2.7 Interaction of Environmental Effects

As with any large scale development the examination of environmental impacts cannot be treated as if the impacts are mutually exclusive. The individual authors have covered the effects of the interaction of environmental impacts, where these interactions are critical.

Listed below is a summary of the most important interactions between environmental impacts. Many, but not all, of these interactions relate to the effect on Human Beings, i.e. a localised effect on the population in the immediate vicinity of the treatment works.

a. Interaction between Water and Ecology Impacts

The discharge of partially treated stormwater and treated final effluent from the wastewater treatment works at Knockthomas to the Castlebar River has a direct effect on water quality in that river. This effect on water quality has an obvious bearing on the quality of flora and fauna in the river. In Section 2.2 (Ecology) this effect on flora/fauna is discussed, particularly in relation to fish stocks in the river.

b. Interaction between Visual and Human Being Impacts

The upgrading and expansion of Castlebar Wastewater Treatment Works will result in an alteration to ground levels and will involve the construction of new buildings and other structures associated with any large scale secondary wastewater treatment works. Given that the treatment works is currently surrounded by many housing developments and that further housing developments are planned for the surrounding areas, if adequate landscaping measures are not put in place for the upgraded works, this could have a detrimental effect on the desirability of the area in terms of future housing. The impact on Human Beings (i.e. the local residents) can only be mitigated by careful and adequate landscaping measures. Proposals for landscaping measures have been outlined in Section 2.6.

c. Interaction between Odour and Human Being Impacts

As discussed in (b) above, the existing wastewater treatment works is in close proximity to housing developments. Odour nuisance associated with the current works has been experienced in the area around the works. The upgraded and expanded treatment works will require extensive odour abatement measures to ensure that the local population do not experience ongoing odour nuisance. Proposals with respect to boundary conditions for odour levels have been covered in Section 2.4.2 but detailed odour abatement proposals will be dependent on technologies put forward as part of the design/build/operate procurement procedure.

d. Interaction between Noise and Human Being Impacts

As with odour impact, noise impact has a direct relationship to the impact on human beings, as discussed in Section 2.4.1. Suitable noise abatement measures will be required at the upgraded and expanded treatment works to ensure that the local residents are not adversely affected by the proposed development. Failure to provide for such measures may result in an unwillingness of locals to reside in the vicinity of the wastewater treatment works.

e. Interaction between Noise and Landscape Impacts

There is a direct relationship between landscaping proposals for the new works and the abatement of noise impact on the local residents. Extensive landscaping proposals which will be put in place to reduce the visual impact of the proposed development will have a secondary benefit of reducing noise levels from the new treatment works.

2.8 Cultural Heritage

Report Prepared by

Archaeological Services Unit,
Purcell House,
Oranmore,
Co. Galway.

2.8.1 General Introduction

This report was prepared by the writer on behalf of the Archaeological Services Unit Ltd, Oranmore, Co. Galway. It is concerned with assessing the impact of a proposed extension to the Castlebar Wastewater Treatment Works. The proposed development is located in an archaeologically sensitive area, with a fairly high density of archaeological sites occurring in the general vicinity. As a number of design options are available for the proposed development this assessment comprises of a field and desk study of the immediate site and a more general survey of the surrounding monuments.

2.8.2 Site Location

Townland:	Knockthomas	Parish:	Aglish
Barony:	Carra	OS 6-inch Sheet:	Mayo : 78
Plan & Trace	07:03	OD:	0-100 feet
SMR No's:	MA : 078: 1, 2, 3, 25, 4, 62.		

Siting

The site of the proposed development at Knockthomas is located in an area of undulating hills North-East of Castlebar Town. The proposed development site, adjacent to the existing facility is currently under rough pasture. The terrain is hilly and rutted from livestock. The more low-lying land north of the access road is marshy and overgrown. From the brow of the hill the site provides good views in all directions.

Access

The site situated North-East of Castlebar on the Turlough road is easily accessed via a signposted laneway on the outskirts of the town.

2.8.3 Archaeological Brief

Following discussions with Mr. Brian Gallagher, Consultant Engineer, Patrick J. Tobin & Co. Ltd. and the Archaeological Services Unit Service, the following archaeological brief was agreed upon.

1. An archaeological assessment in the form of a field and desk study to be undertaken to compile a list of the archaeological sites that will be affected either directly or visually by the proposed development.

