



TOWN OF JACKSON PLANNING & BUILDING DEPARTMENT

TRANSMITTAL MEMO

Town of Jackson

- Public Works/Engineering
- Building
- Title Company
- Town Attorney
- Police

Joint Town/County

- Parks and Recreation
- Pathways
- Housing Department

Teton County

- Planning Division

- Engineer
 - Surveyor- *Nelson*
 - Assessor
 - Clerk and Recorder
 - Road and Levee
- State of Wyoming**
- Teton Conservation
 - WYDOT
 - TC School District #1
 - Game and Fish
 - DEQ

Federal Agencies

- Army Corp of Engineers

Utility Providers

- Qwest
- Lower Valley Energy
- Bresnan Communications

Special Districts

- START
- Jackson Hole Fire/EMS
- Irrigation Company

Date: December 13, 2023	REQUESTS: The applicant is submitting a request for a Pre-Application Conference for a sketch plan for the 'Glenwood Hotel' located at 210 and 230 N. Glenwood St. legally known as LOT 11&12, BLK. 1, SIMPSON. PIDN 22-41-16-28-4-07-011 and 22-41-16-28-4-07-010 respectively. For questions, please call Katelyn Page at 307-733-0440 x1302, or email the address shown to the left. Thank you.
Item #: P23-224	
Planner: Katelyn Page	
Phone: 733-0440 ext. 1302	
Email: kpage@jacksonwy.gov	
Owners: Pine Tree Corporation PO Box 1677 Jackson, WY 83001	
Applicant: Northworks Kimberly Daul PO Box 4207 Jackson WY, 83001	
Please respond by: January 3, 2023 (with Comments)	

Owners:

Pine Tree Corporation
PO Box 1677
Jackson, WY 83001

Applicant:

Northworks
Kimberly Daul
PO Box 4207
Jackson WY, 83001

The applicant is submitting a request for a Pre-Application Conference for a sketch plan for the 'Glenwood Hotel' located at 210 and 230 N. Glenwood St. legally known as LOT 11&12, BLK. 1, SIMPSON. PIDN 22-41-16-28-4-07-011 and 22-41-16-28-4-07-010 respectively.

For questions, please call Katelyn Page at 307-733-0440 x1302, or email the address shown to the left. Thank you.

RESPONSE: For Departments not using SmartGov, please send responses via email to:
planning@jacksonwy.gov



PRE-APPLICATION CONFERENCE REQUEST (PAP)
Planning & Building Department

150 E Pearl Ave. ph: (307) 733-0440 fax:
P.O. Box 1687 www.townofjackson.com
Jackson, WY 83001

For Office Use Only

Fees Paid _____

Time & Date Received _____

Application # _____

Please note: Applications received after 3 PM will be processed the next business day.

APPLICABILITY. This application should be used when applying for a **Pre-application Conference**. The purpose of the pre-application conference is to identify the standards and procedures of these LDRs that would apply to a potential application prior to preparation of the final proposal and to identify the submittal requirements for the application.

For additional information go to www.townofjackson.com/204/Pre-Application

PROJECT.

Name/Description: _____

Physical Address: _____

Lot, Subdivision: _____

PIDN: _____

22-41-16-28-4-07-010

PROPERTY OWNER.

Name: _____

Phone: _____

Mailing Address: _____

ZIP: _____

E-mail: _____

APPLICANT/AGENT.

Name, Agency: _____

Phone: _____

Mailing Address: _____

ZIP: _____

E-mail: _____

DESIGNATED PRIMARY CONTACT.

Property Owner

Applicant/Agent

ENVIRONMENTAL PROFESSIONAL. For EA pre-application conferences, a qualified environmental consultant is required to attend the pre-application conference. Please see Subsection 8.2.2.C, Professional Preparation, of the Land Development Regulations, for more information on this requirement. Please provide contact information for the Environmental Consultant if different from Agent.

Name, Agency: _____ Phone: _____
Mailing Address: _____ ZIP: _____
E-mail: _____

TYPES OF PRE-APPLICATION NEEDED. Check all that apply; see Section 8.1.2 of the LDRs for a description of review process types.

Physical Development Permit
 Use Permit
 Development Option or Subdivision Permit
 Interpretations of the LDRs
 Amendments to the LDRs
 Relief from the LDRs
 Environmental Analysis

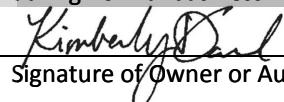
This pre-application conference is:
 Required
 Optional
 For an Environmental Analysis
 For grading

SUBMITTAL REQUIREMENTS. Please ensure all submittal requirements are included. The Planning Department will not hold or process incomplete applications. Provide **one electronic copy** (via email to planning@jacksonwy.gov) of the submittal packet.

Have you attached the following?

- Application Fee.** Go to www.townofjackson.com/204/Pre-Application.com for the fees.
- Notarized Letter of Authorization.** A notarized letter of consent from the landowner is required if the applicant is not the owner, or if an agent is applying on behalf of the landowner. Please see the Letter of Authorization template at <http://www.townofjackson.com/DocumentCenter/View/845/LetterOfAuthorization-PDF>.
- Narrative Project Description.** Please attach a short narrative description of the project that addresses:
 Existing property conditions (buildings, uses, natural resources, etc)
 Character and magnitude of proposed physical development or use
 Intended development options or subdivision proposal (if applicable)
 Proposed amendments to the LDRs (if applicable)
- Conceptual Site Plan.** For pre-application conferences for physical development, use or development option permits, a conceptual site plan is required. For pre-application conferences for interpretations of the LDRs, amendments to the LDRs, or relief from the LDRs, a site plan may or may not be necessary. Contact the Planning Department for assistance. If required, please attach a conceptual site plan that depicts:
 Property boundaries
 Existing and proposed physical development and the location of any uses not requiring physical development
 Proposed parcel or lot lines (if applicable)
 Locations of any natural resources, access, utilities, etc that may be discussed during the pre-application conference
- Grading Information (REQUIRED ONLY FOR GRADING PRE-APPS).** Please include a site survey with topography at 2-foot contour intervals and indicate any areas with slopes greater than 25% (or 30% if in the NC Zoning District), as well as proposed finished grade. If any areas of steep slopes are man-made, please identify these areas on the site plan.
- Other Pertinent Information.** Attach any additional information that may help Staff in preparing for the pre-app or identifying possible key issues.

Under penalty of perjury, I hereby certify that I have read this application and state that, to the best of my knowledge, all information submitted in this request is true and correct. I agree to comply with all county and state laws relating to the subject matter of this application, and hereby authorize representatives of Teton County to enter upon the above-mentioned property during normal business hours, after making a reasonable effort to contact the owner/applicant prior to entering.



Signature of Owner or Authorized Applicant/Agent

Name Printed

Date

Title



Town of Jackson
150 E Pearl Avenue
PO Box 1687, Jackson, WY 83001
P: (307)733-3932 F: (307)739-0919
www.jacksonwy.gov

Date:

LETTER OF AUTHORIZATION

NAMING APPLICANT AS OWNER'S AGENT

PRINT full name of property owner as listed on the deed when it is an individual OR print full name and title of President or Principal Officer when the owner listed on the deed is a corporation or an entity other than an individual: Sadele Darwiche Title: Officer

Being duly sworn, deposes and says that _____ is the owner in fee of the premises located at: _____ Name of legal property owner as listed on deed

Address of Premises: 210-230 N Glenwood St, Jackson WY 83001

Legal Description: Lots 11 & 12, Block 1, Simpson

Please attach additional sheet for additional addresses and legal descriptions

And, that the person named as follows: Name of Applicant/agent: Northworks Architects and Planners, LLC

Mailing address of Applicant/agent: PO Box 4027, Jackson, WY 83001

Email address of Applicant/agent: ajanak@nwks.com

Phone Number of Applicant/agent: 307-201-5324

Is authorized to act as property owner's agent and be the applicant for the application(s) checked below for a permit to perform the work specified in this(these) application(s) at the premises listed above:

Development/Subdivision Plat Permit Application Building Permit Application

Public Right of Way Permit Grading and Erosion Control Permit Business License Application

Demolition Permit Home Occupation Other (describe) Pre-Application Conference

Under penalty of perjury, the undersigned swears that the foregoing is true and, if signing on behalf of a corporation, partnership, limited liability company or other entity, the undersigned swears that this authorization is given with the appropriate approval of such entity, if required.

