MEINHARDT

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28 April 2014

Moorgate Property
Suite 1.01, 27 Belgrave Street
MANLY NSW 2095

ATTENTION: SAM PETINSKY

Dear Sam,

RE: 18 MARMORA STREET, HARBORD – FLOOD POTENTIAL STATEMENT

The following letter is supplied to support the application for development at 18 Marmora Street, Harbord. This letter forms the Flood Potential Statement as required by Warringah Council and should be read in conjunction with the Architectural plans, details and any supporting reports. This letter outlines the existing upstream overland flow arriving at the development site, the method adopted to convey the overland flow, the impact of the flow on the development and surrounds, and the mitigation methods proposed to minimize its impact.

1. The Development and Upstream Flow

It is proposed to construct a new residential development consisting of three low level residential towers over a combined basement structure. This development will sit adjacent to an existing Council, stormwater pipe running form the Oliver street carpark to Marmora Street. The Council stormwater pipe generally flows an existing 1.83m easement along the northern boundary of the site but skews into the adjacent property (No. 16 Marmora) near the North East boundary. The Council stormwater pipe has been identified as a 450 RCP in the survey and earlier stormwater reports for the site.

The existing stormwater pipe has insufficient capacity to convey the 100 year flow and overland flow will be present across the site. The overland flow approximately flows the route of the existing Council pipe. An earlier stormwater Drainage Report, prepared by AKY Civil Engineering, dated September 2010and submitted to Council, calculated a 100 year flow of 1.61m3/s leaving the Oliver Street carpark and arriving at the site. This flow was verified in a DRAINS model, following a review of the catchment, impervious ratios and IFD data.

2. Proposed Overland Flow Swale

The overland flow will arrive at the North West corner of the site. It is proposed to construct a new 3m wide trapezoidal vegetated swale within a new 3m wide drainage easement to convey the overland flow safely across the site. To provide a flood free development, the swale has been sized to contain the entire 100 year flow in the event that the council stormwater pipe is fully blocked (worst case scenario). The new swale is shown on Stormwater management Plan, drawing No. 111927-00-MIE100 (copy attached). The swale has been designed to a maximum grade of 5% with low vegetation and groundcovers. The maximum depth of water during the 100 year event is 310mm with a freeboard in excess of 500mm to the habitable level of building B adjacent. The basement wall will form a water tight barrier to the swale which will be shaped to contain the entire flow within the site. The swale will discharge at the proposed driveway and flow as sheet flow into Marmora Street, similar to current conditions. The flow width will be significantly widening and the depth of water reduced across the driveway. Consequently the VD ratio will be reduced to below 0.4 in the driveway and pedestrian areas. The adjacent property will be free of overland flow.

3. Site Stormwater

The site stormwater system has been designed to be fully independent of the Council system and free from the overland flow rout. The site discharge point will be the existing stormwater pit in Marmora street, near No 16. It is proposed to reduce the site discharge in accordance with Council's policy (On-Site Stormwater Detention, Technical Specification), via orifice controlled OSD tanks, refer drawing 111927-00-MIE100. A DRAINS model has been developed to size the OSD tanks, and to verify the

impact of the overland flow on the site discharge. The overland flow has no direct impact of the site discharge. This model can be supplied if required.

4. Conclusion

A review of the Overland flow arriving from the upstream Oliver street carpark and surrounds has been undertaken by Meinhardt and a new 3m wide easement with a vegetated swale is proposed along the Northern boundary of the development at 18 Marmora Street, Harbord to convey the 100 year flow. The swale has been designed to safely contain the entire 100 year flow without spillage into the surrounding properties. The existing Council stormwater pipe is to remain unchanged.

A new stormwater system is proposed for the development with OSD tanks to control discharge. This system is not affected by the upstream overland flow or the proposed swale.

Should you wish to discuss any aspect of the above Flood Potential Statement, please do not hesitate to contact the undersigned

Yours sincerely,
MEINHARDT (NSW) PTY LTD

Michael Cudmore, *BEng MIE*
Senior Civil Engineer

Attach: Drawing No. 111927-00-MIE100

PROPOSED HOUSING DEVELOPMENT

18 MARMORA STREET, HARBORD, NSW

CIVIL DRAWINGS

PROJECT No. 111927

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WARNING
BEWARE OF UNDERGROUND SERVICES
THE LOCATIONS OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN

EARTHWORKS

E1
THE CONTRACTOR SHALL COMPLY WITH THE CURRENT EDITIONS OF THE FOLLOWING VICROADS AND AUSTRALIAN STANDARDS.
AUSTRALIAN STANDARDS
AS 1289 TESTING SOILS FOR ENGINEERING PURPOSES
AS 3798 GUIDELINES ON EARTHWORKS FOR COMMERCIAL AND RESIDENTIAL DEVELOPMENTS
VICROADS SPECIFICATION - SECTION 201 SITE CLEARING

E2
THE CONTRACTOR SHALL BE RESPONSIBLE FOR CARRYING OUT ALL CONTROL AND COMPLIANCE EXAMINATION AND TESTING OF MATERIALS AND WORK
UNLESS OTHERWISE SPECIFIED, ALL TESTS SHALL BE UNDERTAKEN IN ACCORDANCE WITH THE APPROPRIATE AUSTRALIAN STANDARD TEST METHOD. WHERE THERE IS NO RELEVANT AUSTRALIAN STANDARD TEST METHOD THEN THE CURRENT APPROPRIATE VICROADS TEST METHOD OR OTHER SPECIFIED TEST METHOD SHALL BE USED. ALL TESTS SHALL BE CONDUCTED BY EXPERIENCED TESTING OFFICERS IN A LABORATORY ACCREDITED BY THE NATIONAL ASSOCIATION OF TESTING AUTHORITIES (NATA)

E3
DETERMINATION OF THE NATURE AND QUANTITY(IES) OF THE EXISTING SITE MATERIALS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. WHERE INCLUDED IN THE DOCUMENTS, GEOTECHNICAL REPORTS ARE INCLUDED FOR INFORMATION ONLY. INTERPRETATION OF THE REPORT/S SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
THE CONTRACTOR SHALL BE DEEMED TO HAVE ALLOWED IN THE CONTRACT SUM FOR EXCAVATION IN ALL MATERIAL. NO ADDITIONAL PAVEMENT SHALL BE MADE FOR EXCAVATION IN ROCK NOR ANY HARD OR SOFT MATERIAL.
USE OF ON-SITE MATERIAL WITHIN THE WORKS SHALL ONLY BE PERMITTED WHERE THE MATERIAL EITHER:
I. IS SPECIALLY STATED WITHIN THE DOCUMENTS AS BEING USED IN THE WORKS, OR
II. IS PERMITTED BY THE SUPERINTENDENT
IMPORTED FILL SHALL BE APPROVED MATERIALS COMPRISING GRANULAR IGNEOUS WEATHERED ROCK OR QUARRY WASTE (SUCH AS RMS DGS40 OR EQUIVALENT), SANDY CLAY OR WEATHERED SEDIMENTARY ROCK. THE FILL MATERIAL [illegible]UM PARTICLE SIZE AFTER COMPACTION SHALL NOT EXCEED 40MM, NOT LESS THAN 50% OF THE MATERIAL SHALL BE [illegible]SER THAN 75 MICRON AND IT SHALL HAVE A LIQUID LIMIT NOT EXCEEDING 35%. GRANULAR MATERIAL SHALL BE WELL [illegible]ADED.
UNSUITABLE MATERIAL SHALL MEAN ANY MATERIAL WHICH CONTAINS VEGETABLE MATTER, ROOTS, STUMPS AND OR ANY OTHER PERISHABLE, FOREIGN OR DELETERIOUS MATTER, OR CONTAINS CLAY HAVING A LIQUID LIMIT EXCEEDING 80% AND OR A PLASTICITY INDEX EXCEEDING 50% OR CONTAINS ROCK, GRAVEL OR OTHER PIECES WHOSE LEAST DIMENSION EXCEEDS 100MM, OR IS SILTY MATERIAL OR IS OTHERWISE CONSIDERED AS BEING UNSUITABLE

E4
WHEN A SURFACE IS UNABLE TO SUPPORT CONSTRUCTION EQUIPMENT OR IT IS NOT POSSIBLE TO COMPACT THE OVERLYING MATERIALS BECAUSE OF HIGH MOISTURE CONTENT, THEN ONE OR MORE OF THE FOLLOWING ALTERNATIVE ACTIONS MAY BE TAKEN.
(I)ALLOW THE MATERIAL TO DRY TO A MOISTURE CONTENT WHICH ALLOW IT TO BE COMPACTED AND ALLOW THE PLACEMENT AND COMPACTION OF OVERLYING MATERIAL
(II)SCARIFY THE MATERIAL TO A DEPTH OF 200MM AND WORK AS NECESSARY TO ACCELERATE DRYING. RECOMPACT AS SPECIFIED WHEN MOISTURE CONTENT APPROXIMATES OPTIMUM
(III)EXCAVATE AND REPLACE THE SOFT MATERIAL.
THE ACTION TO BE ADOPTED SHALL BE AT THE CONTRACTOR'S DISCRETION AND EXPENSE, BUT SHALL BE ADVISED TO THE SUPERINTENDENT BEFORE ACTION COMMENCES.
IF THE CONTRACTOR ELECTS PURSUANT TO (I) ABOVE TO ALLOW THE MATERIAL TO DRY, RESULTING DELAYS, IF ANY, SHALL NOT CONSTITUTE GROUNDS FOR AN EXTENSION OF CONTRACT PERIOD OR DATE OF PRACTICAL COMPLETION

E5
THE FINISHED SUBGRADE SHALL NOT BE DISTURBED BY TRAFFIC OR OTHER OPERATIONS, AND SHALL BE PROTECTED AND MAINTAINED BY THE CONTRACTOR UNTIL THE FIRST LAYER OF FILL OR SUB-BASE IS PLACED THEREON. THE SUBGRADE SHALL BE KEPT DRAINED AND COMPLETELY FREE OF STANDING WATER AT ALL TIMES
THE CONTRACTOR SHALL PLAN AND CARRY OUT THE WHOLE OF THE WORKS TO MINIMISE THE EFFECTS OF RUN-OFF AND EROSION ON THE SITE AND ON DOWNSTREAM AREAS. HE SHALL AVOID UNNECESSARY GROUND DISTURBANCE AND PROVIDE AS NECESSARY FOR THE PROPER CONTROL OF STORMWATER RUN-OFF AT EVERY STAGE OF THE WORKS.

