R.H. Batterman and Co., Inc.
2857 Bartells Drive
Beloit, WI 53511
P 608.365.4464
F 608.365.1850

August 25, 2021

City of Waukesha
201 Delafield Street, 1st Floor
Waukesha, WI 53188

Attn: Charlie Griffith – Associate Planner

Re: Development Review Application – Best Buy Site – 1822 Dolphin Drive

Dear Mr. Griffith,

Enclosed please find electronic copies of the site plans, the Storm Water Management Plans, and the completed "Checklist Attachments" per city requirements.

The proposed site redevelopment includes expanded employee and trailer parking areas as well as depressed loading docks along the north face of the existing warehouse building. Site storm water management infrastructure has also been proposed.

We are currently finalizing design of the exterior lighting and awaiting receipt of the site geotechnical report, both of which will be submitted for review once completed.

Should you have any questions or additional comments please contact my office.

Kind Regards,

R. H. BATTERMAN & CO., INC.
Engineers - Surveyors – Planners

Matthew T Fueston

Matthew Fueston, E.I.T.
Project Engineer

Enc.

C.C. (via email)
Frank McKearn-R.H. Batterman and Co., Inc.
Alex Feuling-R.H. Batterman and Co., Inc.
Josh Mory-Hendricks Commercial Properties
Denis Pohlman-Kahler Slater
Jeremy Happle-Kahler Slater
Joe Sinnett-Kahler Slater

Attachment A - Application for Development Review Checklist

Project Name: HCP 1822 DOLPHIN DRIVE

Engineering Design Firm: R.H. BATTERMAN & CO., INC.

Checklist Items	CSM	Preliminary Plat	Final Plat	Property Survey for Bldg Permit	Storm Water Plan	Erosion Control Plan	Site, Grading, Drainage Plan	Street Plan	Utility Plan	Landscape Plan	Traffic Control Plan	Traffic Impact Analysis	Conditional Use or Home Indus.	PUD or Developer's Ag.	Minor site or Arch. Change	Conditional Use	Rezoning & Comp. Plan Change
Followed Construction Drawing Sheet Layout standards in Development Handbook						✓	✓	N/A	N/A	✓							
Followed Development Handbook and Storm Water Ordinance standards for Erosion control plans						✓											
Obtained geotechnical evaluation for storm water and pavement design					✓		✓	N/A	✓								
Followed Development Handbook standards, and Wisconsin Administrative Code for Property Survey				✓													
Verified proposed basement floor elevation is at least 1 foot above the highest seasonal high water table elevation				N/A													
Followed Development Handbook standards and Ordinance for Preliminary Plat		N/A															
Followed Site, Grading, and Drainage Plan design standards in Development Handbook and Storm Water Ordinance							✓						N/A		N/A	N/A	N/A
Followed Traffic impact analysis standards in Development Handbook												N/A					
Specifications conform to current City Standard Specifications					✓	✓	✓	N/A	N/A	✓	N/A			N/A			
Followed Lighting Plan standards in Development Handbook									✓								
Development site contains Contaminated Waste							N/A										
Followed storm water management requirements in Development Handbook, and Ordinance					✓												
Site contains mapped FEMA floodplain or a local 100-year storm event high water limits							N/A										
Site contains wetlands or Natural Resource limits (ie. Primary, Secondary, Isolated , shoreland limits)							N/A										
CSM follows standards in Development Handbook, City Ordinance, and State Statutes	N/A																
Followed Development Handbook standards for Street plans and profiles								N/A									
Followed Development Handbook standards for utility plans and profiles									N/A								
Existing sanitary sewer lateral has been televised							N/A		N/A				N/A		N/A	N/A	N/A

Checklist Items	CSM	Preliminary Plat	Final Plat	Property Survey for Bldg Permit	Storm Water Plan	Erosion Control Plan	Site, Grading, Drainage Plan	Street Plan	Utility Plan	Landscape Plan	Traffic Control Plan	Traffic Impact Analysis	Conditional Use or Home Indus.	PUD or Developer's Ag.	Minor site or Arch. Change	Conditional Use	Rezoning & Comp. Plan Change
Development Agreement needed for Public Infrastructure														N/A			
Followed Development Handbook standards for Landscape plans										✓							
Followed Development Handbook standards, State Statures and Ordinance for Final Plat			N/A														
A-E 2.02(4): Each sheet of plans, drawings, documents, specifications and reports for architectural, landscape architectural, professional engineering, design or land surveying practice should be signed, sealed, and dated by the	N/A	N/A	N/A	✓	✓	✓	✓	N/A	N/A	✓		N/A	N/A	N/A	N/A	N/A	N/A
32.10(e)(12.)H. A cover sheet stamped and signed by a professional engineer registered in the State of Wisconsin indicating that all plans and supporting documentation have been reviewed and approved by the engineer and certifying that they have read					✓												
City, DNR, County or State Permits are needed					✓		✓	N/A	N/A		N/A						
Complete and submit Plan Sheet and Submittal Specific checklists in Development Handbook	N/A	N/A	N/A	N/A	✓	✓	✓	N/A	N/A	✓		N/A					
Proposed easements needed are shown.	N/A		N/A		N/A		N/A	N/A	N/A								
All Existing easements are shown	N/A	N/A	N/A	✓	✓	✓	✓	N/A	N/A	✓			N/A	N/A	N/A	N/A	N/A

PLANNING

PRE-APPLICATION MEETING

APPLICATION AND FEE SUBMITTAL

PRELIMINARY APPLICATION COMPLETE

NO

WORK WITH DEVELOPER UNTIL SATISFACTORY

YES

PLAN REVIEW BY STAFF

PLANNING COMMISSION MEETING

DENIED

APPROVED

APPROVED WITH CONDITIONS

COMMON COUNCIL (IF NECESSARY)

PERMITTING

COMMUNITY DEVELOPMENT & FIRE DEPT

BUILDING DEPT ENTERS DATA FOR PLAN REVIEW

PLAN REVISION AND REVIEW

PLAN APPROVAL

WAUKESHA WATER UTILITY

INFRASTRUCTURE PLAN REVISION & REVIEW

FEE, BOND & LOC SUBMITTAL

WATER UTILITY AGREEMENT (IF NECESSARY)

PLAN APPROVAL

ENGINEERING

INFRASTRUCTURE PLAN REVISION & REVIEW

FEE, BOND & LOC SUBMITTAL

PLAN APPROVAL

DEVELOPER'S AGREEMENT (IF NECESSARY)

APPLICATION FOR BUILDING PERMITS

NOT APPROVED

APPROVED

CONSTRUCTION

BUILDING INSPECTION ISSUES PERMITS

CONSTRUCTION REVIEW

CONSTRUCTION

OCCUPANCY PERMIT ISSUED

PUBLIC INFRASTRUCTURE ACCEPTANCE

PROJECT CLOSE-OUT

LEGEND

DEVELOPER'S ACTION ITEM

PUBLIC MEETINGS

CITY'S ACTION ITEM

CITY PLANNING / COMMUNITY DEVELOPMENT

CITY FIRE DEPT

CITY ENGINEERING

WAUKESHA WATER UTILITY

REVISED 12/18

FILE NAME : O:±Standard Construction Specifications - 2018 Edition±2019 Updates and Revisions - Staff Mark-ups±Division 1 - Development Handbook±PRIVATE DEVELOPMENT PROCESS FLOW CHART.dwg

City of Waukesha
Department of Public Works
130 Delafield Street
Waukesha, WI 53188
Waukesha-wi.gov

Engineering Plan Checklist

Attachment B
(Rev 12/18)

Project Name: HCP 1822 DOLPHIN DRIVE

Engineering & Design Firm: R.H. BATTERMAN & CO., INC.

General Information

Plans shall include the seal and signature of the Wisconsin licensed professional engineer responsible for the preparation of the construction plans on the cover sheet or on each sheet

YES	NO	N/A	
☐	☐	☑	Provide a copy of the WisDOT permit for any work in the State of Wisconsin right of way.
☑	☐	☐	Provide a copy of the Waukesha County Department of Public Works permit for any work in right of way of Waukesha County.
☑	☐	☐	Provide a copy of Wisconsin Department of Natural Resources Water Resources Application for Project Permits (WRAPP) for all sites greater than one acre.
☐	☐	☑	Provide a copy of US Army Corps of Engineers 404 permit.
☐	☐	☑	Provide cross access agreements for use of entrances.
☐	☐	☑	Provide off-site utility easements.
☑	☐	☐	Provide hydraulic gradeline calculations for all storm sewer pipes signed and sealed by a professional engineer licensed in the State of Wisconsin.
☑	☐	☐	Provide a storm water management plan and calculations signed and sealed by a professional engineer licensed in the State of Wisconsin.

All Plan Sheets

YES	NO	N/A	
☑	☐	☐	Plans prepared on sheets measuring 11” high by 17” wide or no larger than 24" high by 36" wide.
☑	☐	☐	Sanitary Sewer, watermain and storm sewer system plans for the entire development are included.
☐	☐	☑	A profile view is located below a plan view on plan and profile sheets and both views are aligned by stationing whenever possible. In general, stationing is from left to right.
☐	☐	☑	Plan and profile sheets start and terminate at match lines.
☑	☐	☐	The assumed bearing base, control monuments and stationing reference line(s)
☑	☐	☐	Right-of-way limits and easement limits
☑	☐	☐	Edge of pavement or flange, face and back of curb
☑	☐	☐	Name of each existing, proposed, and future roadway and any intersecting roadways
☐	☐	☑	Lot lines, lot and block numbers
☑	☐	☐	Addresses and names of Owners for existing parcels

☑	☐	☐	All obstructions located within the project limits including, but not limited to: trees, signs, utilities, fences, light poles, structures, etc.
☑	☐	☐	A note warning that underground utilities must be located by “Diggers Hotline” prior to start of construction
☑	☐	☐	Legend (relevant to each sheet) showing all special symbols, line types and hatch used
☑	☐	☐	Title block includes at a minimum, the following information: Name and address of engineering (design) firm and owner/developer Date of the drawing and last revision Scale Plan sheet number (# of #) Name and location description of development
☑	☐	☐	North to the top or right of the sheet and shown by a north arrow, clearly shown without intrusion.
☑	☐	☐	Scale of the plans 1" = 40' horizontally and 1" = 8' vertically for 11” by 17” plan sheets and 1" = 20' horizontally and 1" = 4' vertically for 22” by 34” sheets. Partial site plans have a scale of 1" = 20' or larger. The scale of details is such that the detail is clearly shown. The scale is shown with a line scale and text.
☑	☐	☐	Existing surface objects indicated with screened lines and clearly labeled.

Cover Sheet

YES	NO	N/A	
☑	☐	☐	Project title.
☑	☐	☐	Location Map (Proximity to two main streets minimum).
☑	☐	☐	Index of all plan sheets
☐	☐	☐	For large or phased subdivisions, a key map of layout and phases.
☐	☐	☑	A minimum of two (2) current SEWRPC reference benchmarks. Survey documentation of tie to Wisconsin State Plane Coordinate System, South Zone (horizontal) and City of Waukesha datum (vertical) provided. Elevations shown based on City of Waukesha datum.
☑	☐	☐	All permanent or temporary benchmarks and elevations.
☑	☐	☐	A description of the locations of the benchmarks; and the basis or origin of the vertical control network.
☑	☐	☐	Date of plan preparation and applicable revision date(s)
☑	☐	☐	The following statement: “*All site improvements and construction shown on the plans shall conform to the City of Waukesha Development Handbook & Infrastructure Specifications. Where the plans do not comply, it shall be the sole responsibility and expense of the Developer to make revisions to the plans and/or constructed infrastructure to comply.*”

Roadway

YES	NO	N/A	
☐	☐	☑	For all new streets, a site specific geotechnical evaluation and pavement design submitted with the plans.
☐	☐	☑	A separate detail sheet showing typical cross-sections for each roadway standard width and cul-de-sac if applicable.

Plan View

YES	NO	N/A	
☐	☐	☑	The assumed bearing base, control monuments and stationing reference line along the centerline of the roadway, including cul-de-sacs.
☐	☐	☑	At least one clearly labeled benchmark or control point per sheet.
☑	☐	☐	Pavement and median dimensions.
☐	☐	☑	Final grade elevations at 25’ intervals at the right-of-way including at the edge of pavement for rural sections or at the flange of curb for urban sections.
☐	☐	☑	Final grade elevations for cul-de-sacs at 25’ intervals at the right-of-way including at the edge of pavement for rural sections or at the flange of curb for urban sections.
☐	☐	☑	Label all PVC’s, PVT’s, and PC’s, PT’s for vertical and horizontal curves. Radii of all intersections (edge of pavement or flange of curb, with note indicating which is referenced).
☐	☐	☑	Driveways for all lots adjacent to storm inlets and intersections.
☑	☐	☐	Sidewalks labeled and dimensioned.
☑	☐	☐	Existing, proposed, future streets and drives labeled and dimensioned.
☐	☐	☑	All roadside ditch locations, flowline elevations at 50’ intervals of the ditches.
☑	☐	☐	Slope intercepts.
☐	☐	☑	Invert profile for 200’ downstream for any existing ditches receiving flow from a proposed road or street.
☑	☐	☐	Limits of any areas which need special stabilization techniques.
☐	☐	☑	Specific details of all existing connected roadways. Pavement, shoulders, ditches, curb alignment, and grades shall be shown as needed to adequately make the transition.

Intersection Details

YES	NO	N/A	
☐	☐	☑	Radii of all intersections (edge of pavement or flange of curb, with note indicating which is referenced).
☐	☐	☑	Sidewalks and accessible ramps labeled and dimensioned.
☐	☐	☑	Right of way corner clips and sight visibility easements.
☐	☐	☑	Spot grades as necessary to ensure proper drainage and compliant ADA slopes.
☐	☐	☑	Spot grades shall be shown at end of radius for all curb and gutter and the end radius for all back of sidewalk.
☐	☐	☑	Drainage clarified by flow arrows, high points, sags, ridges, etc. Slope intercepts shall be clearly labeled by station, elevation to the nearest 0.1’, and offset distance (left or right) from the reference line.
☐	☐	☑	Invert elevation of ditches (for rural roadway).
☐	☐	☑	Final subgrade elevation at the centerline of the street or roadway.

Cross Sections

YES	NO	N/A	
☐	☐	☑	Right of way limits.
☐	☐	☑	Slope intercepts clearly labeled.
☐	☐	☑	Elevations to the nearest 0.01'.
☐	☐	☑	Offset distance (left or right) from the reference line.
☐	☐	☑	Final grade elevations at back of walk, face of walk, top of curb, flange elevation (edge of pavement for rural section), and the centerline of the street or roadway.
☐	☐	☑	Cross slope of sidewalk, terrace area, and roadway.
☐	☐	☑	Invert elevation of ditches (for rural section)

City of Waukesha

Department of Public Works
130 Delafield Street
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Waukesha-wi.gov

Site, Grading and Drainage Plan Conditional Use Permit Checklist

Attachment C
(Rev 12/18)

Project Name: HCP 1822 DOLPHIN DRIVE

Engineering & Design Firm: R.H. BATTERMAN & CO., INC.

General Requirements

YES	NO	N/A	
☑	☐	☐	Applicant's name
☑	☐	☐	Name and location of development
☑	☐	☐	Scale and north arrow
☑	☐	☐	Date of original and revisions noted
☑	☐	☐	License number and professional seal
☑	☐	☐	Digital Drawings in AutoCAD format of the site layout & building plan layout
☐	☐	☑	Pay impact fees

Building Plans

YES	NO	N/A	
☐	☑	☐	Contact Community Development Department BY ARCHITECT

Site Plans

YES	NO	N/A	
☑	☐	☐	Dimensions of development site
☑	☐	☐	Location, footprint, and outside dimensions
☑	☐	☐	Existing and proposed pedestrian access points
☑	☐	☐	Existing and proposed vehicular access points
☑	☐	☐	Parking lots, driveways shown
☑	☐	☐	Front, side and rear yard setbacks shown and labeled
☑	☐	☐	Location, identification and dimensions of all existing or planned easements
☐	☐	☑	Identification of all land to be dedicated
☑	☐	☐	Location, elevation, and dimensions of walls and fences
☑	☐	☐	Location of outdoor lighting with lighting design plan and calculations
☐	☐	☑	Sign complies with City Code Book
☐	☐	☑	Location of existing and proposed signs

Site Access

YES	NO	N/A	
☑	☐	☐	Legal description or certified survey of property
☑	☐	☐	Development compatible with its zoning district
☑	☐	☐	Sidewalks to be shown
☐	☐	☑	Site entrance drive dimensions
☐	☐	☑	Individual development vehicular entrances at least 125 feet apart
☐	☐	☑	Adjacent development share driveway where possible
☐	☐	☑	At least one vehicular and pedestrian access point to each adjoining site granted by cross easements
☐	☐	☑	Cross access to be provided with minimum paved width of 24 feet
☐	☐	☑	Design detail for all new public streets

Parking/Traffic

YES	NO	N/A	
☑	☐	☐	5-foot wide (min) paved walkway to building entrance
☐	☑	☐	7-foot parking separation from front of building 5' @ MATCH EXISTING, NEW DEVELOPMENT COMPLIANT
☑	☐	☐	Minimum parking spaces provided
☑	☐	☐	Service truck parking in designated service areas
☑	☐	☐	Parking spaces and layout dimensioned
☑	☐	☐	Lot paved with HMA or concrete
☑	☐	☐	Handicap parking provided
☐	☐	☑	Minimum required stacking distance
☐	☑	☐	Concrete curb and gutter around parking lot

Grading and Drainage Plans

YES	NO	N/A	
☑	☐	☐	Show existing tree lines and any obstructions (fences, structures, power poles, etc.) within the project limits.
☑	☐	☐	All proposed lot lines and lot numbers or addresses
☐	☐	☑	Lot line dimensions
☐	☐	☑	Outline of buildable areas for each lot
☐	☐	☑	Typical setbacks of buildable area to front, side and back lot lines
☑	☐	☐	All existing buildings, structures and foundations
☑	☐	☐	All existing drainage channels and watercourses
☑	☐	☐	Emergency overflow routes
☑	☐	☐	Drainage clarified by flow arrows, high points, sags, ridges, and valley gutters
☑	☐	☐	Proposed retaining wall locations with top and bottom of wall elevations at key locations
☐	☐	☑	100-year flood plain limit (both pre-and post-project)
☐	☐	☑	100-year storm water surface elevation
☐	☐	☑	Wetlands. Wetland limits labeled with bearings and distances and dimensioned to lot lines. Bearings and distances may be shown in tabulated format.

☐	☐	☑	All environmental corridors, & or environmentally sensitive areas as required by DNR
☑	☐	☐	All existing and proposed easements.
☑	☐	☐	Existing topography of the site and all areas within 50 feet of the site shown at a one foot contour interval using City of Waukesha datum. Existing contours shown as thin, dashed screened or grey lines with a readily discernable heavier line used for the 5-foot contour intervals.
☑	☐	☐	Proposed grading shown at a contour interval of 1 foot using City of Waukesha datum. Proposed contour lines shown as solid medium lines, with a discernible heavier line use for the 5-foot contour intervals.
☑	☐	☐	The yard grade and first floor elevation of proposed building and any existing buildings located within 150 feet of the parcel boundary.
☑	☐	☐	Proposed road(s), curb and gutter, all storm sewer grates and storm sewer manholes (or cross-culverts for open ditches). Show any off-road storm inlets and discharge locations with surface entry elevations.
☑	☐	☐	Spot grades as necessary to ensure proper drainage and compliant ADA slopes and routing where applicable.
☐	☐	☑	At front setback line show a typical house shell on each lot and the proposed yard grade to the nearest tenth of a foot (assumed to be 0.7' below the top of block) for each building. Show proposed finished elevations to the nearest tenth of a foot at all lot corners and alongside lot lines adjacent to the front and back corners of the typical house. Show proposed finished elevations to the nearest tenth of a foot at high and low points along any side or back lot lines, and at high and low points if roads to demonstrate proposed drainage.
☐	☐	☑	The grading plan for any house that will require special design due to topography, clearly show separate grades for the garage and yard grade if extra steps are needed. Separate spot finish elevations shown for rear or side exposure or walkout.
☐	☐	☑	Indicate minimum finished floor elevations adjacent to floodplains, ponds, creeks/channels, etc.
☑	☐	☐	Proposed storm inlets shown on each grading plan. Each plan also includes specific details on all applicable retention/detention basins, ponds, overflows, etc. Separate sheets or notes as required.
☑	☐	☐	Locations of existing and proposed streets, drives, alleys, easements, right-of-way, parking as required, vehicular and pedestrian access points, and sidewalks
☐	☐	☑	Outline of any development stages
☐	☐	☑	Location and details on any required emergency access roads
☑	☐	☐	Soil characteristics
☑	☐	☐	Existing and proposed topography shown for the site and or adjacent properties
☐	☐	☑	Floodplain, shore land, environmental and wetlands shown
☑	☐	☐	Location and dimensions of on-site storm water drainage facilities
☑	☐	☐	Location and footprint of all existing buildings
☑	☐	☐	Locations and species of existing trees
☑	☐	☐	Berm detail
☑	☐	☐	Lot grades and swales shown
☑	☐	☐	Drainage calculations provided

Erosion Control

YES	NO	N/A	
☑	☐	☐	Location Map
☑	☐	☐	Soils Survey Map
☑	☐	☐	Existing Land Use Mapping
☑	☐	☐	Predeveloped Site Conditions
☑	☐	☐	• Existing contours
☑	☐	☐	• Property lines
☑	☐	☐	• Existing flow paths and direction
☑	☐	☐	• Outlet locations
☐	☐	☑	• Drainage basin divides and subdivides
☑	☐	☐	• Existing drainage structures on and adjacent to the site
☐	☐	☑	• Nearby watercourses
☐	☐	☑	• Lakes, streams, wetlands, channels, ditches, etc.
☐	☐	☑	• Limits of the 100-year floodplain
☐	☐	☑	Practice location/layout/cross sections
☑	☐	☐	Construction Details
☐	☐	☑	Name of receiving waters
☑	☐	☐	Site description/Nature of construction activity
☑	☐	☐	Sequence of construction
☑	☐	☐	Estimate of site area and disturbance area
☐	☐	☑	Pre- and post-developed runoff coefficients
☑	☐	☐	Description of proposed controls, including
☑	☐	☐	• Interim and permanent stabilization practices
☑	☐	☐	• Practices to divert flow from exposed soils
☑	☐	☐	• Practices to store flows or trap sediment
☑	☐	☐	• Any other practices proposed to meet ordinance
☑	☐	☐	Existing topography of the site and all areas within 50 feet of the site shown at a one foot contour interval using City of Waukesha datum. Existing contours shown as thin, dashed screened or grey lines with a readily discernable heavier line used for the 5-foot contour intervals.
☑	☐	☐	Proposed grading shown at a contour interval of 1 foot using City of Waukesha datum. Proposed contour lines shown as solid medium lines, with a discernible heavier line use for the 5-foot contour intervals.
☑	☐	☐	List the total disturbed acreage including offsite areas.
☑	☐	☐	Provide free survey in accordance with City Erosion Control Ordinance
☑	☐	☐	Proposed limits of disturbance including proposed tree cutting areas.
☐	☐	☑	Location and dimensions of all temporary topsoil and dirt stockpiles.
☑	☐	☐	Location and dimensions of all appropriate best management practices (BMP).
☐	☐	☑	Phasing of BMP's with the construction activities listed / described.
☑	☐	☐	Schedule of anticipated starting and completion date of each land disturbing and land developing activity, including the installation of the BMP measures that are needed.
☑	☐	☐	Location of all channels, pipes, basins or other conveyances proposed to carry runoff to the nearest adequate outlet, including applicable design assumptions and computations.

☑	☐	☐	Areas to be sodded or seeded and mulched or otherwise stabilized with vegetation, describing the type of final vegetative cover.
☑	☐	☐	Areas of permanent erosion control (other than vegetation).
☑	☐	☐	Boundaries of the construction site
☑	☐	☐	Drainage patterns/slopes after grading activities
☑	☐	☐	Areas of land disturbance
☑	☐	☐	Locations of structural and nonstructural controls
☑	☐	☐	Drainage basin delineations and outfall locations

Optional Submittals as Determined by Review Authority

YES	NO	N/A	
☐	☐	☑	Traffic impact analysis
☐	☐	☑	Environmental impact statement
☑	☐	☐	Soil and Site Evaluation Report per DNR Technical Standard 1002
☑	☐	☐	Plot of effect of exterior illumination on site and adjacent properties
☐	☐	☑	Description of any unusual characteristics
☐	☐	☑	Street perspectives showing view corridors
☐	☐	☑	Historic site
☐	☐	☑	Economic feasibility study
☐	☐	☑	Contaminated Waste Site

I hereby certify that I have reviewed the City ordinances and provided one (1) full-sized set of all required information along with all the required reduced copies of plans.

Applicant's Signature: Matthew T Fueston

City of Waukesha
Department of Public Works
130 Delafield Street
Waukesha, WI 53188
Waukesha-wi.gov

Stormwater Management Plan

Attachment D
(Rev 12/18)

Project Name: HCP 1822 DOLPHIN DRIVE

Engineer & Design Firm: R.H. BATTERMAN & CO., INC.

STORM WATER MANAGEMENT PLAN WORKSHEET

The City of Waukesha requires a Stormwater Management Plan to be submitted with the proposed development plans for site plan review. A Stormwater Management Plan is a document describing the storm water management practices constructed and implemented within the proposed development to ensure compliance with the storm water management criteria, as set forth by the City of Waukesha. The purpose of a Stormwater Management Plan is to protect the safety and health of the public, property and aquatic environment from the threats due to storm water from land development activity. The worksheet will provide a basis to the information that shall be provided when preparing a Stormwater Management Plan for a proposed development. This Plan shall include a set of complete plans and calculations, stamped by a registered professional engineer.
Stormwater Management Plans are required as listed in City Code Book Chapter 32.06(b)

Exemptions for Design and Plan Requirements

YES	NO	N/A	
☐	☐	☑	Site is associated with agricultural or sylvicultural activities

Design Requirements: Total Suspended Solids

YES	NO	N/A	
☐	☐	☑	Site is a New Development – 80% Reduction must be met
☐	☐	☑	Site is an Infill Development – 80% Reduction must be met
☑	☐	☐	Site is a Redevelopment – 40% Reduction must be met
☑	☐	☐	Site has areas of New Development and Redevelopment
☑	☐	☐	Calculations for % Reduction are included in the plan (WinSLAMM input and output)
☑	☐	☐	Storm water Management Facilities to address TSS removal are designed according to Chapter 32 of the City Code Book and DNR Technical Standards – Check all that apply: ☐ Wet Detention Basin ☑ Bio Retention Basin ☐ Swales ☐ Proprietary Devices ☐ Other (specify): _____

Design Requirements: Peak Discharge

YES	NO	N/A	
☐	☐	☑	Storm water Management Facilities to address Peak Discharge are designed according to Chapter 32 of City Code Book and DNR Technical Standards – Check all that apply: ☐ Wet Detention Basin ☐ Bio Retention Basin ☐ Swales ☐ Other (specify): _____
☐	☐	☑	Downstream Capacity for 2-year, 10-year and 100-year, 24-hour design storms are met
☐	☐	☑	Calculations of available capacity, proportional share, and proposed utilized capacity under all design storms are included in plan
☐	☐	☑	Calculations of Peak Discharge are included in the plan

Design Requirements: Infiltration			
YES	**NO**	**N/A**	
☐	☐	☑	Hydraulic Soil Type: ☐ Soil Type A – Proceed ☐ Soil Type B – Proceed ☐ Exemption or Exclusion – Provide documentation
☑	☐	☐	Site and Soil Evaluation Report per DNR Technical Standard 1002
☐	☐	☑	Low Imperviousness. Ex: low density residential parks, cemeteries Post-Development Infiltration Performance Standards: ☐ Up to 40% Connected Impervious Surface ☐ 90% of Pre-Development Infiltration volume met ☐ 1% of site – Maximum Effective Infiltration Area
☐	☐	☑	Medium Imperviousness. Ex: Medium and high density residential, multi-family, industrial, institutional, office park. Post-Development Infiltration Performance Standards: ☐ 40%-80% Connected Impervious Surface ☐ 75% of Pre-Development Infiltration volume met ☐ 2% of site – Maximum Effective Infiltration Area
☐	☐	☑	High Imperviousness. Ex: commercial strip malls, shopping centers, commercial downtowns Post-Development Infiltration Performance Standards: ☐ Greater than 80% Connected Impervious Surface ☐ 60% of Pre-Development Infiltration volume met ☐ 2% of site – Maximum Effective Infiltration Area
☐	☐	☑	Site has parking lots and new road construction: ☐ Pretreatment included ☐ 10% Infiltration of the runoff from the tow-year, 24-hour design storm with Type II Distribution
☐	☐	☑	Calculations of Infiltration Volumes are included in the plan and model input and output (WinSLAMM)
☐	☐	☑	Exclusions for Infiltration: ☐ Tier 1 Industrial Facility ☐ Storage and Loading Areas of Tier 2 Industrial Facility ☐ Fueling and Vehicle Maintenance Facility ☐ Areas within 1,000 feet up gradient of Karst Features ☐ Areas within 100 feet downgradient of Karst Features ☐ Areas with < 3 feet of separation from bottom of Infiltration System to seasonal high groundwater or top of bedrock (does not prohibit roof runoff) ☐ Areas with runoff from industrial, commercial and institutional parking lots and roads with < 5 feet separation from bottom of infiltration system to elevation of seasonal high groundwater or top of bedrock ☐ Areas within 400 feet of community water system well ☐ Areas within 100 feet of private well ☐ Areas where contaminants of concern (defined by NR720.03(2) are present in the soil through which infiltration will occur) ☐ Area where soil does not meet any of the following characteristics between bottom of infiltration system and seasonal high groundwater and top of bedrock: ☐ *At least 3-foot soil layer with 20% fines or greater* ☐ *At least 5-foot soil layer with 10% fines or greater*

YES	NO	N/A	
☑	☐	☐	Exemptions for Infiltration: ☐ Areas where infiltration rate < 0.6 inches/hour ☐ Parking Areas and Access Roads less than 5,000 square feet for commercial and industrial ☑ Redevelopment Post-Construction Sites ☐ Infill Development < 5 acres ☐ Infiltration during periods when soil on the site is frozen ☐ Roads in commercial, industrial and institutional land uses ☐ Arterial Roads in Residential land uses
☐	☐	☑	Storm water Management Facilities to address Infiltration are designed according to Chapter 32 of the City Code Book and DNR Technical Standards – Check all that apply: ☐ Bioretention Basin (1004) ☐ Infiltration Basin (1003) ☐ Infiltration Trench (1007) ☐ Permeable Pavement (1008) ☐ Rain Garden (1000) ☐ Other (specify): _____
Design Requirements: Protective Areas			
YES	**NO**	**N/A**	
☑	☐	☐	Impervious areas are outside protective area. If not, provide a written explanation.
☐	☑	☐	Land disturbing activities are within a protective area. If **Yes**, check all that apply: ☐ If no impervious area is within protective area, adequate sod or self-sustaining vegetative cover of 70% or greater shall be established. ☐ Adequate sod or self-sustaining vegetative cover is sufficient for bank stability, maintenance of fish habitat and filtering of pollutants from upslope overland flow areas under sheet flow conditions. ☐ Non-Vegetative materials are employed on the bank as necessary to prevent erosion (steep slopes, high velocity areas).
☐	☐	☑	Best Management Practices are located within the protective area – Check all that apply: ☐ Filter Strips ☐ Swales ☐ Wet Detention Basins ☐ Other (specify): _____
☐	☐	☑	Non-Applicable Areas Apply: ☐ Structures that cross or access surface water (boat landing, bridge, culvert) ☐ Structures constructed in accordance with Section 59.692(1v) Wisconsin Statutes: ☐ Post-Construction Runoff does not enter surface water except to the extent that vegetative groundcover necessary for bank stability
Design Requirements: Fuel and Maintenance Facilities			
YES	**NO**	**N/A**	
☐	☑	☐	Are Fuel and Maintenance Facilities on the Site?
☐	☐	☑	Are Best Management Practices designed to reduce petroleum within runoff (no visible sheen)?

Design Requirements: Swale Treatment for Transportation Facilities			
YES	**NO**	**N/A**	
☐	☑	☐	Does the site use swales for runoff conveyance and pollutant removal for transportation facilities? If **Yes**, must have the following: *Groundcover:* ☐ Vegetated ☐ Non-Vegetated where appropriate to prevent erosion or provide runoff treatment (riprap, check dams) *Swale Velocity Control:* ☐ Swale is 200 feet or more in length with a velocity no greater than 1.5 feet per second for the two-year, 24-hour design storm or two-year storm with duration equal to time of concentration ☐ Swale is 200 feet or more in length with velocity > 1.5 feet per second then velocity is reduced to maximum extent practicable. Written explanation stating why requirement of > 1.5 feet per second cannot be met
☐	☐	☑	Exemptions Apply: Average Daily Vehicles > 2,500 and initial surface water of the state that runoff directly enters is any of the following: ☐ An outstanding resource of water (ORW) ☐ An exceptional resource water (ERW) ☐ Water is listed in Section 303(d) of the Federal Clean Water Act and is identified as impaired in whole or in part due to non-point source impacts ☐ Water where targeted performance standards are developed under NR 151.004 of the Wisconsin Administrative Code to meet water quality standards
Plan Requirements			
YES	**NO**	**N/A**	
☑	☐	☐	Provide permit application form, including contact information (name, address, telephone number) for the landowner, developer, land operator, certified project engineering, responsible party for installation of storm water management practices, responsible party for long-term maintenance of the storm water management practices.
☑	☐	☐	Legal Description of proposed development.
☑	☐	☐	Narrative describing the proposed development.
☑	☐	☐	Brief summary of Design Criteria and methods used for development of Storm Water Management Practices.
☑	☐	☐	Storm Water Management Maintenance Agreement shall be included with the Storm Water Management Plan (see Storm Water Management Maintenance Agreement template for additional information required).
☑	☐	☐	Certification by a Wisconsin registered professional engineer.
☑	☐	☐	Financial Guarantee.

Description and Site Characteristics for Pre/Post Development conditions shall be delineated by one (1) or more site maps at a scale of not less than one (1") inch equals two hundred (200') feet. The map(s) shall include, at minimum, the following information:			
YES	**NO**	**N/A**	
☑	☐	☐	Site Location and Legal Description.
☑	☐	☐	Pre-developed and revised topography by contours related to USGS survey datum or other datum approved by City. The topographic contours of the site shall not exceed 2 feet. The topography shall extend at minimum 100 feet outside the site boundaries to show runoff patterns onto, through and from the site.
☐	☐	☑	One hundred (100) year Floodplain boundary, shore land, environmental corridors, and wetland boundaries shall be delineated if applicable
☑	☐	☐	All lakes, streams, and other water bodies illustrated on map shall be named as defined on a USGS 7.5 minute topographic map.
☑	☐	☐	Predominant Soil Types and Hydraulic Soil Group Classifications per NRCS
☐	☑	☐	Coordinates of all manhole and inlets with reference to two nearest reference point monuments which shall be Section or ¼ Section corners.
☑	☐	☐	Location, capacity, and dimensions/details of on-site Pre-developed and Post-developed storm water management facilities such as, but not limited to, the following: manholes, pipes, curbs, gutters, curb inlets, filter strips, swales, detention basins, curb cuts, and drainage gates.
☑	☐	☐	Location, extent, detailed drawings, typical cross sections and slope ratios of all pre-developed and post-developed storm water retention and detention areas and drainage ways – list inlet/outlet elevations, permanent water surface elevation, high water surface elevation, and emergency spillway elevation, if applicable.
☑	☐	☐	Location and Elevations at top and bottom of pre-developed and post-developed buildings and structures.
☑	☐	☐	Locations and names of pre-developed and post-developed streets and intersections and the location of parking lots, sidewalks, bike paths and impervious surfaces (excluding single family residences). Map(s) shall clearly differentiate pre-developed and post-developed surfaces.
☑	☐	☐	Delineation and dimensions of all pre-developed and post-developed property boundaries, easements, right-of-way, building setbacks, maintenance easements, and other restrictions.
☑	☐	☐	Pre-developed and post-developed land use boundaries, including cover type and condition.
☑	☐	☐	Post-developed land use cover totals for Impervious and Pervious areas as well as permanent water surface area of all storm water management facilities.
☑	☐	☐	Delineation of pre-developed and post-developed watershed and sub-watershed boundaries used in determination of Peak flow discharges and discharge volumes from the site. (If the watershed extends beyond the site boundaries, a separate watershed map can be supplied).
☑	☐	☐	Location of the pre-developed and post-developed discharge points.
☐	☐	☑	Pre/Post developed directional Flow Paths used to calculate existing/proposed time of concentrations.
☑	☐	☐	Location of the Emergency Overland Flow.
☐	☐	☑	Location of any Regional Treatment Options (if applicable).
☑	☐	☐	Identify all pre-developed land cover features, such as, natural swales, natural depressions, native soil infiltrating capacity and natural groundwater recharge areas.
☐	☐	☑	Location of any protective areas within the site.
☐	☐	☑	Location of wells located within 1,200 feet of pre-developed and post-developed Storm Water Detention Basins, Infiltration Basins, or Infiltration Trenches.
☐	☐	☑	Delineation of Wellhead protection areas defined under NR 811.16

Supportive Information and Calculation summaries shall be supplied for all storm water management requirements as dictated in the checklist under Design Requirements:			
YES	**NO**	**N/A**	
☑	☐	☐	Pre-developed and post-developed watershed, sub-watersheds, and land use areas (acres, watershed shall be delineated by property lines).
☑	☐	☐	Pre-developed and post-developed impervious areas (acres).
☐	☐	☑	Pre-developed and post-developed Runoff Curve Numbers.
☐	☐	☑	Pre-developed and post-developed Time of Concentration.
☐	☐	☑	Pre-developed and post-developed peak flows for the 2-year, 10-year and 100-year, 24-hour storm events for each discharge point.
☑	☐	☐	Total suspended solids removal computations to show compliance.
☐	☐	☑	Design computations for the runoff volume of the pre-developed and post-developed conditions to show compliance with the infiltration requirements.
☐	☐	☑	Design computations for all storm water drainage facilities such as, but not limited to, inflow/outflow rates, hydrographs, water surface elevations, outlet design computations, runoff discharge volume, velocities, and stage/storage data.
☑	☐	☐	Design computations for the 10-year Rational Method flows for all proposed storm conveyance systems.
☐	☐	☑	Computation of the available downstream capacity flowing full, overflow level of ditches and the top of the upstream end of the pipe for any culverts.
☐	☐	☑	Computation of the downstream capacity using the 5-year rational storm.
☐	☐	☑	Tail water analysis included in storm water design for 2-year, 10-year and 100-year storm events.
☑	☐	☐	Design computations to illustrate compliance with pollutant loading criteria (Storm Water Quality Management practices) with pre- and post-storm water management facilities.
☑	☐	☐	Narrative describing all assumptions that were deemed appropriate for design.
☑	☐	☐	Explanation of provisions to preserve and use natural topography and land cover features.
☐	☐	☑	Explanation of restrictions on Storm Water Management practices by wellhead protection plans (if applicable).
☑	☐	☐	Results of investigations of soil and groundwater required for installation of Storm Water Management practices.
☐	☐	☑	Impact assessment results on Wetland Functional Values (if applicable).
☑	☐	☐	Storm Water Management practices installation schedule.
☑	☐	☐	Cost estimate for the construction, operation and maintenance of each Storm Water Management practice.
☑	☐	☐	Any additional information that the City, or designee, may need to evaluate the impacts of the storm water discharge quality and quantity on the existing area and existing utilities.

City of Waukesha
Department of Public Works
130 Delafield Street
Waukesha, WI 53188
Waukesha-wi.gov

Landscape Plan Checklist

Attachment I
(Rev 12/18)

Project Name: HCP 1822 DOLPHIN DRIVE

Engineering & Design Firm: R.H. BATTERMAN & CO., INC.

☐ Contact Community Development Department for Requirements

Listed below are general design considerations only:

YES	NO	N/A	
☑	☐	☐	Show easements
☑	☐	☐	Location and footprint of any and all buildings
☐	☐	☑	Dimensions of development site along property line
☑	☐	☐	Existing and proposed streets
☑	☐	☐	Pedestrian and vehicular access points
☑	☐	☐	Location and dimensions of parking lots, etc.
☑	☐	☐	Location and dimensions of all existing or planned easements
☑	☐	☐	Location and dimensions of snow removal and storage areas
☑	☐	☐	Location and dimensions of outdoor lighting fixtures
☐	☐	☑	Interior parkway provided
☐	☐	☑	Parkway provided
☑	☐	☐	Buffer strip provided
☐	☐	☑	Dumpster enclosure details
☑	☐	☐	Parking lot landscaping
☐	☐	☑	Utility/mechanical equipment screened
☑	☐	☐	Service area screened
☐	☐	☑	Location of freestanding signs
☑	☐	☐	Walls and fences shown
☑	☐	☐	Location of utilities
☑	☐	☐	Existing and proposed contours and grades, including berm elevations
☑	☐	☐	Location, name and size of proposed plant materials
☑	☐	☐	Specifications of all types of all proposed ground cover, i.e., seed, sod, etc.
☑	☐	☐	Location, species, and size of existing trees
☑	☐	☐	Clear identification of trees to be removed
☑	☐	☐	Square footage of parking lot area
☐	☐	☑	Tree protection plan

Dolphin Drive
Best Buy

1822 Dolphin Drive
Waukesha, WI
Waukesha County

STORM WATER MANAGEMENT PLAN
AND EROSION CONTROL ANALYSIS

Prepared by

R. H. BATTERMAN & CO., INC.
Engineers, Planners, and Land Surveyors
2857 Bartells Drive
Beloit, Wisconsin 53511

Order No. 33846

August 25, 2021

8-25-2021

Table of Contents

LIST OF ATTACHMENTS

Number	Title
1.	**Location Map**
2.	**Surface Water Data Viewer Map**
3.	**FEMA National Flood Hazard Layer FIRMette**
4.	**7.5 min Topographical Map**
5.	**Soil Resource Report**
6.	**Grading and Drainage Plan**
7.	**WinSLAMM Input & Output Worksheets**
8.	**Erosion Control Notes**
9.	**Erosion Control Details**
10.	**Erosion Control Plan**
11.	**Storm Water Maintenance Agreement**
12.	**Drainage Maps – Existing and Proposed**
13.	**Soil Loss Calculations**

14. **Storm and Sanitary Analysis (SSA) Output Report**

15. **Storm Water Treatment System Cost Estimate**

Storm Water and Erosion Analysis

Dolphin Drive Best Buy

1822 Dolphin Drive
Waukesha, WI
Waukesha County

INTRODUCTION

The existing site at 1822 Dolphin Drive will be redeveloped to provide additional parking for employees as well as a truck trailer parking area and depressed loading docks. A gravity retaining wall is also planned for the north end of the site to accommodate the truck loading docks and maneuvering area. The combined site is approximately 4.41 acres in size and is geographically located in the NW quadrant of the intersection of Dolphin Drive and Marlin Court, which is part of the SW Quarter of the SE Quarter of Section 36, T07N, R19E, in the City of Waukesha. The legal description of the site is as follows: PARCEL 3 CSM NO 8397 (V73 CSMP299) & PARCEL 2 CSMNO 8575 (V75 CSM P220) PT SE1/4 SEC 36 T7N R19E4.31 AC DOC NO 4031907 IN THE CITY OF WAUKESHA, WAUKESHA COUNTY, WISCONSIN. The location map for the site is included as Attachment #1.

HYDROLOGY

Existing Conditions

The existing site is currently used as a commercial warehousing and distribution center. The warehouse and distribution center was built before 2004. The existing parking lot is undersized for the current and future employee count and the trailer area is also undersized for projected future growth in shipping and receiving. There are no wetlands located on site. See Attachment #2 for the Surface Water Data Viewer Map. Additionally, the site is in an area of Minimal Flood Hazard. See Attachment #3 for the FEMA National Flood Hazard Layer FIRMette. The site is located in an urban area and the west side of the site currently drains south and past the project extents and into the public storm sewer system that runs through the surrounding properties. Additionally, the east side of the site also drains south and into the public storm sewer system. See the first page of Attachment #12 for the Existing Drainage Map. See Attachment #4 for the 7.5 min Topographical Map.

Soil Types

The soils of the United States are classified by the National Soils Handbook, and have four main hydrologic soil groups (HSG) designated as Groups A, B, C, and D.