Property Owner Signature

Officer

Title if signed by officer, partner or member of corporation, LLC (secretary or corporate owner) partnership or other non-individual Owner

STATE OF WYOMING)

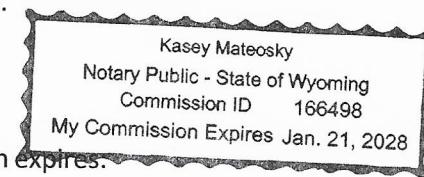
) SS.

COUNTY OF TECTON)

)

The foregoing instrument was acknowledged before me by Kasey Mateosky this 5th day of Dec 2023. WITNESS my hand and official seal.

Notary Public



My commission expires.

Jan 21, 2028

NORTHWORKS

PROJECT NARRATIVE

OVERVIEW

The proposed project is located at 210-230 N. Glenwood Street, one block north of St. John's Episcopal Church and west of the Anvil Hotel. For purposes of this application, we are referring to the project as "Glenwood Hotel". The hotel will contain a ground floor lobby café space, parking at grade and in the basement, and two stories of hotel rooms.

EXISTING SITE

The site consists of two lots at the corner of N. Glenwood St. and W. Gill Ave (Lots 11 & 12, Blk. 1). An existing chiropractor office building at the northwest corner of the site will be demolished.

PROGRAM

The project will be a total of approximately 38,000 gross square feet (including basement parking) and 3 stories tall. The first floor will include a lobby reception area and café/lounge space, along with back of house spaces and parking accessed from the alley. A ramp down to the basement parking will be accessed from N. Glenwood St. The second and third floors each contain 15 hotel rooms (a total of 30 keys), all of which have access to a private balcony. A small rooftop terrace is set back from the street and is open only to hotel guests.

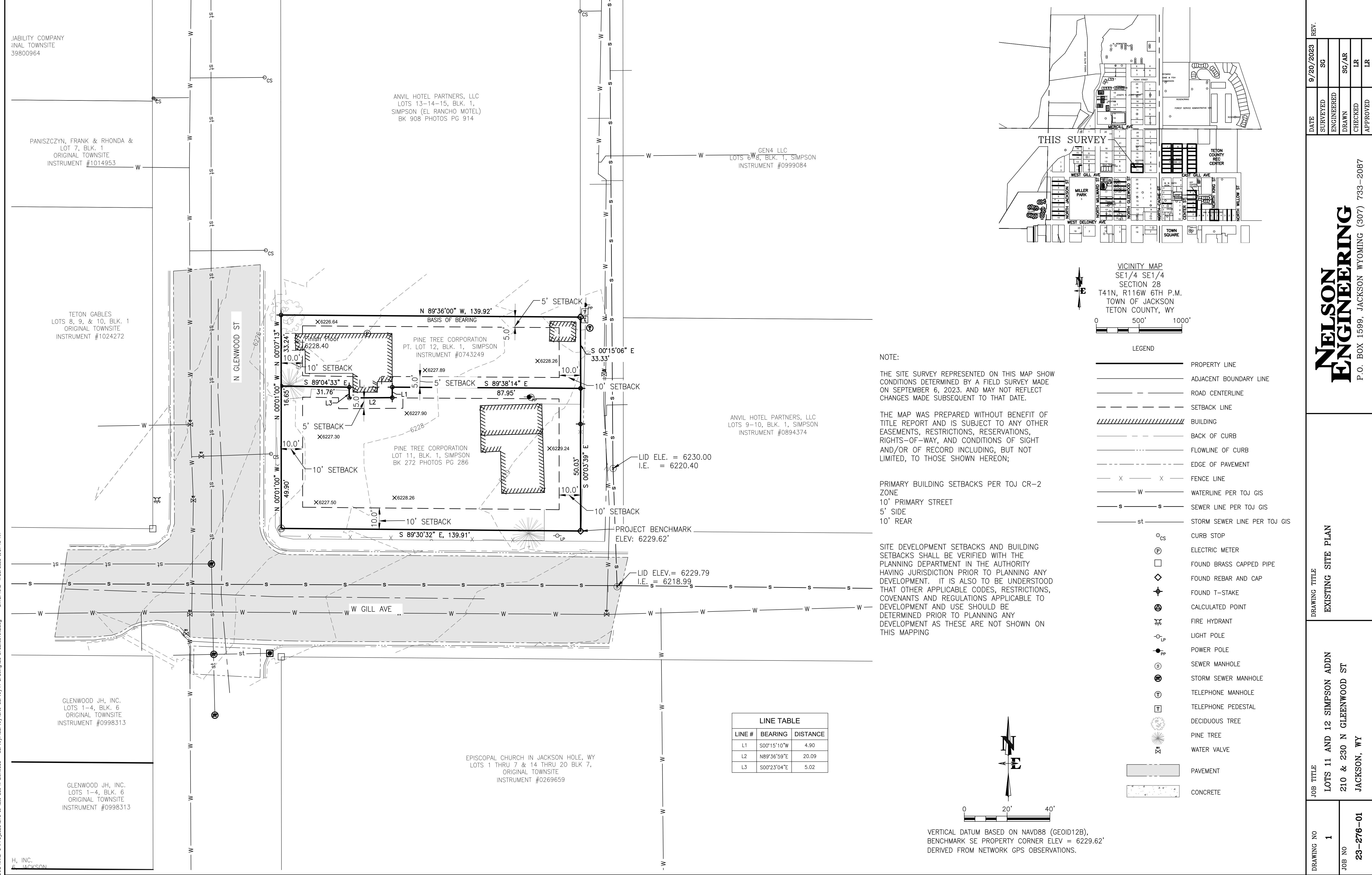
The building will have a total FAR area of 19,152 square feet; 8,000 square feet will be transferred to this project in addition to the by-right 11,152 square feet allowed by the LDRs with the lodging overlay.

The project meets the town's landscape requirements via the inclusion of planted areas along all 4 sides of the building. Along Glenwood St. and Gill Ave, a series of raised planters enliven the streetscape. Along the alley and north yard, planted areas will also include the required planting units.

On-Site parking is located partially at grade, fully shielded from view from the street, and accessed via an alley at the rear of the building. Basement parking is accessed via Glenwood St. at the northwest corner of the site. Garage doors shield both entrances from view. The project proposes a total of 7 street spaces and 26 on-site spaces.

CONCLUSION

This Sketch Plan application complies with the Town of Jackson Land Development Regulations, Design Guidelines, and applicable provisions of the Jackson/Teton County Comprehensive Plan.




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
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
DATE/TIME: 10/20/2020 11:27:46 AM

FINAL SITE PLAN

DRAWING NO.	JOB NO.	TITLE	DRAWING TITLE	FINAL SITE PLAN	
				SURVEYED	NE
C-20	JCB NO.	GLENWOOD COMMERCIAL	ENGINEERED	AK	
23-276-03		210-230 NORTH GLENWOOD	DRAWN	AK/BJG	
		JACKSON, WYOMING	CHECKED	MB	
			APPROVED		
					P.O. BOX 1599, JACKSON WYOMING (307) 733-2087







NO. ISSUED DATE ISSUED FOR
1- xx/xx/xxxx REVISION 1

ISSUING NAME

PROFESSIONAL SEAL


Project GLENWOOD COMMERCIAL

PROJECT ADDRESS
ZIP CODE, STATE
2343 Project No.
Author Drawn By
Checker Checked By
Discipline & Drawing Number

