

TECHNICAL AND DESIGN GUIDANCE FOR BUS STOPS & SHELTERS

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Document Information

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INTRODUCTION

The purpose of this document is to provide assistance with the planning and design of bus stops within Derbyshire. It aims to support staff in ensuring bus stops and shelters are installed correctly and to the relevant specifications. It will also provide guidance that can be shared with co-funding bodies (Local Councils / private companies / institutions etc.) when they approach the County Council with a request for new or upgraded facilities. There should always be a signed maintenance agreement in place before any new bus shelter works are commenced. This agreement outlines the responsibilities of all parties involved, regarding their future liabilities for any installations. See [Appendix A](#).

This document will be reviewed on a biennial basis and additional updates will be provided should legislation and guidance change.

BUS STOP SURVEYS

Prior to any works commencing, the Public Transport Unit (PTU) will undertake a site survey to assess the existing facilities. This will enable them to identify any changes which may be required during the works.

SITE VISITS

Site Visits will be carried out for both new bus stop locations, new and re-sited stops and new and replacement bus shelters.

ASSESSING NEW BUS STOP LOCATIONS

Each new bus stop location will be assessed by PTU on its individual merits to ensure that its use is maximised. Consideration will be given to its catchment area, geographical setting and accessibility. This will be done by site inspections and studying the local surrounding. In addition to the location of the stop the impact on the local area should also be considered. Any proposals for future development, changes in land use and the effects on the local economy should be considered during the design process.

ASSESSING NEW AND RE-SITED STOPS

A site meeting may be required to enable the PTU section to discuss the proposals for the new and re-sited bus stops with other relevant parties. This could include representatives from the Highway Authority, local Council, external funding providers or bus operators, depending on the specific circumstances of the site.

BUS SHELTERS NEW AND REPLACEMENT

Prior to bus shelter installation the County Council Highways Development Control team needs to be informed of the proposals. Information on the Highways Development Control Team can be found on the Council website: <https://www.derbyshire.gov.uk/transport-roads/roads-traffic/development-control/highways-development-control.aspx>. The Development Control team will decide if the location is acceptable in terms of the type of shelter to be sited. This will be based on whether highway visibility sightlines are obstructed or not. A site meeting may be required possibly including:

- The PTU Officer who undertook the initial work;
- Senior PTU Officer;
- Highway Authority representative,
- Shelter representative if required
- Representative from the adopting Council

- Bus Service operator.

Notification

The introduction of a new shelter or bus stop can be met with varied opinions about its location and type. The County Council advises all co-funding bodies to notify any non-highways properties, with their frontages adjacent to the proposed site of their desired intentions. They will then be responsible for responding to any feedback they receive from that notification, feeding information back to the County Council once they are satisfied that any raised issues have been suitably dealt with.

Bus Stop Drawings

Once all the relevant bus stop locations have been agreed, a design should be produced for each bus stop. For simple installations PTU will provide design documentation. For more complex installations the Highways Design team could provide design documentation. Examples of documentation can be found in Appendix B and [C](#).

It is recommended that the complex installation drawings should be produced at 1:500 scale and could include some of the following:

- Title block showing the road name, bus stop name and PTU reference number
- The proposed location of the bus stop pole and plate or shelter
- The plan should show the orientation of the shelter (location of screen – front or rear)
- Locations of existing or any proposed controlled/uncontrolled crossing facilities should be indicated.
- The direction of travel should be indicated
- Location of existing or proposed lamp columns should be shown, with reference numbers.

Statutory Undertakers

When installing shelters, it is necessary to gather information about statutory undertaker equipment that may be present. This is to ensure that no equipment is hit or damaged during the installation and no accidents occur to those carrying out the work. It is a requirement of the section that instigates the installation of the shelter to obtain all the relevant details. Plans and a CDM 2015 checklist should be provided to the contractor prior to any work being undertaken and any limitations should be discussed prior to the issue of the works. The CDM checklist is in appendix [D](#).

