Proposed Facilities Upgrade of Hunter River High School, 36 Elkin Avenue, Heatherbrae, Port Stephens Council LGA, NSW

Archaeological Technical Report

Prepared for The Department of Education

June 2023

KAYANDEL

ARCHAEOLOGICAL SERVICES

☎ 02 4627 8622

Info@kayandel.com.au

Document Status

Version No.	Purpose of Document	Orig	Reviewer	Review Date	Approval for Issue	Date Issued
1.0	Internal review of interim draft report	AH	NS	20/04/2023	LS	20/04/2023
1.1	Client review of ATR which details the Phase 1 test ex results	NS	APP & SINSW	23/04/2023	APP	5/05/2023
1.2	Client Review of ATR – includes the results of the Phases 2 & 3 of the test ex	NS	APP& SINSW	1/06/2023	APP	2/06/2023
1.3	RAP Review	NS	RAPs	2/06/2023	-	-
2.0	Final Report	NS	LS	16/06/2023	LS	16/06/2023

Executive Summary

Kayandel has been engaged by The APP Group (Project Manager) on behalf of the NSW Department of Education (the Proponent) to prepare an Archaeological Technical Report (ATR) in relation to Aboriginal cultural heritage within Hunter River High School.

This ATR has been prepared to present the results from the Aboriginal archaeological test excavation which was undertaken to determine the nature and extent of artefact-bearing deposit within the archaeologically sensitive landform that may be impacted (refer to Section 7).

Kayandel's test excavation of the archaeologically sensitive landform identified by GML (2020) was to determine whether any archaeological deposits were present, and if so, to assess the nature and extent.

Twenty-two (22) stone artefacts and one (1) ochre nodule were recovered from ten (10) of the fifty excavation areas (refer to Table 6).

A total of 27m² of the Subject Area was excavated, the excavated area had a density of 0.98 artefacts/m² (see Table 6).

The results from Kayandel's test excavation indicates that the archaeologically sensitive landform identified by GML has low to moderate archaeological potential.

Three (3) Aboriginal sites have been identified as a result of Kayandel's archaeological excavation (refer to Figure 11):

- HRHS-AS-01 (Hunter River High School);
- HRHS-AS-02 (Hunter River High School); and,
- HRHS-AS-03 (Hunter River High School).

It can be concluded from Kayandel's test excavation that there is potential for the portions of the archaeologically sensitive landform that have not been investigated by this test excavation, to contain archaeological deposit.

On consideration of previous disturbance, the archaeological context, and the archaeological potential and significance identified for the landforms within the Subject Area, Kayandel has identified mitigation measures (refer to Section 10.2) to manage any impacts that the proposed development works would have on the identified Aboriginal sites.

Specific details for each of the mitigation measures is presented in Section 12 of the accompanying ACHAR.

Recommendations

The following management principles and recommendations are based on:

- The legal requirements of the *National Parks and Wildlife Act 1974* (as amended), whereby it is illegal to damage, deface or destroy an Aboriginal relic without first obtaining the written consent of the Director General of National Parks & Wildlife Service;
- The legal requirements of *the Heritage Act 1977*, whereby it is illegal to disturb or excavate any land knowing or having reasonable cause to suspect that the disturbance or excavation will or is likely to result in a relic being discovered, exposed, moved, damaged or destroyed unless the disturbance or excavation is carried out in accordance with an excavation permit;

- The requirements of the *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* (DECCW, 2010b);
- The requirements of the *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW* (OEH, 2011); and,
- The findings presented within this ATR and the accompanying Aboriginal Cultural Heritage Assessment Report.

Kayandel recommends the following:

1. That site cards are prepared and submitted to AHIMS for HRHS-AS-01 (Hunter River High School), HRHS-AS-02 (Hunter River High School) and HRHS-AS-03 (Hunter River High School).
2. A copy of the final ATR to be included in the ACHAR.

Disclaimer: This archaeological assessment and the management recommendations contained herein, will be independently reviewed by Heritage NSW, and the relevant Aboriginal community.

Heritage NSW and the Aboriginal community will make consideration of the findings of the consultant's report and the recommendations in relation to the management of cultural heritage. Formal approval for all actions outlined should be sought from the relevant authority prior to the completion of any works. At no time should automatic approval of the management recommendations stated herein be assumed.

CONTENTS

1 Introduction 1
1.1 Location of the Subject Area 1
1.2 Proposed Development Works 1
1.3 Study Aim and Objectives 1
1.4 Limitations 2
1.5 Personnel 3
2 Applicable Policy and Legislation 7
2.1 Commonwealth Legislation 7
2.1.1 Aboriginal and Torres Strait Islander Heritage Protection Act 1984 7
2.1.2 Environment Protection & Biodiversity Conservation Act 1999 (EPBC Act) 7
2.1.3 Native Title Act 1993 (Amended) 8
2.2 New South Wales Legislation 8
2.2.1 Environmental Planning and Assessment Act 1979 8
2.2.2 National Parks and Wildlife Act 1974 9
2.2.3 The Heritage Act 1977 (NSW) (Amended 1999) 9
2.3 Local Government Controls 10
2.3.1 Port Stephens Local Environmental Plan 2011 10
2.4 Non-Statutory Listings 11
2.4.1 Register of the National Estate 11
3 Partnership with Indigenous Communities 12
4 Study Methods 13
4.1 Background Research 13
4.2 Archaeological Excavation Methodology 13
5 Landscape Context 15
5.1 Existing Environment 15
5.2 Former Land Use and Disturbance 17
6 Archaeological Context 21
6.1 AHIMS Database Search 21
6.2 Regional Archaeological Context 22
6.3 Relevant Subsurface Excavations 23
6.4 Previous Predictive Models 25
6.5 Aboriginal Heritage Predictions for the Subject Area 26
6.5.1 Expectations for assemblage composition 27

7 Test Excavation Results 30
7.1 Phase 1 Test Programme 30
7.2 Phase 2 Test Programme 31
7.3 Phase 3 Test Programme 36
7.4 Lithic Analysis 36
8 Discussion 44
8.1 Identified Aboriginal Sites 44
8.1.1 HRHS-AS-01 (Hunter River High School) 45
8.1.2 HRHS-AS-02 (Hunter River High School) 45
8.1.3 HRHS-AS-03 (Hunter River High School) 45
9 Principal Findings 47
10 Management Considerations 48
10.1 Guiding Principals 48
10.2 Management Strategies 48
11 Legislative Obligations and Recommendations 49
11.1 Obligations 49
11.2 Recommendations 49
11.3 Distribution of Report 49
12 References 50
Appendix I. Aboriginal Archaeological Test Excavation Methodology 51
Appendix II. Test Pit Profile Photographs 57
Appendix III. Stratigraphic Drawings 63
Appendix IV. Artefact Catalogue 111

LIST OF TABLES

Table 1: Kayandel personnel involved in the preparation of this report 3
Table 2: Summary of Historic Aerial Photographs 17
Table 3: AHIMS Database Search Criteria 21
Table 4: Site Types from AHIMS Search (Client Service ID 715676) 22
Table 5: Summary of models and assemblage expectations 27
Table 6: Vertical Distribution of Artefacts 41
Table 7: Vertical Distribution of Raw Material by Depth 42
Table 8: Vertical Distribution of Artefact Type 43
Table 9: Frequency of Artefact Types by Raw Materials 43

LIST OF FIGURES

Figure 1: Project Location 4
Figure 2: Subject Area 5
Figure 3: Proposed Masterplan 6
Figure 4: Topographic Map 16
Figure 5: AHIMS Search Results 28
Figure 6: AHIMS Sites in Proximity 29
Figure 7: Location of Test Pits 32
Figure 8: Location of Test Pits – Map A 33
Figure 9: Location of Test Pits – Map B 34
Figure 10: Location of Test Pits – Map C 35
Figure 11: Identified Aboriginal Sites 46

LIST OF PLATES

Plate 1: 1954 aerial photograph of Hunter River High School 18
Plate 2: 1966 aerial photograph of Hunter River High School 18
Plate 3: 1976 aerial photograph of Hunter River High School 19
Plate 4: 1984 aerial photograph of Hunter River High School 19
Plate 5: 1993 aerial photograph of Hunter River High School 20
Plate 6: 2001 aerial photograph of Hunter River High School 20
Plate 7: Viewing looking north towards SQ14 31
Plate 8: Team sieving excavated material 31
Plate 9: Schematic layout of Area SQ28 36
Plate 10: Area SQ28 at end of Phase 3 excavation 36

This Page is intentionally left Blank

1 INTRODUCTION

Kayandel has been engaged by The APP Group (Project Manager) on behalf of the NSW Department of Education (the Proponent) to prepare an Archaeological Technical Report (ATR) in relation to Aboriginal cultural heritage within Hunter River High School.

In 2020 (GML, 2020) produced an Aboriginal Heritage Due Diligence Report in relation to the Subject Area. As part of their investigation, GML (2020) identified that the School contained areas of archaeological sensitivity, particularly associated with the Tea Garden Variant A soil landscape.

This ATR has been prepared to present the results from the Aboriginal archaeological test excavation which was undertaken to determine the nature and extent of artefact-bearing deposit within the archaeologically sensitive landform that may be impacted (refer to Section 7).

1.1 Location of the Subject Area

The Subject Area is situated within the Port Stephens Council Local Government Area (LGA) (see Figure 1). It lies south of the Raymond Terrace, on the western side of the Pacific Highway.

The Subject Area is approximately 9ha.

The Subject Area is approximately 9ha. It is located at Hunter River High School, 36 Elkin Avenue, Heatherbrae and comprises of the following properties (refer to Figure 2):

- Lot 1 DP579025;
- Lot 1 DP540114 and
- Lot 1 DP120189.

1.2 Proposed Development Works

The project is to upgrade the Hunter River High School to meet EFSG Stream 6 core facilities. This will entail additional new general learning spaces including support classes and refurbishment of existing general learning spaces. In-line with this, external works will require to be planned and developed that includes the public domain, transport & traffic and parking. The project scope including costs and timing has now been finalised for this first stage of work. This stage of work has been informed by priorities identified by stakeholders focusing on the provision of the following:

- Provision of 8 new support classrooms including new Emotionally Disturbed (ED);
- Behaviourally Disturbed (BD) classrooms;
- Core facilities upgrades;
- New administration building (reduced in size from FBC allocation);
- New gymnasium;
- Refurbishment to existing nominated classrooms:
    - Building A - refurbishment;
    - Building C – Hospitality Kitchen converted to Visual Arts Space;
    - Building E – Support Classrooms converted to Movement Hub; and,
    - Building H – Computer Lab converted to Food Tech.

Refer to Figure 3 for the proposed masterplan.

1.3 Study Aim and Objectives

This archaeological assessment was prepared to determine the nature and extent of archaeological deposit present within the archaeologically sensitive area identified by GML (2020).

This investigation was necessary to assist in making an assessment of the significance of the archaeological values of the Subject Area, and to determine if and how the proposed development works as defined in Section 1.2 would impact the any artefact-bearing deposits within the archaeologically sensitive landform.

The assessment also aimed to assist in developing strategies to minimise the impact of the proposed development works on the Aboriginal archaeological significance identified as a result of the Aboriginal archaeological test excavation and to provide recommendations to assist in implementing any proposed mitigation measures.

To fulfil these aims, the following objectives have been identified:

- Summarise the consultation undertaken with Aboriginal community stakeholders;
- A synthesis of the background information, including landscape and ethnographic history as described in the *Code of Practice* (DECCW, 2010b);
- A review of archaeological context, including identification of known Aboriginal sites in the Subject Area through a search of Aboriginal Heritage Information Management System (AHIMS) and an analysis of the relevant subsurface archaeological investigations in the vicinity of the Subject Area.
- Undertake of an archaeological test excavation in accordance with the *Code of Practice* (DECCW, 2010b);
- Detail the results of the subsurface investigation of the archaeologically sensitive landform;
- Characterising the nature of any archaeological deposits encountered.
- Discuss the results and provide discussion which will help to assess the archaeological significance of the sensitive landforms;
- Articulate any management considerations or constraints on development; and,
- Provide suitable management strategies for the project.

1.4 Limitations

The advice in this report is limited to the results of the Aboriginal archaeological test excavation.

This report is based on a review of available Aboriginal archaeological assessments (sourced from AHIMS, grey literature and Kayandel's report library) and field investigations. It is possible that further Aboriginal archaeological assessments or the emergence of new analysis of the Aboriginal archaeological landscape within the Port Stephens area may support different interpretations of the evidence in this report.

The results from the 'AHIMS Database Search' (Section 6.1) are valid for 12 months (from the date of the search). If the report has not been finalised and/or it is necessary to update the report, and the previous AHIMS database search is over 12 months old, it will be necessary to undertake another search of AHIMS again to ensure the information is still current. If the AHIMS search results identify additional Aboriginal sites which will result in significant changes to the assessment, it will be necessary to update the report to consider these results.

A summary of the statutory requirements regarding heritage is provided in Section 2. This is made based on our experience of working with the NSW Aboriginal heritage and European heritage systems and does not purport to be legal advice. It should be noted that legislation, regulations, and guidelines change over time and users of this report should satisfy themselves that the statutory requirements have not changed since the report was written.

1.5 Personnel

The qualifications of the Kayandel team are included in Table 1.

Person	Qualifications	Experience	Tasks
Britt Andrews	B. Arts (His. and Anc. His. and Arch.) - B. Com. and Media Studies (Digital Media and Com.)	>1 year	Background research, report drafting
Amber Hewson	B. Arts (His. and Anc. His. and Arch.) Indigenous Studies and French	<1 year	Background research, report drafting
Natalie Stiles	B. Arts (Arch/Palaeo), Grad. Cert. Arts (Arch), MGIS&RemoteSens	>10 years	Report review, mapping, test excavation supervision
Lance Syme	B. Arts (Arch/Palaeo), Grad. Dip. (Heritage Cons.), M. ICOMOS	>20 years	Project supervision, report review, test excavation supervision

Table 1: Kayandel personnel involved in the preparation of this report

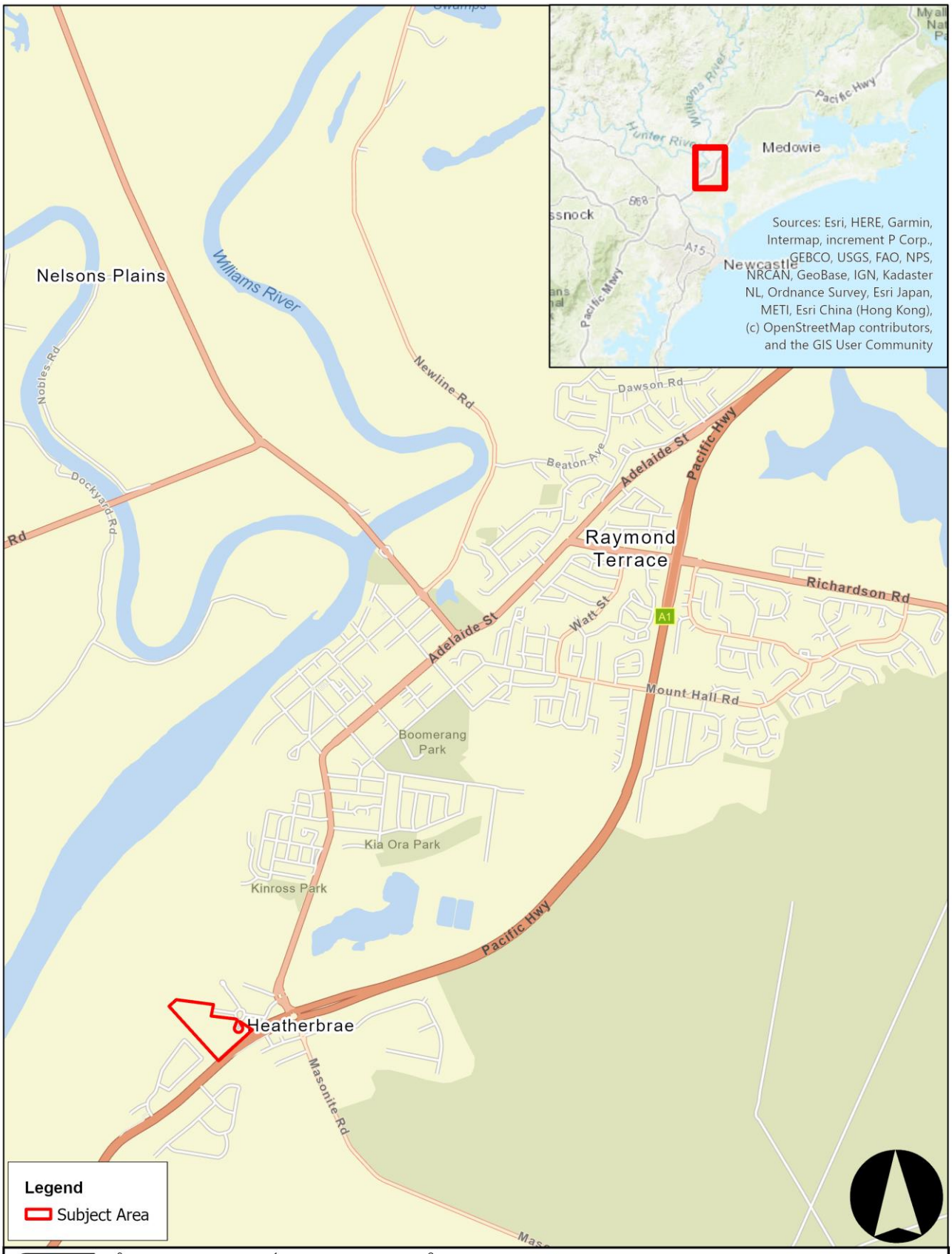


Figure 1: Project Location

Figure 2: Subject Area

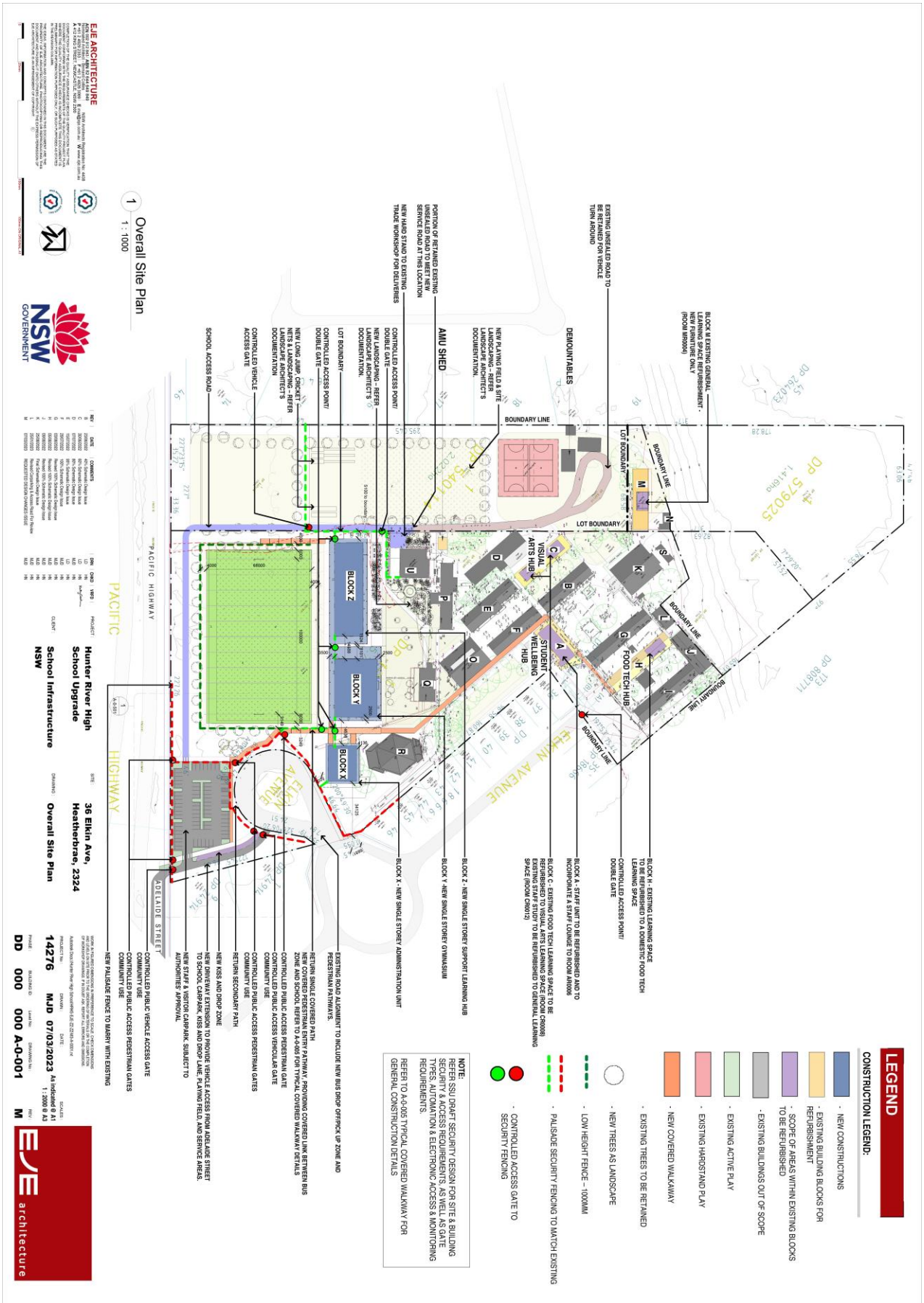


Figure 3: Proposed Masterplan

2 APPLICABLE POLICY AND LEGISLATION

Aboriginal and non-Aboriginal cultural heritage in Australia is protected and managed under a variety of legislation. The following section provides a brief summary of the Acts which are relevant to the management of cultural heritage in NSW. It is important to note that these Acts are presented as a guide and are not legal interpretations of legislation by the consultant.

2.1 Commonwealth Legislation

2.1.1 Aboriginal and Torres Strait Islander Heritage Protection Act 1984

The purpose of the *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* (*Heritage Protection Act*) is the preservation and protection from injury or desecration of areas and objects in Australia and in Australian waters that are of particular significance to Aboriginal people in accordance with Aboriginal tradition.

Under the *Heritage Protection Act* the responsible Minister can make temporary or long-term declarations to protect areas and objects of significance under threat of injury or desecration. The Act can, in certain circumstances, override state and territory provisions, or it can be implemented in circumstances where state or territory provisions are lacking or are not enforced. The Act must be invoked by or on behalf of an Aboriginal or Torres Strait Islander or organisation.

2.1.2 Environment Protection & Biodiversity Conservation Act 1999 (EPBC Act)

The *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* (*EPBC Act*) took effect on 16 July 2000. Under Part 9 of the *EPBC Act*, any action that has, or is likely to have, a significant impact on a matter of National Environmental Significance (known as a controlled action under the *EPBC Act*), may only progress with approval of the Commonwealth Minister for the Environment. An action is defined as a project, development, undertaking, activity (or series of activities), or alteration to any of these. Where an exception applies, an action will also require approval if:

It is undertaken on Commonwealth land and will have or is likely to have a significant impact;

1. It is undertaken outside Commonwealth land and will have or is likely to have a significant impact on the environment on Commonwealth land; and,
2. It is undertaken by the Commonwealth and will have or is likely to have a significant impact.

Under Section 28 subsection (1) "The Commonwealth or Commonwealth Agency must not take inside or outside Australian jurisdiction an action that has, will have, or is likely to have a significant impact on the environment inside or outside Australian jurisdiction." The *EPBC Act* defines 'environment' as both natural and cultural environments and therefore Aboriginal and historic cultural heritage items included on the Register of the National Estate are regarded as part of the cultural environment.

Australia has changed legislation that protects its national heritage places. Three new laws came into effect in January 2004 and are essentially a combination of previous heritage system with a number of changes that include the establishment of a National Heritage List (NHL) and a Commonwealth Heritage List (CHL).

The NHL records places with outstanding natural and cultural heritage values that contribute to Australia's National identity. The CHL will comprise natural, Aboriginal and historic places owned or managed by the Commonwealth. The laws provide offer greater legal protection under the existing

EPBC Act. Under the new system, National Heritage will join six other important 'matters of national environmental significance' (NES) already protected by the *EPBC Act*:

- *The Environment and Heritage Legislation Amendment Act (No.1) 2003*;
- *The Australian Heritage Council Act 2003*; and,
- The *Australian Heritage Council (Consequential and Transitional Provisions) Act 2003*.

Approval under the *EPBC Act* is required if you are proposing to take an action that will have, or is likely to have, a significant impact on the National Heritage values of a National Heritage place and/or any other NES matter. This action must be referred to the Australian Government Minister for the Environment and Heritage. The Minister will decide whether an action will, or is likely to, have a significant impact on a matter of national environmental significance.

The heritage provisions of the *EPBC Act* allow for a transition period whilst the National and Commonwealth Heritage Lists are finalised. During this transition period the Register of the National Estate acts in conjunction with the formative National and Commonwealth lists to provide full coverage for items already identified as having cultural heritage significance.

2.1.3 Native Title Act 1993 (Amended)

The *Native Title Act of 1993*, as amended, recognises and protects native title, and provides that native title cannot be extinguished contrary to the Act. The National Native Title Tribunal (NNTT) is a Commonwealth Government agency set up under this Act to mediate native title claims under the direction of the Federal Court of Australia.

The NNTT maintains the following registers:

- National Native Title Register;
- Register of Native Title Claims;
- Unregistered Claimant Applications; and,
- Register of Indigenous Land Use Agreements.

The objective of a search of the NNTT registers is to identify possible Aboriginal Stakeholders that would not perhaps receive representation as part of the Local Aboriginal Land council or Elders groups.

The Subject Area is not the site of any Native Title applications or determinations.

2.2 New South Wales Legislation

The following New South Wales legislation protects aspects of cultural heritage and is relevant to development activities in the Subject Area.

2.2.1 Environmental Planning and Assessment Act 1979

The *EP&A Act* requires that consideration be given to environmental impacts as part of the land use planning process. This includes impacts on Aboriginal and non–Aboriginal cultural heritage items and places. The Act also requires that LGAs prepare Local Environmental Plans (LEP) and Development Control Plans (DCP) in accordance with the Act to provide guidance on the level of environmental assessment required. LEPs often list locally significant heritage items. Three parts of the EP&A Act are most relevant to Heritage. Part 3 relates to planning instruments, including those at local and regional levels; Part 4 controls development assessment processes; and Division 5.1 refers to approvals by determining authorities.

2.2.2 National Parks and Wildlife Act 1974

The *National Parks and Wildlife Act 1974* provides for protection of Aboriginal objects (sites, relics and cultural material) and Aboriginal places. Under the Act (Section 5), an Aboriginal object is defined as:

> *any deposit, object or material evidence (not being a handicraft for sale) relating to indigenous and non-European habitation of the area that comprises New South Wales, being habitation both prior to and concurrent with the occupation of that area by persons of European extraction, and includes Aboriginal remains.*

An Aboriginal place is defined under this Act as an area that has been declared by the Minister administering the *National Parks and Wildlife Act 1974* as a place of special significance for Aboriginal culture. It may or may not contain physical Aboriginal objects.

Under Section 86 of the *National Parks and Wildlife Act 1974* it is an offence to knowingly destroy, deface, damage or desecrate, or cause or permit the destruction, defacement, damage or desecration of, an Aboriginal object or Aboriginal place, without the prior written consent from the Director-General of Heritage NSW. In order to obtain such consent, a Section 90 Aboriginal Heritage Impact Permit (AHIP) application must be submitted and approved by the Heritage NSW Director-General. In considering whether to issue a permit under Section 90, Heritage NSW will consider:

- The objectives and justifications for the proposed activity;
- The appropriateness of the methodology to achieve the objectives of the proposed activity;
- The significance of the Aboriginal object(s) or place(s) subject to the proposed impacts;
- The effect of the proposed impacts and the mitigation measures proposed;
- The alternatives to the proposed impacts;
- The conservation outcomes that will be achieved if impact is permitted;
- The outcomes of the Aboriginal community consultation regarding the proposed impact and conservation outcomes;
- The views of the Aboriginal community about the proposed activity; and,
- The knowledge, skills, and experience of the nominated person (s) to adequately undertake the proposed activity.

Under Section 89A of the *National Parks and Wildlife Act 1974* it is a requirement to notify Heritage NSW Director-General of the location of an Aboriginal object. Identified Aboriginal items and sites are registered with Heritage NSW on AHIMS.

2.2.3 The Heritage Act 1977 (NSW) (Amended 1999)

The NSW *Heritage Act 1977* provides protection for items of 'environmental heritage' in NSW. 'Environmental heritage' includes places, buildings, works, relics, movable objects or precincts considered significant based on historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic values. Items considered to be significant to the State are listed on the State Heritage Register and cannot be demolished, altered, moved or damaged, or their significance altered without approval from the Heritage Council of NSW.

Items listed on the State Heritage Register (SHR) require consent of the Heritage Council to undertake work or development which alters, moves, deposits or damages any part of the heritage item, place, precinct, land, its relics or any vegetation.

Relics are afforded automatic protection under Section 139 of the *NSW Heritage Act 1977* which applies generally to all land in New South Wales. Under Section 41(1) of the *NSW Heritage Act 1977* and the *Heritage Amendment Act 2009* (No. 34) a 'relic' is defined as:

> *Any deposit artefact, object or material evidence that:*
>
> > *(a) Relates to the settlement of the area that comprises New South Wales, not being Aboriginal settlement, and*
> >
> > *(b) Is of State or local significance.*

Section 146 of the *NSW Heritage Act 1977* requires that the accidental discovery of relics should be reported in writing to the Heritage Council of NSW. Depending on the nature of the discovery, additional assessment and possibly an excavation permit may be required prior to the recommencement of excavation in the affected area. Alternatively, an applicable gazetted 'exception' might apply.

If the Heritage Council believes that a heritage item or place needs to be conserved, it can make a recommendation to the Minister, who decides whether to place protection on that item. There are two types of protection available: interim heritage orders and listing on the State Heritage Register. These forms of protection are 'binding directions', which means that the heritage item that is protected in one of these ways cannot be demolished, redeveloped or altered without permission from the Heritage Council.

The *NSW Heritage Act 1977* does not apply to Aboriginal "relics" (any deposit, object or material evidence). These items are protected under the *National Parks and Wildlife Act 1974*; however, some aspects of Aboriginal cultural heritage management and protection are covered by provisions of the *NSW Heritage Act 1977.*

2.3 Local Government Controls

2.3.1 Port Stephens Local Environmental Plan 2011

Heritage is dealt with under Section 5.10 and Schedule 5 of the *Port Stephens Local Environmental Plan 2013*(LEP). Section 5.10 (1) outlines the objectives of the clause, including:

> *(d) to conserve Aboriginal objects and Aboriginal places of heritage significance.*

The clause states that development consent is for the following activities:

> *(2) (a) demolishing or moving any of the following or altering the exterior of any of the following (including, in the case of a building, making changes to its detail, fabric, finish or appearance):*
>
> > *(i) a heritage item,*
> >
> > *(ii) an Aboriginal object,*
> >
> > *(iii) a building, work, relic or tree within a heritage conservation area,*
>
> *(b) altering a heritage item that is a building by making structural changes to its interior or by making changes to anything inside the item that is specified in Schedule 5 in relation to the item,*
>
> *(c) disturbing or excavating an archaeological site while knowing, or having reasonable cause to suspect, that the disturbance or excavation will or is likely to result in a relic being discovered, exposed, moved, damaged or destroyed,*

(d) disturbing or excavating an Aboriginal place of heritage significance,

(e) erecting a building on land:

(i) on which a heritage item is located or that is within a heritage conservation area, or

(ii) on which an Aboriginal object is located or that is within an Aboriginal place of heritage significance,

(f) subdividing land:

(i) on which a heritage item is located or that is within a heritage conservation area, or

(ii) on which an Aboriginal object is located or that is within an Aboriginal place of heritage significance.

Section 5.10 (8) Specifically applies to *Aboriginal Places pf Heritage Significance*, and outlines the level of assessment and notification which needs to be undertaken for development affecting Aboriginal places, prior to granting development consents.

Schedule 5 – Environmental Heritage lists places of heritage significance registered on the local listing. These items are primarily European and post-contact sites, however occasionally Aboriginal places are listed at the local level.

2.4 Non-Statutory Listings

The National Trust of Australia (NSW) is a community-based organisation with independently constituted Trusts in each state and territory. The NSW National Trust compiles a heritage list primarily of historic places, but they also include some Aboriginal and natural places. Listing helps to provide recognition and promote public appreciation and concern for local heritage.

The National Trust Register has no legal foundation or statutory power but is recognised as an authoritative statement on the significance to the community of particular items and is held in high esteem by the public.

2.4.1 Register of the National Estate

The Register of the National Estate (RNE) was closed in 2007 and is no longer a statutory list.

The RNE is maintained on a non-statutory basis as a publicly available archive and educational resource. Items entered in the RNE prior to its closure in 2007 as identified as "registered". The existence of an entry for a place in the RNE does not in itself create a requirement to protect the place under Commonwealth law. Nevertheless, information in the register may continue to be current and may be relevant to statutory decisions about protection.

3 PARTNERSHIP WITH INDIGENOUS COMMUNITIES

Aboriginal consultation in accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (DECCW, 2010a) was undertaken by Kayandel for this project. Full details of the consultation are detailed in Section 3 of the accompanying ACHAR and is summarised here.

Invitations to register an interest were sent to all identified potential stakeholders (refer to Appendix XII in the ACHAR).

An advertisement was placed in the *Newcastle Herald* on the 26th of October 2022, inviting registrations of interest from people who may have cultural knowledge of the project area (refer to Figure 4 of the ACHAR). There were two responses to this advertisement (Rose Nean and Karuah Indigenous Corporation).

A total of eighteen (18) Aboriginal people and organisations registered an interest in being consulted for the project (refer to Table 2 of the ACHAR).

Consultation with the Registered Aboriginal Parties (RAPs) has been conducted in accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (DECCW, 2010a) about the project, the sampling strategy and the methodology for undertaking the assessment of cultural heritage significance was provided to the RAPs for their review and comment (refer to Appendix XV of the ACHAR).

Comments received on the methodology are detailed in Sections 3.1.2 and 3.1.3 of the ACHAR.

Copies of all consultation correspondence including the correspondence log, are provided in Appendix XV to Appendix XVI, and Appendix XIX of the ACHAR.

The draft ACHAR and this ATR were provided to the RAPs for comment on the 2nd June 2023.

The comments received from the RAPs are detailed in Section 3.1.4 of the ACHAR.

4 STUDY METHODS

A breakdown of the various tasks that have been undertaken to achieve the objectives of this assessment is provided below.

4.1 Background Research

Prior to the field work, the following tasks were undertaken:

- A search of the AHIMS maintained by Heritage NSW was obtained to determine whether any sites or areas of sensitivity had previously been recorded within or near the Subject Area. This search also assisted with the development of a local site distribution model;
- A search of the AHIMS report catalogue was conducted to identify previous archaeological studies that had been carried out in and near the Subject Area. The reports identified were able to provide information on the local archaeological context and assisted with the development of predictions for site location within the Subject Area;
- Published archaeological texts and grey literature regarding the Heatherbrae area were consulted to assist with the development of regional and local archaeological contexts for the Subject Area;
- Kayandel's library was searched and an internet search was carried out to identify any Aboriginal history, ethnography, environmental and climate information relevant to the Subject Area;
- A predictive model for the Subject Area was prepared; and,
- The topographic map and air photos were examined to plan the test excavation strategy. Survey units would target areas of disturbance which could have improved visibility as well as areas which appeared less disturbed with potential for intact Aboriginal sites.

4.2 Archaeological Excavation Methodology

The test excavations were conducted in accordance with Requirement 16a of the *Code of Practice* (DECCW, 2010b).

1. Test units will be placed on a systematic grid, with spacing at 5m intervals. Test units may be more closely spaced, to clarify the spatial distribution of objects. Test units may be off-set from the 5m grid to avoid obstacles as necessary.
2. Test units would be separated by at least 5m.
3. Test units will be excavated using hand tools only.
4. Test units will be excavated in 50cm x 50cm squares.
5. Test units may be combined and excavated as necessary to understand site characteristics, however:
    i. The maximum continuous surface area of a combination of test units will not be greater than $3m^2$;
    ii. The maximum surface area of all test units will be less than 0.5% of the site being investigated.
6. Where the 50 cm x 50 cm excavation unit is greater than 0.5% of the area then point 5 (ii) (above) does not apply.
7. The first test unit will be excavated and documented in 5cm spits. Based on the results of the first test unit, 10cm spits or sediment profile/stratigraphic excavation (whichever is smaller) may then be implemented.

8. All material excavated from the test units will be sieved using a 5mm aperture wire-mesh sieve. A smaller mesh may also be used. Wet sieving will be used if possible.
9. Test units will be excavated to at least the base of the identified Aboriginal object-bearing units, and will continue to confirm the soils below are culturally sterile. However, excavation will cease if/when B-horizon clays, rock or other impenetrable layer is reached, even if objects occur directly on this layer.
10. There is no point 10 in requirement 16a of the *Code of Practice* (DECCW, 2010b).
11. Photographic and scale-drawn records of the stratigraphy/soil profile, features and informative Aboriginal objects will be made for each test unit or combined units.
12. Test units will be backfilled as soon as practicable.
13. An Aboriginal Site Impact Recording form will be completed and submitted to the AHIMS Registrar as soon as practicable after the test excavation (DECCW, 2010b, pp. 26-27).

The investigations will be undertaken in three phases, with the design of each subsequent Phase being determined by the results of the earlier Phase(s).

A 20m x 20m grid has been overlain on the areas of archaeological sensitivity that will be impacted by the proposed upgrade (see Figure 5 of Appendix I). A sample of the notional test pits presented in Figure 5 of Appendix I, will be selected for excavation. Kayandel will undertake infield consultation with RAPs to identify test pits that have potential to contain intact archaeological deposits.

These pit locations have been selected to enable data to be gathered from the proposed impact area, as well as considering existing disturbance levels and proposed disturbances, within the Subject Area.

Phase 1:	In order to reach the base of cultural deposits, it may be necessary to expand the original 50cm x 50cm test pit. Where this is required, the test pit will be excavated in 50cm x 50cm quadrants. In situations where it is necessary to relocate a test pit due flooding or an obstruction (such, as boulders, sandstone platforms, etc.), the test pit will be relocated in either a north, south, east or west direction, and will not be located more than 5m from the original location. If no Aboriginal cultural material was identified during Phase 1, the test excavation would cease in accordance with the excavation methodology described below
Phase 2:	Investigations would involve the excavation of additional test pits at a distance of 10m where high frequencies of Aboriginal cultural material were identified in Phase 1 test pits. If no Aboriginal cultural material was identified the test excavation would cease at Phase 1.
Phase 3:	In circumstances where significant artefact types such as backed blades or similar have been identified, or identification of cultural features such as hearths, knapping floors, the 0.5m x 0.5m test pit will be expanded in north, south, east and west directions, in order to make an assessment regarding the nature and extent of the archaeological deposit.

5 LANDSCAPE CONTEXT

The natural environment of an area influences not only the availability of local resources such as food and raw materials for artefacts but also determines the likely presence and/or absence of various archaeological site types which may be encountered during a field investigation. Landforms, soil types, and soil depths in combination with the underlying geology have implications for subsurface archaeological deposits in a study such as this.

Resource distribution and availability (such as the presence of drinking water, plant and animal foods, raw materials of stone, wood and vegetable fibre used for tool production and maintenance) are strongly influenced by the nature of soils, the composition of vegetation cover and the climatic characteristics of a given region.

The location of different site-types (such as open campsites, culturally modified trees, rock-shelters, middens, grinding grooves, engravings etc.) are strongly influenced by factors such as these along with a range of other associated features which are specific to different land systems and bedrock geology.

The environmental background is important in order to give a context to the archaeological record. With respect to Aboriginal archaeology, land formation processes may impact upon the type and frequency of archaeological remains. Past climatic conditions may also impact upon the location and types of resources available, which in turn would impact upon settlement and mobility patterns of past Aboriginal groups in the area.

Heritage NSW requires a review of the landscape context to assist in the determination or prediction of the potential of a landscape to have accumulated or preserved objects, the ways Aboriginal people may have used the landscape in the past, and the likely distribution of the material traces of Aboriginal land use (DECCW, 2010a).

Detailing the environmental context of a study region is an integral procedure for modelling potential past Aboriginal land-use practices and/or predicting site distribution patterns within any given landscape. The information that is outlined below is considered to be pertinent to the assessment of site potential and site visibility within the specific contexts of the current study.

5.1 Existing Environment

Information regarding the existing environment is provided in Section 5 of the accompanying ACHAR. This section provides a summary of the information presented in that report.

The Subject Area is situated in the Hunter region which is made up of Permian shales, sandstones, conglomerates, volcanics and coal measures. Bounded on the north by the Hunter Thrust fault and on the south by cliffs of Narrabeen Sandstone. Pleistocene coastal barrier system in Newcastle bight (NSW National Parks and Wildlife Service, 2003).

The Subject Area is principally located within a part of the Tomago Coastal Plain and comprised of Quaternary sands without any naturally occurring stone outcrops. The landscape in this region has developed over the last 120,000 year as a series of estuarine clays and transgressive dune systems, creating an Inner Barrier of Pleistocene age (>10,000 years ago) and an Outer Barrier of Holocene age (from 10,000 years ago), separated by a low-lying swampy depression (Rose, Jones, & Kennedy, 1966).

According to the *Soil Landscapes of the Newcastle 1:100 000 Sheet,* the Tea Garden Variant A and Millers Forest soil landscapes are within the Subject Area (Matthei, 1995).

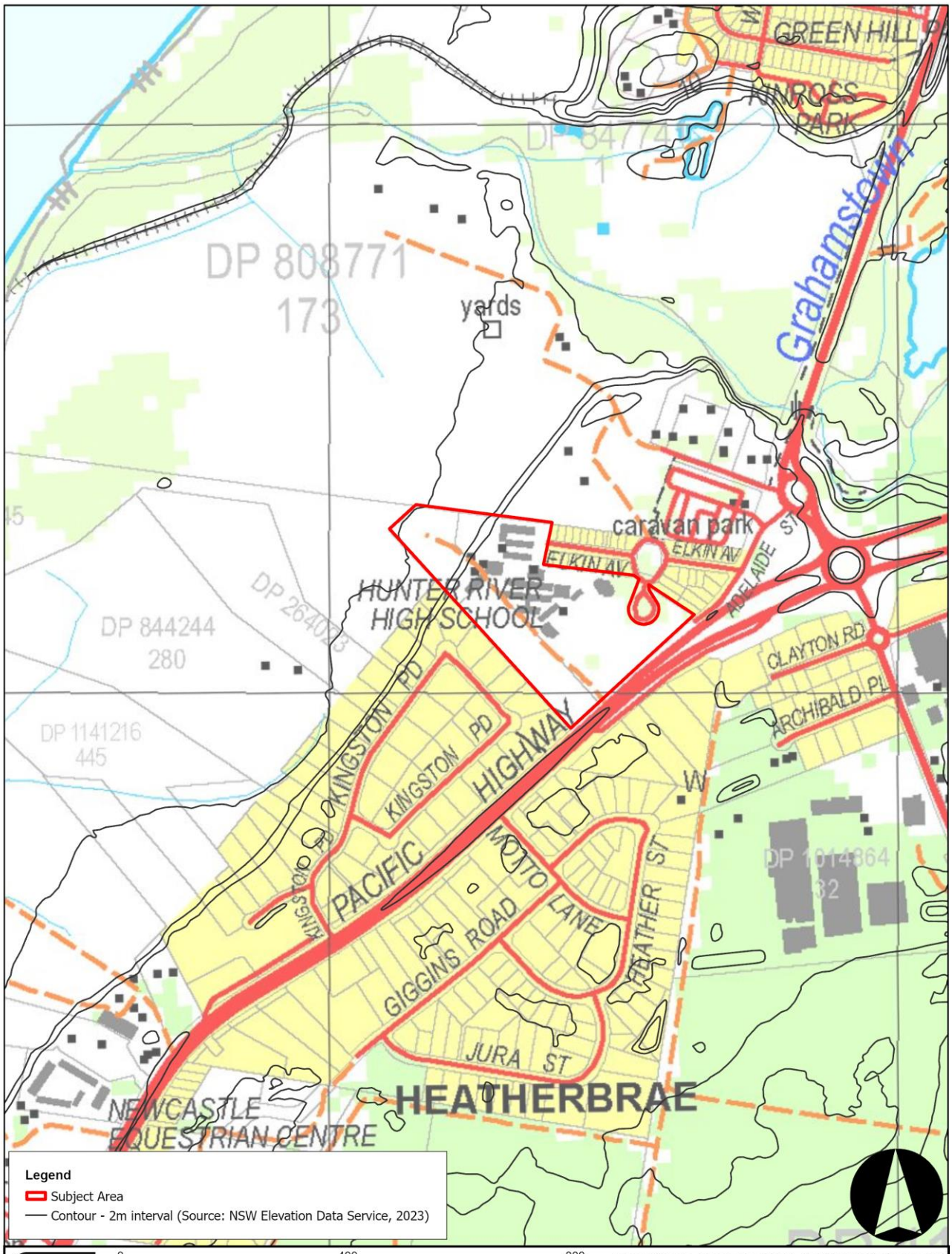


Figure 4: Topographic Map

5.2 Former Land Use and Disturbance

The land surrounding the Subject Area has not been heavily manipulated, with land clearing to make way for small urban development and grazing. From 1835 to 1955 the land passed between two owners with seemingly very little disturbance to the Subject Area itself, except for initial land clearing.

