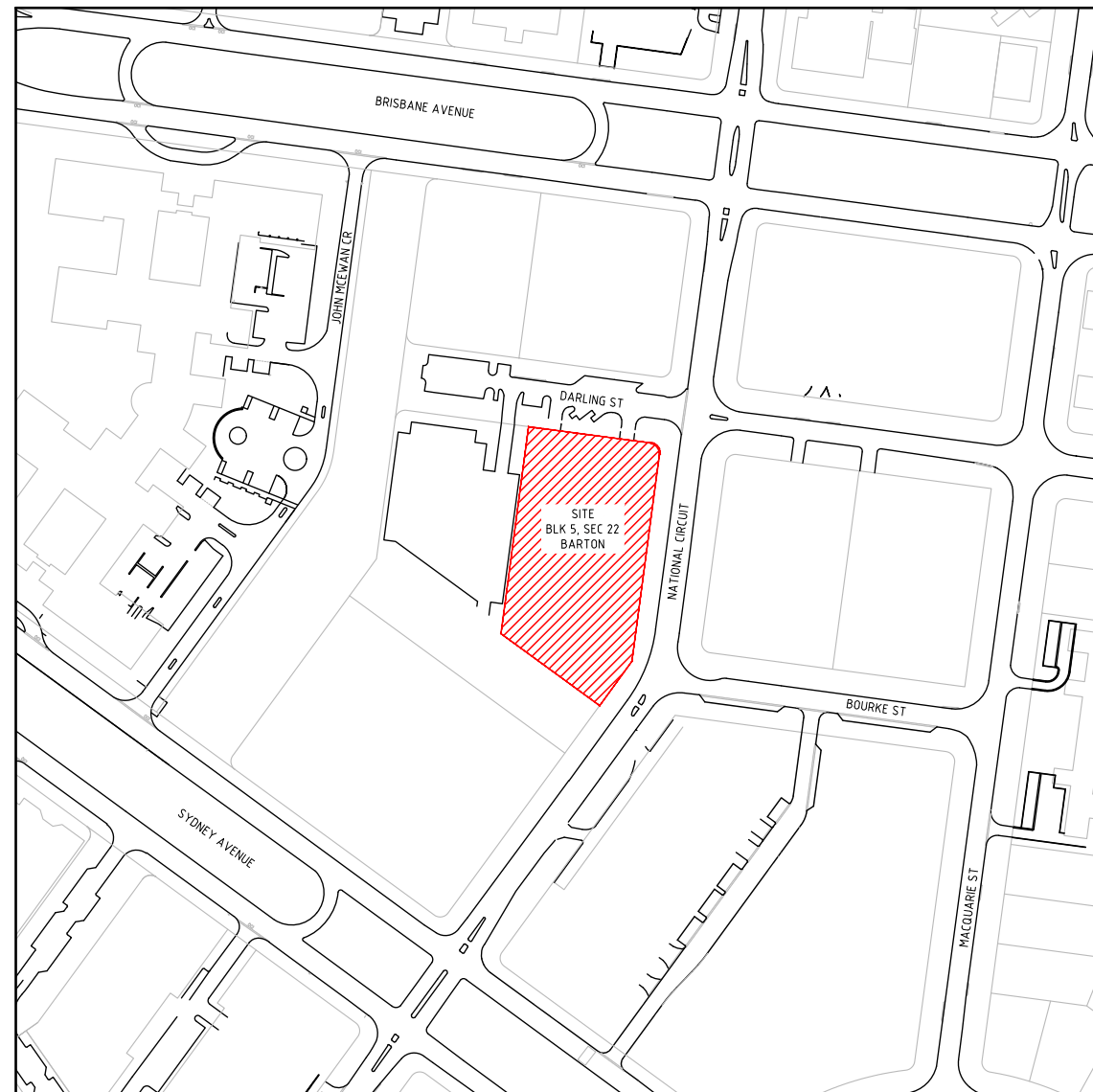


19 NATIONAL CIRCUIT

WORKS APPROVAL CIVIL ENGINEERING WORKS PACKAGE



LOCALITY PLAN
NOT TO SCALE

DRAWING LIST

NUMBER	TITLE
C000	COVER SHEET, DRAWING LIST & LOCALITY PLAN
C001	STANDARD NOTES
C002	STANDARD DETAILS
C010	EROSION, SEDIMENT & POLLUTION CONTROL PLAN
C070	EXISTING SERVICES PLAN
C100	BULK EARTHWORKS PLAN
C120	ONSITE CIVIL WORKS PLAN
C130	OFFSITE CIVIL WORKS PLAN
C160	STORMWATER PLAN

VERIFIER:
 JOB MANAGER: D. FIELD
 DESIGNED: J. CLANCY
 DRAWN: J. CLANCY

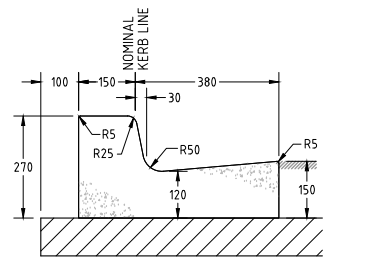
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REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE	CLIENT	ARCHITECT	PROJECT	DRAWING TITLE	JOB NUMBER
1	WORKS APPROVAL	JC		WB	11.12.19	CROMWELL PROPERTY GROUP	NETTLETON TRIBE	19 NATIONAL CIRCUIT BLOCK 5, SECTION 22 BARTON	CIVIL WORKS COVER SHEET, DRAWING LIST AND LOCALITY PLAN	CR192316
						DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED	THE COPYRIGHT OF THIS DRAWING REMAINS WITH NORTHROP CONSULTING ENGINEERS PTY LTD.			DRAWING NUMBER C000
										REVISION 1
										DRAWING SHEET SIZE = A1



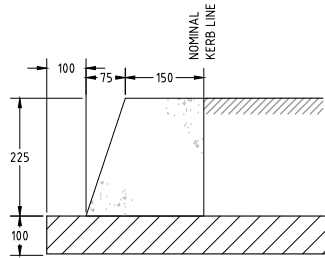
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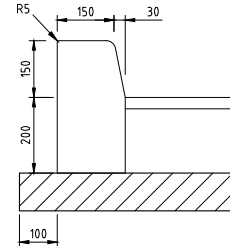
- N25 CONCRETE KERB
- 100mm DGB20 BASE
- WEAKENED PLANE JOINTS @ 3.0m CTRS
- EXPANSION JOINTS @ 12m CTRS
- ALL JOINTS IN KERBS SHALL BE IN ACCORDANCE WITH SECTION 6.09.1 OF "STANDARD SPECIFICATION FOR URBAN INFRASTRUCTURE WORKS" EDITION 1, REVISION 0/SEPT 2002

KERB & GUTTER (KG)



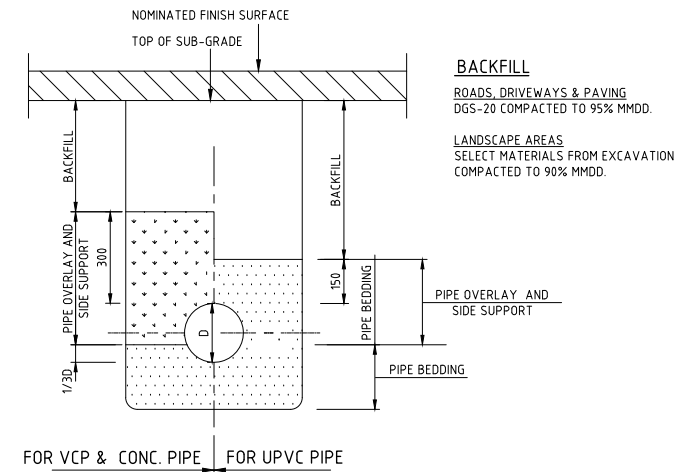
- N32 CONCRETE KERB
- 100mm DGB20 BASE
- WEAKENED PLANE JOINTS @ 3.0m CTRS
- EXPANSION JOINTS @ 12m CTRS
- ALL JOINTS IN KERBS SHALL BE IN ACCORDANCE WITH SECTION 6.09.1 OF "STANDARD SPECIFICATION FOR URBAN INFRASTRUCTURE WORKS" EDITION 1, REVISION 0/SEPT 2002

FLUSH KERB (FK)



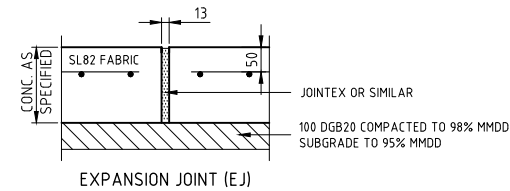
- N25 CONCRETE KERB
- 100mm DGB20 BASE
- WEAKENED PLANE JOINTS @ 3.0m CTRS
- EXPANSION JOINTS @ 12m CTRS
- ALL JOINTS IN KERBS SHALL BE IN ACCORDANCE WITH SECTION 6.09.1 OF "STANDARD SPECIFICATION FOR URBAN INFRASTRUCTURE WORKS" EDITION 1, REVISION 0/SEPT 2002

KERB ONLY DETAIL (KO)

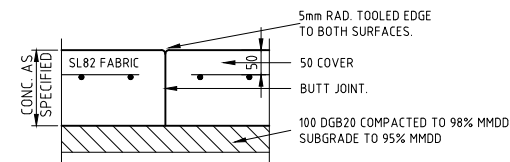


BEDDING AND BACKFILL DETAILS

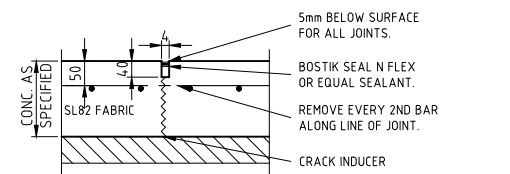
(INTERNAL TO BLOCK)



EXPANSION JOINT (EJ)



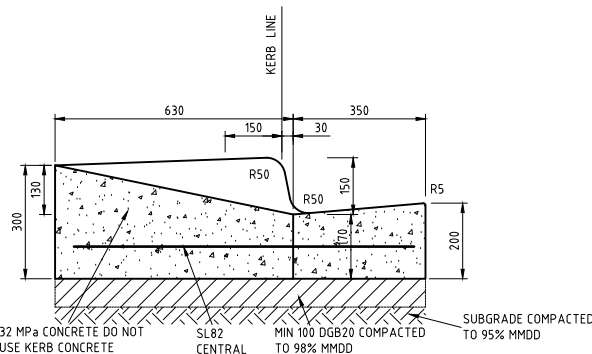
CONSTRUCTION JOINT (CJ)



WEAKENED PLANE JOINT (WJ)

CONCRETE JOINT DETAILS.

NTS



REINFORCED VEHICULAR CROSSING (RVC)

N.T.S.

PIPE BEDDING AND BACKFILLING		
MATERIAL SPECIFICATION	COMPACTION METHOD	DEGREE OF COMPACTION
IN TRAFFICKED AREA'S - HIGH GRADE DGS-20 'ROADBASE' CRUSHED ROCK. ELSEWHERE - MATERIAL OBTAINED FROM EXCAVATIONS OF THE PIPE TRENCH OR ELSEWHERE AND CONTAINING NOT MORE THAN 20% BY MASS OF STONES WITH A SIZE RANGE BETWEEN 75 AND 150 AND NONE LARGER THAN 150.	SUITABLE PLATE COMPACTOR IN LAYERS NOT EXCEEDING 150 THICKNESS.	THE MAXIMUM MODIFIED DRY DENSITY SHALL NOT BE LESS THAN -90% FOR NON TRAFFICKED AREA'S -95% FOR TRAFFICKED AREA'S DETERMINED IN ACCORDANCE WITH AS.1289.E8.1, 2.1.1, 5.2.1, & 5.4.1
IN TRAFFICKED AREA'S - HIGH GRADE DGS-20 'ROADBASE' CRUSHED ROCK. ELSEWHERE - SELECTED FINE MATERIAL OBTAINED FROM EXCAVATIONS OF PIPE TRENCH OR ELSEWHERE, FREE FROM ALL ORGANIC MATERIAL, CLAY LUMPS RETAINED ON A 75 SIEVE AND FROM STONES RETAINED ON A 26.5 SIEVE.	IN THE ZONE OF EMBEDMENT SELECTED FINES SHALL BE PLACED AND COMPACTED BY HAND TAMPING SO THAT THE PIPES ARE NEITHER DISLODGED NOR DAMAGED, REMAINDER OF THE SELECTED FINES SHALL BE COMPACTED USING A SUITABLE PLATE COMPACTOR. MATERIAL FOR PIPE SIDE SUPPORT AND OVERLAY SHALL BE THOROUGHLY RODDED WITH TAMPING BARS. PIPES SHALL BE LAID SO THAT THE GRANULAR BEDDING MATERIAL UNIFORMLY SUPPORTS THE BARREL OF THE PIPE.	THE MAXIMUM MODIFIED DRY DENSITY SHALL NOT BE LESS THAN -90% FOR NON TRAFFICKED AREA'S -95% FOR TRAFFICKED AREA'S DETERMINED IN ACCORDANCE WITH AS.1289.E8.1, 2.1.1, 5.2.1, & 5.4.1
BEDDING SHALL CONSIST OF GRANULAR MATERIAL OF LOW PLASTICITY SUCH AS QUARRY FINES, OR COARSE RIVER SAND FREE FROM ORGANIC MATTER WITH 100% PASSING 13.2, MINIMUM OF 85% PASSING THE 2.36 AND NOT MORE THAN 15% PASSING THE 0.075 SIEVE.		

