BOARD OF ZONING APPEALS
STAFF REPORT

To:	Members of the Board of Zoning Appeals
From:	Sergio Mendoza, Planning Director
Meeting Date:	December 12, 2023
Agenda Item:	BZA 23-014
Application Type:	Developmental Standards Variances
Hearing:	Preliminary Hearing
Summary:	Nicholas Georgiou for ONSI (orthopedics) is seeking multiple Developmental Standards Variances for building setbacks, building materials, frontage buildout, off street parking, and sidewalks at 9900 Columbia Avenue.

Applicant:	Nicholas Georgiou for ONSI (Orthopedic Specialist of Northwest Indiana) Dyer & Associates, LLC (Sunil Dedhia, MD)
Property Address:	9900 Columbia Avenue
Current Zoning:	CD-4B General Urban-B Character District
Adjacent Zoning:	North: CD-4B General Urban-B Character District South: SD-PUD Planned Unit Development Special District East: CD-4B General Urban-B Character District West: CD-4B General Urban-B Character District
Action Requested:	Approval of Developmental Standards Variance
Additional Actions Required:	Review Conditions of Approval Questions and Schedule Public Hearing
Staff Recommendation:	Schedule Public Hearing
Previous Attachments:	1. Variance Application, Exhibit A Packet (pg 10) 2. Supporting Documents/Plans , Exhibit B Packet (pg 11) 3. Site Plan Review Committee Documents, Exhibit C Packet (pg 12) 4. Zoning Map Excerpt, Exhibit D (pg 13)

Image 1 Subject Property.

PROJECT BRIEFING

Nicholas Georgiou, Architect, with Georiou & Associates Architects, Inc. is representing wth ONSI (Orthopedic Specialist of Northwest Indiana) Dyer & Associates, LLC (Sunil Dedhia, MD). OSNI has interest in the renovation and expansion of 9900 Colombia Avenue, the current home of The Gate Church (see Image 1).

The proposed renovation and expansion are planned for in two phases. In phase 1 OSNI is proposing to renovate the existing 9,844 SF religious use structure into a medical and office facility, expand the existing 48 space parking lot with an additional 44 spaces, and create a half-acre off-site detention area. Phase 2 consists of a proposed 9,750 SF building addition for medical and office use and expand the parking lot with an additional 20 spaces (see Image 2).

OSNI feels that to accomplish the proposed renovation and expansion they will need to obtain four Developmental standards Variance approvals from the town's building setback, building material, parking locations, and sidewalk requirement standards.

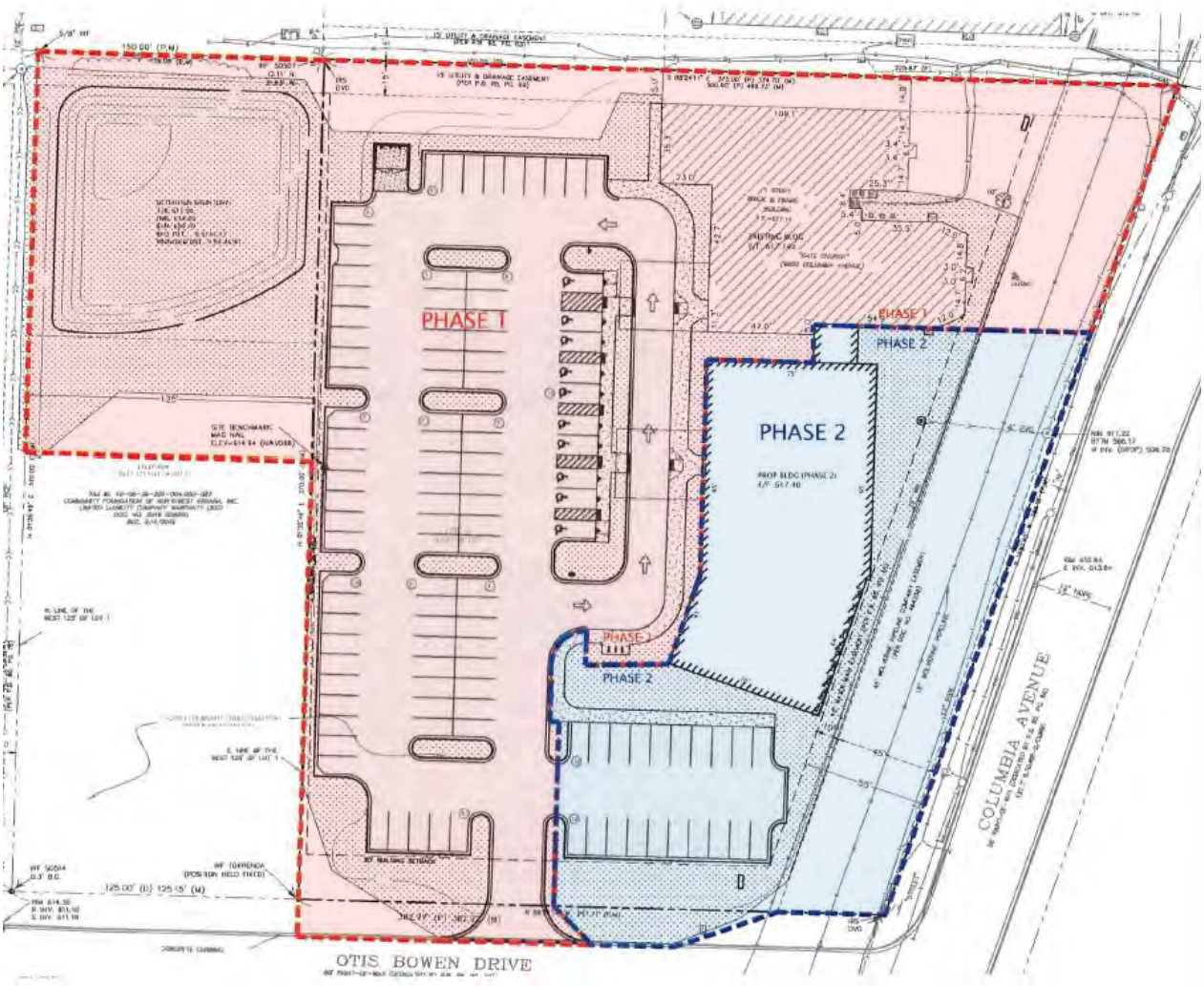


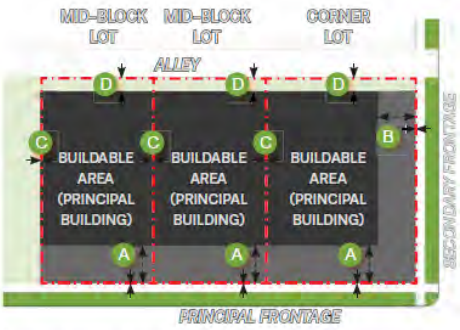
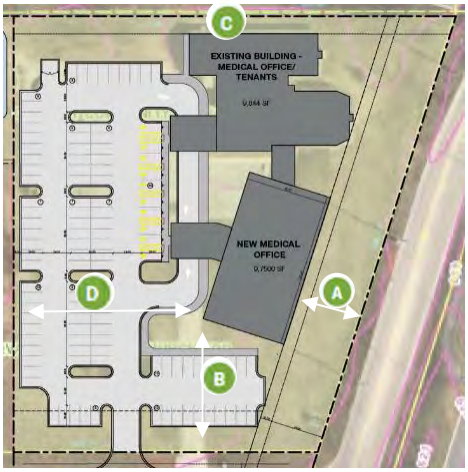
Image 2 Phased Development.

The Munster Character Based Zoning codes from which the petition is seeking variances from are:

1.) 26-6.405. A-7 DISTRICT STANDARDS, Setbacks-Principal Building, Principal frontage and Secondary Frontage
2.) 26-6.405. A-7 DISTRICT STANDARDS, Building Standards, Building Materials and Frontage Buildout
3.) 26-6.405. A-7 DISTRICT STANDARDS, Vehicular Parking Requirements, Off-street Parking Location
4.) 26-6.405. S. 2. DISTRICT STANDARDS, Streetscape Repairs, Replacement & Improvements

Code language and illustrations following:

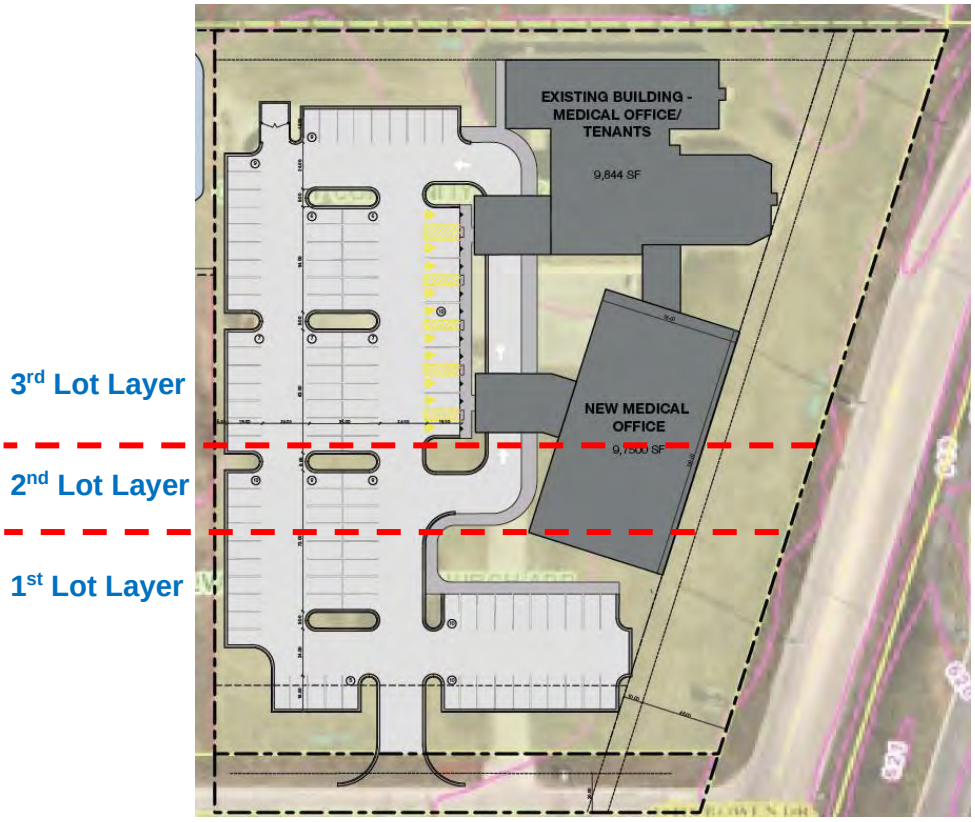
1.) **26-6.405. A-7 DISTRICT STANDARDS, Setbacks-Principal Building** *(MZC pg. 125)*

REQUIRED:			***PROPOSED:***
			
Setbacks – Principal Building			
Front Setback, Principal Frontage	0 ft. min, 20 ft. max; the max. setback may be increased by the amount necessary to provide a passenger drop off area where there is no on-street parking and the Principal Use of the Lot is Hotel or Medical.	A	Front Setback, Principal 55 FT
Front Setback, Secondary Frontage	0 ft. min, 20 ft. max	B	Front Setback, Primary 124 FT
Side Setback	0 ft. or 6 ft. min per side. 130 ft. max combined	C	Side Setback (Existing) 15 FT
Rear Setback	3 ft. min; or 15 ft. from center line of Rear Lane or Rear Alley	D	Rear Setback (Existing) 147.5 FT

2.) **<u>26-6.405. A-7 DISTRICT STANDARDS, Building Standards,</u>** *(MZC pg. 126)*

REQUIRED:	***PROPOSED:***
Building Materials Primary: brick or natural stone, cast stone, wood or metal Shopfront, terra cotta, ceramic tile, similar materials approved by the Plan Commission Accent: glass, metal, wood, any primary building material, similar materials approved by the Plan Commission Prohibited: aluminum sidings, metal industrial type siding, vinyl siding, asphalt siding, and E.I.F.S (synthetic stucco), cedar shakes, concrete masonry units, or plywood siding.	Use of E.I.F.S
Facade **Frontage Buildout** 60% min	33%

3.) 26-6.405. A-7 DISTRICT STANDARDS, *(MZC pg. 128)*



REQUIRED :		***PROPOSED:***
Vehicular Parking Requirements		
Off-Street Parking Location	P in 2nd or 3rd Lot Layer. Parking must be Screened from abutting properties by Building or opaque Wall Screen, Fence Screen, or Hedge Screen. Parking Lots NP	Parking in the 1st Lot Layer

4.) **<u>26-6.405. S. 2. DISTRICT STANDARDS, Streetscape Repairs, Replacement & Improvements</u>** *(MZC pg. 266)*

REQUIRED :	***PROPOSED:***
b. If the Public Frontage Adjacent to the applicable Lot does not include a Sidewalk, Thoroughfare Trees, or street lights, any such absent element that would have been required pursuant to Section 26-6.502 if the Building or Lot were within a Development Parcel shall be provided by the Lot Owner in accordance with the following standards and requirements:	No sidewalks along: Columbia Avenue or Ottis Bowman Drive
i. If there is no Sidewalk, a Sidewalk shall be constructed along the entire Front Lot Line, which Sidewalk shall match any existing Sidewalk Enfronting an Adjacent Lot or if there is none, shall conform to the Thoroughfare standards for the applicable District or Civic Zone, as set forth in Section 26-6.502, as if such Thoroughfare standards were applicable.	No existing Sidewalk Enfronting or Adjacent Lot. Nearest sidewalk is a 5 FT wide sidewalk approximately 1,000 south of the intersection of Columbia Avenue and Ottis Bowman, at the intersection of Columbia Avenue and Harold P. Hagburg Drive

VARIANCE STANDARDS

The variance process is established to provide relief to a property owner when, due to unique circumstances, compliance with the zoning code imposes a hardship or practical difficulty on a property owner. The BZA is under no obligation to grant a variance. It is the petitioner's responsibility to prove a hardship or practical difficulty. The BZA should ask the petition to address the criteria listed below.

Section 26-6.804. I. Deviation from Standards & Requirements (pg 392) of the Munster Zoning Code states that the basis for a variance is as follows:

g. General Standards.

A Variance may be granted only if the Decision-Making Authority has made the following determinations for such Variance:

i. the practical difficulties or unnecessary hardships that would be incurred by strict application of the Use or Development standard, as applicable, are unique and not shared by all properties in the vicinity and are not self-imposed;
ii. such Variance is the minimum Variance that will relieve such practical difficulties or unnecessary hardships, as applicable;
iii. such Variance is in the spirit of the general purposes and intent of this Article as stated in Division 1; and
iv. such Variance is so designed as to provide reasonable consideration to, among other things, the character of the neighborhood, District, or Civic Zone, the conservation of property values in the vicinity, and the guidance of Development in accordance with the Comprehensive Plan.

h. Specific to Development standards Variances:

A Variance from Development Standards may be approved or approved with conditions only if:

i. it will not be injurious to the public health, safety, morals, and general welfare of the community;
ii. the use and value of the area Adjacent to the property included in the Variance will not be affected in a substantially adverse manner; and
iii. the strict application of the Development standards will result in practical difficulties in the use of the property.

The applicant has addressed these criteria (Conditions of Approval Questions Form) in the attached application.

DISCUSSION

In review of the supporting documents, staff finds no other variances required. However, while a robust landscape plan has been submitted, additional discussion should occur with the applicant to confirm required screening is met or compiles with the current standards. Also, additional discussion should occur regarding the authorization of off-site detention for the management of stormwater runoff. Finally, there does not appear to be an expiration for approved Developmental Standards Variances and said variance commence at the time a building permit is issued the development request.

STAFF FINDINGS and RECOMMENDATION

Staff's review of the of the Application, Supporting documents, and Conditions of Approval Questions are complete and recommends a Public Hearing at the next regular scheduled meeting of the BZA (January, 9 2024).

MOTION

The Board of Zoning Appeals may consider the following motions:

1. *Motion to schedule BZA 23-014 for a Public Hearing on January 9, 2024.*

EXHIBIT A
OSNI DEVELOPMENTAL STANDARDS VARIANCE APPLICATION

Petition BZA 23 - 014
Date: _____
Application Fee: $_____
Sign Fee: $_____

Town of Munster Board of Zoning Appeals Petition Application

OWNER INFORMATION:

OSNI Dyer & Associates, LLC (Sunil Dedhia, MD) — Name of Owner
(219) 924-3300 — Phone Number
730 45th Street, Munster, IN 46321 — Street address, City, ST, ZIP Code
s-dedhia@hotmail.com — Email address

APPLICANT OR PETITIONER INFORMATION (if different than above):

Georgiou & Associates Architects, Inc. (Nicholas Georgiou) — Name of Applicant/Petitioner
(219) 365-9345 — Phone Number
912 W. Avenue H, Suite 2, Griffith, IN 46319 — Street address, City, ST, ZIP Code
nick@georgiouarchitects.com — Email address

PROPERTY INFORMATION:

Orthopedic Specialists of Northwest Indiana (OSNI) — Business or Development Name (if applicable)
9900 Columbia Avenue, Munster IN — Address of Property or Legal Description
CD-4.B — Current Zoning

APPLICATION INFORMATION:

Please select what this Application is for:

■ **Variance** If yes, select one of the following: ☐ **Use** ■ **Developmental Standards**

☐ **Conditional Use**

☐ **Administrative Appeal**

Brief Description of Project and List of Variances or Conditional Uses Being Requested (if applicable)

Project Description: Proposed renovation of existing church building into medical office tenant, with a 10,000 sf addition for medical office.

List of variances being requested:

- *Building setbacks (26-6.405.A-7)*
- *Building materials (26-6.405.A-7)*
- *Frontage buildout (26-6.405.A-7)*
- *Off street parking in Lot Layer 1 (26-6.405.A-7)*
- *Developmental variance to waive sidewalks at frontage roads*

Georgiou & Associates Architects, Inc. (Nicholas Georgiou) — Name of Registered Engineer, Architect or Land Surveyor
(219) 365-9345 — Phone Number
912 W. Avenue H, Suite 2, Griffith, IN 46319 — Street address, City, ST, ZIP Code
nick@georgiouarchitects.com — Email address

Petition BZA_____-_____

Town of Munster *Board of Zoning Appeals Application Signature Page*

I hereby authorize *Georgiou & Associates Architects, Inc.* to act on my behalf as my agent in this petition and to furnish, upon request, supplemental information in support of this petition application.

Signature of Owner ***Date*** 11/20/23

Signature of Applicant ***Date*** 11/20/2023

REQUIRED ATTACHMENTS

Required Attachments for Board of Zoning Appeals Applications

To ensure that adequate information is provided to the BZA, please check off each of these items and provide documentation to the Community Development Department at the time of submittal of the application.

ALL APPLICATIONS	Included	N/A
Narrative statement describing project	x	
Property owner consent (Signature page)	x	
Proof of Ownership (e.g. copy of tax bill)	x	
Plat of Survey depicting current conditions	x	
Site Plan containing the following:	x	
Boundary identification	x	
Fire hydrant locations	x	
Accessory structures	x	
Parking lot design	x	
Utility location	x	
Building footprints	x	
Proposed curb cuts	x	
Drainage/detention plans	x	
Traffic circulation	x	
Ingress/egress locations	x	
Major topographic information	x	
Infrastructure improvements	x	
Conditions of Approval Form (Note: complete the form specific to your petition)*	x	
Any other information that the BZA may find useful in determining whether the application is merited.		

* Unique conditions have been established for special use permits for public garages, gas filling stations, used car lots, garden centers, massage parlors, adult bookstores, tattoo parlors, adult cabarets, and outdoor dining areas. Community Development staff will advise potential applicants of these at the pre-application meeting.

NOTE: If you checked any exhibits "N/A", please explain:

_____

_____

_____

_____

_____

_____

_____

CONDITIONAL USE CONDITIONS OF APPROVAL (PAGE 1 of 2)

The Munster Board of Zoning Appeals is authorized to hear petitions for conditional uses and to forward the petition to the Munster Town Council with a recommendation to approve, a recommendation to deny, or no recommendation. The Board of Zoning Appeals may also recommend reasonable conditions and restrictions. Sec. 26-6.405.L.4 of the Munster Zoning Code states that no conditional use shall be granted by the Munster Town Council unless the special use meets the conditions listed below.

Please explain how the proposed use meets these conditions.

1. It will be harmonious with and in accordance with the general and specific intent, purposes and objectives of Section 26-6.105, that is, it promotes and is necessary to the health, safety, general welfare, comfort, and convenience of the Town and its residents, and the Town's Comprehensive Plan.

N/A

2. It will be designed, constructed, operated, and maintained to be harmonious and appropriate in appearance with the existing or intended character of the general vicinity and will not change the essential character of the same area.

N/A

3. It will not be hazardous or disturbing to existing neighboring uses.

N/A

4. It will be served adequately by essential public facilities and services such as highways, streets, police and fire protection, drainage structures, refuse disposal, water and sewer, and schools; or that the persons or agencies responsible for the establishment of the proposed use shall be able to provide adequately any such services.

N/A

CONDITIONAL USE CONDITIONS OF APPROVAL (PAGE 2 of 2)

5. It will not create excessive additional requirements at public expense for public facilities and services and will not be detrimental to the economic welfare of the community.

N/A

6. It will not involve uses, activities, processes, materials, equipment, or conditions of operation that will be detrimental to any persons, property, or the general welfare by reason of excessive production of traffic, noise, smoke, fumes, glare or odors.

N/A

7. It will have vehicular approaches to the property, which shall be so designed as not to create an interference with traffic on surrounding public thoroughfares.

N/A

8. It will not result in the destruction, loss, or damage of a natural, scenic, or historic feature of major importance

N/A

Attach additional pages if necessary

DEVELOPMENTAL VARIANCE CONDITIONS OF APPROVAL

The Munster Board of Zoning Appeals is authorized to hear petitions for developmental standards variances and to approve or deny. The Board of Zoning Appeals may also impose reasonable conditions and restrictions. Indiana Code 36-7-4-918.5 lists the legal criteria for a developmental standards variance:

1. The approval will not be injurious to the public health, safety, morals, and general welfare of the community. Explain why this statement is true in this case:

The use is consistent with the Munster comprehensive plan, and the variances being sought for the setbacks, frontage buildout, building materials, parking, and sidewalks of the proposed medical office building will not be injurious to the public health, safety, morals, and general welfare of the community. The requested variances are similar to numerous existing buildings along Columbia Ave, and will not negatively affect the area.

2. The use and value of the area adjacent to the property included in the variance will not be affected in a substantially adverse manner. Explain why this statement is true in this case:

The proposed medical office building will not adversely affect the use or value of the adjacent areas, as the use is consistent with the comprehensive plan, ordinance requirements, and the surrounding area. The neighborhood, which currently consists of many industrial uses, will be enhanced by the addition of a medical office building. The variances requested for setbacks, frontage buildout, building materials, parking, and sidewalks, are consistent with the existing buildings in adjacent areas and will not negatively impact the character of the area.

3. The strict application of the terms of the zoning ordinance will result in practical difficulties in the use of the property. Explain why this statement is true in this case:

The variances being sought are due the existing church building being renovated for a medical office use. It would be impractical to move or modify the existing building to meet the setbacks, frontage build out, and building material requirements of the ordinance. The proposed addition will also require a variance to the setbacks and frontage build out requirements, due to the existing easements on the site, as well as the desired connection to the existing building. The building materials for the new addition will match the materials chosen to renovate the existing building, to ensure a cohesive design. The parking in Lot Layer 1 is necessary to meet the number of parking spaces required by the ordinance for the medical office building use, and the waiver of sidewalks on the frontage streets is also consistent with the surrounding area.

Attach additional pages if necessary

USE VARIANCE CONDITIONS OF APPROVAL (PAGE 1 OF 2)

The Munster Board of Zoning Appeals is authorized to hear petitions for use variances and to forward the petition to the Munster Town Council with a recommendation to approve, a recommendation to deny, or no recommendation. The Board of Zoning Appeals may also recommend reasonable conditions and restrictions. Indiana Code 36-7-4-918.4 lists the legal criteria for a use variance:

1. The approval will not be injurious to the public health, safety, morals, and general welfare of the community. Explain why this statement is true in this case:

N/A

2. The use and value of the area adjacent to the property included in the variance will not be affected in a substantially adverse manner. Explain why this statement is true in this case:

N/A

3. The need for the variance arises from some condition peculiar to the property involved. Explain why this statement is true in this case:

N/A

USE VARIANCE CONDITIONS OF APPROVAL (PAGE 2 OF 2)

4. The strict application of the terms of the zoning ordinance will constitute an unnecessary hardship if applied to the property for which the variance is sought. Explain why this statement is true in this case:

N/A

5. The approval does not interfere substantially with the adopted comprehensive plan. Explain why this statement is true in this case:

N/A

Attach additional pages if necessary

Town of Munster

Legal Notice

BOARD OF ZONING APPEALS PETITION NO. _____-_____

Notice is hereby given that the Town of Munster, Lake County, Indiana, will hold a public hearing in the Munster Town Hall, 1005 Ridge Road, at 6:45 p.m. on _____, 20____, to consider the following petition, in accordance with the Munster Zoning Ordinance:

DEVELOPMENTAL USE VARIANCES FOR PROPOSED MEDICAL OFFICE BUILDING

Common Address and/or Description:

9900 COLUMBIA AVENUE, MUNSTER IN

Legal Description:

CAVALRY COMMUNITY CHURCH PT LT 1 ; LOT 1, EXCEPT THE WEST 125 FEET THEREOF , IN CAVALRY COMMUNITY CHURCH ADDITION TO THE TOWN OF MUNSTER, AS PER PLAT THEREOF, RECORDED IN PLAT BOOK 85 PAGE 60, IN THE OFFICE OF THE RECORDER OF LAKE COUNTY, INDIANA

Anyone interested in the Petition may appear in person or by agent at the public hearing. Written objections filed with the Board of Zoning Appeals Executive Secretary, Thomas Vander Woude, before the hearing will be considered. The hearing may be continued from time to time as may be found necessary. All information concerning such petition is on file in the Community Development Office, 1005 Ridge Road, Munster, Indiana, 46321, for public examination.

Thomas Vander Woude, Executive Secretary

Town of Munster

Notice to Owners of Affected Property

BOARD OF ZONING APPEALS PETITION NO. _____-_____

Georgiou & Associates Architects, Inc. (Nicholas Georgiou)

Name of Petitioner

912 W. Avenue H, Suite 2, Griffith, IN 46319

Address

Notice is hereby given that at the regularly scheduled meeting of _____, 20____, at 6:45 p.m., at the Munster Town Hall, 1005 Ridge Road, Munster, Indiana, the Board of Zoning Appeals will conduct a public hearing on the following petition:

DEVELOPMENTAL USE VARIANCES FOR PROPOSED MEDICAL OFFICE BUILDING LOCATED AT 9900 COLUMBIA AVENUE, MUNSTER IN.

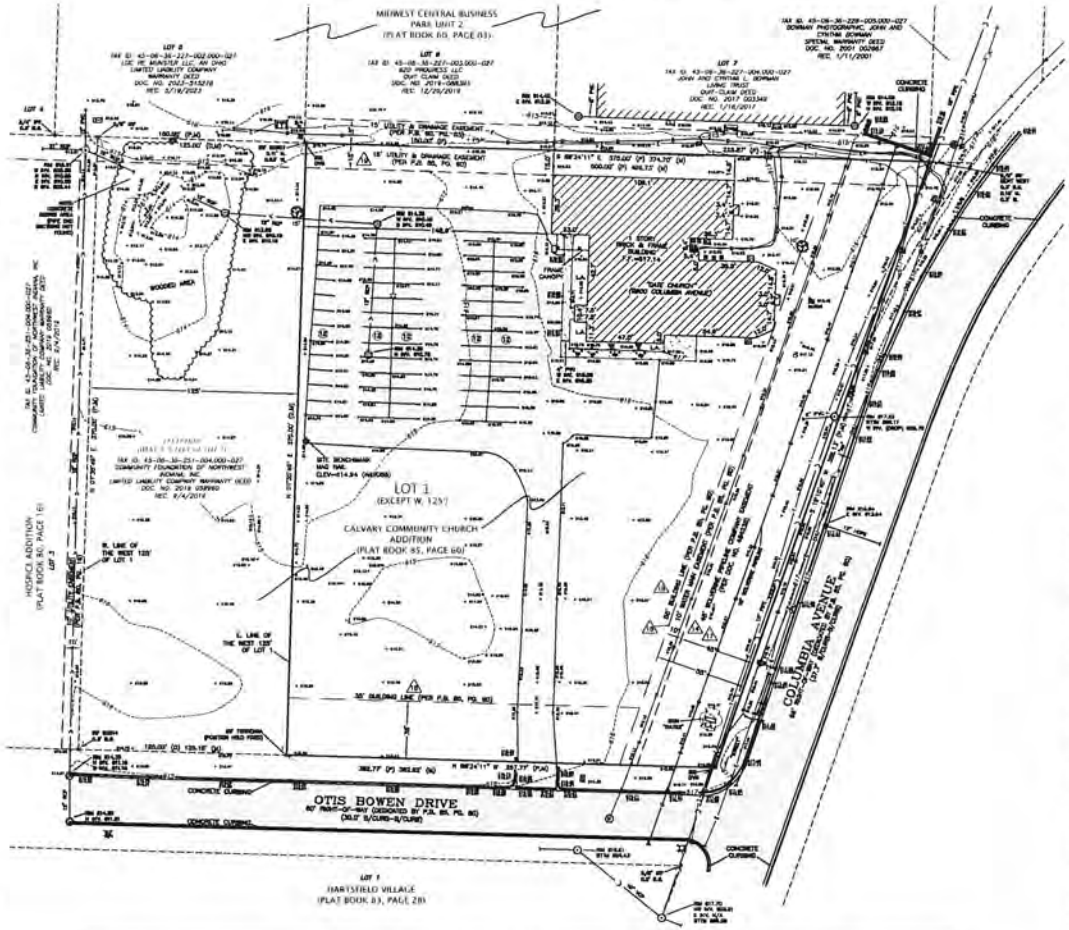
Anyone interested in the petition may appear in person or by agent. Written objections, filed with the Board of Zoning Appeals Secretary before the hearing, will be considered. The hearing may be continued from time to time as may be found necessary. All information concerning the petition is on file in the Community Development Office, 1005 Ridge Road, Munster, Indiana, 46321, for public examination.

Signature of Petitioner

Date

EXHIBIT B
ONSI SUPPORTING DOCUMENTS/PLANS

ALTA/NSPS LAND TITLE SURVEY



VICINITY MAP

LEGEND

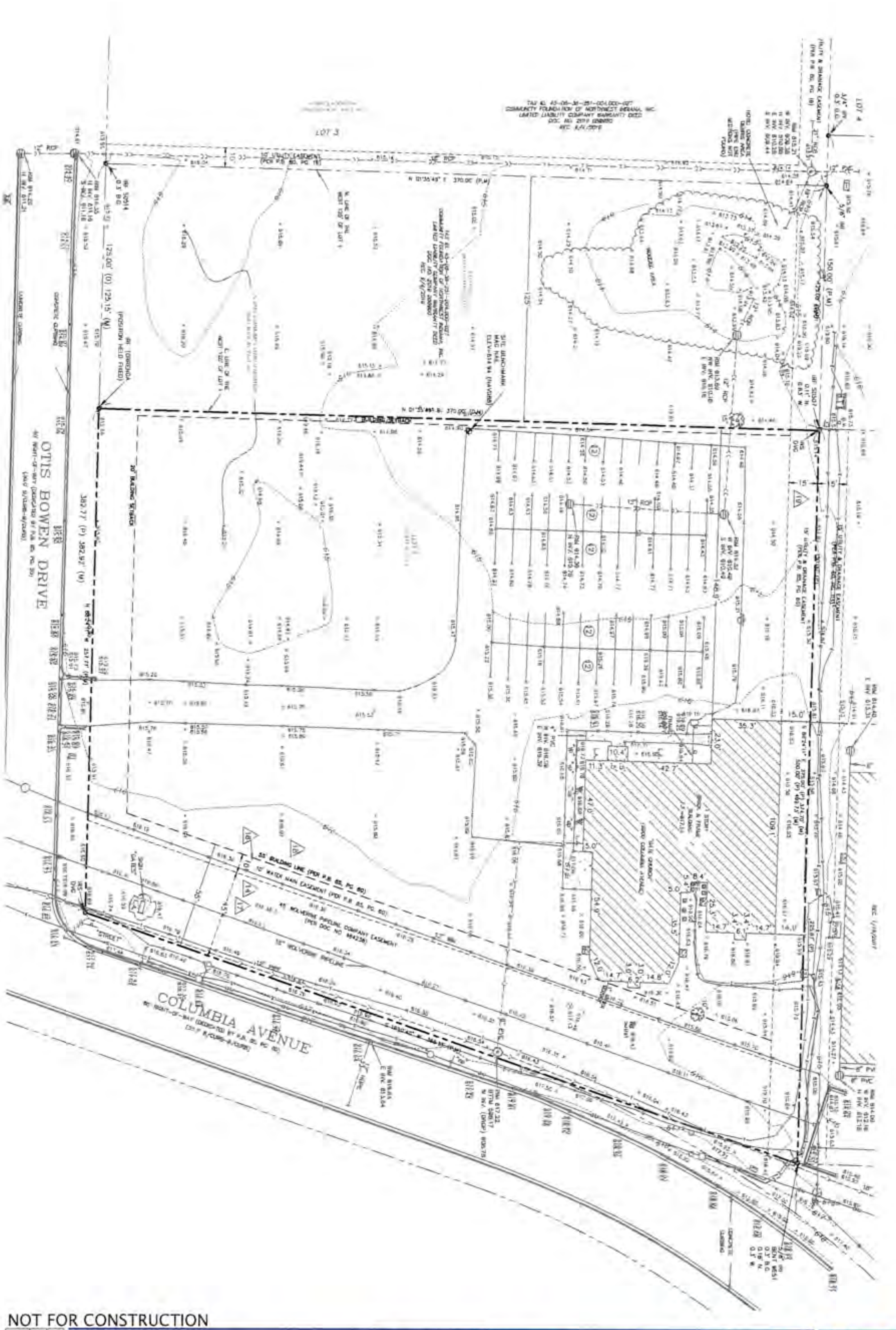
DVG TEAM INC
1155 Troutwine Road
Crown Point, IN 46307
P (219) 662-7710
F (219) 663-2710
www.dvginc.com

ALTA/NSPS LAND TITLE SURVEY
9900 COLUMBIA AVENUE
MUNSTER, INDIANA 46321
LOT 1, EXCEPT THE WEST 125 FEET THEREOF, CALVARY COMMUNITY CHURCH ADDITION

SCALE: 1" = 30'

GATE CHURCH
A CORPORATION

DRAWN BY:	DATE:
M.S.	9/13/23
SECTION: 35-38-10	COUNTY, STATE: LAKE, IN
JOB NO.:	230720



NOT FOR CONSTRUCTION

OSNI MEDICAL OFFICE BLDG

Existing Conditions

REGION CONTRACTORS, LLC
912 W. AVE H, SUITE 2
GRIFFITH, IN 46319

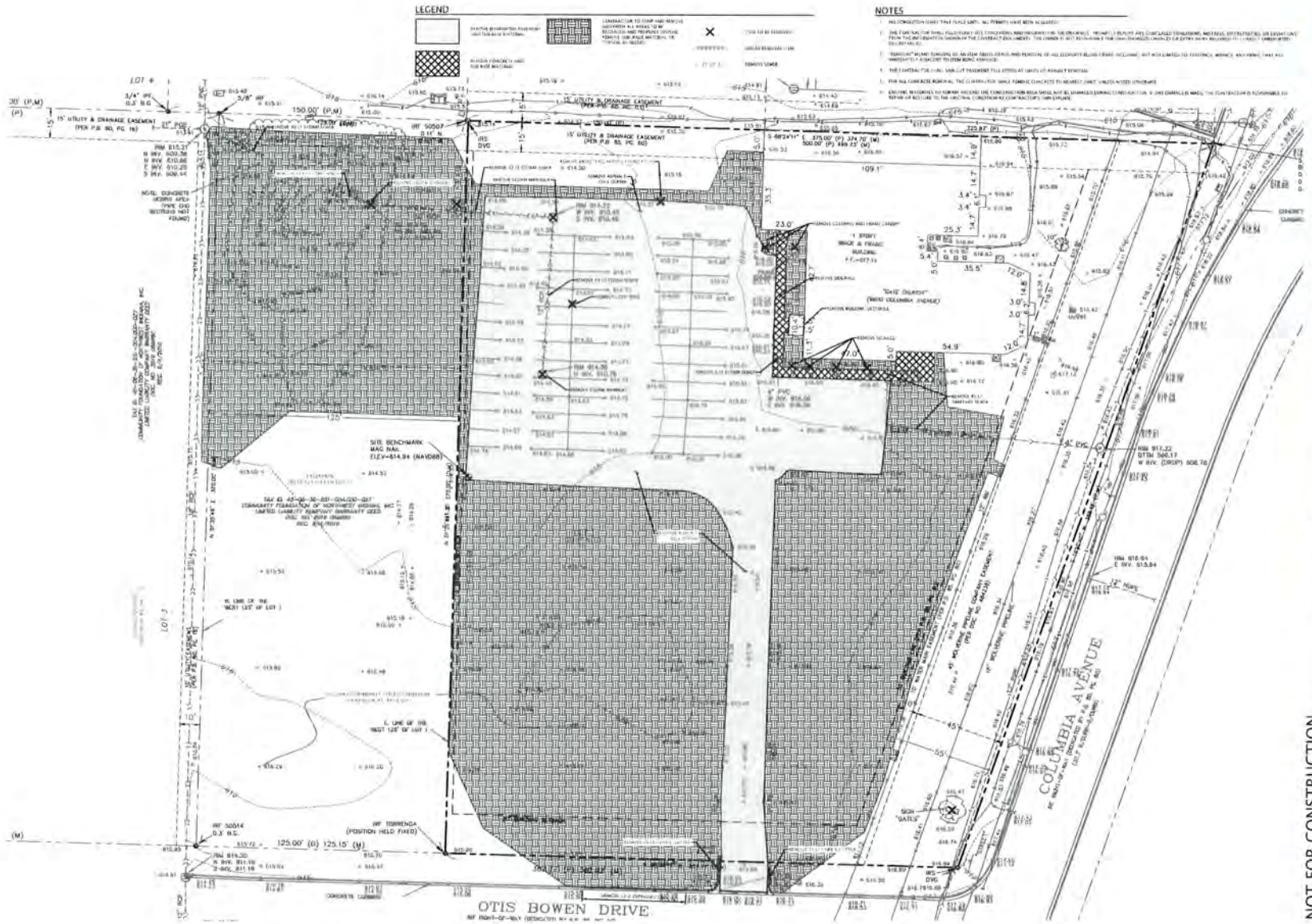
DATE	REVISIONS AND NOTES

DVG TEAM INC

C101

23-0031

10/12/23



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10/12/2023

REGION CONTRACTORS, LLC
912 W. AVE H, SUITE 2
GRIFFITH, IN 46319

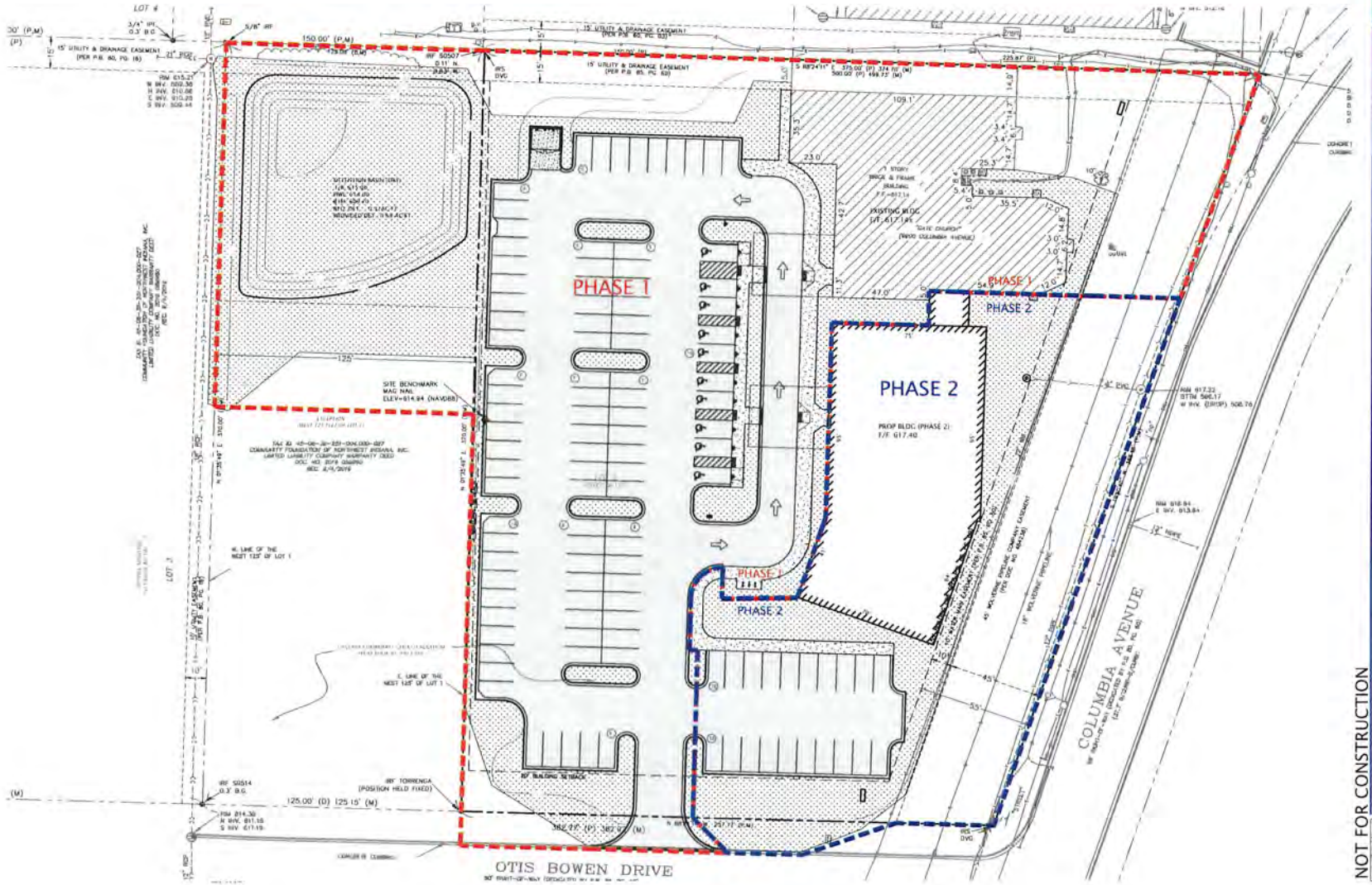
DATE | REFERENCE AND NOTES

NOT FOR CONSTRUCTION

OSNI MEDICAL OFFICE BLDG

Demolition Plan

DESIGNED BY	DATE
RJF	10/12/23
PROJECT NO.	
23-0031	
C102	



DVG TEAM INC

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10/12/2023

REGION CONTRACTORS, LLC
912 W. AVE H, SUITE 2
GRIFFITH, IN 46319

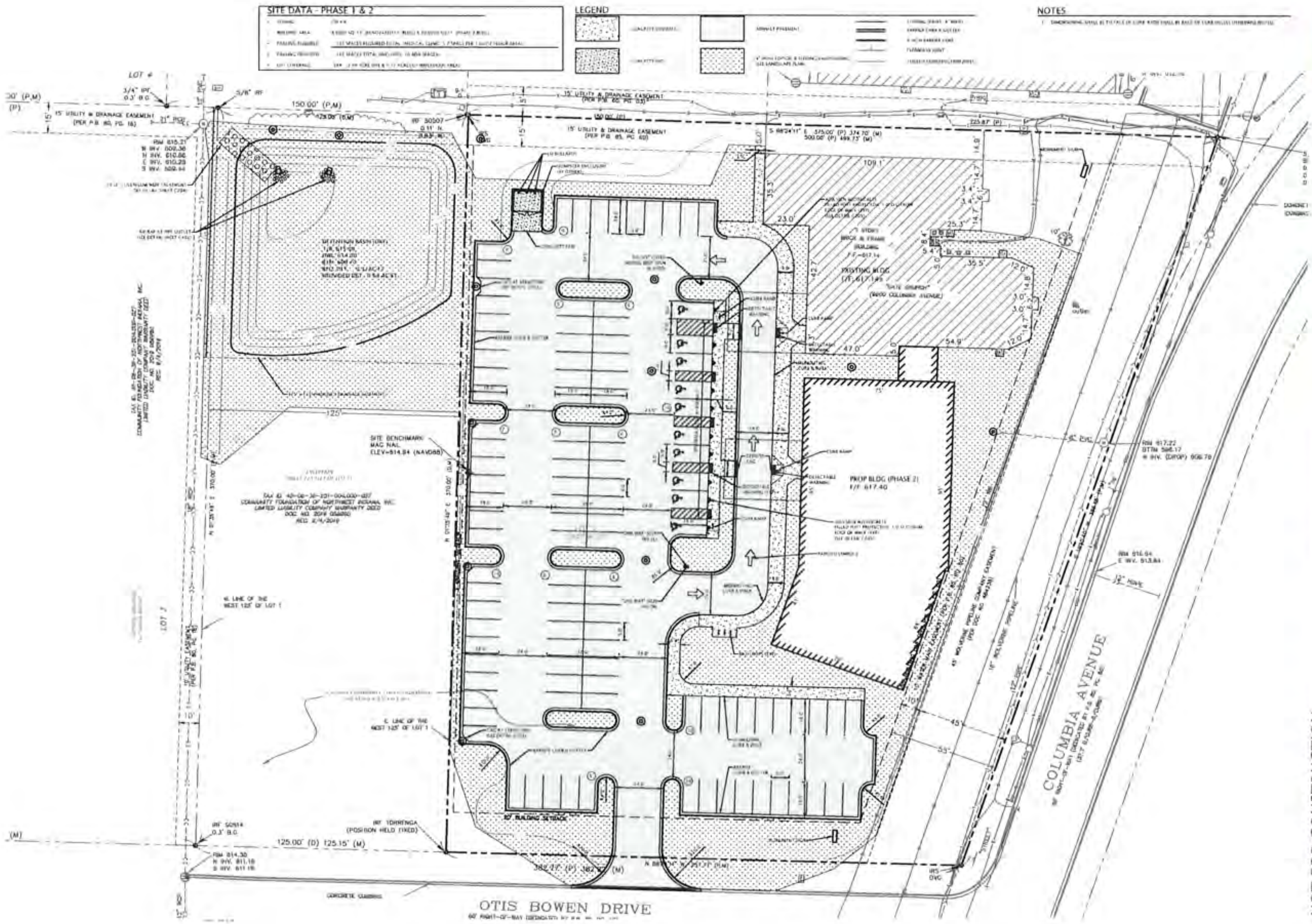
DATE	REFERENCE AND NOTES

NOT FOR CONSTRUCTION

OSNI MEDICAL OFFICE BLDG

Phasing Plan

DRAWN BY	DATE
RJF	10/12/23
PROJECT NO.	
23-0031	
C103	



NOT FOR CONSTRUCTION

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10/12/2023

REGION CONTRACTORS, LLC
912 W. AVE H, SUITE 2
GRIFFITH, IN 46319

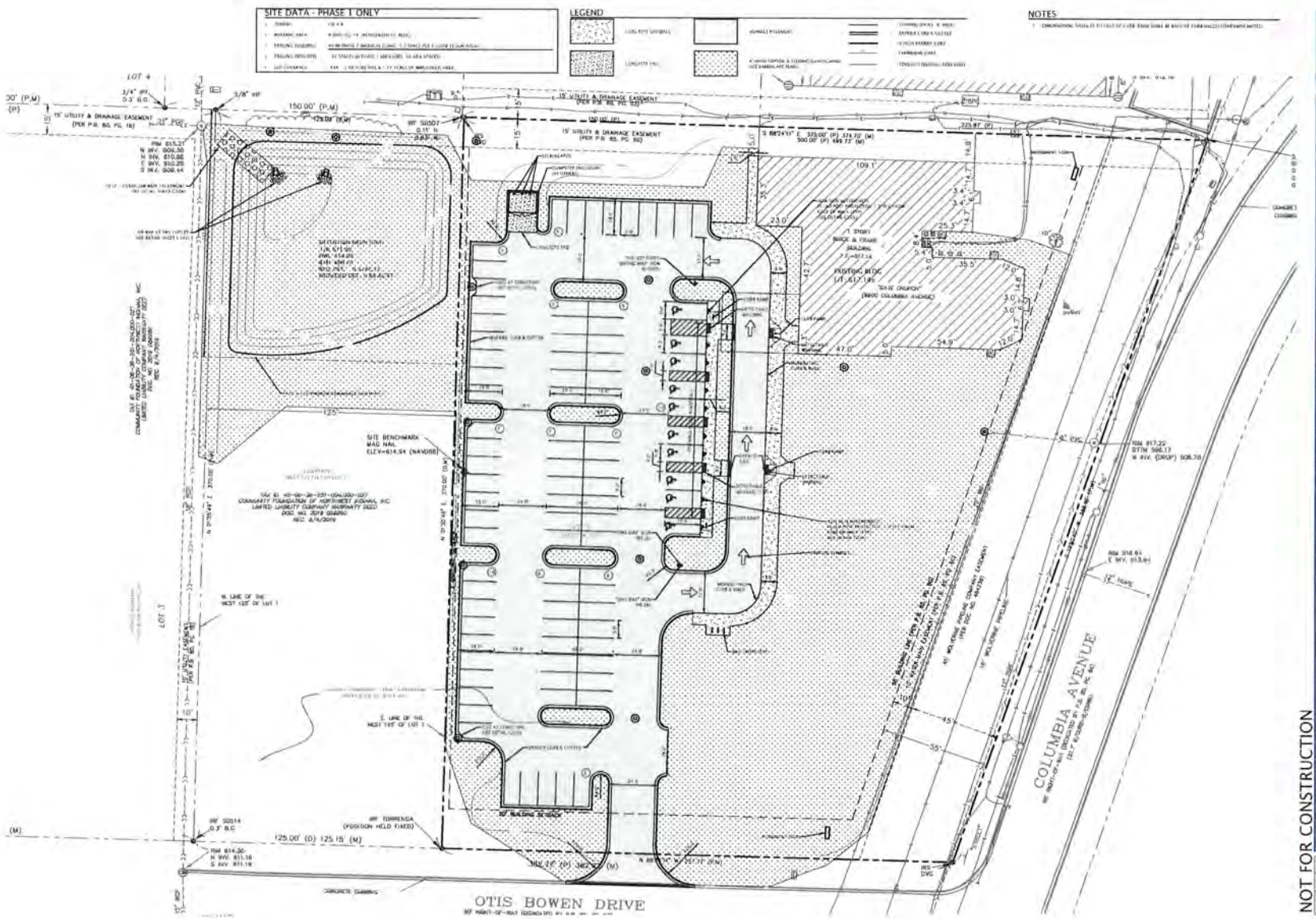
DATE	REVISIONS AND NOTES

OSNI MEDICAL OFFICE BLDG

Site Plan - Phase 1 & Phase 2

DESIGN BY: RJP	DATE: 10/12/23
PROJECT NO.: 23-0031	

C104



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10/12/2023

REGION CONTRACTORS, LLC
912 W. AVE H, SUITE 2
GRIFFITH, IN 46319

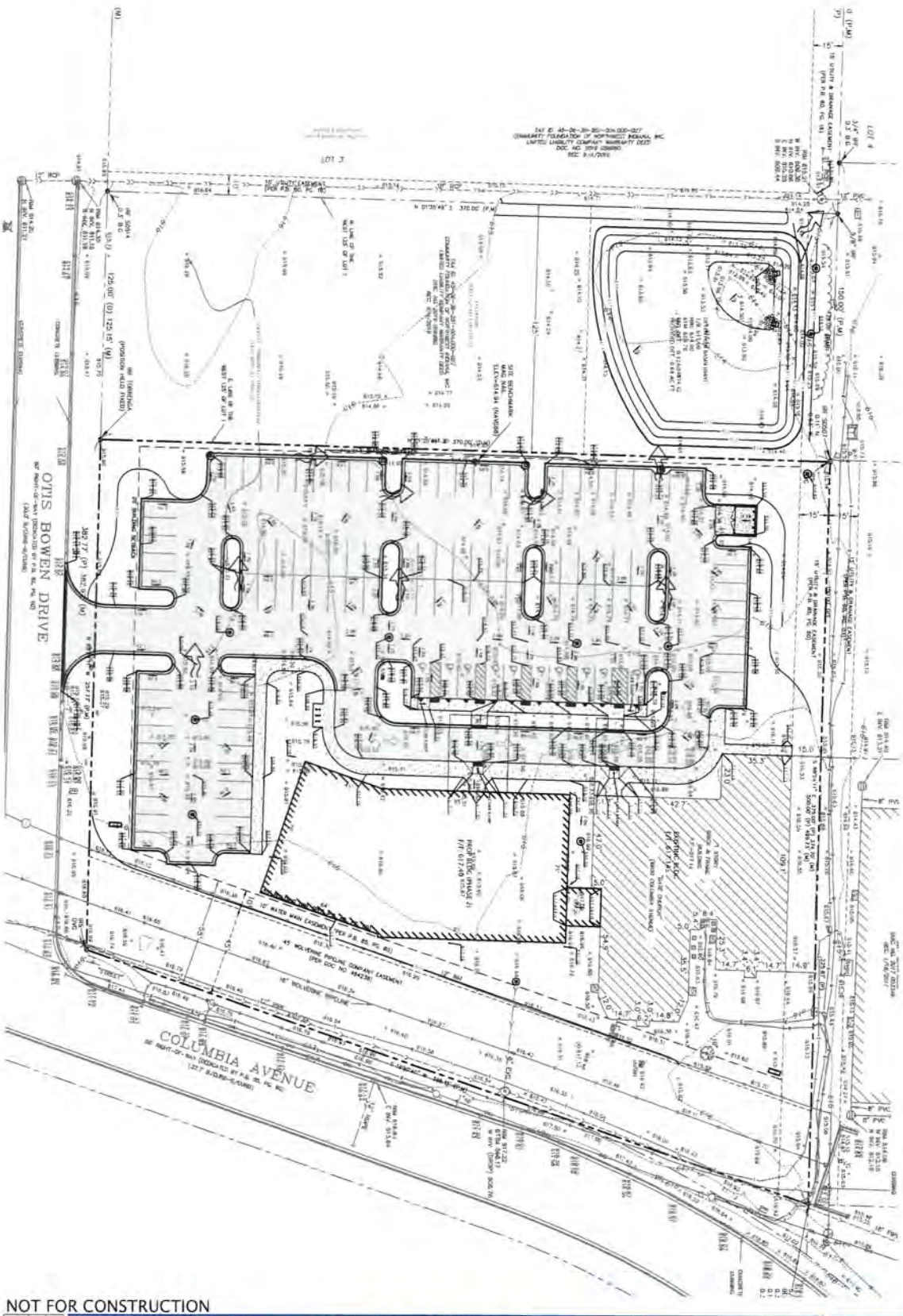
DATE	REVISIONS & PER NOTES

NOT FOR CONSTRUCTION

OSNI MEDICAL OFFICE BLDG

Site Plan - Phase 1 Only

DESIGN BY: RJP	DATE: 10/12/23
PROJECT NO: 23-0031	
C105	



NOT FOR CONSTRUCTION

C106

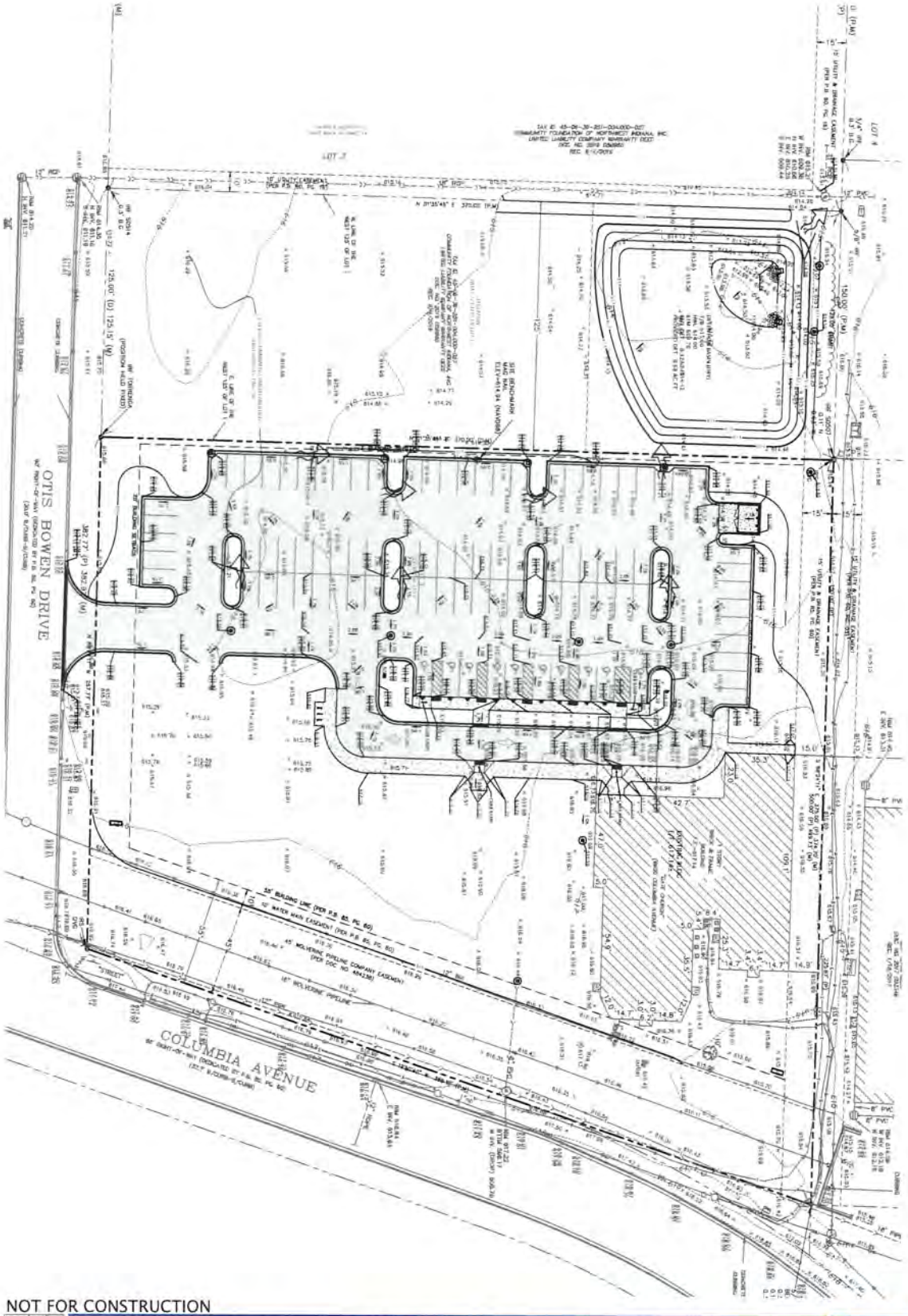
OSNI MEDICAL OFFICE BLDG

Grading Plan - Phase 1 & Phase 2

DATE	REVISIONS AND NOTES

REGION CONTRACTORS, LLC
912 W. AVE H, SUITE 2
GRIFFITH, IN 46319

DVG



NOT FOR CONSTRUCTION

C107

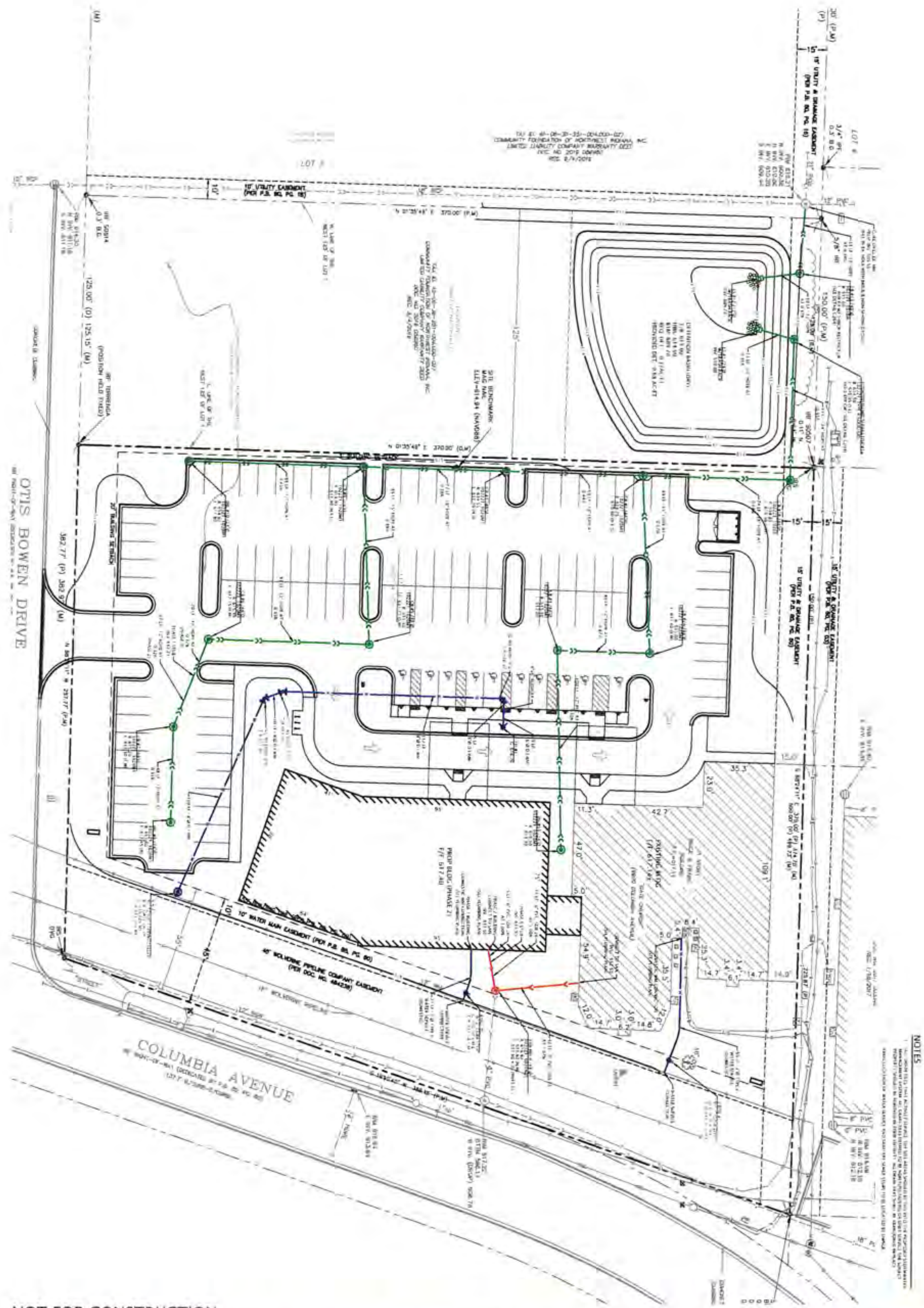
OSNI MEDICAL OFFICE BLDG

Grading Plan - Phase 1 Only

DATE	REVISIONS AND NOTES

REGION CONTRACTORS, LLC
912 W. AVE H, SUITE 2
GRIFFITH, IN 46319

DVG



NOT FOR CONSTRUCTION

OSNI MEDICAL OFFICE BLDG

Utility Plan - Phase 1 & Phase 2

REGION CONTRACTORS, LLC
912 W. AVE H, SUITE 2
GRIFFITH, IN 46319

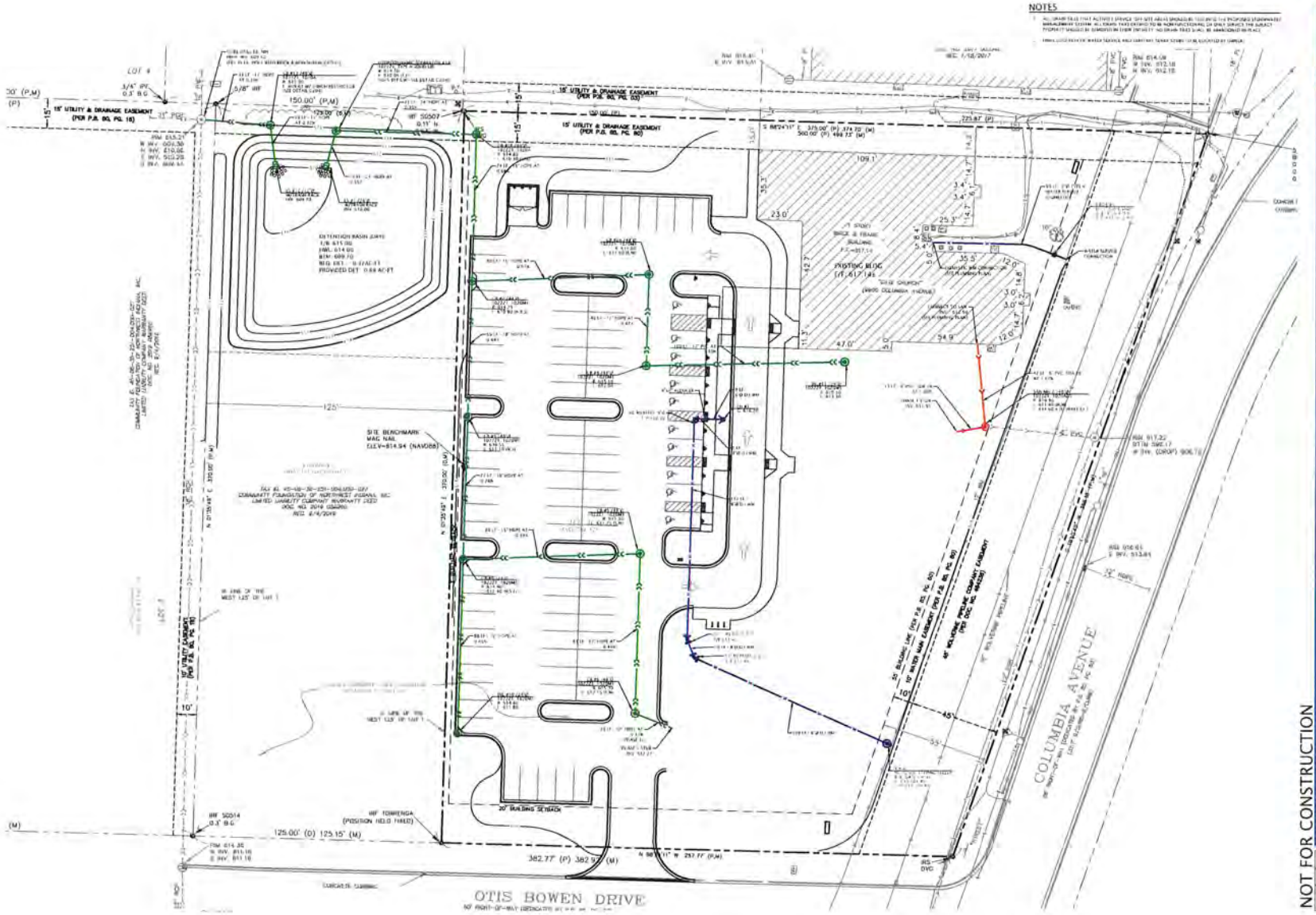
10/12/2023

DVG TEAM INC

C108

23-0031

10/12/23



DVG TEAM, INC
1155 Townline Road
Crown Point, IN 46307
P: (219) 662-7710
F: (219) 662-2740
www.dvgteam.com

10/12/2023

REGION CONTRACTORS, LLC
912 W. AVE H, SUITE 2
GRIFFITH, IN 46319

DATE	REVISIONS AND NOTES

NOT FOR CONSTRUCTION

OSNI MEDICAL OFFICE BLDG

Utility Plan - Phase 1 Only

DESIGN BY	DATE
RJP	10/12/23
PROJECT NO.	
23-0051	
C109	

EXHIBIT C
SITE PLAN REVIEW COMMITTEE DOCUMENTS/PLANS

Town of Munster SITE PLAN REVIEW APPLICATION

Community Development Department ~ 1005 Ridge Road ~ Munster, IN 46321
Phone 219-836-6990

CD-4.B

Subject Property Address/Location: 9900 Columbia Avenue. Zoning District: General Urban B

Applicant's Name: Nicholas Georgiou Title: Project Manager

CONTACT INFORMATION

Name: Region Contractors, LLC Email: nick@regioncontractors.com

Address: 912 W. Avenue H, Ste 2 Cell #: (219) 898-6385

Griffith, IN 46319 Office #: (219) 365-3508

PROPOSED PROJECT DESCRIPTION

Current/Previous Use: Religious - Church Proposed Use: Medical Office(s)

Description: Proposed renovation of existing 9,844 sf church building into medical offices & 10,000 sf addition for medical office(s) & associated use.

Has this project been reviewed by the Site Plan Review Committee before? Yes *If yes, when?* 9/7/2023

If any aspect of the proposed project or proposed use changed, please explain: Final survey, drainage easement, site/civil plan, master plan, landscape plan, site lighting, existing elevations, preliminary exterior rendering, & identification of variances req'd.

If any proposed project contact information changed, please explain: None

SUBMITTAL REQUIREMENTS

- X Completed Site Plan Review Application
- X Plat of survey with legal description (10 copies)
- o Site plan drawn to scale indicating present and proposed improvements to the site (10 copies)
- o At a minimum, when applicable, the site plan should identify the following:

____ Boundary identification	____ Utility location	____ Traffic circulation
____ Fire hydrant locations	____ Building footprints	____ Ingress/egress locations
____ Accessory structures	____ Proposed curb cuts	____ Major topographic information
____ Parking lot design	____ Drainage/detention plans	____ Infrastructure improvements

Application submittals shall be provided at least one week (5 business days) prior to the meeting for which review is sought.

ACKNOWLEDGEMENT OF TERMS

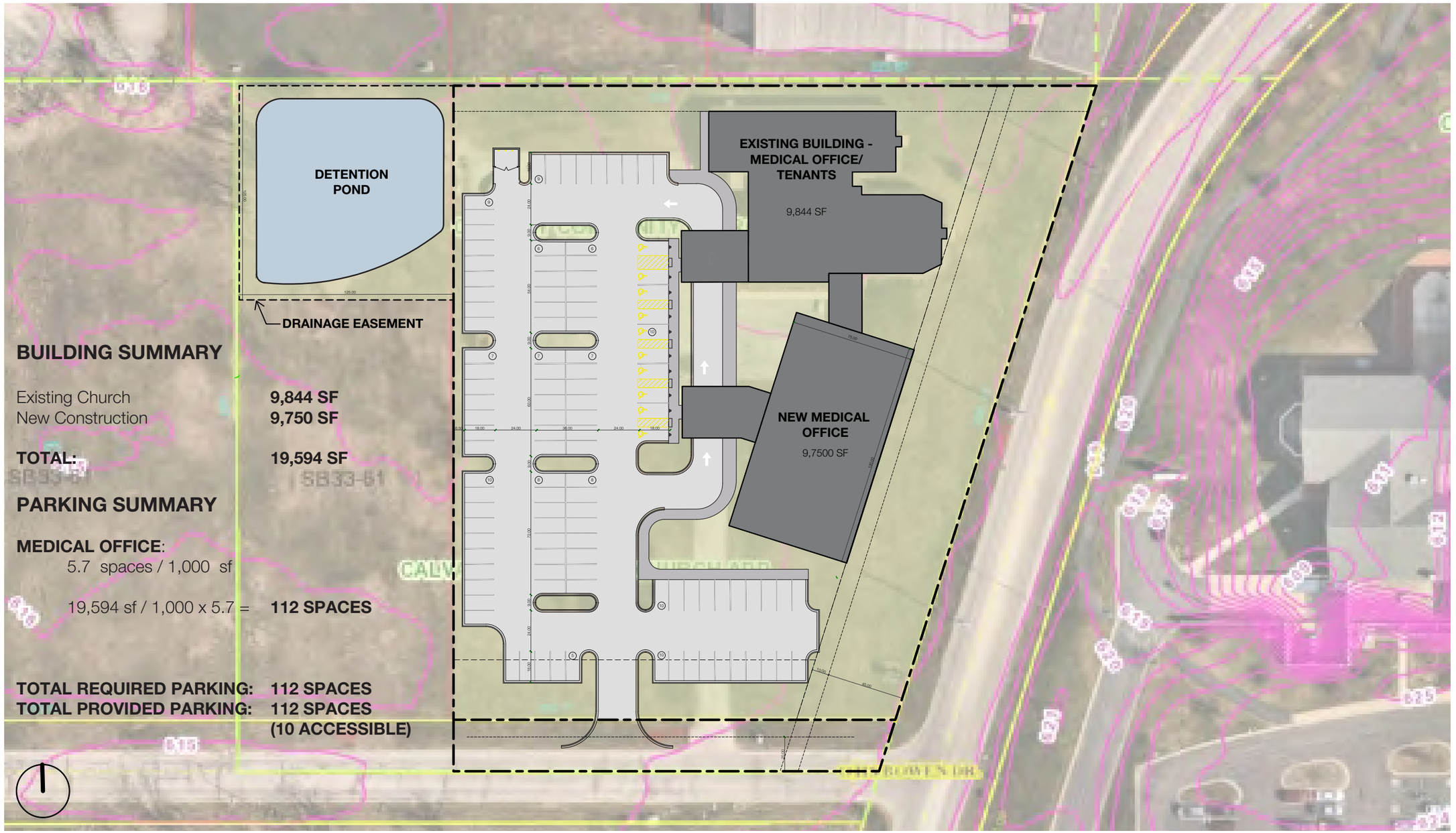
The undersigned applicant, as representative for the aforementioned project, acknowledges the application requirements as outlined above, and understands the application will be held until proper receipt of completed application and required materials. Upon proper receipt, the application will be processed and the applicant will be notified of the date and time of the review of the project as submitted.

