

Exhibit D
Civil Design

PLAN OF PROPOSED IMPROVEMENT FOR THREE LEAF PARTNERS HARTLAND APARTMENTS VILLAGE OF HARTLAND, WI WAUKESHA COUNTY

N

SHEET NO.	DESCRIPTION
C1 - C2	GRADING PLAN
C3 - C4	TYPICAL SECTIONS
C5 - C7	CENTER STREET PLAN & PROFILE
C8	CONNECTION TO HILL PLAN & PROFILE
C9 - C11	WEST DRIVE PLAN & PROFILE
C12 - C14	EAST DRIVE PLAN & PROFILE
C15 - C17	TOWNHOMES PLAN & PROFILE
C18	FIRE EXIT PLAN & PROFILE
C19 - C20	CAPITOL DRIVE PLAN & PROFILE
C21 - C26	WALL SECTIONS
C27	POND DETAILS
C28 - C45	GRADING CRITICAL SECTIONS

NO	REVISION DESCRIPTION	DATE



LOCATION MAP
NOT TO SCALE



PROJECT LOCATION

EXISTING LEGEND

	BENCHMARK
	FOUND, IRON PIPE
	FIRE HYDRANT
	ENDWALL
	INLET
	MANHOLE
	GUY WIRE
	SIGN
	GAS VALVE
	WATER VALVE
	POST
	UTILITY METER
	UTILITY PEDESTAL
	TREE
	POWER POLE
	DOWNSPOUT
	BOLLARD
	EXISTING OVERHEAD UTILITY
	EXISTING UNDERGROUND ELECTRIC
	EXISTING UNDERGROUND GAS
	EXISTING UNDERGROUND FIBER OPTIC
	EXISTING WATER
	EXISTING STORM SEWER
	EXISTING SANITARY SEWER
	EXISTING UNDERGROUND TELEPHONE
	EXISTING FENCE
	EXISTING TREE LINE
	PROPERTY LINE
	EASEMENT LINE
	RIGHT OF WAY LINE

PROPOSED LEGEND

	SIGN
	HANDICAP PARKING
	ASPHALT PAVEMENT
	CONCRETE/ASPHALT COMPOSITE PAVEMENT
	CONCRETE SIDEWALK
	PAVEMENT REMOVAL
	SWALE
	STORM MH
	STORM CLEANOUT
	PIPE END SECTION
	EXTERIOR DOWNSPOUT
	SANITARY LATERAL
	STORM SEWER PIPE
	SAWCUT PAVEMENT
	CHAIN LINK FENCE

PROJECT	HARTLAND APARTMENTS 700 W. CAPITOL DRIVE VILLAGE OF HARTLAND, WI
CLIENT	THREE LEAF PARTNERS 504 W. JUNEAU AVE MILWAUKEE, WI 53203

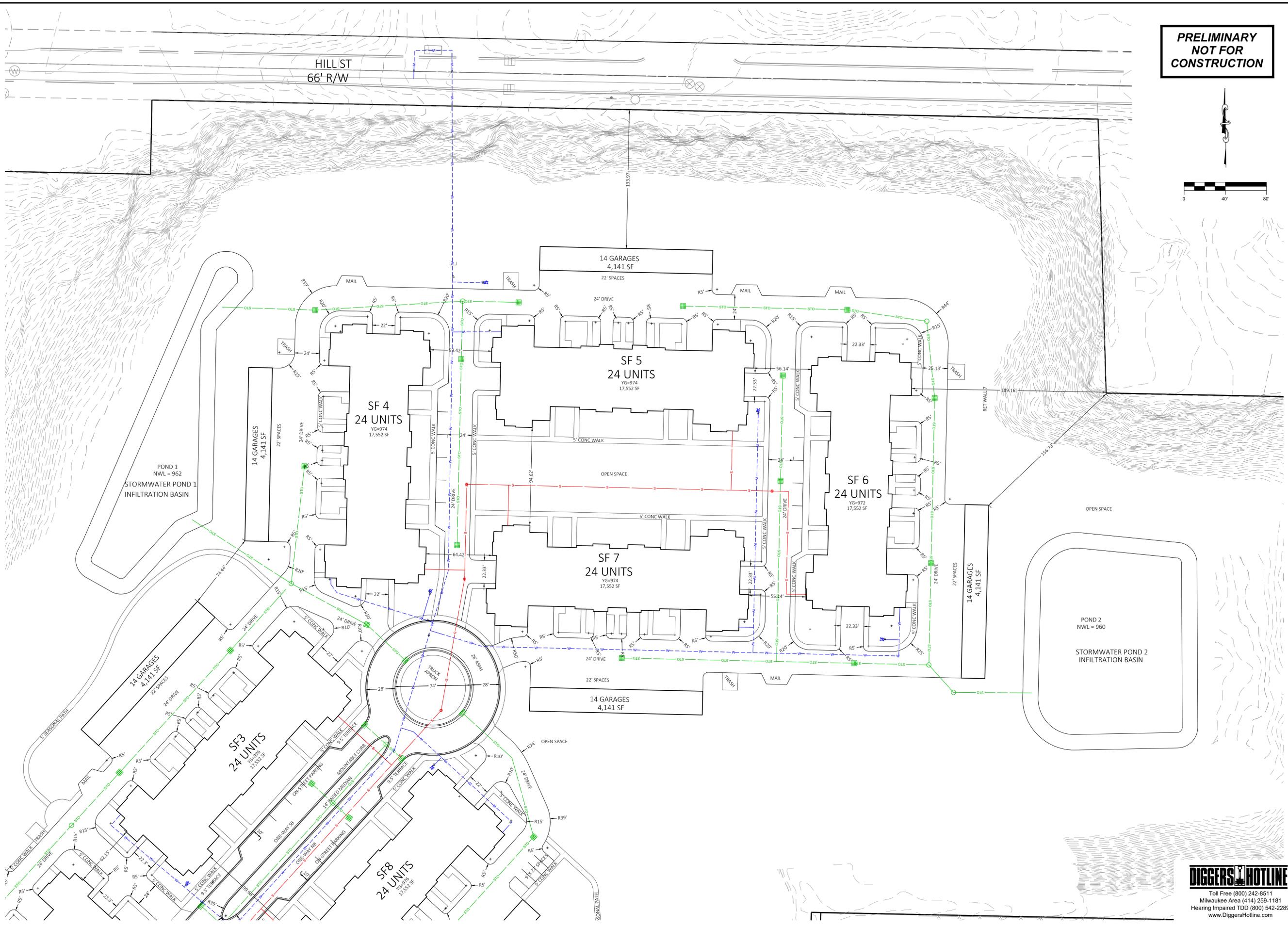
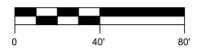
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P&D Project No:	490686
Sheet No.	



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(800) 757-7596

Project: Hartland Apartments
700 W. Capitol Drive
Village of Hartland, WI

Client: Three Leaf Partners
504 W. Junear Ave.
Milwaukee, WI 53203

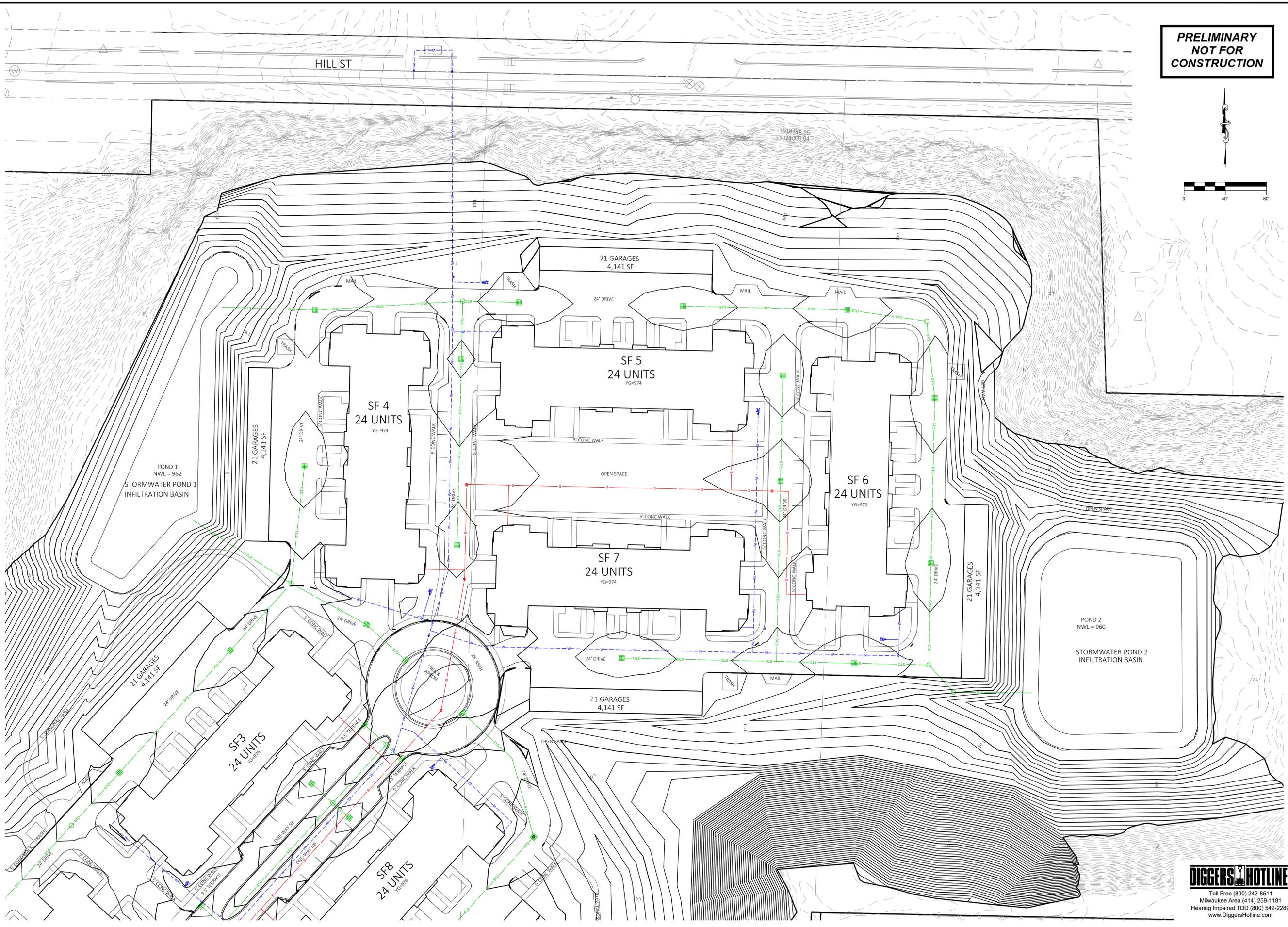
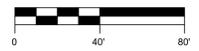
Sheet Title: Dimensioned Site Plan 2 of 2

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PROJECT:
Hartland Apartments
700 W. Capitol Drive
Village of Hartland, WI

CLIENT:
Three Leaf Partners
504 W. Juneau Ave.
Milwaukee, WI 53203

DATE:
04/27/2023

PROJECT TITLE:
Grading Plan 2 of 2

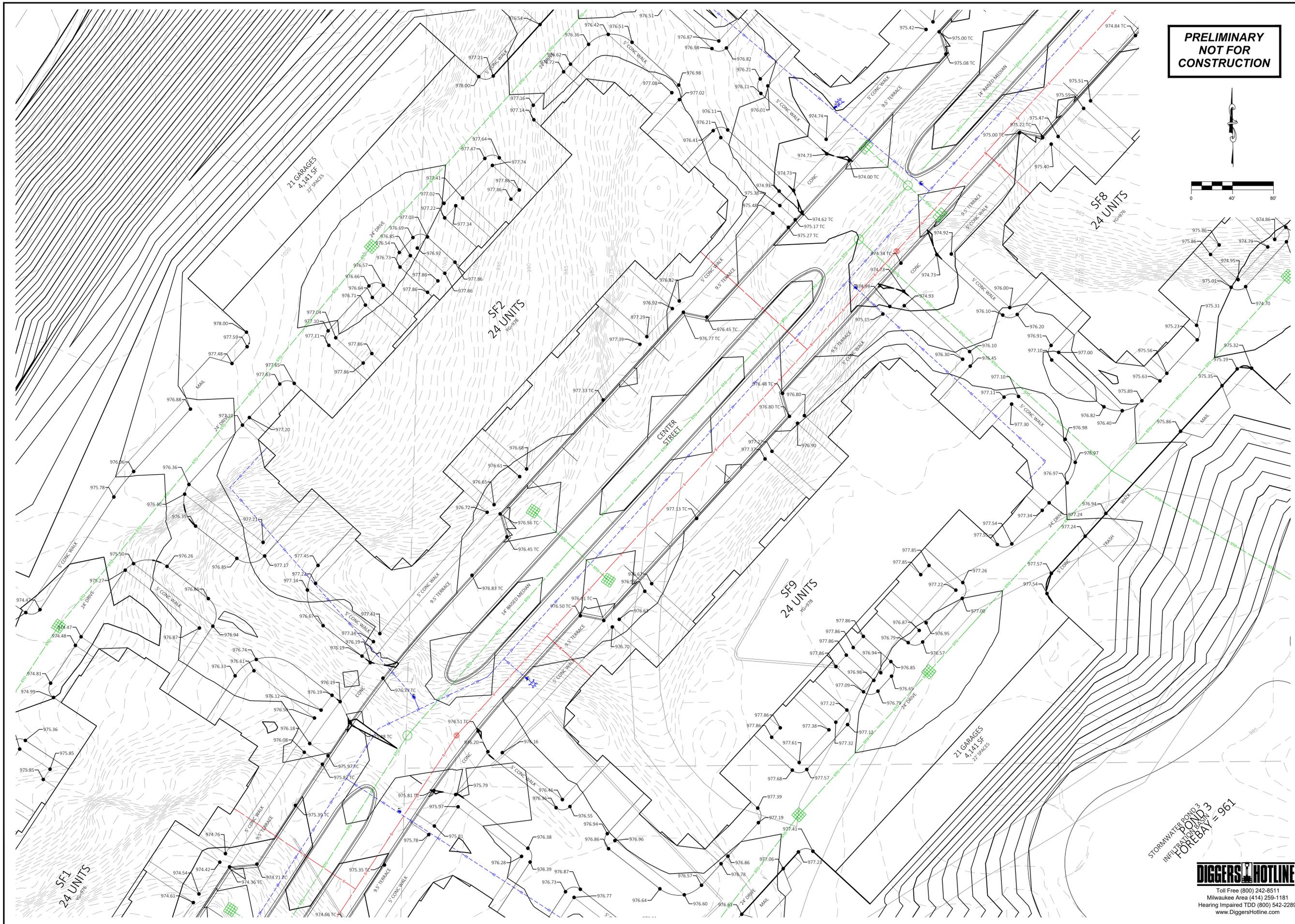
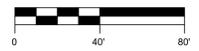
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700 W. Capitol Drive
Village of Hartland, WI

CLIENT:
Three Leaf Partners
504 W. Juneau Ave.
Milwaukee, WI 53203

DATE:
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PROJECT TITLE:
DETAILED GRADING 2 OF 3

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STORMWATER POND 3
INFILTRATION POND 3
FOREBAY = 96.1

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TOPO LINEWORK

---	EXISTING SANITARY SEWER
- - -	EXISTING STORM SEWER
- - -	EXISTING WATER SERVICE
- - -	EXISTING OVERHEAD WIRE
- - -	EXISTING GAS LINE
- - -	EXISTING TELEPHONE LINE

TOPO SYMBOLS

[Symbol]	EXISTING SQUARE INLET
[Symbol]	EXISTING CURB INLET
[Symbol]	EXISTING SIGN
[Symbol]	EXISTING WATER VALVE
[Symbol]	EXISTING HYDRANT
[Symbol]	EXISTING GUY WIRE
[Symbol]	EXISTING LIGHT POLE
[Symbol]	EXISTING STORM MANHOLE
[Symbol]	EXISTING UTILITY POLE
[Symbol]	EXISTING TREE
[Symbol]	EXISTING BUSH

LEGEND

[Symbol]	INLET PROTECTION
[Symbol]	DRAINAGE ARROW
[Symbol]	EROSION MAT
[Symbol]	TRACKING PAD
[Symbol]	DITCH CHECK
[Symbol]	PERIMETER EROSION CONTROL
[Symbol]	GRADING LIMITS (21.92 A2)

CONSTRUCTION ACTIVITY AND SEQUENCE

7/1/2022 TO 12/31/2022
 SITE CONSTRUCTION: MONTH 2022 TO MONTH 2022X, DURATION: XX MONTHS

- BEGIN CONSTRUCTION AFTER RECEIPT OF ALL CITY, COUNTY AND WNR PERMITS
- INSTALL DETENTION PONDS AND GRADE RIGHT-OF-WAY AND DRAINAGE SWALES XX/XX/2022X
- STABILIZE DRAINAGE SWALES WITHIN 7 DAYS OF FINAL GRADING
- SERVICE LATERALS AND UTILITY EXTENSION WORK XX/XX/2022 - XX/XX/2022X
- COMPLETE PERMANENT RESTORATION OF ALL REMAINING DISTURBED AREAS BY XX/XX/2022X
- ESTABLISHMENT PERIOD THRU XX/XX/2022X

MAINTENANCE PLAN

- ALL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE INSPECTED FOR FUNCTIONAL EFFECTIVENESS FOLLOWING EVERY 1/2-INCH RAIN EVENT AND IN NO CASE LESS THAN ONCE PER WEEK. ANY NEEDED REPAIRS WILL BE MADE IMMEDIATELY TO ENSURE THE DEVICE FUNCTIONS AS DESIGNED.
- ALL SEEDED AREAS WILL BE WATERED, FERTILIZED, MULCHED AND RE-SEEDED AS NECESSARY TO MAINTAIN A VIGOROUS, DENSE VEGETATIVE COVER.
- ANY SEDIMENT REACHING A PUBLIC OR PRIVATE STREET SHALL BE REMOVED BY STREET CLEANING BEFORE THE END OF EACH DAY OR AS NECESSARY TO PREVENT DEBRIS FROM ENTERING A STORM SEWER, DITCH, OR WATERWAY.
- IN THE EVENT CONSTRUCTION ACTIVITIES RESULT IN SEVERE DUST CONDITIONS, SEE WNR TECHNICAL STANDARD 1068.
- IN THE EVENT OF DEWATERING ACTIVITIES, FOLLOW WNR TECHNICAL STANDARD 1061. ALL WATER DISCHARGED FROM THE DEWATERING EQUIPMENT MUST BE FILTERED BY A TYPE II GEOTEXILE BAG SIZED FOR THE PUMP DISCHARGE FLOW RATE.
- SEDIMENT TRAP DESIGN TO BE IN ACCORDANCE WITH WNR TECHNICAL STANDARD 1063
- DITCH CHECKS TO BE PLACED AT EVERY 2' OF VERTICAL DROP IN ELEVATION OR CLOSER. DITCH CHECK AND EMAT INSTALLATION SHOULD BE PER WNR TECHNICAL STANDARD 1062.
- ALL EXPOSED SOIL AREAS NOT DISTURBED FOR UP TO SEVEN DAYS MUST BE IMMEDIATELY STABILIZED OR PERMANENTLY RESTORED IN ACCORDANCE WITH THE WNR BMP'S.
- TEMPORARY STABILIZATION MATERIALS SHALL BE MULCHED AND SHALL BE APPLIED AND ANCHORED AS SPECIFIED IN WI DNR TECHNICAL STANDARD 1058. FOR AREAS NOT STABILIZED BY OCT. 15, APPLY TEMPORARY SEEDING WITH ANIOMIC POLYACRYLAMIDE AS SPECIFIED IN WI DNR TECHNICAL STANDARD 1050 & 1059.
- ALL SIGNIFICANT CHANGES TO THIS SCHEDULE SHALL BE PROVIDED TO THE WNR AND LOCAL MUNICIPALITY PRIOR TO DEVIATION.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN POSITIVE DRAINAGE TO THE SEDIMENT CONTROL DEVICES AT ALL TIMES DURING CONSTRUCTION.
- ALL EROSION CONTROL BMP DEVICES CAN BE REMOVED ONCE 100% OF THE SITE HAS BEEN VEGETATED TO 70% COVERAGE PER WNR TECHNICAL STANDARDS.

