appropriately sized for the upstream flows, with the easement being maintained and the subject site not releasing any additional flows to the easement post development the easement will continue to convey the upstream catchment flows as it does in the pre-developed scenario.

Table 1 – Extent of existing upstream catchment

3. Post Developed Site Flows and Management

3.1 Post Developed Flows

The proposed development of the site increases the fraction impervious to a value of 0.796 based on information provided by the applicant. Using the post developed fraction impervious, a C_{10} value of 0.849 (From QUDM Table 4.5.3) was adopted.

As this is a commercial site with a reasonably high Impervious area a single time of concentration of 5 minutes was adopted for all elements of the post development calculations.

Based on the revised fraction impervious and revised time of concentration the following discharges from site were calculated:

POST-DEVELOPMENT SITE CONDITIONS

Development Area **0.3039** ha

AEP	C	I	A	Q
%	coefficient	mm/hr	ha	m^3/s
63.2	0.679	115.0	0.3039	0.0659
50	0.722	128.0	0.3039	0.0780
20	0.806	170.0	0.3039	0.1157
10	0.849	200.0	0.3039	0.1433
5	0.891	229.0	0.3039	0.1723
2	0.976	268.0	0.3039	0.2209
1	1.000	300.0	0.3039	0.2533

Fi	0.796
$^1I_{10}$ (mm/hr)	65.1
TC (minutes)	5
C_{10}	0.849

From QUDM Table 4.5.3

In accordance with QUDM Eqn. 4.3

Table 5

When compared with the pre-developed total site flows, we note an increase in flow for all recurrence intervals. Refer table below:

COMPARISON OF UNTREATED FLOWS			
Event AEP	**Pre-Development**	**Post-Development**	**Change**
%	**m^3/s**	**m^3/s**	**%**
63.2	0.0348	0.0659	89%
50	0.0411	0.0780	90%
20	0.0606	0.1157	91%
10	0.0750	0.1433	91%
5	0.0906	0.1723	90%
2	0.1176	0.2209	88%
1	0.1369	0.2533	85%

Table 6

3.2 Discharge Flow Management

3.2.1 Quantity Mitigation

It is proposed to mitigate the increase in site runoff by providing on-site detention (OSD) capturing all post developed internal site flows from impervious areas.

Two OSD devices are proposed, 1 x 10kL rainwater tank (or two 5kL tanks in series) capturing roof water from Shed 1 & 2 which will discharge through an orifice outlet of 60mm diameter to kerb and channel in Hempinstall Street. The larger detention basin that will be constructed in the lower Northwestern corner of the development area, adjacent to shed 4 and will receive all flows from Shed 3 & 4 and all impervious areas.

Both OSD have been analysed for a range of events from 50% AEP through to a 1% AEP using Autodesk Hydra flow Hydrographs. The maximum required storage volume of 43.7 kL is required for the detention basin and 10kL for the detention tank.

With the above detention in place a total site discharge reduction was achieved over all events except for the 1% AEP, which has a 1% increase. However, with the roof area from shed 1 & 2 being routed through the detention tank and discharging to Hempenstall Street an overall reduction to the rear of the site was achieved for all events including

Post Developed Treated Flows									
Event AEP	Pre-Dev	Post-Dev	- routed tank inflow	+ routed tank outflow to Hempenstall street	- routed basin in.	+ Routed basin out	Total Discharge	Entire Site Post Dev Discharge	Rear Of Site Post Dev Discharge
%	m3/s	m3/s	m3/s	m3/s	m3/s	m3/s	m3/s	m3/s	m3/s
50	0.041	0.0780	0.0109	0.004	0.055	0.018	0.0341	-17%	-27%
20	0.061	0.1157	0.0162	0.005	0.0814	0.023	0.0462	-24%	-32%
10	0.075	0.1433	0.0200	0.005	0.1	0.032	0.0603	-20%	-26%
5	0.091	0.1723	0.0240	0.006	0.121	0.045	0.0783	-14%	-20%
2	0.118	0.2209	0.0298	0.006	0.15	0.066	0.1131	-4%	-9%
1	0.137	0.2533	0.0333	0.007	0.1670	0.079	0.1389	2%	-4%

Table 7

Refer to Appendix B for routing Hydrographs.

3.3 Stormwater Quality Management

Due to the size of the development (>2500m^2), State Planning Policy Healthy Water is triggered.

A water quality model was developed using the MUSIC stormwater quality software. The treatment train consists of the following measures.

- Ecosol Net Guard (GPT) on the inlet to the detention basin.
- Enviro Australis E30 unit to roofwater line
- Roof water and impervious area detention basin(s).
- Rock Mulch (pervious) treatment to the Southern perimeter of the site.

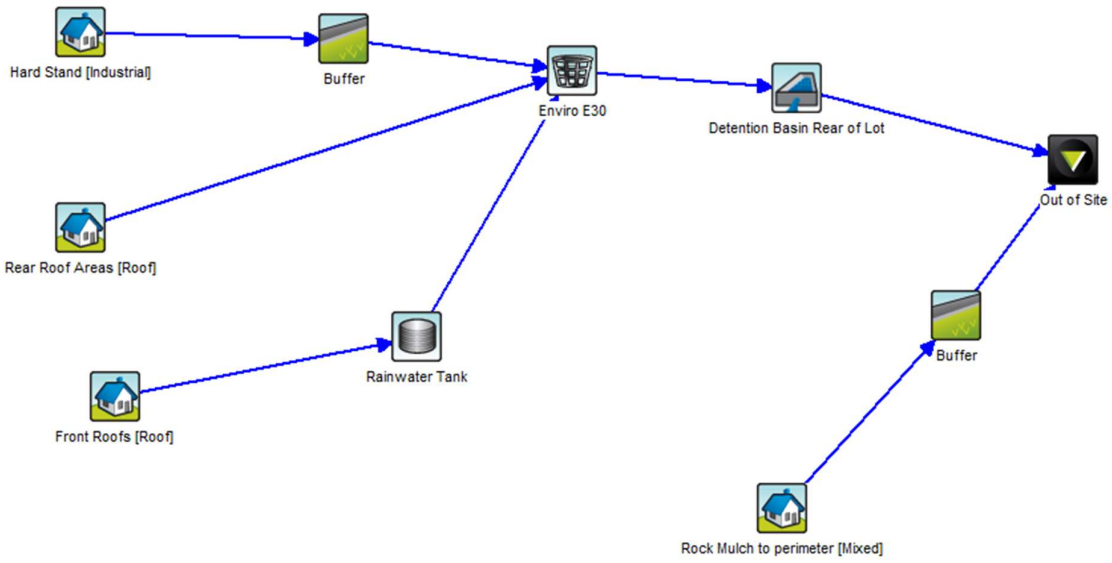


Figure 1 – Treatment Train schematic

The treatment train effectiveness did not meet the requirements of the State Planning Policy for Central Queensland South, refer to table 8 below for treatment train effectiveness compared to SPP targets for Central Queensland South.

COMPARISON OF TREATMENT TRAIN EFFECTIVENESS		
POLUTANT	**SPP TARGET (%)**	**ACHIEVED REDUCTION (%)**
Suspended Solids	85	83.1
Total Phosphorous	60.0	49.1
Total Nitrogen	45.0	55.1
Gross Pollutants	90.0	100.0

Table 8

The above table notes that although targets for SS and TP and TN are not achieved, the theoretical reductions are close to target. No other practical opportunities were available on the site in this instance given that the site does not have any ability to discharge below the existing ground level at the drainage easement at the rear of the site. It is believed that all reasonable effort has been made to treat stormwater runoff from the site and that post-construction testing will yield pollutant loadings typical to the surrounding development area.

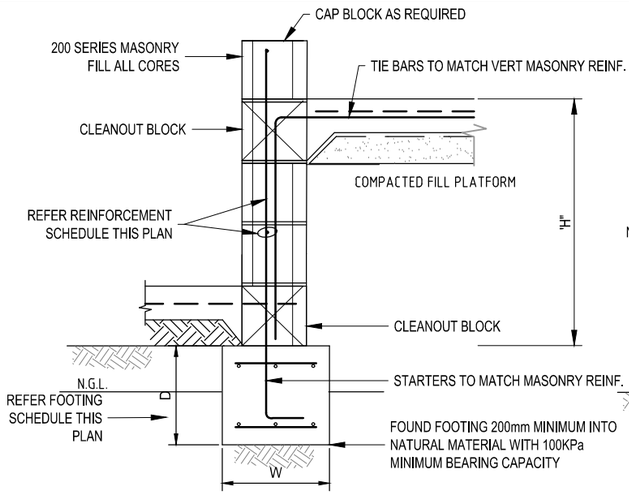
4. Conclusion

As the proposed development will increase the impervious area of the site it is proposed to mitigate the increase in runoff by providing a detention/retention basin to mitigate the increase in peak flows from the proposed development. Water Quality will also be managed through a series of quality improvement measures however will not meet SPP objectives in this instance.

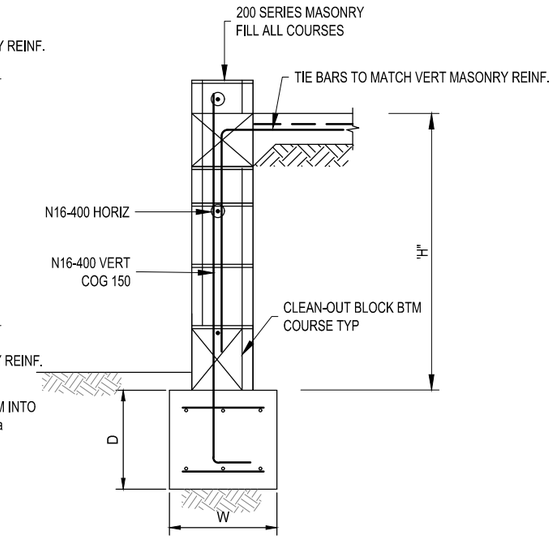
With the development not discharging any additional flows post development due to the proposed measures reduction strategy and the State Planning Policy quality targets not being met even with implementation of SQIDs, we request a relaxation as it was not practical to achieve all targets in this instance due to a lack of existing discharge opportunities to the existing drainage easement.

Adam Doherty
For and On Behalf of
Dileigh Consulting Engineers Pty Ltd

Appendix A – Stormwater Management Strategy Drawings

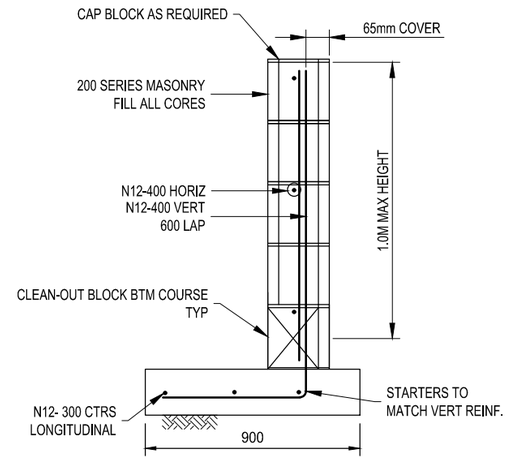


TYPICAL RW1

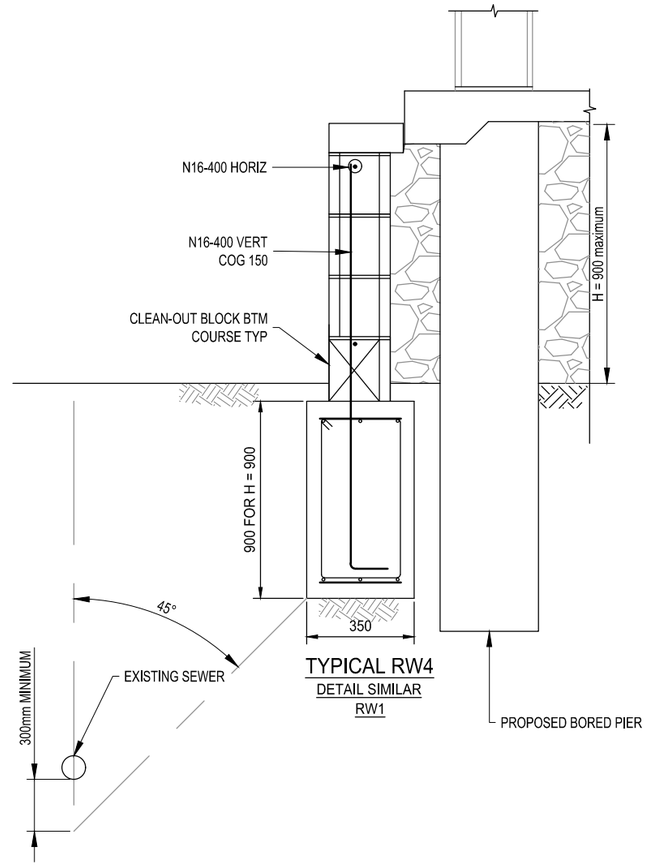


TYPICAL RW2
DETAIL SIMILAR RW1

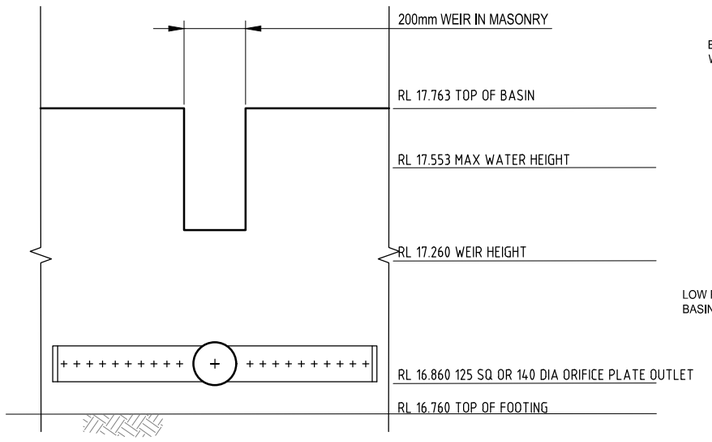
RW1/2 SCHEDULE			FTG REINF'T		WALL REINF'T	
'H'	'D'	'W'	TOP	BTM	VERT	HORIZ
800	500	350	3-L11TM	3-L11TM	N12-400	N12-400
1200	500	350	3-L11TM	3-L11TM	N16-400	N12-400
1500	600	350	3-L12TM	3-L12TM	N16-400	N12-400



