

APPENDIX

CIVIL ENGINEERING NARRATIVE - PROVIDED BY LOUCKS, INC.

Case # PL202500212

Civil engineering systems will be designed in accordance with applicable codes, as well as additional specific standards and procedures of the State of Minnesota, Hennepin County, the City of Bloomington and Nine Mile Creek Watershed District. These systems include storm drainage, sanitary sewer, domestic water, fire protection water, grading, pavement layout and thickness design, and other miscellaneous site features that will be coordinated with the building architecture and engineering.

Selective Demolition

The site is currently developed containing an existing building, bituminous parking, concrete curb and gutter, retaining walls, sanitary sewer, storm sewer, and watermain. Demolition schedule for the existing building and surrounding infrastructure should be confirmed and coordinated with the Architecture, Structural, Mechanical, and Electrical.

Asphalt Paving

The project includes 2 driveway entrances and a bituminous drive serving the salt shed, wash bays and brine building. The drive aisle will be constructed with a heavy-duty bituminous pavement section. Heavy-duty section pavement depths will be determined after the soil boring report has been received and shall consist of bituminous pavement meeting MNDOT Spec. 2360 and aggregate base meeting MNDOT Spec 3138. All bituminous pavement sections shall be verified by the geotechnical report.

Concrete Pavement

Concrete work will include concrete curbing, concrete pavement, and mechanical equipment pads. Concrete pavement to meet MNDOT Spec 2301 with aggregate base meeting MNDOT Spec 3138. Concrete curb and gutter shall be B612, surmountable, or flat style curbing. Mechanical pad sections shall be designed by equipment provider. All concrete pavement sections to be verified by the geotechnical report. All concrete pavement sections shall be verified by the geotechnical report.

Site Lighting

Exterior lighting will be required for the new buildings and parking lot. Site photometrics shall meet City requirements. Refer to Electrical Narrative for exterior lighting assumptions.

Water Distribution

Existing six (6) inch and eight (8) inch watermain lines are currently serving the existing building. One of these services will be used to serve the proposed brine building and the remaining existing service will be capped and removed. Coordinate exact location of the water service with Architectural and Mechanical. Proposed size for the services shall be verified by the mechanical engineer. The service shall be stubbed five (5) feet from the exterior footprint of the proposed building. Service shall have a minimum of seven and one half (7.5) feet of cover and be bedded with a minimum of six (6) inches of course filter aggregate.

Sanitary Sewage

The existing building is currently being served by a 6" VCP sanitary sewer line and a 6" PVC sanitary sewer line. The service to the proposed building will tie into one of these existing service pipes, to reduce the amount of disturbance in the street. The unused line will be capped. Coordinate exact location of sanitary service with Architectural and Mechanical.

Floodplain Alterations

Floodplain compensatory storage will be calculated for the site. Nine Mile Creek Watershed District requires a permit whenever altering or filling in land below the district's 100-year floodplain elevation.

Storm Drainage

Stormwater management will be an important consideration for this site. The City of Bloomington stormwater management requirements are triggered if more than 50% of the existing impervious surface on the parcel is disturbed. Once the threshold is met, the site will need to meet the volume retention, rate control, and water quality requirements for the new and reconstructed impervious surface of the project. Stormwater management will be handled mainly through surface drainage to infiltration basins. The basins will outlet to the existing storm sewer on 97th Street West or to the existing storm sewer on James Avenue South.

Earthwork

Grading will be required for the proposed building footprint, proposed parking lots and drive aisles, and utility installation. It is anticipated that the building addition finished floor elevation will be approximately 814.2+/-, which is 2 feet above the 100- year flood elevation of 812.2. This elevation is to be verified by the watershed. Parking areas will be graded to drain away from the building. Mass grading of the project area is anticipated to accommodate the building, parking, utilities, and stormwater areas. With a goal of a balanced earthwork on the site, the excess suitable material in the ponding areas can be used as fill to achieve the required floor elevation for the buildings. Refer to the geotechnical report for existing subsurface site condition analysis and construction recommendations including, but not limited to:

- Reuse of on-site soils
- Groundwater and recommendations for excavation dewatering
- Site grading and subgrade preparation
- Pavements and exterior slabs
- Trench excavation and backfill
- Exterior utility supports
- Frost protection

The building, parking lots, drive aisles, and utility trenches should be compacted to the recommended percentage based on the geotechnical report.

