



# PRELIMINARY ENGINEERING REPORT



## WV CREATE CENTER PRELIMINARY ENGINEERING REPORT Bluefield, West Virginia

Prepared for the  
Bluefield WV Economic Development Authority

T&L Project No. 18027  
June 26, 2024  
ISSUED FOR REVIEW

create  
west virginia



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1956

## **TABLE OF CONTENTS**

1. BACKGROUND AND UNDERSTANDING
2. EXISTING FACILITIES
  - SITE CONDITIONS
  - ARCHITECTURAL
  - ACCESSIBILITY
  - LIFE SAFETY
  - STRUCTURAL
  - MECHANICAL/PLUMBING
  - ELECTRICAL
3. PROPOSED RECOMMENDATIONS
  - SITE RECOMMENDATIONS
  - ARCHITECTURAL RECOMMENDATIONS
  - ACCESSIBILITY
  - LIFE SAFETY
  - STRUCTURAL
  - MECHANICAL/PLUMBING
  - ELECTRICAL
4. SCHEMATICS
  - SITE PLAN – EXHIBIT 1
  - BUILDING PLAN – FIRST FLOOR
  - BUILDING PLAN – SECOND FLOOR
5. PRELIMINARY ORDER OF MAGNITUDE PROJECT COST ESTIMATES
6. PHOTOGRAPHS
7. CONCLUSION

## **APPENDICES**

- A. MEETING NOTES
- B. ADJACENT SITE EVALUATION

## 1

### **BACKGROUND AND UNDERSTANDING**

The existing Create Center building is a two-story approximately 45,500 SF building located at 2481 John Nash Boulevard in Bluefield, WV. The building was constructed in the early 2000's and has been unoccupied for the last several years. The redevelopment of the Create Center is vital to the ongoing development of the Carbon Corridor. The WV CREATE Center (Center) is an industry-led, demand-driven innovation center that supports businesses that deliver transformational change in the up-scaled carbon products commercialization. The Center will integrate a range of product development, prototyping, digital manufacturing, automation, measurement, testing and visualization equipment. It is also designed to support the collaboration and innovation of businesses in the Carbon Corridor Region.

The Bluefield Economic Development Authority (BEDA) contracted with Thompson & Litton, Inc. (T&L) to provide a Preliminary Engineering Report (PER) that will illustrate the proposed facility improvements. Narratives describing the existing conditions and potential improvements are included in the PER as well as a preliminary order of magnitude project cost estimate reflecting the construction and associated soft costs for the project and establish the budget for the subsequent comprehensive design effort. It is anticipated initial improvements will focus on the roof, mechanical system upgrades or replacement, and the replacement of buildings control and security systems. Additional building systems to be evaluated include plumbing, fire suppression, electrical, and fire alarm. Accessibility and circulation will also be reviewed. Southern Air, Inc. provides maintenance of the existing mechanical system and was a resource for existing mechanical information. BEDA would like to consider the inclusion of solar panels as part of the renovation and is included in the narrative.

## 2

### EXISTING FACILITIES

#### **SITE CONDITIONS:**

The existing Create Center resides on tax parcel 28-02-0027-0173-0000, which is approximately 75 acres. The general topography across the entire parcel is steep, forested, and mountainous terrain with average slopes ranging from 20% to 35%. However, slopes within the vicinity of the existing improvements are gradual with an average slope of 2% within managed turf areas and 3% to 5% in the parking areas. There are two distinct existing stormwater drainage patterns. The first directs stormwater north to sheet flow down the mountainside and the second to the south towards a potential covered-subsidence sinkhole located along John Nash Blvd. Ultimately, all surface drainage is collected by natural or manmade conveyances and is directed to the East River, unless otherwise intercepted by a subsidence feature. A more in-depth evaluation of the existing storm drain infrastructure will be required if additional exterior improvements are constructed. No USGS blue-line streams have been identified on this property. However, there is evidence which indicates the possibility of one (1) covered-subsidence sinkhole located at the southern perimeter along John Nash Blvd as aforementioned. Further geotechnical investigations would be required to determine if this existing site feature is a covered-subsidence sinkhole.

Existing improvements located on the parcel include the Create Center building, concrete sidewalks, multiple paved parking areas, a paved access road providing direct access to and from John Nash Blvd., a generator pad, dumpster pads, water distribution lines, sanitary sewer, electric service, and managed turf areas. In total, the existing improvements comprise approximately 5 acres of the 75 acre parcel. The parking areas and surrounding sidewalks provide ADA accessibility to the Create Center.

## SITE ACCESS:

The existing access road from John Nash Blvd. to the Create Center maintains a constant 8% grade up to the parking areas. No modifications to this access road are anticipated. To achieve a vehicular path around the Create Center, a twenty-four-foot wide and 450 lineal foot heavy-duty paved access road is proposed to allow access to the back of the building from the northern parking area. This road will allow for special deliveries from a standard box truck with a delivery drop-off zone but will not allow for a full-size WB-67 (tractor trailer) to maneuver. However, if delivery utilizing a WB-67 is required to the rear of the facility, there is sufficient space to construct a turnaround. Additional vehicle tracking analyses would be required to ensure a WB-67 could traverse the access road and entrance. The proposed access road will route around the southern portion of the building and ultimately connect to the most southern parking area. It is anticipated to eliminate a small number of parking stalls in the southern parking area to connect the access road to the southern parking area. The access road will be paved with associated curb and gutter. It is anticipated that combination curb inlets will be utilized to collect stormwater and route to either an above or below ground new detention facility prior to discharge. Please see Exhibit EX-1 for details.

A loading dock area located to the rear of the building was not evaluated at this time. This would require either the construction of a recessed dock area or additional internal building modifications, which would greatly increase the site cost. However, this is feasible and would ideally be located between the two existing stairwells on the western building face.

Concrete sidewalks would be constructed along all newly proposed access routes providing foot travel access around the Create Center. These sidewalks would be a minimum of five feet in width and sloped to adhere to the ADA standards. Please see Exhibit EX-1 for details.

## PARKING

The existing paved surfaces within the parking areas and interconnected drive aisles are in poor condition. Therefore, at a minimum, it is recommended to mill and overlay these areas. Consequently, the existing parking stall striping will require re-striping. The total area requiring mill and overlay is approximately 70,000 square feet and a total re-striping length of approximately 3,500 lineal feet. Six (6) ADA parking stalls have been provided toward the northeastern corner of the Create Center with an additional 156 general parking stalls in the surrounding parking areas for a total of 162 parking stalls. The Create Center does have an existing drop-off area at the main entrance. No modifications to this drop-off area are anticipated. Please see exhibit EX-1 for details.

## UTILITIES

The existing Create Center has access to water distribution, sanitary sewer, and electrical service. No utility extensions or reconfiguration on the exterior of the building is anticipated. However, if gas distribution is constructed along John Nash Blvd. in the future, this service could be routed along the main access road or up the southern slope to the Create Center.

## STORMWATER MANAGEMENT

As previously stated, with the construction of the proposed paved access routes, it is anticipated to utilize combination curb inlets along the roadway to collect stormwater. A new storm drain system comprised of high-density polyethylene (HDPE) pipe and polyvinyl chloride (PVC) drain basins would be required to route this stormwater to either an above or below ground detention facility to detain stormwater discharges and release them at an acceptable rate into a downstream conveyance feature. Given the extent of the proposed improvements and available developable area, the detention facility is not anticipated to be extensive. At the time of this evaluation, the exact existing stormwater infrastructure for the

parcel is unknown. Therefore, more in-depth site reconnaissance and evaluations would be required to design these elements. See Exhibit EX-1 for details.

#### EROSION & SEDIMENT CONTROL

With knowledge of a potential covered-subsidence sinkhole located downstream of the proposed improvements, an Erosion & Sediment Control Plan would be imperative to mitigate sediment laden runoff from leaving the site and causing downstream sedimentation. However, utilizing anything beyond the standard erosion & sediment control practices would not be anticipated. Standard controls such as super silt fence, inlet and outlet protection, and construction entrances would be utilized to mitigate sedimentation. Topsoiling and seeding would be required for any areas left bare from construction activities or if material would require stockpiling somewhere on the parcel.

#### ADJACENT SITE PARCEL

T&L previously studied an adjacent site to the Create Center for future development. This adjacent site could allow for a total pad area of approximately 3.22 acres. Additional information can be found in Appendix B.

## **ARCHITECTURAL:**

The existing facility is located on approximately 75 acres of land on John Nash Boulevard near the Exit 1 ramp off Interstate I-77.

The existing facility is a two-story building constructed of structural steel columns and steel joists. The exterior wall is comprised of 8" metal studs with 4" CMU veneer. The exterior walls have operable windows with insulated glazing. The four (4) stairwells are constructed of 8" concrete masonry units (CMU) with a CMU veneer exterior. The stairwell walls also carry a one-hour fire rating. Two elevators serve the facility within fire rated shafts.

The roof is ballasted ethylene propylene diene membrane (EPDM) that is the original roofing. Since it is over 20 years old, it is nearing the end of its useful life. Only a few leaks have been reported in the building. There are (6) original rooftop units (RTU) that are nearing the end of their useful life.

A beautiful skylight is central to the building and has not had any reported leaks.

The main entrance is a curtain wall system (glass and structural system) that spans two-stories. It was noted that some of the glazing seals have been compromised and have become cloudy. The glazing at the entrance is problematic due to the eastern exposure. In the morning the entrance heat is overwhelming, and the mechanical system cannot keep the space at a desirable level. Also, shades had to be installed in front of the reception desk, since the direct sunlight into the area causes difficulty in seeing entering guests.