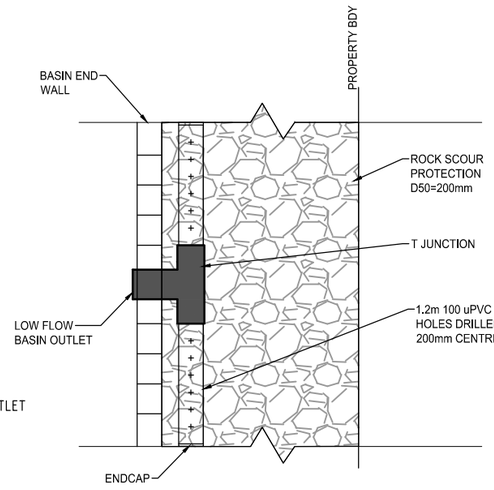
TYPICAL RW3



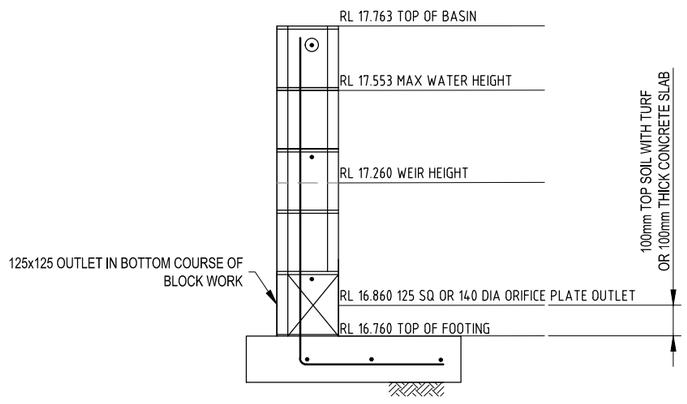
TYPICAL RW4
DETAIL SIMILAR RW1



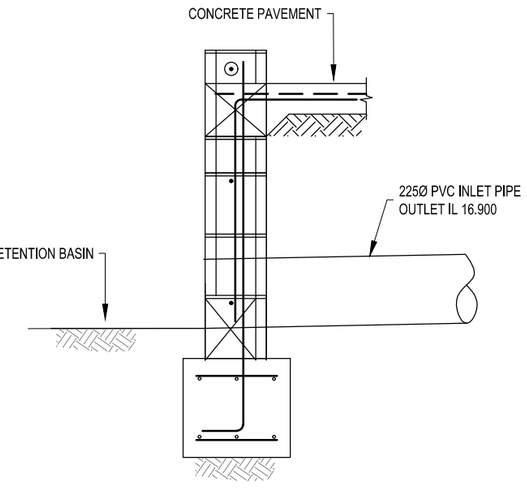
DETENTION BASIN OUTLET ARRANGEMENT



SPREADER BAR DETAIL
NOT TO SCALE



REFER RW3 DETAIL



REFER RW2 DETAIL

SECTION X-X THROUGH DETENTION BASIN
DWG D24.054-03

DATUM: HORIZ. GDA 94 VERT. AHD

NOT TO SCALE

SCALES m. FULL SIZE A3

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RPEQ 7682	SIGN
11.09.2024	

NOVUS LOGISTICS
NEW WAREHOUSE AND OFFICE
11-13 HEMPENSTALL STREET, KAWANA QLD 4701
OPERATIONAL WORKS
MASONRY & OUTLET DETAILS

DWG No. D24.054-C10
CIVIL
REVISION D

LEGEND

- PROPOSED STORMWATER PIPE AND PIT
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- EXISTING ROAD KERB AND CHANNEL
- EXISTING SEWER MAIN
- EXISTING SURFACE CONTOURS
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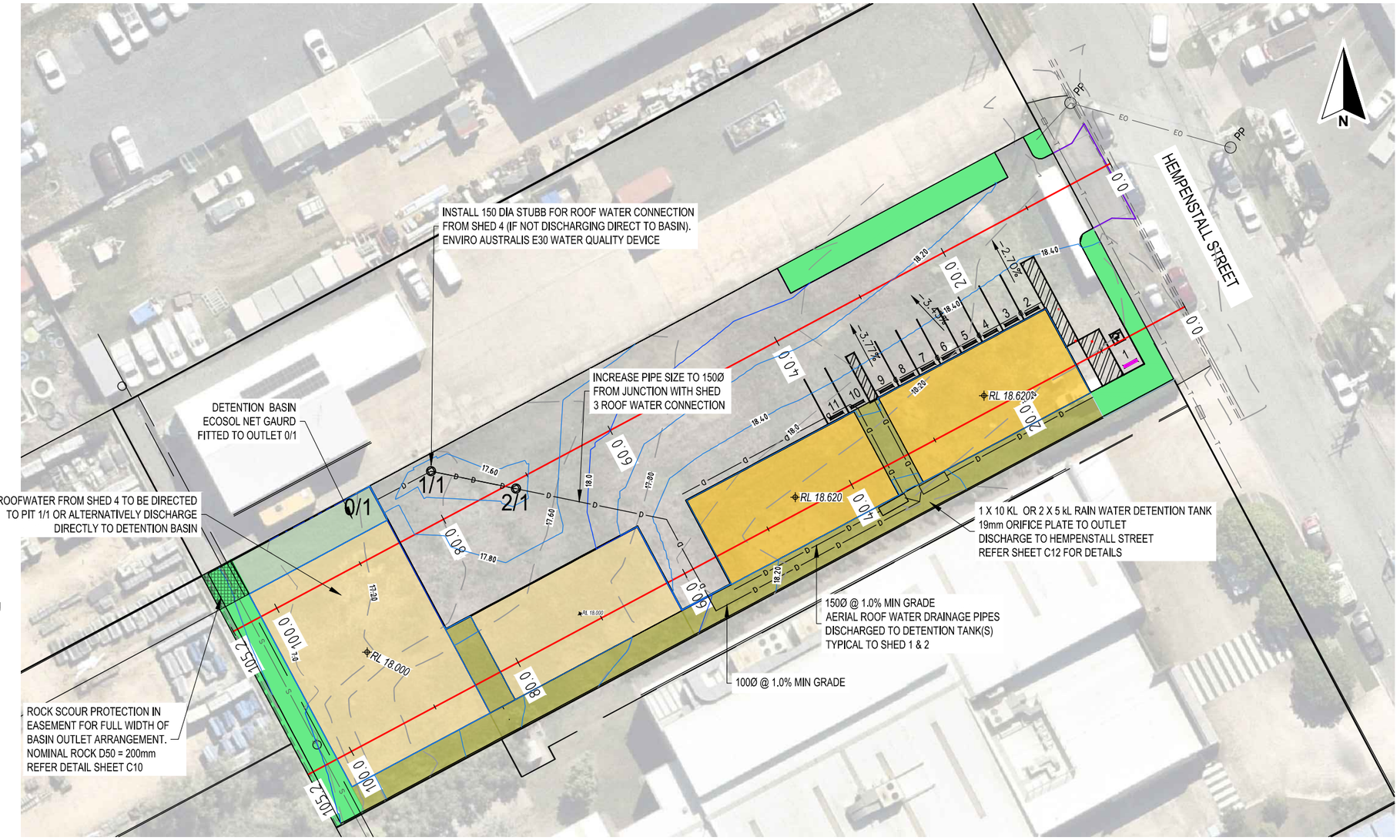
- PROPOSED BUILDING STAGE 02
- PROPOSED CONCRETE PAVEMENT
- PROPOSED LANDSCAPING
- 50MM ROCK MULCH
- DETENTION BASIN

DRAINAGE LONGITUDINAL SECTION NOTES:

1. PIPED NETWORK MODELED AND LONGITUDINAL SECTION GENERATED BY ARD PIPES.
2. PIPE NETWORK FOR GROUND INLET PITS MODELED FOR Q20 MINOR EVENT IN ACCORDANCE WITH CMDG STORMWATER DESIGN GUIDELINE TABLE 0.5.04.2 FOR COMMERCIAL DEVELOPMENT.
3. PIPE NETWORK FOR ROOFWATER PIPES MODELED FOR Q20 EVENT IN ACCORDANCE WITH AS 3500.3.2 1998 STORMWATER DRAINAGE ACCEPTABLE SOLUTIONS.
4. MAJOR AND MINOR RAINFALL INTENSITIES GENERATED USING BUREAU OF METEOROLOGY 2016 RAINFALL IFD DATA SYSTEM.
5. REFER TO DRAWING D24.054-C12 FOR STORM WATER LONG SECTIONS AND DETAILS
5. REFER TO DRAWING D24.054-C10 FOR DETENTION BASIN MASONRY DETAILS



STORM WATER LAYOUT

DATUM: HORIZ. GDA 94 VERT. AHD

0 1.25 2.5 3.75 5 HORIZONTAL 1:250

SCALES m. FULL SIZE A3

OPERATIONAL WORKS ISSUE

FOR CONSTRUCTION ONLY WITH COUNCIL APPROVAL

REV	REVISION DESCRIPTION	DATE
A	FOR DISCUSSION	03/05/2024
B	FOR APPROVAL	12/06/2024
C	MINOR AMENDMENTS	27/06/2024
D	PIEP LAYOUT AMENDED	10.09.2024

DILEIGH CIVIL / STRUCTURAL DESIGN & PROJECT MANAGEMENT

ACN 121 309 171
47 Normanby Street
Yeppoon, Queensland 4703

Phone: 07 49112553
Fax: 07 49383660
Email: admin@dileigh.com.au

DRAFTED	CWR
DESIGNED	SJG
CHECKED	ACD
APPROVED	G J BROWN
RPEQ 7682	SIGN
11.09.2024	

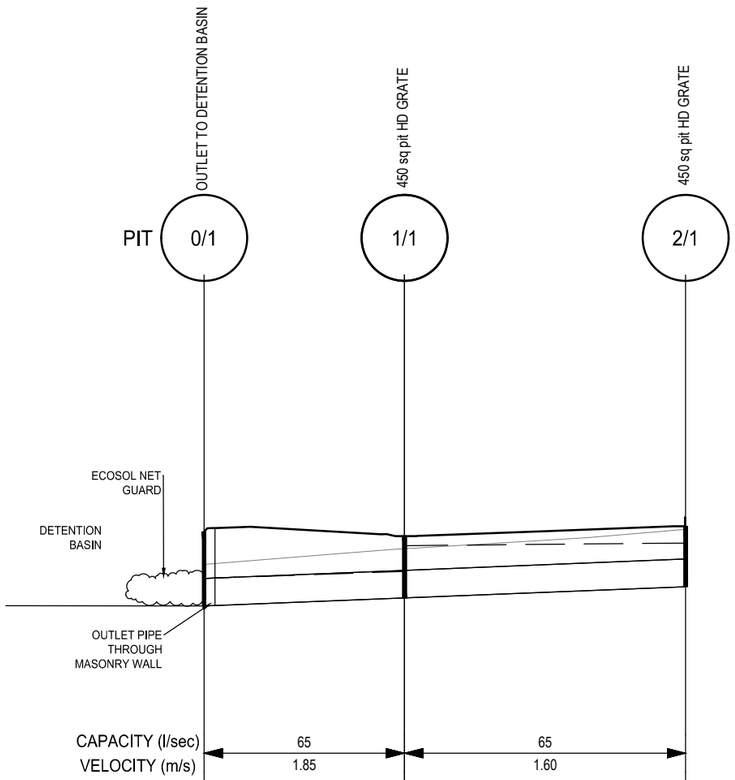
NOVUS LOGISTICS
NEW WAREHOUSE AND OFFICE
11-13 HEMPENSTALL STREET, KAWANA QLD 4701
OPERATIONAL WORKS
STORMWATER LAYOUT PLAN

DWG No. D24.054-C11

CIVIL

REVISION D

N

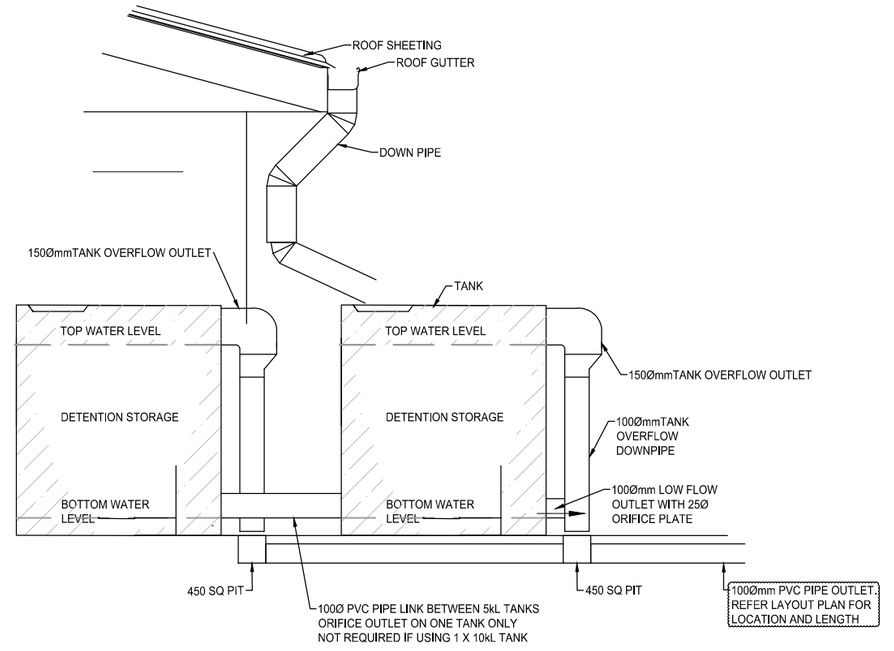


CAPACITY (l/sec)		65			65			
VELOCITY (m/s)		1.85			1.60			
PIPE FLOW (l/sec)		60.000			30.000			
PIPE DETAILS		225Ø PVC			225Ø PVC			
SLOPE/ GRADE		1.0%			1.0%			
DATUM RL 14.3								
HYDRAULIC GRADE LINE	17.125		17.182	17.391		17.625		
INVERT DEPTH	0.604		0.505			0.493		
INVERT LEVEL	16.900		16.965			17.057		
EXISTING SURFACE	17.239		17.367			17.525		
DESIGN SURFACE	17.504		17.470	17.470		17.550		
CHAINAGE	0.00		6.54			15.71		
		6.54m			9.17m			

LINE 1

DRAINAGE LONGITUDINAL SECTION NOTES:

1. PIPED NETWORK MODELED AND LONGITUDINAL SECTION GENERATED BY ARD PIPES.
2. PIPE NETWORK FOR GROUND INLET PITS MODELED FOR Q20 MINOR EVENT IN ACCORDANCE WITH CMDG STORMWATER DESIGN GUIDELINE TABLE 0.5.04.2 FOR COMMERCIAL DEVELOPMENT.
3. PIPE NETWORK FOR ROOFWATER PIPES MODELED FOR Q20 EVENT IN ACCORDANCE WITH AS 3500.3.2 1998 STORMWATER DRAINAGE ACCEPTABLE SOLUTIONS.
4. MAJOR AND MINOR RAINFALL INTENSITIES GENERATED USING BUREAU OF METEOROLOGY 2016 RAINFALL IFD DATA SYSTEM.
5. REFER TP DRAWING D24.054-C09 FOR STORM WATER LAYOUT PLAN