VERIFIER:

JOB MANAGER: D. FIELD

DESIGNED: J.CLANCY

DRAWN: J.CLANCY

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REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE	CLIENT	ARCHITECT	PROJECT	DRAWING TITLE	JOB NUMBER
1	WORKS APPROVAL	JC		WB	11.12.19	CROMWELL PROPERTY GROUP	NETTLETON TRIBE	19 NATIONAL CIRCUIT BLOCK 5, SECTION 22 BARTON	CIVIL WORKS STANDARD DETAILS	CR192316
										DRAWING NUMBER C002
										REVISION 1
										DRAWING SHEET SIZE = A1

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PROJECT

19 NATIONAL CIRCUIT
BLOCK 5, SECTION 22
BARTON

DRAWING TITLE

CIVIL WORKS
STANDARD DETAILS

JOB NUMBER

CR192316

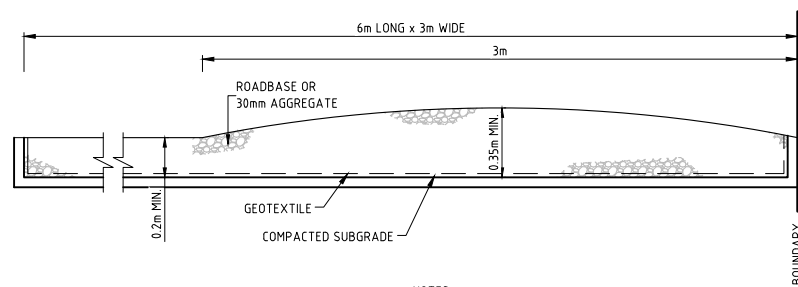
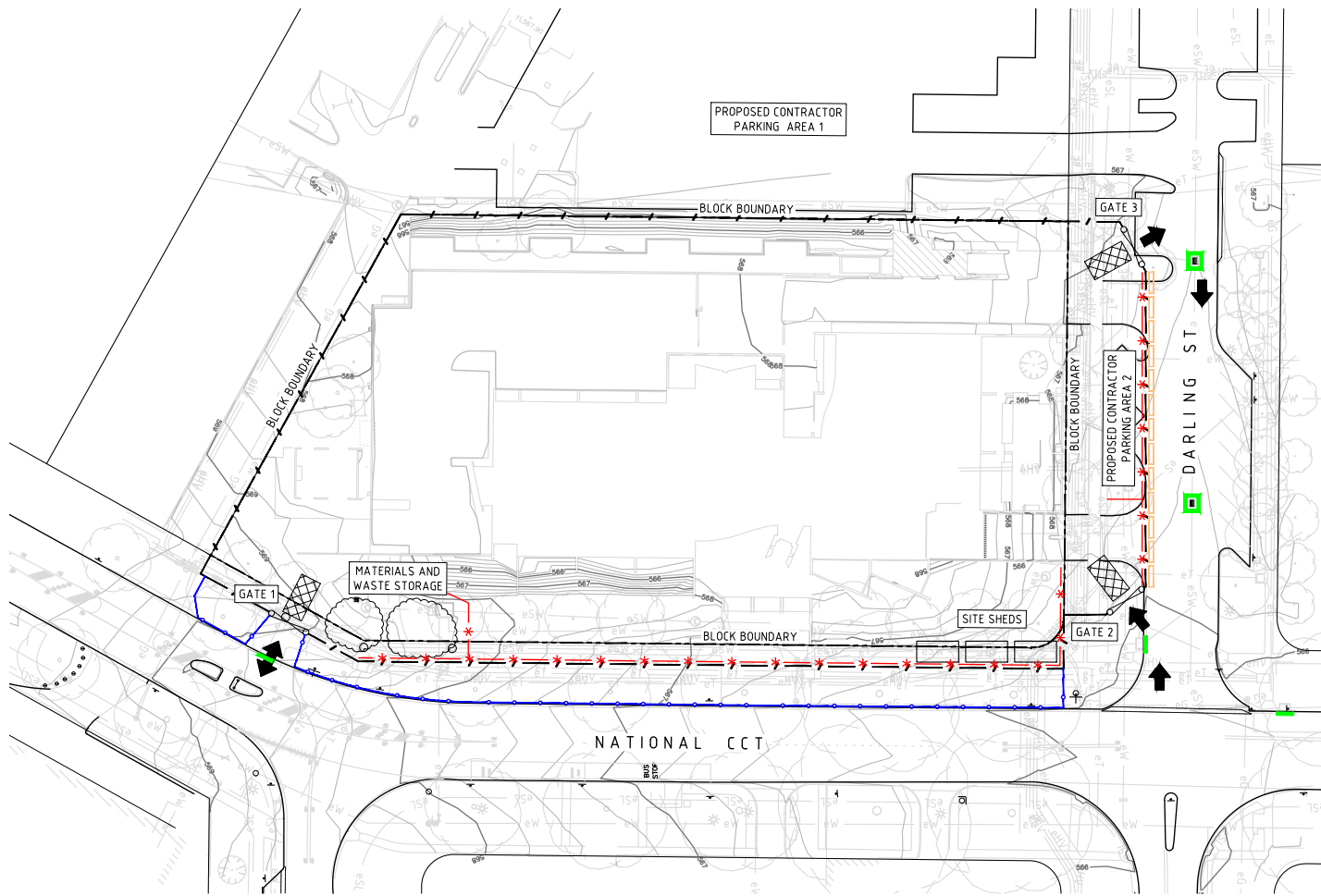
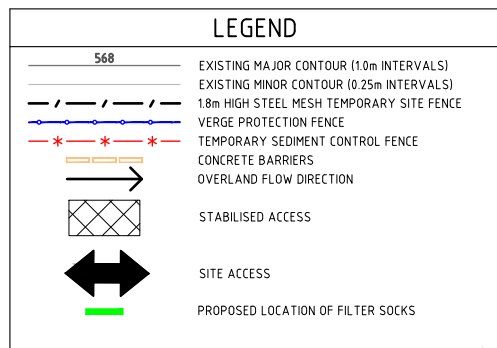
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C002

REVISION

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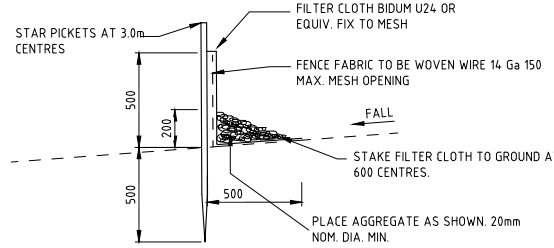


GEOTEXTILE FABRIC DESIGNED TO PREVENT INTERMIXING OF SUBGRADE & BASE MATERIALS & TO MAINTAIN GOOD PROPERTIES OF THE SUB-BASE LAYERS. GEOTEXTILE MAY BE WOVEN OR NEEDLE PUNCHED PRODUCT WITH A MINIMUM CBR BURST STRENGTH (AS3706.4-90) OF 2500N.

NOTES

- STRIP TOPSOIL & LEVEL SITE.
- COMPACT SUB-GRADE.
- COVER AREA WITH NEEDLE PUNCHED GEOTEXTILE.
- CONSTRUCT GRAVEL PAD OVER GEOTEXTILE USING ROADBASE OR 30mm AGGREGATE. MINIMUM 3m WIDE.
- CONSTRUCT HUMP IMMEDIATELY WITHIN BOUNDARY TO DIVERT WATER TO A SEDIMENT FENCE OR TRAP

STABILISED SITE ACCESS DETAIL



SEDIMENT CONTROL FENCE
N.T.S.

NOTES

- GENERAL:**
- THE CONTRACTOR MUST ENTER INTO AN ENVIRONMENT PROTECTION AGREEMENT WITH THE EPA
 - ENSURE THAT ALL ENVIRONMENT PROTECTION WORKS ARE IN PLACE BEFORE COMMENCING CONSTRUCTION ON THE SITE
 - LIAISE AS NECESSARY WITH THE EPA AND OBTAIN AGREEMENT TO THE ADEQUACY OF THE PROTECTION WORKS.
 - KEEP A COPY OF THE EPA SIGNED EROSION AND SEDIMENT CONTROL PLAN ON SITE AT ALL TIMES. DISPLAY IN A PROMINENT LOCATION.
 - LOCATE ALL PROTECTION WORKS WHOLLY WITHIN THE SITE UNLESS OTHERWISE PRE-APPROVED.
 - CONSTRUCT AND MAINTAIN PROTECTION WORKS IN ACCORDANCE WITH THE "ENVIRONMENT PROTECTION GUIDELINES FOR CONSTRUCTION AND LAND DEVELOPMENT IN THE ACT" (2011) AND THE NSW BLUE BOOK AS APPROPRIATE.
 - ASSIGN A DESIGNATED PARKING AREA. ALL WORKERS VEHICLES ARE TO BE PARKED IN LEGAL PARKING ZONES, WHERE POSSIBLE VEHICLES TO BE PARKED WITHIN THE BLOCK.
 - MINIMISE DISTURBANCE OF THE EXISTING SURFACE AND VEGETATION.
- SPOIL MANAGEMENT:**
- DESIGNATE AN AREA ON SITE FOR CONCRETE TRUCK WASH-DOWNS.
 - BRICK CUTTING TO OCCUR ON SITE WITHIN THE MATERIALS AND WASTE STORAGE AREA.
 - SPOIL TO BE DISPOSED OF APPROPRIATELY TO AN APPROVED LOCATION OFF SITE.
- NOISE:**
- ENSURE ALL CONSTRUCTION WORK THAT GENERATES NOISE TAKES PLACE ONLY WITHIN THE PRE-APPROVED OPERATING HOURS FOR THE PROJECT: MONDAY TO SATURDAY, BETWEEN 7A.M AND 6P.M.
- SEDIMENT CONTROLS AND STORMWATER:**
- MAINTAIN STRICT SITE ACCESS CONTROL WITH A STABILISED ACCESS POINT THAT ALL VEHICLES MUST USE.
 - AT THE END OF EACH DAY OR WHEN DIRT OCCURS OR PRIOR TO ANY RAIN EVENT, REMOVE ANY SEDIMENT FROM PUBLIC ROADS ADJACENT TO THE WORK AREA. DO NOT WASH INTO THE STORMWATER SYSTEM.
 - MAINTAIN AS MUCH VEGETATIVE COVER AS PRACTICAL PARTICULARLY BESIDE MAIN DRAINAGE LINES. FENCE OFF BUFFER AREAS TO PREVENT DISTURBANCE
 - PROTECT ALL CUT AND FILL BATTERS FROM RUN-OFF AND STABILISE IMMEDIATELY AFTER CONSTRUCTION.
 - USE CONTOUR PLOUGHING AND/OR SURFACE ROUGHENING OF FINISHED LANDFORM TO SLOW WATER FLOW DURING RAIN EVENTS.
 - INSTALL SILT FENCES ON THE LOW SIDE OF ANY STOCKPILE
 - INSTALL PERMANENT DRAINAGE FACILITIES AT AN EARLY STAGE.
 - FILTER SOCKS TO BE INSTALLED AT ALL OPEN PITS AND KERB SIDE SUMPS PROGRESSIVELY AS CONSTRUCTION PROCEEDS
 - PROVIDE PROTECTION TO NEW DRAINAGE INLETS IMMEDIATELY ON CONNECTION TO THE DRAINAGE SYSTEM
 - ESTABLISH ALTERNATIVE STABLE DRAINAGE SYSTEMS THROUGHOUT THE SITE WHILE PERMANENT FACILITIES ARE BEING INSTALLED.
 - USE DIVERSION STRUCTURES TO CONVEY RUN-OFF TO A STABLE DISPOSAL AREA.
 - STABILISE AND GRASS ALL DIVERSION SWALES AND DRAINS. WHERE MAJOR TEMPORARY DRAINAGE PATHS ARE CREATED CONSTRUCT HAY BALE WEIRS (WRAPPED IN BIDDUM) ACROSS THE ENTIRE FLOW PATH AND AT 25M INTERVALS.
 - STABILISE AND GRASS ALL DIVERSION SWALES AND DRAINS.
 - INSTALL SEDIMENT TRAPS AT DRAINAGE INLETS AND OTHER POINTS OF DISCHARGE FROM AREAS OF DISTURBANCE.
 - UNDERTAKE VEGETATIVE STABILISATION MEASURES IMMEDIATELY AFTER COMPLETION OF FINAL LAND FORMING.
 - PLACE HAY BALES LENGTHWISE IN A ROW WITH ENDS TIGHTLY ABUTTING. USE HAY TO FILL ANY GAPS BETWEEN BALES. - ENSURE THAT THE MAXIMUM HEIGHT OF THE FILTER IS ONE BALE.
 - EMBED EACH BALE IN THE GROUND 75mm-100mm AND ANCHOR WITH TWO 1.2M STAR PICKETS OR STAKES. ANGLE FIRST STAR PICKET/STAKE IN EACH BALE TOWARDS PREVIOUSLY LAID BALE. DRIVE 600mm INTO THE GROUND AND. WHERE STAR PICKETS PROTRUDE ABOVE BALES, ENSURE THEY ARE FITTED WITH SAFETY CAPS.
- INSPECTIONS AND MAINTENANCE SCHEDULE:**
(RECORD MAINTENANCE ACTIVITIES AND DETAILS TO PROVIDE TO EPA.)
- DAILY:**
- CHUTES, BARRELS, WHEELBARROWS AND OTHER EQUIPMENT TO BE RINSED IN THE SITE WASH-DOWN AREA.
 - REMOVE ANY SEDIMENT FROM PUBLIC ROADS ADJACENT TO THE WORK AREA. DO NOT WASH INTO THE STORMWATER SYSTEM.
 - SUPPRESS DUST BY REGULAR SPRAYING OF WATER AND COVERING AND SECURING VEHICLE LOADS ENTERING/EXITING SITE.
 - MAINTAIN AND INSPECT POLLUTION CONTROL MEASURES DURING CONSTRUCTION AND UNTIL FULL STABILISATION. REPAIR AND REINSTATE WORKS AS NEEDED.
- MONTHLY:**
- MAINTAIN AND INSPECT STABILISED SITE ACCESS POINTS.
 - MAINTAIN AND INSPECT HAY BALES, REPLACE AS REQUIRED IF DEGRADED OR DAMAGED.
- AIR QUALITY:**
SUPPRESS DUST BY THE INCLUDING FOLLOWING METHODS WHERE APPLICABLE:
- STAGE WORKS TO LIMIT THE EXTENT OF EXPOSED AND UNPROTECTED AREAS.
 - REGULAR SPRAYING OF WATER
 - COVER AND SECURE VEHICLE LOADS ENTERING/EXITING SITE
 - USE AN ENVIRONMENTALLY FRIENDLY CHEMICAL SPRAY TO BIND SOIL TOGETHER THUS STABILISING UNUSED SOIL
 - RESTRICT SPEED OF VEHICLES ONSITE
 - COVER STOCKPILES TO PROTECT FROM THE WIND
- IMPLEMENT MEASURES TO LIMIT AIR POLLUTION BY VEHICLES AND PLANT WORKING ON OR PASSING THROUGH THE SITE.
 - MAINTAIN POLLUTION CONTROL MEASURES DURING CONSTRUCTION AND UNTIL FULL STABILISATION. ROUTINELY INSPECT EACH WEEK AND AFTER SIGNIFICANT RAINFALL EVENTS. REPAIR AND REINSTATE WORKS AS NEEDED TO MAINTAIN PROTECTION. RECORD MAINTENANCE ACTIVITIES AND DETAILS AND PROVIDE TO EPA FOR INSPECTION WHEN REQUESTED.