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 Village of Hartland, WI

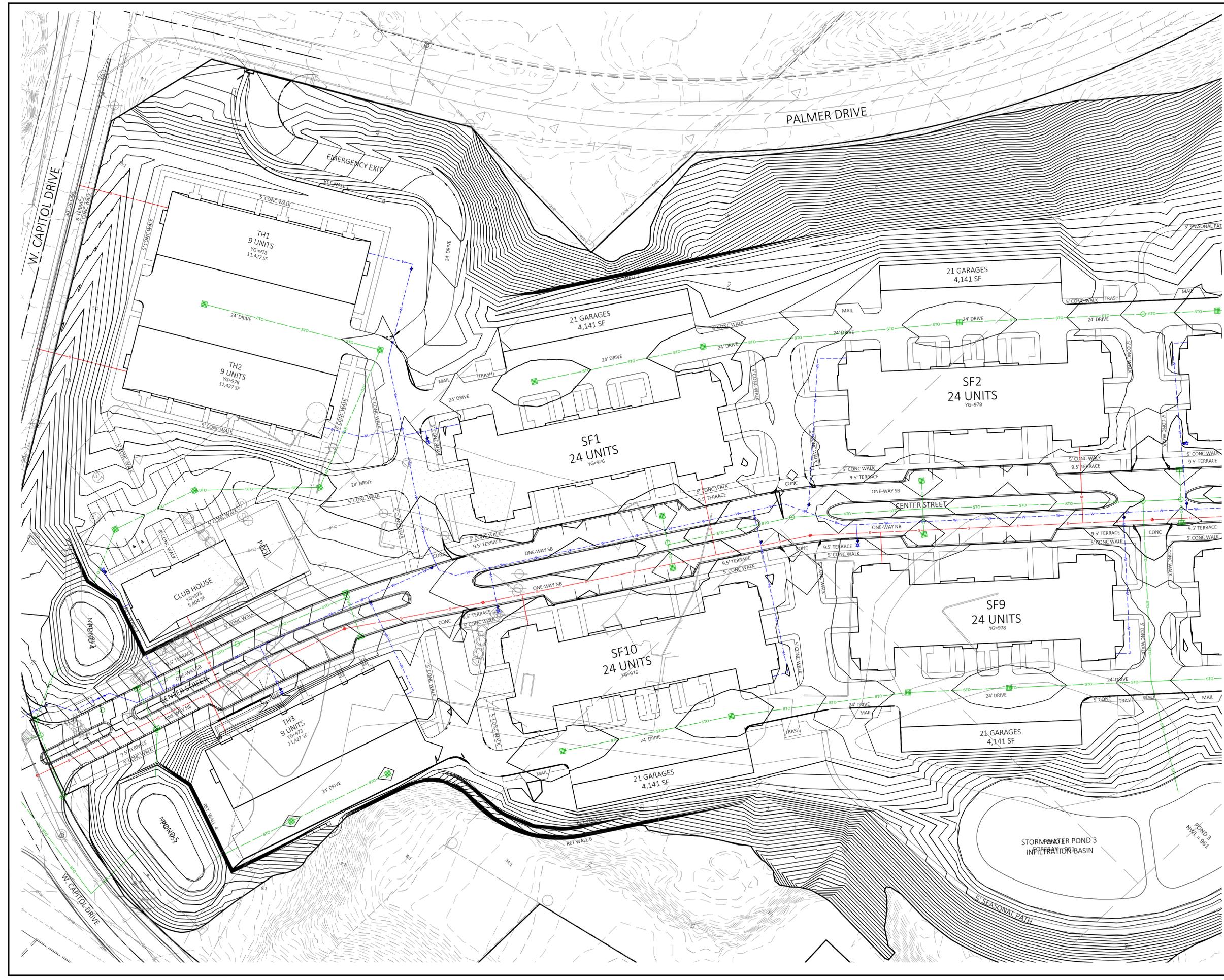
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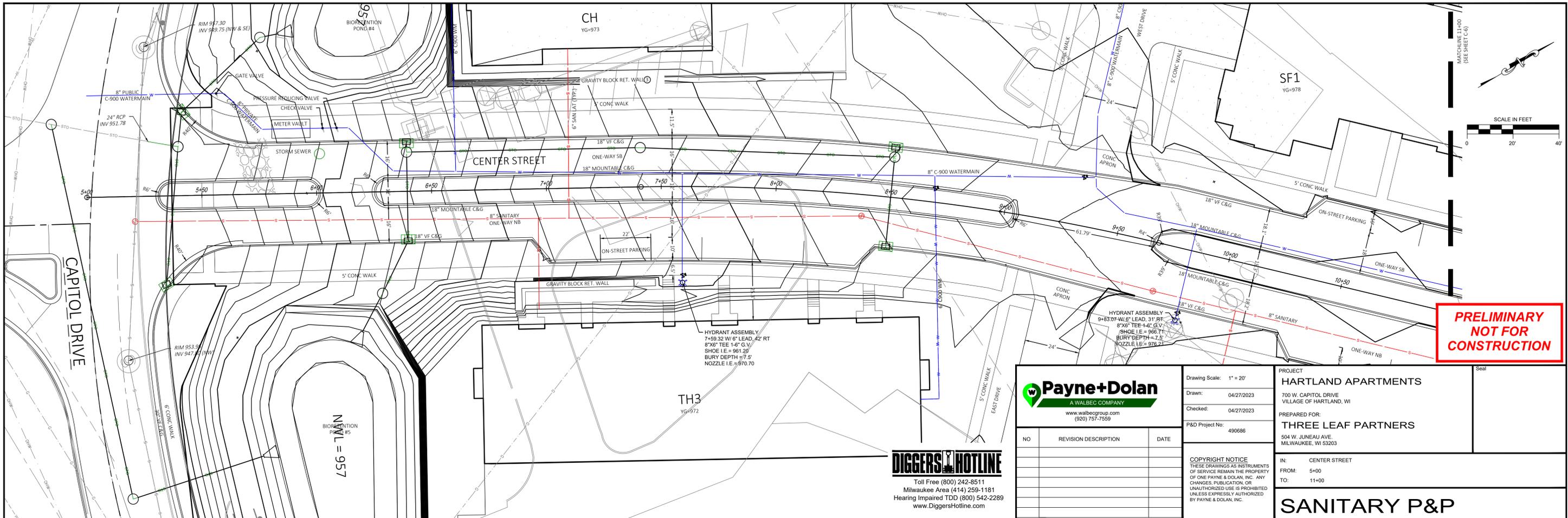
EROSION CONTROL 1 OF 2

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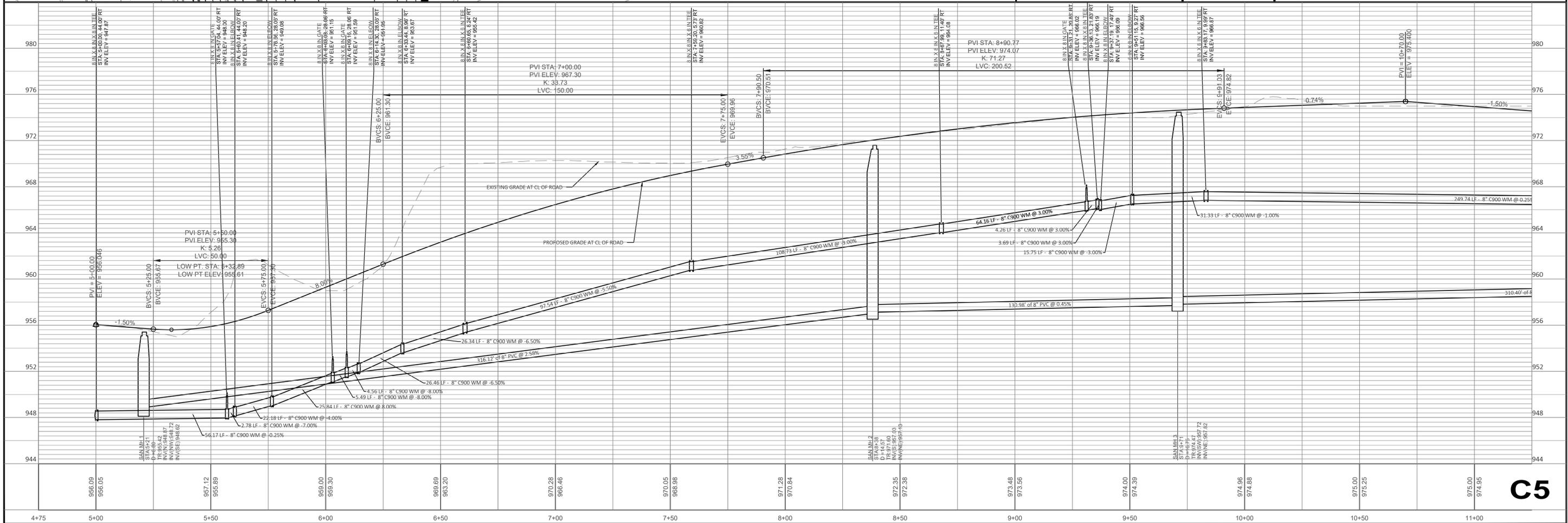
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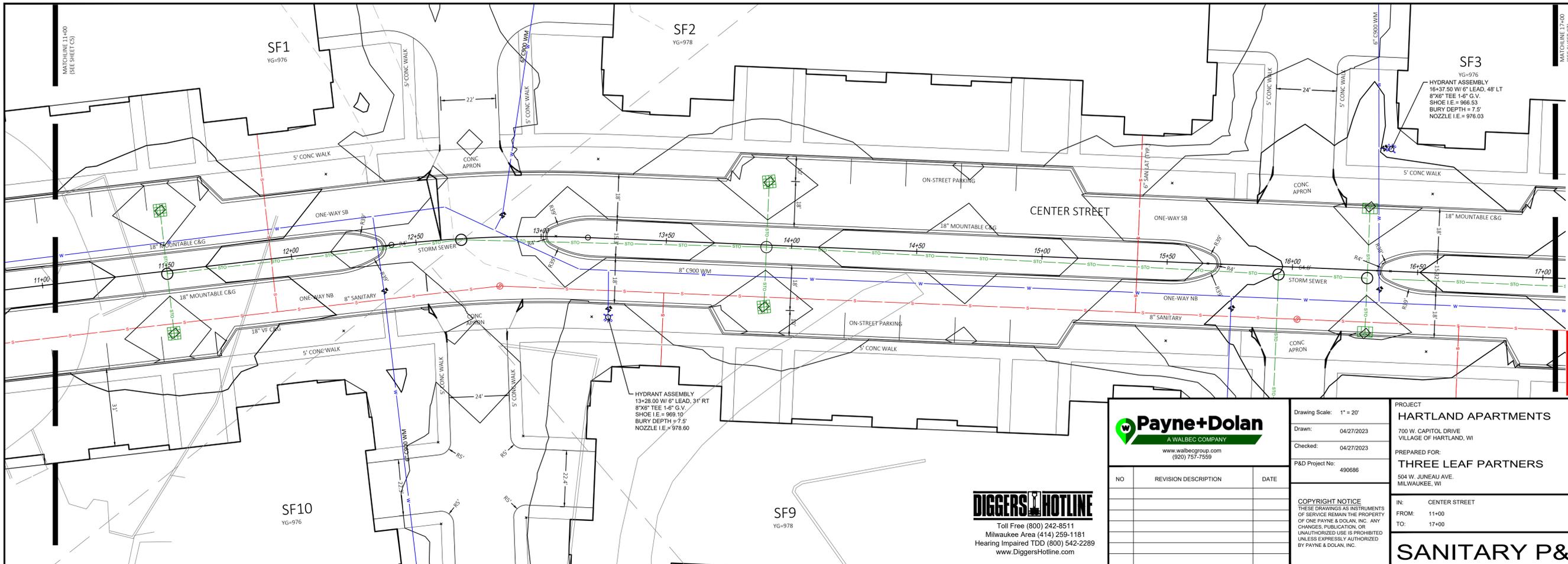




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<table border="1"> <thead> <tr> <th>NO</th> <th>REVISION DESCRIPTION</th> <th>DATE</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>		NO	REVISION DESCRIPTION	DATE																															<p>COPYRIGHT NOTICE THESE DRAWINGS AS INSTRUMENTS OF SERVICE REMAIN THE PROPERTY OF ONE PAYNE & DOLAN, INC. ANY CHANGES, PUBLICATION, OR UNAUTHORIZED USE IS PROHIBITED UNLESS EXPRESSLY AUTHORIZED BY PAYNE & DOLAN, INC.</p>	
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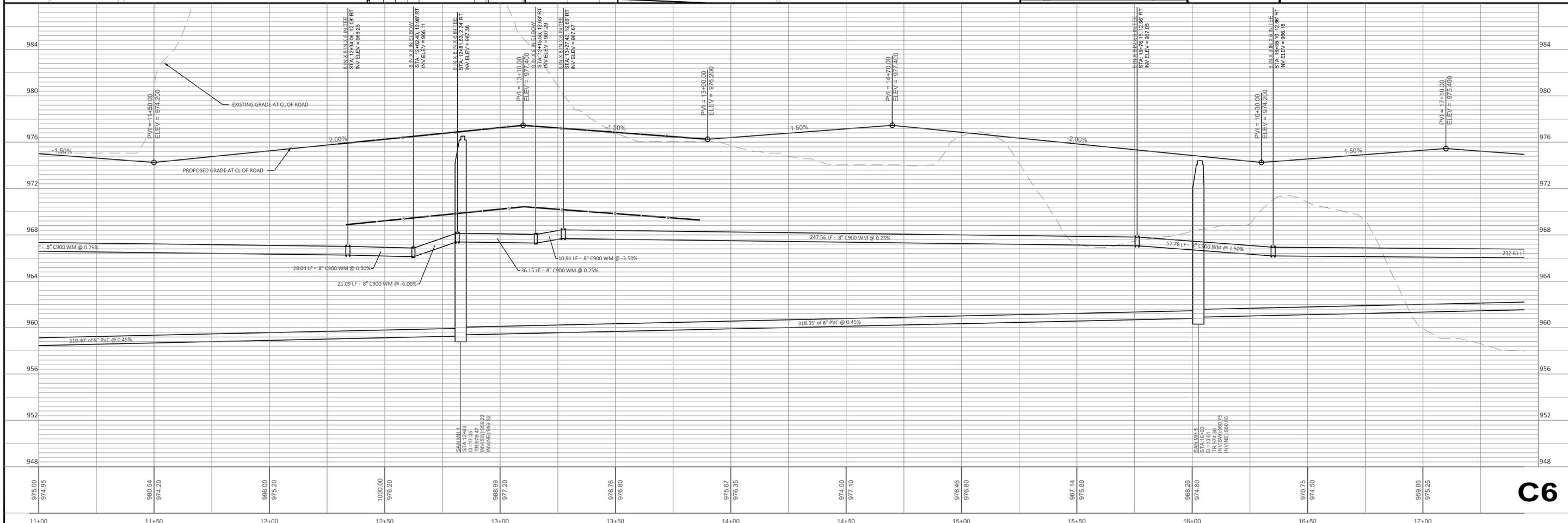
HARTLAND APARTMENTS
700 W. CAPITOL DRIVE
VILLAGE OF HARTLAND, WI

PREPARED FOR:
THREE LEAF PARTNERS
504 W. JUNEAU AVE.
MILWAUKEE, WI

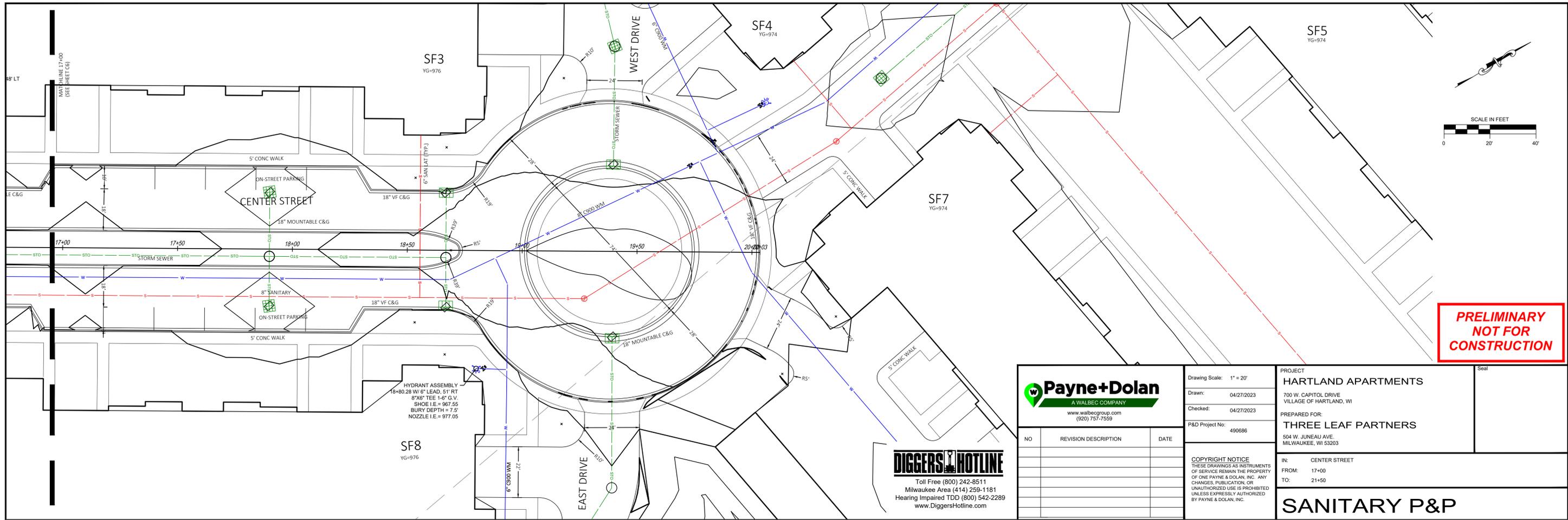
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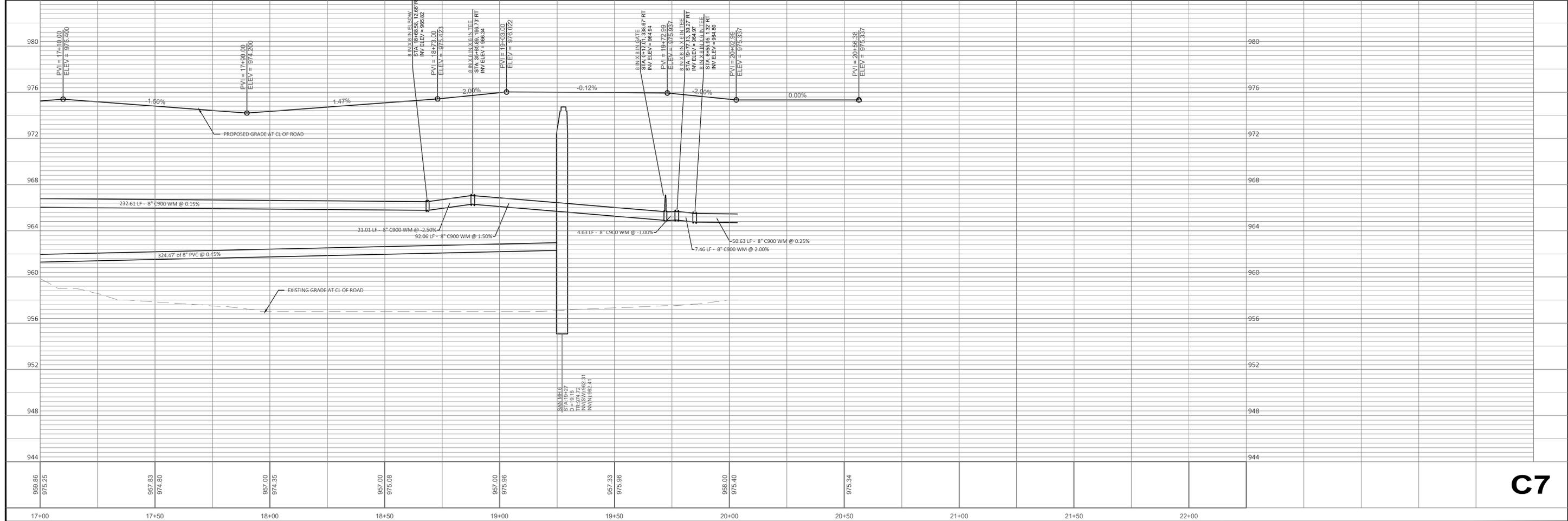
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700 W. CAPITOL DRIVE
VILLAGE OF HARTLAND, WI

PREPARED FOR:
THREE LEAF PARTNERS
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MILWAUKEE, WI 53203

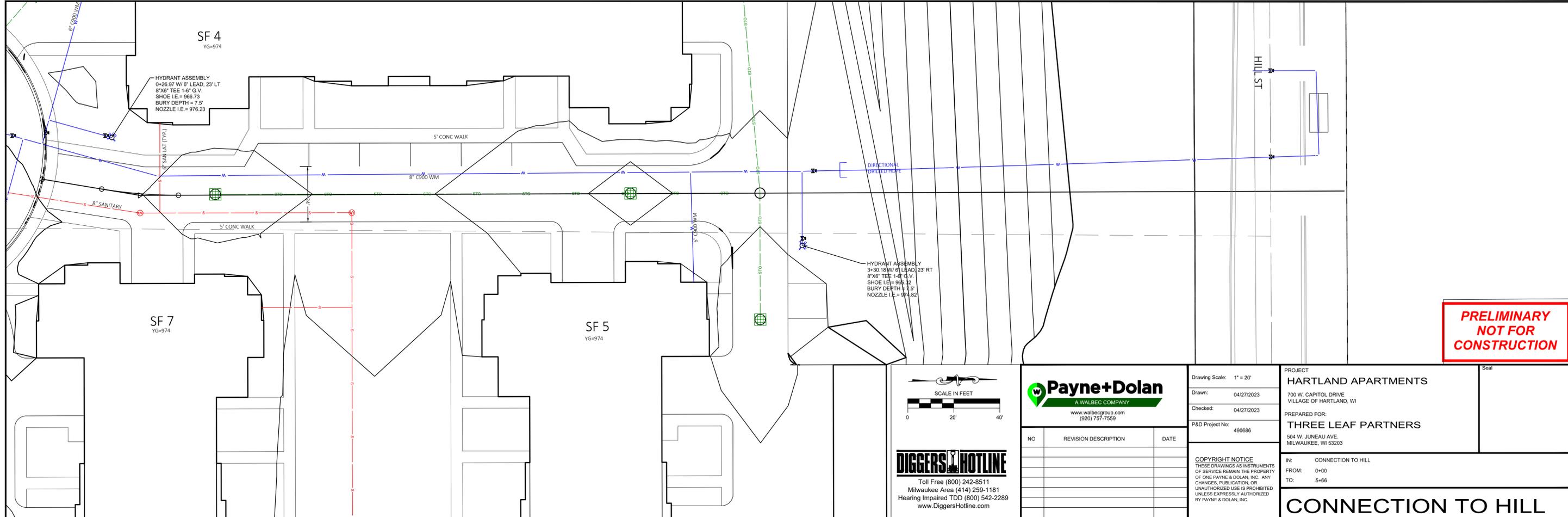
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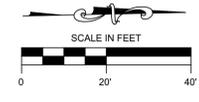
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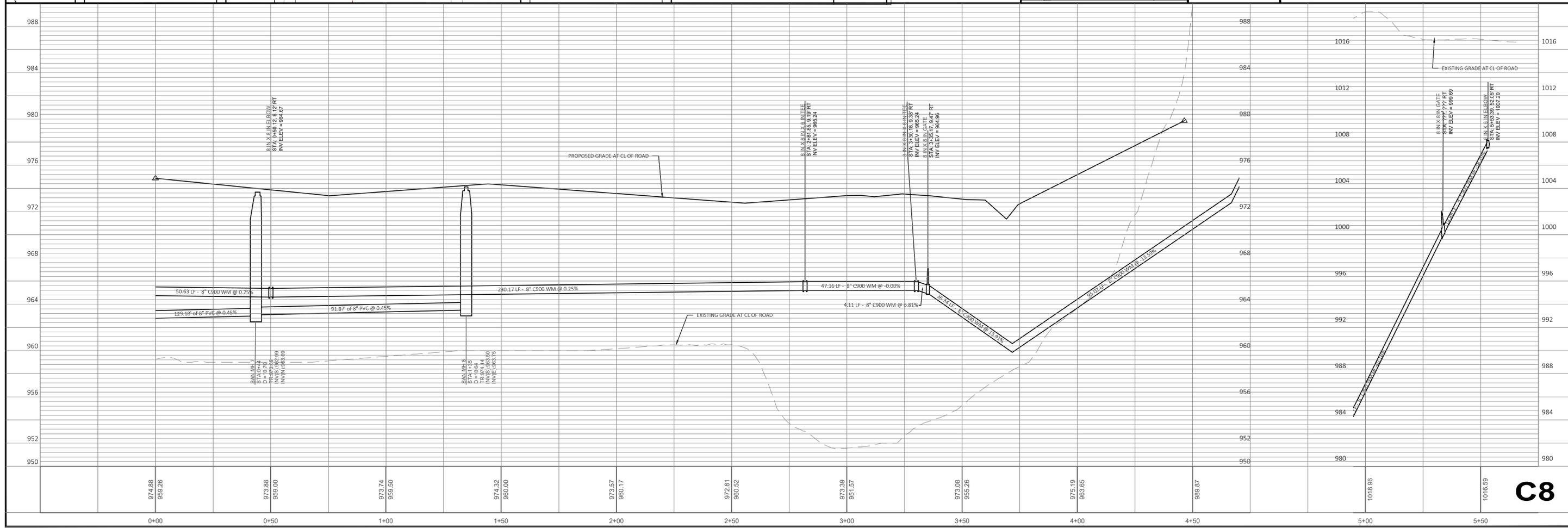
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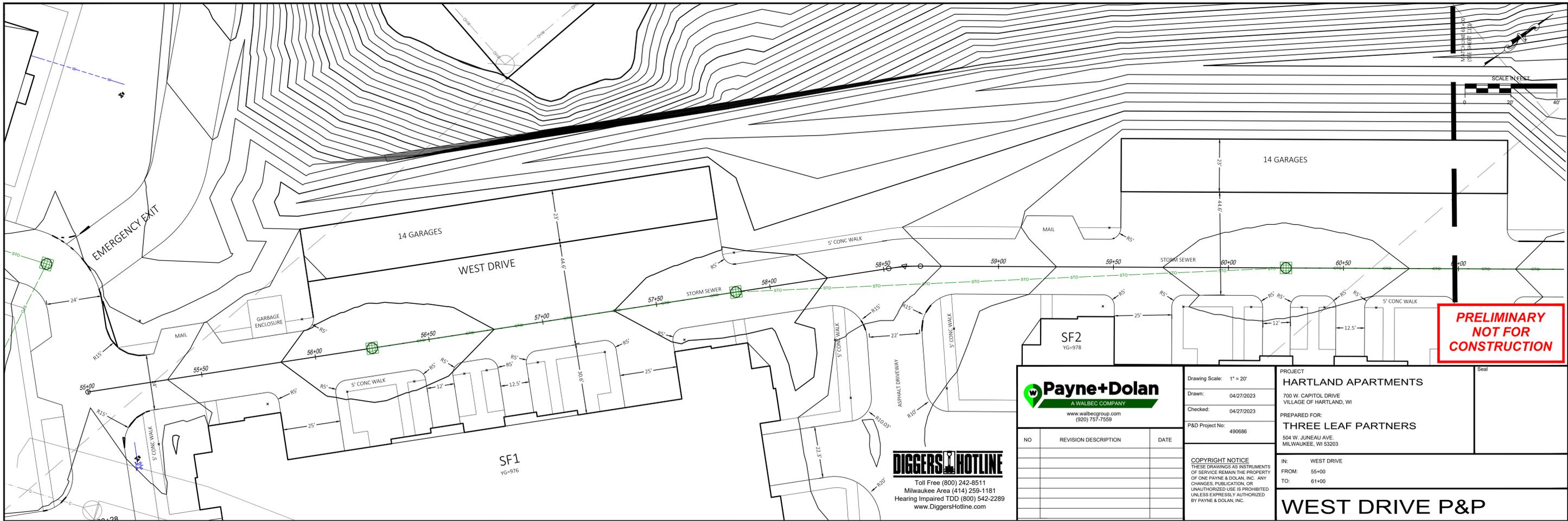
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700 W. CAPITOL DRIVE
VILLAGE OF HARTLAND, WI
PREPARED FOR:
THREE LEAF PARTNERS
504 W. JUNEAU AVE.
MILWAUKEE, WI 53203