Bus Shelters

Bus Shelters may be provided where funding allows and where site approval is given. The County Council currently has a grant fund scheme in place, allowing a limited number of shelters to be installed each year on a 50%/50% cost split basis with a suitable co-funding body. The specifications within this document should be applied to all shelters that are managed through this scheme but which are funded 100% by an external body. The following considerations should be taken into account when locating shelters:

Table 1: Specifying the type and location of shelters

Situation to be considered	Location/type of Shelter
Consideration of the needs of disabled users	<ul style="list-style-type: none"> • Preferred position is opposite the boarding point • A minimum of 1500mm manoeuvring space should be provided wherever possible to maximise accessibility
Area not exposed to severe weather	<ul style="list-style-type: none"> • A cantilever bus shelter with one end panel offers some weather protection and good access. • If end panel is used for advertising then this should be at the downstream end of the shelter to allow people to see buses approaching
Areas exposed to severe weather	<ul style="list-style-type: none"> • Enclosed or semi enclosed shelters should be used if space allows. Visibility sightlines need to be considered to ensure the correct level of visibility is maintained.
Personal Security	<ul style="list-style-type: none"> • Bus shelters should be mainly transparent materials and well-lit at night. • Mid rails are now included in the shelter specification to inform pedestrians that a glass panel is present.
Allowance for easy pedestrian movement and Maintenance	<ul style="list-style-type: none"> • Sufficient space is required to the rear of the shelter for cleaning and maintenance. The desired gap is around 200mm • No infrastructure should reduce the available footway below a desired minimum of 1500mm with an absolute minimum, if required, of 1200mm • It is desired that NO infrastructure is installed less than 600mm from the edge of the carriageway with an absolute minimum, if required, of 450mm

Where these standards cannot be met at existing stops exceptions to dimensions can be made. The desirable unobstructed footway width could be reduced to 1500mm, whilst the absolute minimum should be 1200mm. If a shelter is placed at the rear of the footway an appropriate amount of space should be left between the shelter and the boundary for maintenance purposes.

ADVERTISING PANELS

The County Council does not install advertising shelters. This type of shelter is a contract between the District Council and the supplier of the shelter. The supplier will install and maintain the shelter in exchange for advertising.

SHELTER TYPES

There are two types of shelters that the County Council uses – Cantilever and Enclosed. The basic difference is that enclosed shelters tend to have a panel at the front of the shelter providing additional protection from highway conditions.

The size, shelter type of and end panel type are all determined from the site specific requirements established by the officer from the site survey.

Table 2: Examples of bus shelter types

 <p>2 bay cantilever</p>	 <p>2 bay quarter end</p>
 <p>2 bay half end</p>	 <p>2 bay full end</p>
 <p>x 2 bay staggered entry</p>	 <p>3 bay enclosed</p>

STRUCTURE

The structure of the shelter is determined by the manufacturer. The County Council engages a manufacturer to produce, supply and install bus shelters under a tender arrangement. For current bus shelter specifications see appendix F.

BUS SHELTER BASE

Bus stop waiting areas or bases provide a flat even surface for the shelter to be situated on. They must meet the following specification:

- Majority constructed with tarmac
- 50mm Electrical ducting laid underneath prior to laying of base – this reduces the need to dig up the base at a later date for cabling installation. The County Council's Street Lighting team to determine the colour of the ducting – BLACK if the supply is being drawn directly from the underground mains or ORANGE if the supply is being drawn directly from a current County Council or private supply.
- Connections must be able to make with minimal disruption to the new area of construction. To meet this criteria ducting should be left 300mm protruding the new surface and be complete with draw ropes.
- Some bases require concrete and this would be a concrete mix of C30P laid at a depth of 150mm on 75mm Type 1 sub-base. The same guidance about ducting applies to concrete bases though such bases are not preferred by the County Council.

SELECTING A SHELTER

Once the PTU officer has selected a suitable shelter type, discussions will then ensue with the Development Control team to consider the following factors that could affect the proposals:

- Available footway width
- Amount of usage the stop will get
- Highway visibility sightlines required.

Initial site inspections should include taking measurements at a number of points in the desired area to establish the best location for the shelter.

The recommended minimum footway width to accommodate a shelter is 2100mm. This will accommodate a cantilever shelter with quarter end panels.

Other aspects to consider are:

- Should the screen be placed at the front or rear of the footway?
- No part of the canopy should overhang any non-highway land
- If the shelter is to be installed screen to kerb, no part of the structure (i.e. the roof) should be less than a desired 600mm from the kerb edge (absolute min of 450mm)
- Is there space for end panels or half end panels to provide extra protection from the elements? These will increase the cost of the shelter and require a larger width of footway. Wherever end panels are fitted, the minimum available footway should not be less than 1.5m from kerb edge to any part of the structure.

