GENESEE COUNTY PLANNING BOARD REFERRALS
NOTICE OF FINAL ACTION

GCDP Referral ID	**T-02-ALA-10-23**
Review Date	**10/12/2023**
Municipality	**ALABAMA, T.**
Board Name	**PLANNING BOARD**
Applicant's Name	**Edwards Vacuum, LLC**
Referral Type	**Site Plan Review & Final Subdivision**
Variance(s)	
Description:	**Site Plan Review and Final Subdivision for the construction of a new 236,000 sq. ft. manufacturing facility within the STAMP site.**
Location	**1249 Stamp Dr., Alabama**
Zoning District	**Technology District 1 (TD-1)**

PLANNING BOARD RECOMMENDS:

APPROVAL

EXPLANATION:

The proposed facility should pose no significant county-wide or inter-community impact. It is recommended that the applicant submits the attached application for 9-1-1 Address Verification to the Genesee County Sheriff's Office to ensure that an address is assigned that meets Enhanced 9-1-1 standards. It is further recommended that the applicant ensure that the proposed buildings will meet the Public Safety Radio System In-Building Coverage Requirement (NYS Fire Code Section 510), and that such requirement be verified post construction by the Code Enforcement Officer or by the Genesee County Sheriff's Office.

Felipe A. Oltmann

Director

October 12, 2023

Date

If the County Planning Board disapproved the proposal, or recommends modifications, the referring agency shall NOT act contrary to the recommendations except by a vote of a majority plus one of all the members and after the adoption of a resolution setting forth the reasons for such contrary action. Within 30 days after the final action the referring agency shall file a report of final action with the County Planning Board. An action taken form is provided for this purpose and may be obtained from the Genesee County Planning Department.

SEND OR DELIVER TO:
GENESEE COUNTY DEPARTMENT OF PLANNING
3837 West Main Street Road
Batavia, NY 14020-9404
Phone: (585) 815-7901

DEPARTMENT USE ONLY:
GCDP Referral # T-02-ALA-10-23

* GENESEE COUNTY * PLANNING BOARD REFERRAL

RECEIVED
Genesee County
Dept. of Planning
10/4/2023

Required According to:
GENERAL MUNICIPAL LAW ARTICLE 12B, SECTION 239 L, M, N
(Please answer ALL questions as fully as possible)

1. REFERRING BOARD(S) INFORMATION

Board(s) ALABAMA PLANNING BOARD
Address 2218 JUDGE ROAD
City, State, Zip OAKFIELD, NY 14125
Phone (585) 948 - 9341 Ext.

2. APPLICANT INFORMATION

Name EDWARDS VACUUM, LLC
Address 6416 INDUCON DRIVE-WEST
City, State, Zip SANBORN, NY 14132
Phone (716) 954 - 5383 Ext. Email jeff.mickel@edwardsvacuum.com

MUNICIPALITY: ☐ City ☒ Town ☐ Village of ALABAMA

3. TYPE OF REFERRAL: (Check all applicable items)

- ☐ Area Variance
- ☐ Use Variance
- ☐ Special Use Permit
- ☒ Site Plan Review
- ☐ Zoning Map Change
- ☐ Zoning Text Amendments
- ☐ Comprehensive Plan/Update
- ☐ Other:

Subdivision Proposal
- ☐ Preliminary
- ☒ Final

4. LOCATION OF THE REAL PROPERTY PERTAINING TO THIS REFERRAL:

A. Full Address 1249 STAMP DRIVE ALABAMA, NY 14013
B. Nearest intersecting road CROSBY ROAD
C. Tax Map Parcel Number 10.-1-15.11 AND 10.-1-13.1
D. Total area of the property 50 ACRES Area of property to be disturbed 47 ACRES
E. Present zoning district(s) TD-1

5. REFERRAL CASE INFORMATION:

A. Has this referral been previously reviewed by the Genesee County Planning Board?

☒ NO ☐ YES If yes, give date and action taken

B. Special Use Permit and/or Variances refer to the following section(s) of the present zoning ordinance and/or law

N/A

C. Please describe the nature of this request SITE PLAN REVIEW AND SUBDIVISION FOR THE CONSTRUCTION OF A NEW 236,000 SQ FT MANUFACTURING FACILITY

6. ENCLOSURES – Please enclose copy(s) of all appropriate items in regard to this referral

- ☒ Local application
- ☒ Site plan
- ☐ Subdivision plot plans
- ☒ SEQR forms
- ☐ Zoning text/map amendments
- ☐ Location map or tax maps
- ☒ Elevation drawings
- ☐ Agricultural data statement
- ☐ New or updated comprehensive plan
- ☐ Photos
- ☐ Other:

7. CONTACT INFORMATION of the person representing the community in filling out this form (required information)

Name MARK BOYLAN Title TOWN ATTORNEY Phone (585) 768 - 8148 Ext.
Address, City, State, Zip P.O. BOX 307 LE ROY, NY 14482 Email mboylan@boylanlawoffice.com

Geis Companies
10020 Aurora Hudson
Streetsboro, Ohio 44241
P: (330) 528-3500
F: (330) 528-0008

Project: 23-00-523 Kingfisher / Edwards
1249 Stamp Drive
Alabama, New York 14013

Transmittal #1 - Town of Alabama Planning Board Materials

To	Robert Klavoon (Wendel Companies)	**From**	Kevin Watts (Geis Construction) 10020 Aurora Hudson Road Streetsboro, 44241
Date Created	Sep 25, 2023		
Copies To	Kevin Watts (Geis Construction), Jeff Mickel (Edwards), Mike Metzger (Metzger Civil Engineering), Jeff Martin (Geis Construction), Rene Jimenez (Geis Construction), David Ciurzynski (Ciurzynski Consulting, LLC)		
Transmit	Attached	**Sent Via**	Attached
Submitted For	Your Use	**Action As Noted**	

Transmittal Items

Format	Description	Date	Copies
Document	1.Town of Alabama Application for Site Plan Review 9.27.23.pdf. 1. Town of Alabama Application for Site Plan Review View	Sep 27, 2023	10
Document	2.Town of Alabama Site Plan Checklist_09.25.23.pdf. 2. Town of Alabama Site Plan Checklist View	Sep 27, 2023	10
Document	3. TD-Checklist 9.25.23 View	Sep 27, 2023	10
Document	4.AlabamaPB Findings checklist_Edwards Vacuum.docx. 4. Alabama PB Findings Checklist View Not included with County Referral	Sep 27, 2023	10
Plans	5. Edwards Renderings 9-25-23 View	Sep 27, 2023	10
Samples	6.Edwards Digital Exterior Materials Board_092523.pdf. 6. Edwards Digital Exterior Materials Board View	Sep 27, 2023	10
Document	7. Engineers Report View	Sep 27, 2023	10
Plans	8. Full Plan Set View	Sep 27, 2023	10
Document	9. SWPPP View	Sep 27, 2023	10

Comments

Please find attached the following information for the Edwards Kingfisher project

1. Town of Alabama Application for Site Plan Review
2. Town of Alabama Site Plan Checklist
3. TD Checklist
4. Alabama PB Findings Checklist Edwards Vacuum
5. Edwards Renderings
6. Edwards Digital Exterior Materials Board
7. Engineers Report
8. Full Plan Set
    1. Civil Drawings
    2. Landscape Drawings
    3. Photometric Lighting Plan
9. SWPPP

Please let me know if you have any questions on our package

Kevin Watts
Vice President – Geis Construction

(C) 440-454-5195
kevinw@geisco.net

Geis Companies
INDUSTRIAL DEVELOPERS BUILDERS DESIGNERS
10020 Aurora-Hudson Road Streetsboro, Ohio 44241
Office 330-528-3500

TOWN OF ALABAMA
APPLICATION FOR SITE PLAN REVIEW
2218 Judge Road, Oakfield, NY 14125

INSTRUCTIONS

Please submit this form, signed and dated, with ten copies of the materials listed on the Site Plan Application Checklist (per Town law) and the applicable site plan review fee (refer to current Zoning Fee Schedule) to the Town Clerk. Applications are due three weeks prior to the next scheduled Planning Board meeting. Incomplete applications will not be placed on the agenda.

APPLICANT INFORMATION

Developer Name: Geis Development

Name of Contact: Kevin Watts

Email Address: Kevin W@ Geisco.net Phone Number: 440-454-5195

Address: 10020 Aurora Hudson Rd City: Streetsboro State: OH ZIP: 44240

Property Owner Name(s) (if different): Edwards Vacuum LLC

Email Address: Jeff.Mickel@edwardsvacuum.com Phone Number: 716-954-5383

Address: 6416 Inducon Drive West City: Sanborn State: NY ZIP: 14132

Closing on Thursday.

PROJECT INFORMATION

Site Address: 1249 Stump Drive Alabama NY 14013

SBL Number: 10.-1-15.11 ; 10-1-13.1 Zoning District(s): TDI

Detailed Description of Proposed Project: Construction of a new manufacturing facility for Edwards Vacuum. ~236,210 sf within the STAMP site.

Current Use of Property: Agricultural Proposed Use: Industrial

Number of Units (Residential Projects): N/A

Square Feet (Non-Residential Projects): 236,210

Number of Parking Spaces: 300

Construction Time Frame: March 24' – October 25' Construction in multiple phases? ☐

The information provided above is true and accurate to the best of my knowledge.

Kevin Watts
Property Owner or Applicant Signature

September 27, 2023
Date

I. GENERAL

n/a_____ Are matchlines drawn and labeled correctly.

n/a_____ Are all easement widths noted on plans and called out as "Town of Alabama Water/Sewer Easement", "Town of Alabama Drainage Easement" or "General Utility Easement".
PRIVATE DRAINAGE EASEMENTS ONLY

√_____ All easements (sanitary sewer, water, drainage, utility) must be shown on the plans.

√_____ All elevations must reference the actual elevation of the site and proposed building. Setting a base elevation at the centerline of the road to use as reference is not acceptable.

n/a_____ All profiles provided must be drawn so that the horizontal scale is no more than 1" = 10' horizontal, and 1" = 5' vertical.

n/a_____ Profiles be provided for utility crossings, the sanitary sewer system, and storm sewer system.

n/a_____ Profiles for any utilities as deemed necessary by the engineer for construction.

√_____ The plat map must be signed and sealed by a professional surveyor.

√_____ The design drawings must be signed and sealed by a professional engineer.

√_____ Provide a site location map showing the location of the parcel(s) that provides road names, names of adjacent bodies of water, streams, major utilities, railroads, etc.

√_____ A boundary survey of the parcel(s) involved with the site plan shall be provided.

n/a_____ A certificate signed by the surveyor or engineer setting forth the source of title and the place of record of the last instrument in the chain of title shall be provided.

√_____ All existing structures, roads, easements, utility lines, streams and drainageways, floodplain and wetland designations, natural features and landforms, existing topography (max 2-foot contours) must be shown on an "existing conditions" drawing.

√ The plan must discuss / label existing zoning and present use of the property and surrounding properties, as well as show setback of existing development to the nearest property line.

√ All plans shall contain north arrow, scale and date.

√ All proposed streets, easements, location, type and size of vehicle entrances including fire lanes shall be shown.

√ Information on parking, vehicle loading and stacking, indicating surfacing, size and angle of parking stalls, width of drive aisles and the schedule of spaces to serve the proposed development must be shown in the plans.

√ Information on the location and layout of proposed structures, including number of floors, floor area, height, gross and net density, setbacks and proposed use of each structure shall be included in the plans.

√ A general landscaping plan and planting schedule shall be included in the plans.

n/a Any and all separate permits required for the development must be obtained prior to finalization of site plan approval.

II. UTILITY PLAN- GENERAL

√_____ A note must be on the plans that states "A minimum of 10.0 feet of horizontal and 18 inches of vertical separation must be maintained between all sanitary sewer and water services."

√_____ A note must be on the plan that states "Select backfill is required for all utilities (gas, water, storm, sanitary) that cross through any pavement area." The limits of the select backfill must be shown on the utility plan.

√_____ All existing utilities, grading, etc. must be shown use a grey line type.

√_____ All proposed utilities, grading, etc. must be shown use a black line type.

√_____ Location, type and height of lighting, fencing, retaining walls, screen planting and signage shall be shown on the plans.

III. UTILITY PLAN- WATER

√_____ A note must be on the plans that states "The Town of Alabama is to be notified a minimum of 48-hours prior to starting the connection for the new water service."

√_____ All notes on the plans must reference the "Town of Alabama"

√_____ Provide a trench detail for the proposed waterline installation. The detail must show the depth of cover, stone bedding and indicate the use of underground waterline marker tape.

√_____ A note must be added to the drawings that retaining glands are required on all waterline fittings.

√_____ Are notes requiring 5-feet of cover to be maintained over waterline included?

√_____ Are watermain trench edges at least 5' away from edge of public pavement and gutters?

√_____ Check for watermain conflicts with other pipes or underground obstacles. (Note: Vertical separation on plan near each crossing)

n/a_____ Check that all numbers and notations agree between plans and profiles.

n/a_____ Do all water fittings, valves, hydrants, etc. have stations and offsets.

√_____ Are service(s) located on plan (drawn or chart form).

n/a_____ Is existing waterline information shown on plans including size, location and type of material?
WATERLINE NOT YET INSTALLED ALONG EDWARDS LANE

√_____ Has submitting engineer flow tested waterline at project site for adequate fire protection.

TBD_____ Backflow prevention for water connections may be required. The type, placement and supporting calculations are subject to Town review and approval.

IV. UTILITY PLAN- SEWER

√ Add a note to the plans that states "The Town of Alabama is to be notified a minimum of 48-hours prior to starting the connection for the new sanitary sewer service."

√ All notes on the plans must reference the "Town of Alabama"

√ Maximum distance between manholes is 400'.

√ Manholes should be placed on lot lines where possible.

√ Are pipe grades, lengths and inverts correct on sanitary sewer.

√ Are sanitary sewer trench edges at least 5' away from edge of Public pavement or gutter?

n/a Do rim elevations on sanitary sewer manholes match road crown elevation.

√ Check for sanitary sewermain conflicts with other pipes or underground obstacles. (Note: Vertical separation on plan near each crossing)

n/a Check that all numbers and notations agree between plans and profiles.

n/a Do all sanitary manholes, c.o's etc. have stations and offsets.

n/a Does 8 tenths rule need to be applied to sanitary sewer?

n/a Are connections to existing sanitary sewers noted?
PUBLIC SANITARY SEWER SYSTEMS TO BE CONSTRUCTED

n/a Is sanitary sewermain offset from baseline or utility easement dimensioned on plans.

n/a Are flat top manholes noted where rim to invert dimension is less than 7.1'.

n/a Are inside drop connections used where difference in inverts is over 2.0'.

√ Are Manholes numbered on plans.

n/a Is existing sanitary sewerline information shown on plans including size, location and type of material.
PUBLIC SANITARY SEWER SYSTEM TO BE CONSTRUCTED

n/a_____ If an existing manhole needs to be core drilled, check to see if hole will fall on manhole section seam, if it does can it be moved?

V. PAVEMENT

√_____ Asphalt pavement (parking lot) grades should be at least 1.5%, preferably 2.0% to drain properly, minimize public safety concerns and avoid liability issues. These grades must be shown on the drainage plan with flow arrows showing the direction of water flow.

√_____ Show on the plans a cross section of proposed sidewalk

√_____ Show on the plans a cross section of the proposed asphalt pavement. It is suggested that a thicker asphalt section be used for high traffic travel areas where the dumpster is located or where deliveries will occur.

n/a_____ If connections to cross access driveways are being made with adjacent sites, a detail must be shown on the plans for the proposed connection. The pavement transition detail must include a V-shaped saw cut into the existing pavement and tack coat.

n/a_____ Provide cut/fill calculations.
BALANCE OF FILL WILL REMAIN ON SITE. NO OFFSITE MATERIAL HAULING

VI. DRAINAGE/GRADING

√_____ The stockpile area for topsoil and fill must be shown on the design plans.

√_____ Spot elevations for adjacent properties must be provided on the grading plan.

√_____ A minimum of 12-inches of cover are required for all storm sewer pipes. Storm sewer pipe located within the sub-base of the pavement area is not allowed.

√_____ Invert elevations must be shown for all culverts under driveways.

√_____ Provide energy dissipation at all storm pipe outlets.

√_____ Provide emergency overflow for the detention pond above the 100-year storm elevation, that can safely pass the peak 100-year flow into the pond.

n/a_____ All culverts under driveways must be shown with galvanized end sections.

√_____ Diameter, material type, and inverts of all roof leader downspouts must be shown on the plans.

√_____ Diameter, material type, and inverts of all stormsewer pipes must be shown on the plans.

√_____ Is the FFE of the structure 18 inches above the centerline of adjacent roadways?

√_____ Are pipe grades, lengths and inverts correct on storm sewer.

√_____ Are storm sewerline trench edges at least 5' away from edge of public pavement or gutter where applicable.

√_____ Are C.B. rims at correct elevations

√_____ Check for storm sewer conflicts with other pipes or underground obstacles.
(Note: Vertical separation on plan near each crossing)

n/a_____ Check that all numbers and notations agree between plans and profiles.

n/a_____ Do all storm manholes and C.B.'s have station, offset and inverts.

√_____ Make sure all ditches have flow arrows indicating direction of flow.

n/a_____ Is existing storm sewerline information shown on plans including size, location and type of material.

n/a_____ All roadside ditches directly adjacent to the site shall be culverted (covered) unless the developer demonstrates to the satisfaction of the board that, for engineering, culverting (covering) is not feasible.

n/a_____ For sites with less than one (1) acre of disturbance, and greater than a 5000 square foot increase in impervious area, the design engineer is required to detain the difference between the 10-year pre-developed storm and the 25-yeat post-developed 24-hour design storm event.

√_____ For sites with greater than one (1) acre of disturbance, the design engineer is required to detain the difference between the 10-year pre-developed storm and the 25-yeat post-developed 24-hour design storm event, AND comply will all NYSDEC Stormwater Phase 2 regulations and design guidance (per GP-15-001 or most recent version of the General Permit).

√_____ Has "Letter of No Effect" been provided from SHPO so that the SWPPP can be submitted?

VII.SITE PLAN ENGINEERING REPORT

√ The applicant must provide three (3) copies of the site plan engineering report. This report will contain (at a minimum), the following sections:

- General Project Description
- Project Location Map
- Water System Calculations
- Sanitary Sewer System Calculations
- Storm Water Calculations

TBD Provide the following information related to the proposed waterline for the facility in the design report. This would include the following:

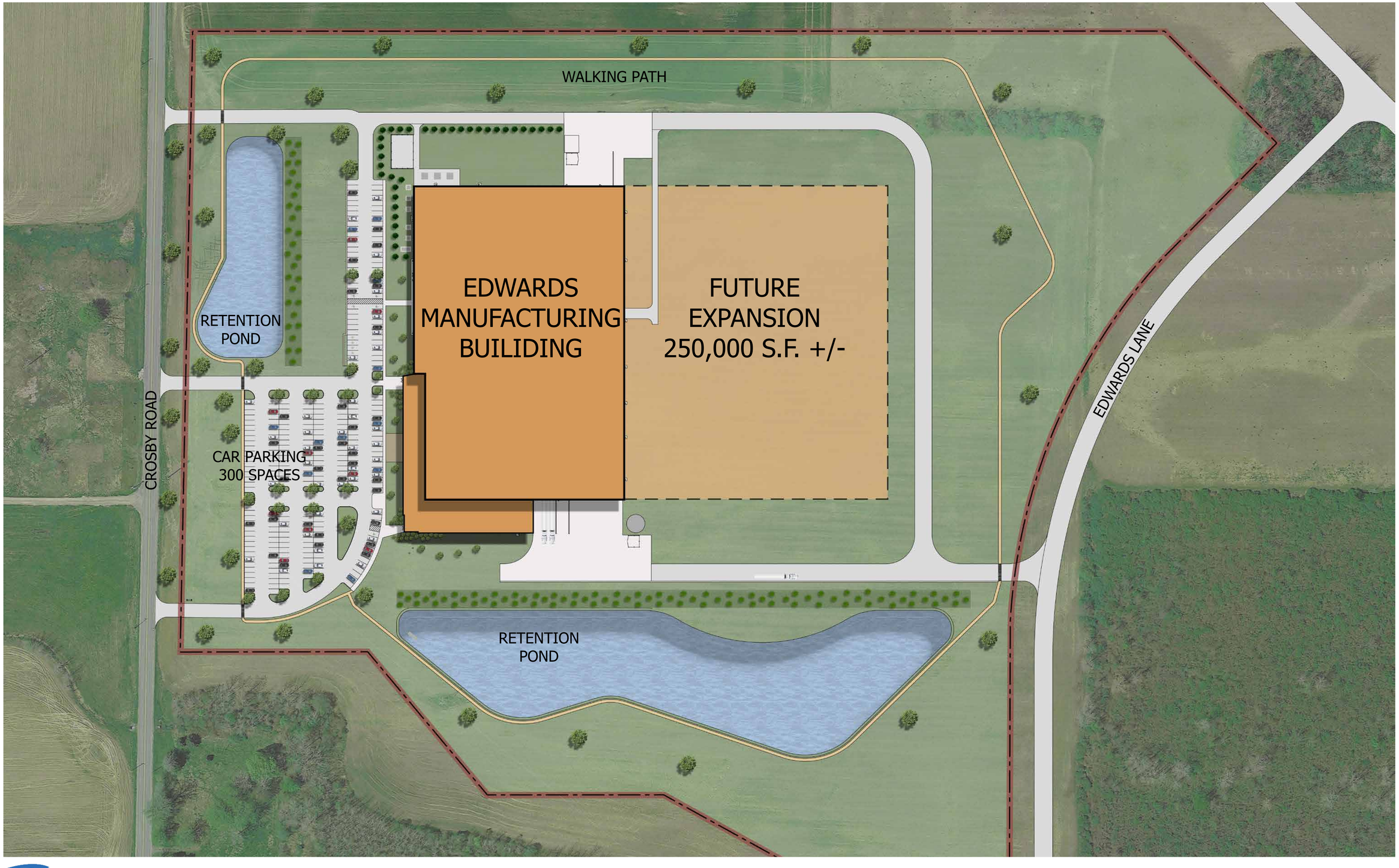
- Domestic water demand (include Calculations)
- Static waterline pressure (at the waterline at the right-of-way.)
- Anticipated pressure at the facility (include headloss calculations through the water service and backflow preventer/RPZ and meter)
- The design engineer must comment on the need to provide a sprinkler system for the facility.
- Provide fireflow calculations for the facility (if applicable).

√ Provide the following information related to the proposed sanitary sewer system for the facility in the design report. This would include the following:

- Number of employees at the facility.
- Sanitary sewer demand and lateral pipe sizing (include Calculations)

√ Provide the following information related to the storm water calculations for the facility in the design report. This would include the following:

- Soil types of the site
- Permeability and depth of water table of the soil.
- Description/Narrative on existing grading and stormwater runoff.
- Description/Narrative on proposed grading and stormwater runoff.
- Comment on the presence and show location of any NYSDEC or Federal Wetlands, wetland buffer areas, or 100-year Floodplain boundaries.
- For sites with less than one (1) acre of disturbance, the design engineer is required to detain the difference between the 10-year pre-developed storm and the 25-yeat post-developed storm. Calculations must be provided supporting the entire stormwater system.
- For sites with greater than one (1) acre of disturbance, the design engineer is required to detain the difference between the 10-year pre-developed storm and the 25-year post-developed storm, AND comply will all NYSDEC Stormwater Phase 2 regulations. Calculations must be provided supporting the entire design of the stormwater system.
- Calculations to be provided must include all assumptions, time of concentration, and detention pond sizing, and stormwater pipe sizing.
- All existing headwater and tailwater conditions must be considered for the design calculations.



PROPOSED SITE PLAN

GEIS COMPANIES

OCTOBER 2, 2023

EDWARDS

GEIS COMPANIES

OCTOBER 2, 2023

CONCEPTUAL RENDERING

EDWARDS

DAY 1 LANDSCAPING

MATURE LANDSCAPING

GEIS COMPANIES

OCTOBER 2, 2023

CONCEPTUAL RENDERING

EDWARDS

DAY 1 LANDSCAPING

MATURE LANDSCAPING

GEIS COMPANIES

OCTOBER 2, 2023

CONCEPTUAL RENDERING

EDWARDS

DAY 1 LANDSCAPING

MATURE LANDSCAPING

CONCEPTUAL RENDERING

GEIS COMPANIES

OCTOBER 2, 2023

EDWARDS

SOUTH

NORTH

EAST

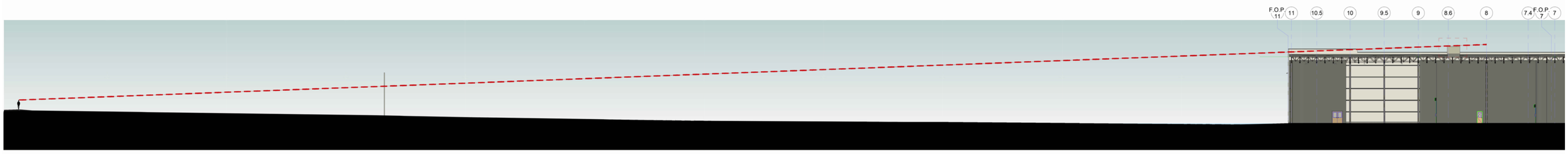
WEST

GEIS COMPANIES

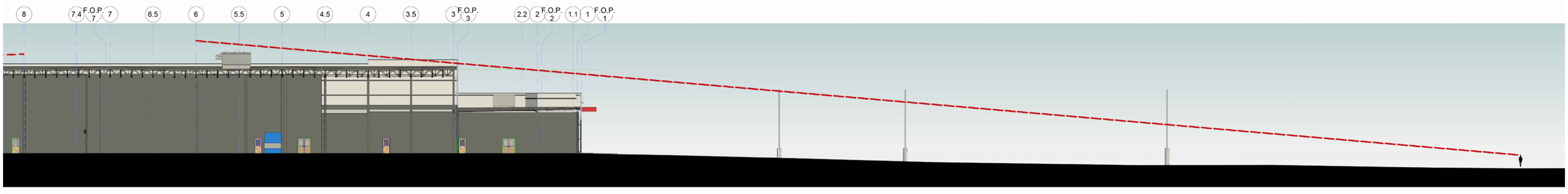
OCTOBER 2, 2023

ELEVATIONS

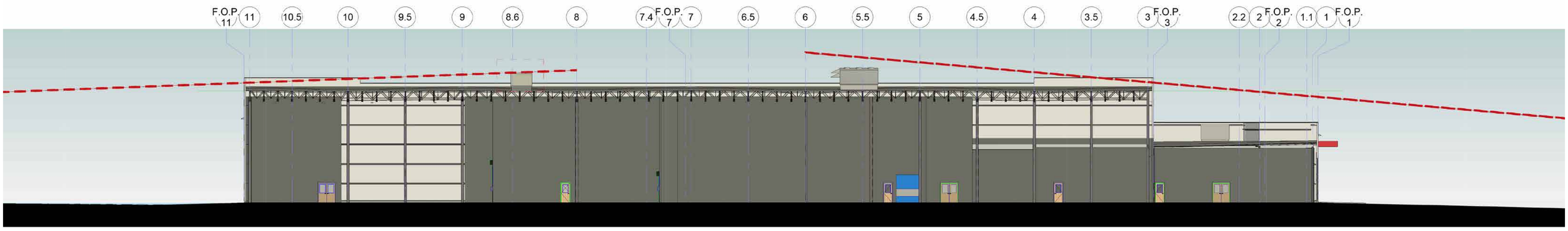
EDWARDS



LINE OF SIGHT FROM EAST



LINE OF SIGHT FROM WEST



LINE OF SIGHT

CONCEPTUAL RENDERING

GEIS COMPANIES

EDWARDS

1

INSULATED METAL PANEL
(THERMALSAFE)
METL-SPAN
COLOR: REGAL GRAY

2

INSULATED METAL PANEL
(THERMALSAFE)
METL-SPAN
COLOR: TUNDRA

3

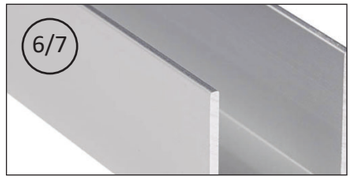
INSULATED METAL PANEL
(THERMALSAFE)
METL-SPAN
COLOR: POLAR WHITE

4

ACM CANOPY
ALPOLIC (OR EQUAL)
COLOR TO MATCH
RAL-3020

5

PAINTED ACCENT BAND
ON IMP PANEL
COLOR TO MATCH
RAL-3020



CURTAIN-WALL SYSTEM
AND WINDOWS
KAWNEER (OR EQUAL)
CLEAR ANODIZED FINISH

CURTAIN-WALL SYSTEM
AND WINDOW GLASS
WALKER AVIPROTEK LOW-E
COATED GRAY GLASS WITH
BIRD FRIENDLY PATTERN
“VERTICAL #211”

9

METAL COPING
FIRESTONE/UNA-CLAD
COLOR: CITYSCAPE

10

HOLLOW METAL DOORS AND
FRAMES PAINTED
SHERWIN WILLIAMS
SW7072 ONLINE

OVERHEAD DOORS
WAYNE DALTON (OR EQUAL)
COLOR: WHITE

EDWARDS

EXTERIOR MATERIAL FINISH SELECTIONS

ENGINEER'S REPORT
for

Edward Vacuum
Crosby Road
Town of Alabama
New York

September 20, 2023

Prepared for:
Geis Construction
10020 Aurora-Hudson Road
Streetsboro, Ohio 44241

Project M-2311

Prepared by:
Metzger Civil Engineering, PLLC
8245 Sheridan Drive
Williamsville, NY 14221
Phone 716-633-2601
meteng@roadrunner.com

Michael J. Metzger, P.E.
License No. 066786

Project Description:

The project consists of the construction of a new building as part of the Science, Technology And Manufacturing Park (STAMP) development in Alabama, New York. The building will be located on Crosby Drive, north of Stamp Drive and will interconnect with the proposed Edward Lane to the east. The project will include roadways, parking and related infrastructure to service a new manufacturing building. The new development will sit on a 47.70 acre parcel which is currently undeveloped.

The building will be built in two phases, the design includes the needed infrastructure to include both phases of work.

Wetlands:

Earth Dimensions, a wetland biology firm, has determined that the site contains one possible wetland. The wetland is likely to be considered isolated however this area has been avoided in the site design.

Water Supply System:

The potable and fire fighting water needs shall be met by a service tapped off of the new Edwards Lane to the east of the site. The size of the buildings will warrant the installation of a private fire hydrants on site. The domestic and fire service will be metered and backflow prevented via a hot box located near to Edwards Land. Construction, inspection and testing of the new water services will be in conformance with all applicable Town, Monroe County Water Authority, AWWA, New York State Health Department, and the "Ten State" standards.

Septic System:

The sanitary needs shall be handled by a connection to a new gravity sewer along Crosby Road as shown on the design plans. The project will be served by the new pump station (being designed by others) to be constructed on Crosby Road just south of this parcel to serve the STAMP project. The construction, inspection and testing will be in conformance with all Town, Genesee County, and "Ten State" standards. Details of the sanitary sewer installation are shown on MCE detail sheets.

Storm Drainage System:

Drainage of surface water runoff will be accomplished via a proposed network consisting of roof gutters and downspouts, and a storm drainage system utilizing catch basins, and piping.

The stormwater management system is designed to collect stormwater from the parking lot and building areas and direct the water to one of two on site bioretention areas which will be then be discharged to one of two wet detention ponds. These ponds are hydraulically linked via an equalization pipe as shown on the design plans. Some surface water is to be directed through a gravel diaphragm and over a grass filter strip and into a bioretention area where the water will be allowed to infiltrate into the soils as much as possible. Concentrated flows will be directed into a level spreader to dissipate energy and allow for a laminar flow across the bioretention filter bed. Any water that cannot infiltrate will be directed into a wet detention pond prior to discharge through a controlled outlet structure.

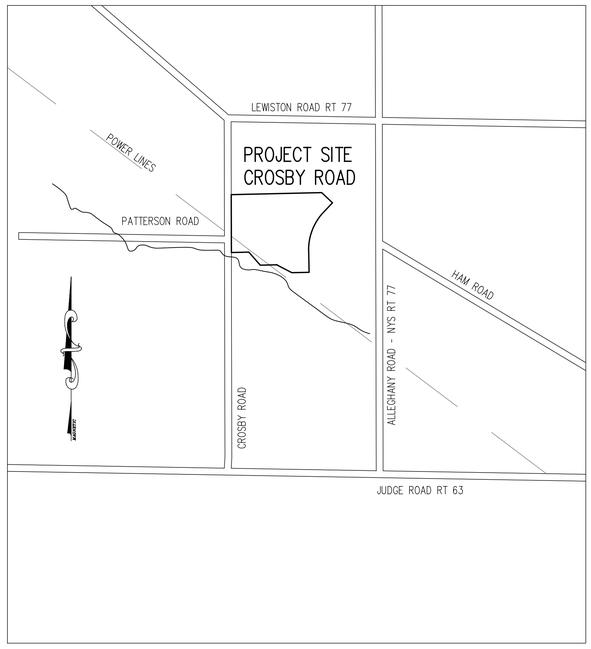
In accordance with Phase II of the New York State Department of Environmental Conservation's Stormwater General Permit, each bioretention area receives and pretreats water from the gravel stilling system and allows the water to pass through the sandy topsoil layer, planting soil bed and stone discharge layer. This bioretention area provides treatment and filtration of stormwater prior to discharge into a wet detention basin. The bioretention areas were designed in general conformance with New York State Department of Environmental Conservation Stormwater Management Design Manual.

The wet detention basins have been designed with a outlet control structure. The outlet structure has been designed to detain water from storm events to back up into the wet detention basin. The basin will receive and detain flows until the storm subsides and allows the basin to drain through the reduced outlet in the structure. The basin has been sized to detain the stormwater from all storm events from a 1, 10 to a 100 year storm event as required by the New York State Department of Environmental Conservation requirements. The outlet piping has been limited in size to detain the post development flows to be at or below the pre development levels during heavy storm events.

A "Notice of Intent" has been prepared will be submitted to the NYSDEC prior to construction. Complete drainage calculations are included in the SWPPP.

EDWARDS VACUUM

TOWN OF ALABAMA, GENESEE COUNTY, NEW YORK



LOCATION MAP
NTS

SCHEDULE OF DRAWINGS:

DEVELOPER:

GEIS CONSTRUCTION
10020 AURORA-HUDSON ROAD
STREETSBORO, OHIO 44241

JEFF MARTIN (216) 218-3508

CIVIL ENGINEER:

METZGER CIVIL ENGINEERING, PLLC.
8245 SHERIDAN DRIVE
WILLIAMSVILLE, NEW YORK 14221

PHONE No. (716) 633-2601

METENG@ROADRUNNER.COM

METZGER CIVIL ENGINEERING, PLLC

SCALE:	NTS
DATE:	SEPTEMBER 22, 2023
JOB NO:	M-2311
SHEET NO:	CS-1

C:\Users\mcwin\OneDrive\MCE\M2311 Stamp-KingFisher\Drawings\Site 3.dwg, 9/25/2023 1:29:50 PM

LEWISTON (WIDTH VARIES) ROAD

VALVE & HYDRANT
OVERHEAD WIRES
EXISTING WATER LINE
HIGHWAY LINE
CENTERLINE
33.0'
EXISTING PAVEMENT
SOUTH LINE OF DEED TO THE COUNTY OF GENESEE L.319 D.239

N/F
NATHAN C. SWIMLINE
& EMILY MAULT
DE2016–538
S.B.L. #10.–1–6.2

N/F
DYLAN W. BISCHOFF
DE2022–1729
S.B.L. #10.–1–11

N/F
CHARLES H. RICE
& ELINOR J. RICE
L.412 D.78
S.B.L. #10.–1–14

N/F
KERRY BISCHOFF
L.881 D.537
S.B.L. #10.–1–12

200.00' D&M
208.71'
S 01°08'26" W 603.19'
N/F
GCIDA
L.907 D.585
S.B.L. #10.–1–6.12
PARCEL LINE PER REFERENCE 2
194.48'
S 88°51'34" E 539.31'
100.00'
C-GAS
FM
FUTURE 24" EFFLUENT FORCE MAIN
FUTURE GAS LINE

CROSBY (49.5' WIDE) ROAD
LOT 18
LOT 17
N 01°08'26" E 1151.89'
PARCEL LINE PER REFERENCE 2
OVERHEAD WIRES
CENTERLINE
HIGHWAY LINE
24.75'

PARCEL "B" SURVEYED
= 30.000 ACRES
PART OF S.B.L. No. 10.–1–15.11

S 44°48'00" E 1656.43'

FUTURE BYPASS ROAD (100.0' WIDE)

LOT 17
LOT 16

L.902 D.764
S.B.L. #10.–1–15.11

N 88°51'34" W 1729.65'
S 88°51'34" E 1729.65'

S 44°48'00" E 285.48'

S.B.L. #10.–1–15.11
S.B.L. #10.–1–13.1

223.22'
S 45°12'00" W

L = 828.21', R = 1050.00'
CHORD = S 22°36'13" W 806.90'

L.904 D.578
S.B.L. #10.–1–13

PARCEL "A" SURVEYED
= 50.000 ACRES
PART OF S.B.L. Nos. 10.–1–13.1 & 10.–1–15.11

N 01°08'26" E
N 01°08'26" E 855.36'
N 01°00'45" E
N 01°00'45" E 273.70'

ANGLE POINT

LOT 17
LOT 13

LOT 16
LOT 12

LOT 13
LOT 12

L.903 D.958
S.B.L. #10.–1–32.211

40.0' WIDE RIGHT OF WAY TO NIAGARA LOCKPORT & ONTARIO POWER COMPANY L.204 D.156
20.0'
40.0'

N 88°59'15" W 365.00'

PROPOSED ELECTRIC SERVICE
C-UGE

N 39°58'00" W 316.60'

217.60'
249.20'
271.60'
222.70'
777.15'

L.908 D.716
S.B.L. #10.–1–5

N 89°59'35" W 309.28'
N 60°53'00" W 321.33'
N 89°59'35" W 325.45'

STEEL SUPPORT TOWER (TYPICAL)
OVERHEAD ELECTRIC WIRES ON STEEL TOWERS

FUTURE GAS LINE
S 00°00'23" W 395.17'
FUTURE 24" EFFLUENT FORCE MAIN

N 89°59'35" W 100.00'
S 00°00'25" W 234.00'
N 00°00'25" E 234.14'

24" CPP CULVERT
4' BOX & CONC CULVERT
15" CPP CULVERT

R = 1050.00'
L = 241.20'
P.C.

R = 950.00'
L = 233.67'
P.T.

(100' WIDE UTILITY EASEMENT SEE FILED MAP No. 2820)
100.0'
N 89°59'35" W 1497.45'
100.02'
24" RCP CULVERT
DVERHEAD TRANSMISSION LINES
EXISTING PAVEMENT

STAMP (100.0' WIDE) DRIVE
(SEE FILED MAP No. 2619)

S 89°59'35" E 1582.14'

S 01°00'45" W

LOT 14
LOT 13

120 0 120 240 360
Scale: 1" = 120'

GRID NORTH NY WEST NAD 83

~ REFERENCES ~
1) DEEDS TO GENESEE COUNTY INDUSTRIAL DEVELOPMENT AGENCY d/b/a GENESEE COUNTY ECONOMIC DEVELOPMENT CENTER L.903 D.958, L.904 D.578, & L.902 D.764
2) CONCEPT PLAN BY CLARK PATTERSON LEE STAMP MASTER PLAN – PROJECT KINGFISHER DATED OCTOBER 2022
3) OTHER MAPS & DEEDS LISTED HEREON

○ = IRON PIN TO BE SET
● = IRON PIN/PIPE FOUND
= UTILITY POLE
= WATER VALVE

This particular referenced action is not subject to Genesee County Health Department review under New York State Public Health Law Article II Title II.

Signature _____

Date _____

FILED IN GENESEE COUNTY CLERK'S OFFICE AS:
MAP TITLE _____
MAP No. _____, SLIDE No. _____,
CABINET No. _____, DATE: _____
COUNTY CLERK _____

NOTES:
1) UNAUTHORIZED ALTERATION OR ADDITION TO THIS SURVEY MAP IS A VIOLATION OF SECTION 7209 PROVISION 2 OF THE NEW YORK STATE EDUCATION LAW.
2) THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF A CURRENT ABSTRACT OF TITLE AND IS SUBJECT TO ANY STATE OF FACT THAT MAY BE REVEALED BY AN EXAMINATION OF SUCH.

I HEREBY CERTIFY
THAT THIS MAP WAS MADE MAY 3, 2023 FROM
NOTES OF A SURVEY COMPLETED APRIL 17, 2023.

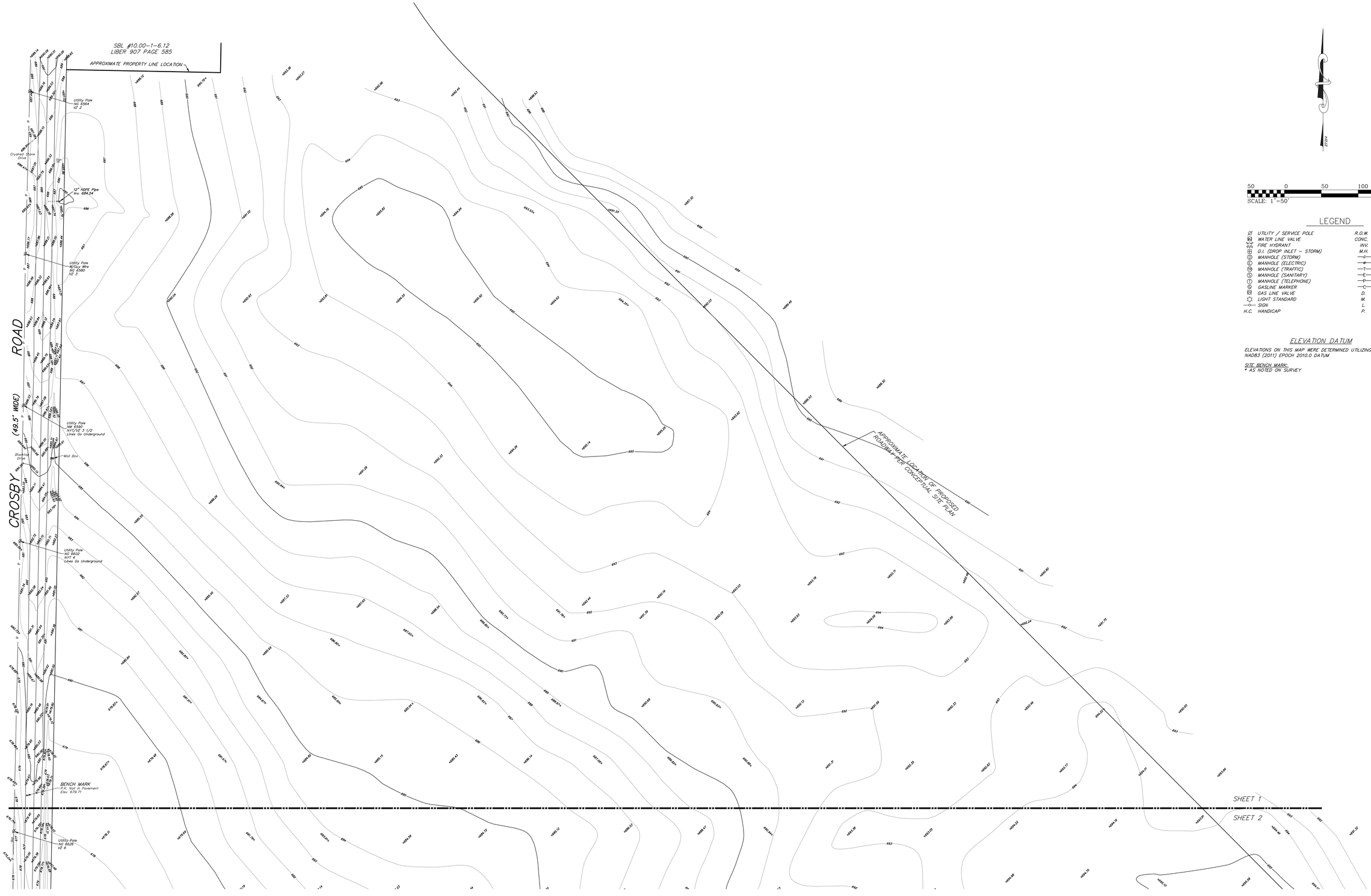
KEVIN M. O'DONOGHUE, L.S. No. 49514

BOUNDARY SURVEY SHOWING THE
"STAMP" KINGFISHER SUBDIVISION
PREPARED FOR GENESEE COUNTY
ECONOMIC DEVELOPMENT CENTER
BEING PART OF LOTS 13, 16 & 17 TOWNSHIP 13,
RANGE 4 OF THE TONAWANDA RESERVATION
SITUATE IN THE
TOWN OF ALABAMA
GENESEE COUNTY, NEW YORK

DATE: MAY 3, 2023
JOB No. G23–5009S
DRAWN BY: KOD
CHECKED BY: KO'D
SCALE: 1" = 120'

WELCH & O'DONOGHUE
– LAND SURVEYORS, P.C –
2077 LAKEVILLE ROAD, P.O. BOX 297
AVON, NEW YORK 14414
PH: 585–226–2990
EMAIL – wosurvey@rochester.rr.com

NO.	DATE	BY	CHKED	REVISIONS DESCRIPTION



50 0 50 100 150
SCALE: 1"=50'

LEGEND

Ø UTILITY / SERVICE POLE	R.O.W. RIGHT OF WAY
WATER LINE VALVE	CONC. CONCRETE
FIRE HYDRANT	INV. INVERT
D.I. (DROP INLET – STORM)	M.H. MANHOLE
(S) MANHOLE (STORM)	—G— GAS LINE
(E) MANHOLE (ELECTRIC)	—W— WATER LINE
(TR) MANHOLE (TRAFFIC)	—T— TELEPHONE LINE
(S) MANHOLE (SANITARY)	—E— ELECTRIC LINE
(T) MANHOLE (TELEPHONE)	—P— UTILITY LINES
GASLINE MARKER	—C— CABLE LINES
GAS LINE VALVE	D. DEED
LIGHT STANDARD	M. MEASURED
—\— SIGN	L. LIBER
H.C. HANDICAP	P. PAGE

ELEVATION DATUM

ELEVATIONS ON THIS MAP WERE DETERMINED UTILIZING GPS. DATUM: NAD83 (2011) EPOCH 2010.0 DATUM

SITE BENCH MARK:
* AS NOTED ON SURVEY

INSTRUMENT(S) UTILIZED IN DETERMINING LOCATION OF BOUNDARY LINES:
THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF A CURRENT ABSTRACT OF TITLE AND IS SUBJECT TO ANY STATE OF FACTS THAT MAY BE REVEALED IN SAID ABSTRACT.
NOTE: PROPERTY CORNER MONUMENTS WERE NOT PLACED AS PART OF THIS SURVEY.

THIS SURVEY MAP WAS PREPARED IN ACCORDANCE WITH THE CURRENT STANDARDS FOR LAND SURVEYS ADOPTED BY THE BAR ASSOCIATION OF ERIE COUNTY AT THE REQUEST OF Geis Construction

Christopher J. Barr
CHRISTOPHER J. BARR — NYSPELS No. 050688

TRUE NORTH
LAND SURVEYING, PLLC
150 AERO DRIVE
BUFFALO, NEW YORK 14225
(716)631-5140 ~ Truenorthpllc@aol.com

AMEND:
SURVEY DATE: 4-3-23
©DRAWING DATE: 4-7-23
SCALE: 1" = 50'

PARTIAL TOPOGRAPHIC SURVEY – SHEET 1 OF 3

PART OF LOT 13&17 SECTION ____ TOWNSHIP 13 RANGE 4 OF THE: Holland Land Company's SURVEY – Genesee COUNTY, N.Y.

SURVEY OF: Vacant Lot Crosby Road, Town of Alabama

SBL No. 10.00-1-13.1/15.11

CROSBY ROAD (49.5' WIDE)

BENCH MARK
P.K. Nail in Pavement
Elev. 679.71

Utility Pole
NG 6626
VZ 6

Utility Pole
NMK 6648

BENCH MARK
P.K. Nail in Pavement
Elev. 672.51

Utility Pole
NMK 6672
Lines go Underground

APPROXIMATE PROPERTY LINE LOCATION

APPROXIMATE PROPERTY LINE LOCATION

SBL #10.00-1-13.1
LIBER 428 PAGE 880

SHEET 1

SHEET 2

SHEET 2

SHEET 3

ELEVATION DATUM

ELEVATIONS ON THIS MAP WERE DETERMINED UTILIZING GPS DATUM: NAD83 (2011) EPOCH 2010.0 DATUM

SITE BENCH MARK:
* AS NOTED ON SURVEY.

27314

50 0 50 100 150
SCALE: 1"=50'

LEGEND

⌀	UTILITY / SERVICE POLE	R.O.W.	RIGHT OF WAY
W	WATER LINE VALVE	CONC.	CONCRETE
	FIRE HYDRANT	INV.	INVERT
	D.I. (DROP INLET – STORM)	M.H.	MANHOLE
S	MANHOLE (STORM)	—G—	GAS LINE
E	MANHOLE (ELECTRIC)	—W—	WATER LINE
TR	MANHOLE (TRAFFIC)	—T—	TELEPHONE LINE
S	MANHOLE (SANITARY)	—E—	ELECTRIC LINE
T	MANHOLE (TELEPHONE)	—U—	UTILITY LINES
G	GASLINE MARKER	—C—	CABLE LINES
	GAS LINE VALVE	D.	DEED
	LIGHT STANDARD	M.	MEASURED
—○—	SIGN	L.	LIBER
H.C.	HANDICAP	P.	PAGE

INSTRUMENT(S) UTILIZED IN DETERMINING LOCATION OF BOUNDARY LINES:

THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF A CURRENT ABSTRACT OF TITLE AND IS SUBJECT TO ANY STATE OF FACTS THAT MAY BE REVEALED IN SAID ABSTRACT.

NOTE: PROPERTY CORNER MONUMENTS WERE NOT PLACED AS PART OF THIS SURVEY.

THIS SURVEY MAP WAS PREPARED IN ACCORDANCE WITH THE CURRENT STANDARDS FOR LAND SURVEYS ADOPTED BY THE BAR ASSOCIATION OF ERIE COUNTY AT THE REQUEST OF Gels Construction

Christopher J. Barr
CHRISTOPHER J. BARR — NYSPLS No. 050908

TRUE NORTH
LAND SURVEYING, PLLC
150 AERO DRIVE
BUFFALO, NEW YORK 14225
(716)631-5140 ~ Truenorthpllc@aol.com

AMEND:
SURVEY DATE: 4-3-23
©DRAWING DATE: 4-7-23
SCALE: 1" = 50'

PARTIAL TOPOGRAPHIC SURVEY – SHEET 2 OF 3

PART OF LOT 13&17 SECTION ____ TOWNSHIP 13 RANGE 4 OF THE: Holland Land Company's SURVEY – Genesee COUNTY, N.Y.

SURVEY OF: Vacant Lot Crosby Road, Town of Alabama

SBL No. 10.00-1-13.1/15.11

SBL #10.00-1-13.1
LIBER 428 PAGE 880

SHEET 2

SHEET 3

CROSBY ROAD (49.5' WIDE)

BENCH MARK
P.K. Nail in West Side
Utility Pole
Elev. 673.39

Utility Pole
NG 181
L112

Utility Pole
W/Tele. Ped.
NME 6692
NYT 8
Lines go Underground

SOUTH LINE OF LOT 17

NORTH LINE OF LOT 13

Utility Pole
NG 181 1/2
L112
Lines Go Underground

Utility Pole
NME
Lines go Underground

BENCH MARK
P.K. Nail in Pavement
Elev. 670.56

Electric Tower

APPROXIMATE PROPERTY LINE LOCATION

SBL #10.00-1-5
LIBER 908 PAGE 716

Tree & Brush Line

APPROXIMATE LOCATION OF
PROPOSED BOUNDARY LINE

Electric Tower

APPROXIMATE LOCATION OF PROPOSED
ROADWAY PER CONCEPTUAL SITE PLAN

APPROXIMATE PROPERTY LINE LOCATION

ELEVATION DATUM

ELEVATIONS ON THIS MAP WERE DETERMINED UTILIZING GPS DATUM:
NAD83 (2011) EPOCH 2010.0 DATUM

SITE BENCH MARK:
* AS NOTED ON SURVEY

50 0 50 100 150
SCALE: 1"=50'

LEGEND

UTILITY / SERVICE POLE	R.O.W. RIGHT OF WAY
WATER LINE VALVE	CONC. CONCRETE
FIRE HYDRANT	INV. INVERT
D.I. (DROP INLET – STORM)	M.H. MANHOLE
MANHOLE (STORM)	GAS LINE
MANHOLE (ELECTRIC)	WATER LINE
MANHOLE (TRAFFIC)	TELEPHONE LINE
MANHOLE (SANITARY)	ELECTRIC LINE
MANHOLE (TELEPHONE)	UTILITY LINES
GASLINE MARKER	CABLE LINES
GAS LINE VALVE	D. DEED
LIGHT STANDARD	M. MEASURED
SIGN	L. LIBER
H.C. HANDICAP	P. PAGE

INSTRUMENT(S) UTILIZED IN DETERMINING LOCATION OF BOUNDARY LINES:

THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF A CURRENT ABSTRACT OF TITLE AND IS SUBJECT TO ANY STATE OF FACTS THAT MAY BE REVEALED IN SAID ABSTRACT.

NOTE: PROPERTY CORNER MONUMENTS WERE NOT PLACED AS PART OF THIS SURVEY.

THIS SURVEY MAP WAS PREPARED IN ACCORDANCE WITH THE CURRENT STANDARDS FOR LAND SURVEYS ADOPTED BY THE BAR ASSOCIATION OF ERIE COUNTY AT THE REQUEST OF Gas Construction

CHRISTOPHER J. BARR NYSPLS No. 050168

TRUE NORTH
LAND SURVEYING, PLLC
150 AERO DRIVE
BUFFALO, NEW YORK 14225
(716)631-5140 ~ Truenorthpllc@aol.com

AMEND:

SURVEY DATE: 4-3-23

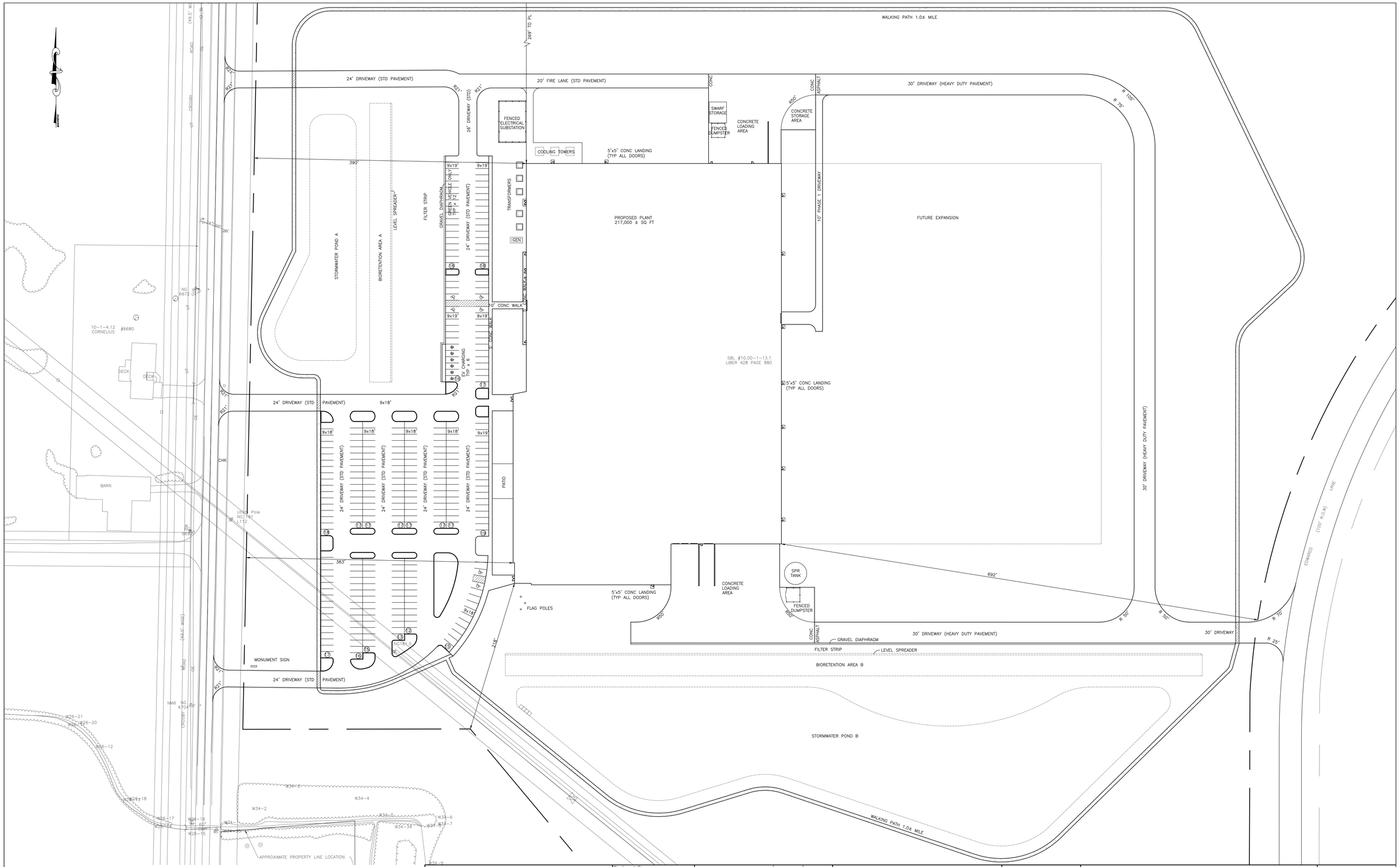
SCALE: 1" = 50'

PARTIAL TOPOGRAPHIC SURVEY – SHEET 3 OF 3

PART OF LOT 13&17 SECTION ____ TOWNSHIP 13 RANGE 4 OF THE: Holland Land Company's SURVEY – Genesee COUNTY, N.Y.

SURVEY OF: Vacant Lot Crosby Road, Town of Alabama

SBL No. 10.00-1-13.1/15.11



NOTES

1) THIS PLAN IS BASED ON SITE PLAN BY GEIS CONSTRUCTION. THIS IS NOT A PROPERTY OR TOPOGRAPHIC SURVEY.