A1.01

Drawing Name

FIRST FLOOR PLAN

Project
GLENWOOD COMMERCIALPROJECT ADDRESS
ZIP CODE, STATE

2343 Project No.

Author Drawn By


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Discipline & Drawing Number


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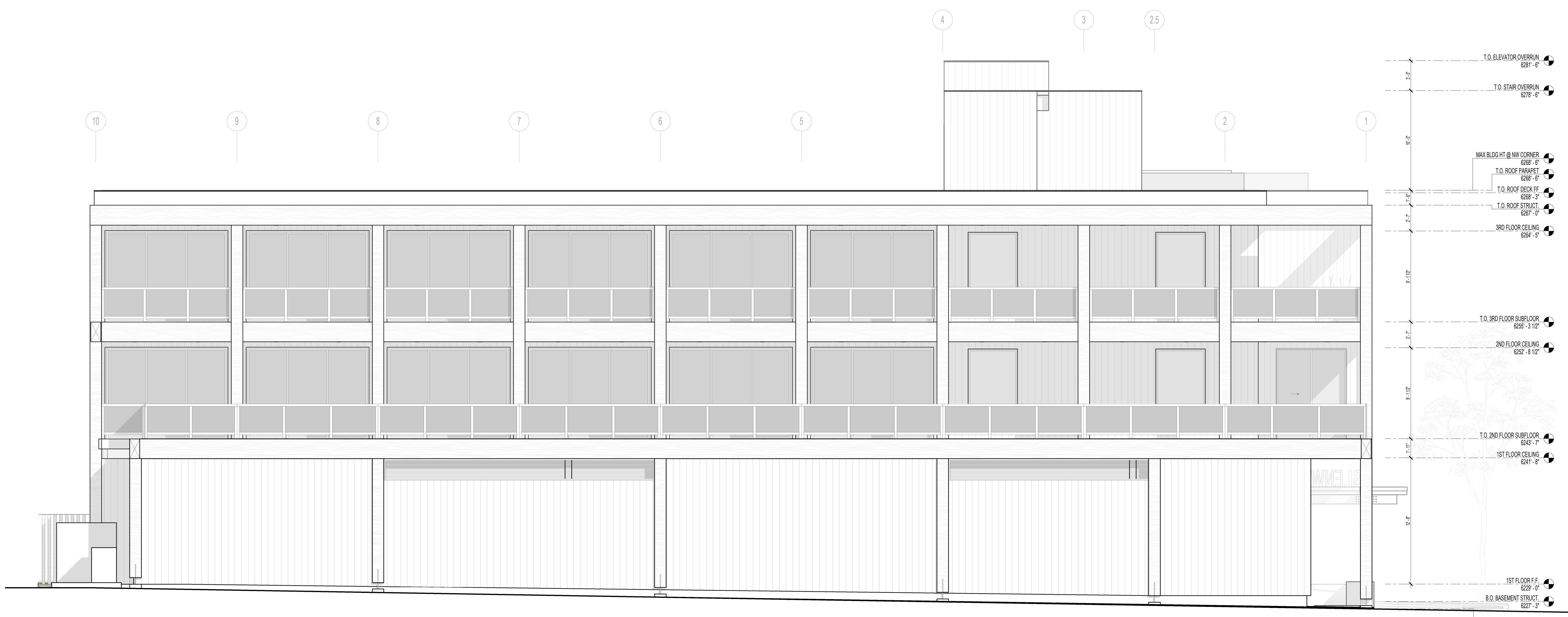
Drawing Name

SECOND FLOOR PLAN



© 2023 Northworks Architects & Planners - All rights reserved. Any discrepancies shall be reported immediately to the Architect before proceeding. Only figured dimensions should be used. Contractors and fabricators to verify all dimensions on site prior to beginning Work.





A2.01

Project
GLENWOOD COMMERCIAL
PROJECT ADDRESS
ZIP CODE, STATE
2343 Project No.
Author Drawn By
Checker Checked By
Discipline & Drawing Number

Drawing Name
EXTERIOR ELEVATIONS
0 2 4 8 16



ENGINEERING REPORT

1. Introduction

This engineering report provides the basis for design and addresses the engineering related issues for the proposed multi use development. The existing site contains a parking area and some small structures to be removed prior to the development. The site is completely developed with little to no existing pervious surfacing or landscaping. There are several existing buried and overhead utilities through the property. Water and sanitary sewer facilities are provided to the property through Town of Jackson (TOJ) Systems on several sides of the proposed development.

2. Water System

The site is surrounded on three sides by TOJ Water System Facilities. The TOJ has a 6-inch water main in North Glenwood Street and the alley, then an 8-inch main in West Gill Avenue. Due to the location of the project being near the downtown core of the TOJ, all water main facilities are adequately sized and looped. Per TOJ records there is an existing 4-inch water main that currently supplies water to the property.

To verify the existing water facilities are sized adequately, proposed water flows, both domestic and fire were estimated for the development. Due to the schematic nature of the programming of the development at this time, conservative estimates were utilized. Assumptions on use based on the proposed programming of the development are included in the Appendix along with flow projection calculations. Based on these assumptions, the peak domestic flow projection at the development is 200 gpm. Due to the size and proposed use of the development the structures will require automatic fire sprinkler systems. Fire flow requirements were calculated utilizing NFPA 13, along with the proposed programming of the facility. Fire flow requirements for the development sprinkler system are estimated to be 400 gpm. Due to the location of the development being in the core downtown area, it was assumed that additional exterior flow requirements would be needed in the event of a fire. It is assumed that 2 additional fire flows of 1000 gpm would be required on adjacent fire hydrants. The building fire flow, along with the 2 exterior fire hydrant flows were simulated in the TOJ Water Model. Results of the modeling are included in the Appendix, which indicate that residual pressure within the water system at adjacent fire hydrants never dropped below 20 psi during a fire flow scenario, meeting Wyoming Department of Environmental Quality (WYDEQ) requirements.

Using the projected fire flow demands to the structures, the water service supplying the development will need to be a 6-inch pipe from the existing 4 inch valve in the street, but the existing 4-inch tee and valve can remain. To comply with the TOJ's conventional practice that a single development be supplied water through one location, it is assumed that one service to the building will be installed. All proposed water system requirements are indicated on the Proposed Utility Plan located in the Appendix.

3. Sewer System

As can be noted from the existing site drawing located in the Appendix, there is an existing TOJ sewer main which runs north south in the alley to the east of the proposed development as well as in west gill avenue. The proposal is to gravity flow into the main within West Gill Avenue as this main is deeper and will allow all sanitary sewer located in the basement to gravity flow into the main based on preliminary finish floor elevations and existing sewer inverts.

To size the proposed piping the same assumed development programming was utilized as with the water system. Because there is little irrigation demand on the subject property it can be assumed the water and sewer demands will be close to equal. Based on calculations, included in the Appendix for the water demands, the peak hourly sanitary sewer flow was estimated at 200 gpm. Using this flow and assuming minimum pipe slopes a 6-inch gravity pipe would be adequate to serve the development. The proposed utility plan indicates the changes to the sanitary sewer system. The proposed service will be connected to the existing sewer main by the construction of a dog house manhole.

4. Wire Utilities and Gas

Power and communication facilities are readily available throughout the area and to this specific location. There are several overhead power and communication facilities which run north/south through the TOJ alley. Lower Valley Energy and Century Link Communications have been contacted to discuss relocation of the overhead facilities. The existing power pole in the alley that serves the property now contains a transformer bank will have to be replaced with a ground transformer. This transformer is proposed on the site and out of the TOJ alley.

5. Drainage and Stormwater

Development of the site will leave little to no pervious surface. This is much like the existing conditions of the site. All existing stormwater runoff from the site sheet flows onto neighboring parcels and TOJ roadways. Based on TOJ regulations the proposed development is required to retain any additional runoff above and beyond the existing conditions. Preliminary stormwater calculations were performed and are included in the Appendix. From the storm calculations it is indicated that approximately 15 cubic feet of storm water retainage is required on the site. This can be easily achieved by the use of roof drain scuppers that will only discharge pre condition storm water flows. Storm water will be collected on the roofs of the structures and various locations on the site and conveyed to the TOJ storm pipe in North Glennwood Street. In addition to the collection network gathering stormwater from the building roofs and surface drainage, snow melt and general drainage from the underground parking area will have to be collected and conveyed to the stormwater system. Due to the depth of the underground parking area, drains will require a pump or pumps to lift drainage to the stormwater collection system. All runoff collected within the parking areas will be conveyed to a sand/oil separator prior to being pumped to the collection system. The estimated .91 cfs of runoff calculated for a 100 yr storm event will not affect the TOJ system further downstream as was noted previously because the runoff amount is close to the existing flow which ultimately flows to the same collection system.