IN: CONNECTION TO HILL
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CONNECTION TO HILL



C8



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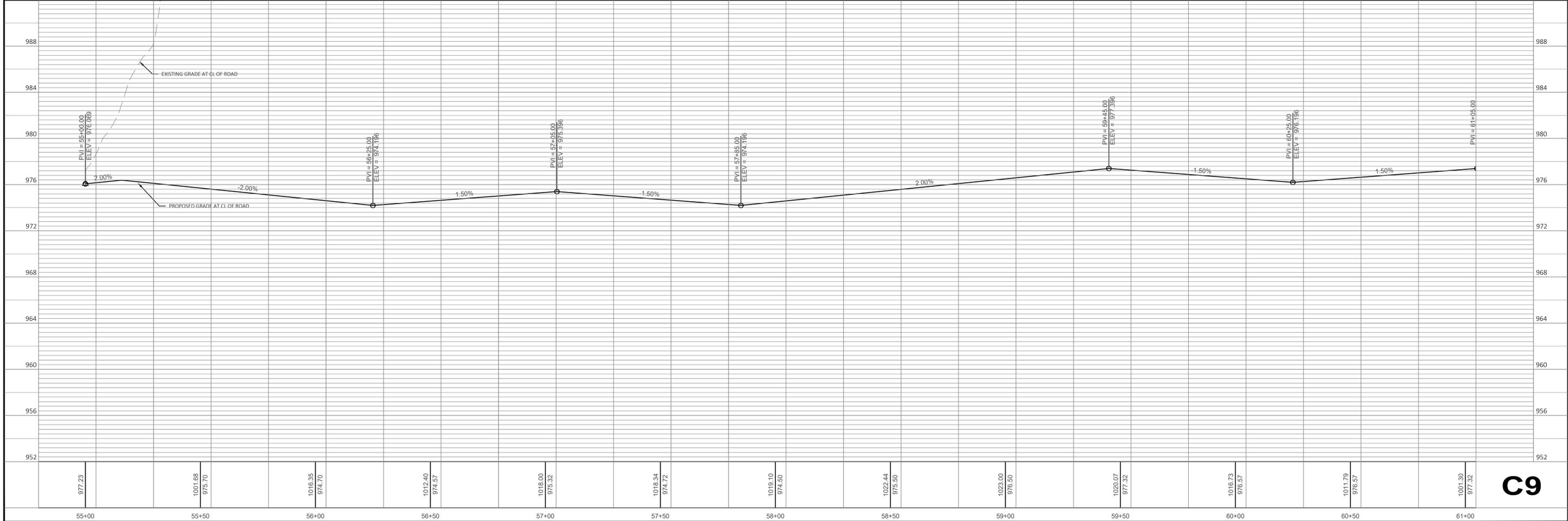
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VILLAGE OF HARTLAND, WI

PREPARED FOR:
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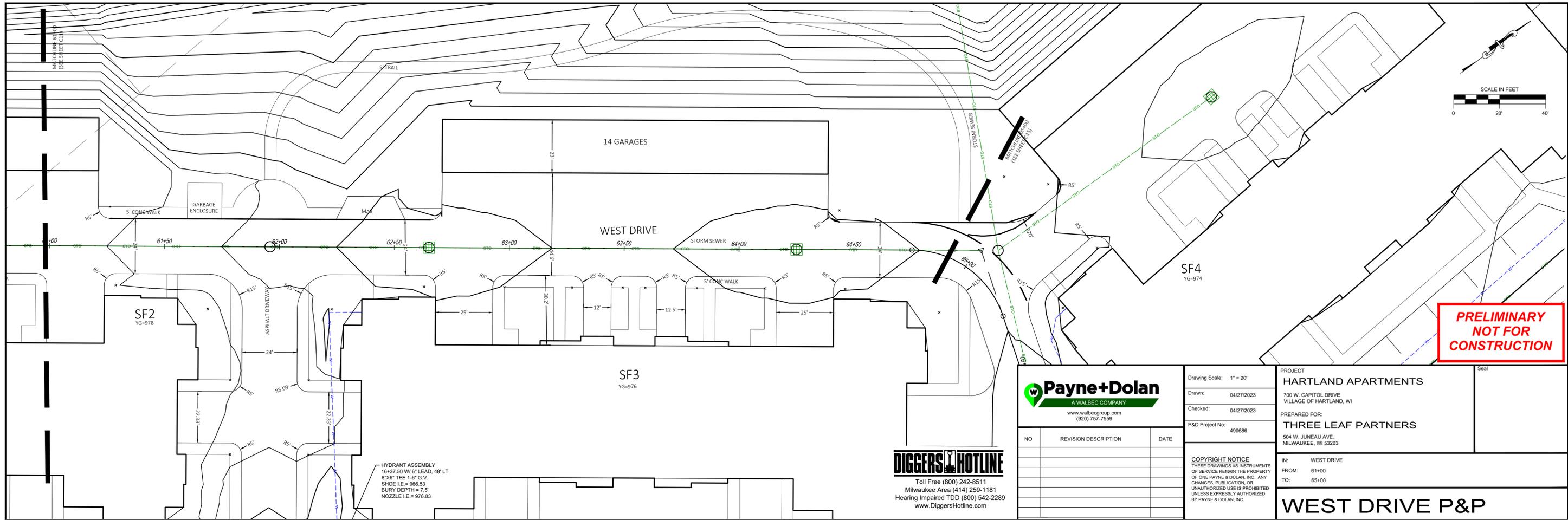
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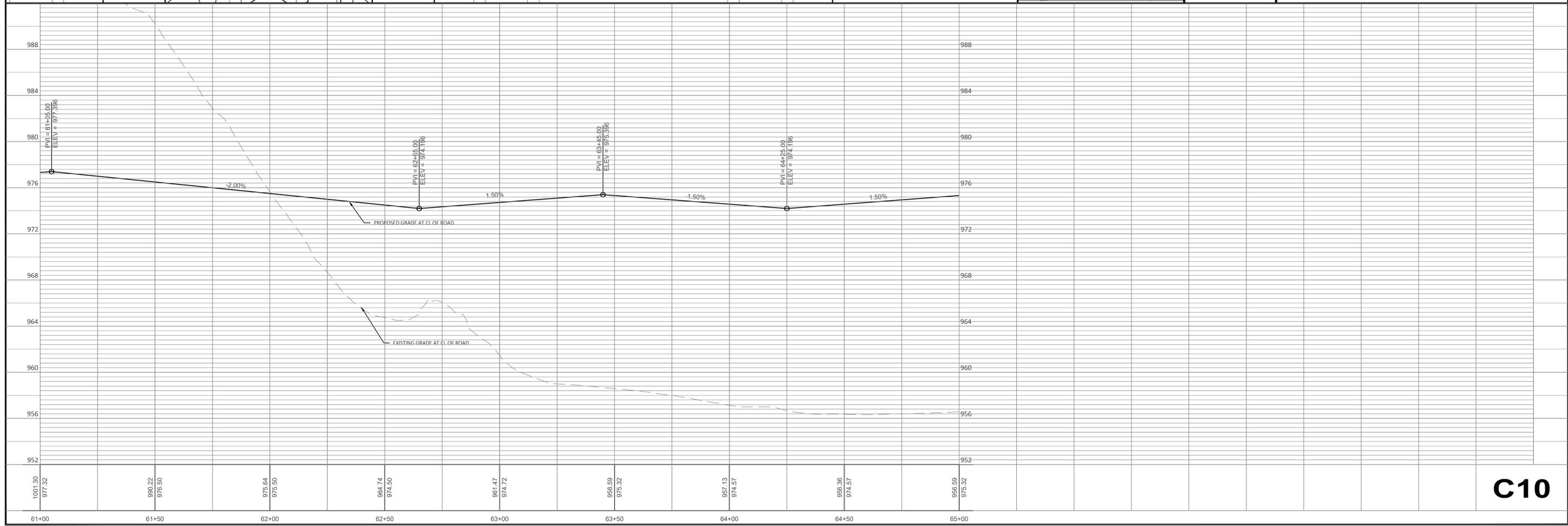
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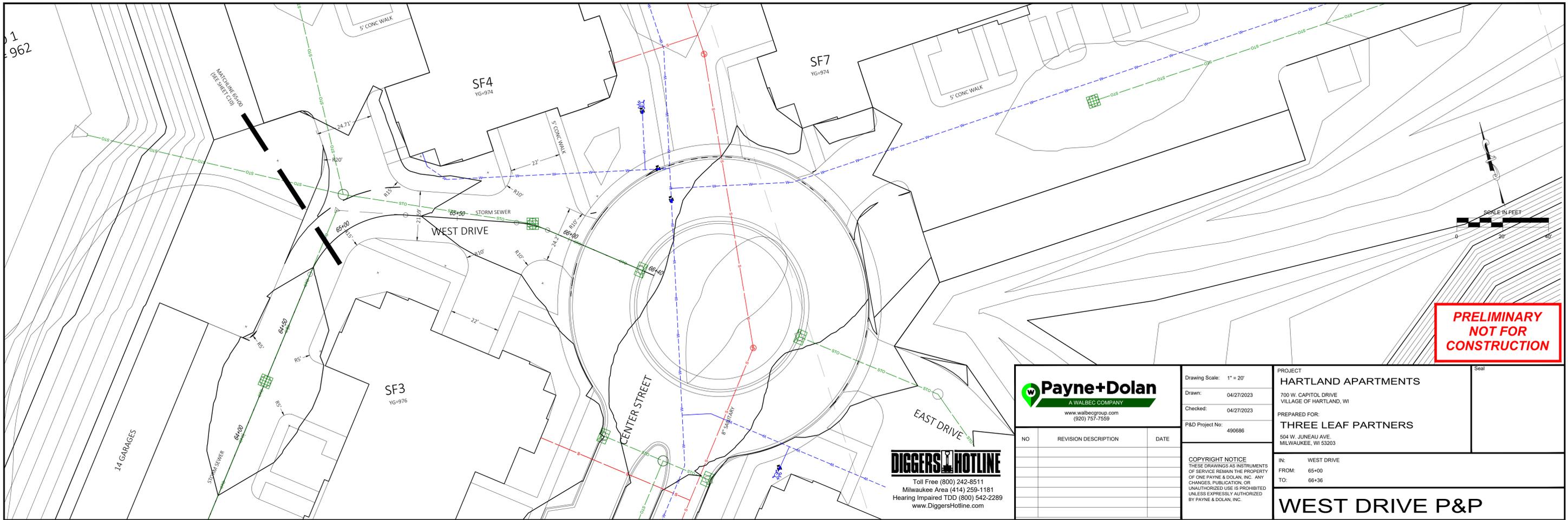
HYDRANT ASSEMBLY
16"x37.50" W/ 6" LEAD, 48" LT
8"x6" TEE 148" G.V.
SHOE I.E. = 966.53
BURY DEPTH = 7.5'
NOZZLE I.E. = 976.03



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C10

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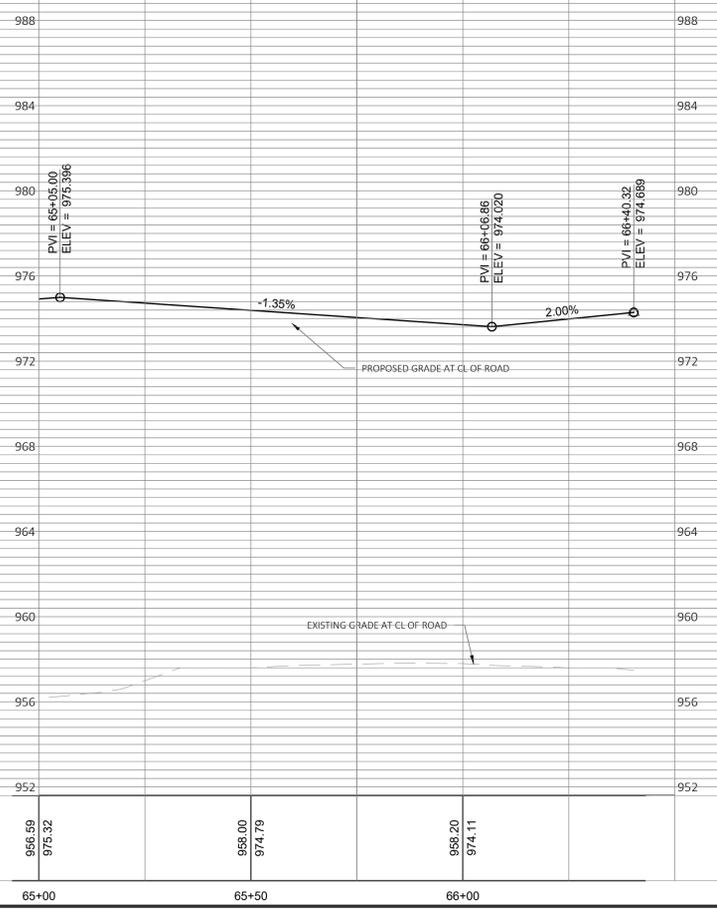
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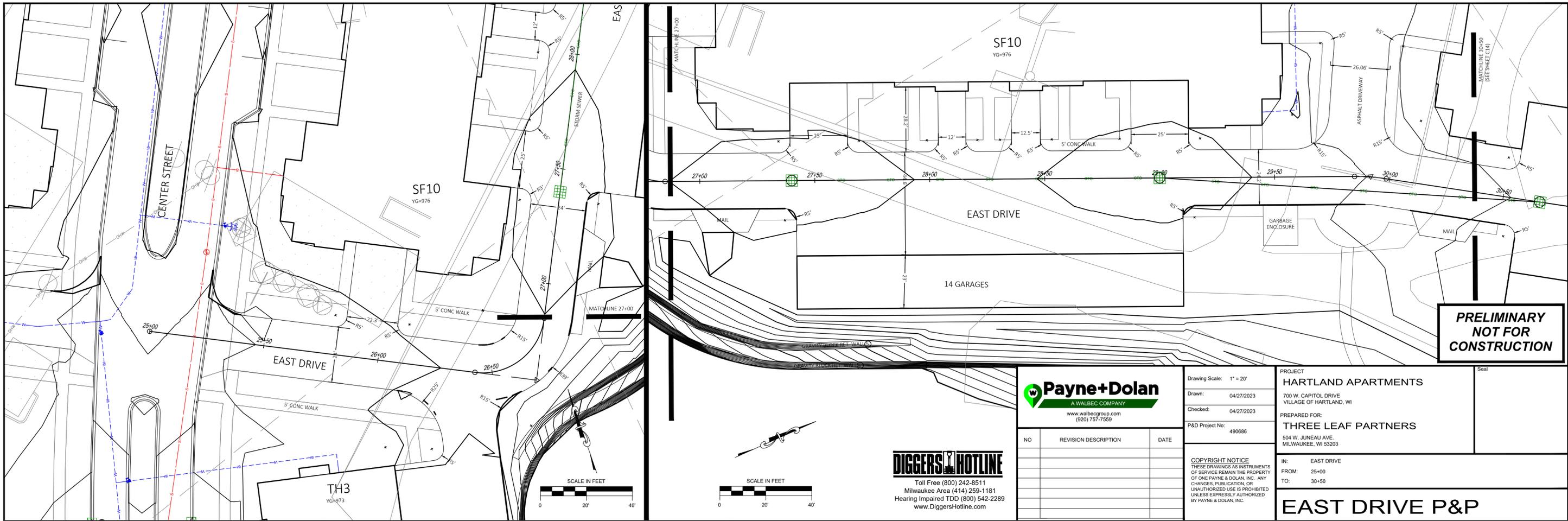
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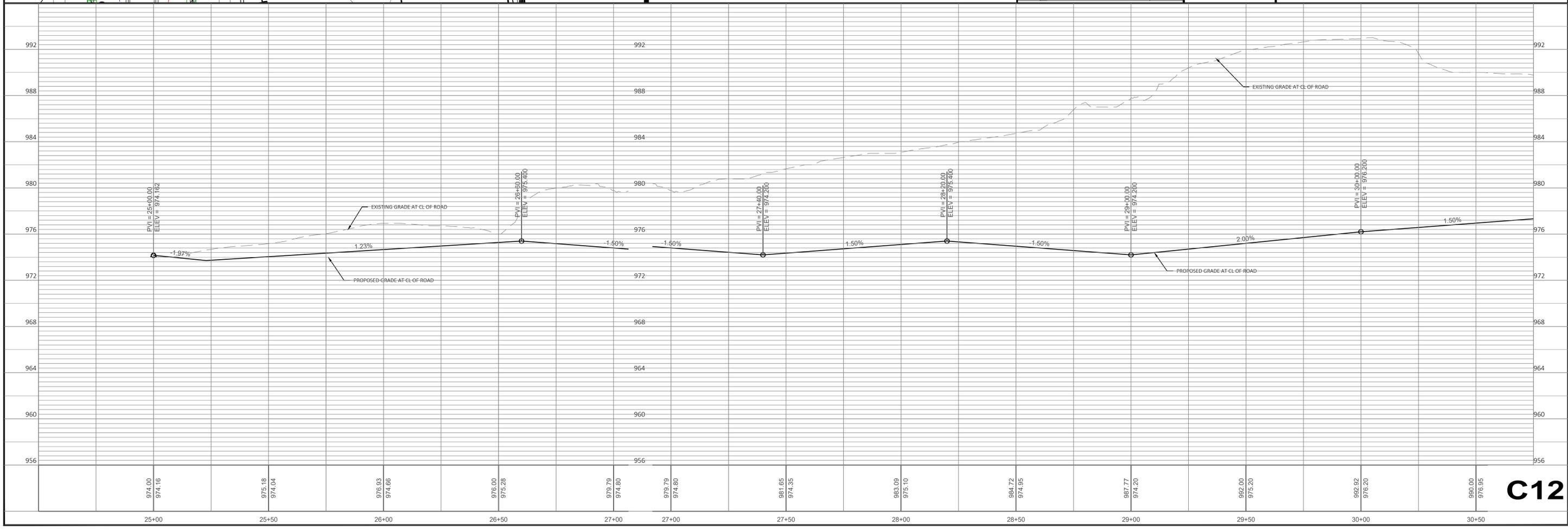
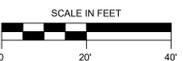
NO	REVISION DESCRIPTION	DATE

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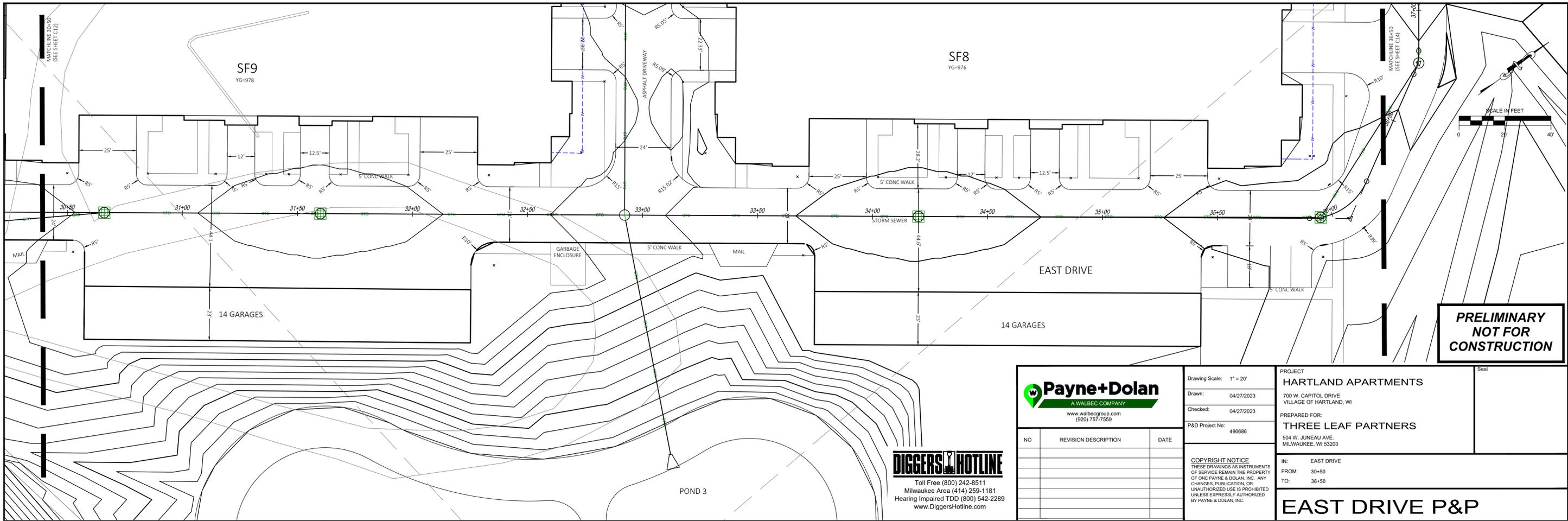
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FROM: 25+00
TO: 30+50

