

166 Lincolnway Valparaiso, IN 46383 (219) 462-1161 Valpo.us

MEETING AGENDA

Valparaiso Plan Commission Tuesday, October 4, 2022, 5:30 PM Valparaiso City Hall – Council Chambers

- 1. Pledge of Allegiance
- 2. Roll Call
- 3. Adoption of Meeting Minutes September 6, 2022
- 4. Old Business

PP22-001 filed by A&J Development, Inc. c/o William A. Ferngren, Ferngren Law Offices, LLC, 570 Vale Park Rd, Suite B, Valparaiso, IN 46385. The petitioner requests approval of a primary plat for a fifteen (15) lot subdivision to be known as Jackson's Corner located on about 2.87 acres at the northwest corner of the intersection of Roosevelt Rd and Evans Ave.

PUDA22-001 filed by The Brooks Land, LLC. c/o Todd A. Leeth/Katie L. Kopf, Hoeppner Wagner & Evans LLP, 103 Lincolnway, Valparaiso, IN 46383. The petitioner requests Approval of Alternate Plan and Change in Development Standards for one parcel of The Brooks PUD located on about 3.45 acres on the north side of Vale Park Rd extended between Windsor Tr and Winter Park Dr.

- 5. Staff Items
- 6. Adjournment

Matt Evans, President Beth Shrader, Planning Director

Next Meeting: November 1, 2022

Interested persons can view public meetings live on the City of Valparaiso website, www.valpo.us or participate in the webinar by visiting bit.ly/ValpoPC2022. Requests for alternate formats please contact Planning Department at planningdepartment@valpo.us or (219) 462-1161.

OUTLOT LOT 4 LOT 5 LOT 6 LEANNA CIRCLE LOT 7 LOT 3 LOT 2 LOT 1 LOT 8

OVERALL DEVELOPMENT PLAN

OWNER / DE VELOPER:

A&J DEVELOPMENT INC. 259 INDIANA AVENUE VALPARAISO, INDIANA 46383 PHONE: 219-531-5353 E-MAIL: tomkrueger@k2valparaiso.com

ENGINEER/SURVEYOR:

DUNELAND GROUP INC. 1498 POPE CT. CHESTERTON, INDIANA 46304 PHONE: 219-926-1007 E-MAIL: dgi@dunelandgroup.com

UTILITIES:

ELECTRIC & GAS:

NORTHERN INDIANA PUBLIC SERVICE COMPANY 801 E. 86th AVENUE MERRILLVILLE, IN 46410

TELEPHONE & CABLE TV:

COMCAST 2225 P.O. BOX 600 LOCUST CT. PORTAGE, INDIANA 46368

WA TER:

VALPARAISO WATER DEPARTMENT 205 BILLINGS STREET VALPARAISO, IN 46383

SAN/TARY:

VALPARAISO CITY SEWER DEPARTMENT 1251 JOLIET ROAD VALPARAISO. IN 46385

<u>NOTES</u>

- 1. PARCEL IS ZONED GR.
- 2. SURROUNDING PARCELS ARE ZONED GR (GENERAL RESIDENTIAL) TO THE NORTH AND EAST, INH (HEAVY INDUSTRIAL) TO THE SOUTH, CN (COMMERCIAL NEIGHBORHOOD) TO THE SOUTHEAST, UR (URBAN RESIDENTIAL) AND NC60 (NEIGHBORHOOD CONSERVATION) TO THE WEST.
- 3. ALL DIMENSIONS ARE IN FEET.
- 4. IN ACCORDANCE WITH FEMA FLOOD INSURANCE RATE MAP PANEL #18127C0210D,
 DATED SEPTEMBER 30, 2015. THIS PARCEL IS IN FLOOD HAZARD ZONE X (PANEL NOT PRINTED). NOT WETLANDS APPEAR TO BE IN THE DEVELOPED SITE.
- 5. ALL LOTS TO HAVE A 10' FRONT UTILITY EASEMENT, 20' FRONT BUILDING LINE, 6' SIDE SETBACKS, & 5' SIDE UTILITY & DRAINAGE EASEMENTS.

 LOTS 1 THROUGH 3 WILL HAVE A 25' REAR SETBACK. LOTS 4 THROUGH 8 WILL HAVE
- A 20' REAR SETBACK. UNLESS OTHERWISE NOTED.

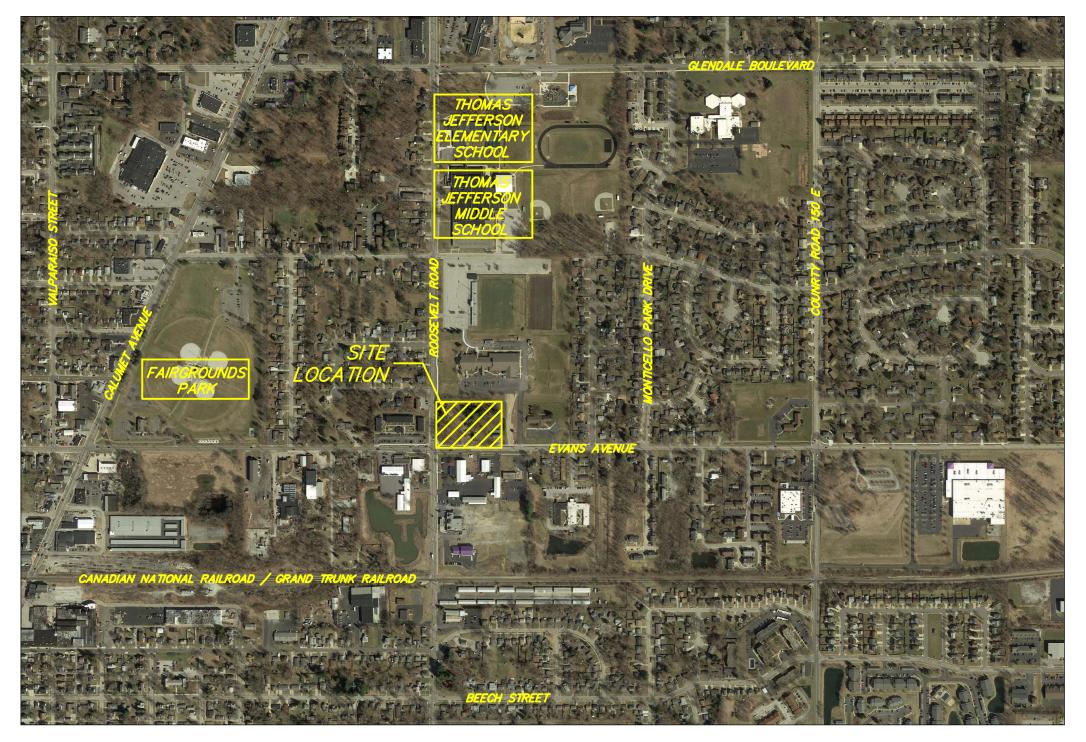
 6. A MINIMUM BUFFERYARD WIDTH OF 25' IS TO BE KEPT ALONG EVANS AVENUE AND
- ROOSEVELT ROAD.
- 7. ALL SIDEWALKS ARE TO BE A MINIMUM OF 5' IN WIDTH.
- . THIS PROPERTY IS LOCATED WITHIN THE VALPARAISO SCHOOL DISTRICT. THOMAS JEFFERSON MIDDLE SCHOOL, & VALPARAISO HIGH SCHOOL
- 9. LOCATIONS OF EXISTING SANITARY, WATER, & STORM LINES ARE APPROXIMATE.
- 10. THIS DEVELOPMENT WILL HAVE VALPARAISO CITY WASTE MANAGEMENT.
- 11. THERE WILL BE NO STREET LIGHTS ALONG LEANNA CIRCLE. ALL DRIVEWAYS WILL HAVE A LAMP POST THAT CONFORMS TO VALPARAISO CITY STANDARDS.

JACKSON CORNER SUBDIVISION PRIMARY PLAT & CONSTRUCTION DRAWINGS

1207 EVANS AVENUE, VALPARAISO, IN 46383

Section 18, Township 35 N, Range 05 W

CENTER TOWNSHIP, VALPARAISO, INDIANA
APPROXIMATE CENTER OF PROJECT 41°28' 43.15" N and 87°02' 44.37" W





10/21/2021

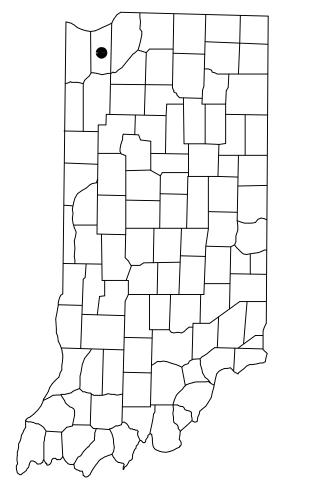
10/21/2021



REVISION DATE DRAWING LIST DRAWING DATE 09/16/2022 COVER 02/04/2022 SHEET 1: PRIMARY PLAT 02/04/2022 08/04/2022 SHEET 2: EXISTING CONDITIONS & DEMOLITION PLAN 02/04/2022 02/04/2022 SHEET 3: ADJOINING PROPERTY OWNERS 09/16/2022 SHEET 4: UTILITY PLAN 02/04/2022 02/04/2022 SHEET 5: GRADING PLAN 09/16/2022 02/04/2022 SHEET 6: LEANNA CIRCLE PLAN & PROFILE 02/04/2022 SHEET 7: EVANS AVENUE PLAN & PROFILE 02/04/2022 SHEET 8: DRAINAGE AREAS 02/04/2022 SHEET 9: SOUTH STORM SEWER SYSTEM 02/04/2022 SHEET 10: NORTH STORM SEWER SYSTEM 02/04/2022 SHEET 11: CASTING DETAILS 02/04/2022 09/16/2022 SHEET 12: STANDPIPE & POND DETAILS 09/16/2022 02/04/2022 SHEET 13: WATER PLAN & PROFILE 09/16/2022 SHEET 14: STANDARD DETAILS 02/04/2022 06/10/2022 SHEET 15: STANDARD DETAILS 02/04/2022 09/16/2022 06/10/2022 SHEET 16: STANDARD DETAILS 08/04/2022 02/04/2022 SHEET 17: PARKING & SIGN PLAN 06/10/2022 02/04/2022 SHEET 18: EROSION CONTROL PLAN 06/10/2022 SHEET 19: EROSION CONTROL PLAN (POST CONSTRUCTION) 06/10/2022 SHEET 20: EROSION CONTROL DETAILS 02/04/2022 SHEET 21: TRAFFIC CONTROL PLAN 06/13/2022

L101: LANDSCAPE PLAN

L201: PLANTING SPECS & DETAILS



• - LOCATION OF PROJECT



RECORD DESCRIPTION:

Lot 1 of Krieter Subdivision, as per plat thereof, recorded in plat file 59-B-4A in the office of the recorder of Porter County, Indiana.

ALSO: The West 3 acres of the West 58 rods and 13.5 links of the South 330 feet of the Southwest 1/4 of the Southwest 1/4 of Section 18, Township 35 North, Range 5 West of the Second Principal Meridian, in Porter County, Indiana.

EXCEPTING THEREFROM: An "L" shaped parcel of land in the City of Valparaiso, County of Porter, located on the West side of a tract of land owned by Glen D. Stanley and Amy Stanley, husband and wife, pursuant to a Warranty Deed recorded as Instrument Number 2003-038653 in the Porter County Recorder's Office, the parcel described as: Beginning at the Southwest corner of the Southwest 1/4 of the Southwest 1/4 of Section 18, Township 35 North, Range 5 West of the Second Principal Meridian; thence Northerly along the West line of said Southwest 1/4 Southwest 1/4, a distance of 330 feet; more-or-less, to the Northwest corner of said Stanley tract; thence Easterly along the North line of said Stanley tract 40.0 feet; thence Southerly parallel with said West line, a distance of 270 feet, more-or-less, to a point that is 60.0 feet Northerly from an intersection with the South line of said Southwest 1/4, Southwest 1/4; thence Southeasterly making a deflection angle to the left of 45°, a distance of 35 feet, more or less to a point that is 35.0 feet (measured at right angles) Northerly from said South line; thence Easterly parallel with said South line 12.0 feet; thence Southerly at right angles to said South line, a distance of 35.0 feet to said South line; thence Westerly along said South line, a distance of 77 feet, more or less, to the point of beginning, the parcel containing approximately 14,808 square feet in total and 3198 square feet net, less the apparent existing right-of-way.

ALSO EXCEPTING THEREFROM: The South 30.00 feet of said Stanley parcel (2003–038653) described as being the West 3 acres of the West 58 rods and 13.5 links of the South 330 feet of the Southwest 1/4 of the Southwest 1/4 of Section 18, Township 35 North, Range 5 West of the Second Principal Meridian, in Porter County, Indiana, EXCEPTING THEREFROM: All that part of the Grant of Permanent Right-of-Way recorded in Instrument No. 2010–0227 44, in Porter County Recorder's Office the parcel containing approximately 9,570 square feet.

ALSO EXCEPTING THEREFROM:

Commencing at the Southwest corner of the Southwest 1/4 of the Southwest 1/4 of Section 18, Township 35 North, Range 5 West of the Second Principal Meridian; thence Easterly along the South line of said Southwest 1/4 Southwest 1/4, a distance of 93.00 feet; thence Northerly at right angles 30.00 feet to the North line of the South 30.00 feet and the point of beginning; thence continuing Northerly along the prolongation of the proceeding course 5.00 feet; thence West parallel with said South line 16 feet, more—or—less, to a point on the existing Right—of—Way as described in a Grant of Permanent Right—of—Way recorded as Instrument No. 2010—022744 in the Porter County Recorder's Office; thence South along the East edge of said existing Right—of—Way 5.00 feet to said North line of the South 30.00 feet; thence East, parallel with said South line and along said North line to the point of beginning, the parcel containing approximately 80 square feet

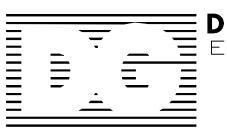
ALSO EXCEPTING THEREFROM: Commencing at the Southwest corner of the Southwest 1/4 of the Southwest 1/4 of Section 18, Township 35 North, Range 5 West of the Second Principal Meridian; thence Easterly along the South line of. said Southwest 1/4 Southwest 1/4, a distance of 220.00 feet; thence Northerly at right angles 30.00 feet to the North line of the South 30.00 feet and the point of beginning; thence continuing Northerly along the prolongation of the proceeding course 4.00 feet; thence East parallel with said South line, 20.00 feet; thence South at right angles with the proceeding course 4.00 feet to said North line of the South 30.00 feet; thence West parallel with said South line and along said apparent Right—of—Way line 20.00 feet to the point of beginning, the parcel containing 80 square feet.

VARIANCES

- 1. Section 3.301, Table 3.301(A) To vary the maximum gross density of 3.797 to allow for a maximum gross density of 5.81.
- 2. Section 3.301, Table 3.301(A) To vary the maximum net density of 5.140 to allow for a maximum net density of 6.98
- 3. Section 3.503, Table 3.503 To vary the minimum lot width of 45 feet to allow for a minimum lot width of 34 ft.
- 4. Section 3.503, Table 3.503 To vary the minimum lot area per unit (sf) from 4,500 Sq Ft. to allow for a minimum lot area per unit of 3,717.50 Sq. Ft (Lot 4A) and 4,158.95 Sq. Ft. (Lot 8A).
- 5. Section 3.503, Table 3.503 To vary the minimum rear yard setback of 25 feet to allow for minimum rear yard setback of 20 ft.
 6. Section 3.503, Table 3.503 To vary the maximum building coverage from
- 45% to allow for a maximum building coverage of 47% (Lot 5A) and 46% (Lot 5b).

 7. Section 9.403(C) To vary the minimum connection spacing on opposite
- sides of the street from 75 ft to allow for a minimum connection spacing of 20.33 ft (West Drive) and 31.60 (East Drive).

 8. Section 9.403, Table 9.403(A) To vary the minimum connection spacing for
- Section 9.403, Table 9.403(A) To vary the minimum connection spacing for residential drives accessing a minor street from 30 ft to allow for a minimum connection spacing of 10 ft.



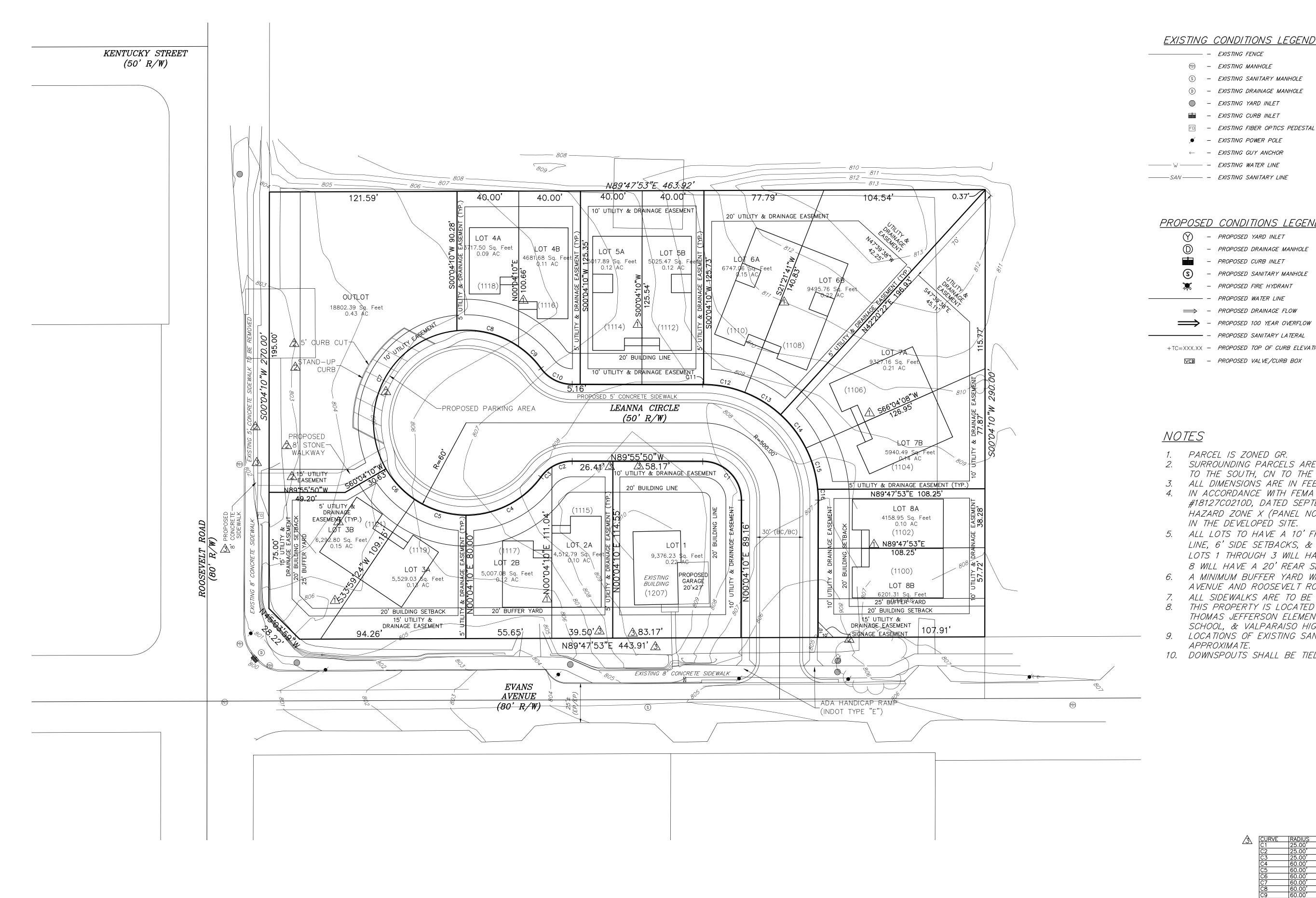
DUNELAND GROUP Engineering & surveying

1498 POPE COURT

CHESTERTON, INDIANA 46304

219-926-1007 fax 219-926-1544

E-MAIL dgi@dunelandgroup.com



—— – EXISTING FENCE

← EXISTING MANHOLE

S – EXISTING SANITARY MANHOLE

D - EXISTING DRAINAGE MANHOLE

EXISTING CURB INLET

← - EXISTING GUY ANCHOR

------SAN------ - EXISTING SANITARY LINE

PROPOSED CONDITIONS LEGEND

PROPOSED YARD INLET

PROPOSED DRAINAGE MANHOLE

 PROPOSED CURB INLET PROPOSED SANITARY MANHOLE

PROPOSED FIRE HYDRANT

- - PROPOSED WATER LINE

→ PROPOSED DRAINAGE FLOW - PROPOSED 100 YEAR OVERFLOW

+TC=XXX.XX - PROPOSED TOP OF CURB ELEVATION

VCB - PROPOSED VALVE/CURB BOX

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- LOCATIONS OF EXISTING SANITARY, WATER, & STORM LINES ARE APPROXIMATE.
- 10. DOWNSPOUTS SHALL BE TIED INTO STORM SEWER SYSTEM.

<u>DISCLAIMER:</u>
DUNELAND MAKES NO REPRESENTATIONS CONCERNING SOIL CONDITIONS AND DUNELAND IS NOT RESPONSIBLE FOR ANY LIABILITY THAT MAY ARISE OUT OF THE MAKING OR FAILURE TO MAKE SOIL SURVEYS, OR SUB-SURFACE SOIL TEST, OR GENERAL SOIL TESTING. THIS DRAWING IS NOT INTENDED TO BE REPRESENTED AS A RETRACEMENT OR ORIGINAL BOUNDARY SURVEY, A ROUTE SURVEY, OR A SURVEYOR LOCATION REPORT.



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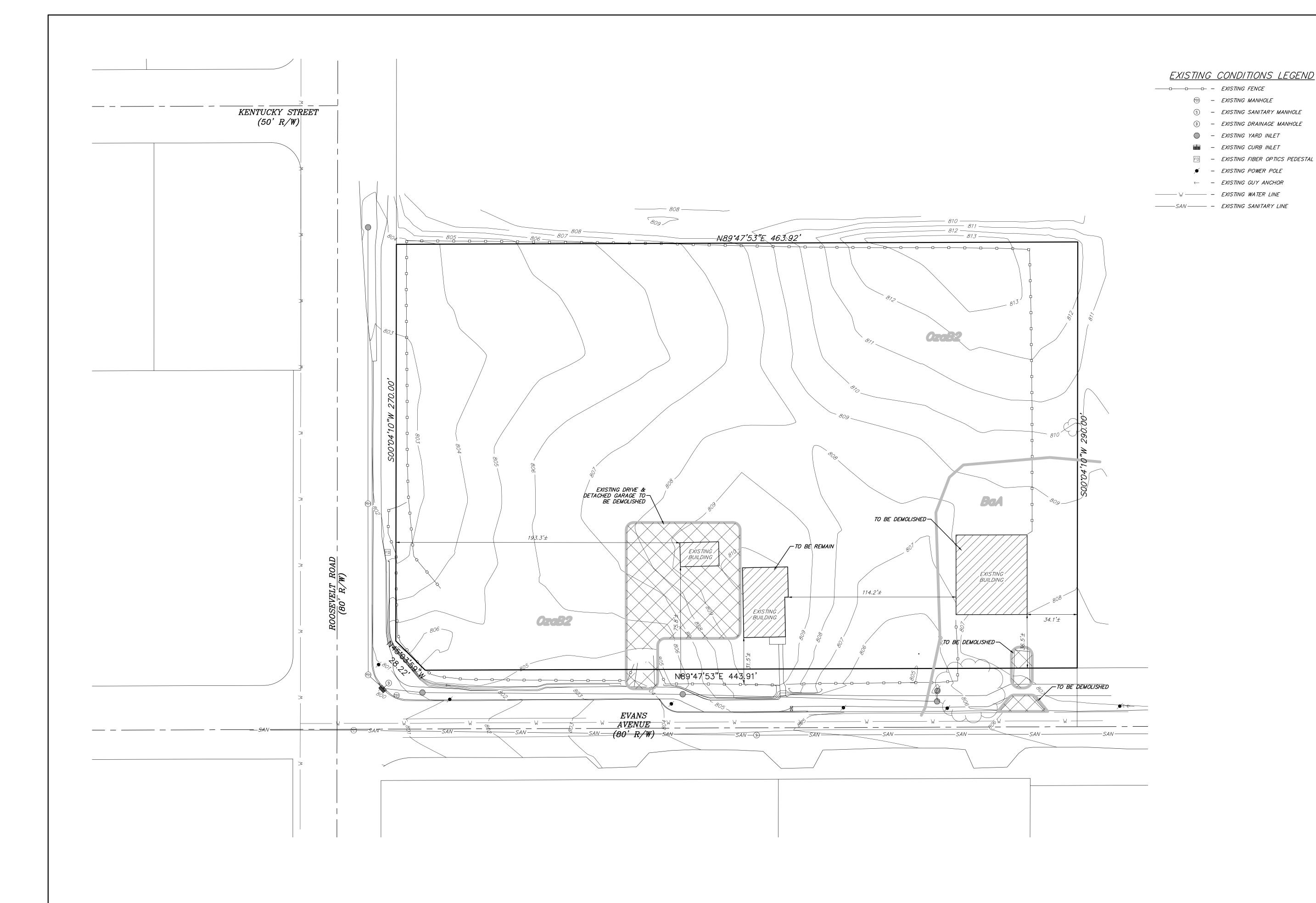


DRAWN: <i>NJL</i>	CHK'D: SCC	NO.	REVISION	BY	DATE	STORM
DESIGNED: <i>NJL</i>	APPRV'D: CLR	\triangle	REVISED PLAT TO SHOW SPLIT LOTS	NJL	4/14/22	SANITARY
DATE: <i>02/04/2022</i>		<u>A</u>	REVISIONS PER CITY OF VALPARAISO REVIEW	NJL	6/10/22	WATER
HORIZ. SCALE: 1"=30'			REVISIONS PER CITY OF VALPARAISO REVIEW	NJL	8/4/22	ROAD
VERT. SCALE: .	N/A					EROSION
PROJECT STAT	JS					
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PRIMARY PLAT 3014-01

SHEET $\it oldsymbol{\it \perp}$ DRAWING NUMBER

INDIANA



TOPOGRAPHIC SURVEY WAS PERFORMED ON 01/20/2021 & 03/09/2021



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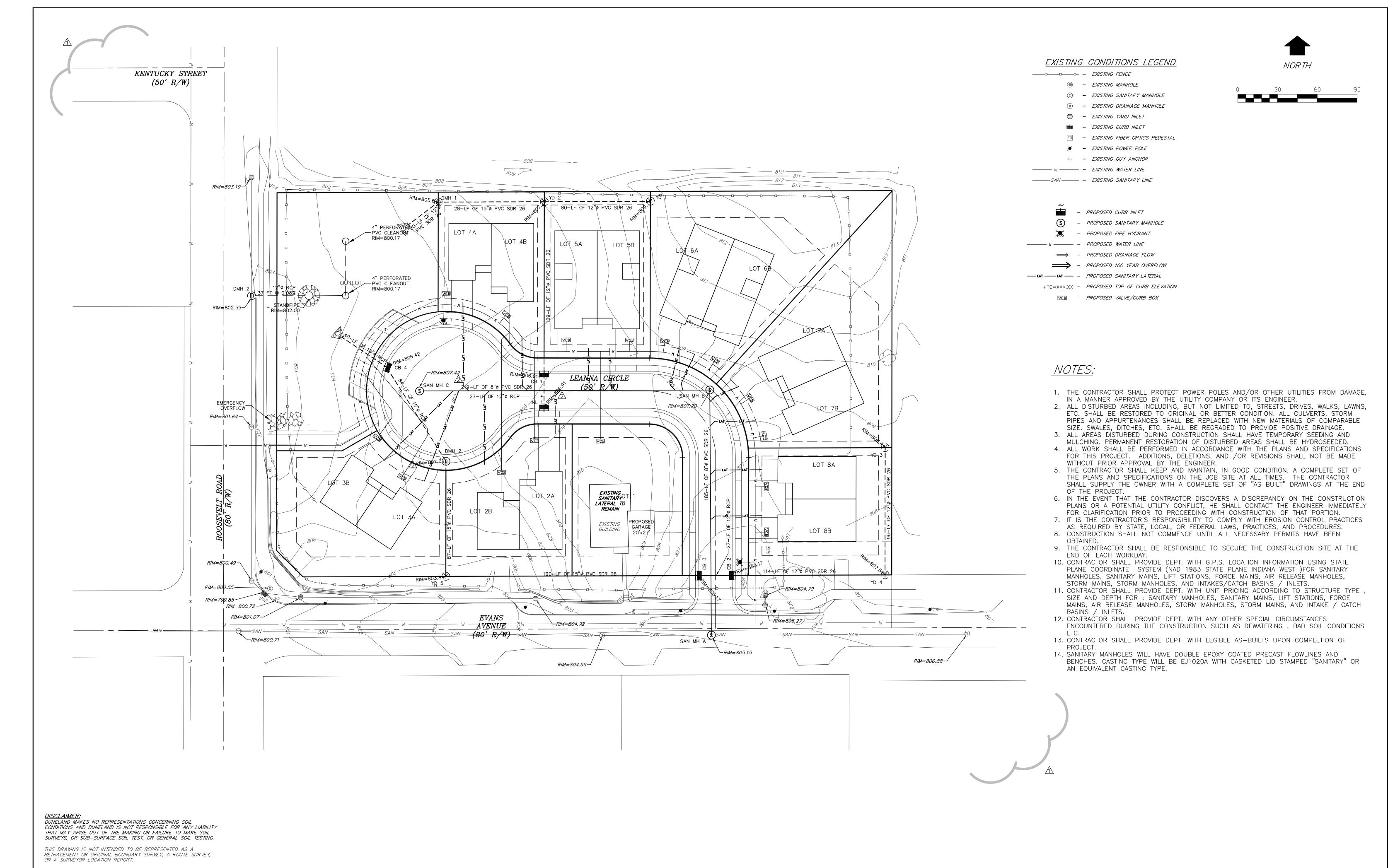
DRAWN: <i>NJL</i>	CHK´D: SCC	NO.	REVISION	BY	DATE	STORM
DESIGNED:	APPRV'D: CLR	$\overline{\mathbb{A}}$				SANITARY
DATE: 02/04/2022						WATER
HORIZ. SCALE: 1"=30"						ROAD
VERT. SCALE:	N/A					EROSION
PROJECT STATE	JS					
FOR REVIE	- \//					

EXISTING CONDITIONS & DEMOLITION PLAN 3014-02

PARCEL NUMBER: PARCEL NUMBER: 64-09-13-478-015.000-004 64-09-13-478-016.000-004 SUBDIVISION: Harlin Terrace (LOT 30 & PART OF LOT 31) OWNER: Roconn LLC SUBDIVISION: Harlin Terrace (PART OF LOT 31 & PART OF LOT 32) OWNER: Romero Daniel Jr KENTUCKY STREET PARCEL NUMBER: 64-10-18-351-026.000-004 (50' R/W) OWNER: Calvary Church of Valparaiso IN Inc PARCEL NUMBER: PARCEL NUMBER: 64-09-13-477-051.000-004 64-09-13-477-052.000-004 SUBDIVISION: Harlin Terrace SUBDIVISION: Harlin Terrace (LOT 29 & PART OF LOT 28)
OWNER: ACENWI LLC (PART OF LOT 28 & PART OF LOT 27) OWNER: Keating Jennifer A & Kevin J/W&H JACKSON CORNER SUBDIVISION PARCEL NUMBER: 64-10-18-351-005.000-004 OWNER: Church Temple Israel Of Valparaiso PARCEL NUMBER: 64-10-18-351-026.000-004 OWNER: Calvary Church of Valparaiso IN Inc PARCEL NUMBER: 64-09-13-477-056.000-004 OWNER: Casa Del Sol Llc **EVANS** _A VENUE (80' R/W) PARCEL NUMBER: 64-09-24-228-028.000-004 PARCEL NUMBER: 64-10-19-101-001.000-004 PARCEL NUMBER: 64-10-19-101-004.000-004 PARCEL NUMBER: 64-10-19-101-018.000-004 PARCEL NUMBER: 64-10-19-101-006.000-004 OWNER: Thorgren Tool & Molding Company Inc SUBDIVISION: Council's Addition Block 4 OWNER: Thorgren Tool & Molding Company Inc OWNER: Wright Megan Elisabeth & Wright Daw OWNER: Shaw Mary A OWNER: Calvary Church of Valparaiso IN Inc THIS DRAWING IS NOT INTENDED TO BE REPRESENTED AS A RETRACEMENT OR ORIGINAL BOUNDARY SURVEY, A ROUTE SURVEY, OR A SURVEYOR LOCATION REPORT. DUNELAND GROUP Engineering & Surveying DRAWN: *NJL* CHK'D: *SCC* N REVISION BY DATE INDIANA STORM sheet 3DESIGNED: *NJL* | APPRV'D: *CLR* | 🗹 JACKSON CORNER SUBDIVISION SANITARY DATE: 02/04/2022 PROJECT 3014 NUMBER 1498 POPE COURT ORIZ. SCALE: 1"=30' ROAD CHESTERTON, INDIANA 46304 219-926-1007 fax 219-926-1544 VERT. SCALE: N/A EROSION ADJOINING PROPERTY OWNERS DRAWING NUMBER PROJECT STATUS FOR REVIEW

3014-03

E-MAIL dgi@dunelandgroup.com



D

DUNELAND GROUP Engineering & Surveying

1498 POPE COURT
CHESTERTON, INDIANA 46304
219-926-1007 fax 219-926-1544
E-MAIL dgi@dunelandgroup.com



DRAWN: <i>NJL</i>	CHK'D: SCC	NO.	REVISION	BY	DATE	STORM
DESIGNED: <i>NJL</i>	APPRV'D: CLR	\triangle	REVISIONS PER CITY OF VALPARAISO REVIEW	NJL	6/10/22	SANITARY
DATE: 02/04/2	2022		UPDATED DMH2 ELEV. & SAN LATERALS	NJL	9/16/22	WATER
HORIZ. SCALE: 1"=30'						ROAD
VERT. SCALE: 1	N/A					EROSION
PROJECT STATU						
for revie	<u>-</u> W					

JACKSON CORNER SUBDIVISION

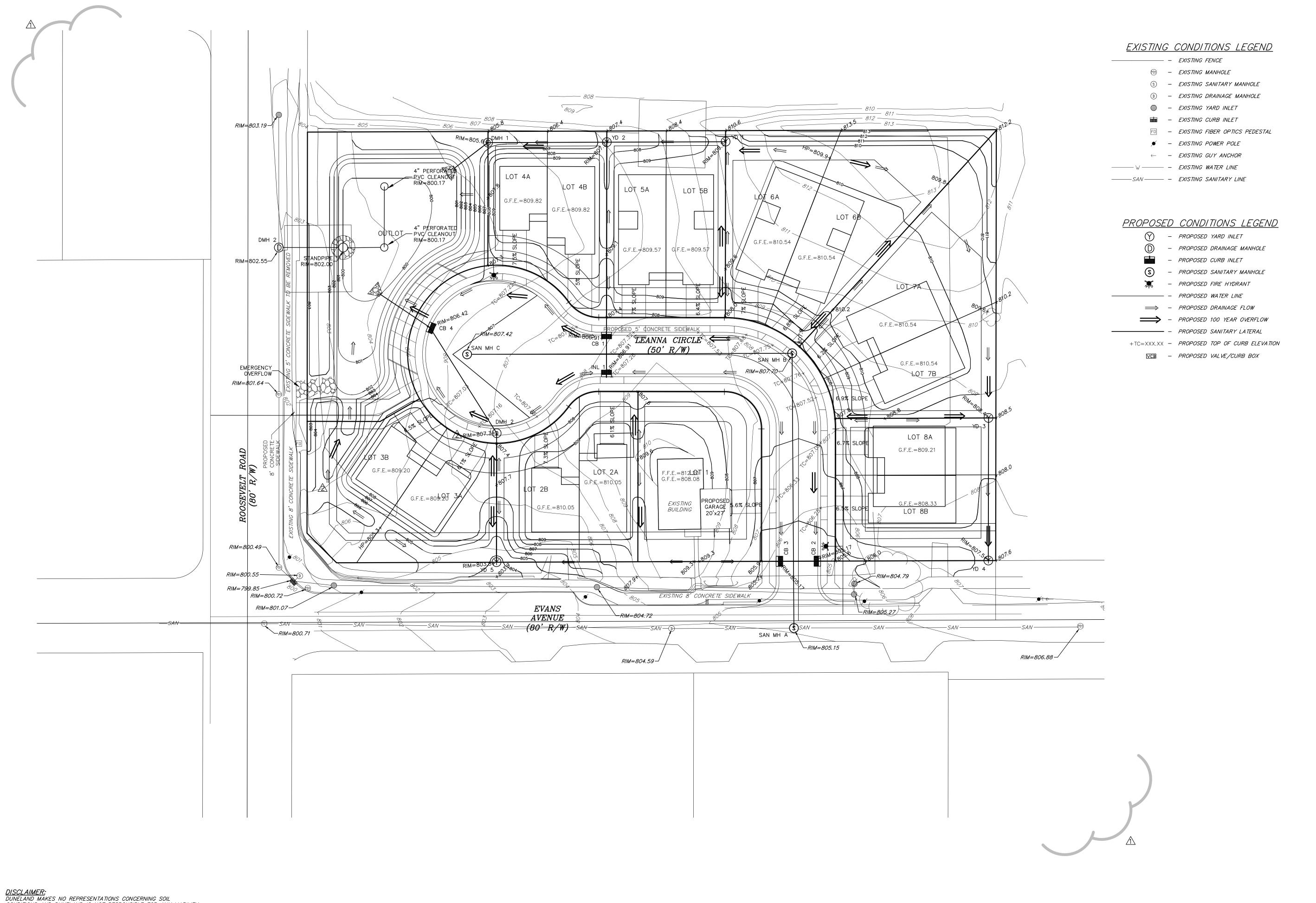
PROJECT 301
NUMBER 301

INDIANA

UTILITY PLAN

DRAWING NUMBER
3014-04

SHEET 4



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SURVEYS, OR SUB—SURFACE SOIL TEST, OR GENERAL SOIL TESTING.

THIS DRAWING IS NOT INTENDED TO BE REPRESENTED AS A

RETRACEMENT OR ORIGINAL BOUNDARY SURVEY, A ROUTE SURVEY,

OR A SURVEYOR LOCATION REPORT.

<u>NOTES</u>

1. DOWNSPOUTS SHALL BE TIED INTO STORM SEWER SYSTEM.



DUNELAND GROUP Engineering & Surveying

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DRAWN: <i>NJL</i>	CHK'D: SCC	NO.	REVISION	BY	DATE	STORM
DESIGNED: NJL	APPRV'D: CLR	\triangle	REVISIONS PER CITY OF VALPARAISO REVIEW	NJL	6/10/22	SANITARY
DATE: 02/04/2	2022	<u>A</u>	UPDATED DMH2 ELEV. & LOT 3B GRADING	NJL	9/16/22	WATER
HORIZ. SCALE:	1"=30'					ROAD
VERT. SCALE:	N/A					EROSION
PROJECT STATUS						
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JACKSON	CORNER	SUBDIVISION	

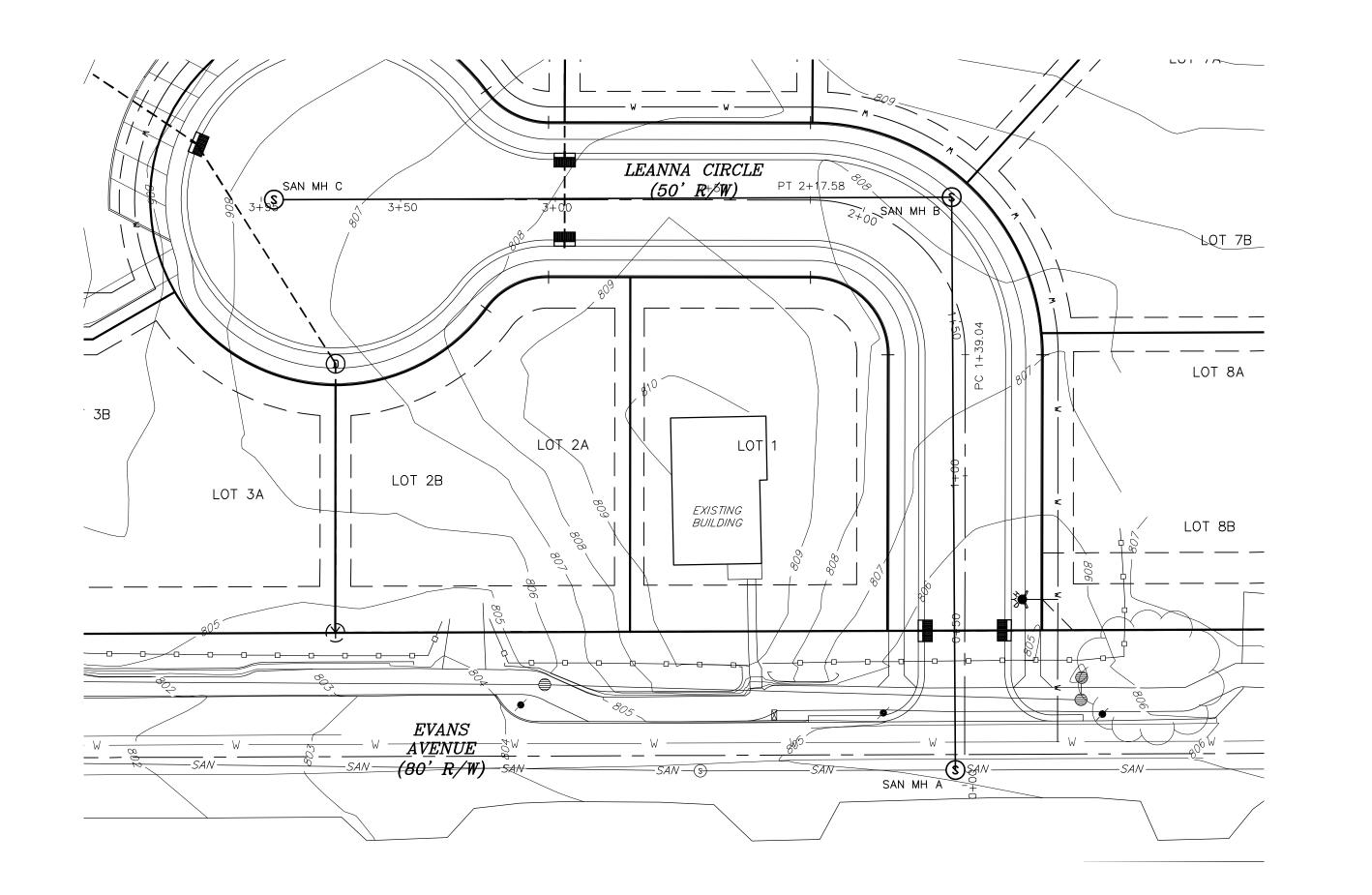
SHEET 5

PROJECT 3014

NUMBER 3014

GRADING PLAN

DRAWING NUMBER 3014-05



© - EXISTING MANHOLE

S - EXISTING SANITARY MANHOLE

D − EXISTING DRAINAGE MANHOLED − EXISTING YARD INLET

- EXISTING CURB INLET
 - EXISTING FIBER OPTICS PEDESTAL

PROPOSED CONDITIONS LEGEND

(Y) - PROPOSED YARD INLET

(D) - PROPOSED DRAINAGE MANHOLE

■ — PROPOSED CURB INLET

S — PROPOSED SANITARY MANHOLE

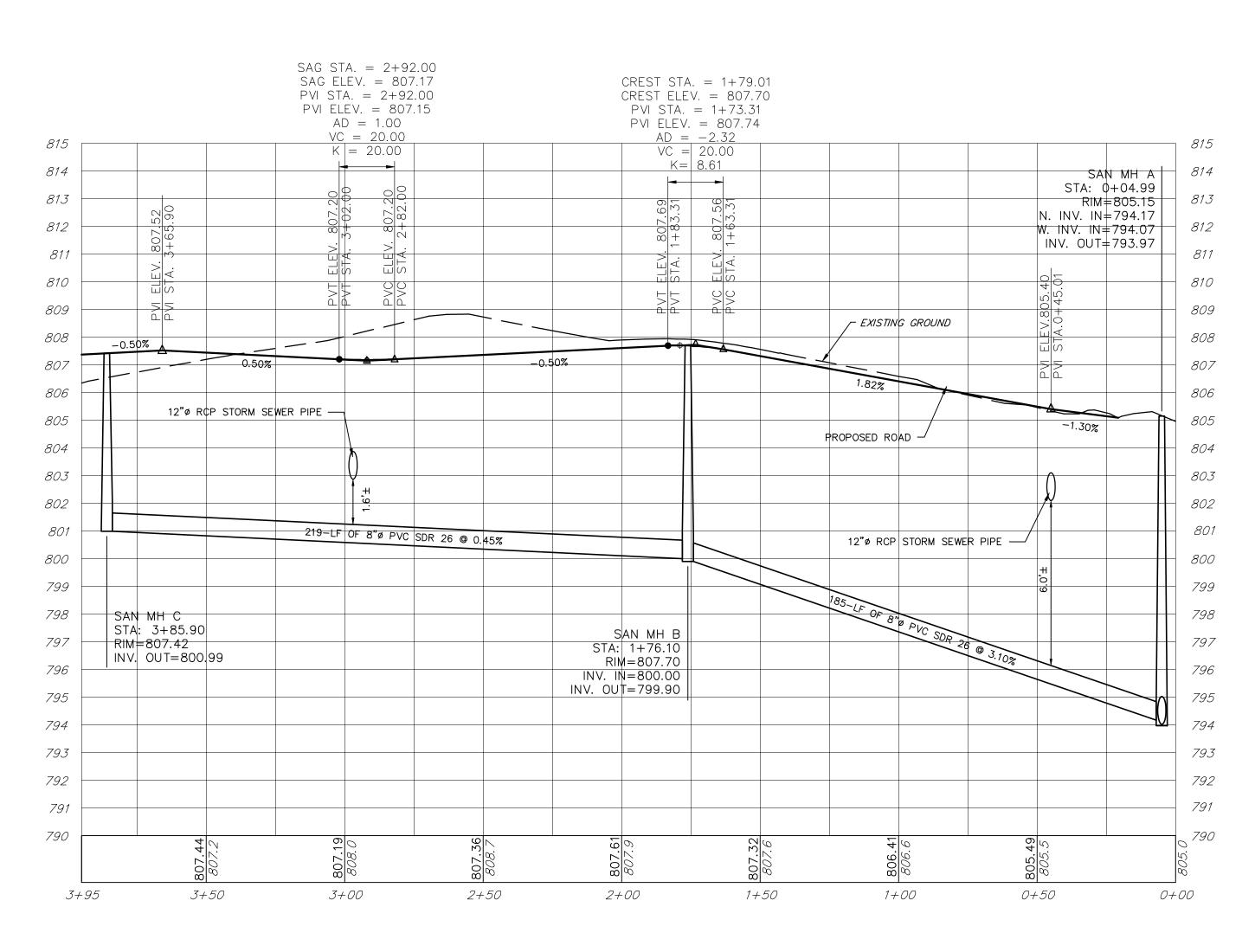
■ — PROPOSED FIRE HYDRANT

—— w —— − PROPOSED WATER LINE

⇒ − PROPOSED DRAINAGE FLOW

- PROPOSED 100 YEAR OVERFLOW

VCB − PROPOSED VALVE/CURB BOX



NOR TH

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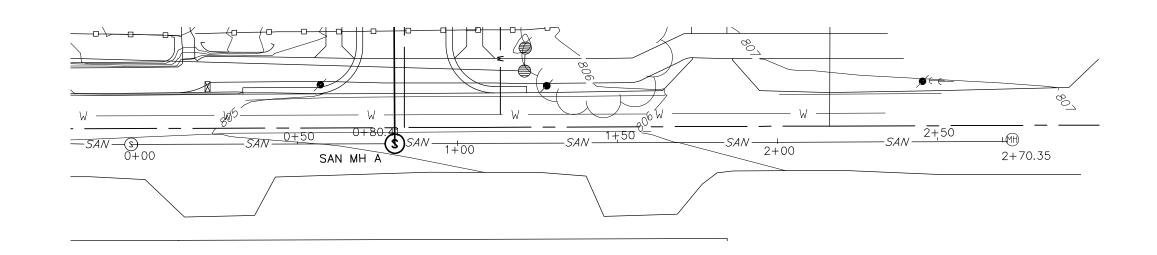
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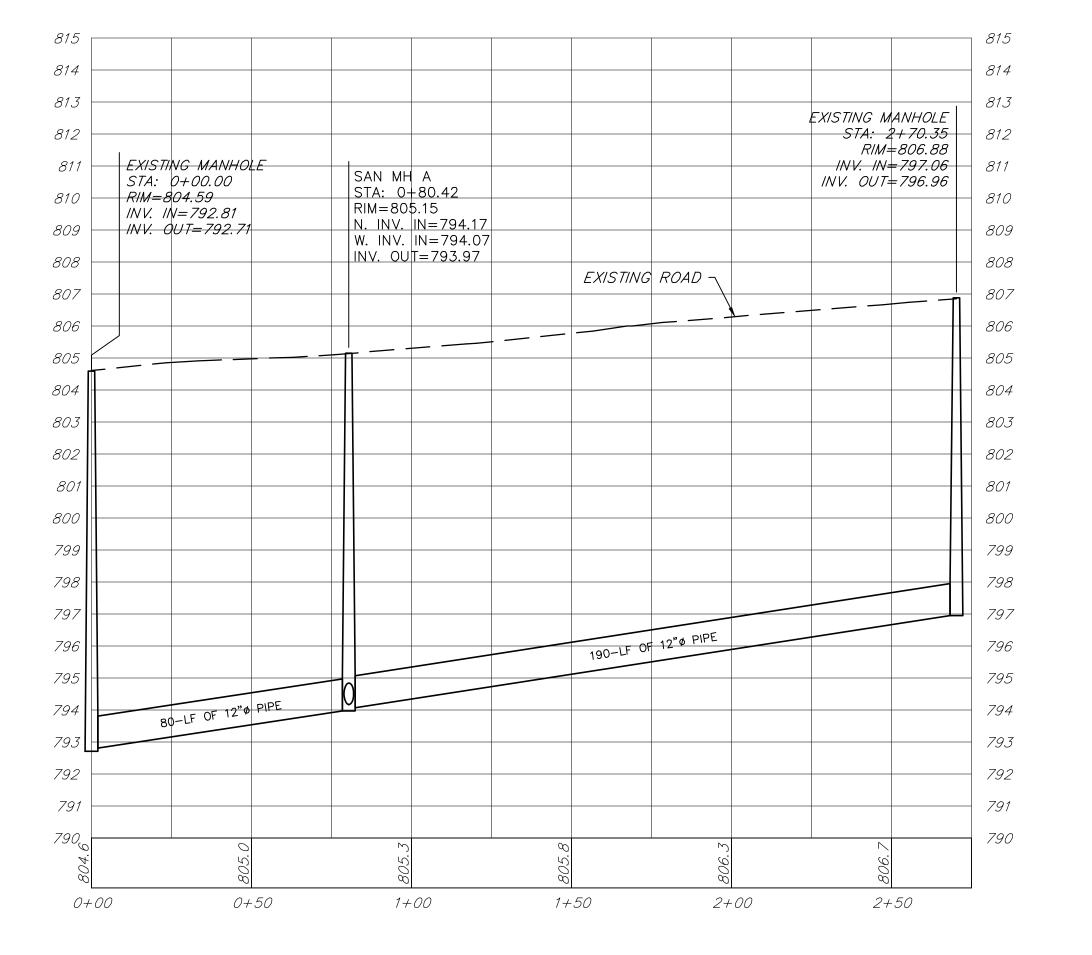
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	DRAWN: <i>NJL</i>	CHK'D: SCC	NO.	REVISION	BY	DATE	STORM
	DESIGNED: <i>NJL</i>	APPRV'D: <i>CLR</i>	\triangle				SANITARY
DATE: 02/04/2022							WATER
HORIZ. SCALE: 1"=30'							ROAD
VERT. SCALE: N/A							EROSION
PROJECT STATUS							
	FOR REVIE	- W					