SEATING

Conventional Seating

To maximise accessibility, suitable seating will be provided wherever practical. Considerations will be made to allow sufficient space within the shelter for wheelchair users.



2 bay seating



3 bay seating

Outdoor Seating

This is normally provided and maintained by Local Authority.

ELECTRIC AND WIRING

All electrical elements of the bus shelter are to be predetermined by the manufacturer in line with specific requirements as outlined by the County Council's street lighting team. For further details of these specifications, see Appendix F.

CONSTRUCTING OF BUS BOARDERS

In the main, bus boarders will be provided on plain carriageway sections.

KERB SPECIFICATION

- Upright height at bus border: 160 – 180mm.
- This will allow the bus to pull up parallel and enable easy access for the public.
- See drawings in Appendix B and C.

BUS LAYBY SPECIFICATION

- Full depth bays: These would normally be provided on busy roads as this can have an adverse effect on the route times and ultimately the service,
- Terminal Points: These should be used depending on terminal or lay points. It will enable general traffic to flow freely when the bus is stationary.

BUILD OUT SPECIFICATION

- This option can serve the dual purpose of permitting easy access to a level boarding area, as well as providing parking spaces adjacent.

RAMPS ON FOOTWAYS SPECIFICATION

- Footpath will need to be raised to a minimum 160mm when installing a bus boarder or shelter.
- This will amend the footway gradient. The recommended ramp gradient for footways is 1:20.
- The maximum acceptable gradient is 1:12.

PROVISION OF LITTER BINS

Litter bins may be provided at bus stops in conjunction with the relevant local authority.

RAISED KERBS SPECIFICATION

- The specification will vary according to location of stop and usage but with a minimum of 3 raised kerbs at any site
- Village centres and urban areas: 3 kerbs
- Heavily used stops i.e. urban areas and shelters placed screen to kerb: 4 – 6 kerbs
- Raised kerbs should be in a position which allows the bus to pull up to them easily, with the bus parallel to the kerbs. If this does not happen buses will not use the kerbs effectively and passengers may struggle to board the bus.
- Kassel Kerbs or similar: these can be used to provide a flush surface that enables easy access to the bus. This would allow the correct level to be achieved in a complete unit.

The viability for a pedestrian crossing should be considered at all rural area bus stop locations (with the crossing located at the rear of the bus).

POST AND SIGNS PLATE SPECIFICATION:

- These should be placed in a position that is suitable for all users and be visible to the bus driver when they are approaching. They should also be in a position that allows the bus to stop in a suitable location next to raised bus boarder kerbs and will not hinder the general public walking past or obstruct those boarding the bus.
- A minimum of 1.2 metres should be left unobstructed. If a footway is less than 1.5m the post should be situated at the rear of the footway. Posts sited at the front of the footway should have an absolute minimum clearance of 450mm (up to 600mm if possible) to the edge of the carriageway (the sign must face towards the rear of the footway). This will reduce the possibility of the signs being struck by passing vehicles. Any sign must have a minimum head clearance of 2.1 metres to minimise injuries to pedestrians.
- If the shelter is an advertising shelter posts and signs should not obstruct the advertising panels.

LINING SPECIFICATION

- Bus Stop Clearway Markings: these are used at stops to alleviate the issues of cars parking in or around yellow bus stop markings. It is a 200mm continuous yellow line on the carriageway edge within the box marking. It is an offence to park within the markings and this is enforceable by the relevant parking authority. The restriction sign must be sited at the Bus Stop Clearway to ensure it is enforceable. Certain stops with a 'Bus Stop Clearway' may be designated as a stand, and again must be accompanied by the appropriate sign. These will be identified by the PTU officer. The period that the Bus Stop Clearway is in operation will be decided by a PTU officer in conjunction with the relevant traffic section.
- The required specifications for the bus stop clearway markings will be determined by the PTU officer in conjunction with the relevant traffic section

BUS STOP FLAG SPECIFICATION

- Bottom of the flag: This should be no less than 2100mm above ground level.
- Size of flag: In accordance with the Traffic Signs Regulations and General Directions 2016 the minimum size for the flag is 300mm wide by 250mm high.
- Bus route numbers (where provided) on the flag should be clearly legible.
- Information on the flag should be minimal and may include the following