EAST DRIVE P&P

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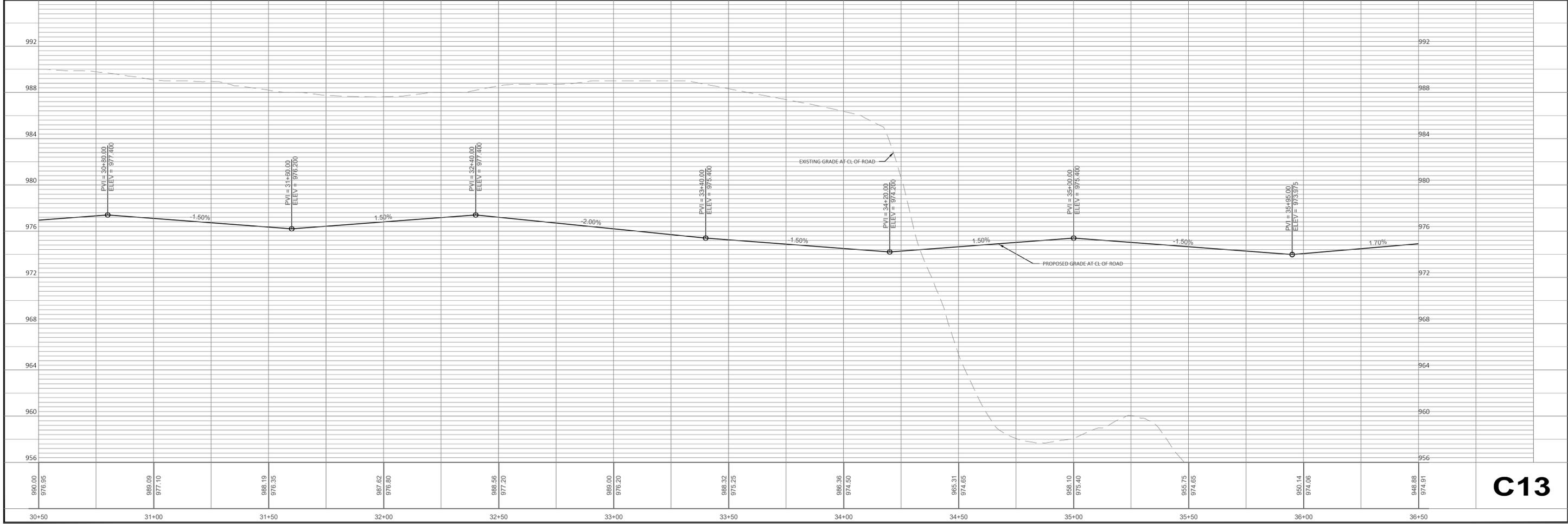
PROJECT
HARTLAND APARTMENTS
700 W. CAPITOL DRIVE
VILLAGE OF HARTLAND, WI

PREPARED FOR:
THREE LEAF PARTNERS
504 W. JUNEAU AVE.
MILWAUKEE, WI 53203

IN: EAST DRIVE
FROM: 30+50
TO: 36+50

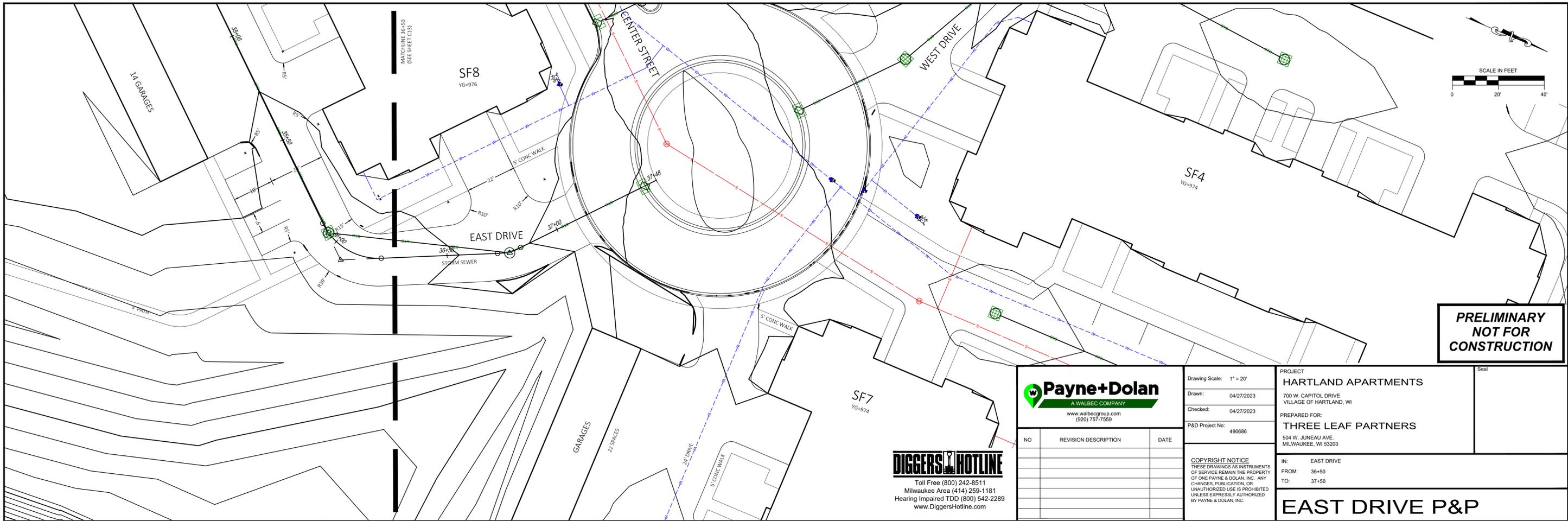
EAST DRIVE P&P

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C13



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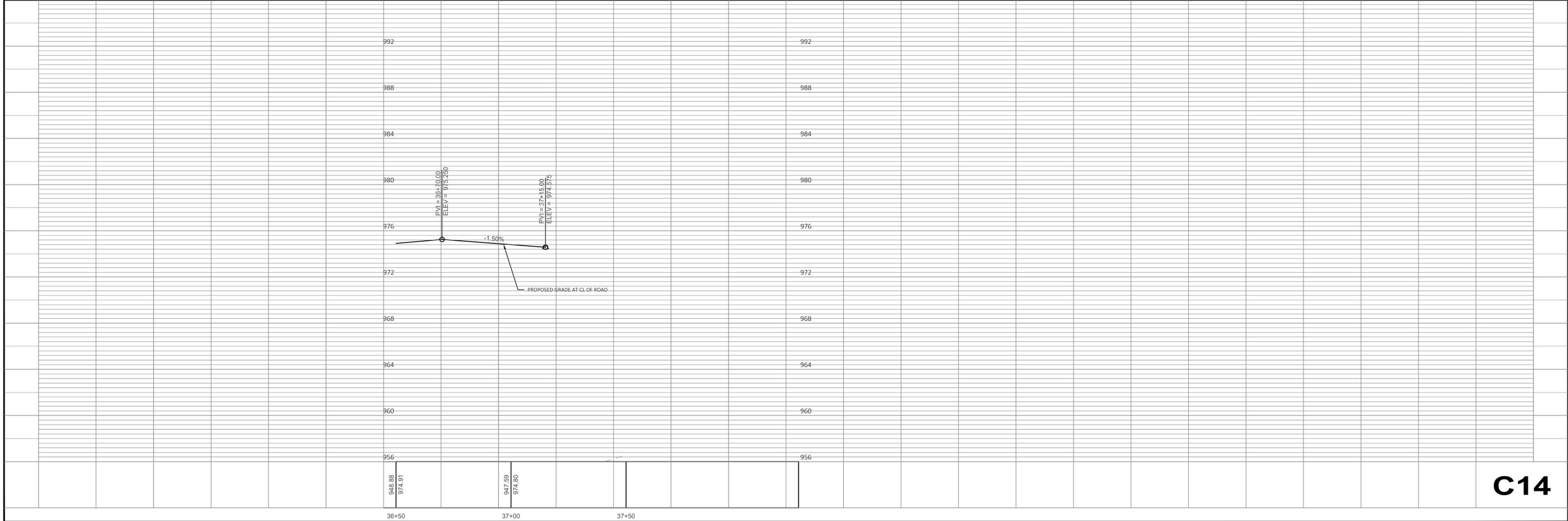
PROJECT
HARTLAND APARTMENTS
 700 W. CAPITOL DRIVE
 VILLAGE OF HARTLAND, WI

PREPARED FOR:
THREE LEAF PARTNERS
 504 W. JUNEAU AVE.
 MILWAUKEE, WI 53203

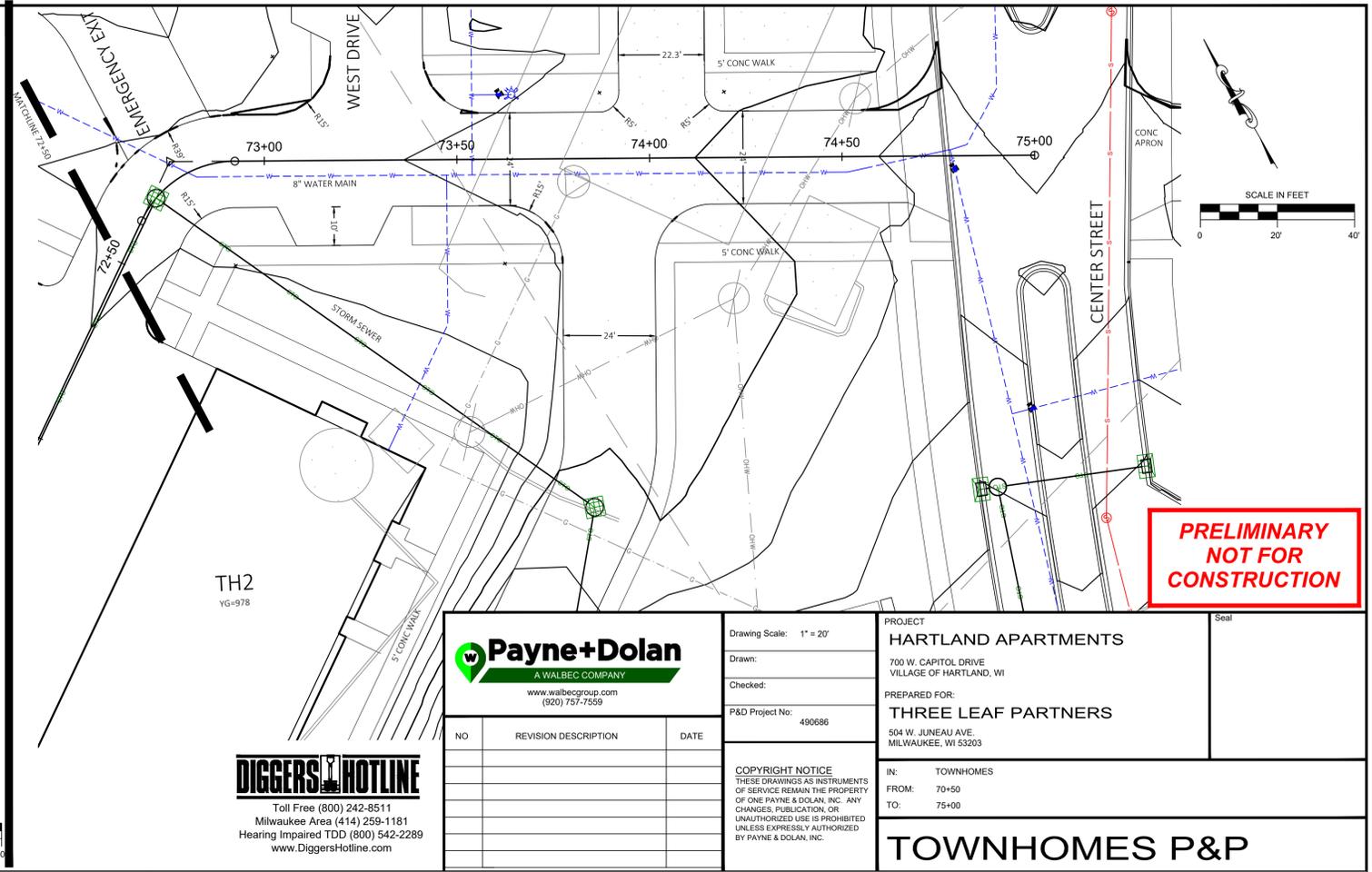
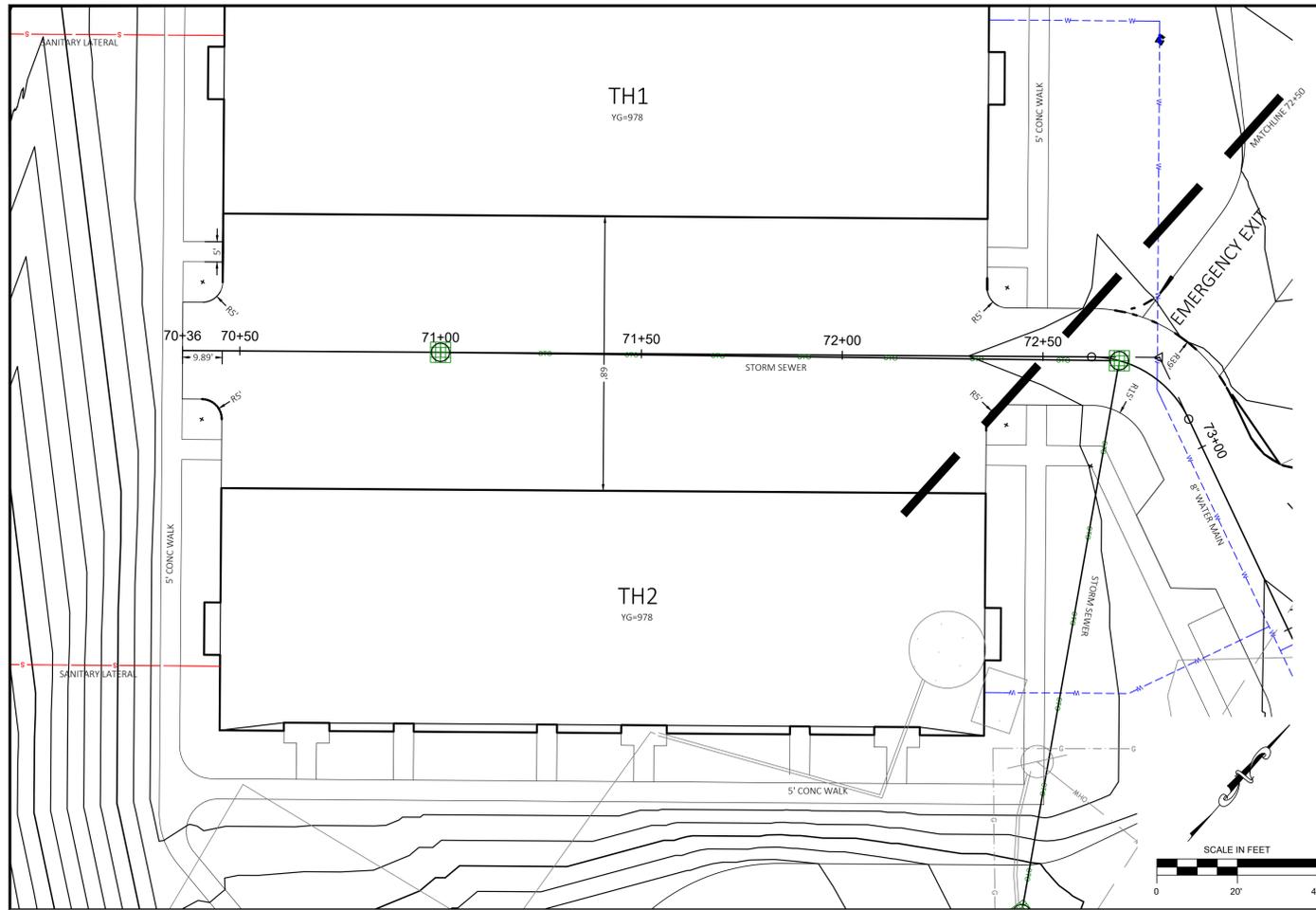
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TO: 37+50

