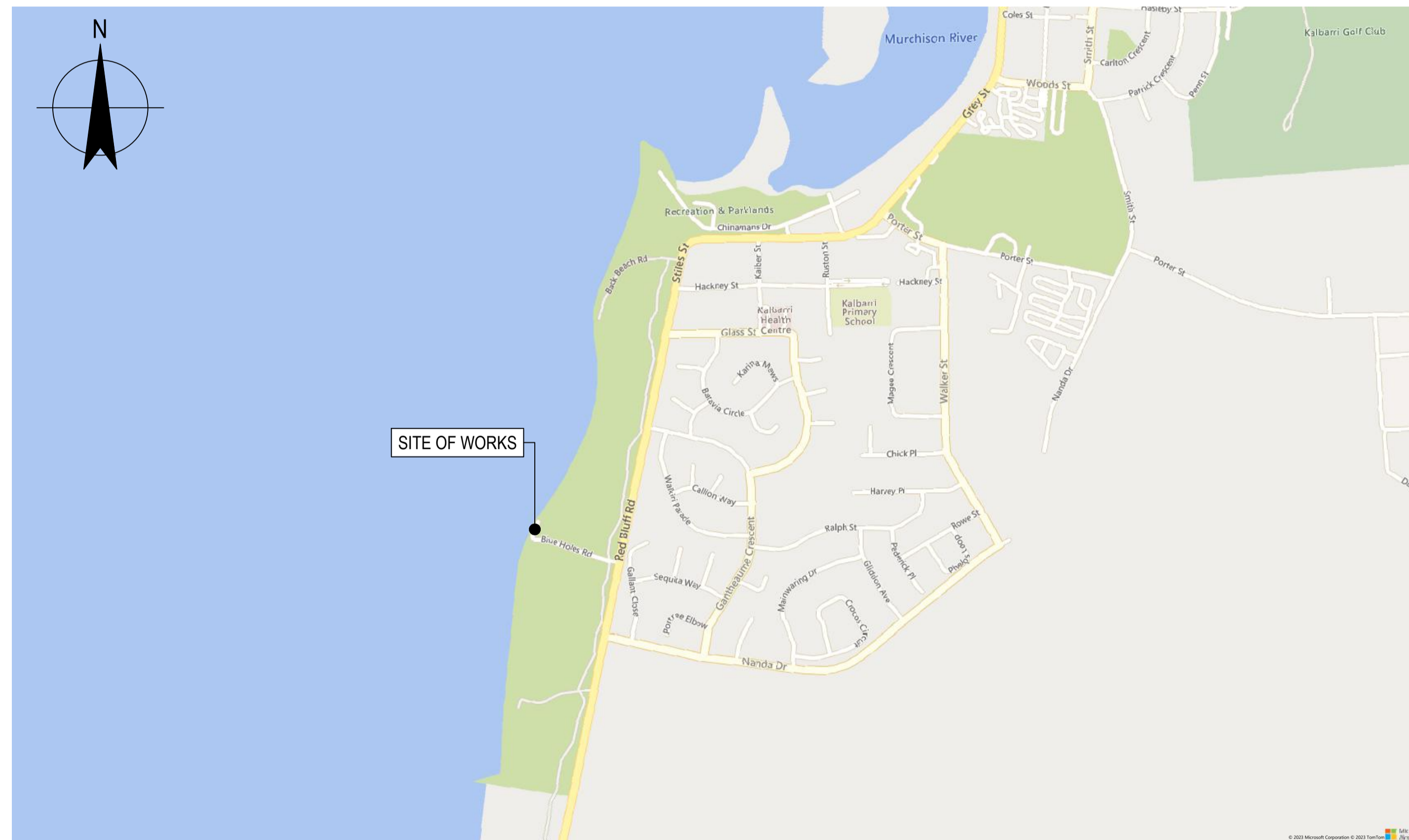


SHIRE OF NORTHAMPTON

BLUE HOLES, KALBARRI

PROJECT NUMBER 12596020



DRAWING LIST

DRG No.	DRAWING TITLE
12596020-GHD-00-03-DRG-CI-00001	LOCALITY PLAN AND DRAWING LIST
12596020-GHD-00-03-DRG-CI-00100	GENERAL ARRANGEMENT PLAN
12596020-GHD-00-03-DRG-CI-00200	TYPICAL CROSS SECTIONS
12596020-GHD-00-03-DRG-CI-00300	REVETMENT GENERAL NOTES
12596020-GHD-00-03-DRG-ST-00001	STRUCTURAL NOTES
12596020-GHD-00-03-DRG-ST-00200	TYPICAL RETAINING WALL DETAILS
12596020-GHD-00-03-DRG-ST-00300	RETAINING WALL PROFILE

LOCALITY PLAN

SCALE 1:10000



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Rev	Description	Checked	Approved	Date
P02	ISSUED FOR TENDER	SA	AK	08/02/24
P01	PRELIMINARY DESIGN	SA	AK	21/12/23
Author	S.DAVIES	Drafting Check	A.KRAUSE	
Designer	S.DAVIES	Design Check	A.KRAUSE	



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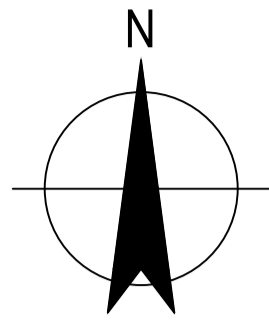


