

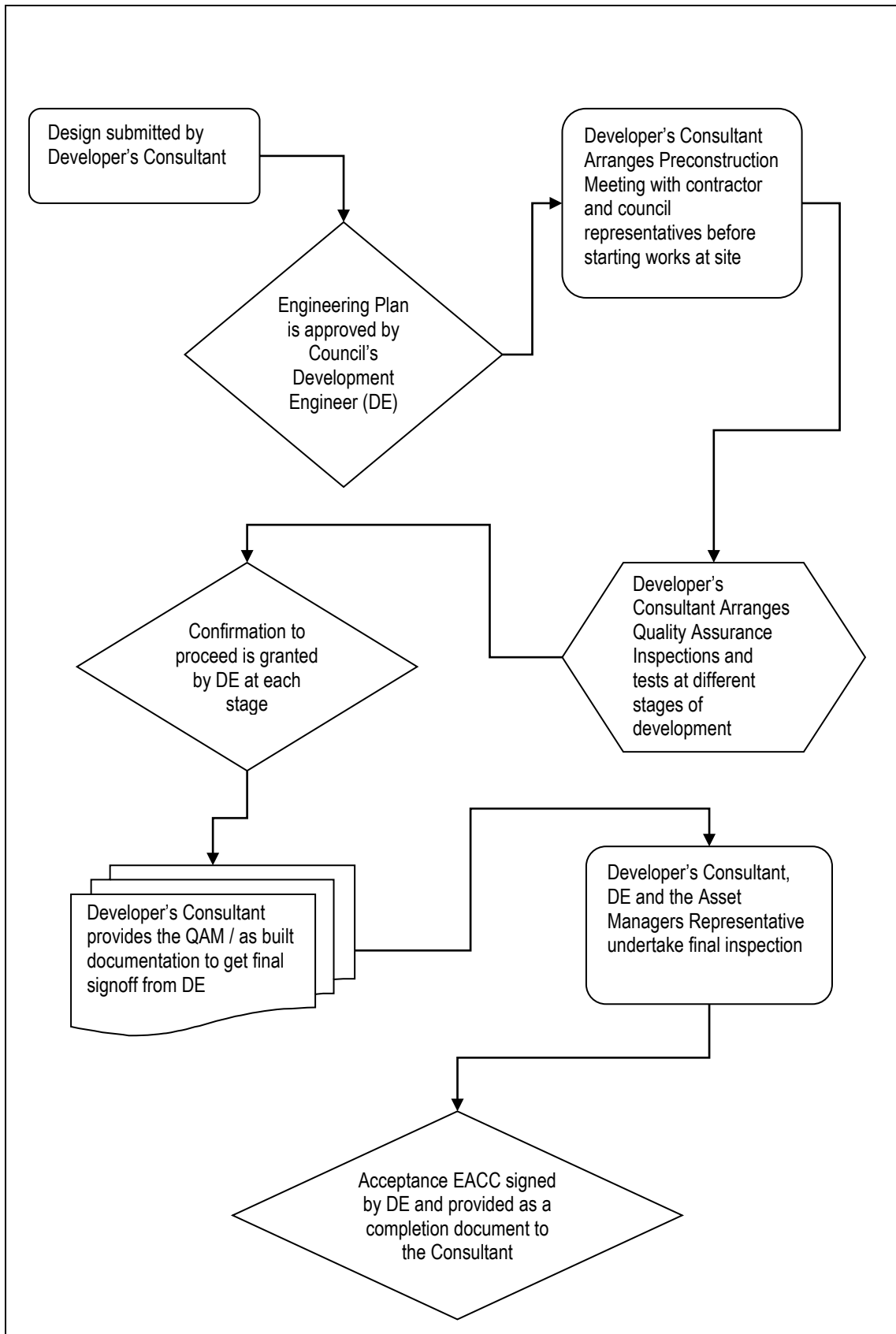


Regulatory Engineering Quality Assurance Manual

Published February 2019 (Version 2.0)



Process Chart



Note: All inspections for Water and Wastewater (modification/extension) shall be conducted and signed off by Watercare

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Introduction

This document supersedes all the previous Quality Assurance Manuals (“QAM”) for Inspection & Release of Subdivisions and Land Development Projects in the legacy councils (Auckland region). The document is aimed at providing a clear, structured and practical set of requirements and procedures to assist developers, planners, consultants and contractors within the development industry.

Disclaimer

The QAM shall be read in conjunction with relevant legislation and any Auckland Council approved policies or documentation including (but not limited to) the Auckland Unitary Plan and Auckland Council Code of Practice for Subdivision and Land Development.

All due care has been taken in producing these guidelines and in keeping consistency with relevant legislation and standards. However, if any inconsistency is noted, the council will provide the necessary clarifications. The council does not guarantee the completeness of the information contained within the QAM and does not accept any loss or damage that may result from the use of the QAM.

