

SMART

PART D

PROCEDURES

This document is part of the “**Shropshire Manual for Adoptable Roads & Transport**” (SMART) and should be read in conjunction with all other appropriate documents.

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D.1. APPROVAL OF DRAWINGS (TECHNICAL ASSESSMENT)

1. All schemes under Section 38 and/or Section 278 Agreement, will be subject to a technical assessment procedure (see SMART Part E -Technical Notes - 1 & 3 'How to' Guides for Section 38 and 278 Agreements)
2. The Developer shall not commence construction of the works until the Council has advised them in writing that all Drawings and Documents including all details contained therein are sufficient and satisfactory in all respects, and that the appropriate Agreements have been completed and entered into.
3. It is recommended that the Developer engages with the Highway Authority at Pre-Planning Application/Outline stage to ensure that the forthcoming proposals for highway adoption are appropriate to fulfil and discharge any and all highway-related planning conditions and accord with the details contained within this document.
4. A detailed submission for technical acceptance must include all of the appropriate items above and be issued to the Developing Highways Team, as soon as practicable, following planning consent.
5. Where guidance is not provided, reference to the current volumes of the DMRB should be made.
6. The technical assessment will not commence until such time as the requested checking fee is deposited with the Developing Highways Team and all the information required to undertake the technical assessment has been received.
7. A technical assessment report will be produced on all design submissions (S38/278) within 30 working days of receipt of all design details listed below and clearance of the 'checking fee'.

D.2. DRAWINGS & DATA REQUIRED

8. Where applicable, the drawings/data below shall be provided in the form of a full-size paper copy together with an electronic version in PDF and AutoCAD format on suitable media (i.e. DVD, CD, or Data Stick/Card) posted to: Developing Highways Team, Shropshire Council, Shirehall, Abbey Foregate, Shrewsbury, SY2 6ND.
9. An application may be submitted via email, including all electronic versions of the appropriate forms and drawings. However, the formal Technical Assessment will not begin until the formal (posted) application has been received, and validated.
10. Drawings should be submitted at a scale no smaller than 1:500 and all designs shall be based on a 3D topographical survey in line with Royal Institution of Chartered Surveyors (RICS) specification.

General List of Drawings and Data required for Technical Assessment:

Location Plan	Plan locating the site, including. postcode, grid reference, road names and site boundaries
Planning Layout & Consent	A copy of the approved planning layout should be submitted, together with copy of the planning consent to this the layout has been approved
Adoptable Area Plan	Showing the limits of the areas to be offered for adoption. S38 elements to be tinted pink and S278 elements to be tinted yellow. Buildings adjacent to the proposed adoption limits should allow 300mm for foundations and private drainage. A copy of the existing adopted highway network should be submitted Please refer to the Section 38/278 checklist for further details.
Road Safety/ Quality Audit Stages 1 & 2	For all S278 schemes a copy of RSA 1 & 2 in line with DMRB HA19 is required; as well as the designers' comments.
Auto tracks	Using a 4 axle refuse vehicle, 11.347m in length all areas to be offered for adoption must be tracked. All adoptable turning heads need to show that the refuse vehicle can manoeuvre and turn around within the adopted highway. AutoCAD version to be provided.
Highway Chainage & Road Numbers	Carriageway chainage and road numbers shall be included on all drawings; as well as radii and plot numbers. A drawing must also include dimensions where areas of construction design (calculations, depths, etc.) proposals which are not as per any typical sections
Drainage/ Contour Plan	All areas of highway offered for adoption should be contoured at 25mm intervals including 10m past the tie in points to the existing highway. Proposed gully locations must also be indicated.
Private Drainage	Spot levels and drainage provision should be indicated, private drainage required to prevent run off onto the area offered for adoption.
Discharge Consent	Copy of confirmation from applicable authority stating acceptance.
Drainage Calculations	Network and simulation results for any drainage system to be adopted by the Local Authority. Calculation based upon the Wallingford Procedure.
Visibility Splays	Forward visibility and junction visibility splays are to be demonstrated, including. 'x' and 'y' values.
Longitudinal Section	Section to indicate level information a minimum of 20m beyond the design tie in.
Pavement Layout Plan	Plan identifying the type and extents of all pavement construction. A key must be provided matching construction detail descriptions.
Kerbing & Footways Plan	Plan identifying the type, kerbface and limits of kerbing works with footway types and extents identified. Key to match construction detail descriptions.
Tactile Paving	All tactile paving to be in line with 'DFT, Guidance on the use of Tactile Paving Surfaces'
Construction Details	All features within the adopted highway should be depicted, including pavement construction, kerbing and drainage.

