

**GENERAL NOTES**

- ALL WORKS TO BE IN ACCORDANCE WITH THE CANTERBURY CITY COUNCIL SPECIFICATIONS UNLESS NOTED OTHERWISE OR AS DIRECTED BY THE SUPERVISING ENGINEER.
- THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL SPECIFICATIONS, ARCHITECTURAL AND OTHER CONSULTANTS DRAWINGS. ALL DISCREPANCIES SHALL BE REFERRED TO THE SUPERINTENDENT FOR DECISION BEFORE PROCEEDING WITH THE WORK.
- ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS RELEVANT TO SETTING OUT AND OFF-SITE WORK, BEFORE CONSTRUCTION AND/OR FABRICATION IS COMMENCED. THE ENGINEER'S DRAWINGS SHALL NOT BE SCALED UNLESS SPECIFICALLY NOTED OTHERWISE.
- CO-ORDINATES ARE MGA GRID. LEVELS ARE AHD DATUM.
- SURVEY MARKS SHALL BE MAINTAINED AT ALL TIMES. WHERE RETENTION IS NOT POSSIBLE THE SUPERVISING ENGINEER SHALL BE NOTIFIED AND CONSENT RECEIVED PRIOR TO THEIR REMOVAL.
- ALL NEW WORKS SHALL MAKE SMOOTH CONNECTION WITH EXISTING CONDITIONS.
- THE LOCATION OF SERVICES ON THESE PLANS IS INDICATIVE ONLY. THE CONTRACTOR IS TO CARRY OUT A COMPLETE SERVICES SEARCH PRIOR TO CONSTRUCTION AND TAKE ALL NECESSARY PRECAUTIONS.
- ALL EXISTING UTILITY SERVICES AND EASEMENTS WITHIN THE SITE WILL BE RELOCATED AND REMOVED BY OTHERS.
- PRIOR TO ANY CONSTRUCTION OF ROAD PAVEMENT THE STREET LIGHTING DESIGN IS TO BE APPROVED BY COUNCIL TRANSPORT SECTION.
- DURING CONSTRUCTION THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE STRUCTURE IN A STABLE CONDITION AND ENSURING NO PART SHALL BE OVERSTRESSED UNDER CONSTRUCTION ACTIVITIES.
- WORKMANSHIP AND MATERIALS TO BE IN ACCORDANCE WITH THE RELEVANT CURRENT STANDARDS AUSTRALIA CODES INCLUDING ALL AMENDMENTS, AND THE LOCAL STATUTORY AUTHORITIES, EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENTS.
- THE APPROVAL OF A SUBSTITUTION SHALL BE SOUGHT FROM THE ENGINEER BUT IS NOT AN AUTHORISATION FOR AN EXTRA. ANY EXTRA INVOLVED MUST BE TAKEN UP WITH THE SUPERINTENDENT BEFORE THE WORK COMMENCES.
- THE CONTRACTOR SHALL UNDERTAKE TRAFFIC CONTROL MEASURES IN ACCORDANCE WITH COUNCIL'S TRAFFIC MANAGEMENT POLICY AND SHALL DISPLAY ALL APPROPRIATE WARNING SIGNS THROUGHOUT THE DURATION OF CONSTRUCTION.