2. A desk top survey compiling all the monuments in the immediate vicinity.

3. A series of recommendations to be included as part of 1. above, that will mitigate the effects that this development will have on the existing archaeological landscape.

2.8.4 Summary

This report was undertaken in two parts. The first involved research of a number of cartographic and literary sources, followed by a programme of field walking, which took place from July 11-12, 2000. The survey involved an inspection of the proposed development site as well as the surrounding fields. No above ground features of any archaeological significance were noted during the course of the fieldwalking.

Site Investigation

List of Archaeological Sites and Monuments

The following is a list of archaeological sites and monuments compiled from the recorded monuments register that lie within or around the vicinity of the proposed development.

Site No.	Class	SMR No.	Townland
Site 1	Possible Earthwork	78:62	Knockthomas
Site 2	Enclosure	78:4	Springfield
Site 3	Possible Enclosure	78:25	Gorteendrunagh
Site 4	General Town No.	78.3	Castlebar

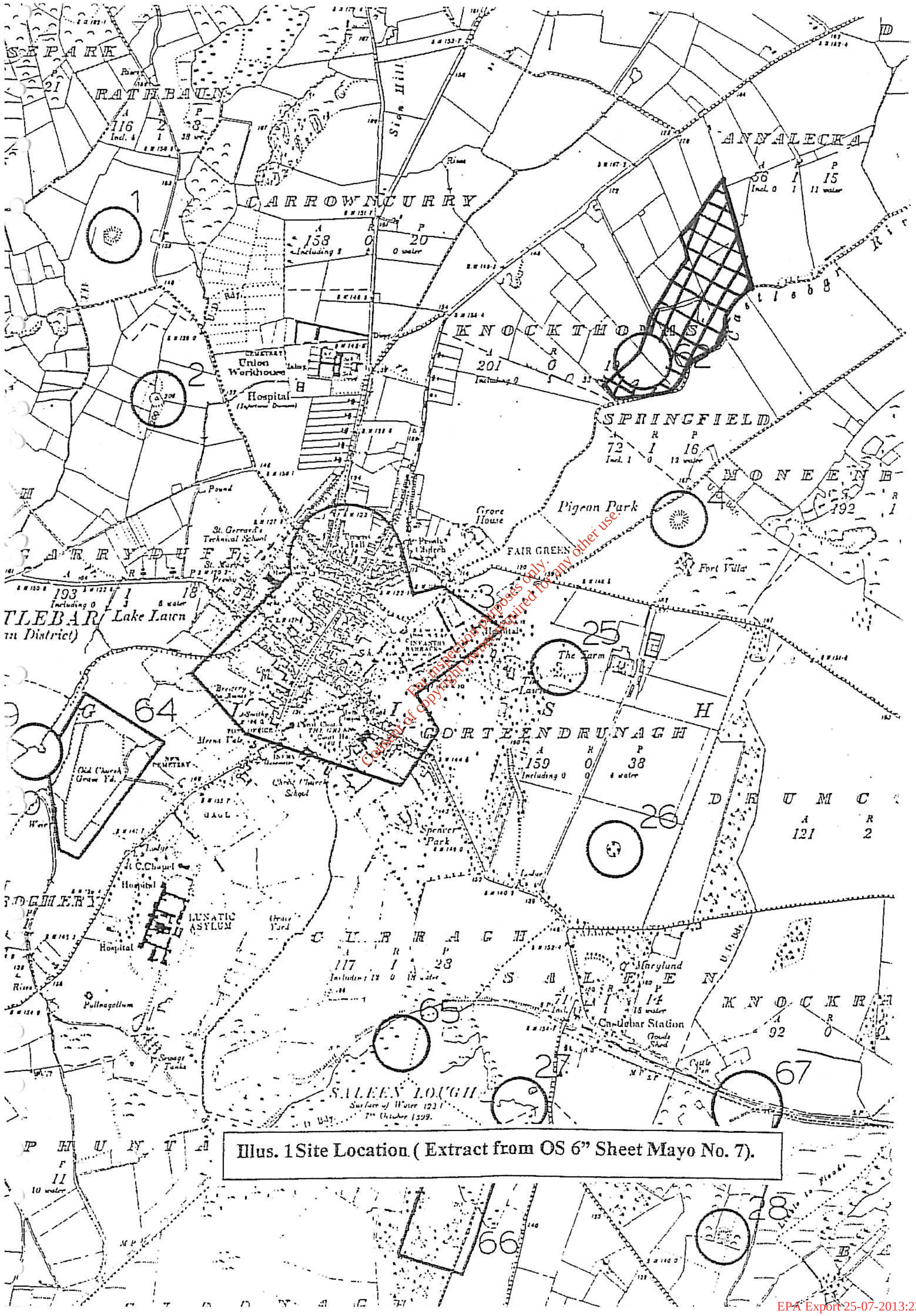
With the exception of Site 1 all the aforementioned sites are located outside the immediate development area and are unlikely to be directly affected by any future groundwork connected to the proposed works.

