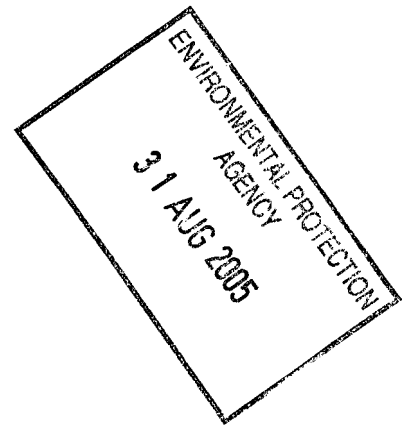


Article 14 info.
(a).



REVIEW OF WASTE LICENCE

Article 14

By

Donegal County Council

to

Environmental Protection Agency

for

Waste Licence Reference: 215-1

Meenaboll Landfill Site

Co Donegal

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INTRODUCTION

The following information is in response to letter dated 2nd August Reg.No 215-1/Art14 (2)(b)(ii)01PH from the EPA with regards to Article 14 compliance for the proposed Waste Licence at Meenaboll Landfill Site.

ARTICLE 12 COMPLIANCE REQUIREMENTS

D.3 LINER SYSTEM

1. The groundwater drainage layer is designed to intercept discrete groundwater seepages from the interface of the boulder clay and rock surface beneath the landfill area and to divert the collected seepage via a gravity fed drainage system in a northern direction towards the settlement lagoons. Access to the pipework beneath the site will be maintained throughout the operation and post closure period of the site by the use of rodding eyes located on the adjacent embankments as detailed in Figure 6.2A Surface Water and Groundwater Management. The use of this drainage layer was modelled in the LandSim analysis, which simulated the 0.3m thick drainage blanket as part of the unsaturated pathway.
2. Prior to the deployment of the groundwater drainage layer excavated rock surfaces on the floor and lower slopes will be prepared as follows by way of verification from the Quality Assurance Supervisor.
 - (i) All lines and grades are accurately achieved.
 - (ii) **A layer of crushed stone maximum size 32mm will be laid to varying depths to removed any hollows in the excavated rock surface.**
 - (iii) The undercushion is thoroughly compacted to produce a smooth even surface.

Similar methodology will be applied to the upper slopes where the prepared slope will generally be in an area of fill rock material. This prepared surface will makeup the formation layer onto which the groundwater drainage layer will be deployed.

E.2 EMISSIONS TO SURFACE WATER

Please refer to Drawing Number 5234.50/26 Drainage Network in Appendix A.

H.I WASTE TYPES AND QUANTITIES – EXISTING AND PROPOSED.

Table H.I (B) Annual Quantities and Nature of Waste

Year	Non-Hazardous Waste (tonnes per annum)	Hazardous Waste (tonnes per annum)	Total Annual Quantity of Waste (tonnes per annum)
2006 (estimated 2 months input)	4,000	Not Applicable	4,000
2007	24,000 for disposal at Landfill. 1,500 for recovery at CA Site		25,500
2008	As above	Not Applicable	25,500
2009	As above	Not Applicable	25,500
2010	As above	Not Applicable	25,500
2011	As above	Not Applicable	25,500
2012	As above	Not Applicable	25,500
2013	As above	Not Applicable	25,500
2014	As above	Not Applicable	25,500
2015	As above	Not Applicable	25,500
2016	As above	Not Applicable	25,500
2017	As above	Not Applicable	25,500
2018	As above	Not Applicable	25,500
2019	As above	Not Applicable	25,500
2020	As above	Not Applicable	25,500
2021	As above	Not Applicable	25,500
2022	As above	Not Applicable	25,500
2023	As above	Not Applicable	25,500
2024	As above	Not Applicable	25,500
2025	As above	Not Applicable	25,500

Table H.1 (c)Waste Types and Quantities

WASTE TYPE	TONNES PER ANNUM (existing)	TONNES PER ANNUM (proposed)	TOTAL (over life of site) tonnes
Household		17000 at Landfill 1,500 at CA Site	340,000 at Landfill 30,000 at CA Site
Commercial		4000	80000
Sewage Sludge		None	
Construction and Demolition		500	10000
Industrial Non-Hazardous Sludges			
Industrial Non-Hazardous Solids		2500	50000
Hazardous *(Specify detail in Table H 1.2)		Only household hazardous waste accepted at the Civic Amenity Facility.	See Table H.1.2
Inert Waste imported for restoration purposes		Recovered construction and demolition waste will be used for restoration purposes.	

