

Levenmouth Rail Study

Final Report

Report for Fife Council

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Summary

Summary

This report summarises MVA Limited and Scott Wilson Railways Phase II appraisal of the proposed reopening of the Levenmouth branch line to provide a direct cross-Forth train service between Leven and Edinburgh via the Fife Circle line. It draws together:

- recommendations from the previous Phase I appraisal;
- a Fife Council planning scenario for the Levenmouth area as detailed in the Fife Draft Structure Plan 2006-2026 (March 2005);
- comprehensive presentation of capital and operating costs for a 40mph line speed carried out by Scott Wilson Railways; and
- demand and revenue forecasts for this study.

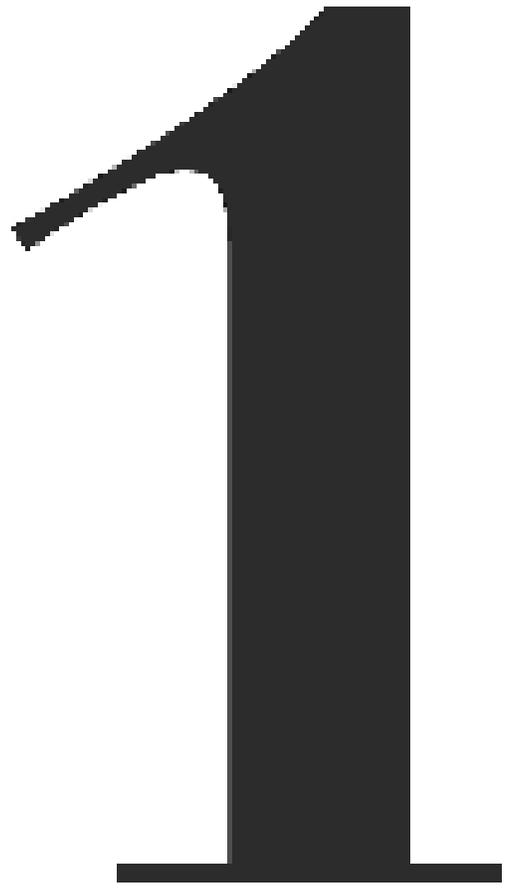
The following broad-brush appraisals have also been considered:

- the practicality of introducing a 'tourist' steam service;
- the practicality and financial implications of introducing rail freight on the line; and
- the likely impact of a new station on the north-east side of Kirkcaldy on the demand for the proposed Levenmouth service.

The Levenmouth scheme option was assessed against the SITCoS Queensferry Corridor Demand Managed Scenario. The assessment suggests that:

- approximately 800 passengers per day would use the station on a typical weekday in 2011;
- predicted daily rail trip-rate is similar to existing East / Central Fife stations average daily rail trip-rate (2005 LENNON);
- demand for the new rail service would be predominantly abstracted from existing rail (Markinch) and bus services; and
- Transport Economic Efficiency (TEE) Appraisal suggests that the scheme can not be considered economically robust in pure cost-benefit terms.

Current strategic reviews of rail provision in the Fife area and throughout Scotland (through the development of SESTRAN's Regional Transport Strategy and Transport Scotland's Strategic Rail Review) may result in future provision of rail services in Fife which differ significantly from our Reference Case assumptions. It is therefore premature to make a full recommendation on the future of the Levenmouth line. At the present time it is recommended that the alignment should be safeguarded to ensure the option of reopening the line in the future. This will allow the feasibility of the Levenmouth branch to be revisited at a later date, as part of a wider review of Fife and East Coast rail services.



1 Introduction

1.1 Background

1.1.1 MVA and Scott Wilson Railways were commissioned to further consider the proposed reopening of the Levenmouth branch line to rail passengers following an initial Phase I appraisal (Ref [1]), Figure 1.1.

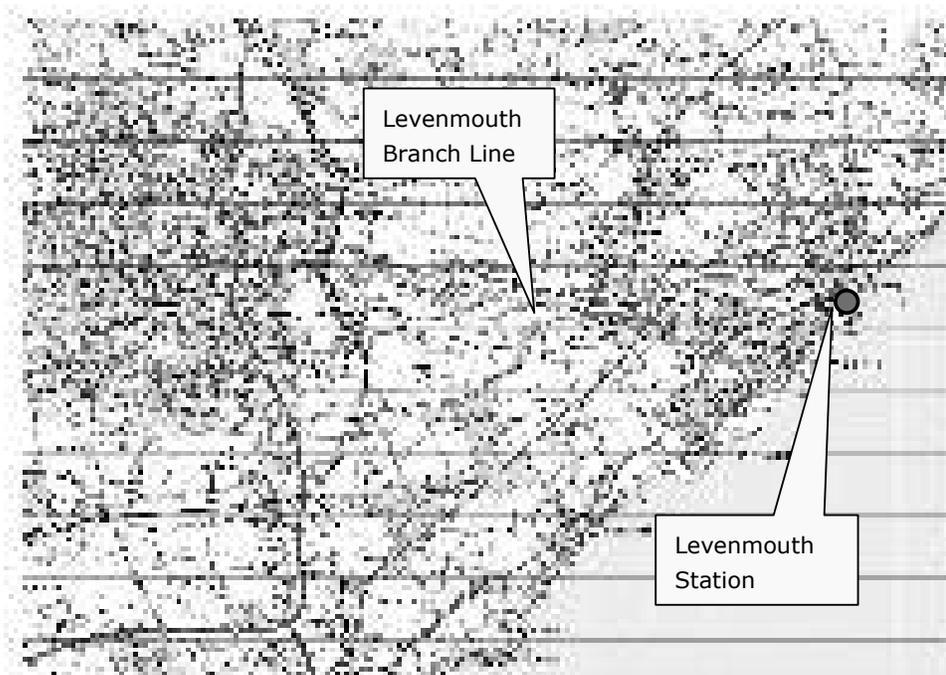


Figure 1.1 Proposed Levenmouth Branch Line

1.1.2 For ease of reference, a copy of this invitation is attached in Appendix A.

1.1.3 Our proposed approach to the re-appraisal was set out in a letter to Fife Council on 30 September 2005. The relevant section of this proposal letter are attached in Appendix B.

1.1.4 This report sets out the results and our conclusions from this re-appraisal.

1.2 Overview of this Report

1.2.1 Our appraisal is divided into a further eight chapters, as follows:

- Chapter 2 contains a review of previous studies;
- Chapter 3 provides a review of rail operational issues;
- Chapter 4 summarises the modelling methodology;
- Chapter 5 lists the key modelling assumptions;
- Chapter 6 analyses the key model results;
- Chapter 7 summarises the main Transport Economic Efficiency Analysis;

1 Introduction

- Chapter 8 summarises additional 'broad-brush' sensitivity analysis; and
- Chapter 9 provides a summary and conclusion section.

1.2.2 Additional material is provided in a number of appendices, as follows:

- Appendix A contains a copy of the terms of reference for this re-appraisal;
- Appendix B summarises our proposed approach;
- Appendix C contains more details of the costs and assumptions behind Scott Wilson Railways' capital and operating cost estimates and the proposed signalling layouts for potential traffic developments;
- Appendix D summarises the relevant planning and land-use assumptions regarding future development in the study area;
- Appendix E contains additional accessibility and isochrone analysis of the study area; and
- Appendix F contains the TEE table of the main option..

2 Review of Previous Studies

2.1 South Fife and Forth Estuary Public Transport Study (SFPEPTS)

- 2.1.1 The SFPEPTS (1999) carried out a two-stage assessment of potential public transport improvements in South Fife and around the Forth Estuary. One of the schemes assessed was the Methil Branch Reopening, referred to as C1_3 in the SFPEPTS Final Report. This considered the merits of an hourly rail shuttle service between the Levenmouth area and Kirkcaldy.
- 2.1.2 The SFPEPT Study concluded that this Levenmouth shuttle rail service appeared to fall well short of commercial viability and would need considerable subsidy (almost £270k per annum) in addition to the capital costs associated with reinstating the line for passenger services).
- 2.1.3 Consequently, the SFPEPT Study did not recommend an early reopening of the Levenmouth branch line, but suggested the alignment should be safeguarded to ensure the option of reopening the line in future was retained.

2.2 Phase I Appraisal

- 2.2.1 The Phase I Appraisal (March 2005) (Ref [1]) revisited the options for the Levenmouth rail-line taking account of significant potential additional development in the Markinch/Leven/Methil corridor and building on other rail service enhancements between Fife and Edinburgh proposed by the SITCoS study.
- 2.2.2 This Phase 1 appraisal suggested that a service pattern providing a two/hr service from Levenmouth to Edinburgh via the new Edinburgh Airport Rail Station, using alternate sides of the Fife Circle could provide a more-attractive service than the previously-tested simple Levenmouth/Kirkcaldy shuttle. This service pattern has the advantage of providing an hourly rail connection from the Leven/Methil area to **both** the Kirkcaldy and Dunfermline branches of the Fife Circle and a two/hr service frequency from Levenmouth to central Edinburgh **and** the new EARL station at Edinburgh airport, with onward rail and tram connections to other destinations across central Scotland and West Edinburgh.
- 2.2.3 The main conclusions drawn from the Phase I appraisal were that:
- patronage levels were approximately four times higher than the previous estimates of patronage for an hourly extension of a Kirkcaldy-Edinburgh service predicted by the SFPEPTS;
 - a benefit to cost-to-government ratio of approximately 1.0 for the cheapest scheme (retaining the 20mph line speed on the reopened line and having **one** 'accessible station somewhere in the main Leven area; and
 - a line speed improvement from 20mph to 40mph could be considered further given ball-park estimates of additional expenditure of £1.5m and reduction in running time by approximately 10 minutes generating an additional 60-year benefits of around £20m (plus an unquantified level of decongestion and environmental benefits from the additional patronage the higher line speed would generate).

2 Review of Previous Studies

- 2.2.4 These 'up-side' Phase 1 demand forecasts were sufficiently attractive to warrant further more-detailed appraisal of this service pattern.
- 2.2.5 In September 2005, Fife Council commissioned the Phase II work programme (detailed in Appendix A). This invitation and MVA's response to it (attached in Appendix B) forms the basis of the appraisal reported here.

3 Operational Review

3.1 Introduction

3.1.1 This chapter summarises Scott Wilson Railways logistical review of the proposed reopening of the Levenmouth branch line to passenger and freight services.

3.1.2 Figure 3.1 shows the locations of the possible stations.

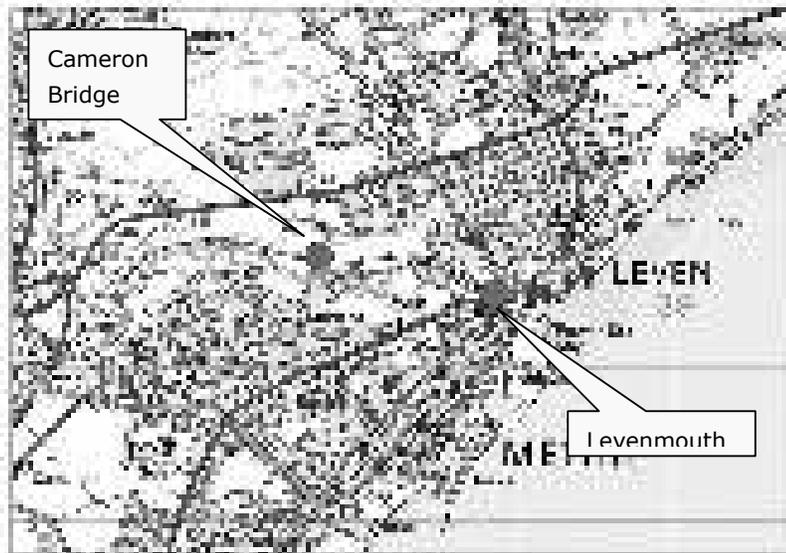


Figure 3.1 Station Locations

3.1.3 Considering the restoration of passenger services on the Levenmouth branch line (with a frequency of two train per hour), three traffic development options were considered:

- **Option 1** Only one passenger train on the branch but with the ability to run freight trains to / from Diageo sidings (maximum of hourly passenger service only);
- **Option 2** Crossing loop at Cameron Bridge to allow half hourly passenger service and freight trains to / from Diageo sidings; and
- **Option 3** Branch is fully signalled with crossing loop and sidings at Cameron Bridge and facility to run trains to / from private sidings at Methil.

3.1.4 It is assumed that all options will be specified for a line speed of 40mph which was considered adequate. Given the length of the line and the gradients involved running speeds of 60mph would not be achievable over most of the line.

3.1.5 Scott Wilson Railways' overall conclusions and recommendations indicated that option 2, from an operative perspective, was the minimum specification required to provide a half hourly passenger service to Leven and freight services serving Diageo at Cameron Bridge. Diageo were consulted as part of the study and expressed the desire to return as much traffic to rail as possible with direct access between Cameron Bridge and WH Malcolm's Grangemouth depot, and to their southern markets. Donaldson Timber and Finn Forest are also potential freight users of a re-opened line.

3 Operational Review

3.1.6 Operational requirements and costing estimates for option 2 have been detailed below. Scott Wilson Railways full report detailing the logistical and operational breakdown of all three options can be seen in Appendix C.

3.2 Costing Estimates

3.2.1 Table 3.1 summarises the quantity and cost estimate (with an allowance of +/- 50%) for re-laying the branch line to bring the route and Double Dykes level crossing up to present day passenger standards. Detailed signalling plans are shown in Appendix C.

Item	Quantity	Amount £
Ballast (tons)	16090	192,416
Rail (miles)	12.4	1,081,125
Sleepers	17009	1,052,092
S&C	2	547,734
Plant (PL)	16	67,000
Plant (S&C)	8	54,000
Trains	7	137,812
Other plant:		
Road/rail excavator	211	252,211
Road/rail trailer	106	74,531
Laser bulldozer	51	68,133
Scarifier	51	53,789
Forklift	51	43,031
Transportation		5,906
Labour:		
Supervisors		103,092
Technicians		92,714
Trackmen		673,821
Welders		70,933
Ancillaries:		
Transport		44,033
Site accommodation		10,522
Haulage	22	445,400
Total		5,075,395
		(+/- 50%)

3.2.2 Table 3.2 illustrates the signalling cost estimates for options 2. Once again an allowance of +/- 50% has been made.

Table 3.1 Signalling costs

Option	Estimated £k	(+/- 50%)
2		601

3.2.3 Table 3.3 illustrates a summary of the estimated costs for option 2. These are ballpark figures and would have to have an allowance of +/- 50% either way.

