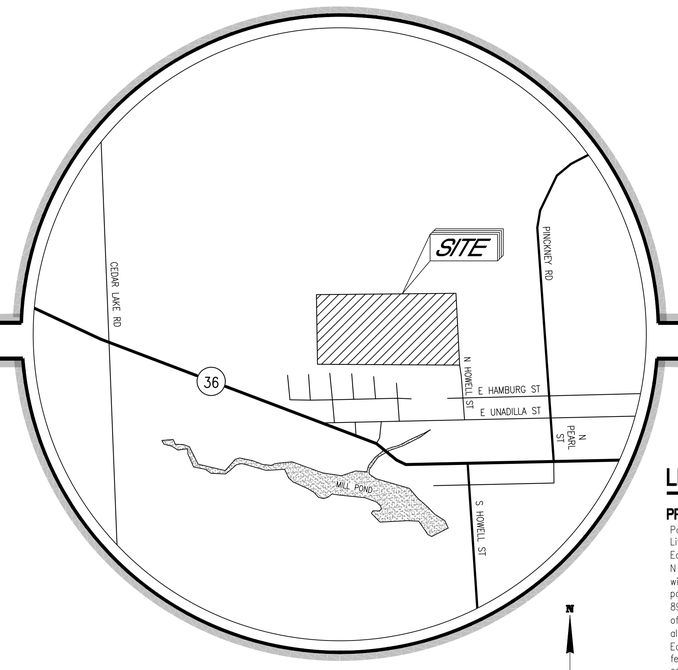
FINAL SITE PLANS FOR

LAKELAND KNOLL

A Residential Open Space Development

VILLAGE OF PINCKNEY, LIVINGSTON COUNTY, MICHIGAN



LOCATION MAP
NOT TO SCALE

SHEET INDEX

LEGEND

	EXISTING	PROPOSED
SPOT GRADE	× 000.00	×000.00
CONTOUR	000	000
SANITARY SEWER	SAN	SAN
STORM SEWER	ST	ST
WATER	W	W
OVERHEAD		
FENCE	X	X
GAS	GAS	GAS
ELECTRIC	E	E
DRAINAGE AREA BOUNDARY		
LIMITS OF DISTURBANCE		
SIGN		
LIGHT POLE		
UTILITY POLE		
DECIDUOUS TREE		
GATE VALVE IN WELL		
WATER WELL		
TEST WELL/ MON. WELL		
REMOVE	—X—X—X—X—X—X—X—	

SITE DATA TABLE

PARCEL NUMBER:	14-22-200-011
SITE:	
SITE AREA	57.7 ACRES
OPEN SPACE	24.28 ACRES
% OPEN SPACE	42%
% DEVELOPED[1]	46%
% IMPERVIOUS[2]	21%
% PERVIOUS[3]	79%

[1] computed as [(total area of lots, road ROW and det. pond twl areas) / site area] x 100
[2] impervious area includes roads, sidewalks, pond ws and estimated pervious area for average lot (2,568sf).
[3] computed as (100% - % impervious)

ZONING:	
EXISTING	R-3 (HIGH DENSITY RESIDENTIAL)
PROPOSED	RESIDENTIAL OPEN SPACE
USE:	
EXISTING	VACANT
PROPOSED	RESIDENTIAL (SITE CONDOMINIUM)
PHASE 1 UNITS =	51
PHASE 2 UNITS =	72
TOTAL PROPOSED UNITS =	123
LOT:	
MINIMUM UNIT AREA	6,050 sf
AVERAGE UNIT AREA	7,187 sf
MINIMUM UNIT WIDTH	55 ft
MAXIMUM LOT COVERAGE	40%
MAXIMUM BUILDING HEIGHT	2.5 STORIES / 35ft
SETBACKS:	
MINIMUM FRONT YARD	22 ft
MINIMUM SIDE YARD (EACH)	7.5 ft
MINIMUM REAR YARD	30 ft

GENERAL NOTES

1. Property is zoned: R-3.
2. Contractor is responsible for protecting all existing and proposed utilities from damage during all stages of construction.
3. The engineer and applicable agency must approve, prior to construction, any alteration, or variance from these plans.
4. All signs shall meet the requirements of the Village of Pinckney Zoning Ordinance.
5. Underground dry utilities shall be extended from existing locations to service this site as required by utility companies.
6. All construction shall be performed in accordance with the current standards and specifications of the Village of Pinckney and Livingston County.
7. Three working days prior to any excavation, the Contractor shall telephone MISS DIG (800-482-7171) for the location of underground utilities and shall also notify representatives of other utilities located in the vicinity of the work. It shall be the Contractor's responsibility to verify and/or obtain any information necessary regarding the presence of underground utilities which might affect this job.
8. Proposed site contains no flood plains per FEMA FIRM map.
9. Soil borings will be provided with construction plans.
10. Access to water tower shall be maintained during construction.
11. No existing easements encumber the site.

LEGAL DESCRIPTIONS

PROPOSED DEVELOPMENT PARCEL:

Part of the Northeast 1/4 of Section 22, Town 1 North, Range 4 East, Village of Pinckney, Livingston County, Michigan, being more particularly described as follows: Commencing at the East 1/4 Corner of said Section 22; thence along the East line of said Section 22, N 04°09'02" W, 157.38 feet, to a point on the North line of the MDNR Right-of-Way (100 feet wide and Former Grand Trunk Railroad), said point also being the POINT OF BEGINNING of the parcel to be described; thence continuing along said North line of the MDRN Right-of-Way, S 89°47'10" W, 2199.10 feet; thence N 04°06'54" W, 1139.64 feet, to a point on the North line of the South half of the Northeast 1/4 of Section 22; thence N 89°28'06" E, 2197.59 feet, along the North line of the South half of the Northeast 1/4 of Section 22 to a point on the East line of said Section 22; thence along the East line of Section 22 S 04°09'02" E, 1151.91 feet to the Point of Beginning. Containing 57.7 acres, more or less and subject to any easements and restrictions of record.

Parcel ID number: 4714-22-200-011

PERMITS & APPROVALS

AGENCY	REQUIRED	STATUS
VILLAGE OF PINCKNEY	PRELIM. SITE PLAN	APPROVED
VILLAGE OF PINCKNEY	FINAL SITE PLAN	PENDING
LIVINGSTON COUNTY DRAIN COMMISSION	SESC PERMIT	PENDING

UTILITY DISCLAIMER

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

Utilities as shown indicate approximate location of facilities only, as described by the various companies and no guarantee is given either as to the completeness or accuracy thereof. Contractor shall call "MISS DIG" at 811 or 1-800-482-7171 prior to the start of construction. Electric, gas, phone and television companies should be contacted prior to the commencement of field activities.

OWNER / DEVELOPER

PROGRESSIVE PROPERTIES
PO BOX 2709
SOUTHFIELD, MI 48037-2709
PH: 248.358.2210; ATTN: MR. MARSHALL BLAU; EMAIL: PROPROP@COMCAST.NET

PLANNER/LANDSCAPE ARCHITECT

J EPPINK PARTNERS, INC.
9336 SASHABAW RD
CLARKSTON, MI 48348
PHONE: 248.922.0789

ENGINEER

LIVINGSTON ENGINEERING
CIVIL ENGINEERING SURVEYING PLANNING
3300 S. OLD U.S.23 , BRIGHTON, MI 48114
http://www.livingstoneng.com PHONE: (810) 225-7100 FAX: (810) 225-7699

LAKELAND KNOLL
VILLAGE OF PINCKNEY
LIVINGSTON COUNTY, MICHIGAN
FINAL SITE PLANS

ENGINEER'S SEAL

REVISIONS	DATE
REV HORIZON LN ALIGNMENT	02/12/2021
REV LOT NUMBERS PER PHASING	04/28/2023
FINAL SITE PLAN	08/30/2023

PROJECT No. 18245
SHEET 1 OF 10
DATE: DEC. 17, 2020

N. 1/4 CORNER
OF SEC. 22

N.E. CORNER
OF SEC. 22

PARCEL: 14-22-200-010
ADDRESS: 9157 CEDAR LAKE
OWNER: BOLTON, CONNIE & LESLIE
ZONING: RS-1 (SINGLE FAMILY RESIDENTIAL)
USE: RESIDENTIAL

PARCEL: 14-22-200-008
ADDRESS: 9165 CEDAR LAKE
OWNER: BERENDT, FRANK
ZONING: RS-1 (SINGLE FAMILY RESIDENTIAL)
USE: RESIDENTIAL

PARCEL: 14-22-200-003
ADDRESS: 9173 CEDAR LAKE
OWNER: SCHIMMEL, LARRY & MICHELL
ZONING: RR (RURAL RESIDENTIAL)
USE: RESIDENTIAL

PARCEL: 14-22-200-001
OWNER: PINCKNEY SAND & GRAVEL
ZONING: A-O (AGRICULTURAL/OPEN SPACE)
USE: VACANT

PARCEL: 14-23-100-001
OWNER: PINCKNEY SAND & GRAVEL
ZONING: A-O (AGRICULTURAL/OPEN SPACE)
USE: VACANT

EAST LINE SEC. 22

N89°28'06"E
2197.59'

WETLAND "B" BOUNDARY
REGULATED
(SEE WETLAND NOTE ON THIS SHEET)

SOIL TYPE BOUNDARY
(TYP.)

WETLAND "Z" BOUNDARY

PARCEL: 14-22-100-012
OWNER: WYNN, ANTHONY
ZONING: A-O (AGRICULTURAL/OPEN SPACE)
USE: VACANT

N04°06'54"W
1139.64'

ORIGINAL PARCEL: 14-22-200-005
OWNER: PINCKNEY SAND & GRAVEL
ZONING: R-3 (HIGH-DENSITY RESIDENTIAL)
USE: VACANT

ORIGINAL PARCEL: 14-22-200-004
OWNER: PINCKNEY SAND & GRAVEL
ZONING: R-3 (HIGH-DENSITY RESIDENTIAL)
USE: VACANT

PARCEL: 14-23-100-016
ADDRESS: 619 PEARL ST
OWNER: B E D INVESTMENT ENTERPRISES
ZONING: RTO (RESEARCH TECHNOLOGY OFFICE)
USE: COMMERCIAL

SOIL TYPE BOUNDARY
(TYP.)

PARCEL: 14-23-100-015
OWNER: VILLAGE OF PINCKNEY
ZONING: NOT REAL PARCELS
USE: WATER TOWER

WETLAND "A" BOUNDARY
(SEE WETLAND NOTE ON THIS SHEET)

EDGE OF WATER
OHW ELEV. 891.92

WETLAND "X" BOUNDARY

DEMO EX CATCH BASIN

RELOCATE EX UTILITY POLE

WETLAND "Y" BOUNDARY

2199.10'
S89°47'10"W

PARCEL: 14-22-200-008
OWNER: DEPARTMENT OF NATURAL RESOURCES
ZONING: PL (PUBLIC LANDS)
USE: BIKE PATH

P.O.B.

DEMO EX STORM SEWER AS SHOWN

DEMO EX MANHOLE
N04°09'02"W
157.38'

BM 2068

DEMO EX PAVEMENT AS SHOWN

BM 2069

WETLAND "W" BOUNDARY

EXST. 18" CULVERT
UNDER TRAIL BED

EAST/WEST 1/4 LINE SEC. 22

FLOW DIR.

EXST. DRAINAGE COURSE

MDNR RIGHT OF WAY
(100' WIDE)

NORTH/SOUTH 1/4 LINE SEC. 22

CENTER
OF SEC. 22

REEVES ST
ROSE ST
HAZE ST
COLEMAN ST
JONES ST
N HOWELL ST

0' 100' 200' 300'
1" = 100'

N

EXISTING STORM SEWER SCHEDULE				
STR #	TYPE	DIA	RIM ELEV	INVERT DATA
r-14	CATCH BASIN	4'	907.47	12" CPP 902.17N TOP OF WATER: 902.07 BOTTOM: 900.29
r-13	CATCH BASIN	4'	907.30	12" CPP 901.70W 12" CPP 901.41S TOP OF WATER: 901.41 BOTTOM: 899.32
r-12	MANHOLE	6'	901.78	12" CPP 897.78N 12" CPP 897.70S TOP OF WATER: 897.70 BOTTOM: N/A
r-11	MANHOLE	4'	902.49	12" CPP INV: 895.04N 12" CPP INV: 895.17S 12" CPP INV: 898.23W 10" PVC INV: 895.30NE 10" PVC INV: 895.30SE TOP OF WATER: 895.16 BOTTOM: 894.94
r-10	MANHOLE	4'	901.69	12" CPP 898.34E TOP OF WATER: 898.32 BOTTOM: 896.74

EXISTING SANITARY SEWER SCHEDULE				
STR #	TYPE	DIA	RIM ELEV	INVERT DATA
s-10	MANHOLE		901.65	8" PVC INV: 893.79N 8" PVC INV: 893.54S
s-11	MANHOLE		902.12	8" PVC INV: 894.29W 8" PVC INV: 894.24S
s-12	MANHOLE		903.12	8" PVC INV: 895.38E
s-20	MANHOLE		898.21	8" CLAY INV: 890.02N 8" CLAY INV: 889.91S 8" PVC INV: 890.51E 8" CLAY INV: 890.33W
s-21	MANHOLE		899.87	8" PVC INV: 892.87W 8" CLAY INV: 892.12N 8" CLAY INV: 892.09E
s-22	MANHOLE		897.48	8" CLAY INV: 891.18S
s-23	MANHOLE		900.27	8" CLAY INV: 893.38S 6" DI INV: 893.42NW
s-30	MANHOLE		899.30	8" CLAY INV: 893.25N 8" CLAY INV: 893.16S

EXISTING SANITARY SEWER SCHEDULE				
STR #	TYPE	DIA	RIM ELEV	INVERT DATA
s-31	MANHOLE		902.13	6" CLAY INV: 894.77NE 6" CLAY INV: 894.75NW 8" CLAY INV: 894.72S
s-35	MANHOLE		902.17	8" CLAY INV: 894.15N 8" CLAY INV: 894.02S 8" PVC INV: 894.24W
s-36	MANHOLE		900.88	6" CLAY INV: 896.54NE 6" PVC INV: 896.20NW N/A N/A INV: 896.13S
s-40	MANHOLE		902.41	8" PVC INV: 895.76N 8" PVC INV: 895.69W 8" PVC INV: 895.75E
s-41	MANHOLE		900.50	6" PVC INV: 897.25NE 8" PVC INV: 897.09S 6" PVC INV: 897.25NW

BENCHMARK #2069
STORM SEWER MANHOLE RIM
ELEVATION= 902.49

BENCHMARK #2068
GATE VALVE & WELL RIM
ELEVATION= 902.56

N.R.C.S. SOIL SURVEY - CLASSIFICATIONS

BtA	Boyer-Oshtemo loamy sands, 0 to 2 percent slopes
BtD	Boyer-Oshtemo loamy sands, 12 to 18 percent slopes
FoA	Fox sandy loam, 0 to 2 percent slopes
FoB	Fox sandy loam, 2 to 6 percent slopes
FoC	Fox sandy loam, 6 to 12 percent slopes
Gr	Gravel pits
Ho	Houghton muck, 0 to 1 percent slopes
Tm	Tawas muck
W	Water

WETLAND NOTES

- ORIGINAL WETLAND DELINEATION (WL A & B) AND REGULATORY STATUS PREPARED BY KING & MacGREGOR ENVIRONMENTAL, INC (KME) AND FLAGGING LOCATED BY LIVINGSTON ENGINEERING (LE) IN JANUARY 2019.
- ADDITIONAL WETLAND AREAS W, X, Y & Z WERE DELINEATED BY KME AND LOCATED BY LE IN AUG./SEPT. 2020.