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*** TABLE H.1.2 HAZARDOUS WASTE TYPES AND QUANTITIES**

HAZARDOUS WASTE	DETAILED DESCRIPTION <small>* REFERENCE SHOULD BE MADE TO THE RELEVANT EUROPEAN WASTE CATALOGUE CODES AS PRESENTED BY COMMISSION DECISION 2000/532/EC</small>	Tonnes Per Annum (Existing)	(Tonnes Per Annum Proposed)
Waste Oil	Waste oil shall be received at the Civic Amenity Site for recovery. (Car and cooking oil) 2001 26, 2001 25		Approximately 8.5 tonnes. *
Oil filters			
Asbestos			
Paint and Ink	Paint will be received at the Civic Amenity Site for recovery. (Gloss and Emulsion Paints) 2001 27, 2001 28		No figures currently available.
Batteries	Batteries will be received at the Civic Amenity Site for recovery. (Car and Household Batteries). 20 01 33, 20 01 34		Approximately 16 tonnes. *
Fluorescent Light Bulbs	Light Bulbs will be received at the Civic Amenity Site for recovery. (Fluorescent Tubes) 20 01 21		Approximately 0.3 tonnes. *
Contaminated Soils			
OTHER HAZARDOUS WASTE (APPLICANT TO SPECIFY)			
WEEE	WEEE, Fridges 2001 35, 2001 36		Approximately 100 tonnes. *

*Household hazardous waste will consist of those mentioned in Table H.1.2 Hazardous Waste Types and Quantities. Any change in type of household hazardous waste to be accepted will be agreed with the EPA. Figures provided are taken from volume of household hazardous waste collected at Carrndonagh CA Site (2004).

L FINANCIAL PROVISION

Donegal County Council will provide the necessary financial provision to ensure that the waste management activities are undertaken in compliance with the waste licence and that restoration and aftercare responsibilities are provided. Donegal County Council are currently preparing the inclusion of the necessary financial provision for the development and operation of the proposed facility in its budget strategy.

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ARTICLE 13 COMPLIANCE REQUIREMENTS

SECTION 10 FLORA AND FAUNA

1. Please refer to Figure 10.3 Designated Conservation Areas. These areas are as shown in Table 1.

NAME	DISTANCE FROM BOUNDARY OF SITE TO DESIGNATED AREA.
Cloghernagore Bog & Gleanveagh National Park SAC NHAc	0.66 km
Meentygrannagh Bog SAC NHA	2.8 km
Meentygrannagh SAC NHA	2.19 km
River Finn SAC NHA	2.25 km
Lough Barra Bog SPA	4.58 km

2. Please refer to Figure 10.2 Rev A Ecological Survey Area.
3. The section of the EIS entitled 'Habitat Management & Compensatory Habitats' lists a number of suggested measures for mitigation of ecological / habitat impacts. Some elaboration is provided below in response to the above query.
 - (a) With regard to retention of existing tall conifers to screen and shelter the otherwise rather open terrain occupied by 2nd rotation forestry around the proposed development site (10.155 i of the EIS); this option has been considered with the managers of the afforested lands (Coillte) around/adjacent to the proposed landfill site. A number of clumps and margins of tall conifers were identified, described and mapped in the Section 10.7. Many of these are in fact to be retained under Coillte's biodiversity programme for the Meeniroy forest area (Map No DL12-8). The corresponding areas are indicated on the Coillte map coded with numbers representing a range of management prescriptions including areas to be left untouched/excluded from planting. Clearly some of these areas are blanket bog that were never planted (e.g. on the Meenaboll and Brallanmore ridge).
 - (b) With regard to habitat management around the proposed landfill (10.155 i of the EIS): Many of the measures, as apply to planting and screening, are proposed to mitigate

both ecological and landscape/visual impacts. The **EIS** process was integrated and iterative in this regard. A planting proposal was presented in the Landscape section 15. This sets out the proposals for phased planting of native broadleaf species and Scot's Pine on the outward slopes of the screening bund embankments and elsewhere within the proposed landfill site perimeter. Roadside embankments will also be planted. Set-backs along streams (MU biodiversity objective for MU No. 86) will probably result in a patchy colonising vegetation of willow scrub (e.g. *Salix cinerea* and *Sallix aurita*). Overall, these measures will afford habitat to a range of passerines currently occurring in the area. The proposed constructed wetland downstream of the landfill will compliment existing wetland (i.e. bog & flushes) habitats in the area and support related fauna, such as frogs, dragonflies (*Odonata*) and other genera /taxa.