- Derbyshire County Council logo
- Pictograph of bus (black on white) with 'Bus Stop' legend - mandatory
- Name of stop
- Route numbers, possibly with destination detail, if appropriate
- Special messages (e.g. direction of travel)
- Additional operational detail such as 'Both Directions' indication or 'School Buses Only' use.
- SMS texting detail (unique to each flag). Not included on 'Both Directions' or restricted use flags such as those used solely by school buses
- Proximity to a local train station (with name) including National Rail 'double arrow' logo
- Traveline details for information

Image: Example of bus stop flag



Bus flags can also include other 'local' information' such as the National Rail or Hospital symbol.

Bus stop poles are to be aluminium/grey in colour or advised accordingly. They should always be installed with a suitable base plate.

BUS SHELTER ELECTRICAL WORKS





All bus shelter electrical works standard and works are controlled by the County Council's Street Lighting team. See [Appendix F](#) for further specification details.


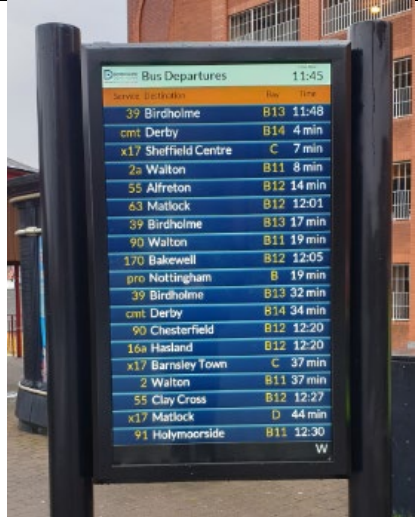
REAL TIME INFORMATION DISPLAYS

The time and route numbers are displayed on a pole/plate situated next to the stop. There are several different display types according to the stop usage and how many bus routes use the stop.

Funding for these works will be met from various sources including – Derbyshire Highway Hub Active Real Time Information (DHART)), A61 project, Bus service Improvement Plan (BSIP) & the County Council LTP (or Local Transport Plan) budget.

Table 3: Sign Types, functionality and dimensions

Type of Sign	Functionality	Sign Specification	Example
LED	<p>Ability to show bus information on a screen</p> <p>Basic display using LEDs</p>	<ul style="list-style-type: none"> • Dimensions: 855 (L) x 270 (H) up to 25KG • 3 lines of display • Double sided display • Maximum of 30 characters • Anti-vandal technology included within system • Requires a standard short display pole 76mm width • Compatible with MiiPs (GPRS) and Satel modem 	<p>Photo to</p> 
TFT	<p>Ability to show bus information on a screen similar to a TV screen.</p> <p>Information shown in full colour</p> <p>Has the ability to have larger screens at terminals</p>	<ul style="list-style-type: none"> • 28" bar-type display • 3 lines of display • Single sided display • Housing specification: 900 x 220 x 130mm. Up to 15KG • Power Consumption: 75 watts at maximum brightness • Display Area (mm): 698(H) x 130 (W) • Low power consumption • Anti-reflective display front • Ambient light sensor • Pixel monitoring • Sun readability • Meets RTIG guidelines • Response Time: 6.5ms • Life Expectancy: 70,000 hours • Anti-vandal technology included within system • Ability to mount on all standard bus shelters • Requires a standard short display pole 76mm width • Compatible with ADSL router, wired network and 3G/4G 	 
TFT	<p>As above but ability to have double sided display</p>	<ul style="list-style-type: none"> • 28" bar-type display • 3 lines of display • Single sided display • Housing specification: 900 x 220 x 285mm. Up to 25KG • Power Consumption: 125 watts at maximum brightness 	

		<ul style="list-style-type: none"> • Display Area (mm): 698(H) x 130 (W) • Low power consumption • Anti-reflective display front • Ambient light sensor • Pixel monitoring • Sun readability • Response Time: 6.5ms • Life Expectancy: 100,000 hours • Anti-vandal technology included within system • Compatible with ADSL router, wired network, MESH and 3G/4G • Pole Mounted next to bus stop 	
TFT	Ability to show information on numerous bus services on one screen	<ul style="list-style-type: none"> • 55" Screen display • Single sided display • Housing specification: 1345 x 815 x 220mm. 130KG • Power Consumption: 230 watts at maximum brightness • Display Area (mm): 1209(H) x 680(W) • Low power consumption • Anti-reflective display front • Ambient light sensor • Pixel monitoring • Sun readability • Response Time: 6.5ms • Life Expectancy: 60,000 hours • Anti-vandal technology included within system • Compatible with ADSL router, wired network, Wi-Fi and 3G/4G • 6.4mm laminated and toughened glass, anti-reflective with optional coating. • Attached to wall or H Frame. 	