E6
PRIOR TO THE COMMENCEMENT OF EARTHWORKS TOPSOIL IS TO BE STRIPPED WITHIN THE LIMITS OF THE EARTHWORKS AND FROM ANY AREAS TO BE COVERED BY PAVING, STRUCTURES OR FILL, AND ALL AREAS WHICH ARE TO SUPPORT PAVEMENTS, EMBANKMENTS, STRUCTURES AND THE LIKE OR FILLING UNDER SUCH WORKS, SHALL BE STRIPPED CLEAR OF ALL TREES, LOGS, STUMPS, SCRUB, GRASS, ROOT GROWTH, CULTIVATED SOIL, WET OR SPONGY NATURAL SOIL, DECAYED VEGETABLE MATTER AND ANY OTHER DELETERIOUS SUBSTANCE. THE CONTRACTOR SHALL BREAK UP AND REMOVE ALL ASPHALT AND CONCRETE MATERIAL UPON WHICH FILL OR PAVEMENT SHALL BE PLACED.
ALL MATERIAL WITHIN THE LIMIT OF THE EARTHWORKS SHALL BE WHOLLY REMOVED.
FILL ALL HOLES WITH APPROVED MATERIAL IN MAXIMUM 150MM COMPACTED THICKNESS LAYERS COMPACTED TO THE DENSITY TO THE ADJOINING UNDISTURBED SOIL AND TO THE APPROVAL OF THE SUPERINTENDENT

E7
MOISTURE CONDITION THE NATURAL SUBGRADE TO WITHIN THE RANGE 97% TO 103% OF STANDARD OPTIMUM MOISTURE [illegible]TENT AND COMPACT TO ACHIEVE A MINIMUM STANDARD DRY DENSITY RATIO TO A MINIMUM DEPTH OF 200MM. IF [illegible]RED THE AREA SHOULD BE TYNED AND SCARIFIED FULL DEPTH TO FACILITATE THIS PROCESS.
[illegible] SOFT, WEAK OR UNSTABLE AREAS EXPOSED BY THE COMPACTION PROCESS, OR DURING TEST ROLLING, AND WHICH DO NOT RESPOND TO FURTHER COMPACTION OR MOISTURE CONDITIONING SHALL BE EXCAVATED AND REPLACED.
THE CONTRACTOR SHALL BE DEEMED TO HAVE ASSESSED THE EXTENT OF UNSTABLE AREAS AND SHALL BE DEEMED TO HAVE INCLUDED IN THE CONTRACT SUM FOR ALL ACTIVITIES REQUIRED FOR UNSTABLE AREA RECTIFICATION INCLUDING THE DELIVERY, PLACING AND COMPACTING OF APPROVED MATERIAL AS WELL AS THE EXCAVATION AND DISPOSAL OF REPLACED MATERIAL

E8
EXCAVATION TO THE LINES, LEVELS AND GRADES AS REQUIRED FOR UNDERGROUND SERVICES SPECIFIED IN THE RELEVANT SERVICES SECTIONS, INCLUDING DRAINAGE, HYDRAULIC, ELECTRICAL AND THE LIKE. UNLESS OTHERWISE SPECIFIED MAKE THE TRENCHES STRAIGHT BETWEEN MANHOLES, INSPECTION POINTS, JUNCTIONS AND THE LIKE, WITH VERTICAL SIDES AND UNIFORM GRADES
DEPTH SHALL BE AS REQUIRED BY THE RELEVANT SERVICES AND ITS BEDDING.
CUT BACK ROOTS ENCOUNTERED IN TRENCHES TO LESS THAN 600MM CLEAR OF THE RELEVANT SERVICE. REMOVE SUCH OTHER OBSTRUCTIONS INCLUDING ROOTS, STUMPS, BOULDERS AND THE LIKE WHICH MAY, IN THE OPINION OF THE SUPERINTENDENT, INTERFERE WITH THE PROPER FUNCTIONING OF THE SERVICE
LAY AND BED SERVICES IN ACCORDANCE WITH THE RELEVANT SERVICES SPECIFICATION SECTION

E9
BACKFILL AND COMPACT SERVICE TRENCHES AS SOON AS POSSIBLE AFTER APPROVAL OF LAID AND BEDDED SERVICE. COMPACT BACKFILL IN PIPE TRENCHES SO THAT THE PIPE IS BUTTRESSED BY THE WALLS OF THE TRENCH

E10
WHERE FILLING IS DESIGNATED BY THE CONTRACT OR IS SHOWN ON THE DRAWINGS AS STRUCTURAL OR CONTROLLED FILL THE CONTRACTOR SHALL ENGAGE AN INDEPENDENT GEOTECHNICAL TESTING AUTHORITY TO SUPERVISE SUBGRADE PREPARATION, FILL PLACEMENT, COMPACTION AND TO UNDERTAKE SAMPLING AND TESTING AND REPORTING TO SATISFY THE REQUIREMENTS OF THIS SPECIFICATION AND THOSE OF AS 2870 AND AS 3798, FOR CONTROLLED FILL

E11
NO FILL SHALL BE PLACED OVER LAYERS NOT TESTED AND HAVING SATISFACTORY RESULTS
WHERE EXCAVATED MATERIAL IS NOT SUITABLE FOR FILLING, FILL MATERIAL, AS SPECIFIED IN THIS SPECIFICATION SECTION, "IMPORTED FILL" SHALL BE USED.
SUITABLE MATERIAL EXCAVATED FROM THE SITE MAY BE USED AS FILL ONLY WHERE APPROVED IN WRITING BY THE SUPERINTENDENT, OR WHERE SHOWN ON THE DRAWINGS
COMPACT IMPORTED BULK FILL IN LAYERS OF 150MM MAXIMUM COMPACTED DEPTH AND AT OPTIMUM MOISTURE CONTENT
THE CONTRACTOR SHALL CARRY OUT TESTING AT A FREQUENCY WHICH IS SUFFICIENT TO ENSURE THAT THE MATERIALS AND WORK SUPPLIED UNDER THE CONTRACT COMPLIES WITH THE SPECIFIED REQUIREMENTS AND CONFORMING TO THE "MINIMUM FREQUENCY OF TESTING FOR MATERIAL DESCRIPTIONS" TABLE AND "GUIDELINES FOR MINIMUM FREQUENCY OF FIELD DENSITY TEST", TABLE OF AS 3798.

E12
UNLESS OTHERWISE PERMITTED, NO FILLING SHALL BE PLACED AGAINST ANY STRUCTURES, WING WALLS OR RETAINING WALLS WITHIN FOURTEEN DAYS OF CASTING. STRUT WALLS AS NECESSARY TO PREVENT MOVEMENT DURING PLACING AND COMPACTION.
PLACE AND COMPACT FILLING OVER AND AROUND PIPES, CULVERTS, BRIDGES AND OTHER STRUCTURES SO AS TO AVOID UNBALANCED LOADING OR MOVEMENT.
UNLESS OTHERWISE DETAILED BACKFILL AT STRUCTURES SHALL BE FILLED AS FOLLOWS.
WHERE THE GAP BETWEEN THE STRUCTURE AND UNDISTURBED GROUND EXCEEDS 2M, BACKFILL THE ZONE WITHIN 2M OF THE STRUCTURE WITH CLASS 3 FINE CRUSHED ROCK AND BACKFILL IN THE ZONE BEYOND 2M OF THE STRUCTURE WITH SELECT FILL TO THE APPROVAL OF THE SUPERINTENDENT OR CLASS 3 FINE CRUSHED ROCK.
UNLESS OTHERWISE DETAILED, MATERIAL WITHIN 300MM OF WEEPHOLES SHALL BE AN APPROVED GRANULAR FILTER MEDIUM OF COARSE SAND OR CRUSHED STONE WRAPPED AND SURROUNDED WITH AN APPROVED GEOTEXTILE SEPARATION LAYER

E13
HORIZONTAL.
NO POINT SHALL BE GREATER THAN + OR - 100MM FROM THE DESIGN LOCATION.
VERTICAL:
SUBGRADE LEVEL: +0, -25MM
PAVEMENT DESIGN SUBGRADE
LEVEL: +0, -25MM
OTHER: +50, -50MM
STRAIGHTNESS (EXCLUDES ROCK): MAXIMUM 20MM DEPARTURE FROM 3M STRAIGHT EDGE LAID.
- PARALLEL TO ROAD CENTRE LINE
- NORMAL TO INTENDED CONTOURS

E14
AREAS UPON WHICH FILLS ARE TO BE CONSTRUCTED, ALL LAYERS OF FILLING, AND MATERIALS LESS THAN 150MM BELOW PERMANENT SUBGRADE LEVEL IN CUTTINGS, SHALL BE COMPACTED SO AS TO BE CAPABLE OF WITHSTANDING TEST ROLLING, WITHOUT VISIBLE DEFORMATION OR SPRINGING, WITH A PNEUMATIC TYRED ROLLER OR HIGHWAY TRUCK BALLASTED TO COMPLY WITH THE FOLLOWING.
PNEUMATIC TYRED - NOT LESS THAN 3 T PER TYRE WITH TYRES INFLATED TO 550 KPA.
HIGHWAY TRUCK - WITH REAR AXLE OR AXLES LOADED TO NOT LESS THAN 8 T EACH WITH TYRES INFLATED TO 550 KPA
TEST ROLLING SHALL BE CARRIED OUT IMMEDIATELY BEFORE OVERLYING LAYERS ARE PLACED.
WHERE TEST ROLLING IS REQUIRED AT SOME LATER DATE, THE SURFACE SHALL BE MOISTURE CONDITIONED AS REQUIRED AND GIVEN NOT LESS THAN FOUR COVERAGES OF THE TEST ROLLER BEFORE TEST ROLLING COMMENCES.

