Independent Gas Verification & Validation Services

Project Design & Specification
Site Inspection & Reporting

CARTER PARTNERSHIP LIMITED

Verification & Strategy Plan

Project: G201101

Project Name: Meadow High Sch & Sports hall

CPL have prepared this report in accordance with the instructions of the main contractor under the terms of its appointment for the Verification Plan & Validation Report.

This report is limited to the information provided by the main contractor, its content is based on the information provided, the Geotechnical Report referenced and the design work already produced for the gas protection system by the manufacturer has been adopted to provide a strategy of inspection to monitor the installation throughout the build process.

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It should be noted whatever plan of inspection is in place, it is incumbent of the site management to ensure installation is properly protected and that any on-coming trades are made aware of need to avoid damage or to report should damage occur, this should form part of the site induction.
It is advisable and good practise for CPL to meet with the nominated installer (Groundworker) before installation begins to run through the design & gas systems involved, to understand the level of experience & competence of the persons actually installing.

Gas Regime
The following has been extracted from the Geotechnical Report:
Project Name: Proposed Redevelopment Meadow High School, Uxbridge
Project Ref: STS5093 Rev01
Compiled by Soiltechnics Dated: November 2020

The site is located within a predominantly residential area and accessed via Royal Lane (east boundary).
The ground to be constructed upon is in the main made ground between 0.5to1.35m in depth.
The proposed construction is of a new sports hall, library, classrooms, assembly hall & entrance lobby.
Exploratory holes were used to monitor ground conditions, groundwater was encountered at an average of 2.8to3.0mtrs.
In-situ gas monitoring results indicated levels of Carbon Dioxide with a calculated gas screening value of 0.24GSV the report identified the site to have a Characteristic Situation CS2.

Based on the ground floor layout proposed for the building it will comprise of a mix of room sizes, using this information and referring to BS8485:2015 Table 3 the buildings would be identified as a Type B Building and a Sport Hall Type C Building.

BS8485:2015 Table 4 provides a minimum score of 3.5 points for a Type B building in a CS2 situation and 2.5 points for a Type C building.

The proposed design/construction will include
1.5 point = Cast in-situ RC suspended slab well reinforced to control cracking
2.0 point = Gas Resistant Membrane.
Giving a total 3.5 points as defined in BS8485:2015.

Building Design
Type B- Classrooms - Foundations for the structure involve and various pad foundations between 1.0to1.8m deep perimeter strip foundation 1.0to2.2m deep. The pad foundations supporting steel columns which form the basis for the structure. RC Concrete Lift pit within the slab.
Slab 275mm thick RC slab with 550mm edge thickening

Type C – Sports Hall – Foundations for the structure involve interconnecting strip foundations with slab battered to meet surrounding foundations. The strip foundations supporting steel columns which form the basis for the structure.

Gas Barrier System
1x Lift Pit wrapped using self-adhesive gas barrier
Pad Foundations & Perimeter Strip Footings – Continuity using liquid gas membrane.
Membrane onto RC Slab poured in three stages
See Solco Design Details & Product Technical Data Sheets Attached.

Inspection Regime
Based on the information listed and with reference to CIRIA Report C735:2014 Table A2 the project is a low risk (CS2), so the installation validation with be a combination of site visits by independent verification (pick & probe) by CPL & report via photographic evidence provided by the site manager/engineer. A Certificate of Conformance will be issued at each stage inspected, this will identify location of installation, photographic evidence will be included in the final report. Photographic evidence may be used to identify areas requiring immediate rectification or areas of concern
During inspection attention should be made to overall site conditions, management, build programme & weather conditions which all have an effect on the finished installation.
It is expected that the gas protection system will be installed by the ground works contractor, whom do not have an NVQ2 qualified member.

Points of Inspection

1. Foundations - Lift Pit walls & base, Steel columns, Pad & strip footing
2. Slab Membrane + (Pipe penetrations)
3. Slab Edge Detail
4. Perimeter detail (DPM + GR Cavity Tray).

Bench Mark Areas Requiring Site Attendance for Validation

1. Pad Foundation- Substrate condition & LGB application
2. 1x wrapped foundation base membrane installation (Lift Pits)
3. Slab Membrane (Perimeter detail & pipe penetrations & internal foundation detail-
4. Slab membrane should be validated after steel reinforcing installation & just before concrete placement.

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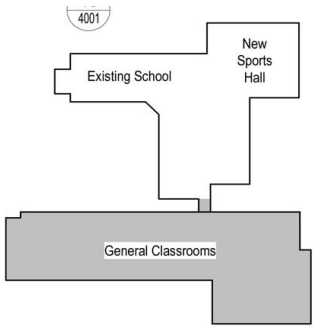
Some Bench marks areas can be completed on the same day of visit as agreed with site according to program.
Following satisfactory bench mark areas involving a repeat detail (e.g. steel column detail) can be validated via photographic evidence provided by suitably competent site member (site manager/engineer) to CPL for comment & validation.
Work should only proceed once Validator has provided comment on each stage of inspection.

