## GENERAL

G1. DESIGN HEREIN HAS BEEN PREPARED BY
WARREN SMITH AND PARTNERS PTY LTD
CONSULTING CIVIL ENGINEERS.
LEVEL 9, 233 CASTLEREAGH ST, SYDNEY NSW 2000.
TEL:- (02) 9299 1312, FAX:- (02) 9290 1295.

G2. THE DRAWINGS HEREIN SHALL BE READ AS REQUIRED IN CONJUNCTION WITH ARCHITECT DRAWINGS BY:
TERROIR
LEVEL 2, 79 MYRTYL STREET
CHIPPENDALE 2008
TEL: (02) 9698 2198

G3. ALL DIMENSIONS IN MILLIMETRES UNO. REDUCED LEVELS AND CHAINAGES ARE IN METRES. DO NOT SCALE DRAWINGS. USE FIGURED DIMENSIONS.

G4. THE PROPOSED WORKS DETAILED HEREIN SHALL BE CONSTRUCTED TO THE REQUIREMENTS OF COUNCIL GENERALLY AS DETAILED HEREUNDER.

G5. ALL EXISTING SERVICES SHALL BE VERIFIED FOR DEPTH AND HORIZONTAL POSITION BY PHYSICAL MEANS PRIOR TO EXCAVATION. ANY DISCREPANCIES SHALL BE BROUGHT FORTHWITH TO THE PROJECT MANAGER'S ATTENTION.

G6. REFERENCE SHALL BE MADE TO THE CONSTRUCTION MANAGEMENT PLAN FOR ALL SITE WORKS DETAILED HEREIN.

## STORMWATER & SUB-SOIL DRAINAGE

MATERIALS:

STW1. PIPES AND FITTINGS FOR STORMWATER DRAINAGE SHALL BE AS FOLLOWS UNO ON THE DRAWINGS:
A. SEWER GRADE uPVC (SN8) WITH SOLVENT WELDED JOINTS FOR BELOW GROUND DRAINAGE UP TO 225mm.
B. REINFORCED CONCRETE WITH RUBBER RINGS, CLASS 3, FOR PIPE DIA'S GREATER THAN 225mm OR WHERE REQUIRED BY AS3500 FOR EXCESSIVE DEPTH.
C. INSTALL IN ACCORDANCE WITH AUSTRALIAN STANDARD AS3500 EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENTS.

STW2. PIPES & FITTINGS FOR SUBSOIL DRAINAGE SHALL BE SLOTTED POLYVINYL CHLORIDE (PVC) WITH SOLVENT WELDED JOINTS, MIN. 150mm DIAMETER.

STW3. IN GROUND DRAINAGE PIPEWORK SERVING DP's SHALL BE MINIMUM 150mm DIA. UNO.

STW4. GRATED DRAINS SHALL BE 150mm NOM.
A. 150mm NOM. WIDTH IN NON TRAFFICABLE AREAS.
B. 225mm NOM. WIDTH IN TRAFFICABLE AREAS.

STW5. STORMWATER PITS ARE AS SHOWN & SPECIFIED ON THE PLANS . PRECAST TYPE ACCEPTABLE WITH STEP IRONS FOR DEPTH GREATER THAN 1200. BENCH ALL PITS MIN. 50mm & FORM SMOOTH TRANSITION FROM INLET TO OUTLET.

STW6. SELECT FILL SHALL BE MATERIAL OBTAINED FROM EXCAVATION OF THE PIPE TRENCH OR IMPORTED WITH A PARTICLE SIZE FOR ROCK NOT GREATER THAN 75mm OR FOR OTHER THAN ROCK NOT GREATER THAN 150mm.

STW7. IMPORTED FILL SHALL BE EITHER, AND GENERALLY CONSIST OF SINGLE SIZED AGGREGATE WITH PARTICLE SIZE NOT GREATER THAN 5mm WRAPPED ALL ROUND WITH GEOTEXTILE FILTER FABRIC OR APPROVED HIGH COMPACTION SAND OR APPROVED CRUSHED ROAD GRAVEL CONFORMING TO RTA FORM 3051 OR SIMILAR.

STW8. STORMWATER PITS AND GRATES TO CONFORM WITH STANDARD COUNCIL REQUIREMENTS, WHERE ON PUBLIC LAND. GRATES TO BE SUPPLIED IN CLASS SHOWN ON THE DRAWINGS.

INSTALLATION REQUIREMENTS:

STW9. PIPES SHALL BE TRUE TO GRADES SHOWN AND ALIGNED SO THAT THE CENTRES OF THE INLET PIPES INTERSECT WITH THE CENTRE OF THE OUTLET PIPE AT THE DOWNSTREAM FACE OF THE PIT.

STW10. MINIMUM GRADES FOR GRAVITY STORMWATER DRAINAGE SHALL CONFORM TO AS3500 PART3 AS FOLLOWS, UNO:
1% FOR 100 AND 150 mm DIA.
0.5% FOR 225 mm DIA
0.5% FOR 300 mm DIA
0.4% FOR 375 mm DIA

STW11. MINIMUM DEPTH OF COVER SHALL BE :-
- 300mm IN PRIVATE PROPERTY (NON VEHICULAR TRAFFIC).
- 450mm IN PUBLIC AREAS.
- 600mm IN VEHICULAR TRAFFICABLE AREAS (FOOTWAY/ROADWAY)

STW12. BED ALL PIPES FIRMLY AND EVENLY ONTO IMPORTED BEDDING FILL MATERIAL.

STW13. LAY AND JOINT ALL PIPES IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS AND
AS 3725-1989 BURIED FLEXIBLE PIPELINES
AS 2566-1998 LOADS ON BURIED FLEXIBLE PIPELINES
AS 1597.2-1996 PRECAST REINFORCED CONCRETE BOX CULVERTS.
AS 3500-1990 NATIONAL PLUMBING & DRAINAGE CODE. PART 2, SANITARY PLUMBING AND SANITARY DRAINAGE. SYDNEY WATER REQUIREMENTS.

STW14. ALLOW TO TEST ALL PIPES AND PITS TO MANUFACTURERS REQUIREMENTS.

## CONCRETE WORKS

C1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS3600, THE STANDARDS ASSOCIATION AUSTRALIA, STANDARDS CITED IN AS3600, THE DRAWINGS AND THE SPECIFICATION.

C2. ALL CONCRETE SHALL BE 80mm NOMINAL SLUMP, 20mm MAXIMUM AGGREGATE WITH NO ADMIXTURES OR FLY ASH, UNLESS OTHERWISE APPROVED. ALL CONCRETE WORK IN CONTACT WITH SEWER TO HAVE TYPE SL PORTLAND CEMENT, OTHERWISE TYPE A CEMENT FOR BRIDGE WORKS, A MAXIMUM 56 DAYS SHRINKAGE OF 600 MICROSTRAIN, A MINIMUM CEMENT CONTENT 350kg/m3 AND MAXIMUM WATER:CEMENT RATIO OF 0.40.

C3. STRENGTH GRADE OF CONCRETE SHALL BE : 25 MPa (KERBS, EDGE STRIPS & CONCRETE ENCASEMENT) AND 32 MPa ELSEWHERE.

C4. CONSTRUCTION JOINTS SHALL BE PROPERLY FORMED AND USED ONLY WHERE SHOWN OR APPROVED. GENERALLY FOR HAND PLACED KERB & GUTTER 6mm THICK APPROVED BITUMINOUS MASTIC JOINTING MATERIAL SHALL BE PROVIDED AT INTERVALS NOT EXCEEDING 6m. FOR MACHINE PLACED KERB & GUTTER 6mm THICK APPROVED BITUMINOUS MASTIC JOINTING MATERIAL SHALL BE PROVIDED AT INTERVALS NOT EXCEEDING 12m & GUILLOTINED DUMMY GROOVED JOINTS, 25mm IN DEPTH, SHALL BE FORMED EVERY 3m OF GUTTER. JOINTS ARE ALSO REQUIRED AT EACH END OF GUTTER CROSSING AND GULLY PITS. JOINTS SHALL BE SET VERTICAL AND SQUARE TO THE KERB.

C5. REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY AND IS NOT NECESSARILY SHOWN IN TRUE PROJECTION.

C6. ELDING OR SPLICES IN REINFORCEMENT SHALL BE USED ONLY IN POSITIONS APPROVED BY THE ENGINEER.

C7. CONCRETE CURING SHALL BE IN ACCORDANCE WITH AS3600. CURING SHALL BE COMMENCED WITHIN TWO HOURS OF FINISHING OPERATIONS AND SHALL BE CONTINUED FOR A MINIMUM OF SEVEN DAYS BY AN APPROVED PROPRIETARY COMPOUND OR BY KEEPING CONTINUOUSLY WET.

C8. FORMWORK SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH AS3610. FORMWORK SHALL NOT BE STRIPPED NOR PROPS REMOVED WITHOUT APPROVAL.

C9. FABRIC LAP DETAILS SHALL BE IN ACCORDANCE WITH FIG.13.2.4 OF AS3600.

C10. HOOKS, LAPS AND BENDS SHALL BE IN ACCORDANCE WITH AS3600 UNO.

C11. ALL CHEMICAL ANCHORS SHALL BE EITHER 'CHEMSET' BY "RAMSET" WITH THE GLASS CAPSULE SYSTEM INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS OR HILTI HVU ADHESIVE ANCHOR WITH FOIL CAPSULE SYSTEM INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURERS INSTRUCTION.

C12. ALL CHEMICAL ANCHORS SHALL BE HOT DIPPED GALVANIZED AND BE MIN M16 DIA. U.N.O.

## GENERAL EARTHWORKS, SITEWORKS & FILLING:

FILLING:

SGE1. THESE CLAUSES SHALL BE READ IN CONJUNCTION WITH DOUGLAS PARTNERS GEOTECHNICAL INVESTIGATION REPORT, DATED APRIL 2019.

SGE2. THE RECOMMENDATIONS CONTAINED IN THE GEOTECH REPORT SHALL OVERRIDE THE CLAUSES PRESENTED HEREIN.

SGE3. STRIP ALL TOPSOIL AND UNDERLYING FILL AND STOCKPILE TOPSOIL FOR LATER REUSE FOR LANDSCAPING PURPOSES.

SGE4. NEW FILL REQUIRED TO REINSTATE CUT LEVELS TO PROPOSED BENCHING LEVELS SHALL BE SOURCED FROM OTHER PARTS OF THE EXCAVATION AS SELECT FILL OR IMPORTED FILL AS SPECIFIED BELOW IN SGE 5 AND SGE 6.

SGE5. SELECT FILL SHALL CONSIST OF LOCALLY DERIVED OR CUT NATURAL CLAYS.

SGE6. IMPORTED FILL SHALL CONSIST OF RIPPED SANDSTONE OR SHALE OR SIMILAR MATERIAL WITH MAXIMUM PARTICLE SIZE NOT GREATER THAN 120mm AND A MOISTURE CONTENT WITHIN 2-3% OF STANDARD OPTIMUM.

SGE7. ALL FILL (COHESIVE SOIL) SHALL BE PLACED IN LAYERS OF 200mm MAXIMUM THICKNESS, COMPACTED BY MACHINE ROLLING TO ACHIEVE A DRY DENSITY RATIO OF NOT LESS THAN 98% STANDARD MAXIMUM AT A CORRESPONDING MOISTURE CONTENT WITHIN 2-3% OF STANDARD OPTIMUM.

SGE8. IN AREAS WHERE HIGH IMPACT ROLLING IS USED TEST EACH FINAL LAYER OF NOT GREATER THAN 300mm TO 400mm TO ACHIEVE A DRY DENSITY SGE8. RATIO OF NOT LESS THAN 98% STANDARD MAXIMUM AT A CORRESPONDING MOISTURE CONTENT WITHIN 2-3% OF STANDARD OPTIMUM.

EXCAVATION BATTERS:

SGE9. ALL TEMPORARY BATTERS CUT IN CLAY SUBSTRATE SHALL BE 1 HORIZ : 1 VERT. ALL LONG TERM EXPOSED BATTERS CUT IN CLAY SUBSTRATE SHALL BE 2 HORIZ : 1 VERT. ALL DETENTION BASIN BATTERS IN CLAY SUBSTRATE SHALL BE 3 HORIZ : 1 VERT. ALL DETENTION BASIN BATTERS IN ROCK SUBSTRATE SHALL BE NEAR VERTICAL.

SGE10. GEOTECHNICAL TESTING IS TO BE UNDERTAKEN TO AT LEAST LEVEL 1 CONTROL OF FILL COMPACTION STANDARD, AS DEFINED IN AS. 3738 AS FOLLOWS

- FOR GENERAL FILL OR CUT AREAS OVER THE AREA PROVIDE ONE (1) TEST PER 200mm LAYER, OVER AN AREA NOT GREATER THAN 500 $m^2$

- FOR GENERAL FILL AREAS IN CONCENTRATED AREAS ADJACENT TO AND BEHIND THE STRUCTURE AND ADJACENT TO AND BEHIND RETAINING WALLS PROVIDE ONE (1) TEST PER 200mm LAYER, OVER AN AREA NOT GREATER THAN $50m^2$

SGE11. SUBMIT ALL GEOTECHNICAL TEST RESULTS TO WARREN SMITH & PARTNERS FOR REVIEW PRIOR TO CONTINUATION WITH SUBSEQUENT SECTION OF WORK.

## EARTH WORKS FOR SERVICES

E1. EXCAVATE TRENCHES AND STOCKPILE ALL MATERIAL FOR INSPECTION WITH REGARD TO RE-USE FOR TRENCH BACKFILL. REMAINING MATERIAL TO BE REMOVED FROM SITE.

E2. BEDDING MATERIAL SHALL CONSIST OF IMPORTED FILL ONLY. THICKNESS OF BEDDING LAYER SHALL BE 75mm IN O.T.R. AND 200mm IN ROCK.

E3. EMBED ALL PIPES WITH IMPORTED FILL. PROVIDE 200mm SIDE SUPPORT AND 150mm OVERLAY ABOVE PIPE CROWN.

E4. TRENCH FILL ABOVE THE EMBEDMENT ZONE TO THE UNDERSIDE OF THE ROAD PAVEMENT OR FOOTWAY FILL MATERIAL SHALL BE AS FOLLOWS :

UNDER ROADWAY

TRENCH FILL MATERIAL SHALL CONSIST OF IMPORTED FILL AS SPECIFIED HEREIN OF EITHER HIGH GRADE COMPACTION SAND OR APPROVED CRUSHED ROAD GRAVEL CONFORMING TO RTA FORM 3051 OR SIMILAR.

OTHER THAN ROADWAY

TRENCH FILL MATERIAL EXCAVATED SHALL CONSIST OF SELECT FILL AS SPECIFIED HEREIN AND SHALL NOT CONTAIN MORE THAN 20% OF STONES OF SIZE BETWEEN 75mm & 150mm AND NONE LARGER THAN 150mm. PRIOR TO THE USE OF THE EXCAVATED MATERIAL IT SHALL BE INSPECTED AND APPROVED BY THE CONSULTANT.

E5. COMPACT BEDDING, EMBEDMENT AND TRENCH FILL MATERIALS AS FOLLOWS:

EMBEDMENT:-
FOR GRANULAR FILL MATERIAL (NON-COHESIVE SOILS) EG. COARSE AGGREGATE FILL, HIGH GRADE COMPACTION SAND, THE DENSITY INDEX (ID) SHALL BE NOT LESS THAN 70%.

TRENCH FILL:-
FOR GRANULAR MATERIAL (NON-COHESIVE SOILS), THE DENSITY INDEX (ID) SHALL BE NOT LESS THAN 70%.

FOR NON-GRANULAR FILL MATERIAL (COHESIVE SOILS), THE DRY DENSITY RATIO (RD) SHALL BE NOT LESS THAN 95%.

E6. MEASURE OF COMPACTION:-
THE DEGREE OF COMPACTION SHALL BE MEASURED BY ONE OF THE FOLLOWING PARAMETERS :-

GRANULAR FILL (NON-COHESIVE SOILS). THE DENSITY INDEX (ID) DETERMINED IN ACCORDANCE WITH AS 1289.E6.1 BASED ON THE MAXIMUM AND MINIMUM DRY DENSITIES IN ACCORDANCE WITH AS 1289.E5.1 AND THE FIELD DRY DENSITY IN ACCORDANCE WITH AS 1289.5.3.2, AS 1289.E3.5 OR AS 1289.E8.1.