ROOF WATER DETENTION TANK ARRANGEMENT

DATUM: HORIZ. GDA 94 VERT. AHD

0 1.25 2.5 3.75 5 HORIZONTAL 1:250

0 0.5 1.0 1.5 2.0 VERTICAL 1:100

SCALES m. FULL SIZE A3

PRELIMINARY ISSUE

FOR DISCUSSION

REV	REVISION DESCRIPTION	DATE
A	FOR DISCUSSION	27/05/2024
B	NOTATION AMENDED	10.09.2024

DILEIGH
CIVIL / STRUCTURAL DESIGN & PROJECT MANAGEMENT

ACN 121 309 171
47 Normanby Street
Yeppoon, Queensland 4703

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Email: admin@dileigh.com.au

DRAFTED	CWR
DESIGNED	SJG
CHECKED	ACD
APPROVED	G J BROWN
RPEQ 7682	SIGN
11.09.2024	

NOVUS LOGISTICS
NEW WAREHOUSE AND OFFICE
11-13 HEMPENSTALL STREET, KAWANA QLD 4701
OPERATIONAL WORKS
STORMWATER LONGITUDINAL SECTIONS

DWG No. D24.054-C12

CIVIL

REVISION B

Appendix B – Detention Routing Hydrographs

Hydrograph Report

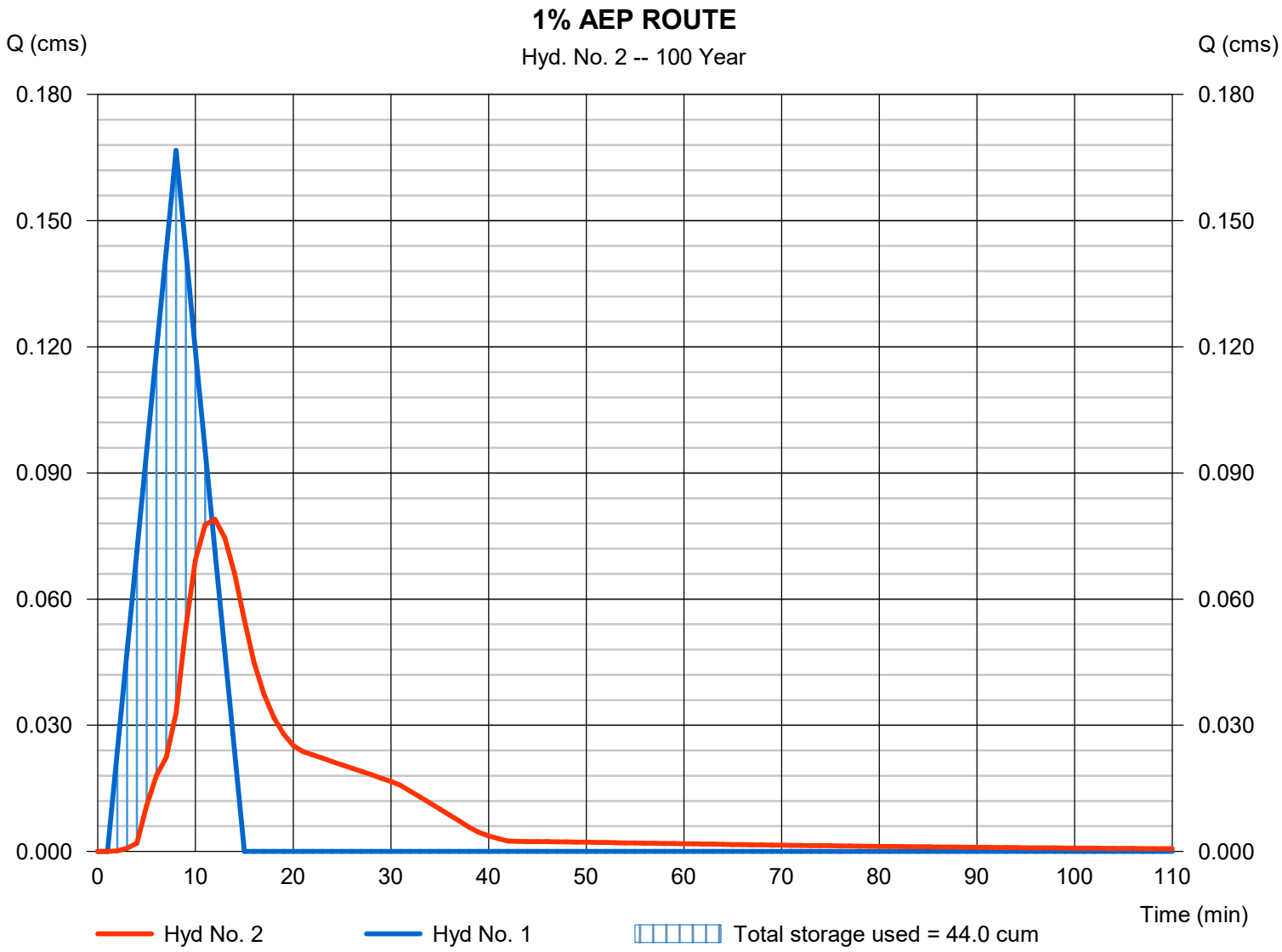
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Wednesday, 06 / 12 / 2024

Hyd. No. 2

1% AEP ROUTE

Hydrograph type	= Reservoir	Peak discharge	= 0.079 cms
Storm frequency	= 100 yrs	Time to peak	= 12 min
Time interval	= 1 min	Hyd. volume	= 70.0 cum
Inflow hyd. No.	= 1 - 1% AEP	Max. Elevation	= 17.56 m
Reservoir name	= DET1	Max. Storage	= 44.0 cum

Storage Indication method used.



Hydrograph Report

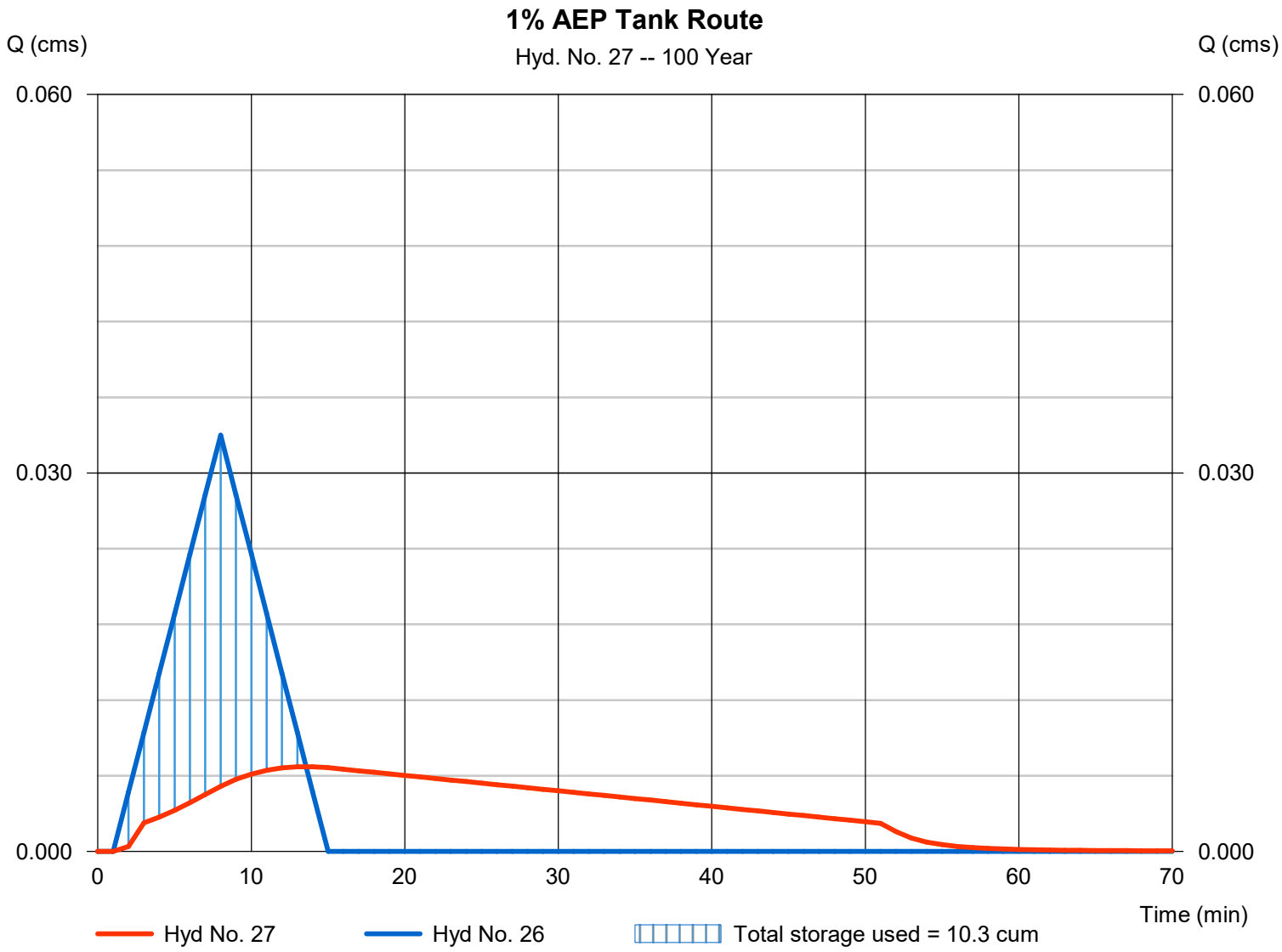
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Wednesday, 06 / 12 / 2024

Hyd. No. 27

1% AEP Tank Route

Hydrograph type	= Reservoir	Peak discharge	= 0.007 cms
Storm frequency	= 100 yrs	Time to peak	= 14 min
Time interval	= 1 min	Hyd. volume	= 13.8 cum
Inflow hyd. No.	= 26 - Roof to tank 1% AEP	Max. Elevation	= 18.57 m
Reservoir name	= 10kL Tank	Max. Storage	= 10.3 cum

Storage Indication method used.



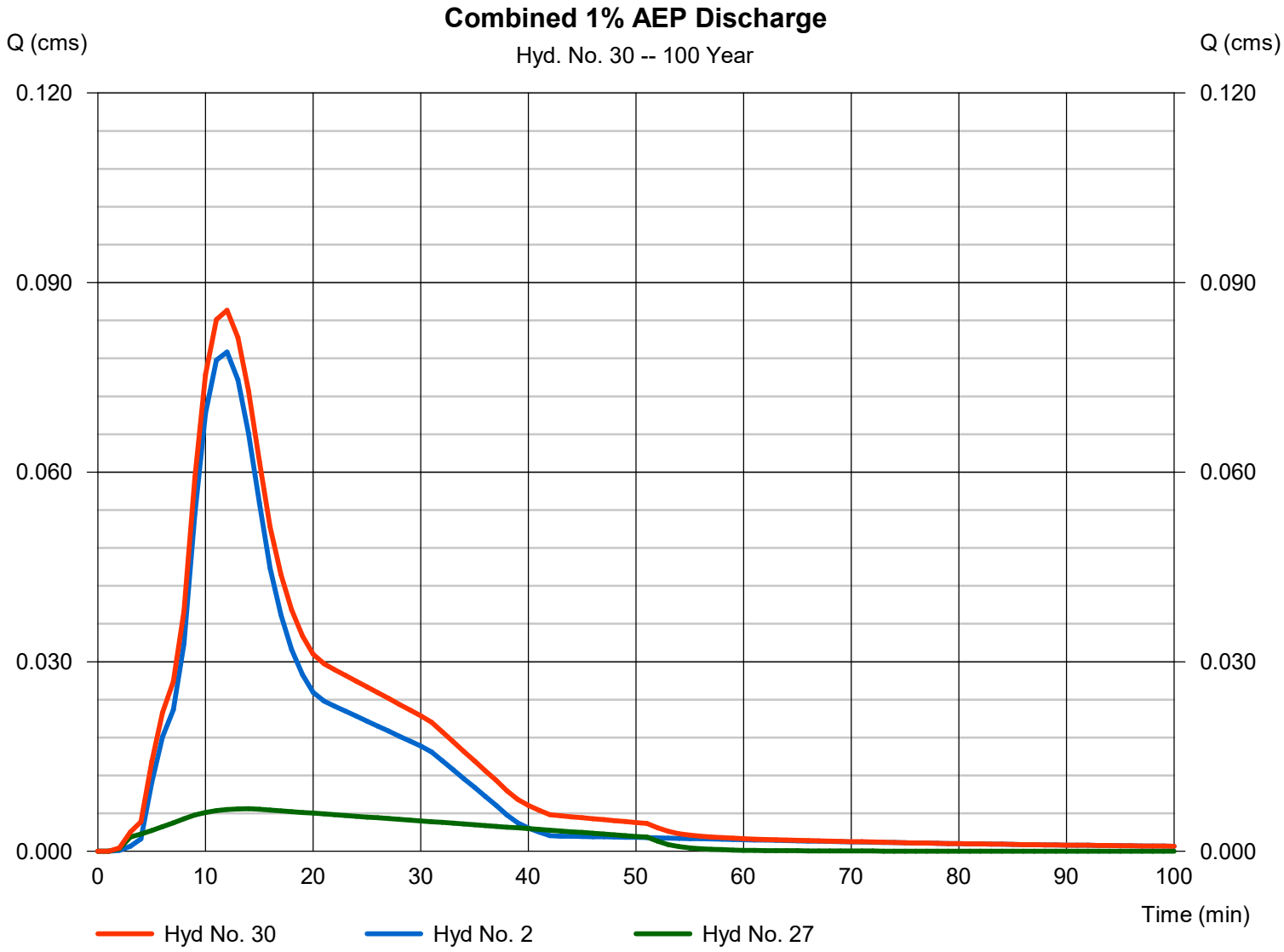
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Wednesday, 06 / 12 / 2024

Hyd. No. 30

Combined 1% AEP Discharge

Hydrograph type	= Combine	Peak discharge	= 0.086 cms
Storm frequency	= 100 yrs	Time to peak	= 12 min
Time interval	= 1 min	Hyd. volume	= 83.8 cum
Inflow hyds.	= 2, 27	Contrib. drain. area	= 0.000 hectare