6. Streets and Access

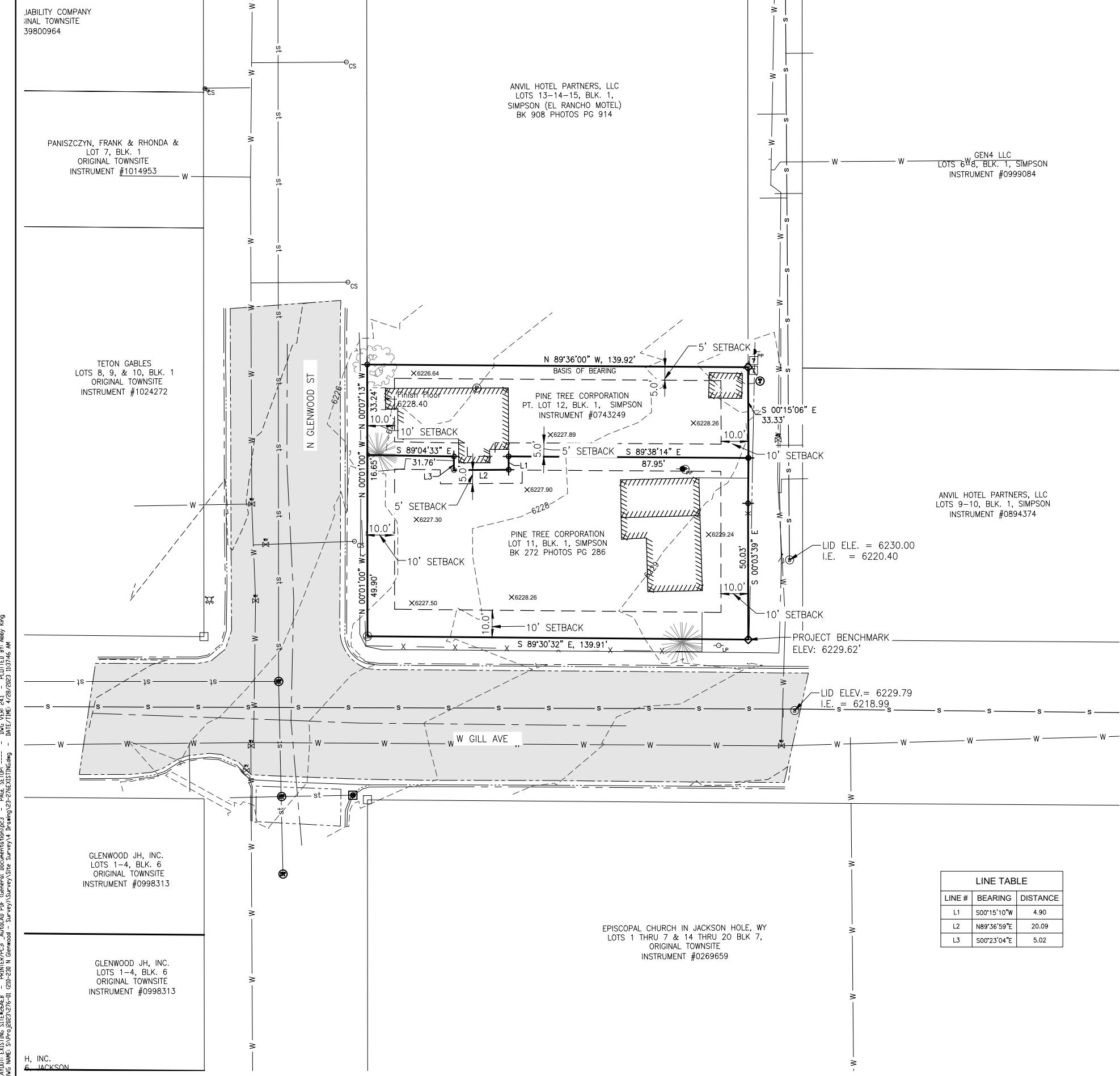
Access to the development will be in two different locations. The entrance to the parking garage will be from Glenwood Street. The first-floor parking will be accessed off of the alley to the east of the development. The main pedestrian access will be at the Glenwood and Gill intersection. Sidewalks with pavers and tree wells will be installed along both Glenwood and Gill per TOJ requirements. The proposed 15-unit hotel development will result in peak hour of approximately 11 hourly vehicle trips having minimal effects on the existing traffic flow around the development.

7. Soils

A geotechnical investigation has not been completed at this time but will be finalized prior to the development plan submittal. Based on surrounding developments, existing basement construction, and general knowledge of the area, it is assumed groundwater will not be present.

8. Snow Storage

Due to the proposed scale of the development, there is very little area on the site which is not covered by roofs or decks. No snow storage will be required because of the nature of the development.



NOTE:

THE SITE SURVEY REPRESENTED ON THIS MAP SHOW CONDITIONS DETERMINED BY A FIELD SURVEY MADE ON SEPTEMBER 6, 2023, AND MAY NOT REFLECT CHANGES MADE SUBSEQUENT TO THAT DATE.

THE MAP WAS PREPARED WITHOUT BENEFIT OF TITLE REPORT AND IS SUBJECT TO ANY OTHER EASEMENTS, RESTRICTIONS, RESERVATIONS, RIGHTS-OF-WAY, AND CONDITIONS OF SIGHT AND/OR OF RECORD INCLUDING, BUT NOT LIMITED, TO THOSE SHOWN HEREON;