Applicant's Signature: Nicholas Georgiou Date: 10/12/2023

OFFICE USE:

Date Received: _____ Review Date: _____ // ____ Withhold ____ Schedule

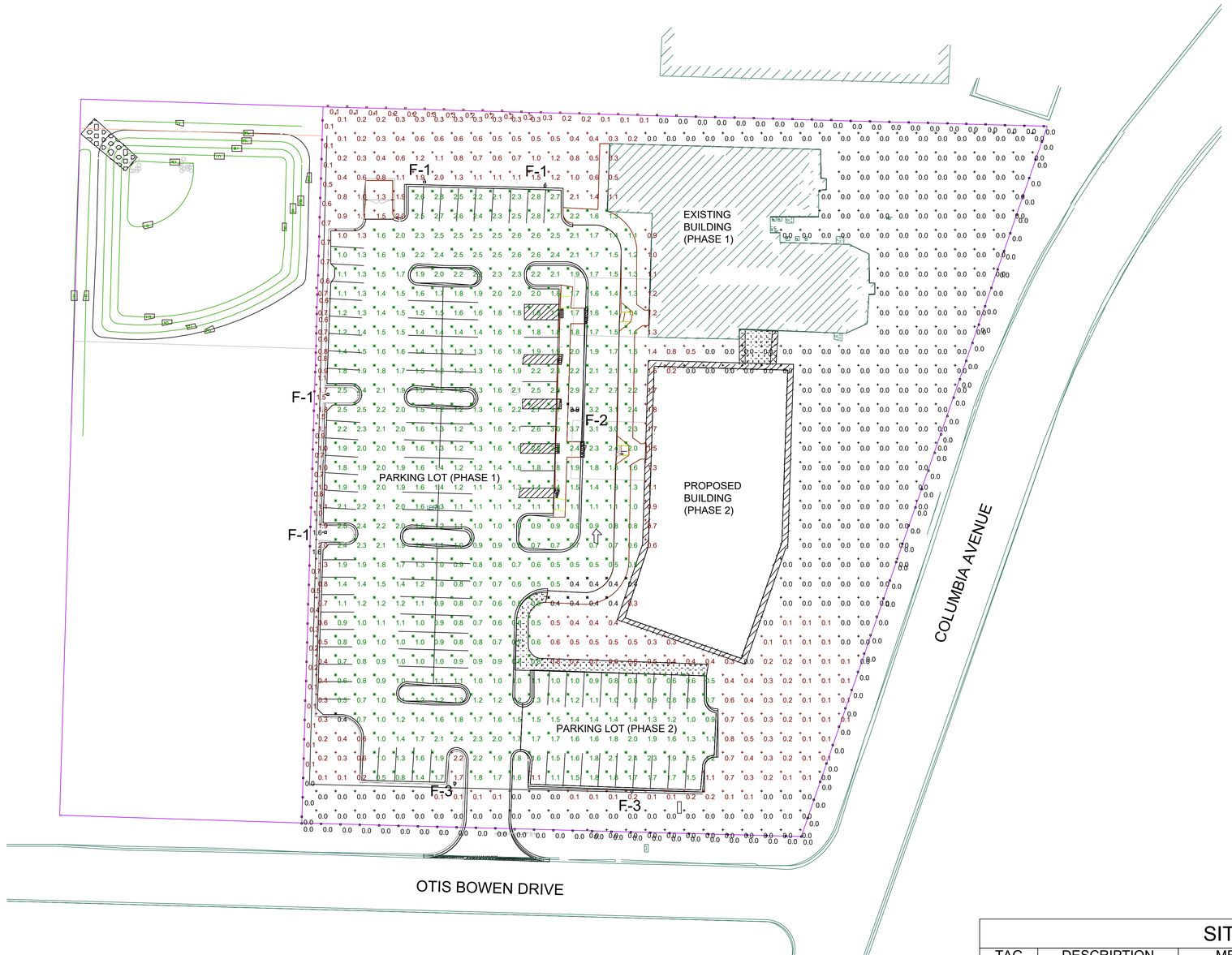
REGION CONTRACTORS



OSNI MEDICAL OFFICE BUILDING

9900 Columbia Avenue, Munster IN

OSNI MOB
October 12, 2023



1 SITE LIGHTING PLAN
SCALE: 1" = 30'-0"

NORTH

SITE LIGHT FIXTURE SCHEDULE

TAG	DESCRIPTION	MFTR.	MODEL #	WATTAGE	REMARKS
F1	LED POLE MOUNT, SINGLE-HEAD	LITHONIA LIGHTING	DSX1 LED P4 30K 80 CRI T4M	123.94	MOUNTING HEIGHT: 25'-0"
F2	LED POLE MOUNT, DUAL-HEAD	LITHONIA LIGHTING	DSX1 LED P4 30K 80 CRI T3M	247.88	MOUNTING HEIGHT: 25'-0"
F3	LED POLE MOUNT, SINGLE-HEAD	LITHONIA LIGHTING	DSX1 LED P4 30K 80 CRI BLC4	123.94	MOUNTING HEIGHT: 25'-0"

NOTE: ALL MODELS AND ARE FOR BASIS OF DESIGN. "APPROVED EQUALS" ARE ACCEPTABLE WITH OWNER/ARCHITECT APPROVAL.

REV.	REVISIONS	DATE

JAMES F. GIANNINI & ASSOCIATES
Architecture ● Engineering ● Design/Build
105 South 2nd Street ● Chesterton, Indiana 46304
219.728.7439 ● www.jfgassociates.com

OSNI
MEDICAL OFFICE BUILDING

9900 COLUMBIA AVE.

MUNSTER, IN 46321

DRAWN BY: RJN

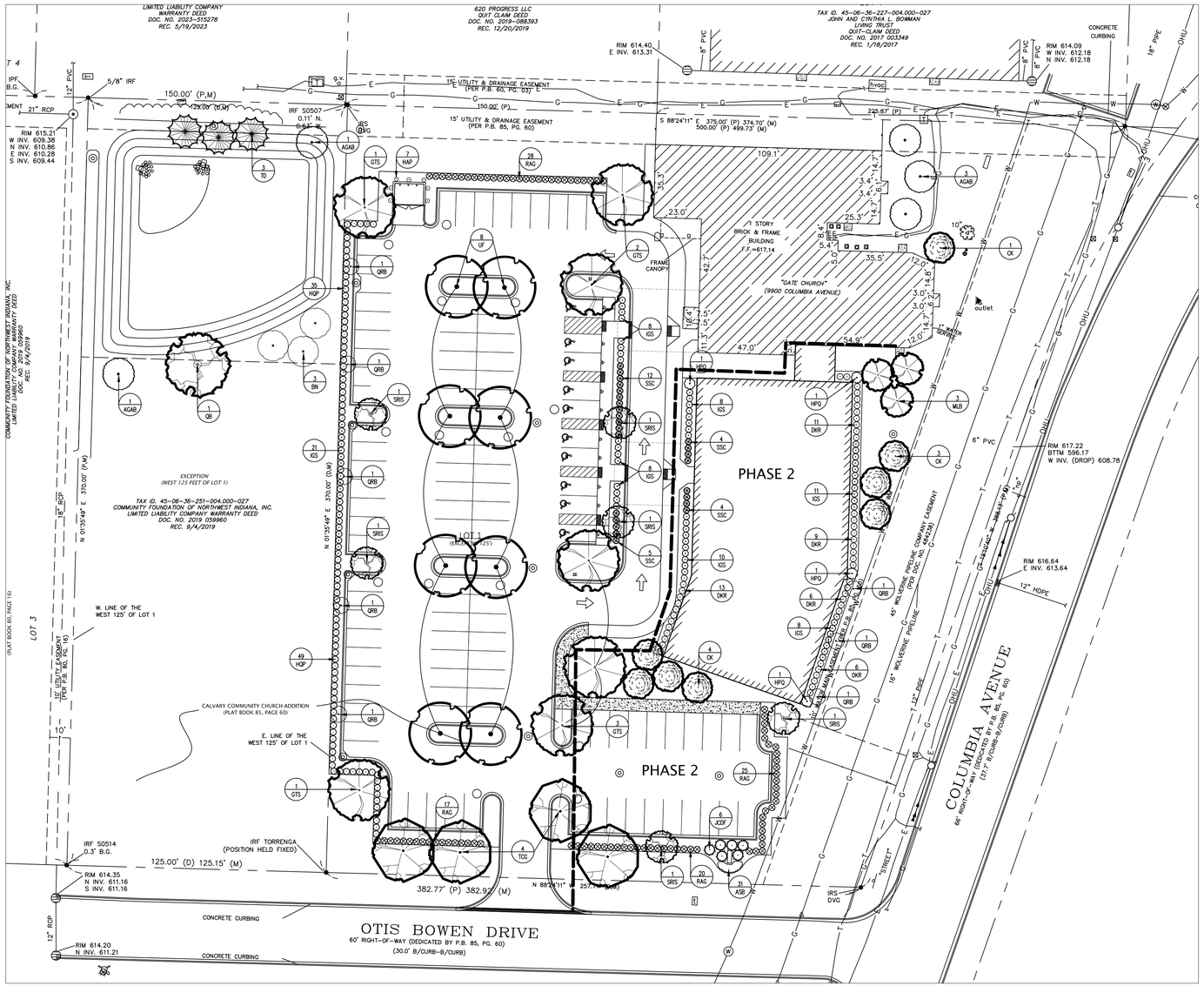
REVIEWED BY: RJN

DATE: 10/5/23

ROBERT J. NICKSIC REGISTERED PE11100384 STATE OF INDIANA PROFESSIONAL ENGINEER

SHEET

E-1.0



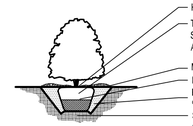
PLANT LIST			
Symbol	**Botanical Name**	**Common Name**	**Size**
Trees			
AGAB	Amelanchier x grandiflora 'Autumn Brilliance'	Autumn Brilliance Serviceberry	MS 5'-6'
BN	Betula nigra	River Birch	MS 8'
CK	Cornus kousa	Kousa Dogwood	MS 6'
GTS	Gleditsia triacanthos var. inermis 'Skycole'	Skyline Locust	2.5"
MLM	Magnolia 'Leonard Messel'	Leonard Messel Magonila	MS 6'
QB	Quercus bicolor	Swamp White Oak	2.5"
QRB	Quercus x 'Nadler'	Kindred Spirit Oak	2.5"
QR	Quercus rubra	Red Oak	2.5"
SRIS	Syringa reticulata 'Ivory Silk'	Ivory Silk Lilac	2.5"
TCG	Tilia cordata 'Greenspire'	Greenspire Linden	2.5"
TD	Taxodium distichum	Bald Cypress	2.5"
UF	Ulmus 'Frontier'	Frontier Elm	2.5"
Shrubs			
DKR	Diervilla 'Kodiak Red'	Kodiak Red Diervilla	#3
HPQ	Hydrangea paniculata 'Quick Fire'	Quick Fire Hydrangea	#5
HQP	Hydrangea quercifolia 'PeeWee'	PeeWee Hydrangea	#3
IGS	Ilex glabra 'Strongbox'	Strongbox Inkberry	#3
JCDF	Juniperus chinensis 'Daubs Frosted'	Daubs Frosted Juniper	#3
RAG	Ribes alpinum 'Green Mound'	Green Mound Alpine Currant	#3
Vine			
HAP	Hydrangea anomala ssp. petiolaris	Climbing Hydrangea	#3
Perennials			
ASB	Allium 'Summer Beauty'	Summer Beauty Allium	#1
SSC	Schizachyrium scoparium 'Carousel'	Carousel Little Blue Stem Grass	#2

Calculations	Total Linear Feet (LF) or Square Feet (SF)	Trees Required	Trees Provided	Shrubs Required	Shrubs Provided
Parkway Planting					
1 Tree/ 30 LF of Frontage	646 LF	22	22		
Parking Planting					
Continuous Screening Hedge 7' Wide Required	Provided				
1 Tree / 30 LF of Frontage	180 LF	6	6		
1 Tree / 125 SF Internal Landscape	3492 SF	28	28		
All Masonry Dumpster Walls to Have Climbing Vines	Provided				

The undersigned landscape architect, registed in the State of Indiana, acknowledges that the landscape planting plan and construction details shown on the attached landscape plan for the property at 9900 Columbia Ave., Town of Munster, Indiana has been designed in accoradance with the requirements of the Town of Munster Municipal Code, the landscaping standards of the Town of Munster Zoning Ordinance, and the Guide to the Town of Munster Landscape Ordinances.

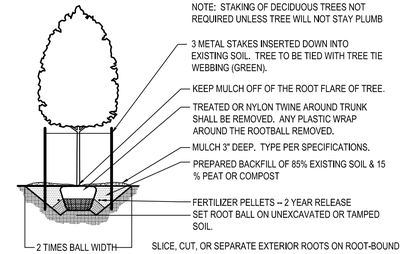
David R Hubinger

LOCATE ALL UNDERGROUND UTILITIES PRIOR TO DIGGING. SHRUB PIT WIDTH TO BE TWO TIMES THE WIDTH OF THE ROOT BALL. PRUNE OFF ALL DEAD, BROKEN OR SCARRED BRANCHES, AND SHAPE PRUNE AS DIRECTED BY THE LANDSCAPE ARCHITECT. LOCATE ROOT FLARE IN ROOT BALL AND SET SHRUB HEIGHT SO THAT ROOT FLARE IS FLUSH OR SLIGHTLY HIGHER THAN FINISH GRADE DEPENDING ON EXISTING SOIL CONDITIONS. WATER IN THE PLANTING MIX THOROUGHLY, WHILE KEEPING THE SHRUB PLUMB. STRAIGHTEN SHRUB IF SETTLING OCCURS. MULCH LIMITS FOR SHRUBS TO EXTEND TO ALL EDGES OF PLANTING BEDS, SEE PLANS FOR BED LAYOUTS.



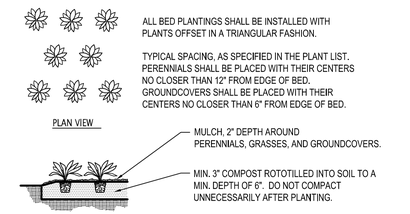
1 SHRUB PLANTING DETAIL
NOT TO SCALE

LOCATE ALL UNDERGROUND UTILITIES PRIOR TO DIGGING. TREE PIT WIDTH TO BE Two TIMES THE WIDTH OF THE ROOT BALL. PRUNE OFF ALL DEAD, BROKEN OR SCARRED BRANCHES, AND SHAPE PRUNE AS DIRECTED BY THE LANDSCAPE ARCHITECT. LOCATE ROOT FLARE IN ROOT BALL AND SET TREE HEIGHT SO THAT ROOT FLARE IS FLUSH OR SLIGHTLYI HIGHER THAN FINISH GRADE DEPENDING ON EXISTING SOIL CONDITIONS. WATER IN THE PLANTING MIX THOROUGHLY, WHILE KEEPING THE TREE PLUMB. STRAIGHTEN TREE IF SETTLING OCCURS.



2 DECIDUOUS & EVERGREEN TREE PLANTING DETAIL
NOT TO SCALE

LOCATE ALL UNDERGROUND UTILITIES PRIOR TO DIGGING. AMEND PLANTING BED SOIL WITH COMPOST PRIOR TO PLANT INSTALLATION. BED HEIGHT IS TO BE 2" ABOVE FINISH GRADE AND WELL DRAINED. MULCH LIMITS FOR PERENNIAL AND GROUNDCOVER BEDS TO EXTEND TO ALL EDGES OF THE BEDS, SEE PLANS FOR BED LAYOUTS.



3 PERENNIAL, GROUNDCOVER, AND ANNUAL PLANTING DETAIL
NOT TO SCALE

NORTH

GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.

HOLEY MOLEY SAYS
"DIG SAFELY"

"IT'S THE LAW"
CALL 2 WORKING DAYS BEFORE YOU DIG
1-800-382-5544
CALL TOLL FREE
PER INDIANA STATE LAW IC8-1-26, IT IS AGAINST THE LAW TO EXCAVATE WITHOUT NOTIFYING THE UNDERGROUND LOCATION SERVICE TWO (2) WORKING DAYS BEFORE COMMENCING WORK.

Notes:

Stand alone trees and Landscape Areas to have Shredded Hardwood Bark Mulch 3" Deep w/ Pre-emergent herbicide and have spade dug edge.

All disturbed lawn areas to be restored w/ 4" of topsoil, Seed w/ HLC Sunny Mix or approved equal w/ DS-75 Erosion Control Blanket.

Starter fertilizer to be applied at installation and post fertilizer application applied 30-45 days later with a minimum of 1# of Nitrogen per 1000 SF and 50% being slow release.

DAVID R. HUBINGER
REGISTERED
NO. LO177
STATE OF
INDIANA
LANDSCAPE ARCHITECT
David R Hubinger

	Revisions:	Date

HUBINGER
Landscaping
Corp.
210 East 113th Avenue
Crown Point, Indiana
Phone: 219-662-9911
www.hubingers.com

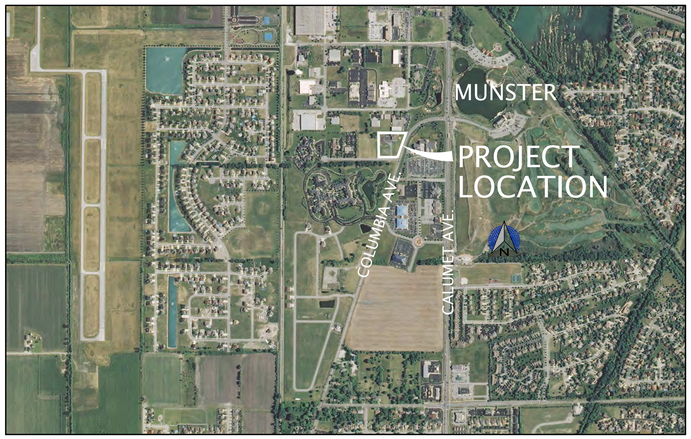
ONSI MEDICAL OFFICE
9900 COLUMBIA AVE.
MUNSTER, IN

Drawn By:	LBK/SAS	L1.0
Date:	10/11/23	
Scale:	1"=30'	

OSNI MEDICAL OFFICE

9900 COLUMBIA AVENUE MUNSTER, IN

ISSUED FOR SUBMITTAL - 10/12/2023



Location Map
(No Scale)

BENCHMARK

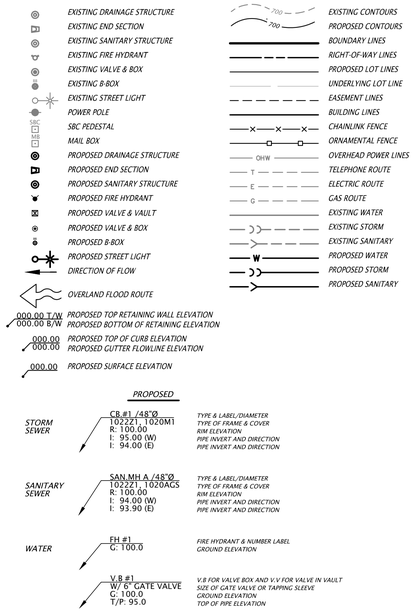
MAG NAIL IN SOUTHWEST CORNER OF EXISTING PARKING LOT
ELEVATION = 614.94 (NAVD88)

Indiana811 Know what's **below.Call** before you dig.

To Submit a Locate Request
24 Hours a Day, Seven Days a Week:
Call 811 or 800-382-5544
www.Indiana811.org

INDEX OF SHEETS

LEGEND



SCHOOL DISTRICT
SCHOOL TOWN OF MUNSTER
8616 COLUMBIA AVENUE
MUNSTER, IN 46321
(219) 836-9111

WATER UTILITY
TOWN OF MUNSTER
WATER DEPARTMENT
1005 RIDGE ROAD
MUNSTER, IN 46321
(219) 836-6970

ELECTRIC & GAS UTILITY
NIPSCO
801 E. 86th AVENUE
MERRILLVILLE, IN 46410
(800) 464-7726

DEVELOPER/OWNER
REGION CONTRACTORS, LLC.
912 AVENUE H
GRIFFITH, IN 46319
NICK@REGIONCONTRACTORS.COM
(219)-365-3508

MUNICIPAL
TOWN OF MUNSTER
COMMUNITY DEVELOPMENT
1005 RIDGE ROAD
MUNSTER, IN 46321
(219) 836-6995

SANITARY SEWER UTILITY
TOWN OF MUNSTER
SEWER DEPARTMENT
1005 RIDGE ROAD
MUNSTER, IN 46321
(219) 836-6970

CABLE UTILITY
COMCAST
16 W. 84th DRIVE
MERRILLVILLE, IN 46410
(219) 738-2780

TELECOM UTILITY
AT&T
5858 N. COLLEGE AVENUE
INDIANAPOLIS, IN 46220
(317) 252-4007

DVG TEAM INC
1155 Troutwine Road
Crown Point, IN 46307
P: (219) 662-7710
F: (219) 662-2740
www.dvgteam.com

RUSSELL JACOB PIZEN REGISTERED NO. PE10910667 STATE OF INDIANA PROFESSIONAL ENGINEER

10/12/2023

REGION CONTRACTORS, LLC
912 W. AVE H, SUITE 2
GRIFFITH, IN 46319

DATE:	REVISIONS AND NOTES:

NOT FOR CONSTRUCTION

OSNI MEDICAL OFFICE BLDG

Cover Sheet

NO SCALE

DESIGN BY	DATE
DVG	10/12/23

PROJECT NO.
23-0031

C001

NOT FOR CONSTRUCTION

C101

PROJECT NO. 23-0031

DESIGN RJP

DATE 10/12/23

SCALE: 1" = 20'

OSNI MEDICAL OFFICE BLDG

Existing Conditions

DATE:	REVISIONS AND NOTES:

REGION CONTRACTORS, LLC

912 W. AVE H, SUITE 2

GRIFFITH, IN 46319

REGISTERED PROFESSIONAL ENGINEER STATE OF INDIANA

10/12/2023

DVG TEAM INC

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Crown Point, IN 46307
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LEGEND

(light grey fill)	REMOVE BITUMINOUS PAVEMENT AND SUB-BASE MATERIAL
(basket-weave pattern)	CONTRACTOR TO STRIP AND REMOVE SOD FROM ALL AREAS TO BE REGRADED AND PROPERLY DISPOSE. REMOVE SUBGRADE MATERIAL OR TOPSOIL AS NEEDED
X	ITEM TO BE REMOVED
·X·X·X·X·X·X·	LINEAR REMOVAL ITEM
(cross-hatch)	REMOVE CONCRETE AND SUB-BASE MATERIAL
· /· /· / ·	REMOVE SEWER

NOTES

1. NO DEMOLITION SHALL TAKE PLACE UNTIL ALL PERMITS HAVE BEEN ACQUIRED.
2. THE CONTRACTOR SHALL FIELD-VERIFY SITE CONDITIONS AND INFORMATION ON DRAWINGS. PROMPTLY REPORT ANY CONCEALED CONDITIONS, MISTAKES, DISCREPANCIES, OR DEVIATIONS FROM THE INFORMATION SHOWN IN THE CONTRACT DOCUMENTS. THE OWNER IS NOT RESPONSIBLE FOR UNAUTHORIZED CHANGES OR EXTRA WORK REQUIRED TO CORRECT UNREPORTED DISCREPANCIES.
3. "REMOVAL" MEANS REMOVAL OF AN ITEM ABOVE GRADE AND REMOVAL OF ALL ELEMENTS BELOW GRADE INCLUDING, BUT NOT LIMITED TO, FOOTINGS, WIRINGS, AND PIPING THAT ARE IMMEDIATELY ADJACENT TO ITEM BEING REMOVED.
4. THE CONTRACTOR SHALL SAW CUT PAVEMENT FULL DEPTH AT LIMITS OF ASPHALT REMOVAL.
5. FOR ALL CONCRETE REMOVAL, THE CONTRACTOR SHALL REMOVE CONCRETE TO NEAREST JOINT, UNLESS NOTED OTHERWISE.
6. EXISTING MATERIALS TO REMAIN AROUND THE CONSTRUCTION AREA SHALL NOT BE DAMAGED DURING CONSTRUCTION. IF ANY DAMAGE IS MADE, THE CONTRACTOR IS RESPONSIBLE TO REPAIR OR RESTORE TO THE ORIGINAL CONDITION AT CONTRACTOR'S OWN EXPENSE.

DVG TEAM INC
1155 Troutwine Road
Crown Point, IN 46307
P: (219) 662-7710
F: (219) 662-2740
www.dvgteam.com

RUSSELL JACOB POSEY REGISTERED NO. PE10910667 STATE OF INDIANA PROFESSIONAL ENGINEER

10/12/2023

REGION CONTRACTORS, LLC
912 W. AVE H, SUITE 2
GRIFFITH, IN 46319

DATE: | REVISIONS AND NOTES:

OSNI MEDICAL OFFICE BLDG

Demolition Plan

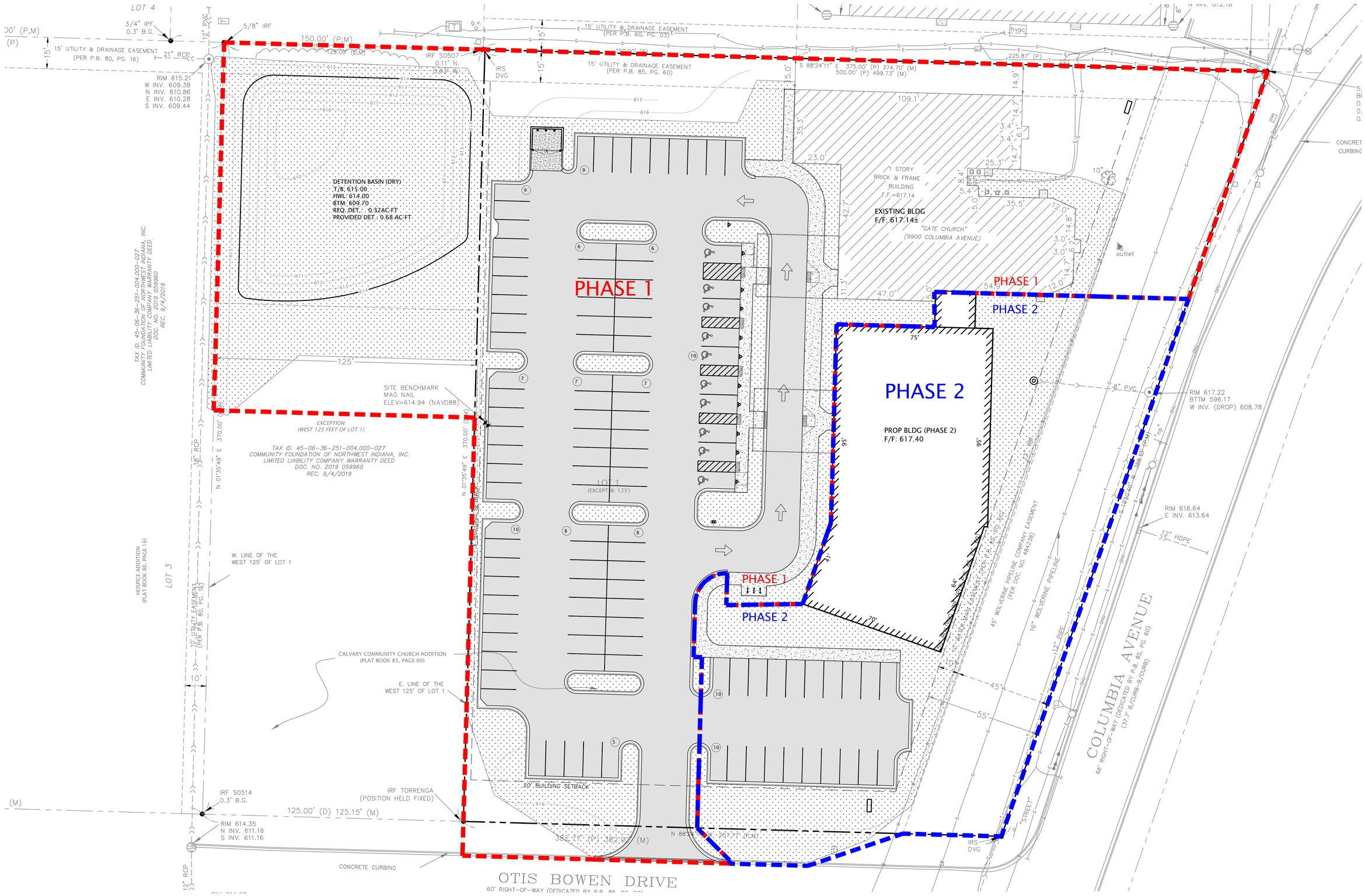
SCALE: 1" = 20'

DESIGN BY	DATE
RJP	10/12/23

PROJECT NO. 23-0031

C102

NOT FOR CONSTRUCTION



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Crown Point, IN 46307
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F: (219) 662-2740
www.dvgteam.com

REGISTERED
RUSSELL JACOB PETERS
NO. PE10910957
STATE OF INDIANA
PROFESSIONAL ENGINEER

10/12/2023

REGION CONTRACTORS, LLC
912 W. AVE H, SUITE 2
GRIFFITH, IN 46319

DATE:	REVISIONS AND NOTES:

NOT FOR CONSTRUCTION

OSNI MEDICAL OFFICE BLDG

Phasing Plan

SCALE: 1" = 20'

DESIGN BY	DATE
RJP	10/12/23
PROJECT NO.	
23-0031	

C103

SITE DATA - PHASE 1 & 2

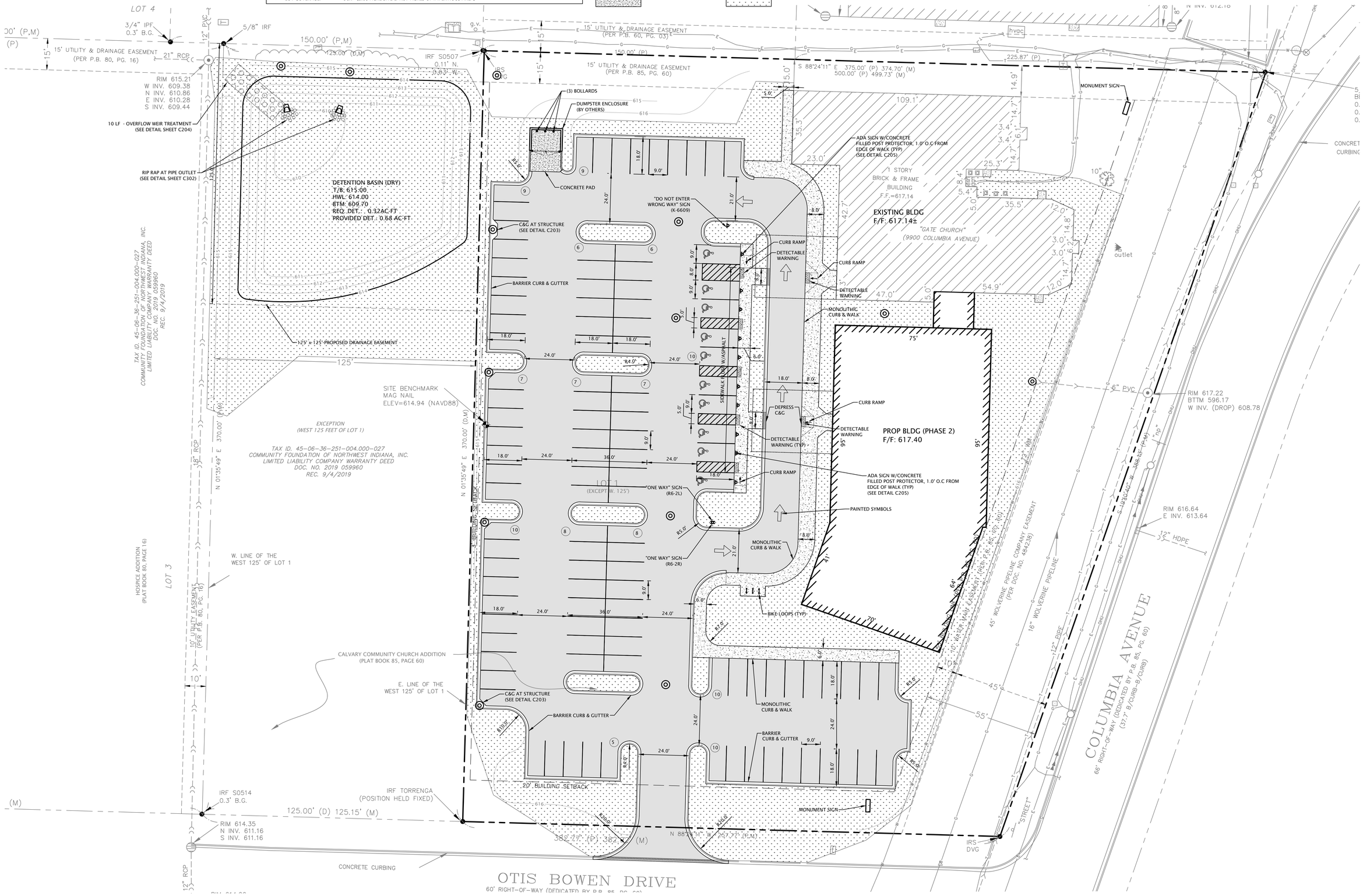
- ZONING: CD-4.8
- BUILDING AREA: 8,000± SQ. FT. (RENOVATED EX. BLDG) & 10,000± SQ.FT. (PHASE 2 BLDG)
- PARKING REQUIRED: 103 SPACES REQUIRED TOTAL (MEDICAL CLINIC: 5.7 SPACE PER 1,000SF FLOOR AREA)
- PARKING PROVIDED: 112 SPACES TOTAL (INCLUDES 10 ADA SPACES)
- LOT COVERAGE: 58% (2.69 ACRE SITE & 1.57 ACRES OF IMPERVIOUS AREA)

LEGEND

- CONCRETE SIDEWALK
- ASPHALT PAVEMENT
- STRIPING (PAINT, 4" WIDE)
- BARRIER CURB & GUTTER
- 6-INCH BARRIER CURB
- EXPANSION JOINT
- TOOLED CONSTRUCTION JOINT
- CONCRETE PAD
- 4" (MIN) TOPSOIL & SEEDING/LANDSCAPING (SEE LANDSCAPE PLAN)

NOTES

1. DIMENSIONING SHALL BE TO FACE OF CURB; RADII SHALL BE BACK OF CURB UNLESS OTHERWISE NOTED.



DVG TEAM INC
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Crown Point, IN 46307
P: (219) 662-7710
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www.dvgteam.com

REGISTERED RUSSELL JACOB PETERS NO. PE10910667 STATE OF INDIANA PROFESSIONAL ENGINEER

10/12/2023

REGION CONTRACTORS, LLC
912 W. AVE H, SUITE 2
GRIFFITH, IN 46319

DATE:	REVISIONS AND NOTES:

NOT FOR CONSTRUCTION

OSNI MEDICAL OFFICE BLDG

Site Plan - Phase 1 & Phase 2

SCALE: 1" = 20'

DESIGN BY	DATE
RJP	10/12/23
PROJECT NO.	
23-0031	

C104

SITE DATA - PHASE 1 ONLY

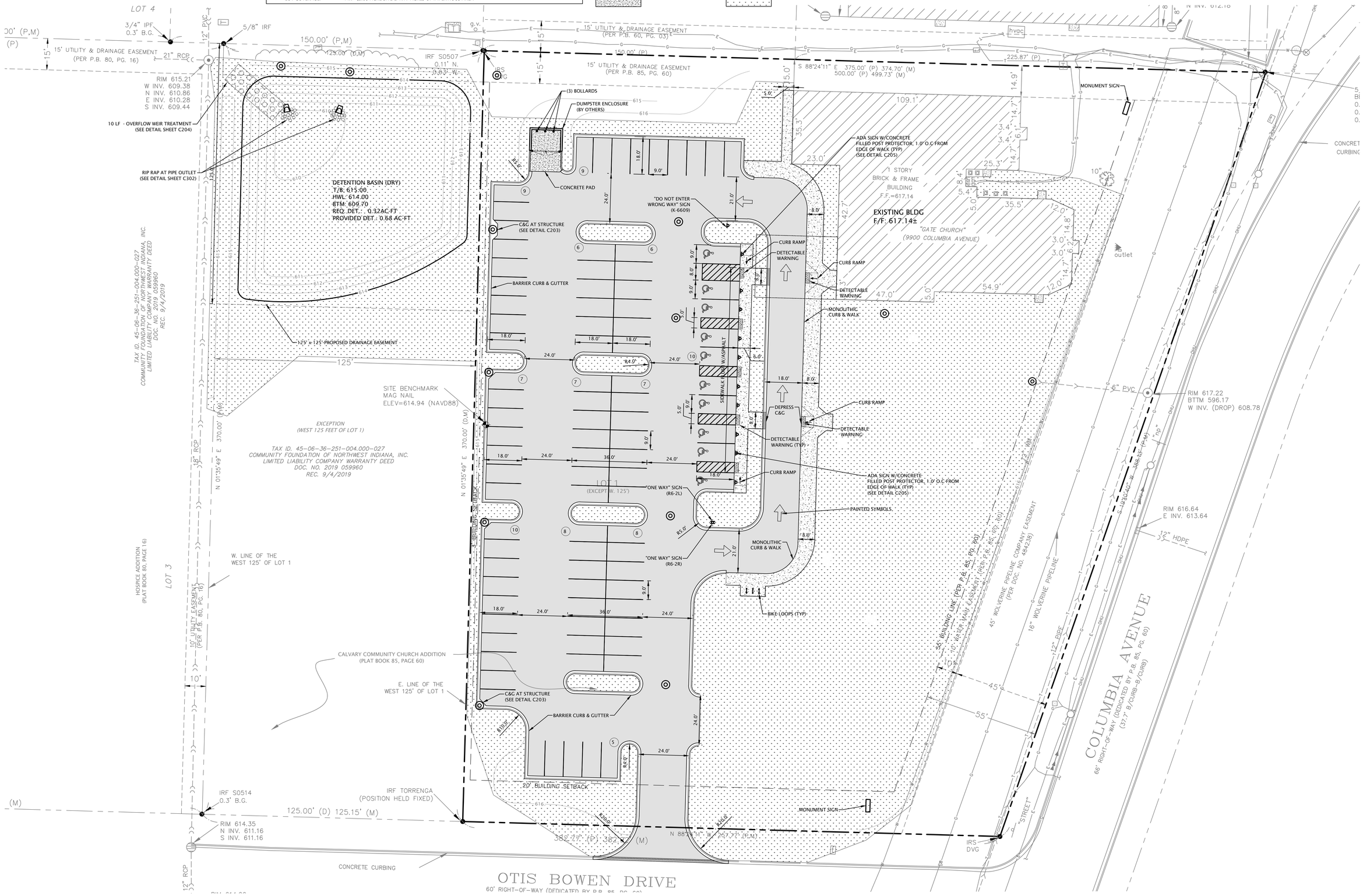
- ZONING: CD-4.8
- BUILDING AREA: 8,000± SQ. FT. (RENOVATED EX. BLDG)
- PARKING REQUIRED: 46 IN PHASE 1 (MEDICAL CLINIC: 5.7 SPACE PER 1,000SF FLOOR AREA)
- PARKING PROVIDED: 92 SPACES IN PHASE 1 (INCLUDES 10 ADA SPACES)
- LOT COVERAGE: 44% (2.69 ACRE SITE & 1.17 ACRES OF IMPERVIOUS AREA

LEGEND

- CONCRETE SIDEWALK
- CONCRETE PAD
- ASPHALT PAVEMENT
- 4" (MIN) TOPSOIL & SEEDING/LANDSCAPING (SEE LANDSCAPE PLAN)
- STRIPING (PAINT, 4" WIDE)
- BARRIER CURB & GUTTER
- 6-INCH BARRIER CURB
- EXPANSION JOINT
- TOOLED CONSTRUCTION JOINT

NOTES

1. DIMENSIONING SHALL BE TO FACE OF CURB; RADII SHALL BE BACK OF CURB UNLESS OTHERWISE NOTED.



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RUSSELL JACOB PATTEN
REGISTERED
NO. PE10910667
STATE OF INDIANA
PROFESSIONAL ENGINEER

10/12/2023

REGION CONTRACTORS, LLC
912 W. AVE H, SUITE 2
GRIFFITH, IN 46319

DATE:	REVISIONS AND NOTES:

NOT FOR CONSTRUCTION

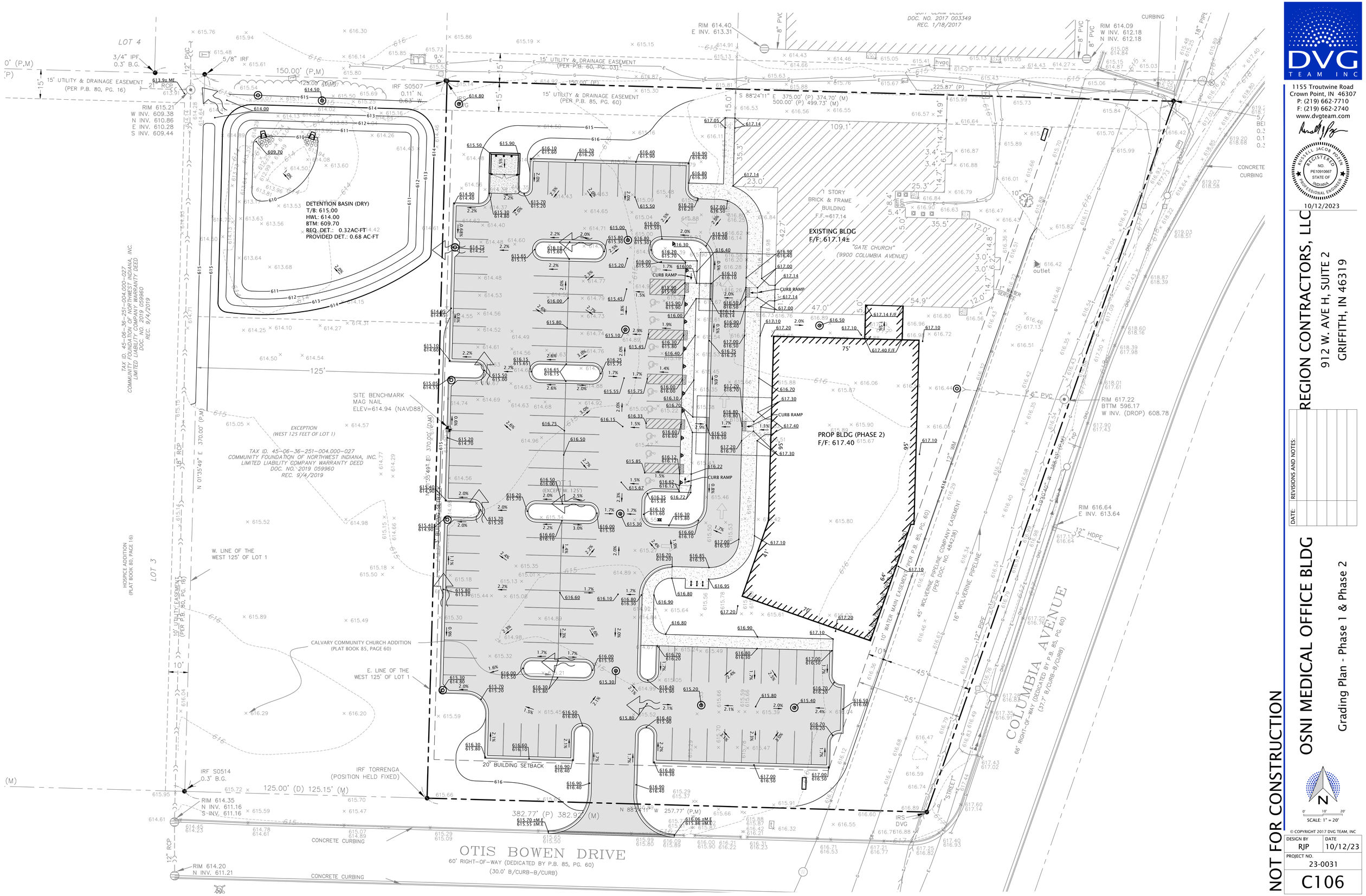
OSNI MEDICAL OFFICE BLDG

Site Plan - Phase 1 Only

SCALE: 1" = 20'

DESIGN BY	DATE
RJP	10/12/23
PROJECT NO.	
23-0031	

C105



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RUSSELL JACOB PETERS
REGISTERED
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STATE OF INDIANA
PROFESSIONAL ENGINEER

10/12/2023

REGION CONTRACTORS, LLC
912 W. AVE H, SUITE 2
GRIFFITH, IN 46319

DATE:	REVISIONS AND NOTES:

NOT FOR CONSTRUCTION

OSNI MEDICAL OFFICE BLDG

Grading Plan - Phase 1 & Phase 2

DESIGN BY	DATE
RJP	10/12/23
PROJECT NO.	
23-0031	

C106


LOT 4
LOT 3
15' UTILITY & DRAINAGE EASEMENT (PER P.B. 80, PG. 16)
15' UTILITY & DRAINAGE EASEMENT (PER P.B. 60, PG. 60)
DETENTION BASIN (DRY)
T/B: 615.00
HWL: 614.00
BTM: 609.70
REQ. DET.: 0.32AC-FT
PROVIDED DET.: 0.68 AC-FT
TAX ID. 45-06-36-251-004.000-027
COMMUNITY FOUNDATION OF NORTHWEST INDIANA, INC.
LIMITED LIABILITY COMPANY WARRANTY DEED
DOC. NO. 2019 059960
REC. 9/4/2019
SITE BENCHMARK
MAG NAIL
ELEV=614.94 (NAVD88)
EXCEPTION (WEST 125 FEET OF LOT 1)
W. LINE OF THE WEST 125' OF LOT 1
E. LINE OF THE WEST 125' OF LOT 1
CALVARY COMMUNITY CHURCH ADDITION (PLAT BOOK 85, PAGE 60)
HOSPICE ADDITION (PLAT BOOK 80, PAGE 16)
1 STORY BRICK & FRAME BUILDING F.F.=617.14
EXISTING BLDG F/F: 617.14±
"GATE CHURCH" (9900 COLUMBIA AVENUE)
CURB RAMP
20' BUILDING SETBACK
55' BUILDING LINE (PER P.B. 85, PG. 60)
10' WATER MAIN EASEMENT (PER P.B. 85, PG. 60)
45' WOLVERINE PIPELINE COMPANY EASEMENT (PER DOC. NO. 484238)
16" WOLVERINE PIPELINE
12" WM
COLUMBIA AVENUE
66' RIGHT-OF-WAY (DEDICATED BY P.B. 85, PG. 60) (37.7' B/CURB-B/CURB)
OTIS BOWEN DRIVE
60' RIGHT-OF-WAY (DEDICATED BY P.B. 85, PG. 60) (30.0' B/CURB-B/CURB)
CONCRETE CURBING
IRF TORRENGA (POSITION HELD FIXED)
QUIT CLAIM DEED DOC. NO. 2017 003349 REC. 1/18/2017

DVG TEAM INC

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www.dvgteam.com

10/12/2023

REGION CONTRACTORS, LLC
912 W. AVE H, SUITE 2
GRIFFITH, IN 46319

REVISIONS AND NOTES:

DATE:

OSNI MEDICAL OFFICE BLDG

Grading Plan - Phase 1 Only

NOT FOR CONSTRUCTION

SCALE: 1" = 20'

DESIGN BY	DATE
RJP	10/12/23

PROJECT NO. 23-0031

C107

NOTES

1. ALL DRAIN TILES THAT ACTIVELY SERVICE OFF-SITE AREAS SHOULD BE TIED INTO THE PROPOSED STORMWATER MANAGEMENT SYSTEM. ALL DRAIN TILES DEEMED TO BE NON-FUNCTIONING OR ONLY SERVICE THE SUBJECT PROPERTY SHOULD BE REMOVED IN THEIR ENTIRETY. NO DRAIN TILES SHALL BE ABANDONED IN-PLACE.
2. FINAL LOCATION OF WATER SERVICE AND SANITARY SEWER STUBS TO BE LOCATED BY OWNER.

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RUSSELL JACOB PETERS — REGISTERED — NO. PE10910667 — STATE OF INDIANA — PROFESSIONAL ENGINEER

10/12/2023

REGION CONTRACTORS, LLC
912 W. AVE H, SUITE 2
GRIFFITH, IN 46319

DATE:	REVISIONS AND NOTES:

NOT FOR CONSTRUCTION

OSNI MEDICAL OFFICE BLDG

Utility Plan - Phase 1 & Phase 2

SCALE: 1" = 20'

DESIGN BY	DATE
RJP	10/12/23
PROJECT NO.	
23-0031	

C108

NOTES

1. ALL DRAIN TILES THAT ACTIVELY SERVICE OFF-SITE AREAS SHOULD BE TIED INTO THE PROPOSED STORMWATER MANAGEMENT SYSTEM. ALL DRAIN TILES DEEMED TO BE NON-FUNCTIONING OR ONLY SERVICE THE SUBJECT PROPERTY SHOULD BE REMOVED IN THEIR ENTIRETY. NO DRAIN TILES SHALL BE ABANDONED IN-PLACE.
2. FINAL LOCATION OF WATER SERVICE AND SANITARY SEWER STUBS TO BE LOCATED BY OWNER.

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RUSSELL JACOB PETERS — REGISTERED NO. PE10910667 STATE OF INDIANA — PROFESSIONAL ENGINEER

10/12/2023

REGION CONTRACTORS, LLC
912 W. AVE H, SUITE 2
GRIFFITH, IN 46319

DATE:	REVISIONS AND NOTES:

OSNI MEDICAL OFFICE BLDG

Utility Plan - Phase 1 Only

NOT FOR CONSTRUCTION

SCALE: 1" = 20'

DESIGN BY	DATE
RJP	10/12/23
PROJECT NO.	
23-0031	

C109

TOTAL DISTURBANCE AREA = 2.20 ac

LEGEND

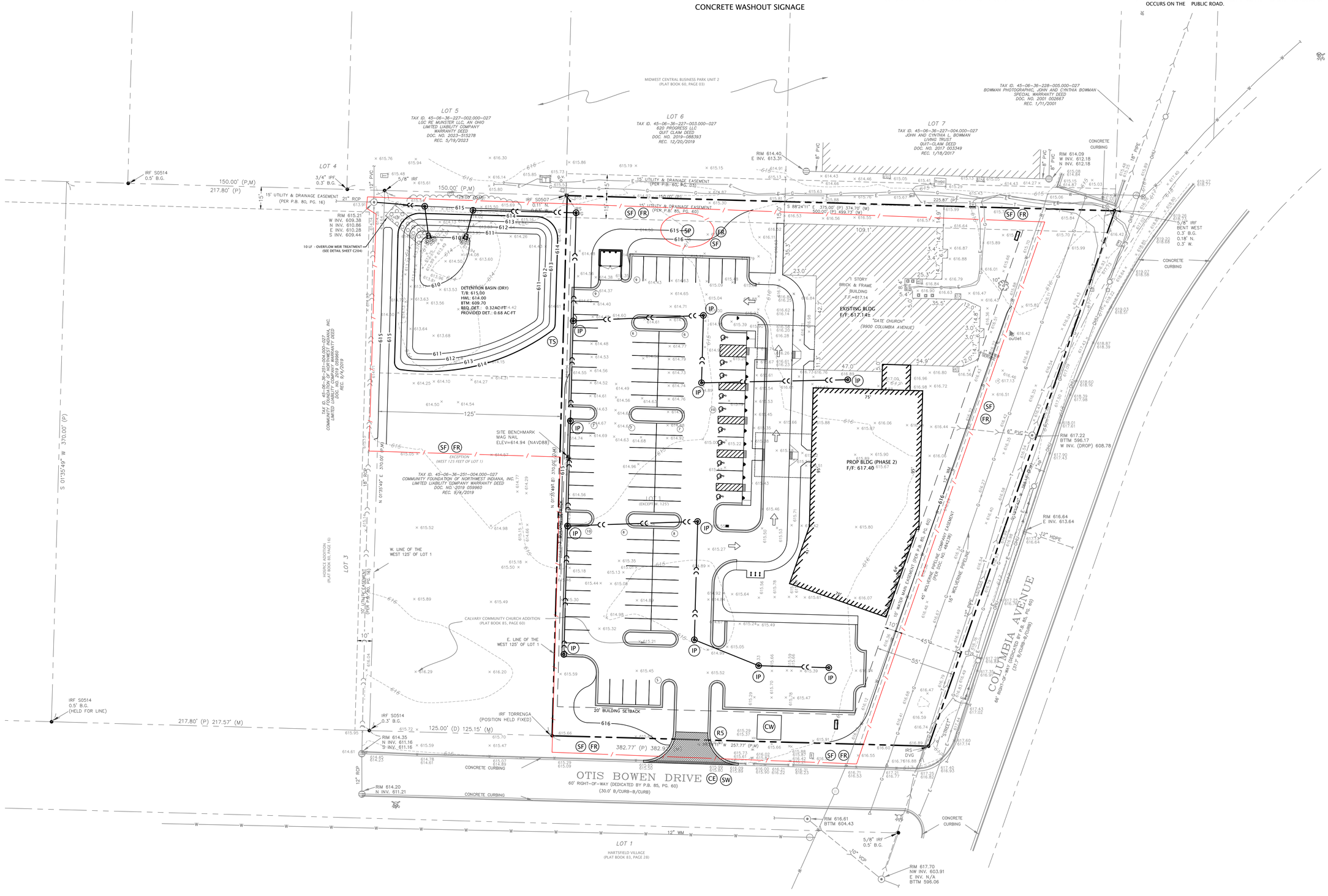
- (CE) TEMPORARY CONSTRUCTION ENTRANCE
- (IP) INLET BARRIER PROTECTION
- (TS) TEMPORARY/PERMANENT SEEDING
- (SF) (FR) SILT FENCE/FIBER ROLLS (MAY BE USED INTERCHANGABLY WHERE REQUIRED)
- (SW) STREET SWEEPING
- (CW) CONCRETE WASHOUT
- (R5) BUILDING & STORMWATER PERMITS
- (SP) STOCKPILE

CONCRETE WASHOUT ONLY

CONCRETE WASHOUT SIGNAGE

NOTES

1. THE SITE CONTRACTOR SHALL PROVIDE EROSION CONTROL MEASURES IN ACCORDANCE WITH THE STORMWATER POLLUTION PREVENTION PLAN DURING DEMOLITION AND CONSTRUCTION ACTIVITIES. MEASURES MUST BE IMPLEMENTED PRIOR TO BEGINNING CONSTRUCTION.
2. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE AND/OR CLEANING TO THE STRUCTURE OR FEATURE. CORRECTIVE WORK INCURRED BY THE CONTRACTOR SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT.
3. THE CONTRACTOR IS RESPONSIBLE FOR COMPLIANCE WITH THE S.W.P.P.P. ANY FINES OR PUNITIVE MEASURES INCURRED BY THE PROJECT DUE TO FAILURE TO COMPLY WITH THE S.W.P.P.P. ARE THE RESPONSIBILITY OF THE CONTRACTOR. THESE COSTS SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT AND SHALL NOT BE CONSIDERED AN EXTRA.
4. DURING THE COURSE OF CONSTRUCTION, THE LOCAL ENFORCEMENT OF THE S.W.P.P.P. MAY REQUIRE ADDITIONAL EROSION CONTROL MEASURES TO BE INSTALLED TO ADDRESS SITE-SPECIFIC ITEMS NOT ANTICIPATED BY THIS PLAN. THESE ITEMS ARE CONSIDERED AN EXTRA TO THE CONTRACT, BUT ONLY TO THE EXTENT OF INITIAL INSTALLATION. CORRECTIVE WORK AND MAINTENANCE SHALL BE CONSIDERED INCIDENTAL AND SHALL NOT BE CONSIDERED AN EXTRA.
5. THE SITE CONTRACTOR SHALL INSTALL THE CONSTRUCTION ENTRANCE AND PLACE PERIMETER SILT FENCING/FIBER ROLLS PRIOR TO COMMENCING ANY SOIL DISTURBANCE. SEE SITE PLAN FOR LOCATIONS. THE CONSTRUCTION ENTRANCE SHALL SERVE AS SITE ACCESS FOR ALL CONSTRUCTION TRAFFIC INGRESS AND EGRESS TO THE PROJECT SITE.
6. THE SOIL STOCKPILE SHALL BE PROTECTED BY SILT FENCE/FIBER ROLLS SURROUNDING THE PILE AND THE PILE SHALL BE TEMPORARILY SEEDED IF THE STOCKPILE REMAINS DORMANT FOR GREATER THAN 7 DAYS. THE PILE SHALL BE STABILIZED WITHIN 14 DAYS.
7. DURING SOIL-DISTURBING ACTIVITIES, THE CONTRACTOR SHALL CREATE DIVERSION SWALES AND INSTALL DITCH CHECKS SO THAT ALL SITE RUNOFF PASSES THROUGH AN EROSION CONTROL MEASURE PRIOR TO BEING DISCHARGED OFF-SITE.
8. UPON COMPLETION OF THE ROUGH GRADING, ALL AREAS AFFECTED BY CONSTRUCTION SHALL BE TEMPORARILY SEEDED IF THEY WILL REMAIN DORMANT FOR GREATER THAN 7 DAYS. THESE AREAS SHALL BE STABILIZED WITHIN 14 DAYS OF REMAINING DORMANT AND EROSION CONTROL BLANKETS SHALL BE INSTALLED ON SIDE SLOPES AS SHOWN ON THE PLANS.
9. CONTRACTOR SHALL PERFORM STREET SWEEPING WHENEVER TRACKING OF MUD, DIRT, AND CONSTRUCTION DEBRIS OCCURS ON THE PUBLIC ROAD.



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REGISTERED RUSSELL JACOB PETERS NO. PE10910667 STATE OF INDIANA PROFESSIONAL ENGINEER

10/12/2023

REGION CONTRACTORS, LLC
912 W. AVE H, SUITE 2
GRIFFITH, IN 46319

DATE:	REVISIONS AND NOTES:

NOT FOR CONSTRUCTION

OSNI MEDICAL OFFICE BLDG

Storm Water Pollution Prevention Plan

N

0' 15' 30'

SCALE: 1" = 30'

DESIGN BY	DATE
RJP	10/12/23
PROJECT NO.	
23-0031	

C110

SITE DEVELOPMENT
COMMON EXCAVATION AND EARTHWORK
GENERAL SPECIFICATIONS

1.0 Quality Assurance:
1. Contractor shall notify the Construction Manager, Architect, Engineer and testing laboratory inspector when common excavation and earthwork is scheduled. Earthwork operations which require inspecting and testing by testing laboratory inspector shall not be performed unless testing laboratory inspector is present.
2. Contractor shall provide a 1-year warranty against settlement and damage caused by settlement for common excavation and earthwork.
3. If settlement occurs within 1 year after the date of Substantial Completion, the Contractor shall remove the affected surface feature, provide additional suitable fill, thoroughly compact and restore the surface feature to its original undisturbed condition.

2.0 Testing:
1. An inspector from the Owner's soils testing laboratory shall, during the common excavation work operations, provide the following services:
   a. Test & Classify on-site excavated soils for reuse as topsoil, common site fill, embankment fill and structural fill.
   b. Test materials furnished from any off-site sources to verify compliance with specified requirements.
   c. Observe proofing rolling of exposed subsoil in areas where grades will be raised and provide recommendations for soil correction to ensure that unstable materials have been removed.
   d. Inspect placement and compaction of common site fill, embankment fill and structural fill to ensure the material being compacted is in accordance with specified requirements. For each lift, a minimum of 1 density test for every 10,000 square feet of lawn surface area, and 5,000 square feet of paved surface area, and 500 square feet of proposed building area is required.
   e. Density tests are required for all subgrade/subsoil in areas that have been cut to rough grade elevations, after soils have been compacted to ensure soil compaction density is in accordance with the specified requirements. Test frequency shall be as described above in sub-paragraph 1.d..
2. Tests and analysis of fill materials shall be performed in the laboratory in accordance with ASTM D1557.
3. Testing shall be performed as directed by the Soils Report Engineer. Compaction Testing shall be performed in accordance with ASTM D2922 and D3017.

3.0 Special Weather Protection:
1. Construction shall be limited during cold weather to prevent the formation of frost and snow accumulation to occur in materials used for site fill or in soils where site excavation is taking place. All areas that are scheduled for excavation activity shall be protected from freezing and snow accumulation. Any frozen material shall be removed and disposed of off site.

4.0 Clearing & Grubbing:
1. Contractor shall provide all clearing, grubbing, removal and disposal of all vegetation and debris related to the existing site conditions.
2. Vegetation debris shall be removed from site and transported to a local and state authorized disposal sites.

5.0 Top Soil Stripping:
1. The project has a depth of topsoil variation throughout the site. The geotechnical report shows the topsoil depths at several locations throughout the project site. The Contractor shall strip and stockpile all topsoil at the location designated in the Site Development Drawings or as directed by the owner.
2. Topsoil removal material shall consist of fertile, friable, organic surface soil stripped from the site and shall be free of subsoil, brush, turf grasses, weeds, roots, stumps, stones larger than 1-inch in diameter and other contaminated matter."
3. Topsoil shall be stockpiled so that it may be reused and re-spread on site over Lawn and Landscaped areas.
4. The topsoil stockpile area shall be properly protected against soil erosion into the adjacent drainage system.

6.0 Borrow Material/Embankment & Structural Fill Material:
1. Borrow material for structural fill shall be first excavated from on site source locations as defined by the Soils Report Engineer.
2. Structural fill material shall be placed under all utility trench corridors, building pad locations, paved parking, driveway, sidewalk and roadway areas.
3. Common site and embankment fill shall be placed under lawn, landscape and detention pond areas.
4. Maintain moisture content of structural fill within plus or minus 3 percent of the optimum moisture content as determined by the Modified Proctor Test.
5. Contractor shall provide subgrade conditions meeting the design grades for pavements, exterior walks, curbs and building pads.
6. Contractor shall only place approved fill material under proposed building pads and parking areas
7. Contractor shall undercut any areas that do not meet the requirements for structural fill and shall replace with structural fill.

7.0 Excavation:
1. Protect all existing natural features on site.
2. Install soil erosion prevention measures in accordance with local and state ordinances and in accordance with the soil erosion control project drawings.
3. All proposed contours shown on this set of plans are proposed surface elevation. All fill shall be placed as structural fill for buildings and parking lots.
4. Prior to excavation an on-site Pre-construction Meeting shall be held between the Engineer, Owner/Owner's Representative and General Contractor to discuss earthwork protocol.
5. During the progress of the work, if subsurface or latent physical conditions are encountered at the site differing materially from those indicated in the contract or if ordinarily encountered at the site, the party discovering such conditions shall promptly notify the Owner/Owner's Representative/General Contractor and the Engineer in writing of the specific differing conditions. Upon written notification, the Engineer and Owner/Owner's Representative/General Contractor will investigate the conditions, and determine if adjustments to the Construction Documents and/or to the Contract are warranted. No contract adjustment which results in a benefit to the Contractor will be allowed unless the Contractor has provided the required written notice of a changed condition.

8.0 Compaction:
1. Exercise care when compacting exposed soils relative to water table, rain or other moisture conditions.
2. Maintain moisture content of embankment material and structural fill material near optimum as recommended by the soils testing laboratory and Soil Boring Engineer. Maintain optimum moisture content of backfill and fill material to attain the required compaction density.
3. Backfill common site fill, embankment fill, structural fill and utility trenches to contours and elevations defined on the project site development plans.
4. Systematically backfill to allow maximum time for optimum compaction and do not backfill over porous, wet or spongy subgrade surfaces.
5. Employ a soils placement and compaction method that does not disturb or damage work performed and that maximizes soil compaction.
6. All common site, embankment and structural fill shall be place and compacted in continuous layers/lifts not exceeding 8-inches loose depth.
7. Compact subsoil for structural fill to 95% of the Modified Proctor Maximum Dry Density (ASTM D1557) beneath all building pad locations.
8. Compact subsoil for structural fill to 95% of Modified Proctor Maximum Dry Density (ASTM D1557) beneath all pavement areas and utility corridor trenches.
9. Compact subsoil for common site fill and embankment fill to 90% of the Modified Proctor Maximum Dry Density (ASTM D1557) beneath all lawn, landscape and detention pond areas.
10. Compact subsoil under building pad area to achieve soil-bearing capacities of 3,000 psf at a distance of 4-feet below the proposed finish floor elevations of all building ads.
11. If tests indicated work does not meet specified requirements, all sub-standard work shall be immediately removed, replaced and retested at no expense to the Owner.

GENERAL NOTES

1. Town of Munster, DVG Team, Inc. (Engineer) and any Utility Company affected must be notified at least two working days prior to commencement of work. Prior to construction the contractor is to call INDIANA 811.

2. Elevation Datum is U.S.G.S.

4. The locations of existing underground utilities, such as water mains, sewer, gas lines, etc., as shown on the plans have been determined from the best available information and is given for the convenience of the contractor. However, the engineer and the owner do not assume responsibility for the accuracy of the locations shown. It shall be the responsibility of the contractor to contact all utility companies and their facilities shall be located prior to commencement of any work.

5. Wherever obstructions not shown on the plans are encountered during the progress of the work and interfere to such an extent that alteration in the plans is required, the engineer shall be notified prior to any changes and any changes shall only be as approved via written instruction by the Engineer and the local Municipal Engineer.

6. As-built drawings shall be prepared by the contractor and submitted to the engineer as soon as the project is completed. Any change in the length, location or alignment shall be shown in red. "AS BUILT" drawings shall be forwarded to the appropriate utility organizations. Four (4) copies shall be submitted to the Municipal Engineer.

7. All proposed sanitary sewer, storm sewer, water main and service lines under and within 2' of pavement, curbs, and sidewalk shall be backfilled with crushed limestone (INDOT #53) or material consistent with Class I or II material as described in ASTM D2321 placed in 8" maximum layers and mechanically compacted to 95% modified proctor density. Slag is not permitted.

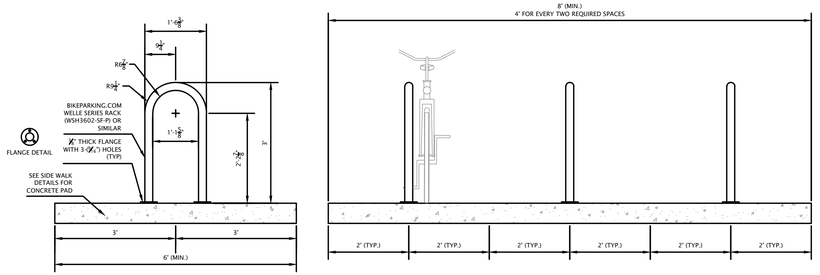
8. Materials used for water, sanitary sewer, storm sewer and streets shall conform to the Town of Munster standards and specifications.

9. Any existing public improvements (sidewalks, curb and gutter, etc.), disturbed during construction shall be replaced in kind, or per current of Town of Munster specifications as directed by the Municipal Engineer.

10. All public street construction shall meet performance standards of the current edition of the Indiana Department of Transportation Standard Specifications.

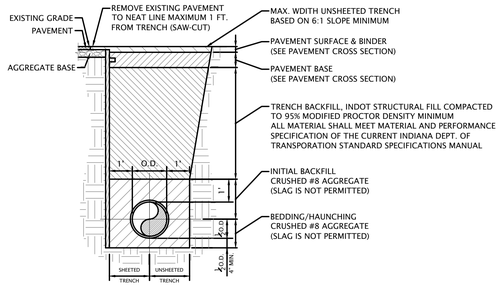
11. Street signage shall be included in accordance with the MUTCD requirements applicable at the time of construction.

12. The Owner/General Contractor shall be responsible for any and all utility new customer form submissions. Utility company review typically cannot begin until all new customer forms have been submitted.



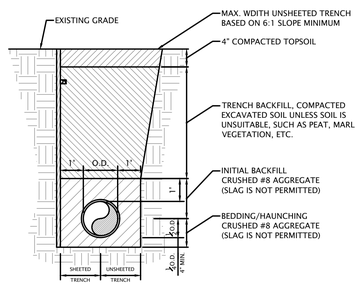
Location and Design Elements
1. The racks shall be of the inverted U-structure design.
2. The racks shall accommodate U-locks/ chains and support bicycles at two location on the rack.
3. The racks shall have a thermoplastic powder coating and must be anchored securely to ground per the manufacturer's specifications.
4. Bicycle parking should be reasonably and safely separated from vehicle parking (e.g. grade differences, landscaping, poles, etc.)
5. Rack spaces shall be two feet by six feet per bicycle with a five foot wide access aisle from behind. Sidewalks adjacent to bike racks may serve as access aisle.

BICYCLE RACK
(NOT TO SCALE)



PIPE BEDDING/TRENCH BACKFILL
(NOT TO SCALE)

FOR TRENCH IN PAVEMENT AREAS



PIPE BEDDING/TRENCH BACKFILL
(NOT TO SCALE)

FOR TRENCH IN GRASS/LANDSCAPED AREAS

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RUSSELL JACOB PETERS REGISTERED NO. PE10910667 STATE OF INDIANA PROFESSIONAL ENGINEER

10/12/2023

REGION CONTRACTORS, LLC
912 W. AVE H, SUITE 2
GRIFFITH, IN 46319

DATE:	REVISIONS AND:

NOT FOR CONSTRUCTION

OSNI MEDICAL OFFICE BLDG

Construction Details

NO SCALE

DESIGN BY	DATE
DVG	10/12/23
PROJECT NO.	
23-0031	

C201

SANITARY SEWER GENERAL NOTES

1. All Floor Drains shall discharge to the sanitary sewer.

2. Sanitary sewer pipe shall be PVC (SDR 26) ASTM D-3034 with push-on rubber gasket joints and shall be in accordance with ASTM C-3212, unless otherwise noted on the plans for portions to be PVC (SDR 21).

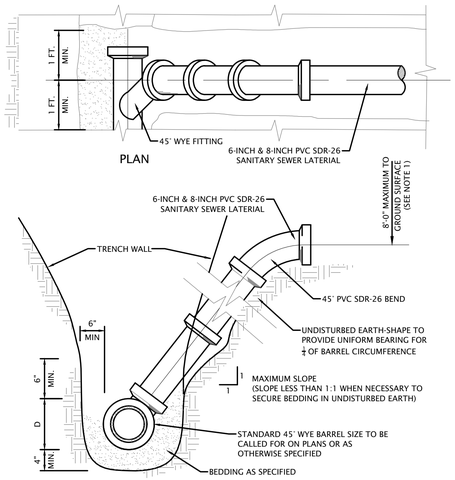
3. All sanitary sewer manholes shall be air tested for leaks in accordance with ASTM C1244-93 and Standard Test Method for Concrete Sewer Manholes by Negative Air Pressure (Vacuum) Test.

4. Where ductile iron pipe is used for sanitary sewer, the pipe shall be in accordance with ANSI A-21.51 and the joints in accordance with ANSI A-21.11.

5. A deflection test shall be performed on each flexible pipe following the elapse of thirty (30) days after the placement of the final backfill. No pipe shall exceed a deflection of five percent (5%) or greater. The diameter of the rigid ball or mandrel used for a deflection test shall be no less than ninety-five percent (95%) of the base inside diameter of the pipe to be tested dependent on what is specified in the corresponding ASTM standard. The test shall not be performed with the aid of a mechanical pulling device.

6. A leakage test shall be performed using one of the following leakage test types.
   a.) A hydrostatic test shall be performed with a minimum of two (2) feet of positive head. The rate of exfiltration or infiltration shall not exceed two hundred (200) gallons per inch of pipe diameter per linear mile per day.
   b.) An air test shall conform to ASTM F1417-92, Standard Test Method for Installation Acceptance of Plastic Gravity Sewer Lines Using Low-Pressure Air, for plastic pipe.

7. All sanitary sewer shall be inspected by Town of Munster.



CROSS SECTION

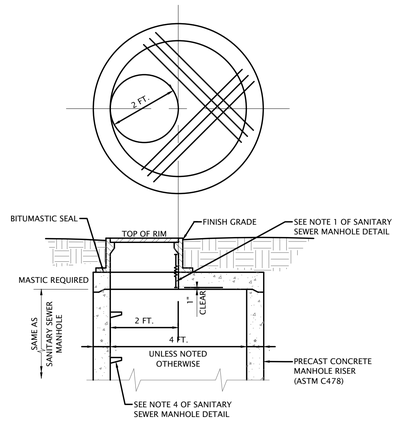
NOTES:

1. RISERS TO BE CONSTRUCTED IN LIEU OF WYES WHERE SEWER DEPTH EXCEEDS 10 FEET. FOR PIPE MATERIAL AND CONCRETE, SEE SPECIFICATIONS.

2. ALL SANITARY SEWER SERVICE LATERALS SHALL BE PLUGGED WITH A WATERTIGHT CAP AND SHALL BE LOCATED WITH 4-INCH x 4-INCH WOOD MARKERS TO IDENTIFY LATERAL END.

SANITARY SEWER SERVICE

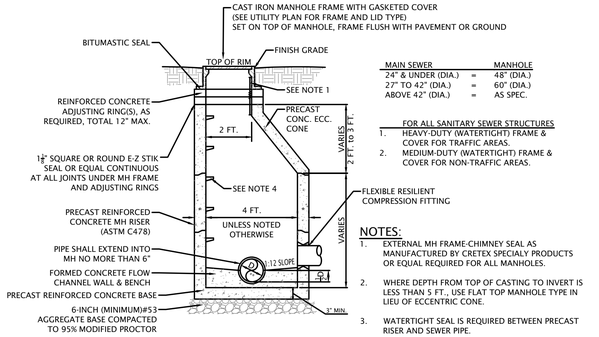
(NOT TO SCALE)



MANHOLE TOP (FLAT TOP)

(NOT TO SCALE)

USED WHERE RESTRICTED HEAD ROOM WILL NOT ALLOW FOR TAPERED WALLS
SEE SANITARY MANHOLE NOTES



MAIN SEWER		MANHOLE
24" & UNDER (DIA.)	=	48" (DIA.)
27" TO 42" (DIA.)	=	60" (DIA.)
ABOVE 42" (DIA.)	=	AS SPEC.

FOR ALL SANITARY SEWER STRUCTURES
1. HEAVY-DUTY (WATERTIGHT) FRAME & COVER FOR TRAFFIC AREAS.
2. MEDIUM-DUTY (WATERTIGHT) FRAME & COVER FOR NON-TRAFFIC AREAS.

NOTES:
1. EXTERNAL MH FRAME-CHIMNEY SEAL AS MANUFACTURED BY CRETEX SPECIALTY PRODUCTS OR EQUAL REQUIRED FOR ALL MANHOLES.
2. WHERE DEPTH FROM TOP OF CASTING TO INVERT IS LESS THAN 5 FT., USE FLAT TOP MANHOLE TYPE IN LIEU OF ECCENTRIC CONE.
3. WATERTIGHT SEAL IS REQUIRED BETWEEN PRECAST RISER AND SEWER PIPE.
4. CO-POLYMER/STEEL MH STEPS AS BY M.A. INDUSTRIES OR EQUAL, AT 16" O.C. (MAX.)
5. CONTRACT UNIT PRICE FOR STRUCTURES SHALL INCLUDE THE FRAME AND GRATE SPECIFED.

** FOR PIPE SIZES RANGING FROM 8" TO 30" IN DIAMETER

* MANHOLE WALL THICKNESS TABLE

MH I.D.	WALL THICKNESS
48"	5"
60"	6"
72"	7"

SANITARY SEWER MANHOLE

(NOT TO SCALE)

WATERMAIN GENERAL NOTES

1. All water mains, fittings, and valves shall be ductile iron cement lined pressure class 350 with rubber gasket push-on joints in accordance with ANSI A-21.51 & AWWA C 151 and be Polyethylene Encased per IAC 8-3.2-8. Water main joints shall conform to the requirements of AWWA C 111. Mechanical joints shall be restrained and shall use Meg-A-Lug as manufactured by EBAA Iron Sales (or equal). Watermain may be PVC C900, DR 18 only if noted on the plans.