Hydrograph Report

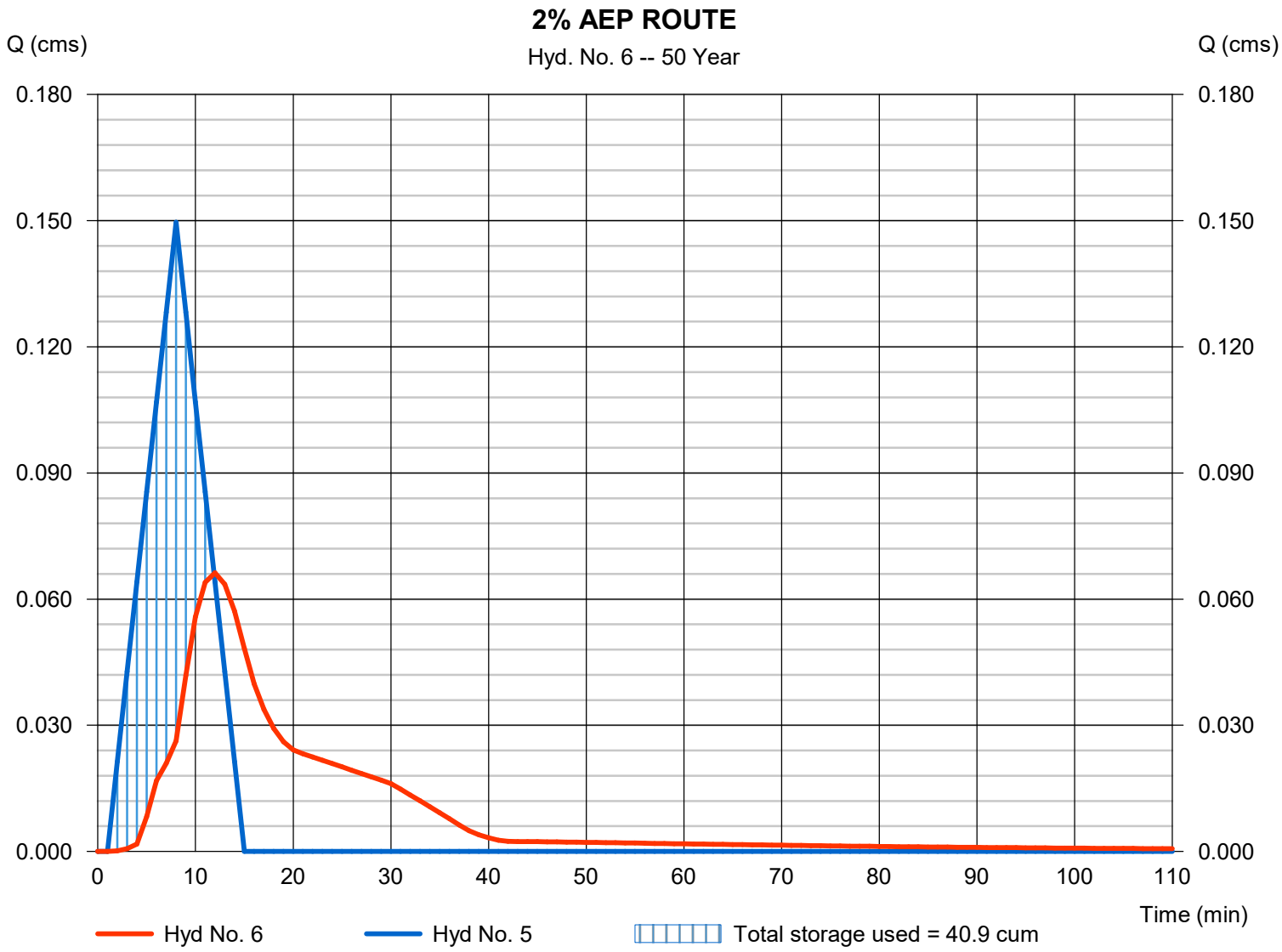
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Wednesday, 06 / 12 / 2024

Hyd. No. 6

2% AEP ROUTE

Hydrograph type	= Reservoir	Peak discharge	= 0.066 cms
Storm frequency	= 50 yrs	Time to peak	= 12 min
Time interval	= 1 min	Hyd. volume	= 62.8 cum
Inflow hyd. No.	= 5 - 2% AEP	Max. Elevation	= 17.51 m
Reservoir name	= DET1	Max. Storage	= 40.9 cum

Storage Indication method used.



Hydrograph Report

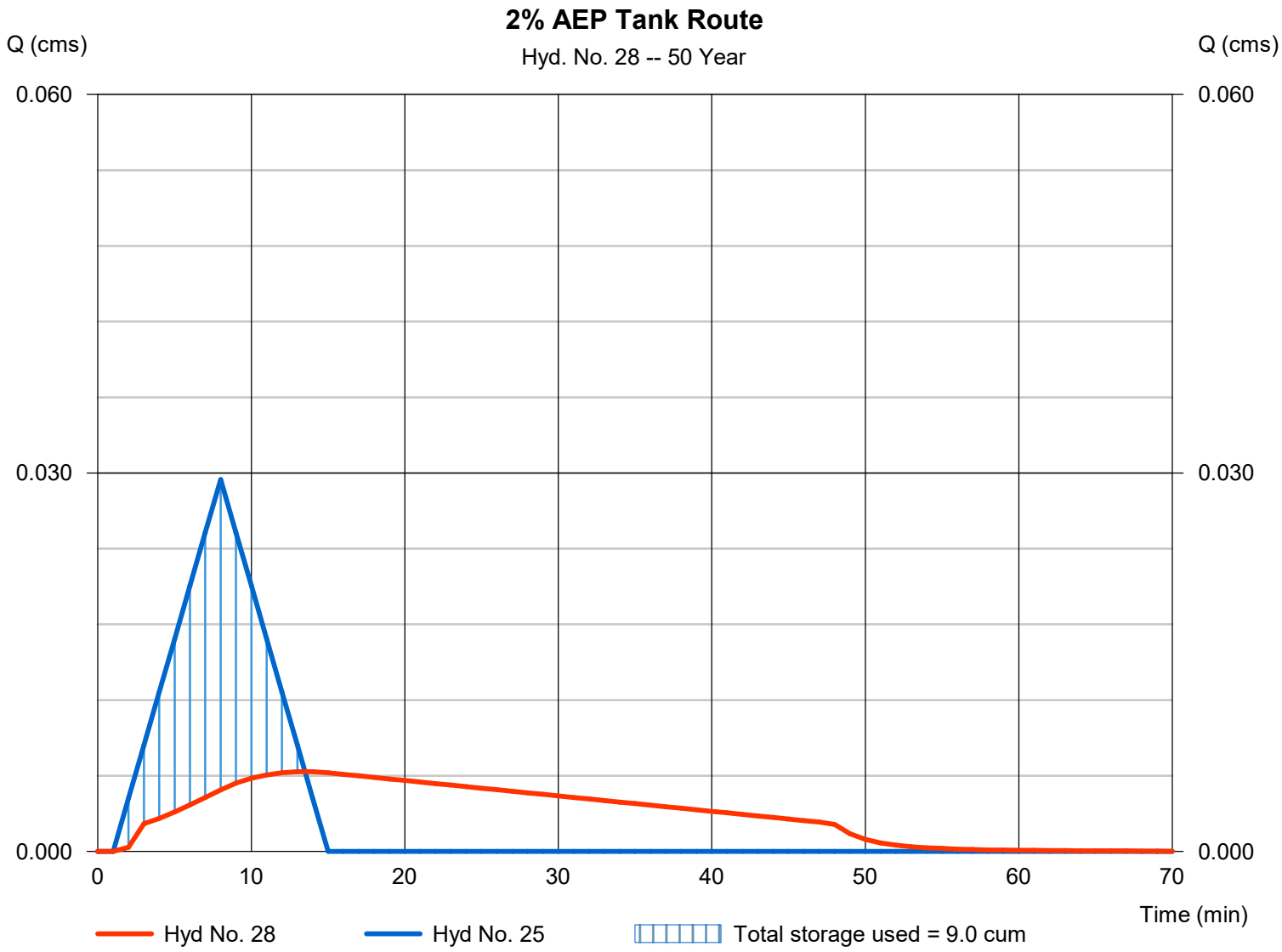
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Wednesday, 06 / 12 / 2024

Hyd. No. 28

2% AEP Tank Route

Hydrograph type	= Reservoir	Peak discharge	= 0.006 cms
Storm frequency	= 50 yrs	Time to peak	= 14 min
Time interval	= 1 min	Hyd. volume	= 12.4 cum
Inflow hyd. No.	= 25 - Roof to tank 2% AEP	Max. Elevation	= 18.36 m
Reservoir name	= 10kL Tank	Max. Storage	= 9.0 cum

Storage Indication method used.



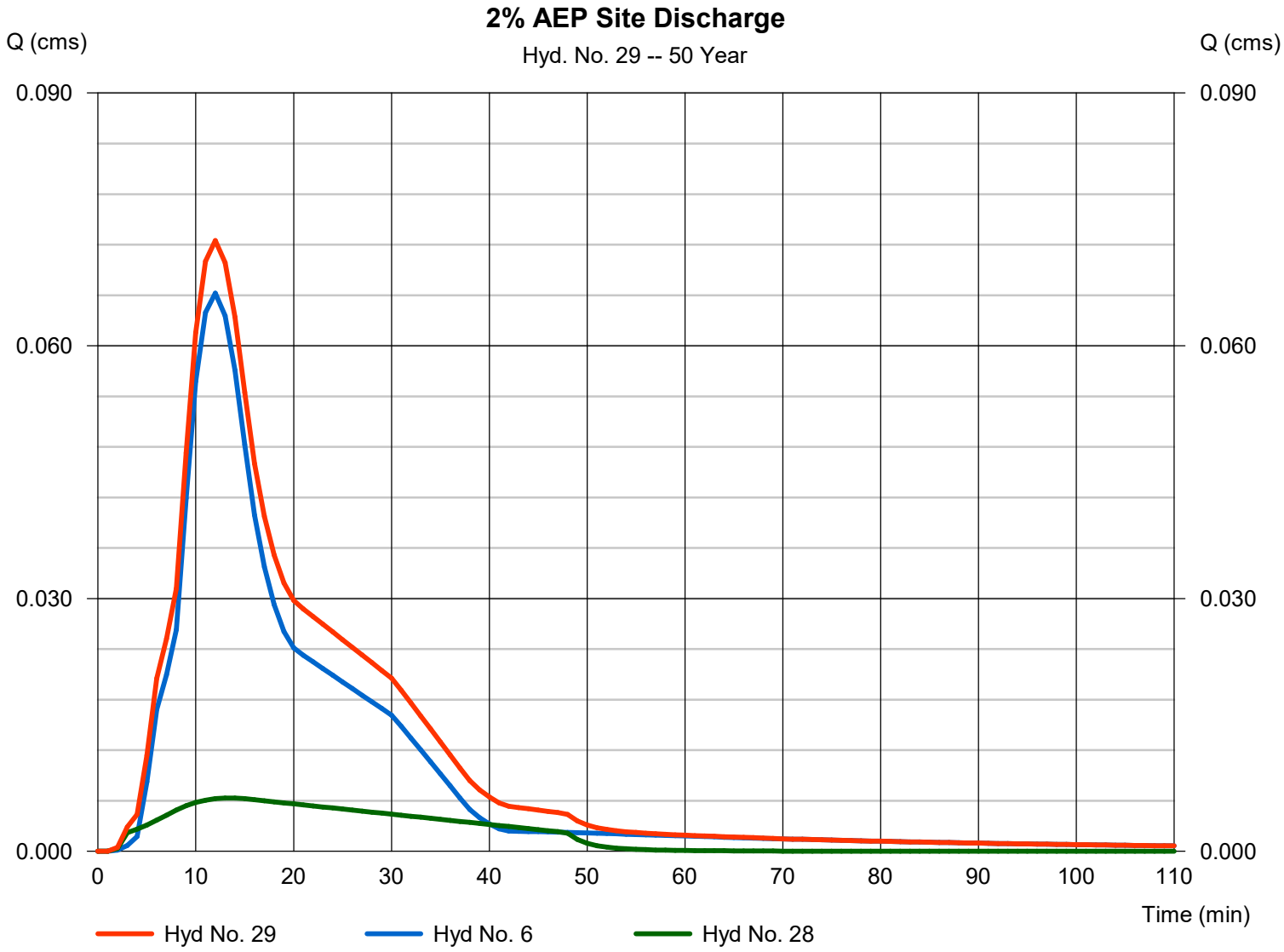
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Wednesday, 06 / 12 / 2024

Hyd. No. 29

2% AEP Site Discharge

Hydrograph type	= Combine	Peak discharge	= 0.072 cms
Storm frequency	= 50 yrs	Time to peak	= 12 min
Time interval	= 1 min	Hyd. volume	= 75.1 cum
Inflow hyds.	= 6, 28	Contrib. drain. area	= 0.000 hectare



Hydrograph Report

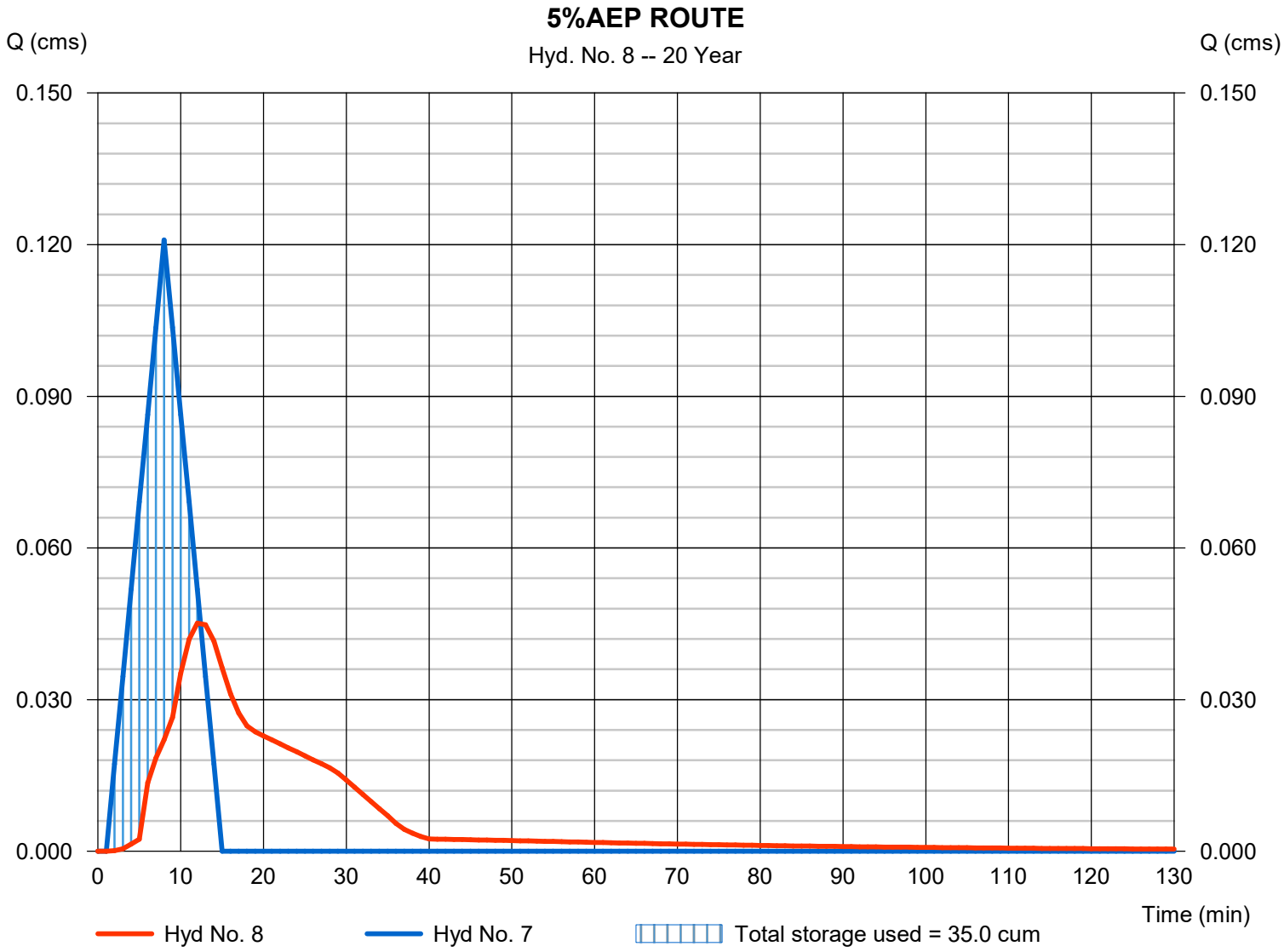
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Wednesday, 06 / 12 / 2024

Hyd. No. 8

5%AEP ROUTE

Hydrograph type	= Reservoir	Peak discharge	= 0.045 cms
Storm frequency	= 20 yrs	Time to peak	= 12 min
Time interval	= 1 min	Hyd. volume	= 50.7 cum
Inflow hyd. No.	= 7	Max. Elevation	= 17.42 m
Reservoir name	= DET1	Max. Storage	= 35.0 cum

Storage Indication method used.