Council reserves the right to deviate from particular aspects of the QAM for any Subdivision or Development where it is deemed to be warranted.

Document Control

Auckland Council’s Quality Assurance Manual (“QAM”) is a controlled document with the latest edition available free (PDF format) on council’s website. The council will always retain the copyright for the QAM and will retain the master copy.

Document name	Regulatory Engineering Quality Assurance Manual
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Approval for Version 2.0

Approved	Stephen Tyson, General Manager Regulatory Engineering
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Version history

Version	Date
Version 1.0	April 2012
Version 2.0	February 2019

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Thanks are also extended to Auckland Council staff plus other Stakeholders, who contributed to the development of the Regulatory Engineering Quality Assurance Manual.

Feedback/Amendments

There is a feedback form available to download along with this document. Please send all feedback to rajinesh.kumar@aucklandcouncil.govt.nz.

It is the developer's and consultant's responsibility to ensure that they are referring to the latest edition of the QAM and CoP.

QAM Amendment Request Form

Attention: General Manager
Regulatory Engineering
Private Bag 92300
Auckland 1142

Requestor's details

Name: _____
Organisation: _____
Address: _____

Proposed amendment details

Part: _____
Section: _____
Details: _____

Please use separate sheet for further details if required

Review

Comments: _____

Approved / Not approved: _____ Date: _____
Returned to applicant: _____ Date: _____

1. Objectives and Procedures

The Quality Assurance Manual (QAM) acknowledges that the delivery of high-quality infrastructure through private development activities is a partnership between the developer and their agents, and Council's Development Engineers and asset groups. Unlike capital projects, Council rarely has a contractual relationship with those responsible for delivering the infrastructure projects on behalf of the developer. Council's relationship is a regulatory one. This QAM is intended to clarify those roles and responsibilities and document a minimum standard of compliance supervision for the bulk of the projects granted Engineering Approval. Where the developer is not using the QAM, they will need to seek the agreement of Council's Development Engineer for their equivalent quality assurance system prior to initiating physical works.

Note, that as of July 2018 Engineering applications to extend or modify public wastewater and water mains are referred to Watercare for assessment, inspection and asbuilt sign off.

Council will be responsible for administrating the Engineering Approval process and finally vesting the assets once acceptance is confirmed by Watercare.

1.1. Objectives

The objectives of this QAM are to:

- Ensure assets which are to be vested to Auckland Council are constructed to the correct quality standards and meet current design standards.
- Ensure all engineering approval requirements are met.
- Ensure approval and inspection processes and standards are applied consistency across the Auckland region.
- Provide user-friendly documentation which details inspections required and clarifies the QA submission requirements regarding the completed works.
- Clarify roles and responsibilities for all the parties involved.

1.2. Procedures

1.2.1. Inspections

The construction inspections are to ensure compliance with the approved resource consents, engineering approvals and QAM requirements. These inspections include:

- Pre-construction meeting attended by consultant's engineer, contractor, council and asset owner representatives.
- Progress inspections to ascertain work quality (e.g. bedding, backfilling, material check etc.) during the works.
- Inspection at the end of each task (e.g. subgrade, pre-seal etc)
- Final inspection at completion of works (this may include documents from 1.2.2 - Documentation).
- Inspection at the end of the defect's liability period (If applied)

1.2.2. Documentation

Each stage of the work shall be documented by using QAM checklists and templates. At the time of the final sign off of works the developer's consultant is required to submit to the development engineer all relevant documents which may include but not limited to:-

- Report from the applicant's certifying professional addressing compliance with conditions of the approval
- Preconstruction Meeting and Inspection records – Checklists
- Test results, CCTV record with log-sheets
- Final Inspection – Checklist
- Certified asbuilt plans, RAMM data (including street lights), Schedules of vested and abandoned assets, Statement of Certification
- Maintenance bond documentation
- Geotechnical completion report
- Utility services details
- Operation and maintenance manuals

- Other documents requested by the development engineer to comply with relevant council standards.
- Defects liability certificate for assets vested to council (if required)

1.2.3. Defects liability

Currently there is no consistent policy requiring defects liability periods to be applied to all new assets to vest. However, Council reserves the right to request a defects liability period for some projects, and/or assets within projects. Where this is required, the terms and duration of the defects liability period will be included within the engineering approval and/or underlying resource consent.

The developer's consultant shall issue to Council and to the contractor a defects liability certificate for the assets to be vest to council when the defects liability period has expired, and the consultant/contractor has remedied any omissions or defects.

1.2.4. Health and safety

This QAM is not intended to define health and safety requirements associated with private development works. There are clear guidelines and responsibilities defined in New Zealand health and safety regulations. The relationship between a private developer, their agents and council in respect of public infrastructure creation however does have a few specific characteristics that need consideration:

- The role of Council officers as frequent visitors to construction projects,
- The role of Council officers as inspectors of future public assets,
- The interface between private development activities on controlled sites, and the connectivity with existing live public infrastructure networks.