The interior of the building is broken into several offices, restrooms, kitchenettes and conference rooms with metal stud partitions with sound attenuation blankets and gypsum drywall (GWB) on each side. Originally, a radio station was in the facility and their rooms are surrounded with sound partitions (double stud walls with sound attenuation blankets) and

sound-rated glass. There are two CMU vaults, one on the north side of the first floor and the other on the south side of the second floor.

The existing kitchen, at the former café, has two sinks, a dishwasher and range. The range does not have any type of exhaust hood, which is required. There are multiple kitchenettes located throughout the building on each floor. The kitchenettes have a small under the counter refrigerator, sink, and 2 burner electric cooktop.

The exterior of the building appears to be in very good condition. The masonry column bases at the front canopy are deteriorating. It appears that the columns do not have the proper flashing and water has penetrated the base and masonry is detaching.

**LIFE SAFETY:**

The building has four stair towers at the four corners of the building that meet current code. Some of the exit signs are located so they are not visible from a distance and are not mounted in the proper direction. There does not appear to be any dead-end corridors.

The fire extinguishers were noted during the site visit and there does not appear to be enough fire extinguishers distributed throughout the facility.

**ACCESSIBILITY:**

The restrooms do not meet the current 2017 ICC A117.1 with Supplement 1 Accessible and Usable Buildings and Facilities, but meet the code when the building was originally constructed. The entrance to the men's accessible restroom on the northwest end of the building does not meet the clearance requirements. A storage room that was not in the original plans, was constructed too close to the men's room door. It was also observed that there were no drinking fountains in the facility which are required by code. The shower in room 153 is not accessible. The kitchen at the former café has an accessible sink, but no cover below the sink. The pipes are exposed with no insulation. The range is not accessible, it is too high and the controls are on the back. The kitchenettes located throughout the building are not accessible, including the under-counter refrigerator, sink and cooktop.

The exits at the west end of the building have a small concrete pad only and do not lead to the parking area.

The door hardware is lever style and meets the grasp requirements of ICC A117.1.

**STRUCTURAL:**

The existing facility is a two-story structural steel frame building. The roof is 1-1/2", 22 ga steel roof deck supported on 24-inch, open-web steel joist spaced typically 4'-0" on center. The open-web joists are supported on 21-inch structural steel, wide-flange beams. The connections of the steel beams to the structural steel columns are moment connections to provide lateral resistance from applied lateral wind and seismic loads.

The second floor is a 4-inch light weight concrete slab-on-metal deck (3 7/16" concrete on 9/16" steel deck) supported by 26-inch, open-web steel joists space typically 3'-0" on center. The open-web joists are supported on typically 24-inch structural steel, wide-flange beams. The connections of the steel beams to the structural steel columns are moment connections to provide lateral resistance from applied lateral wind and seismic loads.

The first floor is a 4-inch concrete slab-on-grade over six (6) inches of compacted stone and lightly reinforced with 6x6-W2.1xW2.1 welded-wire fabric. The steel columns are supported on shallow concrete spread footing ranging in size from 5'-0" x 5'-0" to 8'-0" x 8'-0".

The main entrance lobby is a proprietary steel-framed curtain wall with 1-inch insulated glazing for the roof and walls. The roof slope is approximately 4:12.

## **PLUMBING:**

### EXISTING CONDITIONS

The existing office building has a 3" domestic water entrance and backflow preventor that serves the plumbing fixtures throughout the facility. The water enters the west side of the building in Room 161. The existing restrooms primarily contain manual flush valve toilets and manual faucet lavatories. The hot water is provided by electric instantaneous water heaters located below the lavatories in each restroom. Based on the existing drawings, the water piping is routed in the ceiling of the first floor and serves up to the second-floor fixtures from below. The existing drawings indicate the use of Copper Type-K for underground water piping and Type-L for above ground water piping.

The sanitary sewer leaves the south side of the building with one 6" waste line. Each restroom has a vent through the roof. There are two 8" rainwater lines leaving the north side of the building that serve the roof drains. The existing drawings indicate the use of Cast Iron piping for all above grade sanitary and storm water piping. The HVAC units are on the roof so there is no internal condensate piping. The existing drawings do not indicate elevator sump pumps / drain piping, but these are assumed to be located at the elevators. Further investigation may be required. There is no gas on site.

## **FIRE PROTECTION:**

The existing building is served by a 6" fire entrance that transitions to a 4" riser. The sprinkler system is a wet system with the exception of the computer room, which has a FM-200 standalone foam system. The building is classified as Light Hazard throughout with the exception of the mechanical / electrical rooms. The existing riser sprinkler tag indicates the system design requires 193.65 gpm at 54.89 psi at the base of the riser plus 250 gpm for hose

stream. The pressure gauge on the riser showed approximately 80 psi at the time of the site visit. The majority of the sprinkler heads are exposed pendants in the drop ceiling.

#### **MECHANICAL:**

The existing building is served by six packaged heat pump rooftop units with electric auxiliary heat. They are all approximately 23 years old. The units are ducted to each corresponding zone and returned through a return air plenum. The supply air is provided through Therma Fuser variable air diffusers. The RTUs are constant airflow so as the diffuser dampers close, a main supply air damper opens and relieves the extra air into the return plenum. RTU-1 is a nominal 20 Tons and serves the lobby, which is mostly glass and goes up to the second floor. RTU-2 is a nominal 20 Tons and serves the middle area of the first floor. RTU-3 is a nominal 14 Tons and serves the south side of the first floor. RTU-4 is a nominal 17.5 Tons and serves the north side of the first and second floor. RTU-5 is a nominal 20 Tons and serves the middle area of the second floor. RTU-6 is a nominal 14 Tons and serves the south side of the first floor. Each rooftop unit has an air-to-air heat exchanger that was designed to provide heat recovery between the outside air intake and the exhaust air outlet. However, the maintenance company (Southern Air) said the heat exchangers have been shut down and the outside air intakes capped. They also indicated that the RTU compressors have been replaced many times and the condensers have hail damage. There have been challenges with maintaining a consistent comfortable temperature for all rooms and different control modifications have been made throughout the years to assist. Some examples include deactivating some of the diffuser dampers and setting sensors to show a false heat load. There is also a computer room unit that serves a raised floor plenum system. The restrooms are exhausted through roof fans.

## **ELECTRICAL:**

The building is served from (3) 167 kVA pole mounted utility transformers, underground to a 2,500-Amp 480/277-Volt, 3-phase switchboard in the building's main electrical room on the first floor. The service was installed in the early 2000's and is original to the building.

The building's electrical distribution system consists of a main switchboard on the first floor that feeds through step-down transformers into several 208/120-Volt, 3-phase distribution panels on each floor, then further into branch circuit panelboards. The building is partially backed up with a 600KW Cummins, diesel, emergency generator. The generator provides emergency backup power for egress lighting and intermittent power receptacles. All life safety loads are backed up by generator, as well as various receptacle and equipment circuits.

Switchboard, distribution panels, branch circuit panels, and step-down transformers are all Siemens. All equipment appears to be in good condition. All equipment appears to have both available space and capacity for future loads.

Along with the generator, the facility is also equipped with a 300KVA UPS system in the main electrical room that provides several locations with critical IT and equipment/computer loads with uninterrupted power. Key interlocks are provided to by-pass UPS for maintenance.

All interior lighting is fluorescent or incandescent. All exterior lighting is metal halide. All parking lot lighting is metal halide, shoe box fixtures on square metal poles.

All communication cabling, in cable tray, are routed to communications/IT room on the first floor. The communications/IT room on the first floor has a raised floor and fire suppression system.

The fire alarm system installed is Gamewell Worldwide IF632 system located in the main IT room. System was showing 'system trouble' on annunciator during visit. The FACP indicates the fire alarm system was last serviced in 2021 by Appalachian Fire and Security LLC.

The security/access control system consists of exterior cameras that cover only the parking lot and front entrance areas. The building is equipped with a keypad at the front entrance with occasional keycard access to select interior rooms and exterior areas. The security/access control headend equipment is in the main IT room on the first floor. The access control system is a Keyscan access control system.

**PROPOSED RECOMMENDATIONS**

**SITE RECOMMENDATIONS:**

Due to general site maneuverability, it is not recommended to provide improvements for a WB-67 to deliver goods to the Create Center. Although it may be feasible, it would require further evaluation to confirm. An access road circumventing the Create Center is achievable; however, the steeper slopes on the southern portion of the site should be avoided. Storm drain infrastructure would be easily installed and designed to handle the additional runoff generated by the proposed impervious areas. Earthwork will be required to construct the proposed improvements with minimal amounts of cut and fill. A grading plan will be required to quantify the earthwork required. If excess cut should be generated, the material could be stockpiled on the western perimeter of the site and fully stabilized. A geotechnical investigation to determine the status of the potential covered-subsidence sinkhole would be necessary but permitting discharges into the feature would likely not pose a great challenge as post development discharges would be managed via onsite detention. The current condition of the asphalt paving is poor throughout the parking areas and drive aisles. Therefore, milling and overlaying is recommended with associated parking stall re-striping.

A rough order of magnitude cost estimate was prepared for these improvements to provide a preliminary baseline cost. Please note that a grading plan will be required to quantify the earthwork required. Therefore, the cost associated with the earthwork required to construct the proposed improvements is considered general. Additionally, a large portion of the total construction cost is associated with the milling and overlaying of the existing asphalt pavement, which is accounted for within the demolition and mill/overlay portion of the estimate. This work could be conducted separately as needed.