E15
THE WORK SHALL NOT BE ACCEPTED AS COMPLETE UNLESS ALL TEST RESULTS ARE PROVIDED TO THE SUPERINTENDENT
THE CONTRACTOR SHALL PROVIDE ALL MATERIAL PROPERTY AND QUALITY TEST RESULTS TO THE SUPERINTENDENT

CIVIL

C1
THE CONTRACTOR SHALL LIAISE DIRECTLY WITH ALL SERVICE AUTHORITIES INVOLVED AND SHALL COMPLY WITH ALL THEIR REGULATIONS AND REQUIREMENTS

C2
ALL LEVELS SHOWN ARE TO AUSTRALIAN HEIGHT DATUM, UNLESS STATED OTHERWISE. ALL COORDINATES SHOWN ARE TO AUSTRALIAN MAP GRID, UNLESS STATED OTHERWISE

C3
SERVICE INFORMATION SHOWN IS BASED ON PLANS SUPPLIED AND IS APPROXIMATE ONLY. ACTUAL LOCATION CAN ONLY BE DETERMINED BY EXCAVATION. THE CONTRACTOR SHALL LIAISE WITH SERVICE AUTHORITIES FOR SERVICE LOCATIONS. THE CONTRACTOR SHALL PROTECT ALL SERVICES AND SHALL RECTIFY ANY DAMAGE AT HIS EXPENSE

C4
ALL WORKS IN PUBLIC LANDS SHALL BE TO THE APPROVAL AND SATISFACTION OF THE RELEVANT AUTHORITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND OBTAINING RELEVANT AUTHORITY WRITTEN APPROVAL OF THE WORKS

C5
EXISTING SURFACE CONTOURS SHOWN ARE INTERPOLATED FROM SPOT HEIGHTS AND ARE APPROXIMATE ONLY

C6
UNLESS OTHERWISE NOTED ALL VEGETATION SHALL BE STRIPPED TO A MINIMUM DEPTH OF ???MM UNDER ALL PAVEMENT AND BUILDING AREAS.

C7
PRIOR TO PLACEMENT OF ANY FILLS, PAVEMENT OR BUILDINGS, THE EXPOSED SUB-GRADE SHALL BE COMPACTED TO THE SPECIFIED STANDARD MAXIMUM DRY DENSITY FOR THE DEPTH SPECIFIED, ANY SOFT SPOTS SHALL BE REMOVED AND REPLACED WITH APPROVED FILL AND COMPACTED AS SPECIFIED. SUBGRADE SHALL BE PROOF ROLLED, AS SPECIFIED.

C8
ALL FILL REQUIRED SHALL BE APPROVED FILL MATERIAL AND SHALL BE COMPACTED IN 150MM MAXIMUM COMPACTED THICKNESS LAYERS TO THE DENSITIES SPECIFIED, UNLESS SHOWN OTHERWISE ON THE DRAWINGS

C9
THE CONTRACTOR SHALL KEEP THE SITE WELL DRAINED AND COMPLETELY FREE OF STANDING WATER AT ALL TIMES

C10
GRADE EVENLY BETWEEN FINISHED SURFACE SPOT LEVELS. (FINISHED SURFACE CONTOURS ARE SHOWN FOR CLARITY ONLY.)
WHERE FINISHED SURFACE SPOT LEVELS ARE NOT SHOWN THE SURFACE SHALL BE GRADED SMOOTHLY SO THAT IT WILL DRAIN FREELY, AND TO MATCH THE LEVELS OF ADJACENT SURFACES OR STRUCTURES

C11
DOWNPIPES SHALL BE CONNECTED TO PITS OR STORMWATER PIPES WITH EARTHENWARE OR SEWER CLASS PVC PIPES (DIAMETER AS INDICATED BY DOWNPIPE SIZE ON ARCHITECTURAL OR ENGINEERING DRAWINGS) AT A MINIMUM GRADE OF 1IN100, MINIMUM 300MM COVER, UNLESS OTHERWISE SHOWN.

C12
ALL CONCRETE STORMWATER PIPES SHALL BE CLASS 2 WITH RUBBER RING JOINTS IN ACCORDANCE WITH A.S.4058, OR A.S.4139

C13
ALL PVC STORMWATER PIPES SHALL BE SEWER GRADE IN ACCORDANCE WITH A.S.1260.

C14
ALL DIMENSIONS AND SET OUTS SHOWN ARE EITHER TO FACE OF BUILDING, GRID LINES OR FACE OF KERB INVERT (LINE OF KERB), UNLESS SHOWN OTHERWISE

C15
CONTRACTOR SHALL BE ISSUED AN ELECTRONIC COPY OF THE CIVIL DETAIL PLANS IN AUTOCAD DWG FORMAT FOR SET OUT PURPOSES. ALL DIMENSIONS SHOWN ON PLAN SHALL OVER RIDE SET OUT POINTS SELECTED FROM ELECTRONIC FILE PROVIDED

C16
ALL CUT BATTERS TO BE 1VIN H UNLESS OTHERWISE NOTED.
ALL FILL BATTERS TO BE 1VIN H UNLESS OTHERWISE NOTED

C17
ALL SURFACE DAMAGED DUE TO CONSTRUCTION WORK SHALL BE REINSTATED TO THE SATISFACTION OF THE SUPERINTENDENT.

C18
SAWCUT EXISTING KERB/KERB & CHANNEL AND PAVING WHERE NEW WORKS ARE TO MATCH EXISTING WORKS

C19
BUILDING AND SITE MAINTENANCE PROGRAM IS TO INCORPORATE REGULAR FLUSHING OF ALL STORMWATER PITS, PIPES, DOWNPIPES, SUB-SOIL DRAINS AND ASSOCIATED FITTINGS TO AVOID BLOCKAGES WITHIN THE SYSTEM,

C20
A DETAIL LEVEL AND FEATURE SURVEY HAS BEEN UNDERTAKEN FOR THIS SITE
BY: KIPROVICH & ASSOCIATES PTY LTD
REF. NO. 07_113A
DATE: 07/05/2002

DRAWING INDEX

STORMWATER DRAINAGE

D1
ALL WORKMANSHIP AND MATERIALS SHALL COMPLY WITH THE CURRENT EDITIONS OF THE FOLLOWING AUSTRALIAN STANDARDS.
AS 1260 UNPLASTICISED PVC (UPVC) PIPES AND FITTINGS FOR SEWERAGE APPLICATIONS
AS 1597 PRECAST REINFORCED CONCRETE BOX CULVERTS
PART 1 - SMALL CULVERTS (NOT EXCEEDING 1200MM WIDTH AND 900MM DEPTH)
AS 1631 CAST IRON NON-PRESSURE PIPES AND PIPE FITTINGS
AS 1650 GALVANISED COATINGS
AS 1657 SAA CODE FOR FIXED PLATFORMS, WALKWAYS, STAIRWAYS AND LADDERS
AS 2032 CODE OF PRACTICE FOR INSTALLATION OF UPVC PIPE SYSTEMS
AS 2439 PERFORATED PLASTICS DRAINAGE AND EFFLUENT PIPE FITTINGS
PART 1 - PERFORATED DRAINAGE PIPE AND ASSOCIATED FITTINGS
AS 3500.3 NATIONAL PLUMBING AND DRAINAGE CODE, PART 3, STORMWATER DRAINAGE
AS 3725 LOADS ON BURIED CONCRETE PIPES
AS 3996 METAL ACCESS COVERS, ROAD GRATES AND FRAMES
AS 4058 PRECAST CONCRETE PIPES (PRESSURE AND NON-PRESSURE)
AS 4139 FIBRE REINFORCED CONCRETE PIPES AND FITTINGS

D2
THE CONTRACTOR SHALL COMPLY WITH THE 'MINES (TRENCHES) REGULATIONS 1982' FOR ALL SHORING, SUPPORT OF TRENCHES, QUALIFICATIONS OF PERSONNEL AND NOTIFICATION TO THE RESPONSIBLE AUTHORITY

D3
TRENCHES MUST BE KEPT CLEAR OF WATER AT ALL TIMES AND TIMBERED WHERE NECESSARY TO PREVENT COLLAPSE.