Inspections will be recorded as either Pass, In Progress or Fail for which a Certificate of Conformance will be issued.
Pass = In Accordance with project design & manufacturer technical information
In Progress = Area in complete & requiring further validation.
Fail = Not in accordance with project design, requiring rectification & requiring further validation.
Depending on the level of failure it may be required to revisit an area for a second inspection, if repairs (eg.slab membrane punctures) can be carried out during an inspection whilst CPL are still present then this would be acceptable.
Areas of installation should remain un-covered until it is considered a Pass and be properly protected by site management.
Note: The slab detailing will have a involve increased attention, hence whole slab is inspected via CPL site attendance.

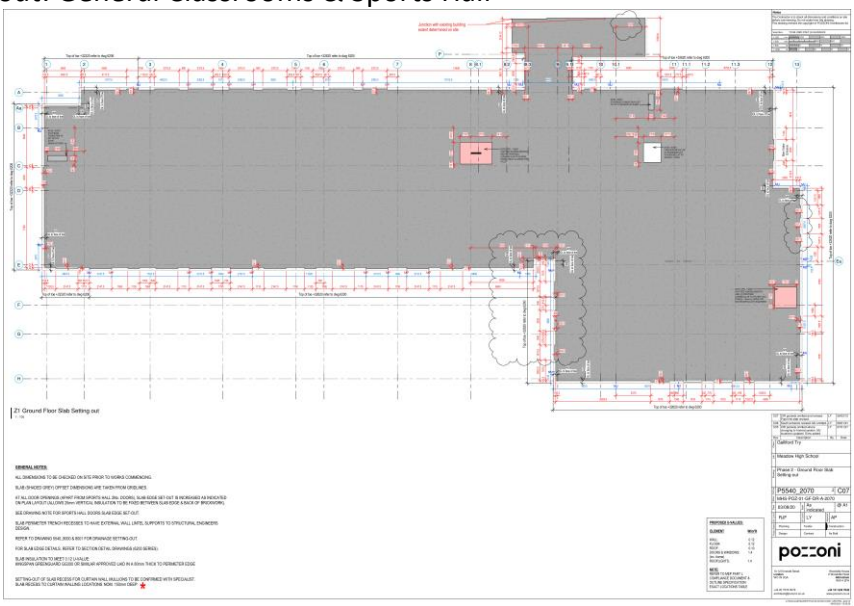
In terms of the risk-based approach
Complexity of Design = simple to complex (Amber/Red)
Note: Risks increases as:
Internal foundation detail increases detailing through slab membrane.
Installation Work Force = Non specialist (Groundworker)(Red)
Number of Plots/Building = 2(Green)
Gas Regime = Low Risk(Green)

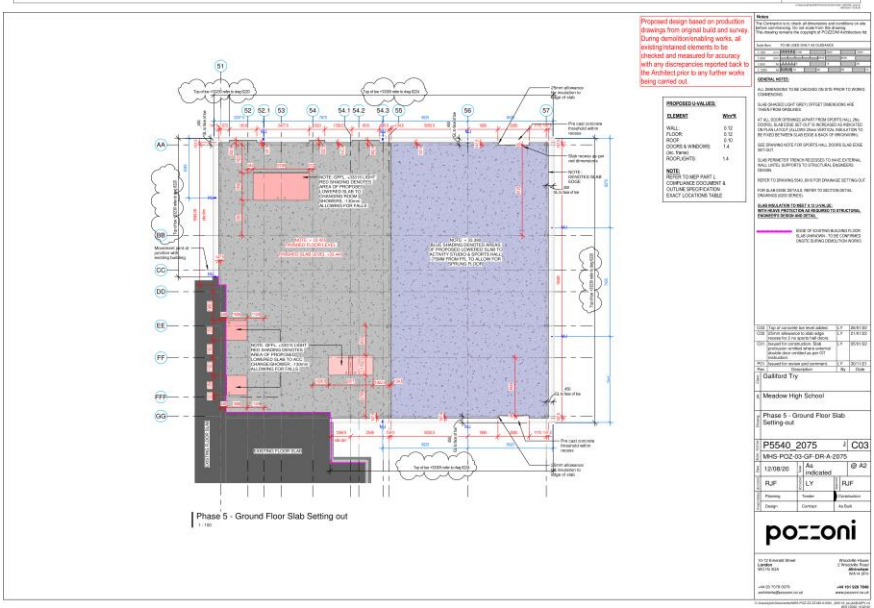
Verification/Validator Competence
CPL (Ray Carter) Ray Carter has been specifying, designing and inspecting membrane installations for over 25 years.
Has passed the ABBE Level 4 NVQ Diploma in Verification of Ground Gas Protection Systems.
He has been employed by a number of the leading UK manufacturers of gas & waterproofing systems (Ruberoid, RIW & CETCO), during this time has developed a full understanding in the issues and risks involved with installation on both residential and large industrial sites.
Ray Carter is also a Certified Surveyor in Structural Waterproofing (CSSW) and a member of the Institute for Concrete Technology.
For Continued Professional Development he can access both British Verification Membership (BVC), Property Care Association (PCA) membership and CLAIRE.