LIVINGSTON ENGINEERING
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LAKELAND KNOLL

FINAL SITE PLANS
VILLAGE OF PINCKNEY, LIVINGSTON COUNTY, MICHIGAN

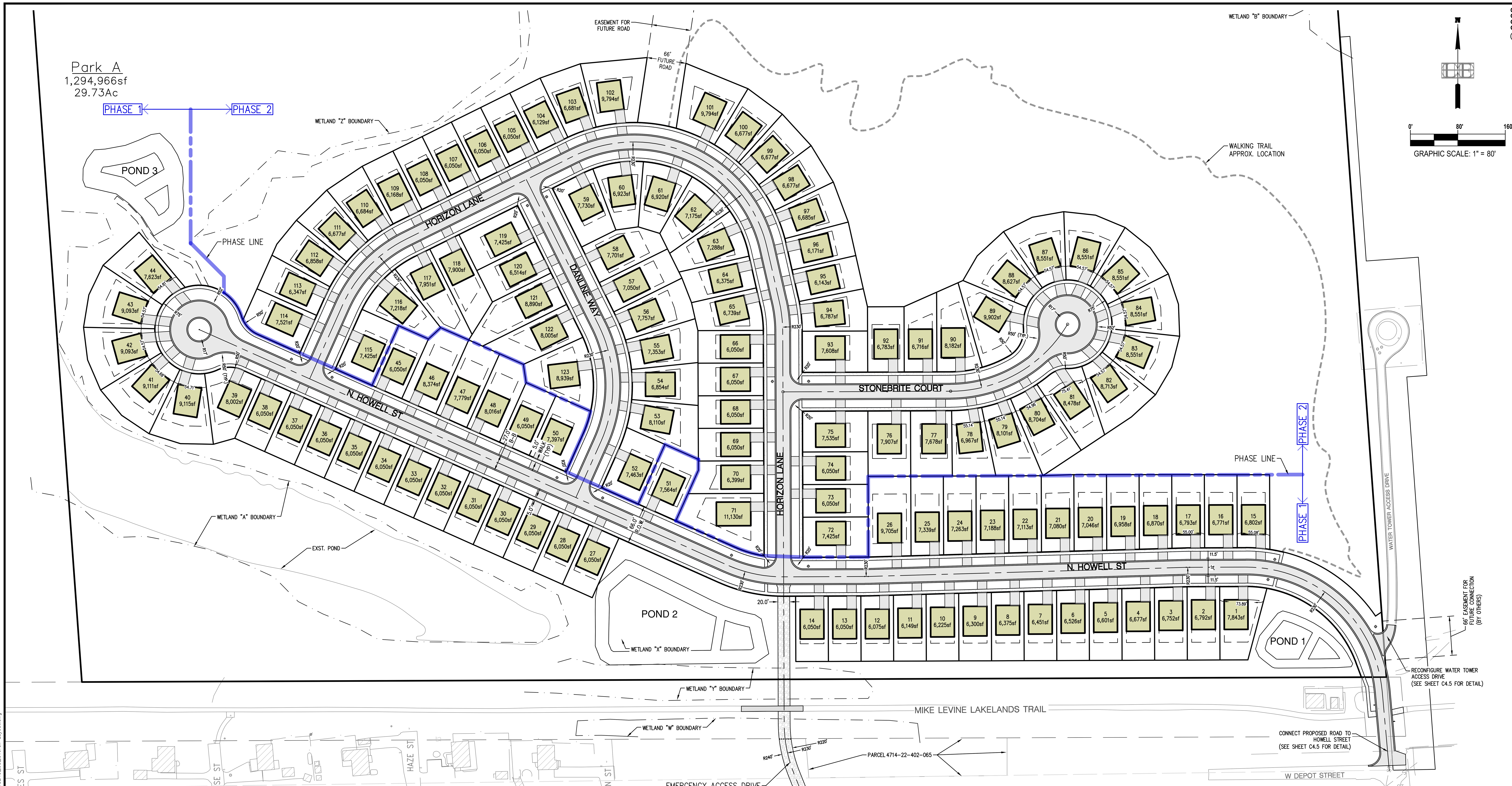
EXISTING CONDITIONS & REMOVALS PLAN

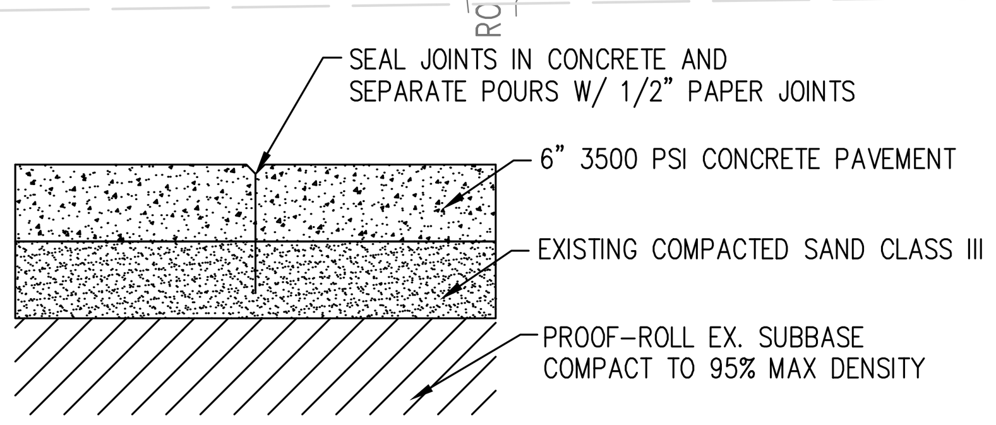
REVISIONS	DATE
REV. HORIZON HWY. ALIGNMENT	04/12/2021
REV. LOWER LEVEL PHASING	04/28/2023
REV. PER VILLAGE	06/28/2023
FINAL SITE PLAN	08/30/2023

Drawn: JDR
Checked: TJZ
Approved: TJZ
Date: 12/17/2020

Job. no. 18245
Scale:
Vertical: 1" = 100'
Horizontal:

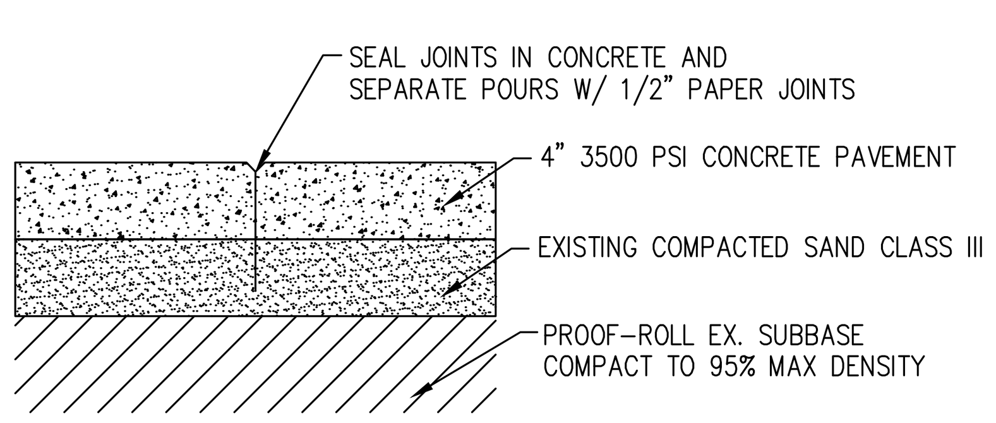
2





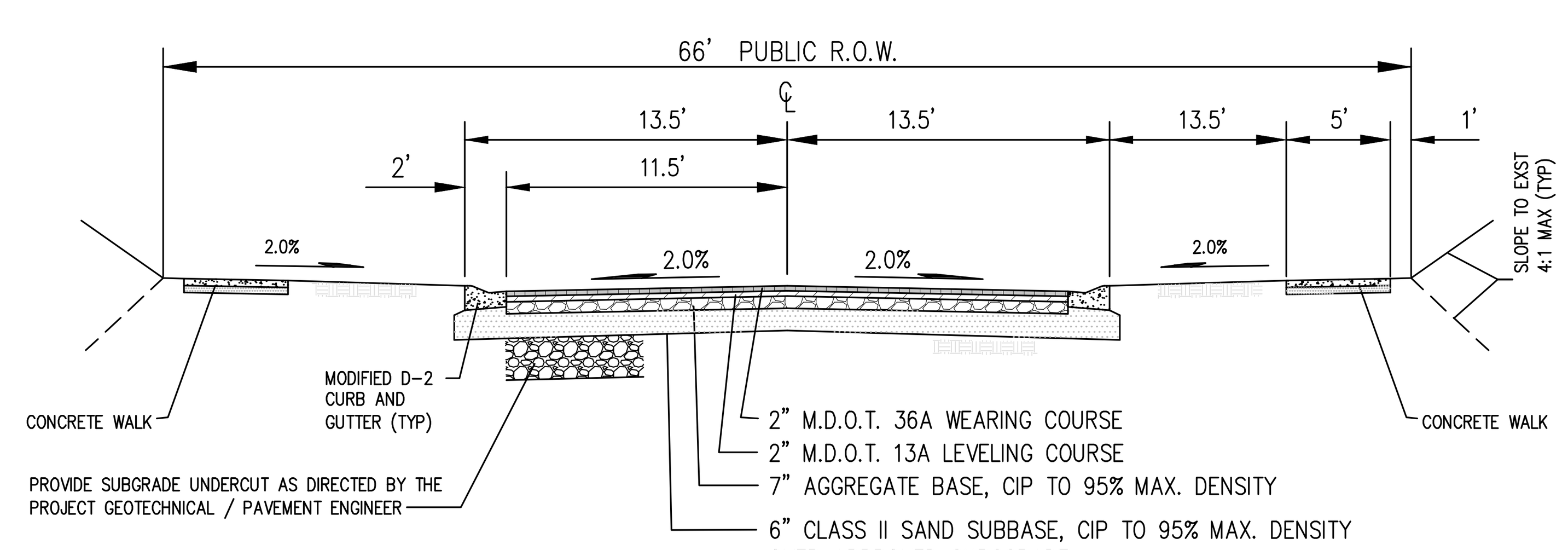
CONCRETE SIDEWALK SECTION (IN DRIVEWAY)

** FOR USE IN SIDEWALK AREAS THAT DO NOT ABUT PAVEMENT**
NOT TO SCALE



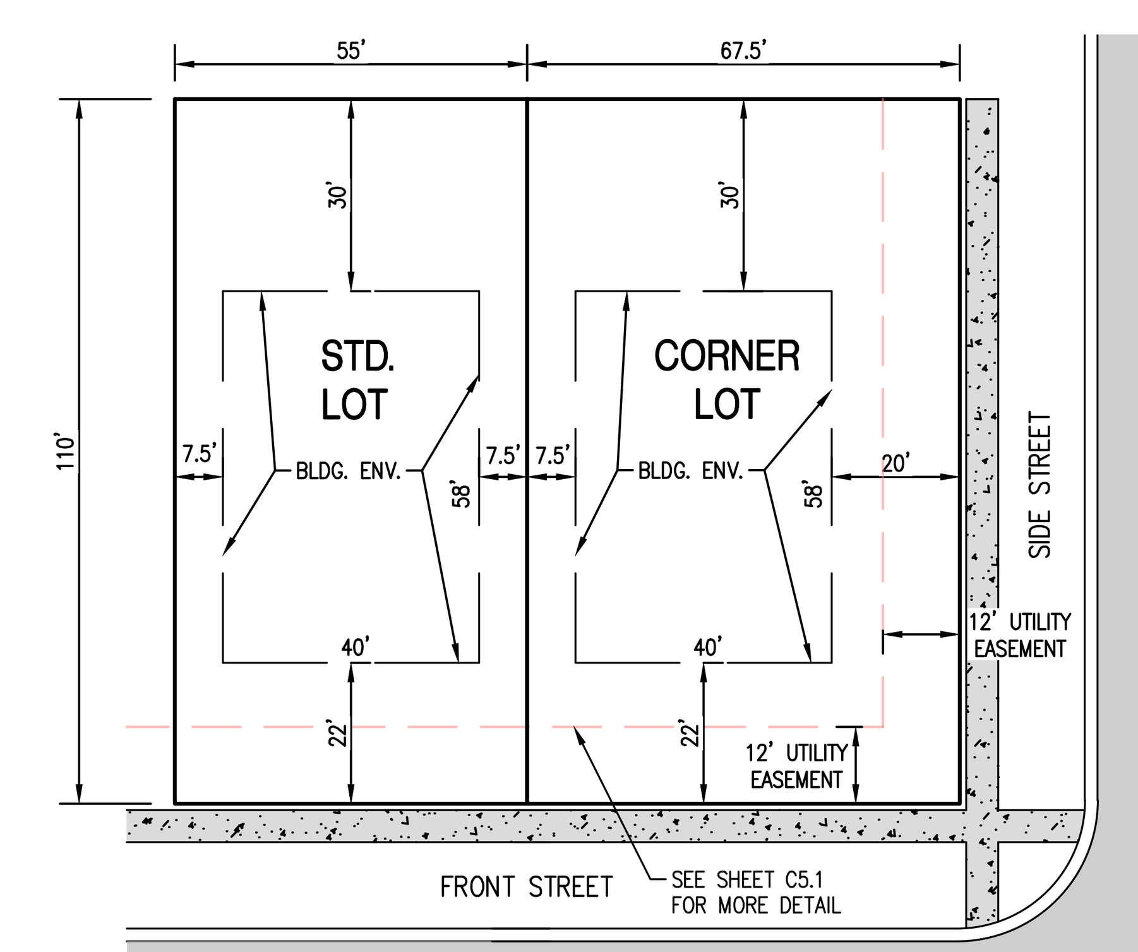
CONCRETE SIDEWALK SECTION

** FOR USE IN SIDEWALK AREAS THAT DO NOT ABUT PAVEMENT**
NOT TO SCALE



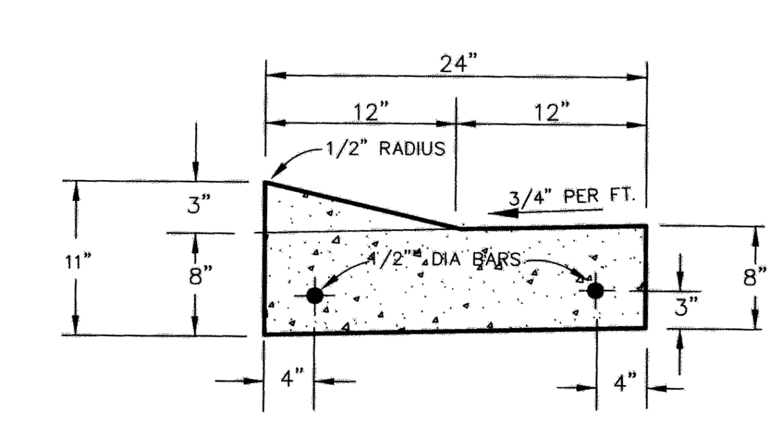
TYPICAL ROAD CROSS SECTION

NOT TO SCALE



TYPICAL MINIMUM LOT DETAIL

SCALE: 1"=30'



NOTE: CONCRETE TO BE 3,000 P.S.I.