2. Water mains shall be laid at least 10' horizontally from any existing or proposed sanitary sewer, storm sewer, sewer manhole, drain or service connection as measured from outside edge of the water main to outside edge of the sewers or manhole. If local conditions prevent horizontal separation of 10 feet, then the SEWER SHALL BE CONSTRUCTED OF WATER MAIN QUALITY REQUIREMENTS as specified in the IAC 8-3.2 Sections 8, 9 and 17(a).

3. When water mains cross any existing or proposed sanitary or storm sewers (sewers), there shall be at least 18 inches vertical separation between the outside edge of the water main and the outside edge of the sewer. This shall be the case where water mains cross above or below sewers. This crossing must be at a minimum angle of forty-five (45) degrees measured from the centerline of each. All these conditions specified shall be maintained for a minimum distance of ten (10) feet from either side of the water main. If vertical separation specified herein cannot be met, then the SEWER SHALL BE CONSTRUCTED OF WATER MAIN QUALITY REQUIREMENTS as specified in the IAC 8-3.2 Sections 8, 9 and 17(a).

4. For additional separation requirements between water mains and sewers, the Contractor shall refer to the Indiana Administrative Code 327 IAC 8 and IAC 3.

5. All water main shall be installed in accordance with IAC 8-3.2-17. The contractor shall provide pressure and leak testing results conforming to IAC 8-3.2-17(a).

6. All water main shall be disinfected in accordance with IAC 8-3.2-18.

7. Water services shall be installed as required at the time of individual lot development. Service sizes to be determined by building requirements.

8. Water services shall have an outside shut-off valve located per the direction of the Municipal Utility Director. Separate services and shut-offs are required for domestic service and fire protection.

RESTRAINED PIPE LENGTH
(FEET)

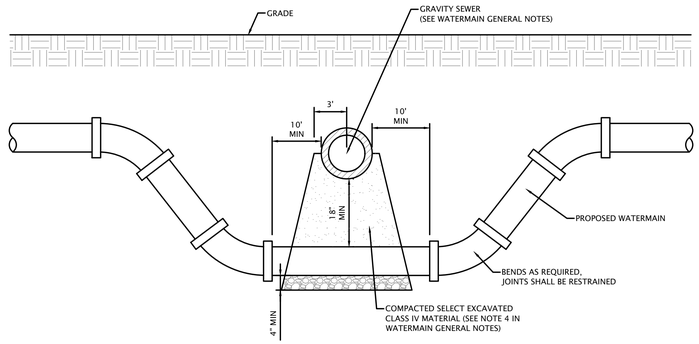
PIPE SIZE (INCHES)	TEE* BRANCH	90° ELBOW	45° ELBOW	22 1/2° ELBOW	11 1/4° ELBOW	DEAD ENDS
4	0	15	6	3	2	20
6	9	22	9	4	2	28
8	18	27	11	5	3	37
10	25	33	14	7	3	44
12	33	39	16	8	4	52
14	41	44	18	9	4	60
16	48	50	21	10	5	68
18	56	55	23	11	5	75
20	63	61	25	12	6	82
24	77	71	29	14	7	96
30	97	86	36	17	8	116
36	116	100	41	20	10	135

* ONE FULL LENGTH (18') OF PIPE ON BOTH SIDES OF BRANCH TO BE RESTRAINED.

INCREASE ALL LENGTHS IN TABLE BY 75% FOR USE ON POLYETHYLENE WRAPPED DUCTILE IRON PIPE OR PVC PIPE.

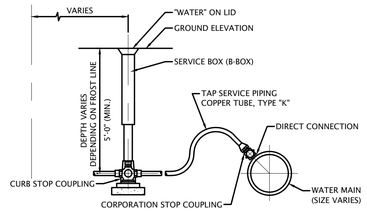
TEST PRESSURE BASED ON 150 PSI.

RESTRAINED PIPE LENGTH TABLE



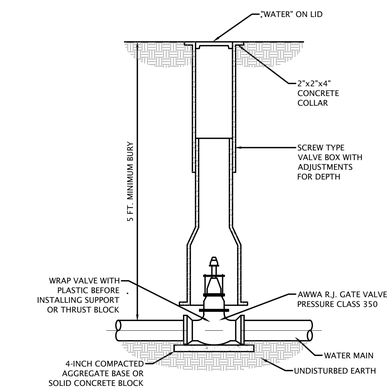
SANITARY/STORM SEWER & WATERMAIN CROSSING

(NOT TO SCALE)



TYPICAL B-BOX & TAP SERVICE PIPING

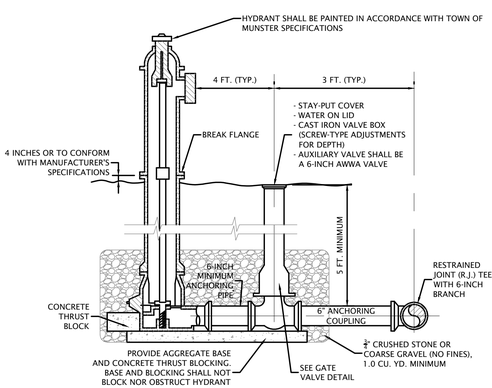
(NOT TO SCALE)



GATE VALVE & BOX (12-INCH OR SMALLER)

(NOT TO SCALE)

USE IF DUCTILE IRON IS USED FOR WATER SERVICE



FIRE HYDRANT ASSEMBLY (TYPE "A")

(NOT TO SCALE)

NOTES:
1. HYDRANT TYPE SHALL BE MUELLER SUPER CENTURION 250, 3-NOZZLE WITH 5" STORZ PUMPER NOZZLE CONNECTION.
2. NEAREST PART OF HYDRANT NOT LESS THAT 1.5 FT. FROM BACK OF CURB.
3. ALL JOINTS SHALL BE RESTRAINED BY RETAINER GLANDS OR RODDING, AS APPROVED BY THE ENGINEER.

DVG TEAM INC
1155 Troutwine Road
Crown Point, IN 46307
P: (219) 662-7710
F: (219) 662-2740
www.dvgteam.com

RUSSELL JACOB PIZEN REGISTERED NO. PE10910667 STATE OF INDIANA PROFESSIONAL ENGINEER

10/12/2023

REGION CONTRACTORS, LLC
912 W. AVE H, SUITE 2
GRIFFITH, IN 46319

DATE:	REVISIONS AND NOTES:

NOT FOR CONSTRUCTION

OSNI MEDICAL OFFICE BLDG

Construction Details

NO SCALE

DESIGN BY	DATE
DVG	10/12/23

PROJECT NO.
23-0031

C202

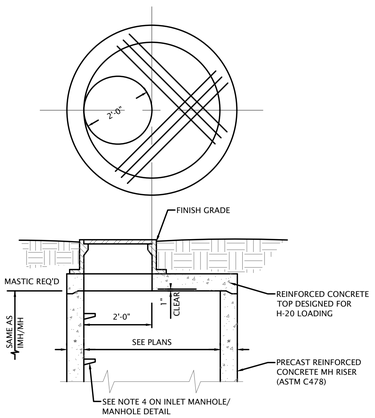
STORM SEWER GENERAL NOTES

1. Footing drains, sump pump drains and outside drains shall discharge to the storm sewer where storm sewer is provided.

2. The maximum allowable rate of infiltration or exfiltration shall not exceed 100 gallons, per 24 hours per inch-diameter per mile of sewer pipe.

3. Storm sewers shall be as noted on the plans. If approved by the Engineer, an alternative storm sewer pipe 12 inches and larger can be reinforced concrete minimum Class III, wall B conforming to ASTM C-76; Corrugated High-Density Polyethylene Pipe with smooth interior (ADS N-12) conforming to AASHTO M-294; Corrugated Polypropylene Pipe with smooth interior conforming to AASHTO M-330 (ADS HP STORM); Corrugated High-Density Polyethylene Pipe with smooth interior (PRINSCO, GOLDFLO) conforming to AASHTO M-294 or other INDOT, Type 2 storm sewers as approved by the Engineer.

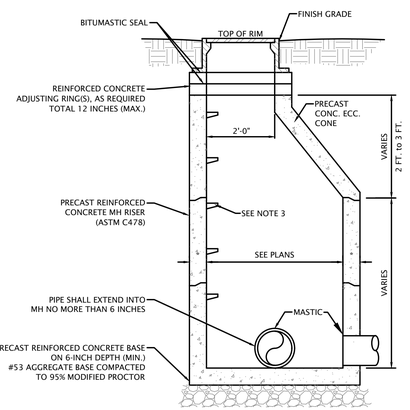
4. All HDPE storm sewer pipe shall be tested with a mandrel. Maximum deflection shall meet ASTM C1244-93 and Standard Test Method for Concrete Sewer Manholes 30 days after backfill, and should be performed without the aid of a mechanical pulling device. The deflection testing shall meet all requirements of IDEM section 327 IAC 3-6-19(a) (b) (c).



MANHOLE TOP (FLAT TOP)

(NOT TO SCALE)

USE WHERE RESTRICTED HEAD ROOM WILL NOT ALLOW FOR TAPERED WALLS



* STRUCTURE WALL THICKNESS TABLE

MH I.D.	WALL THICKNESS
36"	4"
48"	5"
60"	6"
72"	7"

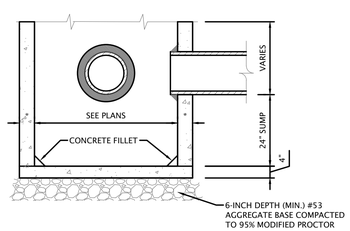
NOTES:

1. WHERE DEPTH FROM TOP OF CASTING TO INVERT IS LESS THAN 5 FEET, USE FLAT TOP MANHOLE TYPE "C" IN LIEU OF ECCENTRIC CONE.
2. WATERTIGHT SEAL IS REQUIRED BETWEEN PRECAST RISER AND SEWER PIPE.
3. CO-POLYMER/STEEL MH STEPS AS MANUFACTURED BY M.A. INDUSTRIES OR EQUAL, AT 16 INCHES O.C. (MAX.).
4. CONTRACT UNIT PRICE FOR ALL STRUCTURES SHALL INCLUDE THE FRAME AND GRATE SPECIFIED.

INLET MANHOLE/MANHOLE

(NOT TO SCALE)

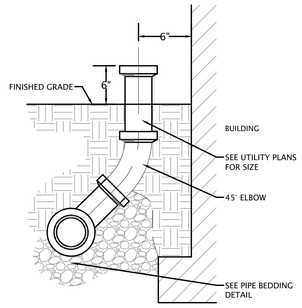
INLET MANHOLE (IMH) USES AN OPED LID - SEE STORM CALLOUT FOR FRAME & LID TYPE
MANHOLE (MH) USES A CLOSED LID - SEE STORM CALLOUT FOR FRAME & LID TYPE.



CATCH BASIN

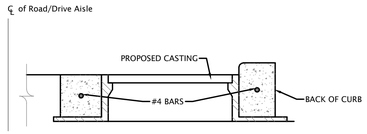
(NOT TO SCALE)

SEE INLET MANHOLE/MANHOLE DETAIL
CATCH BASIN USES EITHER CLOSED OR OPEN LIDS - SEE UTILITY PLAN FOR FRAME & LID TYPE.

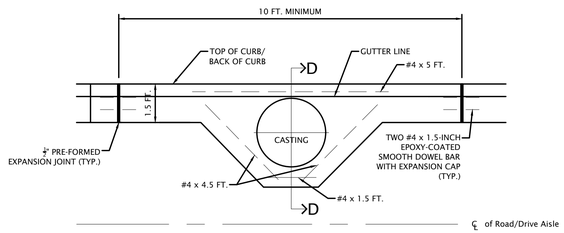


DOWNSPOUT CONNECTION

(NOT TO SCALE)

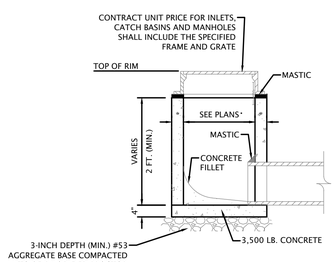


SECTION D-D



CURB & GUTTER AT STRUCTURE

(NOT TO SCALE)



INLET

(NOT TO SCALE)

INLET USES OPEN LIDS - SEE UTILITY PLAN FOR FRAME & LID TYPE.

Access Covers, Grates, and Frames

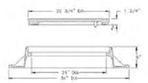
Manhole Frames and Covers

1020 FRAME & COVER

Heavy duty
Machined bearing surfaces

Options
Solid, vented or custom logo covers
Special lettered covers
Watertite assembly
Adjusting risers
Gasket seal covers
Stackable frames

Type A solid cover illustrated



Type N Oval Grate
Approx. 139 sq. in. open area
2 1/2" height above frame

Type M1 Radial Flat Grate 140 SQ. IN.
Approx. open area
"DUMP NO WASTE!!" lettering and fraud image

Type P Concave Grate
Approx. 190 sq. in. open area
5/8" depth of concave

Type M2 Flat Bar Grate
Approx. 190 sq. in. open area

Type M8 ADA Grate
Approx. 120 sq. in. open area
"DUMP NO WASTE!!" lettering

Type 01 Beehive Grate
Approx. 115 sq. in. open area
Height above frame 4"

Type 02 Beehive Grate
7" height above frame

Available Frames for 1020 Covers and Grates

Catalog Number	Base Flange Diameter	Frame Height
1037	34	4
1858*	32 1/2	4
1077	36	4
2886	34	4
2990***	34TF	4 1/2
1020	34	8
1022-1	34	7
1022-2	34	7
1022-3	36	7
1076**	36	7
1550	34	8
1051	34	9
1050Z1	34	9
1050	36	9

Note: All dimensions are in inches.
*Special lock bar and must ring (security)
**Special non-rocking feature
***Frame is reversible, can be installed as tap flange

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REGION CONTRACTORS, LLC
912 W. AVE H, SUITE 2
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DATE:	REVISIONS AND NOTES:

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OSNI MEDICAL OFFICE BLDG

Construction Details

NO SCALE

DESIGN BY	DATE
DVG	10/12/23
PROJECT NO.	
23-0031	
C203	

STORM SEWER GENERAL NOTES

1. Footing drains, sump pump drains and outside drains shall discharge to the storm sewer where storm sewer is provided.

2. The maximum allowable rate of infiltration or exfiltration shall not exceed 100 gallons, per 24 hours per inch-diameter per mile of sewer pipe.

3. Storm sewers shall be as noted on the plans. If approved by the Engineer, an alternative storm sewer pipe 12 inches and larger can be reinforced concrete minimum Class III, wall B conforming to ASTM C-76; Corrugated High-Density Polyethylene Pipe with smooth interior (ADS N-12) conforming to AASHTO M-294; Corrugated Polypropylene Pipe with smooth interior conforming to AASHTO M-330 (ADS HP STORM); Corrugated High-Density Polyethylene Pipe with smooth interior (PRINSCO, GOLDFLO) conforming to AASHTO M-294 or other INDOT, Type 2 storm sewers as approved by the Engineer.

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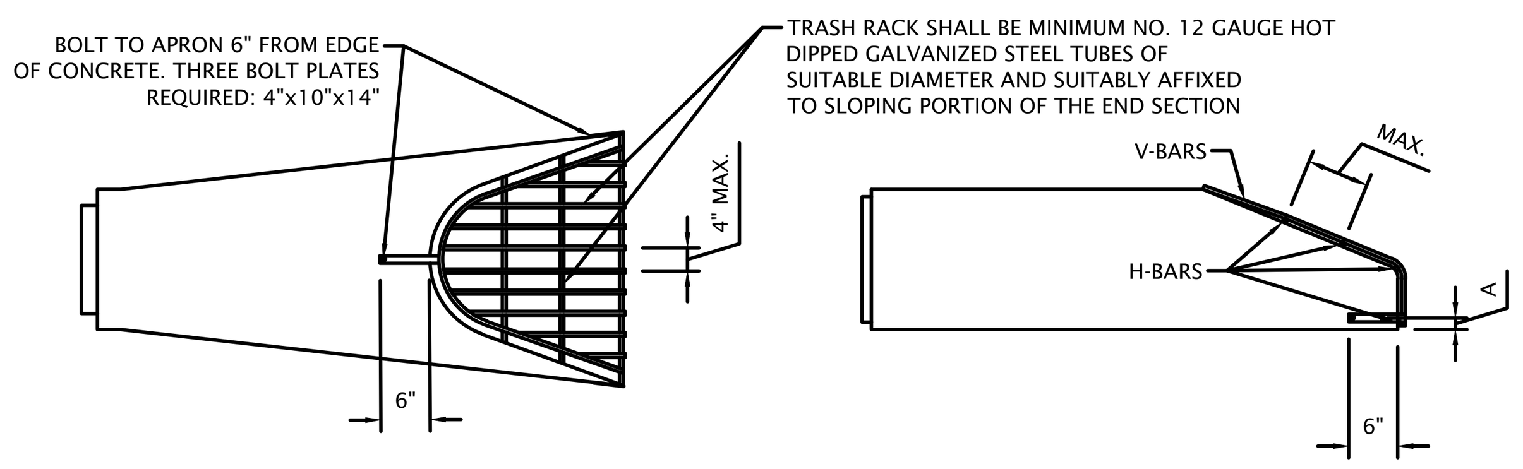
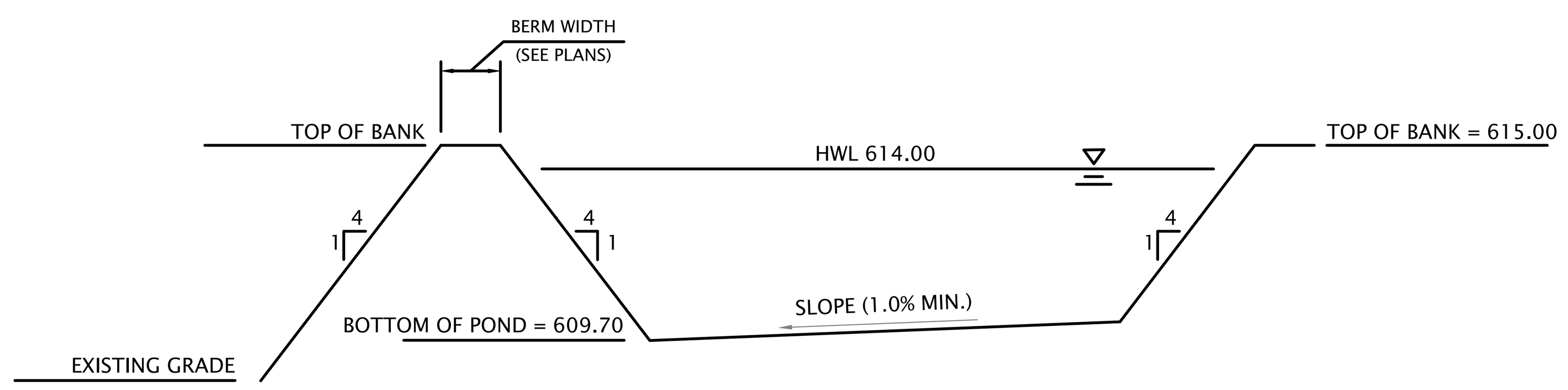


NOTES:
1. BARS AND PLATES ARE HOT-ROLLED STEEL.
2. BARS, PLATES AND PIPES ARE FINISHED WITH TWO (2) COATS OF ALUMINUM PAINT.
3. BOLTS ARE GALVANIZED.

APRON SIZE	V-BAR SIZE (DIA.)	H-BAR SIZE (DIA.)	NO. OF H-BARS	BOLT DIA.	"A" DIM
12	1/2	5/8	3	1/2	4
15	1/2	5/8	3	1/2	4 1/2
18	1/2	5/8	4	1/2	4 1/2
21	1/2	5/8	4	1/2	5
24	5/8	3/4	4	1/2	5
27	5/8	3/4	4	1/2	5 1/2
30	5/8	3/4	4	1/2	5 1/2
36	3/4	1	4	3/4	8
42	3/4	1	4	3/4	8
48	3/4	1	5	3/4	8
54	3/4	1 1/2	5	3/4	8
60	3/4	1 1/2	5	3/4	8
66	3/4	1 1/2	5	3/4	8
72	3/4	1 1/2	5	3/4	9
84	3/4	1 1/2	5	3/4	10
90	3/4	1 1/2	5	3/4	10

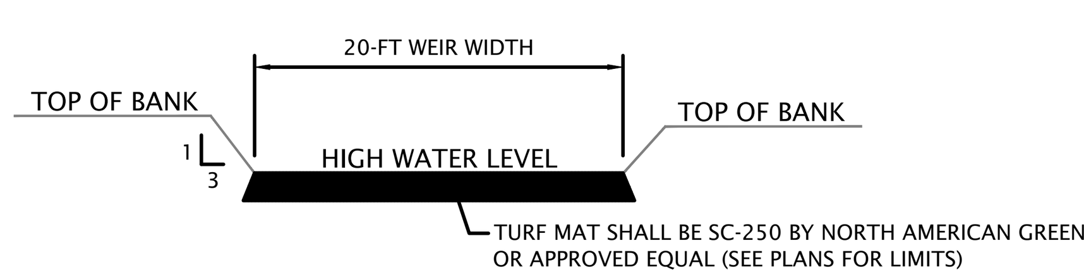
TRASH RACK

IF PVC/CPP PIPE IS USED, CONTRACTOR SHALL USE CONTECH TRASH RACKS IN LIEU OF CONCRETE TRASH RACK SPECIFIED ABOVE.



DRY DETENTION POND TYPICAL CROSS SECTION

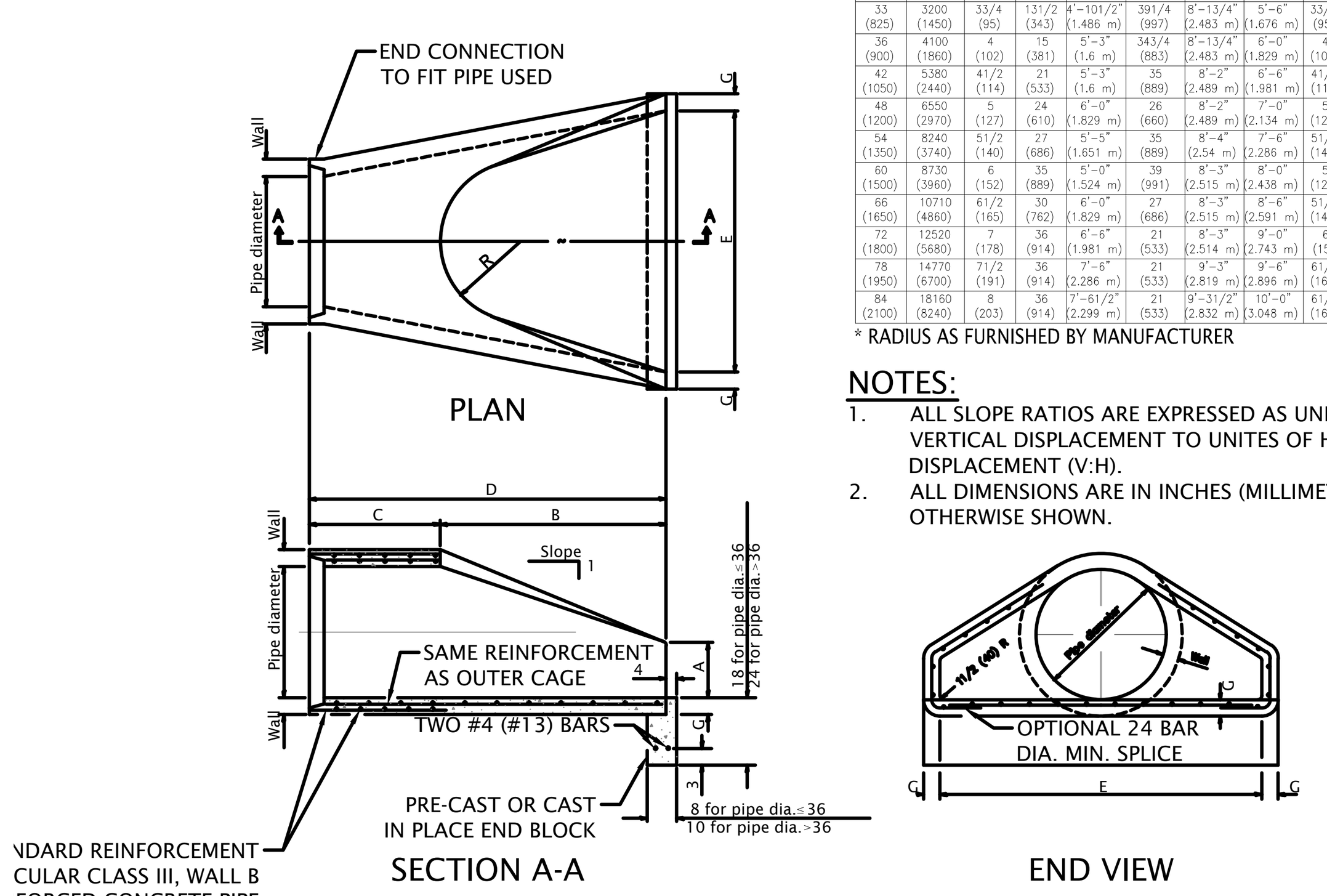
(NOT TO SCALE)



WEIR CROSS SECTION

POND OVERFLOW WEIR

(NOT TO SCALE)



PIPE DIA.	APPROX. QTY. lbs. (kg)	WALL	A	B	C	D	E	G	R	APPROX. SLOPE
12 (300)	530 (240)	2 (51)	4 (102)	24 (610)	4'-07/8" (1.241 m)	6'-07/8" (1.851 m)	24 (610)	2 (51)	9 (229)	1:2.4
15 (375)	740 (335)	21/4 (57)	6 (152)	27 (686)	3'-10" (1.168 m)	6'-1" (1.854 m)	30 (762)	21/4 (57)	11 (280)	1:2.4
18 (450)	990 (450)	21/2 (64)	9 (229)	27 (686)	3'-10" (1.168 m)	6'-1" (1.854 m)	36 (914)	21/2 (64)	12 (305)	1:2.4
21 (525)	1280 (580)	23/4 (70)	9 (229)	35 (889)	38 (965)	6'-1" (1.854 m)	3'-6" (1.067 m)	23/4 (70)	13 (330)	1:2.4
24 (600)	1520 (690)	3 (76)	91/2 (241)	3'-71/2" (1.105 m)	30 (762)	6'-11/2" (1.867 m)	4'-0" (1.219 m)	3 (76)	14 (356)	1:2.5
27 (675)	1930 (875)	31/4 (83)	101/2 (267)	4'-0" (1.219 m)	251/2 (648)	6'-11/2" (1.867 m)	4'-6" (1.372 m)	31/4 (83)	141/2 (368)	1:2.4
30 (750)	2190 (995)	31/2 (89)	12 (305)	4'-6" (1.375 m)	193/4 (502)	6'-13/4" (1.874 m)	5'-0" (1.524 m)	31/2 (89)	15 (381)	1:2.5
33 (825)	3200 (1450)	33/4 (95)	131/2 (343)	4'-101/2" (1.486 m)	391/4 (997)	8'-13/4" (2.483 m)	5'-6" (1.676 m)	33/4 (95)	171/2 (445)	1:2.5
36 (900)	4100 (1860)	4 (102)	15 (381)	5'-3" (1.6 m)	343/4 (883)	8'-13/4" (2.483 m)	6'-0" (1.829 m)	4 (102)	20 (508)	1:2.5
42 (1050)	5380 (2440)	41/2 (114)	21 (533)	5'-3" (1.6 m)	35 (889)	8'-2" (2.489 m)	6'-6" (1.981 m)	41/2 (114)	22 (559)	1:2.5
48 (1200)	6550 (2970)	5 (127)	24 (610)	6'-0" (1.829 m)	26 (660)	8'-2" (2.489 m)	7'-0" (2.134 m)	5 (127)	22 (559)	1:2.5
54 (1350)	8240 (3740)	51/2 (140)	27 (686)	5'-5" (1.651 m)	35 (889)	8'-4" (2.54 m)	7'-6" (2.286 m)	51/2 (140)	24 (610)	1:2.0
60 (1500)	8730 (3960)	6 (152)	35 (889)	5'-0" (1.524 m)	39 (991)	8'-3" (2.515 m)	8'-0" (2.438 m)	5 (127)	*	1:1.9
66 (1650)	10710 (4860)	61/2 (165)	30 (762)	6'-0" (1.829 m)	27 (686)	8'-3" (2.515 m)	8'-6" (2.591 m)	51/2 (140)	*	1:1.7
72 (1800)	12520 (5680)	7 (178)	36 (914)	6'-6" (1.981 m)	21 (533)	8'-3" (2.514 m)	9'-0" (2.743 m)	6 (152	*	1:1.8
78 (1950)	14770 (6700)	71/2 (191)	36 (914)	7'-6" (2.286 m)	21 (533)	9'-3" (2.819 m)	9'-6" (2.896 m)	61/2 (165)	*	1:1.8
84 (2100)	18160 (8240)	8 (203)	36 (914)	7'-61/2" (2.299 m)	21 (533)	9'-31/2" (2.832 m)	10'-0" (3.048 m)	61/2 (165)	*	1:1.6

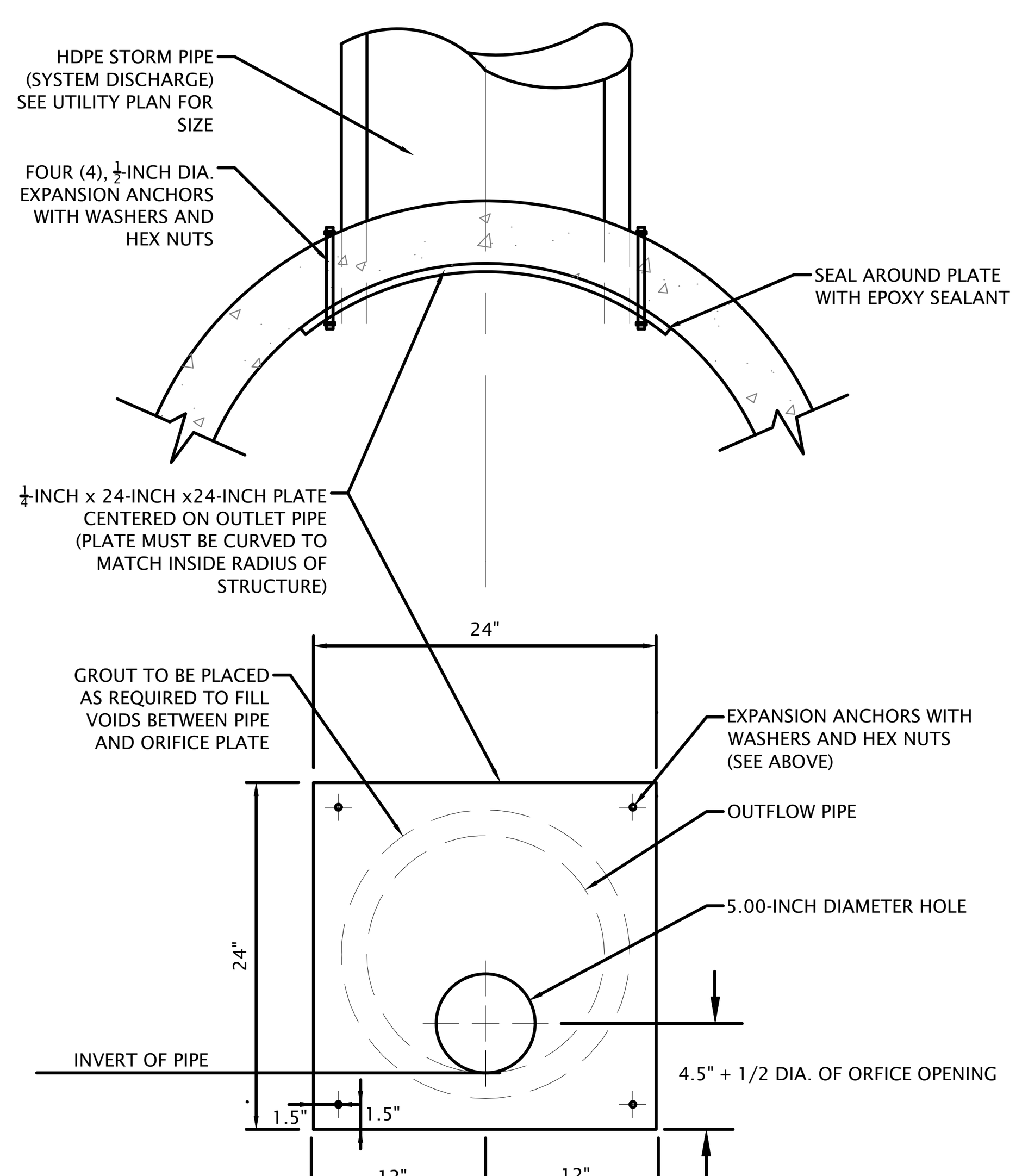
* RADIUS AS FURNISHED BY MANUFACTURER

NOTES:
1. ALL SLOPE RATIOS ARE EXPRESSED AS UNITS OF VERTICAL DISPLACEMENT TO UNITES OF HORIZONTAL DISPLACEMENT (V:H).
2. ALL DIMENSIONS ARE IN INCHES (MILLIMETERS), UNLESS OTHERWISE SHOWN.

CONCRETE PIPE END SECTION

(NOT TO SCALE)

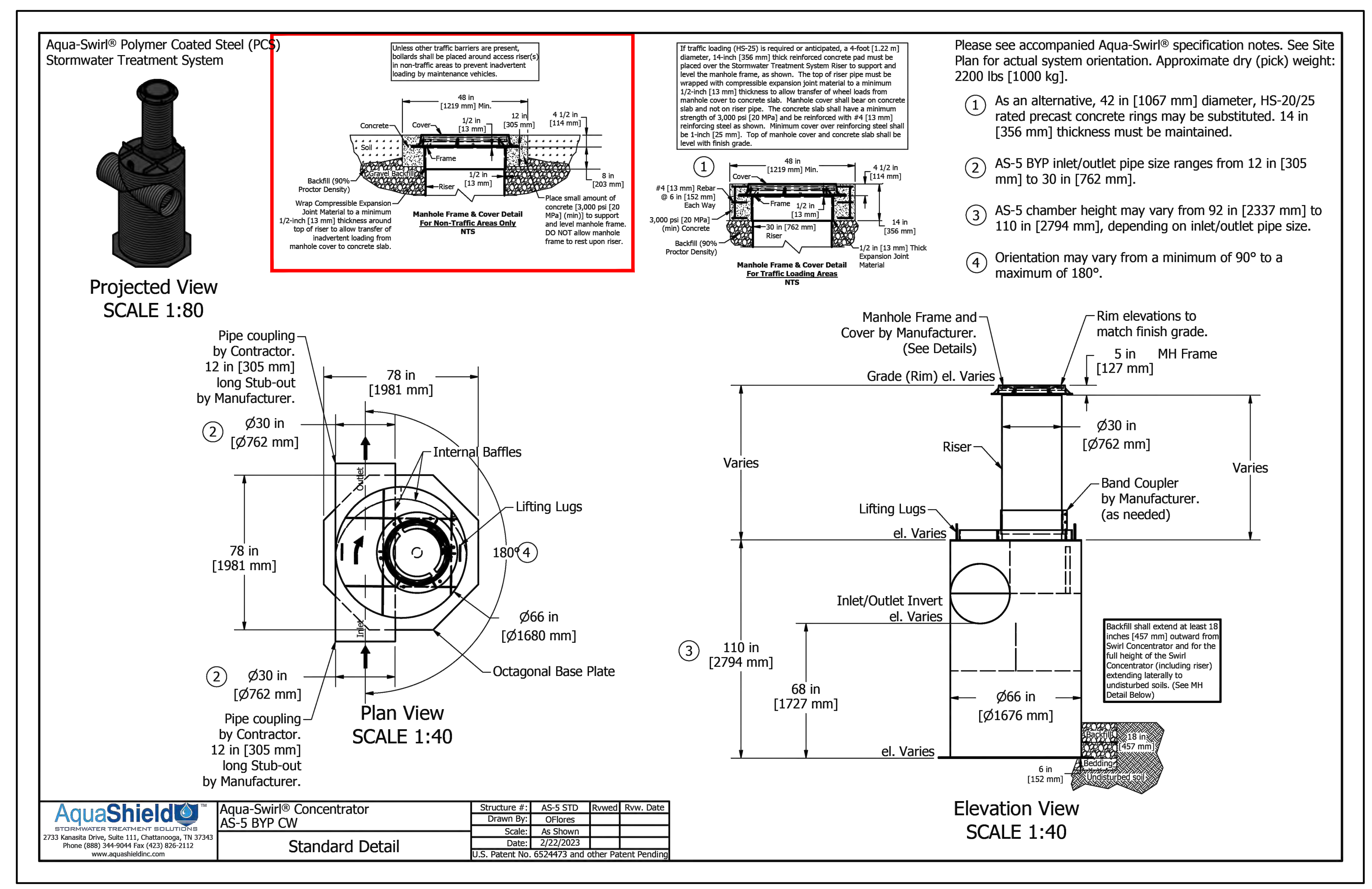
IF PVC/CPP PIPE IS USED, CONTRACTOR SHALL USE CONTECH CORRUGATED METAL PIPE (CMP) END SECTION WITH BANDING IN LIEU OF CONCRETE END SECTION SPECIFIED ABOVE.



RESTRICTOR-ORIFICE PLATE

(NOT TO SCALE)

STRINGENT MAINTENANCE OF RESTRICTOR SHALL BE NECESSARY BY OWNER



HYDRODYNAMIC SEPARATOR DETAILS

(NOT TO SCALE)

NOTES:
1. AQUA-SHIELD SPECIFICATIONS shall be considered part of this plan set.

2. Contact Sales Representative for product purchase:
Stacy Tobin
Product Consultant
Entel, Inc
734-358-4575
stobin@entel-group.com

3. CONTRACTOR MAY USE AQUA-SHIELD, CONTECH OR OTHER EQUAL HYDRODYNAMIC SEPARATOR PRODUCT/CONFIGURATION, BUT SHALL BE APPROVED BY ENGINEER OF RECORD AND TOWN OF MUNSTER SURVEYOR'S OFFICE.

DESIGN NOTES:

HYDRODYNAMIC SEPARATORS	WQV FLOW	10YR FLOW	CONTECH*	AQUA-SHIELD*
HD#1A	1.39 CFS	8.47 CFS	CS6	AS5 BYP

*AQUA-SHIELD HYDRODYNAMIC SEPARATOR WERE SIZED BY WQV FLOW, Q=CiA, Q= 0.85*1*1.64 = 1.39 cfs
*CONTECH: HYDRODYNAMIC SEPARATOR WERE SIZED BY 10 YR FLOW.
*ALTERNATIVE CONFIGURATION USING A BYPASS STRUCTURE MAY CHANGE THE SIZE OF THE HYDRODYNAMIC SEPARATOR.

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RUSSELL JACOB POZEN REGISTERED NO. PE10910667 STATE OF INDIANA PROFESSIONAL ENGINEER
10/12/2023

REGION CONTRACTORS, LLC
912 W. AVE H, SUITE 2
GRIFFITH, IN 46319

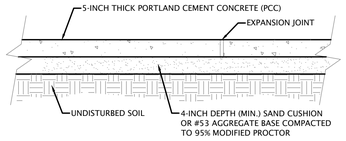
DATE: REVISIONS AND NOTES:

OSNI MEDICAL OFFICE BLDG
Construction Details

NOT FOR CONSTRUCTION

NO SCALE

DESIGN BY	DATE
DVG	10/12/23
PROJECT NO.	
23-0031	
C204	

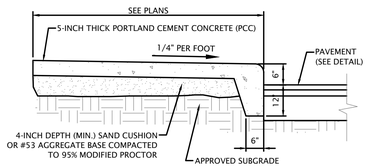


SIDEWALK
(NOT TO SCALE)

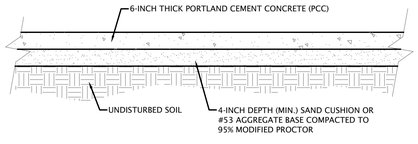
CONCRETE FLAT WORK NOTES:

1. PROVIDE ½-INCH EXPANSION JOINT CONFORMING TO ASTM D-1751 ALONG BACK OF CURBS, DRIVEWAYS, STEPS, WALLS AND ACROSS THE SIDEWALK AT INTERVALS NOT TO EXCEED 40 FEET.
2. EXTEND EXPANSION JOINT MATERIAL FULL DEPTH OF THE SLAB.
3. PROVIDE TOOLED "V-GROOVE" CONTROL JOINT SPACED AT A DISTANCE EQUAL TO THE WIDTH OF THE WALK BUT NOT OVER 10 FEET APART, OR AS SPECIFIED ON THE SITE PLAN.
4. CONCRETE SHALL BE CLASS "A" & 4,000 PSI IN 28 DAYS, MEETING THE REQUIREMENTS OF THE MOST RECENT INDOT STANDARD SPECIFICATIONS MANUAL.
5. ALL CONCRETE FLAT WORK SHALL BE REINFORCED WIRE MESH 6"x6"x 10/10 GAUGE.

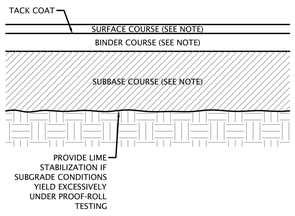
½-INCH WIDE CONSTRUCTION TOOLED JOINT SPACED AT A DISTANCE EQUAL TO THE WIDTH



MONOLITHIC CURB & SIDEWALK
(NOT TO SCALE)



TRASH ENCLOSURE PAD
(NOT TO SCALE)

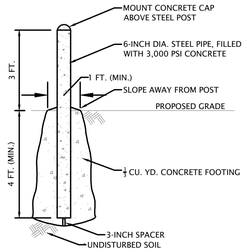


SURFACE COURSE
1.5 INCHES
INDOT HMA TYPE B SURFACE, 9.5mm

BINDER COURSE
3.0 INCHES
INDOT HMA TYPE B INTERMEDIATE, 19.0mm

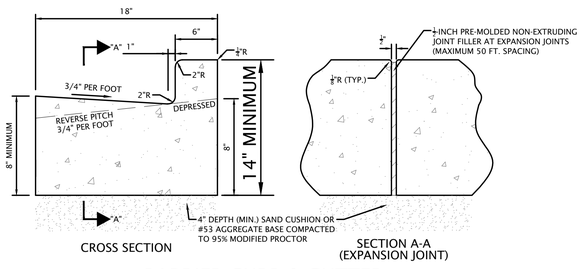
SUBBASE COURSE
9.0 INCHES OF #53 COMPACTED LIMESTONE AGGREGATE ON APPROVED PROOF-ROLLED SUBGRADE

ASPHALT PAVEMENT CROSS SECTION
(NOT TO SCALE)

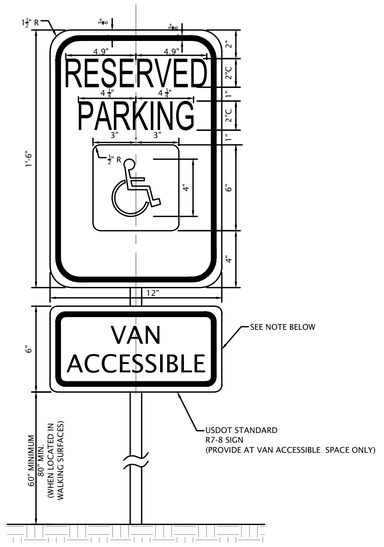


BOLLARD
(NOT TO SCALE)

NOTES:
1. PAINT ALL BOLLARDS SAFETY YELLOW.

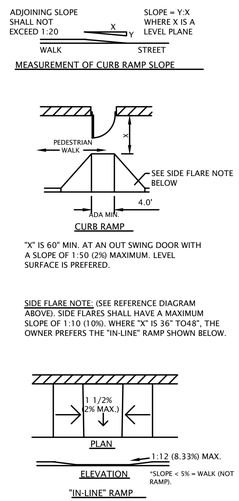


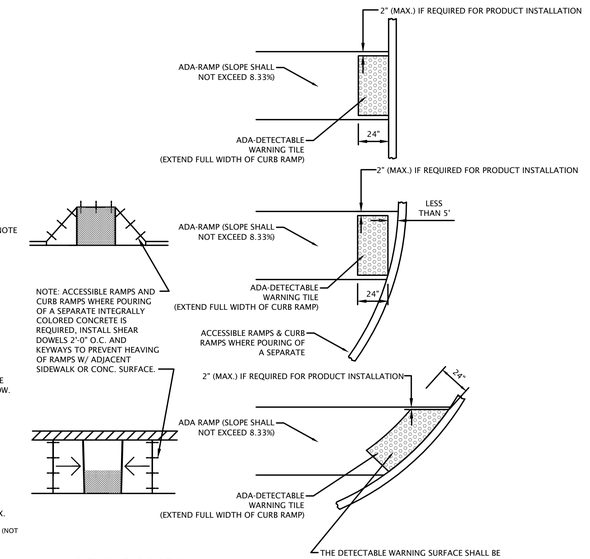
BARRIER CURB & GUTTER
(NOT TO SCALE)



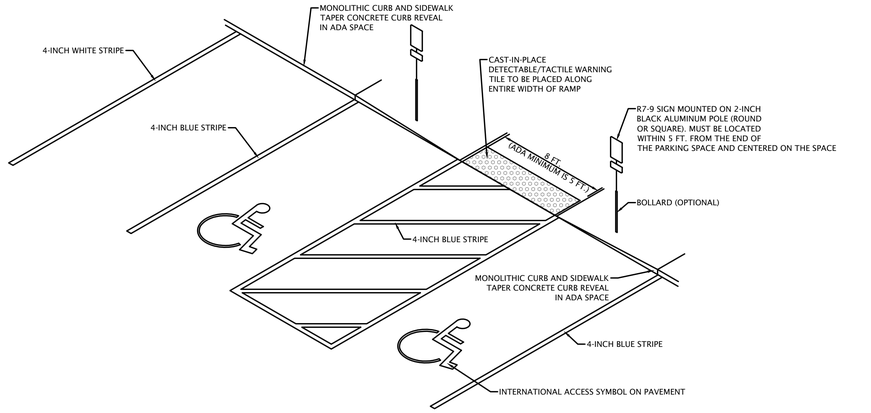
NOTE ON R7-8 SIGN:
THIS IS A STANDARD SIGN AND MAY BE ORDERED FROM ANY TRAFFIC SIGN SUPPLIER BY NUMBER. THE SIGN MUST BE SUPPLEMENTED WITH A "VAN ACCESSIBLE" SIGN AS APPLICABLE AND/OR AMOUNT OF THE FINE FOR ILLEGALLY PARKING IN THE RESERVED SPACE(S) A MUNICIPALITY MAY IMPOSE. CONFIRM WITH LOCAL REGULATIONS.

ADA SIGNAGE





ADA RAMPS



ADA NOTES

A CURB RAMP(S) MUST BE PROVIDED ALONG AN ACCESSILBE PATH FROM THE PARKING LOT TO OWNERS CURBED SIDEWALK.

A CURB RAMP(S) MUST ALSO BE PROVIDED IN THE PARKING LOT AT ALL INTERMEDIATE AND PERIMETER CURBS ALONG THE ACCESSIBLE ROUTE CONNECTING TO PUBLIC SIDEWALKS.

A RAMP IS ANY SLOPE GREATER THAN 1:20 (5%) AND SHALL HAVE A MAXIMUM SLOPE OF 1:12 (8.33%). THE MAXIMUM SLOPE IS 1" OF RISE PER FOOT OF DISTANCE TRAVELED.

A RAMP SHALL HAVE A DETECTABLE SURFACE IDENTIFYING THE AREA OF THE RAMP. DETECTABLE WARNINGS SHALL CONSIST OF TRUNCATED DOMES ALIGNED IN A SQUARE OR RADIAL GRID. TRUNCATED DOMES SHALL HAVE A BASE DIAMETER OF 0.9 IN. TO 1.5 IN. MAXIMUM, A TOP DIAMETER OF 50% OF THE BASE DIAMETER MINIMUM TO 65% OF THE BASE DIAMETER MAXIMUM AND A HEIGHT OF 0.2 IN. DOMES SHALL BE SPACED CENTER-TO-CENTER OF 1.6 IN. MINIMUM TO 2.4 IN. MAXIMUM AND A BASE-TO-BASE SPACING OF 0.65 IN. MINIMUM, MEASURED BETWEEN THE MOST ADJACENT DOMES.

ADA DETECTABLE WARNING STRIPS SHALL BE A CAST IN PLACE DETECTABLE/TACTILE WARNING TILE. THE TILE MUST MEET ALL ADA REQUIREMENTS, AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MANAFACTURERS INSTRUCTIONS. A 5-YEAR WARRANTEE SHALL BE PROVIDED BY THE MANUFACTURER FOR THE INSTALLED TILE FOR COLORFASTNESS AND DURABILITY. DETECTABLE/TACTILE WARNING TILE SHALL BE ARMOR-TILE, ACCESS-TILE OR AN APPROVED VENDOR.

THE LEADING EDGE OF THE DETECTABLE WARNING TILE MUST BE CLOSER THAN 5' FROM THE VEHICLE SURFACE, AND HAVE A MINIMUM OF 24" LENGTH ALONG THE PEDESTRIAN TRAVEL DIRECTION. THE TILE MAY BE CUT TO MATCH A RADIUS AT THE CURB IF ONE END OF THE RAMP EXCEEDS THE 5' MINIMUM.

THE CLEAR WIDTH OF ANY RAMP MEASURED PERPENDICULAR TO THE PEDESTRIAN TRAVEL DIRECTION IS A MINIMUM OF 36".

THERE ARE LOCAL JURISDICTIONS THAT SPECIFICALLY REQUIRE DETECTIBLE WARNINGS ON THE SIDE FLARES OR TOP OF RAMP (CA.). THERE ARE LOCAL JURISDICTIONS THAT HAVE REDEFINED DETECTIBLE WARNINGS (e.g. EXPOSED CONTRASTING COLOR AGGREGATE, GROOVES IN A PARALLEL OR DIAMOND PATTERN ETC.). ACCESSIBILITY GUIDLINES DEFINED BY LOCAL ORDINANCE SHOULD SUPERSEDE WHEN MORE STRINGENT THAN ADAAG. IN THE ABSENCE OF A DEFINITION, FOLLOW ADAAG.

TYPICAL ADA PARKING SPACE PLAN

A U.S. DEPARTMENT OF TRANSPORTATION R7-8 (RESERVED PARKING) AND SUPPLEMENTAL SIGNS AS NOTED ABOVE MUST BE MOUNTED ON A PERMANENT POST NO LOWER THAN 60"/80" AS STATED IN THE SIGN DETAIL ABOVE. THE POST MUST BE MOUNTED IN THE CENTER OF THE 8 FOOT WIDE ACCESSIBLE PARKING SPACE, NO MORE THAN 5 FEET FROM THE FRONT OF THE PARKING SPACE. SEE ILLUSTRATION ABOVE.

EACH ACCESSIBLE PARKING SPACE IS TO BE A MINIMUM OF 8 FEET WIDE AND HAVE A 96" MINIMUM ACCESS AISLE FOR VANS OR 60" ACCESS AISLE FOR CARS ADJACENT TO THE SPACE. THE ACCESS AISLE MAY BE ON EITHER THE DRIVER'S SIDE OR THE PASSENGER'S SIDE OF THE ACCESSIBLE SPACE. THIS APPLIES TO 90° PARKING, IF ANGLED PARKING (ie. 45°,60°), ACCESS AISLE SHALL BE ON THE PASSENGER SIDE.

ACCESSIBLE PARKING SPACES ARE TO BE LOCATED AS CLOSE TO THE BUILDING ENTRANCE AS POSSIBLE AND SHALL BE IDENTIFIED WITH A SIGN.

ACCESSIBLE PARKING SPACES AND ACCESS AISLES SHALL BE LEVEL WITH A SLOPE BETWEEN 1.5% AND 2% OR 1:50 IN ALL DIRECTIONS. THIS INCLUDES BOTH "RUNNING SLOPES" AND "CROSS SLOPES."

EACH PARKING SPACE ACCESS AISLE MUST CONNECT TO A COMMON LEVEL WITH AN ACCESSIBLE ROUTE...I.E., EACH ACCESS AISLE NEXT TO A PARKING SPACE MUST HAVE A CURB RAMP AT SIDEWALK OR BLEND TO A LEVEL WALKWAY LEADING TO THE ENTRANCE.

ACCESSIBLE PARKING ACCESS AISLES SHALL BE PART OF AN ACCESSIBLE ROUTE TO THE BUILDING ENTRANCE.

THE ACCESS AISLE SHALL BE DESIGNATED WITH HIGH QUALITY YELLOW DIAGONAL SURFACE PAINT STRIPING OR PER LOCAL MUNICIPALITY'S REQUIREMENTS.

RAMPS MUST NOT EXTEND OUT FROM THE CURB INTO THE ACCESS AISLE OF ANY ACCESS PARKING SPACE.

ADA ALLOWS TWO PARKING SPACES TO SHARE AN ACCESS AISLE.

ACCESSIBLE SPACE REQUIREMENTS

TOTAL OFF STREET PARKING SPACES PROVIDED	NUMBER OF ACCESSIBLE PARKING SPACES REQUIRED
1 TO 25	1
26 TO 50	2
51 TO 75	3
76 TO 100	4
101 TO 150	5
151 TO 200	6
201 TO 300	7
301 TO 400	8
401 TO 500	9
501 TO 1000	2% OF TOTAL
OVER 1000	2% PLUS 1 FOR EACH 100 OVER 1000
HOSPITAL OUTPATIENT FACILITIES	10% OF TOTAL PATIENT & VISITOR PARKING SPACES

ADA REQUIRES ONE VAN ACCESSIBLE PARKING SPACE IN EVERY SIX ACCESSIBLE SPACES, BUT NOT LESS THAN ONE.

- VAN ACCESSIBLE SPACES SHALL BE PERMITTED TO BE 8ft WIDE (MIN) WITH A 8ft WIDE (MIN) ACCESS AISLE
  OR
- VAN ACCESSIBLE SPACES SHALL BE PERMITTED TO BE 11ft WIDE WITH A 5ft WIDE (MIN) ACCESS AISLE

ACCESSIBLE PARKING-SIZE AND MARKINGS

NOTES:
1. PAINTED CROSSWALKS SHALL BE WHITE 18" WIDE STRIPES 6' LONG, SPACED 36" ON CENTER ACROSS THE ENTIRE LENGTH OF THE CROSSING.
2. PAINT 2" BLACK OUTLINE AROUND ARROWS AND LETTERS IN AREAS OF CONCRETE SURFACE.
3. PARKING SPACES ARE TO BE "WHITE" - 4" WIDE STRIPES
4. ADA SPACES, ADA MARKING, AND ADA ACCESS SPACE ARE TO BE "BLUE" - 4" WIDE STROKES.

PAVEMENT MARKINGS

DVG TEAM INC
1155 Troutwine Road
Crown Point, IN 46307
P: (219) 662-7710
F: (219) 662-2740
www.dvgteam.com

RUSSELL JACOB PITZEN REGISTERED NO. PE10910667 STATE OF INDIANA PROFESSIONAL ENGINEER

10/12/2023

REGION CONTRACTORS, LLC
912 W. AVE H, SUITE 2
GRIFFITH, IN 46319

DATE:	REVISIONS AND NOTES:

NOT FOR CONSTRUCTION

OSNI MEDICAL OFFICE BLDG

Construction Details

NO SCALE

DESIGN BY	DATE
DVG	10/12/23

PROJECT NO.
23-0031

C205

GENERAL STORM WATER MANAGEMENT NOTES

Soil erosion and sedimentation control shall protect against loss of soil by the action of water, ice and wind.

Erosion control shall be in accordance with Munster Storm Water Ordinance & Storm Water Technical Manual & "The Indiana Storm Water Quality Manual".

There are two main elements for Storm Water Quality: Construction Site Stormwater Runoff Control and Post-Construction Stormwater Management. The contractor shall provide Construction Site Stormwater Runoff Control as required and construct the Post-Construction Stormwater Management features as shown on these plans.

The contractor shall be responsible for maintaining site conditions such that Stormwater Runoff Control is provided throughout construction. Surface water runoff management, ie: temporary ditches, swales, bypass pumping, and erosion control measures shall be constructed and maintained as required by construction activity and these items are considered incidental to the contract. These items shall be included in the base contract.

Upon the completion of the site work the contractor shall remove the Construction Site Stormwater Runoff Control measures and install the Post-Construction Stormwater Management measures.

Those Stormwater Runoff Control measures such as detention ponds that will also serve in the Post-Construction Stormwater Management Plan shall have construction sediment removed and full functionality restored upon the completion of the Site construction.

Each Construction Site Stormwater Runoff Control measure shall be installed immediately following the construction of the structure or feature in which the measure is intended to protect.

The contractor is responsible for any damage and/or cleaning to the structure or feature. Corrective work incurred by the contractor shall be considered incidental to the contract.

The contractor is responsible for compliance with the S.W.P.P.P. Any fines or punative measures incurred by the project due to failure to comply with the S.W.P.P.P. are the responsibility of the contractor. These costs shall be considered incidental to the contract, and shall not be considered an extra.

During the course of construction the S.W.P.P.P. may require additional erosion control measures to be installed to address site specific items not anticipated by this plan due to construction schedule or sequencing. It is not the intent of this plan to direct the schedule or sequencing beyond the general construction sequence. Any stormwater runoff control measures required due to construction methodology, sequencing, etc. are incidental to the contract. Corrective work and maintenance shall also be considered incidental, and shall not be considered an extra.

All items shown on these detail sheets are standard details and describe standard installation practices. Not all of these Stormwater Runoff Control measures will be utilized. See the erosion control plan for location and types of erosion control measures utilized. The stormwater checklist document will serve to further outline the S.W.P.P.P. for this project and it is considered part of the plan documents. In the event that site conditions require additional or different erosion control measures, these details serve to describe some acceptable methods.

POTENTIAL CONSTRUCTION POLLUTANT SOURCES

Potential pollutants that could enter the stormwater during construction include exposed soils, fuel and oil from leaking heavy equipment and vehicles. Equipment has the potential to leak fuel throughout the disturbed areas, or wherever construction is occurring. The contractors will inspect equipment before initiating construction and routinely thereafter. If leaks are discovered, they will be repaired before the equipment is used or new equipment will be brought to the site.

Bulk Fuel storage on-site can leak and thereby be a pollutant. All Fuel storage tanks shall meet the minimum requirements of the Fuel Storage requirements.

Exposed soils also have potential for being eroded by water and wind and must be prevented from entering the stormwater system. The contractor will install silt fence, riprap, and ditch checks in areas designated on the site development plans.

MATERIAL HANDLING AND STORAGE

Concrete Washout:
- Concrete wastewater liquid shall be fully evaporated prior to the planned capacity of the washout structure capacity being exceeded. Liquid must be disposed of offsite as wastewater.
- Concrete wastewater liquid that has not solidified may be pumped out into a secondary lined container or into a tanker and taken to an approved disposal facility.
- Concrete wastewater shall not be allowed to leak onto the ground, run into storm drains, or into any body of water. Where washout wastewater leaks onto the ground, all contaminated soils shall be excavated and disposed of properly.
- Allow concrete wastes to set. Break up and properly dispose of hardened wastes. Upon removal of waste, inspect the structure.
- Do not wash sweepings from exposed aggregate concrete into the street or storm drain. Collect and return sweepings to aggregate base stockpile or dispose of in the trash.
- Do not dump excess concrete onsite, except in designated areas.
- When concrete washout areas are no longer required, close the concrete washout systems. Dispose of all hardened concrete and other materials used to construct the system. Backfill, grade, and stabilize any holes, depressions, and other land disturbances associated with the system.

SOLID WASTE MANAGEMENT
- Select designated waste collection areas onsite.
- Inspect dumpsters for leaks and repair any dumpster that is not watertight.
- Dumpsters of sufficient size and number should be provided to contain the solid waste generated by the project. Provide containers with lids or covers that can be placed over the container to keep rain out or to prevent loss of wastes when it is windy.
- Full dumpsters should be removed from the project site and the contents should be disposed of by the trash hauling contractor.
- Plan for additional containers and more frequent pickup during the demolition phase of construction.
- Collect site trash daily, especially during rainy and windy conditions.
- Make sure that toxic liquid wastes (used oils, solvents, and paints) and chemicals (acids, pesticides, additives, curing compounds) are not disposed of in dumpsters designated for construction debris.
- Do not hose out dumpsters on the construction site. Leave dumpster cleaning to the trash hauling contractor.
- Arrange for regular waste collection before containers overflow. Clean up immediately if a container does spill.
- Make sure that construction waste is collected, removed, and disposed of only at authorized disposal areas.
- Litter from work areas within the construction limits of the project site should be collected and placed in watertight dumpsters at least weekly, regardless of whether the litter was generated by the contractor, the public, or others. Collected litter and debris should
not be placed in or next to drain inlets, stormwater drainage systems, or watercourses.
- Construction debris and waste should be removed from the site biweekly or more frequently as needed.
- Construction material visible to the public should be stored or stacked in an orderly manner.
- Stormwater run-on should be prevented from contacting stored solid waste through the use of berms, dikes, or other temporary diversion structures or through the use of measure to elevate waste from site surfaces.
- Solid waste storage areas should be located at least 50 ft. from drainage facilities and watercourses and should not be located in area prone to flooding or ponding.
- Inspect construction waste area weekly.

CHEMICALS AND LIQUIDS STORAGE AND HANDLING
- Store materials in manufacturer's containers.
- Maintain Safety Data Sheets (SDS) on all products.
- Store materials in a weatherproof/vandal resistant locker or building. Keep materials away from flammable sources.
- Follow manufacturer's instructions for the proper use and storage of all materials.
- Do not perform washing of applicators or containers of solvent, paint, grout, stucco, or other materials near or into a waterway or stormwater inlet. Wash water is to be disposed offsite as wastewater.
- Tightly seal and store paint containers and curing compounds when not required for use.
- Do not discharge excess paint to a waterway or storm system. Properly dispose of excess paint according to the manufacturer's instructions and in accordance with all Federal, State, and local regulations.
- Provide secondary containment for aboveground storage tanks or storage areas containing hazardous materials that are located outside.
- Remove collected liquid in the secondary containment area within 72 hours of its discovery to maintain the capacity.

Fertilizers
- Apply fertilizers only in the minimum amounts recommended by the manufacturer, as indicated from a soil test, or per the Indiana Stormwater Quality Manual.
- Work fertilizers into the soil to limit exposure to stormwater.
- Do not apply immediately prior to precipitation events.
- Store fertilizers in a covered area and transfer partially used bags to a sealable container to avoid spills.

Equipment and Vehicle Washing
- As feasible, perform washing offsite in a covered facility with an impervious floor and drains connected to the sanitary sewer.
- Use a dedicated site for washing. Locate wash areas at least 50 feet from stormwater inlets or water bodies.
- Do not discharge wash water if using soaps, solvents, or detergents. Only non-contaminated wash water may be discharged to stormwater.
- Inspect equipment and vehicles for leaks or worn hoses prior to washing.
- Properly dispose of contaminated wash water.

CONSTRUCTION SITE STORMWATER RUNOFF CONTROL SUMMARY OF BASIC PRINCIPLES

1. Keep disturbed area as small as possible.

2. Stabilize and/or protect disturbed areas as soon as possible.

3. Keep storm water runoff velocities low.

4. Retain sediment within immediate construction area.

The purpose of this plan is to specify methods for construction site stormwater runoff control.

All soil erosion and sedimentation control devices shall be regularly maintained by the contractor through the duration of the project. Collected silt and sedimentation shall be removed as required to maintain the effectiveness of the silt traps or sedimentation control devices. The contractor shall replace filter materials which have become ineffective due to contamination or physical deterioration. The contractor shall inspect all stormwater runoff control devices weekly and after all storm events.

The contractor shall have a log of maintenance and inspections, to be available at the site upon request of Local and State Inspectors.

If possible no grubbing should take place within 30' of an active watercourse.

GENERAL CONSTRUCTION SEQUENCE

- Installation/implementation of storm water quality measures.
- Site Clearing/demolition activities.
- Topsoil removal and stockpiling.
- Mass grading.
- Installation of underground utilities.
- Construction of dry-bottom storm water pond.
- Installation of curb and sidewalk.
- Construction of asphalt.
- Final grading.
- Permanent seeding/sod.

STORMWATER QUALITY CONSTRUCTION SEQUENCE

The sequence of when each measure will be implemented is summarized below.

- Post signed CSGP NOI, NPDES Permit number, CSGP NOS (when available), contact information for the site, municipal stormwater permit, and location where construction plans may be obtained in a visible location at entrance to site.
- Construct gravel construction entrance from the street to the building pad prior to construction.
- Install silt fence/fiber rolls prior to construction at construction limits.
- Construct refueling area and concrete washout area prior to construction.
- Install inlet protection at all inlets on property.
- Perform topsoil removal and stockpiling. Soil stockpiles created on site to be protected from erosion with silt fence around the base.
- Perform mass grading of the site subgrade.
- Construct dry-bottom storm water pond to help provide the required storage needed to capture and treat storm water runoff.
- Establish permanent seeding on banks of pond to prevent the banks from degrading.
- Construct diversion swales where required/shown to divert large amounts of runoff area to the storm water pond until the storm sewer system is installed.
- Establish temporary seeding of diversion swales.
- Install pipe outlet/outfall from storm water pond to existing storm sewer connection.
- Establish connection between new storm sewer and existing storm sewer.
- Install underground utilities.
- Upon completion of the rough grading, all areas affected by construction shall be temporarily seeded if they will remain dormant for greater than 7 days. These areas shall be stabilized within 14 days of remaining dormant and erosion control blankets shall be installed on slide slopes as shown on the plans.
- Re-seed any areas disturbed by construction and utilities installation with temporary seed mix within 3 days of completion of disturbance.
- Grade site to final elevations.
- Install curb and sidewalk.
- Construct asphalt.
- Install permanent seeding or sod.
- Maintain temporary erosion control features until construction is complete.
- Remove temporary erosion control measures once permanent vegetative cover has been established.
- Submit the the Notice of Termination for the Construction Stormwater General (CSGP) permit.

See attached details for acceptable erosion and sedimentation control installation methods.

TYPES OF CONTROL DEVICES

The Construction Site Stormwater Runoff Control Plan involves the use of four types of control devices to manage runoff thereby assuring that runoff meets the current requirements for stormwater quality.

1. Erosion Control
   a. Chemical Stabilization
   b. Geotextiles
   c. Scour Stop
   d. Riprap
   e. Mulching
   f. Soil Roughening
   g. Topsoil Utilization
   h. Seeding
   i. Sodding
2. Runoff Control
   a. Check Dams
   b. Temporary Diversion Dikes
   c. GeoRidge Ditch Berms
3. Sediment Control
   a. Polymer Systems (Floc Logs)
   b. Fiber Rolls
   c. Sediment Basins
   d. Dewatering Bags
   e. Silt Fence
   f. Storm Drain Inlet Protection
   g. Construction Entrances
   h. Construction Entrance Mud Mats
4. Material Management (housekeeping)
   a. Concrete Washouts
   b. Spill Prevention and Control Plan
   c. Fuel Storage
   d. Stockpiles
   e. Temporary Facilities
   f. Material Handling and Storage

SELF MONITORING PROGRAM

The contractor shall perform inspections weekly and after each storm event of 0.5" or more throughout the construction process for all Construction Site Stormwater Runoff Control measures.

See the Maintenance Section under each measure, or follow the manufacturers recommendations for routine maintenance.

The attached self monitoring form shall be used to monitor the Construction Site Stormwater Runoff Control measures. A binder of the weekly forms shall be kept and available upon request.

The contractors will inspect equipment before initiating construction and routinely thereafter to assure that mechanical equipment is not polluting the stormwater runoff.

SELF MONITORING FORM

Date: _____
Project: _____
Inspected by: _____
Type of Inspection: ☐ Scheduled Weekly ☐ Rain Event

CONSTRUCTION SITE INSPECTION AND MAINTENANCE LOG
(To be Completed by Property Owner or Agent)

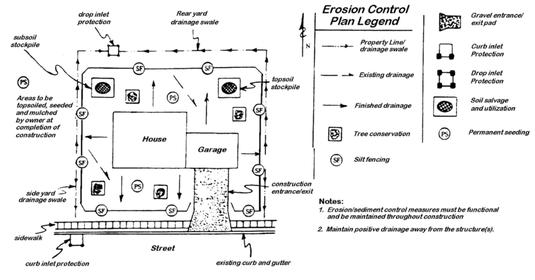
All stormwater pollution prevention BMPs shall be inspected and maintained as needed to ensure continued performance of their intended function during construction and shall continue until the entire site has been stabilized and a Notice of Termination has been issued. An inspection of the project site must be completed by the end of the next business day following each measurable storm event. If there are no measurable storm events within a given week, the site should be monitored at least once in that week. Maintenance and repair shall be conducted in accordance with the accepted site plans. This log shall be kept as a permanent record and must be made available to the Municipal Engineer, in an organized fashion, within forty-eight (48) hours upon request.

Yes	No	N/A	
			1. Are all sediment control barriers, inlet protection and silt fences in place and functioning properly?
			2. Are all erodible slopes protected from erosion through the implementation of acceptable soil stabilization practices?
			3. Are all dewatering structures functioning properly?
			4. Are all discharge points free of any noticeable pollutant discharges?
			5. Are all discharge points free of any noticeable erosion or sediment transport?
			6. Are designated equipment washout areas properly sited, clearly marked, and being utilized?
			7. Are construction staging and parking areas restricted to areas designated as such on the plans?
			8. Are temporary soil stockpiles in approved areas and properly protected?
			9. Are construction entrances properly installed and being used and maintained?
			10. Are "Do Not Disturb" areas designated on plan sheets clearly marked on-site and avoided?
			11. Are public roads at intersections with site access roads being kept clear of sediment, debris, and mud?
			12. Is spill response equipment on-site, logically located, and easily accessed in an emergency?
			13. Are emergency response procedures and contact information clearly posted?
			14. Is solid waste properly contained?
			15. Is a stable access provided to the solid waste storage and pick-up area?
			16. Are hazardous materials, waste or otherwise, being properly handled and stored?
			17. Have previously recommended corrective actions been implemented?

If you answered "no" to any of the above questions, describe any corrective action which must be taken to remedy the problem and when the corrective actions are to be completed.

SAMPLE EROSION/SEDIMENT CONTROL PRACTICE PLAN

FOR A TYPICAL ONE OR TWO FAMILY DWELLING UNDER CONSTRUCTION



POST-CONSTRUCTION STORMWATER MANAGEMENT PLAN

- After construction is completed, including buildings, parking lots constructed, and landscaping, the property owner will take possession of the property. When the property becomes occupied, it is no longer the responsibility of the developer to maintain the site. The responsibility for maintaining the permanent erosion and sediment control measures belongs to the current owner/s of the property. Pollutants associated with the proposed land use will most likely be very typical of commercial/retail developments. Most expected pollutants will be associated with automobiles: oil, grease, antifreeze, brake dust, rubber fragments, gasoline, diesel fuel, metals, and improper disposal of trash. It is the responsibility of the property owner/s or owners association to provide routine maintenance. Some maintenance items may include trimming vegetation, picking up litter, monitoring and cleaning catch basins, pond outlet structure and culverts. The sediment control basins protecting the stormwater quality of the site will require periodic cleaning of sediments that accumulate. After vegetation has been established, temporary erosion and sediment control measures such as silt fence and straw bales will be removed by the installing contractor.
- The plans make use of a detention pond system and green space to control the pollutants that occur after construction activities conclude.
- The post-construction stormwater quality measures will be installed as a part of the normal construction activities for the site. They shall be fully operational, and complete at the completion of construction.
- All storm water run-off shall be controlled by restrictors in the outfall pipes constructed as part of these engineering plans. The stormwater quality measures shall minimize the pollutants from stormwater run-off and therefore minimize adverse impacts to the receiving streams and riparian habitats.
- Green spaces - The green space areas of the site should receive routine fertilizing, watering, mowing and trimming to maintain a healthy landscape.
- Catch basins - Catch basins should be routinely inspected for build up of sediment. Mechanical cleaners or hand cleaning will be required to maintain the function of the catch basin.
- Storm drain flushing - In the event that the storm drains cease to function properly due to excessive sediment buildup, flushing of the storm drains may be required.
- Trees
- Native re-vegetation
- Pre-cast Storm Drain Covers
- Grass swales - Grass swales should receive routine fertilizing, watering, mowing and trimming to maintain a healthy landscape.

DVG Team Inc. has prepared this erosion and sedimentation control plan for the owner/developer in accordance with the known requirements and ordinances. It is the responsibility of the owner/developer for compliance with this erosion and sedimentation control plan and the related attachments by all subcontractors and consultants that perform work on the project site. The owner/developer is responsible for the routine inspection and maintenance of the erosion and sediment control measures. DVG Team Inc. is not responsible for the enforcement or compliance of the Erosion and Sediment Control Plan. Any additional erosion or sediment control measures beyond those specified in this plan, for unforeseen or unexpected situations, which may be required by the regulatory agencies shall be the responsibility of the owner/developer to implement.

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Crown Point, IN 46307
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www.dvgteam.com

RUSSELL JACOB PIZEN REGISTERED NO. PE10910667 STATE OF INDIANA PROFESSIONAL ENGINEER

10/12/2023

NOT FOR CONSTRUCTION

OSNI MEDICAL OFFICE BLDG
Stormwater Pollution Prevention Plan Details

REGION CONTRACTORS, LLC
912 W. AVE H, SUITE 2
GRIFFITH, IN 46319

DATE:	REVISIONS AND NOTES:

NO SCALE

DESIGN BY	DATE
DVG	10/12/23
PROJECT NO.	
23-0031	

C301

EROSION CONTROL MEASURES
CHEMICAL STABILIZATION

MATERIAL: SOFT PIABLE MATTING SUCH AS JUTE, COIR OR BURLAP, APPLIED POLYMER SYSTEMS, "SILT STOP" DRY POWER (OR APPROVED EQUAL).

COVERAGE: "SILT STOP" DRY POWDER IS A SOIL-SPECIFIC MATERIAL. A SOIL SAMPLE MUST BE SUBMITTED TO THE MANUFACTURER TO DETERMINE PROPER APPLICATION RATES.

INSTALLATION:
1. PREPARE THE SITE BY FILLING IN GULLIES, RILLS AND LOW SPOTS.
2. APPLY "SILT STOP" POWER (DRY) OVER DRY GROUND WITH A SEED/FERTILIZER SPREADER.
3. SELECT THE TYPE AND WEIGHT OF EROSION CONTROL BLANKET TO FIT THE SITE CONDITIONS (e.g. SLOPE, CHANNEL AND FLOW VELOCITY).