Hydrograph Report

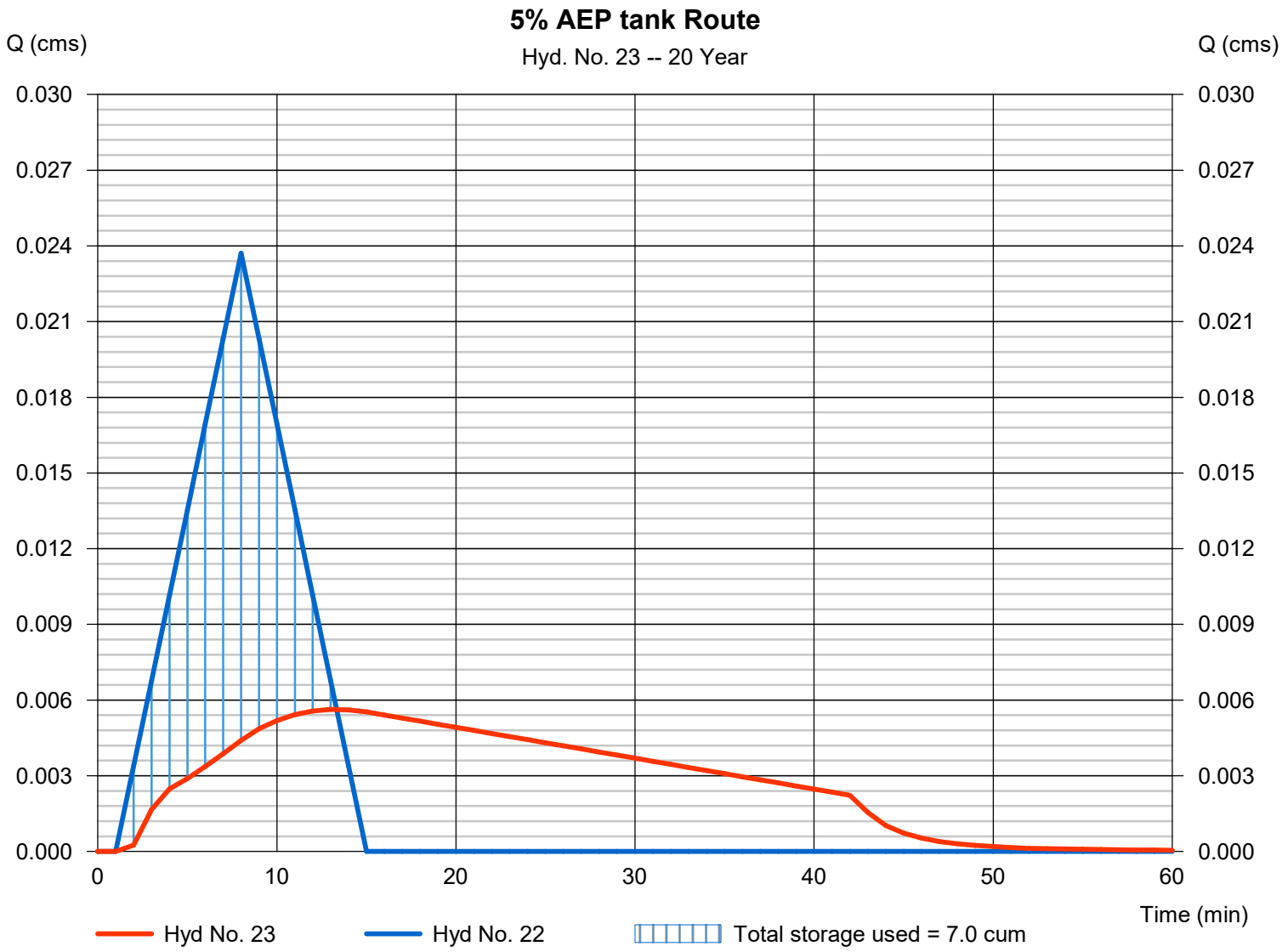
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Wednesday, 06 / 12 / 2024

Hyd. No. 23

5% AEP tank Route

Hydrograph type	= Reservoir	Peak discharge	= 0.006 cms
Storm frequency	= 20 yrs	Time to peak	= 13 min
Time interval	= 1 min	Hyd. volume	= 9.9 cum
Inflow hyd. No.	= 22 - Roof to tank 5% AEP	Max. Elevation	= 18.02 m
Reservoir name	= 10kL Tank	Max. Storage	= 7.0 cum

Storage Indication method used.



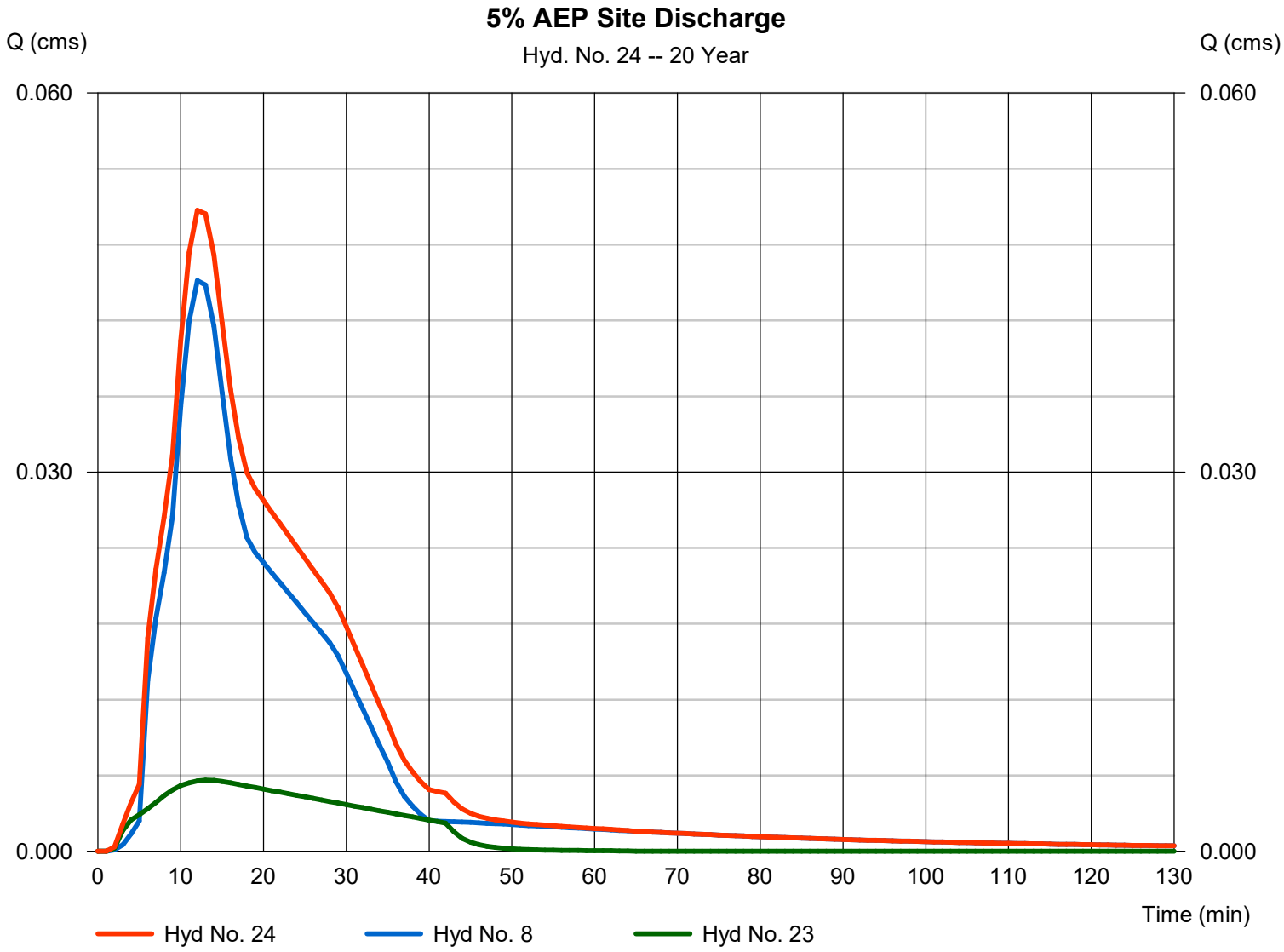
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Wednesday, 06 / 12 / 2024

Hyd. No. 24

5% AEP Site Discharge

Hydrograph type	= Combine=	Peak discharge	= 0.051 cms
Storm frequency	= 20 yrs	Time to peak	= 12 min
Time interval	= 1 min	Hyd. volume	= 60.7 cum
Inflow hyds.	= 8, 23	Contrib. drain. area	= 0.000 hectare



Hydrograph Report

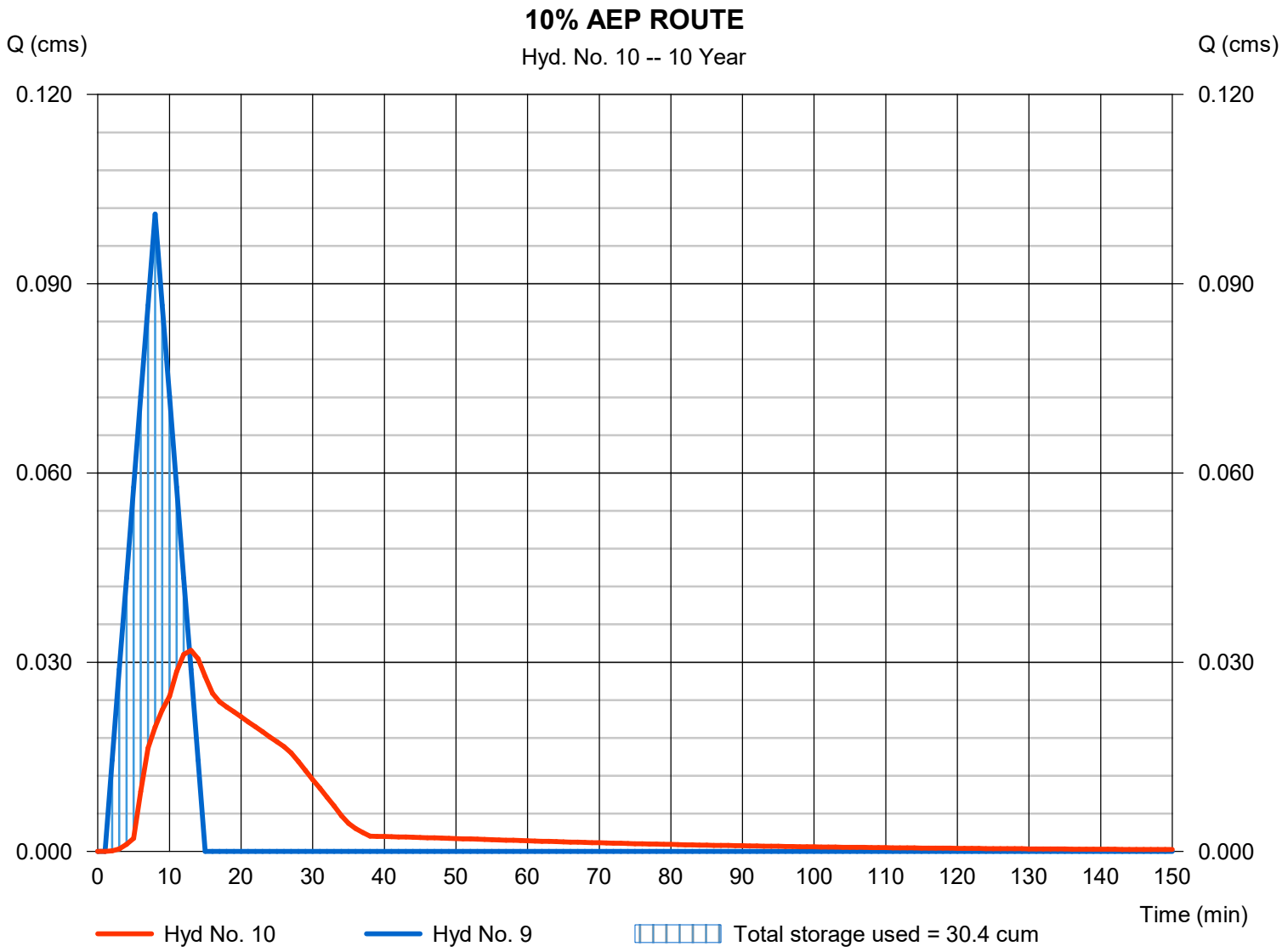
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Wednesday, 06 / 12 / 2024

Hyd. No. 10

10% AEP ROUTE

Hydrograph type	= Reservoir	Peak discharge	= 0.032 cms
Storm frequency	= 10 yrs	Time to peak	= 13 min
Time interval	= 1 min	Hyd. volume	= 42.4 cum
Inflow hyd. No.	= 9 - 10% AEP	Max. Elevation	= 17.34 m
Reservoir name	= DET1	Max. Storage	= 30.4 cum

Storage Indication method used.