Site Plan



Ground Slab Layout: General Classrooms & Sports Hall





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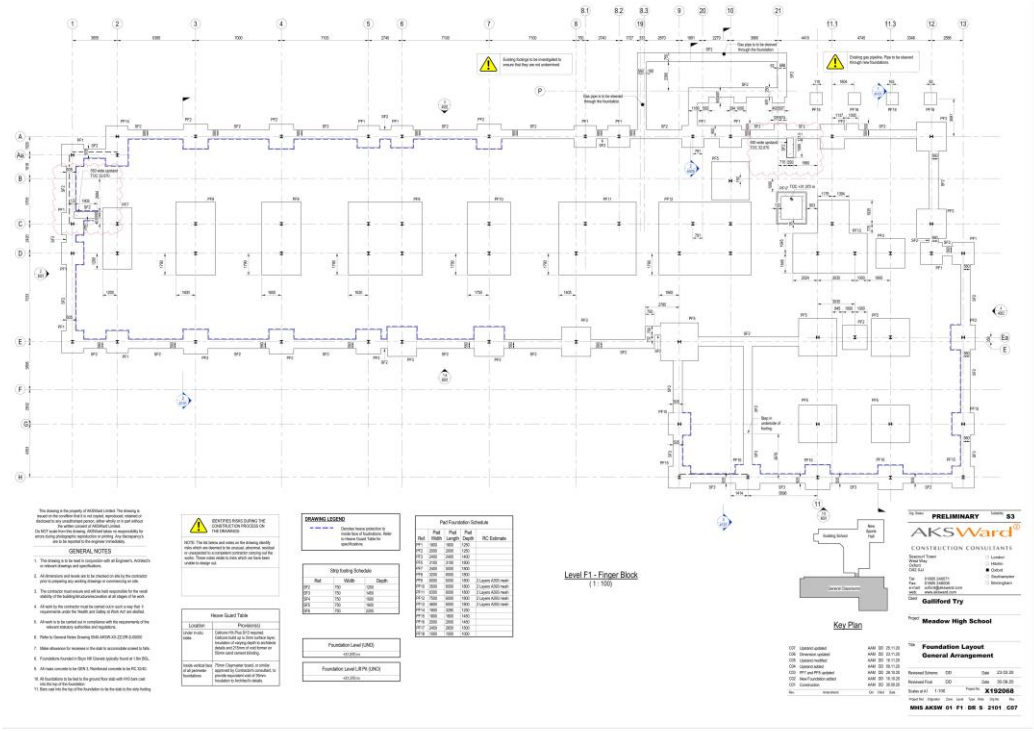
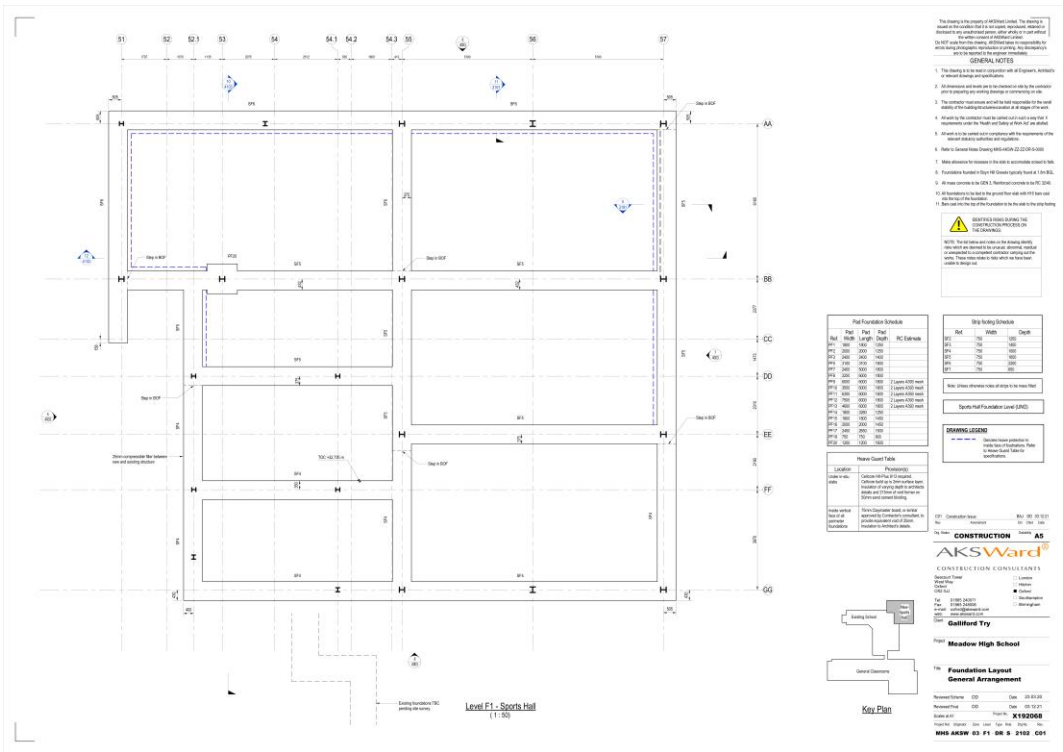
Foundation Plan: Classrooms & Sports Hall