1.2.4 (a) Council as visitor to construction projects

Council development engineers will attend site meetings and milestone inspections on developments as part of engineering approvals and resource consents requirements. It is always the responsibility of the development engineer to follow Auckland Council's health and safety guidelines. In addition, while onsite they must also follow site-specific health and safety procedures put in place by the developer, contractors and consultants. This will begin with the pre-construction meeting where health and safety plans must be

made available. This is not for Council approval, but for Council staff members to make themselves familiar with the specific site requirements.

Where required the development engineer shall attend a site-specific health and safety induction. Should a situation arise whereby the development engineer has concerns regarding health and safety practices onsite, they will be expected to remove themselves from the site, raise their concerns with the developer and/or their agents, and raise the issue with their team leader. Future attendance onsite will depend on clear communication and evidence from the developer and/or their agents on the measures put in place to manage their hazards.

1.2.4 (b) Council as an inspector of future public infrastructure

Health and safety practices are key to the ability of Council to safely undertake site visits. Where Council's representative feels unable to undertake work due to certain risks on the site, they will be expected to remove themselves from the area and fail the inspection. Only once the hazard has been appropriately managed will the inspection be rescheduled.

At times, certain project works by their very nature will represent a risk that cannot be managed to an appropriate level for council's development engineer to inspect them (e.g. deep manholes beyond depths covered by our regular confined spaces training or works in locations subject to contamination). In these situations, the council's representative will be expected to work with the developer's agents to identify an alternative means of determining the compliance of the work so that the project can progress.

1.2.4 (c) Interaction with 'live' networks

With developments that require new public infrastructure there is usually an element of interaction with a live receiving network. This is always the case for new subdivision roads, and invariably the case for new drainage and water networks within a development. This brings with it a specific set of hazards that cannot readily be completely controlled by the developer and their agents.

Special consideration must be given to the specific risks posed by these situations, and work may need to be done with the asset managers at times. Corridor Access Requests (CAR) from Auckland Transport and connection approvals from Watercare Services go some way to ensuring that asset management groups are aware of significant works

near or on their networks. Where those approvals have specific requirements, it is NOT the responsibility of Council's Development Engineer to check adherence. These requirements should however be discussed with the Development Engineer who will need to be aware to factor these into the works program and inspection regime.

1.2.4 (d) Serious breaches

In extreme circumstances, if there are serious health and safety issues, and Council is unable to conduct the required monitoring, Engineering Approval may be revoked until matters are remedied. If there is sufficient concern about site safety practices, Council's representative may determine it appropriate to alert Worksafe New Zealand of their concerns.

1.2.5. Fees payable

Council fees relating to any application are based on reimbursement of council costs for administration, inspections and managing the QAM requirements to final signoff.

In general, the application for consent or engineering approval is lodged with an initial deposit. The first invoice is made at the time of approval when the engineering conditions are set. The balance of the costs must be paid prior to the completion of the engineering approval and release of the Engineering Approval Completion Certificate. At times additional interim invoices may be required due to the scale of fees being incurred on a particular project.

1.2.6. Amendments to the Quality Assurance Manual

The QAM for Auckland Council is a "living" document and will be subject to changes / revisions from time to time, to maintain relevance to the council's policies, evolving best practices and procedures and changing industry standards. If required, updates will be released no more than 6 monthly.

To maintain the integrity of the document, the following protocols will apply to change requests.

- Make request / proposals for change on the "QAM Amendment Request Form".
- Submit the completed form to General Manager Regulatory Engineering (Auckland Council) so that the QAM forum can consider the request.

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- All requests for amendments will be acknowledged within two weeks of receipt and responded to within two months, giving the reasons for adoption or rejection.
- Amendments to the QAM will be implemented upon endorsement from the QAM Forum and reissued quarterly (where necessary).

2. Responsibilities

Council's role within this QAM is to administer the Engineering Approval process and ensure that high-quality assets are delivered that are fit for purpose and will not become a maintenance burden on the ratepayers, or at worst, a risk to the surrounding community. While, in general the day to day supervision of these construction projects is the responsibility of the developer and their agents, Council will require involvement to check compliance at certain milestones. A detailed account of roles and responsibilities is contained within this section.