Hydrograph Report

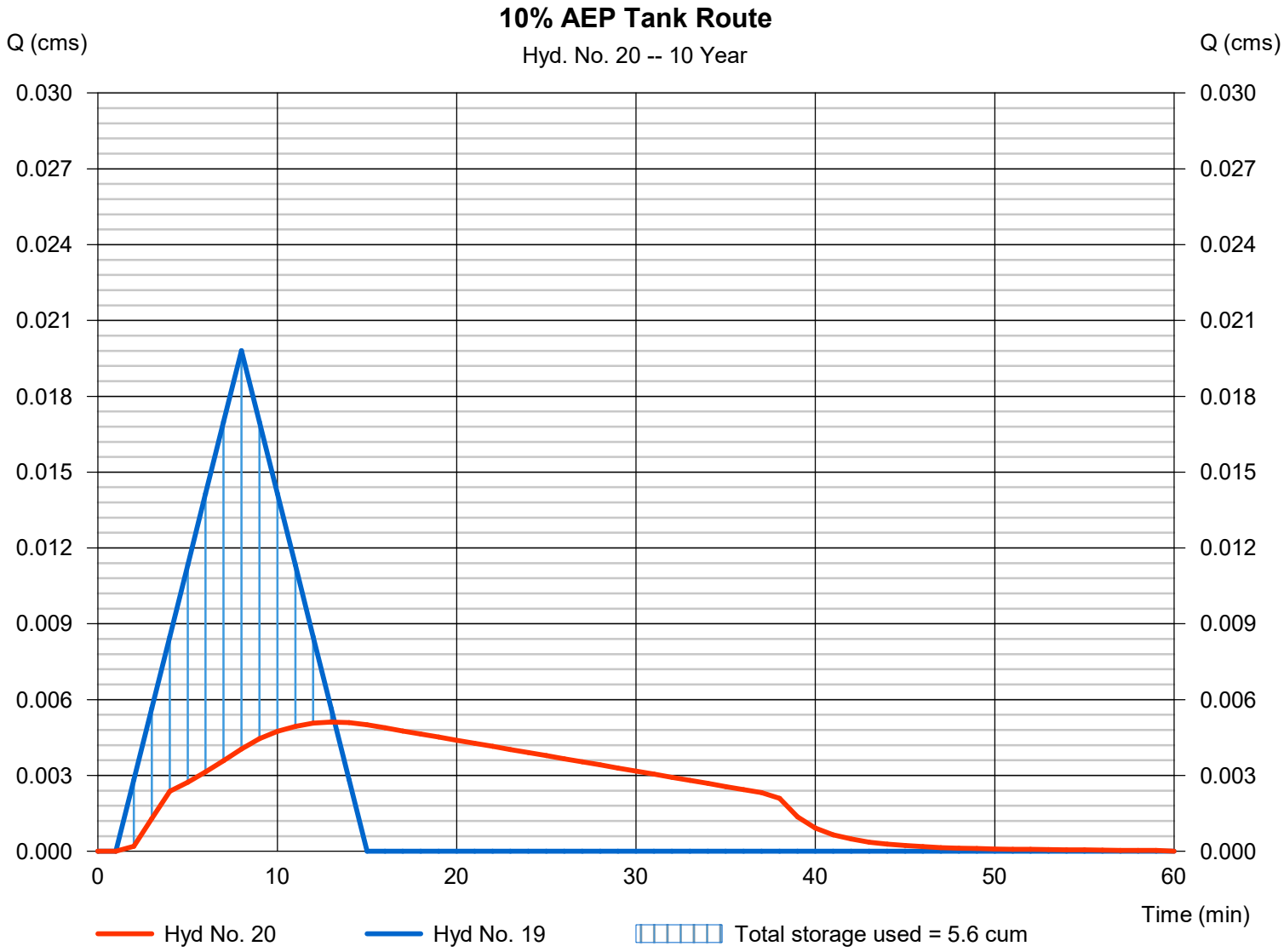
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Wednesday, 06 / 12 / 2024

Hyd. No. 20

10% AEP Tank Route

Hydrograph type	= Reservoir	Peak discharge	= 0.005 cms
Storm frequency	= 10 yrs	Time to peak	= 13 min
Time interval	= 1 min	Hyd. volume	= 8.3 cum
Inflow hyd. No.	= 19 - Roof to tank 10% AEP	Max. Elevation	= 17.80 m
Reservoir name	= 10kL Tank	Max. Storage	= 5.6 cum

Storage Indication method used.



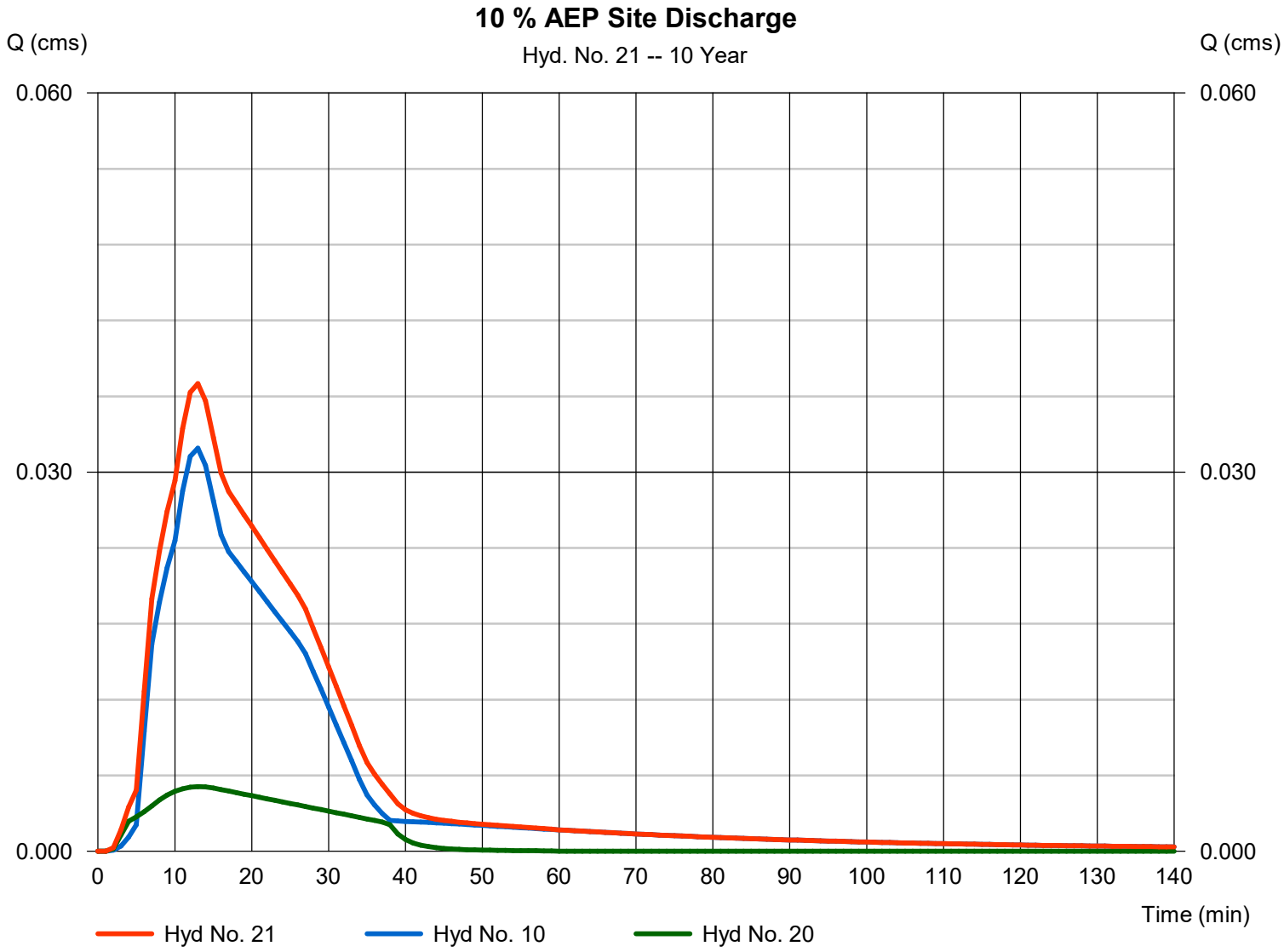
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Wednesday, 06 / 12 / 2024

Hyd. No. 21

10 % AEP Site Discharge

Hydrograph type	=	Combine	Peak discharge	=	0.037 cms
Storm frequency	=	10 yrs	Time to peak	=	13 min
Time interval	=	1 min	Hyd. volume	=	50.7 cum
Inflow hyds.	=	10, 20	Contrib. drain. area	=	0.000 hectare



Hydrograph Report

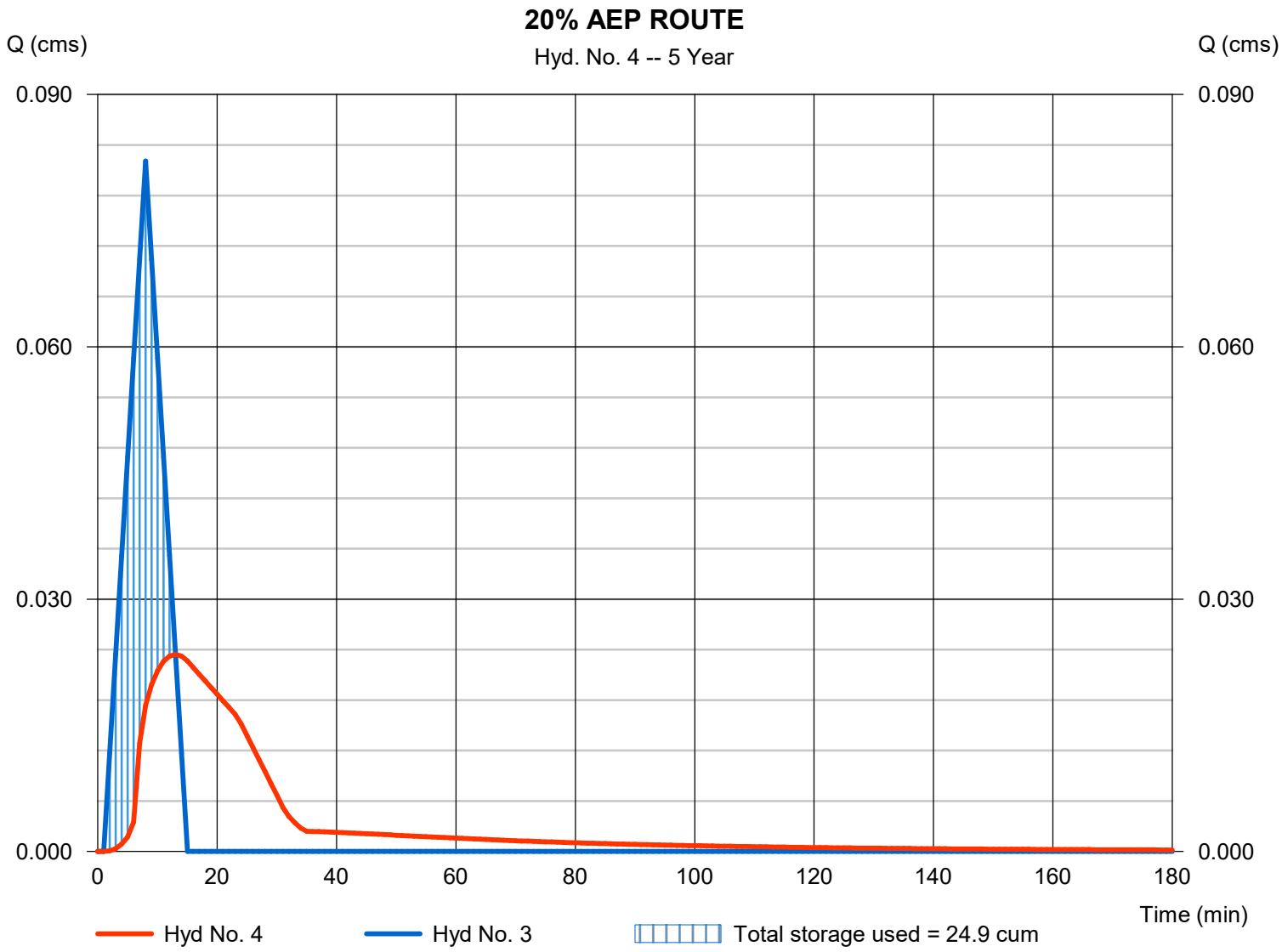
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Wednesday, 06 / 12 / 2024

Hyd. No. 4

20% AEP ROUTE

Hydrograph type	=	Reservoir	Peak discharge	=	0.023 cms
Storm frequency	=	5 yrs	Time to peak	=	13 min
Time interval	=	1 min	Hyd. volume	=	34.4 cum
Inflow hyd. No.	=	3 - 20% AEP	Max. Elevation	=	17.26 m
Reservoir name	=	DET1	Max. Storage	=	24.9 cum

Storage Indication method used.



Hydrograph Report

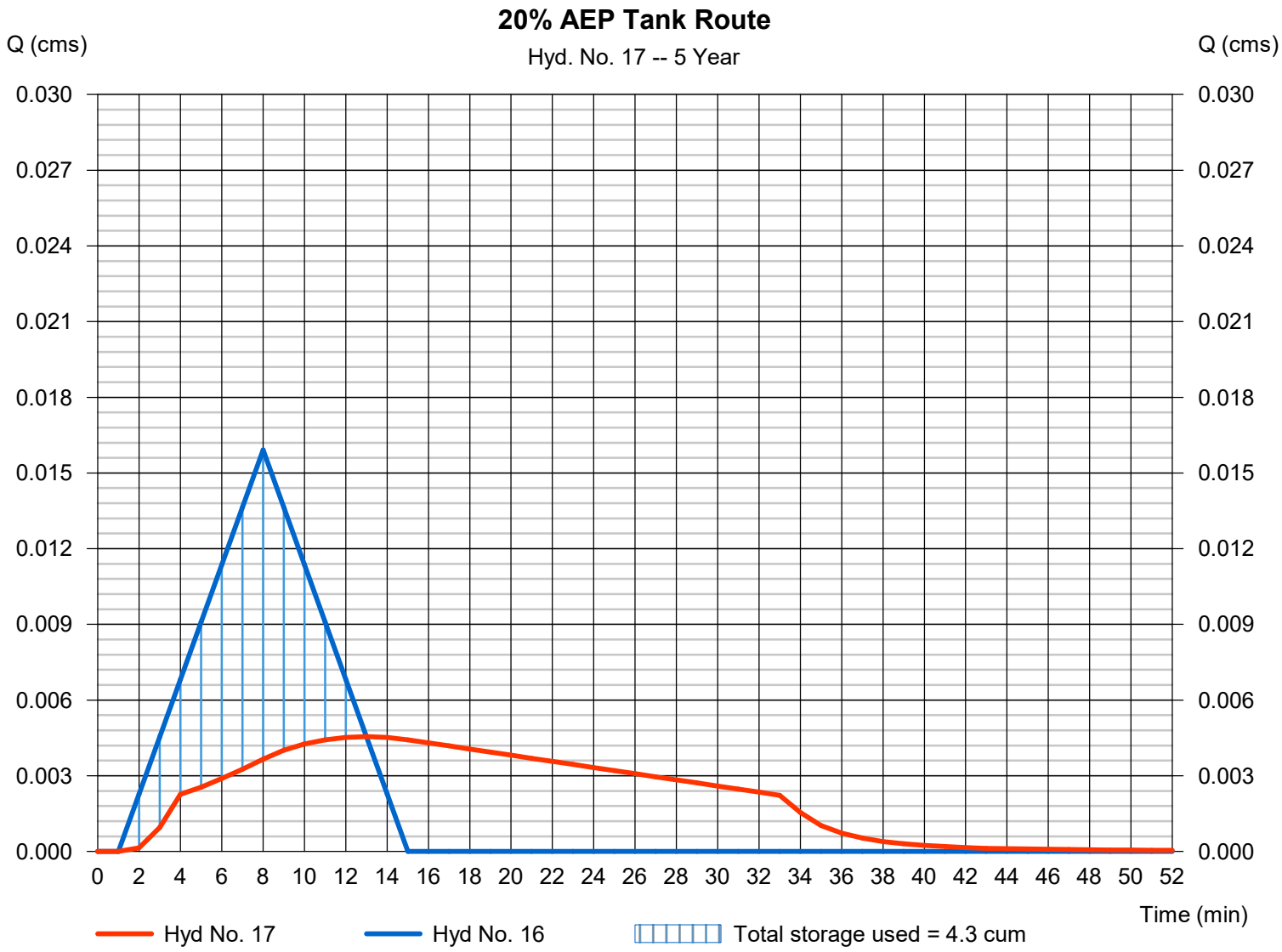
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Wednesday, 06 / 12 / 2024

Hyd. No. 17

20% AEP Tank Route

Hydrograph type	= Reservoir	Peak discharge	= 0.005 cms
Storm frequency	= 5 yrs	Time to peak	= 13 min
Time interval	= 1 min	Hyd. volume	= 6.7 cum
Inflow hyd. No.	= 16 - Roof to tank 20% AEP	Max. Elevation	= 17.58 m
Reservoir name	= 10kL Tank	Max. Storage	= 4.3 cum

Storage Indication method used.