Table 3.2 Summary of estimated costs

Item	Total £m	(+/- 50%)
Cameron Bridge station rebuild		1.75
New Leven station		1.25
Track renewal		5.10
Signalling (option 2)		0.60
Structures / Fencing		4.00
Contingency		1.15
TOTAL (option 2)		13.85

Note: Other traffic development options considered will alter the total estimated cost.

4 Modelling Methodology

4.1 CEC LUTI Modelling Suite

4.1.1 The CEC LUTI modelling suite has been used for the Phase II appraisal. This is the same transport model as was used in the Phase I appraisal and in the previous SITCoS work.

4.2 Operation

4.2.1 The overall LUTI model hierarchy consists of the TRAM transport model which is used in conjunction with the DELTA land-use model. These two models operate at the strategic level and were run to assess the changes of land-use patterns in the Levenmouth area on travel demand.

4.2.2 At the more detailed level, TRIPS-based Highway and public transport (PT) models (H-DAM and PT-DAM respectively) were used to determine the effects of the changed land-use patterns and travel demand on the proposed Levenmouth branch line.

4.2.3 The Park and Ride model was employed as a 'bolt-on' extension to the PT assignment model giving final future year PT demand for the branch line.

4.2.4 Figure 4.1 illustrates the interactions of the CEC LUTI model in the context of this Phase II appraisal.

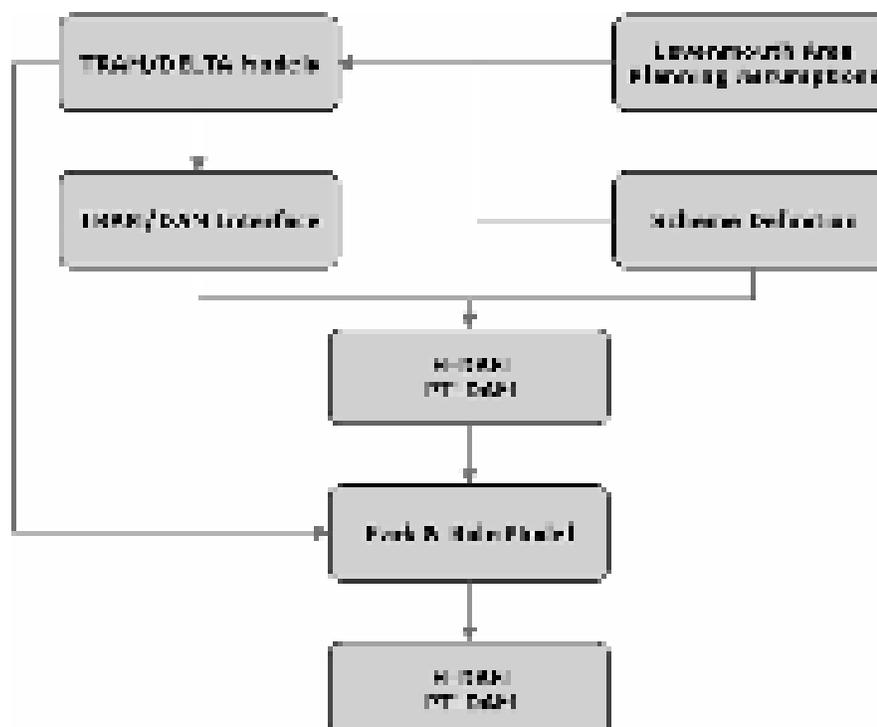


Figure 4.1 CEC LUTI Flow Diagram – Levenmouth Scheme

5 Modelling Assumptions

5.1 Incorporation of Fife Council Planning Assumptions

- 5.1.1 This chapter outlines how the planning assumptions for the Leven / Methil / Windygates area, as specified by Fife Council on 16 March 2005, were incorporated into the DELTA Land-Use model and TRAM / DAM Interface. It also takes into account further information provided by Fife Council (e-mail from Douglas Cooper's dated 29 November 2005) as part of the study. Both are attached in Appendix D.

5.2 DELTA Land-Use Model

- 5.2.1 The planning assumptions included within the DELTA Land-Use model are:

- one housing unit assumed to be 100m²;
- unit conversion – 1ha = 10,000m²;
- proposed housing development detailed in the Levenmouth Area Local Plan (July 2004) has been modelled exogenously, ie a 'forced' uptake; and
- employment land provision has been categorised as office space and modelled exogenously. The crude measure of 125 jobs per hectare of land, as specified in point 9 of Fife Council's planning assumptions, was therefore not applicable.

- 5.2.2 The phasing of the employment land provision was not been outlined in Fife's planning assumptions (point 8). A further assumption has therefore been made that phasing is assumed to be spread evenly over the 20-year period from 2007 to 2026 inclusive

- 5.2.3 In addition it is not possible to distinguish between affordable and non-affordable housing (points 5 and 7) within the DELTA Land-Use Model.

5.3 TRAM/DAM Interface

- 5.3.1 The planning information provided by Fife Council was also implemented into the TRAM/DAM Interface of the CEC LUTI model to generate future year demand reflecting the changed land-use pattern in the Levenmouth area at the more detailed level. The following assumptions have been adopted:

- forecast population levels have been split proportionally according to the housing allocation detailed in the Levenmouth Area Local Plan (July 2004); and
- forecast employment levels have been split proportionally according to the employment land provision detailed in the Levenmouth Area Local Plan (July 2004).

- 5.3.2 Planning data assumptions for all zones other than the Levenmouth area were as per Fife Council's Planning Scenario 8b, as used in previous SITCoS Queensferry High Growth tests.

5.4 2001 Base Year Demand Matrices

- 5.4.1 Following the 2001 census-based comparative analysis of existing East / Central Fife station catchments (discussed further in Chapter 6), it was concluded that Inter-Peak period transport mode splits, as defined in the Phase I work, were leading to overly-optimistic trip-rates for the proposed Leven station.
- 5.4.2 An interrogation of the mode splits (Highway and PT) at existing East / Central Fife stations in the base year PT-DAM model led to a public transport mode split of 5% of highway trips being assumed for the Inter-Peak period for people travelling **to** and **from** Leven and Markinch stations. This led to more credible passenger forecasts for Leven station.
- 5.4.3 All other base year Highway and PT matrix improvements remained the same as those described in the Phase I Appraisal Note 33, paragraphs 2.6, 2.7 and 2.9 (AM and PM adjustments).

6 Model Results and Analysis

6.1 Introduction

6.1.1 This chapter outlines the CEC LUTI model results and analysis. The following areas have been considered:

- 2011 demand forecasts;
- station catchment analysis;
- isochrone analysis around preferred station location;
- 2011 abstraction effects analysis; and
- destination(s) of travellers using the new Leven rail service.

6.2 2011 Demand Forecasts

6.2.1 Table 6.1 summarises predicted 2011 week-day passenger boardings and alightings at Leven station for the new rail service on the Levenmouth branch based on the following set of inputs:

- the Phase I two/hr Fife Circle `extension service pattern , as described earlier in section 2.2 of this report;
- a more robust inter-peak trip rate from Leven and Markinch stations;
- improved line speed from 20mph to 40mph on the reopened line, resulting in a run-time of 11 minutes between Leven and Thornton junction; and
- updated planning policy data (as described in Chapter 5 and Appendix D).

Table 6.1 2011 Week-day Boardings/Alightings

	AM (PAX/hr)	OP (PAX/hr)	PM (PAX/hr)
Leven – Boardings	156	50	48
Leven – Alightings	26	56	130

6.2.2 These forecasts equate to around 800 return trips per weekday using the new Leven service (or around 250,000 return trips per annum), putting the new station roughly on a par with Dunfermline Town.

6.2.3 A preliminary demand forecast was undertaken to assess the impact of an additional station at Cameron Bridge, serving the communities at Cameron Bridge and Windygates. The results of this test showed that this station was forecast to attract around 125 trips per weekday. However, the opening of this station abstracted over 100 trips from the station at Levenmouth resulting in the overall usage of the branch-line only increasing by ten trips per day (at around 810 trips per weekday). Based on this preliminary demand forecast, a second station at Cameron Bridge would not be recommended.

6.3 Station Catchment Analysis

- 6.3.1 As a 'sanity' check on model forecasts, the observed daily rail trip-rates (calculated using actual 2005 patronage data) for the East / Central Fife stations were compared to the modelled station at Leven.
- 6.3.2 An assumption of 310 working days per year was included in the calculation, as well as annualisation factors used in previous SITCoS work.
- 6.3.3 Table 6.2 shows that the predicted daily rail trip-rate at the proposed Leven station (at 3.5% of the 2.5km catchment population) is slightly higher than the Fife average (which is around 3.1% of catchment population), putting the new station between Burntisland (at 4.1%) and Cupar (at 3.4%). Given the two/hr service pattern, this implied rail trip-rate for the catchment area of the new station seems reasonable. It should be noted that the forecast trip rate lies at the top-end of Fife station trip rates.

Table 6.2 Rail Trip-Rates

Station	Population (2.5 km catchment)	2005 Daily returns	2005 Daily rail trip-rate
Aberdour	1,771	182	10.3%
Burntisland	5,743	233	4.1%
Cardenden	5,359	70	1.3%
Cowdenbeath	14,913	220	1.5%
Cupar	9,072	305	3.4%
Glenrothes	6,127	79	1.2%
Kinghorn	3,130	147	4.7%
Kirkcaldy	31,802	1694	5.3%
Ladybank	2,791	77	2.8%
Lochgelly	9,370	73	0.8%
Markinch	14,751	258	1.8%
Ave. trip rate			3.1%
Predicted 2011 Daily returns			
Leven	21,516	759	3.5%
<i>Note: Daily refers to week-days only, ie Monday to Friday.</i>			

6.4 Isochrone Analysis around Preferred Station Location

- 6.4.1 Three types of accessibility isochrone analysis have been undertaken for the proposed Leven station site (between the former Methil Power station and the rounding facility known as Kirkland loop) based on the existing pattern of local bus services. These are:
- walk isochrone (assuming a 4.8kph walking speed);
 - bus isochrone; and
 - drive isochrone.
- 6.4.2 The isochrone analysis has been undertaken using Accession software. This software allows the user to measure how accessible a specific location is based on time, distance or cost.
- 6.4.3 The walk, bus and drive isochrone maps are presented in Appendix E.
- 6.4.4 The walk isochrone map (Figure E.1) illustrates that from the proposed housing development it would take approximately 30 minutes to walk to the proposed station site given the current network of walk paths in the area. This walk time suggests the proposed station site down in the Leven/Methil town centre area would not be attractive as a walk-in station from the proposed new housing development and that PT feeder services or car-based access would be required.
- 6.4.5 Based on the existing pattern of local bus services, the bus isochrone maps (Figures E.2 & E.3) illustrates bus accessibility to Leven station improves after 9am – the white shaded areas on this maps to the north-east side of Leven (Figure E.2) show the areas where the proposed station is not accessible by bus before 9am. This changes after 9am when buses serving the Leven station site improve. It would take approximately 18 minutes to reach Leven railway station from the proposed housing development by bus.
- 6.4.6 The car drive isochrone map (Figure E.4) illustrate the shorter journey time to Leven station (approximately five minutes) from the proposed housing development. It should be noted that accessing the station by car will require adequate car parking provision close to the station.
- 6.4.7 Additional isochrone and accessibility analysis, including analysis of other station locations is also provided in Appendix E.

6.5 Analysis of 2011 Abstraction Effects

- 6.5.1 Table 6.3 shows the predicted change in rail passenger boardings at neighbouring stations (Kirkcaldy, Markinch and Glenrothes) when the Levenmouth branch line is re-opened with a single station in the Leven/Methil area. (Note that the predicted Do Minimum 2011 rail patronage at Markinch is considerably higher than current levels due to the impacts of splitting the Fife Circle and extending these to start/finish at Markinch and a feeder bus service from the Leven/Methil area).

Table 6.3 Passenger Abstraction - 2011 Boardings

	Kirkcaldy	Glenrothes	Markinch	Leven	Total
AM	-14	0	-116	+156	+26
IP	-21	0	-18	+50	+11
PM	-27	0	-4	+48	+17

6.5.2 These figures suggest that some of the patronage is simply abstracted from the Markinch to Levenmouth shuttle bus services, with a smaller abstraction effect at Kirkcaldy. Rail patronage at Glenrothes is not significantly affected by the proposed scheme. Overall, the new rail service is predicted to produce a modest increase in total rail patronage from the area.

6.6 Destination of Travellers Using New Leven Service

6.6.1 Figures 6.1 and 6.2 show the main destination(s) of rail passengers using the new Leven service in scheme forecast year of 2011, during the AM peak and in the Inter-Peak model hour.

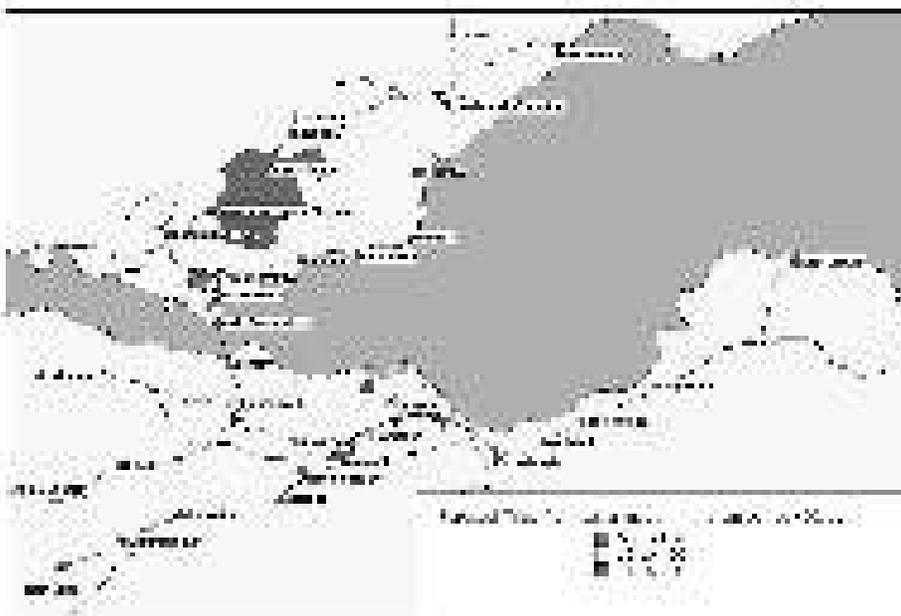
**Figure 6.1 AM Destinations from Leven**



Figure 6.2 Inter-Peak Destinations from Leven

- 6.6.2 It can be seen from these two figures that one of the primary destination for travellers using the new Leven service is the new EARL rail station at Edinburgh airport (this is highlighted by the yellow coloured segment with a range between ten and fifty forecast trips). In the model assumptions, Edinburgh Airport station provides good onward connections using bus / rail / tram to West Edinburgh and the West Lothian / Falkirk / Glasgow areas, as well as providing access to the airport itself.
- 6.6.3 These figures also show that Dunfermline and Rosyth are also popular destinations for the new service.
- 6.6.4 The number of passengers using the new service to access central Edinburgh are low, highlighting the fact that the Levenmouth area (with its journey time of over one hour to Central Edinburgh) is not a particularly-attractive residential location for Edinburgh commuters. (NB Only 2% of 2001 commuters from the Levenmouth area work in Edinburgh, compared to 4% from Kirkcaldy and over 10% from the Dunfermline area: Source Census 2001 Travel to Work Data.)