MAINTENANCE:
1. DURING VEGETATIVE ESTABLISHMENT, INSPECT AFTER STORM EVENTS FOR ANY EROSION.
2. IF ANY AREA SHOWS EROSION, REPAIR THE GRADE AND RE-APPLY "SILT STOP" POWDER AND RE-LAY AND STAPLE THE BLANKET.
3. AFTER VEGETATIVE ESTABLISHMENT, CHECK THE TREATED AREA PERIODICALLY.

GEOTEXTILES

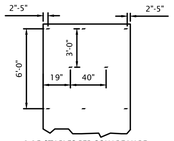
MATERIAL: NORTH AMERICAN GREEN - SC 150 or DS 150 BLANKET
SC 150 WHEN PLACEMENT OCCURS IN THE FALL/WINTER AND WHEN DURABILITY IS REQUIRED
DS 150 DEGRADES MORE RAPIDLY, ALLOWING FOR SOONER MOWING OF THE STABILIZED AREA

EROSION CONTROL BLANKET (SURFACE-APPLIED)

ANCHORING: STAPLES AS RECOMMENDED BY THE MANUFACTURER. FOR NORTH AMERICAN GREEN, USE STAPLE PATTERN "B". SEE CHART BELOW.

INSTALLATION:
1. SELECT THE TYPE AND WEIGHT OF EROSION CONTROL BLANKET TO FIT THE SITE CONDITIONS (e.g. SLOPE, CHANNEL, FLOW VELOCITY).
2. INSTALL ANY PRACTICES NEEDED TO CONTROL EROSION AND RUNOFF, SUCH AS TEMPORARY OR PERMANENT DIVERSION, SEDIMENT BASIN OR TRAP, SILT FENCE, AND/OR STRAW BALE DAM.
3. GRADE THE SITE AS SPECIFIED IN THE CONSTRUCTION PLAN.
4. ADD TOPSOIL WHERE APPROPRIATE.
5. PREPARE THE SEEDBED, FERTILIZE (AND LIME IF NEEDED) AND SEED THE AREA IMMEDIATELY AFTER GRADING.
6. FOLLOW MANUFACTURER'S DIRECTIONS AND LAY THE BLANKETS ON THE SEEDED AREA SUCH THAT THEY ARE IN CONTINUOUS CONTACT WITH THE SOIL AND THAT THE UPSLOPE OR UPSTREAM ONES OVERLAP THE LOWER ONES BY AT LEAST 8 INCHES.
7. TUCK THE UPPERMOST EDGE OF THE UPPER BLANKETS INTO A CHECK SLOT (SLIT TRENCH), BACKFILL WITH SOIL, AND TAMP DOWN.
8. ANCHOR THE BLANKETS AS SPECIFIED BY THE MANUFACTURER.

MAINTENANCE:
1. DURING VEGETATIVE ESTABLISHMENT, INSPECT AFTER STORM EVENTS FOR ANY EROSION BELOW THE BLANKET.
2. IF ANY AREA SHOWS EROSION, PULL BACK THAT PORTION OF THE BLANKET COVERING IT, ADD SOIL, RE-SEED THE AREA, AND RE-LAY AND STAPLE THE BLANKET.
3. AFTER VEGETATIVE ESTABLISHMENT, CHECK THE TREATED AREA PERIODICALLY.

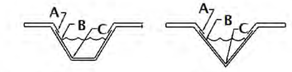


1.15 STAPLES PER SQUARE YARD
STAPLE PATTERN "B"
NORTH AMERICAN GREEN
(NOT TO SCALE)

EROSION CONTROL BLANKET (CHANNEL APPLICATION)

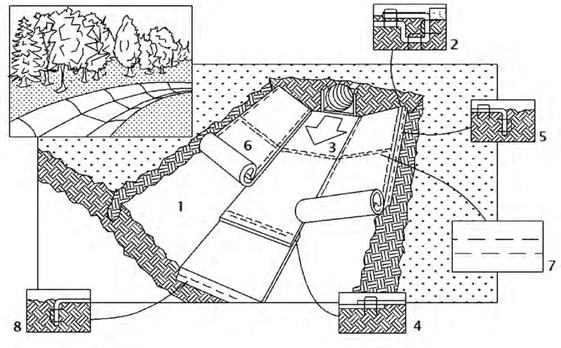
DETAIL SOURCE: NORTH AMERICAN GREEN

NOTE: HORIZONTAL STAPLE SPACING SHOULD BE ALTERED IF NECESSARY TO ALLOW STAPLES TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE. REFER TO GENERAL STAPLE PATTERN GUIDE FOR CORRECT STAPLE RECOMMENDATIONS FOR CHANNELS.



CRITICAL POINTS:

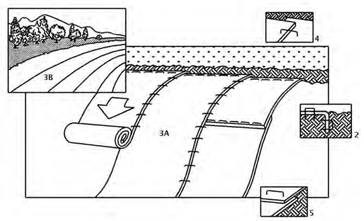
A. OVERLAPS AND SEAMS
B. PROJECTED WATER LINE
C. CHANNEL BOTTOM/SIDES, SLOPE VERTICES



1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING APPLICATION OF LIME, FERTILIZER AND SEED.
2. BEGIN AT THE TOP OF THE CHANNEL BY ANCHORING THE BLANKET IN A 6-INCH DEEP BY 6-INCH WIDE TRENCH, BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
3. ROLL CENTER BLANKET IN DIRECTION OF WATER FLOW ON BOTTOM OF CHANNEL.
4. PLACE BLANKETS END OVER END (SHINGLE-STYLE) WITH A 6-INCH OVERLAP. USE A DOUBLE ROW OF STAGGERED STAPLES 4 INCHES APART TO SECURE BLANKETS.
5. FULL LENGTH EDGE OF BLANKETS AT THE TOP OF SIDE SLOPES MUST BE ANCHORED IN 6-INCH DEEP BY 6-INCH WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
6. BLANKETS ON SIDE SLOPES MUST BE OVERLAPPED 4 INCHES OVER THE CENTER OF BLANKET AND STAPLED (2 INCHES FOR C350 MATTING).
7. IN HIGH FLOW CHANNEL APPLICATIONS, A STAPLE CHECK SLOT IS RECOMMENDED AT 30 FT. TO 40 FT. INTERVALS. USE A ROW OF STAPLES 4 INCHES APART OVER ENTIRE WIDTH OF CHANNEL. PLACE A SECOND ROW 4 INCHES BELOW THE FIRST ROW IN A STAGGERED PATTERN.
8. THE TERMINAL END OF THE BLANKETS MUST BE ANCHORED IN A 6-INCH DEEP BY 6-INCH WIDE TRNECH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.

EROSION CONTROL BLANKET (SIDE SLOPE APPLICATION)

DETAIL SOURCE: NORTH AMERICAN GREEN



NOTE: REFER TO GENERAL STAPLE PATTERN GUIDE FOR CORRECT STAPLE RECOMMENDATIONS FOR CHANNELS.

DIRECTIONS:
1. PREPARE SOIL BEFORE INSTALLING BLANKETS INCLUDING APPLICATION OF LIME, FERTILIZER AND SEED. WHEN USING CELL-O-SEED, DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET 6-INCHEDEEP BY 6-INCH WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
3. ROLL THE BLANKETS DOWN OR HORIZONTALLY ACROSS THE SLOPE.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH AN APPROXIMATELY 2-INCH OVERLAP.
5. WHEN BLANKETS MUST BE SPLICED DOWN THE SLOPE, PLACE BLANKETS END OVER END (SHINGLE-STYLE) WITH AN APPROXIMATELY 4-INCH OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12 INCHES APART.

RIP RAP AT PIPE OUTLET

MATERIAL: HARD, ANGULAR AND WEATHER-RESISTANT, HAVING A SPECIFIC GRAVITY OF AT LEAST 2.5
GRADATION: WELL-GRADED STONE, 50% (BY WEIGHT LARGER THAN THE SPECIFIED d50; HOWEVER, THE LARGEST PIECES SHOULD NOT EXCEED TWO TIMES THE SPECIFIED d50 AND NO MORE THAN 15% OF THE PIECES (BY WEIGHT) SHOULD BE LESS THAN 3 INCHES.
FILTER: USE GEOTEXTILE FABRIC FOR STABILIZATION AND FILTRATION OR SAND/GRAVEL LAYER PLACED UNDER ALL PERMANENT RIP RAP INSTALLATIONS.
SLOPE: 2:1 OR FLATTER, UNLESS APPROVED IN THE EROSION AND SEDIMENT CONTROL PLAN.

SUBGRADE PREPARATION

1. REMOVE BRUSH, TREES, STUMPS AND OTHER DEBRIS.
2. EXCAVATE ONLY DEEP ENOUGH FOR BOTH FILTER AND RIP RAP. OVER-EXCAVATION INCREASES THE AMOUNT OF SPOIL CONSIDERABLY.
3. COMPACT ANY FILL MATERIAL TO THE DENSITY OF THE SURROUNDING UNDISTURBED SOIL.
4. SMOOTH THE GRADED FOUNDATION.

FILTER PLACEMENT

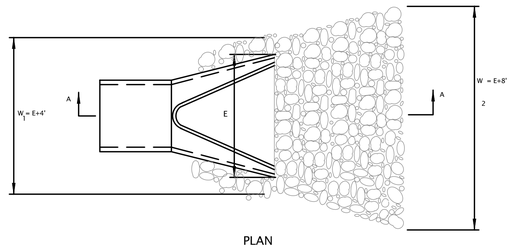
1. IF USING GEOTEXTILE FABRIC, PLACE IT ON THE SMOOTHED FOUNDATION. OVERLAP THE EDGES AT LEAST 12 INCHES AND SECURE WITH ANCHOR PINS SPACED EVERY 3 FEET ALONG THE OVERLAP.
2. IF USING A SAND/GRAVEL FILTER, SPREAD THE WELL-GRADED AGGREGATE IN A UNIFORM LAYER TO THE REQUIRED THICKNESS (6 INCHES MINIMUM); IF TWO OR MORE LAYERS ARE SPECIFIED, PLACE THE LAYER OF SMALLER GRADATION FIRST AND AVOID MIXING THE LAYERS.

RIP RAP PLACEMENT

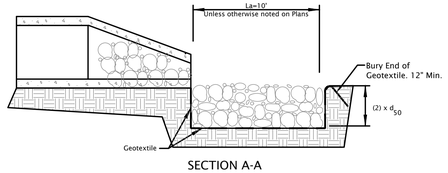
1. IMMEDIATELY AFTER INSTALLING THE FILTER, ADD THE RIP RAP TO FULL THICKNESS IN ONE OPERATION. DO NOT DUMP THROUGH CHUTES OR USE ANY METHOD THAT CAUSES SEGREGATION OF ROCK SIZES OR THAT WILL DISLODGE OR DAMAGE THE UNDERLYING FILTER MATERIAL.
2. IF FABRIC IS DAMAGED, REMOVE THE RIP RAP AND REPAIR BY ADDING ANOTHER LAYER OF FABRIC, OVERLAPPING THE DAMAGED AREA BY 12 INCHES.
3. PLACE SMALLER ROCK IN VOIDS TO FORM A DENSE, UNIFORM AND WELL-GRADED MASS. SELECTIVE LOADING AT THE QUARRY AND SOME HAND PLACEMENT MAY BE NEEDED TO ENSURE AN EVEN DISTRIBUTION OF ROCK MATERIAL.
4. BLEND THE ROCK SURFACE SMOOTHLY WITH THE SURROUNDING AREA TO ELIMINATE PROTRUSIONS OR OVER-FALLS.

MAINTENANCE

1. INSPECT PERIODICALLY FOR DISPLACED ROCK MATERIAL, SLUMPING AND EROSION AT EDGES, ESPECIALLY DOWN-STREAM OR DOWN-SLOPE.



PLAN
(NOT TO SCALE)

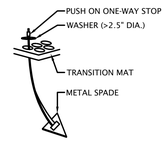


SECTION A-A
(NOT TO SCALE)

SCOURSTOP TRANSITION MAT FOR SCOUR PROTECTION

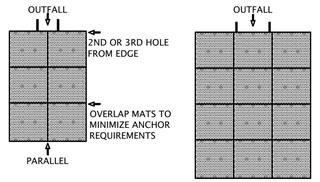
MATERIAL: SCOUR STOP TRANSITION MATS
WH SHURTLEFF COMPANY
11 WALLACE AVENUE
SOUTH PORTLAND, ME 04106
(800) 663-6149
WWW.WHSHURTLEFF.COM

PIPE DIAMETER	DISCHARGE (CFS)	SCOURSTOP WIDTHxLENGTH
12"	8	4' x 4'
24"	30	4' x 8'
36"	75	8' x 12'
48"	100	12' x 16'
60"	150	12' x 20'
72"+		SEE DETAILS



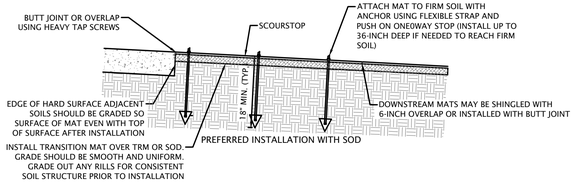
ANCHOR REQUIREMENTS*: FIRST ROW OF SCOURSTOP MATS - MINIMUM OF 8 ANCHORS
SECTION ROW OF SCOURSTOP MATS - MINIMUM OF 5 ANCHORS

* TO ENSURE CONSISTENT CONTACT WITH THE SOIL, EXCEED THE MINIMUM ANCHOR REQUIREMENT AT INSTALLATION OR IMPROVE SOIL SURFACE SMOOTHNESS



SHORELINE PROTECTION:

- ANCHOR CONFIGURATION FOR SLOPES STEEPER THAN 5:1
- TRANSITION MATS OVER A MINIMUM 8 OZ. GEOTEXTILE
- POSITION ANCHORS TO SECURE SCOURSTOP MATS FLUSH WITH SOIL SURFACE
- MINIMIZE GAPS OR BRIDGING



NOT TO SCALE

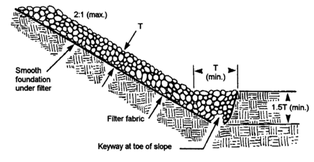
NOTES:
1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURERS' SPECIFICATIONS.
2. DO NOT SCALE DRAWINGS.

RIP-RAP FOR SCOUR PROTECTION

MATERIAL: HARD, ANGULAR AND WEATHER-RESISTANT, HAVING A SPECIFIC GRAVITY OF AT LEAST 2.5
GRADATION: WELL-GRADED STONE, 50% (BY WEIGHT LARGER THAN THE SPECIFIED d50; HOWEVER, THE LARGEST PIECES SHOULD NOT EXCEED TWO TIMES THE SPECIFIED d50 AND NO MORE THAN 15% OF THE PIECES (BY WEIGHT) SHOULD BE LESS THAN 3 INCHES.
FILTER: USE GEOTEXTILE FABRIC FOR STABILIZATION AND FILTRATION OR SAND/GRAVEL LAYER PLACED UNDER ALL PERMANENT RIP RAP INSTALLATIONS.
SLOPE: 2:1 OR FLATTER, UNLESS APPROVED IN THE EROSION AND SEDIMENT CONTROL PLAN.
MINIMUM THICKNESS: TWO TIMES THE SPECIFIED d50 STONE DIAMETER.

SUBGRADE PREPARATION

1. REMOVE BRUSH, TREES, STUMPS AND OTHER DEBRIS.
2. EXCAVATE ONLY DEEP ENOUGH FOR BOTH FILTER AND RIP RAP. OVER-EXCAVATION INCREASES THE AMOUNT OF SPOIL CONSIDERABLY.
3. COMPACT ANY FILL MATERIAL TO THE DENSITY OF THE SURROUNDING UNDISTURBED SOIL.
4. CUT KEYWAY IN STABLE MATERIAL AT THE BASE OF THE SLOPE TO REINFORCE TOE. KEYWAY DEPTH SHOULD BE 1.5 TIMES THE DESIGN THICKNESS OF THE RIP RAP AND SHOULD EXTEND A HORIZONTAL DISTANCE EQUAL TO THE DESIGN THICKNESS.
5. SMOOTH THE GRADED FOUNDATION



FILTER PLACEMENT

1. IF USING GEOTEXTILE FABRIC, PLACE IT ON THE SMOOTHED FOUNDATION, OVERLAP THE EDGES AT LEAST 12 INCHES AND SECURE WITH ANCHOR PINS SPACED EVERY 3 FEET ALONG THE OVERLAP.
2. IF USING A SAND/GRAVEL FILTER, SPREAD THE WELL-GRADED AGGREGATE IN A UNIFORM LAYER TO THE REQUIRED THICKNESS (6 INCHES MINIMUM); IF TWO OR MORE LAYERS ARE SPECIFIED, PLACE THE LAYER OF SMALLER GRADATION FIRST AND AVOID MIXING THE LAYERS.

RIP RAP PLACEMENT

1. IMMEDIATELY AFTER INSTALLING THE FILTER, ADD THE RIP RAP TO FULL THICKNESS IN ONE OPERATION. DO NOT DUMP THROUGH CHUTES OR USE ANY METHOD THAT CAUSES SEGREGATION OF ROCK SIZES OR THAT WILL DISLODGE OR DAMAGE THE UNDERLYING FILTER MATERIAL.
2. IF FABRIC IS DAMAGED, REMOVE THE RIP RAP AND REPAIR BY ADDING ANOTHER LAYER OF FABRIC, OVERLAPPING THE DAMAGED AREA BY 12 INCHES.
3. PLACE SMALLER ROCK IN VOIDS TO FORM A DENSE, UNIFORM AND WELL-GRADED MASS. SELECTIVE LOADING AT THE QUARRY AND SOME HAND PLACEMENT MAY BE NEEDED TO ENSURE AN EVEN DISTRIBUTION OF ROCK MATERIAL.
4. BLEND THE ROCK SURFACE SMOOTHLY WITH THE SURROUNDING AREA TO ELIMINATE PROTRUSIONS OR OVER-FALLS.

MAINTENANCE

1. INSPECT PERIODICALLY FOR DISPLACED ROCK MATERIAL, SLUMPING AND EROSION AT EDGES, ESPECIALLY DOWN-STREAM OR DOWN-SLOPE.

SILT FENCE

APPROACH: POOL AREA FLAT (LESS THAN 1% SLOPE), WITH SEDIMENT STORAGE OF 945 CU.FT./ACRE DISTURBED.

MATERIALS: ECONOMY BLUE STRIPE SILT FENCE WITH POSTS, MANUFACTURED BY MIDWEST CONSTRUCTION PRODUCTS AT (800) 532-2381 OR APPROVED EQUAL.

ANCHORING: 2 INCH BY 2 INCH HARDWOOD STAKES WITH A LENGTH EQUAL TO THE HEIGHT OF THE SILT FENCE PLUS 1 FOOT.

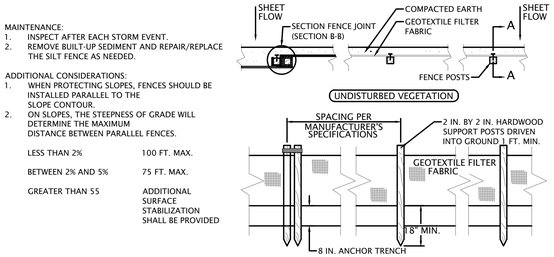
INSTALLATION:

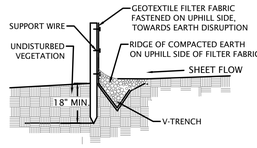
1. DRIVE STAKES 1 FT. (MINIMUM) INTO GROUND AND ATTACH FABRIC TO STAKES WITH STAPLER.
2. BOTTOM OF FABRIC SHALL BE PLACED UNDER 6 INCHES COMPACTED SOIL TO PREVENT SEDIMENT FLOW UNDERNEATH THE FENCE.
3. ENSURE THAT ALL SUPPORTING POSTS ARE ON THE DOWN SLOPE SIDE OF THE FENCING.

MAINTENANCE:
1. INSPECT AFTER EACH STORM EVENT.
2. REMOVE BUILT-UP SEDIMENT AND REPAIR/REPLACE THE SILT FENCE AS NEEDED.

ADDITIONAL CONSIDERATIONS:
1. WHEN PROTECTING SLOPES, FENCES SHOULD BE INSTALLED PARALLEL TO THE SLOPE CONTOUR.
2. ON SLOPES, THE STEEPNESS OF GRADE WILL DETERMINE THE MAXIMUM DISTANCE BETWEEN PARALLEL FENCES.

LESS THAN 2%	100 FT. MAX.
BETWEEN 2% AND 5%	75 FT. MAX.
GREATER THAN 55	ADDITIONAL SURFACE STABILIZATION SHALL BE PROVIDED





SECTION A-A

SECTION B-B

(NOT TO SCALE)

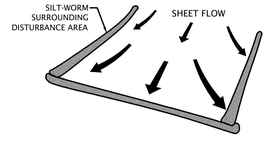
SILT-WORM

MATERIAL: SILT-WORM OR APPROVED EQUAL

DIAMETER: 9 INCHES MINIMUM

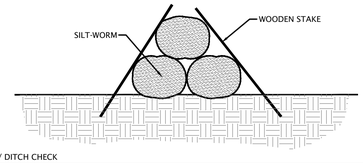
PERIMETER CONTROL

INSTALLATION:
1. PLACE SILT-WORM DIRECLY ON TOP OF GRADE FOR GRADES UNDER 12%.
2. ARRANGE PERIMETER CONTROL IN A MANNER THAT IS APPLIED PERPENDICULAR TO SHEET FLOW.
3. OVERLAP CONTIGUOUS SECTIONS OF SILT WORM AT A MINIMUM OF 6 INCHES.



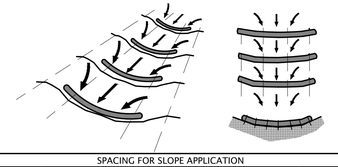
STACKING

INSTALLATION:
1. PLACE SILT-WORM DIRECTLY ON TOP OF GRADE FOR GRADES UNDER 12%.
2. STACK SILT-WORM IN A STAGGERED MANNER, AS SHOWN BELOW.
3. OVERLAP CONTIGUOUS SECTIONS OF SILT-WORM AT A MINIMUM OF 6 INCHES.



SLOPE INTERRUPTION / DITCH CHECK

INSTALLATION:
1. PLACE SILT-WORM PERPENDICULAR TO SHEET FLOW AND CURL ENDS UP TOWARD TOP OF SLOPE.
2. STAKE THE SILT-WORM EVERY 4 FEET AND OVERLAP THE ENDS BETWEEN 1 AND 2 FEET.
3. PLACE A LINE OF DEFENSE AT THE TOP OF THE SLOPE AND ANOTHER WITHIN 10 FEET FROM TOE OF SLOPE.



SPACING FOR SLOPE APPLICATION				
SLOPE	9-inch	12-inch	18-inch	24-inch
2% or less	70 ft.	80 ft.	N/A	N/A
5%	30 ft.	60 ft.	80 ft.	N/A
10%	20 ft.	30 ft.	70 ft.	80 ft.
6:1	N/A	20 ft.	40 ft.	55 ft.
4:1	N/A	20 ft.	30 ft.	30 ft.
3:1	N/A	N/A	20 ft.	25 ft.
2:1	N/A	N/A	20 ft.	20 ft.

SILT-WORM MAINTENANCE GUIDELINES

- INSPECT WITHIN 24 HOURS OF A RAIN EVENT AND AT LEAST ONCE EVERY 7 CALENDAR DAYS.
- IF SILT-WORM TEARS, STARTS TO DECOMPOSE, OR IN ANY WAY BECOMES INEFFECTIVE, REPLACE THE AFFECTED PORTION IMMEDIATELY. NOTE: ALL REPAIRS SHOULD MEET SPECIFICATIONS AS OUTLINED WITHIN THIS MEASURE.
- REMOVE DEPOSITED SEDIMENT WHEN IT IS CAUSING THE SILT-WORM TO BULGE OR WHEN IT REACHES ONE-HALF THE HEIGHT OF THE SILT-WORM AT ITS LOWEST POINT. WHEN CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED, REMOVE THE SILT-WORM AND SEDIMENT DEPOSITS, GRADE THE SITE TO BLEND WITH THE SURROUNDING AREA, AND STABILIZE.

DVG TEAM INC
1155 Troutwine Road
Crown Point, IN 46307
P: (219) 662-7710
F: (219) 662-2740
www.dvgteam.com

RUSSELL JACOB PATEN
REGISTERED
NO. PE10910667
STATE OF INDIANA
PROFESSIONAL ENGINEER

10/12/2023

REGION CONTRACTORS, LLC
912 W. AVE H, SUITE 2
GRIFFITH, IN 46319

DATE:	REVISIONS AND NOTES:

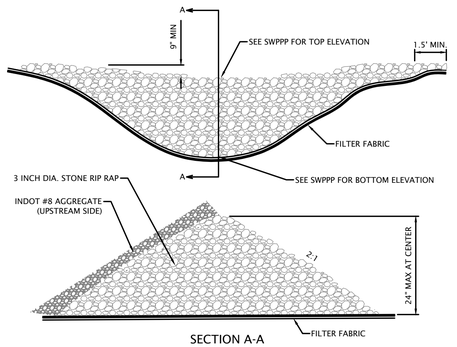
NOT FOR CONSTRUCTION

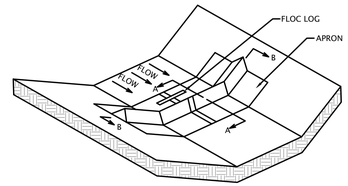
OSNI MEDICAL OFFICE BLDG
Stormwater Pollution
Prevention Plan Details

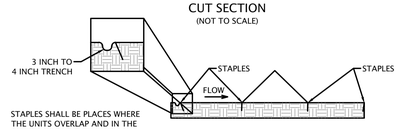
NO SCALE

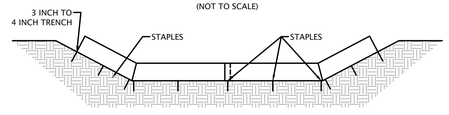
DESIGN BY	DATE
DVG	10/12/23
PROJECT NO.	
23-0031	

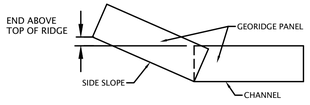
C302

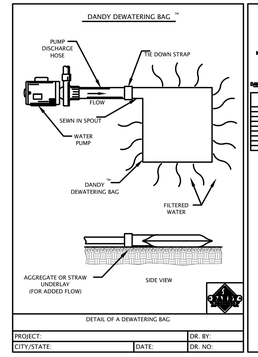












EROSION CONTROL MEASURES (continued)

MULCHING

MATERIAL: STRAW, HAY, WOOD FIBER, CELLULOSE
OR EXCELSIOR
OR EROSION CONTROL BLANKETS
OR TURF REINFORCEMENT MATS, AS SPECIFIED IN THE EROSION AND SEDIMENT CONTROL PLAN

COVERAGE: AT LEAST 75% OF THE SOIL SURFACE

ANCHORING: REQUIRED FOR STRAW OR HAY MULCH AND SOMETIMES EXCELSIOR TO PREVENT DISPLACEMENT BY WIND AND/OR WATER

MATERIAL	RATE	COMMENTS
STRAW OR HAY	1.5 TO 2 TONS/ACRE	SHOULD BE DRY, UNCHOPPED, FREE OF UNDESIRABLE SEEDS SPREAD BY HAND OR ANCHORED MUST BE CRIMPED OR ANCHORED
WOOD FIBER OF CELLULOSE	1 TON/ACRE	APPLY WITH A HYDROMULCHER AND USE WITH TACKING AGENT
LONG FIBER WOOD (EXCELSIOR)	0.5 TO 0.75 TON/ACRE	ANCHOR IN AREAS SUBJECT TO WIND

INSTALLATION:
1. APPLY MULCH AT THE RECOMMENDED RATE.
2. SPREAD UNIFORMLY BY HAND, HAY FORK, MULCH BLOWER OR HYDROMULCHER. AFTER SPREADING, NO MORE THAN 25% OF THE GROUND SURFACE SHOULD BE VISIBLE.
3. IF STRAW OR HAY IS USED, ANCHOR IT IMMEDIATELY IN ONE OF THE FOLLOWING WAYS:

MAINTENANCE:
1. DURING VEGETATIVE ESTABLISHMENT, INSPECT AFTER STORM EVENTS FOR ANY EROSION.
2. IF ANY AREA SHOWS EROSION, REPAIR THE GRADE AND RE-APPLY "SILT STOP" POWDER AND RE-LAY AND STAPLE THE BLANKET.
3. AFTER VEGETATIVE ESTABLISHMENT, CHECK THE TREATED AREA PERIODICALLY.

ANCHORING METHOD	HOW TO APPLY
MULCH ANCHORING TOOL OR FARM DISK (DULL, SERRATED AND SET STRAIGHT)	CRIMP OR PUNCH THE STRAW OR HAY INTO THE SOIL 2 TO 4 INCHES. OPERATE MACHINERY ON THE CONTOUR OF SLOPE.
CLEATING WITH DOZER TRACKS	OPERATE DOZER UP AND DOWN SLOPE, NOT ACROSS OR ELSE THE TRACKS WILL FORM RILLS.
WOOD HYDROMULCH FIBERS	APPLY 1 TO 2 TONS/ACRE USING A HYDROMULCHER AT A RATE OF 750 LBS./ACRE WITH A TACKING AGENT (OR ACCORDING TO CONTRACTOR SPECIFICATIONS). DO NOT USE IN AREAS OF CONCENTRATED FLOW.
ASPHALT EMULSION	EMULSIFIED ASPHALT SHOULD CONFORM TO THE REQUIREMENTS OF ASTEM SPEC. #977. APPLY WITH SUITABLE EQUIPMENT AT A RATE OF 0.05 GAL/SY. DO NOT USE IN AREAS OF CONCENTRATED FLOW.
SYNTHETIC TACKIFIER, BINDER OR SOIL STABILIZER	APPLY ACCORDING TO MANUFACTURER'S RECOMMENDATIONS
BIODEGRADABLE NETTING (POLYPROPYLENE OR SIMILAR MATERIAL)*	APPLY OVER MULCH AND STAPLE WITH 6 TO 8 INCH WIRE STAPLES. FOLLOW MANUFACTURER'S RECOMMENDATIONS FOR INSTALLATION. BEST SUITED TO SLOPE APPLICATION.

* INSTALL THE NETTING IMMEDIATELY AFTER APPLYING THE MULCH. IN AREAS OF CONCENTRATED WATER FLOW, LAY NETTING PARALLEL TO THE DIRECTION OF FLOW. ON OTHER SLOPES, LAY NETTING EITHER PARALLEL OR PERPENDICULAR TO DIRECTION OF FLOW. EDGES OF ADJACENT NETTING STRIPS SHOULD OVERLAP 4 TO 6 INCHES WITH THE STRIP ON THE UPGRADE SIDE OF ANY LATERAL WATER FLOW ON TOP. INSTALLATION DETAILS ARE SITE SPECIFIC, SO FOLLOW THE MANUFACTURER'S DIRECTIONS.

MAINTENANCE:
1. INSPECT AFTER STORM EVENTS TO CHECK FOR MOVEMENT OF MULCH OR FOR EROSION.
2. IF WASHOUT, BREAKAGE, OR EROSION IS PRESENT, REPAIR THE SURFACE, THEN RE-SEED, RE-MULCH AND, IF APPLICABLE, INSTALL NEW NETTING.
3. CONTINUE INSPECTIONS UNTIL VEGETATION IS FIRMLY ESTABLISHED.

SOIL ROUGHENING

DESCRIPTION:
SOIL ROUGHENING IS A TEMPORARY EROSION CONTROL PRACTICE OFTEN USED IN CONJUNCTION WITH GRADING. SOIL ROUGHENING INVOLVES INCREASING THE RELIEF OF A BARE SOIL SURFACE WITH HORIZONTAL GROOVES BY EITHER STAIR-STEPPING (RUNNING PARALLEL TO THE CONTOUR OF THE LAND) OR USING CONSTRUCTION EQUIPMENT TO TRACK THE SURFACE. SLOPES THAT ARE NOT FINE GRADED AND LEFT IN A ROUGHENED CONDITION CAN ALSO REDUCE EROSION. SOIL ROUGHENING REDUCES RUNOFF VELOCITY, INCREASES INFILTRATION, REDUCES EROSION, TRAPS SEDIMENT, AND PREPARES THE SOIL FOR SEEDING AND PLANTING BY GIVING SEED AN OPPORTUNITY TO TAKE HOLD AND GROW.

APPLICABILITY:
SOIL ROUGHENING IS APPROPRIATE FOR ALL SLOPES, BUT WORKS ESPECIALLY WELL ON SLOPES GREATER THAN 3:1, ON PILES OF EXCAVATED SOIL, AND IN AREAS WITH HIGHLY ERODIBLE SOILS. THIS TECHNIQUE IS ESPECIALLY APPROPRIATE FOR SOILS THAT ARE FREQUENTLY DISTURBED, BECAUSE ROUGHENING IS RELATIVELY EASY. TO SLOW EROSION, ROUGHEN THE SOIL AS SOON AS POSSIBLE AFTER THE VEGETATION HAS BEEN REMOVED FROM THE SLOPE OR IMMEDIATELY AFTER GRADING ACTIVITIES HAVE CEASED (TEMPORARILY OR PERMANENTLY). USE THIS PRACTICE IN CONJUNCTION WITH SEEDING, PLANTING, AND TEMPORARY MULCHING TO STABILIZE AN AREA. A COMBINATION OF SURFACE ROUGHENING AND VEGETATION IS APPROPRIATE FOR STEEPER SLOPES AND SLOPES THAT WILL BE LEFT BARE FOR LONGER PERIODS OF TIME.

SITING AND DESIGN CONSIDERATIONS:
ROUGHENED SLOPE SURFACES HELP ESTABLISH VEGETATION, IMPROVE INFILTRATION, AND DECREASE RUNOFF VELOCITY. A ROUGH SOIL SURFACE ALLOWS SURFACE PONDING THAT PROTECTS LIME, FERTILIZER, AND SEED AND DECREASES EROSION POTENTIAL. GROOVES IN THE SOIL ARE COOLER AND PROVIDE MORE FAVORABLE MOISTURE CONDITIONS THAN HARD, SMOOTH SURFACES. THESE CONDITIONS PROMOTE SEED GERMINATION AND VEGETATIVE GROWTH.

AVOID EXCESSIVE SOIL COMPACTING, BECAUSE THIS INHIBITS VEGETATION GROWTH AND CAUSES HIGHER RUNOFF VELOCITY. LIMIT ROUGHENING WITH TRACKED MACHINERY TO SANDY SOILS THAT DO NOT COMPACT EASILY; ALSO, AVOID TRACKING ON HEAVY CLAY SOILS, ESPECIALLY WHEN WET. SEED ROUGHENED AREAS AS QUICKLY AS POSSIBLE, AND FOLLOW PROPER PROCEDURES.

DEPENDING ON THE TYPE OF SLOPE AND THE AVAILABLE EQUIPMENT, USE DIFFERENT METHODS FOR ROUGHENING SOIL ON A SLOPE. THESE INCLUDE STAIR-STEP GRADING, GROOVING, AND TRACKING. WHEN CHOOSING A METHOD, CONSIDER FACTORS SUCH AS SLOPE STEEPNESS, MOWING REQUIREMENTS, WHETHER THE SLOPE IS FORMED BY CUTTING OR FILLING, AND AVAILABLE EQUIPMENT. CHOOSE FROM THE FOLLOWING METHODS FOR SURFACE ROUGHENING:

- *CUT SLOPE ROUGHENING FOR AREAS THAT WILL NOT BE MOWED.* USE STAIR-STEP GRADES OR GROOVE-CUT SLOPES FOR GRADIENTS STEEPER THAN 3:1. USE STAIR-STEP GRADING ON ANY ERODIBLE MATERIAL THAT IS SOFT ENOUGH TO BE RIPPED WITH A BULLDOZER. ALSO, IT IS WELL SUITED FOR SLOPES CONSISTING OF SOFT ROCK WITH SOME SUBSOIL. MAKE THE VERTICAL CUT DISTANCE LESS THAN THE HORIZONTAL DISTANCE, AND SLOPE THE HORIZONTAL PORTION OF THE STEP SLIGHTLY TOWARD THE VERTICAL WALL. KEEP INDIVIDUAL VERTICAL CUTS LESS THAN 2 FEET DEEP IN SOFT MATERIALS AND LESS THAN 3 FEET DEEP IN ROCKY MATERIALS.
- *GROOVING*. THIS TECHNIQUE USES MACHINERY TO CREATE A SERIES OF RIDGES AND DEPRESSIONS THAT RUN ACROSS THE SLOPE ALONG THE CONTOUR. MAKE GROOVES USING ANY APPROPRIATE IMPLEMENT THAT CAN BE SAFELY OPERATED ON THE SLOPE, SUCH AS DISKS, TILLERS, SPRING HARROWS, OR THE TEETH ON A FRONT-END LOADER BUCKET. MAKE THE GROOVES LESS THAN 3 INCHES DEEP AND LESS THAN 15 INCHES APART.
- *FILL SLOPE ROUGHENING FOR AREAS THAT WILL NOT BE MOWED.* FILL SLOPES WITH A GRADIENT STEEPER THAN 3:1 SHOULD BE PLACED IN LIFTS LESS THAN 9 INCHES, AND PROPERLY COMPACT EACH LIFT. THE FACE OF THE SLOPE SHOULD CONSIST OF LOOSE, UNCOMPACTED FILL 4 TO 6 INCHES DEEP. IF NECESSARY, ROUGHEN THE FACE OF THE SLOPES BY GROOVING THE SURFACE AS DESCRIBED ABOVE. DO NOT BLADE OR SCRAPE THE FINAL SLOPE FACE.
- *CUTS, FILLS, AND GRADED AREAS THAT WILL BE MOWED.* MAKE MOWED SLOPES NO STEEPER THAN 3:1. ROUGHEN THESE AREAS WITH SHALLOW GROOVES LESS THAN 10 INCHES APART AND DEEPER THAN 1 INCH USING NORMAL TILLING, DISKING, OR HARROWING EQUIPMENT (A CULTIPACKER-SEEDER CAN ALSO BE USED). EXCESSIVE ROUGHNESS IS UNDESIRABLE WHERE MOWING IS PLANNED.
- *ROUGHENING WITH TRACKED MACHINERY*. TO AVOID UNDUE COMPACTION OF THE SOIL SURFACE, LIMIT ROUGHENING WITH TRACKED MACHINERY ONLY TO SANDY SOILS. OPERATE TRACKED MACHINERY PERPENDICULARLY TO THE SLOPE TO LEAVE HORIZONTAL DEPRESSIONS IN THE SOIL. TRACKING IS GENERALLY NOT AS EFFECTIVE AS OTHER ROUGHENING METHODS.

LIMITATIONS:
SOIL ROUGHENING IS NOT APPROPRIATE FOR ROCKY SLOPES. TRACKED MACHINERY CAN EXCESSIVELY COMPACT THE SOIL. TYPICALLY, SOIL ROUGHENING IS EFFECTIVE ONLY FOR GENTLE OR SHALLOW DEPTH RAINS. IF ROUGHENING IS WASHED AWAY IN A HEAVY STORM, RE-ROUGHEN THE SURFACE AND RESEED.

MAINTENANCE CONSIDERATIONS:
INSPECT ROUGHENED AREAS AFTER STORMS TO SEE IF RE-ROUGHENING IS NEEDED. REGULAR INSPECTION SHOULD INDICATE WHERE ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES ARE NEEDED. IF RILLS (SMALL WATERCOURSES THAT HAVE STEEP SIDES AND ARE USUALLY ONLY A FEW INCHES DEEP) APPEAR, FILL, REGRADE, AND RESEED THEM IMMEDIATELY. USE PROPER METHODS.

EFFECTIVENESS:
SOIL ROUGHENING PROVIDES MODERATE EROSION PROTECTION FOR BARE SOILS WHILE VEGETATIVE COVER IS BEING ESTABLISHED. IT IS INEXPENSIVE AND SIMPLE FOR SHORT-TERM EROSION CONTROL WHEN USED WITH OTHER EROSION AND SEDIMENT CONTROLS.

TOPSOIL (SALVAGE AND UTILIZATION)

SALVAGING AND STOCKPILING:
1. DETERMINE DEPTH AND SUITABILITY OF TOPSOIL AT THE SITE.
2. PRIOR TO STRIPPING TOPSOIL, INSTALL ANY SITE-SPECIFIC DOWNSLOPE PRACTICES NEEDED TO CONTROL RUNOFF AND SEDIMENTATION.
3. REMOVE THE SOIL MATERIAL NO DEEPER THAN WHAT THE COUNTY SOIL SURVEY DESCRIBES AS "SURFACE SOIL" (i.e., A OR AP HORIZON).
4. STOCKPILE THE MATERIAL IN ACCESSIBLE LOCATIONS THAT NEITHER INTERFERE WITH OTHER CONSTRUCTION ACTIVITIES NOR BLOCK NATURAL DRAINAGE; AND INSTALL SILT FENCES, STRAW BALES, OR OTHER BARRIERS TO TRAP SEDIMENT. (SEVERAL SMALLER PILES AROUND THE CONSTRUCTION SITE ARE USUALLY MORE EFFICIENT AND EASIER TO CONTAIN THAN ONE LARGE PILE.)
5. IF SOIL IS STOCKPILED FOR MORE THAN 6 MOS., IT SHOULD BE TEMPORARILY SEEDED OR COVERED WITH A TARP OR SURROUNDED BY A SEDIMENT BARRIER.

SPREADING TOPSOIL:
1. PRIOR TO APPLYING TOPSOIL, GRADE THE SUBSOIL AND ROUGHEN THE TOP 3-4 IN. BY DISKING. THIS HELPS THE TOPSOIL BOND WITH THE SUBSOIL.
2. DO NOT APPLY TOPSOIL WHEN THE SITE IS WET, MUDDY OR FROZEN, BECAUSE IT MAKES SPREADING DIFFICULT, INHIBITS BONDING, AND CAN CAUSE COMPACTION PROBLEMS.
3. APPLY TOPSOIL EVENLY TO A DEPTH OF AT LEAST 4 IN. (8-12 IN. IF THE UNDERLYING MATERIAL IS BEDROCK, LOOSE SAND, ROCK FRAGMENTS, GRAVEL OR OTHER UNSUITABLE SOIL MATERIAL) COMPACT SLIGHTLY TO IMPROVE CONTACT WITH THE SUBSOIL.
4. AFTER SPREADING, GRADE AND STABILIZE.

MAINTENANCE:
2. INSPECT NEWLY TOPSOILED AREAS FREQUENTLY UNTIL VEGETATION IS ESTABLISHED.
3. REPAIR ERODED OR DAMAGED AREAS AND REPLANT.

TEMPORARY SEEDING

SITE PREPARATION:
1. THESE INSTALLATION PRACTICES ARE NEEDED TO CONTROL EROSION, SEDIMENTATION, AND WATER RUNOFF, SUCH AS TEMPORARY AND PERMANENT DIVERSIONS, SEDIMENT TRAPS OR BASINS, SILT FENCES, AND TRIANGULAR SILT DIKES.
2. GRADE THE SITE AS SPECIFIED IN THE CONSTRUCTION PLAN.

SEEDBED PREPARATION:
1. FERTILIZE AS REQUIRED.
2. WORK THE FERTILIZER INTO THE SOIL 2-4 IN. DEEP WITH A DISK OR RAKE OPERATED ACROSS THE SLOPE

SEEDING:
1. SELECT A SEEDING MIXTURE AND RATE FROM THE TABLE AND PLANT AT DEPTH AND ON DATES SHOWN.
2. APPLY SEED UNIFORMLY WITH A DRILL OR CULTIPACKER-SEEDER OR BY BROADCASTING, AND COVER TO THE DEPTH SHOWN.
3. IF DRILLING OR BROADCASTING, FIRM THE SEEDBED WITH A ROLLER OR CULTIPACKER.
4. MULCH SEEDED AREAS TO INCREASE SEEDING SUCCESS.
5. UPON COMPLETION OF THE ROUGH GRADING, ALL AREAS AFFECTED BY CONSTRUCTION SHALL BE TEMPORARILY SEEDED IF THEY WILL REMAIN DORMANT FOR GREATER THAN 7 DAYS. THESE AREAS SHALL BE STABILIZED WITHIN 14 DAYS OF REMAINING DORMANT AND EROSION CONTROL BLANKETS SHALL BE INSTALLED ON SIDE SLOPES AS SHOWN ON THE PLANS.

1. MAINTENANCE
2. INSPECT PERIODICALLY AFTER PLANTING TO SEE THAT VEGETATIVE STANDS ARE ADEQUATELY ESTABLISHED, RE-SEED IF NECESSARY. CHECK FOR EROSION DAMAGE AFTER STORM EVENTS AND REPAIR, RESEED AND MULCH IF NECESSARY.
3. TOP-DRESS FALL SEEDED WHEAT OR RYE SEEDING WITH 50 LBS./ACRE OF NITROGEN IN FEBRUARY OR MARCH IF NITROGEN DEFICIENCY IS APPARENT. TEMPORARY SEEDING RECOMMENDATIONS

TEMPORARY SEEDING RECOMMENDATIONS:

SEED SPECIES	RATE/ACRE	PLANTING DEPTH	OPTIMUM DATES**
WHEAT OR RYE	150 LBS.	1 TO 1.5 INCHES	SEPTEMBER 15 TO OCTOBER 30
SPRING OATS	100 LBS.	1 INCH	MARCH 1 TO APRIL 15
ANNUAL RYEGRASS	40 LBS.	0.25 INCH	MARCH 1 TO MAY 1 AUGUST 1 TO SEPTEMBER 1
GERMAN MILLET	40 LBS.	1 TO 2 INCHES	MAY 1 TO JUNE 1
SUDANGRASS	35 LBS.	1 TO 2 INCHES	MAY 1 TO JULY 30

* PERENNIAL SPECIES MAY BE USED AS A TEMPORARY COVER, ESPECIALLY IF THE AREA TO BE SEEDED WILL REMAIN IDLE FOR MORE THAN A YEAR
** SEEDING DONE OUTSIDE THE OPTIMUM DATES INCREASES THE CHANCE OF SEEDING FAILURE

PERMANENT SEEDING

PERMANENTLY SEED ALL FINAL GRADE AREAS (E.G., LANDSCAPE BERMS, DRAINAGE SWALES, EROSION CONTROL STRUCTURES, ETC.) AS EACH IS COMPLETED AND ALL AREAS WHERE ADDITIONAL WORK IS NOT SCHEDULED FOR A PERIOD OF MORE THAN A YEAR.

SITE PREPARATION:
1. THESE INSTALLATION PRACTICES ARE NEEDED TO CONTROL EROSION, SEDIMENTATION, AND WATER RUNOFF, SUCH AS TEMPORARY AND PERMANENT DIVERSIONS, SEDIMENT TRAPS OR BASINS, SILT FENCES, AND TRIANGULAR SILT DIKES.
2. GRADE THE SITE AS SPECIFIED IN THE CONSTRUCTION PLAN AND FILL IN DEPRESSIONS THAT CAN COLLECT WATER.
3. ADD TOPSOIL TO ACHIEVE NEEDED DEPTH FOR ESTABLISHMENT OF VEGETATION.

SEEDBED PREPARATION:
1. FERTILIZE AS REQUIRED.
2. TILL THE SOIL TO OBTAIN A UNIFORM SEEDBED, WORKING THE FERTILIZER INTO THE SOIL 2-4 IN. DEEP WITH A DISK OR RAKE OPERATED ACROSS THE SLOPE.

SEEDING:
OPTIMUM SEEDING DATES ARE MARCH 1-MAY 10 AND AUGUST 10-SEPTEMBER 30. PERMANENT SEEDING DONE BETWEEN MAY 10 AND AUGUST 10 MAY NEED TO BE IRRIGATED. AS AN ALTERNATIVE, USE TEMPORARY SEEDING UNTIL THE PREFERRED DATE FOR PERMANENT SEEDING.
1. SELECT A SEEDING MIXTURE AND RATE FROM THE TABLE AND PLANT AT DEPTH AND ON DATES SHOWN.
2. APPLY SEED UNIFORMLY WITH A DRILL OR CULTIPACKER-SEEDER OR BY BROADCASTING, AND COVER TO THE DEPTH SHOWN.
3. IF DRILLING OR BROADCASTING, FIRM THE SEEDBED WITH A ROLLER OR CULTIPACKER.
4. MULCH SEEDED AREAS. USE EROSION CONTROL BLANKETS ON SLOPING AREAS. IF SEEDING IS DONE WITH A HYDROSEEDER, FERTILIZER AND MULCH CAN BE APPLIED WITH THE SEED IN A SLURRY MIXTURE.

MAINTENANCE
1. INSPECT PERIODICALLY AFTER PLANTING TO SEE THAT VEGETATIVE STANDS ARE ADEQUATELY ESTABLISHED, RE-SEED IF NECESSARY.
2. CHECK FOR EROSION DAMAGE AFTER STORM EVENTS AND REPAIR, RESEED AND MULCH IF NECESSARY.

PERMANENT SEEDING RECOMMENDATIONS
THIS TABLE PROVIDES SEVERAL SEEDING OPTIONS. ADDITIONAL SEED SPECIES AND MIXTURES ARE AVAILABLE COMMERCIALLY. WHEN SELECTING A MIXTURE, CONSIDER SITE CONDITIONS, INCLUDING SOIL PROPERTIES (E.G., SOIL PH AND DRAINAGE), SLOPE ASPECT AND THE TOLERANCE OF EACH SPECIES TO SHADE AND DROUGHT.

SEED SPECIES AND MIXTURES	RATE/ACRE	OPTIMUM SOIL pH
OPEN AND DISTURBED AREAS (REMAINING IDLE FOR MORE THAN ONE YEAR)		
PERENNIAL RYEGRASS	30 TO 50 LBS.	5.6 TO 7.0
+ WHITE OR LADINO DOVER	1 TO 2 LBS.	
KENTUCKY BLUEGRASS	20 LBS.	5.5 TO 7.5
+ SMOOTH BROMEGRASS	10 LBS.	
+ SWITCHGRASS	3 LBS.	
+ TIMOTHY	4 LBS.	
+ PERENNIAL RYEGRASS	10 LBS.	
+ WHITE OR LADINO DOVER	1 TO 2 LBS.	

RUNOFF CONTROL MEASURES

RIP-RAP CHECK DAMS

SECTION A-A
(NOT TO SCALE)

MAINTENACE:
1. INSPECT AFTER EACH STORM EVENT.
2. REMOVE BUILT-UP SEDIMENT AND REPAIR/REPLACE THE CHECK DAMS AS NEEDED.

TRIANGULAR SILT FENCE DIKE - CHECK DAMS

MATERIAL: THE TRIANGULAR-SHAPED INNER MATERIAL SHALL BE URETHANE FORM. THE OUTER COVER SHALL BE A WOVEN GEOTEXTILE FABRIC PLACED AROUND THE INNER MATERIAL AND ALLOWED TO EXTEND BEYOND BOTH SIDES OF THE TRIANGLE 2 TO 3 FEET.

ANCHORING: THE DIKES SHALL BE ATTACHED TO THE GROUND WITH WIRE STAPLES. THE STAPLES SHALL BE #11 GAUGE WIRE AND BE AT LEAST 6 TO 8 INCHES LONG. STAPLES SHALL BE PLACED AS INDICATED ON THE INSTALLATION DETAIL.

INSTALLATION:
1. PLACE TRIANGULAR SILT FENCE DIKE AS REQUIRED.
2. ATTACHED DIKES TO THE GROUND WITH STAPLES AS INDICATED ON THE DETAIL.

SILT DIKE UNIT
CUT SECTION
(NOT TO SCALE)

STAPLES SHALL BE PLACES WHERE THE UNITS OVERLAP AND IN THE CENTER OF THE 7 FT. UNIT AS SHOWN ON THE DIAGRAM

SECTION A-A
(NOT TO SCALE)

POINT "1" MUST BE HIGHER THAN POINT "2" TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS

DIKE SECTION
SECTION B-B
(NOT TO SCALE)

MAINTENACE:
1. INSPECT AFTER EACH STORM EVENT.
2. REMOVE BUILT-UP SEDIMENT AND REPAIR/REPLACE THE CHECK DAMS AS NEEDED.

GEORIDGE DITCH BERM - CHECK DAMS

MATERIAL: GEORIDGE OR GEORIDGE BIO BY NILEX PRODUCTS, AN HDPE PRODUCT THAT SERVES TO DISSIPATE WATER ENERGY WITHIN A DITCH OR CHANNEL. GEORIDGE IS TO BE USED IN APPLICATIONS WHERE THE MEASURE WILL BE REMOVED AFTER THE CHANNEL IS STABILIZED. GEORIDGE BIO CAN BE USED WHEN THE MEASURE CAN BE LEFT TO DECOMPOSE IN LIEU OF BEING REMOVED.

INSTALLATION:
1. PLACE AN EROSION CONTROL BLANKET (ECB), LAID PARALLEL WITH THE CHANNEL DIRECTION, IN THE AREA WHERE THE GEORIDGE IS TO BE PLACED. ECB SHALL BE APPROPRIATE FOR THE CHANNEL SLOPE, VOLUME AND VELOCITY.
ECB SHALL BE SECURED WITH A 4" TRENCH AT THE UPSTREAM EDGE, WITH MINIMUM 6-INCH STAPLES PLACED 21-INCH O.C. ALONG THE UPSTREAM AND DOWNSTREAM EDGES.
2. PLACE GEORIDGE BERM IN THE MIDDLE OF THE ECB, PERPENDICULAR TO THE CHANNEL FLOW DIRECTION, AND ANCHOR WITH 10-INCH SPIRAL SPIKES.
A MINIMUM OF 3 ANCHORS SHALL BE USED ON THE UPSTREAM SIDE AND 2 ANCHORS ON THE DOWNSTREAM SIDE.
IF MORE THAN ONE GEORIDGE BERM PANEL IS REQUIRED TO SPAN THE CHANNEL, LINE UP THE ANCHORING HOLES FOR INSTALLATION OF THE ANCHORS.
3. WHEN PLACING THE GEORIDGE PANEL ON THE SIDE SLOPE OF THE CHANNEL, THE BOTTOM OF THE PANELS SHOULD MEET WITH THE RIDGE BEING OVERLAPPED. THIS WILL PREVENT WATER FROM PASSING THROUGH THE BERM.
ADDITIONALLY, THE OUTSIDE EDGE OF THE PANEL ON THE SIDE SLOPE SHOULD BE INSTALLED SO THAT IT IS HIGHER THAN THE TOP OF THE PANEL IN THE CHANNEL BOTTOM.

4. THE SPACING IS CALCULATED BY DIVIDING THE HEIGHT OF THE GEORIDGE BY THE GRADIENT OF THE CHANNEL SLOPE.
9-INCH / 0.0.2 GRADIENT = 450 INCHES OR 37.5 FEET

MAINTENANCE
1. INSPECT AFTER EACH STORM EVENT.
2. REMOVE BUILT-UP SEDIMENT WHEN IT REACHES HALF THE HEIGHT OF THE GEORIDGE.
3. REPAIR/REPLACE THE GEORIDGE AND THE EROSION CONTROL MAT AS NEEDED.

SEDIMENT CONTROL MEASURES

POLYMER SYSTEMS

MATERIAL: APS 700 SERIES FLOC LOG OR EQUAL

INSTALLATION:
1. THE FLOC LOG VENDOR SHALL SAMPLE THE WATER THAT IS TO BE TREATED WITH THE SYSTEM. THIS SAMPLE SHALL BE USED TO DETERMINE THE SITE-SPECIFIC POLYMER MIX THAT SHOULD BE USED.
2. IN APPLICATIONS WHERE THE OBJECTIVE OF THIS MEASURE IS TO MEET THE TOTAL SUSPENDED SOLIDS REQUIREMENTS PRIOR TO COMPLETION OF THE DETENTION POND; I.E. THE SIDE SLOPES ARE NOT FULLY STABILIZED, DEWATERING THE POND FOR FURTHER EXPANSION, ETC., THE FLOC LOG SHOULD BE INSTALLED AT THE END OF THE OUTFALL PIPE AND A TEMPORARY MATERIAL SUCH AS GEOJUTE SHOULD BE PLACED DOWNSTREAM OF THE FLOC LOG PROVIDING A SEDIMENT SETTLING AREA. (SEE PLANS FOR SPECIFIC INSTALLATION LOCATIONS)
3. IN APPLICATIONS WHERE THE OBJECTIVE OF THIS MEASURE IS TO MEET THE TOTAL SUSPENDED SOLIDS REQUIREMENTS AFTER THE DETENTION POND IS COMPLETED, THE FLOC LOG SHOULD BE INSTALLED AT THE END OF THE INLET PIPES INTO THE DETENTION POND. THIS WILL CAUSE THE SEDIMENT TO SETTLE MORE QUICKLY IN THE WET DETENTION POND, PROVIDING A CLEANER DISCHARGE. (SEE PLANS FOR SPECIFIC INSTALLATION LOCATIONS).
4 FOLLOWING THE USE OF THE FLOC LOG, THE SETTLED SEDIMENT WILL NEED TO BE REMOVED. THIS TEMPORARY SETTLING MEDIA REMOVED, OR THE DETENTION POND MIGHT NEED TO BE CLEANED IF SEDIMENT SETTLING HAS SIGNIFICANTLY REDUCED THE POND VOLUME.

MAINTENANCE:
1. INSPECT AFTER STORM EVENTS TO CHECK FOR MOVEMENT OF MULCH OR FOR EROSION.
2. IF WASHOUT, BREAKAGE, OR EROSION IS PRESENT IN THE SEDIMENT SETTLING MEDIA, REPAIR THE MEDIA.
3. BE SURE THE FLOC LOG IS SECURE ATTACHED AT THE INSTALLED LOCATION, VERIFY THAT STORM WATER IS HAVING CONTACT WITH THE FLOC LOG.

FIBER ROLLS

MATERIAL: TUBE SHAPED FIBER ROLLS FILLED WITH STRAW, FLAX, RICE, COCONUT FIBER MATERIAL, MULCH, OR COMPOSTED MATERIAL. EACH ROLL IS WRAPPED WITH UV-DEGRADABLE POLYPROPYLENE NETTING FOR LONGEVITY OR WITH 100 PERCENT BIODEGRADABLE MATERIALS LIKE BURLAP, JUTE, OR COIR.

INSTALLATION:
1. INSTALL ROLLS PARALLEL WITH THE SLOPE CONTOUR, WITH THE ENDS SLIGHTLY LOWER THAN THE MID-SECTION, TO PREVENT WATER PONDING AT THE MID-SECTION. TURN THE ENDS SLIGHTLY UPSLOPE TO PREVENT WATER FROM BYPASSING THE MEASURE.
2. EXCAVATE A TRENCH WITH A WIDTH AND DEPTH EQUAL TO ONE-FOURTH THE DIAMETER OF THE LOG.
3. WHERE APPLICABLE INSTALL THE MEASURE UPSLOPE OF A CURB OR SIDEWALK. PLACING THE MEASURE AGAINST THE CURB WILL PROVIDE ADDITIONAL STABILITY AND RESISTANCE TO SURFACE FLOW.
4. PLACE ROLLS END TO END TO FORM A CONTINUOUS BARRIER.
5. HARDWOOD STAKES SHALL BE DRIVEN THROUGH THE ROLLS, SPACED NO GREATER THAN 5' TO A DEPTH OF 18".
6. THE FIBER ROLLS SHOULD BE FASTENED TO THE HARDWOOD STAKES WITH ROPE.
7. BACKFILL THE TRENCH WITH EXCAVATED SOIL TO GROUND LEVEL ON THE DOWN-SLOPE SIDE AND 2" ABOVE GROUND LEVEL ON THE UP-SLOPE SIDE OF THE ROLL.

MAINTENANCE:
1. THE ROLLS SHOULD BE INSPECTED WEEKLY AND AFTER EACH RAINFALL EVENT. INSPECTION SHOULD INCLUDE IF THE MATERIAL'S DIAMETER IS LESS THAN SPECIFICATION AND IF THE OUTER NETTING HAS BEEN DEGRADED OR BROKEN.
2. REMOVE ACCUMULATED SEDIMENT WHEN IT REACHES ONE-QUARTER OF THE HEIGHT OF THE ROLL.
3. REPAIR ERODED AND DAMAGED AREAS.
4. IF PONDING BECOMES EXCESSIVE, ROLLS SHOULD BE REMOVED AND EITHER RECONSTRUCTED OR NEW PRODUCT INSTALLED.

SEDIMENT BASINS/DETENTION PONDS

MATERIAL: DEPRESSIONAL AREAS CONSTRUCTED AT THE OUTFALL OF PIPES, END OF CHANNELS, OR END OF SURFACE SHEET FLOW, WHICH SERVES TO SETTLE OUT THE SUSPENDED SOLIDS.

INSTALLATION:
1. AT LOCATIONS SHOWN ON THE PLANS, THE CONTRACTOR SHALL EXCAVATE A SMALL BASIN. THE BASIN SIZE SHALL BE SHOWN ON THE PLANS AND IS DETERMINED BY THE VOLUME OF WATER TRIBUTARY TO THE BASIN. THE BASIN OVERFLOW ELEVATION SHALL BE LOWER THAN THE INCOMING WATER, BY A MINIMUM OF 12 INCHES.
2. THE BASIN SHALL BE LINED WITH A GEOTEXTILE FABRIC, 9" OF 4" RIPRAP SHALL BE PLACED ALL AROUND THE INSIDE OF THE BASIN.

MAINTENANCE:
1. THE BASINS SHOULD BE INSPECTED WEEKLY AND AFTER EACH RAINFALL EVENT.
2. REPLACE AND RESTORE ANY BASIN BANK EROSION.
3. REPAIR OR REPLACE ANY DISPLACED RIPRAP.
4. RE-EXCAVATE AND REPLACE THE BASIN WHEN IT BECOMES MORE THAN 50% FULL OF SEDIMENT.

DEWATERING BAGS

MATERIAL: "DANDY" DE-WATERING BAG OR "PUMP-IT" DE-WATERING BAG

INSTALLATION:
1. INSTALL AT LOCATION OF THE DEWATERING PUMP OUTFALL.
2. SIZE THE BAG T THE DISCHARGE RATE. THE MAXIMUM BAG SIZE MAY LIMIT THE DISCHARGE RATE OF THE PUMP.
3. CONNECT BAG TO PUMP OUTFALL PER MANUFACTURER'S INSTRUCTIONS.
4. INSTALL BAG UPSTREAM OF THE RECEIVING STRUCTURE LOCATION.
5. OUTLET TO GRASS AREA IF POSSIBLE

MAINTENANCE:
1. THE BASINS SHOULD BE INSPECTED PRIOR TO EACH USE.
2. REPLACE BAG WHEN IT IS HALF FULL.

DETAIL OF A DEWATERING BAG

PROJECT:		DR. BY:
CITY/STATE:	DATE:	DR. NO:

DANDY DEWATERING BAG™
SPECIFICATIONS

NOTE: THE DANDY DEWATERING BAG™ WILL BE MANUFACTURED IN THE U.S.A. FROM A NONWOVEN POLYPROPYLENE FABRIC THAT MEETS OR EXCEEDS THE FOLLOWING SPECIFICATIONS:

DANDY DEWATERING BAG™

Mechanical Properties	Test Method	Units	MARV
Grab Tensile Strength	ASTM D 4632	kN (lbs)	0.9 (205) x 0.9 (205)
Grab Tensile Elongation	ASTM D 4632	%	50 x 50
Puncture Strength	ASTM D 4833	kN (lbs)	0.58 (130)
Mullen Burst Strength	ASTM D 3786	kPa (psi)	2618 (380)
Trapezoid Tear Strength	ASTM D 4533	kN (lbs)	0.36 (80) X 0.36 (80)
UV Resistence	ASTM D 4355	%	70
Apparent Opening Size	ASTM D 4751	Mm (US Std Sieve)	0.180 (80)
Flow Rate	ASTM D 4491	1/min/m (gal/min/ft) 2	3866 (95)
Permittivity	ASTM D 4491	Sec-1	1.2

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PE10910667
10/12/2023

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912 W. AVE H, SUITE 2
GRIFFITH, IN 46319

DATE: REVISIONS AND NOTES:

OSNI MEDICAL OFFICE BLDG
Stormwater Pollution
Prevention Plan Details

NOT FOR CONSTRUCTION

NO SCALE

DESIGN BY: DVG
DATE: 10/12/23
PROJECT NO. 23-0031

C303

SEDIMENT CONTROL MEASURES (continued)

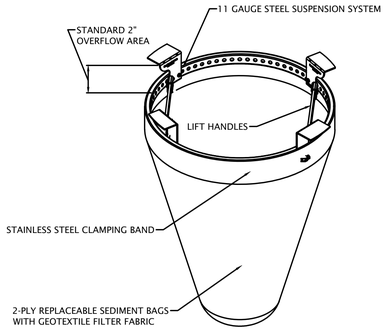
INLET PROTECTION

MATERIAL: FLEXSTORM CATCH-IT BY ADS, INC. OR APPROVED EQUAL.
ADS CAN BE CONTACTED AT (866) 287-8655

CAPACITY:

SPECIFICATIONS FOR STANDARD BAGS BY NOMINAL SIZE			
Nominal Bag Size	Solids Storage (CuFt)	Filtered Flow Rate at 50% Max (CFS) FX (Woven)	IL (NonWoven)
Small	1.6	1.2	0.9
Medium	2.1	1.7	1.3
Large	3.8	2.7	1.9
XL	4.2	3.6	2.6

INSTALLATION:
1. REMOVE GRATE; INSTALL PRIOR TO LAND DISTURBING ACTIVITIES AND/OR IMMEDIATELY AFTER DRAINAGE STRUCTURES HAVE BEEN INSTALLED
2. DROP INLET PROTECTION ONTO LOAD BEARING LIP OF CASTING OR CONCRETE STRUCTURE.
3. REPLACE GRATE.



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INLET PROTECTION - CURB BASKET

CONTRIBUTING DRAINAGE AREA: 0.25 ACRE MAXIMUM

LOCATION: AT CURB INLETS WHERE BARRIERS SURROUNDING THEM WOULD BE IMPRACTICAL OR UNSAFE

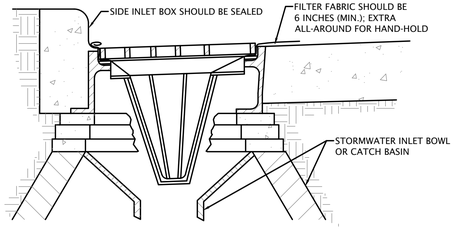
MATERIAL: D2 CATCH-ALL INLET PROTECTOR OR APPROVED EQUAL
D2 LAND & WATER RESOURCE (WWW.D2LWR.COM OR 800-597-2180)

CAPACITY: RUNOFF FROM A 2-YEAR FREQUENCY, 24-HOUR DURATION STORM EVENT ENTERING A STORM DRAIN WITHOUT BYPASS FLOW

BASKET: FABRICATED METAL WITH TOP WDITH/LENGTH DIMENSIONS SUCH THAT THE BASKET FITS INTO THE INLET WITHOUT GAPS

GEOTEXTILE FABRIC: FOR FILTRATION

INSTALLATION:
1. INSTALL BASKET CURB INLET PROTECTIONS AS SOON AS INLET BOXES ARE INSTALLED IN THE NEW DEVELOPMENT OR BEFORE LAND-DISTURBING ACTIVITIES BEGIN IN A STABILIZED AREA.
2. IF NECESSARY, ADAPT BASKET DIMENSIONS TO FIT INLET BOX DIMENSIONS, WHICH VARY ACCORDING TO THE MANUFACTURER AND/OR MODEL.
3. SEAL THE SIDE INLETS ON THOSE TYPES OF INLET BOXES THAT HAVE THEM.
4. REMOVE THE GRATE AND PLACE THE BASKET IN THE INLET.
5. CUT AND INSTALL A PIECE OF FILTER FABRIC LARGE ENOUGH TO LINE THE INSDE OF THE BASKET AND EXTEND AT LEAST 6 INCHES BEYOND THE FRAM.
6. REPLACE THE INLET GRATE, WHICH ALSO SERVES TO ANCHOR THE FABRIC.



(NOT TO SCALE)

MAINTENANCE:
1. INSPECT AFTER EACH STORM EVENT.
2. REMOVE BUILT-UP SEDIMENT AND REPAIR (OR REPLACE IF NECESSARY) THE GEOTEXTILE FABRIC AFTER EACH STORM EVENT.
3. PERIODICALLY REMOVE SEDIMENT AND TRACKED-ON SOIL FROM THE STREET (BUT NOT BY FLUSHING WITH WATER) TO REDUCE THE SEDIMENT LOAD ON THIS CURB INLET PRACTICE.

COMMON CONCERNS:
1. SEDIMENT NOT REMOVED AND GEOTEXTILE FABRIC NOT REPLACED FOLLWING A STORM EVENT RESULTS IN INCREASED SEDIMENT, TRACKING, TRAFFIC HAZARD, AND EXCESSIVE PONDING.
2. GEOTEXTILE FABRICE PERMITTIVITY THAT IS TOO LOW RESULTS IN RAPID CLOGGING AND CAUSES SEVERE PONDING WITH SEDIMENT ENTERING THE DRAIN IF THE FABRIC BREAKS.
3. DRAINAGE AREA TOO LARGE RESULTS IN SEDIMENT OVERLAOD AND SEVERE PONDING; SEDIMENT ENTERS THE DRAIN IF FABRIC BREAKS.

TEMPORARY CONSTRUCTION ENTRANCE/EXIT PAD

MATERIAL: 2 TO 3 INCHES OF WASHED STONE (INDOT #2 AGGREGATE) OVER A STABLE FOUNDATION

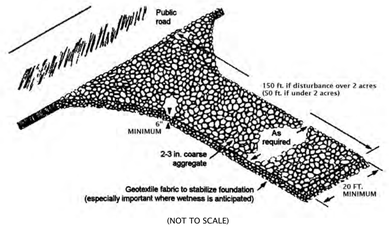
THICKNESS: 8 INCHES MINIMUM

WIDTH: 20 FEET MINIMUM OR FULL WIDTH OF ENTRANCE/EXIT ROADWAY, WHICHEVER IS GREATER

LENGTH: 150 FEET MINIMUM (50 FEET MINIMUM IF SITE DISTURBANCE IS UNDER 2.0 ACRES)

WASHING FACILITY: LEVEL AREA WITH 3 INCHES OF WASHED STONE (MINIMUM) OR A COMMERCIAL RACK AND WASTE WATER DIVERTED TO A SEDIMENT TRAP OR BASIN (PRACTICE 3.72)

GEOTEXTILE FABRIC UNDERLINER: MAY BE USED UNDER WET CONDITIONS OR FOR SOILS WITHIN A HIGH SEASONAL WATER TABLE TO PROVIDE GREATER BEARING STRENGTH



(NOT TO SCALE)

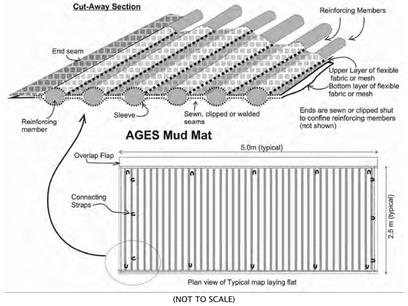
INSTALLATION:
1. AVOID LOCATING ON STEEP SLOPES OR AT CURVES IN PUBLIC ROADS.
2. REMOVE ALL VEGETATION AND OTHER OBJECTIONABLE MATERIAL FROM THE FOUNDATION AREA, AND GRADE AND CROWN FOR POSITIVE DRAINAGE.
3. IF SLOPE TOWARDS THE ROAD EXCEEDS 2%, CONSTRUCT A 6-8 IN. HIGH WATER BAR (RIDGE) WITH 3:1 SIDE SLOPES ACROSS THE FOUNDATION AREA ABOUT 15 FT. FROM THE ENTRANCE TO DIVERT RUNOFF AWAY FROM THE ROAD (PRACTICE 3.24) SEE EXHIBIT.
4. INSTALL PIPE UNDER THE PAD IF NEEDED TO MAINTAIN PROPER PUBLIC ROAD DRAINAGE.
5. IF WET CONDITIONS ARE ANTICIPATED, PLACE GEOTEXTILE FABRIC ON THE GRADED FOUNDATION TO IMPROVE STABILITY.
6. PLACE STONE TO DIMENSIONS AND GRADE SHOWN IN THE EROSION/SEDIMENT CONTROL PLAN, LEAVING THE SURFACE SMOOTH AND SLOPED FOR DRAINAGE.
7. DIVERT ALL SURFACE RUNOFF AND DRAINAGE FROM THE STONE PAD TO A SEDIMENT TRAP OR BASIN.

(NOT TO SCALE)

MAINTENANCE:
1. INSPECT ENTRANCE PAD AND SEDIMENT DISPOSAL AREA WEEKLY AND AFTER STORM EVENTS OR HEAVY USE.
2. RESHAPE PAD AS NEEDED FOR DRAINAGE AND RUNOFF CONTROL.
3. TOP-DRESS WITH CLEAN STONE AS NEEDED.
4. IMMEDIATELY REMOVE MUD AND SEDIMENT TRACKED OR WASHED ONTO PUBLIC ROADS BY BRUSHING OR SWEEPING. FLUSHING SHOULD ONLY BE USED IF THE WATER IS CONVEYED INTO A SEDIMENT TRAP OR BASIN.
5. REPAIR ANY BROKEN ROAD PAVEMENT IMMEDIATELY.

MUD MATS - ENTRANCE STABILIZATION

MATERIAL: MUD MAT BY AGES, RE-USABLE SOIL STABILIZATION SYSTEM OR APPROVED EQUAL



(NOT TO SCALE)

INSTALLATION:
1. AVOID LOCATING ON STEEP SLOPES OR AT CURVES IN PUBLIC ROADS.
2. REMOVE ALL VEGETATION AND OTHER OBJECTIONABLE MATERIAL FROM THE FOUNDATION AREA, AND GRADE AND CROWN FOR POSITIVE DRAINAGE.
3. INSTALL PER MANUFACTURER'S RECOMMENDATIONS. UNROLL, CONNECT MATS TOGETHER TO FORM AREA OF PROTECTION AND PROPERLY ANCHOR TO GROUND.
4. DIVERT ALL SURFACE RUNOFF AND DRAINAGE FROM THE MUD MAT TO A SEDIMENT TRAP OR BASIN.
5. MINIMUM SIZE OF THE MAT IS 12 FEET WIDE AND 50 FEET LONG.