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





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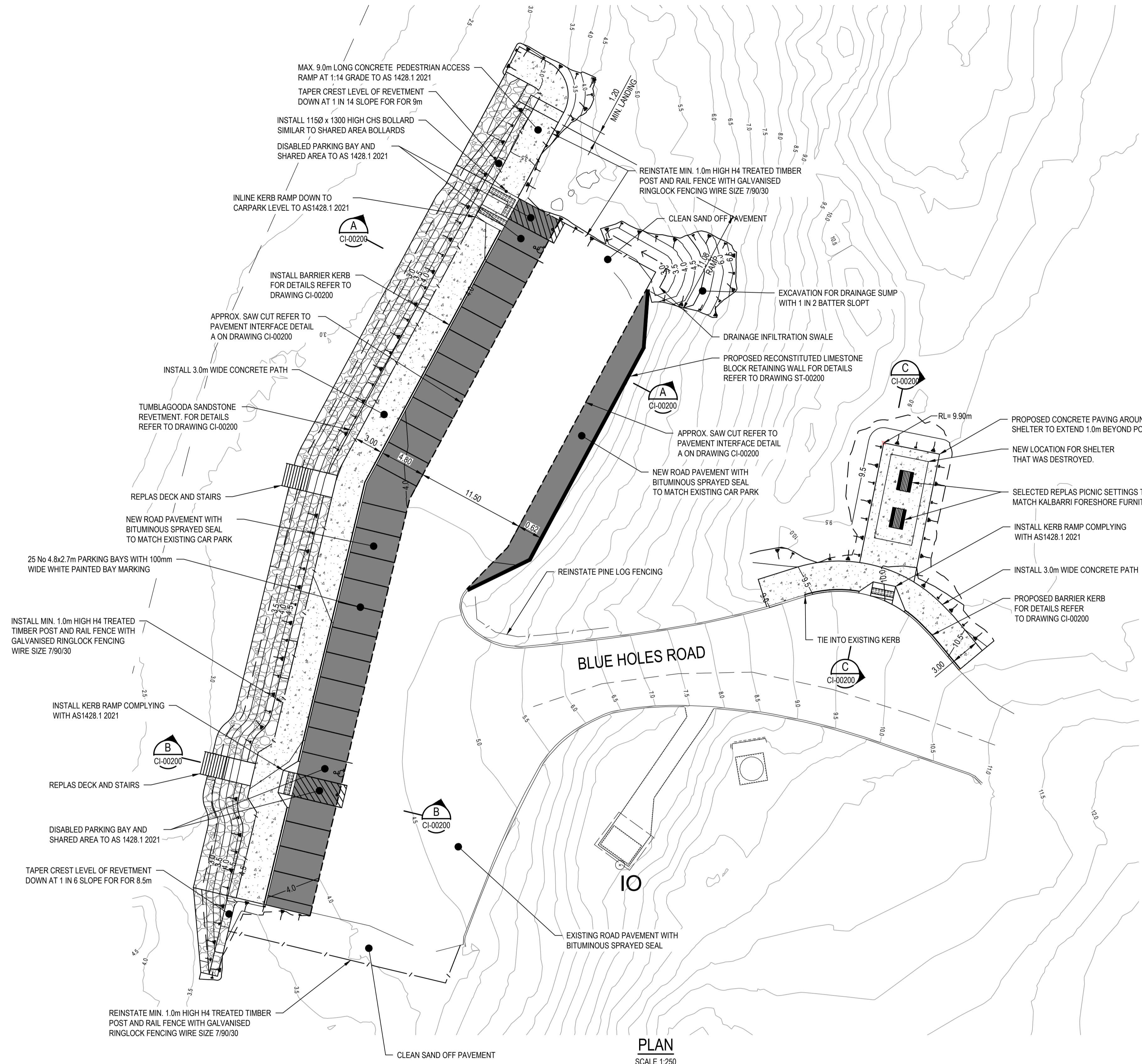
Client	SHIRE OF NORTHAMPTON
Project	BLUE HOLES, KALBARRI
Status	TENDER

Drawing Title	LOCALITY PLAN AND DRAWING LIST	Size	A1	
12596020-GHD-00-03-DRG-CI-00001			Rev	P02



LEGEND

-  PROPOSED BITUMINOUS SPRAY SEAL AND PAVEMENT RECONSTRUCTION
-  CONCRETE FOOTPATH
-  DESIGN CONTOURS
-  EXISTING CONTOURS AT 0.5m INTERVAL
-  PROPOSED KERB
-  PROPOSED RETAINING WALL
-  PROPOSED SAW CUT



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G COPIES OF THIS DRAWING MUST BE PRODUCED IN COLOUR
B

ALL SETOUT INFORMATION WILL BE PROVIDED IN ELECTRONIC FORMAT



P03	FENCE AND BOLLARD NOTES UPDATED	SA	AK	20/02/24
P02	ISSUED FOR TENDER	SA	AK	08/02/24
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Rev	Description	Checked	Approved	Date
Author	S.DAVIES	Drafting Check	A.KRAUSE	
Designer	S.DAVIES	Design Check	A.KRAUSE	