- (c) With regard to compensatory habitats and habitat management for sensitive target species, i.e. Hen Harrier (10.155 iii of the EIS): Since observing a (new) pair at a potential breeding territory/site in 2003, which did not proceed to breed at the identified location (between 1km squares B9909 and B9908), no further indications of possible breeding have been forthcoming according to enquiries made in respect of the 2004 or 2005 breeding seasons (pers comm. with John Cromie BirdWatch Ireland Donegal branch; NPWS conservation rangers; Lorcan O'Toole, Irish Raptor Study Group; Colin Barton co-ordinator of 2005 NPWS national Hen Harrier survey). This area was outside the main Hen Harrier survey area. Without any firm record of breeding at this location or any other location proximate to the proposed landfill site in recent years, there is no firm basis on which to propose habitat management objectives or measures that are likely to support breeding of this species locally. In effect, breeding in afforested habitats will be opportunistic relative to the availability of potential breeding sites, which are usually selected in new plantation or restock at pre-thicket stage (<10 years following planting). On the other hand, any management measures to create and retain potential Hen Harrier nest-site habitat at the given location would be a positive step toward affording breeding site opportunities for this species in the future. However, given the low breeding density of harriers in this part of the county, the possibility that such a measure would be successful is rather tenuous. The relevant Coillte forest management unit (MU) is No. 97. The area was restocked in the mid-1990s with the objective of timber production to be clear-felled in 2043. This area, along with some other adjacent MUs (e.g. MU No.16) should retain the low shrub/scrub habitat characteristics of a potential nest site for about a further 5

years. Pending the possibility that harriers might select the site for breeding in this future period, options for compensatory habitat management could be considered by arrangement between Coillte, Donegal County Council and NPWS. Coillte consult on an annual basis with NPWS. This will of course require on-going monitoring of the area for harrier presence/activity into this future period. Other sensitive species of conservation importance, recorded in the EIS surveys, included Golden Plover and Red Grouse on open moorland habitat within 1 to 2km of the proposed landfill site. Retention of some tall trees as provided in MUs (No 86) will screen these species from visual and aural disturbance of the landfill site and related activities. Bunding along the access road and around the landfill will also be a useful measure. No specified measures for habitat management of the open moorland have been proposed, however it will be retained as open moorland. These might be forthcoming in future in relevant moorland areas owned by Coillte or other landowners (e.g. sheep farmers / commonage). Golden Plover is an Annex 1 species in the Birds Directive; if the concentration of breeding pairs is considered high, SPA designation might be considered, which would in turn merit habitat management measures aimed at conserving their breeding status. This is the responsibility of NPWS.

SECTION 12 SURFACE WATER

1. The control of surface water will be undertaken through the use of the proposed settlement lagoons. The discharge from these lagoons will be in compliance with discharge consent for total suspended solids through the design of the system in accordance with EPA Landfill Design Manuals. The proposed wetland is in addition to the lagoons and will provide an additional area within the site for enhancement of the surface water system and to provide a biodiversity area within the site. There are existing wetlands in the area and this technology was chosen as best suiting the natural habitat and landscape of the area. The wetland will prevent the flowing over of floating vegetation.
2. The nature and composition of runoff on the site will vary with the nature of the area of the site on which rain is falling. The following describe the control for the various functional areas of the landfill.

a. Empty Lined Cells

As outlined in the EIS waste deposition will only take place in the active phase and each phase. Empty cells which have been lined but have not had any waste deposited will retain water. This water may have a suspended solid load as is typical of any runoff waters, but will not be contaminated as the cells are isolated from the active cells. This water will drain away to the settlement lagoons and onto the constructed wetlands where any suspended solid load will be reduced to acceptable levels before the water is allowed to drain to surface waters.

b. Active Lined Cells

Cells which have been lined and are in use for landfilling will generate both pooled water and leachate from rain water percolating through waste material. All of the above water and leachate will be intercepted by the leachate management system and the leachate will be pumped to the leachate holding tanks for subsequent treatment off-site.

c. Capped Cells

Phases which have reached final capacity and which have been capped with low permeability material will allow runoff of surface waters. This runoff will not be contaminated and will be similar to present day runoff. Should any water infiltrate the cap it will be captured by the liner and leachate management system.

d. Areas Outside the Landfill

The runoff characteristics and composition of runoff waters outside the landfill will remain as they are at present.