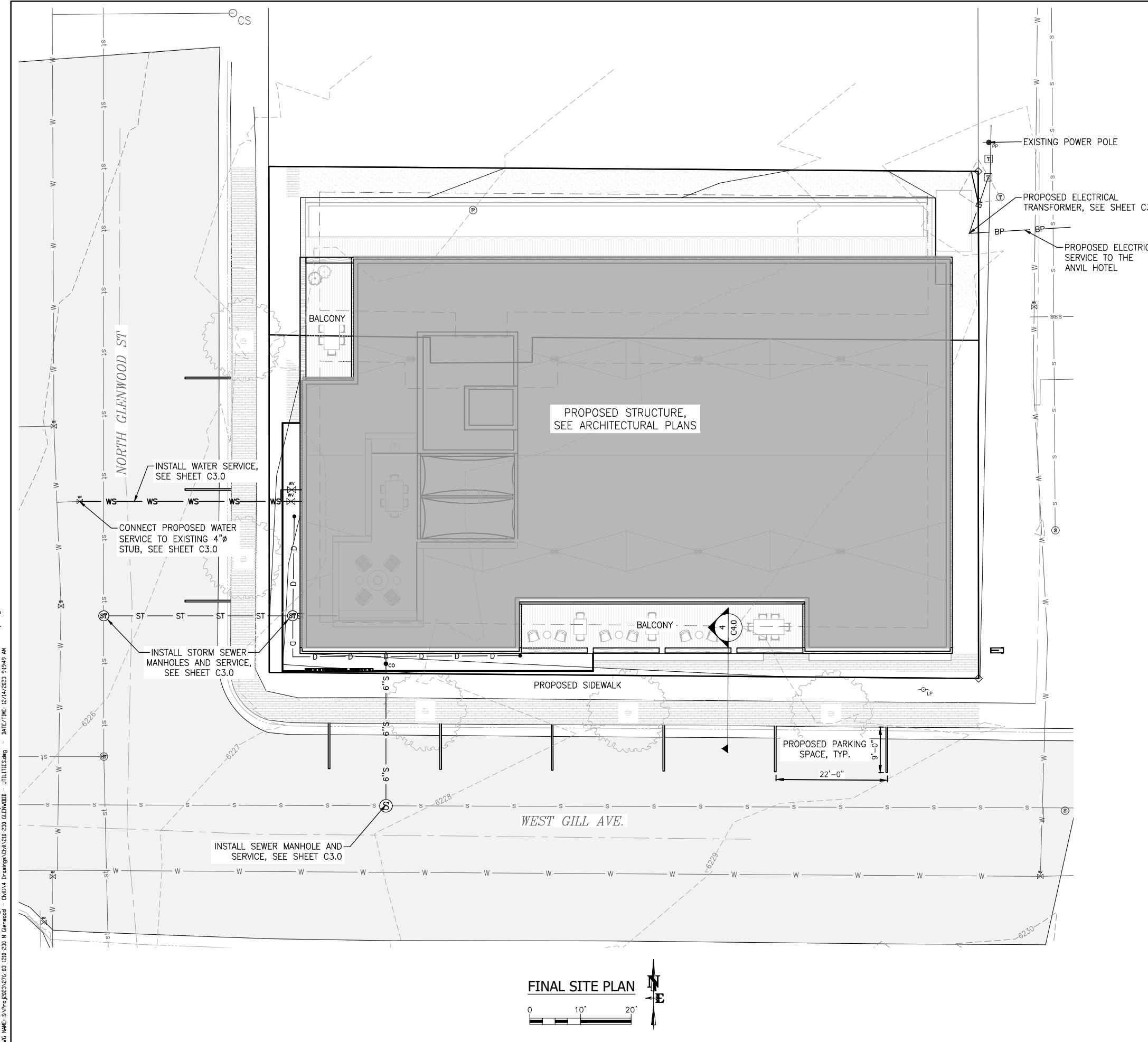
PRIMARY BUILDING SETBACKS PER TOJ CR-2 ZONE
10' PRIMARY STREET
5' SIDE
10' REAR

SITE DEVELOPMENT SETBACKS AND BUILDING SETBACKS SHALL BE VERIFIED WITH THE PLANNING DEPARTMENT IN THE AUTHORITY HAVING JURISDICTION PRIOR TO PLANNING ANY DEVELOPMENT. IT IS ALSO TO BE UNDERSTOOD THAT OTHER APPLICABLE CODES, RESTRICTIONS, COVENANTS AND REGULATIONS APPLICABLE TO DEVELOPMENT AND USE SHOULD BE DETERMINED PRIOR TO PLANNING ANY DEVELOPMENT AS THESE ARE NOT SHOWN ON THIS MAPPING

**NELSON
ENGINEERING**

P.O. BOX 1599, JACKSON WYOMING (307) 733-2087

DATE	9/20/2023
SURVEYED	SG
ENGINEERED	SG/AR
DRAWN	LR
CHECKED	IR
APPROVED	IR



LEGEND

CS	INDEX CONTOUR
1S	MINOR CONTOUR
WS	WATER SERVICE
6"Ø	6"Ø WATER SERVICE
BP	BURIED POWER
BASEMENT LEVEL	BASEMENT LEVEL
ROOF	ROOF
WV	WATER VALVE
(S)	SEWER MANHOLE
(S)	STORM SEWER MANHOLE