JACKSON CORNER SUBDIVISION	sheet 6
UNCINSON CONNEN SODDIVISION	PROJECT 3014
LEANNA CIRCLE PLAN & PROFILE	DRAWING NUMBER 3014-06





M − EXISTING MANHOLE

© - EXISTING SANITARY MANHOLE D - EXISTING DRAINAGE MANHOLE

- EXISTING FIBER OPTICS PEDESTAL

← - EXISTING GUY ANCHOR

------ W ------ - EXISTING WATER LINE ------SAN ----- - EXISTING SANITARY LINE

PROPOSED CONDITIONS LEGEND

(Y) — PROPOSED YARD INLET (D) - PROPOSED DRAINAGE MANHOLE

 PROPOSED CURB INLET S - PROPOSED SANITARY MANHOLE

 PROPOSED FIRE HYDRANT ----- w ----- - PROPOSED WATER LINE

> → PROPOSED DRAINAGE FLOW - PROPOSED 100 YEAR OVERFLOW

— LAT — LAT — – PROPOSED SANITARY LATERAL

+TC=XXX.XX - PROPOSED TOP OF CURB ELEVATION

VCB - PROPOSED VALVE/CURB BOX

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DUNELAND GROUP Engineering & Surveying 1498 pope court CHESTERTON, INDIANA 46304 219-926-1007 fax 219-926-1544 E-MAIL dgi@dunelandgroup.com



DRAWN: <i>NJL</i>	CHK'D: SCC	NO.	REVISION	BY	DATE	STORM
DESIGNED: <i>NJL</i>	APPRV'D: CLR	\triangle				SANITARY
DATE: 02/04/2	022					WATER
HORIZ. SCALE: 1"=30'						ROAD
VERT. SCALE: N/A						EROSION
PROJECT STATUS						
FOR REVIE	<u>-</u> W					

LPARAISO			ll.
JACKSON	CORNER	SUBDIVISION	

EVANS AVENUE PLAN & PROFILE

SHEET 7 DRAWING NUMBER

3014-07





MH – EXISTING MANHOLE

S - EXISTING SANITARY MANHOLE

EXISTING CURB INLET

FO - EXISTING FIBER OPTICS PEDESTAL

← - EXISTING GUY ANCHOR

------SAN ----- - EXISTING SANITARY LINE

PROPOSED CONDITIONS LEGEND

PROPOSED YARD INLET

PROPOSED DRAINAGE MANHOLE

- PROPOSED CURB INLET - PROPOSED SANITARY MANHOLE

PROPOSED FIRE HYDRANT

----- w ----- - PROPOSED WATER LINE

⇒ - PROPOSED DRAINAGE FLOW

- PROPOSED 100 YEAR OVERFLOW

--- LAT ---- PROPOSED SANITARY LATERAL

PROPOSED TOP OF CURB ELEVATION

VCB - PROPOSED VALVE/CURB BOX

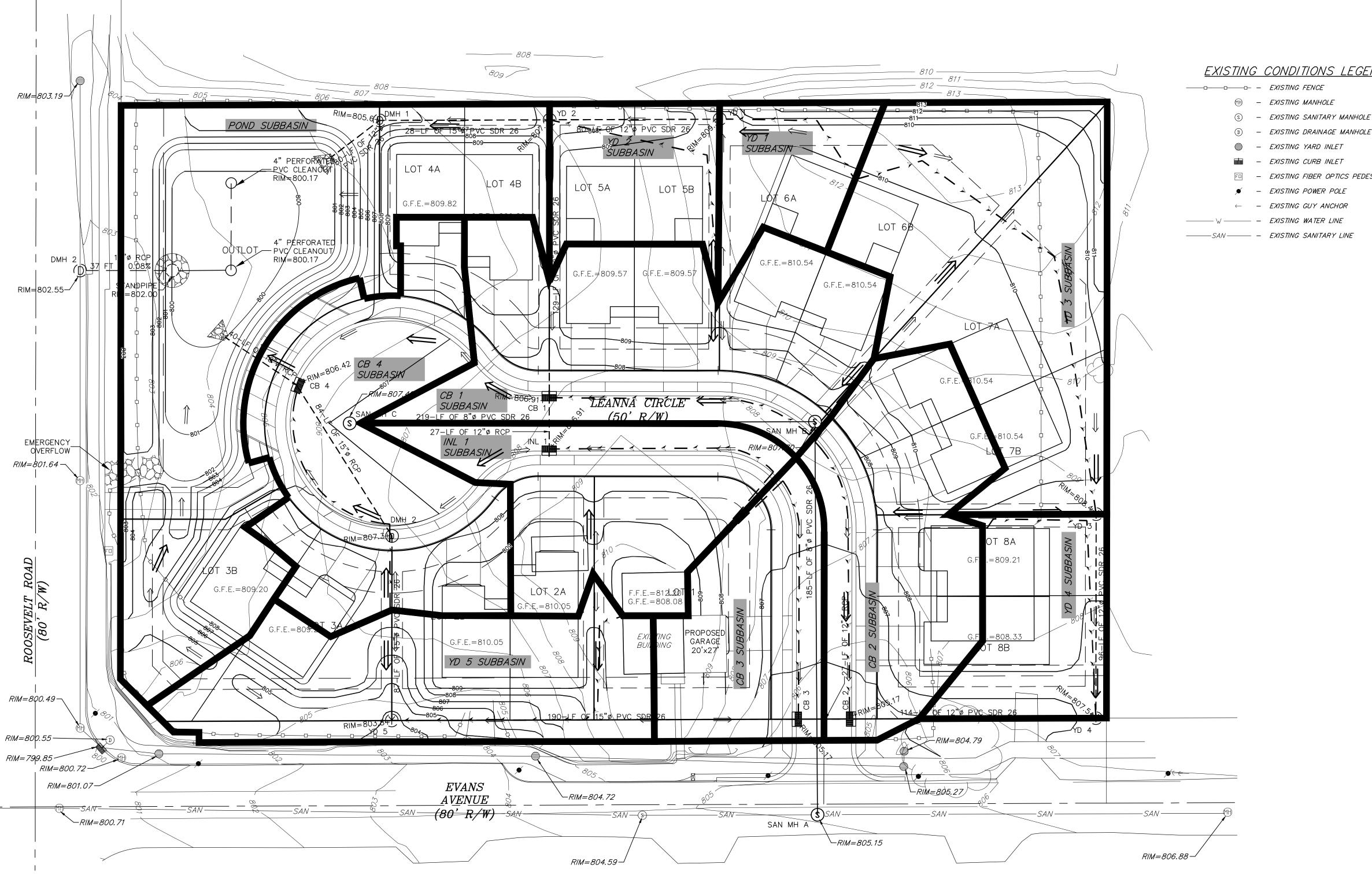


Table C. Subareas Characteristics													
Subarea	Total Area of Subarea (acres)	Total Impervious (acres)	Impervious Runoff Coefficient 0.82-ASPHALT 0.85-BODF.CONC.	Grass Area	Grass Runoff Coefficient	Total Runoff Coefficient	Sheet Flow (ft)	Sheet Flow Slope %	Manning's n Value	Shallow Flow(ft)	Shallow Flow Slope %	Surface Descriptio n	Tc (min)
CB 1	0.387	0.287	0.85	0.100	0.21	0.68	47	5.32	0.13	127	0.47	Paved	4.9*
CB 2	0.281	0.191	0.85	0.089	0.21	0.65	47	5.32	0.13	134	1.46	Paved	4.3 *
CB 3	0.183	0.076	0.85	0.107	0.21	0.48	62	3.71	0.13	114	1.46	Paved	5.7
CB 4	0.356	0.275	0.85	0.081	0.21	0.70	41	2.00	0.13	87	0.50	Paved	5.5
INL 1	0.243	0.136	0.85	0.106	0.21	0.57	62	3.70	0.13	109	0.47	Paved	6.2
YD 1	0.103	0.027	0.85	0.076	0.21	0.38	29	1.72	0.13	46	7.17	Unpaved	3.8 *
YD 2	0.125	0.054	0.85	0.071	0.21	0.49	66	3.18	0.13	76	2.63	Unpaved	6
YD 3	0.414	0.070	0.85	0.343	0.21	0.32	29	1.72	0.13	204	2.00	Unpaved	5.1
YD 4	0.142	0.047	0.85	0.095	0.21	0.42	7	1.00	0.13	138	0.77	Unpaved	3.1 *
YD 5	0.294	0.069	0.85	0.225	0.21	0.36	15	2.20	0.13	180	3.85	Unpaved	2.9 *

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DRAWN: AIR	CHK'D: SCC	NO.	REVISION	BY	DATE	STORM
DESIGNED: AIR	APPRV'D: CLR	\triangle				SANITARY
DATE: 02/04/2022						WATER
HORIZ. SCALE: 1"=30'						ROAD
VERT. SCALE:	N/A					EROSION
PROJECT STATE						
I FOR REVIE	- W					

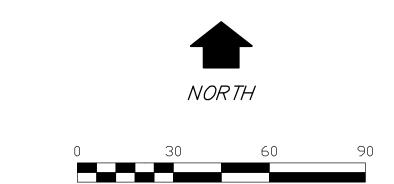
JACKSON CORNER SUBDIVISION

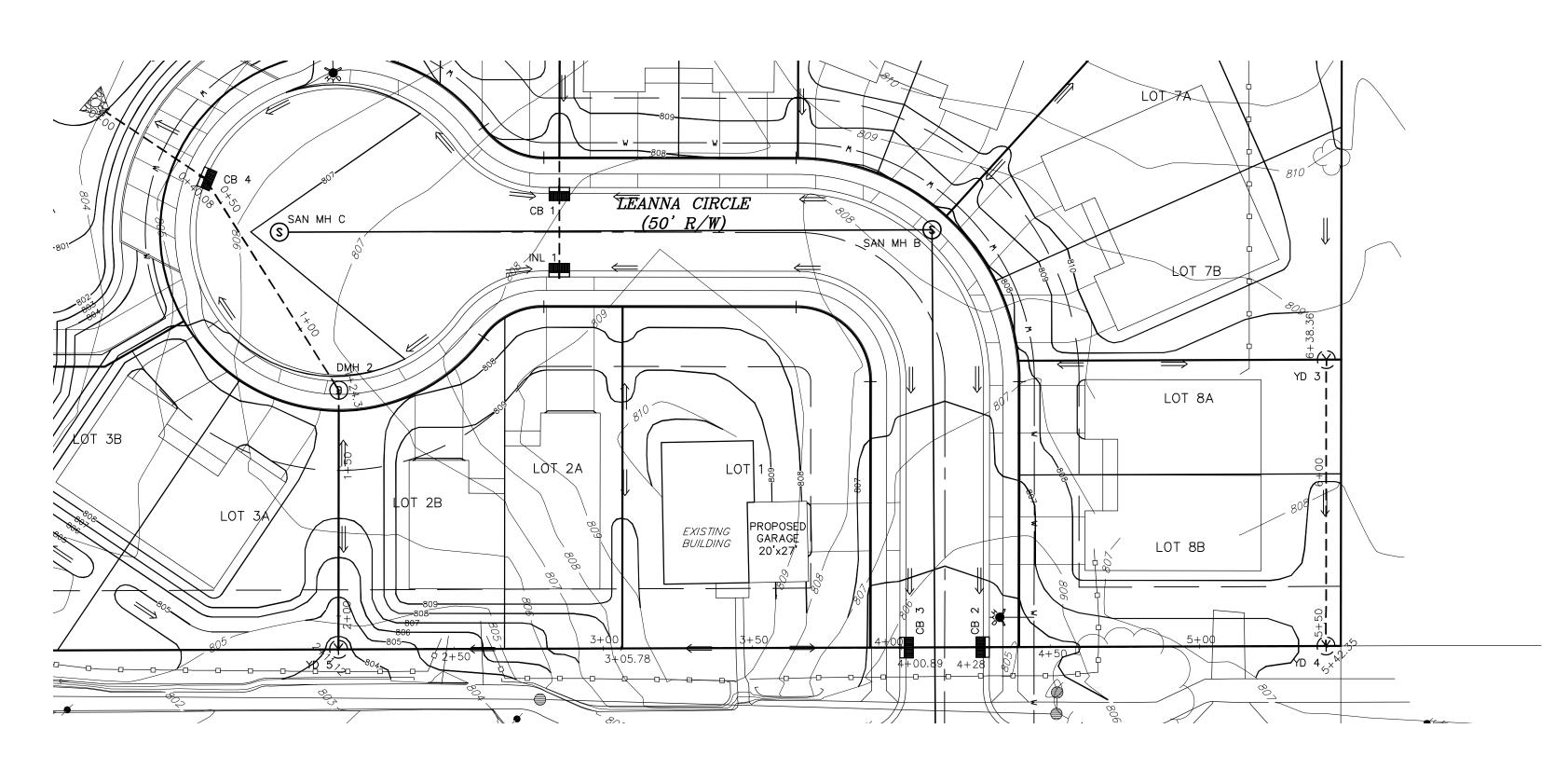
DRAINAGE AREAS

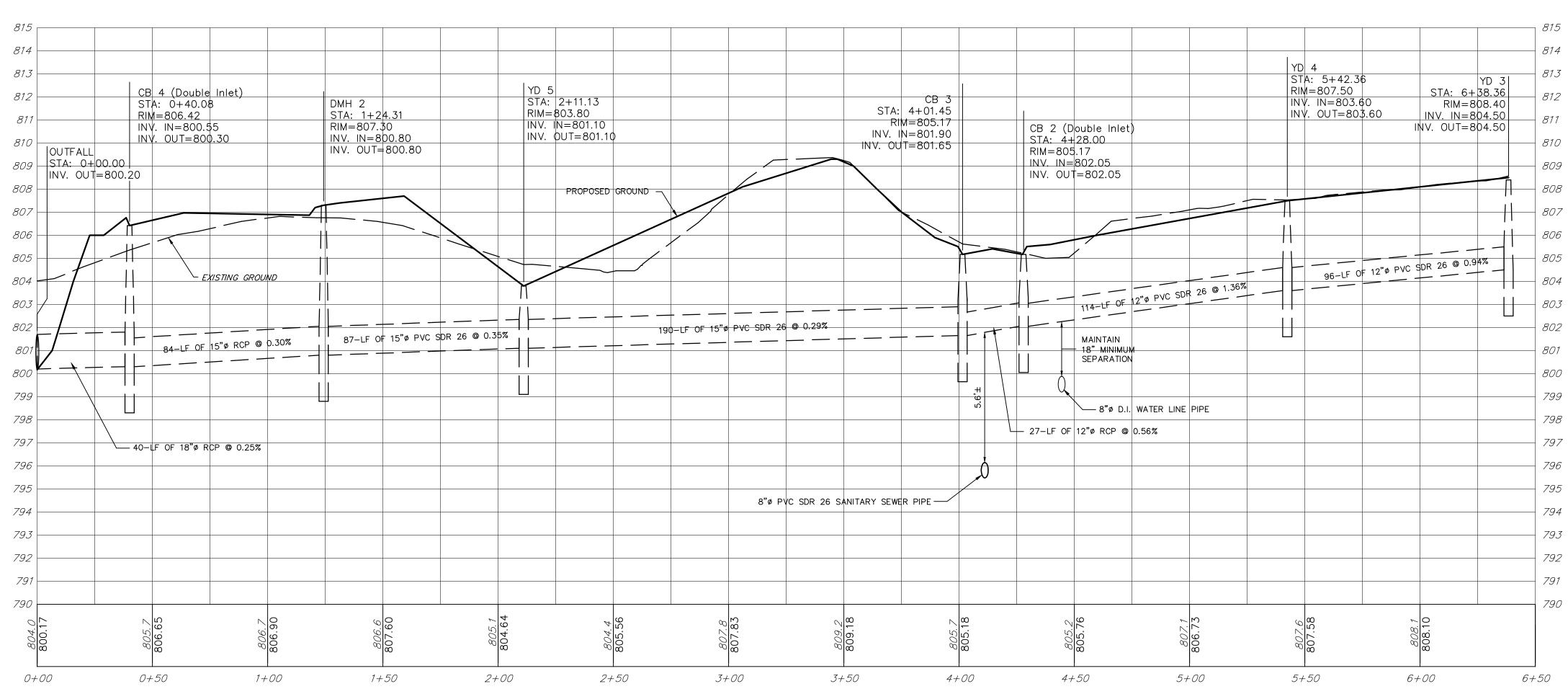
ROJECT 3014 DRAWING NUMBER

sheet 8

3014-08







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SURVEYS, OR SUB—SURFACE SOIL TEST, OR GENERAL SOIL TESTING.

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RETRACEMENT OR ORIGINAL BOUNDARY SURVEY, A ROUTE SURVEY,
OR A SURVEYOR LOCATION REPORT.



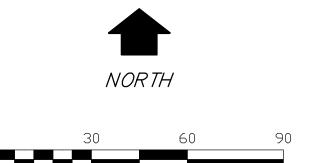
DUNELAND GROUP Engineering & Surveying

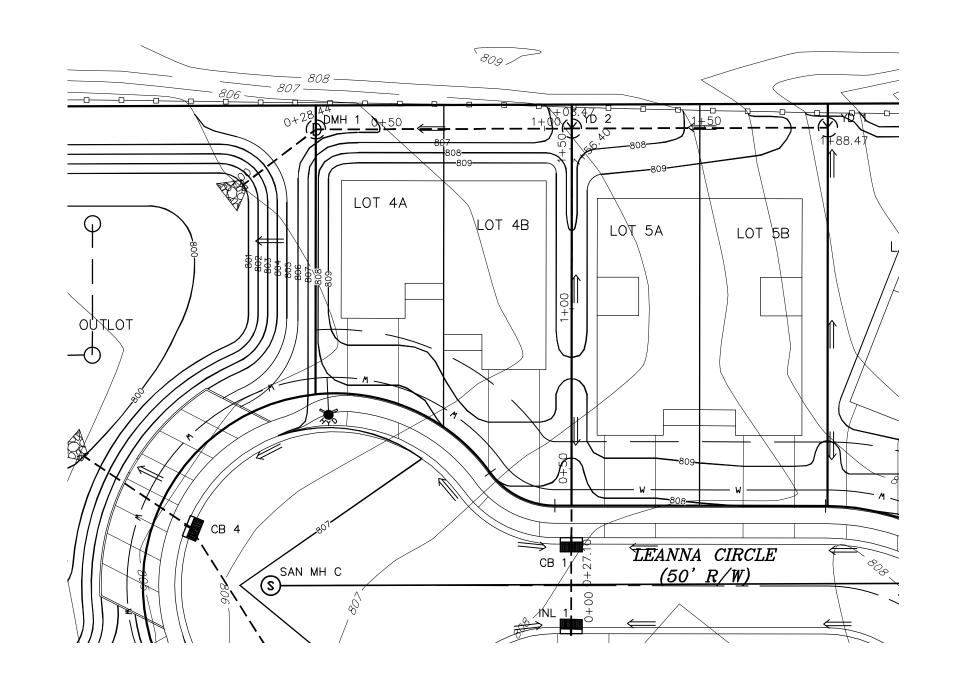
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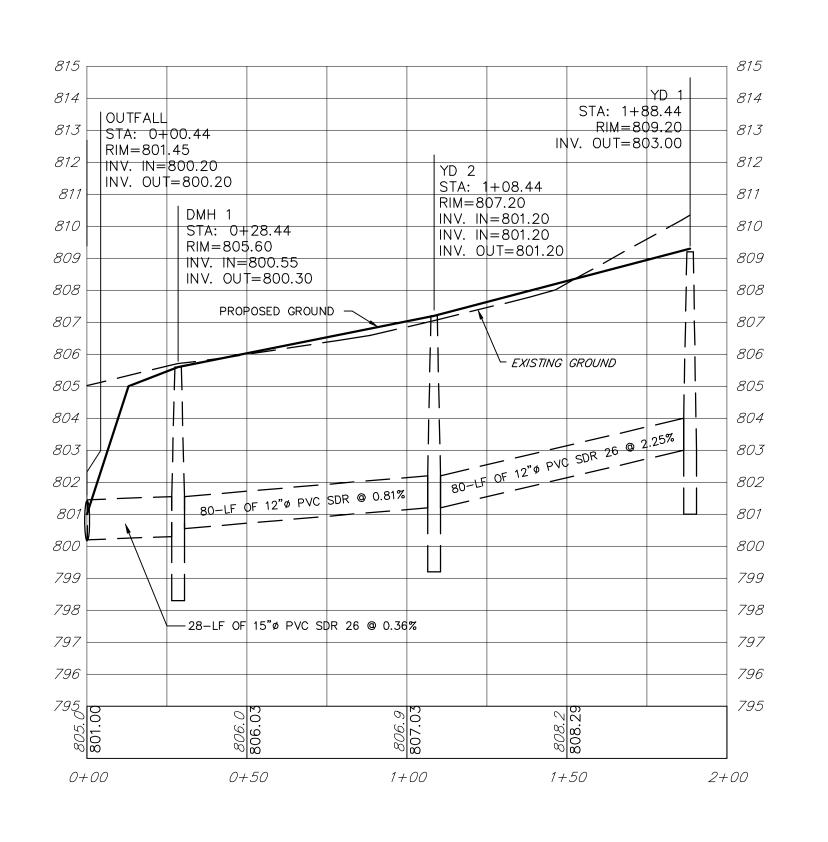


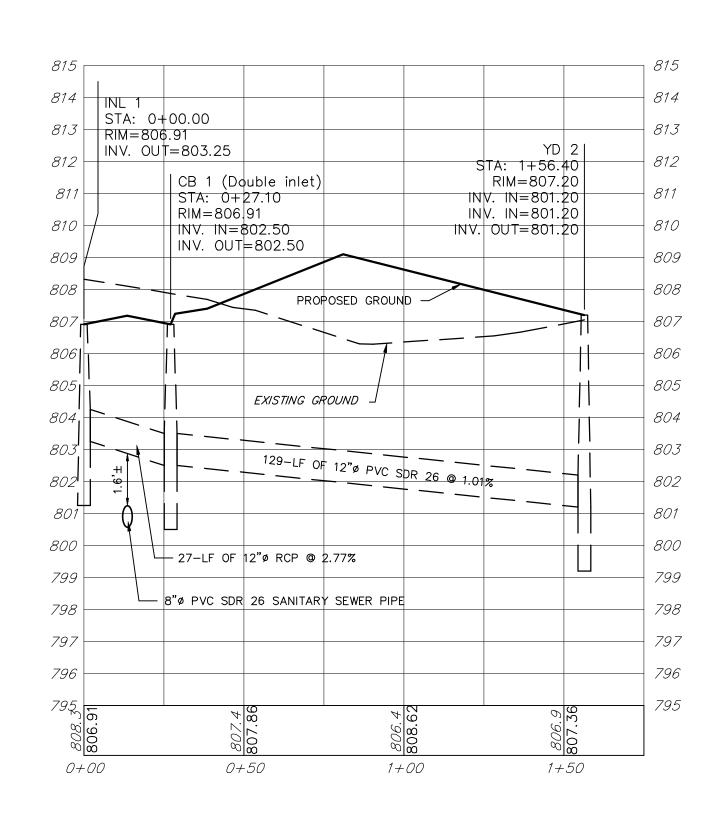
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DESIGNED: NJL	APPRV'D: CLR	\triangle				SANITARY
DATE: 02/04/20	022					WATER
HORIZ. SCALE: 1"=30'						ROAD
VERT. SCALE: N/A						EROSION
PROJECT STATUS						
FOR REVIE	- W					

JACKSON CORNER SUBDIVISION	IANA	sheet 9
UMONSON CONNEN SODDIVISION	[PROJECT 3014 NUMBER
SOUTH STORM SEWER SYSTEM		DRAWING NUMBER 3014-09









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DRAWN: <i>NJL</i>	CHK'D: SCC	NO.	REVISION	BY	DATE	STORM
DESIGNED: NJL	APPRV'D: CLR	\triangle				SANITARY
DATE: 02/04/20	022					WATER
HORIZ. SCALE: 1"=30'						ROAD
vert. scale: N/A						EROSION
PROJECT STATUS						
FOR REVIE	- W					

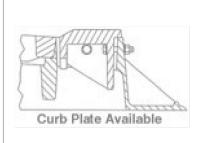
VALPARAISO	1 / 1
JACKSON CORNER SUBDIVISION	SHEET 10
UNUNSUN CONNEN SUDDIVISION	PROJECT 3014
	NUMBER 5017
NORTH STORM SFWFR SYSTFM	DRAWING NUMBER
NOME STORM SEVER STOLM	3014-10

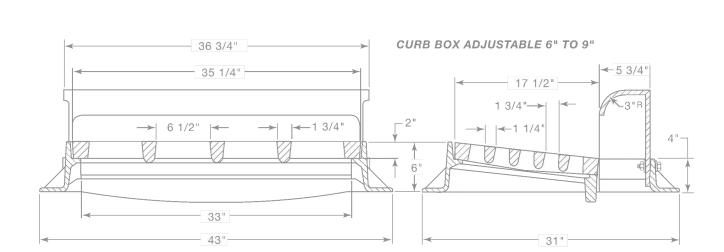
3014-10

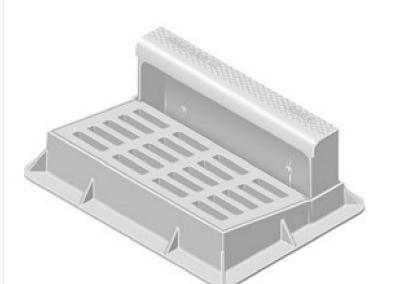
R-3246

Combination Inlet Frame, Grate, Curb Box

Heavy Duty





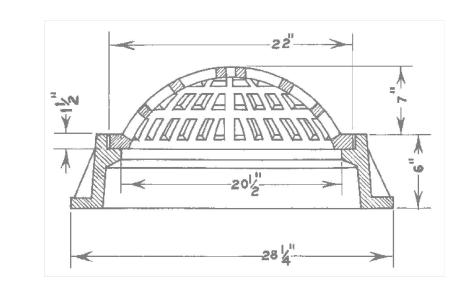


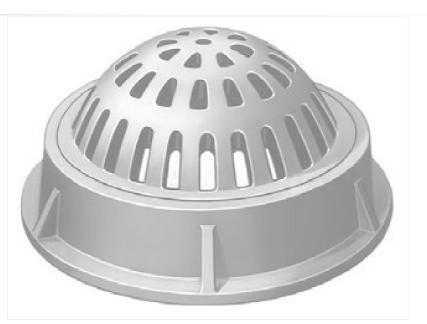
CATALOG NUMBER	GRATE TYPE	SQ. FT. OPEN	WEIR PERIMETER LINEAL FEET
R-3246	С	1.6	5.8
R-3246	L	2.1	5.8
R-3246	V	2.4	5.8

R-2510-A

Inlet Frame, Beehive Grate

CATALOG NUMBER	GRATE TYPE	SQ. FT. OPEN	WEIR PERIMETER LINEAL FEET
R-2510-A	Beehive	1.1	5.8

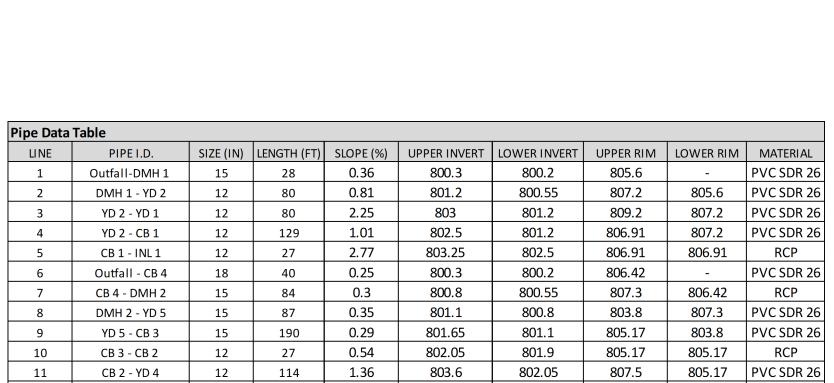


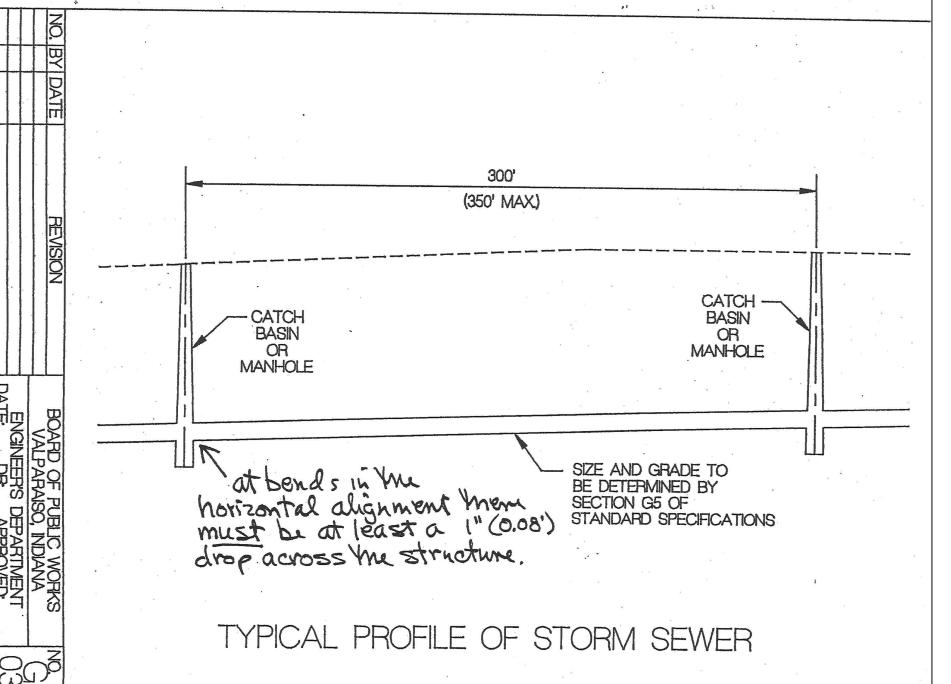


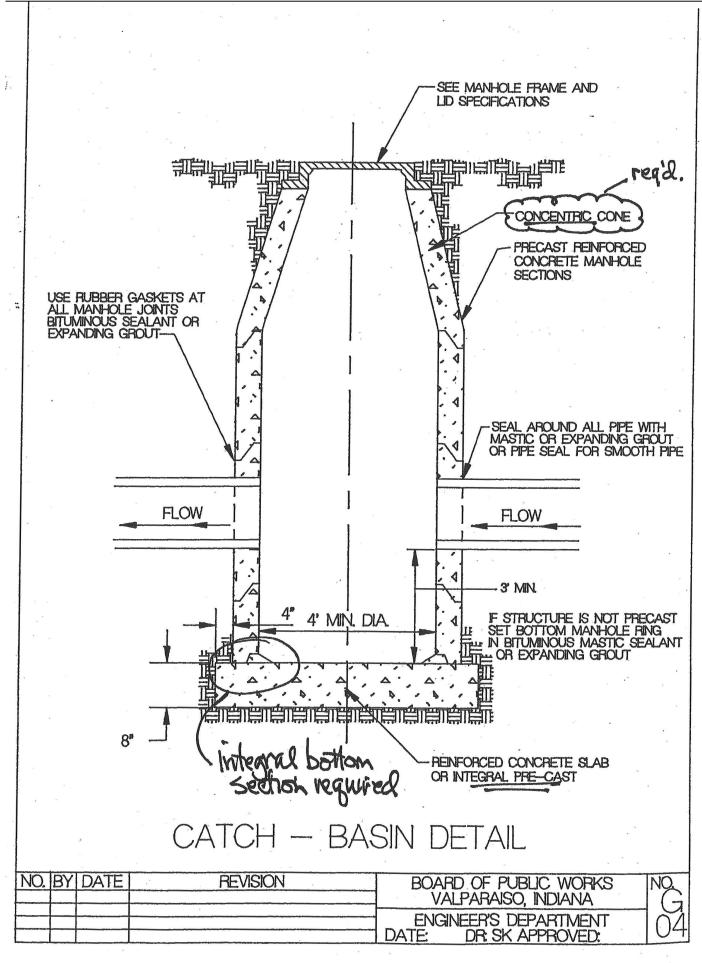
Structure	Table					
MHID	Inlet Type and Casting	RIM	INVERTIN	INVERT OUT	BOTTOM OF STRUCTURE	STRUCTURE DIAMETER
DMH 1	Neenah R-2502	805.60	800.55	800.30	798.30	4 FT
DMH 2	Neenah R-2502	807.30	800.80	800.80	798.80	4 FT
CB 1	(2) Neenah R-3246-C	805.17	802.50	802.50	800.50	4 FT *
CB 2	(2) Neenah R-3246-C	805.17	802.05	802.05	800.05	4 FT *
CB 3	Neenah R-3246-C	804.91	801.90	801.65	799.65	4 FT
CB 4	(2) Neenah R-3246-C	806.42	800.55	800.30	798.30	4 FT *
INL 1	Neenah R-3246-C	806.91	-	803.25	801.25	3 FT
YD 1	Neenah R-2510-A Beehive	809.20	-	803.00	801.00	4 FT
YD 2	Neenah R-2510-A Beehive	807.20	801.20	801.20	799.20	4 FT
YD 3	Neenah R-2510-A Beehive	808.40	-	804.50	802.50	3 FT
YD 4	Neenah R-2510-A Beehive	807.50	803.60	803.60	801.60	3 FT
YD 5	Neenah R-2510-A Beehive	803.80	801.10	801.10	799.10	4 FT

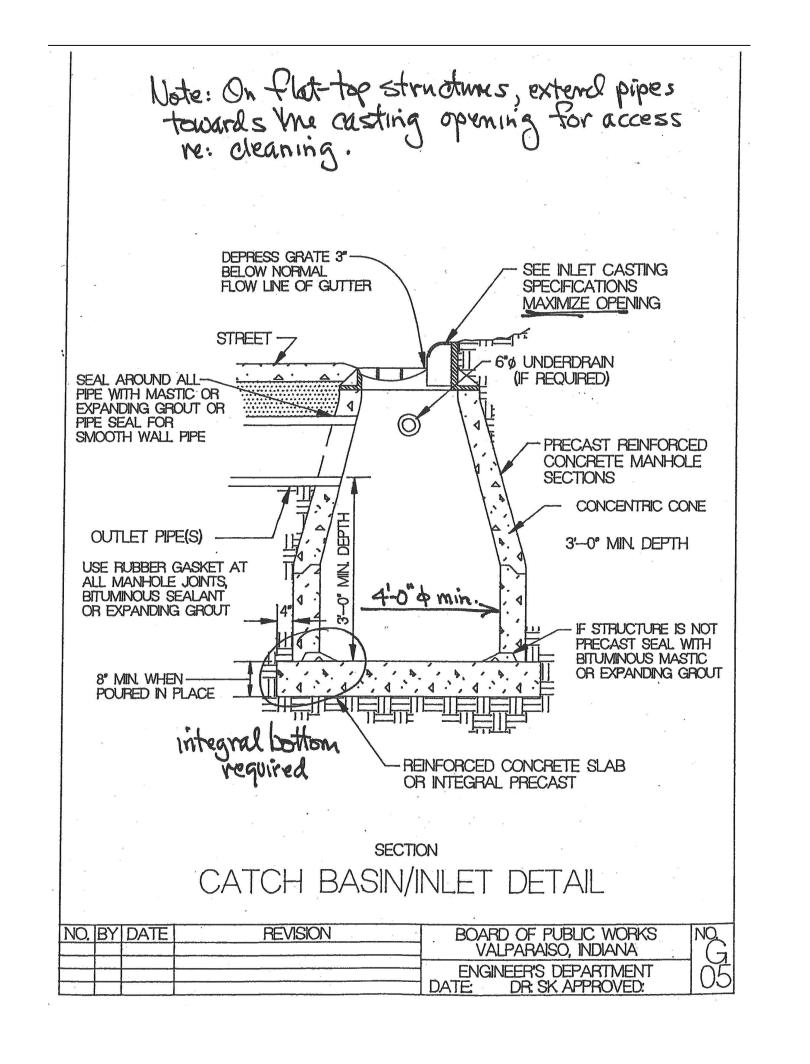
LINE	PIPE I.D.	SIZE (IN)	LENGTH (FT)	SLOPE (%)	UPPER INVERT	LOWER INVERT	UPPER RIM	LOWER RIM	MATERIAL
1	Outfall-DMH 1	15	28	0.36	800.3	800.2	805.6	-	PVC SDR 26
2	DMH 1 - YD 2	12	80	0.81	801.2	800.55	807.2	805.6	PVC SDR 26
3	YD 2 - YD 1	12	80	2.25	803	801.2	809.2	807.2	PVC SDR 26
4	YD 2 - CB 1	12	129	1.01	802.5	801.2	806.91	807.2	PVC SDR 26
5	CB 1 - INL 1	12	27	2.77	803.25	802.5	806.91	806.91	RCP
6	Outfall - CB 4	18	40	0.25	800.3	800.2	806.42	-	PVC SDR 26
7	CB 4 - DMH 2	15	84	0.3	800.8	800.55	807.3	806.42	RCP
8	DMH 2 - YD 5	15	87	0.35	801.1	8.008	803.8	807.3	PVC SDR 26
9	YD 5 - CB 3	15	190	0.29	801.65	801.1	805.17	803.8	PVC SDR 26
10	CB 3 - CB 2	12	27	0.54	802.05	801.9	805.17	805.17	RCP
11	CB 2 - YD 4	12	114	1.36	803.6	802.05	807.5	805.17	PVC SDR 26
12	YD 4 - YD 3	12	96	0.94	804.5	803.6	808.4	807.5	PVC SDR 26

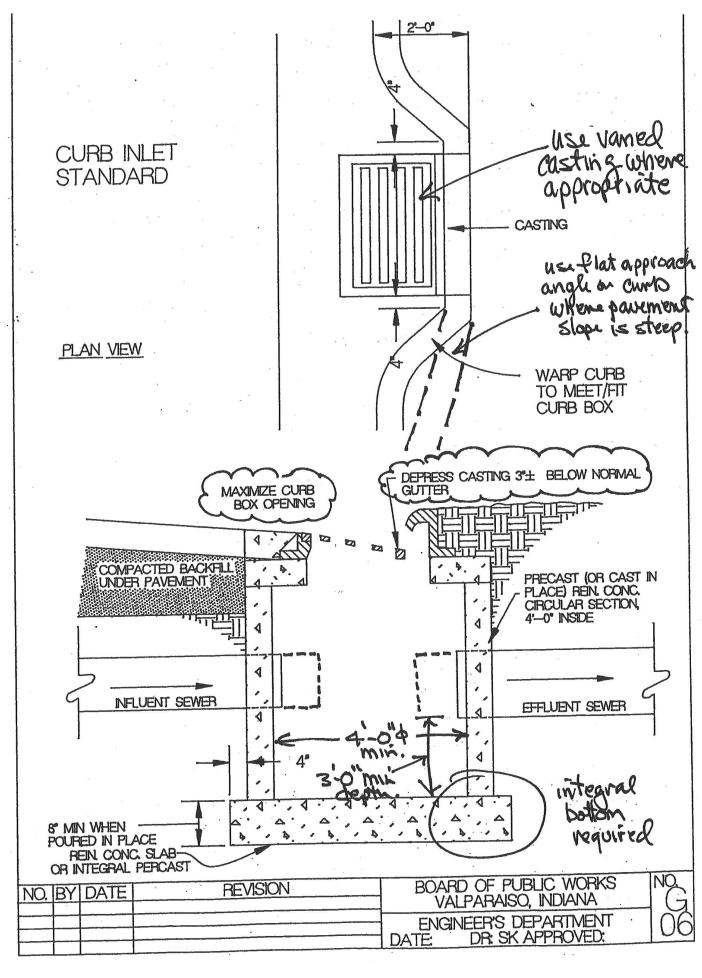
* Structure to be verified by contractor











3014-11

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RETRACEMENT OR ORIGINAL BOUNDARY SURVEY, A ROUTE SURVEY, OR A SURVEYOR LOCATION REPORT.