NOTE: TO BE USED IN ALL AREAS UNLESS OTHERWISE NOTED

MODIFIED D-2 CURB & GUTTER DETAIL

NOT TO SCALE

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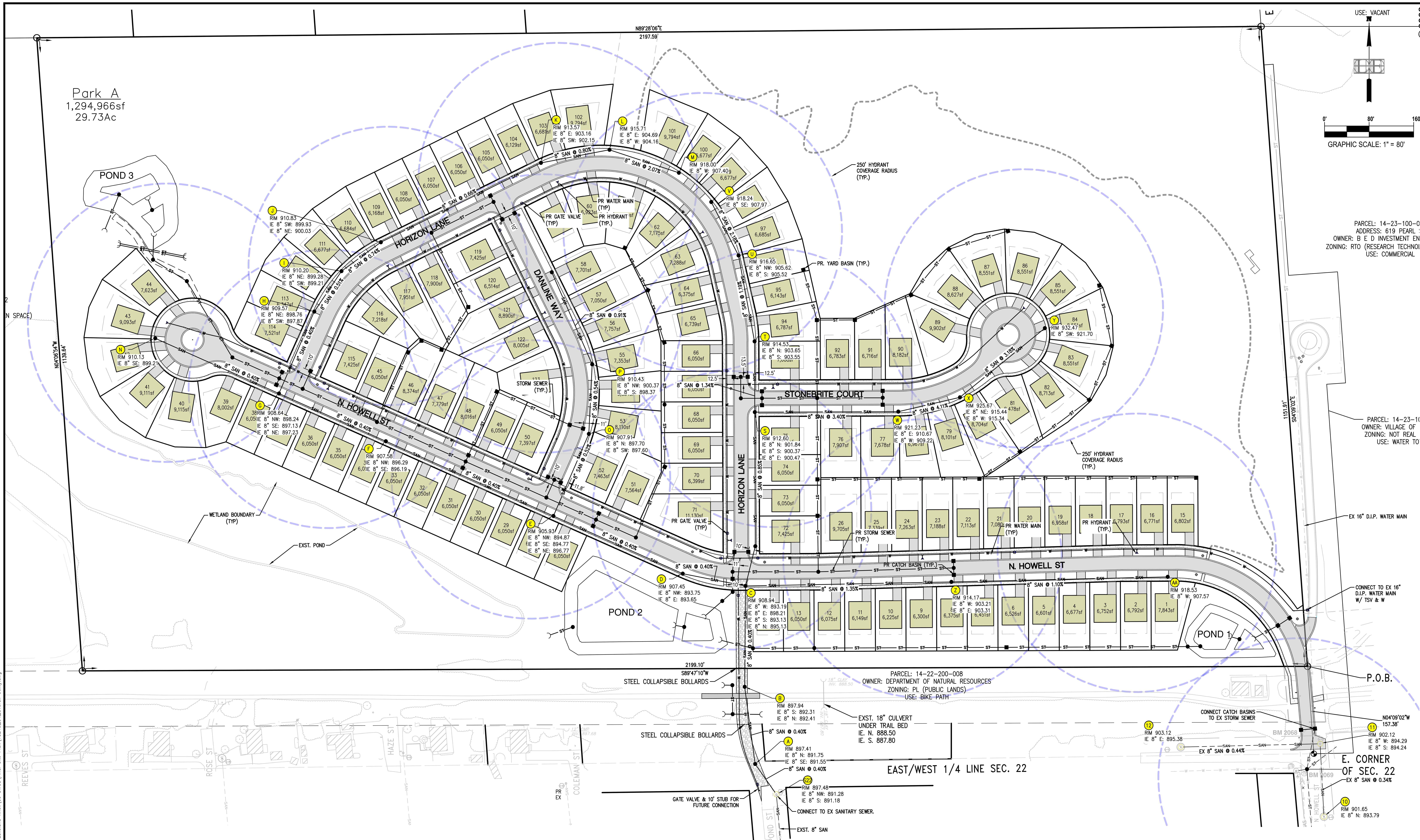
LAKELAND KNOLL

FINAL SITE PLANS
VILLAGE OF PINCKNEY, LIVINGSTON COUNTY, MICHIGAN
OVERALL LAYOUT PLAN

REVISIONS	DATE
REV HORIZON LN ALIGNMENT	02/12/2021
REV LOT NUMBERS PER PHASING	04/28/2023
REV PER VILLAGE	06/28/2023
FINAL SITE PLAN	08/30/2023

Drawn: JDR
Checked: TJZ
Approved: TJZ
Date: 12/17/2020

Job. no. 18245
Scale:
Vertical:
Horizontal: 1" = 80'



GENERAL UTILITY NOTES:

1. ALL SANITARY SEWER, STORM SEWER, & WATER MAIN SHALL BE DESIGNED AND CONSTRUCTED TO MEET VILLAGE OF PINCKNEY STANDARDS.
2. ALL CONNECTIONS TO EXISTING UTILITIES SHALL BE DONE IN ACCORDANCE TO VILLAGE OF PINCKNEY STANDARDS.
3. THE DEVELOPMENT SHALL BE SERVICED BY SANITARY SEWER AND WATER MAIN. ALL LOTS SHALL BE SERVICED BY INDIVIDUAL SANITARY AND WATER LEADS.
4. GATE VALVES SHALL BE INSTALLED ON THE WATER MAIN IN ACCORDANCE WITH VILLAGE STANDARDS.
5. SEE SHEET C6.0 FOR PROPOSED DETENTION BASIN DETAIL AND STORM WATER MANAGEMENT PLAN.
6. VILLAGE OF PINCKNEY STANDARD DETAILS SHALL BE USED FOR ALL APPLICABLE CONSTRUCTION ACTIVITIES.
7. ALL UTILITY COMPANIES SHALL BE CONTACTED PRIOR TO CONSTRUCTION AND ALL UTILITIES LOCATED. ANY DISCREPANCIES OR CONFLICTS SHALL BE REPORTED TO ENGINEER FOR RESOLUTION PRIOR TO COMMENCING CONSTRUCTION.
8. UTILITY CROSSING INFORMATION IS SHOWN ON UTILITY PROFILES.

SANITARY SEWER NOTES:

1. SANITARY SEWER TO BE PVC PIPE SDR 26.
2. SANITARY LEAD SHALL BE PVC PIPE SDR 26 LAID AT A MIN. 1% GRADE.
3. ALL PIPE LENGTHS SHOWN ARE FROM ℄ TO ℄ OF STRUCTURE.
4. ALL SEWER WITHIN 1:1 SLOPE INFLUENCE OF EXISTING OR PROPOSED PAVEMENT SHALL HAVE COMPACTED SAND BACKFILL.
5. MAINTAIN A MIN. OF 18" VERTICAL CLEARANCE BETWEEN ALL UTILITIES.

STORM SEWER NOTES:

1. STORM SEWER TO BE RCP C76 CLIV.
2. ALL PIPE LENGTHS SHOWN ARE FROM ℄ TO ℄ OF STRUCTURE OR FROM ℄ OF STRUCTURE TO END OF FLARED END SECTION.
3. ALL STORM SEWER WITHIN 1:1 SLOPE INFLUENCE OF EXISTING OR PROPOSED PAVEMENT SHALL HAVE COMPACTED SAND BACKFILL.
4. MAINTAIN A MIN. OF 18" VERTICAL CLEARANCE BETWEEN ALL UTILITIES.

WATER MAIN NOTES:

1. ALL PIPE LENGTHS SHOWN ARE FROM ℄ TO ℄ OF STRUCTURE/FITTING.
2. WATER MAIN TO BE DUCTILE IRON CLASS 54 OR PVC AWWA C900.
3. WATER SERVICE LEADS SHALL BE 1" DIA. DR18 PVC.
4. MAINTAIN A MIN. OF 18" VERTICAL CLEARANCE BETWEEN ALL UTILITIES.
5. ALL WATER MAIN/LEADS WITHIN 1:1 SLOPE INFLUENCE OF EXISTING OR PROPOSED PAVEMENT SHALL HAVE COMPACTED SAND BACKFILL.
6. TSV & W = TAPPING SLEEVE AND WELL

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LAKELAND KNOLL

FINAL SITE PLANS
VILLAGE OF PINCKNEY, LIVINGSTON COUNTY, MICHIGAN
OVERALL UTILITY PLAN

REVISIONS	DATE
REV HORIZON LN ALIGNMENT	02/12/2021
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REV PER VILLAGE	06/28/2023
FINAL SITE PLAN	08/30/2023

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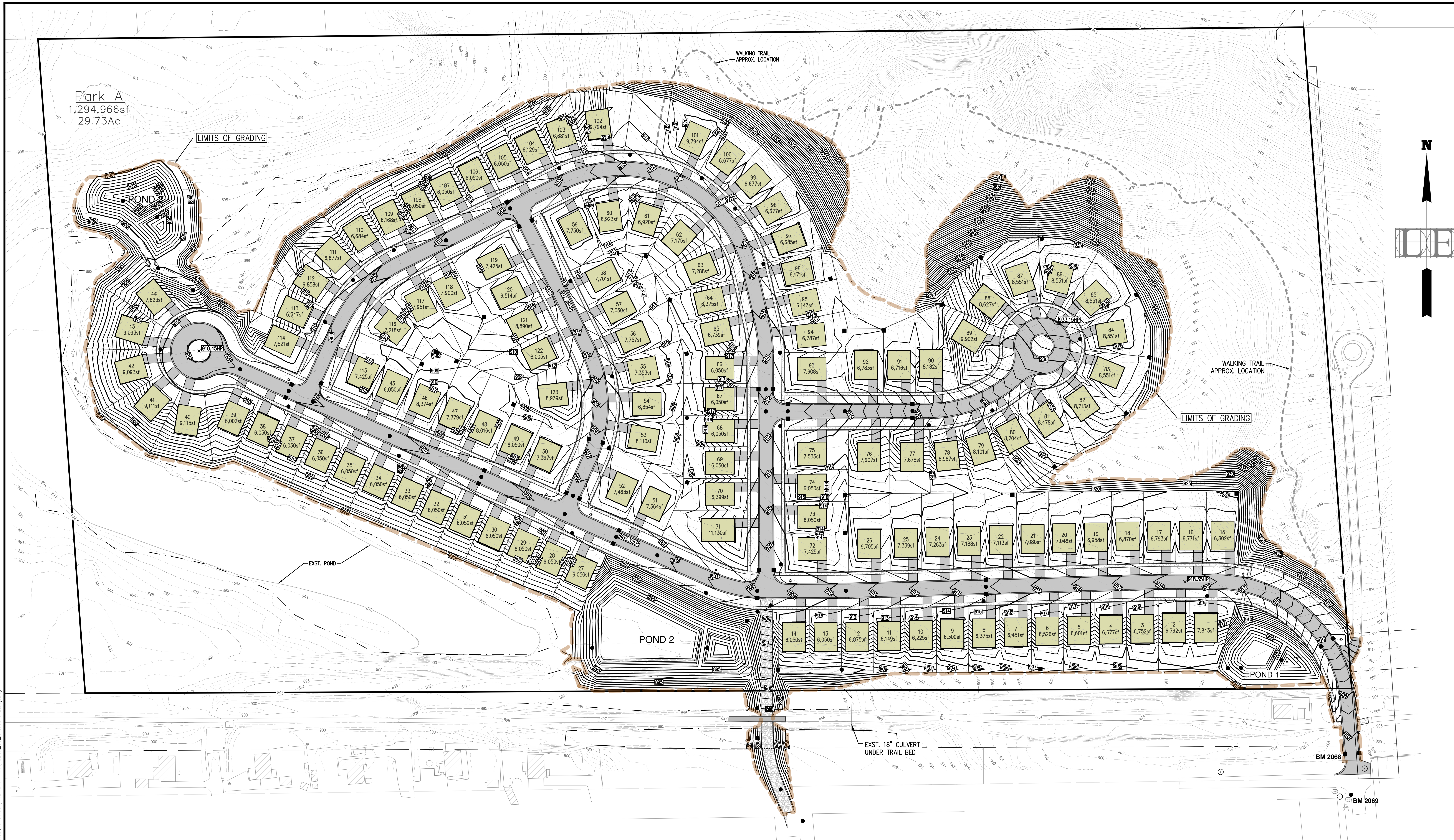
Horizontal: 1" = 80'

FILE:C:\Users\user\Dropbox (Liveng)\Projects\2018\18245 Progressive Lakeland Knoll\03 DWGS\Final Site Plan\18245_04_Overall Utility.dwg



NOTE

1. THE AREAS TO BE LEFT UNDISTURBED DURING CONSTRUCTION ARE DEFINED BY THE LIMITS OF GRADING AND SHALL BE IDENTIFIED ON THE GROUND BY USE OF SNOW FENCING OR SILT FENCING SO AS TO BE OBVIOUS TO CONSTRUCTION PERSONNEL.

BENCHMARK #2069
STORM SEWER MANHOLE RIM
ELEVATION= 902.49

BENCHMARK #2068
GATE VALVE & WELL RIM
ELEVATION= 902.56

0' 80' 160' 240'
1" = 80'

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LAKELAND KNOLL

FINAL SITE PLANS
VILLAGE OF PINCKNEY, LIVINGSTON COUNTY, MICHIGAN

OVERALL GRADING PLAN

REVISIONS	DATE
REV HORIZON LN ALIGNMENT	02/12/2021
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FINAL SITE PLAN	08/30/2023

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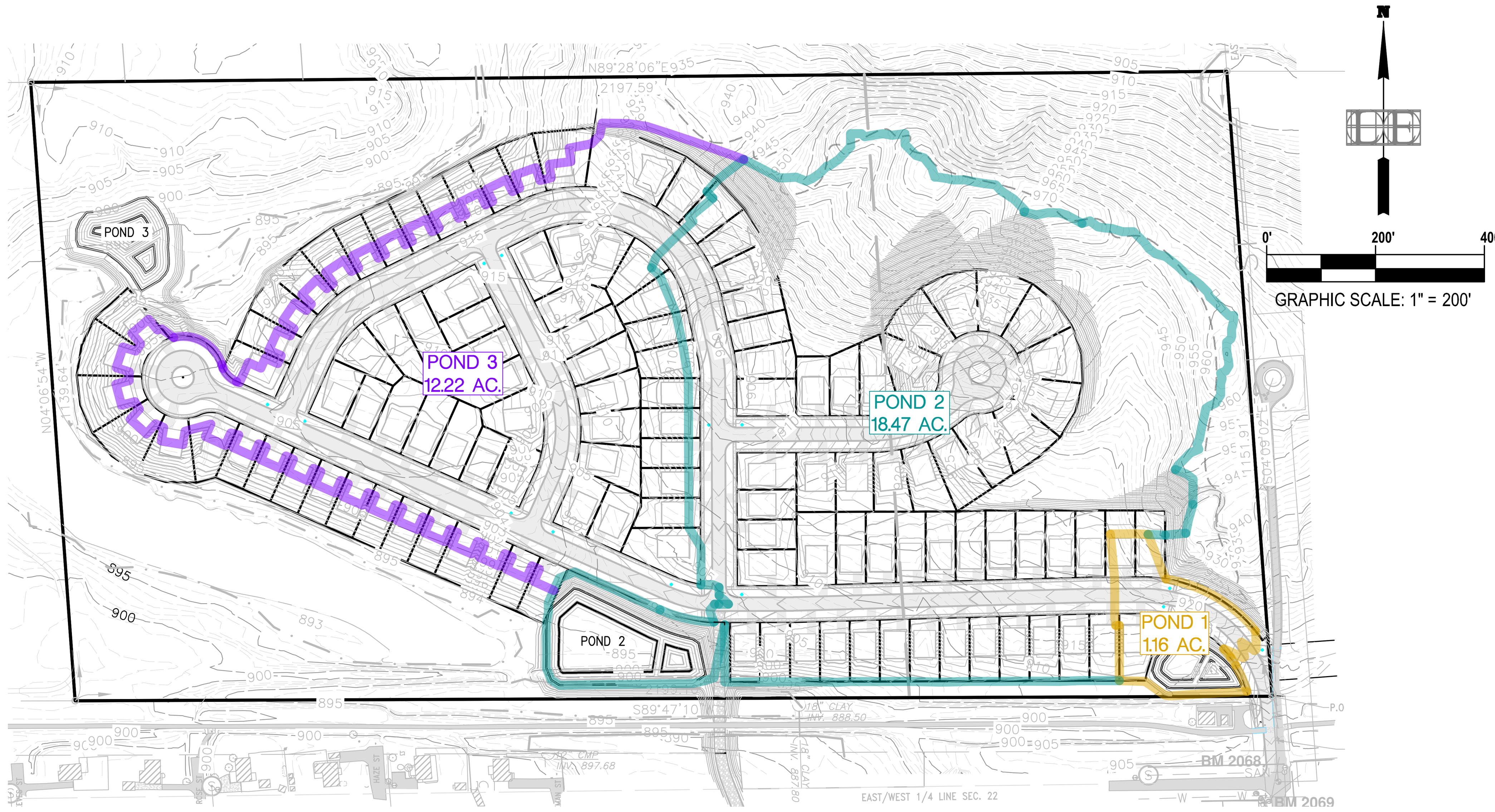

Lakeland Knoll
Storm Water Narrative:

Existing Drainage Routing:
The Lakeland Knoll property has an existing pond located in the southwest quadrant of the site that is fed from the north by an approximately 140-acre offsite drainage area. Flows from the north travel down an existing drainage course and into the existing pond at the northerly end. The topography indicates that flows exit the east end of the existing pond, then travel downstream along the Lakeland Trail (formerly a railroad ROW) ditch system to an existing culvert that crosses south under the trail. From this point flows continue downstream via an existing drainage course that ultimately connects to the Mill Pond, south of the Village of Pinckney.

