



APPENDIX 4-5

OPERATIONAL WASTE MANAGEMENT PLAN

Meath County Council - Viewing Purposes Only!

**OPERATIONAL
WASTE MANAGEMENT PLAN**

FOR

**SKY CASTLE LIMITED
23 ROCKHILL
BLACKROCK
Co. DUBLIN**

RELATING TO

**HEALTHCARE FACILITIES
(PRIMARY CARE CENTRE)**

AT

**MOYGADDY, MAYNOOTH,
Co. MEATH**

22nd August 2022

Ian Byrne

Ian Byrne MSc, MIOA, Dip Environmental & Planning Law

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1.0 INTRODUCTION

This document presents the Operational Waste Management Plan (OWMP) for the control, management and monitoring of waste associated with the Healthcare Facilities Primary Care Centre at Moygaddy, Maynooth, Co. Meath.

The proposed Primary Care Centre (PCC) will be a three floor building comprising a reception, pharmacy, café, dental suits, offices and consulting rooms, clinic rooms, offices and staff facilities.

The **Objective of this OWMP** is to maximise the quantity of waste recycled by providing sufficient waste recycling infrastructure, waste reduction initiatives and waste collection and waste management information to the operators and users of the development.

The **Goals of this OWMP** are to

- Achieve and surpass a recycling rate of 50% of managed municipal waste in accordance with the current *Eastern-Midlands Region Waste Management Plan 2015-2021*. (Note Regional Waste Management Plans are currently under review and future publications shall be integrated into the OWMP).
- Ensure that all Clinical Waste is managed, stored and disposed of in accordance with the *Health Service Executive's Waste Management Awareness Handbook (2014)*.

The OWMP shall be integrated into the design and operation of the development to ensure the following:

- That sufficient waste management infrastructure is included in the design of the development to minimise the generation of mixed waste streams.
- That the principle of waste segregation at source is the integrated into the development by the provision of separate bin systems.
- That all Non-Clinical waste materials generated by site activities are removed from site by appropriately permitted waste haulage contractors and that all wastes are disposed of at approved waste licensed / permitted facilities in compliance with the Waste Management Act 1996 and all associated Waste Management Regulations.
- That all Clinical Wastes are removed from site by appropriately permitted hazardous waste contractors accompanied by a Waste Transfer Form (WTF) in accordance with the *Waste Management (Movement of Hazardous Waste) Regulations, 1998, S.I. No. 147/1998*.

2.0 WASTE MANAGEMENT GUIDANCE & POLICIES

This OWMP has been prepared with regard to the relevant waste management objectives and policies contained in Meath County Council's Development Plan 2021 - 2027 as follows:

*DM OBJ 5: Building design which minimises resource consumption, **reduces waste**, water and energy use shall be incorporated where possible in all new developments.*

INF POL 64 To encourage and support the expansion and improvement of a three-bin system (mixed dry recyclables, organic waste and residual waste) in order to increase the quantity and quality of materials collected for recycling in conjunction with relevant stakeholders.

This OWMP has been prepared with regard to the management of clinical wastes *Health Service Executive's (HSE) Waste Management Awareness Handbook (2014)*.

This OWMP has been prepared with regard to *British Standard BS 5906:2005 Waste Management in Buildings-Code of Practice* which provides guidance on methods of storage, collection, segregation for recycling and recovery of wastes in non-domestic buildings.

3.0 KEY ASPECTS TO ACHIEVE WASTE RECYCLING TARGETS

The OWMP is defined by the following stages of waste management with regard to the Circular Economy and the Waste Hierarchy

Stage 1	Source Segregation
Stage 2	On-Site Deposit and Storage
Stage 3	Bulk Storage and On-Site Management
Stage 4	Off-Site Removal
Stage 5	Documented End Destination of wastes

4.0 WASTE TYPES TO BE GENERATED

Waste generated will fall into two distinct categories as follows:

4.1 Non-Clinical Wastes generated from the general operation of the PCC

- Dry Recyclable Materials:
- Paper/Cardboard
- Plastics
- Glass
- Organic food waste
- Mixed non-recyclable waste
- Batteries

- Ink Toners
- WEEE
- Fluorescent Bulbs
- Maintenance Oils
- Food Oils
- Textiles
- Bulky Waste (Furniture)