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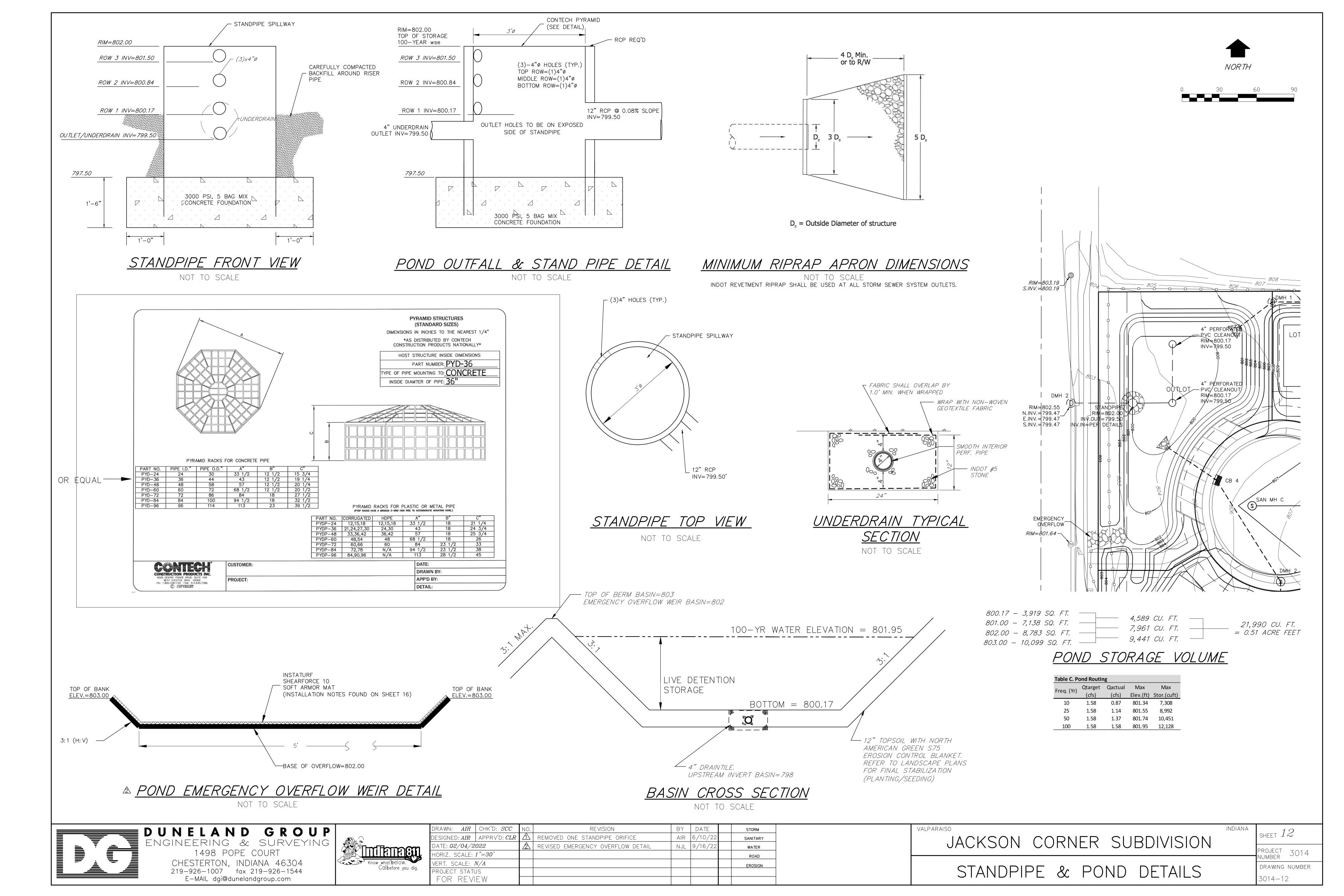
E-MAIL dgi@dunelandgroup.com

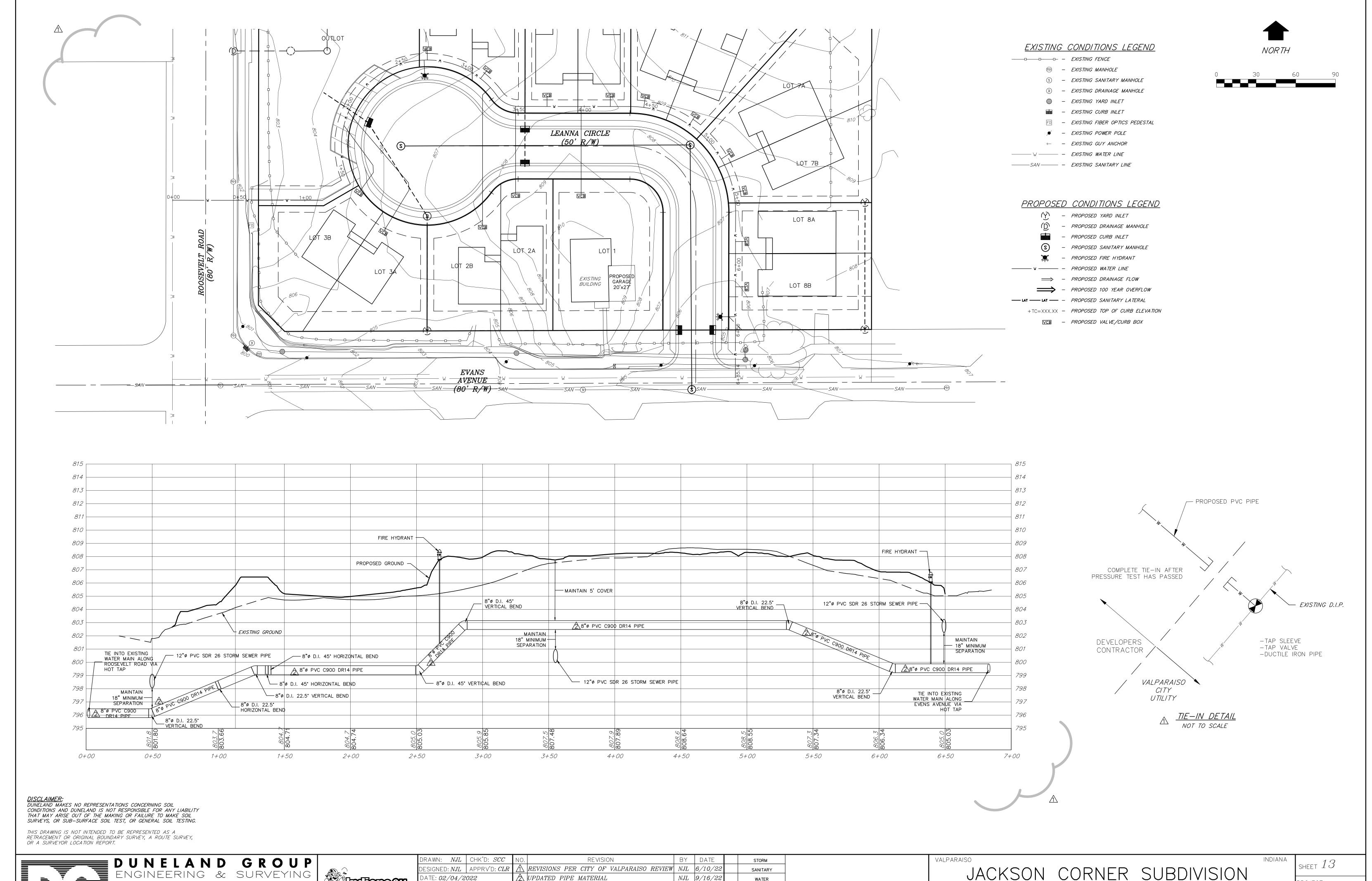
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	DESIGNED: AIR	APPRV'D: CLR	\triangle				SANITARY
DATE: 02/04/2022							WATER
	HORIZ. SCALE: N/A						ROAD
	VERT. SCALE: N/A						EROSION
	PROJECT STATUS						
	FOR REVIE	- W					

INDIANA	
JACKSON CORNER SUBDIVISION	SHEET 11
0/10/13011	PROJECT 3014
	NUMBER SOTT
CASTING DETAILS	DRAWING NUMBER
CASIING DETAILS	3 ∩1/1_11





1498 POPE COURT

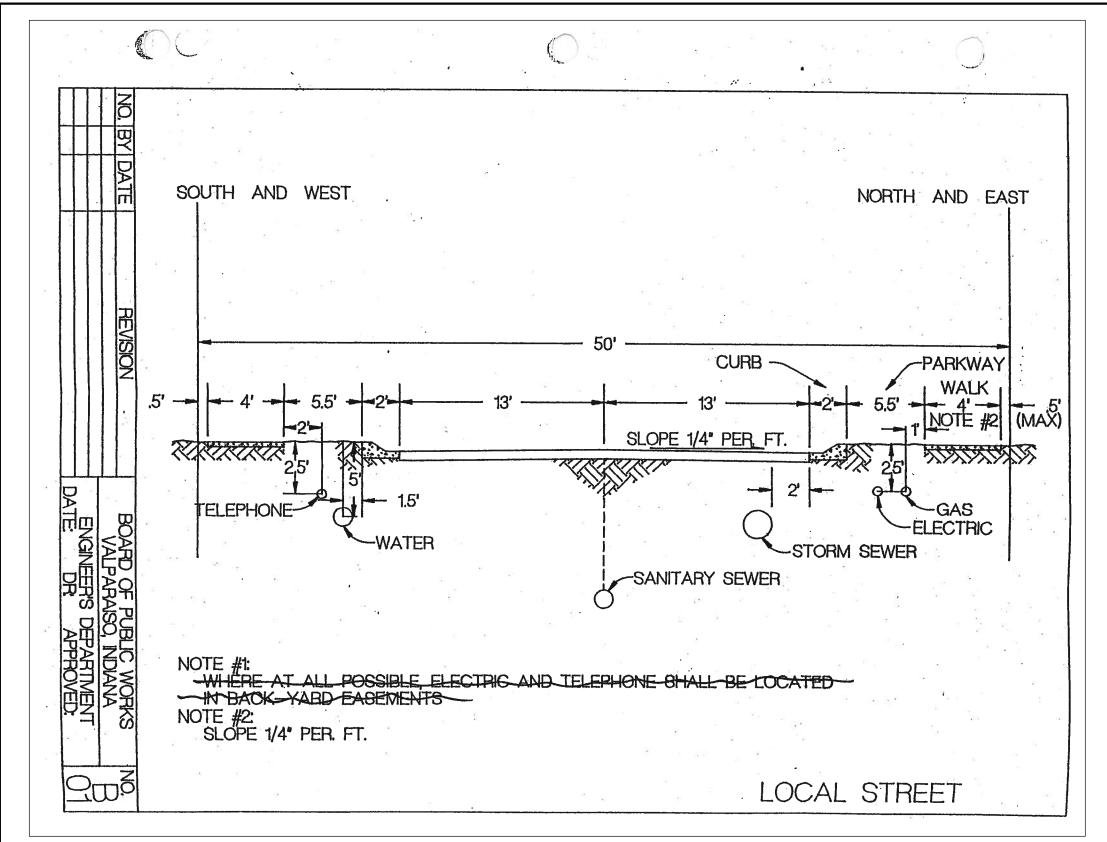
CHESTERTON, INDIANA 46304 219-926-1007 fax 219-926-1544 E-MAIL dgi@dunelandgroup.com

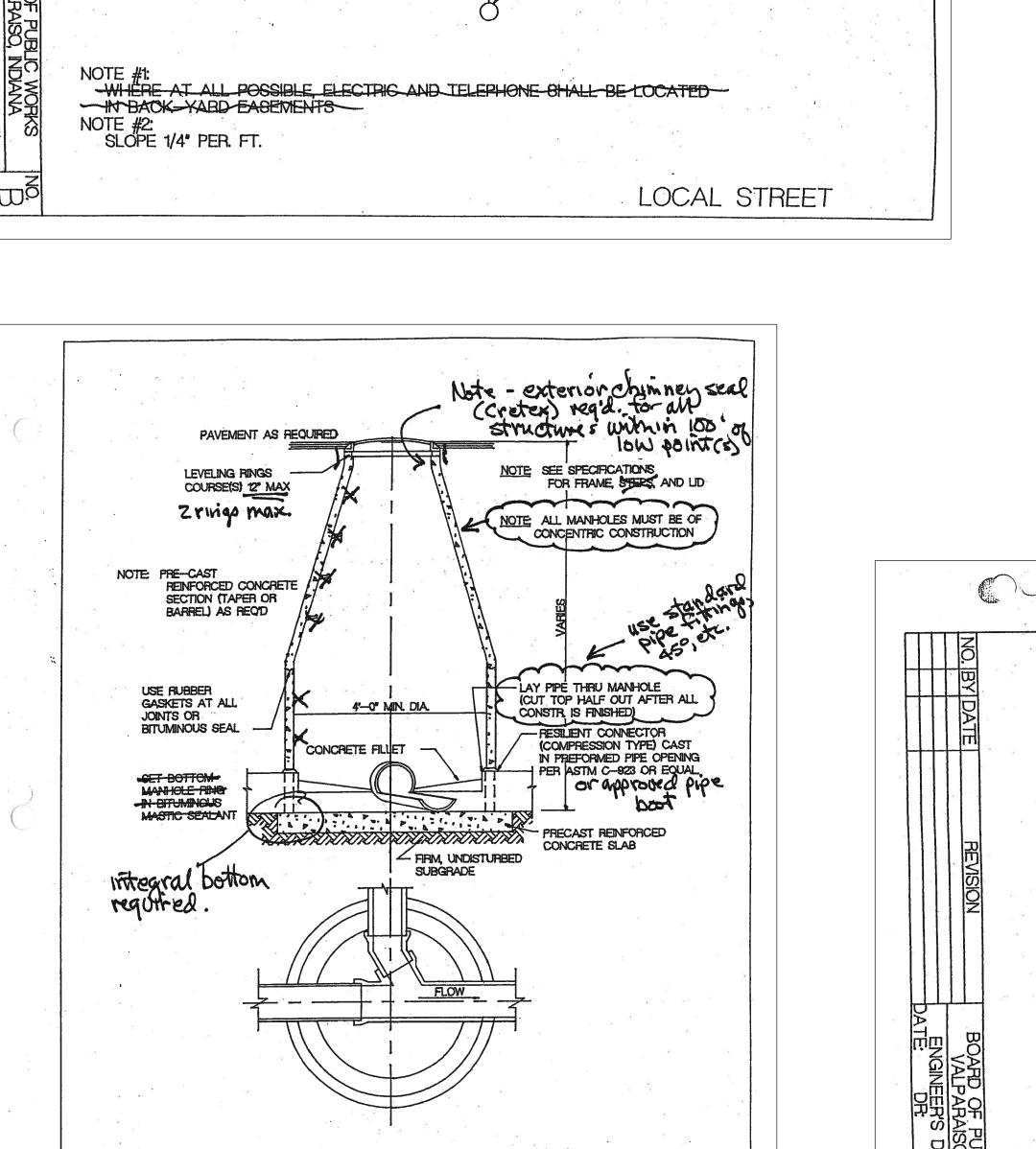
DESIGNED: NJL	APPRV'D: <i>CLR</i>	\triangle	REVISIONS PER CITY OF VALPARAISO REVIEW	NJL	6/10/22	SANITARY
DATE: 02/04/2022		<u>A</u>	UPDATED PIPE MATERIAL	NJL	9/16/22	WATER
HORIZ. SCALE:	1 "=30'					ROAD
VERT. SCALE: 1	V/A					EROSION
PROJECT STATU						
FOR REVIE	- W					

JACKSON CORNER SUBDIVISION

WATER PLAN & PROFILE

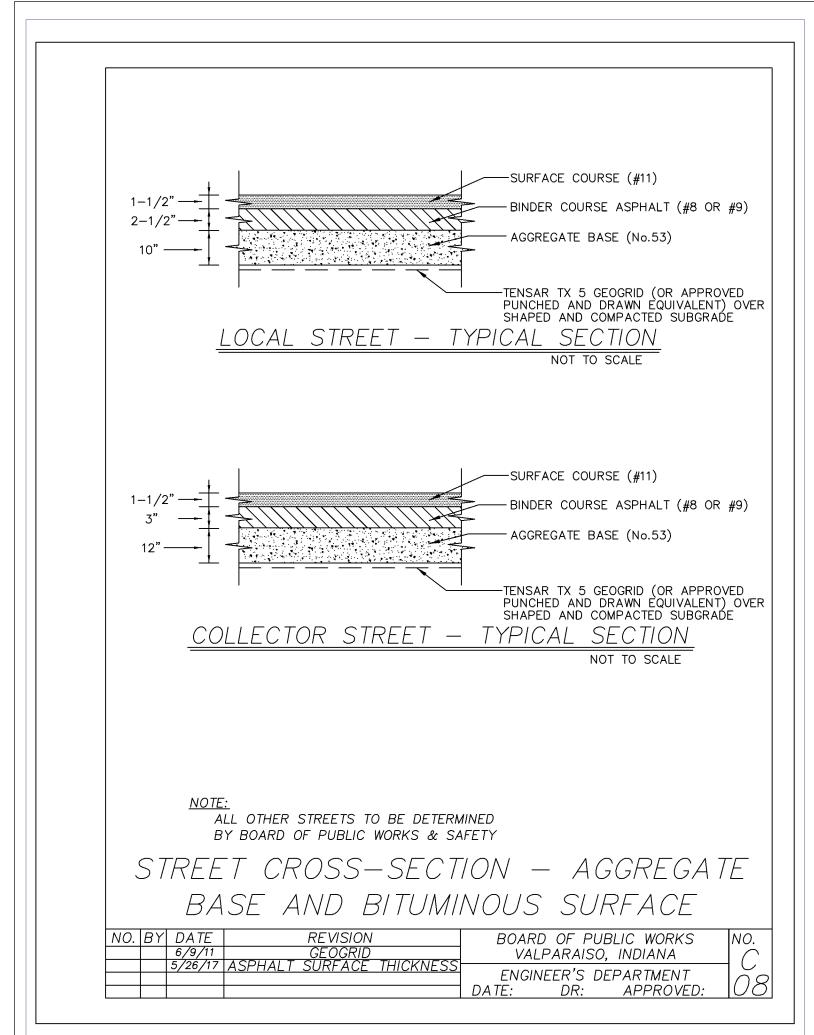
ROJECT 3014 DRAWING NUMBER 3014-13

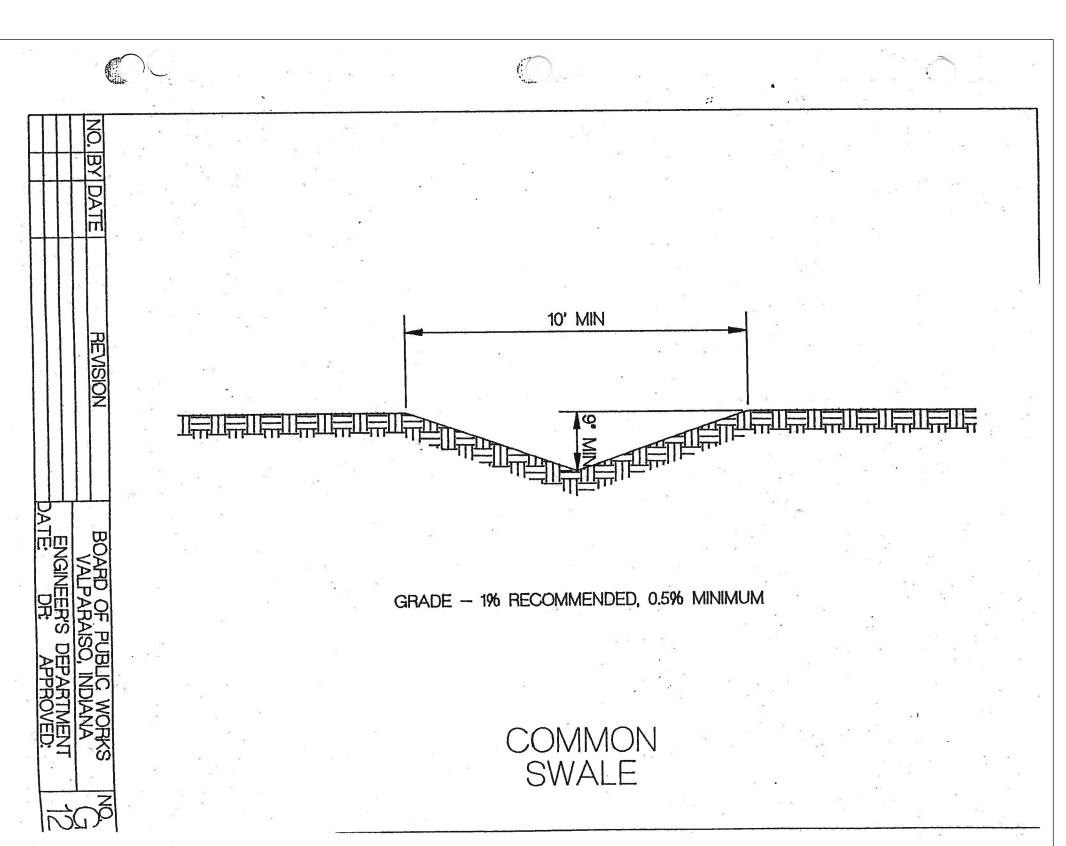


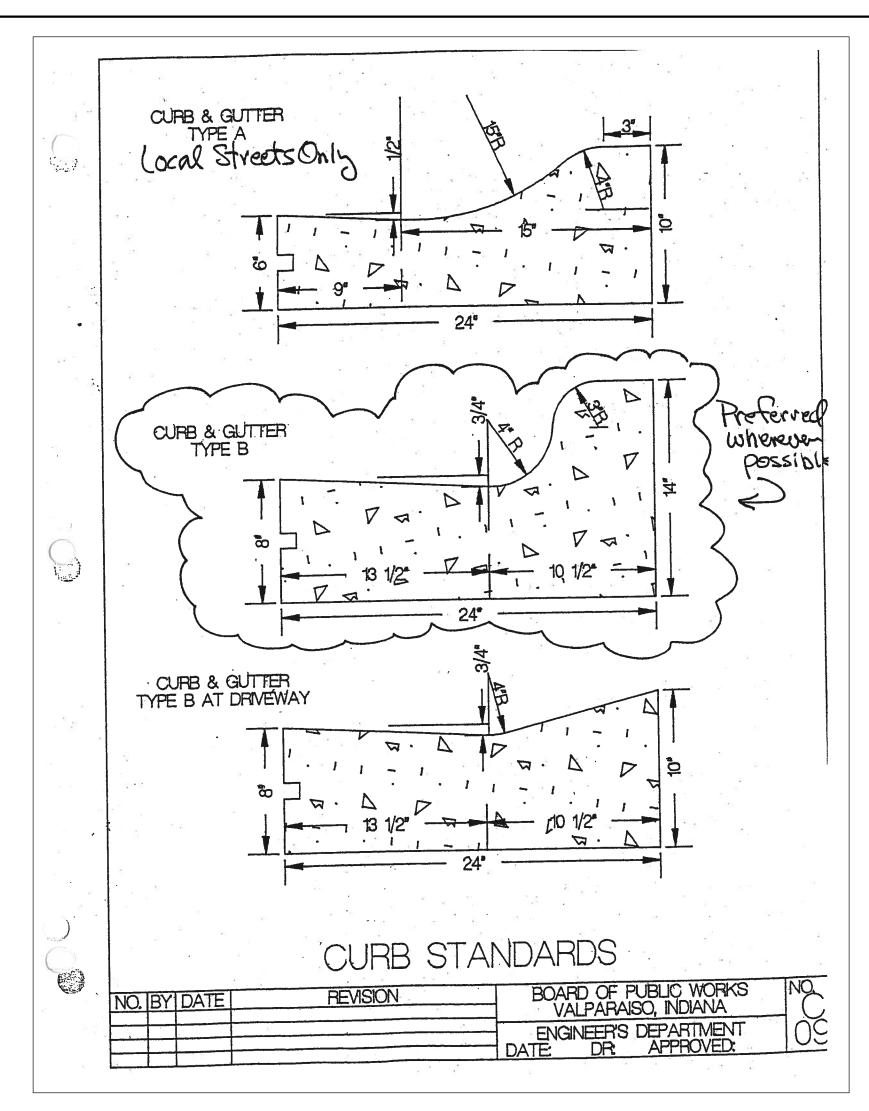


BOARD OF PUBLIC WORKS VALPARAISO, INDIANA

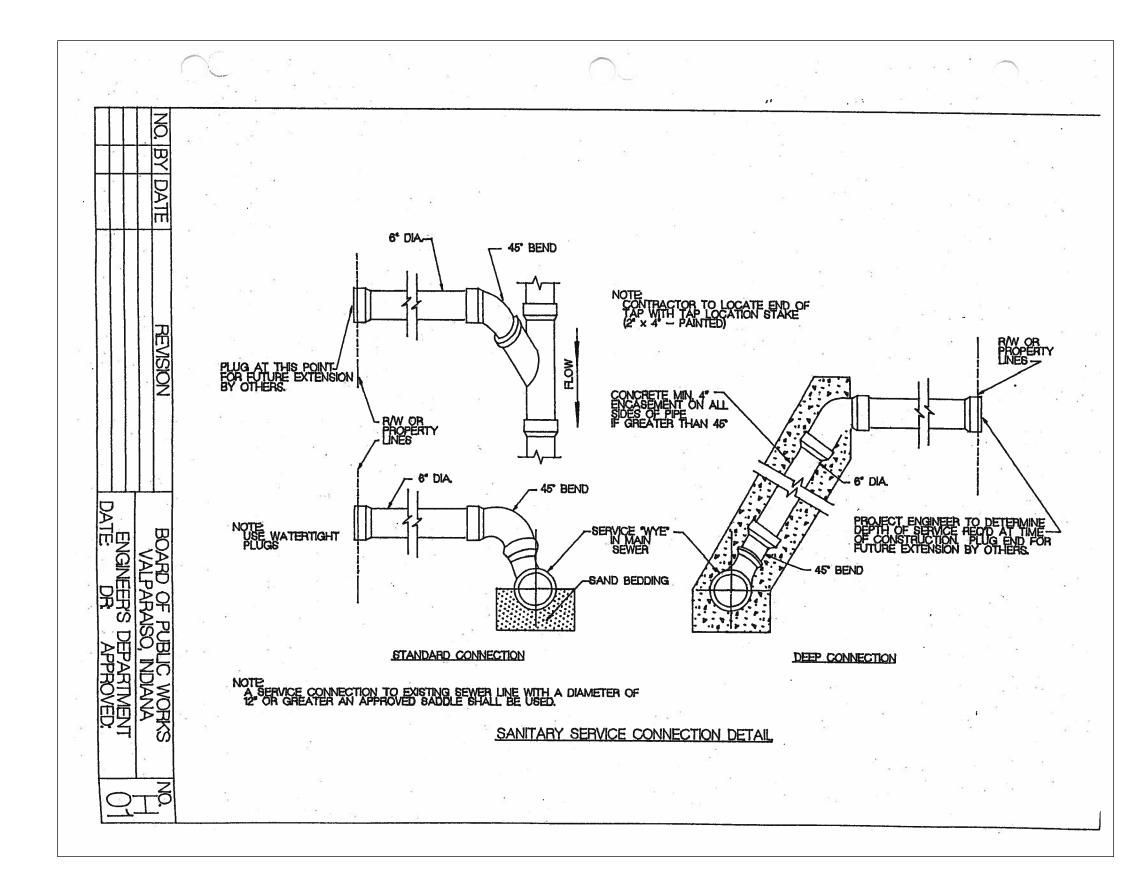
ENGINEER'S DEPARTMENT TE: DR: APPROVED:







ALL CURB TO BE TYPE "B" FOR THIS PROJECT





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STANDARD SANITARY MANHOLE DETAIL

*SANITARY MANHOLES WILL INCLUDE A PRE—CAST BENCH AND FLOWLINE WITH A DOUBLE EPOXY COATING.

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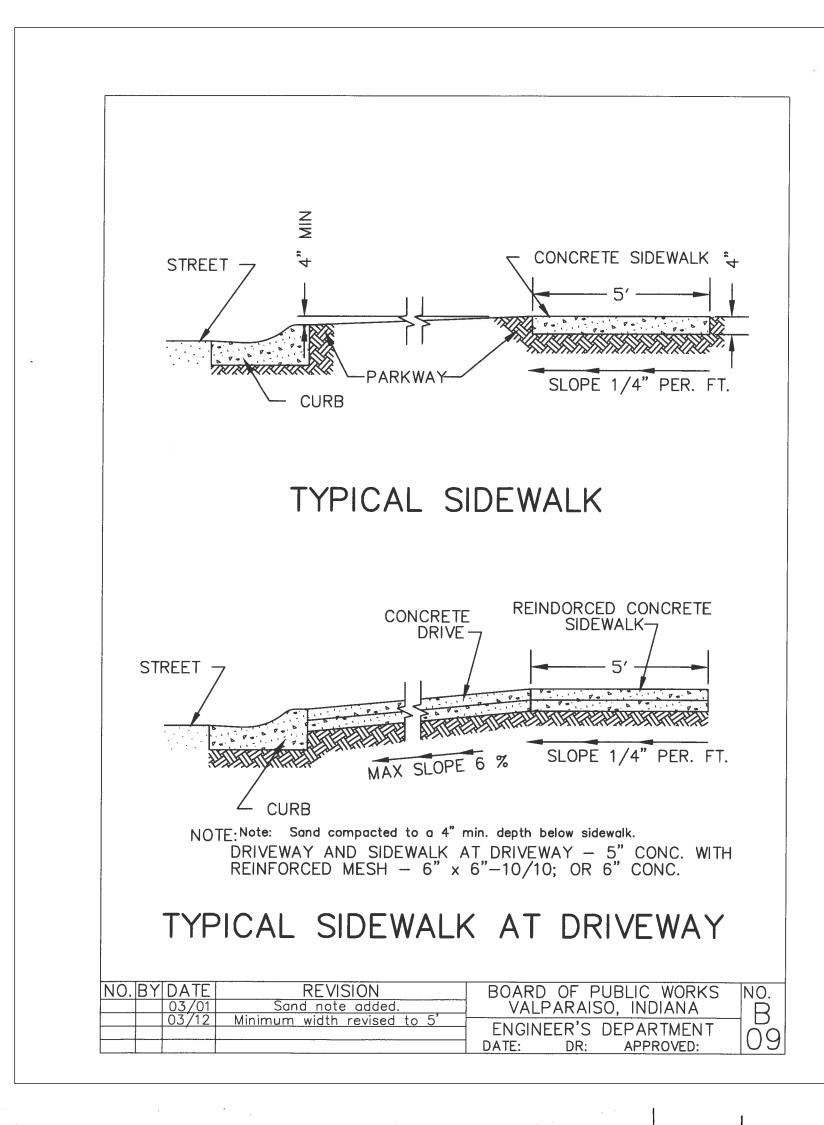
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DESIGNED: NJL	APPRV'D: CLR	\triangle	REVISIONS PER CITY OF VALPARAISO REVIEW	NJL	6/10/22	SANITARY	
DATE: 02/04/2022		\triangle	NOTE ADDED TO SANITARY MANHOLE DETAIL	NJL	9/16/22	WATER	
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VERT. SCALE: 7	N/A					EROSION	
PROJECT STATE							
FOR REVIE	- W						

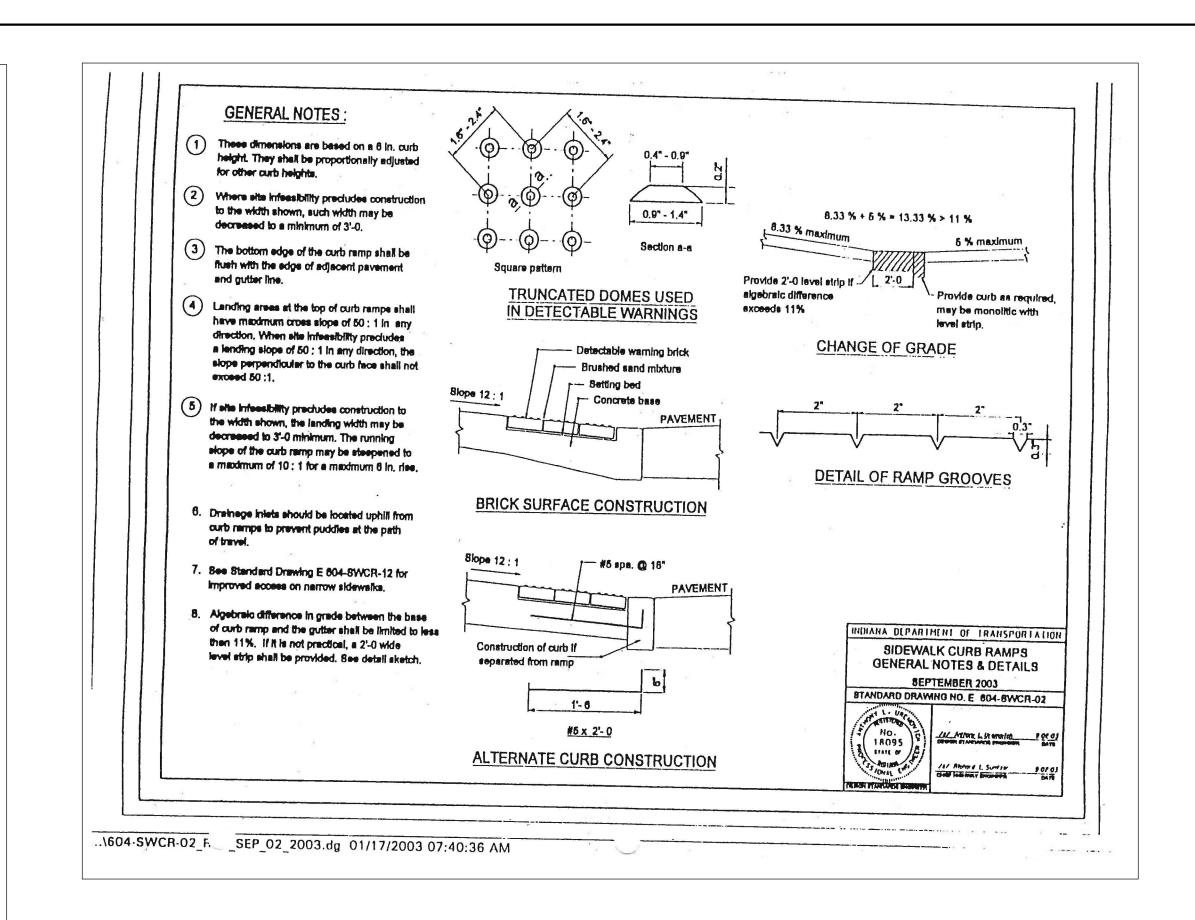
JACKSON CORNER SUBDIVISION

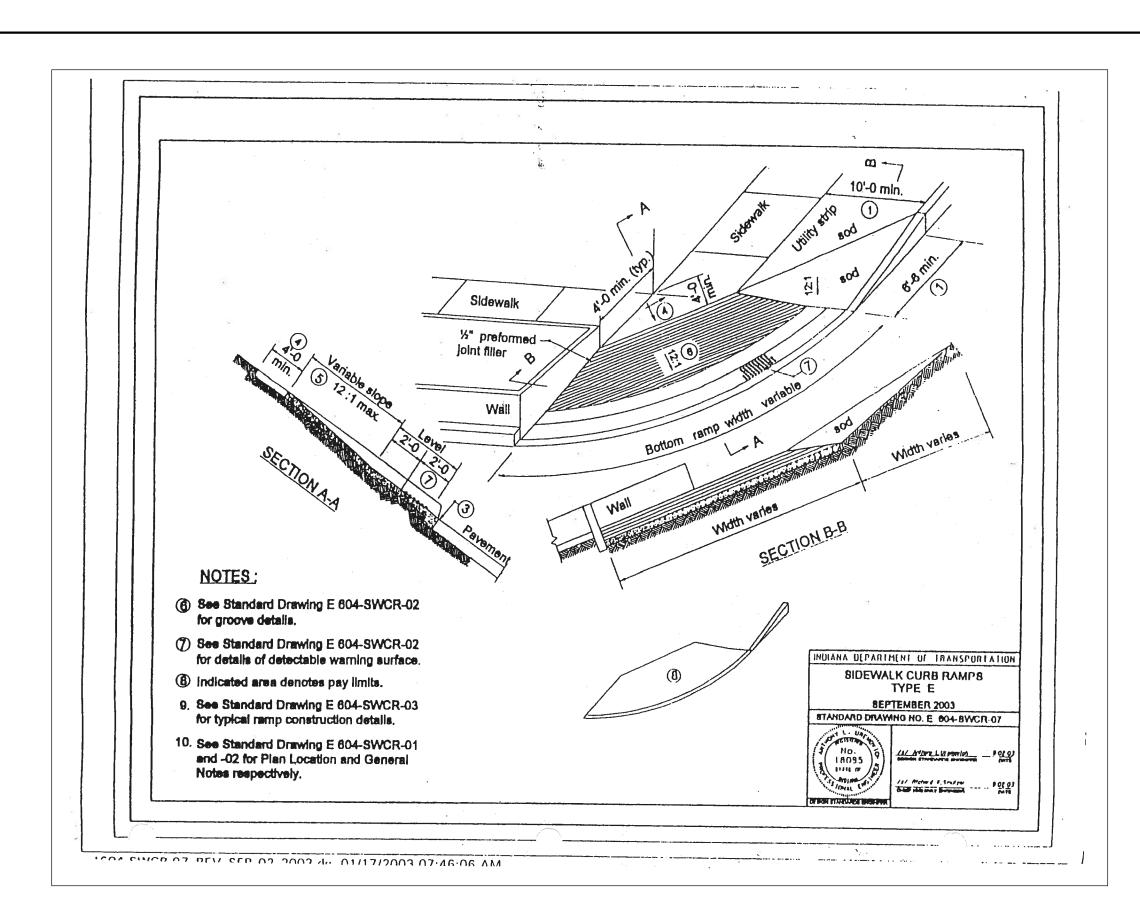
SHEET 14

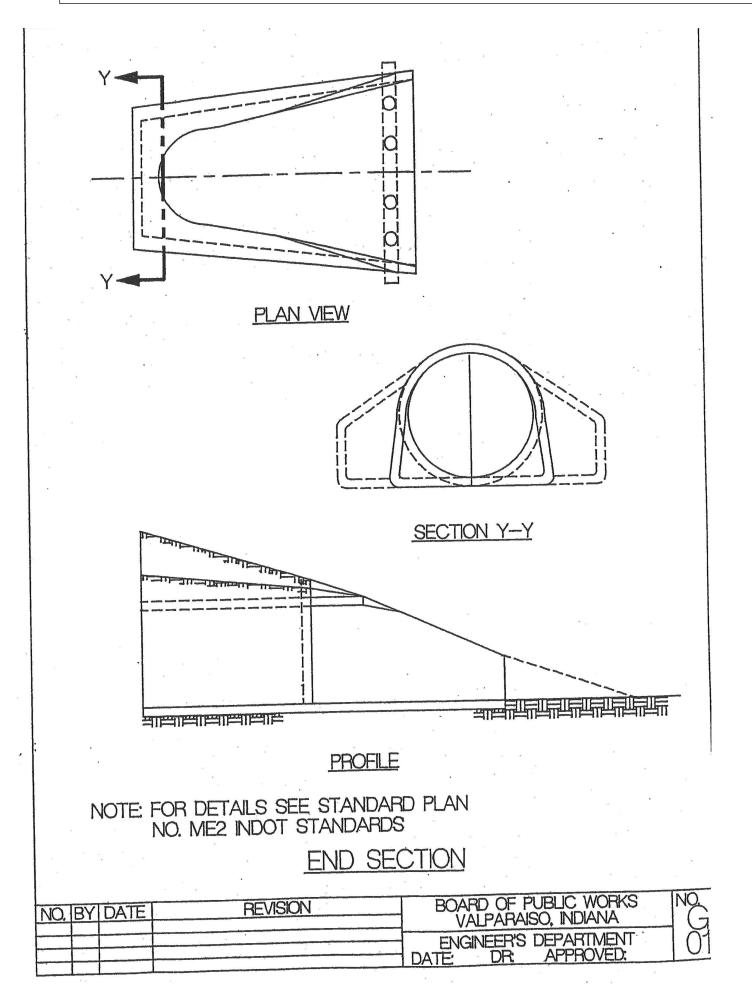
PROJECT 3014

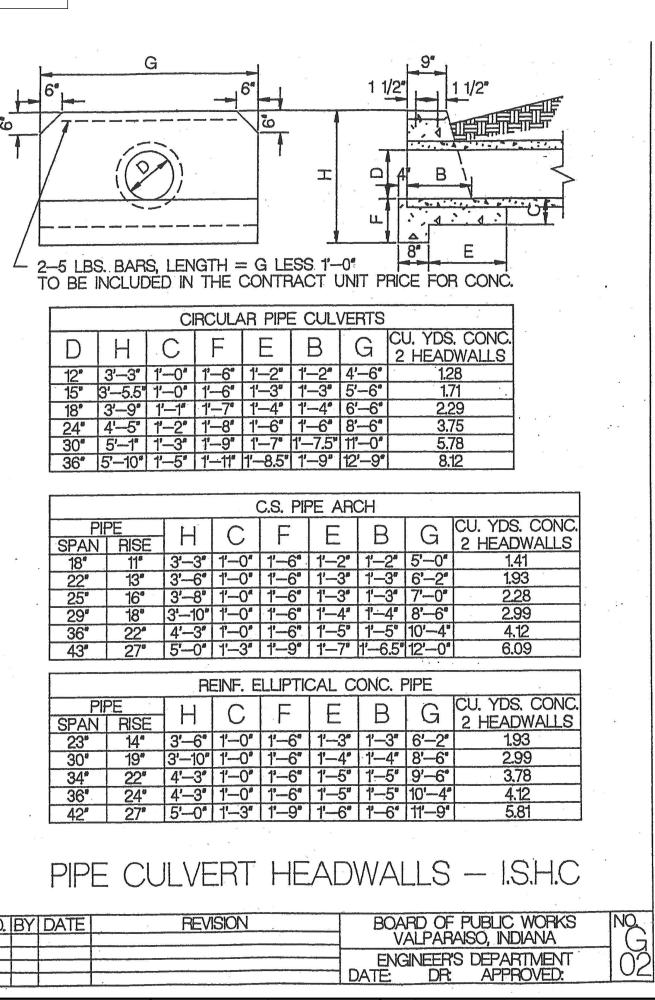
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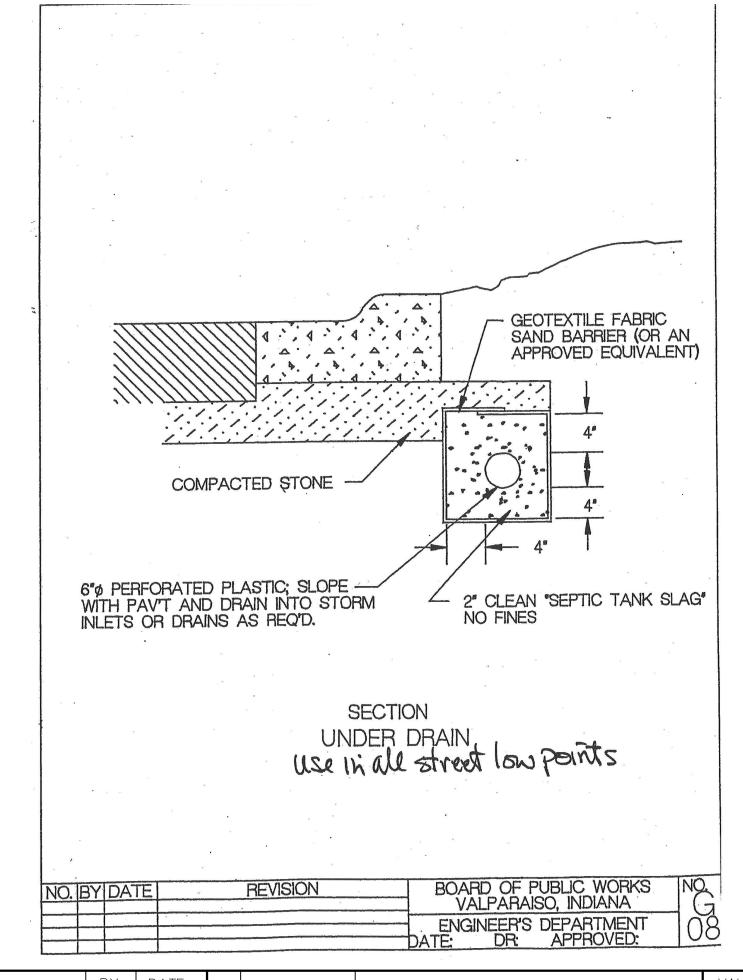


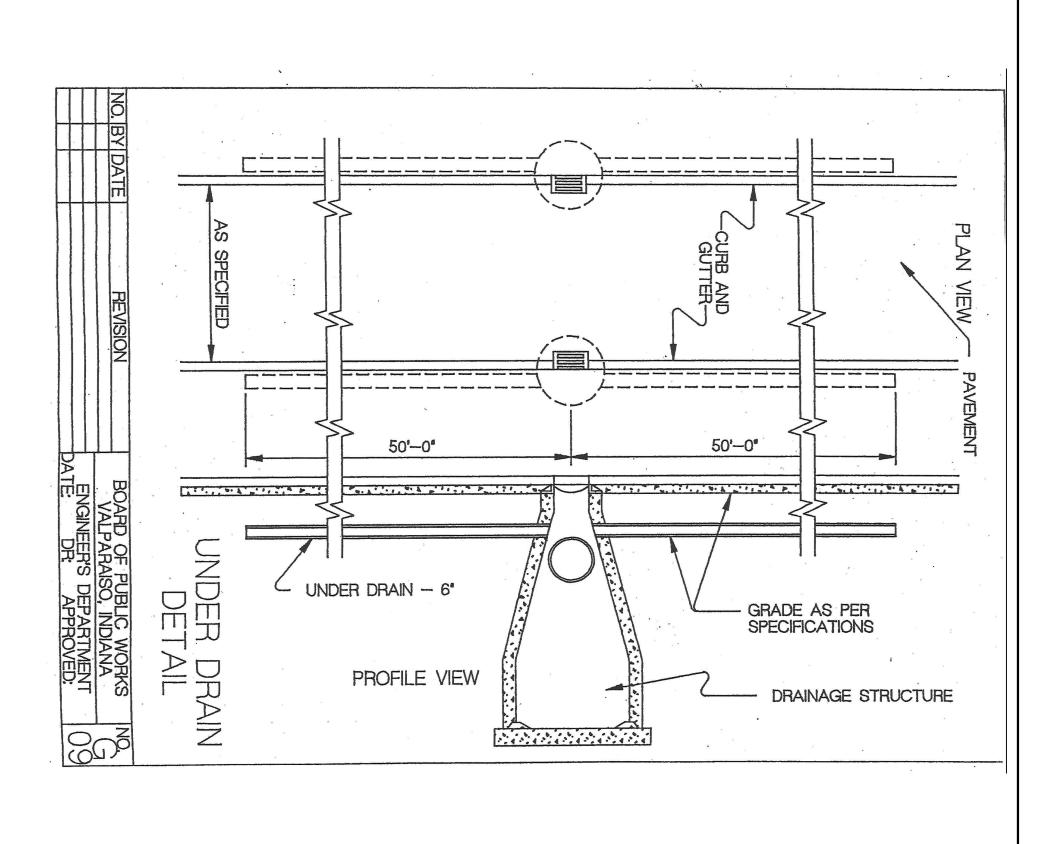














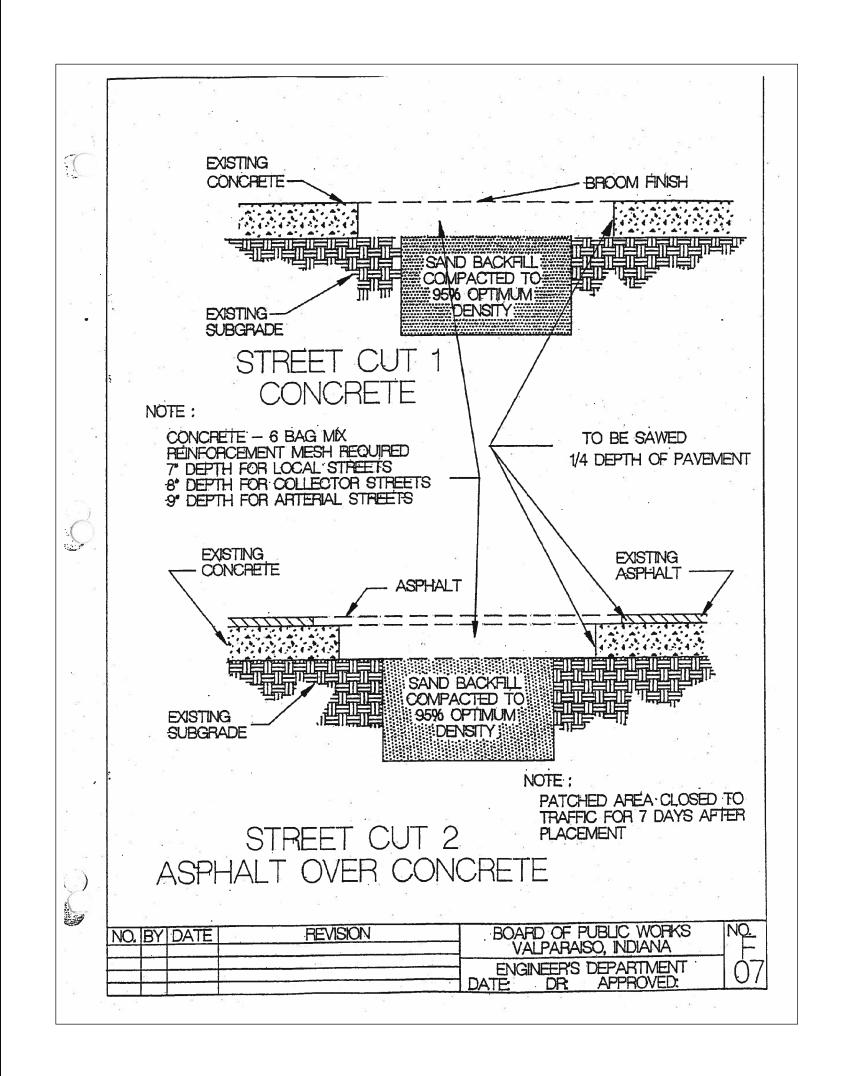
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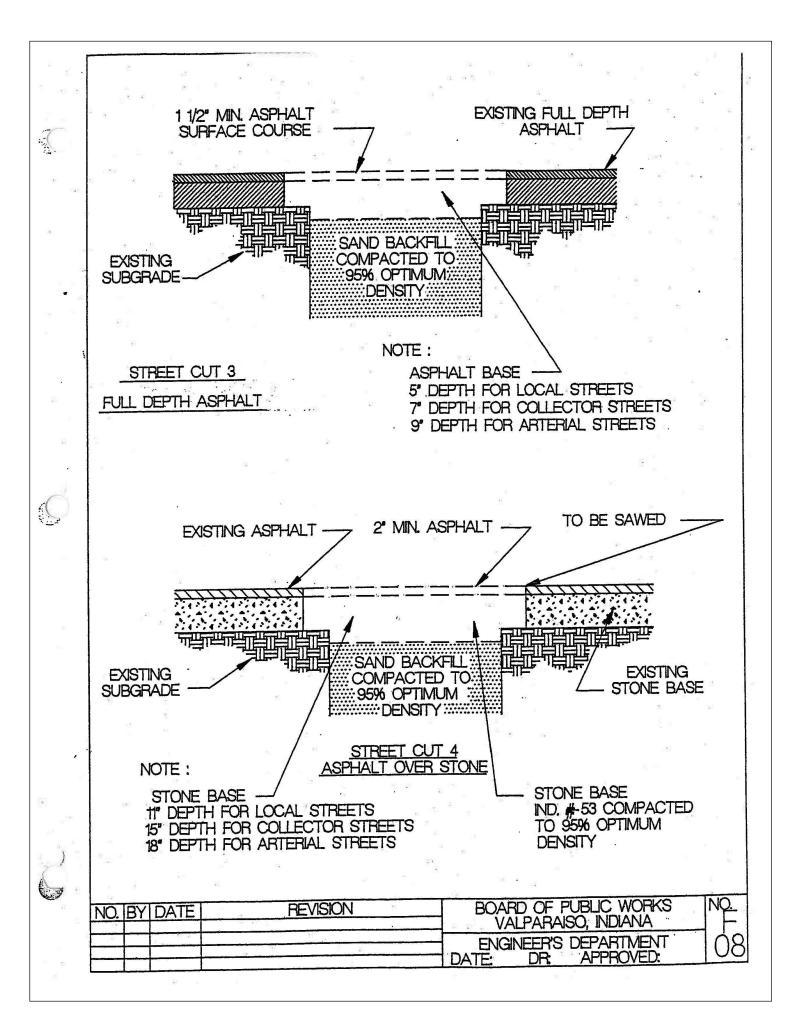
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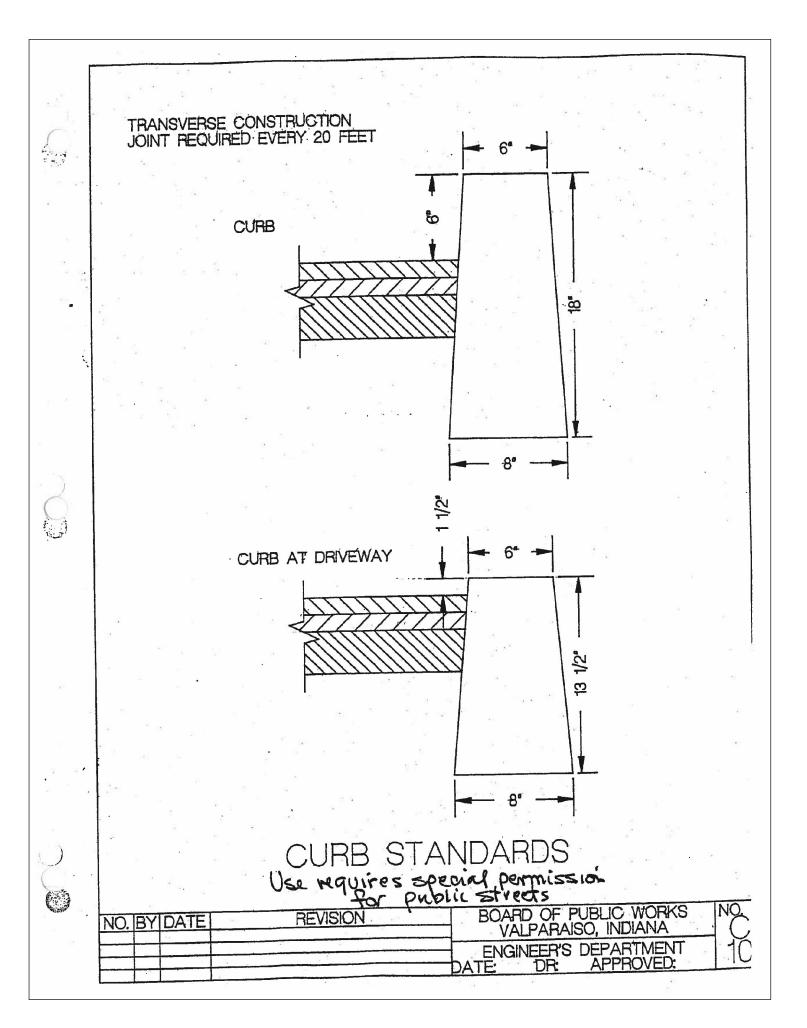