Designed By:	ARH
Drawn By:	ARH
Checked By:	JCM
Cad File:	M2311

NOTE: UNAUTHORIZED ALTERATION OR ADDITION TO THIS DRAWING IS A VIOLATION OF SECTION 7209, PROVISION 2 OF THE NEW YORK STATE EDUCATION LAW

REVISION	BY/CK	DATE

METZGER CIVIL ENGINEERING, PLLC
8245 SHERIDAN DR.
WILLIAMSVILLE, NY 14221
PH: 716-633-2601
FAX: 716-633-2704
CIVIL ENGINEERING
LAND PLANNING
SITE DESIGN
MUNICIPAL ENGINEERING

STATE OF NEW YORK — MARK J. METZGER — 066786 — LICENSED PROFESSIONAL ENGINEER

EDWARDS VACUUM

TOWN OF ALABAMA, GENESEE COUNTY, NEW YORK

SITE PLAN

SCALE:	1"=60'
DATE:	SEPTEMBER 22, 2023
JOB NO:	M-2311
SHEET NO:	SP-1

C:\Users\mcown\OneDrive\MCE\M2311 Stamp-Kingfisher\Drawings\Site 3.dwg, 9/25/2023 1:12:09 PM

305' VEGETATIVE SWALE

64' 24"ø 0.12%
100' 24"ø HDPE @ 0.12%
100' 24"ø HDPE @ 0.12%
175' 24"ø HDPE @ 0.12%
127' 18"ø HDPE @ 0.15%
100' 12"ø HDPE @ 0.2%
100' 12"ø HDPE @ 0.2%
100' 12"ø HDPE @ 0.2%

CB 1
RIM 675.90
INV 671.45

CB 2
RIM 674.90
INV 671.56

CB 3
RIM 674.90
INV 671.68

CB 4
RIM 674.90
INV 671.80

CB 5
RIM 675.20
INV 672.02

CB 6
RIM 674.90
INV 672.21

CB 7
RIM 674.90
INV 672.41

CB 8
RIM 674.90
INV 672.61

CB 9
RIM 674.90
672.81

150' 24"ø HDPE @ 0.12%

INV 671.35

POND A

TOB 669.90
100 YEAR 668.98
10 YEAR 666.99
1 YEAR 666.72
NWL 666.00
BOT 660.00

15' AQUATIC BENCH

BIO RETENTION AREA A

LEVEL SPREADER

FILTER STRIP

GRAVEL DIAPHRAGM

ROOF DRAINAGE
(SEE ARCH PLANS)

FFE
679.00

INV
666.00

111' 24"ø HDPE @ 0.0%

CB 18
RIM 675.50
INV 666.50

CB 19
RIM 675.50
INV 666.00

CB 20
RIM 675.50
INV 666.00

CB 21
RIM 675.50
INV 666.00

152' 24"ø HDPE @ 0.0%

86' 24"ø HDPE @ 0.0%

52' 24"ø HDPE @ 0.0%

CB 22
RIM 675.20
INV 666.00

EQUALIZATION PIPE
192' 24"ø @ 0.0%

60' RETAINING WALL

125' 12"ø HDPE @ 0.2%

3.0%

2.9%

371' VEGETATIVE SWALE

TRENCH DRAIN
(SEE DETAIL)

679.00

CB 10
RIM 675.50
INV 675.66

CB 11
RIM 675.90
INV 673.00

CB 12
RIM 675.90
INV 672.80

CB 13
RIM 675.90
INV 672.60

CB 14
RIM 675.90
INV 672.40

CB 15
RIM 675.90
INV 672.20

CB 16
RIM 675.90
INV 672.00

CB 17
RIM 675.90
INV 671.80

100' 12"ø HDPE @ 0.2%
100' 12"ø HDPE @ 0.2%
100' 15"ø HDPE @ 0.2%
100' 18"ø HDPE @ 0.2%
100' 24"ø HDPE @ 0.2%
103' 24"ø HDPE @ 0.2%

675.50

CB 23
RIM 675.50
INV 671.67

40' 12"ø HDPE @ 1.0%

TRENCH DRAIN
(SEE DETAIL)

PVT 675.66
DOOR 679.00

156' 12"ø HDPE @ 1.0%

+HP

2' GRAVEL DIAPHRAGM
15' FILTER STRIP
LEVEL SPREADER

INV 671.59
INV 671.50
INV 671.50
INV 671.59
INV 671.59

BIORETENTION AREA
TOF 675.00
(SEE DETAIL)

15' AQUATIC BENCH

60' x 150'
STORM EASEMENT

EMERGENCY
SPILLWAY
669.90

6" PIPES — 200'
669.50
664.50

POND B

TOB 669.90
100 YEAR 668.98
10 YEAR 666.99
1 YEAR 666.72
NWL 666.00
BOT 660.00

15' AQUATIC BENCH

APPROXIMATE PROPERTY LINE LOCATION

10-1-4.12
CORNELIUS
#6680

10-1-5
STELLRECHT
SBL #10.00-1-5
LIBER 908 PAGE 716
#6725

BARN

DECK

CHK

Utility Pole
NG 181
NG 182

CROSBY ROAD (49.5' WIDE)

EDWARDS LANE (100' R.O.W.)

NG 6672
NG 6673
NG 6674
NG 6675
NG 6676
NG 6677
NG 6678
NG 6679
NG 6680
NG 6681
NG 6682
NG 6683
NG 6684
NG 6685
NG 6686
NG 6687
NG 6688
NG 6689
NG 6690
NG 6691
NG 6692
NG 6693
NG 6694
NG 6695
NG 6696
NG 6697
NG 6698
NG 6699
NG 6700
NG 6701
NG 6702
NG 6703
NG 6704
NG 6705
NG 6706
NG 6707
NG 6708
NG 6709
NG 6710
NG 6711
NG 6712
NG 6713
NG 6714
NG 6715
NG 6716
NG 6717
NG 6718
NG 6719
NG 6720
NG 6721
NG 6722
NG 6723
NG 6724
NG 6725
NG 6726
NG 6727
NG 6728
NG 6729
NG 6730
NG 6731
NG 6732
NG 6733
NG 6734
NG 6735
NG 6736
NG 6737
NG 6738
NG 6739
NG 6740
NG 6741
NG 6742
NG 6743
NG 6744
NG 6745
NG 6746
NG 6747
NG 6748
NG 6749
NG 6750
NG 6751
NG 6752
NG 6753
NG 6754
NG 6755
NG 6756
NG 6757
NG 6758
NG 6759
NG 6760
NG 6761
NG 6762
NG 6763
NG 6764
NG 6765
NG 6766
NG 6767
NG 6768
NG 6769
NG 6770
NG 6771
NG 6772
NG 6773
NG 6774
NG 6775
NG 6776
NG 6777
NG 6778
NG 6779
NG 6780
NG 6781
NG 6782
NG 6783
NG 6784
NG 6785
NG 6786
NG 6787
NG 6788
NG 6789
NG 6790
NG 6791
NG 6792
NG 6793
NG 6794
NG 6795
NG 6796
NG 6797
NG 6798
NG 6799
NG 6800
NG 6801
NG 6802
NG 6803
NG 6804
NG 6805
NG 6806
NG 6807
NG 6808
NG 6809
NG 6810
NG 6811
NG 6812
NG 6813
NG 6814
NG 6815
NG 6816
NG 6817
NG 6818
NG 6819
NG 6820
NG 6821
NG 6822
NG 6823
NG 6824
NG 6825
NG 6826
NG 6827
NG 6828
NG 6829
NG 6830
NG 6831
NG 6832
NG 6833
NG 6834
NG 6835
NG 6836
NG 6837
NG 6838
NG 6839
NG 6840
NG 6841
NG 6842
NG 6843
NG 6844
NG 6845
NG 6846
NG 6847
NG 6848
NG 6849
NG 6850
NG 6851
NG 6852
NG 6853
NG 6854
NG 6855
NG 6856
NG 6857
NG 6858
NG 6859
NG 6860
NG 6861
NG 6862
NG 6863
NG 6864
NG 6865
NG 6866
NG 6867
NG 6868
NG 6869
NG 6870
NG 6871
NG 6872
NG 6873
NG 6874
NG 6875
NG 6876
NG 6877
NG 6878
NG 6879
NG 6880
NG 6881
NG 6882
NG 6883
NG 6884
NG 6885
NG 6886
NG 6887
NG 6888
NG 6889
NG 6890
NG 6891
NG 6892
NG 6893
NG 6894
NG 6895
NG 6896
NG 6897
NG 6898
NG 6899
NG 6900
NG 6901
NG 6902
NG 6903
NG 6904
NG 6905
NG 6906
NG 6907
NG 6908
NG 6909
NG 6910
NG 6911
NG 6912
NG 6913
NG 6914
NG 6915
NG 6916
NG 6917
NG 6918
NG 6919
NG 6920
NG 6921
NG 6922
NG 6923
NG 6924
NG 6925
NG 6926
NG 6927
NG 6928
NG 6929
NG 6930
NG 6931
NG 6932
NG 6933
NG 6934
NG 6935
NG 6936
NG 6937
NG 6938
NG 6939
NG 6940
NG 6941
NG 6942
NG 6943
NG 6944
NG 6945
NG 6946
NG 6947
NG 6948
NG 6949
NG 6950
NG 6951
NG 6952
NG 6953
NG 6954
NG 6955
NG 6956
NG 6957
NG 6958
NG 6959
NG 6960
NG 6961
NG 6962
NG 6963
NG 6964
NG 6965
NG 6966
NG 6967
NG 6968
NG 6969
NG 6970
NG 6971
NG 6972
NG 6973
NG 6974
NG 6975
NG 6976
NG 6977
NG 6978
NG 6979
NG 6980
NG 6981
NG 6982
NG 6983
NG 6984
NG 6985
NG 6986
NG 6987
NG 6988
NG 6989
NG 6990
NG 6991
NG 6992
NG 6993
NG 6994
NG 6995
NG 6996
NG 6997
NG 6998
NG 6999
NG 7000
NG 7001
NG 7002
NG 7003
NG 7004
NG 7005
NG 7006
NG 7007
NG 7008
NG 7009
NG 7010
NG 7011
NG 7012
NG 7013
NG 7014
NG 7015
NG 7016
NG 7017
NG 7018
NG 7019
NG 7020
NG 7021
NG 7022
NG 7023
NG 7024
NG 7025
NG 7026
NG 7027
NG 7028
NG 7029
NG 7030
NG 7031
NG 7032
NG 7033
NG 7034
NG 7035
NG 7036
NG 7037
NG 7038
NG 7039
NG 7040
NG 7041
NG 7042
NG 7043
NG 7044
NG 7045
NG 7046
NG 7047
NG 7048
NG 7049
NG 7050
NG 7051
NG 7052
NG 7053
NG 7054
NG 7055
NG 7056
NG 7057
NG 7058
NG 7059
NG 7060
NG 7061
NG 7062
NG 7063
NG 7064
NG 7065
NG 7066
NG 7067
NG 7068
NG 7069
NG 7070
NG 7071
NG 7072
NG 7073
NG 7074
NG 7075
NG 7076
NG 7077
NG 7078
NG 7079
NG 7080
NG 7081
NG 7082
NG 7083
NG 7084
NG 7085
NG 7086
NG 7087
NG 7088
NG 7089
NG 7090
NG 7091
NG 7092
NG 7093
NG 7094
NG 7095
NG 7096
NG 7097
NG 7098
NG 7099
NG 7100
NG 7101
NG 7102
NG 7103
NG 7104
NG 7105
NG 7106
NG 7107
NG 7108
NG 7109
NG 7110
NG 7111
NG 7112
NG 7113
NG 7114
NG 7115
NG 7116
NG 7117
NG 7118
NG 7119
NG 7120
NG 7121
NG 7122
NG 7123
NG 7124
NG 7125
NG 7126
NG 7127
NG 7128
NG 7129
NG 7130
NG 7131
NG 7132
NG 7133
NG 7134
NG 7135
NG 7136
NG 7137
NG 7138
NG 7139
NG 7140
NG 7141
NG 7142
NG 7143
NG 7144
NG 7145
NG 7146
NG 7147
NG 7148
NG 7149
NG 7150
NG 7151
NG 7152
NG 7153
NG 7154
NG 7155
NG 7156
NG 7157
NG 7158
NG 7159
NG 7160
NG 7161
NG 7162
NG 7163
NG 7164
NG 7165
NG 7166
NG 7167
NG 7168
NG 7169
NG 7170
NG 7171
NG 7172
NG 7173
NG 7174
NG 7175
NG 7176
NG 7177
NG 7178
NG 7179
NG 7180
NG 7181
NG 7182
NG 7183
NG 7184
NG 7185
NG 7186
NG 7187
NG 7188
NG 7189
NG 7190
NG 7191
NG 7192
NG 7193
NG 7194
NG 7195
NG 7196
NG 7197
NG 7198
NG 7199
NG 7200
NG 7201
NG 7202
NG 7203
NG 7204
NG 7205
NG 7206
NG 7207
NG 7208
NG 7209
NG 7210
NG 7211
NG 7212
NG 7213
NG 7214
NG 7215
NG 7216
NG 7217
NG 7218
NG 7219
NG 7220
NG 7221
NG 7222
NG 7223
NG 7224
NG 7225
NG 7226
NG 7227
NG 7228
NG 7229
NG 7230
NG 7231
NG 7232
NG 7233
NG 7234
NG 7235
NG 7236
NG 7237
NG 7238
NG 7239
NG 7240
NG 7241
NG 7242
NG 7243
NG 7244
NG 7245
NG 7246
NG 7247
NG 7248
NG 7249
NG 7250
NG 7251
NG 7252
NG 7253
NG 7254
NG 7255
NG 7256
NG 7257
NG 7258
NG 7259
NG 7260
NG 7261
NG 7262
NG 7263
NG 7264
NG 7265
NG 7266
NG 7267
NG 7268
NG 7269
NG 7270
NG 7271
NG 7272
NG 7273
NG 7274
NG 7275
NG 7276
NG 7277
NG 7278
NG 7279
NG 7280
NG 7281
NG 7282
NG 7283
NG 7284
NG 7285
NG 7286
NG 7287
NG 7288
NG 7289
NG 7290
NG 7291
NG 7292
NG 7293
NG 7294
NG 7295
NG 7296
NG 7297
NG 7298
NG 7299
NG 7300
NG 7301
NG 7302
NG 7303
NG 7304
NG 7305
NG 7306
NG 7307
NG 7308
NG 7309
NG 7310
NG 7311
NG 7312
NG 7313
NG 7314
NG 7315
NG 7316
NG 7317
NG 7318
NG 7319
NG 7320
NG 7321
NG 7322
NG 7323
NG 7324
NG 7325
NG 7326
NG 7327
NG 7328
NG 7329
NG 7330
NG 7331
NG 7332
NG 7333
NG 7334
NG 7335
NG 7336
NG 7337
NG 7338
NG 7339
NG 7340
NG 7341
NG 7342
NG 7343
NG 7344
NG 7345
NG 7346
NG 7347
NG 7348
NG 7349
NG 7350
NG 7351
NG 7352
NG 7353
NG 7354
NG 7355
NG 7356
NG 7357
NG 7358
NG 7359
NG 7360
NG 7361
NG 7362
NG 7363
NG 7364
NG 7365
NG 7366
NG 7367
NG 7368
NG 7369
NG 7370
NG 7371
NG 7372
NG 7373
NG 7374
NG 7375
NG 7376
NG 7377
NG 7378
NG 7379
NG 7380
NG 7381
NG 7382
NG 7383
NG 7384
NG 7385
NG 7386
NG 7387
NG 7388
NG 7389
NG 7390
NG 7391
NG 7392
NG 7393
NG 7394
NG 7395
NG 7396
NG 7397
NG 7398
NG 7399
NG 7400
NG 7401
NG 7402
NG 7403
NG 7404
NG 7405
NG 7406
NG 7407
NG 7408
NG 7409
NG 7410
NG 7411
NG 7412
NG 7413
NG 7414
NG 7415
NG 7416
NG 7417
NG 7418
NG 7419
NG 7420
NG 7421
NG 7422
NG 7423
NG 7424
NG 7425
NG 7426
NG 7427
NG 7428
NG 7429
NG 7430
NG 7431
NG 7432
NG 7433
NG 7434
NG 7435
NG 7436
NG 7437
NG 7438
NG 7439
NG 7440
NG 7441
NG 7442
NG 7443
NG 7444
NG 7445
NG 7446
NG 7447
NG 7448
NG 7449
NG 7450
NG 7451
NG 7452
NG 7453
NG 7454
NG 7455
NG 7456
NG 7457
NG 7458
NG 7459
NG 7460
NG 7461
NG 7462
NG 7463
NG 7464
NG 7465
NG 7466
NG 7467
NG 7468
NG 7469
NG 7470
NG 7471
NG 7472
NG 7473
NG 7474
NG 7475
NG 7476
NG 7477
NG 7478
NG 7479
NG 7480
NG 7481
NG 7482
NG 7483
NG 7484
NG 7485
NG 7486
NG 7487
NG 7488
NG 7489
NG 7490
NG 7491
NG 7492
NG 7493
NG 7494
NG 7495
NG 7496
NG 7497
NG 7498
NG 7499
NG 7500
NG 7501
NG 7502
NG 7503
NG 7504
NG 7505
NG 7506
NG 7507
NG 7508
NG 7509
NG 7510
NG 7511
NG 7512
NG 7513
NG 7514
NG 7515
NG 7516
NG 7517
NG 7518
NG 7519
NG 7520
NG 7521
NG 7522
NG 7523
NG 7524
NG 7525
NG 7526
NG 7527
NG 7528
NG 7529
NG 7530
NG 7531
NG 7532
NG 7533
NG 7534
NG 7535
NG 7536
NG 7537
NG 7538
NG 7539
NG 7540
NG 7541
NG 7542
NG 7543
NG 7544
NG 7545
NG 7546
NG 7547
NG 7548
NG 7549
NG 7550
NG 7551
NG 7552
NG 7553
NG 7554
NG 7555
NG 7556
NG 7557
NG 7558
NG 7559
NG 7560
NG 7561
NG 7562
NG 7563
NG 7564
NG 7565
NG 7566
NG 7567
NG 7568
NG 7569
NG 7570
NG 7571
NG 7572
NG 7573
NG 7574
NG 7575
NG 7576
NG 7577
NG 7578
NG 7579
NG 7580
NG 7581
NG 7582
NG 7583
NG 7584
NG 7585
NG 7586
NG 7587
NG 7588
NG 7589
NG 7590
NG 7591
NG 7592
NG 7593
NG 7594
NG 7595
NG 7596
NG 7597
NG 7598
NG 7599
NG 7600
NG 7601
NG 7602
NG 7603
NG 7604
NG 7605
NG 7606
NG 7607
NG 7608
NG 7609
NG 7610
NG 7611
NG 7612
NG 7613
NG 7614
NG 7615
NG 7616
NG 7617
NG 7618
NG 7619
NG 7620
NG 7621
NG 7622
NG 7623
NG 7624
NG 7625
NG 7626
NG 7627
NG 7628
NG 7629
NG 7630
NG 7631
NG 7632
NG 7633
NG 7634
NG 7635
NG 7636
NG 7637
NG 7638
NG 7639
NG 7640
NG 7641
NG 7642
NG 7643
NG 7644
NG 7645
NG 7646
NG 7647
NG 7648
NG 7649
NG 7650
NG 7651
NG 7652
NG 7653
NG 7654
NG 7655
NG 7656
NG 7657
NG 7658
NG 7659
NG 7660
NG 7661
NG 7662
NG 7663
NG 7664
NG 7665
NG 7666
NG 7667
NG 7668
NG 7669
NG 7670
NG 7671
NG 7672
NG 7673
NG 7674
NG 7675
NG 7676
NG 7677
NG 7678
NG 7679
NG 7680
NG 7681
NG 7682
NG 7683
NG 7684
NG 7685
NG 7686
NG 7687
NG 7688
NG 7689
NG 7690
NG 7691
NG 7692
NG 7693
NG 7694
NG 7695
NG 7696
NG 7697
NG 7698
NG 7699
NG 7700
NG 7701
NG 7702
NG 7703
NG 7704
NG 7705
NG 7706
NG 7707
NG 7708
NG 7709
NG 7710
NG 7711
NG 7712
NG 7713
NG 7714
NG 7715
NG 7716
NG 7717
NG 7718
NG 7719
NG 7720
NG 7721
NG 7722
NG 7723
NG 7724
NG 7725
NG 7726
NG 7727
NG 7728
NG 7729
NG 7730
NG 7731
NG 7732
NG 7733
NG 7734
NG 7735
NG 7736
NG 7737
NG 7738
NG 7739
NG 7740
NG 7741
NG 7742
NG 7743
NG 7744
NG 7745
NG 7746
NG 7747
NG 7748
NG 7749
NG 7750
NG 7751
NG 7752
NG 7753
NG 7754
NG 7755
NG 7756
NG 7757
NG 7758
NG 7759
NG 7760
NG 7761
NG 7762
NG 7763
NG 7764
NG 7765
NG 7766
NG 7767
NG 7768
NG 7769
NG 7770
NG 7771
NG 7772
NG 7773
NG 7774
NG 7775
NG 7776
NG 7777
NG 7778
NG 7779
NG 7780
NG 7781
NG 7782
NG 7783
NG 7784
NG 7785
NG 7786
NG 7787
NG 7788
NG 7789
NG 7790
NG 7791
NG 7792
NG 7793
NG 7794
NG 7795
NG 7796
NG 7797
NG 7798
NG 7799
NG 7800
NG 7801
NG 7802
NG 7803
NG 7804
NG 7805
NG 7806
NG 7807
NG 7808
NG 7809
NG 7810
NG 7811
NG 7812
NG 7813
NG 7814
NG 7815
NG 7816
NG 7817
NG 7818
NG 7819
NG 7820
NG 7821
NG 7822
NG 7823
NG 7824
NG 7825
NG 7826
NG 7827
NG 7828
NG 7829
NG 7830
NG 7831
NG 7832
NG 7833
NG 7834
NG 7835
NG 7836
NG 7837
NG 7838
NG 7839
NG 7840
NG 7841
NG 7842
NG 7843
NG 7844
NG 7845
NG 7846
NG 7847
NG 7848
NG 7849
NG 7850
NG 7851
NG 7852
NG 7853
NG 7854
NG 7855
NG 7856
NG 7857
NG 7858
NG 7859
NG 7860
NG 7861
NG 7862
NG 7863
NG 7864
NG 7865
NG 7866
NG 7867
NG 7868
NG 7869
NG 7870
NG 7871
NG 7872
NG 7873
NG 7874
NG 7875
NG 7876
NG 7877
NG 7878
NG 7879
NG 7880
NG 7881
NG 7882
NG 7883
NG 7884
NG 7885
NG 7886
NG 7887
NG 7888
NG 7889
NG 7890
NG 7891
NG 7892
NG 7893
NG 7894
NG 7895
NG 7896
NG 7897
NG 7898
NG 7899
NG 7900
NG 7901
NG 7902
NG 7903
NG 7904
NG 7905
NG 7906
NG 7907
NG 7908
NG 7909
NG 7910
NG 7911
NG 7912
NG 7913
NG 7914
NG 7915
NG 7916
NG 7917
NG 7918
NG 7919
NG 7920
NG 7921
NG 7922
NG 7923
NG 7924
NG 7925
NG 7926
NG 7927
NG 7928
NG 7929
NG 7930
NG 7931
NG 7932
NG 7933
NG 7934
NG 7935
NG 7936
NG 7937
NG 7938
NG 7939
NG 7940
NG 7941
NG 7942
NG 7943
NG 7944
NG 7945
NG 7946
NG 7947
NG 7948
NG 7949
NG 7950
NG 7951
NG 7952
NG 7953
NG 7954
NG 7955
NG 7956
NG 7957
NG 7958
NG 7959
NG 7960
NG 7961
NG 7962
NG 7963
NG 7964
NG 7965
NG 7966
NG 7967
NG 7968
NG 7969
NG 7970
NG 7971
NG 7972
NG 7973
NG 7974
NG 7975
NG 7976
NG 7977
NG 7978
NG 7979
NG 7980
NG 7981
NG 7982
NG 7983
NG 7984
NG 7985
NG 7986
NG 7987
NG 7988
NG 7989
NG 7990
NG 7991
NG 7992
NG 7993
NG 7994
NG 7995
NG 7996
NG 7997
NG 7998
NG 7999
NG 8000

W26-21
W26-20
W26-12
W26-18
W26-17
W26-16
W26-15
W34-1
W34-2
W34-3
W34-4
W34-5
W34-6
W34-7
W34-8
W34-34
W34-9
W34-32
W34-33
W34-31
W34-30
W34-10

NM6 NG 6704

NOTES

1) THIS PLAN IS BASED ON SITE PLAN BY GEIS CONSTRUCTION.
THIS IS NOT A PROPERTY OR TOPOGRAPHIC SURVEY.

Designed By:	ARH
Drawn By:	ARH
Checked By:	JCM
Cad File:	M2311

NOTE:
UNAUTHORIZED ALTERATION OR ADDITION TO THIS DRAWING IS A VIOLATION OF SECTION 7209, PROVISION 2 OF THE NEW YORK STATE EDUCATION LAW

REVISION	BY/CK	DATE

METZGER CIVIL ENGINEERING, PLLC
8245 SHERIDAN DR.
WILLIAMSVILLE, NY 14221
PH: 716-633-2601
FAX: 716-633-2704
CIVIL ENGINEERING
LAND PLANNING
SITE DESIGN
MUNICIPAL ENGINEERING

STATE OF NEW YORK — MICHAEL J. METZGER — 066758 — LICENSED PROFESSIONAL ENGINEER

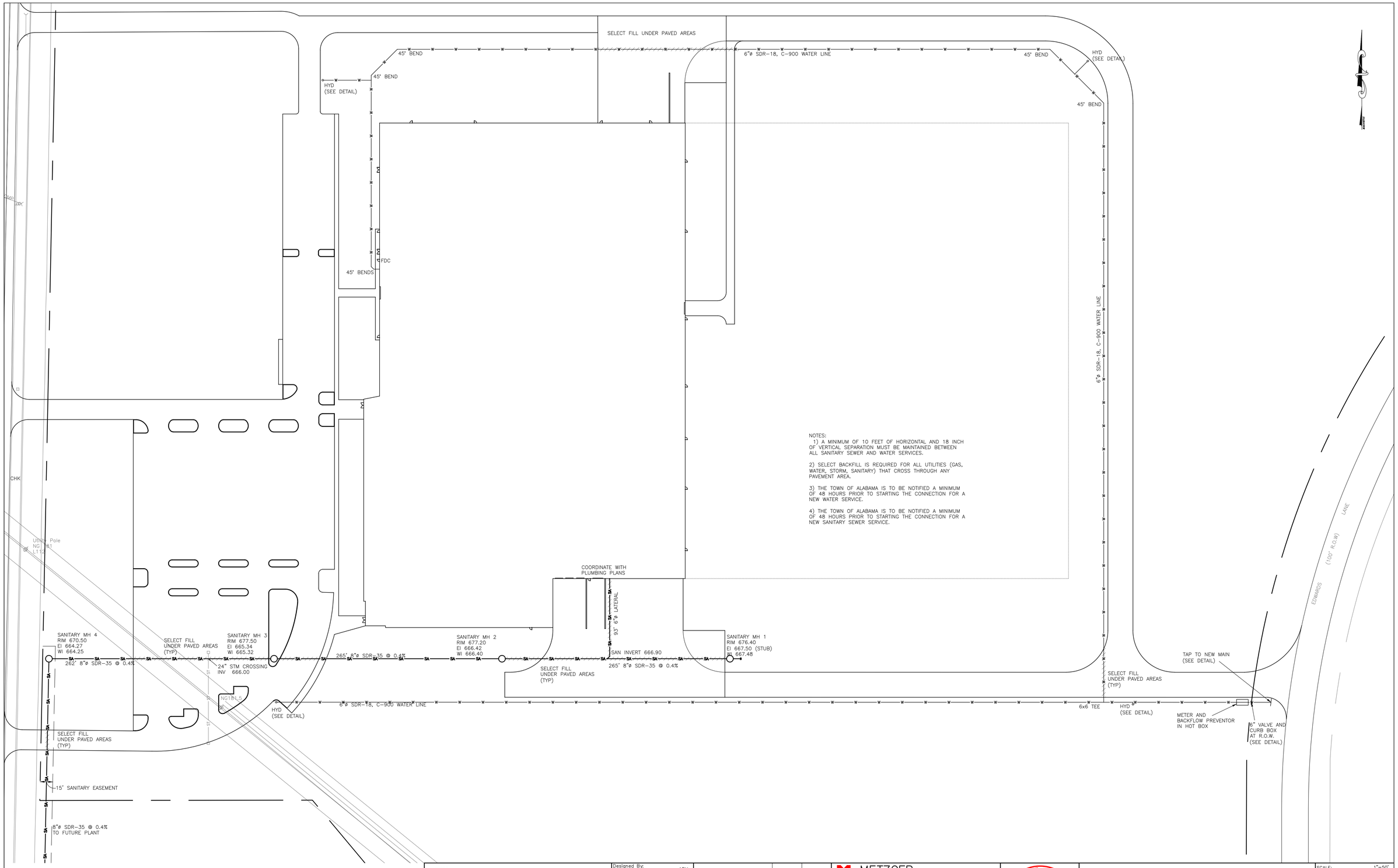
EDWARDS VACUUM

TOWN OF ALABAMA, GENESEE COUNTY, NEW YORK

GRADING AND DRAINAGE PLAN

SCALE:	1"=60'
DATE:	SEPTEMBER 22, 2023
JOB NO:	M-2311
SHEET NO:	GD-1

C:\Users\mcevn\OneDrive\MCE\M2311 Stamp-Kingfisher\Drawings\Site 3.dwg, 9/25/2023 10:43:46 AM



NOTES

1) THIS PLAN IS BASED ON SITE PLAN BY GEIS CONSTRUCTION. THIS IS NOT A PROPERTY OR TOPOGRAPHIC SURVEY.

Designed By:	ARH
Drawn By:	ARH
Checked By:	JCM
Cad File:	M2311

NOTE: UNAUTHORIZED ALTERATION OR ADDITION TO THIS DRAWING IS A VIOLATION OF SECTION 7209, PROVISION 2 OF THE NEW YORK STATE EDUCATION LAW

REVISION	BY/CK	DATE

METZGER CIVIL ENGINEERING, PLLC
8245 SHERIDAN DR.
WILLIAMSVILLE, NY 14221
PH: 716-633-2601
FAX: 716-633-2704
CIVIL ENGINEERING
LAND PLANNING
SITE DESIGN
MUNICIPAL ENGINEERING

STATE OF NEW YORK
ANDREW R. METZGER
066736
LICENSED PROFESSIONAL ENGINEER

EDWARDS VACUUM

TOWN OF ALABAMA, GENESEE COUNTY, NEW YORK

SANITARY AND WATER PLAN

SCALE:	1"=50'
DATE:	SEPTEMBER 22, 2023
JOB NO:	M-2311
SHEET NO:	SW-1

C:\Users\mcown\OneDrive\MCE\M2311 Stamp-Kingfisher\Drawings\Site 3.dwg, 9/25/2023 12:43:11 PM

SILT SOCK (SEE DETAIL)

STABILIZED CONSTRUCTION ENTRANCE (SEE DETAIL)

SPDES BOX (OVERSIZED MAIL BOX)

SILT SOCK (SEE DETAIL)

DI PROTECTTION (TYP ALL DI'S) (SEE DETAIL)

DI PROTECTTION (TYP ALL DI'S) (SEE DETAIL)

DI PROTECTTION (TYP ALL DI'S) (SEE DETAIL)

SILT SOCK (SEE DETAIL)

STOCKPILE TO BE SILT SOCK PROTECTED AND TO BE SEEDED IF LEFT IDLE FOR 14 DAYS

DI PROTECTTION (TYP ALL DI'S) (SEE DETAIL)

DI PROTECTTION (TYP ALL DI'S) (SEE DETAIL)

DI PROTECTTION (TYP ALL DI'S) (SEE DETAIL)

SILT SOCK (SEE DETAIL)

SILT SOCK (SEE DETAIL)

BUND

CROSBY

10-1-4.12 CORNELIUS #6680

DECK

BARN

CHK

Utility Pole NG 6681

APPROXIMATE PROPERTY LINE LOCATION

10-1-5 STELLRECHT SBL #10.00-1-5 LIBER 908 PAGE 716

#6725

NG 6716

NG 6723

NG 6672

NG 6704

NM6 NG 6704

EDWARDS (100' R.O.W) LANE

NOTES

1) THIS PLAN IS BASED ON SITE PLAN BY GEIS CONSTRUCTION. THIS IS NOT A PROPERTY OR TOPOGRAPHIC SURVEY.

Designed By:	ARH
Drawn By:	ARH
Checked By:	JCM
Cad File:	M2311

NOTE: UNAUTHORIZED ALTERATION OR ADDITION TO THIS DRAWING IS A VIOLATION OF SECTION 7209, PROVISION 2, OF THE NEW YORK STATE EDUCATION LAW

REVISION	BY/CK	DATE

METZGER CIVIL ENGINEERING, PLLC

8245 SHERIDAN DR.
WILLIAMSVILLE, NY 14221
PH: 716-633-2601
FAX: 716-633-2704

CIVIL ENGINEERING
LAND PLANNING
SITE DESIGN
MUNICIPAL ENGINEERING

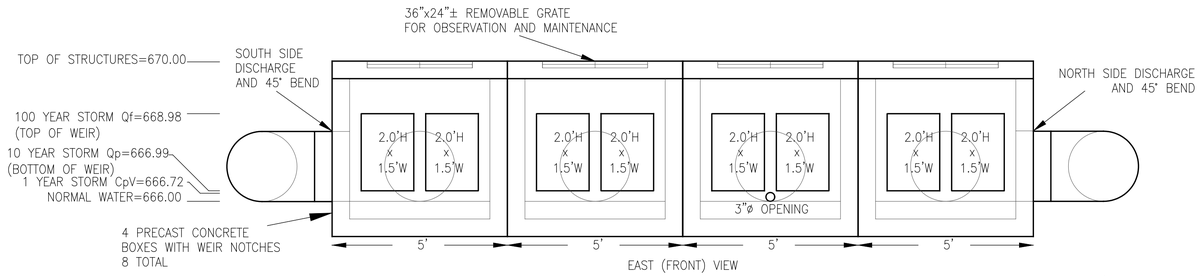
STATE OF NEW YORK MURRAY C. METZGER 066786 LICENSED PROFESSIONAL ENGINEER

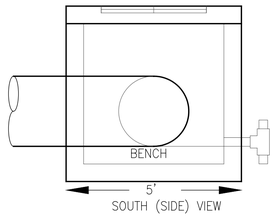
EDWARDS VACUUM

TOWN OF ALABAMA, GENESEE COUNTY, NEW YORK

EROSION AND SEDIMENT CONTROL PLAN

SCALE:	1"= 60'
DATE:	SEPTEMBER 22, 2023
JOB NO:	M-2311
SHEET NO:	EC-1

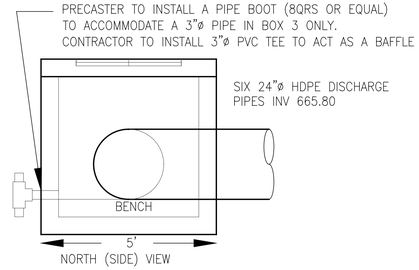


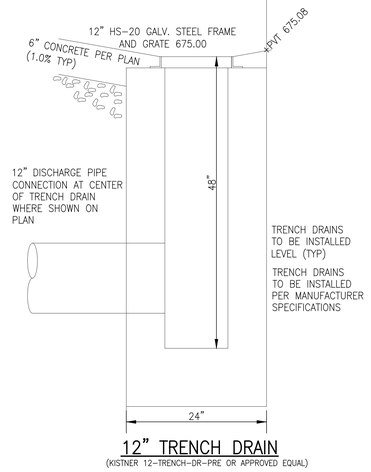


PRECASTER TO VERIFY THAT STRUCTURES ARE OF SUFFICIENT WEIGHT TO WITHSTAND BUOYANCY AND FROST HEAVE.

OUTLET STRUCTURE

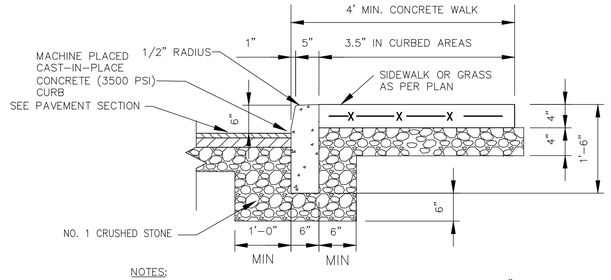
N.T.S





12" TRENCH DRAIN

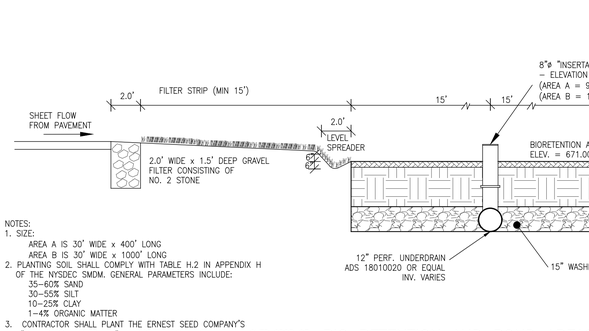
(KISTNER 12-TRENCH-DR-PRE OR APPROVED EQUAL)



NOTES:
1. CONCRETE SHALL BE NYSDOT CLASS A, 3,500 PSI MAX. SLUMP 4"
2. WELDED WIRE MESH (WWM) SHALL BE W2.9xW2.9, 6"x6".
3. INSTALL 2" DEEP SAW CUT CONTROL JOINTS @ 10' INTERVALS. WITHIN 24 HOURS OF PLACEMENT.
4. PROVIDE 1/2" PREFORMED BITUMINOUS EXPANSION JOINTS AT 30" O.C.
5. PROVIDE LIGHT BROOM FINISH WITH ¼" R. TOOLED EDGES.
6. SLOPE TOP OF CURB DOWN TO MEET EXISTING ELEVATION WITHIN 4' WHERE CURBING ENDS.
7. ALL CONCRETE PLACED AS PART OF THIS CONTRACT SHALL BE SEALED AS SOON AS POSSIBLE AFTER INSTALLATION.

STANDARD CURB DETAIL

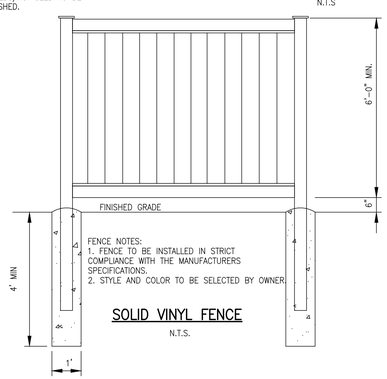
N.T.S.



NOTES:
1. SIZE:
   AREA A IS 30' WIDE x 400' LONG
   AREA B IS 30' WIDE x 1000' LONG
2. PLANTING SOIL SHALL COMPLY WITH TABLE H.2 IN APPENDIX H OF THE NYSDEC SMDM. GENERAL PARAMETERS INCLUDE:
   35-60% SAND
   30-55% SILT
   10-25% CLAY
   1-4% ORGANIC MATTER
3. CONTRACTOR SHALL PLANT THE ERNEST SEED COMPANY'S "RAIN GARDEN SEED MIX" IN BIORETENTION AREA WITH AN OVER CROP OF ANNUAL RYE GRASS AT A RATE OF 25-50 LBS/AC. SEED TO BE COVERED AND WATERED UNTIL ESTABLISHED.

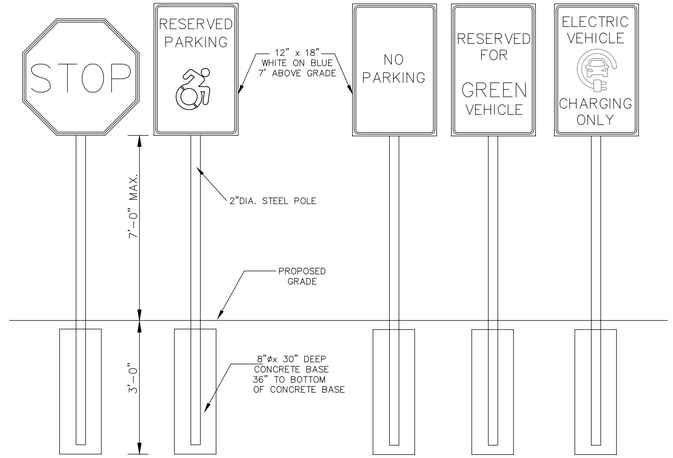
BIO RETENTION AND POND AREAS DETAIL

N.T.S



SOLID VINYL FENCE

N.T.S.



SIGNAGE

N.T.S.

HANDICAP SIGNAGE

N.T.S.

Designed By:	ARH
Drawn By:	ARH
Checked By:	JCM
Cad File:	M2311

NOTE: UNAUTHORIZED ALTERATION OR ADDITION TO THIS DRAWING IS A VIOLATION OF SECTION 7209, PROVISION 2 OF THE NEW YORK STATE EDUCATION LAW

REVISION	BY/CK	DATE

METZGER CIVIL ENGINEERING, PLLC
8245 SHERIDAN DR.
WILLIAMSVILLE, NY 14221
PH: 716-633-2601
FAX: 716-633-2704
CIVIL ENGINEERING
LAND PLANNING
SITE DESIGN
MUNICIPAL ENGINEERING

STATE OF NEW YORK
ANDREW R. METZGER
LICENSED PROFESSIONAL ENGINEER

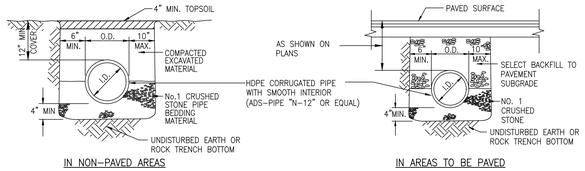
EDWARDS VACUUM

TOWN OF ALABAMA, GENESEE COUNTY, NEW YORK

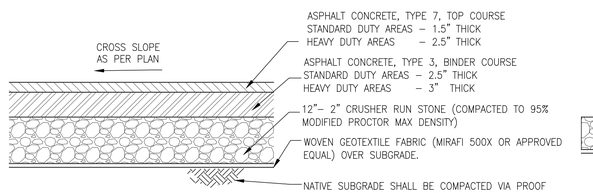
DETAILS – 1

SCALE:	AS NOTED
DATE:	SEPTEMBER 22, 2023
JOB NO:	M-2311
SHEET NO:	DT-1

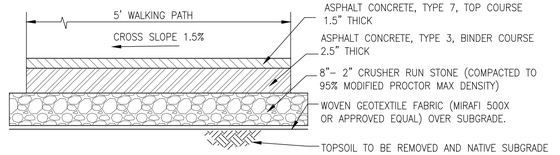
C:\Users\rcown\OneDrive\MCE\M2311 Stamp-Kingfisher\Drawings\Site 3.dwg, 9/25/2023 12:16:17 PM



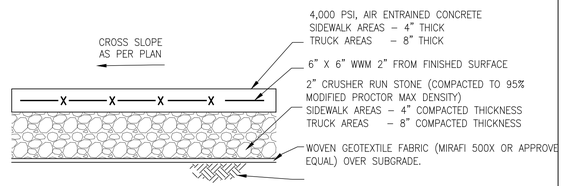
STORM SEWER TRENCH DETAILS
N.T.S.



ASPHALT PAVING SECTION
N.T.S.

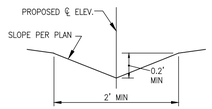


WALKING PATH PAVING SECTION
N.T.S.



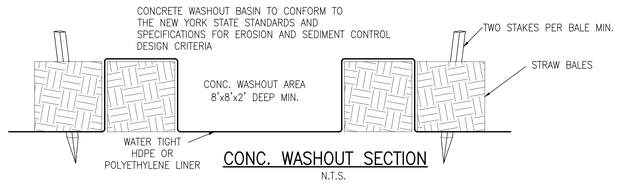
CONCRETE SECTION
N.T.S.

NOTES:
1. CONCRETE SHALL BE NYSDOT CLASS A, 4,000 PSI, MAX. SLUMP 4", AIR 5–7%, FIBERMESH
2. WELDED WIRE MESH (WWM) SHALL BE W2.9xW2.9, 6"x6".
3. INSTALL 2" DEEP MIN. SAW CUT CONTROL JOINTS @ 10' INTERVALS. WITHIN 24 HOURS OF PLACEMENT.
4. PROVIDE 1/2" PREFORMED BITUMINOUS EXPANSION JOINTS AT 30" O.C.
5. PROVIDE LIGHT BROOM FINISH WITH ¼" R. TOOLED EDGES.
6. ALL CONCRETE PLACED AS PART OF THIS CONTRACT SHALL BE SEALED AS SOON AS POSSIBLE AFTER INSTALLATION.

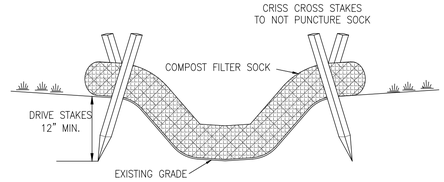


NOTES:
1) USE DIMENSIONS SHOWN IN THIS DETAIL UNLESS INDICATED OTHERWISE ON PLANS.
2) CONTRACTOR SHALL NOT OVER-EXCAVATE CHANNEL, SO AS TO, PREVENT EROSION.

TYPICAL SWALE
N.T.S.

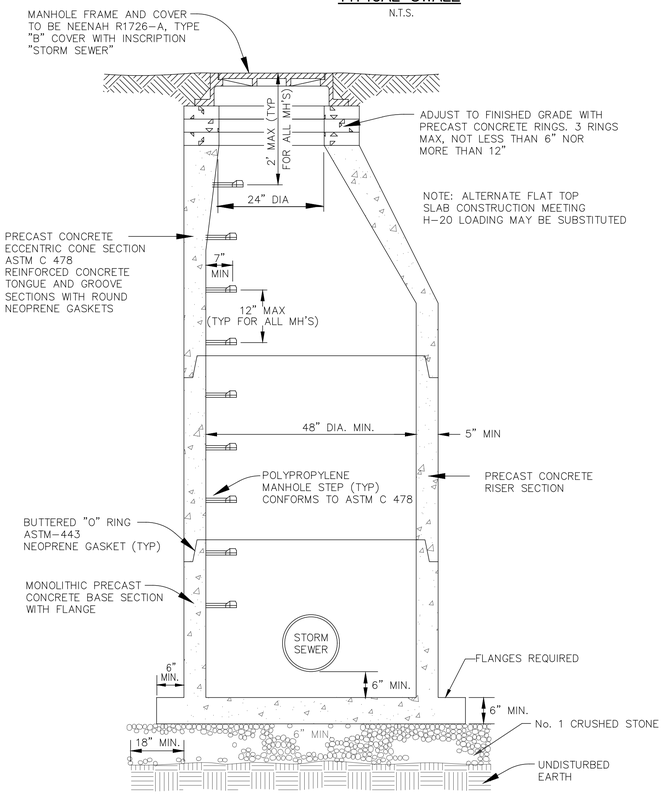


CONC. WASHOUT SECTION
N.T.S.

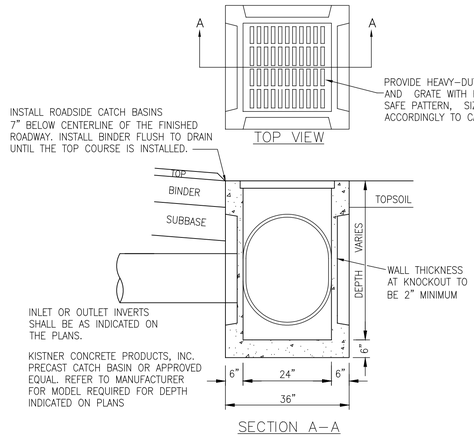


NOTES:
1. COMPOST FILTER SOCK MUST CONFORM TO NYS STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL (FILTREXX SILTSOXX OR APPROVED EQUAL).
2. INSTALL 3' LONG 2"x2" HARDWOOD STAKES AT 10' INTERVALS OR AS SPECIFIED BY THE SOCK MANUFACTURER.
3. WOODEN STAKES TO BE INSTALLED IN A CRISS CROSS PATTERN SO AS NOT TO PUNCTURE THE SOCK.
4. WOODEN STAKES TO BE DRIVEN AT LEAST 12" INTO GROUND.
5. ABUTTING ENDS MUST BE OVERLAPPED TO PROVIDE CONTINUOUS PROTECTION.
6. ALL SOCK SHALL BE 12".

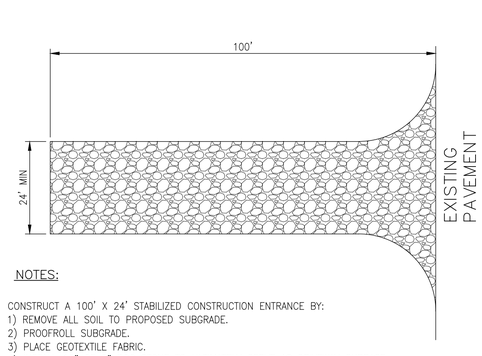
COMPOST FILTER "SILT SOCK" / CHECK DAM
N.T.S.



PRECAST CONCRETE STORM MANHOLE
N.T.S.



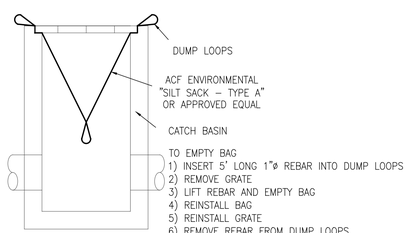
PRECAST CONCRETE CATCH BASIN
N.T.S.



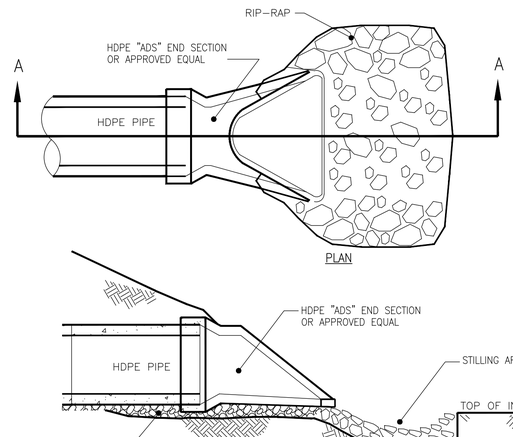
NOTES:

CONSTRUCT A 100' X 24' STABILIZED CONSTRUCTION ENTRANCE BY:
1) REMOVE ALL SOIL TO PROPOSED SUBGRADE.
2) PROOFROLL SUBGRADE.
3) PLACE GEOTEXTILE FABRIC.
4) INSTALL 12" OF 2" ROC STONE TO ULTIMATELY SERVE AS DRIVEWAY SUBBASE
5) SURFACE WATER-ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCE SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A SWALE OR MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
6) MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO ROCKLAND. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO THE ROADWAY MUST BE REMOVED IMMEDIATELY.
7) WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
8) INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED CONTINUOUSLY DURING CONSTRUCTION.

STABILIZED CONSTRUCTION ENTRANCE DETAIL
N.T.S.



DI PROTECTION DETAIL
N.T.S.



END SECTION WITH RIP-RAP DETAIL
N.T.S.

NOTE: UNAUTHORIZED ALTERATION OR ADDITION TO THIS DRAWING IS A VIOLATION OF SECTION 7209, PROVISION 2 OF THE NEW YORK STATE EDUCATION LAW

Designed By:	ARH
Drawn By:	ARH
Checked By:	JCM
Cad File:	M2311

REVISION	BY/CK	DATE

METZGER CIVIL ENGINEERING, PLLC
8245 SHERIDAN DR.
WILLIAMSVILLE, NY 14221
PH: 716-633-2601
FAX: 716-633-2704
CIVIL ENGINEERING
LAND PLANNING
SITE DESIGN
MUNICIPAL ENGINEERING

STATE OF NEW YORK – MICHAEL C. METZGER – 066788 – LICENSED PROFESSIONAL ENGINEER

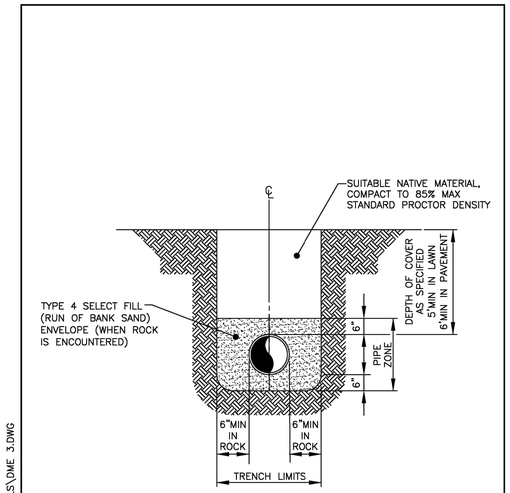
EDWARDS VACUUM

TOWN OF ALABAMA, GENESEE COUNTY, NEW YORK

DETAILS – 2

SCALE:	AS NOTED
DATE:	SEPTEMBER 22, 2023
JOB NO:	M-2311
SHEET NO:	DT-2

C:\Users\mcown\OneDrive\MCE\M2311 Stamp Kingfisher\Drawings\Site 3.dwg, 9/25/2023 10:14:52 AM

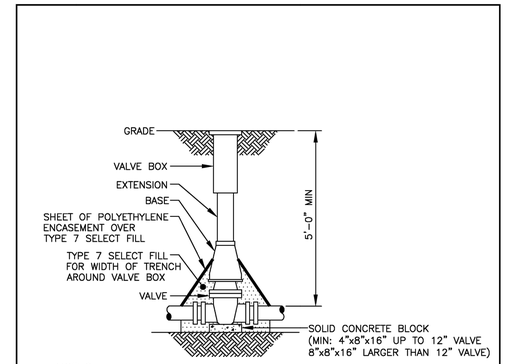


NOTE: EXCAVATION TO MEET OSHA REQUIREMENTS.

DIP TRENCH
NOT TO SCALE

R:\DETAILS\DME\2016 DME DETAILS\DME 3.DWG

MONROE COUNTY WATER AUTHORITY ROCHESTER, NEW YORK	SEPT 2016 DATE
	DME 3



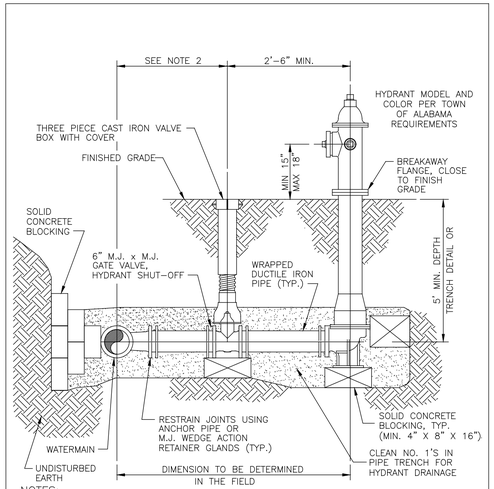
NOTES:

1. VALVE BOX SHALL BE CENTERED ON VALVE AND SET ON COMPACTED BACKFILL.
2. VALVE SHALL NOT SUPPORT VALVE BOX.
3. ALL VALVES SHALL BE OPEN LEFT EXCEPT:
   TOWN OF WEBSTER – VALVES 12" AND SMALLER SHALL OPEN RIGHT.
   TOWN OF HENRIETTA – SHALL OPEN RIGHT

VALVE
NOT TO SCALE

R:\DETAILS\DME\2016 DME DETAILS\DME 5.DWG

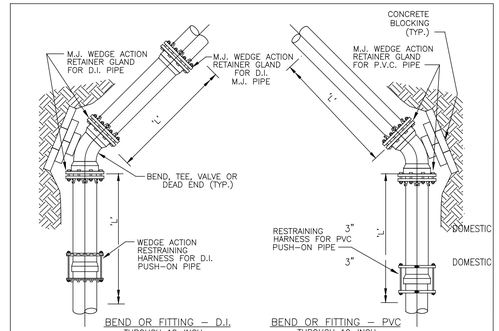
MONROE COUNTY WATER AUTHORITY ROCHESTER, NEW YORK	SEPT 2016 DATE
	DME 5



NOTES:

1. HYDRANT RISER SHALL BE INSTALLED PLUMB.
2. VALVE BOX SHALL NOT BE PLACED IN PAVEMENT.
3. HYDRANT FACE TO BE A MINIMUM OF 3' FROM THE BACK FACE OF ALL CURBS OR A MINIMUM OF 5' FROM ALL EDGES OF PAVEMENT (IF NO CURB).

STANDARD DETAIL
FIRE HYDRANT



BEND OR FITTING – D.I.
THROUGH 12–INCH

BEND OR FITTING – PVC
THROUGH 10–INCH

RESTRAINED JOINT SCHEDULE					
PIPE SIZE	PIPE TYPE	11.25° ELBOW	22.5° ELBOW	45° ELBOW	TEE BRANCH, 90° BEND, VALVE OR DEAD END
		'L'	'L'	'L'	'L'
6"	PVC	13'	25'	50'	120'
8"	PVC	16'	30'	60'	160'
8"	DIP	10'	20'	38'	88'
12"	PVC	20'	39'	76'	220'

NOTES:

1. DIMENSION 'L' REPRESENTS THE LENGTH OF RESTRAINED PIPE REQUIRED IN FEET EACH SIDE OF THE PIPE FITTING.

PLAN
N.T.S.

STANDARD DETAIL
RESTRAINED JOINT SCHEDULE

Designed By:	ARH		
Drawn By:	ARH		
Checked By:	JCM		
Cad File:	M2311		

NOTE:
UNAUTHORIZED ALTERATION OR ADDITION TO THIS DRAWING IS A VIOLATION OF SECTION 7209, PROVISION 2 OF THE NEW YORK STATE EDUCATION LAW

REVISION	BY/CK	DATE

METZGER CIVIL ENGINEERING, PLLC
8245 SHERIDAN DR.
WILLIAMSVILLE, NY 14221
PH: 716–633–2601
FAX: 716–633–2704
CIVIL ENGINEERING
LAND PLANNING
SITE DESIGN
MUNICIPAL ENGINEERING

STATE OF NEW YORK MARK J. METZGER 066786 LICENSED PROFESSIONAL ENGINEER

EDWARDS VACUUM
TOWN OF ALABAMA, GENESEE COUNTY, NEW YORK

DETAILS – 3

SCALE:	AS NOTED
DATE:	SEPTEMBER 22, 2023
JOB NO:	M–2311
SHEET NO:	DT–3

C:\Users\mcewn\OneDrive\MCE\M2311 Stamp-Kingfisher\Drawings\Site 2.dwg, 9/19/2023 11:30:34 AM

R:\DETAILS\DME\2016 DME DETAILS\DME 6.DWG

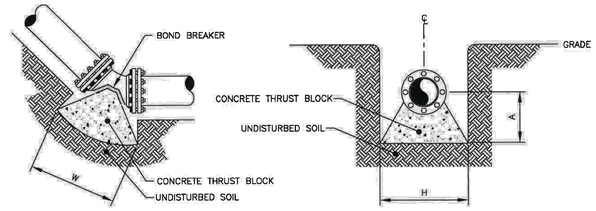
PIPE DIAMETER	BEND OR FITTING														
	11¼ DEGREE			22½ DEGREE			45 DEGREE			90 DEGREE			TEE*, CAP OR PLUG		
	H (FT)	W (FT)	A (FT)	H (FT)	W (FT)	A (FT)	H (FT)	W (FT)	A (FT)	H (FT)	W (FT)	A (FT)	H (FT)	W (FT)	A (FT)
6"	2.0	2.0	1.5	2.5	2.5	1.5	3.0	4.0	2.0	4.0	5.5	2.5	3.5	4.5	2.0

* SIZE BLOCK BASED ON BRANCH DIAMETER.