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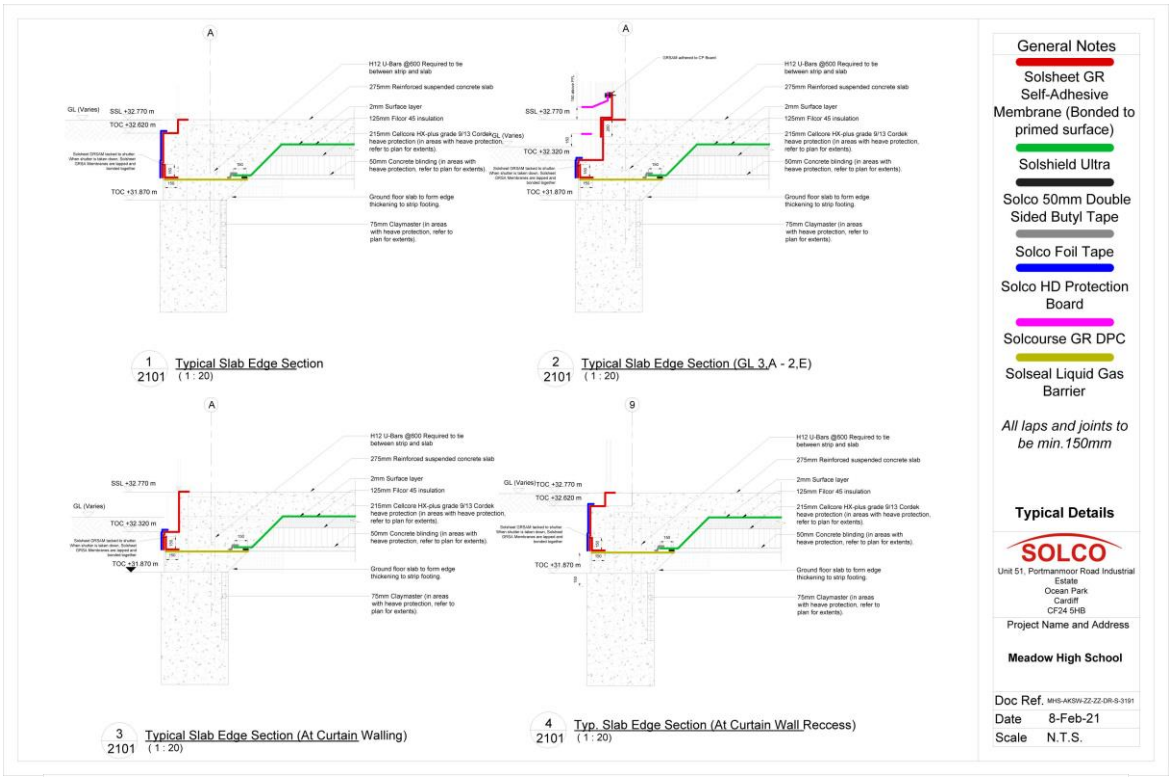
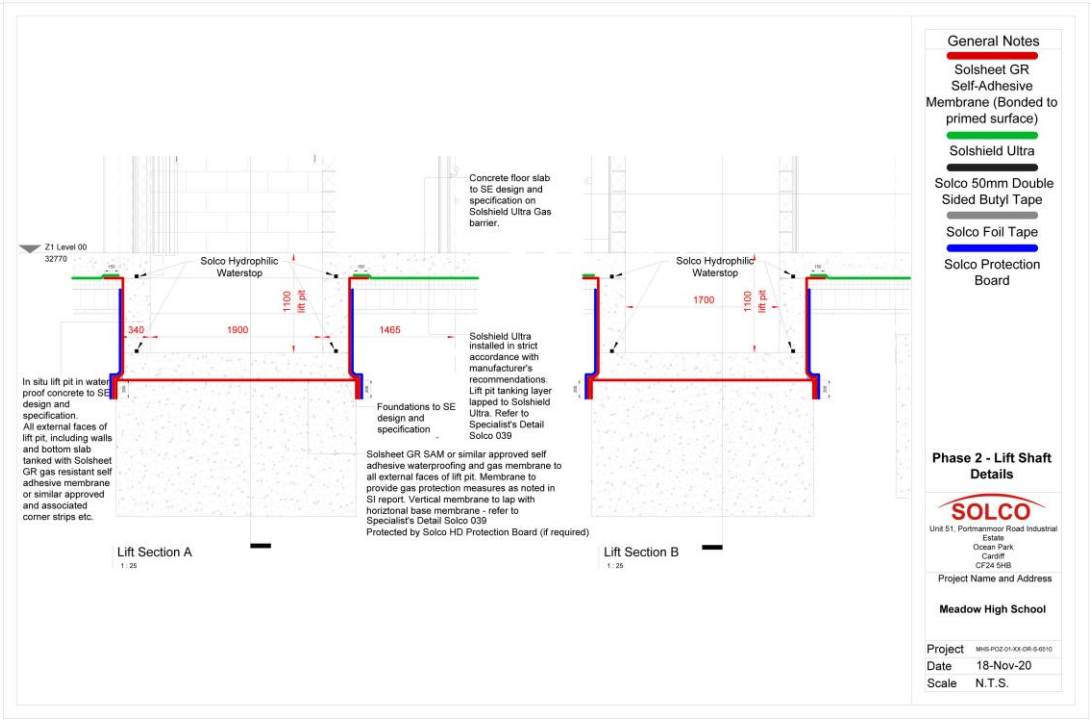
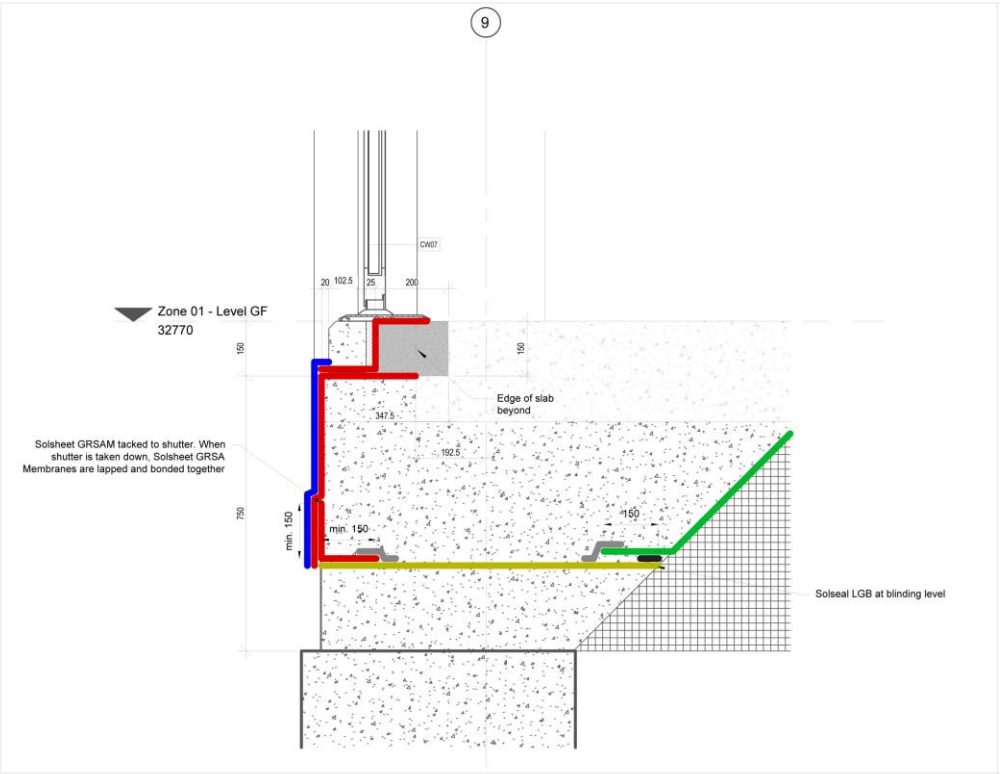
Project Details







