

FOR APPROVAL
SIGNED: *[Signature]* DATE: 01/08/2019

PROPOSED DETAIL DESIGN EARTHWORKS PLANS

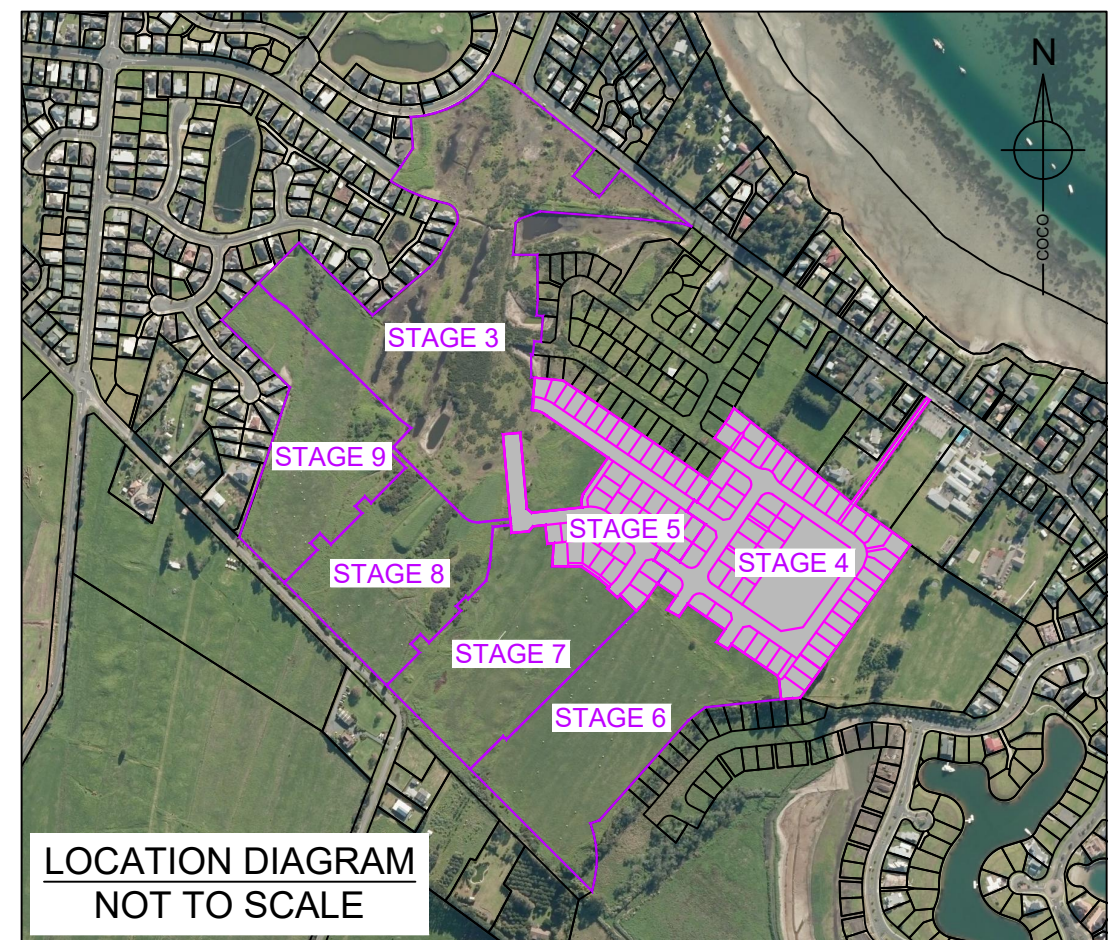
**FOR WFH PROPERTIES LTD,
THE LANDING, STAGES 4 & 5,
ONE TREE POINT**

WDC REF: SD1800110

JOB NO:14333-004
DATE: 01 AUGUST 2019

SCHEDULE OF DRAWINGS		
SHEET #	TITLE	REV
EW000	COVER SHEET & LOCATION DIAGRAM	A
EW001	GENERAL NOTES	A
EW100	EXISTING SITE PLAN - STAGE 4	A
EW200	SCHEME PLAN - ENTIRE SITE	A
EW201	SCHEME PLAN - STAGE 3	A
EW300	EROSION SEDIMENT CONTROL PLAN	A
EW301	EROSION SEDIMENT CONTROL PLAN - SAND BORROW PIT AREA	A
EW310	EROSION SEDIMENT CONTROL TYPICAL DETAILS - SHEET 1	A
EW311	EROSION SEDIMENT CONTROL TYPICAL DETAILS - SHEET 2	A
EW312	EROSION SEDIMENT CONTROL TYPICAL DETAILS - SHEET 3	A
EW313	EROSION SEDIMENT CONTROL TYPICAL DETAILS - SHEET 4	A
EW400	FINISHED LEVELS PLAN	A
EW410	PEAT STRIP PLAN	A
EW411	PEAT STRIP PLAN - SAND BORROW PIT AREA	A
EW420	SAND BULK EARTHWORKS PLAN	A
EW421	SAND BULK EARTHWORKS PLAN - SAND BORROW PIT AREA	A

IMPORTANT NOTE: PRODUCER STATEMENTS
PS4 WILL NOT BE ISSUED AT COMPLETION OF WORKS UNLESS ALL REQUIRED TESTS AND INSPECTIONS HAVE BEEN NOTIFIED TO COOK COSTELLO AND COMPLETED DURING CONSTRUCTION



LOCATION DIAGRAM
NOT TO SCALE

DWG NUMBER	REV.
EW000	A

GENERAL

- G1: THIS SET OF DRAWINGS IS TO BE READ IN CONJUNCTION WITH THE PROJECT SPECIFICATION AND ALL OTHER CONTRACT DRAWINGS.
- G2: THE DRAWINGS ARE A DIAGRAMMATIC REPRESENTATION OF THE WORK TO BE CARRIED OUT ONLY AND DIMENSIONS SHALL NOT BE OBTAINED BY SCALING.
- G3: ALL DISCREPANCIES SHALL BE REFERRED TO THE ENGINEER FOR DECISIONS BEFORE PROCEEDING WITH THE WORK.
- G4: THE CONTRACTOR IS TO CONFIRM THE LOCATION AND LEVEL OF ALL UNDERGROUND SERVICES PRIOR TO UNDERTAKING ANY EARTHWORKS OR FOUNDATION CONSTRUCTION.
- G5: ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE CURRENT CODES OF PRACTICE EXCEPT WHERE VARIED BY THE PROJECT SPECIFICATION AND/OR DRAWINGS:
 - NZS 3101:2017 CONCRETE STRUCTURES STANDARD
 - NZS 3109 CONCRETE CONSTRUCTION
 - NZS 3121 WATER AND AGGREGATE FOR CONCRETE
 - AS/NZS 4671 STEEL REINFORCING MATERIALS
- G6: GENERAL ABBREVIATIONS
 - NTS - NOT TO SCALE
 - UNO - UNLESS NOTED OTHERWISE
 - FFL - FINISHED FLOOR LEVEL
 - EGL - EXISTING GROUND LEVEL
 - FGL - FINISHED GROUND LEVEL
- G7: WHERE PROPRIETARY PRODUCTS ARE SPECIFIED IN THE DOCUMENTS THE CONTRACTOR MAY SUBMIT AN ALTERNATIVE PRODUCT FOR APPROVAL AND SUBJECT TO WDC APPROVAL.
- G8: ALL WORKS ARE TO COMPLY WITH THE HEALTH & SAFETY AT WORK ACT 2015.
- G9: ALL WORKS TO COMPLY WITH THE WHANGAREI DISTRICT COUNCIL (WDC) ENGINEERING STANDARDS 2010, THE WDC QUALITY ASSURANCE / QUALITY CONTROL MANUAL VESTED ASSETS, THE WDC ENGINEERING PLAN APPROVAL LETTER, AND NZS4404:2010.
- G10: WDC STANDARD DETAILS HAVE NOT BEEN INDEPENDENTLY VERIFIED BY COOK COSTELLO. WE HAVE ACCEPTED THAT THEY WILL PERFORM FOR THE REQUIRED LIFE EXPECTANCY AS STATED IN THE WDC EES 2010. WE ACCEPT NO LIABILITY IF THE STANDARD DETAILS DO NOT ACHIEVE THIS DESIGN LIFE.
- G11: WDC INSPECTIONS REQUIRED IN ACCORDANCE WITH EES, ONLY WDC APPROVED CONTRACTORS TO WORK ON WDC RETICULATION (OR THAT TO VEST), REINSTATEMENT, WRITTEN APPROVAL PRIOR TO UNDERTAKING WORKS WITHIN PRIVATE PROPERTY, WORKS ARE TO COMPLY WITH EES, CONTRACTOR IS RESPONSIBLE FOR LOCATING SERVICES PRIOR TO EXCAVATION, AS-BUILT REQUIREMENTS ETC. WDC TO PROVIDE WRITTEN CERTIFICATION WHERE THEY UNDERTAKE TESTING AND INSPECTION.
- G12: THE CONTRACTOR MUST REINSTATE AND/OR REPAIR DAMAGE TO THE KERB & CHANNELING AND FOOTPATH ALONG THE PROPERTY ROADSIDE FRONTAGE. REFER EES 2010 (CLAUSE 1.10.9).
- G13: SITE SURVEY, EXISTING SEWER, STORMWATER, AND POTABLE WATER, BASED ON DIGITAL AS-BUILT DATA RECEIVED. COORDINATES ARE IN TERMS OF NZGD 2000 MT EDEN CIRCUIT 2000. VERTICAL DATUM IN TERMS OF ONE TREE POINT 1964. ALL LEVELS AND CONNECTION POINTS TO BE CHECKED AND CONFIRMED ON SITE PRIOR TO CONSTRUCTION.
- G14: EROSION CONTROL - ALL SILT CONTROL MEASURES SHALL BE PLACED PRIOR TO COMMENCEMENT OF EARTHWORKS. SUCH MEASURES SHALL BE SUBJECT TO FURTHER ADDITIONS AND ALTERATIONS, WHERE CONSIDERED NECESSARY, AS DIRECTED BY THE PROJECT MANAGER OR COUNCIL, DURING THE PROGRESSION OF WORKS. IT IS ADVISED TO CONTACT NRC PRIOR TO COMMENCEMENT OF EARTHWORKS, AFTER INSTALLATION OF EROSION AND SEDIMENT CONTROL DEVICES TO ENSURE THEY HAVE BEEN INSTALLED TO THE SATISFACTION OF NRC.

EARTHWORKS

- E1: ALL PROJECT PAVEMENT SIZES AND DETAILS INDICATED IN THIS DRAWING SET ARE BASED ON A CBR OF 6%.
- E2: ALL SITE EARTHWORKS ARE TO BE CARRIED OUT IN ACCORDANCE WITH THE REQUIREMENTS OF NZS4431. SOIL BEARING CAPACITY IS TO BE VERIFIED UPON COMPLETION OF SITE EARTHWORKS AND DURING FOUNDATION EXCAVATION TO ENSURE ACTUAL SITE CONDITIONS ARE COMPATIBLE WITH THE INFERRED GEOTECHNICAL MODEL. OVER EXCAVATION AND BACKFILLING WITH ENGINEERED FILL OR SITE CONCRETE MAY BE NECESSARY WHERE SOFT SOIL / FILL IS ENCOUNTERED WITH PRIOR VARIATION APPROVAL.
- E3: COMPACTION IN BASE OF PIPE TRENCHES TO ACHIEVE CLEGG 10.
- E4: NES VALIDATION TESTING TO BE UNDERTAKEN BY A CONTAMINATED LAND SQEP ON TOPSOIL STOCKPILES PRIOR TO USE OR SPREADING. TESTING SHALL BE UNDERTAKEN IN ACCORDANCE WITH THE GUIDELINES SET OUT WITHIN CONTAMINATED LAND MANAGEMENT GUIDELINE NO 5. SITE VALIDATION REPORT IS TO BE COMPLETED PRIOR TO COMPLETION OF WORKS AND SUBMITTED TO COUNCIL.

INSPECTIONS / SITE VISITS REQUIRED

- I1: PRE-CONSTRUCTION SITE MEETING WITH CONTRACTOR, ENGINEER AND WDC PRESENT. NRC TO BE INFORMED OF WORKS ON SITE PRIOR TO COMMENCING WORKS.
- I2: STRIPPED GROUND INSPECTIONS OF ROADS, ROW'S, CROSSING AND SITE FILL AREAS.
- I3: CONTROLLED FILL TESTING TO BRING FILL UP TO SUBGRADE LEVELS TO BE CONSTRUCTED IN 200mm MAX LIFTS AND TESTED EVERY 600mm.
- I4: FINAL INSPECTION WITH, ENGINEER AND CONTRACTOR TO ENSURE ALL WORKS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE APPROVED ENGINEERING PLANS FOR FINAL SIGNOFF.