EAST DRIVE P&P

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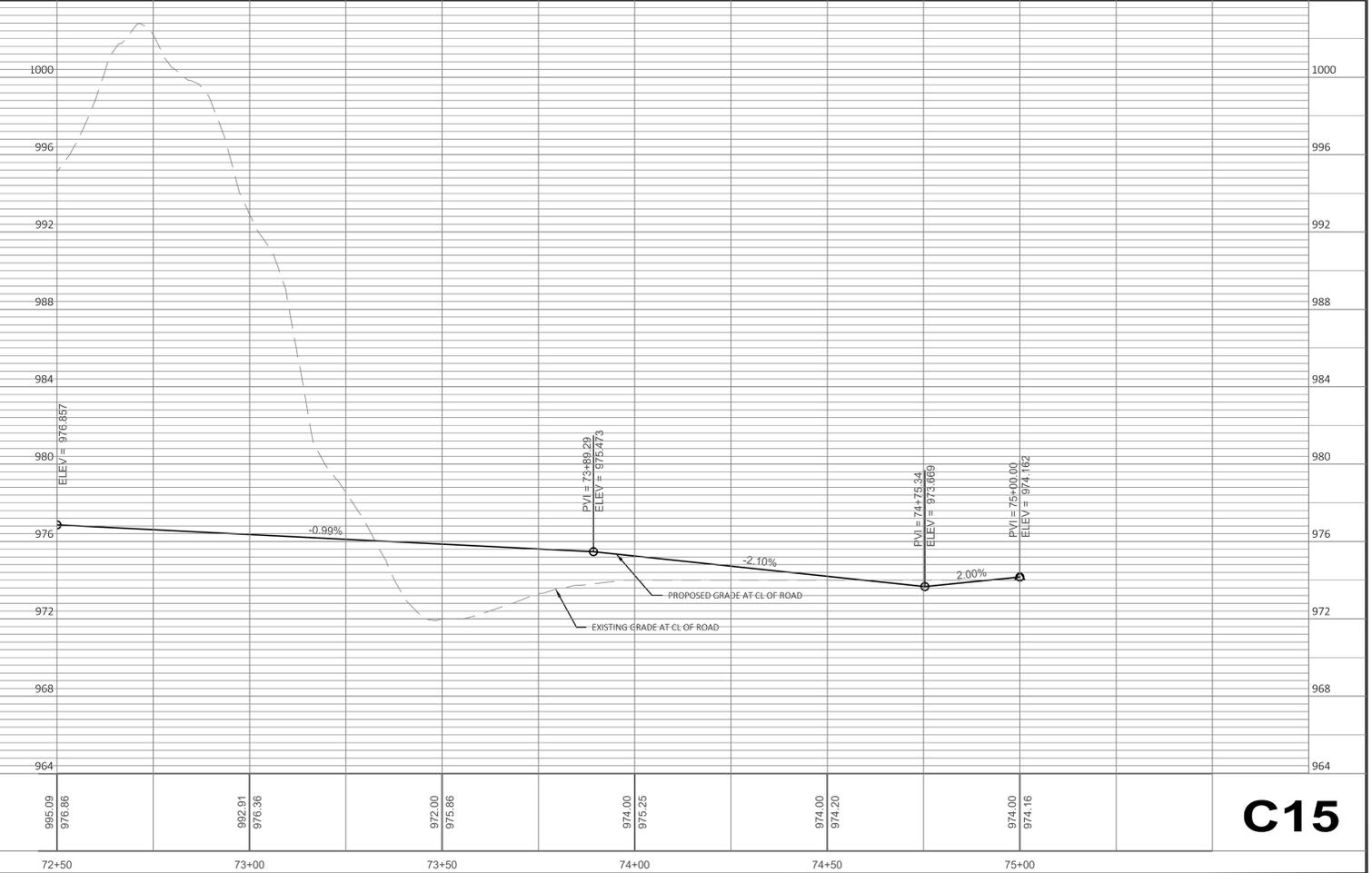
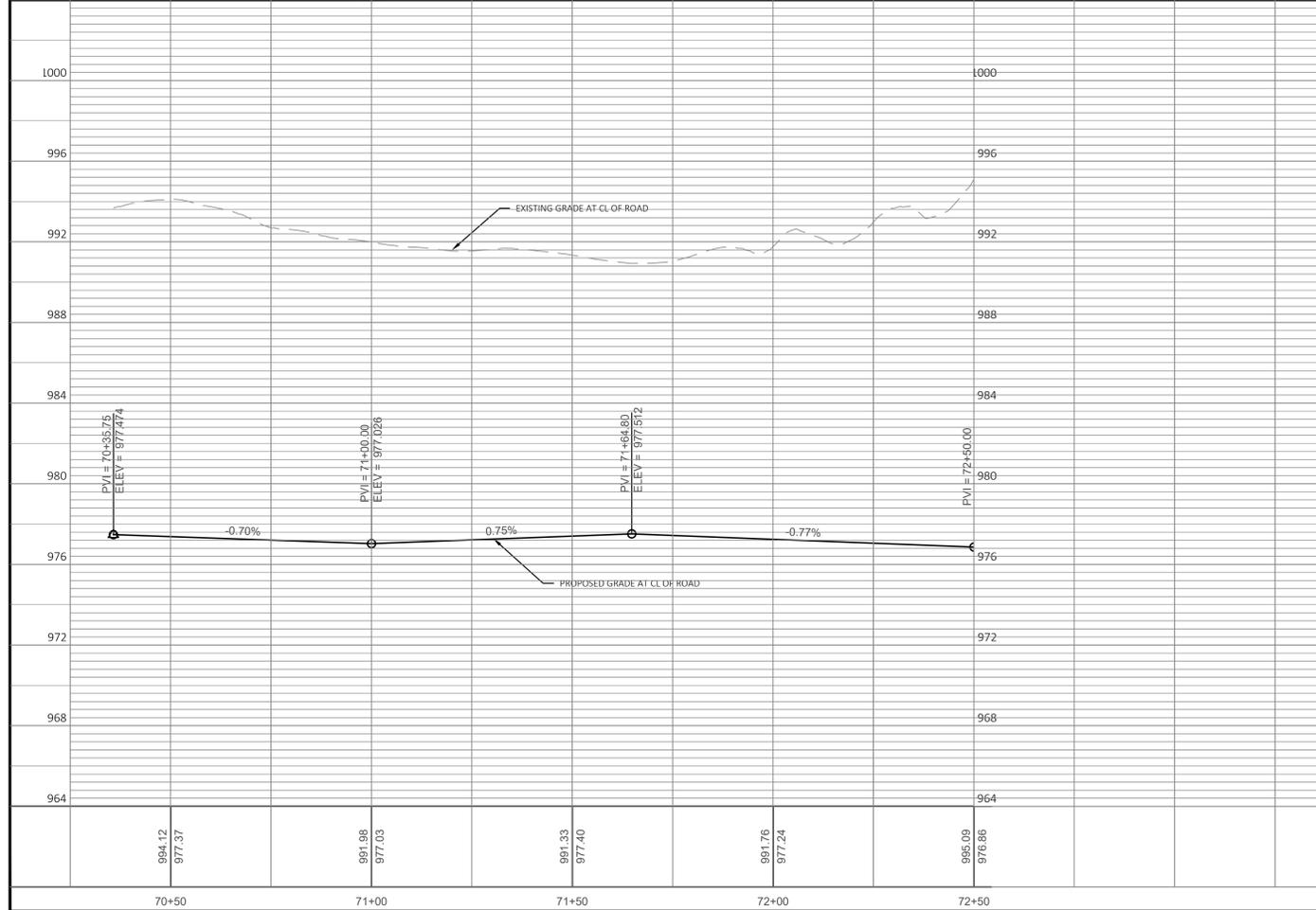
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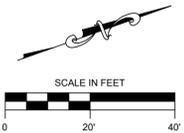
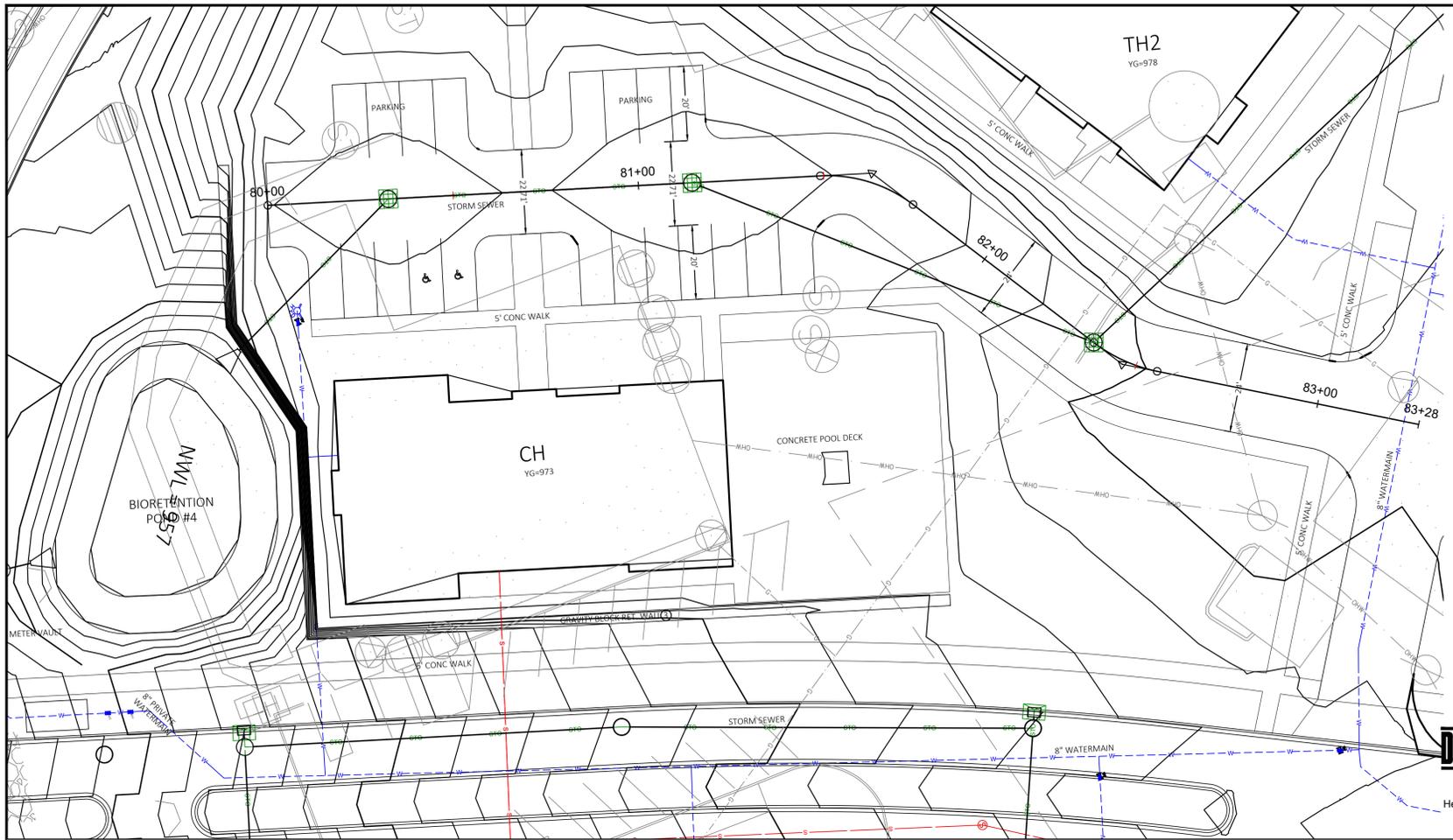
PROJECT
HARTLAND APARTMENTS
700 W. CAPITOL DRIVE
VILLAGE OF HARTLAND, WI

PREPARED FOR:
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MILWAUKEE, WI 53203

IN: TOWNHOMES
FROM: 70+50
TO: 75+00

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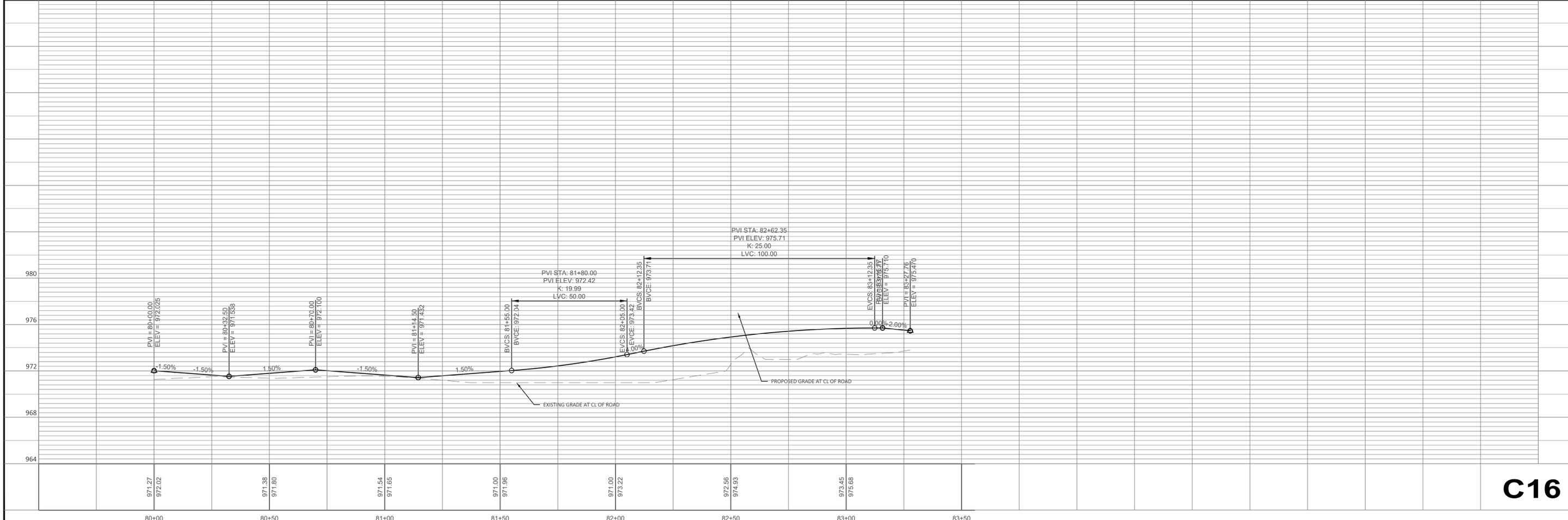
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PROJECT
HARTLAND APARTMENTS
 700 W. CAPITOL DRIVE
 VILLAGE OF HARTLAND, WI

PREPARED FOR:
THREE LEAF PARTNERS
 504 W. JUNEAU AVE.
 MILWAUKEE, WI 53203

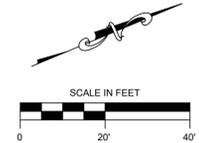
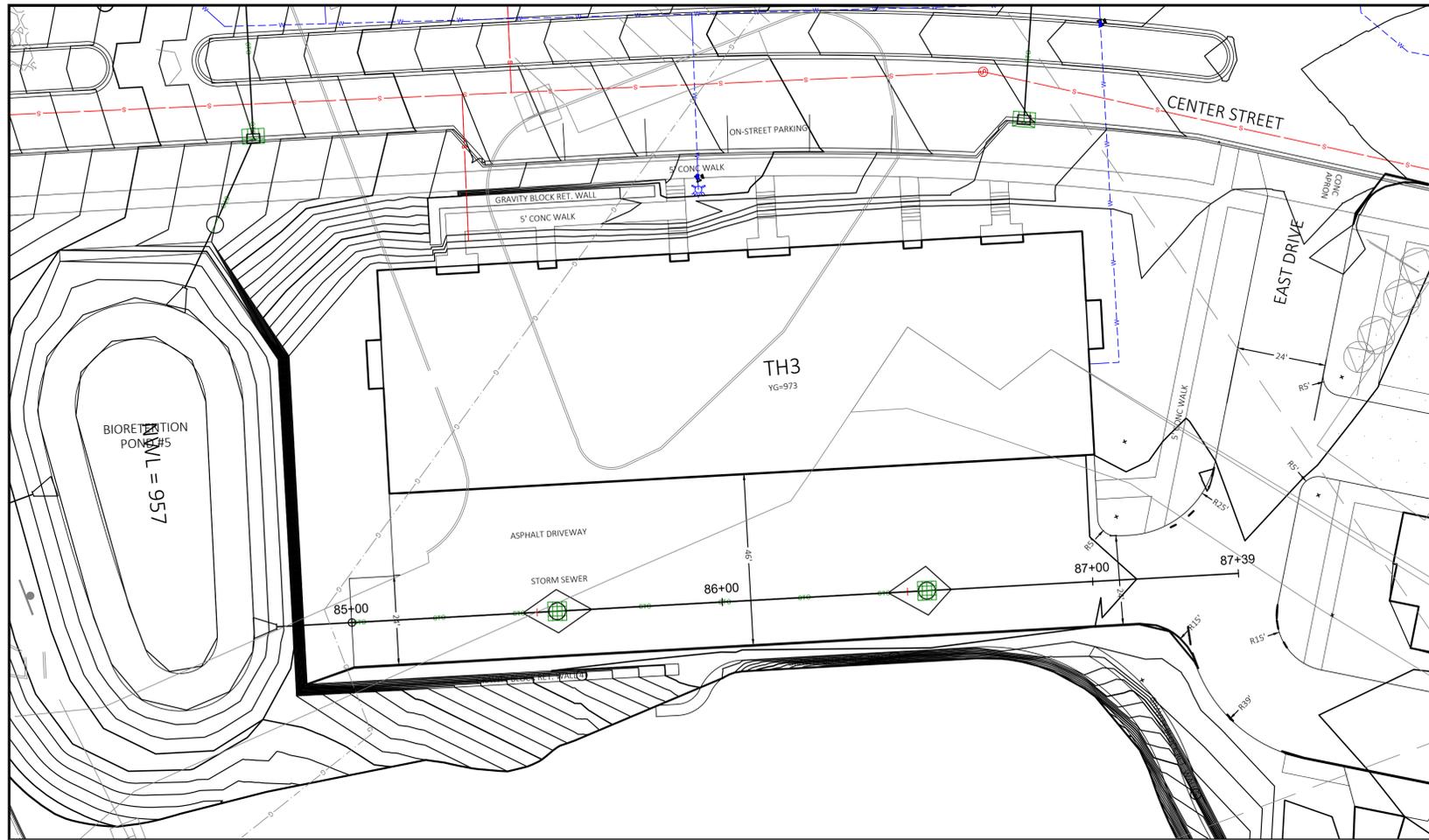
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TOWNHOMES P&P



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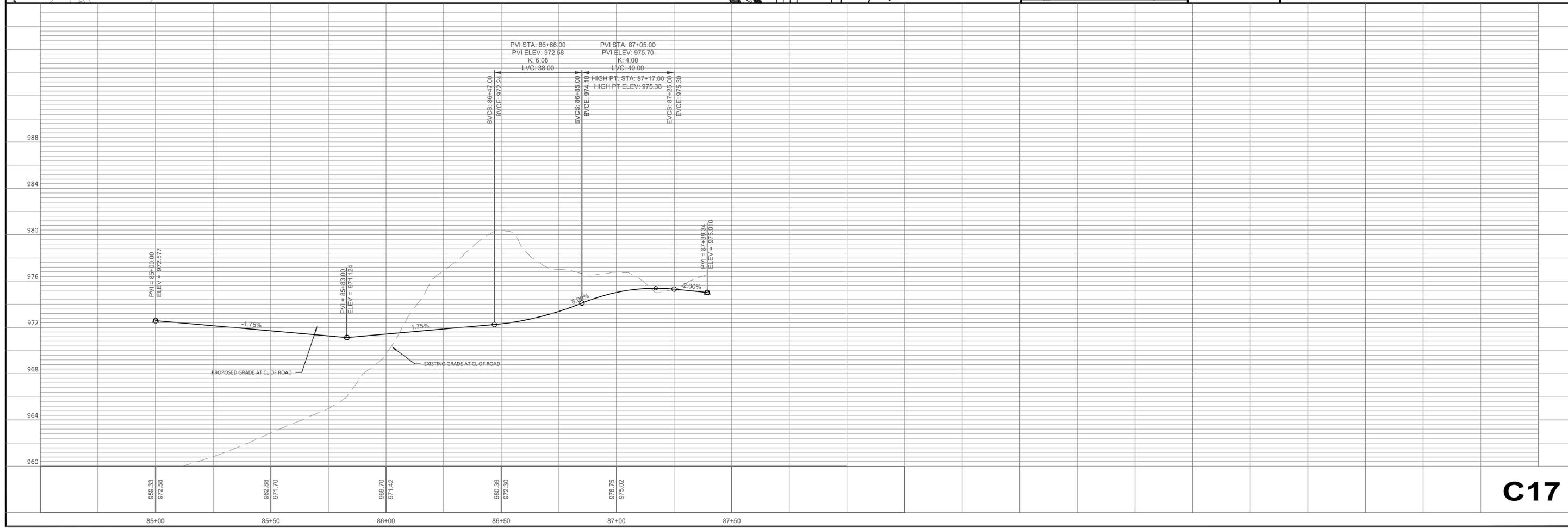
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 700 W. CAPITOL DRIVE
 VILLAGE OF HARTLAND, WI

PREPARED FOR:
THREE LEAF PARTNERS
 504 W. JUNEAU AVE.
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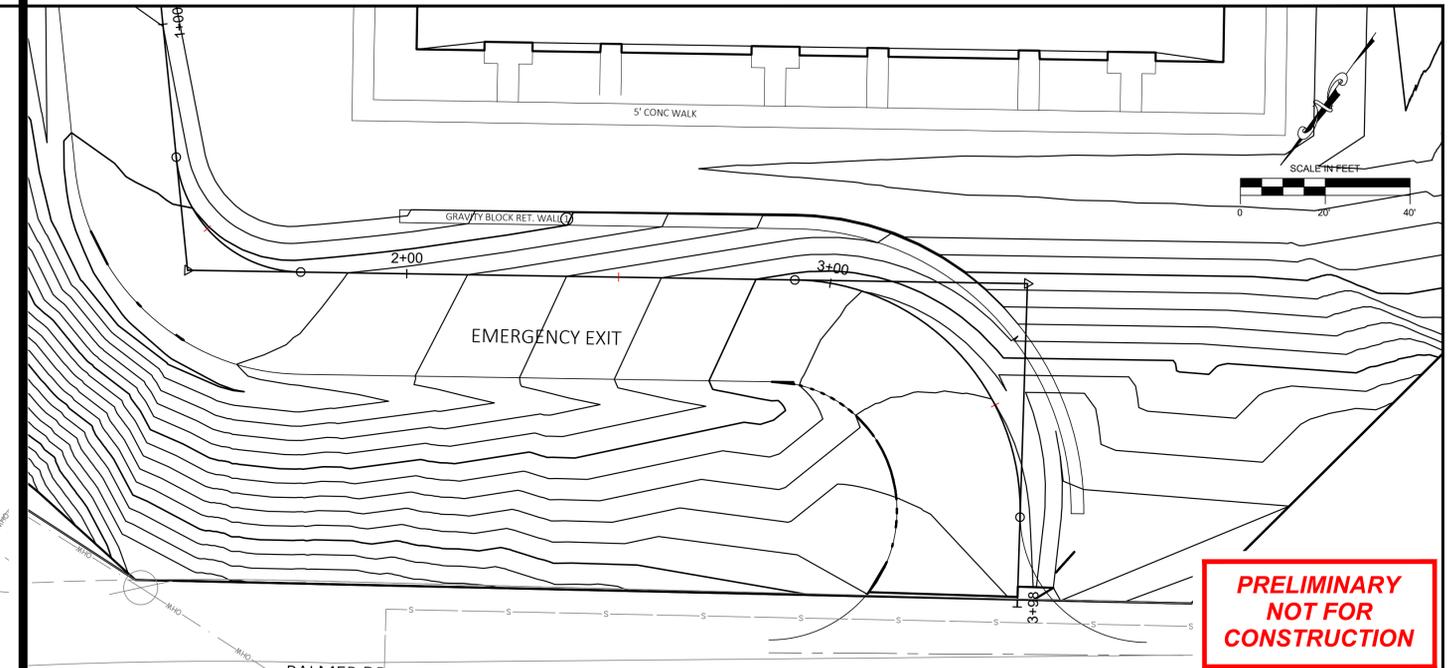
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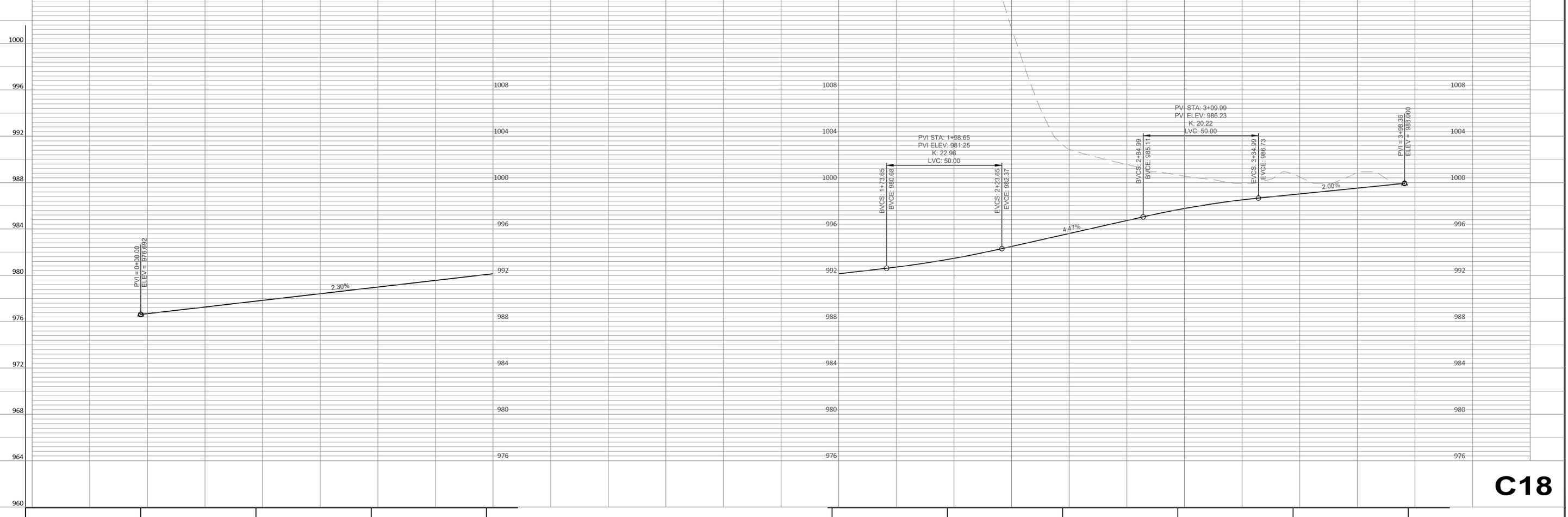
PROJECT
HARTLAND APARTMENTS
 700 W. CAPITOL DRIVE
 VILLAGE OF HARTLAND, WI