FIRE:

- BURNING OF WASTE MATERIALS MUST NOT BE UNDERTAKEN.
- FIRE MAY BE PERMITTED FOR GENERAL HEATING PURPOSES IF IN A BRAZIER OR CONSTRUCTED FIREPLACE, USING SEASONED, UNTREATED TIMBER.

TREE PROTECTION

- GENERAL**
- INSTALL ALL PROTECTIVE MEASURES PRIOR TO COMMENCING CONSTRUCTION WORKS. ADVISE TRANSPORT CANBERRA AND CITY SERVICES (AA) IN WRITING THAT THE PROTECTIVE MEASURES HAVE BEEN INSTALLED IN ACCORDANCE WITH THE APPROVED LMPP.
 - ALL VERGE VEGETATION INCLUDING GRASS SHALL BE PROTECTED AND RETAINED UNO ON THE DRAWINGS. ROUTINELY WATER TO RETAIN VEGETATION IN GOOD CONDITION.
 - A SUITABLY QUALIFIED LANDSCAPE ARCHITECT OR HORTICULTURIST SHALL BE ENGAGED BY THE CONTRACTOR TO OVERSEE ALL MAJOR WORK IN THE VERGE.
 - CONSTRUCTION MATERIAL SHALL NOT BE STORED ON VERGES OR PUBLIC OPEN SPACES
 - CAR PARKING OR EQUIPMENT PARKING SHALL NOT BE PERMITTED ON VERGES OR ADJACENT PARKLAND
 - SITE SHEDS, STORAGE SHEDS, SITE AMENITIES OR BILLBOARDS SHALL NOT BE ERECTED ON VERGES OR PUBLIC OPEN SPACES WITHOUT THE PRIOR WRITTEN APPROVAL OF THE MANAGER, TCCS, FOR THE USE OF VERGES, PUBLIC OPEN SPACES OR UNLEASED TERRITORY LAND.

PROTECTIVE FENCING

- ALL TEMPORARY PROTECTIVE FENCES SHALL BE IN ACCORDANCE WITH THE APPROVED LMPP
- FENCE OFF TREES, PLANTINGS AND GRASS MARKED FOR RETENTION TO ENCLOSE THE STREET VERGE, PUBLIC OPEN SPACE OR UNLEASED TERRITORY LAND AREA.
- THE STANDARD LOCATIONS FOR FENCING SHALL BE: FOR EACH TREE ALONG ITS DRIP-LINE 1.2m OFFSET TO THE BACK OF THE KERB FOR THE FULL FRONTAGE OF THE LEASE, ALONG THE PROPERTY BOUNDARY AND ALONG APPROVED DRIVEWAY ACCESS TO ENSURE THAT THE VERGE IS COMPLETELY ENCLOSED.
- FENCING SHALL BE ERECTED BEFORE THE COMMENCEMENT OF ANY SITE WORKS, SHALL BE REMAIN IN PLACE THROUGHOUT THE WORKS AND REMOVED PRIOR TO RESTORATION OF THE VERGE.
- USE TEMPORARY 1800mm CONTINUOUS MESH FENCE SUPPORTED BY STEEL POSTS WITH CONCRETE BASES UNLESS OTHERWISE APPROVED IN WRITING BY TCCS.
- MAINTAIN ALL EXISTING FOOTPATHS AND PROVIDE SAFE PEDESTRIAN MOVEMENT AT ALL TIMES.
- WHERE A CONSTRUCTED FOOTPATH/CYCLEWAY EXISTS IN THE VERGE, OFFSET FENCING 600mm EACH SIDE.
- IF THERE IS NO CONSTRUCTED FOOTPATH/CYCLEWAY PROVIDE A FENCED CLEARWAY 1800mm WIDE FOR PEDESTRIAN ACCESS ALONG THE ENTIRE FRONTAGE
- FENCING SHALL NOT BE REMOVED FOR THE SERVICE INSTALLATION UNLESS OTHERWISE APPROVED IN WRITING FROM TCCS. ENSURE ALL TREES ARE ADEQUATELY PROTECTED BEFORE COMMENCING TRENCING. ON COMPLETION RETURN THE FENCE TO ORIGINAL ALIGNMENT.

SERVICES AND UTILITIES

- SERVICES AND UTILITIES SHALL BE LAID ONLY IN THE LOCATIONS SHOWN ON THE DRAWINGS. TRENCHING ACROSS THE VERGE SHALL BE UNDERTAKEN ONLY WHERE SHOWN ON THE DRAWINGS
- UNLESS OTHERWISE SHOWN ON THE DRAWINGS NO TRENCHING SHALL BE CARRIED OUT WITHIN THE DRIP LINE OF ANY TREE
- THE NUMBER OF VERGE CROSSINGS SHALL BE MINIMISED. WHERE PRACTICAL AND PERMITTED SHARED TRENCHING SHALL BE ADOPTED
- TRENCHES SHALL BE LOCATED MIDWAY BETWEEN TREES

SITE ACCESS

- SITE ACCESS SHALL ONLY BE VIA THE ACCESS POINTS SHOWN ON THE DRAWINGS.
- PRIOR WRITTEN APPROVAL FOR ALTERNATIVE OR ADDITIONAL ACCESS POINTS SHALL BE OBTAINED THROUGH TCCS.
- NEW ACCESS POINTS SHALL BE LOCATED MIDWAY BETWEEN EXISTING TREES WHERE SPACE IS ADEQUATE. DO NOT LOCATE ANY ACCESS WITHIN THE DRIP LINE OF ANY TREE.

WORKING NEAR TREES

- ALL TREES LOCATED IN THE ROAD RESERVE, PUBLIC OPEN SPACE AND UNLEASED TERRITORY LAND SHALL BE PROTECTED FROM DISTURBANCE, DAMAGE OR DESTRUCTION. PRIOR WRITTEN AUTHORISATION FROM TCCS IS REQUIRED FOR ANY DISTURBANCE, DAMAGE OR DESTRUCTION OF ANY TREE OR LANDSCAPE ASSET.
- EXISTING CANOPY CLEARANCES SHALL NOT BE ALTERED. CROWNS AND APEX OF CANOPIES SHALL NOT BE ALTERED OR REDUCED
- ENSURE LIFTING EQUIPMENT AND LOAD CAN CLEAR HEIGHT AND WIDTH OF TREE CANOPY WITHOUT DAMAGE TO EQUIPMENT. ENSURE CONSTRUCTION EQUIPMENT CAN PASS BENEATH LOWEST LIMB.
- DO NOT EXCAVATE OR OTHERWISE DISTURB THE SURFACE LAYER WITHIN THE DRIP-LINE OF ANY TREE WITHOUT THE PRIOR WRITTEN APPROVAL OF TCCS.
- DO NOT SEVER ROOTS >30mm DIAMETER CLOSER THAN HALFWAY FROM THE DRIP-LINE TO THE TRUNK.
- HAND EXCAVATE TO A DEPTH OF 300MM TO LOCATE ROOTS BEFORE COMMENCING MACHINE EXCAVATION.
- CUT ROOTS CLEANLY WITH EQUIPMENT SPECIFICALLY DESIGNED FOR PRUNING ROOTS.
- PROTECT ANY EXPOSED ROOTS FROM DESICCATION. KEEP LIGHTLY WATERED OR COVER WITH MOIST HESSIAN. AFTER REPLACEMENT OF TOPSOIL REGULARLY WATER TREES UNTIL REESTABLISHED.

CONDITION AND RESTORATION

- PRIOR TO COMMENCEMENT NOTIFY TCCS OF COMMENCEMENT OF WORK AND UNDERTAKE A JOINT CONDITION SURVEY.
- AT THE COMPLETION OF WORK ENSURE THAT THE CONDITION OF ALL VEGETATION IS CONSISTENT WITH THE INITIAL CONDITION SURVEY.
- PROVIDE CONTINUOUS CARE AND MAINTENANCE BY HORTICULTURAL PRACTICES OF SOFT LANDSCAPE ASSETS ON ROAD RESERVES, STREET VERGES, PUBLIC OPEN SPACE AND UNLEASED TERRITORY LAND ADJACENT TO THE DEVELOPMENT FOR THE DURATION OF THE WORKS (INCLUDING RESTORATION WORKS)
- GRASS AREAS SHALL HAVE A HEALTHY AND VIGOROUS GRASS SWARD APPROPRIATE TO THE AREA. IF THE STANDARD OF GRASS COVER IS TO BE IMPROVED, THE FOLLOWING REQUIREMENTS APPLY:-
 - LIGHTLY CULTIVATE THE SOIL TO 25-50mm DEPTH (50mm MAXIMUM TO MINIMISE DAMAGE TO TREE ROOTS). CULTIVATE ONLY IN ONE DIRECTION. AVOID MAJOR TREE ROOTS AND KEEP A MINIMUM OF ONE METER (1.0m) AWAY FROM TREE TRUNKS.
 - ADD TYPE 'B' TOPSOIL AT 25-50mm DEPTH. LEVEL THE TOPSOIL AND ADD NPK FERTILISER (EQUIVALENT TO MULTIGRO) AT 40g/m².
 - LAY TURF OR SOW SEED OF SUITABLE DROUGHT TOLERANT SPECIES AS SPECIFIED IN THE ACT GOVERNMENT "SPECIFICATION FOR URBAN INFRASTRUCTURE WORKS" (ISSUE 1, REVISION 0, 2002). KEEP MOIST DURING ESTABLISHMENT.
- PLANT DAMAGE: DAMAGE TO TREES OR OTHER PLANTINGS TO BE RECTIFIED BY REPLACEMENT OR REHABILITATION AT CONTRACTORS EXPENSE AND TO THE SATISFACTION OF THE TCCS SPECIFICATION.