## ARCHITECTURAL RECOMMENDATIONS:

### Codes and Standards

- 2018 International Building Code (IBC)
- 2018 International Existing Building Code (IEBC)
- 2010 American Standards for Accessibility Design (ASAD)
- 2017 ICC A117.1 with Supplement 1 Accessible and Usable Buildings and Facilities
- 2018 International Mechanical Code (IMC)
- 2021 NFPA 101 Life Safety Code
- 2015 International Energy and Conservation Code
- 2015 ICC Performance Code for Buildings and Facilities
- 2018 International Plumbing Code
- 2017 NFPA 70 National Electrical Code

### Construction Classification

- Construction Type: IIB
- Allowable Area: 69,000 SF
- Actual Area: 23,709 SF (First Floor)
- Existing Building is fully sprinklered
- Allowable Height (IBC 504.3): 75 feet
- Actual Height: ~32 feet
- Allowable Stories Above Grade Plane (IBC 504.4): 4 Stories
- Actual Stories Above Grade Plane: 2 Stories

### Occupancy Classification

- Occupancy:
  - Business: B

T&L recommends the following be completed immediately prior to tenant occupancy.

- Electric hi-lo water coolers with bottle fillers be installed throughout the facility. At least one is required on each floor, T&L has suggested four for proximity to tenant spaces. See attached plan for proposed locations.
- Exit signs be adjusted throughout the facility so that exit signs are visible from all locations in corridors.
- Remove all kitchenettes. These are not accessible, and the cooktop is hazardous (no range hood).
- More fire extinguishers will need to be installed for current conditions and re-evaluated with the addition of new tenants.
- Remove existing CMU veneer from the columns at the main entrance and rebuild with similar materials.
- Two options are suggested for the Main Lobby:
  - Remove all glazing only and replace it with heavily tinted glazing or spandrel panels at the sloped glazing area to reduce the light and heat transmittance.
  - Remove all glazing and supporting curtainwall structure. New structural steel with steel beams extending to the existing beams. A new metal deck and sloped metal roofing to be installed to match the slope of the existing glazing. A combination of curtainwall, glazing, and metal infill panels is suggested to be installed to enclose the two-story lobby.
- Roof Replacement:
  - Core drill roof insulation to determine moisture content.
  - Remove ballast and EPDM membrane. If insulation is dry and meets code, install new fully adhered 90 mil (30 year warranty).

- If moisture is present in the insulation, T&L recommends removal of all the insulation to deck and install a new base course insulation (5") and tapered insulation (1/4" per ft) to the existing roof drains.
  - Provide crickets at all mechanical units for proper drainage.
- T&L has provided a layout for proposed tenant occupancies. Two tenants, CART and OMNIS have been identified on the attached floor plans. Other spaces have been proposed for future tenants. The proposed spaces were divided into areas along the main exit corridors. Future tenant spaces would need to be evaluated for space and program needs.

**ACCESSIBILITY:**

Remove the partition near the men's room on the west side of the building, which creates the storage room. As noted previously, the partition encroaches on the door clearance for entrance into the men's room. See floor plan for suggested correction.

## **STRUCTURAL RECOMMENDATIONS**

### Design Criteria

The structural system in the facility shall be designed to meet the requirements of the 2018 International Building Code (IBC).

### Material Code & Standards Incorporated By Reference:

International Building Code (2018 Edition)

Minimum Design Loads and Associated Criteria for Buildings and Other Structures (ASCE 7-16)

Building Code Requirements For Structural Concrete (ACI 318 - 2014 Edition)

AISC Steel Construction Manual (ASD 15th Edition)

The existing roof joists may require strengthening of the joist to support new or heavier replacement mechanical roof top units. It is expected that the existing ballast weighing the existing roof membrane to the roof structure is to be removed when the roof membrane is replaced and not reinstalled as the new roof membrane will be adhered to the roof structure. With the removal of the roof ballast, strengthening of the roof joists for the new/replaced mechanical roof top units is not expected.

The existing roof curtain wall is expected to be replaced with spandrel glass to reduce heat load and glare in the lobby. If a structural roof is proposed for the lobby, the entire proprietary curtain wall and structure will be required to be replaced with roof deck, structural beams and columns; however, the existing foundations may be able to be reutilized if the new lobby is frame similarly.

## **PLUMBING RECOMMENDATIONS**

### CODES

- 2018 International Building Code (IBC)
- 2018 International Existing Building Code (IEBC)
- 2018 International Plumbing Code (IPC)
- 2018 International Fuel Gas Code (IFGC)
- 2015 International Energy Conservation Code (IECC)

### STANDARDS

- American Society of Mechanical Engineers ASME
- ASTM International ASTM
- American Society of Plumbing Engineers ASPE
- American Society of Sanitary Engineering ASSE
- American Water Works Association AWWA
- Underwriters Laboratories, Inc. UL
- NSF International NSF
- National Electrical Manufacturers Association NEMA

All restrooms and plumbing fixtures will be existing to remain. Roof drains and rainwater piping will also remain.

Four new electric ADA water coolers will be added near the back restrooms (two on each floor). The new water piping and waste piping connections will connect to the existing lavatory plumbing. No slab cuts are anticipated.

It is recommended to replace all 18 of the electric instantaneous water heaters with new ones of equal size because they are near their service life. If it is determined that some or all the water heaters have been replaced within the last 5-10 years, the existing water heaters can remain.

## **FIRE PROTECTION RECOMMENDATIONS**

### CODES

- 2018 International Fire Code (IFC)

### STANDARDS

- NFPA 13 Standard for the Installation of Sprinkler Systems, 2016.
- 2021 NFPA 101 Life Safety Code

### SYSTEM DESCRIPTION

The existing fire protection system is sufficient for future office renovations and is anticipated to remain. Sprinkler heads and branch piping will be relocated or replaced to meet the requirements of the new floor plan.

If new hazardous areas are to replace existing office space areas, the sprinkler system will be upgraded to meet the new hydraulic demands. This could include, but is not limited to replacing the existing riser, upgrading sprinkler heads, and upsizing sprinkler piping. Fire protection hydraulic calculations will be performed during design to determine the new flow and pressure required for the renovation.

## **MECHANICAL RECOMMENDATIONS**

### Design Basis:

### CODES

- 2018 International Mechanical Code (IMC)
- 2018 International Building Code (IBC)
- 2018 International Existing Building Code (IBC)
- 2015 International Energy Conservation Code (IECC)

### DESIGN GUIDES

- 2010 Americans with Disabilities Act (ADA)
- Occupational Safety and Health Act (OSHA)
- National Electric Code, 2011 NEC NFPA 70
- Installation of Air Conditioning and Ventilating Systems NFPA 90A
- Installation of Warm Air Heating and Air Cond. Systems NFPA 90B
- Life Safety from Fire in Buildings and Structures NFPA 101,2021

### STANDARDS

- Air Conditioning and Refrigeration Institute ARI
- Air Movement and Control Association, Inc. AMCA
- American National Standards Institute ANSI
- American Society of Heating, Refrigeration and Air Conditioning Engineers ASHRAE
- American Society of Mechanical Engineers ASME
- American Society for Testing and Materials ASTM
- Underwriters Laboratories, Inc. UL
- American National Standards Institute ANSI
- Occupational Safety and Health Administration OSHA
- Sheet Metal and Air Conditioning Contractors National Association, Inc. SMACNA
- National Fire Protection Association NFPA

## NEW SYSTEM DESCRIPTION

### System Design Criteria

Outside Design Temperatures:

Summer (DB): 85.7° F (ASHRAE-2021 0.4%)

Summer (WB): 68.9° F (ASHRAE-2021 coincident)

Winter: 7.9° F (ASHRAE-2021 99.6%)

Indoor Design Conditions:

Summer (DB): 72° F, 55% RH

Winter (DB): 70° F, 20% RH

Ventilation: Based on IMC-2015 (Table 403.3.1.1)

Overall, it is recommended that all HVAC units be replaced with a new HVAC system due to the existing equipment age, efficiency, and lack of system controls. The new HVAC system recommended is a Variable Air Volume (VAV) system. This includes packaged rooftop heat pump units with variable speed fans that supply air to parallel fan powered VAV boxes. The perimeter zone boxes, and second floor zone boxes will include electric reheat. This system can provide as many individual zones as needed by the future tenants and allow for simultaneous heating and cooling. The new rooftop units would be in the same six locations as the existing rooftop units with the anticipation of a seventh unit. The new system would reuse the existing main ductwork and chases where possible.

At the time of this narrative, there are two tenants that plan to move into this building with the goal for a total of 7 to 8 tenants. Unless all tenants are available at the time of design, it

is anticipated that phasing for the HVAC replacement will be required. If phasing is not possible, then assumptions will have to be made in sizing the HVAC for the future tenants. There is a possibility for research and testing labs in addition to office space, which creates a challenge in making HVAC sizing / zoning assumptions. Based on this, phasing is the recommended option for replacing the HVAC system. This ensures that each tenant receives the appropriate ventilation and conditioning required.

All Ductwork construction will be in accordance with SMACNA standards and ASHRAE Standard 90.1. All air distribution systems will be designed with primary consideration for energy efficiency and acoustic performance. Ductwork will be insulated using 2" R-6 fiberglass with a vapor barrier. Air distribution devices will be specified to be constructed of aluminum and steel. All air distribution devices will be specified to be factory painted white. All air distribution devices located in a sheetrock ceiling will be specified with a plaster frame for mounting.

The need for gas heated HVAC units has been evaluated and is not required for this system for the following reasons. (1) The building does not currently have gas and would be an additional construction cost. (2) VAV box reheat is only available in electric or hot water coils. (3) The rooftop units would not require a high heating capacity because the VAV boxes provide most of the heating.