**EARTHWORKS NOTES**

- SOIL AND EROSION CONTROL MEASURES SHALL BE APPLIED DURING AND FOLLOWING THE CONSTRUCTION.
- TOPSOIL STRIPPING AND GENERAL DISTURBANCE SHOULD BE LIMITED TO MAINTAIN THE EXISTING VEGETATION COVER. SUBSURFACE CLAY AND SHALE SHOULD BE STOCKPILED SEPARATELY DURING EXCAVATION WORKS PRIOR TO RE-USE DURING FILL OPERATIONS (IF REQUIRED).
- CONSIDERATION SHOULD BE GIVEN TO STABILISATION OR REVEGETATION OF EXPOSED SOILS AND STOCKPILES IF THEY ARE TO REMAIN EXPOSED FOR EXTENDED PERIODS DURING CONSTRUCTION.
- FILLING IS TO BE OF SOUND CLEAN MATERIAL, OF REASONABLE STANDARD AND FREE FROM LARGE ROCKS, STUMPS, ORGANIC MATTER AND OTHER DEBRIS.
- PLACING OF FILLING ON THE PREPARED AREAS SHALL NOT COMMENCE UNTIL THE AUTHORITY TO DO SO HAS BEEN OBTAINED FROM THE COUNCIL.
- ALL LOT & SITE FILLING SHALL BE PERFORMED UNDER LEVEL 1 GEOTECHNICAL SUPERVISION IN ACCORDANCE WITH AS 3798-1990. ALL SITE FILLING SHALL BE PLACED IN LAYERS NOT EXCEEDING 300mm AND SHALL BE CONTROLLED BY AN APPROVED N.A.T.A SOILS LABORATORY.
- THE ACTUAL EXTENT OF EARTHWORKS REQUIRED TO BE DETERMINED ON SITE.
- ALL LOT FILLING IS TO BE COMPACTED TO AT LEAST 98 STANDARD MAXIMUM DRY DENSITY WITH PLACEMENT MOISTURE CONTENTS MAINTAINED WITHIN 2% OF STANDARD OPTIMUM VALUES.
- THE MAXIMUM PARTICLE SIZE SHOULD BE 2/3 OF THE LAYER THICKNESS.
- THE STRIPPED AREA IS TO BE APPROPRIATELY BENCHED TO FACILITATE NEAR HORIZONTAL FILL PLACEMENT.
- THE SITE PREPARATION WORKS AND ALL FILLING PLACEMENT SHOULD BE UNDER LEVEL 1 CONTROL AS DEFINED IN AS3798-1990 'GUIDELINES ON EARTHWORKS FOR COMMERCIAL AND RESIDENTIAL DEVELOPMENTS'.
- ALL NEW WORKS TO MAKE A SMOOTH JUNCTION WITH EXISTING SITE LEVELS.
- A DEPTH OF 300mm OF TOPSOIL SHALL BE PLACED OVER ALL FILL MATERIAL.
- THE USE OF VIBRATING ROLLERS IN THIS AREA IS TO BE LIMITED DUE TO ADJOINING RESIDENTIAL STRUCTURES. PEAK VELOCITY OF VIBRATIONS SHALL NOT EXCEED 10MM/SEC.

**SEDIMENT BASIN CONSTRUCTION NOTES**

- REMOVE ALL VEGETATION AND TOPSOIL FROM UNDER THE DAM WALL AND FROM WITHIN THE STORAGE AREA.
- CONSTRUCT A CUT-OFF TRENCH 500mm DEEP AND 1200mm WIDE ALONG THE CENTERLINE OF THE EMBANKMENT EXTENDING TO A POINT ON THE GULLY WALL LEVEL WITH THE RISER CREST.
- MAINTAIN THE TRENCH FREE OF WATER AND RECOMPACT THE MATERIALS WITH EQUIPMENT TO 95 PER CNET STANDARD PROCTOR DENSITY.
- SELECT FILL THAT IS FREE OF ROOTS, WOOD, ROCK, LARGE STONE OR FOREIGN MATERIAL.
- PREPARE THE SITE UNDER THE EMBANKMENT BY RIPPING TO AT LEAST 100mm TO HELP BOND COMPACTED FILL TO THE EXISTING SUBSTRATE.
- SPREAD THE FILL IN 100mm TO 150mm LAYERS AND COMPACT IT AT OPTIMUM MOISTURE CONTENT.

**FORMWORK NOTES**

- FORMWORK DESIGN, CONSTRUCTION AND STRIPPING SHALL COMPLY WITH AS3610. THE FORMWORK DESIGN SHALL BE UNDERTAKEN BY AN EXPERIENCED FORMWORK DESIGNER AND SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, REFER ALSO SPECIFICATION.