In 1956 the land was resumed by the government for a high school, which resulted in the development of buildings, most of which are still present today. The school has continued to develop and grow, with new building being constructed from 2014 to 2016. The western portion of the school on the floodplain has been utilised as an agricultural plot and has been disturbed by small-scale farming practices. Historical aerials and satellite images dating 1954-2001 (see Plate 1 to Plate 6) were reviewed as part of preparing this ACHAR. These aerials provide a summary of development at the site and within the surrounding area (refer to Table 2).

During the Phase 1 test excavation, it was identified that a layer of fryash with slag had been deposited across the surface of the oval in order to build it up, before the area was dressed and turf was laid down. According to discussions with the School's groundskeeper, no soil had been removed prior to the deposition of the fryash.

Date	Description
1954	The earliest aerial image displays an undeveloped site with residential development along the northern boundary. Elkin Avenue can be depicted in this image. The surrounding area is vacant land.
1966	This aerial image displays early development of the School. Some light residential/commercial development can be depicted to the northeast of the School.
1976	This aerial image displays further development of the site, with some additional buildings and pathways. Further residential/commercial development and associated roads can be depicted to the northeast and major commercial development to the southeast of the School.
1984	This aerial image remains closely consistent with that of the 1976 image. Minor development can be depicted at the School and surrounding areas.
1993	This aerial image displays the site closely consistent with the earlier images. Minor residential development is identified to the north, major residential development is depicted to the southwest and minor commercial development to the southeast of School.
2001	This aerial image displays the site closely consistent with the earlier images, with some minor extension to existing buildings. Pastures are visible to the north-western corner of the School. Some minor commercial development is depicted in the northeast.

Table 2: Summary of Historic Aerial Photographs

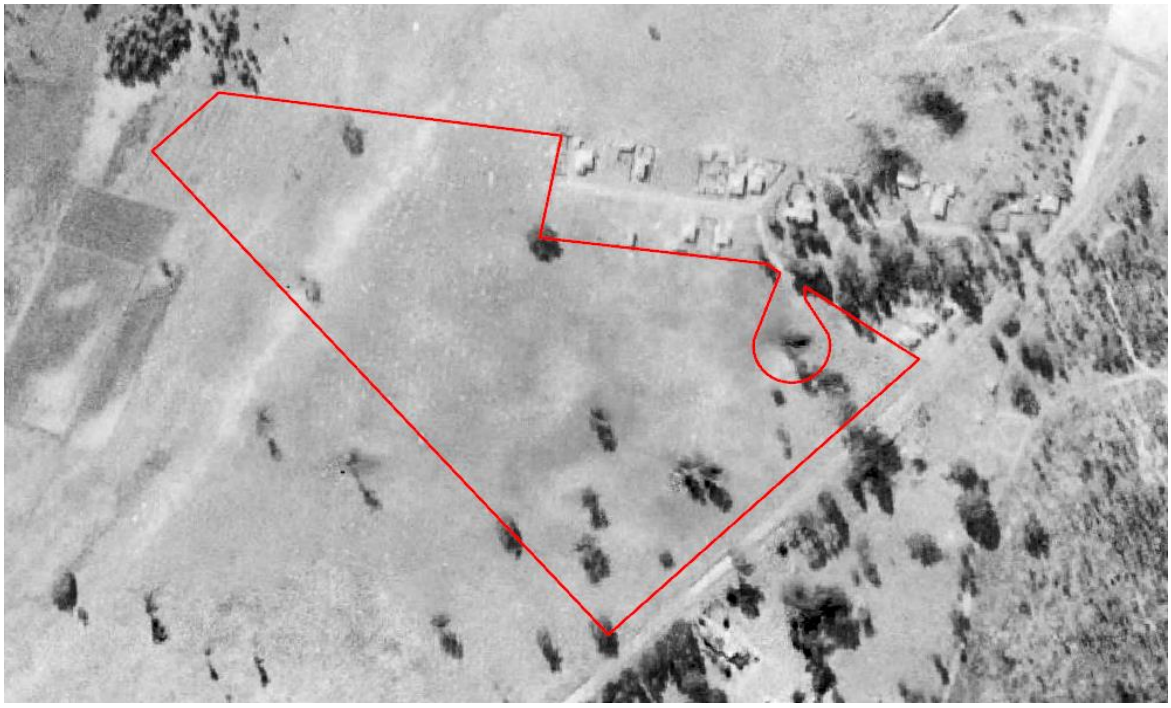


Plate 1: 1954 aerial photograph of Hunter River High School

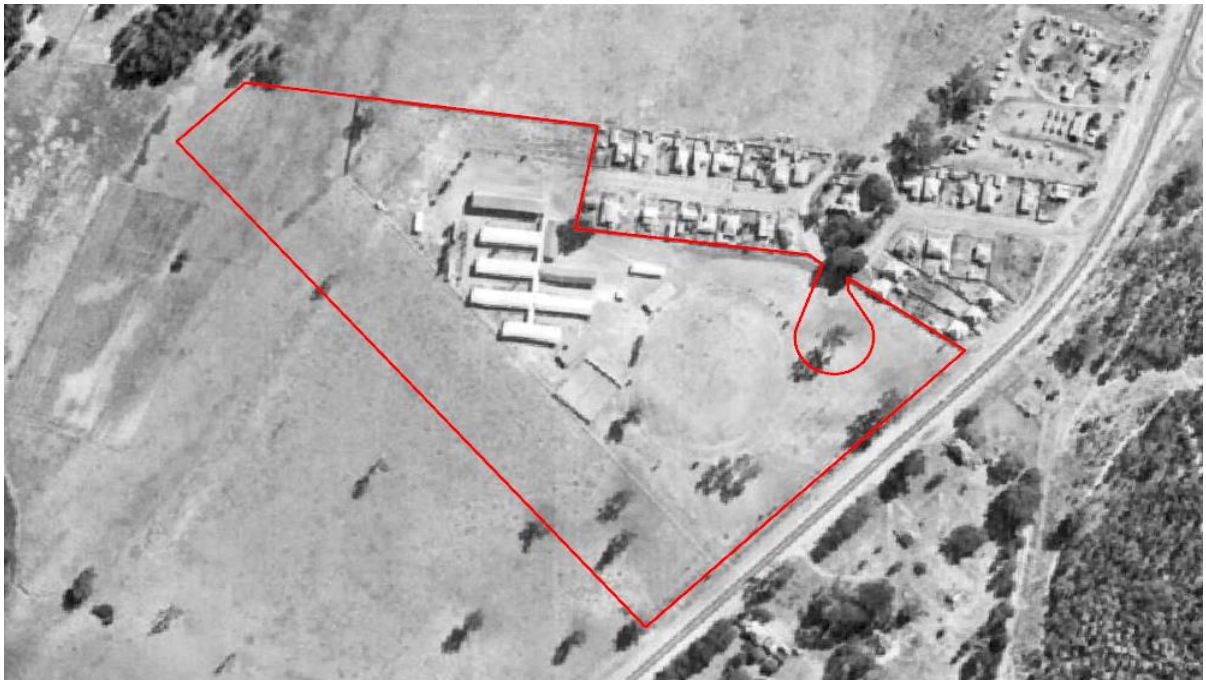


Plate 2: 1966 aerial photograph of Hunter River High School

Plate 3: 1976 aerial photograph of Hunter River High School

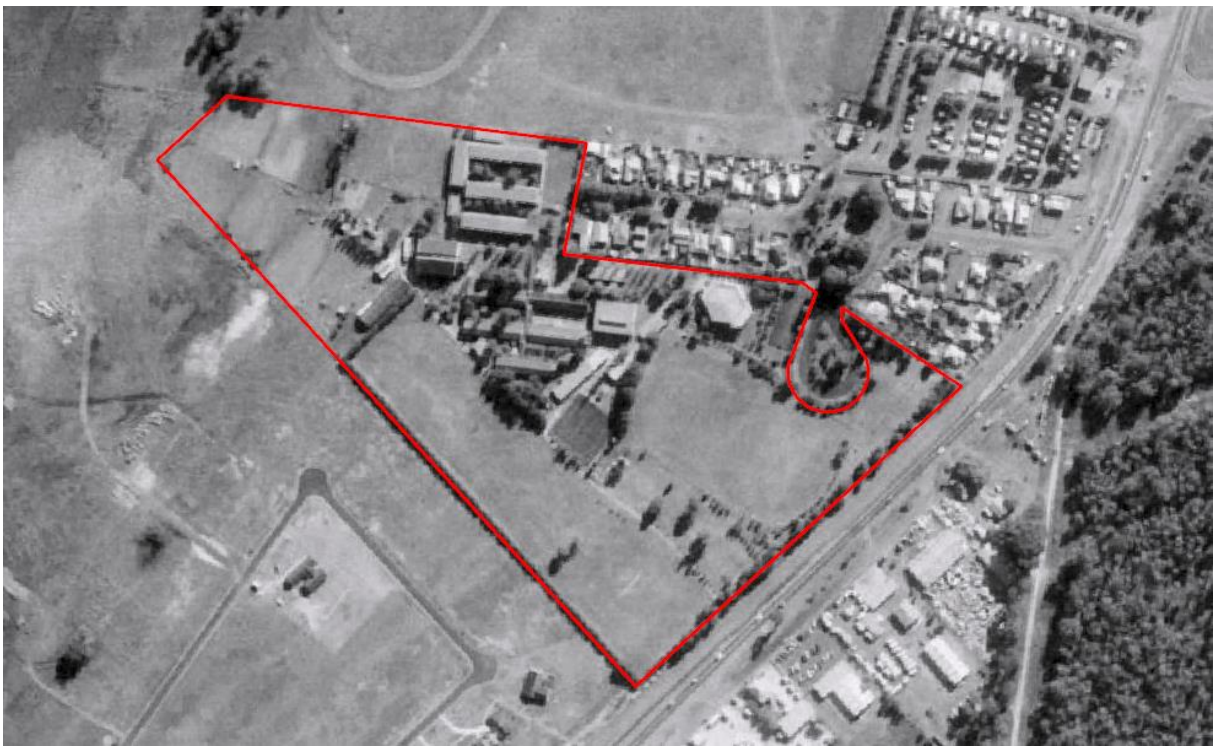


Plate 4: 1984 aerial photograph of Hunter River High School

Plate 5: 1993 aerial photograph of Hunter River High School

Plate 6: 2001 aerial photograph of Hunter River High School

6 ARCHAEOLOGICAL CONTEXT

An analysis of previous archaeological work within the Subject Area assists in the preparation of predictive models for the area, through understanding what has been found previously. By compiling, analysing and synthesising the previous archaeological work, an indication of the nature and range of the material traces of Aboriginal land use is developed. An understanding of the context in which the archaeological assessment is vital, as development does not occur within a vacuum, but within a wider cultural landscape, and this must be considered during any archaeological assessment in order to develop appropriate mitigation and management recommendations.

This section presents information about archaeology context of the landscape in which the Subject Area is located, based on previous archaeological and ethnohistorical studies, to provide context and background to the existing knowledge of Aboriginal culture in the area.

6.1 AHIMS Database Search

The locations and details of Aboriginal sites are considered culturally sensitive information. It is recommended that this information, including the AHIMS data and GIS imagery, is removed from this ATR if it is to enter the public domain.

Kayandel undertook a search of the AHIMS database on the 8th of September 2022, using the Client Service ID 715676, with the coordinates set out in Table 3 below.

	Easting	Northing
Minimum	374385	6365144
Maximum	388385	6379144

Table 3: AHIMS Database Search Criteria

(Zone 56, GDA94)

The search area was a 14km square centred upon the Subject Area (refer to Figure 5). The results of the AHIMS search are presented in Table 4 below. A total of one-hundred and eight (108) Aboriginal sites had been registered within the search area.

Site Type	Frequency	%
Open Camp Site	57	*52.78%*
Open Camp Site with Midden	12	*11.11%*
Open Camp Site with PAD	10	*9.26%*
Potential Archaeological Deposit (PAD)	10	*9.26%*
Not an Aboriginal Site	6	*5.56%*
Scarred Tree	3	*2.78%*
Burial/s	2	*1.85%*
Isolated Artefact	2	*1.85%*
Aboriginal Ceremony and Dreaming	1	*0.93%*
Art (Pigment or Engraved)	1	*0.93%*
Bora/Ceremonial	1	*0.93%*
Grinding Groove with Potential Archaeological Deposit (PAD)	1	*0.93%*
Open Camp Site with Midden and PAD	1	*0.93%*
Open Camp Site with Non-Human Bone and Organic Material	1	*0.93%*
Total	**108**	***100%***

Table 4: Site Types from AHIMS Search (Client Service ID 715676)

The AHIMS search indicates that fifty-seven (57) of the one hundred and eight (108) identified sites within the search area are Open Camp Sites, and a further twelve (12) are Open Camp Site with Midden. Ten (10) identified sites are Open Camp Sites with PAD.

It should be noted that the distribution of sites in the AHIMS database is a reflection of where site surveys have been conducted (refer to Figure 5), where exposure and visibility conditions have enabled the detection of sites, and where sites have survived modern land disturbance. The distribution of sites from AHIMS may not be a true reflection of the existing Aboriginal sites in an area.

There has been a progressive increase in the frequency of Open Camp Sites and areas of PAD being identified in recent years as the type of development works being assessed has shift from longwall mining towards residential land development.

6.2 Regional Archaeological Context

Archaeological investigations generally fall into three categories - large projects that have been carried out within a research-orientated academic framework and broad management context; archaeological surveys carried out by interested amateurs; and archaeological investigations which have been carried out within a commercial contracting framework and deal with specific localities subject to development or redevelopment.

The Subject Area is situated on the Tomago Coastal Plain which is a Pleistocene coastal sand barrier of the Newcastle Bight Barrier System. The archaeological resources of the Newcastle Bight Region have a high regional and potentially national archaeological significance in terms of their site form, content and the potential to clearly demonstrate the relationship between the archaeological record and land use patterns in the surrounding landscape. Of substantial archaeological significance is the antiquity of many sites located within the Newcastle Bight Barrier System. Aboriginal occupation of the Hunter Valley and specifically the Newcastle Bight region dates back well into the Pleistocene period, as evidenced by many Carbon-14 dates retrieved during archaeological excavations. One site with early dated evidence is Moffats Swamp, located about

8.5km northeast of the Subject Area. The RPS (2010) report states that extensive excavations were conducted by Baker (1994) across a dune at Moffats Swamp, from which small charcoal fragments were retrieved. These charcoal fragments returned a calibrated date of 17,376 years BP.

The large majority of dated sites are less than 5,000 years old. It has been argued that this is a result of increased populations and 'intensification', during this period. The frequency of sites dating to the last 5000 years may also be a result of the last significant rise in sea level, approximately 6000 years ago. The sea level rise would have submerged many of the older sites along the coastal fringe and forced Aboriginal groups westward to occupy the current coastline.

The Newcastle Bight Study undertaken by Dean-Jones (1990) provides a concept pattern for past Indigenous land use throughout the region. The report highlights that there would have been a wide range of environmental landscapes that would have facilitated Aboriginal populations to prosper due to the abundant resources. Sand dunes stabilized by open dry sclerophyll woodlands provided habitat for numerous fauna species of which the Aboriginal people were able to exploit, while freshwater wetlands would have provided an abundant habitat for bird, animal and plant life. The rich resources of these habitats are reflected in the density of artefacts recorded during the Bight Survey.

Generally, previous archaeological research of the region reveals that freshwater resources such as Galloping, Campvale and Moffats Swamp have been extensively utilised by Aboriginal people in the past. Such freshwater wetlands would have provided excellent food and water resources for the Aboriginal population (Dean-Jones, 1990).

6.3 Relevant Subsurface Excavations

The following selected reports discuss the results of excavations that have been undertaken in the area surrounding the Subject Area.

These reports have been included as they are the most relevant excavations and projects relating to the landform and region in which the Subject Area is located, and thus provide data which can inform the development of the predictive model for the Subject Area.

Resource Planning (1991)

Resource Planning (1991) undertook archaeological investigations on behalf of the Roads and Traffic Authority for the Raymond Terrace traffic relief route. The report covers the subsurface investigations of RT 3 (AHIMS #38-4-0238) which is approximately 400m northeast of the Subject Area.

As part of the early planning stage of the project, a survey to identify and document Aboriginal archaeological sites was undertaken (Brayshaw McDonald, 1990; McDonald, 1990). It was during this preliminary investigation that RT 3 was first documented.

RT 3 is located on the southern bank of Windeyers Creek (a 2nd order watercourse). The site is 220m southeast from the confluence of Windeyers Creek and Grahamstown Drain. During the field survey, twelve (12) artefacts were recorded, and two (2) additional artefacts were identified 60m east of the main concentration. Twelve of the identified artefacts were produced from indurated mudstone, and two were produced from silcrete (Resource Planning, 1991, p. 3). McDonald (1990) assessed that the Windeyers Creek bank should be considered archaeologically sensitive. Resource Planning (1991, p. 3) noted that when Brayshaw McDonald (1990) undertook their inspection 2 months later, none of the artefacts recorded during the original inspection could be relocated.

Nineteen (19) pits were excavated by Resource Planning (1991) at 5m intervals along a 30m section of creek bank, and to a maximum distance of 20m from the bank. A total area of 3.14m² was excavated. The depth of the pits was between 53cm and 100cm.

The shovel excavation programme at this site has indicated that a substantial amount of flaked stone is present below the ground surface. This site provides an example of the types of archaeological evidence which is associated with the late Pleistocene transgressive dune on the inner barrier of the Newcastle blight.

Resource Planning (1991, p. 13) documented that RT 3 had artefact densities ranging from 20 to 312 flakes/m³. It was observed that the highest artefact densities were recovered from a band extending away from the bank of Windeyers Creek. It was also noted that moderate densities (100-200m³) occurred in pits to the west of the high artefact frequencies.

It was identified that artefacts were concentrated at depts between 20cm and 60cm (Resource Planning, 1991, p. 13 & 21).

No faunal remains were found at RT 3. It was consistent with finds of other Pleistocene dune sites at Newcastle Bight. The lack of faunal material is believed to be related to both distance from estuarine shellfish sources, and proximity to freshwater wetlands.

McCardle Cultural Heritage (2004)

McCardle Cultural Heritage (2004) was commissioned by Project Plan to conduct archaeological test excavations within PAD1 at the proposed residential subdivision along Mount Hall Road at Raymond Terrace. The study area is 3km north of the Subject Area. This report covers the subsurface investigations of RT 1 (AHIMS #38-4-0694) on Mount Hall Road.

Nine pits were located to determine the extent of cultural material across the hill slope and crest areas and the degree of any disturbances. All pits were oriented east-west and were distributed at intervals along three transects.

The southern-most transect (Trenches 1 and 2) covered the slope area.

The mid-transect (Trenches 3 to 6) spanned the edge of the crest, approximately three to five metres from the boundary of the crest and adjoining slope.

The third transect (Trenches 7 to 9) was designed to test the area back from the edge of the crest and the transect was located between 25 and 30 metres from the boundary of the crest and adjoining slope. Transect 1 was originally to be located 25 metres south of Transect 2 but once in the field, it was found that this would put the transect near the base of the slope. It was decided that it would be of more use to excavate the mid-section of the slope. In this way, the three transects tested the crest, boundary of crest and slope, and slope. Testing of the slope would also help determine whether cultural materials were eroding downslope. The excavations were focussed within 100 metres of the nearest water source.

As no mechanical equipment for excavation works was expected to be able to enter the area due to heavy vegetation cover and the ground disturbance typically caused by movement of large vehicles, the test trenches were excavated by shovel. The initial recording of RT 1 was an isolated artefact with an area of PAD, in a road reserve. Nine (9) 2 x 1m test pits were across the hillslope and crest of #38-4-0694. Cultural Material was found concentrated along the edge of the crest facing the closest watercourse.

As no mechanical equipment for excavation works was expected to be able to enter the area due to heavy vegetation cover and the ground disturbance typically caused by movement of large vehicles, the test trenches were excavated by shovel.

Artefact raw material are relatively consistent with those found at sites in the surrounding region, with tuff and silcrete being the most common material. No bone or shell material was encountered during the subsurface investigation. Raw materials included tuff, silcrete, quartzite and possibly chalcedony.

South East Archaeology (2006)

South East Archaeology (2006) undertook subsurface archaeological investigations for the proposed Somerset Park residential development extension at Thornton. A total of 66 test pits were excavated over three areas. Two-hundred and sixty-three (263) artefacts were recovered, and silcrete was the most common raw material (85.55%), followed by tuff (12.55%), and quartz (1.90%). The results of the assessment concluded that the sites were likely to have been representative of transitory movement, or hunter gatherer sites.

Jacobs (2021)

Jacobs (2021) prepared an ACHAR for the M1 Pacific Motorway extension to Raymond Terrace on behalf of Transport for NSW. The eastern part of their study area is approximately 1.2km from the Subject Area.

A total of 26 Aboriginal sites, PADs and PAS are located within the study area, including:

- Five artefact scatters
- Four isolated artefacts
- Twelve subsurface artefact sites (confirmed PADs) and one extra AHIMS record combining two of these sites (i.e., a total of 12 subsurface artefact sites)
- Four artefact scatters with subsurface artefacts (confirmed PADs)
- One area of PAS (former mineral sands processing facility).

Sub surface testing of a total of 15 locations consisted of:

- 345 shovel test pits (500 mm x 500 mm)
- 86 test pits (1000 mm x 1000 mm)
- Five 2000 mm x 1000 mm test pits
- One 1000 mm x 500 mm test pit
- One section cut (1000 mm x 11000 mm).

In total, 3,026 stone artefacts were recovered and later analysed during the test excavation program. Of these, 2,123 were recovered from the south side of the Hunter River, principally in the East Maitland Hills landscape region at Black Hill and a Pleistocene dune bordering the Hexham Swamp at Beresfield. The remaining 903 artefacts were recovered from the north side of the Hunter River principally from the Tomago sands.

6.4 Previous Predictive Models

The following predictive models have been included because they were prepared as a result of a subsurface investigation and/or because they make predictions about the archaeological record that may be present within similar landforms.

Biosis (2018) made the following predictions as part of their Aboriginal archaeological excavation in Thornton, 8km west of the Subject Area:

- Artefact scatter sites can range from high-density concentrations of flaked stone and ground stone artefacts to sparse, low-density 'background' scatters and isolated finds.

  Moderate: Stone artefact sites have been previously recorded in within the study area is association with 1st order drainage lines located upon well drained topographies or on slopes with a gradient of less than 5 degrees.

- Shell Middens and deposits of shells accumulated over either singular large resource gathering events or over longer periods of time:

  Low: Shell midden sites have not been recorded within the vicinity of the study area. Shell middens are more likely to occur along permanent watercourses, or along the coast of the Newcastle Bight.

- Potential archaeological deposits (PADs)

  Moderate: PADs have been previously recorded in the region across a wide range of landforms including alluvial flats. They have the potential to be present in undisturbed landforms and have been associated with the footslope landform located within the southern portion of the study area.

- Modified trees - Trees with cultural modifications;

  Moderate: The potential for mature native trees within the study to feature cultural scars is assessed as moderate.

Site types such as rock shelters with art or deposits, burials, carved trees, rock engravings were not considered likely in the study area due to the absence of suitable geology and topography. These site types would only occur where suitable sandstone exposures or overhangs possessing sufficient sheltered space exist, which are not present in the study area.

6.5 Aboriginal Heritage Predictions for the Subject Area

The results of the AHIMS search and site analyses from relevant subsurface investigations that have occurred within the wider regional context can be used to inform a revised predictive model for the Subject Area.

- Open campsites and isolated artefacts are the most likely site found in the Subject Area;
- Subsurface archaeological deposits may be present in areas where no visible surface archaeological remains are evident;
- Subsurface archaeological deposits may occur at depth where intact or substantially intact A1 or A2 soil horizons are present. Intact soil horizons may be below European disturbances;
- Burials would not be expected due to the limited depth of soil deposits;
- The proximity to several first order streams abutting the interface between the dune and alluvial soils, suggests that the Subject Area could have been visited by Aboriginal people over both the Pleistocene and Holocene;
- Tea Garden Variant A holds the potential for archaeological deposits;
- As past land use disturbance increases in intensity, the ability for Aboriginal objects to provide spatial and chronological information about past Aboriginal land use will decrease; and,

- Scarred and carved trees would not be expected in areas where land clearance has resulted in the removal of old growth trees;

6.5.1 Expectations for assemblage composition

As a result of the review of archaeological reports (refer to Section 6.4, and Section 6.4 of the accompanying ACHAR), the predictions made in Table 5 consider how distance from (or proximity to) lithic sources, and residential mobility (or sedentism) might have influenced lithic technology and the formation of artefact assemblages. These predictions have been compared to three modes of site use to develop a series of expectations against which the artefact assemblage recovered during the current project might be assessed (see Table 5).

Model for examination	Expectations for artefact assemblages
Highly mobile people making short-term visits along a travel corridor	Low artefact densities, rare exotic lithic materials/items from other locations that people might have visited on their travels
Highly mobile people making short-term visits while processing lithic materials for transport (mostly early to middle stages of flaking)	High artefact densities, predominantly early to middle stages of flaking, large to moderate artefact size, high frequencies of cortex, low proportions of good quality stone, low frequencies of tools, rare exotic lithic materials/items
Extended occupation while obtaining various lithic, plant and animal resources	High artefact densities, raw materials with diverse properties (fine and coarser grained), early & late stage flaking, diverse tool forms, imported lithic materials, especially if site used as an aggregation locale for people coming from diverse locations in the surrounding region.

Table 5: Summary of models and assemblage expectations

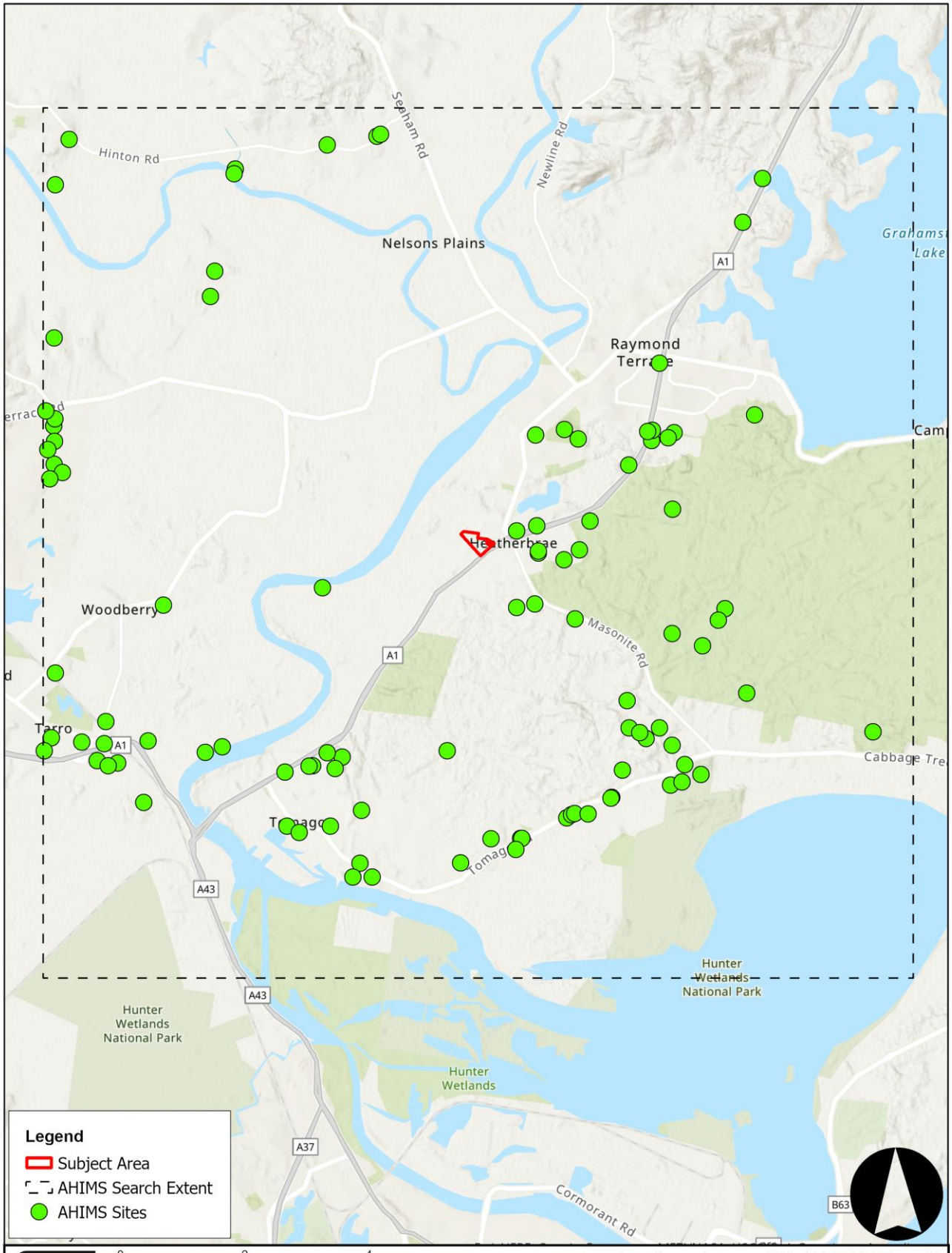


Figure 5: AHIMS Search Results

Figure 6: AHIMS Sites in Proximity

7 TEST EXCAVATION RESULTS

A representative sample of profile photographs (refer to Appendix II) have been included in this report.

While charcoal fragments were identified during the test excavation, these fragments were not of sufficient sample size in order to be able to undertake radiocarbon dating.

No additional features such as hearths, clay features, etc. were identified the test excavation.

Historic and modern refuse was also present across the test pits, including items such as a tile, glass and ceramic.

7.1 Phase 1 Test Programme

The Phase 1 test excavation programme was undertaken in January 2023 and was supervised by Lance Syme and Natalie Stiles.

As noted in Appendix I, it was proposed that the Phase 1 test excavation would be undertaken to determine whether archaeological deposits were present within the sensitive landform, and to determine the nature, extent and significance of any archaeological deposits that were encountered. The test excavation programme was limited to the areas that would be impacted by the proposed development works.

Due to the test excavation occurring in sand soils, and the expected depth of any archaeological deposit, typically occurring between 20cm and 60cm based on the results of the RT 3 excavation undertaken by Resource Planning (1991), all Phase 1 test pits were 0.5m x 1m, excavated in 0.5 x 0.5m quadrants. Where artefacts were encountered in a 0.5m x 0.5m quadrant, the 0.5m x 1m was expanded into a 1m x 1m. A total of seventy-nine (79) 0.5m x 0.5m quadrants were excavated.

A total of nine (9) stone artefacts were identified from three (3) of the thirty-five (35) Phase 1 test pits.

Based on the infield results and observations from the Phase 1 test excavation, it was assessed that more data was required in order to determine the nature and extent of the Aboriginal sites, and sensitive landforms, and as such it was necessary to trigger the commencement of the Phase 2 excavation as detailed in Appendix I.

Plate 7: Viewing looking north towards SQ14

Plate 8: Team sieving excavated material

7.2 Phase 2 Test Programme

In April 2023, Kayandel undertook a Phase 2 test excavation in accordance with the test excavation methodology detailed in Appendix I.

The Phase 2 excavation program involved the excavation of test pits at 10m intervals around the Phase 1 artefact bearing pits – SQ14, SQ23 and SQ28 (see Figure 8 to Figure 10), in order to provide more information regarding the nature and extent of the Aboriginal sites that had been identified.

All Phase 2 test pits were excavated in in 10cm spits. Refer to Figure 9 and Figure 10 for the location of the Phase 2 test pits.

Artefacts were recovered from five (5) of the twelve (12) Phase 2 test pits (refer to Table 6).

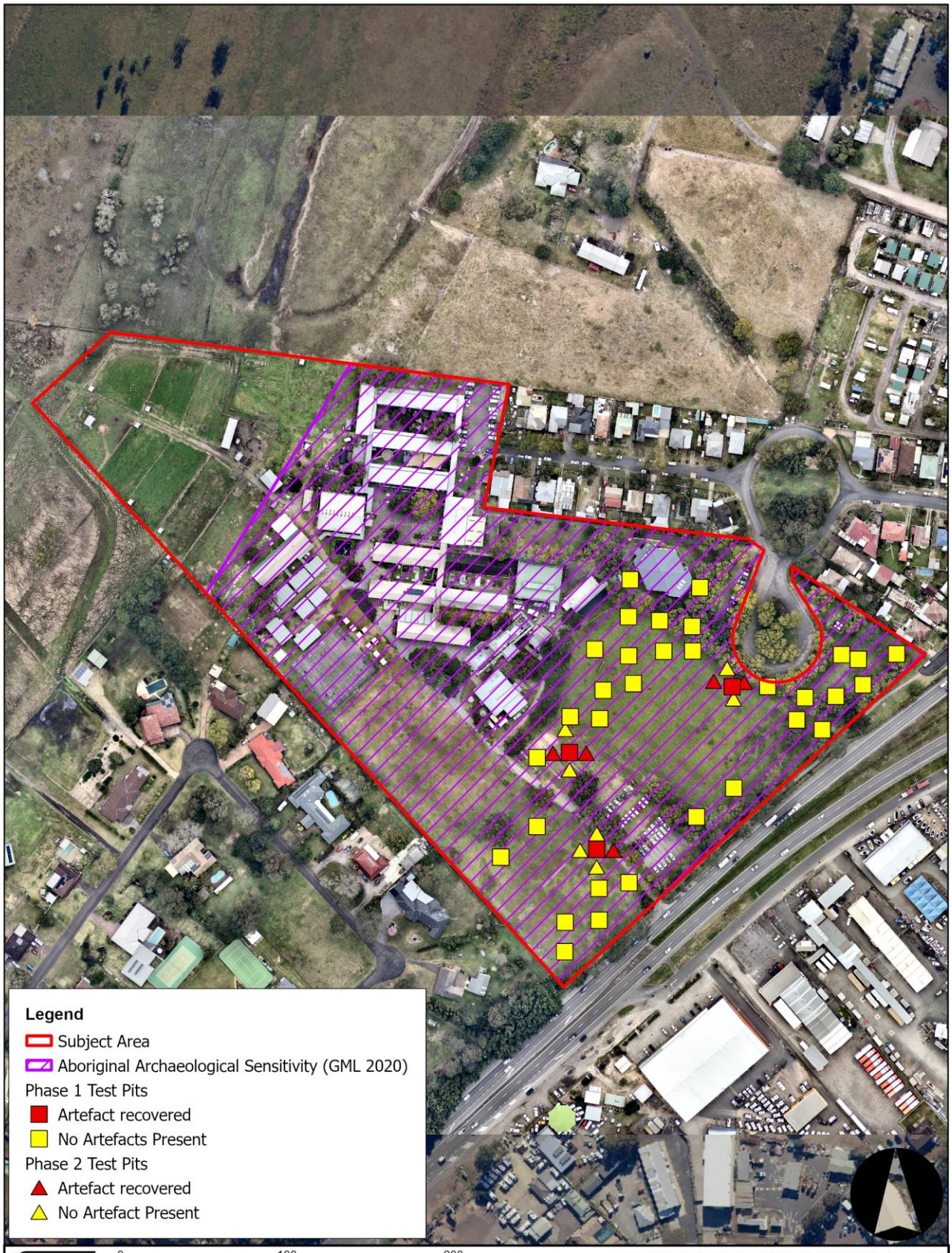


Figure 7: Location of Test Pits

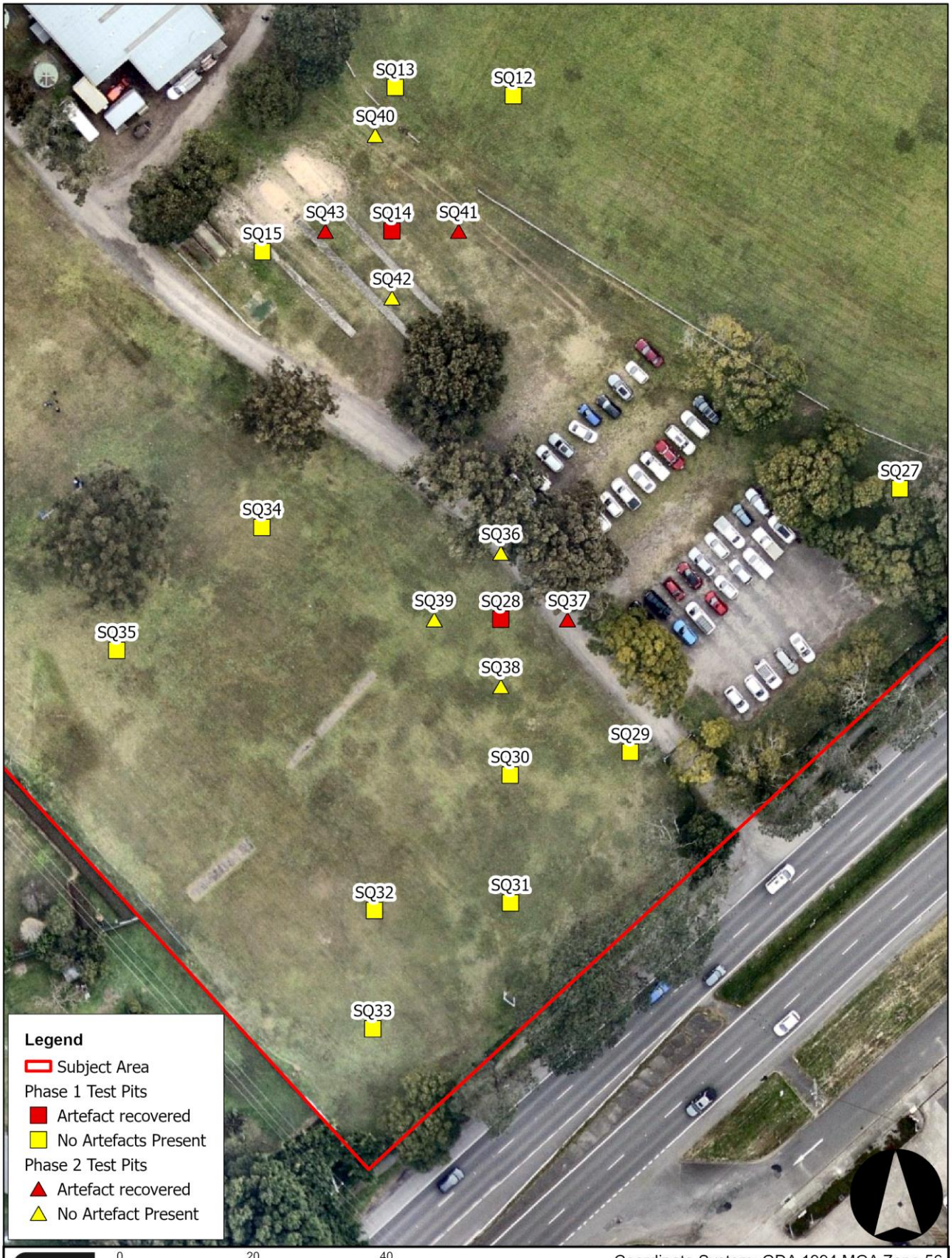


Figure 8: Location of Test Pits - Map A

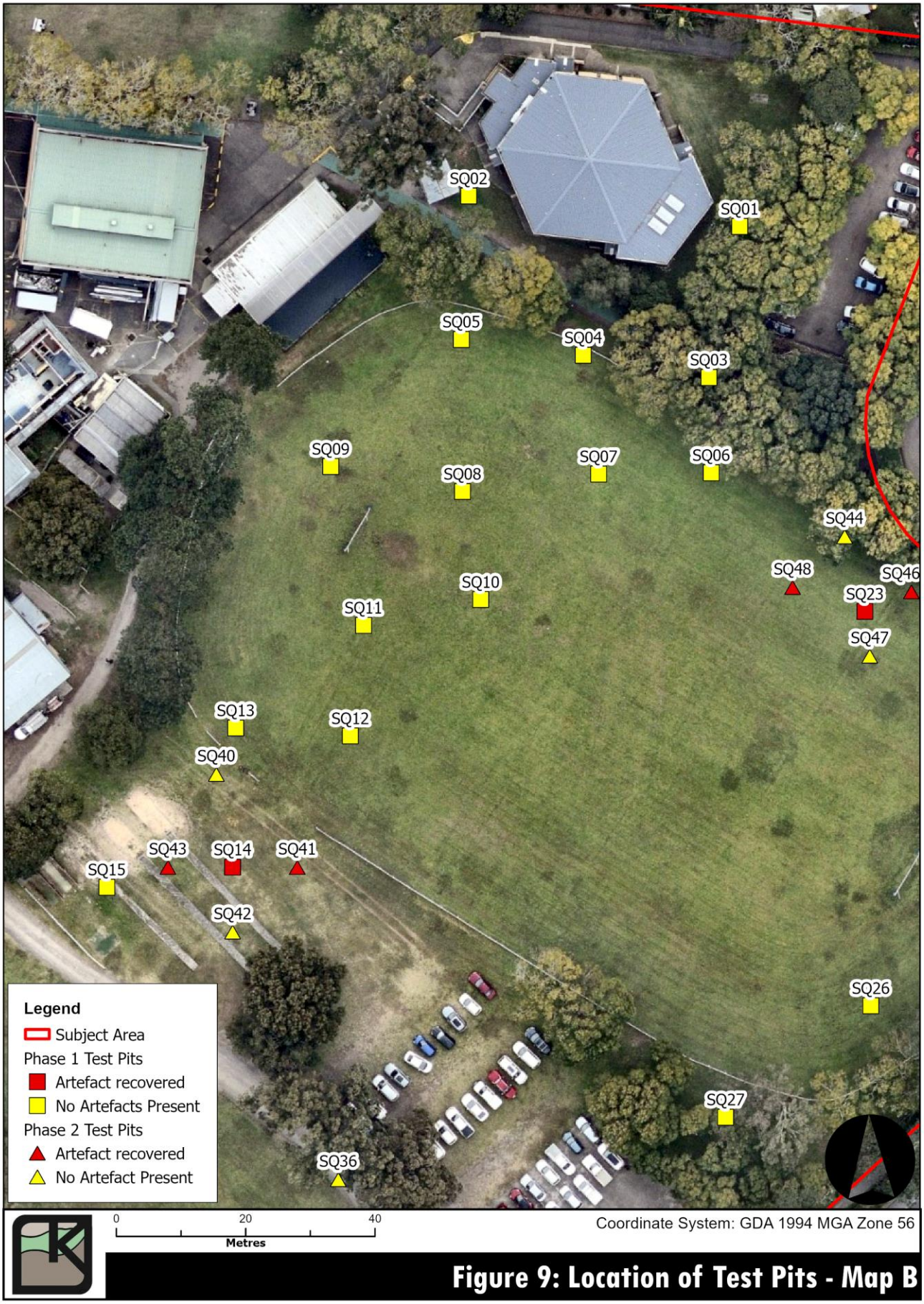


Figure 9: Location of Test Pits - Map B

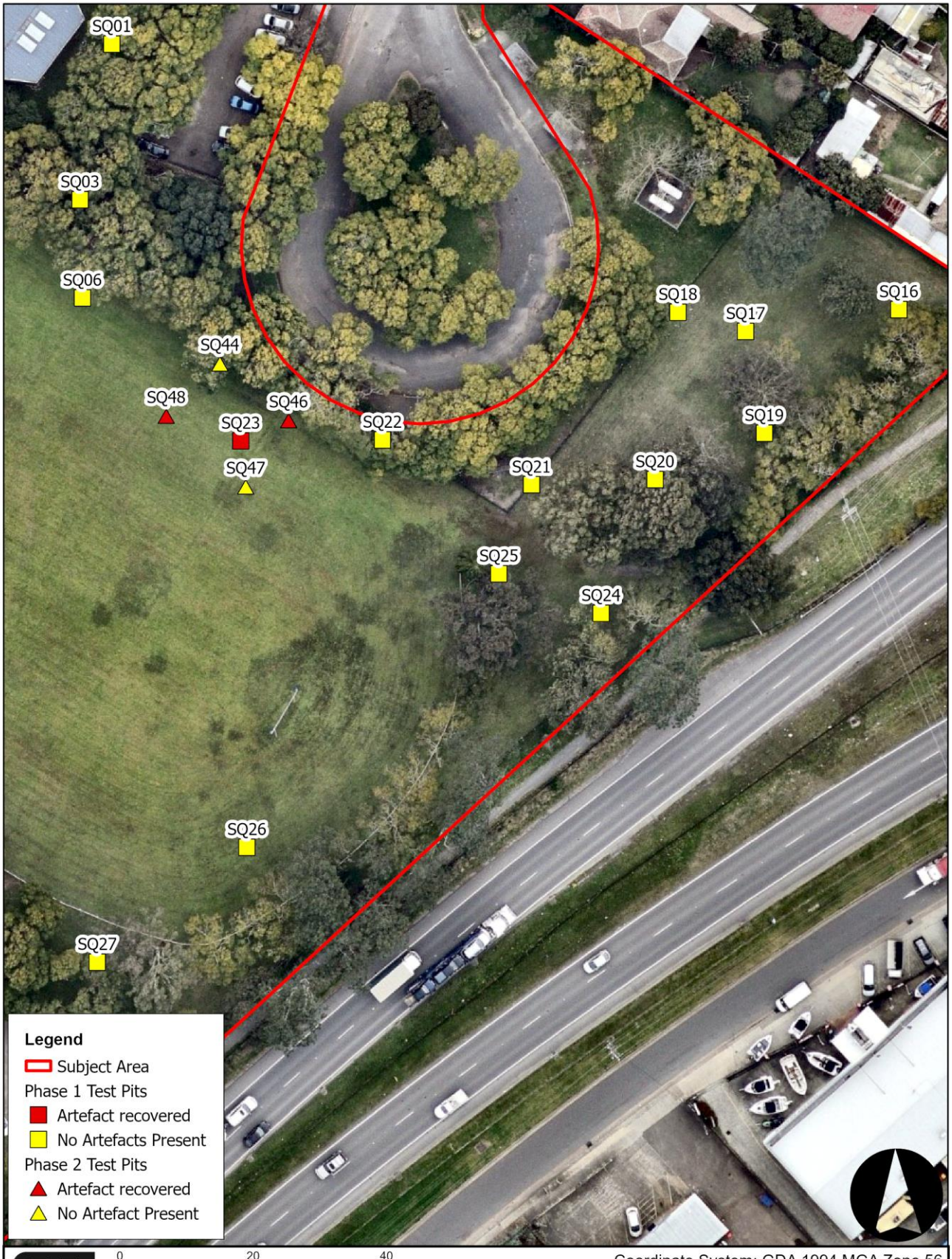


Figure 10: Location of Test Pits - Map C

7.3 Phase 3 Test Programme

Once the Phase 2 test excavation was completed, the results from both programs were reviewed in order to determine which of the test pits had the highest frequency of artefacts. SQ28 from Phase 1 had a total of five (5) artefacts, and was the test pit with the highest frequency, as such it was assessed that the area would be expanded.