ASBUILT CHECKLIST

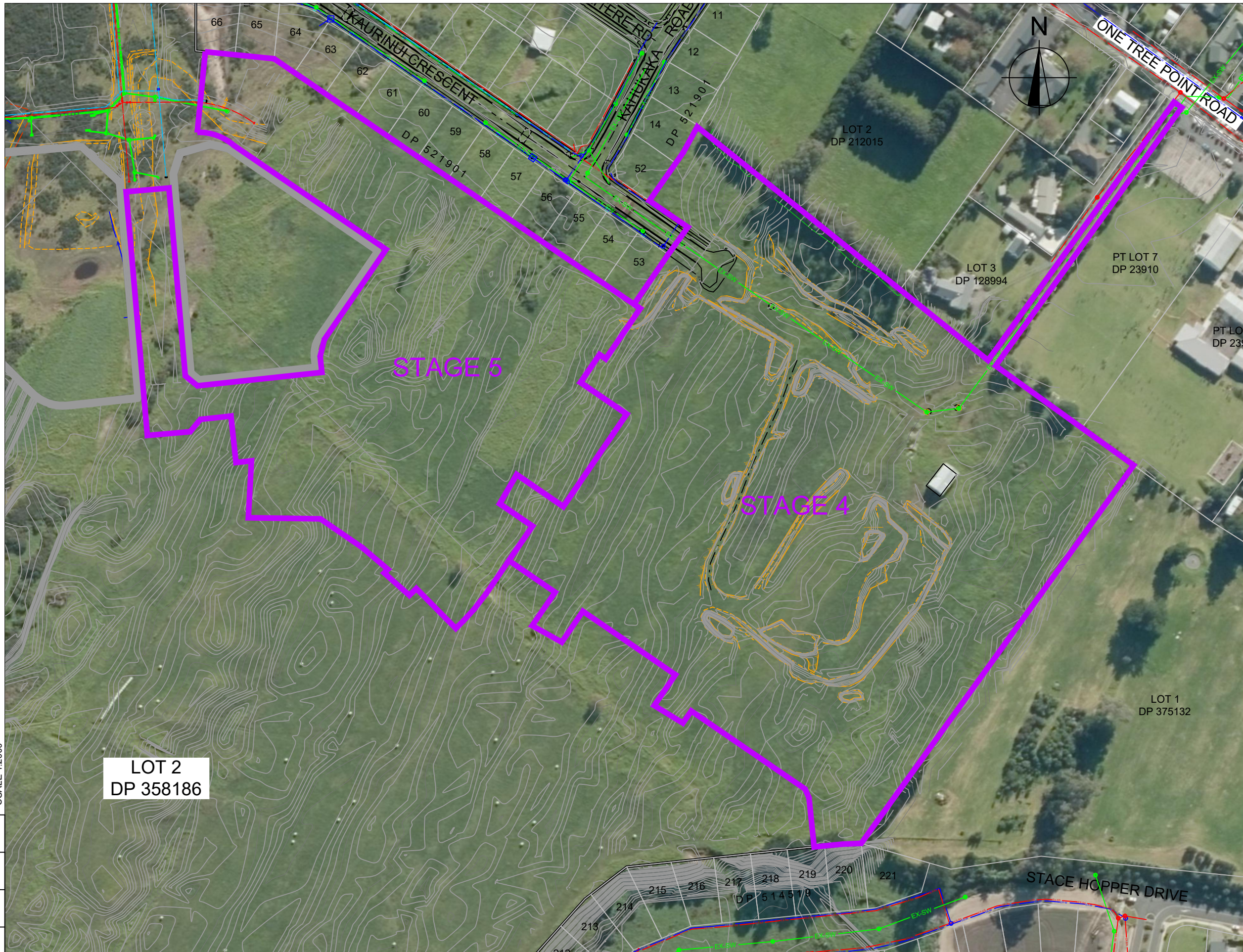
- AB1: PEAT STRIP SURFACE AND UNDERCUT OF UNSUITABLE MATERIAL (IF ANY).
- AB2: SUBGRADE BULK EARTHWORKS SAND SURFACE .
- AB3: PEAT AND TOPSOIL RESPREAD


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NOT FOR CONSTRUCTION

 Whangarei Auckland Wellington Christchurch	C			PROJECT DETAILS		DATE CREATED	DRAWN	DESIGNED	APPROVED	
				WFH PROPERTIES LIMITED THE LANDING ONE TREE POINT RUAKAKA	STAGE 4 & 5 DETAIL DESIGN COVER SHEET CONSTRUCTION NOTES	01-08-2019	K HANSARD	A PARKER	G McGREGOR	
		B					CCL REF NO	SCALE	STATUS	
		A	1ST ISSUE	01-08-19 KH GM			14333-004	NTS @ A3	FOR APPROVAL	
	REV.	REVISION DETAILS	DRAWN APP.			DWG NUMBER	REVISION			
						EW001	A			



NOTES:
 1. SEE GENERAL NOTES SHEET EW001.
 2. CONTOURS ARE AT 0.2m INTERVALS.

- LEGEND:**
- CONTOURS MAJOR
 - CONTOURS MINOR
 - 187.5 CONTOUR LABELS
 - FENCES
 - TOP OF BANK
 - BOTTOM OF BANK
 - DRAIN
 - WATER EDGE
 - PARCEL BOUNDARY
 - ABUTALL BOUNDARY
 - EDGE OF SEAL
 - EDGE OF METAL
 - KERB
 - EDGE OF FOOTPATH
 - EX-SW EXISTING STORM WATER
 - EX-SS EXISTING SEWER
 - W EXISTING WATER
 - EXISTING POWER
 - C EXISTING CHORUS
 - ⊙ EX STORMWATER MANHOLE
 - ⊙ EX SEWER MANHOLE
 - ⊙ LIGHT POLE
 - ⊙ POWER POLES
 - ⊙ EP POWER PILLAR
 - ⊙ T TELECOM DOME
 - ⊙ TP TELEPHONE POLE
 - ⊙ S SIGN POST
 - ⊙ CESSPIT / SUMP
 - ⊙ W WATER METER
 - ⊙ H FIRE HYDRANT
 - ⊙ V VALVE
 - ⊙ GATE

NOT FOR CONSTRUCTION

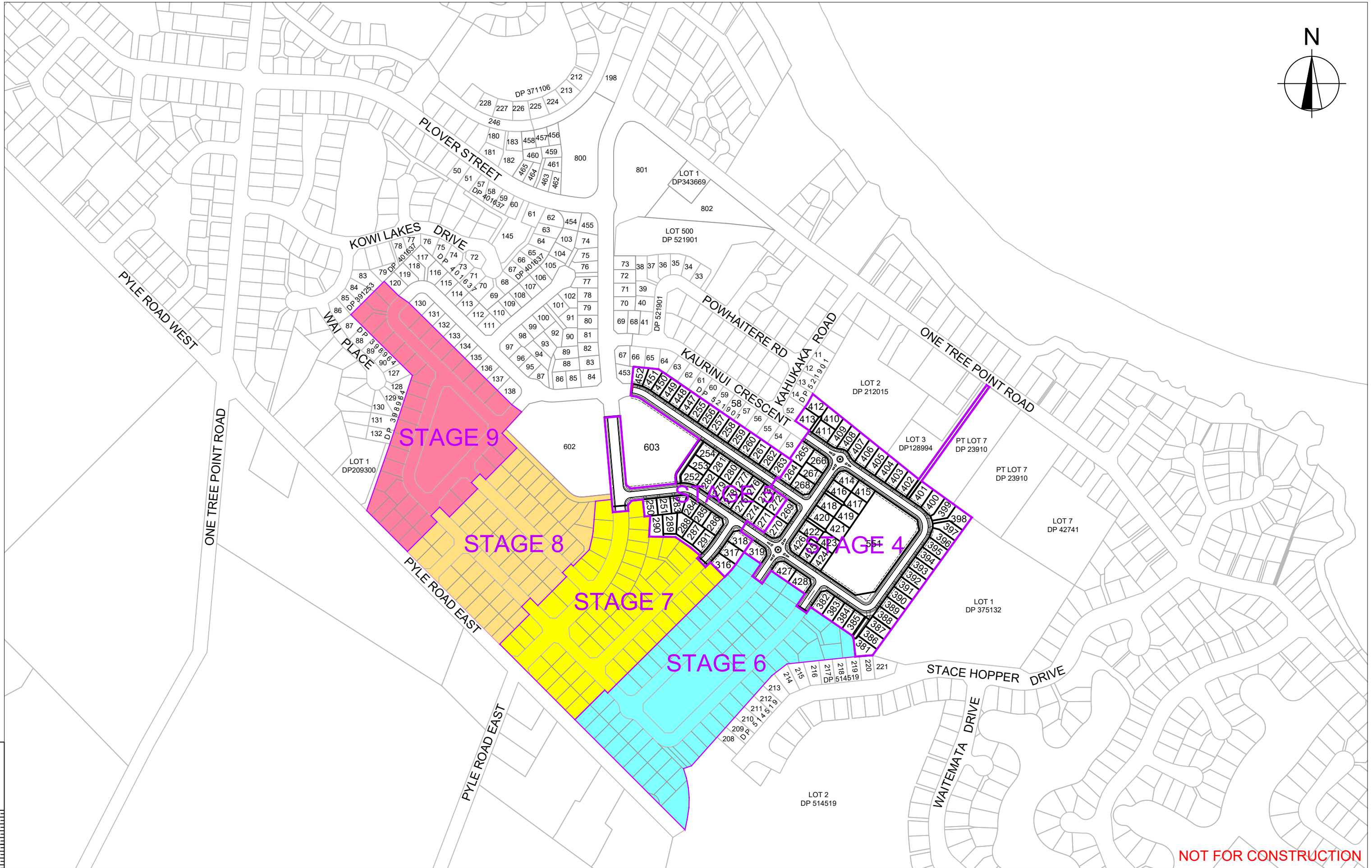
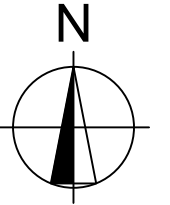
100 SCALE 1:2000
80
60
40
20
0



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A	1ST ISSUE	01-08-19	BG GM
REV.	REVISION DETAILS	DRAWN	APP.

PROJECT DETAILS	TITLE
WFH PROPERTIES LIMITED THE LANDING STAGE 4 ONE TREE POINT ROAD	EXISTING SITE PLAN STAGES 4 & 5

DATE CREATED	DRAWN	DESIGNED	APPROVED
01-08-2019	BG	AP	GM
CCL REF NO	SCALE	STATUS	
14333-004	1:2000 @ A3	FOR APPROVAL	
DWG NUMBER	REVISION		
EW100	A		



0 100 200 SCALE 1:5000



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B		
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PROJECT DETAILS
WFH PROPERTIES LIMITED
 THE LANDING
 ONE TREE POINT
 RUAKAKA

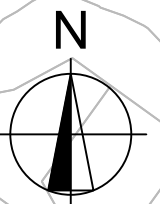
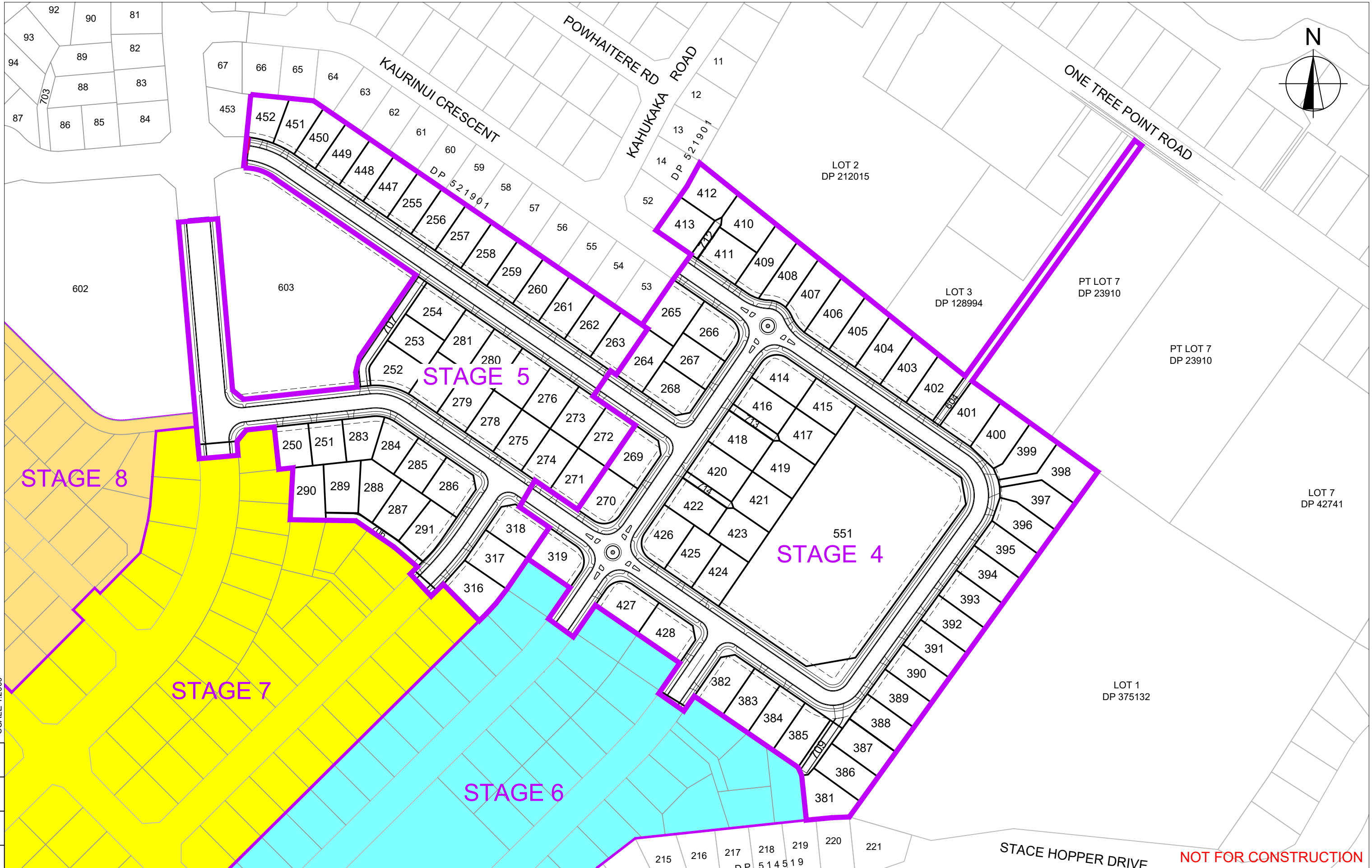
TITLE
STAGE 4 & 5 DETAIL DESIGN
 PROPOSED LAYOUT
 OVERVIEW

DATE CREATED 01-08-2019	DRAWN BG	DESIGNED AP	APPROVED GM
CCL REF NO 14333-004	SCALE 1:5000 @ A3	STATUS FOR APPROVAL	
DWG NUMBER EW200	REVISION A		

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0 100 200 SCALE 1:5000

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100 SCALE 1:2000

0 20 40 60 80 100 SCALE 1:2000



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A	1ST ISSUE	01-08-19	BG GM
REV.	REVISION DETAILS		DRAWN APP.

