THE CITY OF WATFORD CITY
213 2ND ST NE / PO BOX 494
WATFORD CITY, NORTH DAKOTA

# STORM WATER PLAN REVIEW & CHECKLIST

**REQUIREMENTS:** All applications must be legible, printed in ink or typed, and suitable for reproduction. This checklist is to accompany the Site Development Plan Application.

## PROJECT INFORMATION

PROPERTY ADDRESS:

## APPLICANT INFORMATION

| APPLICANT NAME: | PHONE NUMBER: | EMAIL: |
|---|---|---|
| MAILING ADDRESS: | | |

## PROPERTY OWNER INFORMATION

| OWNER NAME: | PHONE NUMBER: | EMAIL: |
|---|---|---|
| MAILING ADDRESS: | | |

## DEVELOPER OR ENGINEER INFORMATION

| NAME: | PHONE NUMBER: | EMAIL: |
|---|---|---|
| MAILING ADDRESS: | | |

## DESCRIPTION

Please give a brief description of the proposed project.

**IS THE DEVELOPMENT LOCATED IN THE FLOODPLAIN?** ☐ **YES** ☐ **NO** *IF YES, A FLOODPLAIN DEVELOPMENT PERMIT IS REQUIRED.

**DOES THE PROJECT CREATE MORE THAN 20,000 SQ.FT. OF IMPERVIOUS* AREA?** ☐ **YES** ☐ **NO**

**Impervious areas include, but not limited to, pavement, rooftops, sidewalks, driveways, and gravel surfaces.*

IF **NO**, SIGN AND SUBMIT THIS FORM AS IS.
IF **YES**, A STORMWATER PLAN IS REQUIRED. PLEASE COMPLETE THE CHECKLIST WITHIN THE FOLLOWING PAGES.

## APPLICANT SIGNATURE

| APPLICANT SIGNATURE: _____ | DATE: _____/_____/_____ |
|---|---|
| APPLICANT PRINT NAME: _____ | APPLICANT TITLE: _____ |

# STORM WATER PLAN REVIEW CHECKLIST

*Please note: if the City deems that the project will significantly increase downstream or upstream flood elevations, the City may place additional drainage and storm water requirements on the project beyond those listed below.*

| SUBMITTAL REQUIREMENTS<br>The following items are REQUIRED to be submitted. | APPLICANT CHECKLIST | CITY STAFF REVIEW |
|---|---|---|
| Implement storm water management BMPs to reduce the post-development peak discharge rate to the pre-development peak discharge rate for the 2-year (1.9 inches), 5-year (2.6 inches), 10-year (3.0 inches), and 100-year (4.5 inches), 24-hour events. | X | |
| Implement storm water BMPs for water quality treatment consistent with Appendix 1 of the North Dakota Pollutant Discharge Elimination System Permit NDR04-0000 http://www.ndhealth.gov/wq/Storm/MS4/NDR04per20090701F.pdf | X | |
| The site shall safely pass the 100-year event (i.e. no homes, buildings, or structures are inundated). Please note that the conveyance system (storm sewer, roadside swales, and overland flow) will need to have the capacity to drain the site to the proposed storm water facilities. | X | |
| Storm water management facilities shall have a maximum drain down time of 72 hours. If infiltration in the storm water management facilities is relied upon, Applicant shall discuss and obtain approval from the City that this is an acceptable approach. Additional design recommendations will be provided by the City if infiltration in storm water facilities is proposed. | X | |
| **DESIGN REQUIREMENTS** | **APPLICANT CHECKLIST** | **CITY STAFF REVIEW** |
| Capacity of stormwater facilities shall account for off-site runoff contributions. | | |
| Storm sewer and inlets shall be designed such that the hydraulic grade line (HGL) does not exceed the ground surface up to and including the 5-yr design event | | |
| Streets, curbs, gutters, and inlets should be designed such that no overtopping of the curb occurs and a width of at least 12' must be maintained within the center of each road to allow for safe vehicle passage during storm events up to the 5-yr event. Flow extents shall not exceed the right-of-way or roadway easement for the 100-yr design event. | | |
| Provide a minimum separation distance between water mains and storm sewer similar to the separation required for sanitary sewer. As an alternative, the Applicant can prepare a design to limit the potential for contamination of the water supply from storm sewer flow. | | |
| All culvert, storm sewer, and basin outlets shall be designed to have a stable outlet and not cause downstream erosion. | | |
| Sag curves on roadways shall be designed such that the ponding extents from the 100-yr. design event do not extend past the right-of-way or roadway easement. Inlets at sag points shall include curb openings or other means to address the potential for clogging from debris accumulation. | | |
| **DRAWING CONTENTS** | **APPLICANT CHECKLIST** | **CITY STAFF REVIEW** |
| Information outlined in Erosion Control Drawing Contents Checklist-as applicable. | | |
| Prepare grading plan for each stormwater facility, although a separate sheet of each facility is not needed provided each facility is clearly labeled on the overall site plan. | | |