**CONCRETE NOTES**

- ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS3600.
- EXPOSURE CLASSIFICATIONS  
B1 (EXTERNAL ELEMENTS)  
B1 (INTERNAL ELEMENTS)
- READY-MIX CONCRETE IN ACCORDANCE WITH AS1379. REFER ALSO ELEMENTS FOR GRADES.  
SLUMP 80 +/- 15  
20 AGGREGATE  
NO ADDITION OF WATER PERMITTED ON SITE.  
ALL CONCRETE MUST BE VIBRATED.  
CONCRETE STRENGTH AS PER ATTACHED DETAILS.
- ALL REINFORCEMENT SHALL BE SUPPORTED IN ITS CORRECT POSITION DURING CONCRETING BY PLASTIC BAR CHAIRS. WIRE CHAIRS NOT PERMITTED. COVERS MUST BE MAINTAINED AT ALL TIMES INCLUDING DRIP GROOVES. ENSURE TIE WIRES DO NOT PROTRUDE INTO THE COVER ZONES.
- IN HOT AND/OR WINDY WEATHER APPLY ALIPHATIC ALCOHOL TO THE SCREEDED CONCRETE TO MINIMISE MOISTURE LOSS AND PLASTIC SHRINKAGE CRACKING. NOTE - THIS DOES NOT REPLACE CURING.
- CURE ALL SLABS FOR 7 DAYS MINIMUM BY AN APPROVED METHOD.  
NOTE - CURING MUST BE IN PLACE WITHIN 3 HOURS OF COMPLETING THE SLABS.  
LEAVE FORMWORK IN PLACE.  
COVER WITH PLASTIC SHEET (SECURELY HELD DOWN),  
SPRAYED CURING COMPOUND COMPLYING WITH AS3799.
- NO HOLES, CHASES OR EMBEDMENT OF PIPES OTHER THAN THOSE SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE MADE IN CONCRETE MEMBERS WITHOUT PRIOR APPROVAL OF THE ENGINEER.
- CONSTRUCTION JOINTS SHALL BE PROPERLY FORMED AND USED ONLY WHERE SHOWN OR SPECIFICALLY APPROVED BY THE ENGINEER. SHEAR KEYS AND SCABBLING OF CONCRETE REQUIRED TO ALL VERTICAL JOINTS IN SUSPENDED SLABS AND BEAMS.
- REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY AND NOT NECESSARILY SHOWN IN TRUE PROJECTION OR SCALE.
- SPLICES IN REINFORCEMENT SHALL BE MADE ONLY IN THE POSITIONS SHOWN OR AS OTHERWISE APPROVED IN WRITING BY THE ENGINEER.
- WELDING OR SITE BENDING OF REINFORCEMENT SHALL NOT BE PERMITTED WITHOUT THE APPROVAL OF THE ENGINEER.
- STANDARD COGS UNO. REFER ALSO SECTIONS, BEAM ELEVATIONS.
- REINFORCEMENT SYMBOLS:  
S STRUCTURAL GRADE DEFORMED BAR TO AS4671.  
R STRUCTURAL GRADE PLAIN BAR TO AS4671.  
N HOT ROLLED DEFORMED BAR TO AS/NZS 4671.  
SL,RL WELDED WIRE REINFORCING FABRIC TO AS4671.