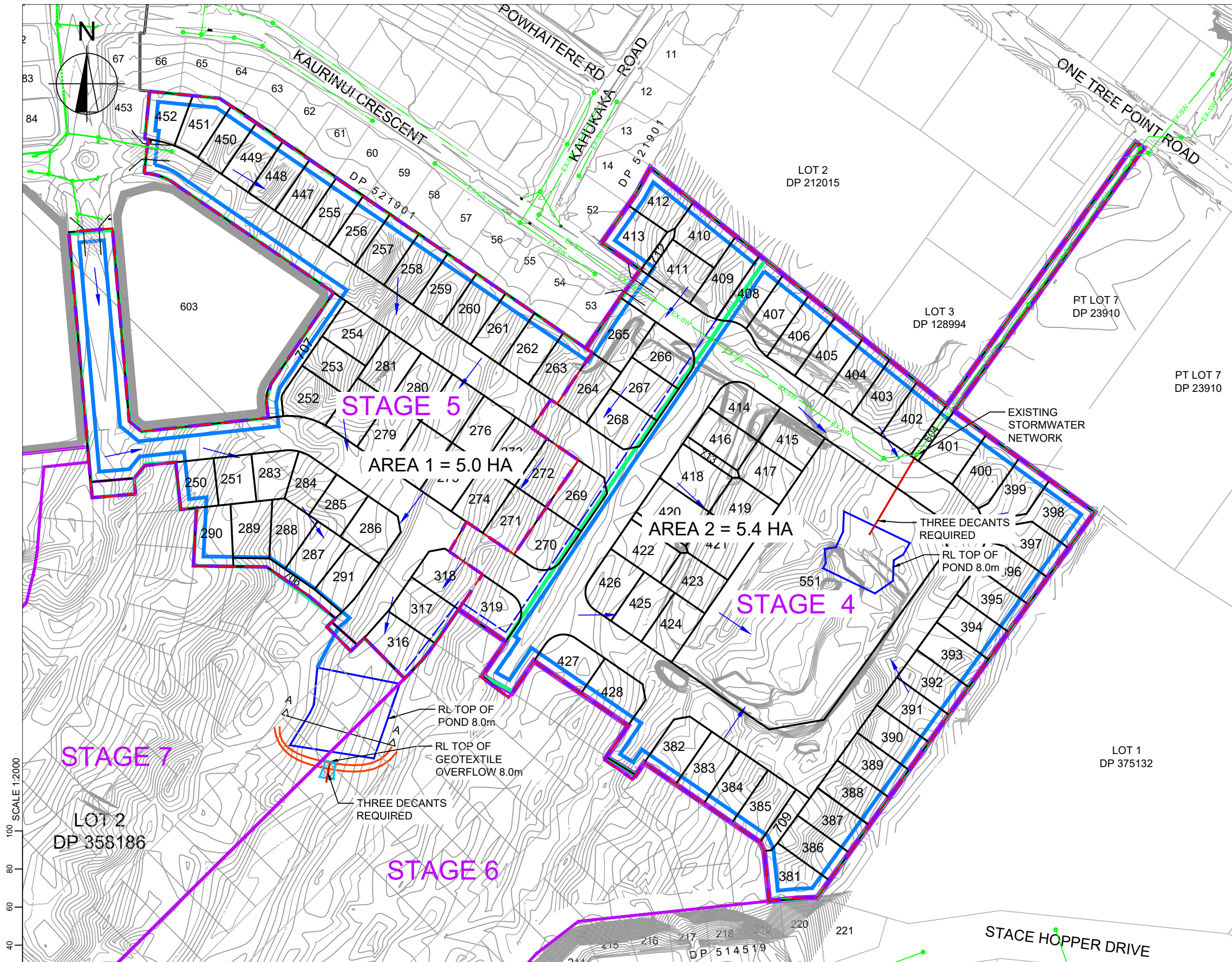
PROJECT DETAILS
WFH PROPERTIES LIMITED
 THE LANDING
 ONE TREE POINT
 RUAKAKA

TITLE
STAGE 4 & 5 DETAIL DESIGN
 PROPOSED LAYOUT
 STAGES 4 & 5

DATE CREATED 01-08-2019	DRAWN BG	DESIGNED AP	APPROVED GM
CCL REF NO 14333-004	SCALE 1:2000 @ A3	STATUS FOR APPROVAL	
DWG NUMBER EW201	REVISION A		

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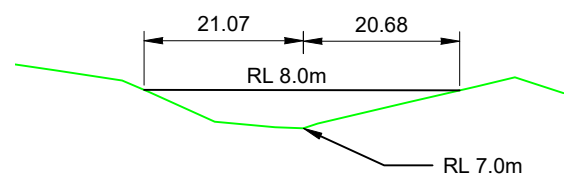
- NOTES:**
- SEE CONSTRUCTION NOTES SHEET EW001.
 - CONTOURS ARE AT 0.2m INTERVALS.
 - ALL 1 IN 1 BATTERS TO HAVE A TEMPORARY SAFETY FENCE ERECTED AT TOP OF BATTER OR OTHER APPROVED SAFETY MANAGEMENT PLAN.

- KEY:**
- POND
 - DIRTY WATER DIVERSION
 - STORMWATER CATCHMENT AREA
 - EARTH BUND WITH DECANT
 - STABILISED CONSTRUCTION ENTRANCE
 - STORMWATER FLOW
 - STAGE BOUNDARY
 - GEOTECH PROTECTED OVERFLOW
 - PROPOSED STORMWATER
 - PROPOSED MANHOLE
 - EXISTING STORMWATER
 - EARTH BUND

SEDIMENT POND CALCULATIONS:
VOLUME REQUIRED = 200m³/HA

CATCHMENT AREA 1:
CONTRIBUTING CATCHMENT AREA = 5.0HA
POND VOLUME REQUIRED = 1000m³

CATCHMENT AREA 2:
CONTRIBUTING CATCHMENT AREA = 5.4HA
POND VOLUME REQUIRED = 1080m³



SECTION A-A
HORIZONTAL SCALE 1:1000, VERTICAL SCALE 1:200

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SCALE 1:2000

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SCALE 1:2000

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PROJECT DETAILS

WFH PROPERTIES LIMITED
THE LANDING
ONE TREE POINT
RUAKAKA

TITLE









STAGE 4 & 5 DETAIL DESIGN
EROSION SEDIMENT CONTROL
OVERVIEW

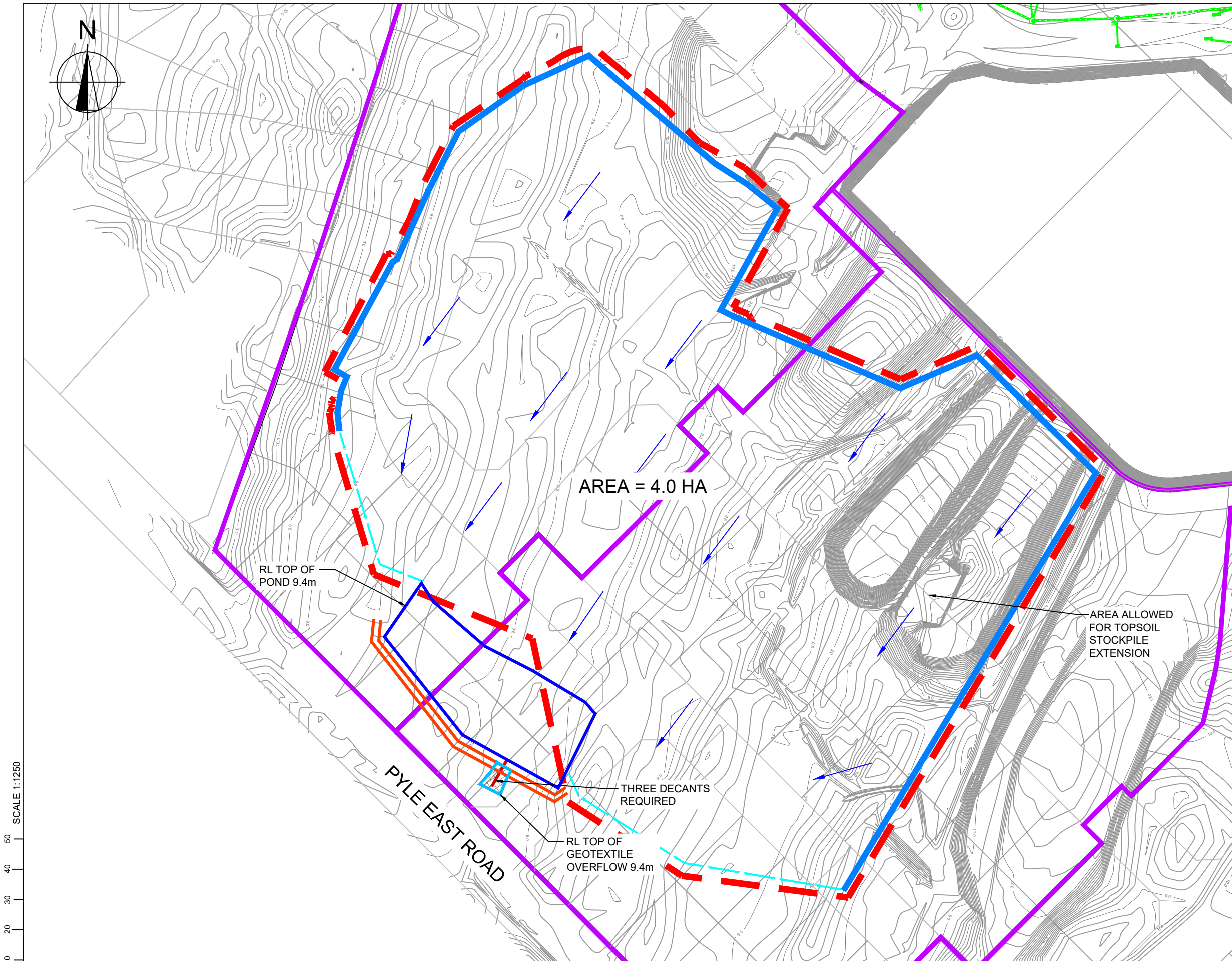
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CCL REF NO	14333-004	SCALE	1:2000 @ A3	STATUS	FOR APPROVAL		
DWG NUMBER	EW300	REVISION	A				

DO NOT REPRODUCE WITHOUT WRITTEN AUTHORITY



- NOTES:**
- SEE CONSTRUCTION NOTES SHEET EW001.
 - CONTOURS ARE AT 0.2m INTERVALS.
 - ALL 1 IN 1 BATTERS TO HAVE A TEMPORARY SAFETY FENCE ERECTED AT TOP OF BATTER OR OTHER APPROVED SAFETY MANAGEMENT PLAN.