General Notes

Solsheet GR Self-Adhesive Membrane (Bonded to primed surface)

Solshield Ultra

Solco 50mm Double Sided Butyl Tape

Solco Foil Tape

Solco HD Protection Board

Solcourse GR DPC

Solseal Liquid Gas Barrier

All laps and joints to be min.150mm

MHS- curtain wal CW07 pocket sketch

SOLCO
Unit 51, Portmanmoor Road Industrial Estate
Ocean Park
Cardiff
CF24 5HB

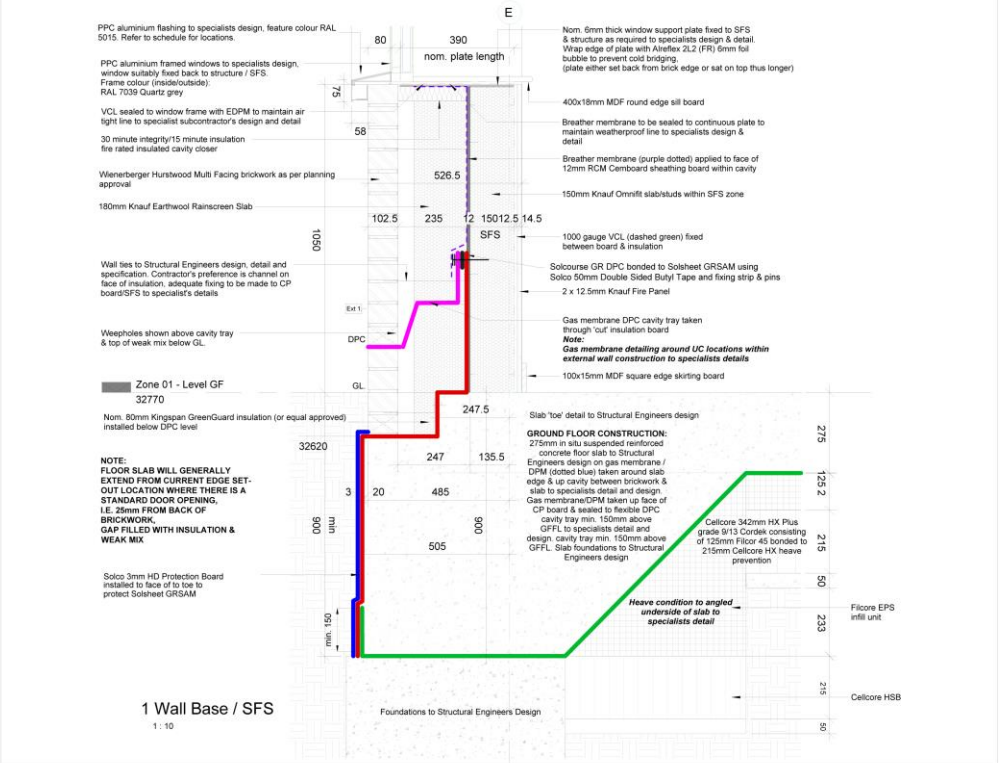
Project Name and Address

Meadow High School

Doc Ref. MHS- curtain wal CW07 pocket sketch

Date 9-Feb-21

Scale N.T.S.