7 Transport Economic Efficiency Analysis

7.1 Introduction

- 7.1.1 The purpose the Transport Economic Efficiency (TEE) appraisal is to summarise and present transport user benefits. The TEE appraisal presents the net user benefits disaggregated by group (ie consumers on the one hand and business, including transport operators on the other), by mode of transport and by impact (time, vehicle operating costs etc). All the impacts in a TEE appraisal are usually expressed in money terms.
- 7.1.2 The TEE appraisal has been undertaken using the TUBA software. This software undertakes economic appraisal in accordance with the Scottish Executive's STAG recommendations.
- 7.1.3 A TEE appraisal has been completed for each scenario and shows the change in costs and benefits brought attributable to each option relative to the reference case.
- 7.1.4 The TEE appraisal considers the proposals in a number of distinct ways:
- User benefits—travel time savings, user charges and vehicle operating costs;
 - Private sector operator impacts—investment costs, operating and maintenance costs, revenues and grants/subsidies; and
 - Accident benefits
- 7.1.5 Costs to the public sector are then considered in terms of:
- Investment costs;
 - Operating and maintenance costs;
 - Grant/subsidy payments;
 - Revenues; and
 - Taxation impacts.
- 7.1.6 User Benefits are determined for both consumers and businesses. These, together with accident benefits are added to the Private Sector Provider impacts to give a monetary value known as Present Value of TEE Benefits (PVB). Costs to local and central government are calculated and are known as the Present Value of Costs (PVC).
- 7.1.7 The overall measures of the value given by the scheme are known as the **Net Present Value** ($NPV = PVB - PVC$) and the **Benefit to Costs Ratio** ($BCR = PVB / PVC$).
- 7.1.8 The following economic assumptions have been made:
- where possible, all economic parameters (values of time, growth rates etc) are consistent with the values described in WebTag released by the DfT in June 2004;
 - all monetary values in the TEE tables represent 60-year values in 2002 prices and values calculated using a 3.5% discount rate (0-30 years) and 3.0% (31-60 years);
 - an opening year of 2009 has been assumed, with operating costs for the passenger service and passenger benefits assumed up to and including 2068; and

- all costs and benefits are quoted in so-called 'market prices' – these are 20.9% higher than actual cash values (resource values) to take account of the indirect tax correction between cash values of a sum of money and what this sum actually buys in the market place.

7.1.9 The possibility that the capital and / or operating costs may increase has been included in the appraisal. To take account of this possible uncertainty, the capital and costs used in the appraisal have been calculated with an optimism bias and risk correction. The optimism bias and risk correction applied to the capital costings are 44%, the recommended standard civil engineering capital expenditure bias set out in the Treasury's Green Book Guidance. An optimism bias correction of 15% has been applied to the operating cost estimates.

7.2 TEE Appraisal Results

7.2.1 Transport Economic Efficiency (TEE) analysis has been undertaken for the Levenmouth Station option.

7.2.2 In the preparation of the TEE the following assumptions regarding capital and operating costs have been made:

- a new station at Levenmouth costing £1.25m will be developed;
- option 2 signalling costing £0.6m will be implemented;
- land acquisition costs are not included in the station development costs;
- capital costs of £12.1m have been assumed, including station costs, track renewal, signalling and structure costs plus contingency, plus a 44% optimism bias correction;
- the extended services will be operated using Class 170 trains with no additional rolling stock being required to extend the two services to Leven (ie no additional leasing charges will be incurred) - NB if additional rolling stock was required, these additional leasing costs would significantly increase the assumed costs of the scheme;
- the new station will be staffed with one member of staff present through the working day;
- the 6.5 miles of track forming the Levenmouth spur will be considered as new track and will incur annual Fixed Track Access charges;
- the new passengers services will bear the full cost of these Fixed Track Access charges;
- no reduction in the level of bus services (as a result of abstraction of passengers from bus to rail) will occur as a result of the introduction of the rail service;
- the reduction in bus revenue (due to abstraction of passengers from existing bus services to the new rail service) will be met through subsidy from local government;
- any additional rail operating costs not covered by the additional rail revenue will be met through subsidy from central government; and
- no benefits accruing to freight operators using the new line are included.

- 7.2.3 It should be noted that this TEE analysis also **excludes** any costs and benefits associated with splitting the Fife Circle. It is assumed that the Fife Circle will be split prior to the development of the Levenmouth branch line. The impact of splitting the Fife Circle is therefore assumed in both the Reference Case and the Levenmouth Test Case.
- 7.2.4 Tables 7.1, 7.2 and 7.3 summarise the TEE table results. A full TEE table is presented in Appendix F.

Table 7.1 TEE Appraisal Results – Net Present Benefits (£m)

	Benefits (£m)
User Benefits	31.4
Additional Rail Revenue	19.1
Rail Operating Costs	-40.2
Additional Bus Revenue	-7.5
Additional Rail Subsidy	21.1
Additional Bus Subsidy	7.5
Present Value Benefit (PVB)	31.4

Note: 60-year benefits in 2002 prices values and prices

Table 7.2 TEE Appraisal Results – Net Present Costs (£m)

	Costs (£m)
Capital Investment Costs	17.2
Central Government Subsidy (rail)	21.1
Local Government Subsidy (bus)	7.5
Indirect Tax Revenues	2.3
Present Value Cost (PVC)	48.2

Note: 60-year costs in 2002 prices values and prices

Table 7.3 TEE Appraisal Results – TEE Table (£m)

	Costs (£m)
	2002 Prices & Values
60-yr Present Value of Benefit (PVB)	31.4
60-yr Present Value of Costs (PVC)	48.2
Net Present Value (NPV)	-16.8
Benefit to Cost Ratio (BCR)	0.65

Note: 60-year Benefits and Costs in 2002 prices values and prices

7.2.5 These TEE values can be assessed in terms of the Department for Transport’s Value for Money criteria, Table 7.4.

Table 7.4 DfT Value for Money Criteria

VfM Category	Generally options which have
Poor VfM	BCR less than 1
Low VfM	BCR between 1 and 1.5
Medium VfM	BCR between 1.5 and 2.0
High VfM	BCR over 2.0

7.2.6 Using these criteria, the Levenmouth rail link would be considered as being Poor Value for Money.

7.2.7 The low BCR is due in part to the high levels of subsidy required to compensate rail and bus operators for their net loss of revenue (bus operators because of the abstraction from bus to rail and the rail operator because the operating costs of the new service is predicted to exceed the additional revenue).

7.3 TEE Sensitivity Tests

7.3.1 Two sensitivity tests have been undertaken to assess the impact of:

- removing the capital and operating cost optimism bias correction; and
- the removal of fixed track access charges from the operating costs.

7.4 Sensitivity Test: Operating Cost Optimism Bias Correction

7.4.1 The TEE values previously reported include an optimism bias correction of 44% in the calculation of capital costs and 15% in the calculation of operating costs. This bias correction has been included to account for the possibility of increases in the assumed capital and operating costs.

7.4.2 Table 7.5 presents the TEE appraisal results with the optimism bias correction removed.

Table 7.5 TEE Appraisal Results – Operating Cost Optimism Bias Correction Sensitivity Test TEE Table (£m)

	Costs (£m)
Present Value Benefit (PVB)	31.4
Present Value Cost (PVC)	37.7
Net Present Value (NPV)	-6.3
Benefit to Cost Ratio (BCR)	0.83

Note: Benefits and Costs are in 2002 prices values and prices

7.4.3 These results show that the BCR would still be below 1.0 due to the operating costs associated with opening the line.

7.5 Sensitivity Test: Removal of Fixed Track Access Charges

7.5.1 As described above, the operating costs included in the main TEE analysis include the full cost of Fixed Track Access charges for the new track (assumed to be £110,000 per mile per annum). These fixed track access charges cover the maintenance of the network and apply to new stretches of track installed as part of a new service.

7.5.2 Table 7.6 shows the TEE Appraisal result when the fixed track access charges are removed from the operating costs and represents the station is the scheme were being developed on track already within the national rail network.

Table 7.6 TEE Appraisal Results – No Fixed Track Access Charges Sensitivity Test TEE Table (£m)

	Costs (£m)
Present Value Benefit (PVB)	32.8
Present Value Cost (PVC)	27.1
Net Present Value (NPV)	5.7
Benefit to Cost Ratio (BCR)	1.21

Note: Benefits and Costs are in 2002 prices values and prices

7.5.3 These results show that the exclusion of the fixed track access charges from the operating costs result in a BCR above one, but still at a level where the scheme could be considered Low Value for Money.

7.5.4 As mentioned above, this TEE analysis has excluded benefits and costs that may accrue from the use of freight operators on the new line. If freight operators were to use the new line, the fixed track access charges could be shared between the passenger and freight services. This may result in an increase in the final Benefit to Cost Ratio, though probably not the full increase achieved by ignoring completely the track access charges.

7.6 Summary of TEE Analysis

- 7.6.1 The TEE analysis has shown that the scheme, excluding rail freight operator benefits, has a negative NPV and a BCR of 0.65. This indicates that the tested scheme is poor value for money and could not be considered economically robust without additional sources of benefit.
- 7.6.2 This low BCR can be attributed to the following inter-related issues:
- high levels of subsidy required to compensate for the gap between revenue achieved and additional operating costs incurred;
 - the relative high operating costs due to the fixed track access charges being incurred since the track can be considered 'new' to the rail network; and
 - the exclusion of freight benefits (and costs) from the TEE analysis.
- 7.6.3 The quantification of freight benefits was not within the scope of this study. Discussion with the main potential freight user of the line, Diageo (Section 8.3 below) suggests that there is the possibility of removing 32 lorries weekly off the roads if this traffic can be shipped by rail. Further analysis would be required to determine whether such transference of freight from road to rail would result in operational and time saving which would improve the scheme's BCR. The main freight related benefits would be environmental.
- 7.6.4 It should be noted that the full investigation of the operational requirements of the service has not been undertaken. Our analysis has assumed that no additional rolling stock would be required to run the extended services. If additional rolling stock were required, these additional leasing costs would significantly increase the costs associated with the scheme.

8 Additional Broad-Brush Appraisals

8.1 Introduction

8.1.1 Broad-brush appraisals have been undertaken for the:

- introduction of tourist steam train services;
- introduction of freight services; and
- impact on patronage of Levenmouth of the development of Kirkcaldy East Station.

8.2 Tourist Steam Service

8.2.1 A part of this study was to comment on the practical implications of introducing a 'tourist' steam service. One plan for Methil Power Station is to demolish the buildings and develop the site as a tourist facility with a possible rail heritage centre. As part of this plan, two steam engines would be based at Leven.

8.2.2 As discussed in Chapter 3, a number of signalling options were developed as part of the operation work, Table 8.1, with Option 2 being considered the minimum requirement for a half hourly passenger service with freight.

Table 8.1 – Signalling Options

Option	Description	Cost (£k)
1	Only one passenger train on the branch but with the ability to run freight trains to / from Diageo sidings (maximum of hourly passenger service only)	500
2	Crossing loop at Cameron Bridge to allow half hourly passenger service and freight trains to / from Diageo sidings	600
3	Branch is fully signalled with crossing loop and sidings at Cameron Bridge and facility to run trains to / from private sidings at Methil	760

8.2.3 Option 2 works on the 'one train working' principal with a signal at Cameron Bridge. This option requires the each service originates from Thornton, with the signal at Cameron Bridge requiring to be 'switched on' to indicate that there is a train on the line between Cameron Bridge and Leven. If steam services were starting at Leven, this signalling mechanism could not be activated. In addition, a 'run-round' loop facility would be required at Leven to allow the engine to be returned to the front of the train for the return journey. The gradient of the line between Leven and Cameron Bridge would not allow a steam train to be powered from the rear.

- 8.2.4 Option 3 fully signals the branch. This option would allow the heritage steam service to be run. The ability of such a service to fit within passenger and freight services on the branch line would need to be considered and would be most suitable to run on Sundays if passenger and freight services were running at reduced frequencies.

8.3 Rail Freight

- 8.3.1 The implications of providing rail freight on the line were investigated by Scott Wilson as part of this study.
- 8.3.2 Although there has been no regular traffic on this branch for several years, an opencast coalmine at Earlseat is due to be opened for traffic during June 2006. The 'one train' working principle will remain in operation ie with no other train being permitted on to the branch until the one has returned after being loaded (which could be as long as three hours). The life expectancy of the coal workings is three years. Network Rail is in the process of bringing the track up to the required standard but view the track as requiring to be renewed after a relatively short period of time should the traffic levels increase or last for more than three years. However there may be further developments during the interim period in the surrounding area and the facility may be operational for a lot longer. The anticipated loading site is to the west of Double Dykes Crossing, approximately 1.5 miles from Thornton Junction.
- 8.3.3 The main potential client for rail freight is Diageo Ltd who operate the distillery at Cameron Bridge. When consulted as part of this project, Diageo were enthusiastic about moving freight from road to rail.
- 8.3.4 At present, gin and vodka are distilled at Cameron Bridge and neutro-alcohol is brought in as a raw material. Grain whisky is moved to the Blackgrange depot near Alloa. With the re-opening of the Stirling – Alloa route in 2007 there is the possibility of removing 32 lorries weekly off the roads if this traffic can be shipped by rail. Diageo also has a plant at Leven which distributes 25 million cases of alcohol products every year.
- 8.3.5 Diageo favour container based traffic with direct access between Cameron Bridge and W H Malcolm's Grangemouth depot as well as to Mossend and the southern markets. DRS, the freight operator is sole user of the Grangemouth facility and would possibly move the traffic on behalf of Diageo. Diageo is presently connected to the rail network at Cameron Bridge, Figure 8.1. The infrastructure remains in place although the degree of upgrading required has not been assessed.



