Hot Melt Inverted Flat Roofing System to Main Roof generally, comprising the following build-up (NBS Ss_30_40_30_42) :

- In-situ concrete deck as part of concrete frame to Struct.Eng design.
- Screed system (TBC) to accommodate any falls & levelling requirements.
- Primer to substrate.
- Hot Melt waterproofing layer, min. 6mm thick, colour Black (2x3mm inc. reinforcement layer between).
- Surface protection membrane layer
- Rigid insulation to meet 0.13 W/(m²K) U-value, loose laid.
- Water control infiltration reduction layer / capping sheet
- Concrete paving (min.50mm thick) on proprietary paving pedestal support system
- Perimeter rounded aggregate / gravel ballast finish (with protection boards as required)
- Parapets provided to min.1100mm high with continuation of insulation full height & waterproofing to min.150mm above finished roof level.
- Pressed PPC aluminium parapet capping flashing system, secret fixed & jointed with integral weather-tight butyl seals & return units.
- Any kerb type upstands or stubs required generally (e.g Plant Enclosure construction) to be formed min.150mm above finished roof level with continuation of hot melt system returning up / over faces or with suitable cravat / weathering detail as applicable.

Notes:
- Fire performance classification of roofs generally to meet BROOF(t4) as a minimum standard
- The roof design is proposed based on being zero falls & in accordance with BS6229:2018. A level survey or puddle test may need to be considered prior to installing the waterproofing membrane to ensure no negative falls, with any remediation required to be agreed with roof specialist.
- Insulated outlets / sump positions to be suitably set out at required locations & formation levels to enable drainage to occur as intended design
- Gravity drainage system proposed to specialist design inc. rainwater calculations to determine size, number & locations of any outlets, hoppers, downpipes & any other associated accessories.

Proprietary High performance, Aluminium PPC Finished, Stick Curtain Walling System (NBS Ss_25_10_20_85)

- The system shall include all required frames, cappings, fasteners, fixings, wireways, IGUs and glazing accessories, spandrel panels, thermal and acoustic insulation, gaskets, weather, air-tightness and acoustic seals, perimeter firestops, custom-made doorsets, custom-made opening lights, custom-made louvres, aluminium flashings, window remote openers and construction joint sealant.
- Curtain wall back box depths to be confirmed based on system type, spans & wind loadings etc.
- Mullions & transoms to include bespoke capping profiles to an increased depth that meets proposed visual requirements of the architectural design intent.
- Mullions & transoms to be capless locally with silicone joints to meet proposed visual requirements of the architectural design intent
- Coloured / opaque glazed-in IGU spandrel panels where identified on elevations with foil backed insulation.
- Glazed-in louvre panels where identified on elevations providing required free area to meet Mech.Eng ventilation strategy. Louvres blank off elsewhere & suitably insulated.
- Bespoke, feature, perforated PPC aluminium panels installed as part of curtain wall system across floor edges & at parapet level etc where identified on sections & elevations to meet proposed visual requirements of the architectural design intent.
- Proprietary firestop barrier system suitable for installation at slab edges & openings required. Any acoustic treatment requirement to be factored into specified product.
- Proprietary acoustic break mullion & transom inserts to be included where spanning across / between floors & adjacent spaces to limit flanking sound transmission, included as part of overall proprietary system which may also include horizontal acoustic mass barriers barriers & acoustic membranes to slab edges which are also to meet any firestopping requirements. Fire & Acoustic Engineers to advise based on project analysis reports.
- Glazed-in EPDM's to all external curtain walls suitably bonded to maintain air-tight line & meet target value.
- Mid-span restraint brackets back to associated slab edge/beams
- Mullion spigot fixings / brackets back to structure, cranked locally where required with consideration to access & installation to suit programme of works.
- Curtain wall base support comprising concrete upstands (with pocket recesses) or secondary steel angles / cleats from upstand or slab edges for fixing mullions.
- Exposed brackets to be PPC finished with flush / countersunk fixings.
- Cill /base section of curtain wall frame to allow for pre-fixed PPC angle to allow internal floor finishes to terminate against / conceal where required
- Nom. 25mm thk Rockwool batt insulation around all curtain wall frame reveals
- Recessed pockets to be formed in slabs or upstands locally to mullion / spigot fixing locations to allow concealment of fixing bolt depths, to be suitably sequenced into programme of works.
  - NB*Recesses to be suitably packed / infilled following installation
- All associated ironmongery by specialist to required finish that matches design intent and required robustness based on use & application
- Internal wall linings returning into all reveals on packs if required & Driwall adhesive.