SOIL BEARING STRENGTH - PSF

PSI TEST PRESSURE

HORIZONTAL AND VERTICAL UP THRUST BLOCKS



BEND PROFILE

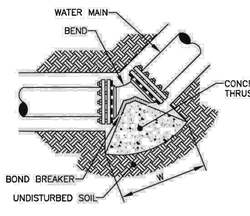
BEND ELEVATION

VERTICAL UP THRUST BLOCKS

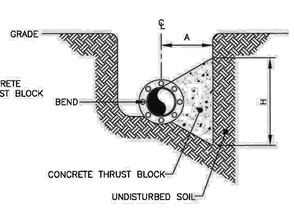
NOT TO SCALE

TEE PLAN

TEE ELEVATION



BEND PLAN



BEND ELEVATION

HORIZONTAL THRUST BLOCKS

NOT TO SCALE

MONROE COUNTY WATER AUTHORITY ROCHESTER, NEW YORK	SEPT 2016 DATE
	DME 6

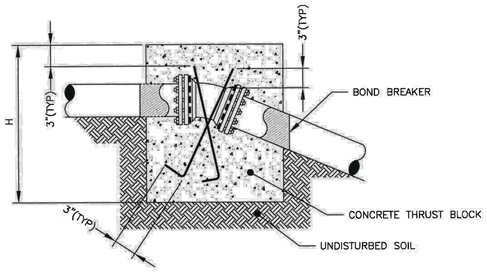
R:\DETAILS\DME\2016 DME DETAILS\DME 7.DWG

PIPE DIAMETER	BEND														
	11¼ DEGREE				22½ DEGREE				45 DEGREE				90 DEGREE			
	L (FT)	W (FT)	H (FT)	VOL (CY)	L (FT)	W (FT)	H (FT)	VOL (CY)	L (FT)	W (FT)	H (FT)	VOL (CY)	L (FT)	W (FT)	H (FT)	VOL (CY)
6"	2.0	2.0	2.5	0.50	2.5	2.5	3.0	0.75	3.0	4.0	2.0	1.0	4.0	5.5	2.5	2.0

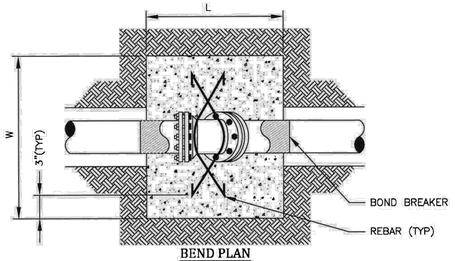
SOIL BEARING STRENGTH - PSF

PSI TEST PRESSURE

VERTICAL DOWN THRUST BLOCKS



BEND ELEVATION



BEND PLAN

NOTES:
1. THRUST BLOCKS SHALL BE CENTERED HORIZONTALLY ON BENDS.
2. VOLUMES SHOWN IN CHART ARE MINIMUMS.

VERTICAL DOWN THRUST BLOCKS

NOT TO SCALE

MONROE COUNTY WATER AUTHORITY ROCHESTER, NEW YORK	SEPT 2016 DATE
	DME 7

R:\DETAILS\DME\2016 DME DETAILS\DME 26.DWG

4" AND LARGER WATER SERVICE LINE NOTES

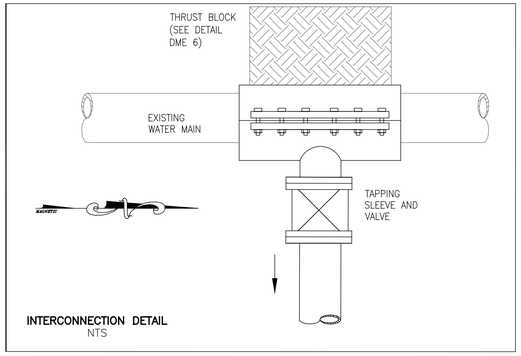
1. Water service lines shall be constructed in accordance with the regulations and specifications of the Water Authority.
2. Water service lines shall have a minimum of five feet of cover from finished grade in lawn areas and six feet of cover from finished grade in paved areas.
3. Water service lines shall be separated at least ten feet, measured from the outside of the pipes, from sewer mains or septic systems.
4. Water service lines shall be identified as:

DESCRIPTION	SIZE	MATERIAL[a]	TYPE [b]
MCWA Portion: from the water main to and including the control valve on the ROW/property/easement line	6"	D.I.P.*	CMB
Private Portion: from the control valve to the meter	6"	D.I.P.*	CMB

[a]Acceptable material is *Class 52 cement mortar lined Ductile Iron Pipe.
[b]Service Types include: Domestic = DS, Fire = FS, or Combined = CMB

5. The Water Authority's portion of the water service line shall be installed prior to the private portion of the service line.
6. Water meter(s) to be located on the interior of exterior walls(s) immediately upon service entrance into the building(s). A by-pass assembly is not required around the installation of 5/8-inch through 1-inch meters. 1 ½-inch + 2-inch Meter installations may require a by-pass assembly around the meter. Meter installation 3-inch or greater require a bypass assembly around the meter.
7. Water service lines sized 4-inches or greater shall be:
   - Pressure tested in accordance with the latest specifications of the Monroe County Water Authority. **A Water Authority representative must witness this test.**
   - Disinfected by using the continuous feed method according to AWWA Standard Specifications. After flushing and disinfecting the service line, water samples shall be collected in accordance with the Department of Health that has jurisdiction of the areas requirements. Approval and notification by the Health Department of passing health sample test(s) must be received before the service will be activated by the Water Authority.

MONROE COUNTY WATER AUTHORITY ROCHESTER, NEW YORK	DEC 2020 DATE
	DME 26



INTERCONNECTION DETAIL
NTS

C:\Users\mcewin\OneDrive\MCE\M2311 Stamp-Kingfisher\Drawings\Site 2.dwg, 9/19/2023 11:29:52 AM

Designed By:	ARH		
Drawn By:	ARH		
Checked By:	JCM		
Cad File:	M2311		
NOTE: UNAUTHORIZED ALTERATION OR ADDITION TO THIS DRAWING IS A VIOLATION OF SECTION 7209, PROVISION 2 OF THE NEW YORK STATE EDUCATION LAW			
REVISION	BY/CK	DATE	

METZGER CIVIL ENGINEERING, PLLC
8245 SHERIDAN DR.
WILLIAMSVILLE, NY 14221
PH: 716-633-2601
FAX: 716-633-2704
CIVIL ENGINEERING
LAND PLANNING
SITE DESIGN
MUNICIPAL ENGINEERING

STATE OF NEW YORK MATTHEW C. METZGER 066786 LICENSED PROFESSIONAL ENGINEER

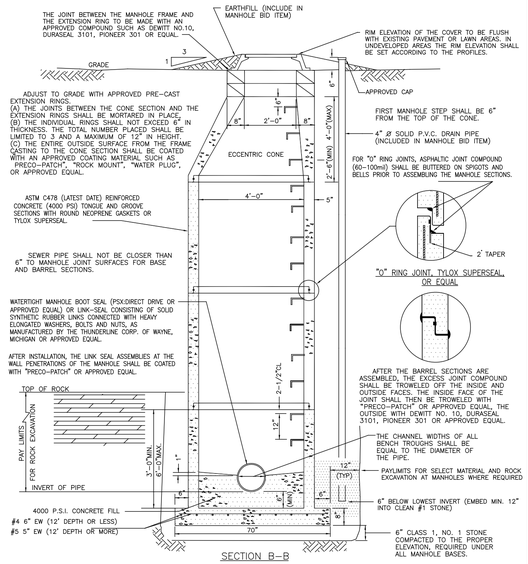
EDWARDS VACUUM

TOWN OF ALABAMA, GENESEE COUNTY, NEW YORK

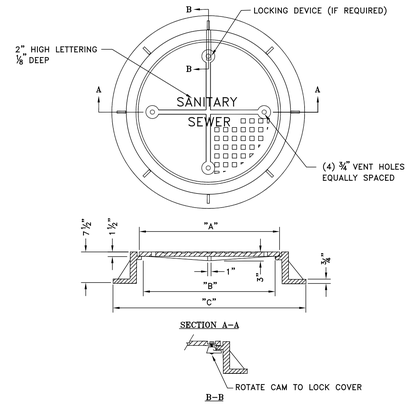
DETAILS – 4

SCALE:	AS NOTED
DATE:	SEPTEMBER 22, 2023
JOB NO:	M-2311
SHEET NO:	DT-4

MONOLITHIC PRECAST BASE MANHOLES 4'–0" DIA. BASE FOR 15"ø SEWERS OR LESS (SECTION B–B)



STANDARD FRAME AND COVER (PRIVATE SEWER)



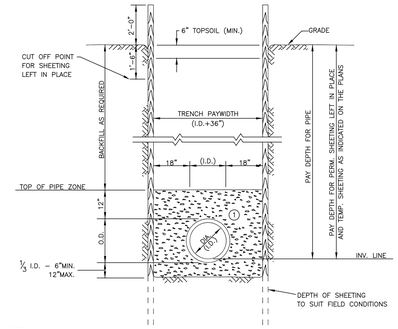
LOCKING DEVICE

TABLE				
PIPE SIZE	DIMENSION "A"	DIMENSION "B"	DIMENSION "C"	WEIGHT OF COVER
8" THRU 18"	24"	22 1/4"	35"(MAX.)	150 LBS. ± 5%
			46"(MAX.)	

STANDARD FRAME AND COVER NOTES

1. MATERIAL ASTM A48 CLASS 30B CAST IRON.
2. UNIT MUST WITHSTAND H-20 WHEEL LOADING.
3. ALL DIMENSIONS ARE TO BE CONSIDERED MINIMUM WITH THE EXCEPTION OF THE COVER, WHICH MUST CONFORM EXACTLY TO MAINTAIN INTERCHANGEABILITY WITHIN THE COUNTY.
4. COVER WEIGHT 210 LBS. (MAX)
5. COATING NOT REQUIRED.
6. FRAMES AND COVERS SHALL HAVE MACHINED BEARING SURFACES.
7. LOCKING DEVICE MUST BE SITUATED TO ALLOW EASY REMOVAL OF COVER.
8. NO COMMERCIAL "BRAND NAME" LETTERING WILL BE ALLOWED ON THE EXPOSED SURFACE OF THE COVER.

SHEETED TRENCH



NOTES:

1. MAINTAIN 18" BETWEEN PIPE AND INSIDE FACE OF TEMPORARY SHEETING. IF SHEETING EXTENDS BELOW PIPE INVERT AS SHOWN, WHEN PVC PIPE MATERIAL IS USED, COMPACT MATERIAL (1) BEFORE PULLING THE SHEETING.
2. SHEETED TRENCH OPERATIONS SHALL INCLUDE ALL NECESSARY DEWATERING EQUIPMENT.
3. SHEETING DRIVEN BELOW THE INVERT OF THE PIPE FOR BEDDING MATERIAL AND TOE SUPPORT WILL NOT BE CONSIDERED IN THE FORMULA FOR PAYMENT BUT SHOULD BE FIGURED BY THE CONTRACTOR IN DETERMINING HIS UNIT BID PRICE PER SQUARE FOOT OF SHEETING.
4. WHERE INDICATED ON THE PLANS OR AS ORDERED BY THE ENGINEER, TEMPORARY SHEETING WILL BE PAID FOR UNDER THE APPLICABLE BID ITEM. OTHER AREAS WHERE THE CONTRACTOR ELECTS TO USE TEMPORARY SHEETING NOT PREVIOUSLY AUTHORIZED BY THE ENGINEER SHALL BE AT HIS OPTION AND EXPENSE.

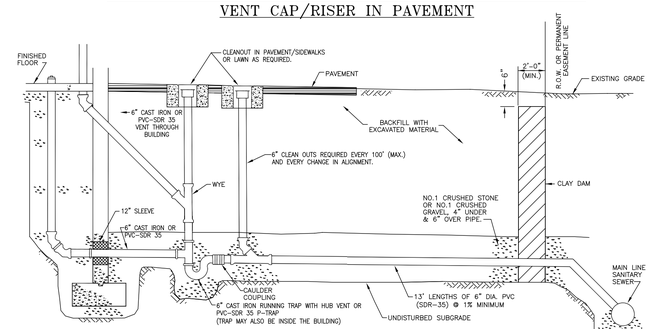
MATERIALS

PIPE BEDDING MATERIAL (NYSDOT LATEST EDITION)

(1) NO.1 CRUSHED STONE WITH A GRADATION CONFORMING WITH NYSDOT SECTION 703-02. THE CRUSHED STONE SHALL BE WELL GRADED WITH NO PARTICLES LARGER THAN 1" AND HAVING A MAXIMUM GRADATION MEETING THE LIMITS DESCRIBED IN THE SPECIFICATIONS. THE BEDDING SHALL BE COMPACTED IN 6" LIFTS WITH EQUIPMENT ACCEPTABLE TO THE PIPE MANUFACTURER.

NOTE: SLAG SHALL NOT BE ALLOWED FOR MATERIALS (1)

TYPICAL COMMERCIAL SERVICE WITHOUT BASEMENT DETAIL VENT CAP/RISER IN PAVEMENT



NOTES:

1. PRIVATE INSPECTION WILL BE REQUIRED FOR USE.
2. ALL WORK MUST BE MEET STATE, COUNTY AND TOWN CODES.
3. PVC PIPE MATERIAL SHALL BE MANUFACTURED IN ACCORDANCE WITH THE REQUIREMENTS OF THE LATEST ASTM SPECIFICATION D-3033/D-3034. CAST IRON PIPE MATERIAL SHALL BE EXTRA HEAVY AND IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM A74-42.
4. SELECT BACKFILL REQUIRED UNDER PAVED AREAS.
5. COVER DEPTH ADJACENT IF LESS THAN 4'-0" UNDER PAVED AREAS
6. MIN. DEPTH OF COVER 3'-0"
7. CLEAN OUT MEASUREMENTS SHALL START FROM CENTERLINE OF MAIN SEWER FOR NEWSIDE LATERALS AND FROM THE 6" CLEAN OUT FOR FAR SIDE CONNECTIONS. A CLEAN OUT MAY BE REQUIRED FOR ANY ABRUPT CHANGES IN LATERAL DIRECTION FLOW
8. A 6" CLEAN OUT IS REQUIRED AT THE END OF EVERY LATERAL THAT IS UNDER THE PAVEMENT LIMITS OR AT FAR SIDE OF OF PAVEMENT.
9. ANY SEWER LAID THROUGH OR OVER A SEPTIC TANK MUST BE CAST IRON (SEPTIC TANK MUST BE FILLED WITH BANK RUN GRAVEL)
10. ANY EXCAVATION TO BE LEFT OPEN OVERNIGHT SHALL BE COMPLETELY BARRICADED IN FENCING OR WHERE NECESSARY, COVERED WITH STEEL PLATES.
11. DOWN SPOUTS, SUMP PUMPS, AND FOOTING DRAINS ARE NOT PERMITTED TO BE CONNECTED TO THE LATERAL.
12. FOR NEW STRUCTURES, NO CONNECTION SHALL BE MADE UNTIL BUILDING ROOF IS ERECTED AND BASEMENT FLOOR IS POURED.

Designed By:	ARH
Drawn By:	ARH
Checked By:	JCM
Cad File:	M2311

NOTE: UNAUTHORIZED ALTERATION OR ADDITION TO THIS DRAWING IS A VIOLATION OF SECTION 7209, PROVISION 2, OF THE NEW YORK STATE EDUCATION LAW

REVISION	BY/CK	DATE

METZGER CIVIL ENGINEERING, PLLC
8245 SHERIDAN DR.
WILLIAMSVILLE, NY 14221
PH: 716-633-2601
FAX: 716-633-2704
CIVIL ENGINEERING
LAND PLANNING
SITE DESIGN
MUNICIPAL ENGINEERING

STATE OF NEW YORK — MICHAEL J. METZGER — 066786 — LICENSED PROFESSIONAL ENGINEER

EDWARDS VACUUM

TOWN OF ALABAMA, GENESEE COUNTY, NEW YORK

DETAILS – 5

SCALE:	AS NOTED
DATE:	SEPTEMBER 22, 2023
JOB NO:	M-2311
SHEET NO:	DT-5

GENERAL NOTES FOR SANITARY SEWER CONSTRUCTION

1. THE PRIVATE INSPECTOR MUST BE IN SITE AS REQUIRED BY SAID INSPECTOR AND IS TO BE NOTIFIED AT LEAST 48 HOURS IN ADVANCE OF THE INSTALLATION OF ANY SEWER COMPONENT.
2. CONSTRUCTION SHALL BE IN ACCORDANCE WITH ALL STATE, COUNTY AND TOWN RULES AND REGULATIONS.
3. ALL PERMITS REQUIRED BY THE FEDERAL, STATE, COUNTY, CITY AND/OR TOWN GOVERNMENTS TO PERFORM WORK MUST BE OBTAINED PRIOR TO THE START OF WORK, AND PAID FOR BY THE CONTRACTOR.
4. IF EASEMENT AND/OR OUT OF DISTRICT AGREEMENTS ARE REQUIRED, THEY MUST BE COMPLETE AND READY TO BE FILED BEFORE THE PROJECT WILL BE APPROVED FOR CONSTRUCTION.
5. THE CONTRACTOR SHALL COMPLY IN ALL RESPECTS TO THE INDUSTRIAL CODE PART (RULE NO.) 53 RELATING TO CONSTRUCTION, EXCAVATION, AND DEMOLITION OPERATIONS AT OR NEAR UNDERGROUND FACILITIES, AS ISSUED BY THE STATE OF NEW YORK DEPARTMENT OF LABOR, BOARD OF STANDARD AND APPEALS.
6. THE CONSTRUCTION OF THE SANITARY SEWER FACILITIES SHALL BE UNDER THE SUPERVISION OF A PERSON OR FIRM QUALIFIED TO PRACTICE PROFESSIONAL ENGINEERING IN NEW YORK STATE UNDER THE EDUCATION LAW OF THE STATE, WHENEVER ENGINEERING SERVICES ARE REQUIRED BY SUCH LAW FOR SUCH PURPOSES.
7. WHERE SUCH SANITARY SEWER FACILITIES ARE UNDER THE SUPERVISION OF A PROFESSIONAL ENGINEER, HE SHALL CERTIFY THAT THE CONSTRUCTED FACILITIES HAVE BEEN UNDER HIS SUPERVISION AND THAT THE WORK HAS BEEN FULLY COMPLETED IN ACCORDANCE WITH THE APPROVED ENGINEERING REPORTS, PLANS, SPECIFICATIONS, AND APPROVALS.
8. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL SITE SAFETY. THE CONTRACTOR'S EQUIPMENT AND METHODS OF OPERATION SHALL BE IN FULL COMPLIANCE WITH OSHA STANDARDS AND SATISFY ALL FEDERAL, STATE AND LOCAL HEALTH AND SAFETY REGULATIONS.
9. THE CONTRACTOR IS ADVISED A TRENCH SHIELD AND/OR SHORING DESIGNED IN ACCORDANCE WITH OSHA STANDARDS SHALL BE USED IN ALL OPEN TRENCH EXCAVATIONS.
10. ANY CONTRACTOR AND/OR PLUMBER PERFORMING WORK IN A CONFINED SPACE (I.E. MANHOLES, WETWELLS, AND CHAMBERS) MUST CERTIFY TO THE TOWN THAT THEY HAVE THEIR OWN CONFINED SPACE ENTRY PROGRAM THAT MEETS OR EXCEEDS OSHA'S REGULATIONS. CERTIFICATION MUST BE NOTARIZED BY A NOTARY REPUBLIC.
11. THE CONTRACTOR SHALL EXPOSE EXISTING UTILITIES AHEAD OF THE PIPE LAYING OPERATION, SO IF MINOR ADJUSTMENTS MUST BE MADE IN THE PIPE ELEVATION AND/OR ALIGNMENT DUE TO INTERFERENCE FROM THESE UTILITIES, SAID CHANGES CAN BE MADE IN ADVANCE OF THE WORK.
12. THE CONTRACTOR SHALL RETAIN THE SERVICES OF A QUALIFIED TREE EXPERT TO REMOVE, WHERE NECESSARY, BRANCHES WHICH INTERFERE WITH THE CONSTRUCTION OPERATION, OR TO REPAIR TREES HAVING SUFFERED DAMAGE BY CONSTRUCTION ACTIVITIES. THE COST INVOLVED IS TO BE INCLUDED IN THE VARIOUS ITEMS OF THE CONTRACT.
13. THE SANITARY SEWER PIPE SHALL BE POLYVINYL CHLORIDE (PVC) SEWER PIPE CONFORMING TO THE LATEST REVISIONS OF AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) DESIGNATION D3034, SDR-35, INSTALLED IN ACCORDANCE WITH THE ASTM DESIGNATION D-2321-83A OR THE LATEST REVISION THEREOF, OR APPROVED EQUAL.
14. SEWERS SHALL BE LAID WITH STRAIGHT ALIGNMENT BETWEEN MANHOLES AND SHALL BE CHECKED BY USING A LASER BEAM OR LAMPING.
15. SHOULD A FLUID CONDITION BE ENCOUNTERED AT THE TRENCH BOTTOM, THE CONTRACTOR IS TO UNDERCUT THE TRENCH AND PROVIDE SUITABLE FILL MATERIAL (STONE & FABRIC) TO STABILIZE THE TRENCH BOTTOM.
16. SANITARY SEWER BEDDING MATERIAL SHALL BE NO.1 CRUSHED STONE WITH A GRADATION CONFORMING TO THE DOT SPECIFICATIONS.
17. BACKFILL SHALL BE OF A SUITABLE MATERIAL REMOVED FROM THE EXCAVATION EXCEPT WHERE OTHER MATERIAL IS SPECIFIED. DEBRIS, FROZEN MATERIAL, LARGE CLODS OR STONES, ORGANIC MATTER, OR OTHER UNSTABLE MATERIALS SHALL NOT BE USED FOR BACKFILL WITHIN TWO (2') FEET OF THE TOP OF THE PIPE.
18. ALL PIPES CROSSING UNDER PAVED AREAS ARE TO BE BACKFILLED TO SUB-GRADE WITH COMPACTED SELECT MATERIAL (NO.2 CRUSHED STONE) TO FIVE (5') FEET OUTSIDE THE PAVEMENT EDGES OR AS REQUIRED BY THE HIGHWAY PERMIT. IF ANY PROPOSED SEWER RUNS UNDER PAVED AREAS AND HAS LESS THAN FOUR (4) FEET OF COVER, THEN CONCRETE ENCASEMENT IS REQUIRED.
19. SEWERS PARALLEL TO WATERMAINS – TEN STATE STANDARDS, LATEST EDITION, CHAPTER 30, SECTION 38.31, PAGE 30-11: SEWERS SHALL BE LAID AT LEAST TEN (10') FEET (THREE (3) METERS) HORIZONTALLY FROM ANY EXISTING OR PROPOSED WATER MAIN. THE DISTANCE SHALL BE MEASURED EDGE TO EDGE. IN CASES WHERE IT IS NOT PRACTICAL TO MAINTAIN A TEN (10') FOOT SEPARATION, THE APPROPRIATE REVIEWING AGENCY MAY ALLOW DEVIATION ON A CASE-BY-CASE BASIS, IF SUPPORTED BY DATA FROM THE DESIGN ENGINEER. SUCH DEVIATION MAY ALLOW INSTALLATION OF THE SEWER CLOSER TO A WATER MAIN, PROVIDED THAT THE WATER MAIN IS IN A SEPARATE TRENCH OR ON AN UNDISTURBED EARTH SHELF LOCATED ON ONE SIDE OF THE SEWER AND AT AN ELEVATION SO THE BOTTOM OF THE WATER MAIN IS AT LEAST 18 INCHES (460 MM) ABOVE THE TOP OF THE SEWER. IF IT IS IMPOSSIBLE TO OBTAIN PROPER HORIZONTAL AND VERTICAL SEPARATION AS DESCRIBED ABOVE, BOTH THE WATER MAIN AND SEWER MUST BE CONSTRUCTED OF SLIP-ON OR MECHANICAL JOINT PIPE COMPLYING WITH PUBLIC WATER SUPPLY DESIGN STANDARDS OF THE REGULATORY AGENCY AND BE PRESSURE TESTED TO 150 POUNDS PER SQUARE INCH (PSI) (L034 KPA) TO ASSURE WATER TIGHTNESS PRIOR TO BACKFILLING.
20. SEWERS CROSSING WATERMAINS – TEN STATE STANDARDS, LATEST EDITION, CHAPTER 30, SECTION 38.32, PAGE 30-11 TO 30-12: SEWERS CROSSING WATER MAINS SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL DISTANCE OF 18-INCHES (460 MM) BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF THE SEWER. THIS SHALL BE THE CASE WHERE THE WATER MAIN IS EITHER ABOVE OR BELOW THE SEWER. THE CROSSING SHALL BE ARRANGED SO THAT THE SEWER JOINTS WILL BE EQUIDISTANT AND AS FAR AS POSSIBLE FROM THE WATER MAIN JOINTS. WHERE A WATER MAIN CROSSES UNDER A SEWER, ADEQUATE STRUCTURAL SUPPORT SHALL BE PROVIDED FOR THE SEWER TO MAINTAIN LINE AND GRADE.
21. WHEN IT IS IMPOSSIBLE TO OBTAIN PROPER HORIZONTAL AND VERTICAL SEPARATION AS STIPULATED ABOVE, ONE OF THE FOLLOWING METHODS MUST BE SPECIFIED:

a. THE SEWER SHALL BE DESIGNED AND CONSTRUCTED EQUAL TO WATER PIPE, AND SHALL BE PRESSURE TESTED AT 150 PSI (1034 KPA) TO ASSURE WATER TIGHTNESS PRIOR TO BACKFILLING.

b. EITHER THE WATER MAIN OR THE SEWER LINE MAY BE ENCASED IN A WATERTIGHT CARRIER PIPE WHICH EXTENDS TEN (10') FEET (THREE (3) METERS) ON BOTH SIDES OF THE CROSSING, MEASURED PERPENDICULAR TO THE WATER MAIN. THE CARRIER PIPE SHALL BE OF MATERIALS APPROVED BY THE REGULATORY AGENCY FOR USE IN WATER MAIN CONSTRUCTION.

c. THE SEWER SHALL BE ENCASED IN CONCRETE. TYPICAL FOR ENCASEMENT

22. THE MANHOLE COVERS ARE TO BEAR THE INSCRIPTION "SANITARY" AND COMPLY WITH THE STANDARD FRAME AND COVER DETAIL.
23. BUILDING SANITARY SEWER VENTS MUST BE INSTALLED IN THE BUILDING OR SIX (6) INCHES ABOVE FINISHED GRADE IN A GRASSY AREA WITH A MUSHROOM CAP. IF THE VENT IS IN A SIDEWALK OR PAVED AREA, THEN PROTECT WITH 6" DIAMETER BOLLARDS (2 MINIMUM).
24. CLEANOUTS (C.O.) ARE REQUIRED ON EVERY ONE HUNDRED FEET, AND AT EVERY CHANGE OF ALIGNMENT.
25. ABANDONED BUILDING SEWER CONNECTIONS FROM THE SITE, IF ANY, REQUIRE PROOF OF A PERMIT FOR DISCONNECTION PRIOR TO THE NEW CONNECTION BEING MADE.
26. THE FOLLOWING PERTAINS ONLY FOR DIRECT REPLACEMENT OF IN SERVICE SANITARY SEWERS:

a. EACH NEW PIPE JOINT SHALL BE ULTRASONIC TESTED AFTER IT IS LAID, BUT BEFORE THE NEXT PIPE IS LAID. ALL TESTS SHALL BE IN ACCORDANCE WITH THE TESTING EQUIPMENT MANUFACTURE RECOMMENDATIONS.

b. THE ULTRASONIC TEST SHALL BE PERFORMED IN LIEU OF THE HYDROSTATIC TEST.

c. A VIDEO INSPECTION OF THE ENTIRE SEWER SHALL BE PERFORMED IN LIEU OF THE AIR TEST. FORWARD THE VIDEO INSPECTION TAPE AND RELATED PAPERWORK TO DSM FOR REVIEW AND APPROVAL.

d. A DEFLECTION TEST IS REQUIRED IN ALL CASES.

27. FOR ALL SANITARY SEWER INSTALLATIONS, A WRITTEN CERTIFICATE OF CONSTRUCTION COMPLETENESS AND COMPLIANCE, INCLUDING THE RESULTS OF THE HYDROSTATIC LEAKAGE TEST, LAMP TEST, DEFLECTION TEST, AIR TEST, ETC. SHALL BE SUBMITTED WITHIN THIRTY (30) DAYS AFTER COMPLETION OF CONSTRUCTION.
28. FOR ALL PUBLIC AND PRIVATE 8" OR LARGER SANITARY SEWER INSTALLATIONS, THE DEVELOPER/CONTRACTOR MUST PROVIDE ONE (1) SET OF RECORD DRAWINGS ON "D" SIZE PAPER (24" X 36") AND IN AN ELECTRONIC FILE FORMAT (CD) COMPATIBLE WITH AUTOCAD, RELEASE 2007.
29. ALL PUBLIC SEWER EXTENSION PROJECTS THAT CONSIST OF MORE THAN 750 LF OF 8" PIPE OR LARGER, SHALL FURNISH A 2 YEAR MAINTENANCE BOND AS REQUIRED BY THE TOWN.
30. FINAL CERTIFICATION WILL BE ISSUED UPON THE FULL COMPLETENESS AND COMPLIANCE OF THE PROJECT INCLUDING ANY REQUIREMENT(S) OF I/I REMEDIAL WORK

3.02 AIR TESTS, ALIGNMENT, INSPECTION, INFILTRATION OR EXFILTRATION AND DEFLECTION REQUIREMENTS

A. Requirements

1. After backfilling and prior to the final acceptance of the project, the Contractor will be required to perform the following four tests on all sewers to be built under this project:

a) Air Tests
b) Alignment
c) Infiltration or Exfiltration
d) Deflection Test (15" dia. and smaller).

2. No more than 1,000 linear feet of installed sewer shall be allowed to remain untested.

3. In view of the fact that house laterals and riser pipes often contribute considerable infiltration, such laterals and risers are to be installed and capped, tied and blocked as the work progresses prior to the air testing of the lines.

4. The Contractor's testing procedures shall be completed in accordance with OSHA Standards for confined space entry. The Contractor will be required to provide and operate all equipment necessary for full compliance for his operation. Equipment such as gas detectors, safety harnesses, ventilating blowers, respirators etc. shall be provided by the contractor.

B. Air Tests (Required for All Diameters up to and including 36")

1) The procedure for air testing shall be as specified herein. The minimum allowable time for the test pressure to decrease from 3.5 psi to 3.0 psi shall be not less than as called for in the following table:

Minimum Acceptance Times For Length Shown (min:sec)

Pipe Diameter	Up to 100'	100-200 '	200-300'	300-400'
6"	2:50	2:50	2:50	2:51
8"	3:47	3:47	3:48	5:04
10"	4:43	4:43	5:56	7:54
12"	5:40	5:42	8:33	11:24
15"	7:05	8:54	13:21	17:48
18"	8:30	12:49	19:14	25:38
21"	9:55	17:27	26:11	34:54
24"	11:24	22:48	34:11	45:35
27"	14:25	28:51	43:16	57:42
30"	17:48	35:37	53:25	71:13
33"	21:33	43:56	64:38	86:10
36"	25:39	51:17	76:55	102:34

2) Pipe lines in sizes up to 36 inches in diameter can be air tested from manhole to manhole for distances not to exceed 400 ± feet.

3) In wet trenches where pumping to lower the water table is impractical, approved perforated pipe (with approved cap) shall be placed at each manhole to extend from a point 6 inches below the lowest invert to the top of the ground. Ground water elevations will be measured at each manhole in order to calculate the groundwater pressure acting on the pipe exterior. The initial air test pressure shall be increased as necessary to overcome the calculated groundwater pressure.

4) The testing procedure outlined shall be strictly adhered to during construction.

5) All testing equipment shall be supplied by the Contractor. For the Contractor's information, some of the major equipment required for air tests is the following:

a). Stop watch graduated in tenths of a second.
e) Compressor of 50 to 100 psi capacity.
f) Bulkheads for pipe.
g) Approximately 100 feet of 3/8" diameter air hose.
h) Pressure gauge – 0 to 5 psi graduated in 1/16th of a pound increments.
i) Three 3/8 inch diameter check valves.

C. Visual Inspection

1. All Sewers under 36" in diameter shall be lamped manhole to manhole prior to final acceptance. The lamp shall have an output of between 250 and 500 candlepower. Lamping shall be performed after the sewer has been flushed and the inside surface wet to allow for light reflection. If fifty percent (50%) of the lamp cannot be seen from the other manhole, the contractor will be required to televise that section at his expense.

2. All pipes 36" in diameter and larger shall be entered and visually inspected by the Engineer prior to installation. All equipment required for the inspection shall be furnished by the Contractor. After installation is totally complete, the contractor shall complete an internal television inspection of the pipe conduit,. the television inspection shall be completed with the engineer present and a full inspection shall be recorded on a vhs tape. a copy of said tape shall be provided to the engineer. some items of inspection are as follows:

a) Pipe free from obstructions and debris
b) Pipe free from cracks
c) Pipe joints properly sealed
d) Pipe invert is smooth and free of sags or high points
e) Hookups, diversions and connections properly made
f) Concrete pipe walls free from structural defects
g) Pipes and joints free from visible signs of leakage
h) Specified coatings properly installed.

3. Pipe sections and joints not meeting all of the above requirements shall be replaced or repaired as directed by the engineer at the contractors expense.

D. Infiltration Tests (Applicable Only if Ground Water is Above Pipe)

1. Infiltration tests for all sewers to be constructed under this project shall not exceed 100 gallons per inch diameter per mile of sewer, per 24 hours. Each individual run of sewer (from one manhole to the next manhole) shall comply with the allowable rate of infiltration. All equipment for the tests shall be furnished by the Contractor.

2. The allowable rate of infiltration given in gallons per mile is not to be construed as a commitment on the part of the Owner to accept an entire line, where overall infiltration is less than the allowable, while one or more runs contribute excessive infiltration.

3. The infiltration test is intended to measure the water tightness of a sewer, as related to the infiltration of ground water, and, therefore, is only applicable if the water table level is 2 feet above the top of the pipe.

a) Approved perforated pipe (with an approved cap) shall be placed at each manhole to extend from a point 6 inches below the lowest invert to the top of the ground. Ground water elevations will be measured at each manhole so that the ground water level an be correlated with the infiltration measurements.

b) Before conducting the tests, the water table should be allowed to stabilize at its normal level such that the water completely surrounds the pipe during the test period. The test is usually conducted between adjacent manholes with the upstream end of the sewer bulkheaded in a suitable manner to isolate the test section. All service laterals, stubs and fittings should be properly plugged or capped at the connections to the test pipe section to prevent the entrance of ground water at these locations.

c) A V notch weir or other suitable measuring device should be installed in the inlet pipe to the downstream manhole. Infiltrating water is then allowed to build up and level off behind the weir until steady, uniform flow is obtained. When steady flow occurs over the weir, leakage is determined by direct reading consecutively for five (5) days from graduations on the weir and converting the flow quantity to gallons per unit length of pipe per unit of time.

d) An important factor in applying the test criteria is to properly correlate the variable water head over the length of sewer being tested to the high ground water level. The downstream end of the test section will almost always be subjected to a greater external water pressure than the upstream end. To compensate for this variable external pressure, the test pressure should be that pressure corresponding to the average head of water over the test section. A minimum of 2 feet of water over the pipe is required at the upper manhole before the infiltration test will be allowed.

4. After the advent of the first wet weather season, and prior to the acceptance of the project, the owner will require that sections showing excessive infiltration be tested again and defective pipes, manholes, and connections be replaced or repaired at the contractors expense

5. When a sewer run between two consecutive manholes or chambers is found to contribute infiltration at a rate above the allowable, inspection by television or other cameras may be made by the Contractor and at the contractors expense during wet weather, so that the defective section of sewer can be located and repaired. Each individual run of sewer (from one manhole to the next manhole) shall comply with the allowable rate of infiltration of 100 gallons per inch diameter per mile of sewer per 24 hours.

A. Exfiltration Tests

1. The exfiltration test for all diameter sewers shall be as described below. Although actual infiltration will normally be less than that indicated by the water exfiltration test, the test does provide a positive means of subjecting the completed sewer system to an actual pressure test. Since sanitary sewers are not designed or expected to operate as a pressure system, care must be exercised in conducting the test and correlating the results with the allowable exfiltration limit. All equipment required for the tests shall be furnished by the contractor.

a) The test is usually conducted between adjacent manholes. Prior to the test, all service laterals, stubs and fittings within the test section should be plugged or capped and adequately braced or blocked to withstand the water pressure resulting from the test.

b) If manholes are to be included in the test, the inlet pipe to each manhole should be bulkheaded and the test section filled with water through the upstream manhole. To allow air to escape from the sewer, the flow should be at a steady rate until the water level in the upstream manhole provides an average pressure of 5 psi (11.6' head) at the center point of the test section or the upstream manhole is filled. If necessary, provisions should be made to bleed off entrapped air during the filling of the test section.

c) Once the test section is filled, the water should be allowed to stand for an adequate period of time (one day minimum) to allow for water absorption by the pipe and manhole. After water absorption has stabilized, the water level in the upstream manhole is brought up to the proper test level and this level established by measuring down from the manhole cover or other convenient datum point. After 24 hours, the water elevation should be measured from the same reference point and the loss of water during the test period calculated, or the water can be restored to the level existing at the beginning of the test, and the amount added used to determine the leakage.

d) To exclude both manholes from the test it is necessary to bulkhead the outlet pipe of the upstream manhole. Provision must be made in the bulkhead for filling the pipe and expelling trapped air.

e) The water level at the upstream manhole shall be computed and varies above the top of the pipe. Since the sewer is installed on a grade, the test section downstream will most likely be subjected to a greater pressure. Therefore, the test pressure head at the upstream manhole should be adjusted such that the maximum pressure on the pipe being tested is no greater than 10 psi.

3. When a sewer run between two consecutive manholes or chambers is found to exfiltrate at a rate above the allowable, inspection by television or other cameras may be made by the Contractor during wet weather, so that the defective section of sewer can be located and repaired. Each individual run of sewer (from one manhole to the next manhole) shall comply with the allowable rate of infiltration of 100 gallons per inch diameter per mile of sewer per 24 hours.

B. Deflection Test

All PVC sewers constructed under this project shall be internally checked, no earlier than 30 calendar days after the trenches are backfilled, with a five percent (5%) deflection "go-no-go pig" to determine if the pipes are deflecting excessively. Any section of pipe unable to pass the deflection test "pig test" shall be removed and replaced at the contractors expense.

Deflection testing mandrels or pig shall be pulled through the pipe by hand or hand operated winch. Power winches or drives are not permitted.

Designed By:	ARH
Drawn By:	ARH
Checked By:	JCM
Cad File:	M2311

NOTE: UNAUTHORIZED ALTERATION OR ADDITION TO THIS DRAWING IS A VIOLATION OF SECTION 7209, PROVISION 2, OF THE NEW YORK STATE EDUCATION LAW

REVISION	BY/CK	DATE

METZGER CIVIL ENGINEERING, PLLC
8245 SHERIDAN DR.
WILLIAMSVILLE, NY 14221
PH: 716-633-2601
FAX: 716-633-2704
CIVIL ENGINEERING
LAND PLANNING
SITE DESIGN
MUNICIPAL ENGINEERING

STATE OF NEW YORK · MICHAEL R. METZGER · 086786 · LICENSED PROFESSIONAL ENGINEER

EDWARDS VACUUM

TOWN OF ALABAMA, GENESEE COUNTY, NEW YORK

DETAILS – 6

SCALE:	AS NOTED
DATE:	SEPTEMBER 22, 2023
JOB NO:	M-2311
SHEET NO:	DT-6

C:\Users\jmcwin\OneDrive\MCE\M2311 Stamp-KingFisher\Drawings\Site 2.dwg, 9/19/2023 11:25:20 AM

your trusted advisor
consultants
engineers
architects
planners

GEIS COMPANIES
10020 Aurora-Hudson Rd
Streetsboro, Ohio 44241
PH: (330) 528-3500
FX: (330) 528-0008
www.geisco.net

DATES AND REVISIONS

09-25-2023
PRELIMINARY

WAYFINDING PATH

SELECT FILL UNDER PAVED AREAS

6"ø SDR-18, C-900 WATER LINE

45° BEND

HYD (SEE DETAIL)

45° BEND

45° BEND

45° BEND

45° BEND

45° BEND

FFE
679.00

6"ø SDR-18, C-900 WATER LINE

LEGEND

SHADE TREES - 2-1/2" CALIPER
MAPLE, OAK, HONEYLOCUST

ORNAMENTAL TREES - 1"-1/2 CALIPER
CRABAPPLE REDBUD, HAWTHORN

EVERGREEN TREES - 6' HT.
NORWAY SPRUCE, BOSNIAN PINE

SHRUBS - LARGE 30"-36"
VIBURNUM, JUNIPER, NINEBARK, HYDRANGEA

SHRUBS - SMALL 18"-24"
SWEETSPIRE, BOXWOOD, JUNIPER, SPIRAEA,

GRASSES/PERENNIALS/ GROUNDCOVER - 1 GAL
DAYLILY, DWARF GRASSES, WINTER CREEPER,

PATIO

FLAGPOLES

CROSBY ROAD

EDWARDS (T.O.P. R.O.W.) LANE

10-1-4.12
CORNELIUS
#6680

BARN

DECK

DECK

NO DECK

Pole

COORDINATE WITH PLUMBING PLANS

93' 6"ø LATERAL

SANITARY MH 4
RIM 670.50
EI 660.27
WI 666.25

265' 8"ø SDR-35 @ 0.4%

SELECT FILL UNDER PAVED AREAS (TYP)

SANITARY MH 3
RIM 677.50
EI 666.34
WI 666.32

SANITARY MH 2
RIM 677.50
EI 667.00
WI 667.00

SANITARY MH 1
RIM 676.40
EI 668.50 (STUB)
BL 668.48

TAP TO NEW MAIN (SEE DETAIL)

SELECT FILL UNDER PAVED AREAS (TYP)

6"ø SDR-18, C-900 WATER LINE

6"X6"TEE

HYD (SEE DETAIL)

METER AND BACKFLOW PREVENTER IN HOT BOX

6" VALVE AND CORB BOX AT R.O.W. (SEE DETAIL)

SELECT FILL UNDER PAVED AREAS (TYP)

15' SANITARY EASEMENT

8"ø SDR-35 @ 0.4%
TO FUTURE PLANT

APPROXIMATE PROPERTY LINE LOCATION

10-1-5
STELLRECHT

BAR SCALE
60' 30' 0' 60'
SCALE: 1"= 60'

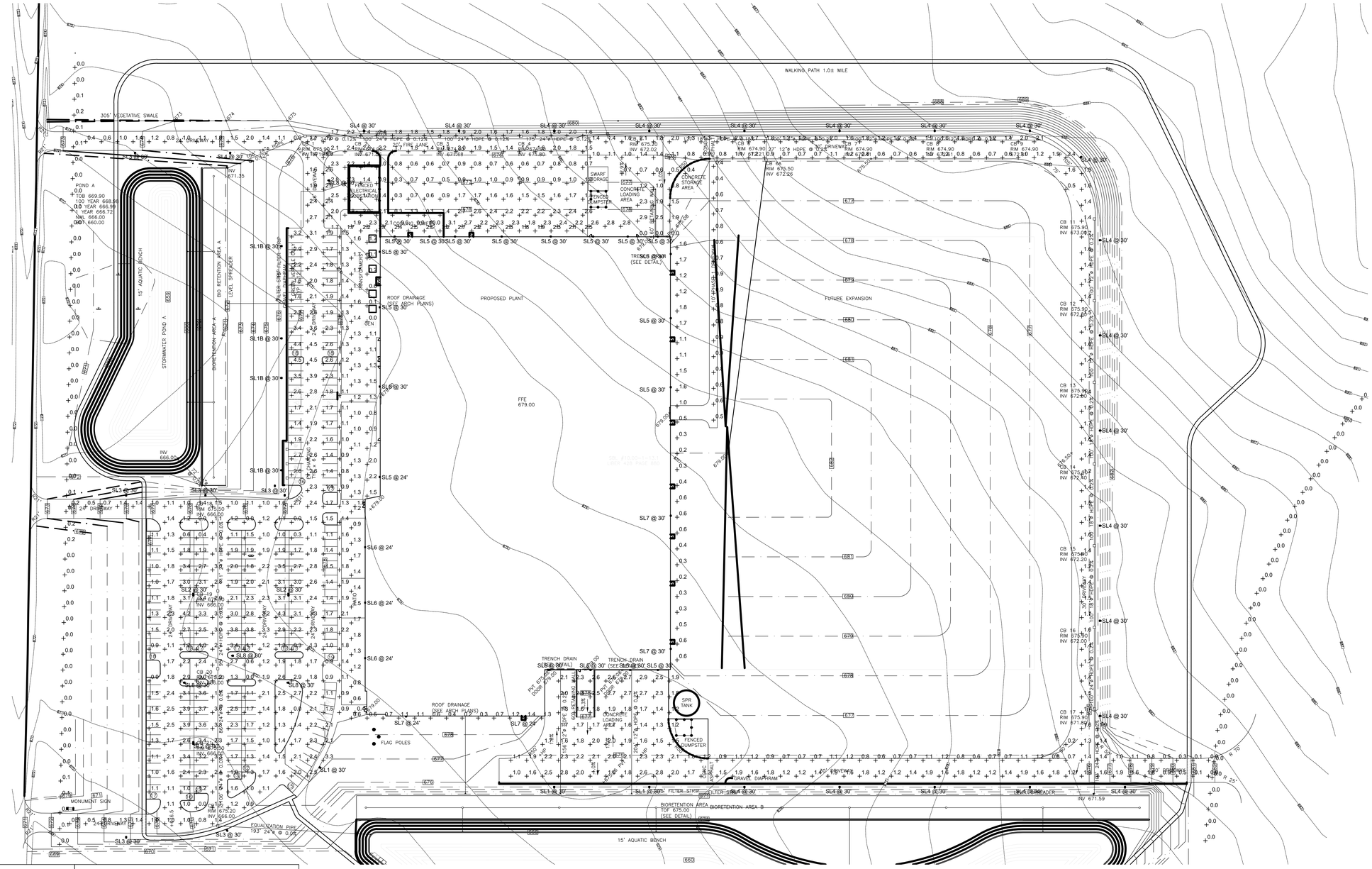
EDWARDS
CROSBY ROAD
TOWN OF ALABAMA, NY

Drawn By	RW
Checked By	RW
Project Number	223121

PRELIM LANDSCAPE PLAN

DRAWING NO:

L-1



GEIS COMPANIES
10020 Aurora-Hudson Rd
Streetsboro, Ohio 44241
PH: (330) 528-3500
F.X: (330) 528-0008
www.geisco.net

DATES AND REVISIONS

25 SEPTEMBER 2023
SITE SUBMISSION

EDWARDS MFG. BLDG.

1249 STAMP DRIVE
ALABAMA, NY 14013

Schedule					
Label	QTY	Manufacturer	Catalog	Lamp Output	Input Power
SL1	6	LSI INDUSTRIES, INC	SLM-LED-24L-SIL-FT-40-70CRI	25018	188.8
SL1B	6	LSI INDUSTRIES, INC	SLM-LED-24L-SIL-FT-40-70CRI-IL	15717	188.8
SL2	2	LSI INDUSTRIES, INC	SLM-LED-18L-SIL-3-40-70CRI	18936	297
SL3	4	LSI INDUSTRIES, INC	SLM-LED-12L-SIL-FT-40-70CRI-IL	8049	93.1
SL4	23	LSI INDUSTRIES, INC	SLM-LED-12L-SIL-2-40-70CRI-IL	7839	93.1
SL5	16	LSI INDUSTRIES, INC	XWM-FT-LED-12L-40	12083	102.2
SL6	4	LSI INDUSTRIES, INC	XWM-3-LED-04L-40	4125	29.5
SL7	6	LSI INDUSTRIES, INC	XWM-2-LED-04L-40	4052	29.5

Statistics			
Description	Avg	Max	Min
fire drive	0.7 fc	1.1 fc	0.3 fc
horizontal boundary	0.0 fc	0.2 fc	0.0 fc
loading dock and drive	1.4 fc	2.9 fc	0.0 fc
parking/sidewalk/drive	1.9 fc	4.5 fc	0.0 fc
security office	1.5 fc	3.5 fc	0.0 fc
utility area	1.6 fc	3.2 fc	0.1 fc
expansion security	0.9 fc	2.0 fc	0.2 fc

Drawn By AJV
Checked By
Project Number

NORTH

SITE PHOTOMETRIC
DRAWING NO:
E1

Catalog #: Project: Type:
Prepared by: Date:

Slice Medium (SLM)

Outdoor LED Area Light

IP65 NEMA 4X

OVERVIEW	
Lumen Package	9,000 - 55,000
Wattage Range	62 - 436
Efficacy Range (LPW)	114 - 162
Weight (lb/kg)	27.7/12.5
Control Options	MSBT, ALB, ALS, 3-dia, PCI

QUICK LINKS

Ordering Guide | Performance | Photometrics | Dimensions

FEATURES & SPECIFICATIONS

Construction
- Rugged, die-cast aluminum housing contains factory powered driver and optical unit. Cast aluminum wiring access door located underneath.
- Fixtures are finished with LSI's DuraGrip® polymorphic coating. Part of the DuraGrip finish family, the DuraGrip finish withstands extreme weather changes without cracking or peeling. Other standard LSI finishes available. Consult factory.
- Shipping weight: 33 lbs in carton.

Optical System
- State-of-the-Art one piece silicone optic sheet delivers industry leading optical performance. Fully encased gasket to provide IP66 rated seal.
- Proprietary silicone reflector optics provide exceptional coverage and uniformity in distribution types 2, 3,4, 5W, 5, AFL1, AFL2, AFL3, AFL4.
- Silicone optical material does not yellow or crack with age and provides a typical light transmittance of 93-95%.
- Zero uplight.
- Available in 5000K, 4000K, and 3000K color temperatures per ANSI C78.377. Also available in Phosphor Converted Amber with peak intensity at 610nm.
- Minimum CRI of 70.
- Integral louver (L) and integral half louver (H) options available for enhanced backlight control.

Electrical
- High performance driver features overvoltage, under-voltage, short-circuit and over temperature protection.
- 0-10V dimming (10% - 100%) standard.
- Standard Universal Voltage (120-277 VAC) Input 50/60 Hz or optional High Voltage (347-480 VAC).
- L80 Calculated Life: >100k Hours (See Lumen Maintenance chart).
- Total harmonic distortion <20%
- Operating temperature: -40°C to +50°C (-40°F to +122°F).
- Power factor: >.90
- Input power stays constant over life.
- Included 10kV surge protection device meets a minimum Category C Low operation (per ANSI/IEEE C62.41.2).
- High-efficacy LEDs mounted to metal-core board and encased in polymer material to provide superb resistance to moisture and corrosion. Driver and key electronic components can easily be accessed.

Controls
- Optional integral passive infrared Bluetooth® motion sensor options. Features operate independently and can be commissioned via iOS or Android configuration app.
- LSI's AirLink™ wireless control system options reduce energy and maintenance costs while optimizing light

T-02-ALA-10-23


10.-1-7
10.-1-8
10.-1-9
10.-1-10
10.-1-4.2
10.-1-12
10.-1-28
10.-1-29.1
10.-1-15.22
11.-1-73.2
Alleghany Rd
11.-1-7
10.-1-15.11
Crosby Rd
10.-1-4.112
10.-1-4.12
10.-1-30.1
10.-1-32.112
10.-1-13.1
10.-1-32.211
10.-1-5
10.-1-42.1
Crosby Rd
Crosby Rd
Crosby Rd
10.-1-32.221
Stamp Dr
Stamp Dr
10.-1-32.212
10.-1-32.222
10.-1-13.2
10.-1-32.12
10.-1-35
10.-1-36.11
200 ft
50 m
Eagleview

STORMWATER POLLUTION PREVENTION PLAN
FOR

Edwards Vacuum
Crosby Road
Town of Alabama
New York

September 20, 2023

Project M-2311

Prepared by:
Metzger Civil Engineering, PLLC
8245 Sheridan Drive
Williamsville, NY 14221
Phone 716-633-2601
meteng@roadrunner.com

Michael J. Metzger, P.E.
License No. 066786

TABLE OF CONTENTS

This Stormwater Pollution Prevention Plan was prepared and numbered in general conformance with the guidelines set forth in the New York State Department of Environmental Conservation SPDES General Permit for Stormwater Discharges from Construction Activities - Permit No. GP-0-20-001.

1a. Background Information:

The project consists of the construction of a new building as part of the Science, Technology And Manufacturing Park (STAMP) development in Alabama, New York. The building will be located on Crosby Drive, north of Stamp Drive and will interconnect with the proposed Edward Lane to the east. The project will include roadways, parking and related infrastructure to service a new manufacturing building The new development will sit on a 47.70 acre parcel which is currently undeveloped.

The building will be built in two phases, the design includes the needed infrastructure to include both phases of work.

1b. Site Map:

A site map has been included on the cover sheet of the plan set which is part of this SWPPP.

1c. Soils:

The site is shown on the UDA , Genesee County Soils Map as having 8 different soil types. The primary soil type is Niagara silt loam (NgA) soil. This soil types is classified as belonging to the hydrologic soil group (HSG) "C". Depth to bedrock is over 80".

1d. Construction Phasing:

Sequencing for all phases:

1. Installation of a stabilized construction entrance.
2. Installation of silt protection on all areas downstream of proposed disturbance.
3. Clearing and grubbing.
4. Removal and stockpiling of topsoil and fill.
5. Construction of the bioretention areas and stormwater ponds.
6. Infrastructure construction (drainage, water and sanitary sewers).
7. Install temporary Drop Inlet protection per the design plans.
8. Excavation and construction of the roadways.
9. Building Construction.
10. Removal of the control measures upon establishment of grass as outlined herein.

1e. Pollution Prevention Measures:

A stabilized construction entrance will be required and maintained until the final paving has been installed as outlined by "New York State Guidelines for Erosion and Sediment Control section 5A.73". This entrance must be kept clean to ensure no mud is allowed to enter the public roadway. Dust must be controlled by sweeping and or truck washing. All truck tire wash water must be properly contained on site and concrete truck wash out must be contained and disposed of properly. Drop inlet protection and silt socks are to be installed as detailed on the design plans.

1f. Soil Stabilization:

The site will be seeded and grassed as soon as possible upon fine grading of any particular area. Any disturbed area or temporary stockpile left idle must be stabilized within 14 calendar days after last being worked. All sediment controls are to remain in place until turf has been established and the site is stabilized as defined in the SPDES General Permit.

1g. Site Map:

A site map and details have been included in the design plans for this site.

1h. Details:

The size, material specifications, maintenance and installation requirements of stormwater pollution prevention devices are given on the detail sheets for this project. Drop inlet protection is to be inspected daily by the contractor and emptied and repaired as needed. Silt sock is to be replaced when torn or if captured silt reached 50% of the sock height. The stabilized construction entrance shall be resurfaced before the stone becomes impregnated with silt to the point where trucks are tracking silt onto the roadway.

1i. Inspection schedule:

A "trained contractor" must be on site daily when soil disturbance activities are being performed and must inspect, clean and repair as required all stormwater pollution prevention devices on site.

The inspection of all stormwater pollution prevention devices will be the responsibility of a "qualified professional" before, during and after construction as outlined in the SPDES General Permit for Construction Activity GP-0-20-001 included in this SWPPP.

All devices must be in place prior to work in any upstream area and maintained at all times during construction. A "qualified inspector" must inspect all stormwater pollution prevention practices:

a. Prior to construction.
b. Every 7 days (minimum), twice every seven days if current site disturbance exceeds 5 acres in size.
c. Prior to issuance of the Notice of Termination.

1j. Pollution prevention measures:

The site is to be kept free of litter by providing on site waste receptacles. Contractors are to be instructed not to place litter in open excavations or the rear of open bed trucks.

Contractors are to ensure that construction chemicals are handled in strict compliance with OSHA standards. This includes proper storage containers and labeling of chemicals. On site storage of chemicals should be avoided whenever possible. Chemicals are to be protected from rain and wind. Chemical spills are to be reported immediately to NYSDEC spill response. Spill kits and /or absorbent materials must be kept on site and employees shall be trained in their use.

Long term on site storage of construction debris should be avoided whenever possible. On site construction debris is to be kept in a fashion to prevent the pollution via wind or stormwater runoff.

The site is to be serviced by two bioretention areas and two wet detention ponds. Drop inlet protection will be placed around all storm inlets. A stabilized construction entrance is to be employed as noted on the design drawings. The "General Contractor" will ultimately be responsible for all subcontracted work, and therefore, the installation, maintenance and removal of SWPPP devices.

1k. Stormwater discharges from sources other than construction

There are no other discharge sources for this site.

1l. Elements that are NOT in compliance with New York State Standards and Specifications for Erosion and Sediment Control

The Erosion and Sediment Control elements for this site have been designed to be in general compliance with the New York State Standards and Specifications for Erosion and Sediment Control.

2a Permanent stormwater management practices

The site will have gravel diaphragms, two bioretention areas and two on site wet detention pond. The ponds will be served by an outlet control structure.

2b Site map

A site map has been provided as part of the overall engineering design.

2c. Stormwater analysis

A complete set of Stormwater calculations have been included as Appendix D of this plan.

2d. Soil Test Analysis

This site was studied by the United States Department of Agriculture, the results of their soil survey revealed that the primary soils found on this site have this profile:

0 - 11" – SILT loam

11 - 26" – silty Clay loam

26 -72" – SILT loam

Seasonal high groundwater is found at 0.5- 18"

2e. Infiltration Test Results

The USDA states that the most limiting layer to transmit water is somewhat poorly drained:

0.06 - 0.57 inches per hour

2f. Post Construction Operation and Maintenance Plan

Practice	Frequency	By
Removal of Trash and Debris from the storm water piping	Continuous	Owner
Maintaining the bioretention Areas Plants and vegetation	Seasonally	Owner
Maintaining the ponds vegetation	Seasonally	Owner
Inspection of pond, catch basins, bioretention areas, outlet structure and storm piping	Annually	Owner

Cleaning of, catch basins, outlet structures and storm piping	As needed	Owner
Removal of accumulated silt From pond bottom	When silt reaches 50% of ponds capacity	Owner

3a. Enhanced Phosphorus Removal Standards

This site does not lie in any watershed identified in New York State Department of Environmental Conservation SPDES General Permit for Stormwater Discharges from Construction Activities - Permit No. GP-0-20-00 and is therefore not subject to enhanced phosphorus removal standards.