Unit	New Area Served	Existing Tonnage	New Est. Tonnage
RTU-1	Lobby (Open to above)	20	20
RTU-2	1st Floor Middle	20	28
RTU-3	1st Floor South	14	10
RTU-4	1st Floor North	17.5	7.5
RTU-5	2nd Floor Middle	20	40
RTU-6	2nd Floor South	14	10
RTU-7	2nd Floor North	N/A	10

## ELECTRICAL RECOMMENDATIONS

### CODES

International Building Code – 2018 Edition	IBC
International Energy Code Council – 2015 Edition	IECC
Americans with Disabilities Act	ADA
Authority Having Jurisdiction	AHJ
National Electric Code – 2020 Edition	NEC, NFPA 70
National Fire Alarm Code – 2016 Edition	NFPA 72
Flammable and Combustible Liquids Code	NFPA 30
Standard for Emergency and Standby Power Systems	NFPA 110

### STANDARDS

American National Standards Institute	ANSI
American Society for Testing and Materials	ASTM
American Society of Heating, Refrigeration and Air Conditioning Engineers	ASHRAE
American Society of Mechanical Engineers	ASME
Certified Ballasts Manufacturers	CBM
Construction Specifications Institute	CSI
Electrical Testing Laboratories	ETL
Electronic Industries Association	EIA
Factory Mutual Global	FM

Illuminating Engineering Society of North America	IESNA
Institute of Electrical and Electronic Engineers	IEEE
International Electrical Testing Association, Inc.	NETA
National Electrical Contractors Association	NECA
National Electrical Manufacturers Association	NEMA
National Fire Protection Association	NFPA
Occupational Safety and Health Administration	OSHA
Telecommunications Industry Association	TIA
Underwriters Laboratories Inc.	UL

#### UTILITIES

- Underground power and communications to the facility will be maintained from the existing utility pole.
- The electrical service appears to have capacity for future intended tenants and use.

#### ON-SITE GENERATOR DISTRIBUTION

- The existing generator on site appears to be in fair working condition and will be maintained for emergency loads of the building. It is recommended to have the generator serviced and load bank tested.
- The use of roof mounted solar panels will be considered. If the space available is deemed suitable for solar and the structure can support the added load, a use-as-available system will be provided. This eliminates the need for batteries for storage that would require additional space and maintenance. Infrastructure will be provided by the contractor, solar equipment and panels will be provided by solar

contractor. If solar power is installed, net metering would be installed and the solar power generated and used by the building would offset some of the power required from the utility.

#### SECONDARY DISTRIBUTION

- The existing secondary distribution switchboards and distribution panels will be maintained and reused where possible.
- Where required, existing panels will be relocated to accommodate necessary floor plan changes. Existing to remain circuits will be extended to new locations as required.
- New circuits will be provided to accommodate floor plan changes.
- New HVAC circuits will be provided, or reused where applicable, to accommodate replaced HVAC system for the building.

#### LIGHTNING PROTECTION

- The existing building lightning protection system will be maintained. Modifications may be required for added or modified roof mounted equipment.
- System will be UL certified.

#### LIGHTING

- Interior Lighting:
  - Lighting levels will follow the illumination recommendations of IESNA.
  - New LED fixtures will be provided in entire building. New fixtures will have a minimum CRI of 80, and a color temperature of 3,500-deg K in office areas and 4,000-deg K in lab areas.
  - All lighting controls will be upgraded to meet current energy codes.
- Exterior Lighting:

- Existing fixtures, building mounted and parking lot, will be maintained.

#### FIRE ALARM SYSTEM

- The existing fire alarm system will be maintained with circuitry modifications as needed for floor plan changes.
- Existing fire alarm devices will be relocated as required for floor plan changes.
- New fire alarm devices will be provided as required for floor plan changes.

#### TELECOMMUNICATIONS/TECHNOLOGY/SECURITY

- Communication Network:
  - The existing network system will be maintained.
  - Existing data outlets will be relocated as required for floor plan changes.
  - New data/communication outlets will be provided as required for floor plan changes.
- CCTV Security/Access Control:
  - The existing access control and CCTV security system will be removed.
  - A new access control system will be provided. The new access control system will consist of the following:
    - Head-end equipment
    - Proximity card reader, door position sensor, and electric latch or strike at all exterior doors.
    - Card readers and electric latches will be installed to separate tenant accessible areas.

- The new system will be expandable and modifiable to be able to add and remove tenants/staff as required.
- The system will allow unique IDs for each user to allow specific access to areas via keycards based on the user.
- New security cameras will be installed on the building exterior to cover the entire building perimeter and parking lot.
- Security cameras will be installed as requested in interior spaces.
- Standards:
  - ANSI/EIA/TIA 568-B – Commercial Building Telecommunications Standard.
  - ANSI/EIA/TIA 569-B – Commercial Building Telecommunications Standard for Buildings and Spaces.
  - ANSI/EIA/TIA 606-A – Administrative Standards for Telecommunications Infrastructure.
  - ANSI/EIA/TIA 607-A – Commercial Building Grounding, Earthing and Bonding Requirements for Telecommunications.
  - ANSI/EIA/TIA 758-A – Customer-Owned Outside Plant Telecommunications Standard.
  - BICSI - Telecommunications Distribution Methods Manuals. 11th Edition.

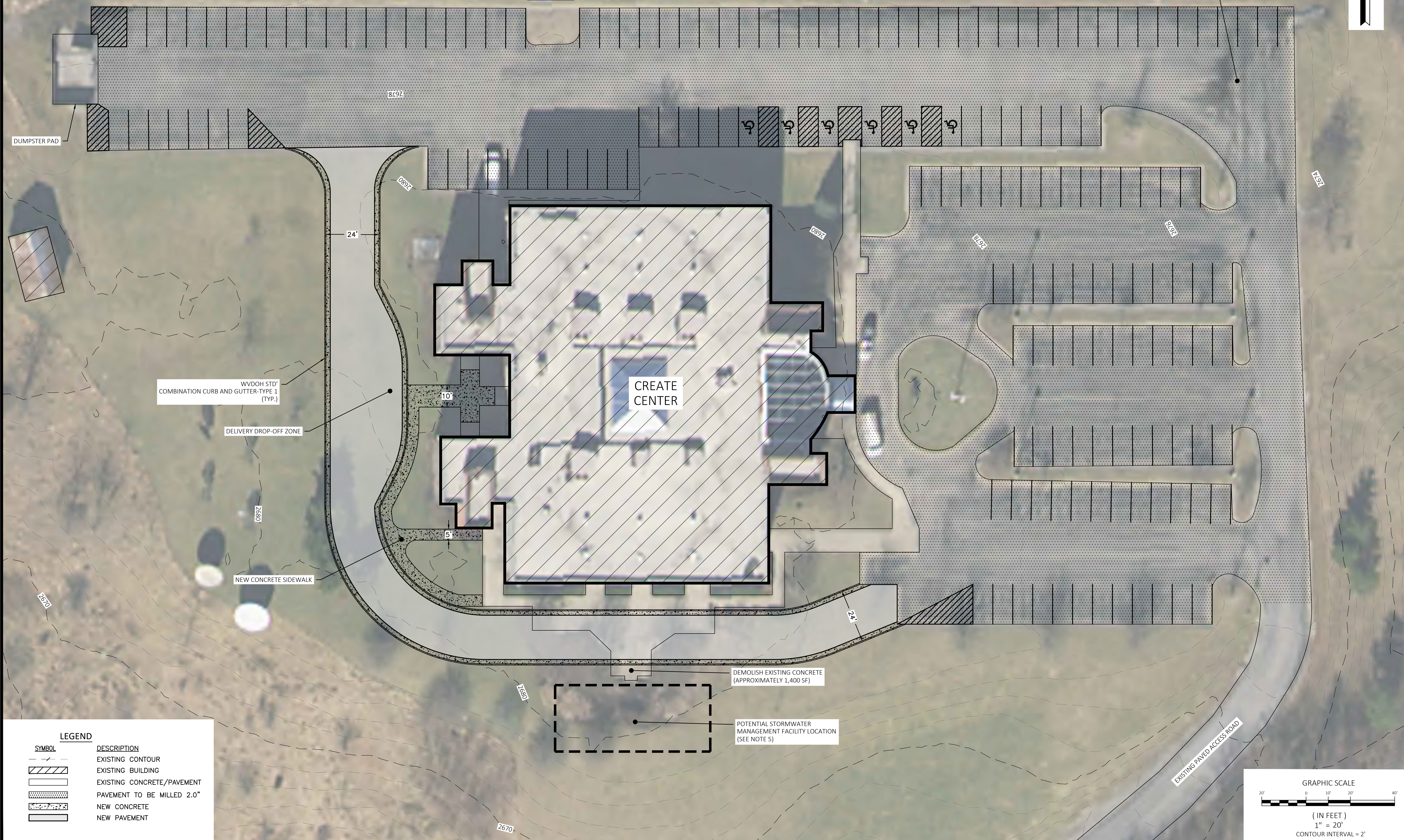
#### CONDUIT AND RACEWAYS

- The following types of conduit will be specified for the applications listed:
  - Branch Circuits:
    - Generally: RGS, IMC, EMT
    - Wet locations or Damp locations: RGS, IMC
    - Areas subject to physical damage: RGS