Typical External Wall Buildups back to SFS thru-wall construction, comprising:-

Hang On Natural Stone Cladding Panel System (NBS Ss_25_20_70_25)

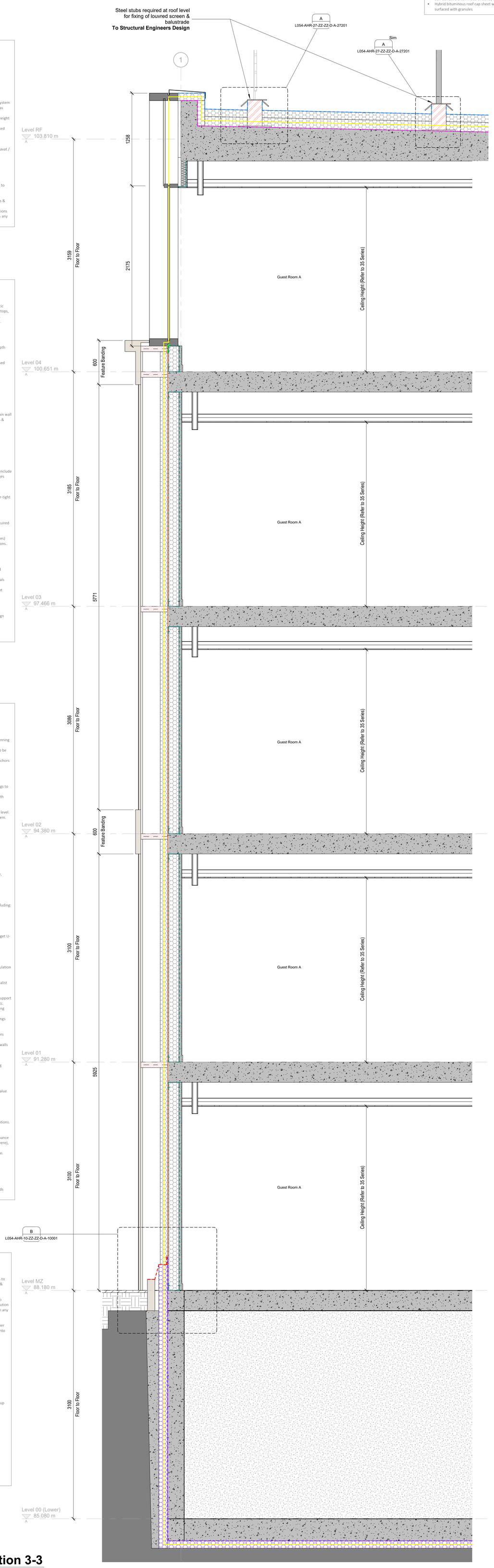
- "Shackerley" Natural Stone Facing Cladding Panels system.
  - 30mm thick Natural stone "hang on" system panels.
  - Proposed stone type samples (to match existing) are to be provided for Planning & Heritage Authorities, Architect & Client approval.
  - Stone bonding, coursing, jointing & mortar type / requirements between to be agreed.
  - Pre-fitted hanger brackets with adjustment bolts secured with undercut anchors
  - Horizontal rails
  - Vertical 'T' profile sections
  - Primary support brackets fixed through / supported at SFS stud locations
  - Thermal isolator pads
  - Reveal detail specials as identifed on details with system brackets & flashings to achieve required design intent
  - Special profiled stone feature bands & cornices following design intent with support from proposed system to manufacturers recomendations. Refer to elevations for locations & extents of each type requires.
  - Stone plinth units at base of walls to min.150mm above associated ground level. Stone type to match that as agreed as part of associated stone cladding system.
- Ventilated residual cavity. *Minimum 50mm*
- Proprietary Cavity Closers & fire break Cavity Barriers
  - Horizontally between compartment floors &
  - Vertically at any compartment walls & then intermediately to maximum permitted cavity extents (20M TBC)
  - Open state type as required with heat expoandable instumescent seal.
  - Galv. pressed metal brackets for suitably fixing / support back.
- Non-combustible Class A1, partial fill stone wool insulation to external cavity, product ref Rockwool NyRock Rainscreen 032, nom.100mm thick as part of meeting overall target U-Value calculation.
- Breather Membrane - non-combustible Class A1
- Non-loadbearing SFS thru-wall system build-up to meet all requirements including:
  - Fire Resistance to BS EN 1364-1
    - Inside to Out: 60 Minutes TBC by Fire Engineer
    - Outside to In: 60 Minutes TBC by Fire Engineer
  - Sound insulation / acoustic performance (excluding facade finishes):
    - TBC by Acoustic Engineer
  - Thermal perfomance as idenfied to proposed insulation types to meet target U-values, factoring in facade finishes.
  - Air-tightness: *8m³*/Hour/Sq.M at 50Pa.
- Sheathing Board - 12mm thick calcium silicate based fibre cement board.