PREPARED FOR:
THREE LEAF PARTNERS
 504 W. JUNEAU AVE.
 MILWAUKEE, WI 53203

IN: TOWNHOMES
 FROM: 0+00
 TO: 3+98.37

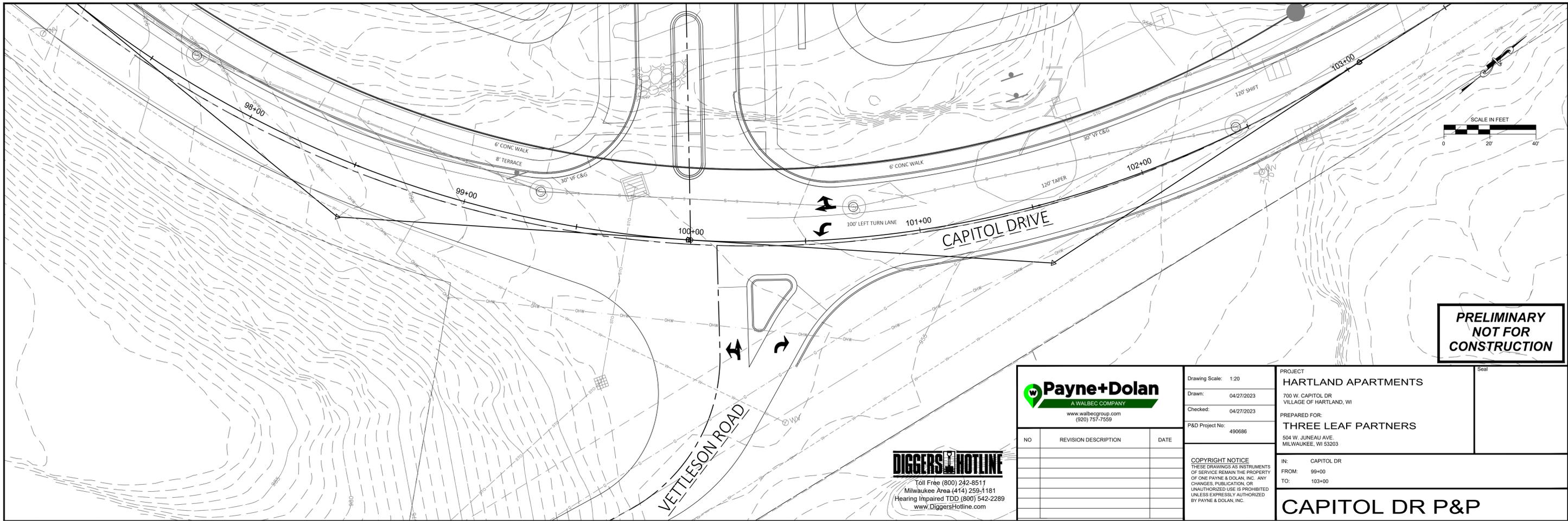
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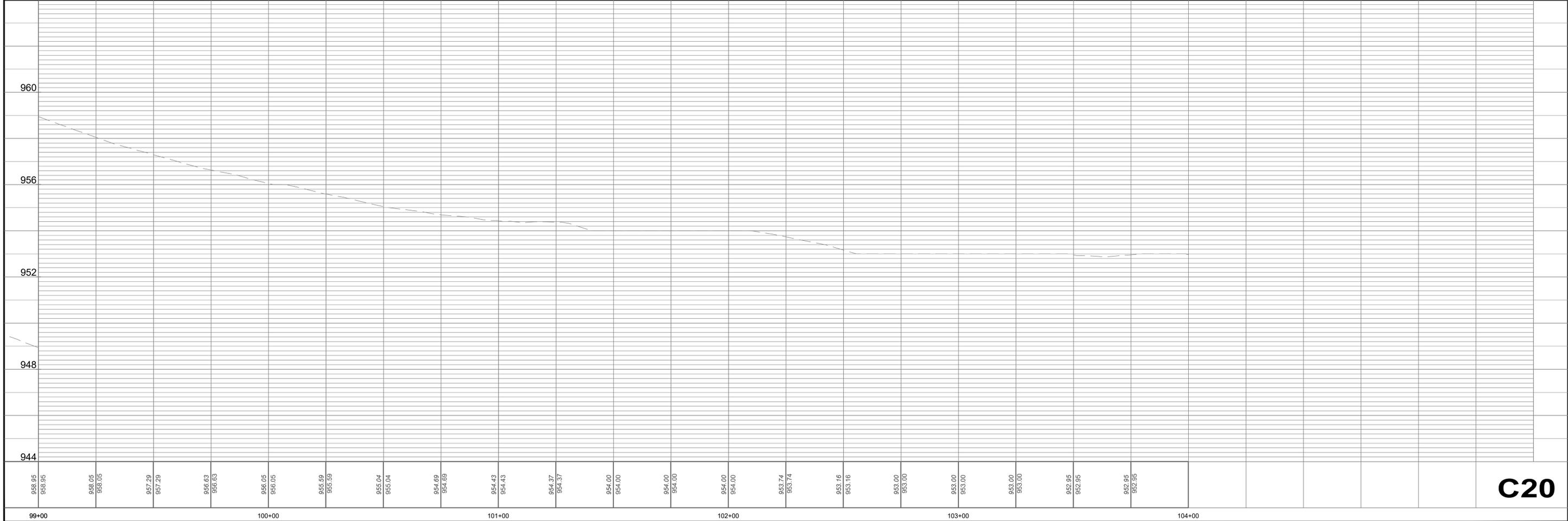
PROJECT
HARTLAND APARTMENTS
 700 W. CAPITOL DR
 VILLAGE OF HARTLAND, WI

PREPARED FOR:
THREE LEAF PARTNERS
 504 W. JUNEAU AVE
 MILWAUKEE, WI 53203

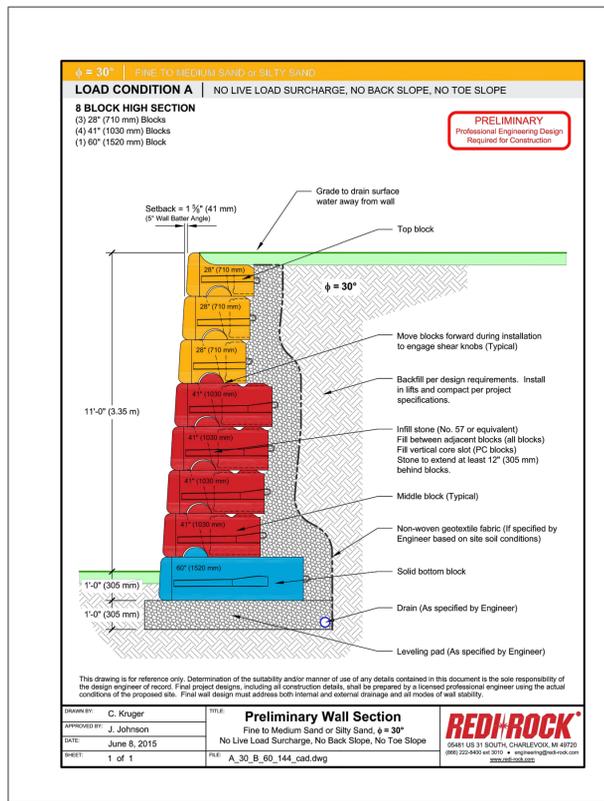
IN: CAPITOL DR
 FROM: 99+00
 TO: 103+00

CAPITOL DR P&P

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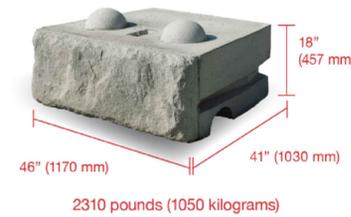


GRAVITY WALL NOTES

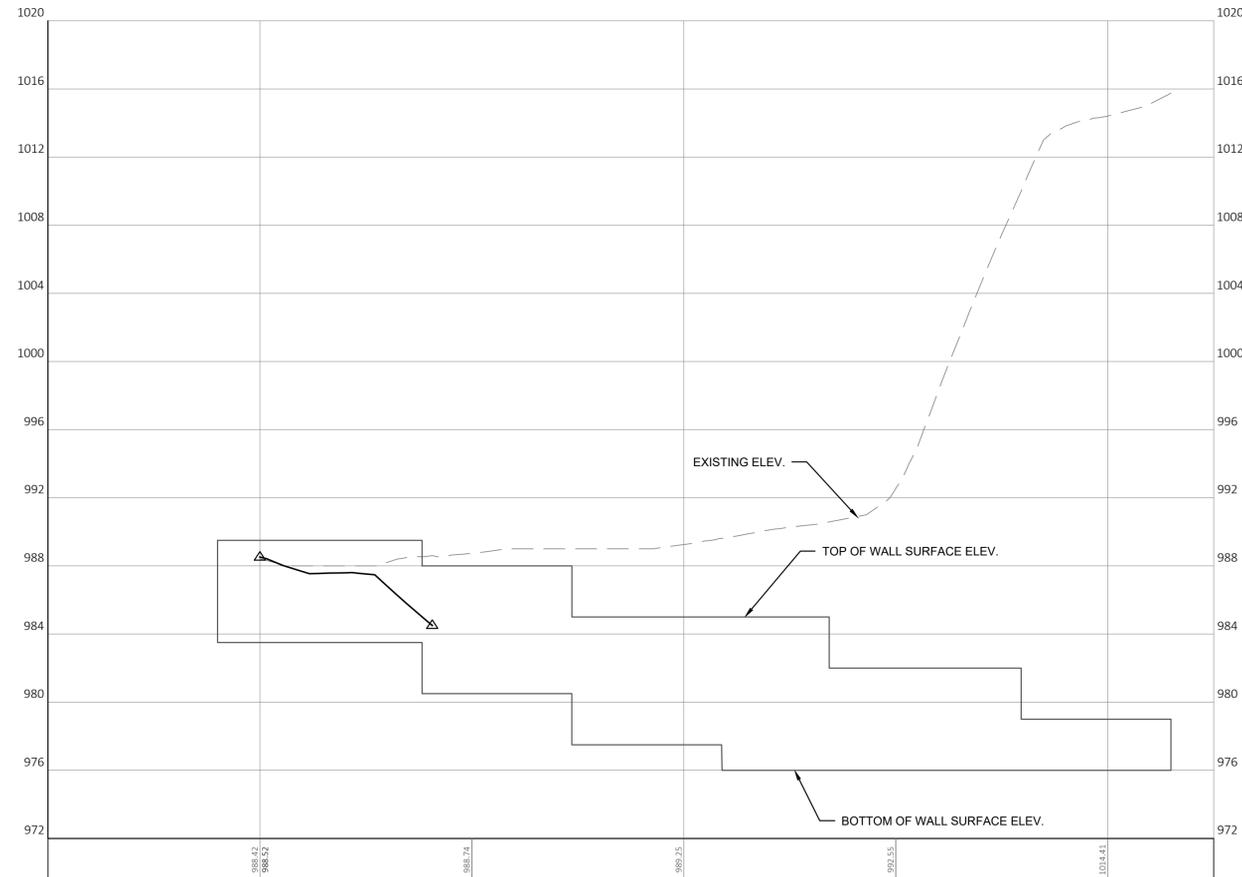
1. RETAINING WALLS TO BE RECON, REDI-ROCK OR EQUIVALENT PRODUCT.
2. RETAINING WALLS GREATER THAN 4--FEET IN HEIGHT SHALL BE PREPARED, STAMPED AND SIGNED BY A WISCONSIN LICENSED PROFESSIONAL ENGINEER.
3. CONTRACTOR TO PROVIDE RETAINING WALL SHOP DRAWINGS AND STAMPED RETAINING WALL PLANS BASED ON CONSTRUCTION PLANS AND FIELD CONDITIONS FOR FINAL APPROVAL BY THE VILLAGE PRIOR TO INSTALLATION.
4. RETAINING WALL COLOR SHALL BE NATURAL CONCRETE, UNSTAINED. WALL BLOCK FINISH SHALL BE LIMESTONE TEXTURE WITH A 3--FOOT DECORATIVE, BLACK ALUMINUM FENCE PLACED AT THE TOP OF THE FINISHED WALL PER FINAL APPROVAL BY THE VILLAGE.
5. 1,426 SF OF BLOCK

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Limestone Block Specifications



- Quarried stone texture
- 5.75 square feet (0.5 square meters) of face
- Four unique faces to give walls a random aesthetic
- 5.75 square feet (0.5 square meters) of face per block
- Approximately 23 square feet (2 square meters) of non-repeating texture available
- Wet-cast concrete gives a greater level of detail and durability



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PROJECT:
 HARTLAND APARTMENTS
 700 W CAPITOL DR
 VILLAGE OF HARTLAND, WI

CLIENT:
 THREE LEAF PARTNERS
 504 W. JUNEAU AVE
 MILWAUKEE, WI 53203

SHEET TITLE:
 CONSTRUCTION DETAILS
 WALL 1 PROFILE - INSIDE FIRE LANE
 GRAVITY BLOCK WALL

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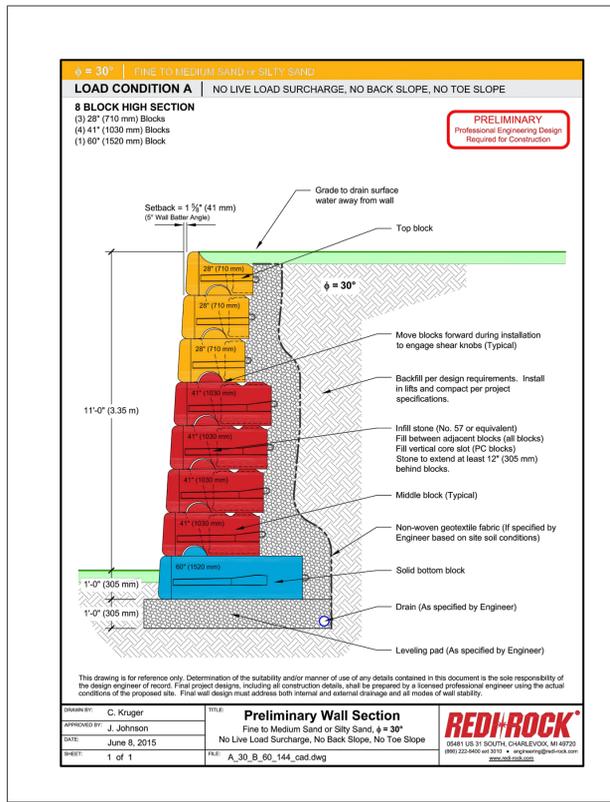
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P&D Project No: 490686

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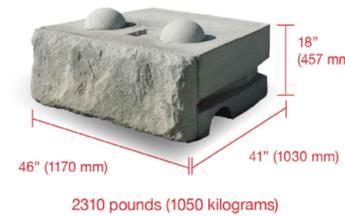


GRAVITY WALL NOTES

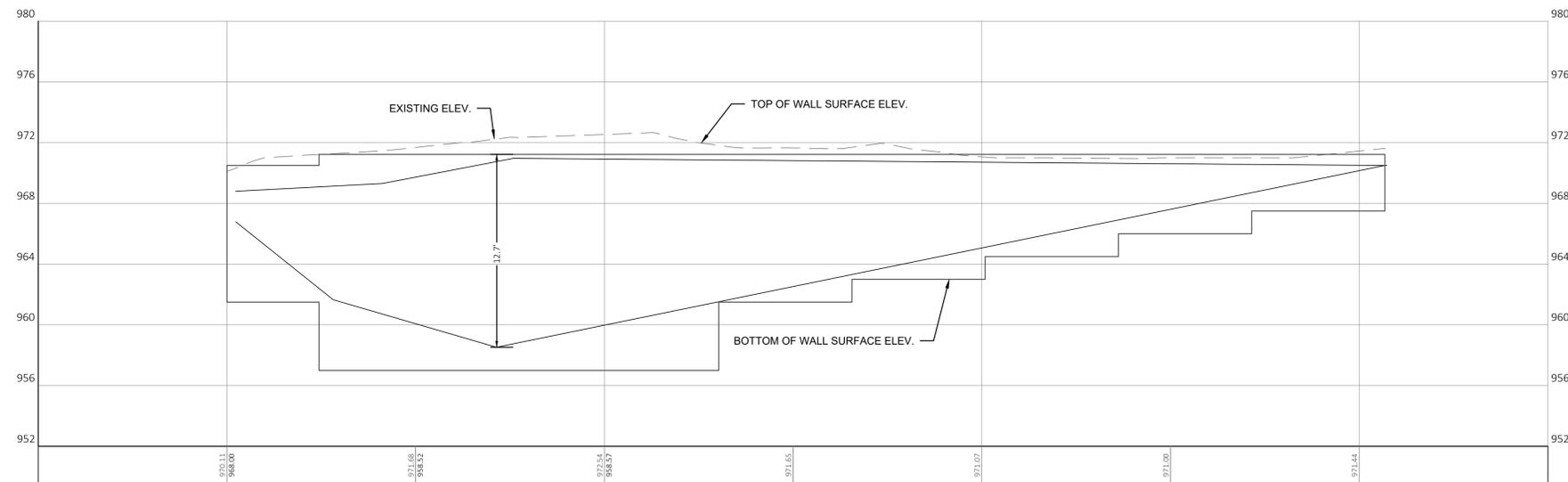
1. RETAINING WALLS TO BE RECON, REDI-ROCK OR EQUIVALENT PRODUCT.
2. RETAINING WALLS GREATER THAN 4- FEET IN HEIGHT SHALL BE PREPARED, STAMPED AND SIGNED BY A WISCONSIN LICENSED PROFESSIONAL ENGINEER.
3. CONTRACTOR TO PROVIDE RETAINING WALL SHOP DRAWINGS AND STAMPED RETAINING WALL PLANS BASED ON CONSTRUCTION PLANS AND FIELD CONDITIONS FOR FINAL APPROVAL BY THE VILLAGE PRIOR TO INSTALLATION.
4. RETAINING WALL COLOR SHALL BE NATURAL CONCRETE, UNSTAINED. WALL BLOCK FINISH SHALL BE LIMESTONE TEXTURE WITH A 3-FOOT DECORATIVE, BLACK ALUMINUM FENCE PLACED AT THE TOP OF THE FINISHED WALL PER FINAL APPROVAL BY THE VILLAGE.
5. 3,132 SF OF BLOCK

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Limestone Block Specifications

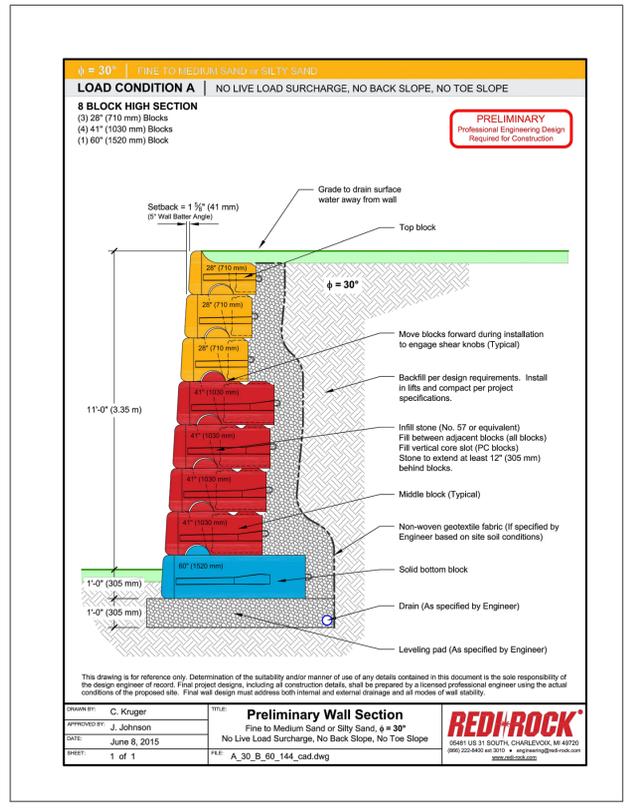


- Quarried stone texture
- 5.75 square feet (0.5 square meters) of face
- Four unique faces to give walls a random aesthetic
- 5.75 square feet (0.5 square meters) of face per block
- Approximately 23 square feet (2 square meters) of non-repeating texture available
- Wet-cast concrete gives a greater level of detail and durability



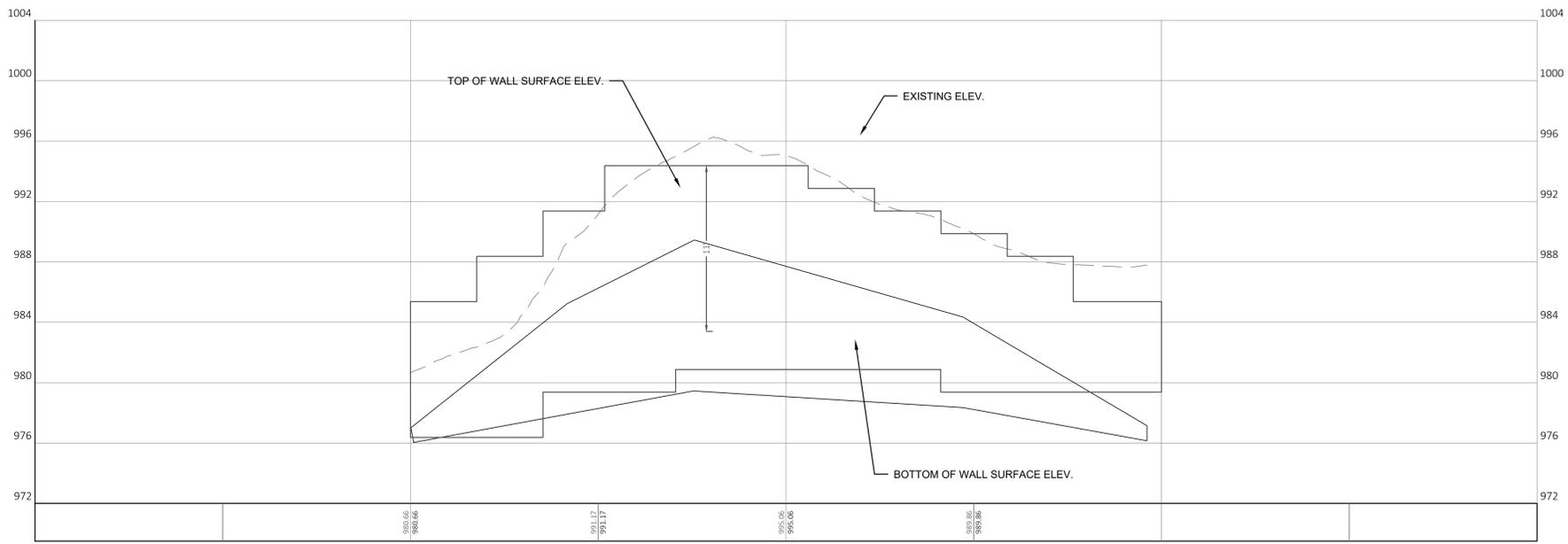
DATE	
REVISION DESCRIPTION	
NO	
PROJECT	HARTLAND APARTMENTS 700 W CAPITOL DR VILLAGE OF HARTLAND, WI
CLIENT	THREE LEAF PARTNERS 504 W JUNEAU AVE MILWAUKEE, WI 53203
CONSTRUCTION DETAILS WALL 3 PROFILE - CLUBHOUSE GRAVITY BLOCK WALL	
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- GRAVITY WALL NOTES**
1. RETAINING WALLS TO BE RECON, REDI-ROCK OR EQUIVALENT PRODUCT.
 2. RETAINING WALLS GREATER THAN 4--FEET IN HEIGHT SHALL BE PREPARED, STAMPED AND SIGNED BY A WISCONSIN LICENSED PROFESSIONAL ENGINEER.
 3. CONTRACTOR TO PROVIDE RETAINING WALL SHOP DRAWINGS AND STAMPED RETAINING WALL PLANS BASED ON CONSTRUCTION PLANS AND FIELD CONDITIONS FOR FINAL APPROVAL BY THE VILLAGE PRIOR TO INSTALLATION.
 4. RETAINING WALL COLOR SHALL BE NATURAL CONCRETE, UNSTAINED. WALL BLOCK FINISH SHALL BE LIMESTONE TEXTURE WITH A 3--FOOT DECORATIVE, BLACK ALUMINUM FENCE PLACED AT THE TOP OF THE FINISHED WALL PER FINAL APPROVAL BY THE VILLAGE.
 5. 2,210 SF OF BLOCK