- Group A soils have low runoff potential and high infiltration rates (greater than 0.30 inches/hour) even when thoroughly wetted and are usually sand or gravel.
- Group B soils have moderate infiltration rates (0.15 – 0.30 inches/hour even when thoroughly wetted and are usually fine to moderately coarse textures.
- Group C soils have low infiltration rates (0.05 – 0.15 inches/hours) when thoroughly wetted and are usually a mixture of silts and clay.
- Group D soils have very low infiltration (0.00 – 0.05 inches/hours) and high potential runoff rates and are usually clay material.

The soil types found onsite are a mix of the following:

- Hydrologic soil group D, consisting of LmB, Lamartine silt loam, 0 to 3 percent slopes – 49.0% of total site.
- Hydrologic soil group D, consisting of HmD2, Hochheim loam, 12 to 20 percent slopes, eroded – 43.6% of total site.
- Hydrologic soil group D, consisting of HmC2, Hochheim loam, 6 to 12 percent slopes, eroded – 7.4% of total site.

Substratum throughout the site consists generally of gravelly sandy loam.

See Attachment #5 for the Soil Resource Report for the site corridor obtained from the U.S. Department of Agriculture (USDA), Natural Resources Conservation Services (NRCS).

Design Rainfall Storm Data

Rainfall storm data for the site was obtained from the NOAA Atlas 14 Precipitation Frequency Tables. The 24-hour rainfall storm events for various frequencies for the project site are listed below.

Storm Frequency	1-year	2-year	5-year	10-year	25-year	50-year	100-year
Rainfall (inches)	2.38	2.68	3.26	3.80	4.64	5.37	6.16

HYDROLOGIC AND HYDRAULIC ANALYSES

Methodologies and Procedures

This section presents the analysis for determining peak storm water runoff rates and volumes for the project site. The analysis involves a precipitation-runoff simulation of the drainage characteristics of the project using U.S. Soil Conservation Service (SCS) hydrograph methods to calculate inflow volume, outflow volume, and the required storage volume for the proposed storm water detention facilities

Proposed Conditions

This storm water management plan accounts for the planned improvements, which include a new asphalt employee parking lot and sunken truck loading docks. Runoff from the northwest and

western sides of the project site will generally drain to a series of four bio retention ponds. Runoff from the sunken truck docks will be captured in a trench drain which will be conveyed to the bio retention ponds. Runoff from the northeastern side of the project site is captured by an inlet connected to the existing City of Waukesha storm sewer system. Runoff from the southeastern side of the site generally drains to public storm system curb inlets along Marlin Court. The proposed grading and drainage plan is included in Attachment #6. An exhibit showing the proposed drainage map can be found on page 2 of Attachment #12.

Storm Water Detention Requirements

Peak discharge requirements are not included in the design due to this being a redevelopment post-construction site. Reference the City of Waukesha City Code, Chapter 32, Section 32.10, Subsection (d), and the Wisconsin Administrative Code NR 151.123 (2) (b). The existing site was developed prior to 2004 per NR 151.

Infiltration

Infiltration requirements are not included in the design due to this being a redevelopment post-construction site. Reference the City of Waukesha City Code, Chapter 32, Section 32.10, Subsection (3), and the Wisconsin Administrative Code NR 151.124 (3) (b) (3). The existing site was developed prior to 2004 per NR 151.

Water Quality

This site is a redevelopment post-construction site and is required to design, install, and maintain best management practices (BMPs) to meet 40% reduction in total suspended solids (TSS) from parking areas and roads or to the maximum extent practicable. Reference the City of Waukesha City Code, Chapter 32, Section 32.10, Subsection (d2) and the Wisconsin Administrative Code NR 151.122 (2). BMPs designed for this site include bio retention areas. The grading and drainage plans and details showing these devices is included as Attachment #6.

Storm water modeling software (WinSLAMM v10.4.0) was used to show the particulate solids yield before best management practices (BMP's) was 1267.0 lbs. and after BMP's was 741.9 lbs. This is an average reduction in total suspended solids of 41.44% which meets the TSS requirements of the City of Waukesha and the Wisconsin DNR Chapter NR 151. The WinSLAMM input and output files are included in Attachment #7.

EROSION CONTROL ANALYSIS

A combination of tracking pads, silt fence, inlet protection, riprap, seed, mulch, erosion mat, and other landscaping will be used to reduce erosion and the amount of sediment leaving the site during and after construction. The erosion control notes, details, and plans are included as Attachments #8, #9 and #10, respectively. Soil loss calculations are included in Attachment #11. The proposed maintenance agreement can be found in Attachment #13. An estimate of the storm water treatment system construction cost can be found in Attachment #15. A proposed schedule for the project is listed below.

Activity	Timeframe
Erosion Control	Installed Week of April 1st, 2022
Rough Grading	Completed Week of May 15th
Final Grading	Week of June 1st
Paving & Permanent Stabilization	Week of June 15th
Remove Erosion Control	Week of July 1st

CONCLUSION

Construction and post development BMPs for erosion control and stormwater management have been designed to applicable requirements of the City of Waukesha City Code and the Wisconsin Administrative Code. Stormwater runoff generated from the redeveloped site improvements will drain to bio retention devices that outlet into the public storm sewer.

SITE PICTURES

Figure 1: NW Corner of Site, Looking E (07-2021)

Figure 2: SE Corner of Site, Looking W (07-2021)

Figure 3: SE Side of Site, Looking N (07-2021)

Figure 4: W Side of Site, Looking S (07-2021)

Figure 5: E Side of Site, Looking W (07-2021)

Figure 6: W Side of Site, Looking NE (07-2021)

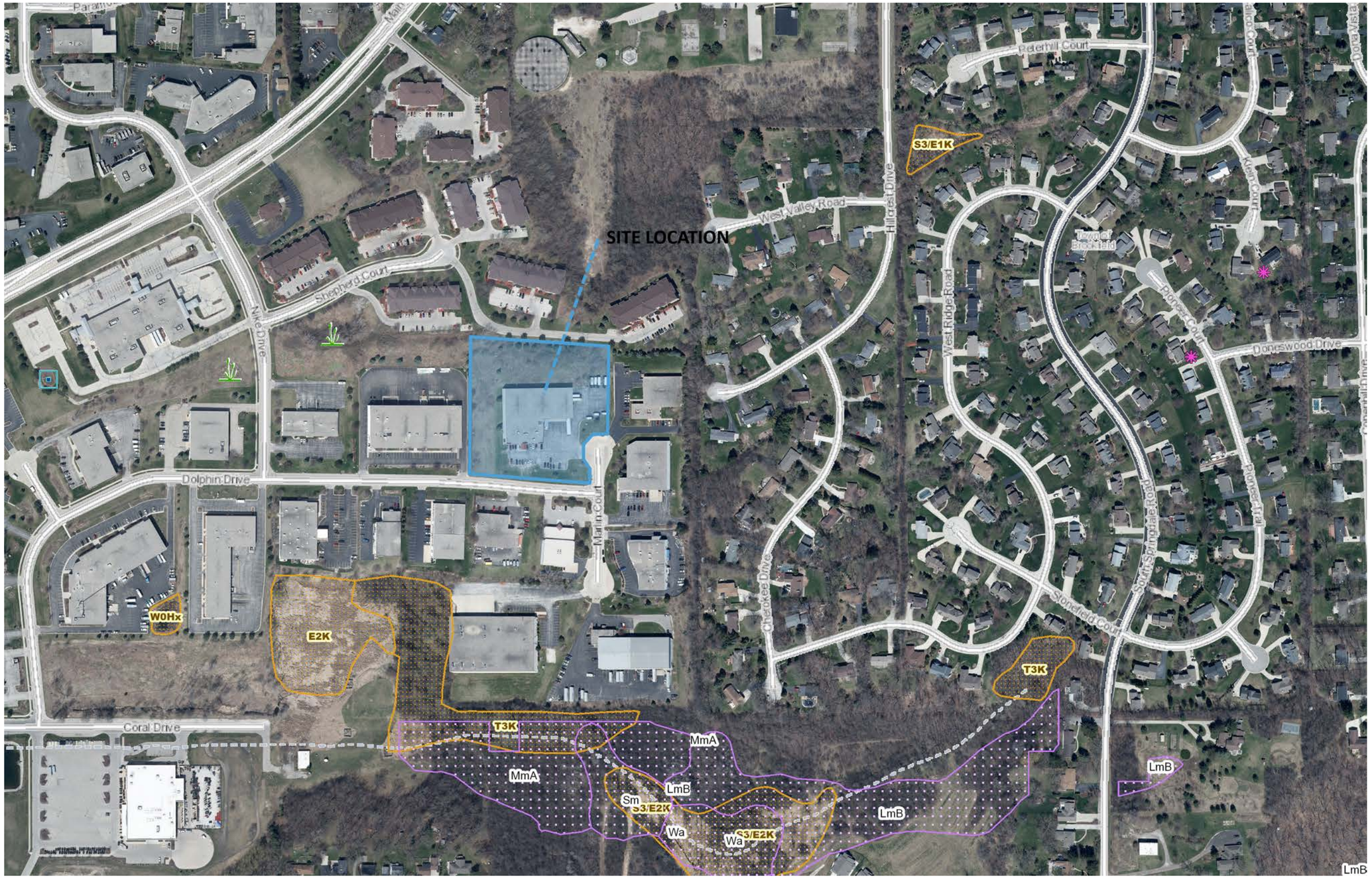
HENDRICKS COMMERCIAL PROPERTIES
1822 DOLPHIN DRIVE

City of Waukesha
Waukesha County, Wisconsin

Batterman
engineers surveyors planners

Attachment #1

Surface Water Data Viewer Map, 1822 DOLPHIN DRIVE



Legend

- Wetland Indicators
- Wetland Class Areas
- Wetland Class Points
  - Dammed pond
  - Excavated pond
  - Filled/drained wetland
  - Wetland too small to delineate
  - Filled excavated pond
- Filled Points
- Wetland Class Areas
- Filled Areas
- Wetland Class Areas
- Wetland Class Points
  - Dammed pond
  - Excavated pond
  - Filled/drained wetland
  - Wetland too small to delineate
  - Filled excavated pond
- Filled Points
- Wetland Class Areas
- Filled Areas
- Wetland Identifications and Confirmations
- NRCS Wetspots
- Municipality
- State Boundaries
- County Boundaries
- Major Roads
  - Interstate Highway
  - State Highway
  - US Highway
- County and Local Roads
  - County HWY
  - Local Road
- Railroads
- Tribal Lands
- Rivers and Streams
- Intermittent Streams
- Lakes and Open water
- Index to EN_Image_Basemap_Leaf_Off

0.1 0 0.06 0.1 Miles

1:3,960

NAD_1983_HARN_Wisconsin_TM

DISCLAIMER: The information shown on these maps has been obtained from various sources, and are of varying age, reliability and resolution. These maps are not intended to be used for navigation, nor are these maps an authoritative source of information about legal land ownership or public access. No warranty, expressed or implied, is made regarding accuracy, applicability for a particular use, completeness, or legality of the information depicted on this map. For more information, see the DNR Legal Notices web page: http://dnr.wi.gov/legal/

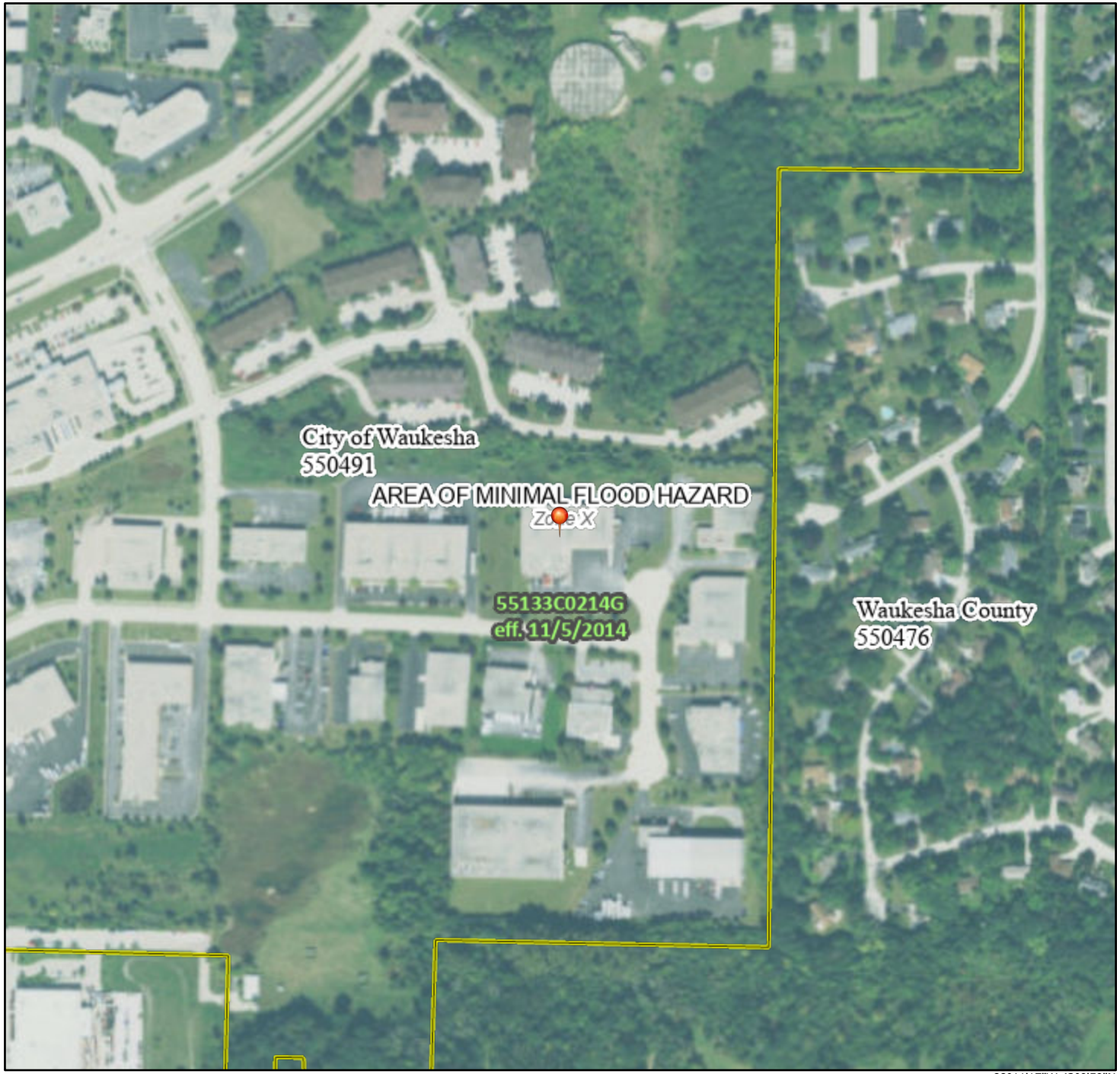
Notes

Attachment #2

National Flood Hazard Layer FIRMette

FEMA

88°11'54"W 43°1'26"N



88°11'17"W 43°0'59"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Attachment #3

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 8/23/2021 at 4:49 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

The National Map US Topo

WAUKESHA QUADRANGLE
WISCONSIN - WAUKESHA COUNTY
7.5-MINUTE SERIES

Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and 1 000-meter grid Universal Transverse Mercator, Zone 16T
This map is not a legal document. Boundaries may be generalized for this map scale. Private lands within government reservations may not be shown. Obtain permission before entering private lands.

Imagery ... NAIP, July 2017 - November 2017
Roads ... U.S. Census Bureau, 2015 - 2018
Names ... GNIS, 1980 - 2018
Hydrography ... National Hydrography Dataset, 2004 - 2018
Contours ... National Elevation Dataset, 1999
Boundaries ... Multiple sources; see metadata file 2016 - 2017
Public Land Survey System ... BLM, 2017 - 2018
Wetlands ... FWS National Wetlands Inventory 2010

SCALE 1:24 000

UTM GRID AND 2018 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

CONTOUR INTERVAL 10 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

This map was produced to conform with the National Geospatial Program US Topo Product Standard, 2011. A metadata file associated with this product is draft version 0.6.18

ADJOINING QUADRANGLES
1 Merton
2 Sussex
3 Menomonee Falls
4 Wartland
5 Waukesha
6 Genesee
7 Muskego
8 Hales Corners

ROAD CLASSIFICATION
Expressway
Secondary Hwy
Ramp
Local Connector
Local Road
4WD
Interstate Route
US Route
State Route

WAUKESHA, WI
2018

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Milwaukee and Waukesha Counties, Wisconsin

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

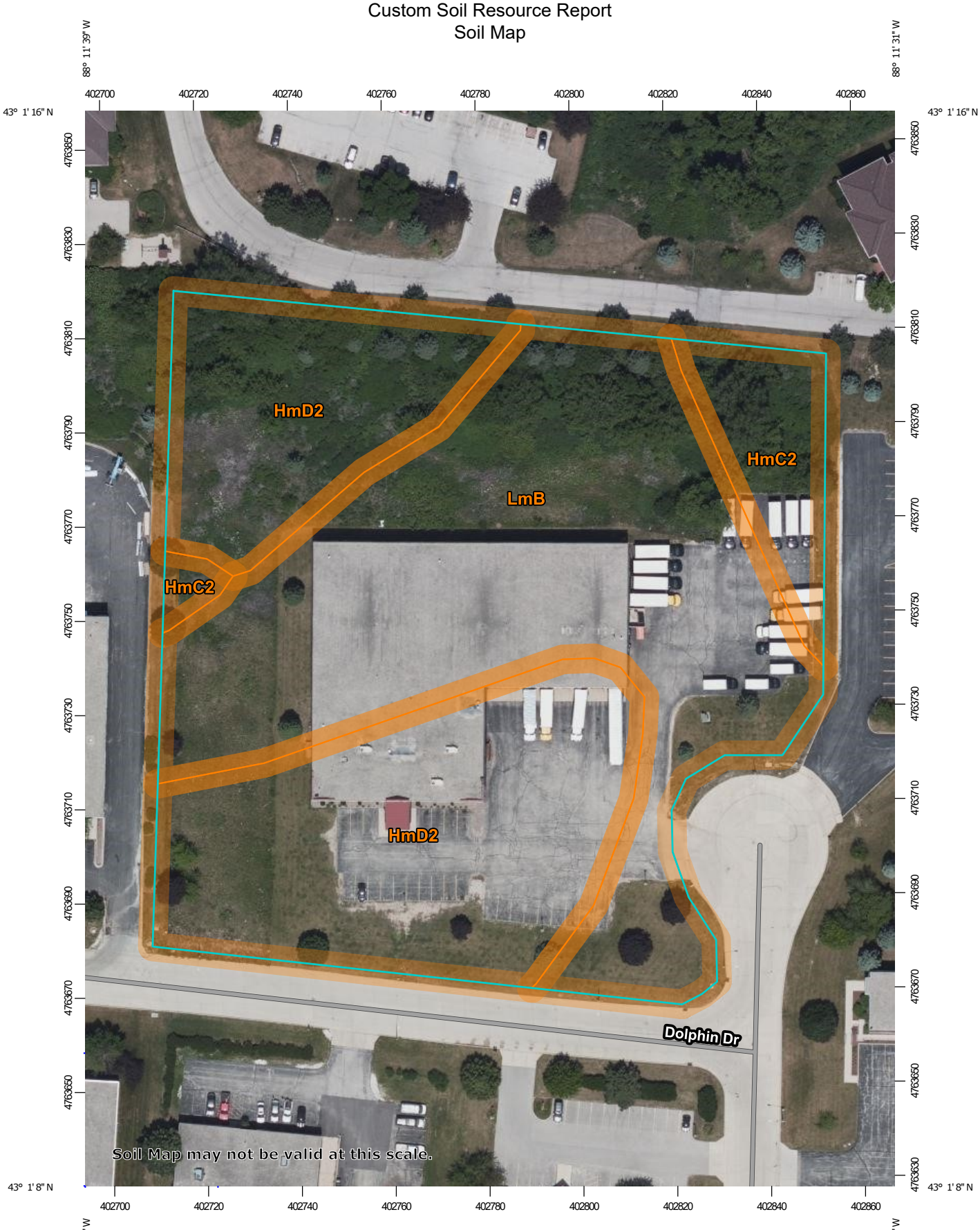
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Map Scale: 1:1,110 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 15 30 60 90

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Milwaukee and Waukesha Counties, Wisconsin
Survey Area Data: Version 16, Jun 8, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 20, 2020—Aug 20, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
HmC2	Hochheim loam, 6 to 12 percent slopes, eroded	0.3	7.4%
HmD2	Hochheim loam, 12 to 20 percent slopes, eroded	2.0	43.6%
LmB	Lamartine silt loam, 0 to 3 percent slopes	2.2	49.0%
Totals for Area of Interest		**4.5**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or

landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Milwaukee and Waukesha Counties, Wisconsin

HmC2—Hochheim loam, 6 to 12 percent slopes, eroded

Map Unit Setting

National map unit symbol: 2t03r
Elevation: 900 to 1,340 feet
Mean annual precipitation: 31 to 33 inches
Mean annual air temperature: 43 to 46 degrees F
Frost-free period: 135 to 175 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Hochheim, eroded, and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hochheim, Eroded

Setting

Landform: Drumlins
Landform position (two-dimensional): Shoulder, summit
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Loamy till and/or calcareous, dense loamy till

Typical profile

Ap - 0 to 7 inches: loam
Bt - 7 to 16 inches: clay loam
C - 16 to 33 inches: gravelly sandy loam
Cd - 33 to 79 inches: gravelly sandy loam

Properties and qualities

Slope: 6 to 12 percent
Depth to restrictive feature: 20 to 40 inches to densic material
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 60 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D
Forage suitability group: Mod AWC, adequately drained (G095BY005WI)
Other vegetative classification: Mod AWC, adequately drained (G095BY005WI)
Hydric soil rating: No

Minor Components

Theresa

Percent of map unit: 5 percent
Landform: Drumlins
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Hochheim

Percent of map unit: 5 percent
Landform: Drumlins
Landform position (two-dimensional): Backslope, shoulder
Landform position (three-dimensional): Side slope, head slope
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

HmD2—Hochheim loam, 12 to 20 percent slopes, eroded

Map Unit Setting

National map unit symbol: 2t72w
Elevation: 820 to 1,330 feet
Mean annual precipitation: 28 to 36 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 130 to 175 days
Farmland classification: Not prime farmland

Map Unit Composition

Hochheim, eroded, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hochheim, Eroded

Setting

Landform: Drumlins
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Loamy till and/or calcareous, dense loamy till

Typical profile

Ap - 0 to 6 inches: loam
Bt - 6 to 16 inches: clay loam
C - 16 to 30 inches: gravelly loam
Cd - 30 to 79 inches: gravelly loam

Properties and qualities

Slope: 12 to 20 percent
Depth to restrictive feature: 20 to 36 inches to densic material
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 60 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D
Forage suitability group: Mod AWC, adequately drained with limitations (G095BY006WI)
Other vegetative classification: Mod AWC, adequately drained with limitations (G095BY006WI)
Hydric soil rating: No

Minor Components

Theresa

Percent of map unit: 10 percent
Landform: Drumlins
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Hochheim

Percent of map unit: 5 percent
Landform: Drumlins
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

LmB—Lamartine silt loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2t043
Elevation: 590 to 1,140 feet
Mean annual precipitation: 29 to 35 inches
Mean annual air temperature: 37 to 46 degrees F

Frost-free period: 135 to 170 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Lamartine and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lamartine

Setting

Landform: Interdrumlins
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Loess over loamy till

Typical profile

Ap - 0 to 8 inches: silt loam
Bt1 - 8 to 20 inches: silty clay loam
2Bt2 - 20 to 28 inches: clay loam
2C - 28 to 79 inches: gravelly sandy loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 12 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: B/D
Forage suitability group: High AWC, high water table (G095BY007WI)
Other vegetative classification: High AWC, high water table (G095BY007WI)
Hydric soil rating: No

Minor Components

Pella

Percent of map unit: 8 percent
Landform: Drainageways
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Ossian

Percent of map unit: 7 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

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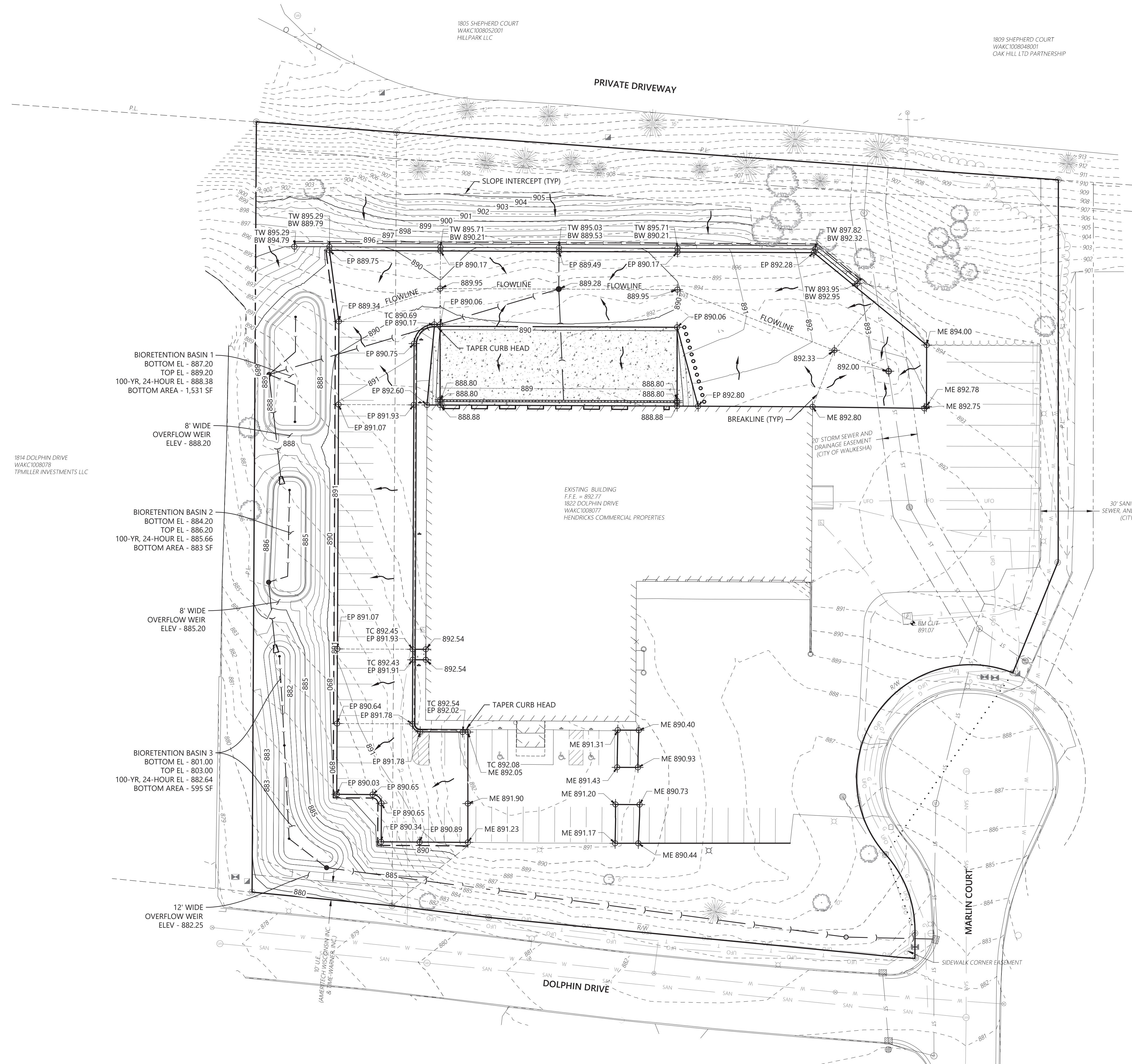


1805 SHEPHERD COURT
WAKC1008052001
HILLPARK LLC
1809 SHEPHERD COURT
WAKC1008048001
OAK HILL LTD PARTNERSHIP
PRIVATE DRIVEWAY
15' U.E. (WISCONSIN ELECTRIC POWER CO. & WISCONSIN BELL, INC.)
SLOPE INTERCEPT (TYP)
TW 895.29
BW 889.79
TW 895.29
BW 894.79
TW 895.71
BW 890.21
TW 895.03
BW 889.53
TW 895.71
BW 890.21
TW 897.82
BW 892.32
TW 893.95
BW 892.95
EP 889.75
EP 890.17
EP 889.49
EP 890.17
EP 892.28
FLOWLINE
EP 889.34
EP 890.06
EP 890.06
TC 890.69
EP 890.17
EP 890.75
TAPER CURB HEAD
EP 892.60
888.80
888.80
888.88
888.88
EP 892.80
BREAKLINE (TYP)
ME 892.80
ME 894.00
892.33
892.00
ME 892.78
ME 892.75
EP 891.93
EP 891.07
20' STORM SEWER AND DRAINAGE EASEMENT (CITY OF WAUKESHA)
1209 MARLIN COURT
WAKC1008076
IPTL LLC
BIORETENTION BASIN 1
BOTTOM EL - 887.20
TOP EL - 889.20
100-YR, 24-HOUR EL - 888.38
BOTTOM AREA - 1,531 SF
8' WIDE
OVERFLOW WEIR
ELEV - 888.20
1814 DOLPHIN DRIVE
WAKC1008078
TPMILLER INVESTMENTS LLC
EXISTING BUILDING
F.F.E. = 892.77
1822 DOLPHIN DRIVE
WAKC1008077
HENDRICKS COMMERCIAL PROPERTIES
30' SANITARY SEWER, STORM SEWER, AND DRAINAGE EASEMENT (CITY OF WAUKESHA)
BIORETENTION BASIN 2
BOTTOM EL - 884.20
TOP EL - 886.20
100-YR, 24-HOUR EL - 885.66
BOTTOM AREA - 883 SF
8' WIDE
OVERFLOW WEIR
ELEV - 885.20
EP 891.07
TC 892.45
EP 891.93
892.54
TC 892.43
EP 891.91
892.54
BM CUT
891.07
EP 890.64
EP 891.78
TC 892.54
EP 892.02
TAPER CURB HEAD
ME 890.40
ME 891.31
TC 892.08
ME 892.05
ME 890.93
ME 891.43
BIORETENTION BASIN 3
BOTTOM EL - 801.00
TOP EL - 803.00
100-YR, 24-HOUR EL - 882.64
BOTTOM AREA - 595 SF
EP 891.78
EP 890.03
EP 890.65
ME 891.90
ME 891.20
ME 890.73
EP 890.65
EP 890.34
EP 890.89
ME 891.23
ME 891.17
ME 890.44
12' WIDE
OVERFLOW WEIR
ELEV - 882.25
MARLIN COURT
SIDEWALK CORNER EASEMENT
10' U.E. (AMERITECH WISCONSIN INC. & TIME-WARNER, INC.)
DOLPHIN DRIVE
N
0 15 30 60

LEGEND

EP	EDGE OF PAVEMENT
TC	TOP OF CURB
TW	TOP OF WALL
BW	BACK OF WALL
ME	MATCH EXISTING

NOTES:

1. BIORETENTION BASINS SHALL RECEIVE COMPACTION MITIGATION IN ACCORDANCE WITH WISCONSIN DNR TECHNICAL STANDARD 1004 BIORETENTION FOR INFILTRATION PRIOR TO THE PLACEMENT OF EROSION MAT AND SEEDING.
2. SEE SHEET C4.04 FOR STORM SEWER PLAN
3. SEE SHEET C3.06 FOR BIORETENTION, BERM, AND OVERFLOW DETAILS.

NOT FOR CONSTRUCTION - NOT FOR CONSTRUCTION - NOT FOR CONSTRUCTION - NOT FOR CONSTRUCTION - NOT FOR CONSTRUCTION - NOT FOR CONSTRUCTION

Batterman
engineers surveyors planners
2857 Bartells Drive
Beloit, Wisconsin 53511
608.365.4464
www.rhbatterman.com

ISSUANCE	
CITY SUBMITTAL #1	08/25/2021

GRADING & DRAINAGE PLAN

NOTE: DIMENSIONAL DATA IS NOT TO BE OBTAINED BY SCALING ANY PORTION OF THIS DRAWING.

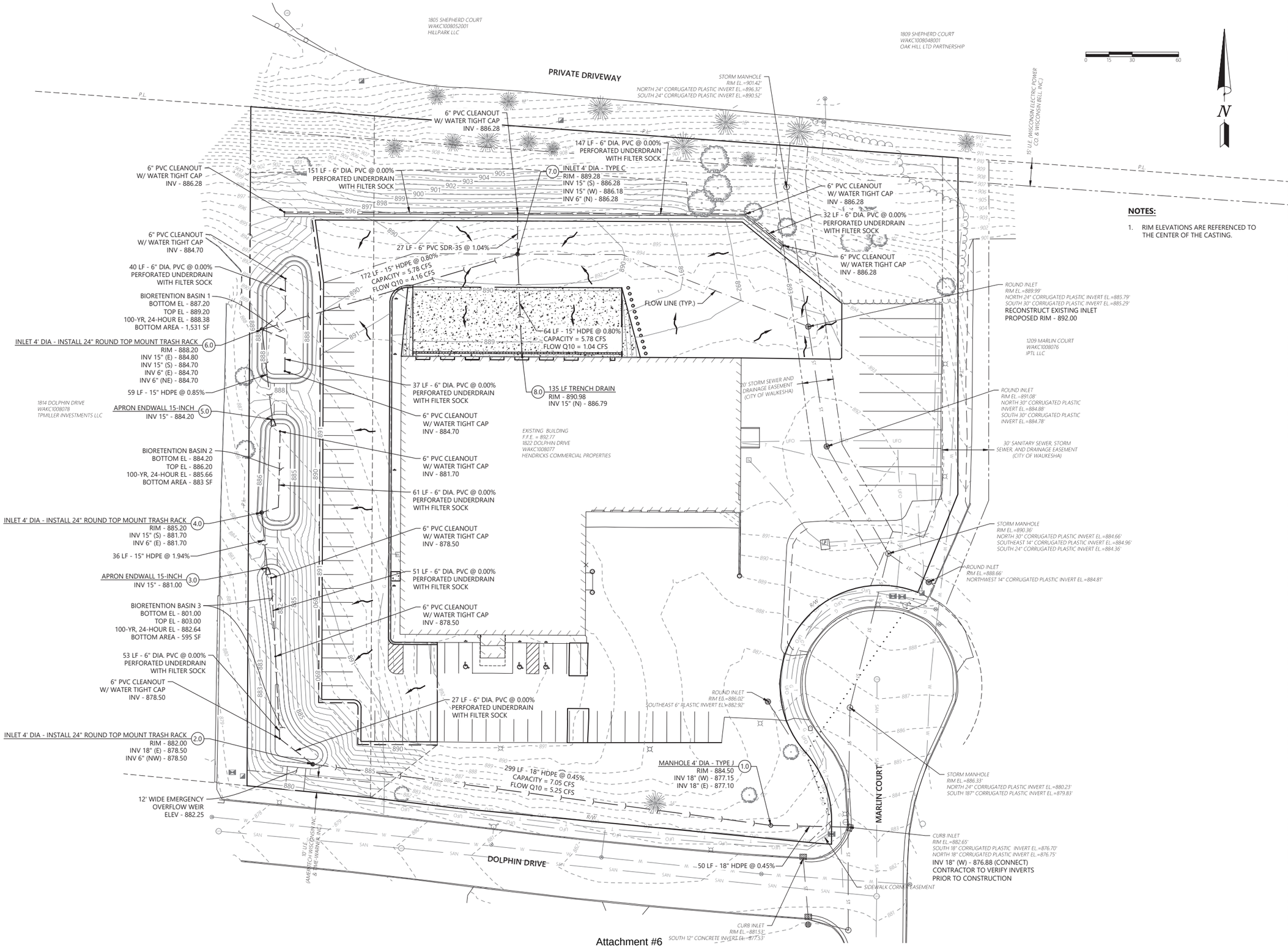
HENDRICKS COMMERCIAL PROPERTIES
1822 DOLPHIN DRIVE
CITY OF WAUKESHA
WAUKESHA COUNTY, WISCONSIN

33846 - C4.04 - GRADING & DRAINAGE PLAN.DWG

DESIGNED BY:	MF, LH, NJ
DRAWN BY:	LC
CHECKED BY:	AF
APPROVED BY:	FM
PROJECT NO.	33846

SHEET NO.
C4.04

PLOT DATE: 8/25/2021 2:08 PM



NOTES:

1. RIM ELEVATIONS ARE REFERENCED TO THE CENTER OF THE CASTING.

NOT FOR CONSTRUCTION - NOT FOR CONSTRUCTION - NOT FOR CONSTRUCTION - NOT FOR CONSTRUCTION

Batterman engineers surveyors planners
2857 Bartells Drive
Beloit, Wisconsin 53511
608.365.4464
www.rhbatterman.com

ISSUANCE	08/25/2021
CITY SUBMITTAL #1	-
-	-
-	-
-	-
-	-
-	-

STORM SEWER PLAN

NOTE: DIMENSIONAL DATA IS NOT TO BE OBTAINED BY SCALING ANY PORTION OF THIS DRAWING.

HENDRICKS COMMERCIAL PROPERTIES
1822 DOLPHIN DRIVE
CITY OF WAUKESHA
WAUKESHA COUNTY, WISCONSIN

33846 - C4.05 - STORM SEWER.DWG

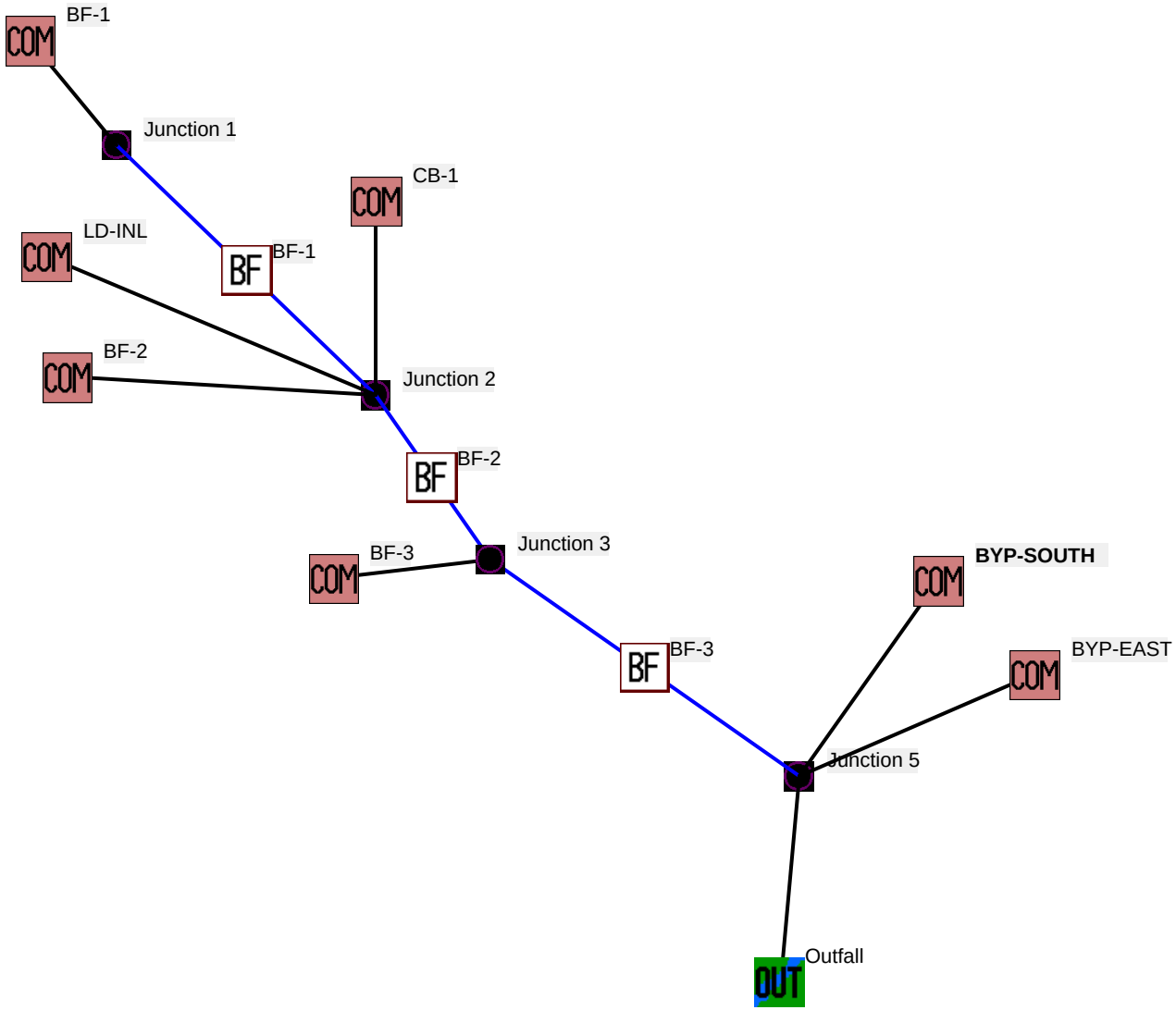
DESIGNED BY:	MF, LH, NJ
DRAWN BY:	LC
CHECKED BY:	AF
APPROVED BY:	FM
PROJECT NO:	33846

SHEET NO.