Proposed Storm Water Management System:
Storm water runoff from the proposed development is captured and conveyed to three detention basins where it is treated, detained and released at predevelopment rate (0.03 cfs/acre) in accordance with Livingston County Drain Commissioner requirements. All ponds include a water quality / first flush component within the basin that will treat storm water prior to release.

Offsite drainage from the north (140-acres) will be conveyed through the existing drainage course to the existing pond. A dual barrel culvert will be placed in the ditch to allow for access to detention pond 3. Flows will continue downstream along its current path into the existing pond as described above.

Pond 1 services a 1.28-acre drainage area located near the southeast corner of the site near the proposed entrance. Outflows from the pond will be released into a proposed storm drain that flows west into Pond 2.

Pond 2 services a 17.16-acre central section of the development. The Pond 2 outlet is located on the downstream side of the existing drainage course that transports drainage downstream, under the Lakeland Trail as described above.

Pond 3 services a 7.09-acre area on the westerly portion of the development. The Pond 3 outlet control structure is designed to discharge to the existing south west pond.

II.D.1	Allowable Release Rate, Q_P		
	Detention Pond Release rates:		
	Pond 1		
	Drainage area Pond 1, DA_1	1.16	ac
	Allowable release rate used for Pond 1, Q_{P1} =	0.010	cfs/ac
	Q_{100P1} = Q_D x A	0.01	cfs
	Pond 2		
	Drainage area Pond 2, DA_2	18.47	ac
	Allowable release rate used for Pond 2, Q_{P2} =	0.050	cfs/ac
	Q_{100P2} = Q_a x A	0.92	cfs
	Pond 3		
	Drainage area Pond 3, DA_3	12.22	ac
	Allowable release rate used for Pond 3, Q_{P3} =	0.002	cfs/ac
	Q_{100P3} = Q_a x A	0.020	cfs
	All Ponds		
	Total Area (all ponds), DA_{site}	31.85	ac
	Allowable release rate for site, Q_{Psite} =	0.96	cfs
	Allowable 100-year Post-Development Peak Flow Rate, Q100P, for site = (QP1+QP2+QP3)/ DA_{site}	0.030	cfs/ac

Design Calculation for Infitration Volume

		POND 1	POND 2	POND 3
V_{CP} (from detention calcs II.B)		2,585	41,172	27,232
In-Situ Infiltration Rate, Ir*	in/hr	0.98	1.03	13.04

*In-Situ Infiltration Rates are based on Soil Infiltration Testing Results performed by Hastings Testing Engineers and Environmental Inc. dated 10/31/22.

A. Max Total Water Storage Depth, Ir x 72 hr	in	70.56	74.16	938.88
	ft	5.88	6.18	78.24
B. Max Surface Water Storage Depth, Ir x 24 hr	in	23.52	24.72	312.96
	ft	1.96	2.06	26.08
C. Infiltration Depth During Storm, Ir x 6 hr	in	5.88	6.18	78.24
	ft	0.49	0.515	6.52
D. Potential Soil Storage Depth, Ir x 48 hr	in	47.04	49.44	625.92
	ft	3.92	4.12	52.16
E. Potential Soil Storage Depth EQV, Ir x 48 hr / 0.25 porosity	in	11.76	12.36	156.48
	ft	0.98	1.03	13.04

Detention Basin Bottom Infiltration Area Required (Below the basin Outlet Elevation)	sf	1,055	15,989	835
Detention Basin Bottom Infiltration Area Provided (Below the basin Outlet Elevation), A_P	sf	5,204	17,217	3,540
Calculated VCP Credit, VCP-P = A_P x (B+C)	cf	12,750	44,334	115,404

The average infiltration rate results are as follows:

Test Pit #1
Surface Elevation 910.91
Test elevation 901.0
i= 0.98 $\frac{in}{hr}$

Test Pit #2
Surface Elevation 895.03
Test elevation 891.0
i= 1.02 $\frac{in}{hr}$

Test Pit #3
Surface Elevation 895.50
Test elevation 894.0
i= 13.04 $\frac{in}{hr}$

Storm Water Detention Calculations
Project: Lakeland Knoll
LE Project Number: 18245
Livingston County Drain Commission Method
Pond 1

I	SITE DATA		
I.B	Total Contributing Area, A	1.16	ac
I.C	Post-Development Runoff Coefficient, C	0.47	
II	MINIMUM VOLUME REQUIREMENTS		
II.A	Water Quality Volume, Site Runoff from the 1" Rainfall Event, V_{WQ}		
II.A.1	V_{WQ} = 1" x (1'/12") x (43,560 sf/acre) x C x A		
	V_{WQ} = 3,630 x C x A	1,989	cf
II.A.2	Forebay Min. Storage of 15% of V_{WQ}		
	$V_{forebay}$ = 0.15 x V_{WQ}	298	cf
II.B	Channel Protection Volume Control (CPVC), Site Runoff from First 1.3" of rainfall, V_{CP}		
	V_{CP} = 1.3" x (1'/12") x (43,560 sf/acre) x C x A		
	V_{CP} = 4,719 x C x A	2,585	cf
	V_{CP} Credit, V_{CP-P} (from infiltration calcs.)	12,750	cf
II.C	Channel Protection Rate Control (CPRC), Extended Detention for the Site Runoff from a 1.9" Rainfall Event, V_{ED}		
II.C.1	V_{ED} = 1.9" x (1'/12") x (43,560 sf/acre) x C x A		
	V_{ED} = 6,897 x C x A	3,779	cf
II.C.2	Extended Detention Volume Discharge Rate, Q_{ED}		
	Q_{ED} = V_{ED}/(48 hr x 60 min x 60 sec)	0.02	cfs
II.D	Detention and Flood Control Volume		
II.D.1	Allowable Release Rate, Q_p		
	Q_p =	0.010	cfs/ac.
II.D.2	Allowable 100-year Post-Development Peak Flow Rate, Q_{100P}		
	Q_{100P} = Q_a x A	0.01	cfs
II.D.3	Allowable 100-year Post-Development Runoff Volume, V_{100R}		
	V_{100R} = 18,985 x C x A	10,401	cf
II.D.4	100-Year Peak Inflow Rate, Q_{100IN}		
II.D.4.a	Site Specific Time of Concentration, T_c	15.67	min
II.D.4.b	100-Year Peak Rainfall Intensity, I_{100}		
	I_{100} = 83.3 / (T_c + 9.17)^0.81	6.17	in/hr
II.D.4.c	Q_{100IN} = C x I_{100} x A	3.38	cfs
II.D.5	Storage Curve Factor, R		
	R = [0.206 - 0.15 Ln(Q_{100P}/Q_{100IN}]	1.057	
II.D.6	100-Year Detention Basin Size, V_{100D}		
	V_{100D} = (V_{100R} x R) - V_{CP-P}	(1,753)	cf
	Key Rule: $V_{100D} \geq V_{ED}$		
	V100D = VED =	**3,779**	cf

XI Proposed Pond 1 Volumes

Forebay			Detention Pond			Total Accumulated Volume (cf)	
Elevation	Area (sf)	Volume (cf)	Elevation	Area (sf)	Volume (cf)		
904.00	1,051	-	904.00	3,508	-	-	Below Top Forebay Embankment Elevation
905.00	1,778	1,415	905.00	4,604	4,056	5,471	
905.50	2,209	997	905.50	5,204	2,452	8,919	
			905.50	7,722	-	8,919	Above Top Forebay Embankment Elevation
			906.00	8,657	4,095	13,014	
Forebay Total		1,961					

XII	Design Storm Elevations							
The following interpolations determine the pond water elevations for the different storm events:								
XII.A	Forebay Volume Elevation, V_F							
Elevation	905.00	-	904.00	=	x_1	-	904.00	
Volume	1415		0		298		0	
			Elev V_F =		x_1	=	904.21	
XII.B	Extended Detention Elevation, Elev V_{ED}							
Elevation	905.00	-	904.00	=	x_2	-	904.00	
Volume	5471		0		3779		0	
			Elev V_{ED} =		x_2	=	904.69	
XII.C	100-Year Storm Event Elevation, Elev V_{100D}							
Elevation	905.00	-	904.00	=	x_3	-	904.00	
Volume	5471		0		3779		0	
			Elev $V_{100D} = V_{ED}$ =		x_3	=	904.69	

XIII	Pond 1 Outlet Orifice Calculations		
XIII.A	Channel Protection Rate Control (CPRC), Extended Detention		
XIII.A.1	Average Discharge Rate, Q_{ave}		
	$Q_{ave} = V_{CPRC}$/(48 hr x 60 hr/sec x 60 min/sec)	0.01	CFS
XIII.A.2	Maximum head resulting from CPRC storage volume, h_{ED}		
	$h_{ED} = Elev_{Bottom\ of\ Pond} - Elev_{CPRC}$	0.69	ft
XIII.A.3	Average head, h_{ave}		
	$h_{ave} = h_{ED}/2$	0.35	ft
XIII.A.4	Required Extended Detention Orifice Area, A_o		
	$A_o = Q_{ave}/(0.62(2 \times g \times h_{ave})^{1/2})$	0.004	sf
XIII.A.5	Extended Detention Orifice Diameter, d_o (assuming 1 hole)		
	$d_o = 12 \times (4 \times (A_o/\pi))^{1/2}$	1.71	in
XIII.A.6	Determining the number of holes, n_{holes}		
	Diameter of design holes, d_1	1	in
	$A_1 = \pi((d/2)/12)^2$	0.005	sf
	$n_{holes} = A_1/A_o$	0.7	holes
	Use	1	holes
XIII.A.7	Actual Extended Detention Orifice Area, A_{ED}		
	$A_{ED} = A_1 \times n_{holes}$	0.005	sf
XIII.A.8	Actual Extended Detention Discharge Rate, Q_{ACTUAL}		
	$Q_{ACTUAL} = A_{ED}/(0.62(2 \times g \times h_{ave})^{1/2})$	0.016	cfs

Note: if the CPRC volume is at or above the flood control volume, a single control (CPRC) is needed for the orifice. Volume above the 100-year allowable will be controlled by the outlet pipe (overflow weir). Additionally, for pipe sizing downstream of the detention pond, provided supporting calculations.

Storm Water Detention Calculations
Project: Lakeland Knoll
LE Project Number: 18245
Livingston County Drain Commission Method
Pond 2

I	SITE DATA		
I.B	Total Contributing Area, A	18.47	ac
I.C	Post-Development Runoff Coefficient, C	0.47	
II	MINIMUM VOLUME REQUIREMENTS		
II.A	Water Quality Volume, Site Runoff from the 1" Rainfall Event, V_{WQ}		
II.A.1	V_{WQ} = 1" x (1'/12") x (43,560 sf/acre) x C x A		
	V_{WQ} = 3,630 x C x A	31,671	cf
II.A.2	Forebay Min. Storage of 15% of V_{WQ}		
	$V_{forebay}$ = 0.15 x V_{WQ}	4,751	cf
II.B	Channel Protection Volume Control (CPVC), Site Runoff from First 1.3" of rainfall, V_{CP}		
	V_{CP} = 1.3" x (1'/12") x (43,560 sf/acre) x C x A		
	V_{CP} = 4,719 x C x A	41,172	cf
	V_{CP} Credit, V_{CP-P}	44,334	cf
II.C	Channel Protection Rate Control (CPRC), Extended Detention for the Site Runoff from a 1.9" Rainfall Event, V_{ED}		
II.C.1	V_{ED} = 1.9" x (1'/12") x (43,560 sf/acre) x C x A		
	V_{ED} = 6,897 x C x A	60,175	cf
II.C.2	Extended Detention Volume Discharge Rate, Q_{ED}		
	Q_{ED} = V_{ED}/(48 hr x 60 min x 60 sec)	0.35	cfs
II.D	Detention and Flood Control Volume		
II.D.1	Allowable Release Rate, Q_p		
	Q_p =	0.050	cfs/ac.
II.D.2	Allowable 100-year Post-Development Peak Flow Rate, Q_{100P}		
	Q_{100P} = Q_p x A	0.92	cfs
II.D.3	Allowable 100-year Post-Development Runoff Volume, V_{100R}		
	V_{100R} = 18,985 x C x A	165,640	cf
II.D.4	100-Year Peak Inflow Rate, Q_{100IN}		
II.D.4.a	Site Specific Time of Concentration, T_c	15.67	min
II.D.4.b	100-Year Peak Rainfall Intensity, I_{100}		
	I_{100} = 83.3 / (T_c + 9.17)^0.81	6.17	in/hr
II.D.4.c	Q_{100IN} = C x I_{100} x A	53.87	cfs
II.D.5	Storage Curve Factor, R		
	R = [0.206 - 0.15 Ln(Q_{100P}/Q_{100IN}]	0.816	
II.D.6	100-Year Detention Basin Size, V_{100D}		
	V_{100D} = (V_{100R} x R) - V_{CP-P}	90,810	cf
	Key Rule: $V_{100D} \geq V_{ED}$		
	V100D =	**90,810**	cf

XI Proposed Pond 2 Volumes

Forebay			Detention Pond			Total Accumulated Volume (cf)	
Elevation	Area (sf)	Volume (cf)	Elevation	Area (sf)	Volume (cf)		
			892.39	16,926	-	-	Below Top Forebay Embankment Elevation
892.50	2,145	-	892.50	17,217	1,878	1,878	
893.00	2,580	1,181	893.00	18,509	8,932	11,991	
894.00	3,562	3,071	894.00	21,198	19,854	34,915	
894.25	3,831	924	894.25	21,892	5,386	41,225	
			894.25	26,081	-	41,225	Above Top Forebay Embankment Elevation
			895.00	28,759	20,565	61,790	
			896.00	32,510	30,635	92,425	
FOREBAY TOTAL		5,176					

XII	Design Storm Elevations							
The following interpolations determine the pond water elevations for the different storm events:								
XII.A	Forebay Volume Elevation, V_F							
Elevation	894.25	-	894.00	=	x_1	-	894.00	
Volume	5176		4252		4751		4252	
			Elev V_F =		x_1	=	894.13	
XII.B	Extended Detention Elevation, Elev V_{CPRC}							
Elevation	895.00	-	894.25	=	x_2	-	894.25	
Volume	61790		41225		60175		41225	
			Elev V_{CPRC} =		x_2	=	894.94	
XII.C	100-Year Storm Event Elevation, Elev V_{100D}							
Elevation	896.00	-	895.00	=	x_3	-	895.00	
Volume	92425		61790		90810		61790	
			Elev V_{100D} =		x_3	=	895.95	