The initial stages of the Phase 3 testing involved opening the pits to the west and south of the SQ28 quadrants that contained artefacts, in order to ascertain the spatial distribution of artefacts.

	SQ99B c	SQ28 b	SQ28 c
SQ99B a	SQ99B d	SQ28 a	SQ28 d
	SQ99A c	SQ100A b	SQ 100A c
			SQ100A d

Plate 9: Schematic layout of Area SQ28

(Shading indicates original pit excavated during the Phase 1 testing)

Plate 10: Area SQ28 at end of Phase 3 excavation

Area SQ28 was excavated to 3 m², which is the maximum continuous surface area of a combination of test excavation units at any single excavation point that is permitted under the *Code of Practice* (DECCW, 2010b). Refer to Plate 9 for the schematic layout of Area SQ28.

7.4 Lithic Analysis

Twenty-two (22) stone artefacts and one (1) ochre nodule were recovered from ten (10) of the fifty excavation areas (refer to Table 6). All artefacts were recovered from depths between 10cm and 60cm below (refer to Table 7).

A total of 27m² of the Subject Area was excavated, the excavated area had a density of 0.98 artefacts/m² (see Table 6).

The test excavation assemblage primarily consisted of indurated mudstone / silicified tuff (IMST) (83%), silcrete (9%), and 4% chert and ochre respectively (refer to Graph 1). IMST was recorded in all spits that contained cultural material. Silcrete was only recovered from spits 2 and 5. While chert and ochre was only identified in spit 2 (refer to Table 7).

While there is a higher frequency of IMST raw materials present in the assemblage, due to the size of the dataset it is not possible to make any definitive statement about whether there was a preference in the selection of raw materials.

Area	Test Pits Quadrants	Spit (10m)												Total	Artefact Density (artefact/m²)
		Surface	1	2	3	4	5	6	7	8	9	10	11		
1	SQ01 a													-	-
1	SQ01 b													-	
1	SQ02 a													-	-
1	SQ02 b													-	
1	SQ03 a													-	-
1	SQ03 b													-	
1	SQ04 a													-	-
1	SQ04 b													-	
1	SQ05 a													-	-
1	SQ05 b													-	
1	SQ06 a													-	-
1	SQ06 b													-	
1	SQ07 a													-	-
1	SQ07 b													-	
1	SQ08 a													-	-
1	SQ08 b													-	
1	SQ09 a													-	-
1	SQ09 b													-	
1	SQ10 a													-	-
1	SQ10 b													-	
1	SQ11 a													-	-
1	SQ11 b													-	
1	SQ12 a													-	-
1	SQ12 b													-	
1	SQ13 a													-	-
1	SQ13 b													-	

Area	Test Pits Quadrants	Spit (10m)												Total	Artefact Density (artefact/m²)
		Surface	1	2	3	4	5	6	7	8	9	10	11		
1	SQ14 a			1										**1**	**2**
1	SQ14 b			1										**1**	
1	SQ14 c													-	
1	SQ14 d													-	
1	SQ15 a													-	-
1	SQ15 b													-	
1	SQ16 a													-	-
1	SQ16 b													-	
1	SQ17 a													-	-
1	SQ17 b													-	
1	SQ18 a													-	-
1	SQ18 b													-	
1	SQ19 a													-	-
1	SQ19 b													-	
1	SQ20 a													-	-
1	SQ20 b													-	
1	SQ21 a													-	-
1	SQ21 b													-	
1	SQ22 a													-	-
1	SQ22 b													-	
1	SQ23 a				1									**1**	**2**
1	SQ23 b													-	
1	SQ23 c		1											**1**	
1	SQ23 d													-	
1	SQ24 a													-	-
1	SQ24 b													-	

Area	Test Pits Quadrants	Spit (10m)												Total	Artefact Density (artefact/m²)
		Surface	1	2	3	4	5	6	7	8	9	10	11		
1	SQ25 a													-	-
1	SQ25 b													-	
1	SQ26 a													-	-
1	SQ26 b													-	
1	SQ27 a													-	-
1	SQ27 b													-	
1	SQ28 a				1									**1**	**5**
1	SQ28 b					2	1							**3**	
1	SQ28 c													-	
1	SQ28 d							1						**1**	
1	SQ29 a													-	-
1	SQ29 b													-	
1	SQ30 a													-	-
1	SQ30 b													-	
1	SQ31 a													-	-
1	SQ31 b													-	
1	SQ32 a													-	-
1	SQ32 b													-	
1	SQ33 a													-	-
1	SQ33 b													-	
1	SQ34 a													-	-
1	SQ34 b													-	
1	SQ35 a													-	-
1	SQ35 b													-	
2	SQ36 a													-	-
2	SQ36 b													-	

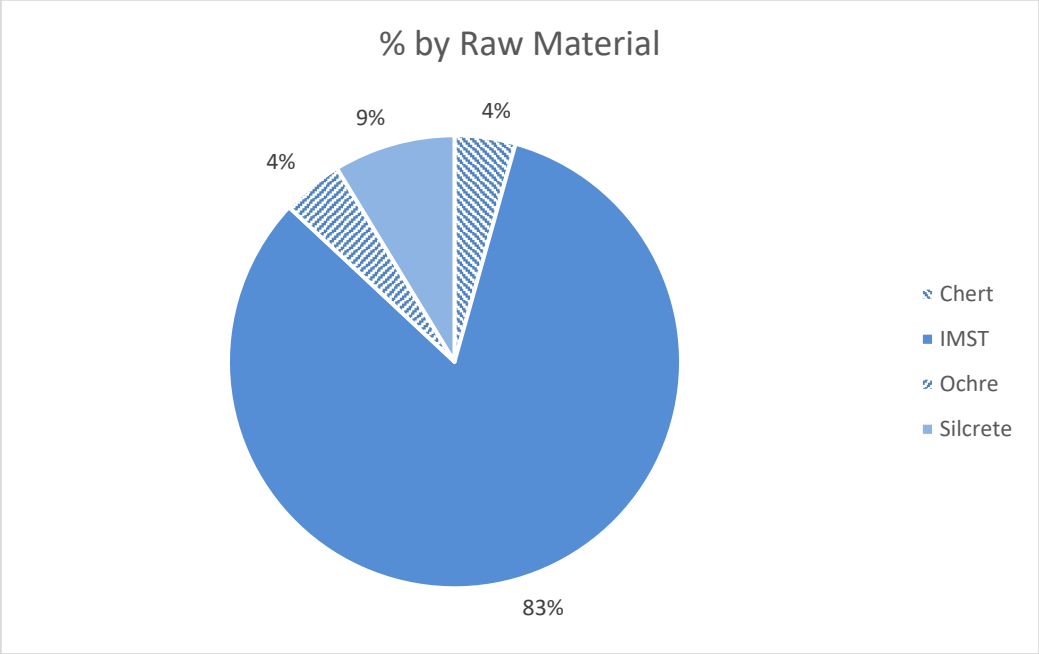
Area	Test Pits Quadrants	Spit (10m)												Total	Artefact Density (artefact/m²)
		Surface	1	2	3	4	5	6	7	8	9	10	11		
2	SQ37 a													-	**2**
2	SQ37 b			1										**1**	
2	SQ38 a													-	**-**
2	SQ38 b													-	
2	SQ39 a													-	**-**
2	SQ39 b													-	
2	SQ40 a													-	**-**
2	SQ40 b													-	
2	SQ41 a													-	**2**
2	SQ41 b				1									**1**	
2	SQ42 a													-	**-**
2	SQ42 b													-	
2	SQ43 a				1									**1**	**2**
2	SQ43 b													-	
2	SQ44 a													-	**-**
2	SQ44 b													-	
2	SQ46 a						1							**1**	**2**
2	SQ46 b													-	
2	SQ47 a													-	**-**
2	SQ47 b													-	
2	SQ48 a			1										**1**	**2**
2	SQ48 b													-	
3	SQ99B a													-	**3**
3	SQ99B b													-	
3	SQ99B c													-	
3	SQ99B d						1	2						**3**	

Area	Test Pits Quadrants	Spit (10m)												Total	Artefact Density (artefact/m²)
		Surface	1	2	3	4	5	6	7	8	9	10	11		
3	SQ100A b													-	4.5
3	SQ100A c						1	2						**2**	
3	SQ100A d						2	2						**4**	
3	SQ101A b													-	-
Total		-	**1**	**4**	**4**	**2**	**6**	**7**	-	-	-	-	-	**23**	**0.98**

Table 6: Vertical Distribution of Artefacts

Spit	IMST	Silcrete	Chert	Ochre	Total
Surface					-
1	1				**1**
2	1	1	1	1	**4**
3	4				**4**
4	2				**2**
5	5	1			**6**
6	6				**6**
7					-
8					-
9					-
10					-
11					-
Total	**19**	**2**	**1**	**1**	**23**

Table 7: Vertical Distribution of Raw Material by Depth



Graph 1: Percentage (%) of Raw Material

There is a slightly higher proportion of broken artefacts (including proximal blade, medial and distal fragments) (48%) compared to complete flakes (30%) recorded in the assemblage (refer to Table 8).

The ochre nodule was recovered from spit 2 of SQ37 b (see Table 8 and Appendix IV).

One conjoin was recovered from the Phase 3 test excavation, left and right cone-splits (catalogue #24 and #25) (refer to Appendix IV).

The majority of stone artefacts did not have any cortex (the outer layer of a rock) suggesting that if any stone artefact production or maintenance occurred within the Subject Area that it is likely to have occurred later in the production process.

No core artefacts were recorded in the assemblage, which also suggests that while the Subject Area may have been utilised, it may not have been the location of artefact production.

Spit	Flake	Distal	Medial	CSBF/R	CSBF/L	Backed Artefact	Backed Flake	Blade	Proximal Blade Fragment	Flake Piece	Angular Fragment	Ochre nodule	Total
Surface													-
1						1							**1**
2			2								1	1	**4**
3	3			1									**4**
4	1								1				**2**
5	2	2	1				1						**6**
6	1	1		1	1			1		1			**6**
7													-
8													-
9													-
10													-
11													-
Total	**7**	**3**	**3**	**2**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**23**

Table 8: Vertical Distribution of Artefact Type

While there is a higher frequency of IMST present in the assemblage, when compared with chert and silcrete, overall, the dataset is insufficient to show real variation of raw material choice in artefact production (see Table 9).

Artefact Types	IMST	Silcrete	Chert	Ochre	Total
Flake	6	1			**7**
Distal	3				**3**
Medial	1	1	1		**3**
CSBF/R	2				**2**
Backed Artefact	1				**1**
Backed Flake	1				**1**
Blade	1				**1**
Proximal Blade	1				**1**
CSBF/L	1				**1**
Flake Piece	1				**1**
Angular Fragment	1				**1**
Ochre Nodule				1	**1**
Total	**19**	**2**	**1**	**1**	**23**

Table 9: Frequency of Artefact Types by Raw Materials

8 DISCUSSION

Kayandel's test excavation of the archaeologically sensitive landform identified by GML was to determine whether any archaeological deposits were present, and if so, to assess the nature and extent.

Twenty-two (22) stone artefacts and one (1) ochre nodule were recovered from ten (10) of the fifty excavation areas (refer to Section 7.4).

The depth of artefacts recovered during the test excavation was consistent with the depth of deposit that Resource Planning (1991, p. 13 & 21) documented at RT 3. Within the Subject Area, artefacts were encountered between 0cm and 60cm depth, while at RT 3, artefacts were concentrated at depts between 20cm and 60cm.

The higher proportion of IMST raw material in the recovered assemblage may be a result of the quality and size of the raw materials that could be sourced from the local area.

There was absence of cortex (evidence of tertiary knapping sequences) present on the stone artefacts that were recovered as part of this current investigation program and is indicative of extended occupation while obtaining various lithic, plant and animal resources. Cortex (the outer layer of a rock) can be used to determine the flaking level of cores. Artefacts with higher percentages of cortex present are likely to have been flaked early in the sequence, while flakes with little to no cortex are likely to be from later in the sequence.

One conjoin was recovered from the Phase 3 test excavation, left and right cone-splits (catalogue #24 and #25). The visual inspection identified that the artefact had been broken during excavation. No other conjoins were recorded within the assemblage; therefore, there is insufficient information allow us to draw any conclusions from the vertical displacement of objects within the deposit. In circumstances where conjoins sets, are present, and include artefacts from other spits, this would indicate some vertical movement of artefacts through the deposit, and horizontal displacement across the site (White, 2018).

Where artefacts were encountered at test excavation locales, the artefact density was between 1 and 5 artefacts/m² (see Table 5), which is less that what Resource Planning (1991, p. 13) documented at RT 3, with artefact densities ranging from 20 to 312 flakes/m³. Part of the reason for the Subject Area having lower artefact densities could be due to its position in the landscape. Hunter River High School is approximately 450m from southwest of Windeyers Creek, and 520m southeast from the confluence of Grahamstown Drain and Windeyers Creek, compared to RT 3 which was located on the bank of Windeyers Creek.

Based on the paucity of surface expressions of Aboriginal sites and the limited nature of the archaeological deposit, it is likely that the artefacts encountered during the test excavation represent a background artefact scatter. The test excavation results suggest that the artefacts may have been discarded (either intentionally or accidentally) by Aboriginal people as they travelled through the landscape, possible from Windeyers Creek to the main travel routes across the Tomago Coastal Plain.

8.1 Identified Aboriginal Sites

As a result of the current subsurface investigation, three (3) previously unrecorded Aboriginal sites were identified (refer to Figure 11):

- HRHS-AS-01 (Hunter River High School);

- HRHS-AS-02 (Hunter River High School); and,
- HRHS-AS-03 (Hunter River High School).

A description of the Aboriginal sites that have been investigated is provided below.

8.1.1 HRHS-AS-01 (Hunter River High School)

HRHS-AS-01 (Hunter River High School) is a low density artefact scatter comprising of four (4) stone artefacts. Three (3) were recovered from spit 2 of SQ14 a + b, and one (1) spit 3 of SQ43 a.

8.1.2 HRHS-AS-02 (Hunter River High School)

HRHS-AS-02 (Hunter River High School) is a low density artefact scatter comprising of four (4) stone artefacts. Two (2) artefacts were recovered from spits 1 and 3 of SQ23 a + c, one (1) artefact from spit 5 of SQ46 a, and one (1) from spit 2 of SQ48 a.

8.1.3 HRHS-AS-03 (Hunter River High School)

HRHS-AS-03 (Hunter River High School) is an artefact scatter comprising of fifteen (15) stone artefacts recovered from the following test pits and recovered from between spits 2 and 6:

- SQ28 a;
- SQ28 b;
- SQ28 d;
- SQ37 a;
- SQ99B d;
- SQ100A c; and,
- SQ100A d.

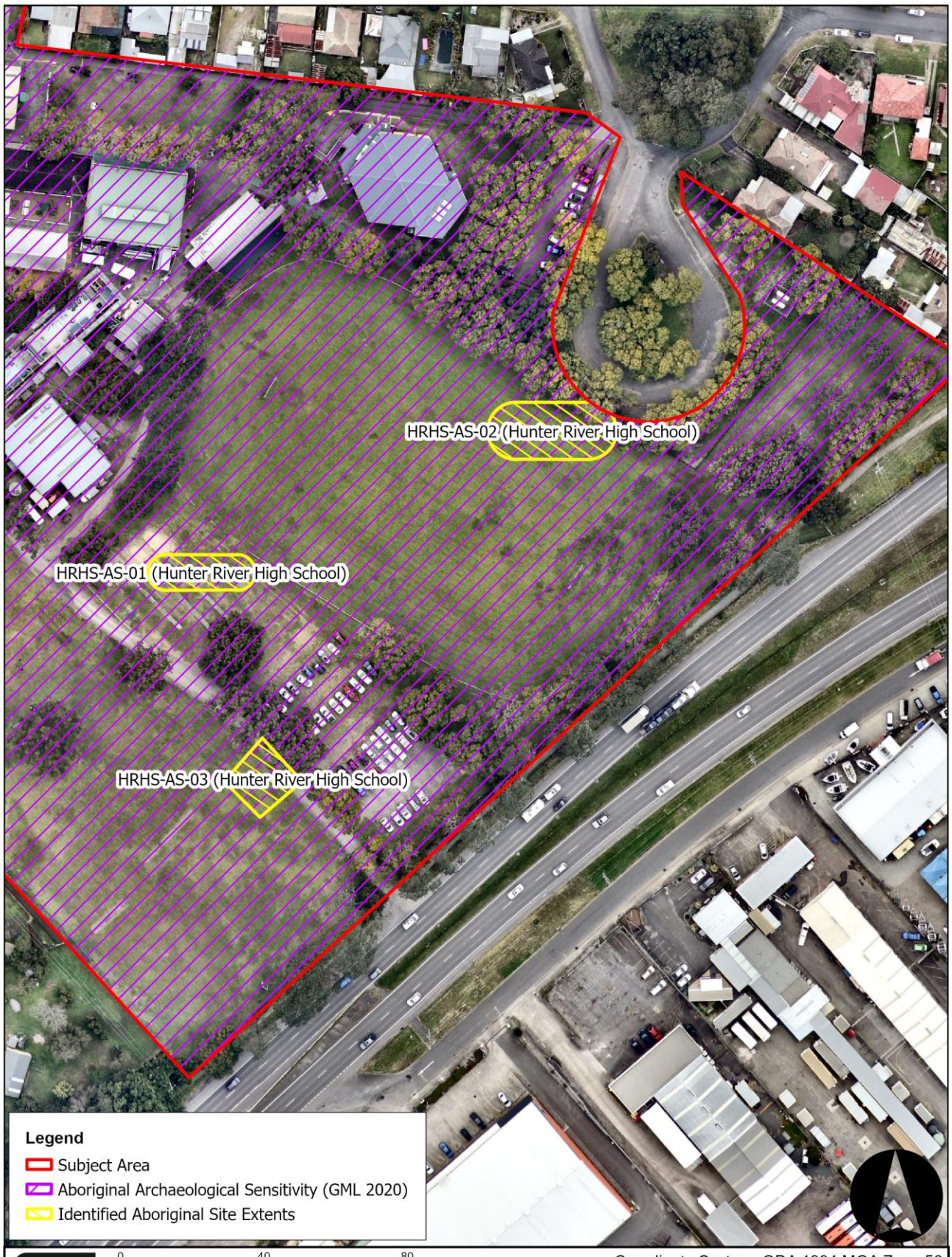


Figure 11: Identified Aboriginal Sites

9 PRINCIPAL FINDINGS

In Section 1.3 of this report several aims, and objectives were identified. This report has presented details of the archaeological subsurface investigation that has been undertaken within the Subject Area and presents sufficient information to facilitate an informed decision regarding the impact of the proposed development works upon Aboriginal heritage (refer to Section 7).

Three (3) Aboriginal sites have been identified as a result of Kayandel's archaeological excavation (refer to Figure 11):

- HRHS-AS-01 (Hunter River High School);
- HRHS-AS-02 (Hunter River High School); and,
- HRHS-AS-03 (Hunter River High School).

The results of the test excavation indicate that the archaeologically sensitive landform identified by GML has low to moderate archaeological potential. It should be noted that this low to moderate archaeological potential assessment may be revised depending on the results of other Aboriginal archaeological investigations of the Subject Area.

It can be concluded from Kayandel's test excavation that there is potential for the portions of the archaeologically sensitive landform that have not been investigated by this test excavation, to contain archaeological deposit.

On consideration of previous disturbance, the archaeological context, and the archaeological potential and significance identified for the landforms within the Subject Area, Kayandel has identified mitigation measures (refer to Section 10.2) to manage any impacts that the proposed development works would have on the identified Aboriginal sites.

Specific details for each of the mitigation measures is presented in Section 12 of the accompanying ACHAR.

10 MANAGEMENT CONSIDERATIONS

10.1 Guiding Principals

Wherever possible and practicable, it is preferred to avoid impact to Aboriginal archaeological sites. In situations where conservation is not possible or practicable, mitigation measures must be implemented.

The *Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance, 2013* provides guidance for the management of culturally sensitive places (Australia ICOMOS, 2013). The Burra Charter is predominantly focussed on places of built heritage significance, but the principles are applicable to other places of significance as well.

The first guiding principle for management of culturally significant sites states that "places of cultural significance should be conserved" (Article 2.1). A cautious approach should be adopted, whereby only "as much as necessary but as little as possible" (Article 3.1) should be changed or impacted.

Mitigation measures depend on the significance assessment for the site. Cultural significance of sites should also be considered in consultation with the Aboriginal community during community consultation.

10.2 Management Strategies

The following management options have been proposed based on the results of the Aboriginal archaeological test excavation, the impacts of the proposed replacement bridge and alterations to the alignment of the approaches, and the statutory framework for Aboriginal cultural heritage assessment:

1. An AHIP with no mitigation measures is obtained from Heritage NSW to allow impact to the identified archaeological values of the area; and,
2. Salvage excavation of HRHS-AS-03 (Hunter River High School). An AHIP from Heritage NSW would be required prior to salvage excavation occurring.

While each of the above management strategies will be discussed in further detail in Section 12 of the accompanying ACHAR, it is recommended that the Proponent proceed with Option 1.

11 LEGISLATIVE OBLIGATIONS AND RECOMMENDATIONS

Specific clauses within the *National Parks and Wildlife Act 1974* (as amended) and the *National Parks and Wildlife Regulations 2009* give rise to certain obligations. Recommendations for other tasks and activities to be undertaken come from the application of industry standards. Where an activity or task must be undertaken to comply with relevant legislation it will be detailed in Section 11.1, where a task or activity is recommended to be undertaken to meet the current industry standards it is presented in Section 11.2.

11.1 Obligations

1 An Aboriginal Heritage Impact Permit under Part 6 of the *National Parks and Wildlife Act 1974* is required prior to harm occurring to any Aboriginal objects; and,

2 Site Cards are to be prepared for all Aboriginal sites identified during the undertaking of the Aboriginal archaeological excavation, that are not currently recorded on AHIMS.

11.2 Recommendations

The following management principles and recommendations are based on:

- The legal requirements of the *National Parks and Wildlife Act 1974* (as amended), whereby it is illegal to damage, deface or destroy an Aboriginal relic without first obtaining the written consent of the Director General of National Parks & Wildlife Service;
- The legal requirements of *the Heritage Act 1977*, whereby it is illegal to disturb or excavate any land knowing or having reasonable cause to suspect that the disturbance or excavation will or is likely to result in a relic being discovered, exposed, moved, damaged or destroyed unless the disturbance or excavation is carried out in accordance with an excavation permit;
- The requirements of the *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* (DECCW, 2010b);
- The requirements of the *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW* (OEH, 2011); and,
- The findings presented within this ATR and the accompanying ACHAR.

Kayandel recommends the following:

1. That site cards are prepared and submitted to AHIMS for HRHS-AS-01 (Hunter River High School), HRHS-AS-02 (Hunter River High School) and HRHS-AS-03 (Hunter River High School); and,
2. A copy of the final ATR to be included in the ACHAR.

11.3 Distribution of Report

One hard copy and one digital copy of the finalised report should be sent to –

Aboriginal Heritage Information Management System (AHIMS)
Heritage NSW
PO Box 1967,
Hurstville NSW 1481.

12 REFERENCES

Australia ICOMOS. (2013). *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance, 2013*. Burwood, VIC: Australia ICOMOS Incorporated.

Biosis. (2018). *530 Raymond Terrace Road, Thornton: Archaeological Report*. Prepared for Thornton Brentwood.

Brayshaw McDonald. (1990). *Additional Archaeological Survey of Proposed Variation along Raymond Terrace By Pass, Pacific Highway, New South Wales*.

Dean-Jones, P. (1990). *Newcastle Bight Aboriginal Sites Study*. Prepared for the NSW National Parks and Wildlife Service and National Estate Grants Committee.

DECCW. (2010a). *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010*. Sydney South: Department of Environment, Climate Change and Water NSW

DECCW. (2010b). *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales*. Sydney South: Department of Environment, Climate Change and Water NSW,

GML. (2020). *Hunter River High School: Aboriginal Heritage Due Diligence Report Report*.

Jacobs. (2021). *M1 Pacific Motorway extension to Raymond Terrace*. Prepared for Transport NSW.

Matthei, L. E. (1995). *Soil Landscapes of the Newcastle 1:100 000 Sheet*. Sydney: Department of Land & Water Conservation.

McCardle Cultural Heritage. (2004). *Proposed Residential Subdivision Development Along Mount Hall Road, Raymond Terrace: Test Excavation Report*. Prepared for Project Plan.

McDonald, J. (1990). *Archaeological Survey of Proposed Raymond Terrace Bypass, Pacific Highway, New South Wales*.

NSW National Parks and Wildlife Service. (2003). Sydney Basin Bioregion. In *The Bioregions of New South Wales: their biodiversity, conservation and history* (pp. 185-196).

OEH. (2011). *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW*. South Sydney: Office of Environment and Heritage

Resource Planning. (1991). *Raymond Terrace Traffic Relief Route, Additional Archaeological Investigations - Sites RT1 and RT3*. Prepared for Roads and Traffic Authority NSW.

Rose, G., Jones, W. H., & Kennedy, D. R. (Cartographer). (1966). Newcastle 1:250 000 Geological Map

RPS. (2010). *Aboriginal Heritage Impact Assessment: Lot 32, DP 1014864 Masonite Road, Heatherbrae*. Prepared for Sandvik.

South East Archaeology. (2006). *Subsurface Archaeological Investigation of Proposed Somerset Park extension at Thornton, Hunter Valley, New South Wales*. Report prepared for Investa Housing Pty Ltd.

White, E. J. (2018). *Time Matters on Shallow Open Sites: An example from Western Sydney, Australia.* (Doctor of Philosophy). University of Sydney, Sydney.

APPENDIX I. ABORIGINAL ARCHAEOLOGICAL TEST EXCAVATION METHODOLOGY

This is the document that was issued to the Heritage NSW in accordance with Requirement 15c – Notification of the *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (DECCW, 2010b, p. 25).

kayandel archaeological services

P.O. Box 440,
Picton NSW 2571

T. +61 (0)2 **4627 8622**
F. +61 (0)2 **4605 0815**

W. www.kayandel.com

1. Aboriginal Archaeological Test Excavation Sampling Strategy

Rationale: GML (2020) identified archaeologically sensitive landforms within the Subject Area, associated with the Tea Gardens Variant A soil landscape.

Kayandel has been engaged by the NSW Department of Education to undertake an Aboriginal archaeological test excavation within the portion of Hunter River High School that will be impacted by the proposed upgrade. The test excavation will determine whether any archaeological deposits are present within the Subject Area. The results of the test excavations will contribute an understanding of site characteristics, local and regional prehistory, and can be used to inform conservation and harm mitigation measures for the proposed development (DECCW, 2010b, p. 24).

The position of the notional Phase 1 test pits have been determined in order to sample the areas that will be impacted by the proposed works. The test excavation is limited to areas of the Tea Gardens Variant A soil landscape, within the proposed impact area (see Figure 5).

Definition of potential archaeological deposit: The areas of archaeological sensitivity recorded by GML (2020) during their previous assessment of the Subject Area.

Comply with methods described in the archaeological Code of Practice: The test excavation would comply with the methods described in the *Code of Practice* (DECCW, 2010b).

Personnel: Test excavations will be carried out by personnel from Kayandel, together with members of the local Aboriginal community identified during the consultation process.

Research questions: Several research questions can meaningfully be applied to the test excavation program which can guide the required information and outcomes that are proposed to be achieved. These research questions include:

- Are there subsurface archaeological deposits that confirm the recorded area as a site?
- How does the artefactual material and stratigraphy identified at the site compare with other archaeological excavations undertaken in the local area and the region?
- What are the characteristics of the identified archaeological deposits?
- Are there any intra-site variations within the encountered archaeological deposits?
- Are conjoins present within the archaeological deposit?
- Are there any variations between the recovered artefact assemblage and artefact assemblages from other sites in the Heatherbrae area?
- Are additional archaeological features, such as hearths, present in the site area?
- Can chronological dates be obtained (i.e., from *in-situ* charcoal samples) that will aid our understanding of Aboriginal occupation in the region?

Aboriginal Archaeological Test Excavation Methodology

1.1. Test excavation which is not excluded from the definition of harm - Requirement 14

Acts carried out in the course of sub-surface investigation will not be excluded from harm where they are carried out in the area identified in Table 2. In these circumstances it will be necessary to apply for an AHIP.

kayandel archaeological services

P.O. Box 440,
Picton NSW 2571

T. +61 (0)2 **4627 8622**
F. +61 (0)2 **4605 0815**

W. www.kayandel.com

Requirement 14 Trigger	Results of Background Research
1. In or within 50m of an area where burial sites are known or are likely to exist	No burial sites have been recorded on the AHIMS search undertaken by Kayandel. A review of background information did not identify any of these site types within 50m of the Subject Area.
2. In or within 50m of a declared Aboriginal place	No Aboriginal Places are identified in the Heatherbrae area as per a search of the "Aboriginal Places & State Heritage Register" managed by the Heritage Division.
3. In or within 50m of a rock shelter, shell midden or earth mound	No rock shelters, shell middens or earth mounds have been recorded on the AHIMS search within 50m of the Subject Area. A review of background information did not identify any of these site types within 50m of the Subject Area.
4. In areas known or suspected to be Aboriginal missions or previous Aboriginal reserves or institutes	A review of background information, including GML (2020), did not identify any areas known or suspected to be Aboriginal missions or previous Aboriginal reserves or institutes in the Heatherbrae area.
5. In areas known or suspected to be conflict or contact sites	A review of background information, including GML (2020), did not identify any areas known or suspected to be conflict or contact sites.

Table 2: Compliance Table - Requirement 14 of the *Code of Practice* (DECCW, 2010b)

Based on the results detailed in Table 2, Kayandel has not triggered Requirement 14 of the *Code of Practice* (DECCW, 2010b). Therefore, the test excavation can be undertaken in accordance with Requirement 16 of the *Code of Practice* (DECCW, 2010b).

Where a Requirement 14 trigger (refer to Table 2) is identified during the undertaking of a *Code of Practice* test excavation, the test excavation will cease within 100m of the identified extent of the area, and advice will be sought from Heritage NSW prior to works recommencing.

1.2. Test excavation that can be carried out in accordance with the Code of Practice (DECCW, 2010b) - Requirement 16

The test excavations would be conducted in accordance with Requirement 16a of the *Code of Practice* (DECCW, 2010b).

1. Test units will be placed on a systematic grid, with spacing at 5m intervals. Test units may be more closely spaced, to clarify the spatial distribution of objects. Test units may be off-set from the 5m grid to avoid obstacles as necessary.
2. Test units would be separated by at least 5m.
3. Test units will be excavated using hand tools only.
4. Test units will be excavated in 50cm x 50cm squares.
5. Test units may be combined and excavated as necessary to understand site characteristics, however:
    i. The maximum continuous surface area of a combination of test units will not be greater than 3m^2;

kayandel archaeological services

P.O. Box 440,
Picton NSW 2571

T. +61 (0)2 **4627 8622**
F. +61 (0)2 **4605 0815**

W. www.kayandel.com

ii. The maximum surface area of all test units will be less than 0.5% of the site being investigated.

6. Where the 50 cm x 50 cm excavation unit is greater than 0.5% of the area then point 5 (ii) (above) does not apply.
7. The first test unit will be excavated and documented in 5cm spits. Based on the results of the first test unit, 10cm spits or sediment profile/stratigraphic excavation (whichever is smaller) may then be implemented.
8. All material excavated from the test units will be sieved using a 5mm aperture wire-mesh sieve. A smaller mesh may also be used. Wet sieving will be used if possible.
9. Test units will be excavated to at least the base of the identified Aboriginal object-bearing units, and will continue to confirm the soils below are culturally sterile. However, excavation will cease if/when B-horizon clays, rock or other impenetrable layer is reached, even if objects occur directly on this layer.
10. There is no point 10 in requirement 16a of the *Code of Practice* (DECCW, 2010b).
11. Photographic and scale-drawn records of the stratigraphy/soil profile, features and informative Aboriginal objects will be made for each test unit or combined units.
12. Test units will be backfilled as soon as practicable.
13. An Aboriginal Site Impact Recording form will be completed and submitted to the AHIMS Registrar as soon as practicable after the test excavation (DECCW, 2010b, pp. 26-27).

1.3. Proposed Test Excavation Methodology

The investigations will be proposed to be undertaken in 3 phases, with the design of each subsequent Phase being determined by the results of the earlier Phase(s).

	A 20m x 20m grid has been overlain on the areas of archaeological sensitivity that will be impacted by the proposed upgrade (see Figure 5). A sample of the notional test pits presented in Figure 5 will be selected for excavation. Kayandel will undertake infield consultation with RAPs to identify test pits that have potential to contain intact archaeological deposits These pit locations have been selected to enable data to be gathered from the proposed impact area, as well as considering existing disturbance levels and proposed disturbances, within the Subject Area.
Phase 1:	In order to reach the base of cultural deposits, it may be necessary to expand the original 50cm x 50cm test pit. Where this is required, the test pit will be excavated in 50cm x 50cm quadrants. In situations where it is necessary to relocate a test pit due flooding or an obstruction (such, as boulders, sandstone platforms, etc.), the test pit will be relocated in either a north, south, east or west direction, and will not be located more than 5m from the original location. If no Aboriginal cultural material was identified during Phase 1, the test excavation would cease in accordance with the excavation methodology described below.
Phase 2:	Investigations would involve the excavation of additional test pits at a distance of 10m where high frequencies of Aboriginal cultural material were identified in

kayandel archaeological services

P.O. Box 440,
Picton NSW 2571

T. +61 (0)2 **4627 8622**
F. +61 (0)2 **4605 0815**

W. www.kayandel.com

	Phase 1 test pits. If no Aboriginal cultural material was identified the test excavation would cease at Phase 1.
Phase 3:	In circumstances where significant artefact types such as backed blades or similar have been identified, or identification of cultural features such as hearths, knapping floors, the 0.5m x 0.5m test pit will be expanded in north, south, east and west directions, in order to make an assessment regarding the nature and extent of the archaeological deposit.

The expanded test pits will not have an area greater than 3m². The excavation of the expanded test pits will be undertaken as per the excavation methodology described below.

Please note the excavation strategy outlined above has been based on desktop information and review of current and historic aerials for the Subject Area. As such the *notional* test pit locations provided in Figure 5 may prove inappropriate/impractical when on-site. In such a situation, the shape and size of the grid may be revised, and test pit locations may be altered slightly following discussion with any RAP representatives who are on site for the fieldwork.

The spatial extent of the test excavation may extend outside of the presently assessed/mapped site extents, and/or the notional areas of archaeological sensitivity/sensitive landforms, where it is deemed necessary by the supervising archaeologist, that such an extension is necessary in order to meet the objectives of the 'Sampling Strategy' and/or the 'Proposed Test Excavation Methodology'. This excavation must be undertaken on the same grid arrangement, and in the identical manner to the Phase of testing that is being used to justify its completion.

1.4. Objects recovered during the test excavation – Requirements 16b, 19 and 26 (DECCW, 2010b)

Any Aboriginal objects will be managed in accordance with Requirements 16b, 19 and 26 of the *Code of Practice* (DECCW, 2010b).

Temporary storage: Any objects recovered during the test excavation will be temporarily removed from the site to the offices of Kayandel at 20 Cherry Road, Lakesland NSW 2571. Once there, they will be cleaned, identified, and recorded by, or under the supervision of lithic specialists (Lance Syme and Natalie Stiles).

Reburial: Any objects recovered during the test excavation will be reburied as per Requirement 16b and 26 of the *Code of Practice* (DECCW, 2010b), pending any agreement reached as to the long-term management of the objects.

Before any objects are reburied, consultation will take place with members of the local Aboriginal community as to the preferred location of both a temporary and long-term 'keeping place'. The wishes of the community will be respected. Any reburial location will be subject to procedures to ensure that it is not harmed.

When objects are reburied, the location of the reburial will be submitted to AHIMS with a site update record card (DECCW, 2010b). If reburied,

- The objects will be placed in a suitable impervious and permanent container and labelled.
- A record of the final location of the objects will be made, including grid co-ordinates, site plan (or mud map), depth of burial, and photographic record of the disposition. This record will be submitted to AHIMS with a site update card.

kayandel archaeological services

P.O. Box 440,
Picton NSW 2571

T. +61 (0)2 **4627 8622**
F. +61 (0)2 **4605 0815**

W. www.kayandel.com

Attribute recording: Recording of any objects will include the attributes listed on the AHIMS Artefact Recording Table, in accordance with Requirement 19 (DECCW, 2010b).

- A catalogue of objects will be made.
- Diagnostic artefacts will be photographed and drawn.
- All objects will be bagged in appropriate and identifiable units, which can be cross-referenced to the catalogue.
- Objects will be stored in good quality, double-bagged plastic zip-lock bags.

The bags will be externally labelled using a permanent marker and an independent label on robust material (e.g., tyvex) will be placed inside the bag.

1.5. Cessation of test excavation

Any test excavation carried out must cease in accordance with Requirement 17 of the *Code of Practice* (DECCW, 2010b) when:

- Suspected human remains are encountered;
- Enough information has been recovered to adequately characterise the objects present with regard to their nature and significance, i.e.:
    - Locally or regionally high density of objects;
    - Presence of rare or representative objects; and/or,
    - Presence of locally or regionally significant deposits.

It should be noted that the above triggers are not appropriate for the early cessation of an individual test pit, after it has been opened; each individual test pit must be ceased in accordance with Point 9 of Requirement 16 of the *Code of Practice* (DECCW, 2010b).