| **DRAWING CONTENTS** *(CONTINUED)* | **APPLICANT CHECKLIST** | **CITY STAFF REVIEW** |
|---|---|---|
| Cross sections of each stormwater facility.<br>*(not required but recommended for ease of review)* | | |
| Prepare stormwater facility outlet details or note culvert geometries (size, type, end wall condition, inverts) for all outlets. | | |
| Provide an emergency overflow location on all stormwater management facilities to accommodate flows in excess of the facility capacity. | | |
| Provide plan and profiles of all storm sewer, which also shows all other existing and proposed utilities to identify potential conflicts. | | |
| Out lot locations and easements (including drainage easements). | | |
| **REPORT CONTENTS** | **APPLICANT CHECKLIST** | **CITY STAFF REVIEW** |
| Narrative Describing the proposed project. | | |
| Describe the ultimate discharge point for the stormwater (river name) and how it gets there. | | |
| Past studies that are relevant to the project area. If any, list sources, date and any information available. | | |
| Known past flooding events that are relevant to the project area. If any, list sources, date, and any other information available. | | |
| Data used and gathered for this study. | | |
| Describe the methodology used to determine compliance with the peak discharge criteria. We recommend using NRCS (Curve Numbers, Times of Concentration, and Type II Distribution) or SWMM methodology. If another method is selected by the Applicant, prior approval of the Applicant's desired approach is necessary. | | |
| When using NRCS methodology, runoff from the pervious and impervious areas of the site should be computed separately (i.e. if there are 5 acres of pervious at CN=61 and 5 acres of impervious at CN=98, do not average the values.) | | |
| Provide summary tables(s) demonstrating compliance with the stormwater design requirements. | | |
| Provide summary tables(s) of basin geometry and outlet structure geometry (key inverts, sizes, etc.) | | |
| Provide summary table(s) listing peak elevations in stormwater management features, accounting for off-site contributing area as applicable. | | |
| Provide summary table(s) listing peak velocities and depths in the surface drainage features, accounting for off-site contributing areas as applicable. | | |
| Provide summary table(s) or profile plot(s) summarizing manhole rims, manhole inverts, and manhole 5-year elevations in storm sewers. | | |
| Provide supporting calculations in the form of brief but complete model output | | |
| Please provide calculations demonstrating that the inlets have the necessary capacity to convey the 5-year event into the storm sewer system (accounting for the allowed ponding described below) | | |
| Provide sizing calculations for all drainage features such as culverts, storm sewer, and ditches, accounting for offsite contributing areas as applicable. | | |
| If off-site contributions are substantial (>50% of the site's contributing area), the Applicant should describe the implications to the stormwater facilities if the upstream areas develop consistent with the requirements outlined in this checklist. | | |

| REPORT CONTENTS *(CONTINUED)* | APPLICANT CHECKLIST | CITY STAFF REVIEW |
|---|---|---|
| Provide supporting calculations indicating that the water quality requirements have been met. | | |
| Provide a map showing existing conditions topography, existing lot boundaries, sub watershed boundaries, and applicable runoff parameters. For example, when using NRCS methodology include existing NRCS soils and corresponding Hydrologic Soil Group classification, and Times of Concentrations (Tc) flow paths. | | |
| Provide a map showing proposed conditions topography, proposed lot boundaries, roadway ROWs, sub watershed boundaries, and applicable runoff parameters. If using NRCS methodology, as an alternative for computing Times of Concentration flow paths in proposed conditions, the Applicant may use a Tc of 6 minutes. | | |
| On both the existing and proposed conditions maps, sub watersheds should be labeled with a unique identifier along with the area, percent impervious, and applicable runoff parameters. | | |
| Maintenance guidelines for drainage and stormwater management facilities | | |
| Provide an exhibit showing peak 100-yr water surface elevations in ponds and surface drainage features included in easements. For surface drainage features, label the 100-yr. elevations at a spacing no greater than one label per 100 feet. | | |
| **DRAINAGE & STORMWATER EASEMENTS**<br>The following items are REQUIRED to be submitted. | **APPLICANT CHECKLIST** | **CITY STAFF REVIEW** |
| Identification of the entity responsible for long-term maintenance of all stormwater management and drainage facilities | X | |
| Detention pond areas shall include drainage easements or be dedicated as an out lot to the extent of the 100-yr. design event elevation. | X | |
| Swales, ditches, and storm sewer shall include drainage easements if not located within the public road right-of-way or out lot. | X | |
| **CERTIFICATION**<br>The following items are REQUIRED to be submitted. | **APPLICANT CHECKLIST** | **CITY STAFF REVIEW** |
| Stormwater Plan shall be certified by a duly licensed Professional Engineer in the State of North Dakota that the design was completed by or under the direct supervision of the Engineer and that the design complies with these guidelines. | X | |
| Record drawings of stormwater and drainage features shall be certified by a licensed Professional Engineer in the State of North Dakota and submitted to the City upon completion of the project. Engineer shall certify that the as-built project is consistent with the design. | X | |

**▼ OFFICE USE ONLY ▼**

ENGINEERING DEPARTMENT

REVIEW DATE: _____/_____/_____ ☐ APPROVED BY: _____

*City Engineer Signature*

NOTES: _____

_____