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Client SHIRE OF NORTHAMPTON
 Project BLUE HOLES, KALBARRI
 Status TENDER

Drawing Title GENERAL ARRANGEMENT PLAN

12596020-GHD-00-03-DRG-CI-00100

Size A1
 Rev P03

REVETMENT NOTES

- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL OTHER WORKING DRAWINGS AND SPECIFICATIONS AND WITH SUCH OTHER WRITTEN INSTRUCTIONS AS MAY BE ISSUED DURING THE COURSE OF THE CONSTRUCTION. ALL DISCREPANCIES AND VARIATIONS SHALL BE REFERRED TO THE SUPERINTENDENT BEFORE PROCEEDING WITH THE WORK.
- DURING CONSTRUCTION THE CONTRACTOR (AS PRINCIPAL CONTRACTOR) SHALL BE RESPONSIBLE FOR ENSURING NO PART OF EXISTING STRUCTURES ARE DAMAGED.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE IMPLEMENTATION OF EROSION AND SEDIMENTATION CONTROL MEASURES DURING CONSTRUCTION.
- ON COMPLETION OF WORKS THE SITE (INCLUDING ALL ACCESS ROUTES) SHALL BE LEFT IN A CLEAN AND TIDY CONDITION TO THE SATISFACTION OF THE SUPERINTENDENT.
- WORKMANSHIP AND MATERIALS TO BE IN ACCORDANCE WITH THE RELEVANT SAA CODES EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENTS.
- ALL LEVELS ARE EXPRESSED IN METRES TO AUSTRALIA HEIGHT DATUM. ALL DIMENSIONS RELEVANT TO THE SETTING OUT OF THE WORK SHALL BE VERIFIED BY THE CONTRACTOR BEFORE CONSTRUCTION PROCEEDS.
- THE APPROVAL OF A SUBSTITUTION SHALL BE SOUGHT FROM THE SUPERINTENDENT BEFORE INCORPORATION INTO THE WORK.
- CONTRACTOR TO LOCATE ALL SERVICES PRIOR TO COMMENCEMENT OF WORK.
- ALL EXCAVATED EXCESS CLEAN SAND TO BE PLACED SEAWARD OF THE STRUCTURE TOE AND GRADED BACK OVER THE TOE OF THE WALL TO MATCH THE EXISTING BEACH GRADE IMMEDIATELY POST CONSTRUCTION.
- SURVEY RECEIVED 17.08.2023. SURVEY UNDERTAKEN BY HTD SURVEYORS & PLANNERS. EXISTING SAND PROFILE MAY HAVE CHANGED SINCE SURVEY WAS UNDERTAKEN.

ARMOUR ROCK

CLASS & GRADING

- ROCKS SHALL BE GRADED BOTH VISUALLY AND IN ACCORDANCE WITH THE SPECIFICATION.
- NOT MORE THAN 5% OF ROCKS SHALL HAVE A RATIO OF MAXIMUM DIMENSION TO MINIMUM DIMENSION OF GREATER THAN 3:1 UNLESS APPROVED BY THE SUPERINTENDENT.
- THE SIZES OF THE ARMOUR ROCK TO BE USED IN THE WORKS ARE SET OUT BELOW:

WEIGHT	WMIN	W15	W50	W85	WMAX
RANGE	(KG)	(KG)	(KG)	(KG)	(KG)
REVETMENT	700	850	1500	2260	2500

RELATIVE DENSITY OF ROCK SHALL BE A MINIMUM OF 2.2 (SATURATED SURFACE DRY).
- MATERIAL SHALL BE PLACED SO THAT THE DISTRIBUTION OF ROCKS WITHIN ANY 5m x 5m AREA CONFORMS TO THE ROCK ARMOUR GRADING.

CORE ROCK

CLASS & GRADING

- THE SIZES OF THE CORE ROCK TO BE USED IN THE WORKS ARE SET OUT BELOW:

WEIGHT	Wmin.	W15	W50	W85	WMAX
RANGE	(KG)	(KG)	(KG)	(KG)	(KG)
REVETMENT	60	85	100	180	300

RELATIVE DENSITY OF ROCK SHALL BE A MINIMUM OF 2.2 (SATURATED SURFACE DRY).
- MATERIAL SHALL BE PLACED SO THAT THE DISTRIBUTION OF ROCKS WITHIN ANY 5m x 5m AREA CONFORMS TO THE ROCK FILTER GRADING.

GEOTEXTILE

- GEOTEXTILE FABRIC SHALL BE TEXCEL 1200R (NON WOVEN OR SUITABLE EQUIVALENT).
- GEOTEXTILE SHALL BE INSTALLED VERTICALLY DOWN THE SLOPE WITH 500mm MINIMUM OVERLAP AT JOINTS.