Figure 8.1 Diageo Siding at the West End of Cameron Bridge

- 8.3.6 As discussed above, Table 8.1, three signalling and infrastructure options have been developed which would allow freight traffic on the line, with Option 2 being considered the minimum to provide the half hourly passenger service.
- 8.3.7 Option 2 would allow freight services to/from Diageo's siding, however Option 3 would also allow freight to operate to/from freight sidings at Methil. Although Diageo is currently the main potential freight user of the line, developments at Methil may introduce future freight customers. Option 3 would provide the flexibility for this opportunity of rail freight to be included within development plans within the Methil area.

8.4 Kirkcaldy East Station

- 8.4.1 The development of a new station on the north-east of Kirkcaldy is a possible future development within the rail network in Fife. Such a station would primarily serve existing and new communities and organisations close to the station but could also act as a park and ride station for North East Fife.
- 8.4.2 The ability of a station to abstract from Levenmouth station would be dependant on the:
- overall journey time (car plus train) from each station; and
 - range of destinations served by the station.
- 8.4.3 The overall journey time of a park and ride journey is a combination of car access time plus the overall rail journey time. The overall rail journey time is a combination of actual in-vehicle time plus a wait penalty (dependant on service frequency) and an interchange penalty (if the traveller is required to change train to reach their final destination).
- 8.4.4 The North East Kirkcaldy station will be situated on the main line between Kirkcaldy and Markinch. On this line both fast and slow train run to/from Edinburgh. Table 8.2 shows the journey time differentials of the different services for both Markinch and Kirkcaldy (Winter 2005 timetable), plus the proposed journey time from Levenmouth.

Table 8.2 Journey times to Edinburgh

Station	Service	Journey Time (minutes)
Markinch	Fast	45
	Slow	58
Kirkcaldy	Fast	37
	Slow	48
North East Kirkcaldy	Fast (estimated)	41
	Slow (estimated)	53
Levenmouth	Via Kirkcaldy	65

8.4.5 If the proposed new station at North East Kirkcaldy were to be served by fast services to Edinburgh, Dundee and Aberdeen, this new station may be attractive to potential Park and Ride passengers from the Levenmouth area.

8.4.6 However, we believe the threat of Kirkcaldy East on patronage on the Levenmouth branch line is fairly small, for the following reasons:

- in reality, it is unlikely that fast inter-urban services (from Dundee and Aberdeen) would serve a new station at Kirkcaldy East, so the new 'slow' Park and Ride alternative provided by Kirkcaldy East would remain less attractive than the existing fast services from Markinch;
- also, as noted earlier, many of the passengers using the new Levenmouth service are existing bus passengers and are unlikely to have sufficient car-availability to make use of Park and Ride; and
- many using the proposed Levenmouth service are travelling to the Dunfermline and Rosyth area (which would not be served by rail services from the Kirkcaldy East station).

8.4.7 For these reasons we do not think that a new station in NE Kirkcaldy poses a significant **abstraction** threat to the viability of the Levenmouth branch-line, though the extra stop and associated increase in journey times to Kirkcaldy and beyond will tend to reduce the attractiveness of the new Levenmouth service. (NB This extra delay would more than offset any benefit from increased rail patronage between Levenmouth and the new Kirkcaldy East station, which is too short a distance to be an attractive rail movement).

9 Conclusions and Recommendations

9.1 Summary

- 9.1.1 An assessment of proposed re-opening of the Levenmouth branch-line has been undertaken using the CEC LUTI model used in previous SITCoS work. The main scheme would involve the re-opening of a 40mph branch-line and the development of a new station at Levenmouth. The new station would be serviced by two trains per hours between Levenmouth and Edinburgh via Edinburgh Airport Station, using alternate sides of the Fife Circle. These services are assumed to be extensions of services via EARL which currently terminate at Glenrothes and Kirkcaldy (as recommended by the SITCoS study).
- 9.1.2 In addition to demand forecasting of the proposed scheme, an operational review of the proposed development was undertaken producing an estimate of the signalling requirement and capital costs of the scheme.
- 9.1.3 The assessment of the scheme suggests that the station would attract approximately 800 passengers per day on a typical weekday in 2011. This predicted level of patronage compares well with existing stations within Fife with an rail daily trip rate higher than the average Fife rail daily trip rate (approximately 2.5% of catchment population). The predicted daily trip rate puts the new station between Burntisland (at 4.1%) and Cupar (at 3.4%) at the top end of the Fife station trip rates.
- 9.1.4 However, analysis of the predicted patronage figures shows that much of this patronage is simply abstracted from existing rail services from Markinch and existing bus services from the Levenmouth area. The additional rail operating costs incurred are not likely to be fully met by additional revenue.
- 9.1.5 A Transport Economic Efficiency (TEE) Appraisal was undertaken using the capital costs produced in the operational review and revised operating costs. The TEE analysis produced a Benefit to Cost Ratio (BCR) of 0.65 which would suggest that the scheme can not be considered economically robust in pure cost-benefit terms. The Department for Transport Value for Money Criteria requires a BCR to be above 1.5 for a scheme to be considered medium value for money (Section 7.2.4).
- 9.1.6 During Phase 1 of this appraisal (reported in Information Note 33, April 2005) a BCR close to 1.0 was reported. Although the 60-year user benefits achieved in the current appraisal are approximately £20 million (2002 prices & values) higher than the corresponding Phase I estimates. The improved benefits are primarily the result of improved line speeds. The lower BCR reported is due to higher assumed capital costs (350% higher) and higher operating costs (170% higher).

9.2 Discussion and Recommendations

- 9.2.1 As described in Section 2.2, this assessment of the Levenmouth branch-line was undertaken using the CEC LUTI model used in previous SITCoS work. The work assumed that by 2011 the current Fife Circle services would be 'split' to start and finish at Markinch, providing one train per hour via Glenrothes and one train per hour via Dunfermline. In addition, two extra cross-Forth trains per hour, one from Kirkcaldy and one from Glenrothes to Edinburgh via

the new Edinburgh airport station would be in place. These would use the spare paths created by the removal of coal freight from the Forth Bridge to the Stirling – Alloa – Kincardine line. This operating pattern provided the starting Reference Case.

- 9.2.2 The 'Do-Something' assessment of the Levenmouth branch-line assumed that these two new local Fife services via the airport would be extended to start and finish at Leven / Methil.
- 9.2.3 It should be noted that since the commission of the Levenmouth Feasibility Study, Transport Scotland has commissioned a Strategic Rail Review as part of the development of a National Transport Strategy. This review will include consideration of the future provision of rail services within Fife and between Fife and Edinburgh and Dundee / Aberdeen. Any additional services identified by this review may use some of the additional cross-Forth paths created by the removal of coal freight and hence may invalidate our reference case assumptions.
- 9.2.4 In addition, the development of the Regional Transport Strategy for the SESTRAN region (including Fife and Edinburgh) is currently underway. The Final RTS will be completed in January 2007. The RTS will set the tone and direction for major transport planning initiatives across the SESTRAN area for the next four to five year period (and possibly beyond).
- 9.2.5 The outcome of this Strategic Rail Review and the SESTRAN Regional Transport Strategy are currently unknown. Although the assumptions contained within the current study (ie that the Fife Circle services will be split) may remain valid, it is not possible to ascertain this at the present moment. The recommendations of both the Strategic Rail Review and the SESTRAN RTS may significantly differ from the assumption used in this Levenmouth Feasibility work. If this is the case, the change in future service provision in Fife will impact on the performance of a reopened Levenmouth line as reported in this study. Until both the Rail Strategic Review and the SESTRAN RTS are published it is not possible to determine how the feasibility of the Levenmouth line will be affected by any changes proposed to both the Fife Circle and services arising from the development of EARL.
- 9.2.6 It is therefore premature to make a full recommendation on the future of the Levenmouth line. At the present time it is recommended that the alignment should be safeguarded to ensure the option of reopening the line in the future. This will allow the feasibility of the Levenmouth branch to be revisited at a later date, as part of a wider review of Fife and East Coast rail services.

Appendices

Appendix A – Terms of Reference

From: Ian Fyfe [mailto:if@stggr.com.au]
 To: David Green <info@stggr.com.au>
 Reply: Thu, 14 Feb 2008 10:01 AM
 Subject: re: 2008-11-11

Hi David,

As stated, I would like to see the same, say, covered under the first one.

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Yours sincerely,

Ian Fyfe
 The St. George's Bank Group
 1101-1102-1103

Appendix B – Proposed Study Approach



20 September 2020

Dear Sirs / Madams,

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Re: Covid-19 Risk;

Further to the meeting on 18/09/2020, the following items were discussed:

Agenda:

Lynnmouth Passenger Rail Service – Additional Work

1. A report on the proposed work of 20 September and a meeting of 20 September together with a further assessment of the Lynnmouth strand. The work was agreed to be done in a separate production line, to be done by 15/10/2020.

2. A report on the work of 20 September and a meeting of 20 September together with a further assessment of the proposed work of 20 September. It was agreed to do the work and make the necessary arrangements to be done by the end of the month of 20/09/2020.

3. A report on the work of 20 September and a meeting of 20 September together with a further assessment of the proposed work of 20 September.

Work Required to Complete Stage 1 of the Lynnmouth

The report to come on the following items of work was agreed to be done by the end of 20/09/2020:

- 1. A report on the work of 20 September and a meeting of 20 September together with a further assessment of the proposed work of 20 September.
- 2. A report on the work of 20 September and a meeting of 20 September together with a further assessment of the proposed work of 20 September.
- 3. A report on the work of 20 September and a meeting of 20 September together with a further assessment of the proposed work of 20 September.
- 4. A report on the work of 20 September and a meeting of 20 September together with a further assessment of the proposed work of 20 September.
- 5. A report on the work of 20 September and a meeting of 20 September together with a further assessment of the proposed work of 20 September.



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- All members of the teaming will be expected to contribute to the following activities which involve preparation of reports etc.

Priority/Identified Areas of Tasks

Task 9a – Management and Reporting

The overall time taken for the project is estimated to take 10 weeks. The first PFA planning meeting will be held on 15th September and the last on 11th October. There will be a final meeting on 11th July and 11th September.

- April 1,500 plus 10%

- The project will be supported by a team of representatives, including a local resident, who will be available.

Task 10 – Model and analysis of all of the identified needs

The overall time taken for the project is estimated to take 10 weeks. The first PFA planning meeting will be held on 15th September and the last on 11th October. There will be a final meeting on 11th July and 11th September.

- April 1,500 plus 10%

Task 12 – Development of comparative analysis of Ebbing File 90 time distributions

The overall time taken for the project is estimated to take 10 weeks. The first PFA planning meeting will be held on 15th September and the last on 11th October. There will be a final meeting on 11th July and 11th September.

- April 1,500 plus 10%

Task 13 – The identification of New Lavenham Church Station

The overall time taken for the project is estimated to take 10 weeks. The first PFA planning meeting will be held on 15th September and the last on 11th October. There will be a final meeting on 11th July and 11th September.

- The overall time taken for the project is estimated to take 10 weeks. The first PFA planning meeting will be held on 15th September and the last on 11th October. There will be a final meeting on 11th July and 11th September.
- The overall time taken for the project is estimated to take 10 weeks. The first PFA planning meeting will be held on 15th September and the last on 11th October. There will be a final meeting on 11th July and 11th September.
- The overall time taken for the project is estimated to take 10 weeks. The first PFA planning meeting will be held on 15th September and the last on 11th October. There will be a final meeting on 11th July and 11th September.

By: **10/16/2017**
10/16/2017
Page 3

1. **Topic: 12,500 (July 2017)** - **Issue: 12,500 (10/16/2017)** - **Issue: 12,500 (10/16/2017)** - **Issue: 12,500 (10/16/2017)**

2. **Topic: 12,500 (July 2017)** - **Issue: 12,500 (10/16/2017)** - **Issue: 12,500 (10/16/2017)** - **Issue: 12,500 (10/16/2017)**

New Phase 10 Tasks

3. **Topic: 12,500 (July 2017)** - **Issue: 12,500 (10/16/2017)** - **Issue: 12,500 (10/16/2017)** - **Issue: 12,500 (10/16/2017)**

Topic: 12,500 (July 2017) - Further Optimization of the Service Pattern

4. **Topic: 12,500 (July 2017)** - **Issue: 12,500 (10/16/2017)** - **Issue: 12,500 (10/16/2017)** - **Issue: 12,500 (10/16/2017)**

Topic: 12,500 (July 2017)

Topic: 12,500 (July 2017) - In-depth Analysis around the New Standard

5. **Topic: 12,500 (July 2017)** - **Issue: 12,500 (10/16/2017)** - **Issue: 12,500 (10/16/2017)** - **Issue: 12,500 (10/16/2017)**

Topic: 12,500 (July 2017)

Topic: 12,500 (July 2017) - Roll Forward

6. **Topic: 12,500 (July 2017)** - **Issue: 12,500 (10/16/2017)** - **Issue: 12,500 (10/16/2017)** - **Issue: 12,500 (10/16/2017)**

Topic: 12,500 (July 2017)

Topic: 12,500 (July 2017) - Roll Forward

7. **Topic: 12,500 (July 2017)** - **Issue: 12,500 (10/16/2017)** - **Issue: 12,500 (10/16/2017)** - **Issue: 12,500 (10/16/2017)**

Connally
§ 87(2)(b) - (d)
b7c

These materials have been an amalgam of information, compiled to avoid taking any action to be construed as a public release of information. It is not intended to be a public release of information. The actual information is being made available by the U.S. Attorney, Southern District of New York, and the U.S. Attorney of the District of Columbia. The actual information is being made available to the U.S. Attorney of the District of Columbia. The actual information is being made available to the U.S. Attorney of the District of Columbia.

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Task 10 - Report Production

1. Review of the information concerning the activities of the U.S. Attorney.

Budget: \$1,500,000

Budget & Funds

The U.S. Attorney of the District of Columbia has a budget of \$20,000,000.

The U.S. Attorney of the District of Columbia has a budget of \$20,000,000. The U.S. Attorney of the District of Columbia has a budget of \$20,000,000. The U.S. Attorney of the District of Columbia has a budget of \$20,000,000.

The U.S. Attorney of the District of Columbia has a budget of \$20,000,000.

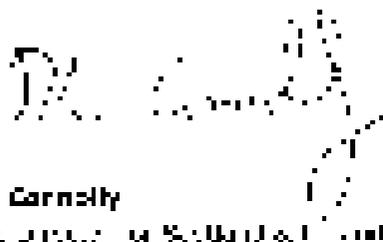
Timelines

The U.S. Attorney of the District of Columbia has a budget of \$20,000,000. The U.S. Attorney of the District of Columbia has a budget of \$20,000,000. The U.S. Attorney of the District of Columbia has a budget of \$20,000,000.