NOT FOR CONSTRUCTION

VERIFIER:

JOB MANAGER: D. FIELD

DESIGNED: J. CLANCY

DRAWN: J. CLANCY

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	WORKS APPROVAL	JC		WB	11.12.19

CLIENT	CROMWELL PROPERTY GROUP
ARCHITECT	NETTLETON TRIBE

ARCHITECT	NETTLETON TRIBE
CLIENT	CROMWELL PROPERTY GROUP

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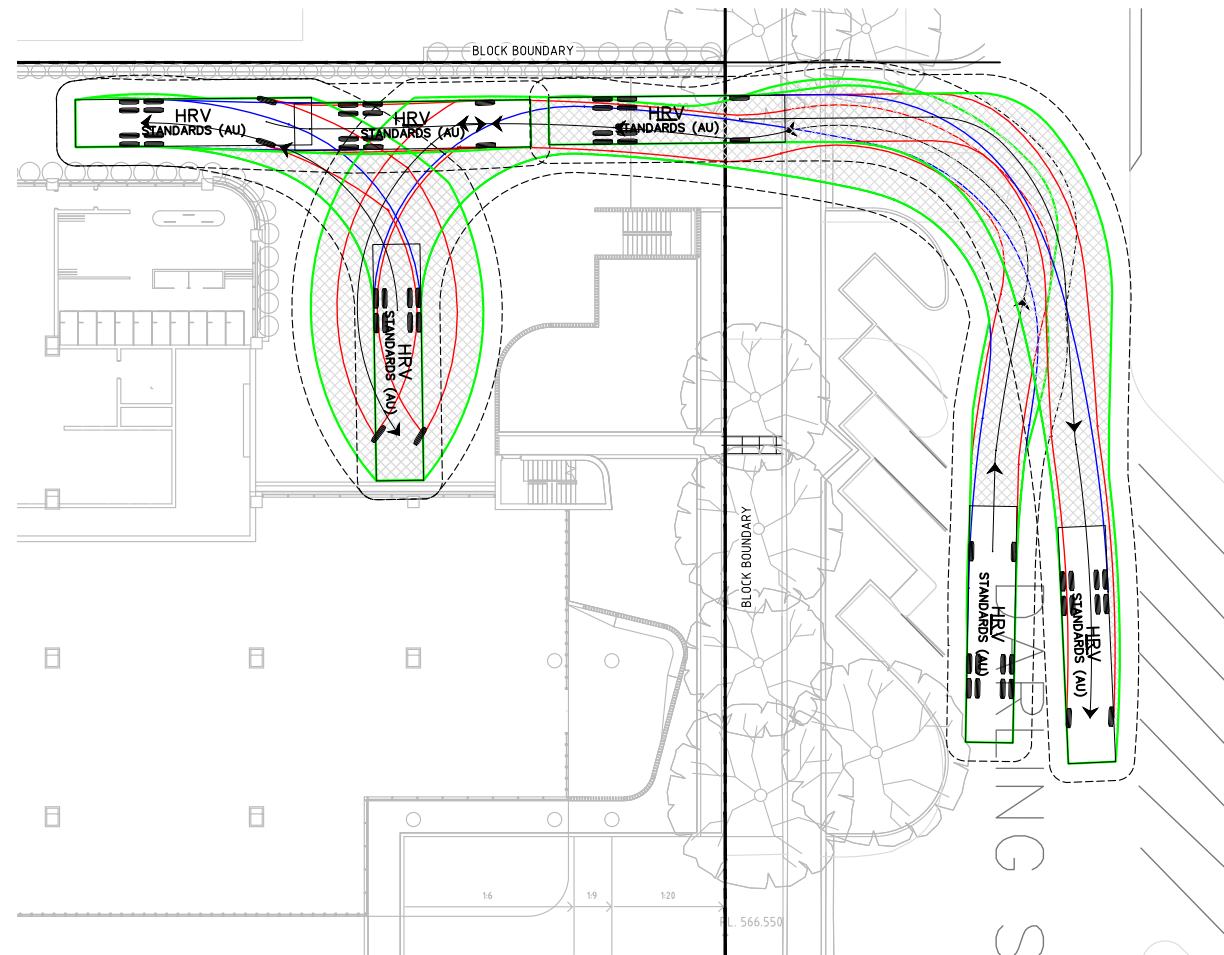
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Email canberra@northrop.com.au ABN 81 094 433 100

PROJECT	19 NATIONAL CIRCUIT BLOCK 5, SECTION 22 BARTON
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DRAWING TITLE	CIVIL WORKS CONCEPT EROSION, SEDIMENT AND POLLUTION CONTROL PLAN
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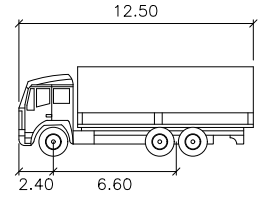
JOB NUMBER	CR192316
DRAWING NUMBER	C010
REVISION	1
DRAWING SHEET SIZE	A1



12.5m HRV LOADING AREA ACCESS

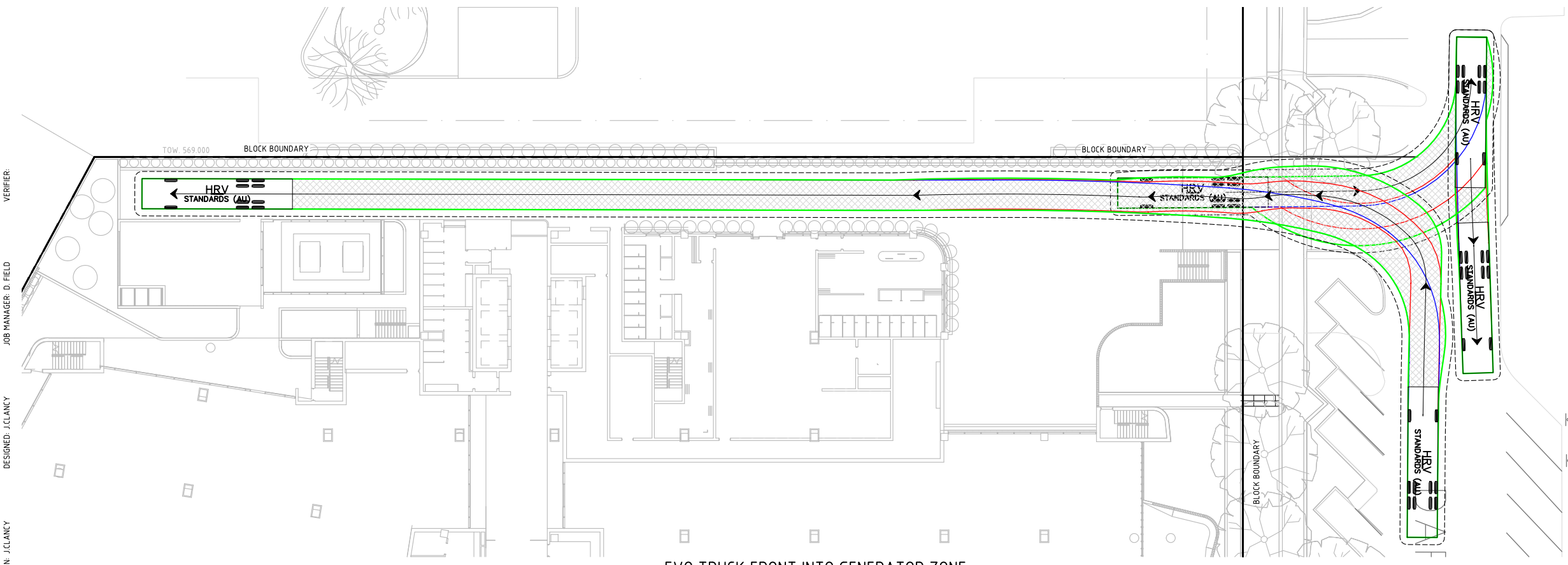
LEGEND

- DENOTES FRONT WHEEL PATH
- DENOTES REAR WHEEL PATH
- DENOTES VEHICLE BODY OVER HANG
- - - - DENOTES VEHICLE BODY OFFSET
- (EVO TRUCK = 0.6m, GARBAGE TRUCK = 10m)



HRV

	meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 35.2



EVO TRUCK FRONT INTO GENERATOR ZONE

NOT FOR CONSTRUCTION

VERIFIER
 JOB MANAGER: D. FIELD
 DESIGNED: J. CLANCY
 DRAWN: J. CLANCY

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	PRELIMINARY	AH	DF		13.11.19
2	WORKS APPROVAL	JC	NG		11.12.19
3	WORKS APPROVAL (v2)	JC	WB		04.09.20

CLIENT	CROMWELL PROPERTY GROUP
ARCHITECT	NETTLETON TRIBE
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ARCHITECT	NETTLETON TRIBE
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0 2.5 5.0 7.5 10.0 12.5m PLAN SCALE 1:250 @ A1

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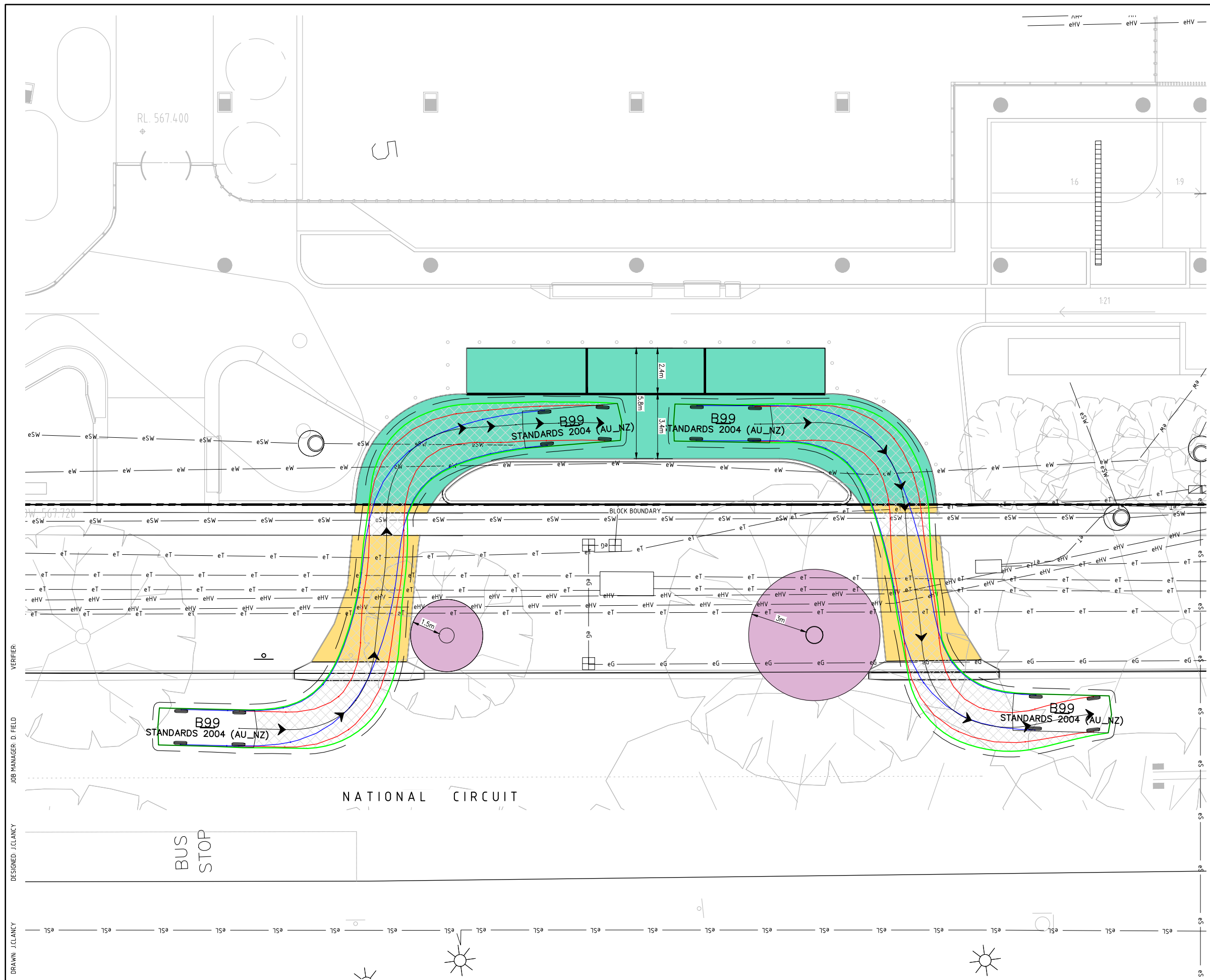
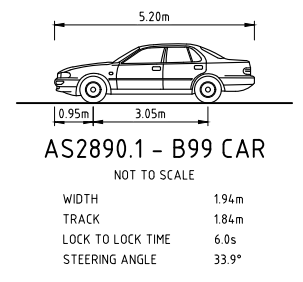
PROJECT	19 NATIONAL CIRCUIT BLOCK 5, SECTION 22 BARTON
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DRAWING TITLE	CIVIL WORKS VEHICLE TURNING TEMPLATES HRV - 12.5m LONG TRUCK
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JOB NUMBER	CR192316
DRAWING NUMBER	C020
REVISION	3
DRAWING SHEET SIZE = A1	