Situated within the confines of the existing water treatment facility however is SMR site No.78:62. This feature is classified as an unknown earthwork, which is a term applied to items, generally no longer visible but which are marked on the various editions of the O.S. maps in a manner resembling archaeological monuments. This feature is no longer in existence and was possibly demolished during the construction of the original wastewater treatment works.

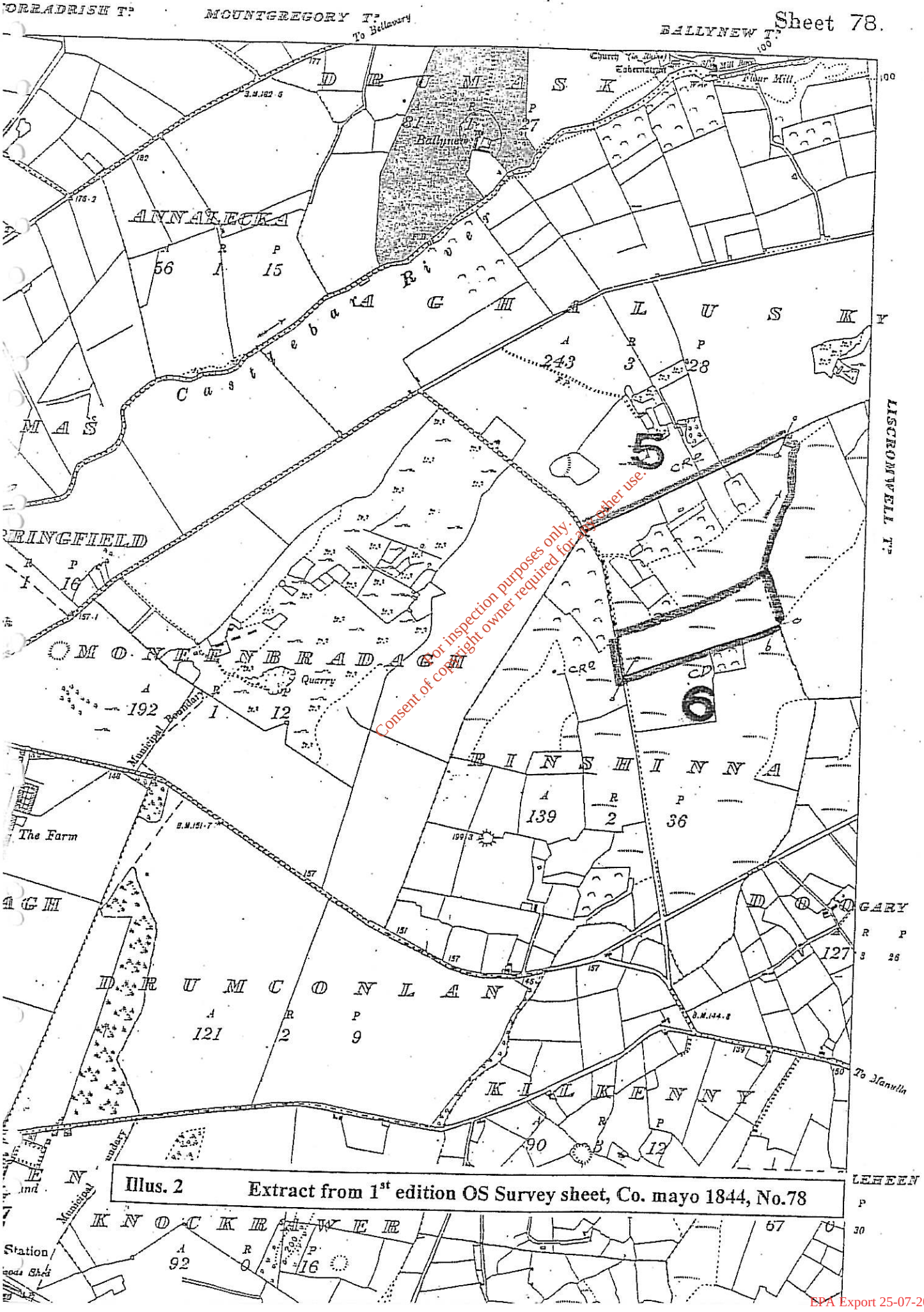
2.8.5 Mitigation Measures

