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ABN 85 031 302 516

25 February 2020

Cameron Sargent
Department of Planning, Industry and Environment
320 Pitt Street
SYDNEY NSW 2000

Attention: Andy Nixey

Dear Cameron

Stadium Australia- SSD10342- Stormwater Management

Further to the Department's correspondence please find attached a letter from the project stormwater engineer, Maffeis Engineering.

The letter from Maffeis Engineering corrects an error in the Stormwater Management Plan lodged with the EIS that stated existing detention areas under the north and south stands would be removed as a result of the works. These detention areas will be retained and augmented as part of the project works to ensure there is no change to stormwater flows from the site.

As detailed in the Stormwater Management Plan, the connection to the external stormwater system will remain as per current arrangements. As such both the flow and water quality of the discharge into this system will not change as a result of the development.

Further work will be undertaken during detailed design to finalise the on-site stormwater design to:

- Manage the flow and storage of 100% of the stormwater detention requirements;
- Ensure the field of play does not flood during storm events;
- Manage stormwater for the 100 year ARI storm events; and
- Ensure there is no change to the existing connection between the on-site and off-site stormwater systems in terms of both rate and volume of flow and water quality.

It is anticipated that the above points could be required as conditional approval in place of the current draft condition B32.

If you have any questions regarding the Report, please contact the undersigned on 0421 595 766.

Yours faithfully,

Tom Kennedy

Memorandum

Maffeis Engineering Pty Ltd
Suite 82, 26-32 Pirrama Road
Pyrmont, NSW Australia 2009

TO:	Mr Tom Sloane, Infrastructure NSW (iNSW)	DATE: 21st February 2020
CC:	Mr Stephen Morley, Maffeis Engineering Mr Chris Paterson, Populous Architects	
FROM:	Robert Koch, Maffeis Engineering	OUR REF: POP-014-M03-A

SUBJECT: Stadium Australia Redevelopment

Civil Works-Stormwater Drainage Report – ADDENDUM 1

Dear Mr Sloane

Please find attached the Addendum 1 of the Civil Works-Stormwater Drainage Report.

This Addendum is provided to correctly state the characteristics of the stormwater drainage design for the Stadium Australia Redevelopment project.

The Aurecon Report is noted as being in error in its statements and we therefore correct.

Yours sincerely

Robert Koch

Delivery Director
Maffeis Engineering

Mob: 0411 042946
Email: R.Koch@Maffeis.it

Memorandum

Maffeis Engineering Pty Ltd
Suite 82, 26-32 Pirrama Road
Pyrmont, NSW Australia 2009

Stadium Australia Redevelopment (SAR)

Civil Works-Stormwater Drainage Report – ADDENDUM 1

The stormwater design for Stadium Australia is currently being further developed by Maffeis Engineering Pt Ltd, Civil Engineering consultants for this project.

Key points to note for the stormwater drainage assessment include the following:

- The stormwater detention basins provided in the design cater for 100% of the volume of the stormwater detention required.
- The field of play is not designed to be flooded during the required storm events.
- The Maffeis Engineering design will maintain stormwater detention under the North & South Stands and, further, provides increased detention volume.
- The submitted 'Civil Works-Stormwater Drainage Layout' drawing SAR-SD-20-0100-02 identifies stormwater detention basin locations and required storage volumes to meet the design stormwater detention requirement.
- The maximum discharge rate from the site following completion of the works is unchanged from what is currently the discharge rate including for the 100 year ARI event.

The Addendum highlights that the Aurecon 'Stormwater Management Plan' dated 16th August 2019 (Aurecon reference 255576), in regards to the submitted design, is in error when it states in its **Section 3.1**