Cross-sections	All topographical survey works should be such to allow for cross-section of the design through the existing landform to be submitted if requested.
Traffic Signing & Road Marking	Sign details including Traffic Signs and General Directions (TSRDG-2016) references, as well as foundation, post and sign face materials specifications. Road marking with TSRGD refs, and any specific dimensions must be shown.
Traffic Signals Details	Construction drawing including ducting plan and staging diagram. See SMART Part E Technical Note 8 – Traffic Signals)
Street Lighting	Layout drawing identifying column locations and lantern type. A Lux level plan and support reality calculations. Specification to be in accordance with SMART Part E Technical Note 7 – Street Lighting)
Utilities	Copies of all statutory undertakers' apparatus plans identifying all new services and required diversions. Depths of all ducting to be identified.
Landscaping	Location plan, plant types and tree pit standard details
Structures	Design drawings including the reinforcement schedule, AIP and/or Design Certificates. (SMART Part E Technical Note 6 – Structures)
Construction Programme	Programme of the anticipated construction duration for all adoptable works

Note: all drawings are to be issued in AutoCAD, PDF and Printed formats

D.3. GEOMETRIC REQUIREMENTS

11. The following table indicates the minimum requirements for residential estate roads offered for adoption (Section 38 Agreement) and works with existing highway areas under a Section 278 agreement, which will include all new junctions formed onto the existing highway network.
12. Residential estate roads should be based on Manual for Streets principles where the relevant maximum speed applies.
13. All S.278 junction improvements should be based on Design Manual for Roads & Bridges principles, appropriate for the prevailing speed limit, traffic flows and road capacity.
14. In situations where that the geometric requirements of SMART or DMRB cannot be adhered to Shropshire Council may consider appropriate exemptions. However, the Developer must demonstrate the suitability of the proposed exemption with the production of an 'exemption report' submitted with the design submission.

D.4. CONSTRUCTION REQUIREMENTS

15. All construction must conform to the following requirements:
 - All materials used in or upon the works are to be in accordance with the appropriate British Standard Specification and Volume 1 of the Highways Agency's Manual of Contract Documents for Highway Works.
 - All materials shall be kite marked or produced within an approved Quality Assurance Scheme.
 - All materials used within 450mm of finished surface level shall be non-frost susceptible as defined in Clause 602.19 of Highways Agency (HA) Specification for Highway Works.
 - Kerbs shall be installed prior to the construction of base layers.
 - Gully and manhole covers within the Highway including footway ironwork shall not be set to their final level until the completion of the installation of all base and binder course materials.
 - Any exposed bituminous layer must be protected and kept clean for as long as it remains exposed prior to the construction of the next layer. Where layers have become contaminated the area is to be cleaned to the satisfaction of the Council and, before the next layer is placed the area is to receive a bond coat in accordance with

the requirements of Clause 920.7 of Volume 1 - Manual of Contract Documents for Highway Works.

- If the Inspector considers that the layer is damaged it shall be removed and replaced with material of suitable specification.
 - All road, footway and cycleway bituminous materials shall be machine laid unless the Council has approved otherwise. (Note: The use of warm mix bituminous materials may be considered).
 - The carriageway shall be laid in two passes with the joint being at the centre line of the carriageway. All joints shall be cut with a vertical face and bitumen applied.
 - The laying of bituminous materials will not be allowed until all utility installation has been completed.
 - All blockwork shall be protected from site traffic during the execution of the works. Any damage is to be made good to the satisfaction of the Council at the Developer's expense.
 - All highway verges are to be a minimum of 1m wide and are to be laid as grassed areas in accordance with SMART.
 - A sustainable approach to highway construction with particular emphasis on the use of recycled material is encouraged.
 - Testing for material in recycled course aggregate and recycled concrete aggregate is to be undertaken in accordance with Clause 710 of Volume 1 Manual of Contract Documents for Highway Works.
16. Shropshire Council has a committed approach to the use of recycled materials and in certain situations, it may be possible to use recycled materials within appropriate construction phases, provided that they do not affect the structural performance characteristics of the development. The approval process will be undertaken at the expense of the Developer.
17. It is recommended that the Developer and his sub-contractors produce and maintain a waste register. The waste register will detail all surplus materials that are disposed of from site. This will allow an analysis to be performed indicating total wastage, hence lost revenue from the project. It will therefore be possible for the Developer to formulate and administer procedures in order to minimise the amount of wastage from site, which in turn will assist in maximising profitability as well as helping to safeguard the environment.