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PROJECT:
 HARTLAND APARTMENTS
 700 W CAPITOL DR
 VILLAGE OF HARTLAND, WI

CITY:
 THREE LEAF PARTNERS
 504 W. JUNEAU AVE
 MILWAUKEE, WI 53203

SHEET TITLE:
 CONSTRUCTION DETAILS
 WALL 5 PROFILE - EAST DRIVE
 GRAVITY BLOCK WALL

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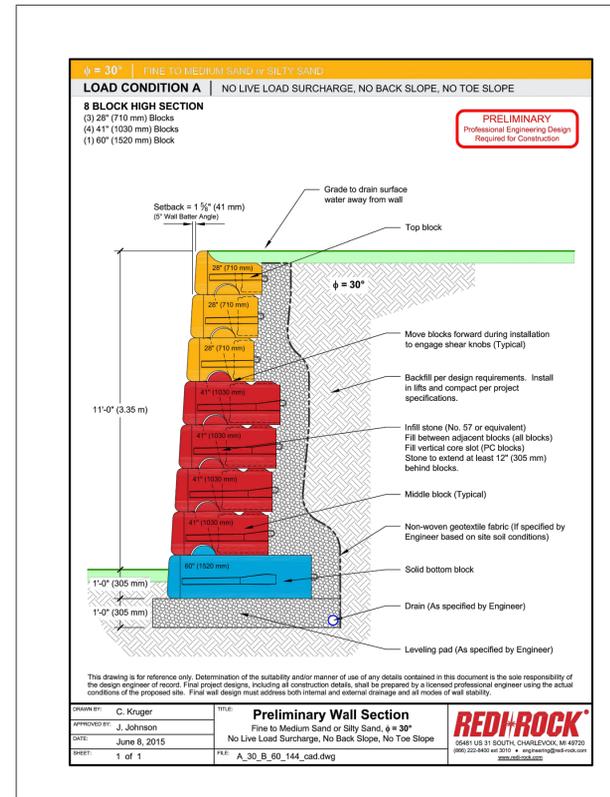
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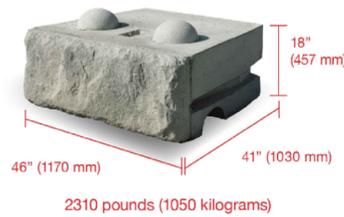


GRAVITY WALL NOTES

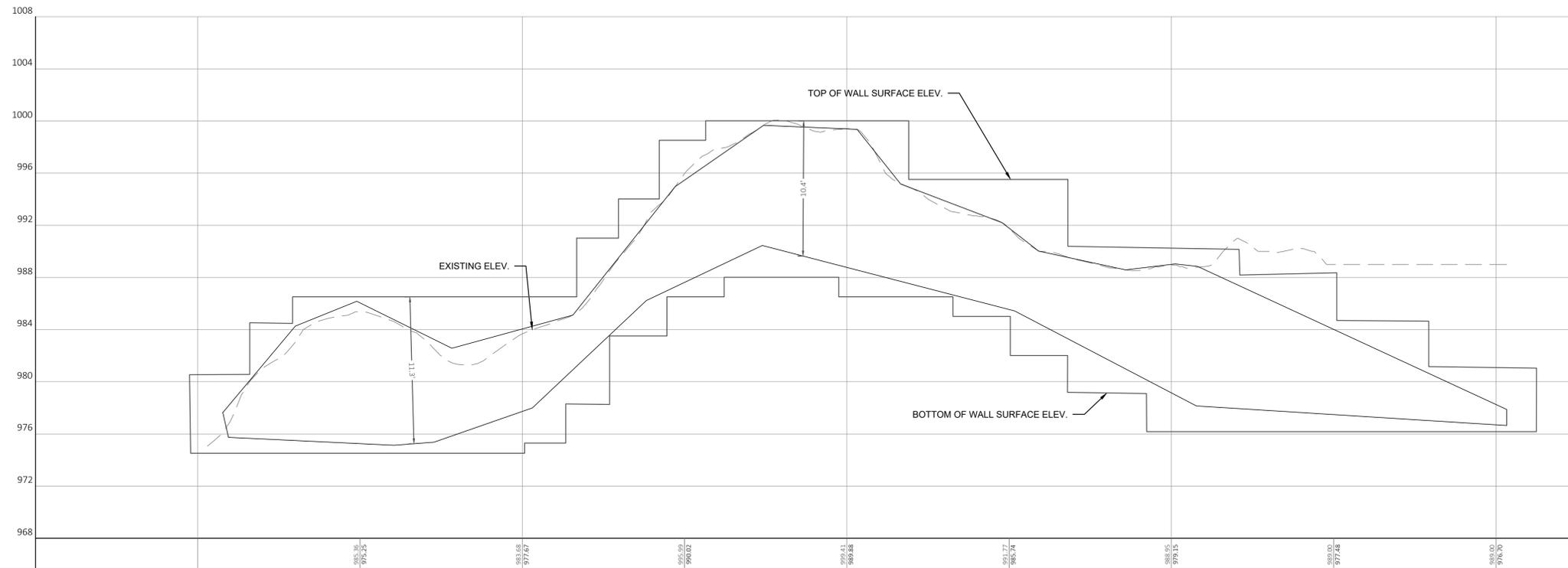
1. RETAINING WALLS TO BE RECON, REDI-ROCK OR EQUIVALENT PRODUCT.
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4. RETAINING WALL COLOR SHALL BE NATURAL CONCRETE, UNSTAINED. WALL BLOCK FINISH SHALL BE LIMESTONE TEXTURE WITH A 3-FOOT DECORATIVE, BLACK ALUMINUM FENCE PLACED AT THE TOP OF THE FINISHED WALL PER FINAL APPROVAL BY THE VILLAGE.
5. 4,254 SF OF BLOCK

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Limestone Block Specifications

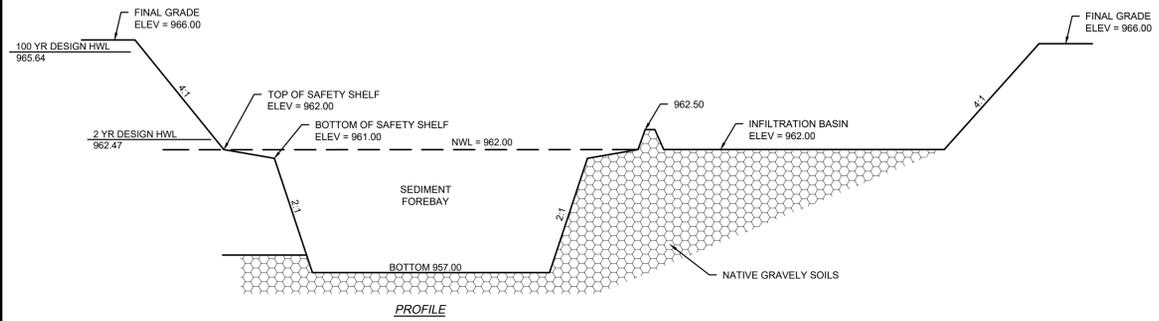


- Quarried stone texture
- 5.75 square feet (0.5 square meters) of face
- Four unique faces to give walls a random aesthetic
- 5.75 square feet (0.5 square meters) of face per block
- Approximately 23 square feet (2 square meters) of non-repeating texture available
- Wet-cast concrete gives a greater level of detail and durability

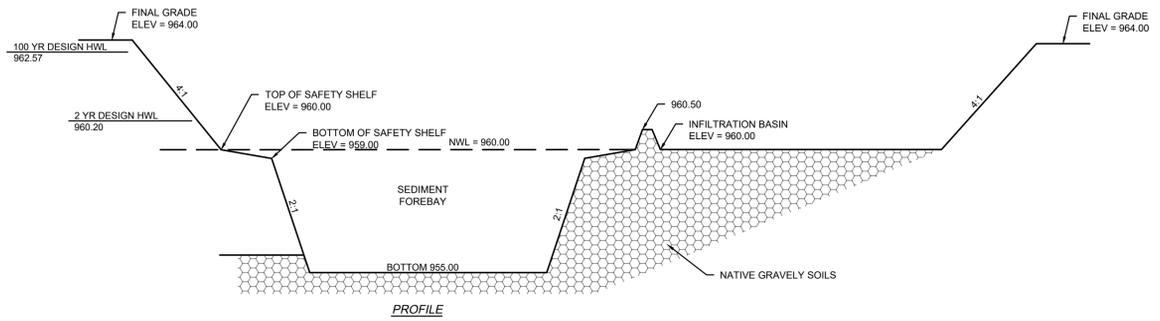


DATE	
REVISION DESCRIPTION	
NO.	
PROJECT	HARTLAND APARTMENTS 700 W CAPITOL DR VILLAGE OF HARTLAND, WI
CLIENT	THREE LEAF PARTNERS 504 W JUNEAU AVE MILWAUKEE, WI 53203
CONSTRUCTION DETAILS WALL 6 PROFILE - EAST DRIVE GRAVITY BLOCK WALL	
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Drawn:	NJO
Checked:	04/27/2023
P&D Project No:	490686
Sheet No:	###

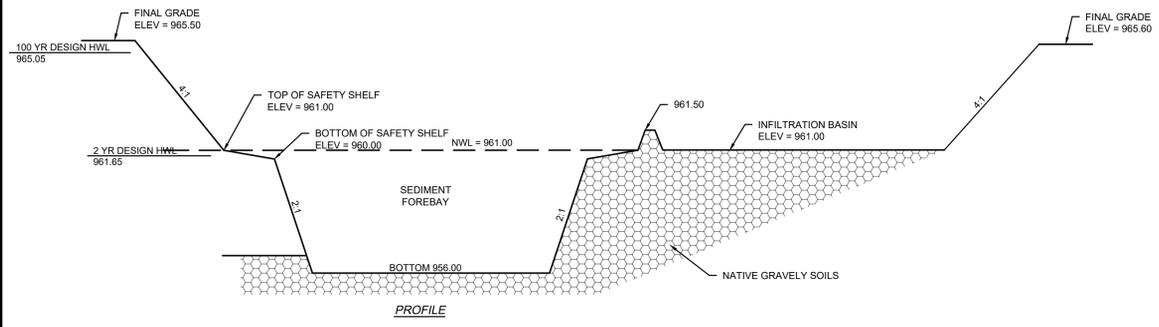
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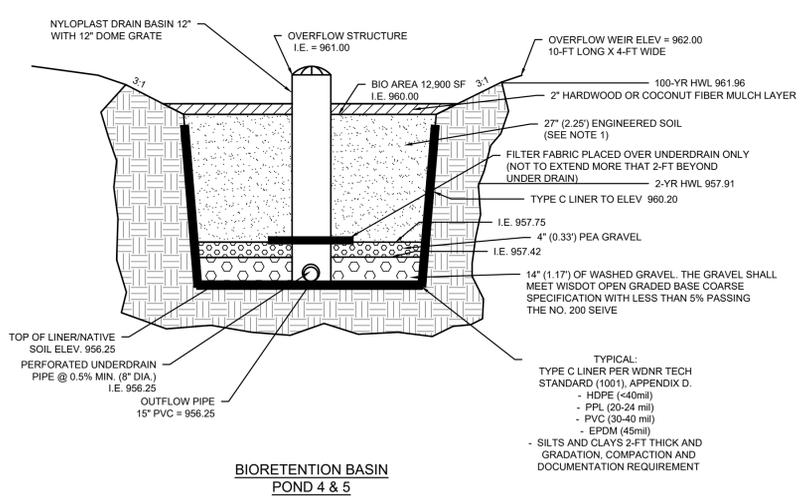
**NORTHWEST INFILTRATION BASIN DETAIL
POND 1**



**NORTHEAST INFILTRATION BASIN DETAIL
POND 2**

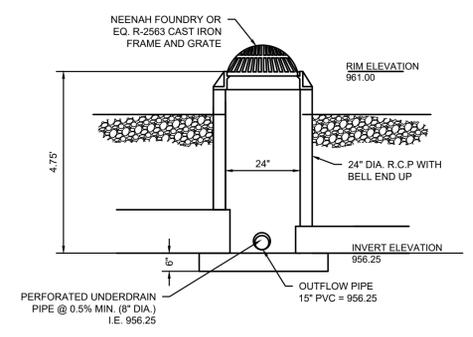


**MIDDLE INFILTRATION BASIN DETAIL
POND 3**



**BIORETENTION BASIN
POND 4 & 5**

- NOTES:
- DO NOT ADD ENGINEERED MEDIA UNTIL AFTER THE PAVING IS COMPLETED AND LANDSCAPE AREAS ARE STABILIZED.
 - ENGINEERED SOIL MIX SHALL BE PLACED WITH NO MECHANICAL COMPACTION (INCLUDING EQUIPMENT TRACKING OVER THE SURFACE).
 - ENGINEERED SOIL SHALL BE PLACED IN 6' LIFTS AND SPRINKLED WITH WATER AFTER EACH LIFT TO ACHIEVE SETTLEMENT.
 - ENGINEERED SOIL SHALL CONSIST OF A MIXTURE OF 70% TO 75% SAND AND 25% TO 30% COMPOST. THE PERCENTAGES ARE BASED ON VOLUME. THE ENGINEERED SOIL SHALL MEET THE REQUIREMENTS OF WDNr TECHNICAL STANDARD 1004.
 - SAND INTERFACE LAYER: 3-INCHES OF SAND SHALL BE PLACED BELOW THE GRAVEL LAYER AND VERTICALLY MIXED WITH THE NATIVE SOIL TO A DEPTH OF 4-INCHES, PER WDNr TECHNICAL STANDARD 1002.
 - A PERSON TRAINED AND EXPERIENCED IN THE CONSTRUCTION, OPERATION AND MAINTENANCE OF INFILTRATION DEVICES SHALL BE RESPONSIBLE FOR CONSTRUCTION OF THE DEVICE.
 - CONSTRUCTION OF THE BIORETENTION DEVICE SHALL FOLLOW THE REQUIREMENTS OF WDNr TECHNICAL STANDARD 1002. CONSTRUCTION AND OVERSIGHT SHALL FOLLOW SECTION "C" OF THE TECHNICAL STANDARD.



**BIORETENTION OVERFLOW
STRUCTURE DETAIL**

NO.	REVISION DESCRIPTION	DATE

Paynet+Dolan
A WALBECK COMPANY
www.walbeckgroup.com
(800) 757-7596

PROJECT:
HARTLAND APARTMENTS
700 W CAPITOL DR
VILLAGE OF HARTLAND, WI

CLIENT:
THREE LEAF PARTNERS
504 W. JUNEAU AVE
MILWAUKEE, WI 53203

**CONSTRUCTION DETAILS
POND DETAILS**

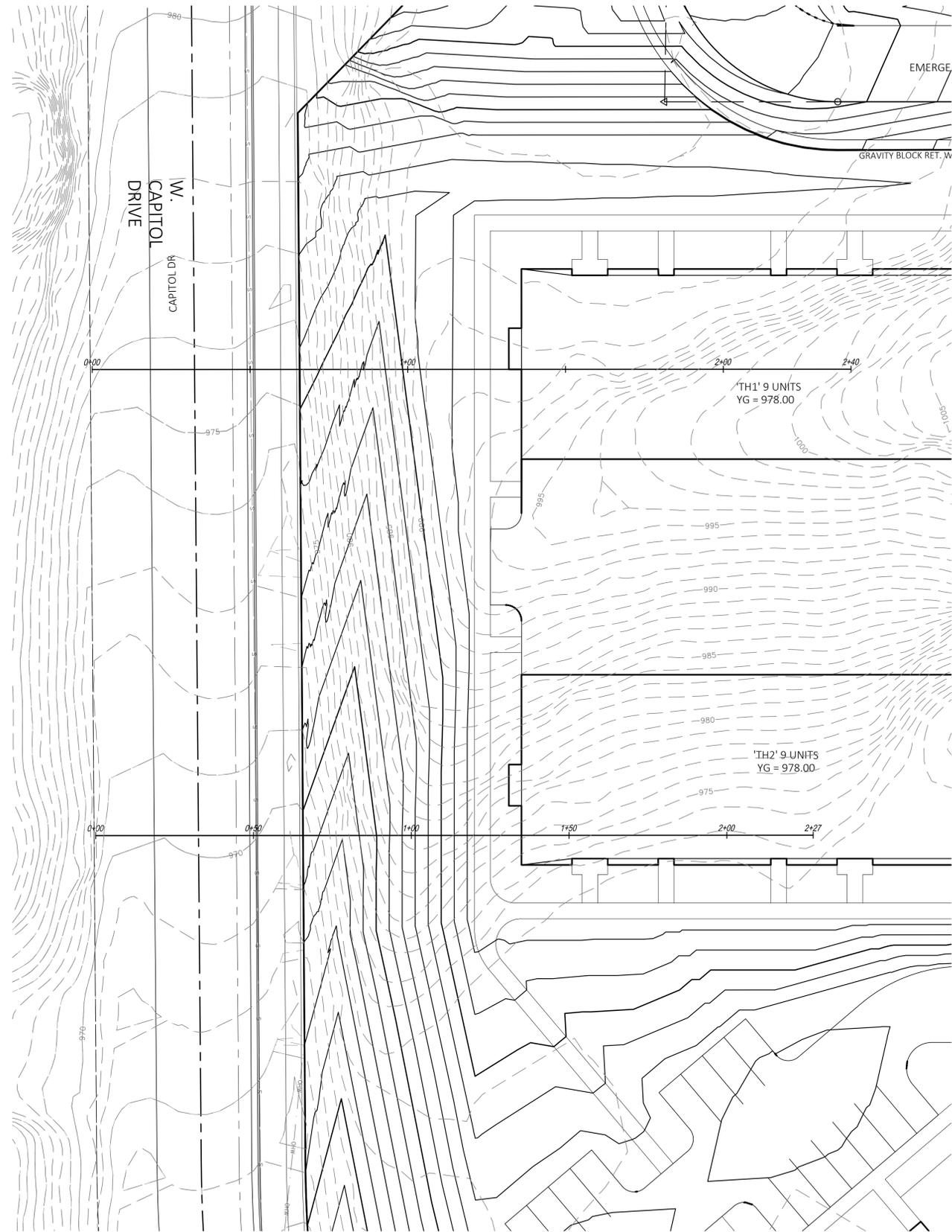
**CONSTRUCTION DETAILS
POND DETAILS**

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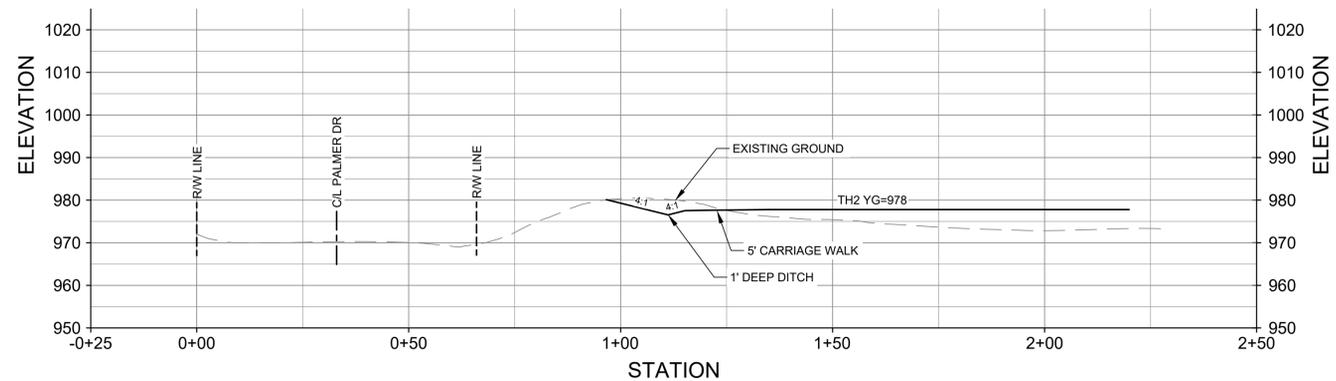
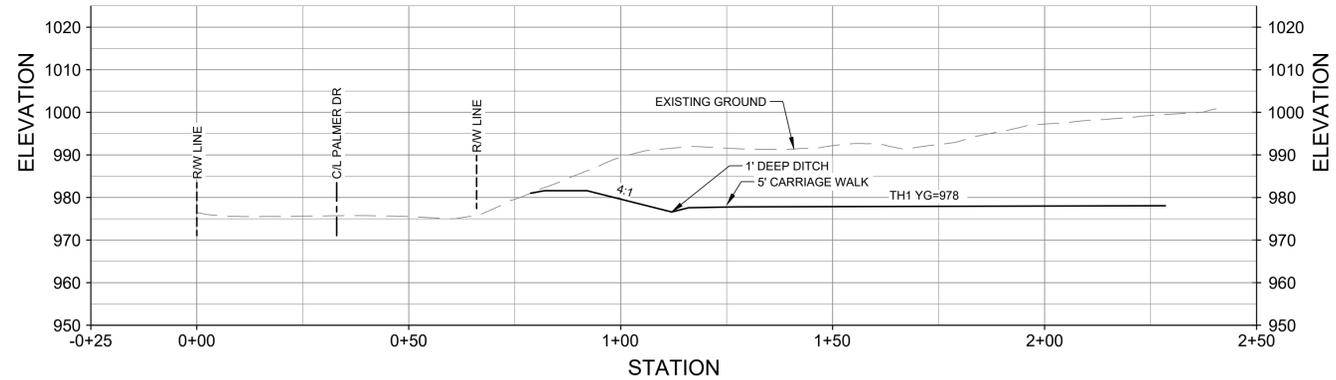
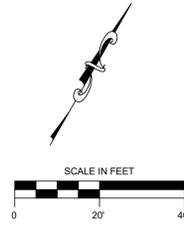
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Drawn: GME
04/27/2023
Checked:
P&D Project No: 490686
Sheet No:

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Hearing Impaired TDD (800) 542-2289
www.DiggersHotline.com

C406



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CONSTRUCTION**



NO.	REVISION DESCRIPTION	DATE



PROJECT
Hartland Apartments
700 W. Capital Drive
Village of Hartland, WI

CLIENT
Three Leaf Partners
504 W. Juneau Ave.
Milwaukee, WI 53203

PROJECT TITLE
TOWNHOUSE 1 & 2
GRADING SECTION

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Drawing Scale: 1" = 20'