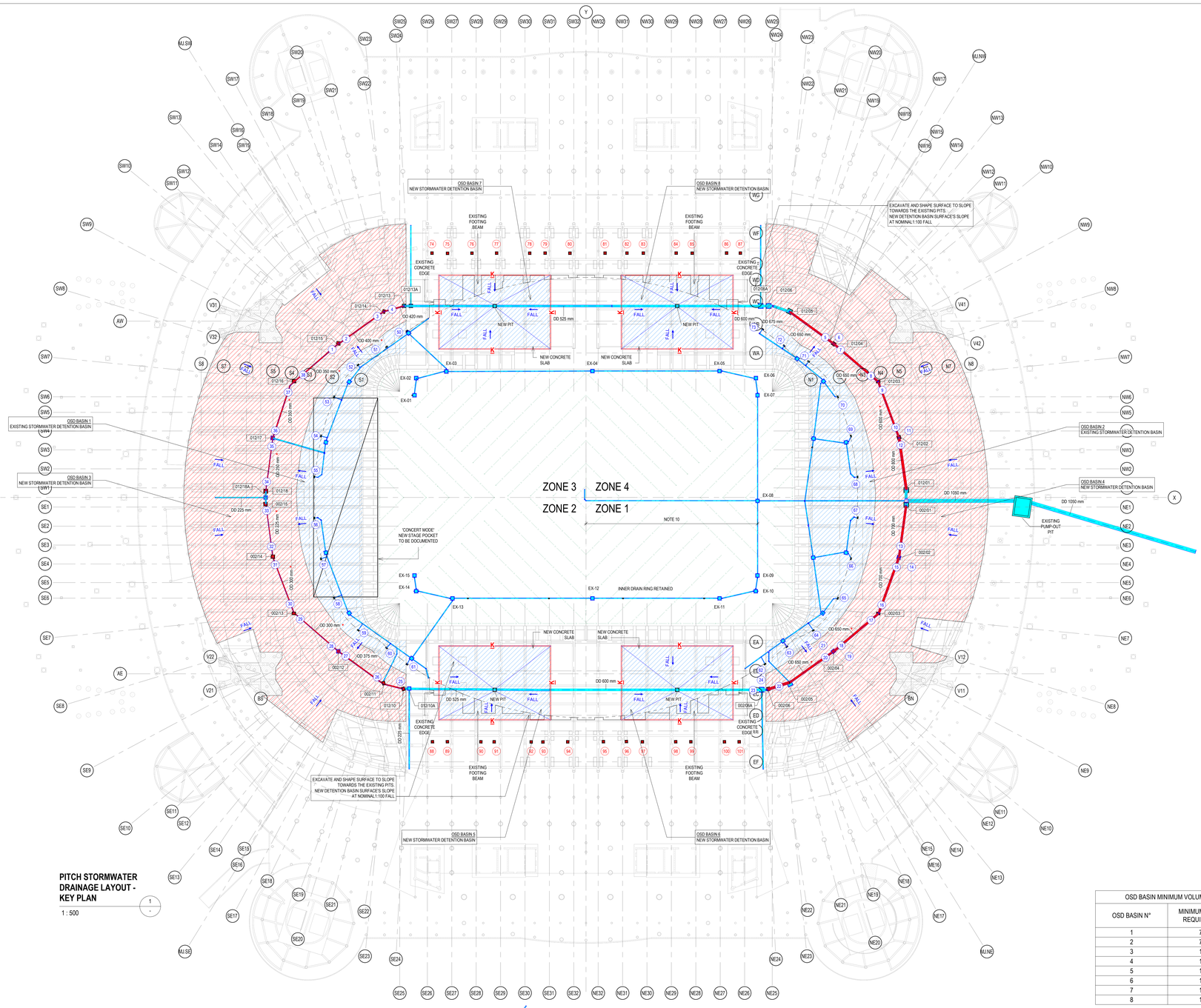
- *'..the stadium's stormwater drainage under the northern and southern stands where it is envisaged that the existing under-stand drainage system will be removed and replaces with a new in-ground network…*
- *'...On-site detention will no longer be provided under the stands for major storm event but would rather temporary overflow on to the field before draining out...'*