NON-GRANULAR FILL (COHESIVE SOILS). THE DRY DENSITY RATION (RD) DETERMINED IN ACCORDANCE WITH AS 1289.5.4.1 BASED ON THE FIELD DRY DENSITY IN ACCORDANCE WITH AS 1289.5.3.2 AND THE MAXIMUM DRY DENSITY IN ACCORDANCE WITH AS 1289.5.1.1

E7. GEOTECHNICAL TESTING IS TO BE UNDERTAKEN TO AT LEAST LEVEL 1 CONTROL OF FILL COMPACTION STANDARD, AS DEFINED IN AS. 3738 AS FOLLOWS:

- TEST EACH 300mm LAYER ABOVE PIPE CROWN.
- TEST BASE & SUB-BASE LAYERS WHERE APPLICABLE.
- TESTS SHALL BE REQUIRED AT EACH 50m CENTRES WHERE THE LENGTH OF TRENCH IS WITHIN THE 50m REQUIREMENT.

E8. SUBMIT ALL GEOTECHNICAL TEST RESULTS TO WARREN SMITH & PARTNERS FOR REVIEW PRIOR TO CONTINUATION WITH SUBSEQUENT SECTION OF WORK.

## RESTORATION:

RES1. RESTORE ALL TRAFFIC AREAS TO PRE EXISTING CONDITION.

RES2. FOR ALL SURFACES OTHER THAN IN TRAFFIC AREAS RESTORE DISTURBED SURFACES TO PRE-EXISTING CONDITIONS AND COMPACT AS SPECIFIED.

RES3. RESTORE ALL AUTHORITY OWNED AREAS TO COUNCIL STANDARDS

## ROAD WORKS, DRIVEWAYS & CARPARKS

R1. ALLOW FOR LEVEL 2 TESTING AND SUB-GRADE CONDITIONS & PAVEMENT THICKNESS TO BE VERIFIED BY GEOTECHNICAL CONSULTANT AFTER INSPECTION OF PRELIMINARY BOXING.

R2. ALLOW FOR ANY SUB-GRADE REPLACEMENT WORK TO BE DETERMINED AS REQUIRED BY GEOTECHNICAL CONSULTANT AT THE TIME OF PAVEMENT CONSTRUCTION.

R3. MINIMUM DRY DENSITY RATIOS (AS 1289 3.4.1-1993) TO BE:

| | |
|---|---|
| BASE COURSE: | 98% MODIFIED |
| SUB-BASE: | 95% MODIFIED |
| SUB-GRADE: | 100% STANDARD |
| SUB-GRADE REPLACEMENT: | 100% STANDARD |

R4. PAVEMENT MATERIALS TO COMPLY WITH RMS SPECIFICATION No. 3051 OR SIMILAR AS APPROVED BY GEOTECHNICAL CONSULTANT.

R5. PROVIDE (1) TEST FOR EACH LAYER NOT EXCEEDING 250mm THICK BEING BASECOURSE, SUB-BASE & SUB-GRADE OVER AN AREA NOT GREATER THAN $500m^2$

R6. SUBMIT ALL GEOTECHNICAL TEST RESULTS TO WARREN SMITH & PARTNERS FOR REVIEW PRIOR TO CONTINUATION WITH SUBSEQUENT SECTION OF WORK.

## APPROVALS

A1. THE AS CONSTRUCTED WORKS SHALL BE INSPECTED BY DESIGN CONSULTANT. MINIMUM 48 HOURS NOTICE SHALL APPLY TO ALL INSPECTIONS.

A2. THE DESIGN PLANS HEREIN ARE SUBJECT TO LOCAL COUNCIL APPROVAL PRIOR TO CONSTRUCTION. OBTAIN EXPRESS (WRITTEN) ADVICE TO PROCEED FROM PROJECT MANAGER PRIOR TO COMMENCEMENT.

A3. SUBMIT WORK-AS-EXECUTED DRAWINGS IN CIVILCAD OR DXF DIGITAL FORMAT AND HARD COPY FORMAT. VERIFY ALL CONSTRUCTION WORKS SHOWN HEREON.

A4. CERTIFY THAT THE AS CONSTRUCTED SYSTEM HAS BEEN BUILT IN ACCORDANCE WITH THE APPROVED PLANS ISSUED FOR CONSTRUCTION.

## SERVICES UNDER ROAD SURFACES

S1. ALL OTHER SERVICES INCLUDING BUT NOT LIMITED TO WATER, HYDRANT, GAS, SEWER, ELECTRICAL AND COMMUNICATIONS CONDUITS OR CABLES SHALL BE LAID WITH MINIMUM 600mm U.N.O. COVER BELOW PROPOSED ROAD SURFACE OR APPROVED OTHER MEANS TO PROTECT DURING CONSTRUCTION.

## ROAD SIGNS & LINE MARKING

RS1. ALL SIGNS AND LINEMARKING SHALL BE TO ROADS & TRAFFIC AUTHORITY STANDARDS AND SPECIFICATIONS AND AS.1742, MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES

RS2. ALL LINEMARKING SHALL BE AUGMENTED BY RETROREFLECTIVE RAISED PAVEMENT MARKERS (RRPMs) AND ALL SHALL BE TO AS 1742.2 - 1994 AND AS 1742.2 /AMDT 1/1997-10-05

RS3. ALL ROAD SIGNS AND POSTS SHALL BE TO AS 1742.2 - 1994 AND AS 1742.2 /AMDT 1/1997-10-05

## PROTECTION OF FLORA - REFER SPECIFICATION

1. ANY TRENCHES WITHIN 3m OF TREES SHALL BE HAND DUG TO AVOID DAMAGE TO TREE ROOTS.

2. IF IT IS CONSIDERED NECESSARY TO PERFORM ANY WORK ON TREES, INCLUDING TRIMMING, LOPPING, ROOT CUTTING, REPAIR AND REMOVAL, APPLICATION IN WRITING SHALL BE MADE BY THE CONTRACTOR TO THE SUPERINTENDENT. ANY WORK PERMITTED TO BE DONE ON TREES TO BE RETAINED SHALL BE PERFORMED IN ACCORDANCE WITH THE ARBORISTS REPORT.

3. MATURE TREES AND SHRUBS ARE TO BE REMOVED IN ACCORDANCE WITH THE ARBORISTS REPORT.

## AUTHORITY STANDARDS

LGA 1. THE DRAWINGS HEREIN SHALL BE READ IN CONJUNCTION WITH NORTHERN BEACHES COUNCIL STANDARDS & SPECIFICATIONS WHICH SHALL OVERRIDE SPECIAL DETAILS SHOWN ON THE DRAWINGS.

## TRAFFIC NOTE:

1. A TRAFFIC CONTROL PLAN IS TO BE PREPARED BY AN ACCREDITED RMS 1. TRAFFIC CONTROLLER AND SUBMITTED TO COUNCIL. THIS TRAFFIC PLAN IS TO BE CERTIFIED BY AND IMPLEMENTED TO THE SATISFACTION OF AN ACCREDITED RMS TRAFFIC CONTROLLER

PRIOR TO COMMENCEMENT OF WORK

2. ALL TRAFFIC CONTROL WORKS SHALL ONLY BE CARRIED OUT BY 2. ACCREDITED RMS TRAFFIC CONTROLLERS.

## CLOSED CIRCUIT COLOUR TV (CCTV)

CCTV 1. UNDERTAKE A CCTV INSPECTION OF ALL THE COMPLETED DRAINAGE IN ACCORDANCE WITH THE GUIDELINES OF THE AUSTRALIAN CONDUIT CONDITION EVALUATION MANUAL (ACCEM)

CCTV 2. APPLY THE FOLLOWING REQUIREMENTS TO THE CCTV INSPECTION:-
A. USE DATA CAPTURE SOFTWARE APPROVED BY SYDNEY WATER

B. USE CERTIFIED CCTV OPERATORS C. THE CCTV FOOTAGE SHALL BE OF QUALITY TO ALLOW ACCURATE ASSESSMENT OF THE INTERNAL CONDITION OF THE PIPE. FURNISH TO THE DESIGN CONSULTANT:-

CCTV 3. A. VIDEOS IN MPG FORMAT
B. CCTV REPORT AND SURVEY DATA IN PDF FORMAT

## PROTECTION OF TREES

T1. WHERE STORMWATER DRAINAGE IS LAID WITHIN THE VICINITY OF TREES / CANOPIES OF TREES, WORK IS TO BE COMPLETED TO THE PROJECT ARBORIST'S REQUIREMENTS AND SPECIFICATIONS.

DO NOT SCALE FROM DRAWINGS, CHECK & VERIFY ALL DIMENSIONS & LEVELS BEFORE COMMENCEMENT OF ANY WORK.

THIS DRAWING IS NOT TO BE COPIED IN PART OR WHOLE WITHOUT WRITTEN PERMISSION FROM WARREN SMITH AND PARTNERS.

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

| REVISION | AMENDMENT | DATE | REVISION | AMENDMENT | DATE |
|---|---|---|---|---|---|
| 1 | ISSUE FOR DEVELOPMENT APPLICATION | 16/12/20 | | | |
| 2 | ISSUE FOR TENDER | 04/05/221 | | | |
| A | ISSUE FOR CONSTRUCTION | 25/06/21 | | | |

CLIENT: northern beaches council

PROJECT: WARRIEWOOD COMMUNITY CENTRE

PREPARED BY
Warren Smith & Partners
Warren Smith & Partners Pty Ltd
Level 9, 233 Castlereagh Street, Sydney 2000 NSW Australia
02 9299 1312 wsp@warrensmith.com.au
www.warrensmith.com.au ABN 36 300 430 126
Consulting Engineers
Hydraulic Fire Civil Utilities Infrastructure
SERVING THE CONSTRUCTION INDUSTRY SINCE 1981.

TITLE: **SPECIFICATION NOTES**

| SCALE | DRAWN | DESIGNED | CHECKED | APPROVED |
|---|---|---|---|---|
| AS SHOWN | M.T. | M.T. | J.G. | M.C. |

| JOB No. | DRAWING No. | ISSUE |
|---|---|---|
| 71010000 | C1.02 | A |

DATE: APRIL 2021 STATUS: IFC

## LEGEND

- EXISTING BOUNDARY
- esw — EXISTING STORMWATER PIPE
- es — EXISTING SEWER LINE
- et — EXISTING TELECOMMUNICATIONS LINE
- eg — EXISTING GAS
- ew — EXISTING WATER MAIN
- ee — EXISTING ELECTRICITY
- eeug — EXISTING ELECTRICITY UNDERGROUND
- ee — EXISTING OVERHEAD ELECTRICITY

NOTES:

1. IT IS RECOMMENDED THAT A DETAILED SERVICES SURVEY BE UNDERTAKE PRIOR TO DETAILED DESIGN COMMENCING. THE DETAILED SURVEY SHALL PICK UP ALL EXISTING SERVICES WITHIN THE PROPOSED DEVELOPMENT SITE AS WELL AS EXISTING STORMWATER INFRASTRUCTURE IN BOONDAH ROAD, JACKSON ROAD AND PITTWATER ROAD.

DO NOT SCALE FROM DRAWINGS, CHECK & VERIFY ALL DIMENSIONS & LEVELS BEFORE COMMENCEMENT OF ANY WORK.

THIS DRAWING IS NOT TO BE COPIED IN PART OR WHOLE WITHOUT WRITTEN PERMISSION FROM WARREN SMITH AND PARTNERS.

NORTH

5.0 0 2.5 5.0 7.5 10.0m
PLAN SCALE 1:250 A1 SHEET

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

| REVISION | AMENDMENT | DATE | REVISION | AMENDMENT | DATE |
|---|---|---|---|---|---|
| 1 | ISSUE FOR 80% DEVELOPMENT APPLICATION | 16/12/20 | | | |
| 2 | RE-ISSUE FOR DEVELOPMENT APPLICATION | 03/05/21 | | | |
| 3 | ISSUE FOR TENDER | 04/05/21 | | | |
| A | ISSUED FOR CONSTRUCTION | 25/06/21 | | | |

CLIENT
northern beaches council

PROJECT
WARRIEWOOD COMMUNITY CENTRE

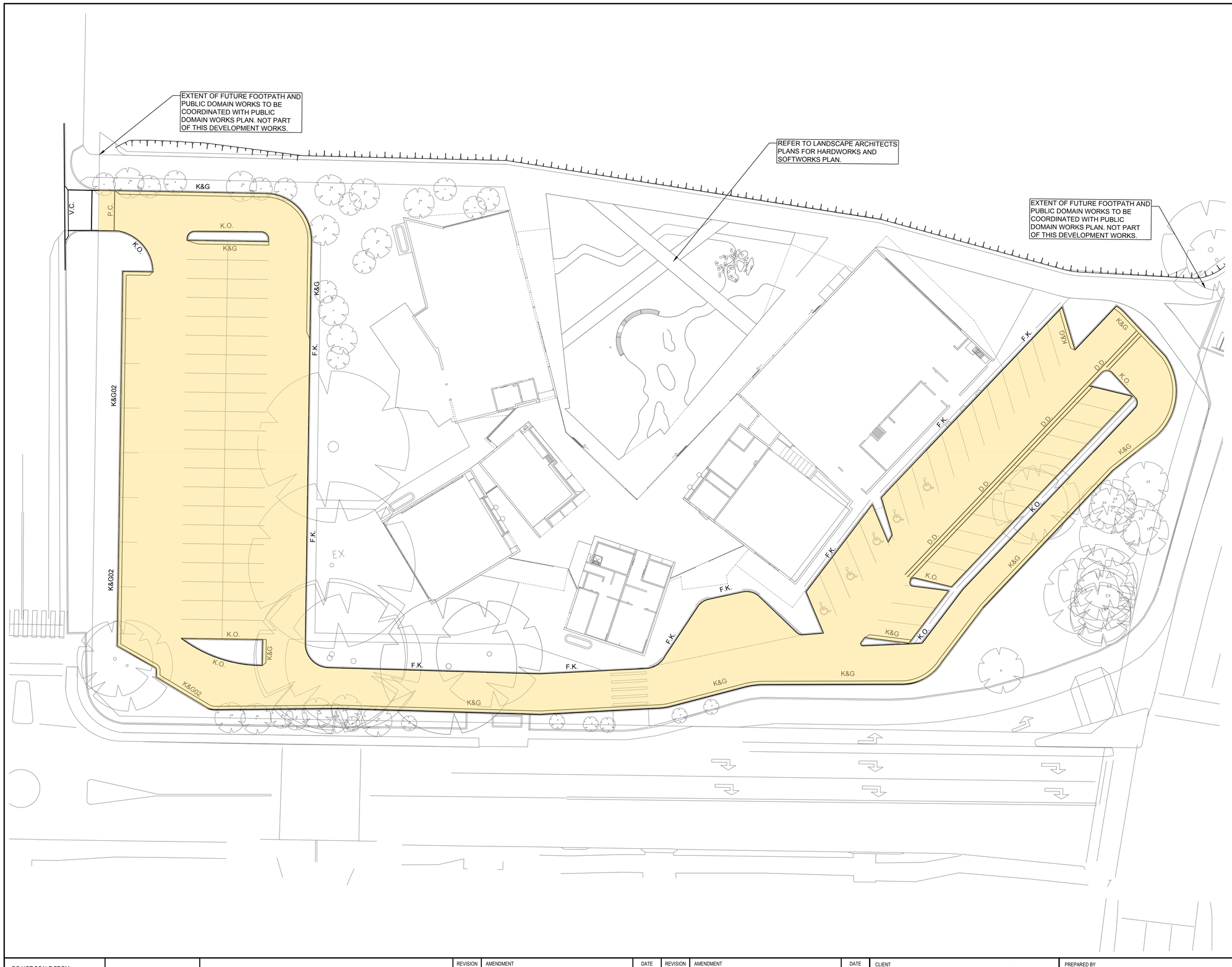
PREPARED BY
Warren Smith & Partners
**Warren Smith & Partners Pty Ltd**
Level 9, 233 Castlereagh Street, Sydney 2000 NSW Australia
02 9299 1312 wsp@warrensmith.com.au
**www.warrensmith.com.au ABN** 36 300 430 126
**Consulting Engineers**
Hydraulic Fire Civil Utilities Infrastructure
GCC ISO 9001 Certified
**SERVING THE CONSTRUCTION INDUSTRY SINCE 1981.**

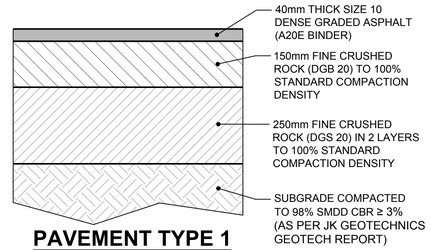
TITLE
# EXISTING SURVEY

| SCALE | DRAWN | DESIGNED | CHECKED | APPROVED |
|---|---|---|---|---|
| AS SHOWN | M.T. | M.T. | J.G. | M.C. |

| JOB No. | DRAWING No. | ISSUE |
|---|---|---|
| 71010000 | C1.03 | A |

| DATE | STATUS |
|---|---|
| APRIL 2021 | IFC |




## PAVEMENT TYPE 1

ASPHALT PAVEMENT
ESA = 6 x $10^4$ (ACCESS STREET)
SCALE 1:10

## LEGEND

- PAVEMENT TYPE 1 (ASPHALT PAVEMENT)
- R.K. — ROLL KERB (R.K.)
- K&G — KERB & GUTTER (K&G)
- K.O. — KERB ONLY (K.O.)
- D.D. — DISHED DRAIN (D.D.)
- F.K. — FLUSH KERB (F.K.)
- V.C. — VEHICULAR CROSSING (V.C.)
- K.R. — KERB RAMP
- RETAINING WALL
- TOP OF BATTER CUT
- TOP OF BATTER FILL
- BATTER TOE

NOTES
1. REFER TO STRUCTURAL ENGINEERS DRAWINGS FOR ENGINEERING DETAILS, AND LANDSCAPE DRAWINGS FOR DETAIL ON PAVEMENT FINISH.