MAINTENANCE:
1. INSPECT ENTRANCE PAD DAILY AND REMOVE BUILT-UP DEBRIS AS NECESSARY.
2. INSPECT ENTRANCE PAD FOR BREAKS AND TEARS IN THE MATERIAL. REPAIR OR REPLACE AS NECESSARY.
3. IMMEDIATELY REMOVE MUD AND SEDIMENT TRACKED OR WASHED ONTO PUBLIC ROADS BY BRUSHING OR SWEEPING. FLUSHING SHOULD ONLY BE USED IF THE WATER IS CONVEYED INTO A SEDIMENT TRAP OR BASIN.
4. REPAIR ANY BROKEN ROAD PAVEMENT IMMEDIATELY.

MATERIAL MANAGEMENT MEASURES (HOUSEKEEPING)

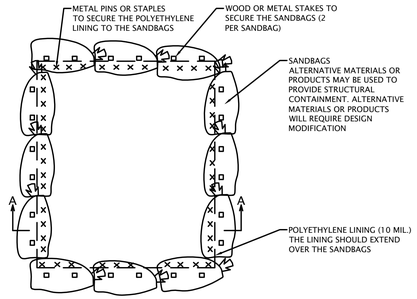
CONCRETE WASHOUT

MATERIALS: MINIMUM OF TEN MIL POLYETHYLENE SHEETING, FREE OF HOLES, TEARS, AND OTHER DEFECTS
ORANGE SAFETY FENCING OR EQUIVALENT
SANDBAGS
METAL PINS OR STAPLES SIX INCHES IN LENGTH MINIMUM.

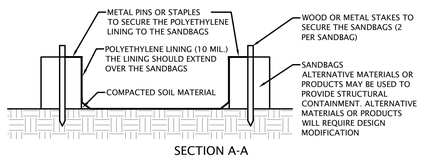
LOCATION:
1. LOCATE CONCRETE WASHOUT SYSTEMS AT LEAST 50 FEET FROM ANY CREEKS, WETLANDS, DITCHES, KARST FEATURES, OR STORM DRAINS/MANMADE CONVEYANCE SYSTEMS.
2. LOCATE CONCRETE WASHOUT SYSTEMS IN RELATIVELY FLAT AREAS THAT HAVE ESTABLISHED VEGETATIVE COVER AND DO NOT RECEIVE RUNOFF FROM ADJACENT LAND AREAS.
3. LOCATE AWAY FROM OTHER CONSTRUCTION TRAFFIC IN AREAS THAT PROVIDE EASY ACCESS FOR CONCRETE TRUCKS.

INSTALLATION:
1. A BASE SHALL BE CONSTRUCTED AND PREPARED THAT IS FREE OF ROCKS AND OTHER DEBRIS THAT MAY CAUSE TEARS OR PUNCTURES IN THE POLYETHYLENE LINING.
2. INSTALL THE POLYETHYLENE LINING. FOR EXCAVATED SYSTEMS, THE LINING SHOULD EXTEND OVER THE ENTIRE EXCAVATION. THE LINING FOR BERMED SYSTEMS SHOULD BE INSTALLED OVER THE POOLING AREA WITH ENOUGH MATERIAL TO EXTEND THE LINING OVER THE BERM OR CONTAINMENT SYSTEM. THE LINING SHOULD BE SECURED WITH PINS, STAPLES, OR OTHER FASTENERS.
3. PLACE FLAGS, SAFETY FENCING, OR EQUIVALENT TO PROVIDE A BARRIER TO CONSTRUCTION EQUIPMENT AND OTHER TRAFFIC.
INSTALL SIGNAGE THAT IDENTIFIES CONCRETE WASHOUT AREAS.
4. WHERE NECESSARY, PROVIDE STABLE INGRESS AND EGRESS OR ALTERNATIVE APPROACH PAD.

MAINTENANCE:
1. INSPECT DAILY AND AFTER EACH STORM EVENT.
2. INSPECT THE SYSTEM FOR LEAKS, SPILLS, AND TRACKING OF SOIL BY EQUIPMENT.
3. INSPECT THE POLYETHYLENE LINING FOR FAILURE, INCLUDING TEARS AND PUNCTURES.
4. ONCE CONCRETE WASTES HARDEN, REMOVE AND DISPOSE OF THE MATERIAL.
5. EXCESS CONCRETE SHOULD BE REMOVED WHEN THE WASHOUT SYSTEM REACHES 50 PERCENT OF THE DESIGN CAPACITY. USE OF THE SYSTEM SHOULD BE DISCONTINUED UNTIL APPROPRIATE MEASURES CAN BE INITIATED TO CLEAN THE STRUCTURE.
6. UPON REMOVAL OF THE SOLIDS, INSPECT THE STRUCTURE. REPAIR THE STRUCTURE AS NEEDED OR CONSTRUCT A NEW SYSTEM. DISPOSE OF ALL CONCRETE IN A LEGAL MANNER. REUSE THE MATERIAL ON SITE, RECYCLE, OR HAUL THE MATERIAL TO AN APPROVED CONSTRUCTION/DEMOLITION LANDFILL SITE. RECYCLING OF MATERIAL IS ENCOURAGED. THE WASTE MATERIAL CAN BE USED FOR MULTIPLE APPLICATIONS INCLUDING BUT NOT LIMITED TO ROADBEDS AND BUILDING. THE AVAILABILITY FOR RECYCLING SHOULD BE CHECKED LOCALLY.
7. THE PLASTIC LINER SHOULD BE REPLACED AFTER EVERY CLEANING; THE REMOVAL OF MATERIAL WILL USUALLY DAMAGE THE LINING. THE CONCRETE WASHOUT SYSTEM SHOULD BE REPAIRED OR ENLARGED AS NECESSARY TO MAINTAIN CAPACITY FOR CONCRETE WASTE.
8. CONCRETE WASHOUT SYSTEMS ARE DESIGNED TO PROMOTE EVAPORATION. HOWEVER, IF THE LIQUIDS DO NOT EVAPORATE AND THE SYSTEM IS NEAR CAPACITY IT MAY BE NECESSARY TO VACUUM OR REMOVE THE LIQUIDS AND DISPOSE OF THEM IN AN ACCEPTABLE METHOD. DISPOSAL MAY BE ALLOWED AT THE LOCAL SANITARY SEWER AUTHORITY PROVIDED THEIR NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMITS ALLOW FOR ACCEPTANCE OF THIS MATERIAL. ANOTHER OPTION WOULD BE TO UTILIZE A SECONDARY CONTAINMENT SYSTEM OR BASIN FOR FURTHER DEWATERING.
9. INSPECT CONSTRUCTION ACTIVITIES ON A REGULAR BASIS TO ENSURE SUPPLIERS, CONTRACTORS, AND OTHERS ARE UTILIZING DESIGNATED WASHOUT AREAS. IF CONCRETE WASTE IS BEING DISPOSED OF IMPROPERLY, IDENTIFY THE VIOLATORS AND TAKE APPROPRIATE ACTION.
10. WHEN CONCRETE WASHOUT SYSTEMS ARE NO LONGER REQUIRED, THE CONCRETE WASHOUT SYSTEMS SHALL BE CLOSED. DISPOSE OF ALL HARDENED CONCRETE AND OTHER MATERIALS USED TO CONSTRUCT THE SYSTEM.
11. HOLES, DEPRESSIONS, AND OTHER LAND DISTURBANCES ASSOCIATED WITH THE SYSTEM SHOULD BE BACKFILLED, GRADED, AND STABILIZED.



ABOVE GRADE CONCRETE WASHOUT
(NOT TO SCALE)



SECTION A-A
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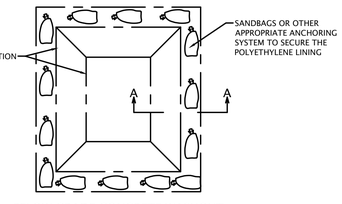

BELOW GRADE CONCRETE WASHOUT
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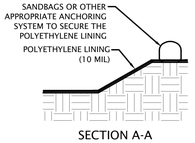


SECTION A-A
(NOT TO SCALE)

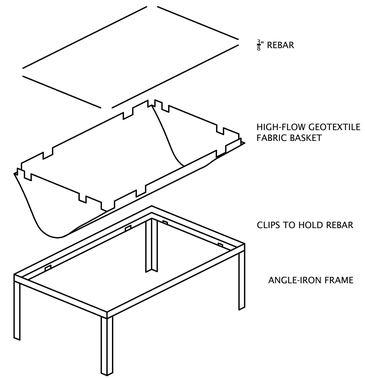
COMMON CONCERNS:
1. COMPLETE CONSTRUCTION/INSTALLATION OF THE SYSTEM AND HAVE WASHOUT LOCATIONS OPERATIONAL PRIOR TO CONCRETE DELIVERY.
2. IT IS RECOMMENDED THAT WASHOUT SYSTEMS BE RESTRICTED TO WASHING CONCRETE FROM MIXER AND PUMP TRUCKS AND NOT USED TO DISPOSE OF EXCESS CONCRETE OR RESIDUAL LOADS DUE TO POTENTIAL TO EXCEED THE DESIGN CAPACITY OF THE WASHOUT SYSTEM.
3. INSTALL SYSTEMS AT STRATEGIC LOCATIONS THAT ARE CONVENIENT AND IN CLOSE PROXIMITY TO WORK AREAS AND IN SUFFICIENT NUMBER TO ACCOMMODATE THE DEMAND FOR DISPOSAL.
4. INSTALL SIGNAGE IDENTIFYING THE LOCATION OF CONCRETE WASHOUT SYSTEMS.

FRYEFLOW FILTRATION SYSTEMS WASHOUT

MATERIALS: FRYE-FLOW FILTRATION SYSTEMS CONCRETE WASHOUT DEVICE OR APPROVED EQUAL

INSTALLATION:
1. INSERT REBAR INTO POCKETS OF DEBRIS BAG.
2. INSTALL FRYEFLOW SYSTEMS DEBRIS BAG INTO ANGLE IRON FRAME.
3. MAKE SURE REBAR SETS BEHIND REBAR BRACKETS.
4. MAKE SURE FRAME AND BAG IS SET ON FLAT SURFACE
5. INSTALL SIGNAGE THAT IDENTIFIES CONCRETE WASHOUT AREAS.
6. WHERE NECESSARY, PROVIDE STABLE INGRESS AND EGRESS OR ALTERNATIVE APPROACH PAD.

MAINTENANCE:
1. ONCE DEBRIS BAG IS FULL, USE HANDLES PROVIDED TO LIFT OUT OF FRAME.
2. REMOVE REBAR FROM SIDE POCKETS.
3. INSERT NEW DEBRIS BAG.



SPILL PREVENTION AND CONTROL PLAN

1. ONLY APPROVED FUEL STORAGE TANK SHALL BE ALLOWED ON SITE.
2. SPILL KITS MUST BE LOCATED ON-SITE IN THE VICINITY OF THE FUEL STORAGE SINK.
3. MOBILE FUELING SHALL BE USED WHENEVER POSSIBLE.
4. FUELING SHOULD TAKE PLACE IN A CENTRAL LOCATION.
5. EQUIPMENT SHOULD BE KEPT IN GOOD WORKING ORDER, WELL MAINTAINED SO THAT BREAKDOWNS, AND EQUIPMENT FAILURES ARE REDUCED.

FUEL STORAGE

1. ALL FUEL TANKS ON SITE SHALL HAVE SECONDARY CONTAINMENT APPROVED BY IDEM.
2. NO FUEL TANKS ARE TO BE LOCATED WITHIN 100 FEET OF A STORM SEWER INLET.
3. FUEL STORAGE SYSTEM SHALL BE KEPT IN GOOD WORKING ORDER AND SHALL BE SUBJECT TO PERIODIC IDEM INSPECTIONS.
4. SPILL KITS MUST BE LOCATED ON-SITE IN THE VICINITY OF THE FUEL STORAGE SINK.
5. FUEL TANKS SHALL HAVE A SAFETY GAUGE.

STOCKPILES

1. THE CONTRACTOR SHALL LOCATE TOPSOIL STOCKPILES ON-SITE AS NOTED ON THE S.W.P.P.P. AND SHALL ENCOMPASS EACH WITH SEDIMENT DITCH AND SILT FENCE.
2. IN CASES WHERE THE STOCKPILE IS SMALL AND WILL BE REMOVED FROM THE SITE WITHIN 15 DAYS, THE CONTRACTOR CAN COVER THE STOCKPILE WITH A WATERPROOF TARPAULINE TYPE COVER.
3. NO OFF-SITE STOCKPILES ARE BEING PROPOSED. ANY OFF-SITE STOCKPILES THAT THE CONTRACTOR UTILIZES SHALL FOLLOW THE SAME REQUIREMENTS AS ON-SITE STOCKPILES. THE CONTRACTOR SHALL IDENTIFY TO THE LOCAL S.W.P.P.P. ENFORCEMENT AGENCY THE LOCATIONS OF ANY OFF-SITE STOCKPILES.

TEMPORARY FACILITIES

1. THE CONTRACTOR SHALL FOLLOW THE PROCEDURES DELINEATED ON THE PLAN IN ORDER TO CONSTRUCT AND MAINTAIN THE FACILITIES SHOWN ON THE DRAWINGS TO CONTROL WATER AND WIND EROSION DURING CONSTRUCTION OF THE PROJECT.
2. ALL DISTURBED SURFACE AREAS (INCLUDING UTILITY TRENCHES) SHALL BE TEMPORARILY GRADED AND/OR DITCHED TO DIRECT WATER RUNOFF FROM SUCH AREAS TO SEDIMENTATION CONTROL DEVICES WHICH WILL PREVENT DISTURBING ERODED WATER CARRYING SOIL FROM ENTERING A WATERCOURSE, SEWER, OR ADJACENT LANDS. SUCH SEDIMENTATION CONTROL DEVICES SHALL INCLUDE BUT NOT BE LIMITED TO PROTECTIVE DITCHES, SEDIMENT TRAPS, SEDIMENT FILTERS, DITCH TRAPS, PIPE BARRIERS, SIKE DIKES, CHECK DAMS, CHEMICAL SETTLING FILTERS.
3. UPON COMPLETION OF THE ROUGH GRADING ALL AREAS NOT EFFECTED BY CONSTRUCTION TRAFFIC SHALL BE PERMANENTLY SEEDED, AND EROSION CONTROL BLANKETS INSTALLED ON SIDE SLOPES THAT EXCEED 5:1.
4. UPON COMPLETION OF THE STORM SEWER SYSTEM, INLET PROTECTION SHALL BE INSTALLED, CHECK DAMS INSTALLED IN THE SWALES, AND TEMPORARY RIPRAP WITH SETTLING BASINS PLACED AT THE OUTFALLS OF ALL PIPE.
5. IN ROADWAY AREAS TEMPORARY AGGREGATE SURFACING SHALL BE PLACED IMMEDIATELY AFTER THE BACKFILLING HAS BEEN COMPLETED. POSITIVE DUST CONTROL MEASURES SHALL BE TAKEN AT ALL TIMES.
6. WITHIN 14 DAYS FROM THE DATE A PROJECT IMPROVEMENT IS INSTALLED THE CONTRACTOR SHALL PROCEED WITH FINAL CLEANUP AND RESTORATION OF THE PROJECT AREA DISTURBED INCLUDING SPOIL AREAS,AND COMPLETE SUCH OPERATIONS WITHIN THE NEXT 15 DAYS. IF SEASONAL CONDITIONS PREVENT FINAL CLEANING AND RESTORATION, THE CONTRACTOR SHALL PROCEED WITH TEMPORARY STABILIZATION OF THE DISTURBED AREAS. FINAL CLEANUP AND RESTORATION WILL CONSIST OF FINAL GRADING, APPLYING TOPSOIL, SEEDING AND MULCHING AND/OR SODDING OF ALL DISTURBED AREAS OF THE PROJECT. TEMPORARY STABILIZATION SHALL CONSIST OF ROUGH GRADING THE DISTURBED AREAS TO A CONDITION READY TO RECEIVE TOPSOIL, SEEDING, AND MULCHING IN ACCORDANCE WITH THE TEMPORARY SEEDING SCHEDULE. TEMPORARY STABILIZATION MATERIALS SHALL BE REMOVED, DISPOSED OF, AND FINAL CLEANUP AND RESTORATION SHALL BE COMPLETED NOT LATER THAN 60 DAYS AFTER SEASONAL CONDITIONS ALLOW PERFORMANCE OF THE REQUIRED WORK. THE CONTRACTOR SHALL LOCATE TOPSOIL STOCKPILES ON-SITE AS NOTED ON THE S.W.P.P.P. AND SHALL ENCOMPASS EACH WITH SEDIMENT DITCH AND SILT FENCE. IN CASES WHERE THE STOCKPILE IS SMALL AND WILL BE REMOVED FROM THE SITE WITHIN 15 DAYS, THE CONTRACTOR CAN COVER THE STOCKPILE WITH A WATERPROOF TARPAULINE TYPE COVER. NO OFF-SITE STOCKPILES ARE BEING PROPOSED. ANY OFF-SITE STOCKPILES THAT THE CONTRACTOR UTILIZES SHALL FOLLOW THE SAME REQUIREMENTS AS ON-SITE STOCKPILES. THE CONTRACTOR SHALL IDENTIFY TO THE LOCAL S.W.P.P.P. ENFORCEMENT AGENCY THE LOCATIONS OF ANY OFF-SITE STOCKPILES.

MATERIAL HANDLING AND STORAGE

THE CONTRACTOR SHALL MINIMIZE THE DISTURBANCE OF EXCAVATED SOILS BY MINIMIZING THE NUMBER OF TIMES THE SOIL IS HANDLED. ON-SITE HANDLING OF SOILS WILL OCCUR DURING EXCAVATION, LOADING, AND SPREADING ACTIVITIES. FUEL FOR HEAVY EQUIPMENT AND VEHICLES WILL NOT BE STORED ON THE SITE DURING CONSTRUCTION OPERATIONS. MOBILE FUEL TANKS WILL FUEL HEAVY EQUIPMENT. IN THE EVENT OF A SPILL OR LEAK THE CONTRACTOR SHALL FOLLOW PROPER PROCEDURES TO MINIMIZE CONCERN. THE CONTRACTOR SHALL:

1. TAKE IMMEDIATE MEASURES TO CONTROL AND CONTAIN THE SPILL TO PREVENT RELEASE INTO SEWERS OR SURFACE WATERS.
2. NOTIFY THE LOCAL FIRE DEPARTMENT IMMEDIATELY AT 9-1-1.
3. NOTIFY THE FEDERAL EMERGENCY SPILL HOTLINE AT 1-800-424-8802 WITHIN 2 HOURS IF THE AMOUNT IS ABOVE A REPORTABLE
4. QUANTITY OR ANY AMOUNT ENTERS A WATERWAY OR STORM SEWER.
5. NOTIFY THE INDIANA EMERGENCY RESPONSE HOTLINE AT 1-888-233-7745.
6. FOLLOW THE GUIDELINES FOR HANDLING THE SPILL AS OUTLINED IN THE INCLUDED MATERIAL SAFETY DATA SHEETS.

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1155 Troutwine Road
Crown Point, IN 46307
P: (219) 662-7710
F: (219) 662-2740
www.dvgteam.com

RUSSELL JACOB PITZEN REGISTERED NO. PE10910667 STATE OF INDIANA PROFESSIONAL ENGINEER

10/12/2023

REGION CONTRACTORS, LLC
912 W. AVE H, SUITE 2
GRIFFITH, IN 46319

DATE:	REVISIONS AND NOTES:

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OSNI MEDICAL OFFICE BLDG
Stormwater Pollution Prevention Plan Details

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C304

OSNI Medical Office
9900 Columbia Avenue Munster, IN

Stormwater Operations & Maintenance Manual

October 10, 2023

Prepared for:
Region Contractors, LLC
912 W. Avenue H, Suite 2
Griffith, IN 46319

Prepared by:

DVG Team, Inc.
1155 Troutwine Road
Crown Point, IN 46307

Table of Contents

Exhibits

1.0 Project Description

Orthopedic Specialists of Northwest Indiana (OSNI) is proposing to develop a building addition to the existing Gate Church located at 9900 Columbia Avenue in Munster Indiana. See Exhibit 1 for the location map. The project will be built in two (2) phases. Phase one includes the demo and rebuilding of the parking lot, gutting and rebuilding the interior of the existing building, along with new utilities and appropriate detention to serve the facility. Phase two will include the expansion of the existing building, as well as additional utilities and parking to serve the expansion. This O&M serves as post construction stormwater quality measures for both Phase one and Phase two.

2.0 Post-Construction Stormwater Quality Measures

The purpose of water quality Best Management Practices (BMPs) is to filter the first flush of stormwater from a rain event before it enters downstream receiving bodies of water. Using BMPs, the sediment and pollutant load in stormwater runoff, Total Suspended Solids (TSS), is reduced. TSS removal is important for water quality and aquatic health. The use of BMPs also helps reduce hydrocarbons, trash, and debris from entering receiving bodies of water.

A proposed dry pond on the Northwest side of the site with a Hydrodynamic separator will serve as the post-construction BMP. As well as the green spaces and the interior storm sewer design within the parking lot. Attached as **Exhibit 1** is a plan view of post-construction pollution control measures, showing the location of the pond.

3.0 Owner Responsibility

The owner is responsible to perform routine inspection and maintenance, as recommended in this manual. It is recommended that the Owner have a trained staff that understands the purpose of the BMPs described in this manual or hire professional maintenance services which would be contracted to perform routine inspection and maintenance. This document shall be made available to whomever is designated to be the service provider, to offer direction regarding required maintenance of BMPs. The Town of Munster may inspect the BMPs at their discretion, should the need arise.

4.0 Inspection and Maintenance Schedule

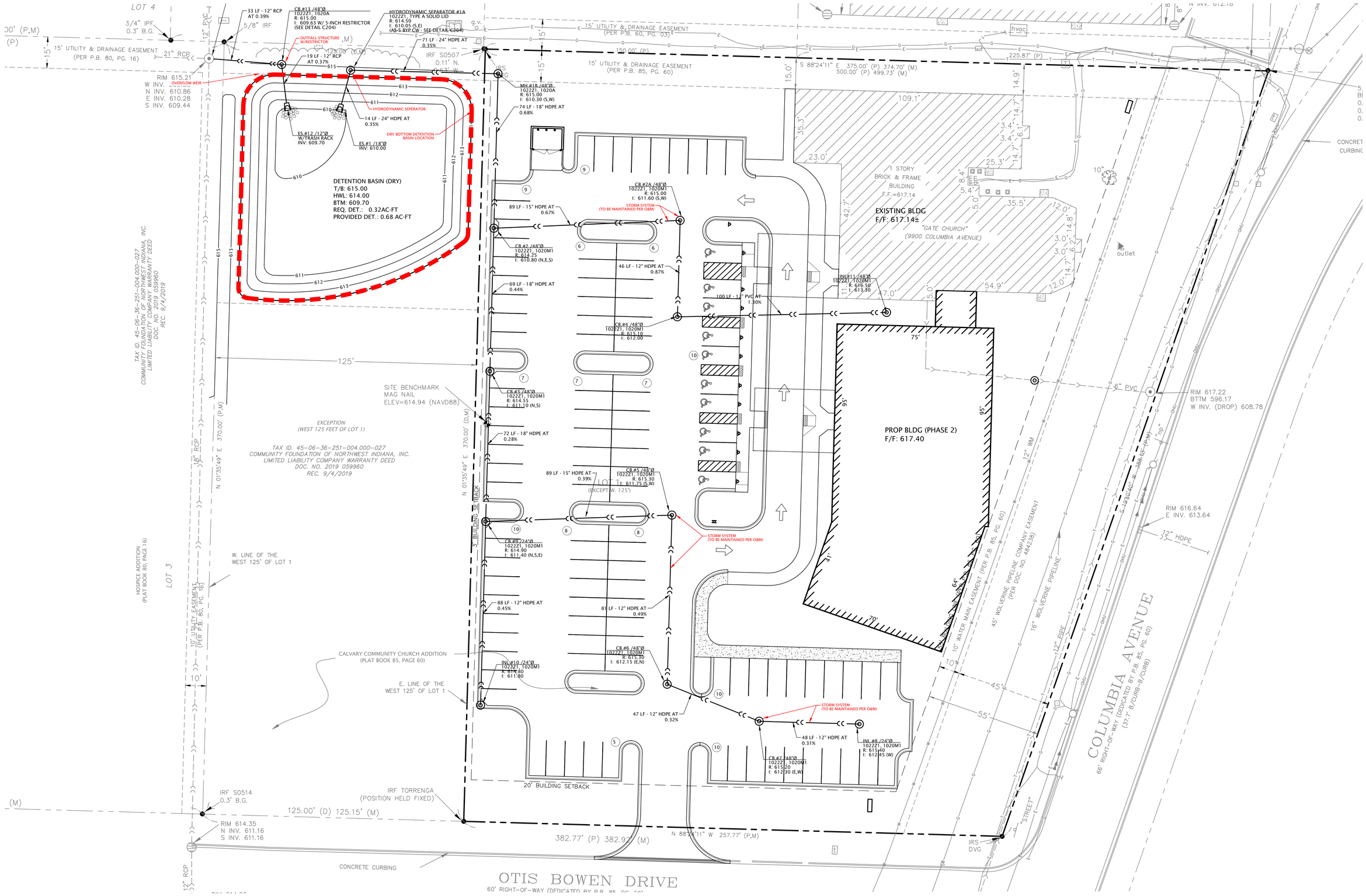
Maintenance activities need to be performed on a regular basis to ensure the BMPs are operating at full capacity and to ensure that the BMPs are not becoming overburdened with sediment carried by runoff. **Exhibit 2** contains the maintenance schedule that shall be followed for this project.

The Town of Munster shall be notified of any changes in pond ownership, major repairs, or inlet filter/pond failures, in writing, within 30 days of the change. The notification letter should be addressed to:

Town of Munster
ATTN: MS-4 Coordinator
1005 Ridge Road
Munster, IN 46321

Exhibit 1

BMP Location Map



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NOT FOR CONSTRUCTION

REGION CONTRACTORS, LLC
912 W. AVE H, SUITE 2
GRIFFITH, IN 46319

DATE:	REVISIONS AND NOTES:

NOT FOR CONSTRUCTION

OSNI MEDICAL OFFICE BLDG

BMP Location Map

SCALE: 1" = 20'

DESIGN BY	DATE
RJP	10/12/23
PROJECT NO.	
23-0031	

BMP

Exhibit 2

Suggested BMP Maintenance Schedules

Detention Pond Maintenance Schedule

Activity	Schedule
• Note erosion of pond banks or bottom	Semiannual inspection
• Inspect for damage to the embankment • Monitor for sediment accumulation in the facility • Examine to ensure that inlet and outlet devices are free of debris and operational	Annual inspection
• Repair undercut or eroded areas • Mow side slopes • Minimize pesticide and fertilizer use • Remove litter and debris	Standard maintenance
• Seed or sod to restore dead or damaged ground cover	Annual maintenance (as needed)
• Outlet control Structure (Pond Restrictor Plates) See BMP location map for location	After rain event greater than 0.5", and quarterly
• Monitor sediment accumulations, and remove sediment when the pond swale volume has been reduced by 20 percent. The accumulated volume shall be determined by comparing the approved as-built topography to a current as-built topography.	25- to 50-year maintenance

Private Catch Basin Maintenance Schedule

Activity	Schedule
• Clean and Remove debris from all Catch Basins • Clean and remove any debris in inlet and outlet pipes. • Clean and remove Catch Basin Sump debris that is more than one-third full from basin bottom to lowest invert.	Quarterly

Private Storm Sewer Pipe Maintenance Schedule

Activity	Schedule
• Clean and Remove debris from all storm sewer pipes.	Quarterly

Detention Basin Operation, Maintenance, and Management Inspection Checklist

Project: _____

Location: _____

Date: _____ **Time:** _____

Inspector: _____ **Title:** _____

Signature: _____

Maintenance Item	Satisfactory/ Unsatisfactory	Comments
1. Embankment and emergency spillway		
Vegetation Ground Cover condition.		
No signs of erosion on embankment.		
No animal burrows.		
Embankment is free of cracking, bulging, or sliding.		
Embankment is free of woody vegetation.		
Embankment is free of leaks or seeps		
Emergency spillway is clear of obstructions, condition of riprap or scour mats at the spillway.		
Vertical/horizontal alignment of top of dam "As-Built"		
2. Principal spillway		
Low flow outlet/restrictor free of obstruction.		
Outlet pipe is in good condition.		
Outfall channels are stable and free of scouring.		

Maintenance Item	Satisfactory/ Unsatisfactory	Comments
3. Detention Basin Areas		
Vegetation ground cover condition.		
No signs of erosion on embankment.		
No animal burrows.		
Embankment is free of cracking, bulging, or sliding.		
Embankment is free of woody vegetation.		
Embankment is free of leaks or seeps		
Emergency spillway is clear of obstructions, condition of riprap or scour mats at the spillway.		
Vertical/horizontal alignment of top of dam "As-Built"		
No undesirable woody vegetation		
Low flow channels clear of obstructions		
No evidence of sediment and/or trash accumulation		
4. Condition of Overflow Outfall		
No turf reinforcement or riprap stabilization failures at the overflow weir.		
No evidence of slope erosion or scouring		
Storm drain pipes are in good condition, with no evidence of non-stormwater discharges		
Endwalls/Headwalls are in good condition		

Catch Basin Operation, Maintenance, and Management Inspection Checklist

Project: _____

Location: _____

Date: _____ **Time:** _____

Inspector: _____ **Title:** _____

Signature: _____

Maintenance Item	Satisfactory/ Unsatisfactory	Comments
1. Debris Cleanout		
Catch basin clean of debris (litter, branches, etc.)		
Inlet and outlet pipes free of blockages		
2. Sediment Deposits/Accumulation		
Sumps are not more than one-third full from basin bottom to lowest invert.		

Actions to be Taken:_____

Exhibit 3

Site Owner Certification

Owner Certification

BMP Owner: Region Contractors, LLC
Address: 912 W. Avenue H, Suite 2
Griffith, IN 46319
Phone: (219)-365-3508
E-mail: nick@regioncontractors.com

Billing Contact: Same as Above

BMP Inspection and Maintenance:

- Routine Inspections and Maintenance are the responsibility of the BMP Owner. The Town of Munster must be notified of any changes in BMP ownership, major repairs, or BMP failures in writing within 30 days. The letter should be addressed to:
-

  Town of Munster
  ATTN: MS-4 Coordinator
  1005 Ridge Road
  Munster, IN 46321

- In the event that the Town of Munster finds a BMP in need of maintenance or repair, the Town of Munster will notify the BMP owner of the necessary maintenance or repairs and give the owner a timeframe for completing the required maintenance or repairs. If the required maintenance or repairs are not completed within the designated time frame, the Town shall perform the maintenance and repairs and bill the owner for the actual cost of the work.
- The Town of Munster representatives have the right to enter the property to inspect the BMP's.

Owners Signature: _____

Owners Name (print) _____

Date: _____

Witness Signature:

Witness Name (print)

Date:

1155 Troutwine Road
Crown Point, IN 46307
219.662.7710
fax 219.662.2740
www.dvgteam.com

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Stormwater SWPPP Checklist
October 10, 2023

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Construction Plans

A1 An index showing locations of required Plan Elements:

The Stormwater Permit Checklist serves as the index.

A2 11 x 17 inch plat showing a building lot numbers/boundaries and road layout/names:

See **Exhibit 1** for the ALTA Survey and Site Plan sheet C103 of the engineering plans.

A3 Description of the nature and purpose of the project:

Orthopedic Specialists of Northwest Indiana (OSNI) is proposing to develop a building addition to the existing Gate Church located at 9900 Columbia Avenue in Munster Indiana. The project will be built in two (2) phases. Phase one includes the demo and rebuilding of the parking lot, gutting and rebuilding the interior of the existing building, along with new utilities and appropriate detention to serve the facility. Phase two will include the expansion of the existing building, as well as additional utilities and parking to serve the expansion.

A4 Vicinity map showing project location:

See **Exhibit 1** for the Vicinity Map or the location map on the cover sheet of the engineering plans.

A5 Legal description of the project site:

See **Exhibit 2** for the ALTA Survey.

A6 Location of all lots and proposed site improvements:

See Site Plan sheet C103 of the engineering plans.

A7 Hydrologic Unit Code HUC (14-digit):

The 14-digit HUC is 07120003030030.

A8 Notation of any state or federal water quality permits.

State or federal water quality permits that are required are as follows:

- Indiana Construction Stormwater General Permit (CSGP)

A9 Specific points where stormwater discharge will leave the site:

All discharge from this site will be directed into the OSNI onsite storm sewers with eventual outfall directly to the existing pond lying in the West Lakes Subdivision.

A10 Location and name of all wetlands, lakes and water courses on and adjacent to the site:

See Existing Conditions sheet C101 in the engineering plan set.

A11 Identification of all receiving waters:

All discharge from this site will be directed into the OSNI onsite storm sewers with eventual outfall directly to the existing pond lying in the West Lakes Subdivision.

A12 Identification of potential discharges to groundwater:

There is no potential for discharges to groundwater on this project site.

A13 One hundred (100) year floodplains, floodway fringes, and floodways. Please note if none exists:

The project lies within a FEMA flood zone AE. See **Exhibit 4** for the FEMA Firm Map.

A14 Pre-construction and post-construction estimate of Peak Discharge:

See the Stormwater Technical Report for peak discharges.

A15 Land use of all adjacent properties:

Adjacent properties to the North, East and West are zoned CD-4. B General urban – B Charter District. Property to the south is zoned Planned Unit Development Special District.

A16 Locations and approximate boundaries of all disturbed areas:

See Site Plan sheet C103 of the engineering plan set.

A17 Identification of existing vegetative cover:

See Existing Conditions sheet C101 in the engineering plan set.

A18 Soils map including soil descriptions:

See **Exhibit 3** for the NRCS Soils Survey.

A19 Locations, size and dimensions of proposed stormwater systems:

See Grading Plan sheet C104 of the engineering plan set.

A20 Plans for any off-site construction activities associated with this project (sewer/water tie-ins):

There are no off-site construction activity locations for this project.

A21 Location of all soil stockpiles and borrow areas:

See SWPPP sheet C106 of the engineering plan set.

A22 Existing topography at a contour interval appropriate to indicate drainage patterns:

See Existing Conditions sheet C101 of the engineering plan set.

A23 Proposed final topographic information to indicate drainage patterns:

See Grading Plan sheet C104 of the engineering plan set.

Storm Water Pollution Prevention Plan for Construction Sites

B1 Description of potential pollutant sources associated with the construction activities:

Potential pollutants that could enter the storm water during construction include exposed soils, fuel and oil from leaking heavy equipment and vehicles. Equipment has the potential to leak fuel throughout the disturbed areas, or wherever construction is occurring. The contractors will inspect equipment before initiating construction and routinely thereafter. If leaks are discovered, they will be repaired before the equipment is used or new equipment will be brought to the site. Exposed soils also have potential for being eroded by water and wind and entering the storm water system. The contractor will install silt fence, construction entrance mats, and seeding in areas designated on the site development plans. In addition, street sweeping will be done at the construction entrance as needed.

B2 Sequence describing stormwater quality measure implementation:

The sequence of implementation summarized below:

- Post signed NOI, NPDES Permit number, NOS (when available), contact information for the site, municipal stormwater permit, and location where construction plans may be obtained in a visible location at entrance to site.
- Construct gravel construction entrance from the street to the building pad prior to construction.
- Install silt fence/fiber rolls prior to construction at construction limits.
- Construct refueling area and concrete washout area prior to construction.
- Install inlet protection at all inlets on property.
- Perform topsoil removal and stockpiling. Soil stockpiles created on site to be protected from erosion with silt fence around the base.
- Perform mass grading of the site subgrade.
- Install underground utilities.

- Upon completion of the rough grading, all areas affected by construction shall be temporarily seeded if they will remain dormant for greater than 7 days. These areas shall be stabilized within 7 days of remaining dormant and erosion control blankets shall be installed on slide slopes as shown on the plans.
- Re-seed any areas disturbed by construction and utilities installation with temporary seed mix within 3 days of completion of disturbance.
- Grade site to final elevations.
- Install curbs, sidewalk, pavement, and aggregate subbase.
- Install permanent seeding or sod.
- Maintain temporary erosion control features until construction is complete.
- Remove temporary erosion control measures once permanent vegetative cover has been established.
- Submit the Notice of Termination for the Construction Stormwater General (CSGP) permit.

B3 Stable construction entrance locations and specifications:

See SWPPP and detail sheets C106 and C301-C304.

B4 Sediment control measures for sheet flow areas:

See SWPPP and detail sheets C106 and C301-C304.

B5 Sediment control measures for concentrated flow areas:

See SWPPP and detail sheets C106 and C301-C304.

B6 Storm sewer inlet protection measure locations and specifications:

See SWPPP and detail sheets C106 and C301-C304.

B7 Runoff control measures:

See SWPPP and detail sheets C106 and C301-C304.

B8 Storm water outlet protection specifications:

See SWPPP and detail sheets C106 and C301-C304.

B9 Grade stabilization structure locations and specifications:

See SWPPP and detail sheets C106 and C301-C304.

B10 Locations, dimensions, specifications, and construction details of each stormwater quality measure:

See SWPPP and detail sheets C106 and C301-C304.

B11 Temporary surface stabilization methods appropriate for each season:

See SWPPP and detail sheets C106 and C301-C304.

B12 Permanent surface stabilization methods appropriate for each season:

See SWPPP and detail sheets C106 and C301-C304.

B13 Material handling and spill prevention plan:

The contractor shall minimize the disturbance of excavated soils by minimizing the number of times the soil is handled. On-site handling of soils will occur during excavation, loading, and spreading activities. Fuel for heavy equipment and vehicles will not be stored on the site during construction operations. Mobile fuel tanks will fuel heavy equipment. In the event of a spill or leak the contractor shall follow proper procedures to minimize concern.

- Take immediate measures to control and contain the spill to prevent release into sewers or surface waters.
- Notify the Local Fire Department immediately at 9-1-1.
- Notify the Federal Emergency Spill Hotline at 1-800-424-8802 within 2 hours if the amount is above a reportable quantity or any amount enters a waterway or storm sewer.
- Notify the Indiana Emergency Response Hotline at 1-888-233-7745.
- Follow the guidelines for handling the spill as outlined in the included Material Safety Data Sheets (**Exhibit 7**).

B14 Self-monitoring program including plan and procedures:

See the attached Self-Monitoring Form (**Exhibit 5**). Below are the monitoring and maintenance requirements for the erosion and sediment control measures. The contractor shall perform inspections throughout the construction process.

- Silt fence will be inspected weekly and after each storm event to ensure it is functioning properly and to make any necessary repairs. Deposited sediments will be removed when it reaches half the height of the fence or is causing the fence to bulge.
- Inlet Barrier Protection will be inspected after each storm event of 0.5-inch of rainfall in a 24-hour period, and any sediment deposits will be removed. The erosion control measure will also be inspected weekly for deterioration or damage and will be repaired or replaced if necessary.
- In the event that the storm drains cease to function properly due to excessive sediment buildup, flushing of the storm drains may be required.
- Catch basins should be routinely inspected for buildup of sediment. Mechanical cleaners or hand cleaning will be required to maintain the function of the catch basin.

B15 Erosion & sediment control specifications for individual building lots:

See SWPPP and detail sheets C106 and C301-C304.

Post-Construction Storm Water Pollution Prevention Plan

C1 A description of potential pollutant sources from the proposed land use, which may reasonably be expected to add a significant amount of pollutants to storm water discharges:

Pollutants associated with the proposed land use will most likely be very typical of parking lots. Most expected pollutants will be associated with automobiles: oil, grease, antifreeze, brake dust, rubber fragments, gasoline, diesel fuel, metals, and improper disposal of trash. The contractors will inspect equipment before initiating construction and routinely thereafter. If leaks are discovered, they will be repaired before the equipment is used or new equipment will be brought to the site. It is the responsibility of the property owner to provide routine maintenance. Some maintenance items may include trimming vegetation and picking up litter. After vegetation has been established, temporary erosion and sediment control measures such as silt fence and inlet protection will be removed.

C2 Sequence describing stormwater quality measure implementation:

See SWPPP Plan Sheet C301 section "Stormwater Quality Construction Sequence".

C3 Description of proposed post-construction stormwater quality measures:

See SWPPP Plan Sheet C301 section "Post-Construction Stormwater Management Plan".

C4 Locations, dimensions, specifications, and construction details of each stormwater quality measure:

See SWPPP and detail sheets C106 and C301-C304.

C5 A narrative description of the maintenance guidelines for all post-construction storm water quality measures to facilitate their proper long term function. This narrative description shall be made available to future parties who will assume responsibility for the operation and maintenance of the post-construction storm water quality measures.

See SWPPP Plan Sheet C301 section "Post-Construction Stormwater Management Plan". This maintenance plan will remain a part of the plan set and as-built plan set so it is available to future parties who may assume the responsibility for the operation and maintenance of the post-construction stormwater quality measures.

Exhibit 1

Vicinity Map

The National Map Advanced Viewer

10/5/2023, 2:26:29 PM

1:9,028

0 0.07 0.15 0.3 mi

0 0.13 0.25 0.5 km

USGS The National Map: Orthoimagery and US Topo. Data refreshed August, 2023.

USGS
2021 USGS

Exhibit 2

ALTA Survey

ALTA/NSPS LAND TITLE SURVEY

PARCEL DESCRIPTION (PER EXHIBIT "A" IN TITLE COMMITMENT REFERENCED HEREON):

LOT 1, EXCEPT THE WEST 125 FEET THEREOF, IN CALVARY COMMUNITY CHURCH ADDITION TO THE TOWN OF MUNSTER, AS PER PLAT THEREOF, RECORDED IN PLAT BOOK 85 PAGE 60, IN THE OFFICE OF THE RECORDER OF LAKE COUNTY, INDIANA.

SUBJECT PARCEL INFORMATION:

TAX ID. 45-06-36-276-003.000-027
OWNER: THE GATE CHURCH, INC.
QUIT CLAIM DEED
DOCUMENT NO. 2014 003540
REC. 1/17/2014

PARCEL AREA:

117,062 SQ. FT±
2.69 ACRES±

ALTA/NSPS OPTIONAL TABLE "A" SURVEY RESPONSIBILITIES AND SPECIFICATIONS ITEM NOTES:

ITEM 1: MONUMENTS SET OR FOUND ARE SHOWN HEREON.

ITEM 2: ADDRESS SHOWN HEREON IS PER THE LAKE COUNTY AUDITOR'S RECORDS AND SHOWN ON THE RECORDED SUBDIVISION PLAT.

ITEM 3: FLOOD ZONE DESIGNATION: THE ACCURACY OF ANY FLOOD HAZARD DATA SHOWN ON THIS PLAT IS SUBJECT TO MAP SCALE UNCERTAINTY AND TO ANY OTHER UNCERTAINTY IN LOCATION OR ELEVATION ON THE FLOOD INSURANCE RATE MAP, (FIRM). THE SUBJECT PARCEL DESCRIBED IN THE PARCEL DESCRIPTION SHOWN HEREON APPEARS TO LIE WITHIN THAT FLOOD HAZARD ZONE "X" (SHADED) AREAS DETERMINED TO BE INSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN AS SAID SUBJECT PARCEL PLOTS BY SCALE ON FLOOD INSURANCE RATE MAP FOR THE TOWN OF MUNSTER, LAKE COUNTY, INDIANA, COMMUNITY NUMBER 180139, PANEL NO. 18089C0117E. MAP EFFECTIVE DATE: JANUARY 18, 2012.

ITEM 4: LAND AREA IS SHOWN HEREON.

ITEM 5: VERTICAL RELIEF- ELEVATIONS AND THE RESULTING CONTOURS (1-FOOT INTERVAL UNLESS OTHERWISE SPECIFIED) SHOWN HEREON WERE MEASURED ON THE GROUND THIS SURVEY AND ARE REFERENCED TO A STATEWIDE GNSS REFERENCE STATION NETWORK KNOWN AS INCORS WHICH IS MAINTAINED BY THE INDIANA DEPARTMENT OF TRANSPORTATION USING THE NORTH AMERICAN VERTICAL DATUM OF 1988.

ITEM 7(a): EXTERIOR DIMENSIONS OF ALL BUILDINGS AT GROUND LEVEL ARE SHOWN HEREON.

ITEM 8: SUBSTANTIAL VISIBLE FEATURES SUCH AS PARKING LOTS, BILLBOARDS, SIGNS, SWIMMING POOLS, LANDSCAPED AREAS, AND SUBSTANTIAL AREAS OF REFUSE (IF ANY) ARE SHOWN HEREON.

ITEM 9: STRIPING OF CLEARLY IDENTIFIABLE PARKING SPACES ON SURFACE PARKING AREAS AND LOTS, PARKING TYPES, AND THE NUMBER OF SPACES ARE SHOWN HEREON.
60 REGULAR PARKING SPACES WERE OBSERVED.

ITEM 11(a): LOCATION OF UTILITIES EXISTING ON OR SERVING THE SURVEYED PROPERTY WAS DETERMINED BY OBSERVED EVIDENCE AND EVIDENCE FROM PLANS REQUESTED BY THE UTILITY COMPANIES OBTAINED FROM UTILITY COMPANIES OR PROVIDED BY CLIENT TO DEVELOP A VIEW OF UNDERGROUND UTILITIES. HOWEVER, LACKING EXCAVATION, THE EXACT LOCATION OF UNDERGROUND FEATURES CANNOT BE ACCURATELY, COMPLETELY, AND RELIABLY DEPICTED. LOCATIONS OF UNDERGROUND UTILITIES/STRUCTURES MAY VARY FROM VISIBLE LOCATIONS SHOWN HEREON. ADDITIONAL BURIED UTILITIES/STRUCTURES MAY BE ENCOUNTERED. NO EXCAVATIONS OR PROBINGS WERE MADE DURING THE PROGRESS OF THIS SURVEY TO LOCATE BURIED UTILITIES/STRUCTURES, DRAINAGE TILES, UNDERGROUND DITCHES, FEEDERS OR LATERALS. NO ATTEMPT HAS BEEN MADE AS A PART OF THIS SURVEY TO OBTAIN DATA CONCERNING SIZE, DEPTH, CONDITION, CAPACITY OF ANY UTILITIES LOCATED WITHIN THE SITE SURVEYED OR SERVING THE SITE, UNLESS SHOWN HEREON. A UTILITY LOCATE REQUEST WAS MADE FOR THE SITE (INDIANA 811, TICKET NO. 2306086148). IF ADDITIONAL OR MORE DETAILED INFORMATION IS REQUIRED, EXCAVATION AND/OR A PRIVATE UTILITY LOCATE REQUEST MAY BE NECESSARY.

ITEM 13: NAMES OF ADJOINING OWNERS ACCORDING TO PUBLIC RECORDS ARE SHOWN HEREON. PARCELS IDENTIFIED BY TITLE DESCRIPTION OR RECORD REFERENCES AS PER 865 IAC 1-12-13-(11) ARE OBTAINED FROM COUNTY AUDITOR'S OFFICE AND OR RECORDER'S OFFICE AND ARE NOT CERTIFIED. THE INFORMATION MAY OR MAY NOT REFERENCE THE MOST CURRENT DEED OF RECORD OR THE MOST CURRENT STATUS OR TITLE FOR THAT PARCEL.

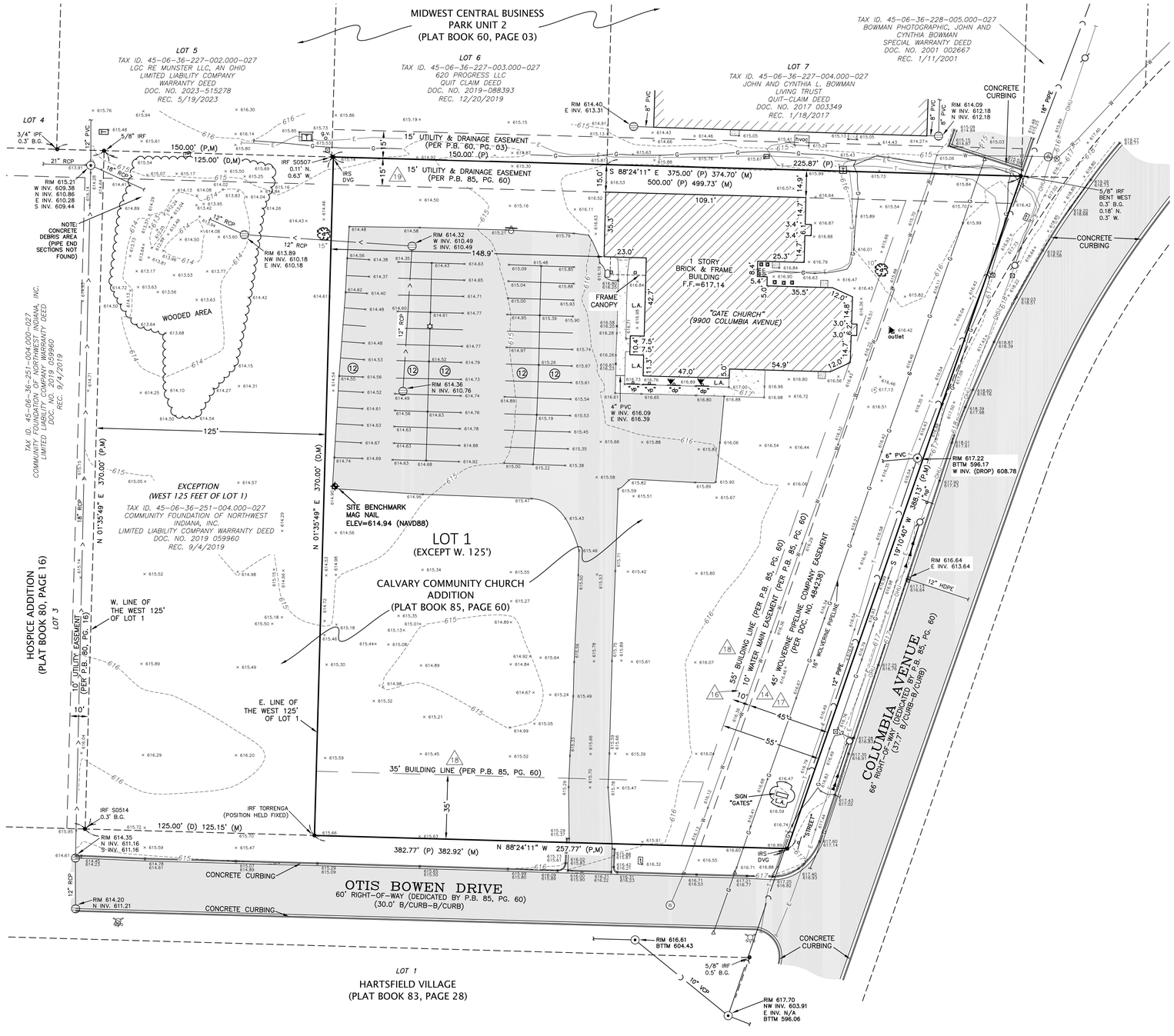
GENERAL NOTES:

1.) EXCEPT AS SPECIFICALLY STATED OR SHOWN ON THIS PLAT, THIS SURVEY DOES NOT PURPORT TO REFLECT ANY OF THE FOLLOWING WHICH MAY BE APPLICABLE TO THE SUBJECT REAL ESTATE:
A) EASEMENTS, OTHER THAN THE POSSIBILITY OF EASEMENTS WHICH WERE VISIBLE BY PHYSICAL EVIDENCE AT THE TIME OF THIS SURVEY OR SHOWN BY DOCUMENT PROVIDED AND RECORD PLAT.
B) BUILDING SETBACK LINES, RESTRICTIVE COVENANTS, SUBDIVISION RESTRICTIONS, ZONING OR OTHER LAND-USE REGULATIONS, OTHER THAN THAT SHOWN ON THE RECORD PLAT.
C) OWNERSHIP OR TITLE.

2.) THIS SURVEY DOES NOT ADDRESS THE EXISTENCE, IF ANY, OF ITEMS THAT WOULD REQUIRE AN INTERPRETATION BY THE SURVEYOR, (I.E. COMPLIANCE WITH ALL ZONING REQUIREMENTS) EXISTENCE OF ITEMS BEYOND THE QUALIFICATION OF SURVEYOR (I.E. WETLANDS, HAZARDOUS MATERIAL) AND ITEMS NOT READILY VISIBLE DURING A REASONABLE INSPECTION OF SITE (PAST CEMETERIES, LANDFILLS, AND MINERAL RIGHTS).

3.) THIS SURVEY MAY NOT REFLECT ALL UTILITIES OR IMPROVEMENTS IF SUCH ITEMS ARE HIDDEN BY LANDSCAPING OR ARE OBSCURED BY SUCH ITEMS AS DUMPSTERS, TRAILERS, CARS, DIRT, PAVING OR SNOW. AT THE TIME OF THIS SURVEY, SNOW DID NOT COVER THE SITE. LAWN SPRINKLERS SYSTEMS, IF ANY, ARE NOT SHOWN ON THIS SURVEY.

4.) BASIS OF BEARINGS: THE MONUMENTED SOUTH LINE OF LOT 1 BEING N 88°24'11" W, PER THE RECORDED PLAT OF CALVARY COMMUNITY CHURCH ADDITION (SURVEY REFERENCE NUMBER 2 HEREON).



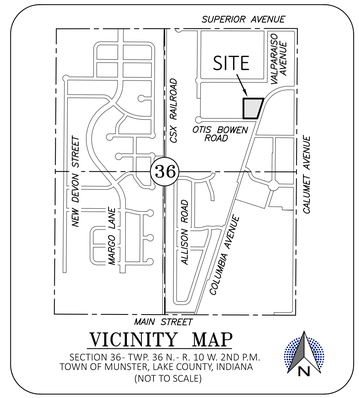
LEGEND

- LIGHT POLE
- BASKETBALL POLE
- TELEPHONE PEDESTAL
- MANHOLE
- CATCH BASIN
- CURB INLET
- ELECTRIC TRANSFORMER
- A/C UNIT
- SIGN
- CABLE TUB
- FIRE HYDRANT
- WATER VALVE
- WATER MANHOLE
- SITE BENCHMARK
- UTILITY POLE
- MAILBOX
- BLOCK COLUMN
- AREA LIGHT
- WOLVERINE PIPELINE MARKER
- NUMBER OF REGULAR PARKING SPACES
- GAS VALVE
- ELECTRIC OUTLET
- LANDSCAPE AREA
- GUY WIRES
- SCHEDULE B, PART 2 EXCEPTION ITEM PER TITLE COMMITMENT
- SUBJECT PARCEL BOUNDARY LINE
- PLATTED BUILDING SETBACK LINE
- PARCEL BOUNDARY LINE
- EASEMENT LINE
- UNDERGROUND ELECTRIC
- UNDERGROUND GAS
- UNDERGROUND WATER
- UNDERGROUND TELECOMMUNICATIONS
- STORM SEWER WITH FLOW DIRECTION
- SANITARY SEWER WITH FLOW DIRECTION
- OVERHEAD UTILITY WIRES
- APPROXIMATE TREE LINE
- TREE WITH APPROXIMATE DIAMETER
- SPOT ELEVATION
- 1-FOOT CONTOUR
- ELECTRIC METER
- GAS METER
- ASPHALT AREA
- CONCRETE AREA

dp- DISABLED PARKING
np- NO PARKING
vp- VISITOR PARKING

F.F.- FINISHED FLOOR ELEVATION
A.G.- ABOVE GRADE
B.G.- BELOW GRADE
HDPE- HIGH DENSITY POLY-ETHYLENE
PVC- POLY-VINYL CHLORIDE PIPE
RCP- REINFORCED CONCRETE PIPE
VCP- VITRIFIED CLAY PIPE
BTTM- BOTTOM OF STRUCTURE
N/A- NOT ACCESSIBLE
INV.- INVERT
R/W- RIGHT OF WAY
P.B.- PLAT BOOK
PG.- PAGE
C- DIMENSION CALCULATED
M- DIMENSION MEASURED BETWEEN MONUMENTS
D- DIMENSION PER DEED DESCRIPTION

IRS DVG 5/8" REBAR SET WITH BLUE CAP STAMPED "DVG TEAM INC. FIRM NO. 0120"
IRF TORRENGA 5/8" REBAR FOUND WITH CAP STAMPED "TORRENGA" TORRENGA SURVEYING
IRF S0507 5/8" REBAR FOUND WITH CAP STAMPED "S0507" RICHARD HARDESTY, P.L.S.
IRF S0514 5/8" REBAR FOUND WITH CAP STAMPED "S0514" GARY TORRENGA, P.L.S.
IPF IRON PIPE FOUND
IRF IRON ROD FOUND



VICINITY MAP

SECTION 36- TWP. 36 N. - R. 10 W. 2ND P.M.
TOWN OF MUNSTER, LAKE COUNTY, INDIANA
(NOT TO SCALE)

TITLE COMMITMENT NOTES:

THIS SURVEY DOES NOT CONSTITUTE A TITLE SEARCH BY THE SURVEYOR. ALL INFORMATION REGARDING RECORD EASEMENTS AND OTHER DOCUMENTS WHICH MIGHT AFFECT THE QUALITY OF TITLE TO PARCEL SHOWN HEREON WAS GAINED FROM AN ALTA COMMITMENT FOR TITLE INSURANCE, COMMITMENT NUMBER FNW2301358 ISSUED BY FIDELITY NATIONAL TITLE INSURANCE COMPANY, ON 5/25/2023. THE FOLLOWING SURVEY RELATED MATTERS CORRESPOND TO THE ITEMS NUMBERED IN SCHEDULE B, PART 2, EXCEPTIONS IN SAID COMMITMENT AND ARE ADDRESSED HEREON IN THE FOLLOWING MANNER:

ITEM 14 EASEMENT FOR PIPE LINE IN FAVOR OF WOLVERINE PIPE LINE COMPANY, DATED OCTOBER 7, 1969, RECORDED OCTOBER 9, 1969, AS DOCUMENT NO. 34699, AND RE-RECORDED AUGUST 10, 1978, AS DOCUMENT NO. 484238- AFFECTS SUBJECT PARCEL AND SHOWN HEREON.

ITEM 15 COVENANTS, CONDITIONS, AND RESTRICTIONS CONTAINED IN TRUSTEE'S DEED FROM MERCANTILE BANK OF INDIANA, AS TRUSTEE, UNDER THE PROVISIONS OF A TRUST AGREEMENT DATED OCTOBER 27, 1986, AND KNOWN AS TRUST NUMBER 4893, TO CALVARY ASSEMBLY OF GOD CHURCH OF MUNSTER, INDIANA, DATED MARCH 22, 1993, AND RECORDED APRIL 16, 1993, AS DOCUMENT NO. 93024189- AFFECTS SUBJECT PARCEL- NOT PLOTTABLE.

ITEM 16 10 FEET WATER MAIN EASEMENT OVER THE WEST 10 FEET OF THE EAST 55 FEET OF THE LAND AS SHOWN ON RECORDED PLAT OF SAID SUBDIVISION- AFFECTS SUBJECT PARCEL AND SHOWN HEREON.

ITEM 17 45 FEET WOLVERINE PIPELINE CO. EASEMENT OVER THE EAST 45 FEET OF THE LAND AS SHOWN ON RECORDED PLAT OF SAID SUBDIVISION- AFFECTS SUBJECT PARCEL AND SHOWN HEREON.

ITEM 18 BUILDING LINES OVER THE EAST 55 FEET AND THE SOUTH 35 FEET OF THE LAND AS SHOWN ON RECORDED PLAT OF SAID SUBDIVISION- AFFECTS SUBJECT PARCEL AND SHOWN HEREON.

ITEM 19 EASEMENT FOR UTILITIES AND DRAINAGE OVER THE NORTH 15 FEET OF THE LAND AS SHOWN ON RECORDED PLAT OF SAID SUBDIVISION- AFFECTS SUBJECT PARCEL AND SHOWN HEREON.

SURVEY REFERENCES:

1.) RECORD DEEDS REFERENCED HEREON.
2.) RECORDED SUBDIVISION PLAT OF "CALVARY COMMUNITY CHURCH ADDITION", RECORDED NOVEMBER 9, 1998 IN PLAT BOOK 85, PAGE 60 AS DOCUMENT NUMBER 98088805.
3.) RECORDED SUBDIVISION PLAT OF "HOSPICE ADDITION", RECORDED FEBRUARY 22, 1996 IN PLAT BOOK 80, PAGE 16 AS DOCUMENT NUMBER 96011549.
4.) RECORDED SUBDIVISION PLAT OF "MIDWEST CENTRAL BUSINESS PARK UNIT 2", RECORDED SEPTEMBER 5, 1985 IN PLAT BOOK 60, PAGE 03 AS DOCUMENT NUMBER 818689.
5.) RECORDED ALTA/NSPS LAND TITLE SURVEY OF THE WEST 125 FEET OF LOT 1 IN CALVARY COMMUNITY CHURCH ADDITION AND LOTS 2 AND 3 IN HOSPICE ADDITION BY TORRENGA SURVEYING, LLC, RECORDED JULY 22, 2019 IN SURVEY BOOK 33, PAGE 61 AS DOCUMENT NUMBER 2019 045220.
6.) RECORDED GRANT OF EASEMENT AND PLAT OF VACATION OF THAT PART OF COLUMBIA AVENUE IN BLOCK 6 IN MIDWEST CENTRAL BUSINESS PARK TO THE TOWN OF MUNSTER, RECORDED IN PLAT BOOK 68, PAGE 37.

SURVEYOR'S REPORT:

IN ACCORDANCE WITH TITLE 865, ARTICLE 1.0, CHAPTER 12 OF THE INDIANA ADMINISTRATIVE CODE, THE FOLLOWING OBSERVATIONS AND OPINIONS ARE SUBMITTED REGARDING THE VARIOUS UNCERTAINTIES IN THE LOCATION OF THE LINES AND CORNERS ESTABLISHED OR REESTABLISHED ON THIS SURVEY. THIS PLAT REPRESENTS A RETRACEMENT SURVEY OF A LOT LESS EXCEPTION IN A PLATTED SUBDIVISION.

THEORY OF LOCATION: A SEARCH FOR MONUMENTS AROUND THE SUBJECT PARCEL WAS PERFORMED THIS SURVEY. A REBAR WITH A TORRENGA CAP WAS FOUND AT THE SOUTHWEST CORNER OF THE SUBJECT PARCEL AND ITS' POSITION WAS HELD FIXED FOR THIS SURVEY. A REBAR WITH "S0514" CAP WAS FOUND AT THE SOUTHWEST CORNER OF LOT 3 IN HOSPICE ADDITION (MONUMENT NOT SHOWN HEREON) AND HELD FIXED FOR LINE. ADDITIONAL MONUMENTS WERE FOUND AND SHOWN HEREON. PLATTED DISTANCES AND BEARINGS WERE USED TO CALCULATE THE POSITIONS OF THE REMAINING SUBJECT PARCEL CORNERS AND WERE MONUMENTED THIS SURVEY

A.) CONDITION OF FOUND REFERENCE MONUMENTS: UNLESS OTHERWISE STATED ON THIS PLAT, REFERENCE MONUMENTS WERE FOUND UNDISTURBED, AT OR NEAR GRADE AND OF UNKNOWN ORIGIN. UNCERTAINTY IN LOCATION OF FOUND MONUMENTS MEASURED 0.3 FEET EAST-WEST AND 0.2 FEET NORTH-SOUTH.

B.) NO APPARENT UNCERTAINTIES DUE TO SUBSTANTIAL OBSERVED OCCUPATION OR POSSESSION EXCEPT FOR AS FOLLOWS: THERE WAS VISIBLE EVIDENCE OF STORM WATER PIPE THAT EXITS THE SUBJECT PARCEL TO THE WEST INTO WHAT WAS POSSIBLY A FORMER STORM WATER DETENTION AREA NOW LOCATED ON THE WEST 125 FEET OF LOT 1 IN THE SUBJECT SUBDIVISION (ALL AS SHOWN HEREON). AN AREA LIGHT WAS LOCATED IN THE WOLVERINE PIPELINE EASEMENT ON THE EAST SIDE OF THE SUBJECT BUILDING AND SHOWN HEREON. THE SIGN FOR THE CHURCH WAS LOCATED IN THE WOLVERINE PIPELINE EASEMENT NEAR THE SOUTHEAST CORNER OF THE SUBJECT PARCEL AND SHOWN HEREON.

C.) NO APPARENT UNCERTAINTIES DUE TO RECORD DESCRIPTIONS.

D.) THE RELATIVE POSITIONAL ACCURACY (DUE TO RANDOM ERRORS IN MEASUREMENTS) FOR THIS SURVEY, BASED ON EQUIPMENT AND PROCEDURES USED, WAS WITHIN THE ALLOWABLE (0.07 FEET PLUS 50 PARTS PER MILLION) FOR AN URBAN SURVEY, PER 865 IAC 1-12-7.

TO: BRADLEY COMPANY, LLC
OSNI DYER AND ASSOCIATES, LLC;
THE GATE CHURCH, INC.;
FIDELITY NATIONAL TITLE INSURANCE COMPANY

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2021 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 1, 2, 3, 4, 5, 7, 8, 9, 11(a) AND 13 OF TABLE A THEREOF. THE FIELD WORK WAS COMPLETED ON JUNE 29, 2023. I FURTHER STATE THAT SURVEY WAS PERFORMED IN ACCORDANCE WITH THE GUIDELINES SET IN TITLE 865 IAC 1-12 (RULE 12).

DATE OF PLAT: JULY 12, 2023

PROFESSIONAL LAND SURVEYOR: GLEN E. BOREN
INDIANA REGISTRATION NUMBER: LS20000006
gboren@dvgteam.com

GLEN E. BOREN REGISTERED No. LS20000006 STATE OF INDIANA LAND SURVEYOR

DVG TEAM INC
1155 Troutwine Road
Crown Point, IN 46307
P: (219) 662-7710
F: (219) 662-2740
www.dvgteam.com

DATE:	REVISIONS AND NOTES:

ALTA/NSPS LAND TITLE SURVEY

9900 COLUMBIA AVENUE
MUNSTER, INDIANA 46321

LOT 1, EXCEPT THE WEST 125 FEET THEREOF, CALVARY COMMUNITY CHURCH ADDITION

N
0' 10' 30'
SCALE: 1" = 30'

GATE CHURCH

\23-0720\23-0720.DWG	
FB/PG	FILE NO.
DRAWN BY: M.S.	DATE: 7/12/23
SECTION: 36-36-10	COUNTY, STATE: LAKE, IN
JOB NO.: 23-0720	

Exhibit 3

NRCS Soils Report

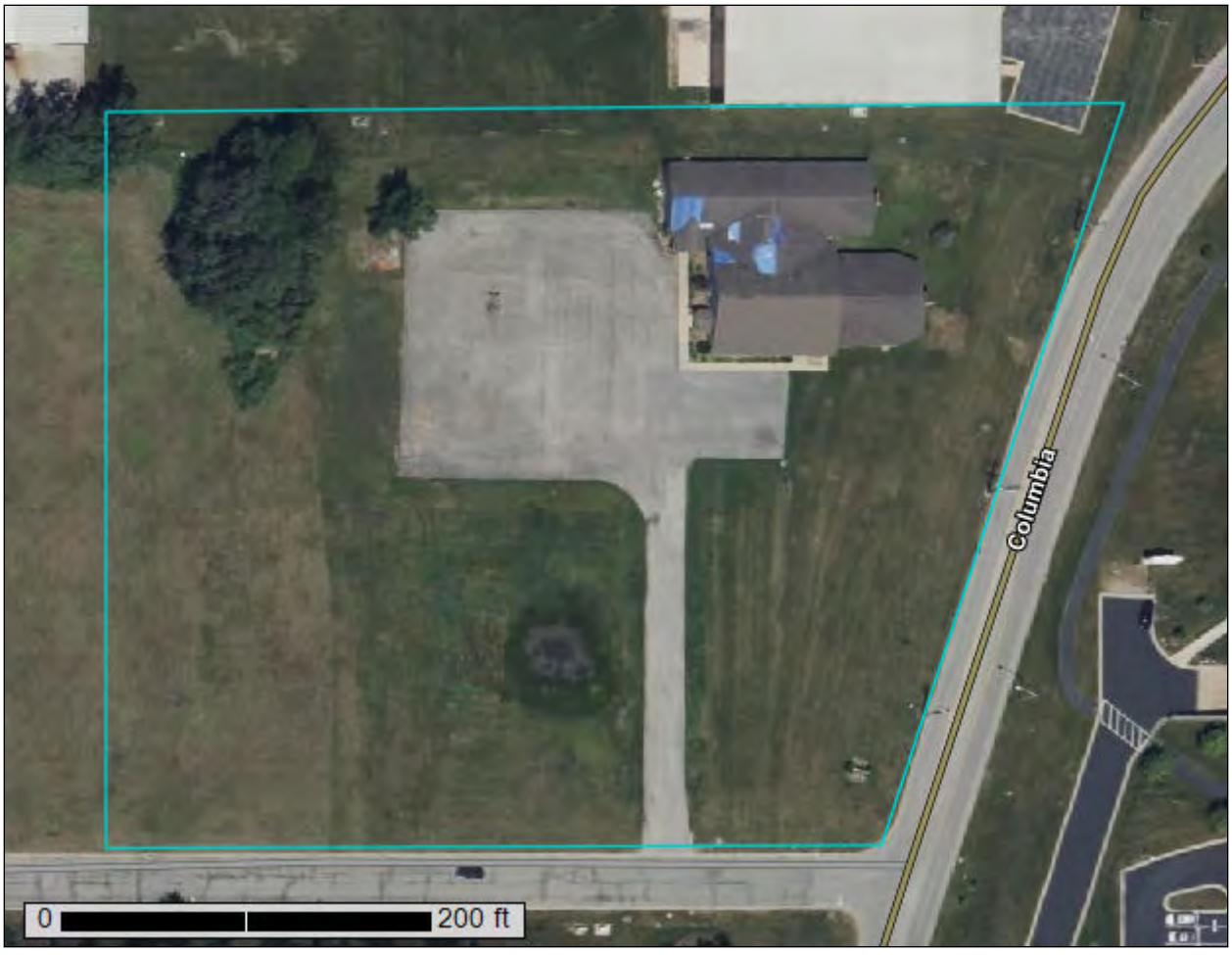
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

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

Custom Soil Resource Report for Lake County, Indiana



October 5, 2023

Preface

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

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

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

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

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

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

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

How Soil Surveys Are Made

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

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

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

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

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

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

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

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

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

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

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

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

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

Soil Map

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

Custom Soil Resource Report
Soil Map

Map Scale: 1:1,040 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 15 30 60 90

Feet
0 50 100 200 300

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

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Lake County, Indiana
Survey Area Data: Version 26, Sep 1, 2023

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

Date(s) aerial images were photographed: Jun 16, 2022—Jun 27, 2022

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.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Bn	Bono silty clay	4.5	100.0%
Totals for Area of Interest		**4.5**	**100.0%**

Map Unit Descriptions

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

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

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

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

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

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

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

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

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

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

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

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

Lake County, Indiana

Bn—Bono silty clay

Map Unit Setting

National map unit symbol: 94hk
Elevation: 570 to 790 feet
Mean annual precipitation: 36 to 40 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 170 to 180 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Bono and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bono

Setting

Landform: Depressions on lake plains
Landform position (two-dimensional): Toeslope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Clayey lacustrine deposits

Typical profile

H1 - 0 to 21 inches: silty clay
H2 - 21 to 39 inches: silty clay
H3 - 39 to 60 inches: silty clay

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 40 percent
Available water supply, 0 to 60 inches: High (about 10.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Ecological site: R097XB047IL - Chicago Wet Clayey Flats
Other vegetative classification: Mixed/Transitional (Mixed Native Vegetation)
Hydric soil rating: Yes

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Exhibit 4

FEMA Firm Map

National Flood Hazard Layer FIRMette

FEMA

87°31'3"W 41°32'13"N

87°30'25"W 41°31'47"N

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

1:6,000

Basemap Imagery Source: USGS National Map 2023

Legend

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

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

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

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

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

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

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

N

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

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

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 10/10/2023 at 5:32 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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

Exhibit 5

Self-Monitoring Form

Date: _____
Project: _____
Inspected by: _____

Type of Inspection: ☐ Scheduled Weekly ☐ Rain Event

CONSTRUCTION SITE INSPECTION AND MAINTENANCE LOG

(To be Completed by Property Owner or Agent)

All stormwater pollution prevention BMPs shall be inspected and maintained as needed to ensure continued performance of their intended function during construction and shall continue until the entire site has been stabilized and a Notice of Termination has been issued. An inspection of the project site must be completed by the end of the next business day following each measurable storm event. If there are no measurable storm events within a given week, the site should be monitored at least once in that week. Maintenance and repair shall be conducted in accordance with the accepted site plans. This log shall be kept as a permanent record and must be made available to the Municipal Engineer, in an organized fashion, within forty-eight (48) hours upon request.

Yes	No	N/A	
			1. Are all sediment control barriers, inlet protection and silt fences in place and functioning properly?
			2. Are all erodible slopes protected from erosion through the implementation of acceptable soil stabilization practices?
			3. Are all dewatering structures functioning properly?
			4. Are all discharge points free of any noticeable pollutant discharges?
			5. Are all discharge points free of any noticeable erosion or sediment transport?
			6. Are designated equipment washout areas properly sited, clearly marked, and being utilized?
			7. Are construction staging and parking areas restricted to areas designated as such on the plans?
			8. Are temporary soil stockpiles in approved areas and properly protected?
			9. Are construction entrances properly installed and being used and maintained?
			10. Are “Do Not Disturb” areas designated on plan sheets clearly marked on-site and avoided?
			11. Are public roads at intersections with site access roads being kept clear of sediment, debris, and mud?
			12. Is spill response equipment on-site, logically located, and easily accessed in an emergency?
			13. Are emergency response procedures and contact information clearly posted?
			14. Is solid waste properly contained?
			15. Is a stable access provided to the solid waste storage and pick-up area?
			16. Are hazardous materials, waste or otherwise, being properly handled and stored?
			17. Have previously recommended corrective actions been implemented?

If you answered “no” to any of the above questions, describe any corrective action which must be taken to remedy the problem and when the corrective actions are to be completed.