4.2 Clinical Wastes generated by patient care at the PCC

- Incontinence wear, stoma bags, urinary drainage bags,
- Wound drains, catheters, fluids
- Dressings, Swabs, Bandages, Gloves, Sharps (needles, syringes)
- Medicines and Pharmaceuticals

The Circular Economy

Ireland's national waste policy is 'A Waste Action Plan for A Circular Economy – Ireland's National Waste Policy 2020 – 2025'. The policy, published September 2020, is intended to move Ireland toward a circular economy in which focus is shifted away from waste disposal, favouring circularity and sustainability by identifying and maximising the value of material through improved design, durability, repair and recycling. By extending the time resources are kept within the local economy, both environmental and economic benefits are foreseen.

The OWMP complies with the waste hierarchy whereby waste prevention is the most preferred strategy. Where waste generation is unavoidable, re-use is the most preferred fate, followed by recycling and then energy recovery, with disposal (e.g. to landfill) being the least preferred fate.

Figure 1 The Waste Hierarchy



5.0 WASTE SEGREGATION AT SOURCE FOR NON-CLINICAL WASTE

The Cafe shall include a 6-bin waste system to facilitate the segregation of waste at source for

Organic compostable food waste
Plastics
Cans
Paper and Cardboard
Non-recyclable mixed waste
Glass

Figure 2 Typical Cafe waste segregation bin system



Offices and Administration areas shall include a 7-bin waste system to facilitate the segregation of waste at source for

- Organic compostable waste**
- Plastics**
- Paper and Cardboard**
- Cans**
- Non-recyclable mixed waste**
- Glass**
- WEEE**

Figure 3 Typical Office waste segregation bin system



Figure 4 WEEE & Battery Recycling System



**WEEE
RECYCLING
CAGE**

Available FREE for small
weee collections

Portable and mobile unit

Can be secured in-doors

FREE collection when full

**weee
ireland**

**RECYCLE
FOR
GOOD**

Power Tools

Consumer
Elec. Product

Lo-call 1890 253 252,
email operations@weeeireland.ie
or visit www.weeeireland.ie

The image shows a blue metal recycling cage on wheels with several compartments. One compartment is green and contains a power drill. The cage has various labels and logos, including the WEEE Ireland logo and the 'RECYCLE FOR GOOD' logo. The background is white with green and blue text.

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6.0 WASTE SEGREGATION AT SOURCE FOR CLINICAL WASTE

All clinical wastes shall be temporarily stored in dedicated clinical waste only storage rooms (Dirty Store) located on the ground floor of the PCC building. Images of clinical waste storage bins and containers are presented in Figures 5 & 6. Further details on Clinical risk waste storage vessels are presented in Appendix I.

Figure 5 Typical Internal Clinical Waste Bin



Figure 6 Typical Internal Secure Clinical Waste Container



7.0 EXTERNAL WASTE STORAGE AREA

The external waste storage area shall be designed to include the following aspects:

- The waste storage area shall be fitted with sensor lighting.
- The waste storage area shall include ground drainage to allow for its regular cleaning and disinfection.
- The Facilities Management Company shall engage a mobile bin cleaning service provider to clean waste bins as required.
- The waste storage area shall have a separated and dedicated Clinical waste storage area containing secure weather-proof storage containers.
- The waste storage area shall contain the following 1100 litre bulk bins for the following waste streams:

7.1 Non-Clinical Waste Storage

- Green Bins for paper/cardboard/plastic/can recycling
- Grey Bins for unrecyclable mixed waste
- Brown Bins for organic food waste
- Glass Bins
- WEEE Recycling Cage
- Battery Boxes
- Fluorescent Lamp Boxes

WEEE Battery & Lamp Recycling

Waste Electrical and Electronic Equipment (WEEE) Batteries and Fluorescent Lamps shall be safely stored in dedicated WEEE recycling cages, Battery Boxes and Lamp Boxes supplied by WEEE Ireland as shown in Figures 5,6 and 7 below. These items contain precious metals, plastics and glass which can be recovered for re-use.