NORTH

5.0 0 2.5 5.0 7.5 10.0m
PLAN SCALE 1:250 A1 SHEET

100 0 100 200 300 400 500mm
PLAN SCALE 1:10 A1 SHEET

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

| REVISION | AMENDMENT | DATE | REVISION | AMENDMENT | DATE |
|---|---|---|---|---|---|
| 1 | ISSUED FOR TENDER | 03/05/21 | | | |
| 2 | ISSUED FOR TENDER | 04/05/21 | | | |
| A | ISSUE FOR CONSTRUCTION | 25/06/21 | | | |

CLIENT
northern beaches council

PROJECT
WARRIEWOOD COMMUNITY CENTRE

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Consulting Engineers
Hydraulic Fire Civil Utilities Infrastructure
SERVING THE CONSTRUCTION INDUSTRY SINCE 1981.

TITLE
# PAVEMENT PLAN & DETAILS

| SCALE | DRAWN | DESIGNED | CHECKED | APPROVED |
|---|---|---|---|---|
| AS SHOWN | L.FS. | R.X. | J.G. | M.C. |

| JOB No | DRAWING No. | ISSUE |
|---|---|---|
| 71010000 | C1.04 | A |

| DATE | STATUS |
|---|---|
| APRIL 2021 | IFC |

NOTES:

1. GEOTEXTILE INLET FILTER BAGS TO BE FITTED IN ALL EXISTING AND PROPOSED STORMWATER GRATED PITS WITHIN THE DEVELOPMENT AREA WHICH ARE IN USE.
2. STOCKPILE LOCATION SHALL BE DETERMINED ON SITE DURING CONSTRUCTION STAGE. STOCKPILE ARE TO REMAIN CLEAR OF SITE ACCESS, DRAINS AND PAVED AREAS. HEIGHT OF STOCKPILE SHALL NOT EXCEED 2m.
3. INSTALLATION OF ALL EROSION AND SEDIMENT CONTROL MEASURES IS TO BE IN ACCORDANCE WITH THE LATEST EDITION OF THE 'BLUE BOOK - MANAGING URBAN STORMWATER'. ALL CONTROLS ARE TO BE INSTALLED PRIOR TO CONSTRUCTION COMMENCING.
4. THE CONTRACTOR IS RESPONSIBLE FOR THE CORRECT INSTALLATION AND ONGOING MAINTENANCE OF THE CONTROLS. REFER TO DRG C2.02 FOR MAINTENANCE REQUIREMENTS.
5. SUITABLE AND APPROVED BINS SHALL BE UTILISED FOR THE CONTAINMENT OF ALL HARD WASTE, INCLUDING CONCRETE SLURRIES, BUILDING WASTE AND LITTER. IN THE CASE OF ACCIDENTAL SPILLS OF SOIL OR OTHER MATERIAL, PARTICULARLY IN THE PUBLIC RESERVE, THE MATERIAL SHALL BE SWEPT AND CONTAINED AND NOT WASHED INTO A GUTTER.

## LEGEND

- SITE BOUNDARY
- VEHICLE ENTRY SHAKER GRID
- SITE FENCE
- SITE GATE
- SEDIMENT FENCE
- GEOTEXTILE INLET FILTER - DROP INLET SEDIMENT TRAP
- SEDIMENT TRAP FOR KERB INLET - SAND BAGS
- DEMOLISH EXISTING TREES AND REMOVE OFF SITE
- EXTENT OF DEMOTION WORKS

EXISTING BUILDINGS TO BE DEMOLISHED PRIOR TO CONSTRUCTION COMMENCEMENT

BODDAH ROAD

JACKSON ROAD

PITTWATER ROAD

DP 856174

DP 6544

DO NOT SCALE FROM DRAWINGS, CHECK & VERIFY ALL DIMENSIONS & LEVELS BEFORE COMMENCEMENT OF ANY WORK.

THIS DRAWING IS NOT TO BE COPIED IN PART OR WHOLE WITHOUT WRITTEN PERMISSION FROM WARREN SMITH AND PARTNERS.

NORTH

5.0 0 2.5 5.0 7.5 10.0m

PLAN SCALE 1:250 A1 SHEET

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

| REVISION | AMENDMENT | DATE |
|---|---|---|
| 1 | ISSUE FOR 80% DEVELOPMENT APPLICATION | 16/12/20 |
| 2 | RE-ISSUE FOR DEVELOPMENT APPLICATION | 03/05/21 |
| 3 | ISSUE FOR TENDER | 04/05/21 |
| A | ISSUE FOR CONSTRUCTION | 25/06/21 |

CLIENT: northern beaches council

PROJECT: WARRIEWOOD COMMUNITY CENTRE

PREPARED BY

Warren Smith & Partners

Warren Smith & Partners Pty Ltd
Level 9, 233 Castlereagh Street, Sydney 2000 NSW Australia
02 9299 1312 wsp@warrensmith.com.au
www.warrensmith.com.au ABN 36 300 430 126

Consulting Engineers
Hydraulic Fire Civil Utilities Infrastructure

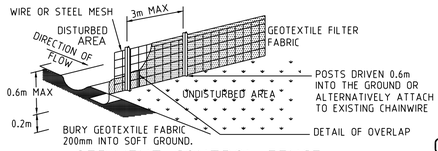
SERVING THE CONSTRUCTION INDUSTRY SINCE 1981.

TITLE: **SEDIMENT & EROSION CONTROL PLAN**

| SCALE | DRAWN | DESIGNED | CHECKED | APPROVED |
|---|---|---|---|---|
| AS SHOWN | M.T. | M.T. | J.G. | M.C. |

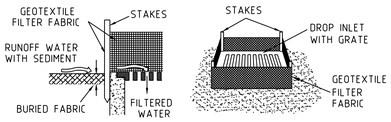
| JOB No. | DRAWING No. | ISSUE |
|---|---|---|
| 71010000 | C2.01 | A |

| DATE | STATUS |
|---|---|
| APRIL 2021 | IFC |



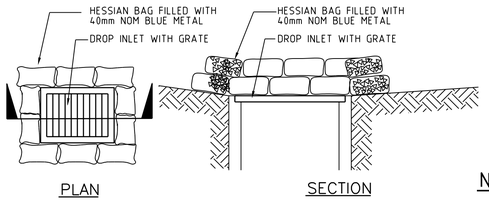

## SEDIMENT CONTROL FENCE

NTS



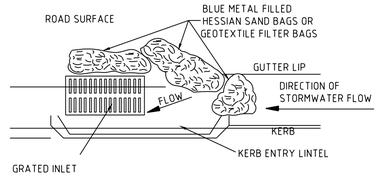

## GEOTEXTILE FILTER FABRIC DROP INLET SEDIMENT TRAP

NTS



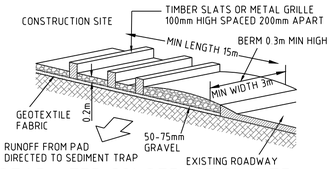

## HESSIAN BAG DROP INLET SEDIMENT TRAP

NTS




## NEW/EXISTING GRATED KERB ENTRY PIT SEDIMENT CONTROL BARRIER

NTS

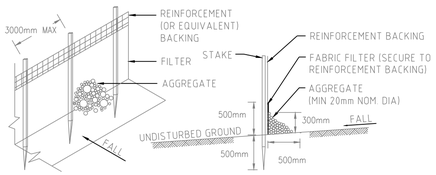



## STABILIZED CONSTRUCTION SITE VEHICLE ENTRY/EXIT

NTS

### SITE ENTRY/EXIT NOTES:-

1. ALL VEHICLE ENTRANCES & EXITS TO THE CONSTRUCTION SITE MUST BE STABILIZED TO PREVENT THEM BECOMING A SOURCE OF SEDIMENT, BY PROVIDING A VEHICLE SHAKE AREA. THIS MAY CONSIST OF A TIMBER, CONCRETE OR STEEL SHAKER GRID OR RUBBLE AREA.
2. THE VEHICLE EXIT AREA IS TO BE MAINTAINED IN A CLEAN & SERVICEABLE CONDITION DURING THE TOTAL TIME OF USAGE.
3. ANY UNSEALED ROAD BETWEEN THE DEVICE AND COUNCILS ROADWAY IS TO BE TOPPED WITH 100mm THICK, 40mm NOMINAL SIZE AGGREGATE.
4. PUBLIC ROADS MUST BE KEPT FREE OF DIRT AND MUD. SEDIMENT TRACKED ONTO THE PUBLIC ROADWAY BY VEHICLES LEAVING THE CONSTRUCTION SITE IS TO BE SWEPT UP IMMEDIATELY.
5. FENCES SHOULD BE ERECTED TO ENSURE VEHICLES CAN NOT BYPASS THE STABILIZED ACCESS POINTS, UNLESS COMING FROM A STABILIZED AREA.

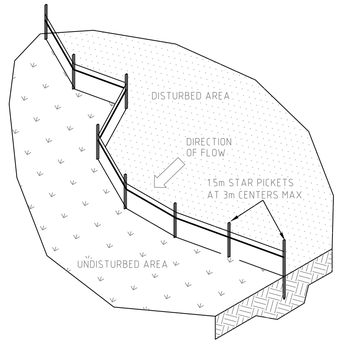


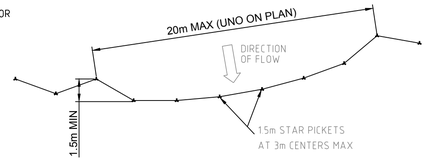

## SEDIMENT FENCE DETAIL FOR ROCKY GROUND

NTS

### SEDIMENT FENCE NOTES:-

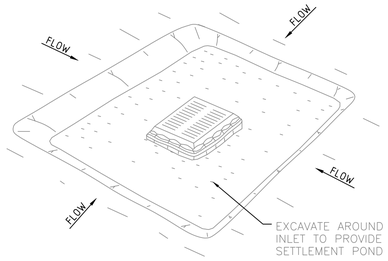
1. CONSTRUCT SEDIMENT FENCE AS CLOSE AS POSSIBLE TO PARALLEL TO THE CONTOURS OF THE SITE OR AT THE TOE OF A SLOPE.
2. DRIVE 1.5 METRE LONG STAR PICKETS INTO GROUND SUFFICIENT TO PROVIDE RIGID SUPPORT, 3 METERS APART. WHERE THERE IS INSUFFICIENT SOIL DEPTH OVER ROCK, HOLES ARE TO BE DRILLED INTO ROCK TO ACCEPT THE STAR PICKETS.
3. ON SOFT GROUND MATERIALS, DIG A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
4. BACKFILL TRENCH OVER BASE OF FABRIC & COMPACT.
5. FIX SELF-SUPPORTING GEOTEXTILE TO UPSLOPE SIDE OF POSTS WITH WIRE TIES OR AS RECOMMENDED BY THE GEOTEXTILE MANUFACTURER. USE A REINFORCEMENT BACKING WITH NON SELF-SUPPORTING GEOTEXTILE FABRIC.
6. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.
7. ON HARD OR ROCKY GROUND, SMOOTH A 500mm WIDE STRIP UPSLOPE OF THE FENCE LINE. TURN THE BOTTOM 500mm OF THE FABRIC UPSLOPE AND ANCHOR IN PLACE WITH SUITABLE AGGREGATE.
8. WHERE A SEDIMENT FENCE IS CONSTRUCTED DOWN SLOPE FROM A DISTURBED BATTER THE FENCE SHOULD BE LOCATED 1.5 TO 2.0 METERS DOWN SLOPE FROM THE TOE OF THE BATTER.




## SEDIMENT FENCE LAYOUT PLAN

NTS

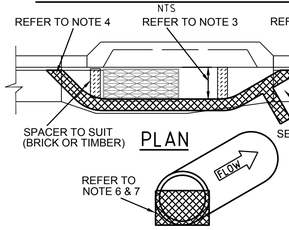



## EXCAVATED SEDIMENT TRAP

NTS

### EXCAVATED SEDIMENT TRAP NOTES:-

1. REMOVE THE SEDIMENT WHEN IT HAS ACCUMULATED TO HALF THE DESIGN DEPTH OF THE TRAP AND RESTORE THE TRAP TO ITS ORIGINAL DIMENSIONS.
2. PROVIDE 50 cu.m/Ha OF SEDIMENT STORAGE VOLUME.
3. REFER TO THE MAINTENANCE REQUIREMENTS.

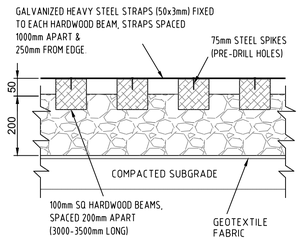



## GEOTEXTILE FILTER BAGS

NTS

### SEDIMENT BARRIER FOR PITS & PIPES, NOTES:-

1. SLEEVES ARE TO BE MADE FROM GEOTEXTILE FABRIC LONGER THEN THE LENGTH OF THE INLET PIT.
2. FILL SLEEVE WITH 5 OR 10mm CLEAN GRAVEL.
3. PLACE THE SLEEVE AT THE OPENING OF THE KERB INLET LEAVING A 100mm GAP TO ACT AS AN EMERGENCY OVERFLOW.
4. SLEEVE MUST BE PLACED AGAINST THE KERB TO PREVENT BYPASS.
5. FIT SLEEVE TO ALL INLETS DOWNSTREAM OF THE WORKS.
6. FOR DRAINAGE WORKS FIT GEOTEXTILE FABRIC OR GEO BAGS TO UPSTREAM FACE OF ALL OPEN PIPES.
7. MAINTAIN AN OPENING AT THE TOP OF THE PIPE OF 1/3 OF THE PIPE DIAMETER.
8. THE FILTERS ARE TO BE CLEANED AND MAINTAINED DAILY.
9. ALL CARE SHOULD BE TAKEN TO MINIMIZE SEDIMENT REACHING THE STORMWATER SYSTEM BY MINIMIZING EXCAVATION WORKS AND PREVENTING EXCESS WATER FLOW THROUGH WORKS.