Alternatively, if an individual test pit has been opened, and Requirement 14 of the *Code of Practice* (DECCW, 2010b), and it is within 100m of the identified extent of the area (refer to 'Test excavation which is not excluded from the definition of harm - Requirement 14'), the test pit can be ceased prior to complying with Point 9 of Requirement 16 of the *Code of Practice* (DECCW, 2010b).

kayandel archaeological services

P.O. Box 440,
Picton NSW 2571

T. +61 (0)2 **4627 8622**
F. +61 (0)2 **4605 0815**

W. www.kayandel.com

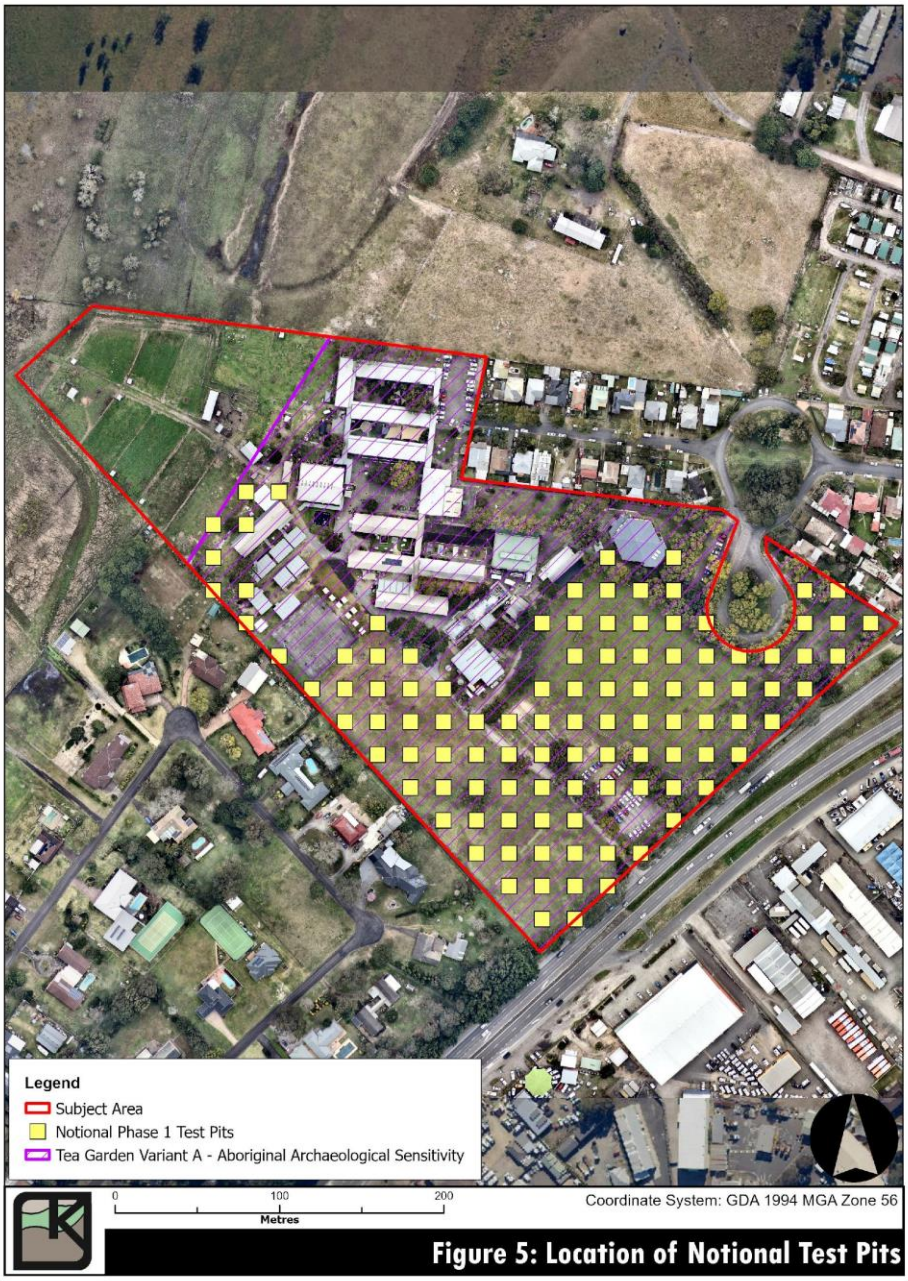


Figure 5: Location of Notional Test Pits

APPENDIX II. TEST PIT PROFILE PHOTOGRAPHS


HRHS
Pit SQ10 b/a
Depth-92cm
Western Wall
13/11/23


HRHS
Pit SQ09 b/a
Depth-82cm
Western Wall
13/11/23


HRHS
Pit SQ11 a/b
Depth-80cm
Eastern Wall
13/11/23


HRHS
Pit SQ12 a/b
Depth-80cm
Eastern Wall
13/11/23


HRHS
Pit SQ13 a/b
Depth-80cm
Eastern Wall
13/11/23


HRHS
Pit SQ14 b/a
Depth-83cm
Western Wall
13/11/23


HRHS
Pit SQ15 a/b
Depth-80cm
Eastern Wall
13/11/23


HRHS
Pit SQ16 b/a
Depth-82cm
Western Wall
13/11/23


HRHS
Western Wall


HRHS
Western Wall


HRHS
Eastern Wall


HRHS
Western Wall


HRHS
Western Wall


HRHS
Western Wall


HRHS
Western Wall


HRHS
Western Wall


HRHS
Pit- SQ27b/a
Depth- 77cm
Western Wall
13/1/23


HRHS


HRHS


HRHS
Pit- SQ29 A/B
Depth- 82CM
Eastern Wall


HRHS
Pit- SQ30b/a
Depth- 79cm
Western Wall


HRHS
Pit-SQ31 B/A
Depth-79CM
Western wall


HRHS


HRHS
Pit-SQ33 B/A
Depth-81CM
Western wall


HRHS
Pit- SQ34 B/A
Depth- 78CM
Western Wall


HRHS
Pit- SQ35 B/A
Depth- 80CM
Western Wall


HRHS
Pit- SQ36 B+A
Spit 8
East Wall ←N
18/04/23


HRHS
Pit- SQ37 B+A
Spit 8
East Wall ←N
18/04/23


HRHS
Pit- SQ38 B+A
Spit 8
East Wall ←N
18/04/23


HRHS
Pit- SQ39 B+A
Spit 8
East Wall ←N
18/04/23


HRHS
Pit- SQ40 B+A
Spit 8
East Wall ←N
19/04/23


HRHS
Pit- SQ42 B+A
Spit- 8
East Wall ←N
18/04/23

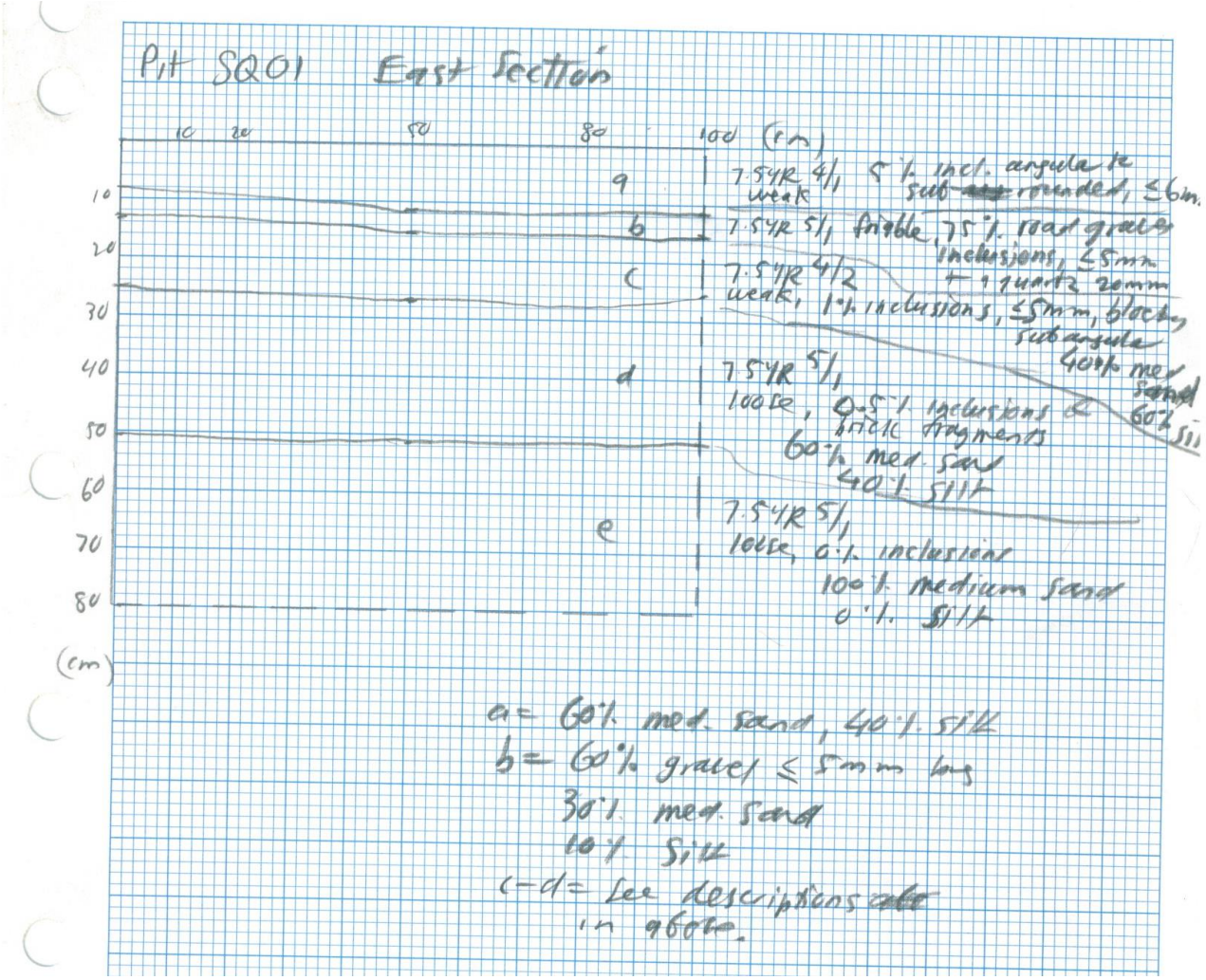

HRHS
Pit - SQ43B+A
Spit 8
East Wall
19/04/23
N

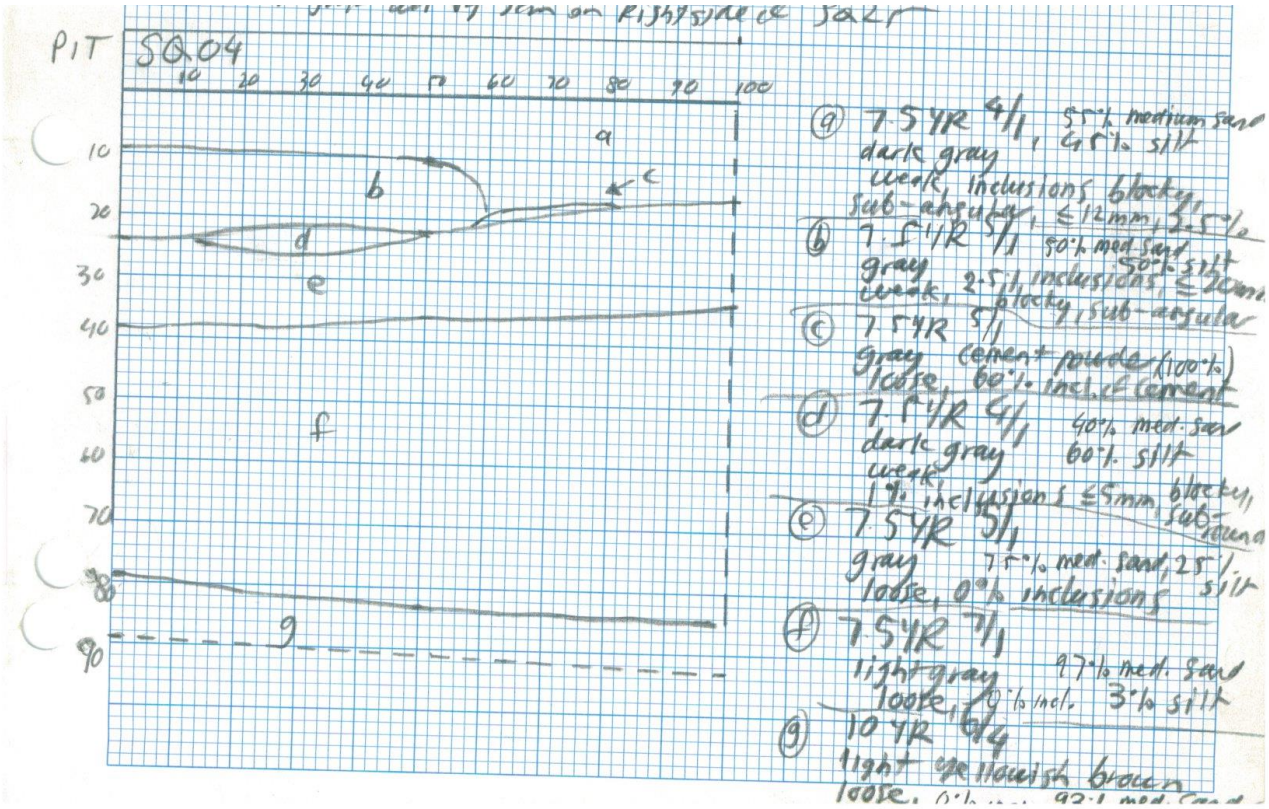

Pit - SQ44
Spit 8
West Wall
17/4/23
N

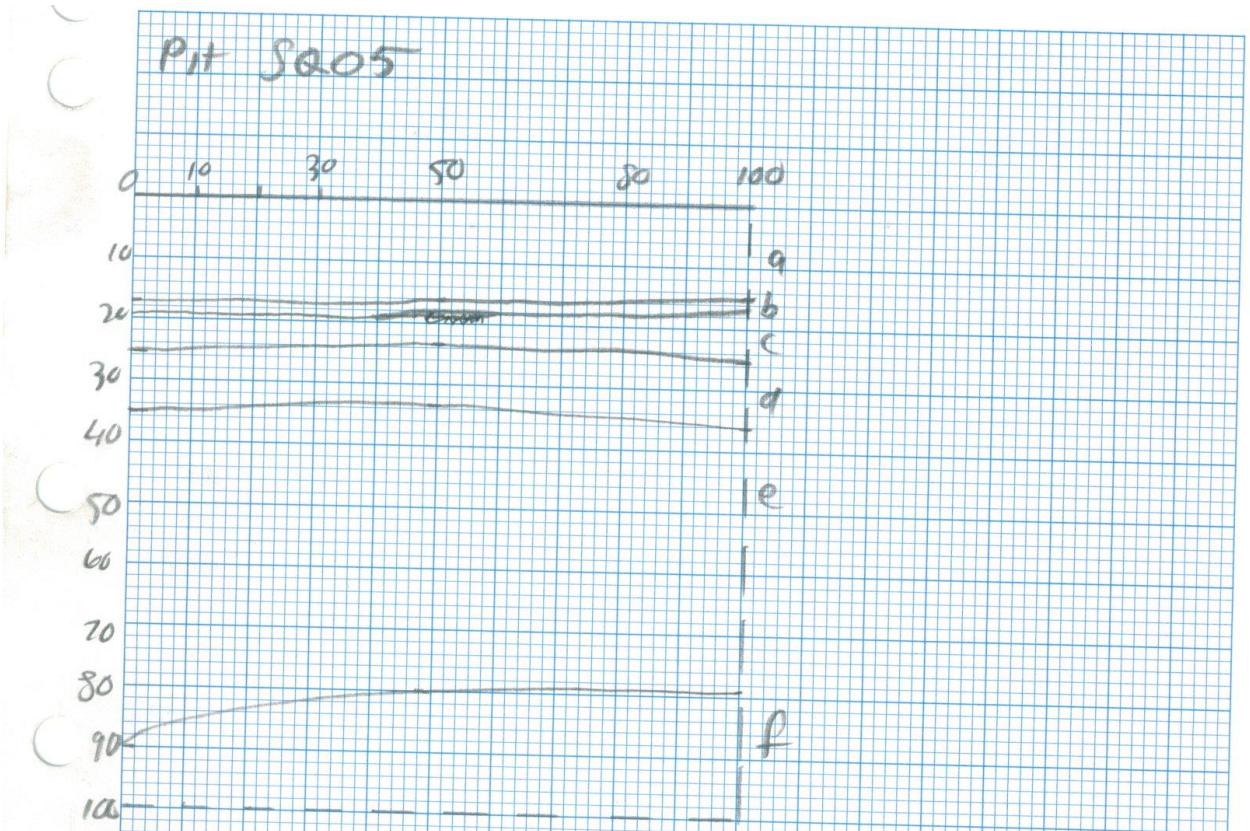

HRHS
Pits SQ99 Ba
Spit 8
West Wall
N


Pits SQ100Ad
Spit 8

APPENDIX III. STRATIGRAPHIC DRAWINGS

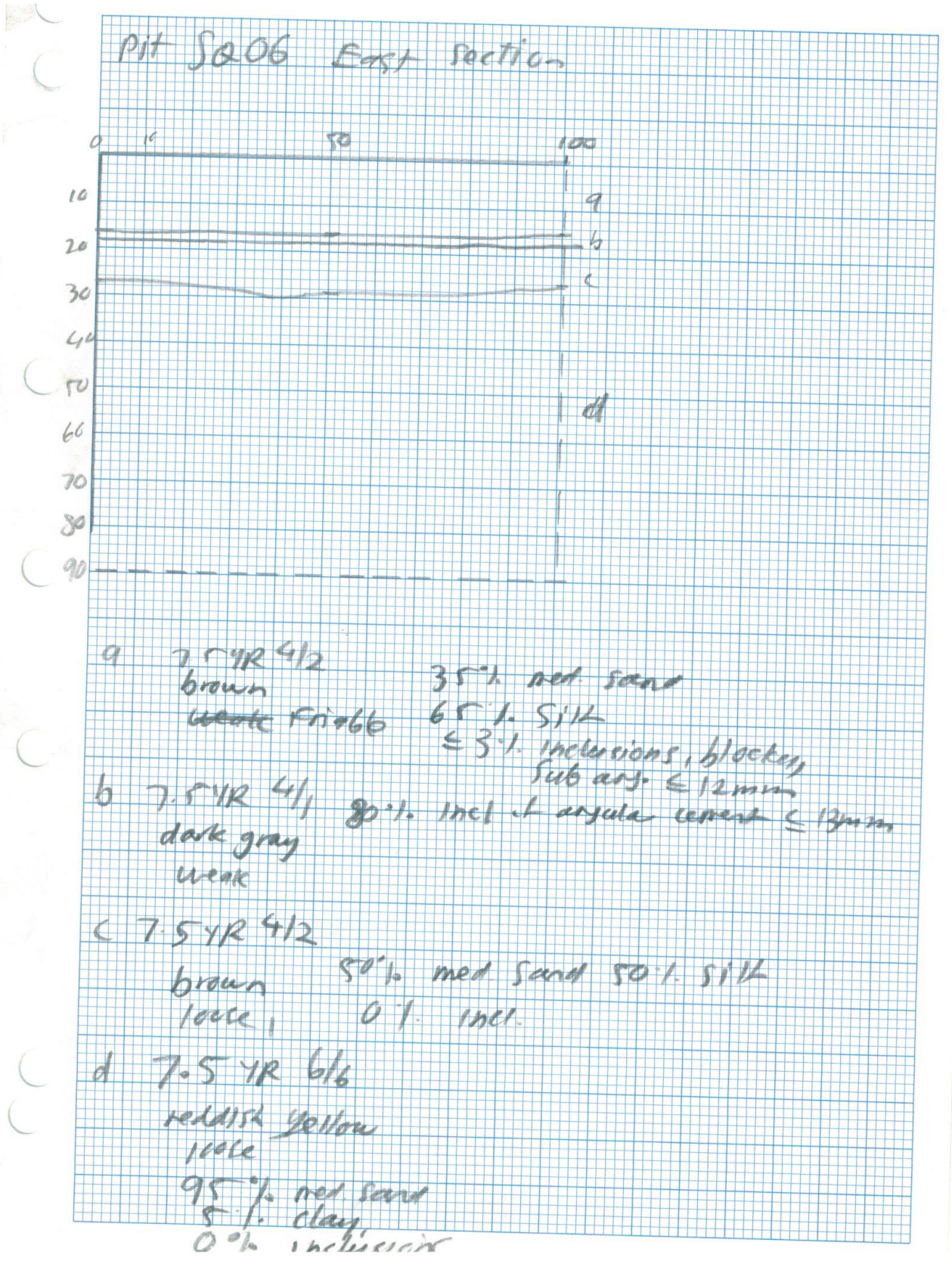



PIT SQ04
10 20 30 40 50 60 70 80 90 100
10
20
30
40
50
60
70
80
90
a
b
c
d
e
f
g
⓪ 7.5YR 4/1, 57% medium sand dark gray 43% silt
weak, inclusions, blocky, sub-angular, ≤12mm, 2.5%
⓫ 7.5YR 5/1 50% med sand 50% silt
gray 2.5% inclusions ≤20mm
weak, blocky, sub-angular
⓬ 7.5YR 5/1
gray cement powder (100%)
loose, 60% incl. of cement
⓭ 7.5YR 4/1 40% med. sand
dark gray 60% silt
weak
1% inclusion ≤5mm blocky, sub-
⓮ 7.5YR 5/1
gray 75% med. sand, 25% silt
loose, 0% inclusions
⓯ 7.5YR 7/1
light gray 97% med. sand
loose, 0% incl. 3% silt
⓰ 10YR 6/4
light yellowish brown
loose. 93:1 med

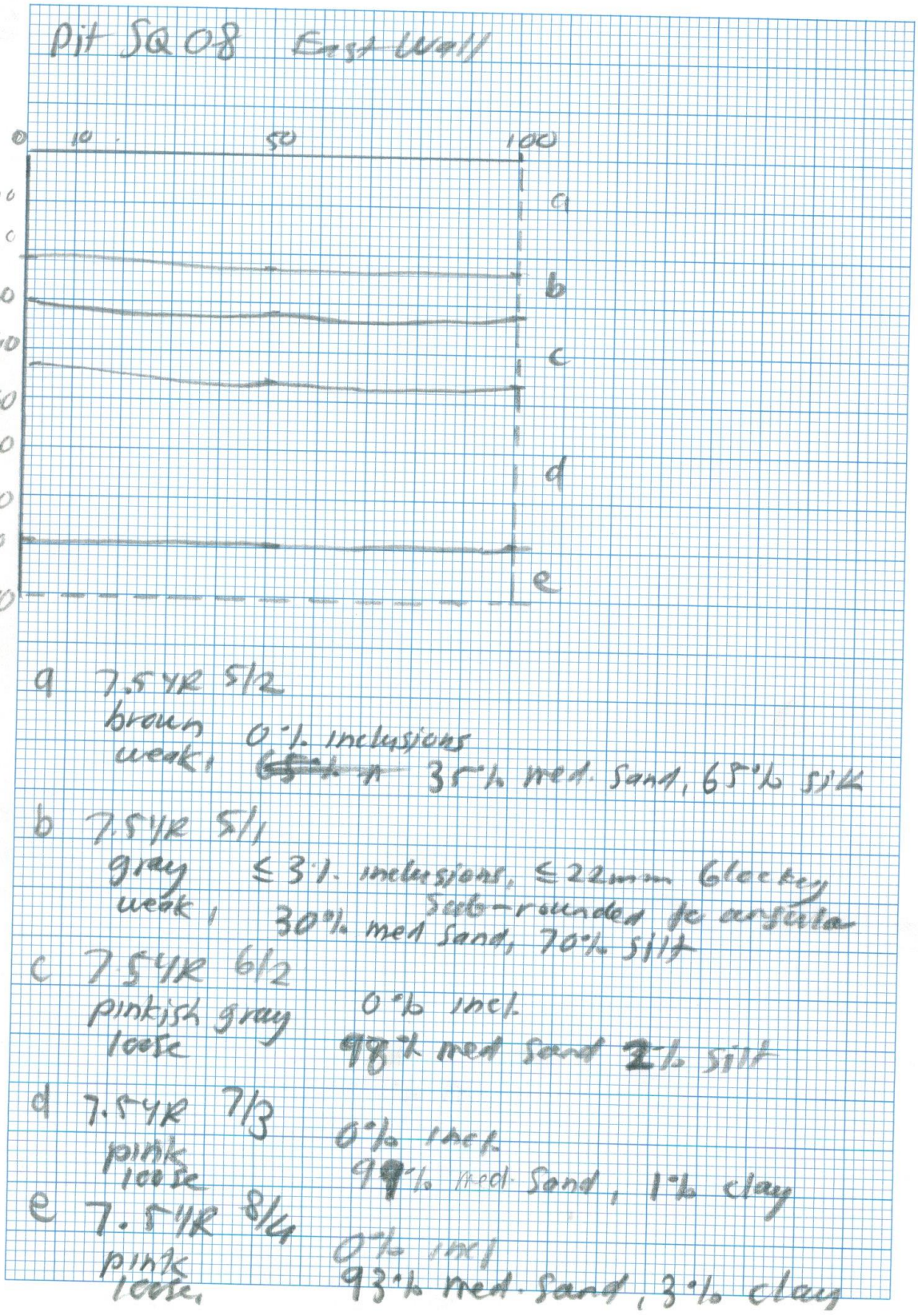


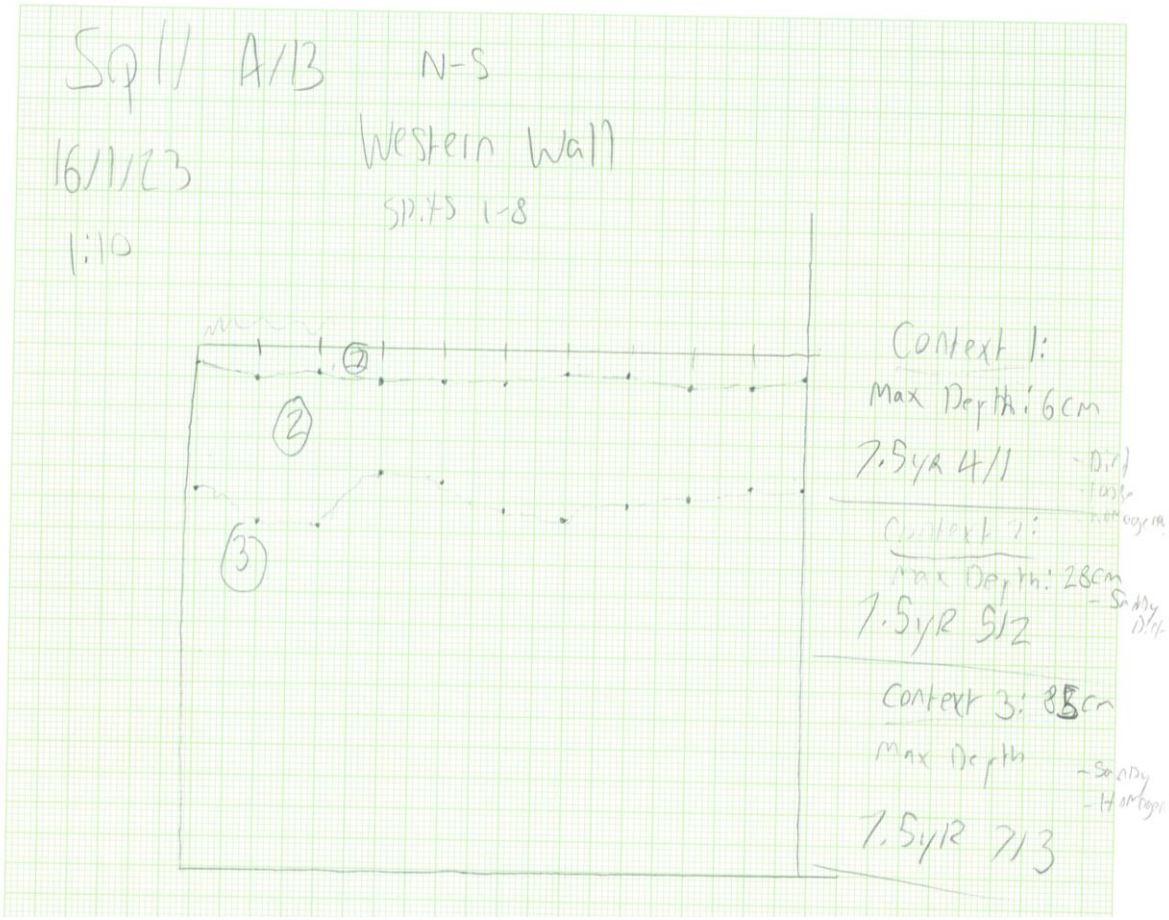
a 7.5YR 3/1
very dark gray, ≤ 3% inclusions, blocky, sub-angular, ≤ 12mm, friable
b 7.5YR 4/1
dark gray, 10% inclusions, angular, cement ≤ 10mm, 15% charcoal, lens ≤ 15mm, weak
c 7.5YR 4/3
brown, friable
d 7.5YR 3.5/1
very dark gray, loose
e 7.5YR 7/1
light gray loose, 0% incl., loose
f 10YR 6/4 light yellowish brown, 0% inclusions, loose

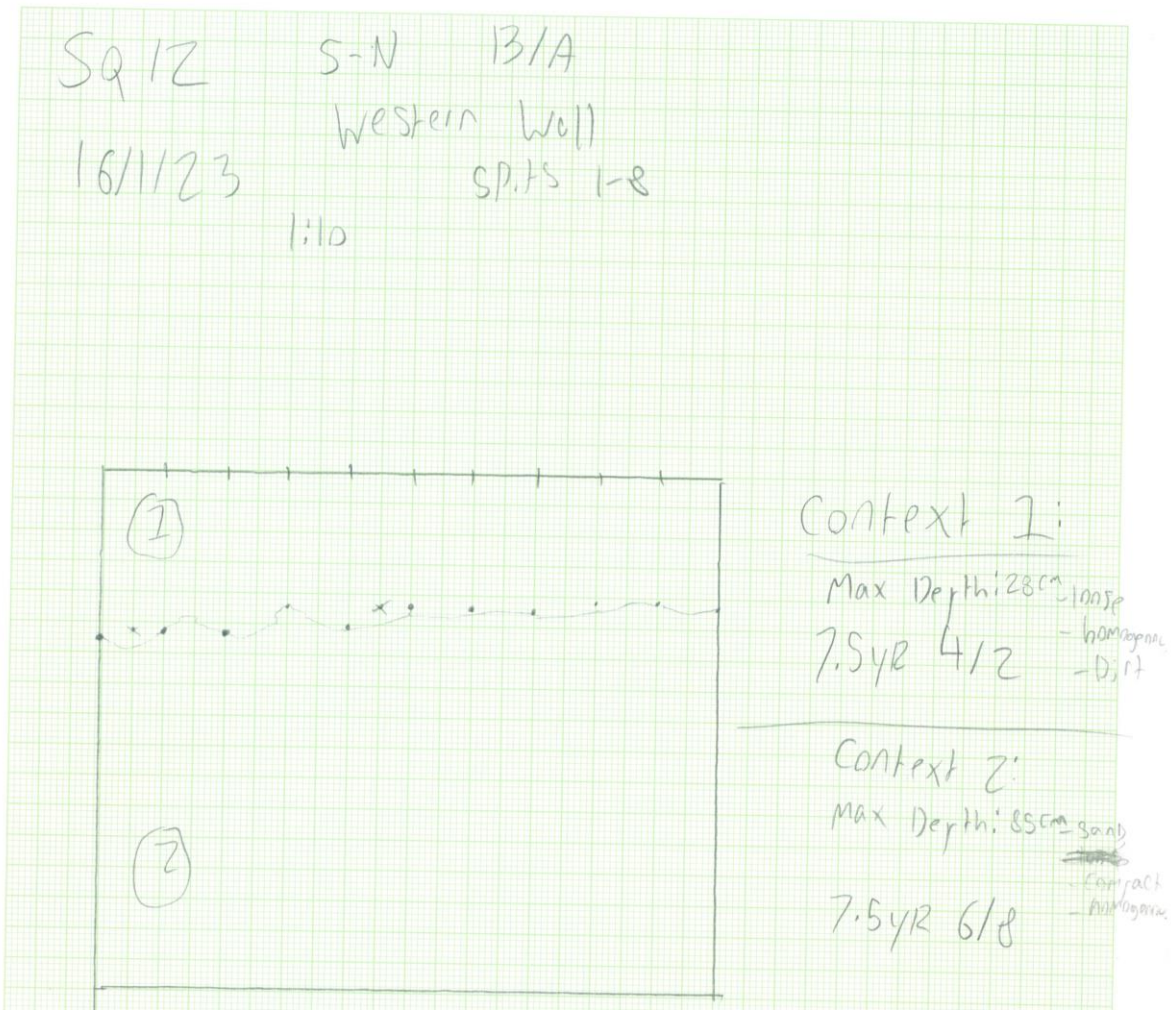
a 30% med. sand, 60% silt
b see above
c 20% med. sand 80% silt
d 50% med. sand, 50% silt
e 95% med sand, 5% silt
f 95% med. sand, 5% clay


Pit SQ06 East section
0
10
50
100
10
20
30
40
50
60
70
80
90
a
b
c
d
a 7.5YR 4/2
brown
weak friable
35% med sand
65% silt
≤ 3% inclusions, blocky
sub ang. ≤ 12mm
b 7.5YR 4/1
dark gray
weak
80% incl of angular cement ≤ 13mm
c 7.5YR 4/2
brown
loose
50% med sand 50% silt
0% incl.
d 7.5YR 6/6
reddish yellow
loose
95% red sand
5% clay
0% inclusions

Hunter River H.S. 13.1.R3 A5



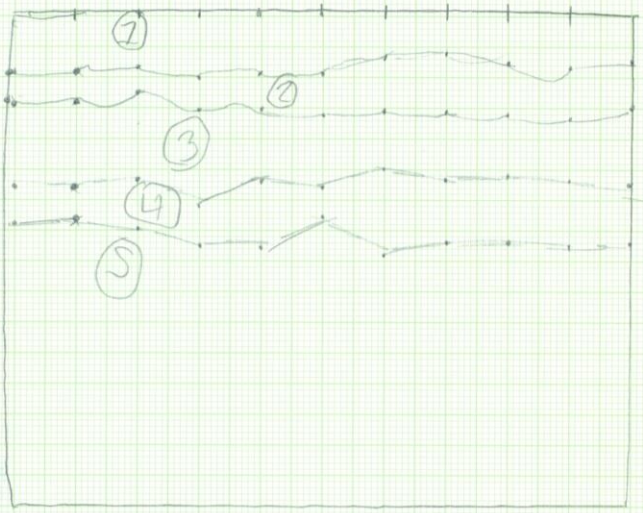

Sq 11 A/B N-S
Western Wall
16/1/23
1:10
Sp. #s 1-8
Context 1:
Max Depth: 6cm
7.5yr 4/1
Context 2:
Max Depth: 28cm
7.5yr 5/2
Context 3: 85cm
Max Depth
7.5yr 7/3


SQ 12
S-N
13/A
Western Wall
16/1/23
SPITS 1-8
1:10
1
2
Context 1:
Max Depth: 28cm
7.5YR 4/2
Context 2:
7.5YR 6/8

Sq 14 C/D Eastern Wall

16/1/23 N-S SDHs 1-6 (C/D) AND 7-8 (A/B)

1:10



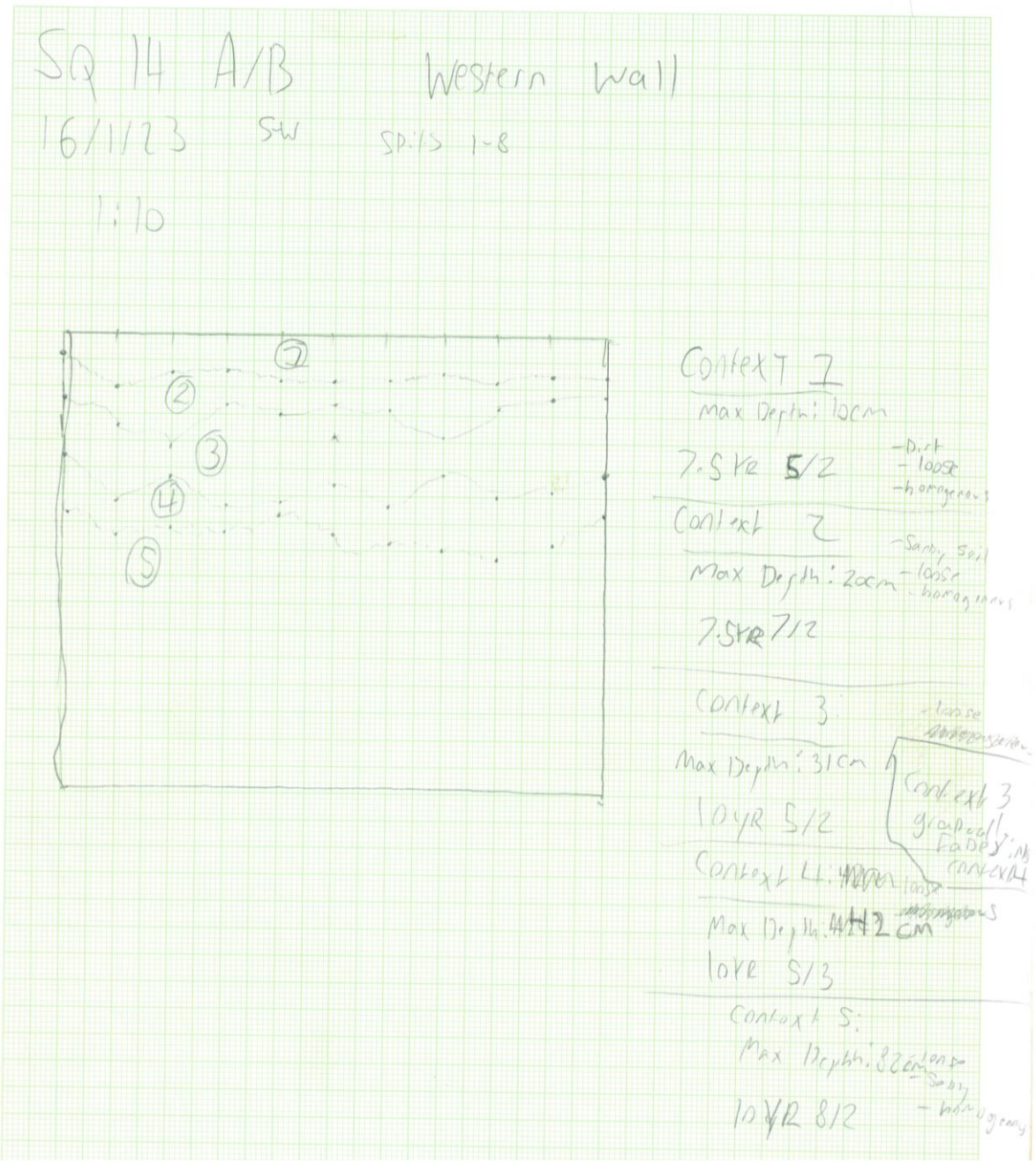
Context 1:
Max Depth: 10cm
7.5YR 4/3
- loose
- Dirt
- homogenous

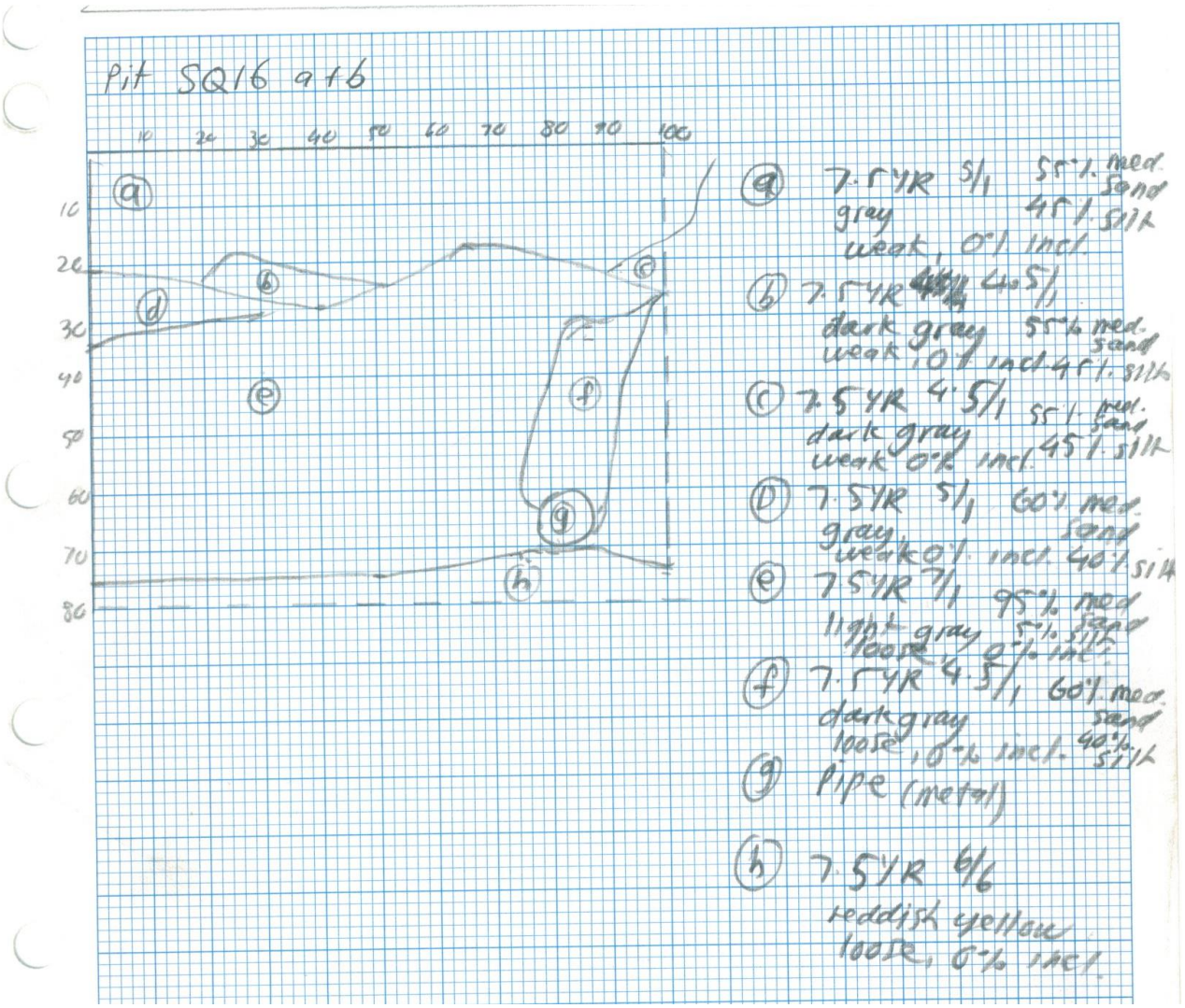
Context 2:
Max Depth: 12cm - loose
- homogenous
7.5YR 7/3

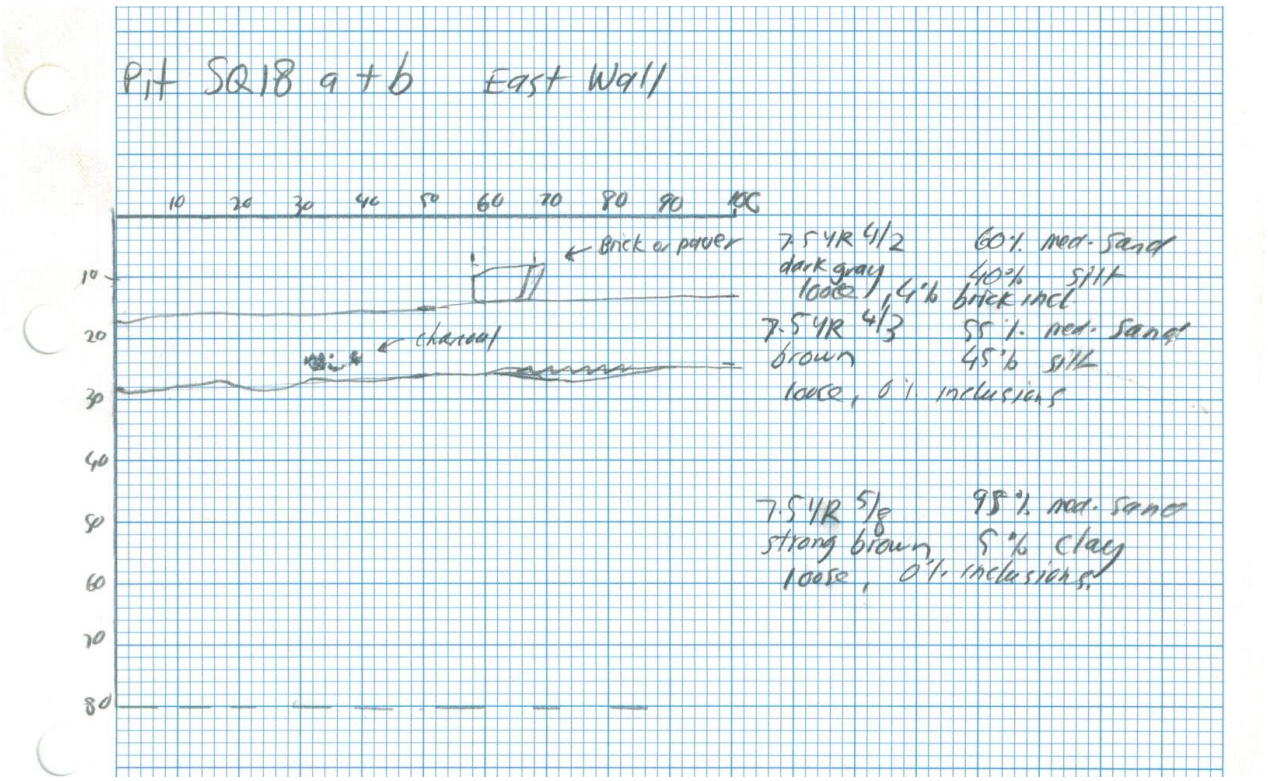
Context 3:
Max Depth: 31cm - loose
7.5YR 5/1
Gradual fading between Context 3 AND 4

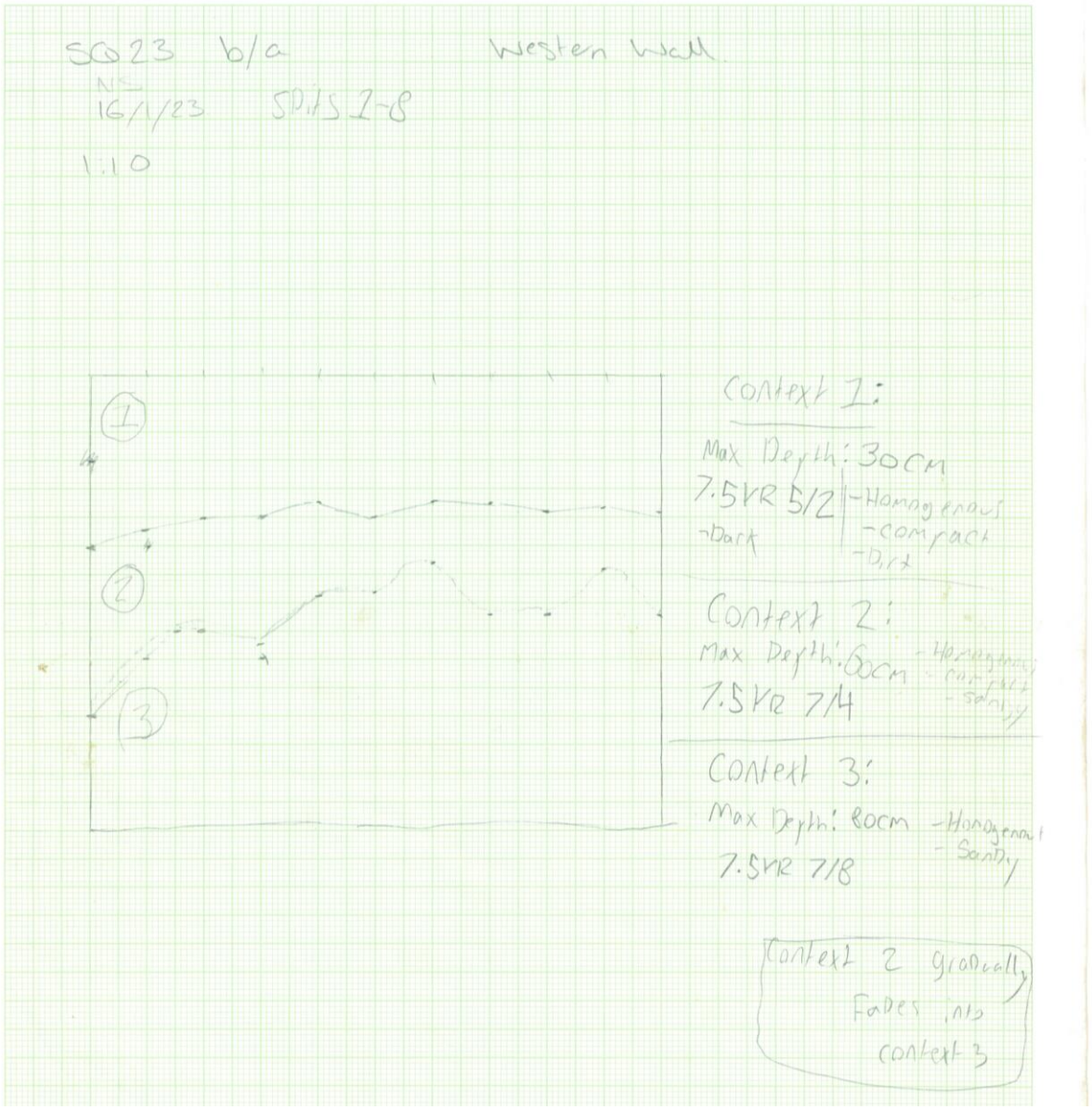
Context 4:
Max Depth: 39cm
7.5YR 6/2
- loose