2.1. Consultant responsibilities

- Ensure all required approvals have been obtained prior to start of work. Example: CAR, TMP, Neighbour's consent etc
- Ensure all works comply with the consent conditions, approved engineering plans, Auckland Council Code of Practice for Land Development and Subdivision and other relevant Council Standards.
- Site specific health and safety plan.
- Random inspections to check safety requirements are in place.
- Manage all complaints.
- Ensure that preconstruction meeting is arranged at least two to five working days prior to the commencement of the work. Notify the affected council officers (including the representatives from CCOs) with at least two working days' notice.
- Ensure that adequate records are maintained of site meetings/visits/inspections and are made available to all other parties as necessary.
- Provide name and contact details of the project manager (for large sites)
- Record the minutes and handover a copy of the signed checklist to the council representative at the meeting (or send a scanned copy within one day of the meeting to all parties attended the preconstruction meeting)
- Conduct site supervision sufficient to ensure quality infrastructure assets are created, and that the Statement of Certification can be validly signed and provided to council.
- Compliance with Health and Safety requirements including trench safety and excavation supervision.

- Compliance with Traffic Management Plan
- Compliance with Erosion and Sediment Controls and undertake inspection with Contractor to check adequacy of erosion and sediment control plan.
- Managing Geotechnical Engineers and ensuring that geotechnical completion report is compiled and submitted to Council.
- Construction equipment and records of machinery working including interruptions (like wet days).
- Testing (in presence of DE if required) to ensure that any rework is carried out as required and the Contractor notified of results.
- Soil is not contaminated with unwanted materials and appropriate action is taken to maintain acceptable levels of various pollutants.
- Protection and reinstatement of all public and private property as required.
- Check type and quality of material that will be used to complete the work after delivery and before use.
- Check depth of trench, bedding material and alignment of new pipes.
- Ensure flushing of all debris from the public reticulation before testing.
- Inform Council if undertaken works has any defects or work has not been completed to Council Standards as per approval.
- The CCTV shall be fully reviewed, confirmation shall be provided to the DE during final submission/signoff.
- Interpret video report and advise of any rework or remediation requirements. Pass Copy of DVD, log and interpretation to DE for his/her concurrence.
- Certified as-built information and quality assurance information such as check lists, test results, video inspection and certification are completed and submitted to council representative to meet council standards and the requirements.
- Facilitate final walkover by the future asset owners before assets are formally vested to council.
- Follow-up Watercare to obtain final Certificate of Acceptance (COA) for the asset to be vested plus council signoff which needs to be submitted to Council to complete the vesting process and issue final sign off

2.2. Contractor responsibilities

- Keep a copy of all approved plans, consents and other approvals at site.

- Prepare site specific health and safety plan
- Require that Council's development engineer is suitably inducted into the site health and safety regime.
- Ensure that private and public property in the vicinity of the works are adequately protected from damage, and dangerous activities.
- Verify that the proposed work suits site conditions and can be completed without any clash with existing services (public or private).
- Arrange for all services to be located (obtain "Before you Dig" Report) and ensure that the approved works will not affect the existing services.
- Let the engineer and Council know if the work will deviate from approval and check if any formal amendment is required before undertaking the work.
- Prepare works programme and ensure quality control checks are undertaken in consultation with the developers' consultant.
- Provide Council's development engineer with a list of subcontractors and be responsible for their work programme
- Take appropriate measures to ensure that the requirements of working in public road corridor and connecting to public infrastructure are met.
- Facilitate all inspections and carry out pre-tests.
- Undertake remedial works identified through inspection process
- Complete all public infrastructure works in accordance with the approved Engineering plans and conditions and other relevant approvals.
- Complete all approved works to acceptable standards as documented in the Auckland Council Code of Practice for Land Development and Subdivision, this Quality Assurance Manual, and other relevant industry standards.
- Ensure that all staged works are recorded. Photos need to be available at any stage if required.
- Where required by Watercare's Compliance Statement Policy, provide CS3 at the completion of the works.

2.3. Council responsibilities

- Attend pre-construction meeting along with relevant Asset group representatives (including Watercare) and clarify in writing whether additional preconstruction meetings are required.

- Confirm that there are no constraints that will prevent the agreed work programme proceeding
- Follow site specific health and safety plans.
- Comply with Council’s Health and Safety policies.
- Verify and circulate copies of approvals and notes of the preconstruction meeting to other council representatives (asset engineers)
- Conduct periodic site visits to inspect pipe specification, grade and alignment, bedding and surround progressed work. Or any other work included in the approval.
- Verify required approvals for Traffic Management Plans (TMP’s) / Carriageway Access Requirements (CARS) have been obtained.
- Be available for inspections of the works including various stages as agreed at pre-construction and ensure adherence to council standards.
- Liaise with the applicant’s consultant regarding ongoing works, and any complications and/or design deviations necessary.
- Maintain Council’s consent database to ensure up to date records of all inspection activities are maintained on the public record.
- Review completion documentation and conduct final inspection to enable release of the Engineering Approval Completion Certificate.

2.4. Watercare responsibilities

- Attend preconstruction meeting and do all inspection as per Watercare Code of Practice.
- Engage with the applicant’s consultant and contractors to ensure compliance with Watercare’s compliance statement policy.
- Provide final signoff including issuing “Certificate of Acceptance” to enable vesting of the completed assets.