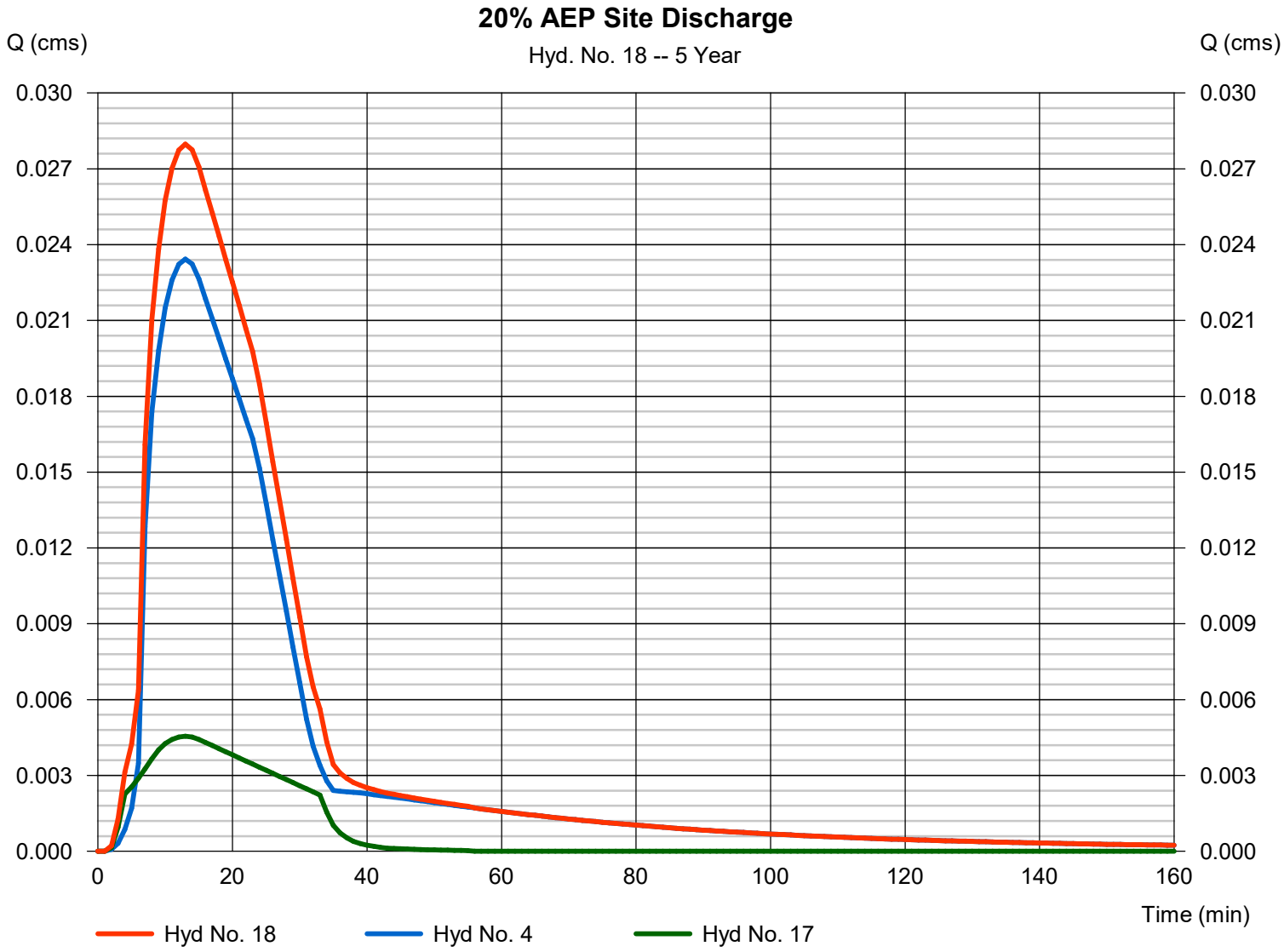
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Wednesday, 06 / 12 / 2024

Hyd. No. 18

20% AEP Site Discharge

Hydrograph type	= Combine	Peak discharge	= 0.028 cms
Storm frequency	= 5 yrs	Time to peak	= 13 min
Time interval	= 1 min	Hyd. volume	= 41.1 cum
Inflow hyds.	= 4, 17	Contrib. drain. area	= 0.000 hectare



Hydrograph Report

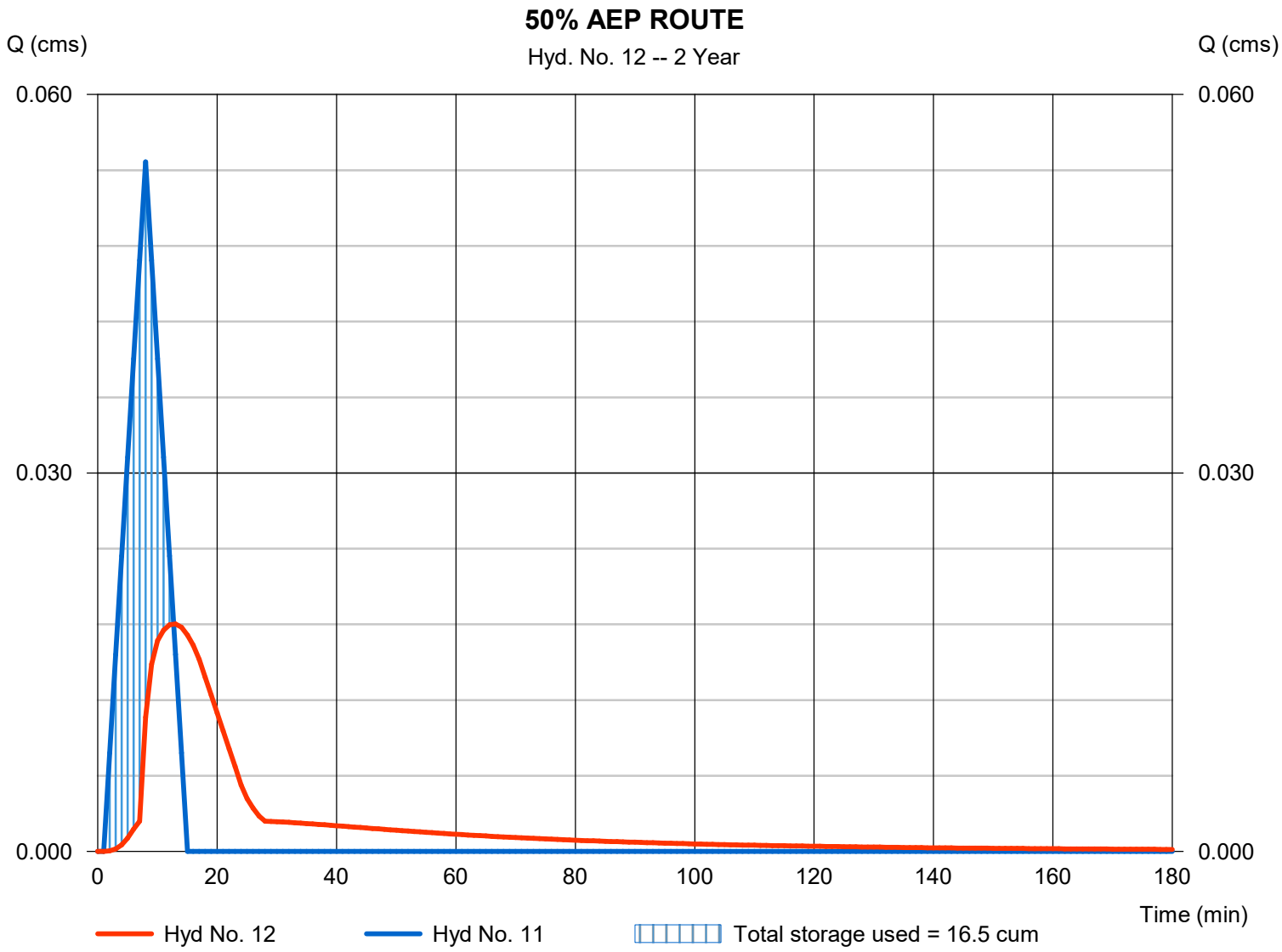
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Wednesday, 06 / 12 / 2024

Hyd. No. 12

50% AEP ROUTE

Hydrograph type	= Reservoir	Peak discharge	= 0.018 cms
Storm frequency	= 2 yrs	Time to peak	= 13 min
Time interval	= 1 min	Hyd. volume	= 22.9 cum
Inflow hyd. No.	= 11 - 50% AEP	Max. Elevation	= 17.12 m
Reservoir name	= DET1	Max. Storage	= 16.5 cum

Storage Indication method used.



Hydrograph Report

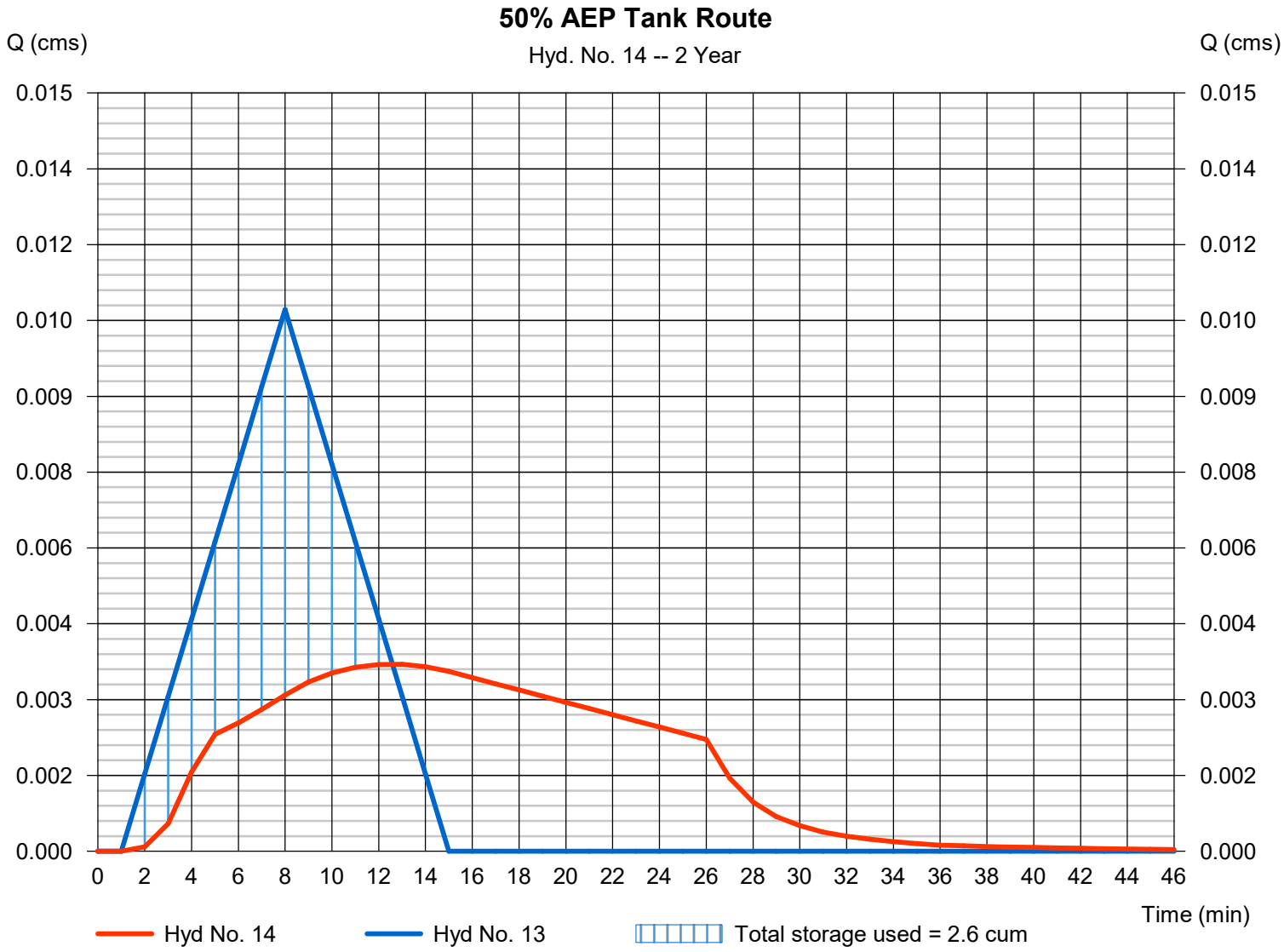
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Wednesday, 06 / 12 / 2024

Hyd. No. 14

50% AEP Tank Route

Hydrograph type	= Reservoir	Peak discharge	= 0.004 cms
Storm frequency	= 2 yrs	Time to peak	= 13 min
Time interval	= 1 min	Hyd. volume	= 4.5 cum
Inflow hyd. No.	= 13 - Roof to tank 50% AEP	Max. Elevation	= 17.29 m
Reservoir name	= 10kL Tank	Max. Storage	= 2.6 cum

Storage Indication method used.