- KEY:**
-  POND
 -  DIRTY WATER DIVERSION
 -  EARTH BUND WITH DECANT
 -  STORMWATER FLOW
 -  EXTENT OF EARTHWORKS
 -  GEOTECH PROTECTED OVERFLOW
 -  EARTH BUND
 -  STAGE BOUNDARY



SEDIMENT POND CALCULATIONS:
VOLUME REQUIRED = 200m³/HA

CATCHMENT AREA :
CONRTIBUTING CATCHMENT AREA = 4.0HA
POND VOLUME REQUIRED = 800m³

SCALE 1:1250
0 10 20 30 40 50



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PROJECT DETAILS

WFH PROPERTIES LIMITED
THE LANDING
ONE TREE POINT
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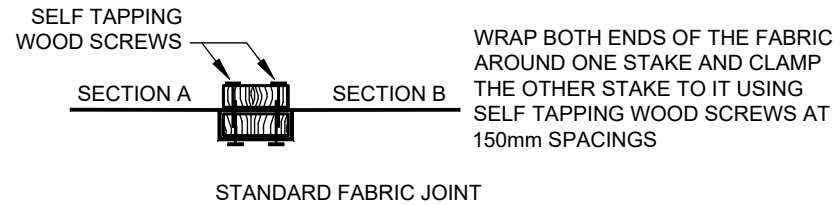
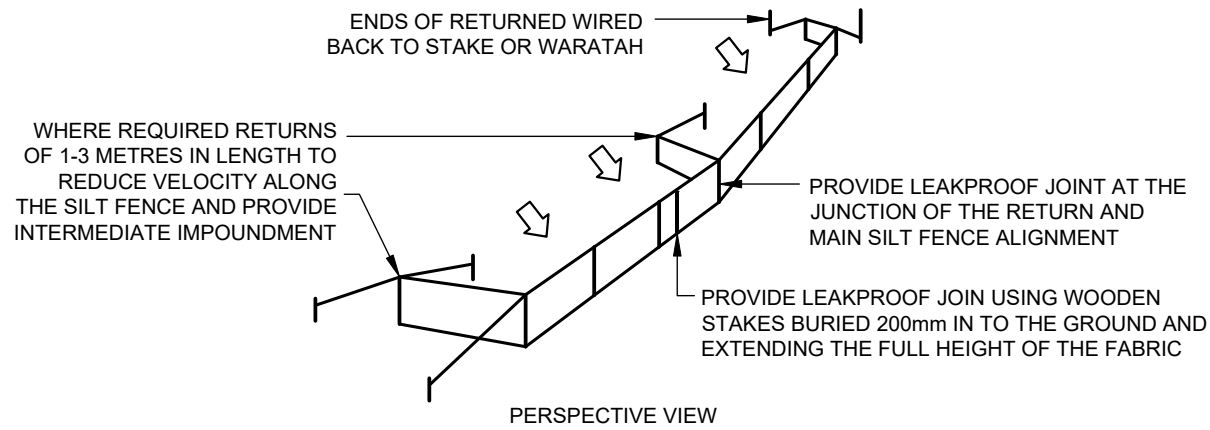
TITLE

STAGE 4 & 5 DETAIL DESIGN
EROSION SEDIMENT CONTROL
SAND BORROW PIT AREA

DATE CREATED	DRAWN	DESIGNED	APPROVED
01/08/2019	BG	GM	GM
CCL REF NO	SCALE	STATUS	
14333-004	1:1250 @ A3	FOR APPROVAL	
DWG NUMBER	REVISION		
EW301	A		

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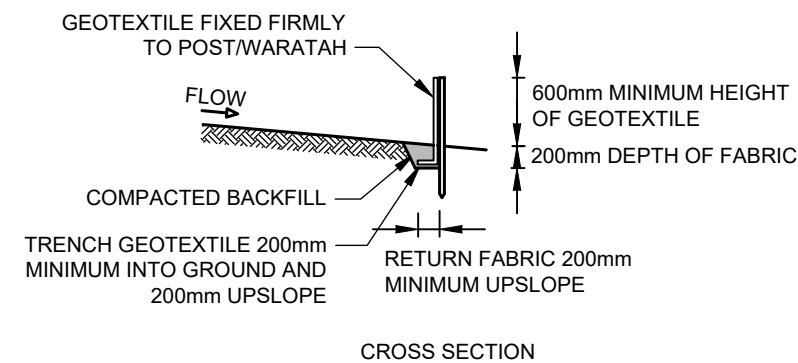
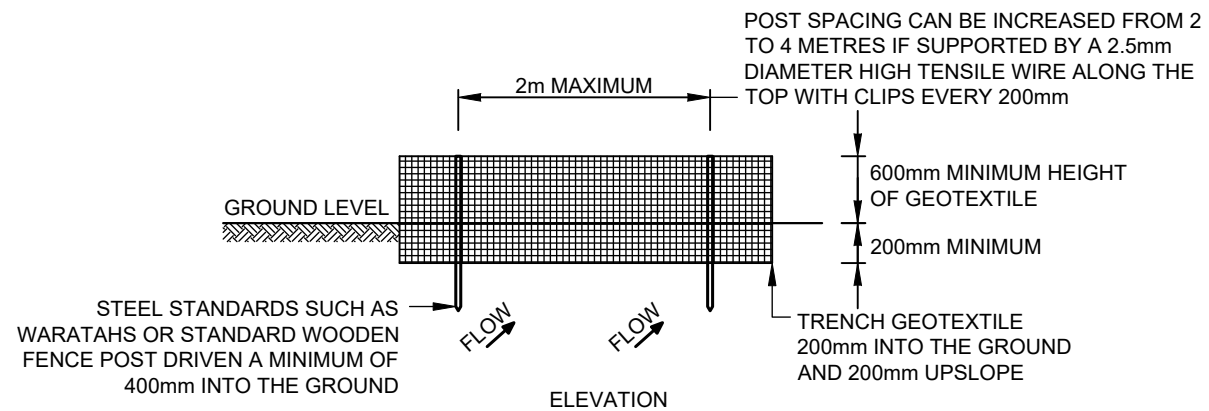
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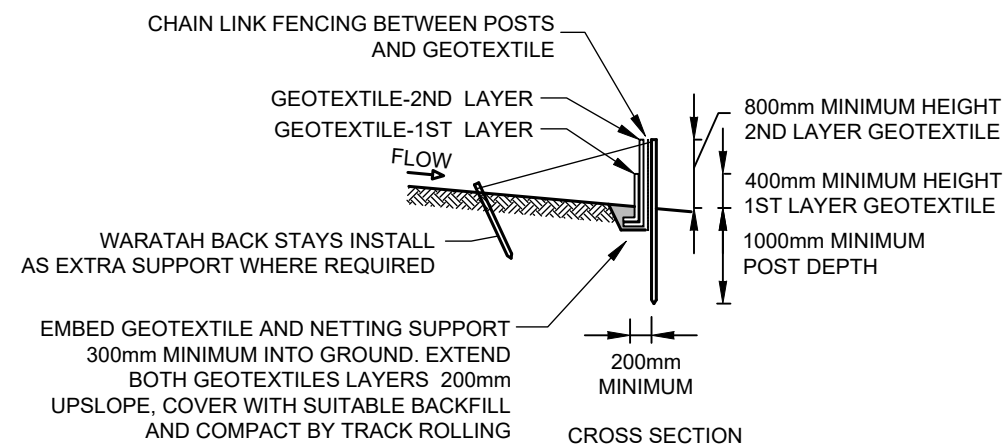
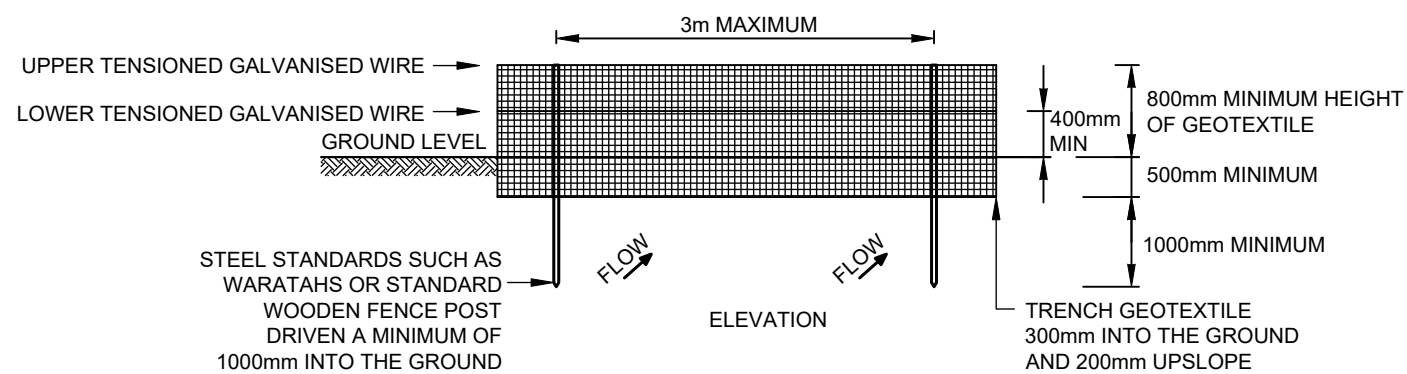
SILT FENCE DESIGN CRITERIA:

SLOPE STEEPNESS %	SLOPE LENGTH (m) (MAX)	SPACING OF RETURNS (m)
< 2%	N/A	UNLIMITED
2-10%	40	60
10-20%	30	50
20-33%	20	40
33-50%	15	30
>50%	6	20

GRAB TENSILE STRENGTH: >440N (ASTM D4632)
 TENSILE MODULUS: 0.140 pa (MINIMUM)
 APPARENT OPENING SIZE: 0.1-0.5mm (ASTM D4751)



SILT FENCE CONSTRUCTION (IF REQUIRED)



SUPER SILT FENCE CONSTRUCTION (IF REQUIRED)

SUPER SILT FENCE DESIGN CRITERIA:

SLOPE STEEPNESS %	SLOPE LENGTH (m) (MAX)	SPACING OF RETURNS (m)
0-10%	UNLIMITED	60
10-20%	60	50
20-33%	30	40
33-50%	30	30
>50%	15	20

SILT FENCE CONSTRUCTION IF REQUIRED

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G. M. MCGREGOR
WDC IQP#002

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REV.	REVISION DETAILS	DRAWN	APP.
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		01-08-19	

PROJECT DETAILS
 WFH PROPERTIES LIMITED
 THE LANDING
 ONE TREE POINT
 RUAKAKA

TITLE
 STAGE 4 & 5 DETAIL DESIGN
 EROSION SEDIMENT CONTROL DETAILS
 SHEET 1

DATE CREATED	DRAWN	DESIGNED	APPROVED
01-08-2019	K HANSARD	AP	GM
CCL REF NO	SCALE	STATUS	
14333-004	NTS @ A3	FOR APPROVAL	
DWG NUMBER	REVISION		
EW310			A

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**STABILISED CONSTRUCTION ENTRANCE
SPECIFICATIONS:**

APPLICATION

USE A STABILISED CONSTRUCTION ENTRANCE AT ALL POINTS OF CONSTRUCTION SITE INGRESS AND EGRESS WITH A CONSTRUCTION PLAN LIMITING TRAFFIC TO THESE ENTRANCES ONLY. THEY ARE PARTICULARLY USEFUL ON SMALL CONSTRUCTION SITES BUT CAN BE UTILISED FOR ALL PROJECTS.

DESIGN:

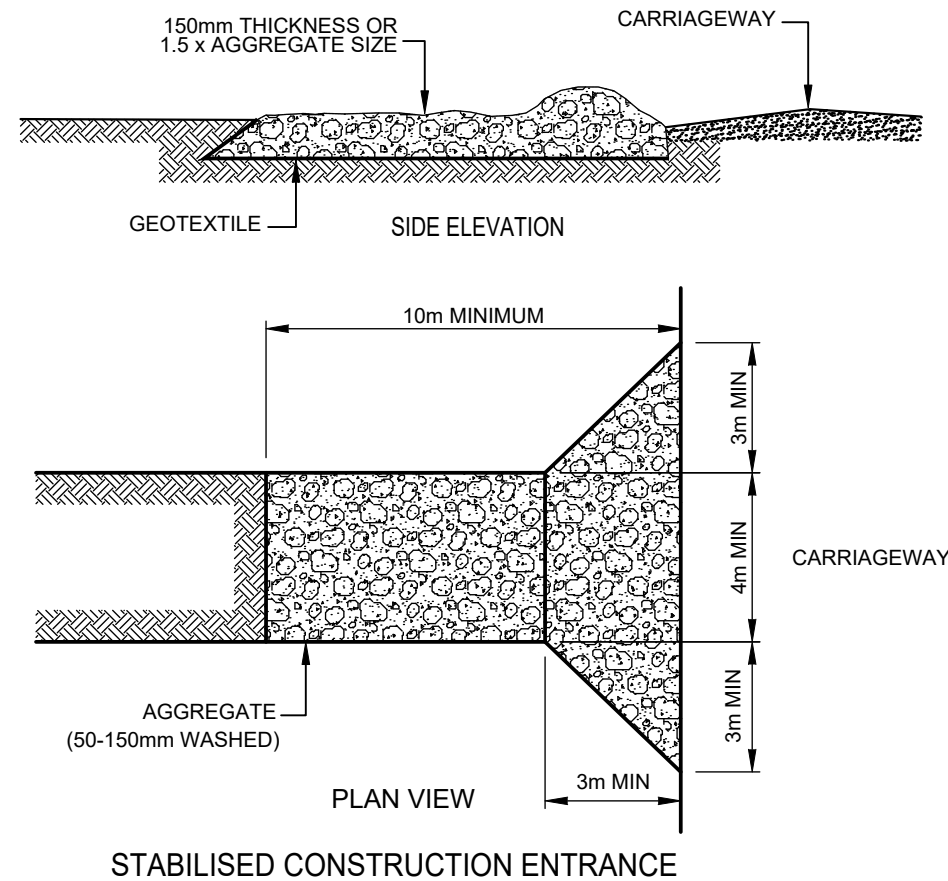
CLEAR THE ENTRANCE AND EXIT AREA OF ALL VEGETATION, ROOTS AND OTHER UNSUITABLE MATERIAL AND PROPERLY GRADE IT.