2.5. Auckland Transport responsibilities

- Attend preconstruction meeting with development engineer and the developer’s consultant (when requested)
- When requested, attend final inspection with Development Engineer and the developer’s consultant to check the completed work against consented plans

and verify each item of the street furniture is as specified in the approved engineering plans.

- Verify the correctness of documentation, including asset schedule and RAMM data.
- Confirm that the 'operation and maintenance' manuals provided by the developer's consultant meet Auckland Transport operations requirements.
- Provide feedback to the Development Engineer and the developer's consultant about any rectification work required prior to vesting, or during the defect's liability period (where required).

2.6. Council Healthy Waters responsibilities

- When requested by the Development Engineer, attend final inspection.
- Inspect stormwater quality or attenuation device
- Confirm that the 'operation and maintenance' manuals provided by the developer's consultant meet the stormwater operations requirements.
- Provide feedback to the Development Engineer and the developer's consultant about any rectification work required prior to vesting, or during the defect's liability period (where required).

2.7. Council Community Services responsibilities

- Where requested by the Development Engineer, attend final inspection and verify all the items 'to be declared public' meet the approved standards and that all approved conditions are complied with.
- Check the final planting and other related items and provide the required sign off.
- Verify the correctness of asbuilt and financial documentation
- Confirm that the 'operation and maintenance' manuals provided by the developer's consultant meet the stormwater/parks operation requirements.
- Provide feedback to the Development Engineer and the developer's consultant about any rectification work prior to vesting, or during the defect's liability period (where required).

Preconstruction meeting checklist

Auckland Council Approval number: _____

Site Address: _____

Asset type

- Stormwater Wastewater Water supply Rooding
 Parks Other

Present

Yes No* N/A

• **Consultant**

Name _____

Contact number _____

Company _____

Professional Registration _____

Indemnity Insurance Policy # _____

Insurance Company _____

Signature _____

• **Contractor - Drainage**

Name _____

Contact number _____

Company _____

Registration # _____

Indemnity Insurance Policy # _____

Insurance Company _____

• **Contractor - Rooding**

Name _____

Contact number _____

Company _____

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Relevant Representatives (If required)

- Council Dev. Engineer _____
- WSL representative _____
- HW representative _____
- AT representative _____
- Parks representative _____
- Others: (specify) _____

Check

1. All approved Engineering plans and conditions are at site
2. Does approval reflect site conditions
3. Does approval need to be amended
4. Commencement date.....
5. Health and safety plan in place
6. Need for work on existing utilities, (notify affected parties)
 - a. Water, Wastewater, Stormwater, Electricity, Telecommunication and Gas
7. Current rights of entry for any work outside development
8. Construction work on existing roads
 - a. Approved traffic management plan
 - b. CAR approved

* No: Indicates requirement not met (should be done prior to start of works at site)

Notes:

Development Engineer

Name:

Date:

Consultant

Name:

Date:

Stormwater checklist

Auckland Council Approval number: _____

Site Address: _____

From:To..... (eg MH1 to MH 2)

Checklist	DE/Consultant		
	Pass	Fail	N/A
1. Approved Engineering Plans onsite	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Approved Engineering Approval Conditions onsite	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Bottom of Trench after excavation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Pipe bedding	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Bedding compaction results	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Trench alignment, diameter and class	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Pipe gradient	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. TMP in effect	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. General site condition and security	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Pipe laying/butt joining	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Manhole bedding	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Riser installation including Riser sealant or epoxy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Connection to manhole	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Fall through manhole pipes flushed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Pipe lamped/mirrored	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Backfill compaction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Anchor blocks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. Manhole Lid placed correctly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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Items to be provided / corrected

No.	Action required	Party to action	Approved	Date

Notes:

Development Engineer

Name:

Date:

Consultant

Name:

Date:

Subgrade checklist

Auckland Council Approval number: _____

Site Address: _____

Road Name/Chainage: _____

Tasks List	Yes	No	N/A
Contractor: 1. String subgrade and check design metal depth including material specification	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Check subgrade for soft areas and confirmed undercut will be required.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Super-elevation set out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Confirm subsoil drainage requirements (i.e. materials, bedding, backfill etc).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Ensure all subsoil drains and under-channel drain outlets are connected to catchpits	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Consultant: 1. Arrange for soil tests:			
a. CBR	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Scala Penetrometer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. B / beam	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Lime sensitivity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Proof rolling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Other and send for council consideration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Confirm design depth of subgrade	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Confirm subgrade improvement procedures proof rolling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
a. Area referenced	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Additional depth required	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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c. Material used	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Filter cloth type used	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Stabilisation (Lime, KOBM, Calcicon, Cement)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Confirm improvements by proof rolling / other tests	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. String subgrade	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Observe shape and consistency of subgrade	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Check subgrade shape allows for 100 mm metal between underside of kerb and channel and top of under-channel drain	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Recheck contractor submitted test results of materials (confirmed profiles etc for subsoil trench)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Confirm inspection done for subsoil trench prior to backfilling, string line check of kerb line etc	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Verify Contractor's observations, arrange for inspection with council development engineer and advise contractor of inspection time	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Subgrade: Inspection and test site meeting