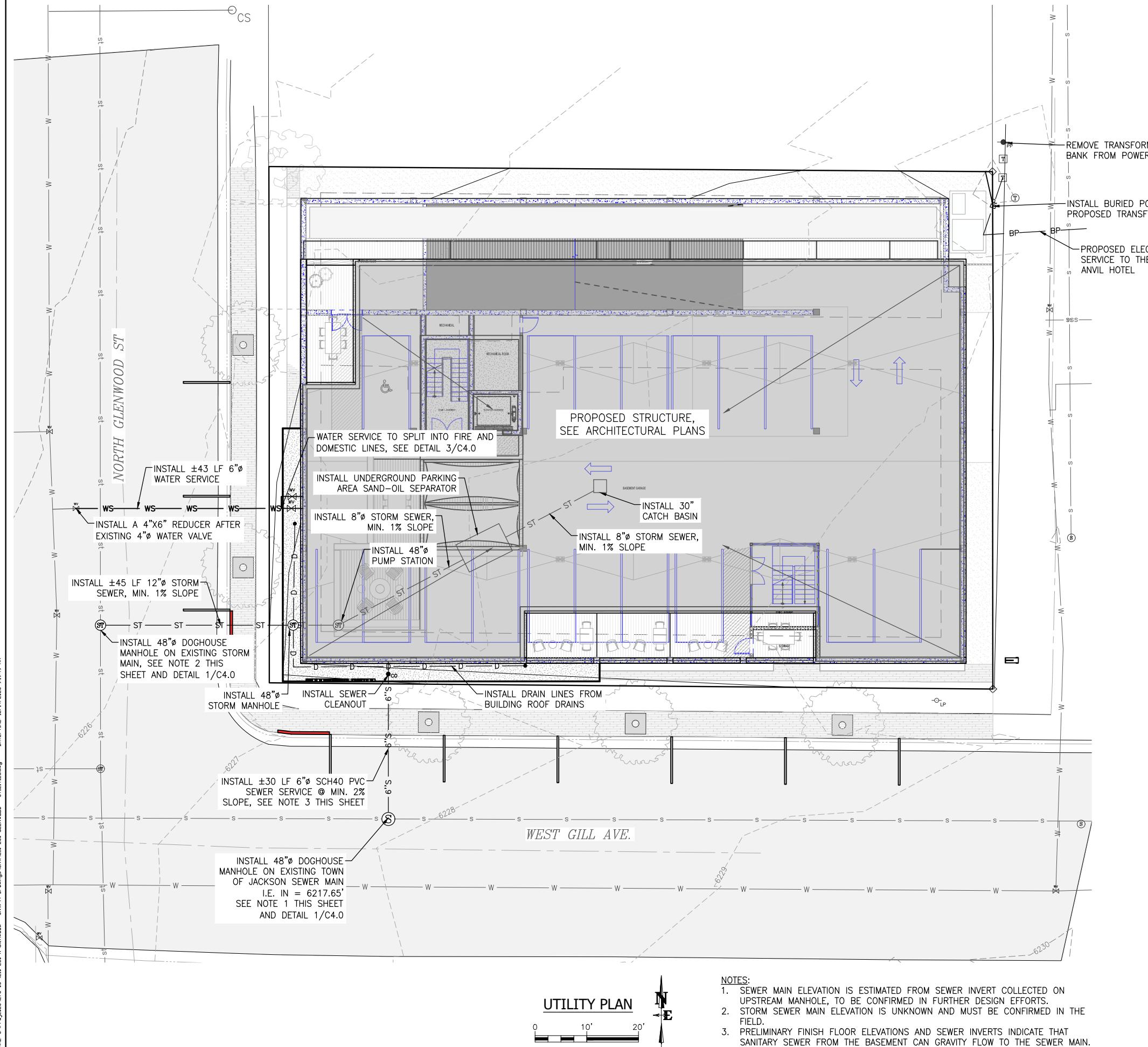
**NELSON
ENGINEERING**

P.O. BOX 1599, JACKSON WYOMING (307) 733-2087

DATE	12/14/2023	REV.
SURVEYED	NE	
ENGINEERED	AK	
DRAWN	AK/BIG	
CHECKED	MB	
APPROVED	MB	

DRAWING TITLE
FINAL SITE PLAN

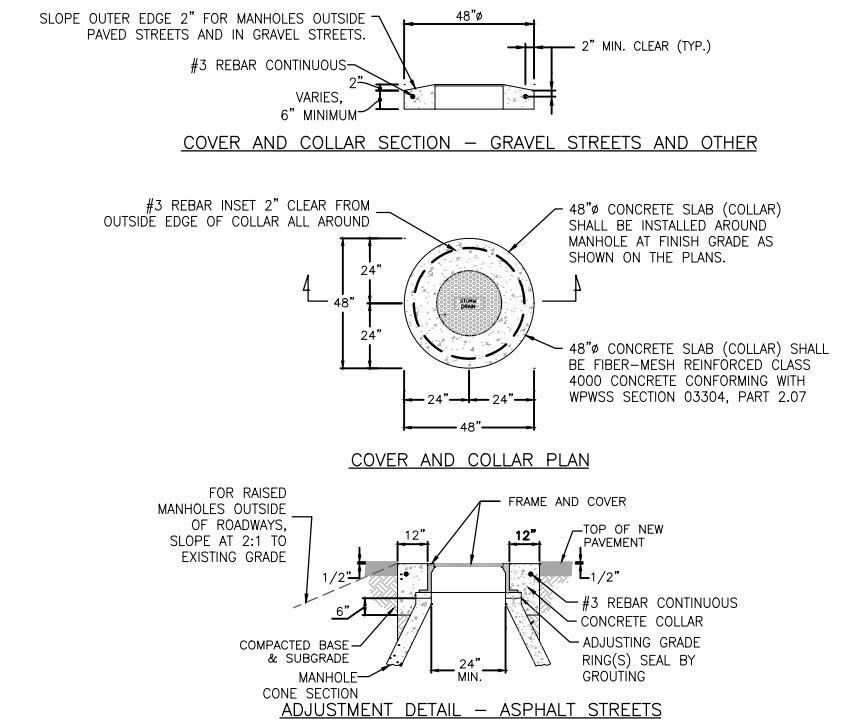
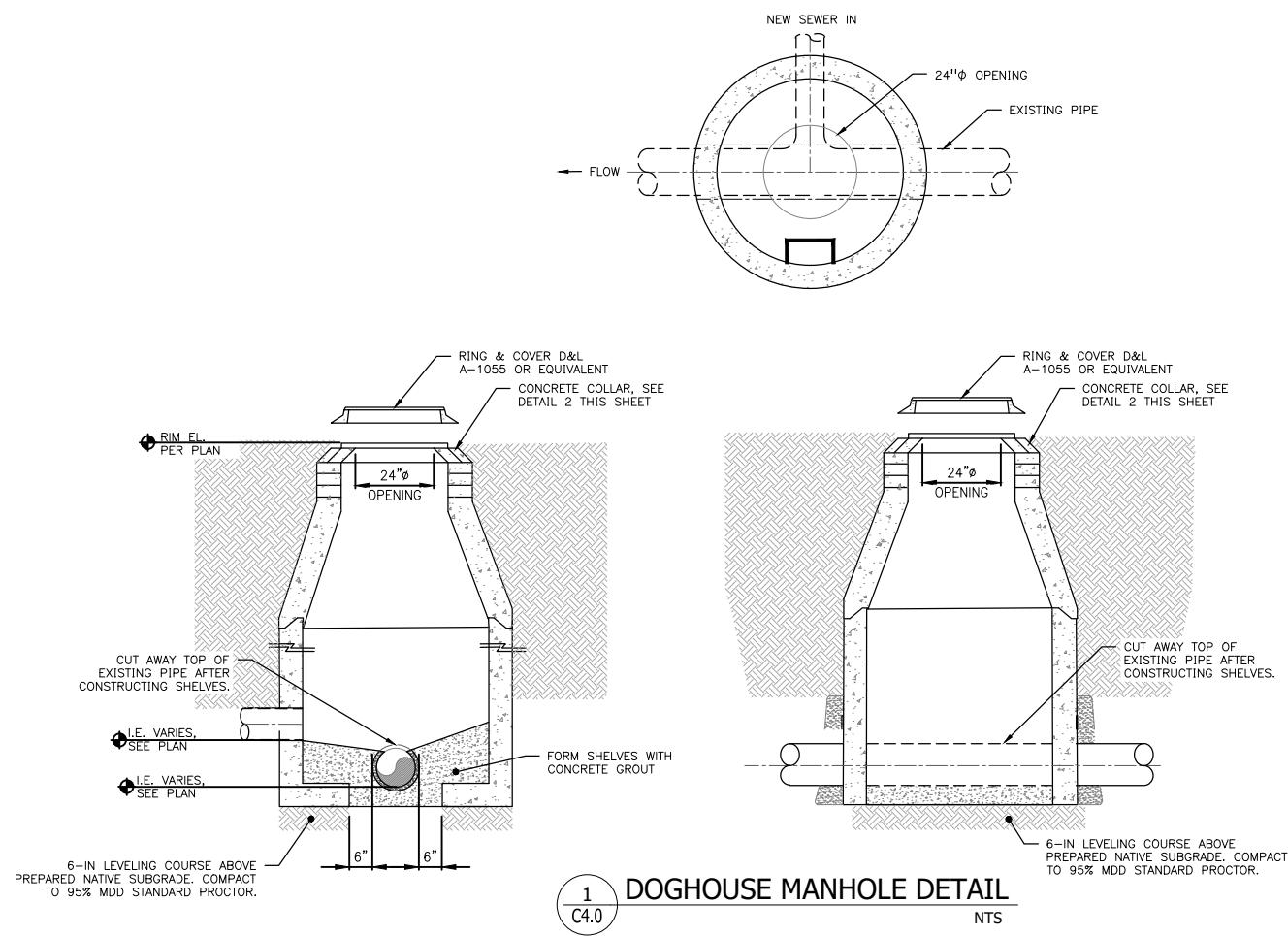
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JOB TITLE GLENWOOD COMMERCIAL
JOB NO. 210-230 NORTH GLENWOOD
JOB NO. 23-276-03 JACKSON, WYOMING



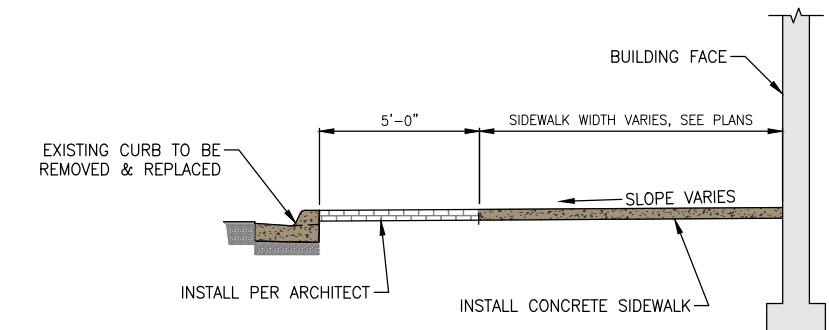
NOTES:

1. SEWER MAIN ELEVATION IS ESTIMATED FROM SEWER INVERT COLLECTED ON UPSTREAM MANHOLE, TO BE CONFIRMED IN FURTHER DESIGN EFFORTS.
2. STORM SEWER MAIN ELEVATION IS UNKNOWN AND MUST BE CONFIRMED IN THE FIELD.
3. PRELIMINARY FINISH FLOOR ELEVATIONS AND SEWER INVERTS INDICATE THAT SANITARY SEWER FROM THE BASEMENT CAN GRAVITY FLOW TO THE SEWER MAIN.

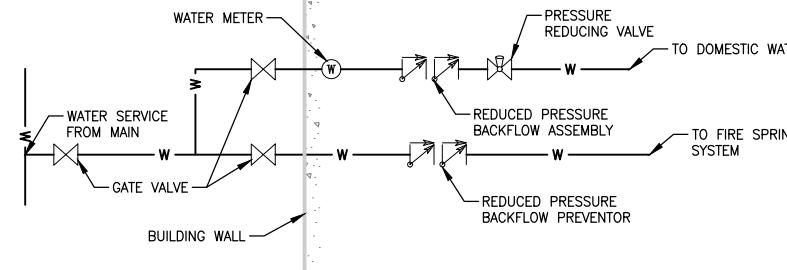
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<p style="margin: 0;">REV.</p> <p style="margin: 0;">DATE</p> <p style="margin: 0;">2-27-2005</p>	<p style="margin: 0;">SURVEYED</p> <p style="margin: 0;">NE</p>
<p style="margin: 0;">ENGINEERED</p> <p style="margin: 0;">AK</p>	<p style="margin: 0;">DRAWN</p> <p style="margin: 0;">AK/BIG</p>
<p style="margin: 0;">CHECKED</p> <p style="margin: 0;">MB</p>	<p style="margin: 0;">APPROVED</p>
<p style="margin: 0;">JOB TITLE</p> <p style="margin: 0;">UTILITY PLAN</p>	
<p style="margin: 0;">DRAWING NO</p> <p style="margin: 0;">C3.0</p>	<p style="margin: 0;">GLENWOOD COMMERCIAL</p> <p style="margin: 0;">210-230 NORTH GLENWOOD</p>
<p style="margin: 0;">JOB NO</p> <p style="margin: 0;">23-276-03</p>	<p style="margin: 0;">JACKSON, WYOMING</p>