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LANDSCAPE ARCHITECTURE NARRATIVE - PROVIDED BY LOUCKS, INC.

Landscape Architectural work will be designed in accordance with applicable codes, as well as additional specific standards and procedures of the State of Minnesota, Hennepin County, and the City of Bloomington. Site vegetation will be coordinated with the building architecture and engineering.

CODE COMPLIANCE

The sections below were taken from the City of Bloomington code of ordinances regarding required landscaping.

Minimum Number of Trees and Shrubs

Except for single and two family uses, development must at a minimum provide the following numbers of trees and shrubs in addition to any trees and shrubs required for screening in Section 21.301.15:

(A) One tree per 2,500 square feet of Developable Landscaping Area

(B) One shrub per 1,000 square feet of Developable Landscaping Area.

- Up to 50% of the required shrubs may be perennial plants.

- Four perennial plants equal one shrub.

(C) Developable Landscaping Area is defined as the total area of a development site or phase minus the portion of that area within: (i) a natural water body; (ii) a protected wetland; (iii) a permanent Significant Natural Wooded Area; and/or (iv) a Scenic Easement.

(D) Existing healthy deciduous trees greater than four caliper inches or existing healthy evergreen trees greater than six feet in height that are located within the Developable Landscaping Area and are not identified on the City's prohibited plant species list (see Section 18.03) may be credited toward the minimum required trees on a site.

Minimum Tree Size

Required trees must meet the following minimum size standards:

(A) Overstory trees must be at least two- and one-half caliper inches at planting.

(B) Single stem ornamental trees must be at least one- and one-half caliper inches at planting; and

(C) Evergreen trees and multi-stem ornamental trees must be at least six feet in height at planting.

Minimum Landscape Yard

An area for landscaping, kept free of parking, storage, or stormwater ponds, must be provided around the perimeter of a site. Unless otherwise specified in the City Code, the landscape yard must be a minimum of 20 feet deep when adjacent to public or private streets and a minimum of five feet deep when not adjacent to streets. Sidewalks, bus shelters and entrance drives may be located within the landscape yard. Buildings may be located within the landscape yard when otherwise allowed by the City Code.

Streetscape

In areas where a district or street specific streetscape plan has been adopted by the City Council, development must provide landscaping as set forth in the district or street specific streetscape plan. Streetscape plantings located within the property lines of the site may be credited toward the required number of trees and shrubs. Streetscape plantings in the public right of way shall not be credited toward the required number of trees and shrubs. Landscaping placed or removed in the public right of way must receive City approvals for right of way plantings (see Section 18.07) and must conform with City right of way planting policies.

Parking Island Trees

A minimum of one deciduous tree must be provided per parking lot island, with the following exceptions: (A) No trees are required in parking islands used for stormwater management purposes; (B) No trees are required in parking islands within structured parking facilities; and (C) No trees are required in parking lots with 50 or fewer spaces.

LANDSCAPE MATERIALS

Seeding

Turf Seeding: A salt tolerant boulevard seed mix will be used for all areas of turfgrass. Erosion control blanket will be used to prevent erosion while seed is establishing.

A minimum of 6" of topsoil will be required for all areas receiving sod or turf seed.

Native Seeding: Stormwater basin areas will receive a native seed mix that includes flood tolerant species that can survive period flooding as the basin water level fluctuates. Areas seeded in native plantings will not likely have irrigation unless a temporary system is considered to help with germination and establishment. Slopes of 3:1 or steeper, and all drainage swales, shall receive erosion control fabric immediately after seeding.

A qualified sub-contractor with a history of a minimum of 5 years of proven successful prairie installation will be required for this project. Seeding dates, methods, and a long term (minimum 3 years) maintenance plan will also be required to be submitted by the sub-contractor.