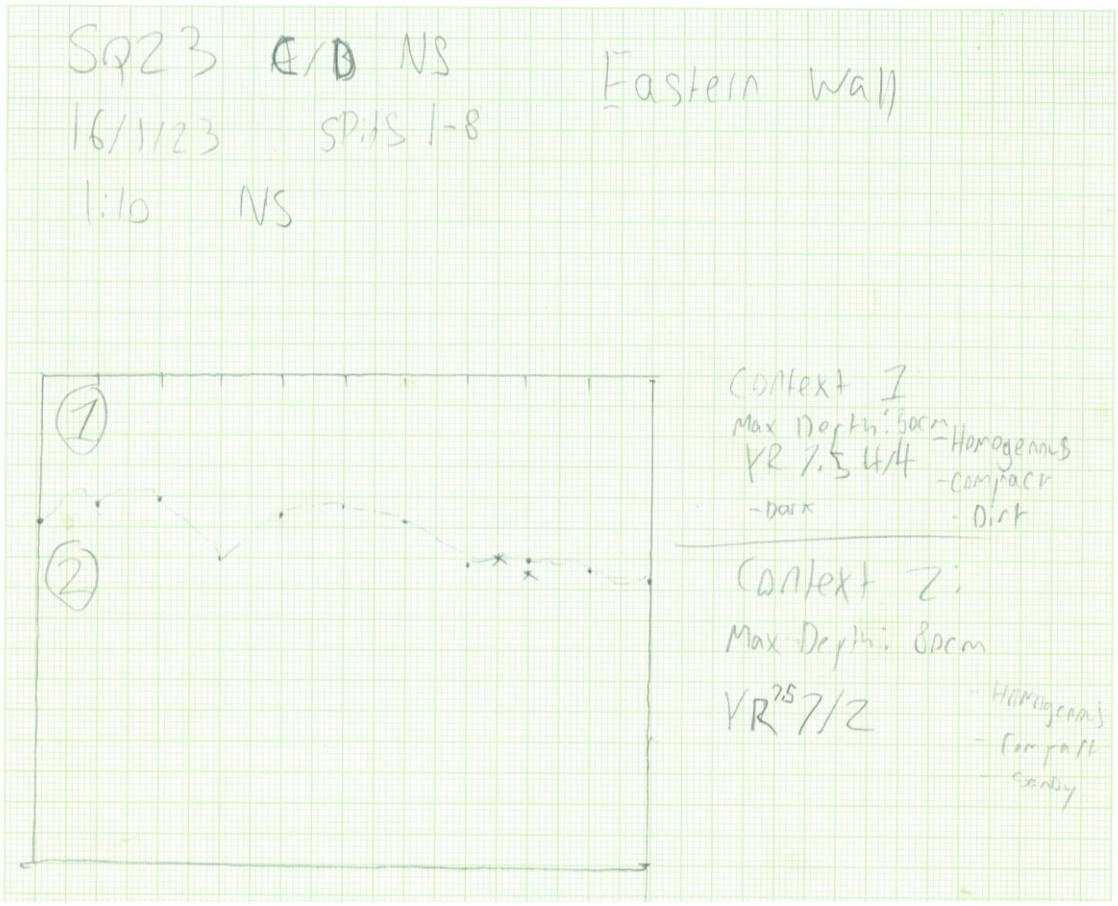
Context 5:
Max Depth -
7.5YR 7/2
- loose
- Sand
- homogenous

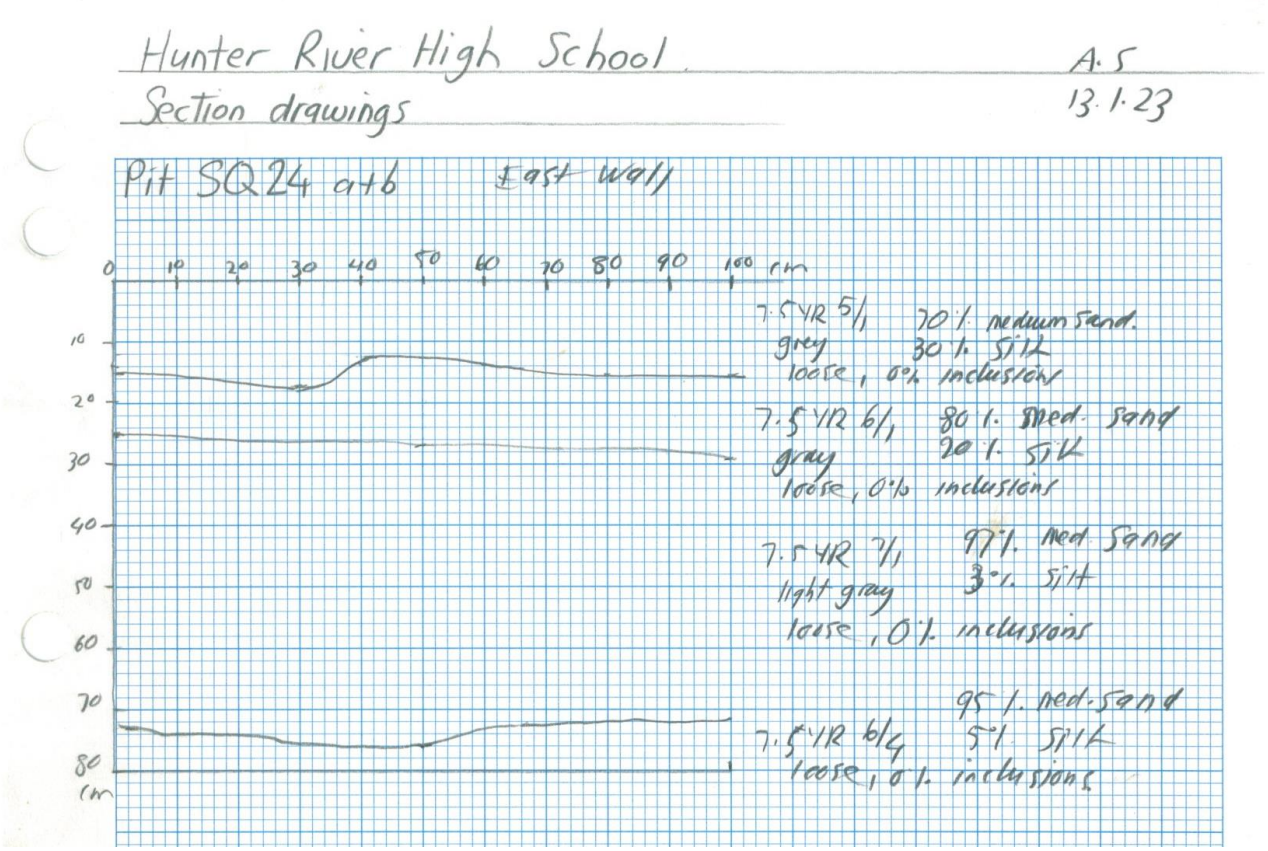

Sq 14 A/B
Western Wall
16/1/23
SW
Sp. 15 1-8
1:10
Context 1
Max Depth: 10cm
7.5 YR 5/2
Context 2
Max Depth: 20cm
7.5YR 7/2
Context 3
Max Depth: 31cm
10YR 5/2
Context 4:
Max Depth: 42 cm
10YR 5/3
Context 5:
10YR 8/2

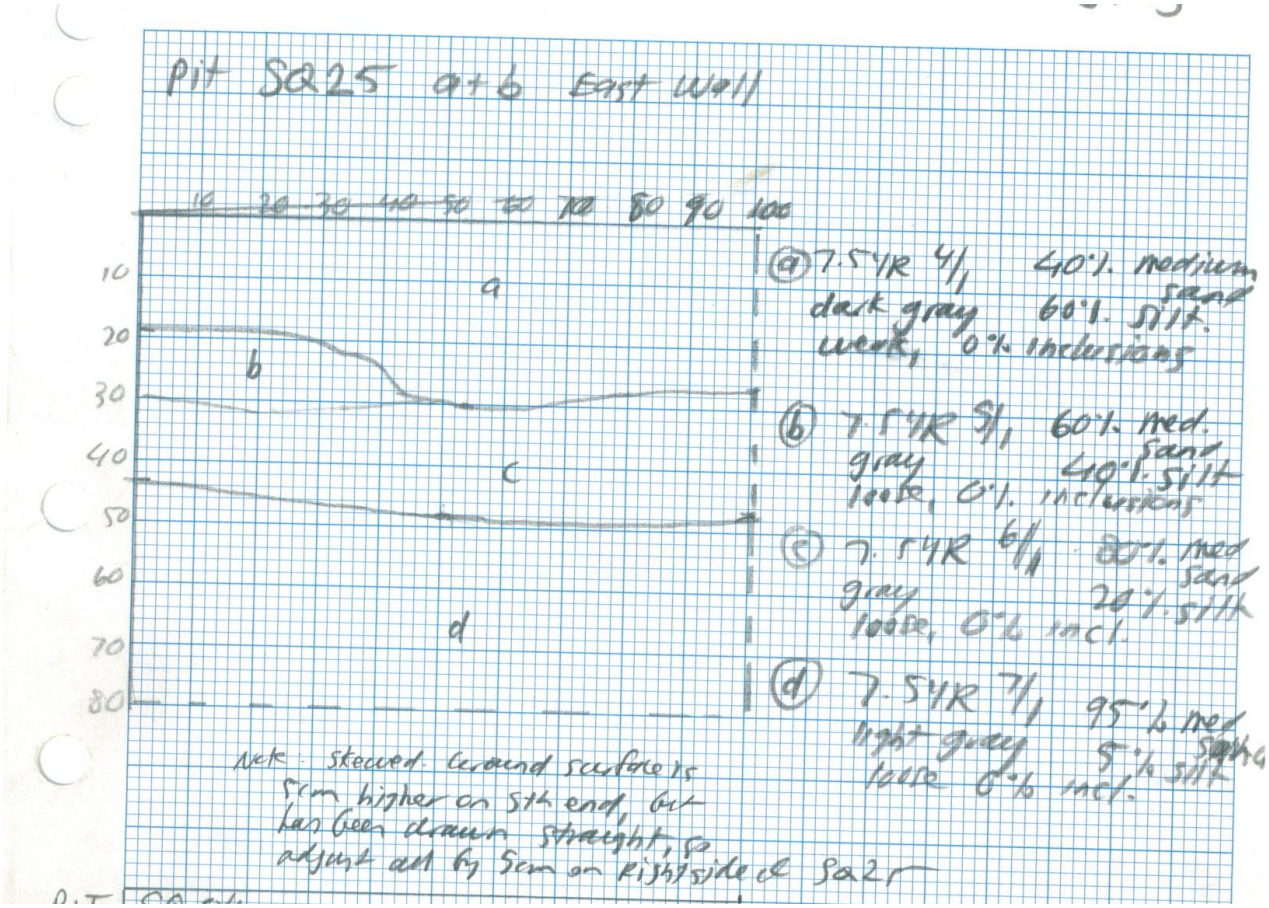

Pit SQ16 a+b
10 20 30 40 50 60 70 80 90 100
10 20 30 40 50 60 70 80
a
b
c
d
e
f
g
h
a 7.5YR 5/1 gray weak, 0% incl. 55% med. sand 45% silt
b 7.5YR 4.5/1 dark gray weak, 10% incl. 55% med. sand 45% silt
c 7.5YR 4.5/1 dark gray weak 0% incl. 55% med. sand 45% silt
d 7.5YR 5/1 gray weak 0% incl. 60% med. sand 40% silt
e 7.5YR 7/1 light gray loose, 0% incl. 95% med. sand 5% silt
f 7.5YR 4.5/1 dark gray loose, 10% incl. 60% med. sand 40% silt
g Pipe (metal)
h 7.5YR 6/6 reddish yellow loose, 0% incl.

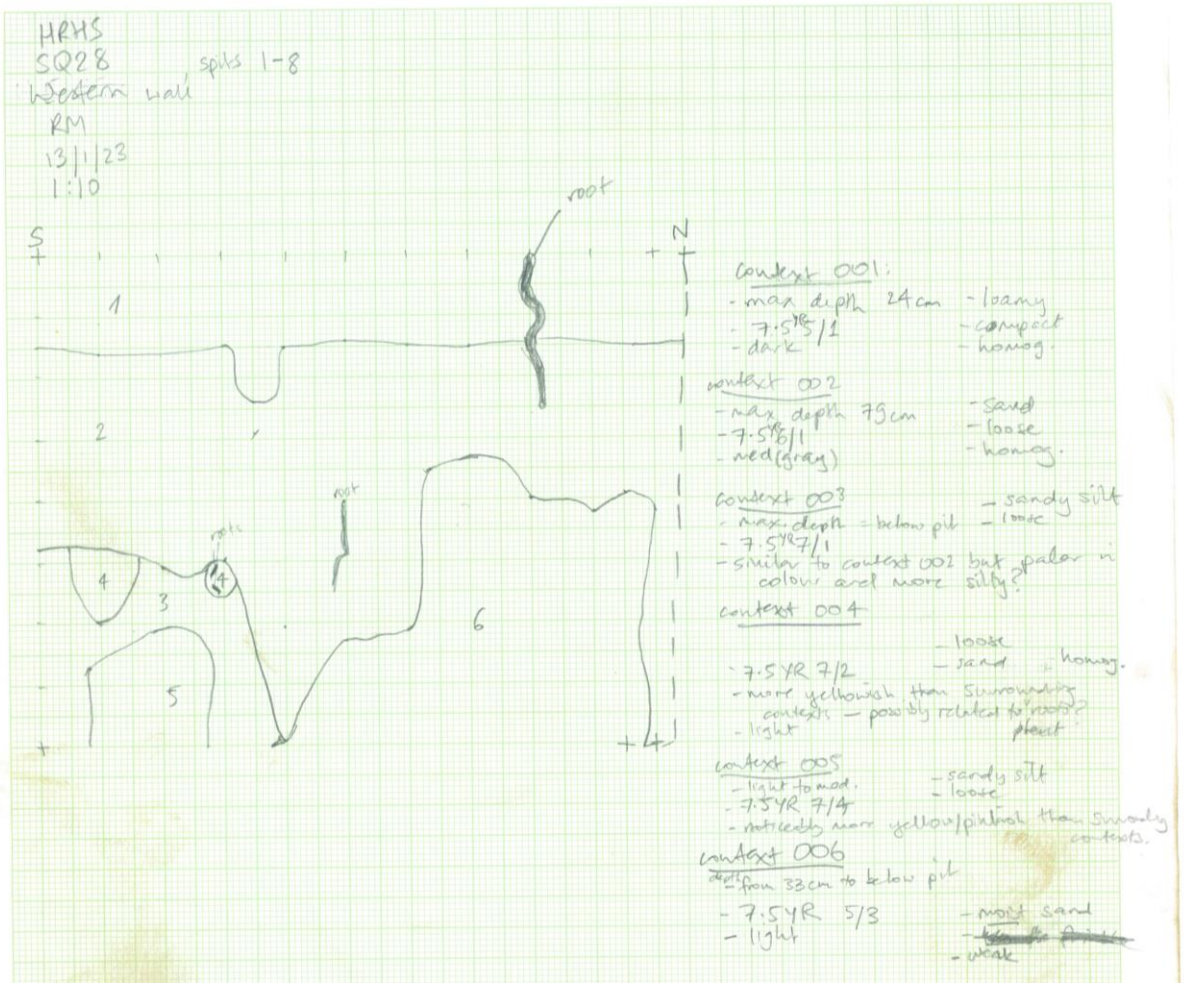

Pit SQ18 a+b East Wall
10 20 30 40 50 60 70 80 90 100
10 20 30 40 50 60 70 80
← Brick or paver
← charcoal
7.5YR 4/2 dark gray loose, 4% brick incl. 60% med. sand 40% silt
7.5YR 4/3 brown loose, 0% inclusions 55% med. sand 45% silt
7.5YR 5/8 strong brown loose, 0% inclusions 95% med. sand 5% clay

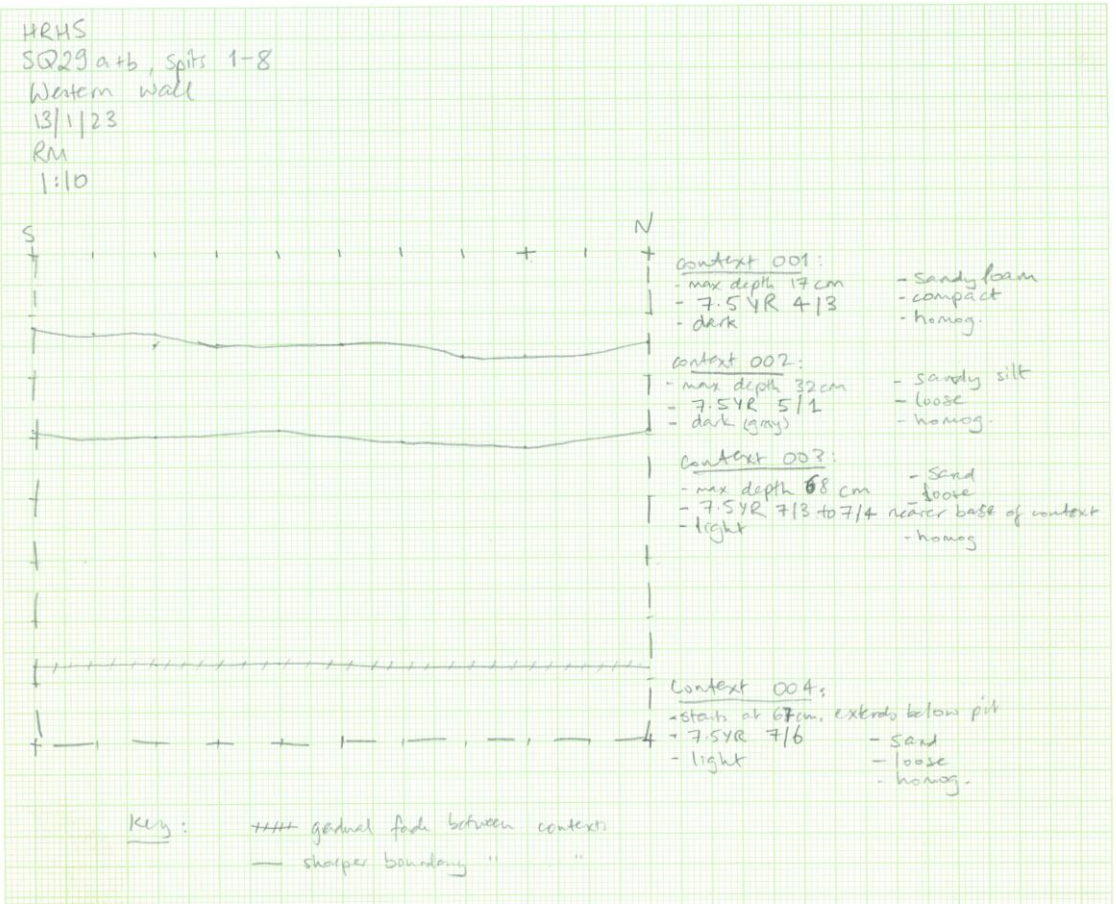

SQ23 b/a
Western wall
16/1/23
SD1S 1-8
1:10
1
2
3
Context 1:
Max Depth: 30cm
7.5YR 5/2
-Homogenous
-Compact
-Dirt
-Dark
Context 2:
Max Depth: 60cm
7.5YR 7/4
Context 3:
Max Depth: 80cm
-Homogenous
-Sandy
7.5YR 7/8
Context 2 gradually fades into context 3

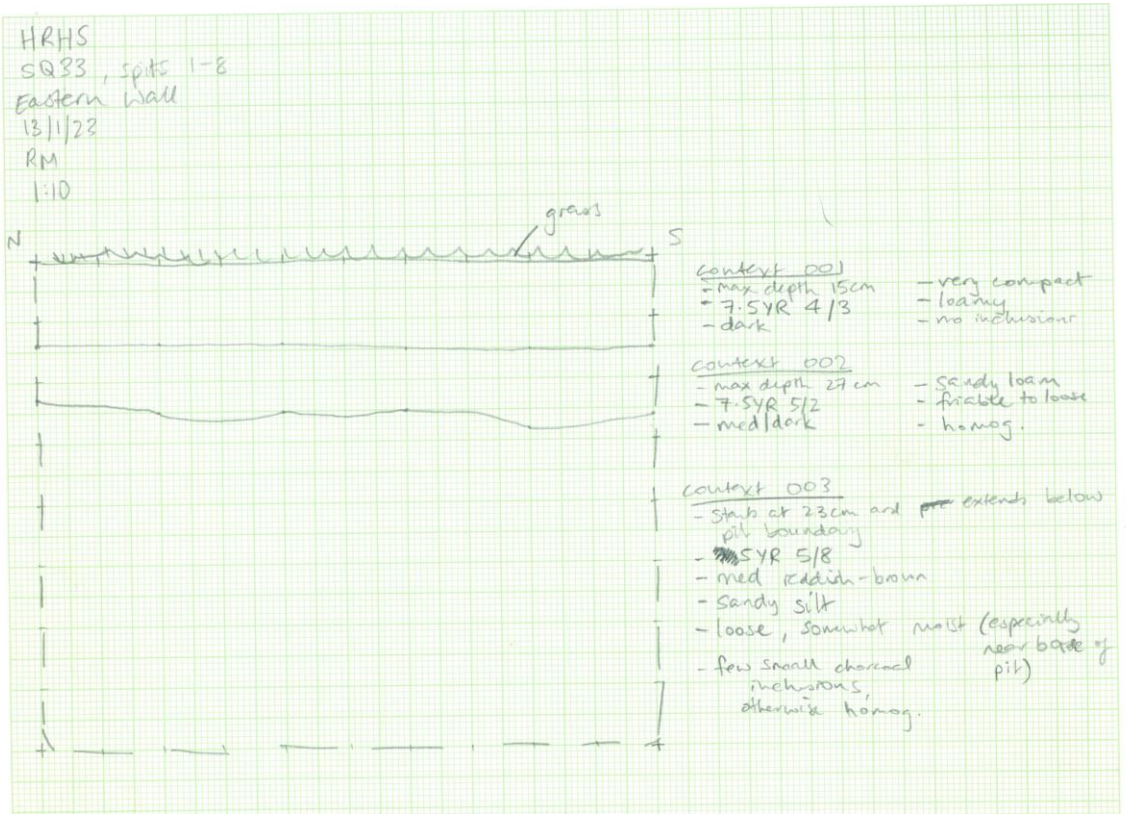

SQ23 E/D NS
Eastern Wall
16/1/23 Spits 1-8
1:10 NS
1
2
Context 1
Max Depth: 5cm
VR 7.5 4/4
- Dark
- Homogenous
- Compact
- Dirt
Context 2:
Max Depth: 8cm
VR 2.5 7/2
- Homogenous
- Compact
- Sandy

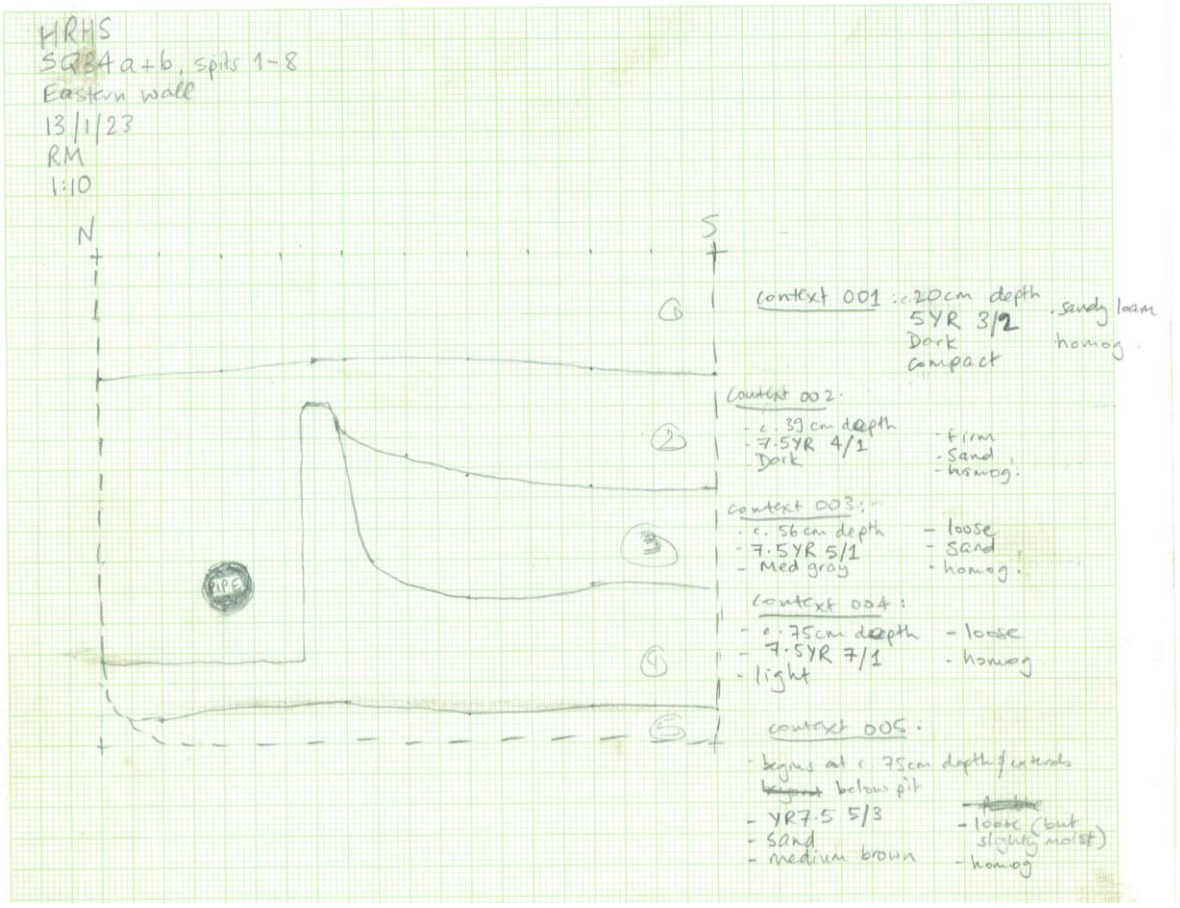

Hunter River High School
A.5
Section drawings
13.1.23
Pit SQ24 a+b
East wall
0 10 20 30 40 50 60 70 80 90 100 cm
10
20
30
40
50
60
70
80
cm
7.5YR 5/1 grey loose, 0% inclusions
70% medium sand.
30% silt
7.5YR 6/1 gray loose, 0% inclusions
80% med. sand
20% silt
7.5YR 7/1 light gray loose, 0% inclusions
97% med sand
3% silt
7.5YR 6/4 loose, 0% inclusions
95% med. sand
5% silt

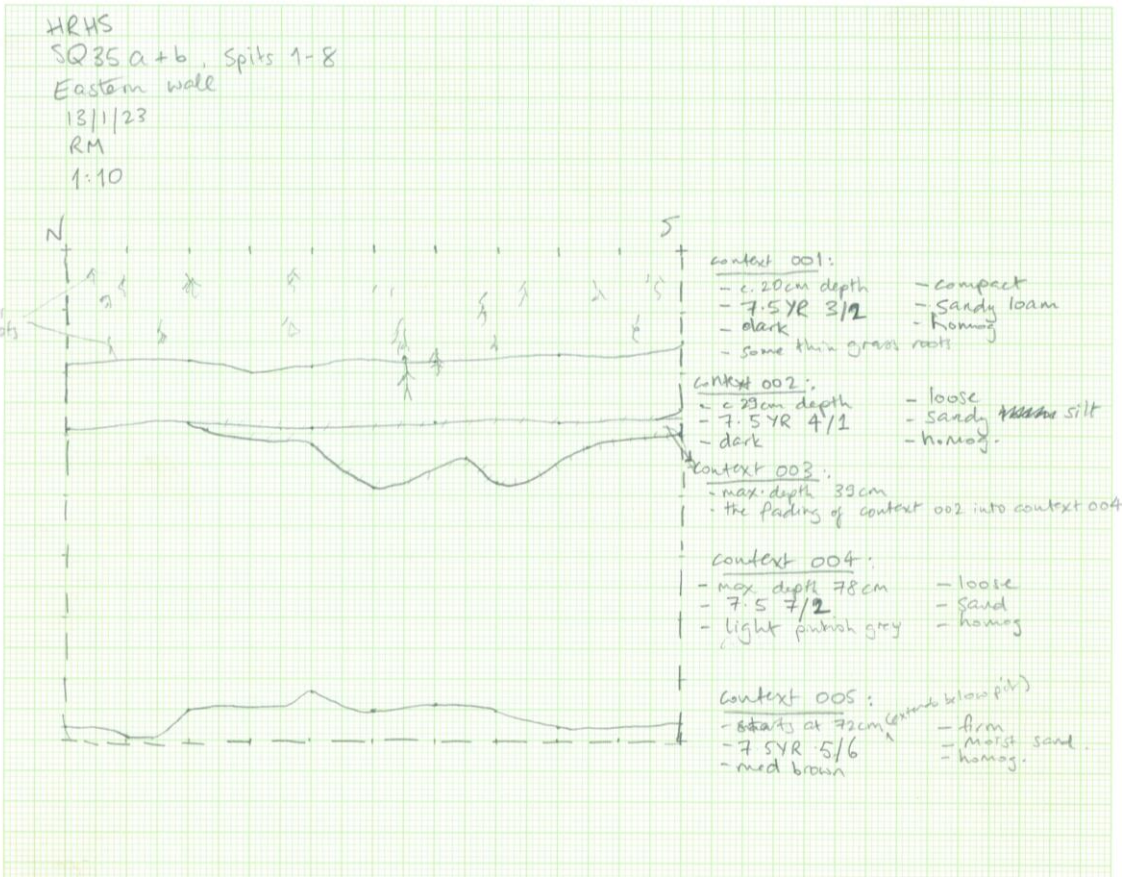

Pit SQ25 a+b East Wall
10 20 30 40 50 60 70 80 90 100
10
20
30
40
50
60
70
80
a
b
c
d
@ 7.5YR 4/1 40% medium sand dark gray 60% silt. weak, 0% inclusions
ⓑ 7.5YR 5/1 60% med. sand gray 40% silt loose, 0% inclusions
ⓒ 7.5YR 6/1 80% med sand gray 20% silt loose, 0% incl.
ⓓ 7.5YR 7/1 95% med sand light gray 5% silt loose 0% incl.
Note: Stepped ground surface is 5cm higher on S+ end, but has been drawn straight, so adjust all by 5cm on right side of SQ25

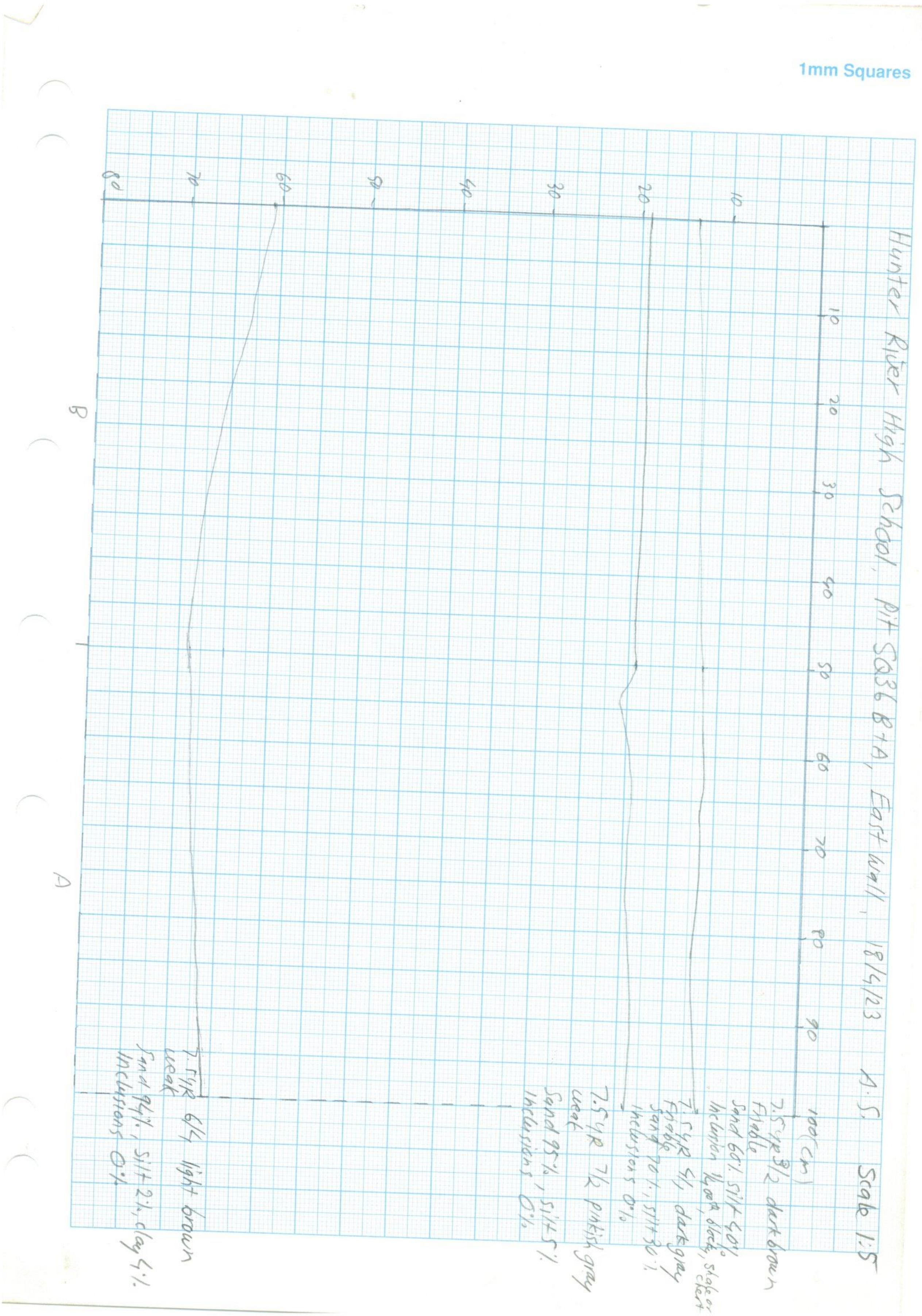

HRHS
SQ28 spits 1-8
Western wall
RM
13/1/23
1:10
S
N
root
root
root
1
2
3
4
5
6
context 001:
- max depth 24cm
- 7.5YR 5/1
- dark
- loamy
- compact
- homog.
context 002
- max depth 79cm
- 7.5YR 6/1
- med(gray)
- Sand
- loose
- homog.
context 003
- max. depth = below pit
- 7.5YR 7/1
- similar to context 002 but paler in colour and more silty?
- sandy silt
- loose
context 004
- 7.5YR 7/2
- more yellowish than surrounding contexts — possibly related to root?
- light
- loose
- sand
- homog.
context 005
- light to mod.
- 7.5YR 7/4
- noticeably more yellow/pinkish than surrounding contexts.
- sandy silt
- loose
context 006
- from 33cm to below pit
- 7.5YR 5/3
- light
- moist sand
- weak

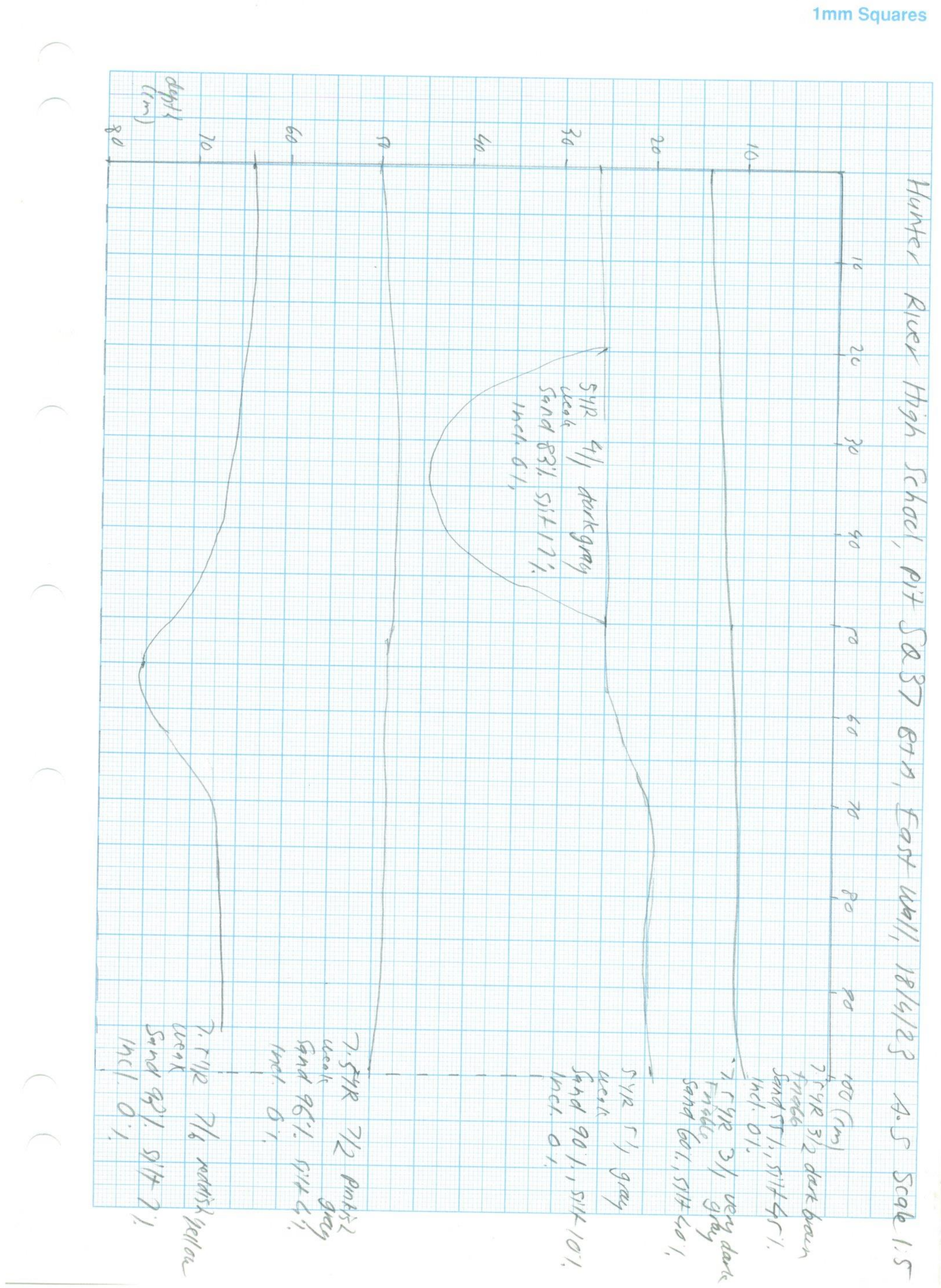

HRHS
SQ29 a+b, spits 1-8
Western wall
13/1/23
RM
1:10
S
N
context 001:
- max depth 17 cm
- 7.5YR 4/3
- dark
- sandy loam
- compact
- homog.
context 002:
- max depth 32 cm
- 7.5YR 5/1
- dark (grey)
- sandy silt
- loose
- homog.
context 003:
- max depth 68 cm
- 7.5YR 7/3 to 7/4
- light
- sand
- loose
nearer base of context
- homog
Context 004:
- stalb at 67cm, extends below pit
- 7.5YR 7/6
- light
- sand
- loose
- homog.
Key:
gradual fade between contexts
sharper boundary " "

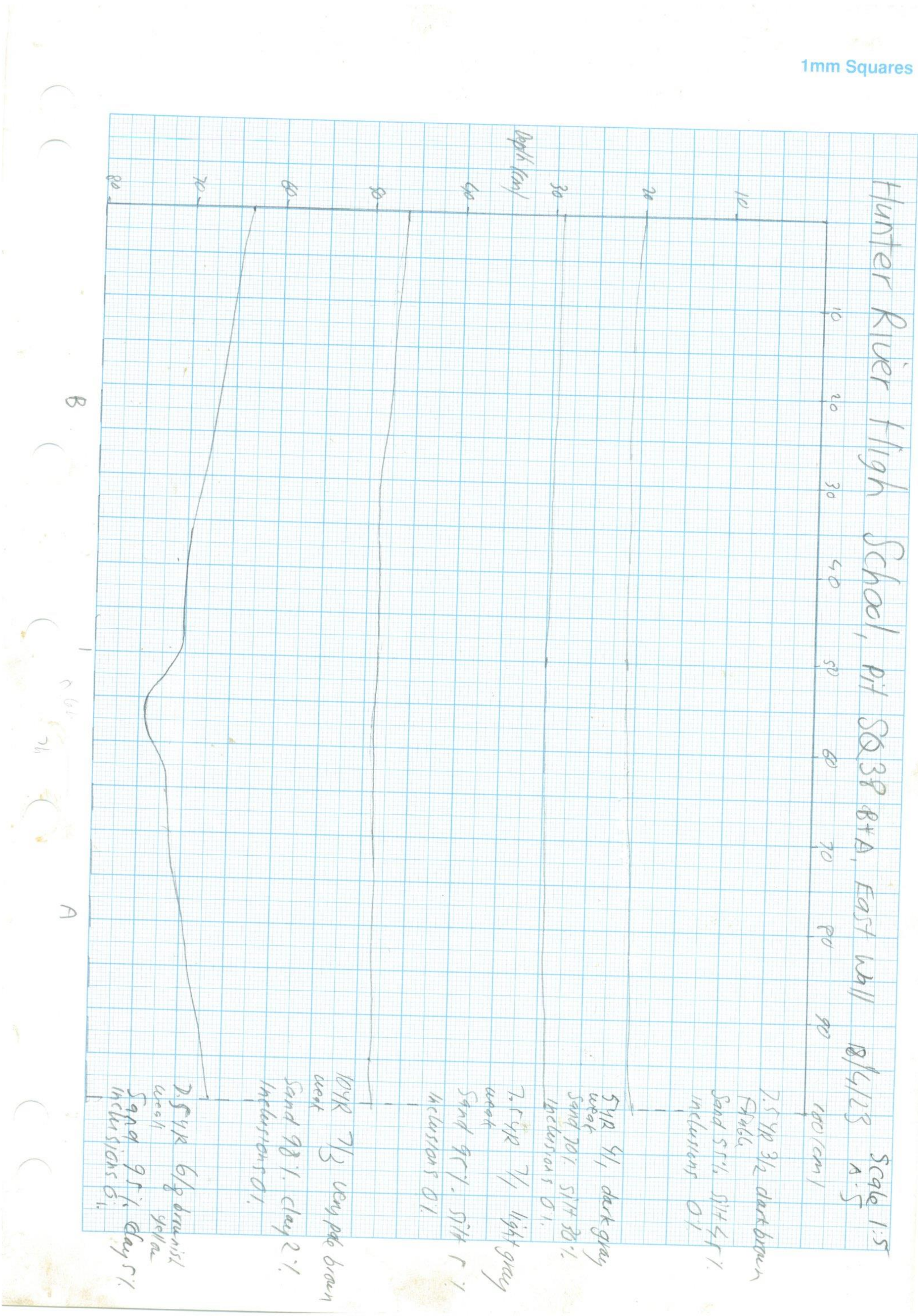

HRHS
SQ33, spits 1-8
Eastern wall
13/1/23
RM
1:10
grass
N
S
context 001
- max depth 15cm
- 7.5YR 4/3
- dark
- very compact
- loamy
- no inclusions
context 002
- max depth 27 cm
- 7.5YR 5/2
- med/dark
- sandy loam
- friable to loose
- homog.
context 003
- stalb at 23cm and extends below pit boundary
- 5YR 5/8
- red reddish-brown
- sandy silt
- loose, somewhat moist (especially near base of pit)
- few small charcoal inclusions, otherwise homog.