SCHEDULE OF MEASURED PIPES		
PIPE SURVEY NUMBER	INVERT SURVEY LEVEL	SIZE (mm)
1	106.72	400 (dia)
2	106.73	400 (dia)
3	106.62	420 (dia)
4	106.63	420 (dia)
5	105.98	650 (dia)
6	105.98	375 (box culv)
7	105.98	650 (dia)
8	105.91	600 (dia)
9	105.91	600 (dia)
10	105.64	800 (dia)
11	105.93	375 (box culv)
12	105.64	800 (dia)
13	105.93	700 (dia)
14	106.05	375 (box culv)
15	105.93	700 (dia)
16	105.82	700 (dia)
17	105.84	700 (dia)
18	105.91	650 (dia)
19	106.18	375 (box culv)
20	105.92	650 (dia)
21	106.17	375 (box culv)
22	106.04	850 (dia)
23	106.04	850 (dia)
24	106.43	375 (box culv)
25	106.64	375 (dia)
26	106.67	375 (dia)
27	106.73	375 (dia)
28	106.73	376 (dia)
29	106.82	300 (dia)
30	106.84	300 (dia)
31	106.93	225 (dia)
32	106.95	225 (dia)
33	107.22	450 (dia)
34	106.96	450 (dia)
35	106.93	250 (dia)
36	106.93	250 (dia)
37	106.92	350 (dia)
38	106.96	350 (dia)
50	108.19	150 (dia)
51	108.2	150 (dia)
52	108.18	150 (dia)
53	108.18	150 (dia)
54	108.18	150 (dia)
55	108.2	150 (dia)
56	108.2	150 (dia)
57	108.2	150 (dia)
58	108.2	150 (dia)
59	108.18	150 (dia)
60	108.19	150 (dia)
61	108.19	150 (dia)
62	108.21	150 (dia)
63	108.21	150 (dia)
64	108.21	150 (dia)
65	108.21	150 (dia)
66	108.22	150 (dia)
67	108.21	150 (dia)
68	108.22	150 (dia)
69	108.21	150 (dia)
70	108.2	150 (dia)
71	108.2	150 (dia)
72	108.21	150 (dia)
73	108.19	150 (dia)

SCHEDULE OF MEASURED STET LEAVE PIPES		
PIPE SURVEY NUMBER	INVERT SURVEY LEVEL	SIZE (mm)
74	107.74	150 (dia)
75	107.74	150 (dia)
76	107.71	150 (dia)
77	107.69	150 (dia)
78	107.72	150 (dia)
79	107.75	150 (dia)
80	107.75	150 (dia)
81	107.65	150 (dia)
82	107.68	150 (dia)
83	107.65	150 (dia)
84	107.64	150 (dia)
85	107.71	150 (dia)
86	107.7	150 (dia)
87	107.65	150 (dia)
88	107.58	150 (dia)
89	107.59	150 (dia)
90	107.53	150 (dia)
91	107.54	150 (dia)
92	107.56	150 (dia)
93	107.55	150 (dia)
94	107.58	150 (dia)
95	107.56	150 (dia)
96	107.58	150 (dia)
97	107.59	150 (dia)
98	107.56	150 (dia)
99	107.47	150 (dia)
100	107.59	150 (dia)
101	107.54	150 (dia)

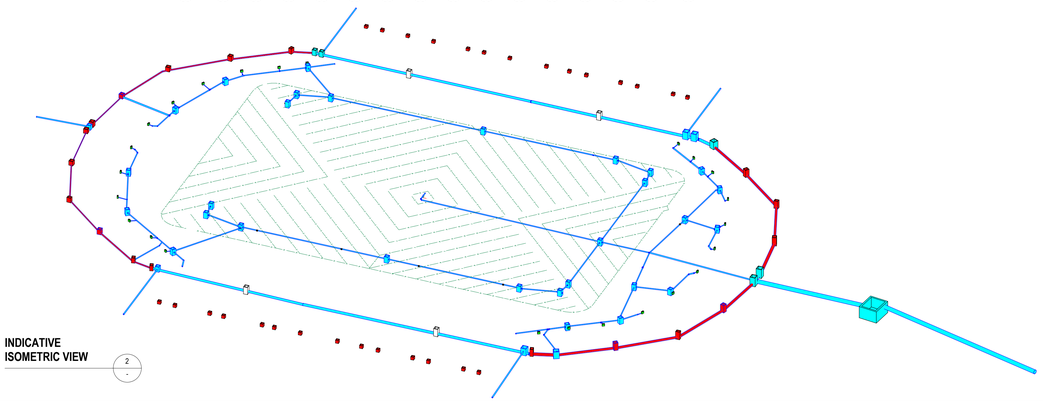
PIPE SIZES & INVERT LEVEL

REF. N.79102 SW PITS REV.A DATED 06/11/19



PITCH STORMWATER DRAINAGE LAYOUT - KEY PLAN

1 / - 1 : 500



INDICATIVE ISOMETRIC VIEW

2 / -

NOTE:

1. FOR GENERAL CIVIL WORKS NOTES REFER TO DRAWING N. SAR-SD-20-0000.
2. FOR DETAILS REFER TO DRAWING N. SAR-SD-21-0001.
3. REFER TO SPORTENG DESIGN FOR FURTHER DETAILS ABOUT SUBSOIL DRAINS.
4. INFORMATION SOURCE RYGATE' SURVEY REF. N.79102 SW PITS REV.A DATED 06/11/19.
5. FOR DIAMETER OF EXISTING PIPES REFER TO RYGATE SURVEY SHEET N.79102 SW PITS.
6. DIAMETER OF THE PIPES FROM AS BUILT HAS BEEN CONSIDERED AS INTERNAL.
7. ELEMENTS FROM AS BUILT NEED TO BE CHECKED ON SITE.
8. EXISTING ON SITE STORMWATER DETENTION BASIN AREA
   - MOVE SOIL AND EXCAVATE/CONSTRUCT NEW KERBS AS REQUIRED TO RE-FORM THE EXISTING DETENTION BASIN TO DELIVER A NOMINAL 1:100.
   NEW DETENTION BASIN SURFACE'S SLOPE AT NOMINAL 1:100 FALL FROM THE "EXTERNAL" SIDE TOWARDS THE PIT.
   - PITS TO REMAIN AT EXISTING LEVELS.
   - GRADE THE NEW " NORTH" AND "SOUTH".
9. NEW ON SITE STORMWATER DETENTION BASIN AREA:
   - EXCAVATE AND SHAPE SURFACE TO SLOPE TOWARDS THE EXISTING PITS. NEW DETENTION BASIN SURFACE'S SLOPE AT NOMINAL 1:100 FALL.
   - UNDERTAKE SURVEY OF THE OSD BASINS AFTER CONSTRUCTION AND VERIFY RL'S AND VOLUMES OF STORAGE.
10. EXISTING PIPE TO BE DECOMMISSIONED AND REMOVED - REFER TO FIELD DESIGN ENGINEER. ALLOW TO SEAL THE EXISTING PIT.
11. IN EACH NEW OSD BASIN, CONTRACTOR IS TO UNDERTAKE DCP TESTS TO 1.0 METRE DEPTH AT A RATE OF 1 TEST PER 200 m^2. WHERE GEOTECHNICAL ENGINEER IDENTIFIES AREAS BELOW 98% STANDARD DRY DENSITY, RECOMPACT.
12. REQUIRED "NEW OSD VOLUMES"
    A. NO RETRACTABLE ROOF: 180 m^3
    B. RETRACTABLE ROOF: 450 m^3
13. CONSTRUCT A "NEW KERB" (K) ALL AROUND NEW OSD BASINS N° 5, 6, 7 AND 8.
    SHAPE THE EXISTING GROUND SURFACE AND IMPORT FILL TO BUILD UP, TO DELIVER A NOMINAL 1 IN 100 FALL TO A "NEW PIT".
14. INSTALL A "NEW PIT" MIN 900x900 CLASS D 'HEAVY DUTY' (AS3996) AT EACH NEW OSD BASIN N° 5, 6, 7 AND 8. REFER TO DRAWING N° SAR-SD-21-0001 FOR DETAILS.

LEGEND

- ELEMENTS SURVEYED & IN AS BUILT
- ELEMENTS FROM AS BUILT. TO BE CHECKED ON SITE.
- ELEMENTS FROM SURVEY
- EXISTING ON SITE STORMWATER DETENTION BASIN AREA
- NEW ON SITE STORMWATER DETENTION BASIN AREA
- NEW SUBSOIL DRAINS
- EXISTING EDGE OF FIELD LINE
- EX00 EXISTING PIT COLLECTING WATER FROM THE PITCH IN SPORTENG DESIGN
- 002/000 DRAINAGE PIT NUMBER FROM STC-10001 DRAWING
- (00) PIPE NUMBER FROM RYGATE' SURVEY
- (00) VERTICAL PIPE NUMBER FROM RYGATE' SURVEY
- DD PIPE DIAMETER FROM STC-10001 DRAWING REV.1 DATED 22.02.01, NEED TO BE CHECKED ON SITE
- OD OVERALL PIPE DIAMETER FROM SURVEY
- * ANY DISCREPANCY BETWEEN THE DIAMETER OF THE PIPE MEASURED IN ONE PIT AND THE FOLLOWING. TO BE CHECKED ON SITE.
- +108.50 SPOT ELEVATION ON THE TOP OF THE PIT FROM RYGATE' SURVEY
- K NEW KERBS - REF. TO DRAWING N. SAR-SD-21-0001
- OSD ON SITE DETENTION