Exhibit 6

Errors & Omissions Insurance

DVGIN-1 OP ID: LE

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) 04/04/2022

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Lake County Insurance Agency Inc. 6948 Indianapolis Blvd. Hammond, IN 46324 Richard D. Rykovich	CONTACT NAME: Richard D. Rykovich PHONE (A/C, No, Ext): 219-845-0288 FAX (A/C, No): 219-989-4417 E-MAIL ADDRESS: rrykovich@yahoo.com
INSURED DVG Team, Inc. dba Development Vision Group Land Technologies Plumb Tuckett & Associates 1155 Troutwine Road Crown Point, IN 46307	INSURER(S) AFFORDING COVERAGE — NAIC # INSURER A : The Hartford — 11000 INSURER B : Beazley Insurance Company Inc. INSURER C : INSURER D : INSURER E : INSURER F :

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY CLAIMS-MADE [X] OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: POLICY [X] PRO-JECT [ ] LOC OTHER:			36 SBA AQ8351	04/15/2022	04/15/2023	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$ 2,000,000 $ 1,000,000 $ 10,000 $ 2,000,000 $ 4,000,000 $ 4,000,000
A	AUTOMOBILE LIABILITY X ANY AUTO ALL OWNED AUTOS SCHEDULED AUTOS X HIRED AUTOS X NON-OWNED AUTOS			36 UEC ZV0608	04/15/2022	04/15/2023	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ 1,000,000 $ $ $
A	X UMBRELLA LIAB X OCCUR EXCESS LIAB CLAIMS-MADE DED X RETENTION $ 10,000			36 SBA AQ8351	04/15/2022	04/15/2023	EACH OCCURRENCE AGGREGATE	$ 2,000,000 $ 2,000,000
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y / N [ ] (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	N / A		36 WEC BY2928	04/15/2022	04/15/2023	X PER STATUTE OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	$ 1,000,000 $ 1,000,000 $ 1,000,000
B	Professional Liability			C18A80210701	06/02/2021	06/02/2022	Per Occur Aggregate	2,000,000 4,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

CERTIFICATE HOLDER

DVGINC1

DVG Inc.
1155 Troutwine Road
Crown Point, IN 46307

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE
Richard D. Rykovich

Exhibit 7

Material Safety Data Sheet

Material Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

DIESEL FUEL No. 2

Product Use: Fuel
Product Number(s): CPS203410 [See Section 16 for Additional Product Numbers]
Synonyms: 15 S Diesel Fuel 2, Alternative Low Aromatic Diesel (ALAD), Calco LS Diesel 2, Calco ULS DF2, Calco ULS Diesel 2, Chevron LS Diesel 2, Chevron ULS Diesel 2, Diesel Fuel Oil, Diesel Grade No. 2, Diesel No. 2-D S15, Diesel No. 2-D S500, Diesel No. 2-D S5000, Distillates, straight run, Gas Oil, HS Diesel 2, HS Heating Fuel 2, Light Diesel Oil Grade No. 2-D, LS Diesel 2, LS Heating Fuel 2, Marine Diesel, RR Diesel Fuel, Texaco Diesel, Texaco Diesel No. 2, Ultra Low Sulfur Diesel 2
Company Identification
Chevron Products Company
Marketing, MSDS Coordinator
6001 Bollinger Canyon Road
San Ramon, CA 94583
United States of America

Transportation Emergency Response
CHEMTREC: (800) 424-9300 or (703) 527-3887
Health Emergency
Chevron Emergency Information Center: Located in the USA. International collect calls accepted. (800) 231-0623 or (510) 231-0623
Product Information
MSDS Requests: (800) 689-3998
Technical Information: (510) 242-5357

SPECIAL NOTES: This MSDS covers all Chevron and Calco non-CARB Diesel No. 2 Fuels. The sulfur content is less than 0.5% (mass). Red dye is added to non-taxable fuel. (MSDS 6894)

SECTION 2 COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	AMOUNT
Diesel Fuel No. 2	68476-34-6	100 %wt/wt
Distillates, hydrodesulfurized, middle	64742-80-9	0 - 100 %wt/wt
Distillates, straight run middle (gas oil, light)	64741-44-2	0 - 100 %wt/wt
Kerosine	8008-20-6	0 - 25 %wt/wt
Kerosine, hydrodesulfurized	64742-81-0	0 - 25 %wt/wt
Distillates (petroleum), light catalytic cracked	64741-59-9	0 - 50 %wt/wt
Naphthalene	91-20-3	0.02 - 0.2 %wt/wt
Total sulfur	None	0 - 0.5 %wt/wt

SECTION 3 HAZARDS IDENTIFICATION

****

EMERGENCY OVERVIEW

- COMBUSTIBLE LIQUID AND VAPOR
- HARMFUL OR FATAL IF SWALLOWED - MAY CAUSE LUNG DAMAGE IF SWALLOWED
- CAUSES SKIN IRRITATION
- MAY CAUSE CANCER BASED ON ANIMAL DATA
- TOXIC TO AQUATIC ORGANISMS

****

IMMEDIATE HEALTH EFFECTS

Eye: Not expected to cause prolonged or significant eye irritation.
Skin: Contact with the skin causes irritation. Skin contact may cause drying or defatting of the skin. Symptoms may include pain, itching, discoloration, swelling, and blistering. Contact with the skin is not expected to cause an allergic skin response. Not expected to be harmful to internal organs if absorbed through the skin.
Ingestion: Because of its low viscosity, this material can directly enter the lungs, if swallowed, or if subsequently vomited. Once in the lungs it is very difficult to remove and can cause severe injury or death. May be irritating to mouth, throat, and stomach. Symptoms may include pain, nausea, vomiting, and diarrhea.
Inhalation: Mists of this material may cause respiratory irritation. Symptoms of respiratory irritation may include coughing and difficulty breathing. Breathing this material at concentrations above the recommended exposure limits may cause central nervous system effects. Central nervous system effects may include headache, dizziness, nausea, vomiting, weakness, loss of coordination, blurred vision, drowsiness, confusion, or disorientation. At extreme exposures, central nervous system effects may include respiratory depression, tremors or convulsions, loss of consciousness, coma or death.

DELAYED OR OTHER HEALTH EFFECTS:

Cancer: Prolonged or repeated exposure to this material may cause cancer. Whole diesel engine exhaust has been classified as a Group 2A carcinogen (probably carcinogenic to humans) by the International Agency for Research on Cancer (IARC). Diesel exhaust particulate has been classified as reasonably anticipated to be a human carcinogen in the National Toxicology Program's Ninth Report on Carcinogens. The National Institute of Occupational Safety and Health (NIOSH) has recommended that whole diesel exhaust be regarded as potentially causing cancer. Diesel engine exhaust is known to the State of California to cause cancer. Contains naphthalene, which has been classified as a Group 2B carcinogen (possibly carcinogenic to humans) by the International Agency for Research on Cancer (IARC). See Section 11 for additional information. Risk depends on duration and level of exposure.

SECTION 4 FIRST AID MEASURES

Eye: No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.
Skin: Wash skin with water immediately and remove contaminated clothing and shoes. Get medical attention if any symptoms develop. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.
Ingestion: If swallowed, get immediate medical attention. Do not induce vomiting. Never give anything by mouth to an unconscious person.
Inhalation: Move the exposed person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if breathing difficulties continue.
Note to Physicians: Ingestion of this product or subsequent vomiting may result in aspiration of light hydrocarbon liquid, which may cause pneumonitis.

SECTION 5 FIRE FIGHTING MEASURES

See Section 7 for proper handling and storage.

FIRE CLASSIFICATION:
OSHA Classification (29 CFR 1910.1200): Combustible liquid.

NFPA RATINGS: Health: 0 Flammability: 2 Reactivity: 0

FLAMMABLE PROPERTIES:
Flashpoint: (Pensky-Martens Closed Cup) 52 °C (125 °F) (Min)
Autoignition: 257 °C (494 °F)
Flammability (Explosive) Limits (% by volume in air): Lower: 0.6 Upper: 4.7

EXTINGUISHING MEDIA: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

PROTECTION OF FIRE FIGHTERS:
Fire Fighting Instructions: For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.
Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures: Eliminate all sources of ignition in the vicinity of the spill or released vapor. If this material is released into the work area, evacuate the area immediately. Monitor area with combustible gas indicator.
Spill Management: Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. All equipment used when handling the product must be grounded. A vapor suppressing foam may be used to reduce vapors. Use clean non-sparking tools to collect absorbed material. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.
Reporting: Report spills to local authorities and/or the U.S. Coast Guard's National Response Center at (800) 424-8802 as appropriate or required.

SECTION 7 HANDLING AND STORAGE

Precautionary Measures: Liquid evaporates and forms vapor (fumes) which can catch fire and burn with explosive force. Invisible vapor spreads easily and can be set on fire by many sources such as pilot lights, welding equipment, and electrical motors and switches. Fire hazard is greater as liquid temperature rises above 29C (85F).
Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Do not breathe vapor or fumes. Do not breathe mist. Wash thoroughly after handling. Keep out of the reach of children.
Unusual Handling Hazards: WARNING! Do not use as portable heater or appliance fuel. Toxic fumes may accumulate and cause death.
General Handling Information: Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.
Static Hazard: Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures. For more information, refer to OSHA Standard 29 CFR 1910.106, 'Flammable and Combustible Liquids', National Fire Protection Association (NFPA

77, 'Recommended Practice on Static Electricity', and/or the American Petroleum Institute (API) Recommended Practice 2003, 'Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents'.
General Storage Information: DO NOT USE OR STORE near heat, sparks, flames, or hot surfaces . USE AND STORE ONLY IN WELL VENTILATED AREA. Keep container closed when not in use.
Container Warnings: Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

GENERAL CONSIDERATIONS:
Consider the potential hazards of this material (see Section 3), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

ENGINEERING CONTROLS:
Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below the recommended exposure limits.

PERSONAL PROTECTIVE EQUIPMENT
Eye/Face Protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.
Skin Protection: Wear protective clothing to prevent skin contact. Selection of protective clothing may include gloves, apron, boots, and complete facial protection depending on operations conducted. Suggested materials for protective gloves include: Chlorinated Polyethylene (or Chlorosulfonated Polyethylene), Nitrile Rubber, Polyurethane, Viton.
Respiratory Protection: Determine if airborne concentrations are below the recommended occupational exposure limits for jurisdiction of use. If airborne concentrations are above the acceptable limits, wear an approved respirator that provides adequate protection from this material, such as: Air-Purifying Respirator for Organic Vapors.
When used as a fuel, this material can produce carbon monoxide in the exhaust. Determine if airborne concentrations are below the occupational exposure limit for carbon monoxide. If not, wear an approved positive-pressure air-supplying respirator.
Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.
Occupational Exposure Limits:

Component	Agency	TWA	STEL	Ceiling	Notation
Diesel Fuel No. 2	ACGIH	100 mg/m3	--	--	Skin A3 total hydrocarbon
Diesel Fuel No. 2	CVX	--	1000 mg/m3	--	--
Kerosine	ACGIH	200 mg/m3	--	--	Skin A3 Total hydrocabon vapor
Kerosine	CVX	--	1000 mg/m3	--	--
Kerosine, hydrodesulfurized	ACGIH	200 mg/m3	--	--	Skin A3 Total hydrocabon vapor
Kerosine, hydrodesulfurized	CVX	--	1000 mg/m3	--	--
Naphthalene	ACGIH	10 ppm (weight)	15 ppm (weight)	--	Skin
Naphthalene	OSHA Z-1	50 mg/m3	--	--	--

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

Color: Varies depending on specification
Physical State: Liquid
Odor: Petroleum odor
pH: Not Applicable
Vapor Pressure: 0.04 kPa (Approximate) @ 40 °C (104 °F)
Vapor Density (Air = 1): >1
Boiling Point: 175.6°C (348°F) - 370°C (698°F)
Solubility: Soluble in hydrocarbons; insoluble in water
Freezing Point: Not Applicable
Melting Point: Not Applicable
Specific Gravity: 0.8 - 0.88 @ 15.6°C (60.1°F) (Typical)
Viscosity: 1.9 cSt - 4.1 cSt @ 40°C (104°F)

SECTION 10 STABILITY AND REACTIVITY

Chemical Stability: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
Incompatibility With Other Materials: May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
Hazardous Decomposition Products: None known (None expected)
Hazardous Polymerization: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

IMMEDIATE HEALTH EFFECTS
Eye Irritation: The eye irritation hazard is based on evaluation of data for similar materials or product components.
Skin Irritation: The skin irritation hazard is based on evaluation of data for similar materials or product components.
Skin Sensitization: This material did not cause skin sensitization reactions in a Buehler guinea pig test.
Acute Dermal Toxicity: LD50: >5ml/kg (rabbit).
Acute Oral Toxicity: LD50: > 5 ml/kg (rat)
Acute Inhalation Toxicity: 4 hour(s) LC50: > 5mg/l (rat).

ADDITIONAL TOXICOLOGY INFORMATION:
This product contains gas oils.
CONCAWE (product dossier 95/107) has summarized current health, safety and environmental data available for a number of gas oils, typically hydrodesulfurized middle distillates, CAS 64742-80-9, straight-run middle distillates, CAS 64741-44-2, and/or light cat-cracked distillate CAS 64741-59-9. CARCINOGENICITY: All materials tested have caused the development of skin tumors in mice, but all featured severe skin irritation and sometimes a long latency period before tumors developed. Straight-run and cracked gas oil samples were studied to determine the influence of dermal irritation on the carcinogenic activity of middle distillates. At non-irritant doses the straight-run gas oil was not carcinogenic, but at irritant doses, weak activity was demonstrated. Cracked gas oils, when diluted with mineral oil, demonstrated carcinogenic activity irrespective of the occurrence of skin irritation. Gas oils were tested on male mice to study tumor initiating/promoting activity. The results demonstrated that while a straight-run gas oil sample was neither an initiator or promotor, a blend of straight-run and FCC stock was both a tumor initiator and a promoter.
GENOTOXICITY: Hydrotreated & hydrodesulfurized gas oils range in activity from inactive to weakly positive in in-vitro bacterial mutagenicity assays. Mouse lymphoma assays on straight-run gas oils without subsequent hydrodesulphurization gave positive results in the presence of S9 metabolic activation. In-vivo bone marrow cytogenetics and sister chromatic exchange assay exhibited no activity for straight-run components with or without hydrodesulphurization. Thermally or catalytically cracked gas oils tested with in-vitro bacterial mutagenicity assays in the

presence of S9 metabolic activation were shown to be mutagenic. In-vitro sister chromatic exchange assays on cracked gas oil gave equivocal results both with and without S9 metabolic activation. In-vivo bone marrow cytogenetics assay was inactive for two cracked gas oil samples. Three hydrocracked gas oils were tested with in-vitro bacterial mutagenicity assays with S9, and one of the three gave positive results. Twelve distillate fuel samples were tested with in-vitro bacterial mutagenicity assays & with S9 metabolic activation and showed negative to weakly positive results. In one series, activity was shown to be related to the PCA content of samples tested. Two in-vivo studies were also conducted. A mouse dominant lethal assay was negative for a sample of diesel fuel. In the other study, 9 samples of No 2 heating oil containing 50% cracked stocks caused a slight increase in the number of chromosomal aberrations in bone marrow cytogenetics assays. DEVELOPMENTAL TOXICITY: Diesel fuel vapor did not cause fetotoxic or teratogenic effects when pregnant rats were exposed on days 6-15 of pregnancy. Gas oils were applied to the skin of pregnant rats daily on days 0-19 of gestation. All but one (coker light gas oil) caused fetotoxicity (increased resorptions, reduced litter weight, reduced litter size) at dose levels that were also maternally toxic.

This product contains naphthalene. GENERAL TOXICITY: Exposure to naphthalene has been reported to cause methemoglobinemia and/or hemolytic anemia, especially in humans deficient in the enzyme glucose-6-phosphate dehydrogenase. Laboratory animals given repeated oral doses of naphthalene have developed cataracts. REPRODUCTIVE TOXICITY AND BIRTH DEFECTS: Naphthalene did not cause birth defects when administered orally to rabbits, rats, and mice during pregnancy, but slightly reduced litter size in mice at dose levels that were lethal to the pregnant females. Naphthalene has been reported to cross the human placenta. GENETIC TOXICITY: Naphthalene caused chromosome aberrations and sister chromatid exchanges in Chinese hamster ovary cells, but was not a mutagen in several other in-vitro tests.CARCINOGENICITY: In a study conducted by the National Toxicology Program (NTP), mice exposed to 10 or 30 ppm of naphthalene by inhalation daily for two years had chronic inflammation of the nose and lungs and increased incidences of metaplasia in those tissues. The incidence of benign lung tumors (alveolar/ bronchiolar adenomas) was significantly increased in the high-dose female group but not in the male groups. In another two-year inhalation study conducted by NTP, exposure of rats to 10, 30, and 60 ppm naphthalene caused increases in the incidences of a variety of nonneoplastic lesions in the nose. Increases in nasal tumors were seen in both sexes, including olfactory neuroblastomas in females at 60 ppm and adenomas of the respiratory epithelium in males at all exposure levels. The relevance of these effects to humans has not been established. No carcinogenic effect was reported in a 2-year feeding study in rats receiving naphthalene at 41 mg/kg/day.

This product may contain significant amounts of Polynuclear Aromatic Hydrocarbons (PAH's) which have been shown to cause skin cancer after prolonged and frequent contact with the skin of test animals. Brief or intermittent skin contact with this product is not expected to have serious effects if it is washed from the skin. While skin cancer is unlikely to occur in human beings following use of this product, skin contact and breathing, of mists, vapors or dusts should be reduced to a minimum.

SECTION 12 ECOLOGICAL INFORMATION

ECOTOXICITY
96 hour(s) LC50: 21-210 mg/l (Salmo gairdneri)
48 hour(s) EC50: 20-210 mg/l (Daphnia magna)
72 hour(s) EC50: 2.6-25 mg/l (Raphidocellus subcapitata)
This material is expected to be toxic to aquatic organisms.

ENVIRONMENTAL FATE
On release to the environment the lighter components of diesel fuel will generally evaporate but depending on local environmental conditions (temperature, wind, mixing or wave action, soil type, etc.) the remainder may become dispersed in the water column or absorbed to soil or sediment. Diesel fuel would not be expected to be readily biodegradable. In a modified Strum test (OECD method 301B) approximately 40% biodegradation was recorded over 28 days. However, it has been shown that most hydrocarbon components of diesel fuel are degraded in soil in the presence of oxygen. Under anaerobic conditions, such as in anoxic sediments, rates of biodegradation are negligible.

SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by US EPA under RCRA (40 CFR 261) or other State and local regulations. Measurement of certain physical properties and analysis for regulated components may be necessary to make a correct determination. If this material is classified as a hazardous waste, federal law requires disposal at a licensed hazardous waste disposal facility.

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

DOT Shipping Description: GAS OIL, COMBUSTIBLE LIQUID, UN1202,III

IMO/IMDG Shipping Description: UN1202, GAS OIL, 3, III, FLASH POINT SEE SECTION 5

ICAO/IATA Shipping Description: UN1202, GAS OIL, 3, III

SECTION 15 REGULATORY INFORMATION

EPCRA 311/312 CATEGORIES: 1. Immediate (Acute) Health Effects: YES
2. Delayed (Chronic) Health Effects: YES
3. Fire Hazard: YES
4. Sudden Release of Pressure Hazard: NO
5. Reactivity Hazard: NO

REGULATORY LISTS SEARCHED:

01-1=IARC Group 1	03=EPCRA 313
01-2A=IARC Group 2A	04=CA Proposition 65
01-2B=IARC Group 2B	05=MA RTK
02=NTP Carcinogen	06=NJ RTK
	07=PA RTK

The following components of this material are found on the regulatory lists indicated.

Diesel Fuel No. 2	07
Distillates, straight run middle (gas oil, light)	06
Kerosine	05, 06, 07
Naphthalene	01-2B, 02, 03, 04, 05, 06, 07

CERCLA REPORTABLE QUANTITIES(RQ)/EPCRA 302 THRESHOLD PLANNING QUANTITIES(TPQ):

Component	Component RQ	Component TPQ	Product RQ
Naphthalene	100 lbs	None	55556 lbs

CHEMICAL INVENTORIES:
All components comply with the following chemical inventory requirements: AICS (Australia), DSL (Canada), EINECS (European Union), IECSC (China), KECI (Korea), PICCS (Philippines), TSCA (United States).

NEW JERSEY RTK CLASSIFICATION:
Refer to components listed in Section 2. Under the New Jersey Right-to-Know Act L. 1983 Chapter 315 N.J.S.A. 34:5A-1 et. seq., the product is to be identified as follows: DIESEL FUEL

WHMIS CLASSIFICATION:
Class B, Division 3: Combustible Liquids
Class D, Division 2, Subdivision A: Very Toxic Material - Carcinogenicity
Class D, Division 2, Subdivision B: Toxic Material - Skin or Eye Irritation

SECTION 16 OTHER INFORMATION

NFPA RATINGS: Health: 0 Flammability: 2 Reactivity: 0

(0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme, PPE:- Personal Protection Equipment Index recommendation, *- Chronic Effect Indicator). These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association (NFPA) or the National Paint and Coating Association (for HMIS ratings).

Additional Product Number(s): CPS203413, CPS203417, CPS220122, CPS225114, CPS225115, CPS225150, CPS266176, CPS270000, CPS270005, CPS270094, CPS270095, CPS270096, CPS271006, CPS272006, CPS272007, CPS272008, CPS272009, CPS272010, CPS272011, CPS272012, CPS272013, CPS272093, CPS272102, CPS272126, CPS272152, CPS272185, CPS272190, CPS272195, CPS272593, CPS272601, CPS272693, CPS272793, CPS273003, CPS273030, CPS273053, CPS275000
REVISION STATEMENT: This revision updates the following sections of this Material Safety Data Sheet: 16.
Revision Date: July 31, 2006

ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:

TLV - Threshold Limit Value	TWA - Time Weighted Average
STEL - Short-term Exposure Limit	PEL - Permissible Exposure Limit
	CAS - Chemical Abstract Service Number
ACGIH - American Conference of Government Industrial Hygienists	IMO/IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	MSDS - Material Safety Data Sheet
CVX - Chevron	NFPA - National Fire Protection Association (USA)
DOT - Department of Transportation (USA)	NTP - National Toxicology Program (USA)
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration

Prepared according to the OSHA Hazard Communication Standard (29 CFR 1910.1200) and the ANSI MSDS Standard (Z400.1) by the Chevron Energy Technology Company, 100 Chevron Way, Richmond, California 94802.

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

Material Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

CHEVRON Diesel Engine Oil Delo® 6130 CFO SAE 20W-40

Product Use: Diesel Engine Oil
Product Number(s): CPS235067
Company Identification
ChevronTexaco Global Lubricants
6001 Bollinger Canyon Rd.
San Ramon, CA 94583
United States of America
www.chevronlubricants.com

Transportation Emergency Response
CHEMTREC: (800) 424-9300 or (703) 527-3887
Health Emergency
ChevronTexaco Emergency Information Center: Located in the USA. International collect calls accepted. (800) 231-0623 or (510) 231-0623
Product Information
email : lubemsds@Chevron.com
Product Information: (800) LUBE TEK
MSDS Requests: (800) 414-6737

SECTION 2 COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	AMOUNT
Highly refined mineral oil (C15 - C50)	Mixture	80 - 100 %weight

SECTION 3 HAZARDS IDENTIFICATION

IMMEDIATE HEALTH EFFECTS
Eye: Not expected to cause prolonged or significant eye irritation.
Skin: Contact with the skin is not expected to cause prolonged or significant irritation. Not expected to be harmful to internal organs if absorbed through the skin.
Ingestion: Not expected to be harmful if swallowed.
Inhalation: Not expected to be harmful if inhaled. Contains a petroleum-based mineral oil. May cause respiratory irritation or other pulmonary effects following prolonged or repeated inhalation of oil mist at airborne levels above the recommended mineral oil mist exposure limit. Symptoms of respiratory irritation may include coughing and difficulty breathing.

SECTION 4 FIRST AID MEASURES

Eye: No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.
Skin: No specific first aid measures are required. As a precaution, remove clothing and shoes if contaminated. To

remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.
Ingestion: No specific first aid measures are required. Do not induce vomiting. As a precaution, get medical advice.
Inhalation: No specific first aid measures are required. If exposed to excessive levels of material in the air, move the exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs.

SECTION 5 FIRE FIGHTING MEASURES

FIRE CLASSIFICATION:
OSHA Classification (29 CFR 1910.1200): Not classified by OSHA as flammable or combustible.

NFPA RATINGS: Health: 0 Flammability: 1 Reactivity: 0

FLAMMABLE PROPERTIES:
Flashpoint: (Cleveland Open Cup) 210 °C (410 °F) (Min)
Autoignition: No Data Available
Flammability (Explosive) Limits (% by volume in air): Lower: Not Applicable Upper: Not Applicable

EXTINGUISHING MEDIA: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

PROTECTION OF FIRE FIGHTERS:
Fire Fighting Instructions: This material will burn although it is not easily ignited. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.
Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures: Eliminate all sources of ignition in vicinity of spilled material.
Spill Management: Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.
Reporting: Report spills to local authorities and/or the U.S. Coast Guard's National Response Center at (800) 424-8802 as appropriate or required.

SECTION 7 HANDLING AND STORAGE

General Handling Information: Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.
Static Hazard: Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures. For more information, refer to OSHA Standard 29 CFR 1910.106, 'Flammable and Combustible Liquids', National Fire Protection Association (NFPA 77, 'Recommended Practice on Static Electricity', and/or the American Petroleum Institute (API) Recommended Practice 2003, 'Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents'.
Container Warnings: Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely

drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

GENERAL CONSIDERATIONS:
Consider the potential hazards of this material (see Section 3), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

ENGINEERING CONTROLS:
Use in a well-ventilated area.

PERSONAL PROTECTIVE EQUIPMENT
Eye/Face Protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.
Skin Protection: No special protective clothing is normally required. Where splashing is possible, select protective clothing depending on operations conducted, physical requirements and other substances in the workplace. Suggested materials for protective gloves include: 4H (PE/EVAL), Nitrile Rubber, Silver Shield, Viton.
Respiratory Protection: No respiratory protection is normally required.
If user operations generate an oil mist, determine if airborne concentrations are below the occupational exposure limit for mineral oil mist. If not, wear an approved respirator that provides adequate protection from the measured concentrations of this material. For air-purifying respirators use a particulate cartridge.
Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.
Occupational Exposure Limits:

Component	Agency	TWA	STEL	Ceiling	Notation
Highly refined mineral oil (C15 - C50)	ACGIH	5 mg/m3	10 mg/m3	--	--
Highly refined mineral oil (C15 - C50)	OSHA Z-1	5 mg/m3	--	--	--

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

Color: Brown
Physical State: Liquid
Odor: Petroleum odor
pH: Not Applicable
Vapor Pressure: <0.01 mmHg @ 37.8 °C (100 °F)
Vapor Density (Air = 1): >1
Boiling Point: >315.6°C (600°F)
Solubility: Soluble in hydrocarbons; insoluble in water
Freezing Point: Not Applicable
Melting Point: Not Applicable
Specific Gravity: 0.88 @ 15.6°C (60.1°F) / 15.6°C (60.1°F) (Typical)
Density: 0.88 kg/l @ 15°C (59°F)
Viscosity: 14.3 cSt @ 100°C (212°F) (Min)

SECTION 10 STABILITY AND REACTIVITY

Chemical Stability: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

Incompatibility With Other Materials: May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
Hazardous Decomposition Products: None known (None expected)
Hazardous Polymerization: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

IMMEDIATE HEALTH EFFECTS
Eye Irritation: The eye irritation hazard is based on evaluation of data for similar materials or product components.
Skin Irritation: The skin irritation hazard is based on evaluation of data for similar materials or product components.
Skin Sensitization: No product toxicology data available.
Acute Dermal Toxicity: The acute dermal toxicity hazard is based on evaluation of data for similar materials or product components.
Acute Oral Toxicity: The acute oral toxicity hazard is based on evaluation of data for similar materials or product components.
Acute Inhalation Toxicity: The acute inhalation toxicity hazard is based on evaluation of data for similar materials or product components.

ADDITIONAL TOXICOLOGY INFORMATION:
This product contains petroleum base oils which may be refined by various processes including severe solvent extraction, severe hydrocracking, or severe hydrotreating. None of the oils requires a cancer warning under the OSHA Hazard Communication Standard (29 CFR 1910.1200). These oils have not been listed in the National Toxicology Program (NTP) Annual Report nor have they been classified by the International Agency for Research on Cancer (IARC) as; carcinogenic to humans (Group 1), probably carcinogenic to humans (Group 2A), or possibly carcinogenic to humans (Group 2B). These oils have not been classified by the American Conference of Governmental Industrial Hygienists (ACGIH) as: confirmed human carcinogen (A1), suspected human carcinogen (A2), or confirmed animal carcinogen with unknown relevance to humans (A3). During use in engines, contamination of oil with low levels of cancer-causing combustion products occurs. Used motor oils have been shown to cause skin cancer in mice following repeated application and continuous exposure. Brief or intermittent skin contact with used motor oil is not expected to have serious effects in humans if the oil is thoroughly removed by washing with soap and water.

SECTION 12 ECOLOGICAL INFORMATION

ECOTOXICITY
The toxicity of this material to aquatic organisms has not been evaluated. Consequently, this material should be kept out of sewage and drainage systems and all bodies of water.

ENVIRONMENTAL FATE
This material is not expected to be readily biodegradable.

SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. Oil collection services are available for used oil recycling or disposal. Place contaminated materials in containers and dispose of in a manner consistent with applicable regulations. Contact your sales representative or local environmental or health authorities for approved disposal or recycling methods.

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods

Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

DOT Shipping Description: PETROLEUM LUBRICATING OIL, NOT REGULATED AS A HAZARDOUS MATERIAL FOR TRANSPORTATION UNDER 49 CFR
Additional Information: NOT HAZARDOUS BY U.S. DOT. ADR/RID HAZARD CLASS NOT APPLICABLE.

IMO/IMDG Shipping Description: PETROLEUM LUBRICATING OIL; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER THE IMDG CODE

ICAO/IATA Shipping Description: PETROLEUM LUBRICATING OIL; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER ICAO

SECTION 15 REGULATORY INFORMATION

EPCRA 311/312 CATEGORIES: 1. Immediate (Acute) Health Effects: NO
2. Delayed (Chronic) Health Effects: NO
3. Fire Hazard: NO
4. Sudden Release of Pressure Hazard: NO
5. Reactivity Hazard: NO

REGULATORY LISTS SEARCHED:

01-1=IARC Group 1	03=EPCRA 313
01-2A=IARC Group 2A	04=CA Proposition 65
01-2B=IARC Group 2B	05=MA RTK
02=NTP Carcinogen	06=NJ RTK
	07=PA RTK

No components of this material were found on the regulatory lists above.

CHEMICAL INVENTORIES:
All components comply with the following chemical inventory requirements: DSL (Canada), EINECS (European Union), ENCS (Japan), IECSC (China), KECI (Korea), PICCS (Philippines), TSCA (United States).

One or more components does not comply with the following chemical inventory requirements: AICS (Australia).

NEW JERSEY RTK CLASSIFICATION:
Under the New Jersey Right-to-Know Act L. 1983 Chapter 315 N.J.S.A. 34:5A-1 et. seq., the product is to be identified as follows: PETROLEUM OIL (Motor oil)

WHMIS CLASSIFICATION:
This product is not considered a controlled product according to the criteria of the Canadian Controlled Products Regulations.

SECTION 16 OTHER INFORMATION

NFPA RATINGS: Health: 0 Flammability: 1 Reactivity: 0

HMIS RATINGS: Health: 1 Flammability: 1 Reactivity: 0
(0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme, PPE:- Personal Protection Equipment Index recommendation, *-

Chronic Effect Indicator). These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association (NFPA) or the National Paint and Coating Association (for HMIS ratings).

LABEL RECOMMENDATION:
Label Category : ENGINE OIL 1

REVISION STATEMENT: This Material Safety Data Sheet has been discontinued.
Revision Date: 08/03/2006

ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:

TLV - Threshold Limit Value	TWA - Time Weighted Average
STEL - Short-term Exposure Limit	PEL - Permissible Exposure Limit
	CAS - Chemical Abstract Service Number
ACGIH - American Conference of Government Industrial Hygienists	IMO/IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	MSDS - Material Safety Data Sheet
CVX - Chevron	NFPA - National Fire Protection Association (USA)
DOT - Department of Transportation (USA)	NTP - National Toxicology Program (USA)
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration

Prepared according to the OSHA Hazard Communication Standard (29 CFR 1910.1200) and the ANSI MSDS Standard (Z400.1) by the Chevron Energy Research & Technology Company, 100 Chevron Way, Richmond, California 94802.

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

Material Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

CHEVRON and TEXACO REGULAR UNLEADED GASOLINES

Product Use: Fuel
Product Number(s): CPS201000 [See Section 16 for Additional Product Numbers]
Synonyms: Calco Regular Unleaded Gasoline, Chevron Regular Unleaded Gasoline, Chevron UL/CQ Gasoline, Gasolines, Automotive, Texaco Unleaded Gasoline
Company Identification
Chevron Products Company
Marketing, MSDS Coordinator
6001 Bollinger Canyon Road
San Ramon, CA 94583
United States of America

Transportation Emergency Response
CHEMTREC: (800) 424-9300 or (703) 527-3887
Health Emergency
Chevron Emergency Information Center: Located in the USA. International collect calls accepted. (800) 231-0623 or (510) 231-0623
Product Information
Technical Information: (510) 242-5357

SPECIAL NOTES: This MSDS applies to: all motor gasoline.

SECTION 2 COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	AMOUNT
Gasoline	86290-81-5	100 %vol/vol
Benzene	71-43-2	0.1 - 4.9 %vol/vol
Toluene (methylbenzene)	108-88-3	1 - 17 %vol/vol
Ethyl benzene	100-41-4	0.1 - 3 %vol/vol
Xylene (contains o-, m-, & p- xylene isomers in varying amounts)	1330-20-7	1 - 15 %vol/vol
Butane	106-97-8	1 - 12 %vol/vol
Heptane	142-82-5	1 - 4 %vol/vol
Hexane	110-54-3	1 - 5 %vol/vol
Cyclohexane	110-82-7	1 - 3 %vol/vol
Methylcyclohexane	108-87-2	1 - 2 %vol/vol

Pentane, 2,2,4-trimethyl- (Isooctane)	540-84-1	1 - 13 %vol/vol
Naphthalene	91-20-3	0.1 - 2 %vol/vol
Ethanol	64-17-5	0 - 10 %vol/vol
Methyl tert-butyl ether (MTBE)	1634-04-4	0 - 15 %vol/vol
Tertiary amyl methyl ether (TAME)	994-05-8	0 - 17 %vol/vol
Ethyl tert-butyl ether (ETBE)	637-92-3	0 - 18 %vol/vol

Information on ingredients that are considered Controlled Products and/or that appear on the WHMIS Ingredient Disclosure List (IDL) is provided as required by the Canadian Hazardous Products Act (HPA, Sections 13 and 14). Ingredients considered hazardous under the OSHA Hazard Communication Standard, 29 CFR 1910.1200, are also listed. See Section 15 for additional regulatory information.

SECTION 3 HAZARDS IDENTIFICATION

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EMERGENCY OVERVIEW

- EXTREMELY FLAMMABLE LIQUID AND VAPOR. VAPOR MAY CAUSE FLASH FIRE
- HARMFUL OR FATAL IF SWALLOWED - MAY CAUSE LUNG DAMAGE IF SWALLOWED
- VAPOR HARMFUL
- CAUSES EYE AND SKIN IRRITATION
- LONG-TERM EXPOSURE TO VAPOR HAS CAUSED CANCER IN LABORATORY ANIMALS
- KEEP OUT OF REACH OF CHILDREN

****

IMMEDIATE HEALTH EFFECTS
Eye: Contact with the eyes causes irritation. Symptoms may include pain, tearing, reddening, swelling and impaired vision.
Skin: Contact with the skin causes irritation. Skin contact may cause drying or defatting of the skin. Symptoms may include pain, itching, discoloration, swelling, and blistering. Contact with the skin is not expected to cause an allergic skin response. Not expected to be harmful to internal organs if absorbed through the skin.
Ingestion: Because of its low viscosity, this material can directly enter the lungs, if swallowed, or if subsequently vomited. Once in the lungs it is very difficult to remove and can cause severe injury or death.
Inhalation: The vapor or fumes from this material may cause respiratory irritation. Symptoms of respiratory irritation may include coughing and difficulty breathing.

DELAYED OR OTHER HEALTH EFFECTS:
Reproduction and Birth Defects: This material is not expected to cause birth defects or other harm to the developing fetus based on animal data.
Cancer: Prolonged or repeated exposure to this material may cause cancer. Gasoline has been classified as a Group 2B carcinogen (possibly carcinogenic to humans) by the International Agency for Research on Cancer (IARC).

Whole gasoline exhaust has been classified as a Group 2B carcinogen (possibly carcinogenic to humans) by the International Agency for Research on Cancer (IARC).

Contains benzene, which has been classified as a carcinogen by the National Toxicology Program (NTP) and a Group 1 carcinogen (carcinogenic to humans) by the International Agency for Research on Cancer (IARC).
Contains ethylbenzene which has been classified as a Group 2B carcinogen (possibly carcinogenic to humans) by the International Agency for Research on Cancer (IARC).
Contains naphthalene, which has been classified as a Group 2B carcinogen (possibly carcinogenic to humans) by the International Agency for Research on Cancer (IARC). Contains benzene, which has been classified as an A1 Group Confirmed Human Carcinogen by the American Conference of Governmental Industrial Hygienists (ACGIH).
See Section 11 for additional information. Risk depends on duration and level of exposure.

SECTION 4 FIRST AID MEASURES

Eye: Flush eyes with water immediately while holding the eyelids open. Remove contact lenses, if worn, after initial flushing, and continue flushing for at least 15 minutes. Get medical attention if irritation persists.
Skin: Wash skin with water immediately and remove contaminated clothing and shoes. Get medical attention if any symptoms develop. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.
Ingestion: If swallowed, get immediate medical attention. Do not induce vomiting. Never give anything by mouth to an unconscious person.
Inhalation: Move the exposed person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if breathing difficulties continue.
Note to Physicians: Ingestion of this product or subsequent vomiting may result in aspiration of light hydrocarbon liquid, which may cause pneumonitis.

SECTION 5 FIRE FIGHTING MEASURES

See Section 7 for proper handling and storage.

FLAMMABLE PROPERTIES:
Flashpoint: (Tagliabue Closed Cup ASTM D56) < -45 °C (< -49 °F)
Autoignition: > 280 °C (> 536 °F)
Flammability (Explosive) Limits (% by volume in air): Lower: 1.4 Upper: 7.6 (Typical)

EXTINGUISHING MEDIA: Dry Chemical, CO2, AFFF Foam or alcohol resistant foam if >15% volume polar solvents (oxygenates).
PROTECTION OF FIRE FIGHTERS:
Fire Fighting Instructions: Use water spray to cool fire-exposed containers and to protect personnel. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.
Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures: Eliminate all sources of ignition in the vicinity of the spill or released vapor. If this material is released into the work area, evacuate the area immediately. Monitor area with combustible gas indicator.
Spill Management: Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. All equipment used when handling the product must be grounded. A vapor suppressing foam may be used to reduce vapors. Use clean non-sparking tools to collect absorbed material. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.
Reporting: Report spills to local authorities as appropriate or required.

SECTION 7 HANDLING AND STORAGE

Precautionary Measures: READ AND OBSERVE ALL PRECAUTIONS ON PRODUCT LABEL. This product presents an extreme fire hazard. Liquid very quickly evaporates, even at low temperatures, and forms vapor (fumes) which can catch fire and burn with explosive violence. Invisible vapor spreads easily and can be set on fire by many sources such as pilot lights, welding equipment, and electrical motors and switches. Do not store in open or unlabeled containers. Use only as a motor fuel. Do not use for cleaning, pressure appliance fuel, or any other such use. Never siphon gasoline by mouth.
Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Do not breathe vapor or fumes. Wash thoroughly after handling. Keep out of the reach of children.
Unusual Handling Hazards: WARNING! Do not use as portable heater or appliance fuel. Toxic fumes may accumulate and cause death.
General Handling Information: Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.
Static Hazard: Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures. For more information, refer to OSHA Standard 29 CFR 1910.106, 'Flammable and Combustible Liquids', National Fire Protection Association (NFPA 77, 'Recommended Practice on Static Electricity', and/or the American Petroleum Institute (API) Recommended Practice 2003, 'Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents'. Improper filling of portable gasoline containers creates danger of fire. Only dispense gasoline into approved and properly labeled gasoline containers. Always place portable containers on the ground. Be sure pump nozzle is in contact with the container while filling. Do not use a nozzle's lock-open device. Do not fill portable containers that are inside a vehicle or truck/trailer bed.

General Storage Information: DO NOT USE OR STORE near heat, sparks, flames, or hot surfaces . USE AND STORE ONLY IN WELL VENTILATED AREA. Keep container closed when not in use.
Container Warnings: Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

GENERAL CONSIDERATIONS:
Consider the potential hazards of this material (see Section 3), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

ENGINEERING CONTROLS:
Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below the recommended exposure limits.

PERSONAL PROTECTIVE EQUIPMENT
Eye/Face Protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.
Skin Protection: No special protective clothing is normally required. Where splashing is possible, select protective clothing depending on operations conducted, physical requirements and other substances in the workplace. Suggested materials for protective gloves include: Chlorinated Polyethylene (or Chlorosulfonated Polyethylene), Nitrile Rubber,

Polyurethane, Viton.
Respiratory Protection: Determine if airborne concentrations are below the recommended occupational exposure limits for jurisdiction of use. If airborne concentrations are above the acceptable limits, wear an approved respirator that provides adequate protection from this material, such as: Air-Purifying Respirator for Organic Vapors.
When used as a fuel, this material can produce carbon monoxide in the exhaust. Determine if airborne concentrations are below the occupational exposure limit for carbon monoxide. If not, wear an approved positive-pressure air-supplying respirator.
Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.
Occupational Exposure Limits:

Component	Country/ Agency	TWA	STEL	Ceiling	Notation
Benzene	ACGIH	.5 ppm (weight)	2.5 ppm (weight)	--	Skin A1
Butane	ACGIH	1000 ppm (weight)	--	--	--
Cyclohexane	ACGIH	100 ppm (weight)	--	--	--
Ethanol	ACGIH	1000 ppm (weight)	--	--	A4
Ethyl benzene	ACGIH	100 ppm (weight)	125 ppm (weight)	--	A3
Ethyl tert-butyl ether (ETBE)	ACGIH	5 ppm (weight)	--	--	--
Gasoline	ACGIH	300 ppm (weight)	500 ppm (weight)	--	A3
Heptane	ACGIH	400 ppm (weight)	500 ppm (weight)	--	--
Hexane	ACGIH	50 ppm (weight)	--	--	Skin
Methyl tert-butyl ether (MTBE)	ACGIH	50 ppm (weight)	--	--	A3
Methyl tert-butyl ether (MTBE)	CVX	--	50 ppm	--	--
Methylcyclohexane	ACGIH	400 ppm (weight)	--	--	--
Naphthalene	ACGIH	10 ppm (weight)	15 ppm (weight)	--	Skin
Pentane, 2,2,4-trimethyl- (Isooctane)	ACGIH	300 ppm (weight)	--	--	--
Tertiary amyl methyl ether (TAME)	ACGIH	20 ppm (weight)	--	--	--
Tertiary amyl methyl ether (TAME)	CVX	--	50 ppm	--	--
Toluene (methylbenzene)	ACGIH	50 ppm (weight)	--	--	Skin A4
Xylene (contains o-, m-, & p- xylene isomers in varying amounts)	ACGIH	100 ppm (weight)	150 ppm (weight)	--	A4

NOTE ON OCCUPATIONAL EXPOSURE LIMITS: Consult local authorities for acceptable provincial values in Canada. Consult the Canadian Standards Association Standard 94.4-2002 Selection, Use and Care of Respirators.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

Color: Colorless to yellow
Physical State: Liquid
Odor: Petroleum odor
pH: Not Applicable
Vapor Pressure: 5 psi - 15 psi (Typical) @ 37.8 °C (100 °F)
Vapor Density (Air = 1): 3 - 4 (Typical)
Boiling Point: 37.8°C (100°F) - 204.4°C (400°F) (Typical)
Solubility: Insoluble in water; miscible with most organic solvents.
Freezing Point: Not Applicable
Melting Point: Not Applicable
Specific Gravity: 0.7 g/ml - 0.8 g/ml @ 15.6°C (60.1°F) (Typical)
Viscosity: <1 SUS @ 37.8°C (100°F)
Evaporation Rate: No Data Available
Odor Threshold: No Data Available
Coefficient of Water/Oil Distribution: No Data Available

SECTION 10 STABILITY AND REACTIVITY

Chemical Stability: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
Incompatibility With Other Materials: May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
Hazardous Decomposition Products: None known (None expected)
Hazardous Polymerization: Hazardous polymerization will not occur.
Sensitivity to Mechanical Impact: No.

SECTION 11 TOXICOLOGICAL INFORMATION

IMMEDIATE HEALTH EFFECTS
Eye Irritation: The Draize eye irritation mean score in rabbits for a 24-hour exposure was: 0/110.
Skin Irritation: For a 4-hour exposure, the Primary Irritation Index (PII) in rabbits is: 4.8/8.0.
Skin Sensitization: This material did not cause skin sensitization reactions in a Buehler guinea pig test.
Acute Dermal Toxicity: LD50: >3.75g/kg (rabbit).
Acute Oral Toxicity: LD50: >5 ml/kg (rat)
Acute Inhalation Toxicity: 4 hour(s) LD50: >20000mg/m3 (rat). For additional information on the acute toxicity of the components, call the technical information center.**Subchronic Effects:** Exposure of rats for 13 weeks (6 hr/day for 5 days/week) to the light ends of gasoline (up to 20,000 mg/m3) resulted in minimal responses of toxicity. There were no indications of neurotoxicity based morphological, functional and biochemical indices. There was also no evidence of immunotoxicity in the rats. However, when rats were exposed to gasoline vapor containing ethanol up to 20,000 mg/m3 there was evidence of both humoral immune suppression and mild astrogliosis. **Reproduction and Birth Defects:** Exposure of rats to the light ends of gasoline at up to 20,000 mg/m3 had generally no impact upon reproductive abilities and did not cause birth defects.
Genetic Toxicity: Gasoline was not mutagenic, with or without activation, in the Ames assay (Salmonella typhimurium), Saccharamyces cerevisesae, or mouse lymphoma assays. In addition, point mutations were not induced in human lymphocytes. Gasoline was not mutagenic when tested in the mouse dominant lethal assay. Administration of gasoline to rats did not cause chromosomal aberrations in their bone marrow cells. Inhalation exposure of rats to the light ends of gasoline caused increased sister chromatid exchange in their peripheral white blood cells but did not cause an increase in micronucleated red blood cells in their bone marrow.
ADDITIONAL TOXICOLOGY INFORMATION:
Gasolines are highly volatile and can produce significant concentrations of vapor at ambient temperatures. Gasoline vapor is heavier than air and at high concentrations may accumulate in confined spaces to present both safety and

heath hazards. When vapor exposures are low, or short duration and infrequent, such as during refueling and tanker loading/unloading, neither total hydrocarbon nor components such as benzene are likely to result in any adverse health effects. In situations such as accidents or spills where exposure to gasoline vapor is potentially high, attention should be paid to potential toxic effects of specific components. Information about specific components in gasoline can be found in Sections 2, 8 and 15 of this MSDS. More detailed information on the health hazard of specific gasoline components can be obtained calling the Chevron Emergency Information Center (see Section 1 for phone numbers).
Pathological misuse of solvents and gasoline, involving repeated and prolonged exposure to high concentrations of vapor is a significant exposure on which there are many reports in the medical literature. As with other solvents, persistent abuse involving repeated and prolonged exposures to high concentrations of vapor has been reported to result in central nervous system damage and eventually, death. In a study in which ten human volunteers were exposed for 30 minutes to approximately 200, 500 or 1000 ppm concentrations of gasoline vapor, irritation of the eyes was the only significant effect observed, based on both subjective and objective assessments.
Lifetime inhalation of wholly vaporized unleaded gasoline at 2056 ppm has caused increased liver tumors in female mice and kidney cancer in male rats. In their 1988 review of carcinogenic risk from gasoline, The International Agency for Research on Cancer (IARC) noted that, because published epidemiology studies did not include any exposure data, only occupations where gasoline exposure may have occurred were reviewed. These included gasoline service station attendants and automobile mechanics. IARC also noted that there was no opportunity to separate effects of combustion products from those of gasoline itself. Although IARC allocated gasoline a final overall classification of Group 2B, i.e. possibly carcinogenic to humans, this was based on limited evidence in experimental animals plus supporting evidence including the presence in gasoline of benzene. The actual evidence for carcinogenicity in humans was considered inadequate.
To explore the health effects of workers potentially exposed to gasoline vapors in the marketing and distribution sectors of the petroleum industry, the American Petroleum Institute sponsored a cohort mortality study (Publication 4555), a nested case-control study (Publication 4551), and an exposure assessment study (Publication 4552). Histories of exposure to gasoline were reconstructed for cohort of more than 18,000 employees from four companies for the time period between 1946 and 1985. The results of the cohort mortality study indicated that there was no increased mortality from either kidney cancer or leukemia among marketing and marine distribution employees who were exposed to gasoline in the petroleum industry, when compared to the general population. More importantly, based on internal comparisons, there was no association between mortality from kidney cancer or leukemia and various indices of gasoline exposure. In particular, neither duration of employment, duration of exposure, age at first exposure, year of first exposure, job category, cumulative exposure, frequency of peak exposure, nor average intensity of exposure had any effect on kidney cancer or leukemia mortality. The results of the nested case-control study confirmed the findings of the original cohort study. That is, exposure to gasoline at the levels experienced by this cohort of distribution workers is not a significant risk factor for leukemia (all cell types), acute myeloid leukemia, kidney cancer or multiple myeloma.

SECTION 12 ECOLOGICAL INFORMATION

ECOTOXICITY
96 hour(s) LC50: 8.3 mg/l (Cyprinodon variegatus)
96 hour(s) LC50: 1.8 mg/l (Mysidopsis bahia)
48 hour(s) LC50: 3.0 mg/l (Daphnia magna)
96 hour(s) LC50: 2.7 mg/l (Oncorhynchus mykiss)
Gasoline studies have been conducted in the laboratory under a variety of test conditions with a range of fish and invertebrate species. An even more extensive database is available on the aquatic toxicity of individual aromatic constituents. The majority of published studies do not identify the type of gasoline evaluated, or even provide distinguishing characteristics such as aromatic content or presence of lead alkyls. As a result, comparison of results among studies using open and closed vessels, different ages and species of test animals and different gasoline types, is difficult.

The bulk of the available literature on gasoline relates to the environmental impact of monoaromatic (BTEX) and diaromatic (naphthalene, methylnaphthalenes) constituents. In general, non-oxygenated gasoline exhibits some short-term toxicity to freshwater and marine organisms, especially under closed vessel or flow-through exposure conditions in the laboratory. The components which are the most prominent in the water soluble fraction and cause aquatic toxicity,

are also highly volatile and can be readily biodegraded by microorganisms.

ENVIRONMENTAL FATE
This material is expected to be readily biodegradable. Following spillage, the more volatile components of gasoline will be rapidly lost, with concurrent dissolution of these and other constituents into the water. Factors such as local environmental conditions (temperature, wind, mixing or wave action, soil type, etc), photo-oxidation, biodegradation and adsorption onto suspended sediments, can contribute to the weathering of spilled gasoline.

The aqueous solubility of non-oxygenated unleaded gasoline, based on analysis of benzene, toluene, ethylbenzene +xylenes and naphthalene, is reported to be 112 mg/l. Solubility data on individual gasoline constituents also available.

SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by USEPA under RCRA (40CFR261), Environment Canada, or other State, Provincial, and local regulations. Measurement of certain physical properties and analysis for regulated components may be necessary to make a correct determination. If this material is classified as a hazardous waste, federal law requires disposal at a licensed hazardous waste disposal facility.

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

TC Shipping Description: UN1203, GASOLINE, 3, II

IMO/IMDG Shipping Description: UN1203,GASOLINE,3,II,FLASH POINT SEE SECTION 5

ICAO/IATA Shipping Description: UN1203, GASOLINE, 3, II

DOT Shipping Description: GASOLINE,3,UN1203,II

SECTION 15 REGULATORY INFORMATION

REGULATORY LISTS SEARCHED:

01-1=IARC Group 1
01-2A=IARC Group 2A
01-2B=IARC Group 2B
35=WHMIS IDL

The following components of this material are found on the regulatory lists indicated.

Benzene	01-1, 35
Butane	35
Cyclohexane	35
Ethanol	01-1, 35
Ethyl benzene	01-2B, 35
Gasoline	01-2B
Heptane	35
Hexane	35

Methylcyclohexane	35
Naphthalene	01-2B, 35
Pentane, 2,2,4-trimethyl- (Isooctane)	35
Toluene (methylbenzene)	35
Xylene (contains o-, m-, & p- xylene isomers in varying amounts)	35

CHEMICAL INVENTORIES:
All components comply with the following chemical inventory requirements: DSL (Canada), EINECS (European Union), KECI (Korea), TSCA (United States).

One or more components does not comply with the following chemical inventory requirements: AICS (Australia), ENCS (Japan), IECSC (China), PICCS (Philippines).

WHMIS CLASSIFICATION:
Class B, Division 2: Flammable Liquids
Class D, Division 2, Subdivision A: Very Toxic Material - Carcinogenicity
Class D, Division 2, Subdivision B: Toxic Material - Skin or Eye Irritation

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations. (See Hazardous Products Act (HPA), R.S.C. 1985, c. H-3,s.2).

MSDS PREPARATION:

This Material Safety Data Sheet has been prepared by the Toxicology and Health Risk Assessment Unit, ERTC, P.O. Box 1627, Richmond, CA 94804, (888)676-6183.

Revision Date: January 08, 2007

SECTION 16 OTHER INFORMATION

Additional Product Number(s): CPS201023, CPS201054, CPS201055, CPS201075, CPS201090, CPS201105, CPS201106, CPS201120, CPS201121, CPS201122, CPS201126, CPS201128, CPS201131, CPS201136, CPS201141, CPS201142, CPS201148, CPS201153, CPS201158, CPS201161, CPS201162, CPS201168, CPS201175, CPS201181, CPS201185, CPS201186, CPS201188, CPS201216, CPS201217, CPS201218, CPS201236, CPS201237, CPS201238, CPS201266, CPS201267, CPS201268, CPS201277, CPS201278, CPS201279, CPS201286, CPS201287, CPS201289, CPS201296, CPS201297, CPS201298, CPS201849, CPS201850, CPS201855, CPS201856, CPS201857, CPS204000, CPS204001, CPS204002, CPS204003, CPS204010, CPS204011, CPS204022, CPS204023, CPS204046, CPS204047, CPS204070, CPS204071, CPS204088, CPS204089, CPS204104, CPS204105, CPS204116, CPS204117, CPS204140, CPS204141, CPS204164, CPS204165, CPS204188, CPS204189, CPS204200, CPS204201, CPS204207, CPS204212, CPS204213, CPS204224, CPS204225, CPS204248, CPS204249, CPS204272, CPS204273, CPS204290, CPS204291, CPS204322, CPS204323, CPS204324, CPS204350, CPS204352, CPS204354, CPS204356, CPS204358, CPS204359, CPS204364, CPS204365, CPS204370, CPS204371, CPS204376, CPS204377, CPS204382, CPS204383, CPS204388, CPS204389, CPS204394, CPS204395, CPS204400, CPS204401, CPS204406, CPS204407, CPS204412, CPS204413, CPS204418, CPS204419, CPS204424, CPS204425, CPS204430, CPS204431, CPS204436, CPS204437, CPS204442, CPS204446, CPS204450, CPS204454, CPS204458, CPS204462, CPS204466, CPS204467, CPS204484, CPS204485, CPS204502, CPS204503, CPS204520, CPS204521, CPS204538, CPS204539, CPS204556, CPS204557, CPS204574, CPS204575, CPS204592, CPS204593, CPS204610, CPS204611, CPS204628, CPS204629, CPS204646, CPS204647,

CPS204664, CPS204665, CPS204682, CPS204690, CPS204691, CPS204696, CPS204697, CPS204702, CPS204703, CPS204708, CPS204709, CPS204721, CPS204722, CPS204727, CPS204728, CPS204739, CPS241765
REVISION STATEMENT: This revision updates the following sections of this Material Safety Data Sheet: 1

ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:

TLV - Threshold Limit Value	TWA - Time Weighted Average
STEL - Short-term Exposure Limit	PEL - Permissible Exposure Limit
	CAS - Chemical Abstract Service Number
ACGIH - American Conference of Government Industrial Hygienists	IMO/IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	MSDS - Material Safety Data Sheet
CVX - Chevron	NFPA - National Fire Protection Association (USA)
DOT - Department of Transportation (USA)	NTP - National Toxicology Program (USA)
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

Material Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Chevron Black Pearl® Grease EP

Product Use: Grease
Product Number(s): CPS254590, CPS254591, CPS254592
Synonyms: Chevron Black Pearl® Grease EP NLGI 0, Chevron Black Pearl® Grease EP NLGI 1, Chevron Black Pearl® Grease EP NLGI 2
Company Identification
ChevronTexaco Global Lubricants
6001 Bollinger Canyon Rd.
San Ramon, CA 94583
United States of America
www.chevronlubricants.com

Transportation Emergency Response
CHEMTREC: (800) 424-9300 or (703) 527-3887
Health Emergency
Chevron Emergency Information Center: Located in the USA. International collect calls accepted. (800) 231-0623 or (510) 231-0623
Product Information
email : lubemsds@Chevron.com
Product Information: (800) LUBE TEK
MSDS Requests: (800) 414-6737

SECTION 2 COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	AMOUNT
Highly refined mineral oil (C15 - C50)	Mixture	70 - 80 %weight
Polyurea thickener		10 - 20 %weight

SECTION 3 HAZARDS IDENTIFICATION

IMMEDIATE HEALTH EFFECTS
Eye: Not expected to cause prolonged or significant eye irritation.
Skin: Contact with the skin is not expected to cause prolonged or significant irritation. Contact with the skin is not expected to cause an allergic skin response. Not expected to be harmful to internal organs if absorbed through the skin. High-Pressure Equipment Information: Accidental high-velocity injection under the skin of materials of this type may result in serious injury. Seek medical attention at once should an accident like this occur. The initial wound at the injection site may not appear to be serious at first; but, if left untreated, could result in disfigurement or amputation of the affected part.

Ingestion: Not expected to be harmful if swallowed.
Inhalation: Not expected to be harmful if inhaled. Contains a petroleum-based mineral oil. May cause respiratory

irritation or other pulmonary effects following prolonged or repeated inhalation of oil mist at airborne levels above the recommended mineral oil mist exposure limit. Symptoms of respiratory irritation may include coughing and difficulty breathing.

SECTION 4 FIRST AID MEASURES

Eye: No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.
Skin: No specific first aid measures are required. As a precaution, remove clothing and shoes if contaminated. To remove the material from skin, apply a waterless hand cleaner, mineral oil, or petroleum jelly. Then wash with soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.
Ingestion: No specific first aid measures are required. Do not induce vomiting. As a precaution, get medical advice.
Inhalation: No specific first aid measures are required. If exposed to excessive levels of material in the air, move the exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs.
Note to Physicians: In an accident involving high-pressure equipment, this product may be injected under the skin. Such an accident may result in a small, sometimes bloodless, puncture wound. However, because of its driving force, material injected into a fingertip can be deposited into the palm of the hand. Within 24 hours, there is usually a great deal of swelling, discoloration, and intense throbbing pain. Immediate treatment at a surgical emergency center is recommended.

SECTION 5 FIRE FIGHTING MEASURES

FIRE CLASSIFICATION:
OSHA Classification (29 CFR 1910.1200): Not classified by OSHA as flammable or combustible.

NFPA RATINGS: Health: 0 Flammability: 1 Reactivity: 0

FLAMMABLE PROPERTIES:
Flashpoint: (Cleveland Open Cup) 246 °C (475 °F) (Min)
Autoignition: No Data Available
Flammability (Explosive) Limits (% by volume in air): Lower: Not Applicable Upper: Not Applicable

EXTINGUISHING MEDIA: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

PROTECTION OF FIRE FIGHTERS:
Fire Fighting Instructions: This material will burn although it is not easily ignited. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.
Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion. Combustion may form oxides of: Nitrogen .

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures: Eliminate all sources of ignition in vicinity of spilled material.
Spill Management: Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations. Clean up spills immediately, observing precautions in Exposure Controls/Personal Protection section.
Reporting: Report spills to local authorities and/or the U.S. Coast Guard's National Response Center at (800) 424-8802 as appropriate or required.

SECTION 7 HANDLING AND STORAGE

General Handling Information: Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.
Static Hazard: Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures. For more information, refer to OSHA Standard 29 CFR 1910.106, 'Flammable and Combustible Liquids', National Fire Protection Association (NFPA 77, 'Recommended Practice on Static Electricity', and/or the American Petroleum Institute (API) Recommended Practice 2003, 'Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents'.
Container Warnings: Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

GENERAL CONSIDERATIONS:
Consider the potential hazards of this material (see Section 3), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

ENGINEERING CONTROLS:
Use in a well-ventilated area.

PERSONAL PROTECTIVE EQUIPMENT
Eye/Face Protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.
Skin Protection: No special protective clothing is normally required. Where splashing is possible, select protective clothing depending on operations conducted, physical requirements and other substances in the workplace. Suggested materials for protective gloves include: Neoprene, Nitrile Rubber, Silver Shield, Viton.
Respiratory Protection: No respiratory protection is normally required.
If user operations generate an oil mist, determine if airborne concentrations are below the occupational exposure limit for mineral oil mist. If not, wear an approved respirator that provides adequate protection from the measured concentrations of this material. For air-purifying respirators use a particulate cartridge.
Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.
Occupational Exposure Limits:

Component	Agency	TWA	STEL	Ceiling	Notation
Highly refined mineral oil (C15 - C50)	ACGIH	5 mg/m3	10 mg/m3	--	--
Highly refined mineral oil (C15 - C50)	OSHA Z-1	5 mg/m3	--	--	--

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

Color: Black

Physical State: Semi-solid
Odor: Petroleum odor
pH: Not Applicable
Vapor Pressure: <1 mmHg @ 40 °C (104 °F)
Vapor Density (Air = 1): >1
Boiling Point: >315°C (599°F)
Solubility: Soluble in hydrocarbons; insoluble in water
Melting Point: 205°C (401°F) (Min)
Viscosity: No data available

SECTION 10 STABILITY AND REACTIVITY

Chemical Stability: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
Incompatibility With Other Materials: May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
Hazardous Decomposition Products: None known (None expected)
Hazardous Polymerization: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

IMMEDIATE HEALTH EFFECTS
Eye Irritation: The eye irritation hazard is based on evaluation of data for similar materials or product components.
Skin Irritation: The skin irritation hazard is based on evaluation of data for similar materials or product components.
Skin Sensitization: The skin sensitization hazard is based on evaluation of data for similar materials or product components.
Acute Dermal Toxicity: The acute dermal toxicity hazard is based on evaluation of data for similar materials or product components.
Acute Oral Toxicity: The acute oral toxicity hazard is based on evaluation of data for similar materials or product components.
Acute Inhalation Toxicity: The acute inhalation toxicity hazard is based on evaluation of data for similar materials or product components.

ADDITIONAL TOXICOLOGY INFORMATION:
This product contains petroleum base oils which may be refined by various processes including severe solvent extraction, severe hydrocracking, or severe hydrotreating. None of the oils requires a cancer warning under the OSHA Hazard Communication Standard (29 CFR 1910.1200). These oils have not been listed in the National Toxicology Program (NTP) Annual Report nor have they been classified by the International Agency for Research on Cancer (IARC) as; carcinogenic to humans (Group 1), probably carcinogenic to humans (Group 2A), or possibly carcinogenic to humans (Group 2B). These oils have not been classified by the American Conference of Governmental Industrial Hygienists (ACGIH) as: confirmed human carcinogen (A1), suspected human carcinogen (A2), or confirmed animal carcinogen with unknown relevance to humans (A3).

SECTION 12 ECOLOGICAL INFORMATION

ECOTOXICITY
The toxicity of this material to aquatic organisms has not been evaluated. Consequently, this material should be kept out of sewage and drainage systems and all bodies of water.

ENVIRONMENTAL FATE
This material is not expected to be readily biodegradable.

SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. Oil collection services are available for used oil recycling or disposal. Place contaminated materials in containers and dispose of in a manner consistent with applicable regulations. Contact your sales representative or local environmental or health authorities for approved disposal or recycling methods.

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

DOT Shipping Description: PETROLEUM LUBRICATING GREASE, NOT REGULATED AS A HAZARDOUS MATERIAL

IMO/IMDG Shipping Description: PETROLEUM LUBRICATING GREASE, NOT REGULATED AS A DANGEROUS GOOD

ICAO/IATA Shipping Description: PETROLEUM LUBRICATING GREASE, NOT REGULATED AS A DANGEROUS GOOD

SECTION 15 REGULATORY INFORMATION

EPCRA 311/312 CATEGORIES: 1. Immediate (Acute) Health Effects: NO
2. Delayed (Chronic) Health Effects: NO
3. Fire Hazard: NO
4. Sudden Release of Pressure Hazard: NO
5. Reactivity Hazard: NO

REGULATORY LISTS SEARCHED:

01-1=IARC Group 1	03=EPCRA 313
01-2A=IARC Group 2A	04=CA Proposition 65
01-2B=IARC Group 2B	05=MA RTK
02=NTP Carcinogen	06=NJ RTK
	07=PA RTK

No components of this material were found on the regulatory lists above.

CHEMICAL INVENTORIES:
All components comply with the following chemical inventory requirements: DSL (Canada), EINECS (European Union), TSCA (United States).

One or more components does not comply with the following chemical inventory requirements: AICS (Australia), IECSC (China), KECI (Korea), PICCS (Philippines).

NEW JERSEY RTK CLASSIFICATION:
Under the New Jersey Right-to-Know Act L. 1983 Chapter 315 N.J.S.A. 34:5A-1 et. seq., the product is to be identified as follows: PETROLEUM OIL (Grease)

WHMIS CLASSIFICATION:
This product is not considered a controlled product according to the criteria of the Canadian Controlled Products Regulations.

SECTION 16 OTHER INFORMATION

NFPA RATINGS: Health: 0 Flammability: 1 Reactivity: 0

HMIS RATINGS: Health: 1 Flammability: 1 Reactivity: 0
(0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme, PPE:- Personal Protection Equipment Index recommendation, *-Chronic Effect Indicator). These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association (NFPA) or the National Paint and Coating Association (for HMIS ratings).

LABEL RECOMMENDATION:
Label Category : GREASE 1

REVISION STATEMENT: This revision updates the following sections of this Material Safety Data Sheet: 2,8,9,16
Revision Date: 07/09/2004

ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:

TLV - Threshold Limit Value	TWA - Time Weighted Average
STEL - Short-term Exposure Limit	PEL - Permissible Exposure Limit
	CAS - Chemical Abstract Service Number
ACGIH - American Conference of Government Industrial Hygienists	IMO/IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	MSDS - Material Safety Data Sheet
CVX - Chevron	NFPA - National Fire Protection Association (USA)
DOT - Department of Transportation (USA)	NTP - National Toxicology Program (USA)
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration

Prepared according to the OSHA Hazard Communication Standard (29 CFR 1910.1200) and the ANSI MSDS Standard (Z400.1) by the Chevron Energy Research & Technology Company, 100 Chevron Way, Richmond, California 94802.

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

Material Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Chevron Clarity ® Hydraulic Oil AW

Product Use: Hydraulic Oil
Product Number(s): CPS230340, CPS230341, CPS230342
Synonyms: Chevron Clarity ® Hydraulic Oil AW ISO 32, Chevron Clarity® Hydraulic Oil AW ISO 46, Chevron Clarity® Hydraulic Oil AW ISO 68
Company Identification
Chevron Products Company
Global Lubricants
6001 Bollinger Canyon Rd.
San Ramon, CA 94583
United States of America
www.chevronlubricants.com

Transportation Emergency Response
CHEMTREC: (800) 424-9300 or (703) 527-3887
Health Emergency
Chevron Emergency Information Center: Located in the USA. International collect calls accepted. (800) 231-0623 or (510) 231-0623
Product Information
email : lubemsds@Chevron.com
Product Information: (800) LUBE TEK
MSDS Requests: (800) 414-6737

SECTION 2 COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	AMOUNT
Highly refined mineral oil (C15 - C50)	Mixture	90 - 100 %weight

SECTION 3 HAZARDS IDENTIFICATION

IMMEDIATE HEALTH EFFECTS
Eye: Not expected to cause prolonged or significant eye irritation.
Skin: Contact with the skin is not expected to cause prolonged or significant irritation. Not expected to be harmful to internal organs if absorbed through the skin. High-Pressure Equipment Information: Accidental high-velocity injection under the skin of materials of this type may result in serious injury. Seek medical attention at once should an accident like this occur. The initial wound at the injection site may not appear to be serious at first; but, if left untreated, could result in disfigurement or amputation of the affected part.
Ingestion: Not expected to be harmful if swallowed.
Inhalation: Not expected to be harmful if inhaled. Contains a petroleum-based mineral oil. May cause respiratory irritation or other pulmonary effects following prolonged or repeated inhalation of oil mist at airborne levels above the recommended mineral oil mist exposure limit. Symptoms of respiratory irritation may include coughing and difficulty breathing.

SECTION 4 FIRST AID MEASURES

Eye: No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.
Skin: No specific first aid measures are required. As a precaution, remove clothing and shoes if contaminated. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.
Ingestion: No specific first aid measures are required. Do not induce vomiting. As a precaution, get medical advice.
Inhalation: No specific first aid measures are required. If exposed to excessive levels of material in the air, move the exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs.
Note to Physicians: In an accident involving high-pressure equipment, this product may be injected under the skin. Such an accident may result in a small, sometimes bloodless, puncture wound. However, because of its driving force, material injected into a fingertip can be deposited into the palm of the hand. Within 24 hours, there is usually a great deal of swelling, discoloration, and intense throbbing pain. Immediate treatment at a surgical emergency center is recommended.

SECTION 5 FIRE FIGHTING MEASURES

Leaks/ruptures in high pressure system using materials of this type can create a fire hazard when in the vicinity of ignition sources (eg. open flame, pilot lights, sparks, or electric arcs).

FIRE CLASSIFICATION:
OSHA Classification (29 CFR 1910.1200): Not classified by OSHA as flammable or combustible.

NFPA RATINGS: Health: 0 Flammability: 1 Reactivity: 0

FLAMMABLE PROPERTIES:
Flashpoint: (Cleveland Open Cup) 190 °C (374 °F) (Min)
Autoignition: No Data Available
Flammability (Explosive) Limits (% by volume in air): Lower: Not Applicable Upper: Not Applicable

EXTINGUISHING MEDIA: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

PROTECTION OF FIRE FIGHTERS:
Fire Fighting Instructions: This material will burn although it is not easily ignited. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.
Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures: Eliminate all sources of ignition in vicinity of spilled material.
Spill Management: Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.
Reporting: Report spills to local authorities and/or the U.S. Coast Guard's National Response Center at (800) 424-8802 as appropriate or required.

SECTION 7 HANDLING AND STORAGE

Precautionary Measures: DO NOT USE IN HIGH PRESSURE SYSTEMS in the vicinity of flames, sparks and hot surfaces. Use only in well ventilated areas. Keep container closed.

General Handling Information: Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.
Static Hazard: Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures. For more information, refer to OSHA Standard 29 CFR 1910.106, 'Flammable and Combustible Liquids', National Fire Protection Association (NFPA 77, 'Recommended Practice on Static Electricity', and/or the American Petroleum Institute (API) Recommended Practice 2003, 'Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents'.
Container Warnings: Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

GENERAL CONSIDERATIONS:
Consider the potential hazards of this material (see Section 3), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

ENGINEERING CONTROLS:
Use in a well-ventilated area.

PERSONAL PROTECTIVE EQUIPMENT
Eye/Face Protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.
Skin Protection: No special protective clothing is normally required. Where splashing is possible, select protective clothing depending on operations conducted, physical requirements and other substances in the workplace. Suggested materials for protective gloves include: 4H (PE/EVAL), Nitrile Rubber, Silver Shield, Viton.
Respiratory Protection: No respiratory protection is normally required.
If user operations generate an oil mist, determine if airborne concentrations are below the occupational exposure limit for mineral oil mist. If not, wear an approved respirator that provides adequate protection from the measured concentrations of this material. For air-purifying respirators use a particulate cartridge.
Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.
Occupational Exposure Limits:

Component	Agency	TWA	STEL	Ceiling	Notation
Highly refined mineral oil (C15 - C50)	ACGIH	5 mg/m3	10 mg/m3	--	--
Highly refined mineral oil (C15 - C50)	OSHA Z-1	5 mg/m3	--	--	--

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

Color: Colorless

Physical State: Liquid
Odor: Petroleum odor
pH: Not Applicable
Vapor Pressure: <0.01 mmHg @ 37.8 °C (100 °F)
Vapor Density (Air = 1): >1
Boiling Point: >315 °C (599°F)
Solubility: Soluble in hydrocarbon solvents; insoluble in water.
Freezing Point: Not Applicable
Density: 0.86 - 0.87 kg/l @ 15.6 °C (60.1°F)
Viscosity: 32 cSt @ 40 °C (104°F) (Min)

SECTION 10 STABILITY AND REACTIVITY

Chemical Stability: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
Incompatibility With Other Materials: May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
Hazardous Decomposition Products: None known (None expected)
Hazardous Polymerization: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

IMMEDIATE HEALTH EFFECTS
Eye Irritation: The Draize eye irritation mean score in rabbits for a 24-hour exposure was: 2/110.
Skin Irritation: For a 24-hour exposure, the Primary Irritation Score (PIS) in rabbits is: 0.7/8.
Skin Sensitization: No product toxicology data available.
Acute Dermal Toxicity: LD50: >2.0g/kg (rabbit).
Acute Oral Toxicity: LD50: >5 g/kg (rat)
Acute Inhalation Toxicity: The acute inhalation toxicity hazard is based on evaluation of data for similar materials or product components.

ADDITIONAL TOXICOLOGY INFORMATION:
This product contains petroleum base oils which may be refined by various processes including severe solvent extraction, severe hydrocracking, or severe hydrotreating. None of the oils requires a cancer warning under the OSHA Hazard Communication Standard (29 CFR 1910.1200). These oils have not been listed in the National Toxicology Program (NTP) Annual Report nor have they been classified by the International Agency for Research on Cancer (IARC) as; carcinogenic to humans (Group 1), probably carcinogenic to humans (Group 2A), or possibly carcinogenic to humans (Group 2B). These oils have not been classified by the American Conference of Governmental Industrial Hygienists (ACGIH) as: confirmed human carcinogen (A1), suspected human carcinogen (A2), or confirmed animal carcinogen with unknown relevance to humans (A3).

SECTION 12 ECOLOGICAL INFORMATION

ECOTOXICITY
96 hour(s) LC50: >5000 mg/l (WAF) (Oncorhynchus mykiss)
96 hour(s) LC50: >5000 mg/l (WAF) (Mysidopsis bahia)
This material is not expected to be harmful to aquatic organisms.

ENVIRONMENTAL FATE
This material is considered inherently biodegradable.

SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. Oil collection services are available for used oil recycling or disposal. Place contaminated materials in containers and dispose of in a manner consistent with applicable regulations. Contact your sales representative or local environmental or health authorities for approved disposal or recycling methods.

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

DOT Shipping Description: PETROLEUM LUBRICATING OIL, NOT REGULATED AS A HAZARDOUS MATERIAL FOR TRANSPORTATION UNDER 49 CFR
Additional Information: NOT HAZARDOUS BY U.S. DOT. ADR/RID HAZARD CLASS NOT APPLICABLE.