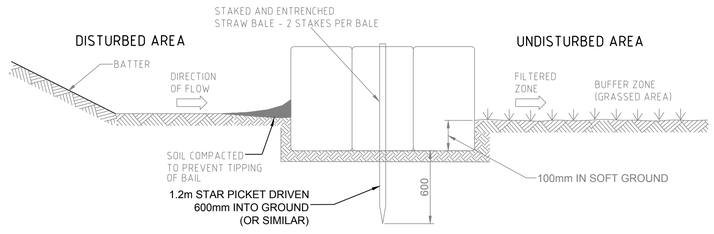



## VEHICLE SHAKER GRID

NTS

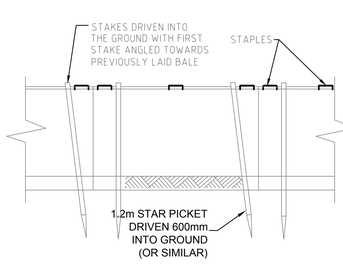
### SITE ENTRY/EXIT CONSTRUCTION NOTES:-

1. STRIP TOP SOIL & LEVEL SITE. PROVIDE CATCH DRAIN AT SIDES TO DIRECT RUNOFF WATER TO SEDIMENT TRAPS.
2. COMPACT SUBGRADE AND REMOVE ANY HIGH POINTS.
3. COVER AREA WITH GEOTEXTILE FABRIC. THIS MAY BE WOVEN OR NEEDLE PUNCHED PRODUCT WITH A MINIMUM CBR BURST STRENGTH (AS3706.4-90) OF 2500 N.
4. CONSTRUCT 200mm THICK RUBBLE PAD OVER GEOTEXTILE USING ROAD BASE OR 30-40mm AGGREGATE. MINIMUM LENGTH 15 METRES OR TO BUILDING ALIGNMENT. MINIMUM WIDTH 3 METRES. CONSTRUCT 300mm HIGH HUMP IMMEDIATELY WITHIN BOUNDARY TO DIVERT WATER TO A SEDIMENT TRAP.
5. WHERE GRIDS ARE USED FIRST CONSTRUCT A 150 THICK PAD OVER GEOTEXTILE FABRIC. LEVEL THIS IN BOTH DIRECTIONS. LOWER GRID ON TO THE PREPARED BASE AND ENSURE THAT NO PART IS SITTING ON ANY HIGH POINTS. BACKFILL THE SPACES BETWEEN THE GRIDS TO WITHIN 50mm OF THE TOP.
6. PROVIDE RAMPS AT ENDS AND SIDE OF GRIDS. IF DEPRESSIONS OCCUR IN THE RAMPS DURING USE. ADD ADDITIONAL MATERIAL.



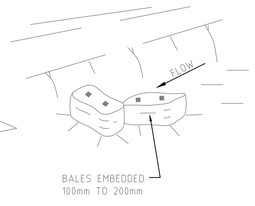

## TYPICAL STRAW BALE SECTION

NTS

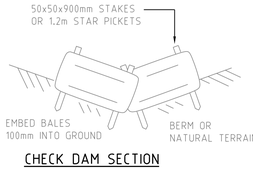



## TYPICAL STRAW BALE DETAIL

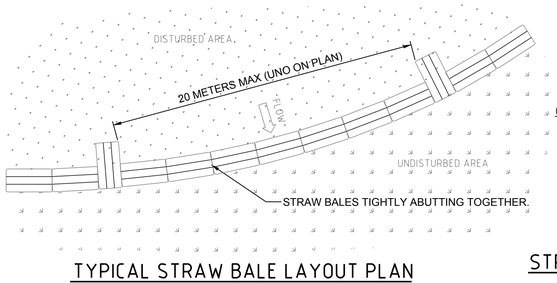
NTS




## VIEW OF CHECK DAM




## CHECK DAM SECTION




## TYPICAL STRAW BALE LAYOUT PLAN

NTS

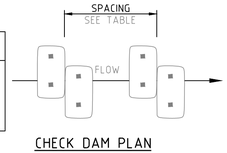
### STRAW BALE NOTES:-

1. CONSTRUCT STRAW BALE FILTER AS CLOSE AS POSSIBLE TO PARALLEL TO THE CONTOURS OF THE SITE OR AT THE TOE OF A SLOPE.

   PLACE BALES LENGTHWISE IN A ROW WITH ENDS TIGHTLY ABUTTING.
2. USE STRAW TO FILL ANY GAPS BETWEEN BALES. STRAWS TO BE PLACED PARALLEL TO GROUND.
3. MAXIMUM HEIGHT OF FILTER IS ONE BALE.
4. ON SOFT MATERIALS, EMBED EACH BALE IN THE GROUND 75mm TO 100mm AND ANCHOR WITH TWO 1.2 METRE STAR PICKETS. ANGLE THE FIRST STAKE IN EACH BALE TOWARDS THE PREVIOUSLY LAID BAIL. DRIVE STAKES 600mm INTO THE GROUND AND FLUSH WITH THE TOP OF THE BALES.
5. WHERE A STRAW BALE FILTER IS CONSTRUCTED DOWN SLOPE FROM A DISTURBED BATTER THE BALES SHOULD BE LOCATED 1.5 TO 2.0 METERS DOWN SLOPE FROM THE TOE OF THE BATTER.
6. WHERE REQUIRED WRAP GEOTEXTILE FILTER FABRIC AROUND BALES AND STAPLE IN POSITION.

CHECK DAM SPACING TABLE

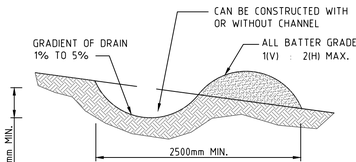
| LONGITUDINAL GRADE (%) | SPACING (METERS) |
|---|---|
| 0 - 5 | 40 |
| 5 -10 | 30 |
| 10 - 15 | 20 |
| GREATER THAN 15 | 10 |




## CHECK DAM PLAN

## STRAW BALE CHECK DAM DETAILS

NTS




## DIVERSION DRAIN (LOW FLOW)

NTS

### DIVERSION DRAIN NOTES:-

1. CONSTRUCT WITH GRADIENT OF 1 PER CENT TO 5 PER CENT.
2. AVOID REMOVING TREES AND SHRUBS IF POSSIBLE.
3. DRAINS TO BE OF CIRCULAR, PARABOLIC OR TRAPEZOIDAL CROSS SECTION NOT V-SHAPED.
4. EARTH BANKS TO BE ADEQUATELY COMPACTED IN ORDER TO PREVENT FAILURE.
5. PERMANENT OR TEMPORARY STABILIZATION OF THE EARTH BANK TO BE COMPLETED WITHIN 10 DAYS OF CONSTRUCTION.
6. ALL OUTLETS FROM DISTURBED LANDS ARE TO FEED INTO A SEDIMENT BASIN OR SIMILAR.
7. DISCHARGE RUN OFF COLLECTED FROM UNDISTURBED LANDS ONTO EITHER A STABILIZED OR AN UNDISTURBED DISPOSAL SITE WITHIN THE SAME SUBCATCHMENT AREA FROM WHICH THE WATER ORIGINATED.
8. COMPACT BANK WITH A SUITABLE IMPLEMENT IN SITUATIONS WHERE THEY ARE REQUIRED TO FUNCTION FOR MORE THAN FIVE DAYS.
9. EARTH BANKS TO BE FREE OF PROJECTIONS OR OTHER IRREGULARITIES THAT WILL IMPEDE NORMAL FLOW.

## MAINTENANCE REQUIREMENTS:-

1. ACCUMULATED SILT & SEDIMENT MUST BE REMOVED AT REGULAR INTERVALS AND AFTER EACH MAJOR STORM.
2. SILT & SEDIMENT MUST BE REMOVED FROM OFF THE SITE OR TO A COUNCIL APPROVED LOCATION WITHIN THE SITE, WHERE IT WILL NOT ERODE.
3. THE SEDIMENT FENCES, BALES & TRAPS SHALL BE REGULARLY INSPECTED, ESPECIALLY AFTER RAIN AND KEPT IN GOOD REPAIR AND FUNCTIONING CONDITION AT ALL TIMES.
4. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT SEDIMENT, EROSION & WATER POLLUTION SHALL BE MINIMIZED.
5. THE SEDIMENT TRAPS SHALL BE REMOVED AND THE AREA STABILIZED WHEN THE CONSTRUCTION AREA HAS BEEN PROPERLY STABILIZED.



| REVISION | AMENDMENT | DATE | REVISION | AMENDMENT | DATE |
|---|---|---|---|---|---|
| 1 | ISSUE FOR 80% DEVELOPMENT APPLICATION | 16/12/20 | | | |
| 2 | RE-ISSUE FOR DEVELOPMENT APPLICATION | 03/05/21 | | | |
| 3 | ISSUE FOR TENDER | 04/05/21 | | | |
| A | ISSUE FOR CONSTRUCTION | 25/06/21 | | | |

CLIENT: northern beaches council

PROJECT: WARRIEWOOD COMMUNITY CENTRE

PREPARED BY

Warren Smith & Partners

**Warren Smith & Partners Pty Ltd**
Level 9, 233 Castlereagh Street, Sydney 2000 NSW Australia
02 9299 1312 wsp@warrensmith.com.au
**www.warrensmith.com.au ABN** 36 300 430 126

**Consulting Engineers**
Hydraulic Fire Civil Utilities Infrastructure

GCC ISO 9001 Certified

**SERVING THE CONSTRUCTION INDUSTRY SINCE 1981.**

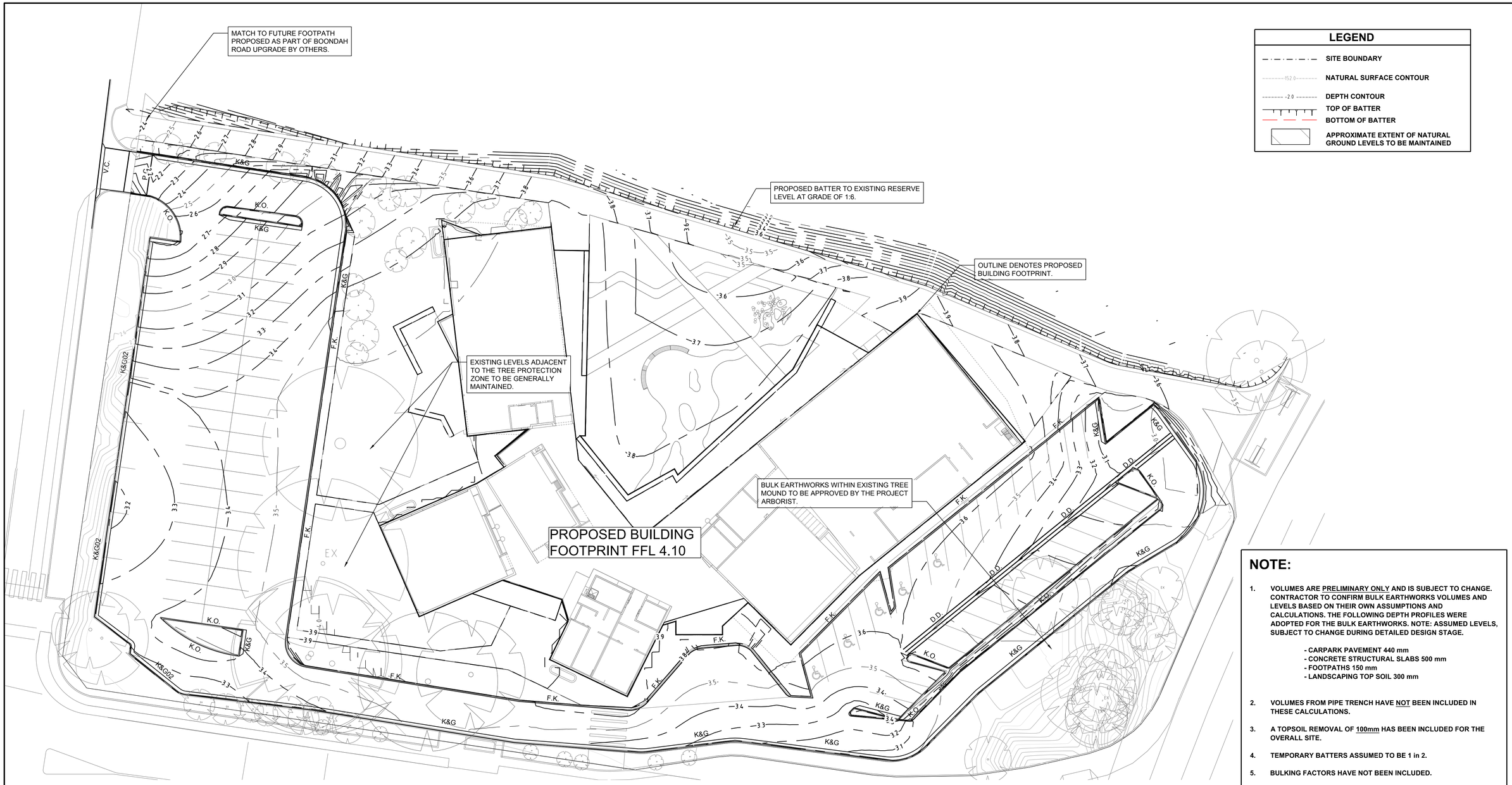
TITLE: **SEDIMENT & EROSION CONTROL DETAILS**

| SCALE | DRAWN | DESIGNED | CHECKED | APPROVED |
|---|---|---|---|---|
| AS SHOWN | M.T. | M.T. | J.G. | M.C. |

| JOB No. | DRAWING No. | ISSUE |
|---|---|---|
| 71010000 | C2.02 | A |

DATE: APRIL 2021 STATUS: IFC

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150




## NOTE:

1. VOLUMES ARE PRELIMINARY ONLY AND IS SUBJECT TO CHANGE. CONTRACTOR TO CONFIRM BULK EARTHWORKS VOLUMES AND LEVELS BASED ON THEIR OWN ASSUMPTIONS AND CALCULATIONS. THE FOLLOWING DEPTH PROFILES WERE ADOPTED FOR THE BULK EARTHWORKS. NOTE: ASSUMED LEVELS, SUBJECT TO CHANGE DURING DETAILED DESIGN STAGE.
   - CARPARK PAVEMENT 440 mm
   - CONCRETE STRUCTURAL SLABS 500 mm
   - FOOTPATHS 150 mm
   - LANDSCAPING TOP SOIL 300 mm
2. VOLUMES FROM PIPE TRENCH HAVE NOT BEEN INCLUDED IN THESE CALCULATIONS.
3. A TOPSOIL REMOVAL OF 100mm HAS BEEN INCLUDED FOR THE OVERALL SITE.
4. TEMPORARY BATTERS ASSUMED TO BE 1 in 2.
5. BULKING FACTORS HAVE NOT BEEN INCLUDED.
6. ALLOW A +/-15% TOLERANCE FOR THESE VOLUMES.
7. EXTENT OF CUTTING/FILLING IN THE VICINITY OF EXISTING TREES SHALL BE CONFIRMED BY THE PROJECT ARBORIST.
8. TREE PROTECTION ZONES TO BE CONFIRMED BY THE PROJECT ARBORIST.

CUT 1654.75 m³
FILL 1536.09 m³
NET 118.66 m³

DO NOT SCALE FROM DRAWINGS, CHECK & VERIFY ALL DIMENSIONS & LEVELS BEFORE COMMENCEMENT OF ANY WORK.

THIS DRAWING IS NOT TO BE COPIED IN PART OR WHOLE WITHOUT WRITTEN PERMISSION FROM WARREN SMITH AND PARTNERS.