  - All joints suitably fire rated silicone sealant jointed to manufacturers recommendations to provide all required fire, weather-tightness, sound insulation & air-tight performance requirements.
- Non-loadbearing infill SFS system as part of overall thru-wall system to specialist design, comprising;
  - nom.150mm SFS zone (200mm SFS zone to double height spaces)
  - SFS stud centres TBC by stone cladding specialist to suit required primary support bracket centres generally & additionally to suit corners & reveals detailing etc.
  - SFS stud gauge TBC by stone cladding specialist to suit required loads & fixing types.
  - Allow for min. double studs adjacent all window, door & curtain wall openings providing adequate fixing of stone cladding panel primary support brackets, feature reveal & corner brackets etc
  - Allow for double studs to provide support each side of vertical cavity barriers within SFS zone
  - SFS studs to be provided each side of acoustic partitions abutting external walls which are to extend to back of sheathing board for both fire & acoustic separation where required.
  - Twin stud arrangement provided locally to cross bracing (flats)
  - SFS infill to be provided between any SHS/RHS bracing struts & stair landing supports
- Non-combustible Class A1, partial fill stone wool insulation, for installation between SFS studs, product ref Rockwool RWA45 slabs,
  - Stone Cladding - nom.140mm thick as part of meeting overall target U- Value calculation.
  - Natrual Stone (Re-built JW Street Facade) - nom.50mm thick as part of meeting overall target U-Value calculation.
- VCL - fire / flame retardant Vapour Control Layer
  - Including all associated jointing accessories to manufacturers recommendations.
- Plasterboard Linings to internal face of externals walls:
  - 2No. layers 15mm plasterboard, type to be agreed to meet overall performance requirement criteria of thru-wall construction & additionally robustness (Severe), and continuing into any opening reveals.
  - Moisture Resistant boards to be included in any unheated locations or areas subject to increased humidity (e.g. Showers).
  - Plasterboard lings (& asociated VCL) to continue full height above ceilings & be sealed to underside of assiocated soffits.
  - 2mm skim coat plaster & beads generally
  - Taped seamless finish to board joints to agreed locations only
  - Concrete column and shear wall locations to include plaster dot & dab or GypLyner system to provide tolerance for alignment of finished face of boards aesthetically.