C4.05

PLOT DATE: 8/25/2021 2:08 PM

Attachment #6


BF-1
COM
Junction 1
CB-1
COM
LD-INL
COM
BF
BF-1
BF-2
COM
Junction 2
BF
BF-2
Junction 3
BF-3
COM
BYP-SOUTH
COM
BF
BF-3
BYP-EAST
COM
Junction 5
Outfall
OUT

```
Data file name:  J:\33800-33899\33846 - HCP - 1822 Dolphin Dr., Waukesha\DESIGN\STORMWATER\WinSLAMM\33846 - Water Quality Analysis.mdb
WinSLAMM Version 10.4.0
Rain file name:  C:\WinSLAMM Files\Rain Files\WisReg - Madison WI 1981.RAN
Particulate Solids Concentration file name:  C:\WinSLAMM Files\v10.1 WI_AVG01.pscx
Runoff Coefficient file name:  C:\WinSLAMM Files\WI_SL06 Dec06.rsvx
Residential Street Delivery file name:  C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Institutional Street Delivery file name:  C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Commercial Street Delivery file name:  C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Industrial Street Delivery file name:  C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Other Urban Street Delivery file name:  C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Freeway Street Delivery file name:  C:\WinSLAMM Files\Freeway Dec06.std
Apply Street Delivery Files to Adjust the After Event Load Street Dirt Mass Balance:  False
Pollutant Relative Concentration file name:  C:\WinSLAMM Files\WI_GEO03.ppdx
Source Area PSD and Peak to Average Flow Ratio File:  C:\WinSLAMM Files\NURP Source Area PSD Files.csv
Cost Data file name:
If Other Device Pollutant Load Reduction Values = 1, Off-site Pollutant Loads are Removed from Pollutant Load % Reduction calculations
Seed for random number generator:  -42
Study period starting date:  01/01/81       Study period ending date:  12/31/81
Start of Winter Season:  12/02              End of Winter Season:  03/12
Date:  08-25-2021                           Time:  15:02:11
Site information:

Pre-Development Area Description  Pre-Development Area (ac)     Pre-Development CN
Roof                              .732                          98
Paved Parking                     .601                          98
Driveway                          .341                          98
Sidewalk                          .027                          98
Open Space                        2.605                         80
   Total Area (ac)/Composite CN   4.306                         87

LU# 1 - Commercial:  BF-1     Total area (ac):  0.409
     13 - Paved Parking 1:  0.034 ac.    Disconnected    Normal Clayey    Low Density    Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
     19 - Unpaved Parking 1:  0.005 ac.    Disconnected    Normal Clayey    Low Density    Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
     25 - Driveways 1:  0.103 ac.    Disconnected    Normal Clayey    Low Density    Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
     45 - Large Landscaped Areas 1:  0.267 ac.    Normal Clayey    Low Density    Source Area PSD File: C:\WinSLAMM Files\NURP.cpz    OD-CP#1


LU# 2 - Commercial:  LD-INL     Total area (ac):  0.159
     13 - Paved Parking 1:  0.140 ac.    Connected    Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
     25 - Driveways 1:  0.012 ac.    Connected    Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
     51 - Small Landscaped Areas 1:  0.007 ac.    Normal Clayey    Low Density    Source Area PSD File: C:\WinSLAMM Files\NURP.cpz    OD-CP#2


LU# 3 - Commercial:  CB-1     Total area (ac):  0.780
     25 - Driveways 1:  0.338 ac.    Connected    Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
     45 - Large Landscaped Areas 1:  0.442 ac.    Normal Clayey    Low Density    Source Area PSD File: C:\WinSLAMM Files\NURP.cpz    OD-CP#3


LU# 4 - Commercial:  BF-2     Total area (ac):  0.221
     13 - Paved Parking 1:  0.045 ac.    Disconnected    Normal Clayey    Low Density    Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
     19 - Unpaved Parking 1:  0.005 ac.    Disconnected    Normal Clayey    Low Density    Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
     25 - Driveways 1:  0.055 ac.    Disconnected    Normal Clayey    Low Density    Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
     45 - Large Landscaped Areas 1:  0.116 ac.    Normal Clayey    Low Density    Source Area PSD File: C:\WinSLAMM Files\NURP.cpz    OD-CP#5


LU# 5 - Commercial:  BF-3     Total area (ac):  0.323
     13 - Paved Parking 1:  0.076 ac.    Disconnected    Normal Clayey    Low Density    Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
     19 - Unpaved Parking 1:  0.007 ac.    Disconnected    Normal Clayey    Low Density    Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
     25 - Driveways 1:  0.071 ac.    Disconnected    Normal Clayey    Low Density    Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
     31 - Sidewalks 1:  0.002 ac.    Disconnected    Normal Clayey    Low Density    Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
OD-CP#8
     51 - Small Landscaped Areas 1:  0.167 ac.    Normal Clayey    Low Density    Source Area PSD File: C:\WinSLAMM Files\NURP.cpz    OD-CP#7


LU# 6 - Commercial:  BYP-SOUTH     Total area (ac):  0.331
     1 - Roofs 1:  0.006 ac.    Pitched    Disconnected    Normal Clayey    Low Density    Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
 OD-CP#10
     13 - Paved Parking 1:  0.043 ac.    Disconnected    Normal Clayey    Low Density    Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
     19 - Unpaved Parking 1:  0.006 ac.    Disconnected    Normal Clayey    Low Density    Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
     25 - Driveways 1:  0.029 ac.    Disconnected    Normal Clayey    Low Density    Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
     31 - Sidewalks 1:  0.005 ac.    Disconnected    Normal Clayey    Low Density    Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
OD-CP#11
     45 - Large Landscaped Areas 1:  0.242 ac.    Normal Clayey    Low Density    Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
OD-CP#12


LU# 7 - Commercial:  BYP-EAST     Total area (ac):  2.082
     1 - Roofs 1:  0.726 ac.    Flat    Connected    Source Area PSD File: C:\WinSLAMM Files\NURP.cpz    OD-CP#13
     13 - Paved Parking 1:  0.223 ac.    Connected    Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
     19 - Unpaved Parking 1:  0.005 ac.    Connected    Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
     25 - Driveways 1:  0.677 ac.    Connected    Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
     31 - Sidewalks 1:  0.010 ac.    Connected    Source Area PSD File: C:\WinSLAMM Files\NURP.cpz    OD-CP#15
     45 - Large Landscaped Areas 1:  0.441 ac.    Normal Clayey    Low Density    Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
OD-CP#14



      Control Practice 1:  Other Device CP# 1 (SA) - SA Device, LU# 1 ,SA# 45
         Fraction of drainage area served by device (ac) = 1.00
         Particulate Concentration reduction fraction = 1.00
         Filterable Concentration reduction fraction = 1.00
         Runoff volume reduction fraction = 0


      Control Practice 2:  Other Device CP# 2 (SA) - SA Device, LU# 2 ,SA# 51
         Fraction of drainage area served by device (ac) = 1.00
```

```
   Particulate Concentration reduction fraction = 1.00
   Filterable Concentration reduction fraction = 1.00
   Runoff volume reduction fraction = 0


Control Practice 3:  Other Device CP# 3 (SA) - SA Device, LU# 3 ,SA# 45
   Fraction of drainage area served by device (ac) = 1.00
   Particulate Concentration reduction fraction = 1.00
   Filterable Concentration reduction fraction = 1.00
   Runoff volume reduction fraction = 0


Control Practice 4:  Biofilter CP# 1 (DS) - BF-1
   1.  Top area (square feet) =  2675
   2.  Bottom aea (square feet) =  1531
   3.  Depth (ft):   4.5
   4.  Biofilter width (ft) - for Cost Purposes Only:   10
   5.  Infiltration rate (in/hr) =  0.5
   6.  Random infiltration rate generation?  No
   7.  Infiltration rate fraction (side):   0.1
   8.  Infiltration rate fraction (bottom):   1
   9.  Depth of biofilter that is rock filled (ft) 0.5
   10.  Porosity of rock filled volume =  0.3
   11.  Engineered soil infiltration rate:   3.6
   12.  Engineered soil depth (ft) =  2
   13.  Engineered soil porosity =  0.3
   14. Percent solids reduction due to flow through engineered soil =  80
   15. Biofilter peak to average flow ratio =  3.8
   16. Number of biofiltration control devices =  1
   17. Particle size distribution file:  Not needed - calculated by program
   18. Initial water surface elevation (ft):   0
   Soil Data                         Soil Type Fraction in Eng. Soil
       User-Defined Soil Type         1.000
   Biofilter Outlet/Discharge Characteristics:
       Outlet type:  Broad Crested Weir
              1.  Weir crest length (ft):   8
              2.  Weir crest width (ft):   3
              3.  Height of datum to bottom of weir opening:   3.5
       Outlet type:  Vertical Stand Pipe
              1.  Stand pipe diameter (ft):   2
              2.  Stand pipe height above datum (ft):   3.5
       Outlet type:  Drain Tile/Underdrain
              1.  Underdrain outlet diameter (ft):   0.5
              2.  Invert elevation above datum (ft):   0
              3.  Number of underdrain outlets:   1


Control Practice 5:  Other Device CP# 4 (SA) - SA Device, LU# 4 ,SA# 45
   Fraction of drainage area served by device (ac) = 1.00
   Particulate Concentration reduction fraction = 1.00
   Filterable Concentration reduction fraction = 1.00
   Runoff volume reduction fraction = 0


Control Practice 6:  Biofilter CP# 2 (DS) - BF-2
   1.  Top area (square feet) =  1872
   2.  Bottom aea (square feet) =  882
   3.  Depth (ft):   4.5
   4.  Biofilter width (ft) - for Cost Purposes Only:   10
   5.  Infiltration rate (in/hr) =  0.5
   6.  Random infiltration rate generation?  No
   7.  Infiltration rate fraction (side):   0.1
   8.  Infiltration rate fraction (bottom):   1
   9.  Depth of biofilter that is rock filled (ft) 0.5
   10.  Porosity of rock filled volume =  0.3
   11.  Engineered soil infiltration rate:   3.6
   12.  Engineered soil depth (ft) =  2
   13.  Engineered soil porosity =  0.42
   14. Percent solids reduction due to flow through engineered soil =  80
   15. Biofilter peak to average flow ratio =  3.8
   16. Number of biofiltration control devices =  1
   17. Particle size distribution file:  Not needed - calculated by program
   18. Initial water surface elevation (ft):   0
   Soil Data                         Soil Type Fraction in Eng. Soil
       User-Defined Soil Type         1.000
   Biofilter Outlet/Discharge Characteristics:
       Outlet type:  Broad Crested Weir
              1.  Weir crest length (ft):   8
              2.  Weir crest width (ft):   3
              3.  Height of datum to bottom of weir opening:   3.5
       Outlet type:  Vertical Stand Pipe
              1.  Stand pipe diameter (ft):   2
              2.  Stand pipe height above datum (ft):   3.5
       Outlet type:  Drain Tile/Underdrain
              1.  Underdrain outlet diameter (ft):   0.5
              2.  Invert elevation above datum (ft):   0
              3.  Number of underdrain outlets:   1


Control Practice 7:  Other Device CP# 5 (SA) - SA Device, LU# 5 ,SA# 51
   Fraction of drainage area served by device (ac) = 1.00
   Particulate Concentration reduction fraction = 1.00
   Filterable Concentration reduction fraction = 1.00
   Runoff volume reduction fraction = 0


Control Practice 8:  Other Device CP# 6 (SA) - SA Device, LU# 5 ,SA# 31
```

```
   Fraction of drainage area served by device (ac) = 1.00
   Particulate Concentration reduction fraction = 1.00
   Filterable Concentration reduction fraction = 1.00
   Runoff volume reduction fraction = 0


Control Practice 9:  Biofilter CP# 3 (DS) - BF-3
   1.  Top area (square feet) =  2424
   2.  Bottom aea (square feet) =  595
   3.  Depth (ft):   4.5
   4.  Biofilter width (ft) - for Cost Purposes Only:   10
   5.  Infiltration rate (in/hr) =  0.5
   6.  Random infiltration rate generation?  No
   7.  Infiltration rate fraction (side):   0.1
   8.  Infiltration rate fraction (bottom):   1
   9.  Depth of biofilter that is rock filled (ft) 0.5
   10.  Porosity of rock filled volume =  0.3
   11.  Engineered soil infiltration rate:   3.6
   12.  Engineered soil depth (ft) =  2
   13.  Engineered soil porosity =  0.42
   14. Percent solids reduction due to flow through engineered soil =  80
   15. Biofilter peak to average flow ratio =  3.8
   16. Number of biofiltration control devices =  1
   17. Particle size distribution file:  Not needed - calculated by program
   18. Initial water surface elevation (ft):   0
   Soil Data                         Soil Type Fraction in Eng. Soil
       User-Defined Soil Type         1.000
   Biofilter Outlet/Discharge Characteristics:
       Outlet type:  Broad Crested Weir
              1.  Weir crest length (ft):   8
              2.  Weir crest width (ft):   3
              3.  Height of datum to bottom of weir opening:   3.75
       Outlet type:  Vertical Stand Pipe
              1.  Stand pipe diameter (ft):   2
              2.  Stand pipe height above datum (ft):   3.5
       Outlet type:  Drain Tile/Underdrain
              1.  Underdrain outlet diameter (ft):   0.5
              2.  Invert elevation above datum (ft):   0
              3.  Number of underdrain outlets:   1


Control Practice 10:  Other Device CP# 7 (SA) - SA Device, LU# 6 ,SA# 1
   Fraction of drainage area served by device (ac) = 1.00
   Particulate Concentration reduction fraction = 1.00
   Filterable Concentration reduction fraction = 1.00
   Runoff volume reduction fraction = 0


Control Practice 11:  Other Device CP# 8 (SA) - SA Device, LU# 6 ,SA# 31
   Fraction of drainage area served by device (ac) = 1.00
   Particulate Concentration reduction fraction = 1.00
   Filterable Concentration reduction fraction = 1.00
   Runoff volume reduction fraction = 0


Control Practice 12:  Other Device CP# 9 (SA) - SA Device, LU# 6 ,SA# 45
   Fraction of drainage area served by device (ac) = 1.00
   Particulate Concentration reduction fraction = 1.00
   Filterable Concentration reduction fraction = 1.00
   Runoff volume reduction fraction = 0


Control Practice 13:  Other Device CP# 10 (SA) - SA Device, LU# 7 ,SA# 1
   Fraction of drainage area served by device (ac) = 1.00
   Particulate Concentration reduction fraction = 1.00
   Filterable Concentration reduction fraction = 1.00
   Runoff volume reduction fraction = 0


Control Practice 14:  Other Device CP# 11 (SA) - SA Device, LU# 7 ,SA# 45
   Fraction of drainage area served by device (ac) = 1.00
   Particulate Concentration reduction fraction = 1.00
   Filterable Concentration reduction fraction = 1.00
   Runoff volume reduction fraction = 0


Control Practice 15:  Other Device CP# 12 (SA) - SA Device, LU# 7 ,SA# 31
   Fraction of drainage area served by device (ac) = 1.00
   Particulate Concentration reduction fraction = 1.00
   Filterable Concentration reduction fraction = 1.00
   Runoff volume reduction fraction = 0
```

SLAMM for Windows Version 10.4.0

Data file name: J:\33800-33899\33846 - HCP - 1822 Dolphin Dr., Waukesha\DESIGN\STORMWATER\WinSLAMM\33846 - Water Quality Analysis.mdb
Data file description:
Rain file name: C:\WinSLAMM Files\Rain Files\WisReg - Madison WI 1981.RAN
Particulate Solids Concentration file name: C:\WinSLAMM Files\v10.1 WI_AVG01.pscx
Runoff Coefficient file name: C:\WinSLAMM Files\WI_SL06 Dec06.rsvx
Residential Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Institutional Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Commercial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Industrial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Other Urban Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Freeway Street Delivery file name: C:\WinSLAMM Files\Freeway Dec06.std
Pollutant Relative Concentration file name: C:\WinSLAMM Files\WI_GEO03.ppdx
Start of Winter Season: 12/02 End of Winter Season: 03/12
Model Run Start Date: 01/01/81 Model Run End Date: 12/31/81
Date of run: 08-25-2021 Time of run: 14:53:20
Total Area Modeled (acres): 4.305
Years in Model Run: 1.00

	Runoff Volume (cu ft)	Percent Runoff Volume Reduction	Particulate Solids Conc. (mg/L)	Particulate Solids Yield (lbs)	Percent Particulate Solids Reduction
Total of all Land Uses without Controls:	211368	-	96.03	1267	-
Outfall Total with Controls:	180507	14.60%	65.84	741.9	41.44%
Annualized Total After Outfall Controls:	181003			744.0	

I. EXECUTIVE SUMMARY

The general contractor, site work contractor, and all subcontractors involved with a construction activity that disturbs site soil or who implement a pollutant control measure identified in the Storm Water Pollution Prevention Plan (SWPPP) must comply with the following requirements of the National Pollution Discharge Elimination Systems (NPDES) General Permit of the local governing agency having jurisdiction concerning erosion and sedimentation control (City Of Waukesha).

Submittal of a completed Notice of Intent (NOI) to the Wisconsin DNR, is mandatory for any landowner who intends to discharge storm water from a construction site to waters of the state. A completed NOI must be submitted to the DNR for approval.

A. A copy of the Notice of Intent (NOI) and a description of the project must be posted in a prominent place for public viewing at the construction site.

B. Complete copy of the SWPPP, including copies of all inspection reports, plan revisions, etc., must be retained at the project site at all times during working hours and kept in the permanent project records for at least six years following submission of the Notice of Termination (NOT).

C. The general contractor and sitework contractor must provide names and addresses of all subcontractors working on this project who will be involved with the major construction activities that disturb site soil. That information must be kept with this SWPPP.

D. As described previously, regular inspections must be made to determine effectiveness of the SWPPP. It would be modified as needed to prevent pollutants from discharging from the site. The inspector must be a person familiar with the site, the nature of the major construction activities, and qualified to evaluate both overall system performance and individual component performance. Additionally, the inspector must either be someone empowered to implement modifications to this SWPPP and the pollutant control devices, if needed, in order to increase effectiveness to an acceptable level, or someone with the authority to cause such things to happen.

E. This SWPPP must be updated each time there are significant modifications to the pollutant prevention system or a change of contractors working on the project who disturb site soil. The general contractor and/or sitework contractor must notify the governing review agency as soon as these modifications are implemented.

F. Discharge of oil or other hazardous substances into the storm water is subject to reporting and cleanup requirements.

G. Once the site reaches final stabilization, the general contractor and/or sitework contractor must complete and submit a Notice of Termination (NOT).

H. This SWPPP intends to control water-borne and liquid pollutant discharges by some combination of interception, filtration, and containment. The general contractor, site work contractor, and subcontractors implementing this SWPPP must remain alert to the need to periodically refine and update the SWPPP in order to accomplish the intended goals.

I. This SWPPP must be amended as necessary during the course of construction in order to keep it current with the pollutant control measures utilized at the site. Amending the SWPPP does not mean that it has to be reprinted. It is acceptable to add addenda, sketches, new sections, and/or revised drawings.

J. A record of the dates when major grading activities occur, when construction activities temporarily or permanently cease on a portion of the site, and when stabilization measures are initiated must be maintained until the NOT is filed.

II. INTRODUCTION

This SWPPP has been prepared for major activities associated with construction of the Hendricks Commercial Properties

This SWPPP includes the elements necessary to comply with the national baseline general permit for construction activities administered by the U.S. Environmental Protection Agency (EPS) under the National Pollutant Discharge Elimination System (NPDES) program and all local governing agency requirements. This SWPPP must be implemented at the start of construction.

Construction phase pollutant sources anticipated at the site are disturbed (bare) soil, vehicle fuels and lubricants, chemicals associated with building construction, and building materials. Without adequate control there is the potential for each type of pollutant to be transported by storm water.

Project construction will consist primarily of mass grading, new driveway, parking, and loading dock construction, and restoration.

A. Purpose

A major goal of pollution prevention efforts during project construction is to control soil and pollutants that originate on the site and prevent them from flowing to surface waters. The purpose of the SWPPP is to provide guidelines for achieving that goal. A successful pollution prevention program also relies upon careful inspection and adjustments during the construction process in order to enhance its effectiveness.

B. Scope

This SWPPP must be implemented before construction begins on the site. It primarily addresses the impact of storm rainfall and runoff on areas of the ground surface disturbed during the construction process. In addition, there are recommendations for controlling other sources of pollution that could accompany the major construction activities. This SWPPP will terminate when disturbed areas are stabilized, construction activities covered herein have ceased, and a completed Notice of Termination (NOT) is mailed to the Wisconsin DNR.

The national baseline General Permit for Storm Water Discharges from Construction Activities prohibits most non-storm water discharges during the construction phase. Allowable non-storm water discharges that could occur during construction on this project, which would therefore be covered by the General permit, include:

1. Discharge from fire fighting activities
2. Fire hydrant flushing
3. Water used to wash vehicles or control dust
4. Water flowing from potable sources and water line flushing
5. Irrigation drainage
6. External building wash down which does not use detergents
7. Runoff from pavement wash down where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents have not been used
8. Air conditioning condensate
9. Springs and uncontaminated groundwater, and
10. Foundation or footing drains where flows are not contaminated with process materials such as solvents.

The techniques described in this SWPPP focus on providing control of pollutant discharges with practical approaches that utilize readily available expertise, materials, and equipment.

The Owner referred to in this SWPPP is the Hendricks Commercial Properties

The general contractor will construct the site development improvements while working under contract with the Owner.

III. PROJECT DESCRIPTION AND SITE SEQUENCING

Described below are the major construction activities that are the subject of this SWPPP. They are presented in the order (or sequence) they are expected to begin, but each activity will not necessarily be completed before the next begins. Also, activities could occur in a different order if necessary to maintain adequate erosion and sedimentation control:

A. Construct rock tracking pads for construction entrance/exit. This will be the first construction work on the project.

B. Install erosion control practices down slope from construction activities that disturb site soil.

C. Construct rock surface for temporary parking if needed

D. Demolition - Remove Existing Structures Complete.

E. Roadway Construction - Install site roads and modify drainage structures. Be sure all all disturbed areas have erosion protection devices installed downslope.

F. Final Grading - Provide final grading of any remaining unstablized areas and immediately stabilize remainder of site.

The actual schedule for implementing pollutant control measures will be determined by project construction progress. Down slope protective measures must always be in place before soil is disturbed.

IV. SITE DESCRIPTION

Included as part of this SWPPP are the project construction drawings. Refer to them for detailed site information.

A. Site Location - 1822 Dolphin Dr Waukesha, WI

V. STORM WATER POLLUTION PREVENTION MEASURES AND CONTROLS

A variety of storm water pollutant controls are recommended for this project. Some controls are intended to function temporarily and will be used as needed for pollutant control during the construction period. These include temporary silt fence. For most disturbed areas, permanent stabilization will be accomplished by covering the soil with pavement, building, or vegetation.

A. Erosion and Sediment Controls

1. Soil Stabilization - The purpose of soil stabilization is to prevent soil from leaving the site, in the natural condition, soil is stabilized by native vegetation. The primary technique to be used at this project for stabilizing site soil will be to provide a protective cover of turf grass.

   a. Temporary Seeding - Within 14 days after construction activity ceases on any particular area, all disturbed ground where there will not be construction for longer than 21 days must be seeded with fast-germinating temporary seed and protected with mulch.

   b. Permanent Seeding - All areas at final grade must be seeded within 14 days after completion of the major construction activity. Except for small level spots, seeded areas should generally be protected with mulch.

   c. Structural Controls - See the Grading Plan and associated details for construction information of the proposed outlet control structures, storm sewer, etc.

Final site stabilization is achieved when turf grass cover provides permanent stabilization for at least 70 percent of the disturbed soil surface, exclusive of areas that have been paved.

B. Other Pollutant Controls

Control of sediments has been described previously. Other aspects of this SWPPP are

1. Dust Control - Construction traffic must enter and exit the site at the stabilized construction entrance. The purpose is to trap dust and mud that would otherwise be carried off site by construction traffic.

2. Solid Waste Disposal - No solid materials, including building materials, are allowed to be discharged from the site with storm water. All solid waste, including disposable materials incidental to the major construction activities, must be collected and placed in containers. The containers will be emptied periodically by a contract trash disposal service and hauled away from the site. Substances that have the potential for polluting surface and/or groundwater must be controlled by whatever means necessary in order to ensure that they do not discharge from the site. As an example, special care must be exercised during equipment fueling and servicing operations. If a spill occurs, it must be contained and disposed so that it will not flow from the site or enter groundwater, even if this requires removal, treatment, and disposal of soil. In this regard, potentially polluting substances should be handled in a manner consistent with the impact they present.

3. Sanitary Facilities - All personnel involved with construction activities must comply with state and local sanitary or septic system regulations. Temporary sanitary facilities will be provided at the site throughout the construction phase. They must be utilized by all construction personnel and will be serviced by a commercial operator.

4. Water Source - Non-storm water components of site discharge must be clean water. Water used for construction which discharges from the site, must originate from a public water supply or private well approved by the State Health Department. Water used for construction that does not originate from an approved public supply must not discharge from the site. It can be retained in the ponds until it infiltrates and evaporates.

5. Long-Term Pollutant controls - Storm water pollutant control measures installed during construction, that will also provide benefits after construction, include grassed areas, partially perforated pipe, and storm water outlet structures that will trap some sediment and allow for regular maintenance and cleanout. Those silt fences that do not interfere with normal operations and appear to provide long-term benefits can be left in place after construction is completed.

C. Construction Phase "Best Management Practices"

During the construction phase, the general contractor will implement the following

1. Material resulting from the clearing and grubbing operation will be stockpiled up slope from adequate sedimentation controls.

2. The general contractor will designate areas for equipment cleaning, maintenance, and repair. The general contractor and subcontractors will utilize those areas. The areas will be protected by a temporary perimeter berm.

3. Use of detergents for large scale washing is prohibited (i.e., vehicles, buildings, pavement surfaces, etc.).

4. Chemicals, paints, solvents, fertilizers, and other toxic material must be stored in waterproof containers. Except during application, the contents must be kept in trucks or within storage facilities. Runoff containing such material must be collected, removed from the site, treated, and disposed at an approved solid waste or chemical disposal

VI. LOCAL PLANS

In addition to this SWPPP, construction activities associated with this project must comply with any guidelines set forth by the local regulatory agency (City Of Waukesha)

If there are multi permits or guidelines the contractor shall follow the most stringent.

VII. INSPECTIONS AND SYSTEM MAINTENANCE

Between the time this SWPPP is implemented and final site stabilization is achieved, all disturbed areas and pollutant controls must be inspected at least once every seven calendar days and within 24 hours following a rainfall of 0.5 inches or greater or snowfall 6" or greater.

The purpose of site inspections is to assess performance of pollutant controls. The inspections will be conducted by the general contractor/sitework contractor's representative. Based on these inspections, the general contractor will decide whether it is necessary to modify this SWPPP, add or relocate silt fence, or whatever else may be needed in order to prevent pollutants from leaving the site via storm water runoff. The general contractor has the duty to cause pollutant control measures to be repaired, modified, maintained, supplemented, or whatever else is necessary in order to achieve effective pollutant control.

Examples of particular items to evaluate during site inspections are listed below. This list is not intended to be comprehensive. During each inspection the inspector must evaluate overall pollutant control system performance as well as particular details of individual system components. Additional factors should be considered as appropriate to the circumstances.

A. Locations where vehicles enter and exit the site must be inspected for evidence of off site sediment tracking. A stabilized construction entrance will be constructed where vehicles enter and exit. This entrance will be maintained or supplemented as necessary to prevent sediment from leaving the site on vehicles.

B. Silt fence must be inspected and, if necessary, they must be enlarged or cleaned in order to provide additional capacity. All material excavated from behind silt fence will be stockpiled on the up slope side. Additional silt fence must be constructed as needed.

C. Inspections will evaluate disturbed areas and areas used for storing materials that are exposed to rainfall for evidence of, or the potential for, pollutants entering the drainage system. If necessary, the materials must be covered or original covers must be repaired or supplemented. Also, protective berms must be constructed, if needed, in order to contain runoff from material storage areas.

D. Grassed areas will be inspected to confirm that a healthy stand of grass is maintained. The site has achieved final stabilization once all areas are covered with building foundation or pavement, or have a stand of grass with at least 70 percent density. the density of 70 percent or greater must be maintained to be considered as stabilized. Areas must be watered, fertilized, and reseeded as needed to achieve this goal.

E. All discharge points must be inspected to determine whether erosion control measures are effective in preventing significant impacts to receiving waters.

Based on inspection results, any modification necessary to increase effectiveness of the SWPPP to an acceptable level must be made within seven calendar days of the inspection. The inspection reports must be completed entirely and additional remarks should be included if needed to fully describe a situation. An important aspect of the inspection report is the description of additional measures that need to be taken to enhance plan effectiveness. The inspection report must identify whether the site was in compliance with the SWPPP at the time of inspection and specifically identify all incidents of non-compliance.

Inspection reports must be kept on file by the general contractor as an integral part of this SWPPP for at least six years from the date of completion of the project.

Ultimately, it is the responsibility of the general/sitework contractor to assure the adequacy of site pollutant discharge controls. Actual physical site conditions or contractor practices could make it necessary to install more structural controls than are shown on the plans. (ie; localized concentrations of runoff could make it necessary to install additional silt fence. Assessing the need for additional controls and implementing them or adjusting existing controls will be a continuing aspect of this SWPPP until the site achieves final stabilization.

Attachment #8

NOT FOR CONSTRUCTION - NOT FOR CONSTRUCTION - NOT FOR CONSTRUCTION - NOT FOR CONSTRUCTION - NOT FOR CONSTRUCTION

Batterman engineers surveyors planners
2857 Bartells Drive
Beloit, Wisconsin 53511
608.365.4464
www.rhbatterman.com

ISSUANCE
CITY SUBMITTAL #1 08/25/2021

EROSION CONTROL NOTES

NOTE: DIMENSIONAL DATA IS NOT TO BE OBTAINED BY SCALING ANY PORTION OF THIS DRAWING

HENDRICKS COMMERCIAL PROPERTIES
1822 DOLPHIN DRIVE
CITY OF WAUKESHA
WAUKESHA COUNTY, WISCONSIN

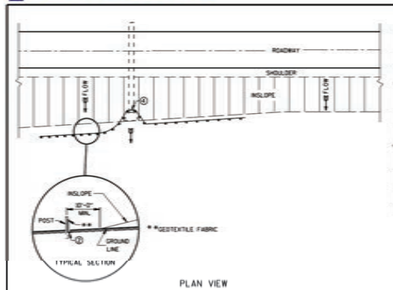
33846 - C1.03 - EROSION CONTROL NOTES.DWG

DESIGNED BY: MF, LH, NJ
DRAWN BY: LC
CHECKED BY: AF
APPROVED BY: FM
PROJECT NO: 33846

SHEET NO.
C1.03

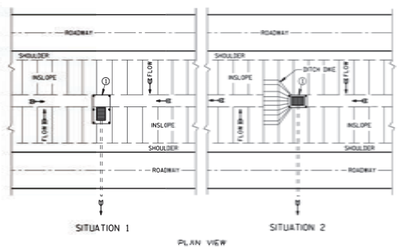
PLOT DATE: 8/25/2021 2:05 PM

SDD 8e9 Silt Fence



PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



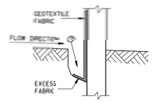
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

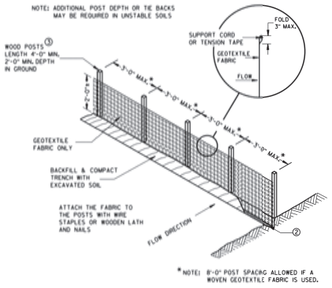
GENERAL NOTES

DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

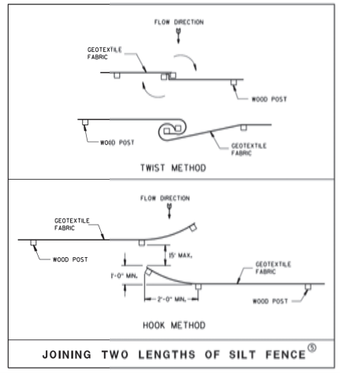
1. HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
2. FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
3. WOOD POSTS SHALL BE A MINIMUM SIZE OF 1½" X 1½" OF OAK OR HICKORY.
4. SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
5. CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS: A) OVERLAP THE END POSTS AND TWIST OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.



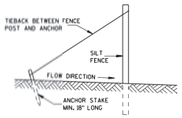
TRENCH DETAIL



SILT FENCE



JOINING TWO LENGTHS OF SILT FENCE ⑤

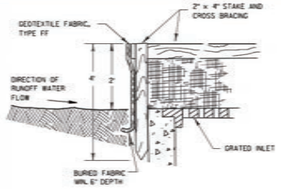


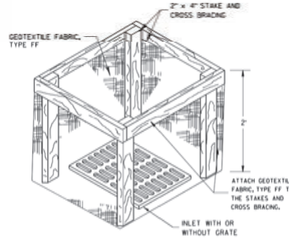
SILT FENCE TIE BACK
(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 4-25-05 DATE	/S/ Beth Conmastro CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA	

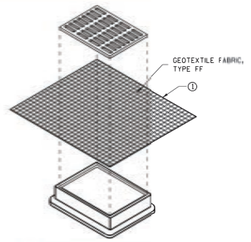
S.D.D. 8 E 9-6

8E10: Inlet Protection Type A, B, C and D

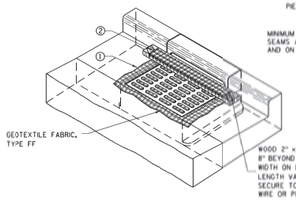




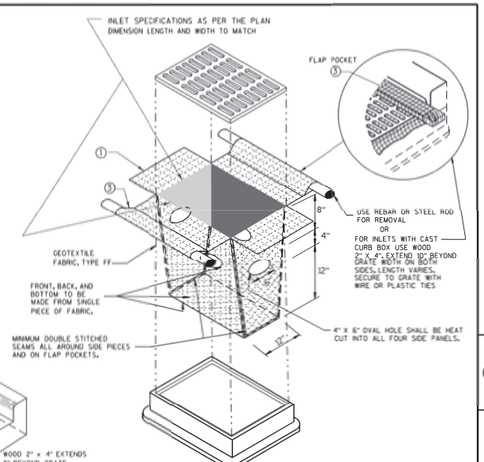
INLET PROTECTION, TYPE A



INLET PROTECTION, TYPE B (WITHOUT CURB BOX)
(CAN BE INSTALLED IN ANY INLET WITHOUT A CURB BOX)



INLET PROTECTION, TYPE C (WITH CURB BOX)



INLET PROTECTION, TYPE D
(CAN BE INSTALLED IN ANY INLET TYPE WITH OR WITHOUT A CURB BOX AS PER NOTE ⑦)

INSTALLATION NOTES

TYPE B & C

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.
THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

TYPE D

DO NOT INSTALL INLET PROTECTION TYPE D IN INLETS SHALLOWER THAN 30", MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE.
TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.
THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3", WHERE NECESSARY THE CONTRACTOR SHALL CINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE, THE TIES SHALL BE PLACED AT A MAXIMUM OF 4" FROM THE BOTTOM OF THE BAG.

GENERAL NOTES

INLET PROTECTION DEVICES SHALL BE MAINTAINED OR REPLACED AT THE DIRECTION OF THE ENGINEER.

MANUFACTURED ALTERNATIVES APPROVED AND LISTED ON THE DEPARTMENT'S EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED.

WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

① FINISHED SIZE, INCLUDING FLAP POCKETS WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.

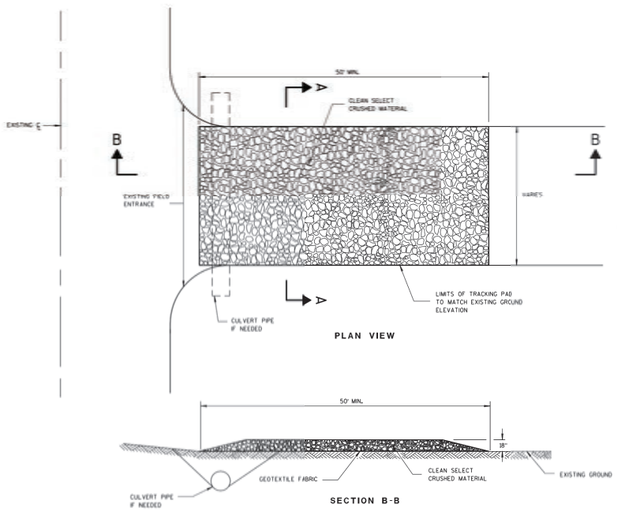
② FOR INLET PROTECTION, TYPE C (WITH CURB BOX), AN ADDITIONAL 18" OF FABRIC IS WRAPPED AROUND THE WOOD AND SECURED WITH STAPLES. THE WOOD SHALL NOT BLOCK THE ENTIRE HEIGHT OF THE CURB BOX OPENING.

③ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2X4.

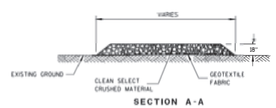
INLET PROTECTION TYPE A, B, C, AND D	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 10/8/02 DATE	/S/ Beth Conmastro CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA	

S.D.D. 8 E 10-2

8E14: Tracking Pad



PLAN VIEW



SECTION A-A

SECTION B-B

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

TRACKING PAD SHALL BE INSPECTED DAILY. DEFICIENT AREAS SHALL BE REPAIRED OR REPLACED IMMEDIATELY.

TRACKING PAD TO BE REMOVED AFTER CONSTRUCTION IS COMPLETED.

TRACKING PAD SHALL BE THE FULL WIDTH OF THE EGRESS POINT.

SURFACE WATER MUST BE PREVENTED FROM PASSING THROUGH THE TRACKING PAD. FLOWS SHALL BE DIVERTED AWAY, AROUND OR CONVEYED UNDER THE TRACKING PAD.

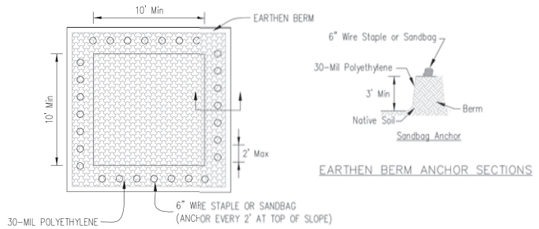
CULVERT PIPE OR OTHER BMP USED TO DIVERT WATER AWAY, AROUND OR UNDER THE TRACKING PAD SHALL BE DESIGNED TO CONVEY THE 2 YEAR - 24 HOUR EVENT.

THE COST OF ADDITIONAL BMP TO DIVERT WATER ARE INCIDENTAL TO THE TRACKING PAD BID ITEM.

TRACKING PAD

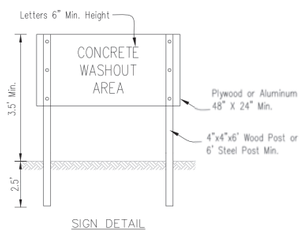
TRACKING PAD	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 3/24/2011 DATE	/S/ Jerry M. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	

S.D.D. 8 E 14-1

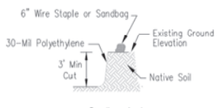


PLAN VIEW

EARTHEN BERM ANCHOR SECTIONS



SIGN DETAIL

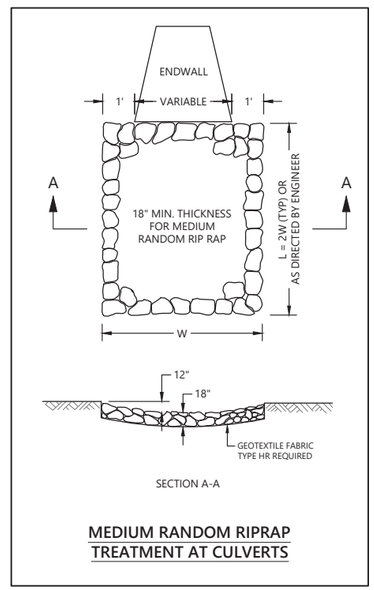


SUBGRADE ANCHOR SECTIONS

NOTES:

1. Maintaining temporary concrete washout facilities shall include removing and disposing of hardened concrete and/or slurry and returning the facilities to a functional condition.
2. Facility shall be cleaned or reconstructed in a new area once washout becomes two-thirds full.

TEMPORARY CONCRETE WASHOUT FACILITY - EARTHEN TYPE



SECTION A-A

MEDIUM RANDOM RIPRAP TREATMENT AT CULVERTS

NOT FOR CONSTRUCTION - NOT FOR CONSTRUCTION - NOT FOR CONSTRUCTION - NOT FOR CONSTRUCTION

S.D.D. 8 E 10-2

Batterman
engineers surveyors planners
2857 Bartells Drive
Beloit, Wisconsin 53511
608.365.4464
www.rhbatterman.com

ISSUANCE
CITY SUBMITTAL #1 08/25/2021

EROSION CONTROL DETAILS

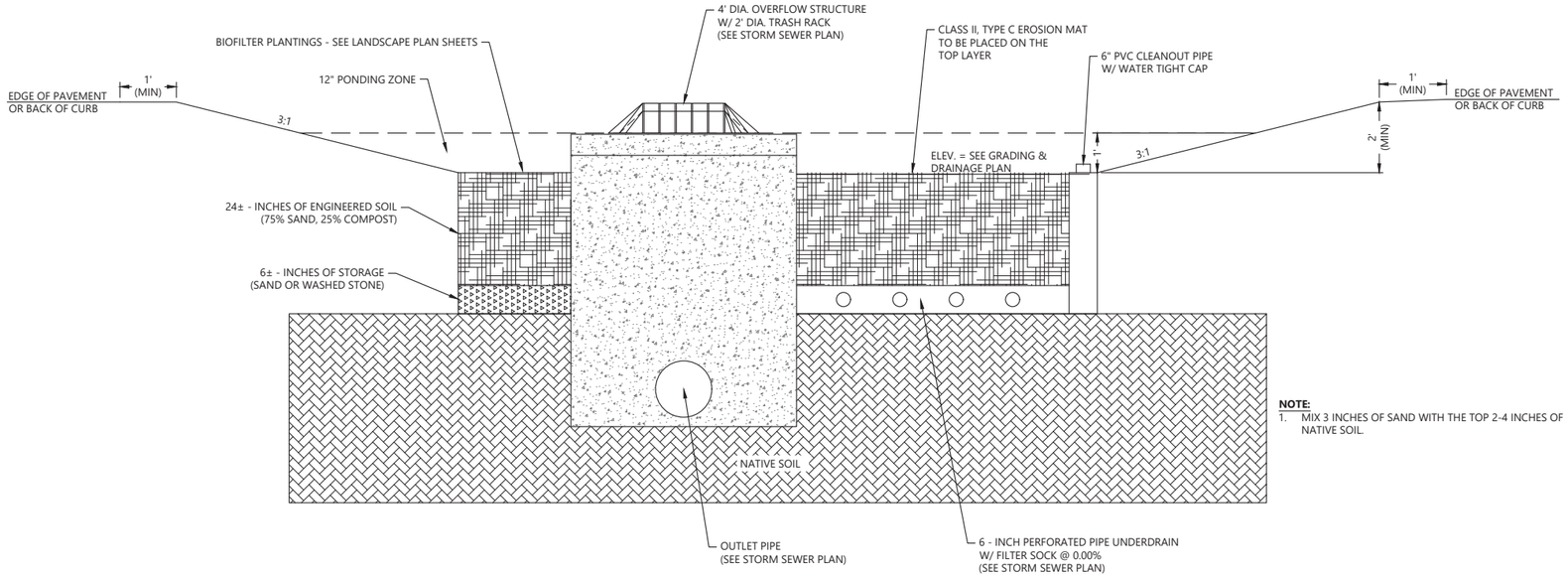
HENDRICKS COMMERCIAL PROPERTIES
1822 DOLPHIN DRIVE
CITY OF WAUKESHA
WAUKESHA COUNTY, WISCONSIN

33846 - C3.01 - DETAILS.DWG

DESIGNED BY: MF, LH, NJ
DRAWN BY: LC
CHECKED BY: AF
APPROVED BY: FM
PROJECT NO: 33846

SHEET NO.
C3.08

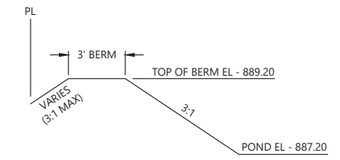
PLOT DATE: 8/25/2021 2:07 PM



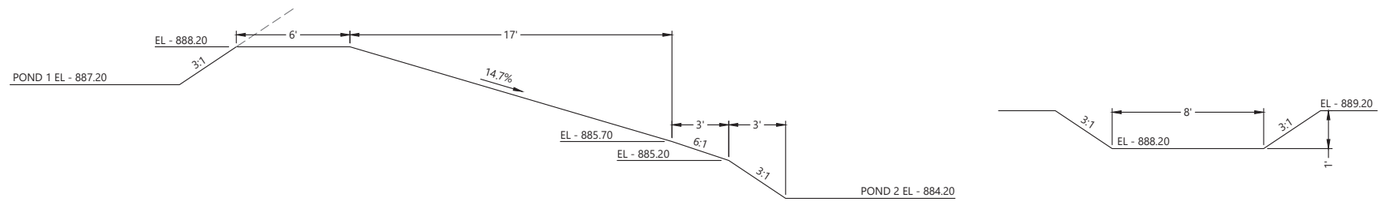
NOTE:
1. MIX 3 INCHES OF SAND WITH THE TOP 2-4 INCHES OF NATIVE SOIL.

BIORETENTION/BIOFILTER DETAIL

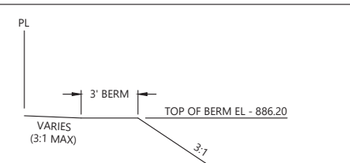
NOT TO SCALE



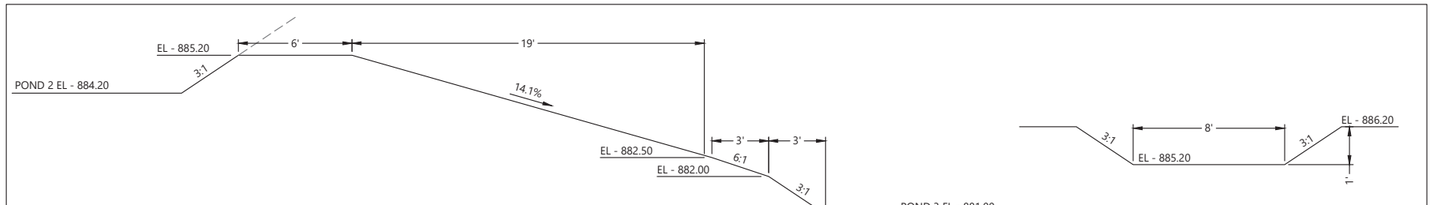
BIORETENTION BASIN 1 BERM DETAIL
N.T.S.



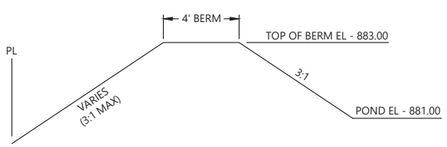
OVERFLOW DETAIL - POND 1 TO POND 2
N.T.S.



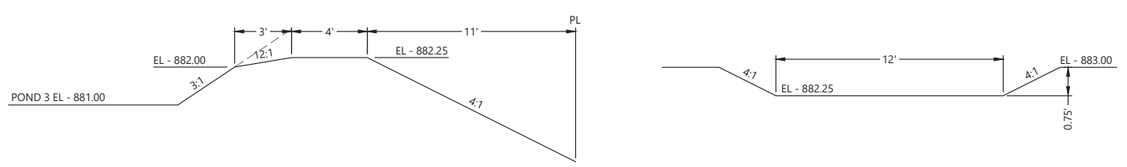
BIORETENTION BASIN 2 BERM DETAIL
N.T.S.



OVERFLOW DETAIL - POND 2 TO POND 3
N.T.S.



BIORETENTION BASIN 3 BERM DETAIL
N.T.S.



OVERFLOW DETAIL - POND 3
N.T.S.

