Operations and Maintenance Manual

Cold Storage Industrial Warehouse

SEC of CR 300 N & Graham Road
Franklin, IN 46140

Prepared for:
Cold Summit Development
333 S Main Street, Suite 204
Ketchum, ID 83340

Prepared by:
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Original: November 3rd, 2022

Storm Sewers, Storm Structures, Extended Dry Detention Basins (EDDB), Wet Detention Pond, and vegetated land coverage.

The proposed project site will include proposed storm sewers, storm structures, Extended Dry Detention Basins (EDDBs), Wet Ponds, and vegetated land coverage.

Water Quality BMPs

Water Quality Best Management Practices (BMPs) are vegetative, structural, and other measures that reduce or eliminate pollutants that might otherwise be carried by surface runoff off the site. Potential pollutant sources include exposed soil and sediments, litter from workers/visitors and automobile fluids on the pavement including heavy metals, oil, grease, and alcohols. Runoff from the project site will be routed to a wet detention pond that will reside on the southeast side of the site.

BMP Owner Contact Information

Name: Cold Summit Development
Address: 333 S Main Street, Suite 204 Ketchum, IN 83340
Business Phone Number: 208-913-0400

Party Responsible

Routine inspections are the responsibility of the BMP owner. The BMP owner shall be financially responsible for any maintenance or repairs required by the County or its representatives during the County's inspections. The approved maintenance plan and inspection forms provided with this manual should be used as guidance for performing maintenance activities. Project owner shall abide by all Franklin County Stormwater Technical Manual and maintenance requirements. The County will require yearly inspection reports of the water quality BMPs. The first will be due one year after the Notice of Termination is submitted.

Right of Entry

The County has the right to enter the subject property in order to inspect the Wet Ponds, EDDBs, storm structures, and storm sewer.

Water Quality BMPs Description

Stormwater runoff from the site will flow via sheet and shallow concentrated flow to a storm network that will convey the runoff to the wet pond on the southeast side of the site. The wet pond will discharge to a wet pond on the south side of the site, which discharges to the INDOT Right-of-Way. The proposed storm sewers, storm structures, Extended Dry Detention Basins (EDDB), wet detention pond, and vegetated land coverage will need to be inspected and maintained per the requirements below. See **Appendix A** for the O&M Exhibit, depicting the location of all water quality structures.

Storm Structure Maintenance and Inspection

Storm structures on site are identified in an exhibit in **Appendix A**. Storm structures are set at storm sewer pipe connections. Unless you have OSHA approved training and equipment, never enter a manhole. Inspection and maintenance of all storm structures is required per the table below. See **Appendix B** for inspection and maintenance guidelines.

Storm Structure Maintenance and Inspection	
Inspection	All inlet castings should be inspected every 6 months and after each major rainfall event. More frequent inspections should be performed in areas where there is higher potential for trash or litter and during the fall when leaves are present on the ground. Check the frame and lid for cracks and wear, such as rocking lids or lids moved by traffic. Storm structures and the surrounding areas should be inspected annually for pollutants such as leaks from dumpsters, minor spills, and oil dumping. Take action to have the pollutant source removed.
Cleaning	Clean structures when there is a blockage of a water flow path or when sediment depth reaches 10% of the pipe diameter. Cleaning should be performed in a way that ensures removed sediment and water is not discharged back into the storm sewer.
Materials Handling	Disposal of waste from maintenance of drainage facilities shall be conducted in accordance with federal, state, and local regulations. Removed sediment must be disposed in the garbage as solid waste. Water should be disposed of in a sanitary sewer after oils are removed using oil absorbent materials or other mechanical means. Used oil absorbents should be recycled or disposed according to the manufacturer's instructions.
Repairs	Repair all security and access features so they are fully functional. This includes locking lids, covers, and ladder rungs. Replace broken parts or lids that rock or are moved by traffic.

Storm Sewer Maintenance and Inspection

Storm sewer pipes convey stormwater. Pipes are built from many materials and are sometimes perforated to allow stormwater to infiltrate into the ground. Storm pipes are cleaned to remove sediment or blockages when problems are identified. Storm pipes must be clear of obstructions and breaks to prevent localized flooding. Storm sewer maintenance and inspection required per the table below. See **Appendix B** for inspection and maintenance guidelines.

Storm Sewer Maintenance and Inspection	
Inspection	Pipes are difficult to inspect requiring special equipment and training. Usually, if a problem occurs the owner needs to call a sewer or plumbing contractor to inspect, repair or clean pipelines.
Cleaning	Clean pipes when sediment depth is greater than 10% of the pipe diameter. When cleaning a pipe, minimize sediment and debris discharges from pipes to the storm sewer. Install downstream debris traps (where applicable) before cleaning and then remove material. Generally, use mechanical methods to remove root obstructions from inside storm sewer pipes. Do not put root-dissolving chemicals in storm sewer pipes. If there is a problem, remove the vegetation over the line.
Materials Handling	Sediment and debris from pipes should be disposed in the garbage as solid waste. Pick out any rocks first.
Repairs	Repair or replace pipes when a dent or break closes more than 20 percent of the pipe diameter. Repair or replace pipes damaged by deterioration.