4

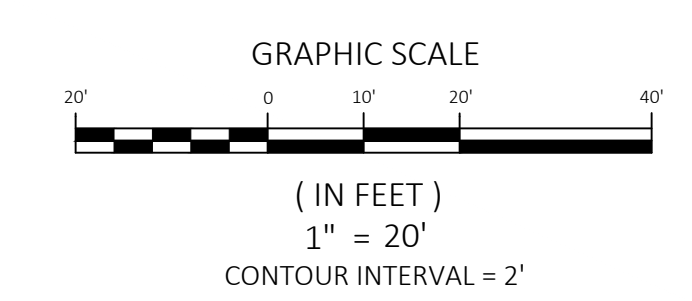
**SCHEMATICS**

- NOTES:**
1. ALL SIDEWALKS ALONG ACCESSIBLE ROUTES SHALL HAVE A 5.0% MAXIMUM SLOPE, UNLESS OTHERWISE INDICATED AS A RAMP.
  2. LANDINGS SHALL BE PROVIDED FOR ALL DOORWAYS AND SHALL HAVE A WIDTH AND LENGTH EQUAL TO OR GREATER THAN THE DOORWAY WIDTH. THE EXTERIOR DOORWAY LANDINGS SHALL NOT EXCEED A SLOPE OF 2.0%.
  3. PARKING SHALL HAVE A 4.0% MAXIMUM SLOPE, UNLESS OTHERWISE SHOWN.
  4. TOTAL LENGTH OF THE PROPOSED ACCESS ROAD IS APPROXIMATELY 450 LINEAL FEET.
  5. POTENTIAL STORMWATER MANAGEMENT FACILITY LOCATION AND SIZE IS FOR ILLUSTRATE PURPOSES ONLY. FURTHER EVALUATION WILL BE REQUIRED TO APPROPRIATELY DESIGN EITHER AN ABOVE OR BELOW GROUND DETENTION FACILITY TO ADEQUATELY DETAIN STORMWATER FROM THE PROPOSED IMPROVEMENTS.
  6. TOTAL RE-STRIPING LENGTH FOR ALL PARKING STALL STRIPING IS APPROXIMATELY 3,500 LINEAL FEET. 156 GENERAL PARKING STALLS AND 6 ADA PARKING STALLS ARE ILLUSTRATED FOR A COMBINED PARKING STALL COUNT OF 162.
  7. CONCRETE SIDEWALKS HAVE A 5' PROPOSED WIDTH UNLESS OTHERWISE ILLUSTRATED.



**LEGEND**

SYMBOL	DESCRIPTION
	EXISTING CONTOUR
	EXISTING BUILDING
	EXISTING CONCRETE/PAVEMENT
	PAVEMENT TO BE MILLED 2.0"
	NEW CONCRETE
	NEW PAVEMENT



PRELIMINARY

BEDA CREATE CENTER PER  
 CITY OF BLUEFIELD, WV  
 PRELIMINARY SITE SCHEMATIC

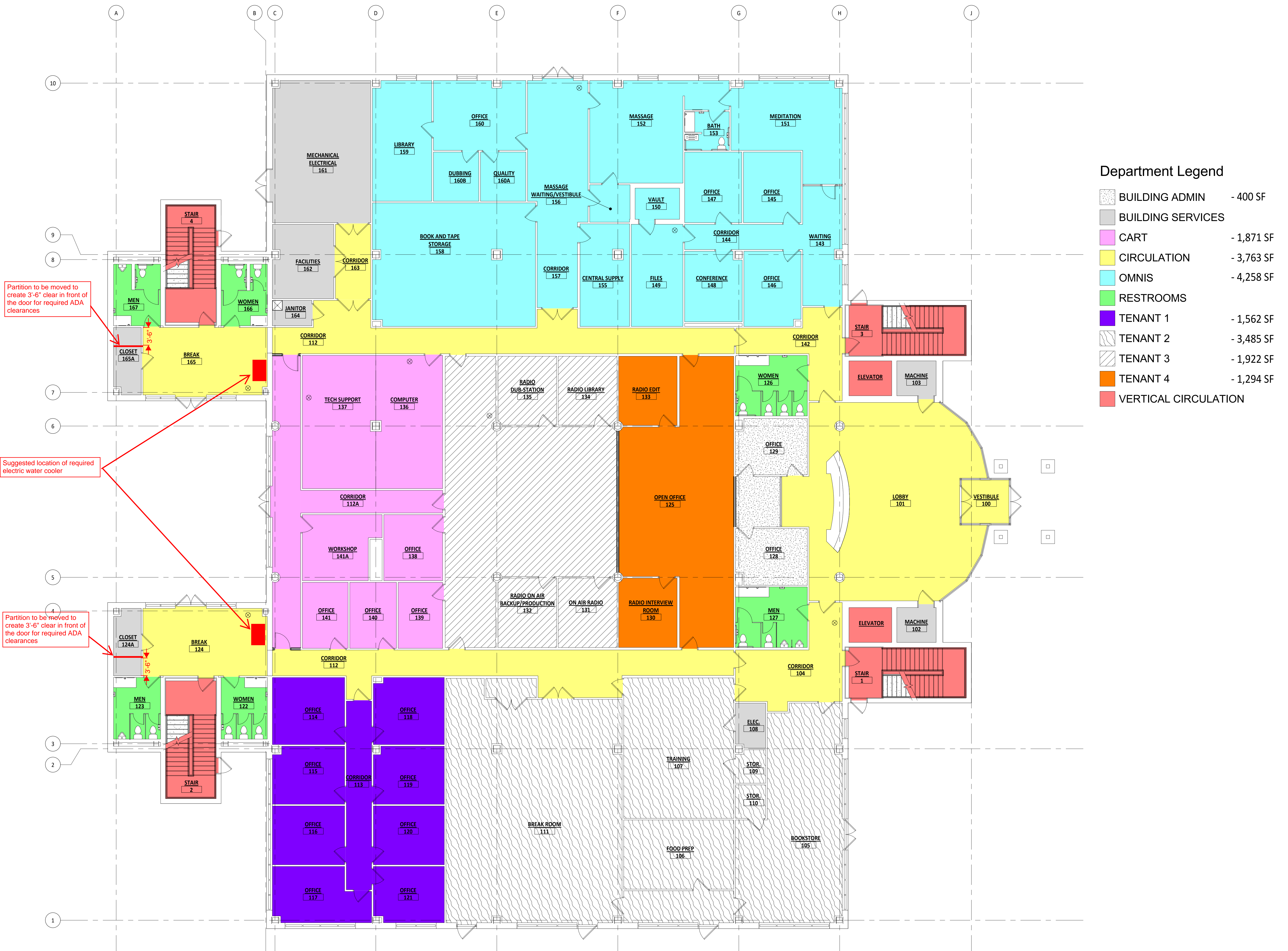
No.	Date	Purpose of Document Issue

Designed	ACM
Drawn	ACM/TLB
Checked	MAM
Date	6-28-2024

Project No.  
**18027**



Sheet No.  
**EX-1**



**Department Legend**

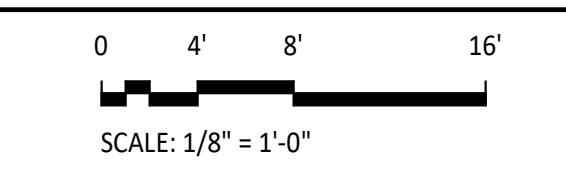
	BUILDING ADMIN	- 400 SF
	BUILDING SERVICES	
	CART	- 1,871 SF
	CIRCULATION	- 3,763 SF
	OMNIS	- 4,258 SF
	RESTROOMS	
	TENANT 1	- 1,562 SF
	TENANT 2	- 3,485 SF
	TENANT 3	- 1,922 SF
	TENANT 4	- 1,294 SF
	VERTICAL CIRCULATION	

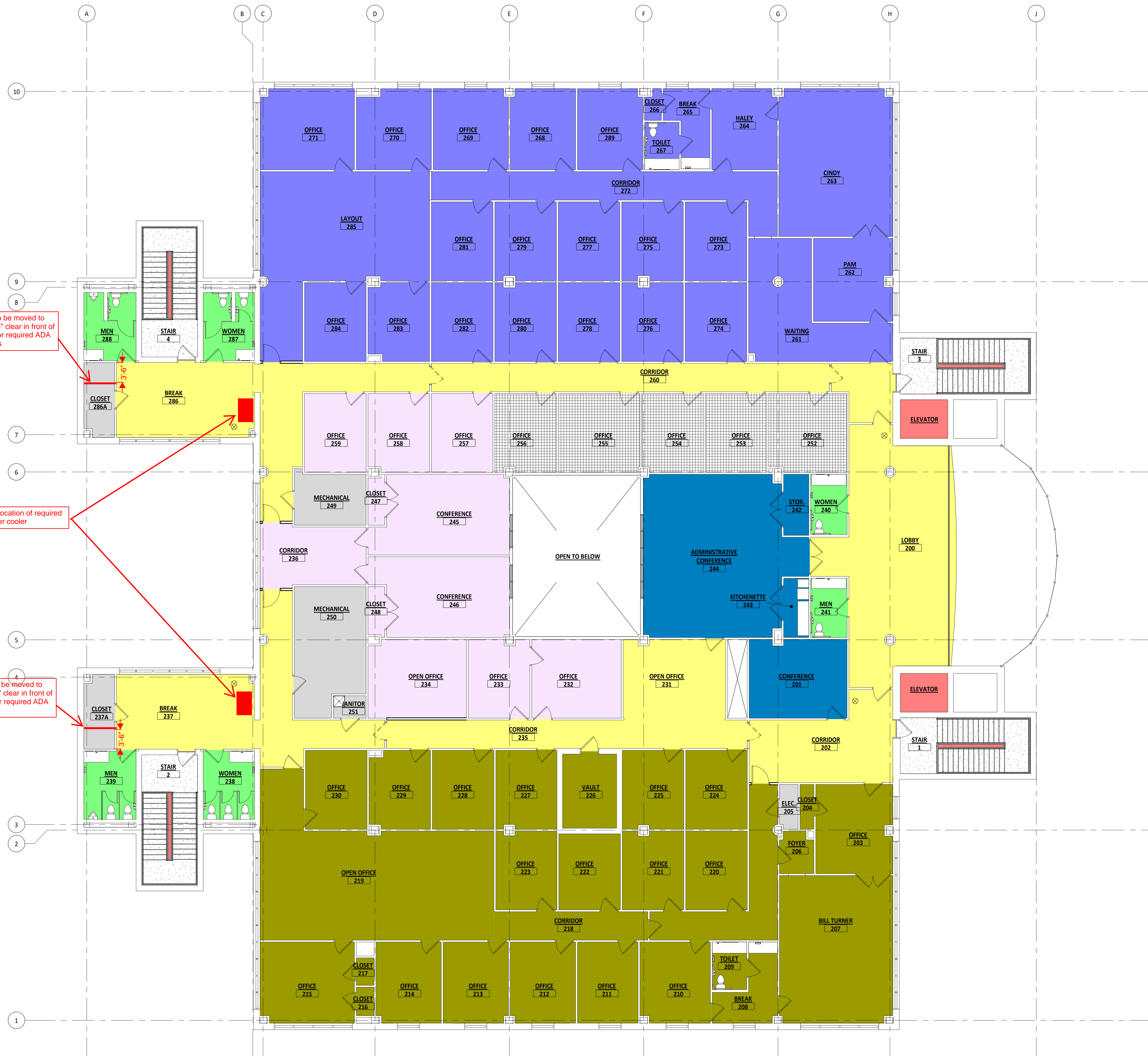
1 First Floor  
SCALE: 1/8" = 1'-0"