ROCK PLACEMENT

- THE CONTRACTOR SHALL SUPPLY A METHOD STATEMENT DETAILING ITS PROPOSED METHOD OF ROCK PLACEMENT AND CONTROL TO ENSURE THE CONSTRUCTION WORKS MEETS THE SPECIFIED STANDARDS.
- EXISTING ROCK MATERIAL PROPOSED FOR REUSE SUBJECT TO SUPERINTENDENT INSPECTION.
- CORE ROCK IS TO BE PLACED ON THE GEOTEXTILE TO THE MINIMUM THICKNESS SHOWN ON THE DRAWINGS.
- ARMOUR ROCK IS TO BE PLACED ON THE CORE ROCK IN ONE LAYER TO THE MINIMUM THICKNESS SHOWN ON THE DRAWINGS.
- THE CONTRACTOR WILL BE SOLELY RESPONSIBLE FOR DETERMINING SATISFACTORY PLACEMENT TECHNIQUES TO ENSURE GEOTEXTILE IS NOT DAMAGED.
- THE METHOD OF PLACING SHALL PRODUCE A DENSE, EVENLY DISTRIBUTED ROCK BLANKET WITH A MINIMUM OF VOIDS AND SHALL ENSURE THE MAXIMUM INTERLOCK BETWEEN ADJACENT ROCKS.
- INDIVIDUAL ROCKS SHALL BE PLACED TO A NON-MOVING STABLE POSITION IN CONTACT WITH THREE OTHER ROCKS.
- TOLERANCE AND FINISH LEVELS:
 - THE ARMOUR ROCK THICKNESS SHALL BE WITHIN -00mm AND +100mm OF THE SPECIFIED THICKNESS AT ALL LOCATIONS.
 - THE SLOPE OF THE ROCK LAYER SHALL NOT VARY BY MORE THAN 10% FROM THE SPECIFIED SLOPE.

QUALITY OF ROCK MATERIAL

- LOCAL SANDSTONE IS PREFERRED FOR USE IN THIS LOCATION. DETAILS OF QUARRY TO BE PROVIDED BY THE CONTRACTOR.
- ARMOUR ROCK SHALL COMPRISE INDIVIDUAL STONE WHICH IS DENSE, SOUND, RESISTANT TO ABRASION AND FREE OF CRACKS, CLEAVAGE PLANES, SEAMS AND OTHER DEFECTS WHICH WOULD RESULT IN BREAKDOWN OF THE STONE IN THE ENVIRONMENT OF THE SITE OF THE WORKS.
- ANY STONE WHICH WILL UNDERGO PHYSICAL CHANGE CAUSING SPALLING, WEATHERING OR FRACTURING IN THE ENVIRONMENT OF THE SITE WILL NOT BE ACCEPTABLE.
- THE CONTRACTOR SHALL SUPPLY TESTING BY A SUITABLY EXPERIENCED PETROLOGIST OR GEOTECHNICAL ENGINEER WHO HAS OBTAINED REPRESENTATIVE SAMPLES AND CARRIED OUT TESTING TO DETERMINE THE MINERAL COMPOSITION AND OTHER TESTS AS PER BELOW TO DETERMINE THE SUITABILITY OF THE ROCK.
- THESE TESTS MUST INCLUDE THOSE LISTED BELOW, IDENTIFIED AS (A) TO (E) INCLUSIVE, TOGETHER WITH THE DETERMINATION AND DISTRIBUTION OF DELETERIOUS SECONDARY MINERALS FOR ALL BASIC IGNEOUS ROCKS. FULL DETAILS OF THIS SAMPLING AND TESTING ARE TO BE INCLUDED IN A REPORT.
- ALL ARMOUR ROCK TO BE INCORPORATED IN THE WORKS SHALL COMPLY WITH THE FOLLOWING TEST REQUIREMENTS AND BE TESTED AT NATA ACCREDITED LABORATORY.
 - LOS ANGELES ABRASION TEST FOR SPECIMENS TO COMPLY WITH AS 1141-1980 SECTION 23, THE LOSS WHEN TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF THAT STANDARD SHALL NOT EXCEED 20%.
 - DENSITY OF THE PARTICLE DENSITY OF THE 37.5MM TO 63MM FRACTION OF A CRUSHED SAMPLE EXPRESSED ON A DRY BASIS SHALL NOT BE LESS THAN 2200 kg/m³
 - WATER ABSORPTION SHALL NOT EXCEED 3% WHEN DETERMINED BY THE RELEVANT METHODS DESCRIBED IN AS 1141-1980, SECTION 6 OR AS4133.2.
 - SODIUM SULPHATE SOUDNESS TEST TO AS1141, SECTION 24 FOR 5 CYCLES, LOSS SHALL NOT EXCEED 2.5%.
 - CRUSHING RESISTANCE ULTIMATE COMPRESSIVE STRENGTH (UCS) TEST IN ACCORDANCE WITH AS 4133.4.2.1 SHALL HAVE MINIMUM 100 MPA FOR CORE AND ARMOUR ROCK. THE POINT LOAD INDEX (IS50) AS PER AS 4133.4.1 FOR ROCK ARMOUR SHALL HAVE A MINIMUM VALUE OF 3.5 MPA AND 2.3 MPA FOR CORE ROCK
- RELAXATION ON THE ROCK ARMOUR QUALITY MAY BE GRANTED AT THE SUPERINTENDENTS DISCRETION UPON REVIEW OF QUARRY TEST RESULTS AND SITE INSPECTION.
- QUARRY TEST RESULTS ARE TO BE PROVIDED FOR SUPERINTENDENT REVIEW PRIOR TO QUARRY LOAD OUT.