NORTH

2.5 0 2.5 5.0 7.5 10.0m
PLAN SCALE 1:200 A1 SHEET

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

| REVISION | AMENDMENT | DATE | REVISION | AMENDMENT | DATE |
|---|---|---|---|---|---|
| 1 | ISSUE FOR INFORMATION | 11/02/21 | | | |
| 2 | ISSUE FOR INFORMATION | 01/04/21 | | | |
| 3 | ISSUE FOR TENDER | 05/05/21 | | | |
| A | ISSUE FOR CONSTRUCTION | 25/06/21 | | | |
| B | AMENDMENT TO NOTES | 16/09/21 | | | |

CLIENT
northern beaches council

PROJECT
WARRIEWOOD COMMUNITY CENTRE

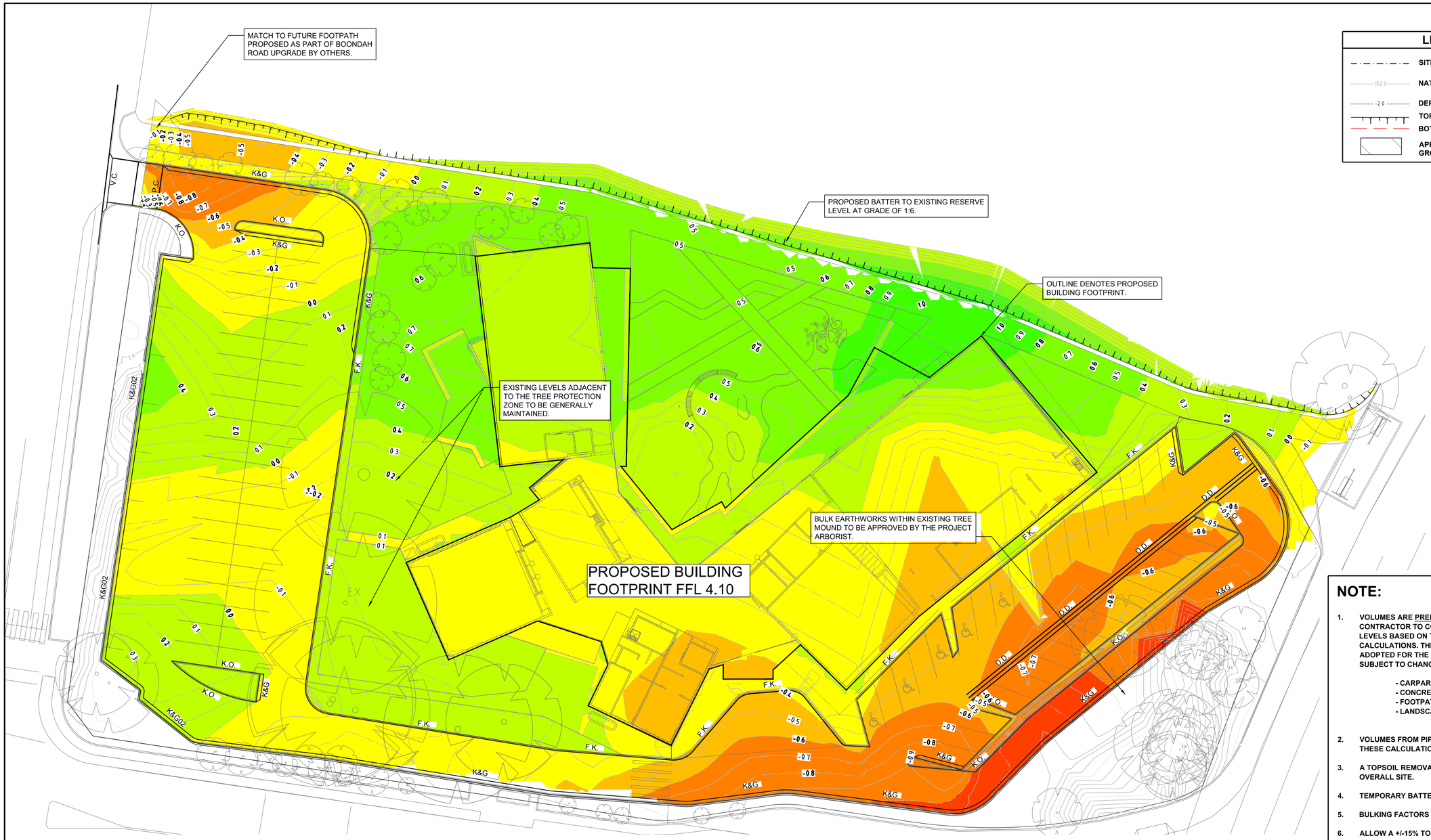
PREPARED BY
Warren Smith & Partners
Warren Smith & Partners Pty Ltd
Level 9, 233 Castlereagh Street, Sydney 2000 NSW Australia
02 9299 1312 wsp@warrensmith.com.au
www.warrensmith.com.au ABN 36 300 430 126
Consulting Engineers
Hydraulic Fire Civil Utilities Infrastructure
SERVING THE CONSTRUCTION INDUSTRY SINCE 1981.

TITLE
# BULK EARTHWORKS PLAN

| SCALE | DRAWN | DESIGNED | CHECKED | APPROVED |
|---|---|---|---|---|
| AS SHOWN | R.X. | R.X. | J.G. | |

| JOB No. | DRAWING No. | ISSUE |
|---|---|---|
| 71010000 | C3.01 | B |

| DATE | STATUS |
|---|---|
| APRIL 2021 | IFC |




## LEGEND

- SITE BOUNDARY
- NATURAL SURFACE CONTOUR
- DEPTH CONTOUR
- TOP OF BATTER
- BOTTOM OF BATTER
- APPROXIMATE EXTENT OF NATURAL GROUND LEVELS TO BE MAINTAINED

## LEVELS TABLE

| No. | From Depth | To Depth | Colour |
|---|---|---|---|
| 1 | -1.800 | -1.400 | |
| 2 | -1.400 | -1.000 | |
| 3 | -1.000 | -0.600 | |
| 4 | -0.600 | -0.400 | |
| 5 | -0.400 | 0.000 | |
| 6 | 0.000 | 0.400 | |
| 7 | 0.400 | 0.800 | |
| 8 | 0.800 | 1.200 | |
| 9 | 1.200 | 1.600 | |
| 10 | 1.600 | 2.000 | |

## NOTE:

1. VOLUMES ARE PRELIMINARY ONLY AND IS SUBJECT TO CHANGE. CONTRACTOR TO CONFIRM BULK EARTHWORKS VOLUMES AND LEVELS BASED ON THEIR OWN ASSUMPTIONS AND CALCULATIONS. THE FOLLOWING DEPTH PROFILES WERE ADOPTED FOR THE BULK EARTHWORKS. NOTE: ASSUMED LEVELS, SUBJECT TO CHANGE DURING DETAILED DESIGN STAGE.
   - CARPARK PAVEMENT 440 mm
   - CONCRETE STRUCTURAL SLABS 500 mm
   - FOOTPATHS 150 mm
   - LANDSCAPING TOP SOIL 300 mm
2. VOLUMES FROM PIPE TRENCH HAVE NOT BEEN INCLUDED IN THESE CALCULATIONS.
3. A TOPSOIL REMOVAL OF 100mm HAS BEEN INCLUDED FOR THE OVERALL SITE.
4. TEMPORARY BATTERS ASSUMED TO BE 1 in 2.
5. BULKING FACTORS HAVE NOT BEEN INCLUDED.
6. ALLOW A +/-15% TOLERANCE FOR THESE VOLUMES.
7. EXTENT OF CUTTING/FILLING IN THE VICINITY OF EXISTING TREES SHALL BE CONFIRMED BY THE PROJECT ARBORIST.
8. TREE PROTECTION ZONES TO BE CONFIRMED BY THE PROJECT ARBORIST.

CUT 1654.75 m³
FILL 1536.09 m³
NET 118.66 m³



NORTH

2.5 0 2.5 5.0 7.5 10.0m
PLAN SCALE 1:200 A1 SHEET

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

| REVISION | AMENDMENT | DATE | REVISION | AMENDMENT | DATE |
|---|---|---|---|---|---|
| 1 | ISSUE FOR INFORMATION | 11/02/21 | | | |
| 2 | ISSUE FOR INFORMATION | 01/04/21 | | | |
| 3 | ISSUE FOR TENDER | 05/05/21 | | | |
| A | ISSUED FOR CONSTRUCTION | 25/06/21 | | | |
| 4 | ISSUED FOR INFORMATION | 09/08/21 | | | |
| B | RE-ISSUED FOR CONSTRUCTION | 16/09/21 | | | |

CLIENT: northern beaches council

PROJECT: WARRIEWOOD COMMUNITY CENTRE

PREPARED BY
Warren Smith & Partners
Warren Smith & Partners Pty Ltd
Level 9, 233 Castlereagh Street, Sydney 2000 NSW Australia
02 9299 1312 wsp@warrensmith.com.au
www.warrensmith.com.au ABN 36 300 430 126
Consulting Engineers
Hydraulic Fire Civil Utilities Infrastructure
SERVING THE CONSTRUCTION INDUSTRY SINCE 1981.

TITLE: **BULK EARTHWORKS CUT & FILL PLAN**

| SCALE | DRAWN | DESIGNED | CHECKED | APPROVED |
|---|---|---|---|---|
| AS SHOWN | R.X. | R.X. | J.G. | |

| JOB No. | DRAWING No. | ISSUE |
|---|---|---|
| 71010000 | C3.02 | B |

| DATE | STATUS |
|---|---|
| APRIL 2021 | IFC |

NOTE:
1. TREE RETENTION AND REMOVAL TO BE CARRIED OUT IN ACCORDANCE WITH THE ARBORIST REPORT PREPARED BY EARTHSCAPE HORTICULTURAL SERVICES (2019)

## LEGEND

- EXISTING BOUNDARY
- MAJOR SURFACE CONTOUR
- MINOR SURFACE CONTOUR
- EXISTING SURFACE CONTOUR
- FUTURE BOUNDARY
- ROOF OUTLINE
- TOP OF BATTER
- BOTTOM OF BATTER
- V.C. — VEHICULAR CROSSING (V.C.)
- KERB INLET PIT (ON GRADE)
- GRATED INLET PIT
- RL91.86 — FINISHED SURFACE LEVEL
- GRL91.86 — FINISHED STORMWATER PIT LID/GRATE LEVEL
- TOK84.20 / BOK84.00 — TOP OF KERB LEVEL / BOTTOM OF KERB LEVEL
- K&G — 150MM KERB & GUTTER (K&G)
- K&G02 — 200MM KERB & GUTTER (K&G)
- KERB & GUTTER (K&G)
- F.K. — FLUSH KERB (F.K.)
- K.O. — KERB ONLY (K.O.)
- P.C. — PEDESTRIAN CROSSING
- 2.5% — GRADE ARROW
- RETAINING WALL

VEHICULAR CROSSING TO BE CONSTRUCTED IN ACCORDANCE WITH COUNCIL REQUIREMENTS.

TRANSITION FROM FLUSH KERB TO KERB AND GUTTER OVER 1m

KERB & GUTTER TO START AT THIS POINT

PROPOSED BUILDING FOOTPRINT FFL 4.10

PROVIDE BOLLARD WITHIN SHARED ZONE TO AS2890.6 STANDARD.

EXISTING TREES ALONG BOONDAH ROAD TO BE REMOVED.

EXISTING LANDSCAPE AREA TO BE RE-INSTATED BY OTHERS. LEVELS TO BE GENERALLY MAINTAINED AS EXISTING.

EXTENT OF K&G02

EXISTING BOUNDARY

RETAINING WALL TO STOP SHORT OF CROSSING.

MIN. RETAINING HEIGHT = 0.43m

MIN. RETAINING HEIGHT = 0.76m

MIN. RETAINING HEIGHT = 0.7m

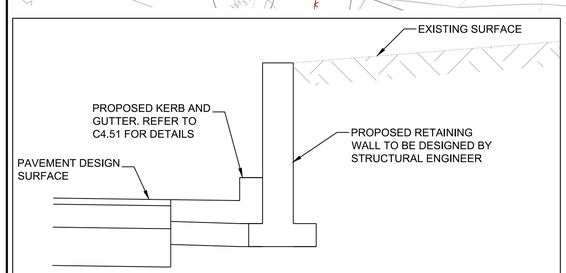
FUTURE PROPOSED BOUNDARY

FUTURE SLIP ROAD (BY OTHERS)

BOONDAH ROAD

JACKSON ROAD

PITTWATER ROAD




**TYPICAL RETAINING WALL SECTION (EASTERN CARPARK)**

SCALE 1:20

DO NOT SCALE FROM DRAWINGS, CHECK & VERIFY ALL DIMENSIONS & LEVELS BEFORE COMMENCEMENT OF ANY WORK.

THIS DRAWING IS NOT TO BE COPIED IN PART OR WHOLE WITHOUT WRITTEN PERMISSION FROM WARREN SMITH AND PARTNERS.

NORTH

PLAN SCALE 1:250 A1 SHEET

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

| REVISION | AMENDMENT | DATE | REVISION | AMENDMENT | DATE |
|---|---|---|---|---|---|
| 1 | ISSUE FOR DEVELOPMENT APPLICATION | 16/12/20 | | | |
| 2 | RE-ISSUE FOR DEVELOPMENT APPLICATION | 11/02/21 | | | |
| 3 | RE-ISSUE FOR DEVELOPMENT APPLICATION | 03/05/21 | | | |
| 4 | ISSUE FOR TENDER | 04/05/21 | | | |
| A | ISSUE FOR CONSTRUCTION | 25/06/21 | | | |

CLIENT: northern beaches council

PROJECT: WARRIEWOOD COMMUNITY CENTRE

PREPARED BY
Warren Smith & Partners
Warren Smith & Partners Pty Ltd
Level 9, 233 Castlereagh Street, Sydney 2000 NSW Australia
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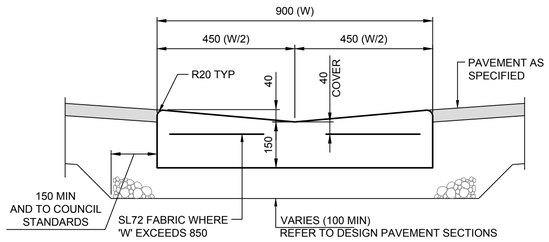
www.warrensmith.com.au ABN 36 300 430 126
Consulting Engineers
Hydraulic Fire Civil Utilities Infrastructure
ISO 9001 Certified
SERVING THE CONSTRUCTION INDUSTRY SINCE 1981.

TITLE: **SITEWORKS PLAN**

| SCALE | DRAWN | DESIGNED | CHECKED | APPROVED |
|---|---|---|---|---|
| AS SHOWN | N.G. | R.X. | J.G. | M.C. |

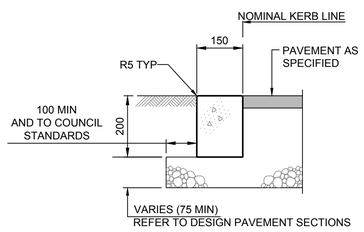
| JOB No. | DRAWING No. | ISSUE |
|---|---|---|
| 71010000 | C4.01 | A |

DATE: APRIL 2021 STATUS: IFC



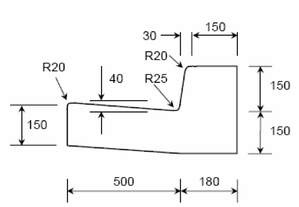

## DISH DRAIN (DD)

SCALE 1:10

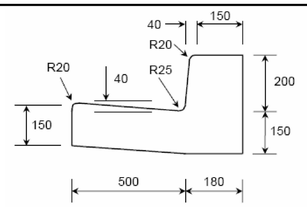



## FLUSH KERB (FK)

SCALE 1:10



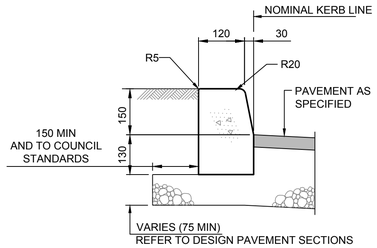

150mm KERB & GUTTER




200mm KERB & GUTTER

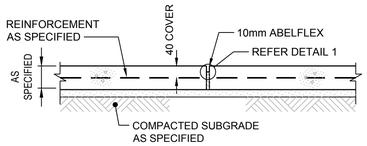
## NORTHERN BEACHES COUNCIL KERB AND GUTTER STANDARD DETAILS (A47284)