OSD BASIN MINIMUM VOLUMES	
OSD BASIN N°	MINIMUM VOLUME REQUIRED (m^3)
1	700
2	700
3	190
4	190
5	140
6	140
7	140
8	140

SCHEDULE OF EXISTING PITS AND JUNCTIONS		
ID AS BUILT	TYPE DESCRIPTION	REFER TO DETAIL N.
002/01	BURIED JUNCTION	1-2-3 SAR-SD-21-0001
002/02	SURFACE INLET	4 SAR-SD-21-0001
002/03	BURIED JUNCTION	1-2-3 SAR-SD-21-0001
002/04	BURIED JUNCTION	1-2-3 SAR-SD-21-0001
002/05	BURIED JUNCTION	1-2-3 SAR-SD-21-0001
002/06		
002/06A		
002/11		
002/12	SURFACE INLET	4 SAR-SD-21-0001
002/13	BURIED JUNCTION	1-2-3 SAR-SD-21-0001
002/14	SURFACE INLET	4 SAR-SD-21-0001
002/15	BURIED JUNCTION	1-2-3 SAR-SD-21-0001
012/01	BURIED JUNCTION	1-2-3 SAR-SD-21-0001
012/02	SURFACE INLET	4 SAR-SD-21-0001
012/03	BURIED JUNCTION	1-2-3 SAR-SD-21-0001
012/04	BURIED JUNCTION	1-2-3 SAR-SD-21-0001
012/05	BURIED JUNCTION	1-2-3 SAR-SD-21-0001
012/06		
012/06A		
012/10	CONCEALED SUMP	6-7 SAR-SD-21-0001
012/10A		
012/13		
012/13A		
012/14	BURIED JUNCTION	1-2-3 SAR-SD-21-0001
012/15	SURFACE INLET	4 SAR-SD-21-0001
012/16	BURIED JUNCTION	1-2-3 SAR-SD-21-0001
012/17	SURFACE INLET	4 SAR-SD-21-0001
012/18	BURIED JUNCTION	1-2-3 SAR-SD-21-0001
012/18A		

SCHEDULE EXTRACTED FROM DRAWING STC-10001 REV.1

FROM MULTIPLEX CONSTRUCTIONS

REFERENCE MAP

0 10 20 40m

1:500

CLIENT :

insw Infrastructure New South Wales

ARCHITECT:

POPULOUS

SERVICES ENGINEER:

aurecon

COST CONSULTANT:

WT PARTNERSHIP

NOTES:

This drawing has to be read in conjunction with General notes (Ref dwg n° 02-0001 / 0002 / 0003 / 0011 / 0012)

This Drawing Shall Only Be Printed In Colour

This Drawing Shall Be Printed Minimum in A2 size

For dimensions refer to architectural package

PRELIMINARY NOT FOR CONSTRUCTION

DISCLAIMER

USE FIGURED DIMENSIONS ONLY DO NOT SCALE FROM DRAWING CHECK & VERIFY ALL DIMENSIONS ON SITE BEFORE FABRICATION OR SET OUT.

This drawing is diagrammatic and shows general arrangements. Any information involving measurement of the works shall be taken from documented dimensions on the architectural and structural drawings, workshop drawings by others and conditions on site. The works shall comply with the contract conditions and Statutory Regulations.

THIS DRAWING IS AN UNCONTROLLED COPY. UNLESS NOTED OTHERWISE.

REV	DESCRIPTION	DATE
1	ISSUED FOR TENDER	20-12-2019
2	APPROVED FOR TENDER	31-01-2020

STRUCTURAL & CIVIL ENGINEER:

MAFFEIS Engineering

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2009 Pyrmont NSW - Australia
t: +61 2 9056 3398 www.maffeis.it

PROJECT

STADIUM AUSTRALIA REDEVELOPMENT

SHEET TITLE

CIVIL WORKS - STORMWATER DRAINAGE LAYOUT - KEY PLAN

PROJECT NUMBER	REVIEWED
19.7601.00	MC
DRAWN BY	APPROVED
IC	SM
SCALE 100% @ A0	NORTH POINT
1:500	
PHASE	DRAWING NUMBER / REVISION
DD	SAR-SD-20-0100 / 2

29/01/2020 13:55:26

ORIGINAL SHEET SIZE A0 - 1189 x 841mm