Proposed Concrete Shear Wall Retaining Structure Construction:

- Proprietary plasterboard lining system internally with VCL
- Cast-in situ concrete shear wall retaining structure including water stop bars to Struct.Eng design, details & specification. Wall face to be suitably shuttered & smooth to accept tanking membrane system against.
- Proprietary tanking system linking in with below slab tanking arrangement to specialist details, comprising Self Adhesive Membrane on tanking primer solution to retaining structure. Waterproofing arrangement to continue & link in with any DPC / cavity tray arrangment above ground level as required.
  - ** Please note that curing times for primed surfaces to membranes (e.g. Self Adhesive Membrane) are variable & subject to temperature, weather & site conditions etc, and this must be taken into consideration & factored into the Contractors programme of works accordingly**
- Closed cell below ground insulation achieve target U-Value.
- Concrete backfill to Struct.Eng design
- Existing wall below ground level
- Any requirement of protect & drain membrane system / land drain to be confirmed

Lower Ground Floor Slab Construction:

- Screed system between FFL & SSL (TBC) to accommodate any finishes build-up depths, falls or levelling requirements.
- Ground bearing (assumed) floor slab (SSL) & bases to Struct.Eng design.
- Closed cell below ground insulation to achieve target U-Value based on P/A calculation. Struct.Eng to confirm compressive strength of specified insulation is adequate for proposed application.
- Proprietary tanking / waterproofing system e.g. Self Adhesive Membrane (with protection boards) on tanking primer solution to specialist details.
- Smoothed concrete blinding to accept tanking membrane system against & sub-base to Struct.Eng design.
- Any sump requirements to Struct.Eng design.



3-3 External Wall Section 3-3
1 : 20

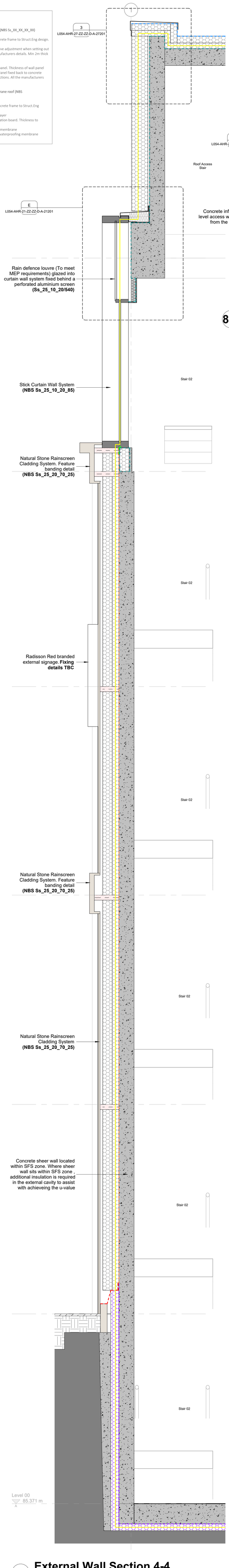
Roof Stair Enclosure, comprising the following build-up :

Stair enclosure wall. Europanel System (NBS Ss_XX_XX_XX_XX)

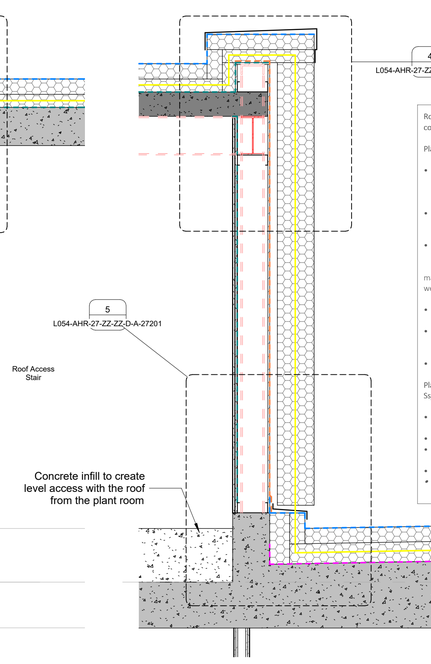
- Concrete sheer wall as part of concrete frame to Struct.Eng design.
- 2 continuous channel sections to give adjustment when setting out the support steelwork. All the manufacturers details. Min 2m thick galvanized steel for fire resistance.
- Secret fix insulated sandwich wall panel. Thickness of wall panel used to achieve required u-value. Panel fixed back to concrete frame using continuous channel sections. All the manufacturers details