D.5. COMMENCING WORKS

18. The Developer shall at least seven days prior to the commencement of the Works and after serving all required notices and gaining necessary permissions, advise the Council in writing of his intention to commence the Works. Work shall not proceed without the Construction Phase Health and Safety file being in place with the necessary Authorities.
19. The Developer shall not discontinue the Works without prior approval of the Council and shall where such approval is given, notify the Council in writing of his intentions for securing, safeguarding and protecting the partially completed Works and indicating the anticipated period of cessation. The Developer shall give not less than five days' notice in writing to the Council of their intention to recommence the Works.

WORKS TO THE COUNCIL'S SATISFACTION

20. The Developer shall execute, complete and maintain the Works in strict accordance with the requirements of this Specification to the satisfaction of the Council and shall comply fully with and adhere strictly to the directions and instructions of the Council. The decisions of the Council in respect of the requirements, provisions and interpretations of these General Conditions and Specification shall be final and binding.

WORKS VARIANCE

21. No variation of the position, alignment, dimensions, levels or construction details of the Works shall be made without the written consent of the Council.

SUBCONTRACTING OF THE WORKS

22. Should the Developer appoint or intend to appoint any other person, persons, firm or company to construct the Works (or any part thereof) on their behalf then they shall, not less than seven days prior to the commencement of the Works submit to Council in writing the name, office, address and 24 hour telephone number of the person, persons, firm or company to whom or to which the Works (or any part thereof) will be assigned.

23. Sub-contracting of the construction of the Works (or any part thereof) shall not in any way relieve the Developer from his obligations and liabilities under the terms of the agreement and he shall be responsible for the acts, defaults and neglects of the person, persons, firms or company to whom or to which the Works (or any part thereof) have been assigned including their agents, servants or workmen as fully as if they were the acts, defaults and neglects of the Developer, their agents or workmen.

BREAKING INTO EXISTING HIGHWAY

24. Where it is necessary to break into an existing highway to lay or maintain apparatus, the Developer is required, under Section 50 the NRSWA 1991, to give prior notice to the Council. A minimum of 3 months' notice must be given, for all non-emergency and programmed work. The necessary application forms are available from the Coordination Team: <https://www.shropshire.gov.uk/roads-and-highways/road-network-management/application-forms-and-charges/>

Note: No work shall be carried out until such notice has been given and approved.

ARCHAEOLOGICAL & ECOLOGICAL INTERESTS

25. These will usually have been considered and negotiated through the planning process in relation to building proposals. However, from time to time archaeological or ecological discoveries may be made in the course of estate road construction. These must be notified to the Shropshire Archaeologist or Ecologist, as appropriate
<https://www.shropshire.gov.uk/environment/historic-environment/archaeology/>
<https://www.shropshire.gov.uk/environment/biodiversity-ecology-and-planning/>

D.6. TESTING REQUIREMENTS

26. All schemes will require the following testing, undertaken by a UKAS accredited laboratory, with the results issued to the site superintendent and technical review team:

- **Plate Bearing Tests** (frequency to be agreed) to establish sub-formation CBR values (equilibrium method). Insitu tests are to be taken to confirm acceptability of materials at formation level, in order to establish capping and sub-base requirements.
- **Nuclear Density Meter Test** to be completed on all carriageway base and binder courses. Results should be measured against typical material values. Results should achieve between 92-98% for base and 93-98% for binder course.
- **Asphalt Compaction Tests (lab based)**, should also be undertaken using the PRD method.
- **Electrical Testing** to be completed for all electrical equipment offered for adoption in accordance with BS 7671
- **CCTV Surveys** - Prior to final surfacing the Developer is required to carry out a CCTV survey, at his own expense, and provide a visual and written record of the result for any highway drains constructed. Prior to carrying out the survey, the Developer shall ensure that the sewers and manholes are clean and that all debris has been removed from connecting sewers and drains. Prior to final adoption, a further CCTV survey may be required at the discretion of Council.