1. LAY WOVEN GEOTEXTILE; PIN DOWN EDGES AND OVERLAP JOINTS.
2. PROVIDE DRAINAGE TO CARRY RUNOFF FROM THE STABILISED CONSTRUCTION ENTRANCE TO A SEDIMENT CONTROL MEASURE.
3. PLACE AGGREGATE TO THE SPECIFICATIONS BELOW AND SMOOTH IT.
4. STABILISED CONSTRUCTION ENTRANCE AGGREGATE SPECIFICATIONS:

AGGREGATE SIZE	5-150mm WASHED AGGREGATE
THICKNESS	150mm MINIMUM OR 1.5 X AGGREGATE SIZE
LENGTH	10m MINIMUM LENGTH RECOMMENDED
WIDTH	4m MINIMUM

MAINTENANCE

1. MAINTAIN THE STABILISED CONSTRUCTION ENTRANCE IN A CONDITION TO PREVENT SEDIMENT FROM LEAVING THE CONSTRUCTION SITE. AFTER EACH RAINFALL INSPECT ANY STRUCTURE USED TO TRAP SEDIMENT FROM THE STABILISED CONSTRUCTION ENTRANCE AND CLEAN OUT AS NECESSARY.
2. WHEN WHEEL WASHING IS ALSO REQUIRED, ENSURE THIS IS DONE ON AN AREA STABILISED WITH AGGREGATE WHICH DRAINS TO AN APPROVED SEDIMENT RETENTION FACILITY.



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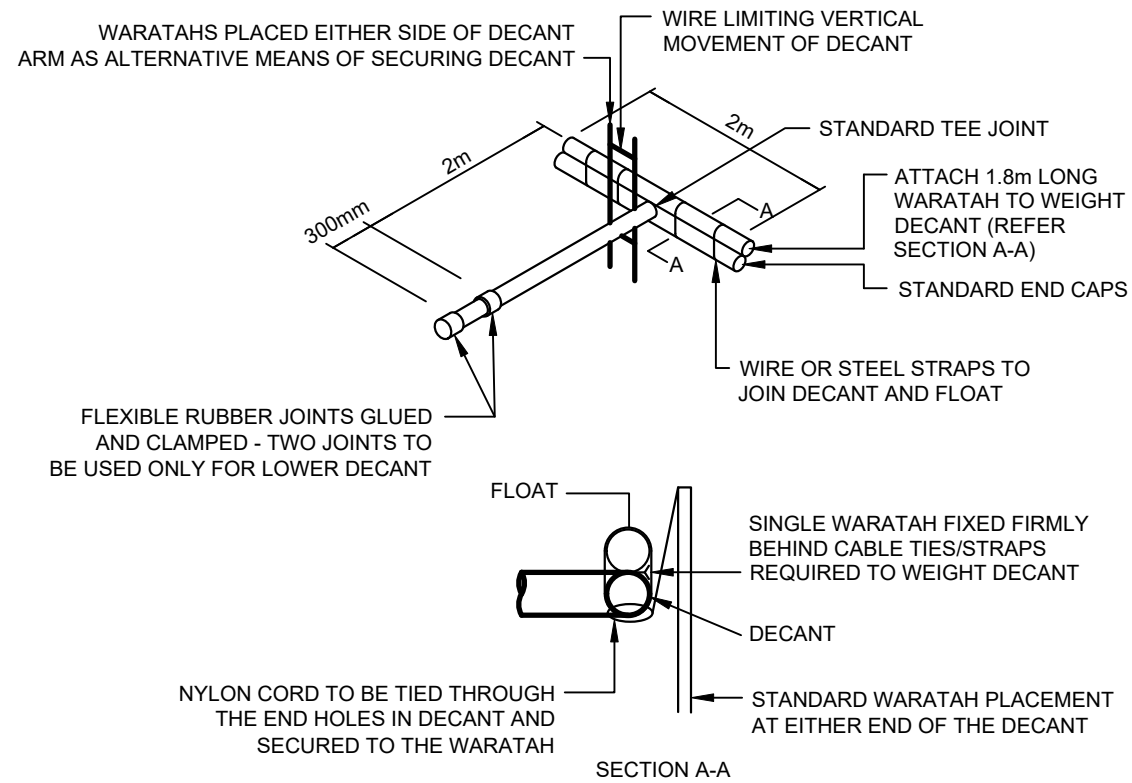
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REV.	REVISION DETAILS	DRAWN	APP.

PROJECT DETAILS
WFH PROPERTIES LIMITED THE LANDING ONE TREE POINT RUAKAKA

TITLE
STAGE 4 & 5 DETAIL DESIGN EROSION SEDIMENT CONTROL DETAILS SHEET 2

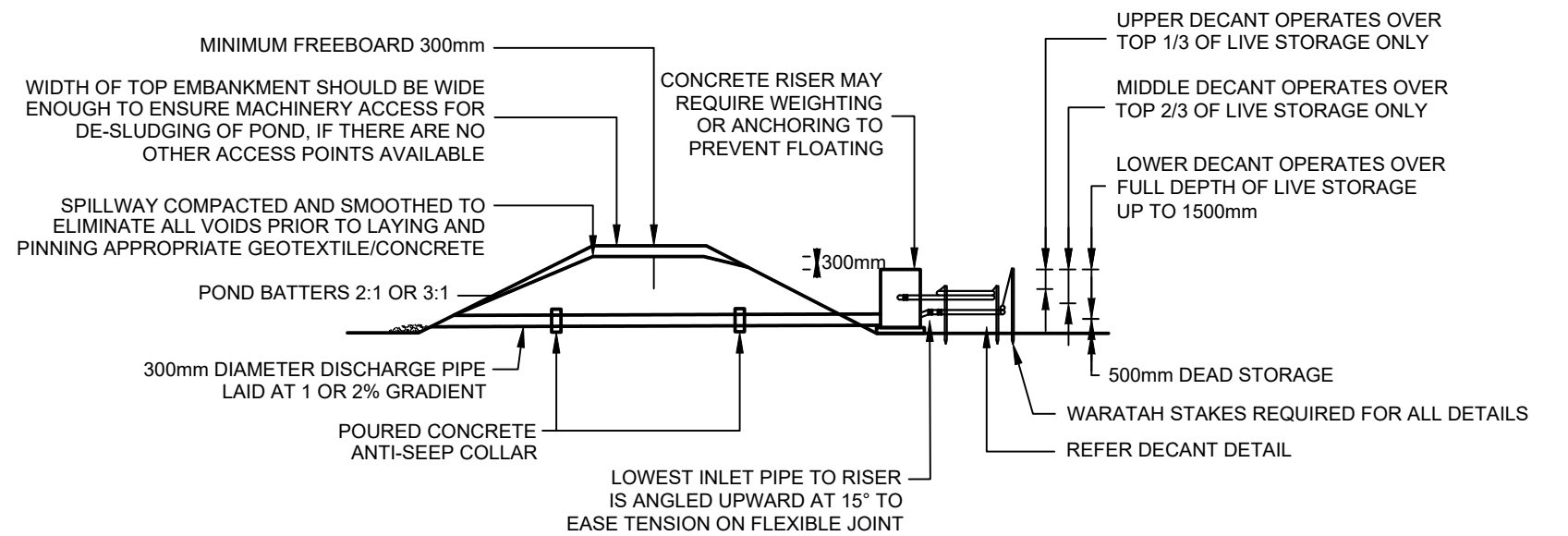
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01/08/2019	BG	GM	GM
CCL REF NO	SCALE	STATUS	
14333-004	NTS @ A3	FOR APPROVAL	
DWG NUMBER	REVISION		
EW311	A		



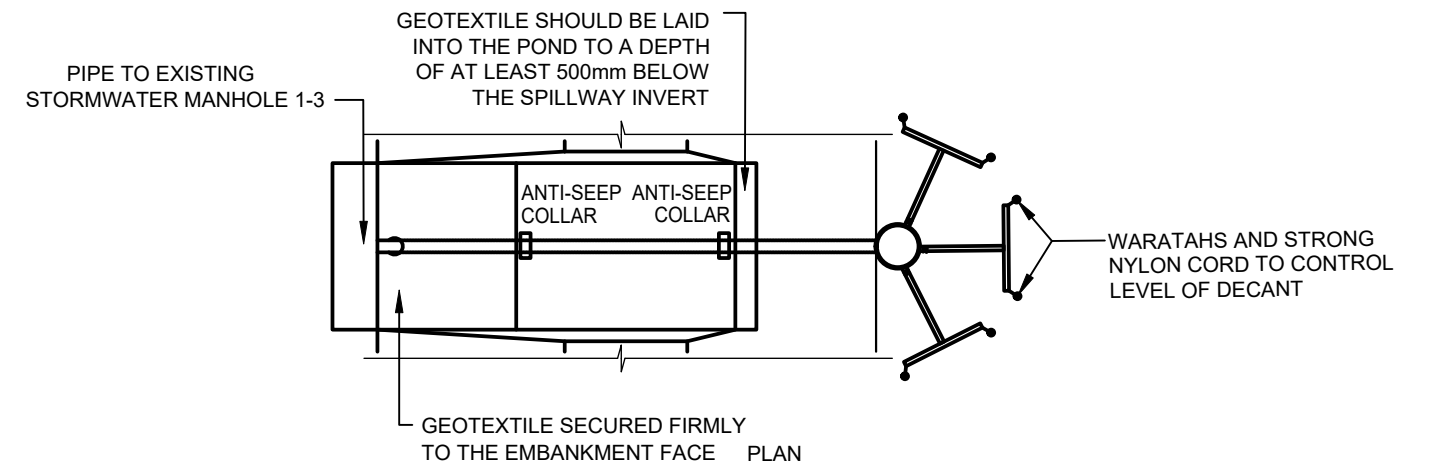
SEDIMENT RETENTION POND - DECANT DETAIL

NOTE: THE 100mm DIAMETER PVC PIPE UPSTAND IS ONLY REQUIRED WHERE THE 2m WIDE EMERGENCY SPILLWAY DISCHARGES TO VULNERABLE AREA OR WHERE THE DISCHARGE IS REQUIRED TO BE PIPED TO A SAFE OUTFALL SUCH AS A STORMWATER MANHOLE. IF THE UPSTAND IS NOT REQUIRED THE DECANT CAN BE CONNECTED DIRECT TO A 40mm DIAMETER OUTFALL PIPE AND THE TREATMENT VOLUME IS MEASURED TO THE INVERT OF THE EMERGENCY SPILLWAY.

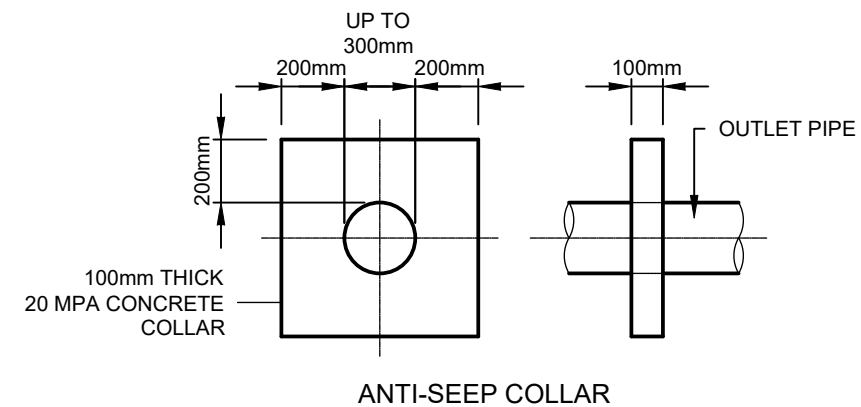
NOTE: THE DECANT HAS A 40mm DIAMETER PVC PIPE WITH A 1.3m LONG ARM (INCLUDING FLEXIBLE JOINT), A 0.5m LONG DECANT AND 20 x 10mm DIAMETER EQUALLY SPACED HOLES POSITIONED HORIZONTALLY AT 10 AND 2 O'CLOCK



CROSS SECTION



SEDIMENT RETENTION POND



ANTI-SEEP COLLAR

NUMBER OF DECANTS FOR EACH POND SHALL BE AS FOLLOWS:
 I) UP TO 1.5HA CATCHMENT - 1 DECANT
 II) 1.5-3.0HA CATCHMENT - 2 DECANTS
 III) 3 TO 5 HA CATCHMENT - 3 DECANTS

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IMPORTANT NOTE: PRODUCER STATEMENTS
 PS4 WILL NOT BE ISSUED AT COMPLETION OF WORKS UNLESS ALL REQUIRED TESTS AND INSPECTIONS HAVE BEEN NOTIFIED TO COOK COSTELLO AND COMPLETED DURING CONSTRUCTION

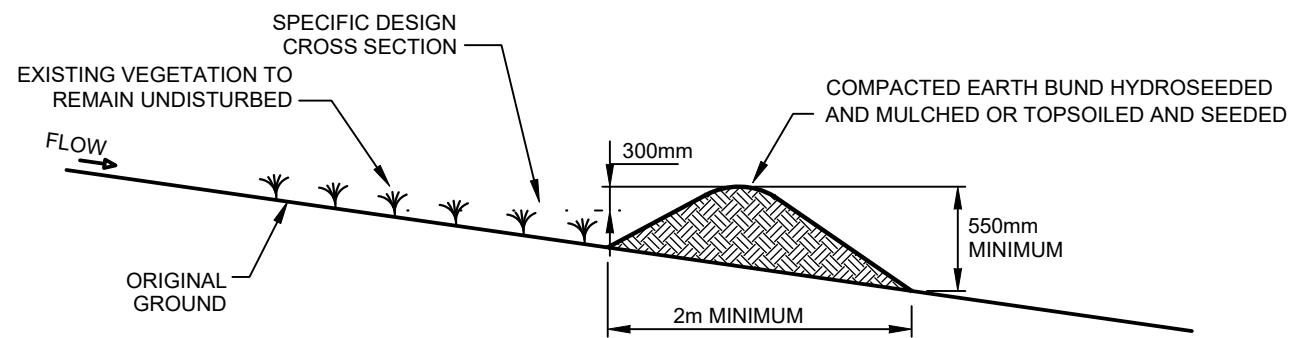
NOT FOR CONSTRUCTION

C			
B			
A	1ST ISSUE	01/08/19	BG GM
REV.	REVISION DETAILS	DRAWN	APP.