LEGEND

- DENOTES FRONT WHEEL PATH
- DENOTES REAR WHEEL PATH
- DENOTES VEHICLE BODY OVER HANG
- DENOTES 300mm VEHICLE BODY OFFSET



VERIFIER:
 JOB MANAGER: D. FIELD
 DESIGNED: J. CLANCY
 DRAWN: J. CLANCY

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REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	PRELIMINARY	AH		DF	07.11.19
2	PRELIMINARY	JC		WB	27.11.19
3	WORKS APPROVAL	JC		NG	11.12.19
4	WORKS APPROVAL (v2)	JC		WB	04.09.20

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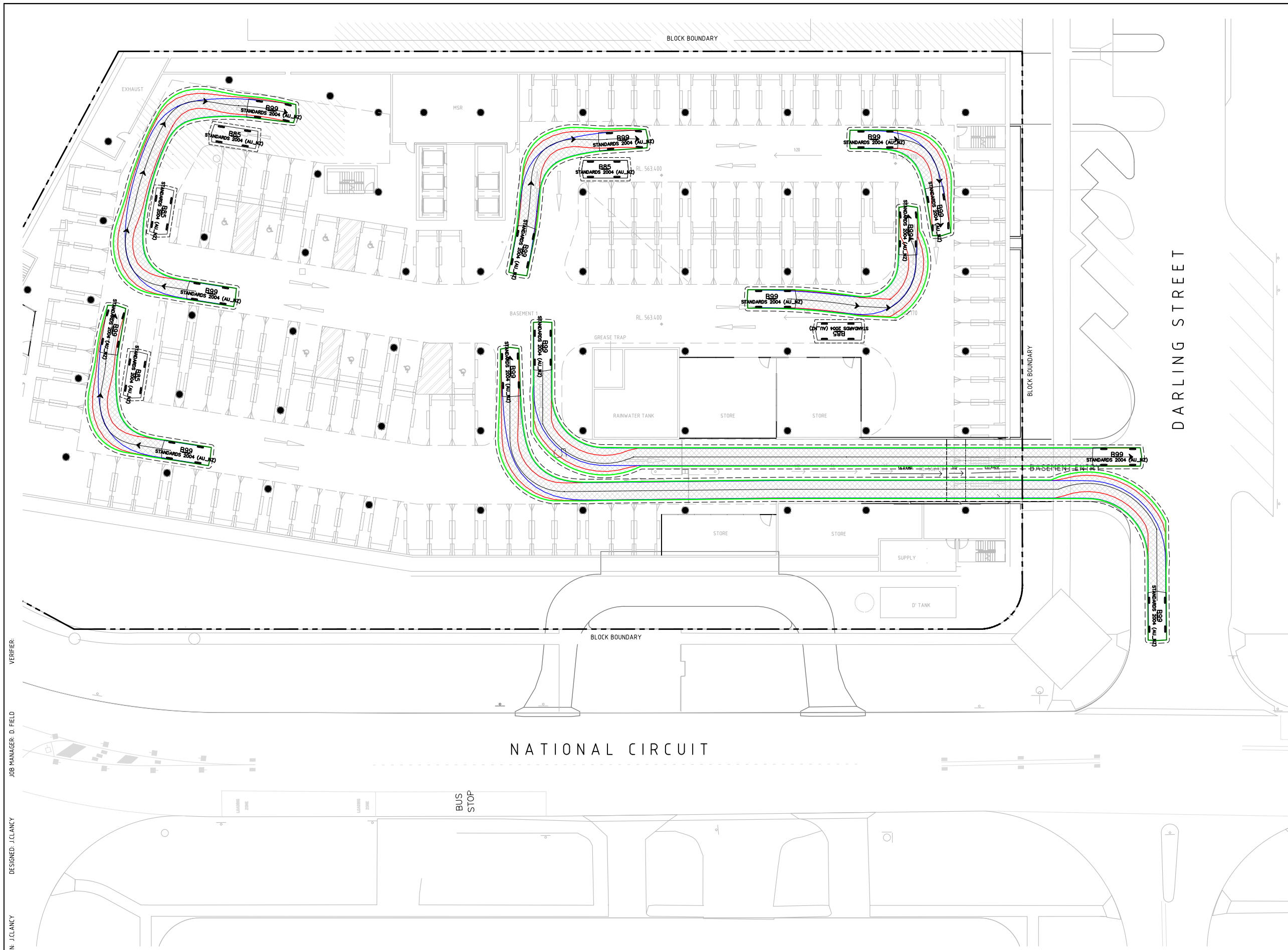
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SCALE 1:100 @ A1

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PROJECT
**19 NATIONAL CIRCUIT
BLOCK 5, SECTION 22
BARTON**

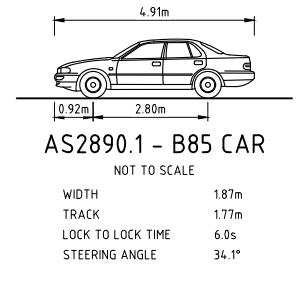
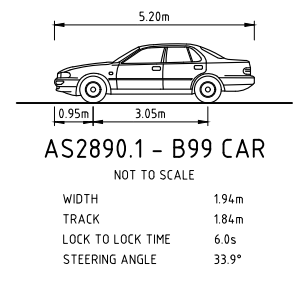
DRAWING TITLE
**CIVIL WORKS
VEHICLE TURNING TEMPLATES
DROP OFF ZONE**

JOB NUMBER CR192316	
DRAWING NUMBER C021	REVISION 4
DRAWING SHEET SIZE = A1	



LEGEND

- DENOTES FRONT WHEEL PATH
- DENOTES REAR WHEEL PATH
- DENOTES VEHICLE BODY OVER HANG
- - - - DENOTES 300mm VEHICLE BODY OFFSET



DRAWN: JCLANCY
 DESIGNED: JCLANCY
 JOB MANAGER: D. FIELD
 VERIFIER:

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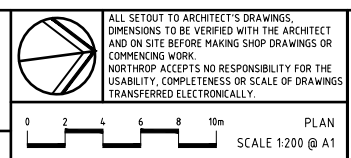
REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	PRELIMINARY	AH	DF		13.11.19
2	PRELIMINARY	JC	WB		27.11.19
3	WORKS APPROVAL	JC	NG		11.12.19
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CLIENT
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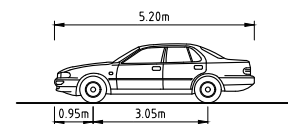
PROJECT
19 NATIONAL CIRCUIT
BLOCK 5, SECTION 22
BARTON

DRAWING TITLE
CIVIL WORKS
VEHICLE TURNING TEMPLATES
B99 PASSING B85
BASEMENT LEVEL 1

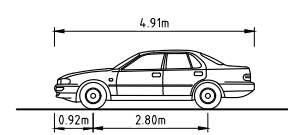
JOB NUMBER CR192316	
DRAWING NUMBER C022	REVISION 4
DRAWING SHEET SIZE = A1	

LEGEND

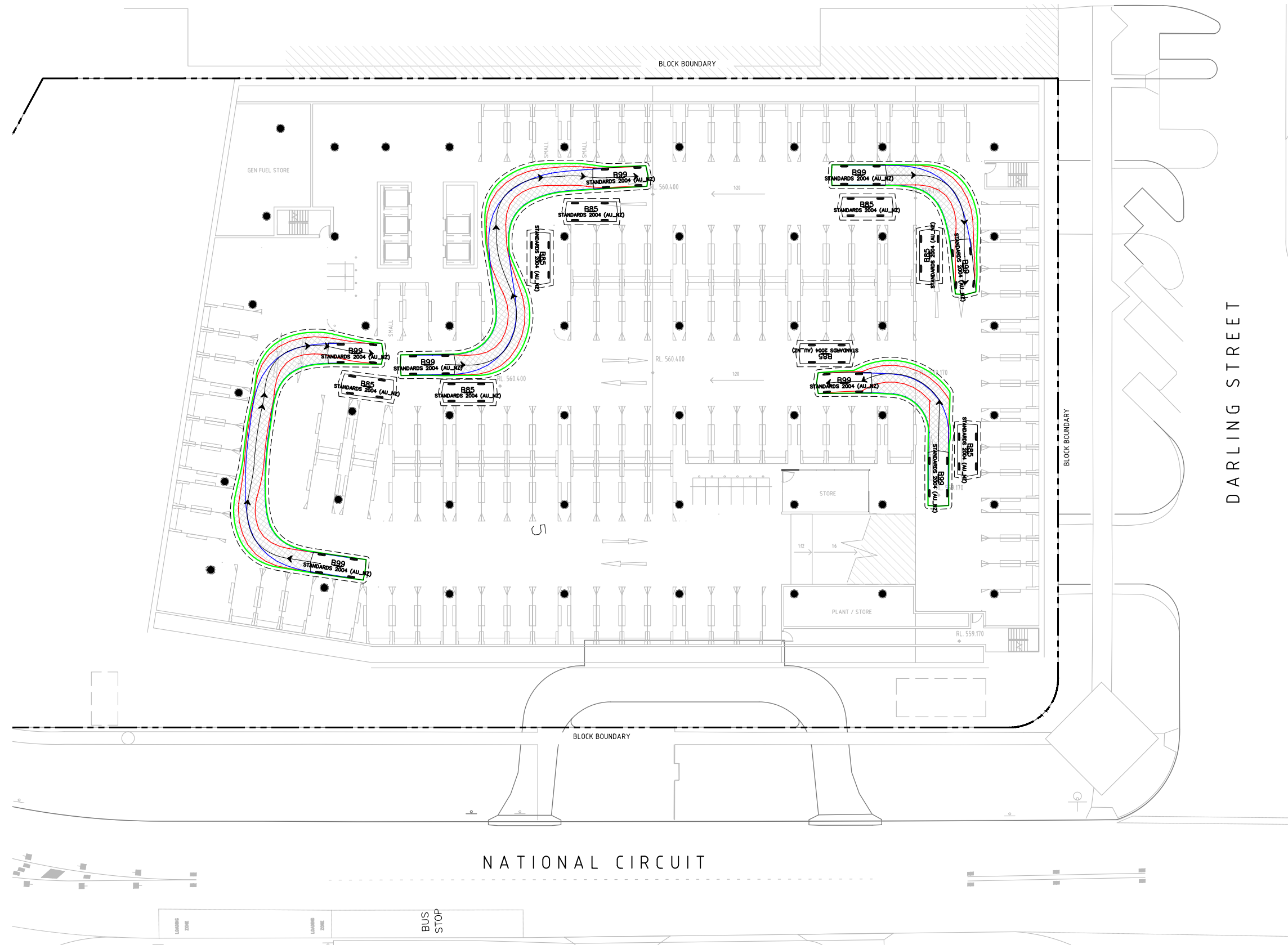
- DENOTES FRONT WHEEL PATH
- DENOTES REAR WHEEL PATH
- DENOTES VEHICLE BODY OVER HANG
- - - DENOTES 300mm VEHICLE BODY OFFSET