Extended Dry Detention Basins

Maintenance is necessary for the dry stormwater basins to operate as designed on a long-term basis. The side slopes of the dry detention basins should be regularly visually inspected to identify any erosion issues. The outlet structures should be regularly inspected to ensure they are clear of debris.

At a minimum, the basins should be inspected and maintained once per year and after every large rain event. An inspection checklist can be found in the **Appendix B**.

Wet Detention Pond

Maintenance is necessary for the stormwater detention pond to operate as designed on a long-term basis. The side slopes of the wet detention pond should be regularly visually inspected to identify any erosion issues. The outlet structures should be regularly inspected to ensure they are clear of debris.

At a minimum, the basin should be inspected and maintained once per year and after every large rain event. It must be inspected for sediment accumulation at and above the safety ledge. A decrease in volume of 35% or more in comparison to the approved design drawings will require sediment removal. An inspection checklist can be found in the **Appendix B**.

Turf Vegetative Coverage

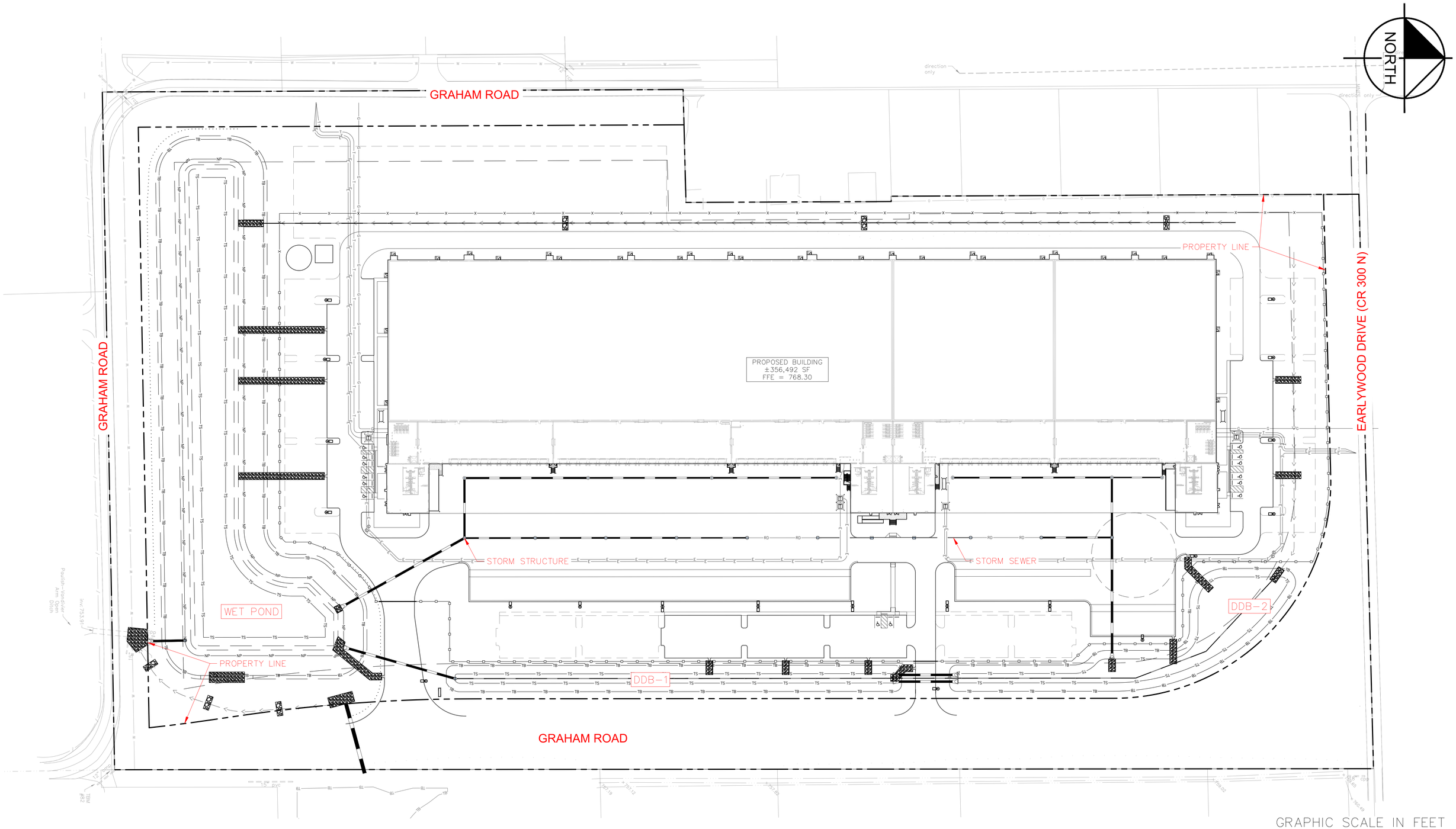
All non-paved areas that are not landscaped shall be vegetated to prevent erosion and sediment buildup in storm sewer facilities onsite or downstream of the project site. Seed shall be reapplied as required to establish healthy, dense coverage.