Figure 7 Lamp Recycling Box



Figure 8 Image of Battery Recycling Box



Figure 9 Glass Recycling Bin



Waste Oil Management & Recycling

Waste oils will be generated from plant maintenance and from food preparation in the cafe. Oils can be processed recycled and reused by specialist waste contractors including ENVA. Maintenance and cooking oils shall be separately stored in secure containers as indicated in Figures 8 & 9.

Figure 10 Image of waste cooking oil storage containers



Figure 11 Image of waste maintenance oil storage container



7.2 Clinical Waste Storage

The external clinical waste storage area shall be designed to include the following aspects:

- All Clinical waste shall be contained in a secure, separate and segregated area within the waste storage area.
- All Clinical waste receptacles shall be stored in covered section of the waste storage area in either a secure container or bunker unit.
- Appropriate warning signs indicating the presence of healthcare risk waste/bio hazard shall be displayed at the entrance to the Clinical waste storage area
- Spill kits shall be maintained in the Clinical Waste Storage Area

Figure 12 Image of Clinical Waste Bunker



Figure 13 Image of Clinical Waste Storage Container



Figure 14 Image of Clinical Waste Yellow Wheelie Bins



8.0 GENERATED WASTE TYPES & QUANTITIES

Table 1 presents the calculated Non-Clinical waste that will be generated at the PCC on a weekly basis

Table 1 Non-Clinical Waste Types per day/week

Waste Type	% Waste	Kg/week	Kg/day
Organic waste	30.6	254.9	36.4
Paper	12.5	104.1	14.9
Cardboard	3.6	30.0	4.3
Composites	1	8.3	1.2
Textiles	15.5	129.1	18.4
Plastics	13.6	113.3	16.2
Glass	3.4	28.3	4.0
Metals	3.1	25.8	3.7
Wood	1.2	10.0	1.4
Hazardous municipal waste	0.9	7.5	1.1
Unclassified combustables	1.4	11.7	1.7
Unclassified incombustables	1.2	10.0	1.4
Fines	11.7	97.5	13.9
Bulky Waste & WEEE	0.3	2.5	0.4
Totals	100	833	119

To determine the estimated quantity of Clinical waste that will be generated, a value of 0.3Kg/patient/day has been assumed.

Table 2 Clinical Waste Types per day/week

Waste Type	Kg/day	Kg/week
Clinical Waste	60	420

9.0 WASTE STORAGE AREA DESIGN

The waste storage area shall be of sufficient size to house all Non-Clinical and Clinical waste receptacles and allow movement of waste collection vehicles.

Table 3 PCC Waste Storage Area Requirements

Waste Storage Area	Minimum Bin Storage Area (m ²)
Non-Clinical Waste	16
Clinical Waste	4
Total	20

10.0 WASTE MANAGEMENT DUTIES OF THE FACILITY MANAGEMENT COMPANY

Internal & External Waste Management

The Facilities Management Company shall be responsible for the movement of all Clinical and Non-Clinical wastes from within the building to the external waste storage area and the maintenance of both internal and external waste storage areas.

Waste Management & Record Keeping

The Facilities Management Company shall maintain a weekly register detailing the quantities and breakdown of both Clinical and Non-Clinical wastes removed from the development.

Visitor Waste Management

The Facilities Management Company shall maintain 3-bin systems throughout the building, an example of which is shown below.

Image of internal 3-bin waste segregation bin system



11.0 CONCLUSIONS

The proposed Primary Care Centre at Moygaddy, Co. Meath shall be designed and managed to provide the operators with the required waste management infrastructure to minimise the generation of un-segregated domestic waste and maximise the potential for segregating and recycling Non-Clinical waste streams.

The management of Clinical waste will be managed, stored and transported off-site in accordance with *Health Service Executive's (HSE) Waste Management Awareness Handbook (2014)*.