AS2890.1 - B99 CAR
 NOT TO SCALE
 WIDTH 1.94m
 TRACK 1.84m
 LOCK TO LOCK TIME 6.0s
 STEERING ANGLE 33.9°



AS2890.1 - B85 CAR
 NOT TO SCALE
 WIDTH 1.87m
 TRACK 1.77m
 LOCK TO LOCK TIME 6.0s
 STEERING ANGLE 34.1°



DRAWN: JCLANCY
 DESIGNED: JCLANCY
 JOB MANAGER: D. FIELD
 VERIFIER:

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1	PRELIMINARY	AH	DF		13.11.19
2	PRELIMINARY	JC	WB		27.11.19
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CROMWELL PROPERTY GROUP

ARCHITECT
NETTLETON TRIBE

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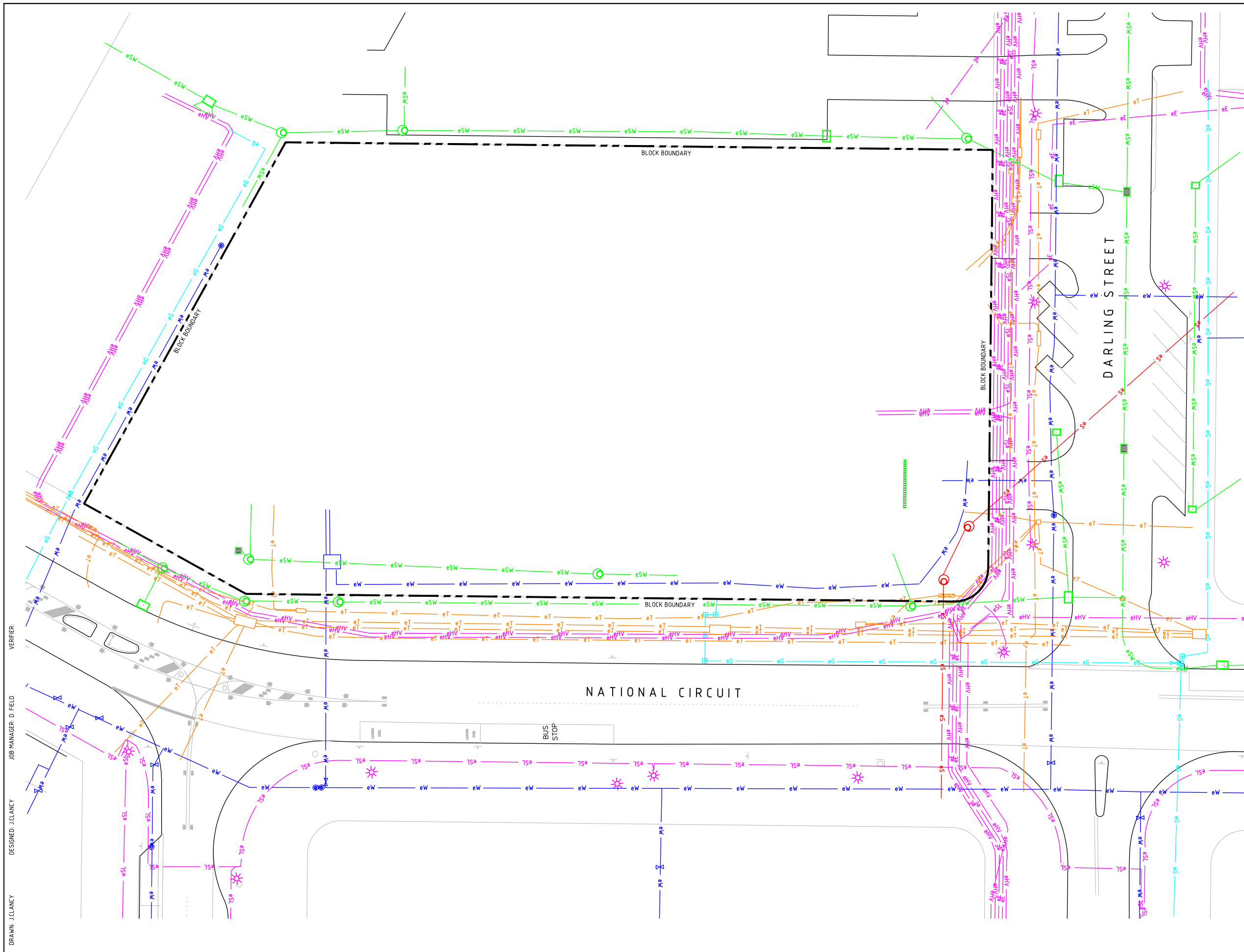
0 2 4 6 8 10m PLAN
 SCALE 1:200 @ A1

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PROJECT
19 NATIONAL CIRCUIT
BLOCK 5, SECTION 22
BARTON

DRAWING TITLE
CIVIL WORKS
VEHICLE TURNING TEMPLATES
B99 PASSING B85
BASEMENT LEVEL 2

JOB NUMBER CR192316	
DRAWING NUMBER C023	REVISION 4
DRAWING SHEET SIZE = A1	



EXISTING SERVICES LEGEND	
	eSW STORMWATER PIPE / MAINTENANCE HOLE / SIDE ENTRY PIT
	eS SEWER PIPE / MAINTENANCE HOLE / HYDRANT
	eW EXISTING FIRE SERVICE / SLUICE VALVE / HYDRANT
	eSL STREETLIGHT SERVICE / LIGHT POLE
	eG GAS SERVICE / VALVE / MARKER
	eT TELSTRA SERVICE / PIT / MINI PILLAR

- GENERAL NOTES**
- REFER SPECIFICATIONS NOTES DRAWING FOR EXISTING SERVICES GENERAL REQUIREMENTS.
 - ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH LOCAL, RELEVANT AUTHORITY SPECIFICATIONS AND DETAILS.
 - ALL EXISTING SERVICES INDICATED ON THE DRAWINGS ORIGINATE FROM SUPPLIED DATA OR DIAL BEFORE YOU DIG SEARCHES, THEREFORE THEIR ACCURACY AND COMPLETENESS IS NOT GUARANTEED. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE AND CONFIRM THE LOCATION AND LEVEL OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF ANY WORK. ANY DISCREPANCIES SHALL BE REPORTED TO THE SUPERINTENDENT. CLEARANCES SHALL BE OBTAINED FROM THE RELEVANT SERVICE AUTHORITY. NOTE SERVICE AUTHORITY REQUIREMENTS FOR LOCATING OF SERVICES PRIOR TO COMMENCEMENT OF WORKS.
 - CONTRACTOR TO ALLOW TO ADJUST AND LIAISE WITH RELEVANT SERVICE AUTHORITIES IN RELATION TO EXISTING SERVICE ADJUSTMENT AND MODIFICATION.
 - ANY EXISTING COVER DEPTHS SHOWN ARE ASSUMPTIONS BASED ON AUTHORITY MINIMUM DESIGN REQUIREMENTS ONLY. ACCURATE CONFIRMATION BY SAFE POT HOLING OF THE EXISTING SERVICES AND CHECKING DEPTHS IS REQUIRED PRIOR TO CONSTRUCTION AT THE CONTRACTOR'S EXPENSE.
 - COVER DEPTHS THAT DIFFER FROM THAT SPECIFIED ARE TO BE REPORTED TO THE SUPERINTENDENT FOR ADVICE ON CONSTRUCTION REQUIREMENTS.

DRAWN: JCLANCY
 DESIGNED: JCLANCY
 JOB MANAGER: D. FIELD
 VERIFIER:



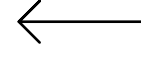
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REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE	CLIENT	ARCHITECT	PROJECT	DRAWING TITLE	JOB NUMBER
1	WORKS APPROVAL	JC		WB	11.12.19	CROMWELL PROPERTY GROUP	NETTLETON TRIBE	19 NATIONAL CIRCUIT BLOCK 5, SECTION 22 BARTON	CIVIL WORKS EXISTING SERVICES PLAN	CR192316
						DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED				DRAWING NUMBER C070
						THE COPYRIGHT OF THIS DRAWING REMAINS WITH NORTHROP CONSULTING ENGINEERS PTY LTD.				REVISION 1
						SCALE 1:250 @ A1				DRAWING SHEET SIZE = A1

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LEGEND

* REFER ARCHITECTURAL DRAWINGS FOR SETOUT



RAMP



FLAT PLATFORM

NOTES:

BULK EARTHWORKS & CIVIL WORKS

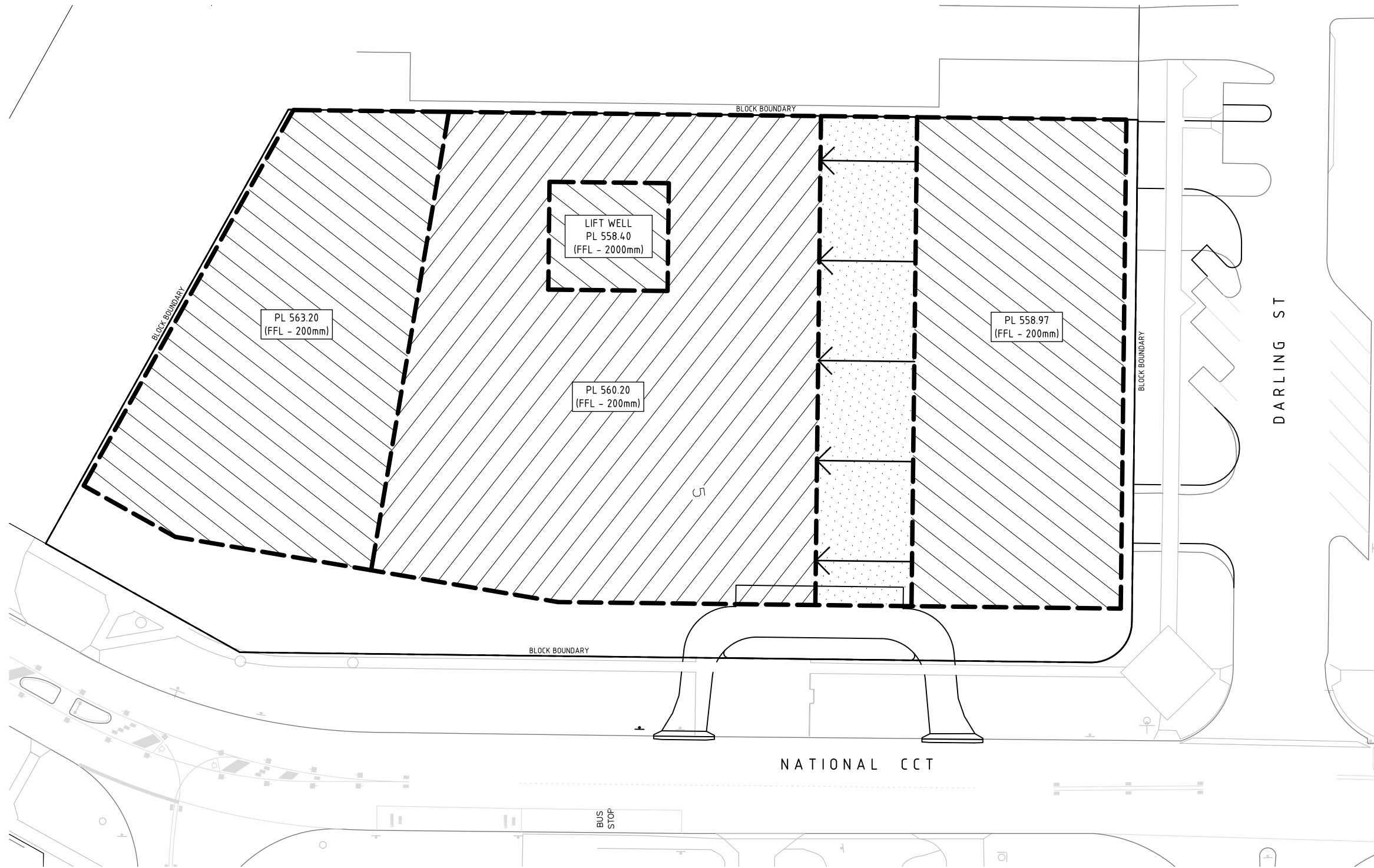
- UNLESS OTHERWISE NOTED, CARRY OUT ALL WORK IN ACCORDANCE WITH TCCS STANDARD SPECIFICATION FOR URBAN INFRASTRUCTURE WORKS.
- CONTRACTOR TO OBTAIN SERVICES CLEARANCES FROM ALL RELEVANT AUTHORITIES PRIOR TO COMMENCING WORKS. UNDERTAKE ALL NECESSARY TEMPORARY WORKS TO PROTECT & MAINTAIN EXISTING SERVICES DURING CONSTRUCTION. RESTORE ALL SERVICES AT THE COMPLETION OF THE WORKS.
- RESTORE ALL PAVED, GRASSED AND LANDSCAPED AREAS OUTSIDE THE BOUNDARY DAMAGED BY THE WORK TO THEIR ORIGINAL CONDITION ON COMPLETION OF WORKS.
- CONFIRM LEVELS ON SITE. IF ANY DISCREPANCIES, CHECK WITH THE SUPERINTENDENT.