APPENDIX A
NOTICE OF INTENT

STORMWATER POLLUTION PREVENTION PLAN

NOI for coverage under Stormwater General Permit for Construction Activity

version 1.37

(Submission #: HPX-S76D-QXRG5, version 1)

Details

Originally Started By	Michael Metzger
Alternate Identifier	Edward Vacuum
Submission ID	HPX-S76D-QXRG5
Submission Reason	New
Status	Draft

Form Input

Owner/Operator Information

Owner/Operator Name (Company/Private Owner/Municipality/Agency/Institution, etc.)
Geis Construction

Owner/Operator Contact Person Last Name (NOT CONSULTANT)
Geis Construction

Owner/Operator Contact Person First Name
Jeff Martin

Owner/Operator Mailing Address
10020 Aurora-Hudson Road

City
Streetsboro

State
Ohio

Zip
44241

Phone
216-218-3508

Email
Jm@geisco.net

Federal Tax ID
NONE PROVIDED

If the owner/operator is an organization, provide the Federal Tax ID number, or Employer Identification Number (EIN), in the format xx-xxxxxxx. If the owner/operator is an individual and not an organization, enter "Not Applicable" or "N/A" and do not provide the individual's social security number.

Project Location

Project/Site Name
Edward Vacuum

Street Address (Not P.O. Box)
Crosby Road

Side of Street
East

City/Town/Village (THAT ISSUES BUILDING PERMIT)
Alabama

State
NY

Zip
14031

DEC Region
8

The DEC Region must be provided. Please use the NYSDEC Stormwater Interactive Map (https://gisservices.dec.ny.gov/gis/stormwater/) to confirm which DEC Region this site is located in. To view the DEC Regions, click on "Other Useful Reference Layers" on the left side of the map, then click on "DEC Administrative Boundary." Zoom out as needed to see the Region boundaries.

For projects that span multiple Regions, please select a primary Region and then provide the additional Regions as a note in Question 39.

County
GENESEE

Name of Nearest Cross Street
Patterson Road

Distance to Nearest Cross Street (Feet)
0

Project In Relation to Cross Street
East

Tax Map Numbers Section-Block-Parcel
10.00-1-13.1

Tax Map Numbers
NONE PROVIDED

If the project does not have tax map numbers (e.g. linear projects), enter "Not Applicable" or "N/A".

1. Coordinates

Provide the Geographic Coordinates for the project site. The two methods are:
- Navigate to the project location on the map (below) and click to place a marker and obtain the XY coordinates.
- The "Find Me" button will provide the lat/long for the person filling out this form. Then pan the map to the correct location and click the map to place a marker and obtain the XY coordinates.

Navigate to your location and click on the map to get the X,Y coordinates
43.08928829866938,-78.40197308623046

Project Details

2. What is the nature of this project?
New Construction

For the purposes of this eNOI, "New Construction" refers to any project that does not involve the disturbance of existing impervious area (i.e. 0 acres). If existing impervious area will be disturbed on the project site, it is considered redevelopment with either increase in impervious area or no increase in impervious area.

3. Select the predominant land use for both pre and post development conditions.

Pre-Development Existing Landuse
Pasture/Open Land

Post-Development Future Land Use
Industrial

3a. If Single Family Subdivision was selected in question 3, enter the number of subdivision lots.
NONE PROVIDED

---

4. In accordance with the larger common plan of development or sale, enter the total project site acreage, the acreage to be disturbed and the future impervious area (acreage)within the disturbed area.

*** ROUND TO THE NEAREST TENTH OF AN ACRE. ***

Total Site Area (acres)
47.7

Total Area to be Disturbed (acres)
46.0

Existing Impervious Area to be Disturbed (acres)
0.0

Future Impervious Area Within Disturbed Area (acres)
16.4

5. Do you plan to disturb more than 5 acres of soil at any one time?
Yes

---

6. Indicate the percentage (%) of each Hydrologic Soil Group(HSG) at the site.

A (%)
0

B (%)
2

C (%)
96

D (%)
2

7. Is this a phased project?
Yes

8. Enter the planned start and end dates of the disturbance activities.

Start Date
01/03/2024

End Date
12/22/2029

9. Identify the nearest surface waterbody(ies) to which construction site runoff will discharge.
Unnamed ditch

Drainage ditches and storm sewer systems are not considered surface waterbodies. Please identify the surface waterbody that they discharge to. If the nearest surface waterbody is unnamed, provide a description of the waterbody, such as, "Unnamed tributary to Niagara River."

9a. Type of waterbody identified in question 9?
Stream/Creek On Site

Other Waterbody Type Off Site Description
NONE PROVIDED

9b. If "wetland" was selected in 9A, how was the wetland identified?
NONE PROVIDED

10. Has the surface waterbody(ies) in question 9 been identified as a 303(d) segment in Appendix E of GP-0-20-001?
No

11. Is this project located in one of the Watersheds identified in Appendix C of GP-0-20-001?
No

12. Is the project located in one of the watershed areas associated with AA and AA-S classified waters?
No

Please use the DEC Stormwater Interactive Map (https://gisservices.dec.ny.gov/gis/stormwater/) to confirm if this site is located in one of the watersheds of an AA or AA-S classified water. To view the watershed areas, click on "Permit Related Layers" on the left side of the map, then click on "Class AA AAS Watersheds."

If No, skip question 13.

13. Does this construction activity disturb land with no existing impervious cover and where the Soil Slope Phase is identified as D (provided the map unit name is inclusive of slopes greater than 25%), E or F on the USDA Soil Survey?
No

If Yes, what is the acreage to be disturbed?
NONE PROVIDED

14. Will the project disturb soils within a State regulated wetland or the protected 100 foot adjacent area?
No

15. Does the site runoff enter a separate storm sewer system (including roadside drains, swales, ditches, culverts, etc)?
Yes

16. What is the name of the municipality/entity that owns the separate storm sewer system?
Town of Alabama NY

17. Does any runoff from the site enter a sewer classified as a Combined Sewer?
No

18. Will future use of this site be an agricultural property as defined by the NYS Agriculture and Markets Law?
No

19. Is this property owned by a state authority, state agency, federal government or local government?
No

20. Is this a remediation project being done under a Department approved work plan? (i.e. CERCLA, RCRA, Voluntary Cleanup Agreement, etc.)
No

Required SWPPP Components

21. Has the required Erosion and Sediment Control component of the SWPPP been developed in conformance with the current NYS Standards and Specifications for Erosion and Sediment Control (aka Blue Book)?
Yes

22. Does this construction activity require the development of a SWPPP that includes the post-construction stormwater management practice component (i.e. Runoff Reduction, Water Quality and Quantity Control practices/techniques)?
Yes

If you answered No in question 22, skip question 23 and the Post-construction Criteria and Post-construction SMP Identification sections.

23. Has the post-construction stormwater management practice component of the SWPPP been developed in conformance with the current NYS Stormwater Management Design Manual?
Yes

24. The Stormwater Pollution Prevention Plan (SWPPP) was prepared by:
Professional Engineer (P.E.)

SWPPP Preparer
Metzger Civil Engineering, PLLC

Contact Name (Last, First)
Michael Metzger

Mailing Address
8245 Sheridan Dr

City
Buffalo

State
NY

Zip
14221

Phone
7166332601

Email
meteng@roadrunner.com

Download SWPPP Preparer Certification Form
Please take the following steps to prepare and upload your preparer certification form:

1) Click on the link below to download a blank certification form
2) The certified SWPPP preparer should sign this form
3) Scan the signed form
4) Upload the scanned document
Download SWPPP Preparer Certification Form

Please upload the SWPPP Preparer Certification
NONE PROVIDED
Comment
NONE PROVIDED

Erosion & Sediment Control Criteria

25. Has a construction sequence schedule for the planned management practices been prepared?
Yes

26. Select all of the erosion and sediment control practices that will be employed on the project site:

Temporary Structural
Construction Road Stabilization
Dust Control
Stabilized Construction Entrance
Silt Fence

Biotechnical
None

Vegetative Measures
Seeding
Sodding

Permanent Structural
Rock Outlet Protection

Other
NONE PROVIDED

Post-Construction Criteria

*** IMPORTANT: Completion of Questions 27-39 is not required if response to Question 22 is No.**

27. Identify all site planning practices that were used to prepare the final site plan/layout for the project.
Preservation of Undisturbed Area
Preservation of Buffers
Reduction of Clearing and Grading
Locating Development in Less Sensitive Areas
Roadway Reduction
Sidewalk Reduction
Driveway Reduction
Cul-de-sac Reduction
Building Footprint Reduction
Parking Reduction

27a. Indicate which of the following soil restoration criteria was used to address the requirements in Section 5.1.6("Soil Restoration") of the Design Manual (2010 version).
All disturbed areas will be restored in accordance with the Soil Restoration requirements in Table 5.3 of the Design Manual (see page 5-22).

28. Provide the total Water Quality Volume (WQv) required for this project (based on final site plan/layout). (Acre-feet)
1.40

29. Post-construction SMP Identification

Use the Post-construction SMP Identification section to identify the RR techniques (Area Reduction), RR techniques(Volume Reduction) and Standard SMPs with RRv Capacity that were used to reduce the Total WQv Required (#28).

Identify the SMPs to be used by providing the total impervious area that contributes runoff to each technique/practice selected. For the Area Reduction Techniques, provide the total contributing area (includes pervious area) and, if applicable, the total impervious area that contributes runoff to the technique/practice.

Note: Redevelopment projects shall use the Post-Construction SMP Identification section to identify the SMPs used to treat and/or reduce the WQv required. If runoff reduction techniques will not be used to reduce the required WQv, skip to question 33a after identifying the SMPs.

30. Indicate the Total RRv provided by the RR techniques (Area/Volume Reduction) and Standard SMPs with RRv capacity identified in question 29. (acre-feet)
0.38

31. Is the Total RRv provided (#30) greater than or equal to the total WQv required (#28)?
No

If Yes, go to question 36. If No, go to question 32.

32. Provide the Minimum RRv required based on HSG. [Minimum RRv Required = (P) (0.95) (Ai) / 12, Ai=(s) (Aic)] (acre-feet)
0.316

32a. Is the Total RRv provided (#30) greater than or equal to the Minimum RRv Required (#32)?
Yes

If Yes, go to question 33.
Note: Use the space provided in question #39 to summarize the specific site limitations and justification for not reducing 100% of WQv required (#28). A detailed evaluation of the specific site limitations and justification for not reducing 100% of the WQv required (#28) must also be included in the SWPPP.

If No, sizing criteria has not been met; therefore, NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

33. SMPs
Use the Post-construction SMP Identification section to identify the Standard SMPs and, if applicable, the Alternative SMPs to be used to treat the remaining total WQv (=Total WQv Required in #28 - Total RRv Provided in #30).

Also, provide the total impervious area that contributes runoff to each practice selected.

NOTE: Use the Post-construction SMP Identification section to identify the SMPs used on Redevelopment projects.

33a. Indicate the Total WQv provided (i.e. WQv treated) by the SMPs identified in question #33 and Standard SMPs with RRv Capacity identified in question #29. (acre-feet)
5.09

Note: For the standard SMPs with RRv capacity, the WQv provided by each practice = the WQv calculated using the contributing drainage area to the practice - provided by the practice. (See Table 3.5 in Design Manual)

34. Provide the sum of the Total RRv provided (#30) and the WQv provided (#33a).
5.47

35. Is the sum of the RRv provided (#30) and the WQv provided (#33a) greater than or equal to the total WQv required (#28)?
Yes

If Yes, go to question 36.

If No, sizing criteria has not been met; therefore, NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

36. Provide the total Channel Protection Storage Volume (CPv required and provided or select waiver (#36a), if applicable.

CPv Required (acre-feet)
1.21

CPv Provided (acre-feet)
1.21

36a. The need to provide channel protection has been waived because:
NONE PROVIDED

37. Provide the Overbank Flood (Qp) and Extreme Flood (Qf) control criteria or select waiver (#37a), if applicable.

Overbank Flood Control Criteria (Qp)

Pre-Development (CFS)
29.71

Post-Development (CFS)
5.61

Total Extreme Flood Control Criteria (Qf)

Pre-Development (CFS)
109.22

Post-Development (CFS)
109.22

37a. The need to meet the Qp and Qf criteria has been waived because:
NONE PROVIDED

38. Has a long term Operation and Maintenance Plan for the post-construction stormwater management practice(s) been developed?
Yes

If Yes, Identify the entity responsible for the long term Operation and Maintenance
Owner

39. Use this space to summarize the specific site limitations and justification for not reducing 100% of WQv required (#28). (See question #32a) This space can also be used for other pertinent project information.
Using the five step process from the design manual the minimum RRV was determined and met through the use of gravel diaphragm, filter strips and bioretention filter areas. The remaining WqV is being met by two on site ponds with controlled outlet structures.

Post-Construction SMP Identification

Runoff Reduction (RR) Techniques, Standard Stormwater Management Practices (SMPs) and Alternative SMPs
Identify the Post-construction SMPs to be used by providing the total impervious area that contributes runoff to each technique/practice selected. For the Area Reduction Techniques, provide the total contributing area (includes pervious area) and, if applicable, the total impervious area that contributes runoff to the technique/practice.

RR Techniques (Area Reduction)

Round to the nearest tenth

Total Contributing Acres for Conservation of Natural Area (RR-1)
NONE PROVIDED

Total Contributing Impervious Acres for Conservation of Natural Area (RR-1)
NONE PROVIDED

Total Contributing Acres for Sheetflow to Riparian Buffers/Filter Strips (RR-2)
NONE PROVIDED

Total Contributing Impervious Acres for Sheetflow to Riparian Buffers/Filter Strips (RR-2)
NONE PROVIDED

Total Contributing Acres for Tree Planting/Tree Pit (RR-3)
NONE PROVIDED

Total Contributing Impervious Acres for Tree Planting/Tree Pit (RR-3)
NONE PROVIDED

Total Contributing Acres for Disconnection of Rooftop Runoff (RR-4)
NONE PROVIDED

RR Techniques (Volume Reduction)

Total Contributing Impervious Acres for Disconnection of Rooftop Runoff (RR-4)
NONE PROVIDED

Total Contributing Impervious Acres for Vegetated Swale (RR-5)
NONE PROVIDED

Total Contributing Impervious Acres for Rain Garden (RR-6)
NONE PROVIDED

Total Contributing Impervious Acres for Stormwater Planter (RR-7)
NONE PROVIDED

Total Contributing Impervious Acres for Rain Barrel/Cistern (RR-8)
NONE PROVIDED

Total Contributing Impervious Acres for Porous Pavement (RR-9)
NONE PROVIDED

Total Contributing Impervious Acres for Green Roof (RR-10)
NONE PROVIDED

Standard SMPs with RRv Capacity

Total Contributing Impervious Acres for Infiltration Trench (I-1)
NONE PROVIDED

Total Contributing Impervious Acres for Infiltration Basin (I-2)
NONE PROVIDED

Total Contributing Impervious Acres for Dry Well (I-3)
NONE PROVIDED

Total Contributing Impervious Acres for Underground Infiltration System (I-4)
NONE PROVIDED

Total Contributing Impervious Acres for Bioretention (F-5)
16.4

Total Contributing Impervious Acres for Dry Swale (O-1)
NONE PROVIDED

Standard SMPs

Total Contributing Impervious Acres for Micropool Extended Detention (P-1)
NONE PROVIDED

Total Contributing Impervious Acres for Wet Pond (P-2)
NONE PROVIDED

Total Contributing Impervious Acres for Wet Extended Detention (P-3)
NONE PROVIDED

Total Contributing Impervious Acres for Multiple Pond System (P-4)
NONE PROVIDED

Total Contributing Impervious Acres for Pocket Pond (P-5)
NONE PROVIDED

Total Contributing Impervious Acres for Surface Sand Filter (F-1)
NONE PROVIDED

Total Contributing Impervious Acres for Underground Sand Filter (F-2)
NONE PROVIDED

Total Contributing Impervious Acres for Perimeter Sand Filter (F-3)
NONE PROVIDED

Total Contributing Impervious Acres for Organic Filter (F-4)
NONE PROVIDED

Total Contributing Impervious Acres for Shallow Wetland (W-1)
NONE PROVIDED

Total Contributing Impervious Acres for Extended Detention Wetland (W-2)
NONE PROVIDED

Total Contributing Impervious Acres for Pond/Wetland System (W-3)
NONE PROVIDED

Total Contributing Impervious Acres for Pocket Wetland (W-4)
NONE PROVIDED

Total Contributing Impervious Acres for Wet Swale (O-2)
NONE PROVIDED

Alternative SMPs (DO NOT INCLUDE PRACTICES BEING USED FOR PRETREATMENT ONLY)

Total Contributing Impervious Area for Hydrodynamic
NONE PROVIDED

Total Contributing Impervious Area for Wet Vault
NONE PROVIDED

Total Contributing Impervious Area for Media Filter
NONE PROVIDED

"Other" Alternative SMP?
NONE PROVIDED

Total Contributing Impervious Area for "Other"
NONE PROVIDED

Provide the name and manufaturer of the alternative SMPs (i.e. proprietary practice(s)) being used for WQv treatment.

Note: Redevelopment projects which do not use RR techniques, shall use questions 28, 29, 33 and 33a to provide SMPs used, total WQv required and total WQv provided for the project.

Manufacturer of Alternative SMP
NONE PROVIDED

Name of Alternative SMP
NONE PROVIDED

Other Permits

40. Identify other DEC permits, existing and new, that are required for this project/facility.
None

If SPDES Multi-Sector GP, then give permit ID
NONE PROVIDED

If Other, then identify
NONE PROVIDED

41. Does this project require a US Army Corps of Engineers Wetland Permit?
No

If "Yes," then indicate Size of Impact, in acres, to the nearest tenth
NONE PROVIDED

42. If this NOI is being submitted for the purpose of continuing or transferring coverage under a general permit for stormwater runoff from construction activities, please indicate the former SPDES number assigned.
NONE PROVIDED

MS4 SWPPP Acceptance

43. Is this project subject to the requirements of a regulated, traditional land use control MS4?
No

If No, skip question 44

44. Has the "MS4 SWPPP Acceptance" form been signed by the principal executive officer or ranking elected official and submitted along with this NOI?
No

Please note that per Part VII.H.4. of GP-0-20-001, the MS4 SWPPP Acceptance Form must be signed by a principal executive officer or ranking elected official of the MS4, or a duly authorized representative of that person.

MS4 SWPPP Acceptance Form Download
Download form from the link below. Complete, sign, and upload.
MS4 SWPPP Acceptance Form

MS4 Acceptance Form Upload
NONE PROVIDED
Comment
NONE PROVIDED

Owner/Operator Certification

Owner/Operator Certification Form Download
Download the certification form by clicking the link below. Complete, sign, scan, and upload the form.
Owner/Operator Certification Form (PDF, 45KB)

Upload Owner/Operator Certification Form
NONE PROVIDED
Comment
NONE PROVIDED

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

SWPPP Preparer Certification Form

SPDES General Permit for Stormwater Discharges From Construction Activity (GP-0-20-001)

Project Site Information

Project/Site Name

EDWARDS VACUUM

Owner/Operator Information

Owner/Operator (Company Name/Private Owner/Municipality Name)

GEIS CONSTRUCTION

Certification Statement – SWPPP Preparer

I hereby certify that the Stormwater Pollution Prevention Plan (SWPPP) for this project has been prepared in accordance with the terms and conditions of the GP-0-20-001. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of this permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

First name	MI	Last Name
MICHAEL	J	METZGER

Signature 

Date 9/25/23

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Owner/Operator Certification Form

SPDES General Permit For Stormwater Discharges From Construction Activity (GP-0-20-001)

Project/Site Name: EDWARDS VACUUM

eNOI Submission Number: HPX-576D-QXRG5

eNOI Submitted by: ☐ **Owner/Operator** ☒ **SWPPP Preparer** ☐ **Other**

Certification Statement - Owner/Operator

I have read or been advised of the permit conditions and believe that I understand them. I also understand that, under the terms of the permit, there may be reporting requirements. I hereby certify that this document and the corresponding documents were prepared under my direction or supervision. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further understand that coverage under the general permit will be identified in the acknowledgment that I will receive as a result of submitting this NOI and can be as long as sixty (60) business days as provided for in the general permit. I also understand that, by submitting this NOI, I am acknowledging that the SWPPP has been developed and will be implemented as the first element of construction, and agreeing to comply with all the terms and conditions of the general permit for which this NOI is being submitted.

Owner/Operator First Name M.I. Last Name

_____

Signature

_____

Date

APPENDIX B

NYSDEC SPDES GENERAL PERMIT

STORMWATER POLLUTION PREVENTION PLAN

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SPDES GENERAL PERMIT
FOR STORMWATER DISCHARGES

From

CONSTRUCTION ACTIVITY

Permit No. GP- 0-20-001

Issued Pursuant to Article 17, Titles 7, 8 and Article 70

of the Environmental Conservation Law

Effective Date: January 29, 2020

Expiration Date: January 28, 2025

John J. Ferguson

Chief Permit Administrator

1-23-20

Authorized Signature

Date

Address: NYS DEC
Division of Environmental Permits
625 Broadway, 4th Floor
Albany, N.Y. 12233-1750

PREFACE

Pursuant to Section 402 of the Clean Water Act ("CWA"), stormwater *discharges* from certain *construction activities* are unlawful unless they are authorized by a *National Pollutant Discharge Elimination System ("NPDES")* permit or by a state permit program. New York administers the approved State Pollutant Discharge Elimination System (SPDES) program with permits issued in accordance with the New York State Environmental Conservation Law (ECL) Article 17, Titles 7, 8 and Article 70.

An *owner or operator* of a *construction activity* that is eligible for coverage under this permit must obtain coverage prior to the *commencement of construction activity*. Activities that fit the definition of "*construction activity*", as defined under 40 CFR 122.26(b)(14)(x), (15)(i), and (15)(ii), constitute construction of a *point source* and therefore, pursuant to ECL section 17-0505 and 17-0701, the *owner or operator* must have coverage under a SPDES permit prior to *commencing construction activity*. The *owner or operator* cannot wait until there is an actual *discharge* from the *construction site* to obtain permit coverage.

***Note: The italicized words/phrases within this permit are defined in Appendix A.**

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SPDES GENERAL PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITIES

Table of Contents

Part 1. PERMIT COVERAGE AND LIMITATIONS

A. Permit Application

This permit authorizes stormwater *discharges* to *surface waters of the State* from the following *construction activities* identified within 40 CFR Parts 122.26(b)(14)(x), 122.26(b)(15)(i) and 122.26(b)(15)(ii), provided all of the eligibility provisions of this permit are met:

1. *Construction activities* involving soil disturbances of one (1) or more acres; including disturbances of less than one acre that are part of a *larger common plan of development or sale* that will ultimately disturb one or more acres of land; excluding *routine maintenance activity* that is performed to maintain the original line and grade, hydraulic capacity or original purpose of a facility;

2. *Construction activities* involving soil disturbances of less than one (1) acre where the Department has determined that a *SPDES* permit is required for stormwater *discharges* based on the potential for contribution to a violation of a *water quality standard* or for significant contribution of *pollutants* to *surface waters of the State.*

3. *Construction activities* located in the watershed(s) identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

B. Effluent Limitations Applicable to Discharges from Construction Activities

Discharges authorized by this permit must achieve, at a minimum, the effluent limitations in Part I.B.1. (a) – (f) of this permit. These limitations represent the degree of effluent reduction attainable by the application of best practicable technology currently available.

1. Erosion and Sediment Control Requirements - The *owner or operator* must select, design, install, implement and maintain control measures to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. The selection, design, installation, implementation, and maintenance of these control measures must meet the non-numeric effluent limitations in Part I.B.1.(a) – (f) of this permit and be in accordance with the New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016, using sound engineering judgment. Where control measures are not designed in conformance with the design criteria included in the technical standard, the *owner or operator* must include in the *Stormwater Pollution Prevention Plan* ("SWPPP") the reason(s) for the

deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

a. **Erosion and Sediment Controls.** Design, install and maintain effective erosion and sediment controls to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. At a minimum, such controls must be designed, installed and maintained to:

   (i) *Minimize* soil erosion through application of runoff control and soil stabilization control measure to *minimize pollutant discharge*s;

   (ii) Control stormwater *discharge*s, including both peak flowrates and total stormwater volume, to *minimize* channel and *streambank* erosion and scour in the immediate vicinity of the *discharge* points;

   (iii) *Minimize* the amount of soil exposed during *construction activity*;

   (iv) *Minimize* the disturbance of *steep slopes*;

   (v) *Minimize* sediment *discharge*s from the site;

   (vi) Provide and maintain *natural buffer*s around surface waters, direct stormwater to vegetated areas and maximize stormwater infiltration to reduce *pollutant discharge*s, unless *infeasible*;

   (vii) *Minimize* soil compaction. Minimizing soil compaction is not required where the intended function of a specific area of the site dictates that it be compacted;

   (viii) Unless *infeasible*, preserve a sufficient amount of topsoil to complete soil restoration and establish a uniform, dense vegetative cover; and

   (ix) *Minimize* dust. On areas of exposed soil, *minimize* dust through the appropriate application of water or other dust suppression techniques to control the generation of pollutants that could be discharged from the site.

b. **Soil Stabilization**. In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within fourteen (14) days from the date the current soil disturbance activity ceased. For construction sites that *directly discharge* to one of the 303(d) segments

listed in Appendix E or is located in one of the watersheds listed in Appendix C, the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven (7) days from the date the current soil disturbance activity ceased. See Appendix A for definition of *Temporarily Ceased*.

c. **Dewatering**. *Discharges* from *dewatering* activities, including *discharges* from *dewatering* of trenches and excavations, must be managed by appropriate control measures.

d. **Pollution Prevention Measures**. Design, install, implement, and maintain effective pollution prevention measures to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. At a minimum, such measures must be designed, installed, implemented and maintained to:

(i) *Minimize* the *discharge* of *pollutants* from equipment and vehicle washing, wheel wash water, and other wash waters. This applies to washing operations that use clean water only. Soaps, detergents and solvents cannot be used;

(ii) *Minimize* the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste, hazardous and toxic waste, and other materials present on the site to precipitation and to stormwater. Minimization of exposure is not required in cases where the exposure to precipitation and to stormwater will not result in a *discharge* of *pollutants*, or where exposure of a specific material or product poses little risk of stormwater contamination (such as final products and materials intended for outdoor use) ; and

(iii) Prevent the *discharge* of *pollutants* from spills and leaks and implement chemical spill and leak prevention and response procedures.

e. **Prohibited *Discharges*.** The following *discharges* are prohibited:

(i) Wastewater from washout of concrete;

(ii) Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials;

(iii) Fuels, oils, or other *pollutants* used in vehicle and equipment operation and maintenance;

(iv) Soaps or solvents used in vehicle and equipment washing; and

(v) Toxic or hazardous substances from a spill or other release.

f. Surface Outlets. When discharging from basins and impoundments, the outlets shall be designed, constructed and maintained in such a manner that sediment does not leave the basin or impoundment and that erosion at or below the outlet does not occur.

C. Post-construction Stormwater Management Practice Requirements

1. The *owner or operator* of a *construction activity* that requires post-construction stormwater management practices pursuant to Part III.C. of this permit must select, design, install, and maintain the practices to meet the *performance criteria* in the New York State Stormwater Management Design Manual ("Design Manual"), dated January 2015, using sound engineering judgment. Where post-construction stormwater management practices ("SMPs") are not designed in conformance with the *performance criteria* in the Design Manual, the *owner or operator* must include in the SWPPP the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

2. The *owner or operator* of a *construction activity* that requires post-construction stormwater management practices pursuant to Part III.C. of this permit must design the practices to meet the applicable *sizing criteria* in Part I.C.2.a., b., c. or d. of this permit.

a. Sizing Criteria for New Development

(i) Runoff Reduction Volume ("RRv"): Reduce the total Water Quality Volume ("WQv") by application of RR techniques and standard SMPs with RRv capacity. The total WQv shall be calculated in accordance with the criteria in Section 4.2 of the Design Manual.

(ii) Minimum RRv and Treatment of Remaining Total WQv: Construction activities that cannot meet the criteria in Part I.C.2.a.(i) of this permit due to site limitations shall direct runoff from all newly constructed impervious areas to a RR technique or standard SMP with RRv capacity unless infeasible. The specific site limitations that prevent the reduction of 100% of the WQv shall be documented in the SWPPP.

For each impervious area that is not directed to a RR technique or standard SMP with RRv capacity, the SWPPP must include documentation which demonstrates that all options were considered and for each option explains why it is considered infeasible.

In no case shall the runoff reduction achieved from the newly constructed impervious areas be less than the Minimum RRv as calculated using the criteria in Section 4.3 of the Design Manual. The remaining portion of the total WQv that cannot be reduced shall be treated by application of standard SMPs.

(iii) Channel Protection Volume ("Cpv"): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event; remaining after runoff reduction. The Cpv requirement does not apply when:
(1) Reduction of the entire Cpv is achieved by application of runoff reduction techniques or infiltration systems, or
(2) The site discharges directly to tidal waters, or fifth order or larger streams.

(iv) *Overbank* Flood Control Criteria ("Qp"): Requires storage to attenuate the post-development 10-year, 24-hour peak discharge rate (Qp) to predevelopment rates. The Qp requirement does not apply when:
(1) the site discharges directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that *overbank* control is not required.

(v) Extreme Flood Control Criteria ("Qf"): Requires storage to attenuate the post-development 100-year, 24-hour peak discharge rate (Qf) to predevelopment rates. The Qf requirement does not apply when:
(1) the site discharges directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that *overbank* control is not required.

b. *Sizing Criteria* for *New Development* in Enhanced Phosphorus Removal Watershed

(i) Runoff Reduction Volume (RRv): Reduce the total Water Quality Volume (WQv) by application of RR techniques and standard SMPs with RRv capacity. The total WQv is the runoff volume from the 1-year, 24 hour design storm over the post-developed watershed and shall be

calculated in accordance with the criteria in Section 10.3 of the Design Manual.

(ii) Minimum RRv and Treatment of Remaining Total WQv: *Construction activities* that cannot meet the criteria in Part I.C.2.b.(i) of this permit due to *site limitations* shall direct runoff from all newly constructed *impervious areas* to a RR technique or standard SMP with RRv capacity unless *infeasible*. The specific *site limitations* that prevent the reduction of 100% of the WQv shall be documented in the SWPPP. For each *impervious area* that is not directed to a RR technique or standard SMP with RRv capacity, the SWPPP must include documentation which demonstrates that all options were considered and for each option explains why it is considered *infeasible.*

In no case shall the runoff reduction achieved from the newly constructed *impervious areas* be less than the Minimum RRv as calculated using the criteria in Section 10.3 of the Design Manual. The remaining portion of the total WQv that cannot be reduced shall be treated by application of standard SMPs.

(iii) Channel Protection Volume (Cpv): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event; remaining after runoff reduction. The Cpv requirement does not apply when:
(1) Reduction of the entire Cpv is achieved by application of runoff reduction techniques or infiltration systems, or
(2) The site *discharge*s directly to tidal waters, or fifth order or larger streams.

(iv) *Overbank* Flood Control Criteria (Qp): Requires storage to attenuate the post-development 10-year, 24-hour peak *discharge* rate (Qp) to predevelopment rates. The Qp requirement does not apply when:
(1) the site *discharge*s directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that *overbank* control is not required.

(v) Extreme Flood Control Criteria (Qf): Requires storage to attenuate the post-development 100-year, 24-hour peak *discharge* rate (Qf) to predevelopment rates. The Qf requirement does not apply when:
(1) the site *discharge*s directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that *overbank* control is not required.

c. Sizing Criteria for Redevelopment Activity

(i) Water Quality Volume (WQv): The WQv treatment objective for *redevelopment activity* shall be addressed by one of the following options. *Redevelopment activities* located in an Enhanced Phosphorus Removal Watershed (see Part III.B.3. and Appendix C of this permit) shall calculate the WQv in accordance with Section 10.3 of the Design Manual. All other *redevelopment activities* shall calculate the WQv in accordance with Section 4.2 of the Design Manual.

(1) Reduce the existing *impervious cover* by a minimum of 25% of the total disturbed, *impervious area*. The Soil Restoration criteria in Section 5.1.6 of the Design Manual must be applied to all newly created pervious areas, or

(2) Capture and treat a minimum of 25% of the WQv from the disturbed, *impervious area* by the application of standard SMPs; or reduce 25% of the WQv from the disturbed, *impervious area* by the application of RR techniques or standard SMPs with RRv capacity., or

(3) Capture and treat a minimum of 75% of the WQv from the disturbed, *impervious area* as well as any additional runoff from tributary areas by application of the alternative practices discussed in Sections 9.3 and 9.4 of the Design Manual., or

(4) Application of a combination of 1, 2 and 3 above that provide a weighted average of at least two of the above methods. Application of this method shall be in accordance with the criteria in Section 9.2.1(B) (IV) of the Design Manual.

If there is an existing post-construction stormwater management practice located on the site that captures and treats runoff from the *impervious area* that is being disturbed, the WQv treatment option selected must, at a minimum, provide treatment equal to the treatment that was being provided by the existing practice(s) if that treatment is greater than the treatment required by options 1 – 4 above.

(ii) Channel Protection Volume (Cpv): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site.

(iii) *Overbank* Flood Control Criteria (Qp): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site.

(iv) Extreme Flood Control Criteria (Qf): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site

d. Sizing Criteria for Combination of Redevelopment Activity and New Development

Construction projects that include both New Development and Redevelopment Activity shall provide post-construction stormwater management controls that meet the sizing criteria calculated as an aggregate of the Sizing Criteria in Part I.C.2.a. or b. of this permit for the New Development portion of the project and Part I.C.2.c of this permit for Redevelopment Activity portion of the project.

D. Maintaining Water Quality

The Department expects that compliance with the conditions of this permit will control *discharges* necessary to meet applicable *water quality standards*. It shall be a violation of the *ECL* for any discharge to either cause or contribute to a violation of *water quality standards* as contained in Parts 700 through 705 of Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York, such as:

1. There shall be no increase in turbidity that will cause a substantial visible contrast to natural conditions;

2. There shall be no increase in suspended, colloidal or settleable solids that will cause deposition or impair the waters for their best usages; and

3. There shall be no residue from oil and floating substances, nor visible oil film, nor globules of grease.

If there is evidence indicating that the stormwater *discharges* authorized by this permit are causing, have the reasonable potential to cause, or are contributing to a violation of the *water quality standards*; the *owner or operator* must take appropriate corrective action in accordance with Part IV.C.5. of this general permit and document in accordance with Part IV.C.4. of this general permit. To address the *water quality standard* violation the *owner or operator* may need to provide additional information, include and implement appropriate controls in the SWPPP to correct the problem, or obtain an individual SPDES permit.

If there is evidence indicating that despite compliance with the terms and conditions of this general permit it is demonstrated that the stormwater *discharges* authorized by this permit are causing or contributing to a violation of *water quality standards*, or if the Department determines that a modification of the permit is necessary to prevent a violation of *water quality standards*, the authorized *discharges* will no longer be eligible for coverage under this permit. The Department may require the *owner or operator* to obtain an individual SPDES permit to continue discharging.

E. Eligibility Under This General Permit

1. This permit may authorize all *discharges* of stormwater from *construction activity* to *surface waters of the State* and *groundwaters* except for ineligible *discharges* identified under subparagraph F. of this Part.

2. Except for non-stormwater *discharges* explicitly listed in the next paragraph, this permit only authorizes stormwater *discharges*; including stormwater runoff, snowmelt runoff, and surface runoff and drainage, from *construction activities*.

3. Notwithstanding paragraphs E.1 and E.2 above, the following non-stormwater discharges are authorized by this permit: those listed in 6 NYCRR 750-1.2(a)(29)(vi), with the following exception: "Discharges from firefighting activities are authorized only when the firefighting activities are emergencies/unplanned"; waters to which other components have not been added that are used to control dust in accordance with the SWPPP; and uncontaminated *discharges* from *construction site* de-watering operations. All non-stormwater discharges must be identified in the SWPPP. Under all circumstances, the *owner or operator* must still comply with *water quality standards* in Part I.D of this permit.

4. The *owner or operator* must maintain permit eligibility to *discharge* under this permit. Any *discharges* that are not compliant with the eligibility conditions of this permit are not authorized by the permit and the *owner or operator* must either apply for a separate permit to cover those ineligible *discharges* or take steps necessary to make the *discharge* eligible for coverage.

F. Activities Which Are Ineligible for Coverage Under This General Permit

All of the following are **not** authorized by this permit:

1. *Discharges* after *construction activities* have been completed and the site has undergone *final stabilization*;

2. *Discharges* that are mixed with sources of non-stormwater other than those expressly authorized under subsection E.3. of this Part and identified in the SWPPP required by this permit;

3. *Discharges* that are required to obtain an individual SPDES permit or another SPDES general permit pursuant to Part VII.K. of this permit;

4. *Construction activities* or *discharges* from *construction activities* that may adversely affect an *endangered or threatened species* unless the *owner or*

operator has obtained a permit issued pursuant to 6 NYCRR Part 182 for the project or the Department has issued a letter of non-jurisdiction for the project. All documentation necessary to demonstrate eligibility shall be maintained on site in accordance with Part II.D.2 of this permit;

5. *Discharges* which either cause or contribute to a violation of *water quality standards* adopted pursuant to the *ECL* and its accompanying regulations;

6. *Construction activities* for residential, commercial and institutional projects:

   a. Where the *discharges* from the *construction activities* are tributary to waters of the state classified as AA or AA-s; and

   b. Which are undertaken on land with no existing *impervious cover*; and

   c. Which disturb one (1) or more acres of land designated on the current United States Department of Agriculture ("USDA") Soil Survey as Soil Slope Phase "D", (provided the map unit name is inclusive of slopes greater than 25%), or Soil Slope Phase "E" or "F" (regardless of the map unit name), or a combination of the three designations.

7. *Construction activities* for linear transportation projects and linear utility projects:

   a. Where the *discharges* from the *construction activities* are tributary to waters of the state classified as AA or AA-s; and

   b. Which are undertaken on land with no existing *impervious cover*; and

   c. Which disturb two (2) or more acres of land designated on the current USDA Soil Survey as Soil Slope Phase "D" (provided the map unit name is inclusive of slopes greater than 25%), or Soil Slope Phase "E" or "F" (regardless of the map unit name), or a combination of the three designations.

8. *Construction activities* that have the potential to affect an *historic property*, unless there is documentation that such impacts have been resolved. The following documentation necessary to demonstrate eligibility with this requirement shall be maintained on site in accordance with Part II.D.2 of this permit and made available to the Department in accordance with Part VII.F of this permit:

   a. Documentation that the *construction activity* is not within an archeologically sensitive area indicated on the sensitivity map, and that the *construction activity* is not located on or immediately adjacent to a property listed or determined to be eligible for listing on the National or State Registers of Historic Places, and that there is no new permanent building on the *construction site* within the following distances from a building, structure, or object that is more than 50 years old, or if there is such a new permanent building on the *construction site* within those parameters that NYS Office of Parks, Recreation and Historic Preservation (OPRHP), a Historic Preservation Commission of a Certified Local Government, or a qualified preservation professional has determined that the building, structure, or object more than 50 years old is not historically/archeologically significant.

      - 1-5 acres of disturbance - 20 feet
      - 5-20 acres of disturbance - 50 feet
      - 20+ acres of disturbance - 100 feet, or

   b. DEC consultation form sent to OPRHP, and copied to the NYS DEC Agency Historic Preservation Officer (APO), and
      (i) the State Environmental Quality Review (SEQR) Environmental Assessment Form (EAF) with a negative declaration or the Findings Statement, with documentation of OPRHP's agreement with the resolution; or
      (ii) documentation from OPRHP that the *construction activity* will result in No Impact; or
      (iii) documentation from OPRHP providing a determination of No Adverse Impact; or
      (iv) a Letter of Resolution signed by the owner/operator, OPRHP and the DEC APO which allows for this *construction activity* to be eligible for coverage under the general permit in terms of the State Historic Preservation Act (SHPA); or

   c. Documentation of satisfactory compliance with Section 106 of the National Historic Preservation Act for a coterminous project area:

(i) No Affect
(ii) No Adverse Affect
(iii) Executed Memorandum of Agreement, or

d. Documentation that:

(i) SHPA Section 14.09 has been completed by NYS DEC or another state agency.

9. *Discharges* from *construction activities* that are subject to an existing SPDES individual or general permit where a SPDES permit for *construction activity* has been terminated or denied; or where the *owner or operator* has failed to renew an expired individual permit.

Part II. PERMIT COVERAGE

A. How to Obtain Coverage

1. An *owner or operator* of a *construction activity* that is not subject to the requirements of a regulated, traditional land use control MS4 must first prepare a SWPPP in accordance with all applicable requirements of this permit and then submit a completed Notice of Intent (NOI) to the Department to be authorized to discharge under this permit.

2. An *owner or operator* of a *construction activity* that is subject to the requirements of a *regulated, traditional land use control MS4* must first prepare a SWPPP in accordance with all applicable requirements of this permit and then have the SWPPP reviewed and accepted by the *regulated, traditional land use control MS4* prior to submitting the NOI to the Department. The *owner or operator* shall have the "MS4 SWPPP Acceptance" form signed in accordance with Part VII.H., and then submit that form along with a completed NOI to the Department.

3. The requirement for an *owner or operator* to have its SWPPP reviewed and accepted by the *regulated, traditional land use control MS4* prior to submitting the NOI to the Department does not apply to an *owner or operator* that is obtaining permit coverage in accordance with the requirements in Part II.F. (Change of *Owner or Operator*) or where the *owner or operator* of the *construction activity* is the *regulated, traditional land use control MS4* . This exemption does not apply to *construction activities* subject to the New York City Administrative Code.

B. Notice of Intent (NOI) Submittal

1. Prior to December 21, 2020, an owner or operator shall use either the electronic (eNOI) or paper version of the NOI that the Department prepared. Both versions of the NOI are located on the Department's website (http://www.dec.ny.gov/). The paper version of the NOI shall be signed in accordance with Part VII.H. of this permit and submitted to the following address:

   NOTICE OF INTENT
   NYS DEC, Bureau of Water Permits
   625 Broadway, 4th Floor
   Albany, New York 12233-3505

2. Beginning December 21, 2020 and in accordance with EPA's 2015 NPDES Electronic Reporting Rule (40 CFR Part 127), the *owner or operator* must submit the NOI electronically using the *Department's* online NOI.

3. The *owner or operator* shall have the SWPPP preparer sign the "SWPPP Preparer Certification" statement on the NOI prior to submitting the form to the Department.

4. As of the date the NOI is submitted to the Department, the *owner or operator* shall make the NOI and SWPPP available for review and copying in accordance with the requirements in Part VII.F. of this permit.

C. Permit Authorization

1. An *owner or operator* shall not *commence construction activity* until their authorization to *discharge* under this permit goes into effect.

2. Authorization to *discharge* under this permit will be effective when the *owner or operator* has satisfied all of the following criteria:

   a. project review pursuant to the State Environmental Quality Review Act ("SEQRA") have been satisfied, when SEQRA is applicable. See the Department's website (http://www.dec.ny.gov/) for more information,

   b. where required, all necessary Department permits subject to the *Uniform Procedures Act ("UPA")* (see 6 NYCRR Part 621), or the equivalent from another New York State agency, have been obtained, unless otherwise notified by the Department pursuant to 6 NYCRR 621.3(a)(4). *Owners or operators* of *construction activities* that are required to obtain *UPA* permits

must submit a preliminary SWPPP to the appropriate DEC Permit Administrator at the Regional Office listed in Appendix F at the time all other necessary *UPA* permit applications are submitted. The preliminary SWPPP must include sufficient information to demonstrate that the *construction activity* qualifies for authorization under this permit,

c. the final SWPPP has been prepared, and

d. a complete NOI has been submitted to the Department in accordance with the requirements of this permit.

3. An *owner or operator* that has satisfied the requirements of Part II.C.2 above will be authorized to *discharge* stormwater from their *construction activity* in accordance with the following schedule:

   a. For *construction activities* that are <u>not</u> subject to the requirements of a *regulated, traditional land use control MS4*:

      (i) Five (5) business days from the date the Department receives a complete electronic version of the NOI (eNOI) for *construction activities* with a SWPPP that has been prepared in conformance with the design criteria in the technical standard referenced in Part III.B.1 and the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C.; or

      (ii) Sixty (60) business days from the date the Department receives a complete NOI (electronic or paper version) for *construction activities* with a SWPPP that has <u>not</u> been prepared in conformance with the design criteria in technical standard referenced in Part III.B.1. or, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C., the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, or;

      (iii) Ten (10) business days from the date the Department receives a complete paper version of the NOI for *construction activities* with a SWPPP that has been prepared in conformance with the design criteria in the technical standard referenced in Part III.B.1 and the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C.

b. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4*:

(i) Five (5) business days from the date the Department receives both a complete electronic version of the NOI (eNOI) and signed "*MS4* SWPPP Acceptance" form, or

(ii) Ten (10) business days from the date the Department receives both a complete paper version of the NOI and signed "MS4 SWPPP Acceptance" form.

4. Coverage under this permit authorizes stormwater *discharges* from only those areas of disturbance that are identified in the NOI. If an *owner or operator* wishes to have stormwater *discharges* from future or additional areas of disturbance authorized, they must submit a new NOI that addresses that phase of the development, unless otherwise notified by the Department. The *owner or operator* shall not *commence construction activity* on the future or additional areas until their authorization to *discharge* under this permit goes into effect in accordance with Part II.C. of this permit.

D. General Requirements For Owners or Operators With Permit Coverage

1. The *owner or operator* shall ensure that the provisions of the SWPPP are implemented from the *commencement of construction activity* until all areas of disturbance have achieved *final stabilization* and the Notice of Termination ("NOT") has been submitted to the Department in accordance with Part V. of this permit. This includes any changes made to the SWPPP pursuant to Part III.A.4. of this permit.

2. The *owner or operator* shall maintain a copy of the General Permit (GP-0-20-001), NOI, *NOI Acknowledgment Letter*, SWPPP, MS4 SWPPP Acceptance form, inspection reports, responsible contractor's or subcontractor's certification statement (see Part III.A.6.), and all documentation necessary to demonstrate eligibility with this permit at the *construction site* until all disturbed areas have achieved *final stabilization* and the NOT has been submitted to the Department. The documents must be maintained in a secure location, such as a job trailer, on-site construction office, or mailbox with lock. The secure location must be accessible during normal business hours to an individual performing a compliance inspection.

3. The *owner or operator* of a *construction activity* shall not disturb greater than five (5) acres of soil at any one time without prior written authorization from the Department or, in areas under the jurisdiction of a *regulated, traditional land*

use control MS4, the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*). At a minimum, the *owner or operator* must comply with the following requirements in order to be authorized to disturb greater than five (5) acres of soil at any one time:

a. The *owner or operator* shall have a *qualified inspector* conduct **at least** two (2) site inspections in accordance with Part IV.C. of this permit every seven (7) calendar days, for as long as greater than five (5) acres of soil remain disturbed. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

b. In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven (7) days from the date the current soil disturbance activity ceased. The soil stabilization measures selected shall be in conformance with the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016.

c. The *owner or operator* shall prepare a phasing plan that defines maximum disturbed area per phase and shows required cuts and fills.

d. The *owner or operator* shall install any additional site-specific practices needed to protect water quality.

e. The *owner or operator* shall include the requirements above in their SWPPP.

4. In accordance with statute, regulations, and the terms and conditions of this permit, the Department may suspend or revoke an *owner's or operator's* coverage under this permit at any time if the Department determines that the SWPPP does not meet the permit requirements or consistent with Part VII.K..

5. Upon a finding of significant non-compliance with the practices described in the SWPPP or violation of this permit, the Department may order an immediate stop to all activity at the site until the non-compliance is remedied. The stop work order shall be in writing, describe the non-compliance in detail, and be sent to the *owner or operator*.

6. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4*, the *owner or operator* shall notify the

regulated, traditional land use control MS4 in writing of any planned amendments or modifications to the post-construction stormwater management practice component of the SWPPP required by Part III.A. 4. and 5. of this permit. Unless otherwise notified by the *regulated, traditional land use control MS4*, the *owner or operator* shall have the SWPPP amendments or modifications reviewed and accepted by the *regulated, traditional land use control MS4* prior to commencing construction of the post-construction stormwater management practice.

E. Permit Coverage for Discharges Authorized Under GP-0-15-002

1. Upon renewal of SPDES General Permit for Stormwater Discharges from *Construction Activity* (Permit No. GP-0-15-002), an *owner or operator* of *a construction activity* with coverage under GP-0-15-002, as of the effective date of GP- 0-20-001, shall be authorized to *discharge* in accordance with GP- 0-20-001, unless otherwise notified by the Department.

   An *owner or operator* may continue to implement the technical/design components of the post-construction stormwater management controls provided that such design was done in conformance with the technical standards in place at the time of initial project authorization. However, they must comply with the other, non-design provisions of GP-0-20-001.

F. Change of Owner or Operator

1. When property ownership changes or when there is a change in operational control over the construction plans and specifications, the original *owner or operator* must notify the new *owner or operator*, in writing, of the requirement to obtain permit coverage by submitting a NOI with the Department. For *construction activities* subject to the requirements of a *regulated, traditional land use control MS4,* the original *owner or operator* must also notify the MS4, in writing, of the change in ownership at least 30 calendar days prior to the change in ownership.

2. Once the new *owner or operator* obtains permit coverage, the original *owner or operator* shall then submit a completed NOT with the name and permit identification number of the new *owner or operator* to the Department at the address in Part II.B.1. of this permit. If the original *owner or operator* maintains ownership of a portion of the *construction activity* and will disturb soil, they must maintain their coverage under the permit.

3. Permit coverage for the new *owner or operator* will be effective as of the date the Department receives a complete NOI, provided the original *owner or*

operator was not subject to a sixty (60) business day authorization period that has not expired as of the date the Department receives the NOI from the new *owner or operator*.

Part III. STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

A. General SWPPP Requirements

1. A SWPPP shall be prepared and implemented by the *owner or operator* of each *construction activity* covered by this permit. The SWPPP must document the selection, design, installation, implementation and maintenance of the control measures and practices that will be used to meet the effluent limitations in Part I.B. of this permit and where applicable, the post-construction stormwater management practice requirements in Part I.C. of this permit. The SWPPP shall be prepared prior to the submittal of the NOI. The NOI shall be submitted to the Department prior to the *commencement of construction activity*. A copy of the completed, final NOI shall be included in the SWPPP.

2. The SWPPP shall describe the erosion and sediment control practices and where required, post-construction stormwater management practices that will be used and/or constructed to reduce the *pollutants* in stormwater *discharges* and to assure compliance with the terms and conditions of this permit. In addition, the SWPPP shall identify potential sources of pollution which may reasonably be expected to affect the quality of stormwater *discharges*.

3. All SWPPPs that require the post-construction stormwater management practice component shall be prepared by a *qualified professional* that is knowledgeable in the principles and practices of stormwater management and treatment.

4. The *owner or operator* must keep the SWPPP current so that it at all times accurately documents the erosion and sediment controls practices that are being used or will be used during construction, and all post-construction stormwater management practices that will be constructed on the site. At a minimum, the *owner or operator* shall amend the SWPPP, including construction drawings:

    a. whenever the current provisions prove to be ineffective in minimizing *pollutants* in stormwater *discharges* from the site;

b. whenever there is a change in design, construction, or operation at the *construction site* that has or could have an effect on the *discharge* of *pollutants*;

c. to address issues or deficiencies identified during an inspection by the *qualified inspector,* the Department or other regulatory authority; and

d. to document the final construction conditions.

5. The Department may notify the *owner or operator* at any time that the SWPPP does not meet one or more of the minimum requirements of this permit. The notification shall be in writing and identify the provisions of the SWPPP that require modification. Within fourteen (14) calendar days of such notification, or as otherwise indicated by the Department, the *owner or operator* shall make the required changes to the SWPPP and submit written notification to the Department that the changes have been made. If the *owner or operator* does not respond to the Department's comments in the specified time frame, the Department may suspend the *owner's or operator's* coverage under this permit or require the *owner or operator* to obtain coverage under an individual SPDES permit in accordance with Part II.D.4. of this permit.

6. Prior to the *commencement of construction activity*, the *owner or operator* must identify the contractor(s) and subcontractor(s) that will be responsible for installing, constructing, repairing, replacing, inspecting and maintaining the erosion and sediment control practices included in the SWPPP; and the contractor(s) and subcontractor(s) that will be responsible for constructing the post-construction stormwater management practices included in the SWPPP. The *owner or operator* shall have each of the contractors and subcontractors identify at least one person from their company that will be responsible for implementation of the SWPPP. This person shall be known as the *trained contractor.* The *owner or operator* shall ensure that at least one *trained contractor* is on site on a daily basis when soil disturbance activities are being performed.

   The *owner or operator* shall have each of the contractors and subcontractors identified above sign a copy of the following certification statement below before they commence any *construction activity*:

   "I hereby certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the *qualified inspector* during a site inspection. I also understand that the *owner or operator* must comply with

the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater *discharges* from *construction activities* and that it is unlawful for any person to cause or contribute to a violation of *water quality standards*. Furthermore, I am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations"

In addition to providing the certification statement above, the certification page must also identify the specific elements of the SWPPP that each contractor and subcontractor will be responsible for and include the name and title of the person providing the signature; the name and title of the *trained contractor* responsible for SWPPP implementation; the name, address and telephone number of the contracting firm; the address (or other identifying description) of the site; and the date the certification statement is signed. The *owner or operator* shall attach the certification statement(s) to the copy of the SWPPP that is maintained at the *construction site*. If new or additional contractors are hired to implement measures identified in the SWPPP after construction has commenced, they must also sign the certification statement and provide the information listed above.

7. For projects where the Department requests a copy of the SWPPP or inspection reports, the *owner or operator* shall submit the documents in both electronic (PDF only) and paper format within five (5) business days, unless otherwise notified by the Department.

B. Required SWPPP Contents

1. Erosion and sediment control component - All SWPPPs prepared pursuant to this permit shall include erosion and sediment control practices designed in conformance with the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016. Where erosion and sediment control practices are not designed in conformance with the design criteria included in the technical standard, the *owner or operator* must demonstrate *equivalence* to the technical standard. At a minimum, the erosion and sediment control component of the SWPPP shall include the following:

    a. Background information about the scope of the project, including the location, type and size of project

b. A site map/construction drawing(s) for the project, including a general location map. At a minimum, the site map shall show the total site area; all improvements; areas of disturbance; areas that will not be disturbed; existing vegetation; on-site and adjacent off-site surface water(s); floodplain/floodway boundaries; wetlands and drainage patterns that could be affected by the *construction activity*; existing and final contours ; locations of different soil types with boundaries; material, waste, borrow or equipment storage areas located on adjacent properties; and location(s) of the stormwater *discharge*(s);

c. A description of the soil(s) present at the site, including an identification of the Hydrologic Soil Group (HSG);

d. A construction phasing plan and sequence of operations describing the intended order of *construction activities*, including clearing and grubbing, excavation and grading, utility and infrastructure installation and any other activity at the site that results in soil disturbance;

e. A description of the minimum erosion and sediment control practices to be installed or implemented for each *construction activity* that will result in soil disturbance. Include a schedule that identifies the timing of initial placement or implementation of each erosion and sediment control practice and the minimum time frames that each practice should remain in place or be implemented;

f. A temporary and permanent soil stabilization plan that meets the requirements of this general permit and the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016, for each stage of the project, including initial land clearing and grubbing to project completion and achievement of *final stabilization*;

g. A site map/construction drawing(s) showing the specific location(s), size(s), and length(s) of each erosion and sediment control practice;

h. The dimensions, material specifications, installation details, and operation and maintenance requirements for all erosion and sediment control practices. Include the location and sizing of any temporary sediment basins and structural practices that will be used to divert flows from exposed soils;

i. A maintenance inspection schedule for the contractor(s) identified in Part III.A.6. of this permit, to ensure continuous and effective operation of the erosion and sediment control practices. The maintenance inspection

schedule shall be in accordance with the requirements in the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016;

j. A description of the pollution prevention measures that will be used to control litter, construction chemicals and construction debris from becoming a *pollutant* source in the stormwater *discharges*;

k. A description and location of any stormwater *discharges* associated with industrial activity other than construction at the site, including, but not limited to, stormwater *discharges* from asphalt plants and concrete plants located on the *construction site*; and

l. Identification of any elements of the design that are not in conformance with the design criteria in the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016. Include the reason for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

2. Post-construction stormwater management practice component – The *owner or operator* of any construction project identified in Table 2 of Appendix B as needing post-construction stormwater management practices shall prepare a SWPPP that includes practices designed in conformance with the applicable *sizing criteria* in Part I.C.2.a., c. or d. of this permit and the *performance criteria* in the technical standard, New York State Stormwater Management Design Manual dated January 2015

   Where post-construction stormwater management practices are not designed in conformance with the *performance criteria* in the technical standard, the *owner or operator* must include in the SWPPP the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

   The post-construction stormwater management practice component of the SWPPP shall include the following:

   a. Identification of all post-construction stormwater management practices to be constructed as part of the project. Include the dimensions, material specifications and installation details for each post-construction stormwater management practice;

b. A site map/construction drawing(s) showing the specific location and size of each post-construction stormwater management practice;

c. A Stormwater Modeling and Analysis Report that includes:
   (i) Map(s) showing pre-development conditions, including watershed/subcatchments boundaries, flow paths/routing, and design points;

   (ii) Map(s) showing post-development conditions, including watershed/subcatchments boundaries, flow paths/routing, design points and post-construction stormwater management practices;

   (iii) Results of stormwater modeling (i.e. hydrology and hydraulic analysis) for the required storm events. Include supporting calculations (model runs), methodology, and a summary table that compares pre and post-development runoff rates and volumes for the different storm events;

   (iv) Summary table, with supporting calculations, which demonstrates that each post-construction stormwater management practice has been designed in conformance with the *sizing criteria* included in the Design Manual;

   (v) Identification of any *sizing criteria* that is not required based on the requirements included in Part I.C. of this permit; and

   (vi) Identification of any elements of the design that are not in conformance with the *performance criteria* in the Design Manual. Include the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the Design Manual;

d. Soil testing results and locations (test pits, borings);

e. Infiltration test results, when required; and

f. An operations and maintenance plan that includes inspection and maintenance schedules and actions to ensure continuous and effective operation of each post-construction stormwater management practice. The plan shall identify the entity that will be responsible for the long term operation and maintenance of each practice.

3. Enhanced Phosphorus Removal Standards - All construction projects identified in Table 2 of Appendix B that are located in the watersheds identified in Appendix C shall prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the applicable *sizing criteria* in Part I.C.2. b., c. or d. of this permit and the *performance criteria,* Enhanced Phosphorus Removal Standards included in the Design Manual. At a minimum, the post-construction stormwater management practice component of the SWPPP shall include items 2.a - 2.f. above.

C. Required SWPPP Components by Project Type

Unless otherwise notified by the Department, *owners or operators* of *construction activities* identified in Table 1 of Appendix B are required to prepare a SWPPP that only includes erosion and sediment control practices designed in conformance with Part III.B.1 of this permit. *Owners or operators* of the *construction activities* identified in Table 2 of Appendix B shall prepare a SWPPP that also includes post-construction stormwater management practices designed in conformance with Part III.B.2 or 3 of this permit.