APPENDIX I Segregation & Packaging of Healthcare Risk & Non-Risk Waste

RISK WASTE		
YELLOW BAG	YELLOW SHARPS BIN (with blue or red lid)	YELLOW 30/60 LITRE RIGID BIN (with yellow lid)
<div style="text-align: center;">  </div> <ul style="list-style-type: none"> All blood-stained items and all items soiled with body fluids assessed as infectious Suction catheters & tubing Incontinence waste from known or suspected enteric infections <p>* NO SHARPS OR FREE LIQUIDS</p>	<div style="text-align: center;">  </div> <ul style="list-style-type: none"> Needles, Syringes & Scalpels Contaminated slides & glass Sharps tips of clear IV giving sets Blood stained glass Stitch cutters Guide wires/trocars Razors <p>* NO FREE LIQUIDS</p>	<div style="text-align: center;">  </div> <ul style="list-style-type: none"> Blood administration sets (never disconnect line from bag) Contained blood and body fluids Non-cultured laboratory waste (including autoclaved microbiological cultures) Disposable suction liners Redivac drains (ensure drain closure sealed) Sputum containers Chest drains <p>* NO SHARPS OR FREE LIQUIDS</p>

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RISK WASTE

YELLOW 30/60 LITRE RIGID BIN (with purple lid)



- Cytotoxic drugs including infusion lines, left over drug preparations and personal protective equipment used.
- Small quantities of residual medicines or pharmaceuticals left over after administration to patients.

*** NO SHARPS OR FREE LIQUIDS**

YELLOW SHARPS BIN (with purple lid)



- Contaminated cytotoxic sharps, needles, syringes, sharp instruments and broken glass

*** NO FREE LIQUIDS**

YELLOW RIGID BIN (with black lid)



- Non-autoclaved microbiological cultures
- Large / recognisable anatomical body parts
- Placentas with additional leak proof containment
- Large solid metal objects and instruments

*** NO SHARPS OR FREE LIQUIDS**

NON-RISK WASTE

CLEAR BAG



- Incontinence wear (from non-infectious patients)
- Oxygen face masks
- Empty urinary drainage and empty stoma drainage bags
- Clear tubing (e.g. oxygen, urinary catheters, ventilator, naso gastric, IV lines with tips removed)
- Enteral feeding equipment
- Non contaminated gloves, aprons and masks
- Empty continuous ambulatory peritoneal dialysis (CAPD) bags

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1.0 INTRODUCTION

This document presents the Operational Waste Management Plan (OWMP) for the control, management and monitoring of waste associated with the proposed Healthcare Facilities Nursing Home at Moygaddy, Maynooth, Co. Meath.

The proposed Nursing Home development will consist of 156 no. beds.

The **Objective of this OWMP** is to maximise the quantity of waste recycled by providing sufficient waste recycling infrastructure, waste reduction initiatives and waste collection and waste management information to the operators and users of the development.

The **Goals of this OWMP** are to

- Achieve and surpass a recycling rate of 50% of managed municipal waste in accordance with the current *Eastern-Midlands Region Waste Management Plan 2015-2021*. (Note Regional Waste Management Plans are currently under review and future publications shall be integrated into the OWMP).
- Ensure that all Clinical Waste is managed, stored and disposed of in accordance with the *Health Service Executive's Waste Management Awareness Handbook (2014)*.

The OWMP shall be integrated into the design and operation of the development to ensure the following:

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4.0 WASTE TYPES TO BE GENERATED

Waste generated will fall into two distinct categories as follows:

4.1 Non-Clinical Wastes generated from the general operation of the Nursing Home

- Dry Recyclable Materials:
- Paper/Cardboard
- Plastics
- Glass
- Organic food waste
- Mixed non-recyclable waste

- Batteries
- Ink Toners
- WEEE
- Fluorescent Bulbs
- Maintenance Oils
- Food Oils
- Textiles
- Bulky Waste (Furniture)

4.2 Clinical Wastes generated by resident care

- Incontinence wear, stoma bags, urinary drainage bags,
- Dressings, Swabs, Bandages, Gloves, Sharps (needles, syringes)
- Medicines and Pharmaceuticals

The Circular Economy

Ireland's national waste policy is 'A Waste Action Plan for A Circular Economy – Ireland's National Waste Policy 2020 – 2025'. The policy, published September 2020, is intended to move Ireland toward a circular economy in which focus is shifted away from waste disposal, favouring circularity and sustainability by identifying and maximising the value of material through improved design, durability, repair and recycling. By extending the time resources are kept within the local economy, both environmental and economic benefits are foreseen.