XIII	Pond 2 Outlet Orifice Calculations		
XIII.A	Channel Protection Rate Control (CPRC), Extended Detention		
XIII.A.1	Average Discharge Rate, Q_{ave}		
	$Q_{ave} = V_{CPRC}$/(48 hr x 60 hr/sec x 60 min/sec)	0.92	CFS
XIII.A.2	Maximum head resulting from CPRC storage volume, h_{ED}		
	$h_{ED} = Elev_{Bottom\ of\ Pond} - Elev_{CPRC}$	2.51	ft
XIII.A.3	Average head, h_{ave}		
	$h_{ave} = h_{ED}/2$	1.25	ft
XIII.A.4	Required Extended Detention Orifice Area, A_o		
	$A_o = Q_{ave}/(0.62(2 \times g \times h_{ave})^{1/2})$	0.166	sf
XIII.A.5	Extended Detention Orifice Diameter, d_o (assuming 1 hole)		
	$d_o = 12 \times (4 \times (A_o/\pi))^{1/2}$	11.02	in
XIII.A.6	Determining the number of holes, n_{holes}		
	Diameter of design holes, d_1	3	in
	$A_1 = \pi((d/2)/12)^2$	0.049	sf
	$n_{holes} = A_1/A_o$	3.4	holes
	Use	3	holes
XIII.A.7	Actual Extended Detention Orifice Area, A_{ED}		
	$A_{ED} = A_1 \times n_{holes}$	0.147	sf
XIII.A.8	Actual Extended Detention Discharge Rate, Q_{ACTUAL}		
	$Q_{ACTUAL} = A_{ED}/(0.62(2 \times g \times h_{ave})^{1/2})$	0.821	cfs
XIII.B	100-Yr Detention		
XIII.B.1	Average Discharge Rate, Q_{ave}		
	$Q_{ave} = V_{CPRC}$/(48 hr x 60 hr/sec x 60 min/sec)	0.92	CFS
XIII.B.2	Maximum head resulting from CPRC storage volume, h_{ED}		
	$h_{ED} = Elev_{CPRC} - Elev_{100ED}$	1.00	ft
XIII.B.3	Average head, h_{ave}		
	$h_{ave} = h_{ED}/2$	0.50	ft
XIII.B.4	Required 100-Yr Detention Orifice Area, A_{100o}		
	$A_{100o} = Q_{ave}/(0.62(2 \times g \times h_{ave})^{1/2})$	0.263	sf
XIII.B.5	100-Yr Detention Orifice Diameter, d_o (assuming 1 hole)		
	$d_o = 12 \times (4 \times (A_o/\pi))^{1/2}$	13.88	in
XIII.B.6	Determining the number of holes, n_{holes}		
	Diameter of design holes, d_1	3	in
	$A_1 = \pi((d/2)/12)^2$	0.049	sf
	$n_{holes} = A_1/A_o$	5.4	holes
	Use	5	holes
XIII.B.7	Actual Extended Detention Orifice Area, A_{ED}		
	$A_{100} = A_1 \times n_{holes}$	0.245	sf
XIII.B.8	Actual Extended Detention Discharge Rate, Q_{ACTUAL}		
	$Q_{ACTUAL} = A_{100}/(0.62(2 \times g \times h_{ave})^{1/2})$	0.863	cfs

Storm Water Detention Calculations
Project: Lakeland Knoll
LE Project Number: 18245
Livingston County Drain Commission Method
Pond 3

I	SITE DATA		
I.B	Total Contributing Area, A	12.22	ac
I.C	Post-Development Runoff Coefficient, C	0.47	
II	MINIMUM VOLUME REQUIREMENTS		
II.A	Water Quality Volume, Site Runoff from the 1" Rainfall Event, V_{WQ}		
II.A.1	V_{WQ} = 1" x (1'/12") x (43,560 sf/acre) x C x A		
	V_{WQ} = 3,630 x C x A	20,947	cf
II.A.2	Forebay Min. Storage of 15% of V_{WQ}		
	$V_{forebay}$ = 0.15 x V_{WQ}	3,142	cf
II.B	Channel Protection Volume Control (CPVC), Site Runoff from First 1.3" of rainfall, V_{CP}		
	V_{CP} = 1.3" x (1'/12") x (43,560 sf/acre) x C x A		
	V_{CP} = 4,719 x C x A	27,232	cf
	V_{CP} Credit, V_{CP-P}	115,404	cf
II.C	Channel Protection Rate Control (CPRC), Extended Detention for the Site Runoff from a 1.9" Rainfall Event, V_{ED}		
II.C.1	V_{ED} = 1.9" x (1'/12") x (43,560 sf/acre) x C x A		
	V_{ED} = 6,897 x C x A	39,800	cf
II.C.2	Extended Detention Volume Discharge Rate, Q_{ED}		
	Q_{ED} = V_{ED}/(48 hr x 60 min x 60 sec)	0.23	cfs
II.D	Detention and Flood Control Volume		
II.D.1	Allowable Release Rate, Q_p		
	Q_p =	0.002	cfs/ac.
II.D.2	Allowable 100-year Post-Development Peak Flow Rate, Q_{100P}		
	Q_{100P} = Q_p x A	0.02	cfs
II.D.3	Allowable 100-year Post-Development Runoff Volume, V_{100R}		
	V_{100R} = 18,985 x C x A	109,555	cf
II.D.4	100-Year Peak Inflow Rate, Q_{100IN}		
II.D.4.a	Site Specific Time of Concentration, T_c	15.67	min
II.D.4.b	100-Year Peak Rainfall Intensity, I_{100}		
	I_{100} = 83.3 / (T_c + 9.17)^0.81	6.17	in/hr
II.D.4.c	Q_{100IN} = C x I_{100} x A	35.63	cfs
II.D.5	Storage Curve Factor, R		
	R = [0.206 - 0.15 Ln(Q_{100P}/Q_{100IN}]	1.327	
II.D.6	100-Year Detention Basin Size, V_{100D}		
	V_{100D} = (V_{100R} x R) - V_{CP-P}	29,939	cf
	Key Rule: $V_{100D} \geq V_{ED}$		
	V100D = VED =	**39,800**	cf

XI Proposed Pond 3 Volumes

Forebay			Detention Pond			Total Accumulated Volume (cf)	
Elevation	Area (sf)	Volume (cf)	Elevation	Area (sf)	Volume (cf)		
			894.00	3,167	-	-	Below Top Forebay Embankment Elevation
895.00	1,153	-	895.00	4,441	3,804	3,804	
896.00	1,864	1,509	896.00	5,862	5,152	10,464	
897.00	2,740	2,302	897.00	7,427	6,645	19,411	
			897.00	10,542	-	19,411	Above Top Forebay Embankment Elevation
			898.00	12,825	11,684	31,094	
			899.00	15,283	14,054	45,148	
FOREBAY TOTAL		3,811					

XII	Design Storm Elevations							
The following interpolations determine the pond water elevations for the different storm events:								
XII.A	Forebay Volume Elevation, V_F							
Elevation	897.00	-	896.00	=	x_1	-	896.00	
Volume	3811		1509		3142		1509	
			Elev V_F =		x_1	=	896.71	
XII.B	Extended Detention Elevation, Elev V_{CPRC}							
Elevation	899.00	-	898.00	=	x_2	-	898.00	
Volume	45148		31094		39800		31094	
			Elev V_{CPRC} =		x_2	=	898.62	
XII.C	100-Year Storm Event Elevation, Elev $V_{100D = VED}$							
Elevation	899.00	-	898.00	=	x_3	-	898.00	
Volume	45148		31094		42099		31094	
			Elev $V_{100D} = V_{ED}$ =		x_3	=	898.78	

XIII	Pond 3 Outlet Orifice Calculations		
XIII.A	Channel Protection Rate Control (CPRC), Extended Detention		
XIII.A.1	Average Discharge Rate, Q_{ave}		
	$Q_{ave} = V_{CPRC}$/(48 hr x 60 hr/sec x 60 min/sec)	0.020	CFS
XIII.A.2	Maximum head resulting from CPRC storage volume, h_{ED}		
	$h_{ED} = Elev_{Bottom\ of\ Pond} - Elev_{CPRC}$	4.58	ft
XIII.A.3	Average head, h_{ave}		
	$h_{ave} = h_{ED}/2$	2.29	ft
XIII.A.4	Required Extended Detention Orifice Area, A_o		
	$A_o = Q_{ave}/(0.62(2 \times g \times h_{ave})^{1/2})$	0.003	sf
XIII.A.5	Extended Detention Orifice Diameter, d_o (assuming 1 hole)		
	$d_o = 12 \times (4 \times (A_o/\pi))^{1/2}$	1.41	in
XIII.A.6	Determining the number of holes, n_{holes}		
	Diameter of design holes, d_1	0.75	in
	$A_1 = \pi((d/2)/12)^2$	0.003	sf
	$n_{holes} = A_1/A_o$	0.9	holes
	Use	1	holes
XIII.A.7	Actual Extended Detention Orifice Area, A_{ED}		
	$A_{ED} = A_1 \times n_{holes}$	0.003	sf
XIII.A.8	Actual Extended Detention Discharge Rate, Q_{ACTUAL}		
	$Q_{ACTUAL} = A_{ED}/(0.62(2 \times g \times h_{ave})^{1/2})$	0.023	cfs

Note: if the CPRC volume is at or above the flood control volume, a single control (CPRC) is needed for the orifice. Volume above the 100-year allowable will be controlled by the outlet pipe (overflow weir). Additionally, for pipe sizing downstream of the detention pond, provided supporting calculations.

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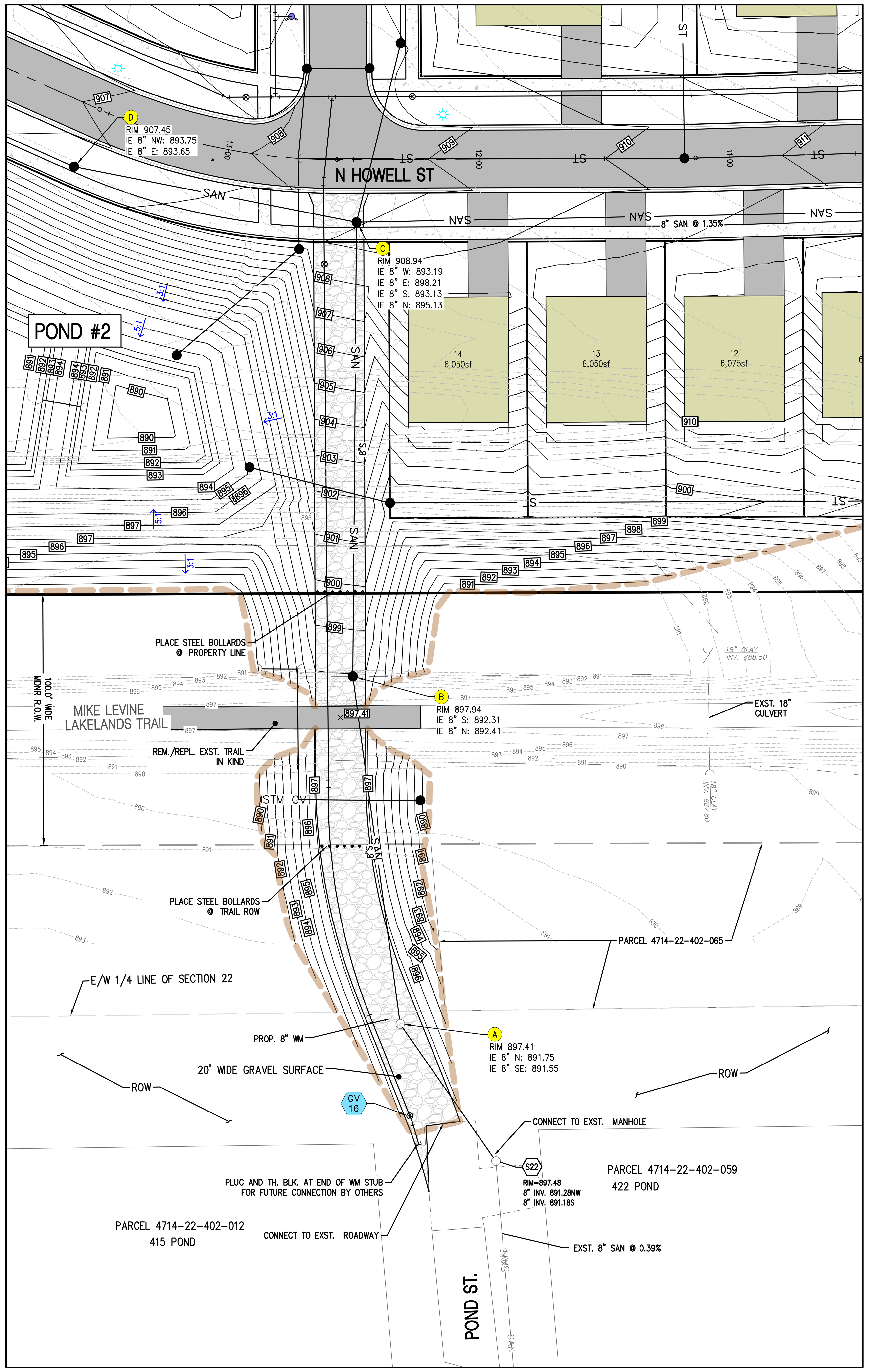
LAKELAND KNOLL
FINAL SITE PLANS
VILLAGE OF PINCKNEY, LIVINGSTON COUNTY, MICHIGAN
STORM WATER MANAGEMENT PLAN

REVISIONS	DATE
REV. HORIZON. ALIGNMENT	02/17/2021
REV. LOT NUMBERS PER PHASING	04/28/2023
REV. PER VILLAGE	06/28/2023
FINAL SITE PLAN	08/25/2023

Drawn: JDR
Checked: TJZ
Approved: TJZ
Date: 12/17/2020

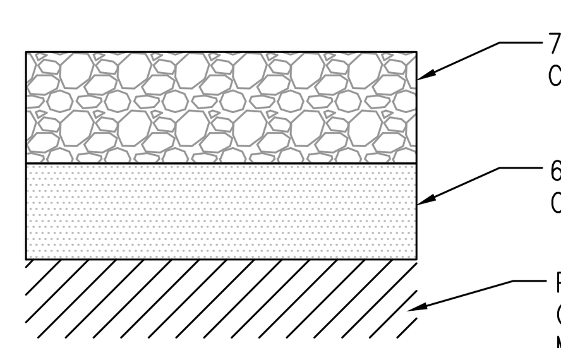
Job. no. 18245
Scale:
Vertical:
Horizontal: 1" = 200'

FILE:C:\Users\user\Dropbox (Liveng)\Projects\2018\18245 Progressive Lakeland Knoll\03 DWGS\Final Site Plan\18245_06_SWMP.dwg



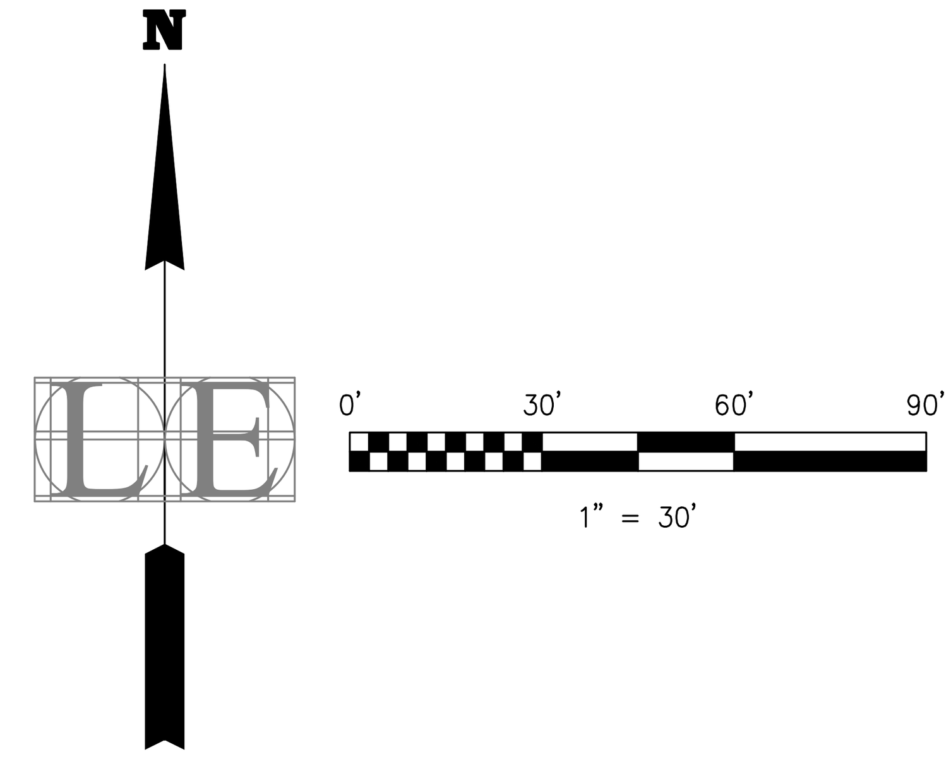
CONNECTION TO POND ST DETAIL

1" = 30'