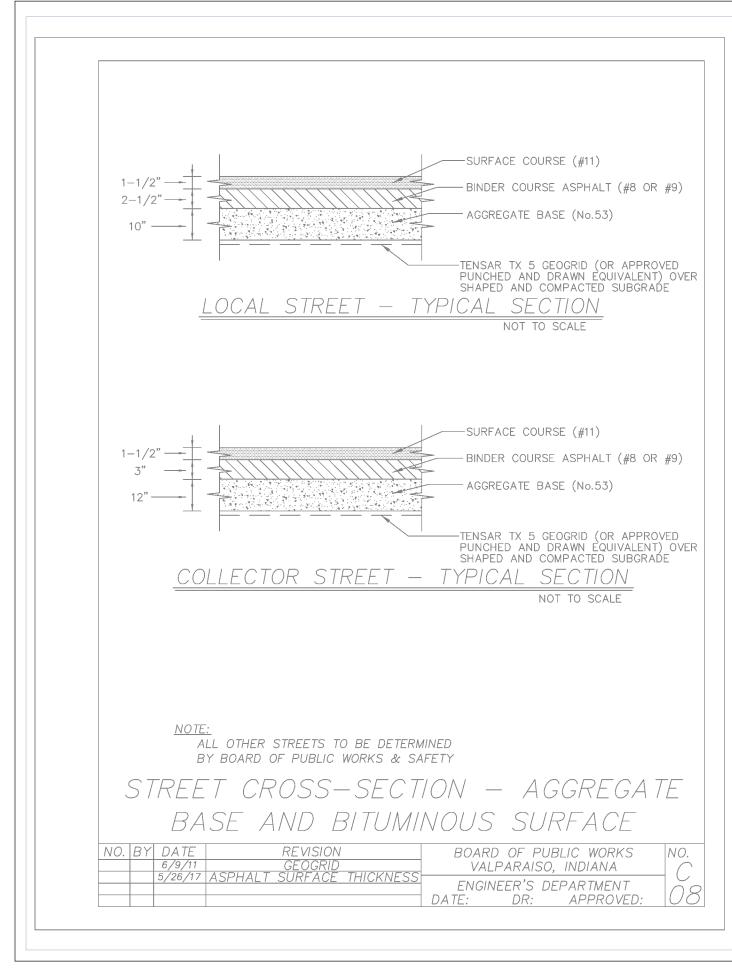
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DESIGNED: NJL	APPRV'D: CLR	\triangle				SANITARY
DATE: 02/04/2	2022					WATER
HORIZ. SCALE:	N/A					ROAD
VERT. SCALE:	N/A					EROSION
PROJECT STAT						
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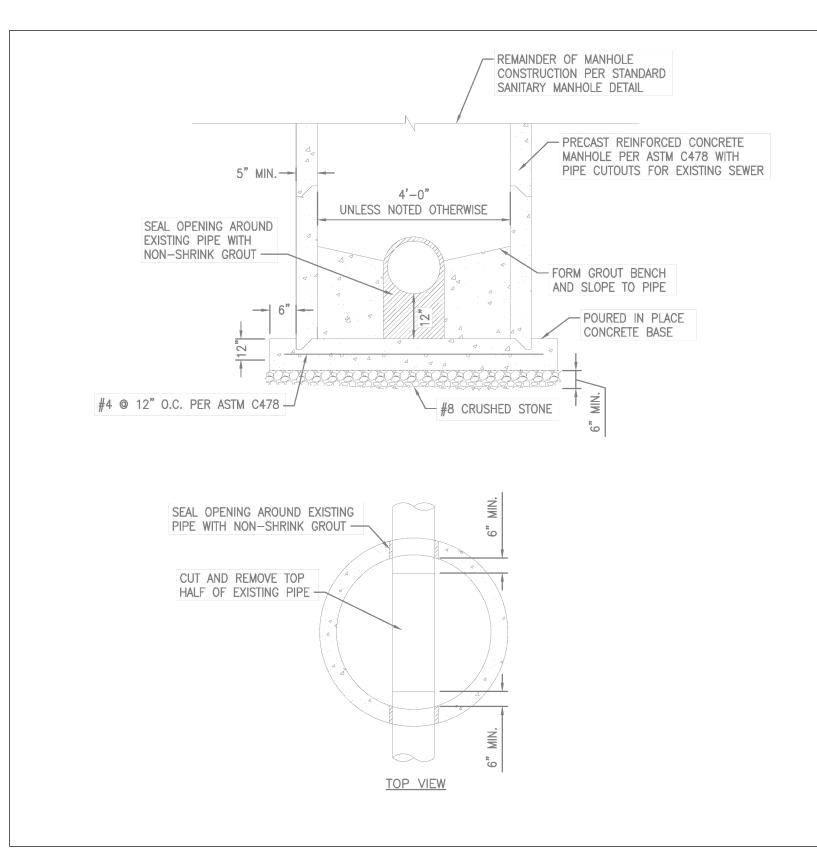
SHEET 15 JACKSON CORNER SUBDIVISION 'ROJECT 3014 UMBER DRAWING NUMBER STANDARD DETAILS 3014-15

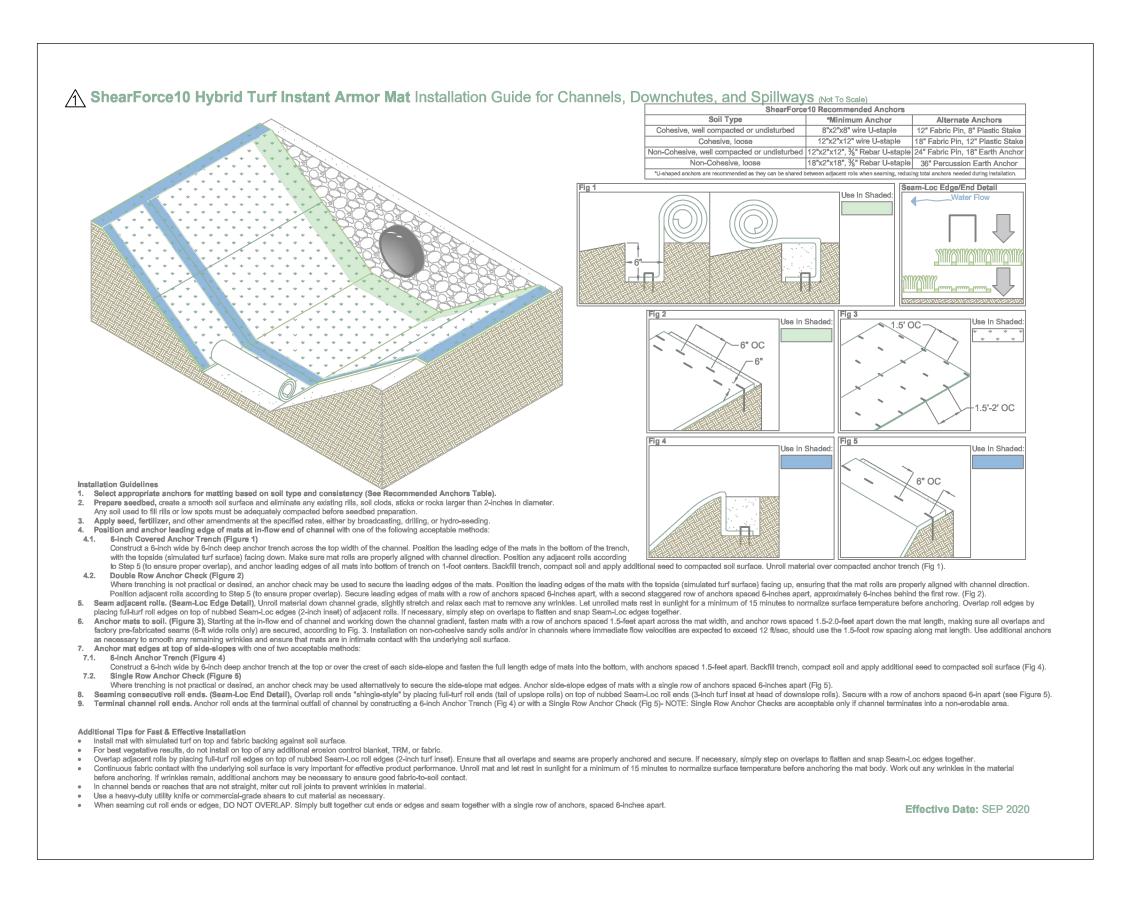












DOGHOUSE MANHOLE DETAIL

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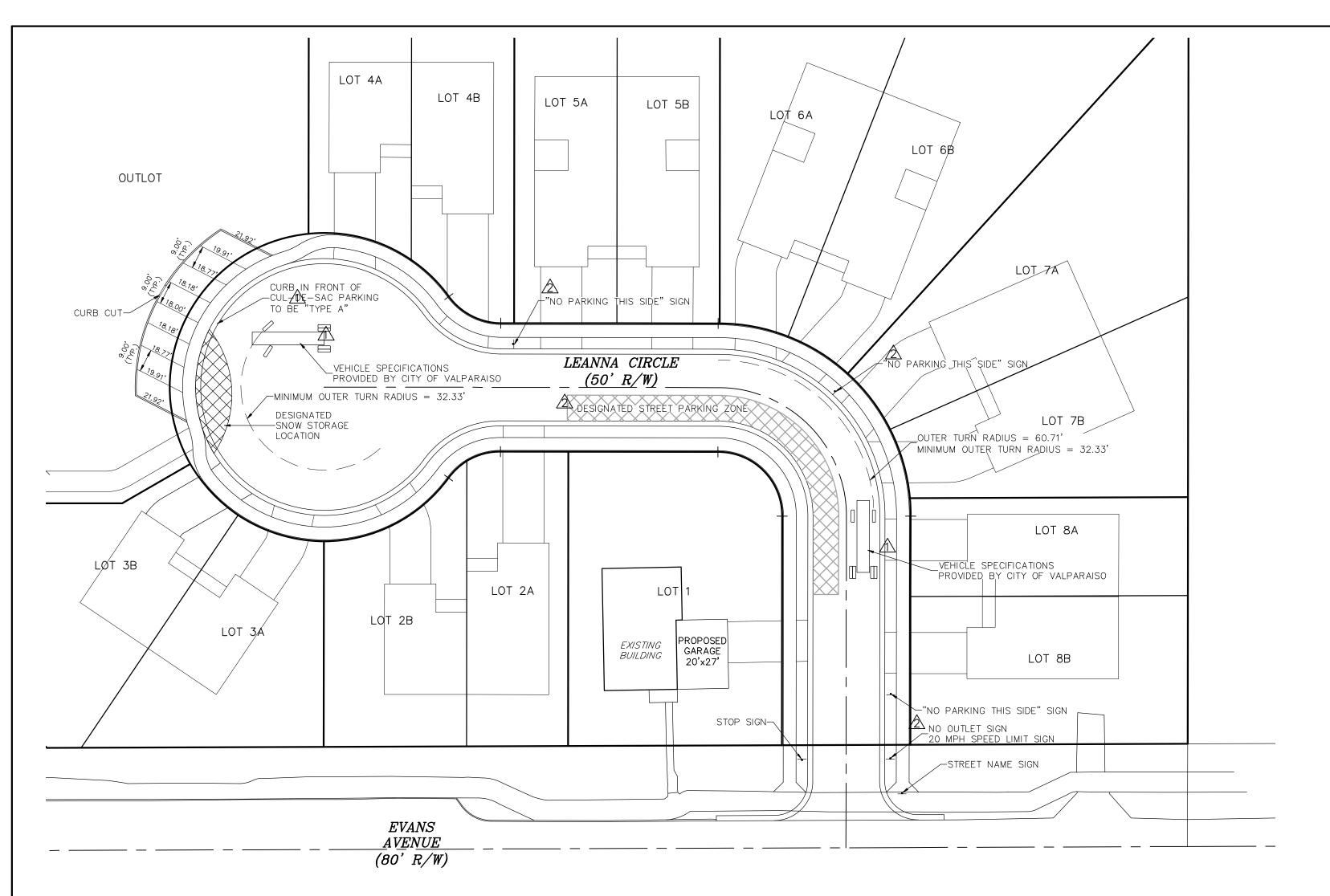
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DESIGNED: NJL	APPRV'D: CLR	\triangle	ADDED INSTATURF SHEAR FORCE NOTE	ES	NJL	9/16/22	SANITARY
DATE: 06/10/2	022						WATER
HORIZ. SCALE: N/A							ROAD
VERT. SCALE:	N/A						EROSION
PROJECT STATE							
FOR REVIE	<u>-</u> W						

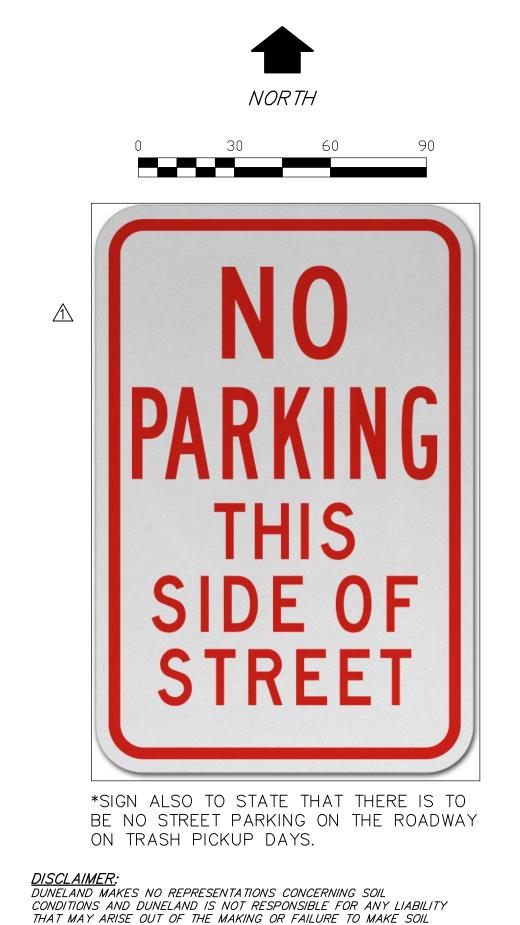
SHEET 16 JACKSON CORNER SUBDIVISION UMBER DRAWING NUMBER STANDARD DETAILS

3014-16

PAVEMENT RESTORATION NOTES.

- 1. IN THE AREAS WHERE THE WORK IS TO COMMENCE, THE EXISTING PAVEMENT WILL BE CUT TO THE SPECIFICATIONS LAID OUT IN THE VALPARAISO STREET CUT DETAILS.
- 2. ROADWAYS WILL BE RESTORED TO MATCH THE CONDITIONS SHOWN IN THE STREET CROSS SECTION DETAIL.
- 3. ROADWAY STRIPES IN AREAS WHERE PAVEMENT WAS REMOVED AND THEN REPLACED WILL BE RE-PAINTED TO MATCH THE EXISTING ROADWAY.

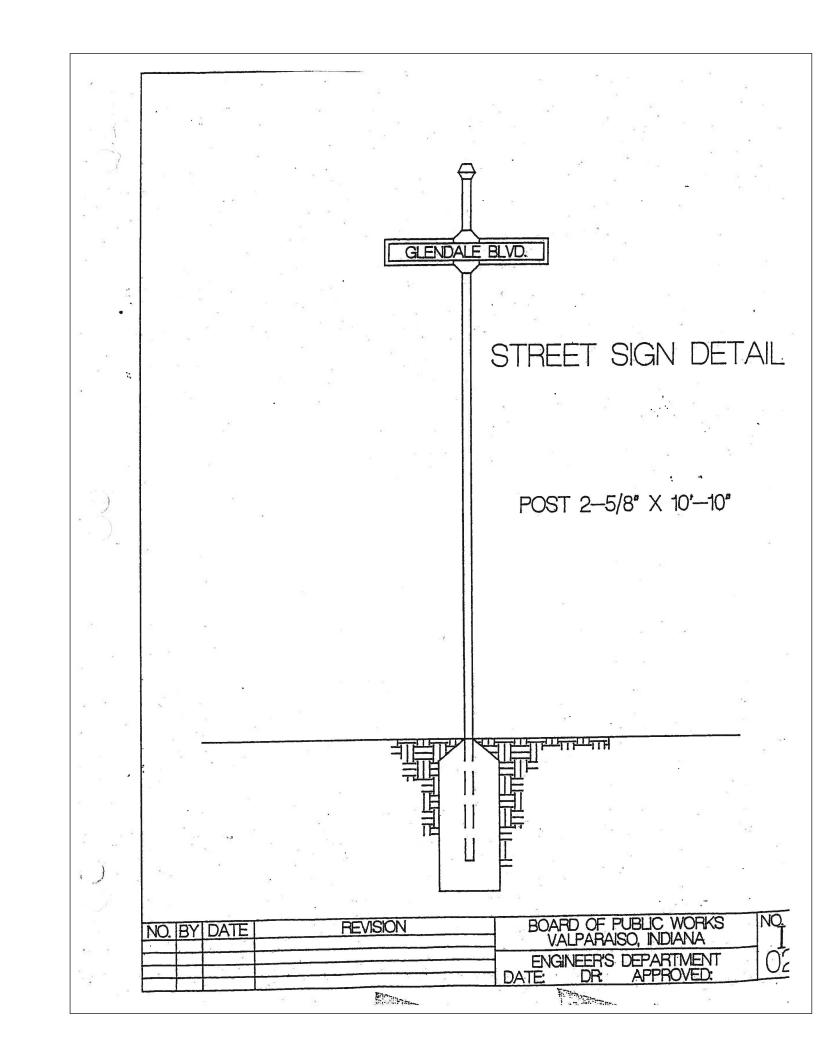


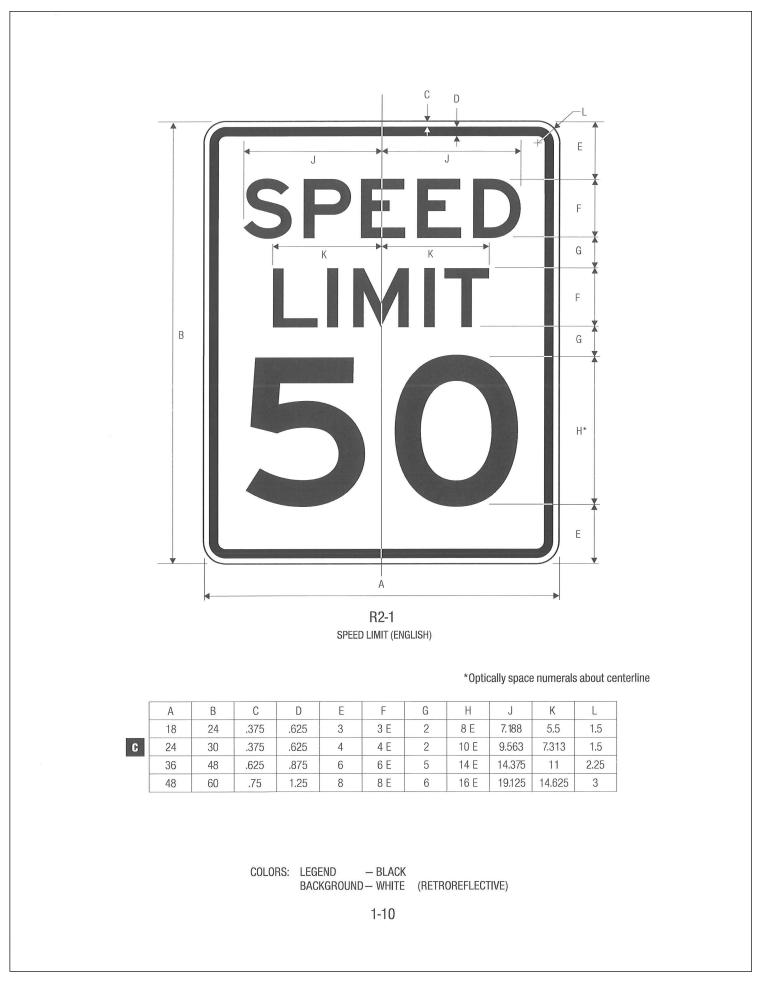


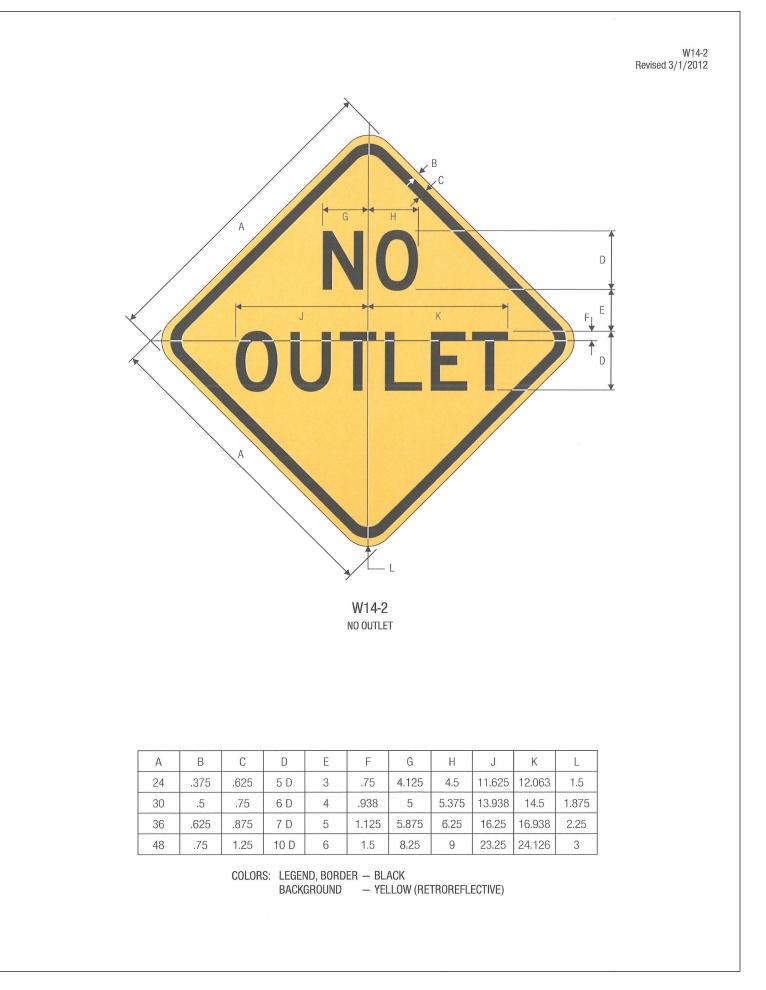
SURVEYS, OR SUB-SURFACE SOIL TEST, OR GENERAL SOIL TESTING.

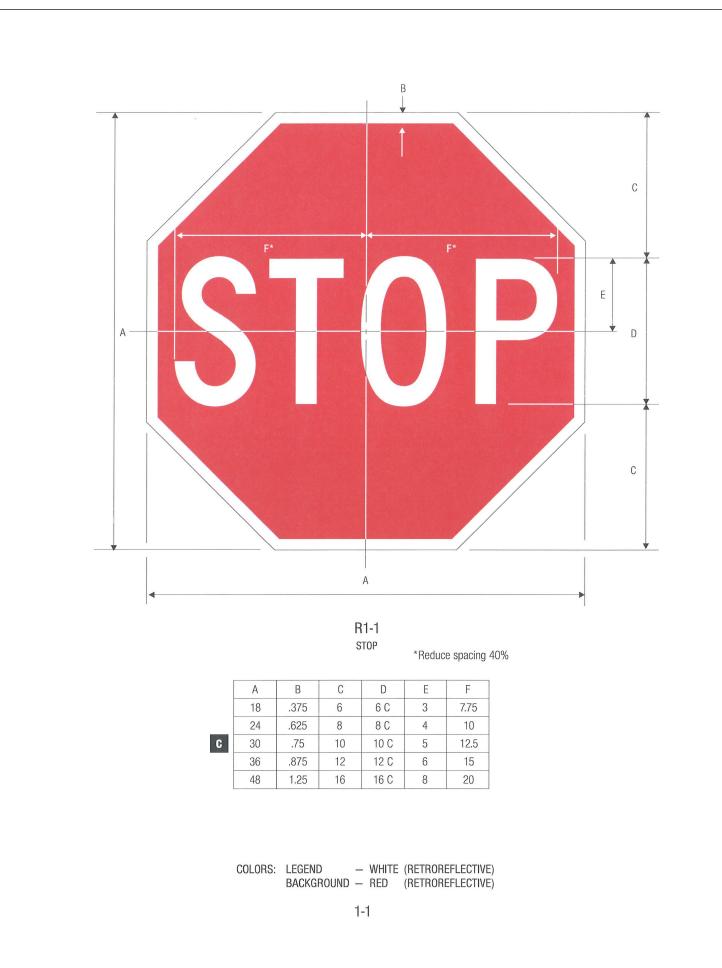
THIS DRAWING IS NOT INTENDED TO BE REPRESENTED AS A RETRACEMENT OR ORIGINAL BOUNDARY SURVEY, A ROUTE SURVEY,

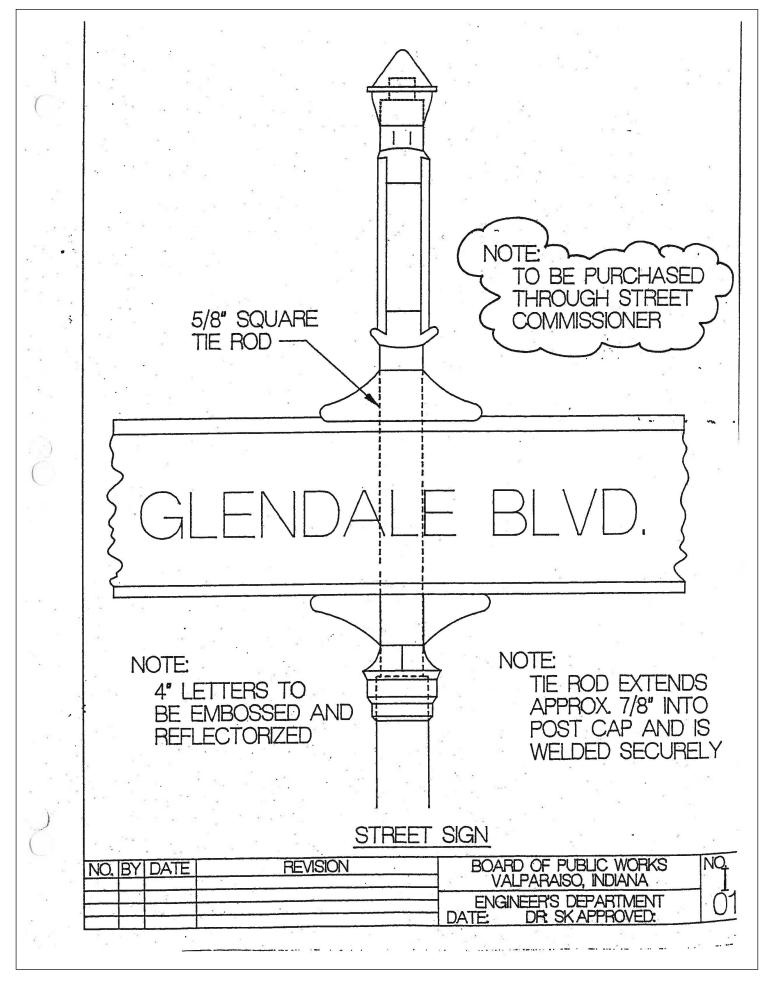
OR A SURVEYOR LOCATION REPORT.













DUNELAND GROUP Engineering & Surveying 1498 pope court

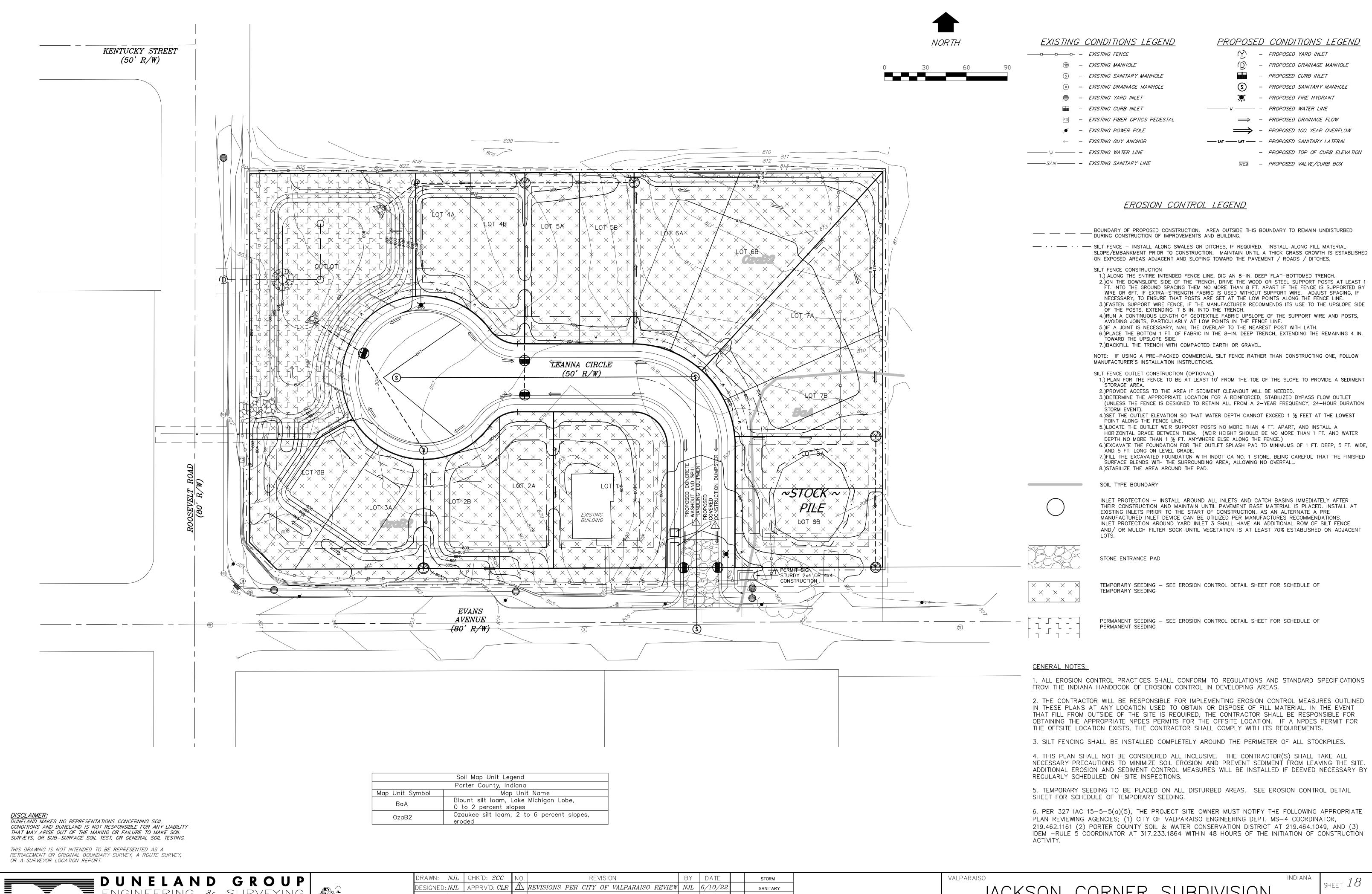
CHESTERTON, INDIANA 46304 219-926-1007 fax 219-926-1544 E-MAIL dgi@dunelandgroup.com



	DRAWN: <i>NJL</i>	CHK'D: SCC	NO.	REVISION	BY	DATE	STORM
	DESIGNED: NJL	APPRV'D: CLR	\triangle	REVISIONS PER CITY OF VALPARAISO REVIEW	NJL	6/10/22	SANITARY
1	DATE: 02/04/2022		2	REVISIONS PER CITY OF VALPARAISO REVIEW	NJL	8/4/22	WATER
Ļ	HORIZ. SCALE: 1"=30'						ROAD
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INDIANA • SHEET 17 JACKSON CORNER SUBDIVISION PARKING & SIGN PLAN DRAWING NUMBER

3014-17



ENGINEERING & SURVEYING

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DRAWN: <i>NJL</i>	CHK'D: SCC	NO.	REVIS	SION		BY	DATE	STORM
DESIGNED: NJL	APPRV'D: CLR	\triangle	REVISIONS PER CITY O	F VALPARAISO	REVIEW	NJL	6/10/22	SANITARY
DATE: 02/04/2	022							WATER
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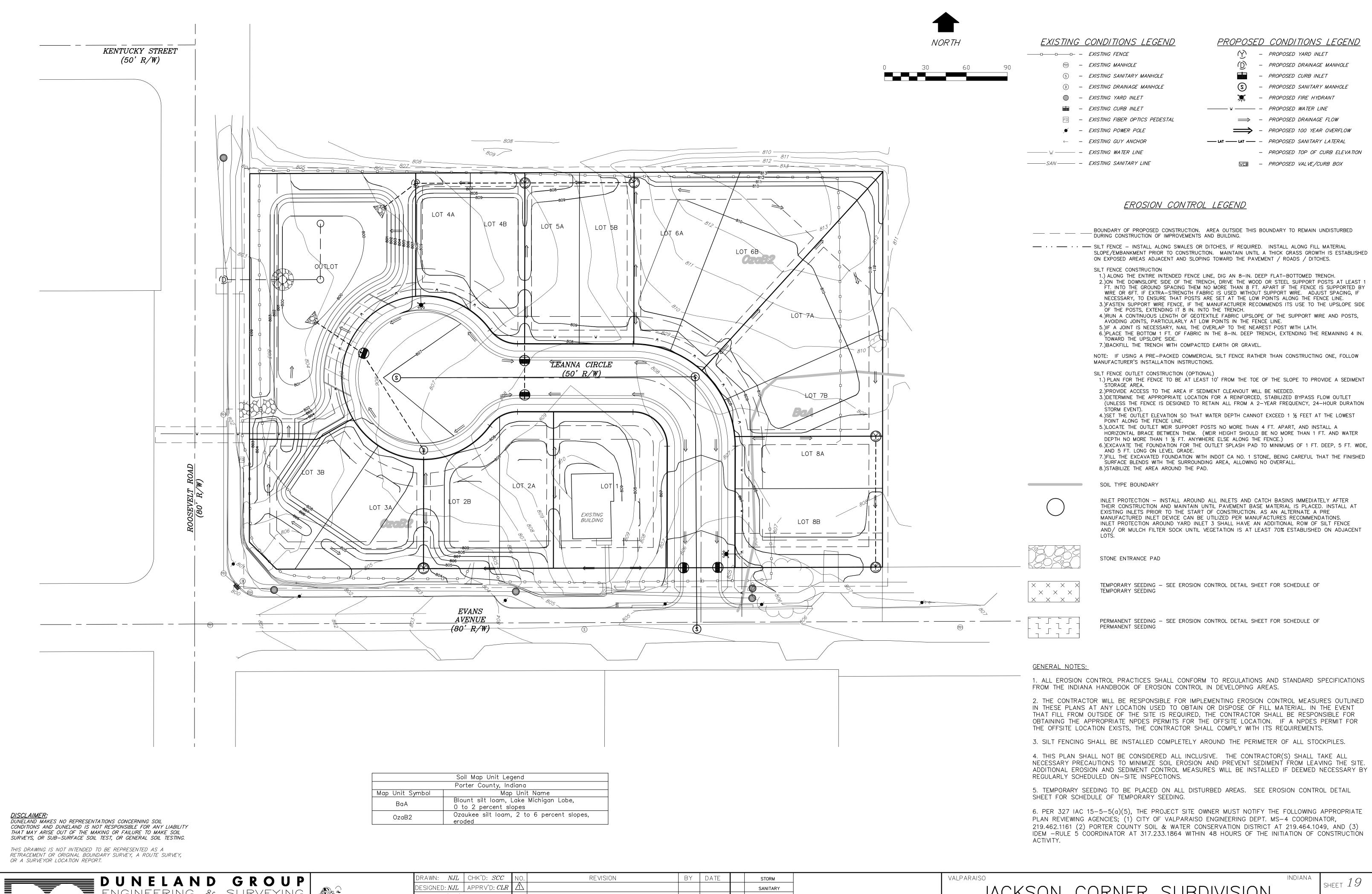
JACKSON CORNER SUBDIVISION

UMBER

3014-18

EROSION CONTROL PLAN

DRAWING NUMBER



ENGINEERING & SURVEYING

1498 POPE COURT CHESTERTON, INDIANA 46304 219-926-1007 fax 219-926-1544 E-MAIL dgi@dunelandgroup.com



DRAWN: <i>NJL</i>	CHK'D: SCC	NO.	REVISION	BY	DATE	STORM
DESIGNED: NJL	APPRV'D: CLR	\triangle				SANITARY
DATE: 06/10/20	022					WATER
HORIZ. SCALE:	1"=30'					ROAD
VERT. SCALE: 1	N/A					EROSION
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JACKSON CORNER SUBDIVISION

|EROSION CONTROL PLAN - POST CONSTRUCTION|

PLAN NARRATIVE

A. Site Description.

Jackson Corner is a 8-single lot residential subdivision. Activity consists of roadway reconstruction, paving, grading, storm system, water service, sanitary service installation, and associated site restoration work consistent with the construction of a multi-unit residential site.

B. Phasing Of Construction:

The sequence of construction should commence in the following order: Install and stabilize ingress/egress pads to the construction site. Install inlet protection on existing storm structures as shown on the erosion control plan. Install vehicular parking areas and staging areas. Install perimeter sediment barriers/filters at all locations where there is potential for sediment-laden stormwater runoff to flow off the construction area. Stockpile topsoil and subsoil separately and protect with sediment barriers. Clear site in proposed areas of construction. Begin grading of site, this includes creating the ponds and swales. Install concrete washout. Install utilities. Install protection measures for new utilities. Construct road, including curb. Construct parking area off of cul-de-sac. Temporary seed as required, this is intended to occur on the disturbed areas which are to remain untouched for a period of 7 days. Commence final grading of site. Permanent seed as required. Remove all temporary erosion and sediment control measures.

C. Existing Site Conditions:

This parcel is currently wooded with an unused barn, and a single family residence with detached garage.

D. Erosion /Sediment Control Measures:

Erosion and Sediment Controls

Clearing and grubbing operations are limited to construction areas shown on the plan. During construction the contractor shall place filter tubes or filter socks at the upstream end of all storm sewer pipes until inlets are completed. A situation reduction device such as a temporary sediment trap shall be placed at places where runoff could flow off—site or into jurisdictional areas as shown on the plan. Upon completion—of construction, sod or permanent seeding will be placed along the edges of pavement and over disturbed areas.

Other Controls:

When the construction of inlets is completed, the Contractor shall place silt fabric fence or gravel protection around inlets until site construction is completed.

Temporary Seeding:

Temporary vegetation shall be established for barren areas rough graded but left undisturbed for more than 15 days. Seeding shall be applied according to the following chart depending on the time of year. Fertilizer and mulch are required.

Seed species	Rate/acre	Planting depth	Optimum dates
Wheat or rye	150 lbs.	1 to 1 1/2 in.	9/15 to 10/30
Spring oats	100 lbs.	1 in.	3/1 to 4/15
Annual ryegrass	40 lbs.	1/4 in.	3/1 to 5/1 & 8/1 to 9/1
German millet	40 lbs.	1 to 2 in.	5/1 to 6/1
Sudangrass	35 lbs.	1 to 2 in.	5/1 to 7/30

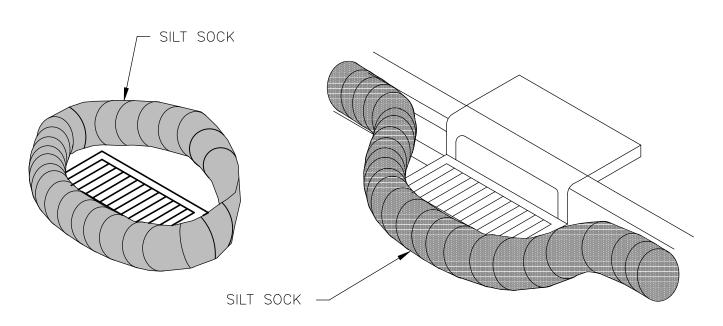
Permanent seeding

Disturbed area which are at finish grade shall be permanently seeded within seven (7) days. Use a perennial ryegrass mixtures chosen for slope characteristics from the following list. Fertilizer and mulch are required.

OPEN AND DISTURBED AREAS (REMAINING IDLE MORE THAN 1 YR.)

OPEN AND DIS	STURBED AREAS (REMAINING IDLE MORE THAN 1 YR.)	
Seed Species & Mixtures	Rate/Acre	Optimum Soil pH
 Perennial ryegrass 	35 to 50 lbs.	5.6 to 7.0
+ white or ladino clover*	1 to 2 lbs.	
2. Perennial ryegrass**	15 to 30 lbs.	5.6 to 7.0
+ tall fescue**	15 to 30 lbs.	
STEEP BANKS	S AND CUTS, LOW MAINTENANCE AREAS (NOT MOWED)	
 Orchardgrass 	20 to 30 lbs.	5.6 to 7.0
+ red clover*	10 to 20 lbs.	
+ ladino clover*	1 to 2 lbs.	
2. Tall fescue**	35 to 50 lbs.	5.5 to 7.5
+ red clover*	10 to 20 lbs.	
	LAWNS AND HIGH MAINTENANCE AREAS	5.6 to 7.0
 Perennial ryegrass (turf-type) 	60-90 lbs.	3.6 (6 7.0
+ bluegrass	140 lbs.	
CI	HANNELS AND AREAS OF CONCENTRATED FLOW	
 Perennial ryegrass 	150 lbs.	5.5 to 7.5
+ white or ladino clover*	2 lbs.	
2. Kentucky bluegrass	20 lbs.	5.5 to 7.5
+ smooth bromegrass	10 lbs.	
+ switchgrass	3 lbs.	
+ timothy	4 lbs.	
+ perennial ryegrass	10 lbs.	
+ white clover	2 lbs.	
3. Tall fescue**	150 lbs.	5.5 to 7.5
+ white clover	2 lbs.	
+ Perennial ryegrass	20 lbs.	
+ Kentucky bluegrass	20 lbs.	
3. Tall fescue**	150 lbs.	5.5 to 7.5
+ Perennial ryegrass	20 lbs.	
+ Kentucky bluegrass	20 lbs.	

* For best results: (a) legume seed should be inoculated; (b) seeding mixtures containing legumes should preferably be spring—seeded, although the grass may be fall—seeded and the legume frost—seeded (Practice 3.13); and (c) if legumes are fall—seeded, do so in early fall. ** Tall fescue provides little cover for, and may be toxic to, some species of wildlife. The IDNR recognizes the need for additional research on alternatives to tall fescue, such as buffalograss, orchardgrass, smooth bromegrass, and switch—grass. This research, in conjunction with demonstration areas, should focus on erosion control characteristics, wildlife toxicity, turf durability, and drought resistance.



SILT SOCK INLET PROTECTION DETAIL

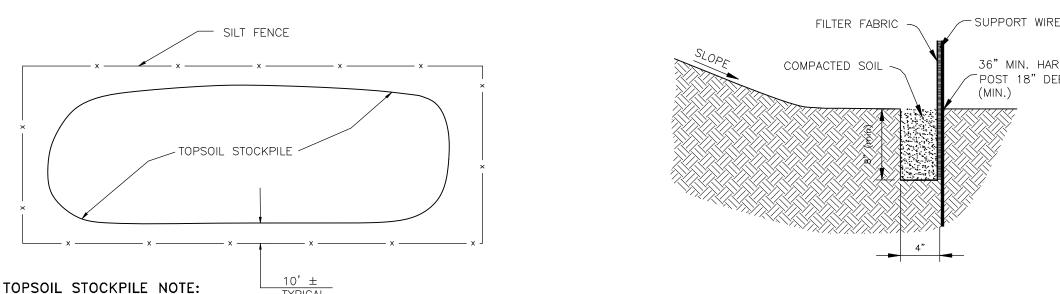
SILT SOCK INLET PROTECTION

A SILT SOCK CONSISTING OF AN 8" OR 12" DIAMETER SILT SOCKS INSTALLED IN 16 TO 25 FOOT LENGTHS OR AROUND INLET/ CB. THE SILT SOCKS SHALL CONSIST OF TUBULAR-SHAPED MATERIAL COMPRISED OF A FABRIC EXTERIOR STUFFED WITH WOOD CHIPS. THE WOOD MULCH USED IN THE SOCKS MUST BE ENVIRONMENTALLY SAFE MATERIALS.

INSTALLATION PROCEDURE

THE SILT SOCK IS TO BE LAID ON TOP OF THE GROUND AROUND THE INLET/CATCH BASIN TO PROVIDE PROTECTION AROUND THE INLET. THE FIRST WATER TO CONTACT THE SOCK IS INTENDED TO BE ABSORBED TO HOLD THE SOCK IN PLACE. WHEN THE CONTRIBUTING AREA HAS BEEN STABILIZED REMOVE THE SILT SOCK PER THE MANUFACTURER'S RECOMMENDATIONS AND DISPOSE OF PROPERLY.

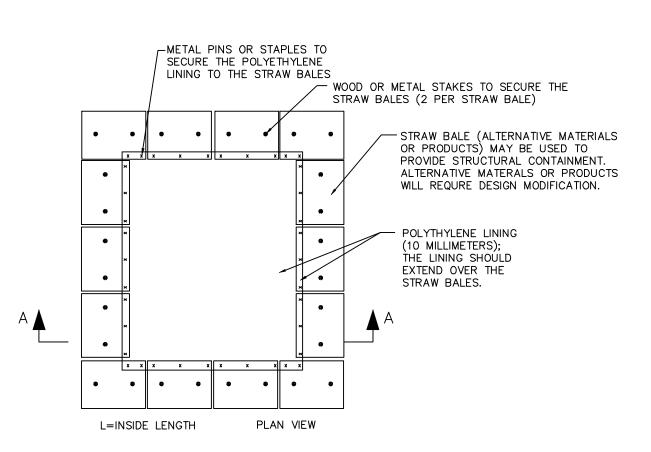
SILT SOCKS PLACED AROUND AN INLET MUST BE USED IN COMBINATION WITH WOVEN INLET SILT BAGS.



1) TEMPORARY PILES OF TOPSOIL LEFT UNDISTURBED FOR MORE THAN 7 DAYS SHALL BE TEMPORARY SEEDED

OF TOPSOIL AROUND THE LOT. TYPICAL TOPSOIL STOCKPILE

2) CONTRACTOR SHALL MAKE EVERY EFFORT TO SPREAD 4"-6"



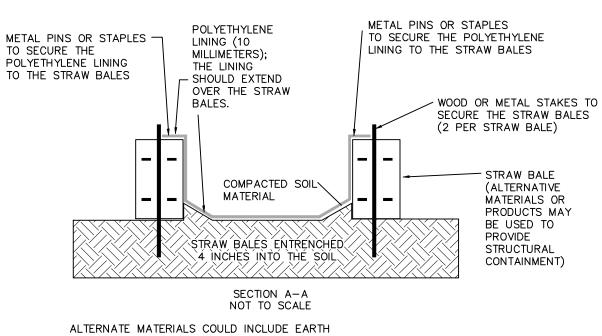
*SIZE SHALL BE APPROPRIATE TO CONTAIN ALL LIQUID AND WASTE EXPECTED TO BE GENERATED BETWEEN SCHEDULED CLEANOUT PERIODS. A FOUR-INCH FREEBOARD MUST BE PROVIDED.

36" MIN. HARDWOOD POST 18" DEEP

SILT FENCE DETAIL

SILT FENCE NOTES:

- 1.) PLAN FOR THE FENCE TO BE AT LEAST 10' FROM THE TOE OF THE SLOPE TO PROVIDE A SEDIMENT STORAGE
- 2.) PROVIDE ACCESS TO THE AREA IF SEDIMENT CLEANOUT WILL BE NEEDED.
- 3.) DETERMINE THE APPROPRIATE LOCATION FOR A REINFORCED, STABILIZED BYPASS FLOW OUTLET (UNLESS THE FENCE IS DESIGNED TO RETAIN ALL FROM A 2-YEAR FREQUENCY, 24-HOUR DURATION STORM EVENT).



BERMS. SANDBAGS, OR OTHER ACCEPTABLE BARRERS THAT WILL MAINTAIN ITS SHAPE AND SUPPORT THE POLYETHYLENE LINING.

CONCRETE WASHOUT DETAILS

CONCRETE WASHOUT NOTES INCLUDING MAINTENANCE AND REMOVAL PROCEDURES:

- 1. CONCRETE WASHOUT AREA SHALL BE INSTALLED PRIOR TO ANY CONCRETE PLACEMENT ON SITE. 2. SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE WASHOUT AREA, AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE
- LOCATION OF THE CONCRETE WASHOUT AREA TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS. 3. THE CONCRETE WASHOUT AREA SHALL BE INSPECTED DAILY AND REPAIRED AND ENLARGED OR CLEANED OUT AS NECESSARY TO MAINTAIN CAPACITY
- 4. AT THE END OF CONSTRUCTION, ALL CONCRETE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF AT AN APPROVED WASTE SITE. 5. WHEN THE CONCRETE WASHOUT IS REMOVED, THE DISTURBED AREA SHALL BE SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER
- 6. AS AN ALTERNATIVE, A PREFABRICATED WASHOUT SYSTEM CONTAINER COULD BE UTILIZED.

EROSION CONTROL MAINTENANCE AND REMOVAL PROCEDURES:

1 Frame opening sized to match inlet opening

3) Frame with bag to be placed over inlet opening.

Geotextile bag shall be fabricated from piece of geotextile 2 times the opening size pushed through opening to form weephole.

(4) Bag frame shall be secured in place by weight of inlet grate. Grate

*FABRIC MATERIAL SHOULD BE NON-WOVEN

INDIANA DEPARTMENT OF TRANSPORTATION

TEMPORARY EROSION CONTROL INLET

BAG PROTECTION SEPTEMBER 2012

STANDARD DRAWING NO. E 205-TECI-04

/s/Richard L. VanCleave 09/04/12

SUPERVISOR, ROADWAY STANDARDS

/s/ Mark A. Miller

OR HAVE A MINIMUM SIEVE SIZE OF 70

SILT SOCK PROTECTION

BUILT IN FIELD

Commercially available woven fabric silt bag secured to casting insert or frame

MANUFACTURED

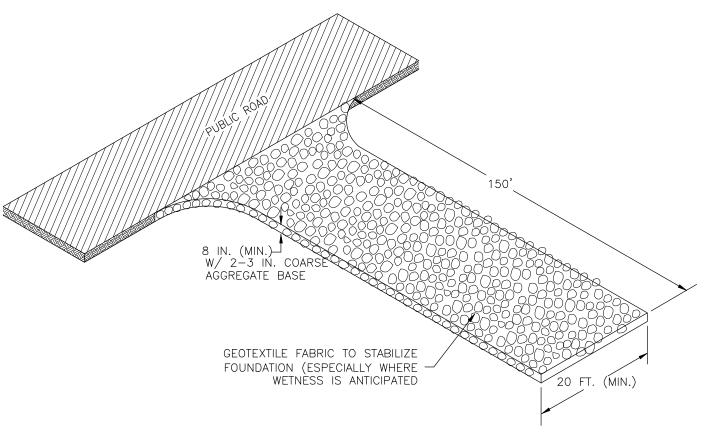
INSPECT WEEKLY AND WITHIN 24-HOURS OF EACH RAIN EVENT. IF INSTALLED IN A SERIES AT INTERVALS ON A SLOPE, INSPECTION SHOULD BE DONE DAILY. REMOVE ACCUMULATED SEDIMENT WHEN IT REACHES ONE-QUARTER THE HEIGHT OF THE FILTER SOCK. INSPECT TO ENSURE THAT THE SOCK IS MAINTAINING ITS INTEGRITY AND PRODUCING ADEQUATE FLOW. REPAIR ERODED AND DAMAGED AREAS. IF PONDING BECOMES EXCESSIVE, SOCKS SHOULD BE REMOVED AND EITHER RECONSTRUCTED OR NEW PRODUCT INSTALLED. RESEED IF APPLICABLE IF THE FILTER SOCK IS NOT DESIGNED AS A PERMANENT FILTER OR PART OF THE NATURAL LANDSCAPE AND THE CONTRIBUTING DRAINAGE AREA HAS NEEN STABILIZED, USE A BLADE OR KNIFE TO CUT OPEN SOCK AND USE A BULLDOZER, LOADER, RAKE, OR OTHER DEVICE TO INCORPORATE THE ORGANIC MATERIAL INTO THE SOIL. OR SPREAD IT OVER THE TOP OF SOIL SURFACE FOR FINAL SEEDING. REMOVE AND DISPOSE OF THE SOCK IF NECESSARY.