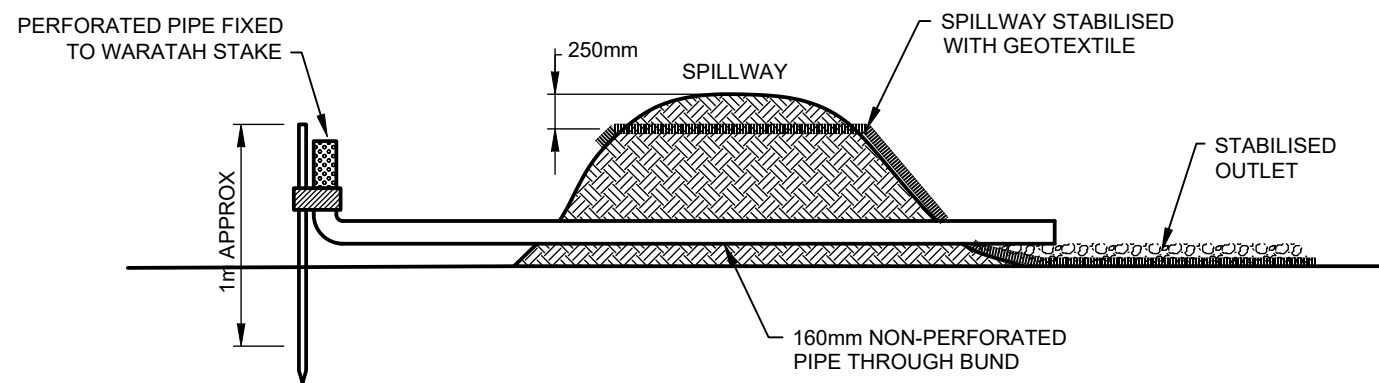
PROJECT DETAILS	WFH PROPERTIES LIMITED THE LANDING ONE TREE POINT RUAKAKA
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TITLE	STAGE 4 & 5 DETAIL DESIGN EROSION SEDIMENT CONTROL DETAILS SHEET 3
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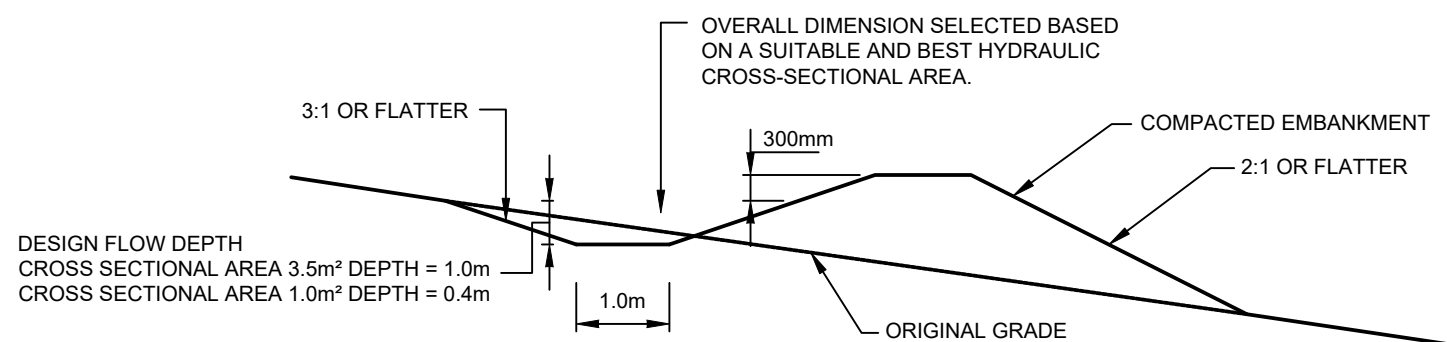
DATE CREATED	01/08/2019	DRAWN	BG	DESIGNED	GM	APPROVED	GM
CCL REF NO	14333-004	SCALE	NTS @ A3	STATUS	FOR APPROVAL		
DWG NUMBER	EW312	REVISION	A				



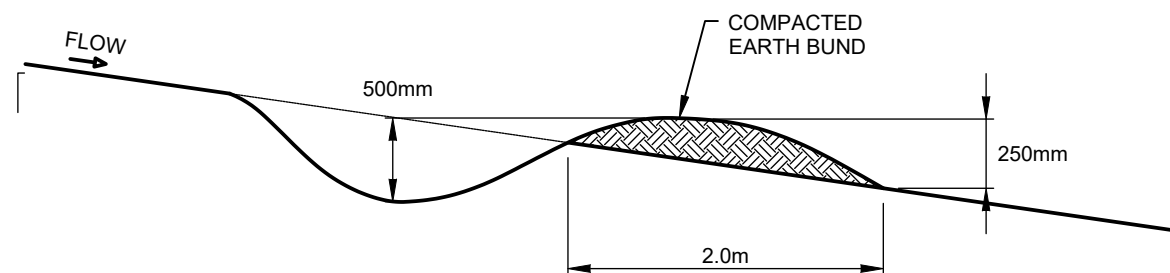
TOPSOIL BUND AND CLEARWATER DIVERSION - CROSS SECTION



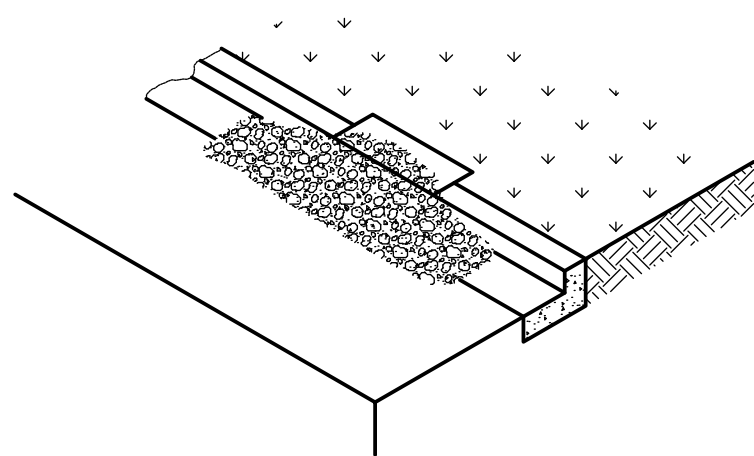
DECANTING EARTH BUND



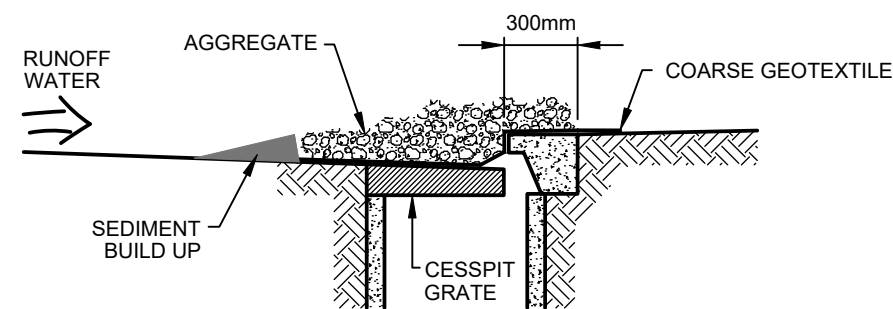
RUNOFF DIVERSION BUND - CROSS SECTION



CONTOUR DRAIN



STORMWATER INLET PROTECTION - FILTER MEDIA DESIGN



CROSS SECTION

G.M.
G. M.
MCGREGOR
WDC IQP#002

IMPORTANT NOTE: PRODUCER STATEMENTS
PS4 WILL NOT BE ISSUED AT COMPLETION OF WORKS UNLESS ALL REQUIRED TESTS AND INSPECTIONS HAVE BEEN NOTIFIED TO COOK COSTELLO AND COMPLETED DURING CONSTRUCTION

NOT FOR CONSTRUCTION

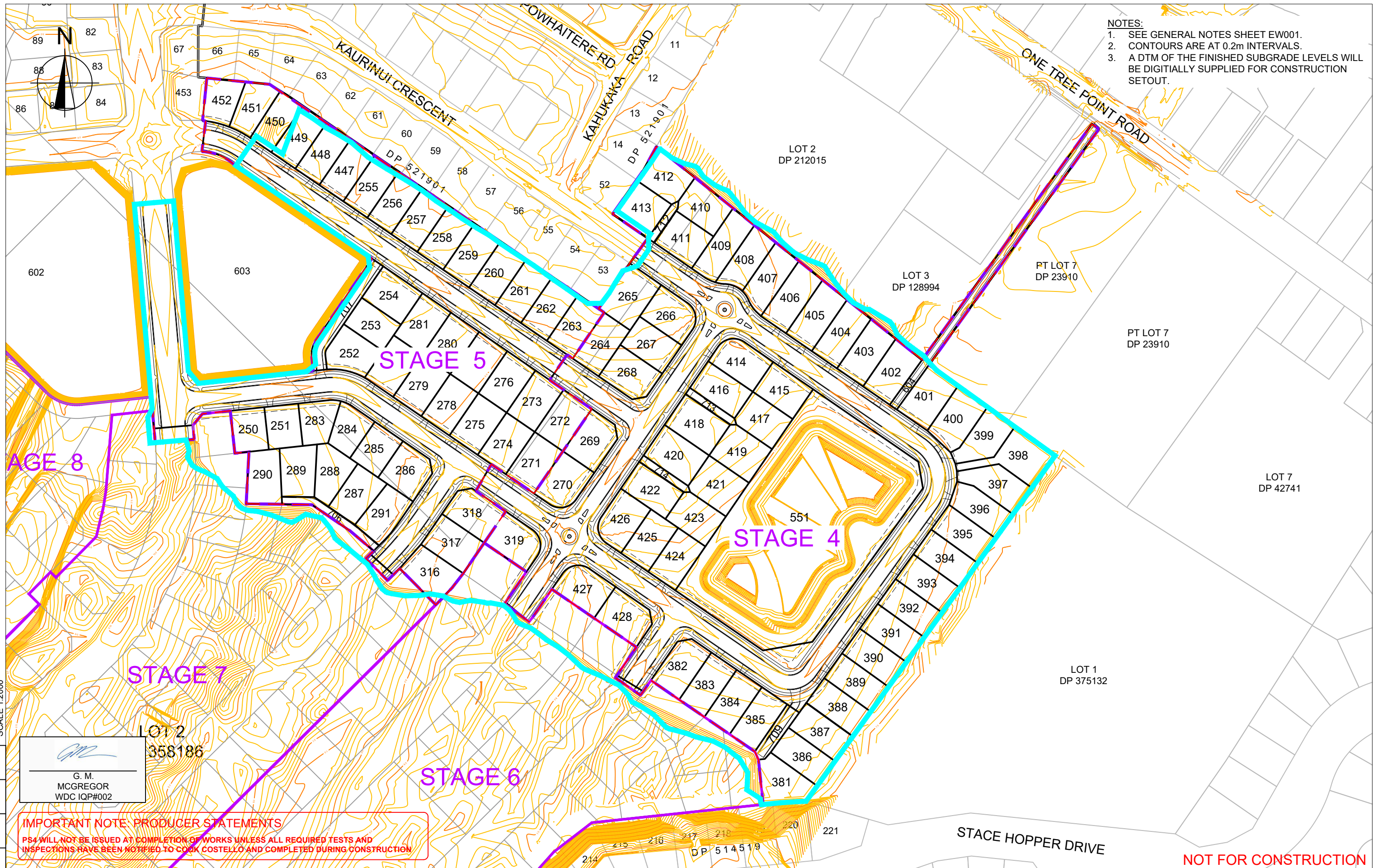
C			
B			
A	1ST ISSUE	01-08-19	KH GM
REV.	REVISION DETAILS	DRAWN	APP.

PROJECT DETAILS	WFH PROPERTIES LIMITED THE LANDING ONE TREE POINT RUAKAKA
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TITLE	STAGE 4 & 5 DETAIL DESIGN EROSION SEDIMENT CONTROL DETAILS SHEET 4
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DATE CREATED	01-08-2019	DRAWN	K HANSARD	DESIGNED	A PARKER	APPROVED	G MCGREGOR
CCL REF NO	14333-004	SCALE	NTS @ A3	STATUS	FOR APPROVAL		
DWG NUMBER	EW313	REVISION	A				

- NOTES:**
1. SEE GENERAL NOTES SHEET EW001.
 2. CONTOURS ARE AT 0.2m INTERVALS.
 3. A DTM OF THE FINISHED SUBGRADE LEVELS WILL BE DIGITALLY SUPPLIED FOR CONSTRUCTION SETOUT.