Shrub and Perennial Plantings

Shrub and perennial plantings will occur at key pedestrian and vehicular locations, and at building entries. Shrub and perennial beds will be separated from turf areas using black painted steel edging and be mulched with shredded bark mulch – color to be determined. In addition, rock mulches and cobble may be used in areas as a maintenance strip, add visual interest, or reduce maintenance.

A minimum of 18" of topsoil will be required for shrub and perennial planting areas.

Irrigation

An underground irrigation system will be implemented if desired by the city.

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MECHANICAL ENGINEERING NARRATIVE - PROVIDED BY EMANUELSON-PODUS, INC.

PLUMBING

- (1) 6" domestic water service serving building.
- Potable cold water, hot water and recirc serving restroom plumbing fixtures with 6 gallon electric water heater.
- RPZ backflow preventor serving non-potable systems.
- (2) Hotsy pressure washers serving (4) single wand trolley system in washbay.
- 2" non-potable to brine room
- 5" non-potable to wash bay serving (2) hose bibs, (2) 1-1/2" threaded hose connections and (2) 2-1/2" threaded hose connections.
- (1) 6" domestic water service serving outside wash down pad, with RPZ backflow preventor and (3) 3" threaded hose connections.
- No Fire Protection
- 6" sanitary sewer serving building plumbing fixtures, mech room floor drains and wash bay trench drains.
- Flammable waste trap serving trench drains in the wash bay
- No internal roof drains and no storm sewer
- Natural gas meter serving pressure washers, boilers and make-up air unit.
- No plumbing systems in salt building

HVAC

- (2) wall mount condensing boilers serving radiant floor and snow melt zones. All interior spaces to have radiant floor, exterior concrete slab in front of wash bay and wash down pad to have snow melt.
- Washbay served by roof mounted gas fired make-up air unit, roof exhaust fan with fume detection, humidity and occupancy control.
- Back-up electric unit heaters in wash bay and brine room.
- Supply fan with electric duct coil to serve brine room for minimum code ventilation.
- Building to have standalone control for all systems.
- Salt building natural or mechanical ventilation required per Minnesota Mechanical code to be provided by the salt building vendor.

ELECTRICAL ENGINEERING NARRATIVE - PROVIDED BY EMANUELSON-PODUS, INC.

- A 400 amp, 480/277 volt, 3 phase, 4 wire electrical service fed from a pad mounted transformer to serve electrical and mechanical loads.
- Power and receptacle connections as required.
- Connection to mechanical equipment as required.
- LED lighting throughout including LED pole and building mounted site lighting.
- Lighting controls to meet Minnesota Energy Code.
- Performance based fire alarm as required.
- Data/Telephone design will NOT be provided.
- CCTV design will NOT be provided.
- Access control system design will NOT be provided.

STRUCTURAL ENGINEERING NARRATIVE - PROVIDED BY MEYER BORGMAN JOHNSON

SALT BUILDING

This building is anticipated to be an unheated PEMB/fabric, pre-engineered storage building with the design of the structure by others. The footprint of the building will be approximately 160 feet by 125 feet (height TBD). Preliminary plans have assumed the building will be constructed in 5 equal bays and 1 larger bay for overhead door access. The manufactured building will be designed by the supplier. The supplier will be responsible for providing construction documents signed and sealed by an engineer licensed in the state of Minnesota for construction of the building superstructure and cladding. MBJ will be engineer of record for the foundations only; not for the manufactured building by others. MBJ will coordinate with the manufactured building supplier for performance requirements, load criteria and foundation design. MBJ anticipates the engineer of the manufactured building will provide final loads to the design team for design or confirmation of the design of the foundation.

BRINE BUILDING

This building is anticipated to be a heated structure with cast-in-place concrete perimeter walls at the exterior and clear span steel joists/beams supported metal roof deck. The footprint of the building will be approximately 130 feet by 50 feet with a monoslope roof parallel to the short dimension of the building (approx. 32' tall on the high side, 24' tall on the low side). Roof structure will span the short dimension of the building. Large openings are present in the west elevation, which will have concrete "beam" reinforcement placed in the cast in place walls for load transfer. Soil retention may be necessary in the SE corner of the building, which will be addressed by the perimeter cast-in-place concrete walls.