TEMPORARY ENTRANCE PAD

INSPECT ENTRANCE PAD DAILY. RESHAPE PAD AS NEEDED FOR DRAINAGE AND RUNOFF CONTROL. TOP DRESS WITH CLEAN AGGREGATE AS NEEDED. IMMEDIATELY REMOVE MUD AND SEDIMENT TRACKED OR WASHED ONTO PUBLIC ROADS BY BRUSHING OR SWEEPING. FLUSHING SHOULD ONLY BE USED IF WATER IS CONVEYED INTO A SEDIMENT TRAP OR BASIN. REPAIR ANY BROKEN PAVEMENT IMMEDIATELY.

DUST CONTROL

DUST CONTROL MEASURES ARE TO BE USED DURING ALL PHASES OF CONSTRUCTION, WATER MAY BE USED AS A DUST CONTROL AGENT, HOWEVER, IF THIS IS NOT EFFECTIVE ON THE SITE, USE AN ENVIRONMENTALLY FRIENDLY CHEMICAL AGENT SUCH AS A POLYMER EMULSION LIKE DIRT GLUE, (TRADE NAME). DO NOT USE SODIUM CHLORIDE. ALL DUST CONTROL AGENTS MUST BE RATED SAFE TO USE IN WETLAND AREAS REGARDLESS OF THE SITE LOCATION.



STONE ENTRANCE DETAIL



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CHESTERTON, INDIANA 46304 219-926-1007 fax 219-926-1544 E-MAIL dgi@dunelandgroup.com



DRAWN: <i>NJL</i>	CHK'D: SCC	NO.	REVISION	BY	DATE	STORM	
DESIGNED: NJL	APPRV'D: CLR	\triangle				SANITARY	
DATE: 02/04/2022						WATER	
HORIZ. SCALE:	N/A					ROAD	
VERT. SCALE: A	N/A					EROSION	
PROJECT STATUS							
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JACKSON CORNER SUBDIVISION

EROSION CONTROL DETAILS

INDIANA SHEET 20

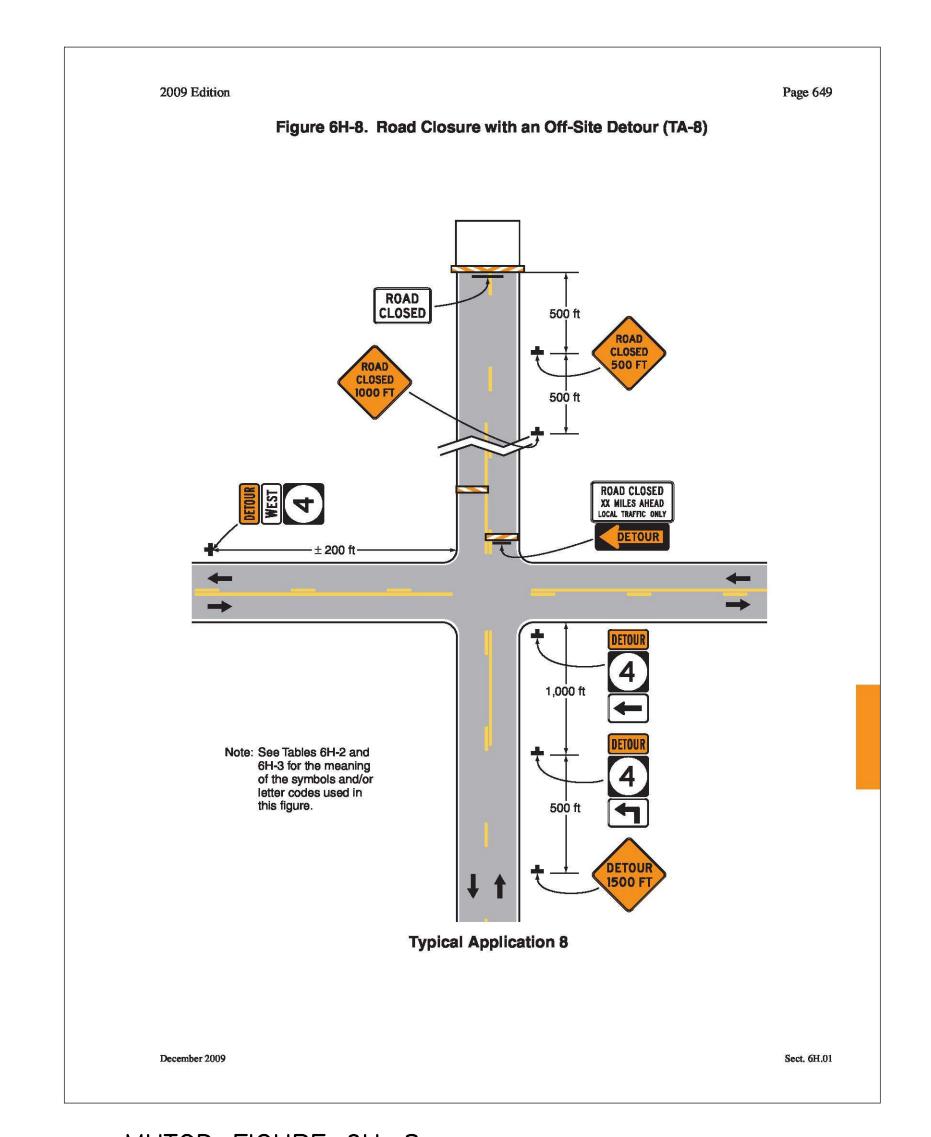
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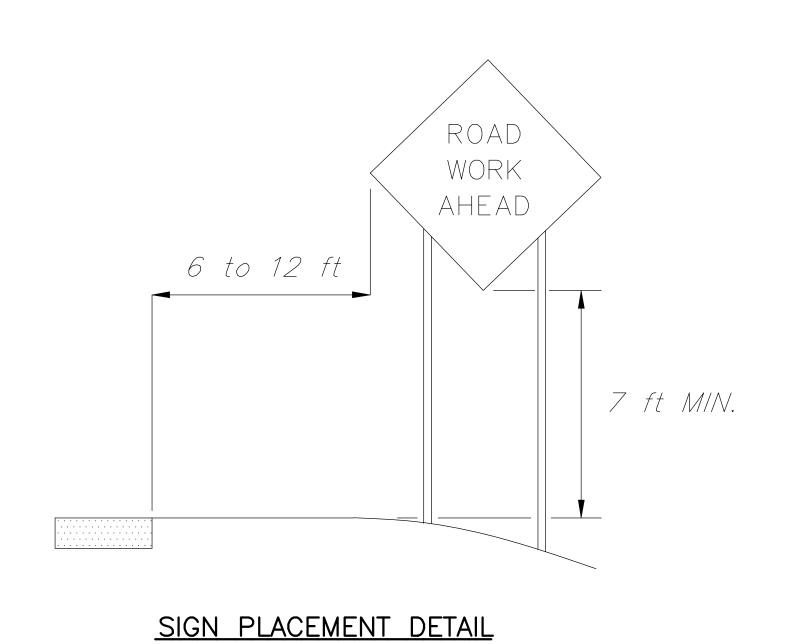
ROOSEVELT ROAD CLOSURE PLAN



EVANS AVENUE CLOSURE PLAN



MUTCD FIGURE 6H-8



NOT TO SCALE

NOTES:
ALL TRAFFIC CONTROL DEVICES AND PROCEDURES SHALL MEET THE MUTCD REQUIREMENTS AS LISTED IN PART 6: TEMPORARY
TRAFFIC CONTROL MUTCD 2009 EDITION AND THE INDIANA
DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL GUIDELINES

WHEN FLAGGER CONTROL IS NOT BEING USED, FLAGGER WARNING SIGNS MUST BE REMOVED OR COVERED.

WHEN WORK IS SUSPENDED FOR SHORT PERIODS, ALL SIGNS THAT ARE NO LONGER APPROPRIATE SHALL BE REMOVED,
COVERED, TURNED, OR LAID FLAT SO THEY ARE NOT VISIBLE
TO DRIVERS. SIGNS LAID FLAT SHOULD NOT BE PLACED SUCH
THAT POSTS PRESENT A DANGER TO A MOTORIST IF THEY RUN
OVER THE SIGN.

<u>DISCLAIMER:</u>
DUNELAND MAKES NO REPRESENTATIONS CONCERNING SOIL
CONDITIONS AND DUNELAND IS NOT RESPONSIBLE FOR ANY LIABILITY
THAT MAY ARISE OUT OF THE MAKING OR FAILURE TO MAKE SOIL
SURVEYS, OR SUB—SURFACE SOIL TEST, OR GENERAL SOIL TESTING.



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DESIGNED: NJL	APPRV'D: CLR	$\overline{\mathbb{A}}$				SANITARY
DATE: 06/13/2	022					WATER
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VERT. SCALE:	N/A					EROSION
PROJECT STATE						
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THIS DRAWING IS NOT INTENDED TO BE REPRESENTED AS A RETRACEMENT OR ORIGINAL BOUNDARY SURVEY, A ROUTE SURVEY, OR A SURVEYOR LOCATION REPORT.

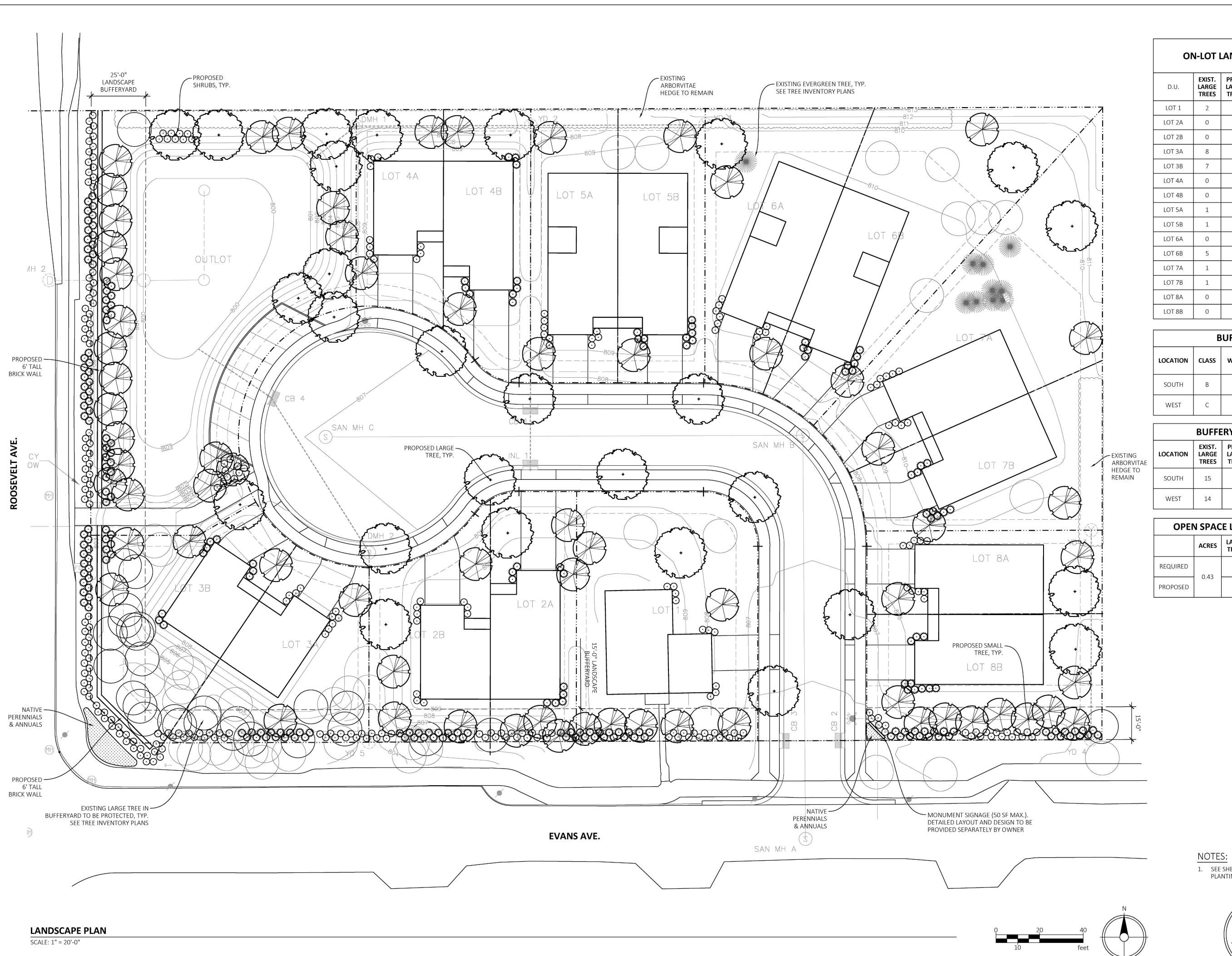
JACKSON CORNER SUBDIVISION

DRAWING NUMBER

3014-21

SHEET *21*

TRAFFIC CONTROL PLAN



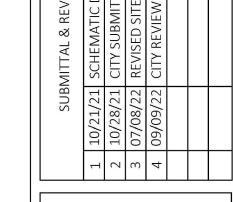
FRONT **ON-LOT LANDSCAPING LOAD GARAGE** LARGE LARGE TREES TREES SHRUBS | SMALL TREES 10 10 10 10 10 10 10 10 10 10 10 10 10 10

	BUFFERYARD REQUIREMENTS								
LOCATION	CLASS	WIDTH	LENGTH	LARGE TREES	SMALL TREES	SHRUBS	BERM OR WALL		
SOUTH	В	15'	463 LF	9	18	156	N/A		
WEST	С	25'	289 LF	7	15	145	6' WALL		

10

BUFFERYARD PROVIDED											
	LOCATION	EXIST. LARGE TREES	PROP. LARGE TREES	SMALL TREES	SHRUBS	BERM OR WALL					
	SOUTH	15	0	18	161	N/A					
	WEST	14	0	15	150	6' WALL					

OPEN SPACE LANDSCAPING											
	ACRES	LARGE TREES	SMALL TREES	SHRUBS							
REQUIRED	0.43	5	7	18							
PROPOSED	0.43	6	7	19							



PROJECT NAME:

OWNER NAME:

CONSULTANTS:

JACKSON CORNER 1207 EVANS AVE. VALPARAISO, IN 46383

K2 CONSTRUCTION 259 INDIANA AVENUE

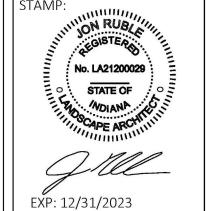
VALPARAISO, IN 46383

p: 219.531.5353 e: tomkrueger@k2valparaiso.com

DUNELAND GROUP

1498 POPE COURT

CHESTERTON, IN 46304 p: 219.926.1007



1. SEE SHEET L201 FOR LANDSCAPE ORDINANCE REVIEW, PLANTING PALETTE, LANDSCAPE DETAILS AND SPECIFICATIONS.





LANDSCAPE PLAN

DRAWN BY: JRR

- 2. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS AND FEES THAT MAY BE REQUIRED FOR HIS PORTION
- 3. THE CONTRACTOR SHALL CONTACT 811 PRIOR TO WORK.
- 4. IN CASE OF DISCREPANCIES BETWEEN THE PLAN AND THE PLANT LIST, THE GRAPHIC SYMBOLS SHOWN ON THE PLAN SHALL DICTATE.
- 5. PLANT MATERIALS:
- 5.1. ALL PLANT MATERIALS SHALL MEET OR EXCEED THE AMERICAN STANDARDS FOR NURSERY STOCK, MOST CURRENT EDITION, AS SET FORTH BY AMERICAN ASSOCIATION OF NURSERYMEN.
- PLANTS SHALL BE EQUAL TO OR EXCEED THE MEASUREMENTS SPECIFIED IN THE PLANT LIST.
- 5.3. PLANTS SHALL BE SOUND, HEALTHY, VIGOROUS AND FREE FROM INSECT PESTS, PLANT DISEASES, AND
- 5.4. TREES SHALL HAVE STRAIGHT TRUNK WITH LEADER INTACT, UNDAMAGED AND UNCUT. BRANCHING MUST BE
- 5.5. ALL PLANT MATERIAL AND SEED SHALL BE PROVIDED FROM A NURSERY (WITHIN 200 MILES) WITH A SIMILAR PLANT HARDINESS ZONE AS PROJECT LOCATION.
- 5.6. NO SUBSTITUTIONS OF PLANT MATERIALS WILL BE ALLOWED. IF PLANTS ARE NOT AVAILABLE, THE CONTRACTOR SHALL NOTIFY OWNER AND LANDSCAPE ARCHITECT PRIOR TO BID IN WRITING.
- 5.7. ALL PLANTS ARE SUBJECT TO INSPECTION AND APPROVAL. THE LANDSCAPE ARCHITECT AND OWNER RESERVE THE RIGHT TO SELECT AND TAG ALL PLANT MATERIAL AT THE NURSERY PRIOR TO PLANTING AND REJECT

UNACCEPTABLE PLANT MATERIAL AT ANY TIME DURING THE PROGRESS OF THE PROJECT.

CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT IN WRITING PRIOR TO BID DATE OF ANY PLANTS THEY FEEL MAY NOT SURVIVE IN LOCATIONS NOTED ON PLANS.

6. IRRIGATION:

- 6.1. CONTRACTOR SHALL PROVIDE BID ALTERNATE FOR IRRIGATION PER THE IRRIGATION PERFORMANCE SPECIFICATIONS.
- IF BID ALTERNATE OF IRRIGATION SYSTEM IS NOT SELECTED BY OWNER, CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHMENT WATERING THROUGH TEMPORARY FACILITIES, WATERING BAGS, ETC., AS APPROVED BY OWNER FOR PLANT WARRANTY.

7. TOPSOIL & PLANTING MIXTURES:

- 7.1. ENSURE THAT SOIL CONDITIONS AND COMPACTION ARE ADEQUATE TO ALLOW FOR PROPER DRAINAGE AROUND THE CONSTRUCTION SITE. UNDESIRABLE CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT PRIOR TO BEGINNING OF WORK. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ENSURE PROPER SURFACE AND SUBSURFACE DRAINAGE IN ALL AREAS
- SALVAGE TOPSOIL FROM THE EARTHWORK AREAS AS APPROPRIATE AND/OR AS DIRECTED BY LANDSCAPE ARCHITECT AND STOCKPILE FOR REUSE IN LOCATION APPROVED BY OWNER.
- 7.3. TOPSOIL SHALL BE MATERIALS CONSISTING OF FERTILE, FRIABLE, FINE SANDY LOAM, UNIFORM IN COMPOSITION ANDFREE OF SUBSOIL, STONES, LUMPS, CLODS OF HARD EARTH, PLANTS, PLANT ROOTS, STICKS, NOXIOUS WEEDS, SLAG, CINDERS, DEMOLITION DEBRIS OR OTHER EXTRANEOUS MATTER OVER 1" IN LARGEST
- 7.4. EXISTING TOPSOIL SHALL BE PREPARED BY THOROUGHLY MIXING IN COMPOST AT THE RATE OF 1/3 VOLUME
- 7.4. TOPSOIL SHALL BE TESTED AND AMENDED (AS SPECIFIED BY THE TESTING AGENCY) TO THE FOLLOWING:
- 7.4.1. ADJUST SOIL TO A pH OF 6.0 TO 6.5. 7.4.2. ORGANIC MATTER: 4% MIN, 10% MAX
- AVAILABLE PHOSPHORUS: 25 PPM, MIN
- 7.4.4. EXCHANGEABLE POTASSIUM: 125 PPM, MIN
- 7.5. THE FOLLOWING FERTILIZERS SHALL BE USED AS FOLLOWS, OR ALTERNATIVES SUBMITTED BY CONTRACTOR
- TO OWNER AND LANDSCAPE ARCHITECT FOR APPROVAL:
- 7.5.1. TREES & SHRUBS = 14-4-6 BRIQUETTES @ 17g 7.5.2. LAWN = HIGH NITROGEN STARTER FERTILIZER
- 7.6. LAWN SEED & SOD AREAS SHALL RECEIVE A MINIMUM OF 4" DEPTH OF TOPSOIL.
- 7.7. PLANTING BEDS SHALL RECEIVE MINIMUM 6" DEPTH OF AMENDED TOPSOIL.
- 7.8. NATIVE LANDSCAPE SEEDING AREAS SHALL RECEIVE A MINIMUM 18" DEPTH OF TOPSOIL.

8. MULCH MATERIALS:

- 8.1. ALL MULCH MATERIALS SHALL BE PROCESSED DOUBLE SHREDDED HARDWOOD BARK MULCH OF UNIFORM SIZE. NO UTILITY MULCH OR PROCESSED TREE TRIMMINGS WILL BE ALLOWED. SUBMIT SAMPLE TO ARCHITECT.
- 8.2. MULCH SHALL BE 2-INCH THICK MINIMUM COVERAGE IN ALL AREAS OF TREE PITS OR PLANTING BEDS, UNLESS OTHERWISE NOTED.
- 8.3. MULCH SHALL BE HELD 1" BELOW SURFACE ELEVATION OF DOWNHILL SIDE OF WALK, SLAB, CURB, LAWN, ETC.

LANDSCAPE BED EDGING:

9.1. ALL LANDSCAPE BED EDGING SHALL BE SHOVEL-CUT SPADE EDGE BETWEEN LAWN AREAS UNLESS OTHERWISE

10. STORAGE & INSTALLATION:

- 10.1. CONFIRM LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO START OF CONSTRUCTION.
- 10.2. EXISTING TREES FOUND ON SITE SHALL BE PROTECTED AND SAVED UNLESS NOTED TO BE REMOVED OR ARE LOCATED IN AN AREA TO BE GRADED. NO VEHICLES OR EQUIPMENT ARE ALLOWED WITHIN THE DRIP LINE OF TREES TO BE PROTECTED. QUESTIONS REGARDING EXISTING PLANT MATERIAL SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT PRIOR TO REMOVAL.
- 10.3. PRUNING AND REMOVAL OF BRANCHES ON EXISTING TREES SHALL BE DIRECTED IN THE FIELD BY OWNER OR LANDSCAPE ARCHITECT.
- 10.4. EQUIPMENT, PLANTS AND ALL OTHER MATERIALS TO BE STORED ON SITE WILL BE STORED OUTSIDE OF THE DRIPLINE OF TREES TO BE PROTECTED AND PLACED WHERE THEY WILL NOT CONFLICT W/ CONSTRUCTION
- 10.5. NEW PLANTING AREAS ARE TO BE TREATED WITH HERBICIDE (APPROVED BY STATE CHEMIST) TO KILL ALL EXISTING GROUNDCOVER. THERE SHALL BE A MINIMUM OF TWO (2) APPLICATIONS SEPARATED BY 10 DAYS. IF ALL EXISTING GROUNDCOVER VEGETATION IS NOT KILLED WITHIN 10 DAYS OF 2ND APPLICATION, A 3RD APPLICATION IS REQUIRED.
- 10.6. WHERE PROPOSED PLANTINGS ARE INDICATED IN EXISTING PAVING AREAS, CONTRACTOR SHALL EXCAVATE A MINIMUM OF 2'-0" BELOW PAVING SURFACE.
- 10.7. FINAL PLACEMENT OF PLANT MATERIALS, ETC., ARE SUBJECT TO APPROVAL BY OWNER AND LANDSCAPE ARCHITECT BEFORE PLANTING OPERATIONS ARE TO PROCEED. ALL TREE LOCATIONS SHALL BE MARKED WITH A WOOD STAKE OR FLAG INDICATING VARIETY AND SIZE OF TREE. ALL GROUND COVER AND PLANTING BED LINES SHALL BE MARKED W/ HIGHLY VISIBLE PAINT LINES W/ OCCASIONAL WOOD STAKES FOR REFERENCE. ALL STAKES SHALL BE REMOVED FOLLOWING PLANTING OPERATIONS. OWNER RESERVES THE RIGHT TO ADJUST PLANT LOCATIONS ON SITE.
- 10.8. ALL DISTURBED AREAS OUTSIDE THE LIMITS OF WORK SHALL BE RESTORED TO ORIGINAL OR BETTER CONDITION AT NO ADDITIONAL COST TO THE OWNER.
- 10.9. PRIOR TO FINAL PAYMENT, CONTRACTOR SHALL COORDINATE A FINAL INSPECTION WALK-THROUGH WITH OWNER AND LANDSCAPE ARCHITECT FOR OWNER ACCEPTANCE. THE LANDSCAPE ARCHITECT WILL PROVIDE A PUNCHLIST OF ANY DEFICIENCIES AND PROVIDE TO OWNER AND CONTRACTOR FOR REVIEW AND REMEDIATION.

11. MAINTENANCE:

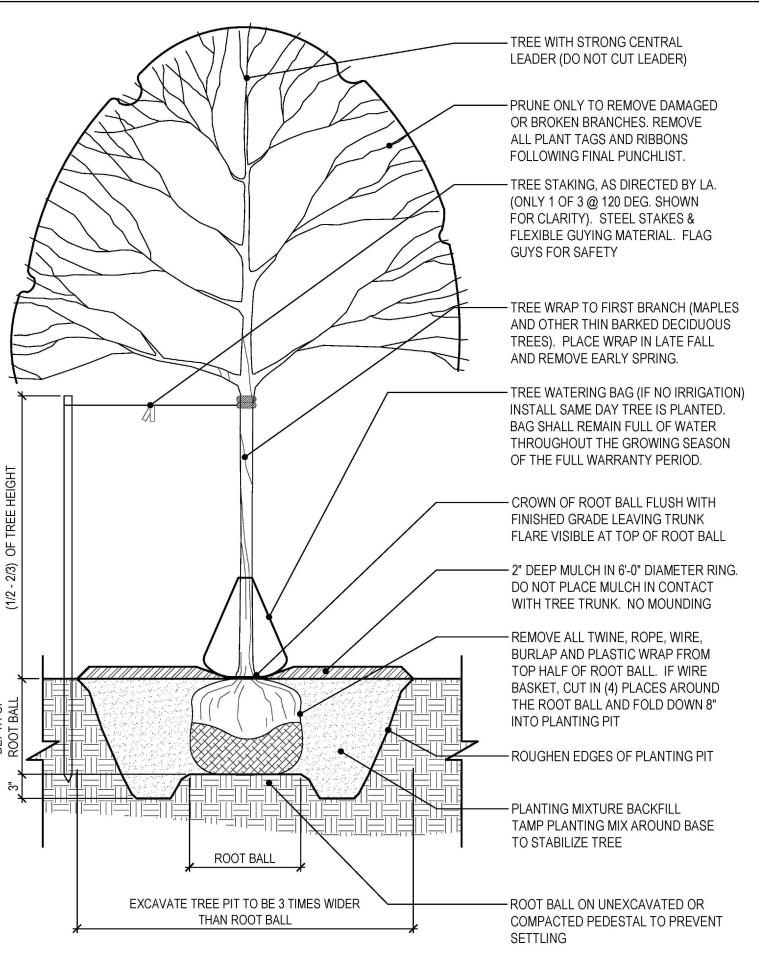
11.1. INCLUDE PRICING WITH THE BID FOR A 60-DAY MAINTENANCE PERIOD OF ALL LANDSCAPE PLANTINGS FOLLOWING COMPLETE INSTALLATION AND FINAL INSPECTION BY OWNER AND LANDSCAPE ARCHITECT. MAINTENANCE SHALL INCLUDE WATERING, WEEDING, CULTIVATING, MULCHING, MOWING, AND ALL OTHER NECESSARY OPERATIONS REQUIRED FOR PROPER ESTABLISHMENT OF LAWNS AND PLANTINGS.

12. WARRANTY:

12.1. ALL LANDSCAPE PLANTINGS SHALL BE WARRANTED FOR A PERIOD OF ONE YEAR FOLLOWING 60-DAY MAINTENANCE PERIOD. AT THE END OF THIS PERIOD, PLANT MATERIAL TERMED DEAD OR UNSATISFACTORY (EXCEPT FOR DEFECTS RESULTING FROM ABUSE OR DAMAGE BY OTHERS, OR OTHER ACTS DETERMINED AS FORCE MAJEURE) BY OWNER AND LANDSCAPE ARCHITECT SHALL BE REPLACED AT NO ADDITIONAL CHARGE BY THE CONTRACTOR. THE REPLACEMENTS SHALL ALSO BE WARRANTED FOR 1 YEAR.

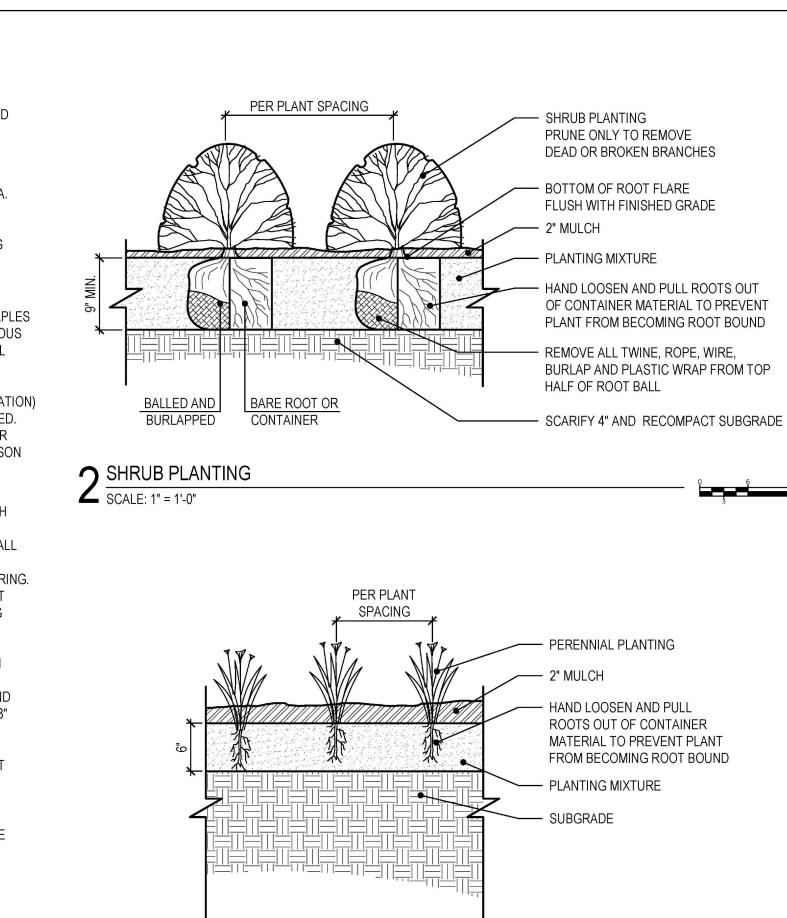
		PLANTING PALE	TTE
KEY	QTY.	BOTANICAL NAME	COMMON NAME
LARGE T	REES		
AFA	#	ACER FREEMANII 'JEFFERSRED'	AUTUMN BLAZE MAPLE
СО	#	CELTIS OCCIDENTALIS	COMMON HACKBERRY
GBA	#	GINKGO BILOBA 'AUTUMN GOLD'	AUTUMN GOLD GINKGO
GTS	#	GLEDITSIA TRIACANTHOS 'SKYCOLE'	SKYLINE HONEYLOCUST
SMALL TE	REES		
AAB	#	AMELANCHIER 'AUTUMN BRILLIANCE'	AUTUMN BRILLIANCE SERVICEBERRY
CC	#	CERCIS CANADENSIS	EASTERN REDBUD
HV	#	HAMAMELIS VERNALIS	VERNAL WITCH HAZEL
DECIDUO	US SHRUE	BS .	
AIB	#	ARONIA MELANOCARPA 'MORTON'	IROQUOIS BEAUTY CHOKEBERRY
FGA	#	FOTHERGILLA GARDENII	DWARF FOTHERGILLA
НРВ	#	HYDRANGEA PANICULATA 'BOBO'	BOBO HYDRANGEA
HQR	#	HYDRANGEA QUERCIFOLIA 'RUBY SLIPPERS'	RUBY SLIPPERS HYDRANGEA
RAG	#	RHUS AROMATICA 'GRO LOW'	GRO-LOW SUMAC
EVERGRE	EN SHRU	BS	
BGV	#	BUXUS 'GREEN VELVET'	GREEN VELVET BOXWOOD
IGS	#	ILEX GLABRA 'SHAMROCK'	SHAMROCK INKBERRY
JGO	#	JUNIPERUS VIRGINIANA 'GREY OWL'	GREY OWL COMPACT JUNIPER
ORNAMEI	NTAL GRA	ASSES	
CKF	#	CALAMOGROSTIS X 'KARL FOERSTER'	KARL FOERSTER FEATHER REED GRASS
SH	#	SPOROBOLUS HETEROLEPIS	PRAIRIE DROPSEED
PERENNIA	ALS & GR	OUNDCOVERS	
ASM	#	ALLIUM 'MILLENIUM'	MILLENIUM ALLIUM
EPM	#	ECHINACEA 'CBG CONE2'	PIXIE MEADOWBRITE CONEFLOWER
GR	#	GERANIUM 'ROZANNE'	ROZANNE GERANIUM
НВЕ	#	HEMEROCALLIS 'BLACK EYED STELLA'	BLACK EYED STELLA DAYLILY
LSS	#	LEUCANTHEMUM SUPERBUM 'SNOWCAP'	SNOWCAP SHASTA DAISY
NCM	#	NEPETA 'CATS MEOW'	CAT'S MEOW NEPETA
RLG	#	RUDBECKIA 'LITTLE GOLDSTAR'	LITTLE GOLDSTAR BLACK-EYED SUSAN

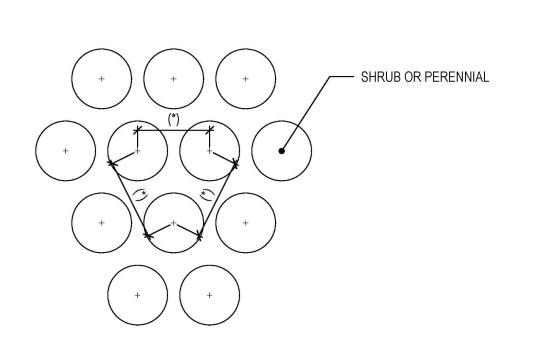
(ZONE GR)						
SPECIFIC ORDINANCE	CODE REQUIRES	CALCULATION	COMPLIANCE			
SEC. 10.301	ON-LOT LANDSCAPING (1 LARGE TREE PER D.U., 1 SMALL TREE PER D.U., 10 SHRUBS PER D.U.)	15 DWELLING UNITS	PROVIDED, SEE TABLE SHEET L101			
SEC. 10.302	FRONT-LOAD GARAGES. ONE SMALL TREE OR MEDIUM TO LARGE SHRUB THAT IS AT LEAST SIX FEET IN HEIGHT AT THE TIME OF PLANTING SHALL BE INSTALLED IN THE FRONT YARD FOR EACH 10 LINEAR FEET OF WIDTH OF FRONT-LOAD GARAGE DOOR.	DRIVEWAY & GARAGE = 16 FOOT WIDTH (1 SMALL TREE REQUIRED)	PROVIDED, SEE TABLE SHEET L101			
SEC. 10.303	OPEN SPACE LANDSCAPING IS THAT LANDSCAPING WHICH IS INSTALLED ON PROPERTY THAT IS DESIGNATED AS OPEN SPACE.	OPEN SPACE = 0.43 AC.	PROVIDED, SEE TABLE SHEET L101			
SEC. 10.305.C	STREET TREES SHALL BE SPACED 60 FEET ON CENTER	N/A	STREET TREES PROVIDED AT 60-FEET ON CENTER WHERE NOT IN CONFLICT WITH DRIVEWAYS			
SEC. 10.403	THE BUFFERYARD STANDARDS IN TABLE 10.405, BUFFERYARD REQUIREMENTS FOR ROADS AND RAILROADS	EVANS = ARTERIAL (CLASS C): 268 L.F. ROOSEVELT = COLLECTOR (CLASS B): 468 L.F.	PROVIDED, SEE TABLE SHEET L101			
SEC. 10.405	DISTRICT BOUNDARY BUFFERYARD STANDARDS	NORTH & EAST = GR	SAME ZONING, NO BUFFERYARD REQUIRED			



TREE PLANTING

SCALE: 1/2" = 1'-0"





(*) = SPECIFIED PLANT SPACING IN PLANT SCHEDULE

PLANT SPACING



Know what's **beloW. Call** before you dig. PROJECT NAME:

JACKSON CORNER 1207 EVANS AVE. VALPARAISO, IN 46383

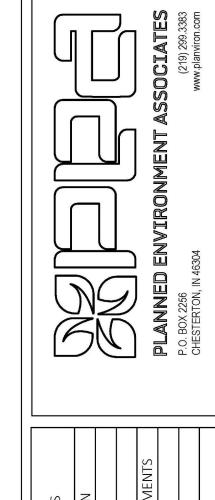
OWNER NAME:

K2 CONSTRUCTION 259 INDIANA AVENUE

VALPARAISO, IN 46383 p: 219.531.5353 e: tomkrueger@k2valparaiso.com

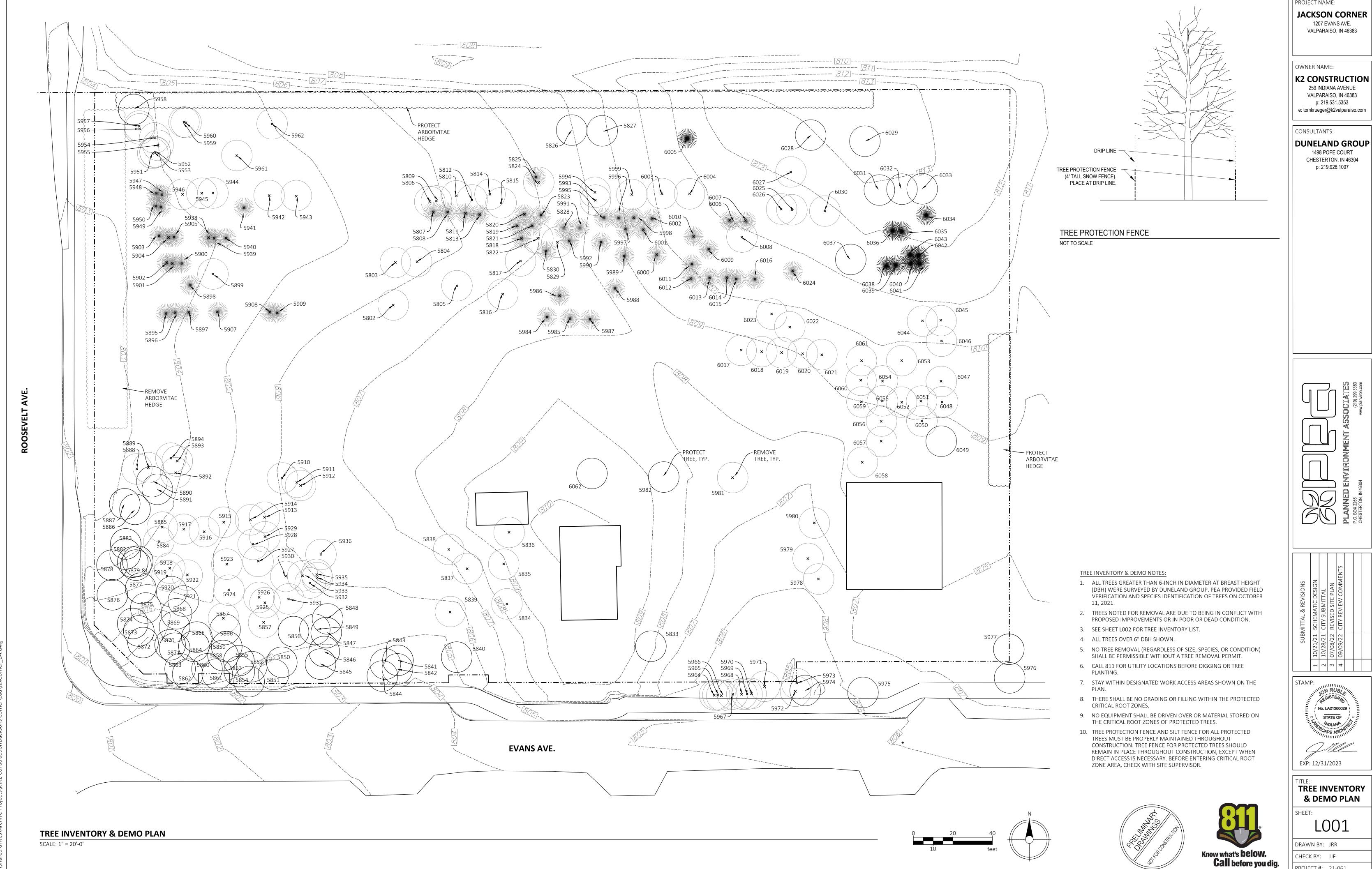
CONSULTANTS:

DUNELAND GROUP 1498 POPE COURT CHESTERTON, IN 46304 p: 219.926.1007



PLANTING SPECS & DETAILS

DRAWN BY: JRR



PROJECT NAME:

24 Walnut Remove 2 Remove 5803 8 Walnut 0 5804 28 Remove 5805 20 Walnut Remove 5806 Maple 0 8 Remove 5807 6 Spruce Remove 5808 10 Spruce Remove 5809 6 Maple Remove 5810 Mulberry EXEMPT 8 Remove 5811 Spruce Remove 8 0 5812 10 EXEMPT Mulberry Remove 5813 Spruce Remove 5814 10 Elm Remove 5815 14 Coffeetree Remove 5816 Maple Remove 0 5817 18 Maple Remove 5818 10 1 Spruce Remove 5819 8 Spruce Remove 0 5820 12 Spruce Remove 10 Spruce Remove 5822 12 Pine 1 Remove 5823 0 8 Spruce Remove 5824 10 Linden Remove 5825 6 Cherry Remove 5826 12 Linden Protect N/A 5827 Protect 14 Linden N/A 5828 Pine Remove 5829 12 Remove 5830 8 Pine Remove 0 5833 20 Maple Protect N/A 5834 30 Maple Remove 4 5835 14 Maple Remove 5836 24 Walnut Remove 5837 18 Maple Remove 2 5838 18 Maple Remove 5839 20 Maple Remove 2 5840 20 Walnut Protect N/A 5841 N/A 6 Maple Protect 5842 10 Maple Protect N/A 5843 Maple N/A 8 Protect 5844 16 Maple Protect N/A 5845 18 Maple Protect N/A 5846 28 N/A Maple Protect 5847 Protect 18 Maple N/A 5848 14 Maple Protect N/A 5849 16 Maple Protect N/A 5850 12 Maple Protect N/A 5851 16 Maple Protect N/A 5852 12 Maple Protect N/A 5853 N/A Maple Protect 5854 12 N/A Maple Protect Protect N/A 5856 N/A 14 Maple Protect 5857 Maple Remove 0 5858 Maple Protect N/A 6 5859 N/A Maple Protect Maple Protect N/A 5861 12 Maple Protect N/A 5862 10 Maple Protect N/A 5863 12 Maple Protect N/A 14 Maple Protect N/A 5865 10 Maple Protect N/A 5866 Protect 10 Maple N/A 5867 12 Maple Remove Protect 14 Maple N/A 5869 12 Maple Protect N/A 5870 Maple Protect N/A 5871 Protect Maple N/A 5872 16 Maple Protect N/A 5873 8 Maple Protect N/A 5874 Protect 10 Maple N/A 5875 14 N/A Maple Protect 5876 10 Maple Protect N/A 5877 12 Maple Protect N/A 5878 16 Maple Protect N/A 5879 Maple Protect N/A 6 5880 8 Maple N/A 5881 14 Maple Protect N/A 5882 Protect N/A 10 Maple 5883 14 Maple Protect N/A 5884 Remove 5885 12 Maple Remove 5886 18 Protect N/A Maple 5887 Protect 14 Maple N/A 5888 18 Maple Remove 5889 18 Maple Remove 2 5890 Protect N/A 10 Maple 5891 14 Protect N/A Maple 5892 18 5893 30 Maple Remove 4 5894 Remove Maple 5895 12 Pine Remove 5896 16 Pine Remove 12 Pine Remove Pine 5898 14 Remove 1 5899 12 Linden Remove

Status Replacements

Tree # | Size (DBH) | Species

F000	1 42	n:		4
5900 5901	12 16	Pine Pine	Remove Remove	1
5901	12	Pine	Remove	1
5903	12	Pine	Remove	1
5904	12	Pine	Remove	1
5905	8	Pine	Remove	0
5907	12	Pine	Remove	1
5908	10	Pine	Remove	1
5909	16	Pine	Remove	1
5910	28	Maple	Remove	3
5911	24	Maple	Remove	2
5912	24	Maple	Remove	2
5913	16	Maple	Remove	1
5914	14	Maple	Remove	1
5915	8	Maple	Remove	0
5916	8	Maple	Remove	0
5917	22	Maple	Remove	2
5918	10	Maple	Remove	1
5919	6	Maple	Remove	0
5920	14	Maple	Protect	N/A
5921	6	Maple	Protect	N/A
5922	12	Maple	Remove	1
5923	8	Maple	Remove	0
5924	16	Maple	Remove	1
5925	12	Maple	Remove	1
5926	14	Maple	Remove	1
5927	6	Maple	Remove	0
5928	20	Maple	Remove	2
5929	8	Maple	Remove	0
5930	10	Maple	Remove	1
5931	12	Maple	Remove	1
5932	10	Maple	Remove	2
5933	18	Maple	Remove	2
5934 5935	18 8	Maple Maple	Remove	0
5935	22	·	Remove	2
5938	10	Maple Pine	Remove Remove	1
5939	10	Pine	Remove	1
5940	10	Pine	Remove	1
5941	10	Pine	Remove	1
5942	10	Maple	Remove	1
5943	12	Coffeetree	Remove	1
5944	14	Coffeetree	Remove	1
5945	10	Coffeetree	Remove	1
5946	18	Coffeetree	Remove	2
5947	12	Pine	Remove	1
5948	14	Pine	Remove	1
5949	14	Pine	Remove	1
5950	10	Pine	Remove	1
5951	18	Mulberry	Remove	EXEMPT
5952	40	Mulberry	Remove	EXEMPT
JJJZ	18	Widiberry		LALIVIE
5952	18	Mulberry	Remove	EXEMPT
		-		
5953	18	Mulberry	Remove	EXEMPT
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5999 10

Cherry

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5900	12	Pine	Remove	1
5901	16	Pine	Remove	1
5902	12	Pine	Remove	1
5903	12	Pine	Remove	1
5904	12	Pine	Remove	1
5905	8	Pine	Remove	0
	12			
5907		Pine	Remove	1
5908	10	Pine	Remove	1
5909	16	Pine	Remove	1
5910	28	Maple	Remove	3
		· ·		
5911	24	Maple	Remove	2
5912	24	Maple	Remove	2
5913	16	Maple	Remove	1
		· ·		-
5914	14	Maple	Remove	1
5915	8	Maple	Remove	0
5916	8	Maple	Remove	0
5917	22	Maple	Remove	2
		-		
5918	10	Maple	Remove	1
5919	6	Maple	Remove	0
5920	14	Maple	Protect	N/A
5921	6	Maple	Protect	N/A
5922	12	Maple	Remove	1
5923	8	Maple	Remove	0
5924	16	Maple	Remove	1
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5925	12	Maple	Remove	1
5926	14	Maple	Remove	1
5927	6	Maple	Remove	0
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5929	8	Maple	Remove	0
5930	10	Maple	Remove	1
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5931	12	Maple	Remove	1
5932	10	Maple	Remove	1
5933	18	Maple	Remove	2
5934	18	Maple	Remove	2
5935	8	Maple	Remove	0
5936	22	Maple	Remove	2
5938	10	Pine	Remove	1
				-
5939	10	Pine	Remove	1
5940	10	Pine	Remove	1
5941	10	Pine	Remove	1
5942	10			1
		Maple	Remove	-
5943	12	Coffeetree	Remove	1
5944	14	Coffeetree	Remove	1
5945	10	Coffeetree	Remove	1
5946	18	Coffeetree	Remove	2
5947	12	Pine	Remove	1
5948	14	Pine	Remove	1
5949	14	Pine	Remove	1
5950	10	Pine	Remove	1
5951	18	Mulberry	Remove	EXEMPT
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6000	16	Pine	Remove	1
6001	8	Spruce	Remove	0
6002	8	Spruce	Remove	0
6003	12	Maple	Remove	1
6004	8	Maple	Remove	0
6005	8	Walnut	Protect	N/A
6006	6	Spruce	Remove	0
6007	10	Spruce	Remove	1
6008	20	Walnut	Remove	2
6009	12	Spruce	Remove	1
6010	18	Spruce	Remove	2
6011	14	Spruce	Remove	1
6012	18	Spruce	Remove	2
6013	18	Spruce	Remove	2
6014	8	Spruce	Remove	0
6015	16	Spruce	Remove	1
6016	16	Spruce	Remove	
6017	20	Oak	Remove	2
6018	14	Oak	Remove	1
6019	10	Oak	Remove	<u>1</u> 1
6020	10	Oak		1
	10		Remove	1
6021		Oak	Remove	
6022	20	Walnut	Remove	2
6023	20	Walnut	Remove	2
6024	10	Spruce	Remove	1
6025	12	Coffeetree	Remove	1
6026	22	Coffeetree	Remove	2
6027	12	Oak	Remove	1
6028	12	Mulberry	Remove	EXEMPT
6029	16	Walnut	Protect	N/A
6030	16	Coffeetree	Remove	1
6031	14	Oak	Protect	N/A
6032	12	Oak	Protect	N/A
6033	18	Oak	Protect	N/A
6034	14	Pine	Protect	N/A
6035	6	Spruce	Protect	N/A
6036	16	Spruce	Protect	N/A
6037	22	Walnut	Protect	N/A
6038	14	Spruce	Protect	N/A
6039	10	Spruce	Protect	N/A
6040	10	Spruce	Protect	N/A
6041	18	Spruce	Protect	N/A
6042	12	Spruce	Protect	N/A
6043	14	Spruce	Protect	N/A
6044	16	Walnut	Remove	1
6045	14	Walnut	Remove	1
6046	12	Walnut	Remove	1
6047	16	Walnut	Remove	1
6048	16	Walnut	Remove	1
6049	12	Walnut	Protect	N/A
6050	10	Walnut	Remove	1
6051	10	Walnut	Remove	1
6052	12	Walnut	Remove	1
6053	12	Walnut	Remove	1
6054	14	Walnut	Remove	1
6055	8	Walnut	Remove	0
6056	12	Walnut	Remove	1
6057	14	Walnut	Remove	1
6058	14	Walnut	Remove	1
6059	18	Walnut	Remove	2
6060	12	Walnut	Remove	1
6061	10	Walnut	Remove	1
6062	44	Maple	Protect	N/A
0002 1				