Part IV. INSPECTION AND MAINTENANCE REQUIREMENTS

A. General Construction Site Inspection and Maintenance Requirements

1. The *owner or operator* must ensure that all erosion and sediment control practices (including pollution prevention measures) and all post-construction stormwater management practices identified in the SWPPP are inspected and maintained in accordance with Part IV.B. and C. of this permit.

2. The terms of this permit shall not be construed to prohibit the State of New York from exercising any authority pursuant to the ECL, common law or federal law, or prohibit New York State from taking any measures, whether civil or criminal, to prevent violations of the laws of the State of New York or protect the public health and safety and/or the environment.

B. Contractor Maintenance Inspection Requirements

1. The *owner or operator* of each *construction activity* identified in Tables 1 and 2 of Appendix B shall have a *trained contractor* inspect the erosion and sediment control practices and pollution prevention measures being implemented within the active work area daily to ensure that they are being maintained in effective operating condition at all times. If deficiencies are identified, the contractor shall

begin implementing corrective actions within one business day and shall complete the corrective actions in a reasonable time frame.

2. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and *temporary stabilization* measures have been applied to all disturbed areas, the *trained contractor* can stop conducting the maintenance inspections. The *trained contractor* shall begin conducting the maintenance inspections in accordance with Part IV.B.1. of this permit as soon as soil disturbance activities resume.

3. For construction sites where soil disturbance activities have been shut down with partial project completion, the *trained contractor* can stop conducting the maintenance inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational.

C. Qualified Inspector Inspection Requirements

The *owner or operator* shall have a *qualified inspector* conduct site inspections in conformance with the following requirements:

[Note: The *trained contractor* identified in Part III.A.6. and IV.B. of this permit **cannot** conduct the *qualified inspector* site inspections unless they meet the *qualified inspector* qualifications included in Appendix A. In order to perform these inspections, the *trained contractor* would have to be a:

- licensed Professional Engineer,
- Certified Professional in Erosion and Sediment Control (CPESC),
- New York State Erosion and Sediment Control Certificate Program holder
- Registered Landscape Architect, or
- someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity].

1. A *qualified inspector* shall conduct site inspections for all *construction activities* identified in Tables 1 and 2 of Appendix B, with the exception of:

   a. the construction of a single family residential subdivision with 25% or less *impervious cover* at total site build-out that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is not located

in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E;

b. the construction of a single family home that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is not located in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E;

c. construction on agricultural property that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres; and

d. *construction activities* located in the watersheds identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

2. Unless otherwise notified by the Department, the *qualified inspector* shall conduct site inspections in accordance with the following timetable:

   a. For construction sites where soil disturbance activities are on-going, the *qualified inspector* shall conduct a site inspection at least once every seven (7) calendar days.

   b. For construction sites where soil disturbance activities are on-going and the *owner or operator* has received authorization in accordance with Part II.D.3 to disturb greater than five (5) acres of soil at any one time, the *qualified inspector* shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

   c. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and *temporary stabilization* measures have been applied to all disturbed areas, the *qualified inspector* shall conduct a site inspection at least once every thirty (30) calendar days. The *owner or operator* shall notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix F) or, in areas under the jurisdiction of a *regulated, traditional land use control MS4,* the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*) in writing prior to reducing the frequency of inspections.

d. For construction sites where soil disturbance activities have been shut down with partial project completion, the *qualified inspector* can stop conducting inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational. The *owner or operator* shall notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix F) or, in areas under the jurisdiction of a *regulated, traditional land use control MS4,* the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*) in writing prior to the shutdown. If soil disturbance activities are not resumed within 2 years from the date of shutdown, the *owner or operator* shall have the *qualified inspector* perform a final inspection and certify that all disturbed areas have achieved *final stabilization,* and all temporary, structural erosion and sediment control measures have been removed; and that all post-construction stormwater management practices have been constructed in conformance with the SWPPP by signing the "*Final Stabilization*" and "Post-Construction Stormwater Management Practice" certification statements on the NOT. The *owner or operator* shall then submit the completed NOT form to the address in Part II.B.1 of this permit.

e. For construction sites that directly *discharge* to one of the 303(d) segments listed in Appendix E or is located in one of the watersheds listed in Appendix C, the *qualified inspector* shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

3. At a minimum, the *qualified inspector* shall inspect all erosion and sediment control practices and pollution prevention measures to ensure integrity and effectiveness, all post-construction stormwater management practices under construction to ensure that they are constructed in conformance with the SWPPP, all areas of disturbance that have not achieved *final stabilization,* all points of *discharge* to natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the *construction site*, and all points of *discharge* from the *construction site*.

4. The *qualified inspector* shall prepare an inspection report subsequent to each and every inspection. At a minimum, the inspection report shall include and/or address the following:

a. Date and time of inspection;

b. Name and title of person(s) performing inspection;

c. A description of the weather and soil conditions (e.g. dry, wet, saturated) at the time of the inspection;

d. A description of the condition of the runoff at all points of *discharge* from the *construction site*. This shall include identification of any *discharges* of sediment from the *construction site*. Include *discharges* from conveyance systems (i.e. pipes, culverts, ditches, etc.) and overland flow;

e. A description of the condition of all natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the *construction site* which receive runoff from disturbed areas. This shall include identification of any *discharges* of sediment to the surface waterbody;

f. Identification of all erosion and sediment control practices and pollution prevention measures that need repair or maintenance;

g. Identification of all erosion and sediment control practices and pollution prevention measures that were not installed properly or are not functioning as designed and need to be reinstalled or replaced;

h. Description and sketch of areas with active soil disturbance activity, areas that have been disturbed but are inactive at the time of the inspection, and areas that have been stabilized (temporary and/or final) since the last inspection;

i. Current phase of construction of all post-construction stormwater management practices and identification of all construction that is not in conformance with the SWPPP and technical standards;

j. Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices and pollution prevention measures; and to correct deficiencies identified with the construction of the post-construction stormwater management practice(s);

k. Identification and status of all corrective actions that were required by previous inspection; and

l. Digital photographs, with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions. The *qualified inspector* shall attach paper color copies of the digital photographs to the inspection report being maintained onsite within seven (7) calendar days of the date of the inspection. The *qualified inspector* shall also take digital photographs, with date stamp, that clearly show the condition of the practice(s) after the corrective action has been completed. The *qualified inspector* shall attach paper color copies of the digital photographs to the inspection report that documents the completion of the corrective action work within seven (7) calendar days of that inspection.

5. Within one business day of the completion of an inspection, the *qualified inspector* shall notify the *owner or operator* and appropriate contractor or subcontractor identified in Part III.A.6. of this permit of any corrective actions that need to be taken. The contractor or subcontractor shall begin implementing the corrective actions within one business day of this notification and shall complete the corrective actions in a reasonable time frame.

6. All inspection reports shall be signed by the *qualified inspector.* Pursuant to Part II.D.2. of this permit, the inspection reports shall be maintained on site with the SWPPP.

Part V. TERMINATION OF PERMIT COVERAGE

A. Termination of Permit Coverage

1. An *owner or operator* that is eligible to terminate coverage under this permit must submit a completed NOT form to the address in Part II.B.1 of this permit. The NOT form shall be one which is associated with this permit, signed in accordance with Part VII.H of this permit.

2. An *owner or operator* may terminate coverage when one or more the following conditions have been met:

   a. Total project completion - All *construction activity* identified in the SWPPP has been completed; and all areas of disturbance have achieved *final stabilization*; and all temporary, structural erosion and sediment control measures have been removed; and all post-construction stormwater management practices have been constructed in conformance with the SWPPP and are operational;

b. Planned shutdown with partial project completion - All soil disturbance activities have ceased; and all areas disturbed as of the project shutdown date have achieved *final stabilization*; and all temporary, structural erosion and sediment control measures have been removed; and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational;

c. A new *owner or operator* has obtained coverage under this permit in accordance with Part II.F. of this permit.

d. The *owner or operator* obtains coverage under an alternative SPDES general permit or an individual SPDES permit.

3. For *construction activities* meeting subdivision 2a. or 2b. of this Part, the *owner or operator* shall have the *qualified inspector* perform a final site inspection prior to submitting the NOT. The *qualified inspector* shall, by signing the "*Final Stabilization*" and "Post-Construction Stormwater Management Practice certification statements on the NOT, certify that all the requirements in Part V.A.2.a. or b. of this permit have been achieved.

4. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4* and meet subdivision 2a. or 2b. of this Part, the *owner or operator* shall have the *regulated, traditional land use control MS4* sign the "MS4 Acceptance" statement on the NOT in accordance with the requirements in Part VII.H. of this permit. The *regulated, traditional land use control MS4* official, by signing this statement, has determined that it is acceptable for the *owner or operator* to submit the NOT in accordance with the requirements of this Part. The *regulated, traditional land use control MS4* can make this determination by performing a final site inspection themselves or by accepting the *qualified inspector*'s final site inspection certification(s) required in Part V.A.3. of this permit.

5. For *construction activities* that require post-construction stormwater management practices and meet subdivision 2a. of this Part, the *owner or operator* must, prior to submitting the NOT, ensure one of the following:

   a. the post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain such practice(s) have been deeded to the municipality in which the practice(s) is located,

b. an executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s),

c. for post-construction stormwater management practices that are privately owned, the *owner or operator* has a mechanism in place that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan, such as a deed covenant in the *owner or operator's* deed of record,

d. for post-construction stormwater management practices that are owned by a public or private institution (e.g. school, university, hospital), government agency or authority, or public utility; the *owner or operator* has policy and procedures in place that ensures operation and maintenance of the practices in accordance with the operation and maintenance plan.

Part VI. REPORTING AND RETENTION RECORDS

A. Record Retention

The *owner or operator* shall retain a copy of the NOI, NOI Acknowledgment Letter, SWPPP, MS4 SWPPP Acceptance form and any inspection reports that were prepared in conjunction with this permit for a period of at least five (5) years from the date that the Department receives a complete NOT submitted in accordance with Part V. of this general permit.

B. Addresses

With the exception of the NOI, NOT, and MS4 SWPPP Acceptance form (which must be submitted to the address referenced in Part II.B.1 of this permit), all written correspondence requested by the Department, including individual permit applications, shall be sent to the address of the appropriate DOW Water (SPDES) Program contact at the Regional Office listed in Appendix F.

Part VII. STANDARD PERMIT CONDITIONS

A. Duty to Comply

The *owner or operator* must comply with all conditions of this permit. All contractors and subcontractors associated with the project must comply with the terms of the SWPPP. Any non-compliance with this permit constitutes a violation of the Clean Water

Act (CWA) and the ECL and is grounds for an enforcement action against the *owner or operator* and/or the contractor/subcontractor; permit revocation, suspension or modification; or denial of a permit renewal application. Upon a finding of significant non-compliance with this permit or the applicable SWPPP, the Department may order an immediate stop to all *construction activity* at the site until the non-compliance is remedied. The stop work order shall be in writing, shall describe the non-compliance in detail, and shall be sent to the *owner or operator*.

If any human remains or archaeological remains are encountered during excavation, the *owner or operator* must immediately cease, or cause to cease, all *construction activity* in the area of the remains and notify the appropriate Regional Water Engineer (RWE). *Construction activity* shall not resume until written permission to do so has been received from the RWE.

B. Continuation of the Expired General Permit

This permit expires five (5) years from the effective date. If a new general permit is not issued prior to the expiration of this general permit, an *owner or operator* with coverage under this permit may continue to operate and *discharge* in accordance with the terms and conditions of this general permit, if it is extended pursuant to the State Administrative Procedure Act and 6 NYCRR Part 621, until a new general permit is issued.

C. Enforcement

Failure of the *owner or operator,* its contractors, subcontractors, agents and/or assigns to strictly adhere to any of the permit requirements contained herein shall constitute a violation of this permit. There are substantial criminal, civil, and administrative penalties associated with violating the provisions of this permit. Fines of up to $37,500 per day for each violation and imprisonment for up to fifteen (15) years may be assessed depending upon the nature and degree of the offense.

D. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for an *owner or operator* in an enforcement action that it would have been necessary to halt or reduce the *construction activity* in order to maintain compliance with the conditions of this permit.

E. Duty to Mitigate

The *owner or operator* and its contractors and subcontractors shall take all reasonable steps to *minimize* or prevent any *discharge* in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

F. Duty to Provide Information

The *owner or operator* shall furnish to the Department, within a reasonable specified time period of a written request, all documentation necessary to demonstrate eligibility and any information to determine compliance with this permit or to determine whether cause exists for modifying or revoking this permit, or suspending or denying coverage under this permit, in accordance with the terms and conditions of this permit. The NOI, SWPPP and inspection reports required by this permit are public documents that the *owner or operator* must make available for review and copying by any person within five (5) business days of the *owner or operator* receiving a written request by any such person to review these documents. Copying of documents will be done at the requester's expense.

G. Other Information

When the *owner or operator* becomes aware that they failed to submit any relevant facts, or submitted incorrect information in the NOI or in any of the documents required by this permit , or have made substantive revisions to the SWPPP (e.g. the scope of the project changes significantly, the type of post-construction stormwater management practice(s) changes, there is a reduction in the sizing of the post-construction stormwater management practice, or there is an increase in the disturbance area or *impervious area*), which were not reflected in the original NOI submitted to the Department, they shall promptly submit such facts or information to the Department using the contact information in Part II.A. of this permit. Failure of the *owner or operator* to correct or supplement any relevant facts within five (5) business days of becoming aware of the deficiency shall constitute a violation of this permit.

H. Signatory Requirements

1. All NOIs and NOTs shall be signed as follows:

    a. For a corporation these forms shall be signed by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:

(i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or

(ii) the manager of one or more manufacturing, production or operating facilities, provided the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

b. For a partnership or sole proprietorship these forms shall be signed by a general partner or the proprietor, respectively; or

c. For a municipality, State, Federal, or other public agency these forms shall be signed by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes:

(i) the chief executive officer of the agency, or

(ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).

2. The SWPPP and other information requested by the Department shall be signed by a person described in Part VII.H.1. of this permit or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a. The authorization is made in writing by a person described in Part VII.H.1. of this permit;

b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field,

superintendent, position of *equivalent* responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position) and,

c. The written authorization shall include the name, title and signature of the authorized representative and be attached to the SWPPP.

3. All inspection reports shall be signed by the *qualified inspector* that performs the inspection.

4. The MS4 SWPPP Acceptance form shall be signed by the principal executive officer or ranking elected official from the *regulated, traditional land use control MS4,* or by a duly authorized representative of that person.

   It shall constitute a permit violation if an incorrect and/or improper signatory authorizes any required forms, SWPPP and/or inspection reports.

I. Property Rights

The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property nor any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations. *Owners or operators* must obtain any applicable conveyances, easements, licenses and/or access to real property prior to *commencing construction activity*.

J. Severability

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

K. Requirement to Obtain Coverage Under an Alternative Permit

1. The Department may require any owner or operator authorized by this permit to apply for and/or obtain either an individual SPDES permit or another SPDES general permit. When the Department requires any discharger authorized by a general permit to apply for an individual SPDES permit, it shall notify the discharger in writing that a permit application is required. This notice shall

include a brief statement of the reasons for this decision, an application form, a statement setting a time frame for the owner or operator to file the application for an individual SPDES permit, and a deadline, not sooner than 180 days from owner or operator receipt of the notification letter, whereby the authorization to discharge under this general permit shall be terminated. Applications must be submitted to the appropriate Permit Administrator at the Regional Office. The Department may grant additional time upon demonstration, to the satisfaction of the Department, that additional time to apply for an alternative authorization is necessary or where the Department has not provided a permit determination in accordance with Part 621 of this Title.

2. When an individual SPDES permit is issued to a discharger authorized to *discharge* under a general SPDES permit for the same *discharge*(s), the general permit authorization for outfalls authorized under the individual SPDES permit is automatically terminated on the effective date of the individual permit unless termination is earlier in accordance with 6 NYCRR Part 750.

L. Proper Operation and Maintenance

The *owner or operator* shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the *owner or operator* to achieve compliance with the conditions of this permit and with the requirements of the SWPPP.

M. Inspection and Entry

The *owner or operator* shall allow an authorized representative of the Department, EPA, applicable county health department, or, in the case of a *construction site* which *discharges* through an *MS4*, an authorized representative of the *MS4* receiving the discharge, upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the owner's or operator's premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this permit;

2. Have access to and copy at reasonable times, any records that must be kept under the conditions of this permit; and

3. Inspect at reasonable times any facilities or equipment (including monitoring and control equipment), practices or operations regulated or required by this permit.

4. Sample or monitor at reasonable times, for purposes of assuring permit compliance or as otherwise authorized by the Act or ECL, any substances or parameters at any location.

N. Permit Actions

This permit may, at any time, be modified, suspended, revoked, or renewed by the Department in accordance with 6 NYCRR Part 621. The filing of a request by the *owner or operator* for a permit modification, revocation and reissuance, termination, a notification of planned changes or anticipated noncompliance does not limit, diminish and/or stay compliance with any terms of this permit.

O. Definitions

Definitions of key terms are included in Appendix A of this permit.

P. Re-Opener Clause

1. If there is evidence indicating potential or realized impacts on water quality due to any stormwater discharge associated with construction activity covered by this permit, the owner or operator of such discharge may be required to obtain an individual permit or alternative general permit in accordance with Part VII.K. of this permit or the permit may be modified to include different limitations and/or requirements.

2. Any Department initiated permit modification, suspension or revocation will be conducted in accordance with 6 NYCRR Part 621, 6 NYCRR 750-1.18, and 6 NYCRR 750-1.20.

Q. Penalties for Falsification of Forms and Reports

In accordance with 6NYCRR Part 750-2.4 and 750-2.5, any person who knowingly makes any false material statement, representation, or certification in any application, record, report or other document filed or required to be maintained under this permit, including reports of compliance or noncompliance shall, upon conviction, be punished in accordance with ECL §71-1933 and or Articles 175 and 210 of the New York State Penal Law.

R. Other Permits

Nothing in this permit relieves the *owner or operator* from a requirement to obtain any other permits required by law.

APPENDIX A – Acronyms and Definitions

Acronyms

APO – Agency Preservation Officer
BMP – Best Management Practice
CPESC – Certified Professional in Erosion and Sediment Control
Cpv – Channel Protection Volume
CWA – Clean Water Act (or the Federal Water Pollution Control Act, 33 U.S.C. §1251 et seq)
DOW – Division of Water
EAF – Environmental Assessment Form
ECL - Environmental Conservation Law
EPA – U. S. Environmental Protection Agency
HSG – Hydrologic Soil Group
MS4 – Municipal Separate Storm Sewer System
NOI – Notice of Intent
NOT – Notice of Termination
NPDES – National Pollutant Discharge Elimination System
OPRHP – Office of Parks, Recreation and Historic Places
Qf – Extreme Flood
Qp – Overbank Flood
RRv – Runoff Reduction Volume
RWE – Regional Water Engineer
SEQR – State Environmental Quality Review
SEQRA - State Environmental Quality Review Act
SHPA – State Historic Preservation Act
SPDES – State Pollutant Discharge Elimination System
SWPPP – Stormwater Pollution Prevention Plan
TMDL – Total Maximum Daily Load
UPA – Uniform Procedures Act
USDA – United States Department of Agriculture
WQv – Water Quality Volume

Definitions

All definitions in this section are solely for the purposes of this permit.

Agricultural Building – a structure designed and constructed to house farm implements, hay, grain, poultry, livestock or other horticultural products; excluding any structure designed, constructed or used, in whole or in part, for human habitation, as a place of employment where agricultural products are processed, treated or packaged, or as a place used by the public.

Agricultural Property –means the land for construction of a barn, *agricultural building*, silo, stockyard, pen or other structural practices identified in Table II in the "Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State" prepared by the Department in cooperation with agencies of New York Nonpoint Source Coordinating Committee (dated June 2007).

Alter Hydrology from Pre to Post-Development Conditions - means the post-development peak flow rate(s) has increased by more than 5% of the pre-developed condition for the design storm of interest (e.g. 10 yr and 100 yr).

Combined Sewer - means a sewer that is designed to collect and convey both "sewage" and "stormwater".

Commence (Commencement of) Construction Activities - means the initial disturbance of soils associated with clearing, grading or excavation activities; or other construction related activities that disturb or expose soils such as demolition, stockpiling of fill material, and the initial installation of erosion and sediment control practices required in the SWPPP. See definition for "*Construction Activity(ies)*" also.

Construction Activity(ies) - means any clearing, grading, excavation, filling, demolition or stockpiling activities that result in soil disturbance. Clearing activities can include, but are not limited to, logging equipment operation, the cutting and skidding of trees, stump removal and/or brush root removal. Construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility.

Construction Site – means the land area where *construction activity(ies)* will occur. See definition for "*Commence (Commencement of) Construction Activities*" and "*Larger Common Plan of Development or Sale" also.*

Dewatering – means the act of draining rainwater and/or groundwater from building foundations, vaults or excavations/trenches.

Direct Discharge (to a specific surface waterbody) - means that runoff flows from a *construction site* by overland flow and the first point of discharge is the specific surface waterbody, or runoff flows from a *construction site* to a separate storm sewer system

and the first point of discharge from the separate storm sewer system is the specific surface waterbody.

Discharge(s) - means any addition of any pollutant to waters of the State through an outlet or *point source*.

Embankment –means an earthen or rock slope that supports a road/highway.

Endangered or Threatened Species – see 6 NYCRR Part 182 of the Department's rules and regulations for definition of terms and requirements.

Environmental Conservation Law (ECL) - means chapter 43-B of the Consolidated Laws of the State of New York, entitled the Environmental Conservation Law.

Equivalent (Equivalence) – means that the practice or measure meets all the performance, longevity, maintenance, and safety objectives of the technical standard and will provide an equal or greater degree of water quality protection.

Final Stabilization - means that all soil disturbance activities have ceased and a uniform, perennial vegetative cover with a density of eighty (80) percent over the entire pervious surface has been established; or other equivalent stabilization measures, such as permanent landscape mulches, rock rip-rap or washed/crushed stone have been applied on all disturbed areas that are not covered by permanent structures, concrete or pavement.

General SPDES permit - means a SPDES permit issued pursuant to 6 NYCRR Part 750-1.21 and Section 70-0117 of the ECL authorizing a category of discharges.

Groundwater(s) - means waters in the saturated zone. The saturated zone is a subsurface zone in which all the interstices are filled with water under pressure greater than that of the atmosphere. Although the zone may contain gas-filled interstices or interstices filled with fluids other than water, it is still considered saturated.

Historic Property – means any building, structure, site, object or district that is listed on the State or National Registers of Historic Places or is determined to be eligible for listing on the State or National Registers of Historic Places.

Impervious Area (Cover) - means all impermeable surfaces that cannot effectively infiltrate rainfall. This includes paved, concrete and gravel surfaces (i.e. parking lots, driveways, roads, runways and sidewalks); building rooftops and miscellaneous impermeable structures such as patios, pools, and sheds.

Infeasible – means not technologically possible, or not economically practicable and achievable in light of best industry practices.

Larger Common Plan of Development or Sale - means a contiguous area where multiple separate and distinct *construction activities* are occurring, or will occur, under one plan. The term "plan" in "larger common plan of development or sale" is broadly defined as any announcement or piece of documentation (including a sign, public notice or hearing, marketing plan, advertisement, drawing, permit application, State Environmental Quality Review Act (SEQRA) environmental assessment form or other documents, zoning request, computer design, etc.) or physical demarcation (including boundary signs, lot stakes, surveyor markings, etc.) indicating that *construction activities* may occur on a specific plot.

For discrete construction projects that are located within a larger common plan of development or sale that are at least 1/4 mile apart, each project can be treated as a separate plan of development or sale provided any interconnecting road, pipeline or utility project that is part of the same "common plan" is not concurrently being disturbed.

Minimize – means reduce and/or eliminate to the extent achievable using control measures (including best management practices) that are technologically available and economically practicable and achievable in light of best industry practices.

Municipal Separate Storm Sewer (MS4) - a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):

(i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to surface waters of the State;
(ii) Designed or used for collecting or conveying stormwater;
(iii) Which is not a *combined sewer*; and
(iv) Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

National Pollutant Discharge Elimination System (NPDES) - means the national system for the issuance of wastewater and stormwater permits under the Federal Water Pollution Control Act (Clean Water Act).

Natural Buffer –means an undisturbed area with natural cover running along a surface water (e.g. wetland, stream, river, lake, etc.).

New Development – means any land disturbance that does not meet the definition of Redevelopment Activity included in this appendix.

New York State Erosion and Sediment Control Certificate Program – a certificate program that establishes and maintains a process to identify and recognize individuals who are capable of developing, designing, inspecting and maintaining erosion and sediment control plans on projects that disturb soils in New York State. The certificate program is administered by the New York State Conservation District Employees Association.

NOI Acknowledgment Letter - means the letter that the Department sends to an owner or operator to acknowledge the Department's receipt and acceptance of a complete Notice of Intent. This letter documents the owner's or operator's authorization to discharge in accordance with the general permit for stormwater discharges from *construction activity*.

Nonpoint Source - means any source of water pollution or pollutants which is not a discrete conveyance or *point source* permitted pursuant to Title 7 or 8 of Article 17 of the Environmental Conservation Law (see ECL Section 17-1403).

Overbank –means flow events that exceed the capacity of the stream channel and spill out into the adjacent floodplain.

Owner or Operator - means the person, persons or legal entity which owns or leases the property on which the *construction activity* is occurring; an entity that has operational control over the construction plans and specifications, including the ability to make modifications to the plans and specifications; and/or an entity that has day-to-day operational control of those activities at a project that are necessary to ensure compliance with the permit conditions.

Performance Criteria – means the design criteria listed under the "Required Elements" sections in Chapters 5, 6 and 10 of the technical standard, New York State Stormwater Management Design Manual, dated January 2015. It does not include the Sizing Criteria (i.e. WQv, RRv, Cpv, Qp and Qf) in Part I.C.2. of the permit.

Point Source - means any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, vessel or other floating craft, or landfill leachate collection system from which *pollutants* are or may be discharged.

Pollutant - means dredged spoil, filter backwash, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand and industrial, municipal, agricultural waste and ballast discharged into water; which may cause or might reasonably be expected to cause pollution of the waters of the state in contravention of the standards or guidance values adopted as provided in 6 NYCRR Parts 700 et seq .

Qualified Inspector - means a person that is knowledgeable in the principles and practices of erosion and sediment control, such as a licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, New York State Erosion and Sediment Control Certificate Program holder or other Department endorsed individual(s).

It can also mean someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided that person has training in the principles and practices of erosion and sediment control. Training in the principles and practices of erosion and sediment control means that the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect has received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect shall receive four (4) hours of training every three (3) years.

It can also mean a person that meets the *Qualified Professional* qualifications in addition to the *Qualified Inspector* qualifications.

Note: Inspections of any post-construction stormwater management practices that include structural components, such as a dam for an impoundment, shall be performed by a licensed Professional Engineer.

Qualified Professional - means a person that is knowledgeable in the principles and practices of stormwater management and treatment, such as a licensed Professional Engineer, Registered Landscape Architect or other Department endorsed individual(s). Individuals preparing SWPPPs that require the post-construction stormwater management practice component must have an understanding of the principles of hydrology, water quality management practice design, water quantity control design, and, in many cases, the principles of hydraulics. All components of the SWPPP that involve the practice of engineering, as defined by the NYS Education Law (see Article 145), shall be prepared by, or under the direct supervision of, a professional engineer licensed to practice in the State of New York.

Redevelopment Activity(ies) – means the disturbance and reconstruction of existing impervious area, including impervious areas that were removed from a project site within five (5) years of preliminary project plan submission to the local government (i.e. site plan, subdivision, etc.).

Regulated, Traditional Land Use Control MS4 - means a city, town or village with land use control authority that is authorized to discharge under New York State DEC's

SPDES General Permit For Stormwater Discharges from Municipal Separate Stormwater Sewer Systems (MS4s) or the City of New York's Individual SPDES Permit for their Municipal Separate Storm Sewer Systems (NY-0287890).

Routine Maintenance Activity - means *construction activity* that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility, including, but not limited to:

- Re-grading of gravel roads or parking lots,
- Cleaning and shaping of existing roadside ditches and culverts that maintains the approximate original line and grade, and hydraulic capacity of the ditch,
- Cleaning and shaping of existing roadside ditches that does not maintain the approximate original grade, hydraulic capacity and purpose of the ditch if the changes to the line and grade, hydraulic capacity or purpose of the ditch are installed to improve water quality and quantity controls (e.g. installing grass lined ditch),
- Placement of aggregate shoulder backing that stabilizes the transition between the road shoulder and the ditch or *embankment*,
- Full depth milling and filling of existing asphalt pavements, replacement of concrete pavement slabs, and similar work that does not expose soil or disturb the bottom six (6) inches of subbase material,
- Long-term use of equipment storage areas at or near highway maintenance facilities,
- Removal of sediment from the edge of the highway to restore a previously existing sheet-flow drainage connection from the highway surface to the highway ditch or *embankment*,
- Existing use of Canal Corp owned upland disposal sites for the canal, and
- Replacement of curbs, gutters, sidewalks and guide rail posts.

Site limitations – means site conditions that prevent the use of an infiltration technique and or infiltration of the total WQv. Typical site limitations include: seasonal high groundwater, shallow depth to bedrock, and soils with an infiltration rate less than 0.5 inches/hour. The existence of site limitations shall be confirmed and documented using actual field testing (i.e. test pits, soil borings, and infiltration test) or using information from the most current United States Department of Agriculture (USDA) Soil Survey for the County where the project is located.

Sizing Criteria – means the criteria included in Part I.C.2 of the permit that are used to size post-construction stormwater management control practices. The criteria include; Water Quality Volume (WQv), Runoff Reduction Volume (RRv), Channel Protection Volume (Cpv), *Overbank* Flood (Qp), and Extreme Flood (Qf).

State Pollutant Discharge Elimination System (SPDES) - means the system established pursuant to Article 17 of the ECL and 6 NYCRR Part 750 for issuance of permits authorizing discharges to the waters of the state.

Steep Slope – means land area designated on the current United States Department of Agriculture ("USDA") Soil Survey as Soil Slope Phase "D", (provided the map unit name is inclusive of slopes greater than 25%) , or Soil Slope Phase E or F, (regardless of the map unit name), or a combination of the three designations.

Streambank – as used in this permit, means the terrain alongside the bed of a creek or stream. The bank consists of the sides of the channel, between which the flow is confined.

Stormwater Pollution Prevention Plan (SWPPP) – means a project specific report, including construction drawings, that among other things: describes the construction activity(ies), identifies the potential sources of pollution at the *construction site*; describes and shows the stormwater controls that will be used to control the pollutants (i.e. erosion and sediment controls; for many projects, includes post-construction stormwater management controls); and identifies procedures the *owner or operator* will implement to comply with the terms and conditions of the permit. See Part III of the permit for a complete description of the information that must be included in the SWPPP.

Surface Waters of the State - shall be construed to include lakes, bays, sounds, ponds, impounding reservoirs, springs, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Atlantic ocean within the territorial seas of the state of New York and all other bodies of surface water, natural or artificial, inland or coastal, fresh or salt, public or private (except those private waters that do not combine or effect a junction with natural surface waters), which are wholly or partially within or bordering the state or within its jurisdiction. Waters of the state are further defined in 6 NYCRR Parts 800 to 941.

Temporarily Ceased – means that an existing disturbed area will not be disturbed again within 14 calendar days of the previous soil disturbance.

Temporary Stabilization - means that exposed soil has been covered with material(s) as set forth in the technical standard, New York Standards and Specifications for Erosion and Sediment Control, to prevent the exposed soil from eroding. The materials can include, but are not limited to, mulch, seed and mulch, and erosion control mats (e.g. jute twisted yarn, excelsior wood fiber mats).

Total Maximum Daily Loads (TMDLs) - A TMDL is the sum of the allowable loads of a single pollutant from all contributing point and *nonpoint sources*. It is a calculation of the maximum amount of a pollutant that a waterbody can receive on a daily basis and still meet *water quality standards*, and an allocation of that amount to the pollutant's sources. A TMDL stipulates wasteload allocations (WLAs) for *point source* discharges, load allocations (LAs) for *nonpoint sources*, and a margin of safety (MOS).

Trained Contractor - means an employee from the contracting (construction) company, identified in Part III.A.6., that has received four (4) hours of Department endorsed

training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the *trained contractor* shall receive four (4) hours of training every three (3) years.

It can also mean an employee from the contracting (construction) company, identified in Part III.A.6., that meets the *qualified inspector* qualifications (e.g. licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, New York State Erosion and Sediment Control Certificate Program holder, or someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity).

The *trained contractor* is responsible for the day to day implementation of the SWPPP.

Uniform Procedures Act (UPA) Permit - means a permit required under 6 NYCRR Part 621 of the Environmental Conservation Law (ECL), Article 70.

Water Quality Standard - means such measures of purity or quality for any waters in relation to their reasonable and necessary use as promulgated in 6 NYCRR Part 700 et seq.

APPENDIX B – Required SWPPP Components by Project Type

Table 1
Construction Activities that Require the Preparation of a SWPPP That Only Includes Erosion and Sediment Controls

The following construction activities that involve soil disturbances of one (1) or more acres of land, but less than five (5) acres:

- Single family home not located in one of the watersheds listed in Appendix C or not *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family residential subdivisions with 25% or less impervious cover at total site build-out and not located in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E
- Construction of a barn or other *agricultural building*, silo, stock yard or pen.

The following construction activities that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land:

All construction activities located in the watersheds identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Installation of underground, linear utilities; such as gas lines, fiber-optic cable, cable TV, electric, telephone, sewer mains, and water mains
- Environmental enhancement projects, such as wetland mitigation projects, stormwater retrofits and stream restoration projects
- Pond construction
- Linear bike paths running through areas with vegetative cover, including bike paths surfaced with an impervious cover
- Cross-country ski trails and walking/hiking trails
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are not part of residential, commercial or institutional development;
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that include incidental shoulder or curb work along an existing highway to support construction of the sidewalk, bike path or walking path.
- Slope stabilization projects
- Slope flattening that changes the grade of the site, but does not significantly change the runoff characteristics

Table 1 (Continued) Construction Activities that Require the Preparation of a SWPPP That Only Includes Erosion and Sediment Controls

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Spoil areas that will be covered with vegetation
- Vegetated open space projects (i.e. recreational parks, lawns, meadows, fields, downhill ski trails) excluding projects that *alter hydrology from pre to post development* conditions,
- Athletic fields (natural grass) that do not include the construction or reconstruction of *impervious area* and do not *alter hydrology from pre to post development* conditions
- Demolition project where vegetation will be established, and no redevelopment is planned
- Overhead electric transmission line project that does not include the construction of permanent access roads or parking areas surfaced with *impervious cover*
- Structural practices as identified in Table II in the "Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State", excluding projects that involve soil disturbances of greater than five acres and construction activities that include the construction or reconstruction of impervious area
- Temporary access roads, median crossovers, detour roads, lanes, or other temporary impervious areas that will be restored to pre-construction conditions once the construction activity is complete

Table 2

CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT INCLUDES POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Single family home located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family home that disturbs five (5) or more acres of land
- Single family residential subdivisions located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family residential subdivisions that involve soil disturbances of between one (1) and five (5) acres of land with greater than 25% impervious cover at total site build-out
- Single family residential subdivisions that involve soil disturbances of five (5) or more acres of land, and single family residential subdivisions that involve soil disturbances of less than five (5) acres that are part of a larger common plan of development or sale that will ultimately disturb five or more acres of land
- Multi-family residential developments; includes duplexes, townhomes, condominiums, senior housing complexes, apartment complexes, and mobile home parks
- Airports
- Amusement parks
- Breweries, cideries, and wineries, including establishments constructed on agricultural land
- Campgrounds
- Cemeteries that include the construction or reconstruction of impervious area (>5% of disturbed area) or *alter the hydrology from pre to post development* conditions
- Commercial developments
- Churches and other places of worship
- Construction of a barn or other *agricultural building* (e.g. silo) and structural practices as identified in Table II in the "Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State" that include the construction or reconstruction of *impervious area*, excluding projects that involve soil disturbances of less than five acres.
- Golf courses
- Institutional development; includes hospitals, prisons, schools and colleges
- Industrial facilities; includes industrial parks
- Landfills
- Municipal facilities; includes highway garages, transfer stations, office buildings, POTW's, water treatment plants, and water storage tanks
- Office complexes
- Playgrounds that include the construction or reconstruction of impervious area
- Sports complexes
- Racetracks; includes racetracks with earthen (dirt) surface
- Road construction or reconstruction, including roads constructed as part of the construction activities listed in Table 1

Table 2 (Continued)

CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT INCLUDES POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Parking lot construction or reconstruction, including parking lots constructed as part of the construction activities listed in Table 1
- Athletic fields (natural grass) that include the construction or reconstruction of impervious area (>5% of disturbed area) or *alter the hydrology from pre to post development* conditions
- Athletic fields with artificial turf
- Permanent access roads, parking areas, substations, compressor stations and well drilling pads, surfaced with *impervious cover,* and constructed as part of an over-head electric transmission line project, wind-power project, cell tower project, oil or gas well drilling project, sewer or water main project or other linear utility project
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are part of a residential, commercial or institutional development
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are part of a highway construction or reconstruction project
- All other construction activities that include the construction or reconstruction of *impervious area* or *alter the hydrology from pre to post development* conditions, and are not listed in Table 1

APPENDIX C – Watersheds Requiring Enhanced Phosphorus Removal

Watersheds where *owners or operators* of construction activities identified in Table 2 of Appendix B must prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the Enhanced Phosphorus Removal Standards included in the technical standard, New York State Stormwater Management Design Manual ("Design Manual").

- Entire New York City Watershed located east of the Hudson River - Figure 1
- Onondaga Lake Watershed - Figure 2
- Greenwood Lake Watershed -Figure 3
- Oscawana Lake Watershed – Figure 4
- Kinderhook Lake Watershed – Figure 5

Figure 1 - New York City Watershed East of the Hudson

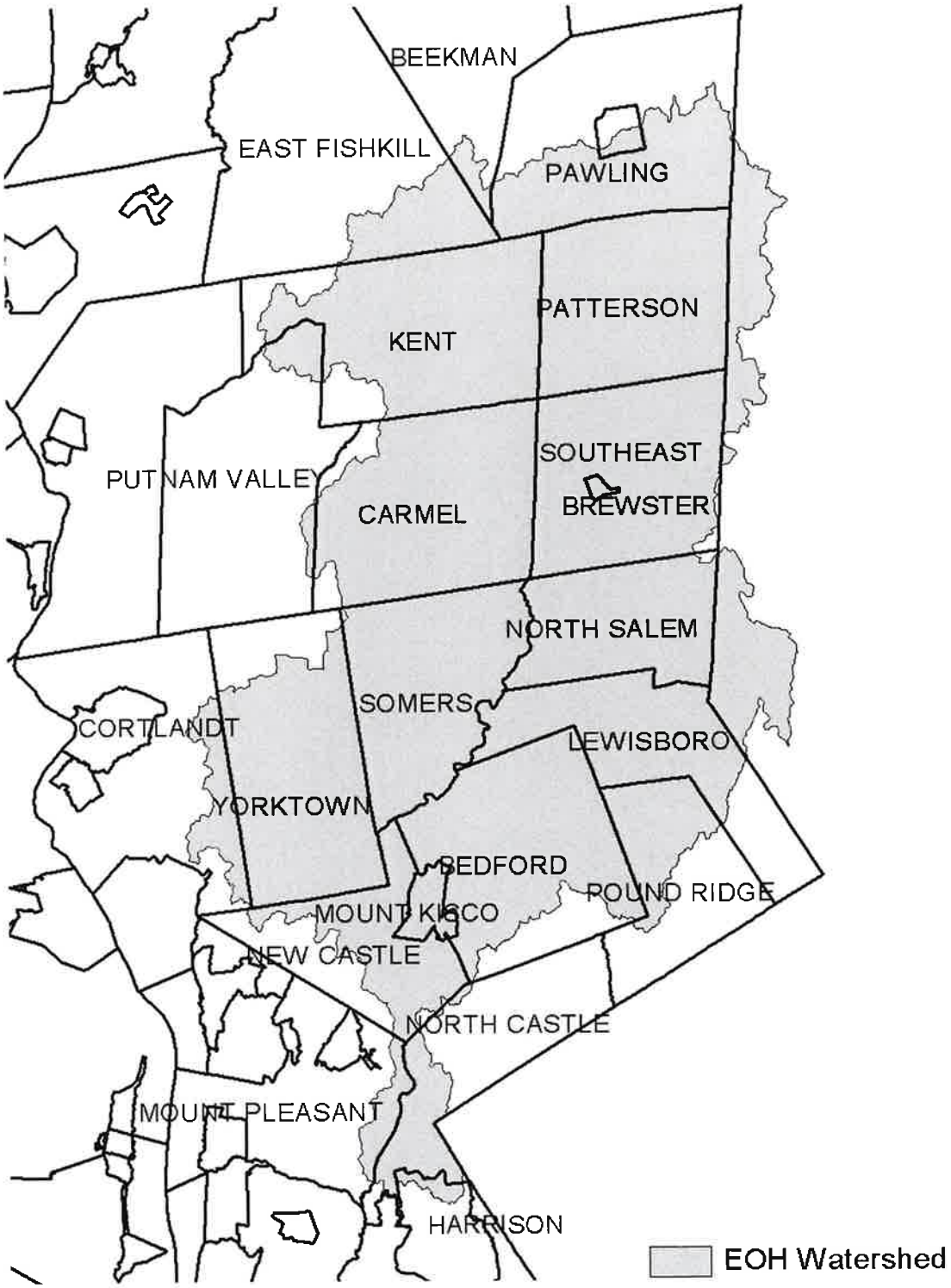


Figure 2 - Onondaga Lake Watershed

Figure 3 - Greenwood Lake Watershed

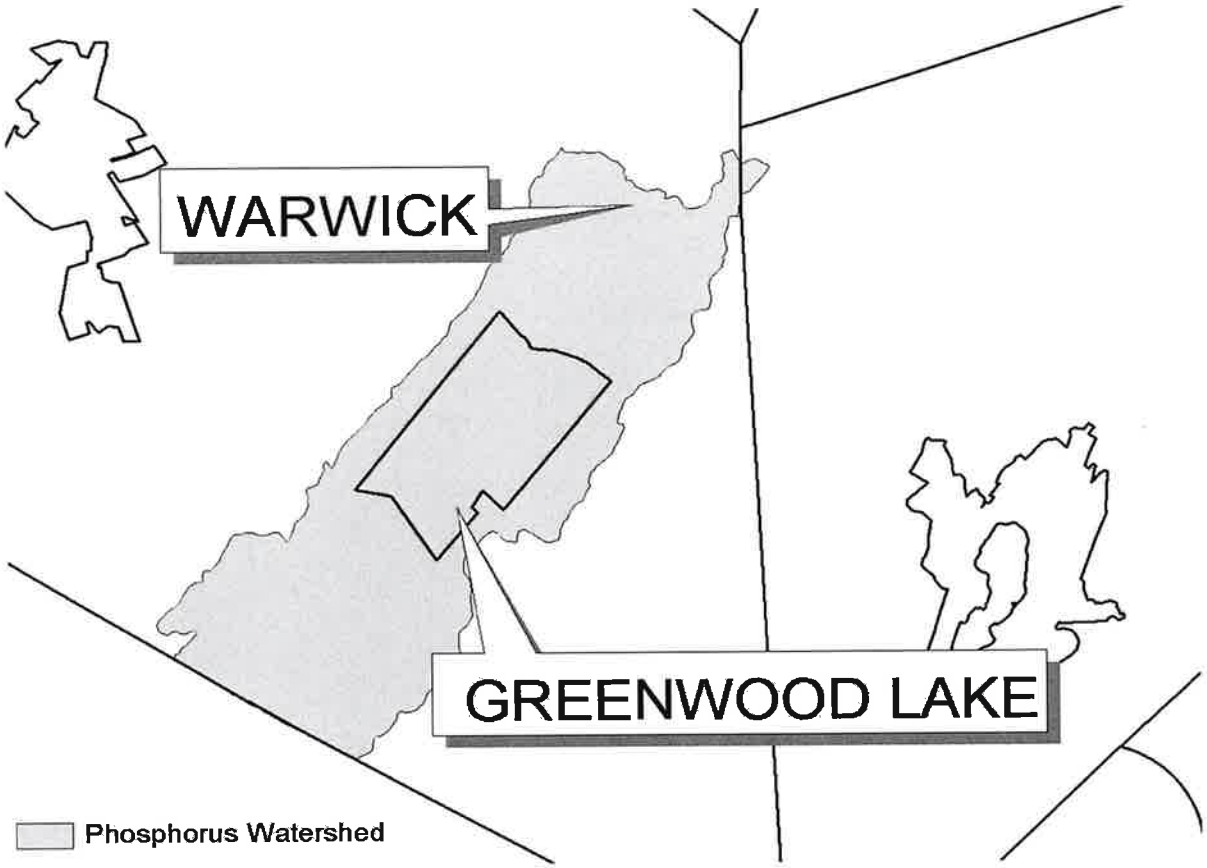


Figure 4 - Oscawana Lake Watershed

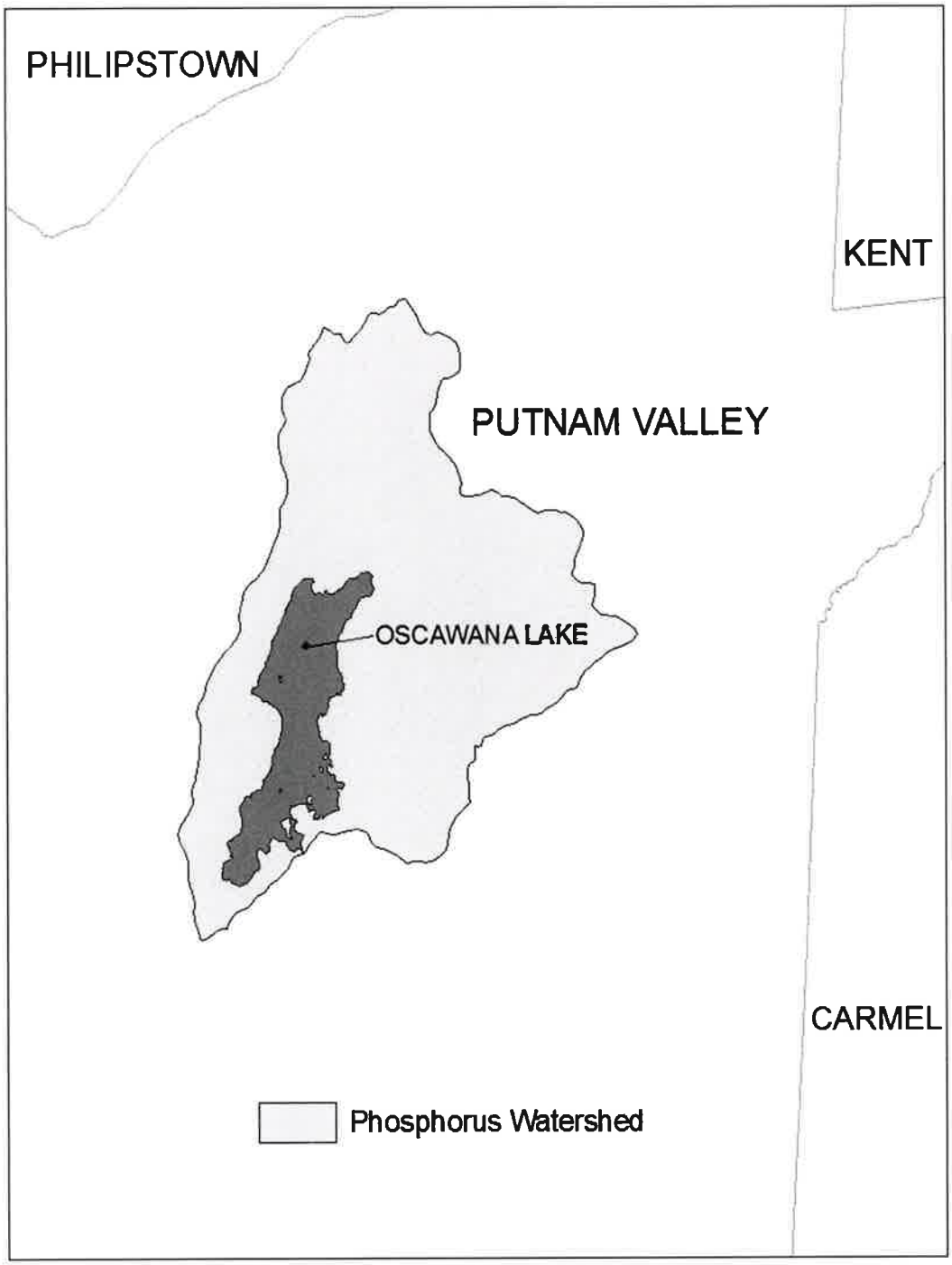
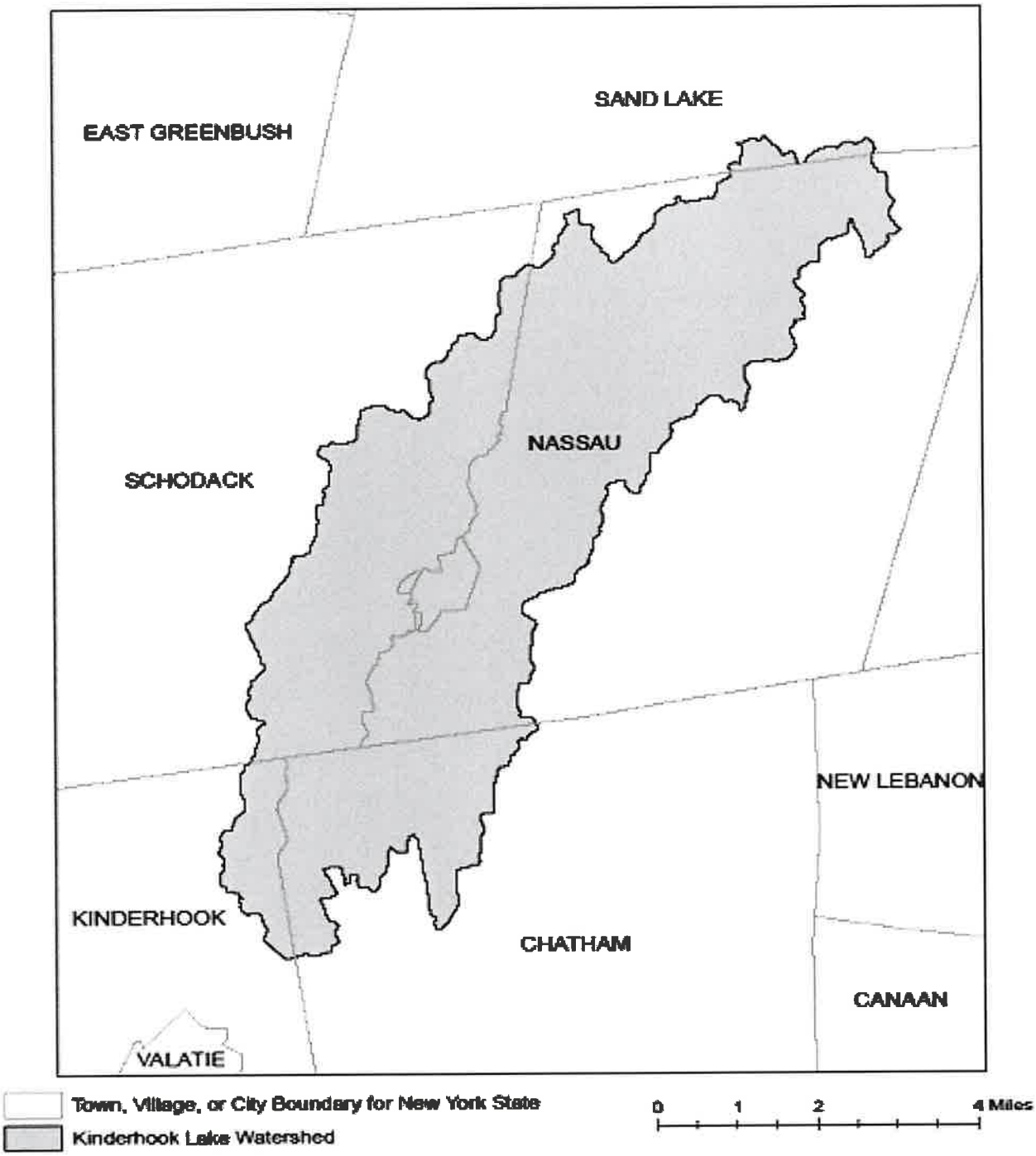


Figure 5 - Kinderhook Lake Watershed



APPENDIX D – Watersheds with Lower Disturbance Threshold

Watersheds where *owners or operators* of construction activities that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land must obtain coverage under this permit.

Entire New York City Watershed that is located east of the Hudson River - See Figure 1 in Appendix C

APPENDIX E – 303(d) Segments Impaired by Construction Related Pollutant(s)

List of 303(d) segments impaired by pollutants related to *construction activity* (e.g. silt, sediment or nutrients). The list was developed using "The Final New York State 2016 Section 303(d) List of Impaired Waters Requiring a TMDL/Other Strategy" dated November 2016. *Owners or operators* of single family home and single family residential subdivisions with 25% or less total impervious cover at total site build-out that involve soil disturbances of one or more acres of land, but less than 5 acres, and *directly discharge* to one of the listed segments below shall prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the New York State Stormwater Management Design Manual ("Design Manual"), dated January 2015.