General Notes

Solsheet GR Self-Adhesive Membrane (Bonded to primed surface)

Solshield Ultra

Solco 50mm Double Sided Butyl Tape (unless otherwise stated)

Solco Foil Tape

Solco HD Protection Board

Solcourse GR DPC

Solseal Liquid Gas Barrier

Phase 2 - Section Detail - Ground Floor Wall Base (Brick/SFS) & Window Cill (No Rebar)

SOLCO
Unit 51, Portmanmoor Road Industrial Estate
Ocean Park
Cardiff
CF24 5HB

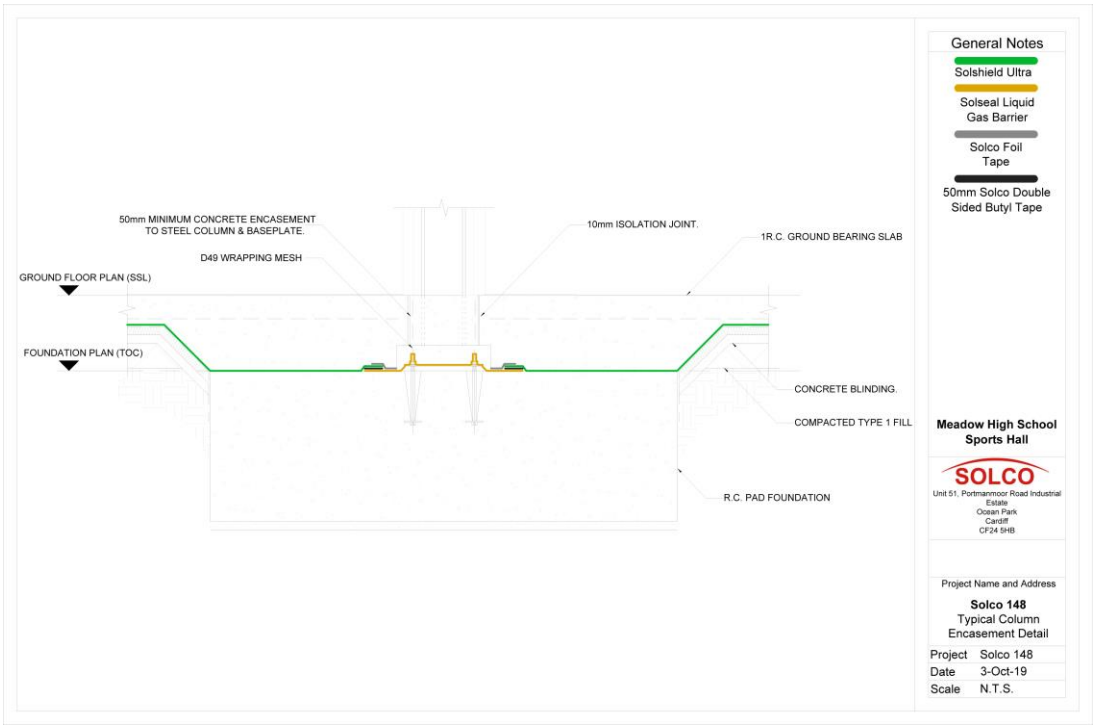
Project Name and Address

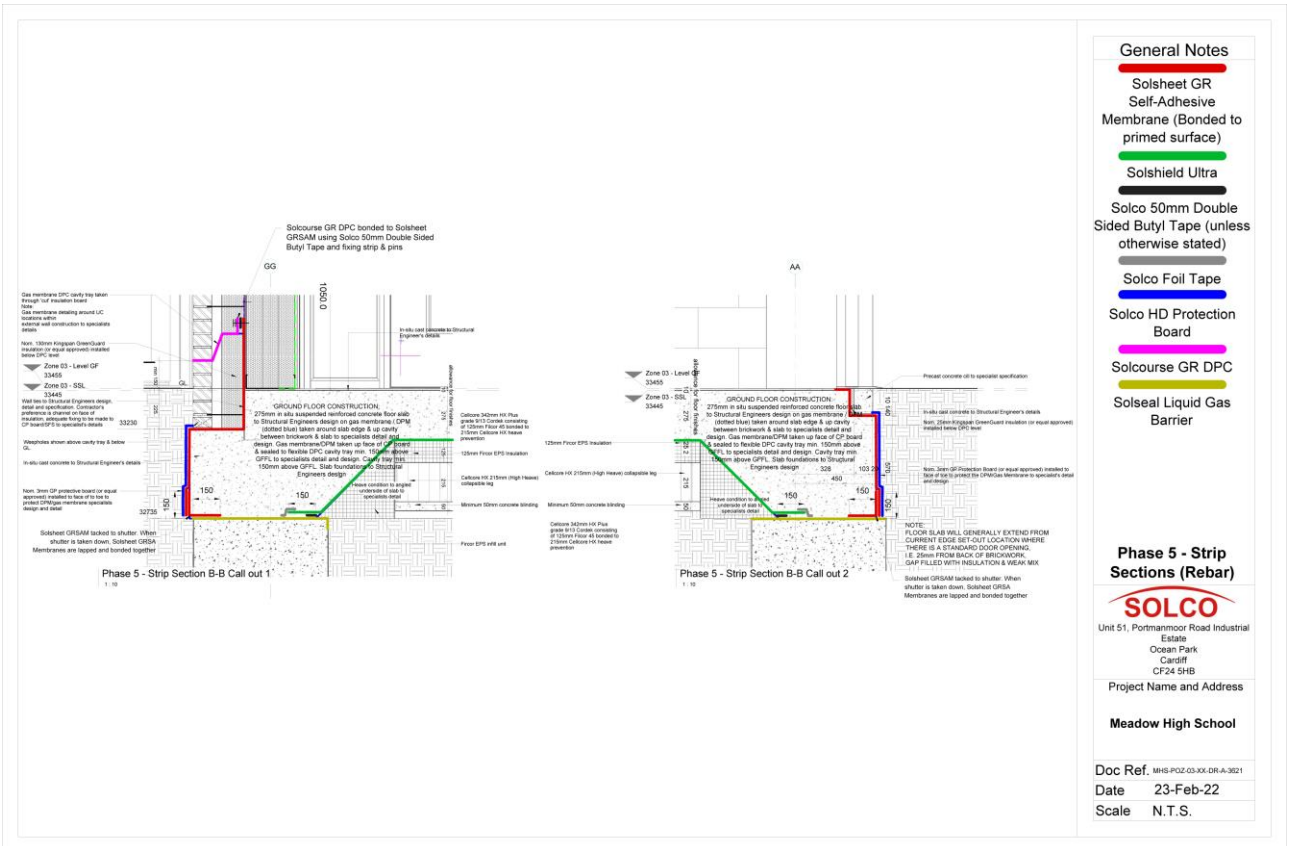
Meadow High School

Doc Ref. MHS-POZ-01-XX-DR-A-6200

Date 23-Feb-22

Scale N.T.S.





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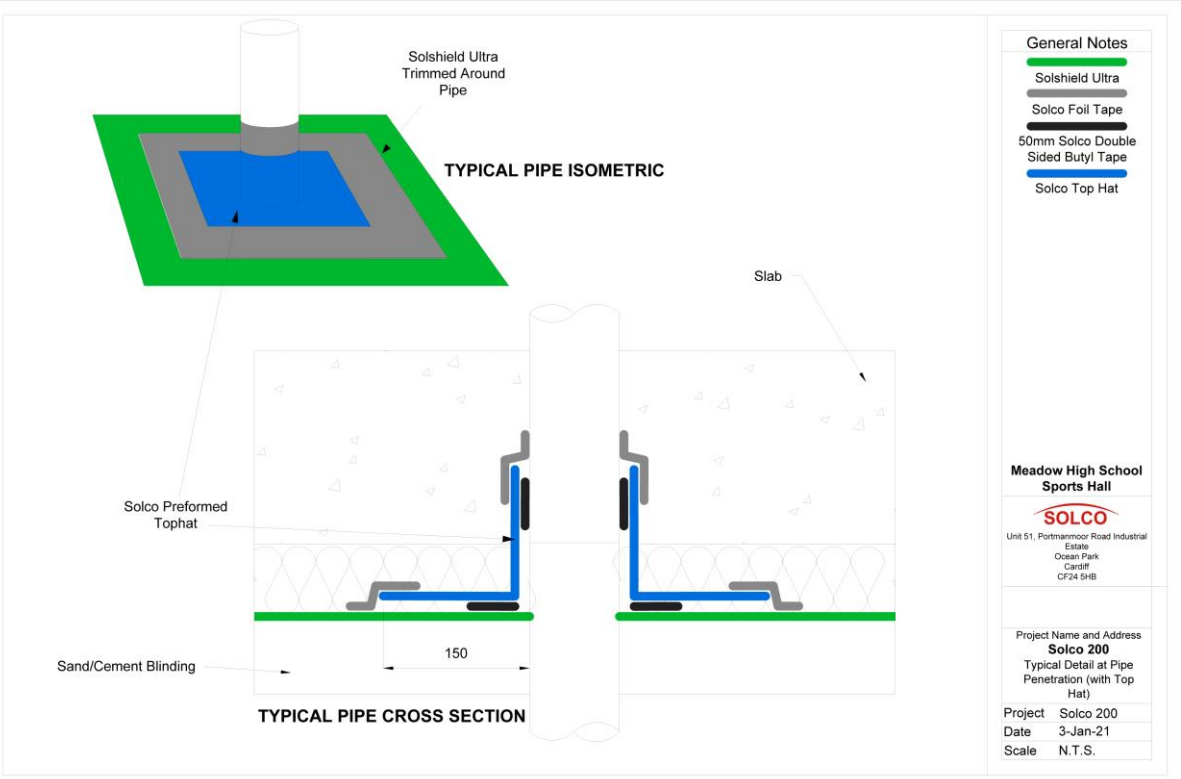
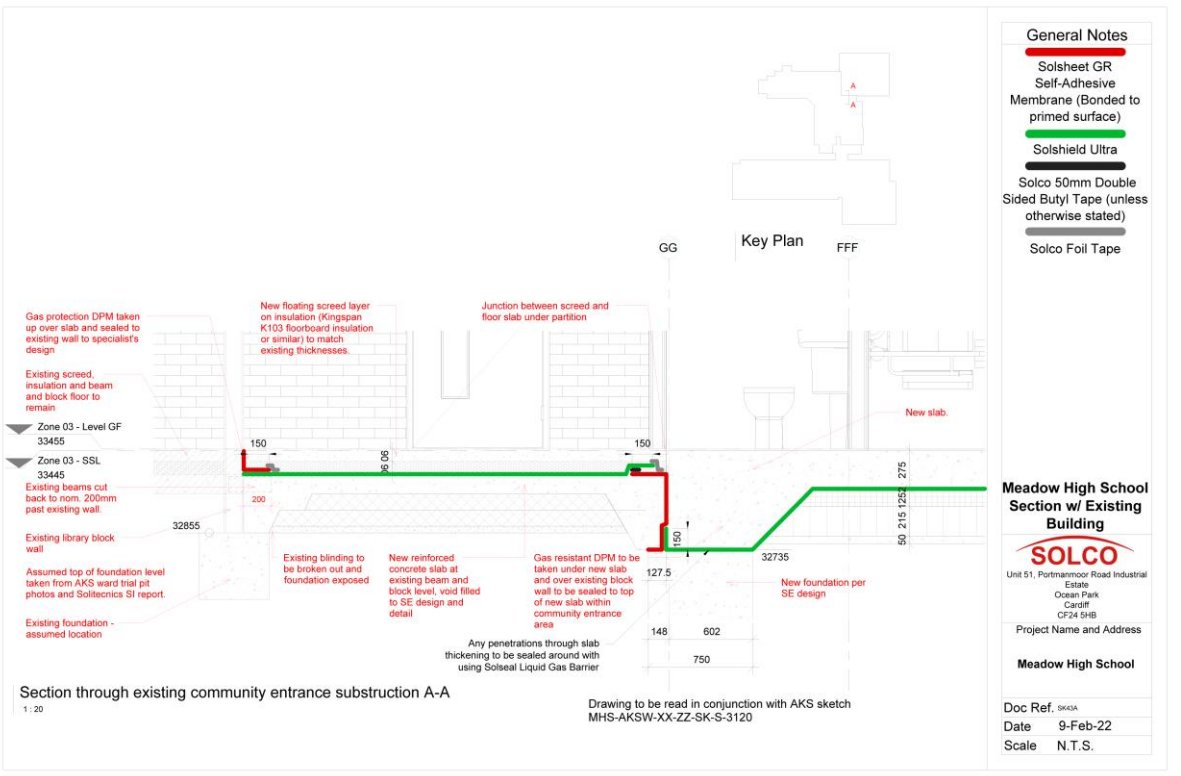