POLLUTION CONTROL

- CONTRACTOR TO COMPLY WITH ENVIRONMENTAL PROTECTION ACT 1997 & TAKE OUT ENVIRONMENT PROTECTION AGREEMENT WITH EPA PRIOR TO COMMENCING WORKS.
- ALL EROSION & SEDIMENT CONTROL TO BE CONSTRUCTED IN ACCORDANCE WITH DRAWING C03 AND THE DESIGN MANUAL FOR EROSION & SEDIMENT CONTROL.
- EROSION & SEDIMENT CONTROL MEASURES ARE TO BE MAINTAINED, ADJUSTED AND/OR SUPPLEMENTED THROUGHOUT THE CONSTRUCTION PERIOD AS NECESSARY.

BULK EARTHWORKS PROCEDURE

- INSTALL AGREED POLLUTION CONTROL MEASURES IN ACCORDANCE WITH THE ENVIRONMENTAL PROTECTION AGREEMENT REQUIREMENTS.
 - REMOVE ALL VEGETATION, GRASSING, BUILDERS DEBRIS AND CONCRETE & BITUMEN PAVING. STRIP TOPSOIL FROM VEGETATED AREAS AND SPOIL ALL MATERIALS OFF SITE.
 - REMOVE ALL TREES AND ROOTS EXCEPTING THOSE INTENDED FOR RETENTION. GRUB OUT ROOTS AND STUMPS OVER 75mm DIAMETER TO MINIMUM DEPTH OF 500mm BELOW THE PLATFORM LEVEL. FILL GRUB HOLES AND OTHER VOIDS WITH GENERAL FILL AND COMPACT IN 150mm COMPACTED THICKNESS LAYERS TO THE LEVELS SHOWN ON THE DRAWINGS.
 - PROOF ROLL THE EXPOSED SURFACE WITH AT LEAST A 10 TONNE ROLLER IN THE PRESENCE OF THE ENGINEER TO DETERMINE THE INTEGRITY OF THE EXPOSED SURFACE. CARRY OUT REPLACEMENT AS NECESSARY TO ACHIEVE THE REQUIRED COMPACTION.
 - EXCAVATE AND REPLACE UNSUITABLE SUBGRADE IN SELECT MATERIAL FROM EXCAVATION, PLACED IN 200mm LAYERS, WITH EACH LAYER COMPACTED TO 95% MMD. UNSUITABLE MATERIAL TO BE SPOILED FROM SITE.
 - UNDERTAKE CUT/FILL OPERATIONS TO ESTABLISH THE BUILDING PLATFORM LEVELS NOMINATED.
 - COMPACT THE EXPOSED SURFACE TO THE FOLLOWING CONDITIONS
UNDER FUTURE BUILDINGS
COMPACT TO 95% MODIFIED MAXIMUM DRY DENSITY (MMD)
UNDER FUTURE ROADS/CARPARKING/PAVING
COMPACT TO 90% MMD IF GREATER THAN 600mm BELOW NOMINATED PAVEMENT SUBGRADE LEVEL, OTHERWISE 95%MMD.
OTHER AREAS
COMPACT TO 90% MMD
OMC -1%/+3% DURING COMPACTION
 - MATERIALS WON FROM EXCAVATION CAN BE USED FOR ENGINEERING FILL ON THE FOLLOWING CONDITIONS:
TOPSOIL IS EXCLUDED TOPSOIL MAY BE USED IN LANDSCAPE BATTERS.
FILL MATERIALS MAY BE USED PROVIDED DELETERIOUS MATERIALS ARE REMOVED.
MEDIUM/HIGH PLASTICITY SANDY CLAYS (RESIDUAL SOILS) ARE THOROUGHLY MIXED WITH GRANULAR SOILS.
HIGHLY WEATHERED ROCK/MODERATELY WEATHERED ROCK IS BROKEN DOWN TO PARTICLES WITH A SIZE NO GREATER THAN 100mm BIGGER PARTICLES MUST BE EXCLUDED.
 - FILL MATERIALS TO BE PLACED IN MAXIMUM 200mm LAYERS, EACH LAYER COMPACTED TO THE NOMINATED DENSITY AND MOISTURE CONTENT.
IMPORT FILL TO MAKE UP ANY SHORTFALL. IMPORTED FILL TO COMPLY WITH FOLLOWING SPECIFICATION.
MAXIMUM SIZE 75mm
PASSING 75 MICRON SIEVE - NOT GREATER THAN 25%
PLASTICITY INDEX - LESS THAN 15%
CBR - NO LESS THAN 8.
FREE OF ORGANIC MATTER AND LUMPS OF CLAY.
- TESTING:**
- UNDERTAKE THE FOLLOWING TESTS BY NATA REGISTERED LABORATORY
COMPACTION TESTS - NOT LESS THAN 1 TEST PER 1000m² FOR EACH SUCCESSIVE ODD LAYER
TESTS TO BE TAKEN ON EXPOSED SURFACE
LAYERS No. 1, 3, 5 & EACH SUCCESSIVE ODD LAYER TO OBTAIN REPRESENTATIVE CROSS SECTION
CBR TESTS TO CONFIRM IN-SITU CBR STRENGTH OF CUT & FILL SUBGRADES.
 - FILL TO BE CERTIFIED BY AN APPROPRIATELY QUALIFIED ENGINEER TO LEVEL 1 STANDARD AS DEFINED IN AS 3798.
STOCKPILED TOPSOIL TO BE SPREAD IN LANDSCAPE BATTERS TO FINISH LEVEL.
ALL EXCESS TOPSOIL & FILL MATERIAL TO BE SPOILED FROM SITE IN A LEGAL MANNER.
 - STABILISE ALL EXCAVATION FACES IN ACCORDANCE WITH DETAILS SPECIFIED ON STRUCTURAL ENGINEERS DRAWING.
 - CONTROL ALL RAINWATER & GROUNDWATER SEEPAGE BY PUMPING. COMPLY WITH ALL PROVISIONS OF THE ENVIRONMENT PROTECTION AGREEMENT RELATING TO DISPOSAL OF SITE WATER.
 - TOLERANCES: LEVEL: = +25mm -10mm



DRAWN: J. CLANCY
DESIGNED: J. CLANCY
JOB MANAGER: D. FIELD
VERIFIER:

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	WORKS APPROVAL	JC		WB	11.12.19

CLIENT
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ARCHITECT
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0 2.5 5.0 7.5 10.0 12.5m PLAN
SCALE 1:250 @ A1

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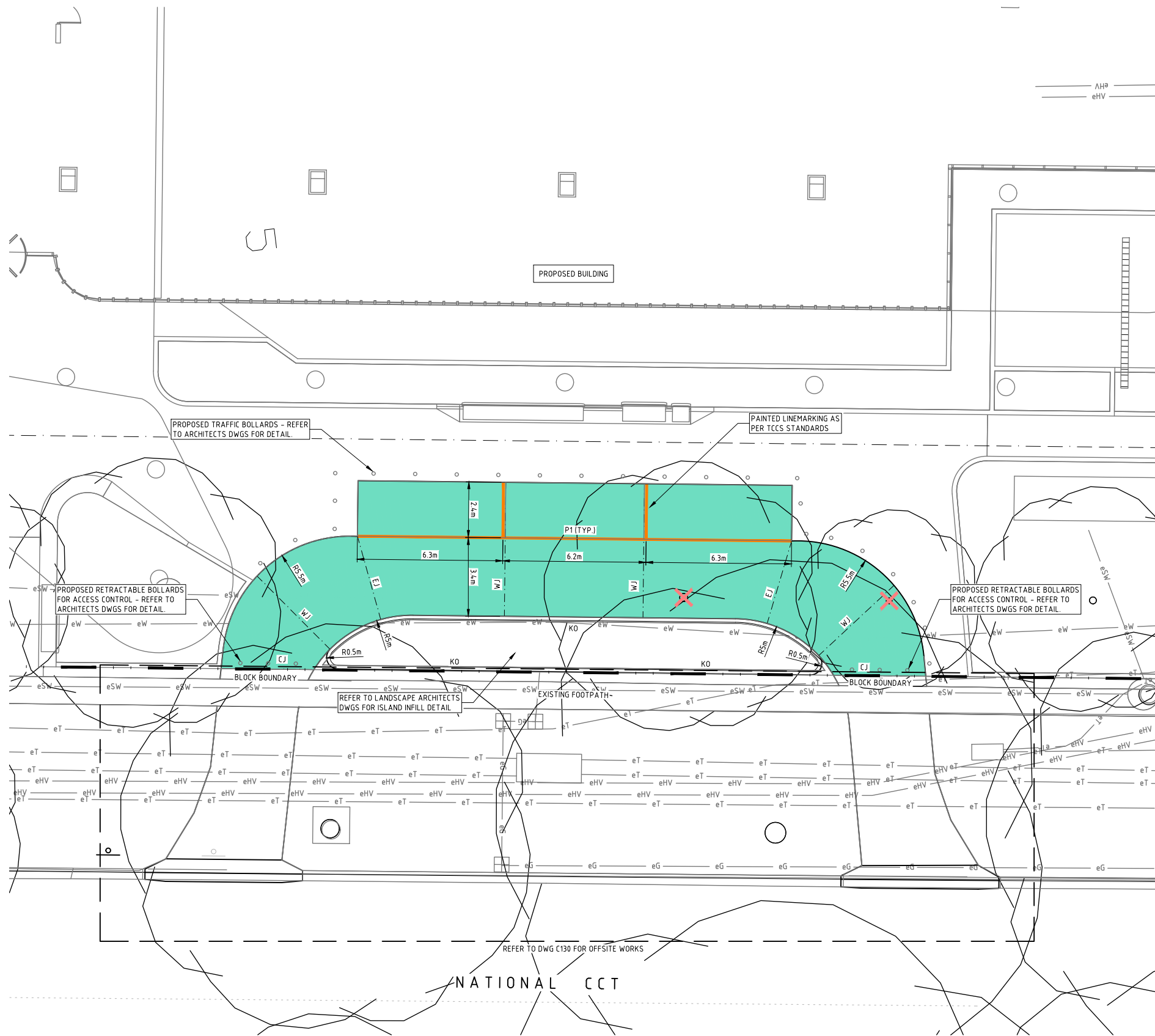
PROJECT
19 NATIONAL CIRCUIT
BLOCK 5, SECTION 22
BARTON

DRAWING TITLE
CIVIL WORKS
CONCEPT BULK EARTHWORKS
PLAN

JOB NUMBER CR192316	
DRAWING NUMBER C100	REVISION 1
DRAWING SHEET SIZE = A1	

LEGEND

- 150mm N32 CONCRETE
1 LAYER SL82 - 50 TOP
FINISH AS PER LANDSCAPE ARCHITECTS SPECIFICATION
100mm DGB20 COMPACTED TO 98% MDD
SUBGRADE COMPACTED TO 95% MDD
- TREE TO BE REMOVED -
REFER LANDSCAPE ARCHITECTS SPECIFICATION
- CJ** CONSTRUCTION JOINT AS PER TCCS STDS
- WJ** WEAKENED PLANE JOINT AS PER TCCS STDS
- EJ** EXPANSION JOINT AS PER TCCS STDS
- KO** KERB ONLY AS PER TCCS STDS



VERIFIER:

JOB MANAGER: D. FIELD

DESIGNED: J. CLANCY

DRAWN: J. CLANCY

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	WORKS APPROVAL	JC		WB	11.12.19
2	WORKS APPROVAL (v2)	JC		JW	28.01.20
3	WORKS APPROVAL (v3)	JC		WB	04.09.20