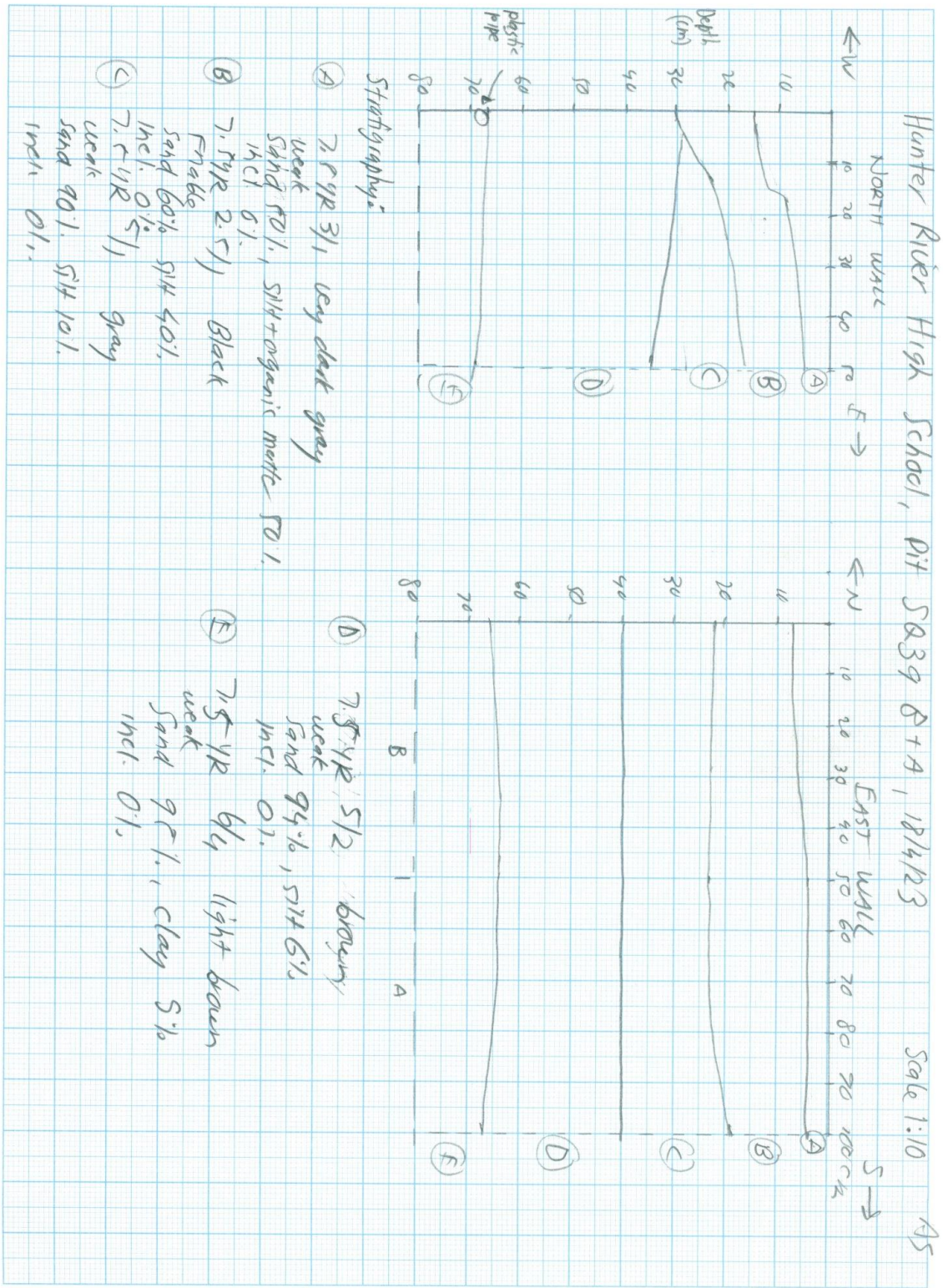

HRHS
SQ34 a+b, spits 1-8
Eastern wall
13/1/23
RM
1:10
N
S
context 001 : c. 20cm depth
5YR 3/2
Dark
compact
sandy loam
homog.
context 002:
- c. 39 cm depth
- 7.5YR 4/1
Dark
- firm
- sand
- homog.
context 003:
- c. 56cm depth
- 7.5YR 5/1
- Med gray
- loose
- sand
- homog.
context 004:
- c. 75cm depth
- 7.5YR 7/1
- light
- loose
- homog
context 005:
- begins at c. 75cm depth (extends below pit)
- YR7.5 5/3
- sand
- medium brown
- loose (but slightly moist)
- homog
PIPE

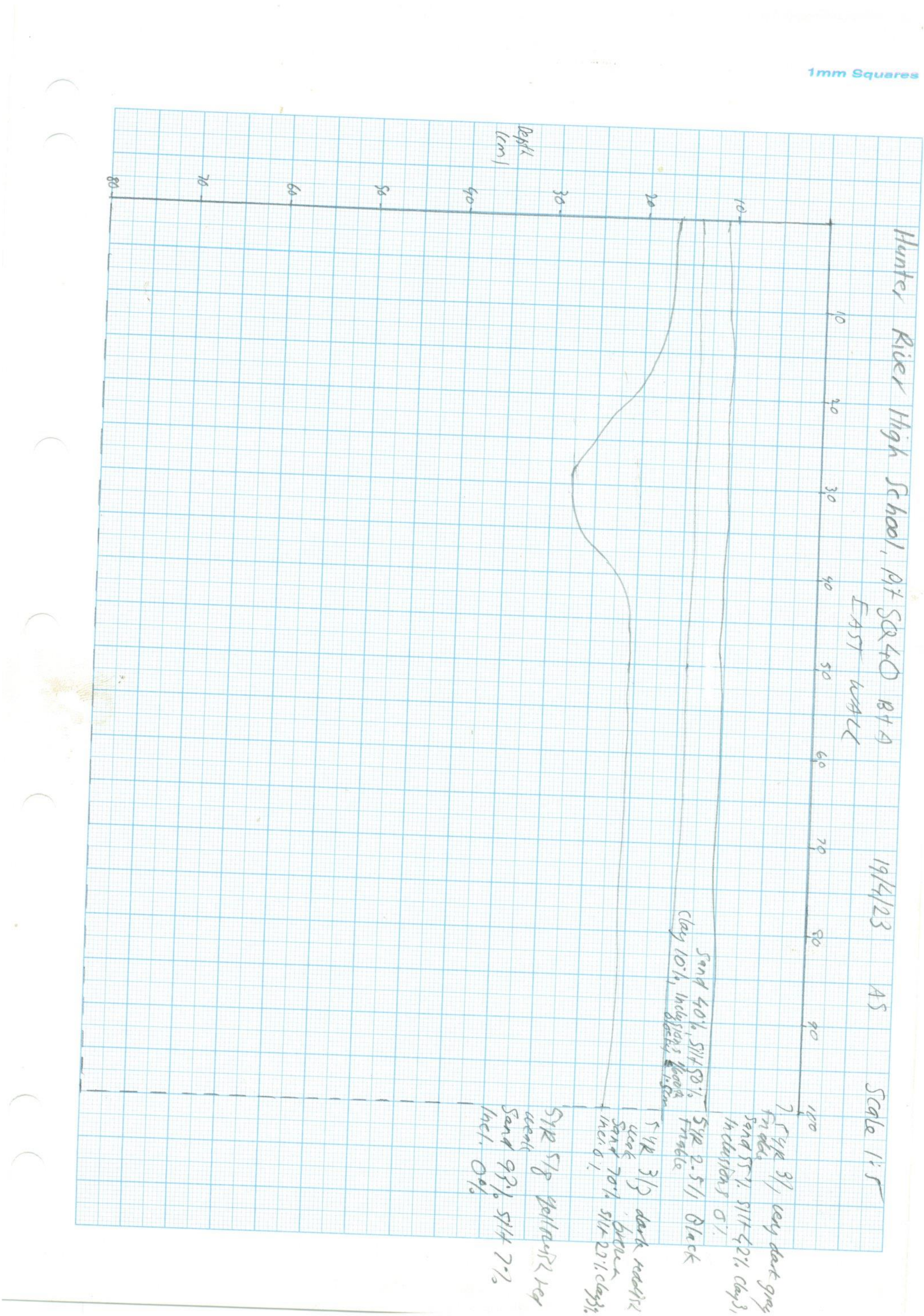

HRHS
SQ35 a+b, Spits 1-8
Eastern wall
13/1/23
RM
1:10
N
S
grass roots
context 001:
- c. 20cm depth
- 7.5YR 3/2
- dark
- some thin grass roots
- compact
- sandy loam
- homog
context 002:
- c 39cm depth
- 7.5YR 4/1
- dark
- loose
- sandy silt
- homog.
context 003:
- max. depth 39cm
- the fading of context 002 into context 004
context 004:
- max. depth 78cm
- 7.5 7/2
- light pinkish grey
- loose
- sand
- homog
context 005:
- starts at 72cm (extends below pit)
- 7.5YR 5/6
- med brown
- firm
- moist sand
- homog.

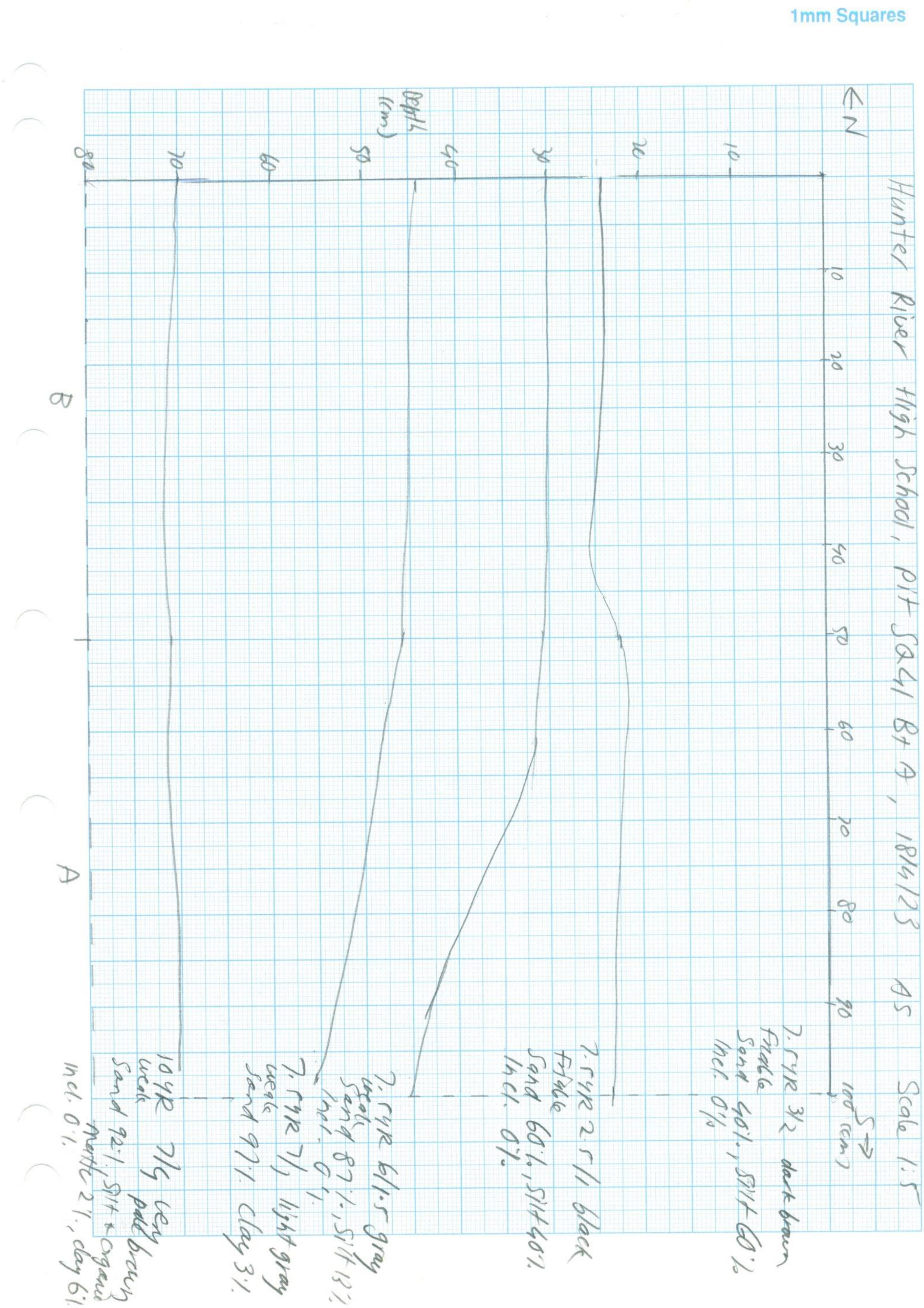

1mm Squares
Hunter River High School, Pit SQ36 B+A, East Wall, 18/4/23 A.S. Scale 1:5
100 (cm)
B
A
7.5YR 3/2 dark brown
Friable
Sand 60% silt 40%
7.5YR 4/1 dark gray
Friable
Sand 70% silt 30%
Inclusions 0%
7.5YR 7/2 pinkish gray
weak
Sand 95%, silt 5%
Inclusions 0%
7.5YR 6/4 light brown
weak
Sand 94%, silt 2%, clay 4%
Inclusions 0%

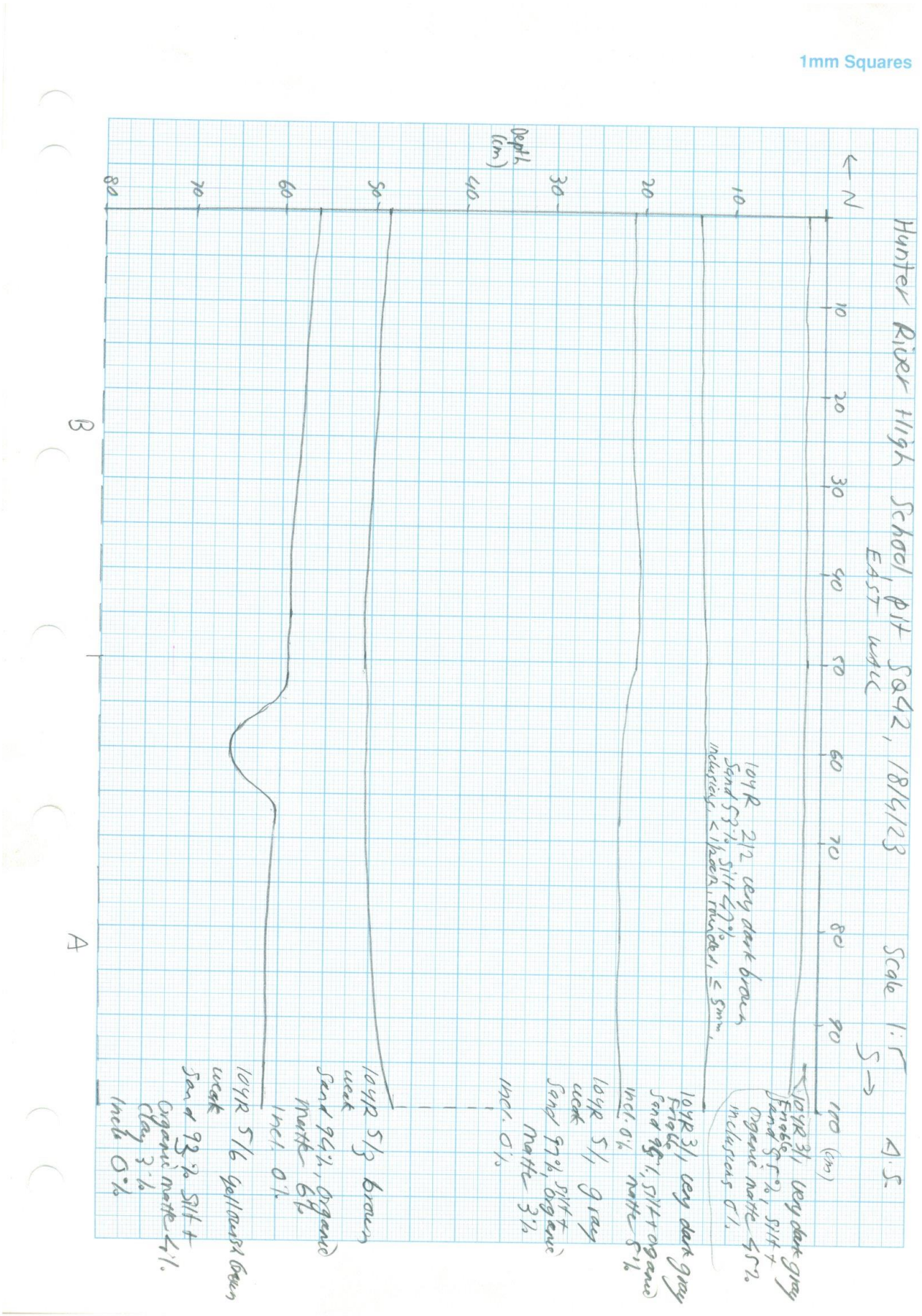

1mm Squares
Hunter River High School, Pit SQ37 BTA, East Wall, 18/4/23 A.5 Scale 1:5
depth (cm)
7.5YR 3/2 dark brown friable sand 55%, silt 45%, incl. 0%
7.5YR 3/1 very dark gray friable sand 60%, silt 40%
5YR 5/1 gray weak sand 90%, silt 10%, incl. 0%
7.5YR 7/2 pinkish gray weak sand 96%, silt 4%, incl. 0%
7.5YR 7/6 reddish yellow weak sand 93%, silt 7%, incl 0%
5YR 4/1 dark gray weak sand 83% silt 17% incl. 0%

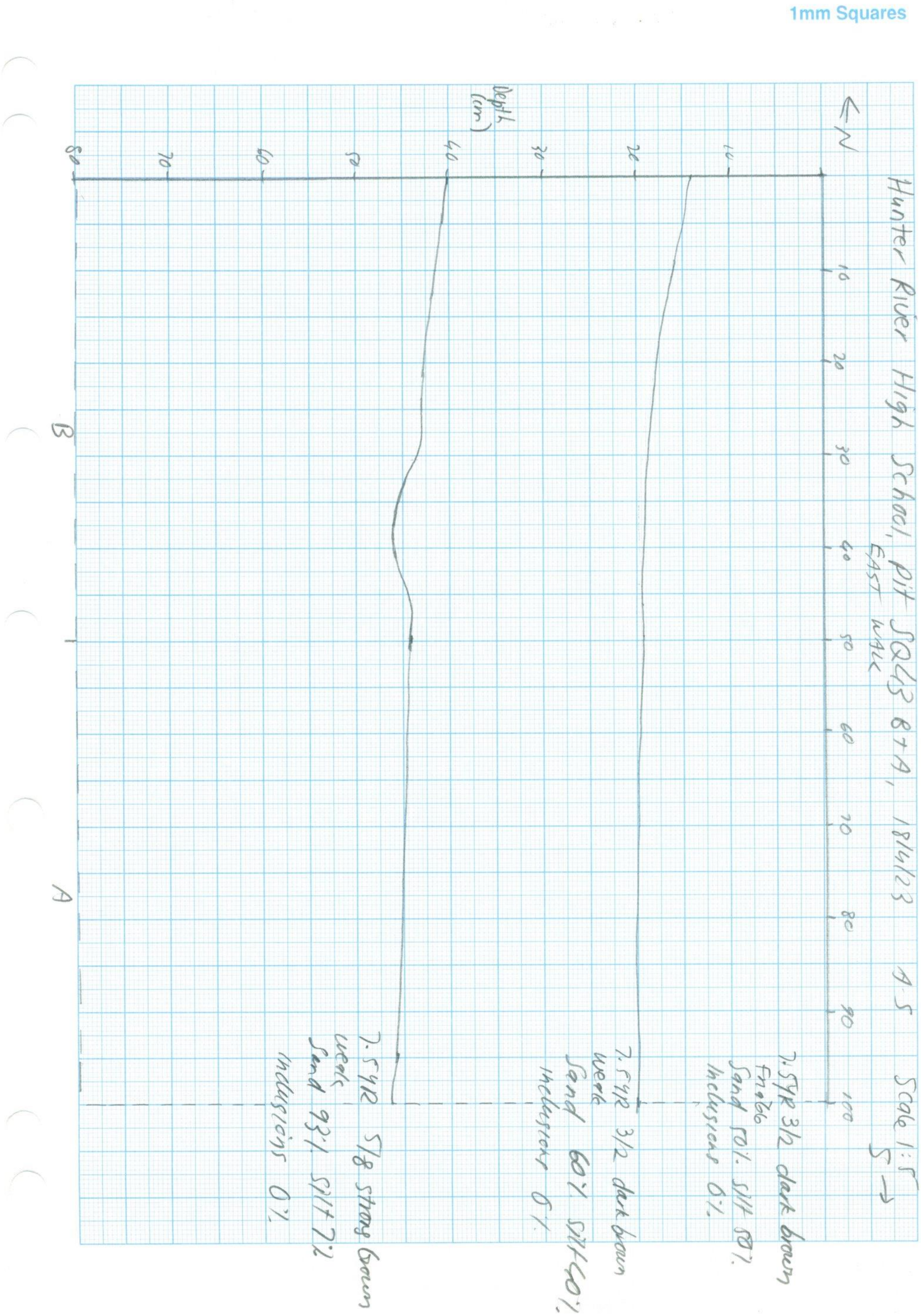

1mm Squares
Hunter River High School, Pit SQ38 B+A, East Wall 18/4/23 Scale 1:5
Depth (cm)
(cm)
7.5YR 3/2 dark brown
7.5YR 7/1 light gray
10YR 7/3 very pale brown
7.5YR 6/8 brownish yellow
A
B

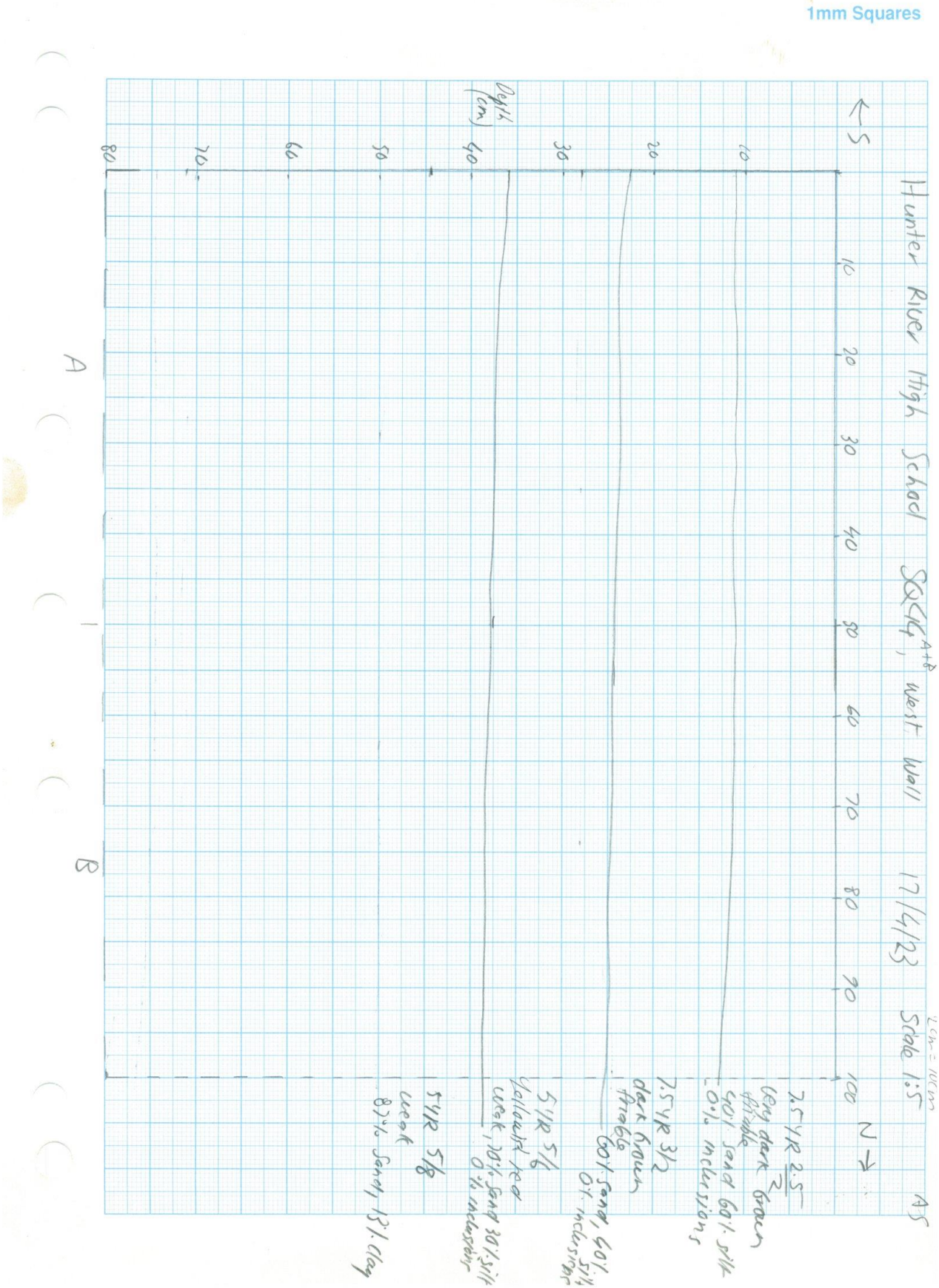

1mm Squares
Hunter River High School, Pit SQ39 0+A, 12/4/23
Scale 1:10
NORTH WALL
EAST WALL
Depth (cm)
Plastic Pipe
Stratigraphy:
A 7.5YR 3/1 very dark grey weak sand 80%, silt+organic matter 20%.
B 7.5YR 2.5/1 Black friable sand 60% silt 40% incl. 0%.
C 7.5YR 5/1 grey weak sand 90% silt 10% incl. 0%.
D 7.5YR 5/2 brown weak sand 94%, silt 6% incl. 0%.
E 7.5YR 6/4 light brown weak sand 90%, clay 5% incl. 0%.

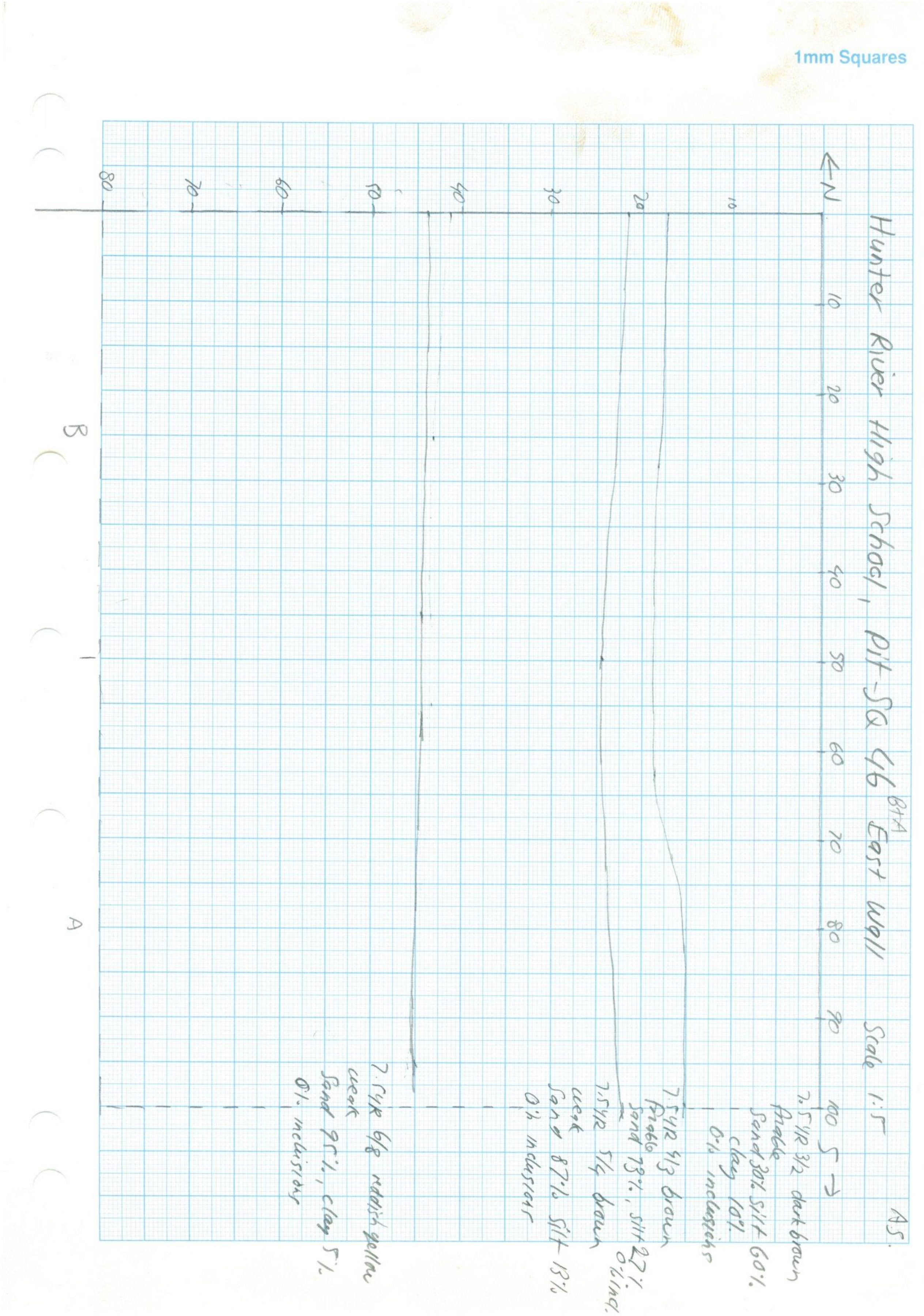

1mm Squares
Hunter River High School, Pit SQ40 BTD
East Wall
19/4/23
AS
Scale 1:5
Depth (cm)

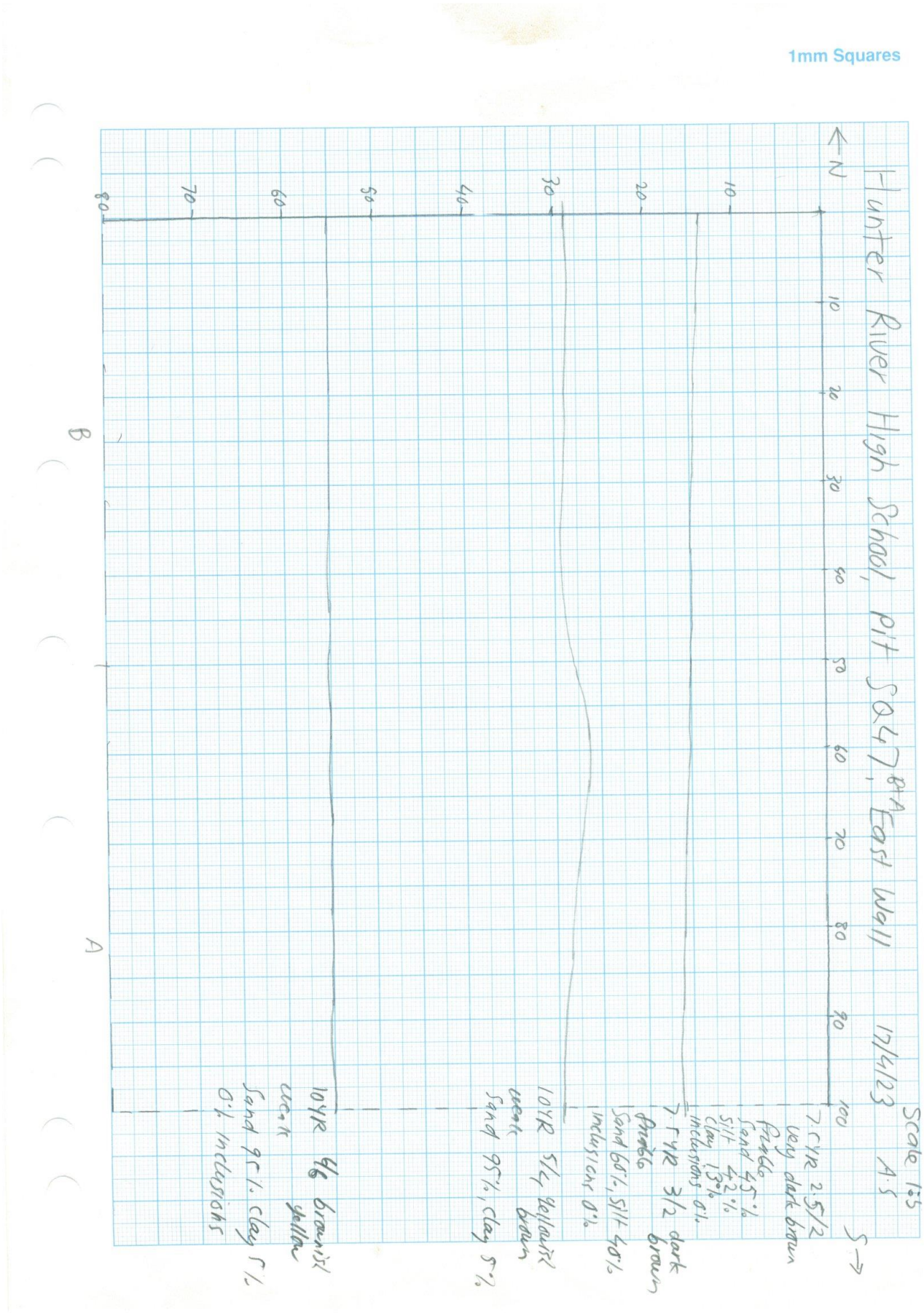

1mm Squares
Hunter River High School, Pit SQ41 B+A, 18/4/23 AS Scale 1:5
← N
S →
Depth (cm)
10
20
30
40
50
60
70
80
90
100 (cm)
B
A
7.5YR 3/2 dark brown Friable Sand 40%, Silt 60% Incl. 0%
7.5YR 2.5/1 black Friable Sand 60%, Silt 40% Incl. 0%
7.5YR 6/1.5 gray weak Sand 87%, Silt 13% Incl. 0%
7.5YR 7/1 light gray weak Sand 97% Clay 3%
10YR 7/4 very pale brown weak Sand 92%, Silt + Organic Matter 2%, clay 6% Incl. 0%

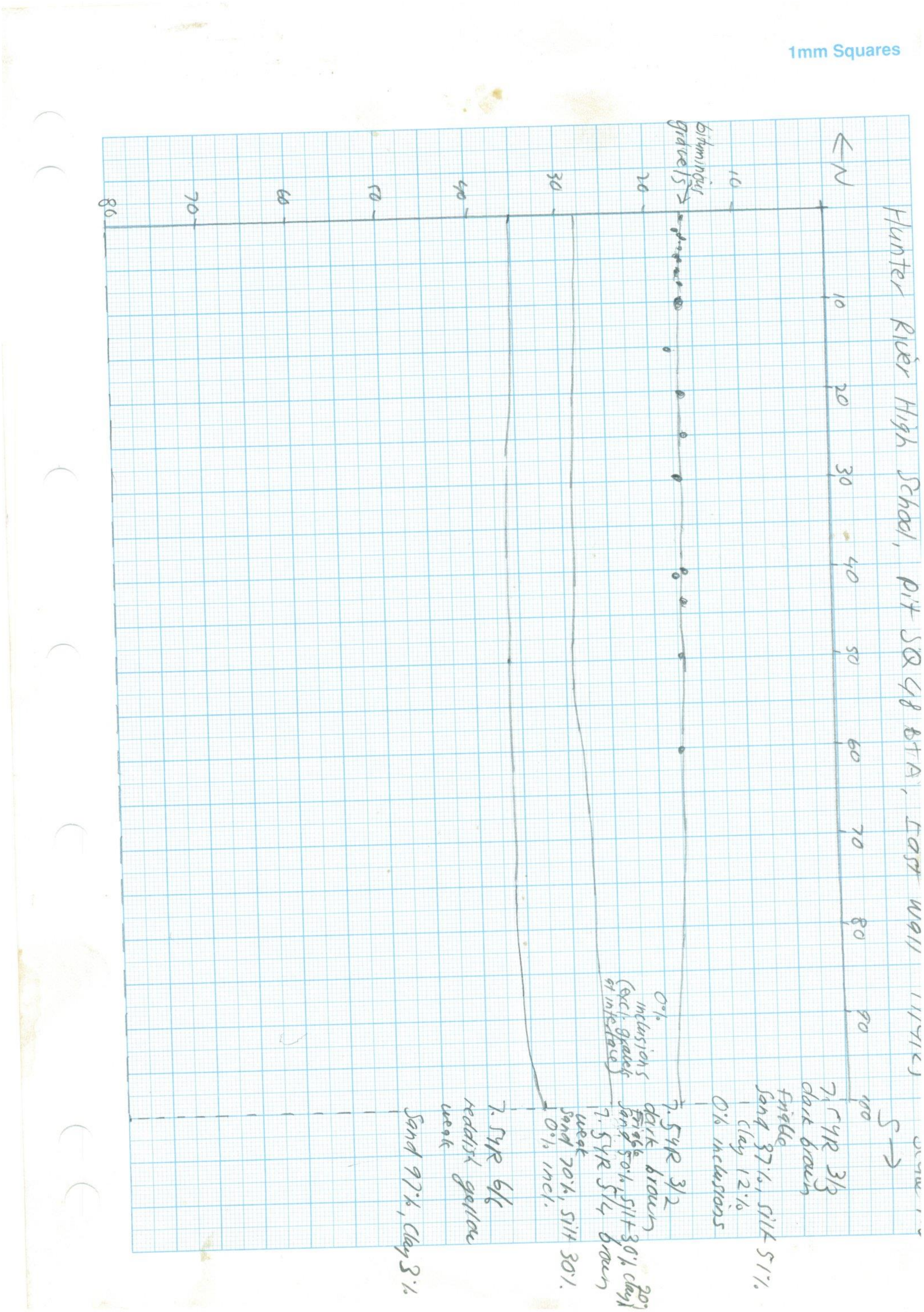

1mm Squares
Hunter River High School, pit SQ42, 18/4/23
EAST wall
Scale 1:5
A.S.
← N
S →
Depth (cm)
10
20
30
40
50
60
70
80
90
100 (cm)
A
B
10YR 3/1 very dark grey Friable Sand 97%, silt + organic matter 3% inclusions 0%
10YR 2/2 very dark brown Sand 93.5% silt 6.5% inclusions <1% charcoal, rounded, ≤ 5mm
10YR 3/1 very dark grey Friable Sand 95%, silt + organic matter 5%
incl: 0%
10YR 5/1 grey weak Sand 97% silt 3% matter
incl: 0%
10YR 5/3 brown weak Sand 94% organic matter 6%
incl 0%
10YR 5/6 yellowish brown weak Sand 93% silt + organic matter 4% clay 3%
incl: 0%

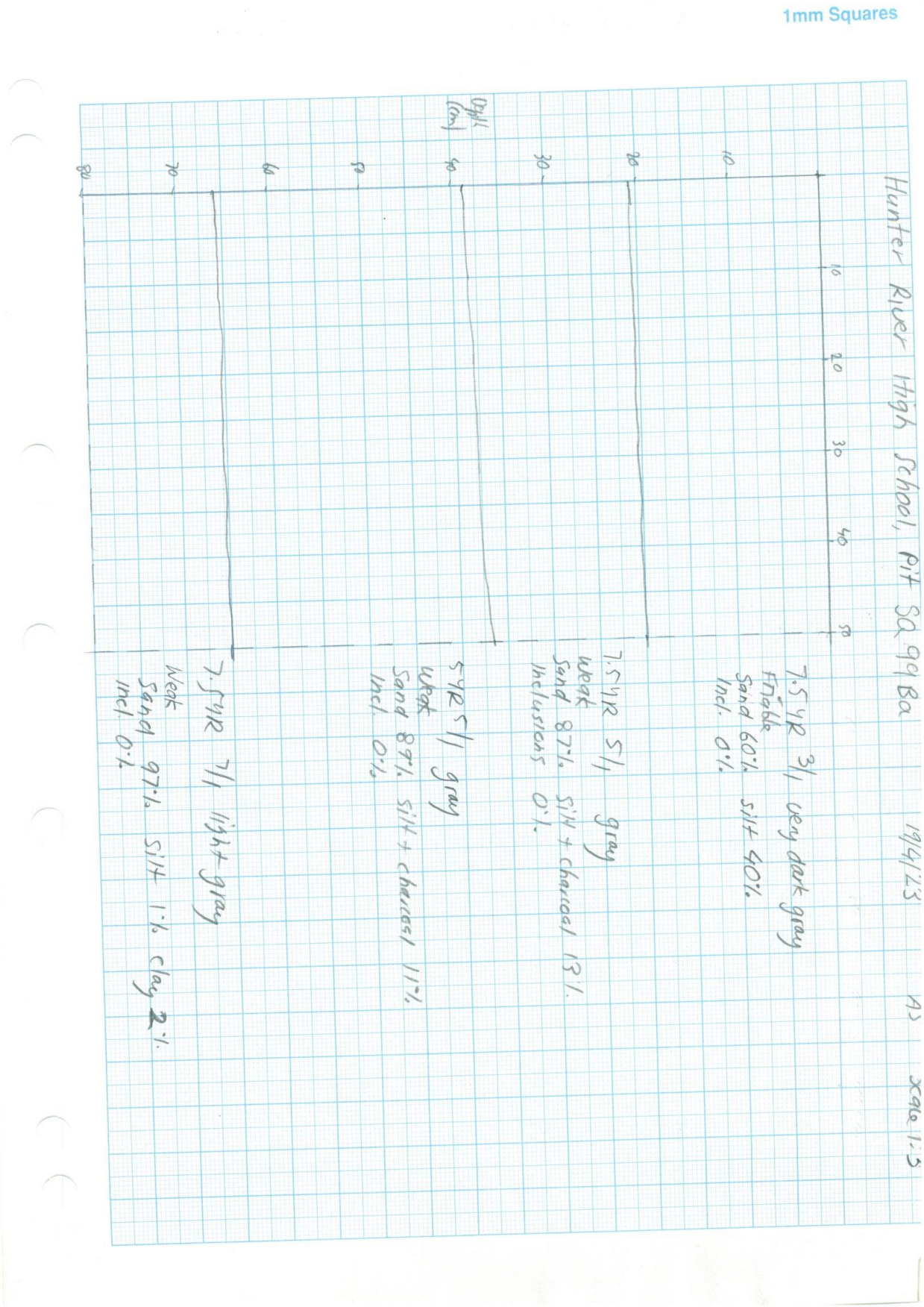

1mm Squares
Hunter River High School, Pit SQ43 B+A, 18/4/23 A.S Scale 1:5
EAST WALL
N
S
Depth (cm)
B
A
7.5YR 3/2 dark brown Friable Sand 50% Silt 50% Inclusions 0%
7.5YR 3/2 dark brown weak Sand 60% Silt 40% Inclusions 0%
7.5YR 5/8 strong brown weak Sand 93% Silt 7% Inclusions 0%