SAFETY IN DESIGN

- SID1. THE SAFETY RISK MITIGATION ITEMS IDENTIFIED IN HS040 "SAFETY IN DESIGN RISK ASSESSMENT" ARE BASED ON GHD'S DESIGN OFFICE EXPERIENCE AND DO NOT NECESSARILY ACCOUNT FOR ALL CONSTRUCTION, OPERATION, MAINTENANCE AND DEMOLITION SAFETY RISKS. BASED ON INFORMATION AVAILABLE WHEN THIS DRAWING WAS MADE, IN ITS CAPACITY AS DESIGNER ONLY, GHD HAS TRIED TO IDENTIFY SAFETY RISKS PERTAINING TO CONSTRUCTION, OPERATION, MAINTENANCE AND DEMOLITION PHASES OF THE ASSET. INCLUSION (OR NOT) OF ANY ITEM DOES NOT REDUCE OR LIMIT OBLIGATIONS OF CONSTRUCTOR, USER, MAINTAINER AND DEMOLISHER TO UNDERTAKE APPROPRIATE RISK MANAGEMENT ACTIVITIES TO REDUCE RISK AND IS NOT AN ADMISSION BY GHD THAT INCLUSION OF ANY ITEM IS DESIGNER'S RESPONSIBILITY.



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P01 PRELIMINARY DESIGN	SA	AK	21/12/23
Rev	Description	Checked	Approved Date
Author	S.DAVIES	Drafting Check	A.KRAUSE
Designer	P.KETELAAR	Design Check	H.O'KEEFFE



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Client	SHIRE OF NORTHAMPTON
Project	BLUE HOLES, KALBARRI
Status	TENDER