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Figure 1 The Waste Hierarchy



5.0 WASTE SEGREGATION AT SOURCE FOR NON-CLINICAL WASTE

The Kitchen shall include a 6-bin waste system to facilitate the segregation of waste at source for

Organic compostable food waste
Plastics
Cans
Paper and Cardboard
Non-recyclable mixed waste
Glass

Figure 2 Typical Kitchen waste segregation bin system



Offices and Administration areas shall include a 7-bin waste system to facilitate the segregation of waste at source for

- Organic compostable waste**
- Plastics**
- Paper and Cardboard**
- Cans**
- Non-recyclable mixed waste**
- Glass**
- WEEE**

Figure 3 Typical Office waste segregation bin system



Figure 4 WEEE & Battery Recycling System

**WEEE
RECYCLING
CAGE**

Available FREE for small
weee collections

Portable and mobile unit

Can be secured in-doors

FREE collection when full



**RECYCLE
FOR
GOOD**

Power Tools

Consumer Electronics

WEEE Ireland

Lo-call 1890 253 252,
email operations@weeeireland.ie
or visit www.weeeireland.ie

6.0 WASTE SEGREGATION AT SOURCE FOR CLINICAL WASTE

All clinical wastes shall be stored in dedicated clinical waste only storage rooms within the Nursing Home. Images of clinical waste storage bins and containers are presented in Figures 5 & 6. Further details on Clinical risk waste storage vessels are presented in Appendix I.

Figure 5 Typical Internal Clinical Waste Bin



Figure 6 Typical Internal Secure Clinical Waste Container



7.0 EXTERNAL WASTE STORAGE AREA

The external waste storage area shall be designed to include the following aspects:

- The waste storage area shall be fitted with sensor lighting.
- The waste storage area shall include ground drainage to allow for its regular cleaning and disinfection.
- The Facilities Management Company shall engage a mobile bin cleaning service provider to clean waste bins as required.
- The waste storage area shall have a separated and dedicated Clinical waste storage area containing secure weather-proof storage containers.
- The waste storage area shall contain the following 1100 litre bulk bins for the following waste streams:

7.1 Non-Clinical Waste Storage

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WEEE Battery & Lamp Recycling

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Figure 7 Lamp Recycling Box



Figure 8 Image of Battery Recycling Box



Figure 9 Glass Recycling Bin



Waste Oil Management & Recycling

Waste oils will be generated from plant maintenance and from food preparation in the kitchen. Oils can be processed recycled and reused by specialist waste contractors including ENVA. Maintenance and cooking oils shall be separately stored in secure containers as indicated in Figures 8 & 9.

Figure 10 Image of waste cooking oil storage containers



Figure 11 Image of waste maintenance oil storage container



7.2 Clinical Waste Storage

The external clinical waste storage area shall be designed to include the following aspects:

- All Clinical waste shall be contained in a secure, separate and segregated area within the waste storage area.
- All Clinical waste receptacles shall be stored in covered section of the waste storage area in either a secure container or bunker unit.
- Appropriate warning signs indicating the presence of healthcare risk waste/bio hazard shall be displayed at the entrance to the Clinical waste storage area
- Spill kits shall be maintained in the Clinical Waste Storage Area

Figure 12 Image of Clinical Waste Bunker



Figure 13 Image of Clinical Waste Storage Container



Figure 14 Image of Clinical Waste Yellow Wheelie Bins



8.0 GENERATED WASTE TYPES & QUANTITIES

The most recent EPA Waste statistics (2019) on household waste generation states 628kg is produced per person per year.

A value of 1.7kg of waste generated per person per day has been therefore assumed for the purposes of this report to estimate the volume of waste to be generated at the proposed fully occupied development will be c. 265Kg/day, 1855Kg/week or 11m³/week.

Table 1 Non-Clinical Waste Types per day/week

Waste Type	% Waste	Kg/week	Kg/day
Organic waste	81	0.13	81.2
Paper	33	0.15	33.2
Cardboard	10	0.04	9.5
Composites	3	0.01	2.7
Textiles	41	0.38	41.1
Plastics	36	0.90	36.1
Glass	9	0.01	9.0
Metals	8	0.09	8.2
Wood	3	0.04	3.2
Hazardous municipal waste	2	0.01	2.4
Unclassified combustibles	4	0.01	3.7
Unclassified incombustibles	3	0.01	3.2
Fines	31	0.12	31.0
Bulky Waste & WEEE	1	0.003	0.8
Totals	100	1855	265

To determine the estimated quantity of Clinical waste that will be generated, a value of 0.3Kg/resident/day has been assumed.