IMO/IMDG Shipping Description: PETROLEUM LUBRICATING OIL; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER THE IMDG CODE

ICAO/IATA Shipping Description: PETROLEUM LUBRICATING OIL; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER ICAO

SECTION 15 REGULATORY INFORMATION

EPCRA 311/312 CATEGORIES: 1. Immediate (Acute) Health Effects: NO
2. Delayed (Chronic) Health Effects: NO
3. Fire Hazard: NO
4. Sudden Release of Pressure Hazard: NO
5. Reactivity Hazard: NO

REGULATORY LISTS SEARCHED:

01-1=IARC Group 1	03=EPCRA 313
01-2A=IARC Group 2A	04=CA Proposition 65
01-2B=IARC Group 2B	05=MA RTK
02=NTP Carcinogen	06=NJ RTK
	07=PA RTK

No components of this material were found on the regulatory lists above.

CHEMICAL INVENTORIES:
All components comply with the following chemical inventory requirements: AICS (Australia), DSL (Canada), EINECS (European Union), ENCS (Japan), IECSC (China), KECI (Korea), PICCS (Philippines), TSCA (United States).

NEW JERSEY RTK CLASSIFICATION:
Under the New Jersey Right-to-Know Act L. 1983 Chapter 315 N.J.S.A. 34:5A-1 et. seq., the product is to be identified as follows: PETROLEUM OIL (Hydraulic oil)

WHMIS CLASSIFICATION:

This product is not considered a controlled product according to the criteria of the Canadian Controlled Products Regulations.

SECTION 16 OTHER INFORMATION

NFPA RATINGS: Health: 0 Flammability: 1 Reactivity: 0

HMIS RATINGS: Health: 1 Flammability: 1 Reactivity: 0
(0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme, PPE:- Personal Protection Equipment Index recommendation, *-Chronic Effect Indicator). These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association (NFPA) or the National Paint and Coating Association (for HMIS ratings).

LABEL RECOMMENDATION:
Label Category : INDUSTRIAL OIL 1 - IND1

REVISION STATEMENT: This revision updates the following sections of this Material Safety Data Sheet: 12.
Revision Date: August 29, 2006

ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:

TLV - Threshold Limit Value	TWA - Time Weighted Average
STEL - Short-term Exposure Limit	PEL - Permissible Exposure Limit
	CAS - Chemical Abstract Service Number
ACGIH - American Conference of Government Industrial Hygienists	IMO/IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	MSDS - Material Safety Data Sheet
CVX - Chevron	NFPA - National Fire Protection Association (USA)
DOT - Department of Transportation (USA)	NTP - National Toxicology Program (USA)
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration

Prepared according to the OSHA Hazard Communication Standard (29 CFR 1910.1200) and the ANSI MSDS Standard (Z400.1) by the Chevron Energy Technology Company, 100 Chevron Way, Richmond, California 94802.

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

Material Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Chevron Delo® 100 Motor Oil

Product Use: Engine Oil
Product Number(s): CPS222403, CPS222404, CPS222405
Synonyms: Chevron Delo® 100 Motor Oil SAE 30, Chevron Delo® 100 Motor Oil SAE 40, Chevron Delo® 100 Motor Oil SAE 50
Company Identification
Chevron Products Company
a division of Chevron U.S.A. Inc.
6001 Bollinger Canyon Rd.
San Ramon, CA 94583
United States of America
www.chevronlubricants.com

Transportation Emergency Response
CHEMTREC: (800) 424-9300 or (703) 527-3887
Health Emergency
Chevron Emergency Information Center: Located in the USA. International collect calls accepted. (800) 231-0623 or (510) 231-0623
Product Information
email : lubemsds@chevrontexaco.com
Product Information: (800) LUBE TEK
MSDS Requests: (800) 414-6737

SECTION 2 COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	AMOUNT
Highly refined mineral oil (C15 - C50)	Mixture	90 - 100 %weight

SECTION 3 HAZARDS IDENTIFICATION

IMMEDIATE HEALTH EFFECTS
Eye: Not expected to cause prolonged or significant eye irritation.
Skin: Contact with the skin is not expected to cause prolonged or significant irritation. Not expected to be harmful to internal organs if absorbed through the skin. High-Pressure Equipment Information: Accidental high-velocity injection under the skin of materials of this type may result in serious injury. Seek medical attention at once should an accident like this occur. The initial wound at the injection site may not appear to be serious at first; but, if left untreated, could result in disfigurement or amputation of the affected part.

Ingestion: Not expected to be harmful if swallowed.
Inhalation: Not expected to be harmful if inhaled. Contains a petroleum-based mineral oil. May cause respiratory irritation or other pulmonary effects following prolonged or repeated inhalation of oil mist at airborne levels above the recommended mineral oil mist exposure limit. Symptoms of respiratory irritation may include coughing and difficulty breathing.

SECTION 4 FIRST AID MEASURES

Eye: No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.
Skin: No specific first aid measures are required. As a precaution, remove clothing and shoes if contaminated. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.
Ingestion: No specific first aid measures are required. Do not induce vomiting. As a precaution, get medical advice.
Inhalation: No specific first aid measures are required. If exposed to excessive levels of material in the air, move the exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs.
Note to Physicians: In an accident involving high-pressure equipment, this product may be injected under the skin. Such an accident may result in a small, sometimes bloodless, puncture wound. However, because of its driving force, material injected into a fingertip can be deposited into the palm of the hand. Within 24 hours, there is usually a great deal of swelling, discoloration, and intense throbbing pain. Immediate treatment at a surgical emergency center is recommended.

SECTION 5 FIRE FIGHTING MEASURES

Leaks/ruptures in high pressure system using materials of this type can create a fire hazard when in the vicinity of ignition sources (eg. open flame, pilot lights, sparks, or electric arcs).

FIRE CLASSIFICATION:
OSHA Classification (29 CFR 1910.1200): Not classified by OSHA as flammable or combustible.

NFPA RATINGS: Health: 0 Flammability: 1 Reactivity: 0

FLAMMABLE PROPERTIES:
Flashpoint: (Cleveland Open Cup) 210 °C (410 °F) (Min)
Autoignition: No Data Available
Flammability (Explosive) Limits (% by volume in air): Lower: Not Applicable Upper: Not Applicable

EXTINGUISHING MEDIA: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

PROTECTION OF FIRE FIGHTERS:
Fire Fighting Instructions: This material will burn although it is not easily ignited. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.
Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures: Eliminate all sources of ignition in vicinity of spilled material.
Spill Management: Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.
Reporting: Report spills to local authorities and/or the U.S. Coast Guard's National Response Center at (800) 424-8802 as appropriate or required.

SECTION 7 HANDLING AND STORAGE

Precautionary Measures: DO NOT USE IN HIGH PRESSURE SYSTEMS in the vicinity of flames, sparks and hot surfaces. Use only in well ventilated areas. Keep container closed.
Keep out of the reach of children.
General Handling Information: Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.
Static Hazard: Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures. For more information, refer to OSHA Standard 29 CFR 1910.106, 'Flammable and Combustible Liquids', National Fire Protection Association (NFPA 77, 'Recommended Practice on Static Electricity', and/or the American Petroleum Institute (API) Recommended Practice 2003, 'Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents'.
Container Warnings: Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

GENERAL CONSIDERATIONS:
Consider the potential hazards of this material (see Section 3), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

ENGINEERING CONTROLS:
Use in a well-ventilated area.

PERSONAL PROTECTIVE EQUIPMENT
Eye/Face Protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.
Skin Protection: No special protective clothing is normally required. Where splashing is possible, select protective clothing depending on operations conducted, physical requirements and other substances in the workplace. Suggested materials for protective gloves include: 4H (PE/EVAL), Nitrile Rubber, Silver Shield, Viton.
Respiratory Protection: No respiratory protection is normally required.
If user operations generate an oil mist, determine if airborne concentrations are below the occupational exposure limit for mineral oil mist. If not, wear an approved respirator that provides adequate protection from the measured concentrations of this material. For air-purifying respirators use a particulate cartridge.
Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.
Occupational Exposure Limits:

Component	Agency	TWA	STEL	Ceiling	Notation
Highly refined mineral oil (C15 - C50)	ACGIH	5 mg/m3	10 mg/m3	--	--
Highly refined mineral oil (C15 - C50)	OSHA Z-1	5 mg/m3	--	--	--

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

Color: Amber
Physical State: Liquid
Odor: Petroleum odor
pH: Not Applicable
Vapor Pressure: <0.01 mmHg @ 37.8 °C (100 °F)
Vapor Density (Air = 1): >1
Boiling Point: >315°C (599°F)
Solubility: Soluble in hydrocarbons; insoluble in water
Freezing Point: Not Applicable
Specific Gravity: 0.88 - 0.9 @ 15.6°C (60.1°F) / 15.6°C (60.1°F)
Viscosity: 8.5 cSt @ 100°C (212°F) (Min)

SECTION 10 STABILITY AND REACTIVITY

Chemical Stability: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
Incompatibility With Other Materials: May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
Hazardous Decomposition Products: None known (None expected)
Hazardous Polymerization: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

IMMEDIATE HEALTH EFFECTS
Eye Irritation: The eye irritation hazard is based on evaluation of data for similar materials or product components.
Skin Irritation: The skin irritation hazard is based on evaluation of data for similar materials or product components.
Skin Sensitization: No product toxicology data available.
Acute Dermal Toxicity: The acute dermal toxicity hazard is based on evaluation of data for similar materials or product components.
Acute Oral Toxicity: The acute oral toxicity hazard is based on evaluation of data for similar materials or product components.
Acute Inhalation Toxicity: The acute inhalation toxicity hazard is based on evaluation of data for similar materials or product components.

ADDITIONAL TOXICOLOGY INFORMATION:
This product contains petroleum base oils which may be refined by various processes including severe solvent extraction, severe hydrocracking, or severe hydrotreating. None of the oils requires a cancer warning under the OSHA Hazard Communication Standard (29 CFR 1910.1200). These oils have not been listed in the National Toxicology Program (NTP) Annual Report nor have they been classified by the International Agency for Research on Cancer (IARC) as; carcinogenic to humans (Group 1), probably carcinogenic to humans (Group 2A), or possibly carcinogenic to humans (Group 2B). These oils have not been classified by the American Conference of Governmental Industrial Hygienists (ACGIH) as: confirmed human carcinogen (A1), suspected human carcinogen (A2), or confirmed animal carcinogen with unknown relevance to humans (A3). During use in engines, contamination of oil with low levels of cancer-causing combustion products occurs. Used motor oils have been shown to cause skin cancer in mice following repeated application and continuous exposure. Brief or intermittent skin contact with used motor oil is not expected to have serious effects in humans if the oil is thoroughly removed by washing with soap and water.

SECTION 12 ECOLOGICAL INFORMATION

ECOTOXICITY
The toxicity of this material to aquatic organisms has not been evaluated. Consequently, this material should be kept out of sewage and drainage systems and all bodies of water.

ENVIRONMENTAL FATE
This material is not expected to be readily biodegradable.

SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. Oil collection services are available for used oil recycling or disposal. Place contaminated materials in containers and dispose of in a manner consistent with applicable regulations. Contact your sales representative or local environmental or health authorities for approved disposal or recycling methods.

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

DOT Shipping Description: PETROLEUM LUBRICATING OIL, NOT REGULATED AS A HAZARDOUS MATERIAL FOR TRANSPORTATION UNDER 49 CFR
Additional Information:NOT HAZARDOUS BY U.S. DOT. ADR/RID HAZARD CLASS NOT APPLICABLE.

IMO/IMDG Shipping Description: PETROLEUM LUBRICATING OIL; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER THE IMDG CODE

ICAO/IATA Shipping Description: PETROLEUM LUBRICATING OIL; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER ICAO

SECTION 15 REGULATORY INFORMATION

EPCRA 311/312 CATEGORIES: 1. Immediate (Acute) Health Effects: NO
2. Delayed (Chronic) Health Effects: NO
3. Fire Hazard: NO
4. Sudden Release of Pressure Hazard: NO
5. Reactivity Hazard: NO

REGULATORY LISTS SEARCHED:

01-1=IARC Group 1	03=EPCRA 313
01-2A=IARC Group 2A	04=CA Proposition 65
01-2B=IARC Group 2B	05=MA RTK
02=NTP Carcinogen	06=NJ RTK
	07=PA RTK

No components of this material were found on the regulatory lists above.

CHEMICAL INVENTORIES:
All components comply with the following chemical inventory requirements: EINECS (European Union), IECSC (China), KECI (Korea), PICCS (Philippines), TSCA (United States).

DSL (Canada).

AICS (Australia), ENCS (Japan).

NEW JERSEY RTK CLASSIFICATION:
Under the New Jersey Right-to-Know Act L. 1983 Chapter 315 N.J.S.A. 34:5A-1 et. seq., the product is to be identified as follows: PETROLEUM OIL (Motor oil)

WHMIS CLASSIFICATION:
This product is not considered a controlled product according to the criteria of the Canadian Controlled Products Regulations.

SECTION 16 OTHER INFORMATION

NFPA RATINGS: Health: 0 Flammability: 1 Reactivity: 0

HMIS RATINGS: Health: 1 Flammability: 1 Reactivity: 0
(0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme, PPE:- Personal Protection Equipment Index recommendation, *- Chronic Effect Indicator). These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association (NFPA) or the National Paint and Coating Association (for HMIS ratings).

LABEL RECOMMENDATION:
Label Category : ENGINE OIL 1 - ENG1

REVISION STATEMENT: This revision updates the following sections of this Material Safety Data Sheet: 1
Revision Date: November 17, 2005

ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:

TLV - Threshold Limit Value	TWA - Time Weighted Average
STEL - Short-term Exposure Limit	PEL - Permissible Exposure Limit
	CAS - Chemical Abstract Service Number
ACGIH - American Conference of Government Industrial Hygienists	IMO/IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	MSDS - Material Safety Data Sheet
CVX - Chevron	NFPA - National Fire Protection Association (USA)
DOT - Department of Transportation (USA)	NTP - National Toxicology Program (USA)
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration

Prepared according to the OSHA Hazard Communication Standard (29 CFR 1910.1200) and the ANSI MSDS Standard (Z400.1) by the Chevron Energy Technology Company, 100 Chevron Way, Richmond, California 94802.

Material Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Chevron Synthetic Automatic Transmission Fluid Heavy Duty

Product Use: Transmission Fluid
Product Number(s): CPS226718
Company Identification
ChevronTexaco Global Lubricants
6001 Bollinger Canyon Rd.
San Ramon, CA 94583
United States of America
www.chevronlubricants.com

Transportation Emergency Response
CHEMTREC: (800) 424-9300 or (703) 527-3887
Health Emergency
Chevron Emergency Information Center: Located in the USA. International collect calls accepted. (800) 231-0623 or (510) 231-0623
Product Information
email : lubemsds@Chevron.com
Product Information: (800) LUBE TEK
MSDS Requests: (800) 414-6737

SECTION 2 COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	AMOUNT
Distillates, hydrotreated heavy paraffinic	64742-54-7	70 - 90 %weight

SECTION 3 HAZARDS IDENTIFICATION

IMMEDIATE HEALTH EFFECTS
Eye: Not expected to cause prolonged or significant eye irritation.
Skin: Contact with the skin is not expected to cause prolonged or significant irritation. Not expected to be harmful to internal organs if absorbed through the skin. High-Pressure Equipment Information: Accidental high-velocity injection under the skin of materials of this type may result in serious injury. Seek medical attention at once should an accident like this occur. The initial wound at the injection site may not appear to be serious at first; but, if left untreated, could result in disfigurement or amputation of the affected part.

Ingestion: Not expected to be harmful if swallowed.
Inhalation: Not expected to be harmful if inhaled. Contains a petroleum-based mineral oil. May cause respiratory irritation or other pulmonary effects following prolonged or repeated inhalation of oil mist at airborne levels above the recommended mineral oil mist exposure limit. Symptoms of respiratory irritation may include coughing and difficulty breathing.

SECTION 4 FIRST AID MEASURES

Eye: No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.
Skin: No specific first aid measures are required. As a precaution, remove clothing and shoes if contaminated. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.
Ingestion: No specific first aid measures are required. Do not induce vomiting. As a precaution, get medical advice.
Inhalation: No specific first aid measures are required. If exposed to excessive levels of material in the air, move the exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs.
Note to Physicians: In an accident involving high-pressure equipment, this product may be injected under the skin. Such an accident may result in a small, sometimes bloodless, puncture wound. However, because of its driving force, material injected into a fingertip can be deposited into the palm of the hand. Within 24 hours, there is usually a great deal of swelling, discoloration, and intense throbbing pain. Immediate treatment at a surgical emergency center is recommended.

SECTION 5 FIRE FIGHTING MEASURES

Leaks/ruptures in high pressure system using materials of this type can create a fire hazard when in the vicinity of ignition sources (eg. open flame, pilot lights, sparks, or electric arcs).

FIRE CLASSIFICATION:
OSHA Classification (29 CFR 1910.1200): Not classified by OSHA as flammable or combustible.

NFPA RATINGS: Health: 0 Flammability: 1 Reactivity: 0

FLAMMABLE PROPERTIES:
Flashpoint: (Cleveland Open Cup) 180 °C (356 °F) (Min)
Autoignition: No Data Available
Flammability (Explosive) Limits (% by volume in air): Lower: No data available Upper: No data available

EXTINGUISHING MEDIA: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

PROTECTION OF FIRE FIGHTERS:
Fire Fighting Instructions: This material will burn although it is not easily ignited. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.
Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures: Eliminate all sources of ignition in vicinity of spilled material.
Spill Management: Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.
Reporting: Report spills to local authorities and/or the U.S. Coast Guard's National Response Center at (800) 424-8802 as appropriate or required.

SECTION 7 HANDLING AND STORAGE

Precautionary Measures: DO NOT USE IN HIGH PRESSURE SYSTEMS in the vicinity of flames, sparks and hot surfaces. Use only in well ventilated areas. Keep container closed.

Keep out of the reach of children.
General Handling Information: Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.
Static Hazard: Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures. For more information, refer to OSHA Standard 29 CFR 1910.106, 'Flammable and Combustible Liquids', National Fire Protection Association (NFPA 77, 'Recommended Practice on Static Electricity', and/or the American Petroleum Institute (API) Recommended Practice 2003, 'Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents'.
Container Warnings: Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

GENERAL CONSIDERATIONS:
Consider the potential hazards of this material (see Section 3), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

ENGINEERING CONTROLS:
Use in a well-ventilated area.

PERSONAL PROTECTIVE EQUIPMENT
Eye/Face Protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.
Skin Protection: No special protective clothing is normally required. Where splashing is possible, select protective clothing depending on operations conducted, physical requirements and other substances in the workplace. Suggested materials for protective gloves include: 4H (PE/EVAL), Nitrile Rubber, Silver Shield, Viton.
Respiratory Protection: No respiratory protection is normally required.
If user operations generate an oil mist, determine if airborne concentrations are below the occupational exposure limit for mineral oil mist. If not, wear an approved respirator that provides adequate protection from the measured concentrations of this material. For air-purifying respirators use a particulate cartridge.
Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.
Occupational Exposure Limits:

Component	Agency	TWA	STEL	Ceiling	Notation
Distillates, hydrotreated heavy paraffinic	ACGIH	5 mg/m3	10 mg/m3	--	--
Distillates, hydrotreated heavy paraffinic	OSHA Z-1	5 mg/m3	--	--	--

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

Color: Red
Physical State: Liquid
Odor: Petroleum odor

pH: Not Applicable
Vapor Pressure: <0.01 mmHg @ 37.8 °C (100 °F)
Vapor Density (Air = 1): >1
Boiling Point: >315°C (599°F)
Solubility: Soluble in hydrocarbons; insoluble in water
Freezing Point: Not Applicable
Specific Gravity: 0.85 @ 15.6°C (60.1°F) / 15.6°C (60.1°F)
Viscosity: 7 cSt @ 100°C (212°F) (Min)

SECTION 10 STABILITY AND REACTIVITY

Chemical Stability: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
Incompatibility With Other Materials: May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
Hazardous Decomposition Products: None known (None expected)
Hazardous Polymerization: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

IMMEDIATE HEALTH EFFECTS
Eye Irritation: The eye irritation hazard is based on evaluation of data for similar materials or product components.
Skin Irritation: The skin irritation hazard is based on evaluation of data for similar materials or product components.
Skin Sensitization: No product toxicology data available.
Acute Dermal Toxicity: The acute dermal toxicity hazard is based on evaluation of data for similar materials or product components.
Acute Oral Toxicity: The acute oral toxicity hazard is based on evaluation of data for similar materials or product components.
Acute Inhalation Toxicity: The acute inhalation toxicity hazard is based on evaluation of data for similar materials or product components.

ADDITIONAL TOXICOLOGY INFORMATION:
This product contains petroleum base oils which may be refined by various processes including severe solvent extraction, severe hydrocracking, or severe hydrotreating. None of the oils requires a cancer warning under the OSHA Hazard Communication Standard (29 CFR 1910.1200). These oils have not been listed in the National Toxicology Program (NTP) Annual Report nor have they been classified by the International Agency for Research on Cancer (IARC) as; carcinogenic to humans (Group 1), probably carcinogenic to humans (Group 2A), or possibly carcinogenic to humans (Group 2B). These oils have not been classified by the American Conference of Governmental Industrial Hygienists (ACGIH) as: confirmed human carcinogen (A1), suspected human carcinogen (A2), or confirmed animal carcinogen with unknown relevance to humans (A3).

SECTION 12 ECOLOGICAL INFORMATION

ECOTOXICITY
The toxicity of this material to aquatic organisms has not been evaluated. Consequently, this material should be kept out of sewage and drainage systems and all bodies of water.

ENVIRONMENTAL FATE
This material is not expected to be readily biodegradable.

SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. Oil collection services are available for used oil recycling or disposal. Place contaminated materials in containers and dispose of in a manner consistent with applicable regulations. Contact your sales representative or local environmental or health authorities for approved disposal or recycling methods.

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

DOT Shipping Description: PETROLEUM LUBRICATING OIL, NOT REGULATED AS A HAZARDOUS MATERIAL FOR TRANSPORTATION UNDER 49 CFR
Additional Information: NOT HAZARDOUS BY U.S. DOT. ADR/RID HAZARD CLASS NOT APPLICABLE.

IMO/IMDG Shipping Description: PETROLEUM LUBRICATING OIL; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER THE IMDG CODE

ICAO/IATA Shipping Description: PETROLEUM LUBRICATING OIL; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER ICAO

SECTION 15 REGULATORY INFORMATION

EPCRA 311/312 CATEGORIES: 1. Immediate (Acute) Health Effects: NO
2. Delayed (Chronic) Health Effects: NO
3. Fire Hazard: NO
4. Sudden Release of Pressure Hazard: NO
5. Reactivity Hazard: NO

REGULATORY LISTS SEARCHED:

01-1=IARC Group 1	03=EPCRA 313
01-2A=IARC Group 2A	04=CA Proposition 65
01-2B=IARC Group 2B	05=MA RTK
02=NTP Carcinogen	06=NJ RTK
	07=PA RTK

No components of this material were found on the regulatory lists above.

CHEMICAL INVENTORIES:
All components comply with the following chemical inventory requirements: AICS (Australia), DSL (Canada), ENCS (Japan), IECSC (China), KECI (Korea), PICCS (Philippines), TSCA (United States).

One or more components is listed on ELINCS (European Union). Secondary notification by the importer may be required.

NEW JERSEY RTK CLASSIFICATION:
Under the New Jersey Right-to-Know Act L. 1983 Chapter 315 N.J.S.A. 34:5A-1 et. seq., the product is to be identified as follows: PETROLEUM OIL (Automatic transmission fluid)

WHMIS CLASSIFICATION:
This product is not considered a controlled product according to the criteria of the Canadian Controlled Products Regulations.

SECTION 16 OTHER INFORMATION

NFPA RATINGS: Health: 0 Flammability: 1 Reactivity: 0

HMIS RATINGS: Health: 1 Flammability: 1 Reactivity: 0
(0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme, PPE:- Personal Protection Equipment Index recommendation, *-Chronic Effect Indicator). These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association (NFPA) or the National Paint and Coating Association (for HMIS ratings).

LABEL RECOMMENDATION:
Label Category : INDUSTRIAL OIL 1

REVISION STATEMENT: This revision updates the following sections of this Material Safety Data Sheet: 2,5,8,9,15
Revision Date: 08/26/2005

ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:

TLV - Threshold Limit Value	TWA - Time Weighted Average
STEL - Short-term Exposure Limit	PEL - Permissible Exposure Limit
	CAS - Chemical Abstract Service Number
ACGIH - American Conference of Government Industrial Hygienists	IMO/IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	MSDS - Material Safety Data Sheet
CVX - Chevron	NFPA - National Fire Protection Association (USA)
DOT - Department of Transportation (USA)	NTP - National Toxicology Program (USA)
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration

Prepared according to the OSHA Hazard Communication Standard (29 CFR 1910.1200) and the ANSI MSDS Standard (Z400.1) by the Chevron Energy Research & Technology Company, 100 Chevron Way, Richmond, California 94802.

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

1155 Troutwine Road
Crown Point, IN 46307

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fax 219.662.2740

OSNI Medical Office
9900 Columbia Avenue Munster, IN

Storm Water Technical Report
October 12, 2023

Prepared for:

Region Contractors LLC
912 W. Avenue H, Suite 2
Griffith, IN 46319

Prepared by:

DVG Team Inc.
1155 Troutwine Road
Crown Point, IN 46307

Table of Contents

Exhibits

1.0 Project Description

Orthopedic Specialists of Northwest Indiana (OSNI) is proposing to develop a building addition to the existing Gate Church located at 9900 Columbia Avenue in Munster, Indiana. The project will be built in two (2) phases. Phase one includes the demo of the existing parking lot and rebuilding a new parking lot, gutting and rebuilding the interior of the existing building, along with new utilities and appropriate detention to serve the facility. Phase two will include the expansion of the existing building, as well as additional utilities and parking to serve the expansion.

The intent of this report is to model drainage conditions and demonstrate how the new development will accommodate the Town of Munster's Stormwater Technical Standards.

See **Exhibit 1 USGS Location Map** to view the project location.

2.0 Drainage Analysis

The total drainage area for this development is 3.15 acres. The whole lot was designed as tributary to the proposed dry detention basin. See **Exhibit 5**. All runoffs will ultimately discharge through a 12-inch RCP pipe with a 5" restrictor into the existing storm sewer system on the Northwest side of the property.

Per the Munster Stormwater Technical Standards, for sites less than 5 acres the allowable release rate shall be based on the pre-existing runoff rate of the 2-yr, 10 min. rainfall intensity using a 0.15 runoff coefficient and rational method (Q=CIA)**.** As shown in Exhibit 5, the allowable release for the project site is 1.79cfs (Q=0.15*3.84*3.10). The proposed 5" restrictor reduces the release to 1.37 cfs meeting this requirement.

The dry bottom detention pond was sized to have sufficient capacity for this development. With a proposed bottom of 609.70 and a proposed HWL of 614.00. The required detention per rational method is 0.32 ac-ft. and the proposed dry basin provides 0.68 ac/ft. See **Exhibit 5** for pond storage calculations. The size of the weir was determined by taking 1.25 times the peak inflow taken from the rational method calculation. See **Exhibit 5** for the rational method pond calculation and weir check calculation.

3.0 Storm Sewer Design

The OSNI Medical office project utilizes storm sewers and sheet flow design to transport stormwater. Storm sewer design takes into consideration the full development of Phase 2.

Storm sewer calculations were performed for each storm structure and its respective tributary area. The proposed sewers shall be HDPE material having a Manning's n-value of 0.012. Hydraflow Storm Sewers Extension was used for the storm sewer modeling using a 10-yr design flow. This proposed storm sewer system then ties into an existing storm sewer in the Northwest corner of the site.

See **Exhibit 3 Storm Sewer Calculations** for the results of the proposed storm sewer design.

Included are the following:

- **Storm Sewer Tributary Exhibit**
- **Runoff Coefficient Calculations**
- **Inlet Capacity Calculations**
- **Storm Sewer 10-Year Design Calculations**
- **Storm Sewer 10-Year Design Profile**

4.0 Overland Flood Route

100 – year overland flow calculations were done for cross sections A through E to determine overland flow routes and freeboard. The freeboard to the proposed adjacent building was sufficient for each cross section. **Exhibit 4** for 100-year overland flow locations, modeling, and freeboard calculations.

Included are the following:

- **Overall Overland Flood Route Exhibit**
- **Overland Flood Route Calculations**
- **Overland Flood Route Cross Sections**

Exhibit 1

USGS Location Map

The National Map Advanced Viewer

10/5/2023, 2:26:29 PM

1:9,028

0 0.07 0.15 0.3 mi

0 0.13 0.25 0.5 km

USGS The National Map: Orthoimagery and US Topo. Data refreshed August, 2023.

USGS
2021 USGS

Exhibit 2

Detention Pond Calculations

DVG TEAM INC
1155 Troutwine Road
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www.dvgteam.com

NOT FOR CONSTRUCTION

REGION CONTRACTORS, LLC
912 W. AVE H, SUITE 2
GRIFFITH, IN 46319

DATE: | REVISIONS AND NOTES:

OSNI MEDICAL OFFICE BLDG
Proposed Detention
Tributary Area Exhibit

SCALE: 1" = 20'

DESIGN BY: RJP
DATE: 08/28/23
PROJECT NO. 23-0031
EX

NOT FOR CONSTRUCTION

RAINFALL INTENSITY TABLE

Rainfall Intensity-Lake County, IN

	INTENSITY (in/hr)										
DURATION (yr)	**5-min**	**10-min**	**15-min**	**30-min**	**60-min**	**2-hour**	**3-hour**	**6-hour**	**12-hour**	**18-hour**	**24-hour**
2	5.04	3.84	3.20	2.22	1.40	0.86	0.61	0.37	0.22	0.16	0.13
5	8.24	4.74	3.96	2.74	1.73	1.06	0.76	0.46	0.27	0.19	0.15
10	7.08	5.46	4.52	3.12	1.97	1.21	0.87	0.52	0.30	0.22	0.18
25	8.16	6.24	5.16	3.58	2.25	1.38	0.99	0.60	0.35	0.25	0.20
50	9.00	6.90	5.72	3.96	2.49	1.53	1.10	0.66	0.38	0.28	0.22
100	9.84	7.50	6.20	4.32	2.72	1.67	1.20	0.72	0.42	0.31	0.24

BY: JB
DATE: 8/28/2023

REQUIRED DETENTION VOLUME

PROJECT: **OSNI Medical Office**
Munster, IN

Existing Runoff Coefficient, C	0.15	*Per Ordinance
Rainfall Intensity, 2yr-10min.	3.84	*Per Ordinance
Existing Site Area, A	3.10	acres
Allowable Release Rate = Q = C*I*A	1.79	cfs

BY: JB
DATE: 8/28/2023

RUNOFF COEFFICIENT

PROJECT: **OSNI Medical Office**
Munster, IN

AREA DESCRIPTION: Proposed Site Area + Offsite

TRIBUTARY AREA	COVER DESCRIPTION (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	Runoff Coeffient Hydrologic Analysis and Design 4th Edition			AREA x acres / sq. ft. / %	PRODUCT OF Runoff Coefficient AND AREA
	Impervious (Asphalt/Conrete/Building)	0.90			1.57	1.41
	Pervious (grass)	0.30			1.28	0.38
	HWL of Detention Basin	1.00			0.25	0.25
				TOTAL =	135036.0	2.0
				TOTAL =	3.10	acre

CURVE NUMBER (WEIG = Total product 2.0 / Total area 3.10 = 0.66

C weighted

Use C = **0.66**

BY: JB
DATE: 8/28/2023

REQUIRED DETENTION VOLUME

PROJECT: **OSNI Medical Office**
Munster, IN

Drainage Area, A	3.15	acres
Runoff Coefficient, C	0.66	
Design Release Rate	1.372	
Allowable Release Rate	1.786	

STORM DURATION (hr.)	Rainfall Intensity, 100-yr (in/hr)	Inflow Rate, Qd (cfs)	Outflow Rate, Qu (cfs)	Storage Rate (cfs)	Required Storage (acre-ft)
0.08	9.84	20.47	1.79	18.68	0.129
0.17	7.50	15.60	1.79	13.81	0.192
0.25	6.20	12.90	1.79	11.11	0.231
0.50	4.32	8.99	1.79	7.20	0.300
1.00	2.72	5.66	1.79	3.87	0.323
2.00	1.67	3.47	1.79	1.69	0.281
3.00	1.20	2.50	1.79	0.71	0.178
6.00	0.72	1.50	1.79	0.00	0.000
12.00	0.42	0.87	1.79	0.00	0.000
18.00	0.31	0.64	1.79	0.00	0.000
24.00	0.24	0.50	1.79	0.00	0.000

Storage Requirement (acre-ft)	**0.323**
Storage Requirement (cu. ft.)	**14,056**

DVG, Inc.

BY: JB
DATE: 8/28/2023
CHECKED:
DATE:

DETENTION VOLUME

CLIENT: Region Contractors LLC
PROJECT: OSNI Medical Office
DESCRIPTION: Proposed Dry Pond

RETENTION ITEM: Dry Pond

BTTM 609.70

***Pond elevation areas derived from CAD drawing area measurement**

ELEVATION	(ft)	AREA				AVERAGE AREA (ac)	Δ ELEVATION (ft)	INCREMENTAL STORAGE (ac-ft)	CUMULATIVE STORAGE (ac-ft)
		Contour							
		(sq. ft.)			(ac)				
BTTM	609.70	5	0	0	0.000				0.000
	610.00					0.011	0.30	0.003	0.003
	610.00	918	0	0	0.021				0.003
	610.50					0.085	1.00	0.085	0.046
	611.00	6512	0	0	0.149				0.088
	611.50					0.165	1.00	0.165	0.171
	612.00	7832	0	0	0.180				0.253
	612.50					0.196	1.00	0.196	0.351
	613.00	9256	0	0	0.212				0.449
	613.50					0.230	1.00	0.230	0.564
HWL	614.00	10787	0	0	0.248				0.679
	614.50					0.262	1.00	0.262	0.810
TB	615.00	12000	0	0	0.275				0.941

BY: JB
DATE: 8/28/2023

ORIFICE SIZING CALCULATIONS

PROJECT: **OSNI Medical Office**
Munster, IN

TRIBUTARY AREA: A_E= 3.10 acres

OUTLET:

	Size (in)	*Elevation*
Orifice	5.00	609.70

HYDRAULIC DIMENSIONS:

	Unit		
ORIFICE AREA	sq. ft.	0.1364	(Cross sectional area of restrictor pipe)
ORIFICE DIAMETER	inches	5.00	(Diameter of restrictor pipe)
ORIFICE DISCHARGE COEFFICIENT	--	0.62	(Values between 0.58 - 0.64)
ORIFICE ELEVATION	ft-NGVD	609.70	(Invert elevation of outfall pipe)
CENTROID ELEVATION	ft-NGVD	609.91	

ELEVATION-DISCHARGE RELATIONSHIP:

Orifice Flow Equation: $Q = CA(2gH)^{0.5}$

Elevation	$Q_{ORIFICE}$	
ft.	cu. ft./s	
609.70	0.00	BOTTOM
610.00	0.21	
611.00	0.71	
612.00	0.98	
613.00	1.19	
614.00	1.37	HWL
615.00	1.53	

PEAK RUNOFF RATE

Critical Duration = 100-year, 3-hr storm

ORIFICE DISCHARGE RATE @ HWL	1.372	cubic feet/second

ALLOWABLE RELEASE RATE =	**1.786**	cubic feet/second
MEETS RESTRICTED RELEASE RATE?	**YES**	

BY: JB
DATE: 8/28/2023

WEIR CHECK CALCULATIONS

PROJECT: **OSNI Medical Office**
Munster, IN

HYDRAULIC DIMENSIONS:

	Unit	WEIR	
WEIR LENGTH	ft.	20.00	(Width of weir)
WEIR COEFFICIENT, *C*	--	2.60	(Values between 2.30 - 2.80)
WEIR ELEVATION	ft-NGVD	614.00	
SIDE SLOPE, *Z*	(Z:1) ft.	4.00	(Side slope of Broad Crested weir)

ELEVATION-DISCHARGE RELATIONSHIP:

Weir Flow Equation: Q = C*L*H^3/2

Elevation	Weir
ft.	cu. ft./s
614.00	0.00
614.50	20.22
615.00	52.00

WEIR CHECK

Q_{IN} = 20.47

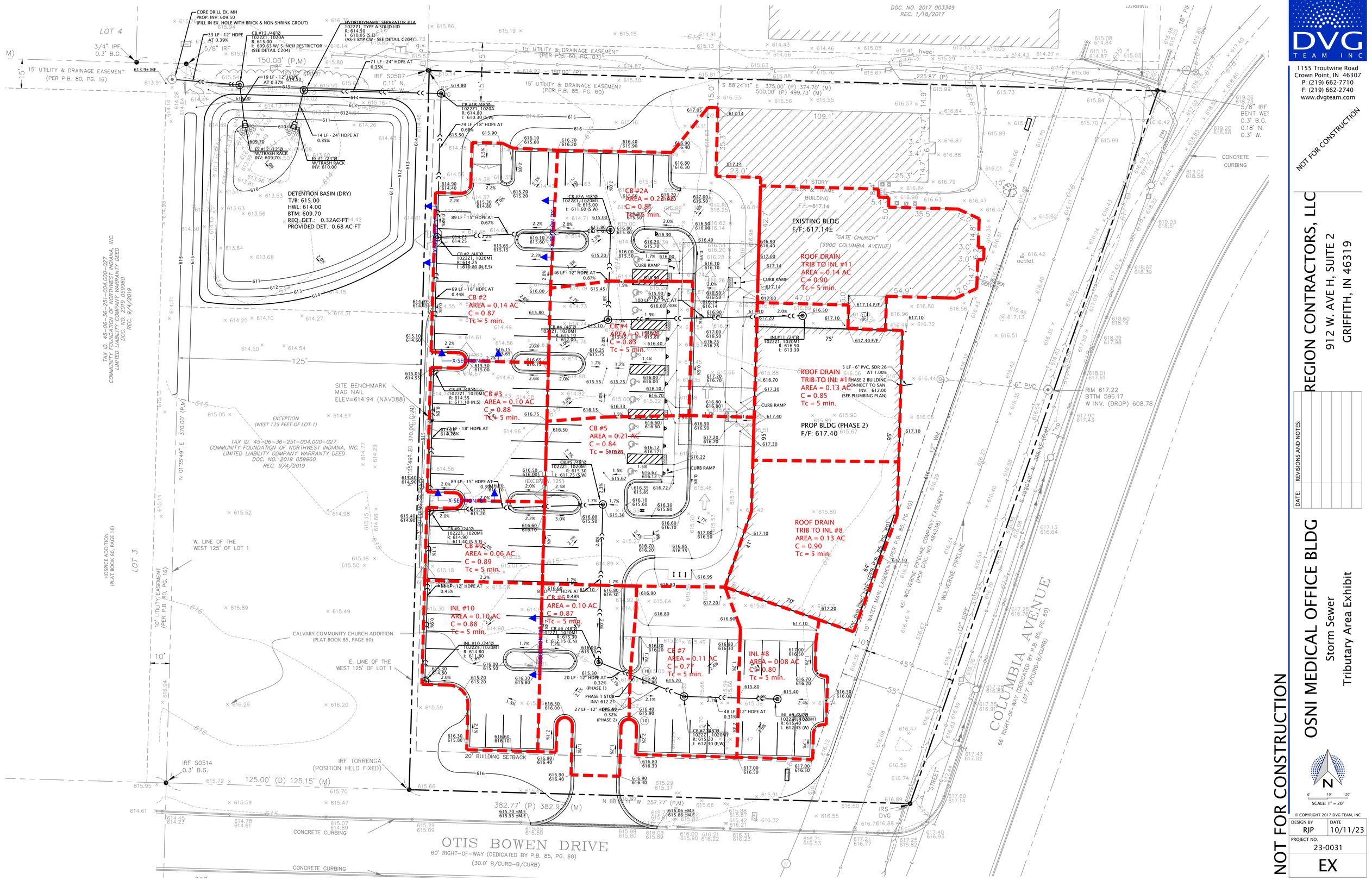
$Q_{design} = 1.25 \times Q_{IN}$ = 25.6

Weir capacity @ TB + 1.0' = 52.0

► **OK**

Exhibit 3

Storm Sewer Calculations



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GRIFFITH, IN 46319

DATE:	REVISIONS AND NOTES:

NOT FOR CONSTRUCTION

OSNI MEDICAL OFFICE BLDG

Storm Sewer
Tributary Area Exhibit

SCALE: 1" = 20'

DESIGN BY	DATE
RJP	10/11/23
PROJECT NO.	
23-0031	
EX	

BY: JB
DATE: 9/12/2023
CHECKED:
DATE:

INLET CAPACITY ANALYSIS

Project: OSNI Medical Office
Location: Munster, In

ORIFICE FLOW EQUATION

$$h = \frac{Q^2}{2g(CA)^2}$$

C = Orifice Coefficient (0.67 typical for storm sewer grates)
A_{open} = grate open area (sq. ft.)
% Clogged (decimal form)= 0.5

WEIR FLOW EQUATION

$$h = \frac{Q}{(3.33P)^{\frac{2}{3}}}$$

P = wetted perimeter (ft)
Q=10-yr flow (cfs)

10-YR FLOW EQUATION

$$Q = CIA$$

C=runoff coefficient
I=rainfall intensity (in/hr)
A=watershed area (acres)

Structure Label	Type of Grate	A_{open} (sq.ft.)	P (ft)	$C_{orifice}$	$A_{watershed}$ (acres)	C_{runoff}	I (in/hr)	Q (10-YR) (cfs)	Orifice Flow h (ft)	Weir Flow h (ft)	Ponding Depth (in)
CB #2	EJ 1020 M1	0.97	5.92	0.67	0.14	0.87	7.08	0.86	0.11	0.20	2.4
CB #3	EJ 1020 M1	0.97	5.92	0.67	0.10	0.88	7.08	0.62	0.06	0.16	1.9
CB #4	EJ 1020 M1	0.97	5.92	0.67	0.12	0.83	7.08	0.71	0.07	0.17	2.1
CB #5	EJ 1020 M1	0.97	5.92	0.67	0.21	0.84	7.08	1.25	0.23	0.25	3.0
CB #6	EJ 1020 M1	0.97	5.92	0.67	0.10	0.87	7.08	0.62	0.06	0.16	1.9
CB #7	EJ 1020 M1	0.97	5.92	0.67	0.11	0.77	7.08	0.60	0.05	0.16	1.9
INL #8	EJ 1020 M1	0.97	5.92	0.67	0.08	0.80	7.08	0.45	0.03	0.13	1.5
CB #9	EJ 1020 M1	0.97	5.92	0.67	0.06	0.89	7.08	0.38	0.02	0.11	1.4
INL #10	EJ 1020 M1	0.97	5.92	0.67	0.10	0.88	7.08	0.62	0.06	0.16	1.9

**** 10-YR Flow values are calculated using the Rational Method. Q=CIA***

Grate Properties	
Type	**Open Area (sq.in.)**
EJ 1020 MI	140.00
EJ 1020 N	135.00

BY: JB
DATE: 9/29/2023
CHECKED:
DATE:

RUNOFF COEFFICIENT CALC (C)

PROJECT: OSNI Medical Office - Munster, IN

Cover Description	Runoff Coefficient
	Hydrolic Analysis & Design 4th Edition
Lawn Area	0.30
Hard Surface Area	0.90

Structure Number	Total Area	Lawn Area	Hard Surface Area	Runoff C
	(sq. ft.)	(sq. ft.)	(sq. ft.)	(Weighted)
CB #2	6256	299	5957	0.87
CB# 2A	9459	1341	8118	0.81
CB #3	4208	133	4075	0.88
CB #4	5057	590	4467	0.83
CB #5	9001	834	8167	0.84
CB #6	4158	210	3948	0.87
CB #7	4656	1006	3650	0.77
INL #8	3317	547	2770	0.80
CB #9	2454	60	2394	0.89
INL #10	4463	133	4330	0.88
Overall Site	53029	5153	47876	0.84

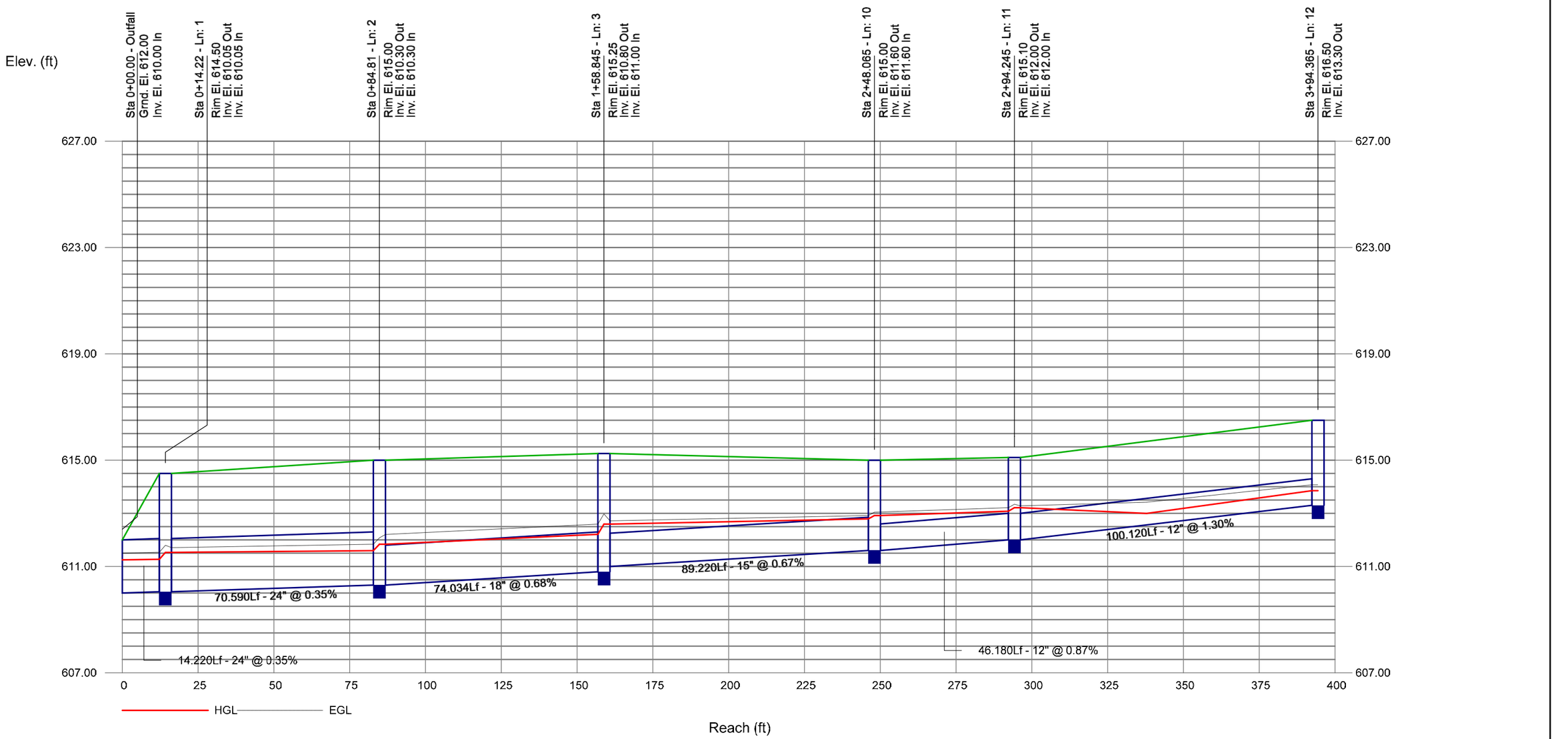
BY: JB
DATE: 10/11/2023
CHECKED: _____
DATE: _____

PROJECT: **OSNI Medical Office - Munster, IN**
DESCRIPTION: **Storm Sewer Design Calculations**
DESIGN STORM: **10 yr Storm Event**
RAINFALL DATA: **Munster Stormwater Technical Manual**
COMPUTATIONAL METHOD: **Hydraflow Storm Sewers Extension for Autodesk AutoCAD Civil 3D**

Line No.	Upstream Structure	Downstream Structure	Drainage Area (ac)	Total Area (ac)	Runoff Coeff. (C)	Tc (min)	Time in Pipe (min)	i Sys (in/hr)	Known Q (cfs)	Flow Rate (cfs)	Capacity Full (cfs)	Vel Ave (ft/s)	n-Value	Line Length (ft)	Line Size (in)	Line Slope (%)	Grnd/Rim Elev Up (ft)	Invert Up (ft)	Invert Dn (ft)	HGL Up (ft)	HGL Dn (ft)
1	HS#1A	ES #1	0.00	1.64	0.00	5.00	8.40	5.94	0.00	8.30	14.53	4.08	0.012	14	24	0.35	614.50	610.05	610.00	611.27	611.25
2	CB#1B	HS#1A	0.00	1.64	0.00	5.00	8.00	6.06	0.00	8.47	14.58	3.66	0.012	71	24	0.35	615.00	610.30	610.05	611.60	611.53
3	CB #2	CB #1B	0.14	1.64	0.87	5.00	7.80	6.13	0.00	8.57	9.35	4.91	0.012	74	18	0.68	615.25	610.80	610.30	612.21	611.84
4	CB #3	CB #2	0.10	0.89	0.88	5.00	7.30	6.25	0.00	4.75	7.53	2.69	0.012	69	18	0.44	614.55	611.10	610.80	612.71	612.59
5	CB #9	CB#3	0.06	0.79	0.89	5.00	6.90	6.40	0.00	4.31	6.00	2.44	0.012	72	18	0.28	614.90	611.30	611.10	612.80	612.73
6	CB #5	CB#9	0.21	0.63	0.84	5.00	6.30	6.60	0.00	3.50	4.38	2.86	0.012	89	15	0.39	615.30	611.75	611.40	613.12	612.89
7	CB #6	CB #5	0.10	0.42	0.87	5.00	5.80	6.76	0.00	2.39	2.71	3.05	0.012	81	12	0.49	615.30	612.15	611.75	613.55	613.24
8	CB #7	CB #6	0.11	0.32	0.77	5.00	5.50	6.88	0.00	1.84	2.17	2.34	0.012	47	12	0.32	615.20	612.30	612.15	613.80	613.69
9	INL #8	CB #7	0.21	0.21	0.87	5.00	5.00	7.07	0.00	1.29	2.16	1.64	0.012	48	12	0.31	615.40	612.45	612.30	613.89	613.83
10	CB#2A	CB#2	0.22	0.61	0.81	5.00	6.00	6.68	0.00	3.44	5.74	2.83	0.012	89	15	0.67	615.00	611.60	611.00	612.79	612.59
11	CB #4	CB#2A	0.12	0.39	0.83	5.00	5.80	6.77	0.00	2.28	3.59	2.91	0.012	46	12	0.87	615.10	612.00	611.60	613.08	612.92
12	INL#11	CB#4	0.27	0.27	0.88	5.00	5.00	7.07	0.00	1.68	4.40	2.96	0.012	100	12	1.30	616.50	613.30	612.00	613.85 j	613.21
13	INL #10	CB #9	0.10	0.10	0.88	5.00	5.00	7.07	0.00	0.62	2.60	0.79	0.012	88	12	0.45	614.80	611.80	611.40	612.91	612.89

Storm Sewer Profile

Proj. file: SS - OSNI_new.stm



Storm Sewer Profile

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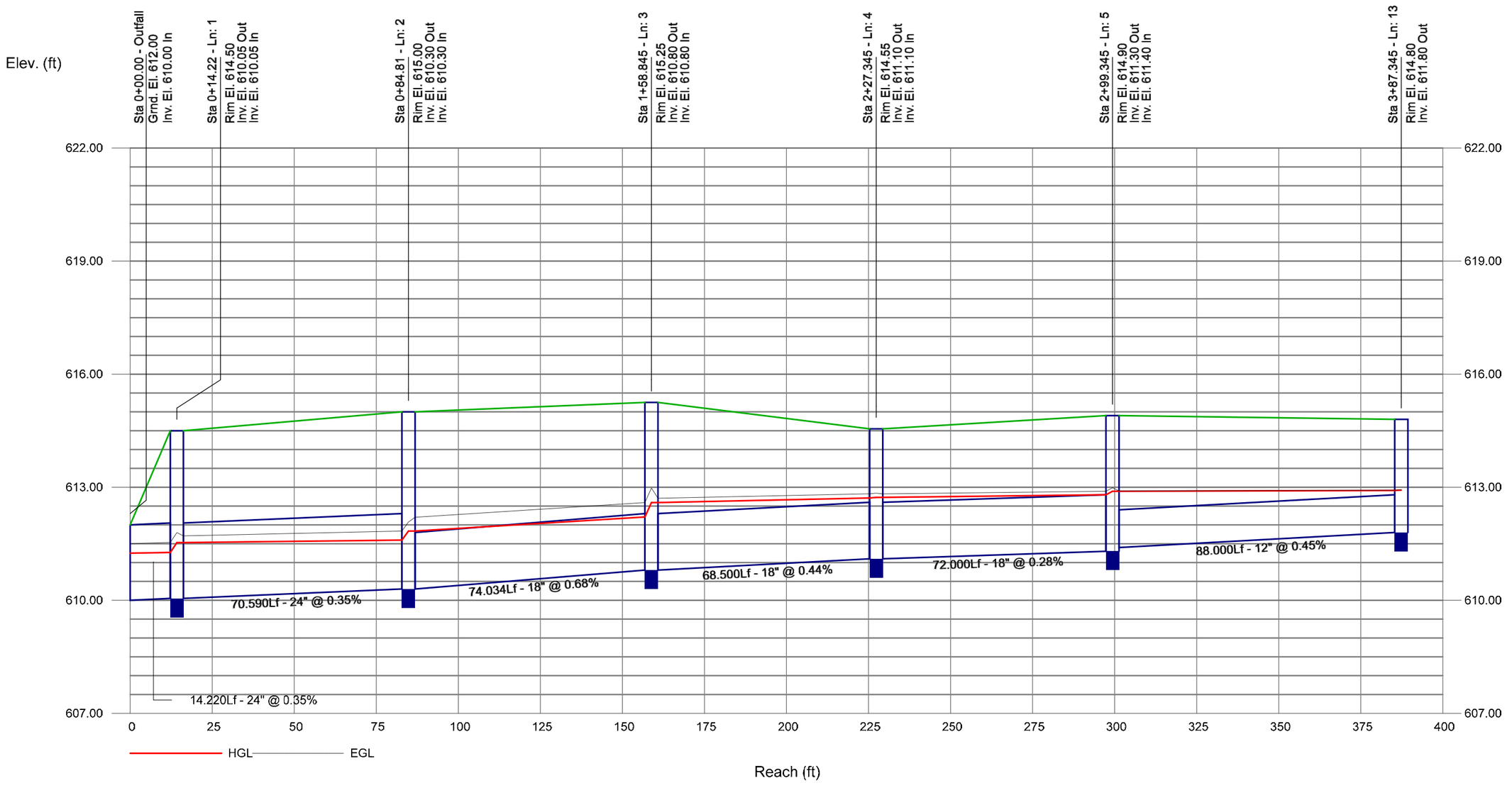

Storm Sewer Profile

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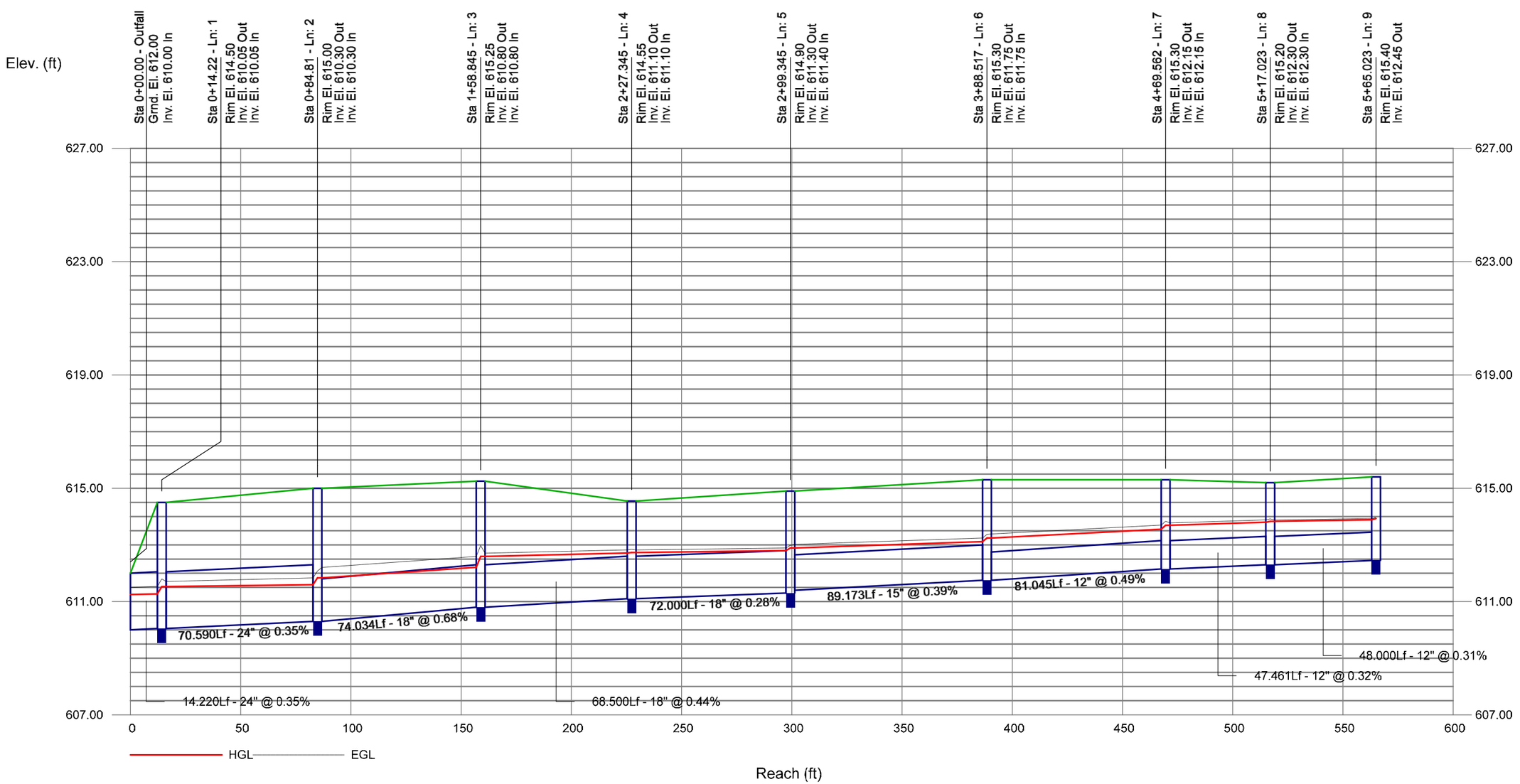
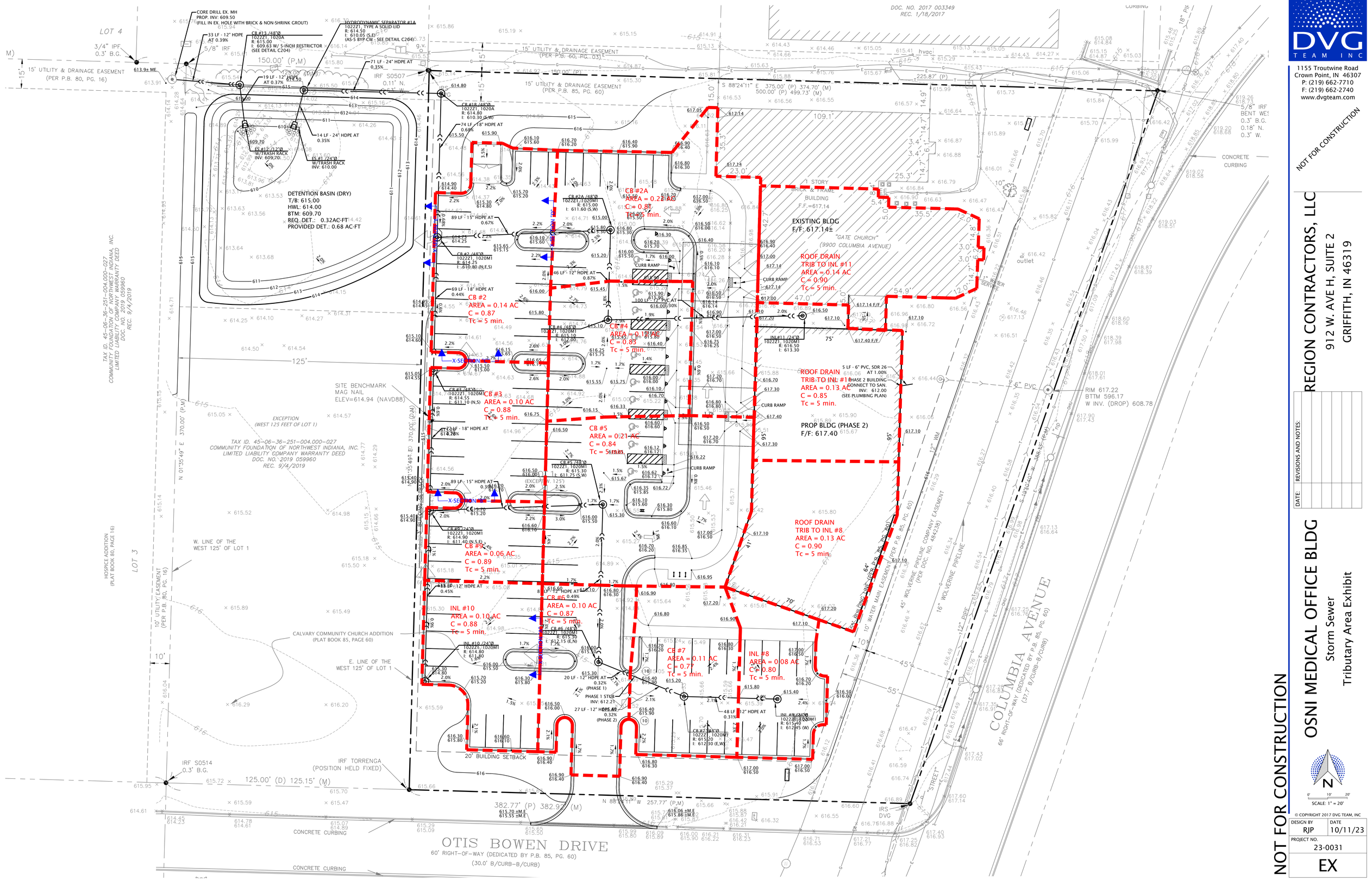


Exhibit 4

Overland Flood Route Calculations



DVG TEAM INC
1155 Troutwine Road
Crown Point, IN 46307
P: (219) 662-7710
F: (219) 662-2740
www.dvgteam.com

NOT FOR CONSTRUCTION

REGION CONTRACTORS, LLC
912 W. AVE H, SUITE 2
GRIFFITH, IN 46319

DATE:	REVISIONS AND NOTES:

NOT FOR CONSTRUCTION

OSNI MEDICAL OFFICE BLDG

Storm Sewer
Tributary Area Exhibit

SCALE: 1" = 20'

DESIGN BY	DATE
RJP	10/11/23
PROJECT NO.	
23-0031	
EX	

Overland Flood Route Computation Calculation

Project: OSNI Medical Office
Date: 10/11/2023

Storm Event: 100yr
*** Areas Calculated from Exhibit 5, within the Stormwater Technical Report**
*** Overflow Elevations taken from Calculation, Within This Report**

Cross Section: A					
Tc=	5	min			
Area=	0.42	acres			
C=	0.84				
i=	9.84	in/hr			
Rational Method Q_{100}=CiA			**Q=**	**3.45**	**cfs**
100YR Overflow Water Elevation=				**616.00**	**Elev**
Freeboard to Nearest Bldg=				**1.14**	**ft**

Cross Section: B					
Tc=	5	min			
Area=	0.58	acres			
C=	0.85				
i=	9.84	in/hr			
Rational Method Q_{100}=CiA			**Q=**	**4.83**	**cfs**
100YR Overflow Water Elevation=				**615.42**	**Elev**
Freeboard to Nearest Bldg=				**1.72**	**ft**

Cross Section: C					
Tc=	5	min			
Area=	0.89	acres			
C=	0.85				
i=	9.84	in/hr			
Rational Method Q_{100}=CiA			**Q=**	**7.44**	**cfs**
100YR Overflow Water Elevation=				**615.29**	**Elev**
Freeboard to Nearest Bldg=				**1.85**	**ft**

Cross Section: D					
Tc=	5	min			
Area=	0.61	acres			
C=	0.85				
i=	9.84	in/hr			
Rational Method Q_{100}=CiA			**Q=**	**5.10**	**cfs**
100YR Overflow Water Elevation=				**615.80**	**Elev**
Freeboard to Nearest Bldg=				**1.34**	**ft**

Cross Section: E					
Tc=	5	min			
Area=	1.64	acres			
C=	0.85				
i=	9.84	in/hr			
Rational Method Q_{100}=CiA			**Q=**	**13.72**	**cfs**
100YR Overflow Water Elevation=				**614.93**	**Elev**
Freeboard to Nearest Bldg=				**2.21**	**ft**

Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Wednesday, Oct 11 2023

X-Section A

User-defined

Invert Elev (ft)	= 615.80
Slope (%)	= 1.70
N-Value	= 0.011

Calculations

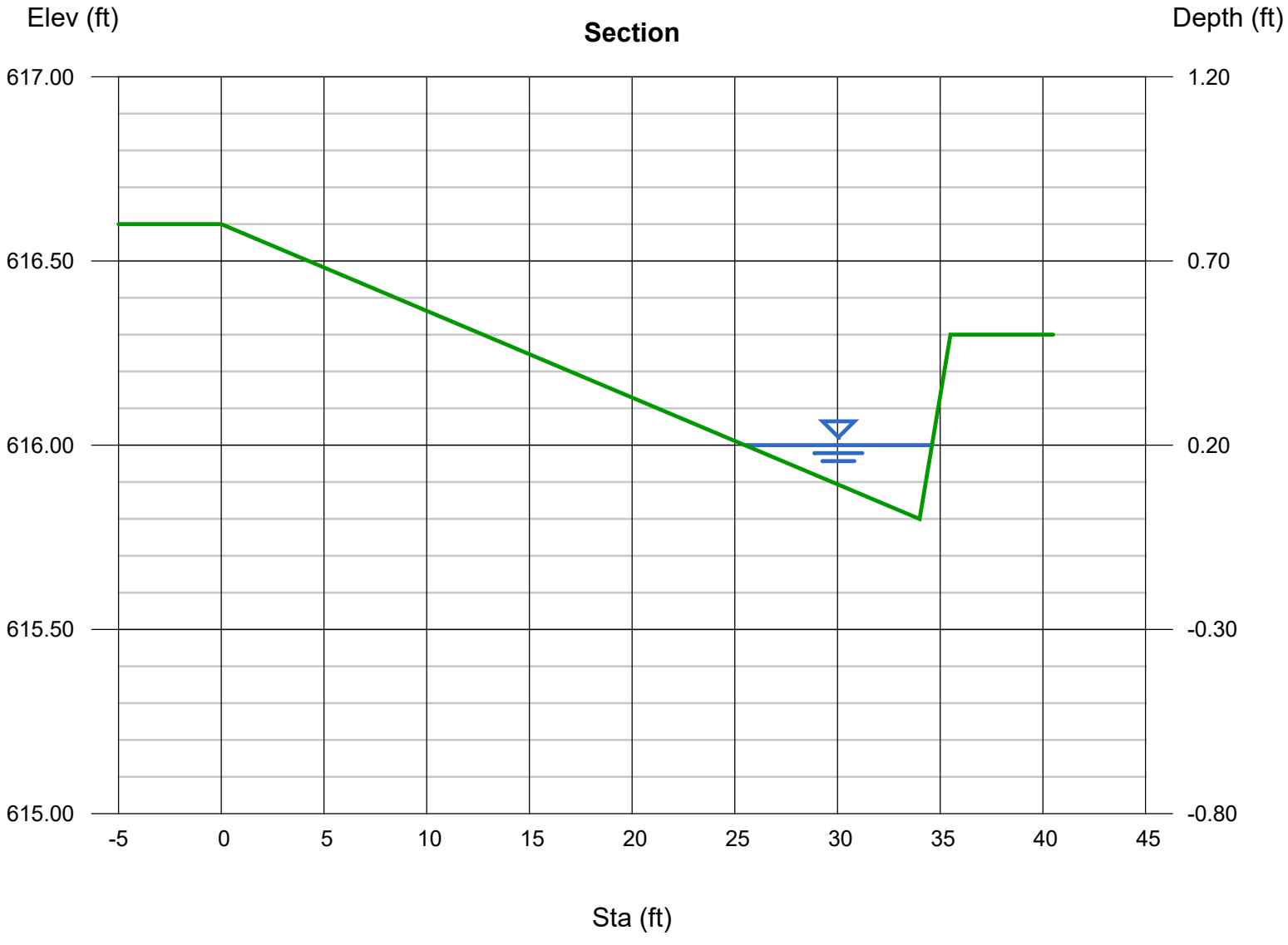
Compute by:	Known Q
Known Q (cfs)	= 3.45

(Sta, El, n)-(Sta, El, n)...

(0.00, 616.60)-(34.00, 615.80, 0.011)-(35.50, 616.30, 0.011)

Highlighted

Depth (ft)	= 0.20
Q (cfs)	= 3.450
Area (sqft)	= 0.91
Velocity (ft/s)	= 3.79
Wetted Perim (ft)	= 9.14
Crit Depth, Yc (ft)	= 0.27
Top Width (ft)	= 9.10
EGL (ft)	= 0.42



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Wednesday, Oct 11 2023

X-Section B

User-defined

Invert Elev (ft)	= 615.80
Slope (%)	= 1.70
N-Value	= 0.011

Calculations

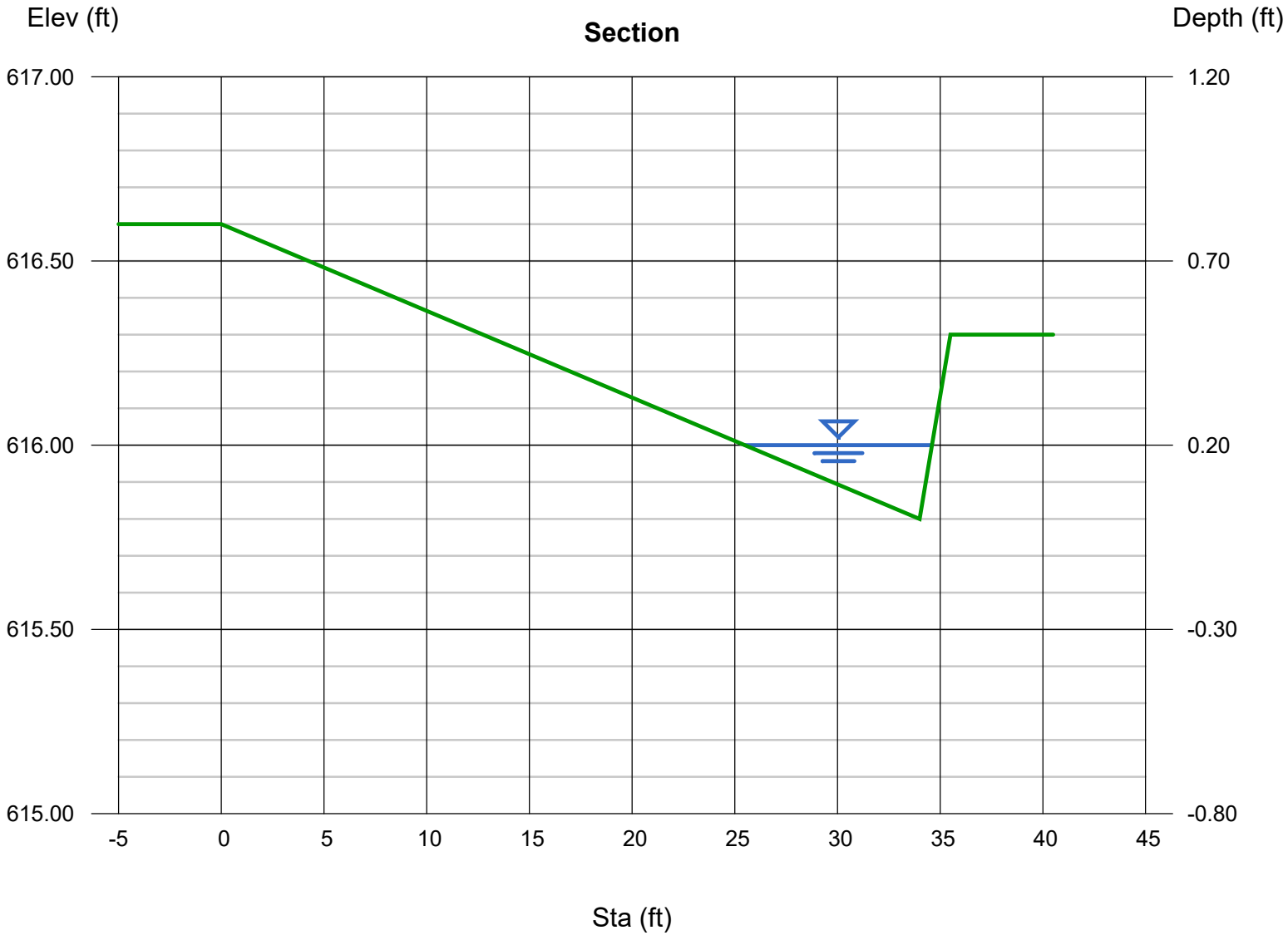
Compute by:	Known Q
Known Q (cfs)	= 3.45

(Sta, El, n)-(Sta, El, n)...