D4
SUITABLE SAFETY BARRIERS SHALL BE PROVIDED AROUND THE EXCAVATION AT ALL TIMES. THE BARRIERS SHALL BE SUITABLY DEFINED BY APPROVED LIGHTING DURING THE APPROPRIATE LIGHT UP TIME FOR THE AREA

D5
PIPES SHALL BEAR EVENLY ON THE BED PREPARED AS SPECIFIED ABOVE AND LAID WITH THE SOCKETS POINTED UPGRADE. ALL PIPES SHALL BE LAID IN STRAIGHT LINES, TO TRUE INVERT LEVELS AND GRADES AS SHOWN ON PLANS. EACH PIPE SHALL BE SEPARATELY BONED BETWEEN ACCURATELY ESTABLISHED GRADE POINTS. THE CONTRACTOR SHALL ADHERE TO THE DRAWINGS AND SHALL NOT BE PERMITTED TO VARY THE LINE, LEVELS OR LOCATION OF THE DRAIN WITHOUT THE SUPERINTENDENT'S WRITTEN APPROVAL

D6
ALL PIPE JOINTING SHALL BE CARRIED OUT IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN SPECIFICATIONS FOR THE TYPE OF PIPE BEING USED

D7
WHERE ANY PIPE IS CUT INTO A LARGER PIPE, SUCH CONNECTION SHALL BE NEATLY MADE AND NO PART OF THE PIPE OR DOWNPIPE SHALL BE ALLOWED TO PROJECT. ANY CUT-IN JUNCTION SHALL BE MADE IN THE TOP HALF OF THE LARGER PIPE. SUCH JUNCTION TO CONCRETE PIPES SHALL BE SURROUNDED WITH A NEAT COLLAR OF CEMENT MORTAR AS DIRECTED OR AS DETAILED ON THE DRAWINGS. JUNCTIONS BETWEEN PVC PIPES SHALL USE PROPRIETY FITTINGS INTENDED FOR THE PURPOSE

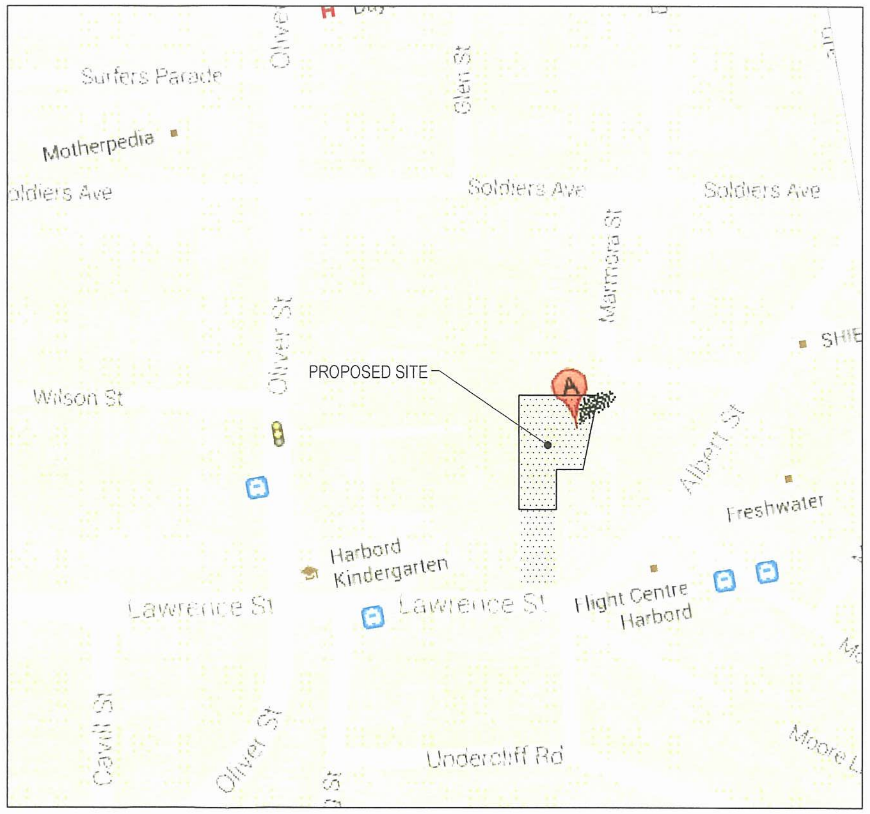
D8
THE ENDS OF PIPES WHICH CONNECT WITH SIDE ENTRY, JUNCTION OR OTHER PITS SHALL BE NEATLY CUT TO FIT THE INNER FACE OF THE CONCRETE. WHERE UPVC PIPES ENTER/LEAVE PITS A RUBBER RING JOINT MANHOLE COUPLING SHALL BE CAST INTO THE PIT WALL.
BEDDING, HAUNCH AND OVERLAY MATERIALS SHALL CONFORM TO THE DETAILS SHOWN ON THE DRAWINGS

D9
ALL PITS AND ENDWALLS SHALL BE CONSTRUCTED IN THE POSITIONS AND TO THE LEVELS SHOWN ON THE DRAWINGS OR AS DIRECTED BY THE SUPERINTENDENT.
PIT COVERS SHALL BE PLACED IN ACCORDANCE WITH THE DETAIL SITE PLANS AND PIT SCHEDULE (IF PROVIDED) IN REGARD TO TYPE, SIZE, LOCATION AND LEVEL
THE BASE OF EACH PIT SHALL BE INFILLED AND SHAPED WITH CONCRETE OR CEMENT MORTAR TO PROVIDE A SMOOTH FLOW PATH

D10
ALL DOWNPIPES SHALL BE CONNECTED TO AT THE END OF A PIPE OR ELBOW AND WHICH THEY SHALL ENTER CENTRALLY
WHERE PVC DOWNPIPES AND UNDERGROUND DRAINAGE ARE USED, THE DOWNPIPES SHALL BE CONNECTED TO THE UNDERGROUND DRAINS WITH SUITABLE STANDARD FITTINGS, BENDS ETC AND WITH SOLVENT JOINTS
THE CONTRACTOR SHALL LAY AND GRADE DRAINS FROM DOWNPIPES TO COMPLY WITH THE REQUIREMENTS FOR PIPE MATERIAL AND COVER REQUIRED BY AS3500.3. WHERE THE REQUIREMENTS OF AS3500.3 CANNOT BE MET THE CONTRACTOR SHALL REFER THE MATTER TO THE SUPERINTENDENT

D11
SUPPLY APPARATUS AND MATERIALS NECESSARY FOR, AND CARRY OUT THE TESTS REQUIRED BY THE SPECIFICATION OR REGULATORY AUTHORITIES, IN THE PRESENCE OF THE SUPERINTENDENT AND THE RELEVANT AUTHORITY. LEAVE PIPE JOINTS EXPOSED TO ENABLE OBSERVATION DURING THE TESTS.
ENSURE PVC SOLVENT CEMENT JOINTS HAVE BEEN CURED FOR AT LEAST 24 HOURS BEFORE TESTING

D12
THE CONTRACTOR SHALL PRESSURE TEST WITH WATER, ALL STORMWATER PIPEWORK IN OR UNDER THE STRUCTURE, IN ACCORDANCE WITH AS 3500.3



LOCALITY PLAN
NOT TO SCALE

REV	DESCRIPTION	BY	APP	DATE
00	ISSUED FOR DA APPROVAL	QD	MAC	10.04.14

MEINHARDT INFRASTRUCTURE & ENVIRONMENT
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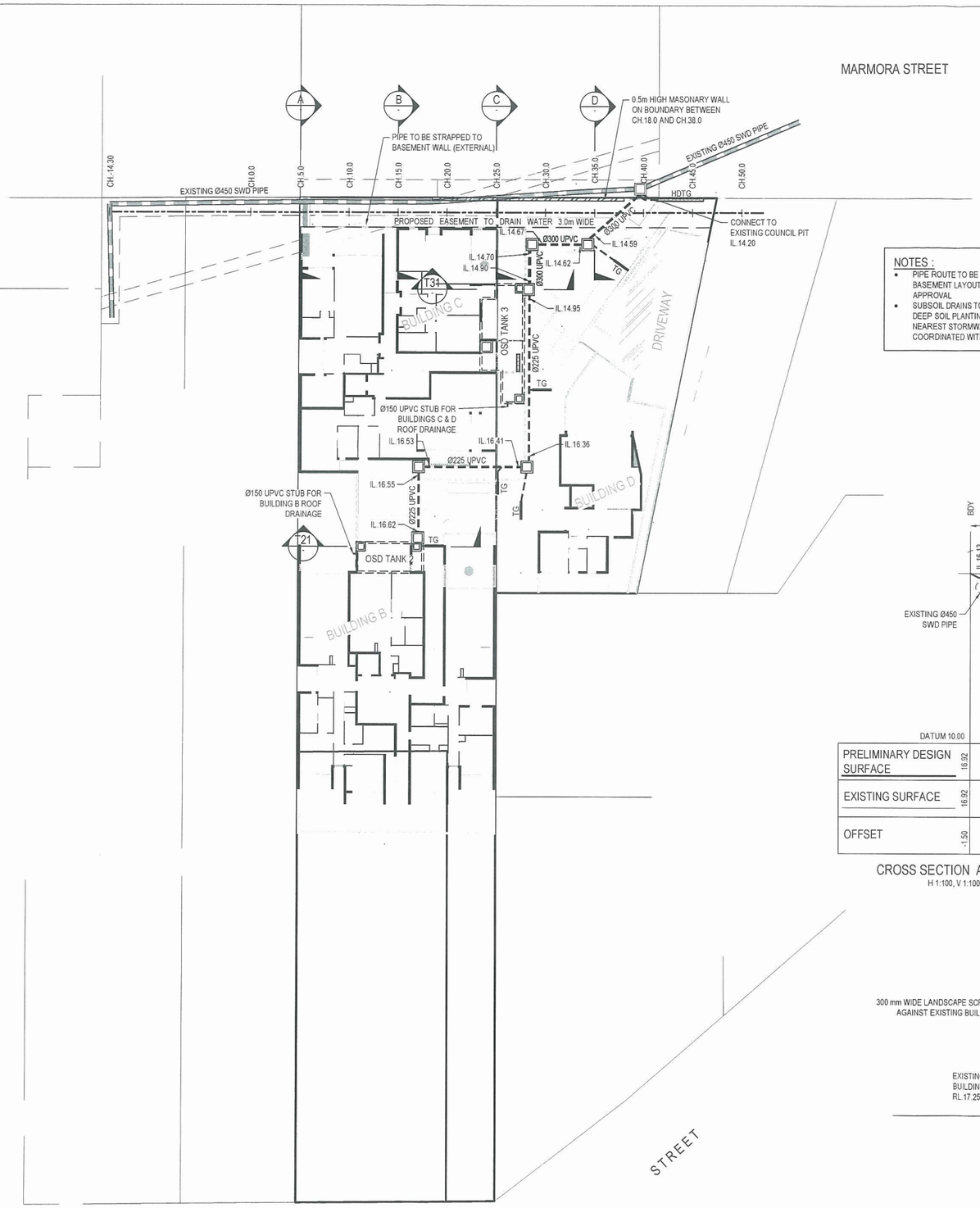
Sydney NSW 2000
Telephone (02) 9699 3088
Fax (02) 9319 7508
www.meinhardtgroup.com
A.C.N. 051 627 591