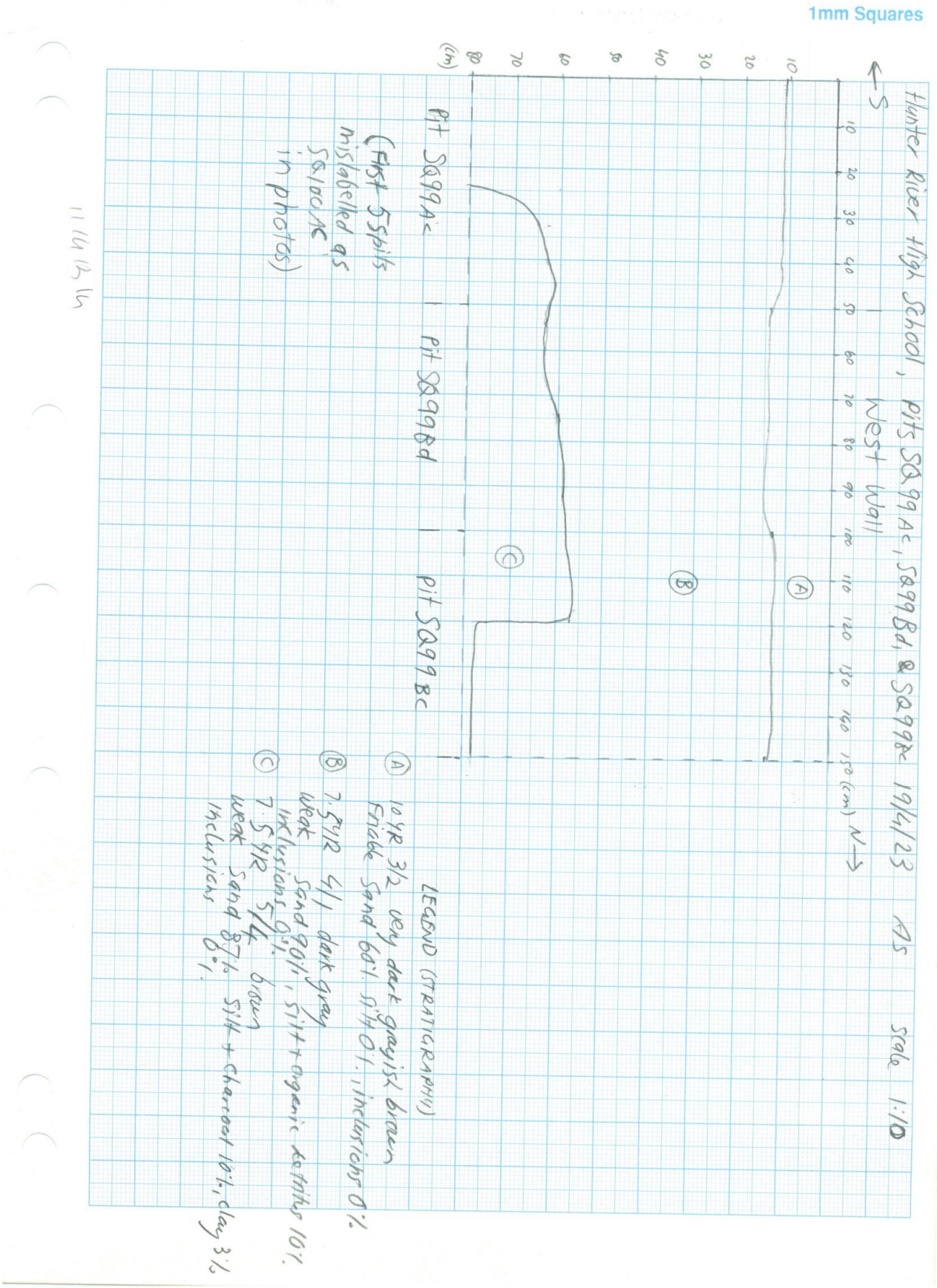

1mm Squares
Hunter River High School SQ64, A+B, West Wall
17/4/23
Scale 1:5
A5
S
N
Depth (cm)
10
20
30
40
50
60
70
80
A
B
2.5YR 2.5/2 very dark brown friable 90% sand 10% inclusions
7.5YR 3/2 dark brown friable 60% sand, 40% silt 0% inclusions
5YR 5/6 yellowish red clay, 20% sand 30% silt 0% inclusions
5YR 5/8 weak 83% sandy 17% clay

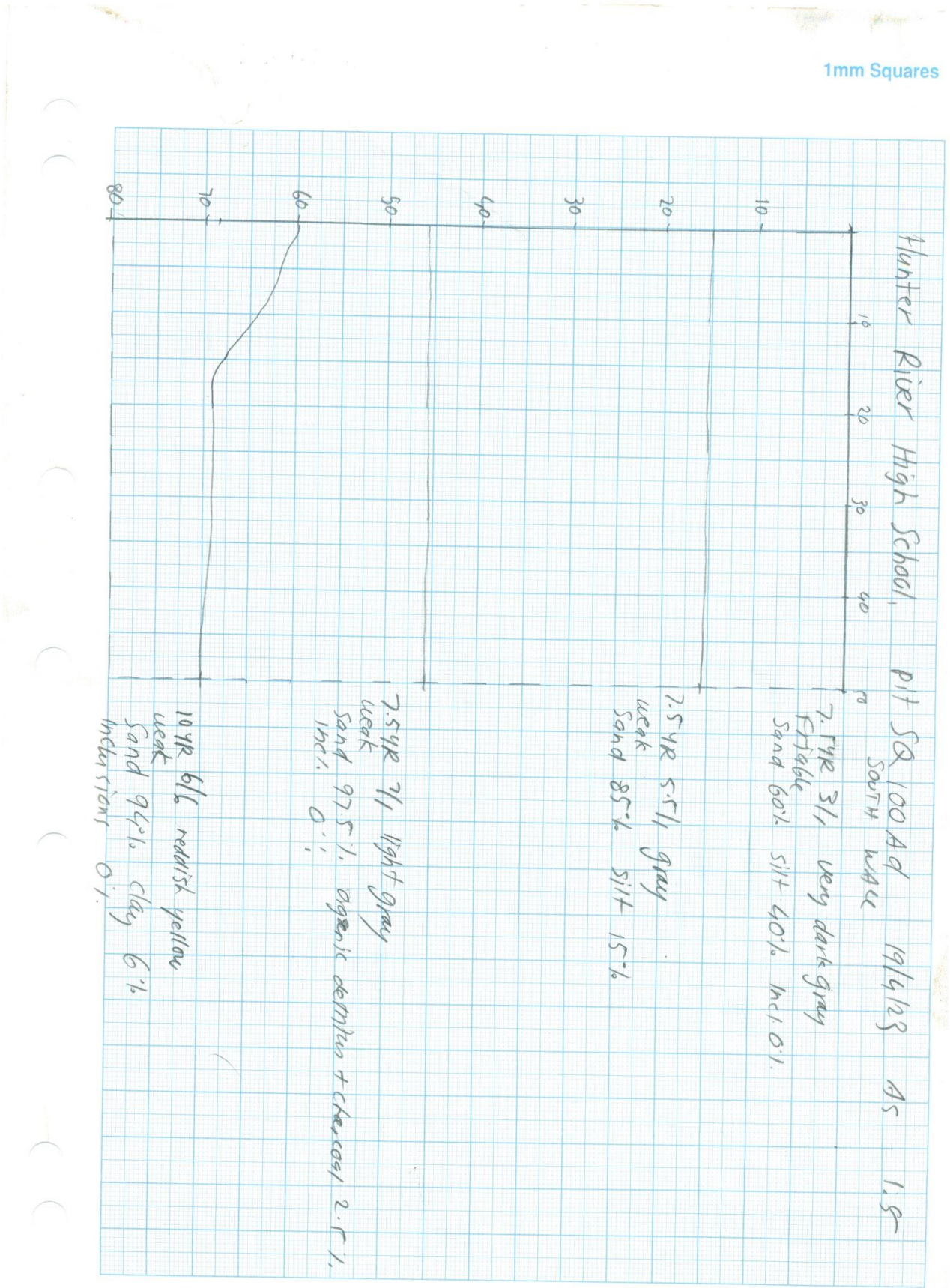

1mm Squares
Hunter River High School, Pit SQ 46 B1A East Wall Scale 1:5
A.S.
← N
100 S →
7.5YR 3/2 dark brown friable Sand 30% Silt 60% clay 10% 0% inclusions
7.5YR 4/3 brown friable Sand 73%, Silt 27% 0% incl.
7.5YR 5/4 brown weak Sand 87% Silt 13% 0% inclusions
7.5YR 6/8 reddish yellow weak Sand 95%, clay 5% 0% inclusions
A
B

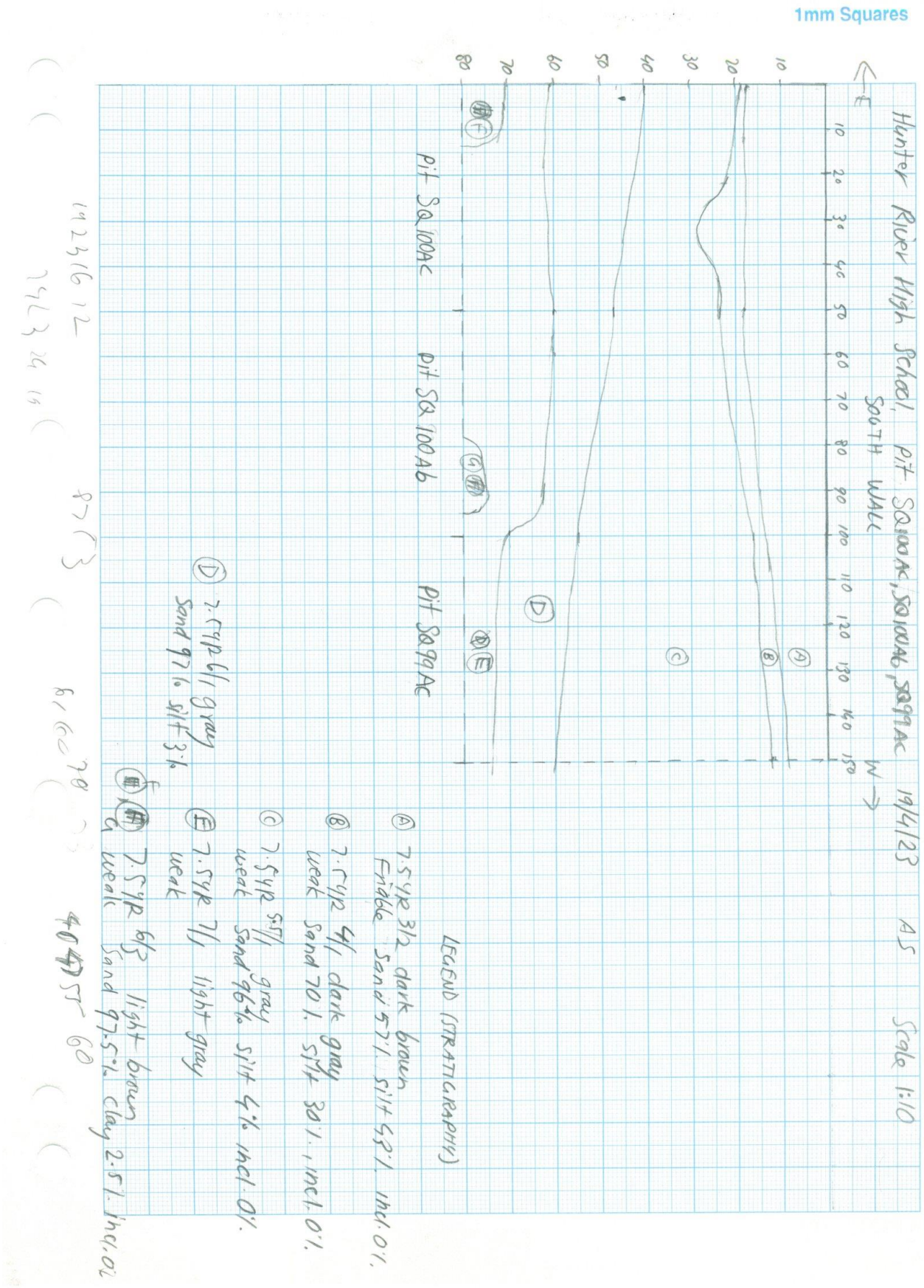

1mm Squares
Hunter River High School, pit SQ47, 8th East wall
17/4/23
Scale 1:5
A1
N
S
10
20
30
40
50
60
70
80
90
100
7.5YR 2.5/2 very dark brown Fine Sand 45% Silt 42% Clay 13% inclusions 0%
7.5YR 3/2 dark brown Fine Sand 60%, Silt 40% inclusions 0%
10YR 5/4 yellowish brown weak Sand 95%, clay 5%
10YR 4/6 brownish yellow weak Sand 95% clay 5% 0% inclusions
A
B

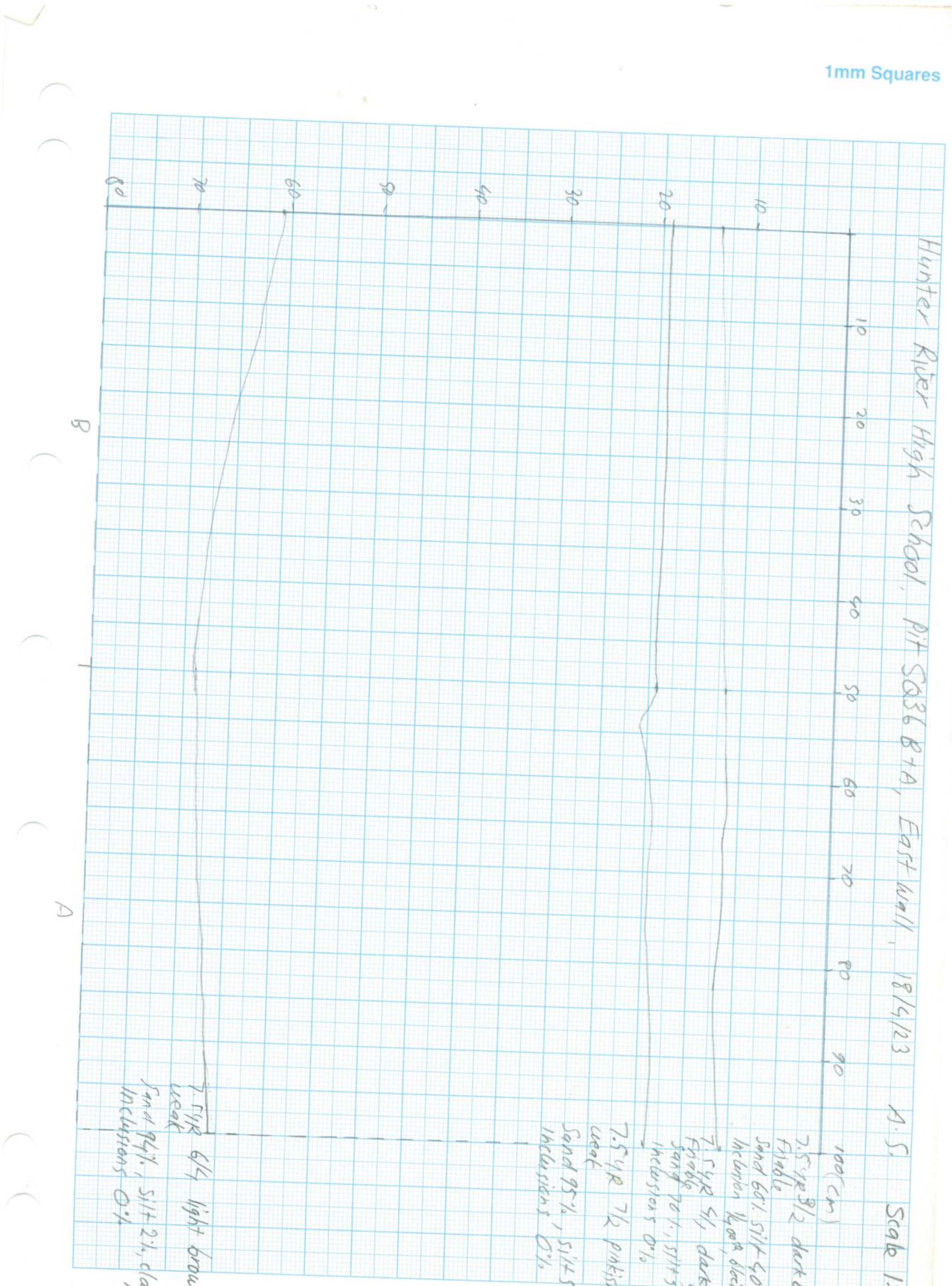

1mm Squares
Hunter River High School, Pit SQ 48 BTA, East wall
N
S
bituminous gravels
7.5YR 3/3 dark brown friable Sand 37%, Silt 51% Clay 12% 0% inclusions
7.5YR 3/2 dark brown friable Sand 50%, Silt 30% clay 20%
0% inclusions (excl. gravels at interface)
7.5YR 5/4 brown weak Sand 70%, Silt 30% 0% incl.
7.5YR 6/6 reddish yellow weak Sand 97%, Clay 3%

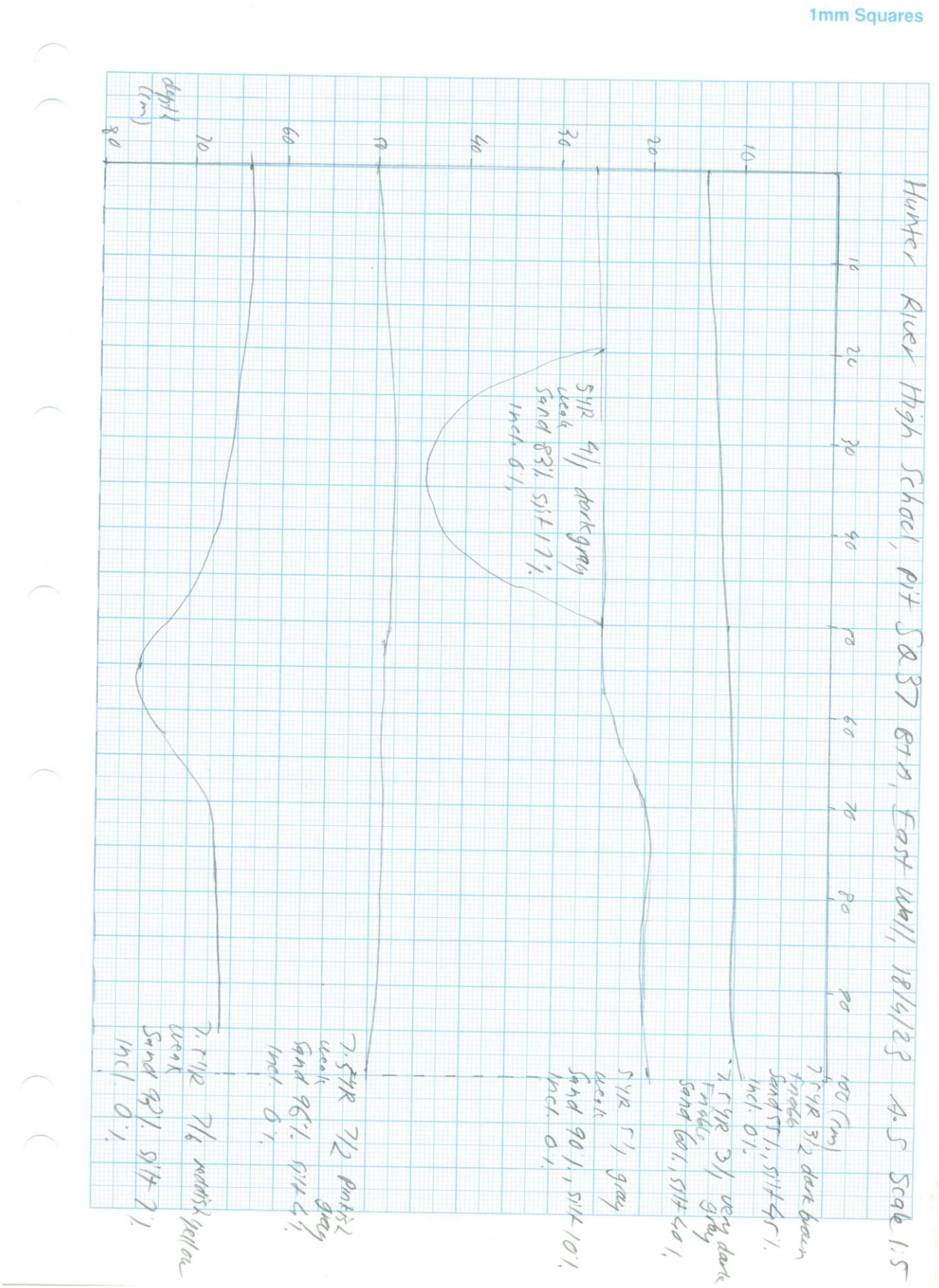

1mm Squares
Hunter River High School, Pit Sq 99 Ba
19/4/23
A5
X99a 1:5
Depth (cm)
10
20
30
40
50
60
70
80
7.5YR 3/1 very dark gray friable Sand 60% silt 40% Incl. 0%
7.5YR 5/1 gray weak Sand 87% silt + charcoal 13% Inclusions 0%
5YR 5/1 gray weak Sand 89% silt + charcoal 11% Incl 0%
7.5YR 7/1 light gray Weak Sand 97% silt 1% clay 2% Incl 0%

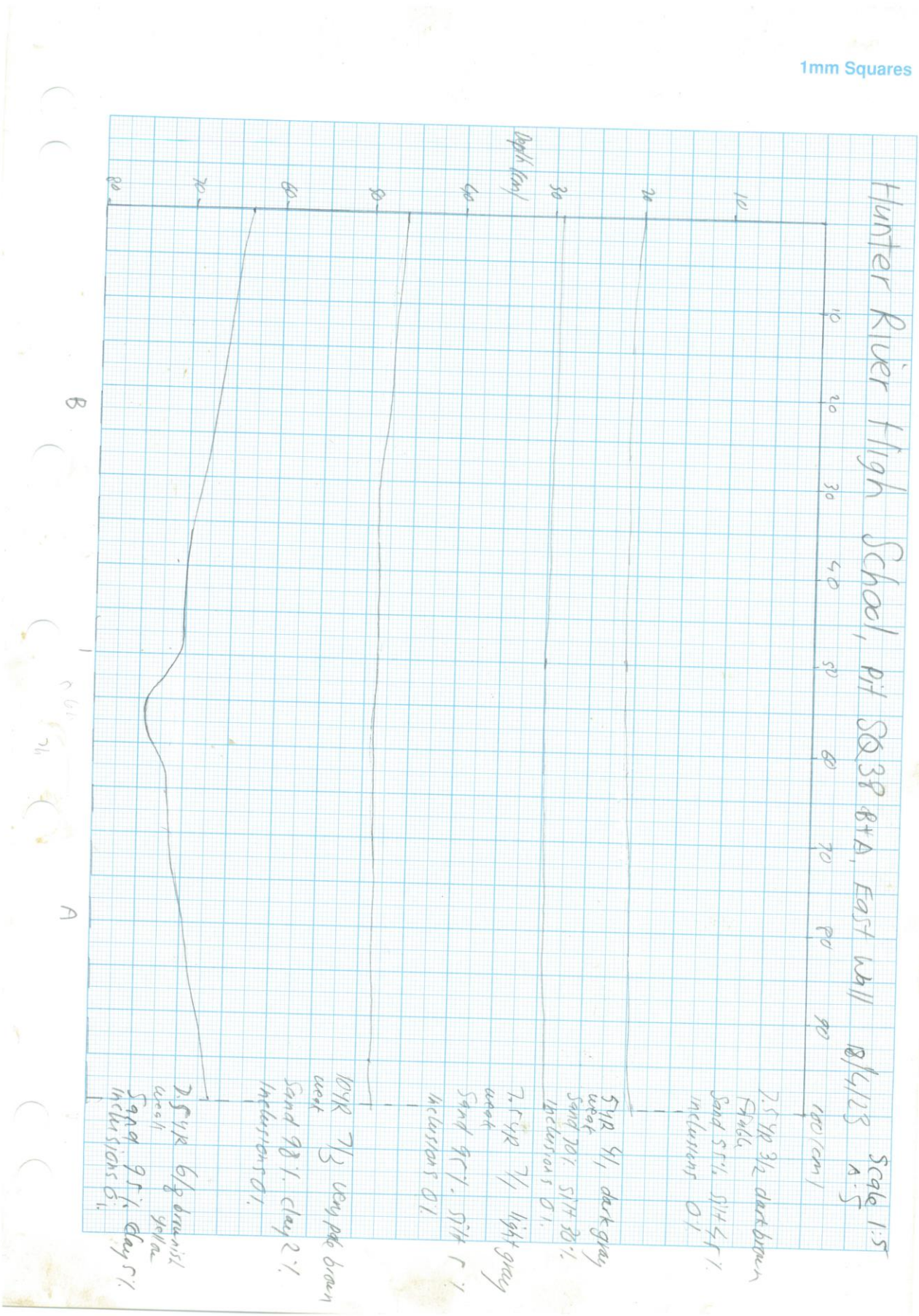

1mm Squares
Hunter River High School, Pits SQ99Ac, SQ99Bd, & SQ99Bc 19/4/23 AS Scale 1:10
S
West Wall
N
(cm)
Pit SQ99Ac
Pit SQ99Bd
Pit SQ99Bc
(Not Spits mislabelled as SQ10Ac in photos)
LEGEND (STRATIGRAPHY)
(A) 10YR 3/2 very dark grayish brown Friable Sand 60% silt 0% inclusions 0%
(B) 7.5YR 4/1 dark grey weak Sand 90% silt + organic rootlets 10% inclusions 0%
(C) 7.5YR 5/4 brown weak Sand 87% silt + charcoal 10%, clay 3% inclusions 0%.

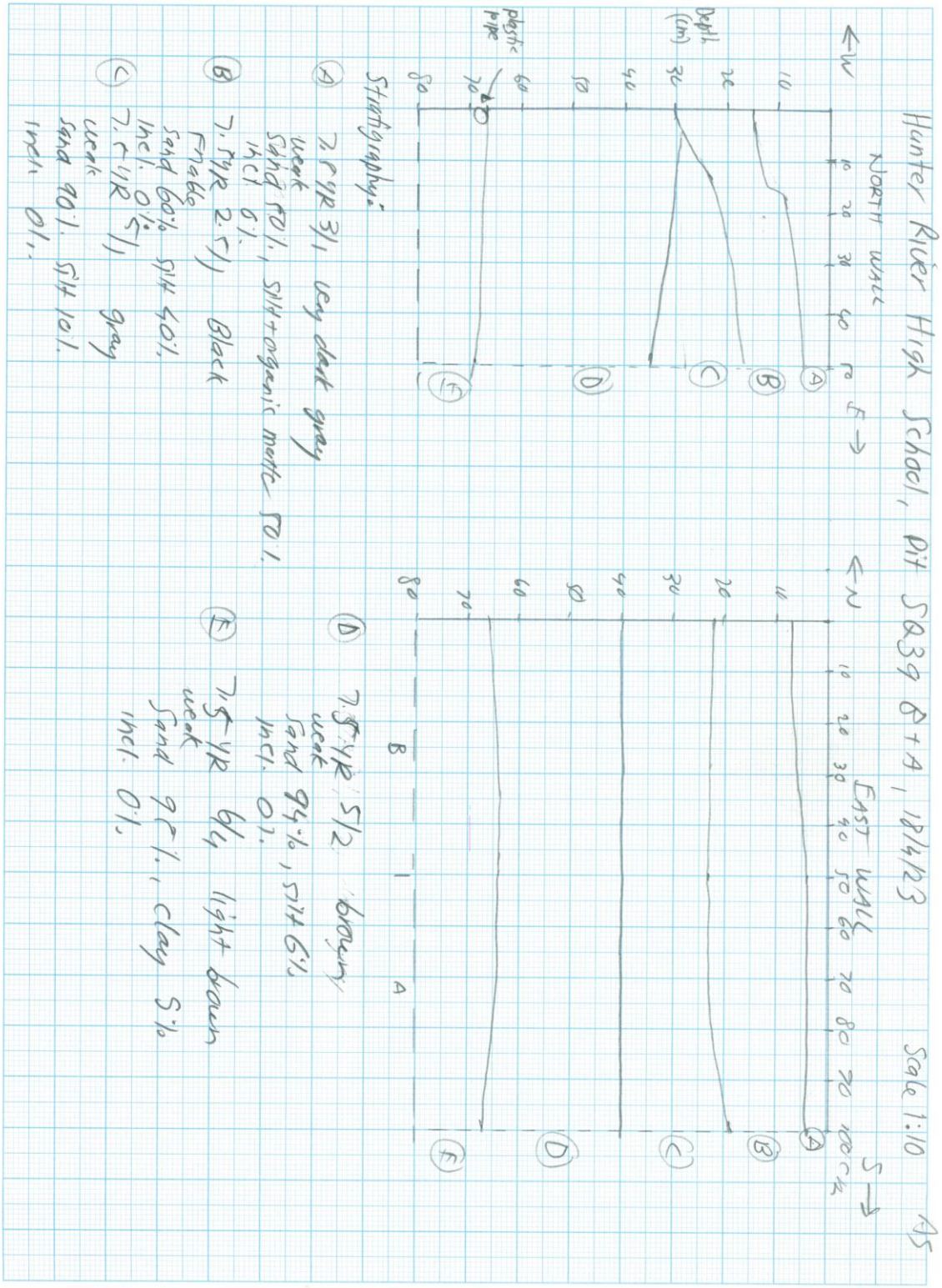

1mm Squares
Hunter River High School, Pit SQ 100 Ad 19/4/23 AS 1.5
South wall
7.5YR 3/1 very dark gray
Friable
Sand 60% silt 40% Incl 0%
2.5YR 5.5/4 gray
weak
Sand 85% silt 15%
7.5YR 7/1 light gray
weak
Sand 97.5% organic detritus + charcoal 2.5%
Incl. 0%
10YR 6/6 reddish yellow
weak
Sand 94% clay 6%
Inclusions 0%
10
20
30
40
50
60
70
80

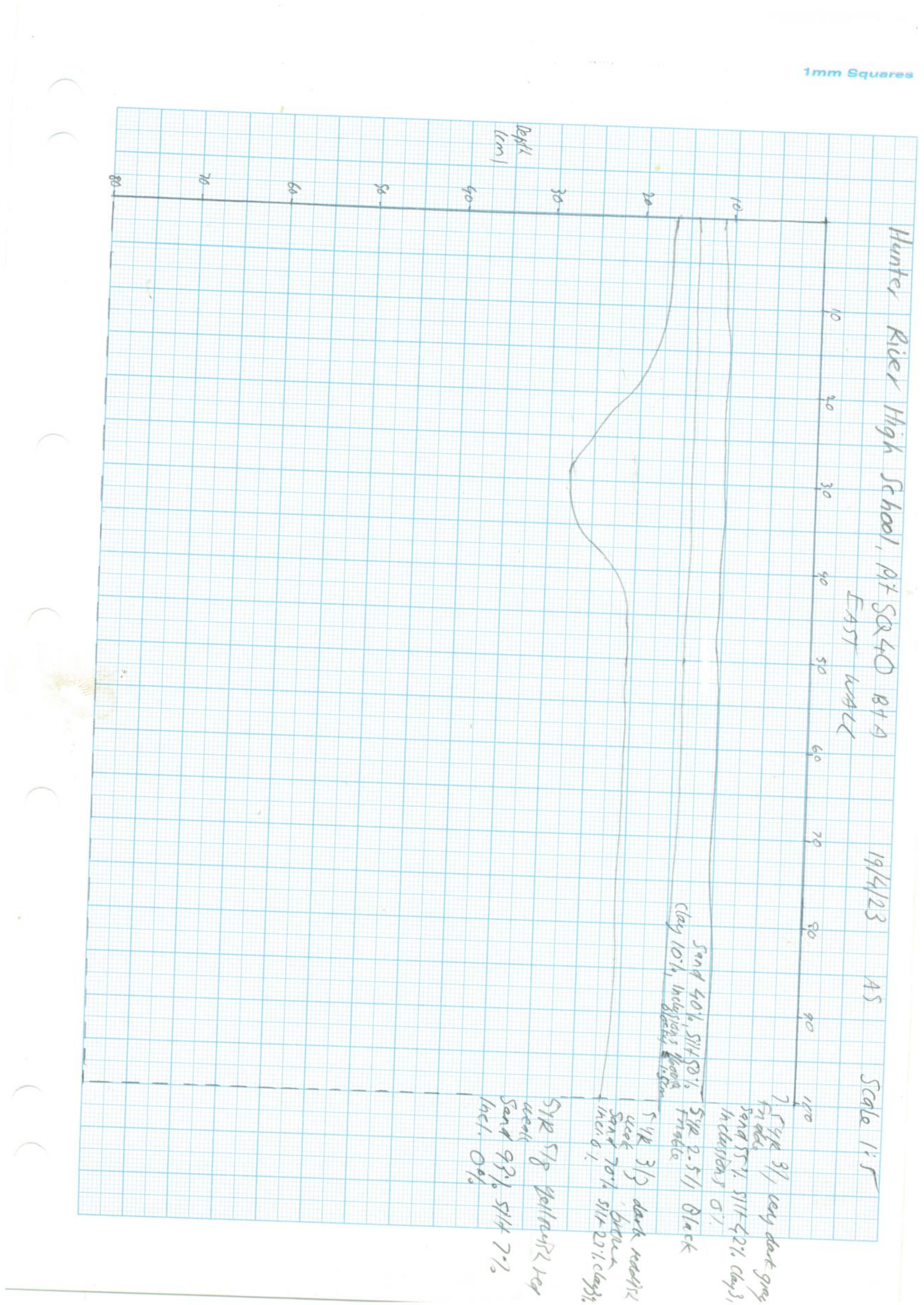

1mm Squares
Hunter River High School, Pit SQ100Ac, SQ100Ab, SQ99Ac 19/4/23 AS Scale 1:10
SOUTH WALL
W
Pit SQ100Ac
Pit SQ 100Ab
Pit SQ99Ac
LEGEND (STRATIGRAPHY)
A 7.5YR 3/2 dark brown Friable Sand 57% silt 43% incl 0%
B 7.5YR 4/1 dark gray weak Sand 70% silt 30% incl 0%
C 7.5YR 5/1 gray weak Sand 96% silt 4% incl 0%
D 2.5YR 6/1 gray Sand 97% silt 3%
E 7.5YR 7/1 light gray weak
F 7.5YR 6/3 light brown weak Sand 97.5% clay 2.5% incl 0%

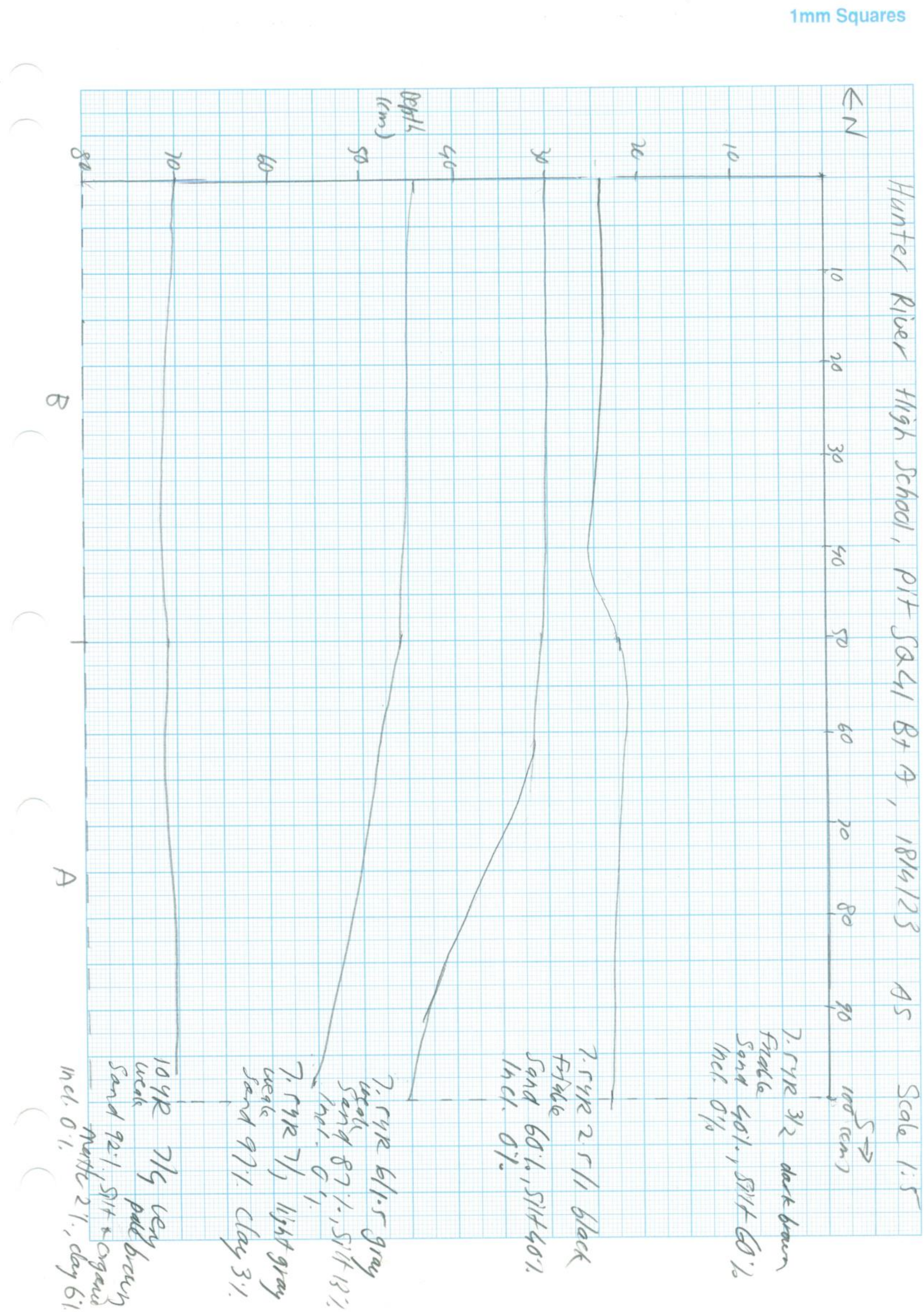

1mm Squares
Hunter River High School, Pit SQ36 B+A, East Wall, 18/4/23 A.S. Scale 1:5
7.5YR 3/2 dark brown
Friable
Sand 60% Silt 40%
7.5YR 4/1 dark gray
Friable
Sand 70% Silt 30%
Inclusions 0%
7.5YR 7/2 pinkish gray
Weak
Sand 95% Silt 5%
Inclusions 0%
7.5YR 6/4 light brown
Weak
Sand 94% Silt 2% clay 4%
Inclusions 0%

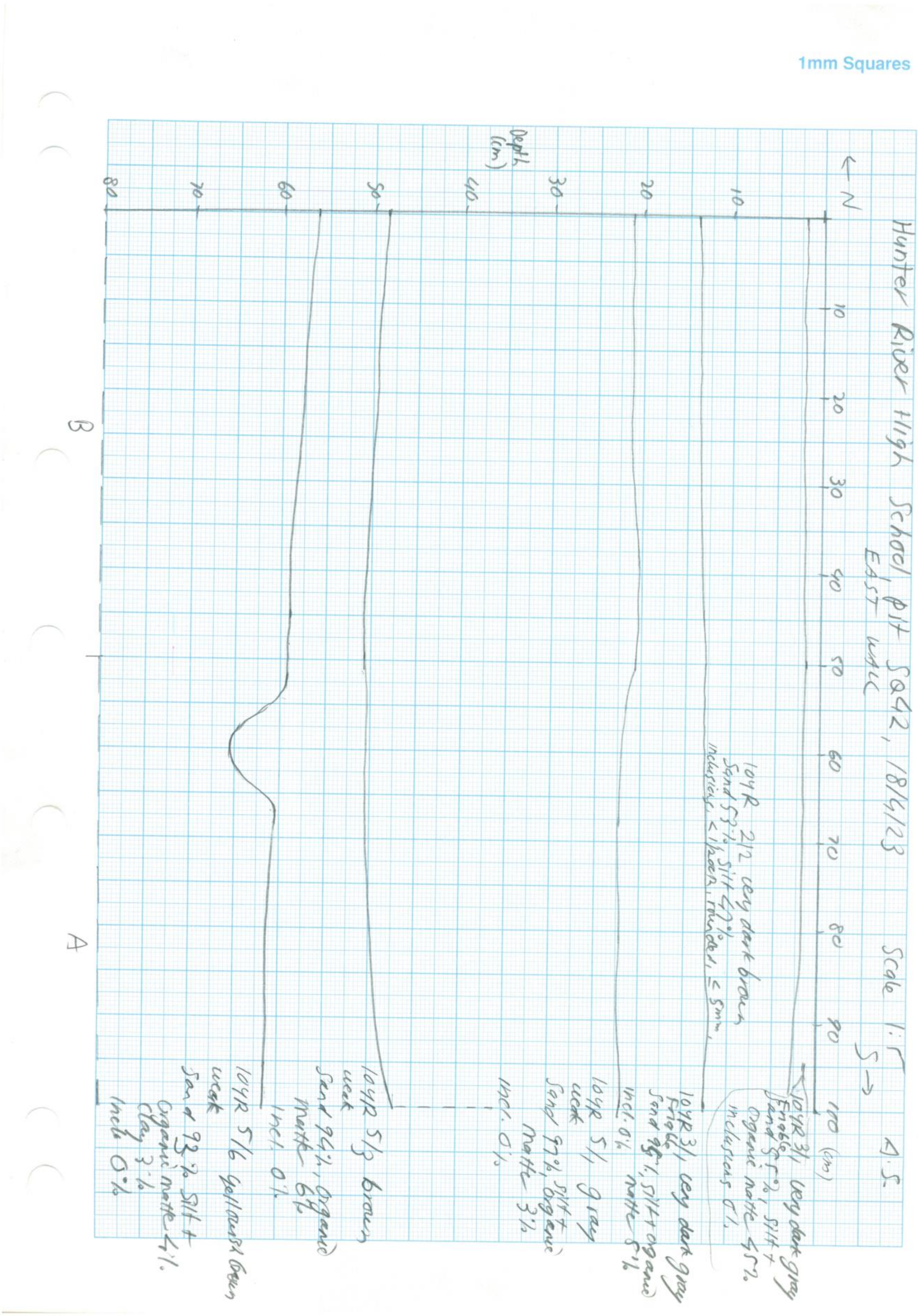

1mm Squares
Hunter River High School, Pit SQ37 East wall, 18/4/23 A.S Scale 1:5
depth (cm)
0
10
20
30
40
50
60
70
80
90
100 (cm)
7.5YR 3/2 dark brown friable sand 95%, silt 4%, incl. 0%
7.5YR 3/1 very dark grey friable sand 60%, silt 40%
5YR 5/1 grey weak sand 90%, silt 10%, incl. 0%
5YR 4/1 dark grey weak sand 83%, silt 17%, incl. 0%
7.5YR 7/2 pinkish grey weak sand 96%, silt 4%, incl. 0%
2.5YR 7/6 reddish yellow weak sand 98%, silt 2%, incl. 0%

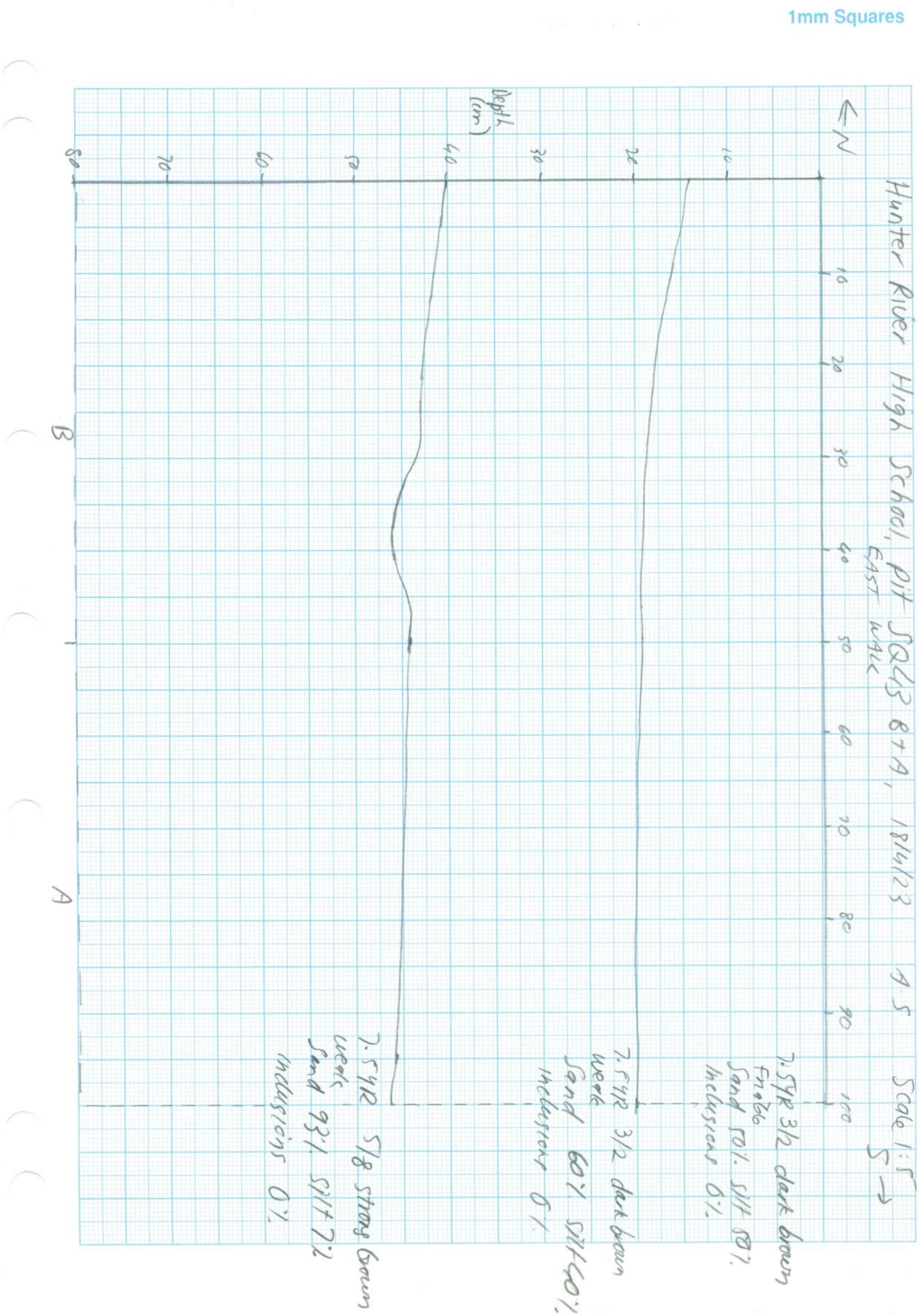

1mm Squares
Hunter River High School, Pit SQ32 B+A, East Wall B/4/23 Scale 1:5
A:5
Depth (cm)
10
20
30
40
50
60
70
80
90
100 (cm)
2.5YR 3/2 dark brown
Fine
Sand 95%, Silt 4%, Clay 1%
Inclusions 0%
5YR 4/1 dark grey
Wet
Sand 70%, Silt 30%
Inclusions 0%
7.5YR 7/1 light grey
Wet
Sand 99%, Silt 1%
Inclusions 0%
10YR 7/3 very pale brown
Wet
Sand 98%, clay 2%
Inclusions 0%
2.5YR 6/8 orange/yellow
Wet
Sand 95%, clay 5%
Inclusions 0%
B
A

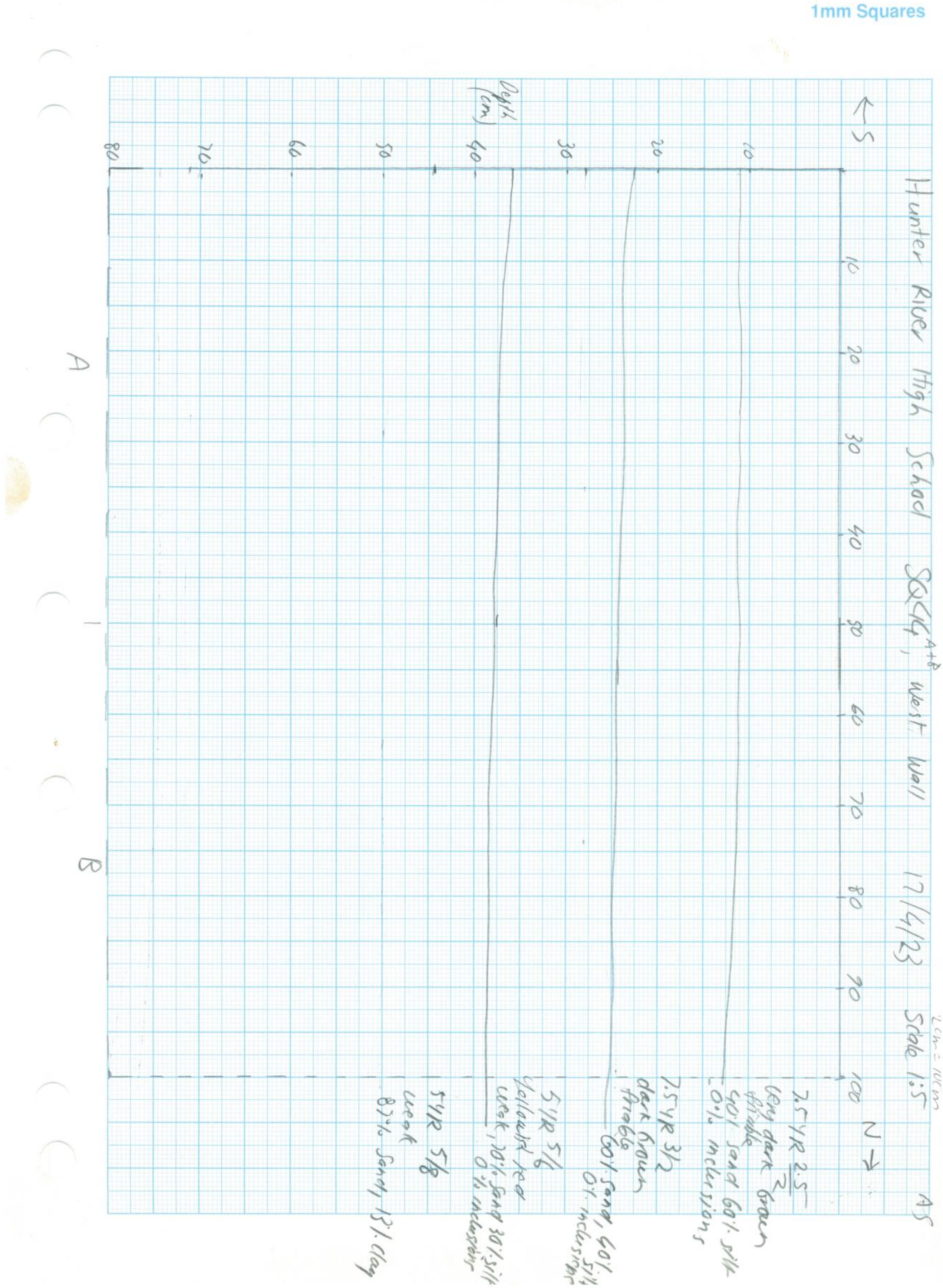

1mm Squares
Hunter River High School, Pit SQ39 S+A, 12/4/23
Scale 1:10
NORTH WALL
EAST WALL
Depth (cm)
Plastic Pipe
Stratigraphy:
A 7.5YR 3/1 very dark grey weak sand 80%, silt+organic matter 20%.
B 7.5YR 2.5/1 Black Friable Sand 60% silt 40% Incl. 0%.
C 7.5YR 5/1 grey weak sand 90% silt 10% Incl. 0%.
D 7.5YR 5/2 brown weak Sand 94%, silt 6% Incl. 0%.
E 7.5YR 6/4 light brown weak Sand 90%, clay 5% Incl. 0%.