SCALE NTS



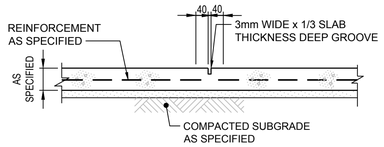

## KERB ONLY (KO)

SCALE 1:10



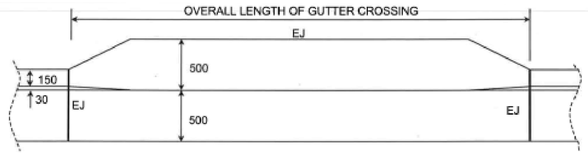

## FOOTPATH EXPANSION JOINT (EJ) (REINFORCED)

NOT TO SCALE

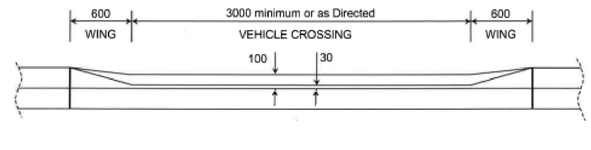



## FOOTPATH TOOLED JOINT (TJ) (REINFORCED)

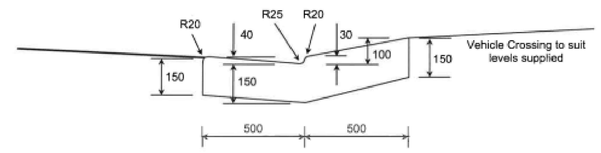
NOT TO SCALE




PLAN




FRONT ELEVATION



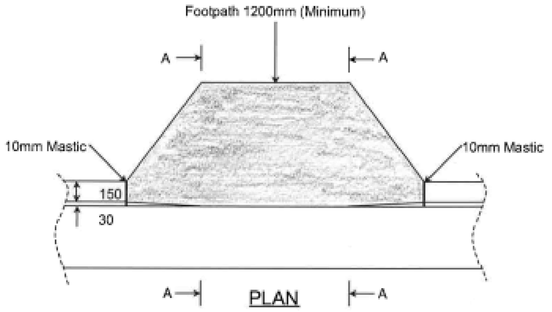

## TYPICAL CROSS SECTION

**NOTES:**

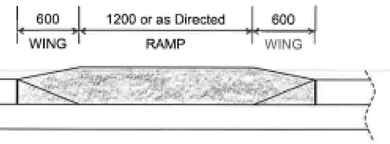
1. Layback and gutter shall be poured in **PLAIN CONCRETE** and finished with a steel trowel. Minimum compressive strength of concrete shall be 25MPa at 28 days. Industrial/commercial properties shall increase the depth of concrete to 180mm and provide SL82 mesh with 30mm top cover.
2. The subgrade shall be thoroughly compacted by the use of vibratory compaction equipment until it shows no signs of movement, or as directed by Council.
3. Vehicle crossing to be constructed in accordance with levels and specifications issued by Council.
4. Kerbing to be constructed in accordance with Council Plan A4 2276/A and specifications.
5. Where Council or an Accredited Certifier (Civil Woks) directs that the gutter be retained, the contractor shall place a 75mm deep saw cut in the gutter invert and remove kerb and/or layback.
6. Where Council or an Accredited Certifier (Civil Woks) directs that the gutter be removed, a Road Opening Permit must be obtained from Council's Customer Service Centre prior to commencing work. Once the permit is established the contactor may commence vehicle crossing works. Upon completion of the works, temporary restoration shall be provided as set out in the *'Specification For Trench Construction Within Council Roads'*.
7. The construction of all vehicle crossings and associated works on the road reserve must be completed by a Council approved concrete contractor.
8. EJ – Expansion Joint – 10mm Mastic.
   R – Radius

## NORTHERN BEACHES COUNCIL STANDARD GUTTER CROSSING (A2276/B)

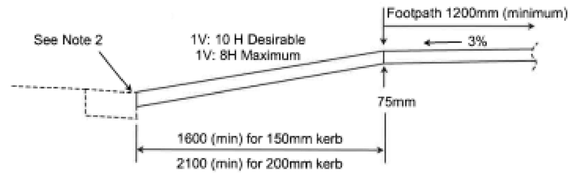
SCALE NTS




PLAN




FRONT ELEVATION




CROSS SECTION A-A

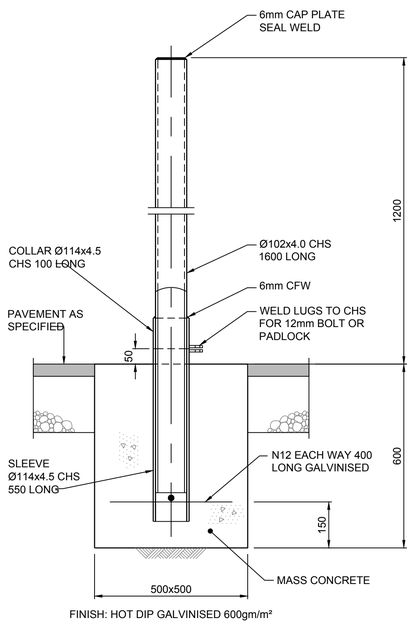
**NOTES:**

1. Surface finish of the pedestrian kerb ramp shall be rough broom finished **APRICOT COLOURED** concrete, except if there is coloured paving adjacent, then the finish shall be rough broom finished plain concrete. All exposed edges shall be neatly rounded with a proper edging tool forming a 50mm margin. Concrete shall have a minimum compressive strength of 25MPa at 28 days.
2. The contractor shall place a 75mm deep saw cut in the gutter invert and remove kerb, unless directed by Council or Accredited Certifier (Civil Works) to remove integral kerb and gutter.
3. The subgrade shall be thoroughly compacted by the use of vibratory compaction equipment until it shows no signs of movement, or as directed by Council.
4. When considering kerb ramp locations the number and position of ramps is to be determined after considering the general movement of pedestrians, location of marked foot crossings and the position of any existing obstacles such as traffic signals, gully pits, etc. The location of kerb ramps must ensure that users are not put at risk from traffic of any kind, bearing in mind that a disabled person's crossing time may be longer than that of persons having full mobility
5. Kerbing and guttering to be constructed in accordance with Council Plan A4 2276A
6. Where the existing footpath alignment is at the rear of kerb the wing shall be extended to 1200mm for 150mm high kerb, and 1600mm for 200mm high kerb, or as directed by Council.

**Not to Scale. All Dimensions in Millimetres.**

## NORTHERN BEACHES COUNCIL STANDARD KERB RAMP (A7284/B)

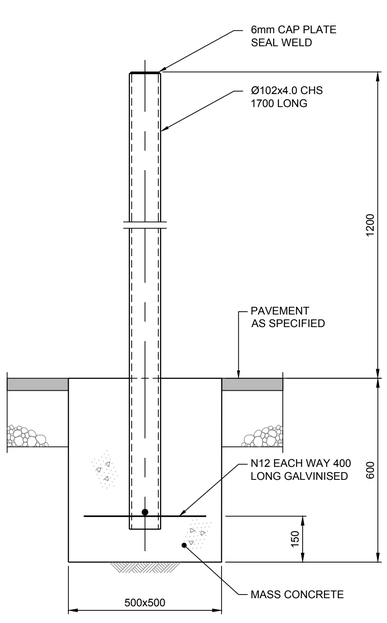
SCALE NTS




FINISH: HOT DIP GALVINISED 600gm/m²

## REMOVABLE BOLLARD - FLEXIBLE PAVEMENT

SCALE 1:10




FINISH: HOT DIP GALVINISED 600gm/m²

## BOLLARD TO FLEXIBLE PAVEMENT

SCALE 1:10

DO NOT SCALE FROM DRAWINGS, CHECK & VERIFY ALL DIMENSIONS & LEVELS BEFORE COMMENCEMENT OF ANY WORK.

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NOT TO SCALE

100 0 100 200 300 400 500mm
PLAN SCALE 1:10 A1 SHEET

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

| REVISION | AMENDMENT | DATE | REVISION | AMENDMENT | DATE |
|---|---|---|---|---|---|
| 1 | ISSUE FOR INFORMATION | 01/04/21 | | | |
| 2 | ISSUE FOR DEVELOPMENT APPLICATION | 03/05/21 | | | |
| 3 | ISSUE FOR TENDER | 04/05/21 | | | |
| A | ISSUE FOR CONSTRUCTION | 25/06/21 | | | |

CLIENT

northern beaches council

PROJECT

WARRIEWOOD COMMUNITY CENTRE

PREPARED BY

Warren Smith & Partners

**Warren Smith & Partners Pty Ltd**
Level 9, 233 Castlereagh Street, Sydney 2000 NSW Australia
02 9299 1312 wsp@warrensmith.com.au
**www.warrensmith.com.au ABN** 36 300 430 126

**Consulting Engineers**
Hydraulic Fire Civil Utilities Infrastructure

ISO 9001 Certified

**SERVING THE CONSTRUCTION INDUSTRY SINCE 1981.**

TITLE

# SITEWORKS DETAILS

| SCALE | DRAWN | DESIGNED | CHECKED | APPROVED |
|---|---|---|---|---|
| AS SHOWN | M.T. | M.T. | J.G. | M.C. |

| JOB No. | DRAWING No. | ISSUE |
|---|---|---|
| 71010000 | C4.51 | A |

| DATE | STATUS |
|---|---|
| APRIL 2021 | IFC |

NOTES:

1. OCEAN PROTECT OCEAN GUARD FILTER BASKETS ARE TO BE INSTALLED TO PITS: 2/4, 1/4, 3/3, 2/3, 1/3, 2/8, 1/8, 3/2, 2/2, 1/2, 1/6, 1/5, 1/1.
2. 9 x OCEAN PROTECT 460 mm PSORB STORMFILTERS SHALL BE INSTALLED IN PIT 4/3
3. 9 x OCEAN PROTECT 460 mm PSORB STORMFILTERS SHALL BE INSTALLED IN PIT 2/1
4. OCEAN PROTECT FILTERRA PRECAST PIT SYSTEM ARE TO BE INSTALLED TO PITS: 1/7 , 2/7 , 3/7
5. REFER TO HYDRAULIC ENGINEERS CONNECTION FOR CONTINUATION.

## LEGEND

- BOUNDARY
- ROOF OUTLINE
- EXISTING STORMWATER PIPE
- OVERLAND FLOW ARROW
- PIPE DIAMETER AND DIRECTION OF FLOW
- STORMWATER PIPE
- GRATED INLET PIT
- JUNCTION PIT
- PIT STRUCTURE NUMBER
- STORMWATER LINE NUMBER
- GRATED TRENCH DRAIN
- SUBSOIL DRAINAGE LINE

CONNECT TO FUTURE KERB AND GUTTER. IL = 2.28 (APPROX.)

5.30 m LONG ACO K200 GRATED DRAIN

12m LONG ACO K200 GRATED DRAIN

CONNECT TO FUTURE KERB AND GUTTER. IL = 2.41 (APPROX.)

CONNECT TO FUTURE KERB AND GUTTER IL = 2.47 (APPROX.)

CONNECT TO FUTURE KERB AND GUTTER. IL = 2.54 (APPROX.)

PRE-CAST BIORETENTION PIT

REFER TO NOTE 5.

PROPOSED BUILDING FOOTPRINT

STORMFILTER CHAMBER

CONNECT TO EXISTING KERB INLET PIT IN PITTWATER ROAD.

SHADED REGION DENOTES EXTENT OF OSD BASIN 1 (ABOVE GROUND STORAGE).
VOLUME = 34.60 m$^3$
MAXIMUM PONDING DEPTH = 0.20 m

SHADED REGION DENOTES EXTENT OF OSD BASIN 2 (ABOVE GROUND BASIN).
VOLUME = 12.66 m$^3$
MAXIMUM PONDING DEPTH = 0.15 m

BOONDAH ROAD

JACKSON ROAD

PITTWATER ROAD

DO NOT SCALE FROM DRAWINGS, CHECK & VERIFY ALL DIMENSIONS & LEVELS BEFORE COMMENCEMENT OF ANY WORK.



NORTH

5.0 0 2.5 5.0 7.5 10.0m
PLAN SCALE 1:250 A1 SHEET

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

| REVISION | AMENDMENT | DATE | REVISION | AMENDMENT | DATE |
|---|---|---|---|---|---|
| 1 | ISSUE FOR APPROVAL | 16/12/20 | | | |
| 2 | RE-ISSUE FOR DEVELOPMENT APPLICATION | 03/05/21 | | | |
| 3 | ISSUE FOR TENDER | 04/05/21 | | | |
| A | ISSUE FOR CONSTRUCTION | 25/06/21 | | | |
| B | REVISED AS CLOUDED | 14/09/21 | | | |

CLIENT
northern beaches council

PROJECT
WARRIEWOOD COMMUNITY CENTRE

PREPARED BY
Warren Smith & Partners
**Warren Smith & Partners Pty Ltd**
Level 9, 233 Castlereagh Street, Sydney 2000 NSW Australia
02 9299 1312 wsp@warrensmith.com.au
**www.warrensmith.com.au ABN** 36 300 430 126
**Consulting Engineers**
Hydraulic Fire Civil Utilities Infrastructure
**SERVING THE CONSTRUCTION INDUSTRY SINCE 1981.**

TITLE
# STORMWATER LAYOUT PLAN

| SCALE | DRAWN | DESIGNED | CHECKED | APPROVED |
|---|---|---|---|---|
| AS SHOWN | R.X. | R.X. | J.G. | M.C. |

| JOB No. | DRAWING No. | ISSUE |
|---|---|---|
| 71010000 | C6.01 | B |

| DATE | STATUS |
|---|---|
| APRIL 2021 | IFC |

| NAME | SURFACE ELEV. (m) | PIT DEPTH (m) | PIT SIZE AND TYPE | FROM | TO | LENGTH (m) | U/S IL (m) | D/S IL (m) | SLOPE (%) | PIPE TYPE | DIA (mm) | No. PIPES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pit 1/1 | 3.66 | 0.87 | 900SQ PIT WITH 450 x 900 CLASS D GRATED KERB WITH 1.2m LONG LINTEL | Pit 1/1 | Pit 2/1 | 24.20 | 2.79 | 2.67 | 0.50 | GALV. RHS | 200 X 100 | 2 |
| Pit 2/1 | 3.60 | 0.96 | 2000 SQ. PIT WITH 450 x 900 CLASS D GRATED KERB WITH 1.2m LONG LINTEL | Pit 2/1 | K&G | 9.98 | 2.64 | 2.54 | 1.00 | GALV. RHS | 125 X 100 | 1 |
| | | | | | | | | | | | | |
| Pit 3/1 | 3.75 | 1.11 | 900SQ PIT WITH 450 x 900 CLASS D GRATED KERB WITH 1.2m LONG LINTEL | Pit 3/1 | K&G | 11.17 | 2.64 | 2.47 | 1.52 | GALV. RHS | 125 X 100 | 2 |
| | | | | | | | | | | | | |
| Pit 1/2 | 3.78 | 0.73 | 900SQ PIT WITH 450 x 900 CLASS D GRATED KERB WITH 1.2m LONG LINTEL | Pit 1/2 | Pit 2/2 | 11.61 | 3.05 | 2.99 | 0.52 | uPVC | 225 | 1 |
| Pit 2/2 | 3.70 | 0.74 | 900SQ PIT WITH 450 x 900 CLASS D GRATED KERB WITH 1.2m LONG LINTEL | Pit 2/2 | Pit 3/2 | 10.66 | 2.96 | 2.9 | 0.56 | uPVC | 225 | 1 |
| Pit 3/2 | 3.61 | 0.74 | 900SQ PIT WITH 450 x 900 CLASS D GRATED KERB WITH 1.2m LONG LINTEL | Pit 3/2 | Pit 1/3 | 7.30 | 2.87 | 2.83 | 0.55 | uPVC | 225 | 1 |
| | | | | | | | | | | | | |
| Pit 1/3 | 3.70 | 0.89 | 900SQ PIT WITH 450 x 900 CLASS D GRATED KERB WITH 1.2m LONG LINTEL | Pit 1/3 | Pit 2/3 | 25.87 | 2.81 | 2.68 | 0.50 | GALV. RHS | 300 | 2 |
| Pit 2/3 | 3.76 | 1.11 | 900SQ V-HINGED BUTTERFLY PIT, CLASS D GRATE | Pit 2/3 | Pit 3/3 | 15.3 | 2.65 | 2.57 | 0.52 | RCP CLASS 3 | 375 | 1 |
| Pit 3/3 | 3.53 | 0.99 | 900SQ V-HINGED BUTTERFLY PIT, CLASS D GRATE | Pit 3/3 | Pit 4/3 | 8.51 | 2.54 | 2.495 | 0.53 | RCP CLASS 3 | 375 | 1 |
| Pit 4/3 | 3.36 | 0.93 | 2250 DIA. PIT WITH 450 x 900 CLASS D GRATED KERB WITH 1.2m LONG LINTEL | Pit 4/3 | Pit 5/3 | 10.42 | 2.43 | 2.375 | 0.53 | RCP CLASS 3 | 375 | 1 |
| Pit 5/3 | 3.42 | 1.07 | 900SQ CLASS B COVER | Pit 5/3 | Pit 6/3 | 36.88 | 2.35 | 2.165 | 0.50 | RCP CLASS 3 | 375 | 1 |
| Pit 6/3 | 3.14 | 1.01 | 900SQ CLASS B COVER | Pit 6/3 | Pit Ex/1 | 8.21 | 2.13 | 2.089 | 0.50 | RCP CLASS 3 | 375 | 1 |
| | | | | | | | | | | | | |
| Pit 1/4 | 3.75 | 1.06 | 900SQ PIT, CLASS B COVER | Pit 1/4 | Pit 2/4 | 10.14 | 2.69 | 2.61 | 0.79 | uPVC | 225 | 1 |
| Pit 2/4 | 3.75 | 1.17 | 900SQ PIT, CLASS B COVER | Pit 2/4 | Pit 5/3 | 46.02 | 2.58 | 2.35 | 0.50 | uPVC | 225 | 1 |
| | | | | | | | | | | | | |
| Pit 1/5 | 3.05 | 0.54 | 900SQ PIT, CLASS D GRATE & 12m LONG K200 ACO TRENCH DRAIN SLOPED CHANNEL WITH CLASS D ANTI-SLIP GRATE | Pit 1/5 | Pit 1/6 | 4.2 | 2.51 | 2.48 | 0.71 | GALV. RHS | 200 X 100 | 2 |
| Pit 1/6 | 3.07 | 0.62 | 900SQ PIT WITH 450 x 900 CLASS D GRATED KERB WITH 1.2m LONG LINTEL | Pit 1/6 | K&G | 8.11 | 2.455 | 2.41 | 0.55 | GALV. RHS | 200 X 100 | 2 |
| | | | | | | | | | | | | |
| Pit 2/7 | 3.75 | 0.99 | PRECAST BIORETENTION PIT (2650mm X 950mm) | Pit 2/7 | Pit 1/4 | 13.36 | 2.765 | 2.695 | 0.52 | uPVC | 225 | 1 |
| | | | | | | | | | | | | |
| Pit 3/7 | 3.75 | 1.06 | PRECAST BIORETENTION PIT (2650mm X 950mm) | Pit 3/7 | Pit 2/4 | 16.59 | 2.69 | 2.60 | 0.54 | uPVC | 225 | 1 |
| | | | | | | | | | | | | |
| Pit 1/7 | 4.00 | 1.27 | PRECAST BIORETENTION PIT (2650mm X 950mm) | Pit 1/7 | Pit 1/9 | 25.22 | 2.73 | 2.60 | 0.52 | GALV. RHS | 200 X 150 | 1 |
| Pit 1/9 | 3.35 | 0.78 | 900SQ PIT, CLASS D COVER | Pit 1/9 | Pit 1/6 | 8.51 | 2.575 | 2.53 | 0.53 | GALV. RHS | 200 X 100 | 2 |
| | | | | | | | | | | | | |
| Pit 1/8 | 3.38 | 0.70 | 900SQ PIT WITH 450 x 900 CLASS D GRATED KERB WITH 1.2m LONG LINTEL | Pit 1/8 | Pit 2/8 | 22.80 | 2.68 | 2.565 | 0.50 | GALV. RHS | 200 X 100 | 2 |
| Pit 2/8 | 3.34 | 0.80 | 900SQ PIT WITH 450 x 900 CLASS D GRATED KERB WITH 1.2m LONG LINTEL | Pit 2/8 | Pit 3/8 | 10.33 | 2.54 | 2.485 | 0.53 | GALV. RHS | 200 X 100 | 2 |