List of Attachments

Attachment A: O&M Exhibit

Attachment B: Inspection and Maintenance Checklist

Appendix A – O&M Exhibit



Kimley»Horn

COLD SUMMIT DEVELOPMENT

O&M EXHIBIT
FRANKLIN, IN
November 3, 2022

Appendix B – Inspection and Maintenance Checklist

Maintenance Inspection Checklists

Appendix D5

MAINTENANCE INSPECTION CHECKLISTS

This appendix contains nine checklists available as guides for maintenance inspections of specific BMPs. The checklists are designed to help identify key components of BMPs that require ongoing maintenance as well as a basic schedule of when the maintenance should occur.

It is suggested that the inspection be undertaken by a licensed PE and/or a person knowledgeable about the design and function of the BMP.

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BIORETENTION (RAIN GARDEN) & VEGETATED SWALE (BIOSWALE) MAINTENANCE INSPECTION CHECKLIST

BMP Location:	Inspector's Remarks:
Overall Condition (circle one): *ACCEPTABLE* *UNACCEPTABLE*	
Inspection Date:	

FREQUENCY	MAINTENANCE ACTIVITY	COMMENTS
As Needed & Following > 1" Rainfall	☐ Irrigate if plants appear wilted or unhealthy; replace dead plants ☐ Check for erosion, cracking, embankment failure, burrowing animals, and sediment clogging the drain and other pipes ☐ Repair erosion with additional plant material similar to original and/or small stones for stability ☐ Remove trash, debris, and sediment ☐ Remove weeds and invasive plants ☐ Replace bark mulch on bare, exposed soil	
Monthly (during growing season)	☐ Irrigate 1" water/week during the first growing season ☐ Check/clean inlets, outlets/overflows and curb cuts from debris ☐ Check plants for pest damage or disease ☐ Remove trash, debris, and sediment ☐ Remove weeds and invasive plants	
Semi-Annually (spring & fall)	☐ Redefine lawn edge	
Annually	☐ Cut perennial plantings and divide grasses and perennials to prevent overcrowding (fall) ☐ Mow bioswale (> 6") (fall) ☐ Check overflow and subsurface drain; check infiltration and flow-through rates (0.5"/hr) ☐ Check pH of infiltration/planting soil (<5.2 add limestone; >7.0 add iron sulfate plus sulfur) ☐ Check/correct for uniformity in cross-section and longitudinal slope (bioswale) ☐ Replace mulch. Minimum every 3 years ☐ Remove accumulated sediment and replace with approved soil mix, bark mulch, and vegetation (> 25% ponding depth for bioretention; >50% checkdam height for bioswale). Minimum every 5 years	
Upon Failure	☐ Redesign and reconstruct	

DRY POND & WET POND
MAINTENANCE INSPECTION CHECKLIST

BMP Location:	Inspector's Remarks:
Overall Condition (circle one): *ACCEPTABLE* *UNACCEPTABLE*	
Inspection Date:	

FREQUENCY	MAINTENANCE ACTIVITY	COMMENTS
As Needed & Following > 1" Rainfall	☐ Irrigate if plants appear wilted or unhealthy; replace dead plants ☐ Check/repair areas with erosion, cracking, embankment failure, burrowing animals, and sediment clogging the drain and other pipes ☐ Repair erosion and bare soil ☐ Remove woody vegetation < 15' toe of embankment and mow < 25' from spillway ☐ Remove trash, debris, and sediment ☐ Remove weeds and invasive plants	
Monthly (during growing season)	☐ Irrigate 1" water/week during the first growing season; maintain low water levels to allow sufficient oxygen to the roots of establishing plants (wet pond shelf) ☐ Check/clean inlets, outlets/overflows and trash racks from debris ☐ Check plants for pest damage or disease ☐ Remove trash, debris, and sediment ☐ Mow side slopes and embankments, emergency spillways, and access road (dry pond – maintain bottom at 6-8"; wet pond – allow 5-10' of embankment to grow 24-30")	
Semi-Annually (spring & fall)	☐ Check/remove sediment build-up and plant debris (especially < 18" of outlet) ☐ Check water levels with design specifications (wet pond) ☐ Check/repair any settlement of berms ☐ Check/remove burrowing animals; repair holes in embankments	
Annually	☐ Seed or sod to restore dead or dying grass/groundcover ☐ Replace mulch every 3 years (min); replace topsoil every 10 years (min) ☐ Remove accumulated sediment (> 50% capacity forebay, > 25% capacity pond). Minimum 2-10 years (dry pond), 5-10 years (wet pond)	
Upon Failure	☐ Redesign and reconstruct	