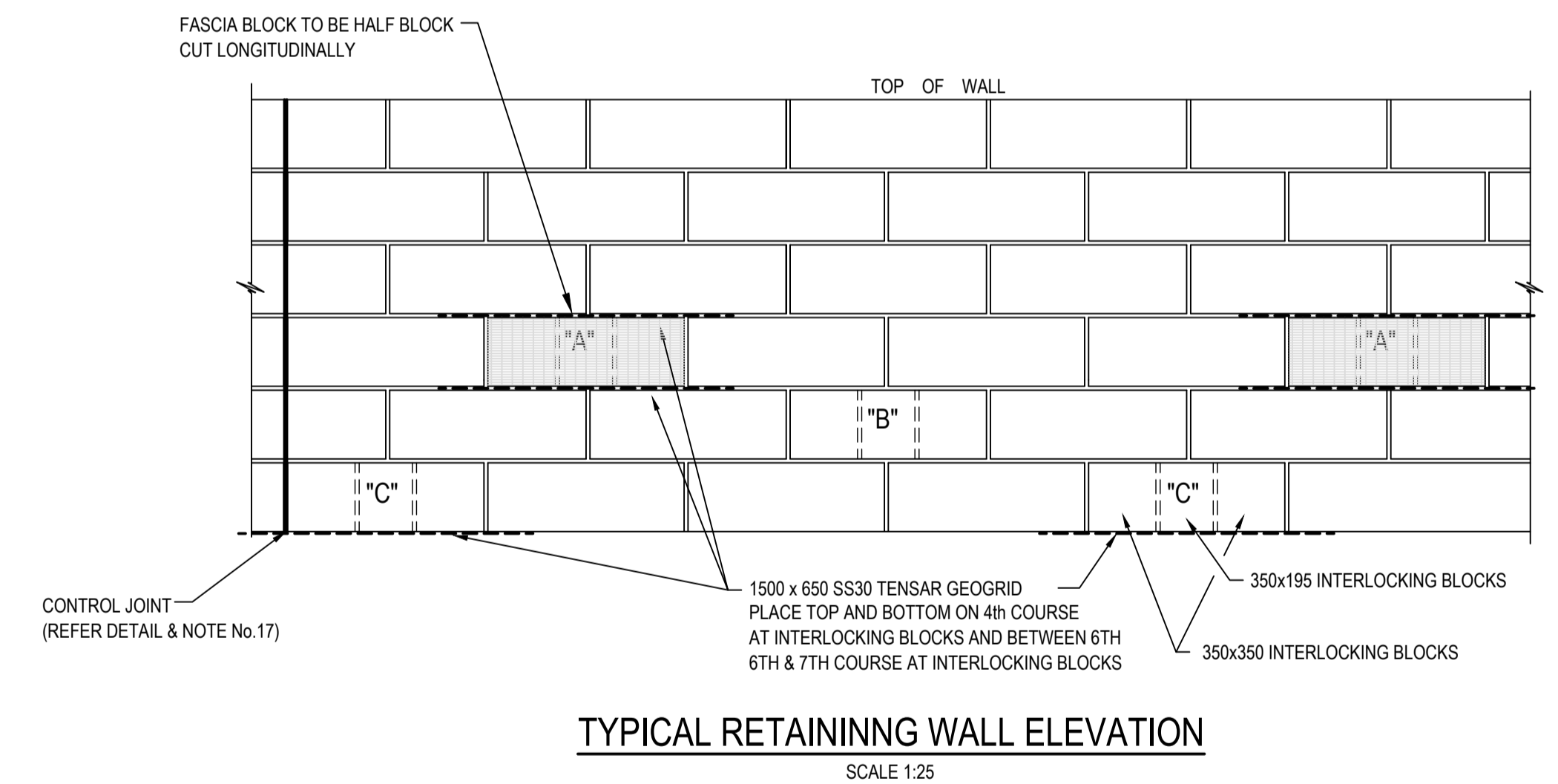
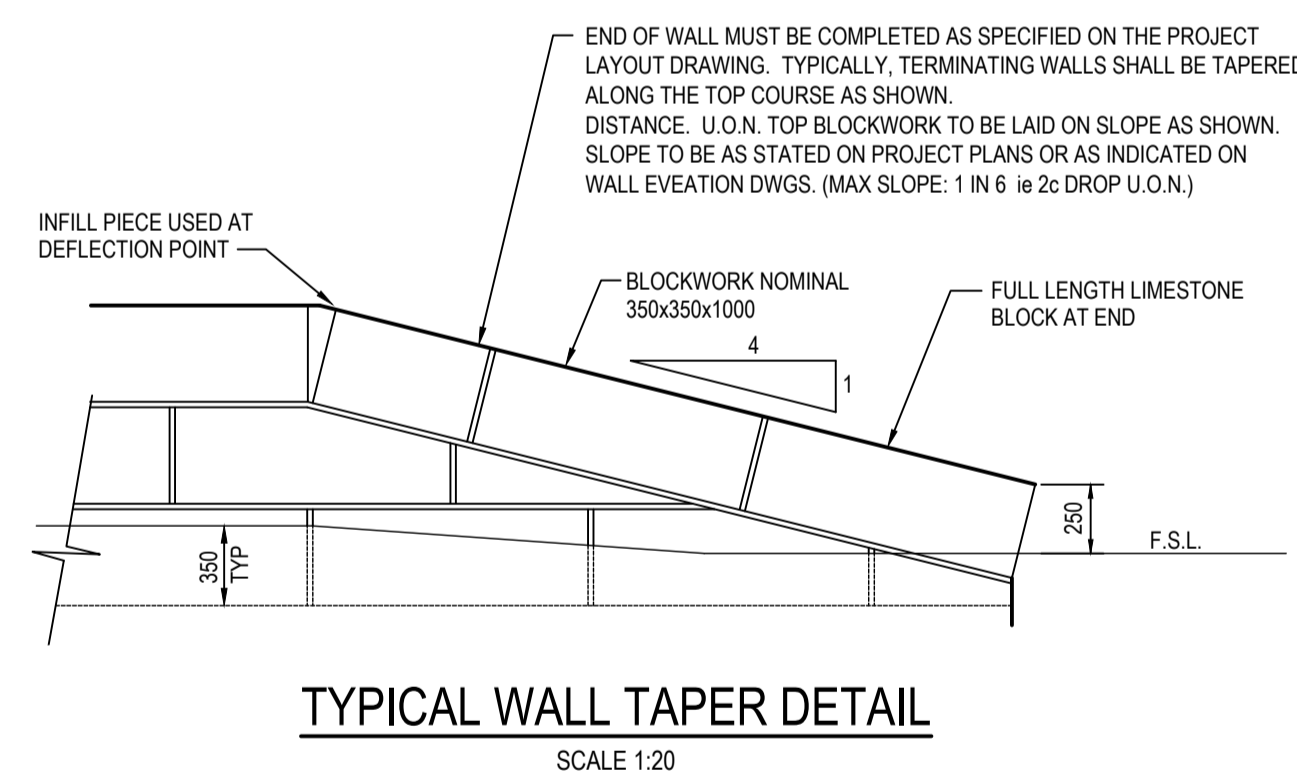
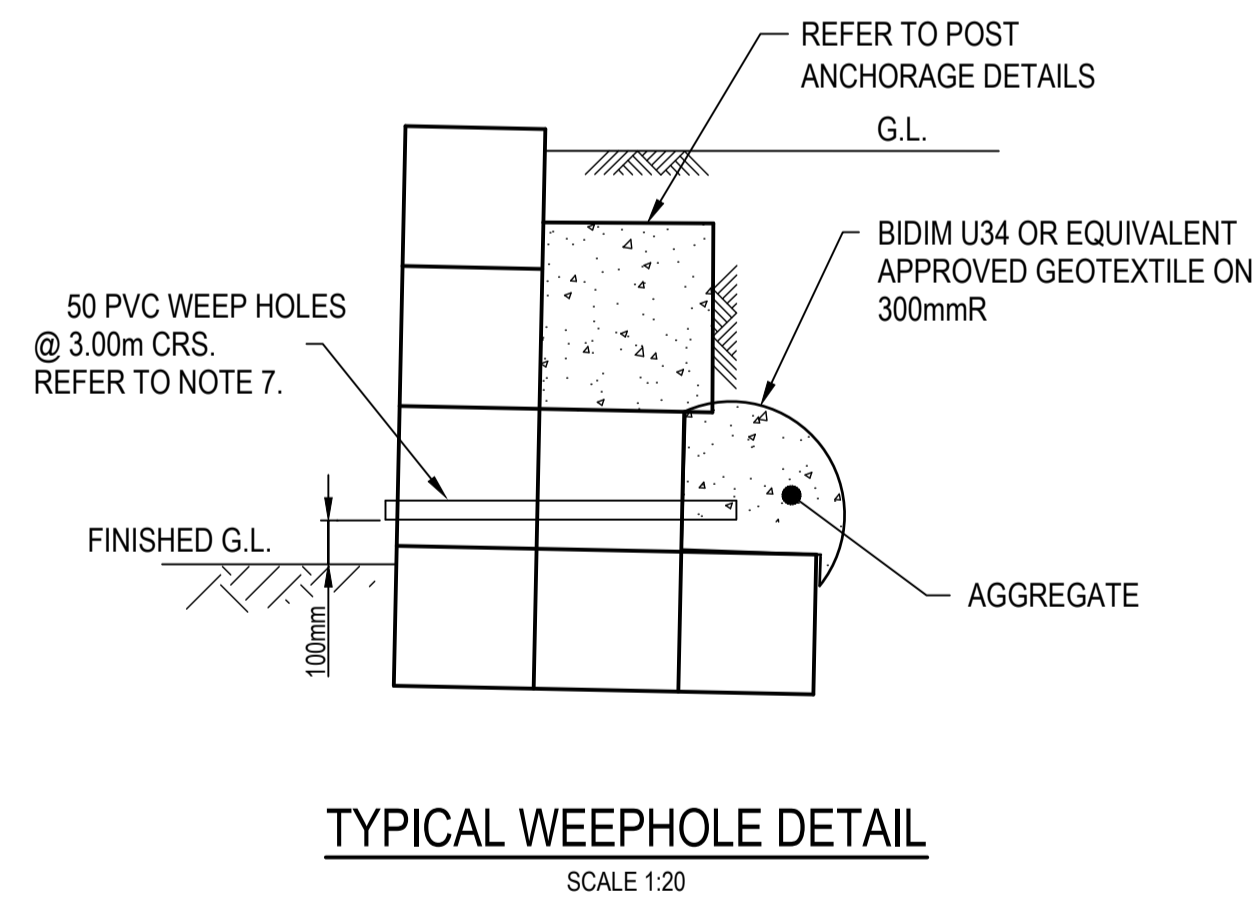