APPENDICES

Appendix A Bus Shelter Agreement Form

AGREEMENT FOR BUS SHELTER PROVISION UNDER 50% DERBYSHIRE COUNTY COUNCIL FUNDING PROGRAMME

Provision of bus shelter at _____

We hereby request Derbyshire County Council to implement the process for the erection of a bus shelter, on our behalf, at the above site and confirm this agreement on behalf of:

Name of Applicant:

Postal Address:

Telephone contact:

E-mail contact:

On behalf of the applicant I confirm that, in order for Derbyshire County Council to provide 50% funding for a new / replacement bus shelter at the above location, the criteria below numbered 1 & 2 have now been met. Furthermore, the criteria below numbered 3 - 9 will be met once installation has been completed:

1. That any appropriate consultation with residents & businesses adjoining the site has been undertaken as appropriate.
2. That consultation has taken place with the appropriate Community Safety Partnership.
3. That the shelter will be cleaned regularly: to include washing of the structure / glazing (including roof) and the interior being swept.
4. Graffiti to be removed as soon as practicable after being reported.
5. Any damage to the structure which is likely to cause a hazard be made safe or repaired as soon as practicable after being reported.
6. All other structural repairs will be attended to within 6 days.
7. General maintenance, including to paintwork, be undertaken as required.
8. Any lighting failure or fault will be reported to Call Derbyshire on 01629 533 190.
9. To pay back to Derbyshire County Council 50% of the actual cost of the shelter inclusive of the electrical connection / solar lighting system and associated works upon receipt of their invoice.

Signed _____ Name _____

Designation _____ Date _____

PLEASE NOTE – The applicant will assume full ownership of the shelter as soon as it has been installed & will therefore be responsible for its cleaning & maintenance from that point.

After completing this form please return the original (having taken a copy for your own records) to:

Rob Fryer
Public Transport Unit
Environmental Services Department
Derbyshire County Council
County Hall
MATLOCK
DE4 3AG.



Etwell

Bus Stops
 ▼ Bus Stop
 ■ Bus Shelters

DCC_Districts
 ■ DCCdistricts_Bold

Helen's Church
 TCB
 El Sub Sta
 Hawk and Buckle Inn
 Ivy Court
 Willington Road
 Inn
 PO
 68.3m
 20 m
 Scale = 1 : 865.620
 9-Jan-2018
 DERBYSHIRE County Council



- [HERS Registration in support of National Highway Sector Scheme 8 \(NHSS 8\)](#)

Shelter Specification

- Watertight structural leg with door, removable by a using a key
- A secure opening to accommodate the electrical equipment. This needs to be positioned so that there is easy and safe access for an engineer. i.e. It should not be positioned in a place where the engineer is in danger of being hit by passing vehicles. There should also not be a requirement to kneel whilst on site.

Column Specification

- The structural column of the shelter should be designed for the electrical equipment to have a baseboard fixed within the opening.
- The Regional Electricity Company opening just be no less than 450mm above ground level.
- The baseboard shall be constructed of 12mm external grade plywood treated with water repellent material and be a sufficient size to attach the equipment.
- Again there should be sufficient room at the side and front of the equipment to allow access and enable maintenance to be carried out safely.

Cabling Specification

- A stainless steel threaded earthing stud capable of accepting a 6mm crimp shall be welded inside the shelter leg near the access door and shall be complete with washers and nuts.
- The door and shelter structures shall be earthed using 6mm tri-rated cable and in the case of the door, be long enough to allow the door to be placed on the ground. The earthing terminal shall be clearly labelled:

‘Safety Electrical Connection – Do Not Remove’

- The watertight structure leg shall incorporate a cable entry slot to allow an electrical cable to enter the leg in a 50mm PVC (**Black** for DNO supply or **Orange** for Derbyshire /private supply) duct, at a depth of at least 300mm below finished level.