COUNTY	WATERBODY	POLLUTANT
Albany	Ann Lee (Shakers) Pond, Stump Pond	Nutrients
Albany	Basic Creek Reservoir	Nutrients
Allegany	Amity Lake, Saunders Pond	Nutrients
Bronx	Long Island Sound, Bronx	Nutrients
Bronx	Van Cortlandt Lake	Nutrients
Broome	Fly Pond, Deer Lake, Sky Lake	Nutrients
Broome	Minor Tribs to Lower Susquehanna (north)	Nutrients
Broome	Whitney Point Lake/Reservoir	Nutrients
Cattaraugus	Allegheny River/Reservoir	Nutrients
Cattaraugus	Beaver (Alma) Lake	Nutrients
Cattaraugus	Case Lake	Nutrients
Cattaraugus	Linlyco/Club Pond	Nutrients
Cayuga	Duck Lake	Nutrients
Cayuga	Little Sodus Bay	Nutrients
Chautauqua	Bear Lake	Nutrients
Chautauqua	Chadakoin River and tribs	Nutrients
Chautauqua	Chautauqua Lake, North	Nutrients
Chautauqua	Chautauqua Lake, South	Nutrients
Chautauqua	Findley Lake	Nutrients
Chautauqua	Hulburt/Clymer Pond	Nutrients
Clinton	Great Chazy River, Lower, Main Stem	Silt/Sediment
Clinton	Lake Champlain, Main Lake, Middle	Nutrients
Clinton	Lake Champlain, Main Lake, North	Nutrients
Columbia	Kinderhook Lake	Nutrients
Columbia	Robinson Pond	Nutrients
Cortland	Dean Pond	Nutrients

303(d) Segments Impaired by Construction Related Pollutant(s)

Dutchess	Fall Kill and tribs	Nutrients
Dutchess	Hillside Lake	Nutrients
Dutchess	Wappingers Lake	Nutrients
Dutchess	Wappingers Lake	Silt/Sediment
Erie	Beeman Creek and tribs	Nutrients
Erie	Ellicott Creek, Lower, and tribs	Silt/Sediment
Erie	Ellicott Creek, Lower, and tribs	Nutrients
Erie	Green Lake	Nutrients
Erie	Little Sister Creek, Lower, and tribs	Nutrients
Erie	Murder Creek, Lower, and tribs	Nutrients
Erie	Rush Creek and tribs	Nutrients
Erie	Scajaquada Creek, Lower, and tribs	Nutrients
Erie	Scajaquada Creek, Middle, and tribs	Nutrients
Erie	Scajaquada Creek, Upper, and tribs	Nutrients
Erie	South Branch Smoke Cr, Lower, and tribs	Silt/Sediment
Erie	South Branch Smoke Cr, Lower, and tribs	Nutrients
Essex	Lake Champlain, Main Lake, South	Nutrients
Essex	Lake Champlain, South Lake	Nutrients
Essex	Willsboro Bay	Nutrients
Genesee	Bigelow Creek and tribs	Nutrients
Genesee	Black Creek, Middle, and minor tribs	Nutrients
Genesee	Black Creek, Upper, and minor tribs	Nutrients
Genesee	Bowen Brook and tribs	Nutrients
Genesee	LeRoy Reservoir	Nutrients
Genesee	Oak Orchard Cr, Upper, and tribs	Nutrients
Genesee	Tonawanda Creek, Middle, Main Stem	Nutrients
Greene	Schoharie Reservoir	Silt/Sediment
Greene	Sleepy Hollow Lake	Silt/Sediment
Herkimer	Steele Creek tribs	Silt/Sediment
Herkimer	Steele Creek tribs	Nutrients
Jefferson	Moon Lake	Nutrients
Kings	Hendrix Creek	Nutrients
Kings	Prospect Park Lake	Nutrients
Lewis	Mill Creek/South Branch, and tribs	Nutrients
Livingston	Christie Creek and tribs	Nutrients
Livingston	Conesus Lake	Nutrients
Livingston	Mill Creek and minor tribs	Silt/Sediment
Monroe	Black Creek, Lower, and minor tribs	Nutrients
Monroe	Buck Pond	Nutrients
Monroe	Cranberry Pond	Nutrients

303(d) Segments Impaired by Construction Related Pollutant(s)

Monroe	Lake Ontario Shoreline, Western	Nutrients
Monroe	Long Pond	Nutrients
Monroe	Mill Creek and tribs	Nutrients
Monroe	Mill Creek/Blue Pond Outlet and tribs	Nutrients
Monroe	Minor Tribs to Irondequoit Bay	Nutrients
Monroe	Rochester Embayment - East	Nutrients
Monroe	Rochester Embayment - West	Nutrients
Monroe	Shipbuilders Creek and tribs	Nutrients
Monroe	Thomas Creek/White Brook and tribs	Nutrients
Nassau	Beaver Lake	Nutrients
Nassau	Camaans Pond	Nutrients
Nassau	East Meadow Brook, Upper, and tribs	Silt/Sediment
Nassau	East Rockaway Channel	Nutrients
Nassau	Grant Park Pond	Nutrients
Nassau	Hempstead Bay	Nutrients
Nassau	Hempstead Lake	Nutrients
Nassau	Hewlett Bay	Nutrients
Nassau	Hog Island Channel	Nutrients
Nassau	Long Island Sound, Nassau County Waters	Nutrients
Nassau	Massapequa Creek and tribs	Nutrients
Nassau	Milburn/Parsonage Creeks, Upp, and tribs	Nutrients
Nassau	Reynolds Channel, west	Nutrients
Nassau	Tidal Tribs to Hempstead Bay	Nutrients
Nassau	Tribs (fresh) to East Bay	Nutrients
Nassau	Tribs (fresh) to East Bay	Silt/Sediment
Nassau	Tribs to Smith/Halls Ponds	Nutrients
Nassau	Woodmere Channel	Nutrients
New York	Harlem Meer	Nutrients
New York	The Lake in Central Park	Nutrients
Niagara	Bergholtz Creek and tribs	Nutrients
Niagara	Hyde Park Lake	Nutrients
Niagara	Lake Ontario Shoreline, Western	Nutrients
Niagara	Lake Ontario Shoreline, Western	Nutrients
Oneida	Ballou, Nail Creeks and tribs	Nutrients
Onondaga	Harbor Brook, Lower, and tribs	Nutrients
Onondaga	Ley Creek and tribs	Nutrients
Onondaga	Minor Tribs to Onondaga Lake	Nutrients
Onondaga	Ninemile Creek, Lower, and tribs	Nutrients
Onondaga	Onondaga Creek, Lower, and tribs	Nutrients
Onondaga	Onondaga Creek, Middle, and tribs	Nutrients

303(d) Segments Impaired by Construction Related Pollutant(s)

Onondaga	Onondaga Lake, northern end	Nutrients
Onondaga	Onondaga Lake, southern end	Nutrients
Ontario	Great Brook and minor tribs	Silt/Sediment
Ontario	Great Brook and minor tribs	Nutrients
Ontario	Hemlock Lake Outlet and minor tribs	Nutrients
Ontario	Honeoye Lake	Nutrients
Orange	Greenwood Lake	Nutrients
Orange	Monhagen Brook and tribs	Nutrients
Orange	Orange Lake	Nutrients
Orleans	Lake Ontario Shoreline, Western	Nutrients
Orleans	Lake Ontario Shoreline, Western	Nutrients
Oswego	Lake Neatahwanta	Nutrients
Oswego	Pleasant Lake	Nutrients
Putnam	Bog Brook Reservoir	Nutrients
Putnam	Boyd Corners Reservoir	Nutrients
Putnam	Croton Falls Reservoir	Nutrients
Putnam	Diverting Reservoir	Nutrients
Putnam	East Branch Reservoir	Nutrients
Putnam	Lake Carmel	Nutrients
Putnam	Middle Branch Reservoir	Nutrients
Putnam	Oscawana Lake	Nutrients
Putnam	Palmer Lake	Nutrients
Putnam	West Branch Reservoir	Nutrients
Queens	Bergen Basin	Nutrients
Queens	Flushing Creek/Bay	Nutrients
Queens	Jamaica Bay, Eastern, and tribs (Queens)	Nutrients
Queens	Kissena Lake	Nutrients
Queens	Meadow Lake	Nutrients
Queens	Willow Lake	Nutrients
Rensselaer	Nassau Lake	Nutrients
Rensselaer	Snyders Lake	Nutrients
Richmond	Grasmere Lake/Bradys Pond	Nutrients
Rockland	Congers Lake, Swartout Lake	Nutrients
Rockland	Rockland Lake	Nutrients
Saratoga	Ballston Lake	Nutrients
Saratoga	Dwaas Kill and tribs	Silt/Sediment
Saratoga	Dwaas Kill and tribs	Nutrients
Saratoga	Lake Lonely	Nutrients
Saratoga	Round Lake	Nutrients
Saratoga	Tribs to Lake Lonely	Nutrients

303(d) Segments Impaired by Construction Related Pollutant(s)

Schenectady	Collins Lake	Nutrients
Schenectady	Duane Lake	Nutrients
Schenectady	Mariaville Lake	Nutrients
Schoharie	Engleville Pond	Nutrients
Schoharie	Summit Lake	Nutrients
Seneca	Reeder Creek and tribs	Nutrients
St.Lawrence	Black Lake Outlet/Black Lake	Nutrients
St.Lawrence	Fish Creek and minor tribs	Nutrients
Steuben	Smith Pond	Nutrients
Suffolk	Agawam Lake	Nutrients
Suffolk	Big/Little Fresh Ponds	Nutrients
Suffolk	Canaan Lake	Silt/Sediment
Suffolk	Canaan Lake	Nutrients
Suffolk	Flanders Bay, West/Lower Sawmill Creek	Nutrients
Suffolk	Fresh Pond	Nutrients
Suffolk	Great South Bay, East	Nutrients
Suffolk	Great South Bay, Middle	Nutrients
Suffolk	Great South Bay, West	Nutrients
Suffolk	Lake Ronkonkoma	Nutrients
Suffolk	Long Island Sound, Suffolk County, West	Nutrients
Suffolk	Mattituck (Marratooka) Pond	Nutrients
Suffolk	Meetinghouse/Terrys Creeks and tribs	Nutrients
Suffolk	Mill and Seven Ponds	Nutrients
Suffolk	Millers Pond	Nutrients
Suffolk	Moriches Bay, East	Nutrients
Suffolk	Moriches Bay, West	Nutrients
Suffolk	Peconic River, Lower, and tidal tribs	Nutrients
Suffolk	Quantuck Bay	Nutrients
Suffolk	Shinnecock Bay and Inlet	Nutrients
Suffolk	Tidal tribs to West Moriches Bay	Nutrients
Sullivan	Bodine, Montgomery Lakes	Nutrients
Sullivan	Davies Lake	Nutrients
Sullivan	Evens Lake	Nutrients
Sullivan	Pleasure Lake	Nutrients
Tompkins	Cayuga Lake, Southern End	Nutrients
Tompkins	Cayuga Lake, Southern End	Silt/Sediment
Tompkins	Owasco Inlet, Upper, and tribs	Nutrients
Ulster	Ashokan Reservoir	Silt/Sediment
Ulster	Esopus Creek, Upper, and minor tribs	Silt/Sediment
Warren	Hague Brook and tribs	Silt/Sediment

303(d) Segments Impaired by Construction Related Pollutant(s)

Warren	Huddle/Finkle Brooks and tribs	Silt/Sediment
Warren	Indian Brook and tribs	Silt/Sediment
Warren	Lake George	Silt/Sediment
Warren	Tribs to L.George, Village of L George	Silt/Sediment
Washington	Cossayuna Lake	Nutrients
Washington	Lake Champlain, South Bay	Nutrients
Washington	Tribs to L.George, East Shore	Silt/Sediment
Washington	Wood Cr/Champlain Canal and minor tribs	Nutrients
Wayne	Port Bay	Nutrients
Westchester	Amawalk Reservoir	Nutrients
Westchester	Blind Brook, Upper, and tribs	Silt/Sediment
Westchester	Cross River Reservoir	Nutrients
Westchester	Lake Katonah	Nutrients
Westchester	Lake Lincolndale	Nutrients
Westchester	Lake Meahagh	Nutrients
Westchester	Lake Mohegan	Nutrients
Westchester	Lake Shenorock	Nutrients
Westchester	Long Island Sound, Westchester (East)	Nutrients
Westchester	Mamaroneck River, Lower	Silt/Sediment
Westchester	Mamaroneck River, Upper, and minor tribs	Silt/Sediment
Westchester	Muscoot/Upper New Croton Reservoir	Nutrients
Westchester	New Croton Reservoir	Nutrients
Westchester	Peach Lake	Nutrients
Westchester	Reservoir No.1 (Lake Isle)	Nutrients
Westchester	Saw Mill River, Lower, and tribs	Nutrients
Westchester	Saw Mill River, Middle, and tribs	Nutrients
Westchester	Sheldrake River and tribs	Silt/Sediment
Westchester	Sheldrake River and tribs	Nutrients
Westchester	Silver Lake	Nutrients
Westchester	Teatown Lake	Nutrients
Westchester	Titicus Reservoir	Nutrients
Westchester	Truesdale Lake	Nutrients
Westchester	Wallace Pond	Nutrients
Wyoming	Java Lake	Nutrients
Wyoming	Silver Lake	Nutrients

APPENDIX F – List of NYS DEC Regional Offices

Region	Covering the following counties:	DIVISION OF ENVIRONMENTAL PERMITS (DEP) Permit Administrators	DIVISION OF WATER (DOW) Water (SPDES) Program
1	Nassau and Suffolk	50 Circle Road Stony Brook, NY 11790 Tel. (631) 444-0365	50 Circle Road Stony Brook, NY 11790-3409 Tel. (631) 444-0405
2	Bronx, Kings, New York, Queens and Richmond	1 Hunters Point Plaza, 47-40 21st St. Long Island City, NY 11101-5407 Tel. (718) 482-4997	1 Hunters Point Plaza, 47-40 21st St. Long Island City, NY 11101-5407 Tel. (718) 482-4933
3	Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster and Westchester	21 South Putt Corners Road New Paltz, NY 12561-1696 Tel. (845) 256-3059	100 Hillside Avenue, Suite 1w White Plains, NY 10603 Tel. (914) 428 - 2505
4	Albany, Columbia, Delaware, Greene, Montgomery, Otsego, Rensselaer, Schenectady and Schoharie	1150 North Westcott Road Schenectady, NY 12306-2014 Tel. (518) 357-2069	1130 North Westcott Road Schenectady, NY 12306-2014 Tel. (518) 357-2045
5	Clinton, Essex, Franklin, Fulton, Hamilton, Saratoga, Warren and Washington	1115 State Route 86, Po Box 296 Ray Brook, NY 12977-0296 Tel. (518) 897-1234	232 Golf Course Road Warrensburg, NY 12885-1172 Tel. (518) 623-1200
6	HERKIMER, JEFFERSON, LEWIS, ONEIDA AND ST. LAWRENCE	STATE OFFICE BUILDING 317 WASHINGTON STREET WATERTOWN, NY 13601-3787 TEL. (315) 785-2245	STATE OFFICE BUILDING 207 GENESEE STREET UTICA, NY 13501-2885 TEL. (315) 793-2554
7	BROOME, CAYUGA, CHENANGO, CORTLAND, MADISON, ONONDAGA, OSWEGO, TIOGA AND TOMPKINS	615 ERIE BLVD. WEST SYRACUSE, NY 13204-2400 TEL. (315) 426-7438	615 ERIE BLVD. WEST SYRACUSE, NY 13204-2400 TEL. (315) 426-7500
8	CHEMUNG, GENESEE, LIVINGSTON, MONROE, ONTARIO, ORLEANS, SCHUYLER, SENECA, STEUBEN, WAYNE AND YATES	6274 EAST AVON-LIMA ROADAVON, NY 14414-9519 TEL. (585) 226-2466	6274 EAST AVON-LIMA RD. AVON, NY 14414-9519 TEL. (585) 226-2466
9	ALLEGANY, CATTARAUGUS, CHAUTAUQUA, ERIE, NIAGARA AND WYOMING	270 MICHIGAN AVENUE BUFFALO, NY 14203-2999 TEL. (716) 851-7165	270 MICHIGAN AVENUE BUFFALO, NY 14203-2999 TEL. (716) 851-7070

APPENDIX C
CERTIFICATION STATEMENTS

STORMWATER POLLUTION PREVENTION PLAN

Stormwater Pollution Prevention Plan
Contractors Certification Statement

I, the undersigned, hereby certify that I have read and understand this Stormwater Pollution Prevention Plan (SWPPP) and have reviewed the related drawings and specifications prepared by Metzger Civil Engineering, PLLC.

I hereby certify that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the qualified inspector during a site inspection.

I also understand that the operator must comply with the terms and conditions of the New York State Pollutant Discharge Elimination System (SPDES) general permit for stormwater discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards.

Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal. Civil and/or administrative proceedings.

_____
Name of Contracting Firm

_____
Address

_____
Phone Number

_____
Name of Trained individual
Responsible for SWPPP implementation

_____
Signature of Contracting Firm officer

_____
Printed Name of Contacting Firm officer

_____
Date

APPENDIX D-1

Stormwater Calculations - Pre development

USDA TR-55 Method

WinTR-55 Current Data Description

--- Identification Data ---

User: ARH
Project:
SubTitle: Pre dev
State: New York
County: Genesee
Filename: C:\Users\mcewn\OneDrive\MCE\M2311 Stamp-Kingfisher\Documents\Pre.w55

Date: 9/8/2023
Units: English
Areal Units: Acres

--- Sub-Area Data ---

Name	Description	Reach	Area(ac)	RCN	Tc
Pre		Outlet	47.7	70	.559

Total area: 47.70 (ac)

--- Storm Data --

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
2.2	2.69	3.25	3.84	4.48	6.0	1.8

Storm Data Source: User-provided custom storm data
Rainfall Distribution Type: Type II
Dimensionless Unit Hydrograph: <standard>

ARH

Pre dev
Genesee County, New York

Storm Data

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
2.2	2.69	3.25	3.84	4.48	6.0	1.8

Storm Data Source: User-provided custom storm data
Rainfall Distribution Type: Type II
Dimensionless Unit Hydrograph: <standard>

ARH

Pre dev
Genesee County, New York

Watershed Peak Table

Sub-Area or Reach Identifier	Peak Flow by Rainfall Return Period 10-Yr (cfs)	25-Yr (cfs)	100-Yr (cfs)	1-Yr (cfs)
SUBAREAS				
Pre	29.71	44.74	109.22	3.20
REACHES				
OUTLET	29.71	44.74	109.22	3.20

ARH

Pre dev
Genesee County, New York

Hydrograph Peak/Peak Time Table

Sub-Area or Reach Identifier	Peak Flow and Peak Time (hr) by Rainfall Return Period 10-Yr (cfs) (hr)	25-Yr (cfs) (hr)	100-Yr (cfs) (hr)	1-Yr (cfs) (hr)
SUBAREAS				
Pre	29.71 12.24	44.74 12.24	109.22 12.22	3.20 12.36
REACHES				
OUTLET	29.71	44.74	109.22	3.20

ARH

Pre dev
Genesee County, New York

Sub-Area Summary Table

Sub-Area Identifier	Drainage Area (ac)	Time of Concentration (hr)	Curve Number	Receiving Reach	Sub-Area Description
Pre	47.70	0.559	70	Outlet	

Total Area: 47.70 (ac)

ARH

Pre dev
Genesee County, New York

Sub-Area Time of Concentration Details

Sub-Area Identifier/	Flow Length (ft)	Slope (ft/ft)	Mannings's n	End Area (sq ft)	Wetted Perimeter (ft)	Velocity (ft/sec)	Travel Time (hr)
Pre							
SHEET	100	0.0150	0.240				0.322
SHALLOW	1686	0.0150	0.050				0.237
						Time of Concentration	.559

ARH

Pre dev
Genesee County, New York

Sub-Area Land Use and Curve Number Details

Sub-Area Identifier	Land Use		Hydrologic Soil Group	Sub-Area Area (ac)	Curve Number
Pre	Brush - brush, weed, grass mix	(fair)	B	1	56
	Brush - brush, weed, grass mix	(fair)	C	45.7	70
	Brush - brush, weed, grass mix	(fair)	D	1	77
	Total Area / Weighted Curve Number			47.7	70

APPENDIX D-2

Stormwater Calculations - Post Development
USDA TR-55 Method

WinTR-55 Current Data Description

--- Identification Data ---

User: ARH
Project:
SubTitle: Post dev
State: New York
County: Genesee
Filename: C:\Users\mcewn\OneDrive\MCE\M2311 Stamp-Kingfisher\Documents\Post.w55

Date: 9/8/2023
Units: English
Areal Units: Acres

--- Sub-Area Data ---

Name	Description	Reach	Area(ac)	RCN	Tc
Post		Outlet	47.7	80	.427

Total area: 47.70 (ac)

--- Storm Data --

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
2.2	2.69	3.25	3.84	4.48	6.0	1.8

Storm Data Source: User-provided custom storm data
Rainfall Distribution Type: Type II
Dimensionless Unit Hydrograph: <standard>

ARH

Post dev
Genesee County, New York

Storm Data

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
2.2	2.69	3.25	3.84	4.48	6.0	1.8

Storm Data Source: User-provided custom storm data
Rainfall Distribution Type: Type II
Dimensionless Unit Hydrograph: <standard>

ARH

Post dev
Genesee County, New York

Watershed Peak Table

Sub-Area or Reach Identifier	Peak Flow by Rainfall Return Period 10-Yr (cfs)	25-Yr (cfs)	100-Yr (cfs)	1-Yr (cfs)
SUBAREAS				
Post	65.75	87.97	174.34	17.98
REACHES				
OUTLET	65.75	87.97	174.34	17.98

ARH

Post dev
Genesee County, New York

Hydrograph Peak/Peak Time Table

Sub-Area or Reach Identifier	Peak Flow and Peak Time (hr) by Rainfall Return Period 10-Yr (cfs) (hr)	25-Yr (cfs) (hr)	100-Yr (cfs) (hr)	1-Yr (cfs) (hr)
SUBAREAS				
Post	65.75 12.15	87.97 12.14	174.34 12.14	17.98 12.18
REACHES				
OUTLET	65.75	87.97	174.34	17.98

ARH

Post dev
Genesee County, New York

Sub-Area Summary Table

Sub-Area Identifier	Drainage Area (ac)	Time of Concentration (hr)	Curve Number	Receiving Reach	Sub-Area Description
Post	47.70	0.427	80	Outlet	

Total Area: 47.70 (ac)

ARH

Post dev
Genesee County, New York

Sub-Area Time of Concentration Details

Sub-Area Identifier/	Flow Length (ft)	Slope (ft/ft)	Mannings's n	End Area (sq ft)	Wetted Perimeter (ft)	Velocity (ft/sec)	Travel Time (hr)
Post							
SHEET	100	0.0150	0.240				0.322
SHALLOW	285	0.0150	0.050				0.040
CHANNEL	670	0.0020	0.012	1.76	4.73	2.863	0.065
					Time of Concentration		.427

ARH

Post dev
Genesee County, New York

Sub-Area Land Use and Curve Number Details

Sub-Area Identifier	Land Use		Hydrologic Soil Group	Sub-Area Area (ac)	Curve Number
Post	Paved parking lots, roofs, driveways		B	.33	98
	Paved parking lots, roofs, driveways		C	15.74	98
	Paved parking lots, roofs, driveways		D	.33	98
	Brush - brush, weed, grass mix	(fair)	B	.63	56
	Brush - brush, weed, grass mix	(fair)	C	30.04	70
	Brush - brush, weed, grass mix	(fair)	D	.63	77
	Total Area / Weighted Curve Number			47.7	80

APPENDIX D - 3

Stormwater Calculations

STORMWATER POLLUTION PREVENTION PLAN

METZGER
CIVIL
ENGINEERING, PLLC

8245 Sheridan Drive
Williamsville, New York 14221
Phone: 716-633-2601, Fax: 716-633-2704

Project:	Edwards Ponds A & B	By:	ARH	Date:	9/11/2023
Location:	Alabama	Checked:	JCM	Date:	

County: Genesee

TR-55 Pre-Development Summary

STORM 1-Yr

Area or Reach Identifier	Drainage Area (acres)	% of site	Runoff Amount, Qd (in)	Peak Flow Rate (cfs)
Entire Site	47.10	100		3.20
This Pond	47.1	100.0	0.2	3.20

STORM 10-Yr

Area or Reach Identifier	Drainage Area (acres)	% of site	Runoff Amount, Qd (in)	Peak Flow Rate (cfs)
Entire Site	47.10	100		29.71
This Pond	47.1	100.0	0.9	29.71

STORM 100-Yr

Area or Reach Identifier	Drainage Area (acres)	% of site	Runoff Amount, Qd (in)	Peak Flow Rate (cfs)
Entire Site	47.10	100		109.22
This Pond	47.1	100.0	2.8	109.22

Storm Event	Rainfall P, inches	Initial Abstraction Ia = 0.2S, inches	Potential Retention S=(1000/CN)-10 inches	CN	Runoff Amount, Inches Qd = (P-Ia)^2 / ((P-Ia)+S)
1-yr	1.87	0.86	4.29	70	0.19
10-yr	3.25	0.86	4.29	70	0.86
100-yr	6.00	0.86	4.29	70	2.81

Rainfall Distribution = TYPE II

Time of Concentration, $Tc_{(Hours)}$ = 0.56

METZGER
CIVIL
ENGINEERING, PLLC

8245 Sheridan Drive
Williamsville, New York 14221
Phone: 716-633-2601, Fax: 716-633-2704

Project:	Edwards Ponds A & B	By:	ARH	Date:	9/11/2023
Location:	Alabama	Checked:	JCM	Date:	

TR-55 Post Development Summary

STORM 1-Yr

Area or Reach Identifier	Drainage Area (acres)	% of site	Runoff Amount, Qd (in)	Peak Flow Rate (cfs)
Entire Site	47.10	100		17.98
This pond	47.10	100.0	0.5	17.98

STORM 10-Yr

Area or Reach Identifier	Drainage Area (acres)	% of site	Runoff Amount, Qd (in)	Peak Flow Rate (cfs)
Entire Site	47.10	100		65.75
This pond	47.1	100.0	1.4	65.75

STORM 100-Yr

Area or Reach Identifier	Drainage Area (acres)	% of site	Runoff Amount, Qd (in)	Peak Flow Rate (cfs)
Entire Site	47.10	100		174.34
This pond	47.1	100.0	3.8	174.34

Storm Event	Rainfall P, inches	Initial Abstraction Ia = 0.2S, inches	Potential Retention S=(1000/CN)-10 inches	CN	Runoff Amount, Inches Qd = (P-Ia)^2 / ((P-Ia)+S)
1-yr	1.87	0.50	2.50	80	0.48
10-yr	3.25	0.50	2.50	80	1.44
100-yr	6.00	0.50	2.50	80	3.78

Rainfall Distribution = TYPE II

Time of Concentration, $Tc_{(Hours)}$ = 0.43

METZGER
CIVIL
ENGINEERING, PLLC

8245 Sheridan Drive
Williamsville, New York 14221
Phone: 716-633-2601, Fax: 716-633-2704

Project:	Edwards Ponds A & B	By:	ARH	Date:	9/11/2023
Location:	Alabama	Checked:	JCM	Date:	

Storage Volume Estimation

Taken from NYS Stormwater Management Design Manual (NYS-SMDM) Appendix B

Area Final Phase = 47.1 Acres

	Channel Protection Cp_v 1 YR / 24-Hour Extended Detention	
Ia / P (From Post Development Summary Sheet, 1yr storm)	0.27	
Post Development Time of Concentration, Tc (From TR-55 Calcs)	0.43	hours
Unit Peak Discharge, qu (from TR-55 Exhibit 4-II, attached)	475	cfs/sqmi/inch
Ratio of Outflow to Inflow, qo/qi (NYS-SMDM Figure B.1, attached)	0.035	
Ratio of Storage Volume to Runoff Volume, vs/vr		
vs/vr = 0.682 - 1.43(qo/qi) + 1.64 (qo/qi)^2 - 0.804 (qo/qi)^3 =	0.63	
Pos-Dev Runoff Amount, Q_d (From Post Development Summary Sheet)	0.5	inches
Req'd Storage Volume$_{(acre\text{-}feet)}$, $vs = ((v_s/v_r)\ (Q_{d,\ inches})\ (A,\ acres))\ /\ 12$ inches/foot	1.2	acre-feet
Req'd Storage Volume$_{(cubic\ feet)}$, $vs = vs_{(acre\text{-}feet)}$ x 43560 sq.ft./acre	52,565	cubic feet
Cp_v-ED Average release rate over 24 hours = $vs_{(cubic\ feet)}$ / 86400 seconds/24 hrs	0.61	cfs

	Overbank Flood Q_p 10YR	Extreme Flood Q_f 100 YR	
Pre-Dev Peak Flow Q_O (From TR-55 Output)	29.71	109.22	cfs
Pos-Dev Peak Flow Q_I (From TR-55 Output)	65.75	174.34	cfs
Pos-Dev Runoff Amount, Q_d (From Post Development Summary Sheet)	1.44	3.78	inches
Ratio of Pre-Dev Peak Flow to Pos-Dev Peak Flow, Q_O/Q_I	0.45	0.63	
Ratio of Storage Volume to Runoff Volume, V_S/V_R (From TR-55 Fig 6-1, Type II, attached)	0.30	0.23	
Req'd Storage Volume$_{(acre\text{-}feet)}$, $Vs = [((V_s/V_r)\ (Q_{d,\ inches})\ (A,\ acres))\ /\ 12$ in./ft.]	1.70	3.41	acre-feet
Req'd Storage Volume$_{(cubic\ feet)}$, $Vs = Vs_{(acre\text{-}feet)}$ x 43560 sq.ft./acre	73,885	148,693	cubic feet

METZGER
CIVIL
ENGINEERING, PLLC

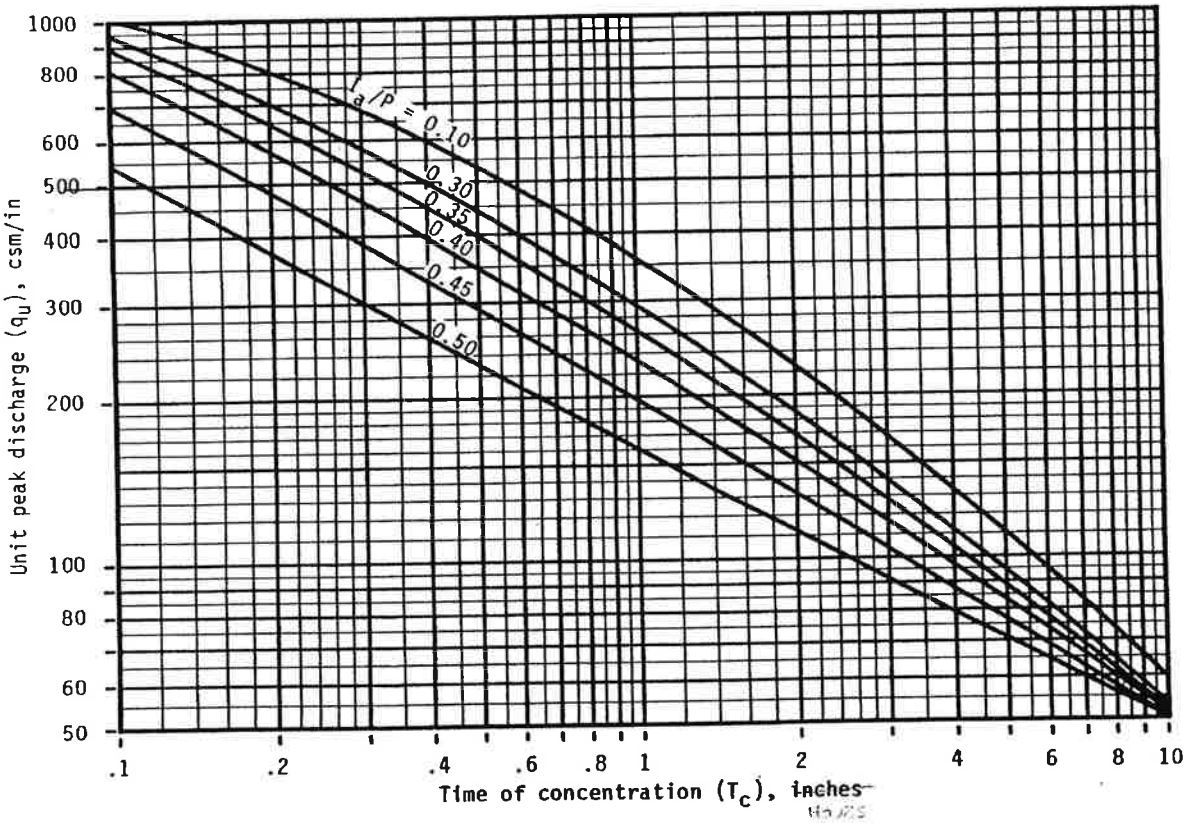
8245 Sheridan Drive
Williamsville, New York 14221
Phone: 716-633-2601, Fax: 716-633-2704

Project:	Edwards Ponds A & B	By:	ARH	Date:	9/11/2023
Location:	Alabama	Checked:	JCM	Date:	

Storage Volume Estimation - Continued

4-6

Exhibit 4-II: Unit peak discharge (q_u) for SCS type II rainfall distribution



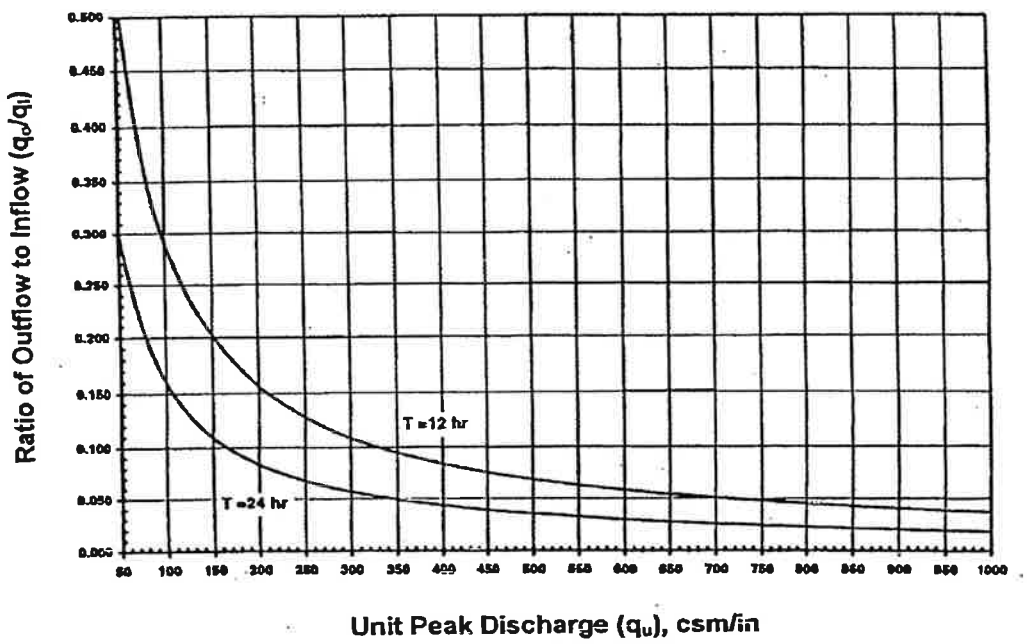
(210-VI-TR-55, Second Ed., June 1986)

METZGER
CIVIL
ENGINEERING, PLLC

8245 Sheridan Drive
Williamsville, New York 14221
Phone: 716-633-2601, Fax: 716-633-2704

Project:	Edwards Ponds A & B	By:	ARH	Date:	9/11/2023
Location:	Alabama	Checked:	JCM	Date:	

Figure B.1 Detention Time vs. Discharge Ratios (Source: MDE, 2000)



METZGER
CIVIL
ENGINEERING, PLLC

8245 Sheridan Drive
Williamsville, New York 14221
Phone: 716-633-2601, Fax: 716-633-2704

Project:	Edwards Ponds A & B	By:	ARH	Date:	9/11/2023
Location:	Alabama	Checked:	JCM	Date:	

Storage Volume Estimation - Continued

Input requirements and procedures

Use figure 6-1 to estimate storage volume (V_s) required or peak outflow discharge (q_o). The most frequent application is to estimate V_s, for which the required inputs are runoff volume (V_r), q_o, and peak inflow discharge (q_i). To estimate q_o, the required inputs are V_r, V_s, and q_i.

Estimating V_s

Use worksheet 6a to estimate V_s, storage volume required, by the following procedure.

1. Determine q_o. Many factors may dictate the selection of peak outflow discharge. The most common is to limit downstream discharges to a desired level, such as predevelopment discharge. Another factor may be that the outflow device has already been selected.
2. Estimate q_i by procedures in chapters 4 or 5. Do not use peak discharges developed by any other procedure. When using the Tabular Hydrograph method to estimate q_i for a subarea, only use

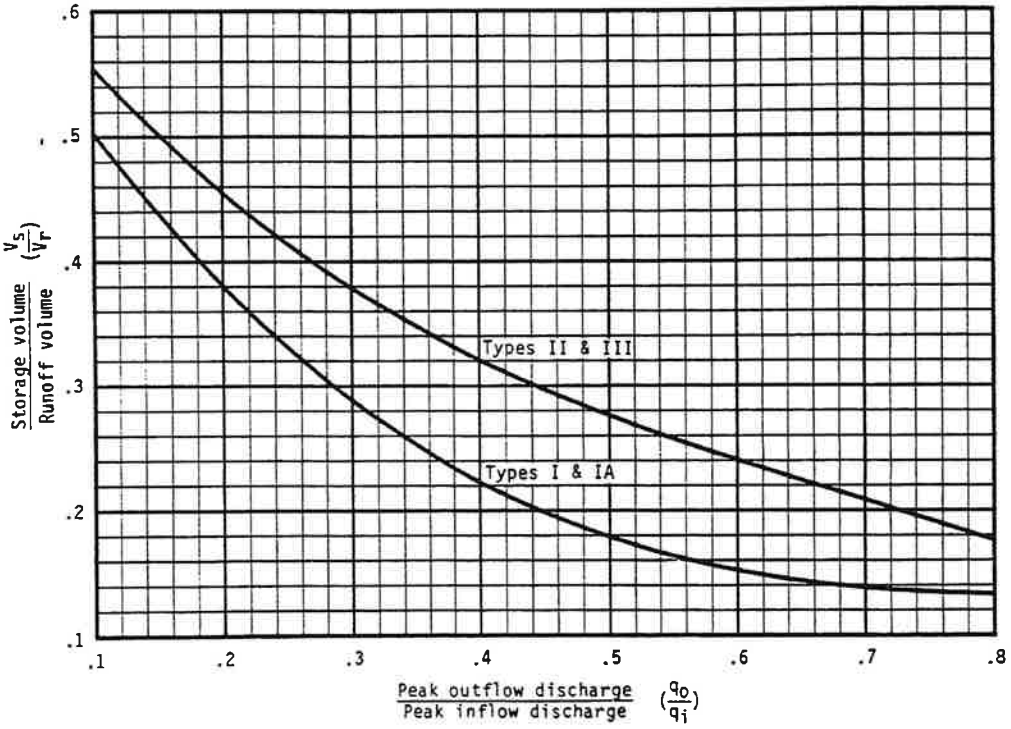


Figure 6-1.—Approximate detention basin routing for rainfall types I, IA, II, and III.

METZGER
CIVIL
ENGINEERING, PLLC

8245 Sheridan Drive
Williamsville, New York 14221
Phone: 716-633-2601, Fax: 716-633-2704

Project:	Edwards Ponds A & B	By:	ARH	Date:	09/11/23
Location:	Alabama	Checked:	JCM	Date:	

Water Quality and Pond Volumes

Water Quality Volume, WQv

From NYS Stormwater Management Design Manual (NYS-SMDM), Section 4

WQv = (P*Rv*A) / 12

P=90% Rainfall Event No. for WNY	1.00				
I = Impervious cover	34.0	Percent			
Rv = 0.05 + 0.009 * I	0.36				
A = Site area	47.10	acres			
Total WQv Required =			**1.40**	acre-feet =	**60,866** cf
Total Minimum Req'd Permanent Pool Volume, PPV = Total WQv x 50%			0.70	acre-feet =	30,433 cf
Req'd Forebay (Pretreatment) Volume = Total WQv x 10% =			0.140	acre-feet =	6,087 cf
Req'd Permanent Pool Volume in the "Wet Pool" = Total PPV - Req'd Forebay Volume =			0.559	acre-feet =	24,347 cf

Is "Wet Pool" Volume Provided = or > the Total WQv Required? Yes, 100% of WQv Provided In Wet Pool, Therefore, WQv-ED Not Req'd

Req'd WQv-ED Volume (i.e, volume above Normal Water Level) =Total WQv x 50% =		acre-feet =	cf
WQv-ED Average release rate over 24 hours = WQv-ED (cubic feet) / 86400 secs/24 hrs =		c.f.s.	

Pond Levels and Volumes

Pond A	HWE, ft	HWE Area, sf	LWE, ft	LW Area, sf	water depth, ft	Avg. Area, sf	Vol. Provided, cf	Vol. Req'd, cf	Vol.Prv acft	Difference
"Wet Pool"	666.00	69,064	660.00	4877	6.00	36,971	221,823	24,347	5.09	197,476
WQ_vED								None Req'd		
Cp_v	666.72	77,892	666.00	69064	0.72	73,478	52,904	52,565	1.21	339
Q_p	666.99	81,202	666.00	69064	0.99	75,133	74,382	73,885		497
Q_f	668.98	105,602	666.00	69064	2.98	87,333	260,252	148,693		111,559

Set Pond TOB @ EL. 669.9
Area @ TOB 116882 sf

WQv Storm Event Peak Flow Calculation (WQv Qp)

For Sizing Proprietary Pretreatment Structures If Used In Lieu Of Pretreatment Forebay

From NYS Stormwater Management Design Manual (NYS-SMDM), Appendix B.2

Post Development Time of Concentration,Tc (From TR-55 Calcs)	0.43	hr
Initial Abstraction, Ia (From Post Development Summary Sheet)	0.50	
Ia / P (Where P=90% Rainfall Event No. from WQv calcs above)	0.50	
Unit Peak Discharge, qu (from TR-55 Exhibit 4-II, attached)	215	cfs/sqmi/inch
WQv in watershed inches = [$WQv_{(acre\text{-}feet)}$ / $Area_{(acres)}$] x 12 inches/foot	0.36	inches
A = area in square miles	0.0736	sq. miles
$WQv\ Qp_{(cfs)} = qu_{(cfs/sq.miles/inch)} \times A_{(sq.miles)} \times WQv_{(inches)}$		
Wqv Peak Discharge Qp =	5.6	cfs
Required pretreatment = 10% of total Wqv	0.56	cfs

METZGER
CIVIL
ENGINEERING, PLLC

8245 Sheridan Drive
Williamsville, New York 14221
Phone: 716-633-2601, Fax: 716-633-2704

Project:	Edwards Ponds A & B	By:	ARH	Date:	09/11/23
Location:	Alabama	Checked:	JCM	Date:	

Outlet Control Structure Design

	Water Elevations	Allowable Discharge Rates, Qo			
Normal Water Level	666.00				
Water Quality Volume Extended Detention, WQv-ED			cfs	for 24 hour release	**<-- Not Req'd**
Stream Channel Protection "Cpv" 1 year storm	666.72	0.61	cfs	for 24 hour release	
Overbank Flood Control Criteria "Qp" 10 year storm	666.99	29.71	cfs		
Extreme Flood Control Criteria "Qf" 100 year storm	668.98	109.22	cfs		
Top of Bank / emergency spillway elevation	669.90				

Heads, $h_{(feet)}$, for Calculating Flows Through Various Orifices		
When Water Elev. Is @	Primary Orifice, h =	Secondary Orifice, h =
WQv-ED		
Cpv	0.60	
Qp	0.87	
Qf	3.77	

No. of Outlet Control Orifices Provided = 1

	Primary Drawdown Orifice For WQv and/or Cpv	Secondary Drawdown Orifice For Cpv (as needed)	
Orifice diameter (Note: Minimum per NYS-SMDM = 0.25')	0.25	0.25	ft
Area of pipe or slot = A	0.05	0.05	sq ft
Orifice coefficient = C	0.61	0.61	
Acceleration due to gravity = g	32.20	32.20	ft/sec^2

Torricelli Equation - Orifice Calculations

	Orifice Discharge Rates, Q=CA(2gh)^.5				
When Water Elevations are at the following stages --->	**WQv**	**Cp_v**	**Qp**	**Q_f**	
Actual Discharge Rate Through Primary Orifice For WQv and/or Cpv Drawdown @ Various Heads =		0.19	0.22	0.47	cfs
Actual Discharge Rate Through Secondary Orifice For Cpv Drawdown (as needed) @ Various Heads =					cfs
Actual Cumulative Discharge Rates, Q =		0.19	0.22	0.47	cfs

Weir Calculations (TR-55 Ch. 6)

		Hw, ft	Qo, cfs	Lw, ft	Total Actual Discharge Rates
Qp	Discharge Qo=Qp-(Wqv +Cpv)	0.27	5.38	-----	Qp, cfs = 5.61
	$Lw=Qo/3.2*Hw^{1.5}$=	-----	-----	12.0	
Qf	Discharge Qo=Qf-(Wqv +Cpv)	2.26	108.75	-----	Qf, cfs = 109.22
	$Lw=Qo/2.67*Hw^{1.5}$=	-----	-----	12.0	

New Qp based on Weir Lw: 0.08 Elev 666.80

Outlet Structure

Primary Orifice For WQv and/or Cpv Outlet Control	0.25 ft	=	diameter pipe at inv. elevation	666.00	ft
Secondary Orifice For Cpv Outlet Control	Not Req'd ft	=	diameter pipe at inv. elevation	Not Req'd	ft
Overbank Flood Qp Outlet Control Weir	12.0 ft	=	Total Weir Opening at crest elevation	666.72	ft
Extreme Flood Qf Outlet Control Weir	12.0 ft	=	Total Weir Opening at Elevation	666.99	ft

Outlet Pipe Sizing

Diameter in Inches	Area, A Sq ft	High Water Elev.	CL Outlet Elevation	Head in feet	Coeffic. C	Capacity, cfs Q =C x A x (2gh^0.5)	No. of Pipes	Total Capacity, cfs	Actual Qf Discharge, cfs
24	3.14	668.98	667.00	1.98	0.60	21.29	6	127.71	109.22

APPENDIX E

Green Infrastructure Planning and Design

STORMWATER POLLUTION PREVENTION PLAN

GREEN INFRASTRUCTURE PLANNING AND DESIGN

The New York State Stormwater Management Design Manual (January, 2015) outlines a five-step process that planners and designers must use to address runoff reduction from development sites. This process involves consideration of stormwater management through site planning and consideration of green infrastructure techniques, as well as standard stormwater management practices in an effort to achieve reduction in runoff volumes from the developed site and improve the quality of stormwater discharges from the project site. The five steps include:

1. Site Planning to preserve natural features and reduce impervious cover,
2. Calculation of the Water Quality Volume (WQv) for the site,
3. Incorporation of Green Infrastructure techniques and standard SMP's with Runoff Reduction Volume (RRv) capacity,
4. Use of Standard SMP's, where applicable, to treat the portion of water quality volume not addressed by Step 3 (Green Infrastructure techniques and standard SMP's with Runoff Reduction Volume (RRv) capacity); and
5. Design of volume and peak rate control practices where required.

The following sections discuss how this five-step process was used for this project.

Step 1: Site Planning

A. Conserve Natural Areas

1. Preservation of Undisturbed Areas

   The areas north and east of the driveways will remain undisturbed with the addition of a walking path through these areas. The area south of the south detention pond will also remain undisturbed.

2. Preservation of Buffers

   The existing vegetation in the aforementioned areas will provide buffer area.

3. Reduction of Clearing and Grading

   The project has been designed to limit clearing and grading to the minimum amount needed for roadways, buildings, utilities and stormwater management facilities.

4. Locating Development in Less Sensitive Areas

   Much of this site has already been disturbed by farming activities and it does not contain any more sensitive areas.

5. Open Space Design

   This is a commercial site and not a candidate for an open space design.

6. Soil Restoration

   Restoration of soils for proposed grassed areas, will be as required by the NYS Stormwater Management Design Manual.

B. Reduce Impervious Cover

1. Roadway Reduction

   The roadways have been designed to meet the minimum amount needed for the proposed development and fire codes.

2. Sidewalk Reduction

   This project has no proposed sidewalks but a walking nature trail around the perimeter of the site.

3. Driveway Reduction

   The driveways are designed to ensure the driveways are as narrow as possible.

4. Cul-de-sac Reduction

   The site has no culs-de-sac.

5. Building Footprint Reduction

   The footprints have designed to the minimum size needed for the intended use.

6. Parking Reduction

   Parking has been designed to the minimum needed to serve the building.

Step 2: Determine Water Quality Volume (WQv)

The water quality volume of the site has been calculated by the methods specified in the manual: The calculations are provided on the attached spreadsheet.

Step 3: Runoff Reduction by Applying Green Infrastructure Techniques and Standard SMP's with Runoff Reduction Volume (RRv) capacity

1. Conservation of Natural Areas

   The areas north and east of the driveways will remain undisturbed with the addition of a walking path through these areas. The area south of the south detention pond will also remain undisturbed.

2. Sheet flow to Riparian Buffers or Filter Strips

   A filter strip has been designed to sheet flow into the bioretention areas.

3. Vegetated Open Swales

   The site utilizes vegetated open swales.

4. Tree Planting / Tree Box

   Construction will be limited to allow as many perimeter trees as possible to remain on site.

5. Disconnection of Rooftop Runoff

   This is a commercial site. The rainwater from the rooftops will be directed to the on site stormwater management and into the wet detention ponds with an outlet control structure.

6. Stream Daylighting

   Not Applicable to this project, as there are no piped streams running through the site.

7. Rain Garden

   The project is commercial in nature. The use of rain gardens would not be practical.

8. Green Roof

   This project consists of commercial structures with traditional roof styling and are not conducive to the use of green roofs.

9. Stormwater Planters

   The intended use of this project does not allow for stormwater planters.

10. Rain Tanks / Cisterns

    The project is commercial in nature. The use of rain tanks would not be practical.

11. Porous Pavement

    Due to the severe weather, frost heave and the need for snow plowing in Western New York, porous pavement is not practical.

12. Standard SMP's with RRv Capacity

    Infiltration Practice, Bioretention Practice, Dry Swale (Open Channel Practice)

    This site uses gravel diaphragms, filter strips and bioretention areas to provide the needed Green Infrastructure.

Step 4: Apply Standard SMP's To Address Remaining WQv and
Step 5: Apply Volume and Peak Rate Control Practices

The Standard SMP's from the NYS Stormwater Management Design Manual include: Stormwater Ponds, Stormwater Wetlands, Filters, Infiltration, and Open Channels.

For this project, two wet detention ponds were designed to address the remaining WQv for the site, as well as provide volume and peak rate controls. A complete set of Stormwater Calculations have been prepared. Bioretention areas will provide pretreatment and filtration of stormwater prior to discharging the water to the wet ponds. Stormwater will be discharged from the wet pond through an outlet control structure.

The pond will receive and detain flows until the storm subsides and allows the pond to drain through the outlet control structure. The ponds have been designed, in accordance with the New York State Stormwater Management Design Manual, to allow for sufficient storage to attenuate and release stormwater from the developed site at discharge rates not exceeding the pre-developed rates for the following conditions:

- Channel Protection Volume Requirements: Attenuate 1-year post development peak discharge to 1-year pre-development peak discharge.
- Overbank Flood Requirements: Attenuate 10-year post development peak discharge to 10-year pre-development peak discharge.
- Extreme Flood Requirements: Attenuate 100-year post development peak discharge to 100-year pre-development peak discharge.

Summary:
The stormwater management system for this project has been designed to incorporate Green Infrastructure Techniques through planning measures as discussed above.
The RRv achieved by these practices meets the minimum RRv required for the site. Supporting calculations are given on the attached spreadsheets.

The remaining WQv will be treated by an on site stormwater detention ponds with outlet control structures. Therefore the site complies with the requirements set forth in the New York State Department of Environmental Conservations Stormwater Design Manual.

Bioretention Worksheet

(For use on HSG C or D Soils with underdrains)

Af=WQv*(df)/[k*(hf+df)(tf)]

Af	Required Surface Area (ft2)
WQv	Water Quality Volume (ft3)
df	Depth of the Soil Medium (feet)
hf	Average height of water above the planter bed
tf	Volume Through the Filter Media (days)

k — The hydraulic conductivity [ft/day], can be varied depending on the properties of the soil media. Some reported conductivity values are: ***Sand*** - 3.5 ft/day (City of Austin 1988); ***Peat*** - 2.0 ft/day (Galli 1990); ***Leaf Compost*** - 8.7 ft/day (Claytor and Schueler, 1996); ***Bioretention Soil*** (0.5 ft/day (Claytor &

Design Point:	outlet

Enter Site Data For Drainage Area to be Treated by Practice

Catchment Number	Total Area (Acres)	Impervious Area (Acres)	Percent Impervious %	Rv	WQv (ft^3)	Precipitation (in)	Description
1	47.70	16.40	0.34	0.36	62236.35	1.00	Bioretention
Enter Impervious Area Reduced by Disconnection of Rooftops		0.00	34%	0.36	62,236	<<WQv after adjusting for Disconnected Rooftops	
Enter the portion of the WQv that is not reduced for all practices routed to this practice.					0	ft^3	

Soil Information

Soil Group	D		
Soil Infiltration Rate	2.00	*in/hour*	*Design as an infiltration bioretention practice*
Using Underdrains?	Yes	*Okay*	

Calculate the Minimum Filter Area

		Value	Units	Notes
WQv		62,236	ft^3	
Enter Depth of Soil Media	*df*	2.5	*ft*	*2.5-4 ft*
Enter Hydraulic Conductivity	*k*	0.5	*ft/day*	
Enter Average Height of Ponding	*hf*	0.5	*ft*	*6 inches max.*
Enter Filter Time	*tf*	2.5	*days*	
Required Filter Area	***Af***	**41491**	ft^2	

Determine Actual Bio-Retention Area

Filter Width	30	*ft*	
Filter Length	1400	*ft*	
Filter Area	42000	ft^2	
Actual Volume Provided	63000	ft^3	

Determine Runoff Reduction

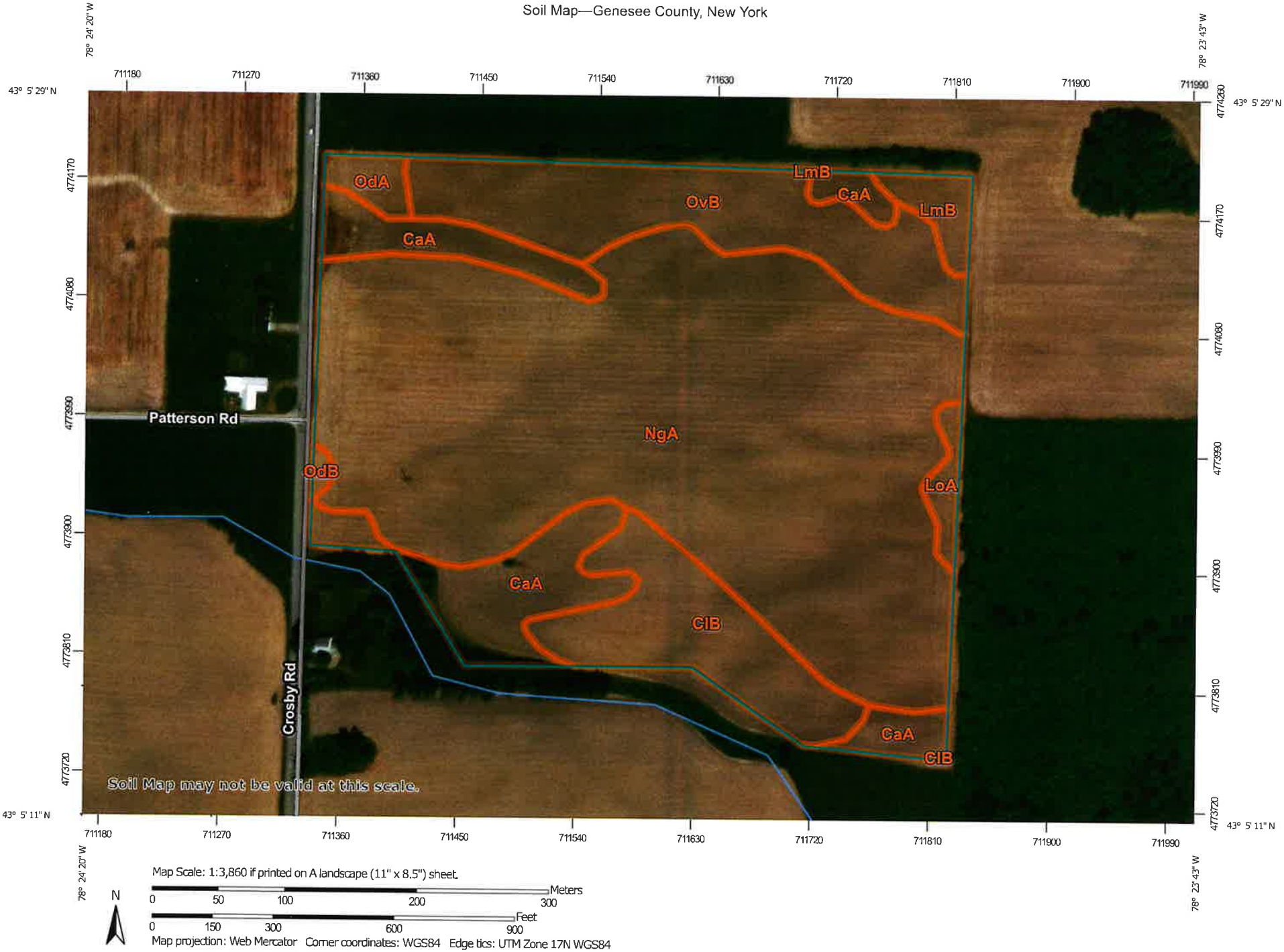
Is the Bioretention contributing flow to another practice?	Yes	Select Practice	Other/Standard SMP
RRv	25,200		
RRv applied	**25,200**	ft^3	***This is 40% of the storage provided or WQv whichever is less.***
Volume Treated	0	ft^3	*This is the portion of the WQv that is not reduced in the practice.*
Volume Directed	37,036	ft^3	This volume is directed another practice

APPENDIX F

Site Soils Map Data

STORMWATER POLLUTION PREVENTION PLAN

Soil Map—Genesee County, New York



Map Scale: 1:3,860 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N 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 1:24,000.

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: Genesee County, New York
Survey Area Data: Version 23, Sep 10, 2022

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

Date(s) aerial images were photographed: Dec 31, 2009—Oct 18, 2016

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Minor Components

Minoa
Percent of map unit: 5 percent
Hydric soil rating: No

Rhinebeck
Percent of map unit: 5 percent
Hydric soil rating: No

Canandaigua
Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Unnamed soils
Percent of map unit: 5 percent
Hydric soil rating: No

Collamer
Percent of map unit: 5 percent
Hydric soil rating: No

Data Source Information

Soil Survey Area: Genesee County, New York
Survey Area Data: Version 23, Sep 10, 2022

Genesee County, New York

NgA—Niagara silt loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: p9fp
Elevation: 750 to 1,740 feet
Mean annual precipitation: 31 to 38 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 120 to 175 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Niagara and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Niagara

Setting

Landform: Lake plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Silty and clayey glaciolacustrine deposits

Typical profile

H1 - 0 to 11 inches: silt loam
H2 - 11 to 26 inches: silty clay loam
H3 - 26 to 72 inches: silt loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: High (about 10.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Ecological site: F101XY009NY - Moist Lake Plain
Hydric soil rating: No

Map Unit Legend

Map Unit Symbol	Map Unit Name		Acres in AOI	Percent of AOI
CaA	Canandaigua silt loam, 0 to 2 percent slopes	C	5.7	12.2%
ClB	Collamer silt loam, 2 to 6 percent slopes	C	4.3	9.1%
LmB	Lima silt loam, 3 to 8 percent slopes	B	0.7	1.6%
LoA	Lyons soils, 0 to 3 percent slopes	C	0.5	1.1%
NgA	Niagara silt loam, 0 to 2 percent slopes	C	28.7	61.3%
OdA	Odessa silt loam, 0 to 3 percent slopes	D	0.6	1.2%
OdB	Odessa silt loam, 3 to 8 percent slopes	D	0.1	0.2%
OvB	Ovid silt loam, 3 to 8 percent slopes	C	6.2	13.3%
Totals for Area of Interest			**46.8**	**100.0%**

HSG

A - 0 %

B - 2 %

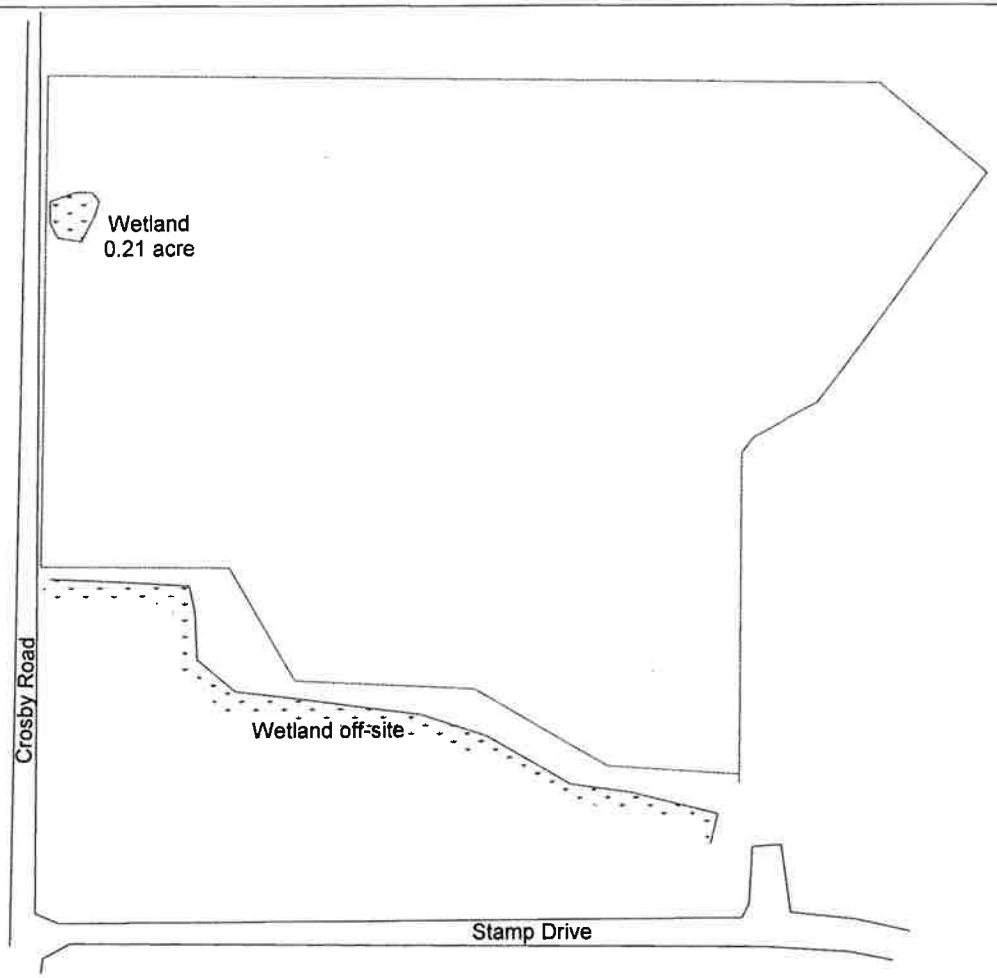
C - 96 %

D - 2 %

APPENDIX G

Wetland Map

STORMWATER POLLUTION PREVENTION PLAN



APPROXIMATE WETLAND ACREAGE

0.21 acre

Locations and sizes of depicted Wetlands are approximate. A detailed wetland delineation is required to precisely identify the locations and acreages of on-site wetlands.