(0.00, 616.60)-(34.00, 615.80, 0.011)-(35.50, 616.30, 0.011)

Highlighted

Depth (ft)	= 0.20
Q (cfs)	= 3.450
Area (sqft)	= 0.91
Velocity (ft/s)	= 3.79
Wetted Perim (ft)	= 9.14
Crit Depth, Yc (ft)	= 0.27
Top Width (ft)	= 9.10
EGL (ft)	= 0.42



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Wednesday, Oct 11 2023

X-Section C

User-defined

Invert Elev (ft)	= 615.20
Slope (%)	= 2.00
N-Value	= 0.011

Calculations

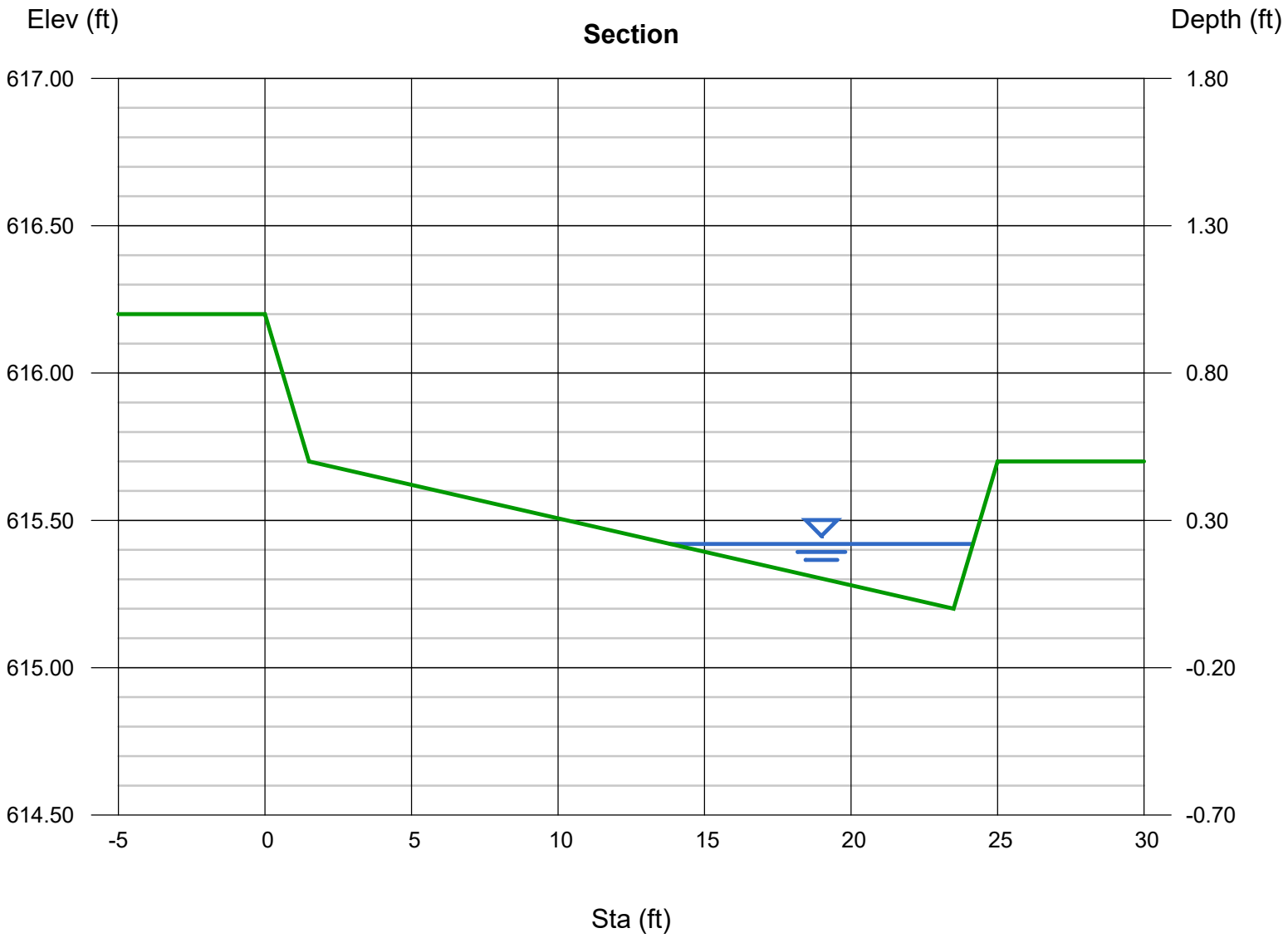
Compute by:	Known Q
Known Q (cfs)	= 4.83

Highlighted

Depth (ft)	= 0.22
Q (cfs)	= 4.830
Area (sqft)	= 1.14
Velocity (ft/s)	= 4.25
Wetted Perim (ft)	= 10.38
Crit Depth, Yc (ft)	= 0.31
Top Width (ft)	= 10.34
EGL (ft)	= 0.50

(Sta, El, n)-(Sta, El, n)...

(0.00, 616.20)-(1.50, 615.70, 0.011)-(23.50, 615.20, 0.011)-(25.00, 615.70, 0.011)



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Wednesday, Oct 11 2023

X-Section D

User-defined

Invert Elev (ft)	= 615.60
Slope (%)	= 2.20
N-Value	= 0.011

Calculations

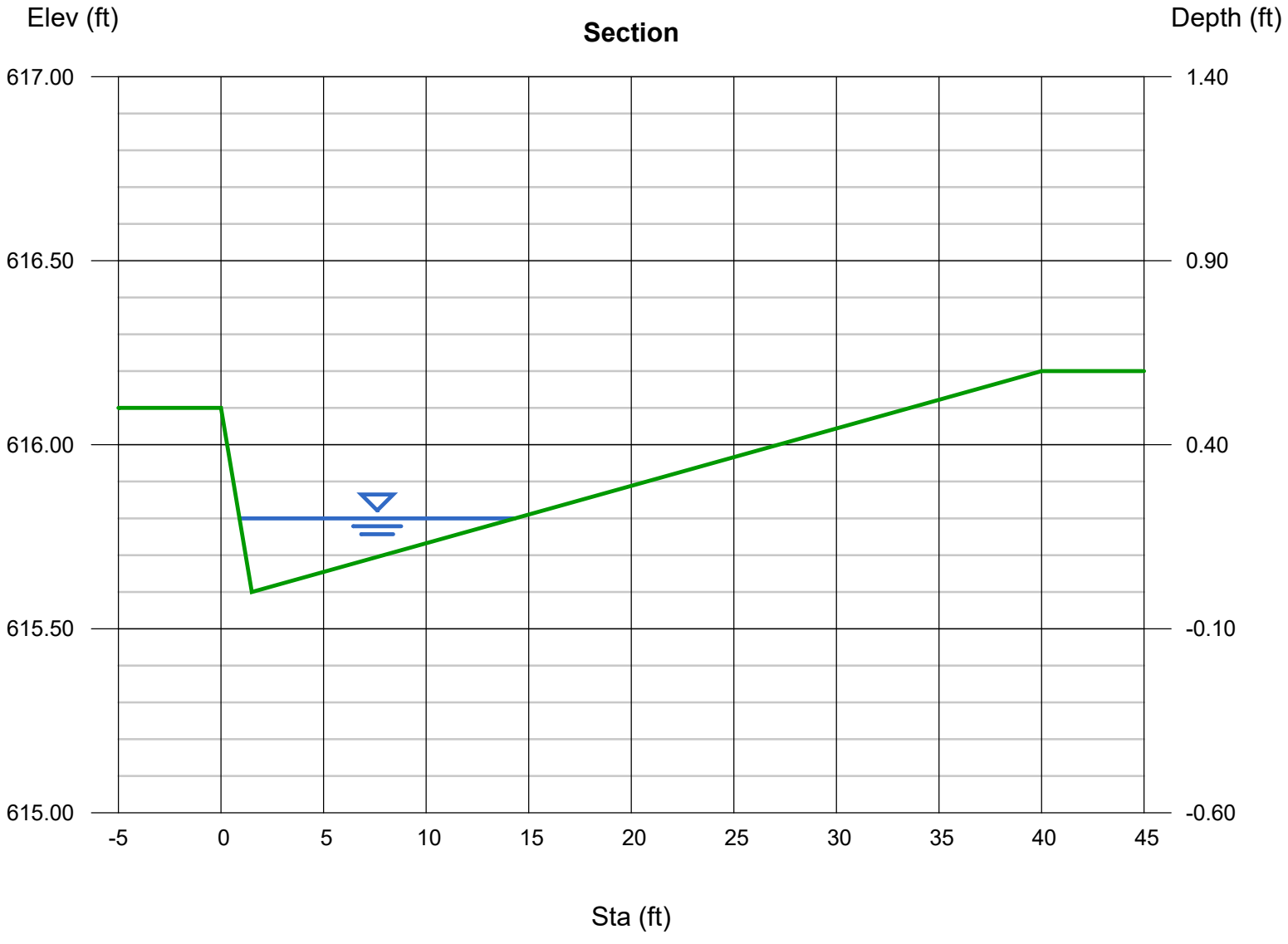
Compute by:	Known Q
Known Q (cfs)	= 5.10

(Sta, El, n)-(Sta, El, n)...

(0.00, 616.10)-(1.50, 615.60, 0.011)-(40.00, 616.20, 0.011)

Highlighted

Depth (ft)	= 0.20
Q (cfs)	= 5.100
Area (sqft)	= 1.34
Velocity (ft/s)	= 3.80
Wetted Perim (ft)	= 13.47
Crit Depth, Yc (ft)	= 0.27
Top Width (ft)	= 13.43
EGL (ft)	= 0.42



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Wednesday, Oct 11 2023

X-Section E

User-defined

Invert Elev (ft)	= 614.75
Slope (%)	= 2.20
N-Value	= 0.011

Calculations

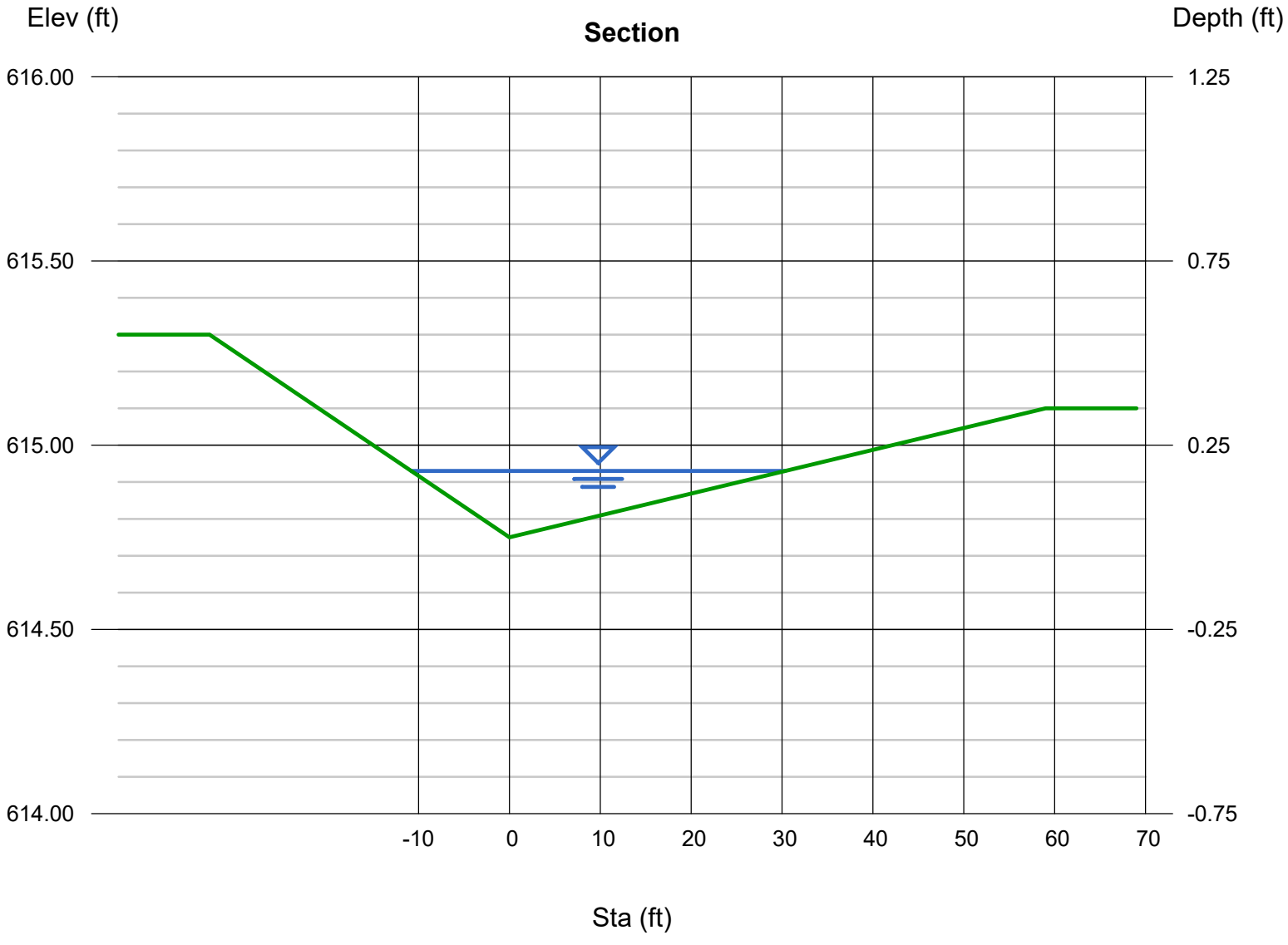
Compute by:	Known Q
Known Q (cfs)	= 13.72

(Sta, El, n)-(Sta, El, n)...

(-33.00, 615.30)-(59.00, 615.10, 0.011)

Highlighted

Depth (ft)	= 0.18
Q (cfs)	= 13.72
Area (sqft)	= 3.70
Velocity (ft/s)	= 3.71
Wetted Perim (ft)	= 41.15
Crit Depth, Yc (ft)	= 0.25
Top Width (ft)	= 41.14
EGL (ft)	= 0.39



ALTA/NSPS LAND TITLE SURVEY

PARCEL DESCRIPTION (PER EXHIBIT "A" IN TITLE COMMITMENT REFERENCED HEREON):

LOT 1, EXCEPT THE WEST 125 FEET THEREOF, IN CALVARY COMMUNITY CHURCH ADDITION TO THE TOWN OF MUNSTER, AS PER PLAT THEREOF, RECORDED IN PLAT BOOK 85 PAGE 60, IN THE OFFICE OF THE RECORDER OF LAKE COUNTY, INDIANA.

SUBJECT PARCEL INFORMATION:

TAX ID. 45-06-36-276-003.000-027
OWNER: THE GATE CHURCH, INC.
QUIT CLAIM DEED
DOCUMENT NO. 2014 003540
REC. 1/17/2014

PARCEL AREA:

117,062 SQ. FT.±
2.69 ACRES±

ALTA/NSPS OPTIONAL TABLE "A" SURVEY RESPONSIBILITIES AND SPECIFICATIONS ITEM NOTES:

ITEM 1: MONUMENTS SET OR FOUND ARE SHOWN HEREON.

ITEM 2: ADDRESS SHOWN HEREON IS PER THE LAKE COUNTY AUDITOR'S RECORDS AND SHOWN ON THE RECORDED SUBDIVISION PLAT.

ITEM 3: FLOOD ZONE DESIGNATION: THE ACCURACY OF ANY FLOOD HAZARD DATA SHOWN ON THIS PLAT IS SUBJECT TO MAP SCALE UNCERTAINTY AND TO ANY OTHER UNCERTAINTY IN LOCATION OR ELEVATION ON THE FLOOD INSURANCE RATE MAP, (FIRM). THE SUBJECT PARCEL DESCRIBED IN THE PARCEL DESCRIPTION SHOWN HEREON APPEARS TO LIE WITHIN THAT FLOOD HAZARD ZONE "X" (SHADED) AREAS DETERMINED TO BE INSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN AS SAID SUBJECT PARCEL PLOTS BY SCALE ON FLOOD INSURANCE RATE MAP FOR THE TOWN OF MUNSTER, LAKE COUNTY, INDIANA, COMMUNITY NUMBER 180139, PANEL NO. 18089C0117E. MAP EFFECTIVE DATE: JANUARY 18, 2012.

ITEM 4: LAND AREA IS SHOWN HEREON.

ITEM 5: VERTICAL RELIEF- ELEVATIONS AND THE RESULTING CONTOURS (1-FOOT INTERVAL UNLESS OTHERWISE SPECIFIED) SHOWN HEREON WERE MEASURED ON THE GROUND THIS SURVEY AND ARE REFERENCED TO A STATEWIDE GNSS REFERENCE STATION NETWORK KNOWN AS INCORS WHICH IS MAINTAINED BY THE INDIANA DEPARTMENT OF TRANSPORTATION USING THE NORTH AMERICAN VERTICAL DATUM OF 1988.

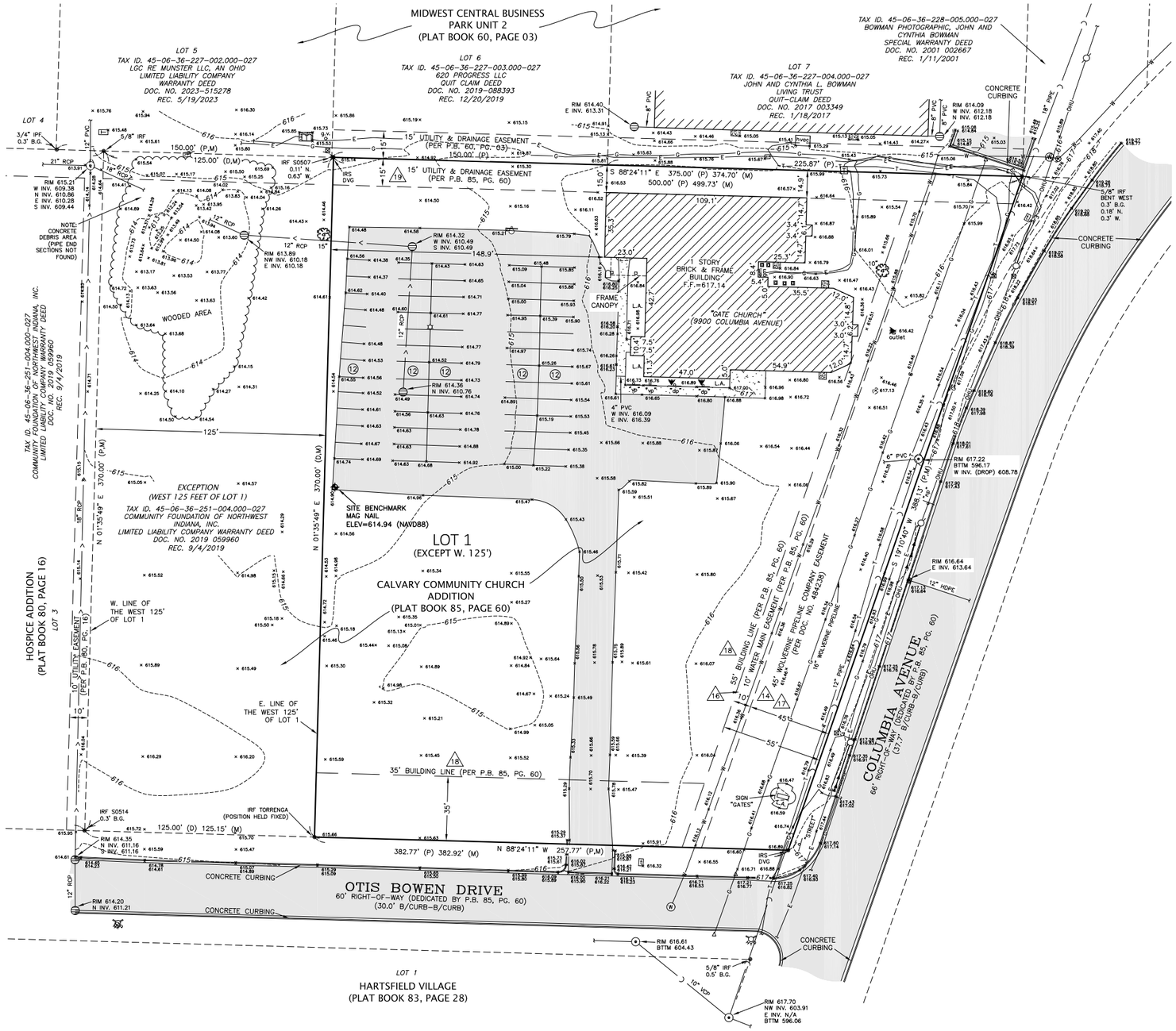
ITEM 7(a): EXTERIOR DIMENSIONS OF ALL BUILDINGS AT GROUND LEVEL ARE SHOWN HEREON.

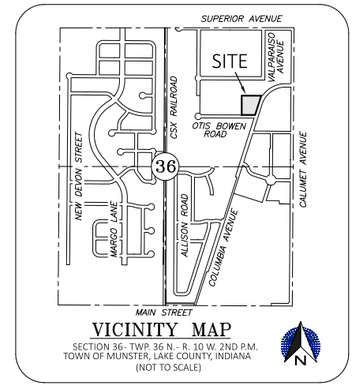
ITEM 8: SUBSTANTIAL VISIBLE FEATURES SUCH AS PARKING LOTS, BILLBOARDS, SIGNS, SWIMMING POOLS, LANDSCAPED AREAS, AND SUBSTANTIAL AREAS OF REFUSE (IF ANY) ARE SHOWN HEREON.

ITEM 9: STRIPING OF CLEARLY IDENTIFIABLE PARKING SPACES ON SURFACE PARKING AREAS AND LOTS, PARKING TYPES, AND THE NUMBER OF SPACES ARE SHOWN HEREON.
60 REGULAR PARKING SPACES WERE OBSERVED.

ITEM 11(a): LOCATION OF UTILITIES EXISTING ON OR SERVING THE SURVEYED PROPERTY WAS DETERMINED BY OBSERVED EVIDENCE AND EVIDENCE FROM PLANS REQUESTED BY THE SURVEYOR AND OBTAINED FROM UTILITY COMPANIES OR PROVIDED BY CLIENT TO DEVELOP A VIEW OF UNDERGROUND UTILITIES. HOWEVER, LACKING EXCAVATION, THE EXACT LOCATION OF UNDERGROUND FEATURES CANNOT BE ACCURATELY, COMPLETELY, AND RELIABLY DEPICTED. LOCATIONS OF UNDERGROUND UTILITIES/STRUCTURES MAY VARY FROM VISIBLE LOCATIONS SHOWN HEREON. ADDITIONAL BURIED UTILITIES/STRUCTURES MAY BE ENCOUNTERED. NO EXCAVATIONS OR PROBINGS WERE MADE DURING THE PROGRESS OF THIS SURVEY TO LOCATE BURIED UTILITIES/STRUCTURES, DRAINAGE TILES, UNDERGROUND DITCHES, FEEDERS OR LATERALS. NO ATTEMPT HAS BEEN MADE AS A PART OF THIS SURVEY TO OBTAIN DATA CONCERNING SIZE, DEPTH, CONDITION, CAPACITY OF ANY UTILITIES LOCATED WITHIN THE SITE SURVEYED OR SERVING THE SITE, UNLESS SHOWN HEREON. A UTILITY LOCATE REQUEST WAS MADE FOR THE SITE (INDIANA 811, TICKET NO. 2306086148). IF ADDITIONAL OR MORE DETAILED INFORMATION IS REQUIRED, EXCAVATION AND/OR A PRIVATE UTILITY LOCATE REQUEST MAY BE NECESSARY.

ITEM 13: NAMES OF ADJOINING OWNERS ACCORDING TO PUBLIC RECORDS ARE SHOWN HEREON. PARCELS IDENTIFIED BY TITLE DESCRIPTION OR RECORD REFERENCES AS PER 865 IAC 1-12-13-(11) ARE OBTAINED FROM COUNTY AUDITOR'S OFFICE AND OR RECORDER'S OFFICE AND ARE NOT CERTIFIED. THE INFORMATION MAY OR MAY NOT REFERENCE THE MOST CURRENT DEED OF RECORD OR THE MOST CURRENT STATUS OR TITLE FOR THAT PARCEL.





VICINITY MAP
SECTION 36- TWP. 36 N. - R. 10 W. 2ND P.M.
TOWN OF MUNSTER, LAKE COUNTY, INDIANA
(NOT TO SCALE)

TITLE COMMITMENT NOTES:

THIS SURVEY DOES NOT CONSTITUTE A TITLE SEARCH BY THE SURVEYOR. ALL INFORMATION REGARDING RECORD EASEMENTS AND OTHER DOCUMENTS WHICH MIGHT AFFECT THE QUALITY OF TITLE TO PARCEL SHOWN HEREON WAS GAINED FROM AN ALTA COMMITMENT FOR TITLE INSURANCE, COMMITMENT NUMBER FNW2301358 ISSUED BY FIDELITY NATIONAL TITLE INSURANCE COMPANY, ON 5/25/2023. THE FOLLOWING SURVEY RELATED MATTERS CORRESPOND TO THE ITEMS NUMBERED IN SCHEDULE B, PART 2, EXCEPTIONS IN SAID COMMITMENT AND ARE ADDRESSED HEREON IN THE FOLLOWING MANNER:

ITEM 14 EASEMENT FOR PIPE LINE IN FAVOR OF WOLVERINE PIPE LINE COMPANY, DATED OCTOBER 7, 1969, RECORDED OCTOBER 9, 1969, AS DOCUMENT NO. 34699, AND RE-RECORDED AUGUST 10, 1978, AS DOCUMENT NO. 484238- AFFECTS SUBJECT PARCEL AND SHOWN HEREON.

ITEM 15 COVENANTS, CONDITIONS, AND RESTRICTIONS CONTAINED IN TRUSTEE'S DEED FROM MERCANTILE BANK OF INDIANA, AS TRUSTEE, UNDER THE PROVISIONS OF A TRUST AGREEMENT DATED OCTOBER 27, 1986, AND KNOWN AS TRUST NUMBER 4893, TO CALVARY ASSEMBLY OF GOD CHURCH OF MUNSTER, INDIANA, DATED MARCH 22, 1993, AND RECORDED APRIL 16, 1993, AS DOCUMENT NO. 93024189- AFFECTS SUBJECT PARCEL- NOT PLOTTABLE.

ITEM 16 10 FEET WATER MAIN EASEMENT OVER THE WEST 10 FEET OF THE EAST 55 FEET OF THE LAND AS SHOWN ON RECORDED PLAT OF SAID SUBDIVISION- AFFECTS SUBJECT PARCEL AND SHOWN HEREON.

ITEM 17 45 FEET WOLVERINE PIPELINE CO. EASEMENT OVER THE EAST 45 FEET OF THE LAND AS SHOWN ON RECORDED PLAT OF SAID SUBDIVISION- AFFECTS SUBJECT PARCEL AND SHOWN HEREON.

ITEM 18 BUILDING LINES OVER THE EAST 55 FEET AND THE SOUTH 35 FEET OF THE LAND AS SHOWN ON RECORDED PLAT OF SAID SUBDIVISION- AFFECTS SUBJECT PARCEL AND SHOWN HEREON.

ITEM 19 EASEMENT FOR UTILITIES AND DRAINAGE OVER THE NORTH 15 FEET OF THE LAND AS SHOWN ON RECORDED PLAT OF SAID SUBDIVISION- AFFECTS SUBJECT PARCEL AND SHOWN HEREON.

SURVEY REFERENCES:

1.) RECORD DEEDS REFERENCED HEREON.
2.) RECORDED SUBDIVISION PLAT OF "CALVARY COMMUNITY CHURCH ADDITION", RECORDED NOVEMBER 9, 1998 IN PLAT BOOK 85, PAGE 60 AS DOCUMENT NUMBER 98088805.
3.) RECORDED SUBDIVISION PLAT OF "HOSPICE ADDITION", RECORDED FEBRUARY 22, 1996 IN PLAT BOOK 80, PAGE 16 AS DOCUMENT NUMBER 96011549.
4.) RECORDED SUBDIVISION PLAT OF "MIDWEST CENTRAL BUSINESS PARK UNIT 2", RECORDED SEPTEMBER 5, 1985 IN PLAT BOOK 60, PAGE 03 AS DOCUMENT NUMBER 818689.
5.) RECORDED ALTA/NSPS LAND TITLE SURVEY OF THE WEST 125 FEET OF LOT 1 IN CALVARY COMMUNITY CHURCH ADDITION AND LOTS 2 AND 3 IN HOSPICE ADDITION BY TORRENGA SURVEYING, LLC, RECORDED JULY 22, 2019 IN SURVEY BOOK 33, PAGE 61 AS DOCUMENT NUMBER 2019 045220.
6.) RECORDED GRANT OF EASEMENT AND PLAT OF VACATION OF THAT PART OF COLUMBIA AVENUE IN BLOCK 6 IN MIDWEST CENTRAL BUSINESS PARK TO THE TOWN OF MUNSTER, RECORDED IN PLAT BOOK 68, PAGE 37.

SURVEYOR'S REPORT:

IN ACCORDANCE WITH TITLE 865, ARTICLE 1.0, CHAPTER 12 OF THE INDIANA ADMINISTRATIVE CODE, THE FOLLOWING OBSERVATIONS AND OPINIONS ARE SUBMITTED REGARDING THE VARIOUS UNCERTAINTIES IN THE LOCATION OF THE LINES AND CORNERS ESTABLISHED OR REESTABLISHED ON THIS SURVEY. THIS PLAT REPRESENTS A RETRACEMENT SURVEY OF A LOT LESS EXCEPTION IN A PLATTED SUBDIVISION.

THEORY OF LOCATION: A SEARCH FOR MONUMENTS AROUND THE SUBJECT PARCEL WAS PERFORMED THIS SURVEY. A REBAR WITH A TORRENGA CAP WAS FOUND AT THE SOUTHWEST CORNER OF THE SUBJECT PARCEL AND ITS' POSITION WAS HELD FIXED FOR THIS SURVEY. A REBAR WITH "S0514" CAP WAS FOUND AT THE SOUTHWEST CORNER OF LOT 3 IN HOSPICE ADDITION (MONUMENT NOT SHOWN HEREON) AND HELD FIXED FOR LINE. ADDITIONAL MONUMENTS WERE FOUND AND SHOWN HEREON. PLATTED DISTANCES AND BEARINGS WERE USED TO CALCULATE THE POSITIONS OF THE REMAINING SUBJECT PARCEL CORNERS AND WERE MONUMENTED THIS SURVEY

A.) CONDITION OF FOUND REFERENCE MONUMENTS: UNLESS OTHERWISE STATED ON THIS PLAT, REFERENCE MONUMENTS WERE FOUND UNDISTURBED, AT OR NEAR GRADE AND OF UNKNOWN ORIGIN. UNCERTAINTY IN LOCATION OF FOUND MONUMENTS MEASURED 0.3 FEET EAST-WEST AND 0.2 FEET NORTH-SOUTH.

B.) NO APPARENT UNCERTAINTIES DUE TO SUBSTANTIAL OBSERVED OCCUPATION OR POSSESSION EXCEPT FOR AS FOLLOWS: THERE WAS VISIBLE EVIDENCE OF STORM WATER PIPE THAT EXITS THE SUBJECT PARCEL TO THE WEST INTO WHAT WAS POSSIBLY A FORMER STORM WATER DETENTION AREA NOW LOCATED ON THE WEST 125 FEET OF LOT 1 IN THE SUBJECT SUBDIVISION (ALL AS SHOWN HEREON). AN AREA LIGHT WAS LOCATED IN THE WOLVERINE PIPELINE EASEMENT ON THE EAST SIDE OF THE SUBJECT BUILDING AND SHOWN HEREON. THE SIGN FOR THE CHURCH WAS LOCATED IN THE WOLVERINE PIPELINE EASEMENT NEAR THE SOUTHEAST CORNER OF THE SUBJECT PARCEL AND SHOWN HEREON.

C.) NO APPARENT UNCERTAINTIES DUE TO RECORD DESCRIPTIONS.

D.) THE RELATIVE POSITIONAL ACCURACY (DUE TO RANDOM ERRORS IN MEASUREMENTS) FOR THIS SURVEY, BASED ON EQUIPMENT AND PROCEDURES USED, WAS WITHIN THE ALLOWABLE (0.07 FEET PLUS 50 PARTS PER MILLION) FOR AN URBAN SURVEY, PER 865 IAC 1-12-7.

TO: BRADLEY COMPANY, LLC
OSNI DYER AND ASSOCIATES, LLC;
THE GATE CHURCH, INC.;
FIDELITY NATIONAL TITLE INSURANCE COMPANY

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2021 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 1, 2, 3, 4, 5, 7, 8, 9, 11(a) AND 13 OF TABLE A THEREOF. THE FIELD WORK WAS COMPLETED ON JUNE 29, 2023. I FURTHER STATE THAT SURVEY WAS PERFORMED IN ACCORDANCE WITH THE GUIDELINES SET IN TITLE 865 IAC 1-12 (RULE 12).

DATE OF PLAT: JULY 12, 2023

GLEN E. BOREN
REGISTERED No. LS20000006 STATE OF INDIANA LAND SURVEYOR

PROFESSIONAL LAND SURVEYOR: GLEN E. BOREN
INDIANA REGISTRATION NUMBER: LS20000006
gboren@dvgteam.com

GENERAL NOTES:

1.) EXCEPT AS SPECIFICALLY STATED OR SHOWN ON THIS PLAT, THIS SURVEY DOES NOT PURPORT TO REFLECT ANY OF THE FOLLOWING WHICH MAY BE APPLICABLE TO THE SUBJECT REAL ESTATE:
A) EASEMENTS, OTHER THAN THE POSSIBILITY OF EASEMENTS WHICH WERE VISIBLE BY PHYSICAL EVIDENCE AT THE TIME OF THIS SURVEY OR SHOWN BY DOCUMENT PROVIDED AND RECORD PLAT.
B) BUILDING SETBACK LINES, RESTRICTIVE COVENANTS, SUBDIVISION RESTRICTIONS, ZONING OR OTHER LAND-USE REGULATIONS, OTHER THAN THAT SHOWN ON THE RECORD PLAT.
C) OWNERSHIP OR TITLE.

2.) THIS SURVEY DOES NOT ADDRESS THE EXISTENCE, IF ANY, OF ITEMS THAT WOULD REQUIRE AN INTERPRETATION BY THE SURVEYOR, (I.E. COMPLIANCE WITH ALL ZONING REQUIREMENTS) EXISTENCE OF ITEMS BEYOND THE QUALIFICATION OF SURVEYOR (I.E. WETLANDS, HAZARDOUS MATERIAL) AND ITEMS NOT READILY VISIBLE DURING A REASONABLE INSPECTION OF SITE (PAST CEMETERIES, LANDFILLS, AND MINERAL RIGHTS).

3.) THIS SURVEY MAY NOT REFLECT ALL UTILITIES OR IMPROVEMENTS IF SUCH ITEMS ARE HIDDEN BY LANDSCAPING OR ARE OBSCURED BY SUCH ITEMS AS DUMPSTERS, TRAILERS, CARS, DIRT, PAVING OR SNOW. AT THE TIME OF THIS SURVEY, SNOW DID NOT COVER THE SITE. LAWN SPRINKLERS SYSTEMS, IF ANY, ARE NOT SHOWN ON THIS SURVEY.

4.) BASIS OF BEARINGS: THE MONUMENTED SOUTH LINE OF LOT 1 BEING N 88°24'11" W, PER THE RECORDED PLAT OF CALVARY COMMUNITY CHURCH ADDITION (SURVEY REFERENCE NUMBER 2 HEREON).

LEGEND

- LIGHT POLE
- BASKETBALL POLE
- TELEPHONE PEDESTAL
- MANHOLE
- CATCH BASIN
- CURB INLET
- ELECTRIC TRANSFORMER
- A/C UNIT
- SIGN
- CABLE TUB
- FIRE HYDRANT
- WATER VALVE
- WATER MANHOLE
- SITE BENCHMARK
- UTILITY POLE
- MAILBOX
- BLOCK COLUMN
- AREA LIGHT
- WOLVERINE PIPELINE MARKER
- NUMBER OF REGULAR PARKING SPACES
- GAS VALVE
- ELECTRIC OUTLET
- L.A. LANDSCAPE AREA
- GUY WIRES
- SCHEDULE B, PART 2 EXCEPTION ITEM PER TITLE COMMITMENT
- SUBJECT PARCEL BOUNDARY LINE
- PLATTED BUILDING SETBACK LINE
- PARCEL BOUNDARY LINE
- EASEMENT LINE
- E — UNDERGROUND ELECTRIC
- G — UNDERGROUND GAS
- W — UNDERGROUND WATER
- T — UNDERGROUND TELECOMMUNICATIONS
- STORM SEWER WITH FLOW DIRECTION
- SANITARY SEWER WITH FLOW DIRECTION
- OHU — OVERHEAD UTILITY WIRES
- APPROXIMATE TREE LINE
- TREE WITH APPROXIMATE DIAMETER
- x xxx.xx SPOT ELEVATION
- xxx 1-FOOT CONTOUR
- em ELECTRIC METER
- gm GAS METER
- ASPHALT AREA
- CONCRETE AREA
- dp- DISABLED PARKING
- np- NO PARKING
- vp- VISITOR PARKING
- F.F.- FINISHED FLOOR ELEVATION
- A.G.- ABOVE GRADE
- B.G.- BELOW GRADE
- HDPE- HIGH DENSITY POLY-ETHYLENE
- PVC- POLY-VINYL CHLORIDE PIPE
- RCP- REINFORCED CONCRETE PIPE
- VCP- VITRIFIED CLAY PIPE
- BTTM- BOTTOM OF STRUCTURE
- N/A- NOT ACCESSIBLE
- INV.- INVERT
- R/W- RIGHT OF WAY
- P.B.- PLAT BOOK
- PG.- PAGE
- C- DIMENSION CALCULATED
- M- DIMENSION MEASURED BETWEEN MONUMENTS
- D- DIMENSION PER DEED DESCRIPTION
- IRS DVG 5/8" REBAR SET WITH BLUE CAP STAMPED "DVG TEAM INC. FIRM NO. 0120"
- IRF TORRENGA 5/8" REBAR FOUND WITH CAP STAMPED "TORRENGA" TORRENGA SURVEYING
- IRF S0507 5/8" REBAR FOUND WITH CAP STAMPED "S0507" RICHARD HARDESTY, P.L.S.
- IRF S0514 5/8" REBAR FOUND WITH CAP STAMPED "S0514" GARY TORRENGA, P.L.S.
- IPF IRON PIPE FOUND
- IRF IRON ROD FOUND

DVG TEAM INC
1155 Troutwine Road
Crown Point, IN 46307
P: (219) 662-7710
F: (219) 662-2740
www.dvgteam.com

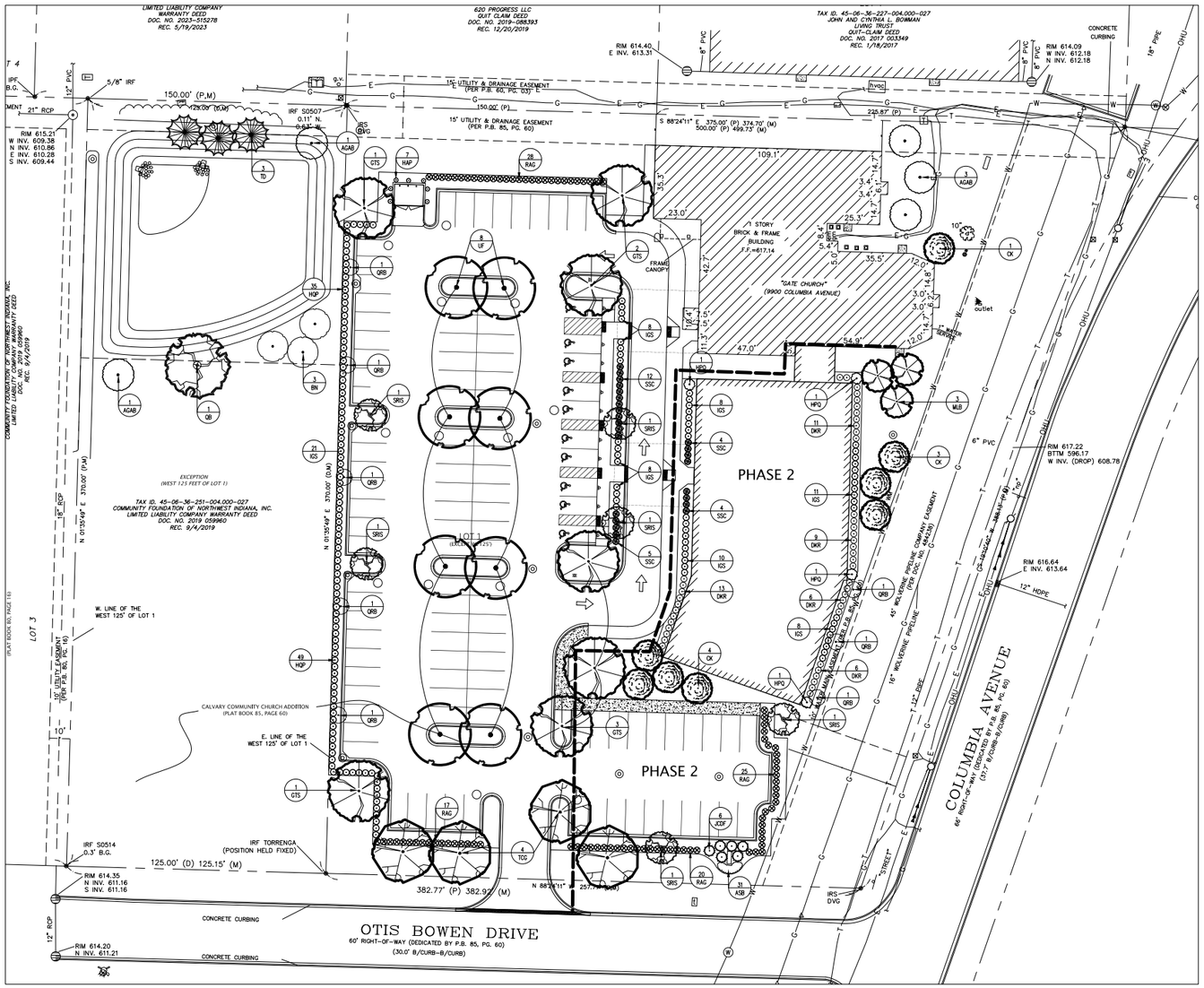
DATE:	REVISIONS AND NOTES:

ALTA/NSPS LAND TITLE SURVEY
9900 COLUMBIA AVENUE
MUNSTER, INDIANA 46321
LOT 1, EXCEPT THE WEST 125 FEET THEREOF, CALVARY COMMUNITY CHURCH ADDITION

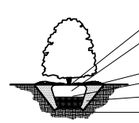
0' 10' 30'
SCALE: 1" = 30'

GATE CHURCH

\23-0720\23-0720.DWG	
FB/PG	FILE NO.
DRAWN BY M.S.	DATE 7/12/23
SECTION 36-36-10	COUNTY, STATE LAKE, IN
JOB NO. 23-0720	

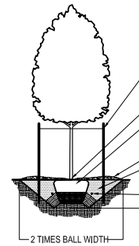


LOCATE ALL UNDERGROUND UTILITIES PRIOR TO DIGGING. SHRUB PIT WIDTH TO BE TWO TIMES THE WIDTH OF THE ROOT BALL. PRUNE OFF ALL DEAD, BROKEN OR SCARRED BRANCHES, AND SHAPE PRUNE AS DIRECTED BY THE LANDSCAPE ARCHITECT. LOCATE ROOT FLARE IN ROOT BALL AND SET SHRUB HEIGHT SO THAT ROOT FLARE IS FLUSH OR SLIGHTLY HIGHER THAN FINISH GRADE DEPENDING ON EXISTING SOIL CONDITIONS, WATER IN THE PLANTING MIX THOROUGHLY, WHILE KEEPING THE SHRUB PLUMB. STRAIGHTEN SHRUB IF SETTLING OCCURS. MULCH LIMITS FOR SHRUBS TO EXTEND TO ALL EDGES OF PLANTING BEDS, SEE PLANS FOR BED LAYOUTS.



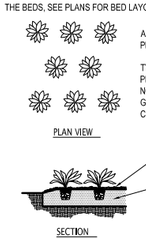
1 SHRUB PLANTING DETAIL
NOT TO SCALE

LOCATE ALL UNDERGROUND UTILITIES PRIOR TO DIGGING. TREE PIT WIDTH TO BE Two TIMES THE WIDTH OF THE ROOT BALL. PRUNE OFF ALL DEAD, BROKEN OR SCARRED BRANCHES, AND SHAPE PRUNE AS DIRECTED BY THE LANDSCAPE ARCHITECT. LOCATE ROOT FLARE IN ROOT BALL AND SET TREE HEIGHT SO THAT ROOT FLARE IS FLUSH OR SLIGHTLYI HIGHER THAN FINISH GRADE DEPENDING ON EXISTING SOIL CONDITIONS, WATER IN THE PLANTING MIX THOROUGHLY, WHILE KEEPING THE TREE PLUMB. STRAIGHTEN TREE IF SETTLING OCCURS.



2 DECIDUOUS & EVERGREEN TREE PLANTING DETAIL
NOT TO SCALE

LOCATE ALL UNDERGROUND UTILITIES PRIOR TO DIGGING. AMEND PLANTING BED SOIL WITH COMPOST PRIOR TO PLANT INSTALLATION. BED HEIGHT IS TO BE 2" ABOVE FINISH GRADE AND WELL DRAINED. MULCH LIMITS FOR PERENNIAL AND GROUNDCOVER BEDS TO EXTEND TO ALL EDGES OF THE BEDS, SEE PLANS FOR BED LAYOUTS.



3 PERENNIAL, GROUNDCOVER, AND ANNUAL PLANTING DETAIL
NOT TO SCALE

This Drawing and Design is the Property of Hubinger Landscaping Corp. and is not to be reproduced or used without the permission of Hubinger Landscaping Corp.

Notes:

Stand alone trees and Landscape Areas to have Shredded Hardwood Bark Mulch 3" Deep w/ Pre-emergent herbicide and have spade dug edge.

All disturbed lawn areas to be restored w/ 4" of topsoil, Seed w/ HLC Sunny Mix or approved equal w/ DS-75 Erosion Control Blanket.

Starter fertilizer to be applied at installation and post fertilizer application applied 30-45 days later with a minimum of 1# of Nitrogen per 1000 SF and 50% being slow release.

DAVID R. HUBINGER MEMBERSHIP NO. L0177 STATE OF INDIANA LANDSCAPE ARCHITECT

	Revisions:	Date

HUBINGER Landscaping Corp.
210 East 113th Avenue
Crown Point, Indiana
Phone: 219-662-9911
www.hubingers.com

ONSI MEDICAL OFFICE
9900 COLUMBIA AVE.
MUNSTER, IN

Drawn By:	LBK/SAS	L1.0
Date:	10/11/23	
Scale:	1:30	

PLANT LIST

Symbol	Botanical Name	Common Name	Size
Trees			
AGAB	Amelanchier x grandiflora 'Autumn Brilliance'	Autumn Brilliance Serviceberry	MS 5'-6'
BN	Betula nigra	River Birch	MS 8'
CK	Cornus kousa	Kousa Dogwood	MS 6'
GTS	Gleditsia triacanthos var. inermis 'Skycole'	Skyline Locust	2.5"
MLM	Magnolia 'Leonard Messel'	Leonard Messel Magonila	MS 6'
QB	Quercus bicolor	Swamp White Oak	2.5"
QRB	Quercus x 'Nadler'	Kindred Spirit Oak	2.5"
QR	Quercus rubra	Red Oak	2.5"
SRIS	Syringa reticulata 'Ivory Silk'	Ivory Silk Lilac	2.5"
TCG	Tilia cordata 'Greenspire'	Greenspire Linden	2.5"
TD	Taxodium distichum	Bald Cypress	2.5"
UF	Ulmus 'Frontier'	Frontier Elm	2.5"
Shrubs			
DKR	Diervilla 'Kodiak Red'	Kodiak Red Diervilla	#3
HPQ	Hydrangea paniculata 'Quick Fire'	Quick Fire Hydrangea	#5
HQP	Hydrangea quercifolia 'PeeWee'	PeeWee Hydrangea	#3
IGS	Ilex glabra 'Strongbox'	Strongbox Inkberry	#3
JCDF	Juniperus chinensis 'Daubs Frosted'	Daubs Frosted Juniper	#3
RAG	Ribes alpinum 'Green Mound'	Green Mound Alpine Currant	#3
Vine			
HAP	Hydrangea anomala ssp. petiolaris	Climbing Hydrangea	#3
Perennials			
ASB	Allium 'Summer Beauty'	Summer Beauty Allium	#1
SSC	Schizachyrium scoparium 'Carousel'	Carousel Little Blue Stem Grass	#2

Calculations	Total Linear Feet (LF) or Square Feet (SF)	Trees Required	Trees Provided	Shrubs Required	Shrubs Provided
Parkway Planting 1 Tree/ 30 LF of Frontage	646 LF	22	22		
Parking Planting Continuous Screening Hedge 7' Wide Required	Provided				
1 Tree / 30 LF of Frontage	180 LF	6	6		
1 Tree / 125 SF Internal Landscape	3492 SF	28	28		
All Masonry Dumpster Walls to Have Climbing Vines	Provided				

The undersigned landscape architect, registed in the State of Indiana, acknowledges that the landscape planting plan and construction details shown on the attached landscape plan for the property at 9900 Columbia Ave., Town of Munster, Indiana has been designed in accordance with the requirements of the Town of Munster Municipal Code, the landscaping standards of the Town of Munster Zoning Ordinance, and the Guide to the Town of Munster Landscape Ordinances.

David R Hubinger

NORTH

GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.

HOLEY MOLEY SAYS
"DIG SAFELY"

"IT'S THE LAW"
CALL 2 WORKING DAYS BEFORE YOU DIG
1-800-382-5544
CALL TOLL FREE
PER INDIANA STATE LAW IC8-1-26, IT IS AGAINST THE LAW TO EXCAVATE WITHOUT NOTIFYING THE UNDERGROUND LOCATION SERVICE TWO (2) WORKING DAYS BEFORE COMMENCING WORK.

REGION CONTRACTORS

OSNI ZONING ANALYSIS					
CD-4.B General Urban B					
ALTERATIONS					
ITEM	REQUIRED/ALLOWABLE	PROVIDED	VARIANCE NEEDED	PG	REFERENCE
Alteration, Enlargement, Extension, etc. of Nonconforming Buildings,	If a Nonconforming Building, Improvement, or Structure is Substantially Modified, Altered, enlarged, increased, or extended to occupy more land than that			13-14	26-6.122
ZONING					
ITEM	REQUIRED/ALLOWABLE	PROVIDED	VARIANCE NEEDED	PG	REFERENCE
	Officefront		none	124	26-6.405.A-7
Private Frontage types	Shopfront		none	124	
Lot width	18' min	419.6'	none	124	
Lot Coverage	70% max	16%	none	124	
	1 Principal			124	
Number of Buidlings	1 Accessory	1 building		124	
Front Setback, principal	0' min, 20' max	55'	yes	125	
Front Setback, secondary	0' min, 20' max	124'	yes		
Side Setback	0' or 6' min	15 ' (existing)	existing, nonconforming		
Rear Setback	3' min	147.5' (existing)	existing, nonconforming		
BUILDING STANDARDS					
ITEM	REQUIRED/ALLOWABLE	PROVIDED	VARIANCE NEEDED	PG	REFERENCE
Principal Building Height	4 stories / 50' max	2 stories /	none	126	26-6.405.A-7
Accessory Building Height	2 stories / 35' max	2 stories /	none	126	
Ceiling height	14' (25' max first floor)		none	126	
	stone, wood or metal		none	126	
	glass, metal, wood		none	126	
Building Materials	prohibited: alum siding, metal industrial type, vinyl, or asphalt siding, EIFS, cedar shakes, cmu, plywood siding	EIFS, existing	yes	126	
Frontage Buildout	60% min	33% (approx.)	yes	126	
	whole number fraction			126	
Facade Design Proportions	1.414:1 or 1.618:1				
	20-60% above first floor			126	
Facade Void	frontages				
	less than 20' apart			127	
Facade Openings	area			127	
Roof type	Flat, Hip, Gable, Pitch		none	127	
Building Type	Commercial	Commercial	none	127	
PARKING					
ITEM	REQUIRED/ALLOWABLE	PROVIDED	VARIANCE NEEDED	PG	REFERENCE
	2nd or 3rd Lot Layer	Layer	yes	128	26-6.405.A-7
	Must be screened			128	
Off street parking	Parking lot not permitted			128	
Parking Surface	Asphalt, concrete		none	128	
Driveway	24' max	24'	none	128	
	5.7 spaces per 1000 sf of floor area			243	26-6.405.O-1
Medical Outpatient Clinic	19,525 sf / 1,000 sf x 5.7 sapces = 112 spaces	112 spaces	none		

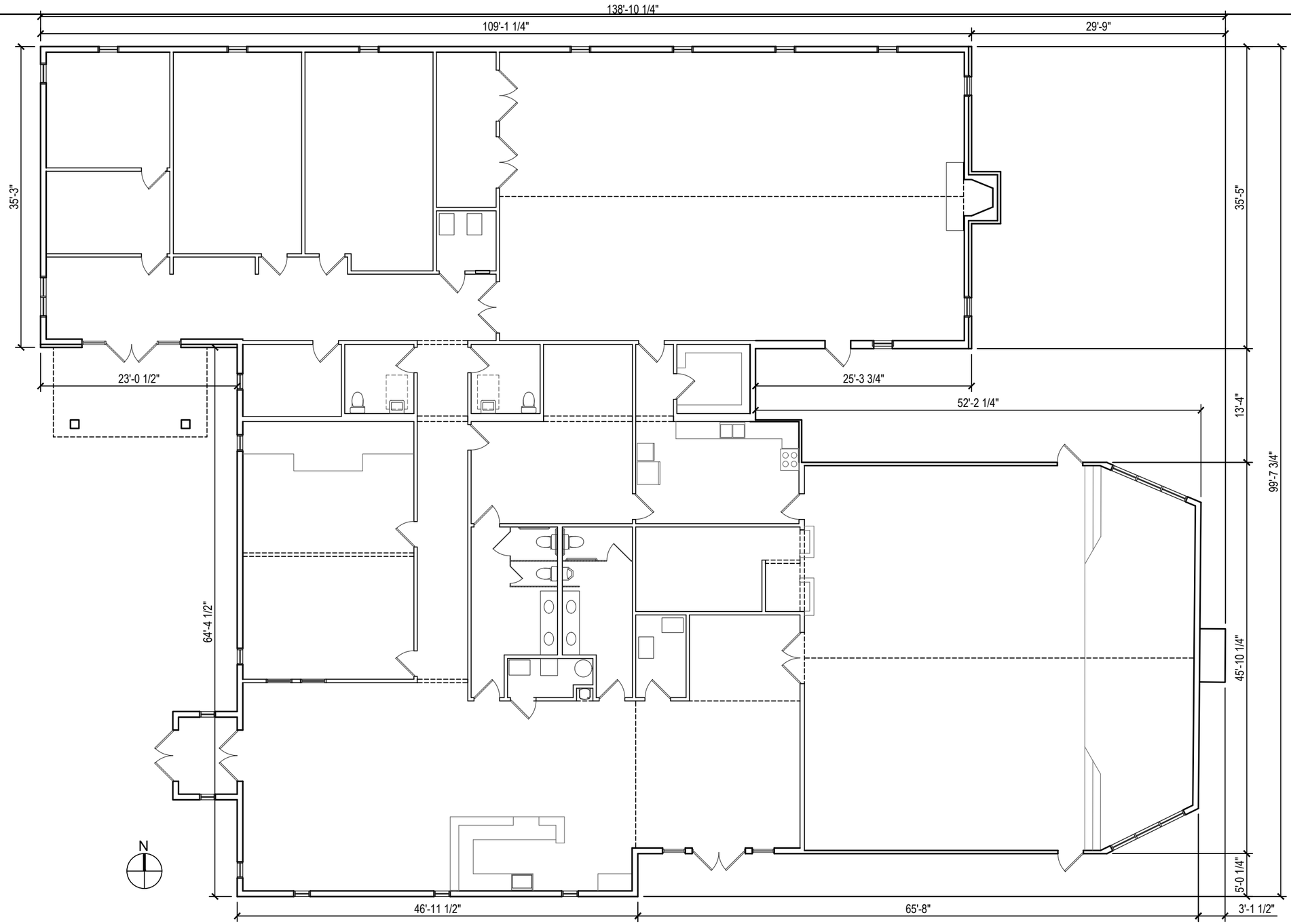
BICYCLE PARKING					
ITEM	REQUIRED/ALLOWABLE	PROVIDED	VARIANCE NEEDED	PG	REFERENCE
Medical Use	1 space / 10 examination rooms			255	26-6.405.O-6
OFF STREET DUMPSTER					
ITEM	REQUIRED/ALLOWABLE	PROVIDED	VARIANCE NEEDED	PG	REFERENCE
Off-Street Trash Receptacle/Dumpster	Required; fully enclosed on 3 sides, self closing gate, match principal building		none	129	26-6.405.A-7
LANDSCAPING					
ITEM	REQUIRED/ALLOWABLE	PROVIDED	VARIANCE NEEDED	PG	REFERENCE
All areas not covered	min 30% of first lot layer			130	26-6.405.A-7
Coverage	25% covered with groundcover, evergreens, or shrubs			130	
Trees	frontage			130	
SIGNS					
ITEM	REQUIRED/ALLOWABLE	PROVIDED	VARIANCE NEEDED	PG	REFERENCE
	1 / ground floor entrance			343	26-6.701.B
	6 sf max				
Directory Sign	height				
	1 / frontage			345	26-6.701.B
	18 sf max				
	6 ft high max, including base				
Monument Sign	max 12 in letter height				
	1 / facade			352	26-6.701.B
	frontage				
	width 100% facade				
	7 in depth max				
Wall Sign	7 ft clearance min				
SCREENS					
ITEM	REQUIRED/ALLOWABLE	PROVIDED	VARIANCE NEEDED	PG	REFERENCE
Enhanced hedge	hedge sceen planted adjacent to ornamental metal fence or wall screen			131	26-6.405.A-7
Parking lot at frontage in 1st and 2nd lot layer	wall or enhanced hedge required			131	
	3'-3.5'				
3rd lot layer	wall or hedge required				
	3'-3.5'				
dumpster/ trash receptacle	wall or fence required			131	
	6'				
USE					
ITEM	REQUIRED/ALLOWABLE	PROVIDED	VARIANCE NEEDED	PG	REFERENCE
Uses	Medical Outpatient clinic permitted			228	26-6.405.L-1
END OF ANALYSIS					

ZONING ANALYSIS

9900 Columbia Avenue, Munster IN

OSNI MOB
October 12, 2023

REGION CONTRACTORS

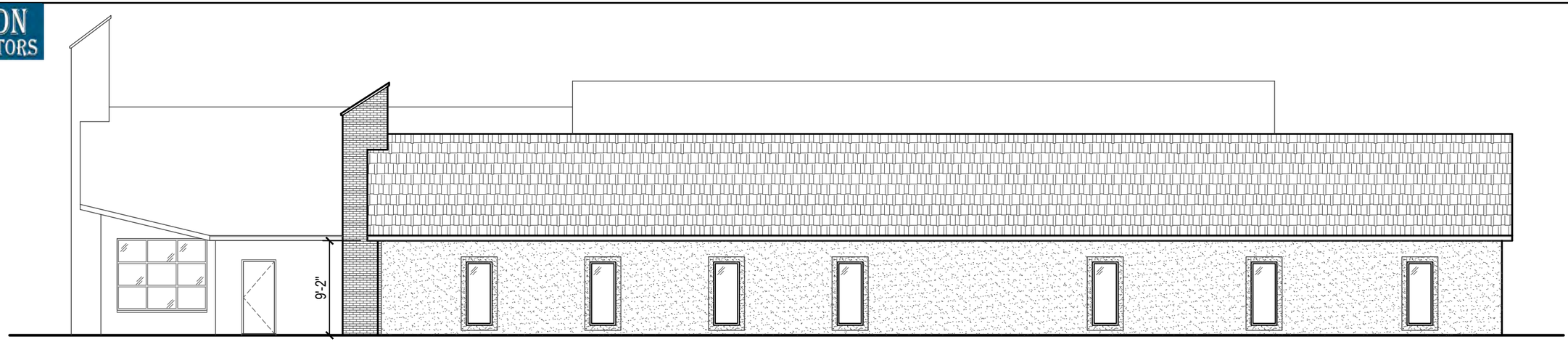


EXISTING GATE CHURCH

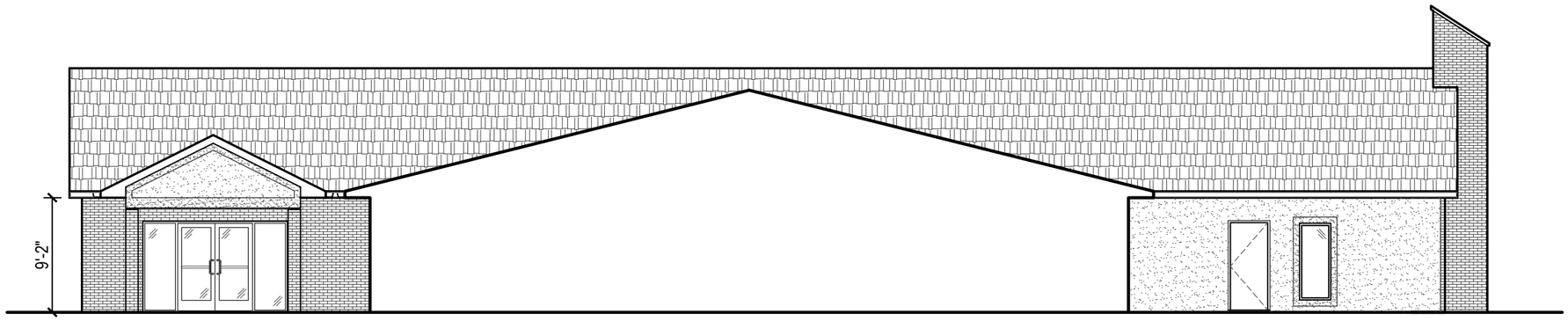
FLOOR PLAN

OSNI MOB
October 12, 2023

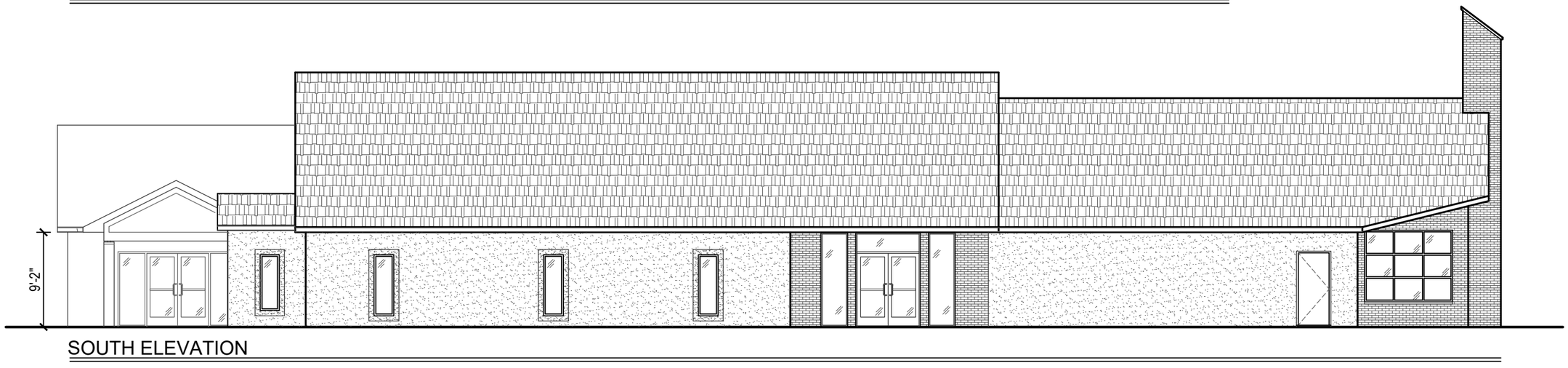
REGION CONTRACTORS



NORTH ELEVATION



PARTIAL SOUTH ELEVATION



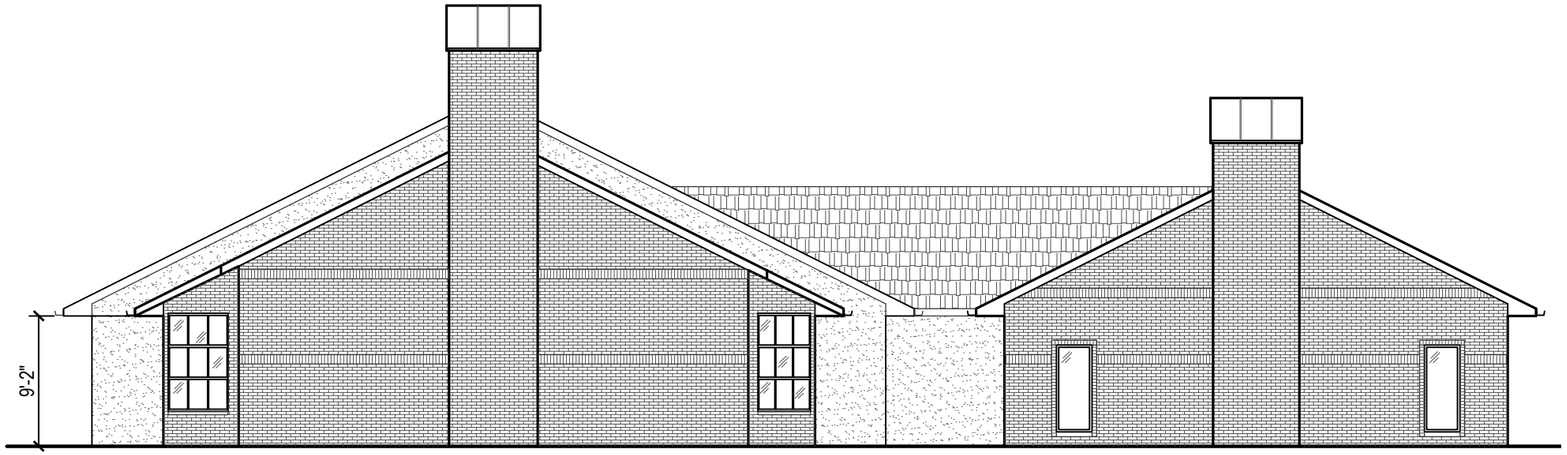
SOUTH ELEVATION

EXISITNG GATE CHURCH

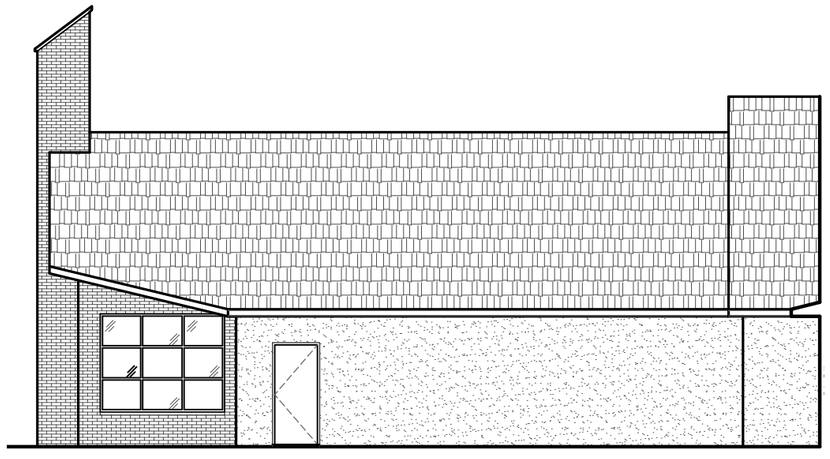
ELEVATIONS

OSNI MOB
October 12, 2023

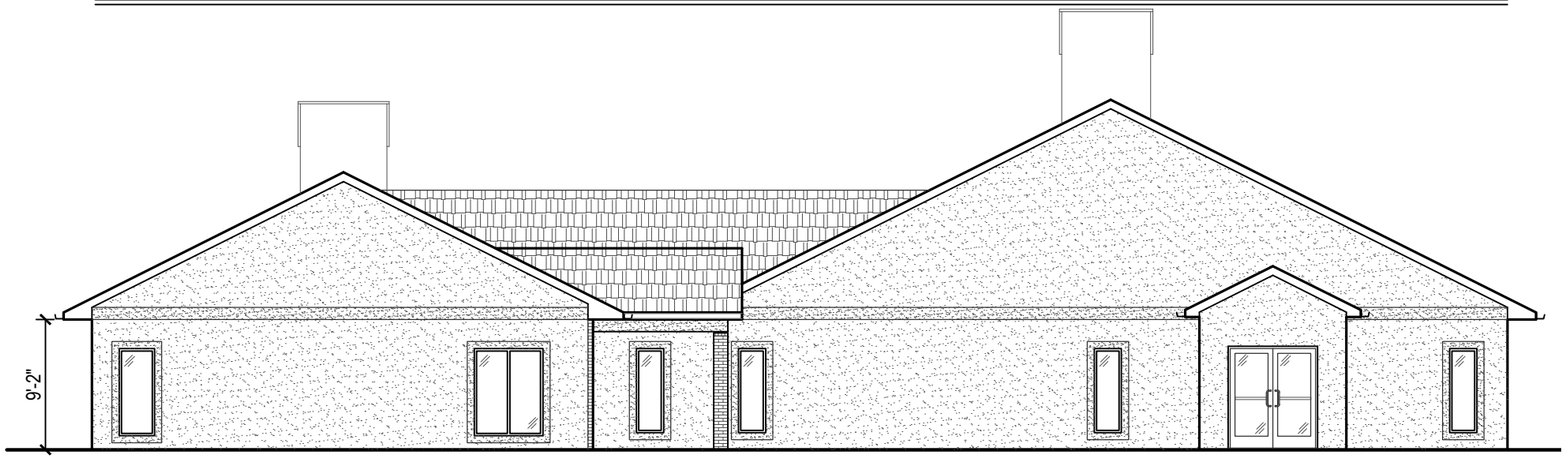
REGION CONTRACTORS



EAST ELEVATION



PARTIAL NORTH ELEVATION



WEST ELEVATION

EXISTING GATE CHURCH

ELEVATIONS

OSNI MOB
October 12, 2023

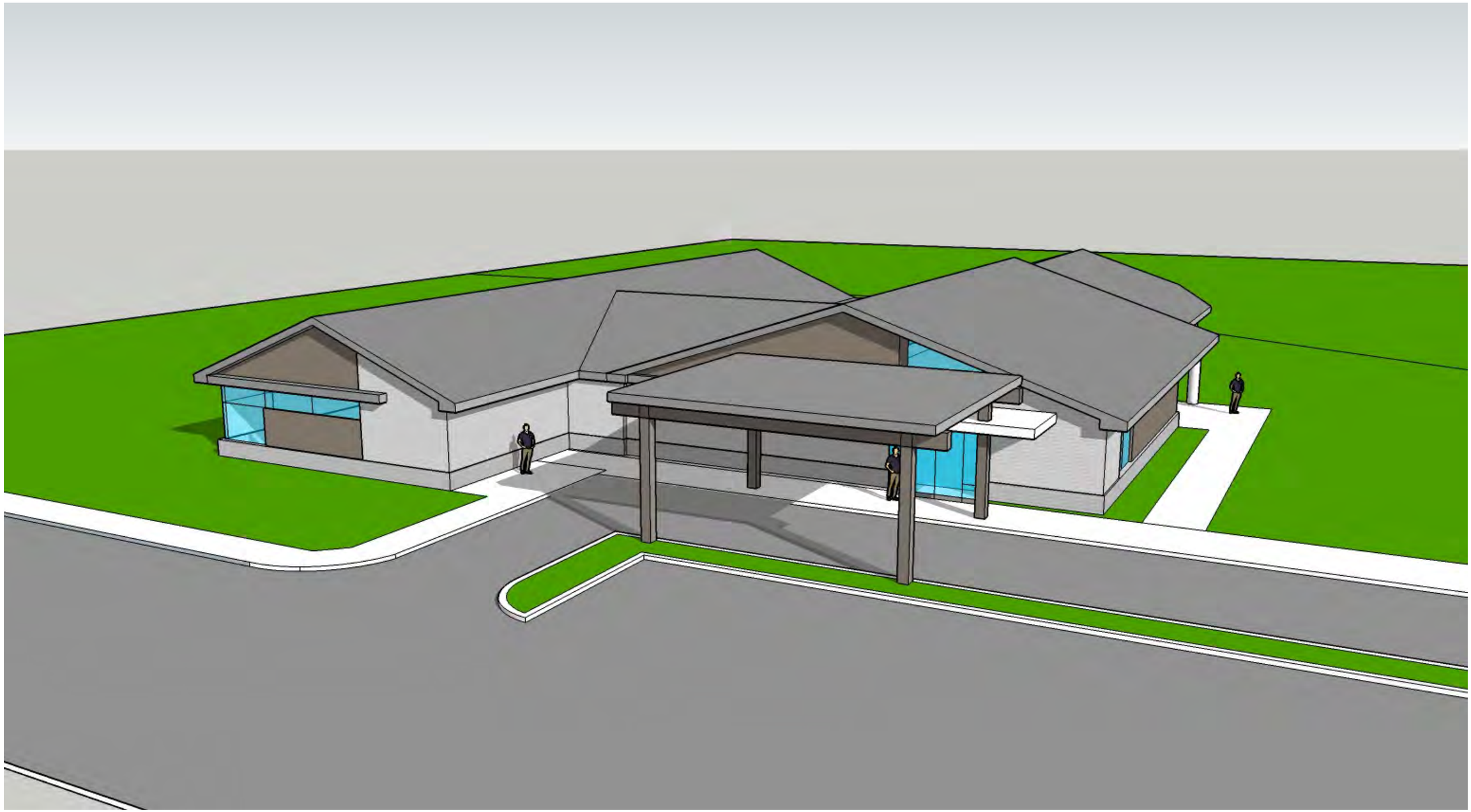
REGION CONTRACTORS



OSNI MEDICAL OFFICE BUILDING

EXISTING PHOTOS

REGION
CONTRACTORS



OSNI MEDICAL OFFICE BUILDING

PROPOSED DESIGN SCHEME

REGION CONTRACTORS

OSNI MEDICAL OFFICE BUILDING

PROPOSED DESIGN SCHEME

REGION
CONTRACTORS

OSNI MEDICAL OFFICE BUILDING

PROPOSED DESIGN SCHEME

REGION CONTRACTORS

OSNI MEDICAL OFFICE BUILDING

PROPOSED MATERIAL PALETTE

OSNI MOB
October 12, 2023

OSNI MEDICAL OFFICE BUILDING

PROPOSED MATERIAL PALETTE

EXHIBIT C
ZONE MAP EXERPT

Town of Munster
ZONING MAP
As of April 25, 2022

Special Districts

- Ground Floor Residential Use Restriction
- Residential Use Prohibited
- Ridge Preservation

Zoning Districts

- CD-3.R1 - Neighborhood - 70' Lot One Family Residence Character District
- CD-3.R2 - Neighborhood - 60' Lot One Family Residence Character District
- CD-3.R3 - Neighborhood - 60' Lot One Family and Two Family Residence Character District
- CD-4.A - General Urban - A Character District
- CD-4.B - - General Urban - B Character District
- CD-4.R4 - General Urban - Multifamily Residencr Character District
- CD-5 - Urban Center Character District
- CZ - Civic Zone
- SD-M - Manufaturing Special District
- SD-PUD - Planned Unit Development Special District