** PROJECT PROPOSES A TOTAL OF 73 TREES OVER 6" DBH TO BE

VALPARAISO TREE REPLACEMENTS				
SIZE (DBH) RATIO				
10" - 16"	1 TO 1			
17" - 24"	2 TO 1			
25" - 30"	3 TO 1			





PROJECT NAME: **JACKSON CORNER** 1207 EVANS AVE. VALPARAISO, IN 46383

OWNER NAME:

K2 CONSTRUCTION 259 INDIANA AVENUE VALPARAISO, IN 46383

p: 219.531.5353

e: tomkrueger@k2valparaiso.com

CONSULTANTS:

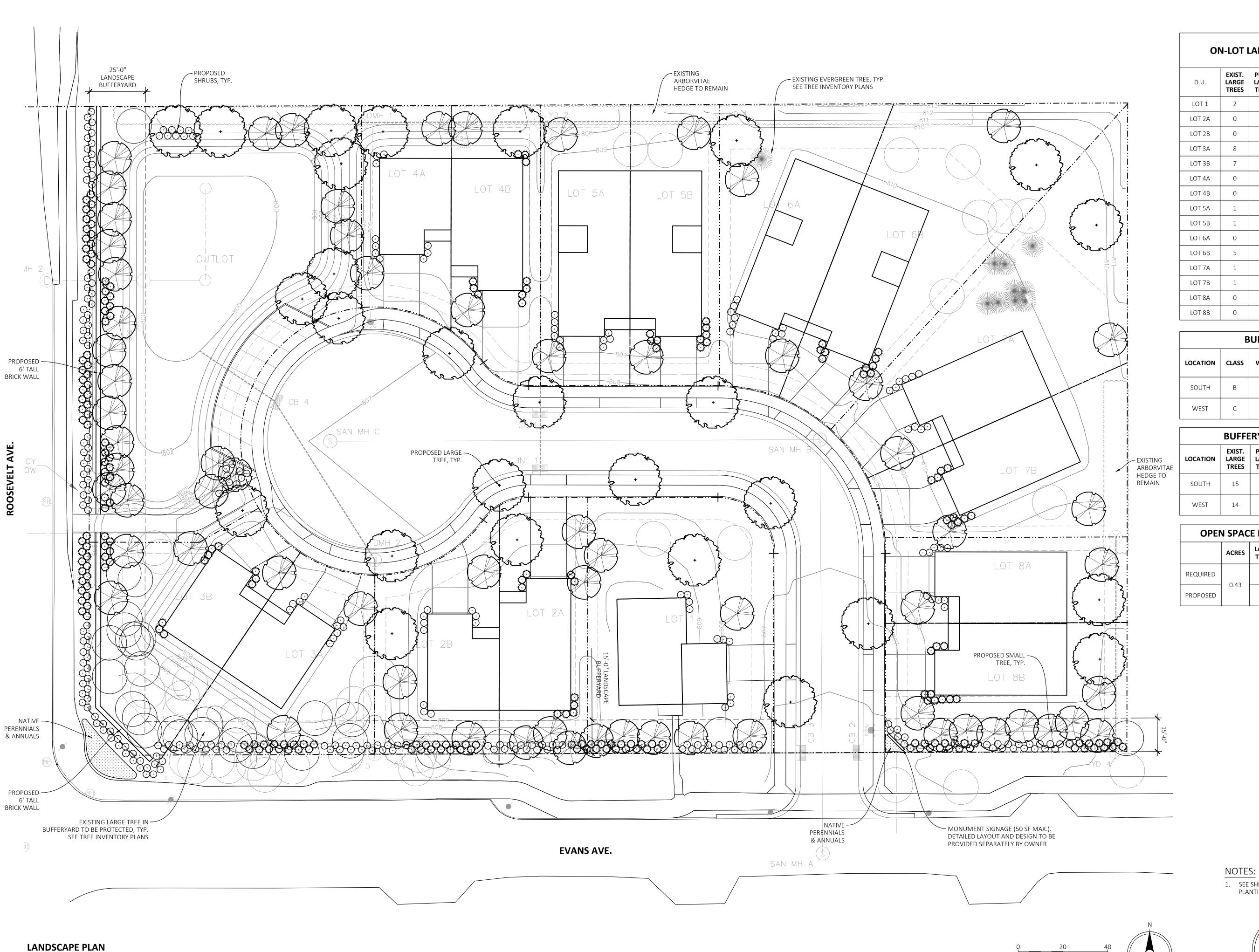
DUNELAND GROUP 1498 POPE COURT CHESTERTON, IN 46304

p: 219.926.1007

EXP: 12/31/2023

TREE INVENTORY **LIST & DETAILS**

DRAWN BY: JRR CHECK BY: JJF PROJECT #: 21-061



SCALE: 1" = 20'-0"

FRONT ON-LOT LANDSCAPING LOAD **GARAGE** EXIST. PROP.
LARGE LARGE
TREES TREES SMALL TREES SHRUBS | SMALL TREES

	BUFFERYARD REQUIREMENTS								
LOCATION	CLASS	WIDTH	LENGTH	LARGE TREES	SMALL TREES	SHRUBS	BERM OR WALL		
SOUTH	В	15'	463 LF	9	18	156	N/A		
WEST	С	25'	289 LF	7	15	145	6' WALL		

BUFFERYARD PROVIDED							
LOCATION	EXIST. LARGE TREES	PROP. LARGE TREES	SMALL TREES	SHRUBS	BERM OR WALL		
SOUTH	15	0	18	161	N/A		
WEST	14	0	15	150	6' WALL		

OPEN SPACE LANDSCAPING						
ACRES LARGE SMALL TREES SHRUBS						
REQUIRED	0.42	5	7	18		
PROPOSED	0.43	6	7	19		



1. SEE SHEET L201 FOR LANDSCAPE ORDINANCE REVIEW, PLANTING PALETTE, LANDSCAPE DETAILS AND SPECIFICATIONS.





PROJECT NAME: **JACKSON CORNER** 1207 EVANS AVE. VALPARAISO, IN 46383

OWNER NAME:

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e: tomkrueger@k2valparaiso.com

CONSULTANTS: **DUNELAND GROUP**

1498 POPE COURT CHESTERTON, IN 46304 p: 219.926.1007



No. LA21200029

EXP: 12/31/2023 LANDSCAPE PLAN

DRAWN BY: JRR

- 2. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS AND FEES THAT MAY BE REQUIRED FOR HIS PORTION
- 3. THE CONTRACTOR SHALL CONTACT 811 PRIOR TO WORK.

FEEL MAY NOT SURVIVE IN LOCATIONS NOTED ON PLANS.

- 4. IN CASE OF DISCREPANCIES BETWEEN THE PLAN AND THE PLANT LIST, THE GRAPHIC SYMBOLS SHOWN ON THE PLAN SHALL DICTATE.
- 5. PLANT MATERIALS:
- ALL PLANT MATERIALS SHALL MEET OR EXCEED THE AMERICAN STANDARDS FOR NURSERY STOCK, MOST CURRENT EDITION, AS SET FORTH BY AMERICAN ASSOCIATION OF NURSERYMEN.
- 5.2. PLANTS SHALL BE EQUAL TO OR EXCEED THE MEASUREMENTS SPECIFIED IN THE PLANT LIST.
- 5.3. PLANTS SHALL BE SOUND, HEALTHY, VIGOROUS AND FREE FROM INSECT PESTS, PLANT DISEASES, AND INJURIES.
- TREES SHALL HAVE STRAIGHT TRUNK WITH LEADER INTACT, UNDAMAGED AND UNCUT. BRANCHING MUST BE WELL DEVELOPED. ALL PLANT MATERIAL AND SEED SHALL BE PROVIDED FROM A NURSERY (WITHIN 200 MILES) WITH A SIMILAR
- PLANT HARDINESS ZONE AS PROJECT LOCATION. NO SUBSTITUTIONS OF PLANT MATERIALS WILL BE ALLOWED. IF PLANTS ARE NOT AVAILABLE, THE
- CONTRACTOR SHALL NOTIFY OWNER AND LANDSCAPE ARCHITECT PRIOR TO BID IN WRITING. ALL PLANTS ARE SUBJECT TO INSPECTION AND APPROVAL. THE LANDSCAPE ARCHITECT AND OWNER RESERVE THE RIGHT TO SELECT AND TAG ALL PLANT MATERIAL AT THE NURSERY PRIOR TO PLANTING AND REJECT
- UNACCEPTABLE PLANT MATERIAL AT ANY TIME DURING THE PROGRESS OF THE PROJECT. 5.8. CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT IN WRITING PRIOR TO BID DATE OF ANY PLANTS THEY

6. IRRIGATION:

- CONTRACTOR SHALL PROVIDE BID ALTERNATE FOR IRRIGATION PER THE IRRIGATION PERFORMANCE SPECIFICATIONS.
- IF BID ALTERNATE OF IRRIGATION SYSTEM IS NOT SELECTED BY OWNER, CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHMENT WATERING THROUGH TEMPORARY FACILITIES, WATERING BAGS, ETC., AS APPROVED BY OWNER FOR PLANT WARRANTY.

7. TOPSOIL & PLANTING MIXTURES:

- 7.1. ENSURE THAT SOIL CONDITIONS AND COMPACTION ARE ADEQUATE TO ALLOW FOR PROPER DRAINAGE AROUND THE CONSTRUCTION SITE. UNDESIRABLE CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT PRIOR TO BEGINNING OF WORK. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ENSURE PROPER SURFACE AND SUBSURFACE DRAINAGE IN ALL AREAS
- SALVAGE TOPSOIL FROM THE EARTHWORK AREAS AS APPROPRIATE AND/OR AS DIRECTED BY LANDSCAPE ARCHITECT AND STOCKPILE FOR REUSE IN LOCATION APPROVED BY OWNER.
- TOPSOIL SHALL BE MATERIALS CONSISTING OF FERTILE, FRIABLE, FINE SANDY LOAM, UNIFORM IN COMPOSITION ANDFREE OF SUBSOIL, STONES, LUMPS, CLODS OF HARD EARTH, PLANTS, PLANT ROOTS, STICKS, NOXIOUS WEEDS, SLAG, CINDERS, DEMOLITION DEBRIS OR OTHER EXTRANEOUS MATTER OVER 1" IN LARGEST
- EXISTING TOPSOIL SHALL BE PREPARED BY THOROUGHLY MIXING IN COMPOST AT THE RATE OF 1/3 VOLUME
- 7.4. TOPSOIL SHALL BE TESTED AND AMENDED (AS SPECIFIED BY THE TESTING AGENCY) TO THE FOLLOWING:
- ADJUST SOIL TO A pH OF 6.0 TO 6.5.
- ORGANIC MATTER: 4% MIN, 10% MAX 7.4.2.
- AVAILABLE PHOSPHORUS: 25 PPM, MIN
- EXCHANGEABLE POTASSIUM: 125 PPM, MIN
- 7.5. THE FOLLOWING FERTILIZERS SHALL BE USED AS FOLLOWS, OR ALTERNATIVES SUBMITTED BY CONTRACTOR
- TO OWNER AND LANDSCAPE ARCHITECT FOR APPROVAL: 7.5.1. TREES & SHRUBS = 14-4-6 BRIQUETTES @ 17g
- LAWN = HIGH NITROGEN STARTER FERTILIZER
- 7.6. LAWN SEED & SOD AREAS SHALL RECEIVE A MINIMUM OF 4" DEPTH OF TOPSOIL.
- 7.7. PLANTING BEDS SHALL RECEIVE MINIMUM 6" DEPTH OF AMENDED TOPSOIL.
- 7.8. NATIVE LANDSCAPE SEEDING AREAS SHALL RECEIVE A MINIMUM 18" DEPTH OF TOPSOIL.

8. MULCH MATERIALS:

- ALL MULCH MATERIALS SHALL BE PROCESSED DOUBLE SHREDDED HARDWOOD BARK MULCH OF UNIFORM
- SIZE. NO UTILITY MULCH OR PROCESSED TREE TRIMMINGS WILL BE ALLOWED. SUBMIT SAMPLE TO ARCHITECT. 8.2. MULCH SHALL BE 2-INCH THICK MINIMUM COVERAGE IN ALL AREAS OF TREE PITS OR PLANTING BEDS, UNLESS
- 8.3. MULCH SHALL BE HELD 1" BELOW SURFACE ELEVATION OF DOWNHILL SIDE OF WALK, SLAB, CURB, LAWN, ETC.

9. LANDSCAPE BED EDGING:

9.1. ALL LANDSCAPE BED EDGING SHALL BE SHOVEL-CUT SPADE EDGE BETWEEN LAWN AREAS UNLESS OTHERWISE

10. STORAGE & INSTALLATION:

- 10.1. CONFIRM LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO START OF CONSTRUCTION.
- 10.2. EXISTING TREES FOUND ON SITE SHALL BE PROTECTED AND SAVED UNLESS NOTED TO BE REMOVED OR ARE LOCATED IN AN AREA TO BE GRADED. NO VEHICLES OR EQUIPMENT ARE ALLOWED WITHIN THE DRIP LINE OF TREES TO BE PROTECTED. QUESTIONS REGARDING EXISTING PLANT MATERIAL SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT PRIOR TO REMOVAL.
- 10.3. PRUNING AND REMOVAL OF BRANCHES ON EXISTING TREES SHALL BE DIRECTED IN THE FIELD BY OWNER OR LANDSCAPE ARCHITECT.
- 10.4. EQUIPMENT, PLANTS AND ALL OTHER MATERIALS TO BE STORED ON SITE WILL BE STORED OUTSIDE OF THE DRIPLINE OF TREES TO BE PROTECTED AND PLACED WHERE THEY WILL NOT CONFLICT W/ CONSTRUCTION
- 10.5. NEW PLANTING AREAS ARE TO BE TREATED WITH HERBICIDE (APPROVED BY STATE CHEMIST) TO KILL ALL EXISTING GROUNDCOVER. THERE SHALL BE A MINIMUM OF TWO (2) APPLICATIONS SEPARATED BY 10 DAYS. IF ALL EXISTING GROUNDCOVER VEGETATION IS NOT KILLED WITHIN 10 DAYS OF 2ND APPLICATION, A 3RD APPLICATION IS REQUIRED.
- 10.6. WHERE PROPOSED PLANTINGS ARE INDICATED IN EXISTING PAVING AREAS, CONTRACTOR SHALL EXCAVATE A MINIMUM OF 2'-0" BELOW PAVING SURFACE.
- 10.7. FINAL PLACEMENT OF PLANT MATERIALS, ETC., ARE SUBJECT TO APPROVAL BY OWNER AND LANDSCAPE ARCHITECT BEFORE PLANTING OPERATIONS ARE TO PROCEED. ALL TREE LOCATIONS SHALL BE MARKED WITH A WOOD STAKE OR FLAG INDICATING VARIETY AND SIZE OF TREE. ALL GROUND COVER AND PLANTING BED LINES SHALL BE MARKED W/ HIGHLY VISIBLE PAINT LINES W/ OCCASIONAL WOOD STAKES FOR REFERENCE. ALL STAKES SHALL BE REMOVED FOLLOWING PLANTING OPERATIONS. OWNER RESERVES THE RIGHT TO ADJUST PLANT LOCATIONS ON SITE.
- 10.8. ALL DISTURBED AREAS OUTSIDE THE LIMITS OF WORK SHALL BE RESTORED TO ORIGINAL OR BETTER CONDITION AT NO ADDITIONAL COST TO THE OWNER.
- 10.9. PRIOR TO FINAL PAYMENT, CONTRACTOR SHALL COORDINATE A FINAL INSPECTION WALK-THROUGH WITH OWNER AND LANDSCAPE ARCHITECT FOR OWNER ACCEPTANCE. THE LANDSCAPE ARCHITECT WILL PROVIDE A PUNCHLIST OF ANY DEFICIENCIES AND PROVIDE TO OWNER AND CONTRACTOR FOR REVIEW AND REMEDIATION.

11. MAINTENANCE:

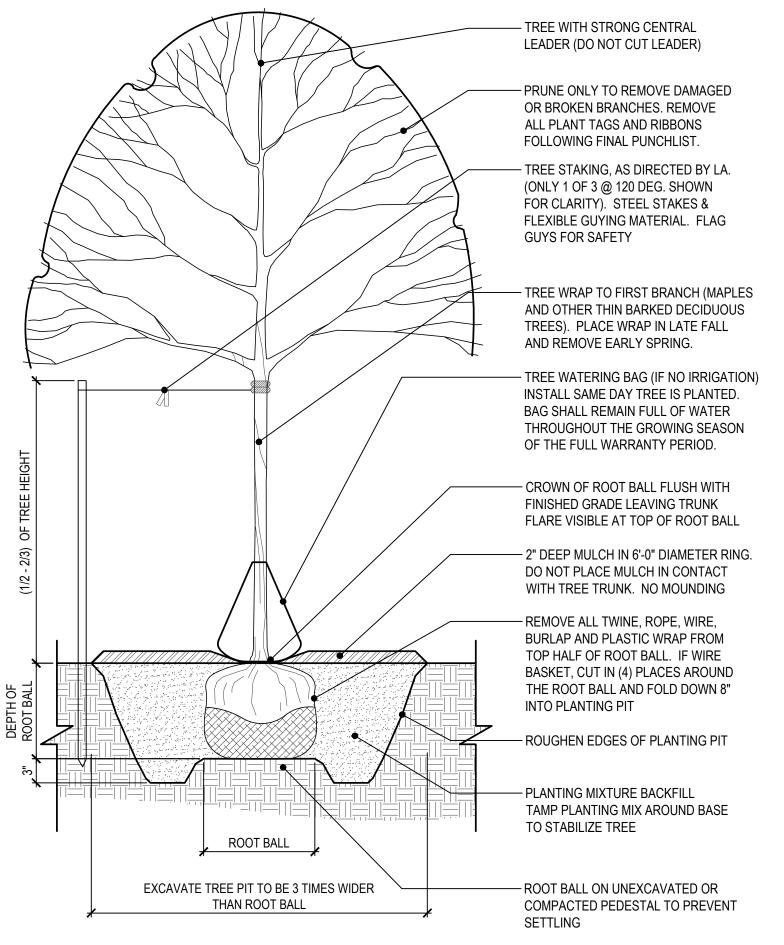
11.1. INCLUDE PRICING WITH THE BID FOR A 60-DAY MAINTENANCE PERIOD OF ALL LANDSCAPE PLANTINGS FOLLOWING COMPLETE INSTALLATION AND FINAL INSPECTION BY OWNER AND LANDSCAPE ARCHITECT. MAINTENANCE SHALL INCLUDE WATERING, WEEDING, CULTIVATING, MULCHING, MOWING, AND ALL OTHER NECESSARY OPERATIONS REQUIRED FOR PROPER ESTABLISHMENT OF LAWNS AND PLANTINGS.

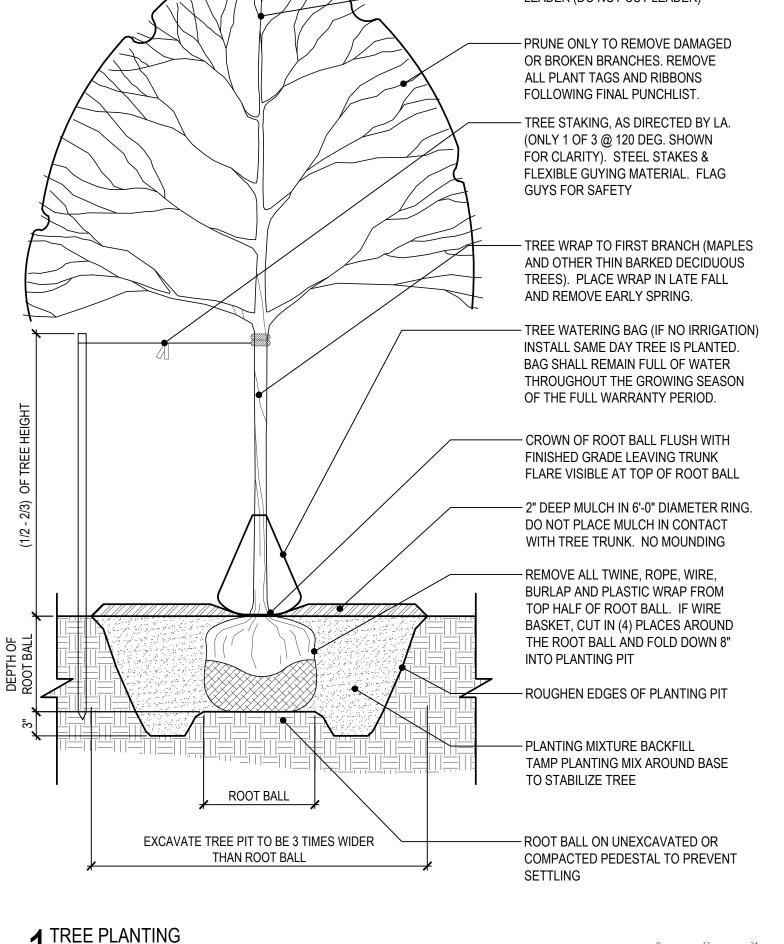
12. WARRANTY:

12.1. ALL LANDSCAPE PLANTINGS SHALL BE WARRANTED FOR A PERIOD OF ONE YEAR FOLLOWING 60-DAY MAINTENANCE PERIOD. AT THE END OF THIS PERIOD, PLANT MATERIAL TERMED DEAD OR UNSATISFACTORY (EXCEPT FOR DEFECTS RESULTING FROM ABUSE OR DAMAGE BY OTHERS, OR OTHER ACTS DETERMINED AS FORCE MAJEURE) BY OWNER AND LANDSCAPE ARCHITECT SHALL BE REPLACED AT NO ADDITIONAL CHARGE BY THE CONTRACTOR. THE REPLACEMENTS SHALL ALSO BE WARRANTED FOR 1 YEAR.

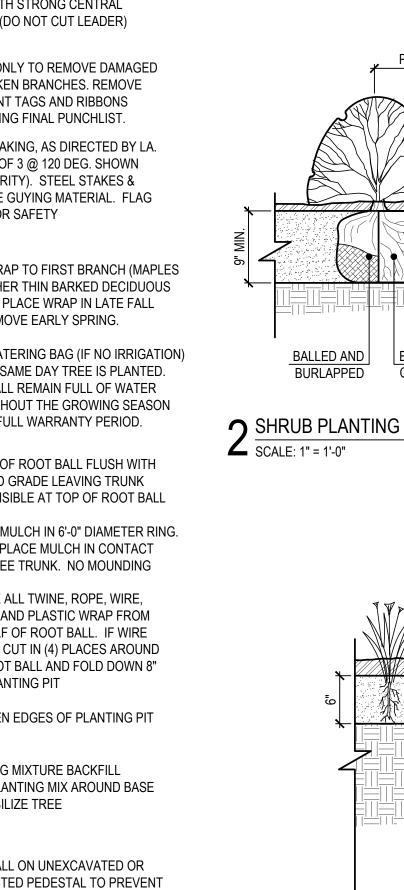
		PLANTING PALE	TTE
KEY	QTY.	BOTANICAL NAME	COMMON NAME
LARGE	TREES		
AFA	#	ACER FREEMANII 'JEFFERSRED'	AUTUMN BLAZE MAPLE
СО	#	CELTIS OCCIDENTALIS	COMMON HACKBERRY
GBA	#	GINKGO BILOBA 'AUTUMN GOLD'	AUTUMN GOLD GINKGO
GTS	#	GLEDITSIA TRIACANTHOS 'SKYCOLE'	SKYLINE HONEYLOCUST
SMALL	TREES		
AAB	#	AMELANCHIER 'AUTUMN BRILLIANCE'	AUTUMN BRILLIANCE SERVICEBERRY
CC	#	CERCIS CANADENSIS	EASTERN REDBUD
HV	#	HAMAMELIS VERNALIS	VERNAL WITCH HAZEL
DECIDU	OUS SHRU	JBS	
AIB	#	ARONIA MELANOCARPA 'MORTON'	IROQUOIS BEAUTY CHOKEBERRY
FGA	#	FOTHERGILLA GARDENII	DWARF FOTHERGILLA
НРВ	#	HYDRANGEA PANICULATA 'BOBO'	BOBO HYDRANGEA
HQR	#	HYDRANGEA QUERCIFOLIA 'RUBY SLIPPERS'	RUBY SLIPPERS HYDRANGEA
RAG	#	RHUS AROMATICA 'GRO LOW'	GRO-LOW SUMAC
EVERGR	EEN SHR	UBS	
BGV	#	BUXUS 'GREEN VELVET'	GREEN VELVET BOXWOOD
IGS	#	ILEX GLABRA 'SHAMROCK'	SHAMROCK INKBERRY
JGO	#	JUNIPERUS VIRGINIANA 'GREY OWL'	GREY OWL COMPACT JUNIPER
ORNAMI	ENTAL GR	ASSES	
CKF	#	CALAMOGROSTIS X 'KARL FOERSTER'	KARL FOERSTER FEATHER REED GRASS
SH	#	SPOROBOLUS HETEROLEPIS	PRAIRIE DROPSEED
PERENN	IALS & GF	ROUNDCOVERS	
ASM	#	ALLIUM 'MILLENIUM'	MILLENIUM ALLIUM
EPM	#	ECHINACEA 'CBG CONE2'	PIXIE MEADOWBRITE CONEFLOWER
GR	#	GERANIUM 'ROZANNE'	ROZANNE GERANIUM
HBE	#	HEMEROCALLIS 'BLACK EYED STELLA'	BLACK EYED STELLA DAYLILY
LSS	#	LEUCANTHEMUM SUPERBUM 'SNOWCAP'	SNOWCAP SHASTA DAISY
NCM	#	NEPETA 'CATS MEOW'	CAT'S MEOW NEPETA
RLG	#	RUDBECKIA 'LITTLE GOLDSTAR'	LITTLE GOLDSTAR BLACK-EYED SUSAN

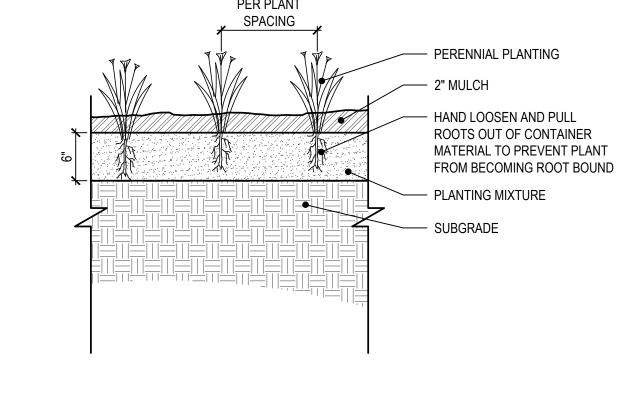
(ZONE GR)						
SPECIFIC ORDINANCE	CODE REQUIRES	CALCULATION	COMPLIANCE			
SEC. 10.301	ON-LOT LANDSCAPING (1 LARGE TREE PER D.U., 1 SMALL TREE PER D.U., 10 SHRUBS PER D.U.)	15 DWELLING UNITS	PROVIDED, SEE TABLE SHEET L101			
SEC. 10.302	FRONT-LOAD GARAGES. ONE SMALL TREE OR MEDIUM TO LARGE SHRUB THAT IS AT LEAST SIX FEET IN HEIGHT AT THE TIME OF PLANTING SHALL BE INSTALLED IN THE FRONT YARD FOR EACH 10 LINEAR FEET OF WIDTH OF FRONT-LOAD GARAGE DOOR.	DRIVEWAY & GARAGE = 16 FOOT WIDTH (1 SMALL TREE REQUIRED)	PROVIDED, SEE TABLE SHEET L101			
SEC. 10.303	OPEN SPACE LANDSCAPING IS THAT LANDSCAPING WHICH IS INSTALLED ON PROPERTY THAT IS DESIGNATED AS OPEN SPACE.	OPEN SPACE = 0.43 AC.	PROVIDED, SEE TABLE SHEET L101			
SEC. 10.305.C	STREET TREES SHALL BE SPACED 60 FEET ON CENTER	N/A	STREET TREES PROVIDED AT 60-FEET ON CENTER WHERE NOT IN CONFLICT WITH DRIVEWAYS			
SEC. 10.403	THE BUFFERYARD STANDARDS IN TABLE 10.405, BUFFERYARD REQUIREMENTS FOR ROADS AND RAILROADS	EVANS = ARTERIAL (CLASS C): 268 L.F. ROOSEVELT = COLLECTOR (CLASS B): 468 L.F.	PROVIDED, SEE TABLE SHEET L101			
SEC. 10.405	DISTRICT BOUNDARY BUFFERYARD STANDARDS	NORTH & EAST = GR	SAME ZONING, NO BUFFERYARD REQUIRED			





SCALE: 1/2" = 1'-0"





PER PLANT SPACING

BARE ROOT OR

BALLED AND

BURLAPPED

SHRUB PLANTING

PLANTING MIXTURE

HALF OF ROOT BALL

PRUNE ONLY TO REMOVE

BOTTOM OF ROOT FLARE

DEAD OR BROKEN BRANCHES

FLUSH WITH FINISHED GRADE

· HAND LOOSEN AND PULL ROOTS OUT

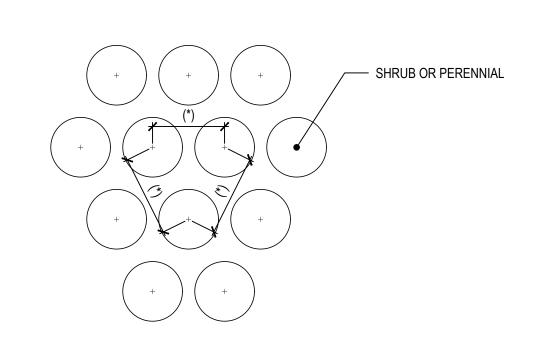
REMOVE ALL TWINE, ROPE, WIRE,

OF CONTAINER MATERIAL TO PREVENT

PLANT FROM BECOMING ROOT BOUND

BURLAP AND PLASTIC WRAP FROM TOP

SCARIFY 4" AND RECOMPACT SUBGRADE



(*) = SPECIFIED PLANT SPACING IN PLANT SCHEDULE

⚠ PLANT SPACING





PROJECT NAME: JACKSON CORNER 1207 EVANS AVE. VALPARAISO, IN 46383

OWNER NAME:

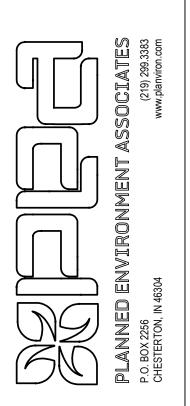
K2 CONSTRUCTION 259 INDIANA AVENUE VALPARAISO, IN 46383

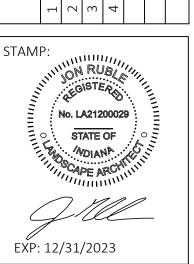
p: 219.531.5353

e: tomkrueger@k2valparaiso.com

CONSULTANTS:

DUNELAND GROUP 1498 POPE COURT CHESTERTON, IN 46304 p: 219.926.1007





PLANTING SPECS & DETAILS

DRAWN BY: JRR

Drainage Calculations

Jackson Corner Subdivision Valparaiso, Indiana

K2 Construction 259 Indiana Avenue Valparaiso, IN 46385



Prepared by:
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Chesterton, IN 46304
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February 2, 2022 REV June 9, 2022 REV September 13, 2022



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CONTENT

- A. Site and Curve Number
- B. Pond Sizing and Release Rate
- C. Water Quality
- D. Emergency Overflow Structures
- E. Storm Sewer and Pipe Sizing
- F. Post Construction Water Quality and Erosion Components
- G. Summary of construction and sequencing
- H. Appendices

Appendix A: On-site Watershed Delineation, Post-development Hydrograph Reports, Predevelopment Hydrograph Reports, Tc by TR55 Worksheets, Curve Numbers, Drainage Parameters Table, Pond Report, and Pond critical duration analysis.

Appendix B: Water Quality Calculations

Appendix C: Emergency Overflow Calculations

Appendix D: Storm Sewer Design Calculations

Appendix E: USGS Site Map, USFWS National Wetland Inventory Map, FEMA National Flood

Hazard Layer FIRMette, USDA Soil Map, and IDF and Precipitation Reports.





Jackson Corner Subdivision

A. Site and Curve Number

The project involves the construction of 7 paired and 1 lot community on 3.16 acres which will allow for 14 new patio homes. The site is located at the corner of Evans Avenue and Roosevelt Road. Infrastructure will include paved roads with curbs, grass lawns, sanitary sewers, potable water, underground drainage structures, and one detention basin. Currently, the land is partially wooded. With the exception of a house located on the south side and a barn on the southeast. House will stay and barn will be demolished. The land is higher on northeast boundary and slopes west. The 14-digit Hydrologic Unit ID is 04040001050010.

Runoff calculations were made using Hydrology Studio based on SCS Type II storm according to NOAA Atlas 14 - South Bend precipitation frequency. The stormwater pipe calculations in the development were made using Stormwater Studio and have been sized according to the Rainfall Intensities for South Bend.

The treatment train for stormwater from Jackson Corner is green space through catch basin structures into a detention pond located on Outlot A. The green space will provide for 30% of TSS removal, catch basins installed will provide for 5-10%, and the detention pond will provide 74-90% of TSS removal.

The runoff coefficient for post-development conditions can be found in Table A, which is attached in Appendix A. Additionally it has been included in the table below for reference:

Table A. Land Use and Runoff coefficient						
On-site Watershed Post-Development Conditions						
Land Use Description	Area (acres)	Runoff Coeff.	Hydrologic Soil Group			
Pond	0.26	0.85	C/D			
General Residential	2.15	0.59	C/D			
Street/ Sidewalk	0.16	0.85	C/D			
Grass Open Space	0.25	0.21	C/D			
Pavement	0.34	0.82	C/D			
Composite	3.16	0.62				
Impervious	1.79					
Percent impervious cover	57%					
CN water quality	95	(Value obtained fro	om Figure 9-1)			

B. Pond Sizing and Release Rate

Valparaiso drainage standards require the flood control volume sized to detain 100-year storm frequency (post-development) from the contributing area. The standards also require an allowable release rate no greater than 0.5 cfs per acre of development for 0 - 100 year return interval storms. Therefore, the maximum allowed release rate was calculated to be 1.58 cfs. A staged detention pond





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will be utilized to satisfy the requirements to control the runoff volume. The contributing area will direct its water to the proposed pond that will store and gradually release its allowable release rate from the west side of the pond throughout a standpipe with orifice cuts. The receiving waters are Sagers Lake and Salt Creek. See table C below for pond routing. Hydrographs and the detention pond report can be found in **Appendix A**.

See table B below for drainage parameters used for design:

Table B. Drainage Parameters					
On-site Watershed Post-Development Conditions					
Drainage Area, A (acres)	3.16				
Time of Concetration, Tc (min)	16				
Q100YR (cfs), Q _{peak-in}	14.11				
Allowable Release Rate, Qallow (cfs), $Q_{\text{peak-out}}$	1.58				
Rainfall Intensity (in/hr)	7.20				
Rainfall Distribution	SCS Type II - 24 Hr				
Water Quality Volume (acre-ft)	0.15				
Allowable Water Quality release Rate (cfs)	1.58				
100-YR Water Elevation	802				
100-YR Pond Drain Time (hrs)	12				

Table C. Pond Routing							
	Q Target	Qactual	Max Elev.	Max Stor.			
Freq. (Yr)	(cfs)	(cfs)	(Ft)	(cuft)			
10	1.58	1	801.36	7,431			
25	1.58	1	801.58	9,213			
50	1.58	0.97	801.77	10,743			
10	1.58	1.16	801.99	12,470			

Table D. Peak Runoff and Volumes							
Return	Pre-Development		Post-Development				
Period	Qpk (cfs)	Volume (cuft)	Qpk (cfs)	Volume (cuft)			
10 -YR	3.496	2,517	8.406	8,070			
100 - YR	5.858	4,218	14.11	13,548			

C. Pond Outlet Structure

The detention basin will have multiple circular cuts (3-4" Ø) in the standpipe that will be used to allow for water to release from the basin. Having multiple orifices at different levels in the standpipe is useful that it will allow the water to continue to be released in the event of a debris or sediment blockage. Underdrain will be installed at the bottom of the detention basin and it will allow for standing water to drain. The underdrain will be attached to the standpipe. These calculations can be found in **Appendix A**. They show that 1.16 cfs will be discharged from the pond at 801.99. Detailed drawings of the standpipe can also be found in the construction drawings in Sheet 12.



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D. Water Quality

The stormwater design manual gives required treatment volume and release rate on chapter nine. The calculation for the minimum required water quality volume is based on the following equation:

$$WQv = \frac{(P)(Rv)(A)}{12}$$

Rv = 0.05 + 0.009(I)

Where: WQv = water quality volume (acre-feet)

P = 1 inch of rainfall

Rv = volumetric runoff coefficient

A = area in acres

I = percent impervious cover (See table A)

The minimum water quality volume given by the equations above is calculated to be 0.15 acre-feet based in the following:

A = 3.16 acres

I = 57

Rv = 0.05 + 0.009(57) = 0.563

WQv = (1")(0.563)(3.16)/12 = 0.15 acre-feet

WQv = 6534 cu.ft.

The water quality volume was archived between the elevations of 800.17 ft and 801.30 ft. This is shown in **Appendix B**.

The maximum water quality release rate is defined using the SCS Type II distributions for 1 inch of rainfall in 24-hours. The calculated water quality release rate is 1.74 cfs, Consequently, the allowable release rate is less than the water quality release rate. Therefore, the controlling water quality release rate will be 1.58 cfs. Pond drawdown is 12 hours. Hydrographs and water quality report can be found in **Appendix B**.

E. Emergency Overflow Structures

Emergency overflow facilities are designed to handle at least one and one-quarter (1.25) times the peak inflow discharge and peak flow velocity resulting from the 100-year design storm event runoff from the watershed draining to the pond assuming post-development condition on-site and existing condition off-site. The peak 100-year on-site outflow is 14.11 cfs. No off-site watershed draining to the pond. The spillway value to account for was calculated to be 17.64 cfs. The following values show the overflow discharge rates:

3' ø standpipe spillway and 12" ø culvert release rate @ 803.00	=	6.16 cfs
5' broad-crested weir @ 803.00	=	19.24 cfs
Provided emergency overflow release rate @ 803.00	=	25.40 cfs
Required emergency overflow release rate @ 803.00	=	17.64 cfs



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The calculations in **Appendix C** show that the 36" standpipe, 12" concrete pipe, and 5' broad-crested weir will allow for the acceptable flow rate to be released.

F. Storm Sewer and Pipe Sizing

The stormwater pipes in the development have been sized according to the rainfall intensities found in Appendix A. The rational method was utilized to determine flows through the subareas leading to each inlet. The 10-year sub-basin surface flow was utilized to determine pipe sizing, inlet spacing, and adequate inlet and sag inlet casting size assuming just the inlet grate characteristics. The 25-year storm event was utilized to determine the hydraulic grade line at each manhole. Reinforced concrete pipe (RCP) and PVC SDR 26 are utilized throughout the development with concrete manholes at the junctions. R-3287-10V or R-3286-8V grate and curb box will be utilized as inlet structures. In general, inlet spacing design computations should assume 50% clogging of the grate. However, for inlet structures which include a grate and a curb box, since the curb box will provide the needed factor of safety. Thus, any flow into a curb box should not be considered in the inlet spacing design computations. Stormwater calculations can be found in **Appendix D**.

G. Post construction Water Quality and Erosion Components

Vegetated and Grass Areas

Vegetated and grassy areas will convey the site's water to either the proposed swales, or directly into the proposed wet-bottom detention pond. These areas will work to slow the velocity and filter out silt and other debris prior to entering the detention pond system.

Grassy Swales

Vegetated swales will help convey the site's water to the wet-bottom detention pond. The vegetated swales will work to slow the velocity and filter out silt and other debris prior to entering the wet-bottom detention pond.

Rip Rap Aprons

Placing rip rap aprons at the end of each outlet pipe will help prevent erosion of the surrounding areas.

Detention Pond

The dry-bottom detention pond will allow for the storage of storm water from the development's expansion during a 100-year storm event. The ponds will provide for additional settling of silt and debris.





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H. Summary of construction and sequencing

- First all applicable permits will be posted.
- Construction shall begin with the installation of silt fence along the perimeter of the disturbed site.
- Next the temporary drive will be installed. The proposed drive base layer shall be utilized to function as the stone entrance and exit pad.
- The installation of all sediment barriers around the site elements that are to remain or be left undisturbed shall take place.
- The site will be cleared and excavation shall be completed to meet the grading plan as shown in the plans and specifications.
- The temporary seeding shall be installed throughout the project as required. This includes the stabilization of the topsoil stockpile.
- A concrete washout area shall be provided for any required concrete needed for the improvements. Subsequently, the sub-grade will be prepared.
- The construction of the associated site improvements will occur. This includes the storm water management system, septic systems, and building construction.
- The pavement sub-grade will be prepared and pavement construction will then begin.
- Next, the installation of all sediment barriers around site elements and permanent erosion control measures shall take place.
- Construction of the utilities will occur. This includes the water system, gas, electric, etc. per the project plans.
- Final grading and sub-grading will take place. At the same time, prepare sub-base material for all paved areas.
- Asphalt will them be placed.
- Once the final grading of the site is complete; seeding shall occur per the Erosion Control Plan. Installation of the seeding will be completed with the conclusion of the development of the site work and permanent erosion control measures will be placed (erosion control measures shall be maintained until construction is complete).
- At this time a notice of termination shall be submitted (site has to achieve 70% vegetative growth before this can be done).
- Once the vegetation has become established, all silt fence and temporary erosions control measures may be removed and disposed of in a legal manner.