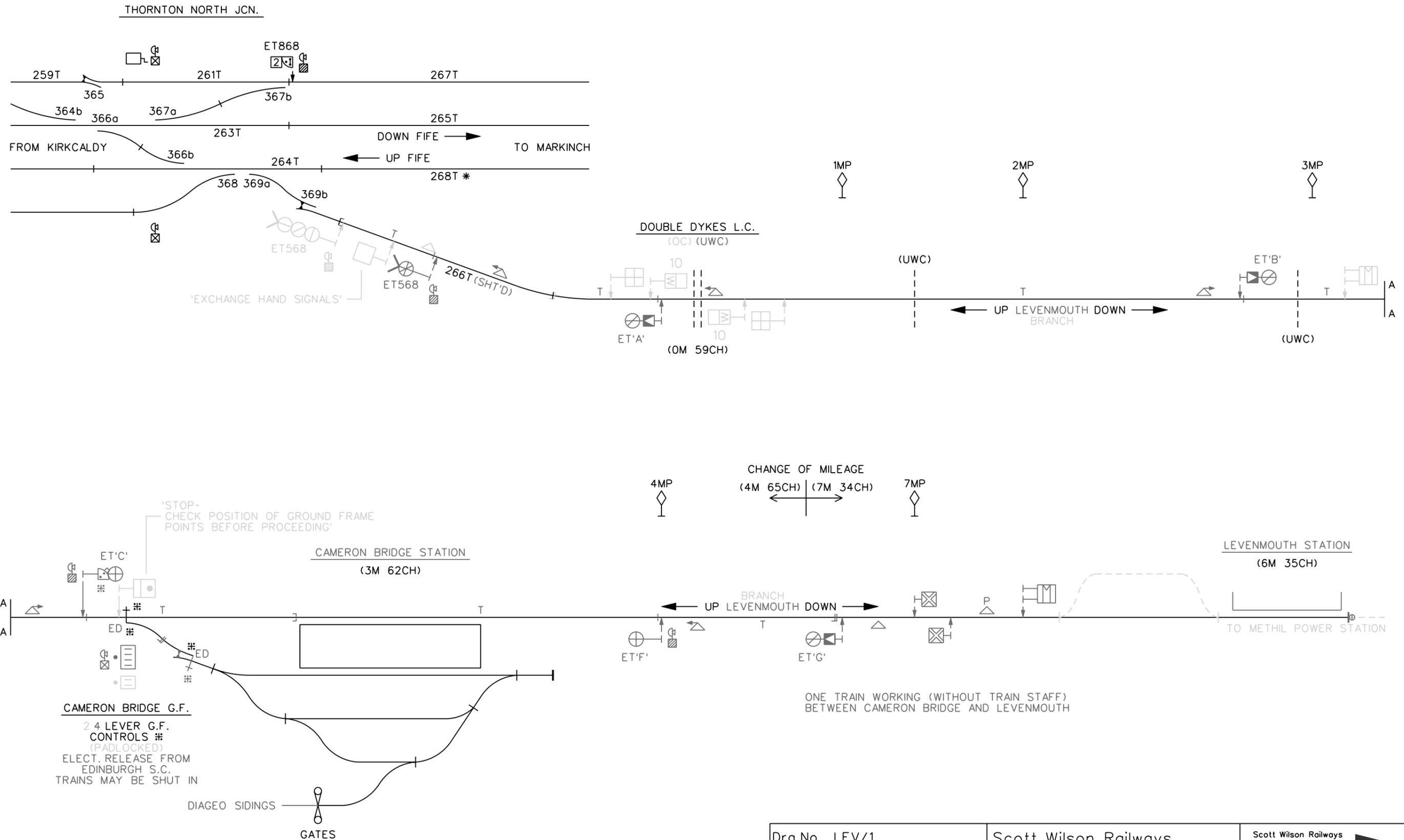
The U.S. Attorney of the District of Columbia has a budget of \$20,000,000. The U.S. Attorney of the District of Columbia has a budget of \$20,000,000. The U.S. Attorney of the District of Columbia has a budget of \$20,000,000.

The U.S. Attorney of the District of Columbia has a budget of \$20,000,000.

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David Connally
U.S. Attorney of the District of Columbia

Appendix C – Scott Wilson Report



'STOP-CHECK POSITION OF GROUND FRAME POINTS BEFORE PROCEEDING'

CAMERON BRIDGE STATION
(3M 62CH)

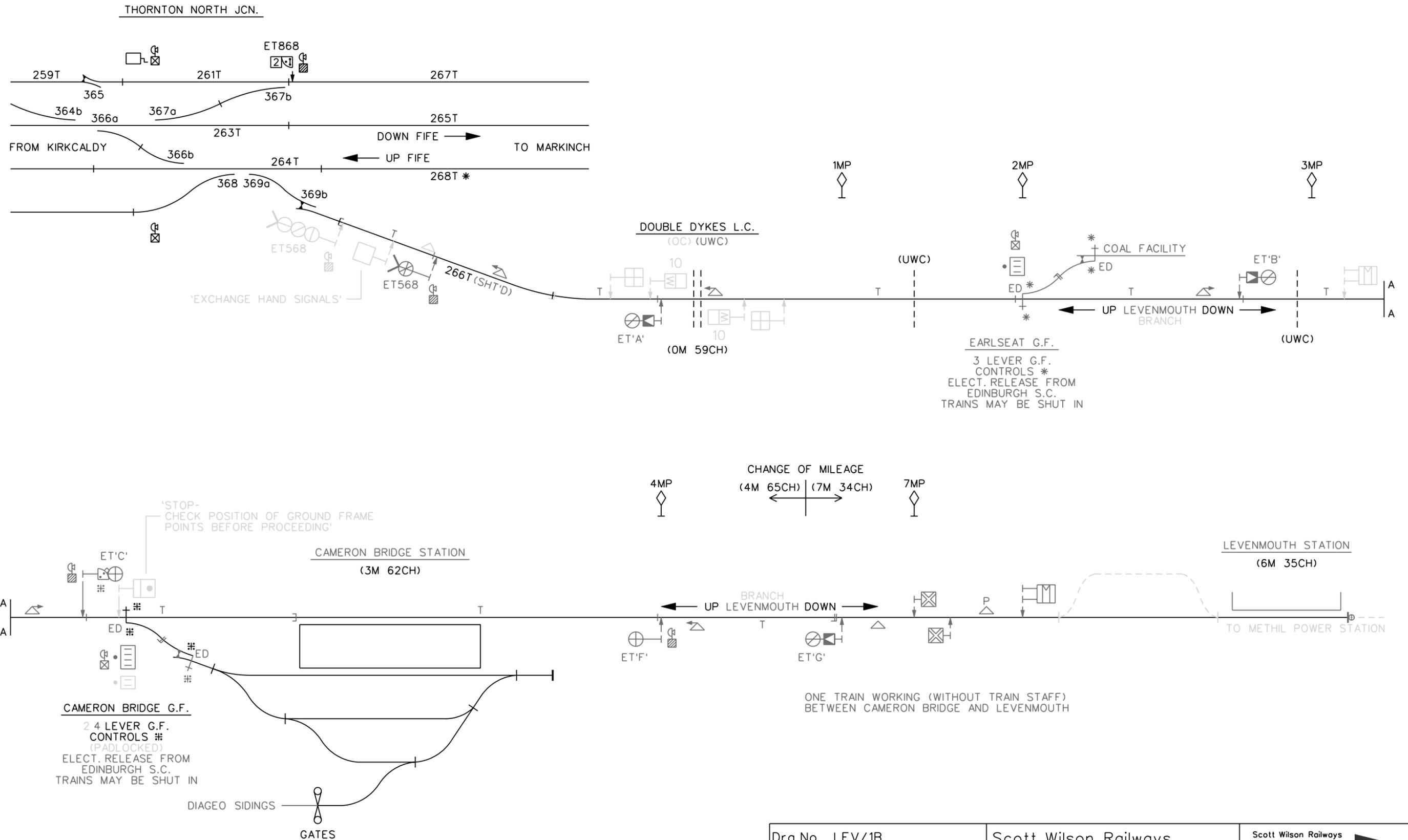
CAMERON BRIDGE G.F.
2 4 LEVER G.F. CONTROLS # (PADLOCKED)
ELECT. RELEASE FROM EDINBURGH S.C.
TRAINS MAY BE SHUT IN

DIAGEO SIDINGS

GATES

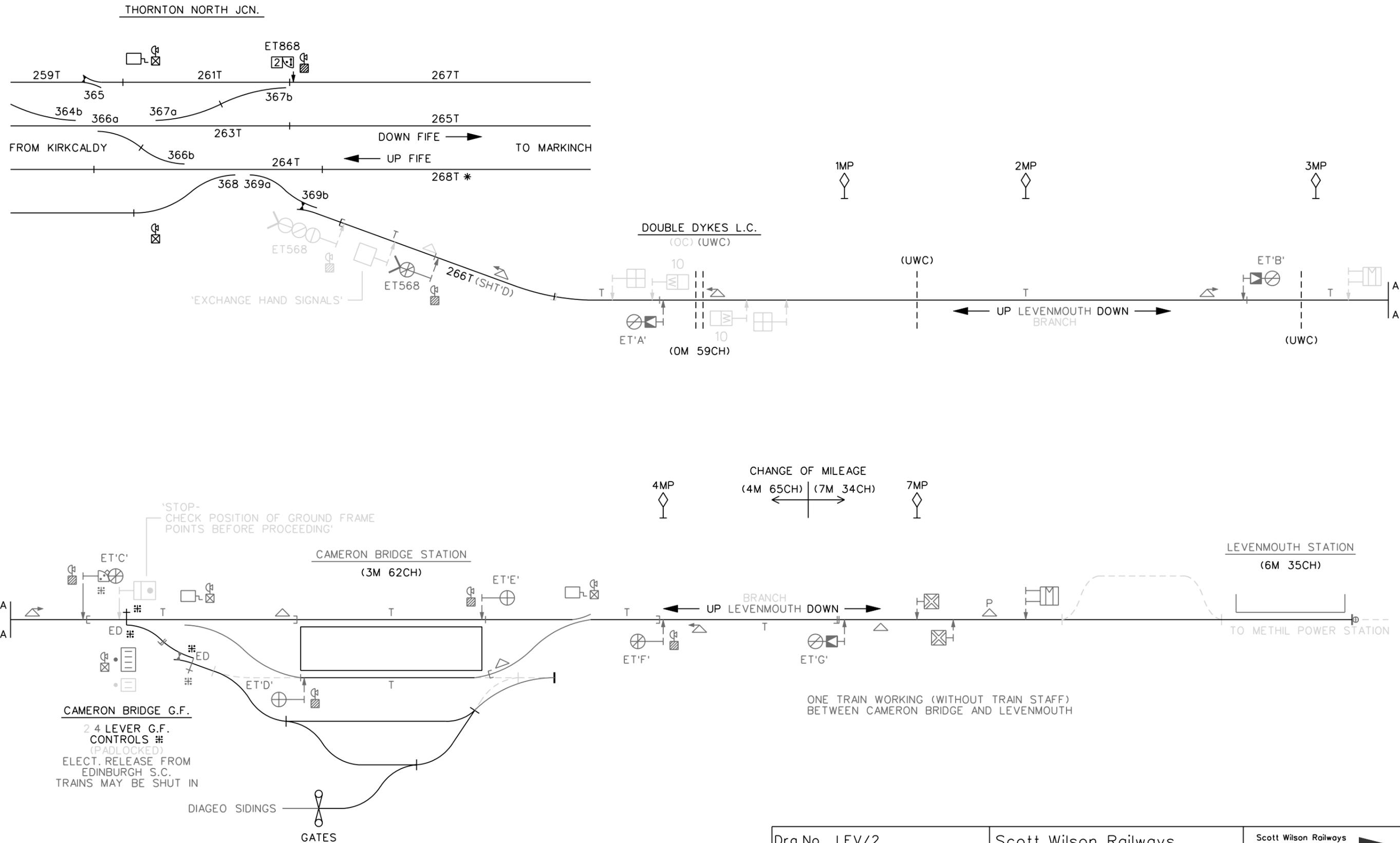
NOT TO SCALE.
* DENOTES ASTER TRACK CIRCUIT.
TPWS TRANSMITTER LOOPS OMITTED.
ALTERATION TO EDINBURGH S.C. PANEL REQUIRED.
ALTERATION TO THORNTON R.R. EMERGENCY PANEL REQUIRED.

Drg.No. LEV/1		Scott Wilson Railways		Scott Wilson Railways Buchanan House 58 Port Dundas Road Glasgow G4 0HG Telephone 0141 335 3223 Fax 0141 335 2757	
Produced		EDINBURGH S.C.		LEVENMOUTH BRANCH REOPENING OPTION 1	
Checked					
Approved					
Issued					
				Sht. No. 1 of 1	Version 1



NOT TO SCALE.
 * DENOTES ASTER TRACK CIRCUIT.
 TPWS TRANSMITTER LOOPS OMITTED.
 ALTERATION TO EDINBURGH S.C. PANEL REQUIRED.
 ALTERATION TO THORNTON R.R. EMERGENCY PANEL REQUIRED.

Drg.No. LEV/1B		Scott Wilson Railways		Scott Wilson Railways Buchanan House 58 Port Dundas Road Glasgow G4 0HG Telephone 0141 335 3223 Fax 0141 335 2757	
Produced		EDINBURGH S.C.		LEVENMOUTH BRANCH REOPENING OPTION 1B	
Checked					
Approved					
Issued					
				Sht. No. 1 of 1	
				Version	1



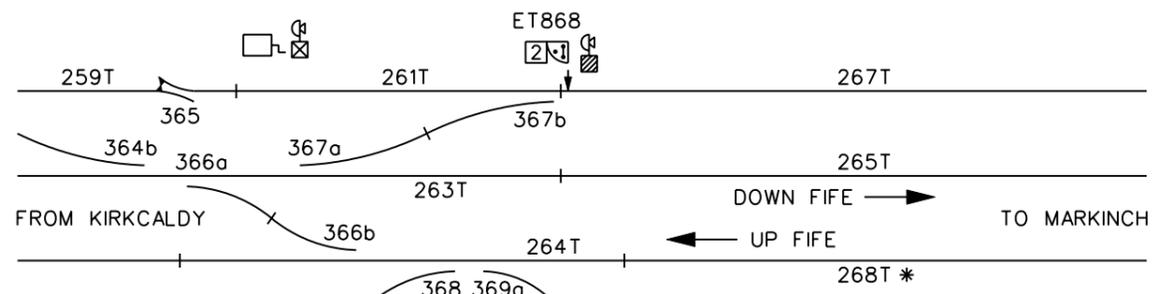
NOT TO SCALE.
 * DENOTES ASTER TRACK CIRCUIT.
 TPWS TRANSMITTER LOOPS OMITTED.
 ALTERATION TO EDINBURGH S.C. PANEL REQUIRED.
 ALTERATION TO THORNTON R.R. EMERGENCY PANEL REQUIRED.