100
80
60
40
20
0

0 20 40 60 80 100 SCALE 1:2000

G.M.
G. M. MCGREGOR
WDC IQP#002

IMPORTANT NOTE: PRODUCER STATEMENTS
PS4 WILL NOT BE ISSUED AT COMPLETION OF WORKS UNLESS ALL REQUIRED TESTS AND INSPECTIONS HAVE BEEN NOTIFIED TO COOK COSTELLO AND COMPLETED DURING CONSTRUCTION



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B			
A	1ST ISSUE	29-07-19	KH GM
REV.	REVISION DETAILS	DRAWN APP.	

PROJECT DETAILS
WFH PROPERTIES LIMITED
THE LANDING
ONE TREE POINT
RUAKAKA

TITLE
STAGE 4 & 5 DETAIL DESIGN
FINISHED LEVELS PLAN

DATE CREATED 29-07-2019	DRAWN K HANSARD	DESIGNED A PARKER	APPROVED G MCGREGOR
CCL REF NO 14333-004	SCALE 1:2000 @ A3	STATUS FOR APPROVAL	
DWG NUMBER EW400	REVISION A		

NOT FOR CONSTRUCTION

DO NOT REPRODUCE WITHOUT WRITTEN AUTHORITY



NOTES:
1. SEE CONSTRUCTION NOTES EW001

CUT / FILL DEPTHS			Colour
Lower_value	Upper_value		
-300	to -8	m	Dark Purple
-8	to -7	m	Light Purple
-7	to -6	m	Yellow-Green
-6	to -5	m	Yellow
-5	to -4	m	Light Green
-4	to -3	m	Green
-3	to -2	m	Light Blue
-2	to -1	m	Blue
-1	to -.5	m	Light Blue
-.5	to -.25	m	Light Blue
-.25	to 0	m	Light Blue
0	to .25	m	Light Blue
.25	to .5	m	Light Blue
.5	to 1	m	Light Blue
1	to 2	m	Light Blue
2	to 3	m	Light Blue
3	to 4	m	Light Blue
4	to 5	m	Light Blue
5	to 6	m	Light Blue
6	to 7	m	Light Blue
7	to 8	m	Light Blue
8	to 300	m	Light Blue

QUANTITIES:
TOPSOIL STRIP AREA = 100,370m²
TOTAL TOPSOIL STRIP 180mm THICK = 18,067m³
TOTAL PEAT STRIP = 62,970m³

VOLUMES BASED ON COMPARISON BETWEEN EXISTING TOPO DATA AND ASSUMED TOP OF SAND LAYER.

- NOTES:
1. QUANTITIES BASED ON INFORMATION RECEIVED FROM WOODS CONSULTANTS. THE TOP OF SAND SURFACE HAS BEEN INFERRED BASED ON GEOTECHNICAL TESTING AND WILL NEED TO BE CONFIRMED ON SITE DURING EXCAVATION.
 2. VOLUME ABOVE IS BASED ON SOLID MEASURE. IT IS RECOMMENDED THAT FURTHER ADJUSTMENTS BE MADE TO THE VOLUMES MENTIONED ABOVE TO ALLOW FOR ITEMS SUCH AS BULKING FACTORS AND PAVEMENT BOXING.
 3. ALL 1 IN 1 BATTERS TO HAVE A TEMPORARY SAFETY FENCE ERECTED AT TOP OF BATTER OR OTHER APPROVED SAFETY MANAGEMENT PLAN.

100 SCALE 1:2000
80
60
40
20
0

G. M. MCGREGOR
WDC IQP#002

IMPORTANT NOTE: PRODUCER STATEMENTS
PS4 WILL NOT BE ISSUED AT COMPLETION OF WORKS UNLESS ALL REQUIRED TESTS AND INSPECTIONS HAVE BEEN NOTIFIED TO COOK COSTELLO AND COMPLETED DURING CONSTRUCTION



REV.	REVISION DETAILS	DRAWN	APP.
C			
B			
A	1ST ISSUE	BG	AP

PROJECT DETAILS
WFH PROPERTIES LIMITED
THE LANDING
ONE TREE POINT
RUAKAKA

TITLE
STAGE 4 & 5 DETAIL DESIGN
PEAT STRIP PLAN

DATE CREATED 01-08-2019	DRAWN K HANSARD	DESIGNED A PARKER	APPROVED G MCGREGOR
CCL REF NO 14333-004	SCALE 1:2000 @ A3	STATUS FOR APPROVAL	
DWG NUMBER EW410			REVISION A

NOT FOR CONSTRUCTION

DO NOT REPRODUCE WITHOUT WRITTEN AUTHORITY



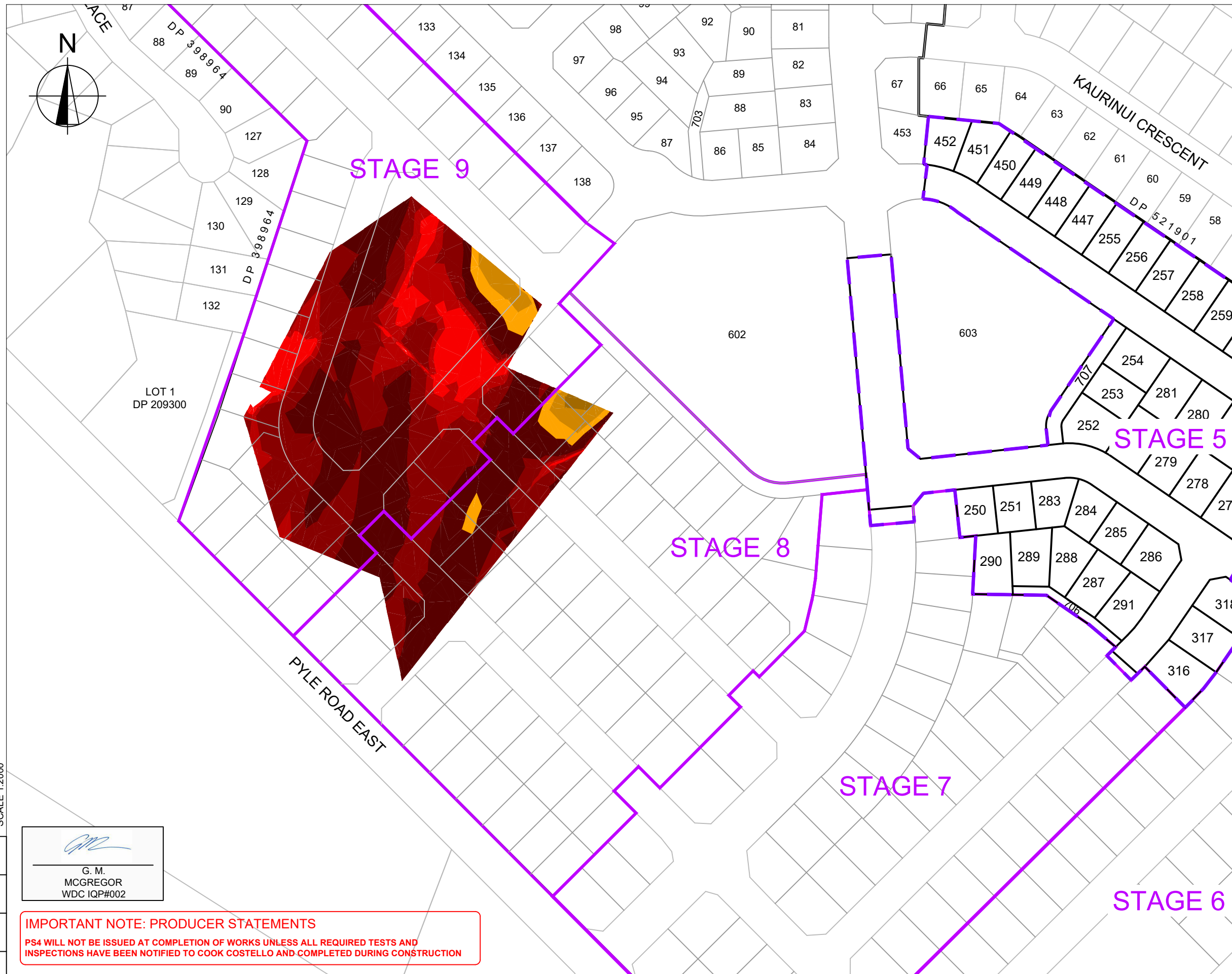
NOTES:
1. SEE CONSTRUCTION NOTES EW001

CUT / FILL DEPTHS			
Lower_value	Upper_value	Colour	
-300	to -8	m	Dark Purple
-8	to -7	m	Light Purple
-7	to -6	m	Yellow-Green
-6	to -5	m	Yellow
-5	to -4	m	Orange
-4	to -3	m	Light Orange
-3	to -2	m	Orange
-2	to -1	m	Light Orange
-1	to -.5	m	Orange
-.5	to -.25	m	Red-Orange
0	to .25	m	Red
.25	to .5	m	Red-Orange
.5	to 1	m	Orange
1	to 2	m	Light Orange
2	to 3	m	Yellow
3	to 4	m	Light Yellow
4	to 5	m	Yellow
5	to 6	m	Light Yellow
6	to 7	m	Yellow
7	to 8	m	Light Yellow
8	to 300	m	Yellow

QUANTITIES:
TOPSOIL STRIP AREA = 25,200m²
TOTAL TOPSOIL STRIP 180mm THICK = 4,540m³
TOTAL PEAT STRIP = 21,200m³

VOLUMES BASED ON COMPARISON BETWEEN EXISTING TOPO DATA AND ASSUMED TOP OF SAND LAYER.

- NOTES:
- QUANTITIES BASED ON INFORMATION RECEIVED FROM WOODS CONSULTANTS. THE TOP OF SAND SURFACE HAS BEEN INFERRED BASED ON GEOTECHNICAL TESTING AND WILL NEED TO BE CONFIRMED ON SITE DURING EXCAVATION.
 - VOLUME ABOVE IS BASED ON SOLID MEASURE. IT IS RECOMMENDED THAT FURTHER ADJUSTMENTS BE MADE TO THE VOLUMES MENTIONED ABOVE TO ALLOW FOR ITEMS SUCH AS BULKING FACTORS AND PAVEMENT BOXING.
 - ALL 1 IN 1 BATTERS TO HAVE A TEMPORARY SAFETY FENCE ERECTED AT TOP OF BATTER OR OTHER APPROVED SAFETY MANAGEMENT PLAN.



100 SCALE 1:2000
80
60
40
20
0

G. M. MCGREGOR
WDC IQP#002

IMPORTANT NOTE: PRODUCER STATEMENTS
PS4 WILL NOT BE ISSUED AT COMPLETION OF WORKS UNLESS ALL REQUIRED TESTS AND INSPECTIONS HAVE BEEN NOTIFIED TO COOK COSTELLO AND COMPLETED DURING CONSTRUCTION