CLIENT	CROMWELL PROPERTY GROUP
ARCHITECT	NETTLETON TRIBE
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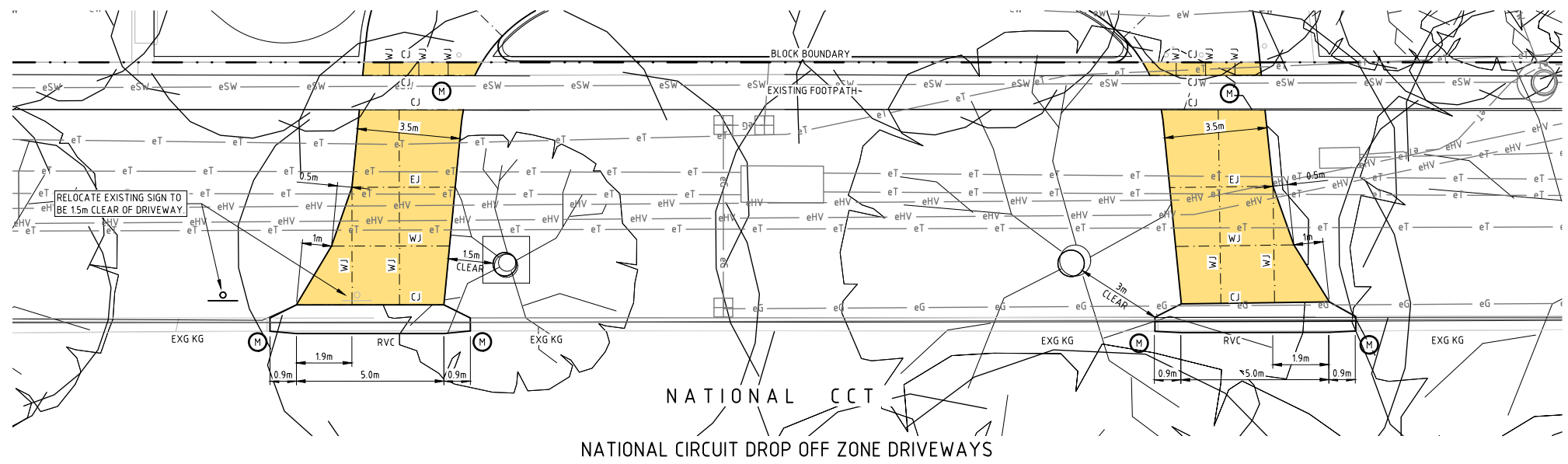
0 1 2 3 4 5m SCALE 1:100 @ A1

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PROJECT	19 NATIONAL CIRCUIT BLOCK 5, SECTION 22 BARTON
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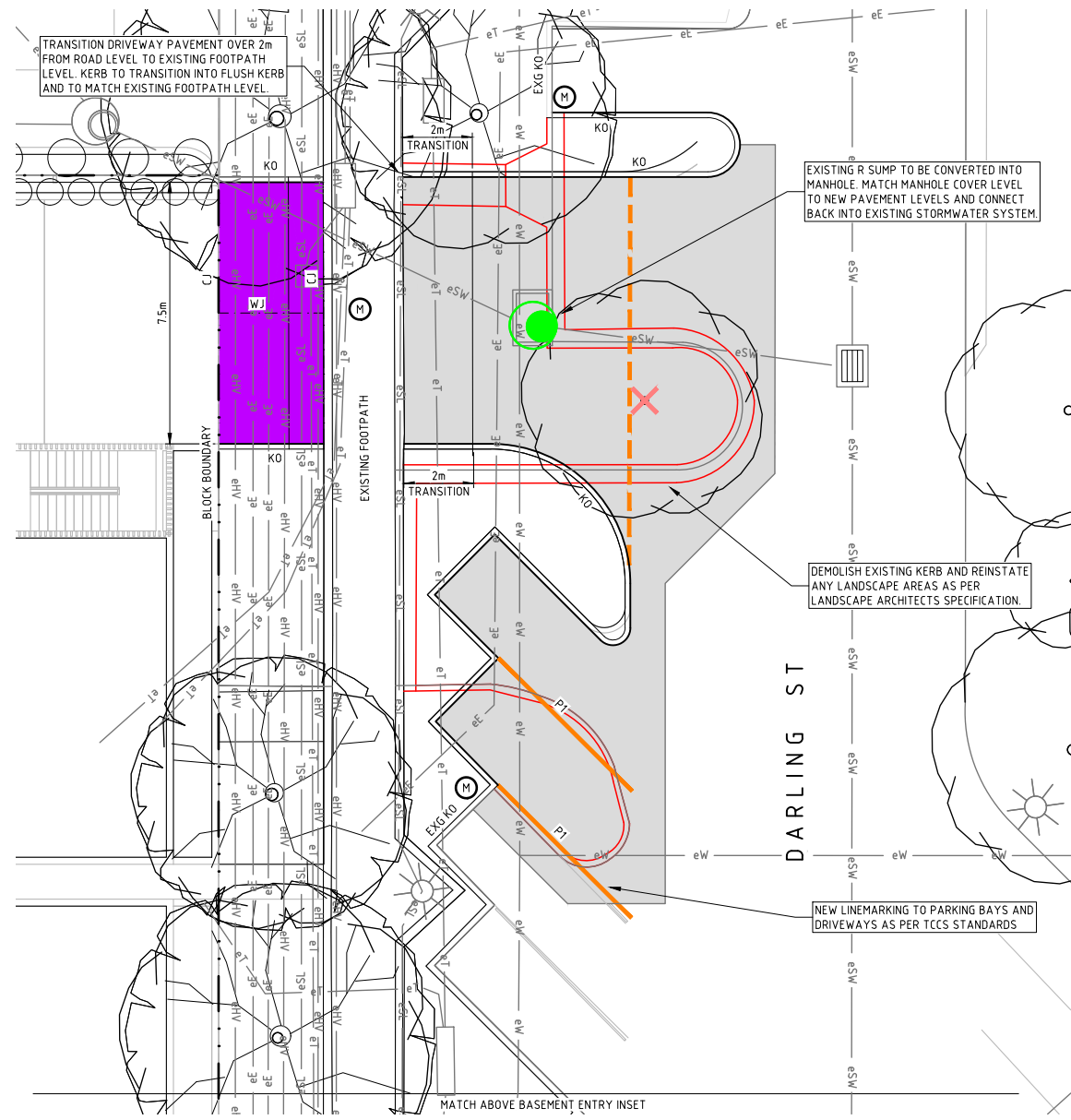
DRAWING TITLE	CIVIL WORKS ONSITE WORKS PLAN
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JOB NUMBER	CR192316
DRAWING NUMBER	C120
REVISION	3
DRAWING SHEET SIZE = A1	

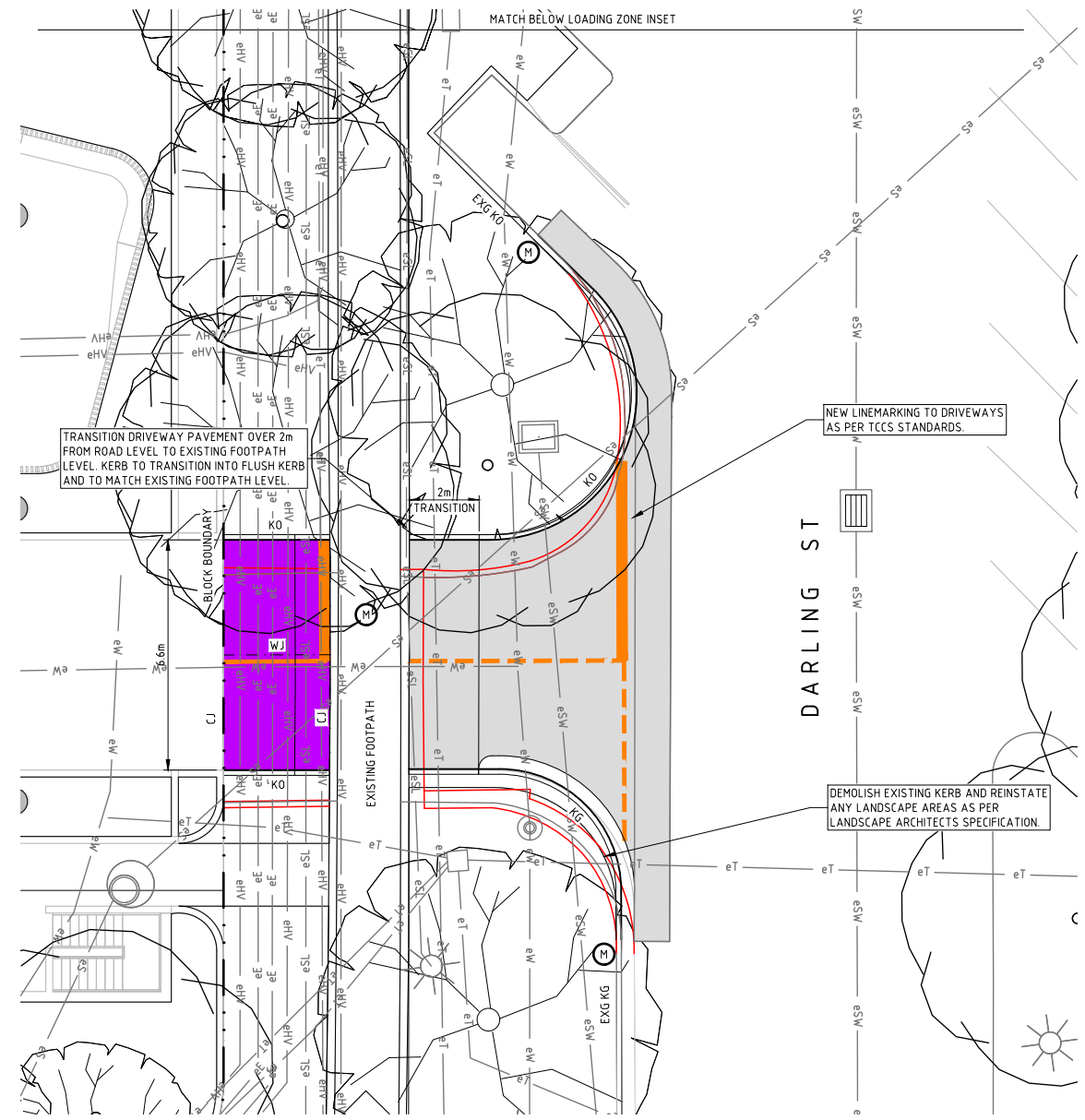


NATIONAL CCT
NATIONAL CIRCUIT DROP OFF ZONE DRIVEWAYS

- LEGEND**
- DRIVEWAY TYPE 1**
150mm N32 CONCRETE
1 LAYER SL82 - 50 TOP
FINISH AS PER LANDSCAPE ARCHITECTS SPECIFICATION
100mm DGB20 COMPACTED TO 98% MDD
SUBGRADE COMPACTED TO 95% MDD
 - DRIVEWAY TYPE 2 / ROAD REINSTATEMENT**
30mm FGGA 10mm, 50, 320 BITUMEN WEARING COURSE
PRIME
120mm DGB20 COMPACTED TO 98% MDD
100mm DGB20 COMPACTED TO 95% MDD
150mm DGS20 COMPACTED TO 98% MDD
SUBGRADE COMPACTED TO 95% MDD
 - DRIVEWAY TYPE 3**
150mm N32 CONCRETE
2 LAYERS SL82 - 50 TOP AND BOTTOM
FINISH AS PER LANDSCAPE ARCHITECTS SPECIFICATION
100mm DGB20 COMPACTED TO 98% MDD
SUBGRADE COMPACTED TO 95% MDD
 - X TREE TO BE REMOVED - REFER LANDSCAPE ARCHITECTS SPECIFICATION
 - CJ CONSTRUCTION JOINT AS PER TCCS STDS
 - WJ WEAKENED PLANE JOINT AS PER TCCS STDS
 - EJ EXPANSION JOINT AS PER TCCS STDS
 - M MATCH TO EXISTING
 - RVC REINFORCED VEHICLE CROSSING AS PER TCCS STDS
 - KO KERB ONLY AS PER TCCS STDS
 - KG KERB AND GUTTER AS PER TCCS STDS



DARLING ST LOADING ZONE DRIVEWAY



DARLING ST BASEMENT ENTRY DRIVEWAY

NOT FOR CONSTRUCTION

DRAWN: JCLANCY DESIGNED: JCLANCY JOB MANAGER: D. FIELD VERIFIER:

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	WORKS APPROVAL	JC		WB	11.12.19
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CLIENT: CROMWELL PROPERTY GROUP
ARCHITECT: NETTLETON TRIBE

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PLAN
SCALE 1:100 @ A1

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PROJECT: 19 NATIONAL CIRCUIT
BLOCK 5, SECTION 22
BARTON

DRAWING TITLE: CIVIL WORKS
OFFSITE WORKS PLAN

JOB NUMBER: CR192316	
DRAWING NUMBER: C130	REVISION: 2
DRAWING SHEET SIZE = A1	