Drg.No.	LEV/2		
Produced			
Checked			
Approved			
Issued			

Scott Wilson Railways	
EDINBURGH S.C.	
LEVENMOUTH BRANCH REOPENING OPTION 2	

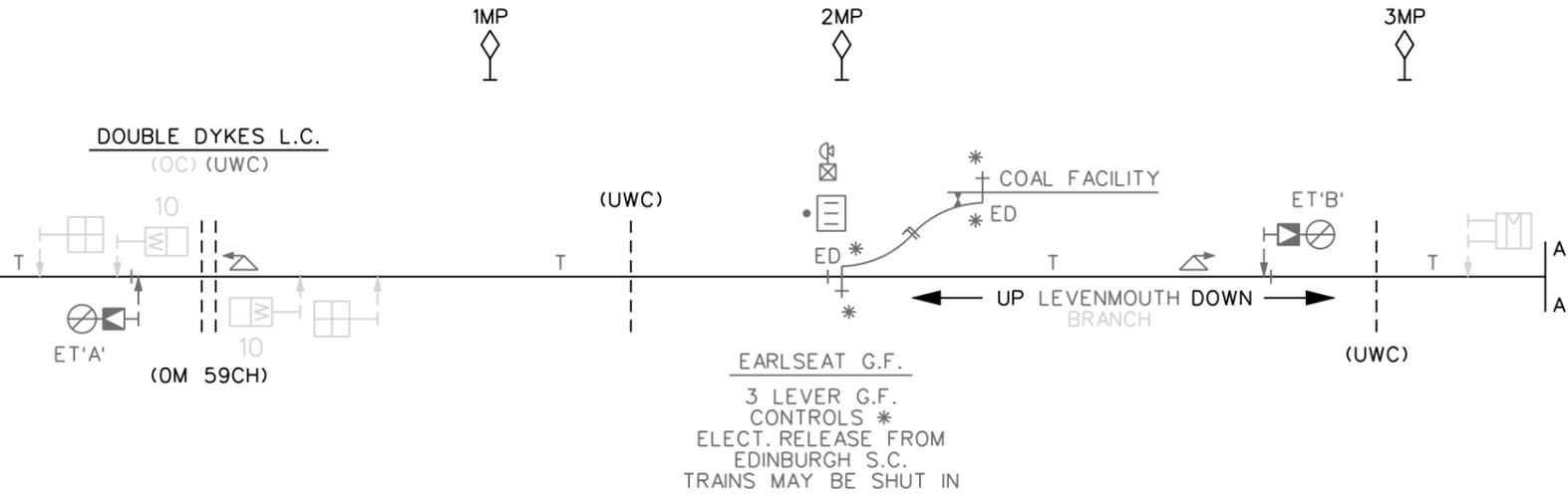
Scott Wilson Railways Buchanan House 58 Port Dundas Road Glasgow G4 0HG Telephone 0141 335 3223 Fax 0141 335 2757		
Sht. No. 1 of 1		
Version	1	

THORNTON NORTH JCN.



'EXCHANGE HAND SIGNALS'

DOUBLE DYKES L.C.
(OC) (UWC)



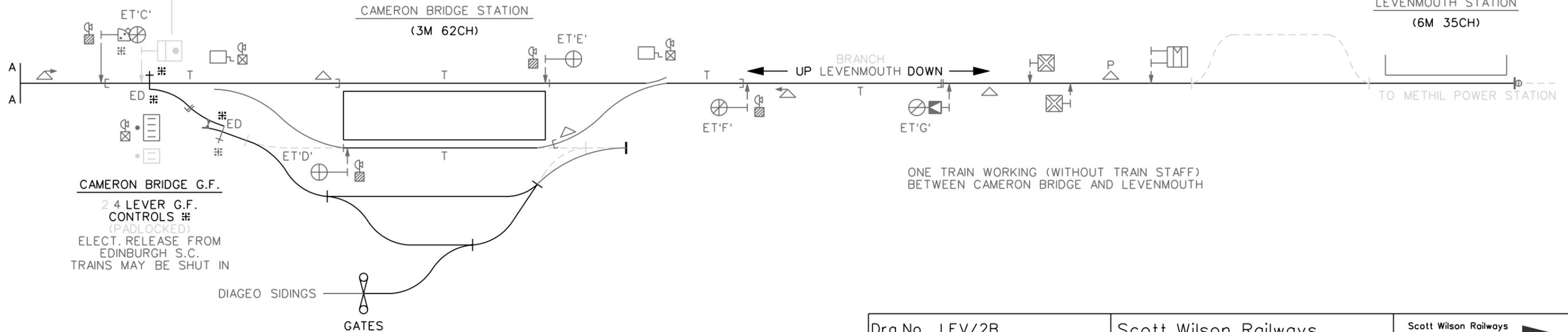
EARLSEAT G.F.
3 LEVER G.F.
CONTROLS *
ELECT. RELEASE FROM
EDINBURGH S.C.
TRAINS MAY BE SHUT IN

CHANGE OF MILEAGE
(4M 65CH) | (7M 34CH)

'STOP-
CHECK POSITION OF GROUND FRAME
POINTS BEFORE PROCEEDING'

CAMERON BRIDGE STATION
(3M 62CH)

LEVENMOUTH STATION
(6M 35CH)



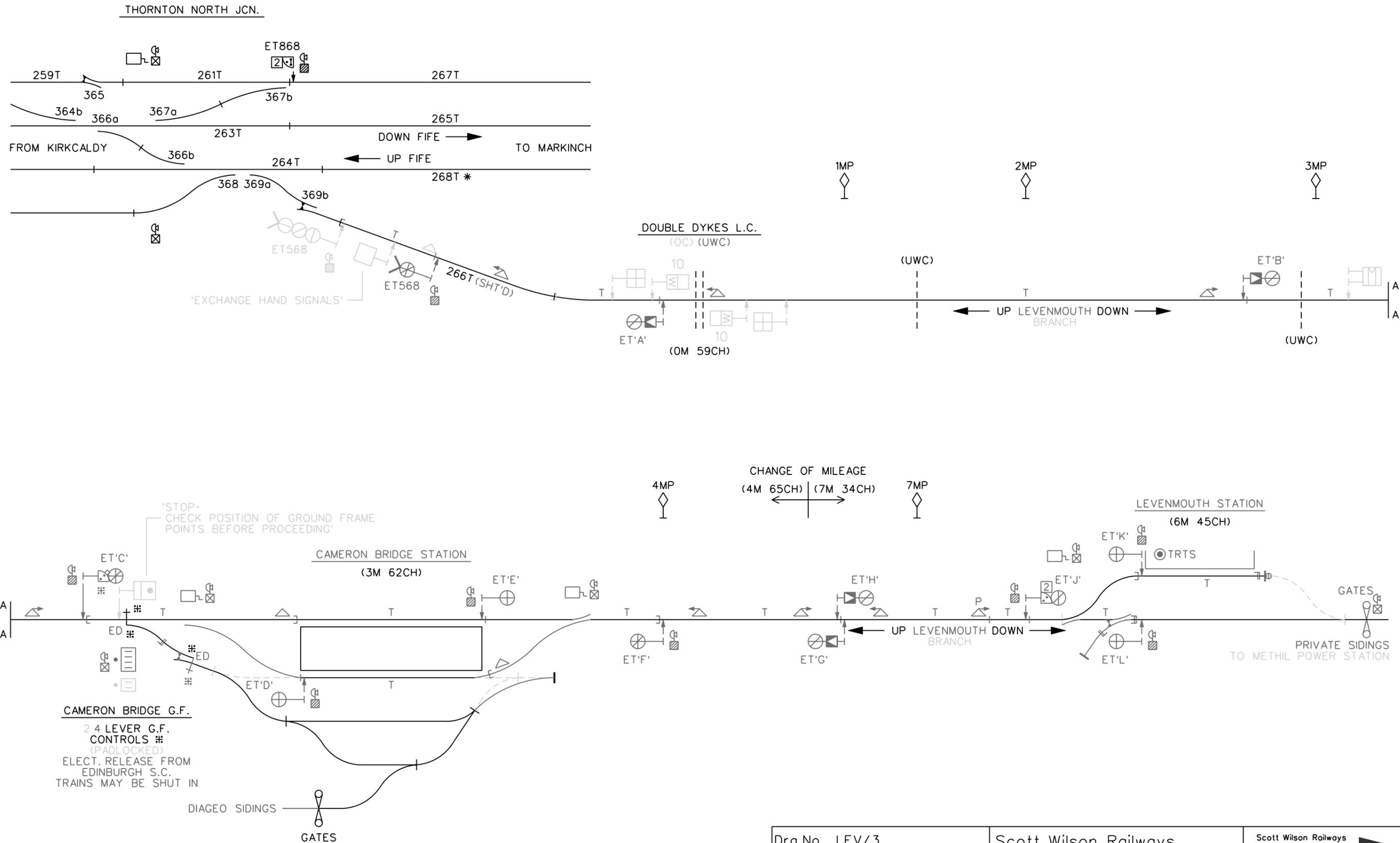
CAMERON BRIDGE G.F.
2 4 LEVER G.F.
CONTROLS #
(PADLOCKED)
ELECT. RELEASE FROM
EDINBURGH S.C.
TRAINS MAY BE SHUT IN

ONE TRAIN WORKING (WITHOUT TRAIN STAFF)
BETWEEN CAMERON BRIDGE AND LEVENMOUTH

NOT TO SCALE.
* DENOTES ASTER TRACK CIRCUIT.
TPWS TRANSMITTER LOOPS OMITTED.
ALTERATION TO EDINBURGH S.C. PANEL REQUIRED.
ALTERATION TO THORNTON R.R. EMERGENCY PANEL REQUIRED.

Drg.No. LEV/2B		Scott Wilson Railways		Scott Wilson Railways Buchanan House 58 Port Dundas Road Glasgow G4 0HG Telephone 0141 335 3223 Fax 0141 335 2757	
Produced		EDINBURGH S.C. LEVENMOUTH BRANCH REOPENING OPTION 2B			
Checked				Sht. No. 1 of 1	
Approved				Version	
Issued				1	



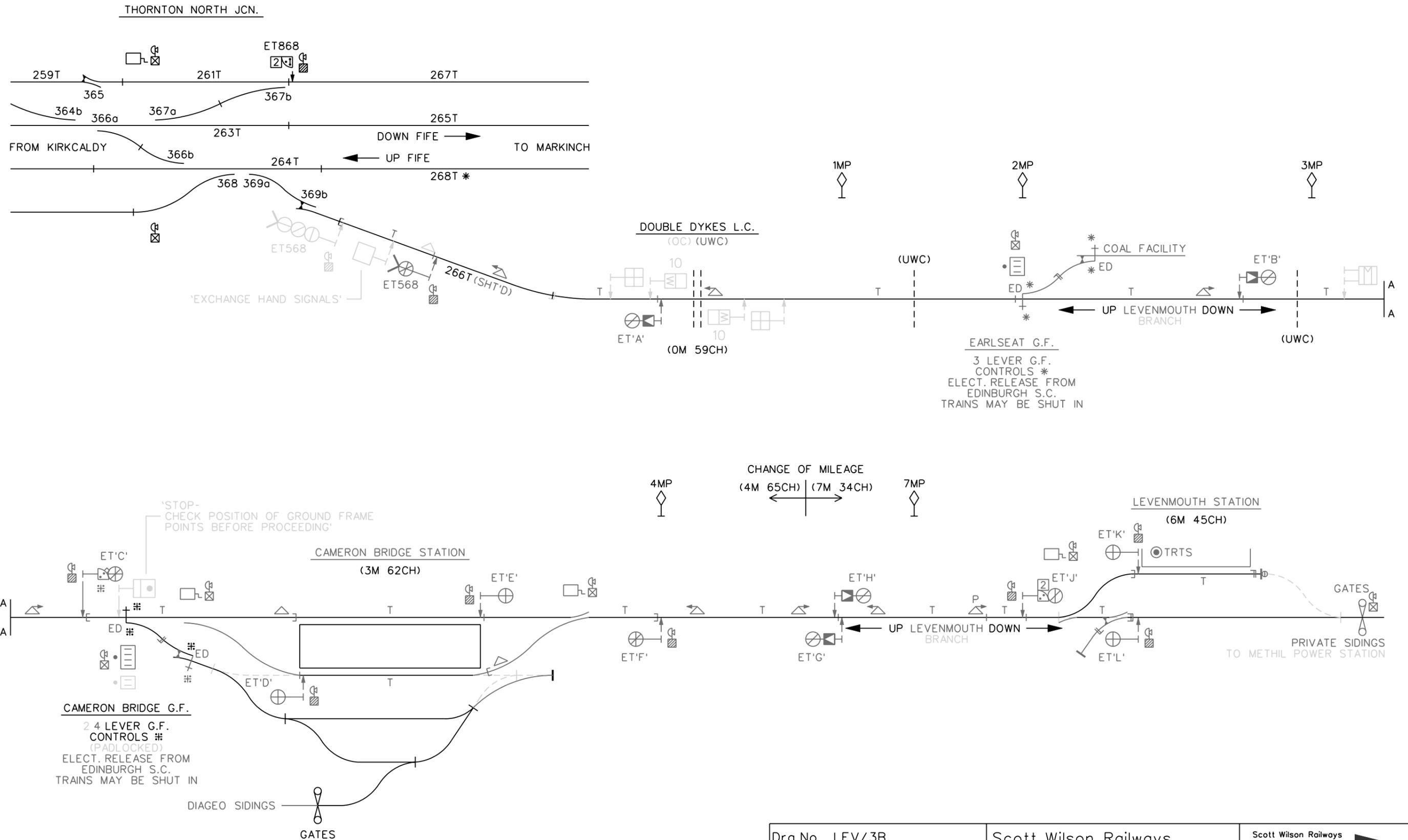


NOT TO SCALE.
 * DENOTES ASTER TRACK CIRCUIT.
 TPWS TRANSMITTER LOOPS OMITTED.
 ALTERATION TO EDINBURGH S.C. PANEL REQUIRED.
 ALTERATION TO THORNTON R.R. EMERGENCY PANEL REQUIRED.