Drawn: NJO
04/27/2023

Checked: CTD
04/27/2023

P&D Project No: 490686

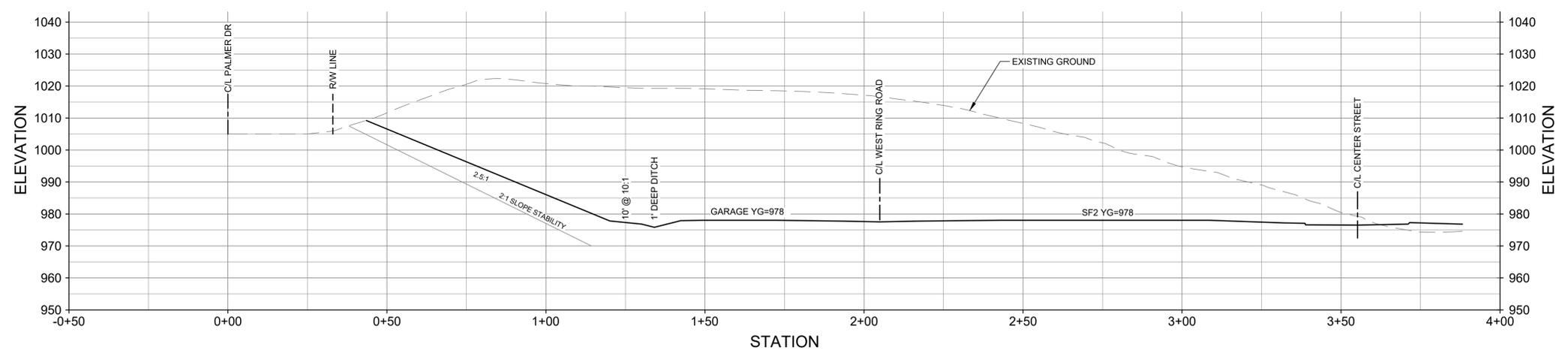
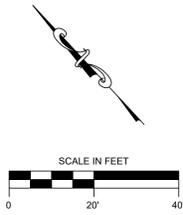
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C501



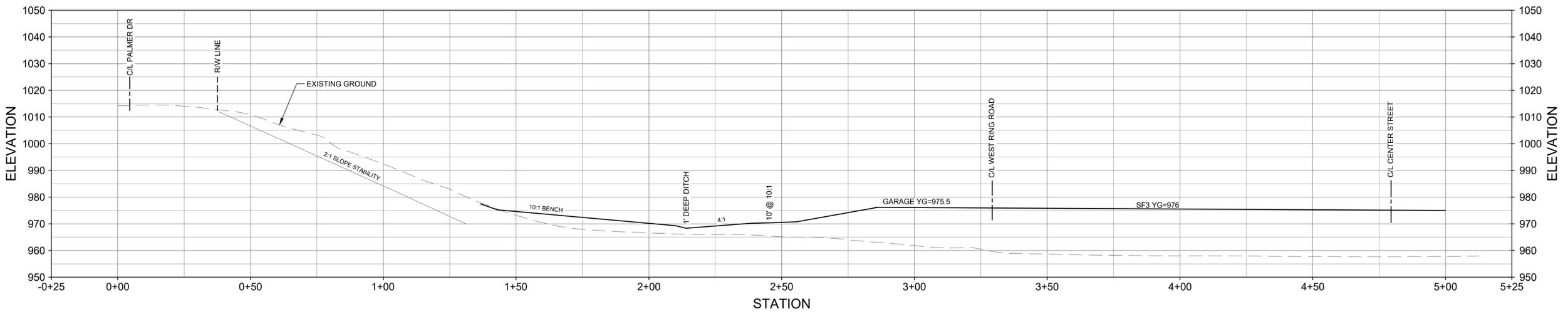
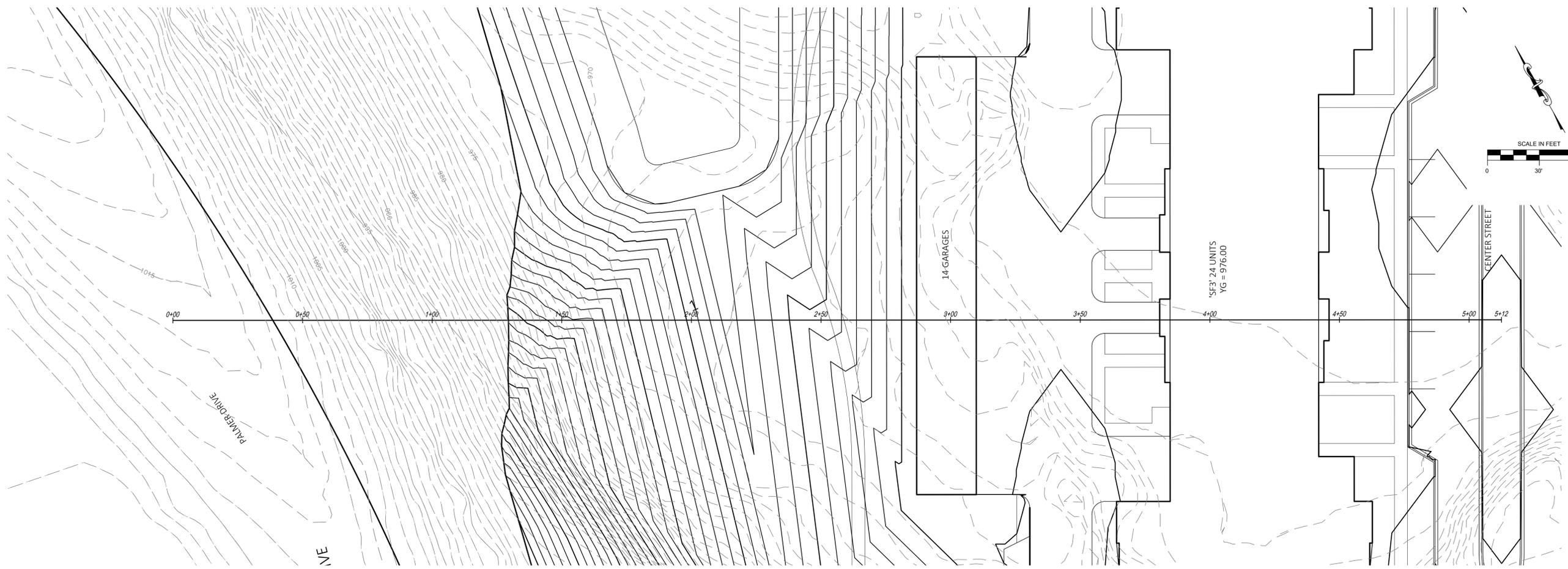
**PRELIMINARY
NOT FOR
CONSTRUCTION**



	NO.	REVISION DESCRIPTION	DATE
PROJECT	Hartland Apartments 700 W. Capital Drive Village of Hartland, WI		
CLIENT	Three Leaf Partners 504 W. Juneau Ave. Milwaukee, WI 53203		
SHEET TITLE	STACKED FLAT 2 GRADING SECTION		
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Checked:		CTD 04/27/2023	
P&D Project No:		490686	
Sheet No:		C505	

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CONSTRUCTION**



NO.	REVISION DESCRIPTION	DATE

Payne + Dolan
A WALBECK COMPANY
www.walbeckgroup.com
(800) 757-7596

PROJECT:
Hartland Apartments
700 W. Capital Drive
Village of Hartland, WI

CLIENT:
Three Leaf Partners
504 W. Juneau Ave.
Milwaukee, WI 53203

SHEET TITLE:
STACKED FLAT 3 GRADING SECTION

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Drawing Scale: 1" = 30'
Drawn: NJO 04/27/2023
Checked: CTD 04/27/2023
P&D Project No: 490686

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Sheet No:
C506

Former Palmer Sand & Gravel Redevelopment
700 W Capitol Drive, Hartland WI

Development Challenges:

Redevelopment of the former Palmer Sand & Gravel property for multi-family residential development presents some unique challenges and construction costs that would not be incurred in a greenfield development.

Grade differences between adjacent land uses

The lowest elevations on the property (~945') are located west of the Village cemetery and are approximately 10' lower than the lowest adjacent elevation of Capitol Drive. The highest elevations surrounding the property (~1025) are at the northwest corner at the intersection of Hill Street and Palmer Drive adjacent to the Village water tower. Much of the east property line is at elevation ~1020. The elevation at the intersection of Palmer Drive and W. Capitol Drive is ~983.



Slope Stability

The site was last an operating sand & gravel pit in the 1970s and produced primarily road gravel. Sand and gravel was extracted from the entirety of the site with perimeter slopes approaching 1.5:1 along portions of the High Street, St. Charles Cemetery and Village Cemetery properties.

The resulting slopes are generally stable based on the gravelly natures of the soils with 30+ years of vegetation present. Portions of the site along the eastern boundary were unexcavated due to excessive silt and clay in the gravel deposits. The maximum extent of the Palmer Sand & Gravel operation occurred in the 1950s and included all of the area north of Vetteson Road and south of Hill Street, west of the cemeteries and excluding the residential properties along the north side of Capitol Drive.



Internally drained site

The majority of the property is internally drained with no natural outlet for stormwater runoff other than infiltration. The depth of groundwater based on well drillers records for the properties surrounding the site is in excess of 250 feet at each of the wells. As a result of the site being an internally drained gravel pit, there are two large pockets of concentrated silt overlying the native gravel. These are located at the lowest points in the pit at the northwest corner adjacent to the Village water tower property and at the southwest corner of the northeast extraction area adjacent to the cemeteries.

Overburden & Concrete Plant Removal

A large stockpile of overburden material was placed along the east side of Palmer Drive in the 1980s in conjunction with the construction of STH 16 and STH 83. The overburden also provide truck access for sand and gravel used for the production of ready mix concrete by TEWS Concrete. The remnants of the original concrete batch plant are still present. A second generation concrete batch plant was constructed in the early 1990s on the property east of the quanset hut structure. The remnants of the aggregate storage bins are still present. By 2000, an

office, warehouse and repair shop were construct north of Capitol Drive to support the ready mix business.



Concrete Recycling & Crushing

For the duration of time that TEWS Concrete operated from the site, concrete ready mix truck washout spoils and concrete chunks were deposited at the site. Based on the historical photographs and information from prior site operators, the material was generally placed at the lowest areas of the gravel pit or west of the Village cemetery property. The concrete chunks primarily consist of concrete curb and concrete pavement along with concrete washout. The materials is unclassified and estimated to include approximately 55,000 to 60,000 cubic yards of material that is not suitable for supporting buildings or utilities in it's current condition.

Impacted Soils & Groundwater Use Restrictions

During construction of utilities in W. Capitol Drive, contaminated soils were encountered south of the TEWS Concrete office and repair shop within the right-of-way. A "Remedial Investigation Report and Closure Request" was completed in 1999 and by 2001, petroleum contaminated soils were removed from the site. As a result of the closure request, a groundwater use deed restriction was recorded against the property in 2001. In 1998, Duraset, a concrete admixture spill occurred as the result of a valve failure. In 1991, a leaking underground storage tank was removed from an area west of the office and adjacent to the original cement silo.

Water Meter Vaults

The Village of Hartland is requiring the potable water system serving the property to be owned and maintained by the land owner with redundant water supplies due to the anticipated number of residential units. A meter vault with bypass valve assembly and a backflow preventer are required to be constructed at each connection point between the public watermain and the private water system.

W. Capitol Drive Improvements

The Village is requiring that concrete sidewalks be constructed along the north side of W. Capitol Drive between the Palmer Drive intersection and the residential properties east of the subject property. Due to the available right-of-way, curb and gutter is anticipated along with the public concrete sidewalk. Additionally, improvements to the existing Vettleson Road intersection have been requested to mitigate lane discipline concerns for the westbound Capitol Drive to westbound Vettleson Road left turn movement. It is anticipated that an island to separate the eastbound right and left turn lanes at the intersection with Capitol Drive will be required.



Site Design Features

Several site features have been designed to mitigate some of the development challenges and create an urban residential community with a unique sense of place and usable open spaces adjacent to the higher density areas in the development.

Slope mitigation

In order to minimize the risks of slope failure on the future residents in the development, a slope stability model was developed for the site. Based on the shear strength of the well drained, gravelly soils present in the slopes around the perimeter of the site, the sand and gravel deposits are generally stable at inclinations of 1H:1V to 1.5H:1V. For the development of the site grading and drainage plans for this project, an inclination of 2H:1V was used to develop the slope stability model. All site drainage features, parking areas and buildings have been designed to be clear of the 2:1 inclination plane projected from the top of existing slopes. Slopes of 10H:1V have been designed as a bench between the perimeter drainage features and the existing perimeter slopes with the vegetated slopes above intended to remain in their existing condition.

Gravity Sewer & Site balance

The elevations of the buildings within the proposed development were designed to provide gravity sanitary sewer flow from the rear of the property to the existing sanitary sewer in W. Capitol Drive. This avoids the additional construction expense and perpetual operating and maintenance costs of a sanitary lift station. The building elevations were also designed to make use of the available on-site overburden stockpile along the east side of Palmer Drive. Additional import structural fill is anticipated to be available as a result of planned development of the commercial property on the west side of Capitol Drive to aid in the earthwork balance of both developments to reduce overall construction costs.

Emergency Vehicle Secondary Access

A secondary means of egress has been provided to the development. The access point has been designed to connect the first cross drive within the development with Palmer Drive. Due to the 20' grade differential between the finished floor elevation of Townhome 1 and Palmer Drive, two retaining walls are required. These retaining walls detract from the visibility of the Townhome from Palmer Drive as well as leaving an undesirable front view from the units.

Grade differences along Capitol Drive

W. Capitol Drive has a grade difference of approximately 30' between the intersection of Palmer Drive and the new entrance to the subject development. As a result, the orientation of the townhomes and clubhouse are north-south to minimize the length of building parallel to the change in elevation along Capitol Drive. Additionally, retaining walls have been designed along the south sides of the Clubhouse and Townhome 3. The retaining walls are anticipated to be gravity block walls with exposed heights of 6' or less.

Retaining Walls to preserve setbacks to adjacent land uses

In order to minimize grading of the unmined slopes around the perimeter of the development and preserve the wooded slopes adjacent to the surrounding residential land uses, retaining walls have been included in the design. The walls have significant heights and are anticipated to be constructed with soldier pile and timber lagging using a top down construction method. Portions of the larger walls (<24') are anticipated to have soil anchors.

One-way boulevards, Mountable Median Curbs & Pedestrian Safety

As part of the site planning process, it was determined that a walkable community with low vehicular speeds is desirable. Additionally, an inviting raised grass boulevard with street trees and seasonal plantings is desired for Center Street. It was also determined that separating traffic flows with a boulevard will make the pedestrian crossings more visible to vehicles and separate the crossing into two distinct movements for the pedestrian. Lane widths of 16' measured face of curb to face of curb were selected for each direction of travel. In addition, a mountable curb was selected for the median island. The 16' lane width and mountable curb provide sufficient width for an emergency vehicle to pass a disabled vehicle and is the same used by WisDOT for a interstate ramp widths and for single lane divided approaches to roundabout intersections. Where parallel parking spaces are provided, an additional 10' of width is provided to ensure car doors aren't opened into on-coming traffic.

Private Drives

All private drives will be 24' in width without curb and gutter and have an inverted section for drainage. Where concrete carriage walks are adjacent to the asphalt drives and parking areas, the concrete flatwork will be flush. This simplifies snow removal operations, eliminates trip hazards near the entries to the units and improves the drainage across the turf areas on the garage side of the buildings. All parking spaces will comply with the dimensional standards in the Village's ordinances.

Alternative BMPS for water quality

With the townhome and clubhouse portions of the site being located within an area of known petroleum contamination, alternative best management practices are being considered for water quality. These practices include porous pavers, bio-retention or wet detention with an impermeable liner. The use of wet detention is less than desired due to the small size of the ponds and long term maintenance concerns. Sediment removed from wet detention ponds is considered a hazardous material and requires landfill disposal. Wet ponds are also considered wetlands by Wisconsin DNR, with wetland alternation permitting required for any future redevelopment and major modifications.

Infiltration basins / Internally Drained Site

The majority of the former sand and gravel pit is internally drained. The majority of the proposed development will also be internally drained with three infiltration basins. The infiltration basins are anticipated to have wet forebays or other means of pre-treatment. Pre-treatment may include porous pavers to eliminate the long term sediment disposal challenges associated with wet forebays. Additionally, the lowest points on the site have been collecting silt in the runoff for the past several decades. An accumulation of silt is present at two locations

where infiltration basins are planned. The accumulated silt will be removed and gravelly fill placed to restore the infiltration rates of the underlying soils.

Watermain loop in east and west perimeter drives

A looped private watermain system is anticipated to be required by the Village to minimize impacts to residents of the development in the future when maintenance to the system is required. The loop is provided in two forms. A second connection to the Village water system on Palmer Drive requires a second meter vault with backflow preventer. A water main loop is provided on the east and west perimeter drives with dead end runs serving the apartments and townhomes. An additional 210 LF of watermain needs to be extended in Palmer Drive to accommodate the 2nd connection to the Village public water system.

Sanitary main in Center Street

A single sanitary main is provided in Center Street to serve each of the buildings with the exception of the two townhomes west of Center Street, where separate sewer laterals connect directly to the existing sanitary sewer in Capitol Drive.

Fire access to rear face of mid-density buildings

Pedestrian access is provided around the exterior of the mid-density three-story apartment buildings. A clear width of 20' is maintained between the building face and any landscape plantings. A 5' wide sidewalk with 10' level area is provided adjacent to the building to provide fire access to the rear of the buildings and as a working area for balcony rescue. Fire apparatus access is not anticipated.

Capitol Drive Sidewalk

At the request of the Village, the sidewalk east of the development along the north side of Capitol Drive is proposed to be extended to the Palmer Drive intersection. In order to accommodate the sidewalk within the existing right-of-way, curb and gutter will be constructed along north side of Capitol Drive with a zero width terrace. This is the same typical section that presently exists from the east property line of the development along the residential properties that front Capitol Drive west of North Avenue. Additionally, a right-turn island was recommended at the intersection of Capitol Drive and Vettelson Road to separate left and right turning vehicles on the west leg of the intersection. No geometric modifications or additional lanes were recommended in the traffic study for W. Capitol Drive or the intersections with Palmer Drive nor STH 83.

Infrastructure Improvement Scope:

The following is an overview of the site infrastructure construction scope of work.

1. Remove, Crush and Stockpile Concrete Pavement
 - a. Remove, stockpile and crush the existing concrete pavement present on the southern and western corner of the property.
 - b. This includes the pavement around the existing buildings and the roadway leading up to the old batch plant
 - c. This material will be crushed into base aggregate dense 1 ¼" and stockpiled onsite.
 - d. Estimated 21,000 ton of material will be produced.
2. Building Demolition
 - a. Remove the existing buildings onsite.
 - b. Any portion of the buildings that can be crushed into the gravel will be added to the concrete pavement pile for reuse as granular backfill for utility construction.
 - c. Include building demolition in estimate, do not include abatement of asbestos or lead paint removal
 - d. Building debris will either be recycled or hauled away in dumpsters to a landfill.
 - e. The extent of contaminated soil remediation has not yet been quantified.
3. Remove Concrete Chunks as Part of Site Grading
 - a. Remove the buried concrete chunks that are located in the center of the site.
 - b. It is estimated that there is approximately 56,000 CY of concrete mixed with fill material present within the site.
 - c. This material will be run through a crusher and turned into a compactable fill/backfill or granular backfill for utility spoil and reused onsite.
4. Remove Concrete Washout
 - a. Remove the concrete washout material and crush it into a 3" minus material that can be used as backfill. Final volume is unknown at this time.
5. Site Grading
 - a. perform cuts and fills to the provided grades in order to achieve a pad ready site maintaining free draining granular material within areas of the site intended for infiltration.
 - b. Estimated Cut to Fill – 400,000 CY
 - c. On-site overburden material is anticipated to be used to raise the quarry bed 15'
 - d. Accumulated silt identified in the test pits will be removed and the areas filled with on-site gravelly overburden.
 - e. Impermeable liners for wet forebays in ponds 1, 2 & 3 and wet ponds 4 & 5.
 - f. Bioretention and porous paver alternatives are being considered for water quality and pre-treatment in lieu of wet forebays and wet detention ponds.
 - g. Soils will be compacted to 95% of standard proctor.
 - h. Soils to be classified with compaction testing performed based on the soil type.
6. Retaining Walls
 - a. Soldier Pile and Timber Lagging walls, decorative facing and coping option – X LF; X SF Lagging
 - b. Gravity Block walls – X SF
7. Mobilization
8. Clearing and Grubbing
 - a. Costs to clear and grub the trees and brush within the site up to the grading limits.
 - b. Trees and stumps will be removed from the site.
9. Water Main

- a. Estimated 8" main length of 4525 LF with granular backfill
- b. Estimated 6" water services of 985 LF with granular backfill
- c. 13 Hydrant Assemblies
- d. 2 Precast concrete Meter Vaults (17' X 8') with bypass valves assemblies
- e. 2 Backflow preventers – 8"
- f. 2 Pressure reducing valves – 8"
- g. Average bury depth is 6.5' to top of pipe.
- h. Recycled concrete to be used as granular backfill material in all trenches

10. Sanitary Sewer

- a. Estimated 8" main length of 2150 LF with granular backfill
- b. Estimated 6" sewer services of 970 LF with granular backfill
- c. 9 Sanitary manholes
- d. Average bury depth estimated to be 12-FT
- e. Recycled concrete to be used as granular backfill material in all trenches
- f. No Lift Station is included in this proposal for the sanitary sewer system.
- g. No off-site improvements to the existing Dela-Hart sanitary sewer system are included

11. Storm Sewer Installation

- a. Estimated Mainline Length – 6325 LF (18" Assumed)
- b. 70 Structures (20 Curb Inlets, 31 Manholes, 27 inlets)
- c. 3 Stormwater Ponds with monitoring/inspection ports & underdrain
- d. 2 Outlet Control Structures
- e. Downspout laterals?
- f. Average bury depth estimated to be 4-6-FT

12. Private Roads

- a. Center Street Boulevard
 - i. 18" VF Curb; 3133 LF
 - ii. 18" Mountable Curb; 2658 LF
 - iii. 30" Mountable Curb; 232 LF (traffic circle)
 - iv. 6" Concrete Pavement; 1044 SF (4.5' width truck apron)
 - v. Concrete Aprons; 3,236 SF
 - vi. Asphalt; 7,920 SY
- b. Apartments
 - i. 18" VF Curb; 2,310 LF
 - ii. Concrete Aprons; 954 SF
 - iii. Concrete Walks: 20,270 SF
 - iv. Asphalt; 5,055 SY
- c. Stacked Flats, Townhomes, Clubhouse & Fire Lane
 - i. Asphalt; 18,212 SY
 - ii. Concrete Walks: 70,956 SF

13. Capitol Drive

- a. Concrete Curb: 30" VF; 1046 LF
- b. Concrete Island: 30" VF; 103 LF
- c. Sidewalk: 5"; 5,538 SF; 923 LF
- d. Asphalt Patching; 4,596 SF; 1150 LF