CLIENT	MOORGATE PROPERTY		
DESIGNED	DRAWN	APPROVED	SCALE @ A1
MAC	QD	MAC	1:250
STATUS	FOR DA APPROVAL NOT FOR CONSTRUCTION		

PROJECT: HARBORD, 18 MARMORA STREET, HARBORD, NSW
NORTH
TITLE: COVER SHEET, GENERAL NOTES & INDEX
PROJECT No / DRAWING No: 111927-00-MIE000
REV: 00

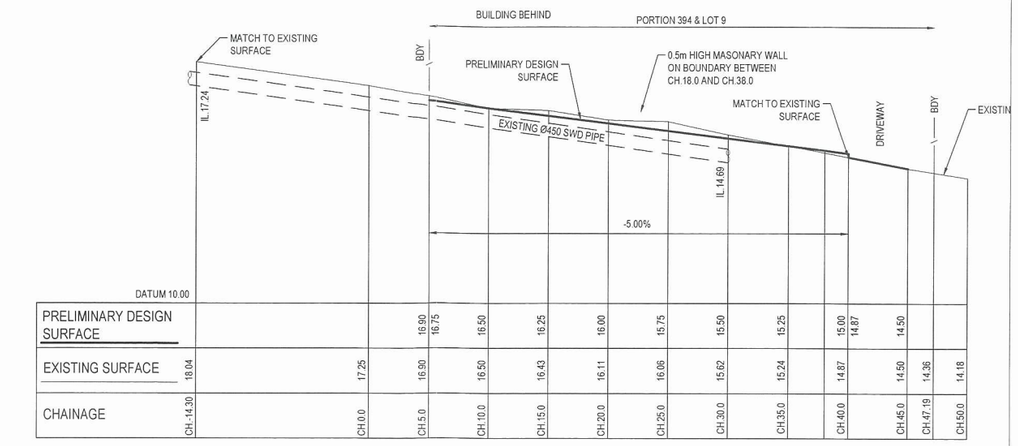
DWG FILE: X:\111927 - 18 Marmora Street-Harbord\6BIM6_3 MHT MIE6_3_2 MHT INF\111927-00-MIE000 COVER SHEET.dwg - MH PLOT TIME 10 Apr 2014 3:23pm

MARMORA STREET



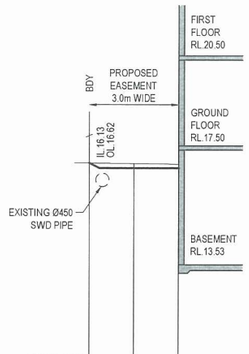
NOTES :

- PIPE ROUTE TO BE COORDINATED WITH BASEMENT LAYOUT TO ARCHITECT 'S APPROVAL
- SUBSOIL DRAINS TO BE INSTALLED AT ALL DEEP SOIL PLANTING AND CONNECTED TO NEAREST STORMWATER PIPE OR PIT & COORDINATED WITH LANDSCAPE ARCHITECT.



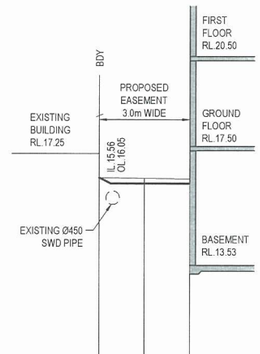
PRELIMINARY DESIGN SURFACE			16.90	16.75	16.50	16.25	16.00	15.75	15.50	15.25	15.00	14.87	14.50		
EXISTING SURFACE	18.04	17.25	16.90	16.50	16.43	16.11	16.06	15.62	15.24		14.87	14.50	14.36	14.18	
CHAINAGE	CH:-14.30	CH:0.0	CH:5.0	CH:10.0	CH:15.0	CH:20.0	CH:25.0	CH:30.0	CH:35.0		CH:40.0	CH:45.0	CH:47.19	CH:50.0	

PRELIMINARY DESIGN SURFACE LONGITUDINAL SECTION
H 1:250, V 1:100



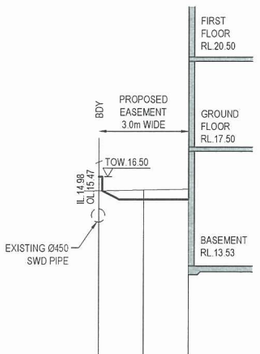
PRELIMINARY DESIGN SURFACE	16.92	16.75	16.75
EXISTING SURFACE	16.92	16.90	16.88
OFFSET	-1.50	0.00	1.50

CROSS SECTION A-A, CH.5.0
H 1:100, V 1:100



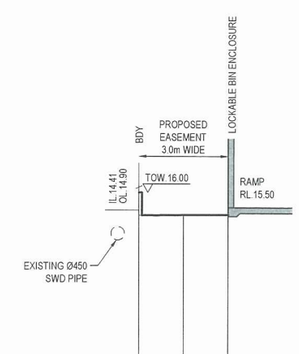
PRELIMINARY DESIGN SURFACE	16.45	16.25	16.25
EXISTING SURFACE	17.25 16.45	16.43	16.41
OFFSET	-1.50	0.00	1.50

CROSS SECTION B-B, CH.15.0
H 1:100, V 1:100



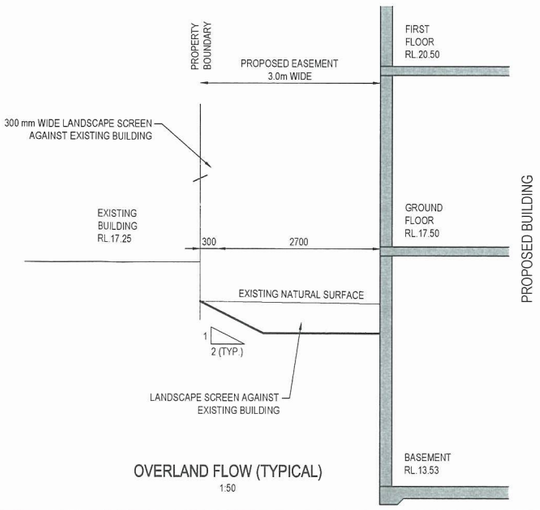
PRELIMINARY DESIGN SURFACE	16.50	15.75	15.75
EXISTING SURFACE	16.03	16.06	16.09
OFFSET	-1.50	0.00	1.50

CROSS SECTION C-C, CH.25.0
H 1:100, V 1:100



PRELIMINARY DESIGN SURFACE	15.23	15.25	15.25
EXISTING SURFACE	15.41 15.23	15.24	15.24
OFFSET	-1.50	0.00	1.50

CROSS SECTION D-D, CH.35.0
H 1:100, V 1:100



OVERLAND FLOW (TYPICAL)
1:50

LEGEND

x 17.50	PROPOSED SPOT LEVEL
	600x600GRATED PIT WITH "HEEL GUARD" COVER (LOCKABLE)
	900x900GRATED PIT WITH "HEEL GUARD" COVER (LOCKABLE)
	EXISTING PIT
TG	PROPOSED 150 WIDE TRENCH GRATE WITH HEEL GUARD COVER
HDTG	PROPOSED 300 WIDE HEAVY DUTY TRENCH GRATE (ACO S 300 OR EQUIVALENT)
IK	PROPOSED INTEGRAL RKERB
DP	PROPOSED DOWNPIPE
IO	PROPOSED INSPECTION OPENING
Ø225 UPVC	PROPOSED STORMWATER PIPE
	EXISTING STORMWATER PIPE AND PIT

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BEFORE YOU DIG

WARNING
BEWARE OF UNDERGROUND SERVICES
THE LOCATIONS OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.

LAWRENCE STREET

STORMWATER MANAGEMENT PLAN

REV	DESCRIPTION	BY	APP	DATE
00	ISSUED FOR DA APPROVAL	QD	MAC	17.03.14
01	ISSUED FOR DA APPROVAL	QD	MAC	10.04.14

0 1 2 3 4 5m
SCALE 1:100 AT ORIGINAL SIZE
0 2.5 5 7.5 10 12.5m
SCALE 1:250 AT ORIGINAL SIZE

MEINHARDT INFRASTRUCTURE & ENVIRONMENT
Level 4, 66 Clarence Street
Sydney NSW 2000
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A.C.N. 051 627 591