Drg.No.	LEV/3		
Produced			
Checked			
Approved			
Issued			

Scott Wilson Railways	
EDINBURGH S.C.	
LEVENMOUTH BRANCH REOPENING OPTION 3	

Scott Wilson Railways Buchanan House 58 Port Dundas Road Glasgow G4 0HG Telephone 0141 335 3223 Fax 0141 335 2757		
Sht. No. 1 of 1		
Version	1	



NOT TO SCALE.
 * DENOTES ASTER TRACK CIRCUIT.
 TPWS TRANSMITTER LOOPS OMITTED.
 ALTERATION TO EDINBURGH S.C. PANEL REQUIRED.
 ALTERATION TO THORNTON R.R. EMERGENCY PANEL REQUIRED.

Drg.No. LEV/3B		Scott Wilson Railways	
Produced		EDINBURGH S.C. LEVENMOUTH BRANCH REOPENING OPTION 3B	
Checked			
Approved			
Issued			
		Scott Wilson Railways Buchanan House 58 Port Dundas Road Glasgow G4 0HG Telephone 0141 335 3223 Fax 0141 335 2757	
			
		Sht. No. 1 of 1	
		Version 1	

Appendix D – Planning & Land-Use Assumptions

Planning Information

The figures below show, between now and the end of the new Structure Plan, the additional developments proposed in all areas. Phasing dates have been shown where available.

1. The number and type of housing proposed for the Levenmouth area.

A minimum of 1,200 units. The bulk of the new housing, 1,200 units, will be provided on the SDA. There may be additional smaller sites. The phasing will be 2006-11 300 units, 2011-16 300 units, 2016-21 300 units, and 2021-26 300 units.

2. The employment provision proposed for the Levenmouth area.

25ha of general industrial/business land in the SDA and spread over the 20 year period. In addition, 40ha at Methil waterfront.

3. Any additional jobs which have come into affect since January 1999 in the Levenmouth area.

In the period 2000-04, 215 new jobs were created mainly at Windygates (70) and Leven (100) .

4. Any additional housing which has been built in the area since January 1999 in the Levenmouth area.

Between 1 April 1999 and 31 March 2004 there were 651 new houses built.

5. The number and type of housing proposed for the area between East Finglassie and Strathore Road, Thornton.

1,200 new houses phased as follows 2006-11 250 units, 2011-16 100 units, 2016-21 250 units, 2021-26 600 units. Mainly mainstream housing but with some affordable units.

6. Is there to be any further employment expansion proposed between East Finglassie and Strathore Road, Thornton?

No - the nearest large scale employment land provision will be at Lochty side (90 ha of business land)

7. The number and type of housing proposed between Redhouse & Gallatown Roundabouts and Standing Stanes Road.

1,750 units in total. Phased as follows: 2006-11 350 units, 2011-16 400 units, 2016-21 500 units, 2021-26 500 units. Mainstream housing - not affordable.

8. The employment provision proposed between Redhouse, Galatown Roundabouts and Standing Stanes Road.

50 ha of business land.

9. Can you make an estimate of the number of jobs these areas could attract? Or at least what type of employment you are expecting?

Following discussions with Economic Development colleagues. There is no reliable way of converting areas of land into jobs. However, a very crude measure would be 125 jobs per hectare of land.

Appendix E – Accessibility of Levenmouth Station

Scale (time, mins)

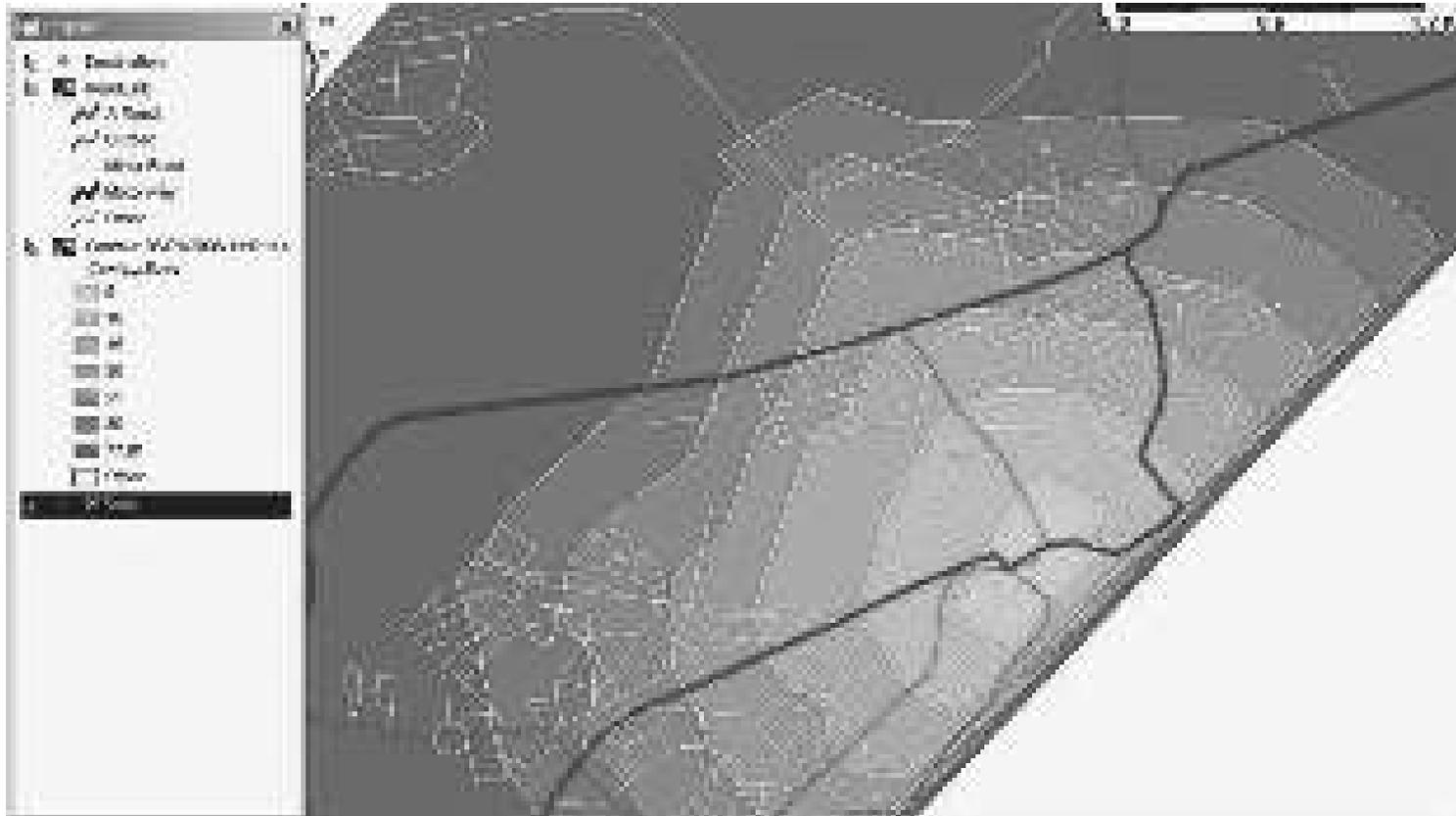


Figure E.1 Walk Accessibility to Proposed Leven Station

Scale (time, mins)

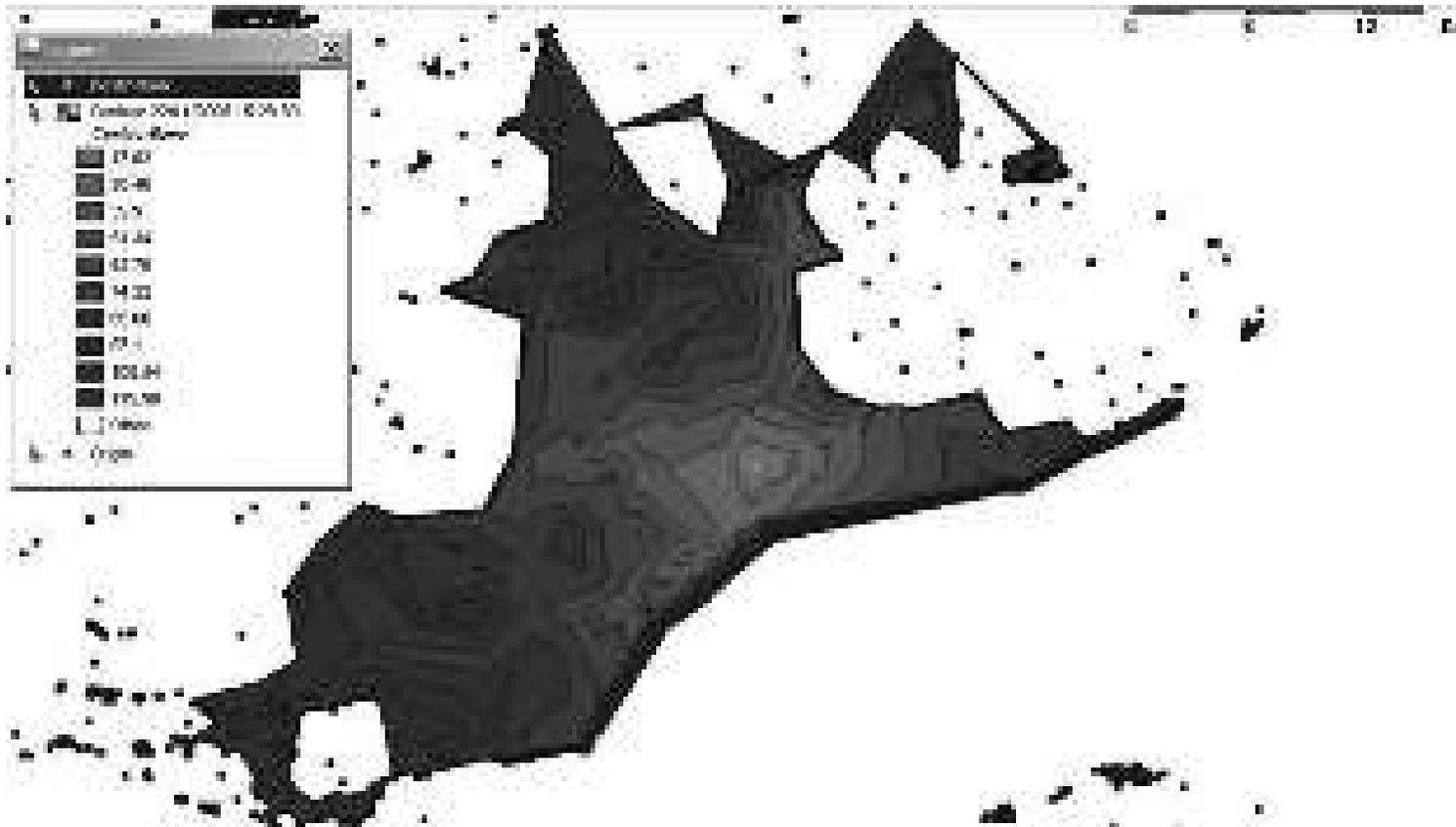


Figure E.2 Bus Accessibility to Proposed Leven Station (7am - 9am)

Scale (time, mins)

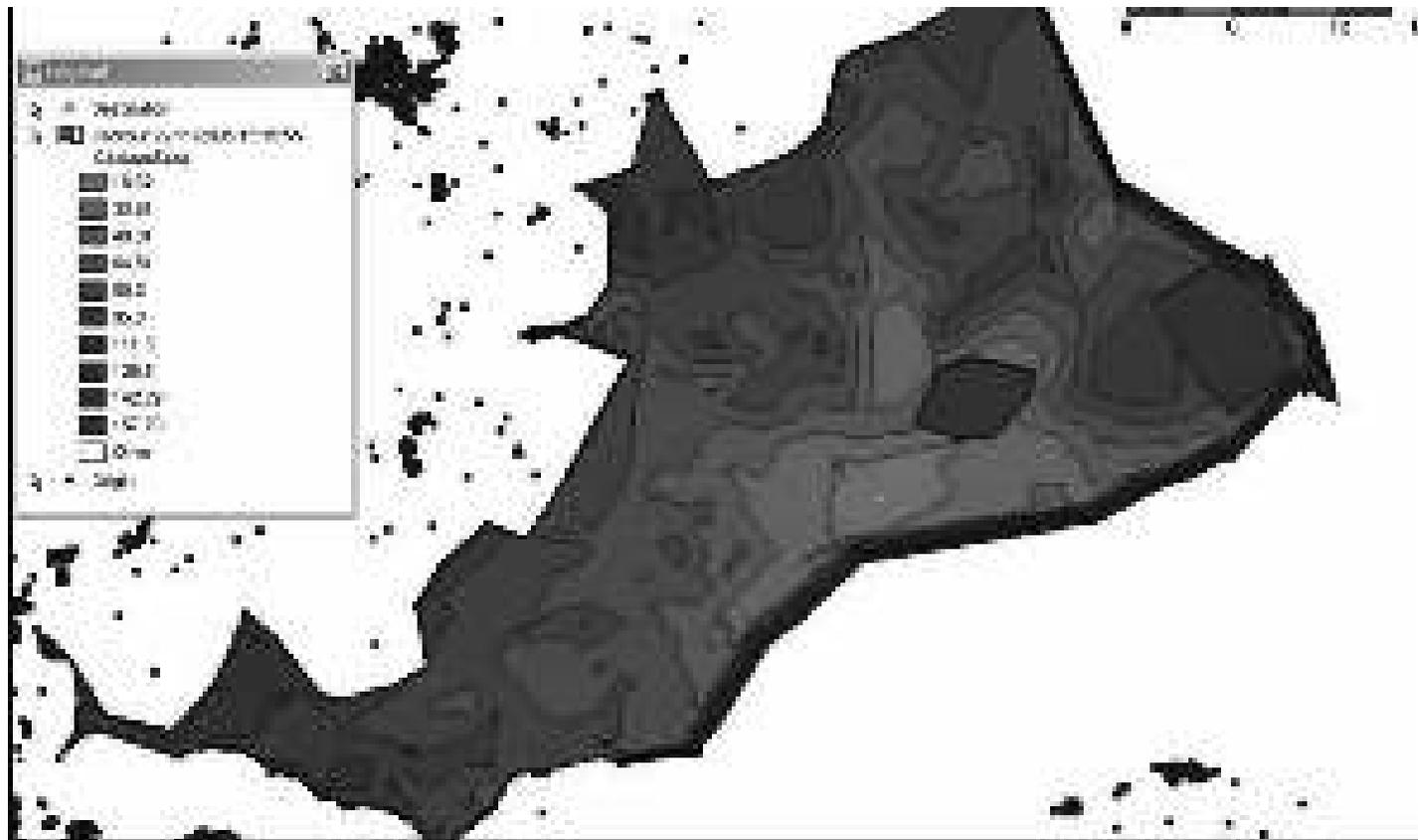


Figure E.3 Bus Accessibility to Proposed Leven Station (7am – 1pm)