Yes No N/A

Present

• Contractor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Consultant	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Council development engineer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1. Confirm subgrade improvements where required	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. String subgrade and confirm surface criteria	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Check underchannel drains construction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Agreement to proceed with metal:			
a. Whole or Part	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Further inspections required	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Consultant to check any remedial work required	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Regulatory Engineering



Items to be provided / corrected

No.	Action required	Party to action	Approved	Date

Notes:

Development Engineer

Name :

Date:

Consultant

Name:

Date:

Sub-base checklist

Auckland Council Approval number: _____

Site Address: _____

Road Name/Chainage: _____

Tasks List	Yes	No	N/A
Contractor: 1. Ensure sub-base course material meets all requirements prior to delivery. Source test results submitted to the consultant.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. On-site material is tested and approved, and then test results are submitted to the consultant.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Test results reviewed by consultant	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Construction to acceptable standards and compaction test results submitted to the consultant. Contractor to arrange for all testing with an International Accreditation New Zealand (IANZ) Laboratory.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. String line every 20m (or as directed by Consultant/DE) to ensure construction within acceptable tolerances. Check sheet given to consultant.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Consultant: 1. Recheck contractor submitted test results source and field tests meet all requirements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Recheck contractor stringing every 20m to confirm acceptable tolerances	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Confirm compaction test results, surface shape and finish meet standards	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. After checking the above, arrange for an inspection by council's development engineer. Advise contractor of the time of inspection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Consultant to provide testing documentation, string check lists, as-built sub-basecourse information and submit it to council's development engineer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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Sub-base: Inspection and test site meeting

Yes No N/A

Present

- Contractor Yes No N/A
- Consultant Yes No N/A
- Council development engineer Yes No N/A

1. Confirm material and construction meets specification Yes No N/A
2. Ensure testing and as-built information is adequate Yes No N/A
3. Check to ensure restring is at maximum 20m centres Yes No N/A
4. Agreement to proceed with basecourse
 - a. Further inspections required Yes No N/A
 - b. Consultant to check any remedial work required Yes No N/A

Items to be provided / corrected

No.	Action required	Party to action	Approved	Date

Notes:

Development Engineer

Name :

Date:

Consultant

Name:

Date:

Basecourse metal checklist

Auckland Council Approval number: _____

Site Address: _____

Road Name/Chainage: _____

Tasks List		Yes	No	N/A
Contractor:	1. Supply material tests with grading curves for basecourse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2. Place and compact metal to design depth	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	3. Check any visual movement and advise consultant	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Consultant:	1. Confirm subbase level prior to Basecourse being laid	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2. Confirm contractor completed items 1 – 3 above and arrange for compaction tests	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	3. Pre-string check	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4. Correct quality and grades of metal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	5. Visual check on surface appearance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	6. Arrange for beam tests and advise council of time	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Basecourse metal: Inspection and test site meeting		Yes	No	N/A
	• Contractor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	• Consultant	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	• Council development engineer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.	Beam testing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.	String finished basecourse and agreement to proceed with sweeping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.	Visual inspection to confirm 'clear mosaic, clean and free of dust' surface	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Regulatory Engineering



Items to be provided / corrected

No.	Action required	Party to action	Approved	Date

Notes:

Development Engineer

Name :

Date:

Consultant

Name:

Date:

Kerb and channel (including Cesspits) checklist

Auckland Council Approval number: _____

Site Address: _____

Road Name/Chainage: _____

Tasks List	Yes	No	N/A
Contractor: 1. Ensure offset survey pegs are in place and dimensions of trench excavation are to specifications	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Ensure all subsoil drains and underchannel drain outlets are connected to catchpits, etc as specified	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Set-out and string lines are thoroughly checked. Pram crossings and vehicle crossings are set-out and profile is verified at these transitions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. During concrete pour, ensure any required markings (i.e. service crossings and survey plaques) are installed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Expansion joints are provided as required	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Contractor to ensure quality control checks are undertaken (i.e. dips of concrete depth, slump tests, docket verifying concrete strength). These and any material testing are to be submitted to the Developer's Consultant	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Ensure protection of wet/green concrete	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Backfilling behind kerbs done	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Ensure cesspit alignment setting out is accurate as per approved plans. Confirm recessed or standard catchpits are properly located	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Consultant: 1. Confirm design to council requirements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Recheck contractor submitted test results of	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Regulatory Engineering



materials

- 3. Monitoring inspections during construction to ensure compliance with NZTA and council spec (i.e. material, adequate plant, concrete depth, environmental conditions, experienced operators and good on-site QA)
- 4. After works completed, carry out inspection with the contractor to confirm compliance
- 5. Book in final surface water channel, kerb and channel inspection & provide them with all testing documentation, quality assurance checklists, and as-built surface water channel/kerb information