GRAVEL SURFACE SECTION

NOT TO SCALE



TrafficGuard®, Inc.
PO Box 201, Geneva, IL 60134
Phone: 877-727-7347
Fax: 800-814-7194
www.trafficguard.net

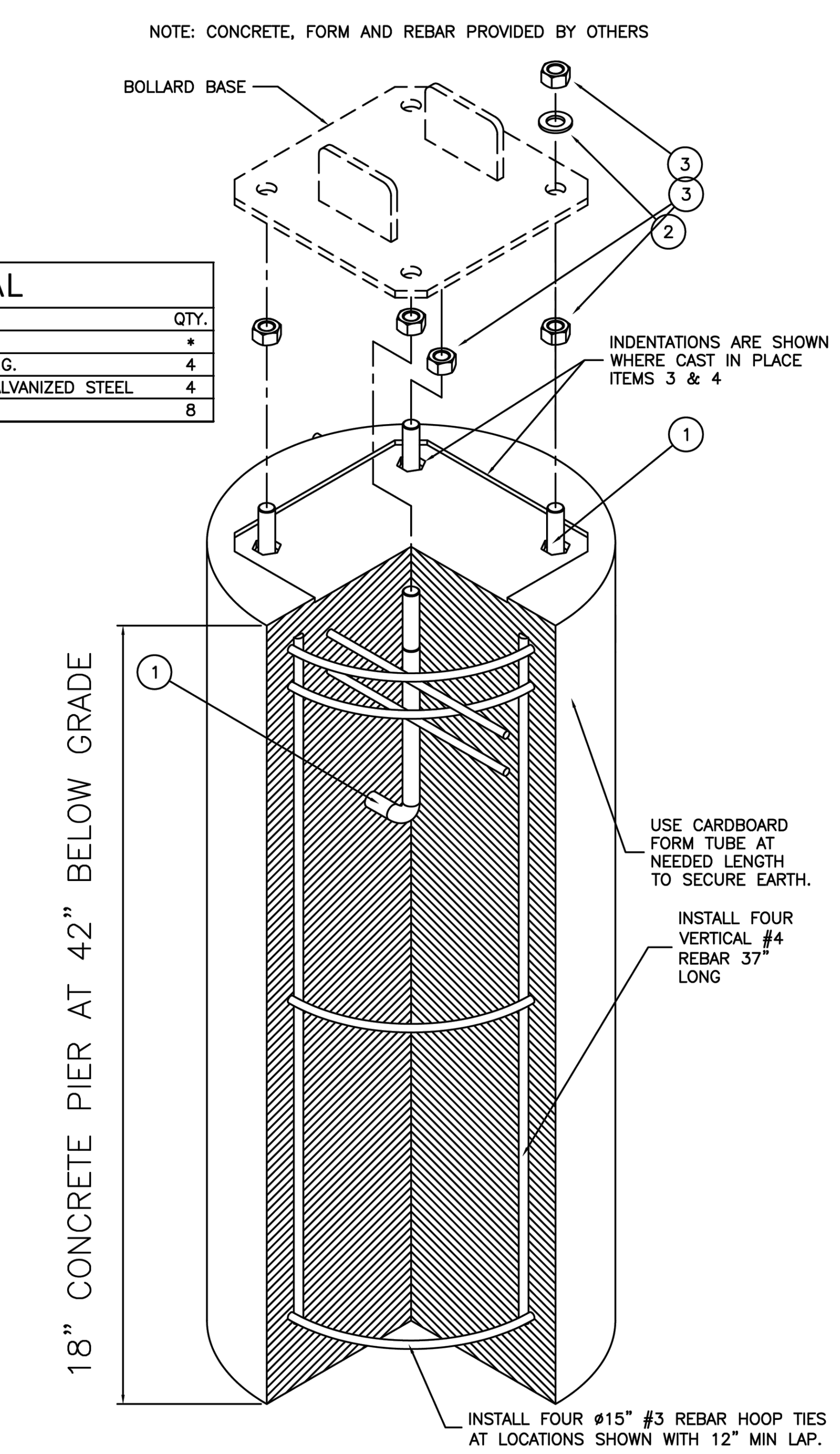
Footing Detail

FOR MODEL: 2436

BILL OF MATERIAL

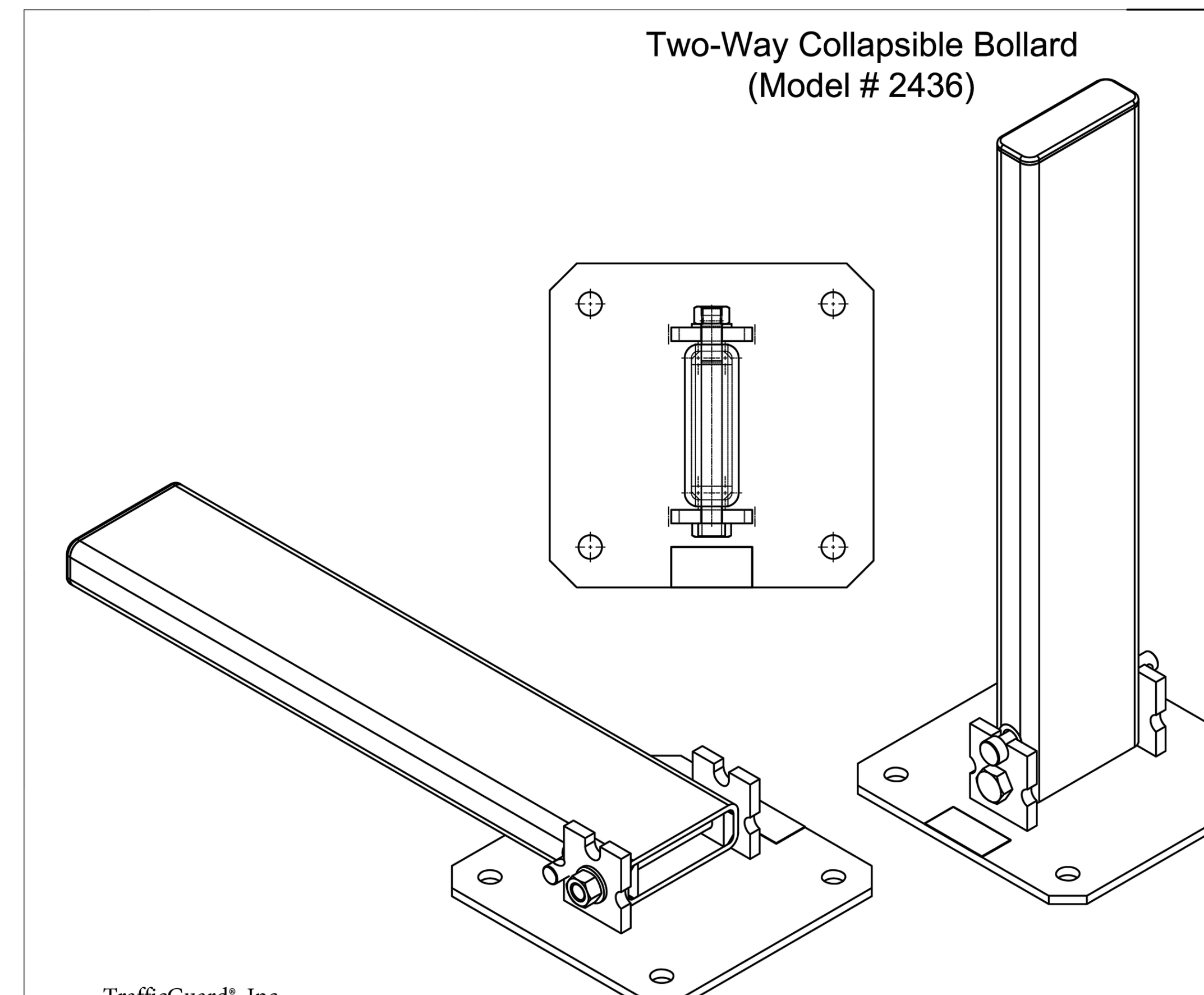
ITEM	DESCRIPTION	QTY.
*	ANCHOR BOLT KIT	*
1	1/2" x 12" TYPE L ANCHOR BOLT–H.D.G.	4
2	1/2" TYPE A FLAT NARROW WASHER GALVANIZED STEEL	4
3	1/2" HEX NUT GALVANIZED STEEL	8

*Anchor Bolt Kit included only if ordered at an additional cost.



CONCRETE PIER ANCHOR SYSTEM (CPAS–2436)

Two-Way Collapsible Bollard
(Model # 2436)



"The Two-Way Collapsible Bollard"

Standard Features Include:

Safety
Smooth Surface bollard post at 30" or 36" height and painted with highly durable "Safety Yellow" finish are standard for high visibility and no sharp edges.

Heavy Duty:
The 2436 shall be installed with the appropriate detail per "Bollard Post Concrete Anchorage Detail"
Other anchorage systems may cause premature failure.

Proven Performance:
Refereneces Available Upon Request

Low Maintenance

Warranty

$1,000,000 Liability Coverage

Ease of Use in Three Easy Reversible Steps

1. Remove the Padlock and Lock Pin.
2. Lower the 2x6 Bollard Post
3. Install the Lock Pin and Padlock
Use the reverse procedure to raise the bollard post.

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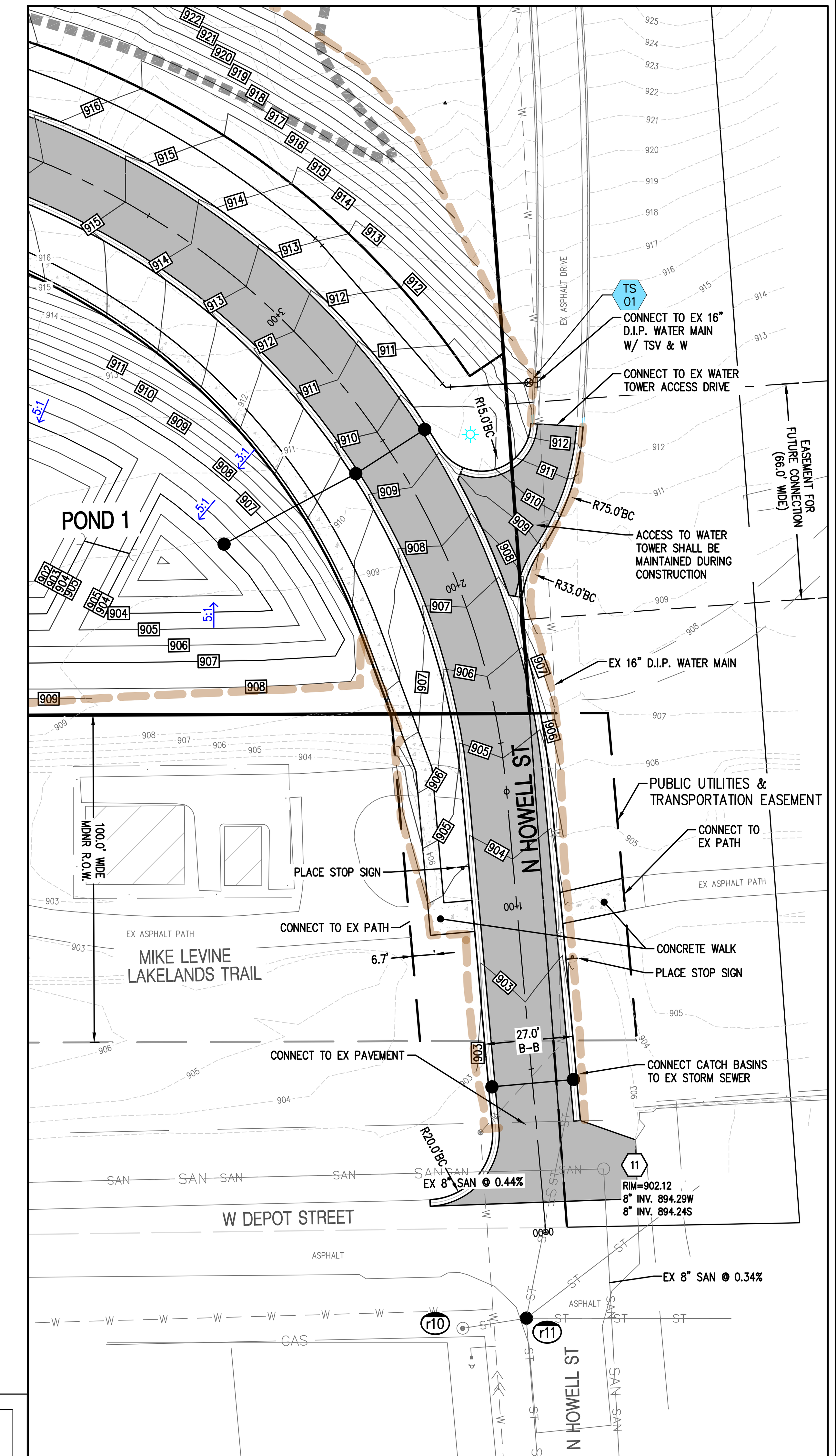
DISPLAY 2436



CONNECTION TO HOWELL ST DETAIL

1" = 30'

LIVINGSTON ENGINEERING
CIVIL ENGINEERING SURVEYING PLANNING
3300 S. OLD U.S. 23, BRIGHTON, MI 48114
PHONE: (810) 225-7100 FAX: (810) 225-7699
WWW.LIVINGSTONENG.COM