In the absence of a final design plan it is recommended that as a minimum measure all topsoil stripping be monitored by a licensed archaeologist throughout the course of the project. Furthermore, if the proposed development affects the immediate vicinity of the listed sites a programme of pre-development testing should be implemented. Provision should also be made for full excavation under licence to Duchas, The Heritage Service in the event of hitherto unknown sites being exposed.

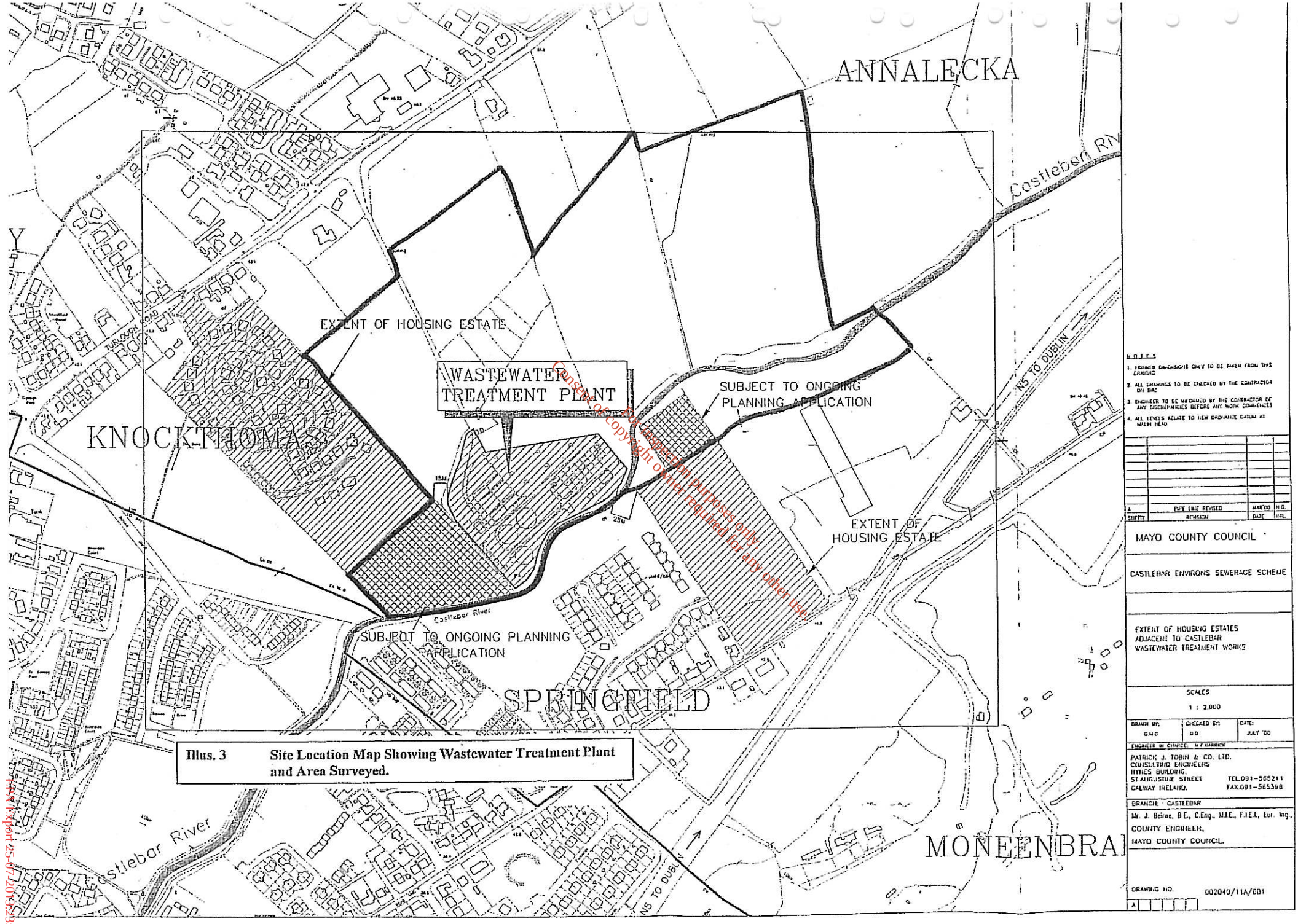
NOTE ;- All recommendations are subject to the final approval of Duchas, The Heritage Service.