27. All costs for samples, sampling, testing and supplying the test results to the Shropshire Council shall be met by the Developer.

28. Notes:

Tests comparable to those specified will be necessary for any equivalent work, goods or material proposed by the Developer.

- (N) Indicates that a NAMAS test report or certificate is required.
- Unless otherwise shown tests for works, goods or materials as scheduled under any one Clause for all such work, goods or materials for the works.
- Cube strength tests are not required for concrete complying with Clause 2602.
- All test results shall be presented in accordance with the relevant testing standard and shall incorporate the following information:
 - a) Specimen reference;
 - b) Material brief description;
 - c) Manufacturer's supplier names or origin as appropriate;
 - d) Batch reference number (proprietary material only);
 - e) Specification of material;
 - f) Location of material in works;
 - g) Date sampled, by whom and method used;
 - h) Date(s) tested;
 - i) Results of all tests
- When appropriate, samples shall be taken in sufficient time to allow testing to be completed and Shropshire Council's approval obtained before the material is used in the works.
- Test results where tests to be carried out by the Developer's Contractor or his suppliers shall be passed to Shropshire Council with 24 hours of the completion of each test.
- Nothing in this document shall relieve the Developer of his responsibilities for the works under the Highway Agreement.
- The Council will be permitted to carry out audits of the Developer's testing regime and the provision of all necessary testing material and working sheets will be considered to be part of the testing requirements.

29. The Developer is to refer to Shropshire Council Traffic Signals Design and Installation Guide (Appendix XI), for the details of testing to be undertaken for the traffic signal installation.

D.7. REMOVAL OF IMPROPER MATERIALS OR WORKMANSHIP

30. The Council may during the progress of the construction of the Works order the following, should it be deemed necessary:

- The removal from site of any materials not complying with this Specification.
- The substitution with materials complying with this Specification.
- The removal and proper re-execution of any work which (in the opinion of the Council) has not been constructed in accordance with the Approved Drawings and/or this Specification.

D.8. SITE INSPECTION & SUPERVISION

31. Site Inspection will be undertaken by the Local Authority representative and will commence following direction from Shropshire Council's Developing Highways Team. If technical approval is granted with conditions Shropshire Council reserves the right to remove the site inspector if there is no resolution of the condition within 20 working days of any request.
32. The following details must be given to the Developing Highways Team for issue to the site inspector:
- Contractors Details
 - Site Agents Contact Details
 - Health & Safety Plan
 - Construction Programme for the adoptable works
33. The Developer is to ensure that all relevant street works notices and agreement are in place with the Local Authority prior to commencement on site. Details of the required street work notices can be found on <https://www.shropshire.gov.uk/roads-and-highways/road-network-management/application-forms-and-charges/>
34. The site inspector will undertake periodic inspections and shall be given access to all parts of the works but the site agent must give at least three working days' notice to the site inspector of the following operations:
- Back filling of drainage trenches
 - Installation of highway manholes
 - Sub-base in carriageway and footway
 - Gullies and connections
 - Kerb bed, dowel bars and kerb installation
 - Base course in carriageway*
 - Binder course in carriageway*
 - Surface course in carriageway*
 - Binder course in footways*
 - Surface course in footways*
 - Signing & Lining
 - Street Lighting & Traffic signal installation
 - Concrete pour to any insitu cover slabs
- It should be clearly understood that the site inspector acts solely for the Local Highway Authority and must not be regarded as the 'Clerk of the Works' acting for the schemes contractor. The contractor must have a named representative on site, whilst work is in progress, to which the site inspector can liaise with.

