



Iowa Department of Natural Resources  
Wastewater Section  
Construction Permit Application  
**SCHEDULE N, Rotating Biological Contactor**

|                   |
|-------------------|
| DNR USE ONLY      |
| Project No. _____ |
| Permit No. _____  |

|                        |                           |
|------------------------|---------------------------|
| Date Prepared<br>_____ | Project Identity<br>_____ |
| Date Revised<br>_____  |                           |

1. Design Loadings: (waste entering RBC unit operations)

|                                | ADW | AWW | MWW | PHWW |
|--------------------------------|-----|-----|-----|------|
| Flow, MGD _____                |     |     |     |      |
| Design Temp: _____ °F          |     |     |     |      |
| BOD <sub>5</sub> , mg/l _____  |     |     |     |      |
| TSS, mg/l _____                |     |     |     |      |
| NH <sub>3</sub> -N, mg/l _____ |     |     |     |      |

Is the ratio of the peak hourly wet weather flow to the average wet weather flow greater than 2.5?     Yes     No

Is the industrial BOD<sub>5</sub> load less than 10% of the total BOD<sub>5</sub>?     Yes     No

2. RBC unit operation follows: \_\_\_\_\_ and precedes: \_\_\_\_\_

3. Design Calculations- based on which manufacturer's guidelines: \_\_\_\_\_

|  | ADW | AWW | MWW |
|--|-----|-----|-----|
| <b>For Carbonaceous Removal</b>                            |     |     |     |
| Influent soluble BOD, mg/l _____                           |     |     |     |
| Soluble BOD when nitrif. Begins, mg/l _____                |     |     |     |
| Hydraulic loading rate, gpd/ft <sup>2</sup> _____          |     |     |     |
| Temperature correction factor _____                        |     |     |     |
| Adjusted hydraulic loading rate, gpd/ft <sup>2</sup> _____ |     |     |     |
| Required surface area, ft <sup>2</sup> _____               |     |     |     |
| <b>For N<sub>3</sub>-N Conversion</b>                      |     |     |     |
| Influent NH <sub>3</sub> -N, mg/l _____                    |     |     |     |
| Effluent NH <sub>3</sub> -N, mg/l _____                    |     |     |     |
| Hydraulic loading rate, gpd/ft <sup>2</sup> _____          |     |     |     |
| Temperature correction factor _____                        |     |     |     |
| Adjusted hydraulic loading rate, gpd/ft <sup>2</sup> _____ |     |     |     |
| Required surface area, ft <sup>2</sup> _____               |     |     |     |
| Effluent BOD <sub>5</sub> , mg/l _____                     |     |     |     |

4. Media arrangement-

|                                     | Conventional Media | High Density Media | Total |
|-------------------------------------|--------------------|--------------------|-------|
| Surface area, ft <sup>2</sup> _____ |                    |                    |       |
| Number of stages/shaft _____        |                    |                    |       |
| Number of shafts/row _____          |                    |                    |       |
| Number of rows _____                |                    |                    |       |

5. General Information:

Wastewater flow proceeds:  Parallel or  Perpendicular to the shaft?

Measures taken to prevent solids deposition on tank bottom: \_\_\_\_\_

Type of shaft driving device: \_\_\_\_\_ Shaft speed: \_\_\_\_\_ RPM

Type of enclosure provided: \_\_\_\_\_

Condensation and corrosion protection provided: \_\_\_\_\_

Method of ventilation: \_\_\_\_\_

Method of shaft removal: \_\_\_\_\_

Method of bearing replacement: \_\_\_\_\_

Are unit drains provided?     Yes     No    Discharge to: \_\_\_\_\_

Is service bypass provided?     Yes     No    Discharge to: \_\_\_\_\_