Overall it is expected that the run-off generated at the proposed landfill facility will largely be equivalent to those prior to the development of the facility. As the proposed landfill will be developed in a number of phases, as outlined in the EIS, the overall impact will be limited due to the fact that each phase will be progressively capped and restored. All runoff from the facility will be directed to the surface water lagoons and onto the constructed wetlands.

Discharge to the Constructed Wetlands will be controlled in accordance with the design throughput of the wetlands by use of a floating arm draw off arrangement at the discharge from the surface water lagoons. The total capacity of the 3 proposed

surface water holding lagoons is approximately 3,500m³. It is proposed to retain 1,000m³ of water in the lagoons at all times for use, if required, for fire fighting. This provides a capacity of 2,500m³ for retention of water in periods of high rainfall. The flow rate between the surface water lagoons and the constructed wetlands will be undertaken at the detailed design stage of the wetlands.

3. The design of the wetlands will be undertaken at the detailed design stage of the project in consultation with a specialist in this field. Total suspended solids are not a limiting factor in the performance of a wetland. Key design considered will be

- i. Peak flow residency time of 2-3 days.
- ii. Design depth of 250mm
- iii. Aspect ratio of 10:1
- iv. Homogenous plug flow.
- v. Planting will be dense
- vi. Level control outlet pipe will be sized so as to attenuate the flow by allowing the level in the wetland to rise by up to 300mm in a storm event.
- vii. Sides of the wetland will have a general slope of 10 to 20 degree.

The constructed wetland is proposed to be located within the site boundary.

The maintenance will be in accordance with the designer instructions. Maintenance procedures will be put into place for aspects such as:

- Protection of inlet and outlet pipes.
- Maintenance of flow paths.
- Sediment removal.

4. The outflow from the surface water lagoons to the adjoining streams will regulated using a floating arm draw off arrangement. This arrangement will allow for clarified water to be drawn from the top of the lagoon while settlement continues towards the bottom of the lagoon. In addition a depth of 1 to 1.5m of water can be retained within each lagoon for fire fighting purposes.

SECTION 17 NOISE AND VIBRATION

1. Nelson, P. (1987) Transportation Noise Reference Book, Butterworth, London.

2. EFFECTS OF AIRCRAFT NOISE AND SONIC BOOMS ON DOMESTIC ANIMALS AND WILDLIFE: A LITERATURE SYNTHESIS (1988) - Engineering and Services Center, U.S. Air Force, Fish and Wildlife Service.

Teaching Principles of Behaviour and Equipment Design for Handling Livestock, Temple Grandin - Department of Animal Sciences, Colorado State University, Fort Collins 80523, Journal of Animal Science (1993) volume 71 : 1065-1070

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APPENDIX A

DRAWINGS

Figure 6.2 A Surface Water and Groundwater Management.