I. Appendices

Appendix A





EXISTING CONDITIONS LEGEND

O O - EXISTING FENCE - EXISTING MANHOLE

FO - EXISTING FIBER OPTICS PEDESTAL

- W ----- - EXISTING WATER LINE

PROPOSED CONDITIONS LEGEND

Y - PROPOSED YARD INLET

- PROPOSED DRAINAGE MANHOLE

- PROPOSED FIRE HYDRANT

- PROPOSED WATER LINE → PROPOSED DRAINAGE FLOW

Segments Description 0.013 0.013 Flow Length (ft) 2-yr, 24-hr Precip. (in) 2.89 2.89 2.89 Land Slope (%) 3.28 Travel Time (min) 8.46 0.00 8.46 0.00 Shallow Concentrated Flow Flow Length (ft) 63.83 Watercourse Slope (%) 2.33 0.00 0.00 Unpaved Unpaved Paved Average Velocity (ft/s) Travel Time (min) 0.43 3.14 Manning's n 0.013 0.013 Velocity (ft/s) 1.44 632.35 Flow Length (ft) Travel Time (min) 7.33 0.00 0.00 7.33 Total Travel Time 16 min

TC BY TR-55 WORKSHEET

3 NONSEYED NONSEYE	F.E. = 809.37 LOT 3 G.F.E. = 809.51 C.F.E. = 809.94 EVANS AVENUE W W W W W W W W W W W W W	G.F.E.=810.51 BE DETERMINED (50' FR/W) C.G.F.E.=812.20 G.F.E.=805.17 G.F.E.=	
DISCLAIMER: NO REPRESENTATIONS CONCERNING SOIL NOT RESPONSIBLE FOR MAY LIABULTY THAT MAY ARISE OUT OF THE MAKING OR FAILURE TO MAKE SOIL UNIVEYS, OR SUB-SURFACE SOIL TEST, OR GENERAL SOIL TESTING. THIS DRAWNO IS NOT INTENDED TO BE REPRESENTED AS A	Table A. Land Use and Runoff Coefficient On-site Watershed Post-Development Conditions Land Use Description Area (acres) Runoff Coeff. Hydrologic Soil Group Pond 0.26 0.85 C/D General Residential 2.15 0.59 C/D Street/ Sidewalk 0.16 0.85 C/D Grass Open Space 0.25 0.21 C/D Pavement 0.34 0.82 C/D Composite 3.16 0.62 Impervious 1.79 Percent impervious cover 57% Change to the properties of the propertie	Table B. Drainage Parameters On-site Watershed Post-Development Conditions Drainage Area, A (acres) 3.16 Time of Concetration, Tc (min) 16 Q100YR (cfs), Q _{coals} n 14.11 Allowable Release Rate, Qallow (cfs), Q _{coals-coal} 1.58 Rainfall Intensity (in/hr) 7.20 Rainfall Intensity tim/hr) SCS Type II - 24 Hr Water Quality Volume (acre-ft) 0.15 Allowable Water Quality release Rate (cfs) 1.74 100-YR Water Elevation 801.95 100-YR Pond Drain Time (hrs) 10.8	

(Value obtained from Figure 9-1)

DUNELAND GROUP

ENGINEERING & SURVEYING 1498 POPE COURT CHESTERTON, INDIANA 46304 219-926-1007 fax 219-926-1544 E-MAIL dgi@dunelandgroup.com



CN water quality

DRAWN: NJL C	HK D:	NO.	REVISION	BY	DATE		STORM
DESIGNED: AIR A	PPRV'D:						SANITARY
DATE: 03/04/202	21						WATER
HORIZ. SCALE: 1"	=30'						ROAD
VERT. SCALE: N/	'A						EROSION
PROJECT STATUS PRELIMINA						\dashv	ENGSIGN

JACKSON CORNER SUBDIVISION ON-SITE WATERSHED

SHEET 1 PROJECT 3014 DRAWING NUMBER 3014-01

Hydrograph Report

Hydrology Studio v 3.0.0.21

02-01-2022

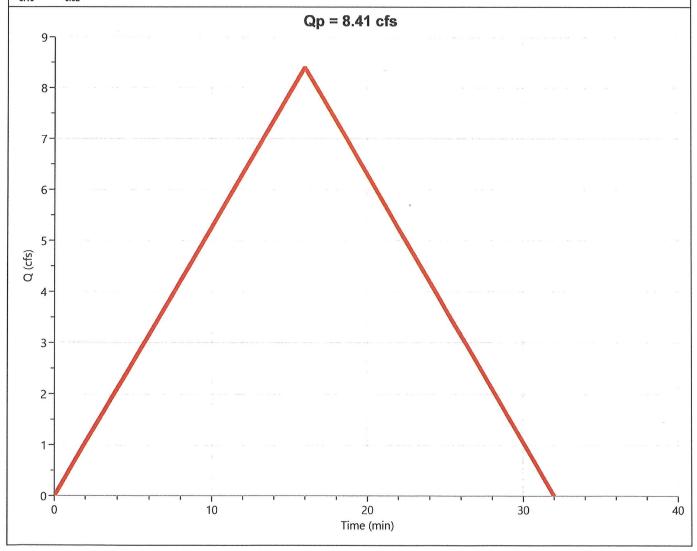
Post Development

Hyd. No. 1

Hydrograph Type	= Rational	Peak Flow	= 8.406 cfs
Storm Frequency	= 1 <mark>0-yr</mark>	Time to Peak	= 0.27 hrs
Time Interval	= 2 min	Runoff Volume	= 8,070 cuft
Drainage Area	= 3.16 ac	Runoff Coeff.	= 0.62*
Tc Method	= TR55	Time of Conc. (Tc)	= 16.0 min
IDF Curve	= Rainfall Depths.idf	Intensity	= 4.29 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	s = 1/1

* Composite C Worksheet

AREA (ac)	С	DESCRIPTION
2.15	0.59	General Residential
0.338	0.82	Pavement
0.16	0.85	Sidewalk/Driveways/Curb
0.259	0.85	Detention Basin
0.248	0.21	Green Space
3.16	0.62	



Hydrograph Report

Hydrology Studio v 3.0.0.21

01-11-2022

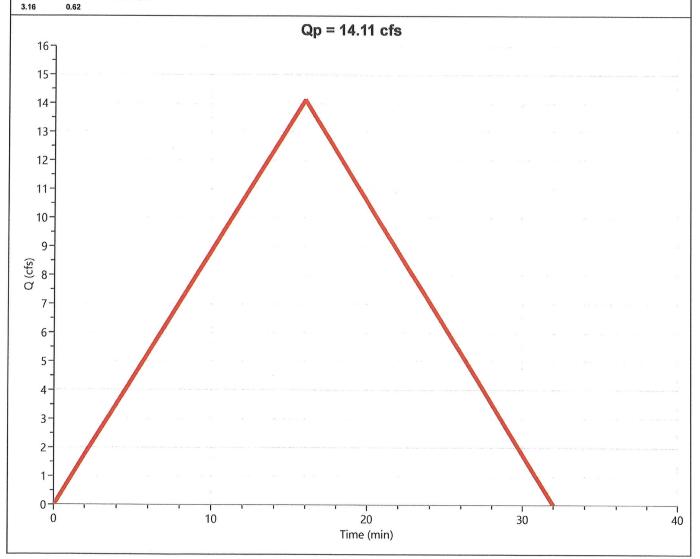
Post Development

Hyd. No. 1

Hydrograph Type	= Rational	Peak Flow	= 14.11 cfs
Storm Frequency	= 100-yr	Time to Peak	= 0.27 hrs
Time Interval	= 2 min	Runoff Volume	= 13,548 cuft
Drainage Area	= 3.16 ac	Runoff Coeff.	= 0.62*
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 16.0 min
IDF Curve	= Rainfall Depths.idf	Intensity	= 7.20 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	s = 1/1

* Composite C Worksheet

AREA (ac)	C	DESCRIPTION
2.15	0.59	General Residential
0.338	0.82	Pavement
0.16	0.85	Sidewalk/Driveways/Curb
0.259	0.85	Detention Basin
0.248	0.21	Green Space
2 40	0.00	



01-11-2022

Tc by TR55 Worksheet

Hydrology Studio v 3.0.0.21

Post-Development

Rational

Description		Segments		
Description	A	В	C	Tc (min)
Sheet Flow				
Description				
Manning's n	0.150	0.013	0.013	
Flow Length (ft)	100			
2-yr, 24-hr Precip. (in)	2.89	2.89	2.89	3
Land Slope (%)	3.28			
Travel Time (min)	8.46	0.00	0.00	8.46
Shallow Concentrated Flow				
Flow Length (ft)	63.83			
Watercourse Slope (%)	2.33	0.00	0.00	
Surface Description	Unpaved	Unpaved	Paved	
Average Velocity (ft/s)	2.46			
Travel Time (min)	0.43	0.00	0.00	0.43
Channel Flow				
X-sectional Flow Area (sqft)	.79			
Wetted Perimeter (ft)	3.14			
Channel Slope (%)	.1			
Manning's n	0.013	0.013	0.013	
Velocity (ft/s)	1.44			
Flow Length (ft)	632.35			
Travel Time (min)	7.33	0.00	0.00	7.33
Total Travel Time				16 mir

Hydrograph Report

Hydrology Studio v 3.0.0.21

02-01-2022

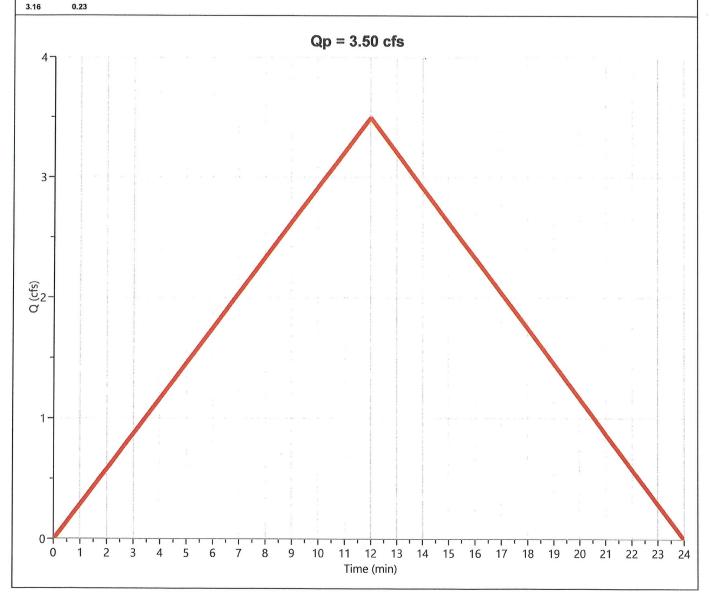
Pre Development

Hyd. No. 4

Hydrograph Type	= Rational	Peak Flow	= 3.496 cfs
Storm Frequency	= <mark>10-yr</mark>	Time to Peak	= 0.20 hrs
Time Interval	= 2 min	Runoff Volume	= 2,517 cuft
Drainage Area	= 3.16 ac	Runoff Coeff.	= 0.23*
Tc Method	= TR55	Time of Conc. (Tc)	= 12.0 min
IDF Curve	= Rainfall Depths.idf	Intensity	= 4.81 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	s = 1/1

* Composite C Worksheet

AREA (ac)	С	DESCRIPTION
0.105	0.85	Existing Buildings
3.055	0.21	Green Space



Hydrograph Report

Hydrology Studio v 3.0.0.21

02-01-2022

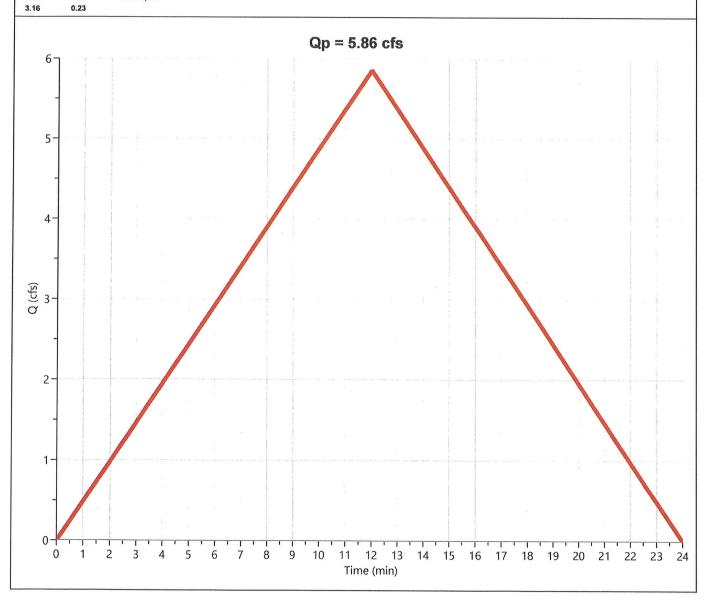
Pre Development

Hyd. No. 4

Hydrograph Type	= Rational	Peak Flow	= 5.858 cfs
Storm Frequency	= 1 <mark>00-y</mark> r	Time to Peak	= 0.20 hrs
Time Interval	= 2 min	Runoff Volume	= 4,218 cuft
Drainage Area	= 3.16 ac	Runoff Coeff.	= 0.23*
Tc Method	= TR55	Time of Conc. (Tc)	= 12.0 min
IDF Curve	= Rainfall Depths.idf	Intensity	= 8.06 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factor	s = 1/1

* Composite C Worksheet

AREA (ac)	С	DESCRIPTION
0.105	0.85	Existing Building
3.055	0.21	Green Space



Tc by TR55 Worksheet

Hydrology Studio v 3.0.0.21

02-01-2022

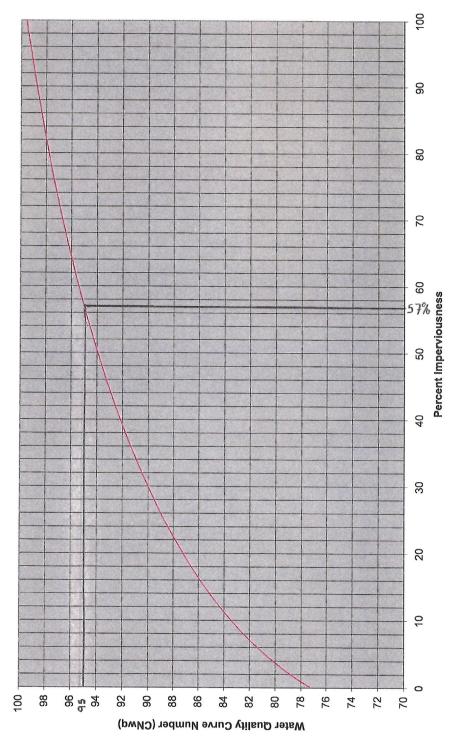
Pre-Development Rational

Description		Segments		
Description	A	В	C	Tc (min)
Sheet Flow				and to the second secon
Description				
Manning's n	0.150	0.013	0.013	
Flow Length (ft)	100			
2-yr, 24-hr Precip. (in)	2.89	2.89	2.89	
Land Slope (%)	2.2			
Travel Time (min)	9.92	0.00	0.00	9.92
Shallow Concentrated Flow				
Flow Length (ft)	393.28			
Watercourse Slope (%)	2.03	0.00	0.00	
Surface Description	Unpaved	Unpaved	Paved	
Average Velocity (ft/s)	2.3			
Travel Time (min)	2.85	0.00	0.00	2.85
Channel Flow				Total and the state of the stat
X-sectional Flow Area (sqft)				
Wetted Perimeter (ft)				
Channel Slope (%)				
Manning's n	0.013	0.013	0.013	
Velocity (ft/s)				
Flow Length (ft)				4
Travel Time (min)	0.00	0.00	0.00	0.00
Total Travel Time				12 min

Table A. Land Use and Runoff coefficient **On-site Watershed Post-Development Conditions** Area Hydrologic Land Use Description Runoff Coeff. Soil Group (acres) Pond 0.26 0.85 C/D **General Residential** 2.15 0.59 C/D Street/ Sidewalk 0.16 0.85 C/D **Grass Open Space** 0.25 0.21 C/D **Pavement** 0.34 0.82 C/D Composite 3.16 0.62 Impervious 1.79 Percent impervious cover 57% CN water quality 95 (Value obtained from Figure 9-1)

Table B. Drainage Parameters	
On-site Watershed Post-Development Conditions	
Drainage Area, A (acres)	3.16
Time of Concetration, Tc (min)	16
Q100YR (cfs), Q _{peak-in}	14.11
Allowable Release Rate, Qallow (cfs), Qpeak-out	1.58
Rainfall Intensity (in/hr)	7.20
Rainfall Distribution	SCS Type II - 24 Hr
Water Quality Volume (acre-ft)	0.15
Allowable Water Quality release Rate (cfs)	1.58
100-YR Water Elevation	802
100-YR Pond Drain Time (hrs)	12

FIGURE 9-1 Curve Number Calculation for Water Quality Storm Event



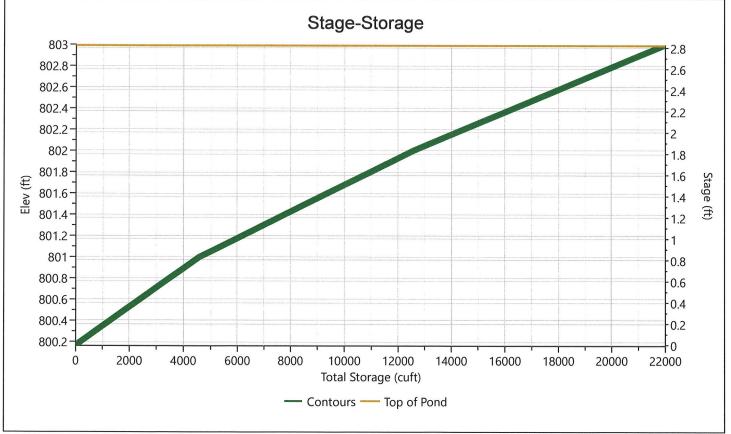
Water Quality Curve Number

05-11-2022

Pond

Stage-Storage

User Defined Conto	urs			Stage / Stora	ige Table	
Description	Input	Stage	Elevation (ft)	Contour Area	Incr. Storage	Total Storage
Bottom Elevation, ft	800.17	(ft)	(11)	(sqft)	(cuft)	(cuft)
\\-:-I- (0()	400.00	0.00	800.17	3,919	0.000	0.000
Voids (%)	100.00	0.83	801.00	7,138	4,589	4,589
Volume Calc	Ave End Area	1.83	802.00	8,783	7,960	12,549
		2.83	803.00	10,099	9,441	21,990
				The second of th	Section of the Sectio	



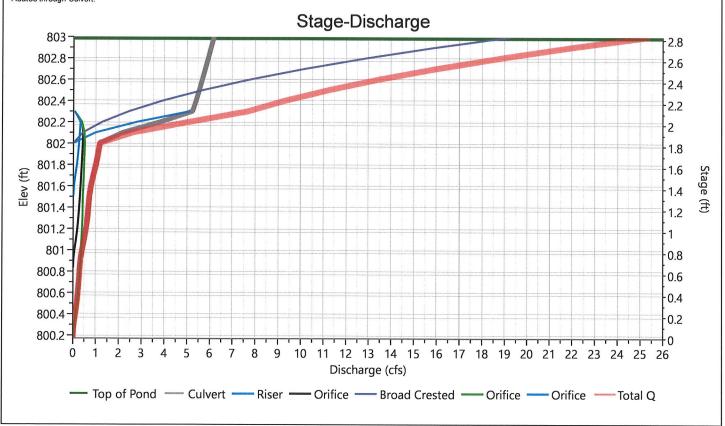
05-11-2022

Pond

Stage-Discharge

Culvert / Orifices	Culvert		Orifices		Onifice Dist
Juivert / Ornices	Culvert	1*	2*	3*	Orifice Plate
Rise, in	12	4	4	4	Orifice Dia, in
Span, in	12	4	4	4	No. Orifices
No. Barrels	1	1	1	1	Invert Elevation, ft
Invert Elevation, ft	799.50	800.84	800.17	801.50	Height, ft
Orifice Coefficient, Co	0.60	0.60	0.60	0.60	Orifice Coefficient, Co
Length, ft	37				
Barrel Slope, %	.08				
N-Value, n	0.013				
Weirs	Dinar*		Weirs		A 111
weirs	Riser*	1	2	3	Ancillary
Shape / Type	Circular	Broad Crested		-	Exfiltration, in/hr
Crest Elevation, ft	802	802			Tailwater Elevation, ft
Crest Length, ft	9.42	5			
Angle, deg		18.4 (3:1)			
Weir Coefficient, Cw	3.3	2.6			





05-11-2022

Pond

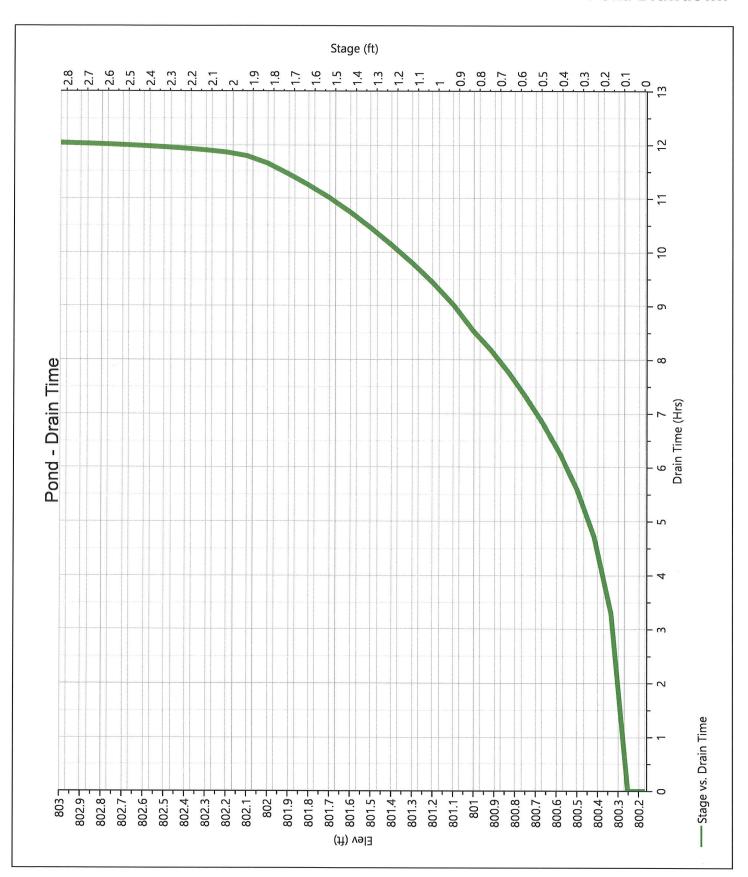
Stage-Storage-Discharge Summary

Stage	Elev.	Storage	Culvert	(Orifices, ct	is	Riser		Weirs, cfs	3	Pf Riser	Exfil	User	Total
(ft)	(ft)	(cuft)	(cfs)	1	2	3	(cfs)	1	2	3	(cfs)	(cfs)	(cfs)	(cfs)
0.00	800.17	0.000	0.000	0.000	0.000	0.000	0.000	0.000						0.000
0.83	801.00	4,589	0.399 oc	0.057	0.342	0.000	0.000	0.000						0.399
1.83	802.00	12,549	1.165 oc	0.419	0.504	0.243	0.000	0.000						1.165
2.83	803.00	21,990	6.161 oc	0.000	0.000	0.000	0.000	19.24						25.40

05-11-2022

Pond

Pond Drawdown



Hydrology Studio v 3.0.0.24 05-11-2022

Pond Hyd. No. 3

Hydrograph Type	= Pond Route		Peak Flow	= 0.660 cfs
Storm Frequency	= <mark>10-yr</mark>		Time to Peak	= 0.50 hrs
Γime Interval	= 2 min		Hydrograph Volume	= 8,043 cuft
nflow Hydrograph	= 1 - Development		Max. Elevation	= 801.36 ft
ond Name	= Pond		Max. Storage	= 7,431 cuft
Pond Routing by Storage Inc	lication Method		Center of mass	s detention time = 3.04 hrs
	Qp	= 0.66 cfs		
97				
8-				
-				
7-				
1				
6-				
5				
ر (crs) -				
4				
-				
3-				
-				
2-				
1				
0 1 2 3	4 5 6 7 8 9 10	11 12 13 14	15 16 17 18 19 2	20 21 22 23 2
		Time (hrs)	0 11 10 10 1	
	— Dave	opment — Pond		

Hydrology Studio v 3.0.0.24 05-11-2022

Pond Hyd. No. 3

Hydrograph Type	= Pond Rout	е				Peak	Flow		= 0.	772 cfs	
Storm Frequency	= <mark>25-yr</mark>					Time	to Pea	k	= 0.	50 hrs	
Γime Interval	= 2 min					Hydr	ograph	Volume	= 9,	953 cuf	t
nflow Hydrograph	= 1 - Develo	oment				Max.	Elevati	on	= 80)1.58 ft	
Pond Name	= Pond					Max.	Storag	е	= 9,	213 cuf	t
Pond Routing by Storage Inc	dication Method		-				C	enter of ma	ss detenti	on time =	3.03 h
			Qp =	= 0.77 c1	s						
117											
-											
10											
-											-
9-			2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1								
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0 1 2 3	4 5 0	7 0	0 10	11 12		14 15	10 1	7 10	10 20	111	1 1
0 1 2 3	4 5 6	7 8	9 10	11 12 Time (hrs		14 15	16 17	7 18	19 20	21 2	.2
		_	— Develo	pment -							

05-11-2022

Pond

Hyd. No. 3

Hydrograph Type	= Pond Route	Peak Flow	= 1.158 cfs
Storm Frequency	= 1 <mark>00-yr</mark>	Time to Peak	= 0.50 hrs
īme Interval	= 2 min	Hydrograph Volume	= 13,521 cuft
nflow Hydrograph	= 1 - Development	Max. Elevation	= 801.99 ft
Pond Name	= Pond	Max. Storage	= 12,470 cuft
ond Routing by Storage	Indication Method	Center of mass	s detention time = 2.92 hr
	Qp = 1.16 cfs		
16			
15			
-			
14			
13			
10			
12			
11-			
10-			
-			
9			
(cis) 8			
7/1			
7-			
6			
5-			
-			
4			
3-			
-			
2-			
1-			
0			
0 1 2	3 4 5 6 7 8 9 10 11 12	2 13 14 15 16 17	18 19 20 2
	Time (hrs)		

Appendix B

Water Quality

The stormwater design manual gives required treatment volume and release rate on chapter nine. The calculation for the minimum required water quality volume is based on the following equation:

$$WQv = \frac{(P)(Rv)(A)}{12}$$

Rv = 0.05 + 0.009(I)

Where: WQv = water quality volume (acre-feet)

P = 1 inch of rainfall

Rv = volumetric runoff coefficient

A = area in acres

I = percent impervious cover (See table A)

The minimum water quality volume given by the equations above is calculated to be 0.15 acre-feet based in the following:

A = 3.16 acres

I = 57

Rv = 0.05 + 0.009(57) = 0.563

WQv = (1")(0.563)(3.16)/12 = 0.15 acre-feet

WQv = 6534 cu.ft.

The water quality volume was archived between the elevations of 800.17 ft and 801.30 ft. This is shown in **Appendix B**.

The maximum water quality release rate is defined using the SCS Type II distributions for 1 inch of rainfall in 24-hours. The calculated water quality release rate is 1.74 cfs, Consequently, the allowable release rate is less than the water quality release rate. Therefore, the controlling water quality release rate will be 1.58 cfs. Pond drawdown is 12 hours. Hydrographs and water quality report can be found in **Appendix B**.

Hydrograph Report

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01-11-2022

WQ release rate

Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.741 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.07 hrs
Time Interval	= 2 min	Runoff Volume	= 6,609 cuft
Drainage Area	= 3.16 ac	Curve Number	= 95
Tc Method	= User	Time of Conc. (Tc)	= 16.0 min
Total Rainfall	= 1.00 in	Design Storm	= Type II
Storm Duration	= 24 hrs	Shape Factor	= 300

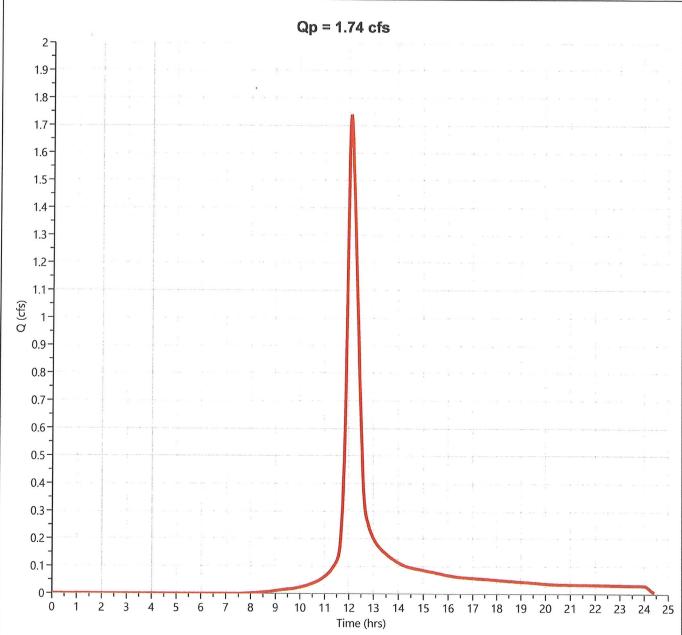


Table D. W	/ater Qualit	y and Pond	Drain Time									
Stage	Elev	Storage	Culvert	Culvert	Riser	Orifice 1	Orifice 2	Orifice 3	Weir 1	Weir 1	Total Q	Drain Time
(ft)	(ft)	(cuft)	(cfs)	(ft/s)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(ft/s)	(cfs)	(hrs)
0	800.17	0	0	0	0	0	0	0	0	0	0	0
0.08	800.25	459	0.017 oc	0.48	0	0	0.017	0	0	0	0.017	0
0.17	800.34	918	0.061 oc	0.7	0	0	0.061	0	0	0	0.061	3.29
0.25	800.42	1,377	0.119 oc	0.86	0	0	0.119	0	0	0	0.119	4.71
0.33	800.5	1,836	0.171 oc	0.96	0	0	0.171	0	0	0	0.171	5.59
0.42	800.59	2,294	0.209 oc	1.01	0	0	0.209	0	0	0	0.209	6.26
0.5	800.67	2,753	0.242 oc	1.05	0	0	0.242	0	0	0	0.242	6.82
0.58	800.75	3,212	0.270 oc	1.09	0	0	0.27	0	0	0	0.27	7.32
0.66	800.83	3,671	0.296 oc	1.11	0	0	0.296	0	0	0	0.296	7.77
0.75	800.92	4,130	0.335 oc	1.15	0	0.015	0.32	0	0	0	0.335	8.18
0.83	801	4,589	0.399 oc	1.21	0	0.057	0.342	0	0	0	0.399	8.52
0.93	801.1	5,385	0.494 oc	1.28	0	0.127	0.367	0	0	0	0.494	9.02
1.03	801.2	6,181	0.575 oc	1.32	0	0.185	0.39	0	0	0	0.575	9.43
1.13	801.3	6,977	0.637 oc	1.36	0	0.228	0.41	0	0	0	0.637	9.8
1.23	801.4	7,773	0.676 oc	1.37	0	0.263	0.413	0	0	0	0.676	10.13
1.33	801.5	8,569	0.714 oc	1.39	0	0.295	0.419	0	0	0	0.714	10.45
1.43	801.6	9,365	0.786 oc	1.42	0	0.324	0.438	0.024	0	0	0.786	10.75
1.53	801.7	10,161	0.889 oc	1.45	0	0.35	0.456	0.083	0	0	0.889	11.01
1.63	801.8	10,957	1.000 oc	1.46	0	0.374	0.472	0.154	0	0	1	11.24
1.73	801.9	11,753	1.088 oc	1.39	0	0.397	0.488	0.203	0	0	1.088	11.46
1.83	802	12,549	1.165 oc	1.48	0	0.419	0.504	0.243	0	0	1.165	11.65
1.93	802.1	13,493	2.180 oc	2.78	0.983	0.439	0.481	0.277	0.431	0.54	2.611	11.79
2.03	802.2	14,437	3.818 oc	4.86	2.779	0.366	0.366	0.307	1.274	0.8	5.092	11.86
2.13	802.3	15,382	5.226 oc	6.65	5.106	0.04	0.04	0.04	2.443	1.02	7.669	11.9
2.23	802.4	16,326	5.381 oc	6.85	0	0	0	0	3.919	1.22	9.3	11.93
2.33	802.5	17,270	5.519 oc	7.03	0	0	0	0	5.697	1.42	11.22	11.96
2.43	802.6	18,214	5.653 oc	7.2	0	0	0	0	7.779	1.62	13.43	11.98
2.53	802.7	19,158	5.784 oc	7.36	0	0	0	0	10.17	1.82	15.95	12
2.63	802.8	20,102	5.913 oc	7.53	0	0	0	0	12.87	2.01	18.78	12.01
2.73	802.9	21,046	6.038 oc	7.69	0	0	0	0	15.89	2.21	21.93	12.02
2.83	803	21,990	6.161 oc	7.85	0	0	0	0	19.24	2.41	25.4	12.04

Water Quality

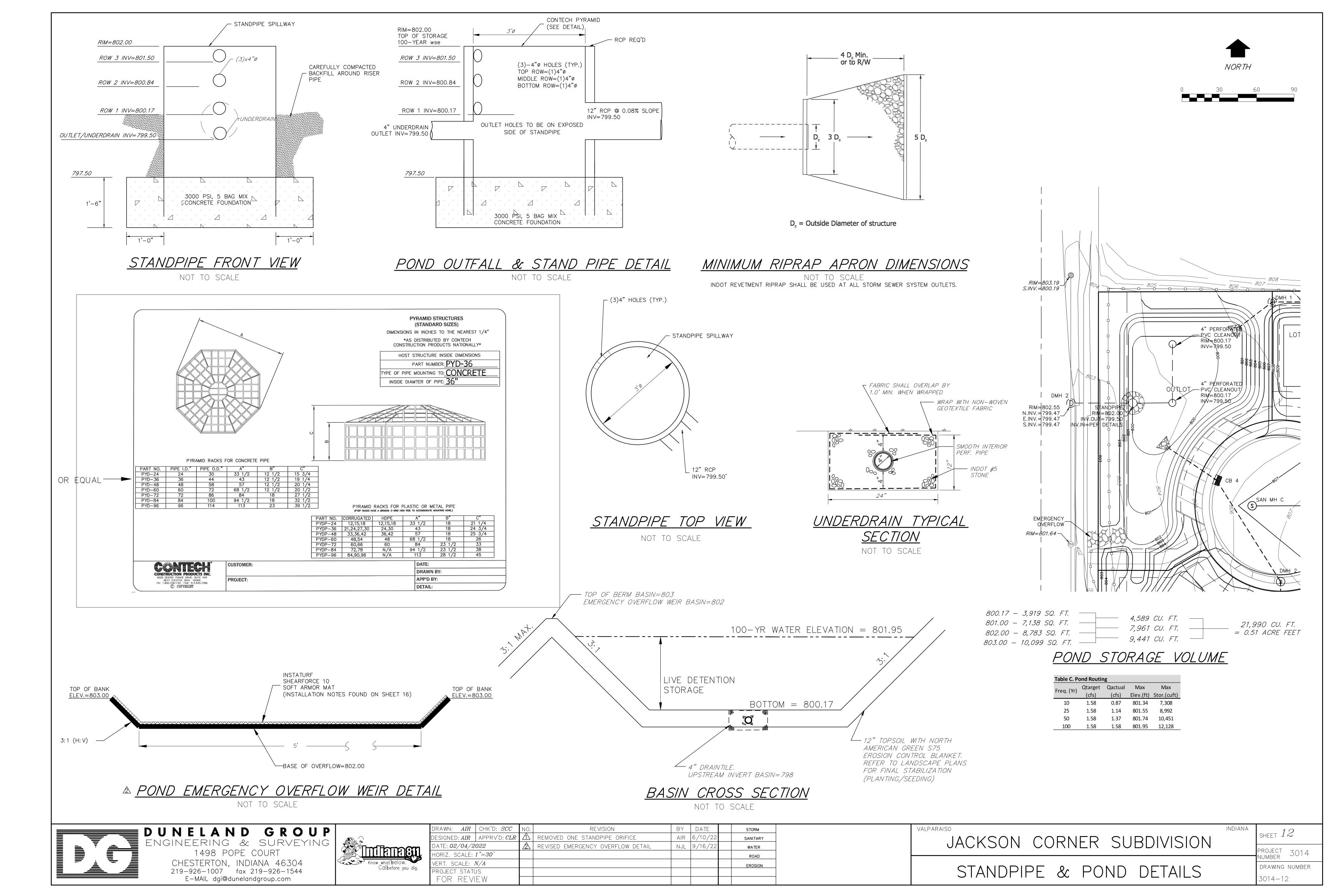
Appendix C

Emergency Overflow Structures

Emergency overflow facilities are designed to handle at least one and one-quarter (1.25) times the peak inflow discharge and peak flow velocity resulting from the 100-year design storm event runoff from the watershed draining to the pond assuming post-development condition on-site and existing condition off-site. The peak 100-year on-site outflow is 14.11 cfs. No off-site watershed draining to the pond. The spillway value to account for was calculated to be 17.64 cfs. The following values show the overflow discharge rates:

```
3' ø standpipe spillway and 12" ø culvert release rate @ 803.00 = 6.16 cfs
5' broad-crested weir @ 803.00 = 19.24 cfs
Provided emergency overflow release rate @ 803.00 = 25.40 cfs
Required emergency overflow release rate @ 803.00 = 17.64 cfs
```

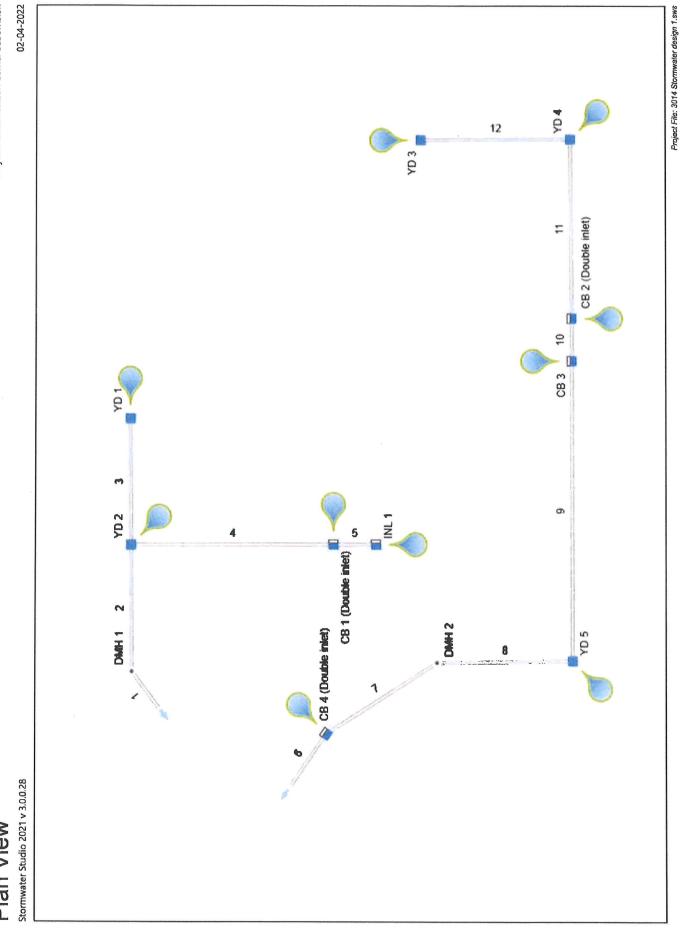
The calculations in **Appendix C** show that the 36" standpipe, 12" concrete pipe, and 5' broad-crested weir will allow for the acceptable flow rate to be released.



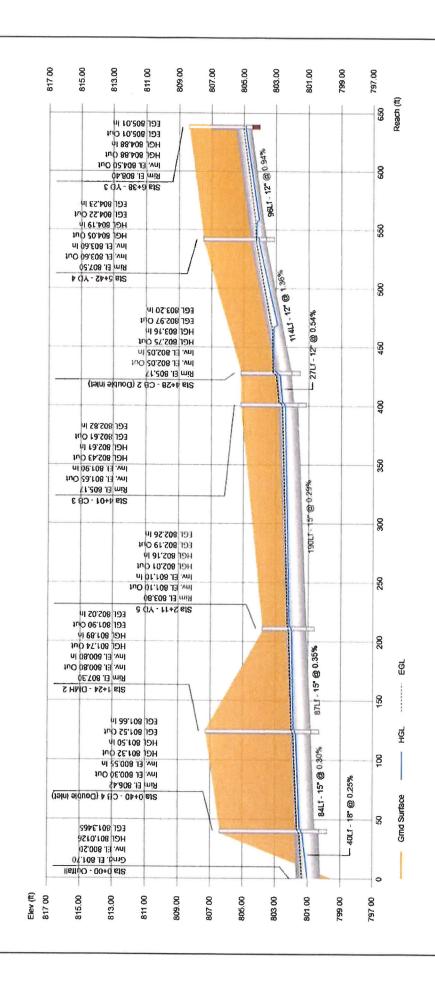
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Emergency	Overflow											
Stage	Elev	Storage	Culvert	Culvert	Riser	Orifice 1	Orifice 2	Orifice 3	Weir 1	Weir 1	Total Q	Drain Time
(ft)	(ft)	(cuft)	(cfs)	(ft/s)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(ft/s)	(cfs)	(hrs)
0	800.17	0	0	0	0	0	0	0	0	0	0	0
0.08	800.25	459	0.017 oc	0.48	0	0	0.017	0	0	0	0.017	0
0.17	800.34	918	0.061 oc	0.7	0	0	0.061	0	0	0	0.061	3.29
0.25	800.42	1,377	0.119 oc	0.86	0	0	0.119	0	0	0	0.119	4.71
0.33	800.5	1,836	0.171 oc	0.96	0	0	0.171	0	0	0	0.171	5.59
0.42	800.59	2,294	0.209 oc	1.01	0	0	0.209	0	0	0	0.209	6.26
0.5	800.67	2,753	0.242 oc	1.05	0	0	0.242	0	0	0	0.242	6.82
0.58	800.75	3,212	0.270 oc	1.09	0	0	0.27	0	0	0	0.27	7.32
0.66	800.83	3,671	0.296 oc	1.11	0	0	0.296	0	0	0	0.296	7.77
0.75	800.92	4,130	0.335 oc	1.15	0	0.015	0.32	0	0	0	0.335	8.18
0.83	801	4,589	0.399 oc	1.21	0	0.057	0.342	0	0	0	0.399	8.52
0.93	801.1	5,385	0.494 oc	1.28	0	0.127	0.367	0	0	0	0.494	9.02
1.03	801.2	6,181	0.575 oc	1.32	0	0.185	0.39	0	0	0	0.575	9.43
1.13	801.3	6,977	0.637 oc	1.36	0	0.228	0.41	0	0	0	0.637	9.8
1.23	801.4	7,773	0.676 oc	1.37	0	0.263	0.413	0	0	0	0.676	10.13
1.33	801.5	8,569	0.714 oc	1.39	0	0.295	0.419	0	0	0	0.714	10.45
1.43	801.6	9,365	0.786 oc	1.42	0	0.324	0.438	0.024	0	0	0.786	10.75
1.53	801.7	10,161	0.889 oc	1.45	0	0.35	0.456	0.083	0	0	0.889	11.01
1.63	801.8	10,957	1.000 oc	1.46	0	0.374	0.472	0.154	0	0	1	11.24
1.73	801.9	11,753	1.088 oc	1.39	0	0.397	0.488	0.203	0	0	1.088	11.46
1.83	802	12,549	1.165 oc	1.48	0	0.419	0.504	0.243	0	0	1.165	11.65
1.93	802.1	13,493	2.180 oc	2.78	0.983	0.439	0.481	0.277	0.431	0.54	2.611	11.79
2.03	802.2	14,437	3.818 oc	4.86	2.779	0.366	0.366	0.307	1.274	0.8	5.092	11.86
2.13	802.3	15,382	5.226 oc	6.65	5.106	0.04	0.04	0.04	2.443	1.02	7.669	11.9
2.23	802.4	16,326	5.381 oc	6.85	0	0	0	0	3.919	1.22	9.3	11.93
2.33	802.5	17,270	5.519 oc	7.03	0	0	0	0	5.697	1.42	11.22	11.96
2.43	802.6	18,214	5.653 oc	7.2	0	0	0	0	7.779	1.62	13.43	11.98
2.53	802.7	19,158	5.784 oc	7.36	0	0	0	0	10.17	1.82	15.95	12
2.63	802.8	20,102	5.913 oc	7.53	0	0	0	0	12.87	2.01	18.78	12.01
2.73	802.9	21,046	6.038 oc	7.69	0	0	0	0	15.89	2.21	21.93	12.02
2.83	803	21,990	6.161 oc	7.85	0	0	0	0	19.24	2.41	25.4	12.04

Appendix D

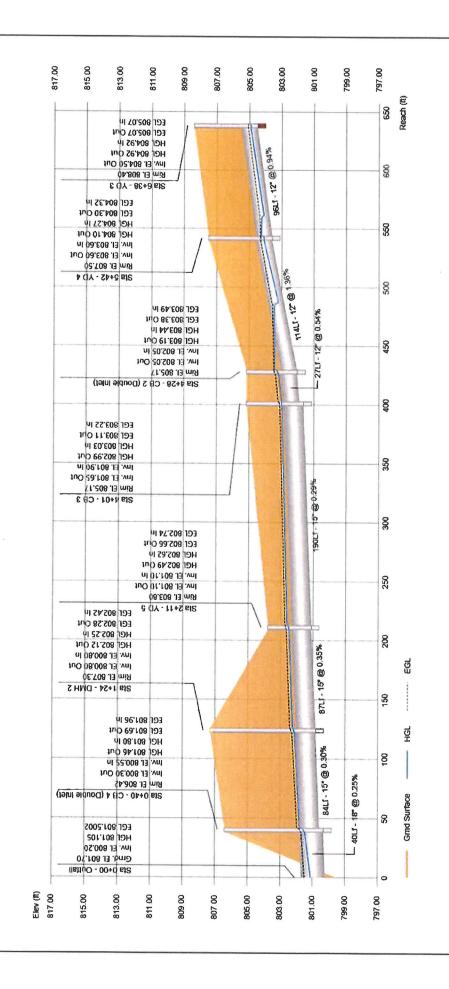


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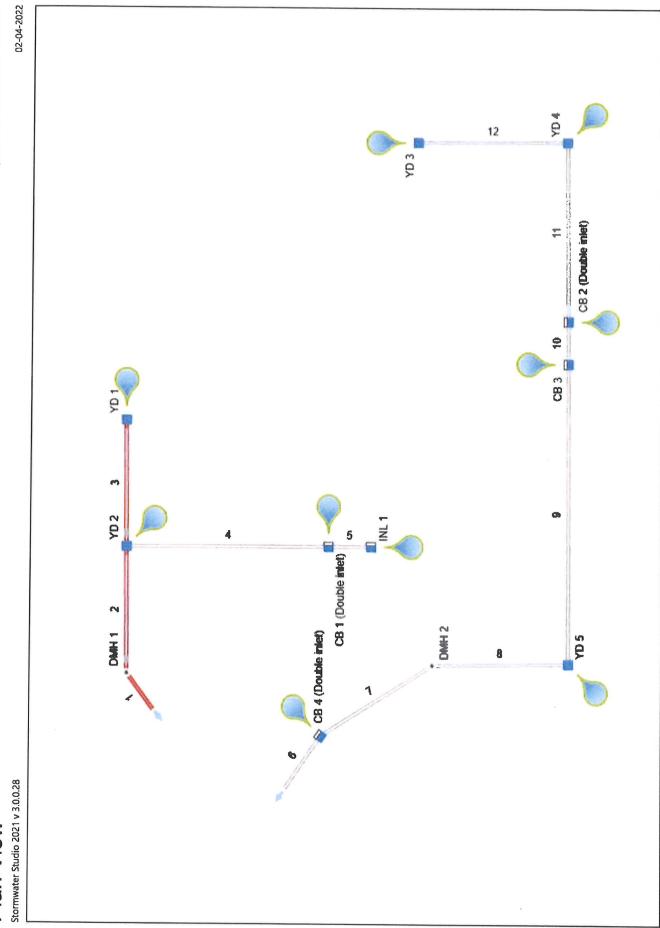


Project File: 3014 Stormwater design 1.sws

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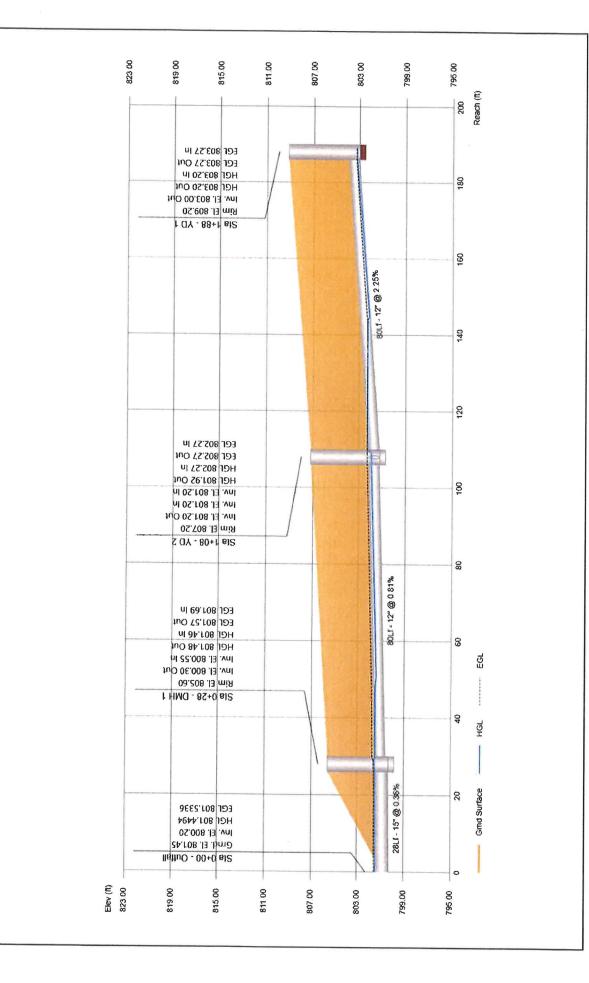


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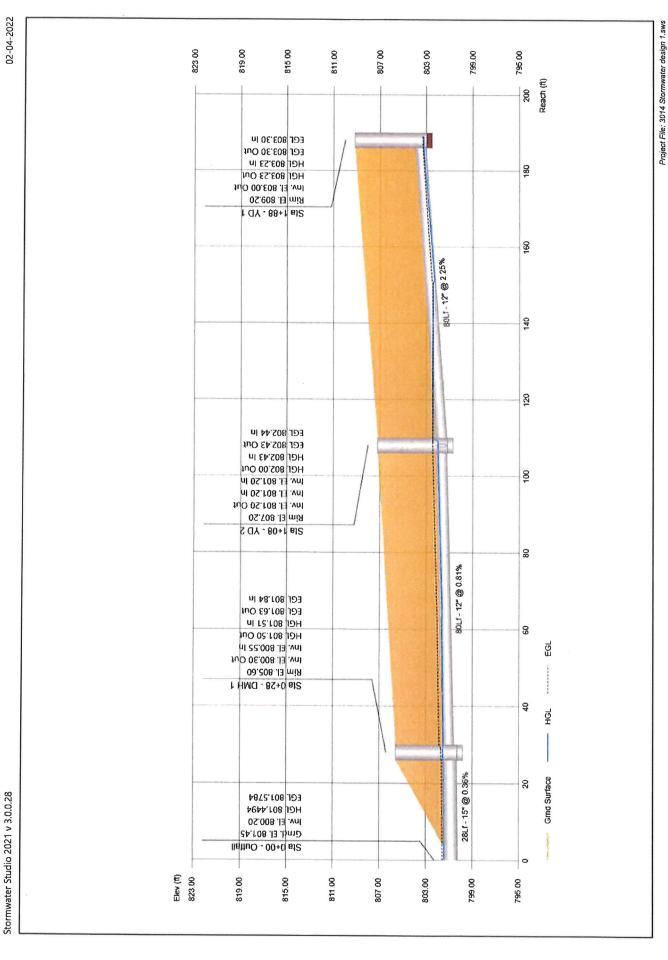


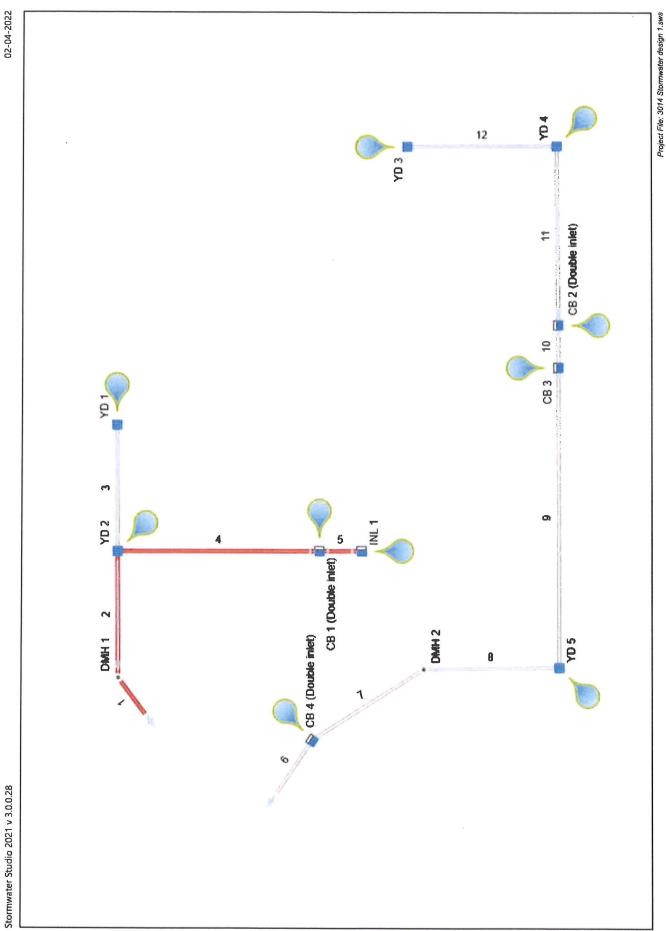
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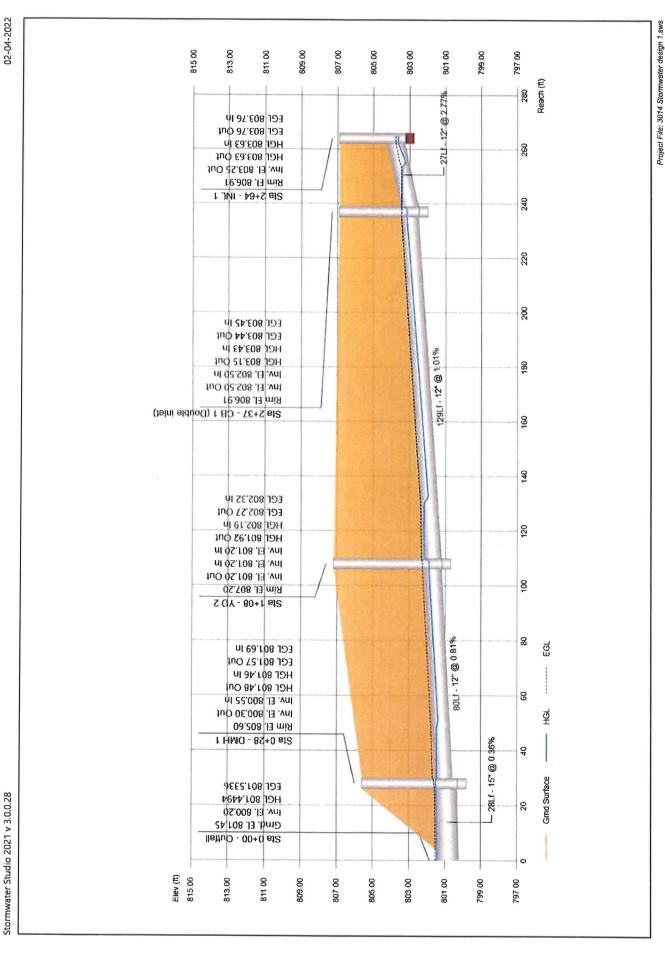
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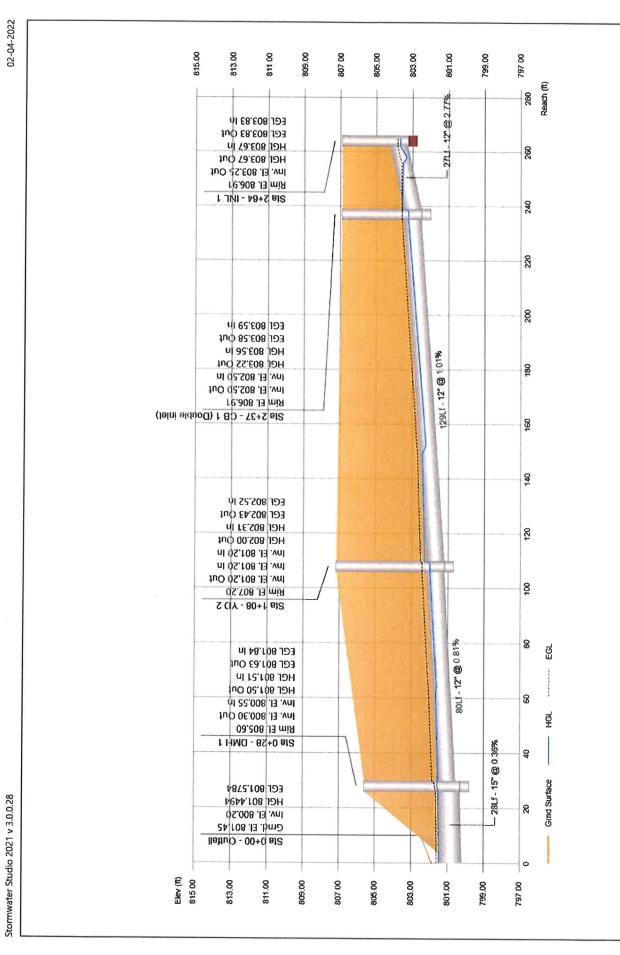