PROJECT CODE: W9A10i

Map Date: 3/21/2023 SJL
Revised:

Source of Baseline Map:
OnX Hunt

Scale:
0 200' 400'

File Name:

Preliminary Wetlands Map

STAMP Parcel

TOWN OF ALABAMA GENESEE COUNTY, NEW YORK

EARTH DIMENSIONS, INC.
1991 Jamison Road • Elma, New York 14059
(716) 655-1717 • EDInc@EarthDimensions.com

LEGEND:

WETLAND AREA

Felipe Oltramari

From: Janet Glocker <janetglocker@gmail.com>
Sent: Wednesday, October 11, 2023 9:45 AM
To: Planning Dept Email
Subject: Planning Board meeting record of Oct 12, 2023, concerning Edwards Vacuum

Greetings to the Planning Board Members,

I regret that I cannot attend the Thursday, October 12th meeting announced in *The Batavian* where you will consider the Edwards Vacuum proposal to be constructed at STAMP. I will attempt to find someone to read this letter into the record but am emailing it to you in case I fail.

https://www.thebatavian.com/howard-owens/site-plan-review-for-edwards-vacuum-up-for-consideration-by-county-planning-board-on

Even though I live some distance away, I have followed environmental issues connected to STAMP.

The Batavian article makes several statements that again raise environmental concerns---namely, **what about water and how it will be managed**--"possible wetland"; "detention pond" [sic. retention pond?] ; "stormwater runoff"; "47 disturbed acres" out of 50 or 94% of the acreage for the Edwards Vacuum site; "300 parking spaces" and presumably the roads and turn-around spaces for large trucks to deliver raw materials and remove finished products.

I realize that your role is advisory and respectfully request that you record your disapproval of the Edwards Vacuum proposal.

I believe that your Board is charged with county-wide considerations, the effect on neighboring municipalities and specifically **drainage** among other considerations per NYS General Municipal Law 239-L.

I hope *The Batavian* reporter's comment that a wetland is a possible portion of the 50 acres can be better quantified and qualified. "Possible" is too sloppy!

How many acre(s) will it take to support 300 parking spaces? Will the parking lot and associated roadways and turn around areas be covered with permeable or impermeable asphalt?

As to stormwater runoff, one inch of rain on one acre of impermeable asphalt pavement equals 27,000 gallons and weighs 113 tons according to https://www.usgs.gov/special-topics/water-science-school/science/rain-and-precipitation#:~:text=One%20inch%20of%20rain%20falling,about%202%2C715%20gallons%20of%20water

Please consider that disrupting 94% of the 50 acre surface in the generally low-lying area hosting the famous Alabama Swamp will result in perhaps further drainage issues. STAMP is already in the news about a wastewater pipeline construction project now in the courts.

Of course, there are many other issues that General Municipal Law 239-L requires you to consider. In my opinion, they constitute justification to officially disapprove of the Edwards Proposal.

Please, disapprove of the Edwards Vacuum proposal. Be a good neighbor!

Respectfully,

Janet Glocker
791 Rush Henrietta Townline Rd.
West Henrietta, NY 14586
585 305 4247

10/11/23
Dear Genesee County Planning Board,

My name is Kirk Scirto and I urge you to strongly recommend disapproval of the Edwards Vacuum project. I'm a public health specialist and serve as the family physician for the Tonawanda Seneca Nation. Their Nation lies immediately at the border of STAMP and they have sued to block its development, along with a separate suit to do the same by the Orleans County Legislature and the Town of Shelby.

The community impacts for this project in Genesee County are also very troubling, so it's shocking that entities in Genesee County have not yet sued—although that should change shortly.

1)TRAFFIC:
The first major community impact of the Edwards Vacuum project would be an immense generation of traffic. Vehicles would be expected to enter and leave STAMP every 1-2 seconds all day long, every day. This would dramatically slow down local roads including Routes 77 and 63, which may be forced to become 30 MPH roads. More concerning, many more motor vehicle accidents could be expected, especially for those who attempt to drive as fast as they currently do on local roads and highways.

2)AIR POLLUTION:
Air pollution would be the second major impact and it would be produced by diesel trucks, other vehicles, and the chemical emissions of Edwards Vacuum itself. If they are able to dodge the extensive lawsuits already initiated and those which will be coming shortly, then they'd be allowed to emit various toxins into the air. Some of these toxins can cause cancer and irritate the eyes and respiratory track of people. This combined air pollution would cause or worsen asthma, allergies, emphysema, respiratory infections, and heart disease—especially for those living closest to the factory and its intense traffic.

3)PROTECTION OF COMMUNITY CHARACTER & EXPLOSIONS:
The protection of community character would be challenged by the threat of explosions from Edwards Vacuum. According to safety data sheets, they use dozens of flammable and several explosive chemicals. Some are even pyrophoric, or able to ignite spontaneously on exposure to air alone. Even just static electricity could cause these chemicals to ignite and explode. According to their safety manual, potentially fatal explosions have occurred in some of their facilities, and the same could easily happen here.

4)IMPACTS ON COMMUNITY FACILITIES:
Edwards impacts on community facilities would serve as another major challenge. When fires and explosions occur, the Town of Alabama Volunteer Fire Department does not have the staff to adequately respond according to sources within the Department. Uncontrolled industrial fires can be quite dangerous and far-reaching.

5)DRAINAGE OF INDUSTRIAL TOXINS:
The initial plan to drain industrial toxins, wastewater, and sewage into Orleans County has been blocked by their lawsuit, so it is unclear how Edwards Vacuum could ever function at STAMP without a wastewater pipeline. Since they can't drain their toxins and sewage into Orleans County, one can imagine that they would look to drain them nearby instead—in Genesee County.

6)MAINTAINING A SATISFACTORY ENVIRONMENT FOR PEOPLE:
Finally, Edwards Vacuum would fail to maintain a satisfactory environment for people and many other species. Company documents on their website reveal that Edwards Vacuum is particularly worried about three chemicals that they use: refractory ceramic fibers, EGDME, and lead, which can cause respiratory irritation and cancer when inhaled, nausea, coma, and intellectual and developmental delay. Other Edwards chemicals cause lung scarring, thyroid disease, fatigue, and dizziness. Some are toxic to human organs with persistent exposure while others can damage our organs with just a single dose.

7)MAINTAINING A SATISFACTORY ENVIRONMENT FOR OTHER SPECIES:
Dozens of Edwards Vacuum chemicals are not safe to discharge in waterways since they're very toxic to aquatic and human life. Good luck swimming or fishing in Genesee County if Edwards Vacuum comes! Worse yet, Edwards would like to build on top of two ecologically-sensitive wetlands and one stream. Page 17 of the 2/2023 SEQR mentions "On the Edwards Vacuum Project site there are two wetlands. Wetland 34 and Wetland 48, which are collectively 3.86 acres"; it goes on "Furthermore, there is one stream located on the Edwards Vacuum project site, Tributary 3."

Edwards would also like to build on land where the endangered Short-Eared Owl and threatened Northern Harrier have been observed wintering per formal surveys. It is expected that at least two other endangered species and six other threatened birds—including the Bald Eagle--would be negatively affected by Edwards Vacuum in the Iroquois National Wildlife Refuge at its doorstep. For this reason, habitat destruction and STAMP development by Edwards Vacuum is opposed by the Clean Air Coalition of WNY, the WNY Environmental Alliance, the Sierra Club Atlantic Chapter, Buffalo Niagara Waterkeeper, NYS Ornithological Association, National Audubon Society of NY Office, and many other environmental groups and Genesee County residents. Edwards Vacuum would negatively impact the community in each of these ways and they're absolutely not welcome here.

Sincerely,

Kirk Scirto, MD, MPH

CHEMICALS USED BY EDWARDS VACUUM

[quotes from company webpage and link to website with hazard sheets on each chemical]:
--Safety Data Sheets (SDS) for chemicals and substances, and Safety Information Sheets (SIS).
--Authored by product and operation safety experts, these documents provide additional information on **potential hazards, such as skin and respiratory irritation from dust [provide link to materials list]:**

[Direct link which doesn't always work is:
jr.chemwatch.net/outb/dashboard
A more reliable way to get to this data:
www.edwardsvacuum.com/en-us/health-and-safety/safety-data-sheets
then click "here" on line at bottom: "To access the Edwards SDS portal, please click here"]

[for all chemicals, of course it's best to avoid eye and skin contact, as well as inhaling and ingesting it. Note that each product used below may contain multiple chemicals—see individual datasheets on web for details]:

Activated alumina: causes skin irritation, eye damage
AES Ceramic insulator: none
AES ceramic paper gasket: none
Alkaline Earth Silicate Wool (AES) Fibres within Combustor Liners: none
Apeizon Sealing Compound Q (Norwegian): flammable
Apiezon AP100 Grease: Contains a PFC greenhouse gas, POLYTETRAFLUOROETHYLENE: high persistence in air/water/soil, very toxic to aquatic life, flammable, respiratory irritant, fatigue, eye damage, worsens asthma/allergy, organ damage with prolonged exposure, suspected to cause genetic defects
Apiezon AP101 Grease: flammable, Can cause thyroid enlargement through Lithium, Contains a PFC greenhouse gas, POLYTETRAFLUOROETHYLENE (see above), Not safe to discharge into sewer or waterways
Apiezon AP101 Grease (Tuk Apiezon AP101): No documents found
Apiezon AP201 Oil: No documents found
Apiezon AP303 Oil: flammable. Not safe to enter water supply.
Apiezon H Schmiermittel: No documents found
Apiezon J Oil: Suspected to cause cancer. Irritates respiratory track. Not safe to enter water supply.
Apiezon K Oil: Not safe to enter water supply.
Apiezon N Grease: Flammable. Not safe to enter water supply.
Apiezon Sealing Compound Q. (Těsnicí hmota Apiezon Q): No documents found
Apiezon T Fett: No documents found
Apiezon T Grease: Flammable.
Apiezon Wax W: Flammable.
Apiezon Wax W (French) (residues, petroleum, vacuum tower): Suspected to cause cancer. Flammable.
Apiezon Wax W40: Possibly causes cancer. Flammable. Not safe to enter water supply.
EDW Vacuum Grease 811: Flammable. Harmful to aquatic life with prolonged exposure.
EDW VACUUM GREASE 820: Flammable. Not safe to enter water supply. Has greenhouse gas POLYTETRAFLUOROETHYLENE (see above)
EDW VACUUM GREASE 831: Respiratory irritant and can lower testosterone. Flammable. Toxic to aquatic life with long lasting effects.
EDW VACUUM GREASE 850: Flammable.
Edwards 45: Flammable. Not safe to enter water supply.
Edwards 704: Irritant of eyes, skin, and lungs. Dangerous if swallowed. May cause long term harmful effects to aquatic life. Flammable. Quite toxic. Not safe to enter water supply. Specific target organ toxicity with just one exposure. Asthma symptoms.
Edwards 705: Irritant of eyes, skin, and lungs. Dangerous if swallowed. May cause long term harmful effects to aquatic life. Flammable. Quite toxic. Not safe to enter water supply. Specific target organ toxicity with just one exposure. Asthma symptoms.
Edwards Activated Charcoal AC35: Flammable. Not safe to enter water supply.
Edwards Aluminium oxide, calcined: Not safe to enter water supply.
Edwards Coolant HT110: Flammable. Not safe to enter water supply.
Edwards Drystar 2: Not safe to enter water supply.
Edwards Exhaust Management Systems - Refractory Ceramic Fibres (RCF): Not safe to enter water

supply. Respiratory irritation. Causes cancer.

Edwards Gas Reactor Column (GRC) Cartridge Type C150A: So dangerous it needs to be locked up. Corrodes metals and causes severe skin burns and eye damage. Inhaled, it can irritate lungs and cause cancer. Prolonged exposure leads to organ damage. Specific target organ toxicity with just one exposure. Not safe to enter water supply.

Edwards Gearbox Lubricant - Drynert 25/6: Flammable. Not safe to enter water supply.

Edwards High Vacuum Grease: none

Edwards L9 Diffusion Pump Fluid: none

Edwards Mechanical Pump Oil - Ultragrade 15, 19, 20, 70: Flammable. Not safe to enter water supply.

Edwards Santovac 5 Diffusion Pump Oil: Flammable. Not safe to enter water supply.

Edwards Silicone High Vacuum Grease: Flammable. Not safe to enter water supply.

Edwards TW: Flammable. Not safe to enter water supply.

Edwards Ultragrade ENDURANCE Extend 110: Flammable. Not safe to enter water supply.

Edwards V Lube B: Flammable. Not safe to enter water supply.

Edwards V Lube F: Flammable. Not safe to enter water supply.

Edwards V Lube G: Flammable. Not safe to enter water supply.

Edwards V Lube G: Flammable. Not safe to enter water supply.

Edwards Vacuum Fluid: Flammable. Not safe to enter water supply.

Edwards Vacuum Fluid Ultra: Flammable. Not safe to enter water supply.

G+ Base 68: Flammable. Not safe to enter water supply.

G+ Xpand 150: Flammable. Not safe to enter water supply.

G+ Xpert 100: Flammable. Not safe to enter water supply.

GRC Cartridge C150T C250T C250T/A: Respiratory and skin irritant. Severe eye damage. Specific target organ toxicity with single exposure. Acute and chronic toxicity to aquatic life.

GRC Cartridge C150Y/W/JV/R/C6 C250Y/JV: Respiratory and skin irritant. Severe eye damage. Considered "serious health hazard"

GREASE - AR555 PFPE: Not safe for water supply.

Grease - Fomblin CR 862: Not safe for water supply. Contains greenhouse gas POLYTETRAFLUOROETHYLENE (see above)

Grease - Krytox series 240 & LVP: Serious eye irritation and possible respiratory irritation. Asthma-like symptoms. Flammable. Not safe for water supply. Contains greenhouse gas POLYTETRAFLUOROETHYLENE (see above)

INERT-HFC POLYCOLD® Refrigerant for Gas Cylinders: Fatigue. Dizziness. Flammable and can explode if heated. Not safe for water supply. Specific target organ toxicity with single exposure.

LITHIUM GREASE: Flammable. Not safe for water supply. Lung fibrosis.

M&I Materials Apiezon H Grease: Flammable. Not safe for water supply.

M&I Materials Apiezon L Grease: Flammable. Not safe for water supply. Respiratory irritation.

Mechanical Pump Oils - Fomblin 30GX: Flammable. Not safe for water supply. Respiratory irritation. Lung fibrosis.

Mechanical Pump Oils - Fomblin YVAC: Flammable. Not safe for water supply. Respiratory irritation.

Molykote 1000 Paste: Harmful to aquatic life with long lasting effects. Fatigue. Dizziness. Flammable. Not safe for water supply. Specific target organ toxicity with single exposure.

Oil - Krytox PFPE and VPF 1500 Series: Flammable. Not safe for water supply. Asthma-like symptoms.

Oil - Mobil SHC 629: Flammable. Not safe for water supply.

petrolatum: Respiratory irritation. Flammable. Not safe for water supply.

REFRACTORY CERAMIC FIBRES (RCF) WITHIN COMBUSTOR LINERS: Causes cancer when inhaled. Specific target organ toxicity with prolonged exposure.

UHV Fluid: Flammable. Not safe for water supply.

Ultragrade ENDURANCE Extend 110***OBSOLETE***: Flammable. Not safe for water supply.

ULTRAGRADE KINETIC 150: Harmful to aquatic life with long lasting effects. Flammable. Not safe for water supply.

ULTRAGRADE KINETIC 220: Harmful to aquatic life with long lasting effects. Flammable. Not safe for water supply.

Ultragrade Performance PURE 15, 19, 20, 70: Flammable. Not safe for water supply.

Vapour Booster Pump Fluid 201: Flammable. Not safe for water supply.

Dear Customer

Edwards Policy on REACH and RoHS compliance

Ethical, sustainable business practices, and the legislation that supports them, are fundamental to Edwards and our customers. Within that context, the most common customer concerns relate to the following pieces of legislation:

REACH Regulation (EC) 1907/2006 covers the Registration, Evaluation, Authorisation and Restriction of Chemicals with the objective of protecting human health and the environment by regulating chemicals and their safe use. Restrictions result from risk based assessment of detailed research into the impact of a Substance through its entire lifecycle.

All our products are in the scope of and fully compliant with the requirements of this Regulation. Our policy is to provide products which do not contain Substances of Very High Concern (SVHC) above the 0.1% weight threshold specified by REACH wherever possible. When substances already in use are added to the Candidate List we comply with the Article 33 requirements and initiate work to identify, validate and implement alternatives while maintaining product performance.

EU RoHS Directive 2011/65/EU is a CE Mark Directive designed to reduce toxic electronic waste by prohibiting the use of specified hazardous substances above a defined level, unless a special Material Exemption exists. Originally limited to specific Categories of electrical and electronic equipment (EEE), the scope of this Directive is expanding. By July 2019 all EEE will be in scope unless specifically excluded.

China RoHS, the Management Methods for the Restriction of the Use of Hazardous Substances in Electrical and Electronic Products Order No. 32 does not prohibit the use of restricted substances other than for product listed in the Management Catalogue. Instead, the general requirement is for appropriate product marking and a Material Declaration where substances are present above the defined limits; these define the Environmentally Friendly Usage Period (EFUP), or safe working life under normal use, and indicate where the substances can be found to support safe recycling practices.

Our policy is to comply with EU RoHS ahead of any legal requirement, including non-electrical accessories and components. Compliance is stated in the EU Declaration of Conformity, a Material Declaration (in English) is available on request for non-electrical products. Our EEE available in China falls under the general requirements of China RoHS and is appropriately marked and, where required, supported by a Material Declaration (in Chinese).

In support of our commitments and policies, we have a rigorous supplier selection process and work closely with our supply chain to ensure the compliance of all procured substances and articles against this and other relevant legislation.

We are actively working on compliance with the requirements of Delegated Directive (EU) 2015/863, adding 4 phthalates to Annex II. Where we work with formulators for our bespoke branded lubricants, or act as distributor for a select range of other products, we verify REACH compliance and provide appropriate and current safety information to our customers in addition to our ongoing activity to maintain compliance under REACH.

At this time we have a limited number of thermal abatement systems (e.g. Atlas, eZenith) which contain Refractory Ceramic Fibres (RCF). These are fully enclosed within the product, and a suitable replacement is due to be launched shortly.

We use compact lithium coin cell batteries in all electronic equipment with real-time equipment monitoring capability. These batteries, containing 1,2-dimethoxyethane (EGDME) sealed within the case, are used for their long life and reliability characteristics. The substance is essential to the reliable performance of the battery; there are currently no known alternatives but we are actively monitoring battery technology developments to identify a suitable replacement.

Some of our products have components which include Lead (Pb), predominantly electronics with some Aluminium and Brass components, and all covered by valid EU RoHS Annex III Material Exemptions. Combined with intelligent material selection in our design processes, ongoing activity within the electro technical and materials technology industries support our commitment to remove this substance from our products.

For more information see the Environmental section of our Corporate Responsibility website at www.edwardsvacuum.com. You can also get in touch through your normal contact or online via www.edwardsvacuum.com/contact.

Ian Stones
Vice President, Technology

Short STAMP Take Permit Letter

3/8/23

DEP.R8@dec.ny.gov

Dear Thomas Haley,

I am thankful that the NYS Department of Environmental Conservation (DEC) is welcoming comments on the Article 11 Part 182 Take Permit proposal to use the habitat of the endangered Short-Eared Owl and the threatened Northern Harrier for industrial purposes at STAMP in Alabama, NY. I'm outraged with the proposal to build a massive industrial park in between the Iroquois National Wildlife Refuge, the Tonawanda State Wildlife Management Area, the John White Wildlife Management Area, and the Tonawanda Seneca Nation (which is sparsely populated by people, and essentially functions as a fourth wildlife refuge bordering STAMP).

THE WORST POSSIBLE PLACE: These wildlife refuges are home to many endangered and threatened species that would naturally visit the "STAMP" lands in the middle of them. Yet, if an industrial park is permitted to function in the worst possible place, then these species will do more than simply abandon the land that the Genesee County Economic Development Center (GCEDC) has hungered over. Naturally, the immense disturbance of a STAMP industrial park would inevitably drive many of them far from these four wildlife refuges. If profits motives go unchecked, then endangered and threatened species will clearly become even more imperiled.

THE RESERVATION: The reservation of the Tonawanda Seneca Nation ends right at the western edge of STAMP, which clearly infringes on their Nation's sovereignty. Worse yet, the most pristine region of wilderness in their Nation—the Big Woods—sits adjacent to STAMP. The Nation continues to oppose factory development on their traditional land that was unjustly stolen from them long ago.

GOODBYE TO THE BIRDS: GCEDC would like to develop 665 acres of open habitat at STAMP, most of which is ideal for endangered Short-Eared Owls and threatened Northern Harriers to live in. Both species have been seen repeatedly at STAMP and on the neighboring state and federal wildlife refuges, yet this won't be the case for long. This is because they were both spotted dozens of times in surveys last winter, while Short-Eared Owls weren't at all spotted and Northern Harriers were only spotted once at STAMP this winter. Power Plug, the first tenant of the would-be industrial park, has clearly already chased them away; I can't imagine how many species the next two factories would disrupt.

A JOKE OF A "MITIGATION PLAN": The GCEDC (via CC Environment & Planning) claims that the killing or harming of these species can be justified through a mitigation plan which provides benefits for affected species even as it harms them. They claim that "a 1:1 (new/improved: impacted) ratio of quality habitat must be created or enhanced." By their own logic, as much land must be given to these species as is being taken from them: a 1:1 ratio. Even so, GCEDC aims to develop 665 acres of ideal habitat for these owls and harriers while only allotting two grassland fields to them, totaling only 58 acres. The ratio 665:58 acres is actually an 11:1 ratio whereby 11 times more land goes to greedy industry than to these endangered and threatened species.

While these species could use the entirety of STAMP land previously, industrial park conversion would mean that they could only use the few areas not converted to factories and parking lots. Taking a pitiful 58 acres of farmland and making it grassland will not benefit them in any substantial way, especially for Short-Eared Owls since they generally require unbroken tracks of at least 247 acres (as reported in Cornell Lab's Birds of the World). This is especially true given that these species would surely be chased

off this land due to the construction process, massive factory buildings, expansive parking lots, loss of food sources, thousands of people, vehicles every 1-2 seconds, and the related noise, light, and air pollution:

WHAT WILL SCARE THE BIRDS AWAY:

1)**Construction**: GCEDC would like factory construction at STAMP to occur over the course of six stages over multiple years, scaring away birds over an extensive period with bulldozing, excavating, rerouting power lines, factory building, water storage tank construction, and creating parking lots.

2)**Buildings**: In addition to Plug Power's ongoing factory construction at STAMP, Edwards Vacuum intends to build two 1,750 foot-long factory buildings on top of two wetlands and Scannell intends to build three 1,219 foot-long factories.

3)**Parking lots**: In addition to Plug Power's lot, Edwards Vacuum would like to pave up to 500 parking spaces and Scannell aims to pave 991 parking spaces worth of habitat.

4)**Food source loss**: As insects, other birds, voles, and other small mammals flee the area for all of these reasons, then these endangered and threatened birds will lose their sources of food.

5)**People**: Over 9,000 people would be employed at STAMP according to GCEDC claims, most likely from far-away places. Yet even small groups of people commonly cause birds to flee their habitat.

6)**Vehicles**: GCEDC expects 2,749 vehicle trips at the Peak PM hour (which equates to 1 vehicle every 1.3 seconds), and 2,034 vehicle trips at the AM Peak hour (which equates to 1 vehicle every 1.77 seconds).

7)**Noise**: Construction, functioning factories, vehicles, and people will obviously create a lot of noise which will easily scare away birds and other animals.

8)**Light**: Nighttime lighting on 10 to 20-foot poles will further deter birds from visiting their habitats that are being renamed as STAMP.

9)**Air emissions**: Plug Power and Edwards Vacuum aim to house explosive liquids and gases, while the latter will emit various toxins into the air that can cause cancer and irritate the eyes and respiratory track of people and other animals. Scannell has not specified what they'd like to make and how it will pollute the environment.

The GCEDC (via CC Environment & Planning) claims that "mitigation will be required to offset unavoidable habitat impacts". Yet there is nothing "unavoidable" about allowing the habitat destruction of endangered and threatened species so that corporate leaders can massively expand their profits. I am outraged with the Article 11 Part 182 Take Permit proposal written on behalf of GCEDC; they need to get away from the land between these four reserves, and they should take Plug Power, Edwards Vacuum, and Scannell with them.

Sincerely,

Kirk Scirto, MD, MPH

ALLIES: ORGANIZATIONS & INDIVIDUALS

Photo by Carrick Palmer. Image description: Closeup of American Gromwell, a tiny five-petaled yellow flower, amidst much larger pointed deeply veined leaves and a blurred background of green.

The following organizations and individuals have publicly voiced their opposition to the STAMP project and or the developer's application for a NY De Environmental Conservation Part 182 "Take" permit.

Organizations in Opposition to STAMP

Buffalo Nekanehsakt

Clean Air Coalition of WNY

W

W

Global Justice Ecology Project

Sierra Club - Atlantic Chapter

Buffalo Niagara Waterkeeper - click here to read the letter

Allies of Tonawanda Seneca Nation website:

https://alliesoftsn.weebly.com

Organizations Opposing the NYDEC Part 182 "Take" Permit

New York State Ornithological Association, Inc

Save Ontario Shores

Friends of Time Beach Nature Preserve

Lake Ontario Waterkeeper

National Audubon Society New York Office - click here to read the letter

Individual Comments Submitted to the NYDEC in Opposition to the Part 182 "Take" Permit

Letter from Atty. Arthur J. Giacalone

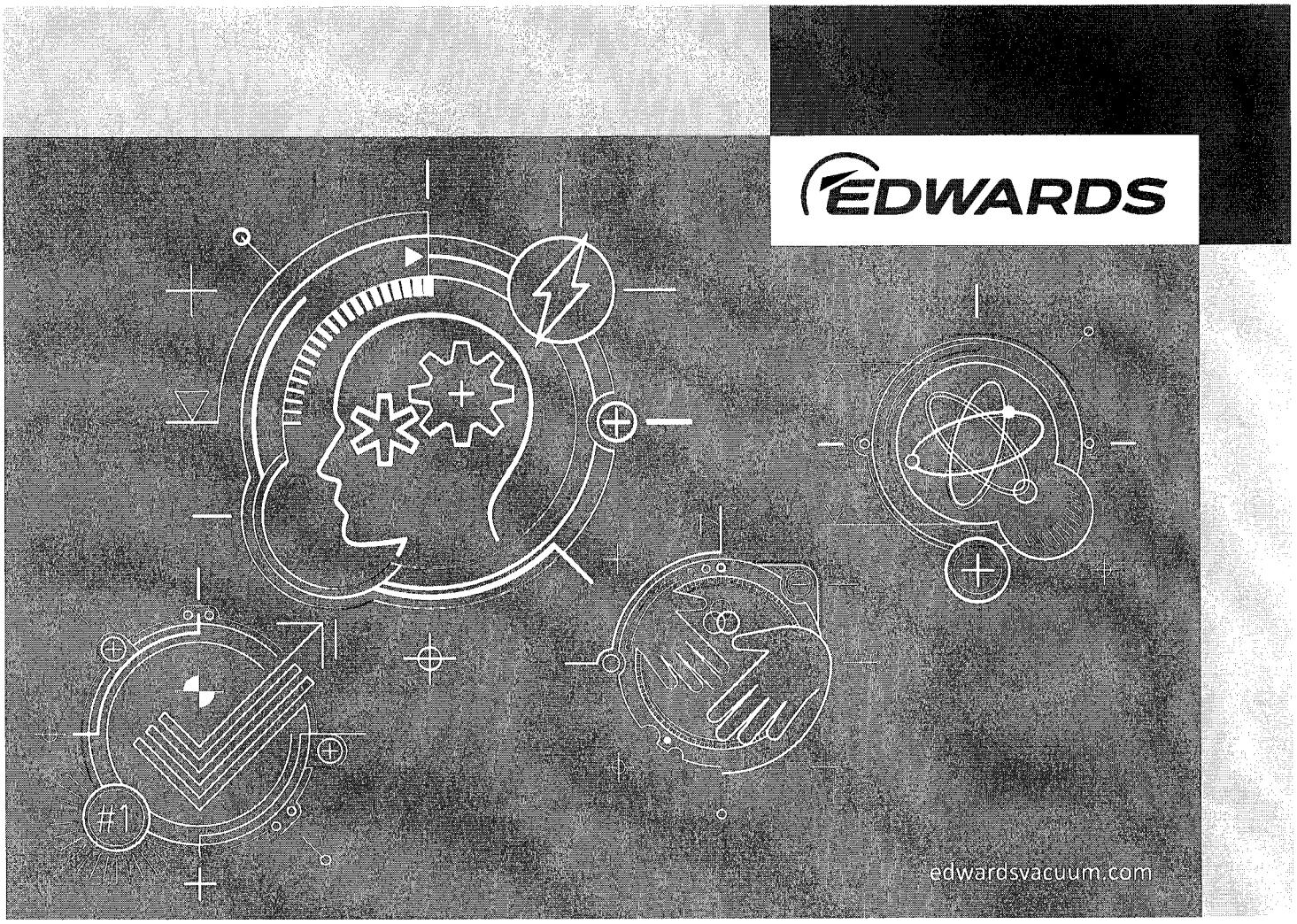
Letter from David DuBois

Letter from Dr. Kirk Scirto

Letters from Dr. Raymond Vaughn, PhD

MENU

POWERED BY



Vacuum Pump and Vacuum Systems

SAFETY MANUAL

P40040100_E

Original instructions

Copyright notice

Contents

Introduction

Scope of this publication

This document contains safety information associated with the specification, design, operation and maintenance of vacuum pumps and vacuum systems.

The document identifies some of the potential hazards which can arise and provides guidelines intended to help minimize the probability of safety hazards and to ensure that, if a hazard arises, it is suitably dealt with.

This document is intended to be read by anyone who specifies, designs, installs, operates or maintains vacuum pumps and vacuum systems. We recommend that this is read in conjunction with:

- The Instruction Manuals supplied with your equipment
- Information provided by the suppliers of your process gases and chemicals
- Information supplied by your safety department.

WARNING:

Failure to obey the safety instructions given in this manual and the relevant pump instruction manual can cause serious harm or death.

If you require any further information on the suitability of Edwards products for your process application, or on safety aspects of your vacuum pumps or vacuum systems, please contact your supplier or Edwards.

Explosion risks

Note:

Edwards pumps are available that meet the European ATEX directive for equipment used in potentially explosive atmospheres.

Unexpected explosions are invariably caused by deviation from safety guidelines. Nevertheless, some of the incidents of explosions have been extremely violent and could have caused serious injury or death.

Common causes of violent rupture of a vacuum system component are ignition of flammable materials, or the blockage or restriction of the pump exhaust. To avoid hazards, you should pay attention to the following to help ensure the safe operation of your vacuum pumps and systems.

- Unless your system has been designed for pumping material at concentrations where it could be ignited in the vacuum pump, you must ensure that mixtures of flammables and oxidants are kept outside the flammable range. The use of inert purge is one way of achieving this. See *Avoiding the flammable zone* on page 21.
- Ensure that exhaust blockages cannot occur during operation, either because of mechanical components (for example, valves or blanks) or because of process materials or by-products depositing in pipelines, filters, and other exhaust components, unless your system has been designed to cope with it.
- Use only PFPE (perfluoropolyether) oils in places of the pump mechanisms which are exposed to high concentrations of oxygen or other oxidants. Other types of oils

sold as "non-flammable" may only be suitable for use with concentrations of oxidants up to 30 % v/v.

- Ensure that the accidental over pressure of a deliberately closed and isolated vacuum system cannot occur; for example, as a result of a fault in a pressure regulator or purge control system.
- Where the pumped product can react violently with water, it is recommended that a cooling material other than water (for example, heat transfer fluid) be used in the cooling circuit. Please consult Edwards for advice.

When hazards arise

Hazards can arise during all phases of a system's life. These phases are:

- Design
- Construction
- Operation / Commissioning
- Maintenance / Decommissioning.

The types of problem which arise in each phase are summarized below. In all cases, you must be aware that you can minimize the hazards in your system only when you have a thorough understanding of the equipment and process / application in the system. If you are in doubt, you must ask your suppliers for more information or advice.

Design

When you design your system, you must choose the correct type of equipment for your application. You must consider:

- the technical specification of the equipment
- the materials used in the construction of the equipment
- the operating consumables used with the equipment (such as lubricants and operating fluids)
- the process conditions and materials.

You must also think about the general suitability of the equipment for your application and ensure that it will always be used within its specified operating conditions.

You must establish design procedures to ensure that errors in the design are reduced to a minimum. Such procedures should include an independent check of design calculations, as well as consultation on design parameters.

Hazard analysis must always form part of your design review. You can eliminate many potential hazards by careful consideration of the use of equipment in your system.

Construction

Reduce the probability of the occurrence of a hazard during construction by the use of skilled and qualified personnel and quality assurance procedures. Skilled personnel are able to identify the correct components that are required during assembly and are also able to identify faulty or poorly manufactured components and equipment. Quality assurance procedures will help to identify and rectify poor workmanship and will ensure that the design specification is strictly followed.

Personnel must take special care and observe all safety precautions when installing new equipment in a system in which toxic, corrosive, flammable, asphyxiant, pyrophorics or other hazardous substances have been pumped, produced or may still be present.

Electrical equipment must be installed by skilled / qualified personnel, in accordance with all appropriate local and national electrical regulations.

Operation / Commissioning

Hazards can be caused during operation by equipment and component failure as a result of age, improper use or poor maintenance. Reduce the probability of such hazards by proper training in the use (and maintenance) of the equipment. Where necessary, refer to the information supplied by Edwards and your other suppliers in the form of Instruction Manuals, training and after sales service.

Maintenance / Decommissioning

To prevent personnel coming into contact with dangerous substances, special care must be exercised and all safety precautions must be observed during maintenance of a system in which toxic, corrosive, flammable, pyrophoric, asphyxiants or any other substances have been pumped or produced.

Consideration should also be given to a planned maintenance program, and to the safe disposal of components which may be contaminated with dangerous substances. You must follow the maintenance advice given in the instruction manuals for all equipment to ensure safe and reliable operation. Typically ATEX systems have additional requirements.

Chemical sources of hazards

Chemical reactions and explosions

You must carefully consider all possible chemical reactions which in normal use, misuse and failure conditions may occur at any point within your vacuum system. In particular, you must carefully consider reactions which involve gases and vapours which can lead to explosions. Experience has shown that explosions have occurred in which there were materials involved which were not originally considered by the system designer, and in which the failure mode of such equipment had not been taken into account.

Homogeneous reactions

Homogeneous reactions occur in the gas phase between two or more types of gas molecules. Gas combustion reactions are usually of this form. For example, to our knowledge, the reaction between Silane (SiH_4) and oxygen (O_2) is always homogeneous. Therefore, if you have such reactions in a manufacturing process, you must carefully control the process pressure and reactant concentrations to prevent the occurrence of excessive reaction rates.

Heterogeneous reactions

Heterogeneous reactions require a solid surface to occur i.e. some gas molecules only react when they are adsorbed onto a surface, but do not react in the gas phase at low pressures. This type of reaction is ideal for certain processes since it minimizes the effects of reactions which occur within the process chamber, reduces the generation of particulate, and reduces the probability of contamination.

Most heterogeneous reactions become homogeneous at higher pressures, commonly well below atmospheric pressure. This means that the way the gases react in process chambers will not necessarily relate to the way that they react when compressed by a vacuum pump.

Problems with abnormal reactions

Abnormal reactions can occur when chemicals come into contact with gases or materials that the system designer has not anticipated. This can occur, for example, when there is a leak which allows either atmospheric gases to leak into the system, or toxic, flammable, explosive or other hazardous gases to leak out into the atmosphere.

To prevent the occurrence of these reactions, you should maintain a leak tightness of 1×10^{-3} mbar l s^{-1} (1×10^{-1} Pa l s^{-1}), or lower, in your system. High vacuum applications would typically maintain a leak tightness of 1×10^{-5} mbar l s^{-1} (1×10^{-3} Pa l s^{-1}) or lower. You must also ensure that all valves in the system are leak tight across their seats.

Gases which do not normally come into contact with each other during the process cycle may be mixed in the pumping system and exhaust pipelines.

It is possible that water vapour or cleaning solutions may be present in the process chamber after routine maintenance procedures. This could occur after the process chamber has been flushed and cleaned. Water vapour may also enter the system from exhaust ducts and exhaust scrubbers.

Where solvents are used to flush process deposits from the vacuum system, it is important to ensure that the selected solvent is compatible with all the process materials in the vacuum system.

Explosion hazards

The source of explosion hazards generally falls into one of the following categories:

- Oxidants
- Flammable / Explosive materials
- Pyrophoric materials
- Sodium azide.

Note that, in European Union (and some other) countries, suppliers of process materials are required by law to publish physical and chemical data for materials which they sell (usually in the form of Material Safety Data Sheets). The data for a material must include, where applicable, information about the upper and lower explosive limits, the physical and thermodynamic properties of the material, and any health hazards associated with the use of the material. Refer to this information for guidance.

Oxidants

Oxidants such as oxygen (O_2), ozone (O_3), fluorine (F_2), nitrogen trifluoride (NF_3) and tungsten hexafluoride (WF_6) are often pumped in vacuum systems. Oxidants react readily with a wide range of substances and materials and the reaction often produces heat and an increased gas pressure. The potential resultant hazards include fire and over-pressure in the pump and / or exhaust system.

To pump these gases safely, you must follow the gas supplier's safety instructions, together with the following recommendations:

- Always use a PFPE (perfluoropolyether) lubricant in pumps which are used to pump oxygen in concentrations above 25 % by volume in an inert gas.
- Use PFPE lubricants in pumps which are used to pump gases in which the percentage of oxygen is normally below 25 % by volume, but which could rise to above 25 % under fault conditions - if other oxidants other than oxygen are pumped, please consult the lubricant supplier for recommended levels of the oxidant present.
- PFPE lubricants are the preferred lubricants, but hydrocarbon type lubricants can be used if a suitable inert gas purge is used to guarantee that the oil is not exposed to unsafe levels of the oxidant.

Under normal circumstances, PFPE lubricants will not oxidise or break down in an oil-sealed rotary vane or piston pump oil box or gear box and so this reduces the probability of an explosion.

Note that thermal decomposition of PFPE lubricants may occur at or above a temperature of 290 °C in the presence of air and ferrous metals. However, the thermal decomposition temperature is lowered to 260 °C when titanium, magnesium, aluminium or their alloys are present.

If you do not want to use PFPE lubricants in oil-sealed rotary vane or piston vacuum pumps, you may dilute the oxidant to a safe concentration with an inert gas such as dry nitrogen. This approach is only feasible for low flow rates of oxidant gases. You must install safety features in your system to ensure that the minimum flow of the inert dilution gas required to reduce the concentration of the oxidant to a safe level is always available, and to ensure that

the flow of oxidant does not exceed the maximum allowed flow rate. You must design your system so that the flow of oxidant stops immediately if these conditions are not met.

We recommend that you use Edwards dry pumps when you pump oxidants (see Section 7.2Edwards dry pump *Edwards dry pumps* on page 28). Dry pumps have no sealing fluids in the swept volume and so there is a greatly reduced probability of the occurrence of an explosion if you use a dry pump to process oxidants. Edwards recommends an inert gas purge for the bearings and into the gear box when a hydrocarbon lubricant is used.

Flammable / Explosive materials

Many gases and dusts, such as hydrogen (H2), acetylene (C2H2), propane (C3H8) and finely divided silicon dust are flammable and / or explosive in certain concentrations in an oxidant if an ignition source is provided. An ignition source could arise, for example, from a localised heat build-up. This is discussed in Section 6.8Sources of ignition *Sources of ignition* on page 24.

You can avoid the explosion hazard by ensuring that the concentration of the potentially flammable mixture is kept outside the flammable zone. Further details are given in Section 6.5Avoiding the flammable zone *Avoiding the flammable zone* on page 21.

Another method you may be able to use to reduce the probability of explosion is to eliminate the ignition source. Further details are given in Section 6.8Sources of ignition *Sources of ignition* on page 24.

Where it is not possible to avoid the flammable zone, you must ensure that the equipment is designed to avoid or to contain any resulting explosion without rupturing or transmitting a flame to the outside atmosphere. The use of flame arrestors is discussed in Section 6.7Use of flame arrester protection systems *Use of flame arrester protection systems* on page 24. If the external atmosphere of your vacuum system is hazardous you must ensure that all equipment is suitably rated for it.

Within the European Union the ATEX directive gives clear guidance on the design of equipment that is to be used in potentially explosive atmospheres.

Where it is possible to avoid pumping potentially explosive atmospheres under all conditions, all types of Edwards vacuum pumps may be used to pump flammable vapours or gases.

Pyrophoric materials

Under most conditions, pyrophoric gases such as silane (SiH_4) and phosphine (PH_3) or pyrophoric dusts spontaneously react with air at atmospheric pressure, so that combustion could occur when these gases come into contact with air, or other oxidant, where the pressure is sufficiently high to support combustion. This can happen if air leaks into the system or if the system exhaust comes into contact with the atmosphere. The heat from the reaction of an oxidant and pyrophoric gas can act as an ignition source for explosive materials.

If exhaust gases from different processes are vented through a common extraction system, combustion and / or an explosion could result. It is therefore recommended that you use independent extraction systems when you pump pyrophoric materials.

Processes that use phosphorus may cause solid phosphorus to condense in the vacuum system or its exhaust. In the presence of air and subject to even slight mechanical agitation (for example, activation of a valve or pump rotation caused by a pressure differential), phosphorus can spontaneously burn to release toxic gases. It is recommended that pumps

are operated with an inert gas purge and run sufficiently hot to minimize the condensation of phosphorus.

PFPE lubricants can absorb process gases which, in the case of pyrophoric materials, can lead to local ignition when the lubricant is exposed to air. This hazard can become particularly apparent during servicing, or where an oxidant is pumped through the system after a pyrophoric gas or dust. You can reduce the probability of an occurrence of this hazard if you use Edwards dry pumps which contain no lubricants in the swept volume. You must ensure that all pyrophoric material has been passivated before it is vented or handled.

Sodium azide

Sodium azide is occasionally used in the preparation of products for freeze drying and in other manufacturing processes. Sodium azide can produce hydrozoic acid. Hydrozoic acid vapours can react with heavy metals to form unstable metal azides. These azides may explode spontaneously.

The heavy metals include:

• Barium	• Cadmium	• Caesium
• Calcium	• Copper	• Lead
• Lithium	• Manganese	• Potassium
• Rubidium	• Silver	• Sodium
• Strontium	• Tin	• Zinc
• Copper and zinc alloys (such as brass)		

Brass, copper, cadmium, tin and zinc are commonly used in many components in vacuum pumps, accessories and pipes. If your process system uses or produces sodium azide, you must ensure that the gas path in your process system does not contain heavy metals.

Toxic or corrosive materials

Many vacuum applications involve the processing and handling of toxic and corrosive materials and require specific procedures.

Toxic materials

Toxic materials by their nature are hazardous to health. However, the nature of the hazard is specific to the material and its relative concentration. You should comply with correct handling procedures provided by the supplier of the material and applicable legislation.

You should also consider the following points:

- **Gas dilution** - Facilities exist to allow dilution of toxic process gases as they pass through the vacuum pump and into the exhaust. You may use this dilution to reduce the concentration below the toxic limit. We recommend that you monitor your dilution gas supply to alarm if the supply fails. Specifically for oil sealed pumps, refer to the pump instruction manual for possible oil return kits required.
- **Leak detection** - Edwards vacuum systems are generally designed to be leak tight - to a level of < 1 x 10-3 mbar l s-1 (< 1 x 10-1 Pa l s-1). However, the leak tightness of the adjoining system cannot be ensured. You must use a suitable leak detection method (for example, helium mass spectrometry leak detection) to confirm the integrity of the vacuum and exhaust system.
- **Shaft sealing (Edwards dry pumps)** - Many dry vacuum pumps use a gas purge system to ensure process gases do not enter the gearbox and bearings and thereby potentially the atmosphere surrounding the vacuum system. You must ensure the

integrity of this gas supply when handling toxic materials. Non-venting regulators must be used in combination with a non-return check valve, as discussed in Section 7.4.3Pressure regulators *Pressure regulators* on page 29.

- **Shaft sealing (Edwards other pumps)** - Oil flooded shaft-seal designs (for example, EH mechanical booster pumps and EM rotary vane pumps) minimize the risk of process gas leakage (or of the in-leakage of air), and can give a visual warning (oil leakage or oil level reduction) before a hazard arises. Other seal designs may not give adequate warning of failure.
- **Magnetic drives** - Where total hermetic sealing is required, Edwards EDP dry vacuum pumps can be supplied fitted with a magnetic drive employing a ceramic containment vessel which eliminates the need for shaft sealing on the motor input shaft.

If pressure relief valves or bursting disks are used to relieve excess pressure, ensure that they are safely vented into a suitable exhaust system, which prevents a toxic hazard.

When you return contaminated vacuum equipment to Edwards for service or maintenance, you must follow the specific procedures (Form HS1) and complete the declaration (Form HS2) given in the Instruction Manual supplied with the equipment.

Corrosive materials

When pumping corrosive materials with Edwards vacuum pumps, you should take note of the following points:

- **Moisture ingress** - You must take special care to prevent the ingress of moist air which can accelerate corrosive effects. An inert purge should be used as part of the shut down procedure in order to flush corrosives out of the system prior to shut down.
- **Dilution** - Use a suitable inert dilution gas to prevent condensation of corrosives and hence mitigate the resulting corrosion.
- **Temperature** - Increase the pump and exhaust line temperature to prevent condensation of water vapour which can therefore limit corrosion. In some cases higher temperatures can increase corrosion rates, please refer to the paragraph below.
- **Corrosion of safety equipment** - Where safety critical equipment (such as flame arrestor elements, temperature sensors and so on) could be damaged by corrosive products in the process gas flow, their materials of construction must be selected in order to remove this hazard.
- **Phase changes** - Unplanned phase changes can result in condensation. Consideration of changes in temperature and pressure is required to avoid this hazard.
- **Unplanned reactions** - Unplanned chemical reactions can lead to the generation of corrosive products. Careful consideration should be given to the possibility of cross contamination when equipment is used for more than one purpose.

Some corrosive materials such as fluorine, chlorine, other halogens or halides and oxidizing agents such as Ozone or reducing agents such as Hydrogen sulfide can also attack the materials they are in contact with, without the need for any liquid to be present. In these cases the partial pressure of the corrosive material should be minimized through the use of a suitable dilution gas. The materials of construction of the vacuum system and the pump model should be selected as being compatible with the particular gas in the concentrations expected. High temperatures can accelerate corrosion and so should be minimized where other process considerations allow. Maintenance intervals should be reviewed to consider the effect of corrosive materials on the system.

Summary - chemical sources of hazards

- Consider all possible chemical reactions within your system.
- Make allowance for abnormal chemical reactions, including those which could occur under fault conditions.
- Refer to Material Safety Data Sheets when you assess the potential hazards associated with your process materials.
- Use dilution techniques to minimize reactions with oxidants and flammable materials.
- In the EU where a flammable zone has been specified, you must use a suitable certified ATEX vacuum pump. For all other regions Edwards recommends the use of pumps that have been certified under the ATEX directive wherever possible.
- Use the correct type of lubricant in your pump when you pump oxidants, and consider the use of a dry pump.
- Do not use heavy metals in the gas path of your process system if your process uses or produces sodium azide.
- Take specific care when handling toxic, corrosive or unstable materials.

Physical sources of hazards

Types of over-pressure hazard

The over-pressure of components in a vacuum system can be a result of any of the following:

- the introduction of high pressure gas into the system
- the compression of gas by the system
- a sudden increase of temperature of volatile gas in the system
- a phase change leading to the deposition of solid product
- reaction inside the vacuum system
- blocked exhaust.

Other causes are possible.

Over-pressurised pump exhaust

A common cause of an over-pressurised exhaust is a blockage or restriction in the exhaust system. This can lead to failure of the pump or other components in the system.

Vacuum pumps are compressors which are specifically designed to operate with high outlet-to-inlet compression ratios.

In addition to the potential over-pressure caused by the operation of the pump, the introduction of a compressed gas (such as a purge or dilution gas) can also over-pressurise the system if the exhaust system is restricted or blocked.

Where a pump is fitted with flame arrestors or other equipment like filters or condensers on the exhaust side, it is essential that the exhaust back pressure does not exceed the maximum limit stated in the vacuum system Instruction Manual. A suitable maintenance program should be employed to ensure that process deposits do not block the exhaust system and flame arrestor. If this is not practical, then a pressure sensor located between the pump and the flame arrestor should be used to detect blockage. Similar considerations should be given to other exhaust equipment such as filters and condensers.

Sublimation or phase change can lead to blockage by solid deposits of process pipework and an over pressure hazard.

Refer to the Instruction Manuals supplied with the vacuum pumping system for maximum and recommended continuous back-pressures of all your exhaust components including your vacuum pump. Design the exhaust system so that these limitations can be met.

For limits during continuous operation please refer to the pump instruction manual.

Protection against exhaust over-pressure

We generally recommend that pumps are operated with the exhaust piped into a freely vented exhaust system. However, your exhaust system may incorporate components which may cause a restriction or blockage of the system. If so, you must also incorporate suitable methods of protection against over-pressure. Such methods include, for example:

Component	Protection Method
Valve in exhaust pipeline	Interlock the valve so that it is always open when the pump is operating.

Component	Protection Method
	Incorporate a pressure relief by-pass.
Exhaust scrubber	Incorporate a pressure relief by-pass.
	Incorporate a pressure monitor and interlock this with the pump so that the pump is switched off when the exhaust pressure is too high.
Flame arrestor	Exhaust pressure measurement.
	Differential pressure measurement.
Oil mist filter	Incorporate a pressure relief device.

To summarize, if the pressure in the exhaust system approaches the maximum allowable pressure:

- Reduce the pressure by a device in a gas path parallel with the restriction or blockage.
- Reduce the source of the pressure. Stop the pump or shut down any compressed gas supplies.

Inlet over-pressure

Compressed gas supplies and back pressure

It is common to underestimate the required pressure rating of the pipeline connecting the pump to the vacuum system, due to the belief that this pipeline will not be subjected to pressures above atmospheric pressure. In practice, this is only true under normal design operating conditions. You should estimate the required pressure rating to allow for higher pressures caused by abnormal or fault conditions.

A common cause of over-pressure in pump inlet pipelines is the introduction of compressed gases (such as purge gases) when the pump is not operating. If components in the inlet pipeline are not suitable for the pressures which result, the pipeline will rupture and process gases will leak from the system. A back flow of gases from the system into a process chamber which itself is not capable of withstanding the pressure which results, will also cause ruptures and leaks.

When you connect compressed gas supplies to your system through pressure regulators which are designed to provide a low pressure flow, ensure the pressure is within the rating of the system.

The non-venting pressure regulators commonly used will cause the pressure within the system to rise to the pressure of the gas supply to the regulator, if operated under conditions where there is no process gas flow through the system. You must therefore use one of the following two methods to prevent over-pressurisation:

- reduce the pressure, allow the gases to by-pass the pump and flow into a freely vented exhaust
- monitor the pressure of the system and use a positive closure valve to shut off the supply of compressed gas at a preset pressure level.

Incorrect pump operation

Special precautions must be taken until it has been established that the pump is operating correctly.

If the direction of rotation of the pump is incorrect and the pump is operated with the inlet blocked or restricted, the pump will generate high pressure in the inlet pipeline. This could result in rupture of the pump, the pipelines and / or components in the pipeline.

Always use a blanking plate loosely secured by screws to the pump inlet until you have established that the direction of rotation of the pump is correct.

Operation at high rotational speeds could result in pump break up. Do not operate the pump at rotational speeds above the maximum designed speed of rotation; this is particularly important where frequency inverters are used for speed control.

Summary - physical sources of hazards

- When you perform safety calculations, ensure that the safe working pressures for all components in the system are taken into account.
- Ensure that the pump exhaust cannot become blocked or restricted.
- If there is a risk of high pressures in excess of the pressure rating of any part of your vacuum system occurring, we recommend that your system incorporates suitably positioned pressure measuring equipment. This must be connected to your control system to put your system in to a safe state, if an over-pressure condition is detected.
- Take account of abnormal and fault conditions when you assess the required pressure rating of the vacuum system and pump components.
- Ensure that you incorporate the correct type of pressure relief device and that it is suitably rated for your application.
- Ensure that compressed gas supplies are properly regulated and monitored. Switch off these supplies if the pump is switched off.
- Where possible, ensure the supply pressure to any regulated purges is lower than the maximum allowable static pressure of the system. Alternatively, ensure that pressure relief is possible in the event of component failure.

Hazard analysis

The techniques of hazard analysis provide a structured approach to the identification and analysis of the hazards in a system in normal use, and the hazards which may arise under fault and failure conditions. Such techniques provide a route to hazard management; the use of these techniques may, in many circumstances, be a statutory / legal requirement. To be fully effective, hazard analyses must begin during the initial design of a system and must continue through the installation and operation, as well as the maintenance and decommissioning of the system.

A detailed study of hazard analysis techniques is beyond the scope of this publication. There are, however, many hazard analysis techniques described elsewhere. An example of a technique commonly used in the chemical processing industry is HAZOP (Hazard and Operability Study). This is a procedure for hazard analysis which is concerned with the identification of potential hazards and operating problems.

Typically, hazard analyses generate information about the type of hazards, the severity of these hazards, and the probability that the hazards will occur. This information can be used to decide on the best way to reduce the effects of the hazards to acceptable levels. Depending on the origin of the hazard, it may be possible either to eliminate the hazard, or to reduce the severity of the hazard, and / or to reduce the probability that the hazard will occur. It is, however, rare that hazards can be eliminated completely.

You must consider all possible effects of a hazard when you decide on the best way to manage the hazard. For example, a small hot surface may present a minor hazard for an operator as it could cause a burn. To reduce the probability of the occurrence of a burn, the system designer may provide a visible warning of the hot surface, or may put a guard around the hot surface. However, the hazard analysis of the system may also indicate that the same hot surface could provide a source of ignition for flammable vapours; this might lead to an explosion or to the release of a toxic vapour cloud. To reduce the probability of ignition, the system designer must reduce the temperature of the hot surface, or ensure that the flammable vapours cannot contact the hot surface.

System design

Pressure ratings in a system

As discussed in Section 4 Physical sources of hazards *Physical sources of hazards* on page 15vacuum system pipelines and components are designed to work with internal pressures below atmospheric pressure. In practice, however, it is usually necessary to design your system for use with internal pressures above atmospheric pressure as well. If necessary, you must incorporate pressure relief devices to prevent over-pressurisation.

It is important that you do not allow the inlet pipes and other inlet components to become the weakest part of the system, on the assumption that they will always operate under vacuum, even under fault conditions.

Exhaust systems must always be designed to offer the smallest possible back-pressure to the pump during operation. It is important, however, that you design your exhaust system with an adequate pressure rating; it must be suitable for use with the pressures that can be generated by the pump and also for example by the introduction into the system of a compressed gas, and be suitable for use with the over-pressure protection measures used.

When you perform your hazard analysis, you should always consider:

- External inlets, such as inert gas connections
- Isolation and constriction from all sources, especially in exhaust lines
- Reactions between process gases.

It should be noted that where a vessel contains a volatile liquid and can be isolated from the rest of the system, then the application of external heat (for example, from a fire) may result in internal pressures greater than the design pressure of the vessel. You must consider the need for suitable pressure relief in this case.

Elimination of stagnant volumes

A stagnant volume is any volume in a vacuum pipe or component which is not subjected to a through flow of gas. Examples are the gear box of a mechanical booster pump or the gauge head of an instrument. Valved pipework and nitrogen gas inlet pipes can also become stagnant volumes when they are isolated

Stagnant volumes must be taken into account when you consider the mixture and reaction of process gases which are not normally present together in the process chamber. Pipes, pumps and process chambers generally transport gases linearly, with one gas or gas mixture followed by another. Gases transported in such linear flows are not normally mixed unless the velocity of the exhaust gas is reduced by a restriction or blockage. A stagnant volume is not purged and may be filled with process gases as the pressure in the system rises and falls. In this way, gases which pass through the system at one stage of the process can be retained. These may then react with gases from a subsequent phase of the process. Thorough evacuation of the chamber between the introduction of incompatible gases will guard against the risk of explosion.

You must take special care when considering cross-contamination in stagnant volumes and when the gases are potentially explosive. In particular, you should consider the hazard of build-up in filters and separators and other components. Where appropriate, use high integrity, continuous flows of inert purge gas to reduce the probability of cross contamination.

When pumping flammables, it is possible for stagnant volumes to fill with potentially explosive gases or vapours that cannot be removed by normal purging. Where an ignition source could also be present, specific purging of the stagnant volume should be considered.

Exhaust extraction systems

It is important that you use the correct type of exhaust extraction system for your process. As previously stated, the extraction system must be designed to withstand the pressures of operation and, when hazardous materials are produced or processed, must be sufficiently leaktight to contain the process materials and their by-products and prevent hazardous releases to atmosphere.

Sources of potentially explosive gas or vapour mixtures

When a flammable gas or vapour is mixed with the correct concentration of oxygen or other suitable oxidant, it will form a potentially explosive mixture which can ignite in the presence of an ignition source.

While it is generally apparent if a pumped material is potentially explosive, there are, in the experience of Edwards, some conditions where a potentially explosive mixture is produced due to conditions which were not considered during the design of the system for the process. You must identify all possible process conditions and possible sources of potentially explosive mixtures which could be generated by your equipment. Some examples from Edwards experience are listed below, but the list is by no means exhaustive:

- **Cross contamination** - Where a vacuum pump is being used for a number of duties, it is possible that its use with individual materials is safe, but if the pump is not purged before use with another material, then cross contamination could occur with unexpected reactions.
- **Cleaning fluids** - An application may be viewed as benign, but the use of flammable cleaning fluids and the subsequent drying by evacuation through the vacuum pump can create a potentially explosive mixture.
- **Unexpected materials** - On 'house vacuum' duties where the vacuum pump is used to provide a distributed vacuum system, it is possible to pump flammable materials which were not considered during the system design. These materials may have auto-ignition temperatures lower than the internal temperatures or temperature rating of the vacuum pump.
- **Dissolved vapours** - These can evolve during process operation, and care needs to be taken to select the correct internal Temperature rating for your process. Typically in the Chemical process market, this is covered by ATEX requirements.
- **Air leakage** - The accidental ingress of air or oxidant into a system may change the concentration of a flammable gas or vapour and create a potentially explosive mixture.
- **Flammable sealing liquids** - Where a flammable liquid is used as the sealing liquid in a liquid ring vacuum pump, the ingress of air will create a potentially explosive internal mixture.
- **Condensed process materials** - If there is the possibility of flammable material condensing inside your system, you must be aware that they could react with oxidants from other process steps or with air (for example in the exhaust). This can be avoided by suitable temperature or partial pressure control.

Avoiding the flammable zone

A flammable material will only create a potentially explosive atmosphere if it is combined with air or oxygen or other oxidant and its concentration lies between the Lower Flammability Limit - LFL (or Lower Explosion Limit - LEL) and the Upper Flammability Limit - UFL (or Upper Explosion Limit - UEL). Please note that most data found in literature refers to flammability limits in air, i.e. where oxygen is the oxidant. All further information given below will be based on that assumption.

To be potentially explosive, it is also necessary for the concentration of oxygen to be above the Minimum Oxygen Concentration - MOC (or Limiting Oxygen Concentration - LOC). The MOC (LOC) for the majority of flammable gases is 5 % vol. or greater. (Note: This does not apply to pyrophoric materials which require special precautions.)