SEWER AND STORM SEWER MANHOLE COLLAR DETAIL



3 C4.0 WATER SERVICE FIRE ENTRY SCHEMATIC DETAIL



4
C4.0 TYPICAL SIDEWALK SECTION: W GILL AVE

DRAWING NO		JOB TITLE		DRAWING TITLE		DATE		REV.	
C4.0		GLENWOOD COMMERCIAL		DETAILS		12/14/2023			
JOB NO		210-230 NORTH GLENWOOD				SURVEYED		NE	
23-276-03		JACKSON, WYOMING				ENGINEERED		AK	
						DRAWN		AK/BIG	
						CHECKED		MB	
						APPROVED			

	Kitchen Sink (3/4" connection)	Lavatory (1/2" connection)	Shower Head (shower only)	Urinal (pedestal flush valve)	Wash Sink (each set of faucets)	Water Closet (flush valve)	Water Closet (tank type)	Dishwasher (3/4" " connection)	Washing Machine (1" connection)
Basement									
1st Floor	1	5		1		4		1	2
2nd Floor			15		15		15		
3rd Floor			15		15		15		
Roof	1								

Domestic Water Flows

Description of Improvements:

BASEMENT	11,505	garage
1ST FLOOR	10,240	bathrooms, garage ramp, trash, parking, stairwells, elevator, lobby, kitchen, vestibule, office, mechanical
2ND FLOOR	8,183	15 hotel rooms, mechanical, stairwells, corridor, closet, elevator, ice
3RD FLOOR	7,815	15 hotel rooms, mechanical, stairwells, corridor, closet, elevator, ice
ROOF	261	stair, elevator, roof deck
TOTAL	38,004	sf

Estimating Domestic Max. Demand

*Calculations are based on methods outlined in the AWWA, "Sizing Water Service Lines and Meters" manual.

Domestic Water Demand for Facility Given Specified Fixtures

Assume Average Residential Fixture Value (AWWA M2)

Fixture Type	Fixture Value Based on 35 psi at Meter Outlet	Number of Fixtures	Fixture Value
Bathtub	8		0
Combined Sink & Tray	3		0
Drinking Fountain (cooler)	1		0
Drinking Fountain (public)	2		0
Kitchen Sink (1/2" connection)	3		0
Kitchen Sink (3/4" connection)	7	2	14
Lavatory (3/8" connection)	2		0
Lavatory (1/2" connection)	4	5	20
Laundry Tray (1/2" connection)	3		0
Laundry Tray (3/4" connection)	7		0
Shower Head (shower only)	4	30	120
Service Sink (1/2" connection)	3		0
Service Sink (3/4" connection)	7		0
Urinal (pedestal flush valve)	35	1	35
Urinal (wall or stall)	12		0
Urinal (trough. 2-ft unit)	2		0
Wash Sink (each set of faucets)	4	30	120
Water Closet (flush valve)	35	4	140
Water Closet (tank type)	3	30	90
Dishwasher (1/2" connection)	5		0
Dishwasher (3/4" connection)	10	1	10
Washing Machine (1/2" connection)	5		0
Washing Machine (3/4" connection)	12		0
Washing Machine (1" connection)	25	2	50
Hose Connections 1/2" (wash down)	6		0
Hose Connections 3/4" (wash down)	10		0
Hose 1/2" (50ft length - wash down)	6		0
Hose 5/8" (50ft length - wash down)	9		0
Hose 3/4" (50ft length - wash down)	12		0
Irrigation	3		0
Total Fixture Units			599

Base on Fixture Count of 599 using the upper line in Fig. 4.4 for a hotel the estimated Maximum Water Demand is 170 gpm.

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SIZING WATER SERVICE LINES AND METERS

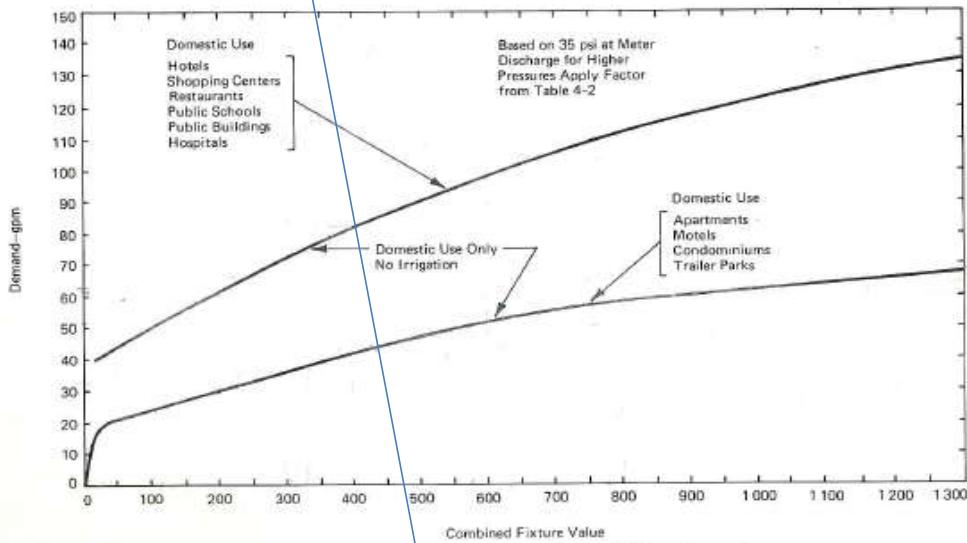


Fig. 4.4. Water-Flow Demand per Fixture Value—Low Range

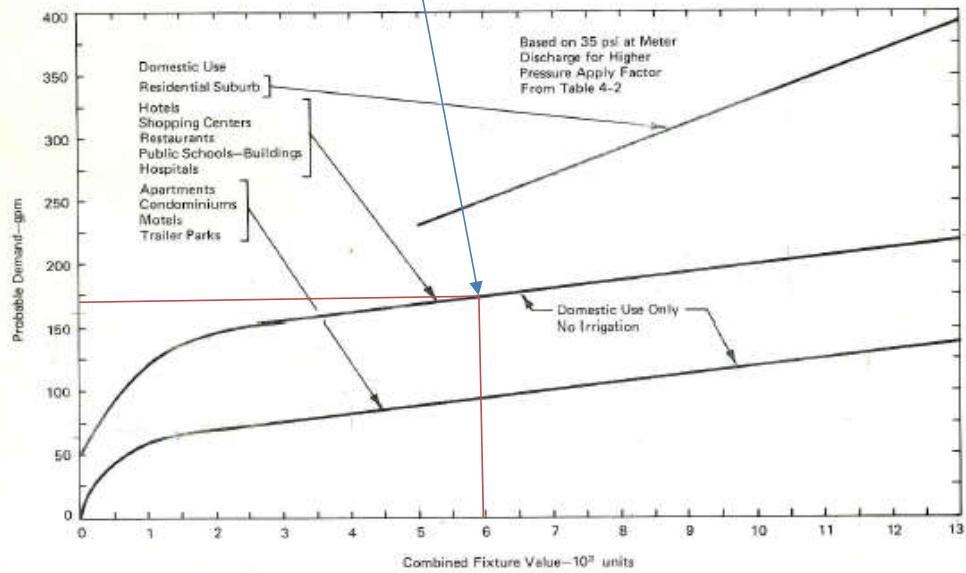


Fig. 4.5. Water-Flow Demand per Fixture Value—High Range

detailed lists of fixtures before estimates can be prepared. If the structure is in the planning stage, the mechanical engineer or architect is the best source of information, and, if construction is underway, the plumbing contractor or the building permits section of the city will have the information. Field trips by the estimator are often necessary to assist the customer as well as to properly assess the project when

Nelson Engineering
Jackson, Wyoming

Calculate Demands Based on Estimated System Pressure

Est. Max. Demand	170	gpm
Pressure at Nearest Meter	64.8	psi
Elevation at Nearest Meter	6225	ft
Estimated F.F. at First Floor	6229	ft
Estimated F.F. at Roof	6262	ft
Pressure at Roof	48.8	psi