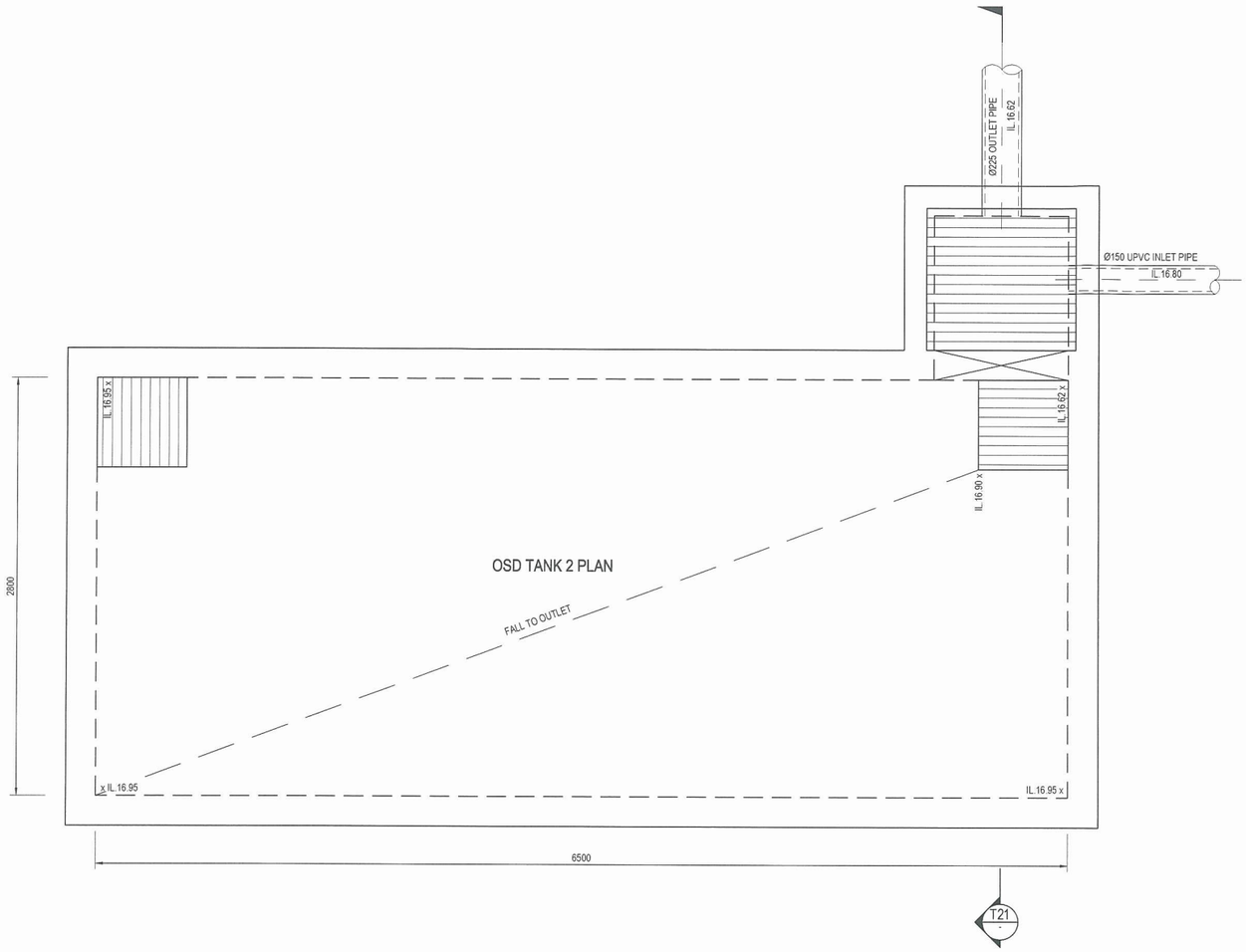
CLIENT: MOORGATE PROPERTY
PROJECT: HARBORD
18 MARMORA STREET
HARBORD, NSW

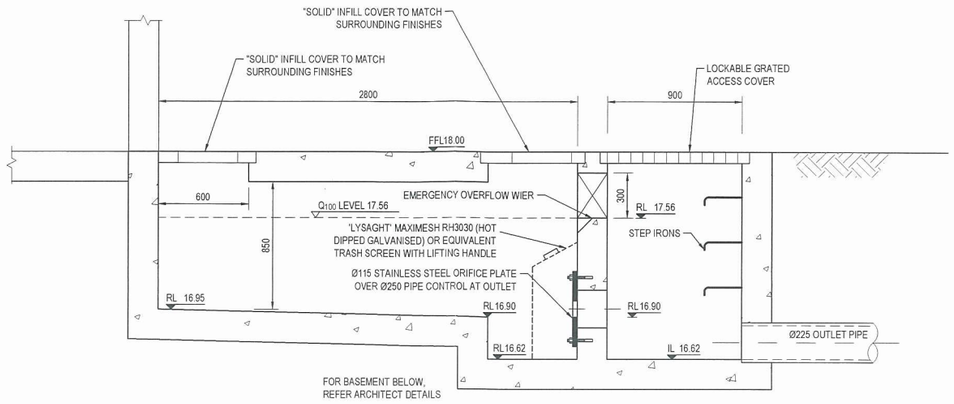
DESIGNED	DRAWN	APPROVED	SCALE @ A1
MAC	QD	MAC	1:250

STATUS: FOR DA APPROVAL
NOT FOR CONSTRUCTION

TITLE: STORMWATER MANAGEMENT PLAN
PROJECT No: 111927-00-MIE100
DRAWING No:
REV: 01

NORTH





SECTION T21

OSD TANK 2 DETAIL

1:20

OSD TANK 2 DESIGN PARAMETERS

- CATCHMENT AREA (BUILDING B ROOF AND SURROUNDING) = 650 m²
- 100 YEAR OSD TANK STORAGE VOLUME = 12.0 m³
- MAX OSD TANK DISCHARGE RATE = 27 L/s
- ORIFICE PLATE = Ø115 mm

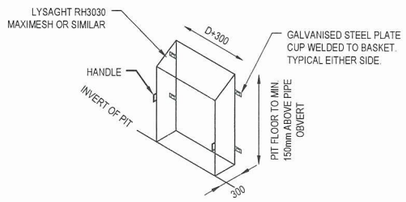
OSD TANK 3 DESIGN PARAMETERS

- CATCHMENT AREA (BUILDING C & D ROOF AND SURROUNDING) = 1063 m²
- 100 YEAR OSD TANK STORAGE VOLUME = 43.5 m³
- MAX OSD TANK DISCHARGE RATE = 32 L/s
- ORIFICE PLATE = Ø100 mm

LANDSCAPE AREA (BYPASS FLOW)

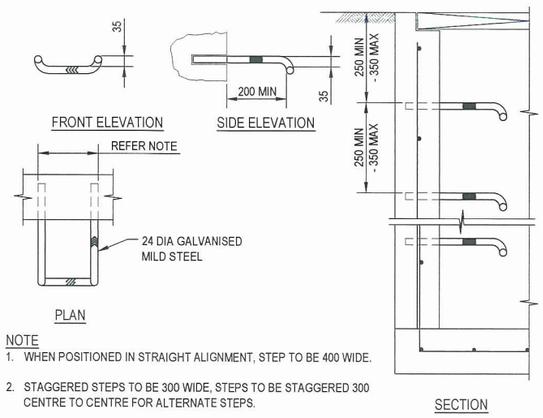
- CATCHMENT AREA = 340 m²
- MAX 100 YEAR DISCHARGE = 23 L/s

- PREDEVELOPMENT 5 YEAR FLOW = 88 L/s
- POST DEVELOPMENT 100 YEAR FLOW = 84 L/s



SCREEN MESH DETAILS

SCALE NTS



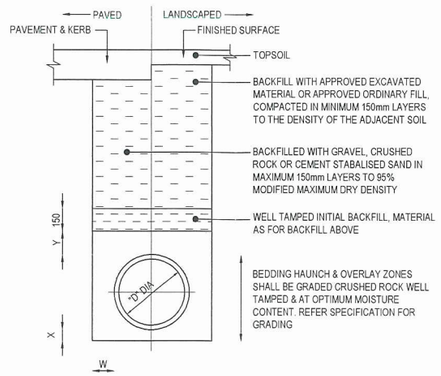
NOTE

1. WHEN POSITIONED IN STRAIGHT ALIGNMENT, STEP TO BE 400 WIDE.
2. STAGGERED STEPS TO BE 300 WIDE, STEPS TO BE STAGGERED 300 CENTRE TO CENTRE FOR ALTERNATE STEPS.
3. SPACING OF STEPS TO BE UNIFORM TO WITHIN ±8mm IN EACH PIT.

PIT ACCESS STEP DETAIL

SCALE 1:10

(FOR PITS DEPTH ≥ 1200mm)



PIPE DIA "D"	W MIN	X	Y
100 - 150	100	75	75
225 - 300	100	75	75

NOTE:
REFER PIPE LAYING SPECIFICATION FOR DETAILS

FLEXIBLE PIPE LAYING DETAIL

SCALE 1:20

TRENCH NOTES:

1. OVERLAY MATERIAL:- MATERIAL PROPERTIES AND COMPACTION SHALL BE AS FOR THE SIDE ZONE.
2. SIDE SUPPORT COMPACTION:- THE TRENCH WALLS SHALL HAVE A DENSITY AND STIFFNESS NOT LESS THAN THOSE OF THE ADJACENT COMPACTED FILL FOR A MINIMUM WIDTH 2500 EACH SIDE OF THE TRENCH AND TO A MINIMUM HEIGHT OF 700 ABOVE THE BOTTOM OF THE PIPE.
3. WORKING LOADS ARE THOSE DUE TO FILL MATERIAL AND STANDARD HIGHWAY VEHICLES AS PER AS 3725. CONSTRUCTION LOADS HAVE NOT BEEN ALLOWED FOR.
4. DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE.
5. ALL BEDDING, HAUNCH, SIDE ZONE & OVERLAY ZONE SHALL CONSIST OF COURSE GRADED SAND.
6. BACKFILL SHALL CONSIST OF GRANULAR OR SANDY FILL WHERE UNDER THE ZONE OF INFLUENCE OF PAVEMENTS, STRUCTURES, AND WITHIN PLAYING FIELD. OR GENERAL FILL COMPACTED TO 95% SMDD WHERE UNDER LANDSCAPED AREAS.

REFERENCED DOCUMENTS:-

1. AUSTRALIAN STANDARDS AS 3725-1989 LOADS ON BURIED CONCRETE PIPES
2. RTA QA MODEL SPECIFICATION PART R11 STORMWATER DRAINAGE.