There are a number of strategies that can be used to avoid operating with gas mixtures in the flammable zone. The choice of strategy will depend on the outcome of the risk assessment (hazard analysis) for the process and the pumping system:

- **Maintain the flammable gas concentration below the LFL (LEL)**

  To minimize the risk of the flammable gas accidentally entering the flammable zone, a safety margin for below-LFL (LEL) operation should be used.

  A safety margin should be determined by the user following a risk assessment. Some authorities suggest maintaining the concentration at below 25 % LFL (LEL).

  The commonly used method of maintaining a suitable concentration below LFL (LEL) is dilution with inert gas purge (for example, nitrogen), introduced into the pump inlet and/or purge connections. The required integrity of the dilution system and of any alarms or interlocks will depend on the hazardous zone which would result if the dilution system were to fail.

Note:

Ensure that suitable precautions are taken to avoid the risk of asphyxiation.

- **Maintain the oxygen concentration below the MOC (LOC)**

  This mode of operation requires the use of oxygen concentration monitoring of the pumped gases to ensure safe operation. To minimize the risk of the flammable gas accidentally entering the flammable zone, a safety margin for below-MOC (LOC) operation should be used. Available industry standards indicate that where the oxygen concentration is continuously monitored, it should be maintained at less than 2 volume percentage points below the lowest published MOC (LOC) for the gas mixture. Unless the MOC (LOC) is less than 5 %, the oxygen concentration must be maintained at no more than 60 % of the MOC (LOC). If monitoring is only undertaken in the form of routine oxygen level checks, the oxygen level should not be allowed to exceed 60 % of the lowest published MOC (LOC) unless the MOC (LOC) is less than 5 %, in which case the oxygen concentration must be maintained below 40 % of the MOC (LOC).

  The preferred method of maintaining the oxygen level below the lowest published MOC (LOC) is by the rigorous exclusion of air and oxygen from the process and pump system, together with dilution of the pumped gas with an inert purge gas (such as nitrogen), introduced into the pump inlet and/or purge connections, if needed. The required integrity of the air/oxygen exclusion measures and of any alarms and interlocks will depend on the hazardous zone that would result were the exclusion and dilution systems to fail.

Precautions typically required to rigorously exclude air from the process and pump system are given at the end of this section.

- **Maintain the flammable gas concentration above the UFL (UEL)**

  Where flammable gas concentrations are high, then operation above UFL (UEL) can be more suitable. To minimize the risk of any accidental incursion into the flammable zone, a safety margin for above-UFL (UEL) operation should be used. It is recommended that the residual oxygen level in the gas should be maintained at less than 60 % of the absolute oxygen level normally present at the flammable gas UFL (UEL) concentration.

  The preferred method of maintaining the oxygen level below this safety margin, is rigorous exclusion of air and oxygen from the process and pump system. Dilution of the pumped gas with an inert purge gas (such as

  nitrogen) or with additional flammable gas ('padding' gas), introduced into the pump inlet and/or purge connections, may also be needed. The required integrity of the air exclusion measures, of any purge gas introduction system, and of any alarms and interlocks will depend on the hazardous zone that would result were the exclusion and dilution systems to fail.

- **Maintaining the flammable gas concentration below the minimum explosion pressure**

  Every flammable material has got a minimum pressure below which an explosion can't be sustained. If the pressure at the inlet to the vacuum pump can be maintained securely below this pressure then ignitions starting inside the vacuum pump will not be able to spread to the inlet. Precautions, however, must be taken for the exhaust of the vacuum pump.

  Precautions typically required to rigorously exclude air from the process and pump system are as follows:

- **Elimination of air leaks**

  Use a leak detector or conduct a pressure 'rate-of-rise' test. Before admitting flammable materials into the process chamber, it is possible to perform a test to establish that air (oxygen) leakage into the vacuum system is within allowable limits.

  To perform a pressure 'rate-of-rise' test, the empty process chamber is evacuated to a pressure just below the normal operating pressure, and is then isolated from the vacuum pump. The pressure in the process chamber is then recorded over a fixed period of time. As the volume of the process chamber is known along with the maximum allowable air leakage, it is possible to calculate a maximum allowable pressure rise that can occur over the fixed period of time. If this maximum pressure limit is exceeded, action must be taken to seal the source of the air (oxygen) leakage into the process chamber; the test must then be repeated successfully before the admission of flammable materials into the process chamber is allowed.

  In some cases, the ability of the vacuum system to achieve a good base pressure can be used to indicate system leak tightness.

- **Remove all air from the system before the start of the process**

  Before any flammable gas is admitted into the process, the system should be fully evacuated and/or purged with inert gas (such as nitrogen), to remove all air from the system. At the end of the process, repeat this procedure to remove any flammable gas before the system is finally vented to air.

- **For dry vacuum pumps**

Ensure that any shaft or purge seal gas cannot be supplied or contaminated with air under any circumstances, and ensure that any gas ballast port is either sealed, or only used to introduce inert gas.

- **For wet vacuum pumps (e.g oil sealed rotary piston or rotary vane pumps)**

  Maintain the shaft seals fully in accordance with the manufacturer's instructions, and use a pumped and pressurised oil lubrication system with an alarm indication for loss of oil pressure. This system may comprise an external accessory to provide filtered and pressurised lubricating oil, with a pressure switch. Ensure that any gas ballast port is either sealed, or only used to introduce inert gas. Provide an adequate purge of inert gas to the oil box, to remove air before the start of the process.

- **For roots vacuum booster pumps**

  Maintain the primary drive shaft seal fully in accordance with the manufacturer's instructions, and ensure that any purge or 'breather' port connections can only be used to introduce inert gas.

- **Reverse flow**

  Ensure that the system operating procedures and facilities protect the system from any reverse air flow which might result from a pump failure. Ensure that any pumped flammable gases are safely disposed of at the final vent from the pump exhaust. Ensure that flammable gas mixtures cannot arise in the exhaust pipeline, by the use of suitable inert purging of the pipeline before the start of and after the end of the flammable gas process, and by the use of adequate inert gas purging during operation, to prevent turbulent back-mixing of air down the exhaust.

Levels of system integrity

Methods of protection using inert gas dilution have been discussed in earlier sections. The principle of the method is that you mix an inert gas (usually nitrogen) with your process gases to dilute them to a level where an explosion or reaction cannot occur. When you use gas dilution as a primary safety system to protect against possible explosion, you may require a high integrity alarm and interlock system to prevent the operation of the system when the gas dilution system is not operational. The integrity of the gas dilution system should be considered during the risk assessment (hazard analysis), and will depend on the internal zoning (i.e. level of risk) which would result were the dilution system to fail. Current best practice should always be applied to this risk assessment, to determine the required levels of system integrity.

For example, if a dilution system were used to maintain a flammable gas concentration outside the flammable zone, and the result of dilution failure would be that the pumped gas would be inside the flammable zone, continuously or for long periods of time (typically ATEX Zone 0 requirement would consider >50 %), then the dilution system must satisfy one of the following:

- It must be failsafe even in the event of rare malfunction
- It must be safe with two faults present
- It must comprise two independent dilution supply systems.

Alternatively, if the result of dilution system failure would be that the pumped gas would be inside the flammable zone occasionally (typically ATEX Zone 1 condition), then the dilution system must satisfy one of the following:

- It must be failsafe even in the event of expected malfunction
- It must be safe with one fault present.

If the result of dilution system failure is that the pumped gas would be unlikely to enter the flammable zone, or might do so only for brief periods (typically ATEX Zone 2 condition), then the dilution system must be safe in normal operation.

Use of flame arrester protection systems

If the mixture of pumped gases and vapours is flammable (see Section 6.5Avoiding the flammable zone *Avoiding the flammable zone* on page 21) continuously or for long periods of time (i.e Zone 0 condition) and if there is a risk of an ignition source (see Section 6.8Sources of ignition *Sources of ignition* on page 24) becoming active during normal operation or foreseeable malfunction you must fit flame arresters as required to your primary pump (also see Section 7.4.4Flame arresters *Flame arresters* on page 30). Third party certification has been obtained for the use of specific flame arresters with Edwards vacuum pumps, demonstrating their ability to prevent flame transmission along the process pipework or into the surrounding atmosphere.

Where the flammable mixture is present for long periods of time an approved and tested temperature transmitter has to be installed on the inlet flame arrester to detect a continuous burn. If a continuous burn is detected the pump needs to be switched off and isolated from the fuel source. Please contact Edwards for advice on approved flame arresters and temperature transmitters. In order to protect the flame arrester and pump thermally under rare malfunctions (Zone 0) of the pump, an exhaust temperature transmitter must be installed in the exhaust of the pump. Switch off points are dependant upon pumping systems. Please consult the relevant ATEX manual for the pump.

If either temperature transmitter on the inlet or exhaust reach their maximum limit, indicating a fault condition, then suitable actions must be taken. This is application dependent but could include:

- **Stopping the supply of fuel** - Closing a valve located on the inlet of the vacuum pump will prevent the supply of fuel into the vacuum pump
- **Stopping the source of the ignition** - Stopping the vacuum pump by turning off the power to the motor
- **Inerting the area of the burn** - The rapid addition of inert gas into the area of burn (typically, but not always located in the exhaust manifold of the pump), will eliminate the flame. Note that it is possible for a flame to re-ignite if the source of ignition is not removed.

Sources of ignition

Where vacuum pumps are used to pump flammable mixtures, you must consider all possible sources of ignition. Below are some areas of consideration which you can use as part of an overall review. Depending upon your process you might be able to avoid some or all ignition sources. If are unable to avoid the ignition source because of your process condition or system requirement, you must then design your system accordingly.

Note:

Some Edwards pumps are certified by a third party to confirm that (if correctly applied) they will contain an internal explosion.

- **Mechanical contact** - Mechanical contact of rotating and stationary parts inside the vacuum pump and system could provide an ignition source. All Edwards vacuum pumps are designed and built to keep the correct running clearances inside the pump during all operating conditions. To avoid this ignition source it is

important to avoid deposition of materials on the internal surfaces or to clean the pump. The bearings must be kept in good condition, have sufficient lubrication and suitable purge gas to eliminate contact with process gases. The recommended maintenance regime for the bearings must be followed to ensure safe and reliable operation.

- **Particle ingestion** - All pumping mechanisms have the potential to ingest particles which have been created by the process or which are a result of the system manufacturing process. Where these are rolled between a moving surface and a static one, it is possible to generate heat. A suitable inlet screen (mesh) or filter will prevent the ingress of particles into the vacuum pump to reduce the size and volume of particles to a safe amount. Care must be taken to have a suitable maintenance regime for the inlet screen.
- **Dust build up** - The build up of fine compacted dust within internal clearances can occur where any pumping mechanism is placed on a dust generating process. Even with the use of inlet dust filters, it is still possible for small dust particles to enter the pump. With small dimensional changes due to thermal changes, compacted dust can touch a moving surface and create heat.
- **Heat of compression (auto-ignition)** - The internal heat of compression within any compressor must be considered in relation to the auto-ignition temperature of any gases or vapours which are pumped. You must ensure that the pump has a temperature classification that is at least the same or higher than the gases you are pumping.
- **Hot surfaces** - Where flammable gases or vapours are allowed to come into contact with a hot surface, they may ignite if the auto-ignition temperature is exceeded. Note: Edwards pumps and flame arrestors should not be thermally insulated if this could cause increased surface temperatures internally (and externally) leading to auto-ignition.
- **Externally applied heat** - Externally applied heat can occur, for example, in the event of a fire in the immediate area of the vacuum equipment. Under this condition, it is possible to generate internal pressures in excess of the maximum static pressure of the system, and temperatures in excess of auto-ignition temperature. This should be considered as part of the system hazard analysis.
- **Hot process gas flow** - High inlet gas temperatures can lead to internal (or external) surfaces exceeding the auto-ignition temperature of the materials being pumped. High temperature inlet gas can also lead to rotor/ stator seizure. Please consult your vacuum pump instruction manual for maximum allowable internal gas temperatures. Consult Edwards for further advice.
- **Catalytic reaction** - The presence of certain materials can lead to catalytic ignition. All materials of construction in the vacuum system should be considered for their potential to act in this way with the pumped gases or vapours.
- **Pyrophoric reaction** - The heat of combustion of pyrophoric materials caused by air or oxidant ingress could act as an ignition source for any flammable material present. See *Pyrophoric materials* on page 11.
- **Static electricity** - Certain conditions can occur where static electricity can build up on insulated components before discharging to earth in the form of a spark. The potential for static build-up should be considered as part of the system design.
- **Lightning** - Where located in an outdoor location, a lightning strike can provide ignition energy. The potential of this event occurring should be considered as part of the system design.

Summary - system design

In order to design safe vacuum pumping systems, the following points must be taken into consideration. Depending on your application, there may be others.

- If you pump hazardous materials, you must design the system to fail to a safe condition
- Use PFPE (perfluoropolyether) lubricants in pumps when you pump oxidants
- Where inert gas is used to reduce the concentration of the flammable gas below the lower explosion or flammability limit or below the minimum or lower oxidant concentration you must ensure the integrity of the inert gas supply
- The concentration can also be kept above the upper explosion or flammability limit, but suitable safety precautions need to be put in place to ensure that the concentration cannot fall into the flammable range
- Leak test systems and equipment to ensure required leak tightness before use
- Dilute pyrophoric gases to safe levels with an inert gas before the gases are exhausted to atmosphere or mixed with oxidant gases
- You must not allow contact between sodium azide and heavy metals anywhere in the gas path of your system
- You must not allow the maximum pressure of the system to exceed the individual safe level of any single part of the system
- You must always consult the safety information supplied for the substances which you intend to pump
- Consider the use of dry pumps in preference to oil sealed rotary vane or piston pumps where there are hazards associated with the oil in the swept volume
- Where Edwards vacuum pumps are used to pump potentially flammable mixtures, you must consider all possible sources of ignition and the potential consequence of a possible explosion.

The correct choice of equipment

To ensure that you choose the correct equipment for your application, you must consider the limits within which you will require the system to operate. The technical data for Edwards equipment is given in our Product Catalogue, Marketing Publications and in the equipment's Instruction Manual(s). In most instances, further information is available on request; please contact Edwards for further advice.

When you design your vacuum system, take account of the relevant mechanical pump parameters, for example:

- Maximum static pressure (inlet and exhaust)
- Maximum operating inlet pressure
- Maximum operating exhaust pressure
- Conductance of the inlet and exhaust components
- Pressure specification of other components fitted to the pump
- Pressure monitoring in case the exhaust line becomes blocked.

For oil-sealed rotary vane and piston pumps, you must also consider for example:

- Gas ballast flow rate
- Oil box purge flow rate
- Gases and vapours trapped in the oil box
- Gases and vapours absorbed into the oil in the oil box.

The maximum static pressure defines the maximum pressure to which an inlet or outlet connection of a pump can be exposed when the pump is not operational. The pressure is dependant on the mechanical design of the pump.

Oil-sealed rotary vane and piston pumps are designed to operate with inlet pressures at or below atmospheric pressure and, even though the maximum static pressure rating may be above atmospheric pressure, the maximum inlet pressure of the pump when it operates must not be allowed to go above atmospheric pressure. Some manufacturers limit the continuous inlet pressure of their pumps to pressures below atmospheric pressure. The maximum inlet pressure with the pump in operation is referred to as the maximum operating pressure.

The reason that the maximum operating pressure is limited, is not necessarily related to the mechanical integrity of the pump. The maximum pressure is usually proportional to the power rating of the pump at high inlet pressures, and is associated with the potential hazard of overheating the mechanical components of the pump or the electric motor.

For similar reasons, we recommend that you maintain the outlet pressure of your vacuum pump as low as possible (typically at or below 0.15 bar gauge, 1.15×10^5 Pa, for continuous operation). Pumps are designed to operate with unrestricted exhausts and an outlet pressure of 0.15 bar gauge (1.15×10^5 Pa) is usually high enough to drive exhaust gases through your exhaust extraction system and treatment equipment.

Oil-sealed rotary vane and piston pumps

Edwards oil-sealed rotary pumps include the E1M, E2M, ES and RV series rotary vane pumps, and the Stokes Microvac range of oil sealed piston pumps. Generally, all vacuum pumps are designed to operate with inlet pressures below atmospheric pressure and with the pump exhaust freely vented to atmosphere.

Oil-sealed rotary vane and piston pumps are positive displacement compressors and can generate very high exhaust pressures if the outlet is blocked or restricted. In these cases, the pressures can exceed the safe static pressure of the pump oil box and, in many instances, the safe static pressures of downstream components in the system (such as polypropylene scrubbers or vacuum O-ring joints). Therefore Edwards strongly recommends that you fit a high integrity exhaust pressure sensor in the pump exhaust line.

To achieve a safe level of dilution, the gas ballast can be augmented by an oil box purge (where this facility is available) connected to the oil box on the pump. An increase in the gas ballast and oil box purge flow rates increases the amount of oil carried over to the exhaust system.

All Edwards oil-sealed pumps have significant oil box volumes which can retain flammable and explosive gas mixtures. The oil in the oil box can effectively absorb or condense vapour and gaseous by-products. The vapours and gases trapped in the oil may be pyrophoric or toxic. You must, therefore, have special handling procedures to ensure safety during maintenance.

Edwards dry pumps

The maximum operating pressure is limited by the same factors that affect oil-sealed pumps (that is, the potential hazard of overheating the mechanical components of the pump or the electric motor).

Edwards dry pumps are positive displacement compressors and can generate high exhaust pressures. When the pumps are incorporated into a system where the process can result in solid by-products, (and so there is a possibility of a blockage in the exhaust line), Edwards strongly recommends that you fit a high integrity exhaust pressure monitor. Consult the pump Instruction Manual for the operating pressures to which the switches should be set.

Edwards dry pumps have a high-throughput gas ballast capability. The addition of a dilution gas such a nitrogen can be made into the pump mechanism to optimise reaction suppression. Please refer to your pump instruction manual for gas purge flow rates.

Pipeline design

Bellows

Bellows are short, thin walled components with deep convolutions. They are used to reduce the transfer of vibration from a pump to your vacuum system.

Always install bellows in a straight line with both ends rigidly constrained. When installed correctly, the bellows can withstand a small positive internal pressure (refer to the Instruction Manual supplied with your bellows for details). Do not use bellows on dry pump exhausts; use braided flexible pipelines (see Section 7.3.2Flexible pipelines *Flexible pipelines* on page 28).

Consider the possibility of bellows fatigue failure when used on frequent cycle applications.

Flexible pipelines

Flexible pipelines have a thicker wall section and shallower convolutions than bellows. Flexible pipelines provide a convenient method for the connection of vacuum system components and help to compensate for misalignment or small movements in rigid vacuum pipelines. Flexible pipelines can be formed into relatively sharp bends and will hold their position.

Flexible pipelines are intended for installation in static systems. They are not suitable for repeated flexing which could cause fatigue failure.

When you use a flexible pipeline, use the shortest possible length and avoid unnecessary bends. For applications where high exhaust pressures can occur, braided flexible pipelines should be used.

Braided flexible pipelines are bellows with an outer protective layer of woven stainless steel braid. When you install a braided flexible pipeline, you must observe the minimum bend radius given in the Instruction Manual supplied with the braided flexible pipeline.

Anchor points

You must anchor pipelines and pipeline components correctly. For example, if you anchor bellows incorrectly, they will not reduce the vibration generated by the pump and this could lead to fatigue in the pipelines.

Seals

Where there is the possibility of positive pressures occurring in any part of the vacuum system (even under failure conditions), you must use suitable seal types and materials which are capable of withstanding the expected vacuum and positive pressures.

Physical over-pressure protection

As discussed previously, over-pressure can be caused by a restriction or blockage in your system or in one of its components. The over-pressure may occur as a result of compressed gas flow from the pump or from external compressed gas supplies (such as those for a dilution system). There are two main methods of system over-pressure protection: namely pressure relief and over pressure alarm / trip, which are described in the following paragraphs.

Pressure relief

You may use bursting disks or pressure relief valves to relieve an over-pressure condition. The operating pressure of the device must be below the design pressure rating of the system. You must connect these devices with suitable pipelines to an area in which it is safe to vent your process gases and which does not have vent restrictions. If your process produces solid by-products, the pressure relief devices must be inspected regularly to ensure that they are not blocked or restricted. The design of such protection devices should take into account the effect of pressure pulsations on the fatigue life of the bursting disk or the life of the valve.

Over pressure alarm/trip

This method of protection is often used by Edwards. This type of protection is recommended for any system, but may not be suitable for systems which produce solid by-products.

Pressure regulators

There are two main types of pressure regulators: venting and non-venting.

Venting regulators vent gas to atmosphere or to a separate vent line to maintain a constant outlet pressure under no-flow conditions. Venting regulators are generally used where pipeline integrity is of paramount importance.

Non-venting regulators can only maintain a constant outlet pressure under flow conditions.

Under no-flow conditions, the outlet pressure of some regulators can rise to the level of the supply pressure. The rate of rise is dependent on the characteristics of the regulator and the volume to which its outlet is connected. The rise can take from a few minutes to several months.

Pressure regulators are not designed to be shut-off valves and must be used in combination with a suitable isolator device (such as a solenoid valve) when isolation is required. Alternatively, you must take measures to safely vent excess pressures.

Flame arresters

Flame arresters are not explosion prevention devices. They are designed to prevent the propagation of a flame front along a pipe or duct (please refer to Section 6.7Use of flame arrester protection systems *Use of flame arrester protection systems* on page 24). Flame arresters offer a large surface area and small conductance gaps to the flame front, and so cause the flame to be quenched. Flame arresters are generally only suitable for use in systems which are used for clean gases or vapours.

The explosive energy of gas mixtures increases with pressure. Most flame arresters are designed to protect areas where the internal pressure does not exceed atmospheric pressure. You must ensure that the operating pressure in the exhaust extraction system leading up to the flame arrester is not allowed to exceed the maximum operating pressure. However in the case of arrestors certified for use with Edwards Chemical dry vacuum pumps, please refer to the ATEX instruction manual for maximum allowable pressures. You must also consider the maximum allowable back pressure of your vacuum pump.

Flame arresters operate by removing the heat of combustion from the flame front, and therefore have a maximum safe operating temperature. You must not allow this temperature to be exceeded by trace heating, insulation or the temperature of the gas flow passing through them.

The ability of a flame arrester to arrest a flame depends on the speed of the flame front, which in turn depends on its distance from the source of ignition. When used with Edwards Chemical vacuum pumps they should be closely coupled to the inlet and exhaust. The use of Elbows and Tee pieces between the pump and the arrester is acceptable for some pumps under certain conditions. Please consult Edwards for advice.

Purge systems

Inert gas purge systems can be fitted to equipment in order to remove process gas remaining in the system after the end of a process cycle.

The correct use of purge can ensure that corrosive products are removed, preventing them from damaging the pump and more importantly damaging protective systems such as flame arresters. In addition, the removal of process gases ensures that undesired and potentially dangerous chemical reactions do not occur between materials used on different process cycles.

Summary - the correct choice of equipment

- Select the correct type of equipment for your application
- Incorporate all of the appropriate safety devices necessary to ensure safety in the event of a failure
- Eliminate stagnant volumes

- Ensure that the system is suitably controlled and regulated
- Where appropriate, incorporate pressure relief devices
- Use flame arrestors where appropriate
- Leak test systems and equipment before use.

Operating procedures and training

The operating safety of equipment requires proper training, clear and concise instructions and regular maintenance. It is important that all personnel who use vacuum equipment are properly trained, qualified and, where necessary, supervised.

If you are unsure about any detail of operation or safety which relates to Edwards equipment, please contact us for advice.

Summary

- Perform a hazard assessment to identify and where possible eliminate and if not mitigate all hazards. This needs to be carried out for vacuum system design, construction, commissioning, operation, maintenance and decommissioning.
- Consider all possible chemical reactions within your system. Make allowance for abnormal chemical reactions, including those which could occur under fault conditions.
- Refer to material data sheets/Material Safety Data Sheets when you assess the potential hazards associated with your process materials, for example, auto-ignition.
- Use dilution techniques to minimize reactions with oxidants and flammable materials.
- Use the correct type of lubricant in your pump when you pump oxidants and pyrophoric materials.
- Do not use heavy metals in the gas path of your pumping system if your process produces or uses sodium azide.
- When you perform safety calculations, ensure that the safe working pressures for all components in the system are taken into account. Ensure that you also take account of abnormal and fault conditions.
- Ensure that you incorporate the correct type of pressure relief devices and that they are suitably rated for your application.
- Ensure that exhaust blockages cannot occur.
- Ensure that dilution gases are properly regulated and monitored.
- If you pump hazardous materials, you must design the system to fail to a safe condition.
- Use PFPE (perfluoropolyether) oil and lubricants when you pump oxidants.
- Use an inert gas to dilute flammable and pyrophoric gas to safe levels or ensure that you stay above the upper flammable / explosion limit considering suitable safety factors during all process conditions including faults.
- You must not allow the maximum pressure of the system to exceed the maximum pressure rating of any single part of the system.
- Consider the use of dry pumps in preference to oil sealed pumps where hazards associated with oil in the swept volume exist.
- Eliminate stagnant volumes.
- Ensure that the system is suitably controlled and regulated.
- Use flame arresters where appropriate.
- Leak test systems and equipment before use.

Received by DEC
5/11/2023
TPH

SIERRA CLUB
ATLANTIC CHAPTER

RECEIVED
MAY 11 2023
DEP REGION 8

May 11, 2023

Thomas P Haley
NYSDEC Region 8 Headquarters
6274 E Avon-Lima Rd
Avon, NY 14414
DEP.R8@dec.ny.gov

RE: Sierra Club Atlantic Chapter Comments on WNY STAMP Incidental Take Permit – Application ID: 8-1820-00032/00003

Dear Mr. Haley,

I am writing on behalf of the Atlantic Chapter of the Sierra Club, representing approximately 43,000 New York State residents, to comment on the proposed Article 11 Part 182 Incidental Take Permit for the Western New York Science & Technology Advanced Manufacturing Park (WNY STAMP) being developed by the Genesee County Economic Development Center (GCEDC). The Atlantic Chapter's submission seeks to support, amplify and highlight those issues raised in earlier filings by Christine G. Abrams, for the Tonawanda Seneca Nation, and Erin McGrath and Suzanne Treyger, for the National Audubon Society. The Chapter appreciates the opportunity to offer comments at this time.

After reviewing the WNY STAMP Incidental Take Permit, as well as the filings from the Tonawanda Seneca Nation and National Audubon Society, it is the position of the Atlantic Chapter that the NYSDEC should reject the permit application and protect the habitat, the Tonawanda Seneca Nation, and the surrounding environment. Failing in that, the NYSDEC should (1) conduct an Adjudicatory Hearing to determine whether and how the permit application complies with Part 182 and (2) require a comprehensive environmental impact study to assess impacts on the Nation and on the threatened and endangered species.

Specific reasons for these recommendations follow:

Regarding the Permit Application - for "Take" of Short Eared Owl (SEOW), Endangered NYS; and Northern Harrier (NOHA), Threatened, NYS.

- In order to receive a Permit to destroy habitat, the applicant must make a plan that would create a net conservation benefit for the species (SEOW and NOHA). The species must be left better off than they would have been if no habitat were destroyed.

- Here, the proposed plan to benefit the species would harm them instead. This alone means the permit application should be rejected.
- The permit would reduce habitat by 90%, i.e. the developer would destroy 665 acres of known habitat and replace it with 58 acres of newly created potential habitat.
- The applicant resorts to obfuscation through 5-year cycle equivalencies on two small mitigation 25-acre and 31-acre parcels in 55 and 60 year long-term management plans to allegedly serve as a net conservation benefit for the loss of 665 acres EACH year.
- SEOW and NOHA require large expanses of grassland (ideally, over 200 acres); 58 acres is not enough for these species, and there is no way to make the birds use newly created grassland.
- The applicant (GCEDC) holds is the entity that leases land to the farmers responsible for the most recent SEOW and NOHA "habitat destruction," and it is very specifically the GCEDC that directs the type of agriculture permitted on the property; the GCEDC directed the destruction prior to the permit application.
- Presence of SEOW at the STAMP site multiple times throughout the winter indicates that STAMP provides a rare and important overwintering location.
- The applicant fails to consider the impact on the Nation of destroying habitat directly adjacent to the Nation's Big Woods. SEOW and NOHA have particular cultural significance to the Nation and destroying their habitat will harm the Nation.
- A supplemental EIS process should be initiated to assess cultural and environmental impacts on Tonawanda Seneca Nation and on other T/E species present in the area.

Human rights/environmental justice

- This is a human rights issue for the Tonawanda Seneca Nation and the Haudenosaunee, who would bear a disproportionate burden from industrialization of the land at STAMP.
- Impacts to cultural practices, diet and lifeways due to impacts of lights, truck traffic, stormwater runoff, large increase impervious surfaces.
- STAMP lands fall within the Treaty of Big Tree lands guaranteed to the Tonawanda Seneca Nation; this land should therefore be returned to its rightful steward and owner, the Nation.
- STAMP continues colonial oppression towards Indigenous people.

Again, on behalf of the Atlantic Chapter of the Sierra Club, my sincere gratitude for the opportunity to participate in this permit process.

Respectfully,

Kate Bartholomew

Kate Bartholomew, Chair (she/her)
Sierra Club Atlantic Chapter
ecogreenwolf@gmail.com
(607) 228-7371

NEW YORK STATE ORNITHOLOGICAL ASSOCIATION, INC.

For the Birders and Birds of the Empire State since 1948

May 1, 2023

Thomas Haley
NYS DEC - Region 8 Office, Division of Environmental Permits
6274 East Avon-Lima Road, Avon, NY 14414

Dear Mr. Haley:

I am writing on behalf of the NY State Ornithological Assoc., Inc. (NYSOA) in regard to DEC Application No. 8-1820-00032/00 and the proposed permit to take overwintering habitat for Short-eared Owl and Northern Harrier on the STAMP site in Genesee County.

NYSOA is the umbrella organization for bird clubs and a number of Audubon Chapters in the state, with 44 organizational and 500 individual members. One of the stated goals of the organization is "*to preserve and protect birds and other wildlife and their environment . . .*".

In this regard, we have serious concerns about the above proposal and the precedent it would set for two important and at-risk species in NY. Northern Harrier and Short-eared Owl populations are in long-term decline, and the recognized primary risk is loss of appropriate habitat, including wintering areas. These birds have specific habitat needs of large areas of open grasslands that are maintained in that state by annual mowing or burning, with this management carried out to avoid nesting periods. These particular areas are frequently lost to agriculture or development such as this case.

Existing habitat for these two species should receive the highest level of protection. The loss of over 600 acres of actively used habitat would have a major impact on the birds, not only at the site, but statewide and even nationwide.

The current application falls sorely short in providing required mitigation for Short-eared Owl, as required. The smaller, fragmented parcels proposed as part of a Net Conservation Benefit Plan would not even approach the suitable habitat that the currently occupied area does. It is likely that these species would be displaced from these and surrounding lands rather than receiving any benefit. The concept of replacing known suitable habitat with other lands is questionable at best, and this proposal will almost certainly fail.

In addition, there are serious concerns over the environmental review of the proposed development of these land in an earlier Generic Environmental Impact Statement.and Negative Declaration under the State Environmental Quality Review Act. This review does not adequately consider the impacts on Short-eared Owl and Northern Harrier from the present proposal. A full proposal-specific assessment is necessary to meet the requirements of SEQRA.

In sum, we believe that approval of this proposal to take important habitat for two at-risk species does not reflect the policies of the Department of Environmental Conservation and the State of New York. It would set a dangerous precedent of sacrificing protected endangered and threatened species for industrial development. We urge that the pending permit application be rejected.

Andrew Mason, Conservation Chair

13 Boylston St.
Oneonta, NY 13820
(607) 267-8491
AndyMason@earthling.net

Audubon

9 Thurlow Terrace
Suite 100
Albany, NY 12203
Tel: (518) 869-9731
ny.audubon.org
@AudubonNY

VIA ELECTRONIC DELIVERY

March 31, 2023

Thomas P Haley
NYSDEC Region 8 Headquarters
6274 E Avon-Lima Rd
Avon, NY 14414
DEP.R8@dec.ny.gov

RE: National Audubon Society Comments on WNY STAMP Incidental Take Permit – Application ID: 8-1820-00032/00003

Dear Mr. Haley,

On behalf of the National Audubon Society's New York State office, with a membership of 100,000 New Yorkers, I thank you for the opportunity to comment on the proposed Article 11 Part 182 Incidental Take Permit for the Western New York Science & Technology Advanced Manufacturing Park (WNY STAMP) being developed by the Genesee County Economic Development Center (GCEDC). We respectfully submit the following comments concerning the potential impacts to the project site and the threatened and endangered species that rely on it for your consideration.

Short-eared Owl and Northern Harrier in New York State

In the United States, the Short-eared Owl (SEOW) is considered to be declining throughout much of its range, despite difficulties in assessing population trends. SEOW is listed as a Bird of Conservation Concern by the United States Fish and Wildlife Service and is listed as endangered, threatened, or a species of special concern in thirteen states. The population of this species is difficult to assess because individuals are nomadic and crepuscular, and populations fluctuate annually based on the availability of their preferred prey and snow cover (NYNHP 2023). These behaviors make it difficult for fixed area census projects such as the Breeding Bird Survey (BBS) and Christmas Bird Count (CBC) to capture accurate population counts (Wiggins et al. 2020).

However, data from the BBS show seventeen statistically significant negative trends for SEOW in regional, national, or survey-wide categories since 1966 and a statistically significant 2.4% annual decline across the United States in 2009. Additionally, CBC data from the United States and Canada from 1966-2010, which covers more of the SEOW winter range than the Breeding Bird Survey does of its breeding range, showed a statistically significant decline in the number of owls per survey party-hour - with the number of owls counted per hour dropping from 0.015 and 0.04 in the late 1960s to 0.008 and 0.007 in the 2000s. Taken together, these results suggest a widespread, long-term decline in the SEOW population (Booms et al. 2014).

The primary threat to SEOW is loss or fragmentation of habitat due to human development, reforestation, wetland loss, and changes in farming practices (Post 2004, Morgan and Burger 2008, Corwin 2012, Wiggins et al. 2020). SEOW require large, intact, contiguous grassland areas for both breeding and wintering populations, which makes them particularly vulnerable since grasslands are one of the most endangered habitats in North America – with a current loss of 97% of the United States's native grasslands (Wiggins et al. 2020, Samson et al. 2004, North American Bird Conservation Initiative 2011). Successful habitat management and restoration projects must aim to conserve or restore large blocks of grassland habitat (>247 acres) that provide a suitable prey population of small mammals (Wiggins et al. 2020).

In New York State, the short-eared owl has suffered from population declines due to habitat loss and is listed as endangered by the New York State Department of Environmental Conservation ("the Department). In New York State, data from the two completed New York State Breeding Bird Atlases have corroborated this decline and found that documented occupancy fell from 36 blocks recorded in the 1980-1995 survey to 24 blocks in the 2000-2005 survey for a 33% decline (NYSDEC 2014a). The third breeding bird atlas (2023-2025) has not produced any confirmed breeding records and has only recorded thirteen blocks with documented occupancy as of March 2023 (Cornell 2022). There is no published data on populations of wintering SEOW in New York State; however, there are records showing the longstanding use of New York State's grasslands by wintering raptors, including the SEOW and Northern Harrier (NOHA), as well as specific sites that constitute Wintering Raptor Concentration Areas (Schneider 2003). Since SEOW are no longer documented as breeding in New York State, the most meaningful conservation action New York State can take is preserving and restoring winter habitat (Morgan and Burger 2008).

The Northern Harrier is listed as a Bird of Conservation Concern by the U.S. Fish and Wildlife Service and is listed as endangered, threatened, or a species of special concern in fourteen states. In New York State, NOHA is listed as threatened due to loss of grassland habitat and resulting small populations. Like the SEOW, NOHA winter and breeding habitat is comprised of large tracts of open wetlands, marshy meadows, wet and lightly grazed pastures, old fields, upland and lowland grasslands, and agricultural fields (Hager 2009). BBS data for NOHA indicated a –0.8% annual decline in the population for 1966–2017 and a range-wide population decrease of 37% (Smith et al. 2020). CBC data show an increasing trend from 1950 to 2010 for New York's wintering population and wintering populations in adjacent states, but the overall state population has not made similar gains (NYSDEC 2014).

The decline in New York State's population of SEOW and the stagnation of the NOHA population is underscored by recent research documenting startling losses of bird populations. Grassland bird populations are in rapid decline, making it even more critical to protect the places where they are currently found. According to research published in *Science* in 2019, North America has lost one in four birds since 1970, with the most significant loss observed in grassland birds, which experienced a 53% decline in population or 720 million birds among the 31 species studied (Rosenberg et al. 2019). Similarly, the 2022 State of the Birds report revealed that grassland birds are among the fastest-declining bird species in the United States, with a 34% loss since 1970, and that grassland birds have suffered the biggest bird declines of any terrestrial biome (North American Bird Conservation initiative 2022).

New research has also shown that land use and land-cover changes have the strongest impact on the distribution of wintering birds in the eastern United States that need specific habitats such as grasslands – even when compared with the impacts of climate change (Saunders et al. 2022). In the northeast

United States, grassland birds are declining faster than any other group of birds and these declines tell us that we need to protect or restore additional habitat to ensure populations are maintained and rebound. Conserving the remaining grasslands that provide suitable nesting, foraging, and roosting habitat should be a priority for the Department and New York State, which is why we believe that this incidental take permit must be denied.

Ecological Significance of Project Site

The site of the WNY STAMP site is ecologically significant for many reasons – it is an Audubon Important Bird Area (IBA), within a New York Grassland Focus Area, within the Department's Oak Orchard-Iroquois Grassland Bird Conservation Center, a Winter Raptor Concentration Area, and one of Audubon's grassland climate strongholds. All of these designations and classifications underscore the need to protect the sensitive ecological communities that rely on this landscape.

The WNY STAMP site is partially within and bordering Audubon's Iroquois NWR/Oak Orchard and Tonawanda WMAs IBA (see Appendix 2 – Figure 2). IBAs are identified using a set of standard criteria that pertain to at-risk species, congregations of birds, and suites of birds representing particular habitats. The Iroquois NWR/Oak Orchard and Tonawanda WMAs IBA is ranked as continentally significant due to its high value to birds that may be threatened or endangered, including SEOW and NOHA; restricted to a particular biome, region, or habitat type; or occurring at high densities during some portion of the year. Otherwise known as the Alabama Swamp, this complex encompasses nearly 20,000 acres of protected wildlife habitat, and approximately 1,400 acres are managed as grasslands. The surrounding area is mainly agricultural, and the Iroquois National Wildlife Refuge is owned and managed by the U.S. Fish and Wildlife Service, while Oak Orchard and Tonawanda Wildlife Management Areas are administered by the Department, which are also New York State Bird Conservation Areas (Burger and Liner 2005).

Additionally, the WNY STAMP site is located within the Oak Orchard-Iroquois Grassland Bird Conservation Center (GBCC) (see Appendix 2 – Figure 1). In 2021, New York State created the *NYSDEC Strategy for Grassland Bird Habitat Management and Conservation 2022-27* ("the Strategy") which identifies key management practices and focus areas for conservation known as Grassland Bird Conservation Centers. The lands within the GBCCs provide grassland birds with the greatest chance of sustaining their populations and have been prioritized for conservation by New York State. The GBCCs should therefore be avoided when siting projects and subject to high mitigation standards when avoidance is not possible.

Each GBCC is based on an area of 25,000 acres or more and the Strategy sets a goal of maintaining 30% of those acres as grassland habitat. Additionally, the Strategy calls for a minimum of 6.5% or 1,625 acres to be actively managed for grassland birds. The Oak Orchard-Iroquois GBCC is 90,710 acres and is currently composed of 24,491 acres of grassland, or 27% of the GBCC area. 10,828 acres of the GBCC are currently subject to permanent conservation protections – though that acreage only contains a portion of the available grassland habitat. The current proposed project, which would take 665 acres of occupied grassland habitat, would result in a 2.7% reduction in the acres of grassland available within the GBCC and reduce the overall number of grassland acres in the GBCC to 26%. These reductions, which hold even when the proposed mitigation of fifty-six acres is accounted for, are contradictory to the goals of the "NYSDEC Strategy for Grassland Bird Habitat Management and Conservation 2022-27", which aims to conserve 30% of the GBCC as grassland habitat. And while these reductions may seem small, they can have an outsized impact on vulnerable species already facing losses from a thousand cuts across New York State. Any actions taken in the GBCC should support the goal of increasing the acreage

of grassland habitat available, either by avoiding grassland areas or proposing adequate mitigation within the GBCC.

The WNY STAMP site is also within the Western New York Grassland Focus Area 1 (Morgan and Burger 2008, see Appendix 2 – Figure 4). New York Grassland Focus Areas were identified through a spatial analysis that overlayed contiguous grassland landscapes with areas containing core populations of grassland birds to prioritize habitat conservation and management efforts.

The WNY STAMP site is also within a Wintering Raptor Concentration Area, which are areas identified as providing critical habitat and supporting congregations of winter raptors such as SEOW and NOHA. While SEOW is generally known for being nomadic and having low site fidelity, SEOWs in the Northeast tend to return to their previous wintering sites (Booms et al. 2014). This behavior has been confirmed by subsequent winter raptor surveys organized by the Department, which include the SEOW as a primary target species.

Further, Audubon has identified this grassland area as a "climate stronghold" (see Appendix 2 – Figure 3). These are "areas that are predicted to have high climate suitability and low human modification for bird species at present, and under contemporary climate change scenarios in both breeding and nonbreeding seasons. [They] balance the representation of all included species and capture critically important habitat for every bird species assessed for each ecosystem today and under climate change." An analysis included in Audubon's report, *Natural Climate Solutions: Maintaining and Restoring Natural Habitats to Help Mitigate Climate Change,* calls for grassland restoration not only to benefit birds but to improve carbon sequestration and storage, and thus the need to continue management that boosts grassland resiliency and health (Bateman et al. 2021).

Proposed Mitigation Plan and Net Conservation Benefit

SEOW has consistently struggled in New York State, and if they are present in a particular area, it will be difficult to achieve successful mitigation that provides a net conservation benefit in other locations. Compensatory mitigation is intended to compensate for the loss of known, occupied habitat by protecting or enhancing potential habitat elsewhere to replace or offset the specific habitat and species impacted. However, there is no guarantee that the proposed mitigation will be successful and replace the lost habitat and impacted species. For example, reviews of both published literature and agency reports on wetland mitigation found that permit-linked mitigation projects' success rate is low overall (Race and Fonseca 1996). Because of this, compensatory mitigation ratios should be at least 1:1 to address the uncertainty of success and to achieve a net conservation benefit. For this reason, we believe that the mitigation proposed in this permit is inadequate and will not provide a net conservation benefit.

The applicant has proposed to conduct mitigation in five-year cycles on a 25-acre field for fifty-five years and a 31-acre field for sixty years and asserts that this extended mitigation results in 275 acres and 396 acres of mitigation, respectively and therefore achieves more than the 1:1 (new/improved: impacted) ratio of mitigation considered appropriate for wintering grassland birds due to the successional nature of the site's development. It's unclear why the applicant does not apply the same methodology to the acres taken, which would result in the need to mitigate over 7,980 acres of lost occupied habitat since 665 acres would be taken for the same period of fifty-five years. Regardless, a SEOW or NOHA will not comprehend that 671 acres have been mitigated for it over fifty-five years. Instead, they will be left with only 56 acres have been left as habitat – which is less than a quarter of the habitat recommended for

habitat restoration or preservation programs for SEOW and NOHA. And if significantly less suitable habitat is available, this could cause a decrease in the number of SEOW and NOHA that can be supported under this mitigation scenario and lead to further population declines.

The applicant justifies this approach by emphasizing the successional nature of the site's development and the fact that the fields used by SEOW and NOHA have been converted to row crops over time – which do not provide optimal habitat for SEOW, NOHA, or their prey base. However, while we concur with GDEDC's conclusion that SEOW and NOHA are less likely to use land covered with row crops for winter habitat, as the fallow and hay fields are replaced by row crops, the SEOW and NOHA may begin to use the areas with row crops for foraging as their desired habitat shrinks. Additionally, GDEDC's response to the Department indicates that the SEOW and NOHA regularly use 320 acres of hay and fallow fields as habitat within the WNY STAMP site (STAMP Sitewide Part 182 Permit – Request for Additional Information, CC Environment & Planning, Page 2). Even if the SEOW and NOHA's essential behaviors were limited to these sites as claimed by the applicant, the mitigation proposal submitted by GDEDC still falls short by 268 acres.

The applicant further asserts that the amount of fallow and hay fields will fall to no more than 88 acres by June 2023 due to conversion to row crops, which makes it all the more important to protect the 25-acre and 31-acre mitigation parcels (Response to Completion Letter by Phillips Lytle, Memorandum, Page 3). While the conversion to row crops will result in less favorable habitat for NOHA and SEOW, those fields may be left fallow or be converted to hay in future years – whereas the construction of the WNY STAMP site with its associated buildings and parking lots will eliminate any future use by SEOW and NOHA unless the facilities are decommissioned and fully removed. Therefore, while we concur that protecting and creating high-quality habitat is important, low-quality habitat is equally important given the staggering losses of grassland habitat in New York State and must also be conserved and improved wherever possible.

Lastly, we reject GDEDC's argument that permanently conserving the 25-acre field and placing the 31-acre field under a long-term management plan will provide a net conservation benefit since it will ensure that the properties are maintained for grassland birds and do not succeed to shrubland or forests. While these efforts are appreciated, the proposed acreage is too small to support the majority of grassland bird species and will also be immediately adjacent to the proposed Plug Power and Edwards Vacuum facilities. As discussed above, the SEOW and NOHA require large, contiguous parcels of land in the hundreds of acres – making the size and landscape components of each mitigation parcel critical (Morgan and Burger 2008).

The amount of potential habitat in the vicinity of the proposed habitat patch also contributes to the likelihood that the patch will be occupied by the targeted species (Winter et al. 2006) and affects productivity of the targeted species (Gates and Gysel 1978). Since the STAMP site eliminates any habitat to the west and north of the site due to the construction of the Plug Power and Edwards Vacuum facilities, that means that these mitigation sites must rely on habitat to the east and south. Currently, there is low connectivity to other grassland sites, with the sole connection to other grassland parcels lying in the John White WMA. While this does provide a pathway to those fields, the overall layout of the parcels is generally not contiguous and provides poor habitat connectivity overall.

The landscape surrounding SEOW and NOHA habitat is another important factor that informs habitat quality. SEOW and NOHA are area-sensitive species, requiring habitat devoid of abrupt changes in cover, including hedgerows, tall trees, residential homes, buildings, and roads. Large, unfragmented, open

complexes comprised mostly of grasslands and wetlands are preferable to areas with visual and structural disturbances, which may deter area-sensitive grasslands birds from selecting certain habitats (Winter et al. 2006; Gates and Gysel 1978, Ribic et al. 2009). The proposed mitigation parcels are located immediately adjacent to the proposed Plug Power and Edwards Vacuum facilities, which will create a visual disturbance, as well as noise disturbances and light pollution, that will impact the desirability of these parcels. NOHA, in particular, is quite sensitive to human disturbance and will leave wintering sites if there is too much human activity in the vicinity of its habitat (Hager 2009, Serrentino 1992, Bildsteon 1987a). Quality habitat for area-sensitive species is also large with abundant interior space available, i.e. not long and linear in shape but round or square to maximize interior habitat availability and distance to the grassland edge. The two proposed mitigation parcels are rectangular, limiting the amount of interior space available and creating visual edges that may deter use by SEOW and NOHA (Morgan and Burger 2008).

It is our position that GDEDC needs to mitigate 665 *actual* acres, rather than counting the same acres repeatedly, and work to ensure that they are (I) connected to the Oak Orchard-Iroquois Grassland Bird Conservation Center, (ii) located as close to the project as is reasonably practical, (iii) be within close proximity to one of the existing WMAs or Iroquois National Wildlife Refuge, and (iv) contain grassland habitat that is at least 100 acres in size or has the potential to restore more than 100 acres of habitat to meet the needs of wintering raptors and other grassland-dependent bird species. Additionally, these acres should be contiguous to provide maximum habitat connectivity for the raptors and their prey base. Unless the project is modified to reduce the acreage needed for facilities or supporting infrastructure, GDEDC will need to secure off-site mitigation near the project, as described above, and secure conservation easements or management agreements with private landowners in the area.

SEQRA Review and Final GEIS for WNY STAMP

Our concerns are further underscored by the fact that the GDEDC did not review the impacts to SEOW, NOHA, or any other threatened or endangered species as part of either the *2012 New York State Environmental Quality Review Act Involved Agency Findings Statement for the Western New York Science and Technology Advanced Manufacturing Park* or the *2016 Amended Findings*. Instead the agency asserted that "while the potential environmental impacts associated with the Current Proposed STAMP Development on Winter Raptors was not addressed or not adequately addressed in the STAMP GEIS, the Environmental Information demonstrates that potential environmental impacts associated with the Current Proposed STAMP Development will not result in any potential significant adverse environmental impacts, and thus, issuance of a negative declaration pursuant to 6 NYCRR 617.10(d)(3) with respect to such potential impacts is appropriate." (GDEDC Findings 2023, Page 12). Due to the substantial adverse impacts to the occupied habitat of multiple threatened and endangered species, as described above, we believe that there will be significant adverse environmental impacts per 6 NYCRR 617.7(c)(1)(ii) and that a negative declaration is not appropriate. Therefore, GDEDC should prepare a Supplemental Environmental Impact Statement considering the environmental impacts to SEOW and NOHA, as well as other threatened and endangered species that may utilize the site and then use those findings to determine an appropriate management and mitigation plan.

Environmental Justice Concerns

The project lies within the Tonawanda Seneca Nation's ancestral territory and would impact the Nation's federally recognized reservation territory -- a Traditional Cultural Property -- and the Nation's sacred grounds within the Big Woods, as well as several species that are of cultural significance to the

Tonawanda Seneca and Haudenosaunee people. The Nation is recognized as an environmental justice community by the United States Environmental Protection Agency and a potential Environmental Justice Area and Draft Disadvantaged Community pursuant to the Climate Leadership and Community Protection Act by the Department, and must therefore receive "fair treatment and meaningful involvement... with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies," and the Department must ensure that "such communities are not disproportionately burdened, and to prioritize reductions of GHG emissions and co-pollutants in such communities."

As an organization with 100,000 members located throughout the state, Audubon believes that robust engagement of local communities and stakeholders is critical to the success of any action. For these reasons, the Department should make every effort to engage the Nation meaningfully in the development of the WNY STAMP site and eliminate or minimize adverse impacts to their lands and culturally significant species to the maximum extent practicable. We understand that the Department has determined that the Part 182 Permits are not subject to Commissioner's Policy 29 (CP-29). Regardless, we believe that the Department should comply with the spirit of the policy and ensure that The Tonawanda Seneca Nation is fully engaged in the review of the Part 182 Permit through enhanced public participation and any appropriate additional reviews concerning the loss of culturally significant species – either pursuant to CP-29 or the March 2021 Letter of Resolution entered into with the Nation.

***

Thank you again for considering these comments and for your commitment to protecting New York State's environment. If you have any questions regarding these comments, please contact our Senior Policy Manager, Erin McGrath, at erin.mcgrath@audubon.org, or Suzanne Treyger at Suzanne.treyger@audubon.org.

Sincerely,

Erin McGrath
Senior Policy Manager
National Audubon Society

Suzanne Treyger
Senior Program Manager, Forests
National Audubon Society

Appendix 1 - Sources Cited

Bateman, BL, J Grand, JX Wu, SP Saunders, C Koseff, and CB Wilsey. 2021. Natural Climate Solutions Report: Maintaining and Restoring Natural Habitats to Help Mitigate Climate Change. National Audubon Society: New York.

Bildstein, K. L. (1987a). Behavioral ecology of Red-tailed Hawks (*Buteo jamaicensis*), Rough-legged Hawks (*Buteo lagopus*), Northern Harriers (*Circus cyaneus*), and American Kestrels (*Falco sparverius*) in south central Ohio. Ohio Biol. Surv. Biol. Notes 18

Booms, T.L., Holroyd, G.L., Gahbauer, M.A., Trefry, H.E., Wiggins, D.A., Holt, D.W., Johnson, J.A., Lewis, S.B., Larson, M.D., Keyes, K.L. and Swengel, S. (2014), Assessing the status and conservation priorities of the short-eared owl in North America. Jour. Wild. Mgmt., 78: 772-778. https://doi.org/10.1002/jwmg.719

Burger, M.F., Liner, J.M. Important Bird Areas of New York; Habitats Worth Protecting. Second Edition. Audubon New York. 2005

Cornell Lab of Ornithology. 2022. New York Breeding Bird Atlas III: short-eared owl map. <https://ebird.org/atlasny/map/sheowl>

Corwin, Kimberley. 2012. Species Status Assessment: Short-eared Owl. New York State Department of Environmental Conservation. Available from: https://www.dec.ny.gov/docs/wildlife_pdf/sgcnshortearowl.pdf

Gates J. E., and Gysel L. W. 1978. Avian nest dispersion and fledging success in field-forest ecotones. Ecology. 59:871–883.

Hager, S. B. 2009. Human-related threats to urban raptors. Journal of Raptor Research 43(3):210- 226.

Morgan, Michael and M. Burger. 2008. A plan for conserving grassland birds in New York: final report for the Department of Environmental Conservation under contract #C005137. Audubon New York. Ithaca, NY

New York Department of Environmental Conservation (NYSDEC). 2014a. Species assessment for short eared owl. <https://www.dec.ny.gov/docs/wildlife_pdf/sgcnshortearowl.pdf>.

New York Department of Environmental Conservation (NYSDEC). 2014. Species assessment for northern harrier. <https://www.dec.ny.gov/docs/wildlife_pdf/sgcnnharrier.pdf>.

New York Natural Heritage Program. 2023. Online Conservation Guide for Asio flammeus. Available from: https://guides.nynhp.org/short-eared-owl/. Accessed March 31, 2023.

North American Bird Conservation Initiative, U.S. Committee. 2011. The State of the Birds 2011 Report on Public Lands and Waters. U.S. Department of Interior, Washington, D.C., USA.

North American Bird Conservation Initiative. 2022. The State of the Birds, United States of America, 2022. StateoftheBirds.org

Post, Tim. 2004. State wildlife comprehensive plan- draft species group report for grassland birds. In: New York State Department of Environmental Conservation. Comprehensive wildlife conservation strategy species reports for: Birds. 114 pgs. September 24, 2004.

Race, M. S. and M. S. Fonseca. 1996. Fixing compensatory mitigation: what will it take? Ecological Applications 6:94-10

Christine A. Ribic, Rolf R. Koford, James R. Herkert, Douglas H. Johnson, Neal D. Niemuth, David E. Naugle, Kristel K. Bakker, David W. Sample, Rosalind B. Renfrew "Area Sensitivity in North American Grassland Birds: Patterns and Processes," The Auk, 126(2), 233-244, (1 April 2009).

Rosenberg, Kenneth V., Adriaan M. Dokter, Peter J. Blancher, John R. Sauer, Adam C. Smith, Paul A. Smith, Jessica C. Stanton, et al. 2019. "Decline of the North American Avifauna." *Science* 366 (6461): 120–24. https://doi.org/10.1126/science.aaw1313.

Samson, F. B. F. L. Knopf, and W. R. Ostlie. 2004. Great Plains ecosystems: past, present, and future. Wildlife Society Bulletin 32:6-15.

Saunders SP, Meehan TD, Michel NL, Bateman BL, DeLuca W, Deppe JL, Grand J, LeBaron GS, Taylor L, Westerkam H, Wu JX, Wilsey CB. Unraveling a century of global change impacts on winter bird distributions in the eastern United States. Glob Chang Biol. 2022 Apr;28(7):2221-2235. doi: 10.1111/gcb.16063. Epub 2022 Jan 21. PMID: 35060249.

Schneider, K.J. 2003. The status and ecology of the short-eared owl (Asio flammeus) in New York State. Kingbird 53(4):313-330.

Serrentino, P. (1992). "Northern harrier, *Circus cyaneus*." In Migratory nongame birds of management concern in the northeast., edited by K. J. Schneider and D. M. Pence, 89-117. Newton Corner, MA: U.S. Fish Wildl. Serv

Smith, K. G., S. R. Wittenberg, R. B. Macwhirter, and K. L. Bildstein (2020). Northern Harrier (*Circus hudsonius*), version 1.0. In Birds of the World (P. G. Rodewald, Editor). Cornell Lab of Ornithology, Ithaca, NY, USA. https://doi.org/10.2173/bow.norhar2.01

Wiggins, D. A., D. W. Holt, and S. M. Leasure (2020). Short-eared Owl (*Asio flammeus*), version 1.0. In Birds of the World (S. M. Billerman, Editor). Cornell Lab of Ornithology, Ithaca, NY, USA.

Winter, M., D. H. Johnson, J. A. Shaffer, T. M. Donovan, and W. D. Svedarsky. 2006. Patch Size and Landscape Effects on Density and Nesting Success of Grassland Birds. Journal of Wildlife Management: Vol. 70, No. 1 pp. 158–172.

Felipe Oltramari

From: tonseneca@aol.com
Sent: Thursday, October 12, 2023 6:49 PM
To: Planning Dept Email
Cc: Alex Page; Sarah Howard
Subject: Edwards Vacuum Review

To the Genesee County Planning Board:

The Tonawanda Seneca Nation understands that the Planning Board is currently considering a site plan review and final property subdivision for Edward Vacuum, a potential tenant at the WNY STAMP mega-industrial site currently under construction in Alabama, NY.

The Nation encourages the Planning Board to RECOMMEND DISAPPROVAL of the site plan for Edwards Vacuum. Grounds for disapproval include the following points of misalignment between the Edwards Vacuum site plan and General Municipal Law Section 239-L:

1) The land uses proposed by Edwards Vacuum are incompatible with current land uses by Nation citizens of adjacent Nation lands;

2) The Edwards Vacuum site plan will lead to a significant increase in local automobile traffic, with significant negative impacts to the health and well-being of Nation citizens. The traffic generating characteristics of the site plan are also incompatible with existing and proposed roadways and vehicular infrastructure;

3) Proposed land uses at the Edwards Vacuum site will cause profound negative impacts to ongoing land uses on the neighboring Tonawanda Seneca Nation territory. These include impacts to water and air quality as well as impacts to wildlife of cultural and subsistence significance to Nation citizens.

4) The Edwards Vacuum site plan would undermine current 'community character' with regard to predominant land uses such as hunting, fishing, and agriculture, as well as the relation between residential and nonresidential areas;

5) The Edwards Vacuum site plan would negatively impact local drainage;

6) The Edwards Vacuum site plan, as part of the overall WNY STAMP site plan, violates NY state smart growth policies;

7) The Edwards Vacuum site plan poses significant threats to the physical and mental health of Nation citizens, to the ecological integrity of Nation Territory, and to the cultural resources of the Tonawanda Seneca Nation. Thus, the site plan will undermine the goal of achieving and maintaining a satisfactory community environment.

Thank you for your consideration.

Oneh,
Christine G. Abrams
TSN Office Administrator
Tonawanda Seneca Nation