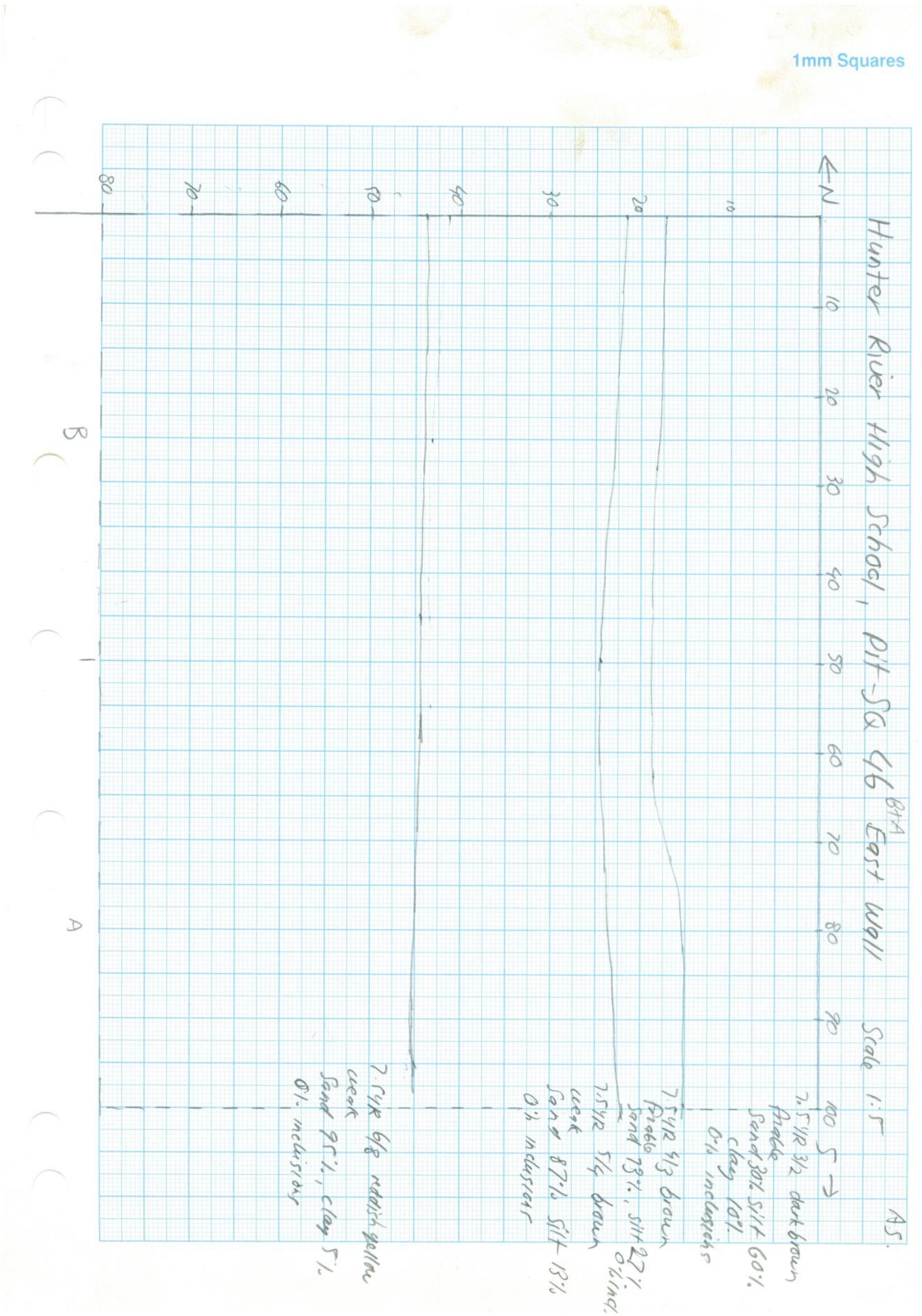

1mm Squares
Hunter River High School, AT SQ40 B+A
EAST WALL
19/4/23
AS
Scale 1:5
Depth (cm)

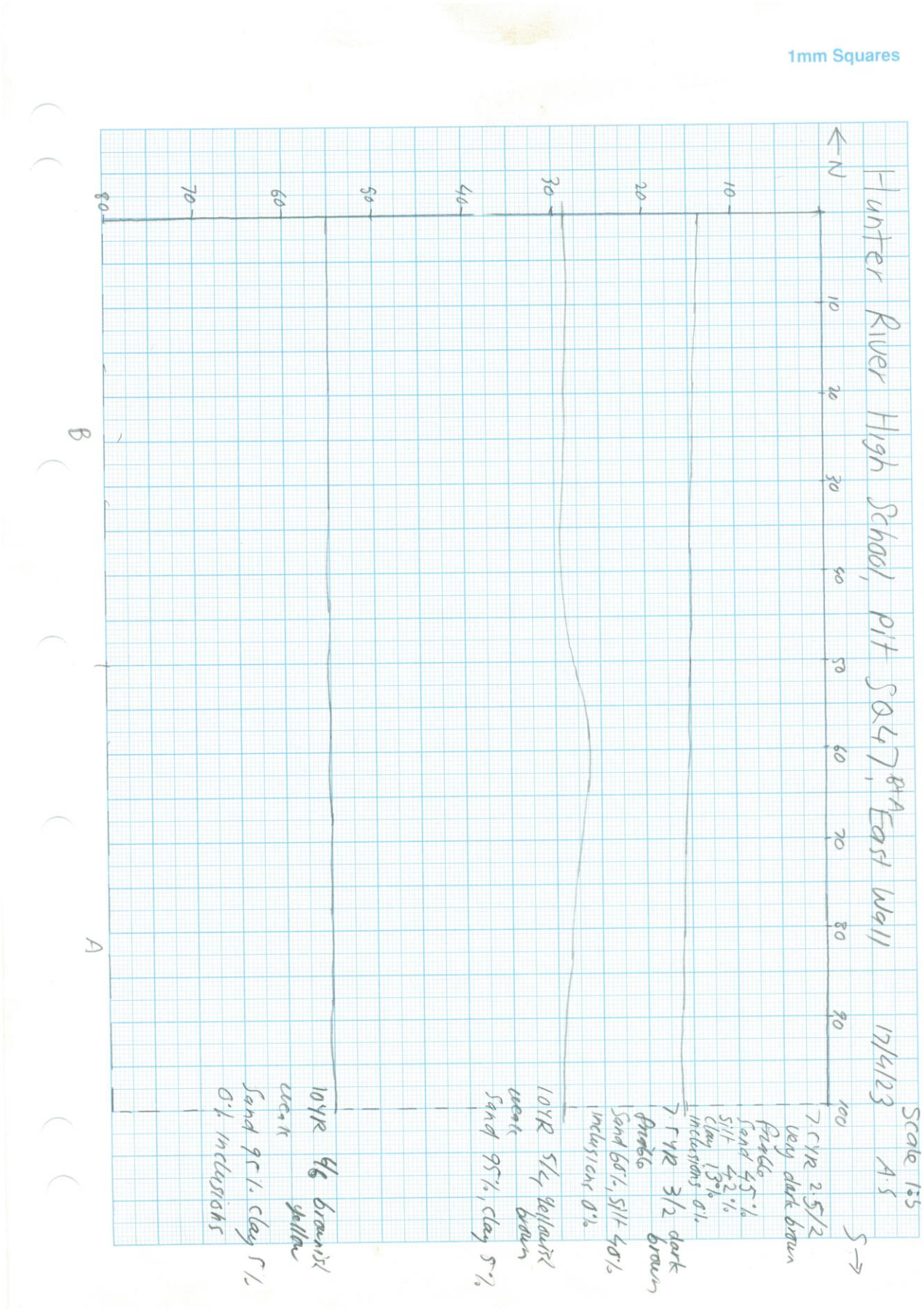

1mm Squares
Hunter River High School, Pit SQ41 B+A, 18/4/23
Scale 1:5
←N
S→
Depth (cm)
7.5YR 3/2 dark brown Friable Sand 40%, Silt 60% Incl. 0%
7.5YR 2.5/1 black Friable Sand 60%, Silt 40% Incl. 0%
7.5YR 6/1.5 gray weak Sand 87%, Silt 13% Incl. 0%
7.5YR 7/1 light gray weak Sand 97% Clay 3%
10YR 7/4 very pale brown weak Sand 92%, Silt + Organic Matter 2%, clay 6% Incl. 0%
B
A

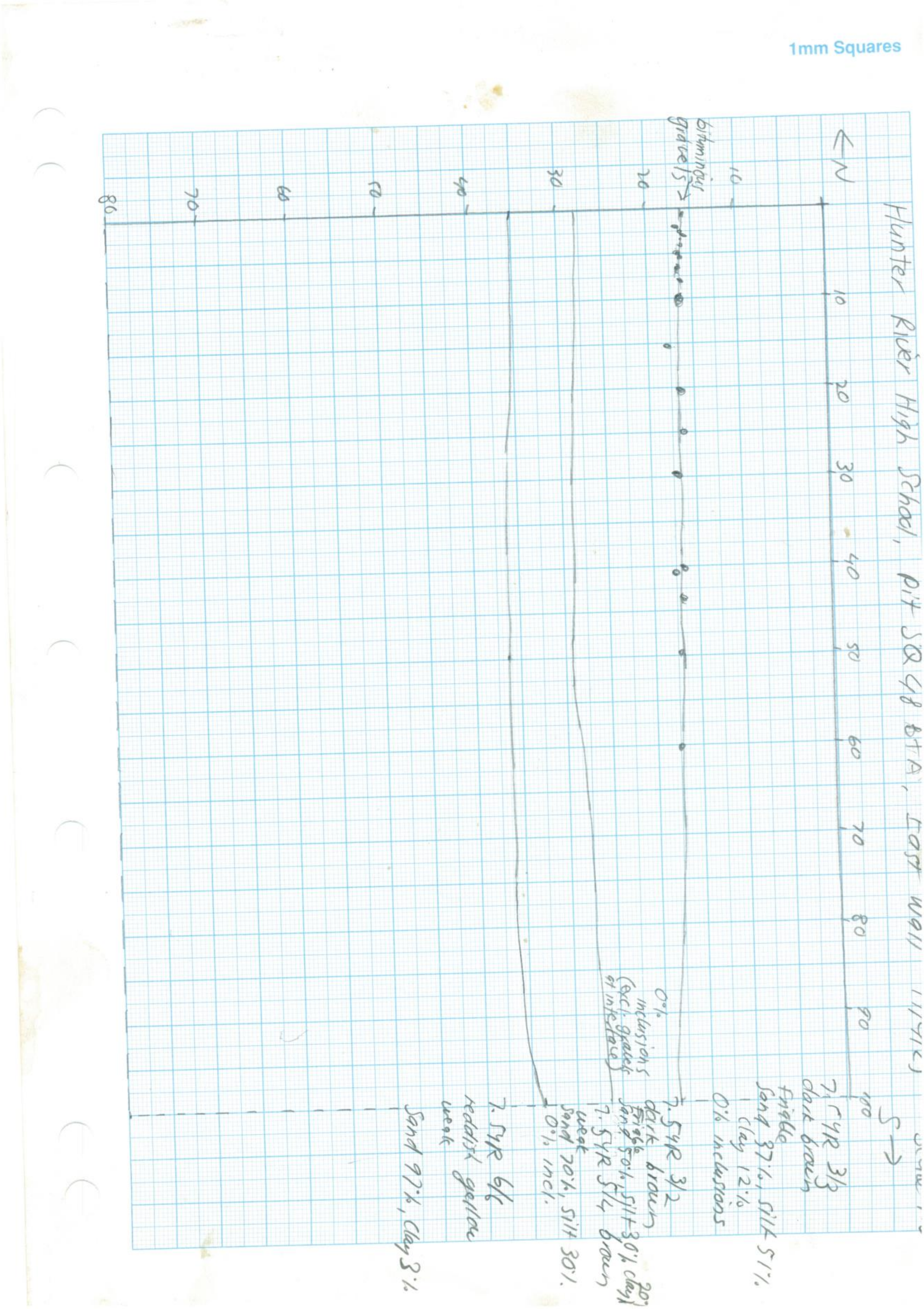

1mm Squares
Hunter River High School, Pit SQ42, 18/4/23
EAST wall
Scale 1:5
A.S.
Depth (cm)
N
S
A
B

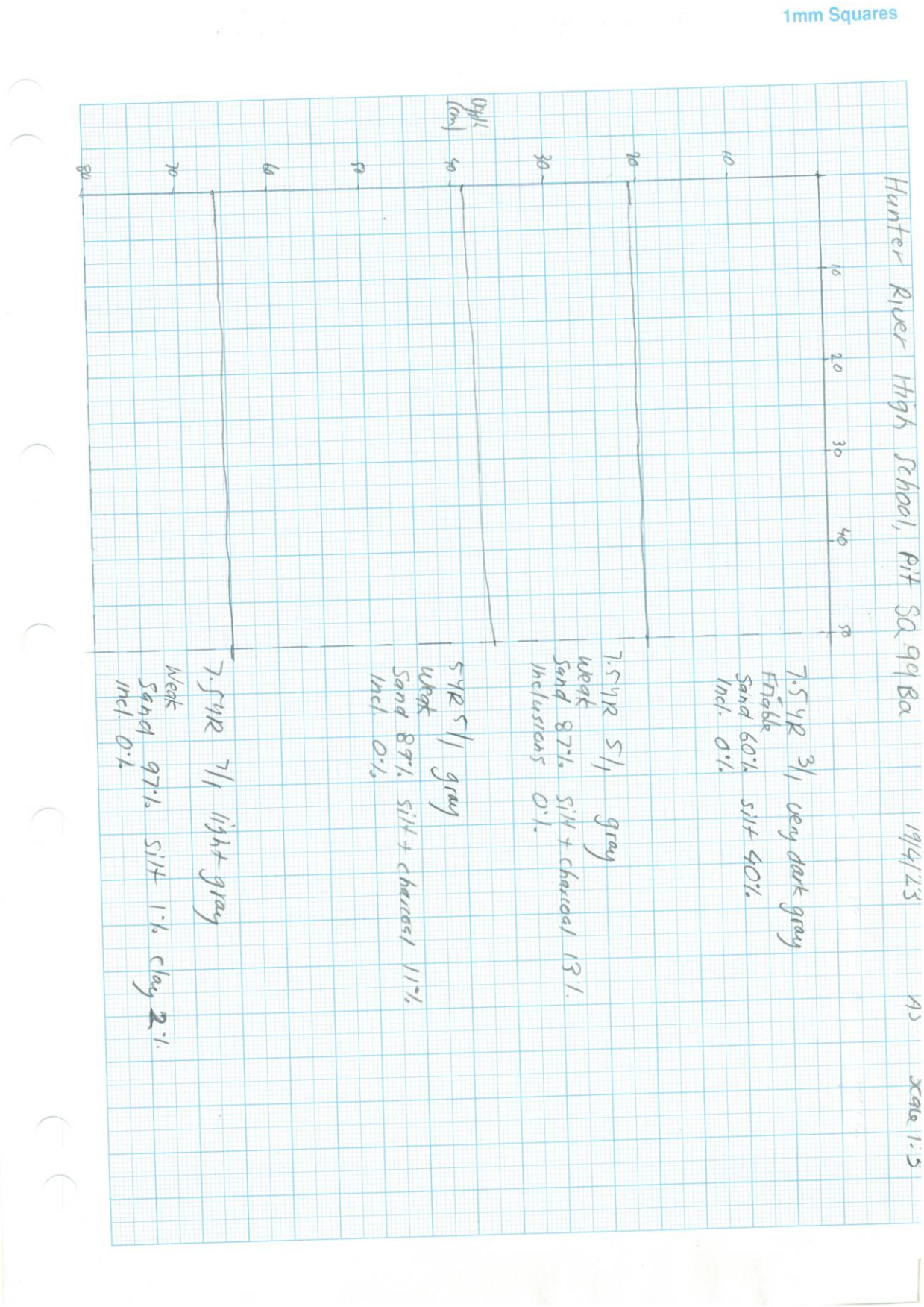

1mm Squares
Hunter River High School, Pit SQ43 B+A, 18/4/23 AS Scale 1:5
EAST WALL
← N
S →
Depth (cm)
B
A
7.5YR 3/2 dark brown
Friable
Sand 50% silt 50%
inclusions 0%
7.5YR 3/2 dark brown
weak
Sand 60% silt 40%
inclusions 0%
7.5YR 5/8 strong brown
weak
Sand 93% silt 7%
inclusions 0%

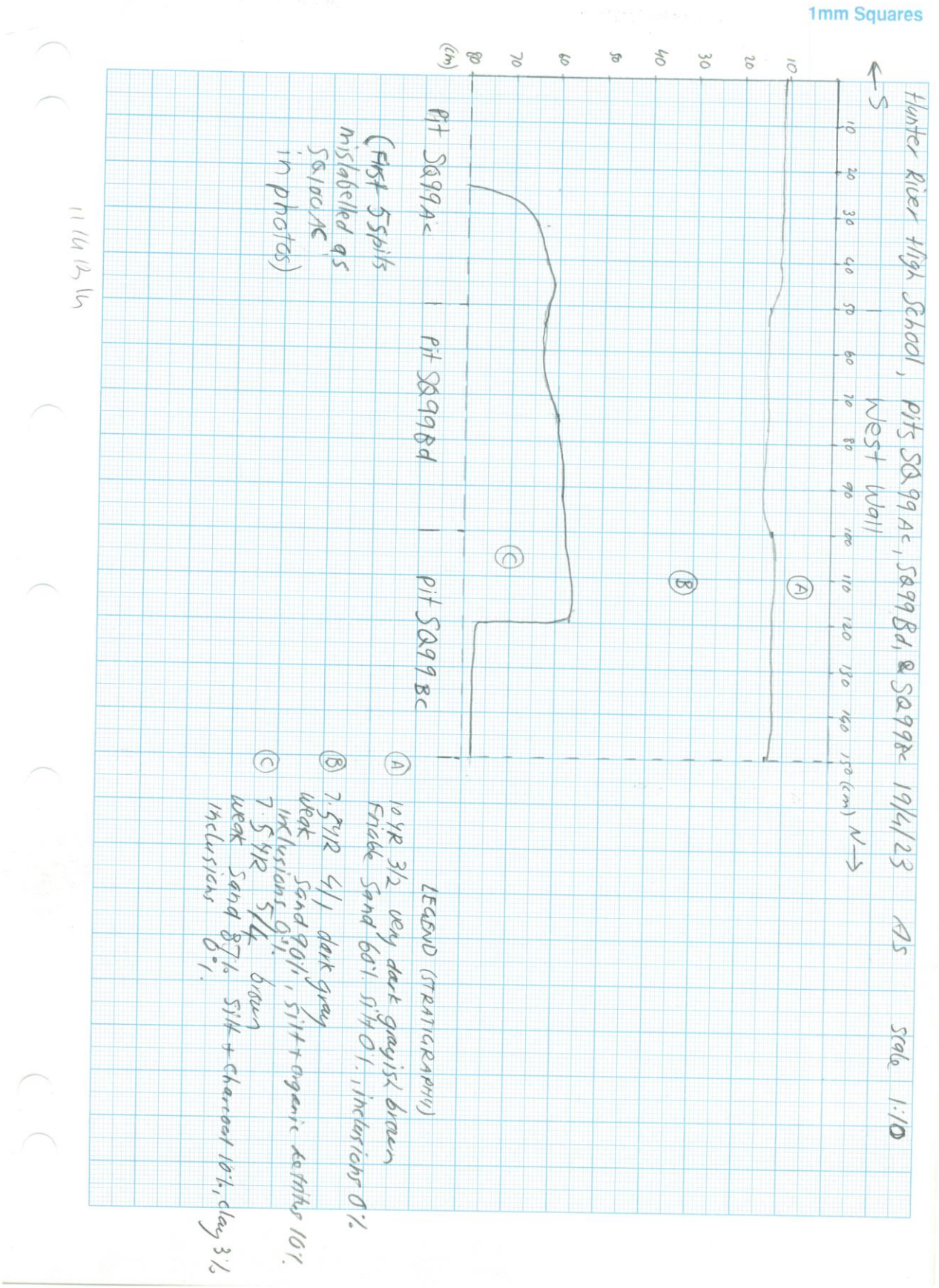

1mm Squares
Hunter River High School SQ4 A+B West Wall 17/4/23 Scale 1:5
Depth (cm)
A
B

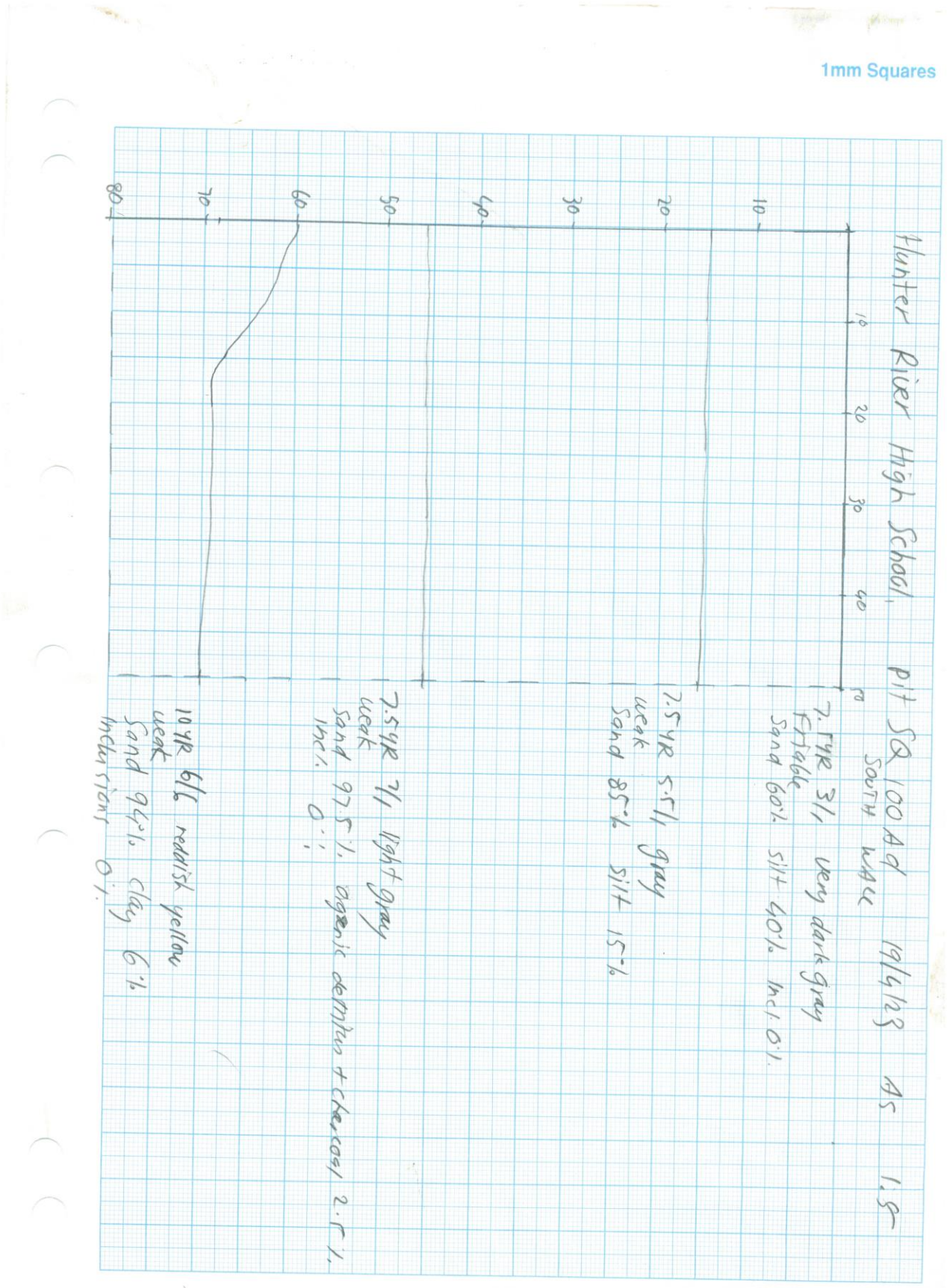

1mm Squares
Hunter River High School, Pit SQ 46 East Wall
Scale 1:5
7.5YR 3/2 dark brown friable Sand 30% Silt 60% clay 10% 0% inclusions
7.5YR 4/3 brown friable Sand 73%, Silt 27% 0% incl.
7.5YR 5/4 brown weak Sand 87% Silt 13% 0% inclusions
7.5YR 6/8 reddish yellow weak Sand 95%, clay 5% 0% inclusions

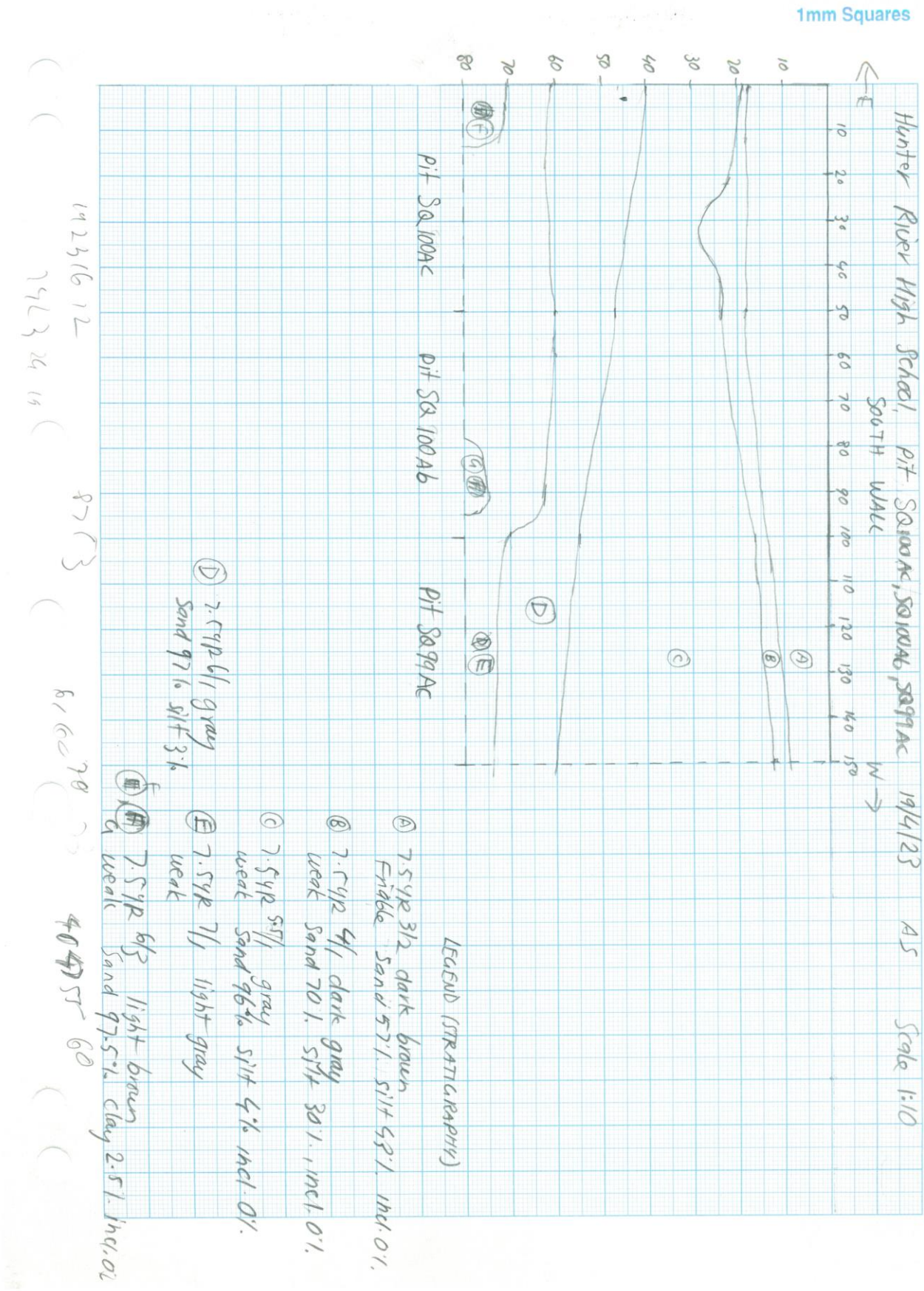

1mm Squares
Hunter River High School, pit SQ47, 8A East wall
17/4/23
Scale 1:5
A1
N
S
10
20
30
40
50
60
70
80
90
100
7.5YR 2.5/2 very dark brown Fine Sand 45% Silt 42% Clay 13% inclusions 0%
7.5YR 3/2 dark brown Fine Sand 60%, Silt 40% inclusions 0%
10YR 5/4 yellowish brown sand 95%, clay 5%
10YR 4/6 brownish yellow sand 95% clay 5% 0% inclusions
A
B


1mm Squares
Hunter River High School, Pit SQ 48 ETA, East Wall
N
S
bituminous gravels
7.5YR 3/3
dark brown
friable
Sand 37%, Silt 51%
Clay 12%
0% inclusions
7.5YR 3/2
dark brown
friable
Sand 50% Silt 30% clay 20%
0% inclusions
7.5YR 5/4 brown
weak
Sand 70% Silt 30%
0% incl.
7.5YR 6/6
reddish yellow
weak
Sand 97%, Clay 3%


1mm Squares
Hunter River High School, Pit SQ 99 Ba
19/4/23
A1
X99 1:5
Depth (cm)
10
20
30
40
50
60
70
80
7.5YR 3/1 very dark gray friable Sand 60% silt 40% Incl. 0%
7.5YR 5/1 gray weak Sand 87% silt + charcoal 13% Inclusions 0%
5YR 5/1 gray weak Sand 89% silt + charcoal 11% Incl. 0%
7.5YR 7/1 light gray Weak Sand 97% silt 1% clay 2% Incl. 0%


1mm Squares
Hunter River High School, Pits SQ99Ac, SQ99Bd, & SQ99Bc 19/4/23 AS Scale 1:10
West Wall
S
N
(cm)
Pit SQ99Ac
Pit SQ99Bd
Pit SQ99Bc
(Not Spits mislabelled as SQ10Ac in photos)
LEGEND (STRATIGRAPHY)
A 10YR 3/2 very dark grayish brown Friable Sand 60% silt 40% inclusions 0%
B 7.5YR 4/1 dark gray weak Sand 90% silt + organic matter 10% inclusions 0%
C 7.5YR 5/4 brown weak Sand 87% silt + charcoal 10% clay 3% inclusions 0%


1mm Squares
Hunter River High School, Pit SQ 100 Ad 19/4/23 AS 1.5
South wall
7.5YR 3/1 very dark gray
Friable
Sand 60% silt 40% Incl 0%
2.5YR 5.5/4 gray
weak
Sand 85% silt 15%
7.5YR 7/1 light gray
weak
Sand 97.5% organic detritus + charcoal 2.5%
Incl 0%
10YR 6/6 reddish yellow
weak
Sand 94% clay 6%
Inclusions 0%


1mm Squares
Hunter River High School, Pit SQ100AC, SQ100AB, SQ99AC 19/4/23 AS Scale 1:10
SOUTH WALL
W
PIT SQ100AC
PIT SQ100AB
PIT SQ99AC
LEGEND (STRATIGRAPHY)
A 7.5YR 3/2 dark brown Friable Sand 5%, silt 5%, incl. 0%.
B 7.5YR 4/1 dark gray weak Sand 70%, silt 30%, incl. 0%.
C 7.5YR 5/1 gray weak Sand 96% silt 4% incl. 0%.
D 2.5YR 6/1 gray Sand 97% silt 3%
E 7.5YR 7/1 light gray weak
F 7.5YR 6/3 light brown weak Sand 97.5% clay 2.5% incl. 0%

APPENDIX IV. ARTEFACT CATALOGUE

Catalogue	Site	Test Ex - Square (Pit/Quadrant)	Spit # (10cm)	Phase (testing)	Count - Stone Artefact	Raw Material	RM Colour 1	RM Colour 2	Cortex	Category	Category Type	Modification	Completeness	Platform Surface	Platform (Platform Type)	Termination	Size Category (cm)	Max Length (mm)	Length (mm)	Width (mm)	Thickness (mm)	Comments
1		SQ14 b	2	1	1	Silcrete	Cream		0	Flake Fragment	Medial		0	Indeterminate	Indeterminate	Feather	1-2	15.72	15.3	10.5	2.73	Distal tip has snapped off. >1 flake scar on dorsal surface
2		SQ28 d	6	1	1	IMST	Grey		0	Blade	Blade		1	Faceted	Wide	Feather	3-4	36.11	36.1	9.93	7.37	Steep step terminations on the dorsal side of the platform. Two steep ridges along the dorsal surface. >1 flake scar on dorsal surface
3		SQ12 b	2	1	0	IMST	Red	Cream		Not Artefact	Pebble											
4		SQ29 a	1	1	0	Silcrete	Cream	Orange		Not Artefact	Angular Fragment											
5		SQ28 b	5	1	1	IMST	White	Brown	0	Flake Fragment	Distal			Indeterminate	Indeterminate	Feather	1-2	12.96	12.2	6.14	1.26	Dorsal ridge present. Evidence of negative hinge scar on ventral surface
6		SQ23 a	3	1	1	IMST	Brown		0	Flake	Flake		1	Plain	Wide	Feather	1-2	20	18.9	16.4	5.96	>1 flake scar on dorsal surface. Evidence of excavation damage a long left ventral edge
7		SQ14 a	2	1	1	Chert	Grey		0	Flake Fragment	Medial			Indeterminate	Indeterminate	Indeterminate	1-2	16.26	16.1	7.86	3.17	Section of compression ring is present on ventral surface
8		SQ28 a	3	1	1	IMST	White	Cream	0	Flake	Flake		1	Indeterminate	Crushed	Feather	0-1	8.64	8.64	4.29	1.35	
9		SQ28 b	4	1	1	IMST	White	Cream	0	Flake	Flake		1	Plain	Wide	Feather	1-2	16.99	16.9	7	3.14	Steep dorsal ridge
10		SQ28 b	4	1	1	IMST	White	Cream	0	Blade	Proximal Blade		0	Plain	Wide	Indeterminate	2-3	25.15	25.1	7.73	4.42	>1 dorsal ridge. Distal end appears to have been knapped off, 2 negative scars present - no negative PFA present
11		SQ28 d	7	1	0	Chert	Grey		0	Not Artefact	Angular Fragment											
12		SQ14 d	2	1	0	Silcrete	Grey			Not Artefact	Angular Fragment											
13		SQ14 d	2	1	0	Silcrete	Grey			Not Artefact	Angular Fragment											
14		SQ14 d	2	1	0	Silcrete	Grey			Not Artefact	Angular Fragment											
15		SQ14 d	2	1	0	Silcrete	Grey			Not Artefact	Angular Fragment											
16		SQ14 d	2	1	0	IMST	Cream	Orange		Not Artefact	Pebble											

17		SQ23 c	1	1	1	IMST	Black		0	Backed Artefact	Backed Artefact			Indeterminate	Indeterminate	Indeterminate	2-3	21.66	21.7	10.1	7.84	Shiny smooth surface. Evidence of retouch. Shapped like a segment of orange. Possible scraper
18		SQ43 a	3	2	1	IMST	Brown	Cream		Flake Fragment	CSBF/R			Indeterminate	Indeterminate	Feather	2-3	27	23	14	6	
19	Area SQ28	SQ99B d	5	3	1	IMST	Brown	Cream	0	Backed Artefact	Backed Flake	Backed	1	Faceted	Wide	Feather	3-4	32.5	32	18	28.5	>1 flake scar on dorsal surface. Strong ridge on the left-side of the dorsal surface
20		SQ46 a	5	2	1	Silcrete	Orange	Brown	0	Flake	Flake		1	Plain	Wide	Hinge	1-2	18	16	14	3	>1 flake scar on dorsal surface
21	Area SQ28	SQ100A d	5	3	1	IMST	Grey	Cream	0	Flake Fragment	Medial		0	Indeterminate	Indeterminate	Indeterminate	2-3	26	26	10.5	3	
22	Area SQ28	SQ100A d	5	3	1	IMST	Grey		0	Flake Fragment	Distal		0	Indeterminate	Indeterminate	Hinge	0-1	10.5	7.5	8	2	
23	Area SQ28	SQ100A c	6	3	1	IMST	Grey		0	Flake Fragment	Distal			Indeterminate	Indeterminate	Feather	1-2	16	16	6.5	1	>1 flake scar on dorsal surface
24	Area SQ28	SQ100A d	6	3	1	IMST	Grey		0	Flake Fragment	CSBF/R			Plain	Wide	Snap	1-2	14.5	14.5	4	3	Conjoins with #25 - excavation damage
25	Area SQ28	SQ100A d	6	3	1	IMST	Grey		0	Flake Fragment	CSBF/L			Plain	Wide	Snap	1-2	16	15	5	2	Conjoins with #24 - excavation damage
26	Area SQ28	SQ100A c	5	3	1	IMST	Cream	Grey	0	Flake	Flake		1	Plain	Wide	Feather	2-3	20.5	20	10.5	3	Excavation damage is evident on the left margin
27		SQ41 b	3	2	1	IMST	Cream	Brown	0	Flake	Flake		1	Indeterminate	Indeterminate	Hinge	2-3	29.5	16	21.5	6	Platform surface has been removed. >1 flake scar on dorsal surface
28	Area SQ28	SQ99B d	6	3	1	IMST	Cream	Red	0	Flake	Flake		1	Plain	Wide	Feather	0-1	8	8	4	1	>1 flake scar on dorsal surface
29	Area SQ28	SQ99B d	6	3	1	IMST	Cream	Red	0	Flake Fragment	Flake Piece		0				0-1	6	5	3	1.5	
30		SQ37 b	2	2	1	Ochre	Red			Unworked	Ochre											
31		SQ47	3	2	0	Aggregate				Not Artefact	Angular Fragment											
32		SQ48	2	2	1	IMST	Black		0	Modified	Angular Fragment						2-3	21.5	10	21.5	6	Similar raw material to #17