

Site Name: _____

Iowa Department of Natural Resources
Municipal Solid Waste Unit Construction Request
Engineering Review Checklist

Sanitary Disposal Project: _____ Permit Number: _____

Contact Person: _____

Address: _____

Telephone: _____ Email: _____

Engineer: _____

Engineering Firm: _____

Firm Address: _____

Firm Telephone: _____ Email: _____

Site Name: _____

Construction Request and Cell Information	Yes	No	NA	Comment, Value and/or Date
1. Has the overall MSWLF Unit design been approved in the "Master Plan", which includes the proposed cell[s]? If yes, note date and doc#.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2. Has this project been through public notice? If yes, note date and doc#.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3. Cell name to be constructed and estimated lifespan (years).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4. Expected construction start date (month/year)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5. Expected construction finish date (month/year)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6. Remaining capacity in existing constructed cells (Cubic Yards, CY)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7. Proposed Cell Area (acres)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8. Proposed Cell Area (acres)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9. Proposed Cell Waste Fill Volume (Cubic Yards, CY)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Siting	Yes	No	NA	Comment, Value and/or Date
1. Each construction request triggers an update of the following: Please note date and Doc# for siting related to this construction request.				
a. 113.6(2) "a" Airports	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b. 113.6(2) "b" Floodplains	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c. 113.6(2) "c" Wetlands	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d. 113.6(2) "d" Fault Areas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
e. 113.6(2) "e" Seismic Impact Zones	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
f. 113.6(2) "f" Unstable Areas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
g. 113.6(2) "g" Threatened or Endangered Flora and Fauna	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
h. 113.6(2) "h" Cultural Resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
i. 113.6(2) "i" Separation from Groundwater	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
j. 113.6(2) "j" Wells and Community Water Systems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

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k. 113.6(2) "k" Property Line Setback	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
l. 113.6(2) "l" Housing and Sensitive Populations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Design Content Template	Yes	No	NA	Location in Design Report or Value or Date
1. 113.7(2)"a" Plans and Specifications- Plans include sufficient detail to confirm compliance with the requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2. 113.7(3) General Site Design – Any changes from prior approved documents?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3. 113.7(4) Subgrade				
a. Field Observations – Pumping, proof rolling, qualitative measure of slope stability, etc. included in QC&A program.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b. QC&A program updated or included?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c. Settlement or Swell Calculations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d. Strength of Materials – List minimum factor of safety for slope stability.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
e. Settlement calculations address potential slope flattening/reversal. Swell calculations if soil conditions warrant.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
f. Subgrade Removal – Is it addressed in quality control and assurance plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
g. Frozen Materials – Is it addressed in QCA program?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
h. Details of Groundwater Control. Is one included/required?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1. Type of System	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2. Thickness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3. Material(s)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4. Piezometer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5. Name of outfall (to be added to HMSP)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6. Drainage area per outfall (acres) less than 10 acres?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7. Modeling and/or calculations show separation will be attained under entire cell?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4. 113.7(5) MSWLF Unit Liners and Leachate Collection Systems				
a. Is this an alternative liner design? If yes, note date and Doc# of approval.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b. Are any soil amendments proposed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1. If yes, submit method of placement and include in QCA program.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c. Recompacted Clay Liner				
1. Source of Soil	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2. Proposed number and location of in-situ hydraulic conductivity tests and statistical significance of testing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3. List required hydraulic conductivity if different from 1E-7 cm/sec.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4. Proposed number and location of moisture/density tests and statistical significance of testing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

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5. Thickness of Liner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6. Maximum and minimum liner slopes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d. Flexible Membrane Liner				
1. Material and thickness (mil)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2. Textured?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3. Smoothness of subgrade requirements included in QC&A program?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4. Location and frequency of destructive testing included in QC&A program?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
e. Geonet, geocomposite, or other manufactured drainage media system being used?				
1. Calculated transmissivity both before and after reduction factors included?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2. Evaluation of geonet performance under field conditions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3. Overlying Protective Layer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
a. Thickness, 12" minimum?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b. Hydraulic conductivity meets 1E-3 cm/sec requirement?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
f. Drainage material other than non-calcareous sand or gravel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1. If alternative materials are proposed, provide detailed material QCA program.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2. If auto shredder residue is proposed, provide plan to demonstrate that material is non-hazardous.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
g. Non-calcareous Granular Drainage Media				
1. Gradation requirements and maximum particle size.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2. Hydraulic conductivity meets 1E-2 cm/sec requirement?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3. Maximum fines content (Passing #200 Sieve) is less than 5%?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4. Is a geotextile necessary for puncture protection of liner per (113.7(5)"h"(7)1)? If yes, does geotextile specification meet requirements of puncture protection calculations?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
h. Any proposed manholes placed on the liner or in the new cell for access to leachate lines for cleaning or inspection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1. If yes, does the design consider the effect of forces on manhole and liners below manhole.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
i. Is leachate recirculation proposed? If yes, not the rates and methods. Does leachate head on liner calculations remain below 12"?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
j. Piping				
1. What method(s) is used to clean and inspect leachate collection pipes?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2. For gravity lines, what are the pipe sizes and minimum slope?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3. Provide the pipe strength calculations.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