REV	DESCRIPTION	BY	APP	DATE
00	ISSUED FOR DA APPROVAL	QD	MAC	10.04.14

0 0.2 0.4 0.8 1.2

SCALE (m) 1:20

MEINHARDT INFRASTRUCTURE & ENVIRONMENT

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A.C.N. 051 627 591

CLIENT: MOORGATE PROPERTY

DESIGNED	DRAWN	APPROVED	SCALE @ A1
MAC	QD	MAC	1:20

STATUS: FOR DA APPROVAL
NOT FOR CONSTRUCTION

PROJECT: HARBORD
18 MARMORA STREET
HARBORD, NSW

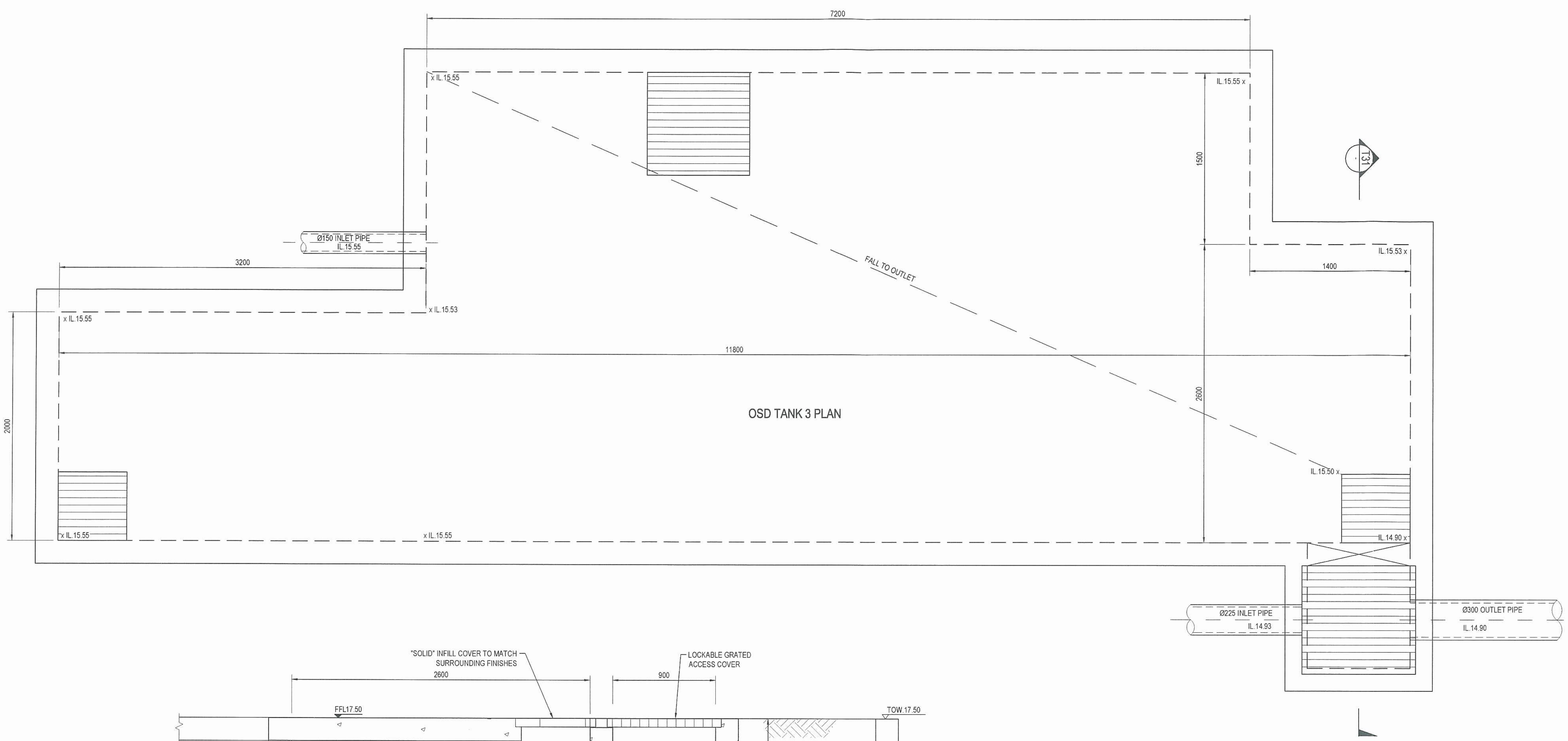
NORTH

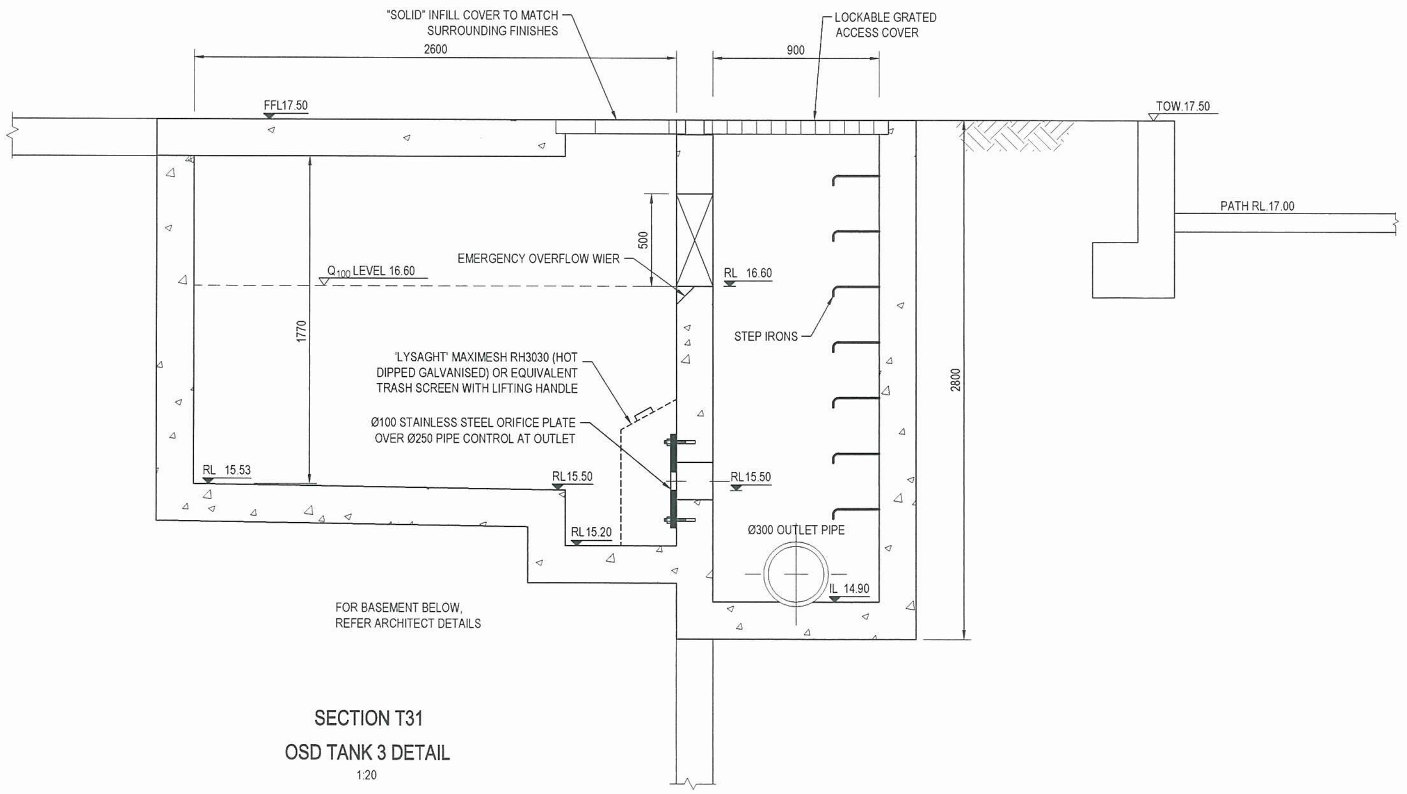
TITLE: OSD TANK 2 AND DETAILS

PROJECT No: 111927-00-MIE150

DRAWING No:

REV: 00





SECTION T31
OSD TANK 3 DETAIL
1:20

OSD TANK 2 DESIGN PARAMETERS
- CATCHMENT AREA (BUILDING B ROOF AND SURROUNDING) = 650 m²
- 100 YEAR OSD TANK STORAGE VOLUME = 12.0 m³
- MAX OSD TANK DISCHARGE RATE = 27 L/s
- ORIFICE PLATE = Ø115 mm

OSD TANK 3 DESIGN PARAMETERS
- CATCHMENT AREA (BUILDING C & D ROOF AND SURROUNDING) = 1063 m²
- 100 YEAR OSD TANK STORAGE VOLUME = 43.5 m³
- MAX OSD TANK DISCHARGE RATE = 32 L/s
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LANDSCAPE AREA (BYPASS FLOW)
- CATCHMENT AREA = 340 m²
- MAX 100 YEAR DISCHARGE = 23 L/s

- PREDEVELOPMENT 5 YEAR FLOW = 88 L/s
- POST DEVELOPMENT 100 YEAR FLOW = 84 L/s

REV	DESCRIPTION	BY	APP	DATE
00	ISSUED FOR DA APPROVAL	QD	MAC	10 04 14

0 0.1 0.2 0.4 0.6 — SCALE (m) 1:10
0 0.2 0.4 0.8 1.2 — SCALE (m) 1:20
0 0.5 1 2 3 — SCALE (m) 1:50

MEINHARDT
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A.C.N. 051 627 591