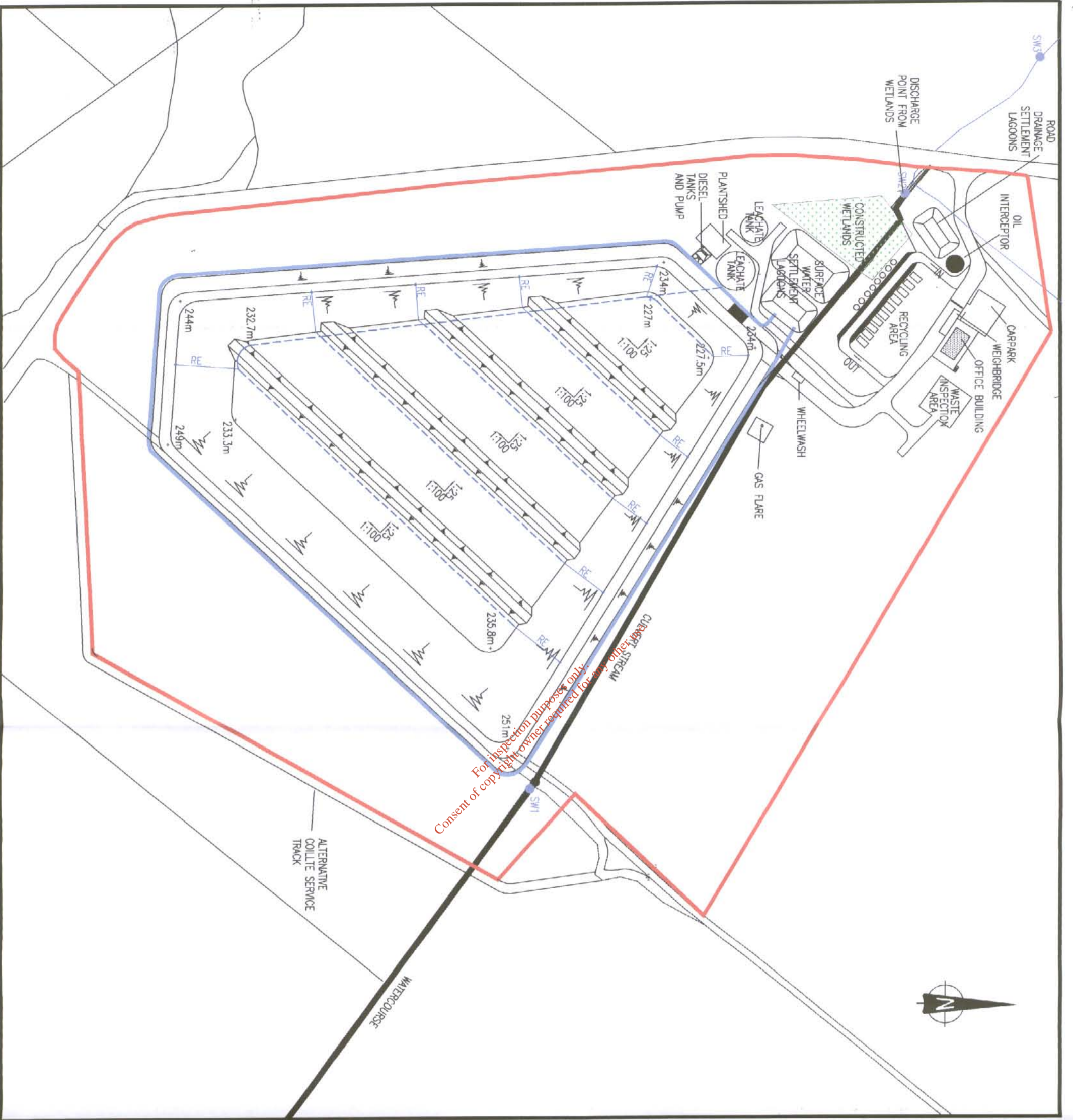
5234.50/26 Drainage Network

Figure 10.3 Designated Conservation Areas

Figure 10.2 Rev A Ecological Survey Area.

Map No DL12-8 Meenirroy

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- KEY**
- ◆ GENERATOR
 - GROUNDWATER
 - SURFACE WATER
 - SW1 PROPOSED SURFACE WATER TESTING POINT
 - RE RODDING EYE