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4. Provide the filter design to impede the migration of fines into pipe perforations.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5. Does leachate head on liner calculations remain below 12"?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
k. Does each unit have a proposed leachate head measurement device, the installation location, and method of measurement?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
l. Has seven-day storage requirement been met and does it show sufficient capacity for the proposed cell?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
m. Any increases in leachate storage or addition of conveyances (piping) outside of the MSWLF unit? If yes:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1. Describe containment and countermeasures (dual-wall piping, bentonite, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2. Does containment meet or exceed cell liner performance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
n. What is the anticipated leachate generation rate and how will leachate be treated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1. Include the evaluation that estimates increase in leachate.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
a. Pre-Construction Model Results Compared to Actual Leachate Generation – Test of Model Calibration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b. Post-Construction Model Results	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2. Provide a plan for the initial surge in leachate volume during excessive rainfall.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5. 113.7(6) Quality Control and Assurance Program.				
a. List the name of QCA program Officer.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b. List names of delegated persons, if any.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c. List the date of Approved QC&A plan.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d. Provide statistical significance of all testing?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6. 113.7(7) Vertical and Horizontal Expansions of MSWLF Units.				
a. Analyze Slope Stability. What is minimum factor of safety?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b. If this is a vertical expansion, has a line-of-sight analysis been performed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7. 113.7(8) Run-on and runoff control systems. Review the impact of new construction. Include allowance for siltation in channels, if used.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Operating Requirements (update if necessary)	Yes	No	NA	Comment, Value and/or Date
1. 113.8(2)"b" First Lift, Frost Damage Prevention Plan – is there a plan for achieving compliance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2. 113.8(2) "c" Fill Sequencing – Is the impact of new construction adequately addressed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3. 113.8(2)"g" Disposal Operations and Activities. If construction is adjacent to existing waste how will leachate seeps be controlled and or captured during construction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4. 113.8(4) Development and Operations Plan (DOPs). Is an update necessary? If yes, has an updated DOP been submitted and approved?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

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5. 113.8(5) Emergency Response and Remedial Action Plan (ERRAP). Do items such as emergency routes, gathering locations, etc. need updating? If yes, has an updated ERRAP been submitted and approved?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Landfill Gas	Yes	No	NA	Comment, Value and/or Date
1. 113.9(2) Landfill gas. Does construction require removal and/or addition of monitoring points? If so, has the gas monitoring plan been updated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Groundwater Monitoring	Yes	No	NA	Comment, Value and/or Date
1. 1. 113.10(1)“b” - A new MSWLF unit must be in compliance with the groundwater monitoring requirements specified in subrules 113.10(2), 113.10(4), 113.10(5) and 113.10(6) before waste can be placed in the unit. Is it compliant?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2. 113.10(2)“a” and “b” – Have new monitoring points been approved, installed, and documentation submitted?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3. 113.10(2)“d” - Have monitoring wells that are in the new cell area been approved for removal, been abandoned, and documentation submitted.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4. 113.10(2)“e” – Has the HMSP been updated to include the addition of any new monitoring points, including sampling points from an underdrain used to maintain 5-foot separation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Closure and Post-Closure Plans	Yes	No	NA	Comment, Value and/or Date
1. 113.12(3) Updates to Closure Plan – Are any updates to the closure plan necessary (see below)? If yes, is the updated plan approved/approvable? a. Final Grades b. Storm Water System c. Update Soil Balance through Closure d. Cap slope stability analysis e. Subsurface infiltration conveyance f. Erosion control	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2. 113.13(3) Post-Closure plan (PCP) – Are any updates to the PCP necessary? If yes, is the updated PCP approved/approvable?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Directions

1. Where applicable, please include the Document # (Doc#) from the solid waste database and the page number within the PDF.
2. This document is intended solely as guidance, and does not contain any mandatory requirements except where requirements found in statute or administrative rule are referenced. This guidance does not establish or affect legal rights or obligations and is not finally determinative of any of the issues addressed. This guidance does not create any rights enforceable by any party in litigation with the State of Iowa or the Department of Natural Resources. Any regulatory decisions made by the Department of Natural Resources in any matter addressed by this guidance will be made by applying the governing statutes and administrative rules to the relevant facts.