Inspection and test site meeting

Yes No N/A

- Contractor
 - Consultant
 - Council development engineer
- Council:
- 1. Testing, QA sheets and as-built info are adequate and complete for historic records
 - 2. Visual check of final product to ensure within specification

Items to be provided / corrected

No.	Action required	Party to action	Approved	Date

Development Engineer

Name:

Date:

Consultant

Name:

Date:

Pavement surfacing checklist

Auckland Council Approval number: _____

Site Address: _____

Road Name/Chainage: _____

Tasks List	Yes	No	N/A
Contractor: 1. Arrange date and requirements with subcontractor and advise consultant	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Consultant: 1. Confirm design e.g. thickness and grade of Asphaltic Concrete, grade of paver blocks depth, reinforcing and strength of concrete, colour and surface.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Advise council of when top course is ready for surfacing (broomed for membrane seal, ready for concrete pour or paver laying).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Note: Where surfacing is a two stage operation such as Asphaltic Concrete: over membrane, DE attendance is to be requested for each stage.

Pavement surfacing: Inspection and test site meeting

Present

• Contractor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Consultant	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Council development engineer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Others: (specify) _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1. Confirm pavement type	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Observe brooming and check metal surface	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Approval of seal for:			
a. Two coat chipseal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. One coat membrane or first coat chipseal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Regulatory Engineering



c. Second coat chipseal

d. Asphaltic Concrete:

e. Pavers

Sealing operation notes:

It is important that the consultant and contractor's representatives are on site for the sealing operation so that the following items can be checked during the course of the works.

Chip or Membrane Seal:

• dry basecourse and dusting up of swept surface

• binder type and temperature, application rate and chip size, channel protected

• chip grade placed on membrane seals

Asphaltic Concrete:

• channel clean of sweepings

• adequately dry chip seal

• priming at lip of channel and patching

• blinding, dry chipping, compacted depth, surface appearance, min 5mm proud of lip

• special instructions for cutback membrane coats less than 10 days old

Concrete:

• age/slump of ready-mix

Regulatory Engineering



Items to be provided / corrected

No.	Action required	Party to action	Approved	Date

Development Engineer

Name :

Date:

Consultant

Name:

Date:

Footpath/Berms checklist

Auckland Council Approval number: _____

Site Address: _____

Road Name/Chainage: _____

Tasks List	Yes	No	N/A
Contractor: 1. Confirm berm and footpath crossfall, grassing and provide material tests.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Ensure lighting, utility boxes & lids all complete & backfilled	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Ensure that all services have been laid, inspected and signed off	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Ensure kerb & channel & footpath works are complete & surplus materials removed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Ensure topsoil is clean, spread and compacted. Ensure topsoil is graded so that there are no ridges adjacent to the kerb and channel, footpath and there are no ponding areas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. The grass seed, fertiliser and application rate complies with CoP standards	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Contractor to ensure quality control checks are undertaken (i.e. verification of materials, environmental conditions, grass seed).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Check the title pavers are placed in correct location	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Boxing for footpath is set out accurately, with adequate crossfall as per approved plans	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Contractor to ensure quality control checks are undertaken for materials, compaction, boxing, verifying bedding, docketts of concrete strength and depth of concrete. These and any material testing is to be submitted to the Developer's Consultant.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Regulatory Engineering



Consultant:	1. Confirm design and specification meet council requirements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2. Recheck contractor submitted test results of materials. Confirm specification, etc are met	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	3. Confirm inspection times (i.e. base prior to boxing and after boxing)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4. Monitor inspections during construction to ensure compliance with council specs (i.e. concrete placement & broom finish, experienced concrete workers and good on-site QA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	5. After all works are complete, carry out inspection with contractor to confirm all is within specification	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	6. Book in final inspection with development engineer (once all work is completed) and provide them with all QA checklists and as-built berm info	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Berms: Inspection and test site meeting		Yes	No	N/A
	• Contractor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	• Consultant	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	• Council development engineer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Council:	1. QAM sheets and as-built information are adequate and complete for historic records	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2. 100% visual check of the final product to ensure all within specification	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Regulatory Engineering



Items to be provided / corrected

No.	Action required	Party to action	Approved	Date

Development Engineer

Name :

Date:

Consultant

Name:

Date:

Private ways checklist

Auckland Council Approval number: _____

Site Address: _____

Tasks List	Yes	No	N/A
Contractor: 1. Confirm private way/vehicle crossing requirements for materials, reinforcing, bedding, and location and provide material tests.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Ensure that private ways shall have stormwater drainage provided.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Ensure all service crossings and ducts are installed and backfilled with hardfill	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Ensure all topsoil/unsuitable material is excavated. Identify any known soft areas. Consultant to approve base prior to bedding & boxing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. All set-out is accurate.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Boxing is set-out accurately, with adequate crossfall. All straight, curved edges are aesthetically smooth. Reinforcing installed if required.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Construction to council standards. For concrete works, expansion joints provided at suitable spacing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Ensure quality control checks are undertaken for materials, compaction, boxing, bedding, concrete strength and depth. These and any material testing are to be submitted to the Developer's Engineer.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Consultant: 1. Confirm design & spec meet council requirements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Recheck contractor submitted test results of materials. Confirm specification, etc are met	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Confirm inspection times	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Regulatory Engineering



- | | | | |
|---|--------------------------|--------------------------|--------------------------|
| 4. Monitor inspections during construction to ensure compliance with council requirements. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. After all works are complete, carry out inspection with contractor to confirm all is within specification | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. All inspections photos shall be taken to confirm compliance with specific inspections | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. Book final inspection with development engineer and provide with all testing documents, quality checklists and asbuilt information. (if required by condition of consent) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. Final Certification on Consultant Letter head provided to confirm compliance with the approved consent and plans. (This shall include the following: <ul style="list-style-type: none"> • All material testing sheets and as-built (including inspections photos) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

.....

	Yes	No	N/A

Is Inspection required as per approved Resource consent/ Engineering Plan conditions

	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--	--------------------------	--------------------------	--------------------------

Private ways : Inspection / test site meeting

- | | | | |
|--|--------------------------|--------------------------|--------------------------|
| <ul style="list-style-type: none"> • Contractor • Consultant • Council development engineer | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 1. Testing, QA sheets and as-built info adequate & completed for council records. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Visual check of final product to ensure within spec | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Regulatory Engineering



Items to be provided / corrected

No.	Action required	Party to action	Approved	Date

Development Engineer

Name :

Date:

Consultant

Name:

Date:

Note:

The developer's consultant will be responsible for providing final certification for private accessway including filling the checklist and taking full responsibility for the construction of the private accessway (preparations, workmanship including quality)

Final Site Inspection and Release

Objective: Final inspection of total development site to ensure all works are completed prior to acceptance by Council.

Note: The final inspection shall be undertaken along with the future asset owner's representative as required.

Auckland Council Approval number: _____

Site Address: _____

Present	Name / Sign	Yes	No	N/A
• Consultant		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Council development engineer		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Community Services officer		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Watercare Services engineer		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Auckland Transport representative		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Healthy Waters engineer		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Others: (specify) _____		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Inspection Checklist

a. As Built Approved	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Relevant Tests Performed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Surplus material removed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Drainage reticulation structures checked	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Manhole lids level with surrounding area/clear of boundaries	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Carriageway and berms clear of rubbish	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Grass take on topsoiled berms / drainage lines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Top soil is clean and free from any foreign objects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Check concrete paths, vehicle crossings & driveways are	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. crack free.			

Regulatory Engineering



- | | | | |
|--|--------------------------|--------------------------|--------------------------|
| j. Channel swept and catchpits empty of debris | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| k. Road surface acceptable | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| l. Fences erected where required | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| m. Warning sign at end of each stage | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| o. Right of entry releases for works within any public areas | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Final Site Inspection Certified: **Date:** _____

Contractor

Name: _____ Signature: _____

Consultant

Name: _____ Signature: _____

Community Services officer

Name: _____ Signature: _____

Watercare Services engineer

Name: _____ Signature: _____

Auckland Transport representative

Name: _____ Signature: _____

Council Stormwater engineer

Name: _____ Signature: _____

Others: (specify) _____

Name: _____ Signature: _____

Note: Relevant QAM checklists should be provided as proof of completion prior to final inspection.

Defects Liability Certificate

Reference Number _____

Developer/Applicant _____

Developer's Consultant _____

Contractor _____

Subcontractor _____

Date of Expiration of Defects Liability Period _____

Location _____

Job Description _____

Asset Description _____

I, _____ being a Chartered Professional Engineer or Registered Professional Surveyor on the IPENZ Register or a Registered Professional Surveyor on the Institute of Professional Surveyors List, acknowledge that the Period of Defects Liability has expired and that all of the defects identified during the final inspection and those that have occurred within the Period of Defects Liability have been remedied

Signature: _____

Date : _____ Registration Number : _____

Chartered Professional Engineer or Registered Professional Surveyor

Company Name _____

This form is completed by the Developer's Consultant and forwarded to Council if requested by the Development Engineer. Council will provide email correspondence to the consultant confirming acceptance of the certificate

Procedure to amend Approved Engineering Plans