Table 2 Clinical Waste Types per day/week

Waste Type	Kg/day	Kg/week
Clinical Waste	47	328

9.0 WASTE STORAGE AREA DESIGN

The waste storage area shall be of sufficient size to house all Non-Clinical and Clinical waste receptacles and allow movement of waste collection vehicles.

Table 3 Nursing Home Waste Storage Area Requirements

Waste Storage Area	Minimum Bin Storage Area (m ²)
Non-Clinical Waste	35
Clinical Waste	5
Total	40

10.0 WASTE MANAGEMENT DUTIES OF THE FACILITY MANAGEMENT COMPANY

Internal & External Waste Management

The Facilities Management Company shall be responsible for the movement of all Clinical and Non-Clinical wastes from within the building to the external waste storage area and the maintenance of both internal and external waste storage areas.

Waste Management & Record Keeping

The Facilities Management Company shall maintain a weekly register detailing the quantities and breakdown of both Clinical and Non-Clinical wastes removed from the development.

Visitor Waste Management

The Facilities Management Company shall maintain 3-bin systems throughout the building, an example of which is shown below.

Image of internal 3-bin waste segregation bin system



11.0 CONCLUSIONS

The proposed Nursing Home at Moygaddy, Co. Meath shall be designed and managed to provide the operators with the required waste management infrastructure to minimise the generation of un-segregated domestic waste and maximise the potential for segregating and recycling Non-Clinical waste streams.

The management of Clinical waste will be managed, stored and transported off-site in accordance with *Health Service Executive's (HSE) Waste Management Awareness Handbook (2014)*.

APPENDIX I Segregation & Packaging of Healthcare Risk & Non-Risk Waste

RISK WASTE		
YELLOW BAG	YELLOW SHARPS BIN (with blue or red lid)	YELLOW 30/60 LITRE RIGID BIN (with yellow lid)
		
<ul style="list-style-type: none"> All blood-stained items and all items soiled with body fluids assessed as infectious Suction catheters & tubing Incontinence waste from known or suspected enteric infections <p>* NO SHARPS OR FREE LIQUIDS</p>	<ul style="list-style-type: none"> Needles, Syringes & Scalpels Contaminated slides & glass Sharps tips of clear IV giving sets Blood stained glass Stitch cutters Guide wires/trocars Razors <p>* NO FREE LIQUIDS</p>	<ul style="list-style-type: none"> Blood administration sets (never disconnect line from bag) Contained blood and body fluids Non-cultured laboratory waste (including autoclaved microbiological cultures) Disposable suction liners Redivac drains (ensure drain closure sealed) Sputum containers Chest drains <p>* NO SHARPS OR FREE LIQUIDS</p>

Meath County Council - For Internal Purposes Only!

RISK WASTE

YELLOW 30/60 LITRE RIGID BIN (with purple lid)



- Cytotoxic drugs including infusion lines, left over drug preparations and personal protective equipment used.
- Small quantities of residual medicines or pharmaceuticals left over after administration to patients.

*** NO SHARPS OR FREE LIQUIDS**

YELLOW SHARPS BIN (with purple lid)



- Contaminated cytotoxic sharps, needles, syringes, sharp instruments and broken glass

*** NO FREE LIQUIDS**

YELLOW RIGID BIN (with black lid)



- Non-autoclaved microbiological cultures
- Large / recognisable anatomical body parts
- Placentas with additional leak proof containment
- Large solid metal objects and instruments

*** NO SHARPS OR FREE LIQUIDS**

Byrne Environmental
CONSULTING LTD

Sky Castle Ltd – Moygaddy Healthcare Facilities (Nursing Home)

Operational Waste Management Plan

NON-RISK WASTE

CLEAR BAG



- Incontinence wear (from non-infectious patients)
- Oxygen face masks
- Empty urinary drainage and empty stoma drainage bags
- Clear tubing (e.g. oxygen, urinary catheters, ventilator, naso gastric, IV lines with tips removed)
- Enteral feeding equipment
- Non contaminated gloves, aprons and masks
- Empty continuous ambulatory peritoneal dialysis (CAPD) bags

APPENDIX II Location of Waste Storage Area