Stair enclosure roof. Bituminous membrane roof (NBS Ss_XX_XX_XX_XX)

- In-situ concrete deck as part of concrete frame to Struct.Eng design.
- Self adhesive air & vapour control layer
- PIR glass tissue faced thermal insulation board. Thickness to achieve required u-value.
- Self-adhesive bituminous underlay membrane
- Hybrid bituminous roof cap sheet waterproofing membrane surfaced with granules



4-4 External Wall Section 4-4
1 : 20



Roof Plant Enclosure, comprising the following build-up :

Plant enclosure wall. Europanel System (NBS Ss_XX_XX_XX_XX)

- Secret fix insulated sandwich wall panel. Thickness of wall panel used to achieve required u-value. Panel fixed back to concrete frame using continuous channel sections. All the manufacturers details
- 2 continuous channel sections to give adjustment when setting out the support steelwork. All the manufacturers details. Min 2m thick galvanized steel for fire resistance.
- Sheathing Board - 12mm thick calcium silicate based fibre cement board.
  - All joints suitably fire rated silicone sealant jointed to manufacturers recommendations to provide all required fire, weather-tightness, sound insulation & air-tight performance requirements.
- *Steel frame with SFS infill to suit structural engineers designs. SFS stud centres TBC*
- VCL - fire / flame retardant Vapour Control Layer
  - Including all associated jointing accessories to manufacturers recommendations.
- Plasterboard linings (& asociated VCL) to continue full height

Plant enclosure roof. Bituminous membrane roof (NBS Ss_XX_XX_XX_XX)

- *Composite deck as part of steel frame to suit structural engineers designs*
- Self adhesive air & vapour control layer
- PIR glass tissue faced thermal insulation board. Thickness to achieve required u-value.
- Self-adhesive bituminous underlay membrane
- Hybrid bituminous roof cap sheet waterproofing membrane surfaced with granules

8-8 External Wall Section - Roof Plant
1 : 20

U-Value & Air Tightness Targets

Target U-Values (Subject to MEP Engineer thermal model verification)

External Walls - 0.2 W/m²K

Floors - 0.16 W/m²K

Roofs - 0.13 W/m²K

Windows & Roof Windows - 1.6 W/m²K

Rooflights - 2.2 W/m²K

External Doors - 1.6 W/m²K

G-Value for Glazing - MEP Engineer to confirm

Air-permeability

Proposed Air-Tight Line

The minimum air-tightness is 8 m³/(h.m²) at 50 Pa

Detail Line Types

External Wall

- Breather Membrane
- Wall VCL
- EPDM
- Self Adhesive Membrane
- Vertical DPC

Roof

- Existing Roof Material
- Roof Membrane
- Hot Melt System

Rev	Description	Date	Dr by	App by
P1	Issued to LPA.	25.06.2025	MCS	GS

original by: Author
date created: 05/21/25
Approved by: Approver

AHR Architects Ltd
No.1 Aire Street
Leeds
LS1 4PR
United Kingdom

T +44(0)113 3858787
E leeds@ahr.co.uk
www.ahr.co.uk

client name: GMI Construction Group

project: George Hotel Refurbishment

drawing: External Wall Strip Sections - Sheet 2

computer file: \\10.32.1.11\DDM_Profiles_Folder_redirection\matt.stephenson\Documents\Revit Files\Local Files\Revit 2024\L054-AHR-ZZ-ZZ-ZZ-M-A-00001 - Architecture_matt.stephenson7bMQ.rvt

plot date:

project number: 2024.00373.000

scale: As indicated@A0

drawing number: L054-AHR-21-ZZ-ZZ-D-A-21002

rev: P1

issue status: S0

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