CLIENT: MOORGATE PROPERTY

DESIGNED	DRAWN	APPROVED	SCALE @ A1
MAC	QD	MAC	AS SHOWN

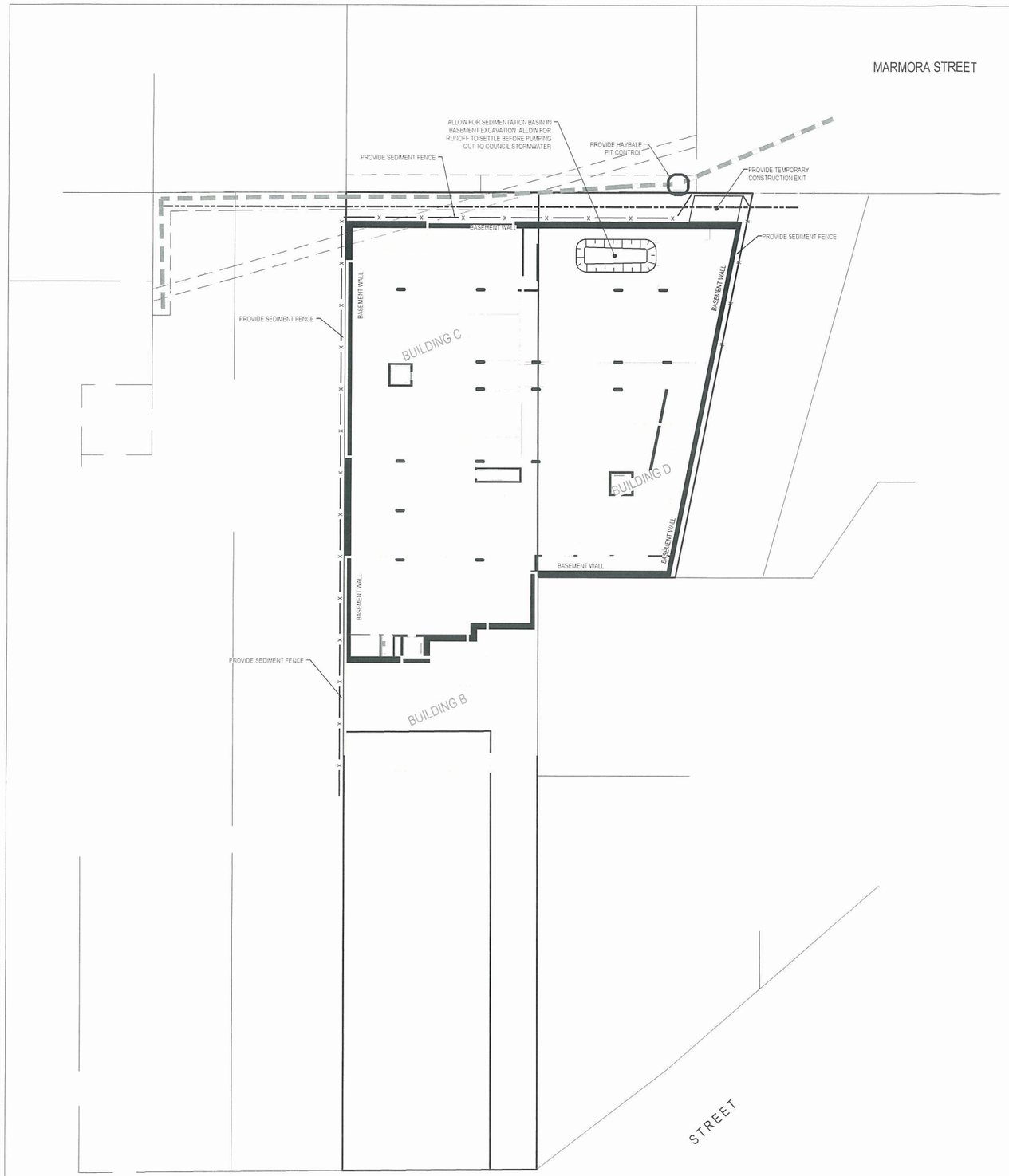
STATUS: FOR DA APPROVAL
NOT FOR CONSTRUCTION

PROJECT: HARBORD
18 MARMORA STREET
HARBORD, NSW

NORTH

TITLE: OSD TANK 3 AND DETAILS

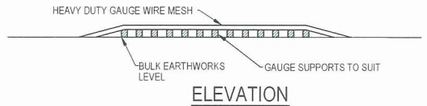
PROJECT No / DRAWING No: 111927-00-MIE151
REV: 00



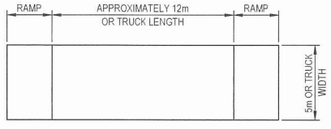
EROSION AND SEDIMENT CONTROL PLAN

LEGEND

- HAYBALE FILTER (SD 6-7)
- x — SEDIMENT FENCE (SD 6-8)
- TEMPORARY CONSTRUCTION EXIT



ELEVATION



PLAN

TEMPORARY CONSTRUCTION EXIT (WASH DOWN DETAIL)

SCALE 1:200

THE EXIT SHALL BE MAINTAINED IN A CONDITION WHICH PREVENTS TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS OF WAY. THIS MAY REQUIRE REPAIR AND OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS OF WAY MUST BE REMOVED IMMEDIATELY

EROSION AND SEDIMENT CONTROLS

ES1 (A) ALL WORK SHALL BE GENERALLY CARRIED OUT IN ACCORDANCE WITH LOCAL AUTHORITY REQUIREMENTS

(B) APPLICABLE - POLLUTION CONTROL MANUAL FOR URBAN STORMWATER

(C) DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT MANUAL- "URBAN EROSION & SEDIMENT CONTROL"

(D) NSW PROTECTION OF THE ENVIRONMENT ACT 1997

ES2 THE CONTRACTOR SHALL PREPARE EROSION AND SEDIMENT CONTROL DRAWINGS AND NOTES FOR THE WHOLE OF THE WORKS. SHOULD THE CONTRACTOR STAGE THESE WORKS THEN THE DESIGN MAY REQUIRE TO BE MODIFIED. VARIATION TO THESE DETAILS MAY REQUIRE TO BE APPROVED BY THE RELEVANT AUTHORITIES. THE EROSION AND SEDIMENT CONTROL PLAN SHALL BE IMPLEMENTED AND ADOPTED TO MEET THE VARYING SITUATIONS AS WORK ON SITE PROGRESSES.

ES3 MAINTAIN ALL EROSION AND SEDIMENT CONTROL DEVICES TO THE SATISFACTION OF THE SUPERINTENDENT AND THE LOCAL AUTHORITY AS APPROPRIATE (IE PRIVATE / PUBLIC LAND)

ES4 AS STORMWATER PITS ARE CONSTRUCTED PREVENT SITE RUNOFF ENTERING. ERECT SILT FENCES AROUND PITS

ES5 MINIMISE THE AREA OF SITE DISTURBED AT ANY ONE TIME.

ES6 PROTECT ALL STOCKPILES OF MATERIALS FROM SCOUR AND EROSION. DO NOT STOCKPILE LOOSE MATERIAL IN ROADWAYS, NEAR DRAINAGE PITS OR IN WATERCOURSES.

ES7 ALL SOIL AND WATER CONTROL MEASURES ARE TO BE PUT BACK IN PLACE AT THE END OF EACH WORKING DAY, AND MODIFIED TO BEST SUIT SITE CONDITIONS

ES8 CONTROL WATER FROM UPSTREAM OF THE SITE SO THAT IT DOES NOT ENTER THE DISTURBED SITE.

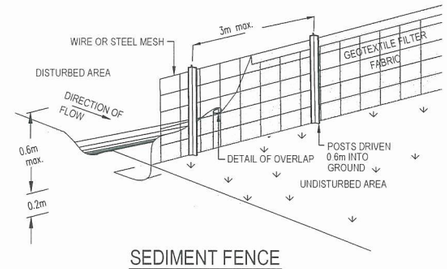
ES9 ALL CONSTRUCTION VEHICLES SHALL ENTER AND EXIT THE SITE VIA THE AGREED TEMPORARY CONSTRUCTION ENTRY/EXIT

ES10 ALL VEHICLES ASSOCIATED WITH CIVIL WORKS SHALL BE CLEANED AND INSPECTED BY THE CONTRACTOR BEFORE LEAVING THE SITE.

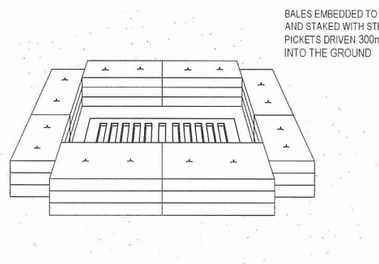
ES11 MAINTAIN ALL STORMWATER PIPES AND PITS CLEAR OF DEBRIS AND SEDIMENT. THE CONTRACTOR SHALL INSPECT STORMWATER SYSTEM AND CLEAN OUT AFTER EACH STORM EVENT AND / OR WHEN DIRECTED

ES12 THE CONTRACTOR SHALL CLEAN OUT ALL EROSION AND SEDIMENT CONTROL DEVICES AFTER EACH STORM EVENT

ES13 SETTLEMENT OF DISPERSED FINES IN WET BASIN. AFTER EVERY STORM EVENT THE COLLECTED RUNOFF IS TO BE TREATED WITH AN APPROVED FLOCCULANT TO REDUCE THE SUSPENDED SOLIDS TO LESS THAN 50mg/L AND PUMPED TO AN APPROVED OUTLET AS DIRECTED BY THE SUPERINTENDENT.



SEDIMENT FENCE



HAYBALES TO GULLY PIT
NTS

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WARNING
BEWARE OF UNDERGROUND SERVICES
THE LOCATIONS OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN

REV	DESCRIPTION	BY	APP	DATE
00	ISSUED FOR DA APPROVAL	QD	MAC	30 04 14

0 2.5 5 7.5 10 12.5m
SCALE 1:250 AT ORIGINAL SIZE

MEINHARDT INFRASTRUCTURE & ENVIRONMENT
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CLIENT: MOORGATE PROPERTY

DESIGNED	DRAWN	APPROVED	SCALE @ A1
MAC	QD	MAC	1:250

STATUS: FOR DA APPROVAL
NOT FOR CONSTRUCTION

PROJECT: HARBORD
18 MARMORA STREET
HARBORD, NSW

NORTH

TITLE: EROSION AND SEDIMENT CONTROL PLAN
PROJECT No: 111927-00-MIE010
DRAWING No:
REV: 00

DWG FILE: X:\111927 - 18 Marmora Street Harbord\BIM\6_3 MHT MEP_3_2 RHT 111927-00-MIE010 EROSION AND SEDIMENT CONTROL PLAN.dwg - MH PLOT TIME: 30 Apr 2014 - 2:39pm