Control isolation and protection equipment

What is required?

- Consideration of separated extra low voltage (SELV) supply from an adjacent lighting column, negating the need for an RCD/RCBO.
- Overload protection and double pole isolation.
- Residual current device with an operating current not exceeding 30mA and an operating time of not exceeding 40mS at a residual current of 150mA. This will provide supplementary protection. An RCBO is acceptable.
- Solar time switch sealed to IP44 with DIN rail mountable accessories and override switch for ‘on’ and ‘off’ with combined clock and calendar which automatically compensates for leap years and changes from BST to GMT with appropriate latitude and dawn/dusk tracking events.
- All the above should be enclosed in a see-through enclosure to IP2X.
- A notice to comply with regulation 514-12-02 of BS 7671 should be placed in a prominent position – for example on the reverse of the door.

Wiring Systems

When shelters are installed, it is essential that the wiring is at an acceptable level and done to the relevant standards. It is essential that care is taken to ensure that:

- All cables shall be double insulated into the luminaire and control module.
- Cables shall not be joined but continuous and contained within the structure and easily accessible.
- Shall be fitted with heat protective sheaths where necessary.
- Shall not foul the door or door opening and not impede access to equipment.
- Shall be of suitable type and composition.

Electrical installation certificate

At the start of a contract the shelter manufacturer should provide the following information/documentation and accessories for each shelter.

- General characteristics of the installation as in BS7671 part 3
- Cable design calculations
- Wiring diagrams
- Schematic diagrams
- Standard drawings for shelters showing plan views and front side and rear elevations equipment used including manufacturing product reference numbers.
- Completed Electrical testing and Inspection sheet after the installation of every shelter.
- Two keys for the access compartment
- Two keys for the access to the lantern where appropriate

If amendments are made or a new shelter is to be installed a new set of details will be required of that shelter. Ideally this information will be electronic. An example of certificate can be found in [Appendix G](#).

Appendix G Derbyshire Inspection and Test Certificate

Sample DCC Inspection & Test Certificate



TESTING AND INSPECTION OF ILLUMINATED BUS SHELTER INTERNAL WIRING

FORM SL TEST C

INSPECTION & TEST CERTIFICATE – TO BE COMPLETED BY CONTRACTOR

LOCATION	:	
ROAD NAME	:	
TOWN/ PARISH	:	

A) VISUAL INSPECTION

- Lamp Type _____ Lamp Wattage _____
- No of lamps per Luminaire _____ No of Luminaires _____
- Control – (photocell) Make _____ Model No. _____
- Supply point location – Shelter Leg (if other please state) _____
- Protective device (RCBO) BS (EN) _____ Type _____
Overcurrent Protection Rating _____ A RCD Rating _____ mA
- Wiring Cable Type _____ Reference Method _____
Csa of Lives _____ mm² Csa of cpc _____ mm²
- Maximum Zs permitted by BS7671 _____ Ω
- Protection against indirect contact (EEBADS) _____

	YES	NO	COMMENT
9. Connection of conductors	_____	_____	_____
10. Identification of conductors	_____	_____	_____
11. Selection/size of conductors	_____	_____	_____
12. Isolators double pole	_____	_____	_____
13. Insulation of live parts	_____	_____	_____
14. Adequacy of earthing	_____	_____	_____
15. Adequacy of equipotential bonding	_____	_____	_____
16. Isolation enclosures in good condition	_____	_____	_____

B) ELECTRICAL TESTING - SUPPLY ISOLATED – To be completed after installation

Circuit resistance	R1+R2		Ω		Insulation resistance	P/N		MΩ
						P/E		MΩ
Correct Polarity						N/E		MΩ

Continuity / Insulation Tester I/D No. _____

COMMENTS ON THE INSTALLATION:

I certify that the above installation has been inspected and tested in accordance with BS7671 (IEE Regulations).
The results are satisfactory and the shelter is suitable to be energised.

Name _____ Signature _____ Date _____

For and on Behalf of _____

(THIS CERTIFICATE IS SUBJECT TO CHANGE AT ANY TIME –THE MOST CURRENT CERTIFICATE IS TO BE USED AT ALL TIMES)