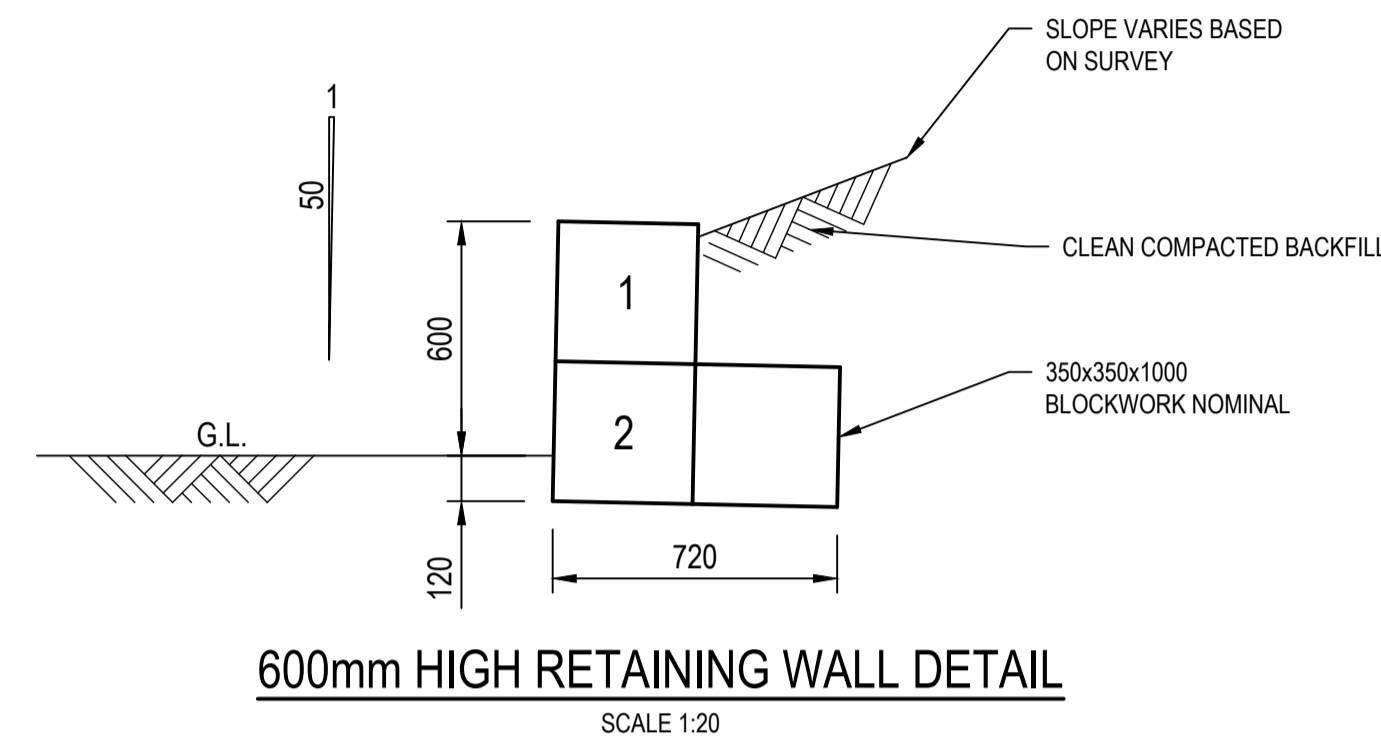
Drawing Title	REVETMENT GENERAL NOTES
Drawing No.	12596020-GHD-00-03-DRG-CI-00300