NOT FOR CONSTRUCTION - NOT FOR CONSTRUCTION - NOT FOR CONSTRUCTION - NOT FOR CONSTRUCTION

Batterman
engineers surveyors planners
2857 Bartells Drive
608.365.4464
Beloit, Wisconsin 53511
www.rhbatterman.com

ISSUANCE	
CITY SUBMITTAL #1	08/25/2021
-	-
-	-
-	-
-	-
-	-

DETAILS

HENDRICKS COMMERCIAL PROPERTIES
1822 DOLPHIN DRIVE
CITY OF WAUKESHA
WAUKESHA COUNTY, WISCONSIN

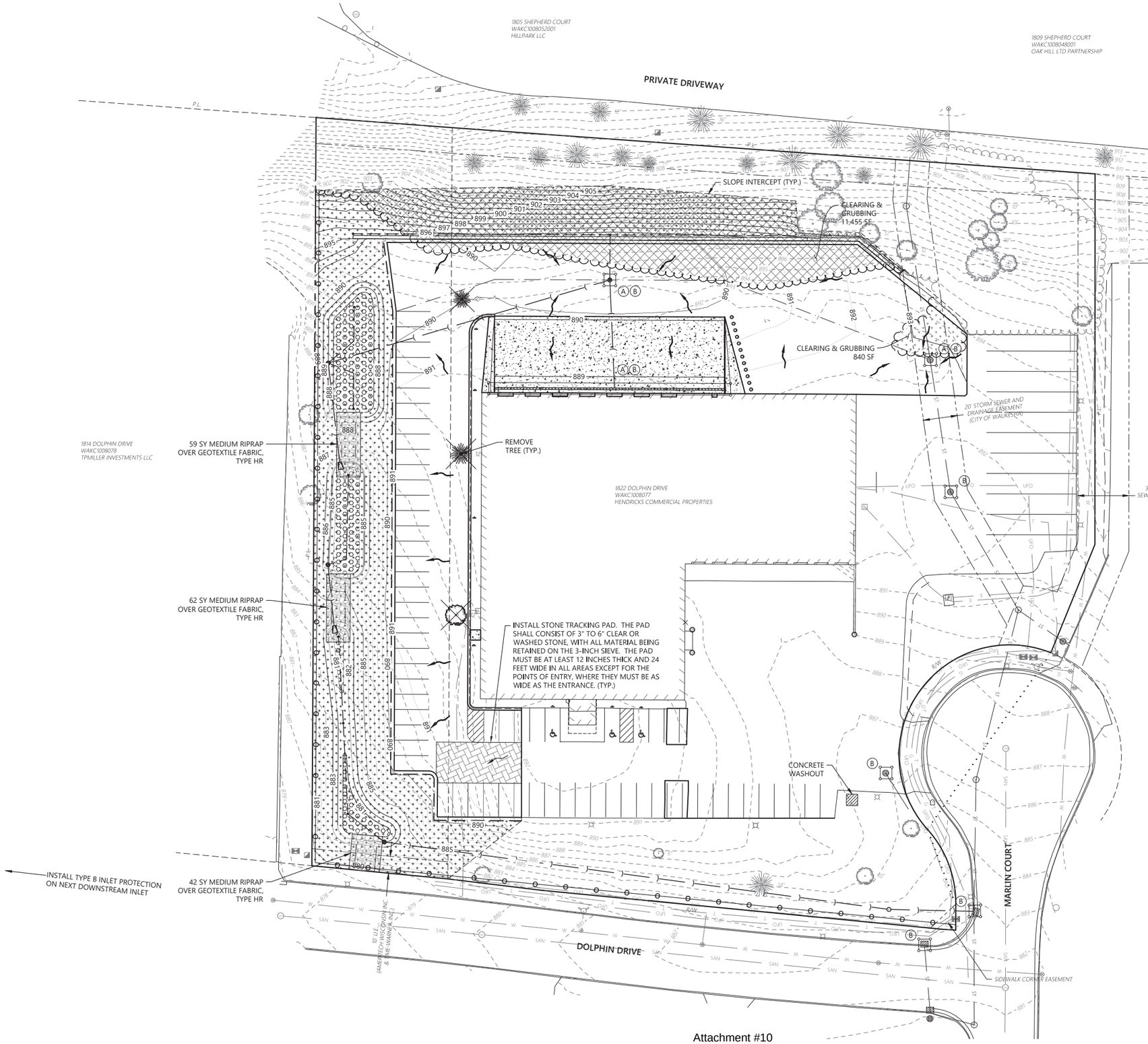
33846 - C3.01 - DETAILS.DWG

DESIGNED BY:	MF, LH, NJ		
DRAWN BY:	LC		
CHECKED BY:	AF	APPROVED BY:	FM
PROJECT NO:	33846		

SHEET NO.

C3.06

PLOT DATE: 8/25/2021 2:07 PM



LEGEND

- SILT FENCE
- SURFACE WATER FLOW
- EROSION MAT CLASS I URBAN, TYPE B
- EROSION MAT CLASS II, TYPE C
- TRACKING PAD
- INLET PROTECTION, TYPE X

NOTES:

1. BIOINFILTRATION POND SHALL RECEIVE COMPACTION MITIGATION IN ACCORDANCE WITH WISCONSIN DNR TECHNICAL STANDARD 1003 BIORETENTION FOR INFILTRATION PRIOR TO THE PLACEMENT OF EROSION MAT AND SEEDING.
2. EROSION CONTROL FEATURES AS SHOWN IN THE PLANS ARE AT SUGGESTED LOCATIONS. THE ENGINEER MAY MODIFY LOCATIONS AS NEEDED. ALL EROSION CONTROL MEASURES SHALL BE MAINTAINED UNTIL SUCH TIME AS THE ENGINEER DETERMINES THE MEASURE IS NO LONGER NECESSARY.
3. ALL DISTURBED AREAS TO BE RESTORED WITH SEED, FERTILIZER, AND MULCH UNLESS OTHERWISE NOTED. FINAL SEEDING TO BE #40. PROVIDE 2 LBS/1000 SF (0.044 TONS/ACRE). REFERENCE SECTION 630 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION.
4. MULCHING SHALL CONFORM TO SECTION 627 OF WISCONSIN STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION.
5. INSTALL SILT FENCING AS SHOWN ON PLANS FOLLOWING COMPLETION OF REMOVALS AND PRIOR TO LAND DISTURBING ACTIVITIES.
6. ANY ADDITIONAL CONSTRUCTION ENTRANCES REQUIRED SHALL RECEIVE TRACKING PAD STABILIZATION.

SITE INFORMATION:

ZONING:	M-3 (LIMITED BUSINESS AND INDUSTRIAL PARK)
LOT AREA:	187,577 SF (4.31 AC)
SITE DISTURBED AREA:	79,285 SF (1.82 AC)
ON-SITE PARKING:	62 SPACES
HANDICAP PARKING:	3 SPACES
PROVIDED PARKING (TOTAL):	65 SPACES
PROVIDED TRAILER PARKING:	9 SPACES

NOT FOR CONSTRUCTION - NOT FOR CONSTRUCTION - NOT FOR CONSTRUCTION - NOT FOR CONSTRUCTION

PLOT DATE: 8/25/2021 2:07 PM

Attachment #10

Batterman engineers surveyors planners
2857 Bartells Drive
608.365.4464
Beloit, Wisconsin 53511
www.rhbatterman.com

ISSUANCE
CITY SUBMITTAL #1 08/25/2021

EROSION CONTROL PLAN

NOTE: DIMENSIONAL DATA IS NOT TO BE OBTAINED BY SCALING ANY PORTION OF THIS DRAWING

HENDRICKS COMMERCIAL PROPERTIES
1822 DOLPHIN DRIVE
CITY OF WAUKESHA
WAUKESHA COUNTY, WISCONSIN

33846 - C4.02 - EROSION CONTROL PLAN.DWG

DESIGNED BY: MF, LH, NJ
DRAWN BY: LC
CHECKED BY: AF
APPROVED BY: FM
PROJECT NO: 33846

SHEET NO.
C4.02

Soil Loss & Sediment Discharge Calculation Tool

for use on Construction Sites in the State of Wisconsin

WDNR Version 2.0 (06-29-2017)

WISCONSIN DEPT. OF NATURAL RESOURCES

YEAR 1

Developer: Hendricks Commercial Properties

Project: 1822 Dolphin Drive - Best Buy

Date: 08/25/21

County: Waukesha

Version 1.0

Activity (1)	Begin Date (2)	End Date (3)	Period % R (4)	Annual R Factor (5)	Sub Soil Texture (6)	Soil Erodibility K Factor (7)	Slope (%) (8)	Slope Length (ft) (9)	LS Factor (10)	Land Cover C Factor (11)	Soil loss A (tons/acre) (12)	SDF (13)	Sediment Control Practice (14)	Sediment Discharge (t/ac) (15)
Bare Ground	04/01/22	05/15/22	10.0%	130	Silt Loam	0.43	5.0%	40	0.34	1.00	1.9	0.856	Silt Fence	1.0
Seed with Mulch or Ei	05/15/22	07/15/22	38.0%	130	Silt Loam	0.43	5.0%	40	0.34	0.10	0.7	0.856	Silt Fence	0.4
End	07/15/22	-----	-----	-----	-------	-----	5.0%	40	0.34	------	-----	0.000	Silt Fence	0.0
		-----	-----	-----	-------	-----	5.0%	40	0.34	-----	-----	0.000		0.0
		-----	-----	-----	-------	-----	5.0%	0	-----	-----	-----	0.000		0.0
		-----	-----	-----	-------	-----	0.0%	0	-----	-----	-----	0.000		0.0
										TOTAL	**2.6**		**TOTAL**	**1.3**
													% Reduction Required	**NONE**

Notes:

See Help Page for further descriptions of variables and items in drop-down boxes.
The last land disturbing activity on each sheet must be 'End'. This is either 12 months from the start of construction or final stabilization.
For periods of construction that exceed 12 months, please demonstrate that 5 tons/acre/year is not exceeded in any given 12 month period.

NOTE: THIS TOOL ONLY ADDRESSED SOIL EROSION DUE TO SHEET FLOW. MEASURES TO CONTROL CHANNEL EROSION MAY ALSO BE REQUIRED TO MEET SEDIMENT DISCHARGE REQUIREMENTS.

Recommended Permanent Seeding Dates:

4/1-5/15	and	8/7-8/29	Turf, introduced grasses and legumes
Thaw-6/30			Native Grasses, forbs, and legumes

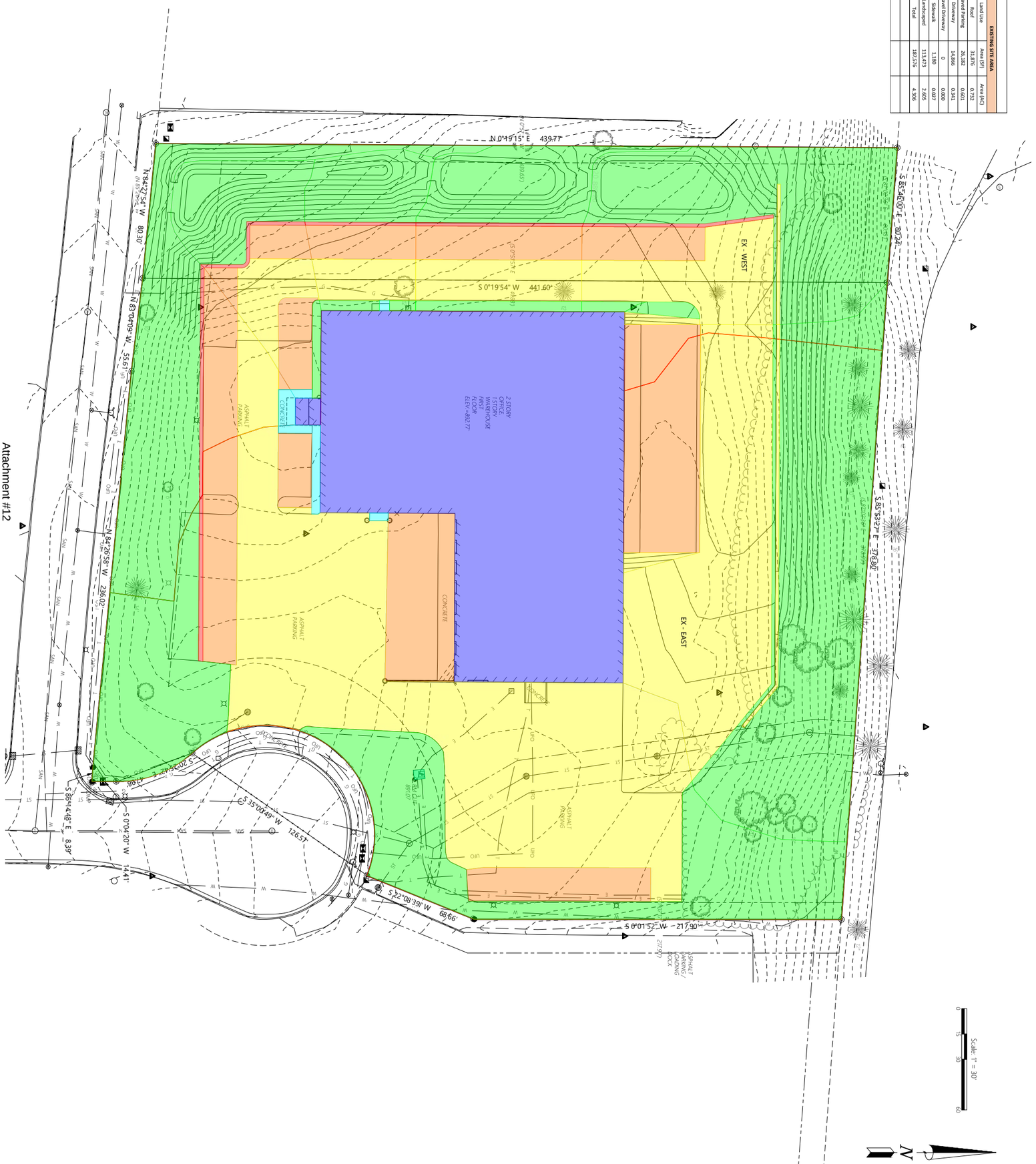
Designed By:	MTF
Date	8/24/2021

J:\33800-33899\33846 - HCP - 1822 Dolphin Dr., Waukesha\DESIGN\33846-Dolphin Drive_USLEmodel

PLOT DATE: 8/25/2021 2:14 PM

Attachment #12

EXISTING SITE AREAS												
EX-EAST				EX-WEST				EXISTING SITE AREA				
Land Use	Area (SF)	Area (AC)		Land Use	Area (SF)	Area (AC)		Land Use	Area (SF)	Area (AC)		
Roof	31,636	0.726		Roof	240	0.006		Roof	31,876	0.732		
Paved Parking	24,007	0.551		Paved Parking	2,175	0.050		Paved Parking	26,182	0.601		
Driveway	13,960	0.320		Driveway	906	0.021		Driveway	14,866	0.341		
Gravel Driveway	0	0.000		Gravel Driveway	0	0.000		Gravel Driveway	0	0.000		
Sidewalk	873	0.020		Sidewalk	307	0.007		Sidewalk	1,180	0.027		
Landscaped	58,093	1.334		Landscaped	1,271	0.029		Landscaped	113,473	2.605		
Total	128,568	2.952		Total	59,008	1.355		Total	187,576	4.306		



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SHEET NO. 1	DESIGNED BY: LJH/MTF DRAWN BY: LJH/LC CHECKED BY: NAJ APPROVED BY: AJF PROJECT NO: 33846	1822 DOLPHIN DRIVE BEST BUY CITY OF WAUKESHA WAUKESHA COUNTY, WISCONSIN 33846 - STORM WATER AREAS.DWG	EXISTING DRAINAGE AREAS NOTE: DIMENSIONAL DATA IS NOT TO BE OBTAINED BY SCALING ANY PORTION OF THIS DRAWING.	ISSUANCE Permitting 8/25/2021 ##### ##### ##### ##### ##### ##### ##### ##### ##### #####	Batterman engineers surveyors planners 2857 Bartells Drive Beloit, Wisconsin 53511 608.365.4464 www.rhbatterman.com

PROPOSED SITE AREAS								
BF-1			**BF-2**			**BF-3**		
Land Use	Area (SF)	Area (AC)	Land Use	Area (SF)	Area (AC)	Land Use	Area (SF)	Area (AC)
Roof	0	0.000	Roof	0	0.000	Roof	0	0.000
Paved Parking	1,461	0.034	Paved Parking	1,969	0.045	Paved Parking	3,298	0.076
Driveway	4,470	0.103	Driveway	2,412	0.055	Driveway	3,094	0.071
Gravel Driveway	227	0.005	Gravel Driveway	198	0.005	Gravel Driveway	301	0.007
Sidewalk	0	0.000	Sidewalk	0	0.000	Sidewalk	95	0.002
Landscaped	11,640	0.267	Landscaped	5,064	0.116	Landscaped	7,294	0.167
Total	17,798	0.409	Total	9,643	0.221	Total	14,081	0.323
LD-INL			**CB-1**			**BYP-EAST**		
Land Use	Area (SF)	Area (AC)	Land Use	Area (SF)	Area (AC)	Land Use	Area (SF)	Area (AC)
Roof	0	0.000	Roof	0	0.000	Roof	31,636	0.726
Paved Parking	6,090	0.140	Paved Parking	0	0.000	Paved Parking	9,720	0.223
Driveway	510	0.012	Driveway	14,718	0.338	Driveway	29,481	0.677
Gravel Driveway	0	0.000	Gravel Driveway	0	0.000	Gravel Driveway	225	0.005
Sidewalk	0	0.000	Sidewalk	0	0.000	Sidewalk	445	0.010
Landscaped	301	0.007	Landscaped	19,269	0.442	Landscaped	19,221	0.441
Total	6,901	0.158	Total	33,988	0.780	Total	90,728	2.083
BYP-SOUTH			**PROPOSED SITE AREA**					
Land Use	Area (SF)	Area (AC)	Land Use	Area (SF)	Area (AC)			
Roof	240	0.006	Roof	31,876	0.732			
Paved Parking	1,884	0.043	Paved Parking	24,422	0.561			
Driveway	1,282	0.029	Driveway	55,968	1.285			
Gravel Driveway	273	0.006	Gravel Driveway	1,223	0.028			
Sidewalk	204	0.005	Sidewalk	743	0.017			
Landscaped	10,556	0.242	Landscaped	73,344	1.684			
Total	14,438	0.331	Total	187,576	4.306			

Attachment #12

NOT FOR CONSTRUCTION - NOT FOR CONSTRUCTION - NOT FOR CONSTRUCTION - NOT FOR CONSTRUCTION - NOT FOR CONSTRUCTION

PLOT DATE: 8/25/2021 2:14 PM

Batterman engineers surveyors planners
2857 Bartells Drive
608.365.4464
Beloit, Wisconsin 53511
www.rhbatterman.com

ISSUANCE	8/25/2021
Permitting	###
###	###
###	###
###	###
###	###
###	###
###	###

DESIGNED BY:	NAJ
DRAWN BY:	MTF
CHECKED BY:	NAJ
APPROVED BY:	AJF
PROJECT NO:	33846

SHEET NO.
1

PROPOSED DRAINAGE AREAS

1822 DOLPHIN DRIVE
BEST BUY
CITY OF WAUKESHA
WAUKESHA COUNTY, WISCONSIN

33846 - STORM WATER AREAS.DWG

STORMWATER MANAGEMENT SYSTEM MAINTENANCE AGREEMENT

THIS AGREEMENT ("Agreement"), entered into this _____ day of _____, *20__*, by and between Hendricks Commercial Properties, LLC (the "Owner"), and the City of Waukesha, a Wisconsin Municipal Corporation (the "City"), collectively, the "Parties".

RECITALS

A. The Owner is developing certain real property located in the City of Waukesha legally described in paragraph *2* herein (the "Property").

B. The Parties desire to set forth their obligations for the maintenance of certain storm water management improvements on the Property.

NOW THEREFORE, in consideration of the mutual covenants herein set forth and other good and valuable consideration the receipt and sufficiency of which is hereby acknowledged, the Parties hereby agree as follows.

Recording area (Waukesha Co. Register of Deeds)

Send To: City Clerk
City of Waukesha
201 Delafield Street, 1st Floor
Waukesha, WI 53188

WAKC1008077

Parcel Identification Number

1. Sole Agreement. This agreement is the sole applicable agreement pertaining to storm water management for the described Property.

2. Site Legal Description. The Property subject to this agreement is legally described as follows:
PARCEL 3 CSM NO 8397 (V73 CSMP299) & PARCEL 2 CSMNO 8575 (V75 CSM P220) PT SE1/4 SEC 36 T7N R19E4.31 AC DOC NO 4031907 in the City of Waukesha, Waukesha County, Wisconsin.

3. Responsible Party.
a. CONSTRUCTION PHASE MAINTENANCE. The Owner is responsible for satisfying the provisions of this agreement throughout the Property for the duration of the construction and warranty period.

b. POST-CONSTRUCTION PERPETUAL MAINTENANCE. Upon completion of all construction phases and expiration of the warranty period, the Owner shall assume responsibility for maintaining the storm water management system in perpetuity.

4. Permanent Components of the Storm Water Management System.
a. The storm water management system for the property consists of the following management practices or components:

+Grass Swales *+Buffer Strips* *+Bio Infiltration Basin*
+Rip Rap

b. The drainage areas served by the storm water management practices components on this site include the proposed paved areas, buildings, and the disturbed green space.

5. Inspection and Maintenance Schedule.
a. All components of the storm water management system shall be inspected by the Responsible Party:
- at least semiannually in early Spring and early Autumn; and

- within 72 hours following any major storm or flood event of sufficient intensity or duration to pose significant risk of damage to the system.

b. Components to be more frequently inspected by the Responsible Party are listed in Exhibit A for Permanent Maintenance Tasks and Schedule.

c. The Responsible Party shall make the appropriate repairs whenever the performance of a storm water management practice or component is compromised due to sediment or debris.

6. Regulations.
a. Mowing in buffer areas, pond banks and drainage ways shall be minimized to the greatest extent possible in order to maximize filtration of runoff. If occasional mowing is necessary, the mowing height shall be no shorter than six inches.

b. Applications of fertilizers, herbicides, pesticide or other chemical applications are prohibited in buffer areas, on pond banks and along drainage ways, unless specifically authorized by the City Engineer on an individual event basis, and provided that the application is performed by professional personnel certified for that purpose.

c. Snow shall not be dumped directly onto conditioned planting beds designed for bio infiltration, or on sites designated as buffer areas.

7. Maintenance of Inspection Records.
a. The Owner shall maintain records of the results of all site inspections and any enforcement actions, correction actions or other documented contacts and any follow-up actions taken by or at the direction of Owner or Responsible Party for seven years after such action.

b. The City Engineer shall maintain public records of the results of all City inspections of the site, shall inform the Owner of the inspection results, and shall indicate any specific corrective actions required to bring the storm water management practice or component into accordance with this Agreement.

8. Default by Responsible Party. In the event that the City determines that Responsible Party has failed to comply with any of the responsibilities as set forth in this Agreement, the City shall give written notice to Owner identifying any said default and requiring compliance within five working days of receipt of the notice or such longer period of time as specified by the City in the notice. In the event Owner fails to complete any actions required to remedy the default within said five day period, unless extended by the City in writing, Owner consents that City may enter the property on which private storm water management systems and practices are located, correct the default and charge the cost of such corrective action to Owner. If Owner fails to pay for said costs of corrective action then City shall be entitled to place the cost of the corrective action on the tax roll for the Owner's property as a special charge pursuant to Wis. Stats. § 66.0627.

9. Severability. All provisions of this Agreement are severable, and if any one or more provision is deemed unenforceable for any reason, the remaining provisions shall remain in full force and effect.

10. Binding Agreement. All provisions of this Agreement, including the benefits and burdens hereunder, run with the property and are binding upon and inure to the benefit of the parties hereto and their successors and assigns.

11. Amendment; Termination. This Agreement may be amended or terminated by a document signed by the Owner and the City.

12. Requirement to Record. This Agreement and any subsequent amendments thereto shall be recorded at the Waukesha County Register of Deeds.

13. Governing Law. This Agreement at all times shall be enforced in accordance with the laws of the State of Wisconsin.

14. Assignment. A Responsible Party's obligations may not be assigned to another party without the prior written consent of the City except that such consent is not required when a Responsible Party as property owner transfers fee simple title to a buyer who will assume the maintenance responsibilities of the owner / responsible party.

15. Notices. All notices to be given under the terms of this Agreement shall be in writing and signed by the person serving the notice and shall be sent registered or certified mail, return receipt requested, postage prepaid, or hand delivered to the addresses of the parties listed below:

FOR THE CITY: _____
City of Waukesha
201 Delafield Street, 1st Floor
Waukesha, WI 53188
262-524-3550

FOR THE OWNER: _____
Hendricks Commercial Properties, LLC
525 Third Street, Suite 300
Beloit, WI 53511
414-870-7950

IN WITNESS WHEREOF, the parties have executed this Agreement as of the date first written above.

FOR THE OWNER:

By:_____

Name:_____

Title:_____

Date:_____

STATE OF WISCONSIN)
) ss.
COUNTY OF_____)

Personally came before me this _____ day of _____, 20__, the above-named _____, to me known to be the person who executed the foregoing and acknowledged the same.

_____
Notary Public, State of Wisconsin
My Commission: _____

City of Waukesha

By: _____

Name:_____

Title: City Administrator

Date: _____

By: _____

Name:_____

Title: City Clerk .

Date:_____

Exhibit A

PERMANENT MAINTENANCE TASKS AND SCHEDULE

Tasks	Ditches & Swales	Rip-Rap	Bio Infiltration Basins	Storm Detention Areas	Schedule
Inspect for sediment accumulation	**X**		**X**	**X**	Semi-Annually
Removal of sediment accumulation	**X**		**X**	**X**	Every 2 years as needed
Inspect for floatable debris			**X**	**X**	Semi-Annually
Cleaning of floatable debris			**X**	**X**	Annually
Water Plants			**X**		As needed during first grow season
Water as necessary during dry periods			**X**		As needed after first grow season
Treat diseased trees and shrubs			**X**		As needed
Inspection for erosion	**X**	**X**	**X**	**X**	Monthly
Re-establish permanent vegetation on eroded slopes	**X**	**X**	**X**	**X**	As needed
Re-mulch void areas			**X**		As needed
Add additional mulch			**X**		Annually
Replacement of Stone		**X**			Every 3-5 years as needed
Mowing	**X**		**X**	**X**	0 to 2 times per year
Inspect Storm water system components during wet weather and compare to as built plans	**X**	**X**	**X**	**X**	Annually
Make adjustments or replacements as determined by annual weather inspection	**X**	**X**	**X**	**X**	As needed
Keep records of all inspections and maintenance activities			**X**		Annually
Keep records of all costs for inspections maintenance and repairs.			**X**		Annually

Project Description

File Name	33846-BestBuy_SSA.SPF
Description	
	J:\33800-33899\33846 - HCP - 1822 Dolphin Dr., Waukesha\DESIGN\33846 - Design.dwg

Project Options

Flow Units	CFS
Elevation Type	Elevation
Hydrology Method	Rational
Time of Concentration (TOC) Method	SCS TR-55
Link Routing Method	Hydrodynamic
Enable Overflow Ponding at Nodes	YES
Skip Steady State Analysis Time Periods	NO

Analysis Options

Start Analysis On	Aug 24, 2021	00:00:00
End Analysis On	Aug 25, 2021	00:00:00
Start Reporting On	Aug 24, 2021	00:00:00
Antecedent Dry Days	0	days
Runoff (Dry Weather) Time Step	0 01:00:00	days hh:mm:ss
Runoff (Wet Weather) Time Step	0 00:05:00	days hh:mm:ss
Reporting Time Step	0 00:05:00	days hh:mm:ss
Routing Time Step	30	seconds

Number of Elements

	Qty
Rain Gages	0
Subbasins	2
Nodes	6
Junctions	2
Outfalls	2
Flow Diversions	0
Inlets	2
Storage Nodes	0
Links	4
Channels	0
Pipes	4
Pumps	0
Orifices	0
Weirs	0
Outlets	0
Pollutants	0
Land Uses	0

Rainfall Details

Return Period	10 year(s)

Subbasin Summary

SN	Subbasin ID	Area (ac)	Weighted Runoff Coefficient	Total Rainfall (in)	Total Runoff (in)	Total Runoff Volume (ac-in)	Peak Runoff (cfs)	Time of Concentration (days hh:mm:ss)
1	LoadingDocks	0.16	0.9300	0.60	0.56	0.09	1.06	0 00:05:00
2	TruckLot-CB	0.78	0.6100	0.60	0.37	0.29	3.43	0 00:05:00

Node Summary

SN	Element ID	Element Type	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Initial Water Elevation (ft)	Surcharge Elevation (ft)	Ponded Area (ft^2)	Peak Inflow (cfs)	Max HGL Elevation Attained (ft)	Max Surcharge Depth Attained (ft)	Min Freeboard Attained (ft)	Time of Peak Flooding Occurrence (days hh:mm)	Total Flooded Volume (ac-in)	Total Time Flooded (min)
1	1.0 (Storm Sewer)	Junction	877.10	879.29	877.10	879.29	12.57	5.25	878.09	0.00	1.19	0 00:00	0.00	0.00
2	BioPond#3	Junction	878.51	882.97	878.51	882.97	12.57	0.00	879.48	0.00	3.49	0 00:00	0.00	0.00
3	BioPond#1	Outfall	884.70					4.16	884.70					
4	Tie-In_CoW_SS_South	Outfall	876.87					3.93	877.67					

Link Summary

SN	Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Peak Flow Depth	Peak Flow Depth/ Total Depth Ratio	Total Time Surcharged	Reported Condition
					(ft)	(ft)	(ft)	(%)	(in)		(cfs)	(cfs)		(ft/sec)	(ft)		(min)	
1	{Storm Sewer}.0.0 (Storm Sewer)	Pipe	1.0 (Storm Sewer)	Tie-In_CoW_SS_South	50.00	877.10	876.87	0.4500	18.000	0.0130	3.93	7.05	0.56	3.63	0.89	0.59	0.00	Calculated
2	{Storm Sewer}.1.0 (Storm Sewer)	Pipe	BioPond#3	1.0 (Storm Sewer)	299.24	878.51	877.15	0.4500	18.000	0.0130	5.25	7.07	0.74	4.59	0.88	0.62	0.00	Calculated
3	{Storm Sewer}.6.0 (Storm Sewer)	Pipe	TruckManeuverLotInlet	BioPond#1	172.50	886.18	884.80	0.8000	15.000	0.0130	4.16	5.78	0.72	4.86	0.83	0.66	0.00	Calculated
4	{Storm Sewer}.7.0 (Storm Sewer)	Pipe	TrenchDrain	TruckManeuverLotInlet	63.50	886.79	886.28	0.8000	15.000	0.0130	1.04	5.78	0.18	2.14	0.56	0.45	0.00	Calculated

Inlet Summary

SN	Element ID	Inlet Manufacturer	Manufacturer Part Number	Inlet Location	Number of Inlets	Catchbasin Invert Elevation (ft)	Max (Rim) Elevation (ft)	Initial Water Elevation (ft)	Ponded Area (ft²)	Peak Flow (cfs)	Peak Flow Intercepted by Inlet (cfs)	Peak Flow Bypassing Inlet (cfs)	Inlet Efficiency during Peak Flow (%)	Allowable Spread (ft)	Max Gutter Spread during Peak Flow (ft)	Max Gutter Water Elev. during Peak Flow (ft)
1	TrenchDrain	NEENAH FOUNDRY	R-4996-A1	On Sag	67	886.79	888.80	886.79	113.33	1.06	N/A	N/A	N/A	7.00	1.76	888.85
2	TruckManeuverLotInlet	NEENAH FOUNDRY	R-2510	On Sag	1	886.18	889.27	886.18	12.57	3.42	N/A	N/A	N/A	7.00	12.21	889.45

Subbasin Hydrology

Subbasin : LoadingDocks

Input Data

Area (ac) 0.16
Weighted Runoff Coefficient 0.9300

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
Parking, 25 years or greater	0.14	D (2-6%)	0.96
Streets, 25 years or greater	0.01	D (2-6%)	0.91
Open Space, 25 years or greater	0.01	D (2-6%)	0.27
Composite Area & Weighted Runoff Coeff.	0.16		0.93

Time of Concentration

TOC Method : SCS TR-55

Sheet Flow Equation :

Tc = (0.007 * ((n * Lf)^0.8)) / ((P^0.5) * (Sf^0.4))

Where :

Tc = Time of Concentration (hr)
n = Manning's roughness
Lf = Flow Length (ft)
P = 2 yr, 24 hr Rainfall (inches)
Sf = Slope (ft/ft)

Shallow Concentrated Flow Equation :

V = 16.1345 * (Sf^0.5) (unpaved surface)
V = 20.3282 * (Sf^0.5) (paved surface)
V = 15.0 * (Sf^0.5) (grassed waterway surface)
V = 10.0 * (Sf^0.5) (nearly bare & untilled surface)
V = 9.0 * (Sf^0.5) (cultivated straight rows surface)
V = 7.0 * (Sf^0.5) (short grass pasture surface)
V = 5.0 * (Sf^0.5) (woodland surface)
V = 2.5 * (Sf^0.5) (forest w/heavy litter surface)
Tc = (Lf / V) / (3600 sec/hr)

Where:

Tc = Time of Concentration (hr)
Lf = Flow Length (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)

Channel Flow Equation :

V = (1.49 * (R^(2/3)) * (Sf^0.5)) / n
R = Aq / Wp
Tc = (Lf / V) / (3600 sec/hr)

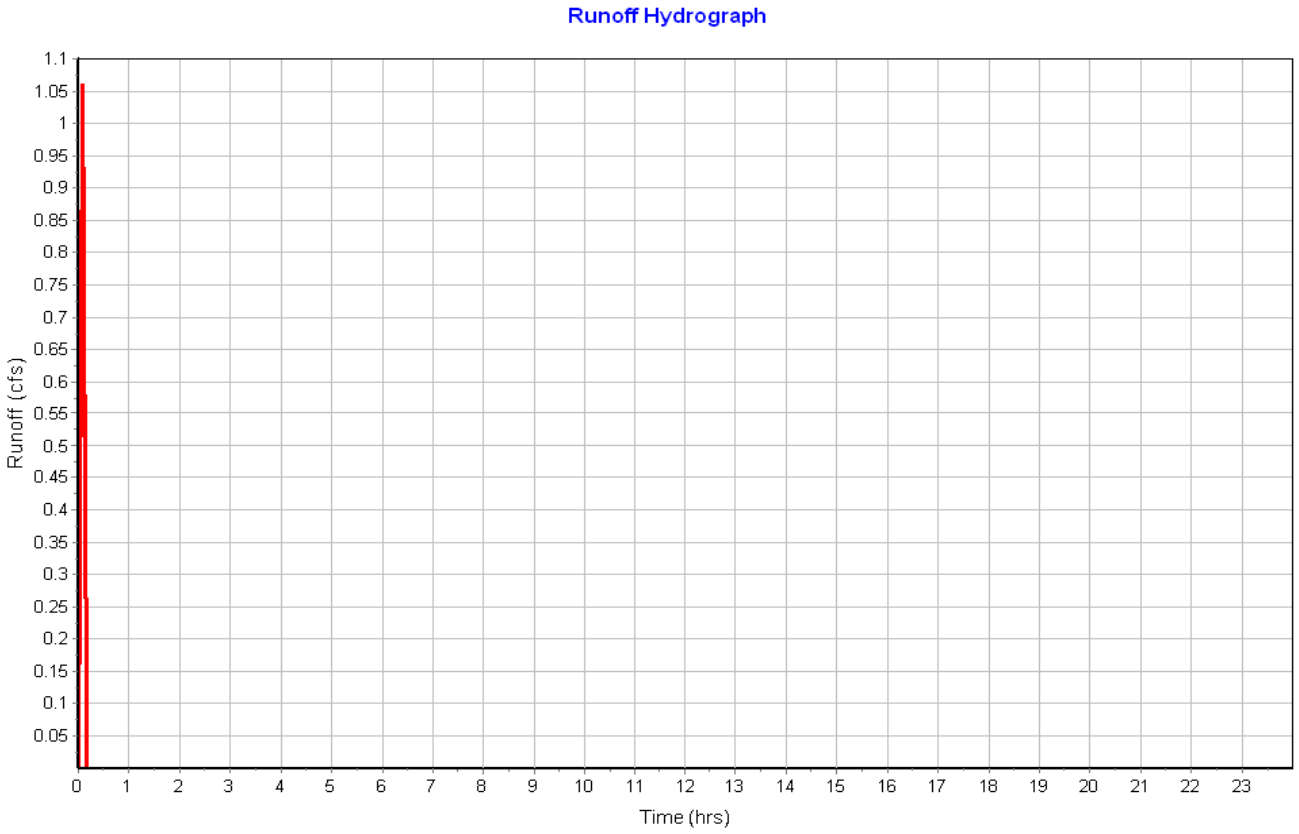
Where :

Tc = Time of Concentration (hr)
Lf = Flow Length (ft)
R = Hydraulic Radius (ft)
Aq = Flow Area (ft²)
Wp = Wetted Perimeter (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)
n = Manning's roughness

Subbasin Runoff Results

Total Rainfall (in)	0.60
Total Runoff (in)	0.56
Peak Runoff (cfs)	1.06
Rainfall Intensity	7.200
Weighted Runoff Coefficient	0.9300
Time of Concentration (days hh:mm:ss)	0 00:00:00

Subbasin : LoadingDocks



Subbasin : TruckLot-CB

Input Data

Area (ac) 0.78
Weighted Runoff Coefficient 0.6100

Runoff Coefficient

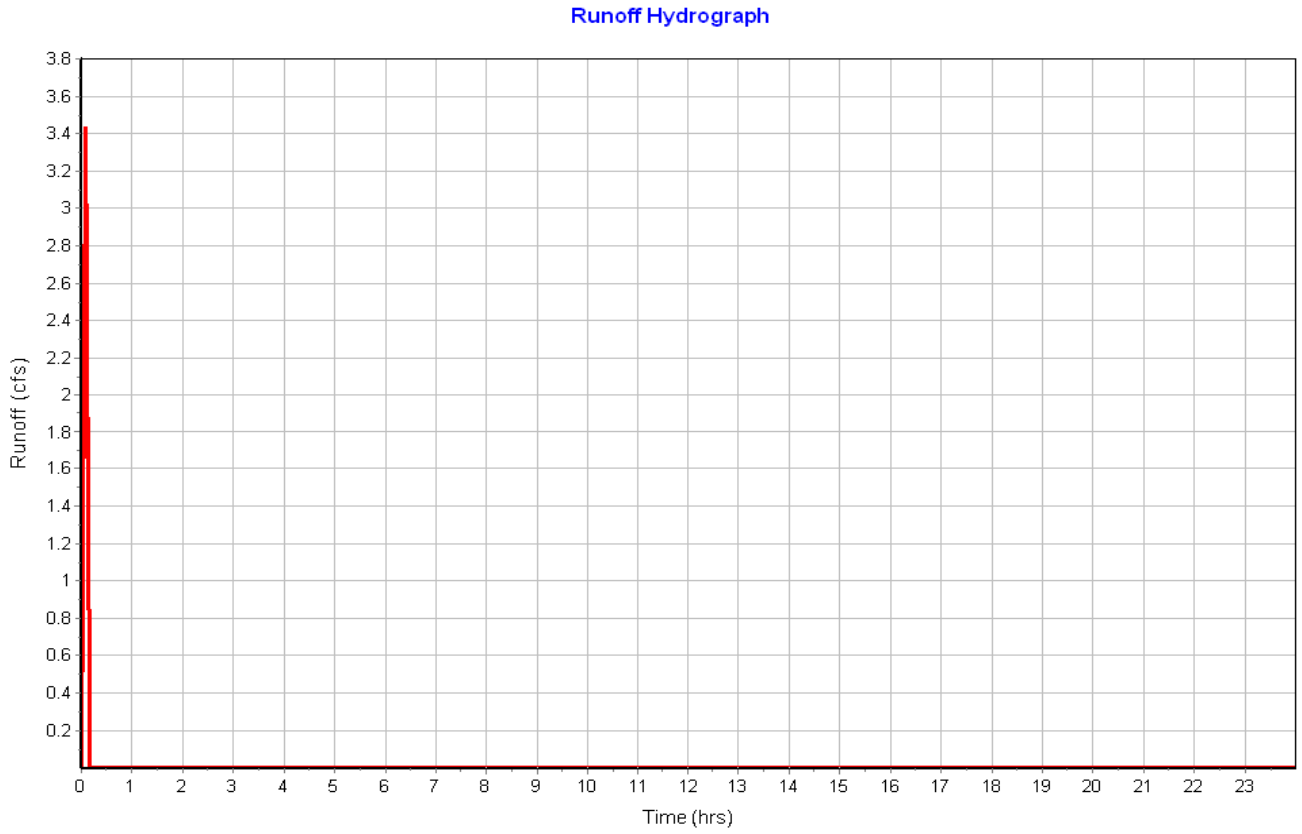
Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
Streets, 25 years or greater	0.34	D (0-2%)	0.89
Open Space, 25 years or greater	0.44	D (6%+)	0.39
Composite Area & Weighted Runoff Coeff.	0.78		0.61

Time of Concentration

Subbasin Runoff Results

Total Rainfall (in) 0.60
Total Runoff (in) 0.37
Peak Runoff (cfs) 3.43
Rainfall Intensity 7.200
Weighted Runoff Coefficient 0.6100
Time of Concentration (days hh:mm:ss) 0 00:00:00

Subbasin : TruckLot-CB



Junction Input

SN	Element ID	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Ground/Rim (Max) Offset (ft)	Initial Water Elevation (ft)	Initial Water Depth (ft)	Surcharge Elevation (ft)	Surcharge Depth (ft)	Ponded Area (ft^2)	Minimum Pipe Cover (in)
1	1.0 (Storm Sewer)	877.10	879.29	2.19	877.10	0.00	879.29	0.00	12.57	0.00
2	BioPond#3	878.51	882.97	4.46	878.51	0.00	882.97	0.00	12.57	0.00

Junction Results

SN	Element ID	Peak Inflow (cfs)	Peak Lateral Inflow (cfs)	Max HGL Elevation Attained (ft)	Max HGL Depth Attained (ft)	Max Surcharge Depth Attained (ft)	Min Freeboard Attained (ft)	Average HGL Elevation Attained (ft)	Average HGL Depth Attained (ft)	Time of Max HGL Occurrence (days hh:mm)	Time of Peak Flooding Occurrence (days hh:mm)	Total Flooded Volume (ac-in)	Total Time Flooded (min)
1	1.0 (Storm Sewer)	5.25	0.00	878.09	0.99	0.00	1.19	877.10	0.00	0 00:00	0 00:00	0.00	0.00
2	BioPond#3	0.00	0.00	879.48	0.97	0.00	3.49	878.51	0.00	0 00:00	0 00:00	0.00	0.00

Pipe Input

SN	Element ID	Length (ft)	Inlet Invert Elevation (ft)	Inlet Invert Offset (ft)	Outlet Invert Elevation (ft)	Outlet Invert Offset (ft)	Total Drop (ft)	Average Slope (%)	Pipe Shape	Pipe Diameter or Height (in)	Pipe Width (in)	Manning's Roughness	Entrance Losses	Exit/Bend Losses
1	{Storm Sewer}.0.0 (Storm Sewer)	50.00	877.10	0.00	876.87	0.00	0.22	0.4500	CIRCULAR	18.000	18.000	0.0130	0.5000	0.5000
2	{Storm Sewer}.1.0 (Storm Sewer)	299.24	878.51	0.00	877.15	0.05	1.36	0.4500	CIRCULAR	18.000	18.000	0.0130	0.5000	0.5000
3	{Storm Sewer}.6.0 (Storm Sewer)	172.50	886.18	0.00	884.80	0.10	1.38	0.8000	CIRCULAR	15.000	15.000	0.0130	0.5000	0.5000
4	{Storm Sewer}.7.0 (Storm Sewer)	63.50	886.79	0.00	886.28	0.10	0.51	0.8000	CIRCULAR	15.000	15.000	0.0130	0.5000	0.5000

Additional Losses	Initial Flow	Flap Gate	No. of Barrels
	(cfs)		
0.0000	0.00	No	1
0.0000	5.38	No	1
0.0000	0.00	No	1
0.0000	0.00	No	1

Pipe Results

SN	Element ID	Peak Flow (cfs)	Time of Peak Flow Occurrence (days hh:mm)	Design Flow Capacity (cfs)	Peak Flow/ Design Flow Ratio	Peak Flow Velocity (ft/sec)	Travel Time (min)	Peak Flow Depth (ft)	Peak Flow Depth/ Total Depth Ratio	Total Time Surcharged (min)	Froude Number	Reported Condition
1	{Storm Sewer}.0.0 (Storm Sewer)	3.93	0 00:00	7.05	0.56	3.63	0.23	0.89	0.59	0.00		Calculated
2	{Storm Sewer}.1.0 (Storm Sewer)	5.25	0 00:00	7.07	0.74	4.59	1.09	0.88	0.62	0.00		Calculated
3	{Storm Sewer}.6.0 (Storm Sewer)	4.16	0 00:05	5.78	0.72	4.86	0.59	0.83	0.66	0.00		Calculated
4	{Storm Sewer}.7.0 (Storm Sewer)	1.04	0 00:05	5.78	0.18	2.14	0.49	0.56	0.45	0.00		Calculated