Table 4.2 (for pressures other than 35 psi)

Design Pressure	Factor
20	0.74
30	0.92
35	1
40	1.07
50	1.22
60	1.34
70	1.46
80	1.57
90	1.68
100	1.78

For Pressures Deviating from 35 psi

Est. Pressure (psi) 48.8 psi
Demand @ Est Pressure 200.00 gpm

Fire Spinkler Flows

Hazard Classification

Light Hazard Occupancies per NFPA 13, Section 4.5.1

Building Area:

BASEMENT	11,505	sf
1ST FLOOR	10,240	sf
2ND FLOOR	8,138	sf
3RD FLOOR	7,815	sf
ROOF DECK	789	sf
Total	38,487	sf

Minimum Flow for Hose Connection

100 gpm per NFPA 13, Section 19.3.3.1.2

Utilize Early Suppression Fast-Response Sprinklers (ESFR) per Section 14.2

Actual Design Area 3000 SF (conservative, Lobby area)

Required Flow

Required Density 0.1 gpm/sf per NFPA 13, Section 19.3.3.1.1

Sprinkler Demand 300 gpm

Required Flow (sprinkler and hose) **400 gpm**

Static Pressure at Fire Sprinklers 48.8 psi @ design height

Dynamic Pressure at Fire Flow **37.4 psi @ design height**

Summary of Hydraulic Model Results

Junction Label	Total Demand (gpm)	Residual Pressure (psi)
J-152	1,000	49.9
J-407	400	48.7
J-147	1,000	50.2

See Fire Flow Exhibit for junction locations.



FIRE FLOW EXHIBIT

NOTE: PROPOSED FIRE FLOW DEMAND WAS MODELED
USING TWO 1,000 GPM FLOWS AT (J-152) AND (J-147).

DRAWING NO	TITLE
1	GLENWOOD COMMERCIAL
JOB NO	210-230 N GLENWOOD AVE JACKSON, WY 83001

GLENWOOD COMMERCIAL
210-230 N GLENWOOD AVE
JACKSON, WY 83001

**NELSON
ENGINEERING**
P.O. BOX 1599, JACKSON WYOMING (307) 733-2087

DATE	12-13-23	REV.
SURVEYED		
DRAWN	AK	
CHECKED		
APPROVED		

STORMWATER RUNOFF CALC'S
210-230 N GLENWOOD STREET

23-276-03
12/13/2023
AK

PRE-DEVELOPMENT

ROOF CALCULATIONS

ROOF AREA (FT ²)=	2102	
C-VALUE =	0.9	
S =	50%	
L (ft) =	10	
tc (min) =	0.31	tc = 1.8(1.1 - C)L ^{0.5} /S ^{0.3333} , (Corps of Eng. Eqn.)

PARKING AREA CALCULATIONS

PARKING AREA (FT ²)=	7515	
C-VALUE =	0.9	
S =	10%	
L (ft) =	95	
tc (min) =	1.63	tc = 1.8(1.1 - C)L ^{0.5} /S ^{0.3333} , (Corps of Eng. Eqn.)

LANDSCAPING CALCULATIONS

LANDSCAPING AREA (FT ²)	4360	
C-VALUE =	0.3	
S =	2%	
L (ft) =	40	
tc (min) =	7.23	tc = 1.8(1.1 - C)L ^{0.5} /S ^{0.3333} , (Corps of Eng. Eqn.)

Total Time of Conc., Tc = 7.23 min (landscaping)
Composite C_c = 0.71
Total Area, A_t = 13977 ft²

TABLE 4920.B
JACKSON IDF* CURVE DATA - 100-YR STORM EVENT

DURATION, T _d (min)	INTENSITY, I (in/hr)
5	3
10	2.33
15	1.9
20	1.65
30	1.3
40	1.08
50	0.95
60	0.82
70	0.74
80	0.65
90	0.61
100	0.56
110	0.52
120	0.48

Initial Flow Rate, Q_i (cfs) = 0.62 cfs at tc= 7.23 min

$$Q_i = C_c \cdot I \cdot A_t / (43560)$$

where,
Composite C_c = 0.71
Intensity, I = 2.70 in/hr at T_d = 7.23 min
Total Area, A_t = 13977 ft²

STORMWATER RUNOFF CALC'S
210-230 N GLENWOOD STREET

23-276-03
12/13/2023
AK

POST-DEVELOPMENT

ROOF CALCULATIONS

ROOF AREA (FT ²)	11430	
C-VALUE =	0.9	
S =	25%	
L (ft) =	20	
tc (min) =	0.55	tc = 1.8(1.1 - C)L ^{0.5} /S ^{0.3333} , (Corps of Eng. Eqn.)

DRIVEWAY CALCULATIONS

DRIVEWAY AREA (FT ²)	1400	
C-VALUE =	0.9	
S =	2%	
L (ft) =	5	
tc (min) =	0.64	tc = 1.8(1.1 - C)L ^{0.5} /S ^{0.3333} , (Corps of Eng. Eqn.)

LANDSCAPING CALCULATIONS

LANDSCAPING AREA (FT ²)	1147	
C-VALUE =	0.3	
S =	2%	
L (ft) =	5	
tc (min) =	2.56	tc = 1.8(1.1 - C)L ^{0.5} /S ^{0.3333} , (Corps of Eng. Eqn.)

Total Time of Conc., Tc = 2.56 min (landscaping)
Composite C_c = 0.85
Total Area, A_t = 13977 ft²

TABLE 4920.B
JACKSON IDF* CURVE DATA - 100-YR STORM EVENT

DURATION, T _d (min)	INTENSITY, I (in/hr)
5	3
10	2.33
15	1.9
20	1.65
30	1.3
40	1.08
50	0.95
60	0.82
70	0.74
80	0.65
90	0.61
100	0.56
110	0.52
120	0.48

Final Flow Rate, Q_f (cfs) = 0.91 cfs at tc = 2.56 min

$$Q_f = C_c \cdot I \cdot A_t / (43560)$$

where,

Composite C_c = 0.85
Intensity, I = 3.33 in/hr at T_d = 2.56 min
Total Area, A_t = 13977 ft²

STORMWATER RUNOFF CALC'S
210-230 N GLENWOOD STREET

23-276-03
12/13/2023
AK

Post and Pre-Developement Diff = **0.29** cfs

TABLE 1

DURATION, T_d (min)	INTENSITY, I (in/hr)	Design Flow, Q_d (ft 3 /s)	Design Storage Volume, V_d (ft 3)
2	3.40	0.936	6
3	3.27	0.900	21
4	3.13	0.863	32
5	3	0.826	39
7	2.73	0.752	39
8	2.60	0.715	34
9	2.46	0.678	24
10	2.33	0.641	11
15	1.9	0.523	-68
20	1.65	0.454	-162
30	1.3	0.358	-399
40	1.08	0.297	-667
50	0.95	0.261	-940

TABLE 1 EQUATIONS: $Q_d = C_c * I * A_t / (43200)$

$$V_d = (Q_d - Q_i) * ((Q_d - Q_i) / Q_f * T_d) * 60$$

Where,

Composite C_c =	0.85
Intensity, I =	3.33
Total Area, A_t =	13977
Final Flow Rate, Q_d (cfs) =	0.91
Initial Flow Rate, Q_i (cfs) =	0.62
Duration, T_d =	2.56

in/hr
ft 2
cfs at $t_c = 2.56$ min
cfs at $t_c = 7.23$ min
(min)

Req'd Storage Volume = 15.0 ft 3

Channel Report

<Name>

Circular

Diameter (ft) = 0.5

Highlighted

$$= 0.46$$

Invert Elev (ft) = 6217.65

$$Q \text{ (cfs)} = 0.440$$

Slope (%) = 2.00

$$Q \text{ (cfs)} = 0.440$$

N-Value = 0.025

Area (sqft) = 0.19
Velocity (ft/s) = 2.33

Calculations

Compute by: Known Q

Wetted Perim (ft) = 1.29
Crit Depth, Y_c (ft) = 0.34

$$\text{Known Q (cfs)} = 0.44$$

Top Width (ft) = 0.27