DO NOT SCALE FROM DRAWINGS, CHECK & VERIFY ALL DIMENSIONS & LEVELS BEFORE COMMENCEMENT OF ANY WORK.



| REVISION | AMENDMENT | DATE | REVISION | AMENDMENT | DATE |
|---|---|---|---|---|---|
| 1 | ISSUE FOR 80% DEVELOPMENT APPLICATION | 15/12/20 | | | |
| 2 | RE-ISSUE FOR DEVELOPMENT APPLICATION | 03/05/21 | | | |
| 3 | ISSUE FOR TENDER | 04/05/21 | | | |
| A | ISSUE FOR CONSTRUCTION | 25/06/21 | | | |
| 4 | ISSUED FOR INFORMATION | 09/08/21 | | | |

CLIENT: northern beaches council

PROJECT: WARRIEWOOD COMMUNITY CENTRE

PREPARED BY

Warren Smith & Partners

**Warren Smith & Partners Pty Ltd**
Level 9, 233 Castlereagh Street, Sydney 2000 NSW Australia
02 9299 1312 wsp@warrensmith.com.au
**www.warrensmith.com.au ABN** 36 300 430 126

**Consulting Engineers**
Hydraulic Fire Civil Utilities Infrastructure

**SERVING THE CONSTRUCTION INDUSTRY SINCE 1981.**

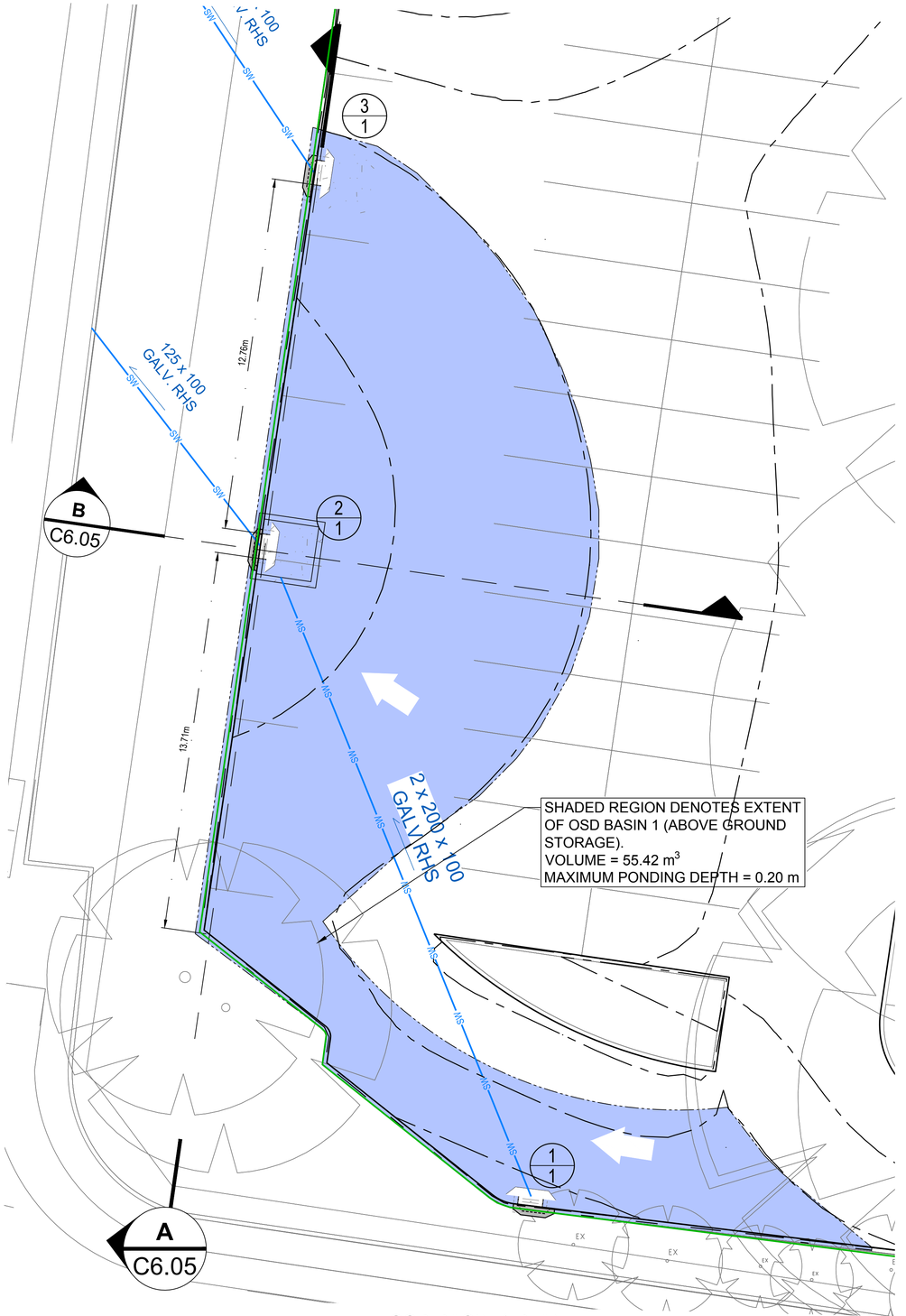
TITLE: **STORMWATER PIT SCHEDULE**

| SCALE | DRAWN | DESIGNED | CHECKED | APPROVED |
|---|---|---|---|---|
| AS SHOWN | M.T. | M.T. | J.G. | M.C. |

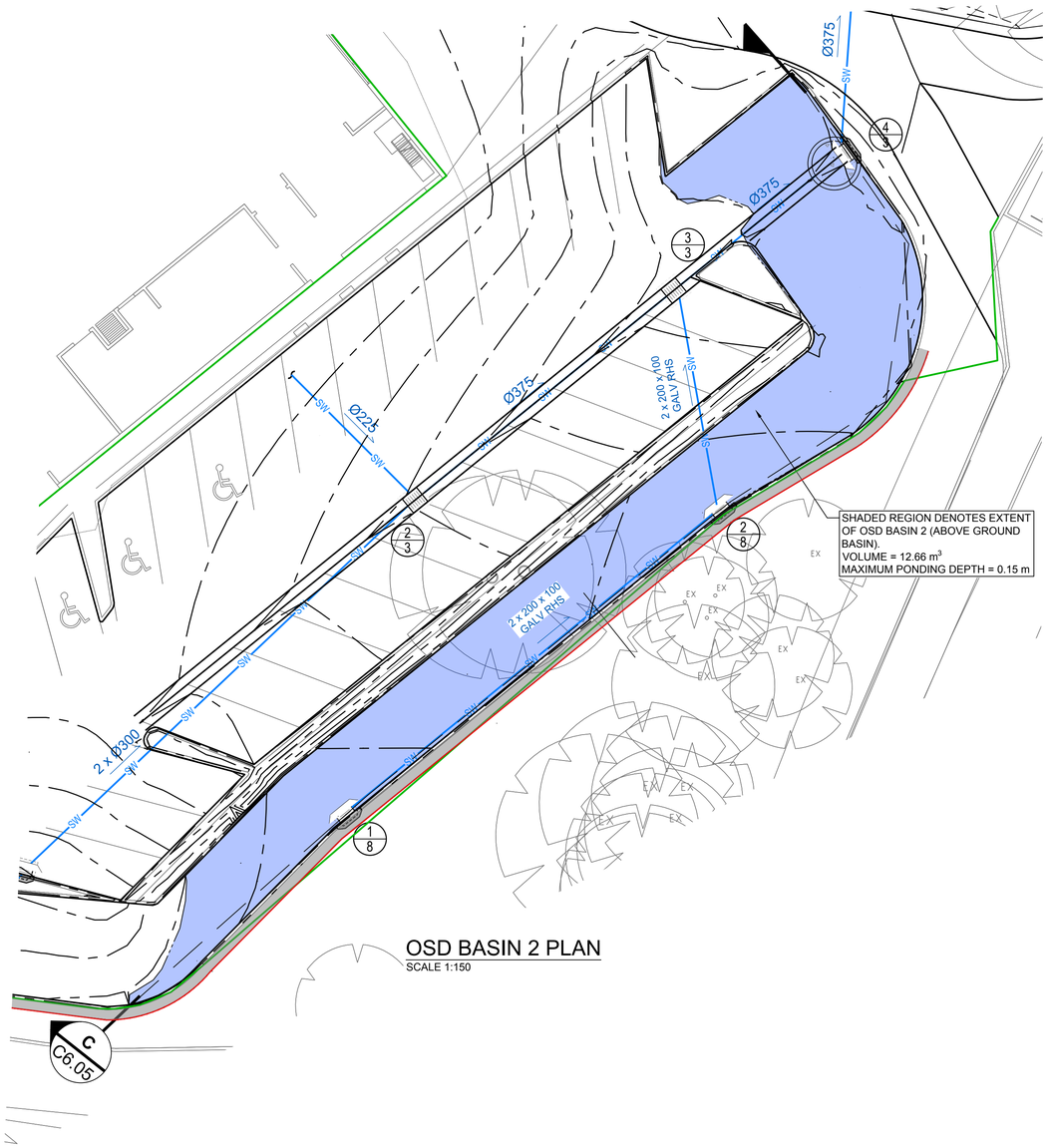
| JOB No | DRAWING No. | ISSUE |
|---|---|---|
| 71010000 | C6.02 | 4 |

| DATE | STATUS |
|---|---|
| APRIL 2021 | IFC |

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150




OSD BASIN 1 PLAN
SCALE 1:150




OSD BASIN 2 PLAN
SCALE 1:150

DO NOT SCALE FROM DRAWINGS, CHECK & VERIFY ALL DIMENSIONS & LEVELS BEFORE COMMENCEMENT OF ANY WORK.

THIS DRAWING IS NOT TO BE COPIED IN PART OR WHOLE WITHOUT WRITTEN PERMISSION FROM WARREN SMITH AND PARTNERS.

NORTH

2.5 0 1.0 2.0 3.0 4.0 5.0m
PLAN SCALE 1:150 A1 SHEET

| REVISION | AMENDMENT | DATE | REVISION | AMENDMENT | DATE |
|---|---|---|---|---|---|
| 1 | ISSUE FOR DEVELOPMENT APPLICATION | 16/12/20 | | | |
| 2 | RE-ISSUE FOR DEVELOPMENT APPLICATION | 03/05/21 | | | |
| 3 | ISSUE FOR TENDER | 04/05/21 | | | |
| A | ISSUE FOR CONSTRUCTION | 25/06/21 | | | |

CLIENT
northern beaches council

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**Consulting Engineers**
Hydraulic Fire Civil Utilities Infrastructure

GCC ISO 9001 Certified

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TITLE
# OSD PLAN

| SCALE | DRAWN | DESIGNED | CHECKED | APPROVED |
|---|---|---|---|---|
| AS SHOWN | M.T. | M.T. | J.G. | M.C. |

| JOB No. | DRAWING No. | ISSUE |
|---|---|---|
| 71010000 | C6.04 | A |

| DATE | STATUS |
|---|---|
| APRIL 2021 | IFC |

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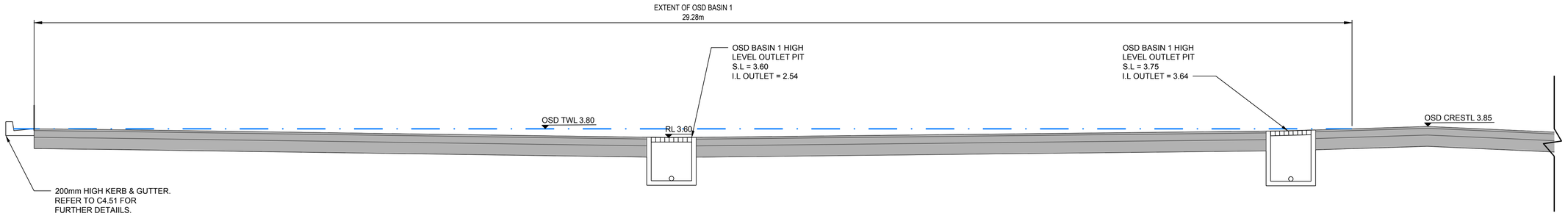
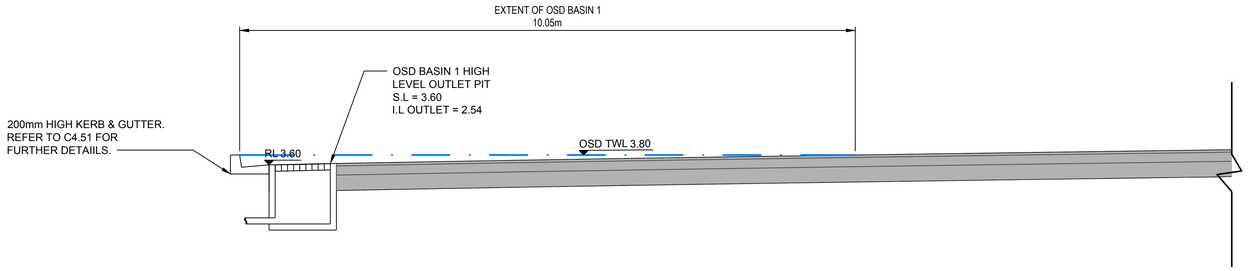