Illus. 1 Site Location (Extract from OS 6" Sheet Mayo No. 7).



Illus. 2 **Extract from 1st edition OS Survey sheet, Co. mayo 1844, No.78**



Illus. 3 **Site Location Map Showing Wastewater Treatment Plant and Area Surveyed.**

NOTES

1. FIGURED DIMENSIONS ONLY TO BE TAKEN FROM THIS DRAWING
2. ALL DRAWINGS TO BE CHECKED BY THE CONTRACTOR ON SITE
3. ENGINEER TO BE NOTIFIED BY THE CONTRACTOR OF ANY DISCREPANCIES BEFORE ANY WORK COMMENCES
4. ALL LEVELS RELATE TO NEW ORDNANCE DATUM AT MALIN HEAD

SUFFIX	REVISION	DATE	INIT.
A	PIPE LINE REVISED	MAR'00	H.C.

MAYO COUNTY COUNCIL

CASTLEBAR ENVIRONS SEWERAGE SCHEME

EXTENT OF HOUSING ESTATES ADJACENT TO CASTLEBAR WASTEWATER TREATMENT WORKS

SCALES
1 : 2,000

DRAWN BY:	CHECKED BY:	DATE:
C.M.C	D.D	JULY '00

ENGINEER IN CHARGE: M.F. GARRICK

PATRICK J. TOBIN & CO. LTD.
CONSULTING ENGINEERS
HYNES BUILDING,
ST.AUGUSTINE STREET
GALWAY IRELAND.
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BRANCH: CASTLEBAR

Mr. J. Behan, B.E., C.Eng., M.I.E., F.I.E.I., Eur. Ing.,
COUNTY ENGINEER,
MAYO COUNTY COUNCIL.

DRAWING NO. 002040/11A/001

A

2.9 Impact on Material Assets

2.9.1 Roads (Traffic)

2.9.1.1 Existing Situation

The impact of the proposed development on material assets mainly relates to the impact on the road infrastructure in the vicinity of the treatment works. The current wastewater treatment works is entered from the Castlebar to Turlough road to the north. Previously this road was part of the main Castlebar to Dublin (N5) National Route. Following the construction of the new N5 route to the east of Castlebar Town, the old Turlough Road was downgraded to a local route. Vehicle movements along this road are generally associated with travel between Turlough Village and Castlebar Town in addition to movements associated with sub-urban traffic from ribbon development along the road.

To assess the number of vehicle movements along this stretch of road and in and out of the treatment works site, a traffic survey was carried out between 8 AM and 8 PM on Friday 1st September 2000. This day was representative on a typical day on the road in that both primary and secondary students had returned to school.

The results of the traffic survey are presented in Figure 2.9.1 overleaf. From the figures shown it is apparent that at present, a small fraction of all vehicle movements on this road are associated with the wastewater treatment works at Knockthomas. Indeed out of a total of 2601 vehicle movements recorded between 8 AM and 8 PM on that day, only 34 movements, or 1.3%, were either into or out of the wastewater treatment works.

In terms of vehicles which would cause most visual, noise and dust related impacts, i.e. trucks, tractors and vans, a total of 18 out of 513, or 3.5% could be attributed to the wastewater treatment works.

2.9.1.2 Environmental Impacts

As discussed in Section 2.1 (Impact on Human Beings), the upgrading and expansion of the current wastewater treatment works at Knockthomas will result in increased traffic flows during construction. This effect will be short-term and will be of a scale similar to any large construction project. Vehicle movements during construction will largely comprise the haulage of materials to and from the site.

The construction phase is likely to lead to an increased noise, air quality (dust) and negative visual impact. These effects have been covered separately in the appropriate preceding sections.