Scale (time, mins)

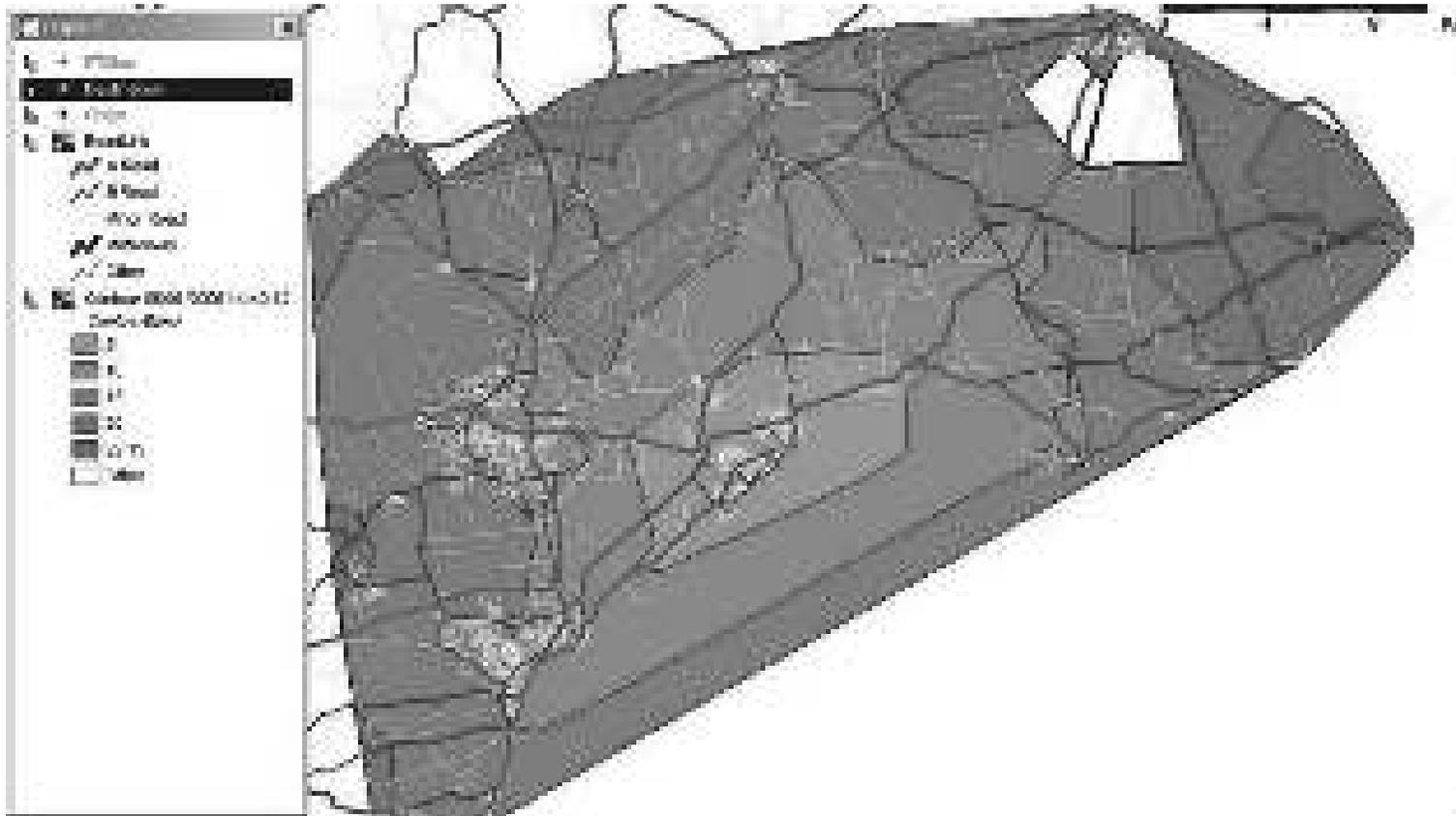


Figure E.4 Car Accessibility to Proposed Leven Station

In addition to the isochrone analysis around the preferred station location (outlined in Chapter 6), further walk/bus/drive isochrone analysis has been undertaken at a site adjacent to the proposed housing development..



Figure E.5 Other station locations

This further analysis is depicted in figures E.6 – E. 11 (all scales are in time, mins).

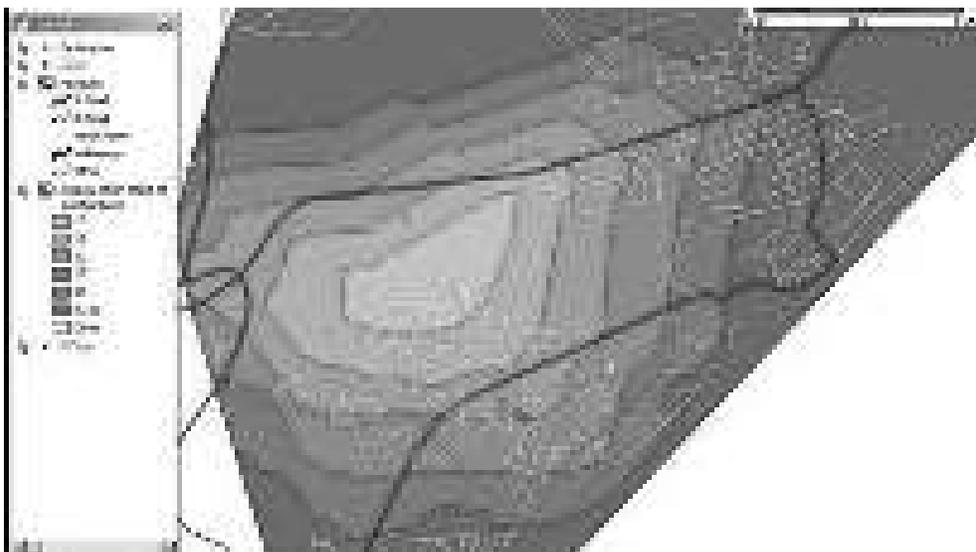


Figure E.6 Walk Accessibility to site adjacent to proposed housing development



Figure E.7 Bus Accessibility to site adjacent to proposed housing development (7am – 9am)

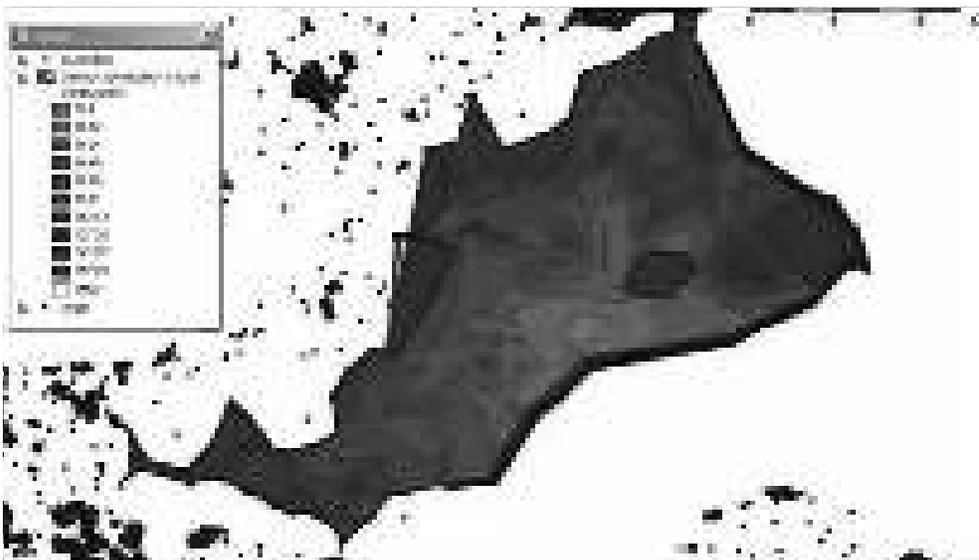


Figure E.8 Bus Accessibility to site adjacent to proposed housing development (7am – 1pm)

In general, there is less accessibility to all station locations (Figure E.5) before 9am, this changes after 9am when buses serving the Leven station site improve.

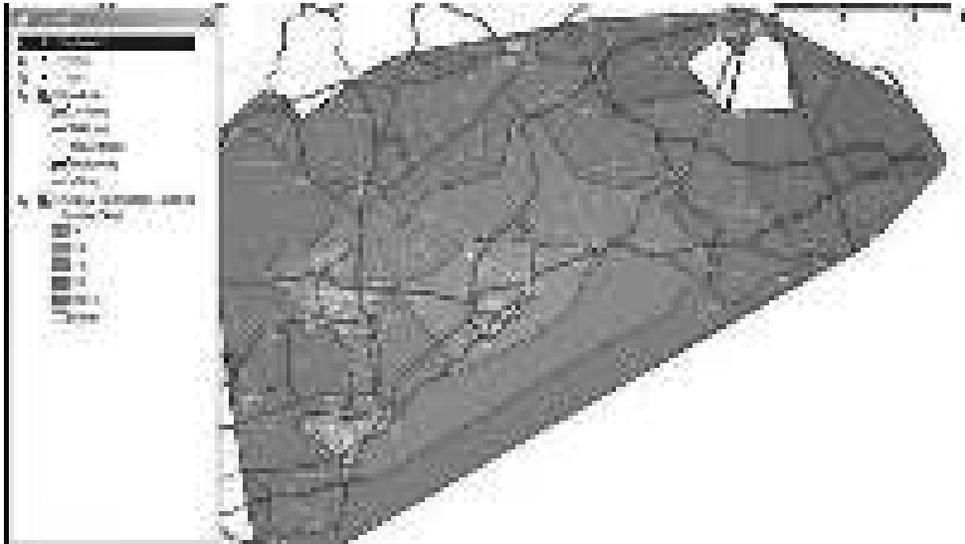


Figure E.9 Car Accessibility to site adjacent to proposed housing development

Figure E.10 illustrates bus journey times (based on Traveline Data) to areas throughout Fife, Edinburgh and Glasgow from Leven bus station.

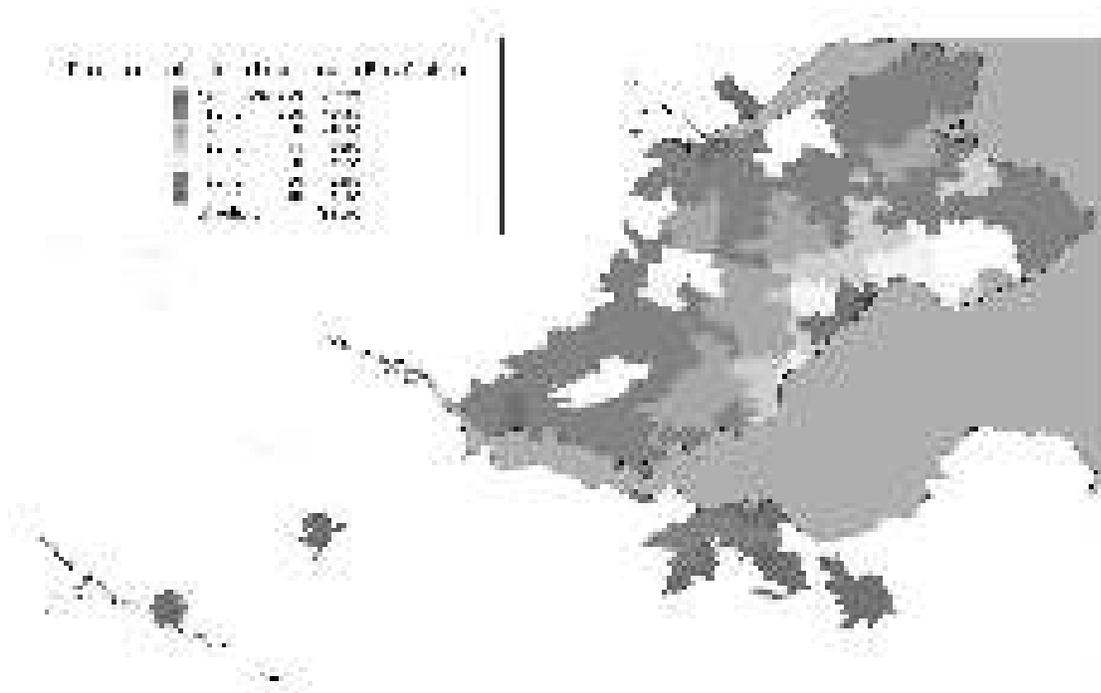


Figure E.10 Bus journey times from Leven to areas in Fife, Edinburgh and Glasgow

Appendix F – Levenmouth Scheme TEE Table

Levenmouth Scheme TEE Table

Economy: Economic Efficiency of the Transport System (TEE)

Do Minimum Opening Year=	vs	Levenmouth Rail Re-opening (44% Optimism Bias)
	2009	
Price Base year =	2002	Discount Rates (0-
Discount Year =	2002	30 yrs) 3.5%
Appraisal Period	60 yrs	(31-75 yrs) 3.0%

Impact Total Present Value
£M

Accident Benefits **0.000** (1)

User Benefits

	Car/LGV	Public Transport	Other
Personal Travel			
Travel Time	37.230	15.035	22.195
Vehicle Operating Costs	0.793	0.793	X
User Charges	-8.680	0.000	-8.680
NET IMPACT	29.343 (2)	15.828	13.515
Freight			
Travel Time	1.700		
Vehicle Operating Costs	0.333		
User Charges	0.000		
Rail Freight Costs	0.000		
NET IMPACT	2.033 (3)		

PT Operator Impacts

	Rail Revenue	Bus Revenue
Revenue	11.577	19.069
Operating Costs	-40.172	-40.172
Investment Costs	0.000	0.000
Grant/subsidy	28.594	21.102
NET IMPACTS	0.000 (4)	7.492

Public Sector Provider Impacts

	Road Infrastructure	PT Infrastructure	Other
Revenue	0.000		
Operating Costs	0.000		
Investment Costs	17.245	17.245	
NET IMPACTS	17.245 (5)	17.245	0.000

Other Government Impacts

	Road Infrastructure	Public Transport	Other
Grant/subsidy payments	28.594	21.102	7.492
Indirect Tax Revenues	2.348	0.411	1.937
NET IMPACTS	30.942 (6)	23.039	7.492

STAG Monetised Summary

Present Value of Transport Benefits (PVB)	31.376 =1+2+3+4
Present Value of Cost to Government (PVC)	48.187 =5+6
Net Present Value (NPV)	-16.811 =PVB+PVC
Benefit-Cost to Government Ratio	0.65 =PVB/(PVC x -1)



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