# BEDA Create Center - FIRST FLOOR PLAN

Bluefield, WV

JUNE 28, 2024





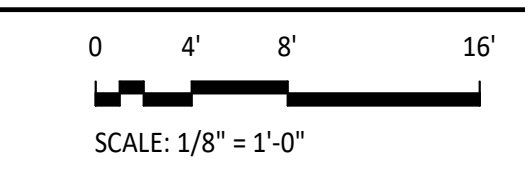
- Department Legend
- BUILDING SERVICES
  - CIRCULATION
  - INDIVIDUAL
  - RESTROOMS
  - SHARED
  - TENANT 5
  - TENANT 6
  - TENANT 7
  - VERTICAL CIRCULATION

1 SECOND FLOOR  
SCALE: 1/8" = 1'-0"

# BEDA Create Center - SECOND FLOOR PLAN

Bluefield, WV

JUNE 28, 2024



**PRELIMINARY ORDER OF MAGNITUDE PROJECT COST ESTIMATES**



**BEDA WV CREATE Center**

*City of Bluefield, West Virginia*

*Roof Replacement (full) / Mechanical Equipment Replacement / Security Upgrades*

**Preliminary Order of Magnitude Project Cost Estimate**

<b>Hard Costs:</b>		<u>Budget</u>	
^1	Roof Replacement (full)	\$948,000	23,700 SF
^2	Mechanical Equipment (RTUs)	\$1,214,460	46,710 SF
^3	Telecom, Security, A/V-IT, etc.	\$175,000	
	subtotal	<u>\$2,337,460</u>	
	Design Contingency	\$350,619	15%
	Escalation to mid-point of Construction	<u>\$128,560</u>	5.5%
	subtotal	<u>\$2,816,639</u>	
<b>Soft Costs:</b>			
^4	A/E Basic and Supplemental Services	\$225,331	
	Reimbursable Expenses	<u>\$5,000</u>	
	subtotal	<u>\$230,331</u>	
<b>Total Costs:</b>			
	Project Subtotal Cost (Hard + Soft)	\$3,046,970	
	Project Contingency	<u>\$304,697</u>	10%
	subtotal	<u>\$3,351,667</u>	
	 <b>Total Estimated Project Cost</b>	 <b>\$3,351,700</b>	 *

\* Total rounded to nearest \$100.

^1 Estimated \$40 per SF for complete tear off and replacement

^2 Mechanical Equipment includes the demolition of the existing roof top units and the installation of proposed roof top units. Estimated at \$26/SF.

^3 Initial security system upgrade for entire building.

^4 **Estimated.** Comprehensive Design and Construction Phase Services. Supplemental Services: Survey, Civil Engineering, minimal Landscape Design, Interior Design, FF&E selection, Independent Cost Estimating, Record Documents, etc., test and inspections.



**BEDA WV CREATE Center**

*City of Bluefield, West Virginia*

*Tenant Upgrades*

**Preliminary Order of Magnitude Project Cost Estimate**

<b>Hard Costs:</b>		<u>Budget</u>	
^1	Site Development	\$75,000	
^2a	Current Tenant Upgrades	\$651,000	6,510 SF
^2b	Future Tenant Upgrades	\$0	40,200 SF
^3a	Mechanical	\$32,550	46,710 SF
^3b	Plumbing	\$21,000	1 LS
	Fixtures, Furnishings & Equipment (FF&E)	\$0	
^4	Telecom, Security, A/V-IT, etc.	\$16,275	
	subtotal	<u>\$795,825</u>	
	Design Contingency	\$119,374	15%
	Escalation to mid-point of Construction	<u>\$43,770</u>	5.5%
	subtotal	<u>\$958,969</u>	
<b>Soft Costs:</b>			
^5	A/E Basic and Supplemental Services	\$76,718	
	Reimbursable Expenses	<u>\$5,000</u>	
	subtotal	<u>\$81,718</u>	
<b>Total Costs:</b>			
	Project Subtotal Cost (Hard + Soft)	\$1,040,687	
	Project Contingency	<u>\$104,069</u>	10%
	subtotal	<u>\$1,144,755</u>	
	<b>Total Estimated Project Cost</b>	<b>\$1,144,800</b>	<b>*</b>

\* Total rounded to nearest \$100.

^1 Site development includes the addition of sidewalks from exits to parking areas.

^2a Estimated at \$100 per SF. New finishes, revision of mechanical diffusers and returns/lighting upgrade and possible wall configuration. Fire Suppression relocation.

^2b Future Tenant costs calculated on separate cost estimate.

^3a Allowance for Mechanical Upgrades to accommodate tenant renovation.

^3b Plumbing Equipment: (4) new watercoolers and associated piping.

^4 Allowance for security system configuration to accommodate tenant renovation.

^5 **Estimated.** Comprehensive Design and Construction Phase Services. Supplemental Services: Survey, Civil Engineering, minimal Landscape Design, Interior Design, FF&E selection, Independent Cost Estimating, Record Documents, etc., test and inspections.



**BEDA WV CREATE Center**  
*City of Bluefield, West Virginia*  
*Renovation/Tenant Upgrades*  
**Preliminary Order of Magnitude Project Cost Estimate**

<b>Hard Costs:</b>		<b><u>Budget</u></b>	
^1	Site Development	\$673,800	
^2	Roof Replacement (full)	\$948,000	23,700 SF
^3a	Current Tenant Upgrades	\$976,500	6,510 SF
^3b	Future Tenant Upgrades	\$4,020,000	40,200 SF
^4a	Mechanical Equipment (RTUs)	\$1,214,460	46,710 SF
^4b	Plumbing Equipment	\$21,000	1 LS
	Roof mounted Solar Panels	\$87,000	1 LS
	Fixtures, Furnishings & Equipment (FF&E)	\$0	
^5	Telecom, Security, A/V-IT, etc.	\$175,000	
	subtotal	<u>\$8,115,760</u>	
	Design Contingency	\$1,217,364	15%
	Escalation to mid-point of Construction	<u>\$446,367</u>	5.5%
	subtotal	\$9,779,491	
<b>Soft Costs:</b>			
^6	A/E Basic and Supplemental Services	\$782,359	
	Geotechnical Services	\$25,000	
	Reimbursable Expenses	<u>\$5,000</u>	
	subtotal	\$812,359	
<b>Total Costs:</b>			
	Project Subtotal Cost (Hard + Soft)	\$10,591,850	
	Project Contingency	<u>\$1,059,185</u>	10%
	subtotal	\$11,651,035	
	<b>Total Estimated Project Cost</b>	<b>\$11,651,000</b>	*

\* Total rounded to nearest \$100.

^1 Site development includes the addition of sidewalks from exits to parking areas, overlay, striping and access around building

^2 Estimated \$40 per SF for complete tear off and replacement

^3a Estimated at \$100 per SF. New finishes, revision of mechanical/lighting upgrade and possible wall configuration. Fire suppression relocation. Security Upgrade.

^3b Estimated at \$150 per SF. New finishes, revision of mechanical/lighting upgrade and possible wall configuration. This is the worst case scenario.

^4a Mechanical Equipment includes the demolition of the existing units and the installation of proposed units. Estimated at \$26/SF

^4b Plumbing Equipment: (4) new watercoolers and associated piping.

^5 Initial security system upgrade for entire building.

^6 Comprehensive Design and Construction Phase Services. Supplemental Services: Survey, Civil Engineering, minimal Landscape Design, Interior Design, FF&E selection, Independent Cost Estimating, Record Documents, etc., test and inspections.