REV.	REVISION DETAILS	DRAWN	APP.
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A	1ST ISSUE	BG	GM

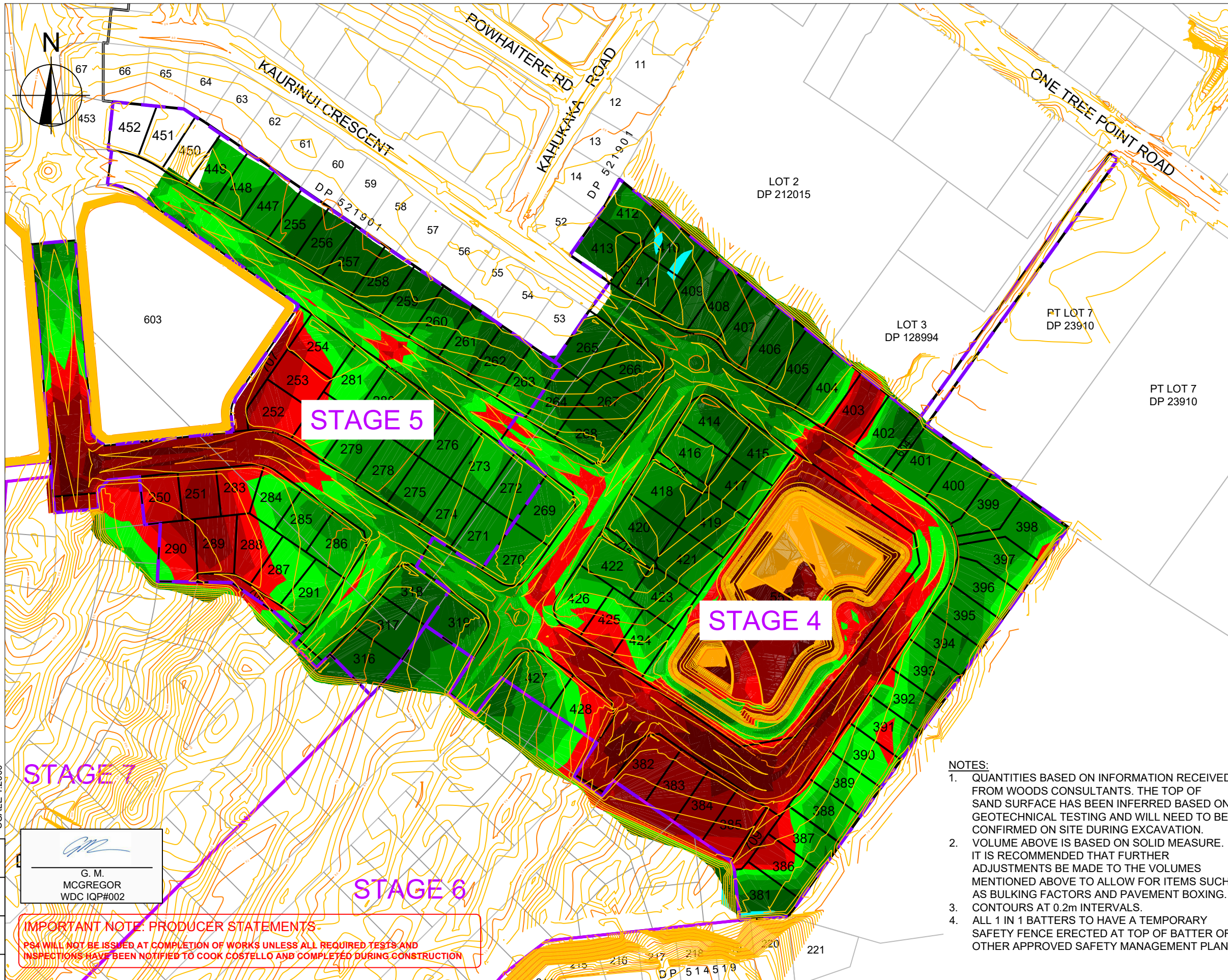
PROJECT DETAILS
WFH PROPERTIES LIMITED
THE LANDING
ONE TREE POINT
RUAKAKA

TITLE
STAGE 4 & 5 DETAIL DESIGN
PEAT STRIP PLAN - SAND BORROW PIT AREA

DATE CREATED 01-08-2019	DRAWN K HANSARD	DESIGNED A PARKER	APPROVED G MCGREGOR
CCL REF NO 14333-004	SCALE 1:2000 @ A3	STATUS FOR APPROVAL	
DWG NUMBER EW411		REVISION A	

NOT FOR CONSTRUCTION

DO NOT REPRODUCE WITHOUT WRITTEN AUTHORITY



NOTES:
 1. SEE CONSTRUCTION NOTES EW001
 2. CONTOURS ARE AT 0.2m INTERVALS.

CUT / FILL DEPTHS		Colour	
Lower_value	Upper_value		
-300	to -8	m	Light Green
-8	to -7	m	Yellow-Green
-7	to -6	m	Yellow
-6	to -5	m	Light Brown
-5	to -4	m	Light Orange
-4	to -3	m	Orange
-3	to -2	m	Dark Orange
-2	to -1	m	Red-Orange
-1	to -0.5	m	Red
-0.5	to -0.25	m	Dark Red
-0.25	to 0	m	Red
0	to 0.25	m	Light Green
0.25	to 0.5	m	Green
0.5	to 1	m	Dark Green
1	to 2	m	Very Dark Green
2	to 3	m	Cyan
3	to 4	m	Teal
4	to 5	m	Dark Teal
5	to 6	m	Dark Blue
6	to 7	m	Blue
7	to 8	m	Light Blue
8	to 300	m	White

NOTES:
 1. QUANTITIES BASED ON INFORMATION RECEIVED FROM WOODS CONSULTANTS. THE TOP OF SAND SURFACE HAS BEEN INFERRED BASED ON GEOTECHNICAL TESTING AND WILL NEED TO BE CONFIRMED ON SITE DURING EXCAVATION.
 2. VOLUME ABOVE IS BASED ON SOLID MEASURE. IT IS RECOMMENDED THAT FURTHER ADJUSTMENTS BE MADE TO THE VOLUMES MENTIONED ABOVE TO ALLOW FOR ITEMS SUCH AS BULKING FACTORS AND PAVEMENT BOXING.
 3. CONTOURS AT 0.2m INTERVALS.
 4. ALL 1 IN 1 BATTERS TO HAVE A TEMPORARY SAFETY FENCE ERRECTED AT TOP OF BATTER OR OTHER APPROVED SAFETY MANAGEMENT PLAN.

SAND BULK EARTHWORKS QUANTITIES:
 TOTAL EARTHWORKS AREA = 107,170m²
 TOTAL SAND CUT TO FILL = 26,450m³
 TOTAL SAND REQUIRED FROM SAND MINE AREA = 26,000m³

SAND CUT: 26,450m³
 SAND FILL: 52,450m³

VOLUMES BASED ON COMPARISON BETWEEN ASSUMED TOP OF SAND TO DESIGN SUBGRADE.

TOPSOIL = 200mm RESPREAD ALLOWED FOR.
 PAVEMENT = PAVEMENT ALLOWED FOR.

G. M. MCGREGOR
 WDC IQP#002

IMPORTANT NOTE: PRODUCER STATEMENTS
 PSA WILL NOT BE ISSUED AT COMPLETION OF WORKS UNLESS ALL REQUIRED TESTS AND INSPECTIONS HAVE BEEN NOTIFIED TO COOK COSTELLO AND COMPLETED DURING CONSTRUCTION

NOT FOR CONSTRUCTION



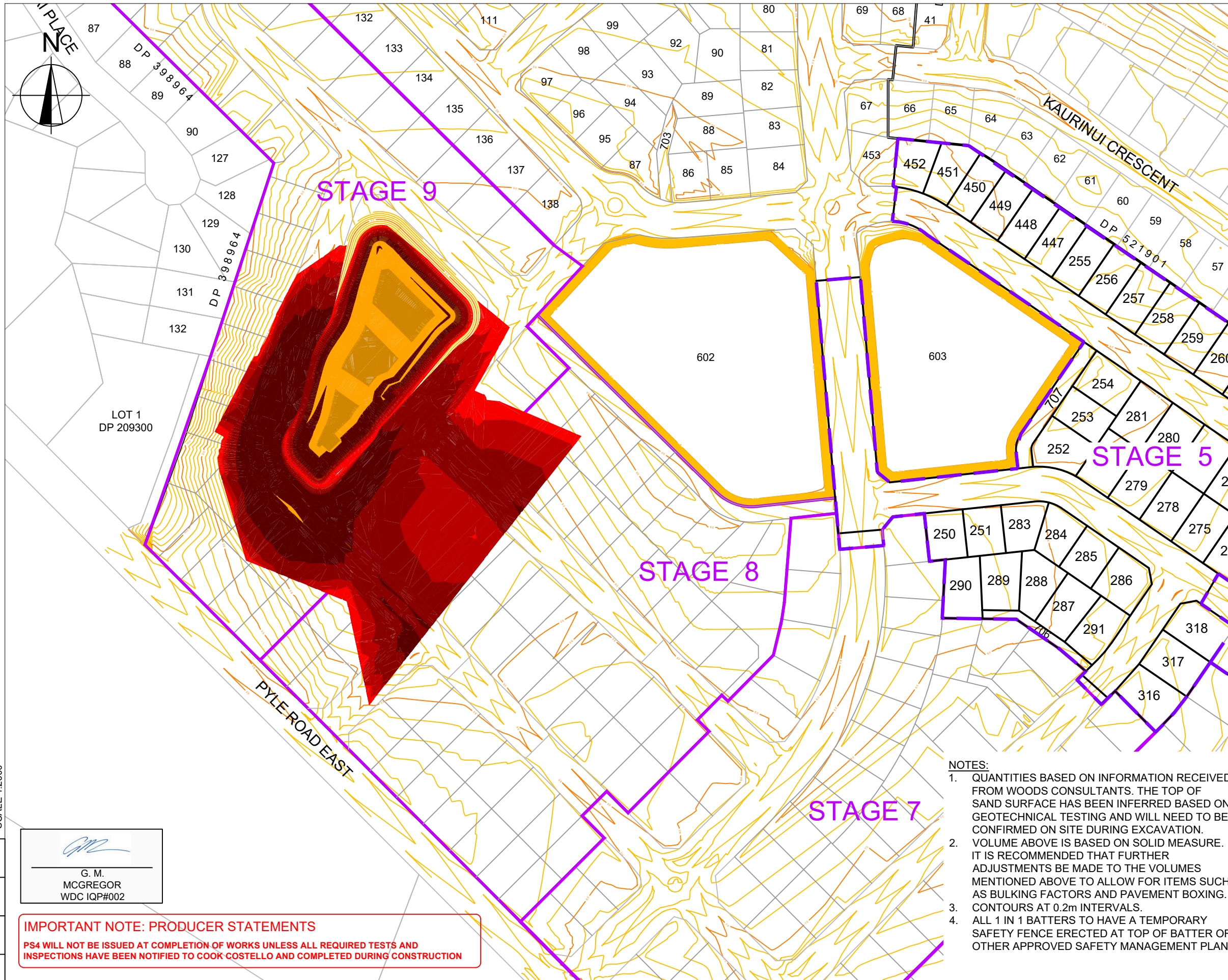
REV.	REVISION DETAILS	DATE	DRAWN	APP.
C				
B				
A	1ST ISSUE	01-08-19	KH	GM

PROJECT DETAILS
WFH PROPERTIES LIMITED
 THE LANDING
 ONE TREE POINT
 RUAKAKA

TITLE
STAGE 4 & 5 DETAIL DESIGN
 SAND BULK EARTHWORKS PLAN

DATE CREATED	DRAWN	DESIGNED	APPROVED
01-08-2019	K HANSARD	A PARKER	G MCGREGOR
CCL REF NO	SCALE	STATUS	
14333-004	1:2000 @ A3	FOR APPROVAL	
DWG NUMBER	REVISION		
EW420	A		

DO NOT REPRODUCE WITHOUT WRITTEN AUTHORITY



NOTES:
 1. SEE CONSTRUCTION NOTES EW001
 2. CONTOURS ARE AT 0.2m INTERVALS.

CUT / FILL DEPTHS		Colour	
Lower_value	Upper_value		
-300	to -8	m	Dark Purple
-8	to -7	m	Light Purple
-7	to -6	m	Yellow-Green
-6	to -5	m	Yellow
-5	to -4	m	Orange
-4	to -3	m	Light Orange
-3	to -2	m	Yellow-Orange
-2	to -1	m	Orange
-1	to -0.5	m	Red-Orange
-0.5	to 0	m	Red
0	to 0.25	m	Red-Orange
0.25	to 0.5	m	Red
0.5	to 1	m	Orange
1	to 2	m	Yellow-Orange
2	to 3	m	Yellow
3	to 4	m	Light Orange
4	to 5	m	Orange
5	to 6	m	Yellow-Orange
6	to 7	m	Yellow
7	to 8	m	Light Orange
8	to 300	m	Dark Purple

NOTES:
 1. QUANTITIES BASED ON INFORMATION RECEIVED FROM WOODS CONSULTANTS. THE TOP OF SAND SURFACE HAS BEEN INFERRED BASED ON GEOTECHNICAL TESTING AND WILL NEED TO BE CONFIRMED ON SITE DURING EXCAVATION.
 2. VOLUME ABOVE IS BASED ON SOLID MEASURE. IT IS RECOMMENDED THAT FURTHER ADJUSTMENTS BE MADE TO THE VOLUMES MENTIONED ABOVE TO ALLOW FOR ITEMS SUCH AS BULKING FACTORS AND PAVEMENT BOXING.
 3. CONTOURS AT 0.2m INTERVALS.
 4. ALL 1 IN 1 BATTERS TO HAVE A TEMPORARY SAFETY FENCE ERECTED AT TOP OF BATTER OR OTHER APPROVED SAFETY MANAGEMENT PLAN.

SAND BULK EARTHWORKS QUANTITIES:
 TOTAL EARTHWORKS AREA = 25,200m²
 TOTAL SAND CUT = 27,680m³

VOLUMES BASED ASSUMED TOP OF SAND TO ASSUMED FUTURE DESIGN

G. M. MCGREGOR
 WDC IQP#002

IMPORTANT NOTE: PRODUCER STATEMENTS
 PS4 WILL NOT BE ISSUED AT COMPLETION OF WORKS UNLESS ALL REQUIRED TESTS AND INSPECTIONS HAVE BEEN NOTIFIED TO COOK COSTELLO AND COMPLETED DURING CONSTRUCTION

NOT FOR CONSTRUCTION

100 SCALE 1:2000
80
60
40
20
0



REV.	REVISION DETAILS	DRAWN	APP.
C			
B			
A	1ST ISSUE	KH	GM
			01-08-19

PROJECT DETAILS
 WFH PROPERTIES LIMITED
 THE LANDING
 ONE TREE POINT
 RUAKAKA

TITLE
 STAGE 4 & 5 DETAIL DESIGN
 SAND BULK EARTHWORKS PLAN
 SAND BORROW PIT AREA

DATE CREATED	01-08-2019	DRAWN	K HANSARD	DESIGNED	A PARKER	APPROVED	G MCGREGOR
CCL REF NO	14333-004	SCALE	1:2000 @ A3	STATUS	FOR APPROVAL		
DWG NUMBER	EW421		REVISION	A			

DO NOT REPRODUCE WITHOUT WRITTEN AUTHORITY