Size	A1
Rev	P02

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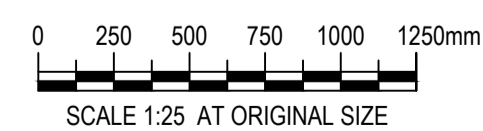
1. ALL BLOCKS TO BE MINIMUM DENSITY OF 1800kg/m (DRY).
2. COMPLETED BLOCKWORK OF WALL TO BE OF THICKNESS NO LESS THAN MINIMUM PROFILE INDICATED.
3. GROUND FOR WALL FOOTING TO BE COMPACTED TO A MINIMUM OF 95% MODIFIED M.D.D. OR EQUIVALENT WITH TEST RESULTS INCLUDED IN QA DOCUMENTATION
4. ALL BLOCK JOINTS TO BE VERTICAL OR HORIZONTAL (NOT SLOPED) 30mm (MAX) ROLLED JOINTS, MORTAR TO BE 1:1.6 FACE JOINTS TO BE MATCHING MORTAR.
5. WEEP HOLES TO BE CONSTRUCTED IN WALLS WHEN FOOTING IS IN ROCK, CAPSTONE OR WHERE FOOTINGS ARE PLACED ON LESS THAN 600mm OF SAND.
6. THREE COATS OF NON SACRIFICIAL ANTI GRAFFITI COATING IS TO BE APPLIED TO WALLS FACING A ROAD, P.A.W. DRAINAGE SUMP OR P.O.S.
7. FOR ANY OTHER WALLS, DIFFERENT TO WALL SECTIONS ON THIS DRAWING CONSULT THE ENGINEERS.
8. CONTRACTOR TO LIAISE WITH LOCAL AUTHORITY TO OBTAIN BUILDING LICENSE FOR ALL RETAINING WALLS.
9. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH RETAINING WALL LONGITUDINAL SECTION PLANS.
10. LOCATION OF CONTROL JOINT IN BLOCK RETAINING WALLS TO BE APPROVED BY SUPERINTENDENT PRIOR TO WALL CONSTRUCTION. (CONTROL JOINTS AT 20.00m NOM)
11. RETAINING WALL NOT DESIGNED FOR TRUCK LOADING.
12. HEAVY COMPACTION EQUIPMENT TO BE USED AT A MINIMUM OF 1.5m AWAY FROM THE REAR FACE OF RETAINING WALL.
13. USE LIGHTWIGHT COMPACTOR BEHIND WALL.

DETAILS SHOWN ARE FOR RECONSTITUTED LIMESTONE AND "BLOK-NATURAL EARTH" BLOCKS



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P02	ISSUED FOR TENDER	SA	AK	08/02/24
P01	PRELIMINARY DESIGN	SA	AK	21/12/23

Author S.DAVIES Drafting Check A.KRAUSE
Designer S.AGHERDIEN Design Check P.TONKIN



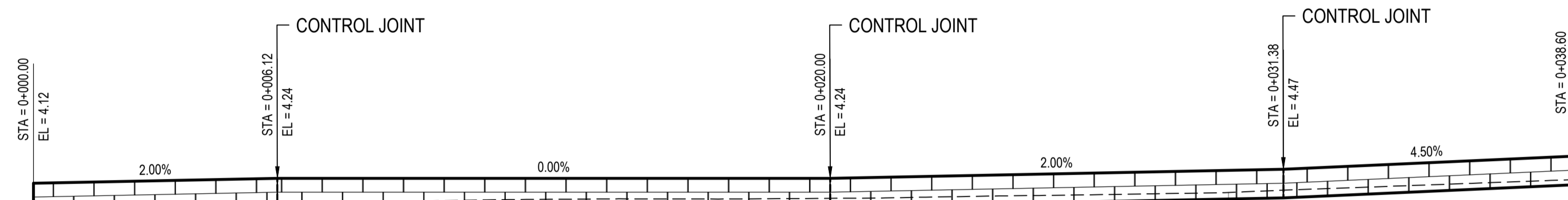
Client SHIRE OF NORTHAMPTON
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Status TENDER

Drawing Title TYPICAL RETAINING WALL DETAILS

Size A1

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Drawing No. 12596020-GHD-00-03-DRG-ST-00200
Rev P02



SCALE: H 1:50 1:50
DATUM 0.000

OVERALL WALL HEIGHT	0.720	0.720	0.720	0.720	0.720	0.720	0.720
DESIGN TOP OF WALL	4.120	4.242	4.242	4.242	4.442	4.470	4.795
DESIGN BOTTOM OF WALL	3.400	3.522	3.522	3.522	3.722	3.750	4.075
PAVEMENT LEVEL	3.659	3.654	3.676	3.739	3.886	3.944	4.207
CHAINAGE	0.000	6.122	10.000	20.000	30.000	31.379	38.956

LONGITUDINAL SECTION - RETAINING WALL



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Drawing Title
RETAINING WALL PROFILE

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Rev
P02