Client
PROGRESSIVE PROPERTIES
PO BOX 2709
SOUTHFIELD, MI 48037-2709
PH: 248.358.2210

LAKELAND KNOLL

FINAL SITE PLANS
VILLAGE OF PINCKNEY, LIVINGSTON COUNTY, MICHIGAN

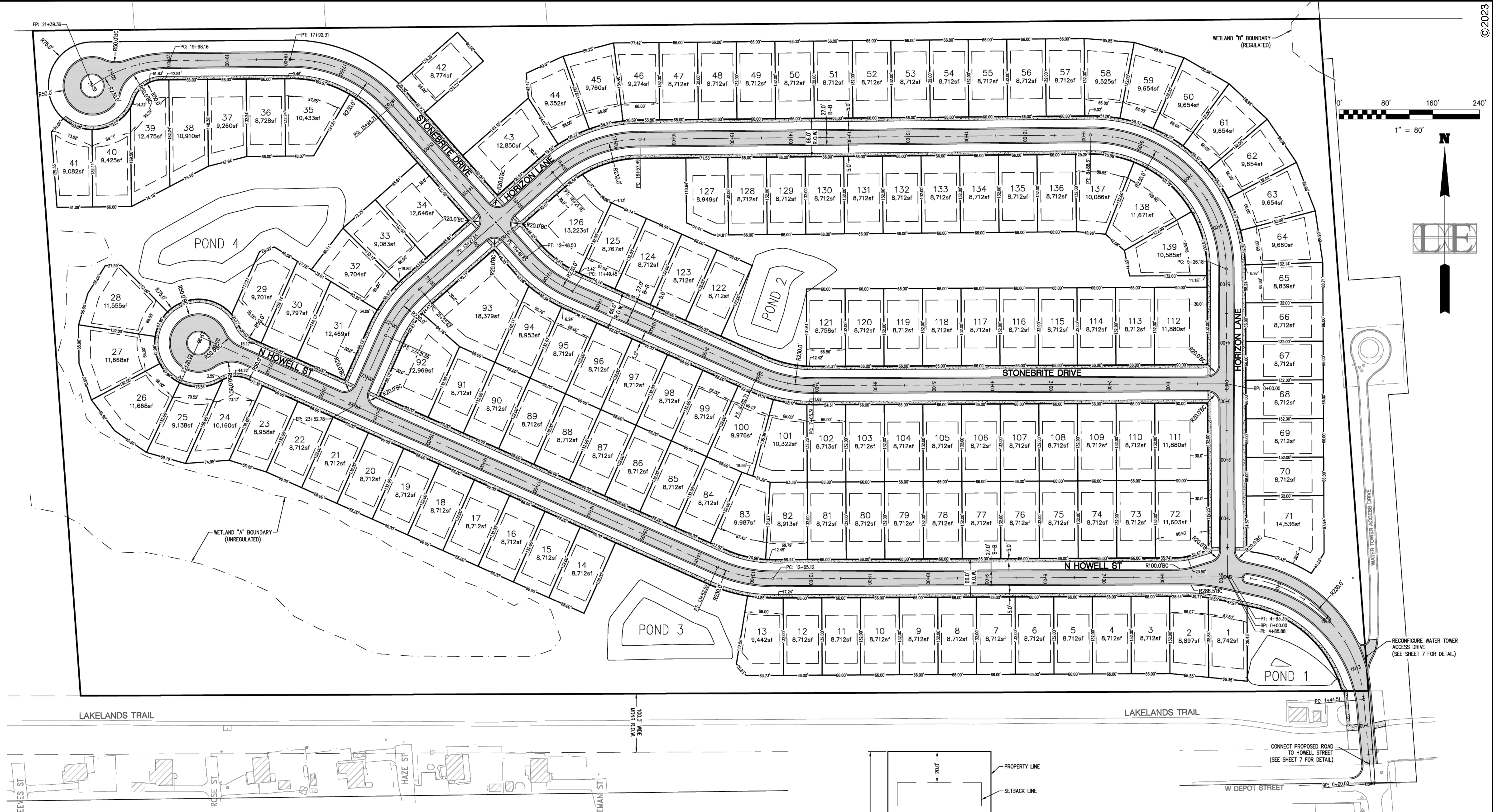
DETAILS

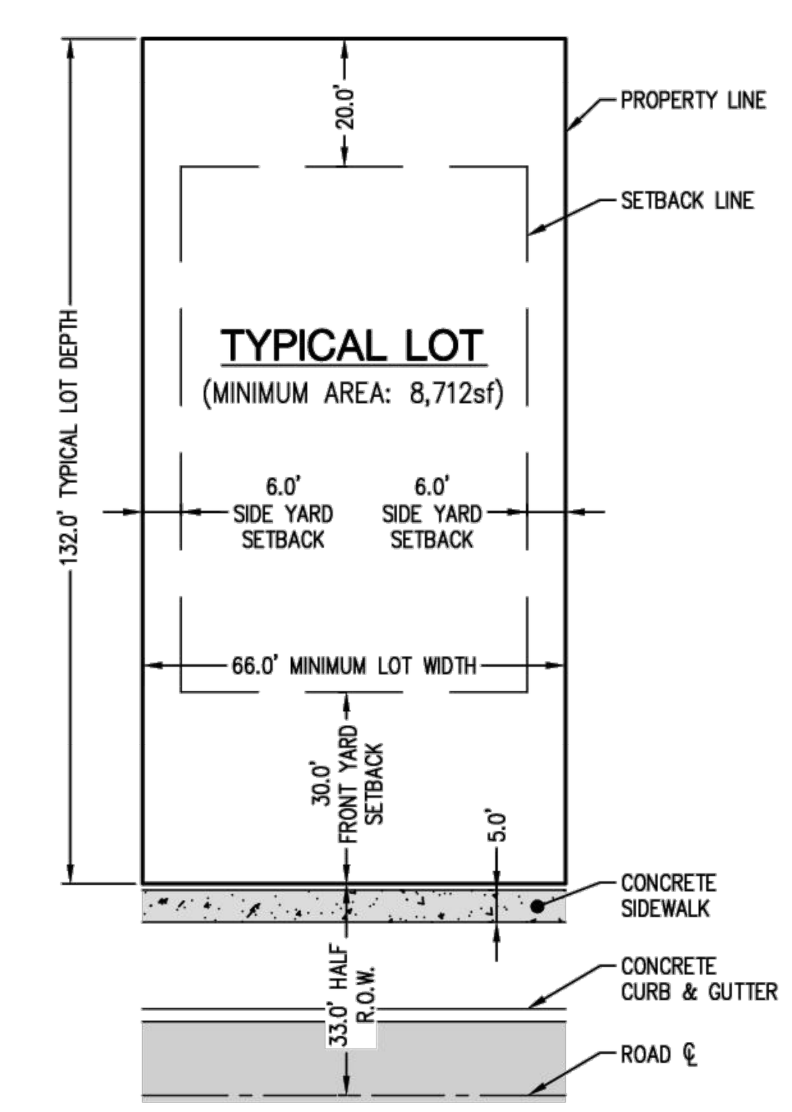
REVISIONS	DATE
REV HORIZON LN ALIGNMENT	02/12/2021
REV LOT NUMBERS PER PHASING	04/28/2023
REV PER VILLAGE	06/28/2023
FINAL SITE PLAN	08/30/2023

Drawn: JDR
Checked: TJZ
Approved: TJZ
Date: 12/17/2020

Job. no. 18245
Scale:
Vertical:
Horizontal: SEE SHEET

FILE:C:\Users\user\Dropbox (Liveng)\Projects\2018\18245 Progressive Lakeland Knoll\03 DWGS\Final Site Plan\18245_07_Detail.dwg





TYPICAL LOT DETAIL
SCALE: 1"=30'

SITE DATA TABLE

PARCEL NUMBERS:	14-22-200-004 14-22-200-005
ZONING:	
EXISTING	R-3 (HIGH DENSITY RESIDENTIAL)
PROPOSED	R-3 (HIGH DENSITY RESIDENTIAL)
USE:	
EXISTING	VACANT
PROPOSED	RESIDENTIAL (SITE CONDOMINIUM)
TOTAL PROPOSED LOTS = 139	
LOT:	
MINIMUM LOT AREA	8,712sf
MINIMUM LOT WIDTH	66ft
MAXIMUM LOT COVERAGE	40%
MAXIMUM BUILDING HEIGHT	2.5 STORIES / 35ft
SETBACKS:	
MINIMUM FRONT YARD	30ft
MINIMUM SIDE YARD(EACH)	6ft
MINIMUM REAR YARD	20ft

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SOUTHFIELD, MI 48037-2709
PH: 248.358.2210

LAKELAND KNOLL

FINAL SITE PLANS
VILLAGE OF PINCKNEY, LIVINGSTON COUNTY, MICHIGAN

PARALLEL PLAN

REVISIONS	DATE
REV HORIZON LN ALIGNMENT	02/12/2021
REV LOT NUMBERS PER PHASING	04/28/2023
REV PER VILLAGE	06/28/2023
FINAL SITE PLAN	08/30/2023

Drawn: JDR
Checked: TJZ
Approved: TJZ
Date: 12/17/2020

Job no. 18245
Scale:
Vertical:
Horizontal: 1" = 80'

PARCEL NO.S AND OWNERS

REEVES STREET:

4714-22-400-014
BOURQUE, DENISE TRUST

4714-22-401-124
CORWIN, CRAIG & ELIZABETH

4714-22-401-125
BABBITT, JOSEPH

4714-22-401-122
NEUTZ, DANE

4714-22-401-126
COUCHMAN, CYNTHIA

4714-22-401-127
MULLINS, REBECCA

ROSE STREET:

4714-22-401-028
COMELLA, JOHN & JANINE

4714-22-401-027
SALISBURY, TRAVIS & DANIELLE

4714-22-401-003
MOYER, KENNETH & ROBIN

4714-22-401-004
MCCARTHY, STEVEN

4714-22-401-109
PROCTOR, STUART & TINA

4714-22-401-005
JAMES JR, CHARLES & REBECCA

4714-22-401-009
DOROSH, DAVIS

4714-22-401-010
HO, MING-HSUAN

4714-22-401-104
MYERS, MICHAEL

4714-22-401-105
KNAPP, TIM & CHRISTY

4714-22-401-106
THOMAS, JUSTIN & REBECCA

4714-22-401-107
OLEJNIK, AMY

4714-22-401-108
SCHAUFELE, ANNA

HAZE STREET:

4714-22-401-026
BALL, DENNIS & DENISE

4714-22-401-025
BECK, MARK & DIANNA

4714-22-401-103
DECKER, ELIZABETH & ENGEL, MICHAEL

4714-22-401-102
WISE, ROBERT & CRYSTAL

4714-22-401-101
TICE, JOHN & LEAH

4714-22-401-100
PARTIN, STEWART & SARAH

4714-22-401-099
SPENCE, LAURA

4714-22-401-094
HAUSERMAN, LENNIN

4714-22-401-095
WOLFE, ROBERT & PAULA

4714-22-401-096
MCWHINNIE, DAVID & PATRICIA

4714-22-401-097
GALLIHER, GREGORY & DONNA

4714-22-401-098
LABELLE, DONALD & NANCY

COLEMAN STREET:

4714-22-401-110
SCHULTZ, NATALIE

4714-22-401-093
SCHANG, DWAYNE

4714-22-401-092
ROOT, MICHAEL

4714-22-401-091
BAUER, TRISHA SUE TRUST

4714-22-401-090
SMITH, RUSSELL & MARY

4714-22-401-089
GRANT, MARK

4714-22-402-048
WILSON, KEVIN

4714-22-402-047
MELOCHE, JAMES

POND STREET:

4714-22-402-013
4714-22-402-012
JENKINS, MICHAEL, MARY & RYAN

4714-22-402-016
STIDHAM, CECILE

4714-22-402-057
MARHOFER, J

4714-22-402-058
PIERSON, THEODORE II

4714-22-402-059
CLINE, CARRIE

4714-22-402-060
MARHOFER, JOYCE

4714-22-402-064
WALDORF, CONRAD & CAROL

4714-22-402-065
SCHLAFF, MARY SINGER & SINGER

DEPOT STREET:

4714-22-402-004
KRUMHOLZ, MICHAEL & IN

4714-22-402-002
DOUGLAS, WALTER & JENNIFER

4714-22-402-042
KELLENBERGER, MELISSA

4714-22-402-001
SHERRY, EDWIN

HAMBURG STREET:

4714-22-402-005
MCILRATH, PATRICIA

4714-22-402-014
LEE, JASON

4714-22-402-015
410 HAMBURG LLC

4714-22-402-021
USITALO, GEORGE JR

4714-22-402-022
VEGA, DOLORES

4714-22-402-023
HARJU, BENJAMIN

4714-22-402-024
KIMPEL, CATHERINE & FLORIAN

4714-22-402-025
4714-22-402-026
WILTSE, LISA

4714-22-402-027
ROSLYN, KATHERYN & ROURKE, EDWARD

4714-22-402-028
BEDGOOD, DENNIS TRUST

4714-22-402-037
CLINGAN, KENNETH

4714-22-402-029
JENNIC LLC

4714-22-402-049
SOREK, CAITILIN

4714-22-402-050
ACEVES, TIFFANY

4714-22-402-051
BURNS, STACY

HULL, DARLENE
4714-22-402-052

4714-22-402-031
6990 HOLDING LLC

4714-22-402-032
WILKINSON, DENNIS

4714-22-402-033
HUBBARD, CHARLES & LAUREL

4714-22-402-046
CR HOMES LLC

4714-22-401-138
WILLIAMS, DEREK

4714-22-401-139
WIDMAYER, ANDREW

4714-22-401-152
4714-22-401-151
BURNS, STACY

4714-22-401-112
GONZALEZ, DANIEL & JODI

4714-22-401-111
BRUSH, JAMIE

4714-22-401-118
HALL, MARY

4714-22-401-117
DAVIS, LORI

MAIN STREET:

4714-22-401-008
LAUGHLIN, MEGAN

4714-22-401-010
HO, MING-HSUA

UNADILLA STREET:

4714-22-402-041
HARTMANN. GEOFFREY & RENO, KATHRYN

4714-22-402-040
LAUX, GARY & JOANNE

4714-22-402-039
MCCLELLAND, CHRISTOPHER & SHEILA

4714-22-402-038
HUME, PATRICIA

4714-22-402-043
CLINGAN, KENNETH & DORIS

4714-22-402-056
EVERETT, DENISE

4714-22-402-055
GAMBRELL, ERIC

4714-22-402-054
MANFREDINI, KENNETH

4714-22-402-053
MAUS, MICHAEL

4714-22-402-036
CLEMENT, JENNIFER

4714-22-402-035
SHUR, LESLIE

4714-22-402-067
JUNGKIND, JON

4714-22-402-066
PAPICH, KENNETH

4714-22-401-149
SPENCE, JUDY

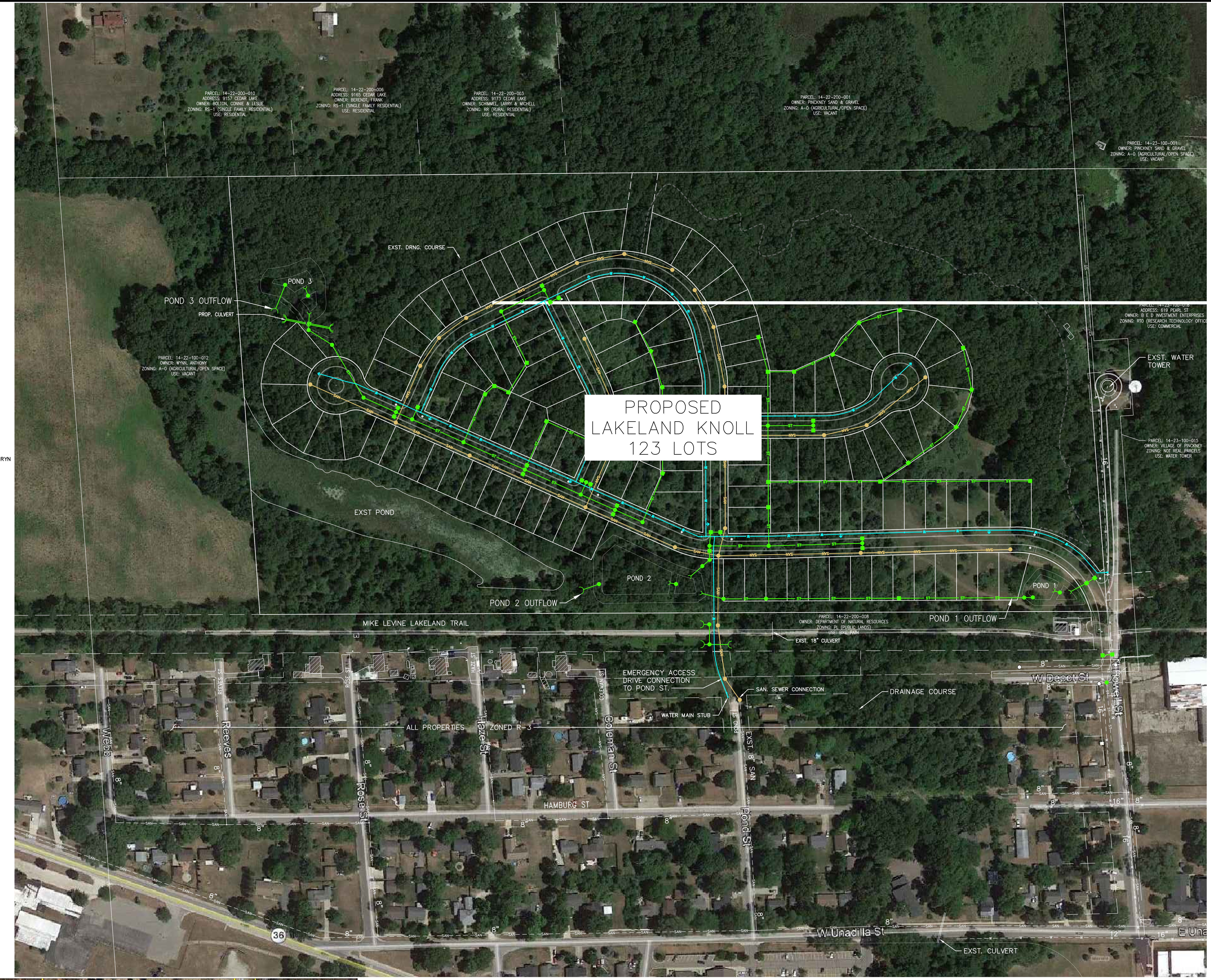
4714-22-401-148
SPENCE, JERAMI

4714-22-401-140
BURNS, BARBARA

4714-22-401-150
MYERS, MICHAEL

4714-22-401-115
FEAZEL, TREVOR & MICHELLE

4714-22-401-114
PROVENCHER, AMIE



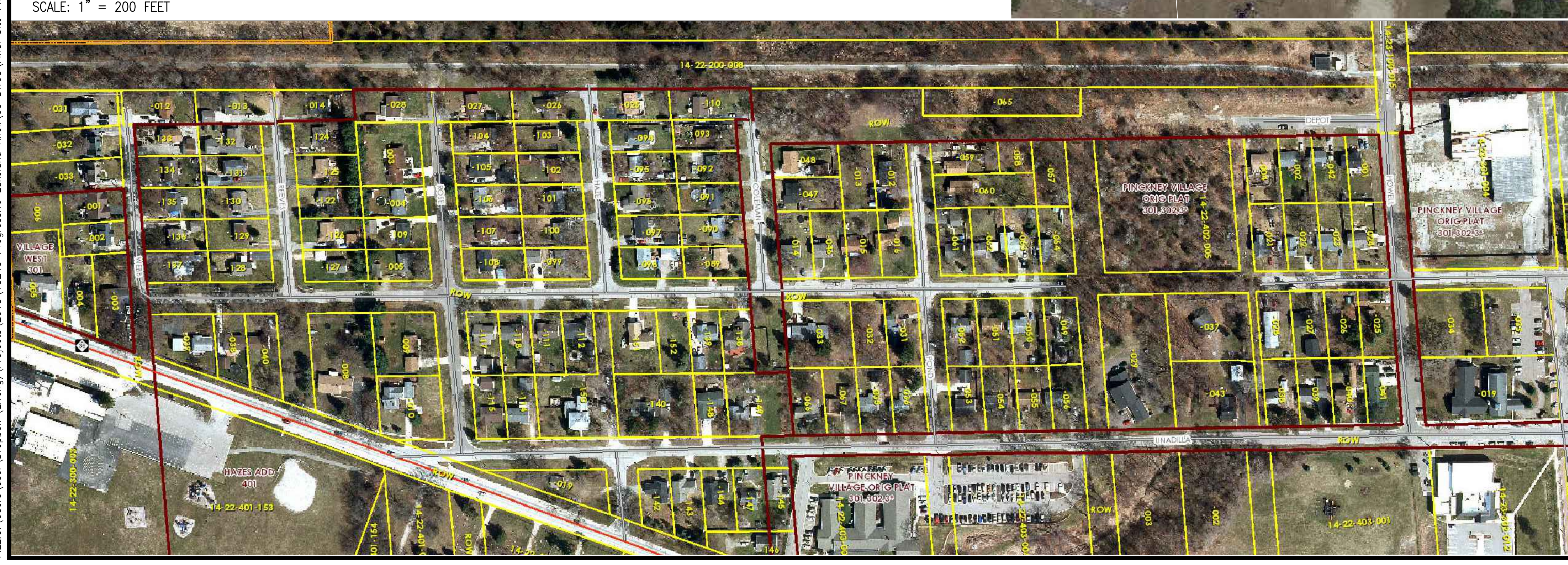
AREA-WIDE PLAN

0' 150' 300' 450'

1" = 150 FEET

VILLAGE TAX PARCEL MAP

SCALE: 1" = 200 FEET



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SOUTHFIELD, MI 48037-2709
PH: 248.358.2210

LAKELAND KNOLL
FINAL SITE PLANS
VILLAGE OF PINCKNEY, LIVINGSTON COUNTY, MICHIGAN
AREA-WIDE PLAN

REVISIONS	DATE
REV HORIZON LN ALIGNMENT	02/12/2021
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REV PER VILLAGE	06/28/2023
FINAL SITE PLAN	08/30/2023

Drawn: JDR
Checked: TJZ
Approved: TJZ
Date: 12/17/2020

Job. no. 18245
Scale:
Vertical:
Horizontal: 1" = 160'

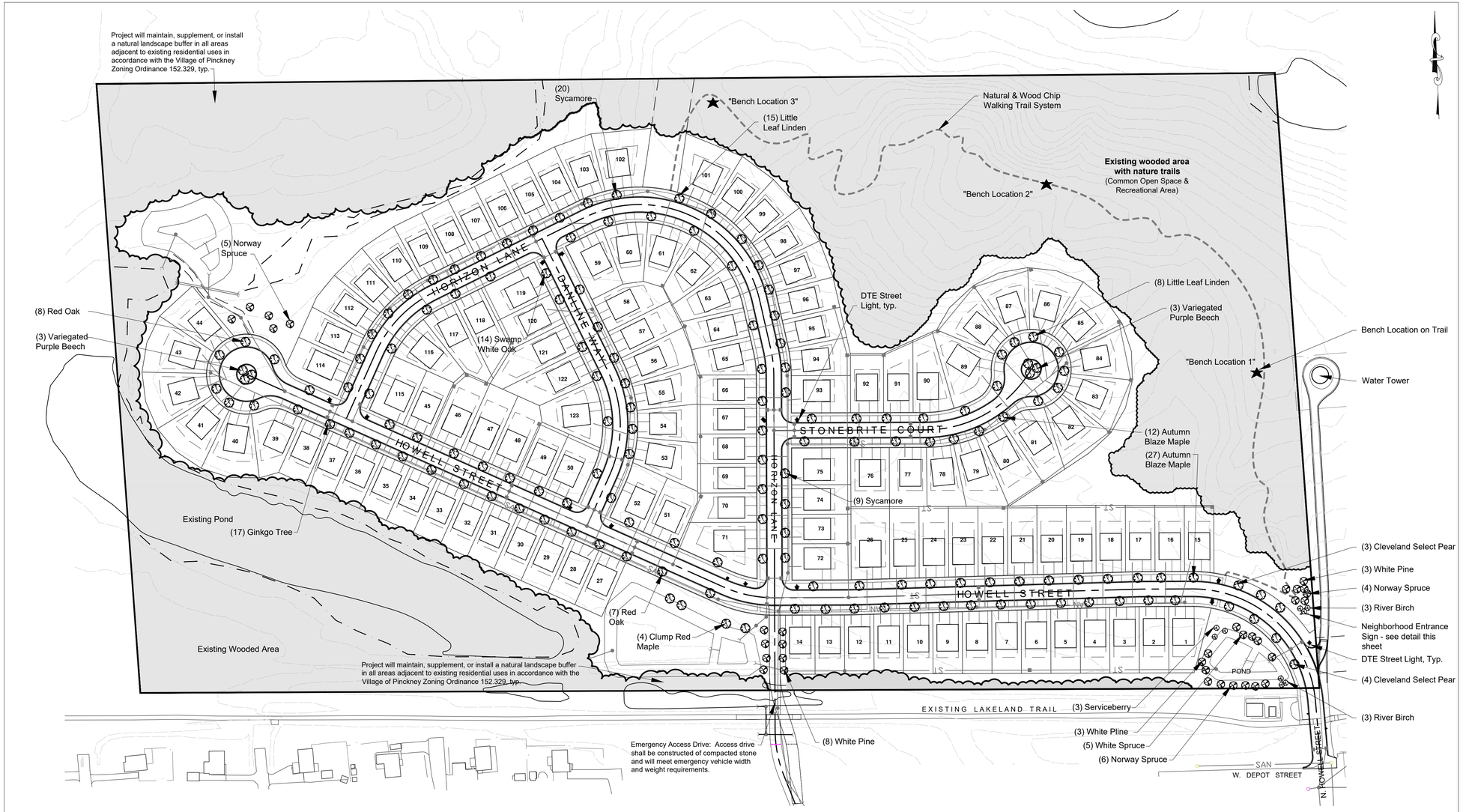
FILE:C:\Users\user\Dropbox (Liveng)\Projects\2018\18245 Progressive Lakeland Knoll\03 DWGS\Final Site Plan\18245_09_Area Wide Plan.dwg

LANDSCAPE PLANTING NOTES:

1. Contractor shall be responsible for contacting and coordinating with all pertinent utility companies 72 hours in advance of any digging to make themselves familiar with all underground utilities, pipes and structures. Contractor shall take sole responsibility for any cost incurred due to damage of said utilities or structures.
2. Contractor shall not willfully proceed with construction as designed when it is obvious that unknown obstructions and/or grade differences exist. Such conditions shall immediately be brought to the attention of the Owner's Representative. The contractor shall assume full responsibility for all necessary revisions due to failure to give such notification.
3. Any discrepancies between dimensioned layout and actual field conditions shall be reported to the Owner's Representative. Failure to make such discrepancies known will result in contractor's responsibility and liability for any changes and associated costs.
4. Contractor shall be responsible for any coordination with subcontractors as required to accomplish construction installation operations.
5. Contractor shall provide and maintain positive surface drainage.
6. Contractor shall be responsible for any existing materials that are damaged during construction.
7. See Plant & Material List and Planting Details for planting requirements, materials and execution.
8. All trees shall have a clay loam or clay root ball. Trees with sand root balls will not be accepted.
9. All tree varieties and substitutions to be approved by the Owners Representative prior to being delivered to the site. Any plant material delivered to the site not previously approved may be rejected and is the sole responsibility of the contractor.
10. The location of all plant material shall be scaled from drawings or interpreted from plant list. Final location of all plant material shall be subject to approval from the Owner's Representative.
11. The contractor shall "water in" and fertilize all plants immediately after planting.
12. The contractor shall guarantee all trees, shrubs, ground cover and other plant materials for one year from the date of installation, including labor and removal and disposal of dead material.
13. Contractor shall install 3" depth Shredded Hardwood Mulch in all shrub and tree planting beds unless otherwise indicated. Peat Moss is to be installed in all annual flower, perennial flower and ground cover planting beds. Such beds shall have no shredded mulch.
14. All plant material shall be nursery grown. All trees and plant material shall meet the current standards of the American Society of Nurseryman.
15. All diseased, damaged, or dead landscape material shall be replaced by the end of the following growing season.
16. Contractor shall adhere to all soil erosion prevention methods as directed within civil engineering drawings and Municipal Ordinance including maintaining silt fencing and ensuring that soil, silt and other debris is prevented from leaving site or entering area drains, sewer inlets, creeks or natural areas.
17. All unpaved areas within impacted development zones to be hydro-seed lawn areas, mulch beds or groundcover.
18. Residential Lighting: Each home will have a front porch light and 2 carriage lights at the garage door.
19. Street Lighting: Decorative Street Lights will be located at street intersections and the neighborhood entrance. Street Lighting will be designed, installed, and maintained by DTE in accordance with the DTE Street Lighting program.
20. Mailboxes: Decorative mailboxes will be located curbside in front of homes in a traditional format; grouped in pairs, in order to avoid a suburban style mail kiosk and congestion at the main entrance. Developer will coordinate with the USPS for final locations.

STREET TREE & COMMON AREA PLANTING PLAN:

1" = 100'

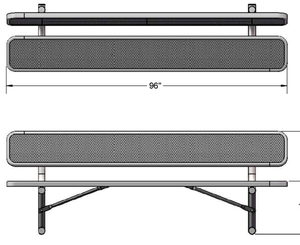


CONDITIONS OF PLANNING COMMISSION FOR PRELIMINARY APPROVAL: July 8, 2020

1. Perimeter Landscape Buffer: The project will maintain, supplement, or install a natural landscape buffer in all areas adjacent to existing residential uses in accordance with the Village of Pinckney Zoning Ordinance 152.329, typ.
2. Common area landscape elements and trees shall be planted by the developer at the time of construction of each phase.
3. The wood chip Walking Trail within the open space will be built during Phase One construction and will connect to the proposed sidewalk system.
4. An identification sign indicating a name for each bench location will be installed at benches along the walking trail to aid in emergency response location identification. Names shall be "Bench 1", "Bench 2", & "Bench 3" and correspond with locations shown on this plan above.
5. Developer will coordinate Emergency Access barrier type, access, and location with Fire Marshall

TRAIL BENCH:

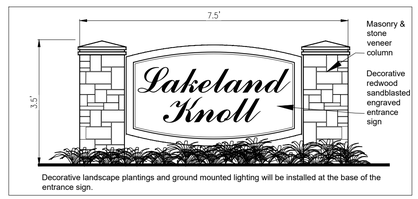
Not to Scale



MFG:	Ultrasite 1675 Locust Blvd Red Bud, IL 62278 www.ultra-site.com
BENCH TYPE:	Extra Heavy Duty bench with back
BENCH COLOR:	GREEN
LENGTH:	8'
INSTALLATION:	In-Ground
QUANTITY:	3

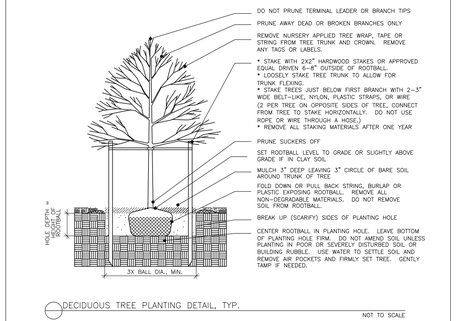
ENTRANCE SIGN:

1" = 2'



Decorative landscape plantings and ground mounted lighting will be installed at the base of the entrance sign.

PLANTING DETAILS:



DECIDUOUS TREE PLANTING DETAIL, TYP.

NOT TO SCALE

COMMON AREA PLANT LIST:

QTY.	DESCRIPTION	SIZE / ROOT
15	Picea abies Norway Spruce	8', B&B
5	Picea glauca White Spruce	8', B&B
14	Pinus strobus White Pine	8', B&B
6	Fagus sylvatica 'Atropunicea' Variegated Purple Beech	2-1/2" cal., B&B
39	Acer x freemanii 'Jeffersred' Autumn Blaze Red Maple	2-1/2" cal., B&B
4	Acer rubrum Clump Red Maple	8', B&B
7	Pyrus callaryana Cleveland Select Pear	2-1/2" cal., B&B

QTY.	DESCRIPTION	SIZE / ROOT
23	Tilia cordata Little Leaf Linden	2-1/2" cal., B&B
6	Betula nigra River Birch	10', B&B, Multi-stem
14	Quercus bicolor Swamp White Oak	2-1/2" cal., B&B
15	Quercus rubra Red Oak	2-1/2" cal., B&B
29	American Sycamore Platanus occidentalis	2-1/2" cal., B&B
17	Ginkgo biloba Maidenhair Tree (Male Only)	2-1/2" cal., B&B
3	Amelanchier arborea Downy Serviceberry	8-10', B&B

Ground Cover :

All common area landscape areas that do not contain trees, shrubs, planting beds, or within natural or wooded areas, shall be covered with living ground cover (most commonly mowable grass), and/or organic mulch. Stone or aggregates shall not be accepted as ground cover. Ground cover shall be planted in sufficient quantity to present a finished appearance within one growing season and shall not exceed 18" in height at maturity.

Common Open Space :

All common area open space, including the existing wooded areas, wood chip trails, and entrance features, shall be maintained by the Homeowners Association and controlled by the terms within the Master Deed and Bylaws.

3 WORKING DAYS
BEFORE YOU DIG
CALL MISS DIG
1-800-482-7171
FOR THE LOCATION OF UNDERGROUND FACILITIES

STATE OF MICHIGAN
JAMES T EPPINK
LANDSCAPE ARCHITECT
No. 1309
REGISTERED LANDSCAPE ARCHITECT

J EPPINK PARTNERS, INC.
Urban Design Studio
Landscape Architecture
Traditional Town Planning
9336 Sashabaw Road
Clarkston, Michigan 48348
248.922.0789

Project:

Lakeland Knoll

Village of Pinckney, Mi.

Owner:

Progressive Properties

PO Box. 2709
Southfield, Michigan 48037
248-358-2210

Sheet:

Common Area Landscape Plan

Issues / Revisions

Pre Application Meeting	05.26.20
Planning Commission	07.08.20
Village Council Mtg	07.27.20
Final Site Plan	12.17.20
Horizon Ln. Update	02.12.21
Rev. Lot Numbers	04/28/23
Site Plan Update	06/29/23
Landscape Update	08/15/23

Drawn by:

Checked By
JTE

Date
July 8, 2020

Scale
1" = 100'

Not for Construction

Sheet
LP1