Solshield Ultra Trimmed Around Pipe
TYPICAL PIPE ISOMETRIC
Slab
Solco Preformed Tophat
Sand/Cement Blinding
150
TYPICAL PIPE CROSS SECTION
General Notes
Solshield Ultra
Solco Foil Tape
50mm Solco Double Sided Butyl Tape
Solco Top Hat
Meadow High School Sports Hall
SOLCO
Unit 51, Portmanmoor Road Industrial Estate
Ocean Park
Cardiff
CF24 5HB
Project Name and Address
Solco 200
Typical Detail at Pipe Penetration (with Top Hat)
Project Solco 200
Date 3-Jan-21
Scale N.T.S.


Key Plan
GG
FFF
Gas protection DPM taken up over slab and sealed to existing wall to specialist's design
Existing screed, insulation and beam and block floor to remain
Zone 03 - Level GF 33455
Zone 03 - SSL 33445
Existing beams cut back to nom. 200mm past existing wall.
Existing library block wall
Assumed top of foundation level taken from AKS ward trial pit photos and Solitecnics SI report.
Existing foundation - assumed location
New floating screed layer on insulation (Kingspan K103 floorboard insulation or similar) to match existing thicknesses.
Junction between screed and floor slab under partition
Existing blinding to be broken out and foundation exposed
New reinforced concrete slab at existing beam and block level, void filled to SE design and detail
Gas resistant DPM to be taken under new slab and over existing block wall to be sealed to top of new slab within community entrance area
Any penetrations through slab thickening to be sealed around with using Solseal Liquid Gas Barrier
New slab.
New foundation per SE design
150
200
32855
127.5
32735
148
602
750
275
215
125
50
Section through existing community entrance substruction A-A
1 : 20
Drawing to be read in conjunction with AKS sketch MHS-AKSW-XX-ZZ-SK-S-3120
General Notes
Solsheet GR Self-Adhesive Membrane (Bonded to primed surface)
Solshield Ultra
Solco 50mm Double Sided Butyl Tape (unless otherwise stated)
Solco Foil Tape
Meadow High School Section w/ Existing Building
SOLCO
Unit 51, Portmanmoor Road Industrial Estate
Ocean Park
Cardiff
CF24 5HB
Project Name and Address
Meadow High School
Doc Ref. SK43A
Date 9-Feb-22
Scale N.T.S.

Yours Sincerely

Ray Carter
E: ray.carter@cpl-uk.net
M:07961-062069

Certificate of Achievement

(Full Award)

This is to certify that

Ray Carter

has been assessed as meeting the required level of competence for all the units necessary to achieve the full award

ABBE Level 4 NVQ Diploma in Verification of Ground Gas Protection Systems

603/3266/9

Units achieved: Mandatory Units K/617/0687, M/617/0688, K/617/0690, M/617/0691, A/617/0693, F/617/0694, J/617/0695

Signed :

Professor Julian Beer, Chair of ABBE Board

Date: 13/10/2022

Candidate Registration No : 0000039210 Certificate Issue No : 152765

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