Inlet Input

SN	Element ID	Inlet Manufacturer	Manufacturer Part Number	Inlet Location	Number of Inlets	Catchbasin Invert Elevation (ft)	Max (Rim) Elevation (ft)	Inlet Depth (ft)	Initial Water Elevation (ft)	Initial Water Depth (ft)	Ponded Area (ft²)	Grate Clogging Factor (%)
1	TrenchDrain	NEENAH FOUNDRY	R-4996-A1	On Sag	67	886.79	888.80	2.01	886.79	0.00	113.33	0.00
2	TruckManeuverLotInlet	NEENAH FOUNDRY	R-2510	On Sag	1	886.18	889.27	3.10	886.18	0.00	12.57	0.00

Roadway & Gutter Input

SN	Element ID	Roadway Longitudinal Slope (ft/ft)	Roadway Cross Slope (ft/ft)	Roadway Manning's Roughness	Gutter Cross Slope (ft/ft)	Gutter Width (ft)	Gutter Depression (in)	Allowable Spread (ft)
1	TrenchDrain	N/A	0.0300	0.0160	0.0300	2.00	0.0000	7.00
2	TruckManeuverLotInlet	N/A	0.0140	0.0160	0.0140	2.00	0.0000	7.00

Inlet Results

SN	Element ID	Peak Flow (cfs)	Peak Lateral Inflow (cfs)	Peak Flow Intercepted by Inlet (cfs)	Peak Flow Bypassing Inlet (cfs)	Inlet Efficiency during Peak Flow (%)	Max Gutter Spread during Peak Flow (ft)	Max Gutter Water Elev. during Peak Flow (ft)	Max Gutter Water Depth during Peak Flow (ft)	Time of Max Depth Occurrence (days hh:mm)	Total Flooded Volume (ac-in)	Total Time Flooded (min)
1	TrenchDrain	1.06	1.06	N/A	N/A	N/A	1.76	888.85	0.05	0 00:05	0.00	0.00
2	TruckManeuverLotInlet	3.42	3.42	N/A	N/A	N/A	12.21	889.45	0.17	0 00:05	0.00	0.00

Project Description

File Name	33846-BestBuy_SSA.SPF
Description	
	J:\33800-33899\33846 - HCP - 1822 Dolphin Dr., Waukesha\DESIGN\33846 - Design.dwg

Project Options

Flow Units	CFS
Elevation Type	Elevation
Hydrology Method	Rational
Time of Concentration (TOC) Method	SCS TR-55
Link Routing Method	Hydrodynamic
Enable Overflow Ponding at Nodes	YES
Skip Steady State Analysis Time Periods	NO

Analysis Options

Start Analysis On	Aug 24, 2021	00:00:00
End Analysis On	Aug 25, 2021	00:00:00
Start Reporting On	Aug 24, 2021	00:00:00
Antecedent Dry Days	0	days
Runoff (Dry Weather) Time Step	0 01:00:00	days hh:mm:ss
Runoff (Wet Weather) Time Step	0 00:05:00	days hh:mm:ss
Reporting Time Step	0 00:05:00	days hh:mm:ss
Routing Time Step	30	seconds

Number of Elements

	Qty
Rain Gages	0
Subbasins	2
Nodes	6
Junctions	2
Outfalls	2
Flow Diversions	0
Inlets	2
Storage Nodes	0
Links	4
Channels	0
Pipes	4
Pumps	0
Orifices	0
Weirs	0
Outlets	0
Pollutants	0
Land Uses	0

Rainfall Details

Return Period	100 year(s)

Subbasin Summary

SN	Subbasin ID	Area (ac)	Weighted Runoff Coefficient	Total Rainfall (in)	Total Runoff (in)	Total Runoff Volume (ac-in)	Peak Runoff (cfs)	Time of Concentration (days hh:mm:ss)
1	LoadingDocks	0.16	0.9300	0.90	0.84	0.13	1.59	0 00:05:00
2	TruckLot-CB	0.78	0.6100	0.90	0.55	0.43	5.14	0 00:05:00

Node Summary

SN	Element ID	Element Type	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Initial Water Elevation (ft)	Surcharge Elevation (ft)	Ponded Area (ft²)	Peak Inflow (cfs)	Max HGL Elevation Attained (ft)	Max Surcharge Depth Attained (ft)	Min Freeboard Attained (ft)	Time of Peak Flooding Occurrence (days hh:mm)	Total Flooded Volume (ac-in)	Total Time Flooded (min)
1	1.0 (Storm Sewer)	Junction	877.10	879.29	877.10	879.29	12.57	5.25	878.09	0.00	1.19	0 00:00	0.00	0.00
2	BioPond#3	Junction	878.51	882.97	878.51	882.97	12.57	0.00	879.48	0.00	3.49	0 00:00	0.00	0.00
3	BioPond#1	Outfall	884.70					5.68	884.70					
4	Tie-In_CoW_SS_South	Outfall	876.87					3.93	877.67					

Link Summary

SN	Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Peak Flow Depth	Peak Flow Depth/ Total Depth Ratio	Total Time Surcharged	Reported Condition
					(ft)	(ft)	(ft)	(%)	(in)		(cfs)	(cfs)		(ft/sec)	(ft)		(min)	
1	{Storm Sewer}.0.0 (Storm Sewer)	Pipe	1.0 (Storm Sewer)	Tie-In_CoW_SS_South	50.00	877.10	876.87	0.4500	18.000	0.0130	3.93	7.05	0.56	3.63	0.89	0.59	0.00	Calculated
2	{Storm Sewer}.1.0 (Storm Sewer)	Pipe	BioPond#3	1.0 (Storm Sewer)	299.24	878.51	877.15	0.4500	18.000	0.0130	5.25	7.07	0.74	4.59	0.88	0.62	0.00	Calculated
3	{Storm Sewer}.6.0 (Storm Sewer)	Pipe	TruckManeuverLotInlet	BioPond#1	172.50	886.18	884.80	0.8000	15.000	0.0130	5.68	5.78	0.98	5.04	1.11	0.89	0.00	Calculated
4	{Storm Sewer}.7.0 (Storm Sewer)	Pipe	TrenchDrain	TruckManeuverLotInlet	63.50	886.79	886.28	0.8000	15.000	0.0130	1.36	5.78	0.24	2.25	0.99	0.79	0.00	Calculated

Inlet Summary

SN	Element ID	Inlet Manufacturer	Manufacturer Part Number	Inlet Location	Number of Inlets	Catchbasin Invert Elevation (ft)	Max (Rim) Elevation (ft)	Initial Water Elevation (ft)	Ponded Area (ft²)	Peak Flow (cfs)	Peak Flow Intercepted by Inlet (cfs)	Peak Flow Bypassing Inlet (cfs)	Inlet Efficiency during Peak Flow (%)	Allowable Spread (ft)	Max Gutter Spread during Peak Flow (ft)	Max Gutter Water Elev. during Peak Flow (ft)
1	TrenchDrain	NEENAH FOUNDRY	R-4996-A1	On Sag	67	886.79	888.80	886.79	113.33	1.58	N/A	N/A	N/A	7.00	2.64	888.88
2	TruckManeuverLotInlet	NEENAH FOUNDRY	R-2510	On Sag	1	886.18	889.27	886.18	12.57	5.13	N/A	N/A	N/A	7.00	18.32	889.53

Subbasin Hydrology

Subbasin : LoadingDocks

Input Data

Area (ac) 0.16
Weighted Runoff Coefficient 0.9300

Runoff Coefficient

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
Parking, 25 years or greater	0.14	D (2-6%)	0.96
Streets, 25 years or greater	0.01	D (2-6%)	0.91
Open Space, 25 years or greater	0.01	D (2-6%)	0.27
Composite Area & Weighted Runoff Coeff.	0.16		0.93

Time of Concentration

TOC Method : SCS TR-55

Sheet Flow Equation :

Tc = (0.007 * ((n * Lf)^0.8)) / ((P^0.5) * (Sf^0.4))

Where :

Tc = Time of Concentration (hr)
n = Manning's roughness
Lf = Flow Length (ft)
P = 2 yr, 24 hr Rainfall (inches)
Sf = Slope (ft/ft)

Shallow Concentrated Flow Equation :

V = 16.1345 * (Sf^0.5) (unpaved surface)
V = 20.3282 * (Sf^0.5) (paved surface)
V = 15.0 * (Sf^0.5) (grassed waterway surface)
V = 10.0 * (Sf^0.5) (nearly bare & untilled surface)
V = 9.0 * (Sf^0.5) (cultivated straight rows surface)
V = 7.0 * (Sf^0.5) (short grass pasture surface)
V = 5.0 * (Sf^0.5) (woodland surface)
V = 2.5 * (Sf^0.5) (forest w/heavy litter surface)
Tc = (Lf / V) / (3600 sec/hr)

Where:

Tc = Time of Concentration (hr)
Lf = Flow Length (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)

Channel Flow Equation :

V = (1.49 * (R^(2/3)) * (Sf^0.5)) / n
R = Aq / Wp
Tc = (Lf / V) / (3600 sec/hr)

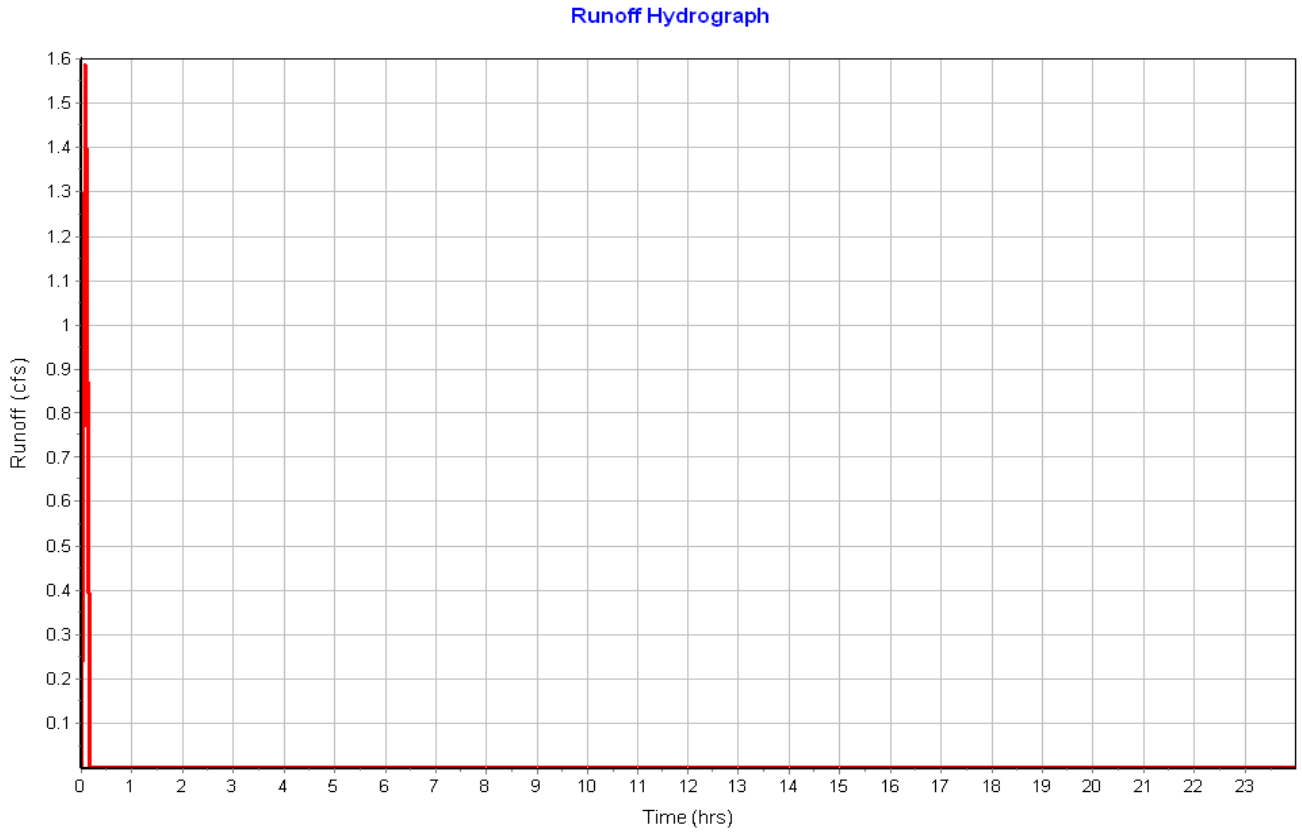
Where :

Tc = Time of Concentration (hr)
Lf = Flow Length (ft)
R = Hydraulic Radius (ft)
Aq = Flow Area (ft²)
Wp = Wetted Perimeter (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)
n = Manning's roughness

Subbasin Runoff Results

Total Rainfall (in)	0.90
Total Runoff (in)	0.84
Peak Runoff (cfs)	1.59
Rainfall Intensity	10.800
Weighted Runoff Coefficient	0.9300
Time of Concentration (days hh:mm:ss)	0 00:00:00

Subbasin : LoadingDocks



Subbasin : TruckLot-CB

Input Data

Area (ac) 0.78
Weighted Runoff Coefficient 0.6100

Runoff Coefficient

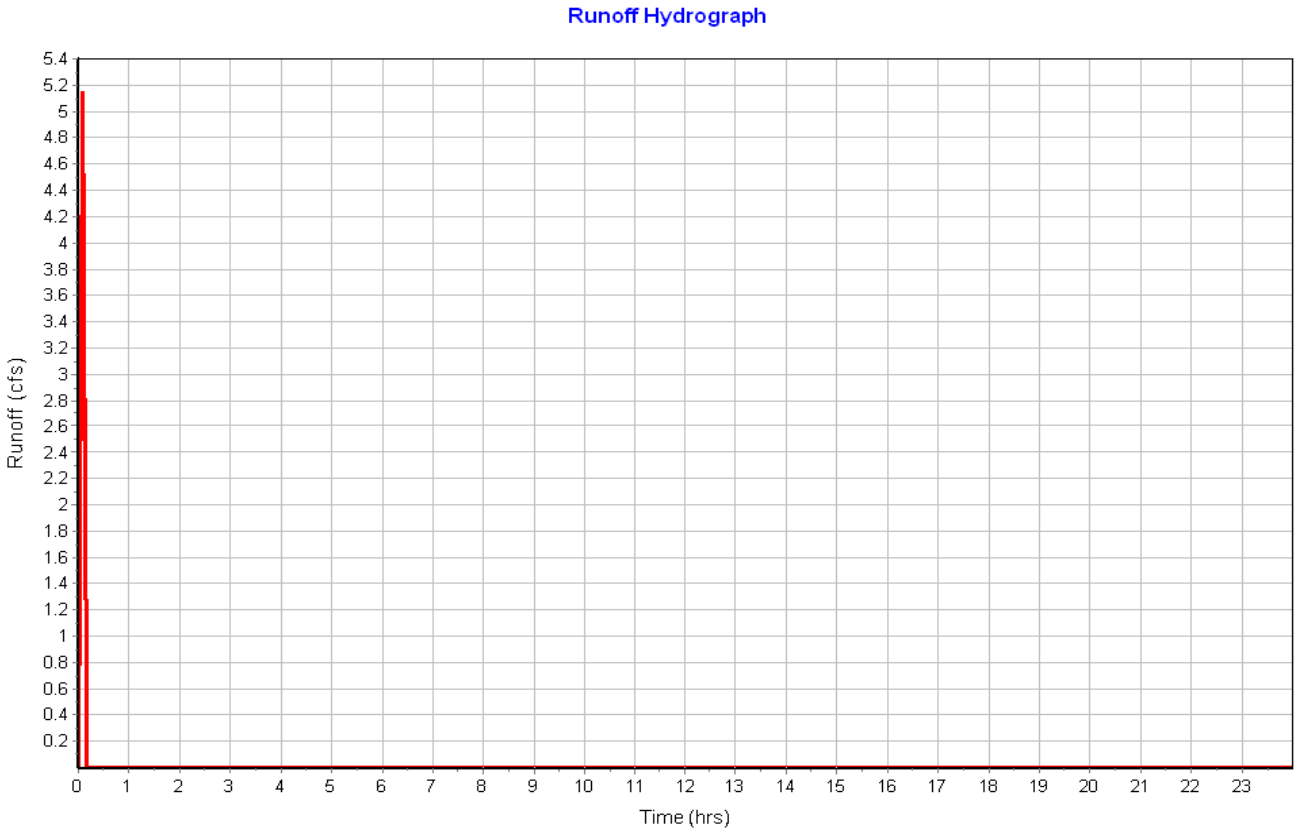
Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
Streets, 25 years or greater	0.34	D (0-2%)	0.89
Open Space, 25 years or greater	0.44	D (6%+)	0.39
Composite Area & Weighted Runoff Coeff.	0.78		0.61

Time of Concentration

Subbasin Runoff Results

Total Rainfall (in) 0.90
Total Runoff (in) 0.55
Peak Runoff (cfs) 5.14
Rainfall Intensity 10.800
Weighted Runoff Coefficient 0.6100
Time of Concentration (days hh:mm:ss) 0 00:00:00

Subbasin : TruckLot-CB



Junction Input

SN	Element ID	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Ground/Rim (Max) Offset (ft)	Initial Water Elevation (ft)	Initial Water Depth (ft)	Surcharge Elevation (ft)	Surcharge Depth (ft)	Ponded Area (ft^2)	Minimum Pipe Cover (in)
1	1.0 (Storm Sewer)	877.10	879.29	2.19	877.10	0.00	879.29	0.00	12.57	0.00
2	BioPond#3	878.51	882.97	4.46	878.51	0.00	882.97	0.00	12.57	0.00

Junction Results

SN	Element ID	Peak Inflow (cfs)	Peak Lateral Inflow (cfs)	Max HGL Elevation Attained (ft)	Max HGL Depth Attained (ft)	Max Surcharge Depth Attained (ft)	Min Freeboard Attained (ft)	Average HGL Elevation Attained (ft)	Average HGL Depth Attained (ft)	Time of Max HGL Occurrence (days hh:mm)	Time of Peak Flooding Occurrence (days hh:mm)	Total Flooded Volume (ac-in)	Total Time Flooded (min)
1	1.0 (Storm Sewer)	5.25	0.00	878.09	0.99	0.00	1.19	877.10	0.00	0 00:00	0 00:00	0.00	0.00
2	BioPond#3	0.00	0.00	879.48	0.97	0.00	3.49	878.51	0.00	0 00:00	0 00:00	0.00	0.00

Pipe Input

SN	Element ID	Length (ft)	Inlet Invert Elevation (ft)	Inlet Invert Offset (ft)	Outlet Invert Elevation (ft)	Outlet Invert Offset (ft)	Total Drop (ft)	Average Slope (%)	Pipe Shape	Pipe Diameter or Height (in)	Pipe Width (in)	Manning's Roughness	Entrance Losses	Exit/Bend Losses
1	{Storm Sewer}.0.0 (Storm Sewer)	50.00	877.10	0.00	876.87	0.00	0.22	0.4500	CIRCULAR	18.000	18.000	0.0130	0.5000	0.5000
2	{Storm Sewer}.1.0 (Storm Sewer)	299.24	878.51	0.00	877.15	0.05	1.36	0.4500	CIRCULAR	18.000	18.000	0.0130	0.5000	0.5000
3	{Storm Sewer}.6.0 (Storm Sewer)	172.50	886.18	0.00	884.80	0.10	1.38	0.8000	CIRCULAR	15.000	15.000	0.0130	0.5000	0.5000
4	{Storm Sewer}.7.0 (Storm Sewer)	63.50	886.79	0.00	886.28	0.10	0.51	0.8000	CIRCULAR	15.000	15.000	0.0130	0.5000	0.5000

Additional Losses	Initial Flow	Flap Gate	No. of Barrels
	(cfs)		
0.0000	0.00	No	1
0.0000	5.38	No	1
0.0000	0.00	No	1
0.0000	0.00	No	1

Pipe Results

SN	Element ID	Peak Flow (cfs)	Time of Peak Flow Occurrence (days hh:mm)	Design Flow Capacity (cfs)	Peak Flow/ Design Flow Ratio	Peak Flow Velocity (ft/sec)	Travel Time (min)	Peak Flow Depth (ft)	Peak Flow Depth/ Total Depth Ratio	Total Time Surcharged (min)	Froude Number	Reported Condition
1	{Storm Sewer}.0.0 (Storm Sewer)	3.93	0 00:00	7.05	0.56	3.63	0.23	0.89	0.59	0.00		Calculated
2	{Storm Sewer}.1.0 (Storm Sewer)	5.25	0 00:00	7.07	0.74	4.59	1.09	0.88	0.62	0.00		Calculated
3	{Storm Sewer}.6.0 (Storm Sewer)	5.68	0 00:06	5.78	0.98	5.04	0.57	1.11	0.89	0.00		Calculated
4	{Storm Sewer}.7.0 (Storm Sewer)	1.36	0 00:06	5.78	0.24	2.25	0.47	0.99	0.79	0.00		Calculated

Inlet Input

SN	Element ID	Inlet Manufacturer	Manufacturer Part Number	Inlet Location	Number of Inlets	Catchbasin Invert Elevation (ft)	Max (Rim) Elevation (ft)	Inlet Depth (ft)	Initial Water Elevation (ft)	Initial Water Depth (ft)	Ponded Area (ft²)	Grate Clogging Factor (%)
1	TrenchDrain	NEENAH FOUNDRY	R-4996-A1	On Sag	67	886.79	888.80	2.01	886.79	0.00	113.33	0.00
2	TruckManeuverLotInlet	NEENAH FOUNDRY	R-2510	On Sag	1	886.18	889.27	3.10	886.18	0.00	12.57	0.00

Roadway & Gutter Input

SN	Element ID	Roadway Longitudinal Slope (ft/ft)	Roadway Cross Slope (ft/ft)	Roadway Manning's Roughness	Gutter Cross Slope (ft/ft)	Gutter Width (ft)	Gutter Depression (in)	Allowable Spread (ft)
1	TrenchDrain	N/A	0.0300	0.0160	0.0300	2.00	0.0000	7.00
2	TruckManeuverLotInlet	N/A	0.0140	0.0160	0.0140	2.00	0.0000	7.00

Inlet Results

SN	Element ID	Peak Flow (cfs)	Peak Lateral Inflow (cfs)	Peak Flow Intercepted by Inlet (cfs)	Peak Flow Bypassing Inlet (cfs)	Inlet Efficiency during Peak Flow (%)	Max Gutter Spread during Peak Flow (ft)	Max Gutter Water Elev. during Peak Flow (ft)	Max Gutter Water Depth during Peak Flow (ft)	Time of Max Depth Occurrence (days hh:mm)	Total Flooded Volume (ac-in)	Total Time Flooded (min)
1	TrenchDrain	1.58	1.58	N/A	N/A	N/A	2.64	888.88	0.08	0 00:06	0.00	0.00
2	TruckManeuverLotInlet	5.13	5.13	N/A	N/A	N/A	18.32	889.53	0.26	0 00:05	0.00	0.00

R.H. Batterman & Co., Inc.
2857 Bartells Drive
Beloit, WI 53511
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August 25, 2021

ENGINEER'S OPINION OF PROBABLE COST FOR:
1822 DOLPHIN DRIVE - BEST BUY WAUKESHA
WAUKESHA COUNTY, WISCONSIN

Item No.	Item	Quantity	Units	Unit Prices Dollars/Cents	Total Amount Dollars/Cents
	BASE BID ITEMS				
1	EXCAVATION, COMMON	1,055	CY	10.00	10,553.89
2	ENGINEERED SOIL (2' DEPTH)	223	CY	15.00	3,340.97
3	PLANTINGS FOR BIO RETENTION PONDS	3,007	SF	0.50	1,503.44
4	TRENCH DRAIN	135	LF	50.00	6,750.00
5	UNDERDRAIN PIPING	364	LF	30.00	10,920.00
6	STORM SEWER PIPE	585	LF	30.00	17,550.00
7	STORM SEWER MANHOLE STRUCTURES	1	EA	4,000.00	4,000.00
8	STORM SEWER INLET STRUCTURES	3	EA	1,500.00	4,500.00
9	CONNECT STORM SEWER TO PUBLIC SYSTEM CURB INLET	1	EA	1,500.00	1,500.00
10	CONNECT STORM SEWER TO PUBLIC SYSTEM CATCH BASIN	1	EA	1,500.00	1,500.00
11	RECONSTRUCT DRAINAGE CATCH BASIN	1	EA	2,000.00	2,000.00
12	RESTORATION	1	LS	10,000.00	10,000.00
	BASE BID OPINION OF PROBABLE CONSTRUCTION COST				74,118.29
	10% CONTINGENCY				7,411.83
	TOTAL OPINION OF PROBABLE COST				81,530.12

HENDRICKS COMMERCIAL PROPERTIES

1822 DOLPHIN DRIVE

CITY OF WAUKESHA
WAUKESHA COUNTY, WISCONSIN

LEGEND

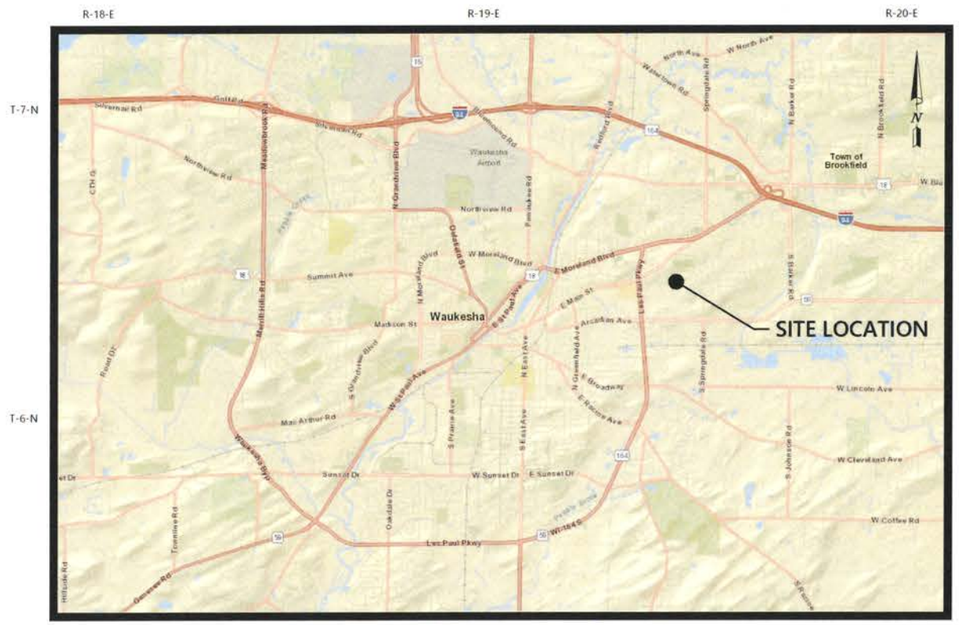
- Existing Telephone
- Existing Underground Fiber Optic
- Existing Gas Main
- Existing Electric
- Existing Cable Television
- Existing Watermain
- Existing Storm Sewer
- Existing Sanitary Sewer
- Existing Curb Inlet
- Existing Sanitary Manhole
- Existing Storm Manhole
- Existing Telephone Pedestal
- Existing Electric Pedestal
- Existing Utility Vault
- Existing Pull Box
- Existing Transformer
- Existing Electric Box
- Existing Gas Meter
- Existing Fire Hydrant
- Existing Water Valve
- Existing Electric Meter
- Existing Light Pole
- Existing Sign
- Existing Bollard
- Coniferous Tree
- Deciduous Tree
- Existing Treeline
- Existing Boundary Line
- Existing Adjacent Property
- Existing Easement Line
- Saw Cut
- Existing Contour Line
- Proposed Contour Line
- Proposed Storm Sewer
- Proposed Reject Curb & Gutter
- HMA Pavement

DIGGERS HOTLINE

Dial 811 or (800) 242-8511

www.DiggersHotline.com

THE LOCATION OF UTILITIES ARE DEPICTED BY OBSERVED EVIDENCE, FROM RECORD PLANS (IF MADE AVAILABLE) AND MARKINGS REQUESTED PURSUANT TO A UTILITY LOCATE. HOWEVER, LACKING EXCAVATION, THE EXACT LOCATION OF UNDERGROUND FEATURES CANNOT BE ACCURATELY, COMPLETELY AND RELIABLY DEPICTED.



DISTANCE UNITS BASED ON THE UNITED STATES SURVEY FOOT. BEARINGS BASED ON THE WISCONSIN COUNTY COORDINATE SYSTEM, WAUKESHA ZONE. VERTICAL DATUM BASED ON NAVD-88 (2012).

SHEET LIST

WISCONSIN
ALEXANDER J. FEULING
E-47074
JANESVILLE
WIS.
PROFESSIONAL ENGINEER

8-25-2021

DESIGN CONSULTANT
R.H. Batterman & Co., Inc.
Alex Feuling, PE
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afeuling@rhbatterman.com

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CITY OF WAUKESHA CONTACTS

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City Engineering
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FIRE DEPARTMENT
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Fire Marshal
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Fire Station 1
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NOT FOR CONSTRUCTION - NOT FOR CONSTRUCTION - NOT FOR CONSTRUCTION - NOT FOR CONSTRUCTION - NOT FOR CONSTRUCTION - NOT FOR CONSTRUCTION

Batterman engineers surveyors planners
2857 Bartells Drive Beloit, Wisconsin 53511
608.365.4464 www.rhbatterman.com

ISSUANCE
CITY SUBMITTAL #1 08/25/2021

COVER SHEET

NOTE: DIMENSIONAL DATA IS NOT TO BE OBTAINED BY SCALING ANY PORTION OF THIS DRAWING.

HENDRICKS COMMERCIAL PROPERTIES
1822 DOLPHIN DRIVE
CITY OF WAUKESHA
WAUKESHA COUNTY, WISCONSIN
33846 - C1.01 - COVER SHEET.DWG

DESIGNED BY:	MF, LH, NJ	APPROVED BY:	FM
DRAWN BY:	LC	PROJECT NO:	33846
CHECKED BY:	AF		

SHEET NO.
C1.01

PLOT DATE: 8/25/2021 2:05 PM

GENERAL NOTES

1. REFER TO SPECIFIC LOCAL CODES FOR ALL WORK ITEMS. THE LATEST EDITION OF "STANDARD SPECIFICATIONS FOR SEWER & WATER CONSTRUCTION IN WISCONSIN", "WISCONSIN DEPARTMENT OF COMMERCE STATE PLUMBING CODE", MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS" AND "STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION, CURRENT EDITION" AS ADOPTED BY THE STATE OF WISCONSIN, DEPARTMENT OF TRANSPORTATION, HEREINAFTER REFERRED TO AS THE STANDARD SPECIFICATIONS SHALL APPLY TO THIS PROJECT; UNLESS SPECIFIED ELSEWHERE IN THE PROJECT PLANS OR CONTRACT DOCUMENTS. IN THE EVENT OF CONFLICT BETWEEN THE STANDARD SPECIFICATIONS, OR MUNICIPAL SPECIFICATIONS, PROJECT SPECIFICATIONS SHALL TAKE PRECEDENCE AND SHALL GOVERN.

2. GEOTECHNICAL EVALUATION HAS NOT BEEN CONDUCTED FOR THIS SITE. SUB-SURFACE SOIL CONDITIONS WERE ASSUMED TO BE CONSISTENT WITH THE US DEPARTMENT OF AGRICULTURE (USDA), NATURAL RESOURCES CONSERVATION SERVICES (NRCS) WEB SOIL SURVEY CUSTOM SOIL RESOURCE REPORT. IT SHALL BE EXPRESSLY UNDERSTOOD THAT OWNER WILL NOT BE RESPONSIBLE FOR ANY INTERPRETATIONS OR CONCLUSIONS DRAWN THEREFROM BY THE CONTRACTOR. DATA IS MADE AVAILABLE FOR THE CONVENIENCE OF THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR PERFORMING ANY ADDITIONAL SOILS INVESTIGATIONS THEY FEEL IS NECESSARY FOR THE PROPER EVALUATION OF THE SITE FOR PURPOSES OF PLANNING, BIDDING, OR CONSTRUCTION OF THE PROJECT AT NO ADDITIONAL COST TO THE OWNER.

3. THE INTENTION OF THE PLANS AND SPECIFICATIONS IS TO SET FORTH PERFORMANCE AND CONSTRUCTION MATERIAL STANDARDS FOR THE PROPER EXECUTION OF WORK. ALL WORK CONTAINED WITHIN THE PLANS AND SPECIFICATIONS SHALL BE COMPLETED IN ACCORDANCE WITH ALL REQUIREMENTS FROM LOCAL, STATE, FEDERAL, OR OTHER GOVERNING AGENCY'S LAWS, REGULATIONS, JURISDICTIONAL ORDINANCES/CODES/RULES/ETC. AND THE ENGINEER'S, OWNER'S AND GOVERNING AGENCY'S DIRECTION.

4. THE CONTRACTOR IS RESPONSIBLE TO REVIEW AND UNDERSTAND ALL COMPONENTS OF THE PLANS AND SPECIFICATIONS, INCLUDING FIELD VERIFYING SOIL CONDITIONS, PRIOR TO SUBMISSION OF A BID PROPOSAL.

5. THE CONTRACTOR SHALL PROMPTLY REPORT ANY ERRORS OR AMBIGUITIES LEARNED AS PART OF THEIR REVIEW OF PLANS, SPECIFICATIONS, REPORTS AND FIELD INVESTIGATIONS.

6. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE COMPUTATION OF QUANTITIES AND WORK REQUIRED TO COMPLETE THIS PROJECT. THE CONTRACTOR'S BID SHALL BE BASED ON ITS OWN COMPUTATIONS AND IN NO SUCH INSTANCE RELY ON THE ENGINEER'S ESTIMATE.

7. QUESTIONS/CLARIFICATIONS WILL BE INTERPRETED BY ENGINEER/OWNER PRIOR TO THE AWARD OF CONTRACT. ENGINEER/OWNER WILL SUBMIT OFFICIAL RESPONSES IN WRITING. INTERPRETATIONS PRESENTED IN OFFICIAL RESPONSES SHALL BE BINDING ON ALL PARTIES ASSOCIATED WITH THE CONTRACT. IN NO WAY SHALL WORD-OF-MOUTH DIALOG CONSTITUTE AN OFFICIAL RESPONSE.

8. PRIOR TO START OF WORK, CONTRACTOR SHALL BE COMPLETELY FAMILIAR WITH ALL CONDITIONS OF THE SITE, AND SHALL ACCOUNT FOR CONDITIONS THAT AFFECT, OR MAY AFFECT CONSTRUCTION INCLUDING, BUT NOT LIMITED TO, LIMITATIONS OF WORK ACCESS, SPACE LIMITATIONS OF WORK ACCESS, SPACE LIMITATIONS, OVERHEAD OBSTRUCTIONS, TRAFFIC PATTERNS, LOCAL REQUIREMENTS, ADJACENT ACTIVITIES, ETC. FAILURE TO CONSIDER SITE CONDITIONS SHALL NOT BE CAUSE FOR CLAIM OF JOB EXTRAS.

9. COMMENCEMENT OF CONSTRUCTION SHALL EXPLICITLY CONFIRM THAT THE CONTRACTOR HAS REVIEWED THE PLANS AND SPECIFICATIONS IN ENTIRETY AND CERTIFIES THAT THEIR SUBMITTED BID PROPOSAL CONTAINS PROVISIONS TO COMPLETE THE PROJECT, WITH THE EXCEPTION OF UNFORESEEN FIELD CONDITIONS; ALL APPLICABLE PERMITS HAVE BEEN OBTAINED; AND CONTRACTOR UNDERSTANDS ALL OF THE REQUIREMENTS OF THE PROJECT.

10. SHOULD ANY DISCREPANCIES OR CONFLICTS IN THE PLANS OR SPECIFICATIONS BE DISCOVERED AFTER THE AWARD OF THE CONTRACT, ENGINEER/OWNER SHALL BE NOTIFIED IN WRITING IMMEDIATELY AND CONSTRUCTION OF ITEMS AFFECTED BY THE DISCREPANCIES/CONFLICTS SHALL NOT COMMENCE, OR CONTINUE, UNTIL A WRITTEN RESPONSE FROM ENGINEER/OWNER IS DISTRIBUTED.

11. THE CONTRACTOR SHALL, AT ITS OWN EXPENSE, OBTAIN ALL NECESSARY PERMITS AND LICENSES TO COMPLETE THE PROJECT. OBTAINING PERMITS, OR DELAYS, IS NOT CAUSE FOR DELAY OF THE CONTRACT OR SCHEDULE. CONTRACTOR SHALL COMPLY WITH ALL PERMIT REQUIREMENTS.

12. THE CONTRACTOR SHALL NOTIFY ALL INTERESTED GOVERNING AGENCIES, UTILITY COMPANIES AFFECTED BY THIS CONSTRUCTION PROJECT, AND DIGGER'S HOTLINE IN ADVANCE OF CONSTRUCTION TO COMPLY WITH ALL JURISDICTIONAL ORDINANCES/CODES/RULES/ETC., PERMIT STIPULATION, AND OTHER APPLICABLE STANDARDS. THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES FOR FIELD LOCATIONS OF THEIR FACILITIES PRIOR TO BEGINNING CONSTRUCTION. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE MAINTENANCE AND PRESERVATION OF THESE FACILITIES. ANY UTILITY LOCATIONS SHOWN ON THE PLANS ARE BASED ON AVAILABLE RECORDS AND ARE FOR GENERAL DIRECTION ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING LOCATIONS OF ALL UNDERGROUND UTILITIES SUCH AS GAS MAIN, SANITARY AND STORM SEWER, WATER, ETC., AT THE TIME OF CONSTRUCTION. THE CONTRACTOR SHALL FIELD VERIFY ELEVATIONS, SIZES, CONDITIONS AND MATERIALS OF ALL EXISTING UTILITIES, INCLUDING AND ESPECIALLY AT ALL TIE-IN OR POTENTIAL CONFLICT POINTS. THE FIELD VERIFICATION SHALL OCCUR PRIOR TO ANY WORK BEING PERFORMED. ANY DEVIATIONS FROM PLAN INFORMATION SHALL BE PROVIDED TO THE ENGINEER IN WRITING WITHIN 24 HOURS OF THE VERIFICATION AND, IN EVERY CASE, PRIOR TO THE START OF CONSTRUCTION. IF THE CONTRACTOR STARTS WORK WITHOUT NOTIFYING THE ENGINEER OF ANY DISCREPANCIES, THEN THE CONTRACTOR SHALL ASSUME ALL RESPONSIBILITY FOR CORRECTIVE OR OTHER MEASURES NECESSARY TO CONSTRUCT THE UTILITY OR SYSTEM. THE CONTRACTOR SHALL INFORM THE ENGINEER AND THE RESPONSIBLE MUNICIPAL DEPARTMENT BEFORE WORK COMMENCES ON EACH CATEGORY OF CONSTRUCTION (I.E. ELECTRIC, WATER MAIN, SANITARY, STREET, AND STORM SEWER IMPROVEMENT). A TWENTY-FOUR (24) HOUR NOTICE SHALL BE GIVEN FOR ANY ITEM THAT REQUIRES FINAL TESTING AND INSPECTION.

20. SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE TO INITIATE, INSTITUTE, ENFORCE, MAINTAIN, AND SUPERVISE ALL SAFETY PRECAUTIONS AND JOB SITE SAFETY PROGRAMS IN CONNECTION WITH THE WORK.

21. THE CONTRACTOR SHALL KEEP THE JOBSITE CLEAN AND ORDERLY AT ALL TIMES. ALL LOCATIONS OF THE SITE SHALL BE KEPT IN A WORKING MANNER SUCH THAT DEBRIS IS REMOVED CONTINUOUSLY AND ALL RESPECTIVE CONTRACTORS OPERATE UNDER GENERAL "GOOD HOUSEKEEPING." THE CONTRACTOR SHALL TAKE ALL NECESSARY STEPS TO CONTROL DUST ARISING FROM CONSTRUCTION OPERATIONS. THE ENGINEER, OWNER, OR GOVERNING AGENCY MAY ORDER WATER TO BE SPREAD FOR DUST CONTROL. CONTRACTOR SHALL ALSO KEEP PAVED ROADWAYS AS CLEAN AS POSSIBLE AND MAY BE ORDERED BY THE ENGINEER, OWNER, OR GOVERNING AGENCY TO CLEAN STREETS AS REQUIRED. ALL DUST CONTROL MEASURES AND STREET CLEANING WILL BE CONSIDERED INCIDENTAL TO THE PROJECT.

22. THE CONTRACTOR SHALL INDEMNIFY THE OWNER, ENGINEER, AND THEIR AGENTS FROM ALL LIABILITY INVOLVED WITH THE CONSTRUCTION, INSTALLATION, AND TESTING OF THE WORK ON THIS PROJECT.

23. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER BRACING, SHORING, AND OTHER REQUIRED PROTECTION OF ALL ROADWAYS BEFORE CONSTRUCTION BEGINS. HE SHALL BE RESPONSIBLE FOR ANY DAMAGE TO THE STREETS OR ROADWAYS AND ASSOCIATED STRUCTURES AND SHALL MAKE REPAIRS AS NECESSARY TO THE SATISFACTION OF THE ENGINEER.

24. THE ENGINEER/OWNER/GOVERNING AGENCY AND THEIR REPRESENTATIVES SHALL BE ALLOWED ACCESS TO THE SITE AT ALL TIMES. THE CONTRACTOR SHALL TAKE WHATEVER STEPS NECESSARY TO ASSURE ON-SITE SAFETY, ACCESSIBILITY AND FULL COOPERATION WITH THE REPRESENTATIVE. THE REPRESENTATIVE SHALL BE ALLOWED AT ALL TIMES TO INSPECT QUANTITY AND QUALITY OF THE WORK AND MATERIALS AND SHALL BE GIVEN THE AUTHORITY TO REJECT WORK AND/OR MATERIALS THAT DO NOT COMPLY WITH THE PLANS AND SPECIFICATIONS. THE FINAL ACCEPTANCE OF THE WORK SHALL BE AUTHORIZED BY THE ENGINEER/OWNER/GOVERNING AGENCY.

25. THE CONTRACTOR SHALL MAINTAIN ACCESS TO LOCAL RESIDENTS, BUSINESSES AND EMERGENCY SERVICE VEHICLES AT ALL TIMES.

26. THE CONTRACTOR SHALL PRESERVE ALL SURVEY MONUMENTS, OR THEY SHALL BE REPLACED BY A LICENSED WISCONSIN LAND SURVEYOR AT THE CONTRACTOR'S EXPENSE IF DISTURBED OR DESTROYED.

27. IF REQUIRED, THE CITY OF WAUKESHA'S INDEMNIFICATION AND INSURANCE REQUIREMENTS SHALL BE PROVIDED BY THE CONTRACTOR AS IDENTIFIED IN THE PRE-CONSTRUCTION MEETING.

R.H. BATTERMAN AND COMPANY, INC.
ENGINEER'S LIMITATION

R.H. BATTERMAN AND COMPANY, INC. AND THEIR CONSULTANTS DO NOT WARRANT OR GUARANTEE THE ACCURACY AND COMPLETENESS OF THE DELIVERABLES HEREIN BEYOND REASONABLE DILIGENCE. IF ANY MISTAKES, OMISSIONS, OR DISCREPANCIES ARE FOUND TO EXIST WITHIN THE DELIVERABLES, THE ENGINEER SHALL BE PROMPTLY NOTIFIED PRIOR TO BID SO THAT HE MAY HAVE THE OPPORTUNITY TO TAKE WHATEVER STEPS NECESSARY TO RESOLVE THEM. FAILURE TO PROMPTLY NOTIFY THE ENGINEER OF SUCH CONDITIONS SHALL ABSOLVE THE ENGINEER FROM ANY RESPONSIBILITY FOR THE CONSEQUENCES OF SUCH FAILURE. ACTIONS TAKEN WITHOUT THE KNOWLEDGE AND CONSENT OF THE ENGINEER, OR IN CONTRADICTION TO THE ENGINEER'S DELIVERABLES OR RECOMMENDATIONS, SHALL BECOME THE RESPONSIBILITY NOT OF THE ENGINEER BUT OF THE PARTIES RESPONSIBLE FOR TAKING SUCH ACTION.