ESTIMATED SITE COSTS

**ROUGH ORDER OF MAGNITUDE - PRELIMINARY PROBABLE CONSTRUCTION COST (SITE)**  
**BEDA CREATE CENTER**  
**June 28, 2024**

**CONSTRUCTION COSTS:**

Demolition, Clearing & Grubbing @	\$78,000
Earthwork @	\$40,000
Pavement Mill and Overlay with Striping @	\$181,500
Paved Access Road with Curb and Gutter @	\$108,000
Concrete Sidewalk @	\$11,000
Stormwater Collection & Conveyance @	\$55,000
Stormwater Management (Quantity and Quality) @	\$40,000
Erosion & Sediment Control (12 Months) @	\$21,000
Mobilization, Bonds, Taxes and Insurance @	\$27,000

<b>Sub-Total Site Development Construction Cost</b>	<b>\$561,500</b>
<b>Contingency (20%)</b>	<b>\$112,300</b>
<b>Total Construction Cost (TCC)</b>	<b>\$673,800</b>

Please be advised that since Thompson & Litton has no control over the cost of labor, materials, equipment, or services furnished by others, or over Contractor(s') methods of determining prices, or over competitive bidding or market conditions, our opinions of probable project cost and construction cost provided herein are made on the basis of our experience and qualifications and represent our best judgment as experienced and qualified Professional Engineers familiar with the construction industry. Thompson & Litton cannot and does not guarantee that proposals, bids, or actual project construction cost will not vary from those opinions of probable costs prepared by Thompson & Litton.

6  
**PHOTOGRAPHS**



*Figure 1 Main Kitchen at Breakroom: No range hood, no pipe insulation under sink(*



*Figure 2 Main Lobby curtainwall system*



*Figure 3 Ballasted Roof*



*Figure 4 Added wall encroaches on ADA clearance into restroom (4 occurrences)*



*Figure 5* Kitchennettes are not accessible and no hood over burners.



*Figure 6* Exit sign is not visible from path of travel



*Figure 7 Sidewalks need to extend to nearest parking lot.*

## 7

### CONCLUSION

Based on the findings of this report, it is recommended that the roof top units (RTUs) and the existing roof be replaced, since both are nearing the end of their useful life. There are some code violations that also need to be addressed prior to occupancy. Exit signs need to be adjusted or added for proper coverage. Remove all kitchenettes with stove top burners and remove the range from the facility. Add water coolers to each floor as required by code.

There are some violations to the Americans with Disabilities Act (ADA). The wall near the men's rooms on the west side of the building will need to be reconfigured to allow for the required door clearances. The shower in Room 153 does not meet ADA requirements. All the kitchenettes are not accessible and should be removed.

The proposed tenant spaces are only for this report and may be configured differently than shown. The tenant spaces would have to meet the parameters and upgrades set forth in this report.

Those parameters are:

- Ensure that all exits from the tenant suite are within 75 feet from the farthest point in the suite.
- All new LED lighting
- Reconfigure partitions if required by the tenant.
- If partitions are moved, all sprinklerheads will need to be evaluated in the affected areas.
- If partitions are moved, ductwork (supply and returns) are to be evaluated.
- Maintain all exit corridors as shown on the plans.

**APPENDIX A**  
**MEETING NOTES**



## MEETING AGENDA NOTES

**PROJECT:** **BEDA CREATE Center PER**  
**City of Bluefield West Virginia**  
**18027**

**DATE:** 5/13/24

**PRESENT:** See Attached Attendance Record

1. Introductions
2. General
  - a. Electric Bill ranges from \$2000 - \$6000 with an unoccupied building.
  - b. Existing kitchen/breakroom can be repurposed.
  - c. AEP selling 150% of capacity to the area
  - d. Gas will be available in the future. Currently planned to go down John Nash Boulevard. Year plus out – developed by Thrasher.
  - e. Existing generator is diesel.
3. Omnis – represented by Jonathan Hodson.
  - a. Program:
    - i. Office space: sales/inquiry (3-4 people)
    - ii. Human Resources
    - iii. Call center – Customer Service (6 cubicles)
    - iv. Accounting (3-4) people
    - v. Legal
    - vi. Engineering/CAD (3-4 people)
    - vii. Plotter room
    - viii. Omnis will send to Jim furniture layout/selections
    - ix. Room to meet with potential customers
    - x. Training area would be offsite in the plant (20-30 people)
    - xi. Conference room
    - xii. Jeff Harmon – furniture plan
    - xiii. Not looking to bring in the public
    - xiv. No loading dock needed.
    - xv. FOB entry.
4. Building Program:
  - a. Shared spaces:



- b. Conference Room
  - c. Restrooms
  - d. Kitchen area?
  - e. Interior access control
  - f. Exterior access control
  - g. Generator to be evaluated (25 years old)
5. CART:
- a. Battery prototyping laboratory
  - b. Need 0% humidity (HVAC issue / Power issue)
  - c. Carbon managed energy system (Generator)
  - d. Coal derived ceramics
  - e. Coal anodes for batteries
  - f. Lead acid chemistry
  - g. 30 companies interested in collaborating
  - h. Benchtop laboratory space
  - i. 3D printers
  - j. "Glove-box" (2-3 people) need the size of the conference room (~600 SF)
  - k. Potential for fume hoods
  - l. Carbon core composites



THOMPSON  
& LITTON

**KICK-OFF MEETING  
ATTENDANCE RECORD  
MONDAY, MAY 13, 2024**

Bluefield Create Center  
T&L Project No. 18027

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Bruce Mutter	CAAT, INC	(304) 425-6946	BM	bmutter@cartinc.com
Jeff Harman	OMNIS BUILDING	704-431-7142	[Signature]	jharman@omnisbuilding.com

**APPENDIX B**  
**ADJACENT SITE EVALUATION**

### **Existing Site Conditions**

The site is situated on private property along John Nash Blvd. and utilizes existing access points through the West Virginia Division of Highways (WV DOH) controlled access. If upon further analysis, additional or alternate access routes from John Nash Blvd. are required/desired or if the proposed development is considered a significant change in use of the existing entrances, WV DOH and Federal Highway Administration (FHWA) approval will be required as John Nash Blvd. (U.S. Route 52) within the project area is a Controlled Access Highway. The site has excellent access to major highways in the area with Interstate 77 and U.S. Route 460 running parallel to John Nash Blvd. Exit 1 is the primary exit from Interstate 77 to John Nash Blvd. and directs traffic to Bluefield, WV.

The existing infrastructure in place along John Nash Blvd. includes fiber optic, natural gas, electric distribution, water service, and sanitary sewer. All illustrated utilities on the attached exhibits are approximate and their locations could vary greatly based upon field information.

This area of West Virginia is considered to have karst geology, therefore, the potential for sinkholes within all properties within the study is relatively high. Multiple features within the project area have been identified as potential sinkholes utilizing lidar information. Consequently, sinkhole mitigation should be expected when considering any of these sites for development.

Permitting requirements will most likely require post development stormwater discharges to be less than that of pre-development discharges. No additional flows generated from any site shall contribute an increase in flow to an existing sinkhole. Depending on the existing stormwater infrastructure located along John Nash Blvd., more sophisticated analysis will be required to ensure adequate post development discharges during various storm events.

Preliminary development costs have been calculated for the site. These costs could vary drastically based on the individual contractor, the total project size, and many other factors. Cost estimates are based on recently completed projects in the vicinity, and economy of scale based on site size.

### **Site Specific Description**

WV Create Building Site (Exhibit EX-4 & 4A) This proposed site is located within tax parcel 28-02-0027-0173-0000 and is owned by Wisdom Media Group, Inc. Exhibit 4A illustrates the proximity of the WV Create Building to Interstate 77. The property primarily consists of steep, fully forested mountainous terrain except for a small portion adjacent to John Nash Blvd. where the existing WV Create Building with paved access and parking is located. Topographic relief across the property ranges from a maximum elevation of 2,740 feet on the southwestern perimeter and a minimum elevation of 2,290 feet at the furthest northern extent of the property. Existing slopes range from 3% surrounding the existing WV Create Building to 30% along the mountainous terrain.

No USGS blue-line streams have been identified on this property. However, there is evidence which indicates the possibility of one (1) sinkhole. Further site investigation including geotechnical investigation will be required to determine if the existing site feature is a sinkhole. Sinkhole mitigation may be required. All surface waters sheet flow into manmade conveyances along John Nash Blvd. or sheet flow down the mountainside into natural conveyances which ultimately discharge through a combination of manmade and natural channels into the East River unless intercepted by an existing sinkhole.

Preliminary site analysis in regard to potential grading, stormwater management, utility access, and vehicular access routes onto the site/property from John Nash Blvd. has presented the following results. It was determined that within the northern region of the property, the earthwork to establish building pads, access roads, and stormwater management facilities would be difficult and not economically feasible. Therefore, the portion of the property in close proximity to the existing WV Create Building which has gentler slopes and adequate space for expansion was chosen for the primary focus area. In order to maximize the usable space, balance the earthwork, and prevent excessive slope heights, a total potential pad area for building expansion, extended parking lots, and drive aisles was designed with a total area of 3.22 acres. Average slopes across the potential pad are approximately 2.25% with a required cut volume of approximately 22,000 cubic yards and a required fill volume of approximately 33,600 cubic yards. The net volume of 6,000 cubic yards of excess material accounts for the abundance of topsoil and the possibility of unsuitable soils/rock anticipated to reside onsite. Given the site's smaller area, a single location was

identified to support a below ground detention facility for stormwater management. Above ground stormwater detention is feasible with infrastructure supporting the system easily routed. However, this would severely limit the overall constructable area in respect to hardscape or building expansion. Permanent stormwater diversions are recommended to route stormwater from the above mountainside and developed property around the potential site and into detention facilities or natural conveyances to eliminate excessive run-on and decrease the post development peak discharges.