**STORMWATER DRAINAGE NOTES**

- IT IS RECOMMENDED THAT ALL STORMWATER DRAINAGE TO BE CONSTRUCTED AFTER PROOF ROLLING THE SUBGRADE.
- THE PIPE CLASSES HAVE BEEN DESIGNED ON CONSTRUCTION LOADINGS EQUIVALENT TO A 2 TONNE VIBRATORY TRENCH ROLLER ACTING ON 300mm COVER OVER PIPES ON TYPE HS3 SUPPORT. THE CONTRACTOR SHALL DETERMINE THE PIPE CLASS TO SUIT THEIR CONSTRUCTION EQUIPMENT AND METHOD AND CHECK ALL CONSTRUCTION LOADINGS ON THE PIPES. THE CONTRACTOR MUST ENSURE THAT THE MINIMUM COVER ABOVE EACH PIPE IS MAINTAINED AT ALL TIMES.
- ALL STORMWATER DRAINAGE JOINTS TO BE RCP WITH RUBBER RING JOINTS UNLESS OTHERWISE SPECIFIED. THE RUBBER RING JOINT PIPES ALLOW A NORMAL DEGREE OF SETTLEMENTS TO OCCUR.
- ALL CONCRETE PIPES, PITS AND OTHER BURIED CONCRETE WORKS LOCATED IN AREAS OTHER THAN SANDSTONE FILLED AREAS SHALL HAVE THE WATER/CEMENT RATIO LESS THAN 0.45, MINIMUM CEMENT CONTENT OF 370kg/M3, MINIMUM REINFORCEMENT COVER 50mm AND A WATERPROOF MEMBRANE/PROTECTIVE COATING GRIPSET SL OR APPROVED EQUIVALENT.
- ALL CONCRETE PIPE JOINTS LOCATED IN AREAS OTHER THAN SANDSTONE FILLED AREAS TO BE WATERPROOF PROTECTED WITH GRIPSET ELASTOFABRIC OR APPROVED EQUIVALENT.
- ALL PITS TO HAVE CONCRETE BENCHING TO FACILITATE THE SMOOTH FLOW OF WATER THROUGH PITS.
- PIT LINTELS SHALL BE PLACED TO THE UPSTREAM SIDE OF THE PIT OR CENTRAL WHERE THE PIT IS IN A SAG.
- INTERALLOTMENT DRAINAGE LINES TO BE MINIMUM 150mm DIA. & CONSTRUCTED TO THE SIZE & LOCATION SHOWN ON THE PLAN & AT LEAST 0.5m FROM BOUNDARY LINES & WITHIN A MINIMUM 1m WIDE EASEMENT TO THE BOUNDARY. MINIMUM GRADE IS 1% OR UNLESS APPROVED OTHERWISE & MINIMUM COVER IS 400mm. MATERIAL SHALL BE UPVC SH OR ULTRA PIPE.
- INTERALLOTMENT DRAINAGE LINES UNDERNEATH ROAD PAVEMENTS ARE TO BE CONSTRUCTED WITH 375mm DIAMETER R.C. PIPES.
- INTERALLOTMENT DRAINAGE PITS ARE TO BE CONSTRUCTED AT THE LOCATIONS SHOWN ON THE PLAN OR WHERE REQUIRED BY THE COUNCIL INSPECTOR OR SITE SUPERVISOR TO DEPT. OF HOUSING STANDARD DRAWING RM8 OR THE APPROVED EQUIVALENT.
- ALL DRAINAGE LINES TO BE CONTAINED AT A LATER STAGE WITHIN ROADWAYS ARE TO BE EXTENDED BY ONE PIPE LENGTH PAST THE END OF WORKS. THE STUB IS TO BE BLOCKED OFF BY HARDBOARD
- PROVIDE STEP IRONS WHERE PIT IS DEEPER THAN 0.9m. FIRST STEP IRON TO BE PLACED 0.3m ABOVE FLOOR OF PIT. STEP IRONS BE INSTALLED AT 0.3m CENTRES. (REFER TO DEPT OF HOUSING STD. DWG No. RM3)
- ALL INTERALLOTMENT DRAINAGE PITS DEEPER THAN 900mm TO HAVE A TURRET/RISER AND MANHOLE LID DIAMETER OF 750mm min.