***All bituminous material delivery tickets shall be made available for checking by the site inspector. Failure to comply with this requirement may result in the contractor being asked to undertake testing by a UKAS approved laboratory, at their own expense.**
35. Remedial works may be required if it is deemed that the constructed work has not been installed in accordance with the approved details. In this instance the site inspector may complete a non-compliance form notifying all parties of the issue.
36. The actual limits of resurfacing works will be agreed on site with the site inspector to ensure a suitable tie in point is selected.
37. The reuse of any existing signage or street furniture is to be agreed with the site inspector on a case by case basis.

D.8. HEALTH AND SAFETY

38. In accordance with the requirements of the Construction (Design and Management) Regulations 2015 (CDM) (<http://www.legislation.gov.uk/ukxi/2015/51/contents/made>) - Developers are required to produce a Health and Safety File, covering all the prospective public highway and associated adoptable infrastructure, being constructed.

39. The file, should be available for periodic inspection, by the Council's Representative and need to contain everything that will assist the Council in the carrying out of work on the adoptable highway infrastructure, after the completion of the project and for the maintainable life of the Development. This information includes:-

- Brief description of the works carried out
- All construction records and 'as built' drawings
- Design calculations and assumptions
- General details of construction methods and materials used
- Details of any equipment and maintenance facilities
- Details of any highway structures including maintenance procedures and requirements
- Details of the location and nature of all utilities and services (including emergency and firefighting systems)
- Residual hazards and how they have been dealt with
- Any hazards associated with the materials used

40. The file must be submitted as soon as the project has reached practical completion. Failure to submit this information in a timely manner will prevent the issuing of a provisional certificate of completion.

D.9. PROJECT CLOSE & ADOPTION

41. On completion of the works, Shropshire Council's representative will undertake a walk-through of the site with the Developer and raise any items they consider to be unsatisfactory.
42. It is recommended that the Developer and/or Developer's contractor submits the agreed 'remedial list' to the Developing Highways Team, together with an appropriate programme of remedial work
43. Where required, the Developer shall undertake an independent Stage 3 and 4 Road Safety Audit in accordance with the DMRB and provide a copy along with the designers' comments to the technical review team.
44. The Developer is required to undertake all remedial works raised during the final inspection and any agreed recommendations from the Safety Audit. Once completed, these works will be reviewed by the site inspector.
45. All submitted details will be required in **both paper and electronic formats.**
46. The following table lists the usual information required to close a project and is to be used for guidance, and further clarification should be sought from Shropshire Council.

Item	Detailing
Health & Safety File	Scheme Description Contact details - Developer, Designer & Contractor Sub-contractors and material suppliers Operation Manuals for traffic signals Operation Manuals for any Structure including design certificates Risk Register
Data sheets of Key Construction Materials	Bituminous materials Block/slab paving, highlighting the size and colour of unit used Sand laying course Kerbing Street furniture Street lighting - lanterns and columns Landscaping and maintenance schedule

Site & Material Testing Reports	CBR – laboratory results and location plan PEN Results for all Bituminous materials NDM Results Core sample results Electrical testing certificates all illuminated signs & lamp columns CCTV of all drainage
'As built' Drawings (Date stamped & signed by the Contractor as a true reflection of the constructed asset)	-Drainage -Construction areas plan, including all areas of resurfacing -Utilities plans -Construction details confirming pavement and footway materials -Road Markings -Signs and post details -Street lighting -a composite AutoCAD representation of the 'As built' layout
Adopted Asset Inventory	Accurately measured and collated in accordance with a format approved by Shropshire Council
Water Company Approval	Certified copy of S104 Certificate (Severn Trent or Welsh Water)

47. The Developer will be provided with a Completion Certificate following successful submission of the 'as-built' data which has been signed off by the Developer, Contractor and the technical review team.
48. The Local Highway Authority will not consider any reduction in bond or surety until any outstanding snagging items, safety audit recommendations/ or identified remedial works, have been completed to the satisfaction of the Council.

D.10. FURTHER READING

49. The following Technical Notes provide step by step guidance on how to secure successful highway agreements and estate road layout and highway assets fit for future adoption.
- TN.1. HOW TO SECURE A SECTION 38 AGREEMENT
 - TN.2. HOW TO SECURE A SECTION 184 AGREEMENT
 - TN.3. HOW TO SECURE A SECTION 278 AGREEMENT