FURTHERMORE, R.H. BATTERMAN AND COMPANY, INC. IS NOT RESPONSIBLE FOR CONSTRUCTION SAFETY OR THE MEANS AND METHODS OF CONSTRUCTION.

EARTHWORK AND PAVING

1. THE CONTRACTOR SHALL EXAMINE THE DRAINAGE PATTERNS SHOWN ON THE PLANS AND MAKE CERTAIN THAT ALL GUTTER FLAGS AND PAVEMENTS ARE PITCHED PROPERLY TO ACHIEVE THIS DRAINAGE PATTERN. THE CONTRACTOR SHALL GRADE THE PROJECT AREA TO PREVENT ACCUMULATIONS OF WATER WITHIN THE EXCAVATION AREAS DURING PERIODS OF PRECIPITATION. ANY SUBGRADE AREA WHICH COLLECTS WATER SHALL BE IMMEDIATELY PUMPED TO REMOVE THE ACCUMULATED WATER. CONSTRUCTION EQUIPMENT SHALL NOT TRAVEL ON THE SUBGRADE SURFACE SUSCEPTIBLE TO INSTABILITY DUE TO WET CONDITIONS. ANY DEWATERING OF THE SITE SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT. THIS WORK IS CONSIDERED INCIDENTAL TO THE PROJECT AND WILL INCLUDE, AS A MINIMUM:
   - 1.A. SHAPING THE SUBGRADE AND BASE COURSE TO DRAIN AWAY FROM THE CENTER AND TOWARD THE EDGE.
   - 1.B. PROVIDING SUMPS AND PUMPS AT THE OUTER EDGES OF THE ROADWAY TO REMOVE STANDING WATER AS NECESSARY.
   - 1.C. REDUCING THE POTENTIAL INFILTRATION OF WATER IN SUBGRADE SOIL BY ROLLING OR OTHER MEANS TO SEAL THE SURFACE SOILS OR BASE COURSE AT THE END OF EACH DAY'S CONSTRUCTION OR WHEN RAIN IS THREATENING.

2. COMPACTION AREAS TO BE COMPACTED TO A MINIMUM 95% OF MAXIMUM DRY DENSITY AS DETERMINED BY THE MODIFIED PROCTOR TEST (ASTMD1557).

3. THE CONTRACTOR SHALL CONDUCT A PROOF ROLL OF THE SUBGRADE AND AGGREGATE BASE OF PAVED AREAS PRIOR TO FINAL SHAPING FOR PAVING PREPARATIONS.

CITY OF WAUKESHA

1. ALL SITE IMPROVEMENTS AND CONSTRUCTION SHOWN ON THE PLANS SHALL CONFORM TO THE CURRENT CITY OF WAUKESHA DESIGN AND CONSTRUCTION MANUAL. WHERE THE PLANS DO NOT COMPLY, IT SHALL BE THE SOLE RESPONSIBILITY AND EXPENSE OF THE DEVELOPER TO MAKE REVISIONS TO THE PLANS AND/OR CONSTRUCTED INFRASTRUCTURE TO COMPLY.

Abbreviations/Definitions

AC	Acres	PC	Point of Curvature
BFE	Basement Floor Elevation	PI	Point of Intersection
BM	Benchmark	PL	Property Line
BOC	Back of Curb	PLE	Permanent Limited Easement
BSL	Building Setback Line	PT	Point of Tangency
CL	Centerline	RCP	Reinforced Concrete Pipe
CPCS	Culvert Pipe Corrugated Steel	R/L	Reference Line
CSM	Certified Survey Map	R/W	Right-of Way Line
CTH	County Highway	SF	Square Feet
DIA	Diameter	STA	Station
ELEV	Elevation	STH	State Highway
EX	Existing	SW	Sidewalk
FFE	Finished Floor Elevation	SY	Square Yard
HDPE	High Density Polyethlene	TLE	Temporary Limited Easement
INV	Invert	TYP	Typical
LF	Linear Foot	USH	United States Highway
MH	Manhole	VCL	Vertical Curve Length

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608.365.4464
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ISSUANCE	
CITY SUBMITTAL #1	08/25/2021
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-	-
-	-

GENERAL NOTES

HENDRICKS COMMERCIAL PROPERTIES
1822 DOLPHIN DRIVE
CITY OF WAUKESHA
WAUKESHA COUNTY, WISCONSIN

33846 - C1.02 - GENERAL NOTES.DWG

DESIGNED BY:	MF, LH, NJ
DRAWN BY:	LC
CHECKED BY:	AF
APPROVED BY:	FM
PROJECT NO:	33846

SHEET NO.

C1.02

PLOT DATE: 8/25/2021 2:05 PM

I. EXECUTIVE SUMMARY

The ..... contractor, site work contractor, and all subcontractors involved with a construction activity that disturbs site soil or who implement a pollutant control measure identified in the Storm Water Pollution Prevention Plan (SWPPP) must comply with the following requirements of the National Pollution Discharge Elimination Systems (NPDES) General Permit of the local governing agency having jurisdiction concerning erosion and sedimentation control (City Of Waukesha).

Submittal of a completed Notice of Intent (NOI) to the Wisconsin DNR, is mandatory for any landowner who intends to discharge storm water from a construction site to waters of the state. A completed NOI must be submitted to the DNR for approval.

A. A copy of the Notice of Intent (NOI) and a description of the project must be posted in a prominent place for public viewing at the construction site.

B. Complete copy of the SWPPP, including copies of all inspection reports, plan revisions, etc., must be retained at the project site at all times during working hours and kept in the permanent project records for at least six years following submission of the Notice of Termination (NOT).

C. The general contractor and sitework contractor must provide names and addresses of all subcontractors working on this project who will be involved with the major construction activities that disturb site soil. That information must be kept with this SWPPP.

D. As described previously, regular inspections must be made to determine effectiveness of the SWPPP. It would be modified as needed to prevent pollutants from discharging from the site. The inspector must be a person familiar with the site, the nature of the major construction activities, and qualified to evaluate both overall system performance and individual component performance. Additionally, the inspector must either be someone empowered to implement modifications to this SWPPP and the pollutant control devices, if needed, in order to increase effectiveness to an acceptable level, or someone with the authority to cause such things to happen.

E. This SWPPP must be updated each time there are significant modifications to the pollutant prevention system or a change of contractors working on the project who disturb site soil. The general contractor and/or sitework contractor must notify the governing review agency as soon as these modifications are implemented.

F. Discharge of oil or other hazardous substances into the storm water is subject to reporting and cleanup requirements.

G. Once the site reaches final stabilization, the general contractor and/or sitework contractor must complete and submit a Notice of Termination (NOT).

H. This SWPPP intends to control water-borne and liquid pollutant discharges by some combination of interception, filtration, and containment. The general contractor, site work contractor, and subcontractors implementing this SWPPP must remain alert to the need to periodically refine and update the SWPPP in order to accomplish the intended goals.

I. This SWPPP must be amended as necessary during the course of construction in order to keep it current with the pollutant control measures utilized at the site. Amending the SWPPP does not mean that it has to be reprinted. It is acceptable to add addenda, sketches, new sections, and/or revised drawings.

J. A record of the dates when major grading activities occur, when construction activities temporarily or permanently cease on a portion of the site, and when stabilization measures are initiated must be maintained until the NOT is filed.

II. INTRODUCTION

This SWPPP has been prepared for major activities associated with construction of the Hendricks Commercial Properties

This SWPPP includes the elements necessary to comply with the national baseline general permit for construction activities administered by the U.S. Environmental Protection Agency (EPS) under the National Pollutant Discharge Elimination System (NPDES) program and all local governing agency requirements. This SWPPP must be implemented at the start of construction.

Construction phase pollutant sources anticipated at the site are disturbed (bare) soil, vehicle fuels and lubricants, chemicals associated with building construction, and building materials. Without adequate control there is the potential for each type of pollutant to be transported by storm water.

Project construction will consist primarily of mass grading, new driveway, parking, and loading dock construction, and restoration.

A. Purpose

A major goal of pollution prevention efforts during project construction is to control soil and pollutants that originate on the site and prevent them from flowing to surface waters. The purpose of the SWPPP is to provide guidelines for achieving that goal. A successful pollution prevention program also relies upon careful inspection and adjustments during the construction process in order to enhance its effectiveness.

B. Scope

This SWPPP must be implemented before construction begins on the site. It primarily addresses the impact of storm rainfall and runoff on areas of the ground surface disturbed during the construction process. In addition, there are recommendations for controlling other sources of pollution that could accompany the major construction activities. This SWPPP will terminate when disturbed areas are stabilized, construction activities covered herein have ceased, and a completed Notice of Termination (NOT) is mailed to the Wisconsin DNR.

The national baseline General Permit for Storm Water Discharges from Construction Activities prohibits most non-storm water discharges during the construction phase. Allowable non-storm water discharges that could occur during construction on this project, which would therefore be covered by the General permit, include:

1. Discharge from fire fighting activities
2. Fire hydrant flushing
3. Water used to wash vehicles or control dust
4. Water flowing from potable sources and water line flushing
5. Irrigation drainage
6. External building wash down which does not use detergents
7. Runoff from pavement wash down where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents have not been used
8. Air conditioning condensate
9. Springs and uncontaminated groundwater, and
10. Foundation or footing drains where flows are not contaminated with process materials such as solvents.

The techniques described in this SWPPP focus on providing control of pollutant discharges with practical approaches that utilize readily available expertise, materials, and equipment.

The Owner referred to in this SWPPP is the Hendricks Commercial Properties

The general contractor will construct the site development improvements while working under contract with the Owner.

III. PROJECT DESCRIPTION AND SITE SEQUENCING

Described below are the major construction activities that are the subject of this SWPPP. They are presented in the order (or sequence) they are expected to begin, but each activity will not necessarily be completed before the next begins. Also, activities could occur in a different order if necessary to maintain adequate erosion and sedimentation control:

A. Construct rock tracking pads for construction entrance/exit. This will be the first construction work on the project.

B. Install erosion control practices down slope from construction activities that disturb site soil.

C. Construct rock surface for temporary parking if needed

D. Demolition - Remove Existing Structures Complete.

E. Roadway Construction - Install site roads and modify drainage structures. Be sure all all disturbed areas have erosion protection devices installed downslope.

F. Final Grading - Provide final grading of any remaining unstablized areas and immediately stabilize remainder of site.

The actual schedule for implementing pollutant control measures will be determined by project construction progress. Down slope protective measures must always be in place before soil is disturbed.

IV. SITE DESCRIPTION

Included as part of this SWPPP are the project construction drawings. Refer to them for detailed site information.

A. Site Location - 1822 Dolphin Dr Waukesha, WI

V. STORM WATER POLLUTION PREVENTION MEASURES AND CONTROLS

A variety of storm water pollutant controls are recommended for this project. Some controls are intended to function temporarily and will be used as needed for pollutant control during the construction period. These include temporary silt fence. For most disturbed areas, permanent stabilization will be accomplished by covering the soil with pavement, building, or vegetation.

A. Erosion and Sediment Controls

1. Soil Stabilization - The purpose of soil stabilization is to prevent soil from leaving the site, in the natural condition, soil is stabilized by native vegetation. The primary technique to be used at this project for stabilizing site soil will be to provide a protective cover of turf grass.

   a. Temporary Seeding - Within 14 days after construction activity ceases on any particular area, all disturbed ground where there will not be construction for longer than 21 days must be seeded with fast-germinating temporary seed and protected with mulch.

   b. Permanent Seeding - All areas at final grade must be seeded within 14 days after completion of the major construction activity. Except for small level spots, seeded areas should generally be protected with mulch.

   c. Structural Controls - See the Grading Plan and associated details for construction information of the proposed outlet control structures, storm sewer, etc.

Final site stabilization is achieved when turf grass cover provides permanent stabilization for at least 70 percent of the disturbed soil surface, exclusive of areas that have been paved.

B. Other Pollutant Controls

Control of sediments has been described previously. Other aspects of this SWPPP are

1. Dust Control - Construction traffic must enter and exit the site at the stabilized construction entrance. The purpose is to trap dust and mud that would otherwise be carried off site by construction traffic.

2. Solid Waste Disposal - No solid materials, including building materials, are allowed to be discharged from the site with storm water. All solid waste, including disposable materials incidental to the major construction activities, must be collected and placed in containers. The containers will be emptied periodically by a contract trash disposal service and hauled away from the site. Substances that have the potential for polluting surface and/or groundwater must be controlled by whatever means necessary in order to ensure that they do not discharge from the site. As an example, special care must be exercised during equipment fueling and servicing operations. If a spill occurs, it must be contained and disposed so that it will not flow from the site or enter groundwater, even if this requires removal, treatment, and disposal of soil. In this regard, potentially polluting substances should be handled in a manner consistent with the impact they present.

3. Sanitary Facilities - All personnel involved with construction activities must comply with state and local sanitary or septic system regulations. Temporary sanitary facilities will be provided at the site throughout the construction phase. They must be utilized by all construction personnel and will be serviced by a commercial operator.

4. Water Source - Non-storm water components of site discharge must be clean water. Water used for construction which discharges from the site, must originate from a public water supply or private well approved by the State Health Department. Water used for construction that does not originate from an approved public supply must not discharge from the site. It can be retained in the ponds until it infiltrates and evaporates.

5. Long-Term Pollutant controls - Storm water pollutant control measures installed during construction, that will also provide benefits after construction, include grassed areas, partially perforated pipe, and storm water outlet structures that will trap some sediment and allow for regular maintenance and cleanout. Those silt fences that do not interfere with normal operations and appear to provide long-term benefits can be left in place after construction is completed.

C. Construction Phase "Best Management Practices"

During the construction phase, the general contractor will implement the following

1. Material resulting from the clearing and grubbing operation will be stockpiled up slope from adequate sedimentation controls.

2. The general contractor will designate areas for equipment cleaning, maintenance, and repair. The general contractor and subcontractors will utilize those areas. The areas will be protected by a temporary perimeter berm.

3. Use of detergents for large scale washing is prohibited (i.e., vehicles, buildings, pavement surfaces, etc.).

4. Chemicals, paints, solvents, fertilizers, and other toxic material must be stored in waterproof containers. Except during application, the contents must be kept in trucks or within storage facilities. Runoff containing such material must be collected, removed from the site, treated, and disposed at an approved solid waste or chemical disposal

VI. LOCAL PLANS

In addition to this SWPPP, construction activities associated with this project must comply with any guidelines set forth by the local regulatory agency (City Of Waukesha)

If there are multi permits or guidelines the contractor shall follow the most stringent.

VII. INSPECTIONS AND SYSTEM MAINTENANCE

Between the time this SWPPP is implemented and final site stabilization is achieved, all disturbed areas and pollutant controls must be inspected at least once every seven calendar days and within 24 hours following a rainfall of 0.5 inches or greater or snowfall 6" or greater.

The purpose of site inspections is to assess performance of pollutant controls. The inspections will be conducted by the general contractor/sitework contractor's representative. Based on these inspections, the general contractor will decide whether it is necessary to modify this SWPPP, add or relocate silt fence, or whatever else may be needed in order to prevent pollutants from leaving the site via storm water runoff. The general contractor has the duty to cause pollutant control measures to be repaired, modified, maintained, supplemented, or whatever else is necessary in order to achieve effective pollutant control.

Examples of particular items to evaluate during site inspections are listed below. This list is not intended to be comprehensive. During each inspection the inspector must evaluate overall pollutant control system performance as well as particular details of individual system components. Additional factors should be considered as appropriate to the circumstances.

A. Locations where vehicles enter and exit the site must be inspected for evidence of off site sediment tracking. A stabilized construction entrance will be constructed where vehicles enter and exit. This entrance will be maintained or supplemented as necessary to prevent sediment from leaving the site on vehicles.

B. Silt fence must be inspected and, if necessary, they must be enlarged or cleaned in order to provide additional capacity. All material excavated from behind silt fence will be stockpiled on the up slope side. Additional silt fence must be constructed as needed.

C. Inspections will evaluate disturbed areas and areas used for storing materials that are exposed to rainfall for evidence of, or the potential for, pollutants entering the drainage system. If necessary, the materials must be covered or original covers must be repaired or supplemented. Also, protective berms must be constructed, if needed, in order to contain runoff from material storage areas.

D. Grassed areas will be inspected to confirm that a healthy stand of grass is maintained. The site has achieved final stabilization once all areas are covered with building foundation or pavement, or have a stand of grass with at least 70 percent density. the density of 70 percent or greater must be maintained to be considered as stabilized. Areas must be watered, fertilized, and reseeded as needed to achieve this goal.

E. All discharge points must be inspected to determine whether erosion control measures are effective in preventing significant impacts to receiving waters.

Based on inspection results, any modification necessary to increase effectiveness of the SWPPP to an acceptable level must be made within seven calendar days of the inspection. The inspection reports must be completed entirely and additional remarks should be included if needed to fully describe a situation. An important aspect of the inspection report is the description of additional measures that need to be taken to enhance plan effectiveness. The inspection report must identify whether the site was in compliance with the SWPPP at the time of inspection and specifically identify all incidents of non-compliance.

Inspection reports must be kept on file by the general contractor as an integral part of this SWPPP for at least six years from the date of completion of the project.

Ultimately, it is the responsibility of the general/sitework contractor to assure the adequacy of site pollutant discharge controls. Actual physical site conditions or contractor practices could make it necessary to install more structural controls than are shown on the plans. (ie; localized concentrations of runoff could make it necessary to install additional silt fence. Assessing the need for additional controls and implementing them or adjusting existing controls will be a continuing aspect of this SWPPP until the site achieves final stabilization.

Batterman engineers surveyors planners
2857 Bartells Drive
608.365.4464
Beloit, Wisconsin 53511
www.rhbatterman.com

ISSUANCE	
CITY SUBMITTAL #1	08/25/2021
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-	-
-	-
-	-

EROSION CONTROL NOTES

HENDRICKS COMMERCIAL PROPERTIES
1822 DOLPHIN DRIVE
CITY OF WAUKESHA
WAUKESHA COUNTY, WISCONSIN

33846 - C1.03 - EROSION CONTROL NOTES.DWG

DESIGNED BY:	MF, LH, NJ
DRAWN BY:	LC
CHECKED BY:	AF
APPROVED BY:	FM
PROJECT NO:	33846

SHEET NO.

C1.03

PLOT DATE: 8/25/2021 2:05 PM

BENCHMARK & CONTROL POINT TABLE				
POINT NO.	NORTHING	EASTING	ELEVATION	DESCRIPTION
900	164344.130	693773.875	897.48	CP MAG
911	164063.830	693738.242	884.41	CP MAG FRM 900 BS 901
1000	164219.933	693680.965	891.07	BM CUT SQ

NOT FOR CONSTRUCTION - NOT FOR CONSTRUCTION - NOT FOR CONSTRUCTION - NOT FOR CONSTRUCTION

PLOT DATE: 8/25/2021 2:06 PM

Batterman
engineers surveyors planners
2857 Bartells Drive
608.365.4464
Beloit, Wisconsin 53511
www.rhbatterman.com

ISSUANCE

CITY SUBMITTAL #1	08/25/2021
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-	-
-	-
-	-

PROJECT OVERVIEW

HENDRICKS COMMERCIAL PROPERTIES
1822 DOLPHIN DRIVE
CITY OF WAUKESHA
WAUKESHA COUNTY, WISCONSIN

33846 - C2.01 - PROJECT OVERVIEW.DWG

DESIGNED BY:	MF, LH, NJ
DRAWN BY:	LC
CHECKED BY:	AF
APPROVED BY:	RM
PROJECT NO:	33846

SHEET NO.

C2.01

1805 SHEPHERD COURT
WAKC1008052001
HILLPARK LLC

1809 SHEPHERD COURT
WAKC1008048011
OAK HILL LTD PARTNERSHIP

PRIVATE DRIVEWAY

STORM MANHOLE
RIM EL.=901.42'
NORTH 24" CORRUGATED PLASTIC INVERT EL.=896.32'
SOUTH 24" CORRUGATED PLASTIC INVERT EL.=890.52'

15' U.E. WISCONSIN ELECTRIC POWER CO. & WISCONSIN BELL, INC.

0 15 30 60

N

STORM MANHOLE
RIM EL.=884.25'
WEST INVERT EL.=880.45'

ROUND INLET
RIM EL.=889.99'
NORTH 24" CORRUGATED PLASTIC INVERT EL.=885.79'
SOUTH 30" CORRUGATED PLASTIC INVERT EL.=885.29'

20' STORM SEWER AND DRAINAGE EASEMENT (CITY OF WAUKESHA)

1209 MARLIN COURT
WAKC1008076
IPTL LLC

ROUND INLET
RIM EL.=891.08'
NORTH 30" CORRUGATED PLASTIC INVERT EL.=884.88'
SOUTH 30" CORRUGATED PLASTIC INVERT EL.=884.78'

30' SANITARY SEWER, STORM SEWER, AND DRAINAGE EASEMENT (CITY OF WAUKESHA)

1814 DOLPHIN DRIVE
WAKC1008078
TPMILLER INVESTMENTS LLC

EXISTING BUILDING
F.F.E. = 892.77
1822 DOLPHIN DRIVE
WAKC1008077
HENDRICKS COMMERCIAL PROPERTIES

EXISTING DUMPSTER ENCLOSURE
EXISTING ELECTRIC METER
EXISTING OVERHEAD DOOR
EXISTING DOCKS
EXISTING GAS METER
EXISTING MAN DOOR W/ STAIRS
EXISTING MAN DOOR W/ STAIRS
MAIN ENTRANCE
EXISTING TRANSFORMER

STORM MANHOLE
RIM EL.=890.36'
NORTH 30" CORRUGATED PLASTIC INVERT EL.=884.66'
SOUTHEAST 14" CORRUGATED PLASTIC INVERT EL.=884.96'
SOUTH 24" CORRUGATED PLASTIC INVERT EL.=884.36'

ROUND INLET
RIM EL.=888.66'
NORTHWEST 14" CORRUGATED PLASTIC INVERT EL.=884.81'

ROUND INLET
RIM EL.=886.02'
SOUTHEAST 6" PLASTIC INVERT EL.=882.92'

SANITARY MANHOLE
RIM EL.=887.57'
NORTH INVERT EL.=874.03'
EAST INVERT EL.=874.07'
SOUTH INVERT EL.=873.97'

STORM MANHOLE
RIM EL.=886.33'
NORTH 24" CORRUGATED PLASTIC INVERT EL.=880.23'
SOUTH 187" CORRUGATED PLASTIC INVERT EL.=879.83'

SIDEWALK CORNER EASEMENT

CURB INLET
RIM EL.=882.65'
SOUTH 18" CORRUGATED PLASTIC INVERT EL.=876.70'
NORTH 18" CORRUGATED PLASTIC INVERT EL.=876.75'

SANITARY MANHOLE
RIM EL.=881.47'
NORTH INVERT EL.=862.17'
WEST INVERT EL.=861.12'
SOUTH INVERT EL.=861.32'
EAST INVERT EL.=861.57'
EAST INVERT EL.=868.97'

SANITARY MANHOLE
RIM EL.=877.69'
WEST INVERT EL.=859.39'
EAST INVERT EL.=859.49'

BY U.E. (AMERITECH WISCONSIN INC. & TIME WARNER, INC.)

SANITARY MANHOLE
RIM EL.=880.11'
WEST INVERT EL.=860.41'
EAST INVERT EL.=860.36'

CURB INLET
RIM EL.=881.53'
SOUTH 12" CONCRETE INVERT EL.=877.53'

DOLPHIN DRIVE

MARLIN COURT

ASPH

CONC

NOT FOR CONSTRUCTION - NOT FOR CONSTRUCTION - NOT FOR CONSTRUCTION - NOT FOR CONSTRUCTION

PLOT DATE: 8/25/2021 2:06 PM

Batterman
engineers surveyors planners
2857 Bartells Drive
608.365.4464
Beloit, Wisconsin 53511
www.rhbatterman.com

ISSUANCE	08/25/2021
CITY SUBMITTAL #1	-
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-	-
-	-
-	-
-	-
-	-

EXISTING CONDITIONS

NOTE: DIMENSIONAL DATA IS NOT TO BE OBTAINED BY SCALING ANY PORTION OF THIS DRAWING

HENDRICKS COMMERCIAL PROPERTIES
1822 DOLPHIN DRIVE
CITY OF WAUKESHA
WAUKESHA COUNTY, WISCONSIN

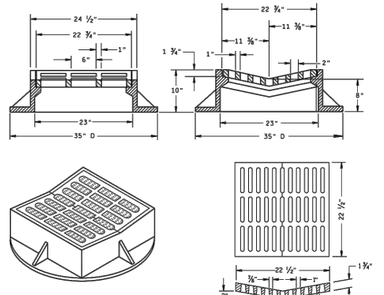
33846 - C2.02 - EXISTING CONDITIONS.DWG

DESIGNED BY:	MF, LH, NJ
DRAWN BY:	LC
CHECKED BY:	AF
APPROVED BY:	FM
PROJECT NO:	33846

SHEET NO.

C2.02

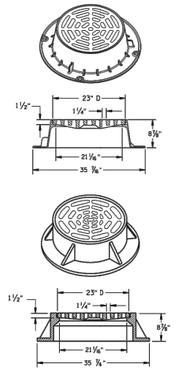
8A5 sheet b: Inlet Covers Type B, B-A, C, MS, MS-A, & WM



TYPE "B"

ALTERNATIVE GRATE FOR TYPE "B" COVER

USE WHERE PEDESTRIAN OR BICYCLE TRAFFIC IS POSSIBLE.
NOTED AS TYPE B-A ON THE DRAINAGE TABLE



TYPE "C"

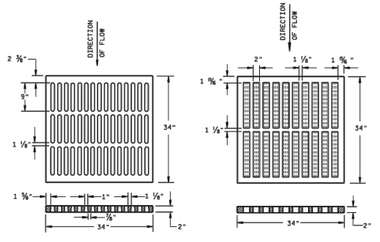
NOTE: EITHER CASTING IS ACCEPTABLE

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR CATCH BASIN, MANHOLE AND INLET COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ROUND FRAMES AND COVERS SHALL HAVE CONTINUOUSLY MACHINED BEARING SURFACES TO PREVENT ROCKING AND RATTLING.

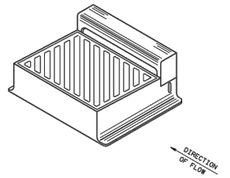


ALTERNATIVE TYPE "MS"

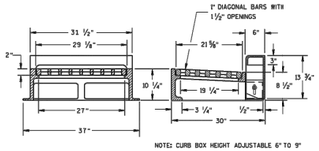
USE WHERE PEDESTRIAN OR BICYCLE TRAFFIC IS PERMITTED
NOTED AS TYPE MS-A ON THE DRAINAGE TABLE

TYPE "MS"

USE ON FREEWAYS AND EXPRESSWAYS
NOTED AS TYPE MS ON DRAINAGE TABLE



DIAGONAL SLOTS, SHALL BE ORIENTED TO THE DIRECTION OF FLOW AS ILLUSTRATED. GRATES ARE MANUFACTURED TO BE REVERSIBLE.



NOTE: CURB BOX HEIGHT ADJUSTABLE 6" TO 9"

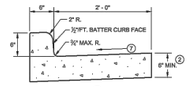
TYPE "WM"

INLET COVERS TYPE B, B-A, C, MS, MS-A, & WM
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION
APPROVED 5/27/2015 DATE — /S/ Jerry M. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA

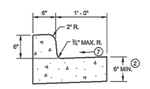
S.D.D. 8 A 5-19b

S.D.D. 8 A 5-19b

SDD 08D01-a Concrete Curb and Gutter



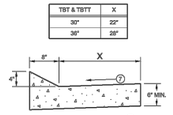
TYPES A① & D



TYPES A① & D

CONCRETE CURB AND GUTTER 18"

TBT & TBTT	X
30"	22"
36"	28"



TYPES TBT & TBTT①

CONCRETE CURB AND GUTTER

GENERAL NOTES

DETAILS OF CONSTRUCTION AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 805.2.6.2 OF THE STANDARD SPECIFICATIONS.

INTEGRAL CURB AND GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB AND GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE.

UNLESS OTHERWISE SHOWN ON THE TYPICAL CROSS SECTIONS, THE BASE AGGREGATE AND COMMON EXCAVATION LIMITS ARE 2' - 0" BEHIND THE BACK OF CURBS.

① TIE BARS ARE REQUIRED FOR CURB AND GUTTERS TYPES A, G, K, R, AND TBTT.

② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.

③ USE 8" MINIMUM GUTTER THICKNESS WHEN USED WITH AN ADJACENT CONCRETE TRUCK APRON PLACED BEHIND BACK OF CURB.

④ THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 8" MINIMUM GUTTER THICKNESS IS MAINTAINED.

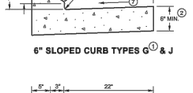
⑤ UNLESS OTHERWISE NOTED, FOR STAKING PURPOSES THE FACE OF CURB IS 6" FROM THE BACK OF CURB.

⑥ WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATION(S) WILL BE SHOWN ELSEWHERE IN THE PLAN.

⑦ USE 4% GUTTER CROSS SLOPE UNLESS OTHERWISE NOTED IN THE PLANS.

⑧ INCLUDE LONGITUDINAL JOINT AND TIE BARS ALONG LANE EDGE WHEN CONCRETE PANEL WIDTH EXCEEDS THE MAXIMUM WIDTH PER TABLE BELOW. LONGITUDINAL JOINT(S) ARE NOT ALLOWED WITHIN TRAFFIC LANES AND BIKE LANES. LONGITUDINAL JOINT MAY BE SAWED.

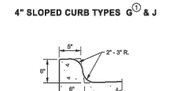
⑨ CONCRETE CURB AND GUTTER 4-INCH SLOPED 30-INCH TYPE "R" AND "T" = 17 INCHES
CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE "R" AND "T" = 23 INCHES



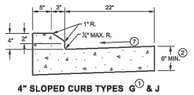
6" SLOPED CURB TYPES A① & D

PAVEMENT THICKNESS AND MAXIMUM CONCRETE PANEL WIDTH TABLE

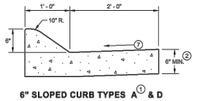
PAVEMENT THICKNESS	MAXIMUM PANEL WIDTH
LESS THAN 10"	12'
10" & ABOVE	15'



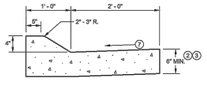
6" SLOPED CURB TYPES G① & J



4" SLOPED CURB TYPES G① & J



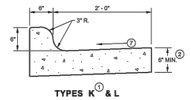
6" SLOPED CURB TYPES A① & D



4" SLOPED CURB TYPES A① & D

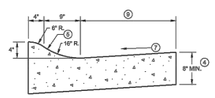
CONCRETE CURB AND GUTTER 36"

TYPES K① & L
(OPTIONAL CURB SHAPE)

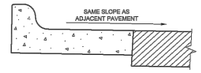


TYPES K① & L

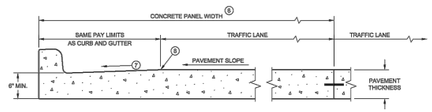
CONCRETE CURB AND GUTTER 30"



4" SLOPED CURB TYPES R① & T



REVERSE SLOPE GUTTER⑨
(TYPICAL FOR ALL CURB & GUTTER TYPES)



PARTIAL SECTION OF PAVEMENT * WITH INTEGRAL CURB AND GUTTER

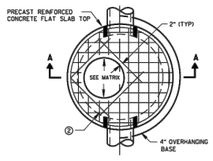
* BIKE LANE IS NOT SHOWN

CONCRETE CURB AND GUTTER
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

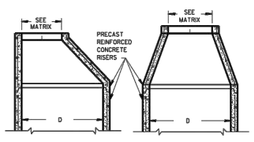
SDD 08D01 - 22a

SDD 08D01 - 22a

8B9: Manholes 3-FT, 4-FT, 5-FT, 6-FT, 7-FT, & 8-FT Diameter

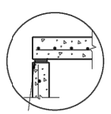


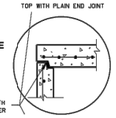
PLAN VIEW CIRCULAR OPENING

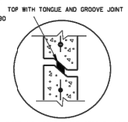


OPTIONAL PRECAST REINFORCED CONCRETE ECCENTRIC TOP

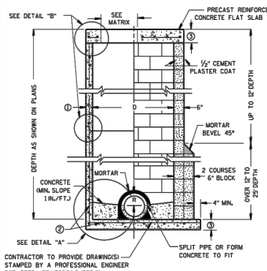
OPTIONAL PRECAST REINFORCED CONCRETE CONCENTRIC TOP





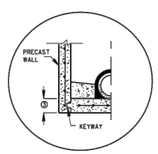


DETAIL "B"

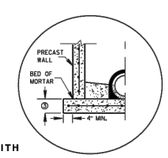


PRECAST REINFORCED CONCRETE WITH MONOLITHIC BASE

CONCRETE BLOCK WITH CAST-IN-PLACE OR PRECAST REINFORCED CONCRETE BASE ②

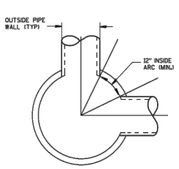


PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE OPTION



SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION

DETAIL "A"



DETAIL "C"

MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT AND 8-FT DIAMETER

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE ENGINEER, THE CONTRACTOR SHALL NOT ORDER AND DELIVER PRECAST MANHOLE UNITS REQUIRED FOR THE PROJECT UNTIL A LIST OF SIZES IS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR UNDERGROUND DRAINAGE STRUCTURES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ALL DRAINAGE STRUCTURES ARE DESIGNATED ON THE PLANS AS "MANHOLES 3X3-L", "CATCH BASINS 4-B", "INLETS 2X3-H", ETC. THE FIRST NUMBERS DESIGNATE THE SIZE OF THE STRUCTURE, AND THE FOLLOWING LETTER DESIGNATES THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT.

BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 6 INCHES IN DEPTH, WHICH MEETS THE REQUIREMENTS OF FOUNDATION BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.

PRECAST REINFORCED CONE TOPS (ECCENTRIC OR CONCENTRIC) OR PRECAST REINFORCED FLAT SLAB TOPS MAY BE USED ON CONCRETE BLOCK STRUCTURES.

ECCENTRIC CONE TOPS MAY BE USED ON ALL STRUCTURES, AND CONCENTRIC CONE TOPS SHALL BE USED ONLY ON STRUCTURES 5 FEET OR LESS IN DEPTH, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

STEPS MEETING AASHTO M199 AND THE FOLLOWING REQUIREMENTS SHALL BE INSTALLED IN ALL STRUCTURES OVER 5 FEET IN DEPTH: IS INCH C-C MAXIMUM SPACING; PROJECT A MINIMUM CLEAR DISTANCE OF 4 INCHES FROM THE WALL AT THE POINT OF EMBEDMENT; MINIMUM LENGTH OF 10 INCHES; MINIMUM WALL EMBEDMENT OF 3 INCHES. FERROUS METAL STEPS NOT PAINTED OR TREATED TO RESIST CORROSION SHALL HAVE A MINIMUM CROSS SECTIONAL DIMENSION OF 1 INCH.

STEPS OF APPROVED POLYPROPYLENE PLASTIC COATED REINFORCEMENT BAR ARE ACCEPTABLE. REINFORCING BAR MUST BE A MINIMUM OF ½" AND MEET THE REQUIREMENTS OF ASTM A615.

CERTIFICATION SHALL BE PROVIDED THAT INSTALLED STEPS WHEN TESTED IN ACCORDANCE WITH SECTION 30 OF AASHTO T280 CAN WITHSTAND A VERTICAL LOAD OF 800 LBS. AND A HORIZONTAL LOAD OF 400 LBS.

ALL BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

CONCRETE BLOCK WILL NOT BE PERMITED FOR STRUCTURES GREATER THAN 4 FEET IN DIAMETER.

PRECAST REINFORCED RISERS SHALL HAVE A TONGUE AND GROOVE JOINT WITH TONGUE UP OR DOWN.

ALL PRECAST MANHOLE UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF AASHTO DESIGNATION M 199.

4" OVERHANGING BASES ARE REQUIRED FOR ALL CONCRETE BLOCK INSTALLATIONS. 4" OVERHANG IS REQUIRED WHEN SEPARATE PRECAST BASE IS PROVIDED. OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

FOR ADDITIONAL CONFIGURATIONS, MAINTAIN A MINIMUM OF 12 INCHES AS MEASURED FROM THE INSIDE OF THE STRUCTURE WALL BETWEEN THE OUTSIDE PIPE WALLS OF ADJACENT PIPES. SEE DETAIL "C".

① MINIMUM WALL THICKNESS SHALL BE 4 INCHES FOR 3-FT, 5 INCHES FOR 4-FT, 6 INCHES FOR 5-FT, 7 INCHES FOR 6-FT, 8 INCHES FOR 7-FT AND 9 INCHES FOR 8-FT DIAMETER PRECAST MANHOLES.

② FOR PRECAST MANHOLES PROVIDE REINFORCING STEEL IN ACCORDANCE TO AASHTO M199.

③ PRECAST FLAT SLAB TOPS AND BASES WITH A DIAMETER OF 48" AND LESS SHALL HAVE A MINIMUM THICKNESS OF 6", PRECAST FLAT SLAB TOPS AND BASES WITH A DIAMETER LARGER THAN 48" SHALL HAVE A MINIMUM THICKNESS OF 8".

MANHOLE COVER OPENING MATRIX

MANHOLE COVER TYPE	C	ALL J'S	K	L	M
OPENING SIZE (FT)					
2 DIA.	X	X		X	
3 DIA.			X		X

PIPE MATRIX

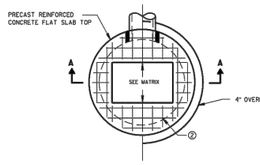
MANHOLE SIZE	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES	
	180° SEPARATION (IN)	90° SEPARATION (IN)
3-FT	15	12
4-FT	24	18
5-FT	36	24
6-FT	42	36
7-FT	48	36
8-FT	60	42

MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT AND 8-FT DIAMETER
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION
APPROVED Sept., 206 DATE — /S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
FHWA

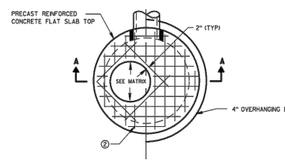
S.D.D. 8 B 9-2

S.D.D. 8 B 9-2

8C6: Inlets 3-FT & 4-FT Diameter



PLAN VIEW RECTANGULAR OPENING



PLAN VIEW CIRCULAR OPENING

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR UNDERGROUND DRAINAGE STRUCTURES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ALL DRAINAGE STRUCTURES ARE DESIGNATED ON THE PLANS AS "MANHOLES 3X3-L", "CATCH BASINS 4-B", "INLETS 2X3-H", ETC. THE FIRST NUMBERS DESIGNATE THE SIZE OF THE STRUCTURE, AND THE FOLLOWING LETTER DESIGNATES THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT.

BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 6 INCHES IN DEPTH, WHICH MEETS THE REQUIREMENTS OF GRANULAR BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.

ALL BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

ALL PRECAST INLET UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF AASHTO DESIGNATION M199.

PRECAST REINFORCED RISERS SHALL HAVE A TONGUE AND GROOVE JOINT WITH TONGUE UP OR DOWN.

4" OVERHANGING BASES ARE REQUIRED FOR ALL CONCRETE BLOCK INSTALLATIONS. 4" OVERHANG IS REQUIRED WHEN SEPERATE PRECAST BASE IS PROVIDED. OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

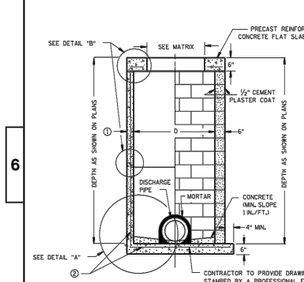
FOR ADDITIONAL CONFIGURATIONS, MAINTAIN A MINIMUM OF 12 INCHES AS MEASURED FROM THE INSIDE OF THE STRUCTURE WALL BETWEEN THE OUTSIDE PIPE WALLS OF ADJACENT PIPES. SEE DETAIL "C".

① MINIMUM WALL THICKNESS SHALL BE 4-IN FOR 3-FT DIAMETER AND 5-IN FOR 4-FT DIAMETER PRECAST INLETS.

② FOR PRECAST CATCH BASINS PROVIDE REINFORCING STEEL IN ACCORDANCE TO AASHTO M199.

INLET COVER OPENING MATRIX

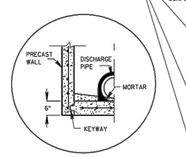
	INLET COVER TYPE	ALL A'S	ALL B'S	BW	C	F	ALL H'S	S	T	V	WM	Z
INLET SIZE	OPENING SIZE (FT)											
3-FT	2 DIA.				X							X
	2X2	X	X					X		X		
4-FT	2 DIA.				X							X
	2X2	X	X					X		X		
	2X2.5			X				X	X	X	X	
	2X3						X					
	2.5X3					X						



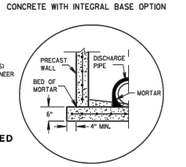
SECTION A-A

PRECAST REINFORCED CONCRETE WITH MONOLITHIC BASE

CONCRETE BLOCK WITH CAST-IN-PLACE OR PRECAST REINFORCED CONCRETE BASE ②

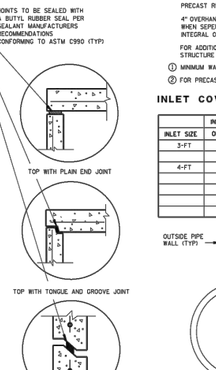


PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE OPTION



SEPERATE PRECAST REINFORCED CONCRETE BASE OPTION

DETAIL "A"



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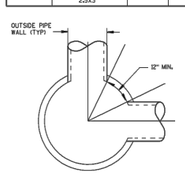


DETAIL "C"

PIPE MATRIX

INLET SIZE	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES	
	180° SEPARATION (IN)	90° SEPARATION (IN)
3-FT	15	12
4-FT	24	18

CIRCULAR INLETS W/ FLAT TOP

INLETS 3-FT AND 4-FT DIAMETER

INLETS 3-FT AND 4-FT DIAMETER
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION
APPROVED 6/5/2012 DATE — /S/ Jerry M. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA

S.D.D. 8 C 6-1

S.D.D. 8 C 6-1

NOT FOR CONSTRUCTION - NOT FOR CONSTRUCTION - NOT FOR CONSTRUCTION

NOT FOR CONSTRUCTION - NOT FOR CONSTRUCTION - NOT FOR CONSTRUCTION

PLOT DATE: 8/25/2021 2:06 PM

Batterman engineers surveyors planners
2857 Bartells Drive
Beloit, Wisconsin 53511
608.365.4464
www.rhbatterman.com

ISSUANCE	DATE
CITY SUBMITTAL #1	08/25/2021

NOTE: DIMENSIONAL DATA IS NOT TO BE OBTAINED BY SCALING ANY PORTION OF THIS DRAWING

DETAILS

HENDRICKS COMMERCIAL PROPERTIES
1822 DOLPHIN DRIVE
CITY OF WAUKESHA
WAUKESHA COUNTY, WISCONSIN

33846 - C3.01 - DETAILS.DWG

DESIGNED BY:	MF, LH, NJ
DRAWN BY:	LC
CHECKED BY:	AF
APPROVED BY:	FM
PROJECT NO:	33846

SHEET NO.