**SUB-SOIL DRAINAGE NOTES**

- SUBSOIL DRAINAGE TRENCH WIDTHS SHALL BE OF 300mm, WITH A MINIMUM DEPTH BELOW FINISHED SUBGRADE LEVEL OF 600mm IN EARTH AND 450mm IN ROCK, AND BELOW THE INVERT LEVEL OF ANY SERVICE CROSSINGS.
- OUTLETS SHALL BE SPACED AT MAXIMUM INTERVALS OF 150 METRES. WHERE POSSIBLE, SUBSOIL AND SUB-PAVEMENT DRAINAGE PIPES SHALL DISCHARGE INTO GULLY PITS OR OTHER STORMWATER DRAINAGE STRUCTURE. WHERE NOT POSSIBLE, OUTLETS SHALL BE PROVIDED THROUGH FILL BATTERS. INLESS OTHERWISE AUTHORISED, WHERE SUBSURFACE DRAINS OUTLET THROUGH FILL BATTERS, A SMALL PRECAST CONCRETE HEADWALL SHALL BE INSTALLED AT THE DRAIN OUTLET WITH A MARKER POST TO ASSIST MAINTENANCE AND PROTECT THE END OF THE PIPE.
- CLEANOUTS ARE TO BE PROVIDED AT THE COMMENCEMENT OF EACH RUN OF DRAIN IN ACCORDANCE WITH COUNCILS STANDARD DRAWING NUMBER D15, AND AT INTERVALS NOT EXCEEDING 80 METRES. CLEANOUTS SHALL GENERALLY BE LOCATED DIRECTLY AT THE REAR OF KERB OR AT THE EDGE OF SHOULDER, AS APPLICABLE.
- ALL SUBSOIL DRAINAGE PIPES ARE TO BE CONTAINED WITHIN A FILTER SOCK.

**EROSION & SEDIMENT CONTROL NOTES**

- DURING WINDY WEATHER LARGE, UNPROTECTED AREAS WILL BE KEPT MOIST, (NOT WET), BY SPRINKLING WITH WATER TO KEEP DUST UNDER CONTROL.
- FINAL SITE LANDSCAPING WILL BE UNDERTAKEN AS SOON AS POSSIBLE & WITHIN 20 DAYS FROM COMPLETION OF CONSTRUCTION ACTIVITIES.
- STOCKPILES WILL NOT BE LOCATED WITHIN 2m OF HAZARD AREAS, INCLUDING AREAS OF HIGH VELOCITY FLOW SUCH AS WATERWAYS. WHERE THEY ARE BETWEEN 2 & 5m FROM SUCH AREAS SPECIAL SEDIMENT CONTROL MEASURES SHOULD BE TAKEN TO MINIMISE POSSIBLE POLLUTION TO DOWNSLOPE WATERS, e.g. THROUGH INSTALLATION OF SEDIMENT FENCING.
- ANY SAND USED IN THE CONCRETE CURING PROCESS, (SPREAD OVER THE SURFACE), WILL BE REMOVED AS SOON AS POSSIBLE AND WITHIN 10 WORKING DAYS OF PLACEMENT.
- WATER WILL BE PREVENTED FROM ENTERING THE PERMANENT DRAINAGE SYSTEM UNLESS IT IS RELATIVELY SEDIMENT FREE, i.e. THE CATCHMENT AREA HAS BEEN PERMANENTLY LANDSCAPED &/OR ANY LIKELY SEDIMENT HAS BEEN FILTERED THROUGH AN APPROVED STRUCTURE.

**SPECIFICATION FOR BACKFILLING OF STORMWATER DRAINAGE TRENCHES**

**SUPPORT TYPE**

PIPE TO BE INSTALLED TO TYPE HS1 SUPPORT IN ACCORDANCE WITH AS3725, (2007), IN ALL CASSES BACKFILL TRENCH WITH SAND TO 300mm ABOVE PIPE.

**MEASURE OF COMPACTION**

GRANULAR FILL (NON COHESIVE SOILS) SHALL BE BASED ON THE DENSITY INDEX (ID) DETERMINED IN ACCORDANCE WITH AS1289 E6. BASED ON THE MAXIMUM AND MINIMUM DRY DENSITIES IN ACCORDANCE WITH AS 1289 5.5.1 AND FIELD DRY DENSITY IN ACCORDANCE WITH AS1289 5.8.1.