The construction phase will impact negatively on the surface of the road, particularly at the entrance to the construction site.

The long term operation of the wastewater treatment works at Knockthomas will not lead to any considerable increase in vehicle movements on the Castlebar to Turlough road, given that there is an established treatment works there already. While a slight increase in vehicle movements may result from the movement of greater volumes of sludge to and from the works, this effect will be only marginally significant.

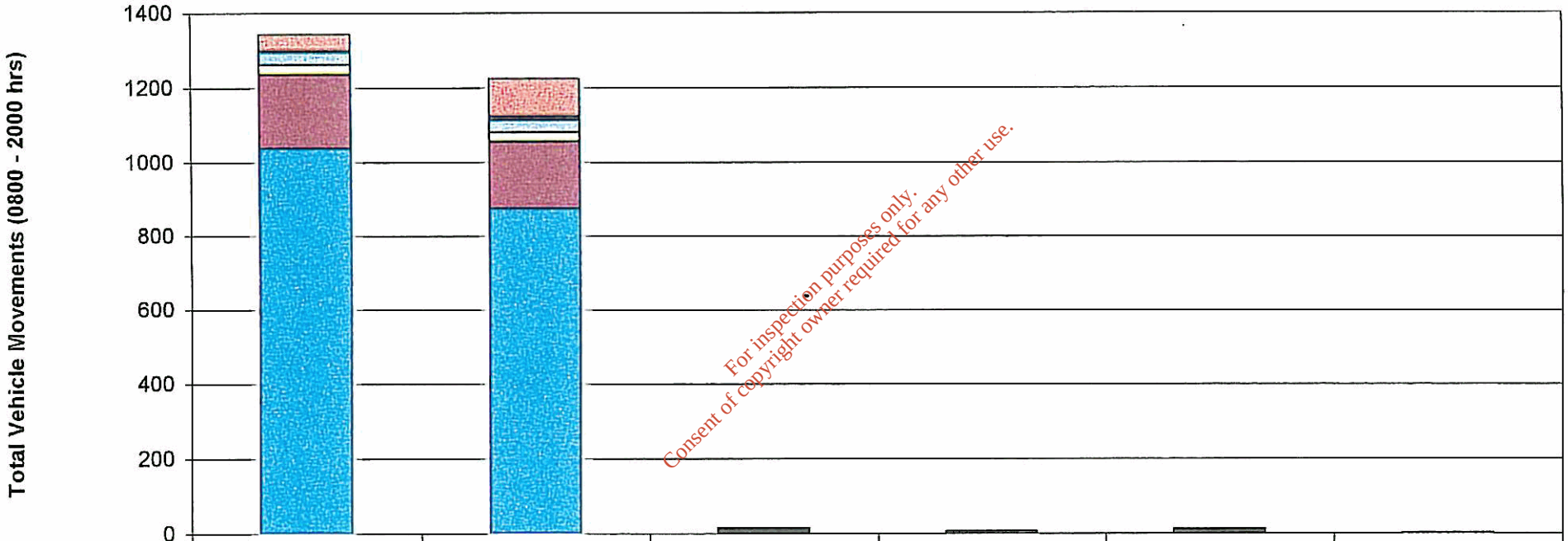
To facilitate the operation of the expanded works and the Sludge Hub-Centre, it will also be necessary to upgrade and widen the existing access road to the site so that two vehicles can pass safely on this road.

2.9.1.3 Mitigation Measures

Measures to mitigate against the impact of the proposed development on the road structure could include the inclusion of an appropriate sum in the construction contract to cover the repair of haul roads. Also careful selection of designated haul routes for the construction phase would lessen the impact on the road structure.

No mitigation measures are considered necessary for the operation of the upgraded and expanded treatment works as the proposed impact is slight.

FIGURE 2.9.1
CASTLEBAR ENVIRONS SEWERAGE SCHEME
RESULTS OF TRAFFIC SURVEY - 1st September 2000



	Castlebar to Turlough	Turlough to Castlebar	Castlebar to WWTW	Turlough to WWTW	WWTW to Castlebar	WWTW to Turlough
Other	45	101	0	0	0	0
Motorcycles	4	10	0	0	0	0
Trucks	33	32	5	1	4	0
Tractors	25	25	4	1	3	0
Vans	199	181	0	0	0	0
Cars	1037	875	5	4	5	2