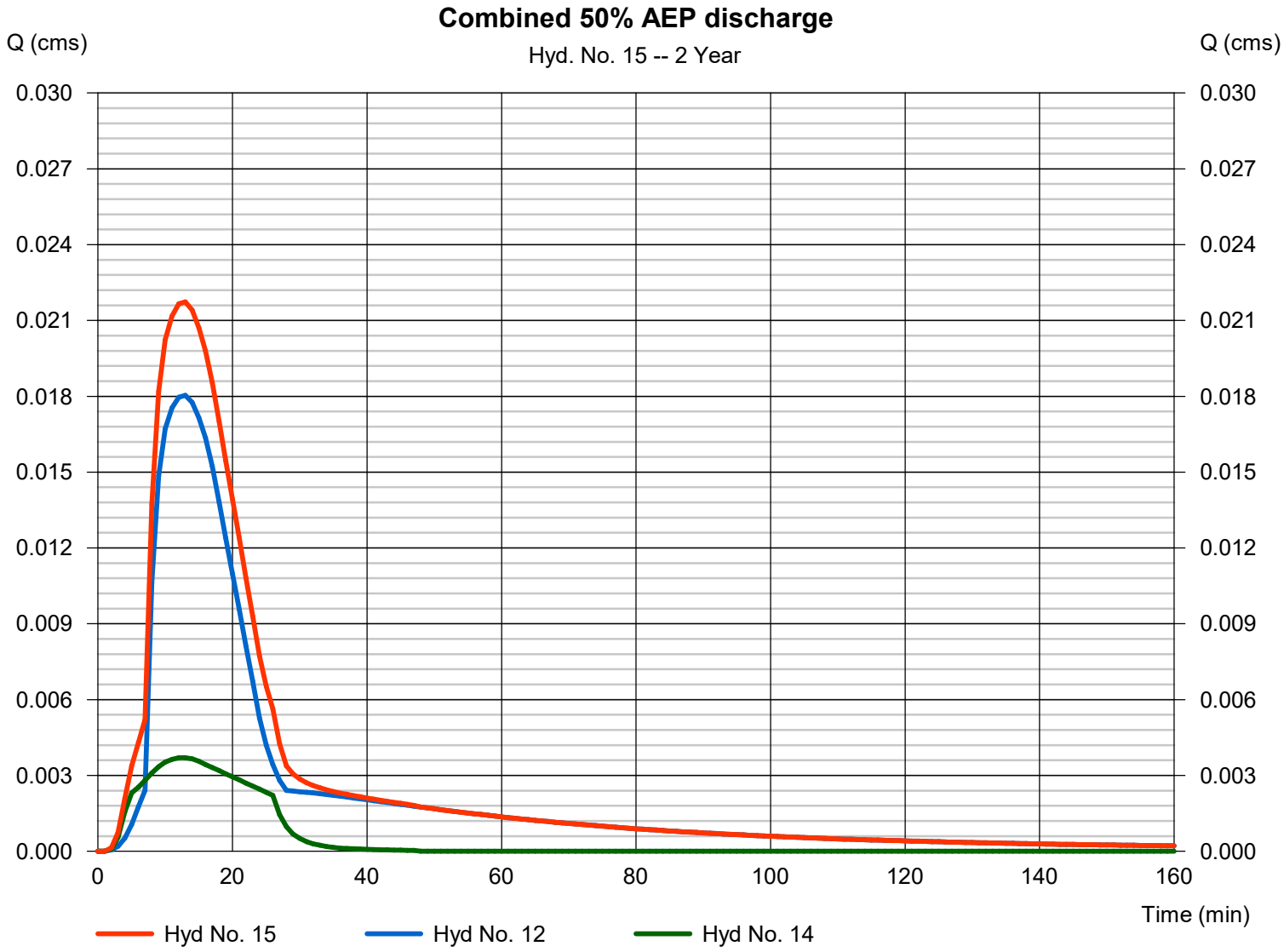
Hydrograph Report

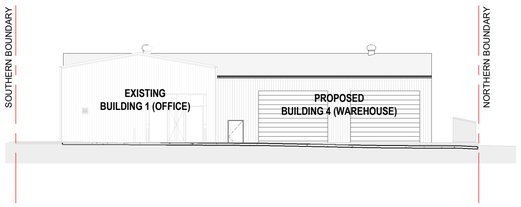
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Wednesday, 06 / 12 / 2024

Hyd. No. 15

Combined 50% AEP discharge

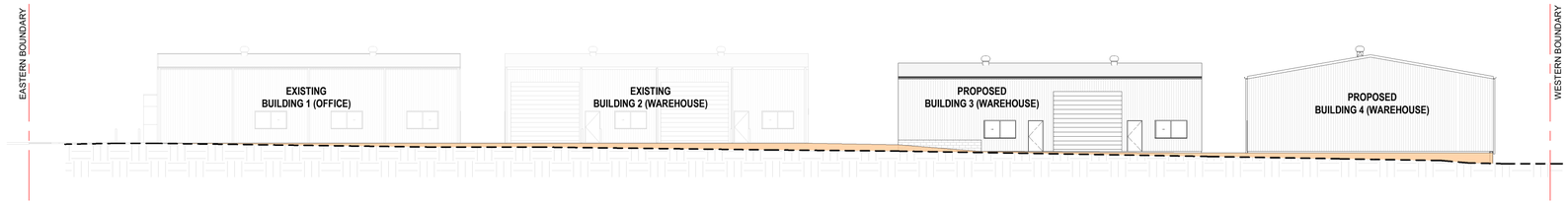
Hydrograph type	=	Combine	Peak discharge	=	0.022 cms
Storm frequency	=	2 yrs	Time to peak	=	13 min
Time interval	=	1 min	Hyd. volume	=	27.4 cum
Inflow hyds.	=	12, 14	Contrib. drain. area	=	0.000 hectare





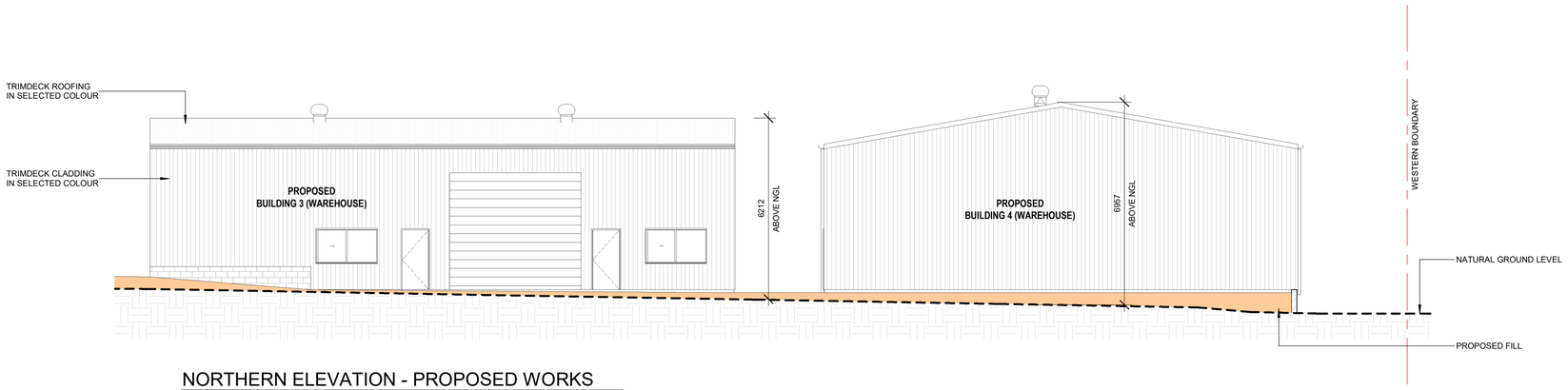
EASTERN ELEVATION - OVERALL SITE

1 : 200



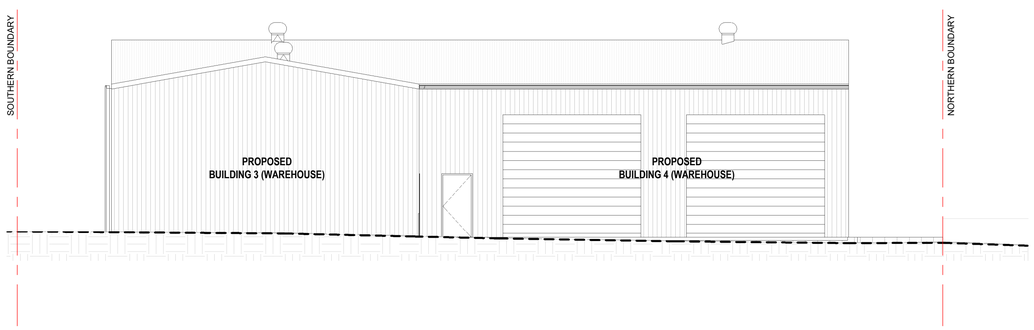
NORTHERN ELEVATION - OVERALL SITE

1 : 200



NORTHERN ELEVATION - PROPOSED WORKS

1 : 100



EASTERN ELEVATION - PROPOSED WORKS

1 : 100

ROCKHAMPTON REGIONAL COUNCIL

APPROVED PLANS

These plans are approved subject to the current conditions of approval associated with

Development Permit No.: D/93-2024

Dated: 29 October 2024

NOTES

VERIFY ALL DIMENSIONS AND CHECK LEVELS ON SITE BEFORE COMMENCING WORK. DO NOT SCALE FROM THE DRAWING.

AMENDMENTS

REV	DATE	DESCRIPTION
A	11.07.2024	FOR APPROVAL

PRELIMINARY

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Rockhampton,
QLD 4700

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North Rockhampton,
QLD 4701

designtek

Phone: 0749 222880
Email: mail@designtek.com.au

qbcc BDAQ MEM. NO #0000761

www.designtek.com.au

SITE:
LOT 1 SP201368

PROJECT:
COMMERCIAL DEVELOPMENT STAGE 2
11-13 HEMPENSTALL STREET KAWANA QLD 4701

CLIENT:
NOVUS LOGISTICS

23/07/2024 8:24:36 AM

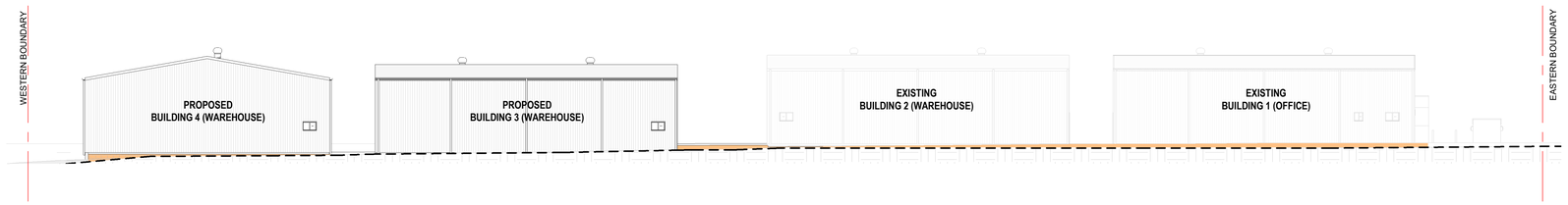
TITLE:
ELEVATIONS

DATE:	SCALE:	DRAWN BY:
11.07.2024	As indicated ON A1	RE

PROJECT NO.
2306-10

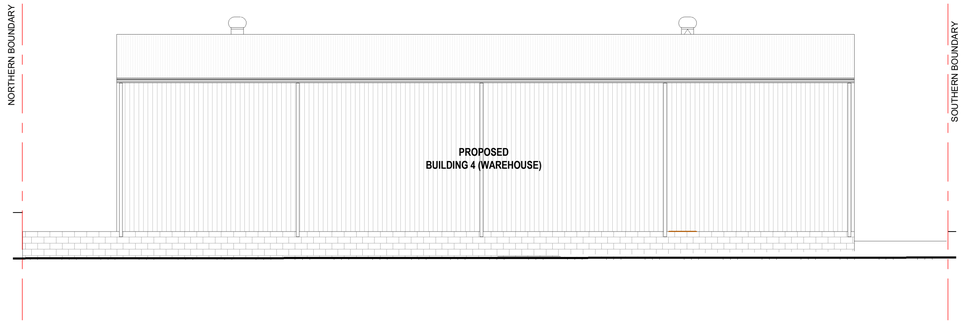
DRAWING NO.
A-02

REVISION:
A



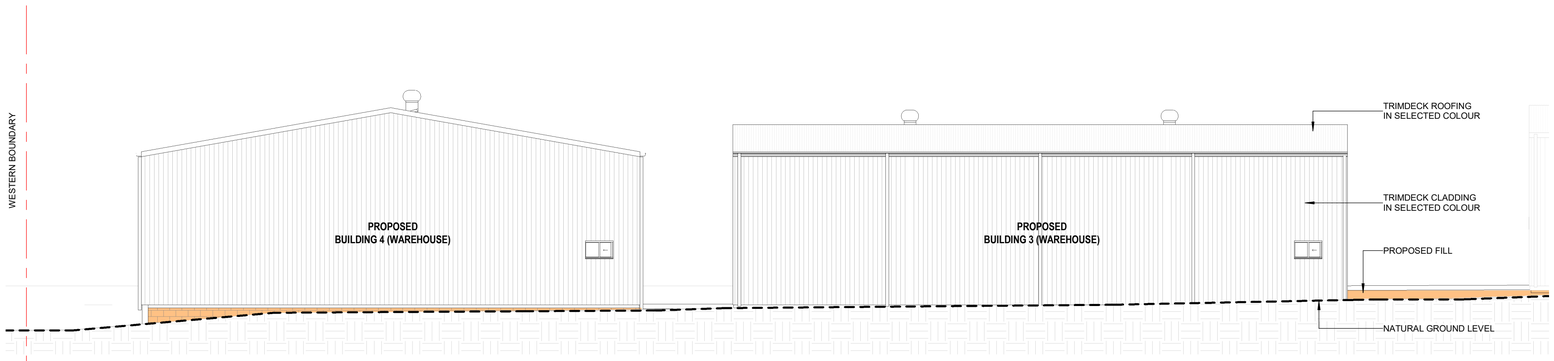
SOUTHERN ELEVATION - OVERALL SITE

1 : 200



WESTERN ELEVATION - PROPOSED WORKS

1 : 100



SOUTHERN ELEVATION - PROPOSED WORKS

1 : 100

ROCKHAMPTON REGIONAL COUNCIL

APPROVED PLANS

These plans are approved subject to the current conditions of approval associated with

Development Permit No.: D/93-2024

Dated: 29 October 2024

NOTES

VERIFY ALL DIMENSIONS AND CHECK LEVELS ON SITE BEFORE COMMENCING WORK. DO NOT SCALE FROM THE DRAWING. THIS DRAWING IS COPYRIGHT AND REMAINS THE PROPERTY OF THE DESIGNTEK PTY LTD AND SHALL NOT BE REPRODUCED OR COPIED IN ANY FORM OR BY ANY MEANS WITHOUT WRITTEN PERMISSION OF THE DESIGNTEK PTY LTD

AMENDMENTS

REV	DATE	DESCRIPTION
A	11.07.2024	FOR APPROVAL

PRELIMINARY

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11-13 HEMPENSTALL STREET KAWANA QLD 4701

CLIENT:
NOVUS LOGISTICS

23/07/2024 8:24:38 AM

TITLE:
ELEVATIONS

DATE:	SCALE:	DRAWN BY:
11.07.2024	As indicated ON A1	Author

PROJECT NO.
2306-10

DRAWING NO.
A-03

REVISION:
A