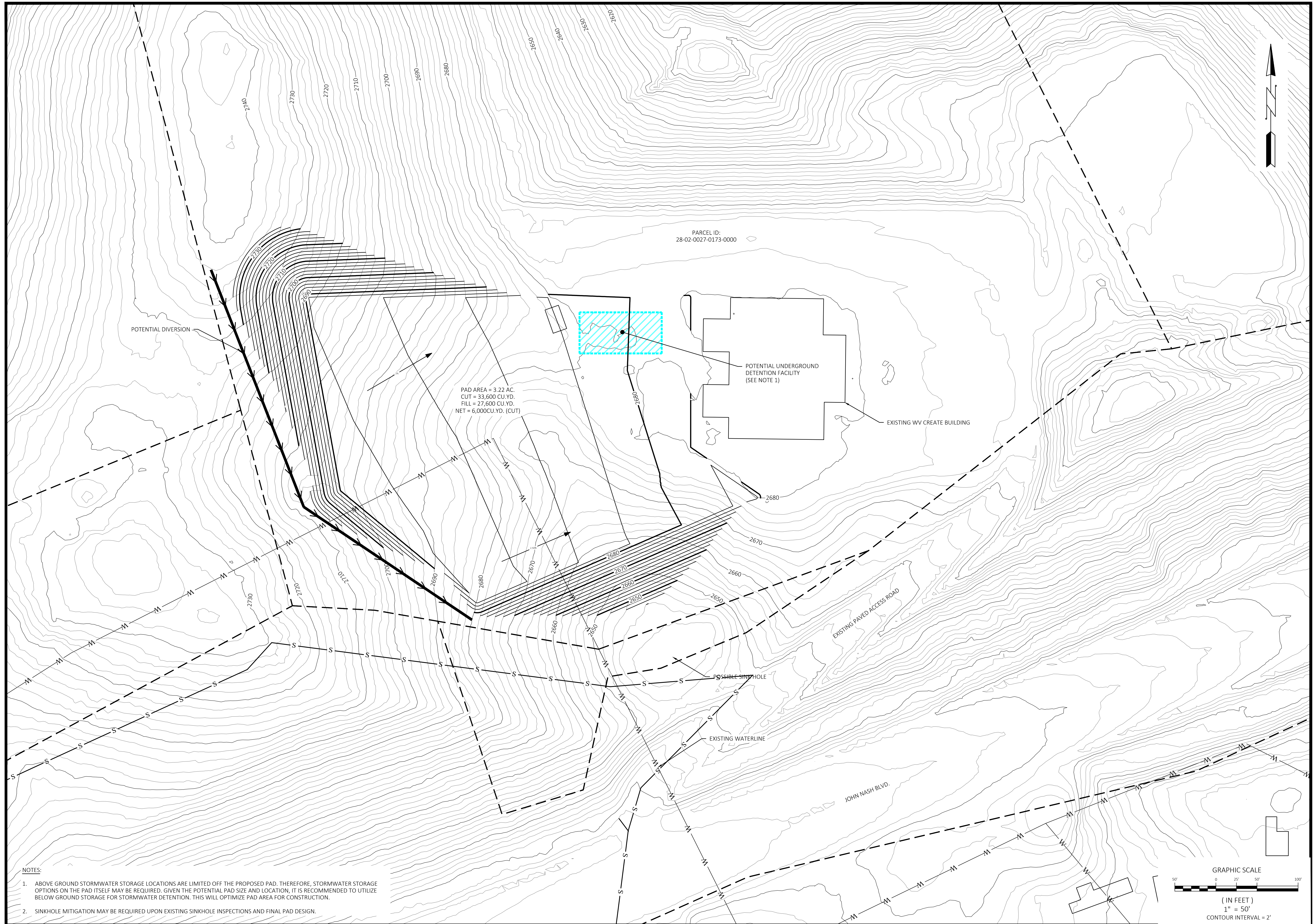
Existing utilities such as sanitary sewer, water distribution, fiber optic, and electric distribution are already present and service the WV Create Building. Demolition of any of these utilities, other than a potential water line, is not anticipated and should not affect the potential development. The water line shown on Exhibit EX-4 will require field verification. If it is found that this water line is installed as illustrated, utility relocation will most likely be required.

The existing entrance for the WV Create Building provides a break in the controlled access off of John Nash Blvd. and access onto the property. It is not anticipated that an access road will be required for this development and only extensions of the existing pavement.

A cost estimate was prepared for this site to include a preliminary baseline rough order of magnitude. This estimate should not be considered final and in no way fully represents the cost of the development. Access road construction has not been considered within the estimate. See Figure 4 below.

Figure 4: Wisdom Media Building Site Preliminary ROM

<b>CONSTRUCTION COSTS:</b>	
Demolition, Clearing & Grubbing @	\$13,630
Earthwork @	\$241,000
Stormwater Collection & Conveyance @	\$15,900
Stormwater Management (Quantity and Quality) @	\$75,000
Erosion & Sediment Control (12 Months) @	\$33,430
Mobilization, Bonds, Taxes and Insurance @	\$20,000
Engineering/RPR Services @	\$50,000
<b>Sub-Total Site Development Construction Cost</b>	<b>\$448,960</b>
<b>Contingency (20%)</b>	<b>\$89,792</b>
<b>Total Construction Cost (TCC)</b>	<b>\$538,752</b>
<p>Please be advised that since Thompson &amp; Litton has no control over the cost of labor, materials, equipment, or services furnished by others, or over Contractor(s') methods of determining prices, or over competitive bidding or market conditions, our opinions of probable project cost and construction cost provided herein are made on the basis of our experience and qualifications and represent our best judgment as experienced and qualified Professional Engineers familiar with the construction industry. Thompson &amp; Litton cannot and does not guarantee that proposals, bids, or actual project construction cost will not vary from those opinions of probable costs prepared by Thompson &amp; Litton.</p>	



- NOTES:
1. ABOVE GROUND STORMWATER STORAGE LOCATIONS ARE LIMITED OFF THE PROPOSED PAD. THEREFORE, STORMWATER STORAGE OPTIONS ON THE PAD ITSELF MAY BE REQUIRED. GIVEN THE POTENTIAL PAD SIZE AND LOCATION, IT IS RECOMMENDED TO UTILIZE BELOW GROUND STORAGE FOR STORMWATER DETENTION. THIS WILL OPTIMIZE PAD AREA FOR CONSTRUCTION.
  2. SINKHOLE MITIGATION MAY BE REQUIRED UPON EXISTING SINKHOLE INSPECTIONS AND FINAL PAD DESIGN.

PRELIMINARY

JOHN NASH BLVD. FEASIBILITY STUDY  
 CITY OF BLUEFIELD, WV  
 WW CREATE BUILDING SITE

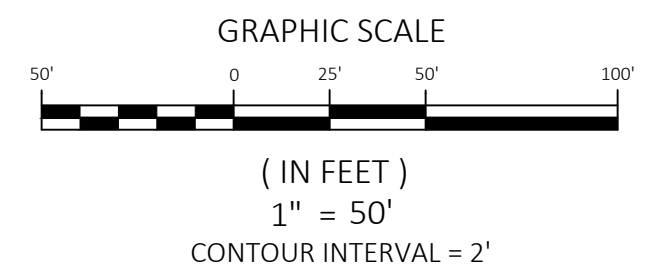
No.	Date	Purpose of Document Issue

Designed	GRD/ACM
Drawn	GRD/ACM
Checked	MAM
Date	1-18-2023

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16926



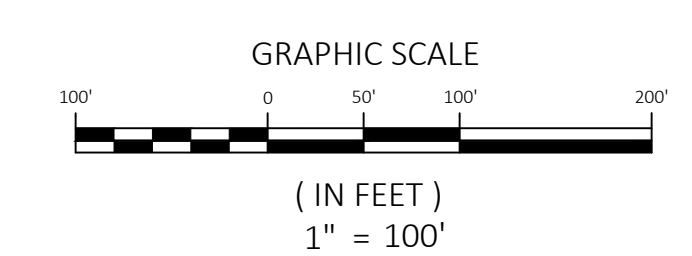
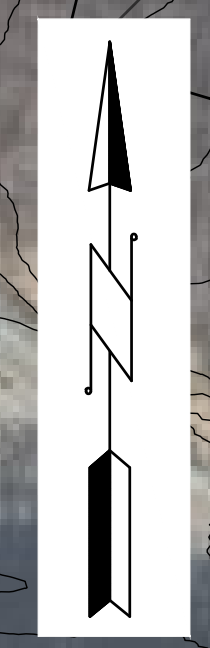
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**EX-4**



## **Findings**

The major findings that emerged from this preliminary site evaluation and feasibility study include the following.

- Site is conducive to development/building expansion with a 3.22-acre pad possible.
- Earthwork required to achieve the pad elevation and dimensions is not substantial.
  - o Cut = 33,600 cubic yards
  - o Fill = 27,600 cubic yards
  - o Net = 6,000 cubic yards (topsoil stripping and replacement, unsuitable material)
- An additional access road is not required due to the proximity to the existing WV Create Building.
- Above ground stormwater detention is possible but not preferred due to site constraints. Above ground detention would limit available areas for parking, buildings, or drive aisles. Therefore, below ground detention is the best option for this site.
- The site does not experience a large amount of offsite stormwater run-on.
- Utility infrastructure has already been extended to the site for the existing WV Create Building. However, one potential water line may require relocation if found to be illustrated correctly.
- One (1) sinkhole is possibly located on or adjacent to this site and near John Nash Blvd.
- The northern portions of the property, as well as the adjacent properties are not suitable for grading activities due to the steep mountainous terrain.
- Estimated Rough Order of Magnitude Construction Cost = \$538,752 (Preliminary)



PRELIMINARY

JOHN NASH BLVD. FEASIBILITY STUDY  
 CITY OF BLUEFIELD, WV  
 WV CREATE BUILDING SITE  
 EXPANDED LOCATION MAP

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**EX-4A**