C3.01

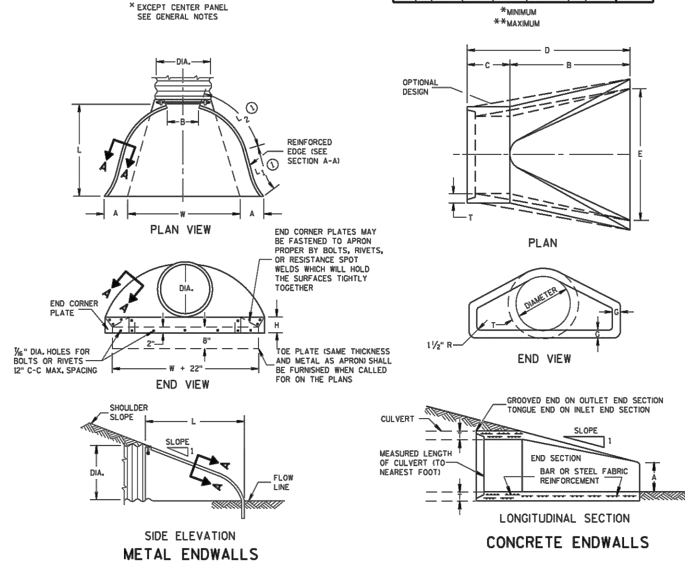
8F1: Apron Endwalls for Culvert Pipe

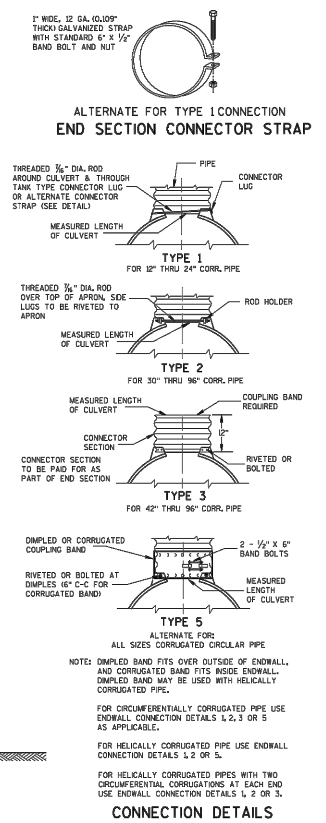
METAL APRON ENDWALLS											
PIPE DIA. (IN.)	MIN. THICK. (inches) STEEL	MIN. THICK. (inches) ALUM.	DIMENSIONS (inches) A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")	APPROX. SLOPE	BODY
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1 Pc.
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1 Pc.
18	.064	.060	8	10	6	31	15	28 1/4	36	2 1/2 to 1	1 Pc.
21	.064	.060	9	12	6	36	18	29 5/8	42	2 1/2 to 1	1 Pc.
24	.064	.075	10	13	6	41	18	37 1/4	48	2 1/2 to 1	1 Pc.
30	.079	.075	12	16	8	51	18	52 1/4	60	2 1/2 to 1	1 Pc.
36	.079	.105	14	19	9	60	24	59 3/4	72	2 1/2 to 1	2 Pc.
42	.109	.105	16	22	11	69	24	75 5/8	84	2 1/2 to 1	2 Pc.
48	.109	.105	18	27	12	78	24	81	90	2 1/4 to 1	3 Pc.
54	.109	.105	18	30	12	84	30	85 1/2	102	2 1/4 to 1	3 Pc.
60	.109×	.105×	18	33	12	87	—	—	114	2 to 1	3 Pc.
66	.109×	.105×	18	36	12	87	—	—	120	2 to 1	3 Pc.
72	.109×	.105×	18	39	12	87	—	—	126	2 to 1	3 Pc.
78	.109×	.105×	18	42	12	87	—	—	132	1 1/2 to 1	3 Pc.
84	.109×	.105×	18	45	12	87	—	—	138	1 1/2 to 1	3 Pc.
90	.109×	.105×	18	37	12	87	—	—	144	1 1/2 to 1	3 Pc.
96	.109×	.105×	18	35	12	87	—	—	150	1 1/2 to 1	3 Pc.

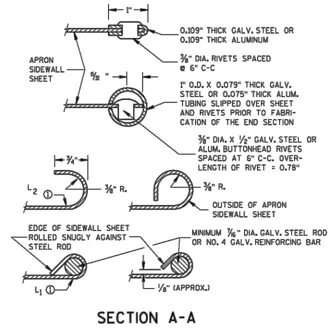
× EXCEPT CENTER PANEL SEE GENERAL NOTES

REINFORCED CONCRETE APRON ENDWALLS								
PIPE DIA. (IN.)	DIMENSIONS (inches) T	A	B	C	D	E	G	APPROX. SLOPE
12	2	4	24	48 7/8	72 7/8	24	2	3 to 1
15	2 1/4	6	27	46	73	30	2 1/4	3 to 1
18	2 1/2	9	27	46	73	36	2 1/2	3 to 1
21	2 3/4	9	36	37 1/2	73 1/2	42	2 3/4	3 to 1
24	3	9 1/2	43 1/2	30	73 1/2	48	3	3 to 1
27	3 1/4	10 1/2	49 1/2	24	73 1/2	54	3 1/4	3 to 1
30	3 1/2	12	54	19 3/4	73 1/2	60	3 1/2	3 to 1
36	4	15	63	34 3/4	97 3/4	72	4	3 to 1
42	4 1/2	21	63	35	98	78	4 1/2	3 to 1
48	5	24	72	26	98	84	5	3 to 1
54	5 1/2	27	65	* 33 1/4 - ** 35	* 98 1/4 - ** 100	90	5 1/2	2 2/5 to 1
60	6	* 30 - ** 35	60	39	99	96	5	2 to 1
66	6 1/2	* 24 - ** 30	* 72 - ** 78	* 21 - ** 27	99	102	5 1/2	2 to 1
72	7	* 24 - ** 36	78	21	99	108	6	2 to 1
78	7 1/2	* 24 - ** 36	78	21	99	114	6 1/2	2 to 1
84	8	36	90 1/2	21	111 1/2	120	6 1/2	1 1/2 to 1
90	8 1/2	41	87 1/2	24	111 1/2	132	6 1/2	1 1/2 to 1

*MINIMUM
**MAXIMUM







GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

CONCRETE CULVERT ENDWALLS MAY NOT BE USED WITH GALVANIZED STEEL OR ALUMINUM CULVERT PIPE OR VISE VERSA. GALVANIZED STEEL OR ALUMINUM ENDWALLS SHALL NORMALLY BE INSTALLED ON CULVERT PIPE OF THE SAME METAL.

ALL THREE PIECE STEEL APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT OF THE PIPE PERIMETER.

LAP SEAMS SHALL BE TIGHTLY JOINED BY GALVANIZED RIVETS OR BOLTS FOR STEEL UNITS AND ALUMINUM RIVETS AND BOLTS FOR ALUMINUM UNITS. FOR THE 60" THROUGH 96" DIAMETER APRON ENDWALL SIZES, THE REINFORCED EDGES AND CENTER PANEL SEAMS SHALL BE FURTHER REINFORCED WITH GALVANIZED STEEL OR ALUMINUM STIFFENER ANGLES. THE ANGLES SHALL BE ATTACHED BY GALVANIZED NUTS AND BOLTS FOR STEEL UNITS AND ALUMINUM NUTS AND BOLTS FOR ALUMINUM UNITS.

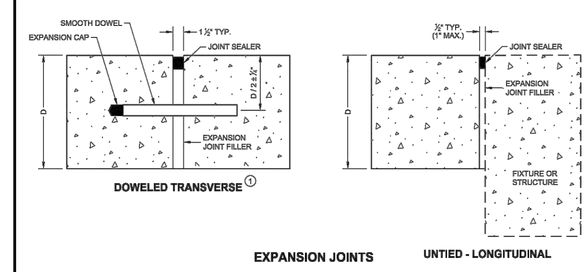
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR CULVERT PIPE
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

S.D.D. 8 F 1-11

SDD 13C18-c Concrete Pavement Joint Types



TIE BAR TABLE

PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
< 10 1/2"	NO. 4	30"	36"
≥ 10 1/2"	NO. 5	36"	36"
	NO. 4 *	30"	24" **

* SUBSTITUTE BENT BARS AT LONGITUDINAL JOINTS WHEN EQUIPMENT LIMITATIONS DURING CONSTRUCTION WARRANT (e.g. AUXILIARY LANES OR TURN LANES)

** CONFORM TO 15" MINIMUM SPACING FROM TRANSVERSE JOINTS; SPACING BETWEEN TIE BARS WILL BE 30" AT TRANSVERSE JOINTS.

GENERAL NOTES

① USE DOWELED EXPANSION JOINTS ON SIDE ROADS AT INTERSECTIONS (TO ISOLATETHE SIDE ROAD FROM THE THROUGH STREET) IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH.

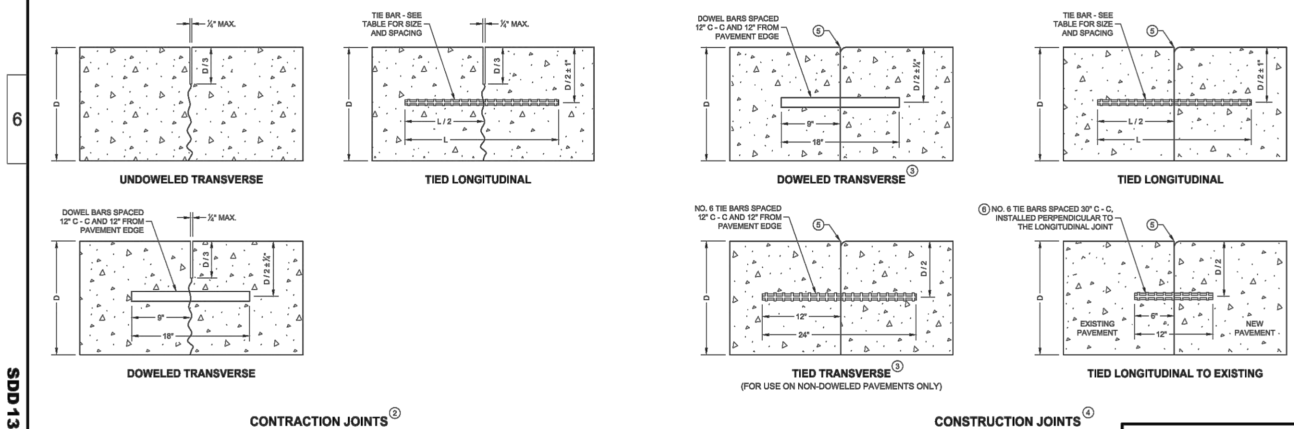
② SPACE CONTRACTION JOINTS IN ACCORDANCE WITH SDD 13C4, 13C11 OR 13C13.

③ LOCATE CONSTRUCTION JOINTS A MINIMUM OF 6 FEET FROM THE NEAREST CONTRACTION JOINT AND ALIGN PARALLEL TO CONTRACTION JOINTS.

④ CONSTRUCTION JOINTS CAN BE FORMED OR SAWED.

⑤ IF JOINT IS FORMED, PROVIDE A 1/4" RADIUS.

⑥ ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.



CONCRETE PAVEMENT JOINT TYPES
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

SDD 13C18 - 07c

SDD 9c8 Concrete Base, Type 7

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

BASES SHALL BE EXCAVATED BY USE OF A CIRCULAR AUGER.

TOP SURFACES OF CONCRETE BASES SHALL BE TROWEL FINISHED SMOOTH AND LEVEL.

CONDUIT SIZES AND LOCATIONS SHALL BE AS SHOWN ON THE PLANS.

THE FINAL OR TERMINATING CONCRETE BASE IN A CONDUIT RUN SHALL HAVE A 6" EXIT STUB INSTALLED FOR FUTURE CABLING USE. THE EXIT STUB SHALL BE SIZED AS USED THROUGHOUT THE CONDUIT RUN AS SHOWN AT THE ENTRANCE OF THE BASE.

MINIMUM BENDING RADIUS OF CONDUIT IS EQUAL TO 6 X THE DIAMETER.

CONDUIT HEIGHT ABOVE CONCRETE BASES SHALL BE 1 INCH. ALL METALLIC CONDUIT ENDS SHALL BE REAMED AND THREADED.

ALL CONDUIT ENDS AT THE TOP OF CONCRETE BASES SHALL BE CAPPED IF METALLIC OR PLUGGED IF NONMETALLIC IMMEDIATELY AFTER PLACEMENT AND BEFORE CONCRETE IS POURED. CONDUITS IN WHICH WIRE OR CABLE IS NOT INSTALLED SHALL REMAIN CAPPED OR PLUGGED.

BELL ENDS SHALL BE INSTALLED ON ALL PVC CONDUIT EXPOSED AT THE TOP OF CONCRETE BASES BEFORE INSTALLATION OF CABLE OR WIRE.

ENDS OF CONDUIT INSTALLED BELOW GRADE FOR FUTURE USE SHALL BE CAPPED IF METALLIC OR PLUGGED IF NONMETALLIC.

WHEN REQUIRED TO CONNECT NONMETALLIC CONDUIT TO METALLIC CONDUIT, ONLY ADAPTER FITTINGS, U.L. LISTED FOR ELECTRICAL USE, SHALL BE USED.

IF A BASE REQUIRES A DEEP FORM BECAUSE OF LOOSE DIRT OR FILL, THE FORM SHALL BE REMOVED BEFORE BACKFILLING AROUND THE BASE. BACKFILL SHALL BE TAMPED TIGHT AGAINST THE BARE CONCRETE BASE IN LAYERS OF 1 FOOT OR LESS.

A NO. 4 AWG, STRANDED COPPER EQUIPMENT GROUNDING CONDUCTOR SHALL BE EXOTHERMICALLY WELDED TO THE EQUIPMENT GROUNDING ELECTRODE (GROUND ROD).

THE EQUIPMENT GROUNDING CONDUCTOR SHALL ENTER THE BASE THROUGH A 1 INCH CONDUIT INSTALLED FOR GROUNDING PURPOSES, LEAVING A 4 FOOT COIL OF WIRE ABOVE THE CONCRETE BASE. THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE NEATLY COILED AND THE COILS TIED TOGETHER.

ANCHOR RODS SHALL BE 1" X 60".

ANCHOR RODS SHALL BE THREADED 12" IN LENGTH ON EACH END OF THE ROD. ANCHOR RODS SHALL BE MANUFACTURED IN ACCORDANCE WITH SECTION 654.2.1 OF THE STANDARD SPECIFICATIONS.

WHEN ANCHOR RODS USING THE ALTERNATE "L" BEND ARE FURNISHED, THE 4" "L" BEND SHALL BE IN ADDITION TO THE SPECIFIED ANCHOR ROD BAR LENGTH. THE "L" BEND END SHALL NOT BE THREADED.

WELDING OF THE ANCHOR RODS TO THE CAGE IS UNACCEPTABLE. TIE WIRES SHALL BE USED.

ANCHOR RODS SHALL BE INSTALLED WITH MISALIGNMENTS OF LESS THAN 1:40 FROM VERTICAL.

BAR STEEL REINFORCEMENT SHALL BE COATED WITH POWDERED EPOXY RESIN IN ACCORDANCE WITH SECTION 505 OF THE STANDARD SPECIFICATIONS (LATEST EDITION).

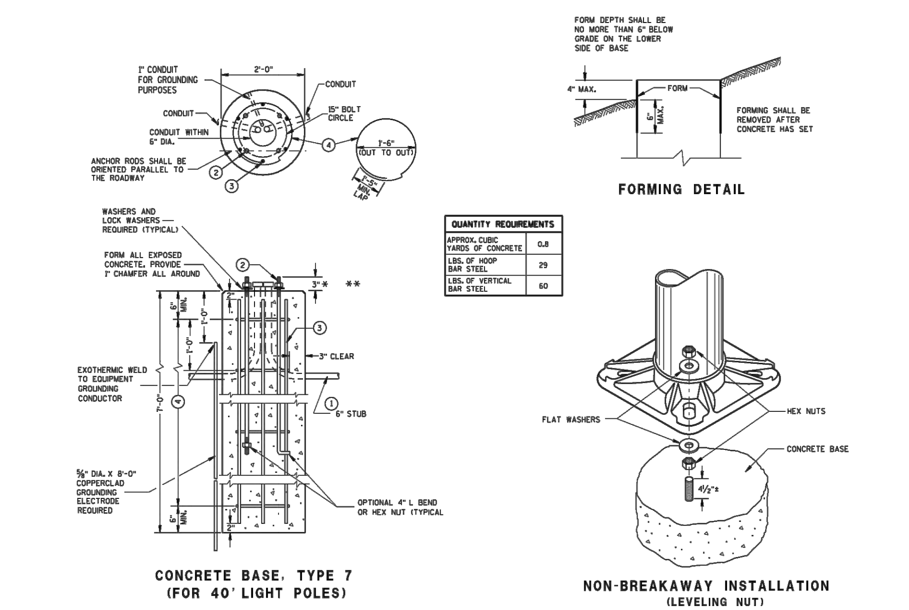
① THE MINIMUM DEPTH OF CONDUIT EXITING THE CONCRETE BASE AND INSTALLED BELOW THE TRAVELED WAY SHALL BE 24 INCHES. THE MINIMUM DEPTH OF CONDUIT EXITING THE CONCRETE BASE THAT IS NOT INSTALLED BELOW THE TRAVELED WAY SHALL BE 18 INCHES. THE MAXIMUM DEPTH OF ALL CONDUIT SHALL BE 36 INCHES EXCEPT WITH WRITTEN APPROVAL BY THE ENGINEER.

② (4) 1" DIA. X 5'-0" ANCHOR RODS.

③ (6) NO. 6 X 6'-8" BAR STEEL REINFORCEMENT.

④ (7) NO. 4 X 6'-2" BAR STEEL REINFORCEMENT @ 1'-0" C-C.

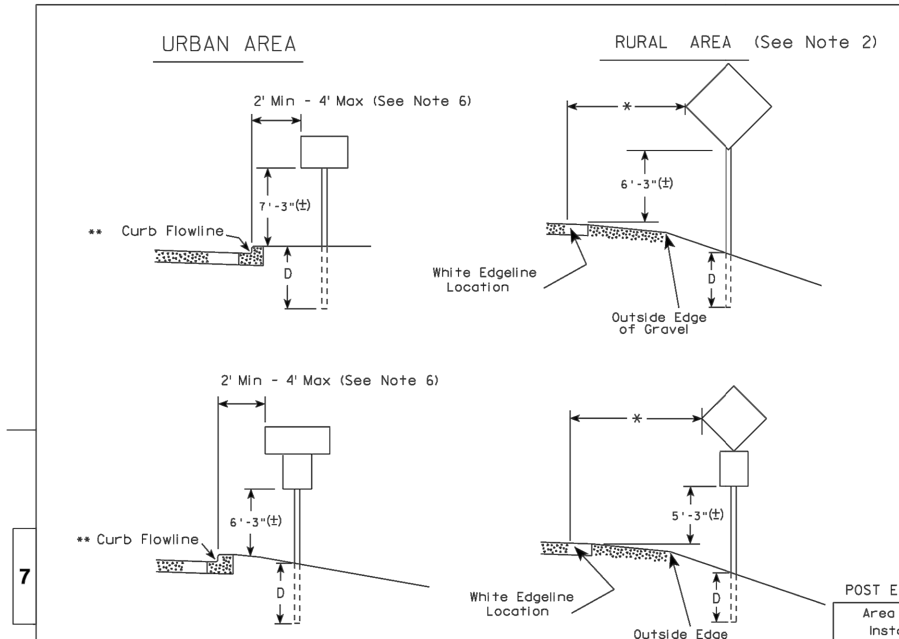
QUANTITY REQUIREMENTS	
APPROX. CUBIC YARDS OF CONCRETE	0.8
LBS. OF HOOP BAR STEEL	29
LBS. OF VERTICAL BAR STEEL	60



CONCRETE BASE, TYPE 7
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

S.D.D. 9 C 8-5

Typical Installation of Permanent Type II Signs on Single Posts



GENERAL NOTES

1. Signs wider than 4 feet or 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on barrier wall, see A4-10 sign plate.
3. For expressways and freeways, mounting height is 7'- 3" (±) or 6'-3" (±) depending upon existence of a sub-sign.
4. J-Assemblies are considered to be one sign for mounting height.
5. Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±).
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. The (±) tolerance for mounting height is 3 inches.
8. Folding signs shall be mounted at a height of 5'-3" (±) or as directd by the Engineer.
9. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Enhanced Reference Markers, Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±).

POST EMBEDMENT DEPTH

Area of Sign Installation (Sq. Ft.)	D (Min)
20 or Less	4'
Greater than 20	5'

** The existence of curb and gutter does not in itself mandate the vertical clearance illustrated. That height is typically measured where there is sidewalk adjacent to the roadway or parking is permitted. In the absence of sidewalk vertical clearance is measured from the top of the curb. Offset of signs is measured from the flow line.

* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS
WISCONSIN DEPT OF TRANSPORTATION
DATE 8/2/17 PLATE NO. A4-3.21

PROJECT NO: | HWY: | COUNTY: | SHEET NO: | E

Batterman
engineers surveyors planners
2857 Bartells Drive Beloit, Wisconsin 53511
608.365.4464 www.rhbatterman.com

ISSUANCE
CITY SUBMITTAL #1 08/25/2021

DETAILS

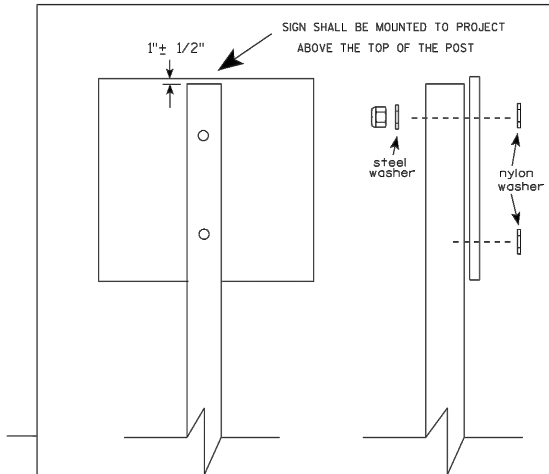
HENDRICKS COMMERCIAL PROPERTIES
1822 DOLPHIN DRIVE
CITY OF WAUKESHA
WAUKESHA COUNTY, WISCONSIN

33846 - C3.01 - DETAILS.DWG

DESIGNED BY: MF, LH, NJ
DRAWN BY: LC
CHECKED BY: AF
APPROVED BY: FM
PROJECT NO.: 33846

SHEET NO.
C3.02

PLOT DATE: 8/25/2021 2:06 PM



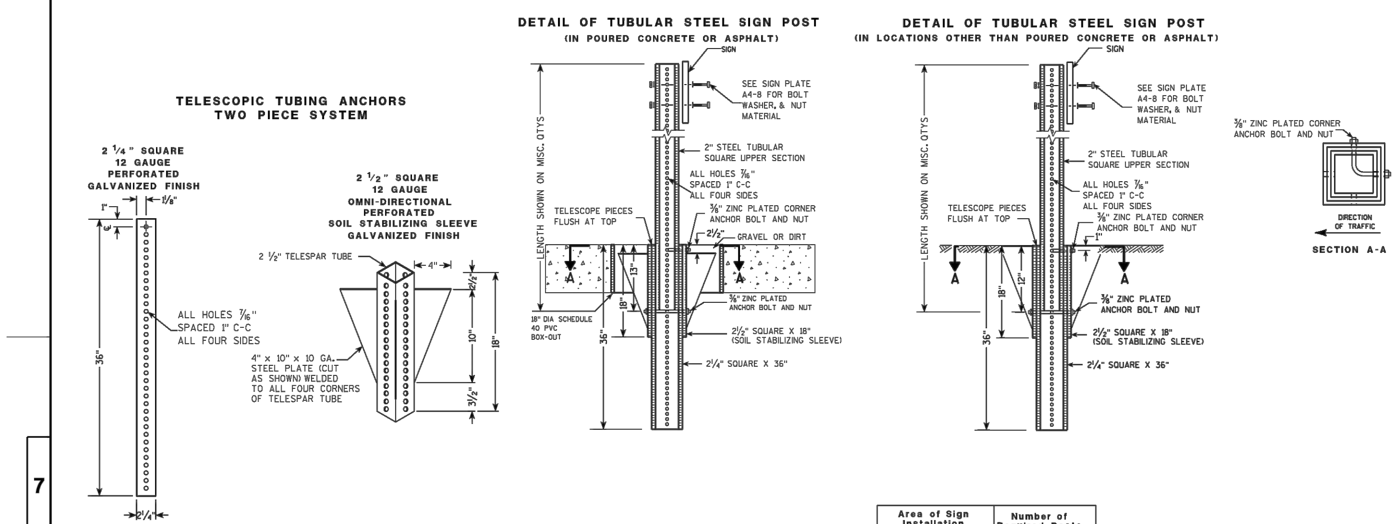
Nuts, bolts and lags used for mounting signs shall have hexagonal heads and shall be either :
a. Hot dip galvanized in accordance with ASTM Designation: A 153, Class D, or SC 3
b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.
Threads on bolts and nuts shall be manufactured with sufficient allowance for the cadmium plate or galvanized coating to permit the nuts to run freely on the bolts.

STRINGER BOLTING TO ALUMINUM SIGNS (SEE SIGN PLATE A4-18)
MACHINE BOLTS - 5/16" X 1-3/4" Length w/ lock nuts
WOOD POSTS (4" x 4" or 4" x 6")
LAG SCREWS - 3/8" X 3" (NO STRINGERS ON BACK OF SIGN)
3/8" X 4" (STRINGERS ON BACK OF SIGN)
SQUARE STEEL POSTS (2" x 2")
MACHINE BOLTS - 3/8" X 3-1/4" Length w/ nuts (NO STRINGER ON BACK OF SIGN)
3/8" X 5" Length w/ nuts (STRINGERS ON BACK OF SIGN)
RIVETS - 5/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL
O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH
WASHERS (ALL POSTS) -
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON

* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require the use of 3 fasteners.

ATTACHMENT OF SIGNS TO POSTS
WISCONSIN DEPT OF TRANSPORTATION
APPROVED *Matthew R Rauch* For State Traffic Engineer
DATE 8/11/16 PLATE NO. A4-8.8
PROJECT NO: SHEET NO: E

7



Area of Sign Installation (Sq. Ft.)	Number of Required Posts
9 or less	1
Greater than 9 less than or equal to 18	2
Greater than 18 less than or equal to 27	3

Signs wider than 3 feet or larger than 9 sq. ft shall be mounted on multiple posts (see above table).

TUBULAR STEEL SIGN POST A4-9
WISCONSIN DEPT OF TRANSPORTATION
APPROVED *Matthew R Rauch* For State Traffic Engineer
DATE 2/05/15 PLATE NO. A4-9.9
PROJECT NO: HWY: COUNTY: SHEET NO: E

R8-31
18"x24"

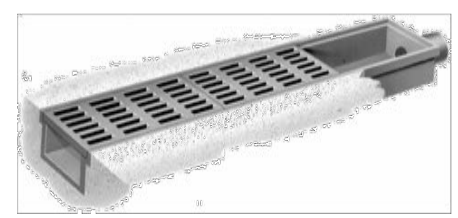
18"x24"

R-4995 – R-4996

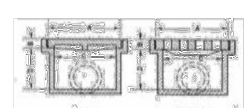
TYPE M TRENCH FRAME WITH SOLID OR GRATED COVER

Cast Iron Trench Assemblies—Light or Heavy Duty—For Use in Sidewalks, Driveways, Garages, Loading Docks, etc.

Read Carefully Before Ordering
Specify:
1. Complete catalog number.
2. Light or heavy duty.
3. Overall length of cover required.
4. Lid solid, flat grated, or diagonally barred convex grate.
5. Location of outlet, side, bottom or end (give dimensional location and pipe size).
6. Whether one end or both ends are to be open or closed.



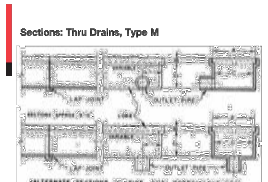
Illustrating Type M frame with grated cover. Standard with 4-inch outside caulk outlet. Can be equipped for inside caulk if specified.



Trench covers are used over areas requiring long drainage assemblies. Can be supplied in a variety of sizes and lengths to meet special needs. For trenches of irregular pattern, product engineering can provide layout drawings.

Standard 4-inch outlet at end of drain. Special size outlets are available. Provided with side and bottom outlets optional and furnished only when specified.

Sections: Thru Drains, Type M



Dimensions in inches

Catalog No.	Description	A	B	C	D	Length
Standard Sizes—Light Duty						
R-4995-A1*	With grated cover	11½	3/4	10	6½	As ordered
R-4995-A2*	With grated cover	7	3/4	5	4½	As ordered
R-4995-B1	With solid cover	11½	3/4	10	6½	As ordered
R-4995 B2	With solid cover	7	3/4	5	4½	As ordered
Standard Sizes—Heavy Duty						
R-4996-A1**	With grated cover	11½	1½	10	6	As ordered
R-4996-A2*	With grated cover	7	1½	5	4½	As ordered
R-4996-B1	With solid cover	11½	1½	10	6	As ordered
R-4996-B2	With solid cover	7	1½	5	4½	As ordered

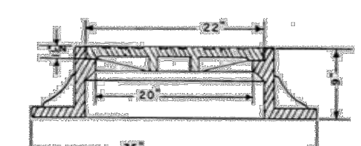
Above Standard Frames made in 4 ft. sections, covers in 2 ft. lengths.
*Available with Type B grate only.
**Also available with Type P grate.

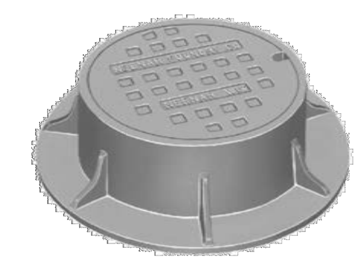
R-1710- Manhole Frames and Covers

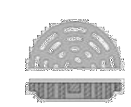
R-1710

Manhole Frame, Solid Lid

Heavy Duty







Available Grate: **R-2533**

Non-Rocking feature available.

Catalog Number	A	B	C	E	F
R-1710	22	1-1/2	20	35	9

All dimensions are listed in inches unless otherwise noted.

NOT FOR CONSTRUCTION - NOT FOR CONSTRUCTION - NOT FOR CONSTRUCTION - NOT FOR CONSTRUCTION - NOT FOR CONSTRUCTION - NOT FOR CONSTRUCTION

Batterman
engineers surveyors planners
2857 Bartells Drive
Beloit, Wisconsin 53511
608.365.4464
www.rhbatterman.com

ISSUANCE
CITY SUBMITTAL #1 08/25/2021

DETAILS

NOTE: DIMENSIONAL DATA IS NOT TO BE OBTAINED BY SCALING ANY PORTION OF THIS DRAWING.

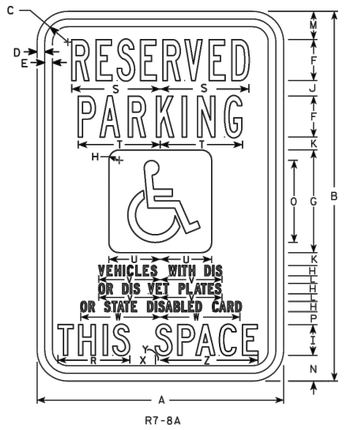
HENDRICKS COMMERCIAL PROPERTIES
1822 DOLPHIN DRIVE
CITY OF WAUKESHA
WAUKESHA COUNTY, WISCONSIN

33846 - C3.01 - DETAILS.DWG

DESIGNED BY: MF, LH, NJ
DRAWN BY: LC
CHECKED BY: AF
APPROVED BY: FM
PROJECT NO: 33846

SHEET NO.
C3.03

PLOT DATE: 8/25/2021 2:06 PM



R7-8A

NOTES

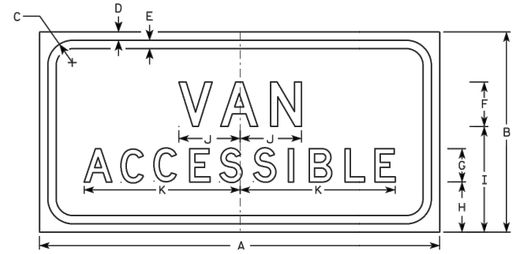
1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Sign is white Type H Reflective; paraplegic background is blue.
   Message - Legend and border are green; paraplegic symbol is white
3. Message Series - Lines 1 & 2 are Series B
   Lines 3, 4, 5 & 6 are Series C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	APPROX. WT.
1																											
2S	12	18	1 1/8	3/8	3/8	2	5	1/2	1 1/2	3/4	5/8	3/8	1 3/8	1 1/4	4	5/8		3 1/2	4 3/8	4	2 1/2	3	3 3/8	1 1/4	1/4	4 3/4	1.5
2M	18	24	1 1/8	3/8	1/2	3	6	3/4	2	1/8	5/8	1/2	1 7/8	2	5	3/4		4 5/8	6 1/2	5 3/8	3	4 1/2	5 1/8	1 1/2	1/4	6 3/8	3.0
3	18	24	1 1/8	3/8	1/2	3	6	3/4	2	1/8	5/8	1/2	1 7/8	2	5	3/4		4 5/8	6 1/2	5 3/8	3	4 1/2	5 1/8	1 1/2	1/4	6 3/8	3.0
4																											
5																											

STANDARD SIGN
R7-8A
WISCONSIN DEPT OF TRANSPORTATION
APPROVED Matthew R Rauch for State Traffic Engineer
DATE 4/25/2011 PLATE NO. R7-8A.6

PROJECT NO: | HWY: | COUNTY: | SHEET NO: E

FILE NAME : C:\Users\PROJECTS\tr_stdplate\R78A.DGN PLOT DATE : 26-APR-2011 10:03 PLOT BY : mscj5h PLOT NAME : PLOT SCALE : 3.227815:1.000000 WISDOT/CADDS SHEET 42



R7-8V

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - White
   Message - Green - Type H Reflective
3. Message Series - D
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

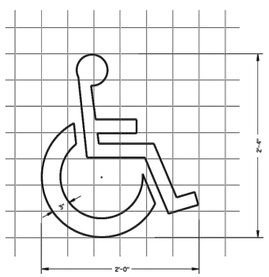
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	Y	W	X	Y	Z	APPROX. WT.
1																											
2S	12	6	1 1/8	3/8	3/8	1 1/2	1	1 3/8	3 1/2	2	4 1/4																0.50
2M	18	9	1 1/8	3/8	3/8	2	1 1/2	2 1/4	4 3/4	2 3/4	7																0.75
3	18	9	1 1/8	3/8	3/8	2	1 1/2	2 1/4	4 3/4	2 3/4	7																0.75
4																											
5																											

STANDARD SIGN
R7-8V
WISCONSIN DEPT OF TRANSPORTATION
APPROVED Matthew R Rauch for State Traffic Engineer
DATE 3/31/2011 PLATE NO. R7-8V.5

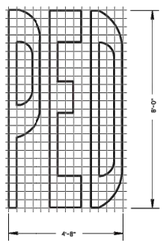
PROJECT NO: | HWY: | COUNTY: | SHEET NO: E

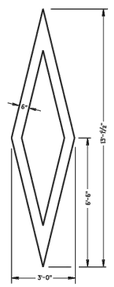
FILE NAME : C:\Users\PROJECTS\tr_stdplate\R78V.DGN PLOT DATE : 31-MAR-2011 11:13 PLOT BY : mcaj_jo PLOT NAME : PLOT SCALE : 2.979520:1.000000 WISDOT/CADDS SHEET 42

SDD 15c7-a Pavement Marking Words, Symbols and Arrows



HANDICAP SYMBOL





PREFERENTIAL LANE SYMBOL

GENERAL NOTES

DETAILS OF INSTALLATION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

PAVEMENT MARKING SYMBOLS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED /S/ Matthew R. Rauch
June 2017 STATE SIGNING AND MARKING ENGINEER
DATE
FHWA

S.D.D. 15 C 7-14a

Batterman
engineers surveyors planners
2857 Bartells Drive
Beloit, Wisconsin 53511
608.365.4464
www.rhbatterman.com

ISSUANCE
CITY SUBMITTAL #1 08/25/2021

DETAILS

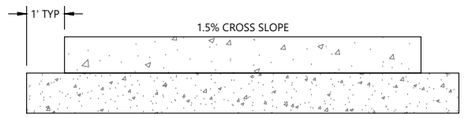
HENDRICKS COMMERCIAL PROPERTIES
1822 DOLPHIN DRIVE
CITY OF WAUKESHA
WAUKESHA COUNTY, WISCONSIN

33846 - C3.01 - DETAILS.DWG

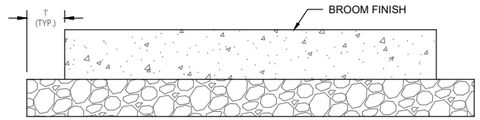
DESIGNED BY: MF, LH, NJ
DRAWN BY: LC
CHECKED BY: AF
APPROVED BY: FM
PROJECT NO: 33846

SHEET NO.
C3.04

PLOT DATE: 8/25/2021 2:06 PM

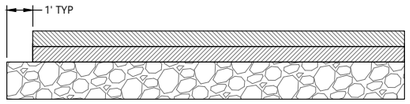


CONCRETE SIDEWALK

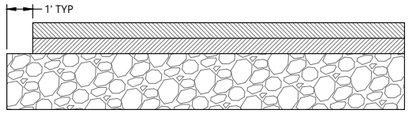


NOTE REINFORCED CONCRETE SECTION TO HAVE 6x6-W1.4x1.4 (6x6-10/10) WELDED WIRE FABRIC (WWF) OR APPROVED EQUAL

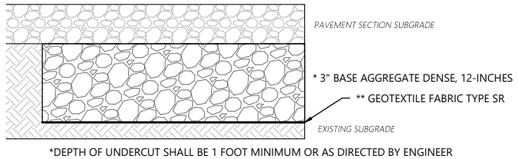
REINFORCED CONCRETE PAVEMENT SECTION



HEAVY DUTY BITUMINOUS PAVEMENT SECTION



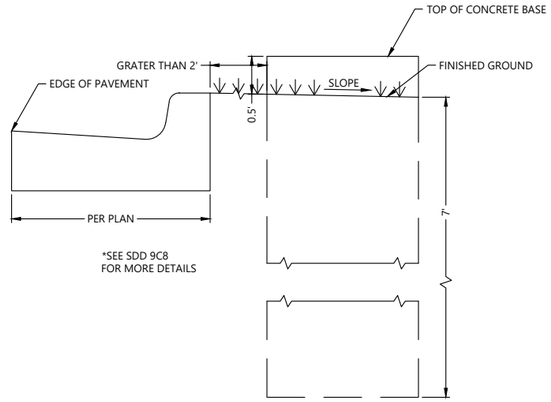
STANDARD DUTY BITUMINOUS PAVEMENT SECTION



UNDERCUT SECTION

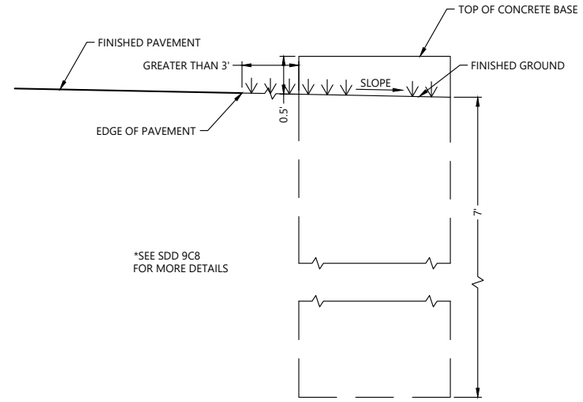
CONCRETE BASE TYPE 7A

CONCRETE BASE GRATER THAN 2' BEHIND BACK OF CURB

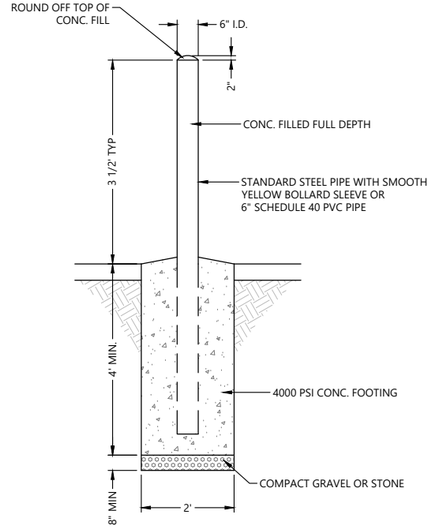


CONCRETE BASE TYPE 7B

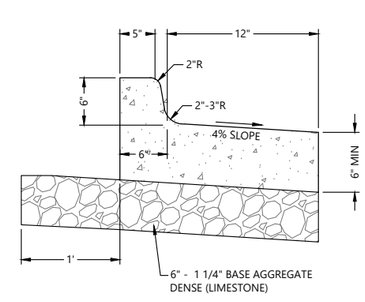
CONCRETE BASE GREATER THAN 3' FROM EDGE OF PAVEMENT



CONCRETE BASE ELEVATION DETAIL



CONCRETE BOLLARD



REJECT CURB

18-INCH CONCRETE CURB & GUTTER

NOT FOR CONSTRUCTION - NOT FOR CONSTRUCTION - NOT FOR CONSTRUCTION - NOT FOR CONSTRUCTION - NOT FOR CONSTRUCTION

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ISSUANCE
CITY SUBMITTAL #1 08/25/2021

DETAILS

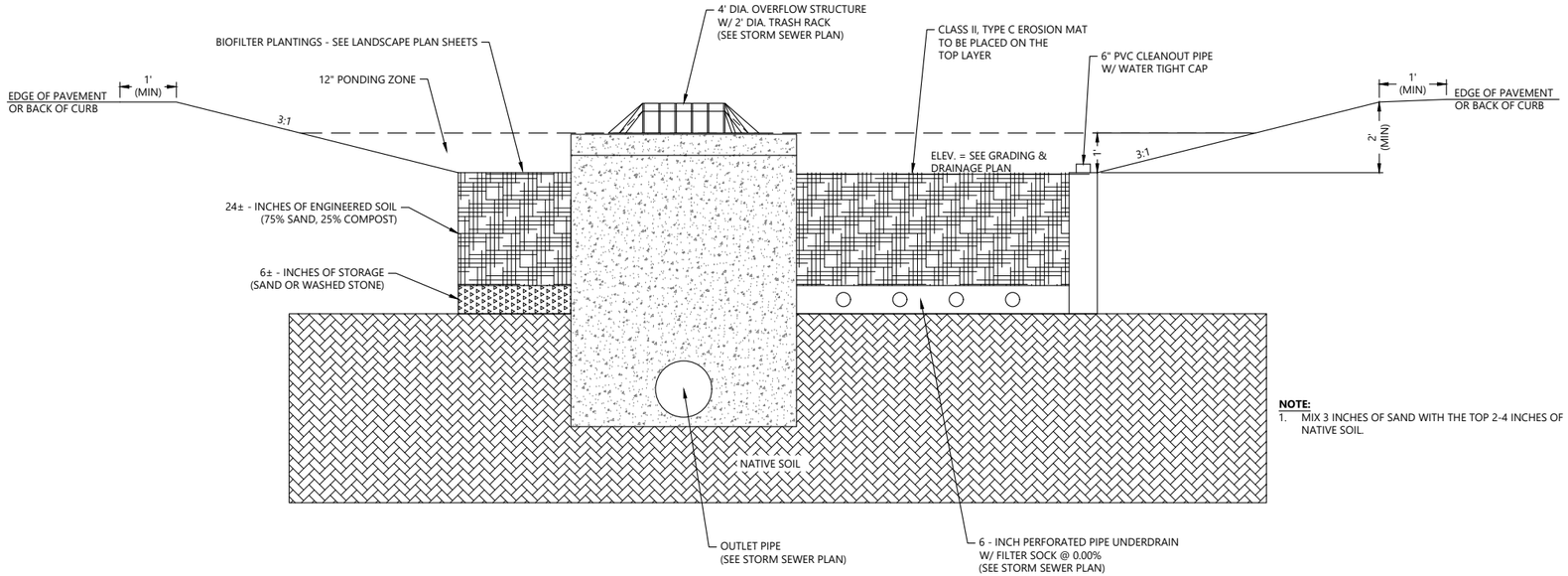
HENDRICKS COMMERCIAL PROPERTIES
1822 DOLPHIN DRIVE
CITY OF WAUKESHA
WAUKESHA COUNTY, WISCONSIN

33846 - C3.01 - DETAILS.DWG

DESIGNED BY: MF, LH, NJ
DRAWN BY: LC
CHECKED BY: AF
APPROVED BY: FM
PROJECT NO: 33846

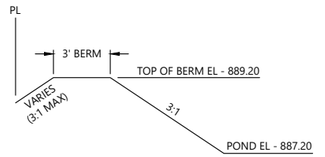
SHEET NO.
C3.05

PLOT DATE: 8/25/2021 2:07 PM

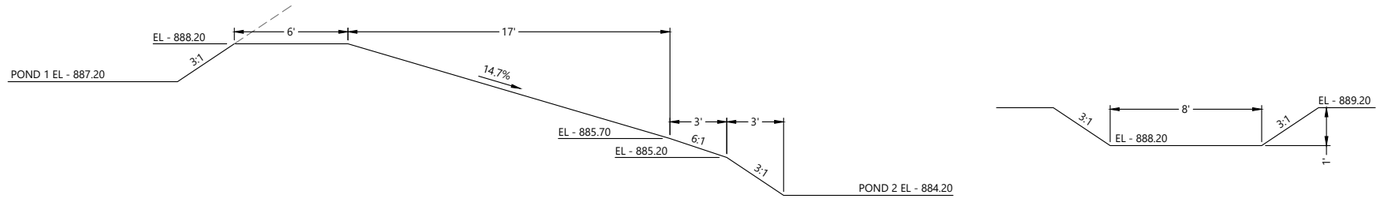


BIORETENTION/BIOFILTER DETAIL

NOT TO SCALE



BIORETENTION BASIN 1 BERM DETAIL
N.T.S.