SCALE: 1:2000

RPS Kirk McClure Morton



Camhairle Chontae Dhún na nGall
Donegal County Council

PROJECT

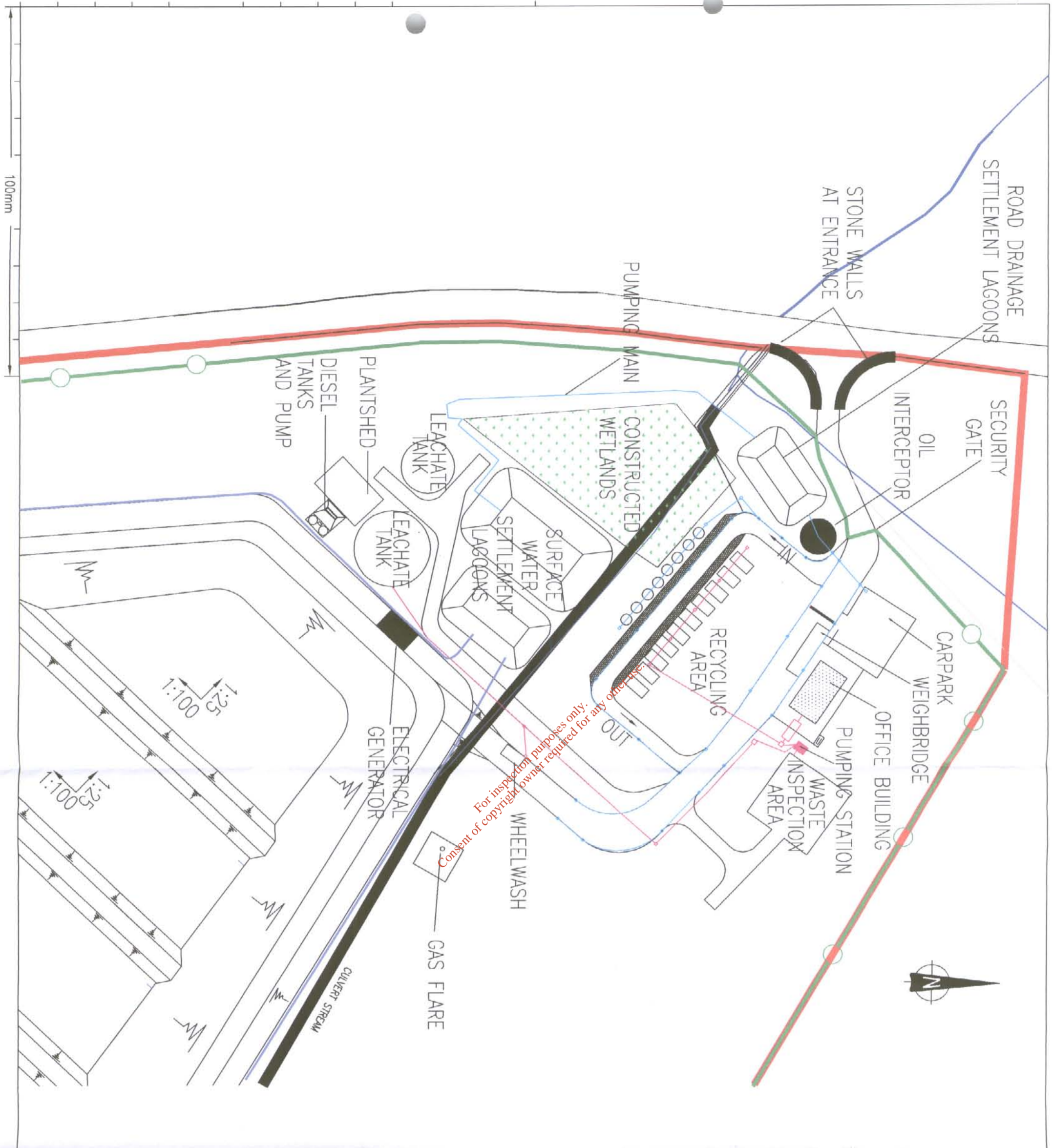
MEENABOLL LANDFILL PROJECT

TITLE

SURFACE WATER AND GROUNDWATER MANAGEMENT

FIGURE

6.2A



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NOTES

- Surface Water Drainage
- Surface Water Road Drainage
- Leachate Drainage
- Surface Water
- Surface Water Gully
- Leachate Gully

REV	DESCRIPTION	BY DATE	CHECK DATE

DRAWN BY D.H. DATE AUG 05
 CHECK BY A.M.G. DATE AUG 05
 APPROVED D.D. DATE AUG 05
 PLOT SCALE 1:1000 SCHEDULES SHEET SIZE A3

CLIENT
 DONEGAL COUNTY COUNCIL
 PROJECT
 MEENABOLL WASTE LICENCE APPLICATION
 TITLE
 DRAINAGE NETWORK

RPS Kirk McClure Morton
 CONSULTING ENGINEERS
 ELAMWOOD HOUSE
 71 BOLDURGER ROAD
 BELFAST BT12 8RZ
 TEL: 028 9066 7914
 FAX: 028 9066 5296
 www.infrastructuremorton.com