**CERTIFICATES OF COMPACTION**

COMPACTION TESTING SHALL BE CARRIED OUT BY AN APPROVED ORGANISATION WITH NATA CERTIFIED LABORATORY. TEST RESULTS SHALL BE SUBMITTED DIRECTLY TO THE PROJECT MANAGER BY THE LABORATORY.

THE MINIMUM NUMBER OF TESTS FOR TRENCHES IN ROADWAYS SHALL BE:

\* BEDDING AND HAUNCH ZONE - ONE (1) TEST FOR EVERY 50m LENGTH OF TRENCH. IF THE TRENCH IS LESS THAN 50m, A MINIMUM OF TWO (2) TESTS IS REQUIRED (IE 0-25m ONE (1) TEST, 26-50m TWO (2) TESTS).

\* SIDE ZONE - TESTS AS PER BED ZONE.

\* OVERLAY ZONE - ONE (1) TEST FOR EVERY 900mm OF BACKFILL (PLACED IN LAYERS NO THICKER THAN 300mm) FOR EVERY 50m LENGTH OF TRENCH. IN ADDITION, ONE (1) TEST AT SUBGRADE LEVEL FOR EVERY 50m LENGTH. IF THE TRENCH IS LESS THAN 50m, A MINIMUM OF TWO (2) TESTS FOR 900mm OF BACKFILL PLACED ARE REQUIRED (IE 0-25m ONE (1) TEST, 26-50m TWO (2) TESTS).

**TRENCH PROFILE**

ALL TRENCH BEDDING BACKFILL MUST BE NON COHESIVE AND COMPLY WITH AS3725-2007 AS SET OUT IN THE FOLLOWING GRADING TABLES:  
(A) BEDDING AND HAUNCH ZONE.


|                 |     |        |       |      |
|-----------------|-----|--------|-------|------|
| SIEVE SIZE (mm) | 19  | 2.36   | 0.6   | 0.3  |
| % MASS PASSING  | 100 | 100-50 | 90-20 | 6-10 |

(B) SIDE ZONE, OVERLAY ZONE AND BACKFILL UP TO SUBGRADE LEVEL IN CARRIAGEWAYS AND UNDER KERB AND GUTTER.

|                 |     |        |        |       |
|-----------------|-----|--------|--------|-------|
| SIEVE SIZE (mm) | 75  | 9.5    | 2.36   | 0.6   |
| % MASS PASSING  | 100 | 100-50 | 100-30 | 50-15 |

**MINIMUM COVER**

MINIMUM COVER TO PIPES REQUIRED TO PROVIDE PROTECTION DURING CONSTRUCTION IS 600mm.

|  |   |  |                        |  |                                 |   |  |   |   |                                    |
|--|---|--|------------------------|--|---------------------------------|---|--|---|---|------------------------------------|
|    | Project<br><b>GENERAL NOTES</b><br>CLEMTON PARK VILLAGE<br>LOT 1 D.P.721721 & LOT A D.P.431356 60 CHARLOTTE STREET, CAMPSIE | Principal: <b>AUSTRALAND &amp; LASALLE</b> |                        |  |                                 |  | ABN 77 050 209 991<br>Level 4, Suite 400<br>16-18 Cambridge St<br>EPPING NSW 2121<br>PO Box 233<br>EPPING NSW 1710 | ACN 050 209 991<br>DX 4408 EPPING<br>Tel. 9869-1855<br>Fax. 9869-2341<br>reception@craighoddes.com.au<br>www.craighoddes.com.au<br>© Craig & Rhodes |  | Our Ref. <b>048-11</b>             |
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| Calc's <b>M.V.</b>   | Drawn <b>M.V.</b>   | Proj.Man. <b>A.C.</b>                      | Client Ref.            |  |                                 |   |  |   |   |                                    |