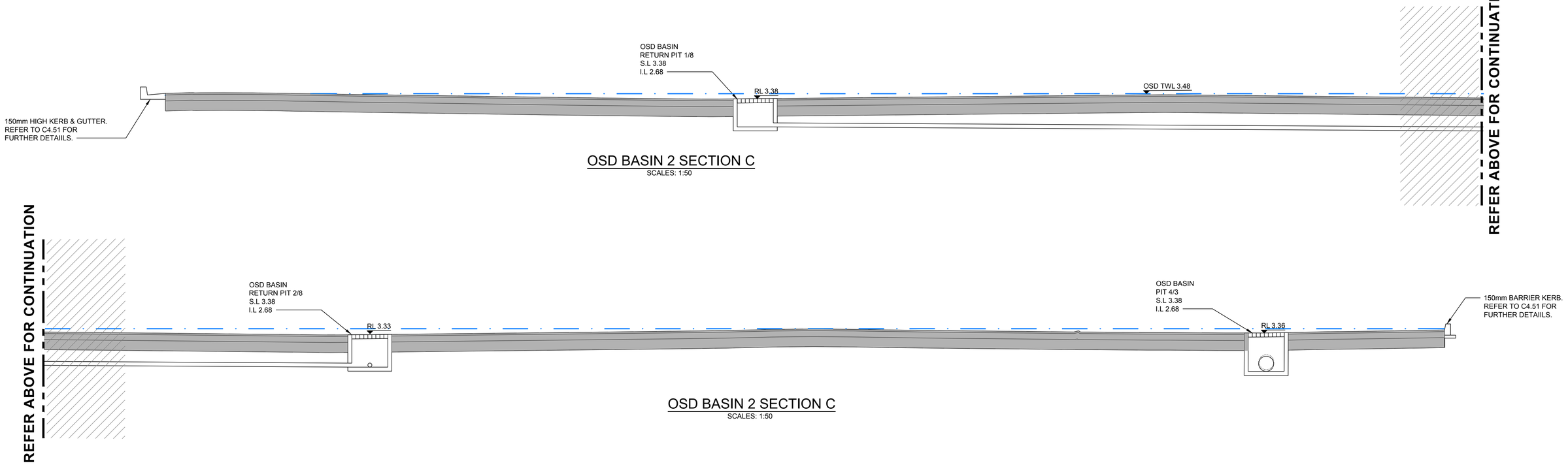

## OSD BASIN 1 SECTION A

SCALES: 1:50




## OSD BASIN 2 SECTION B

SCALES: 1:50




## OSD BASIN 2 SECTION C

SCALES: 1:50

## OSD BASIN 2 SECTION C

SCALES: 1:50



1.0 0 1.0 2.0 3.0 4.0 5.0m
PLAN SCALE 1:100 A1 SHEET

1000 0 500 1000 1500 2000mm
PLAN SCALE 1:50 A1 SHEET

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

| REVISION | AMENDMENT | DATE | REVISION | AMENDMENT | DATE |
|---|---|---|---|---|---|
| 1 | ISSUE FOR DEVELOPMENT APPLICATION | 11/12/20 | | | |
| 2 | RE-ISSUE FOR DEVELOPMENT APPLICATION | 03/05/21 | | | |
| 3 | ISSUE FOR TENDER | 04/05/21 | | | |
| A | ISSUE FOR CONSTRUCTION | 25/06/21 | | | |

CLIENT
northern beaches council

PROJECT
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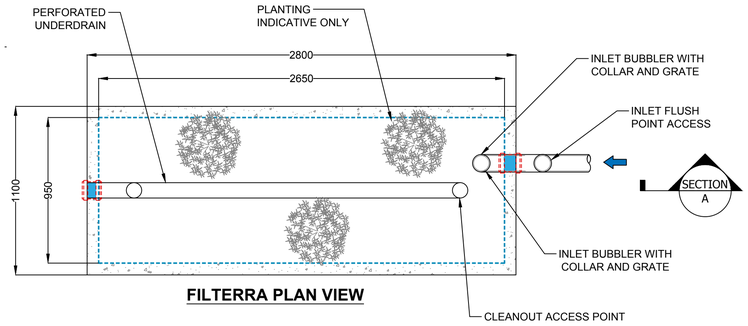
**Consulting Engineers**
Hydraulic Fire Civil Utilities Infrastructure
GCC ISO 9001 Certified
**SERVING THE CONSTRUCTION INDUSTRY SINCE 1961.**

TITLE
**OSD SECTIONS**

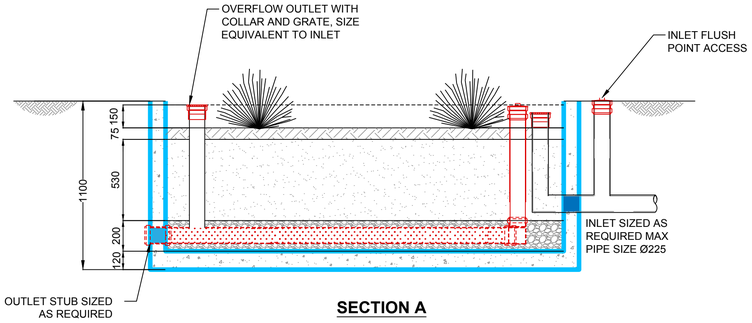
| SCALE | DRAWN | DESIGNED | CHECKED | APPROVED |
|---|---|---|---|---|
| AS SHOWN | M.T. | M.T. | J.G. | M.C. |

| JOB No. | DRAWING No. | ISSUE |
|---|---|---|
| 71010000 | C6.05 | A |

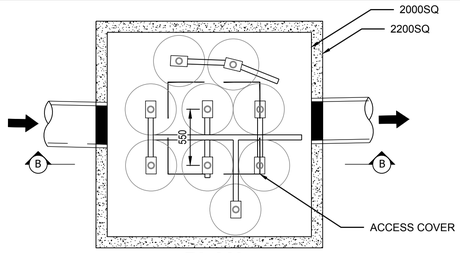
| DATE | STATUS |
|---|---|
| APRIL 2021 | IFC |




**FILTERRA PLAN VIEW**

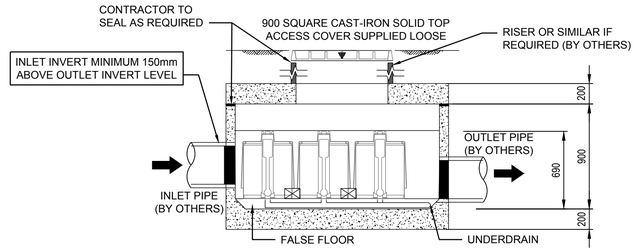



**SECTION A**




**PLAN**

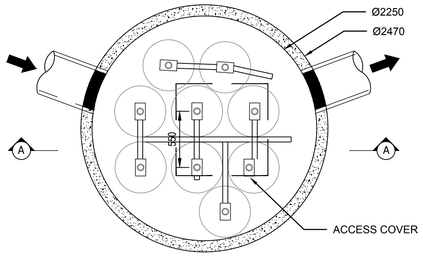
SCALE 1:30




**SECTION B-B**

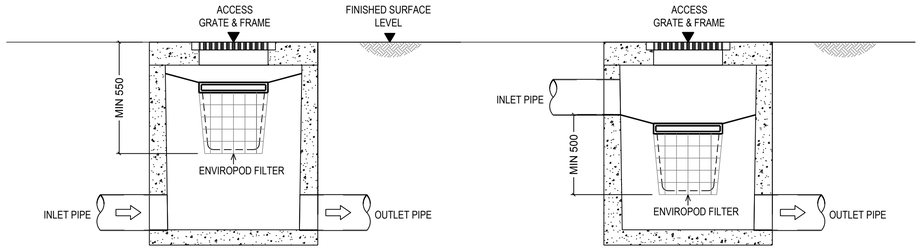
SCALE 1:30

NOTE: WEIR WALL TO MAINTENANCE SPECS




**PLAN**

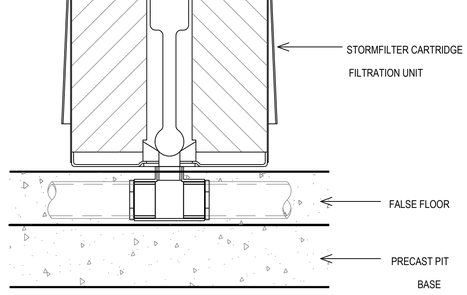
SCALE 1:30



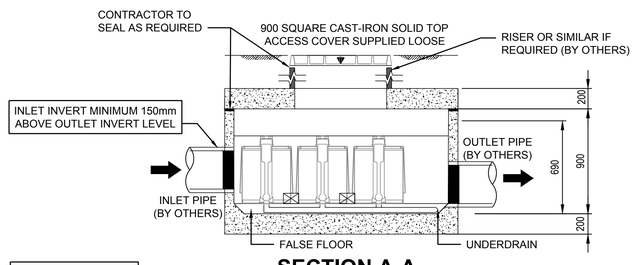

**STANDARD ENVIROPOD CONFIGURATION SECTION**




**DROP PIPE ENVIROPOD CONFIGURATION SECTION**




**STORMFILTER CARTRIDGE DETAIL**




**SECTION A-A**

SCALE 1:30

NOTE: WEIR WALL TO MAINTENANCE SPECS

NOTE: WATER QUALITY TREATMENT DEVICE DETAILS IN ACCORDANCE WITH OCEAN PROTECT DESIGN.
CONSTRUCTION AND MAINTENANCE IS TO BE FULFILLED IN ACCORDANCE WITH MANUFACTURER DETAIL.



| REVISION | AMENDMENT | DATE | REVISION | AMENDMENT | DATE |
|---|---|---|---|---|---|
| 1 | ISSUE FOR DEVELOPMENT APPLICATION | 16/12/20 | | | |
| 2 | RE-ISSUE FOR DEVELOPMENT APPLICATION | 03/05/21 | | | |
| 3 | ISSUE FOR TENDER | 04/05/21 | | | |
| A | ISSUE FOR CONSTRUCTION | 25/06/21 | | | |

CLIENT: northern beaches council

PROJECT: WARRIEWOOD COMMUNITY CENTRE

PREPARED BY

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**www.warrensmith.com.au ABN** 36 300 430 126

**Consulting Engineers**
Hydraulic Fire Civil Utilities Infrastructure

**SERVING THE CONSTRUCTION INDUSTRY SINCE 1981.**

TITLE: **WSUD TYPICAL DETAILS**

| SCALE | DRAWN | DESIGNED | CHECKED | APPROVED |
|---|---|---|---|---|
| AS SHOWN | M.T. | M.T. | J.G. | M.C. |

| JOB No. | DRAWING No. | ISSUE |
|---|---|---|
| 71010000 | C6.06 | A |

| DATE | STATUS |
|---|---|
| APRIL 2021 | IFC |

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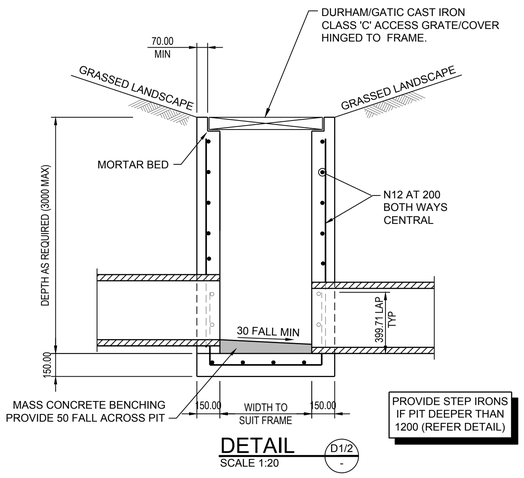
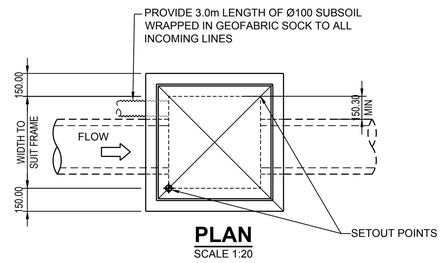



## DETAIL D1/2

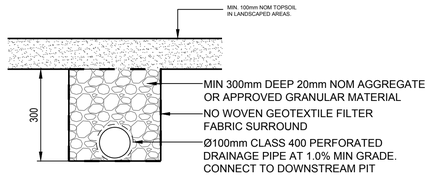
SCALE 1:20




## PLAN

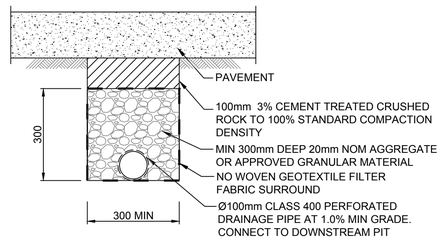
SCALE 1:20

## 600 - 900SQ SURFACE INLET PITS



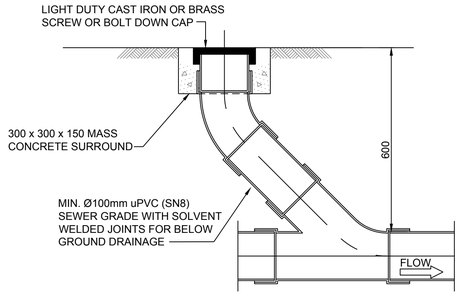

## SUBSOIL IN LANDSCAPING AREA

SCALE 1:10



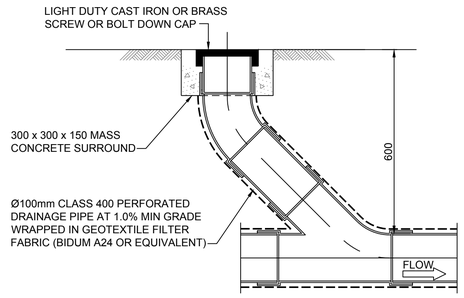

## SUBSOIL DRAINAGE UNDER PAVEMENT

SCALE 1:10




## CLEAROUT (CO)

SCALE 1:10




## INTERMEDIATE RISER (IR)

SCALE 1:10




## HIGH END RISER (HER)

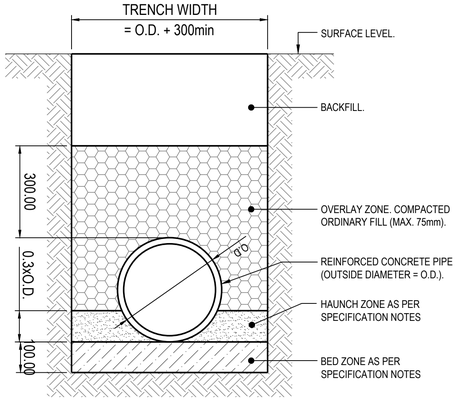
SCALE 1:10




NOTE
PROVIDE FIXING CLIPS OR BRACKETS TO WALL
OF PIT AT OUTLET. ALLOW FOR EASE OF REMOVA

## TYPICAL REMOVABLE SCREEN DETAIL

NOT TO SCALE




GENERAL AREAS

## TYPICAL PIPE TRENCH

NOT TO SCALE

NOTES:

1. TRENCH WIDTH MAY NEED TO BE INCREASED SUBJECT TO ACHIEVING ADEQUATE COMPACTION.
2. MINIMUM PIPE COVER NOT UNDER ROADS = 450mm UNO. MINIMUM PIPE COVER UNDER ROADS = 600mm UNO.
3. THE CONTRACTOR SHALL ENSURE THAT THE SHORING OF TRENCHES IS INSTALLED AS REQUIRED BY STATUTORY REQUIREMENTS.
4. ENSURE BACKFILLING COMPACTION MEETS THE FOLLOWING STANDARDS;

A) TRENCHES UNDER PAVED AREAS & BUILDINGS - 100% SMDD.
B) TRENCHES NOT UNDER PAVEMENTS - 90% SMDD.

DO NOT SCALE FROM DRAWINGS, CHECK & VERIFY ALL DIMENSIONS & LEVELS BEFORE COMMENCEMENT OF ANY WORK.



100 0 100 200 300 400 500mm
PLAN SCALE 1:10 A1 SHEET

200 0 200 400 600 800 1000mm
PLAN SCALE 1:20 A1 SHEET

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

| REVISION | AMENDMENT | DATE | REVISION | AMENDMENT | DATE |
|---|---|---|---|---|---|
| 1 | ISSUE FOR DEVELOPMENT APPLICATION | 16/12/20 | | | |
| 2 | RE-ISSUE FOR DEVELOPMENT APPLICATION | 03/05/21 | | | |
| 3 | ISSUE FOR TENDER | 04/05/21 | | | |
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TITLE
# STORMWATER DRAINAGE DETAILS

| SCALE | DRAWN | DESIGNED | CHECKED | APPROVED |
|---|---|---|---|---|
| AS SHOWN | M.T. | M.T. | J.G. | M.C. |

| JOB No. | DRAWING No. | ISSUE |
|---|---|---|
| 71010000 | C6.07 | A |

| DATE | STATUS |
|---|---|
| APRIL 2021 | IFC |