OVERFLOW DETAIL - POND 1 TO POND 2
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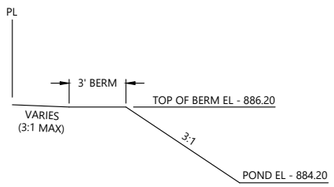

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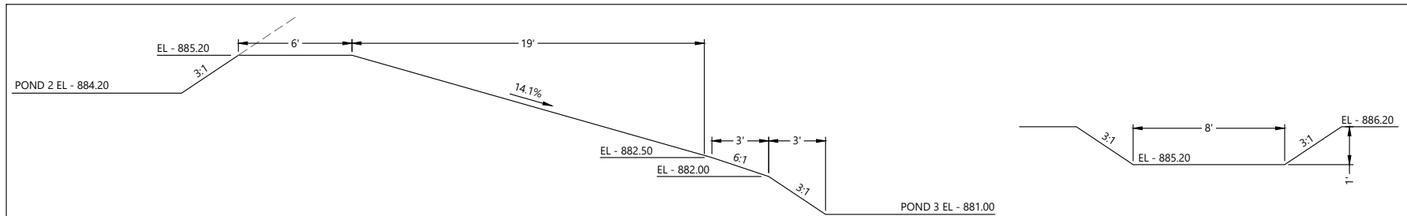

OVERFLOW DETAIL - POND 2 TO POND 3
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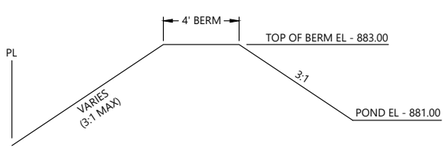

BIORETENTION BASIN 3 BERM DETAIL
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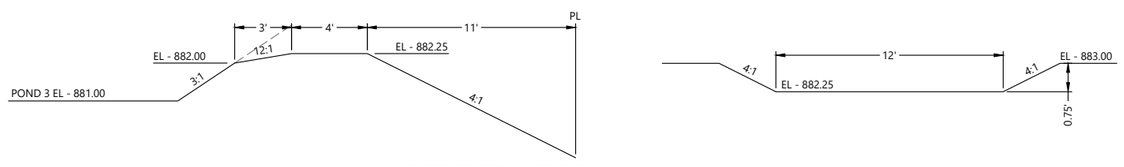

OVERFLOW DETAIL - POND 3
N.T.S.

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-	-

DETAILS

HENDRICKS COMMERCIAL PROPERTIES
1822 DOLPHIN DRIVE
CITY OF WAUKESHA
WAUKESHA COUNTY, WISCONSIN

33846 - C3.01 - DETAILS.DWG

DESIGNED BY:	MF, LH, NJ
DRAWN BY:	LC
CHECKED BY:	AF
APPROVED BY:	FM
PROJECT NO:	33846

SHEET NO.

C3.06

PLOT DATE: 8/25/2021 2:07 PM

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LIGHTING DETAILS

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CITY SUBMITTAL #1	08/25/2021
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DESIGNED BY: MF, LH, NJ
DRAWN BY: LC
CHECKED BY: AF
APPROVED BY: FM
PROJECT NO: 33846

HENDRICKS COMMERCIAL PROPERTIES
1822 DOLPHIN DRIVE
CITY OF WAUKESHA
WAUKESHA COUNTY, WISCONSIN

33846 - C3.01 - DETAILS.DWG

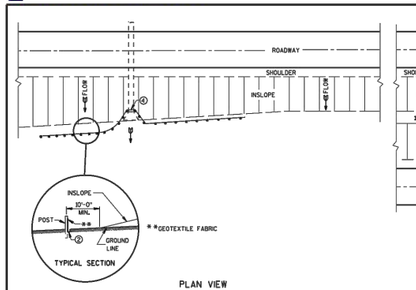
DETAILS

NOTE: DIMENSIONAL DATA IS NOT TO BE OBTAINED BY SCALING ANY PORTION OF THIS DRAWING.

SHEET NO.

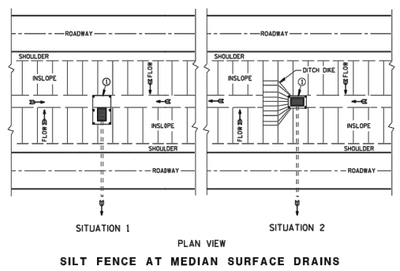
C3.07

SDD 8e9 Silt Fence



PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



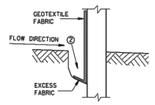
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

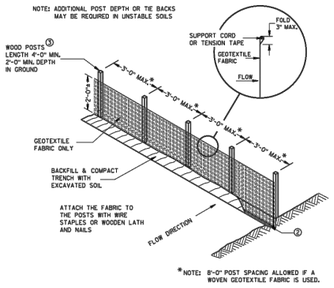
GENERAL NOTES

DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

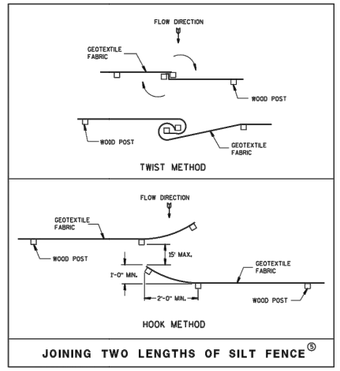
1. HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
2. FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
3. WOOD POSTS SHALL BE A MINIMUM SIZE OF 1½" X 1½" OF OAK OR HICKORY.
4. SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
5. CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS: A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.



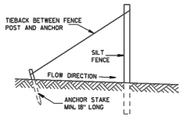
TRENCH DETAIL



SILT FENCE



JOINING TWO LENGTHS OF SILT FENCE[5]

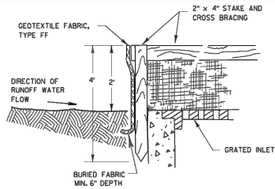


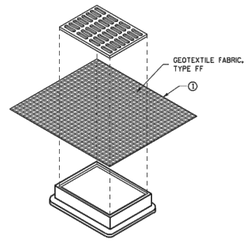
SILT FENCE TIE BACK
(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION
APPROVED 4-20-05 DATE /S/ Beth Conmastro CHIEF ROADWAY DEVELOPMENT ENGINEER FHWA

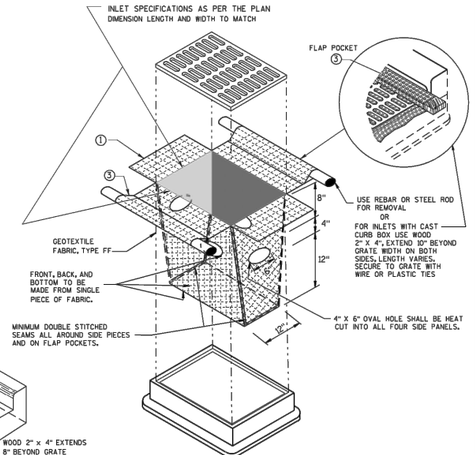
S.D.D. 8 E 9-6

8E10: Inlet Protection Type A, B, C and D

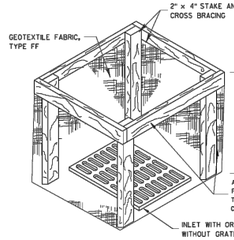




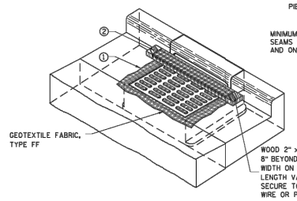
INLET PROTECTION, TYPE B
(WITHOUT CURB BOX)
(CAN BE INSTALLED IN ANY INLET WITHOUT A CURB BOX)



INLET PROTECTION, TYPE D
(CAN BE INSTALLED IN ANY INLET TYPE WITH OR WITHOUT A CURB BOX AS PER NOTE ②)



INLET PROTECTION, TYPE A



INLET PROTECTION, TYPE C (WITH CURB BOX)

GENERAL NOTES

INLET PROTECTION DEVICES SHALL BE MAINTAINED OR REPLACED AT THE DIRECTION OF THE ENGINEER.

MANUFACTURED ALTERNATIVES APPROVED AND LISTED ON THE DEPARTMENT'S EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED.

WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

① FINISHED SIZE, INCLUDING FLAP POCKETS WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.

② FOR INLET PROTECTION, TYPE C (WITH CURB BOX), AN ADDITIONAL 18" OF FABRIC IS WRAPPED AROUND THE WOOD AND SECURED WITH STAPLES. THE WOOD SHALL NOT BLOCK THE ENTIRE HEIGHT OF THE CURB BOX OPENING.

③ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2X4.

INSTALLATION NOTES

TYPE B & C

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.
THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

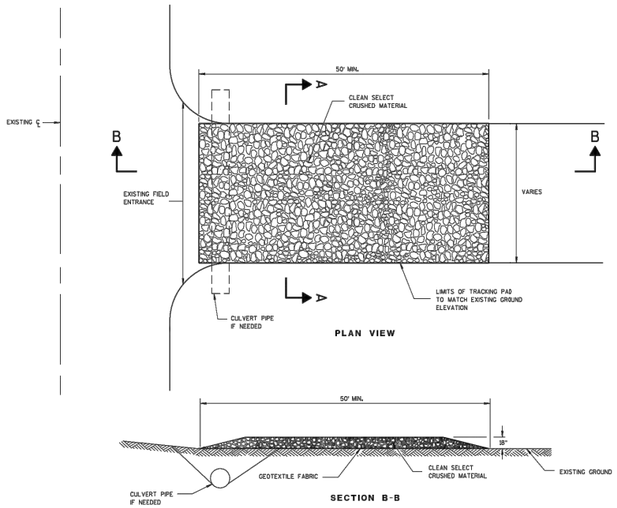
TYPE D

DO NOT INSTALL INLET PROTECTION TYPE D IN INLETS SHALLOWER THAN 30", MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE.
TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.
THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3", WHERE NECESSARY THE CONTRACTOR SHALL CINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4" FROM THE BOTTOM OF THE BAG.

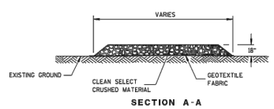
INLET PROTECTION TYPE A, B, C, AND D
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION
APPROVED 10/16/02 DATE /S/ Beth Conmastro CHIEF ROADWAY DEVELOPMENT ENGINEER FHWA

S.D.D. 8 E 10-2

8E14: Tracking Pad



PLAN VIEW



SECTION A-A

SECTION B-B

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

TRACKING PAD SHALL BE INSPECTED DAILY. DEFICIENT AREAS SHALL BE REPAIRED OR REPLACED IMMEDIATELY.

TRACKING PAD TO BE REMOVED AFTER CONSTRUCTION IS COMPLETED.

TRACKING PAD SHALL BE THE FULL WIDTH OF THE EGRESS POINT.

SURFACE WATER MUST BE PREVENTED FROM PASSING THROUGH THE TRACKING PAD. FLOWS SHALL BE DIVERTED AWAY, AROUND OR CONVEYED UNDER THE TRACKING PAD.

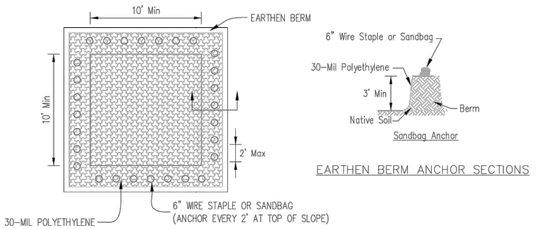
CULVERT PIPE OR OTHER BMP USED TO DIVERT WATER AWAY, AROUND OR UNDER THE TRACKING PAD SHALL BE DESIGNED TO CONVEY THE 2 YEAR - 24 HOUR EVENT.

THE COST OF ADDITIONAL BMP TO DIVERT WATER ARE INCIDENTAL TO THE TRACKING PAD BID ITEM.

TRACKING PAD

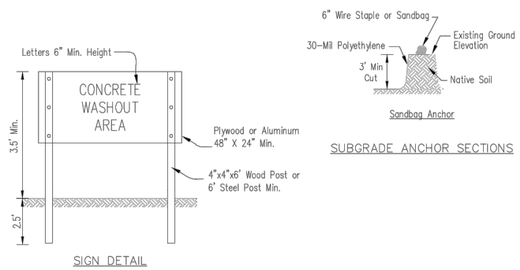
TRACKING PAD
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION
APPROVED 3/24/201 DATE /S/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER FHWA

S.D.D. 8 E 14-1



PLAN VIEW

EARTHEN BERM ANCHOR SECTIONS



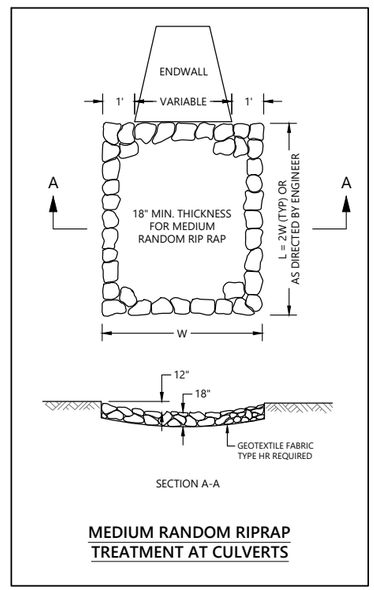
SIGN DETAIL

SUBGRADE ANCHOR SECTIONS

NOTES:

1. Maintaining temporary concrete washout facilities shall include removing and disposing of hardend concrete and/or slurry and returning the facilities to a functional condition.
2. Facility shall be cleaned or reconstructed in a new area once washout becomes two-thirds full.

TEMPORARY CONCRETE WASHOUT FACILITY - EARTHEN TYPE



SECTION A-A

MEDIUM RANDOM RIPRAP TREATMENT AT CULVERTS

S.D.D. 8 E 14-1

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ISSUANCE
CITY SUBMITTAL #1 08/25/2021

EROSION CONTROL DETAILS

HENDRICKS COMMERCIAL PROPERTIES
1822 DOLPHIN DRIVE
CITY OF WAUKESHA
WAUKESHA COUNTY, WISCONSIN

33846 - C3.01 - DETAILS.DWG

DESIGNED BY: MF, LH, NJ
DRAWN BY: LC
CHECKED BY: AF
APPROVED BY: FM
PROJECT NO: 33846

SHEET NO.
C3.08

PLOT DATE: 8/25/2021 2:07 PM

PRIVATE DRIVEWAY

STORM MANHOLE
RIM EL.=901.42'
NORTH 24" CORRUGATED PLASTIC INVERT EL.=896.32'
SOUTH 24" CORRUGATED PLASTIC INVERT EL.=890.52'

15' U.E. WISCONSIN ELECTRIC POWER CO. & WISCONSIN BELL, INC.)

STORM MANHOLE
RIM EL.=884.25'
WEST INVERT EL.=880.45'

CLEARING & GRUBBING
11,455 SF

CLEARING & GRUBBING
840 SF

ROUND INLET
RIM EL.=889.99'
NORTH 24" CORRUGATED PLASTIC INVERT EL.=885.79'
SOUTH 30" CORRUGATED PLASTIC INVERT EL.=885.29'

20' STORM SEWER AND DRAINAGE EASEMENT (CITY OF WAUKESHA)

REMOVE TREE (TYP.)

EXISTING BUILDING
F.F.E. = 892.77
1822 DOLPHIN DRIVE
WAKC1008077
HENDRICKS COMMERCIAL PROPERTIES

EXISTING DUMPSTER ENCLOSURE

EXISTING ELECTRIC METER

EXISTING OVERHEAD DOOR

EXISTING DOCKS

EXISTING GAS METER

REMOVE STAIRS

EXISTING MAN DOOR W/ STAIRS

MAIN ENTRANCE

SAWCUT AND REMOVE EXISTING PAVEMENT

SAWCUT AND REMOVE EXISTING PAVEMENT

SAWCUT AND REMOVE EXISTING PAVEMENT

REMOVE AND SALVAGE LIGHT POLE AND FIXTURE FOR REINSTALLATION. REMOVE CONCRETE BASE.

ROUND INLET
RIM EL.=891.08'
NORTH 30" CORRUGATED PLASTIC INVERT EL.=884.88'
SOUTH 30" CORRUGATED PLASTIC INVERT EL.=884.78'

30' SANITARY SEWER, STORM SEWER, AND DRAINAGE EASEMENT (CITY OF WAUKESHA)

STORM MANHOLE
RIM EL.=890.36'
NORTH 30" CORRUGATED PLASTIC INVERT EL.=884.66'
SOUTHEAST 14" CORRUGATED PLASTIC INVERT EL.=884.96'
SOUTH 24" CORRUGATED PLASTIC INVERT EL.=884.36'

ROUND INLET
RIM EL.=888.66'
NORTHWEST 14" CORRUGATED PLASTIC INVERT EL.=884.81'

ROUND INLET
RIM EL.=886.02'
SOUTHEAST 6" PLASTIC INVERT EL.=882.92'

SANITARY MANHOLE
RIM EL.=887.57'
NORTH INVERT EL.=874.03'
EAST INVERT EL.=874.07'
SOUTH INVERT EL.=873.97'

STORM MANHOLE
RIM EL.=886.33'
NORTH 24" CORRUGATED PLASTIC INVERT EL.=880.23'
SOUTH 187" CORRUGATED PLASTIC INVERT EL.=879.83'

SIDEWALK CORNER EASEMENT

CURB INLET
RIM EL.=882.65'
SOUTH 18" CORRUGATED PLASTIC INVERT EL.=876.70'
NORTH 18" CORRUGATED PLASTIC INVERT EL.=876.75'

SANITARY MANHOLE
RIM EL.=881.47'
NORTH INVERT EL.=862.17'
WEST INVERT EL.=861.12'
SOUTH INVERT EL.=861.32'
EAST INVERT EL.=861.57'
EAST INVERT EL.=868.97'

CURB INLET
RIM EL.=881.53'
SOUTH 12" CONCRETE INVERT EL.=877.53'

SANITARY MANHOLE
RIM EL.=877.69'
WEST INVERT EL.=859.39'
EAST INVERT EL.=859.49'

SANITARY MANHOLE
RIM EL.=880.11'
WEST INVERT EL.=860.41'
EAST INVERT EL.=860.36'

BY U.E. (AMERITECH WISCONSIN INC. & TIME WARNER, INC.)

DOLPHIN DRIVE

MARLIN COURT

0 15 30 60

N

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PLOT DATE: 8/25/2021 2:07 PM

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ISSUANCE	08/25/2021
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REMOVALS PLAN

NOTE: DIMENSIONAL DATA IS NOT TO BE OBTAINED BY SCALING ANY PORTION OF THIS DRAWING

HENDRICKS COMMERCIAL PROPERTIES
1822 DOLPHIN DRIVE
CITY OF WAUKESHA
WAUKESHA COUNTY, WISCONSIN

33846 - C4.01 - REMOVALS PLAN.DWG

DESIGNED BY:	MF, LH, NJ
DRAWN BY:	LC
CHECKED BY:	AF
APPROVED BY:	FM
PROJECT NO:	33846

SHEET NO.

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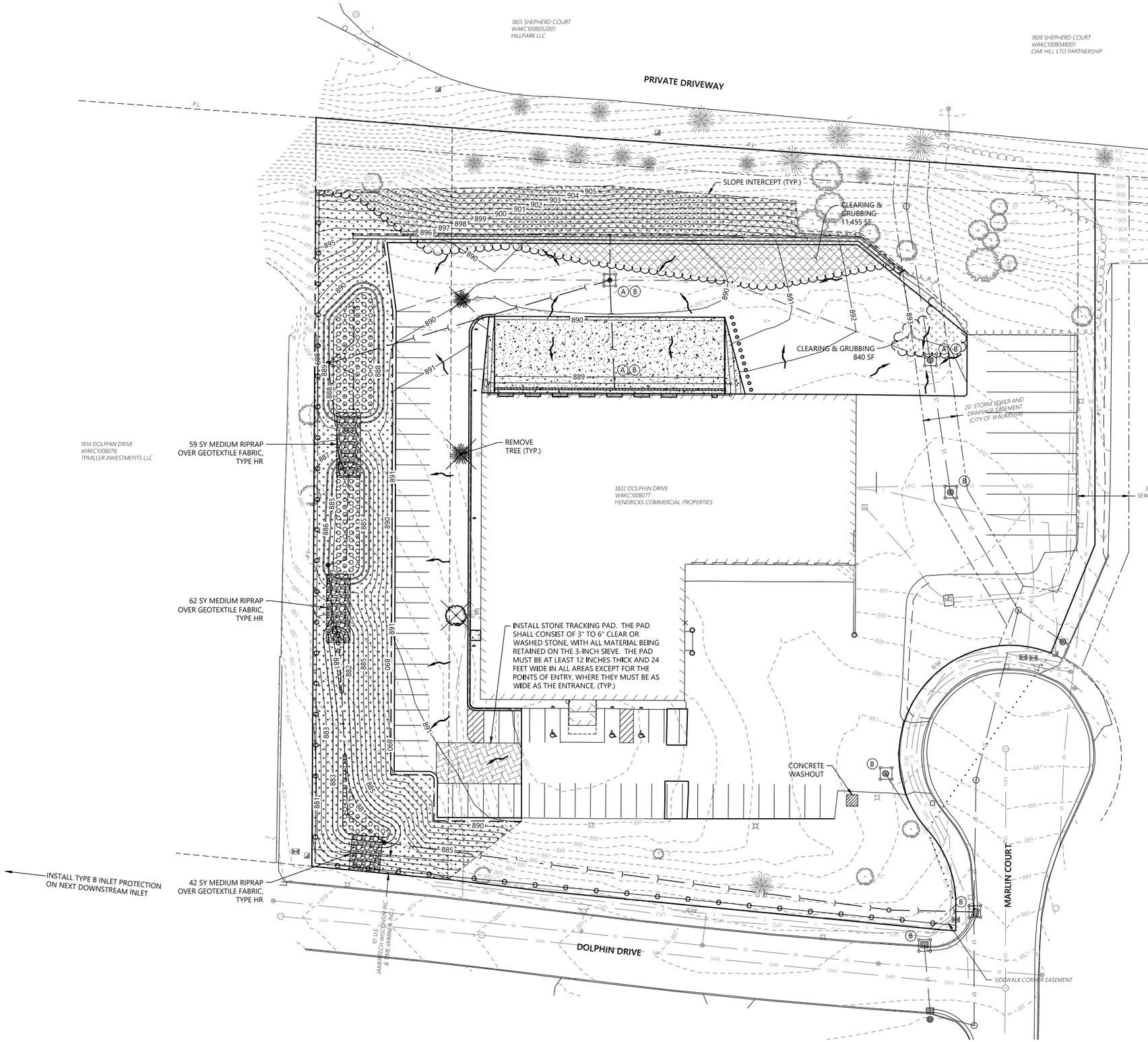

LEGEND

- SILT FENCE
- SURFACE WATER FLOW
- EROSION MAT CLASS I URBAN, TYPE B
- EROSION MAT CLASS II, TYPE C
- TRACKING PAD
- INLET PROTECTION, TYPE X

NOTES:

1. BIOINFILTRATION POND SHALL RECEIVE COMPACTION MITIGATION IN ACCORDANCE WITH WISCONSIN DNR TECHNICAL STANDARD 1003 BIORETENTION FOR INFILTRATION PRIOR TO THE PLACEMENT OF EROSION MAT AND SEEDING.
2. EROSION CONTROL FEATURES AS SHOWN IN THE PLANS ARE AT SUGGESTED LOCATIONS. THE ENGINEER MAY MODIFY LOCATIONS AS NEEDED. ALL EROSION CONTROL MEASURES SHALL BE MAINTAINED UNTIL SUCH TIME AS THE ENGINEER DETERMINES THE MEASURE IS NO LONGER NECESSARY.
3. ALL DISTURBED AREAS TO BE RESTORED WITH SEED, FERTILIZER, AND MULCH UNLESS OTHERWISE NOTED. FINAL SEEDING TO BE #40. PROVIDE 2 LBS/1000 SF (0.044 TONS/ACRE). REFERENCE SECTION 630 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION.
4. MULCHING SHALL CONFORM TO SECTION 627 OF WISCONSIN STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION.
5. INSTALL SILT FENCING AS SHOWN ON PLANS FOLLOWING COMPLETION OF REMOVALS AND PRIOR TO LAND DISTURBING ACTIVITIES.
6. ANY ADDITIONAL CONSTRUCTION ENTRANCES REQUIRED SHALL RECEIVE TRACKING PAD STABILIZATION.

SITE INFORMATION:

ZONING:	M-3 (LIMITED BUSINESS AND INDUSTRIAL PARK)
LOT AREA:	187,577 SF (4.31 AC)
SITE DISTURBED AREA:	79,285 SF (1.82 AC)
ON-SITE PARKING:	62 SPACES
HANDICAP PARKING:	3 SPACES
PROVIDED PARKING (TOTAL):	65 SPACES
PROVIDED TRAILER PARKING:	9 SPACES

NOT FOR CONSTRUCTION - NOT FOR CONSTRUCTION - NOT FOR CONSTRUCTION - NOT FOR CONSTRUCTION

PLOT DATE: 8/25/2021 2:07 PM

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Beloit, Wisconsin 53511
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www.rhbatterman.com

ISSUANCE
CITY SUBMITTAL #1 08/25/2021

EROSION CONTROL PLAN

NOTE: DIMENSIONAL DATA IS NOT TO BE OBTAINED BY SCALING ANY PORTION OF THIS DRAWING

HENDRICKS COMMERCIAL PROPERTIES
1822 DOLPHIN DRIVE
CITY OF WAUKESHA
WAUKESHA COUNTY, WISCONSIN

33846 - C4.02 - EROSION CONTROL PLAN.DWG

DESIGNED BY: MF, LH, NJ
DRAWN BY: LC
CHECKED BY: AF
APPROVED BY: PM
PROJECT NO: 33846

SHEET NO.
C4.02

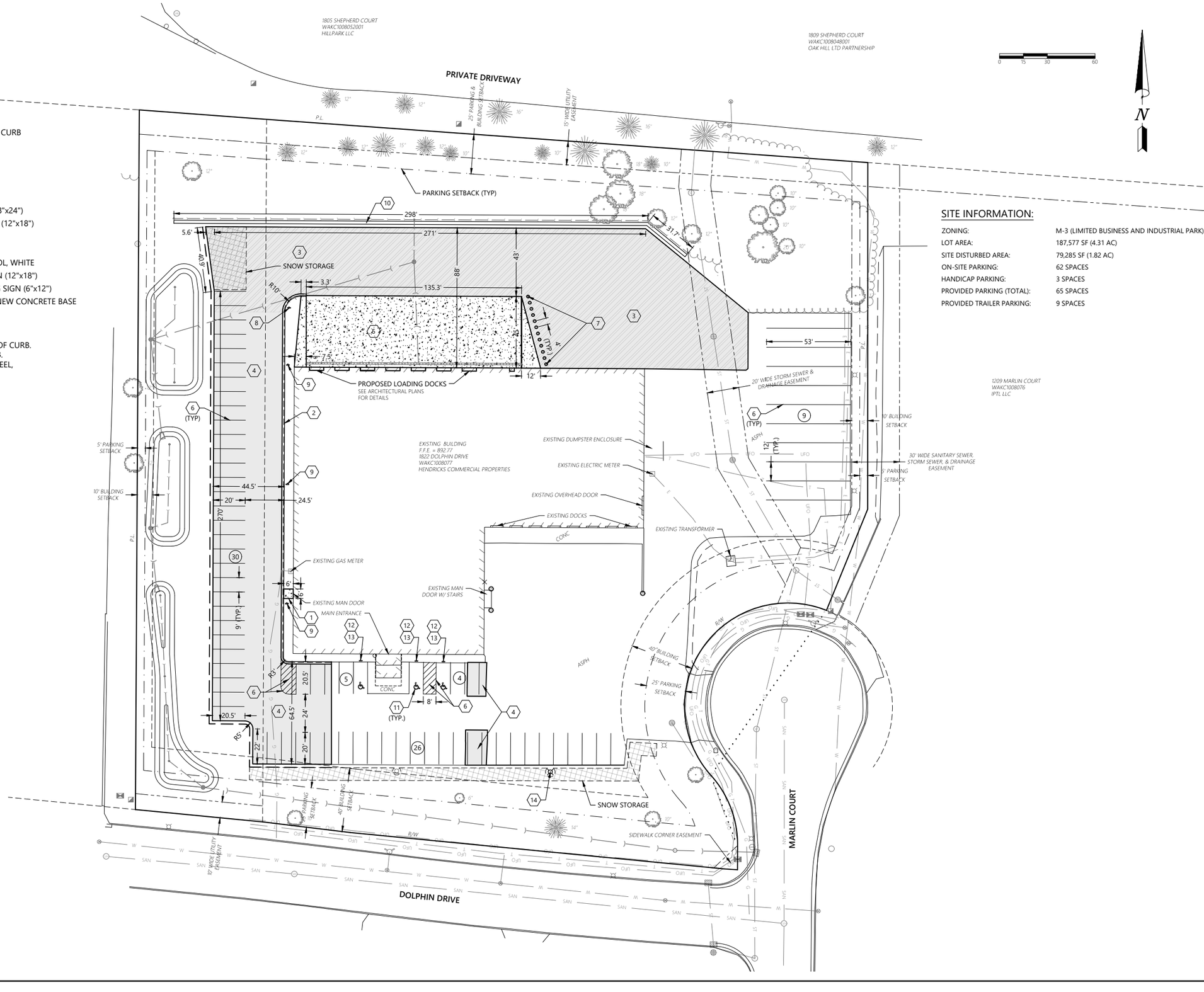
LEGEND

1. 4" CONCRETE SIDEWALK
2. 18" CONCRETE CURB & GUTTER - REJECT CURB
3. HEAVY DUTY PAVEMENT
4. STANDARD DUTY PAVEMENT
5. 8" REINFORCED CONCRETE PAVEMENT
6. PAVEMENT MARKING, 4" WHITE
7. CONCRETE BOLLARD
8. INSTALL "TRUCK TRAFFIC ONLY" SIGN (18"x24")
9. INSTALL R8-31 "NO PARKING FIRE LANE" (12"x18")
10. MODULAR BLOCK RETAINING WALL (RETAINING WALL DESIGN BY OTHERS)
11. PAVEMENT MARKING, HANDICAP SYMBOL, WHITE
12. INSTALL R7-8A HANDICAP PARKING SIGN (12"x18")
13. INSTALL R7-8V HANDICAP VAN PARKING SIGN (6"x12")
14. REINSTALL LIGHT POLE & FIXTURES ON NEW CONCRETE BASE

(X) PARKING COUNT

NOTES:

1. ALL DIMENSIONS SHOWN ARE TO BACK OF CURB.
2. ALL RADII SHOWN ARE TO BACK OF CURB.
3. ALL SIGNS TO BE ON A 2"x2" TUBULAR STEEL, DIRECT BURY POST.



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ISSUANCE
CITY SUBMITTAL #1 08/25/2021

SITE LAYOUT PLAN

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HENDRICKS COMMERCIAL PROPERTIES
1822 DOLPHIN DRIVE
CITY OF WAUKESHA
WAUKESHA COUNTY, WISCONSIN

33846 - C4.03 - SITE LAYOUT PLAN.DWG

DESIGNED BY: MF, LH, NJ
DRAWN BY: LC
CHECKED BY: AF
APPROVED BY: FM
PROJECT NO: 33846

SHEET NO.

C4.03

LEGEND

EP	EDGE OF PAVEMENT
TC	TOP OF CURB
TW	TOP OF WALL
BW	BACK OF WALL
ME	MATCH EXISTING

NOTES:

1. BIORETENTION BASINS SHALL RECEIVE COMPACTION MITIGATION IN ACCORDANCE WITH WISCONSIN DNR TECHNICAL STANDARD 1004 BIORETENTION FOR INFILTRATION PRIOR TO THE PLACEMENT OF EROSION MAT AND SEEDING.
2. SEE SHEET C4.04 FOR STORM SEWER PLAN
3. SEE SHEET C3.06 FOR BIORETENTION, BERM, AND OVERFLOW DETAILS.

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ISSUANCE	
CITY SUBMITTAL #1	08/25/2021

GRADING & DRAINAGE PLAN

HENDRICKS COMMERCIAL PROPERTIES
1822 DOLPHIN DRIVE
CITY OF WAUKESHA
WAUKESHA COUNTY, WISCONSIN

DESIGNED BY:	MF, LH, NJ
DRAWN BY:	LC
CHECKED BY:	AF
APPROVED BY:	FM
PROJECT NO:	33846

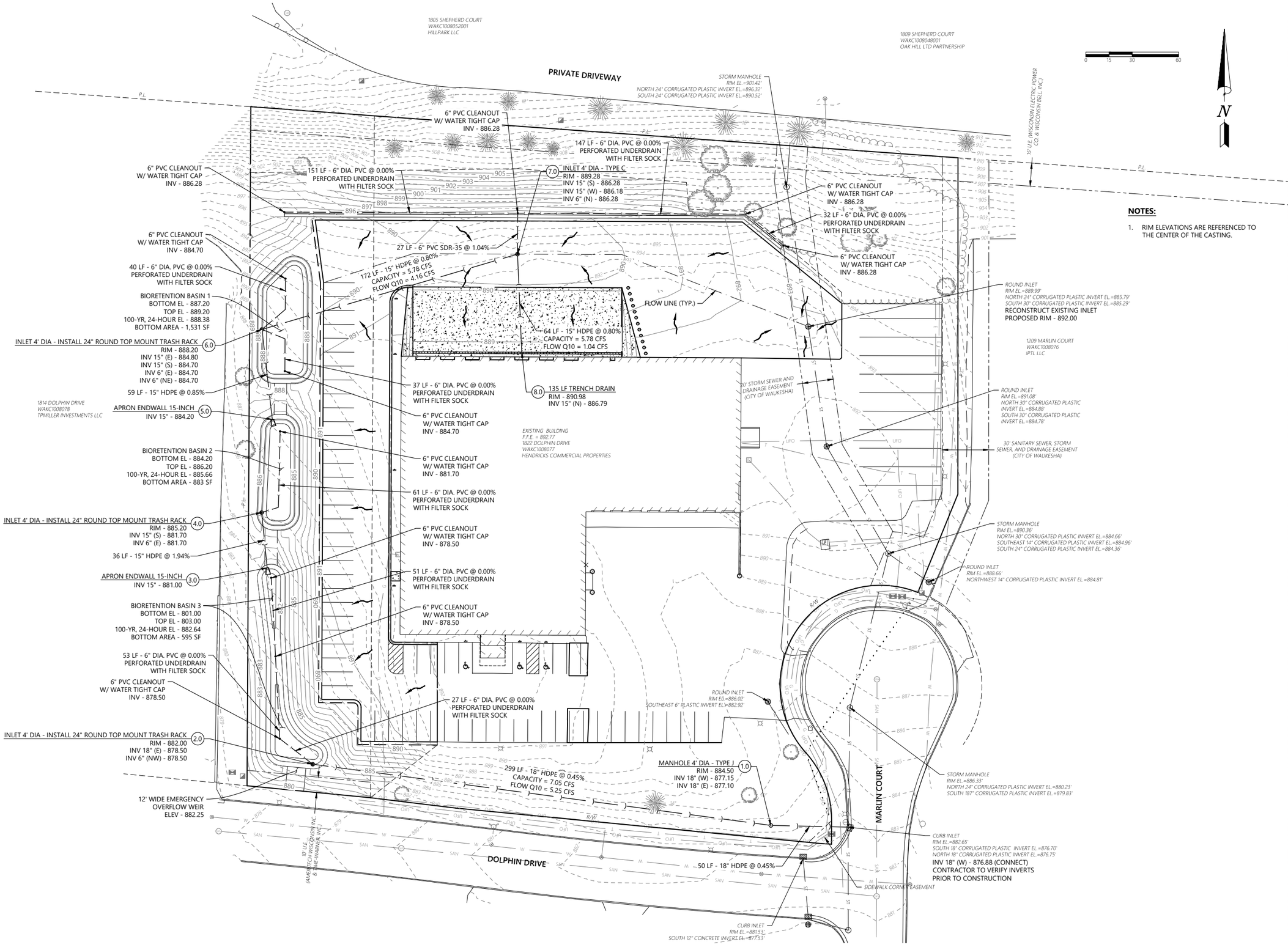
SHEET NO.

C4.04

NOTE: DIMENSIONAL DATA IS NOT TO BE OBTAINED BY SCALING ANY PORTION OF THIS DRAWING.

33846 - C4.04 - GRADING & DRAINAGE PLAN.DWG

PLOT DATE: 8/25/2021 2:08 PM



NOTES:

1. RIM ELEVATIONS ARE REFERENCED TO THE CENTER OF THE CASTING.

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CITY SUBMITTAL #1	-
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STORM SEWER PLAN

NOTE: DIMENSIONAL DATA IS NOT TO BE OBTAINED BY SCALING ANY PORTION OF THIS DRAWING.

HENDRICKS COMMERCIAL PROPERTIES
1822 DOLPHIN DRIVE
CITY OF WAUKESHA
WAUKESHA COUNTY, WISCONSIN

33846 - C4.05 - STORM SEWER.DWG

DESIGNED BY:	MF, LH, NJ
DRAWN BY:	LC
CHECKED BY:	AF
APPROVED BY:	FM
PROJECT NO:	33846

SHEET NO.

C4.05

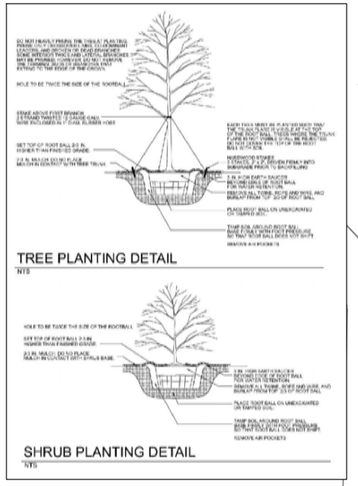
LANDSCAPE PLANT LEGEND

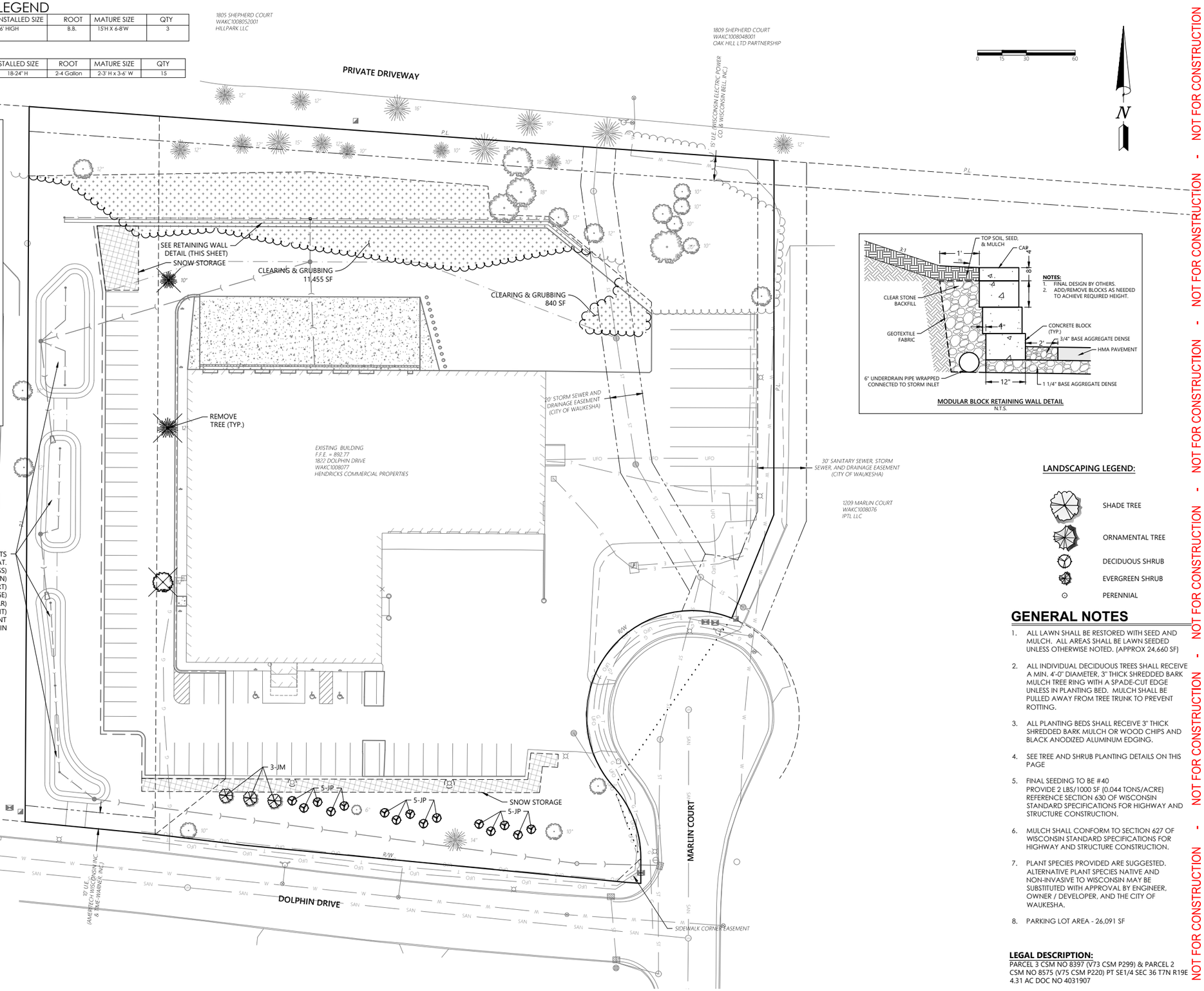
TREES

SYM	BOTANICAL NAME	COMMON NAME	INSTALLED SIZE	ROOT	MATURE SIZE	QTY
JM	*Juiperus Chinensis 'Mountbatten'*	Mountbatten Upright Juniper	6' HIGH	B.B.	15'H X 6-8'W	3

SHRUBS

SYM	BOTANICAL NAME	COMMON NAME	INSTALLED SIZE	ROOT	MATURE SIZE	QTY
JP	*Juniperus x pfitzeriana 'Kallay's Compact'*	Kallay Compact Juniper	18-24"H	2-4 Gallon	2-3' H x 3-6' W	15





MODULAR BLOCK RETAINING WALL DETAIL
N.T.S.

LANDSCAPING LEGEND:

- SHADE TREE
- ORNAMENTAL TREE
- DECIDUOUS SHRUB
- EVERGREEN SHRUB
- PERENNIAL

GENERAL NOTES

1. ALL LAWN SHALL BE RESTORED WITH SEED AND MULCH. ALL AREAS SHALL BE LAWN SEEDED UNLESS OTHERWISE NOTED. (APPROX 24,660 SF)
2. ALL INDIVIDUAL DECIDUOUS TREES SHALL RECEIVE A MIN. 4'-0" DIAMETER, 3" THICK SHREDDED BARK MULCH TREE RING WITH A SPADE-CUT EDGE UNLESS IN PLANTING BED. MULCH SHALL BE PULLED AWAY FROM TREE TRUNK TO PREVENT ROTTING.
3. ALL PLANTING BEDS SHALL RECEIVE 3" THICK SHREDDED BARK MULCH OR WOOD CHIPS AND BLACK ANODIZED ALUMINUM EDGING.
4. SEE TREE AND SHRUB PLANTING DETAILS ON THIS PAGE
5. FINAL SEEDING TO BE #40
   PROVIDE 2 LBS/1000 SF (0.044 TONS/ACRE)
   REFERENCE SECTION 630 OF WISCONSIN STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION.
6. MULCH SHALL CONFORM TO SECTION 627 OF WISCONSIN STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION.
7. PLANT SPECIES PROVIDED ARE SUGGESTED. ALTERNATIVE PLANT SPECIES NATIVE AND NON-INVASIVE TO WISCONSIN MAY BE SUBSTITUTED WITH APPROVAL BY ENGINEER, OWNER / DEVELOPER, AND THE CITY OF WAUKESHA.
8. PARKING LOT AREA - 26,091 SF

LEGAL DESCRIPTION:
PARCEL 3 CSM NO 8397 (V73 CSM P299) & PARCEL 2 CSM NO 8575 (V75 CSM P220) PT SE1/4 SEC 36 T7N R19E 4.31 AC DOC NO 4031907

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ISSUANCE
CITY SUBMITTAL #1 08/25/2021

LANDSCAPING PLAN

HENDRICKS COMMERCIAL PROPERTIES
1822 DOLPHIN DRIVE
CITY OF WAUKESHA
WAUKESHA COUNTY, WISCONSIN

33846 - C5.01 - LANDSCAPING PLAN.DWG

DESIGNED BY: MF, LH, NJ
DRAWN BY: LC
CHECKED BY: AF
APPROVED BY: FM
PROJECT NO: 33846

SHEET NO.
C5.01