Project File: 3014 Stormwater design 1,sws









Project File: 3014 Stormwater design 1.sws

Project Name: Jackson Corner Subdivision

Storm Sewer Tabulation

Stormwater Studio 2021 v 3.0.0.28

	engtl	Drng	Drng Area	(snoi	ΰ	C×A	ည		Visu	Q lst	thios	city	Line		Invert Elev	Elev	HGI	HGL Elev	Surfa	Surface Elev	Line
	ר	Incr	Total	Rai	Incr	Total	Inlet	Syst	əìnl	οī	Cap	λeloV	Size	Slope	g	ត	S	ā	=	É	2
	£	(ac)	(ac)	(0)			(min)	(mim)	(in/hr)	(cfs)	(cfs)	(ff/s)	Ē	(%)	€	9	# #	€	} €	ā €	
Line 1	28.00	0.000	0.858	0.00	0.00	0.50	0.0	6.94	5.69	2.86	4.56	2.35	+-	+-	800.30	800.20	801.48	801.45) ä	800 80	-
Line 2	80.00	0.125	0.858	0.49	90.0	0.50	6.0	6.68	5.74	2.88	3.79	4.30	-21		801.20	800.55	801.92	801.46		805.60	- 0
Line 3	80.00	0.103	0.103	0.38	0.04	0.04	5.0	5.00	6.12	0.24	6.31	1.17	12		803.00	801.20	803.20	802.27		807.20	1 "
Line 4	129.00	0.387	0:9:0	99.0	0.26	0.40	5.0	6.29	5.82	2.34	4.23	3.66	12	1.01	802.50	801.20	803.15	802.19	806.91	807.20	. 4
Line 5	27.00 (0.243	0.243	0.57	0.14	0.14	6.2	6.21	5.84	0.81	5.93	2.00	12	2.77	803.25	802.50	803.63	803.43	806.91	806.91	ייי
	40.00	0.356	1.670	0.70	0.25	0.82	5.5	7.71	5.53	4.52	5.26	4.08	18	0.25	800.30	800.20	801.32	801.01	806.42	799.50	ω
	84.00	0.000	1.314	0.00	0.00	0.57	0.0	7.27	5.62	3.19	3.51	3.20	15	0:30	800.80	800.55	801.74	801.50	807.30	806.42	7
Line 8	87.00 0	0.294	1.314	98.0	0.11	0.57	5.0	6.91	5.69	3.24	4.49	3.12	15	0.35	801.10	800.80	802.01	801.89	803.80	807.30	00
Line 9 19	190.00	0.183	1.020	0.48	60.0	0.46	5.7	6.01	5.89	2.72	4.09	2.91	15 0	0.29	801.65	801.10	802.43	802.16	805.17	803.80	თ
	27.00 0	0.281	0.837	0.65	0.18	0.37	5.0	5.89	5.91	2.22	2.61	3.73	12 0	0.54	802.05	801.90	802.75	802.61	805.17	805.17	10
Line 11 11	114.00 0	0.142	0.556	0.42	90.0	0.19	5.0	5.51	00.9	1.15	4.90	2.39	12 1	1.36	803.60	802.05	804.05	803.16	807.50	805.17	11
Line 12 96	96.00 0	0.414	0.414	0.32	0.13	0.13	5.1	5.12	60.9	0.81	4.08	2.29	12 0	0.94 8	804.50	803.60	804.88	804.19	808.40	807.50	12
Notes: IDF File = Rainfaal Frequency Atlas of the Midwest for SW Studio.idf, Return Period = 10-yrs.	ednency	/ Atlas	of the Mik	dwest fo	r SW St	dio.idf, F	teturn P	eriod = 1	10-yrs.									Proje	Project File: 3014 Stormwater design 1 sws	stormwater des	ian 1 sws

Storm Sewer Tabulation

Stormwater Studio 2021 v 3.0.0.28

Line N	2		-	2	ന	4	2	9	7	«o	on.	9	ξ	12	
	Т		.80	.60	- 50		- 16	- 20	42	30		17	17		
Surface Elev	4	€	8		807.20			799.50	806.42	807.30	803.80	805.17	805.17	807.50	
Surf	ತಿ	£	805.60	807.20	809.20	806.91	806.91	806.42	807.30	803.80	805.17	805.17	807.50	808.40	
Elev	ā	£	801.45	801.51	802.43	802.31	803.56	801.11	801.80	802.25	802.62	803.03	803.44	804.27	
HGL Elev	5	£	801.50	802.00	803.23	803.22	803.67	801.46	802.12	802.49	802.99	803.19	804.10	804.92	
lev	a a	£	800.20	800.55	801.20	801.20	802.50	800.20	800.55	800.80	801.10	801.90	802.05	803.60	
Invert Elev	<u>a</u>	£	800.30	801.20	803.00	802.50	803.25 8	800.30	800.80	801.10	801.65 8	802.05 8	803.60	804.50 8	
	Slope		0.36 80							-				-	
Line	Size Sic	(in) (%)	15 0.	12 0.81	12 2.25	12 1.01	2 2.77	8 0.25	5 0.30	5 0.35	5 0.29	0.54	1.36	0.94	
locity		(fVs) (i	2.90	4.95			21 12		15	15	75 15	12	9 12	7 12	
(Ajjoe)		(cfs) (ft	4.56 2.	3.79 4.8	31 1.27	23 4.23	33 2.21	4.44	3.23	9 3.27	9 2.75	1 3.49	0 2.69	8 2.47	
्राह्म		(cfs) (c		-	30 6.31	39 4.23	00 5.93	5.26	3.51	4.49	7 4.09	2.61	3 4.90	0 4.08	
yisne O lete			3.53	10 3.57	96 0.30	2.89	1.00	7 5.61	7 3.96	6 4.01	9 3.37	2 2.74	2 1.43	2 1.00	
74,300		(min) (in/hr)	7.04	6 7.10	0 7.56	9 7.20	1 7.22	0 6.87	7 6.97	2 7.06	6 7.29	4 7.32	9 7.42	2 7.52	
2	et Syst	-	06.90	99.9	00'9	6.29	6.21	7.60	7.17	6.82	5.96	5.84	5.49	5.12	
	al Inlet	(min)	0.0	0.9 0.0	5.0	0 5.0	6.2	5.5	0.0	5.0	5.7	5.0	5.0	5.1	
C×A	r Total		0.50	0.50	0.04	0.40	0.14	0.82	0.57	0.57	0.46	0.37	0.19	0.13	
	Incr		0.00	0.06	0.04	0.26	0.14	0.25	0.00	0.11	0.09	0.18	0.06	0.13	
Isnoif		0	0.00	0.49	0.38	0.68	0.57	0.70	0.00	0.36	0.48	0.65	0.42	0.32	
6	Total	(ac)	0.858	0.858	0.103	0.630	0.243	1.670	1.314	1.314	1.020	0.837	0.556	0.414	
Dra	<u> </u>	(ac)	0.000	0.125	0.103	0.387	0.243	0.356	0.000	0.294	0.183	0.281	0.142	0.414	
-ength	l	€	28.00	80.00	80.00	129.00	27.00	40.00	84.00	87.00	190.00	27.00	114.00	96.00	
Line ID			Line 1	Line 2	Line 3	Line 4	Line 5	Line 6	Line 7	Line 8	Line 9	Line 10	Line 11	Line 12	

SW Summary Report stormwater Studio 2021 v 3.0.0.28

> _	3.0.0.2	-	.															02-04-2022
Line Drain Runoff i Length Area Coeff Inlet	Runoff		i Inlet		Syst	Tc System	Total Runoff	Line	Line Slope	Vel	Vel Normal	Capac. Full	Invert	Invert	Grnd/Rim Elev Up	Grnd/Rim Elev Dn	To Line	Pipe Travel
(ft) (ac) (C) (in/hr)	(2)		(in/hr		(in/hr)	(min)	(cfs)	(in)	(ft/ft)	(fVs)	(£1/s)	(cfs)	£	(#)	(#)	(£)		(min)
28.00 0.000 0.00 0.00	00:00		0.00	_	5.69	6.9	2.86	15	0.0036	2.35	3.92	4.56	800.30	800.20	805.60	800.80	Outfall	0.12
80.00 0.125 0.49 5.90	0.49		5.90	_	5.74	6.7	2.88	12	0.0081	4.30	5.31	3.79	801.20	800.55	807.20	805.60	-	0.25
80.00 0.103 0.38 6.12	0.38	-	6.1	2	6.12	5.0	0.24	12	0.0225	1.17	3.85	6.31	803.00	801.20	809.20	807.20	2	0.35
CB 1 (Doublet 29ea) 0.387 0.68 6.12	0.68		6.1	2	5.82	6.3	2.34	12	0.0101	3.66	5.52	4.23	802.50	801.20	806.91	807.20	2	0.39
27.00 0.243 0.57 5.84	0.57		5.8	4	5.84	6.2	0.81	12	0.0277	2.00	5.28	5.93	803.25	802.50	806.91	806.91	4	0.09
CB 4 (Double40let) 0.356 0.70 6.0	0.70	-	9.	6.00	5.53	7.7	4.52	18	0.0025	4.08	3.35	5.26	800.30	800.20	806.42	799.50	Outfall	0.20
84.00 0.000 0.00 0.	00:00		0	00:00	5.62	7.3	3.19	15	0.003	3.20	3.24	3.51	800.80	800.55	807.30	806.42	9	0.44
87.00 0.294 0.36 6	0.36		9	6.12	5.69	6.9	3.24	15	0.0035	3.12	3.98	4.49	801.10	800.80	803.80	807.30	7	0.37
190.00 0.183 0.48 5	0.48		Ŋ	5.96	5.89	0.9	2.72	15	0.0029	2.91	3.57	4.09	801.65	801.10	805.17	803.80	∞	06:0
CB 2 (Double277160) 0.281 0.65 6	0.65		ω	6.12	5.91	5.9	2.22	12	0.0054	3.73	3.73	2.61	802.05	801.90	805.17	805.17	თ	0.12
114.00 0.142 0.42	0.42		0	6.12	00.9	5.5	1.15	12	0.0136	2.39	5.10	4.90	803.60	802.05	807.50	805.17	10	0.37
96.00 0.414 0.32 6	0.32		0	60.9	60.9	5.1	0.81	12	0.0094	2.29	4.04	4.08	804.50	803.60	808.40	807.50	=	0.40
	× ×																	
Notes: IDF File = Rainfaal Frequency Atlas of the Midwest for SW Studio.idf,	Frequency Atlas of the M	y Atlas of the M	the M	idwes	st for SW S		Return Period = 10-yrs.	d = 10-yrs.								Project File: 3014 Stormwater design 1.sws	14 Stormwate	r design 1.sw

SW Summary Report

, <u>ō</u>	<u> </u>	-	4	n	7	····		က	10	9	2	2		1 1.SWS
Pipe Travel	(min)	0.11	0.24	0.33	0.37	0.08	0.20	0.43	0.35	0.86	0.12	0.35	0.37	ater design
To		Outfall	-	2	7	4	Outfall	ω	7		<u>თ</u>	9	=	014 Stormw
Grnd/Rim Elev Dn	E	800.80	805.60	807.20	807.20	806.91	799.50	806.42	807.30	803.80	805.17	805.17	807.50	Project File; 3014 Stormwater design 1,sws
Grnd/Rim Elev Up	(#)	805.60	807.20	809.20	806.91	806.91	806.42	807.30	803.80	805.17	805.17	807.50	808.40	
Invert	(#)	800.20	800.55	801.20	801.20	802.50	800.20	800.55	800.80	801.10	801.90	802.05	803.60	
Invert Up	(ft)	800.30	801.20	803.00	802.50	803.25	800.30	800.80	801.10	801.65	802.05	803.60	804.50	
Capac. Full	(cfs)	4.56	3.79	6.31	4.23	5.93	5.26	3.51	4.49	4.09	2.61	4.90	4.08	***************************************
Vel	(£/\s)	4.10	5.49	4.10	5.79	5.61	3.34	3.23	4.14	3.72	3.76	5.41	4.29	
Vel Ave	(fVs)	2.90	4.95	1.27	4.23	2.21	4.44	3.23	3.27	2.75	3.49	2.69	2.47	
Line Slope	(#/#)	0.0036	0.0081	0.0225	0.0101	0.0277	0.0025	0.003	0.0035	0.0029	0.0054	0.0136	0.0094	
Line Size	(in)	15	12	12	12	12	8	15	5	15	12	12	12	od = 25-yrs
Total Runoff	(cfs)	3.53	3.57	0:30	2.89	1.00	5.61	3.96	4.01	3.37	2.74	1.43	1.00	Return Period = 25-yrs.
Tc System	(min)	6.9	6.7	5.0	6.3	6.2	9.7	7.2	8.9	0.9	5.8	5.5	5.1	
i Syst	(in/hr)	7.04	7.10	7.56	7.20	7.22	6.87	6.97	7.06	7.29	7.32	7.42	7.52	st for SW 5
inlet	(in/hr)	0.00	7.29	7.56	7.56	7.22	7.41	0.00	7.56	7.37	7.56	7.56	7.52	the Midwe
Runoff	(2)	00.00	0.49	0.38	99.0	0.57	0.70	0.00	0.36	0.48	0.65	0.42	0.32	icy Atlas of
Drain Area	(ac)	0.000	0.125	0.103	0.387	0.243	0.356	0.000	0.294	0.183	0.281	0.142	0.414	ial Frequen
Line Length	(±)	28.00	80.00	80.00	ld radio	27.00	le40180	84.00	87.00	190.00	leZillet)	114.00	96.00	ile = Rainfa
nlet D		DMH 1	YD2	YD 1	CB 1 (Doublet 294)	INC 1	CB 4 (Double46180)	DMH 2	YD5	CB 3	CB 2 (DoubleZiniet)	YD 4	YD3	Notes: IDF File = Rainfaal Frequency Atlas of the Midwest for SW Studio.idf,

Adequacy Report stormwater Studio 2021 v 3.0.0.28

Stormv	Stormwater Studio 2021 v 3.0.0.28	121 v 3.0.0.2	. _@ [02-04-2022
Line No.	ιο	Q Total	Total Runoff	Capac. Full	Vel	Inlet Spread	Gutter Spread	EGL	Invert Up	EGL	Invert	Line	Grate Area	
		(cfs)	(cfs)	(cfs)	(£/L)	£	(#)	(ft)	(#)	(ff.)	(#)	(a/a)	(sqft)	
_	DMH 1	ŧ	2.86	4.56	2.35	i	i	801.57	800.30	801.53	800.20	63%	i	
7	YD 2	0.51	2.88	3.79	4.30	8.00	8.00	802.27	801.20	801.69	800.55	%92	į	
ო	YD 1	0.24	0.24	6.31	1.17	7.00	7.00	803.27	803.00	802.27	801.20	4%	:	,
4	CB 1 (Double Infet)	ble thæt)	2.34	4.23	3.66	7.26	7.26	803.44	802.50	802.32	801.20	25%	7.00	
2	IN 1	0.81	0.81	5.93	2.00	6.26	6.26	803.76	803.25	803.45	802.50	14%	3.50	
9	CB 4 (Double 2hlb#)	le thit	4.52	5.26	4.08	8.76	8.76	801.52	800.30	801.35	800.20	%98	7.00	
7	DMH 2	ŀ	3.19	3.51	3.20		-	801.90	800.80	801.66	800.55	91%	:	
œ	YD 5	0.65	3.24	4.49	3.12	13.00	13.00	802.19	801.10	802.02	800.80	72%	į	
<u>თ</u>	CB 3	0.52	2.72	4.09	2.91	4.26	4.26	802.61	801.65	802.26	801.10	%29	3.50	
9	CB 2 (Double Intel)	le finites)	2.22	2.61	3.73	7.76	7.76	802.97	802.05	802.82	801.90	85%	7.00	
7	YD 4	0.94	1.15	4.90	2.39	9.00	9.00	804.22	803.60	803.20	802.05	24%	i	
12	YD 3	0.81	0.81	4.08	2.29	9.00	9.00	805.01	804.50	804.23	803.60	20%	:	
Notes:	Notes: IDF File = Rainfaal Frequency Atlas of the Midwest for SW Studio.idf, Return Period = 10-yrs.	infaal Frequ	iency Atlas	of the Midv	west for SW	V Studio.idf,	Return Pe	riod = 10-y	rs.					Project File: 3014 Stomwater design 1,sws

02-04-2022

Adequacy Report stormwater Studio 2021 v 3.0.0.28

									3						Project File: 3014 Stormwater design 1.sws
Grate Area	(sqft)	***	:		7.00	3.50	7.00	!	:	3.50	7.00	i	:		
Line	(a/Q)	%82	94%	2%	%89	17%	107%	113%	%68	82%	105%	78%	24%		
Invert	(#)	800.20	800.55	801.20	801.20	802.50	800.20	800.55	800.80	801.10	801.90	802.05	803.60		
EGL	(#)	801.58	801.84	802.44	802.52	803.59	801.50	801.96	802.42	802.74	803.22	803.49	804.32		
Invert	(#)	800.30	801.20	803.00	802.50	803.25	800.30	800.80	801.10	801.65	802.05	803.60	804.50		rs.
EGL Up	(#)	801.63	802.43	803.30	803.58	803.83	801.69	802.28	802.66	803.11	803.38	804.30	805.07	*	riod = 25-y
Gutter Spread	(¥)	i	9.00	7.00	8.76	7.76	10.26	i	14.00	5.26	9.76	10.00	9.00		, Return Pe
Inlet Spread	(#)	4	9.00	2.00	8.76	7.76	10.26	1	14.00	5.26	9.76	10.00	9.00		/ Studio.idf
Vel	(s/J)	2.90	4.95	1.27	4.23	2.21	4.44	3.23	3.27	2.75	3.49	2.69	2.47		rest for SW
Capac. Full	(cfs)	4.56	3.79	6.31	4.23	5.93	5.26	3.51	4.49	4.09	2.61	4.90	4.08		of the Midw
Total Runoff	(cfs)	3.53	3.57	0.30	2.89	1.00	5.61	3.96	4.01	3.37	2.74	1.43	1.00		ency Atlas
Q Total	(cfs)	i	0.63	0.30	e integi	1.00	e Shleet)	i	0.80	0.65	e Bridds)	1.17	1.00		faal Frequ
Line Inlet Q No. ID Total		DMH 1	YD2	YD 1	CB 1 (Double In BB)	INL 1	CB 4 (Double shirt)	DMH 2	YD 5	CB 3	CB 2 (Double 2h25)	YD 4	YD3		Notes: IDF File = Rainfaal Frequency Atlas of the Midwest for SW Studio.idf, Return Period = 25-yrs.
Line No.		-	7	ю	4	2	φ	7	α0	თ	10	1	12		Notes:

Energy Grade Line Calculations Stormwater Studio 2021 v 3.0.0.28

Stormw	Stormwater Studio 2021 v 3.0.0.28	21 v 3.0	.0.28																			02-04-2022
Line	-				Õ	Downstream	E			цյбі				Upstream				Ā	Pipe		Junction	
2	Size	y	Invert	Depth	Area	HGL Elev	Vel	Vel Head	EGL	Гег	Invert Elev	Depth	Area	HGL Elev	Vel	Vel	EGL	n Value	Enrgy	HGLa	EGLa	Enrgy
	(in)	(cfs)	£	(E)	(sqft)	Œ	(ft/s)	(#)	(#)	(£)	(#)	£	(sqft)	£	(£/\s)	£	Æ		£	£	£	£
-	15	2.86	800.20	1.25	1.23	801.45	2.33	80.0	801.53	28.00	800.30	1.18	1.20	801.48	2.38	60.0	801.57	0.011	0.036	801.52	801.61	0.04
2	12	2.88	800.55	0.91	0.75	801.46	3.83	0.23	801.69	80.00	801.20	0.72²	0.61	801.92	4.76	0.35	802.27	0.011	0.580	801.92	802.27	0.00
ი	12	0.24	801.20	1.00	0.79	802.27	0:30	00.00	802.27	80.00	803.00	0.212	0.12	803.20	2.03	90.0	803.27	0.011	0.997	803.20	803.27	0.00
4	12	2.34	801.20	0.99	0.78	802.19	2.99	0.14	802.32	129.00	802.50	0.65²	0.54	803.15	4.34	0.29	803.44	0.011	1.117	803.15	803.44	0.00
2	12	0.81	802.50	0.93	0.76	803.43	1.06	0.02	803.45	27.00	803.25	0.38²	0.28	803.63	2.94	0.13	803.76	0.013	0.316	803.63	803.76	0.00
9	18	4.52	800.20	0.811	0.98	801.01	4.63	0.33	801.35	40.00	800.30	1.02	1.28	801.32	3.52	0.19	801.52	0.013	0.170	801.42	801.61	0.10
7	15	3.19	800.55	0.95	1.00	801.50	3.18	0.16	801.66	84.00	800.80	0.94	66.0	801.74	3.22	0.16	801.90	0.013	0.241	801.81	801.97	0.07
ω	15	3.24	800.80	1.09	1.14	801.89	2.85	0.13	802.02	87.00	801.10	0.91	96.0	802.01	3.38	0.18	802.19	0.011	0.171	802.05	802.23	0.04
თ	15	2.72	801.10	1.06	1.1	802.16	2.45	60.0	802.26	190.00	801.65	0.78	0.81	802.43	3.36	0.18	802.61	0.011	0.350	802.48	802.66	0.05
9	12	2.22	801.90	0.713	0.59	802.61	3.73	0.22	802.82	27.00	802.05	0.71	0.59	802.75	3.74	0.22	802.97	0.013	0.145	802.97	803.18	0.21
=	12	1.15	802.05	1.00	0.79	803.16	1.47	0.03	803.20	114.00	803.60	0.46²	0.35	804.05	3.31	0.17	804.22	0.011	1.026	804.05	804.22	0.00
12	12	0.81	803.60	09:0	0.49	804.19	1.65	0.04	804.23	96.00	804.50	0.382	0.27	804.88	2.94	0.13	805.01	0.011	0.777	804.88	805.01	0.00
Notes:	Notes: Return Period = 10-yrs. ¹ Critical depth. ² Critical depth. ³ Normal depth.	1 = 10-yr	s. ¹ Critical	depth. 2	Critical	depth. 3 No	mal dep	Ę.											Proje	ct File: 3014	Project File: 3014 Stormwater design 1.sws	esign 1.sws

Energy Grade Line Calculations

Line	Line	0			ă	Downstream	E			аџ			-	Upstream				ا ا	Pipe		Junction	
8		צ	Invert Elev	Depth	Area	HGL Elev	Vel	Vel	EGL Elev	цеŢ	Invert	Depth	Area	HGL	Vel	Vel	EGL	Zalue Value	Enrgy	HGLa	EGLa	Enrgy
	(in)	(cfs)	(#)	Œ	(sqft)	(£t)	(fVs)	(£)	(#)	(£)	Œ	£	(sqft)	(#)	(£Vs)	£	£		£	£	£	£ £
-	15	3.53	800.20	1.25	1.23	801.45	2.88	0.13	801.58	28.00	800.30	1.20	1.21	801.50	2.92	0.13	801.63	0.011	0.056	801.57	801.70	90.0
8	12	3.57	800.55	96.0	0.77	801.51	4.61	0.33	801.84	80.00	801.20	0.80	79.0	802.00	5.29	0.43	802.43	0.011	0.598	802.00	802.43	0.00
m	12	0:30	801.20	1.00	0.79	802.43	0.38	00.0	802.44	80.00	803.00	0.232	0.14	803.23	2.16	0.07	803.30	0.011	0.865	803.23	803.30	0.00
4	12	2.89	801.20	1.00	0.79	802.31	3.68	0.21	802.52	129.00	802.50	0.72²	0.61	803.22	4.77	0.35	803.58	0.011	1.056	803.22	803.58	0.00
S	12	1.00	802.50	1.00	0.79	803.56	1.27	0.03	803.59	27.00	803.25	0.422	0.32	803.67	3.15	0.15	803.83	0.013	0.242	803.67	803.83	0.00
ω	18	5.61	800.20	106.0	1.1	801.11	5.04	0.40	801.50	40.00	800.30	1.16	1.47	801.46	3.83	0.23	801.69	0.013	0.188	801.57	801.80	0.11
7	15	3.96	800.55	1.25³	1.23	801.80	3.23	0.16	801.96	84.00	800.80	1.25	1.23	802.12	3.23	0.16	802.28	0.013	0.316	802.19	802.35	0.07
ω	15	4.01	800.80	1.25	1.23	802.25	3.27	0.17	802.42	87.00	801.10	1.25	1.23	802.49	3.27	0.17	802.66	0.011	0.241	802.53	802.69	0.03
თ	15	3.37	801.10	1.25	1.23	802.62	2.75	0.12	802.74	190.00	801.65	1.25	1.23	802.99	2.75	0.12	803.11	0.011	0.371	803.02	803.14	0.03
9	12	2.74	801.90	1.00	0.79	803.03	3.49	0.19	803.22	27.00	802.05	1.00	0.79	803.19	3.49	0.19	803.38	0.013	0.160	803.28	803.47	0.09
7	12	1.43	802.05	1.00	0.79	803.44	1.81	0.05	803.49	114.00	803.60	0.512	0.40	804.10	3.57	0.20	804.30	0.011	0.810	804.10	804.30	0.00
12	12	1.00	803.60	0.67	0.56	804.27	1.78	0.05	804.32	96.00	804.50	0.422	0.32	804.92	3.15	0.15	805.07	0.011	0.759	804.92	805.07	0.00
					,																	
Notes:	Notes: Return Period = 25-yrs. 1 Critical depth. 2 Critical depth. 3 Normal depth.	1 = 25-yrs	3. 1 Critical	depth. 2	Critical	depth. 3 Nor	mal dep	£.											Project	Project File: 3014 Stormwafer design 1.sws	thomaster de	einn 1.sws

Stormwater Studio 2021 v 3.0.0.28

02-01-2022

Line No. 2 YD 2

Description		Segments		
Description	A	В	C	Tc (min)
Sheet Flow				
Description				
Manning's n	0.130	0.000	0.000	
Flow Length (ft)	66		0.000	
2-yr, 24-hr Precip. (in)	2.890	2.023	2.023	
Land Slope (%)	3.18			
Travel Time (min)	5.48	0.00	0.00	5.48
Shallow Concentrated Flow				
Flow Length (ft)	76			
Watercourse Slope (%)	2.63			
Surface Description	Unpaved	Paved	Paved	
Average Velocity (ft/s)	2.62			
Travel Time (min)	0.48	0.00	0.00	0.48
Channel Flow				
X-sectional Flow Area (sqft)				
Wetted Perimeter (ft)				
Channel Slope (%)				
Manning's n	0.000	0.000	0.000	
Velocity (ft/s)				
Flow Length (ft)				
Travel Time (min)	0.00	0.00	0.00	0.00
Total Travel Time				5.96 mii

Stormwater Studio 2021 v 3.0.0.28

02-01-2022

Line No. 3

Description		Segments		
Description	A	В	C	Tc (min)
Sheet Flow				
Description				
Manning's n	0.130	0.000	0.000	
Flow Length (ft)	29		-	
2-yr, 24-hr Precip. (in)	2.890	2.023	2.023	
Land Slope (%)	1.72			
Travel Time (min)	3.63	0.00	0.00	3.63
Shallow Concentrated Flow				V)
Flow Length (ft)	46		- Company Control of the Control of	
Watercourse Slope (%)	7.17			
Surface Description	Unpaved	Paved	Paved	and the second second
Average Velocity (ft/s)	4.32			
Travel Time (min)	0.18	0.00	0.00	0.18
Channel Flow				
X-sectional Flow Area (sqft)			THE PROPERTY OF THE PROPERTY O	
Wetted Perimeter (ft)				
Channel Stope (%)				1
Manning's n	0.000	0.000	0.000	
Velocity (ft/s)				
Flow Length (ft)				The second secon
Travel Time (min)	0.00	0.00	0.00	0.00
Total Travel Time				5 min

Stormwater Studio 2021 v 3.0.0.28

02-01-2022

Line No. 4 CB 1

Description		Segments		
Description	A	В	C	Tc (min)
Sheet Flow				na falanjum
Description				de la companya de la
Manning's n	0.130	0.000	0.000	
Flow Length (ft)	47			
2-yr, 24-hr Precip. (in)	2.890	2.023	2.023	
Land Slope (%)	5.32			
Travel Time (min)	3.40	0.00	0.00	3.40
Shallow Concentrated Flow				The state of the s
Flow Length (ft)	127			
Watercourse Slope (%)	.47			A Communication Communication of Communication (Communication Communication Communicat
Surface Description	Paved	Paved	Paved	
Average Velocity (ft/s)	1.39			
Travel Time (min)	1.52	0.00	0.00	1.52
Channel Flow				
X-sectional Flow Area (sqft)				
Wetted Perimeter (ft)				
Channel Slope (%)				
Manning's n	0.000	0.000	0.000	
Velocity (ft/s)				
Flow Length (ft)		•		A contract of the contract of
Travel Time (min)	0.00	0.00	0.00	0.00
Total Travel Time				5 min

02-01-2022

Line No. 5

Description		Segments		
Description	A	В	C	Tc (min)
Sheet Flow				a second
Description				
Manning's n	0.130	0.000	0.000	
Flow Length (ft)	62			
2-yr, 24-hr Precip. (in)	2.890	2.023	2.023	1
Land Slope (%)	3.7			
Travel Time (min)	4.90	0.00	0.00	4.90
Shallow Concentrated Flow				
Flow Length (ft)	109			SALANNE PART STATE S
Watercourse Slope (%)	.47			
Surface Description	Paved	Paved	Paved	
Average Velocity (ft/s)	1.39			
Travel Time (min)	1.30	0.00	0.00	1.30
Channel Flow				
X-sectional Flow Area (sqft)				
Wetted Perimeter (ft)				
Channel Slope (%)				
Manning's n	0.000	0.000	0.000	
Velocity (ft/s)				
Flow Length (ft)				
Travel Time (min)	0.00	0.00	0.00	0.00
Total Travel Time				6.21 mi

02-01-2022

Line No. 6

Description		Segments		
Description	A	В	C	Tc (min)
Sheet Flow				
Description				
Manning's n	0.130	0.000	0.000	
Flow Length (ft)	41			
2-yr, 24-hr Precip. (in)	2.890	2.023	2.023	
Land Slope (%)	2			
Travel Time (min)	4.51	0.00	0.00	4.51
Shallow Concentrated Flow				And the Control of th
Flow Length (ft)	87			
Watercourse Slope (%)	.5			
Surface Description	Paved	Paved	Paved	
Average Velocity (ft/s)	1.44			
Travel Time (min)	1.01	0.00	0.00	1.01
Channel Flow				
X-sectional Flow Area (sqft)	manuscriptorius (unit original construire) (unit original construire) (unit original construire)			
Wetted Perimeter (ft)				
Channel Slope (%)				
Manning's n	0.000	0.000	0.000	
Velocity (ft/s)				
Flow Length (ft)				A STATE OF THE STA
Travel Time (min)	0.00	0.00	0.00	0.00
Total Travel Time				5.51 mii

02-01-2022

Line No. 8 YD 5

Description		Segments		
Description	A	B	C	Tc (min)
Sheet Flow		Transaction of the state of the		* Additional
Description				
Manning's n	0.130	0.000	0.000	
Flow Length (ft)	15			
2-yr, 24-hr Precip. (in)	2.890	2.023	2.023	
Land Slope (%)	2.2			
Travel Time (min)	1.94	0.00	0.00	1.94
Shallow Concentrated Flow				Control of the Contro
Flow Length (ft)	180			
Watercourse Slope (%)	3.85			M. M. C.
Surface Description	Unpaved	Paved	Paved	
Average Velocity (ft/s)	3.17			The same of the sa
Travel Time (min)	0.95	0.00	0.00	0.95
Channel Flow		1		
X-sectional Flow Area (sqft)				
Wetted Perimeter (ft)				
Channel Slope (%)				
Manning's n	0.000	0.000	0.000	
Velocity (ft/s)				- NA
Flow Length (ft)				
Travel Time (min)	0.00	0.00	0.00	0.00
Total Travel Time				5 min

Stormwater Studio 2021 v 3.0.0.28

02-01-2022

Line No. 9

Description		Segments		
Description	Α	В	С	Tc (min)
Sheet Flow				
Description				
Manning's n	0.130	0.000	0.000	
Flow Length (ft)	62			
2-yr, 24-hr Precip. (in)	2.890	2.023	2.023	
Land Slope (%)	3.71			
Travel Time (min)	4.90	0.00	0.00	4.90
Shallow Concentrated Flow				
Flow Length (ft)	114			
Watercourse Slope (%)	1.46			
Surface Description	Paved	Paved	Paved	
Average Velocity (ft/s)	2.46			
Travel Time (min)	0.77	0.00	0.00	0.77
Channel Flow				Company (Control of Control of Co
X-sectional Flow Area (sqft)				
Wetted Perimeter (ft)		A Secretaria Constitution of the Constitution		
Channel Slope (%)				
Manning's n	0.000	0.000	0.000	
Velocity (ft/s)				
Flow Length (ft)				
Travel Time (min)	0.00	0.00	0.00	0.00
Total Travel Time				5.67 mir

02-01-2022

Line No. 10 *CB 2*

Description		Segments		
Decompani	A	В	C	Tc (min
Sheet Flow				valida (m. n.
Description				
Manning's n	0.130	0.000	0.000	
Flow Length (ft)	47	0.000	0.000	
2-yr, 24-hr Precip. (in)	2.890	2.023	2.023	
Land Slope (%)	5.32	2.020	2.023	
Travel Time (min)	3.40	0.00	0.00	3.40
Shallow Concentrated Flow				To the second se
Flow Length (ft)	134			
Watercourse Slope (%)	1.46			
Surface Description	Paved	Paved	Paved	
Average Velocity (ft/s)	2.46			
Travel Time (min)	0.91	0.00	0.00	0.91
Channel Flow				
X-sectional Flow Area (sqft)	4. 4			
Wetted Perimeter (ft)				
Channel Slope (%)				
Manning's n	0.000	0.000	0.000	
Velocity (ft/s)				
Flow Length (ft)				
Travel Time (min)	0.00	0.00	0.00	0.00
Total Travel Time				5 min

Stormwater Studio 2021 v 3.0.0.28

02-01-2022

Line No. 11 YD 4

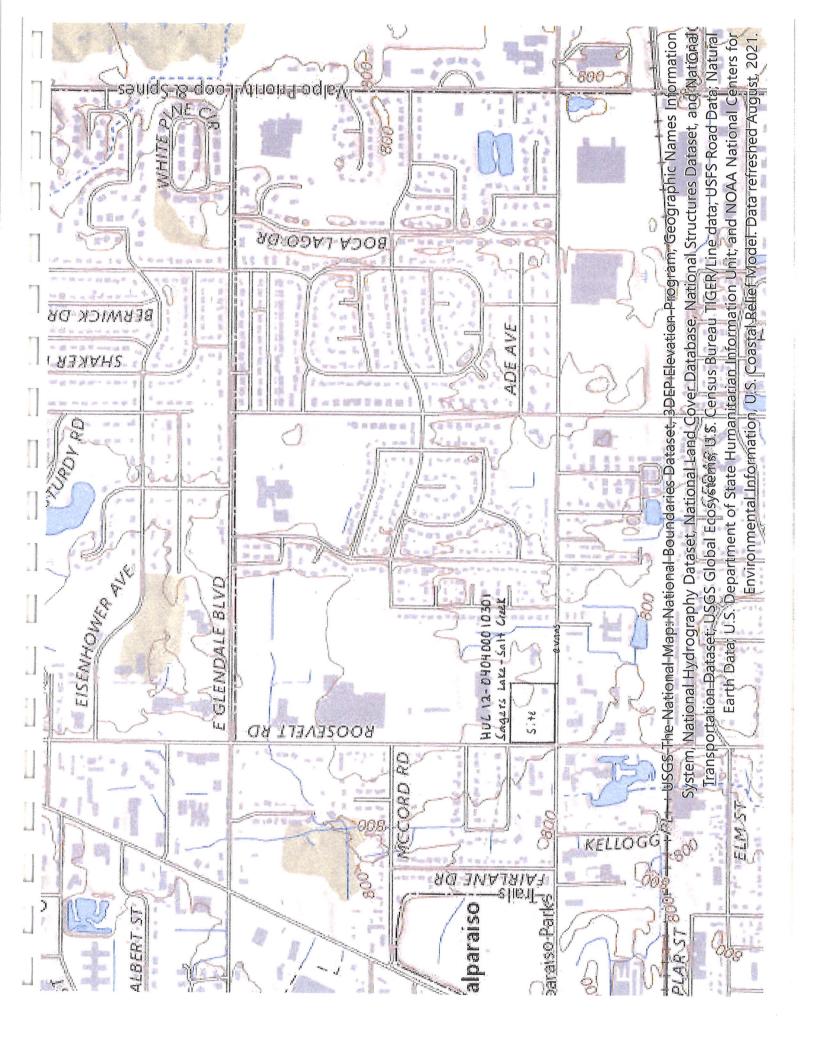
		Segments		
Description	A	В	C	Tc (min)
Sheet Flow				
Description				
Manning's n	0.130	0.000	0.000	
Flow Length (ft)	7			
2-yr, 24-hr Precip. (in)	2.890	2.023	2.023	
Land Slope (%)	1	No.		
				1.45
Travel Time (min)	1.45	0.00	0.00	1,45
Shallow Concentrated Flow				
Flow Length (ft)	138			
Watercourse Slope (%)	.77	And a state of the	Douad	
Surface Description	Unpaved	Paved	Paved	
Average Velocity (ft/s)	1.42			
			0.00	1.62
Travel Time (min)	1.62	0.00	0.00	1.02
Channel Flow				
X-sectional Flow Area (sqft)				
Wetted Perimeter (ft)				
Channel Slope (%)		0.000	0.000	
Manning's n	0.000	0.000	0.000	
Velocity (ft/s)				
Flow Length (ft)				
		0.00	0.00	0.00
Travel Time (min)	0.00	0.00		
Total Travel Time				5 mir

02-01-2022

Line No. 12 YD 3

Description	Segments				
Seastipaon	A	В	C	Tc (min)	
Sheet Flow					
Description					
Manning's n	0.130	0.000	0.000		
Flow Length (ft)	29				
2-yr, 24-hr Precip. (in)	2.890	2.023	2.023		
Land Slope (%)	1.72				
Travel Time (min)	3.63	0.00	0.00	3.63	
Shallow Concentrated Flow				Water Asia	
Flow Length (ft)	204				
Watercourse Slope (%)	2			The state of the s	
Surface Description	Unpaved	Paved	Paved		
Average Velocity (ft/s)	2.28				
Travel Time (min)	1.49	0.00	0.00	1.49	
Channel Flow				***	
X-sectional Flow Area (sqft)					
Wetted Perimeter (ft)					
Channel Slope (%)					
Manning's n	0.000	0.000	0.000		
Velocity (ft/s)					
Flow Length (ft)					
Travel Time (min)	0.00	0.00	0.00	0.00	
Total Travel Time				5.12 mii	

Appendix E





This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

January 17, 2022

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

National Flood Hazard Layer FIRMette



OTHER AREAS OF FLOOD HAZARD OTHER AREAS MAP PANELS AREA OF MINIMAL FLOOD HAZARD 1:6,000 Feet eff. 9/30/2015 18127C0210D

Legend

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

With BFE or Depth Zone AE, AO, AH, VE, AR Without Base Flood Elevation (BFE) Zone A. V. A99

SPECIAL FLOOD HAZARD AREAS

Regulatory Floodway

of 1% annual chance flood with average depth less than one foot or with drainag areas of less than one square mile zone Future Conditions 1% Annual

0.2% Annual Chance Flood Hazard, Are:

Area with Flood Risk due to Levee $z_{one} \, \underline{c}$ Area with Reduced Flood Risk due to Levee. See Notes. Zone X

Chance Flood Hazard Zone X

NO SCREEN Area of Minimal Flood Hazard Zone X Effective LOMRs

Area of Undetermined Flood Hazard zon

- -- Channel, Culvert, or Storm Sewer STRUCTURES 1111111 Levee, Dike, or Floodwall

GENERAL

Cross Sections with 1% Annual Chance

Water Surface Elevation Coastal Transect

Base Flood Elevation Line (BFE) - Limit of Study me 513 mm

Jurisdiction Boundary

Coastal Transect Baseline

Hydrographic Feature Profile Baseline

OTHER FEATURES

Digital Data Available

No Digital Data Available Unmapped The pin displayed on the map is an approximat point selected by the user and does not represt 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

authoritative NFHL web services provided by FEMA. This map was exported on 1/17/2022 at $4.43~\rm PM$ and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or The flood hazard information is derived directly from the 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.

1.500

1.000

500

250



USDA

Natural Resources Conservation Service

Map Unit Legend

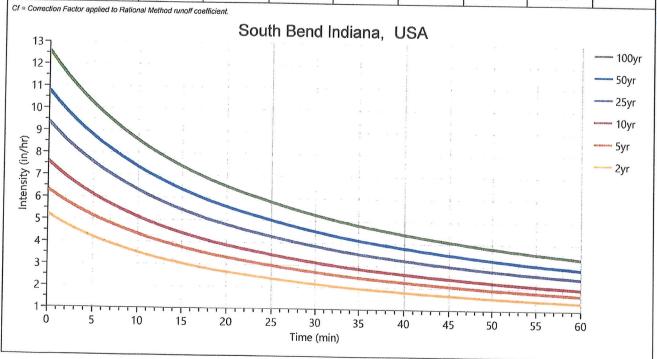
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BaA	Blount silt loam, Lake Michigan Lobe, 0 to 2 percent slopes	0.6	9.3%
OzaB2	Ozaukee silt loam, 2 to 6 percent slopes, eroded	5.7	90.7%
Totals for Area of Interest		6.3	100.0%

07-26-202

Goefficients 1-yr 2-yr 3-yr 5-yr 10-yr 25-yr 50-yr B 0.0000 88.7935 0.0000 139.0142 134.1374 167.0621 214.5947 D 0.0000 19.4000 0.0000 22.0004 40.7000 10.0000	100-yr
B 0.0000 0.0000 139.0142 134.1374 167.0621 214.5947	-
D 00000 10 1000	232.0766
D 0.0000 19.4000 0.0000 22.0001 19.7000 19.8000 21.0000	20.4000
E 0.0000 0.9553 0.0000 0.9994 0.9629 0.9641 0.9818	0.9661

Minimum Tc = 0 minutes

	T								
Тс	Intensity Values (in/hr)								
(min)	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
Cf	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
5	0	4.20	0	5.16	6.12	7.56	8.76	10.20	
10	0	3.51	0	4.35	5.12	6.33	7.37	8.57	
15	0	3.02	0	3.77	4.41	5.45	6.36	7.40	
20	0	2.66	0	3.32	3.87	4.79	5.60	6.51	
25	0	2.37	0	2.96	3.46	4.27	5.00	5.82	
30	0	2.14	0	2.68	3.12	3.86	4.52	5.26	
35	0	1.95	0	2.45	2.84	3.52	4.12	4.80	
40	0	1.79	0	2.25	2.62	3.24	3.79	4.60	
45	0	1.66	0	2.08	2.42	2.99			
50	0	1.55	0	1.94	2.25	2.99	3.51	4.09	
55	0	1.45	0	1.81	2.23		3.27	3.81	
60	0	1.36	0			2.61	3.06	3.56	
		1.00	U	1.70	1.98	2.45	2.87	3.35	



Angelica Illanes

From:

Terry Stringer <terry.stringer@hydrologystudio.com>

Sent:

Thursday, August 27, 2020 6:57 PM

To:

Angelica Illanes

Subject:

FW: Bulletin 75 Intensity Duration Frequency data

Follow Up Flag: Flag Status:

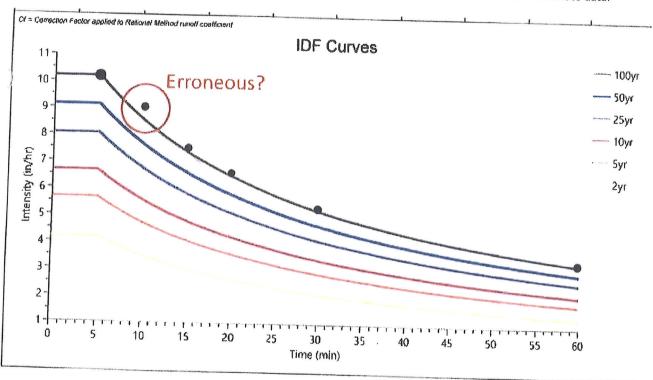
Follow up Flagged

Hi There -

Please see the email below. I wrote this to the original authors of the Huff Distributions and Bulletin 7x because it's nearly impossible to match those IDF values exactly. It appears that their 10-minute data is in error. They are consistently high.

I have yet to get a response...

Your data is showing the same result. The 10-minute values are throwing the entire curve off making it impossible to replicate with an equation. Hydrology Studio is trying to match that data but cannot. Erroneous ten minute data.



I know this doesn't mean anything to that reviewer but I'm not sure what to tell you. If the software were to just use straight-line interpolation between those points, there would be even larger errors introduced.

erry Stringer

Direct: 720-524-4524



From: Terry Stringer [mailto:terry.stringer@hydrologystudio.com]

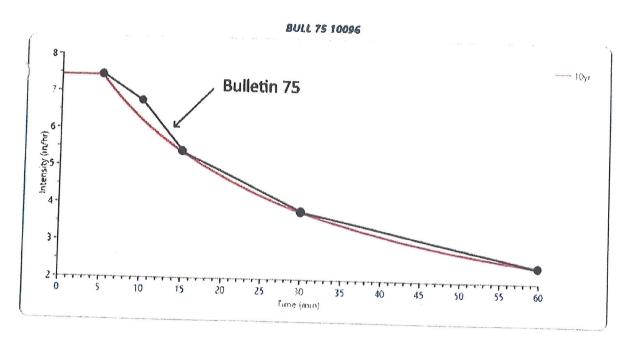
Sent: Tuesday, August 4, 2020 3:35 PM

To: 'mmarkus@illinois.edu' <mmarkus@illinois.edu>
Subject: Bulletin 75 Intensity Duration Frequency data

Dear Momcilo -

I am the lead software architect for Hydrology Studio, a full suite of stormwater management and design software used extensively throughout the U.S. Our software generates Intensity-Duration-Frequency (IFD) curves for its users based on their local data. In doing so, it creates equation coefficients for use in the standard FHA and NOAA equation, Intensity = B / (Tc + D) ^E. It also allows the users to directly enter these coefficients, B, D & E as well as coefficients for IDF curves that fit better into third-degree polynomial equations.

However, we have always struggled getting the Bulletin 70, 75 data to fit either of these chart patterns. Bulletin 75 data tends to follow the FHA equation but then departs significantly at durations of about 10 minutes, not following the usual pattern. The image below shows the Bulletin 75 (black line) data plotted along with our best fit. The 10-minute values spike up. Could the 10-minute value be an error? This occurs on all frequencies.



Have you or your staff developed any way to replicate these curves using an equation of sorts? Straight-line interpolation between the points seems a bit primitive and inaccurate. There are many engineers in Illinois that would benefit from some type of standard.

Thanks in advance for help and assistance.

erry Stringer (B.S.C.E. 1981 University of Illinois)

Direct: 720-524-4524