ARCHITECT	DWG. STATUS
52334.50/26	PRELIM. ●
	TENDER
	CONST.
	RECORD

100mm

LOUGH BARRA BOG SPA

CLOGHERNAGORE BOG &
GLENWEACH NATIONAL PARK NHA & SAC

RIVER FINN SAC

MEENTYGRANNAGH NHA & SAC

RIVER FINN SAC

TULLYRESNA BOG NHA

Legend

-  NHA
-  SAC
-  SPA
-  5km Site Buffer



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KEY

-  PROPOSED SITE DEVELOPMENT
-  5km RADIUS FROM SITE BOUNDARY

SCALE: 1:50,000

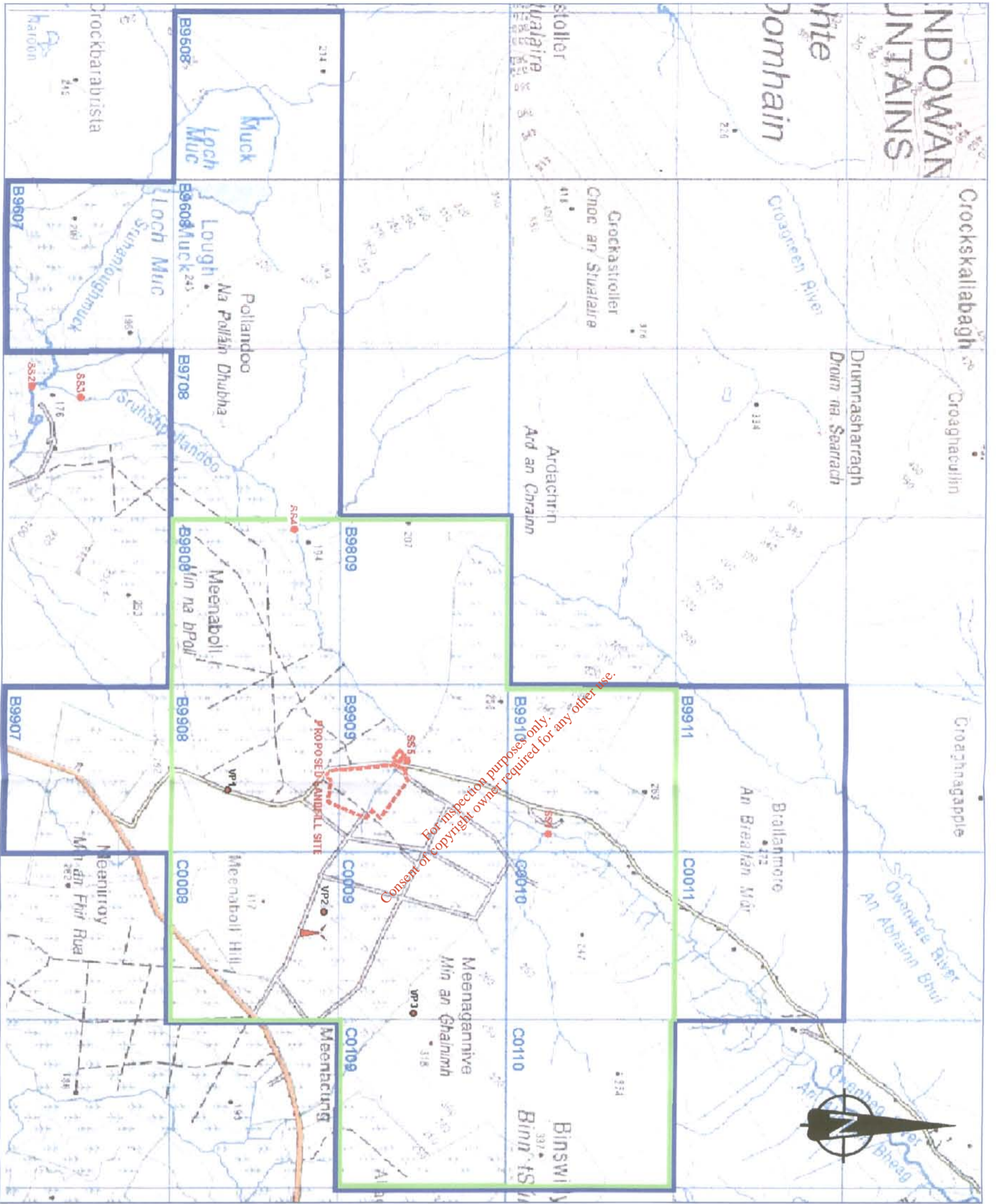
RPS Kirk McClure Morton



PROJECT
MEENABOLL LANDFILL PROJECT

TITLE
DESIGNATED
CONSERVATION AREAS

FIGURE
10.3



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- KEY**
- WINTER SEASON BIRD SURVEY AREA
 - BREEDING SEASON BIRD SURVEY AREA
 - SSI VANTAGE POINTS FOR BIRD SURVEY
 - VP1 AQUATIC ECOLOGY SAMPLE SITES
 - - - BOUNDARY OF PROPOSED DEVELOPMENT

SCALE: 1:25,000

RPS Kirk McClure Morton



PROJECT

MEENABOLL LANDFILL PROJECT

TITLE

ECOLOGICAL SURVEY AREA

FIGURE

10.2A

Map Type:
Inventory Listing Map

Map No:

DL12 - 8

Forest:

Meenirroy

Forest No:

DL12

Properties:

ARDACHRIN
ARDACHRINN
MEENABOLL

*Donegal 51
Donegal 59*

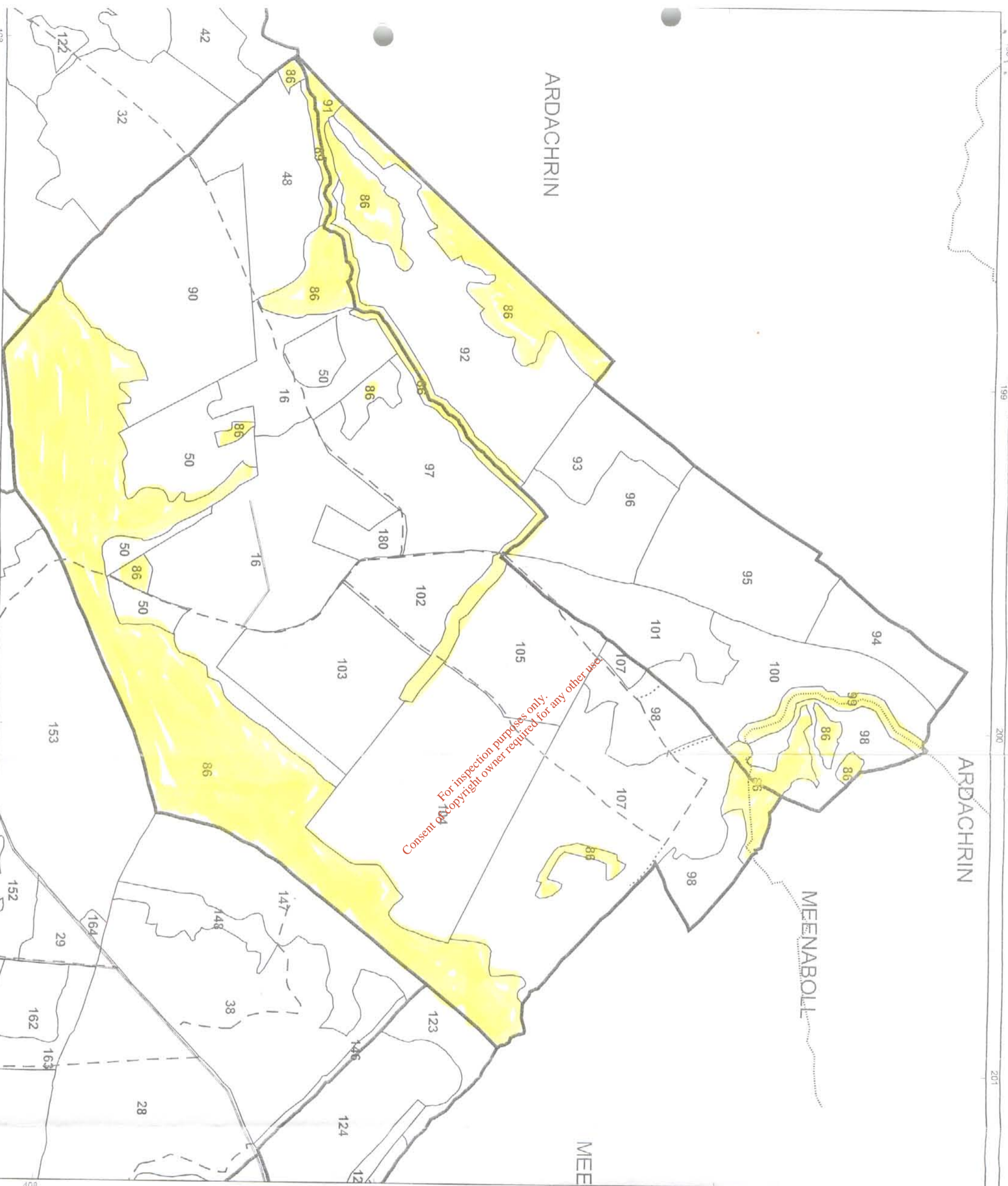
6" OS Sheet No(s):

Donegal 51
Donegal 59

	Driveable
	Undriveable
	Text
	Text
	Property Bdy
	Compts Bdy
	Stands Bdy
	Adjacent Property
	Monument



collce
Inventory & GIS Section



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